IBM - POUGHKEEPSIE
DEPT B55 BLDG 990
March 29, 1963

7 0 9 0 / 7 0 9 4 D I A N O S T I C E N G I N E E R I N G
D I A G N O S T I C P R O G R A M R E L E A S E

DIAGNOSTIC PROGRAM - XCOMC

TITLE - 704/7090 or 704/7094 Compatibility Program

C O M M E N T S

See page 3 of the write-up for purpose of update release.

DISTRIBUTION - All 7090 and 7094 installations

ENCLOSURES - 68 Program pages
235 Binary card numbered 000 - 234

REQUESTS FOR DATA SYSTEMS DIVISION SERIES DIAGNOSTIC WRITE-UPS,
LISTINGS, AND/OR CARDS (INCLUDING OPTIONAL AND SPECIAL FEATURES)
SHOULD BE DIRECTED TO---
PRODUCT RELIABILITY AND SERVICEABLITY ENGINEERING
DEPARTMENT B55 , BUILDING 990
POUGHKEEPSIE, NEW YORK
-------INCLUDE CUSTOMER'S NAME AND INSTALLATION NUMBER--------

XCOMC

704/7090 or 704/7094

COMPATIBILITY PROGRAM

TABLE OF CONTENTS

PURPOSE OF CHANGE

1. To allow this program to be run on the 7094

2. This program now contains a routine to printout unexpected traps showing the location +1 of where the trap occurred.

3. There are 3 new optional routines which check BTTX and ETTX (709 instructions). See Section C - 4.

4. To update printouts to conform with present level of program i.e. XCOMB to be XCOMC

5. Sense Switch 5 can now be used to provide a clean program halt. The program will now run properly if it is desired not to change mades.

MACHINE EC LEVEL

7090- EC 248939

For the BTTx and Ettx test routines, the optional change called out in the 7090. Service Aid #81 has to be installed to insure proper operation of those test routines.

7094- EC 252597

XCOMC

704/7090/7094 COMPATIBILITY DIAGNOSTIC

A. UNIT TESTED - CPU 1 and 2 and CORE STORAGE

1. Purpose of Diagnostic

a. Check ability to nullify 32K storage from 16K.

b. Check ability to nullify 32K storage from 8K.

c. Check 7090/7094 in specified modes will trap when encountering 704 or 7090/7094 SELECT, SENSE, CPY, CAD or LDA instructions.

d. Check ability of 7090/7094 to perform floating point operations as per 704.

e. Check Reset and Load buttons restore the machine to 7090/7094 operating Mode.

f. For reliability, execute 9M05B with compatibility triggers on.

2. Method of Test

a. The program is capable of checking correct operation with 32K storage nullified from either 8K or 16K.

B. MACHINE UNITS AND STORAGE AREA

1. Units Required

CPU, 32K Core Frame, Channel A, 716 Printer (chan A), 711 Card Reader (for loading program), and two tapes on Channel A (1 and 2).

2. Storage Requirements

A 32K memory is required for the oepration of this program.

B. 2. 00030 - 06347 9M05B with modified monitor.
06500 - 06553 Modified version of 9M05B.
10000 - 13170 Basic compatibility test routines.
20007 - 20017 To check storage nullified from 8K.

40000 - 40006 Compatibility trap exit routine.
40007 - 40017 To check storage nullified from 16K.

40020 - 40125 To check illegal traps from 9M05B.

C. PROGRAM CONTROL

1. Card Deck

XCOMC	000	9LD02 - High End Loader.
	001 - 147	9M05B
	148 - 150	Additions to 9M05B Monitor.
	151 - 152	Modified version 9DEPR
	153 - 231	XCOM basic routines
	232	Tranfer Card - TRA 12243
	233 - 234	Two blank cards

2. Sense Switch Control

Sense Switches 1 to 4 remain standard as outlined in DEPRX.

Sense Switch 5

UP - Continue executing program in specified storage mode.
Go to check SSW 6.

DN - Halt at location 12250. Set switches for desired nullify
storage mode. (See section F1 and F5)

Sense Switch 6

UP - End XCOM and simulate Load Cards or Tape.

DN - Repeat XCOM

3. Senes Light Control

a. Refer to write-up of 9M05B to become familiar with the use of
the sense lights in executing 9M05.

b. IN basic XCOM test routines -
Sense light 4 ON - Indicates a 1 word record is being written on TAPE FRAME 2 on Channel A.

4. Sign Key (S)

UP - Load next diagnostic program from tape.

DN - Load next diagnostic program from cards.

Note: This Load sequence is set just after pushing start on the first halt at 12250.

Key 34

UP - Bypassing testing BTTx and ETTx instructions (709 instructions).

DN - Test BTTx and ETTx instructions for trapping

Note: see Page 20

Key 35

UP - Set program to check 16K nullify storage.

DN - Set program to check 8K nullify storage.

D. NORMAL STOPS

1. 11462 RESET BUTTON TEST - Push reset and start buttons to continue.

2. 11613 LOAD BUTTON TEST - Push load tape button to continue.

3. 12250 Set key 35 and console switch for desired nullified storage and set key 34 to run or bypass BTTx and ETTx routines. Push start to continue. (On initial pass set sign key also).

E. ERROR STOPS (All errors in program are indicated by halts)

1. Basic routines - consult comment associated with HTR or HPR.

2. 9M05B - With a stop at location 06520 or 06546 true location where error occurred is displayed in XRC. Refer to location in listing shown in XRC to indicate type of error with pertinent procedure instructions.

F. PRINTOUTS

1. Program identification and size of nullified storage testing is printed out immediately after a nullify storage selection is made if sense switch 3 is up.

2. The printer will print two lines if the RESET BUTTON routines are executed successfully.

3. Illegal traps from 9M05 showing the location plus one from where the trap occurred are printed out.

4. With sense switches 3 and 5 up and sense switch 6 down, the program is repeating with the same selected nullify storage and the printer will indicate every 100 passes made.

5. Whenever sense switch 5 is depressed, (an indication that the alternate nullify storage size is to be tested), the total number of passes completed with the size of nullify storage tested is printed out if sense switch 3 is up.

6. With sense switch 3 and 6 up, the total number of passes completed by the program is printed out prior to loading the next program.

G. COMMENTS

1. On a machine with only a 16K nullified storage, sense switch 5 can be used to provide a clean halt.

2. Although the XCOM basic routine program is contained within locations 10000 - 13260 the program maintains an exit routine for a SELECT, SENSE, CPY, CAD or LDA trap in lcoations 40001-40006. Locations 40007 - 40017 are used when storage is nullified from 16K and locations 20007 - 20017 are used when storage is nullified from 8K.

3. Locations 40020 - 40225 contain a routine inserted to determine locations trapped from in 9M05

G. 4. If the sign key is up and sense switch 3 is down the reset and load button test are bypassed

5. A one word record is written on tape to avoid run-a-way.

6. 9M05 uses a modified version of 9DEPR which can be found on Page 66 of the listing.

7. Sense switch 5 has been made ineffective when executing 9M05 and therefore the FDH stop at Location 00621 is bypassed.

8. All unoccupied storage locations are filled with STR when executing XCOM and TSX 06174 when executing 9M05

9. 9M05 monitor location 06253 has been alterd to transfer to location 06273. Location 06273 - 06347 provide routines to check the correct status of the campatibility triggers after execution of a 9M05 test, the 2 page instruction sequence can be found just before the modified version of DEPR of the listing.

10. A manual transfer to any routine in either section of XCOM should be to the initial instruction of the routine. To avoid a false monitor error stop, leave the keys down, since both monitors check the keys for a manual transfer.

11. When encoutering an error stop, refer to the appropriate listing for comments and instructions to determine the type of error.

12. BTTx with trigger ON, if selected to be tested, is only tested on first pass. This prevents wearing out the tape in one spot due to rewinds. If Key 34 was not down on the first pass, this routine will never be performed.

File Attachments: Source Cards Deck

```
*                        X C O M C

*              704/7090/7094 COMPATIBILITY PROGRAM
*               FOR 16/16 OR 8/24 NULLIFY STORAGE

                10000         ORG 4096

*                           COMMENCE TEST


*CHECK ESNT DIVIDES STORAGE CORRECTLY

10000  0774 00 1 10000   AY    AXT *,1       THIS LOCATION TO XRA
10001  0020 00 0 12120         TRA RESET     INITIALIZE
10002 -0021 00 0 10003         ESNT *+1      TURN ON NULLIFY TGR

*FOR 16/16 NULLIFY DIVISION, 37777 SHOULD BE ONLY LOCATION REACHED.
*FOR 8/24 NULLIFY DIVISION, 17777 SHOULD BE ONLY LOCATION REACHED.

10003  0020 00 0 77777         TRA 32K       TRA TO LOC 37777 ON 16/16 K
                                             TRA TO LOC 17777 ON  8/24 K

10004  0760 00 0 00162   AY1   SWT 2         ERROR
10005  0420 00 0 00000         HPR           TRA 37777 ON 8/24K
                                             TRA 17777 ON 16/16K
10006  0020 00 0 10011         TRA *+3

10007  0760 00 0 00162   AY2   SWT 2         ERROR
10010  0420 00 0 00000         HPR           TRA 77777 ON 8/24 OR 16/16K

10011  0760 00 0 00161   AY3   SWT 1         TEST SWITCH 1
10012  0020 00 0 10014         TRA *+2       CONTINUE
10013  0020 00 0 10000         TRA AY        REPEAT


*CHECK TRA INSTRUCTION DOES NOT TURN ON MEMORY NULLIFICATION TRIGGER

10014  0774 00 1 10014   AZ    AXT *,1       LOCATION TO XRA
10015  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10016  0500 00 0 13031         CLA K+1       L TRA AZA-2
10017  0601 00 0 00007         STO 7         STORE IN LOCATION 00007
10020  0500 00 0 10017         CLA *-1       SAVE ADDRESS FOR NEXT
10021  0621 00 0 12145         STA COR       ROUTINE INITIALIZATION


10022  0020 00 0 10023         TRA *+1       IS NULLIFY TRG TURNED ON
                                           IF NO, TRA TO LOCATION
10023  0020 00 0 00000   FXM01 TRA **          20007 OR 40007

10024  0760 00 0 00162         SWT 2         ERROR
10025  0420 00 0 00000         HPR           CHECK COMPONENTS
                                             MENTIONED ABOVE
10026  0760 00 0 00161   AZA   SWT 1         TEST SWITCH 1
10027  0020 00 0 10031         TRA *+2       CONTINUE
10030  0020 00 0 10014         TRA AZ        REPEAT
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10031  0774 00 1 10031   A     AXT *,1       THIS LOCATION IN XRA
10032  0020 00 0 12042         TRA MONIT     MONITOR PROGRAM
10033  0500 00 0 13032         CLA K+2       L TRA AA
10034  0601 00 0 00011         STO 9         STORE IN LOCATION 00011
10035  0500 00 0 10034         CLA *-1       SAVE ADDRESS FOR NEXT
10036  0621 00 0 12145         STA COR       ROUTINE INITIALIZATION

10037 -0021 00 0 10040         ESNT *+1      ENTER NULLIFICATION MODE

10040  0020 00 0 00000   FXM02 TRA **      TRY TRA TO UPPER HALF OF STORAGE
                                           LOCATION- 20011 OR 40011.

10041  0760 00 0 00162         SWT 2         ERROR
10042  0420 00 0 00000         HPR           CHECK NULLIFY TRIGGER

*CHECK ABILITY TO TURN OFF NULLIFY TRIGGER FOR FULL STORAGE USE

10043  0500 00 0 13033   AA    CLA K+3       L TRA AB-5
10044  0601 00 0 00012         STO 10        STORE IN LOCATION 00012
10045  0500 00 0 10044         CLA *-1       SAVE ADDRESS FOR NEXT
10046  0601 00 0 12146         STO COR+1     ROUTINE INITIALIZATION
10047 -0754 00 0 00000         PXD           CLEAR ACCUMULATOR
10050  0560 00 0 05551         LDQ 2921      L BIT IN MQ POSITION 1


10051 -0760 00 0 00010         LSNM          EXIT NULLIFICATION MODE
10052  0020 00 0 00000   FXM03 TRA  **     TRA TO LOC  20012 OR 40012.

10053  0760 00 0 00162         SWT 2         ERROR
10054  0420 00 0 00000         HPR           CHECK NULLIFY TRIGGER

*CHECK LSNM DID NOT CONDITION RND

10055  0100 00 0 10060         TZE AB        PR SIGN MINUS, NO RND

10056  0760 00 0 00162         SWT 2         ERROR
10057  0420 00 0 00000         HPR           PR SIGN MINUS SHOULDNT RND

10060  0760 00 0 00161   AB    SWT 1         TEST SWITCH 1
10061  0020 00 0 10063         TRA *+2       CONTINUE
10062  0020 00 0 10031         TRA A         REPEAT


*CHECK TTR +0021 HAS NO EFFECT ON NULLIFY TRIGGER

10063  0774 00 1 10063   A1    AXT *,1       THIS LOCATION IN XRA
10064  0020 00 0 12042         TRA MONIT     CHECK PROGRAM MONITORED
10065  0500 00 0 13034         CLA K+4       L TRA A1A-2
10066  0601 00 0 00013         STO 11        STORE IN LOCATION 00013
10067  0500 00 0 10066         CLA *-1       SAVE ADDRESS FOR NEXT
10070  0621 00 0 12145         STA COR       ROUTINE INITIALIZATION


10071  0021 00 0 10072         TTR *+1
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*CHECK NULLIFY TRIGGER STILL OFF

10072  0020 00 0 00000   FXM04 TRA  **     TRA TO LOC  20013 OR 40013.

10073  0760 00 0 00162         SWT 2         ERROR
10074  0420 00 0 00000         HPR           CHECK NULLIFY TRIGGER

10075  0760 00 0 00161   A1A   SWT 1         TEST SWITCH 1
10076  0020 00 0 10100         TRA *+2       CONTINUE
10077  0020 00 0 10063         TRA A1        REPEAT


*CHECK TEFD -0031 HAS NO EFFECT ON NULLIFY TRIGGER

10100  0774 00 1 10100   A2    AXT *,1       THIS LOCATION TO XRA
10101  0020 00 0 12042         TRA MONIT     CHECK PROGRAM MONITORED
10102  0500 00 0 13035         CLA K+5       L TRA A2A-2
10103  0601 00 0 00014         STO 12        STORE IN LOCATION 00014
10104  0500 00 0 10103         CLA *-1       SAVE ADDRESS FOR NEXT
10105  0621 00 0 12145         STA COR       ROUTINE INITIALIZATION


10106 -0031 00 0 10110         TEFD *+2
10107  0761 00 0 00000         NOP
10110  0020 00 0 00000   FXM05 TRA  **     TRA TO LOC  20014 OR 40014

10111  0760 00 0 00162         SWT 2         ERROR
10112  0420 00 0 00000         HPR           CHECK NULLIFY TRIGGER

10113  0760 00 0 00161   A2A   SWT 1         TEST SWITCH 1
10114  0020 00 0 10116         TRA *+2       CONTINUE
10115  0020 00 0 10100         TRA A2        REPEAT


*CHECK RND +0760---10 HAS NO EFFECT ON NULLIFY TRIGGER

10116  0774 00 1 10116   A3    AXT *,1       THIS LOCATION TO XRA
10117  0020 00 0 12042         TRA MONIT     CHECK PROGRAM MONITORED
10120  0500 00 0 13036         CLA K+6       L TRA A3A
10121  0601 00 0 00015         STO 13        STORE IN LOCATION 00015
10122  0500 00 0 10121         CLA *-1       SAVE ADDRESS FOR NEXT
10123  0621 00 0 12145         STA COR       ROUTINE INITIALIZATION
10124 -0021 00 0 10125         ESNT *+1      ENTER NULLIFY MODE

10125  0760 00 0 00010         RND
10126  0020 00 0 00000   FXM06 TRA  **     SHOULD TRA TO LOC 00015.

10127  0760 00 0 00162         SWT 2         ERROR
10130  0420 00 0 00000         HPR           CHECK NULLIFY TRIGGER

10131  0760 00 0 00161   A3A   SWT 1         TEST SWITCH 1
10132  0020 00 0 10134         TRA *+2       CONTINUE
10133  0020 00 0 10116         TRA A3        REPEAT
```

```
*CHECK XR INCREMENTED IN NULLIFY MODE

10134  0774 00 1 10134   A4    AXT *,1       THIS LOCATION TO XRA
10135  0020 00 0 12042         TRA MONIT     CHECK PROGRAM MONITORED
10136  0534 00 2 12467         LXA  UNIQ1,2  LOAD 37777 INTO XRB
10137 -0021 00 0 10140         ESNT *+1      TURN ON NULLIFIY TGR
10140  1 00001 2 10141         TXI *+1,2,1   ADD ON TO XRB


10141 -0754 00 2 00000         PXD 0,2       XRB TO ACC
10142  0560 00 0 13077         LDQ NUM       L +0
10143  0340 00 0 13077         CAS NUM
10144  0020 00 0 10146         TRA *+2       ERROR
10145  0020 00 0 10150         TRA *+3       OK-XRB HIGH ORDER
                                             POSITION BLOCKED
10146  0760 00 0 00162         SWT 2         ERROR
10147  0420 00 0 00000         HPR           CHECK HIGH ORDER POS
                                             XRB AND ADDERS
10150  0760 00 0 00161         SWT 1         TEST SWITCH 1
10151  0020 00 0 10153         TRA *+2       CONTINUE
10152  0020 00 0 10134         TRA A4        REPEAT


*CHECK AN XR WITH TIX IN NULLIFY MODE

10153  0774 00 1 10153   A5    AXT *,1       THIS LOCATION TO XRA
10154  0020 00 0 12042         TRA MONIT     CHECK PROGRAM MONITORED
10155  0774 00 2 00000   FXM07 AXT  **,2   SET 20000 OR 40000 TO XRB.

10156 -0021 00 0 10162         ESNT *+4      TURN ON NULLIFY TGR

10157  0760 00 0 00162         SWT 2
10160  0420 00 0 00000         HPR           TIX TRANSFERRED

10161  0020 00 0 10163         TRA *+2
10162  2 00000 2 10157   FXM08 TIX  *-3,2,**  NO TRA UNDER ANY CONDITION
                                            DECR SET TO 17777 OR 37777

10163  0754 00 2 00000         PXA 0,2       XRB TO ACC
10164  0560 00 0 13077         LDQ NUM       L +0
10165  0340 00 0 13077         CAS NUM
10166  0020 00 0 10170         TRA *+2       ERROR
10167  0020 00 0 10172         TRA *+3       OK-XRB ZERO

10170  0760 00 0 00162         SWT 2         ERROR
10171  0420 00 0 00000         HPR           CHECK FOR ADDER
                                             AND XRB COL 3 OUTPUT

10172  0760 00 0 00161         SWT 1         TEST SWITCH 1
10173  0020 00 0 10175         TRA *+2       CONTINUE
10174  0020 00 0 10153         TRA A5        REPEAT
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```
*CHECK TSX IN AND OUT OF NULLIFICATION MODE

10175  0774 00 1 10175   A5X   AXT *,1       LOCATION TO XRA
10176  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10177  0500 00 0 13037         CLA K+7       L TRA 2,2
10200  0601 00 0 00016         STO 14        STO IN LOCATION 00016

*CHECK TSX WITH NULLIFY TRIGGER ON

10201 -0021 00 0 10202         ESNT *+1      TURN ON NULLIFY TGR


10202  0074 00 2 00000   FXM09 TSX  **,2   HIGH ORDER ADDR LINE DOWN.
                                           ADDR SET TO 20016 OR 40016.
10203  0020 00 0 10205         TRA *+2       ERROR
10204  0020 00 0 10207         TRA *+3       OK-PROCEED

10205  0760 00 0 00162         SWT 2         ERROR
10206  0420 00 0 00000         HPR           TRANSFERRED TO LOC 40016

*CHECK TSX WITH NULLIFY TRIGGER OFF

10207 -0760 00 0 00010         LSNM          TURN OFF NULLIFY TGR


10210  0074 00 2 00000   FXM10 TSX  **,2   TRA TO LOC 20016 OR 40016.
10211  0020 00 0 10214         TRA *+3       OK-PROCEED

10212  0760 00 0 00162         SWT 2         ERROR
10213  0420 00 0 00000         HPR           TRANSFERRED TO LOC 00016

10214  0760 00 0 00161         SWT 1         TEST SWITCH 1
10215  0020 00 0 10217         TRA *+2       CONTINUE
10216  0020 00 0 10175         TRA A5X       REPEAT
```

```
*CHECK AN XR COUNT DOWN WITH TIX IN NULLIFY MODE

10217  0774 00 1 10217   A6    AXT *,1       THIS LOCATION TO XRA
10220  0020 00 0 12042         TRA MONIT     CHECK PROGRAM MONITORED
10221  0774 00 2 77777         AXT 32K,2     L 77777 TO XRB

10222 -0021 00 0 10223         ESNT *+1      TURN ON NULLIFY TGR
10223  2 00001 2 10224         TIX *+1,2,1
10224 -0754 00 2 00000         PXD 0,2
10225  0560 00 0 13156         LDQ NMBR      MQ DECREMENT VALUE
                                             SHOULD BE IN XRB
10226  0340 00 0 13156         CAS NMBR
10227  0020 00 0 10231         TRA *+2       ERROR
10230  0020 00 0 10233         TRA *+3       XRB REDUCTION OK

10231  0760 00 0 00162         SWT 2         ERROR
10232  0420 00 0 00000         HPR           CHECK IF HIGH ORDER
                                             POSITIONS BLOCKED
10233  2 00001 2 10233         TIX *,2,1     COUNT DOWN XRB
10234  0754 00 2 00000         PXA 0,2       XRB TO ACC
10235  0560 00 0 13100         LDQ NUM+1     L +1
10236  0340 00 0 13100         CAS NUM+1
10237  0020 00 0 10241         TRA *+2       ERROR
10240  0020 00 0 10243         TRA *+3       XRB COUNT DOWN OK

10241  0760 00 0 00162         SWT 2         ERROR
10242  0420 00 0 00000         HPR           ERROR IN COUNT DOWN

10243  0760 00 0 00161         SWT 1         TEST SWITCH 1
10244  0020 00 0 10246         TRA *+2       CONTINUE
10245  0020 00 0 10217         TRA A6        REPEAT
```

```
*CHECK ESNT IS INDIRECT ADDRESSABLE

10246  0774 00 1 10246   A6X   AXT *,1       LOCATION TO XRA
10247  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10250  0500 00 0 13073         CLA K1+2      L TRA A6XX
10251  0601 00 0 00010         STO 8         STORE IN LOCATION 00010
10252  0500 00 0 10251         CLA *-1       SAVE ADDRESS FOR NEXT
10253  0621 00 0 12145         STA COR       ROUTINE INITIALIZATION
10254 -0021 60 0 10263         ESNT* *+7     TURN ON NULLIFY AND IA TRGS


10255  0074 00 2 00000   A6XX  TSX  **,2   SHOULD TRA TO LOC 20016.
                                           ADDR SET TO 20016 OR 40016.
10256  0020 00 0 10260         TRA *+2       ERROR
10257  0020 00 0 10266         TRA *+7       NULLIFY + IA TRGRS OK

10260  0760 00 0 00162         SWT 2         ERROR
10261  0420 00 0 00000         HPR           WAS NULLIFY TGR ON

10262  0020 00 0 10266         TRA *+4

10263 -0760 00 0 00010         LSNM          DO NOT EXECUTE INSTR
                                             USE ADR PORTION ONLY
                                             TO GET ADR FOR ESNTINSTR
                                             TO TRANFER TO

10264  0760 00 0 00162         SWT 2         ERROR
10265  0420 00 0 00000         HPR           WAS IA CONTROL TRGR ON

10266  0760 00 0 00161         SWT 1         TEST SWITCH 1
10267  0020 00 0 10271         TRA *+2       CONTINUE
10270  0020 00 0 10246         TRA A6X       REPEAT


*CHECK I/O SENSE AND TRAP MODE TRIGGER

10271  0774 00 1 10271   A7    AXT *,1       THIS LOCATION TO XRA
10272  0760 00 0 00144         SLN 4         TURN ON SENSE LITE 4
10273  0020 00 0 12042         TRA MONIT     CHECK PROGRAM MONITORED


10274 -0760 00 0 00005         ESTM          TURN ON I/O TRAP TGR
10275  0760 00 0 00005         IOT           IS LITE ON
10276  0020 00 0 10300         TRA *+2       YES
10277  0020 00 0 10302         TRA *+3       NO

10300  0760 00 0 00162         SWT 2         ERROR
10301  0420 00 0 00000         HPR           PR SING MINUS-IOT LITE OFF

10302 -0021 00 0 10303         ESNT *+1      TURN ON NULLIFY TGR
                                             AND SIMULATE INDICATOR
```

```
*BRINGING UP STORE AND TRAP CONTROLS, WILL PLACE THE LOCATION PLUS 1 OF
*SELECT INSTRUCTION IN ADDRESS PORTION LOCATION 40000 AND TRAP TO
*LOCATION 40001.

10303  0762 00 0 01222         RTBA 2        SEC OP 0,2

10304  0760 00 0 00162   A7A   SWT 2         ERROR
10305  0420 00 0 00000         HPR           DID NOT TRAP-SEE COMMENT


*CHECK MEMORY NULLIFICATION TRIGGER TURNED OFF

10306  0074 00 2 00000   FXM11 TSX  **,2   TRA TO LOC 20016 OR 40016.
10307  0020 00 0 10312         TRA *+3       OK-PROCEED

10310  0760 00 0 00162         SWT 2         ERROR
10311  0420 00 0 00000         HPR           CHECK IF NULLIFY TGR OFF

*CHECK CONTENTS OF LOCATION 40000

10312  0500 00 0 40000         CLA 16K+1     L CONTENTS LOC 40000
10313  0560 00 0 13040         LDQ K+8       L HTR A7A
10314  0340 00 0 13040         CAS K+8
10315  0020 00 0 10317         TRA *+2       ERROR
10316  0020 00 0 10321         TRA *+3       LOC 40000 OK-PROCEED

10317  0760 00 0 00162         SWT 2
10320  0420 00 0 00000         HPR           ERROR LOC 40000

*CHECK I/O TRAP TRIGGER TURNED OFF AND SELECT INSTRUCTION WILL NOT TRAP

10321  0762 00 0 01222         RTBA 2
10322  0760 00 0 01352         RDCA          DISCONNECT I/O UNIT
10323  0020 00 0 10326         TRA *+3       OK-NO TRAP-TRANSFER

10324  0760 00 0 00162         SWT 2         ERROR
10325  0420 00 0 00000         HPR           TRAPPED

10326  0760 00 0 00161         SWT 1         TEST SWITCH 1
10327  0020 00 0 10331         TRA *+2       CONTINUE
10330  0020 00 0 10271         TRA A7        REPEAT
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```
*CHECK IOT +0760---5 HAS NO EFFECT ON I/O SENSE TRAP TRGR

10331  0774 00 1 10331   A8    AXT *,1       LOCATION TO XRA
10332  0760 00 0 00144         SLN 4         TURN ON SENSE LITE 4
10333  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR


10334 -0021 00 0 10335         ESNT *+1      ENTER NULLIFY MODE
10335  0760 00 0 00005         IOT
10336  0761 00 0 00000         NOP
10337  0762 00 0 01202         RTDA 2        DOES SELECT TRAP
10340  0760 00 0 01352         RDCA          DISCONNECT I/O UNIT
10341  0020 00 0 10344         TRA *+3       OK-NO TRAP-TRANSFER

10342  0760 00 0 00162         SWT 2         ERROR
10343  0420 00 0 00000         HPR           IS I/O TRAP TGR ON
                                             WITH IOT INSTR

*CHECK NULLIFY TRIGGER STILL ON

10344  0074 00 2 00000   FXM12 TSX  **,2   SHOULD TRA TO LOC 00016
                                           ADDR SET TO 20016 OR 40016.
10345  0020 00 0 10347         TRA *+2       ERROR
10346  0020 00 0 10351         TRA *+3       OK-PROCEED

10347  0760 00 0 00162         SWT 2         ERROR
10350  0420 00 0 00000         HPR           IS NULLIFY TGR OFF

*CHECK CONTENTS LOCATION 40000

10351 -0760 00 0 00010         LSNM          EXIT NULLIFY MODE
10352  0500 00 0 40000         CLA 16K+1     L LOC 40000
10353  0560 00 0 13077         LDQ NUM       L +0
10354  0340 00 0 13077         CAS NUM
10355  0020 00 0 10357         TRA *+2       ERROR
10356  0020 00 0 10361         TRA *+3       OK-PROCEED

10357  0760 00 0 00162         SWT 2         ERROR
10360  0420 00 0 00000         HPR           LOC 40000 NOT ZERO

10361  0760 00 0 00161         SWT 1         TEST SWITCH 1
10362  0020 00 0 10364         TRA *+2       CONTINUE
10363  0020 00 0 10331         TRA A8        REPEAT
```

```
10364  0774 00 1 10364   A9    AXT *,1       LOCATION TO XRA
10365  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR

*WRITE SELECT INSTRUCTION-SEC OPN 0,6

10366 -0760 00 0 00005         ESTM        I/O TRAP TRIGGER ON
10367  0766 00 0 00221         WTB 1         704 SELECT INSTR

10370  0760 00 0 00162         SWT 2         ERROR
10371  0420 00 0 00000         HPR           NO TRAP

*REWIND SEC OPN 1,2

10372 -0760 00 0 00005         ESTM        I/O TRAP TRIGGER ON
10373  0772 00 0 00201         REW 1         704 SELECT INSTR

10374  0760 00 0 00162         SWT 2         ERROR
10375  0420 00 0 00000         HPR           NO TRAP

*-WRITE END OF FILE-SEC OPN 1,0

10376 -0760 00 0 00005         ESTM        I/O TRAP TRIGGER ON
10377  0770 00 0 00201         WEF 1         704 SELECT INSTR

10400  0760 00 0 00162         SWT 2         ERROR
10401  0420 00 0 00000         HPR           NO TRAP

*BACKSPACE TAPE-SEC OPN 0,4

10402 -0760 00 0 00005         ESTM        I/O TRAP TRIGGER ON
10403  0764 00 0 00201         BST 1         704 SELECT INSTR

10404  0760 00 0 00162         SWT 2         ERROR
10405  0420 00 0 00000         HPR           NO TRAP

10406  0760 00 0 00161         SWT 1         TEST SWITCH 1
10407  0020 00 0 10411         TRA *+2       CONTINUE
10410  0020 00 0 10364         TRA A9        REPEAT
```

```
*CHECK SENSE PUNCH INSTRUCTION

10411  0774 00 1 10411   A10   AXT *,1       LOCATION TO XRA
10412  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10413 -0760 00 0 00005         ESTM        I/O TRAP TRIGGER ON


10414  0760 00 0 00341         PSE 225       SHOULD TRAP

10415  0760 00 0 00162         SWT 2         ERROR
10416  0420 00 0 00000         HPR           CHECK COMPONENTS
                                             NOTED IN COMMENTS

10417 -0760 00 0 00005         ESTM        I/O TRAP TRIGGER ON
10420  0760 00 0 01341         SPUA 1        SHOULD TRAP

10421  0760 00 0 00162         SWT 2         ERROR
10422  0420 00 0 00000         HPR           CHECK COMPONENTS
                                             NOTED IN COMMENTS

10423  0760 00 0 00161         SWT 1         TEST SWITCH 1
10424  0020 00 0 10426         TRA *+2       PROCEED
10425  0020 00 0 10411         TRA A10       REPEAT
```

```
*************************************************************************
***         REFERENCE IS MADE TO 7090 SERVICE AID NUMBER 81           ***
***                                                                   ***
***                                                                   ***
***   ON A PROGRAM HALT AT LOCATION 12250, KEY 34 MUST BE SET         ***
***        DOWN IN ORDER TO CHECK BTT AND ETT IN SELCT TRAP MODE.     ***
***                                                                   ***
***                                                                   ***
***   FOR PROPER OPERATION OF THE THREE FOLLOWING TEST ROUTINES       ***
***      ON THE 7090, THE MACHINE CHNAGE OUTLINED IN CEM 81 MUST      ***
***      HAVE BEEN INSTALLED.                                         ***
***                                                                   ***
***                                                                   ***
*************************************************************************



*     CHECK BTTA WITH TRIGGER ON ( NO-SKIP CONDITIONS )


*  NOTE - THIS TEST ROUTINE WILL ONLY BE CHECKED ON THE INITIAL PASS
*         OF XCOMC.  IF KEY 34 WAS NOT DOWN ON THE FIRST PASS OF
*         XCOMC, THE TEST ROUTINE WILL NOT BE CHECKED.


10426  0774 00 1 10426   A10A  AXT *,1       LOCATION TO XRA
10427  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10430  0020 00 0 10460         TRA A10C
10431  0520 00 0 13161         ZET PASS+2    FIRST PASS
10432  0020 00 0 10460         TRA A10C      NO
10433  0772 00 0 01202         REWA 2        REWIND TAPE 2
10434  0764 00 0 01202         BSRA 2        TURN ON BTT TRIGGER
10435  0764 00 0 01202         BSRA 2        HOLD UP
10436  0060 00 0 10436         TCOA *           WAIT
10437 -0760 00 0 00005         ESTM          I/O TRAP TRG ON
10440  0760 00 0 01000         BTTA          SHOULD TRAP
10441  0761 00 0 00000   A10B  NOP
10442  0020 00 0 10444         TRA *+2       ERROR
10443  0020 00 0 10446         TRA *+3       OK
10444  0760 00 0 00162         SWT 2
10445  0420 00 0 00000         HPR
10446  0500 00 0 40000         CLA 16K+1     L CONTENTS LOC 40000
10447  0340 00 0 13066         CAS K1-3      L HTR A10B
10450  0020 00 0 10452         TRA *+2       ERROR
10451  0020 00 0 10455         TRA *+4       OK
10452  0560 00 0 13066         LDQ K1-3
10453  0760 00 0 00162         SWT 2
10454  0420 00 0 00000         HPR
10455  0760 00 0 00161         SWT 1         TEST SWITCH 1
10456  0020 00 0 10460         TRA *+2
10457  0020 00 0 10426         TRA A10A      REPEAT
```

```
* CHECK BTTA WITH TRIGGER OFF ( SKIP CONDITION )

10460  0774 00 1 10460   A10C  AXT *,1       LOCATION TO XRA
10461  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10462  0020 00 0 10504         TRA A10E
10463  0760 00 0 01000         BTTA          TURN TRIGGER OFF
10464  0761 00 0 00000         NOP
10465 -0760 00 0 00005         ESTM          I/O TRIGGER ON
10466  0760 00 0 01000         BTTA          SHOULD TRAP
10467  0761 00 0 00000         NOP
10470  0760 00 0 00162   A10D  SWT 2         ERROR
10471  0420 00 0 00000         HPR
10472  0500 00 0 40000         CLA 16K+1     L CONTENTS LOC 40000
10473  0340 00 0 13067         CAS K1-2      L HTR A10D
10474  0020 00 0 10476         TRA *+2       ERROR
10475  0020 00 0 10501         TRA *+4       OK
10476  0560 00 0 13067         LDQ K1-2      L HTR A10D
10477  0760 00 0 00162         SWT 2
10500  0420 00 0 00000         HPR
10501  0760 00 0 00161         SWT 1         TEST SWITCH 1
10502  0020 00 0 10504         TRA *+2       CONTINUE
10503  0020 00 0 10460         TRA A10C      REPEAT


*CHECK ETTA WITH TRIGGER OFF ( SKIP CONDITION )

10504  0774 00 1 10504   A10E  AXT *,1       LOCATION TO XRA
10505  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10506  0020 00 0 10530         TRA A11
10507 -0760 00 0 01000         ETTA          TURN OFF IF ON
10510  0761 00 0 00000         NOP
10511 -0760 00 0 00005         ESTM          I/O TRAP TGR ON
10512 -0760 00 0 01000         ETTA          SHOULD TRAP
10513  0761 00 0 00000         NOP
10514  0760 00 0 00162   A10F  SWT 2         ERROR
10515  0420 00 0 00000         HPR
10516  0500 00 0 40000         CLA 16K+1     L CONTENTS LOC 40000
10517  0340 00 0 13070         CAS K1-1      L HTR A10F
10520  0020 00 0 10522         TRA *+2       ERROR
10521  0020 00 0 10525         TRA *+4       OK
10522  0560 00 0 13070         LDQ K1-1      HTR A10F
10523  0760 00 0 00162         SWT 2
10524  0420 00 0 00000         HPR
10525  0760 00 0 00161         SWT 1         TEST SWITCH 1
10526  0020 00 0 10530         TRA *+2       CONTINUE
10527  0020 00 0 10504         TRA A10E      REPEAT


**********************************************************************
```

```
*CHECK SENSE PRINTER

10530  0774 00 1 10530   A11   AXT *,1       LOCATION TO XRA
10531  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10532 -0760 00 0 00005         ESTM        I/O TRAP TRIGGER ON


10533  0760 00 0 01360         SPTA          SHOULD TRAP

10534  0760 00 0 00162         SWT 2         ERROR
10535  0420 00 0 00000         HPR           NO TRAP


10536  0760 00 0 01360         SPTA          SHOULD NOT TRAP
10537  0020 00 0 10543         TRA *+4       OK
10540  0020 00 0 10543         TRA *+3       OK

10541  0760 00 0 00162         SWT 2         ERROR
10542  0420 00 0 00000         HPR           CHECK TRIGGER TURNED OFF
                                             IS TIME AFTER TRAP

10543  0760 00 0 01352         RDCA          CLEAR BUFFER

10544  0760 00 0 00161         SWT 1         TEST SWITCH 1
10545  0020 00 0 10547         TRA *+2       CONTINUE
10546  0020 00 0 10530         TRA A11       REPEAT


*CHECK SENSE PRINTER

10547  0774 00 1 10547   A12   AXT *,1       LOCATION TO XRA
10550  0020 00 0 12042         TRA MONIT     MONITOR PROGRAM
10551 -0760 00 0 00005         ESTM          I/O TRAP ON-2.10.70.1


10552  0760 00 0 00360         SPT           SHOULD TRAP

10553  0760 00 0 00162         SWT 2         ERROR-NO TRAP
10554  0420 00 0 00000         HPR           CHECK COMPONENTS
                                             NOTED IN COMMENTS

10555  0760 00 0 00161         SWT 1         TEST SWITCH 1
10556  0020 00 0 10560         TRA *+2       CONTINUE
10557  0020 00 0 10547         TRA A12       REPEAT
```

```
*CHECK FRN +0760---11 AND 704 ETT -0760---11

10560  0774 00 1 10560   A13   AXT *,1       LOCATION TO XRA
10561  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10562 -0760 00 0 00005         ESTM        I/O TRAP TRIGGER ON

10563  0760 00 0 00011         FRN           SHOULD NOT TRAP
10564  0020 00 0 10570         TRA *+4       OK-NO TRAP
10565  0761 00 0 00000         NOP

10566  0760 00 0 00162         SWT 2         ERROR
10567  0420 00 0 00000         HPR           FRN TRAPPED


10570  0500 00 0 13065         CLA K1-4    SET TRAP TRA IN LOC 10
10571  0601 00 0 00010         STO 8
10572 -0500 00 0 13150         CAL MINON   SET ACC P TO A ONE
10573  0560 00 0 13151         LDQ MQNIN   SET MQ 9 TO A ONE
10574 -0760 00 0 00011         ETT 1         SHOULD TRAP

10575  0760 00 0 00162         SWT 2         ERROR-NO TRAP
10576  0420 00 0 00000         HPR           CHECK COMPONENTS
                                             NOTED IN COMMENT

                                             NOTE THAT TRIGGER IS TURNED
                                             OFF BY THE NEXT I5 PULSE

10577  0760 00 0 00161         SWT 1         TEST SWITCH 1
10600  0020 00 0 10602         TRA *+2       CONTINUE
10601  0020 00 0 10560         TRA A13       REPEAT


*CHECK DCT +0760---12 AND RTT-0760---12

10602  0774 00 1 10602   A14   AXT *,1       LOCATION TO XRA
10603  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10604 -0760 00 0 00005         ESTM        I/O TRAP TRIGGER ON


10605  0760 00 0 00012         DCT           INDICATOR IS OFF
10606  0761 00 0 00000         NOP           NO TRAP AND
10607  0020 00 0 10612         TRA *+3       SKIP TO HERE

10610  0760 00 0 00162         SWT 2         ERROR
10611  0420 00 0 00000         HPR           SEE COMMENT ABOVE

10612 -0760 00 0 00012         RTT           SHOULD TRAP

10613  0760 00 0 00162         SWT 2         ERROR
10614  0420 00 0 00000         HPR           NO RTT TRAP-SEE
                                             COMMENT ABOVE

10615  0760 00 0 00161         SWT 1         TEST SWITCH 1
10616  0020 00 0 10620         TRA *+2       CONTINUE
10617  0020 00 0 10602         TRA A14       REPEAT
```

```
*CHECK TAGGED SENSE INSTRUCTION WITH COMPATABILITY FEATURE

10620  0774 00 1 10620   A15   AXT *,1       LOCATION TO XRA
10621  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10622  0502 00 0 13077         CLS NUM       L -0
10623  0774 00 2 00360         AXT 240,2     L 360 TO XRB
10624 -0021 00 0 10625         ESNT *+1      TURN ON NULLIFY TGR
10625 -0760 00 0 00005         ESTM        I/O TRAP TRIGGER ON
10626  0760 00 2 00363         PSE 243,2     SHOULD NOT TRAP-ONLY
                                             MAKE ACC SIGN PLUS

10627  0020 00 0 10633         TRA *+4       OK-PROCEED
10630  0761 00 0 00000         NOP

10631  0760 00 0 00162         SWT 2         ERROR
10632  0420 00 0 00000         HPR           TRAPPED

10633  0120 00 0 10636         TPL *+3       OK-ACC SIGN PLUS

10634  0760 00 0 00162         SWT 2         ERROR
10635  0420 00 0 00000         HPR           ACC SIGN MINUS

*CHECK NULLIFY TRIGGER REMAINED ON

10636  0074 00 2 00000   FXM13 TSX  **,2   SHOULD TRA TO LOC 00016.
                                           ADDR SET TO 20016 OR 40016.
10637  0020 00 0 10641         TRA *+2       ERROR
10640  0020 00 0 10643         TRA *+3       OK-PROCEED

10641  0760 00 0 00162         SWT 2         ERROR
10642  0420 00 0 00000         HPR           IS NULLIFY TGR OFF

*CHECK COMPATABILITY FEATURE WITH XRB ZERO

10643  0774 00 2 00000         AXT 0,2       CLEAR XRB
10644  0760 00 2 00363         PSE 243,2

10645  0760 00 0 00162   A15A  SWT 2         ERROR
10646  0420 00 0 00000         HPR           NO TRAP

*CHECK NULLIFY TRIGGER TURNED OFF

10647  0074 00 2 00000   FXM14 TSX  **,2   TRA TO LOC 20016OR 40016.
10650  0020 00 0 10653         TRA *+3       OK-NULLIFY TRIGGER OFF

10651  0760 00 0 00162         SWT 2         ERROR
10652  0420 00 0 00000         HPR           IS NULLIFY TRIGGER ON
```

```
*CHECK CONTENTS LOCATIN 40000

10653  0500 00 0 40000         CLA 16K+1     L CONTENTS LOC 40000
10654  0560 00 0 13041         LDQ K+9       L HTR A15A
10655  0340 00 0 13041         CAS K+9
10656  0020 00 0 10660         TRA *+2       ERROR
10657  0020 00 0 10662         TRA *+3       OK-PROCEED

10660  0760 00 0 00162         SWT 2         ERROR
10661  0420 00 0 00000         HPR           ADR IN LOC 40000 NOT A15A

10662  0760 00 0 00161         SWT 1         TEST SWITCH 1
10663  0020 00 0 10665         TRA *+2       CONTINUE
10664  0020 00 0 10620         TRA A15       REPEAT


*CHECK SELECT INSTRUCTION AT LAST LOCATION IN LOWER HALF OF STORAGE

10665  0774 00 1 10665   A15X  AXT *,1       LOCATION TO XRA
10666  0020 00 0 12042         TRA MONIT     PROGRAM MOMITOR
10667  0500 00 0 10367         CLA A9+3      WTB 1 STORED IN THE LAST
10670  0601 00 0 00000   FXM15 STO  **     STORE IN 17777 OR 37777
10671  0500 00 0 13143         CLA NUM2+5    L TRA A15Y
10672  0601 00 0 40001         STO 16K+2     AND STORE
10673 -0760 00 0 00005         ESTM          I/O TRAP TGR ON

10674  0020 00 0 00000   FXM16 TRA  **     TRA TO LOC 17777 OR 37777.
                                           TRAP ON I/O.
10675  0500 00 0 40000   A15Y  CLA 16K+1     L CONTENTS 40000
10676  0340 00 0 13130         CAS NUM1+16   20000 OR 40000 IN LOC 40000
10677  0020 00 0 10701         TRA *+2       ERROR
10700  0020 00 0 10704         TRA *+4       LOC 40000 OK
10701  0560 00 0 13130         LDQ NUM1+16   20000 OR 40000 TO MQ

10702  0760 00 0 00162         SWT 2         ERROR
10703  0420 00 0 00000         HPR           LOC 40000 WRONG

10704  0500 00 0 00000         CLA           L CONTENTS LOCATION 00000
10705  0560 00 0 13145         LDQ NUM2+7    L STR 17777
10706  0340 00 0 13145         CAS NUM2+7    COMPARE
10707  0020 00 0 10711         TRA *+2       ERROR
10710  0020 00 0 10713         TRA *+3       CONTENTS LOCATION 00000 OK

10711  0760 00 0 00162         SWT 2         ERROR
10712  0420 00 0 00000         HPR           CONTENTS LOCATION 00000 NG

10713  0500 00 0 40002         CLA 16K+3     RESTORE CORRECT
10714  0601 00 0 40001         STO 16K+2     INSTRUCTION

10715  0760 00 0 00161         SWT 1         TEST SWITCH 1
10716  0020 00 0 10720         TRA *+2       CONTINUE
10717  0020 00 0 10665         TRA A15X      REPEAT
```

```
*CHECK COMPATABILITY FEATURE IN TRAPPING MODE

10720  0774 00 1 10720   A16   AXT *,1       LOCATION TO XRA
10721  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
10722 -0760 00 0 00007         LTM           LEAVE TRAP MODE
10723  0500 00 0 13042         CLA K+10      L TTR A16A
10724  0601 00 0 00001         STO 1         STORE IN LOCATION 00001
10725  0500 00 0 10724         CLA *-1       SAVE ADDRESS FOR NEXT
10726  0621 00 0 12145         STA COR       ROUTINE INITIALIZATION
10727 -0021 00 0 10730         ESNT *+1      ENTER NULLIFY MODE
10730 -0760 00 0 00005         ESTM          ENTER I/O SENSE TRAP MODE
10731  0760 00 0 00007         ETM           ENTER TRAP MODE
10732  0560 00 0 13077         LDQ NUM       L +0 TO MQ


10733  0162 00 0 10734         TQP *+1
10734 -0760 00 0 00007         LTM           LEAVE TRAP MODE
10735  0020 00 0 10742         TRA *+5       ERROR

10736 -0760 00 0 00007         LTM           LEAVE TRAP MODE

10737  0760 00 0 00162         SWT 2         ERROR
10740  0420 00 0 00000         HPR           TRAPPED TO LOC 40001

10741  0020 00 0 10744         TRA *+3       PROCEED

10742  0760 00 0 00162         SWT 2         ERROR
10743  0420 00 0 00000         HPR           TQP DID NOT TRAP TO 00001

*CHECK CONTENTS LOCATION 00000

10744 -0760 00 0 00007   A16A  LTM           LEAVE TRAP MODE
10745  0500 00 0 00000         CLA           L CONTENTS LOC 00000
10746  0560 00 0 13043         LDQ K+11      L STR A16A-9
10747  0340 00 0 13043         CAS K+11
10750  0020 00 0 10752         TRA *+2       ERROR
10751  0020 00 0 10754         TRA *+3       CONTENTS LOC 00000 OK

10752  0760 00 0 00162         SWT 2         ERROR
10753  0420 00 0 00000         HPR           CONTENTS LOC 00000 WRONG
```

```
*CHECK CONTENTS LOCATION 40000

10754 -0760 00 0 00010         LSNM           NULLIFY TGR OFF
10755  0500 00 0 40000         CLA 16K+1      L LOCATION 40000
10756  0560 00 0 13077         LDQ NUM        L +0
10757  0340 00 0 13077         CAS NUM
10760  0020 00 0 10762         TRA *+2        ERROR

10761  0766 00 0 00333         WRS 219        CONTENTS LOC 40000 OK
                                              SELECT INSTR TO TURN OFF
                                              I/O SESNE TRAP TRGR-TRAP
                                              AND TRANSFER TO A17-3

10762  0760 00 0 00162         SWT 2          ERROR
10763  0420 00 0 00000         HPR            CONTENTS LOC 40000 WRONG

10764  0760 00 0 00161         SWT 1          TEST SWITCH 1
10765  0020 00 0 10767         TRA *+2        CONTINUE
10766  0020 00 0 10720         TRA A16        REPEAT



10767  0774 00 1 10767   A17   AXT *,1        LOCATION TO XRA
10770  0020 00 0 12042         TRA MONIT      PROGRAM MONITOR

10771  0700 00 0 00000         CPY            TURN ON IOT LIGHT
10772  0020 00 0 10776         TRA *+4        AND NO TRAP
10773  0761 00 0 00000         NOP

10774  0760 00 0 00162         SWT 2          ERROR
10775  0420 00 0 00000         HPR            TRAPPED

10776  0760 00 0 00005         IOT            CHECK IOT LITE
10777  0020 00 0 11002         TRA *+3        OK-LIGHT WAS ON

11000  0760 00 0 00162         SWT 2          ERROR
11001  0420 00 0 00000         HPR            LIGHT WAS OFF

*CHECK LOCATION 40000

11002  0500 00 0 40000         CLA 16K+1      L LOCATION 40000
11003  0560 00 0 13077         LDQ NUM        L +0
11004  0340 00 0 13077         CAS NUM
11005  0020 00 0 11007         TRA *+2
11006  0020 00 0 11011         TRA *+3        CONTENTS LOC 40000 OK

11007  0760 00 0 00162         SWT 2          ERROR
11010  0420 00 0 00000         HPR            CONTENTS LOC 40000 WRONG
```

```
*CHECK COPY AND ADD LOGICAL WORD

11011 -0700 00 0 00000         CAD
11012  0020 00 0 11016         TRA *+4       OK
11013  0761 00 0 00000         NOP

11014  0760 00 0 00162         SWT 2         ERROR
11015  0420 00 0 00000         HPR           TRAPPED

11016  0760 00 0 00005         IOT           CHECK IOT LIGHT
11017  0020 00 0 11022         TRA *+3       OK-LIGHT WAS ON

11020  0760 00 0 00162         SWT 2         ERROR
11021  0420 00 0 00000         HPR           LIGHT WAS OFF

*CHECK CONTENTS LOCATION 40000
11022  0500 00 0 40000         CLA 16K+1     L CONTENTS LOC 40000
11023  0560 00 0 13077         LDQ NUM       L +0
11024  0340 00 0 13077         CAS NUM
11025  0020 00 0 11027         TRA *+2       ERROR
11026  0020 00 0 11031         TRA *+3       CONTENTS LOCATION 40000 OK

11027  0760 00 0 00162         SWT 2         ERROR
11030  0420 00 0 00000         HPR           CONTENTS LOCATION 40000 NG


*CHECK LDA

11031  0460 00 0 00001         LDA 1
11032  0020 00 0 11036         TRA *+4       OK-NO TRAP
11033  0761 00 0 00000         NOP

11034  0760 00 0 00162         SWT 2         ERROR
11035  0420 00 0 00000         HPR           TRAPPED

11036  0760 00 0 00005         IOT           CHECK IOT LIGHT
11037  0020 00 0 11042         TRA *+3       OK-LIGHT WAS ON

11040  0760 00 0 00162         SWT 2         ERROR
11041  0420 00 0 00000         HPR           LIGHT WAS OFF

*CHECK CONTENTS LOCATION 40000

11042  0500 00 0 40000         CLA 16K+1     L LOCATION 40000
11043  0560 00 0 13077         LDQ NUM       L +0
11044  0340 00 0 13077         CAS NUM
11045  0020 00 0 11047         TRA *+2       ERROR
11046  0020 00 0 11051         TRA *+3       CONTENTS LOC 40000 OK

11047  0760 00 0 00162         SWT 2         ERROR
11050  0420 00 0 00000         HPR           CONTENTS LOC 40000 WRONG
11051  0760 00 0 00161         SWT 1         TEST SWITCH 1
11052  0020 00 0 11054         TRA *+2       CONTINUE
11053  0020 00 0 10767         TRA A17       REPEAT
```

```
*CHECK OPERATION WITH COPY TRAP TRIGGER ON

11054  0774 00 1 11054   A18   AXT *,1       LOCATION TO XRA
11055  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11056 -0021 00 0 11057         ESNT *+1      ENTER NULLIFY MODE


11057 -0760 00 0 00006         ECTM          TURN ON CPY TRAP TRG

*CHECK ECTM DOES NOT CONDITION COM

11060  0100 00 0 11063         TZE *+3       ACC SHOULD BE ZERO

11061  0760 00 0 00162         SWT 2         ERROR
11062  0420 00 0 00000         HPR           PR SIGN MINUS SHOULDNT COM


11063  0700 00 0 00000         CPY           SHOULD TRAP

11064  0760 00 0 00162   A18A  SWT 2         ERROR
11065  0420 00 0 00000         HPR           NO TRAP

*CHECK NULLIFY TRIGGER NOW OFF

11066  0074 00 2 00000   FXM17 TSX  **,2   TRA T LOC 20016 OR 40016.
11067  0020 00 0 11072         TRA *+3       OK-NULLIFY TGR OFF

11070  0760 00 0 00162         SWT 2         ERROR
11071  0420 00 0 00000         HPR           CHECK NULLIFY TGR TURNED
                                             OFF BY OUTPUT FROM +0R

*CHECK CONTENTS LOCATION 40000

11072  0500 00 0 40000         CLA 16K+1     L CONTENTS LOC 40000
11073  0560 00 0 13044         LDQ K+12      L HTR A18A
11074  0340 00 0 13044         CAS K+12
11075  0020 00 0 11077         TRA *+2       ERROR
11076  0020 00 0 11101         TRA *+3       CONTENTS LOC 40000 OK

11077  0760 00 0 00162         SWT 2         ERROR
11100  0420 00 0 00000         HPR           CHECK ADR LOC 40000

*CHECK IOT LIGHT

11101  0760 00 0 00005         IOT           CHECK IOT LIGHT
11102  0020 00 0 11104         TRA *+2       ERROR
11103  0020 00 0 11106         TRA *+3       OK-LIGHT WAS OFF

11104  0760 00 0 00162         SWT 2         ERROR
11105  0420 00 0 00000         HPR           IOT LIGHT WAS ON
```

```
*CHECK CPY TRAP TRIGGER NOW OFF

11106  0700 00 0 00000         CPY
11107  0020 00 0 11113         TRA *+4       OK-PROCEED
11110  0761 00 0 00000         NOP

11111  0760 00 0 00162         SWT 2         ERROR
11112  0420 00 0 00000         HPR           IS CPY TRAP TGR OFF
                                             SEE OUTPUT FROM +0R CIRCUIT
                                             TURNS OFF CPY TRAP TGR

11113  0760 00 0 00161         SWT 1         TEST SWITCH 1
11114  0020 00 0 11116         TRA *+2       CONTINUE
11115  0020 00 0 11054         TRA A18       REPEAT


*CHECK CAD AND LDA TRAPS

11116  0774 00 1 11116   A18X  AXT *,1       LOCATION TO XRA
11117  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11120 -0760 00 0 00006         ECTM          TURN ON CPY TRAP TGR
11121 -0700 00 0 00000         CAD           SHOULD TRAP LIKE CPY

11122  0760 00 0 00162         SWT 2         ERROR
11123  0420 00 0 00000         HPR           SEE COMMENTS FOR A CPY
                                             TRAP IN SECTION A17

11124 -0760 00 0 00006         ECTM          TURN ON CPY TRAP TGR
11125  0460 00 0 00001         LDA 1         SHOULD TRAP LIKE CPY

11126  0760 00 0 00162         SWT 2         ERROR
11127  0420 00 0 00000         HPR           NO TRAP-SEE INPUT E TO
                                             LOGIC BLOCK 5I SYSTEMS
                                             2.10.71.1

11130  0760 00 0 00161         SWT 1         TEST SWITCH 1
11131  0020 00 0 11133         TRA *+2       CONTINUE
11132  0020 00 0 11116         TRA A18X      REPEAT
```

```
*CHECK COMPLEMENT +0760---06 HAS NO EFFECT ON CPY TRAP MODE TRIGGER

11133  0774 00 1 11133   A19   AXT *,1       LOCATION TO XRA
11134  0020 00 0 12042         TRA MONIT

11135  0760 00 0 00006         COM           SHOULD NOT TURN
                                              ON CPY TRAP TRIGGER

*CHECK CPY TRAP TRG REMAINED OFF
11136  0700 00 0 00000         CPY
11137  0020 00 0 11143         TRA *+4       OK-NO TRAP
11140  0761 00 0 00000         NOP
11141  0760 00 0 00162         SWT 2         ERROR
11142  0420 00 0 00000         HPR           CPY TGR SHOULD STAY
                                              OFF WITH PR SIGN PLUS

11143  0760 00 0 00161         SWT 1         TEST SWITCH 1
11144  0020 00 0 11146         TRA *+2       COTNINUE
11145  0020 00 0 11133         TRA A19       REPEAT


*CHECK CPY INSTRUCTION AT LAST LOCATION IN LOWER HALF OF STORAGE
11146  0774 00 1 11146   A20X  AXT *,1       LOCATION TO XRA
11147  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11150  0500 00 0 11136         CLA A19+3     CPY STORED IN THE LAST
11151  0601 00 0 00000   FXM18 STO  **     STORE IN LOC 17777 OR 37777
11152  0500 00 0 13144         CLA NUM2+6    L TRA A20Y
11153  0601 00 0 40002         STO 16K+3     AND STORE
11154 -0760 00 0 00006         ECTM          CPY TRAP TGR ON

11155  0020 00 0 00000   FXM19 TRA  **     TRA TO LOC 17777 OR 37777.
                                           TRAP ON COPY.
11156  0500 00 0 40000   A20Y  CLA 16K+1     L CONTENTS 40000
11157  0340 00 0 13130         CAS NUM1+16   20000 OR 40000 IN LOC 40000
11160  0020 00 0 11162         TRA *+2       ERROR
11161  0020 00 0 11165         TRA *+4       LOC 40000 OK
11162  0560 00 0 13130         LDQ NUM1+16   20000 OR 40000 TO MQ

11163  0760 00 0 00162         SWT 2         ERROR
11164  0420 00 0 00000         HPR           LOC 40000 WRONG

11165  0500 00 0 00000         CLA           L CONTENTS LOCATION 00000
11166  0560 00 0 13145         LDQ NUM2+7    L STR 17777
11167  0340 00 0 13145         CAS NUM2+7    COMPARE
11170  0020 00 0 11172         TRA *+2       ERROR
11171  0020 00 0 11174         TRA *+3       CONTENTS LOCATION 00000 OK
11172  0760 00 0 00162         SWT 2         ERROR
11173  0420 00 0 00000         HPR           CONTENTS LOCATION 00000 NG

11174  0500 00 0 40001         CLA 16K+2     RESTORE CORRECT
11175  0601 00 0 40002         STO 16K+3     INSTRUCTION

11176  0760 00 0 00161         SWT 1         TEST SWITCH 1
11177  0020 00 0 11201         TRA *+2       CONTINUE
11200  0020 00 0 11146         TRA A20X      REPEAT
```

```
*CHECK STR TRAPS TO LOCATION 00002 WITH COMPATABLITY FEATURE

11201  0774 00 1 11201   A20   AXT *,1       LOCATION TO XRA
11202  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11203  0500 00 0 13045         CLA K+13      L TRA A20A
11204  0601 00 0 00002         STO 2         STORE IN LOCATION 00002
11205  0500 00 0 13072         CLA K1+1      L HTR A20A-4
11206  0621 00 0 40000         STA 16K+1     STORE IN ADR LOC 40000
11207 -0760 00 0 00006         ECTM          TURN ON CPY TRAP TGR


11210 -1 00000 0 00000         STR

11211  0760 00 0 00162         SWT 2         ERROR
11212  0420 00 0 00000         HPR           TRAPPED TO LOC 40002

*CHECK CONTENTS LOCATION 00000

11213  0500 00 0 00000   A20A  CLA           L CONTENTS LOCATION 00000
11214  0560 00 0 13071         LDQ K1        L STR A20A-2
11215  0340 00 0 13071         CAS K1
11216  0020 00 0 11220         TRA *+2       ERROR
11217  0020 00 0 11222         TRA *+3       CONTENTS LOC 00000 OK

11220  0760 00 0 00162         SWT 2         ERROR
11221  0420 00 0 00000         HPR           CONTENTS LOC 00000 WRONG

*CHECK CONTENTS LOCATION 40000

11222  0500 00 0 40000         CLA 16K+1     L CONTENTS LOC 40000
11223  0560 00 0 13072         LDQ K1+1      L HTR A20A-4
11224  0340 00 0 13072         CAS K1+1
11225  0020 00 0 11227         TRA *+2       ERROR
11226  0700 00 0 00000         CPY           CONTENTS LOCATION 40000 OK
                                             TURN OFF CPY TRAP TGR

11227  0760 00 0 00162         SWT 2         ERROR
11230  0420 00 0 00000         HPR           CONTENTS LOC 40000 WRONG

11231  0760 00 0 00161         SWT 1         TEST SWITCH 1
11232  0020 00 0 11234         TRA *+2       CONTINUE
11233  0020 00 0 11201         TRA A20       REPEAT
```

```
*PREVIOUSLY, IT WAS SHOWN TURNING OFF I/O TRAP TGR OR CPY TRAP TGR
*TURNED OFF NULLIFY TGR. NOW CHECK TURNING OFF THE FIRST 2 MENTIONED
*TRIGGERS BY EACH OTHER.

11234  0774 00 1 11234   A21   AXT *,1       LOCATION TO XRA
11235  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11236 -0760 00 0 00005         ESTM          TURN ON I/O TRAP TGR
11237 -0760 00 0 00006         ECTM          TURN ON CPY TRAP TGR


11240  0766 00 0 00301         WDR 1         TURN I/O TRAP AND
                                             CPY TRAP TGRS OFF

11241  0760 00 0 00162         SWT 2         ERROR
11242  0420 00 0 00000         HPR           FAILED TO TRAP


11243  0700 00 0 00000         CPY           HAS CPY TRAP TRGR
                                             BEEN TURNED OFF
11244  0760 00 0 00005         IOT           YES AND LITE
11245  0020 00 0 11250         TRA *+3       SHOULD BE ON

11246  0760 00 0 00162         SWT 2         ERROR
11247  0420 00 0 00000         HPR           CPY TRAP TGR NOT TURNED OFF
                                             COMMENTS OF ROUTINE


*CHECK CPY TRAP TGR TURNED OFF ALSO TURNS OFF I/O TRAP TGR

11250 -0760 00 0 00005         ESTM          TURN ON I/O TRAP TGR
11251 -0760 00 0 00006         ECTM          TURN ON CPY TRAP TGR
11252  0700 00 0 00000         CPY

11253  0760 00 0 00162         SWT 2         ERROR
11254  0420 00 0 00000         HPR           FAILED TO TRAP


11255  0762 00 0 00301   A21X  RDR 1         HAS I/O SENSE TRAP
                                             TGR BEEN TURNED OFF
11256  0760 00 0 00005         IOT           YES AND LITE
11257  0020 00 0 11262         TRA *+3       SHOULD BE ON

11260  0760 00 0 00162         SWT 2         ERROR
11261  0420 00 0 00000         HPR           I/O TRAP TGR NOT TURNED OFF
                                             SEE COMMENTS OF ROUTINE


11262  0760 00 0 00161         SWT 1         TEST SWITCH 1
11263  0020 00 0 11265         TRA *+2       CONTINUE
11264  0020 00 0 11234         TRA A21       REPEAT
```

```
*CHECK SELECT CRT INSTRUCTION

11265  0774 00 1 11265   A21A  AXT *,1       LOCATION TO XRA
11266  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11267 -0760 00 0 00005         ESTM          TURN ON I/O TRAP TGR


11270  0766 00 0 00030         WTV           TRAP AND TURN OFF
                                             I/O TRAP TRIGGER

11271  0760 00 0 00162         SWT 2         ERROR
11272  0420 00 0 00000         HPR           FAILED TO TRAP


11273  0766 00 0 00030         WTV           WAS I/O TRAP TGR TURNED OFF
11274  0760 00 0 00005         IOT           YES AND LITE
11275  0020 00 0 11300         TRA *+3       SHOULD BE ON

11276  0760 00 0 00162         SWT 2         ERROR
11277  0420 00 0 00000         HPR           CHECK I/O TRAP TGR
                                             NOT TURNED OFF

11300  0760 00 0 00161         SWT 1         TEST SWITCH 1
11301  0020 00 0 11303         TRA *+2       CONTINUE
11302  0020 00 0 11265         TRA A21A      REPEAT


*CHECK FLOATING POINT 704 MODE-NO FP TRAP,ACCUMULATOR AND MQ INDICATOR
*OPERATIVE AND TQO IS EXECUTED

11303  0774 00 1 11303   A22   AXT *,1       LOCATION TO XRA
11304  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11305  0500 00 0 00000         CLA           K+14L TRA A22A
11306  0601 00 0 00010         STO 8         STORE IN LOCATION 00010
11307  0500 00 0 11306         CLA *-1       SAVE ADDRESS FO NEXT
11310  0621 00 0 12145         STA COR       ROUTINE INITIALIZATION


11311 -0760 00 0 00004         LFTM          TURN OFF FP TMODE TGR


11312  0161 00 0 11313         TQO *+1       MQ INDICATOR OFF
11313  0502 00 0 13106         CLS NUM+7     L -00100777777
```

```
*BEFORE PROCEEDING, CHECK CHS +0760---02 HAS NO EFFECT ON F.P. TRAP
*TRGR

11314  0760 00 0 00002         CHS


11315  0300 00 0 13107         FAD NUM+8      L +00400444444

*CHECK ACCUMULATOR INDICATOR

11316  0140 00 0 11321         TOV *+3        OK-ACC IND WAS TURNED ON
                                              TURN OFF AND TRANSFER

11317  0760 00 0 00162         SWT 2          ERROR
11320  0420 00 0 00000         HPR            ACC INDICATOR OFF

11321  0162 00 0 11324         TQP *+3        SHOULD TRANSFER

11322  0760 00 0 00162         SWT 2          ERROR
11323  0420 00 0 00000         HPR            MQ SHOULD BE PLUS



11324  0161 00 0 11327         TQO *+3        TQO SHOULD EXECUTE-MQ IND
                                              WAS TURNED ON-TURN OFF
                                              AND TRANSFER

11325  0760 00 0 00162         SWT 2          ERROR
11326  0420 00 0 00000         HPR            MQ OVFLO IND OFF

11327  0162 00 0 11331         TQP *+2        SHOULD TRANSFER

11330  0760 00 0 00162         SWT 2          ERROR
11331  0420 00 0 00000         HPR            MQ SHOULD BE PLUS
11332  0020 00 0 11335         TRA *+3        PROCEED


11333  0760 00 0 00162   A22A  SWT 2          ERROR
11334  0420 00 0 00000         HPR            TRAPPED TO LOC 00010

*CHECK CONTENTS LOCATION 00000

11335  0500 00 0 00000         CLA            L CONTENTS LOCATION 00000
11336  0560 00 0 13145         LDQ NUM2+7     L STR 17777
11337  0340 00 0 13145         CAS NUM2+7     COMPARE
11340  0020 00 0 11342         TRA *+2        ERROR
11341  0020 00 0 11344         TRA *+3        CONTENTS LOC 00000 OK

11342  0760 00 0 00162         SWT 2          ERROR
11343  0420 00 0 00000         HPR            CONTENTS LOC 00000 WRONG

11344  0760 00 0 00161         SWT 1          TEST SWITCH 1
11345  0020 00 0 11347         TRA *+2        CONTINUE
11346  0020 00 0 11303         TRA A22        REPEAT
```

```
*TEST FLOATING POINT 709 MODE WITH TRAP AND ACCUMULATOR INDICATOR OFF

11347  0774 00 1 11347   A24   AXT *,1       LOCATION TO XRA
11350  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11351  0500 00 0 13050         CLA K+16      L TRA A24A
11352  0601 00 0 00010         STO 8         STORE IN LOCATION 00010
11353  0500 00 0 11352         CLA *-1       SAVE ADDRESS FOR NEXT
11354  0621 00 0 12145         STA COR       ROUTINE INITIALITION


11355 -0760 00 0 00002         EFTM          TURN ON FP TMODE TGR

*BEFORE PROCEEDING CHECK ENK +0760---04 DOES NOT TURN OFF FP TMODE TGR

11356  0760 00 0 00004         ENK           TRGR REMAIN RESET

11357  0760 00 0 00000         CLM           CLEAR ACCUMULATOR
11360  0560 00 0 13104         LDQ NUM+5     L -032404040404
11361  0763 00 0 00043         LLS 35        NO ACC OVERFLOW
11362  0241 00 0 13105         FDP NUM+6     L +344440404040

11363  0760 00 0 00162         SWT 2         ERROR
11364  0420 00 0 00000         HPR           FAILED TO TRAP-SEE COMMENT


*CHECK ACCUMULATOR INDICATOR OFF

11365 -0140 00 0 11370   A24A  TNO *+3       OK-ACC IND OFF

11366  0760 00 0 00162         SWT 2         ERROR
11367  0420 00 0 00000         HPR           ACC IND ON-NOTE ABOVE
                                             COMMENT

*CHECK CONTENTS LOCATION 00000

11370  0500 00 0 00000         CLA           L CONTENTS LOCATION 00000
11371  0560 00 0 13051         LDQ K+17      L FP LOC + 1 IN ADR AND
                                             BITS IN DECREMENT POSITIONS
                                             14,16,17 WITH OP CODE -1
11372  0340 00 0 13051         CAS K+17
11373  0020 00 0 11375         TRA *+2       ERROR
11374  0020 00 0 11377         TRA *+3       CONTENTS LOC 00000 OK

11375  0760 00 0 00162         SWT 2         ERROR
11376  0420 00 0 00000         HPR           CONTENTS LOC 00000 WRONG

11377  0760 00 0 00161         SWT 1         TEST SWITCH 1
11400  0020 00 0 11402         TRA *+2       CONTINUE
11401  0020 00 0 11347         TRA A24       REPEAT
```

```
*CHECK EXECUTION TQO AND OPERATION MQ INDICATOR IN 709 MODE

11402  0774 00 1 11402   A26   AXT *,1       LOCATION TO XRA
11403  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11404  0500 00 0 13064         CLA K+28      L TRA A26A
11405  0601 00 0 00010         STO 8         STORE IN LOCATION 00010
11406  0500 00 0 11405         CLA *-1       SAVE ADDRESS FOR NEXT
11407  0621 00 0 12145         STA COR       ROUTINE INITIALIZATION
11410 -0760 00 0 00004         LFTM          TURN OFF FP TMODE TGR
11411  0161 00 0 11412         TQO *+1       MQ INDICATOR OFF
11412  0500 00 0 13103         CLA NUM+4     L -00010000000

*EXECUTE A FLOATING POINT INSTRUCTION TO TURN ON MQ OVFLO INDICATOR

11413 -0300 00 0 13103         UFA NUM+4     L -00010000000
11414 -0760 00 0 00002         EFTM          TURN ON FP TMODE TGR


11415  0761 00 0 00000         NOP           TURN OFF MQ OVFLO TGR

*CHECK FP TRAP MODE RESET MQ OVERFLOW INDICATOR

11416 -0760 00 0 00004         LFTM          TURN OFF FP TMODE TGR
11417  0161 00 0 11421         TQO *+2       INDICATOR SHOULD BE OFF
11420  0020 00 0 11426         TRA *+6       OK, INDICATOR OFF

11421  0760 00 0 00162         SWT 2         ERROR
11422  0420 00 0 00000         HPR           MQ INDICATOR ON
11423  0020 00 0 11426         TRA *+3

11424  0760 00 0 00162   A26A  SWT 2         ERROR
11425  0420 00 0 00000         HPR           CHECK FP TMODE TGR ON

11426  0760 00 0 00161         SWT 1         TEST SWITCH 1
11427  0020 00 0 11431         TRA *+2       CONTINUE
11430  0020 00 0 11402         TRA A26


11431  0520 00 0 13160         ZET PASS+1    LOAD AND/OR RESET BUTTON
                                             TESTS ON EACH INITIAL PASS
11432  0020 00 0 11660         TRA M05       SKIP RESET AND LOAD
                                             BUTTON TESTS
11433  0760 00 0 00163         SWT 3         IS PRINTER ON LINE
11434  0020 00 0 11440         TRA *+4
11435  0772 00 0 01201         REWA 1        REWIND TAPE
11436  0020 00 0 11566         TRA A28X      TEST LOAD BUTTON ONLY

11437  0020 00 0 11402         TRA A26       DUMMY INST FOR MONITOR
```

```
*CHECK RESET BUTTON RESTORES MACHINE TO 7090 MODE

11440  0774 00 1 11440   A27   AXT *,1       LOCATION TO XRA
11441  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11442  0500 00 0 13052         CLA K+18      L TRA A27A
11443  0601 00 0 00000         STO           STORE IN LOCATION 00000
11444  0500 00 0 13113         CLA  NUM1+3     FIX
11445  0601 00 0 12517         STO RE+12     PRINT
11446  0771 00 0 00010         ARS 8         IMAGE
11447 -0602 00 0 12523         ORS RE+16     LOCATIONS

11450 -0021 00 0 11451         ESNT *+1      TURN ON NULLIFY TGR
11451 -0760 00 0 00005         ESTM          TURN ON I/O TRAP TGR
11452 -0760 00 0 00006         ECTM          TURN ON CPY TGR
11453 -0760 00 0 00004         LFTM          TURN OFF FP TMODE TGR

*TURN ON MQ OVERFLOW INDICATOR

11454  0500 00 0 13103         CLA NUM+4     L -000100000000
11455 -0300 00 0 13103         UFA NUM+4     MQ OVFLO IND ON
11456  0600 00 0 00017         STZ 15        CLEAR LOCATION 00017
11457  0500 00 0 11456         CLA *-1       SAVE ADDRESS FOR NEXT
11460  0621 00 0 12145         STA COR       ROUTINE INITIALIZATION
11461  0420 00 0 00000         HPR


*************************************************************************
*                                                                       *
*     PUSH RESET BUTTON TO RESET PROGRAM COUNTER TO 00000               *
*                AND THEN PUSH START BUTTON                             *
*                                                                       *
*************************************************************************

*CHECK I/O TRAP TRIGGER WAS TURNED OFF

11462  0766 00 0 01361   A27A  WPRA          SELECT PRINTER
11463  0020 00 0 11467         TRA *+4       OK-PROCEED
11464  0761 00 0 00000         NOP

11465  0760 00 0 00162         SWT 2         ERROR
11466  0420 00 0 00000         HPR           CHECK I/O TRAP TGR OFF

11467  0760 00 0 01363         SPRA 3
11470  0020 00 0 11474         TRA *+4       OK-PROCEED
11471  0761 00 0 00000         NOP

11472  0760 00 0 00162         SWT 2         ERROR
11473  0420 00 0 00000         HPR

11474  0540 00 0 00000   FXM20 RCHA **     LOAD FROM LOC 20017 OR 40017.
                                          PRINT A LINE
```

```
*CHECK CPY TRAP TRIGGER WAS TURNED OFF

11475  0700 00 0 00000         CPY           SHOULD NOT TRAP
11476  0020 00 0 11502         TRA *+4       OK-PROCEED
11477  0761 00 0 00000         NOP

11500  0760 00 0 00162         SWT 2         ERROR
11501  0420 00 0 00000         HPR

*CHECK LOCATION 40000

11502  0500 00 0 40000         CLA 16K+1     L LOCATION 40000
11503  0560 00 0 13077         LDQ NUM       L +0
11504  0340 00 0 13077         CAS NUM
11505  0020 00 0 11507         TRA *+2       ERROR
11506  0020 00 0 11511         TRA *+3       CONTENTS LOC 40000 OK

11507  0760 00 0 00162         SWT 2         ERROR
11510  0420 00 0 00000         HPR           CONTENTS LOC 40000 WRONG

*CHECK FP TMODE TRIGGER TURNED ON

11511  0500 00 0 13053         CLA K+19      L TRA A27B
11512  0601 00 0 00010         STO 8         STORE IN LOCATION 00010
11513  0500 00 0 11512         CLA *-1       SAVE ADDRESS FOR NEXT
11514  0621 00 0 12146         STA COR+1     ROUTINE INITIALIZATION
11515  0500 00 0 13106         CLA NUM+7     L +001007777777
11516  0300 00 0 13107         FAD NUM+8     L +004004444444

11517  0760 00 0 00162         SWT 2         ERROR
11520  0420 00 0 00000         HPR           CHECK INPUT E TO LOGIC
                                             BLOCK 3B SYSTEMS 2.10.71.1

11521  0500 00 0 00000   A27B  CLA           L CONTENTS LOCATION 00000
11522  0560 00 0 13054         LDQ K+20      L FP LOC + 1 WITH BITS IN
                                             DEC POSITIONS 16,17 AND
                                             OPCODE 0000
11523  0340 00 0 13054         CAS K+20
11524  0020 00 0 11526         TRA *+2       ERROR
11525  0020 00 0 11530         TRA *+3       CONTENTS LOC 00000 OK

11526  0760 00 0 00162         SWT 2         ERROR
11527  0420 00 0 00000         HPR           CONTENTS LOC 00000 WRONG

11530  0060 00 0 11530         TCOA *        WAIT IF CHANNEL IN USE
11531  0500 00 0 13102         CLA NUM+3     FIX
11532  0771 00 0 00001         ARS 1         THE
11533  0601 00 0 12523         STO RE+16     PRINT
11534  0771 00 0 00003         ARS 3         IMAGE
11535 -0602 00 0 12517         ORS RE+12     LOCATIONS
11536  0760 00 0 00005         IOT           TURN OFF
11537  0761 00 0 00000         NOP           IOT LIGHT
```

```
*CHECK NEXT SEQUENCE OF INSTRUCTIONS WHICH HAVE BEEN KNOWN TO FAIL

11540  0766 00 0 01361   A27C  WPRA          PRINT
11541  0540 00 0 00000   FXM21 RCHA **     LOAD FROM LOC 20017 OR 40017.
11542 -0760 00 0 00005         ESTM          I/O TRAP TGR ON
11543  0760 00 0 00361         PSE 241       TRAP ON I/O

11544  0760 00 0 00162         SWT 2         ERROR
11545  0420 00 0 00000         HPR           NO I/O TRAP

11546  0760 00 0 00005         IOT           CHECK IOT LIGHT
11547  0020 00 0 11551         TRA *+2       ERROR
11550  0020 00 0 11553         TRA *+3       OK, IOT LIGHT OFF

11551  0760 00 0 00162         SWT 2         ERROR
11552  0420 00 0 00000         HPR           IOT LIGHT ON

11553  0500 00 0 40000         CLA 16K+1     L CONTENTS LOCATION 40000
11554  0560 00 0 13147         LDQ NUM2+9    L HTR A27C+4
11555  0340 00 0 13147         CAS NUM2+9    COMPARE
11556  0020 00 0 11560         TRA *+2       ERROR
11557  0020 00 0 11562         TRA *+3       LOCATION IS OK

11560  0760 00 0 00162         SWT 2         ERROR
11561  0420 00 0 00000         HPR           CONTENTS LOCATION NG

11562  0760 00 0 00161         SWT 1         TEST SWITCH 1
11563  0020 00 0 11574         TRA A28       CONTINUE
11564  0020 00 0 11440         TRA A27       REPEAT

11565  0020 00 0 11402         TRA A26       DUMMY INSTR FOR MONITOR

11566  0774 00 1 11566   A28X  AXT *,1       LOCATION TO XRA
11567  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11570  0534 00 1 11573         LXA *+3,1     L XRA WITH ADR OF INSTR
11571 -0634 00 1 13152         SXD HOLD,1    PUT IN DEC OF LOC
11572  0020 00 0 11574         TRA A28       PROCEED

11573  0020 00 0 11440         TRA A27       DUMMY INSTR FOR MONITOR
```

```
*CHECK LOAD TAPE BUTTON RESTORES MACHINE TO 7090 MODE

11574  0774 00 1 11574   A28   AXT *,1       LOCATION TO XRA
11575  0020 00 0 12042         TRA MONIT     PROGRAM MONITOR
11576  0500 00 0 11464         CLA A27A+2    L NOP
11577  0601 00 0 00003         STO 3         STORE IN LOCATION 00003
11600  0500 00 0 13055         CLA K+21      L TRA A28A
11601  0601 00 0 00004         STO 4         STORE IN LOCATION 00004

*WRITE 3 WORDS ON TAPE

11602  0766 00 0 01221         WTBA 1        SELECT TAPE 1 CHAN A
11603  0540 00 0 13056         RCHA K+22
11604  0764 00 0 01201         BSRA 1        BACKSPACE TAPE
11605  0060 00 0 11605         TCOA *

11606 -0021 00 0 11607         ESNT *+1      TURN NULLIFY TGR
11607 -0760 00 0 00005         ESTM          TURN ON I/O TRAP TGR
11610 -0760 00 0 00006         ECTM          TURN ON CPY TRAP TGR
11611 -0760 00 0 00004         LFTM          TURN OFF FP TMODE TGR
11612  0420 00 0 00000         HPR


*WHEN LOAD TAPE BUTTON IS PUSHED, READ 3 WORDS FROM TAPE INTO THE 3
*INITIAL LOCATION OF STORAGE.THE 1ST 5 STORAGE LOCATIONS SHOULD CONTAIN

*************************************************************************
*                                                                       *
*                            00000      HTR                             *
*                            00001      RTBA 1                          *
*                            00002      TRA A28B                        *
*                            00003      NOP                             *
*                            00004      TRA A28A                        *
*                                                                       *
*************************************************************************

11613  0760 00 0 00162   A28A  SWT 2         ERROR
11614  0420 00 0 00000         HPR

*CHECK NULLIFY TRIGGER TURNED OFF

11615  0074 00 2 00000   A28B  TSX  **,2   TRA TO LOC 20016 OR 40016.
11616  0020 00 0 11621         TRA *+3       TRANSFERRED OK

11617  0760 00 0 00162         SWT 2         ERROR
11620  0420 00 0 00000         HPR
```

```
*CHECK CPY TRAP TRIGGER TURNED OFF

11621  0700 00 0 00000         CPY
11622  0020 00 0 11626         TRA *+4       OK-PROCEED
11623  0761 00 0 00000         NOP

11624  0760 00 0 00162         SWT 2         ERROR
11625  0420 00 0 00000         HPR

*CHECK LOCATION 40000

11626  0500 00 0 40000         CLA 16K+1     L LOCATION 40000
11627  0560 00 0 13077         LDQ NUM       L +0
11630  0340 00 0 13077         CAS NUM
11631  0020 00 0 11633         TRA *+2       ERROR
11632  0020 00 0 11635         TRA *+3       CONTENTS LOC 40000 OK

11633  0760 00 0 00162         SWT 2         ERROR
11634  0420 00 0 00000         HPR           CONTENTS LOC 40000 WRONG

*CHECK FP TMODE TRIGGER TURNED ON

11635  0500 00 0 13062         CLA K+26      L TRA A28C
11636  0601 00 0 00010         STO 8         STORE IN LOCATION 00010
11637  0500 00 0 13106         CLA NUM+7     L +001007777777
11640  0300 00 0 13107         FAD NUM+8     L +004004444444

11641  0760 00 0 00162         SWT 2         ERROR
11642  0420 00 0 00000         HPR

11643  0500 00 0 00000   A28C  CLA           L CONTENTS LOC 00000
11644  0460 00 0 13063         LDA K+27      L FP LOC+1 WITH BITS IN
                                             DEC POSITIONS 16,17 AND
                                             OP CODE 0000
11645  0340 00 0 13063         CAS K+27
11646  0020 00 0 11650         TRA *+2       ERROR
11647  0020 00 0 11652         TRA *+3       CONTENTS LOC 00000 OK

11650  0760 00 0 00162         SWT 2         ERROR
11651  0420 00 0 00000         HPR           CONTENTS LOC 00000 WRONG

11652  0760 00 0 00161         SWT 1         TEST SWITCH 1
11653  0020 00 0 11655         TRA *+2       CONTINUE
11654  0020 00 0 11574         TRA A28       REPEAT

*ADJUST PROGRAM TO PREVENT PERFORMING RESET AND LOAD BUTTON
*ROUTINES AFTER 1 PASS THRU

11655  0772 00 0 01201         REWA 1        REWIND TAPE
11656  0500 00 0 11432         CLA A27-6     BYPASS RESET AND
11657  0601 00 0 11433         STO A27-5     LOAD BUTTON ROUTINES

*MODIFY AND ALTER INSTRUCTIONS PRIOR TO EXECUTING 9M05 WITH I/O TRAP
*CPY TRAP AND STORAGE NULLIFY TRIGGERS ON
```

```
11660  0774 00 1 00130   M05   AXT ERROR-4-E5-1,1 FILL
11661  0500 00 0 06117         CLA 3151
11662  0601 00 1 06500         STO ERROR-4,1
11663  2 00001 1 11662         TIX *-1,1,1

11664  0774 00 1 24607         AXT 16K-TOTAL,1    THESE
11665  0601 00 1 40000         STO 16384,1
11666  2 00001 1 11665         TIX *-1,1,1        LOCATIONS

11667  0774 00 1 01224         AXT AY-KONST-3,1   WITH 9M05
11670  0601 00 1 10000         STO AY,1
11671  2 00001 1 11670         TIX *-1,1,1

11672  0774 00 1 37462         AXT 16178,1  TSX SPACE,4
11673  0601 00 1 00026         STO 22,1
11674  2 00001 1 11673         TIX *-1,1,1

11675  0774 00 1 00006         AXT 6,1       L 6 IN XRA
11676  0500 00 1 12232         CLA TRAP+8,1  TRAP LOCATION
11677  0601 00 1 40007         STO 16K+8,1   TO LOCATIONS
11700  2 00001 1 11676         TIX *-2,1,1   40001-40006

11701  0500 00 0 00041         CLA 33        TRA 00030 TO
11702  0601 00 0 00026         STO 22        LOCATION 00026

11703  0500 00 0 13146         CLA NUM2+8    9M05 TTR SEQ TO
11704  0601 00 0 00010         STO 8         LOCATION 00010

11705  0760 00 0 00005         IOT           TURN OFF
11706  0761 00 0 00000         NOP           LIGHT IF ON

11707  0760 00 0 00140         SLF           SENSE LIGHTS OFF

11710  0774 00 1 11716         AXT *+6,1     SET RETURN
11711  0634 00 1 05124         SXA 2644,1    FROM 9M05

11712 -0760 00 0 00002         EFTM          TURN
11713 -0760 00 0 00005         ESTM          ON
11714 -0760 00 0 00006         ECTM          TRIGGERS
11715 -0021 00 0 00030         ESNT 24       START EXECUTING 9M05

11716   000 00 0 00002   MORE  RUNA 2        RESET TRIGGERS

11717  0760 00 0 00162         SWT 2         ERROR
11720  0420 00 0 00000         HPR           NO REWIND-UNLOAD WANTED


*CHECK PASS COUNTER AND SENSE SWITCHES 3 AND 6 AFTER EACH PROGRAM PASS

11721  0500 00 0 13160   COUNT CLA PASS+1    ADD ONE TO TOTAL PASS
11722  0400 00 0 13100         ADD NUM+1     COUNTER FOR EACH PASS
11723  0601 00 0 13160         STO PASS+1    AND SAVE COUNT
11724  0500 00 0 13161         CLA PASS+2    INCREMENT THIS
11725  0400 00 0 13100         ADD NUM+1     COUNTER ON
11726  0601 00 0 13161         STO PASS+2    EVERY PASS
```

```
11727  0760 00 0 00166         SWT 6          TEST SENSE SWITCH 6
11730  0020 00 0 12011         TRA ATSAL      TOTAL THE PASSES EXECUTED
                                              AND LOAD NEXT DIAGNOSTIC
11731  0534 00 1 13157         LXA PASS,1     ADD ONE TO 100
11732  1 00001 1 11733         TXI *+1,1,1    DECIMAL PASS COUNTER
11733  0634 00 1 13157         SXA PASS,1     AND SAVE COUNTER
11734  3 00143 1 11736         TXH *+2,1,99   REPEAT DIAGNOSTIC
11735  0020 00 0 11763         TRA SS5        100 DECIMAL TIMES
                                              IF SENSE SWITCH 5 UP
11736  0600 00 0 13157         STZ PASS       CLEAR 100 PASS COUNTER

*TEST SENSE SWITCH 3 TO PRINT TOTAL PASSES EVERY 100 PASSES

11737  0760 00 0 00163         SWT 3          TEST SENSE SWITCH 3
11740  0020 00 0 11742         TRA *+2        GO TO PRINT TOTAL PASSES
11741  0020 00 0 11763         TRA SS5

*TRANSLATE TOTAL PASS COUNT TO BCD FOR PRINTING

11742  0500 00 0 13160         CLA PASS+1     TOTAL PASSES
11743  0074 00 4 12747         TSX BTEN,4     TRANSLATE TO BCD
11744  0761 00 0 00000         NOP
11745 -0600 00 0 11756         STQ *+9        INSERT BCD WORD INIMAGE
11746  0074 00 4 12730         TSX SPLT1+6,4  TO BCD PRINT ROUTINE
11747 -2 00003 0 00013         MTW 11,0,3     SPLAT CONTROL WORD

11750  010000604721      OVER  BCD 6100 PASSES COMPLETE XCOMC WITH
11751  626225626023
11752  464447432563
11753  256067234644
11754  236066316330
11755  606060606060
11756  606060606060            BCD 5       TOTAL PASSES COMPLETED
11757  606346632143
11760  604721626225
11761  626023464447
11762  432563252460
```

```
*CHECK SENSE SWITCH 5 TO DETERMINE TEST OF ALTERNATE STORAGE DIVISION

*IF ALTERNATING TESTING 2 NULLIFY STORAGE DIVISIONS, SENSE SWITCH 5 DOWN

11763  0760 00 0 00165   SS5   SWT 5          TEST SENSE SWITCH 5
11764  0020 00 0 12424         TRA STG        SWITCH UP-REPEAT

*WITH SENSE SWITCH 5 DOWN, PRINT TOTAL PASSES COMPLETED ON STORAGE
*DIVISION TESTING AND ALTER PROGRAM FOR ALTERNATE STORAGE DIVISION

11765  0760 00 0 00163         SWT 3          TEST SENSE SWITCH 3
11766  0020 00 0 11770         TRA *+2        PRINT PASSES MADE
11767  0020 00 0 12245         TRA GO+2       TO ROUTINE TO ALTER LOCS
11770  0500 00 0 13160         CLA PASS+1     L PASSES MADE
11771  0074 00 4 12747         TSX BTEN,4     TRANSLATE TO BCD
11772  0761 00 0 00000         NOP
11773 -0600 00 0 12003         STQ *+8        PUT BCD WORD IN IMAGE
11774  0074 00 4 12730         TSX SPLT1+6,4 TO BCD PRINT ROUTINE
11775 -2 00006 0 00012         MTW 10,0,6     SPLAT CONTROL WORD

11776  672346442360      OUT   BCD 5XCOMC TEST COMPLETE WITH
11777  632562636023
12000  464447432563
12001  256066316330
12002  606060606060
12003  606060606060            BCD 5       TOTAL PASSES COMPLETED
12004  606346632143
12005  604721626225
12006  626023464447
12007  432563252460
12010  0020 00 0 12245         TRA GO+2       TO ROUTINES TO ALTER LOCS
```

```
*WITH SENSE SWITCH 3 UP, TOTAL THE PASSES COMPLETED BEFORE LOADING NEXT
*DIAGNOSTIC

12011  0772 00 0 01202   ATSAL REWA 2        COMPATABILITY THRU
                                             REWIND TAPE DRIVE
12012  0760 00 0 00163         SWT 3         TEST SENSE SWITCH 3
12013  0020 00 0 12015         TRA *+2       PRINT AND LOAD
12014  0020 00 0 12036         TRA CRSL      JUST LOAD
12015  0500 00 0 13161         CLA PASS+2    L TOTAL PASSES
12016  0074 00 4 12747         TSX BTEN,4    TRANSLATE TO BCD
12017  0761 00 0 00000         NOP
12020 -0600 00 0 12023         STQ *+3       PUT BCD WORD IN IMAGE
12021  0074 00 4 12730         TSX SPLT1+6,4 TO BCD PRINT ROUTINE
12022 -2 00003 0 00013         MTW 11,0,3

12023  606060606060            BCD 5        TOTAL PASSES COMPLETED.
12024  606063466321
12025  436047216262
12026  256260234644
12027  474325632524
12030  672346442360            BCD 6XCOMC FINISHED, LOAD NEXT DIAGNOSTIC
12031  263145316230
12032  252473604346
12033  212460452567
12034  636024312127
12035  454662633123

12036  0762 00 0 01321   CRSL  RCDA          LOAD
12037  0540 00 0 13170         RCHA TOTAL    THE
12040  0544 00 0 00000         LCHA 0        NEXT
12041  0020 00 0 00001         TRA 1         PROGRAM
```

```
*                          PROGRAM MONITOR


*TEST SENSE SWITCH 1 FOR LOCKED-IN ROUTINE

12042  0760 00 0 00161   MONIT SWT 1         TEST SENSE SWITCH 1
12043  0020 00 0 12047         TRA *+4       ROUTINE NOT LOCKED IN

12044 -0754 00 1 00000         PXD 0,1       XRA TO DEC OF ACC
12045  0402 00 0 13152         SUB HOLD      START ADR TEST LOC
12046  0100 00 0 12120         TZE RESET     PROGRAM SEQUENCE OK

*CHECK PROGRAM SEQUENCE IF ROUTINE IS NOT LOCKED IN

12047  0754 00 1 00000         PXA 0,1       XRA TO ACC ADR
12050  0402 00 0 13100         SUB NUM+1     L +1
12051  0621 00 0 12054         STA *+3       PUT THIS ADR BELOW
12052  0600 00 0 13153         STZ HOLD+1    CLEAR LOCATION
12053 -0634 00 1 13153         SXD HOLD+1,1  XRA TO DEC OF WORD
12054  0500 00 0 00000         CLA           L LOC-1 TEST ENTERED
12055  0767 00 0 00022         ALS 18        ADR TO DEC OF ACC
12056  0402 00 0 13152         SUB HOLD      INTIIAL ADR PREVIOUS TEST
12057  0100 00 0 12075         TZE RELI      SEQUENCE OK, CHECK SW 4



*IF PROGRAM SEQUENCE WRONG, CHECK FOR TRA INSTRUCTION IN KEYS

12060  0760 00 0 00004         ENK           KEYS TO MQ
12061  0131 00 0 00000         XCA           MQ TO ACC
12062  0734 00 1 00000         PAX 0,1       ACC ADR TO XRA
12063  0771 00 0 00022         ARS 18        SHIFT TO ACC ADR
12064  0402 00 0 13102         SUB NUM+3     L +00000002000
12065 -0100 00 0 12072         TNZ *+5       SHOULD BE ZERO
12066 -0754 00 1 00000         PXD 0,1       XRA TO DEC OF ACC
12067  0402 00 0 13153         SUB HOLD+1    SAVED ADR
12070 -0534 00 1 13153         LXD HOLD+1,1  RESTORE XRA
12071  0100 00 0 12075         TZE RELI      SEQUENCE OK, CHECK SW 4

12072 -0534 00 1 13153         LXD HOLD+1,1  RESTORE XRA
12073 -0754 00 1 00000         PXD 0,1       XRA TO DEC OF ACC
12074  0020 00 0 12177         TRA SPACE+9   INDICATE SEQUENCE ERROR
```

```
*TEST SENSE SWITCH 4 FOR REPEATING ROUTINE 50 OCTAL TIMES

12075  0760 00 0 00164   RELI  SWT 4         TEST SENSE SWITCH 4
12076  0020 00 0 12120         TRA RESET     SENSE SWITCH 4 UP

12077  0500 00 0 13165         CLA TIMES     L ROUTINE COUNTER
12100  0402 00 0 13100         SUB NUM+1     L +1
12101  0601 00 0 13165         STO TIMES     SAVE ROUTINE COUNTER,
12102 -0100 00 0 12106         TNZ *+4       REPEAT ROUTINE AGAIN
12103  0500 00 0 13166         CLA TIMES+1   ROUTINE REPEATED 50 OCTAL
12104  0601 00 0 13165         STO TIMES     TIMES, RESET COUNTER
12105  0020 00 0 12120         TRA RESET     AND PROCEED

*CHECK PROGRAM EXECUTING ROUTINE A6X OR A8 AND SENSE SWITCH 4 DOWN

12106  0500 00 0 13076         CLA K1+5      L HTR 0,0,A6X
12107  0402 00 0 13152         SUB HOLD      IS PROGRAM IN ROUTINE A6X
12110 -0100 00 0 12113         TNZ *+3       NO
12111  0760 00 0 00140         SLF           YES, TURN OFF SENSE LITE 4
12112  0020 00 0 12117         TRA *+5

12113  0500 00 0 13075         CLA K1+4      L HTR 0,0,A8
12114  0402 00 0 13152         SUB HOLD      IS PROGRAM IN ROUTINE A8
12115 -0100 00 0 12117         TNZ *+2       NO
12116  0760 00 0 00144         SLN 4         YES, TURN ON SENSE LITE 4

12117 -0534 00 1 13152         LXD HOLD,1    CORRECT VALUE IN XRA
                                             TO REPEAT ROUTINE



12120 -0634 00 1 13152   RESET SXD HOLD,1    SAVE XRA IN DEC OF WORD
12121 -0760 00 0 00144         SLT 4         TEST SENSE LITE 4
12122  1 00002 1 12125         TXI *+3,1,2   LITE OF,ADD 2 TO XRA
12123  1 00003 1 12124         TXI *+1,1,3   LITE ON,ADD 3 TO XRA
12124  0760 00 0 00144         SLN 4         TURN SENSE LITE 4 ON
12125  0634 00 1 12165         SXA BACK,1    PUT XRA IN ADR OF BACK
```

```
*CHECK IF ROUTINE WILL SELECT TAPE

12126 -0760 00 0 00144         SLT 4          IS SENSE LITE 4 ON
12127  0020 00 0 12141         TRA *+10       NO
12130  0500 00 0 13161         CLA PASS+2     YES,L COUNTER
12131 -0100 00 0 12134         TNZ *+3        REWIND TAPE
12132  0772 00 0 01202         REWA 2         IF FIRST
12133  0020 00 0 12136         TRA *+3        PASS OR
12134 -0760 00 0 01000         ETTA           AT END
12135  0020 00 0 12132         TRA *-3        OF TAPE

*WRITE A RECORD ON TAPE TO PREVENT VIRGIN TAPE RUN-A-WAY

12136  0766 00 0 01222         WTBA 2         WRITE A ONE
12137  0540 00 0 13167         RCHA W0        WORD RECORD AND
12140  0764 00 0 01202         BSRA 2         BACKSPACE RECORD

*                           RESET AND INITIALIZE

12141 -0760 00 0 00010         LSNM           IF SET, RESET THE
                                              NULLIFY TRGR TO
12142  0600 00 0 40000         STZ 16K+1      CLEAR LOCATION 40000
12143  0500 00 0 13145         CLA NUM2+7     L STR 17777
12144  0601 00 0 00000         STO            STORE IN LOC 00000
12145  0601 00 0 00000   COR   STO            AND IN THESE
12146  0601 00 0 00000         STO            LOCATIONS
12147  0500 00 0 13030         CLA K          L TRA SPACE
12150  0601 00 0 00002         STO 2          PUT IN LOCATION 00002
12151  0140 00 0 12152         TOV *+1        ACC INDICATOR OFF
12152  0760 00 0 00012         DCT            DIV CHECK IND OFF
12153  0761 00 0 00000         NOP
12154  0760 00 0 00005         IOT            IOT LIGHT OFF
12155  0761 00 0 00000         NOP
12156  0022 00 0 12157         TRCA *+1       REDUNDANCY LITE OFF
12157  0030 00 0 12160         TEFA *+1       TURN OFF IF ON
12160 -0754 00 0 00000         PXD            CLEAR ACCUMULATOR
12161  0765 00 0 00043         LRS 35         AND MQ
12162  0621 00 0 12145         STA COR        CLEAR
12163  0621 00 0 12146         STA COR+1      ADDRESSES
12164  0774 00 7 00000         AXT 0,7        CLEAR ALL INDEX REGISTERS
12165  0020 00 0 00000   BACK  TRA
```

```
*PROGRAM OUT-OF-CONTROL ROUTINE

12166 -0760 00 0 00010   SPACE LSNM          JUST IN CASE
12167  0500 00 0 40006         CLA 16K+7     L CONTENTS LOC 40006
12170  0402 00 0 13047         SUB K+15      L TTR 2
12171 -0100 00 0 12174         TNZ *+3
12172  0500 00 0 13101         CLA NUM+2     L +2
12173  0020 00 0 12176         TRA *+3
12174 -0500 00 0 00000         CAL           L CONTENTS LOCATION 00000
12175  0402 00 0 13100         SUB NUM+1     L +1
12176  0767 00 0 00022         ALS 18        SHIFT TO DEC OF ACC
12177  0600 00 0 13154         STZ HOLD+2    CLEAR LOCATION
12200  0622 00 0 13154         STD HOLD+2    SAVE IN DEC OF WORD
12201 -0534 00 1 13152         LXD HOLD,1    DEC OF WORD TO XRA
12202  0634 00 1 13154         SXA HOLD+2,1  SAVE IN ADR OF WORD
12203  0634 00 1 12213         SXA RECT-1,1  XRA TO ADR OF INSTR
12204  0634 00 1 12221         SXA RECT+5,1
12205  0500 00 0 13154         CLA HOLD+2
12206  0560 00 0 13077         LDQ NUM       CLEAR MQ
12207  0420 00 0 00000         HPR           TRANSFERRED OUT OF CONTROL

*ADR FROM WHICH CONTROL WAS RECOVERED IS IN DECREMENT AND STARTING
*ADDRESS OF TEST WHICH WAS UNDERWAY IS IN ADR OF ACCUMULATOR

*00002 IS THE DECREMENT INDICATES THE PROGRAM TRAPPED TO LOCATION
*40001 FOR A SENSE OR SELECT INSTRUCTION OF 40002 FOR A COPY
*INSTRUCTION BUT FAILED TO STORE THE LOCATION OF A TRAP INSTRUCTION
*PLUS 1 IN THE ADDRESS PORTION OF 40000



12210 -0754 00 1 00000         PXD 0,1       LOC OF TEST UNDERWAY
                                             TO ACCUMULATOR
12211  0402 00 0 13074         SUB K1+3      L HTR 0,0,AY
12212  0100 00 0 10000         TZE AY        IF IN INITIAL PROGRAM
                                             ROUTINE, RETURN TO IT
12213  0500 00 0 00000         CLA           L LOC OF TEST UNDERWAY
12214  0402 00 0 13100   RECT  SUB NUM+1      L +1
12215  0621 00 0 12216         STA *+1
12216  0500 00 0 00000         CLA
12217  0767 00 0 00022         ALS 18        SHIFT TO DECREMENT
12220  0622 00 0 13152         STD HOLD
12221  0020 00 0 00000         TRA           RETURN TO TEST THAT
                                             WAS UNDERWAY
```

```
*INSTRUCTIONS FOR LOWEST LOCATIONS IN UPPER DIVISION OF STORAGE

12222  0020 00 0 10011   TRAP  TRA AY3

*HALT AT 1ST LOCATION IN UPPER HALF OF STORAGE MAY INDICATE NO I/O OR
*CPY TRAP WHEN A SELECT OR CPY IS AT LAST LOWER HALF STORAGE LOCATION

12223  0000 00 0 00000         HTR
12224  0021 00 0 40021         TTR TRLOC     TRA LOC 40021
12225  0021 00 0 40021         TTR TRLOC
12226  0500 00 0 40000         CLA 16K+1     L CONTENTS LOC 40000
12227  0400 00 0 13101         ADD NUM+2     L +2
12230  0621 00 0 40006         STA 16K+7     ADR TO LOC 40006
12231  0021 00 0 00000         TTR
12232  0020 00 0 10026         TRA AZA
12233 -1 00000 0 17777         STR 8191
12234  0020 00 0 10041         TRA AA-2
12235  0020 00 0 10055         TRA AB-3
12236  0020 00 0 10075         TRA A1A
12237  0020 00 0 10113         TRA A2A
12240  0020 00 0 10127         TRA A3A-2
12241  0020 00 2 00001         TRA 1,2
12242  0000 30 0 12503         IOCD RE,0,24
```

```
*IN ORDER TO LOAD THIS OR ANY OTHER PROGRAM AND STORE INSTRUCTIONS AT
*CORRECT LOCATIONS THE I/O TRAP TRIGGER AND TEH MEMORY NULLIFICATION
*TRIGGER MUST BE OFF

12243   000 00 0 00000   GO    EMTM        ENTER MULTIPLE MODE
12244  0761 00 0 00000         NOP
12245  0500 00 0 13140         CLA NUM2+2   L TRA AY2
12246  0601 00 0 77777         STO 32K       STORE IN LOC 77777

*CHECK FOR 16/16 OR 8/24 NULLIFY DIVIDED STORAGE

12247  0420 00 0 00000         HPR
*************************************************************************
*                                                                       *
*                          PERFORM NEXT 4 STEPS HERE                    *
*                                                                       *
*   ON INITIAL PASS ONLY, SIGN KEY -- UP FOR TAPE LOADING               *
*                                  -- DOWN FOR CARD LOADING             *
*                                                                       *
*   SET SWITCH FOR 16/16 OR 8/24 NULLIFY STORAGE                        *
*                                                                       *
*   SET KEY 34 DOWN TO TEST BTTX AND ETTX                               *
*   SET KEY 34 UP TO BYPASS BTTX AND ETTX TEST                          *
*                                                                       *
*   IF A 16/16 NULLIFY DIVIDED STORAGE, KEY 35 UP                       *
*   IF A 8/24 NULLIFY DIVIDED STORAGE, KEY 35 DOWN                      *
*                                                                       *
*   IF SENSE SWITCH 5 IS DOWN, PUT IT UP BEFORE PUSHING START BUTTON    *
*                                                                       *
*************************************************************************
12250  0600 00 0 13157         STZ PASS      CLEAR THESE
12251  0600 00 0 13160         STZ PASS+1    LOCATIONS

12252  0760 00 0 00004         ENK           KEYS TO MQ
12253  0131 00 0 00000         XCA           MQ TO ACC
12254  0044 00 0 00000         PAI           ACC TO IND
12255  0520 00 0 13161         ZET PASS+2    HAS PASS BEEN MADE
12256  0020 00 0 12265         TRA *+7       YES

*CHECK IF NEXT DIAGNOSTIC WILL BE LOADED FROM TAPE

12257 -0120 00 0 12265         TMI *+6       NO, CHECK IF TAPE LOAD

*ADJUST NECESSARY INSTRUCTIONS IF THIS DIAGNOSTIC IS LOADED FROM TAPE
*IN ORDER TO BYPASS THE LOAD TAPE ROUTINE

12260  0500 00 0 13141         CLA NUM2+3    ALTER
12261  0601 00 0 12036         STO CRSL      NECESSARY
12262  0500 00 0 13142         CLA NUM2+4    INSTRUCTIONS
12263  0601 00 0 11435         STO A27-3     FOR TAPE
12264  0601 00 0 11563         STO A28X-3    LOAD

12265  0056 00  000001         RNT 1         IS KEY 35 DOWN
12266  0020 00 0 12275         TRA GO1       NO
```

```
*ADJUST PROGRAM LOCATIONS FOR AN 8/24 NULLIFY DIVIDED STORAGE

12267  0500 00 0 13111         CLA NUM1+1    ADJUST ALL
12270  0601 00 0 12322         STO GO2+2   PRINT IMAGES
12271  0500 00 0 13121         CLA NUM1+9    FOR 8/24 NULLIFY
12272  0601 00 0 11755         STO OVER+5    STORAGE
12273  0601 00 0 12002         STO OUT+4     DIVISION
12274  0020 00 0 12302         TRA *+6


*ADJUST PROGRA LOCATIONS FOR A 16/16 NULLIFY DIVIDED STORAGE

12275  0500 00 0 13117   GO1   CLA NUM1+7    ADJUST ALL
12276  0601 00 0 12322         STO GO2+2   PRINT IMAGES
12277  0500 00 0 13120         CLA NUM1+8    FOR 16/16 NULLIFY
12300  0601 00 0 11755         STO OVER+5    STORAGE
12301  0601 00 0 12002         STO OUT+4     DIVISION

12302  0056 00  000002   GO1A  RNT 2       IS KEY 34 DOWN
12303  0020 00 0 12310         TRA *+5     NO

12304  0500 00 0 10441         CLA A10B    GET A NOP
12305  0601 00 0 10430         STO A10A+2  STORE IN
12306  0601 00 0 10462         STO A10C+2  TRANSFER
12307  0601 00 0 10506         STO A10E+2  LOCATIONS




*WITH SENSE SWITCH 3 UP, IDENTIFY PROGRAM

12310  0074 00 4 12725         TSX SPLT1+3,4 TO BCD PRINT ROUTINE
12311 -2 00001 0 00014         MTW 12,0,1    SPLAT CONTROL WORD

12312  472551264651            BCD 6PERFORMING XCOMC 704/7090/7094 COMPA
12313  443145276067
12314  234644236007
12315  000461070011
12316  006107001104
12317  602346444721
12320  632122314331      GO2   BCD 6TABILITY ON       NULLIFY STORAGE
12321  637060464560
12322  606060606060
12323  456443433126
12324  706062634651
12325  212725606060
```

```
*ADJUST PROGRAM AS PER STORAGE DIVISION

12326  0534 00 1 12322         LXA GO2+2,1   8/24K,XRA 20460
12327 -3 10660 1 12343         TXL STG16,1,4528  16/16K, XRA 10660



*   SET  PROGRAM FOR CORRECT VALUES FOR AN 8/24K STORAGE.

12330  0774 00 4 00011         AXT 9,4
12331  0634 00 4 12424         SXA STG,4

12332  0774 00 4 04606         AXT 8K-TOTAL-1,4
12333  0634 00 4 12430         SXA STG+4,4

12334  0520 00 0 13163         ZET NUL8    HAS A PASS BEEN MADE IN THE
                                             8/24K NULLIFY STORAGE MODE.
12335  0020 00 0 12341         TRA *+4      YES- OMIT RESET, LOAD TESTS.

12336  0500 00 0 13133         CLA NUM1+19
12337  0601 00 0 11433         STO A27-5
12340  0601 00 0 13163         STO NUL8


12341  0774 00 4 17776         AXT 8K-1,4
12342  0020 00 0 12355         TRA BOTH



*  SET  PROGRAM FOR CORRECT VALUES FOR 16/16K STORAGE.

12343  0774 00 4 00021   STG16 AXT 17,4
12344  0634 00 4 12424         SXA STG,4

12345  0774 00 4 24606         AXT 16K-TOTAL-1,4
12346  0634 00 4 12430         SXA STG+4,4


12347  0520 00 0 13162         ZET NUL16   HAS A PASS BEEN MADE IN THE
                                             16/16K NULLIFY STORAGE MODE.
12350  0020 00 0 12354         TRA *+4      YES- OMIT RESET, LOAD TESTS.

12351  0500 00 0 13133         CLA NUM1+19
12352  0601 00 0 11433         STO A27-5
12353  0601 00 0 13162         STO NUL16


12354  0774 00 4 37776         AXT 16K-1,4
```

```
*  XRC  CONTAINS EITHER 17776 OR 37776

12355 -0634 00 4 13156   BOTH  SXD NMBR,4

12356  1 00001 4 12357         TXI *+1,4,1   XRC CONT-  17777 OR 37777.
12357  0634 00 4 06273         SXA 3259,4
12360  0634 00 4 12432         SXA STG+6,4
12361 -0634 00 4 10162         SXD FXM08,4
12362  0634 00 4 10670         SXA FXM15,4
12363  0634 00 4 10674         SXA FXM16,4
12364  0634 00 4 11151         SXA FXM18,4
12365  0634 00 4 11155         SXA FXM19,4

12366  1 00001 4 12367         TXI *+1,4,1   XRC CONT-  20000 OR 40000.
12367  0634 00 4 13130         SXA NUM1+16,4
12370  0634 00 4 10155         SXA FXM07,4

12371  1 00007 4 12372         TXI *+1,4,7   XRA CONT-  20007 OR 40007.
12372  0634 00 4 10023         SXA FXM01,4

12373  1 00002 4 12374         TXI *+1,4,2   XRC CONT-  20011 OR 40011.
12374  0634 00 4 10040         SXA FXM02,4

12375  1 00001 4 12376         TXI *+1,4,1   XRC CONT-  20012 OR 40012.
12376  0634 00 4 10052         SXA FXM03,4

12377  1 00001 4 12400         TXI *+1,4,1   XRC CONT-  20013 OR 40013.
12400  0634 00 4 10072         SXA FXM04,4

12401  1 00001 4 12402         TXI *+1,4,1   XRC CONT-  20014 OR 40014.
12402  0634 00 4 10110         SXA FXM05,4

12403  1 00001 4 12404         TXI *+1,4,1   XRC CONT-  20015 OR 40015.
12404  0634 00 4 10126         SXA FXM06,4

12405  1 00001 4 12406         TXI *+1,4,1   XRC CONT-  20016 OR 40016.
12406  0634 00 4 10202         SXA FXM09,4
12407  0634 00 4 10210         SXA FXM10,4
12410  0634 00 4 10255         SXA A6XX,4
12411  0634 00 4 10306         SXA FXM11,4
12412  0634 00 4 10344         SXA FXM12,4
12413  0634 00 4 10636         SXA FXM13,4
12414  0634 00 4 10647         SXA FXM14,4
12415  0634 00 4 11066         SXA FXM17,4
12416  0634 00 4 11615         SXA A28B,4

12417  1 00001 4 12420         TXI *+1,4,1   XRC CONT-  20017 OR 40017.
12420  0634 00 4 11474         SXA FXM20,4
12421  0634 00 4 11541         SXA FXM21,4

12422  1 00001 4 12423         TXI *+1,4,1   XRC CONT-  20020 OR 40020.
12423  0634 00 4 12426         SXA STG+2,4
```

```
*INSERT INSTRUCTIONS IN LOCATIONS AS PER NULLIFY DIVIDED STORAGE

*PUT GROUP OF INSTR IN LOWER LOCATIONS OF UPPER DIVISION OF STORAGE
12424  0774 00 4 00021   STG   AXT 17,4      L 21 IN XRC
12425  0500 00 4 12243         CLA TRAP+17,4 INSERT IN LOCATIONS
12426  0601 00 4 40020         STO 16K+17,4  STORE STR INSTRUCTION
12427  2 00001 4 12425         TIX *-2,4,1   AS PER DIVIDED STORAGE

*  FOR 16/16 NULLIFY STORAGE, FILL LOCATIONS 13171 THRU 37776 WITH STR.
*  FOR  8/24 NULLIFY STORAGE, FILL LOCATIONS 13171 THRU 31776 WITH STR.
12430  0774 00 4 24606         AXT 16K-TOTAL-1,4 NO OF LOCATIONS TO XRC
12431  0500 00 0 13145         CLA NUM2+7        L STR 17777
12432  0601 00 4 37777         STO 16K,4         STORE IN LOCATIONS AS
12433  2 00001 4 12432         TIX *-1,4,1       PER NULLIFY STORAGE

* IN EITHER MODE, FILL LOCATIONS FROM SYMBOLIC LOCATION (UNIQ)
*    TO LOCATION 77776 WITH STR.

12434  0774 00 4 37651         AXT  32K-UNIQ,4   NO OF LOC TO XRC.
12435  0601 00 4 77777         STO 32K,4         STORE STR IN LOCATIONS
12436  2 00001 4 12435         TIX *-1,4,1       AS PER NULLIFY STORAGE

12437  0774 00 4 00130         AXT ERROR-4-E5-1,4 STORE IN LOCATIONS
12440  0601 00 4 06500         STO ERROR-4,4      BETWEEN 9M05
12441  2 00001 4 12440         TIX *-1,4,1        AND 9DEPR

12442  0774 00 4 01224         AXT AY-KONST-3,4   FILL LOCATIONS
12443  0601 00 4 10000         STO AY,4           BETWEEN 9DEPR
12444  2 00001 4 12443         TIX *-1,4,1        AND XCOM

12445  0534 00 4 12322         LXA  GO2+2,4        FOR  8/24   XRC 20460
12446 -3 10660 4 12471         TXL STGB-2,4,4528   FOR 16/16   XRC 10660

*FILL LOCATIONS 20000-20006 AND 20020-37777 WITH STR
12447  0774 00 4 00007         AXT 7,4           NO OF LOCATIONS TO XRC
12450  0601 00 4 20007         STO 8K+8,4        STORE STR IN LOCATIONS
12451  2 00001 4 12450         TIX *-1,4,1       20000-20006

12452  0774 00 4 17757         AXT 16K-8K-17,4   NO OF LOCATIONS TO XRC
12453  0601 00 4 37777         STO 16K,4         STORE STR IN LOCATIONS
12454  2 00001 4 12453         TIX *-1,4,1       20020-37776

12455  0774 00 4 00011         AXT  9,4      NO OF LOCATIONS TO XRC.
12456  0601 00 4 40020         STO 16K+17,4    STORE STR IN LOCATIONS
12457  2 00001 4 12456         TIX *-1,4,1       40007 TO 40017.

*INSERT SELCT, SENSE AND CPY TRAP ROUTINE IN LOCATIONS 40000-40006
12460  0774 00 4 00007         AXT 7,4       7 NOW IN XRC
12461  0500 00 4 12232         CLA TRAP+8,4  TRAP ROUTINE
12462  0601 00 4 40007         STO 16K+8,4   TO LOCATIONS
12463  2 00001 4 12461         TIX *-2,4,1   40000-40006

12464  0500 00 0 12222         CLA TRAP      L TRA AY3
12465  0601 00 0 17777         STO 8K        IN LOC 17777
```

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*INSERT ERROR DETECTING INSTRUCTION IN LOCATION 37777

12466  0500 00 0 13137         CLA NUM2+1    L TRA AY1
12467  0601 00 0 37777   UNIQ1 STO  16K      STORE IN LOC 37777
12470  0020 00 0 12473         TRA *+3

*INSERT ERROR DETECTING INSTRUCTION IN LOCATION 17777

12471  0500 00 0 13137         CLA NUM2+1    L TRA AY1
12472  0601 00 0 17777         STO 8K        STORE IN LOC 177777

12473  0500 00 0 13145   STGB  CLA NUM2+7    L STR 17777
12474  0774 00 4 00027         AXT 23,4      L 27 IN XRC
12475  0601 00 4 00027         STO 23,4      FILL LOCATIONS
12476  2 00001 4 12475         TIX *-1,4,1   00000-00026

12477  0500 00 0 13030         CLA K         L TRA SPACE
12500  0601 00 0 00002         STO 2         STORE IN LOCATION 00002

12501  0760 00 0 00140         SLF           SENSE LIGHTS OFF
12502  0020 00 0 10000         TRA AY        COMMENCE TEST



*PRINT IMAGE FOR CHECKING RESET BUTTON IN COMPATABILITY TEST

12503 +000000420004      RE    OCT 420004             9 L
12504 +142101000000            OCT 142101000000       9 R
12505 +000000000000            OCT                    8 L
12506 +000000000000            OCT                    8 R
12507 +000000000201            OCT 201                7 L
12510 +200000200000            OCT 200000200000       7 R
12511 +000000200000            OCT 200000             6 L
12512 +000600000000            OCT 600000000          6 R
12513 +000000014002            OCT 14002              5 L
12514 +024010400000            OCT 24010400000        5 R
12515 +000000100020            OCT 100020             4 L
12516 +000000000000            OCT                    4 R
12517 +000000040000            OCT 40000              3 L
12520 +010022000000            OCT 10022000000        3 R
12521 +000000000410            OCT 410                2 L
12522 +000004000000            OCT 4000000            2 R
12523 +000000001100            OCT 1100               1 L
12524 +000000000000            OCT                    1 R
12525 +000000140030            OCT 140030             0 L
12526 +010026000000            OCT 10026000000        0 R
12527 +000000610002            OCT 610002             11L
12530 +322300400000            OCT 322300400000       11R
12531 +000000025105            OCT 25105              12L
12532 +045511200000            OCT 45511200000        12R
```

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                                    INDEXABLE BCD PRINT SUBROUTINE.

12533  0020 00 0 12722   SPLAT TRA SPLT1     CHECK FOR SENSE PRINTER
12534  0634 00 1 12630         SXA SPLAT+61,1
12535  0634 00 2 12631         SXA SPLAT+62,2
12536  0634 00 4 12721         SXA SUBET,4   SAVE ORIGINAL XRC.
12537 -0520 00 4 00001         NZT 1,4       IF CONTROL WORD ZERO.

12540  0020 00 4 00002         TRA 2,4       RETURN

12541 -0500 00 4 00001         CAL 1,4       GET NON-ZERO WORD
12542  0602 00 0 12660         SLW SPLAT+85  SAVE CONTROL WORD
12543 -0734 00 1 00000         PDX 0,1       TYPE WHEEL NO.
12544 -3 00000 1 12634         TXL SPLAT+65,1,0 IF DECR. ZERO, GET
                                             NEW CONTROL WORD

12545 -0634 00 4 12547         SXD *+2,4     GET EXIT ADDRESS
12546  0737 00 2 00000         PAC 0,2       BY ADDING TWOS COMP.
12547  1 00000 2 12550         TXI *+1,2,0   OF N TO XRC.
12550  0634 00 2 12632         SXA SPLAT+63,2 EXIT VALUE.

                                    SET BIT INDEX TO STARTING WHEEL

12551  0634 00 1 12554         SXA *+3,1     FOR SHIFTING

12552  0774 00 3 00001         AXT 1,3       1 TO XRA AND XRB
12553 -0500 00 0 12655         CAL SPLAT+82  BIT INDEX TO P
12554 -0765 00 1 00000         LGR 0,1       SHIFT TO STARTING POINT
12555 -0100 00 0 12560         TNZ *+3       IF ACC IS ZERO, SET FOR
12556 -0600 00 0 12656         STQ SPLAT+83  RIGHT ROW, AND MAKE

12557  1 00001 2 12561         TXI *+2,2,1   XRB A DUECE
12560  0602 00 0 12656         SLW SPLAT+83  OTHERWISE, LEFT ROW.
12561  0774 00 1 00032         AXT 26,1
12562  0600 00 1 12721         STZ CI+26,1   CLEAR CARD IMAGE
12563  2 00001 1 12562         TIX *-1,1,1


                                    FORM CARD IMAGE.

12564  2 00001 4 12565         TIX *+1,4,1   ADDRESS OF FIRST WORD.
12565  0774 00 1 00006         AXT 6,1       CHARACTER COUNT.
12566  0560 00 4 00001         LDQ 1,4       GET THE WORD.

12567  0634 00 1 12621         SXA SPLAT+54,1 SAVE CHARACTER COUNT.
12570 -0754 00 0 00000         PXD           CLEAR ACC.

12571 -0763 00 0 00002         LGL 2         ZONE
12572  0767 00 0 00001         ALS 1         TIMES 2
12573  0734 00 1 00000         PAX 0,1
12574  0634 00 1 12610         SXA SPLAT+45,1 FOR FUTURE REFERENCE.
12575  0760 00 0 00000         CLM

12576 -0763 00 0 00004         LGL 4         DIGIT
```

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12577  0767 00 0 00001        ALS 1         TIMES 2
12600  0602 00 0 12667        SLW CI        TEMPO
12601 -0500 00 0 12656        CAL SPLAT+83  BIT INDEX
12602 -0520 00 0 12667        NZT CI        IS DIGIT ZERO.

12603  3 00000 1 12653        TXH SPLAT+80,1,0 IS ZERO TOO.
12604  0534 00 1 12667        LXA CI,1      OK, PROCEED
12605  3 00030 1 12613        TXH SPLAT+48,1,24 CHECK FOR ILLEGAL
12606  3 00024 1 12651        TXH SPLAT+78,1,20 SPECIAL CHARACTER.
12607 -0602 60 2 12667        ORS* SPLAT+92,2 XRB PICKS LEFT OR RIGHT.

12610  0774 00 1 00000        AXT 0,1       ZONE AGAIN.
12611 -3 00000 1 12613        TXL *+2,1,0   NOTHING FOR ZERO ZONE
12612 -0602 60 2 12665        ORS* SPLAT+90,2 PLACE ZONE BIT.

                                  COLUMN SET.

12613  0771 00 0 00001        ARS 1         SET BIT INDEX TO
12614 -0100 00 0 12620        TNZ *+4       NEXT COLUMN, IF ANY.

12615  3 00001 2 12627        TXH SPLAT+60,2,1 IF BX ZERO,+XRB 1, STOP

12616 -0500 00 0 12655        CAL SPLAT+82  IF NOT, SET TO RIGHT
12617  1 00001 2 12620        TXI *+1,2,1   ROW AND PROCEED.
12620  0602 00 0 12656        SLW SPLAT+83  BX READY FOR NEXT COLUMN.
12621  0774 00 1 00000        AXT 0,1       MORE CHARACTERS.

12622  2 00001 1 12567        TIX SPLAT+28,1,1 NEXT COLUMN
12623  0534 00 1 12660        LXA SPLAT+85,1 MORE WORDS MAYBE.
12624 -2 00001 1 12627        TNX *+3,1,1   IF NOT, STOP
12625  0634 00 1 12660        SXA SPLAT+85,1 YUMMY, GO GET EM.
12626  1 00000 0 12564        TXI SPLAT+25

12627  0540 00 0 12657        RCHA SPLAT+84 LEFT HER RIP
12630  0774 00 1 00000        AXT 0,1
12631  0774 00 2 00000        AXT 0,2
12632  0774 00 4 00000        AXT 0,4
12633  0020 00 4 00002        TRA 2,4       EXIT


                                  GET NEW CONTROL WORD FROM SOMPLACE


12634  0634 00 4 12632        SXA SPLAT+63,4 FOR EXIT
12635  0534 00 1 12630        LXA SPLAT+61,1 RESETORE XRA
12636 -0520 60 0 12660        NZT* SPLAT+85 IF CONTROL WORD ZERO
12637  0020 00 0 12630        TRA SPLAT+61  RETURN.
12640 -0500 00 0 12660        CAL SPLAT+85  OLD CONTROL WORD

12641  0625 00 0 12642        STT *+1       BRING OUT INDEX
12642 -0634 00 0 12644        SXD *+2,0     REGISTER, IF ONE IS TAGED.
12643  0737 00 4 00000        PAC 0,4
12644  1 00000 4 12645        TXI *+1,4,0   GET EFFECTIVE ADDRESS.
12645 -0500 00 4 00000        CAL 0,4       NEW CONTROL WORD.

12646 -0734 00 1 00000        PDX 0,1       TYPE WHEEL ID.
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12647  0602 00 0 12660         SLW SPLAT+85
12650  1 00001 4 12552         TXI SPLAT+15,4,1 PROCEED

12651 -0602 60 2 12663         ORS* SPLAT+88,2 PUT EIGHT IN, TAKE
12652  2 00020 1 12607         TIX SPLAT+44,1,16 16 OUT, - GOOD BUSINESS

12653 -3 00004 1 12612         TXL SPLAT+47,1,4 IF NOT BLANK, SET ZONE.
12654  0020 00 0 12613         TRA SPLAT+48  BLANK.

12655 -0 00000 0 00000         MZE           FOR BIT INDEX.
12656  0000 00 0 00000         HTR           DYNAMIC BIT INDEX.
12657  0000 30 0 12671         IOCD CI+2,,24 BUFFER COMMAND

12660  0000 00 0 00000         HTR           SPECIAL SALON FOR
                                             THE CONTROL WORD
12661  0000 00 0 12674         HTR CI+5
12662  0000 00 0 12673         HTR CI+4      8ROW ADDRESSES
12663  0000 00 1 12722         HTR CI+27,1
12664  0000 00 1 12721         HTR CI+26,1   ZONE ROW ADDRESSES

12665  0000 00 1 12714         HTR CI+21,1
12666  0000 00 1 12713         HTR CI+20,1   DIGIT ROW ADDRESSES

                12667   CI     BSS 26
                12721   SUBET  BSS 1

12722  0760 00 0 00162   SPLT1 SWT 2         AND SWITCHES
12723  0020 00 0 12725         TRA *+2       CHECK SWITCH 3
12724  0020 00 0 12743         TRA SPLIT     IGNORE ERROR

12725  0760 00 0 00163         SWT 3         TEST THREE
12726  0020 00 0 12730         TRA *+2       UP-PRINT
12727  0020 00 0 12743         TRA SPLIT     DOWN-RETURN

12730 -0500 00 4 00001         CAL 1,4       L CONTROL WORD
12731  0766 00 0 01361         WPRA          SELECT PRINTER
12732 -0760 00 0 00001         PBT           P BIT IN CNTRL WORD
12733  0020 00 0 12534         TRA SPLAT+1   NO
12734  0760 00 0 01363         SPRA 3        YES-TAKE A CYCLE
12735  0767 00 0 00001         ALS 1         MOVE 1 TO LEFT
12736 -0760 00 0 00001         PBT           P BIT
12737  0020 00 0 12534         TRA SPLAT+1   NO
12740  0766 00 0 01361         WPRA          YES-DOUBLE
12741  0760 00 0 01363         SPRA 3        SPACE
12742  0140 00 0 12534         TOV SPLAT+1

12743  0500 00 4 00001   SPLIT CLA 1,4       CONTROL WORD
12744  0621 00 0 12746         STA *+2       STORE NO. OR WORDS
12745  2 00002 4 12746         TIX *+1,4,2   DECREMENT XRC BY 2
12746  0020 00 4 00000         TRA 0,4
```

```
*FIXED BINARY TO FIXED BCD. BINARY WORD IN THE ACC ON
*ENTRY, BCD WORDS IN ACC AND MQ ON EXIT.
                                LEADING BLANKS FOR LEADING ZEROS.
                                BLANKS FOR PLUS, - FOR MINUS.
*IF THE HIGH ORDER 6 CHARACTERS ARE BLANK, RETURN IS
*MADE TO X+2, OTHERWISE TO X+1.
                                XRC IS STORED AT SUBET, WHICH MUST
                                BE SUPPLIED BY THE PROGRAM.

12747  0634 00 1 12776   BTEN  SXA BTEN+23,1
12750  0634 00 2 12777         SXA BTEN+24,2
12751  0634 00 4 12721         SXA SUBET,4   SAVE XRC
12752  0602 00 0 13016         SLW FREE      DROP SIGN
12753  0760 00 0 00000         CLM
12754  0601 00 0 13021         STO FREE+3    SAVE SIGN
12755  0600 00 0 13017         STZ FREE+1
12756  0600 00 0 13020         STZ FREE+2
12757  0774 00 2 00002         AXT 2,2
12760  0774 00 1 00044         AXT 36,1

12761 -0754 00 0 00000         PXD           CLEAR ACC.
12762  0560 00 0 13016         LDQ FREE
12763 -0520 00 0 13016         NZT FREE      WHEN ZERO-
12764  0020 00 0 13001         TRA BTEN+26   FINISHED.
12765  0221 00 0 13015         DVP BTEN+38   BY 10 DECIMAL.
12766 -0600 00 0 13016         STQ FREE
12767  0767 00 1 00044         ALS 36,1      SHIFT TO POSITION,
12770  0361 00 2 13021         ACL FREE+3,2  TACK ON LOW ORDER-
12771  0602 00 2 13021         SLW FREE+3,2  SAVE PARTIAL RESULT.
12772  2 00006 1 12761         TIX BTEN+10,1,6 GET NEXT DIGIT, OR

12773  2 00001 2 12760         TIX BTEN+9,2,1 SECOND WORD.
12774 -0500 00 0 13020         CAL FREE+2    IF XRB RUNS OUT BEFORE
                                             QUOT. IS ZERO, NO
                                             ROOM FOR SIGN.
12775  0560 00 0 13017         LDQ FREE+1    LOW ORDER TO MQ.
12776  0774 00 1 00000         AXT 0,1
12777  0774 00 2 00000         AXT 0,2
13000  0020 00 4 00001         TRA 1,4       EXIT-TO X+1 FOR 2 WORDS.

13001  0500 00 0 13021         CLA FREE+3  BRING IN SIGN
13002 -0501 00 0 13013         ORA BTEN+36  BLANK-MINUS
13003 -0120 00 0 13005         TMI *+2     WAS WORD MINUS
13004 -0500 00 0 13014         CAL BTEN+37  NO GET BLANKS
13005  0767 00 1 00044         ALS 36,1    BUMBSIE DAISY
13006  0361 00 2 13021         ACL FREE+3,2  NON-ZERO DIGITS
13007 -3 00001 2 12775         TXL BTEN+22,2,1  OUT ON HIGH ORDER
13010 -0130 00 0 00000         XCL
13011 -0500 00 0 13014         CAL BTEN+37   HIGH ORDER BLANK.
13012  1 77777 4 12777         TXI BTEN+24,4,-1 RETURN TO X+2
13013 -006060606040            OCT -406060606040 BLANK MINUS.
13014 -206060606060            OCT 606060606060  BLANK PLUS
13015  0000 00 0 00012         HTR 10        DIVISOR

                13016   FREE   BSS 10
```

```
*          CONSTANTS


13030  0020 00 0 12166   K     TRA SPACE
13031  0020 00 0 10024         TRA AZA-2
13032  0020 00 0 10043         TRA AA
13033  0020 00 0 10053         TRA AB-5
13034  0020 00 0 10073         TRA A1A-2
13035  0020 00 0 10111         TRA A2A-2
13036  0020 00 0 10131         TRA A3A
13037  0020 00 2 00002         TRA 2,2
13040  0000 00 0 10304         HTR A7A
13041  0000 00 0 10645         HTR A15A
13042  0021 00 0 10744         TTR A16A
13043 -1 00000 0 10733         STR A16A-9
13044  0000 00 0 11064         HTR A18A
13045  0020 00 0 11213         TRA A20A
13046  0020 00 0 11333         TRA A22A
13047  0021 00 0 00002         TTR 2
13050  0020 00 0 11365         TRA A24A
13051 -1 00013 0 11363         STR A24A-2,0,11
13052  0020 00 0 11462         TRA A27A
13053  0020 00 0 11521         TRA A27B
13054  0000 03 0 11517         HTR A27B-2,0,3
13055  0020 00 0 11613         TRA A28A
13056  0000 03 0 13057         IOCD K+23,0,3
13057  0000 00 0 00000         HTR
13060  0762 00 0 01221         RTBA 1
13061  0020 00 0 11615         TRA A28B
13062  0020 00 0 11643         TRA A28C
13063  0000 03 0 11641         HTR A28C-2,0,3
13064  0020 00 0 11424         TRA A26A
13065  0020 00 0 10575         TRA A14-5
13066  0000 00 0 10441         HTR A10B
13067  0000 00 0 10470         HTR A10D
13070  0000 00 0 10514         HTR A10F

13071 -1 00000 0 11211   K1    STR A20A-2
13072  0000 00 0 11207         HTR A20A-4
13073  0020 00 0 10255         TRA A6XX
13074  0100 00 0 00000         HTR 0,0,AY
13075  0103 31 0 00000         HTR 0,0,A8
13076  0102 46 0 00000         HTR 0,0,A6X

13077 +000000000000      NUM   OCT 0
13100 +000000000001            OCT 1
13101 +000000000002            OCT 2
13102 +000000002000            OCT 2000
13103 -000100000000            OCT 400100000000
13104 -032404040404            OCT 432404040404
13105 +344440404040            OCT 344440404040
13106 +001007777777            OCT 1007777777
13107 +004004444444            OCT 4004444444
```

```
13110  0116 16 0 10014   NUM1  HTR AZ,0,A28B+1
13111 -201061020460            OCT 601061020460
13112 -377777707777            OCT 777777707777
13113 +000000040000            OCT 40000
13114 -377777717777            OCT 777777717777
13115 +000000017777            OCT 17777
13116 +000000040007            OCT 40007
13117 +010661010660            OCT 010661010660
13120 +010661010642            OCT 010661010642
13121 -201061020442            OCT 601061020442
13122 +000000030000            OCT 30000
13123  0000 00 0 13113         HTR NUM1+3
13124  0000 00 0 13114         HTR NUM1+4
13125 +000000020007            OCT 20007
13126 +000000017000            OCT 17000
13127  0000 00 0 13130         HTR NUM1+16
13130 +000000040000            OCT 40000
13131  0000 00 0 00000         HTR  **
13132  0000 00 0 00000         HTR  **
13133  0760 00 0 00163         SWT 3
13134  0000 00 0 13116         HTR NUM1+6
13135  0000 00 0 13125         HTR NUM1+13

13136  0000 00 0 10221   NUM2  HTR A6+2
13137  0020 00 0 10004         TRA AY1
13140  0020 00 0 10007         TRA AY2
13141  0762 00 0 01221         RTBA 1
13142  0020 00 0 11656         TRA M05-2
13143  0020 00 0 10675         TRA A15Y
13144  0020 00 0 11156         TRA A20Y
13145 -1 00000 0 17777         STR 8191
13146 +002100006121            OCT 2100006121
13147  0000 00 0 11544         HTR A27C+4
13150 -000000000000      MINON OCT 400000000000
13151 +000400000000      MQNIN OCT 000400000000
13152 +000000000000      HOLD  OCT  +0
13153 +000000000000            OCT
13154 +000000000000            OCT
13155 +000000000000      LADR  OCT
13156 +000000000000      NMBR  OCT
13157 +000000000000      PASS  OCT
13160 +000000000000            OCT
13161 +000000000000            OCT
13162 +000000000000      NUL16 OCT
13163 +000000000000      NUL8  OCT
13164 +000000000000      TGR   OCT
13165 +000000000050      TIMES OCT 50
13166 +000000000050            OCT 50

13167  0000 01 0 10014   W0    IOCD AZ,0,1
13170 -1 00003 0 00000   TOTAL IOCT 0,0,3

                17777   8K    EQU 8191
                37777   16K   EQU 16383
                77777   32K   EQU 32767
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```
                06273         ORG 3259

*                   CHECK NULLIFY TRIGGER STILL ON

06273  0774 00 1 37777         AXT 16K,1     37777 OR 17777 IN XRA
06274  1 00001 1 06275         TXI *+1,1,1   XRA SHOULD BE ZERO
06275  0754 00 1 00000         PXA 0,1       XRA TO ADR OF ACC
06276  0100 00 0 06300         TZE *+2       WAS XRA ZERO
06277  0074 00 4 06331         TSX NOCOM+2,4 NO, INDICATE ERROR

*           CHECK CPY OR SELECT TRIGGER STILL ON

06300  0700 00 0 00000   CKTGR CPY           IS TRIGGER STILL ON
06301  0761 00 0 00000         NOP
06302  0074 00 4 06327         TSX NOCOM,4   NO, INDICATE ERROR

06303 -0520 00 0 13164         NZT TGR       IS LOCATION CLEAR
06304  0020 00 0 06311         TRA *+5       YES
06305  0600 00 0 13164         STZ TGR       NO,CLEAR LOCATION
06306  0500 00 0 11136         CLA A19+3     L COPY
06307  0601 00 0 06300         STO CKTGR     AND STORE
06310  0020 00 0 06314         TRA *+4       PROCEED
06311 -0625 00 0 13164         STL TGR       STORE LOCATION
06312  0500 00 0 11716         CLA MORE      L RUNA 2
06313  0601 00 0 06300         STO CKTGR     AND STORE

06314 -0021 00 0 06315         ESNT *+1      TURN ON TRIGGER
06315 -0760 00 0 00005         ESTM          TURN ON TRIGGER
06316  0760 00 0 00005         IOT           IS LIGHT ON
06317  0074 00 4 06331         TSX NOCOM+2,4 YES, ERROR

06320 -0754 00 0 00000         PXD           CLEAR ACCUMULATOR
06321 -0760 00 0 00002         EFTM          FP TRAP TRG ON
06322  0120 00 0 06324         TPL *+2       WAS SIGN CHANGED
06323  0074 00 5 06331         TSX NOCOM+2,5 YES, INDICATE ERROR

06324 -0760 00 0 00006         ECTM          TURN ON TRIGGER
06325  0020 00 0 06254         TRA 3244      PROCEED
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06326  436560234644            BCD 1LV COM

06327  0760 00 0 00005   NOCOM IOT           TURN OFF THE
06330  0761 00 0 00000         NOP           THE LIGHT IF ON
06331  0600 00 0 06116         STZ 3150      CLEAR LOCATION
06332 -0754 00 4 00000         PXD 0,4       GET TRUE
06333 -0737 00 4 00000         PDC 0,4       FAILURE
06334 -0634 00 4 06116         SXD 3150,4    LOCATION
06335 -0534 00 4 06120         LXD 3152,4    ROUTINE THAT
06336  0500 00 4 77776         CLA -2,4      MIGHT
06337  0621 00 0 06116         STA 3150      HAVE
06340  0500 00 0 06116         CLA 3150      FAILED
06341  0074 00 4 06503         TSX ERROR-1,4 TO ERROR
06342  0761 00 0 06327         NOP NOCOM     ROUTINE



* DECREMENT OF ACCUMULATOR CONTAINS TRUE LOCATION OF TRIGGER TESTED
* AND ADDRESS OF ACCUMULATOR CONTAINS INITIAL ADDRESS OF ROUTINE THAT
* MIGHT HAVE CAUSED FAILURE. RETURN IS TO ROUTINE THAT MIGHT HAVE CAUSED
* FAILURE. IF STORAGE NULLIFY TRIGGER IS FAILURE, XRA HAS ERROR VALUE.

06343  0737 00 4 00000         PAC 0,4       SET MONITOR
06344 -0760 00 0 00002         EFTM          AND ALL
06345 -0760 00 0 00005         ESTM          TRIGGERS
06346 -0760 00 0 00006         ECTM          AND RETURN
06347 -0021 00 0 06205   E5    ESNT 3205     TO 9M05
```

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                06500         ORG 3392

*MODIFY VERSION OF 9DEPR FOR USE WITH 9M05 FOR RELIABILITY

                06500         BSS 2
06502 +000000000001           OCT 1
06503  0020 00 0 06536         TRA ERR
06504  0600 00 0 06551   ERROR STZ KONST     DO NOT REPEAT SECTION
06505  0600 00 0 06552         STZ KONST+1   IF SW 4 IS DOWN

06506  0760 00 0 00162         SWT 2         IF SENSE SW 2 IS UP, THEN
06507  0020 00 0 06515         TRA SSW3      CHECK SSW3
06510  2 00001 4 06511         TIX OK,4,1
06511 -0634 00 4 06501   OK    SXD ERROR-3,4 2-S COMPL OF PROGRAM
                                             LOCATION LAST PERFORMED
06512  0760 00 0 00161         SWT 1         IF SENSE SW 1 IS UP, THEN
06513  0020 00 0 06523         TRA RELY      CHECK SS4
06514  0020 00 4 00001         TRA 1,4       IF DOWN REPEAT SECTION

06515  0634 00 4 06500   SSW3  SXA ERROR-4,4 SAVE XRC TO GET
06516  0535 00 4 06500         LAC ERROR-4,4 TRUE ERROR LOCATION
06517  0420 00 0 00000         HPR           REFER TO LOCATION IN XRC
06520  0634 00 4 06500         SXA ERROR-4,4 RESTORE
06521  0535 00 4 06500         LAC ERROR-4,4 ORIGINAL XRC
06522  0020 00 0 06510         TRA OK-1      FOR RETURN

06523  0760 00 0 00164   RELY  SWT 4         IF SWT 4 IS UP, GO TO NEXT
06524  0020 00 4 00003         TRA 3,4       SECTION OF PROGRAM. IF IT
                                             IS DOWN, REPEAT SECTION
                                             50 OCTAL TIMES
06525  0500 00 0 06552         CLA KONST+1   COUNTER
06526  0402 00 0 06551         SUB KONST     REDUCE COUNT BY 1
06527  0601 00 0 06552         STO KONST+1
06530 -0100 00 0 06514         TNZ OK+3
06531  0500 00 0 06553         CLA KONST+2   RESTORE
06532  0601 00 0 06552         STO KONST+1   THE
06533  0500 00 0 06502         CLA ERROR-2   COUNTER
06534  0601 00 0 06551         STO KONST     VALUES
06535  0020 00 4 00003         TRA 3,4       RETURN

06536  0760 00 0 00162   ERR   SWT 2         IF SWT 2 IS UP, CHECK
06537  0020 00 0 06543         TRA SSW3A     SENSE SWITCH 3
06540  0760 00 0 00161   OK2   SWT 1         SSW1 UP, GO TO NEXT ROUTINE
06541  0020 00 4 00002         TRA 2,4       EXIT
06542  0020 00 4 00001         TRA 1,4       REPEAT

06543  0634 00 4 06500   SSW3A SXA ERROR-4,4 SAVE XRC TO GET
06544  0535 00 4 06500         LAC ERROR-4,4 TRUE ERROR LOCATION
06545  0420 00 0 00000         HPR           REFER TO LOCATION IN XRC
06546  0634 00 4 06500         SXA ERROR-4,4 RESTORE
06547  0535 00 4 06500         LAC ERROR-4,4 ORIGINAL XRC
06550  0020 00 0 06540         TRA OK2       FOR RETURN
```

```
06551 +000000000001      KONST OCT 1
06552 +000000000050            OCT 50
06553 +000000000050            OCT 50

                40020          ORG 16400

40020  0000 00 0 06300   UXTRP HTR SHAVE     TO 9M05
40021  0500 00 0 40000   TRLOC CLA 16384     GET TRAP STORE LOC
40022  0340 00 0 40020         CAS UXTRP     COMPARE TO 9M05 ADDR.
40023  0020 00 0 40003         TRA 16387     HIGH
40024  0020 00 0 40003         TRA 16387     EQUAL
40025  0500 00 0 40053         CLA ABCDX     GET STI INSTR.
40026  0340 00 0 00000         CAS 0         COMPARE TO ZERO
40027  0020 00 0 40036         TRA XYZAB
40030  0020 00 0 40033         TRA *+3       OK
40031  0020 00 0 40036         TRA XYZAB
40032  0600 00 0 00000         STZ **        CLEAR ZERO
40033 -0760 00 0 00006         ECTM 0        COPY TRAP
40034 -0760 00 0 00005         ESTM 0        SELECT TRAP
40035 -0021 00 0 00000         ESNT 0        STRG. NULL AND TRANSFER

40036  0500 00 0 40000   XYZAB CLA 16384     GET STORE TRAP LOC.
40037  0621 00 0 40051         STA ZEBRA     STORE INTO STORE INSTR.
40040  0621 00 0 40050         STA ZEBRA-1    STORE IN IND INSTR.
40041  0621 00 0 40053         STA ABCDX
40042  0500 00 0 40053         CLA ABCDX     GET STO INSTR.
40043  0601 00 0 00000         STO 0         STORE IN ZERO

40044  0500 00 0 40072         CLA XRAYA     GET TRAP MODE TRA
40045  0601 00 0 00001         STO 1         STORE IN LOC 1
40046  0500 00 0 06264         CLA EXIT      GET 9M05 ADDR.
40047  0621 00 0 40035         STA XYZAB-1    STORE IN ESNT ADDR.
40050  0441 00 0 00000         LDI **        LOAD IND WITH STORE TRAP LOC.
40051  0601 00 0 00000   ZEBRA STO **        STORE 9M05 ADDR.
40052  0020 00 0 40054         TRA *+2       SKIP

40053  0604 00 0 00000   ABCDX STI **        STORE TRAP LOC)
40054  0560 00 0 40000         LDQ 16384     GET LOC 40000
40055 -0773 00 0 00022         RQL 18        ROTATE
40056  0774 00 4 00006         AXT 6,4       SET XRC
40057  0767 00 0 00003         ALS 3         SET INTO BCD
40060 -0763 00 0 00003         LGL 3
40061  2 00001 4 40057         TIX *-2,4,1

40062  0601 00 0 40101         STO XRAYB+6   STORE INTO PRINT IMAGE
40063  0074 00 4 12533         TSX SPLAT,4   TO PRINT ROUT.
40064  0 00000 0 40073         PZE XRAYB
40065  0074 00 4 12533         TSX SPLAT,4   PRINT
40066  0 00000 0 40102         PZE XRAYC
40067  0074 00 4 12533         TSX SPLAT,4     ERROR
40070  0 00000 0 40114         PZE XRAYD
40071  0000 00 0 40033         HTR XYZAB-3        ROUTINE
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```
40072  0020 00 0 40032   XRAYA TRA TRLOC+9
40073  0 00001 0 00006   XRAYB PZE 6,,1
40074  314343252721            BCD 6ILLEGAL TRAP FROM 9M05 LOC+1
40075  436063512147
40076  602651464460
40077  114400056043
40100  462320016060
40101  606060606060
40102  0 00001 0 00011   XRAYC PZE 9,,1
40103  475125626260            BCD 6PRESS START PROG. WILL LOOP IN AREA
40104  626321516360
40105  475146273360
40106  663143436043
40107  464647603145
40110  602151252160
40111  232164623145            BCD 3CAUSING FAILURE.
40112  276026213143
40113  645125336060
40114  0 00001 0 00011   XRAYD PZE 9,,1
40115  634660512562            BCD 6TO RESTORE PROG. AND CONTINUE PUSH R
40116  634651256047
40117  514627336021
40120  452460234645
40121  633145642560
40122  476462306051
40123  256225636021            BCD 3ESET AND START.
40124  452460626321
40125  516333606060
40126 +000000000000      UNIQ  OCT  +0
                 06300   SHAVE DEFINE 06300
                 06264   EXIT  DEFINE 06264




                 12243         END GO
```

EOF*