9COMB

709/704 COMPATABILITY AND EXECUTE INSTRUCTION PROGRAM

A. UNITS TESTED-709 CPU AND CORE STORAGE

1. PURPOSE OF TEST

   A. ABILITY TO NULLIFY HALF OF AN 8K, 16K OR 32K STORAGE

   B. TEST 709 IN SPECIFIED MODES WILL TRAP WHEN ENCOUNTERING 709 OR 704 I/O SELECT, SENSE, COPY OR LDA INSTRUCTIONS.
   NOTE 709 INSTRUCTIONS BTT AND ETT DO NOT TRAP AS PER THE COMPATABILITY FEATURE. SEE PAGE 12 AND 13 OF LISTING.

   C. ABILITY OF 09 TO PERFORM 704 FLOATING POINT OPERATIONS

   D. TEST THE EXECUTE INSTRUCTION

2. METHOD OF TEST

   A. THE SELF LOADING PROCEDURE WITH 30 OCTAL WORDS PER CARD PROVIDEDS A MEANS OF LOADING THE DECK WITH THE LOAD CARDS BUTTON ON THE CPU CONSOLE OR WITH THE KEYS ON THE DSU. PAGE 1 OF LISTING EXPLAINS DSU LOADINGS.

   B. TO INSURE THE DECK HAS BEEN READ INTO STORAGE CORRECTLY. A STORAGE CHECK SUM IS COMPUTED AND COMPARED WITH A PREDETERMINED CHECK SUM.

   C. A NORMAL PROGRAM STOP HAS BEEN PROVIDED TO GIVE THE C.E. IF HE DESIRES. THE OPPORTUNITY TO OBSERVER AND/OR CHECK THE VARIOUS COMPONENTS OF TH COMPATABILITY FEATURE.

   D. INITIALLY, THE PROGRAM TESTS FOR SIZE OF STORAGE. IF STORAGE IS LESS THEN 32K, ADDRESSES ARE MODIFIED TO CONFORM WITH AND 8K OR 16K STORAGE UNIT IN THE SYSTEM.

   E. A MONITOR INCLUDED IN THE PROGRAM TO CHECK THE CORRECT SEQUENCE OF TESTS.

   F. IF LOGICAL DRUM 1 IS NOT IN THE SYSTEM, DEPRESSING KEY 1 WILL ENABLE THE PROGRAM TO INSERT A BYPASS TO SKIP THE ROUTINE REQUIRING DRUM 1 TO BE ON LINE.

   G. ERRORS IN THE COMPATABILITY SECTION ARE POINTED OUT BY HALTS TO AVOID FALSE ERROR INDICATORS. ERRORS IN THE EXECUTE SECTION CAN BE INDICATOR BY HALTS OR A PRINTOUT DEPENDING ON THE SENSE SWITCH 3 SECTIONS.

H. WITH SENSE SWITCH 2UP, ALL FEATURES OF THE COMPATABILITY PACKAGE. WHICH REQUIRE NO STOPS. AND THE EXECUTE INSTRUCTION ARE TESTED.

I. WITH SENSE SWITCH 2 DOWN, THE AFFECT OF THE RESET AND LOAD TAPE BUTTONS ON THE COMPATABILITY FEATURE CAN BE TESTED.

B. MACHINE UNITS AND STORAGE AREA

1. UNITS REQUIRED
MF, 8K OR 16K OR 32K CF, DSU CR. PR. TAPE, DRUM

2. STORAGE LOCATIONS

0000-06216 *NOTE* SEE SECTION 6-2 OF WRITE-UP

C. PROGRAM CONTROL

1. DECK

001-092	PROGRAM CARDS
093-094	2 BLANK CARDS

2. SENSE SWITCH CONTROL

NOTE THE USE OF SENSE SWITCHS 1 AND 4 VARY SLIGHTLY IN THE COMPATABILITY AND EXECUTE SECTIONS. HOWEVER, THESE SENSE SWITCH SETTINGS FOR THE SECTION OF THE PROGRAM SHOULD NOT ALTER THE AFFECT OF THE SENSE SWITCH SETTINGS WHEN IN THE OTHER SECTION OF THE PROGRAM.

SWITCH 1 UP	PROCEED TO NEXT TEST IF IN COMPATABILITY SECTION. TEST SWITCH 4 IF IN EXECUTE SECTION
SWITCH 1 DOWN	REPEAT TEST IF IN COMPATABILITY SECTION. REPEAT ROUTINE IF IN EXECUTE SECTION
SWITCH 2 UP	INDICATE ERRORS
SWITCH 2 DOWN	BYPASS ERRORS
SWITCH 3 UP	PRINT IDENTIFICATION. PRINT 100 PASSES COMPLETE. PRINT IN RESET BUTTON TEST IN COMPATABILITY SECTION. PRINT ERRORS IF SWITCH 2 IS UP IN EXECUTE SECTION.

SWITCH 3 DOWN	OMIT ALL PRINTING. HALT ON ERROR IF SWITCH 2 IS UP IF IN EXECUTE SECTION.
SWITCH 4 UP	PROCEED TO NEXT TEST
SWITCH 4 DOWN	REPEAT ENTIRE COMPATABILITY SECTION 50 OCTAL TIMES REPEAT EACH TEST 50 OCTAL TIMES IF IN EXECUTE SECTION.
SWITCH 5 UP	BYPASS RESET AND LOAD BUTTON TESTS.
SWITCH 5 DOWN	PERFORM RESET AND LOAD BUTTON TESTS IF SWITCH 3 IS UP. IF SWITCH 3 IS DOWN. PERFORM LOAD BUTTON TEST ONLY.
SWITCH 6 UP	CALL IN NEXT DIAGNOSTICS.
SWITCH 6 DOWN	REPEAT ENTIRE TEST *NOTE* PROGRAM PRINTS OUT-100 PROGRAM PASSES COMPLETE 9COM- EVERY 100 PASSES IF SWITCH 3 IS UP.

D. NORMAL STOPS

00017 COMPATABILITY FEATURE COMPONENTS VISUAL CHECK. ALSO, DEPRESS KEY 1 IF LOGICAL DRUM 1 IS NOT ON LINE OR WHEN BIASING.

01424 RESET BUTTON TEST

01521 LOAD TAPE BUTTON TEST

01611 PUT SENSE SWITCH 5 UP IF RESET BUTTON AND LOAD TAPE BUTTON TEST ARE NOT TO BE REPEATED.

E. ERROR STOPS AND HANGUPS

00014 ERROR IN READING PROGRAM DECK INTO STORAGE

00105 ERROR IN ADJUSTING ADDRESSES FOR AN 8K OR 16K STORAGE

00201 FAILED TO TRANSFER TO LOCATION 40007

00214 FAILED TO TRANSFER TO LOCATION 00011

00222 FAILED TO TRANSFER TO LOCATION 40012

00235 FAILED TO TRANSFER TO LOCATION 40013

00251 FAILED TO TRANSFER TO LOCATION 40014

00265 FAILED TO TRANSFER TO LOCATION 00015

00304 CONTENTS FROM XRB TO ACCUMULATOR NOT ZERO

00315 TIX TRANFERRED

00326 CONTENTS FROM XRB TO ACCUMULATOR NOT ZERO

00343 FAILED TO TRANSFER TO LOCATION 00016

00350 FAILED TO TRANSFER TO LOCATION 40016

00370 ERROR WITH TIX COUNT DOWN

00405 FAILED TO TRANSFER TO LOCATION 00016

00411 FAILED TO INDIRECT ADDRESS ESNT INSTRUCTION

00423 SEC OP 0.2 FAILED TO TRAP

00427 FAILED TO TRANSFER TO LOCATION 40016

00436 SEC OP 0,2 TRAPPED

00450 SEC OP 0,2 TRAPPED

00463 FAILED TO TRANSFER TO LOCATION 00016

00473 ERROR IN CONTENTS OF LOCATION 40000

00504 SEC OP 0,6 FAILED TO TRAP

00510 SEC OP 1,2 FAILED TO TRAP

00514 SEC OP 1,0 FAILED TO TRAP

00520 SEC OP 0,4 FAILED TO TRAP

00531 701 SENSE PUNCH INSTRUCTION FAILED TO TRAP

00537 709 SENSE PUNCH INSTRUCTION FAILED TO TRAP

00550 709 SENSE PRINTER INSTRUCTION FAILED TO TRAP

00555 709 SENSE PRINTER INSTRUCTION TRAPPED

00565 709 SENSE PRINTER INSTRUCTION FAILED TO TRAP

00602 FRN INSTRUCTION TRAPPED

00603 704 ETT INSTUCTION FAILED TO TRAP

00620 DCT INSTRUCTION TRAPPED

00621 704 RTT INSTRUCTION FAILED TO TRAP

00641 TAGGED SENSE INSTRUCTION TRAPPED

00644 TAGGED SENSE INSTRUCTION FAILED TO DECODE AS SSP

00651 FAILED TO TRANSFER TO LOCATION 00016

00653 TAGGED SENSE INSTRUCTION FAILED TO TRAP

00661 FAILED TO TRANSFER TO LOCATION 40016

00670 ERROR IN CONTENTS OF LOCATION 40000

00712 TRAPPED TO LOCATION 40001 IN TRAP MODE

00713 FAILED TO TRAP TO LOCATION 00001 IN TRAP MODE

00725 ERROR IN CONTENTS OF LOCATION 00000

00733 WRS 333 FAILED TO TRAP

00735 ERROR IN CONTENTS OF LOCATION 40000

00747 CPY TRAPPED

00752 IOT LIGHT WAS OFF

00762 ERROR IN CONTENTS OF LOCATION 40000

00767 CAD TRAPPED

00773 IOT LIGHT WAS OFF

01002 ERROR IN CONTENTS OF LOCATION 40000

01007 LDA TRAPPED

01013 IOT LIGHT WAS OFF

01022 ERROR IN CONTENTS OF LOCATION 40000

01034 CPY FAILED TO TRAP

01040 FAILED TO TRANSFER TO LOCATION 40016

01047 ERROR IN CONTENTS OF LOCATION 40000

01054 IOT LIGHT WAS ON

01061 CPY TRAPPED

01072 CAD FAILED TO TRAP

01076 LDA FAILED TO TRAP

01111 CPY TRAPPED

01126 STR TRAPPED TO LOCATION 40002

01135 ERROR IN CONTENTS OF LOCATION 00000

01144 ERROR IN CONTENTS OF LOCATION 40000 OR COPY FAILED TO TRAP

01156 WDR FAILED TO TRAP

01163 COPY TRAPPED

01170 COPY FAILED TO TRAP

01171 E.C. 245719 HAS NOT BEEN INSTALLED

01173 RDR TRAPPED

01202 CPY TRAPPED

01221 ACCUMULATOR INDICATOR OFF

01224 QUOTIENT INDICATOR OFF

01227 704 FLOATING POINT OPERATION TRAPPED TO LOCATION 00010

01236 ERROR IN CONTENTS OF LOCATION 00000

01253 ACCUMULATOR INDICATOR ON

01273 ERROR IN FAD RESULT

01276 709 FLOATING POINT OPERATION TRAPPED TO LOCATION 00010

01313 ERROR IN CONTENTS OF ACCUMULATOR

01317 ERROR IN CONTENTS OF MQ

01322 ACCUMULATOR INDICATOR ON

01325 704 FLOATING POINT OPERATION TRAPPED TO LOCATION 00010

01344 709 FLOATING POINT OPERATION FAILED TO TRAP TO LOCATION 00010

01347 ACCUMULATOR INDICTOR ON

01356 ERROR IN CONTENTS OF LOCATION 00000

01374 TQO EXECUTED

01402 TQO TRANSFERED

01431 WRPA TRAPPED

01436 SPRA TRAPPED

01444 CPY TRAPPED

01453 ERROR IN CONTENTS OF LOCATION 40000

01461 709 FLOATING POINT OPERATION FAILED TO TRAP TO LOCATION 00010

01470 ERROR IN CONTENTS OF LOCATION 0000

01523 RTBA TRAPPED

01527 FAILED TO TRANFER TO LOCATION 40016

01534 COPY TRAPPED

01543 ERROR IN CONTENTS OF LOCATION 40000

01551 709 FLOATING POINT OPERATION FAILED TO TRAP TO LOCATION 00010

01560 ERROR IN CONTENT OF LOCATION 00000

02214 E.C. 245719 HAS NOT BEEN INSTALLED

02221 E.C. 245719 HAS NOT BEEN INSTALLED

02405 ERROR IN DETERMINING SECTION OF PROGRAM

02451 ERROR WHEN PROGRAM SKIPS OUT OF CONTROL

02572 ERROR IN EXECUTE SECTION OF PROGRAM WITH SWITHC 3
OR DOWN. INDEX REGISTER C CONTAINS THE 2-S COMPLEMENT OF
02620 THE ADDRESS WHERE THE ERROR WAS DETECTED.

NOTE FOR ALL NORMAL AND ERROR STOPS, PUSH START TO CONTINUE.
FOR HANGUPS, IT IS NECESSARY TO MANUALLY TRANSFER TO
CONTINUE.

F. PRINTOUTS

1. PROGRAM IDENTIFICATION *NOW PERFORMING DIAGNOSTICS 9COM* IS PRINTED OUT PRIOR TO TESTING THE SIZE OF STORAGE IF SENSE SWITCH 3 IS UP.

2. THE PRINTER WILL PRINT *RESET BUTTON RELEASED SENSE MODE OK* IF THE INITIAL PORTION OF THE RESET BUTTON TEST IS SUCCESSFUL.

3. THE EXECUTE SECTION ONLY, WILL GIVE AN ERROR PRINTOUT IF AN ERROR IS ENCOUNTERED AND SENSE SWITCH 3 IS UP.

4. PROGRAM PRINTS *100 PROGRAM PASSES COMPLETE 9COM* AFTER EVERY 100 PASSES IF SWITCH 3 IS UP AND SWITCH 6 IS DOWN.

G. COMMENTS

1. ALTHOUGH THE PROGRAM LOCATION ARE 000000-04216, THE PROGRAM HAS AN EXIT ROUTINE FROM A SELECT, SENSE, COPY OR LDA TRAP IN LOCATION 40001 THRU 40006. LOCATIONS 40007 THRU 40017 ARE ALSO USED BY THE PROGRAM.

2. AFTER TESTING THE SIZE OF STORAGE AND ADJUSTING THE ADDRESS OF THE PROGRAM IF STORAGE IS NOT 32K, THE STR INSTRUCTION IS STORED IN ALL UNUSED LOCATION TO DETECT THE PROGRAM SKIPPING OUT OF CONTROL.

3. ENTRANCE TO THE MONITOR IS AT THE START OF EACH TEST TO INSURE CORRECT SEQUENTIAL PROGRESS OF THE PROGRAM

4. A MANUAL TRANSFER TO ANY TEST SHOULD BE TO THE INITIAL INSTRUCTION OF THE TEST WHICH IS ALWAYS AN AXT INSTRUCTION TO ITSELF. AVOID A FALSE ERROR STOP BY LEAVING KEYS DOWN. SINCE THE MONITOR CHECKS THE KEYS FOR A MANUAL TRANSFER

5. A PROGRAM STOP AT LOCATION 02541 INDICATES THE PROGRAM IS NOT PROGRESSING SEQUENTIALLY. THE DECREMENT OF ACCUMULATOR CONTAINS THE LOCATION THAT THE PROGRAM SKIPPED TO IN ERROR AND THE ADDRESS OF THE ACCUMULATOR CONTAINS THE INITIAL LOCATION OF THE TEST IN PROGRESS WHEN THE SKIP TOOK PLACE.

6. IF LOCATION 00002 IS IN THE DECREMENT OF THE ACCUMULATOR, IT IS AN INDICATION THAT THE MACHINE TRAPPED TO LOCATION 40001 BUT FAILED TO STORE THE SELECT, SENSE, COPY OR LDA INSTRUCTION LOCATION PLUS ONE IN THE ADDRESS PORTION OF LOCATION 40000.

7. IF, WHILE RUNNING THE PROGRAM, THERE IS A HANGUP CONDITION WITH THE INSTRUCTION COUNTER RESET TO ZERO, IT IS INDICATION THAT A SELECT, SENSE, COPY OR LDA INSTRUCTION FAILED TO STORE AND TRAP DISPLAY LOCATION 04161 AND THE DECREMENT PORTION WILL CONTAIN THE INITIAL LOCATION OF THE TEST IN PROGRESS WHEN THE HANGUP CONDITION OCCURRED.

8. SECTION E OF THIS WRITE UP NOTES ERROR STOP AND HANGUP LOCATIONS AND THE REASON FOR THE STOP. REFER TO THE LISTING FOR DETAILED COMMENTS WHICH MAY INDICATE THE SOURCE OF ANY TROUBLE.

9. WHEN 704 I/0 INSTRUCTIONS FAIL TO TRAP AND THE MACHINE IS HUNG UP WITH A HANGUP LOCATION IN THE INSTRUCTION COUNTER AND THE 704 I/O INSTRUCTION IN THE STORAGE REGISTER, IT WILL BE NECESSARY TO RESET AND MANUALLY TRANSFER TO CONTINUE.

10. WHEN BIASING WITH THIS PROGRAM, DEPRESS KEY 1 AT THE NORMAL PROGRAM STOP LOCATION 00017. THIS WILL BYPASS A READ DRUM ROUTINE AND PREVENT A DRUM HANGUP.

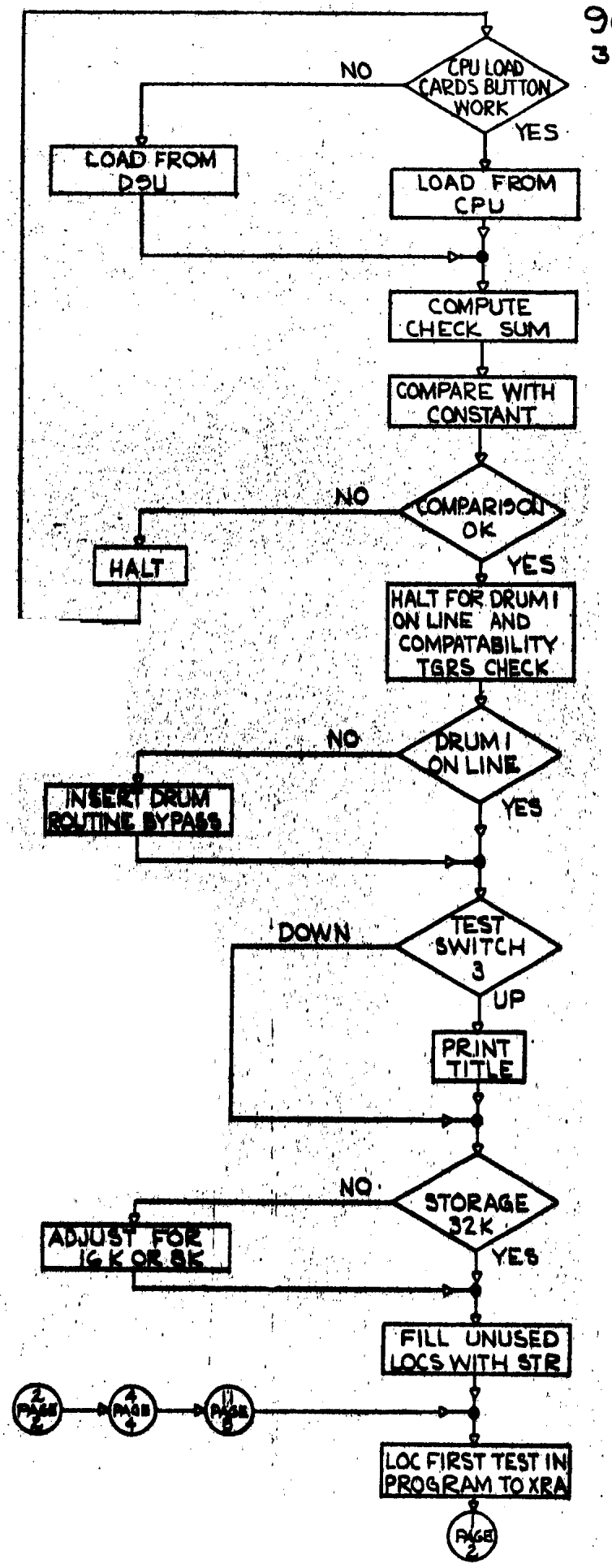
11. BECAUSE OF THE MONITOR AND THE USE OF LOCATION 00000 BY THE PROGRAM ITSELF, THERE IS NO RESET START PROVIDED. ANY TRANSFER TO THE START OF THE PROGRAM SHOULD BE A MANUAL TRANSFER TO LOCATION 00171.

13. IF EC 245719 HAS NOT BEEN INSTALLED, THE MACHINE WILL HANG UP AT LOCATION 01171, IF DRUM ROUTINE WAS NOT BYPASSED IN INITIAL PART OF THE PROGRAM. IF DRUM WAS BYPASSED, A HANGUP WILL OCCUR AT LOCATION 02214 IF AT END OF TAPE OR AT LOCATION 02221 IF NOT AT END OF TAPE. THE HANGUPS ARE CAUSED BY RESET LOAD CHANNEL WITH ZEROS IN LOCATION 00437 DESTROYING THE FOLLOWING SELECT IN LOCATION 00453. THE DSU WILL HAVE UNIT 1 AND BCD NEONS ON PREVENTING THE EXECUTION OF ANOTHER SELECT INSTRUCTION. TO BYPASS THIS HANGUP UNTIL THE E.C. HAS BEEN INSTALLED, INSERT A TRA 00460 IN LOCATION 00451.

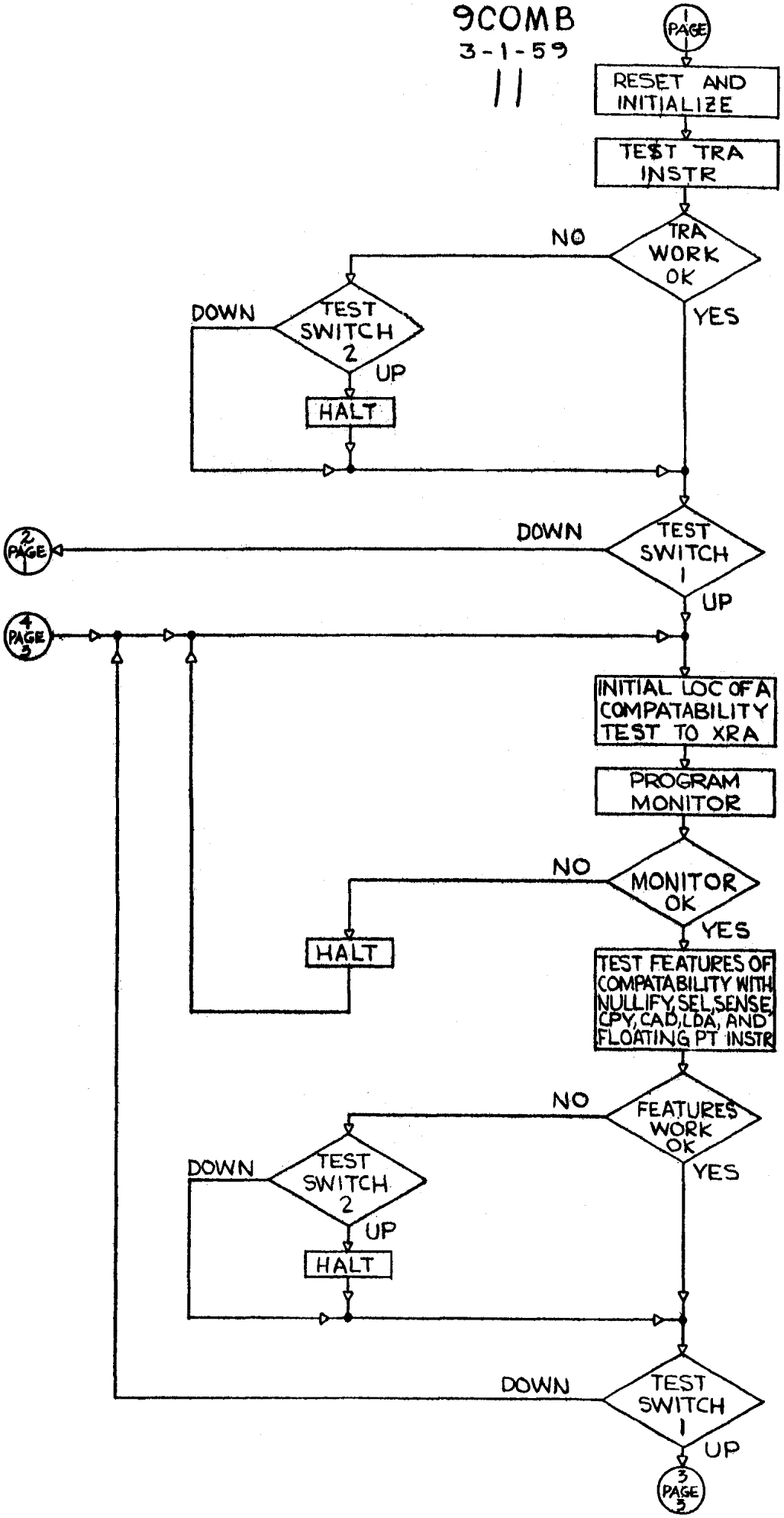
14. 9DEPR IS LOCATION IMMEDIATELY FOLLOWING THE MAIN PROGRAM IN ORDER TO HAVE ONE BLOCK OF LOCATIONS IN STOREAGE FOR THE PROGRAM AREA AND THE UNUSED LOCATION FILLED WITH THE STR INSTRUCTION FOR THE PROGRAM MONITOR.

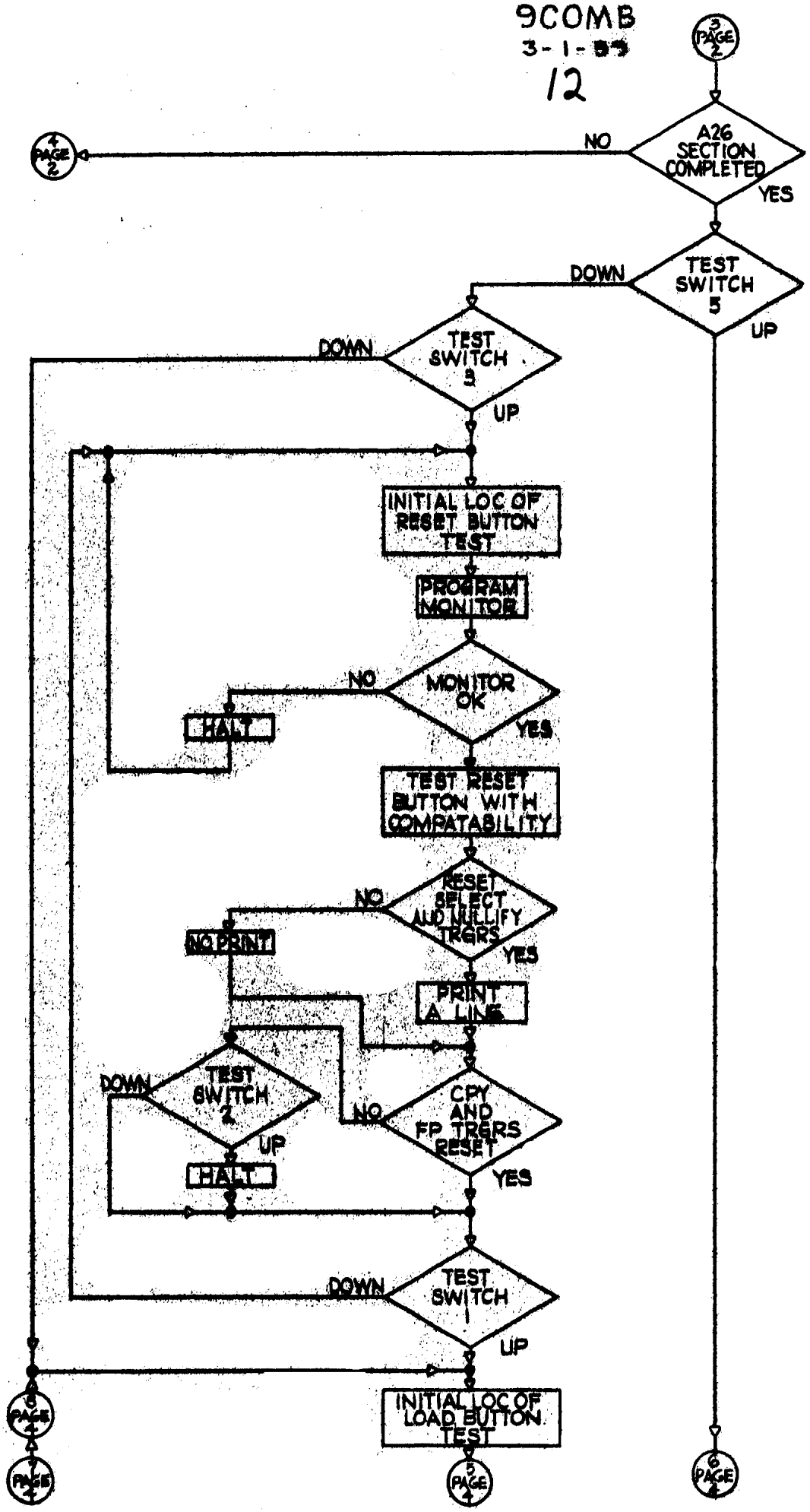
15. THE RELEASE OF THIS PROGRAM OBSOLETES 9COMA.

File Attachments: Source Deck

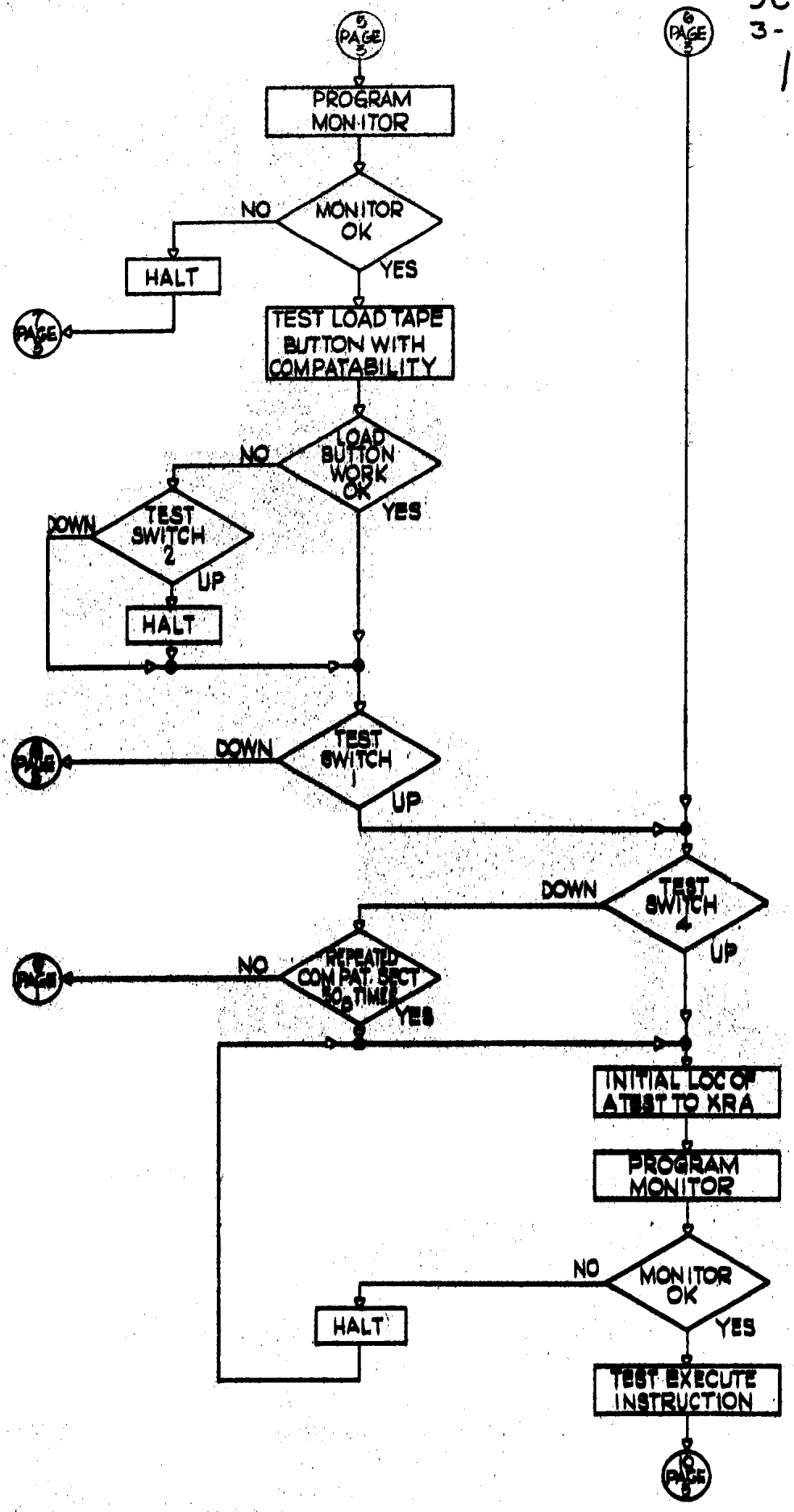

CPU LOAD CARDS BUTTON WORK
NO
YES
LOAD FROM DSU
LOAD FROM CPU
COMPUTE CHECK SUM
COMPARE WITH CONSTANT
COMPARISON OK
NO
YES
HALT
HALT FOR DRUM I ON LINE AND COMPATABILITY TGRS CHECK
DRUM I ON LINE
NO
YES
INSERT DRUM ROUTINE BYPASS
TEST SWITCH 3
DOWN
UP
PRINT TITLE
STORAGE 32K
NO
YES
ADJUST FOR 16K OR 8K
FILL UNUSED LOCS WITH STR
2
PAGE 2
4
PAGE 4
11
PAGE 8
LOC FIRST TEST IN PROGRAM TO XRA
PAGE 2

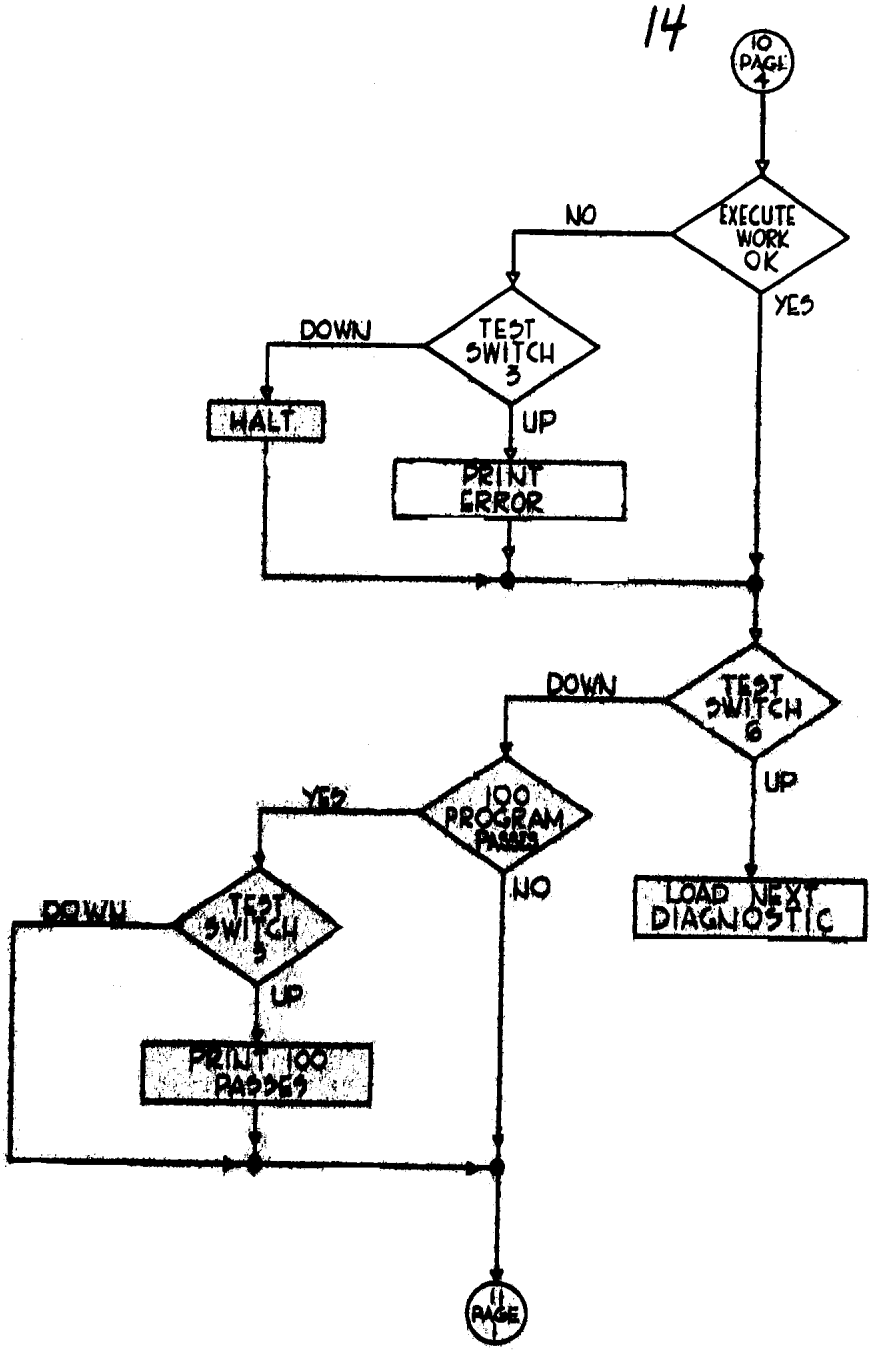
9COMB
3-1-59
11




3 PAGE 2
A26 SECTION COMPLETED
NO
4 PAGE 2
YES
TEST SWITCH 5
DOWN
UP
TEST SWITCH 9
DOWN
UP
INITIAL LOC OF RESET BUTTON TEST
PROGRAM MONITOR
MONITOR OK
NO
HALT
YES
TEST RESET BUTTON WITH COMPATABILITY
RESET SELECT AND NULLIFY TRGRS
NO
NO PRINT
YES
PRINT A LINE
TEST SWITCH 2
DOWN
UP
HALT
CPY AND FP TRGRS RESET
NO
YES
TEST SWITCH 1
DOWN
UP
INITIAL LOC OF LOAD BUTTON TEST
6 PAGE 2
7 PAGE 2
5 PAGE 2
6 PAGE 2

9COMB
3-1-59
13




10 PAGE 4
EXECUTE WORK OK
NO
YES
TEST SWITCH 3
DOWN
UP
HALT
PRINT ERROR
TEST SWITCH 6
DOWN
UP
100 PROGRAM PASSES
YES
NO
LOAD NEXT DIAGNOSTIC
TEST SWITCH 5
DOWN
UP
PRINT 100 PASSES
11 PAGE 1

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*                    9COMB

*      709/704 COMPATABILITY AND EXECUTE INSTRUCTION PROGRAM


*WITH THIS LOADING PROCEDURE, THE PROGRAM CAN GET INTO STORAGE
*WITH THE LOAD CARDS BUTTON OR MANUAL LOADING FROM THE BUFFER.

*IF THE CARDS CANNOT BE LOADED WITH THE CPU LOAD CARDS BUTTON, LOAD
*FROM THE DSU BY PUTTING THE BUFFER IN MANAUL STATUS FOR CHANNEL A, SET
*04217 IN THE DECREMENT PORTION OF THE DSU ENTRY KEYS AND PRESS THE
*LOAD CONTROL WORD KEYS. NOW PRESS THE READ CARD READER KEY.
*WHEN ALL THE CARDS HAVE BEEN READ BY THE CARD READER, SET THE
*DSU TO AUTOMATIC STATUS AND MANUALLY TRANSFER TO LOCATION
*00004 ON THE CPU.



                 00000         ORG 0

00000  0042 14 0 00003         IOCD 3,0,TOTAL-2 CONTROL WORD
                                                FOR LOADING

00001 -0060 00 0 00004         TCNA *+3     READ ENIRE DECK
00002  0020 00 0 00001         TRA *-1
00003 -1 00000 0 00000         STR

*WITH 30 OCTAL WORDS PER CARD, THERE IS NO CHECK SUM CHECKING.
*COMPUTE A STORAGE CHECK SUM AND COMPARE IT TO A PREVIOUS
*DETERMINED CHECK SUM TO INSURE CARDS WERE READ CORRECTLY.

00004  0774 00 1 04216         AXT TOTAL,1 LAST LOCATION TO XRA
00005  0754 00 0 00000         PXA         CLEAR ACCUMULATOR
00006  0361 00 1 04216         ACL TOTAL,1 COMPUTE THE
00007  2 00001 1 00006         TIX *-1,1,1 CHECK SUM
00010  0602 00 0 04160         SLW SUM     SAVE CHECK SUM

*CHECK COMPUTED CHECK SUM WITH KNOWN CHECK SUM

00011  0500 00 0 04160         CLA SUM     L COMPUTED CHECK SUM
00012  0402 00 0 04216         SUB TOTAL   L KNOWN CHECK SUM
00013  0100 00 0 00015         TZE *+2     CARDS READ OK
00014  0000 00 0 00000         HTR         ERROR-RELOAD CARD READER
                                           AND LOAD AGAIN

00015  0500 00 0 04050         CLA K       L TRA ID-7
00016  0601 00 0 00000         STO 0       STORE IN LOCATION 000000
00017  0000 00 0 00000         HTR


*LOGICAL DRUM 1 IS USED BY THIS PROGRAM. IF DRUMS ARE NOT
*IN THE SYSTEM, DREPSS KEY ON TO BYPASS THE ROUTINE REQUIRING LOGICAL
*DRUM 1 TO BE ON LINE.
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*IF EC 245677 HAS BEEN INSTALLED ON THE MACHINE, THE C.E. CAN
*MAKE A FAST VISUAL CHECK OF THE BELOW LISTED TRIGGER NEONS
*TO DETERMINE IF THE COMPATABLITY TRIGGERS ARE IN THE CORRECT
*STATUS

*MF3 J04 01   I/O SENSE AND TRAP MODE TRGR NEON          SHOULD BE OFF

*MF3 J04 03   COPY TRAP MODE TRGR NEON                   SHOULD BE ON

*MF3 J04 05   FP TRAP MODE TRGR NEON                     SHOULD BE ON

*MF3 J04 07   MEMORY NULLIFY MODE TRGR NEON              SHOULD BE ON

*MF3 J16 03   SENSE PR/PU TRGR NEON                      SHOULD BE OFF

*FOR A MORE COMPRESHENSIVE CHECK, THE CE, IF HE DESIRES, CAN SCOPE THE
*BELOW LISTED POINTS TO INSURE THE CATHODE FOLLOWER OUTPUTS FROM THE
*VARIOUS COMPATABILITY TRIGGERS ARE IN THE CORRECT STATUS. PUSH START
*IF NO CHECKING IS DESIRED.

* 1. MF3 L16-7 MINUS ON PR/PU SENSE              SHOULD BE UP

* 2. MF3 L16-2 TRAP ON I/O                       SHOULD BE DOWN

* 3. MF3 K04-5 MINUS ON I/O AND SENSE TRAP MODE  SHOULD BE UP

* 4. MF3 L04-1 I/O SENSE AND TRAP MODE           SHOULD BE DOWN

* 5. MF3 M04-3 COPY TRAP MODE                    SHOULD BE DOWN

* 6. MF3 N04-7 MINUS ON COPY TRAP MODE           SHOULD BE UP

* 7. MF3 P04-3 PLUS IN MOEMORY NULLIFY MODE      SHOULD BE DOWN

* 8. MF3 R04-6 MINUS IN MEMORY NULLIFY MODE      SHOULD BE UP

* 9. MF3 P04-2 MINUS IN F.P. TRAP MODE           SHOULD BE DOWN

*10. MF3 P04-5 F.P. TRAP MODE                    SHOULD BE UP

*11. MF3 F24-2 TO SIMULATE INDICATOR             SHOULD BE DOWN

*IF THESE POINTS ARE IN THE STATE DESCRIBED, PRESS START TO CONTINUE.
*IF NOT, PRESS RESET BUTTON AND OBSERVER IF THE POINTS ARE NOW SET TO
*THE STATE DESCIBED.


*CHECK FOR DRUM 1 ON LINE

00020  0760 00 0 00004        ENK          KEYS TO MQ
00021  0131 00 0 00000        XCA          MQ TO ACC
00022  0044 00 0 00000        PAI          ACC TO INDICATORS
00023 -0056 00  200000        LNT 200000   IS DRUM 1 ON LINE
00024  0020 00 0 00027        TRA ID        YES-DO NOT ALTER PROGRAM
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00025  0500 00 0 04107         CLA K1+3       NO-INSERT BYPASS IN TEST
00026  0601 00 0 01170         STO A21X       REQUIRING DRUM 1

*WITH I/O AND SENSE AND TRAP TRIGGER RESET,PROGRAM IDENTIFICATION
*CAN BE PRINTED DEPENDING ON THE STATUS OF SENSE SWITCH 3.

00027  0760 00 0 00163  ID     SWT 3          TEST SENSE SWITCH 3
00030  0020 00 0 02364         TRA TITLE      IDENTIFY PROGRAM

*DETERMINE SIZE OF STORAGE AND ADJUST ADDRESSES IF 8K OR 16 CAPACITY

00031  0774 00 4 77777         AXT 32K,4      L 77777 IN REC
00032 -3 37777 4 00034         TXL ADJ,4,16K  TRANSFER IF STG NOT 32K
00033  0020 00 0 00144         TRA STG        32K STORAGE

                                              ADJUST ADDRESSES FOR 8K OR 16K STORAGE

00034  0500 00 0 04106  ADJ    CLA K1+2       L FIRST AND LAST
                                              ADDRESSTO MODIFY

00035  0621 00 0 00043         STA ADJ1       STORE INITIAL ADDRESS
00036  0621 00 0 00062         STA FIX+4      TO BE CHECKED FOR
00037  0621 00 0 00070         STA FIX1+4     MODIFICATION
00040  0621 00 0 00100         STA FIX2+6     IN THESE LOCATIONS
00041  0771 00 0 00022         ARS 18
00042  0621 00 0 04164         STA LADR       STORE LAST ADDRESS

00043 -0500 00 0 00000  ADJ1   CAL            L INSTRUCTION
00044  0044 00 0 00000         PAI            ACC TO INDICATORS

00045  0056 00  070000         RNT 70000      TEST FOR BITS 21,22,23
00046  0020 00 0 00050         TRA *+2        NO BITS
00047  0020 00 0 00056         TRA FIX        ADJUST ADDRESS

00050  0056 00  040000         RNT 40000      TEST FOR BIT 21
00051  0020 00 0 00053         TRA *+2        NO BIT
00052  0020 00 0 00072         TRA FIX2       ADJUST ADDRESS

00053  0056 00  030000         RNT 30000      TEST FOR BIT IN POS 22,23
00054  0020 00 0 00101         TRA ADR        NO BITS-GET NEXT ADR
00055  0020 00 0 00064         TRA FIX1       ADJUST ADDRESS

00056  3 17777 4 00061  FIX    TXH *+3,4,8K   TRANFER IF STG 16K

*ADJUST ADDRESSES WITH BITS IN 21,22,23 FOR 8K

00057 -0320 00 0 04137         ANA NUM+14     L 7777777717777
00060  0020 00 0 00062         TRA *+2

*ADJUST ADDRESSES WITH BITS IN 21,22,23 FOR 16K

00061 -0320 00 0 04140         ANA NUM+15     L 7777777737777
00062  0602 00 0 00000         SLW            INSTR. WITH CORRECT ADR
00063  0020 00 0 00101         TRA ADR

00064  3 17777 4 00067  FIX1   TXH *+3,4,8K   TRANSFER IF STG 16K
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*ADJUST ADDRESSES WITH BITS IN 22,23 FOR 8K

00065 -0320 00 0 04141         ANA NUM+16     L 7777777707777
00066  0020 00 0 00070         TRA *+2

*ADJUST ADDRESSES WITH BITS IN 22,23 FOR 16K

00067 -0320 00 0 04137         ANA NUM+14     L 7777777717777
00070  0602 00 0 00000         SLW            INSTR WITH CORRECT ADR
00071  0020 00 0 00101         TRA ADR

00072  3 17777 4 00076  FIX2   TXH *+4,4,8K   TRANSFER IF STG 16K

*ADJUST ADDRESSES WITH BIT IN 21 FOR 8K

00073 -0320 00 0 04141         ANA NUM+16     L 7777777707777
00074 -0501 00 0 04142         ORA NUM+17     L 0000000010000
00075  0020 00 0 00100         TRA *+3

*ADJUST ADDRESSES WITH BIT IN 21 FOR 16K

00076 -0320 00 0 04141         ANA NUM+16     L 7777777707777
00077 -0501 00 0 04143         ORA NUM+18     L 0000000020000
00100  0602 00 0 00000         SLW            INSTR. WITH CORRECT ADR

00101 -0500 00 0 00043  ADR    CAL ADJ1       L LAST INSTR CHECKED
00102 -0320 00 0 04144         ANA NUM+19     L 0000000007777
00103  0400 00 0 04122         ADD NUM+1
00104  0340 00 0 04164         CAS LADR
00105  0000 00 0 00034         HTR ADJ        STG NEVER BE LESS
                                              CHECK ADDRESS TO BE
                                              MODIFIED FOR 8K-16K AGAIN
00106  0020 00 0 00114         TRA STG1
00107  0621 00 0 00043         STA ADJ1       ADDRESS
00110  0621 00 0 00062         STA FIX+4      OF THE
00111  0621 00 0 00070         STA FIX1+4     NEXT
00112  0621 00 0 00100         STA FIX2+6     INSTRUCTION
00113  0020 00 0 00043         TRA ADJ1       TEST NEXT INSTR

*MODIFY STG ROUTINE FOR 16K OR 8K STORAGE

00114  3 17777 4 00131  STG1   TXH STG2,4,8K  TRA IF STG 16K
00115  0774 00 4 10020         AXT 4K+17,4    LOCATION TO XRC
00116  0634 00 4 00146         SXA STG+2,4    XRC TO ADR OF LOC
00117  0634 00 4 00156         SXA STG+10,4   XRC TO ADR OF LOC
00120  0634 00 4 00157         SXA STG+11,4   XRC TO ADR OF LOC
00121  0774 00 4 07777         AXT 4K,4       XRC NOW 07777
00122 -0634 00 4 00155         SXD STG+9,4    XRC TO DEC OF LOC
00123 -0634 00 4 00316         SXD A5+7,4     XRC TO DEC OF LOC
00124  1 00001 4 00125         TXI *+1,4,1    XRC NOW 10000
00125  0634 00 4 02464         SXA RESET+4,4  XRC TO ADR OF INSTR
00126  1 00006 4 00127         TXI *+1,4,6    XRC NOW 10006
00127  0634 00 4 02520         SXA SPACE+3,4  XRC TO ADR OF INSTR
00130  0020 00 0 00144         TRA STG
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00131  0774 00 4 20020  STG2   AXT 8K+17,4    LOCATION TO XRC
00132  0634 00 4 00146         SXA STG+2,4    XRC TO ADR OF LOC
00133  0634 00 4 00156         SXA STG+10,4   XRC TO ADR OF LOC
00134  0634 00 4 00157         SXA STG+11,4   XRC TO ADR OF LOC
00135  0774 00 4 17777         AXT 8K,4       XRC NOW 17777
00136 -0634 00 4 00155         SXD STG+9,4    XRC TO DEC TO LOC
00137 -0634 00 4 00316         SXD A5+7,4     XRC TO DEC OF LOC
00140  1 00001 4 00141         TXI *+1,4,1    XRC NOW 20000
00141  0634 00 4 02464         SXA RESET+4,4  XRC TO ADR OF INSTR
00142  1 00006 4 00143         TXI *+1,4,6    XRC NOW 20006
00143  0634 00 4 02520         SXA SPACE+3,4  XRC TO ADR OF INSTR

*PUT GROUP OF INSTR IN LOWER LOCATIONS OF UPPER HALF OF STORAGE

00144  0774 00 4 00017  STG    AXT 15,4
00145  0500 00 4 01607         CLA TRAP+15,4
00146  0601 00 4 40020         STO 16K+17,4
00147  2 00001 4 00145         TIX *-2,4,1

*FILL BLANK LOCATIONS OF STORAGE FOR PROGRAM MONITOR

00150  0774 00 4 04217         AXT TOTAL+1,4  LOCATION TO XRC
00151  0500 00 0 01123         CLA A20A-3     L STR
00152  0601 00 0 04217         STO TOTAL+1    STORE IN BLANK LOC
00153  1 00001 4 00154         TXI *+1,4,1    ADD ONE TO XRC
00154  0634 00 4 00152         SXA *-2,4      XRC TO ADR OF INSTR
00155 -3 37777 4 00152         TXL *-3,4,16K  FILL STG FROM TOTAL+1
                                              THRU16K

00156  0774 00 4 40020         AXT 16K+17,4   LOCATION TO XRC
00157  0601 00 0 40020         STO 16K+17
00160  1 00001 4 00161         TXI *+1,4,1    ADD ONE TO XRC
00161  0634 00 4 00157         SXA *-2,4      XRC TO ADR OF LOC
00162  3 00000 4 00157         TXH *-3,4,0    FILL STG FROM 16K+17
                                              THRU32K

00163  0774 00 4 00020  STGB   AXT ID-7,4     LOCATION TO XRC
00164  0601 00 0 00020         STO ID-7       ACC TO LOCATION
00165  1 00001 4 00166         TXI *+1,4,1    ADD 1 TO XRC
00166  0634 00 4 00164         SXA *-2,4      XRC TO ADR OF LOC
00167 -3 00162 4 00164         TXL *-3,4,STGB-1 FILL STG FROM ID-7
                                                THRU STGB-1
00170  0760 00 0 00141         SLN 1          SENSE LIGHT 1 ON


*                                NOTE


*THE COMMENTS IN THE PROGRAM WERE WRITTEN FOR 32K STORAGE
*COMPATABLELOCATION FOR OTHER STORAGE UNITS ARE LISTED BELOW


*                         32K STG        16K STG        8K STG

*HIGHEST LOC               77777          37777          17777
*HIGHEST LOC LOW HALF      37777          17777          07777
```

```
*LOWEST LOC UPPER HALF      40000         20000          10000


*THE PROGRAM OFTEN REFERS TO TRIGGERS AS BEING RESET AND SET.
*BY RESET, THE PROGRAM MEANS THE X RESET CONDITION OF THE
*TRIGGER AS SEEN ON THE SYSTEMS PAGES. BY SET, THE PROGRAM MEANS
*THE TRIGGER IS IN THE OPPOSITE STATUS OF THE X RESET AS SHOWN ON
*THE SYSTEMS PAGES. E.C. LEVEL SYSTESM PAGE 2.07.76 IS 244893.


*                             COMMENCE TEST


*CHECK TRA DOES NOT BRING PLUS IN MEMORY NULLIFY MODE LINE UP
*SEE SYSTEMS PAGE 2.07.76

00171  0774 00 1 00171  AZ     AXT *,1        LOCATION TO XRA
00172  0020 00 0 02460         TRA RESET      INITIALIZE
00173  0500 00 0 04051         CLA K+1        L TRA AXA-2
00174  0601 00 0 00007         STO 7          STORE IN LOCATION 00007

*WITH A TRA, ALL INPUTS TO AND CIRCUIT MF3 J04 H SHOULD NOT BE UP. THIS
*AND CIRCUIT CANNOT BE CONDITIONED TO SET THE NULLIFY TRIGGER AND BRING
*PLUS IN MEMORY NULLIFY MODE LINE UP-SYSTEMS PAGE 2.07.76.

00175  0020 00 0 00176         TRA *+1        WAS NULLIFY TRIGGER SET
00176  0020 00 0 40007         TRA 16K+8      IF NO, TRA 40007

00177  0760 00 0 00162         SWT 2          ERROR
00200  0420 00 0 00000         HPR            CHECK COMPONENTS
                                              MENTIONED ABOVE
00201  0760 00 0 00161  AZA    SWT 1          TEST SWITCH 1
00202  0020 00 0 00204         TRA *+2        CONTINUE
00203  0020 00 0 00171         TRA AZ         REPEAT


*CHECK ABILITY TO SET NULLIFY TRIGGER AND HALF STORAGE

00204  0774 00 1 00204  A      AXT *,1        THIS LOCATION IN XRA
00205  0020 00 0 02400         TRA MONIT      MONITOR PROGRAM
00206  0500 00 0 04052         CLA K+2        L TRA AA
00207  0601 00 0 00011         STO 9          STORE IN LOCATION 00011

*WITH NEXT INSTRUCTION, ALL 6 INPUTS TO AND CIRCUIT MF3 J04 H ON
*SYSTEM SPAGE 2.07.76 GO UP TO CONDITION THIS AND CIRCUIT TO SET
*TRIGGER MF3 J04 07 TO BRING PLUS IN MEMORY NULLIFY MODE LINE UP.
*MINUS IN MEMORY NULLIFY MODE LINE DOWN AND TURN ON SIMULATE INDICATOR

00210 -0021 00 0 00211         ESNT *+1       ENTER NULLIFICATION MODE

*IN THE NULLIFICATION MODE, NO LOCATION GREATER THEN 37777 WITH A
*32K STG., 17777 WITH A 16K STG., OR 77777 WITH AN 8K STG. CAN
*BE ADDRESSED. SEE NULLIFY TRIGGER AND ITS OUTPUTS ON SYSTEMS
*PAGES 2.07.76 AND SHEET 2 3.42.

00211  0020 00 0 40011         TRA 16K+10     TRY TRA TO UPPER HALF
```

```
                                                    STORAGE LOCATION

00212  0760 00 0 00162         SWT 2          ERROR
00213  0420 00 0 00000         HPR            CHECK NULLIFY TRIGGER
                                              AND ITS OUPUTS

*CHECK ABILITY TO RESET NULLIFY TRIGGER FOR FULL STORAGE USE

00214  0500 00 0 04053  AA     CLA K+3        L TRA AB-2
00215  0601 00 0 00012         STO 10         STORE IN LOCATION 00012

*WITH NEXT INSTRUCTION, ALL 5 INPUTSTO AND CIRCUIT MF3 A18 H GO
*UP TO CONDITION BOTTOM LEG TO AND CIRCUIT MF3 J04 G. THE TOP
*LEG IS CONDITIONED BY UNIT ADR 10 WHICH SHOULD RESET TRIGGER
*MF3 J04 07 AND TURN THE SIMULATE INDICATOR OFF. SYSTEM 2.07.76

00216 -0760 00 0 00010         LSNM           EXIT NULLIFICATION MODE
00217  0020 00 0 40012         TRA 16K+11     TRA 40012

00220  0760 00 0 00162         SWT 2          ERROR
00221  0420 00 0 00000         HPR            CHECK NULLIFY TRIGGER
                                              AND ITS OUTPUTS
00222  0760 00 0 00161  AB     SWT 1          TEST SWITCH 1
00223  0020 00 0 00225         TRA *+2        CONTINUE
00224  0020 00 0 00204         TRA A          REPEAT


*CHECK TTR +0021 HAS NO EFFECT ON NULLIFY TRIGGER

00225  0774 00 1 00225  A1     AXT *,1        THIS LOCATION IN XRA
00226  0020 00 0 02400         TRA MONIT      CHECK PROGRAM MONITORED
00227  0500 00 0 04054         CLA K+4        L TRA A1A-2
00230  0601 00 0 00013         STO 11         STORE IN LOCATION 00013

*INSTR REG SIGN MINUS ON AND CIRCUIT MF J04 H SHOULD BE
*DOWN TO PREVENT CONDITIONING THE AND CIRCUIT TO SET
*THE NULLIFY TRIGGER. PLUS IN MEMORY NULLIFY MODE LINE SHOULD
*REMAIN DOWN AND MINUS IN MEMORY NULLIFY MODE LINE SHOULD
*REMAIN UP-SYSTEMS 2.07.76

00231  0021 00 0 00232         TTR *+1

*CHECK NULLIFY TRIGGER STILL RESET

00232  0020 00 0 40013         TRA 16K+12     TRA 40013

00233  0760 00 0 00162         SWT 2          ERROR
00234  0420 00 0 00000         HPR            CHECK NULLIFY TRIGGER
                                              AND ITS OUTPUTS
00235  0760 00 0 00161  A1A    SWT 1          TEST SWITCH 1
00236  0020 00 0 00240         TRA *+2        CONTINUE
00237  0020 00 0 00225         TRA A1         REPEAT


*CHECK TEFD-0031 HAS NO EFFECT ON NULLIFY TRIGGER
```

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00240  0774 00 1 00240  A2     AXT *,1        THIS LOCATION TO XRA
00241  0020 00 0 02400         TRA MONIT      CHECK PROGRAM MONITORED
00242  0500 00 0 04055         CLA K+5        L TRA A2A-2
00243  0601 00 0 00014         STO 12         STORE IN LOCATION 00014

*AND CIRCUIT MF3 J04 H SHOULD NOT BE CONDITIONED
*TO PREVENT SETTING NULLIFY TRIGGER-SYSTEMS 2.07.76

00244 -0031 00 0 00246         TEFD *+2
00245  0761 00 0 00000         NOP
00246  0020 00 0 40014         TRA 16K+13     TRA 40014

00247  0760 00 0 00162         SWT 2          ERROR
00250  0420 00 0 00000         HPR            CHECK NULLIFY TRIGGER
                                              AND ITS OUTPUTS
00251  0760 00 0 00161  A2A    SWT 1          TEST SWITCH 1
00252  0020 00 0 00254         TRA *+2        CONTINUE
00253  0020 00 0 00240         TRA A2         REPEAT


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

00254  0774 00 1 00254  A3     AXT *,1        THIS LOCATION TO XRA
00255  0020 00 0 02400         TRA MONIT      CHECK PROGRAM MONITORED
00256  0500 00 0 04056         CLA K+6        L TRA A3A
00257  0601 00 0 00015         STO 13         STORE IN LOCATION 00015
00260 -0021 00 0 00261         ESNT *+1       ENTER NULLIFY MODE

*INSTR REG SIGN MINUS ON AND CIRCUIT MF3 A18 H SHOULD BE
*DOWN PREVENTING CONDITIONING AND CIRCUIT MF3 J04 G TO
*RESET NULLIFY TRIGGER-SYSTEMS 2.07.76

00261  0760 00 0 00010         RND
00262  0020 00 0 40015         TRA 16K+14     SHOULD TRA TO LOC 00015

00263  0760 00 0 00162         SWT 2          ERROR
00264  0420 00 0 00000         HPR            CHECK NULLIFY TRIGGER
                                              AND ITS OUTPUT
00265  0760 00 0 00161  A3A    SWT 1          TEST SWITCH 1
00266  0020 00 0 00270         TRA *+2        CONTINUE
00267  0020 00 0 00254         TRA A3         REPEAT


*CHECK XR INCREMENTED IN NULLIFY MODE

00270  0774 00 1 00270  A4     AXT *,1        THIS LOCATION TO XRA
00271  0020 00 0 02400         TRA MONIT      CHECK PROGRAM MONITORED
00272  0774 00 2 37777         AXT 16K,2      37777,17777 OR 07777 TO XRB
00273 -0021 00 0 00274         ESNT *+1       SET NULLIFY TRIGGER
00274  1 00001 2 00275         TXI *+1,2,1    ADD ONE TO XRB

*WITH NULLIFY TRIGGER SET, XRB HIGH ORDER POSITION IS BLOCKED COMING
*FROM XRB INTO ADDER X-SYSTEMS 2.0.2.04

00275  0754 00 2 00000         PXA 0,2        XRB TO ACC
```

```
00276  0560 00 0 04121         LDQ NUM        L +0
00277  0340 00 0 04121         CAS NUM
00300  0020 00 0 00302         TRA *+2        ERROR
00301  0020 00 0 00304         TRA *+3        OK-XRB HIGH ORDER
                                              POSITION BLOCKED
00302  0760 00 0 00162         SWT 2          ERROR
00303  0420 00 0 00000         HPR            CHECK HIGH ORDER POS
                                              XRB AND ADDERS
00304  0760 00 0 00161         SWT 1          TEST SWITCH 1
00305  0020 00 0 00307         TRA *+2        CONTINUE
00306  0020 00 0 00270         TRA A4         REPEAT


*CHECK AN XR WITH TIX IN NULLIFY MODE

00307  0774 00 1 00307  A5     AXT *,1        THIS LOCATION TO XRA
00310  0020 00 0 02400         TRA MONIT      CHECK PROGRAM MONITORED
00311  0774 00 2 40000         AXT 16K+1,2    40000 TO XRB ON 32K STG.
                                              20000 TO XRB ON 16K STG.
                                              10000 TO XRB ON 8K STG

00312 -0021 00 0 00316         ESNT *+4       SET NULLIFY TRIGGER
00313  0760 00 0 00162         SWT 2
00314  0420 00 0 00000         HPR            TIX TRANSFERRED
00315  0020 00 0 00317         TRA *+2
00316  2 37777 2 00313         TIX *-3,2,16K  NO TRA UNDER ANY CONDITION

*WITH NULLIFY TRIGGER SET, XRB HIGH ORDER POSITION IS BLOCKED COMING
*FORM XRB INTO ADDER X-SYSTEMS 2.02.04

00317  0754 00 2 00000         PXA 0,2        XRB TO ACC
00320  0560 00 0 04121         LDQ NUM        L +0
00321  0340 00 0 04121         CAS NUM
00322  0020 00 0 00324         TRA *+2        ERROR
00323  0020 00 0 00326         TRA *+3        OK-XRB ZERO
00324  0760 00 0 00162         SWT 2          ERROR
00325  0420 00 0 00000         HPR            CHECK FOR ADDER
                                              N CARRY OUTPUT
00326  0760 00 0 00161         SWT 1          TEST SWITCH 1
00327  0020 00 0 00331         TRA *+2        CONTINUE
00330  0020 00 0 00307         TRA A5         REPEAT


*CHECK TSX IN AND OUT OF NULLIFICATION MODE

00331  0774 00 1 00331  A5X    AXT *,1        LOCATION TO XRA
00332  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
00333  0500 00 0 04057         CLA K+7        L TRA 2,2
00334  0601 00 0 00016         STO 14         STO IN LOCATION 00016

*CHECK TSX WITH NULLIFY TRIGGER SET

00335 -0021 00 0 00336         ESNT *+1       ENTER NULLIFY MODE
00336  0074 00 2 40016         TSX 16K+15,2   HIGH ORDER ADR LINE DOWN
00337  0020 00 0 00341         TRA *+2        ERROR
00340  0020 00 0 00343         TRA *+3        OK-PROCEED
```

```
00341  0760 00 0 00162         SWT 2          ERROR
00342  0420 00 0 00000         HPR            TRANSFERRED TO LOC 40016

*CHECK TSX WITH NULLIFY TRIGGER RESET

00343 -0760 00 0 00010         LSNM           RESET NULLIFY TRIGGER
00344  0074 00 2 40016         TSX 16K+15,2   SHOULD TRA LOC 40016
00345  0020 00 0 00350         TRA *+3        OK-PROCEED
00346  0760 00 0 00162         SWT 2          ERROR
00347  0420 00 0 00000         HPR            TRANSFERRED TO LOC 00016
00350  0760 00 0 00161         SWT 1          TEST SWITCH 1
00351  0020 00 0 00353         TRA *+2        CONTINUE
00352  0020 00 0 00331         TRA A5X        REPEAT


*CHECK AN XR COUNT DOWN WITH TIX IN NULLIFY MODE

00353  0774 00 1 00353  A6     AXT *,1        THIS LOCATION TO XRA
00354  0020 00 0 02400         TRA MONIT      CHECK PROGRAM MONITORED
00355  0774 00 2 77777         AXT 32K,2      77777 TO XRB ON 32K STG
                                              37777 TO XRB ON 16K STG
                                              17777 TO XRB ON 8K STG

00356 -0021 00 0 00357         ESNT *+1       SET NULLIFY TRIGGER
00357  2 00001 2 00357         TIX *,2,1      COUNT DOWN XRB
00360  0754 00 2 00000         PXA 0,2        XRB TO ACC
00361  0402 00 0 04122         SUB NUM+1      L+1
00362  0560 00 0 04121         LDQ NUM        L +0
00363  0340 00 0 04121         CAS NUM
00364  0020 00 0 00366         TRA *+2        ERROR
00365  0020 00 0 00370         TRA *+3        XRB COUNT DOWN OK
00366  0760 00 0 00162         SWT 2          ERROR
00367  0420 00 0 00000         HPR            ERROR IN COUNT DOWN
00370  0760 00 0 00161         SWT 1          TEST SWITCH 1
00371  0020 00 0 00373         TRA *+2        CONTINUE
00372  0020 00 0 00353         TRA A6         REPEAT


*CHECK ESTM IS INDIRECT ADDRESSABLE

00373  0774 00 1 00373  A6X    AXT *,1        LOCATION TO XRA
00374  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
00375  0500 00 0 04116         CLA K1+10      L TRA A6X+5
00376  0601 00 0 00010         STO 8          STORE IN LOCATION 00010
00377 -0021 60 0 00406         ESNT* *+7      SET NULLIFY AND IA TRGS

*TAKE AN E CYCLE TO READ CONTENTS OF ABOVE ADDRESS OUT OF STORAGE
*AND USE ITS ADDRESS TO OBTAIN THE NEXT INSTRUCTION

00400  0074 00 2 40016         TSX 16K+15,2   TRA TO LOC 00016
00401  0020 00 0 00403         TRA *+2        ERROR
00402  0020 00 0 00411         TRA *+7        NULLIFY + IA TRGRS OK
00403  0760 00 0 00162         SWT 2          ERROR
00404  0420 00 0 00000         HPR            WAS NULLIFY TRGR SET
00405  0020 00 0 00411         TRA *+4
00406 -0760 00 0 00010         LSNM           DO NOT EXECUTE INSTR
```

```
                                                    USE ADR PORTION ONLY
                                                    TO GET ADR FOR ESNT INSTR
                                                    TO TRANSFER TO
00407  0760 00 0 00162         SWT 2           ERROR
00410  0420 00 0 00000         HPR             WAS IA CONTROL TRGR SET
00411  0760 00 0 00161         SWT 1           TEST SWITCH 1
00412  0020 00 0 00414         TRA *+2         CONTINUE
00413  0020 00 0 00373         TRA A6X         REPEAT


*CHECK I/O SENSE AND TRAP MODE TRIGGER

00414  0774 00 1 00414  A7     AXT *,1         THIS LOCATION IN XRA
00415  0020 00 0 02400         TRA MONIT       CHECK PROGRAM MONITORED

*FROM I/O SENSE AND TRAP MODE TRIGGER MF3 J04 01 SYSTEMS 2.0776 CHECK
*I/O SENSE AND TRAP MODE LINE COMES UP AND MINUS ON I/O SENSE AND TRAP
*MODE LINE GOES DOWN WITH THE NEXT INSTRUCTION.

00416 -0760 00 0 00005         ESTM            SET I/O SENSE AND TRAP TRGR
00417 -0021 00 0 00420         ESNT *+1        SET NULLIFY TRIGGER

*I/O SENSE AND TRAP MODE LINE UP FROM THE I/O SENSE AND TRAP TRIGGER,
*CONDITIONS TRAP ON I/O WHICH WILL RESET I/O SENSE TRAP TRIGGER, RESET
*NULLIFY TRIGGER, STORE THE SELECT INSTR LOCAION PLUS 1 IN THE ADDRESS
*PORTION OF LOCATION 40000 AND TRAP TO 40001 WITH A SELECT INSTRUCTION.
*SEE SYSTEMS 2.07.76, 3.40. SHEETS 1 AND 2 OF 3.42, 2.08.61, 2.07.70 AND
*5.01.01

00420  0762 00 0 01221         RTBA 1          RESET TAPE-SEC OP 02
00421  0760 00 0 00162  A7A    SWT 2           ERROR
00422  0420 00 0 00000         HPR             DID NOT TRAP-SEE COMMENT

*CHECK CONDITIONING AND CIRCUITS MF3 A18 H AND MF3 J04 A SETS SENSE
*AND TRAP MODE TRIGGER. CONDITIONING AND CIRCUIT MF3 J04 B RESETS
*THE TRIGGER

*CHECK NULLIFY TRIGGER NOW RESET

00423  0074 00 2 40016         TSX 16K+15,2    SHOULD TRA LOC 40016
00424  0020 00 0 00427         TRA *+3         OK-PROCEED
00425  0760 00 0 00162         SWT 2           ERROR
00426  0420 00 0 00000         HPR             CHECK NULLIFY TRGR RESET

*CHECK CONTENTS LOWEST LOCATION UPPER HALF OF STG.

00427  0500 00 0 40000         CLA 16K+1       L CONTENTS LOC 40000
00430  0560 00 0 04060         LDQ K+8         L HTR A7A
00431  0340 00 0 04060         CAS K+8
00432  0020 00 0 00434         TRA *+2         ERROR
00433  0020 00 0 00436         TRA *+3         LOC 40000 OK-PROCEED
00434  0760 00 0 00162         SWT 2
00435  0420 00 0 00000         HPR             ERROR LOC 40000

*CHECK I/O SENSE AND TRAP MODE TRIGGER NOW RESET AND SELECT
*INSTRUCTION WILL NOT TRAP-SYSTEMS 2.07.76 AND 5.01.01
```

```
00436  0762 00 0 01221         RTBA 1
00437  0540 00 0 04121         RCHA NUM        DISCONNECT I/O UNIT
00440  0020 00 0 00443         TRA *+3         OK-NO TRAP-TRANSFER
00441  0760 00 0 00162         SWT 2           ERROR
00442  0420 00 0 00000         HPR             TRAPPED
00443  0760 00 0 00161         SWT 1           TEST SWITCH 1
00444  0020 00 0 00446         TRA *+2         CONTINUE
00445  0020 00 0 00414         TRA A7          REPEAT


*CHECK IOT +0760---5 HAS NO EFFECT ON I/O SENSE TRAP TRGR

00446  0774 00 1 00446  A8     AXT *,1         LOCATION TO XRA
00447  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR

*ON 2.0.76 INSTR SIGN MINUS BEING DOWN ON AND CIRCUIT
*MF3 A18 H PREVENTS CONDITIONS OCCURTTING AS DECRIBED IN INITIAL
*COMMENTS OF SECTION A7

00450 -0021 00 0 00451         ESNT *+1        ENTER NULLIFY MODE
00451  0760 00 0 00005         IOT
00452  0761 00 0 00000         NOP
00453  0762 00 0 01201         RTDA 1          DOES SELECT TRAP
00454  0540 00 0 04121         RCHA NUM        DISCONNECT I/O UNIT
00455  0020 00 0 00460         TRA *+3         OK-NO TRAP-TRANSFER
00456  0760 00 0 00162         SWT 2           ERROR
00457  0420 00 0 00000         HPR             I/O SENSE TRAP TRGR
                                               SHOULD BE RESET

*CHECK NULLIFY TRIGGER STILL SET

00460  0074 00 2 40016         TSX 16K+15,2    SHOULD TRA LOC 00016
00461  0020 00 0 00463         TRA *+2         ERROR
00462  0020 00 0 00465         TRA *+3         OK-PROCEED
00463  0760 00 0 00162         SWT 2           ERROR
00464  0420 00 0 00000         HPR             IS NULLIFY TRGR RESET

*CHECK LOWEST LOCATION IN UPPER HALF STG.

00465 -0760 00 0 00010         LSNM            EXIT NULLIFY MODE
00466  0500 00 0 40000         CLA 16K+1       L LOC 40000
00467  0560 00 0 04121         LDQ NUM         L +0
00470  0340 00 0 04121         CAS NUM
00471  0020 00 0 00473         TRA *+2         ERROR
00472  0020 00 0 00475         TRA *+3         OK-PROCEED
00473  0760 00 0 00162         SWT 2           ERROR
00474  0420 00 0 00000         HPR             LOC 40000 NOT ZERO
00475  0760 00 0 00161         SWT 1           TEST SWITCH 1
00476  0020 00 0 00500         TRA *+2         CONTINUE
00477  0020 00 0 00446         TRA A8          REPEAT


*PREVIOSLY, SEC OP 0.2 THE TOP LEG TO OR CIRCUIT MF3 A21 A ON SYSTEMS
*PAGE 5.01.01 WAS CHECKED.NOW CHECK THE NEXT 4 INPUTS TO THIS OR CIRCUIT
*WITH THE I/O SENSE AND TRAP TRIGGER SET.WITH EACH OF THE 4 INPUTS.
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```
*THERE SHOULD BE A TRAP TO LOCATION 40001.IF THE 709 BEGINNING OF TAPE
*TEST AND END OF TAPE TEST INSTRCUTUONS ARE GIVEN--2 BOTTOM LEGS OF THE
*OR CIRCUIT--AND I/O SENSE AND TRAP MODE LINE IS UP,THE FOLLOWING
*CONDITIONS OCCUR

*                    1. THE MACHINE HANGS UP

*                   2  . THE INSTRUCTION COUNTER IS RESET TO ZERO

*                    3. THE BTT OR ETT INSTR IS IN THE SR

*NOTE ON SYSTEMS PAGE 6.02, THAT ER TIME GATES EXECUTION OF 709 BTT
*AND ETT INSTRUCTIONS

00500  0774 00 1 00500  A9     AXT *,1        LOCATION TO XRA
00501  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR

*WRITE SELECT INSTRUCTION-SEC OPN 0,6

00502 -0760 00 0 00005         ESTM           SET I/O SENSE TRAP TRGR
00503  0766 00 0 00221         WTB 1          704 SELECT INSTR
00504  0760 00 0 00162         SWT 2          ERROR
00505  0420 00 0 00000         HPR            NO TRAP

*REWIND SEC OPN 1,2

00506 -0760 00 0 00005         ESTM           SET I/O SENSE TRAP TRGR
00507  0772 00 0 00201         REW 1          704 SELECT INSTR
00510  0760 00 0 00162         SWT 2          ERROR
00511  0420 00 0 00000         HPR            NO TRAP

*WRITE END OF FILE-SEC OPN 1.0

00512 -0760 00 0 00005         ESTM           SET I/O SENSE TRAP TRGR
00513  0770 00 0 00201         WEF 1          704 SELECT INSTR
00514  0760 00 0 00162         SWT 2          ERROR
00515  0420 00 0 00000         HPR            NO TRAP

*BACKSPACE TAPE-SEC OPN 0,4

00516 -0760 00 0 00005         ESTM           SET I/O SENSE TRAP TRGR
00517  0764 00 0 00201         BST 1          704 SELECT INSTR
00520  0760 00 0 00162         SWT 2          ERROR
00521  0420 00 0 00000         HPR            NO TRAP

00522  0760 00 0 00161         SWT 1          TEST SWITCH 1
00523  0020 00 0 00525         TRA *+2        CONTINUE
00524  0020 00 0 00500         TRA A9         REPEAT


*CHECK SENSE PUNCH INSTRUCTION

00525  0774 00 1 00525  A10    AXT *,1        LOCATION TO XRA
00526  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
00527 -0760 00 0 00005         ESTM           SET I/O SENSE TRAP TRGR
```

```
*IN THE I/O SENSE AND TRAP MODE. 704 SENSE PUNCH INSTR WILL CONDITION AND
*CIRCUIT MF3 J16 B TO SET TRIGGER MF3 J16 03 AND TRAP-SYSTEMS 2.07.76
*AND 5.01.01

00530  0760 00 0 00341         PSE 225        SHOULD TRAP
00531  0760 00 0 00162         SWT 2          ERROR
00532  0420 00 0 00000         HPR            CHECK COMPONENTS
                                              NOTED IN COMMENTS

00533 -0760 00 0 00005         ESTM           SET I/O SENSE TRAP TRGR
00534  0760 00 0 01341         SPUA 1         SHOULD TRAP
00535  0760 00 0 00162         SWT 2          ERROR
00536  0420 00 0 00000         HPR            CHECK COMPONENTS
                                              NOTED IN COMENTS
00537  0760 00 0 00161         SWT 1          TEST SWITCH 1
00540  0020 00 0 00542         TRA *+2        PROCEED
00541  0020 00 0 00525         TRA A10        REPEAT


*CHECK SENSE PRINTER

00542  0774 00 1 00542  A11    AXT *,1        LOCATION TO XRA
00543  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
00544 -0760 00 0 00005         ESTM           SET I/O SENSE TRAP TRGR

*AND CIRCUIT MF3 J16 C SHOULD CONDITION TRIGGER MF3 J16 03 SYSTEMS
*2.07.76 TO CAUSE A TRAP.

00545  0760 00 0 01360         SPTA           SHOULD TRAP
00546  0760 00 0 00162         SWT 2          ERROR
00547  0420 00 0 00000         HPR            NO TRAP

*CHECK TRIGGER MF3 J16 03 SYSTEMS 2.07.76 CAN BE RESET

00550  0760 00 0 01360         SPTA           SHOULD NOT TRAP
00551  0020 00 0 00555         TRA *+4        OK
00552  0020 00 0 00555         TRA *+3        OK
00553  0760 00 0 00162         SWT 2          ERROR
00554  0420 00 0 00000         HPR            CHECK TRIGGER RESET AT
                                              15 TIME AFTER TRAP

00555  0540 00 0 04121         RCHA NUM       CLEAR BUFFER

00556  0760 00 0 00161         SWT 1          TEST SWITCH 1
00557  0020 00 0 00561         TRA *+2        CONTINUE
00560  0020 00 0 00542         TRA A11        REPEAT


*CHECK SENSE PRINTER

00561  0774 00 1 00561  A12    AXT *,1        LOCATION TO XRA
00562  0020 00 0 02400         TRA MONIT      MONITOR PROGRAM
00563 -0760 00 0 00005         ESTM           I/O SENSE TRAP TRGR SET

*AND CIRCUIT MF3 J16 C SHOULD CONDITION TRIGGER MF3 J16 03 SYSTEMS
*2.07.76 TO CAUSE A TRAP
```

```
00564  0760 00 0 00360         SPT             SHOULD TRAP
00565  0760 00 0 00162         SWT 2           ERROR-NO TRAP
00566  0420 00 0 00000         HPR             CHECK COMPONETS
                                               NOTED IN COMMENTS
00567  0760 00 0 00161         SWT 1           TEST SWITCH 1
00570  0020 00 0 00572         TRA *+2         CONTINUE
00571  0020 00 0 00561         TRA A12         REPEAT


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

00572  0774 00 1 00572  A13    AXT *,1         LOCATION TO XRA
00573  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR
00574 -0760 00 0 00005         ESTM            I/O SENSE TRAP TRGR SET
00575  0760 00 0 00011         FRN             SHOULD NOT TRAP
00576  0020 00 0 00602         TRA *+4         OK-NO TRAP
00577  0761 00 0 00000         NOP
00600  0760 00 0 00162         SWT 2           ERROR
00601  0420 00 0 00000         HPR             FRN TRAPPED

*IN THE I/O SENSE TRAP MODE, THE TOP LEG OF AND CIRCUIT MF3 J16 E
*SYSTEMS 2.07.76 IS UP. WITH 704 END OF TAPE TEST INSTR-0760---11,
*THE MIDDLE LEG IS CONDITIONED BY UNIT ADR 11 FROM SYSTEMS 5.01.02 AND
*THE BOTTOM LEG COMES UP AS A RESULT OF CONDITIONING AND CIRCUIT MF3 A18 H
*TO SET TRIGGER MF3 J16 03 AND CAUSE A TRAP

00602 -0760 00 0 00011         ETT 1           SHOULD TRAP
00603  0760 00 0 00162         SWT 2           ERROR-NO TRAP
00604  0420 00 0 00000         HPR             CHECK COMPONETS
                                               NOTED IN COMMENTS

                                               NOTE THAT TRIGGER IS TURNED
                                               OFF BY THE NEXT 15 PULSE

00605  0760 00 0 00161         SWT 1           TEST SWITCH 1
00606  0020 00 0 00610         TRA *+2         CONTINUE
00607  0020 00 0 00572         TRA A13         REPEAT


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

00610  0774 00 1 00610  A14    AXT *,1         LOCATION TO XRA
00611  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR
00612 -0760 00 0 00005         ESTM            SET I/O SENSE TRAP TRGR

*AND CIRCUIT MF3 J16 D SHOULD NOT BE CONDITIONED TO SET TRGR MF13 J16 03
*SYSTEMS 2.07.76-NOT TRAP WITH DCT +0760---12. WITH RTT -0760--12,
*THERE SHOULD BE A TRAP.

00613  0760 00 0 00012         DCT             INDICTOR IS OFF
00614  0761 00 0 00000         NOP             NO TRAP AND
00615  0020 00 0 00620         TRA *+3         SKIP TO HERE
00616  0760 00 0 00162         SWT 2           ERROR
00617  0420 00 0 00000         HPR             SEE COMMENT ABOVE
```

```
00620 -0760 00 0 00012         RTT            SHOULD TRAP
00621  0760 00 0 00162         SWT 2          ERROR
00622  0420 00 0 00000         HPR            NO RTT TRAP-SEE
                                              COMMENT ABOVE
00623  0760 00 0 00161         SWT 1          TEST SWITCH 1
00624  0020 00 0 00626         TRA *+2        CONTINUE
00625  0020 00 0 00610         TRA A14        REPEAT


*CHECK TAGGED SENSE INSTRUCTION WITH COMPATABLIBLITY FEATURE

00626  0774 00 1 00626  A15    AXT *,1        LOCATION TO XRA
00627  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
00630  0502 00 0 04121         CLS NUM        L -0
00631  0774 00 2 00360         AXT 240,2      L 360 TO XRB
00632 -0021 00 0 00633         ESNT *+1       ENTER NULLIFY MODE
00633 -0760 00 0 00005         ESTM           ENTER I/O SENSE TRAP MODE
00634  0760 00 2 00363         PSE 243,2      SHOULD NOT TRAP-ONLY
                                              MAKE ACC SIGN PLUS

00635  0020 00 0 00641         TRA *+4        OK-PROCEED
00636  0761 00 0 00000         NOP
00637  0760 00 0 00162         SWT 2          ERROR
00640  0420 00 0 00000         HPR            TRAPPED

00641  0120 00 0 00644         TPL *+3        OK-ACC SIGN PLUS
00642  0760 00 0 00162         SWT 2          ERROR
00643  0420 00 0 00000         HPR            ACC SIGN MINUS

*CHECK NULLIFY TRIGGER REMAINED SET

00644  0074 00 2 40016         TSX 16K+15,2   SHOULD TRA LOC 00016
00645  0020 00 0 00647         TRA *+2        ERROR
00646  0020 00 0 00651         TRA *+3        OK-PROCEED
00647  0760 00 0 00162         SWT 2          ERROR
00650  0420 00 0 00000         HPR            IS NULLIFY TRIGGER RESET

*CHECK COMPATABILITY FEATURE WITH XRB ZERO

00651  0774 00 2 00000         AXT 0,2        CLEAR XRB
00652  0760 00 2 00363         PSE 243,2
00653  0760 00 0 00162  A15A   SWT 2          ERROR
00654  0420 00 0 00000         HPR            NO TRAP

*CHECK NULLIFY TRIGGER NOW RESET

00655  0074 00 2 40016         TSX 16K+15,2   SHOULD TRA LOC 40016
00656  0020 00 0 00661         TRA *+3        OK-NULLIFY TRIGGER RESET
00657  0760 00 0 00162         SWT 2          ERROR
00660  0420 00 0 00000         HPR            NULLIFY TRIGGER NOT RESET

*CHECK CONTENTS LOCATION 40000

00661  0500 00 0 40000         CLA 16K+1      L CONTENTS LOC 40000
00662  0560 00 0 04061         LDQ K+9        L HTR A15A
00663  0340 00 0 04061         CAS K+9
```

```
00664  0020 00 0 00666         TRA *+2         ERROR
00665  0020 00 0 00670         TRA *+3         OK-PROCEED
00666  0760 00 0 00162         SWT 2           ERROR
00667  0420 00 0 00000         HPR             ADR IN LOC 40000 NOT A15A
00670  0760 00 0 00161         SWT 1           TEST SWITCH 1
00671  0020 00 0 00673         TRA *+2         CONTINUE
00672  0020 00 0 00626         TRA A15         REPEAT


*CHECK COMPATABILITY FEATURE IN TRAPPING MODE

00673  0774 00 1 00673  A16    AXT *,1         LOCATION TO XRA
00674  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR
00675 -0760 00 0 00007         LTM             LEAVE TRAP MODE
00676  0500 00 0 04062         CLA K+10        L TTR A16A
00677  0601 00 0 00001         STO 1           STORE IN LOCATION 000001
00700 -0021 00 0 00701         ESNT *+1        ENTER NULLIFY MODE
00701 -0760 00 0 00005         ESTM            ENTER I/O SENSE TRAP MODE
00702  0760 00 0 00007         ETM             ENTER TRAP MODE
00703  0560 00 0 04121         LDQ NUM         L +0 TO MQ

*ALTHOUGH TQP HAS A SEC OP 0.2, THIS SHOULD NOT DECODE TO AFFECT AND
*CIRCUIT MF3 A21 A SYSTEMS 5.01.01-TRAP ON I/O LINE SYSTEMS 3.42 SHEET
*2 SHOULD REMAIN DOWN AND A CONDITION MET TRA SHOULD TRAP TO LOCATION
*00001.

00704  0162 00 0 00705         TQP *+1
00705 -0760 00 0 00007         LTM             LEAVE TRAP MODE
00706  0020 00 0 00713         TRA *+5         ERROR

00707 -0760 00 0 00007         LTM             LEAVE TRAP MODE
00710  0760 00 0 00162         SWT 2           ERROR
00711  0420 00 0 00000         HPR             TRAPPED TO LCOC 40001
00712  0020 00 0 00715         TRA *+3         PROCEED

00713  0760 00 0 00162         SWT 2           ERROR
00714  0420 00 0 00000         HPR             TQP DIDNOT TRAP TO 00001

*CHECK CONTENTS LOCATION 00000

00715 -0760 00 0 00007  A16A   LTM             LEAVE TRAP MODE
00716  0500 00 0 00000         CLA             L CONTENTS LOC 00000
00717  0560 00 0 04063         LDQ K+11        L STR A16A-9
00720  0340 00 0 04063         CAS K+11
00721  0020 00 0 00723         TRA *+2         ERROR
00722  0020 00 0 00725         TRA *+3         CONTENTS LOC 00000 OK
00723  0760 00 0 00162         SWT 2           ERROR
00724  0420 00 0 00000         HPR             CONTENTS LOC 00000 WRONG

*CHECK CONTENTS LOCATION 40000

00725 -0760 00 0 00010         LSNM            RESET NULLIFY TRIGGER
00726  0500 00 0 40000         CLA 16K+1       L LOCATION 40000
00727  0560 00 0 04121         LDQ NUM         L +0
00730  0340 00 0 04121         CAS NUM
00731  0020 00 0 00733         TRA *+2         ERROR
```

```
00732  0766 00 0 00333         WRS 219        CONTENTS LOC 40000 OK
                                              SELECT INSTR TO RESET
                                              I/O SENSE TRAP TRGR-TRAP
                                              AND TRANSFER TO A17-3

00733  0760 00 0 00162         SWT 2          ERROR
00734  0420 00 0 00000         HPR            CONTENTS LOC 40000 WRONG
00735  0760 00 0 00161         SWT 1          TEST SWITCH 1
00736  0020 00 0 00740         TRA *+2        CONTINUE
00737  0020 00 0 00673         TRA A16        REPEAT


*CHECK COPY WITH COPY TRAP TRIGGER RESET. ON SYSTEMS 2.07.76 THE LINE
*MINUS ON COPY TRAP MODE SHOULD BE UP AND THE LINE COPY TRAP MODE
*SHOULD BE DOWN TO PREVENT STORING THE COPY LOCATION PLUS 1 IN THE
*ADDRESS PORTION OF LOCATION 40000 AND TRAPPING TO 40002. OTHER SYSTEMS
*PAGES TO NOTE ARE SHEET 2-3.42 AND SHEET 2-3.100.

00740  0774 00 1 00740  A17    AXT *,1        LOCATION TO XRA
00741  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
00742  0700 00 0 00000         CPY            TURN ON IOT LIGHT
00743  0020 00 0 00747         TRA *+4        AND NO TRAP
00744  0761 00 0 00000         NOP
00745  0760 00 0 00162         SWT 2          ERROR
00746  0420 00 0 00000         HPR            TRAPPED

00747  0760 00 0 00005         IOT            CHECK IOT LITE
00750  0020 00 0 00753         TRA *+3        OK-LIGHT WAS ON
00751  0760 00 0 00162         SWT 2          ERROR
00752  0420 00 0 00000         HPR            LIGHT WAS OFF

*CHECK LOCATION 40000

00753  0500 00 0 40000         CLA 16K+1      L LOCATION 40000
00754  0560 00 0 04121         LDQ NUM        L +0
00755  0340 00 0 04121         CAS NUM
00756  0020 00 0 00760         TRA *+2
00757  0020 00 0 00762         TRA *+3        CONTENTS LOC 40000 OK
00760  0760 00 0 00162         SWT 2          ERROR
00761  0420 00 0 00000         HPR            CONTENTS LOC 40000 WRONG

*CHECK COPY AND AND LOGICAL WORD

00762 -0700 00 0 00000         CAD
00763  0020 00 0 00767         TRA *+4        OK
00764  0761 00 0 00000         NOP
00765  0760 00 0 00162         SWT 2          ERROR
00766  0420 00 0 00000         HPR            TRAPPED

00767  0760 00 0 00005         IOT            CHECK IOT LIGHT
00770  0020 00 0 00773         TRA *+3        OK-LIGHT WAS ON
00771  0760 00 0 00162         SWT 2          ERROR
00772  0420 00 0 00000         HPR            LIGHT WAS OFF

*CHECK CONTENTS LOCATION 40000
```

```
00773  0500 00 0 40000         CLA 16K+1      L CONTENTS LOC 40000
00774  0560 00 0 04121         LDQ NUM        L +0
00775  0340 00 0 04121         CAS NUM
00776  0020 00 0 01000         TRA *+2        ERROR
00777  0020 00 0 01002         TRA *+3        CONTENTS LOCATION 40000 OK
01000  0760 00 0 00162         SWT 2          ERROR
01001  0420 00 0 00000         HPR            CONTENTS LOCATION 40000 WRONG

*CHECK LDA-FOLLOW OUTPUTS FROM AND CIRCUIT MF3 A20 K SHEET 2-3.10

01002  0460 00 0 00001         LDA 1
01003  0020 00 0 01007         TRA *+4        OK-NO TRAP
01004  0761 00 0 00000         NOP
01005  0760 00 0 00162         SWT 2          ERROR
01006  0420 00 0 00000         HPR            TRAPPED

01007  0760 00 0 00005         IOT            CHECK IOT LIGHT
01010  0020 00 0 01013         TRA *+3        OK-LIGHT WAS ON
01011  0760 00 0 00162         SWT 2          ERROR
01012  0420 00 0 00000         HPR            LIGHT WAS OFF

*CHECK CONTENTS LOCATION 40000

01013  0500 00 0 40000         CLA 16K+1      L LOCATION 40000
01014  0560 00 0 04121         LDQ NUM        L +0
01015  0340 00 0 04121         CAS NUM
01016  0020 00 0 01020         TRA *+2        ERROR
01017  0020 00 0 01022         TRA *+3        CONTENTS LOC 40000 OK
01020  0760 00 0 00162         SWT 2          ERROR
01021  0420 00 0 00000         HPR            CONTENTS LOC 40000 WRONG
01022  0760 00 0 00161         SWT 1          TEST SWITCH 1
01023  0020 00 0 01025         TRA *+2        CONTINUE
01024  0020 00 0 00740         TRA A17        REPEAT


*CHECK OPERATION WITH COPY TRAP TRIGGER SET

01025  0774 00 1 01025  A18    AXT *,1        LOCATION TO XRA
01026  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01027 -0021 00 0 01030         ESNT *+1       ENTER NULLIFY MODE

*ON SYSTEMS 2 07.76 INSTR ENTER COPY TRAP MODE-0760---6 CONDITIONS AND
*CIRCUIT MF3 J04 C TO SET THE COPY TRAP MODE TRIGGER AND BRING UP THE
*LINE COPY TRAP MODE AND BRING DOWN THE LINE MINUS ON COPY TRAP MODE

01030 -0760 00 0 00006         ECTM

*COPY. CAD, OR LDA INSTRUCTION SHOULD RESET NULLIFY TRIGGER. STORE
*THE LOCATION PLUS OF CPY. CAD OR LDA IN THE ADDRESS OF LOCATION
*40000. TRAP TO LOCATION 40002 AND THE IOT LIGHT SHOULD REMAIN OFF
*SYSTEMS 2.07.76, 2.07.70, SHEET 2-3.10 AND SHEET 2-3.42

01031  0700 00 0 00000         CPY
01032  0760 00 0 00162  A18A   SWT 2          ERROR
01033  0420 00 0 00000         HPR            NO TRAP
```

```
*CHECK NULLIFY TRIGGER NOW RESET

01034  0074 00 2 40016         TSX 16K+15,2   SHOULD TRA LOC 40016
01035  0020 00 0 01040         TRA *+3        OK-NULLIFY TRIGGER RESET
01036  0760 00 0 00162         SWT 2          ERROR
01037  0420 00 0 00000         HPR            CHECK NULLIFY TRIGGER

*CHECK CONTENTS LOCATION 40000

01040  0500 00 0 40000         CLA 16K+1      L CONTENTS LOC 40000
01041  0560 00 0 04064         LDQ K+12       L HTR A17A
01042  0340 00 0 04064         CAS K+12
01043  0020 00 0 01045         TRA *+2        ERROR
01044  0020 00 0 01047         TRA *+3        CONTENTS LOC 40000 OK
01045  0760 00 0 00162         SWT 2          ERROR
01046  0420 00 0 00000         HPR            CHECK ADR LOC 40000

*CHECK IOT LIGHT

01047  0760 00 0 00005         IOT            CHECK IOT LITE
01050  0020 00 0 01052         TRA *+2        ERROR
01051  0020 00 0 01054         TRA *+3        OK-LIGHT WAS OFF
01052  0760 00 0 00162         SWT 2          ERROR
01053  0420 00 0 00000         HPR            IOT LIGHT WAS ON

*CHECK COPY TRAP MODE TRIGGER NOW RESET

01054  0700 00 0 00000         CPY
01055  0020 00 0 01061         TRA *+4        OK-PROCEED
01056  0761 00 0 00000         NOP
01057  0760 00 0 00162         SWT 2          ERROR
01060  0420 00 0 00000         HPR            CPY TRAP TRGR NOT RESET-SEE
                                              AND CIR, MF3 J04 D 2.07.76
                                              RESETS CPY TRAP TRIGGER
01061  0760 00 0 00161         SWT 1          TEST SWITCH 1
01062  0020 00 0 01064         TRA *+2        CONTINUE
01063  0020 00 0 01025         TRA A18        REPEAT


*CHECK CAD AND LDA TRAPS

01064  0774 00 1 01064  A18X   AXT *,1        LOCATION TO XRA
01065  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01066 -0760 00 0 00006         ECTM           SET CPY TRAP TRIGGER
01067 -0700 00 0 00000         CAD            SHOULD TRAP LIKE CPY
                                              SEE SYSTEMS 3.10 SHEET 2
01070  0760 00 0 00162         SWT 2          ERROR
01071  0420 00 0 00000         HPR            SEE COMENTS FOR A CPY
                                              TRAP IN SECTION A17

01072 -0760 00 0 00006         ECTM           SET CPY TRAP TRIGGER
01073  0460 00 0 00001         LDA 1
01074  0760 00 0 00162         SWT 2          ERROR
01075  0420 00 0 00000         HPR          NO TRAP-BOTTOM LEG UP
                                              TO AND CIRCUIT MF3 A10 D AND
                                              WITH CPY TRAP MODE UP, TRAP
```

```
                                                    TO LOC 40002. SEE SHT 2-3.10
01076  0760 00 0 00161         SWT 1          TEST SWITCH 1
01077  0020 00 0 01101         TRA *+2        CONTINUE
01100  0020 00 0 01064         TRA A18X       REPEAT


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

01101  0774 00 1 01101  A19    AXT *,1        LOCATION TO XRA
01102  0020 00 0 02400         TRA MONIT

*IN PREVIOUS TEST, INSTR REG SIGN MINUS LINE BEING DOWN TO AND CIRCUIT
*MF3 A18 H PREVENTED CONDITIONING TRIGGERS CONCERNED-SYSTEMS 2.07.76.

01103  0760 00 0 00006         COM            SHOULD NOT SET TRGR

*CHECK COPY TRAP MODE TRIGGER REMAIN RESET

01104  0700 00 0 00000         CPY
01105  0020 00 0 01111         TRA *+4        OK-NO TRAP
01106  0761 00 0 00000         NOP
01107  0760 00 0 00162         SWT 2          ERROR
01110  0420 00 0 00000         HPR            CPY TRAP TRGR SHOULD
                                              BE RESET
01111  0760 00 0 00161         SWT 1          TEST SWITCH 1
01112  0020 00 0 01114         TRA *+2        CONTINUE
01113  0020 00 0 01101         TRA A19        REPEAT


*CHECK STR TRAPS TO LOCATION 00002 WITH COMPATABILUITY FEATURE

01114  0774 00 1 01114  A20    AXT *,1        LOCATION TO XRA
01115  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01116  0500 00 0 04065         CLA K+13       L TRA A20A
01117  0601 00 0 00002         STO 2          STORE IN LOCATION 00002
01120  0402 00 0 04046         SUB K0         L +4
01121  0621 00 0 40000         STA 16K+1      STORE IN ADR LOC 40000
01122 -0760 00 0 00006         ECTM           SET CPY TRAP TRIGGER

*TRAP ON COPY LINE SHOULD BE DOWN ON AND CIRCUIT MF4 J18 Y SHT 2-3.42
*HOLDING DOWN AOR LINE 3. AND CIRCUIT MF4 J35 K SHT 1-3.42 CONTROLS
*TRAP.

01123 -1 00000 0 00000         STR
01124  0760 00 0 00162         SWT 2          ERROR
01125  0420 00 0 00000         HPR            TRAPPED TO LOC 40002

*CHECK CONTENTS LOCATION 00000

01126  0500 00 0 00000  A20A   CLA            L CONTENTS LOCATION 00000
01127  0560 00 0 04104         LDQ K1         L STR A20A-2
01130  0340 00 0 04104         CAS K1
01131  0020 00 0 01133         TRA *+2        ERROR
01132  0020 00 0 01135         TRA *+3        CONTENTS LOC 00000 OK
01133  0760 00 0 00162         SWT 2          ERROR
01134  0420 00 0 00000         HPR            CONTENTS LOC 0000 WRONG
```

```
*CHECK CONTENTS LOCATION 40000

01135  0500 00 0 40000         CLA 16K+1      L CONTENTS LOC 40000
01136  0560 00 0 04105         LDQ K1+1       L HTR A20A-4
01137  0340 00 0 04105         CAS K1+1
01140  0020 00 0 01142         TRA *+2        ERROR
01141  0700 00 0 00000         CPY            CONTENTS LOCATION 40000 OK
                                              RESET CPY MODE TRIGGER
01142  0760 00 0 00162         SWT 2          ERROR
01143  0420 00 0 00000         HPR            CONTENTS LOC 40000 WRONG
01144  0760 00 0 00161         SWT 1          TEST SWITCH 1
01145  0020 00 0 01147         TRA *+2        CONTINUE
01146  0020 00 0 01114         TRA A20        REPEAT


*PREVIOUSLY, IT WAS SHOWN RESESTTING I/O AND SENSE TRAP MODE TRIGGER OR
*COPY TRAP MODE TRIGGER RESET NULLIFY TRIGGER. NOW CHECK RESETTING THE
*FIRST 2 MENTIONED TRIGGERS BY EACH OTHER.

01147  0774 00 1 01147  A21    AXT *,1        LOCATION TO XRA
01150  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01151 -0760 00 0 00005         ESTM           SET I/O SENSE TRAP TRGR
01152 -0760 00 0 00006         ECTM           SET COPY TRAP TRGR
01153  0766 00 0 00301         WDR 1          RESET I/O SENSE TRAP TRGR

*ON SYSTEMS 2.07.76 WHEN TRGR MF3 J04 01 IS RESET, LINE I/O SENSE AND
*TRAP MODE GOES DOWN. FOLLOW THIS LINE TO TRIGGER MF3 J04 03 AND NOTE
*THIS TRIGGER. IF SET. WILL BE RESET WHEN THE LINE I/O SENSE AND
*TRAP MODE GOES DOWN.

01154  0760 00 0 00162         SWT 2          ERROR
01155  0420 00 0 00000         HPR            FAILED TO TRAP

01156  0700 00 0 00000         CPY            HAS CPY TRAP TRGR
                                              BEEN RESET

01157  0020 00 0 01163         TRA *+4        YES
01160  0761 00 0 00000         NOP
01161  0760 00 0 00162         SWT 2          ERROR
01162  0420 00 0 00000         HPR            CPY TRAP TRGR NOT RESET
                                              SEE ABOVE COMMENT

*CHECK CPY TRAP TRIGGER RESET ALSO RESETS I/O SENSE TRAP TRIGGER

01163 -0760 00 0 00005         ESTM           SET I/O SENSE TRAP TRGR
01164 -0760 00 0 00006         ECTM           SET COPY TRAP TRGR
01165  0700 00 0 00000         CPY
01166  0760 00 0 00162         SWT 2          ERROR
01167  0420 00 0 00000         HPR            FAILED TO TRAP

*NOTE-IF E.C. 245719 HAS NOT BEEN INSTALLED. THERE WILL BE A DRUM SELECT
*HANGUP IN THIS SECTION OF THE PROGRAM. MANUALLY INSERT A TRA 00460
*AT LOCATION 00451 UNTIL THE E.C. HAS BEEN INSTALLED.

01170  0762 00 0 00301  A21X   RDR 1          HAS I/O SENSE TRAP
```

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                                                    TRGR BEEN RESET
01171  0020 00 0 01175         TRA *+4             YES
01172  0761 00 0 00000         NOP
01173  0760 00 0 00162         SWT 2               ERROR
01174  0420 00 0 00000         HPR                 SEE CPY TRAP MODE LINE
                                                    TO I/O SENSE AND TRAP
                                                    MODE TRGR WHEN CPY
                                                    MODE TRGR IS RESET
                                                    BY A CPY INSTR

01175  0700 00 0 00000         CPY                 DRUM SHOULD BE SELECTED
                                                    DISCONNECT DRUM WITH CPY
01176  0020 00 0 01202         TRA *+4
01177  0761 00 0 00000         NOP
01200  0760 00 0 00162         SWT 2               ERROR
01201  0420 00 0 00000         HPR                 CPY TRAPPED
01202  0760 00 0 00161         SWT 1               TEST SWITCH 1
01203  0020 00 0 01205         TRA *+2             CONTINUE
01204  0020 00 0 01147         TRA A21             REPEAT


*CHECK FLOATING POINT IN 704 MODE-NO FP TRAP ACCUMULATOR AND MQ INDICATORS ARE
*OPERATIVE AND TQO IS EXECUTED

01205  0774 00 1 01205  A22    AXT *,1             LOCATION TO XRA
01206  0020 00 0 02400         TRA MONIT           PROGRAM MONITOR
01207  0500 00 0 04066         CLA K+14            L TRA A22A
01210  0601 00 0 00010         STO 8               STORE IN LOCATION 00010

*WITH NEXT INSTRUCTION. OUTPUT FROM AND CIRCUIT MF3 A18 H WITH UNIT ADR 4
*CONDITIONS AND CIRCUIT MF3 J04 F TO SET TRIGGER MF3 J04 05 AND BRING
*UP THE LINE MINUS IN F.P. TRAP MODE-SYSTEMS 2.07.76

01211 -0760 00 0 00004         LFTM                SET F.P. TRAP MODE TRGR
01212  0161 00 0 01213         TQO *+1             MQ INDICATOR OFF
01213  0502 00 0 04126         CLS NUM+5           CH 000 FR 000002000

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

01214  0760 00 0 00002         CHS                 TRGR REMAIN SET-ACC NOW
                                                    CH 000 FR +0000002000

01215  0300 00 0 04127         FAD NUM+6           CH 000 FR -10000000

*CHECK ACCUMULATOR INDICATOR

01216  0140 00 0 01221         TOV *+3             OK-ACC IND WAS TURNED ON
                                                    TURN OFF AND TRANSFER
01217  0760 00 0 00162         SWT 2               ERROR
01220  0420 00 0 00000         HPR                 ACC INDICATOR OFF

*CHECK MQ INDICATOR

01221  0161 00 0 01227         TQO *+6             TQO SHOULD EXECUTE-MQ IND
                                                    WAS TURNED ON-TURN OFF
```

```
                                                    AND TRANSFER
01222  0760 00 0 00162         SWT 2           ERROR
01223  0420 00 0 00000         HPR             SEE IF CHS RESET TRGR

01224  0020 00 0 01227         TRA *+3         PROCEED

*IF FAD IS NOT EXECUTING IN 704 MODE. CHECK CHS IS CONDITIONING AND CIRCUIT
*MF3 J04 E TO RESET FP TRAP MODE TRGR MF3 J04 05-SYSTEM 2.07.76

01225  0760 00 0 00162  A22A   SWT 2           ERROR
01226  0420 00 0 00000         HPR             TRAPPED TO LOC 00010

*CHECK CONTENTS LOCATION 00000

01227  0500 00 0 00000         CLA             L CONTENTS LOCATION 00000
01230  0560 00 0 01123         LDQ A20A-3      L STR
01231  0340 00 0 01123         CAS A20A-3
01232  0020 00 0 01234         TRA *+2         ERROR
01233  0020 00 0 01236         TRA *+3         CONTENTS LOC 000000 OK
01234  0760 00 0 00162         SWT 2           ERROR
01235  0420 00 0 00000         HPR             CONTENTS LOC 000000 WRONG
01236  0760 00 0 00161         SWT 1           TEST SWITCH 1
01237  0020 00 0 01241         TRA *+2         CONTINUE
01240  0020 00 0 01205         TRA A22         REPEAT


*CHECK FP MPY IN 704 MODE TURNS OFF ACCUMULATOR INDICATOR

01241  0774 00 1 01241  A23    AXT *,1         LOCATION TO XRA
01242  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR
01243  0020 00 0 01256         TRA A23X        SKIP THIS TEST
01244  0767 00 0 00031         ALS 25          SHIFT TO TURN ON ACC IND
01245 -0760 00 0 00004         LFTM            FP TRAP MODE TRGR SET
01246  0560 00 0 04130         LDQ NUM+7       CH 200 FR +77777770000
01247  0260 00 0 04130         FMP NUM+7

*CHECK ACCUMULATOR INDICATOR

01250 -0140 00 0 01253         TNO *+3         OK-ACC OVFLO IND OFF
01251  0760 00 0 00162         SWT 2           ERROR
01252  0420 00 0 00000         HPR             ACC IND NOT RESET OFF
                                               SYSTEMS PAGES 2.08.40
                                               AND 2.06.01

01253  0760 00 0 00161         SWT 1           TEST SWITCH 1
01254  0020 00 0 01256         TRA *+2         CONTINUE
01255  0020 00 0 01241         TRA A23         REPEAT


*CHECK FLOATING POINT IN 709 MODE-NO TRAP

01256  0774 00 1 01256  A23X   AXT *,1         LOCATION TO XRA
01257  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR
01260  0500 00 0 04067         CLA K+15        L TRA A23V
01261  0601 00 0 00010         STO 8           STORE IN LOCATION 00010
```

```
*NEXT INSTRUCTION SHOULD CONDITION AND CIRCUIT MF3 J04 E TO RESET TRGR
*MF3 J04 05 IF TRIGGER WAS SET AND EXECUTE FP IN 709 MODE-SYSTEMS
*2.07.76

01262 -0760 00 0 00002         EFTM           RESET FP TRAP MODE TRGR
01263  0500 00 0 04131         CLA NUM+8      CH 234 FR-60000000
01264  0300 00 0 04132         FAD NUM+9      CH 233 FR+40000000
01265  0560 00 0 04145         LDQ NUM1       L -234400000000
01266  0340 00 0 04145         CAS NUM1
01267  0020 00 0 01271         TRA *+2        ERROR
01270  0020 00 0 01276         TRA A23Y+2     FP EXECUTE OF
01271  0760 00 0 00162         SWT 2          ERROR
01272  0420 00 0 00000         HPR            EXECUTED WRONG
01273  0020 00 0 01276         TRA A23Y+2     PROCEED

01274  0760 00 0 00162  A23Y   SWT 2          ERROR
01275  0420 00 0 00000         HPR            TRAPPED
01276  0760 00 0 00161         SWT 1          TEST SWITCH 1
01277  0020 00 0 01301         TRA *+2        CONTINUE
01300  0020 00 0 01256         TRA A23X       REPEAT


*CHECK FP MPY IN 704 MODE WITH MULTIPLIER ZERO

01301  0774 00 1 01301  A23L   AXT *,1        LOCATION TO XRA
01302  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01303  0500 00 0 04117         CLA K1+11      TRA A23M
01304  0601 00 0 00010         STO 8          STORE IN LOC 00010
01305 -0760 00 0 00004         LFTM           FP TRAP MODE TRGR SET
01306  0560 00 0 04121         LDQ NUM        MQ ZERO
01307  0260 00 0 04146         FMP NUM1+1     CH 175 FR +777777777777777

*CHECK ACC RESULT IS ZERO

01310  0100 00 0 01313         TZE *+3        OK-ACC ZERO
01311  0760 00 0 00162         SWT 2          ERROR
01312  0420 00 0 00000         HPR            ACC NOT ZERO

*CHECK MQ RESULT IS ZERO

01313  0763 00 0 00043         LLS 35         SHIFT TO ACC
01314  0100 00 0 01317         TZE *+3        OK-MQ ZERO
01315  0760 00 0 00162         SWT 2          ERROR
01316  0420 00 0 00000         HPR            MQ NOT ZERO

*CHECK ACC OVERFLOW INDICATOR IS OFF

01317 -0140 00 0 01325         TNO *+6        TRA IF OVFLO IND OFF
01320  0760 00 0 00162         SWT 2          ERROR
01321  0420 00 0 00000         HPR            ACC OVFLO IND ON
01322  0020 00 0 01325         TRA *+3

01323  0760 00 0 00162  A23M   SWT 2          ERROR
01324  0420 00 0 00000         HPR            TRAPPED TO LOC 00010

01325  0760 00 0 00161         SWT 1          TEST SWITCH 1
```

```
01326  0020 00 0 01330         TRA *+2        PROCEED
01327  0020 00 0 01301         TRA A23L       REPEAT


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

01330  0774 00 1 01330  A24    AXT *,1        LOCATION TO XRA
01331  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01332  0500 00 0 04070         CLA K+16       L TRA A24A
01333  0601 00 0 00010         STO 8          STORE IN LOCATION 00010

*CONDITION AND CIRCUIT MF3 J04 E TO RESET TRGR MF3 J04 05 IF SET

01334 -0760 00 0 00002         EFTM           LINE F.P. TRAP MODE UP

*BEFORE PROCEEDING CHECK ENK +0760---04 DOES NOT SET F.P. TRAP MODE
*TRIGGER IF TRIGGER IS SET, CHECK ENK CONDITIONING AND CIRCUIT MF3 J04 F
*TO SET FP TRAP MODE TRIGGER-SYSTEMS 2.07.76

01335  0760 00 0 00004         ENK            TRGR REMAIN RESET
01336  0760 00 0 00000         CLM            CLEAR ACCUMULATOR
01337  0560 00 0 04133         LDQ NUM+10     CH 032 FR-404040404
01340  0763 00 0 00043         LLS 35         NO ACC OVERFLOW
01341  0241 00 0 04134         FDP NUM+11     CH 344 FR +440404040
01342  0760 00 0 00162         SWT 2          ERROR
01343  0420 00 0 00000         HPR            FAILED TO TRAP

*CHECK ACCUMULATOR INDICATOR OFF

01344 -0140 00 0 01347  A24A   TNO *+3        OK-ACC IND OFF
01345  0760 00 0 00162         SWT 2          ERROR
01346  0420 00 0 00000         HPR            ACC IND ON

*CHECK CONTENTS LOCATION 00000

01347  0500 00 0 00000         CLA            L CONTENTS LOCATION 00000
01350  0560 00 0 04071         LDQ K+17       L FP LOC +1 IN ADR AND
                                              BITS IN DECREMENT POSITIONS
                                              14,16,17 WITH OP CODE -1
01351  0340 00 0 04071         CAS K+17
01352  0020 00 0 01354         TRA *+2        ERROR
01353  0020 00 0 01356         TRA *+3        CONTENTS LOC 00000 OF
01354  0760 00 0 00162         SWT 2          ERROR
01355  0420 00 0 00000         HPR            CONTENTS LOC 00000 WRONG
01356  0760 00 0 00161         SWT 1          TEST SWITCH 1
01357  0020 00 0 01361         TRA *+2        CONTINUE
01360  0020 00 0 01330         TRA A24        REPEAT


*CHECK EXECUTION TQO AND OPERATION MQ INDICATOR IN 709 MODE

01361  0774 00 1 01361  A26    AXT *,1        LOCATION TO XRA
01362  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01363 -0760 00 0 00004         LFTM           FP TRAP MODE TRGR SET
01364  0161 00 0 01365         TQO *+1        MQ INDICATOR OFF
01365  0500 00 0 04126         CLA NUM+5      CH 000 FR +000002000
```

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01366  0300 00 0 04127         FAD NUM+6      CH 000 FR -100000000
01367 -0760 00 0 00002         EFTM           TRIGGER NOW RESET
01370  0161 00 0 01372         TQO *+2        ACT AS NOP-NO TRA
01371  0020 00 0 01374         TRA *+3        OK
01372  0760 00 0 00162         SWT 2          ERROR
01373  0420 00 0 00000         HPR            TQO EXECUTED

*MQ INDICATOR SHOULD REMAIN ON UNTIL FIRST E TIME INSTRUCTION

01374  0500 00 0 00000         CLA            MQ INDICATOR OFF

*CHECK MQ INDICATOR NOW OFF

01375 -0760 00 0 00004         LFTM           SET FP TRAP MODE TRGR
01376  0161 00 0 01400         TQO *+2        SHOULD NOT TRANSFER
01377  0020 00 0 01402         TRA *+3        PROCEED
01400  0760 00 0 00162         SWT 2          ERROR
01401  0420 00 0 00000         HPR            MQ INDICTOR ON
01402  0760 00 0 00161         SWT 1          TEST SWITCH 1
01403  0020 00 0 01405         TRA *+2        CONTINUE
01404  0020 00 0 01361         TRA A26        REPEAT


01405  0760 00 0 00165         SWT 5          TEST SENSE SWITCH 5
01406  0020 00 0 01607         TRA ALT        SKIP RESET AND LOAD
                                              BUTTON TESTS
01407  0760 00 0 00163         SWT 3          IS PRINTER ON LINE
01410  0020 00 0 01413         TRA *+3
01411  0020 00 0 01474         TRA A28X       TEST LOAD BUTTON ONLY

01412  0020 00 0 01361         TRA A26        DUMMY INST FOR MONITOR


*CHECK RESET BUTTON RESTORES MACHINE TO 709 MODE-SEE SYSTEMS 2.07.76,4.08,AND
*4.09

01413  0774 00 1 01413  A27    AXT *,1        LOCATION TO XRA
01414  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01415  0500 00 0 04072         CLA K+18       L TRA AS27A
01416  0601 00 0 00000         STO            STORE IN LOCATION 00000

*SET COMPATABILITY TRIGGGERS

01417 -0021 00 0 01420         ESNT *+1
01420 -0760 00 0 00005         ESTM
01421 -0760 00 0 00006         ECTM
01422 -0760 00 0 00004         LFTM
01423  0420 00 0 00000         HPR            PUSH RESET BUTTON TO
                                              RESET INSTR CTR TO 000000

*ALL COMPATABILITY TRIGGERS SHOULD NOW BE RESET
*PUSH START

01424  0766 00 0 01361  A27A   WPRA           SELECT PRINTER
01425  0020 00 0 01431         TRA *+4        OK-PROCEED
01426  0761 00 0 00000         NOP
```

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01427  0760 00 0 00162         SWT 2          ERROR
01430  0420 00 0 00000         HPR            CHECK IF I/O SENSE TRAP
                                               MODE TRGR IS RESET

01431  0760 00 0 01363         SPRA 3
01432  0020 00 0 01436         TRA *+4        OK-PROCEED
01433  0761 00 0 00000         NOP
01434  0760 00 0 00162         SWT 2          ERROR
01435  0420 00 0 00000         HPR            IF I/O SENSE TRAP TRGR
                                               RESET. TRGR MF3 J16 03 ON
                                               SYSTEMS 2.07.76 RESET

01436  0540 00 0 40017         RCHA 16K+16    PRINT A LINE

*IF THE PRINTER FAILS TO PRINT A LINE. IT IS AN INDICATOR THAT THE NULLIFY
*TRGR WAS NOT RESET WITH THE RESET BUTTON-SYSTEMS 4.08 AND 4.09, THE
*CONTROL WORD IS IN THE UPPER HALF OF STORAGE IN LOCATION 400017 AND
*THIS LOCATION SHOULD BE ACCESSIBLE.

*CHECK COPY TRAP MODE TRIGGER IS RESET

01437  0700 00 0 00000         CPY            SHOULD NOT TRAP
01440  0020 00 0 01444         TRA *+4        OK-PROCEED
01441  0761 00 0 00000         NOP
01442  0760 00 0 00162         SWT 2          ERROR
01443  0420 00 0 00000         HPR            SEE COPY TRAP TRGR RESET

*CHECK LOCATION 40000

01444  0500 00 0 40000         CLA 16K+1      L LOCATION 40000
01445  0560 00 0 04121         LDQ NUM        L +0
01446  0340 00 0 04121         CAS NUM
01447  0020 00 0 01451         TRA *+2        ERROR
01450  0020 00 0 01453         TRA *+3        CONTENTS LOC 40000 OK
01451  0760 00 0 00162         SWT 2          ERROR
01452  0420 00 0 00000         HPR            CONTENTS LOC 40000 WRONG

*CHECK FLOATING POINT TRAP MODE TRIGGER RESET

01453  0500 00 0 04073         CLA K+19       L TRA A27B
01454  0601 00 0 00010         STO 8          STORE IN LOCATION 00010
01455  0500 00 0 04135         CLA NUM+12     CH 001 FR +00777777
01456  0300 00 0 04136         FAD NUM+13     CH 004 FR +00444444
01457  0760 00 0 00162         SWT 2          ERROR
01460  0420 00 0 00000         HPR            IS FP TRAP MODE TRGR RESET

01461  0500 00 0 00000  A27B   CLA            L CONTENTS LOCATION 00000
01462  0560 00 0 04074         LDQ K+20       L FP LOC + 1 WITH BITS IN
                                               DEC POSITIONS 16,17 AND
                                               OP CODE 0000
01463  0340 00 0 04074         CAS K+20
01464  0020 00 0 01466         TRA *+2        ERROR
01465  0020 00 0 01470         TRA *+3        CONTENTS LOC 00000 OK
01466  0760 00 0 00162         SWT 2          ERROR
01467  0420 00 0 00000         HPR            CONTENTS LOC 00000 WRONG
01470  0760 00 0 00161         SWT 1          TEST SWITCH 1
```

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01471  0020 00 0 01502         TRA A28        CONTINUE
01472  0020 00 0 01413         TRA A27        REPEAT

01473  0020 00 0 01361         TRA A26        DUMMY INSTR FOR MONITOR

01474  0774 00 1 01474  A28X   AXT *,1        LOCATION TO XRA
01475  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01476  0534 00 1 01501         LXA *+3,1      L XRA WITH ADR OF INSTR
01477 -0634 00 1 04161         SXD HOLD,1     PUT IN DEC OF LOC
01500  0020 00 0 01502         TRA A28        PROCEED

01501  0020 00 0 01413         TRA A27        DUMMY INSTR FOR MONITOR


*CHECK LOAD TAPE BUTTON RESTORES MACHINE TO 709 MODE SEE SYSTEMS 2.07.76,4.08
*4.19 AND OUTPUTS FROM 4.19 TO VARIOUS PAGES CONCERNING LOAD CONTROL SEQUENC E

01502  0774 00 1 01502  A28    AXT *,1        LOCATION TO XRA
01503  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01504  0500 00 0 01426         CLA A27A+2     L NOP
01505  0601 00 0 00003         STO 3          STORE IN LOCATION 00003
01506  0500 00 0 04075         CLA K+21       L TRA A28A
01507  0601 00 0 00004         STO 4          STORE IN LOCATION 00004

*WRITE 3 WORDS ON TAPE

01510  0766 00 0 01221         WTBA 1         SELECT TAPE CHAN A
01511  0540 00 0 04076         RCHA K+22
01512  0764 00 0 01201         BSRA 1         BACKSPACE TAPE
01513  0060 00 0 01513         TCOA *

*SET COMPATABILITY TRIGGERS

01514 -0021 00 0 01515         ESNT *+1
01515 -0760 00 0 00005         ESTM
01516 -0760 00 0 00006         ECTM
01517 -0760 00 0 00004         LFTM
01520  0420 00 0 00000         HPR

*PUSHING LOAD TAPE BUTTON, SHOULD RESET COMPATABILYTY TRGRS AND WRITE 3
*WORDS FROM TAPE INTO THE 3 INITIAL LOCATION OF STORAGE. THE FIRST 5
*STORAGE LOCATIONS SHOULD CONTAIN-

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

01521  0760 00 0 00162  A28A   SWT 2          ERROR
01522  0420 00 0 00000         HPR            RTBA 1 TRAPPED

*CHECK NULLIFY TRIGGER NOW RESET

01523  0074 00 2 40016  A28B   TSX 16K+15,2   SHOULD TRA LOC 40016
01524  0020 00 0 01527         TRA *+3        TRANSFERED OK
```

```
01525  0760 00 0 00162         SWT 2          ERROR
01526  0420 00 0 00000         HPR            ISNULLIFY TRGR RESET

*CHECK COPY MODE TRIGGER NOW RESET

01527  0700 00 0 00000         CPY
01530  0020 00 0 01534         TRA *+4        OK-PROCEED
01531  0761 00 0 00000         NOP
01532  0760 00 0 00162         SWT 2          ERROR
01533  0420 00 0 00000         HPR            IS CPY TRAP TRGR RESET

*CHECK LOCATION 40000

01534  0500 00 0 40000         CLA 16K+1      L LOCATION 40000
01535  0560 00 0 04121         LDQ NUM        L +0
01536  0340 00 0 04121         CAS NUM
01537  0020 00 0 01541         TRA *+2        ERROR
01540  0020 00 0 01543         TRA *+3        CONTENTS LOC 40000 OK
01541  0760 00 0 00162         SWT 2          ERROR
01542  0420 00 0 00000         HPR            CONTENTS LOC 40000 WRONG

*CHECK FLOATING POINT TRAP TRIGGER RESET

01543  0500 00 0 04102         CLA K+26       L TRA A28C
01544  0601 00 0 00010         STO 8          STORE IN LOCATION 00010
01545  0500 00 0 04135         CLA NUM+12     CH 001 FR +00777777
01546  0300 00 0 04136         FAD NUM+13     CH 004 FR +00444444
01547  0760 00 0 00162         SWT 2          ERROR
01550  0420 00 0 00000         HPR            IS FP TRAP MODE TRGR RESET

01551  0500 00 0 00000  A28C   CLA            L CONTENTS LOC 00000
01552  0560 00 0 04103         LDQ K+27       L FP LOC+1 WITH BITS IN
                                              DEC POSITIONS 16,17 AND
                                              OP CODE 0000
01553  0340 00 0 04103         CAS K+27
01554  0020 00 0 01556         TRA *+2        ERROR
01555  0020 00 0 01560         TRA *+3        CONTENTS LOC 00000 OK
01556  0760 00 0 00162         SWT 2          ERROR
01557  0420 00 0 00000         HPR            CONTENTS LOC 00000 WRONG
01560  0760 00 0 00161         SWT 1          TEST SWITCH 1
01561  0020 00 0 01563         TRA *+2        CONTINUE
01562  0020 00 0 01502         TRA A28        REPEAT

*SINCE THE POSSIBILITY EXISTS THAT NULLIFICATION MODE MIGHT INTERFERE
*WITH THE HIGH ORDER INDEX REGISTER POSITION WITH A TSX INSTRUCTION
*DURING THE EXECUTION OF COMPATABILITY TEST. NOW TRANSFER OUT TO
*8DEPR TO TEST SENSE SWITCH 4 AND DETERMINE WHETHER TO REPEAT ENTIRE
*COMPATABILITY TEST 50 OCTAL TIMES FOR RELIABILITY.

01563 -0760 00 0 00010         LSNM           EXIT NULLIFY MODE
01564  0074 00 4 02573         TSX RELY,4     TRA TO 9DEPR AND WITH
                                              SENSE SWITCH 4 DOWN, RETURN
01565  0020 00 0 00171         TRA AZ         TO THIS INSTRUCTION AND
                                              REPEAT ENTIRE COMPATABILITY
                                              SECTION 50 OCTAL TIMES
```

```
01566  0761 00 0 00000         NOP
01567  0020 00 0 01607         TRA ALT        SWITCH 4 UP-PROCEED


*INSTRUCTIONS FOR LOWEST LOCATIONS IN UPPER HALF OF STORAGE

01570  0021 00 0 40003  TRAP   TTR 16K+4      TRA LOC 40003
01571  0021 00 0 40003         TTR 16K+4
01572  0500 00 0 40000         CLA 16K+1      L CONTENTS LOC 40000
01573  0400 00 0 04123         ADD NUM+2      L +2
01574  0621 00 0 40006         STA 16K+7      ADR TO LOC 40006
01575  0021 00 0 00000         TTR
01576  0020 00 0 00201         TRA AZA
01577 -1 00000 0 00000         STR
01600  0020 00 0 00212         TRA AA-2
01601  0020 00 0 00222         TRA AB
01602  0020 00 0 00235         TRA A1A
01603  0020 00 0 00251         TRA A2A
01604  0020 00 0 00263         TRA A3A-2
01605  0020 00 2 00001         TRA 1,2
01606  0000 30 0 04016         IOCD RE,0,24


*COMPREHENSIVE TEST FOR EXECUTE INSTRUCTION

01607  0760 00 0 00165  ALT    SWT 5          IS SWITCH 5 UP
01610  0020 00 0 01623         TRA EX         YES
01611  0000 00 0 01614         HTR EXX        NO

*IF RESET AND LOAD TAPE BUTTONS TESTS ARE NOT TO BE REPEATED.
*PUT SENSE SWITCH 5 UP

01612  0020 00 0 01502         TRA A28        DUMMY INSTRUCTION

01613  0761 00 0 00000         NOP


01614  0774 00 1 01614  EXX    AXT *,1        LOCATION TO XRA
01615  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01616  0534 00 1 01621         LXA *+3,1      L XRA WITH ADR OF INSTR
01617 -0634 00 1 04161         SXD HOLD,1     PUT IN DEC OF LOC
01620  0020 00 0 01623         TRA EX

01621  0020 00 0 01361         TRA A26        DUMMY INSTRUCTION


01622  672523606060            BCD 1XEC       TEST EXECUTE CASUSE 709
                                              TO TAKE NEXT INSTR FROM
                                              EXECUTE ADR,PERFORM THAT
                                              INSTR AND RETURN TO EXE-
                                              CUTE INSTRUCTION PLUS 1

01623  0774 00 1 01623  EX     AXT *,1        LOCATION TO XRA
01624  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01625  0500 00 0 04121         CLA NUM        CLEAR ACC
```

```
*WITH EXECUTE INSTRUCTION. PERFORM ALL I TIME OPERATIONS EXCEPT AT I 11,
*SUPPRESS INSTRUCTION COUNTER ADVANCE-SEE SYSTEMS SHEET 2-3.10.01,
*3.20.02 AND 3.20.

01626  0522 00 0 01630         XEC *+2
01627  0020 00 0 01633         TRA *+4

*AT I 11 TIME OF NEXT INSTRUCTION, ADVANCE INSTRUCTION COUNTER IN
*ORDER TO RETURN TO EXECUTE INSTRUCTION PLUS 1 AFTER PERFORMING THE
*E TIME OPERATION OF THE INSTRUCTION.

01630  0502 00 0 04121         CLS NUM         L -0
01631  0074 00 4 02556         TSX ERROR-1,4   FAILED TO RETURN TO
                                                EXECUTE INSTR PLUS 1
01632 -3 00000 0 01623         TXL EX

                                    TEST FOR MINUS SIGN IN ACC

01633 -0120 00 0 01635         TMI *+2         OK-ACC SIGN MINUS
01634  0074 00 4 02557         TSX ERROR,4     ERROR-ACC SIGN PLS
01635  0074 00 4 02564         TSX OK,4
01636  0020 00 0 01623         TRA EX


01637  672523606060            BCD 1XEC        TEST EXECUTE TO TRANSFER
                                                DOES NOT RETURN TO
                                                EXECUTE PLUS 1

01640  0774 00 1 01640  EXA    AXT *,1         LOCATION TO XRA
01641  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR
01642  0522 00 0 01646         XEC *+4
01643  0074 00 4 02556         TSX ERROR-1,4   ERROR-SHOULD GO TO TRA
                                                INSTR AND TRANSFER
01644 -3 00000 0 01640         TXL EXA

01645  0020 00 0 01652         TRA EXN         GO TO NEXT TEST IF ERROR

*EXECUTING TO A TRA INSTRUCTION, THE ADR SIWTCHES, WHICH CONTAIN THE
*ADDRESS IN THE TRANFER INSTRUCTION, GO TO THE ADDRESS REGISTER AT
*ER 10, THE INSTRUCTION COUNTER IS RESET AT THE NEXT I2 TIME. THE
*ADDRESS REGISTER GOES TO THE STORAGE ADDRESS REGISTER FOR THE NEXT
*INSTRUCTION AND AT I3 TIME. THE ADDRESS REGISTER IS SET INTO THE
*INSTRUCTION COUNTER PREVENTING A RETURN TO EXECUTE INSTRUCTION PLUS
*1-SYSTEMS 3.40, 3.20.02 AND 1.05.03.

01646  0020 00 0 01647         TRA *+1         CAME FROM EXECUTE
01647  0074 00 4 02564         TSX OK,4        OK AND CONTINUE
01650  0020 00 0 01640         TRA EXA


01651  672523606060            BCD 1XEC        TEST NZT PRI OP 5.2 DOES
                                                NOT PERFORM AS EXECUTE

01652  0774 00 1 01652  EXN    AXT *,1         LOCATION TO XRA
01653  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR
01654  0754 00 0 00000         PXA             CLEAR ACC
```

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*WITH A NZT INSTRUCTION AND CIRCUIT MF3 J35 A SYSTEMS PAGE 3.20.02
*SHOULD NOT BE CONDITIONED WITH INPUT LINE INSTR REG 8 DOWN.
*MINUS ON EXECUTE LINE SHOULD BE UP AND NZT SHOULD PERFORM AS
*A SKIP INSTRUCTION.

01655 -0520 00 0 01660         NZT *+3
01656  0020 00 0 01661         TRA *+3        ERROR-SHOULD NOT HIT
                                               THIS INSTRUCTION
01657  0020 00 0 01663         TRA *+4        NZT SKIPPED OK

01660  0500 00 0 04122         CLA NUM+1

01661  0074 00 4 02556         TSX ERROR-1,4
01662 -3 00000 0 01652         TXL EXN

01663  0100 00 0 01665         TZE *+2        ACC SHOULD BE ZERO
01664  0074 00 4 02557         TSX ERROR,4
01665  0074 00 4 02564         TSX OK,4
01666  0020 00 0 01652         TRA EXN


01667  672523606060            BCD 1XEC       TEST EXECUTE WITH TXI

01670  0774 00 1 01670  EXB    AXT *,1        LOCATION TO XRA
01671  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01672  0774 00 2 00006         AXT 6,2        L 6 IN XRB
01673  0522 00 0 01677         XEC *+4
01674  0074 00 4 02556         TSX ERROR-1,4  ERROR-SHOULD GO TO TXI
01675 -3 00000 0 01670         TXL EXB        INSTRUCTION AND TRANSFER

01676  0020 00 0 01711         TRA EXC        GO TO NEXT TEST IF ERROR

01677  1 00001 2 01700         TXI *+1,2,1    INCREMENT XRB WITH ONE
                                               AND PROCEED TO NEXT INSTR
01700  0754 00 2 00000         PXA 0,2        XRB TO ADR OF ACC
01701  0560 00 0 04047         LDQ K0+1       L +7
01702  0340 00 0 04047         CAS K0+1
01703  0020 00 0 01705         TRA *+2        ERROR
01704  0020 00 0 01706         TRA *+2        OK
01705  0074 00 4 02557         TSX ERROR,4
01706  0074 00 4 02564         TSX OK,4
01707  0020 00 0 01670         TRA EXB


01710  672523606060            BCD 1XEC       TEST EXECUTE WITH TXL
                                               WITH XR LOW

01711  0774 00 1 01711  EXC    AXT *,1        LOCATION TO XRA
01712  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01713  0774 00 2 00000         AXT 0,2        CLEAR XRB
01714  0522 00 0 01720         XEC *+4
01715  0074 00 4 02556         TSX ERROR-1,4  ERROR-SHOULD GO TO TXL
01716 -3 00000 0 01711         TXL EXC        INSTRUCTION AND TRANSFER

01717  0020 00 0 01723         TRA EXD
```

```
*IF THE CONDITION IS MET IN A CONDITIONAL TRANSFER, PROCEED AS IN A
*TRANSFER INSTRUCTION. IF CONDITION IS NOT MET, RETURN TO EXECUTE
*INSTRUCTION PLUS 1.

01720 -3 00001 2 01723         TXL *+3,2,1    SHOULD TRANSFER
01721  0074 00 4 02556         TSX ERROR-1,4  ERROR-DID NOT TRANSFER
01722  0020 00 0 01711         TRA EXC

01723  0522 00 0 01727  EXD    XEC *+4
01724  0074 00 4 02556         TSX ERROR-1,4  ERROR-SHOULD GO TO TXL
01725 -3 00000 0 01711         TXL EXC        INSTRUCTION AND TRANSFER

01726  0020 00 0 01734         TRA EXF        GO TO NEXT TEST IF ERROR

01727 -3 00000 2 01731         TXL *+2,2,0    CONDITION MET-TRANSFER
01730  0074 00 4 02557         TSX ERROR,4    ERROR-DID NO TRANSFER
01731  0074 00 4 02564         TSX OK,4
01732  0020 00 0 01711         TRA EXC


01733  672523606060            BCD 1XEC       TEST EXECUTE WITH TXL
                                              WITH XR HIGH

01734  0774 00 1 01734  EXF    AXT *,1        LOCATION TO XRA
01735  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01736  0500 00 0 04121         CLA NUM        CLEAR ACC
01737  0774 00 2 00001         AXT 1,2        L 1 IN XRB
01740  0522 00 0 01743         XEC *+3
01741  0502 00 0 04121         CLS NUM        L -0
01742  0020 00 0 01746         TRA *+4

01743 -3 00000 2 01744         TXL *+1,2,0    CONDITION NOT MET-GO
                                              BACK TO EXECUTE PLUS 1

01744  0074 00 4 02556         TSX ERROR-1,4  FAILED TO RETURN TO
01745 -3 00000 0 01734         TXL EXF        EXECUTE INSTR PLUS 1

01746 -0120 00 0 01750         TMI *+2        SHOULD TRANSFER
01747  0074 00 4 02557         TSX ERROR,4    ERROR-ACC PLUS
01750  0074 00 4 02564         TSX OK,4
01751  0020 00 0 01734         TRA EXF


01752  672523606060            BCD 1XEC       TEST EXECUTE WITH TXH
                                              WITH XR HIGH

01753  0774 00 1 01753  EXG    AXT *,1        LOCATION TO XRA
01754  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01755  0774 00 2 00001         AXT 1,2        L 1 IN XRB
01756  0522 00 0 01762         XEC *+4
01757  0074 00 4 02556         TSX ERROR-1,4  ERROR-SHOULD GO TO TXH
01760 -3 00000 0 01753         TXL EXG        INSTRUCTION AND TRANSFER

01761  0020 00 0 01767         TRA EXH        GO TO NEXT TEST IF ERROR
```

```
01762  3 00000 2 01764         TXH *+2,2,0    CONDITION MET-TRANSFER
01763  0074 00 4 02557         TSX ERROR,4
01764  0074 00 4 02564         TSX OK,4
01765  0020 00 0 01753         TRA EXG


01766  672523606060            BCD 1XEC       TEST EXECUTE WITH TXH
                                               WITH XR LOW

01767  0774 00 1 01767  EXH    AXT *,1        LOCATION TO XRA
01770  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
01771  0774 00 2 00000         AXT 0,2        CLEAR XRA
01772  0500 00 0 04121         CLA NUM        CLEAR ACC
01773  0522 00 0 01776         XEC *+3
01774  0502 00 0 04121         CLS NUM        L -0
01775  0020 00 0 02001         TRA *+4

01776  3 00000 2 01777         TXH *+1,2,0    CONDITION NOT MET-GO
                                               BACK TO EXECUTE PLUS 1

01777  0074 00 4 02556         TSX ERROR-1,4  FAILED TO RETURN TO
02000 -3 00000 0 01767         TXL EXH        EXECUTE INSTR PLUS

02001 -0120 00 0 02003         TMI *+2        SHOULD TRANSFER
02002  0074 00 4 02557         TSX ERROR,4    ERROR-ACC PLUS
02003  0074 00 4 02564         TSX OK,4
02004  0020 00 0 01767         TRA EXH


02005  672523606060            BCD 1XEC       TEST EXECUTE WITH TIX

02006  0774 00 1 02006  EXI    AXT *,1        LOCATION TO XRA
02007  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
02010  0774 00 2 00001         AXT 1,2        L 1 IN XRB
02011  0522 00 0 02015         XEC *+4
02012  0074 00 4 02556         TSX ERROR-1,4  ERROR-SHULD GO TO TIX
02013 -3 00000 0 02006         TXL EXI        INSTRUCTION AND TRANSFER

02014  0020 00 0 02020         TRA EXJ        GO TO NEXT TEST IF ERROR

02015  2 00000 2 02020         TIX *+3,2,0    NO ADDER X CARRY-TRANSFER
                                               AND REDUCE XRB TO ZERO

02016  0074 00 4 02556         TSX ERROR-1,4  ERROR-DID NOT TRANSFER
02017  0020 00 0 02006         TRA EXI

02020  0500 00 0 04121  EXJ    CLA NUM        CLEAR ACC
02021  0522 00 0 02024         XEC *+3
02022  0502 00 0 04121         CLS NUM        L -0
02023  0020 00 0 02027         TRA *+4
02024  2 00001 2 02025         TIX *+1,2,1    ADDER X CARRY-RETURN
                                               TO EXECUTE INSTR PLUS 1

02025  0074 00 4 02556         TSX ERROR-1,4  FAILED TO RETURN TO
02026 -3 00000 0 02006         TXL EXI        EXECUTE INSTR PLUS 1
```

```
02027 -0120 00 0 02031         TMI *+2         SHOULD TRANSFER
02030  0074 00 4 02557         TSX ERROR,4     ERROR-ACC PLUS
02031  0074 00 4 02564         TSX OK,4
02032  0020 00 0 02006         TRA EXI


02033  672523606060            BCD 1XEC        TEST EXECUTE WITH TSX

02034  0774 00 1 02034  EXK    AXT *,1         LOCATION TO XRA
02035  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR
02036  0020 00 0 02053         TRA SUB+12

                                   EXECUTE-TSX SUBROUTINE

                                   CHECK 2 S COMPLEMENT OF EXECUTE
                                   INSTR AND NOT TSX INSTR IN XRB

02037  0754 00 2 00000  SUB    PXA 0,2         XRB TO ACCUMULATOR
02040  0737 00 2 00000         PAC 0,2         COMPLEMENT ACC TO XRB
02041  0754 00 2 00000         PXA 0,2         XRB TO ACC
02042  0737 00 2 00000         PAC 0,2         RECOMPLEMNET ACC TO XRB
02043  0560 00 0 04110         LDQ K1+4        L HTR EXK1 IN MQ
02044  0340 00 0 04110         CAS K1+4
02045  0020 00 0 02047         TRA *+2         ERROR
02046  0020 00 0 02052         TRA *+4         OK-2 S COM EXK IN XRA
02047  0074 00 4 02556         TSX ERROR-1,4
02050  0020 00 0 02034         TRA EXK

02051  0020 00 0 02070         TRA EXL         GO TO NEXT TEST IF ERROR

02052  0020 00 2 00004         TRA 4,2         RETURN TO EXK PLUS 4

*AT I 11 TIME OF PERFORMING THE INSTRUCTION THAT WAS IN THE ADDRESS OF
*EXECUTE, THE INSTRUCTION COUNTER IS NORMALLY ADVANCED. WITH A TSX
*INSTRUCTION, INSTRUCTION COUNTER ADVANCE IS BLOCKED AGAIN AT I 11 AND
*SO THE LOCATION OF THE EXECUTE INSTRCUTION IS SITTING IN THE
*INSTRUCTION COUNTER. THEREFORE THE 2-S COMPLEMENT OF THE EXECUTE
*INSTRUCTION IS OBTAINED IN THE INDEX REGISTER WHEN THE INSTRUCTION
*COUNTER IS ROUTED TO THE INDEX REGISTER AND CYCLED.

02053  0522 00 0 02060  EXK1   XEC *+5
02054  0074 00 4 02556         TSX ERROR-1,4   ERROR-RETURNED TO
02055 -3 00000 0 02034         TXL EXK         EXECUTE INSTR PLUS 1

02056  0020 00 0 02070         TRA EXL         GO TO NEXT TEST IF ERROR

02057  0020 00 0 02065         TRA *+6         RETURN FROM SUBROUTINE

02060  0074 00 2 02037         TSX SUB,2       OUT TO SUBROUTINE

02061  0761 00 0 00000         NOP
02062  0761 00 0 00000         NOP
02063  0761 00 0 00000         NOP
02064  0074 00 4 02557         TSX ERROR,4     ERROR-FAILED TO RETURN
                                               TO EXK PLUS 4
02065  0074 00 4 02564         TSX OK,4
```

```
02066  0020 00 0 02034         TRA EXK


02067  672523606060            BCD 1XEC       TEST EXECUTE WITH CAS

02070  0774 00 1 02070  EXL     AXT *,1        LOCATION TO XRA
02071  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
02072  0500 00 0 04130         CLA NUM+7      L +200777770000
02073  0560 00 0 04130         LDQ NUM+7
02074  0522 00 0 02100         XEC *+4
02075  0020 00 0 02106         TRA *+9        ERROR IN COMPARISON
02076  0020 00 0 02107         TRA *+9        OK
02077  0020 00 0 02106         TRA *+7        ERROR IN COMPARISON
02100  0340 00 0 04130         CAS NUM+7
02101  0020 00 0 02103         TRA *+2        ERROR-DID NOT RETURN
02102  0020 00 0 02103         TRA *+1        TO EXECUTE INSTR PLUS 1
02103  0074 00 4 02556         TSX ERROR-1,4  2 OR 3 AFTER CAS
02104 -3 00000 0 02070         TXL EXL

02105  0020 00 0 02112         TRA *+5        GO TO NEXT TEST IF ERROR

02106  0074 00 4 02557         TSX ERROR,4
02107  0074 00 4 02564         TSX OK,4
02110  0020 00 0 02070         TRA EXL


02111  672523606060            BCD 1XEC       TEST EXECUTE INDEXABLE

02112  0774 00 1 02112  EX1     AXT *,1        LOCATION TO XRA
02113  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
02114  0774 00 2 00004         AXT 4,2        L 4 IN XRB
02115  0502 00 0 04121         CLS NUM        L -0
02116  0522 00 2 02124         XEC *+6,2      SHOULD GO TO EX1+6
02117  0020 00 0 02127         TRA *+8
02120  0500 00 0 04121         CLA NUM
02121  0074 00 4 02556         TSX ERROR-1,4  FAILED TO RETURN
                                              TO EXECUTE PLUS 1
02122 -3 00000 0 02112         TXL EX1

02123  0020 00 0 02134         TRA EX2        GO TO NEXT TEST IF ERROR

02124  0074 00 4 02556         TSX ERROR-1,4  FAILED TO MODIFY ADR
02125  0020 00 0 02112         TRA EX1

02126  0020 00 0 02134         TRA EX2        GO TO NEXT TEST IF ERROR

                                    TEST ACCUMULATOR SIGN

02127  0120 00 0 02131         TPL *+2        OK-ACC SIGN PLUS
02130  0074 00 4 02557         TSX ERROR,4
02131  0074 00 4 02564         TSX OK,4
02132  0020 00 0 02112         TRA EX1


02133  672523606060            BCD 1XEC       TEST EXECUTE INDIRECT
                                              ADDRESSABLE
```

```
02134  0774 00 1 02134  EX2    AXT *,1         LOCATION TO XRA
02135  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR
02136  0522 60 0 02146         XEC* EX2A

*SET IA CONTROL TRIGGER AND TAKE AN E TIME-SYSTEMS 2.08.61. ACCUMULATOR
*SHOULD BE -377777737777 AFTER INSTRUCTION COUNTER IS ADVANCED TO
*RETURN TO THE FOLLOWING INSTRUCTION. IF THE IA XEC INSTRUCTION IS
*PERFORMED CORRECTLY, ACCUMLATOR AND MQ SHOULD BE THE SAME.

02137  0560 00 0 04140         LDQ NUM+15
02140  0340 00 0 04140         CAS NUM+15
02141  0020 00 0 02143         TRA *+2
02142  0020 00 0 02154         TRA EX2B+2      IF XEC OF
02143  0074 00 4 02556         TSX ERROR-1,4   IF CONTENTS EX2A IS IN ACC.
                                                SEE IF IA CTRL TRGR WAS SET
02144  0020 00 0 02134         TRA EX2

02145  0020 00 0 02157         TRA EX3         GO TO NEXT INSTR IF ERROR

02146  0500 00 0 02152  EX2A   CLA EX2B        DO NOT PERFORM INSTR
                                                USE ADR PORTION ONLY
02147  0074 00 4 02556         TSX ERROR-1,4   ERROR-PERFORMED ABOVE
                                                INSTR AND CONTINUED
02150  0020 00 0 02134         TRA EX2

02151  0020 00 0 02157         TRA EX3         GO TO NEXT TEST IF ERROR

02152  0500 00 0 04140  EX2B   CLA NUM+15      PERFORM THIS INSTR AND
                                                RETURN TO EX2+3
02153  0074 00 4 02557         TSX ERROR,4     DID NOT RETURN TO EX2+3
02154  0074 00 4 02564         TSX OK,4
02155  0020 00 0 02134         TRA EX2


02156  672523606060            BCD 1XEC        TEST SUCCESSIVE EXECUTES

02157  0774 00 1 02157  EX3    AXT *,1         LOCATION TO XRA
02160  0020 00 0 02400         TRA MONIT       PROGRAM MONITOR
02161  0500 00 0 04122         CLA NUM+1       L +1
02162  0522 00 0 02163         XEC *+1         NO IC ADVANCE
02163  0522 00 0 02164         XEC *+1         NO IC ADVANCE
02164  0522 00 0 02165         XEC *+1         NO IC ADVANCE
02165  0522 00 0 02166         XEC *+1         NO IC ADVANCE
02166  0522 00 0 02167         XEC *+1         NO IC ADVANCE
02167  0400 00 0 04122         ADD NUM+1       ADVANCE IC
02170  0560 00 0 04047         LDQ K0+1        L +7
02171  0340 00 0 04047         CAS K0+1
02172  0020 00 0 02174         TRA *+2         ERROR
02173  0020 00 0 02175         TRA *+2         OK
02174  0074 00 4 02557         TSX ERROR,4     ERROR-CHECK IC ADVANCE
                                                SYSTEMS 3.20.02 AND 3.20
02175  0074 00 4 02564         TSX OK,4
02176  0020 00 0 02157         TRA EX3
```

```
02177  672523606060            BCD 1XEC       TEST EXECUTE WITH I/O

*NOTE-IF E.C. 34719 HAS NOT BEEN INSTALLED. THERE WILL BE A DATA SELECT
*HANGUP IN THIS SECTION OF THE PROGRAM. MANUALLY INSERT A TRA 00460
*AT LOCATION 00451 UNTIL THE E.C. HAS BEEN INSTALLED.

02200  0774 00 1 02200  EX4    AXT *,1        LOCATION TO XRA
02201  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
02202  0774 00 2 00030         AXT 24,2       L 30 IN XRB
02203  0600 00 2 04216         STZ IM+24,2    CLEAR STORAGE
02204  2 00001 2 02203         TIX *-1,2,1    READ-IN AREA
02205  0522 00 0 02210         XEC EX4K       GO TO END OF TAPE TEST
                                              NO IC ADVANCE
02206  0020 00 0 02213         TRA EX4K+3     END OF TAPE IND ON
02207  0020 00 0 02220         TRA EX4A+3     END OF TAPE IND OFF

*ROUTINE FOR TESTING END OF TAPE

02210 -0760 00 0 01000  EX4K   ETTA           CHECK END OF TAPE IND AND
                                              RETURN TO EX4+5 OR EX4+7
02211  0074 00 4 02556         TSX ERROR-1,4  FAILED TO RETURN TO
                                              EX4+6 OR EX4+7
02212 -3 00000 0 02200         TXL EX4

02213  0522 00 0 02215         XEC EX4A       GO TO REWIND TAPE
                                              ONLY IF AT END OF TAPE
                                              NO IC ADVANCE
02214  0020 00 0 02220         TRA EX4A+3     PROCEED

*ROUTINE FOR REWINDING TAPE

02215  0772 00 0 01201  EX4A   REWA 1         REWIND TAPE 1 ON CHAN A
                                              AND RETURN TO EX4A-1
02216  0074 00 4 02556         TSX ERROR-1,4  FAILED TO RETURN TO EX4A-1
02217 -3 00000 0 02200         TXL EX4

02220  0522 00 0 02222         XEC EX4B       GO TO SELECT TAPE
                                              NO IC ADVANCE
02221  0020 00 0 02225         TRA EX4B+3     PROCEED

*ROUTINE FOR SELECTING TAPE

02222  0766 00 0 01221  EX4B   WTBA 1         SELECT TAPE ON CHAN A
02223  0074 00 4 02556         TSX ERROR-1,4  FAILED TO RETURN TO EX4B-1
02224 -3 00000 0 02200         TXL EX4

02225  0522 00 0 02227         XEC EX4C       GO FOR CONTROL WORD
                                              NO IC ADVANCE
02226  0020 00 0 02232         TRA EX4C+3     PROCEED

*ROUTINE FOR OBTAINING CONTROL WORD

02227  0540 00 0 04147  EX4C   RCHA WO        WRITE A 24 WORD RECORD
02230  0074 00 4 02556         TSX ERROR-1,4  FAILED TO RETURN TO EX4C-1
02231 -3 00000 0 02200         TXL EX4
```

```
*CHECK IOT LIGHT

02232  0760 00 0 00005         IOT             IS IOT LIGHT ON
02233  0020 00 0 02235         TRA *+2         YES-ERROR
02234  0020 00 0 02237         TRA *+3         NO-PROCEED
02235  0074 00 4 02556         TSX ERROR-1,4   ERROR-LITE SHOULD BE OFF
02236 -3 00000 0 02200         TXL EX4

02237  0522 00 0 02241         XEC EX4D        GO TO BKSP TAPE
                                               NO IC ADVANCE
02240  0020 00 0 02244         TRA EX4D+3      PROCEED

*ROUTINE TO BACKSPACE THE RECORD WRITTEN

02241  0764 00 0 01201  EX4D   BSRA 1          BACKSPACE TAPE 1 CHAN A
02242  0074 00 4 02556         TSX ERROR-1,4   FAILED TO RETURN TO EX4D-1
02243 -3 00000 0 02200         TXL EX4

02244  0522 00 0 02246         XEC EX4F        GO TO READ TAPE
                                               NO IC ADVANCE
02245  0020 00 0 02251         TRA EX4F+3      PROCEED

*ROUTINE TO READ RECORD ON TAPE

02246  0762 00 0 01221  EX4F   RTBA 1          READ TAPE 1 CHAN A
02247  0074 00 4 02556         TSX ERROR-1,4   FAILED TO RETURN TO EX4F-1
02250 -3 00000 0 02200         TXL EX4

02251  0522 00 0 02253         XEC EX4G        GO FOR CONTROL WORD
                                               NO IC ADVANCE
02252  0020 00 0 02256         TRA EX4G+3      PROCEED

*ROUTINE FOR OBTAINING CONTROL WORD

02253  0540 00 0 04150  EX4G   RCHA WO1        READ 24 WORDS FROM TAPE
02254  0074 00 4 02556         TSX ERROR-1,4   FAILED TO RETURN TO EX4G-1
02255 -3 00000 0 02200         TXL EX4

02256  0060 00 0 02256         TCOA *          READ ENTIRE RECORD

*CHECK IOT LIGHT

02257  0760 00 0 00005         IOT             IS IOT LIGHT ON
02260  0020 00 0 02262         TRA *+2         YES-ERROR
02261  0020 00 0 02264         TRA *+3         NO-PROCEED
02262  0074 00 4 02556         TSX ERROR-1,4   ERROR-LITE SHOULD BE OFF
02263 -3 00000 0 02200         TXL EX4

02264  0522 00 0 02266         XEC EX4H        GO TO WRITE AN EOF
                                               NO IC ADVANCE
02265  0020 00 0 02271         TRA EX4H+3      PROCEED

*ROUTINE FOR WRITING AN END OF FILE

02266  0770 00 0 01201  EX4H   WEFA 1          WRITE EOF TAPE 1 CHAN A
02267  0074 00 4 02556         TSX ERROR-1,4   FAILED TO RETURN TO EX4H-1
```

```
02270 -3 00000 0 02200         TXL EX4

*CHECK RECORD WRITTEN AND READ CORRECTLY

02271  0774 00 2 00000         AXT 0,2        CLEAR XRB
02272  0754 00 2 00000         PXA 0,2        XRB TO ACC
02273  0400 00 0 04122         ADD NUM+1      ACC NOW 1
02274  0601 00 0 02632         STO RECNO
02275  0774 00 1 00030         AXT 24,1       L 300 IN XRA
02276  0754 00 1 00000         PXA 0,1        XRA TO ACC
02277  0400 00 0 04122         ADD NUM+1      ACC NOW 31
02300  0601 00 0 02631         STO WDNO
02301  0500 00 1 04216  REC    CLA IM+24,1    WORD READ FROM TAPE
02302  0560 00 1 01653         LDQ EX+24,1    WORD THAT SHOULD HAVE
                                              BEEN WRITTEN ON TAPE
02303  0340 00 1 01653         CAS EX+24,1
02304  0020 00 0 02306         TRA *+2        ERROR
02305  0020 00 0 02311         TRA *+4        OK
02306  0074 00 4 02555         TSX ERROR-2,4  ERROR IN COMPARISON
02307  0761 00 0 02200         NOP EX4

02310  0020 00 0 02315         TRA EX5        GO TO NEXT TEST IF ERROR

02311  2 00001 1 02301         TIX REC,1,1    CHECK NEXT WORD IN RECORD
02312  0074 00 4 02564         TSX OK,4
02313  0020 00 0 02200         TRA EX4


02314  672523606060            BCD 1XEC       TEST EXECUTE UNDER
                                              SENSE SWITCH CONTROL
02315  0774 00 1 02315  EX5    AXT *,1        LOCATION TO XRA
02316  0020 00 0 02400         TRA MONIT      PROGRAM MONITOR
02317  0522 00 0 02322         XEC EX6
02320  0020 00 0 02360         TRA CRSL       SENSE SWITCH 6 UP
02321  0020 00 0 02326         TRA BAR        SENSE SWITCH 6 DOWN

02322  0760 00 0 00166  EX6    SWT 6          TEST SENSE SWITCH 6
02323  0020 00 0 02324         TRA *+1        FAILED TO RETURN TO
02324  0074 00 4 02556         TSX ERROR-1,4  EX5 PLUS 3 OR 4 AS PER
02325 -3 00000 0 02315         TXL EX5        SENSE SWITCH 6 SETTING

02326  0500 00 0 02355  BAR    CLA TOP        COUNT OF 100 DECIMAL
02327  0402 00 0 04122         SUB NUM+1      L +1
02330  0601 00 0 02355         STO TOP        STORE IN COUNT
02331 -0100 00 0 00171         TNZ AZ         REPEAT TEST TIL COUNT ZERO
02332  0500 00 0 02356         CLA TOP+1      RESET
02333  0601 00 0 02355         STO TOP        COUNTER

02334  0760 00 0 00163         SWT 3          TEST SENSE SWITCH 3
02335  0020 00 0 02337         TRA *+2        PRINT 100 PASSES COMPLETE
02336  0020 00 0 00171         TRA AZ         RETURN TO START ADDRESS

*ROUTINE TO PRINT 100 PROGRAM PASSES COMPLETE

02337  0774 00 2 00013         AXT 11,2       L 13 IN XRB
02340  0766 00 0 01361         WPRA           SELECT PRINTER
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```
02341  0760 00 0 01363         SPRA 3          SPACE PRINTER
02342  0540 00 0 04153         RCHA CWD+2
02343  0544 00 0 04157         LCHA CWD+6
02344  0544 00 0 04154  BOY    LCHA CWD+3
02345  0544 00 0 04157         LCHA CWD+6
02346  0500 00 0 04154         CLA CWD+3
02347  0402 00 0 04123         SUB NUM+2       L +2
02350  0621 00 0 04154         STA CWD+3
02351  2 00001 2 02344         TIX BOY,2,1
02352  0500 00 0 04155         CLA CWD+4
02353  0601 00 0 04154         STO CWD+3
02354  0020 00 0 00171         TRA AZ          RETURN TO START ADDRESS

02355 +000000000144     TOP    OCT 144
02356 +000000000144             OCT 144
02357 +000000000000             OCT 0

02360  0762 00 0 01321  CRSL   RCDA            LOAD
02361  0540 00 0 04156         RCHA CWD+5      THE
02362  0544 00 0 00000         LCHA 0          NEXT
02363  0020 00 0 00001         TRA 1           PROGRAM

*ROUTINE TO PRINT PROGRAM IDENTIFICATION

02364  0774 00 1 00013  TITLE  AXT 11,1        L 13 IN XRA
02365  0766 00 0 01361         WPRA            SELECT PRINTER
02366  0760 00 0 01363         SPRA 3          SPACE PRINTER
02367  0540 00 0 04151         RCHA CWD
02370  0544 00 0 04157         LCHA CWD+6
02371  0544 00 0 04152         LCHA CWD+1
02372  0544 00 0 04157         LCHA CWD+6
02373  0500 00 0 04152         CLA CWD+1
02374  0402 00 0 04123         SUB NUM+2       L +2
02375  0621 00 0 04152         STA CWD+1
02376  2 00001 1 02371         TIX *-5,1,1
02377  0020 00 0 00031         TRA ADJ-3

*CHECK IF PROGRAM IS IN COMPATABILITY OR EXECUTE SECTION AND
*ADJUST LOCATION COR ACCORDINGLY

02400  0754 00 0 00000  MONIT  PXA             CLEAR ACCUMULATOR
02401  0754 00 1 00000         PXA 0,1         XRA TO ADR OF ACC
02402  0634 00 1 02405         SXA *+3,1       XRA TO ARD OF LOC
02403  0340 00 0 04115         CAS K1+9        COMPARE ACC WITH HTR ALT
02404  0020 00 0 02414         TRA *+8         TEST IS IN EXECUTE SECTION
02405  0000 00 0 00000         HTR             NEVER EQUAL-TRY AGAIN
02406  0500 00 0 04111         CLA K1+5        TEST IS IN COMPATABILITY
                                                SECTION-L HTR NUM+1
02407  0621 00 0 02433         STA COR         ACC TO ADR OF LOC
02410  0621 00 0 02545         STA RECT
02411  0500 00 0 04122         CLA NUM+1       L +1
02412  0601 00 0 04165         STO LADR+1      STORE IN LOCATION
02413  0020 00 0 02420         TRA *+5

*ADJUST MONITOR FOR EXECUTE ROUTINES
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02414  0500 00 0 04112         CLA K1+6       L HTR NUM+2
02415  0621 00 0 02433         STA COR        ACC TO ADR OF LOC
02416  0621 00 0 02545         STA RECT
02417  0600 00 0 04165         STZ LADR+1     CLEAR LOCATION

*PROGRAM MONITOR

02420  0760 00 0 00161         SWT 1          TEST SWITCH 1
02421  0020 00 0 02423         TRA *+2        WILL NO REPEAT TEST
02422  0020 00 0 02427         TRA *+5        REPEAT TEST
02423  0520 00 0 04165         ZET LADR+1     IS TEST IN COMPATABILITY
                                              SECTION OR EXECUTE SECTION
02424  0020 00 0 02432         TRA *+6        COMPATABILITY SECTION
                                              DO NOT TEST SWITCH 4
02425  0760 00 0 00164         SWT 4          EXECUTE SECTION
                                              TEST SWITCH 4
02426  0020 00 0 02432         TRA *+4        WILL NOT REPEAT TEST
                                              50 OCTAL TIMES

*CHECK XRA IF TEST IS TO BE REPEATED

02427 -0754 00 1 00000         PXD 0,1        XRA TO DEC OF ACC
02430  0402 00 0 04161         SUB HOLD       START ADR TEST LOC
02431  0100 00 0 02460         TZE RESET      PROGRAM SEQUENCE OK

*CHECK PROGRAM SEQUENCE IF TEST IS NOT TO BE REPEATED

02432  0754 00 1 00000         PXA 0,1        XRA TO ACC ADR
02433  0402 00 0 04122  COR    SUB NUM+1      L +1 OR +2
02434  0621 00 0 02437         STA *+3        PUT THIS ADR BELOW
02435  0600 00 0 04162         STZ HOLD+1     CLEAR LOCATION
02436 -0634 00 1 04162         SXD HOLD+1,1   XRA TO DEC OF WORD
02437  0500 00 0 00000         CLA            L LOC-1 TEST ENTERED
02440  0767 00 0 00022         ALS 18         ADR TO DEC OF ACC
02441  0402 00 0 04161         SUB HOLD       INTIAL ADR PREVIOUS TEST
02442  0100 00 0 02460         TZE RESET      PROGRAM SEQUENCE OK

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

02443  0760 00 0 00004         ENK            KEYS TO MQ
02444  0131 00 0 00000         XCA            MQ TO ACC
02445  0734 00 1 00000         PAX 0,1        ACC ADR TO XRA
02446  0771 00 0 00022         ARS 18         SHIFT TO ACC ADR
02447  0402 00 0 04126         SUB NUM+5      L 0200
02450 -0100 00 0 02455         TNZ *+5        SHOULD BE ZERO
02451 -0754 00 1 00000         PXD 0,1        XRA TO DEC OF ACC
02452  0402 00 0 04162         SUB HOLD+1     SAVED ADR
02453 -0534 00 1 04162         LXD HOLD+1,1   RESTORE XRA
02454  0100 00 0 02460         TZE RESET      SHOULD BE ZERO

02455 -0534 00 1 04162         LXD HOLD+1,1   RESTORE XRA
02456 -0754 00 1 00000         PXD 0,1        XRA TO DEC TO ACC
02457  0020 00 0 02530         TRA SPACE+11

02460 -0634 00 1 04161  RESET  SXD HOLD,1     SAVE XRA IN DEC OF WORD
02461  1 00002 1 02462         TXI *+1,1,2    ADD 2 TO XRA FOR RETURN
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                                                    TO MAIN PROGRAM
02462  0634 00 1 02514         SXA BACK,1      PUT XRA IN ADR OF BACK
02463 -0760 00 0 00010         LSNM            IF SET. RESET THE
                                                    NULLIFY TRGR TO
02464  0600 00 0 40000         STZ 16K+1       CLEAR LOCATION 40000
02465  0560 00 0 04121         LDQ NUM         CLEAR MQ
02466  0140 00 0 02467         TOV *+1         ACC INDICATOR OFF
02467  0761 00 0 00000         NOP
02470  0760 00 0 00012         DCT             DIV CHECK IND OFF
02471  0761 00 0 00000         NOP
02472  0760 00 0 00005         IOT             IOT LIGHT OFF
02473  0761 00 0 00000         NOP
02474  0022 00 0 02475         TRCA *+1        REDUNDANCY LITE OFF
02475  0500 00 0 01123         CLA A20A-3      L STR
02476  0601 00 0 00000         STO             STORE IN LOC 00000
02477  0601 00 0 00001         STO 1           STORE IN LOCATION 00001
02500 -0760 00 0 00141         SLT 1           TEST SENSE LIGHT 1
02501  0020 00 0 02505         TRA *+4         SENSE LIGHT 1 OFF

*NEXT 3 INSTRUCTIONS SHOULD ONLY BE REACHED ON THE INITIAL PASS TO
*STORE STR INSTRUCTION FROM STGB THRU STGB+5

02502  0774 00 1 00006         AXT 6,1         L 6 IN XRA
02503  0601 00 1 00171         STO STGB+6,1
02504  2 00001 1 02503         TIX *-1,1,1

*STORE STR INSTRUCTION FROM LOCATIONS 00004 THRU 00015

02505  0774 00 1 00012         AXT 10,1        L 12 IN XRA
02506  0601 00 1 00016         STO 14,1
02507  2 00001 1 02506         TIX *-1,1,1
02510  0500 00 0 04113         CLA K1+7        L TRA SPACE
02511  0601 00 0 00002         STO 2           RESTORE LOC 00002
02512 -0754 00 0 00000         PXD             CLEAR ACCUMULATOR
02513  0774 00 7 00000         AXT 0,7         CLEAR ALL INDEX REGISTERS
02514  0020 00 0 00000  BACK   TRA

02515 -0520 00 0 04165  SPACE  NZT LADR+1      IS PROGRAM IN THE
                                                    COMPATABILITY SECTION
02516  0020 00 0 02525         TRA *+7         NO
02517 -0760 00 0 00010         LSNM            EXIT NULLIFY MODE
02520  0500 00 0 40006         CLA 16K+7       L CONTENTS LOC 40006
02521  0402 00 0 04114         SUB K1+8        L TTR 24
02522 -0100 00 0 02525         TNZ *+3
02523  0500 00 0 04123         CLA NUM+2       L +2
02524  0020 00 0 02527         TRA *+3
02525 -0500 00 0 00000         CAL             L CONTENTS LOCATION 00000
02526  0402 00 0 04122         SUB NUM+1       L +1
02527  0767 00 0 00022         ALS 18          SHIFT TO DEC OF ACC
02530  0600 00 0 04163         STZ HOLD+2      CLEAR LOCATION
02531  0622 00 0 04163         STD HOLD+2      SAVE IN DEC OF WORD
02532 -0534 00 1 04161         LXD HOLD,1      DEC OF WORD TO XRA
02533  0634 00 1 04163         SXA HOLD+2,1    SAVE IN ADR OF WORD
02534  0634 00 1 02544         SXA RECT-1,1    XRA TO ADR OF INSTR
02535  0634 00 1 02552         SXA RECT+5,1
02536  0500 00 0 04163         CLA HOLD+2
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02537  0560 00 0 04121         LDQ NUM         CLEAR MQ
02540  0420 00 0 00000         HPR             TRANSFER 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 IN THE DECREMENT INDICATORS THE PROGRAM TRAPPED TO LOCATION
*40001 FOR A SENSE OR SELECT INSTRUCTION OR 40002 FOR A COPY
*INSTRUCTION BUT FAILED TO STORE THE LOCATION OF A TRAP INSTRUCTION
*PLUS 1 IN THE ADDRESS PORTION OF 40000.

02541  0767 00 0 00022         ALS 18          ACC ADR TO DEC
02542  0402 00 0 04120         SUB K1+12       L HTR 0.0.AZ
02543  0100 00 0 00171         TZE AZ          IF IN INITIAL PROGRAM
                                               TEST, RETURN TO IT
02544  0500 00 0 00000         CLA             L LOC OF TEST UNDERWAY
02545  0402 00 0 04122  RECT   SUB NUM+1       L 1 OR 2
02546  0621 00 0 02547         STA *+1
02547  0500 00 0 00000         CLA
02550  0767 00 0 00022         ALS 18          SHIFT TO DECREMENT
02551  0622 00 0 04161         STD HOLD
02552  0020 00 0 00000         TRA             RETURN TO TEST THAT
                                               WAS UNDERWAY

* SENSE SWITCHES INTERROGATION AND DIAGNOSTIC
*              PRINT SUBROUTINE FOR 709

                                    9DEPR

02553  0600 00 0 02624         STZ KONST+3  INDICATE I/O TYPE PRINT
02554  0020 00 0 02557         TRA ERROR
02555  0600 00 0 02624         STZ KONST+3  SET STORAGE TO ZEROS
                                            MODIFY INSTRUCTIONS FOR
                                            RETURN ADDR TO MAIN PROG
02556  0020 00 0 02606         TRA MOD
02557  0600 00 0 02621  ERROR  STZ KONST    DO NOT REPEAT SECTION
02560  0600 00 0 02622         STZ KONST+1  IF SENSE SW 4 IS DOWN



02561  0760 00 0 00162         PSE 114      IF SENSE SW 2 IS UP THEN-
02562  0020 00 0 02570         TRA SSW3     CHECK SSW 3
02563  2 00001 4 02564         TIX OK,4,1



02564 -0634 00 4 03643  OK     SXD LOC+1,4  2'S COMPL OF PROGRAM
                                            LOCATION LAST PREFORMED



02565  0760 00 0 00161         PSE 113      IF SENSE SW 1 IS UP THEN
02566  0020 00 0 02573         TRA RELY     CHECK SS 4
02567  0020 00 4 00001         TRA 1,4      IF DOWN REPEAR SECTION
                                            OF PROG
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02570  0760 00 0 00163  SSW3   PSE 115      IF SENSE SW 3 IS UP
02571  0020 00 0 02730         TRA PRINT    PRINT ON ERROR
                                            IF SS 3 IS DOWN STOP ON
02572  0000 00 0 02563         HTR OK-1     ERROR
                                            HTR 2'S COMPLEMENT OF
                                            INDEX REGISTER C
                                            CONTIANS THE ERROR ADDRESS
                                            OF THE SECTION OF THE
                                            PROG IN ERROR

02573  0760 00 0 00164  RELY   PSE 116      IF SENSE SWITCH 5 IS UP
02574  0020 00 4 00003         TRA 3,4      GO TO NEXT SECTION OF
                                            THE PROG
                                            IF DOWN REPEAR SECTION
                                            OF THE PROGRAM N TIMES
                                            OR THE NUMEBR OF TIMES
                                            THAT IS SPECIFIED IN LOC
                                            KONST+2



02575  0500 00 0 02622         CLA KONST+1  COUNTER
02576  0402 00 0 02621         SUB KONST    L+1 REDUCE COUNT BY 1
02577  0601 00 0 02622         STO KONST+1
02600 -0100 00 0 02567         TNZ OK+3
02601  0500 00 0 02623         CLA KONST+2  L+50 COUNT CONSTANT
02602  0601 00 0 02622         STO KONST+1
02603  0500 00 0 03640         CLA STOR+7   L+1
02604  0601 00 0 02621         STO KONST
02605  0020 00 4 00003         TRA 3,4


02606  0600 00 0 02625  MOD    STZ KONST+4  SET STORAGE TO ZEROS
02607  0600 00 0 02622         STZ KONST+1
02610  0600 00 0 02621         STZ KONST



02611  0760 00 0 00162  ERR    PSE 114      IF SS 2 IS UP CHECK
02612  0020 00 0 02616         TRA SSW3A    SENSE SWITHC 3

02613  0760 00 0 00161  OK2    PSE 113      SSW1 UP-GO TO NEXT ROUTINE
02614  0020 00 4 00002         TRA 2,4      EXIT
02615  0020 00 4 00001         TRA 1,4      REPEAT TEST

02616  0760 00 0 00163  SSW3A  PSE 115      IS SENSE SWITCH 3 IS UP
02617  0020 00 0 02730         TRA PRINT    PRINT ERROR
                                            2'S COMPLEMENT OF XRC
02620  0000 00 0 02613         HTR OK2      CONTIANS THE ERROR ADDR
                                            OF SECTION OF PROG LAST
                                            EXECUTED



02621 +000000000001     KONST  OCT 1
02622 +000000000050            OCT 50
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02623 +000000000050           OCT 50       COUNT CONSTANT
02624 +000000000001           OCT 1
02625 +000000000001           OCT 1
02626  0020 00 0 02563         TRA OK-1     EXIT FROM PRINT PROG
02627  0020 00 0 02613         TRA OK2      EXIT FROM PRINT WHEN
                                            ENTRY IS TO ERROR-1
02630 +000000000001           OCT 1

02631 +000000000000     WDNO  OCT
02632 +000000000000     RECNO OCT

                                            PUT DSC REDUNDANCY
                                            CHECKS IN PRINT RECORD
02633  0601 00 0 03631  RDNCK  STO STOR     ACC CONTENTS
02634  0771 00 0 00043         ARS 35
02635  0602 00 0 03634         SLW STOR+3   OVFL BITS P + Q
02636 -0600 00 0 03632         STQ STOR+1   MQ CONTENTS

02637 -0500 00 0 03704         CAL MASK+9   RESET RECORD IMAGE
02640  0320 00 0 03626         ANS REC4R+9  INDICATIONS
02641 -0500 00 0 03672         CAL BIT2+3
02642  0602 00 0 03625         SLW REC4R+8  FOR REDUNDANCY TAPE CK
02643  0602 00 0 02630         SLW KONST+7  PUT A BIT IN WORD
02644  0060 00 0 02644         TCOA *       CHECK CHAN IN OPERATION
02645  0061 00 0 02645         TCOB *       CHECK CHAN IN OPERATION
02646  0062 00 0 02646         TCOC *       CHECK CHAN IN OPERATION
02647  0063 00 0 02647         TCOD *       CHECK CHAN IN OPERATION
02650  0064 00 0 02650         TCOE *       CHECK CHAN IN OPERATION
02651  0065 00 0 02651         TCOF *       CHECK CHAN IN OPERATION
02652 -0500 00 0 03664  CHK4A  CAL BIT+10
02653  0771 00 0 00001         ARS 1
02654  0022 00 0 02657         TRCA CHK4B-1 REDUNDANT TAPE CK DSCA
02655 -0602 00 0 03626         ORS REC4R+9  NO
02656  0020 00 0 02660         TRA CHK4B
02657 -0602 00 0 03625         ORS REC4R+8  YES

02660 -0500 00 0 03670  CHK4B  CAL BIT2+1
02661  0771 00 0 00001         ARS 1
02662 -0022 00 0 02665         TRCB CHK4C-1 RND TAPE CK DSC-B
02663 -0602 00 0 03626         ORS REC4R+9  NO
02664  0020 00 0 02666         TRA CHK4C
02665 -0602 00 0 03625         ORS REC4R+8  YES

02666 -0500 00 0 03653  CHK4C  CAL BIT+1
02667  0771 00 0 00003         ARS 3
02670  0024 00 0 02673         TRCC CHK4D-1 RND TAPE CK DSC-C
02671 -0602 00 0 03626         ORS REC4R+9  NO
02672  0020 00 0 02674         TRA CHK4D
02673 -0602 00 0 03625         ORS REC4R+8  YES

02674 -0500 00 0 03662  CHK4D  CAL BIT+8
02675  0771 00 0 00001         ARS 1
02676 -0024 00 0 02701         TRCD CHK4E-1 RND TAPE CK DSC-D
02677 -0602 00 0 03626         ORS REC4R+9  NO
02700  0020 00 0 02702         TRA CHK4E
02701 -0602 00 0 03625         ORS REC4R+8  YES
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02702 -0500 00 0 03663  CHK4E  CAL BIT+9
02703  0771 00 0 00001         ARS 1
02704  0026 00 0 02707         TRCE CHK4F-1 RND TAPE CK DSC-E
02705 -0602 00 0 03626         ORS REC4R+9  NO
02706  0020 00 0 02710         TRA CHK4F
02707 -0602 00 0 03625         ORS REC4R+8  YES

02710 -0500 00 0 03640  CHK4F  CAL STOR+7
02711 -0026 00 0 02714         TRCF CHK4F+4 RND TAPE CK DSC-F
02712 -0602 00 0 03626         ORS REC4R+9  NO
02713  0020 00 0 02715         TRA CHK4F+5
02714 -0602 00 0 03625         ORS REC4R+8  YES

                                            WAS THERE A REDUNDANCY
02715  0500 00 0 03625         CLA REC4R+8  TAPE CHECK ON ANY CHAN
02716  0402 00 0 03672         SUB BIT2+3   IF NOT-RETURN TO MAIN
02717  0100 00 0 02721         TZE CONT     PROGRAM-OK

02720  0600 00 0 02630         STZ KONST+7
02721  0500 00 0 03634  CONT   CLA STOR+3   RESET REGISTERS
02722  0560 00 0 03631         LDQ STOR
02723  0763 00 0 00043         LLS 35
02724  0560 00 0 03632         LDQ STOR+1

02725  0520 00 0 02630         ZET KONST+7
02726  0020 00 4 00002         TRA 2,4      CONTINUE PROG
                                            TAPE CHECK REDUNDANCY
02727  0020 00 0 02555         TRA ERROR-2  INTERROGATE SENSE
                                            SWITCHES


                                            PRINT ROUTINE
02730  0601 00 0 03631  PRINT  STO STOR     ACC CONTENTS
02731  0771 00 0 00043         ARS 35
02732  0602 00 0 03634         SLW STOR+3   OV FL BITS
02733  0754 00 2 00002         PXA 2,2
02734  0621 00 0 03633         STA STOR+2   XRB
02735 -0634 00 1 03633         SXD STOR+2,1 PLACE XRA INTO DECR
02736 -0634 00 4 03634         SXD STOR+3,4 PLACE XRC INTO DECR
02737 -0600 00 0 03632         STQ STOR+1   MQ CONTENTS


02740  0500 00 0 03636  CHK1   CLA STOR+5   L 100000
02741  0760 00 0 00012         DCT          DIV CK TEST
02742 -0602 00 0 03634         ORS STOR+3   YES
02743  0771 00 0 00003         ARS 3
02744 -0140 00 0 02746         TNO CHK4-1   ACC OV FL-YES
02745 -0602 00 0 03634         ORS STOR+3   NO

02746  0760 00 0 00000         CLM          SENSE SWITCHES
02747  0534 00 1 03641  CHK4   LXA STOR+8,1 L +4
02750  0767 00 0 00003         ALS 3
02751 -0760 00 1 00145         MSE 101,1
02752  0020 00 0 02755         TRA *+3
02753  0400 00 0 03640         ADD STOR+7   L +1
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02754  0760 00 1 00145         PSE 101,1    RESET LITES
02755  2 00001 1 02750         TIX CHK4+1,1,1
02756  0534 00 1 03637  CHK3   LXA STOR+6,1 L +6
02757  0767 00 0 00003         ALS 3
02760  0760 00 1 00167         PSE 119,1
02761  0020 00 0 02763         TRA CHK3+5
02762  0400 00 0 03640         ADD STOR+7   L +1
02763  2 00001 1 02757         TIX CHK3+1,1,1


02764  0602 00 0 03635         SLW STOR+4   RETAIN PSE + MSE
                                            INDICATIONS
                                            WAS ENTRY FROM SUB-
02765  0500 00 0 02625  CHK3A  CLA KONST+4  ROUTINE AT ERROR-1
02766  0100 00 0 02774         TZE CHK3A+7  YES
02767  0500 00 0 02733         CLA PRINT+3  NO
02770  0621 00 0 03002         STA CHK5+1   RESET ADDR
02771  0500 00 0 02626         CLA KONST+5
02772  0601 00 0 03363         STO EXIT
02773  0020 00 0 03001         TRA CHK5

02774  0500 00 0 03640         CLA STOR+7   L+1
02775  0601 00 0 02625         STO KONST+4
02776  0621 00 0 03002         STA CHK5+1
02777  0500 00 0 02627         CLA KONST+6
03000  0601 00 0 03363         STO EXIT


                                            OBTAIN TEST LOC
                                            AND ERROR ADDR
03001 -0534 00 4 03634  CHK5   LXD STOR+3,4 XRC
03002 -0754 00 4 00002         PXD 2,4
03003  0760 00 0 00006         COM
03004  0400 00 0 03671         ADD BIT2+2   +1 TO DECREMENT
03005  0622 00 0 03642         STD LOC      ERROR ADDR INTO DECR
03006  0771 00 0 00022         ARS 18
03007  0402 00 0 03002         SUB CHK5+1   L +2
03010  0621 00 0 03011         STA CHK6
03011 -0500 00 0 00000  CHK6   CAL 0        PLACE
03012  0621 00 0 03642         STA LOC      TEST LOC INTO ADDR
03013  0630 00 0 03642         STP LOC

                                            OBTAIN OPN OF INST
03014  0402 00 0 03640         SUB STOR+7   L +1
03015  0621 00 0 03016         STA *+1
03016  0560 00 0 00000         LDQ 0        BCD OPERATION

03017  0534 00 1 03637  CHK7   LXA STOR+6,1 L +6
03020  0760 00 0 00000         CLM
03021 -0763 00 0 00002         LGL 2
03022  0734 00 4 00000         PAX 0,4      ZONE BIT
03023 -0763 00 0 00004         LGL 4
03024  0340 00 0 03654         CAS BIT+2    CHECK FOR BLANK L +60
03025  0020 00 0 03027         TRA *+2
03026  0020 00 0 03042         TRA CHK7A    YES
03027  0340 00 0 03663         CAS BIT+9    CHECK FOR HYPHEN
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03030  0020 00 0 03032         TRA *+2
03031  0020 00 0 03467         TRA TRAPS     YES- INDICATES A TRAP
                                             ROUTINE
03032 -0320 00 0 03665         ANA BIT+11    MASK FOR NUMERIC
03033  0734 00 2 00000         PAX 0,2
03034  3 00012 2 03042         TXH CHK7A,2,10 IGNORE SPECIAL CHARS
03035  0500 00 0 03653         CLA BIT+1     COL INDICATOR
03036  0771 00 1 00006         ARS 6,1
03037 -0602 00 2 03502         ORS REC1L+9,2
03040 -3 00000 4 03042         TXL *+2,4
03041 -0602 00 4 03505         ORS REC1L+12,4
03042  2 00001 1 03020  CHK7A  TIX CHK7+1,1,1

03043  0560 00 0 00000  CHK8   LDQ 0
03044  0534 00 1 03655         LXA BIT+3,1   L +14

03045  0074 00 2 03454         TSX CH22,2
03046 -0500 00 0 03664         CAL BIT+10    COL IND
03047  0771 00 1 00014         ARS 12,1
03050 -0602 00 4 03516         ORS REC1R+9,4
03051  2 00001 1 03045         TIX *-4,1,1

03052 -0500 00 0 03642  CH1    CAL LOC       PUT TEST LOC INTO IMAGE
03053  0765 00 0 00017         LRS 15
03054  0534 00 1 03647         LXA LOC+5,1   L +5
03055  0074 00 2 03450         TSX CH21,2

03056 -0500 00 0 03652         CAL BIT       BIT COLUMN 10
03057  0771 00 1 00005         ARS 5,1
03060 -0602 00 4 03502         ORS REC1L+9,4
03061  2 00001 1 03055         TIX CH1+3,1,1


                                             PUT ERROR ADDR INTO IMAGE
03062 -0534 00 4 03642  CH5    LXD LOC,4
03063 -0754 00 4 00000         PXD 0,4
03064  0765 00 0 00041         LRS 33
03065  0534 00 1 03647         LXA LOC+5,1   L +5
03066  0074 00 2 03450         TSX CH21,2
03067 -0500 00 0 03650         CAL LOC+6     -0
03070  0771 00 1 00006         ARS 6,1
03071 -0602 00 4 03516         ORS REC1R+9,4
03072  2 00001 1 03066         TIX CH5+4,1,1

                                             PUT PSE SW INTO
03073 -0500 00 0 03635  CH7    CAL STOR+4    IMAGE
03074  0765 00 0 00022         LRS 18
03075  0534 00 1 03637         LXA STOR+6,1  L +6
03076  0074 00 2 03450         TSX CH21,2
03077 -0500 00 0 03663         CAL BIT+9
03100  0771 00 1 00006         ARS 6,1
03101 -0602 00 4 03516         ORS REC1R+9,4
03102  2 00001 1 03076         TIX CH7+3,1,1

03103  0534 00 4 03655  CH10   LXA BIT+3,4   PUT 1ST REC IN PR IMAGE
03104  0534 00 1 03646         LXA LOC+4,1   L +30
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03105 -0500 00 4 03505         CAL REC1L+12,4 LEFT HALF IMAGE
03106  0602 00 1 03766         SLW PR+24,1
03107 -0500 00 4 03521         CAL REC1R+12,4
03110  0602 00 1 03767         SLW PR+25,1

03111  2 00001 4 03112         TIX CH10+7,4,1
03112  2 00002 1 03105         TIX CH10+2,1,2

03113  0534 00 4 03655  CH11   LXA BIT+3,4   MASK IMAGE
03114 -0500 00 0 03673         CAL MASK      MASK
03115  0320 00 4 03505         ANS REC1L+12,4
03116 -0500 00 0 03674         CAL MASK+1
03117  0320 00 4 03521         ANS REC1R+12,4
03120 -0500 00 0 03675         CAL MASK+2    MASK LEFT HALF
03121  0320 00 4 03535         ANS REC2L+12,4 2ND RECORD
03122 -0500 00 0 03676         CAL MASK+3    MASK RIGHT HALF
03123  0320 00 4 03551         ANS REC2R+12,4
03124 -0500 00 0 03677         CAL MASK+4    MASK 3RD RECORD
03125  0320 00 4 03565         ANS REC3L+12,4 LEFT HALF
03126 -0500 00 0 03700         CAL MASK+5
03127  0320 00 4 03601         ANS REC3R+12,4
03130 -0500 00 0 03703         CAL MASK+8    MASK IND KEYS
03131  0320 00 4 03615         ANS REC4L+12,4 PRINT REC

03132 -0500 00 0 03701         CAL MASK+6
03133  0320 00 4 03721         ANS P92+1,4   I/O IMAGE
03134 -0500 00 0 03702         CAL MASK+7    REC=, WORD =, ETC
03135  0320 00 4 03735         ANS P95+1,4
03136  2 00001 4 03114         TIX CH11+1,4,1



03137  0766 00 0 01361  CH14   WRS 753       PRINTER
03140  0760 00 0 01363         SPRA 3        DOUBLE REM
                                             PRINT FIRST LINE
                                             TEST LOC, ERROR ADDR
03141  0074 00 1 03461         TSX WPRA+1,1
03142  0500 00 0 03642         CLA LOC
03143 -0120 00 0 03351         TMI CH35-6

03144  0500 00 0 03635  CH18   CLA STOR+4    PUT MSE LITES INTO IMAGE
03145  0765 00 0 00036         LRS 30
03146  0534 00 1 03641         LXA STOR+8,1  L +4
03147  0074 00 2 03450         TSX CH21,2
03150 -0500 00 0 03666         CAL BIT+12    BIT COL 6
03151  0771 00 1 00004         ARS 4,1
03152 -0602 00 4 03532         ORS REC2L+9,4
03153 -0500 00 0 03660         CAL BIT+6     BIT COL 5
03154  0771 00 1 00004         ARS 4,1
03155 -0602 00 4 03716         ORS P92-2,4
03156  2 00001 1 03147         TIX CH18+3,1,1

03157  0500 00 0 02624         CLA KONST+3   IS THIS A MAIN FRAME
03160  0100 00 0 03364         TZE CH41      PRINT OUT -NO
                                             FORM CARD IMAGE FOR 2ND REC
03161  0500 00 0 03633  CH15   CLA STOR+2
```

```
03162  0765 00 0 00041         LRS 33
03163  0534 00 1 03641         LXA STOR+8,1  L +4
03164  0074 00 2 03450         TSX CH21,2

03165 -0500 00 0 03657         CAL BIT+5     BIT COLUMN
03166  0771 00 1 00004         ARS 4,1
03167 -0602 00 4 03532         ORS REC2L+9,4
03170  2 00001 1 03164         TIX CH15+3,1,1
03171  0074 00 2 03450         TSX CH21,2
03172 -0500 00 0 03650         CAL LOC+6     L-0
03173 -0602 00 4 03546         ORS REC2R+9,4
03174  0074 00 2 03450  CH16   TSX CH21,2
03175  0534 00 1 03647         LXA LOC+5,1   L +5
03176  0074 00 2 03450         TSX CH21,2
03177 -0500 00 0 03667         CAL BIT2      BIT COL 8
03200  0771 00 1 00005         ARS 5,1
03201 -0602 00 4 03546         ORS REC2R+9,4  BIT IN IMAGE
03202  2 00001 1 03176         TIX CH16+2,1,1

03203  0500 00 0 03634  CH17   CLA STOR+3    PUT XRC INTO IMAGE
03204  0765 00 0 00041         LRS 33
03205  0534 00 1 03647         LXA LOC+5,1   L +5
03206  0074 00 2 03450         TSX CH21,2

03207 -0500 00 0 03670         CAL BIT2+1    BIT IN COL 19
03210  0771 00 1 00005         ARS 5,1
03211 -0602 00 4 03546         ORS REC2R+9,4 BIT IN IMAGE
03212  2 00001 1 03206         TIX CH17+3,1,1

03213  0560 00 0 03632  CH27   LDQ STOR+1    CONTENTS OF MQ
03214  0534 00 1 03655         LXA BIT+3,1   L +14
03215  0074 00 2 03454         TSX CH22,2
03216 -0500 00 0 03664         CAL BIT+10    BIT COL 15
03217  0771 00 1 00014         ARS 12,1
03220 -0602 00 4 03532         ORS REC2L+9,4
03221  2 00001 1 03215         TIX CH27+2,1,1

03222 -0500 00 0 03645         CAL LOC+3     WAS ROUTINE USING TRAP
03223  0402 00 0 03663         SUB BIT+9
03224 -0100 00 0 03230         TNZ *+4       NO
03225 -0500 00 0 03640         CAL STOR+7    L +1
03226 -0602 00 0 03545         ORS REC2R+8
03227  0020 00 0 03232         TRA *+3
03230 -0500 00 0 03640         CAL STOR+7    L +1
03231 -0602 00 0 03546         ORS REC2R+9
03232  0600 00 0 03645         STZ LOC+3

03233  0534 00 4 03655  CH23   LXA BIT+3,4
03234  0534 00 1 03646         LXA LOC+4,1   L +30
03235 -0500 00 4 03535         CAL REC2L+12,4 LEFT HALF
03236  0602 00 1 03766         SLW PR+24,1
03237 -0500 00 4 03551         CAL REC2R+12,4 RIGHT HALF IMAGE
03240  0602 00 1 03767         SLW PR+25,1
03241  2 00001 4 03242         TIX CH23+7,4,1
03242  2 00002 1 03235         TIX CH23+2,1,2
```

```
03243  0074 00 1 03460         TSX WPRA,1    PRINT 2ND LINE


03244 -0500 00 0 03634  CH20   CAL STOR+3    PUT TRGS INTO
03245  0765 00 0 00022         LRS 18        IMAGE
03246  0074 00 2 03450         TSX CH21,2
03247 -0500 00 0 03640         CAL STOR+7    BIT IN 35
03250 -0602 00 4 03562         ORS REC3L+9,4  INDICATE DIV CK

03251  0074 00 2 03450         TSX CH21,2

03252 -0500 00 0 03656         CAL BIT+4     BIT COL 12
03253  0771 00 0 00001         ARS 1
03254 -0602 00 4 03576         ORS REC3R+9,4 ACC OVFL


03255  0760 00 0 00000  CH24   CLM           PUT Q + P BITS
03256  0763 00 0 00013         LLS 11        INTO IMAGE
03257  0734 00 4 00000         PAX 0,4
03260 -0500 00 0 03656         CAL BIT+4     BIT IN COL 4
03261  0767 00 0 00002         ALS 2
03262 -0602 00 4 03562         ORS REC3L+9,4 Q BIT
03263  0760 00 0 00000         CLM           GET P BIT
03264  0763 00 0 00001         LLS 1
03265  0734 00 4 00000         PAX 0,4
03266 -0500 00 0 03656         CAL BIT+4
03267  0771 00 0 00002         ARS 2         BIT IN COL 13
03270 -0602 00 4 03562         ORS REC3L+9,4
03271  0560 00 0 03631  CH25   LDQ STOR
03272 -0500 00 0 03660         CAL BIT+6     PUT + SIGN OF
03273  0162 00 0 03276         TQP CH25+5    ACC IN IMAGE
03274 -0602 00 0 03563         ORS REC3L+10  MINUS SIGN OF ACC IN IMAGE
03275  0020 00 0 03277         TRA CH26
03276 -0602 00 0 03564         ORS REC3L+11  INTO IMAGE
03277  0534 00 1 03655  CH26   LXA BIT+3,1   L +14
03300  0074 00 2 03454         TSX CH22,2
03301 -0500 00 0 03664         CAL BIT+10    BIT COL 15
03302  0771 00 1 00014         ARS 12,1
03303 -0602 00 4 03562         ORS REC3L+9,4
03304  2 00001 1 03300         TIX CH26+1,1,1

03305  0534 00 4 03655  CH30   LXA BIT+3,4   PUT 3RD REC INTO
03306  0534 00 1 03646         LXA LOC+4,1   PRINT IMAGE
03307 -0500 00 4 03565         CAL REC3L+12,4 LEFT HALF
03310  0602 00 1 03766         SLW PR+24,1
03311 -0500 00 4 03601         CAL REC3R+12,4 RIGHT HALF
03312  0602 00 1 03767         SLW PR+25,1
03313  2 00001 4 03314         TIX CH30+7,4,1
03314  2 00002 1 03307         TIX CH30+2,1,2

03315  0074 00 1 03460         TSX WPRA,1    PRINT 3RD LINE

                                             PUT INDICATORS IN REC
03316  0604 00 0 03736  CH32   STI PR        STORE INDICATORS
03317  0560 00 0 03736         LDQ PR        INDICATOR FROM STORAGE
03320  0534 00 1 03655         LXA BIT+3,1   L +14
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03321  0074 00 2 03454         TSX CH22,2
03322 -0500 00 0 03660         CAL BIT+6
03323  0771 00 1 00015         ARS 13,1
03324 -0602 00 4 03612         ORS REC4L+9,4 INDICATORS INTO
03325  2 00001 1 03321         TIX CH32+3,1,1 PRINT RECORD

                                             PUT CONTENT OF KEYS IN
03326  0760 00 0 00004  CH33   ENK           PRINT RECORD
03327  0534 00 1 03655         LXA BIT+3,1   L +14
03330  0074 00 2 03454         TSX CH22,2
03331 -0500 00 0 03653         CAL BIT+1
03332  0771 00 1 00020         ARS 16,1
03333 -0602 00 4 03612         ORS REC4L+9,4 KEYS CONTENTS INTO
03334  2 00001 1 03330         TIX CH33+2,1,1 PRINT REC

03335  0534 00 4 03655  CH34   LXA BIT+3,4   L+14 PUT 4TH REC
                                             INTO PRINT IMAGE
03336  0534 00 1 03646         LXA LOC+4,1   L +30
03337 -0500 00 4 03615         CAL REC4L+12,4
03340  0602 00 1 03766         SLW PR+24,1
03341 -0500 00 4 03631         CAL REC4R+12,4 TAPE CHECK INDICATORS
03342  0602 00 1 03767         SLW PR+25,1
03343  0520 00 0 02630         ZET KONST+7
03344  0600 00 1 03767         STZ PR+25,1
03345  2 00001 4 03346         TIX *+1,4,1
03346  2 00002 1 03337         TIX CH34+2,1,2


03347  0074 00 1 03460         TSX WPRA,1    PRINT CONTENTS OF INDS

03350  0500 00 0 03640         CLA STOR+7    L+1
03351  0601 00 0 02624         STO KONST+3
                                             RESET ACC + MQ CONTENTS
03352  0601 00 0 02630         STO KONST+7
03353  0500 00 0 03634         CLA STOR+3    OVFL BITS
03354  0560 00 0 03631         LDQ STOR      ACC CONTENTS
03355  0763 00 0 00043         LLS 35
03356  0560 00 0 03632         LDQ STOR+1

03357  0534 00 2 03633  CH35   LXA STOR+2,2  XRB
03360 -0534 00 1 03633         LXD STOR+2,1  XRA
03361 -0534 00 4 03634         LXD STOR+3,4  XRC
03362  0140 00 0 03363         TOV EXIT
03363  0020 00 0 02563  EXIT   TRA OK-1


03364  0500 00 0 02630  CH41   CLA KONST+7   IS THIS A REDUNDANCY
                                             TAPE CK PRINT-OUT
03365  0100 00 0 03316         TZE CH32      YES

                                             CLEAR RECORD IMAGE
03366  0534 00 1 03646         LXA LOC+4,1   LOC +30
03367  0600 00 1 03766         STZ PR+24,1
03370  2 00001 1 03367         TIX *-1,1,1

03371 -0500 00 0 03632         CAL STOR+1    WORD GENERATED
```

```
03372  0602 00 0 03757  CH43   SLW PR+17

03373  0760 00 0 00006         COM
03374  0602 00 0 03761         SLW PR+19     PRINT IMAGE
03375  0534 00 1 03655         LXA BIT+3,1   L +14
03376  0534 00 2 03646         LXA LOC+4,2   LOC +30
03377 -0500 00 1 03721         CAL P92+1,1
03400  0602 00 2 03766         SLW PR+24,2
03401  2 00001 1 03402         TIX CH43+8,1,1
03402  2 00002 2 03377         TIX CH43+5,2,2

03403  0074 00 1 03464         TSX WPR,1     PRINT WORD GENERATED

03404  0500 00 0 03633  CH45   CLA STOR+2
03405  0771 00 0 00022         ARS 18
03406  0402 00 0 02631         SUB WDNO      WORD NUMBER
03407  0765 00 0 00017         LRS 15
03410  0534 00 1 03647         LXA LOC+5,1    L+5
03411  0074 00 2 03450  CH46   TSX CH21,2
03412 -0500 00 0 03661         CAL BIT+7     BIT COL 17
03413  0771 00 1 00005         ARS 5,1
03414 -0602 00 4 03732         ORS P93,4     WORD NUMBER INTO
03415  2 00001 1 03411         TIX CH46,1,1  IMAGE

03416  0534 00 2 03633  CH47   LXA STOR+2,2  XRB
03417  0760 00 0 00000         CLM
03420  0754 00 2 00000         PXA 0,2
03421  0402 00 0 02632         SUB RECNO     RECORD NUMBER
03422  0765 00 0 00017         LRS 15
03423  0534 00 1 03647         LXA LOC+5,1   L+5
03424  0074 00 2 03450  CH48   TSX CH21,2
03425 -0500 00 0 03660         CAL BIT+6     BIT COL 5
03426  0771 00 1 00005         ARS 5,1
03427 -0602 00 4 03732         ORS P93,4
03430  2 00001 1 03424         TIX CH48,1,1

03431  0534 00 1 03646  CH49   LXA LOC+4,1   L +30
03432  0600 00 1 03766         STZ PR+24,1
03433  2 00001 1 03432         TIX *-1,1,1

03434 -0500 00 0 03631         CAL STOR      WORD READ
03435  0602 00 0 03757  CH50   SLW PR+17
03436  0760 00 0 00006         COM
03437  0602 00 0 03761         SLW PR+19

03440  0534 00 1 03655  CH51   LXA BIT+3,1   L +14
03441  0534 00 2 03646         LXA LOC+4,2   L +30
03442 -0500 00 1 03735         CAL P95+1,1
03443  0602 00 2 03766         SLW PR+24,2
03444  2 00001 1 03445         TIX CH51+5,1,1
03445  2 00002 2 03442         TIX CH51+2,2,2

03446  0074 00 1 03464         TSX WPR,1     PRINT WORD WRITTEN

03447  0020 00 0 03316         TRA CH32      PRINT INDICATORS AND KEYS
```

```
03450  0760 00 0 00000  CH21   CLM
03451  0763 00 0 00003         LLS 3
03452  0734 00 4 00000         PAX 0,4
03453  0020 00 2 00001         TRA 1,2

03454  0760 00 0 00000  CH22   CLM
03455 -0763 00 0 00003         LGL 3
03456  0734 00 4 00000         PAX 0,4
03457  0020 00 2 00001         TRA 1,2

03460  0766 00 0 01361  WPRA   WPRA
03461  0540 00 0 03735         RCHA CTWD
03462  0060 00 0 03462         TCOA *
03463  0020 00 1 00001         TRA 1,1      EXIT
03464  0766 00 0 01361  WPR    WPRA
03465  0760 00 0 01364         SPRA 4
03466  0020 00 0 03461         TRA WPRA+1

03467  0601 00 0 03645  TRAPS  STO LOC+3
03470  0020 00 0 03042         TRA CHK7A


03471 +000000000320     REC1L  OCT 320,10001000,1000000
03472 +000010001000
03473 +000001000000
03474 +004002000042            OCT 4002000042,200000400400
03475 +200000400400
03476 +000000000000            OCT 0,452010001005
03477 -052010001005
03500 +100000000000            OCT 100000000000,0,540010001000
03501 +000000000000
03502 -140010001000
03503 +014003400366            OCT 14003400366,202000000401
03504 +202000000401
03505 +000000000000     REC1R  OCT 0,4000001000,0,100000200
03506 +004000001000
03507 +000000000000
03510 +000100000200
03511 +000000000000            OCT 0,0,4240001000,400,0
03512 +000000000000
03513 +004240001000
03514 +000000000400
03515 +000000000000
03516 +005000001600            OCT 5000001600,000300000000
03517 +000300000000
03520 +000040000000            OCT 40000000
03521 +200000000100     REC2L  OCT 200000000100,440001000
03522 +000440001000
03523 +000000000200            OCT 200,0,40000000000
03524 +000000000000
03525 +040000000000
03526 +000100000000            OCT 100000000
03527 -100400001000            OCT -500400001000,0,40
03530 +000000000000
03531 +000000000040
03532 +100400001200            OCT 100400001200
```

```
03533 -000140000100            OCT -400140000100
03534 +240000000040            OCT 240000000040
03535 +020004000404     REC2R  OCT 20004000404
03536 +200040010000            OCT 200040010000
03537 +040010000110            OCT 40010000110,0,0,0
03540 +000000000000
03541 +000000000000
03542 +000000000000
03543 +200042011020            OCT 200042011020
03544 +010000000000            OCT 10000000000,200
03545 +000000000200
03546 +240050011020            OCT 240050011020
03547 +020004000504            OCT 20004000504,10002000210
03550 +010002000210
03551 +000000000100     REC3L  OCT 100,14420001000
03552 +014420001000
03553 +000200000000            OCT 200000000,0,40,200
03554 +000000000000
03555 +000000000040
03556 +000000000200
03557 +310420001010            OCT 310420001010,4,-0
03560 +000000000004
03561 -000000000000
03562 +010420001040            OCT 10420001040,4200000004
03563 +004200000004
03564 -300000000310            OCT -700000000310

03565 +000000000000     REC3R  OCT 0,-400040000000,0
03566 -000040000000
03567 +000000000000
03570 +005000000000            OCT 5000000000,2000000000,0
03571 +002000000000
03572 +000000000000
03573 -060440000000            OCT -460440000000,0
03574 +000000000000
03575  1 00000 0 00000         PON
03576 -002040000000            OCT -402040000000
03577 +004400000000            OCT 4400000000,161000000000
03600 +161000000000
03601 -000000000000     REC4L  OCT -0,1040000,0,0
03602 +000001040000
03603 +000000000000
03604 +000000000000
03605 +200000100000            OCT 200000100000,100000000000
03606 +100000000000
03607 +000001000000            OCT 1000000,40000220000,0
03610 +040000220000
03611 +000000000000
03612 +040001060000            OCT 40001060000,200000200000
03613 +200000200000
03614 -100000100000            OCT -500000100000
03615 +000000000000     REC4R  OCT 0,400002104210
03616 -000002104210
03617 +040000000000            OCT 40000000000,4
03620 +000000000004
03621 +020000000100            OCT 20000000100,500002000
```

```
03622 +000500002000
03623 -204002144210           OCT -604002144210,2201000000
03624 +002201000000
03625 +100020000000           OCT 100020000000,-600302104210
03626 -200302104210
03627 +043000000000           OCT 043000000000,124521042104
03630 +124521042104
03631 +000000000000     STOR  OCT 0         ACC CONTENTS
03632 +000000000000           OCT 0         MQ CONTENTS
03633 +000000000000           OCT 0         XRA AND XRB
03634 +000000000000           OCT 0         XRC, OVRL TRGS, TAPE CK
03635 +000000000000           OCT 0         PSE + MSE VALUES
03636 +000000100000           OCT 100000
03637 +000000000006           OCT +6
03640 +000000000001           OCT +1
03641 +000000000004           OCT +4
03642 +000000000000     LOC   OCT 0         TEST LOC + ERROR ADDR
03643 +000000000000           OCT 0         DECREMENT CONTAINS 2,5
* COMPLEMENT OF LAST ROUTINE PREFORMED
03644 +000000000000           OCT 0         +0
03645 +000000000000           OCT 0         TRAP ROUTINE INDICATOR
03646 +000000000030           OCT +30
03647 +000000000005           OCT 5
03650 -000000000000           OCT -0
03651 +000000000007           OCT 7
03652 +000400000000     BIT   OCT 400000000 BIT COL 10
03653 +000000100000           OCT 100000    BIT COL 21
03654 +000000000060           OCT 60
03655 +000000000014           OCT 14
03656 +000200000000           OCT 200000000 BIT COL 11
03657 +000000000010           OCT 10        BIT COL 33
03660 +020000000000           OCT 020000000000 BIT COL 5
03661 +000002000000           OCT 2000000   BIT COL 17
03662 +000000001000           OCT 1000      BIT COL 27
03663 +000000000040           OCT 40        BIT COL 31
03664 +000010000000           OCT 10000000  BIT COL 15
03665 +000000000017           OCT 17
03666 +010000000000           OCT 010000000000
03667 +002000000000     BIT2  OCT 002000000000 BIT COL 8
03670 +000000400000           OCT 400000    BIT COL 19
03671 +000001000000           OCT 1000000
03672 +100020000000           OCT 100020000000
03673 -377017601777     MASK  OCT 777017601777 TEST LOC ETC
03674 -007760001700           OCT 407760001700
03675 -360760001760           OCT -760760001760 MQ ETC
03676 +374077017776           OCT 374077017776
                                          MAKE FOR REC3
03677 -356720001776           OCT -756720001776 ACC AND TRIGGER
03700 -377670000000           OCT -777670000000
03701 -341777777777           OCT -741777777777 I/O ETC
03702 -340774077777           OCT -740774077777
03703 -360001760000           OCT -760001760000 MASK FOR 4TH REC
03704 -377773567356           OCT -777773567356 MASK

03705 +000003204020           OCT 000003204020
03706 +001000100000           OCT 1000100000,20000400
```

```
03707 +000020000400
03710 +000100430000            OCT 00100430000
03711 +100004000342            OCT 100004000342,-400040002001
03712 -000040002001
03713 +001200100004            OCT 1200100004,200000000000
03714 +200000000000
03715 +000000000010            OCT 10
03716 +201000120004            OCT 201000120004
03717 -000163614120            OCT -400163614120
03720 +100204002653     P92    OCT 100204002653

03721 -000020000220            OCT -400020000220,400040000
03722 +000400040000
03723 +000000000000            OCT 0,140001400
03724 +000140001400
03725 +200000000010            OCT 200000000010,10000102
03726 +000010000102
03727 +100400040000            OCT 100400040000,0,4
03730 +000000000000
03731 +000000000004
03732 +000500041000     P93    OCT 500041000
03733 -000060000620            OCT -400060000620
03734 +300010000116     P95    OCT 300010000116
03735  0000 30 0 03736  CTWD   HTR PR,0,24    CONTROL WORD FOR PRINTING

                                   9DEPR PRINT IMAGE AREA

03736 +000000000000     PR     OCT 0,0,0,0,0,0,0,0,0,0,0,0
03737 +000000000000
03740 +000000000000
03741 +000000000000
03742 +000000000000
03743 +000000000000
03744 +000000000000
03745 +000000000000
03746 +000000000000
03747 +000000000000
03750 +000000000000
03751 +000000000000
03752 +000000000000            OCT 0,0,0,0,0,0,0,0,0,0,0,0
03753 +000000000000
03754 +000000000000
03755 +000000000000
03756 +000000000000
03757 +000000000000
03760 +000000000000
03761 +000000000000
03762 +000000000000
03763 +000000000000
03764 +000000000000
03765 +000000000000


*PRINT IMAGES FOR PROGRAM IDENTIFICATION AND 100 PASSES COMPLETE

03766 +001120402200     PR1    OCT 1120402200      9 L
```

```
03767 +000440000010            OCT 440000010       9 R
03770 +000000000000            OCT 0               8 L
03771 +000000000000            OCT 0               8 R
03772 +004004100000            OCT 4004100000      7 L
03773 +001102001000            OCT 1102001000      7 R
03774 +060600020040            OCT 60600020040     6 L
03775 +000200004002            OCT 200004002       6 R
03776 +102010040000            OCT 102010040000    5 L
03777 +000000100240            OCT 100240          5 R
04000 +000041000020            OCT 41000020        4 L
04001 +000010002001            OCT 10002001        4 R
04002 +000000005100            OCT 5100            3 L
04003 +000000010504            OCT 10504           3 R
04004 +000000010000            OCT 10000           2 L
04005 +000000640000            OCT 640000          2 R
04006 +000000200000            OCT 200000          1 L
04007 +020021000000            OCT 20021000000     1 R
04010 +020000014000            OCT 20000014000     0 L
04011 +014000640100            OCT 14000640100     0 R
04012 +145350060060            OCT 145350060060    11L
04013 +001652007403            OCT 1652007403      11R
04014 +002425703100            OCT 2425703100      12L
04015 +000121110244            OCT 121110244       12R

*PRINT IMAGE FOR CHECKING RESET BUTTON IN COMPATABILITY TEST

04016 +200010000000     RE     OCT 200010000000    9 L
04017 +000000000000            OCT 0               9 R
04020 +000000000000            OCT 0               8 L
04021 +000000000000            OCT 0               8 R
04022 +000000000000            OCT 0               7 L
04023 +000000000000            OCT 0               7 R
04024 +000100000042            OCT 100000042       6 L
04025 +000000000000            OCT 0               6 R
04026 +120045106410            OCT 120045106410    5 L
04027 +000000000000            OCT 0               5 R
04030 +001000040120            OCT 1000040120      4 L
04031 +000000000000            OCT 0               4 R
04032 +010602000000            OCT 10602000000     3 L
04033 +000000000000            OCT 0               3 R
04034 +042000211001            OCT 42000211001     2 L
04035 +000000000000            OCT 0               2 R
04036 +000000400000            OCT 400000          1 L
04037 +000000000000            OCT 0               1 R
04040 +051600211000            OCT 51600211000     0 L
04041 +000000000000            OCT 0               0 R
04042 +200152002143            OCT 200152002143    11L
04043 +000000000000            OCT 0               11R
04044 +122005544430            OCT 122005544430    12L
04045 +000000000000            OCT                 12R

*       CONSTANTS

04046 +000000000004     K0     OCT 4
04047 +000000000007            OCT 7
```

```
04050  0020 00 0 00020  K      TRA ID-7
04051  0020 00 0 00177         TRA AZA-2
04052  0020 00 0 00214         TRA AA
04053  0020 00 0 00220         TRA AB-2
04054  0020 00 0 00233         TRA A1A-2
04055  0020 00 0 00247         TRA A2A-2
04056  0020 00 0 00265         TRA A3A
04057  0020 00 2 00002         TRA 2,2
04060  0000 00 0 00421         HTR A7A
04061  0000 00 0 00653         HTR A15A
04062  0021 00 0 00715         TTR A16A
04063 -1 00000 0 00704         STR A16A-9
04064  0000 00 0 01032         HTR A18A
04065  0020 00 0 01126         TRA A20A
04066  0020 00 0 01225         TRA A22A
04067  0020 00 0 01274         TRA A23Y
04070  0020 00 0 01344         TRA A24A
04071 -1 00013 0 01342         STR A24A-2,0,11
04072  0020 00 0 01424         TRA A27A
04073  0020 00 0 01461         TRA A27B
04074  0000 03 0 01457         HTR A27B-2,0,3
04075  0020 00 0 01521         TRA A28A
04076  0000 03 0 04077         IOCD K+23,0,3
04077  0000 00 0 00000         HTR
04100  0762 00 0 01221         RTBA 1
04101  0020 00 0 01523         TRA A28B
04102  0020 00 0 01551         TRA A28C
04103  0000 03 0 01547         HTR A28C-2,0,3

04104 -1 00000 0 01124  K1     STR A20A-2
04105  0000 00 0 01122         HTR A20A-4
04106  0015 75 0 00171         HTR AZ,0,TRAP+5
04107  0020 00 0 01202         TRA A22-3
04110  0000 00 0 02053         HTR EXK1
04111  0000 00 0 04122         HTR NUM+1
04112  0000 00 0 04123         HTR NUM+2
04113  0020 00 0 02515         TRA SPACE
04114  0021 00 0 00002         TTR 2
04115  0000 00 0 01607         HTR ALT
04116  0020 00 0 00400         TRA A6X+5
04117  0020 00 0 01323         TRA A23M
04120  0001 71 0 00000         HTR 0,0,AZ

04121 +000000000000     NUM    OCT 0
04122 +000000000001            OCT 1
04123 +000000000002            OCT 2
04124 +000000000003            OCT 3
04125 -000000000000            OCT 400000000000
04126 +000000002000            OCT 2000
04127 -000100000000            OCT 400100000000
04130 +200777770000            OCT 200777770000
04131 -234600000000            OCT 634600000000
04132 +233400000000            OCT 233400000000
04133 -032404040404            OCT 432404040404
04134 +344440404040            OCT 344440404040
04135 +001007777777            OCT 1007777777
```

```
04136 +004004444444           OCT 4004444444
04137 -377777717777           OCT 7777777717777
04140 -377777737777           OCT 7777777737777
04141 -377777707777           OCT 7777777707777
04142 +000000010000           OCT 10000
04143 +000000020000           OCT 20000
04144 +000000077777           OCT 77777

04145 -234400000000     NUM1  OCT 634400000000
04146 +175777777777           OCT 175777777777

04147  0000 30 0 01623  WO     IOCD EX,0,24
04150  0000 30 0 04166  WO1    IOCD IM,0,24
04151 -1 00001 0 03766  CWD    IOCT PR1,0,1
04152 -1 00001 0 03770         IOCT PR1+2,0,1
04153 -1 00001 0 03767         IOCT PR1+1,0,1
04154 -1 00001 0 03771         IOCT PR1+3,0,1
04155 -1 00001 0 03771         IOCT PR1+3,0,1
04156 -1 00003 0 00000         IOCT 0,0,3
04157 -1 00001 0 02357         IOCT TOP+2,0,1

                                   TEMPORARY STORAGE

04160 +000000000000     SUM   OCT 0          COMPUTED CHECK SUM
04161 +000000000000     HOLD  OCT 0
04162 +000000000000           OCT 0
04163 +000000000000           OCT 0
04164 +000000000000     LADR  OCT 0
04165 +000000000000           OCT 0
04166 +000000000000     IM    OCT 0,0,0,0,0,0,0,0,0,0,0,0
04167 +000000000000
04170 +000000000000
04171 +000000000000
04172 +000000000000
04173 +000000000000
04174 +000000000000
04175 +000000000000
04176 +000000000000
04177 +000000000000
04200 +000000000000
04201 +000000000000
04202 +000000000000           OCT 0,0,0,0,0,0,0,0,0,0,0,0
04203 +000000000000
04204 +000000000000
04205 +000000000000
04206 +000000000000
04207 +000000000000
04210 +000000000000
04211 +000000000000
04212 +000000000000
04213 +000000000000
04214 +000000000000
04215 +000000000000

04216 +242555415161     TOTAL OCT 242555415161 KNOWN CHECK SUM
```

```
07777  4K      EQU 4095
17777  8K      EQU 8191
37777  16K     EQU 16383
77777  32K     EQU 32767

00000          END
```

EOF*