

9IOTA

SPECIAL FEATURE I/O TRAP DIAGNOSTIC

B.M. 580000

A. PURPOSE OF TEST

1. Test all conditions of the I/O Trap feature for the 709 Main Frame and Data Synchronizer.
2. Test added logic and circuitry for the feature.

B. METHOD OF TEST

1. The feature is tested through the use of Tape Unit 2 on any or all channels.

NOTE: Only unit 2 is used, and any other units selected in the keys are blocked out.

2. Any or all of the six channels are tested in order. (Chan A, Chan B, Chan C) etc.

A test is executed for each of the following conditions:

- a. 00140 All conditions of trap on HTR, HPR, and Manual Status.

NOTE: This test will be executed on the first pass, but will not be performed again unless a manual transfer is performed.

- b. 00354 Indicator 18 using all combinations of the other indicators, including indicator 19.
- c. 01057 Floating Point Trap and Store and Trap without being in the I/O Trap Mode.
- d. 01135 The mode is entered and Store and Trap without being in the I/O Trap Mode.
- e. 01256 ENABLE instruction to see that it does not act as LDQ. The operation code for LDQ is 0560 and the operation code for ENABLE is 0564.
- f. 01306 ENABLE is tested while indexed, indirectly addressed, and index and indirectly address.

- g. 01400 RESTORE is tested to see that it does not trap when the 709 is not enabled for trap.
- h. 01450 Once the Inhibit trigger is turned on, the next RESTORE or ENABLE will not trap until after performing the instruction following the ENABLE or RESTORE.
- i. 01516 Checks that TRA, XEC, LDI, FAD, and PBT work correctly at the trap locations.
- j. 02024 Floating Point Trap takes priority over an I/O trap.
- k. 02150 Load Channel given in time does not trap.
- l. 02177 Test each type of trap individually on each channel.
- m. 02324 No trap occurs after being enabled with zeros.
- n. 02367 One trap inhibits another and that all traps waiting on one channel will be executed after a RESTORE instruction is given.
- o. 02444 ENABLE, after trap is conditioned, will trap immediately and all future traps are inhibited.
- p. 02516 No trap occurs until after executing the instruction following a select.
- q. 02612 TRA on RDNCK and TRA on end of file will act as NOPS if enabled for these conditions also that a select will not reset the command disc. tgr. if enabled for command disc.
- r. 02761 Bring up all trapping conditions on all channels. Using restore, sequence traps Chan A, Chan. B, Chan. C. etc.

NOTE: All channels will be tested individually, before multi channel testing is attempted.

#### C. ERROR PRINT ROUTINES

Three Print Routines are used

1. The standard 9DEPR is used.
2. A special error print routine is used to test for correct traps and correct data placed in trap locations.

The symbolic entry to this routine is "SCHCK". The symbolic entry for resetting trap locations is "SREST".

3. A BCD print subroutine is also used to indicate trapping errors.

The Symbolic entry to this routine is "SPLAT".

EXAMPLE ERROR PRINTS FOLLOW:

- a. PRGM EXIT 01325 TRAP ENABLE 00000000001 SHOULD TRAP, TRAP IN ERROR  
CORRECT - TRP LOC 00012 TYPE 4 TRP LOC ADDR 01321 XEC LOC 00013  
ERROR -- TRP LOC 00012 TYPE 0 TRP LOC ADDR 00000 XEC LOC 00013  
ERROR -- TRP LOC 00014 TYPE 4 TRP LOC ADDR 01321 XEC LOC 00014
- b. TEST LOC 00354, OPN SCHB 2, ERROR LOC 00410, 0 LOC 0000000000 SW 000001  
LITE 000, MQ 304214004230, XRA 00000, XRB 00000, XRC 77373, TRAP TRG 0  
ACC, Q0, P0, 504212004225, DIV CK 0, ACC OVFL0, INDS 000000000000, KEYS000000000000
- c. TEST LOC 00472, OPN IND 18, ERROR LOC 00502, 0 LOC 0000000000 SW 000001  
MSE 0000, COMP ERROR, WORD GENERATED 001 101 001 101 001 101 001 101 001 101 001  
REC 00001, WORD 00001, WORD READ 000 000 000 000 000 000 000 000 000 000 000
- d. PRGM EXIT 02404 TRAP ENABLE 000002000002 SHOULD TRAP, NO TRAP SHOWN  
CORRECT - TRP LOC 00014 TYPE 2 TRP LOC ADDR 02400 XEC LOC 00015
- e. PRGM EXIT 02105 TRAP ENABLE 000002000002 SHOULD TRAP, TRAP IN ERROR  
CORRECT - TRP LOC 00014 TYPE 4 TRP LOC ADDR 00010 XEC LOC 00015  
ERROR --- TRP LOC 00014 TYPE 4 TRP LOC ADDR 02100 XEC LOC 00015
- f. PRGM EXIT 02651 TRAP ENABLE 000002000002 SHOUDL TRAP, TRAP IN ERROR  
CORRECT - TRP LOC 00014 TYPE 7 TRP LOC ADDR 02646 XEC LOC 00015  
ERROR --- TRP LOC 00014 TYPE 5 TRP LOC ADDR 02646 XEC LOC 00015  
SHOULD HAVE INDICTATED ALL TRAPS - SAME CHANNEL
- g. PRGM EXIT 03175 TRAP ENABLE 000077000077 SHOULD TRAP, NO TRAP SHOWN  
CORRECT - TRP LOC 00014 TYPE 7 TRP LOC ADDR 03172 XEC LOC 00015  
ABOVE ERRORS OCCURRED WHILE TYING TO SEQUENCE TRAPS ON ALL CHANNELS

#### 4. Explanation of Print Outs

##### "A" Print-out

##### a. First Line of Print

- 1) "PRGM Exit" Indicates the Prgram Error Exit
- 2) "TRAP ENABLE" Indicates the word at th ENABLE(Y) location. Channel A is indicated by the 1.
- 3) Comment at right of first line will indicate what error occurred. (Nothing stored at LOC 12, stored at LOC 14 instead.)

b. Second Line is the Correct Trap Information

- 1) "TRAP LOCATION" is location at which the instruction counter was stored.
- 2) "TYPE" indicates which type of trap should have occurred.

Type 1 means Control Word Trap  
Type 2 means End of File Trap  
Type 4 means Tape Check Trap

Any combination of these may also be shown.

- 3) "TRP LOC ADDR" is the correct contents of the Instruction Counter when the trap occurred.
- 4) "XEC LOC" is the location which was executed after the trap

c. Third Line Indicates Error Trap Information

This line indicates that at Trap Location 12 nothing was stored

d. Fourth Line Indicates Error Trap Information

This line indicates that the trap information was stored at 14 instead of 12.

"B" Print Out

This print-out indicates a store channel error with the MQ containing the correct result, and the ACC the error.

"C" Print Out

This printout indicates a comparison error in transmission of data. "OPN" on the first line will indicate the operation being tested.

"D" Print Out

- a. The first line is the same as the "A" print-out with the comment stating that no trap occurred, except that all traps on channel B are enabled, as indicated by 2 in decrement and address.
- b. The second line indicates what should appear in the trap location indicated.

"E" Print Out

- a. First line is the same as type "A" print-out
- b. Second line shows the address which should have been stored in trap location.
- c. Third line shows the address which was stored at the trap location, indicating that F. P. Trap did not take priority over I/O Trap.

"F" Print Out

- a. First line is the same as type "A" print-out
- b. Second line shows that all 3 types of trap should have occurred.
- c. Third line shows that only 2 types did occur, and which two. (Refer to 2 on second line of Type "A")
- d. Comment after trap error is additional information

"G" Print Out

- a. first line is the same as Type "A" print-out, except showing that all trap on all channels were enabled and all traps on Channel B should have occurred.
- b. Comment after trap error is additional information

D. AREA OF MACHINE REQUIRED

1. MF, CF, 1, 2 or 3 Buffers, Tape Unit 2 per DSC.
2. Storage Locations

9IOT	00000 - 03457, 04254 - 04702
9DEPR	06500 - 07663
9IOM	05500 - 06477
SCHCK	03460 - 04253
SPLAT	04703 - 05466, 07713 - 07761

E. PROGRAM CONTROL

- |         |           |                      |
|---------|-----------|----------------------|
| 1. Deck | 000       | 9LD01A Binary Loader |
|         | 001 - 183 | 9IOT                 |
|         | 184       | TRA Card - TRA 05115 |
|         | 185 - 186 | Blank Cards          |

## 2. Sense Switch Control

Switches 1, 2, 3, 4 as per 9DEP

Switch = 5 UP - Program will make 1 pass on all channels selected and test switch 6 to repeat or call in next program.

Switch = 5 DOWN Program will loop in channels initially selected without returning to Halt to enter control

Switch = 6 UP - Call next program

Switch = 6 DOWN Will return to Halt at beginning of program to enter keys with new selection.

## F. NORMAL STOPS

05517 To enter Control for 9IOM  
00160 Will not Trap on Halt when not enabled - press start  
00174 Will Trap one instruction before HTR - press start  
00210 Will Trap on HTR Instruction - Press start  
00223 Will leave Trap Mode on Reset - reset and start  
00254 Will trap in Manual - Press single step button 3 times.  
Same Halt will occur, return to automatic and press start after 2nd Halt.

## G. ERROR STOPS

NOTE: There are many error Halts throughout program, if instruction counter is not performing correctly. Comments at Halt locations will indicate errors.

With SW #3 DOWN

06517 or 06545 in "9DEPR" Error Routine  
03636 in "SCHCK" Error Routine

## H. I/O SELECTION

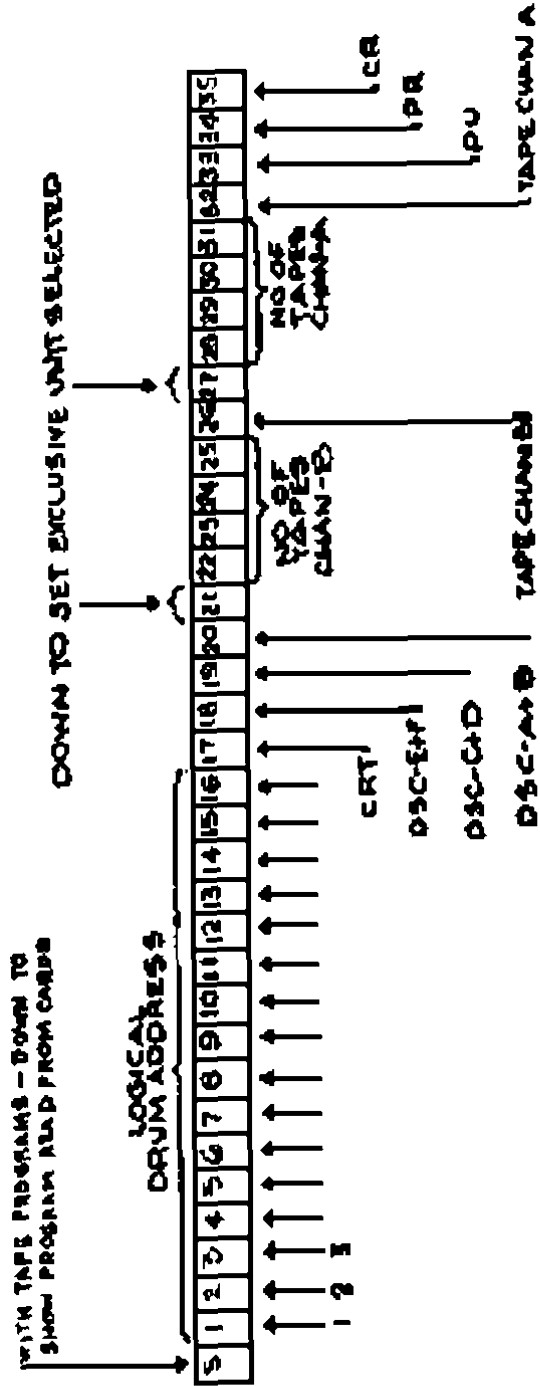
I/O Selection is the format used in 9IOM.

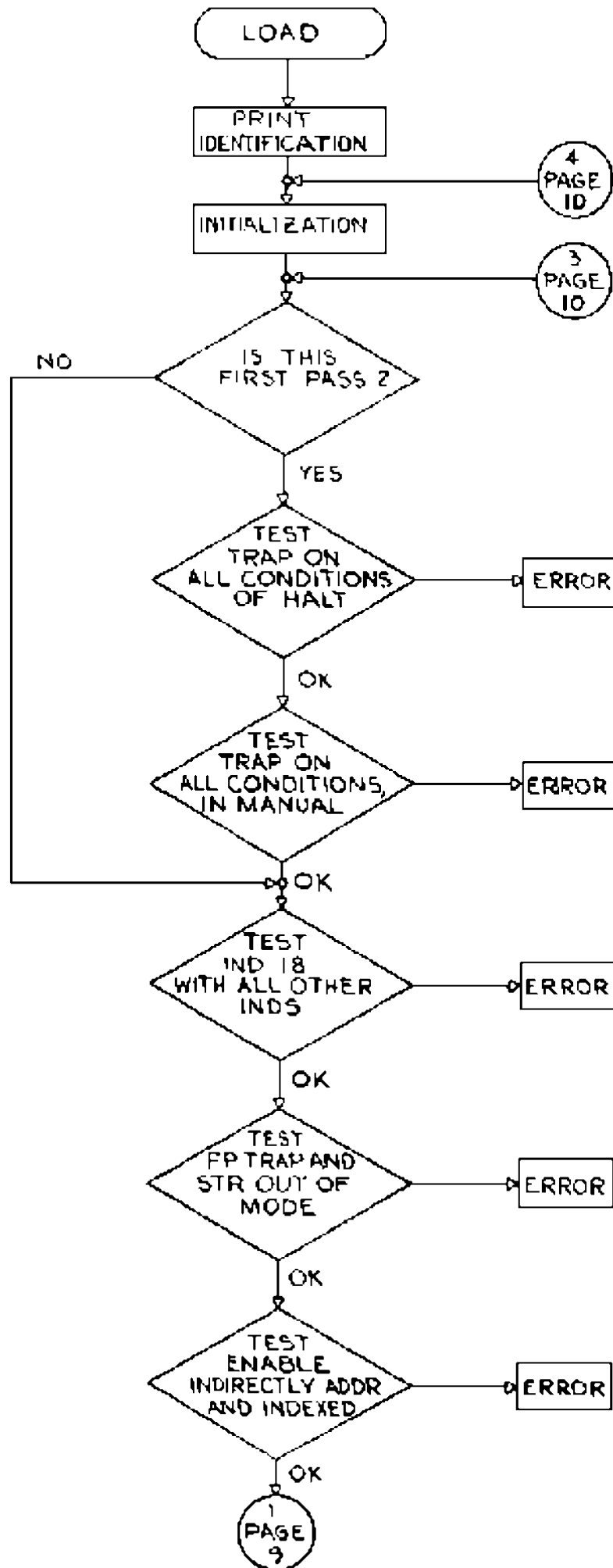
NOTE: See Diagram Attached to this Write-up on page 7

## I. COMMENTS

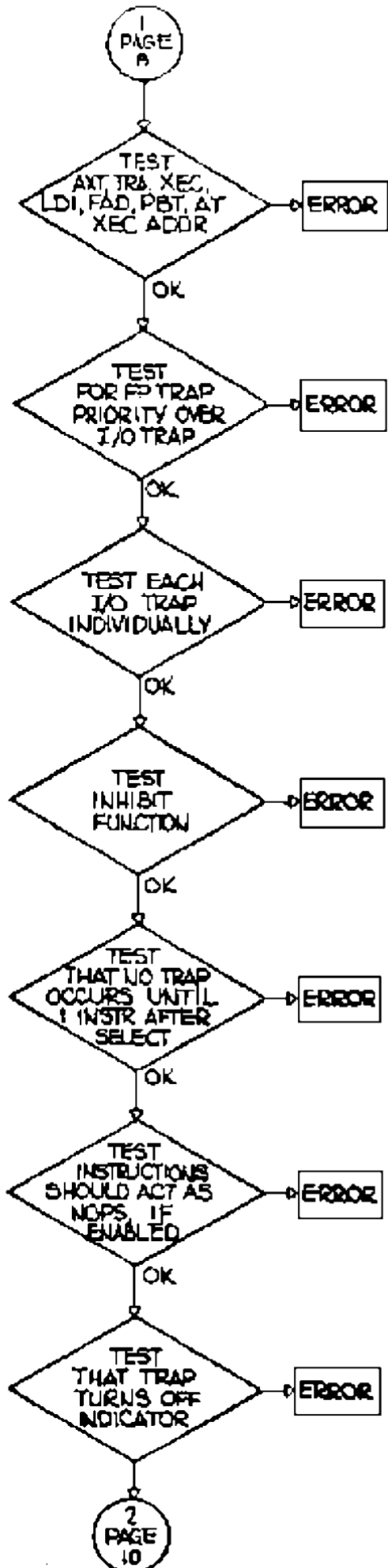
The section which test I/O trap during Halts, is set-up to run during the first pass only. To re-enter this section, a manual TRA to 00140 is necessary.

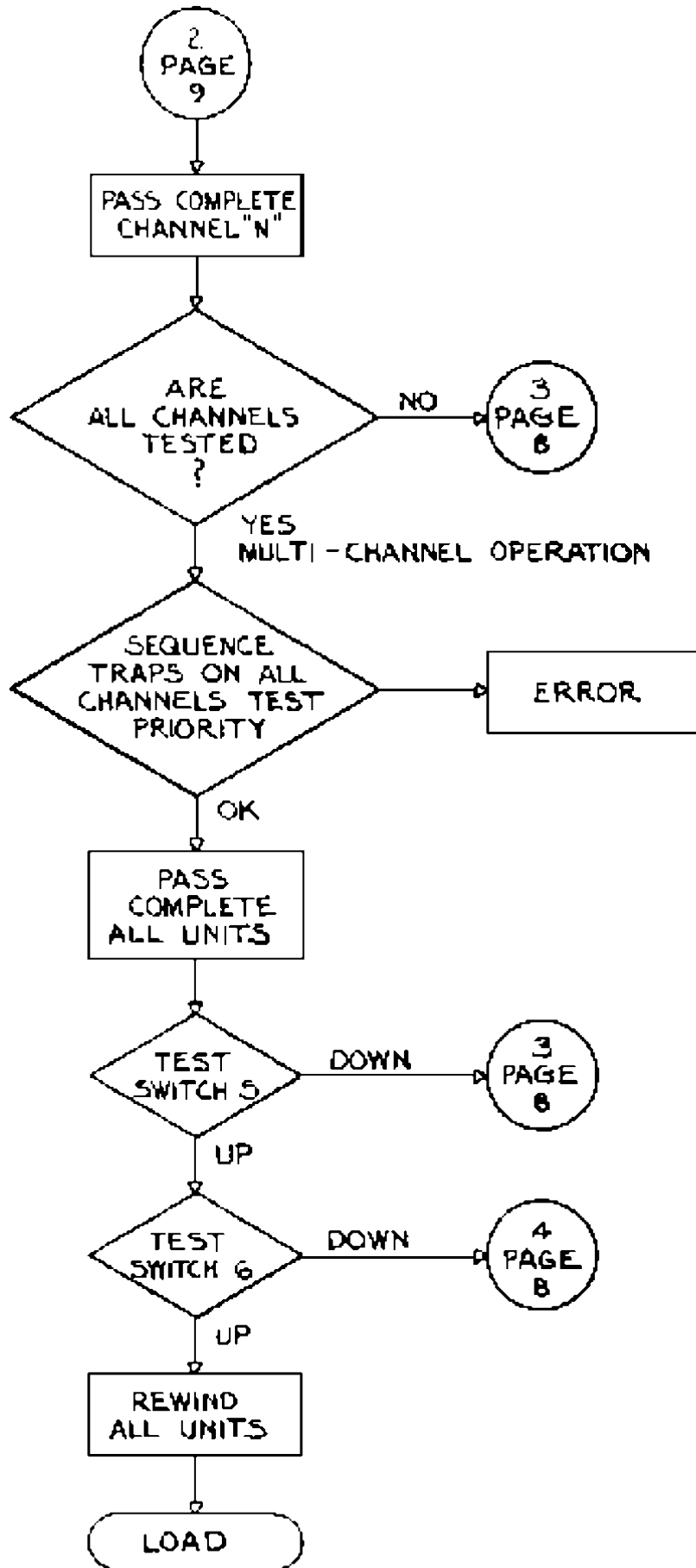
I/O SELECTION FORMAT FOR CONTROL OF  
I/O PROGRAMS  
(TO BE ENTERED INTO KEYS)



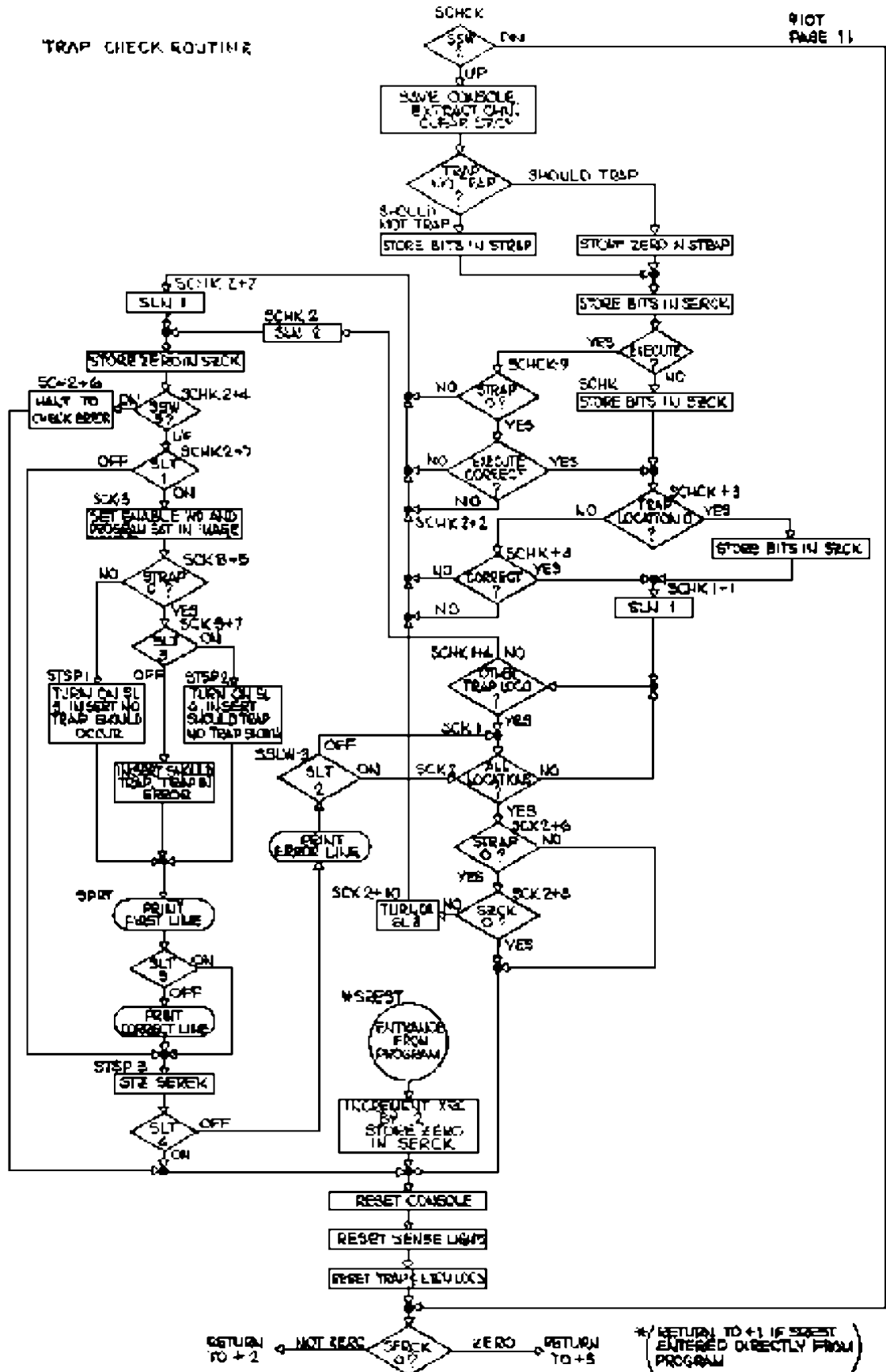








TRAP CHECK ROUTINE



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\* 9 I O T A

\* 709 INPUT-OUTPUT TRAP DIAGNOSTIC TEST

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                                00030          ORG 24
00030  0761 00 0 00000          NOP
00031  0760 00 0 00163          SWT 3          CHECK SENSE SWITCH 3
00032  0020 00 0 00034          TRA *+2          UP - PRINT TEST IDENTITY
00033  0020 00 0 00046          TRA *+11         DN - BYPASS PRINT

00034  0074 00 4 04703          TSX SPLAT,4
00035  -0 00001 0 00010         MZE 8,0,1
00036  454666604725           BCD 6NOW PERFORMING DIAGNOSTIC I-O TRAP T
00037  512646514431
00040  452760243121
00041  274546626331
00042  236031404660
00043  635121476063
00044  256263606011           BCD 2EST 9IOT
00045  314663606060
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\* I N I T I A L I Z A T I O N

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00046  0074 00 4 05514  CBEGN  TSX IOC,4          TO ENTER CONTROL WORDS

00047  0774 00 2 00003          AXT 3,2          L +3 IN XRB
00050  0774 00 1 00006          AXT 6,1          L +6 IN XRA
00051  -0754 00 0 00000          PXD 0,0          CLEAR ACC
00052  -0500 00 2 05503          CAL CTRL1+3,2   L DS CONTROL WORD
00053  -0320 00 0 04215          ANA SK+4         CLEAR TO CARD MACHINES
00054  -0520 00 1 05512          NZT CTRA+6,1
00055  0020 00 0 00057          TRA *+2          ZERO - NO TAPE CALLED
00056  -0501 00 1 04226          ORA SCH+6,1     OR IN EXCLUSIVE UNIT 2
00057  -0520 00 1 05513          NZT CTRA+7,1
00060  0020 00 0 00062          TRA *+2          ZERO - NO TAPE CALLED
00061  -0501 00 1 04227          ORA SCH+7,1     OR IN EXCLUSIVE UNIT 2
00062  0602 00 2 05503          SLW CTRL1+3,2   SAVE ADJUSTED CONTROL WORD
00063  2 00001 2 00064          TIX *+1,2,1
00064  2 00002 1 00051          TIX *-11,1,2
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00065  0074 00 4 05513  RUC    TSX IOCNT,4
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9 I O T A  
8-15-59  
PAGE 2

00066	0500	00	0	05500	INTL	CLA CTRL1	L CHANNEL A CONTROL
00067	0120	00	0	00072		TPL *+3	CHECK IF PROGRAM READ FROM CARDS
00070	0500	00	0	04217		CLA SK1+1	YES - L READ CARDS
00071	0020	00	0	00073		TRA *+2	
00072	0500	00	0	04216		CLA SK1	NOT READ FROM CARDS L READ TAPE
00073	0601	00	0	03320		STO FINL1	
00074	-0520	00	0	05504	INTL1	NZT CTRA	CHECK FOR TAPE UNIT ON A
00075	0020	00	0	02742		TRA SCTX	NO UNIT ON CHN A
00076	0500	00	0	02253		CLA CX+3	UNIT ON CHAN A - L SELECT
00077	0340	00	0	04211		CAS SK	COMPARE WTBA 2
00100	0020	00	0	00102		TRA *+2	NOT SAME - ADJUST
00101	0020	00	0	00111		TRA *+8	UNIT ADDR OK - PROCEED
00102	0074	00	4	03342		TSX SCAN, 4	GO TO SET SCAN ROUTINE
00103	0	00000	0	02253		PZE CX+3	LOC OF SELECT FOR SCAN
00104	0074	00	4	05512		TSX CTX, 4	GO TO ADJUST PROGRAM
00105	0	02716	0	00114		PZE ALF, 0,OMG	SEARCH AREA
00106	0074	00	4	03354		TSX SCAN1, 4	GO TO SCAN FOR TSX SCHCK, 4
00107	0	02716	0	00114		PZE ALF, 0,OMG	SEARCH AREA
00110	0020	00	0	00076		TRA *-10	
00111	0761	00	0	00000		NOP	
00112	0500	00	0	05503	SAC	CLA IOCT	L UNIT COUNT
00113	0100	00	0	02751		TZE CZIB-8	ALL UNITS CALLED CHECKED FOR SINGLE CHN OPERATION
00114	0402	00	0	04256	ALF	SUB ONE	L+1
00115	0601	00	0	05503		STO IOCT	
00116	0020	00	0	00120		TRA *+2	
00117	-0625	00	0	04253		STL SKIP1	MANUAL ENTRY TO HALT ROUTINES
00120	0500	00	0	04226	SAA	CLA STRA1	L TRA SSA
00121	0601	00	0	00000		STO 0	POST RESTART
00122	0074	00	4	00124		TSX SETUP, 4	
00123	0020	00	0	00135		TRA DW	
00124	0060	00	0	00124	SETUP	TCOA *	WAIT FOR END OPN
00125	0564	00	0	04263		ENB ZEROS	ALL CHANNELS DISABLED
00126	0766	00	0	01222		WTBA 2	RESET TRAP
00127	0060	00	0	00127		TCOA *	DELAY
00130	0022	00	0	00131		TRCA *+1	TURN OFF RDNCY CK
00131	0030	00	0	00132		TEFA *+1	TURN OFF EOF
00132	0760	00	0	00005		IOT	TURN OFF IOT
00133	0761	00	0	00000		NOP	
00134	0020	00	4	00001		TRA 1, 4	RETURN

\* SINGLE CHANNEL OPERATIONS

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9 I O T A  
8-15-59  
PAGE 3

00135 0074 00 4 04654 DW TSX RESET,4 SET MONITOR  
00136 -0520 00 0 04253 NZT SKIP1  
00137 0020 00 0 00266 TRA CK SKIP HALT TESTS

\*ON FIRST PASS TEST THE HALT INSTRUCTION AND  
\*FOR ALL SUCCEEDING PASSES TRANSFER AROUND THIS SECTION TO SYMBOLIC LOCATION  
\*CK

\*CHECK THAT THE MACHINE IS ABLE TO TRAP CORRECTLY BEFORE  
\*A HALT INSTRUCTION IS DECODED  
\*IT IS NECESSARY TO ONLY TEST ONE TYPE OF HALT IN THIS SECTION

00140 0074 00 4 03602 TSX SREST,4 FOR RESET ONLY  
00141 0564 00 0 04236 ENB CNA SET UP COMMAND TRAP  
00142 0766 00 0 01222 WTBA 2  
00143 0540 00 0 04254 RCHA CNTL WRITE 1 WORD WITH AN IOCT  
  
00144 0060 00 0 00144 TCOA \* SHOULD TRAP HERE  
  
00145 0020 00 0 00147 TRA \*+2  
  
00146 0000 00 0 00135 HTR DW ERROR-DID NOT RETURN  
FROM TRAP CORRECTLY.  
  
00147 0774 00 2 04236 AXT CNA,2  
00150 0074 01 4 03460 TSX SCHCK,4,1 CHECK TRAP EXECUTION  
00151 0 00001 0 00144 PZE \*-5,0,1  
  
00152 0020 00 0 00155 TRA \*+3 OK-TRAPPED CORRECTLY  
00153 0074 00 4 04703 TSX SPLAT,4  
00154 0 00000 0 05123 PZE A

\*CHECK THAT THE MACHINE WILL HALT + NOT TRAP WHEN NOT ENABLED.-SYSTEMS 4.05.01  
\*THIRD LEF OF AND CKT. 1034N WILL PREVENT THE MASTER STOP TRIGGER FROM  
\*BEING TURNED OFF UNTIL THE START BUTTON IS DPRESSED.  
\*IT IS NECESSARY TO ONLY TEST ONE TYPE OF HALT IN THIS SECTION.

00155 0564 00 0 04263 ENB ZEROS ALL CHANNELS DISABLED  
00156 0766 00 0 01222 WTBA 2  
00157 0540 00 0 04254 RCHA CNTL WRITE 1 WORD WITH AN IOCT  
  
00160 0420 00 0 00000 HPR PRESS START-SHOULD  
NOT HAVE TRAPPED HERE.  
  
00161 0774 00 2 04236 AXT CNA,2  
00162 0074 01 4 03460 TSX SCHCK,4,1 CHECK TRAP EXECUTION.  
00163 0 00001 2 00157 PZE \*-4,2,1  
  
00164 0020 00 0 00167 TRA DW1 OK - DID NOT TRAP

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9 I O T A  
8-15-59  
PAGE 4

00165 0074 00 4 04703 TSX SPLAT,4  
00166 0 00000 0 05134 PZE B

\*CHECK THAT THE MACHINE IS ABLE TO TRAP CORRECTLY ONE INSTRUCTION  
\*BEFORE HTR IS DECODED.  
\*IT IS NECESSARY TO ONLY TEST ONE TYPE OF HALT IN THIS SECTION.

00167 0074 00 4 00124 DW1 TSX SETUP,4 RESET I/O TRIGGERS  
00170 0564 00 0 04236 ENB CNA ENABLE FOR COMMAND TRAP  
00171 0766 00 0 01222 WTBA 2  
00172 0540 00 0 04254 RCHA CNTL WRITE 1 WORD WITH AN IOCT  
  
00173 0060 00 0 00173 TCOA \* SHOULD TRAP HERE  
  
00174 0000 00 0 00176 HTR \*+2 OK-PRESS STARTT  
  
00175 0000 00 0 00167 HTR DW1 ERROR-DID NOT RETURN  
FROM TRAP CORRECTLY.  
  
00176 0774 00 2 04236 AXT CNA,2  
00177 0074 01 4 03460 TSX SCHCK,4,1 CHECK TRAP EXECUTION  
00200 0 00001 0 00173 PZE \*-5,0,1  
00201 0020 00 0 00204 TRA \*+3 OK-TRAPPED CORRECTLY  
  
00202 0074 00 4 04703 TSX SPLAT,4  
00203 0 00000 0 05142 PZE C

\*CHECK THAT THE MACHINE WILL TRAP ON A HTR INSTRUCTION

00204 0564 00 0 04236 DW2 ENB CNA ENABLE FOR COMMAND TRAP  
00205 0766 00 0 01222 WTBA 2  
00206 0540 00 0 04254 RCHA CNTL IOCT-WC1  
00207 0761 00 0 00000 NOP SHOULD NOT COME BACK FOR  
LCH FOR APPROXIMATELY 36 US  
  
00210 0000 00 0 00212 HTR \*+2 SHOULD TRAP HERE AND  
RETURN HERE.-PRESS START  
  
00211 0000 00 0 00204 HTR DW2 ERROR-DID NOT RETURN  
FROM TRAP CORRECTLY  
  
00212 0774 00 2 04236 AXT CNA,2  
00213 0074 01 4 03460 TSX SCHCK,4,1 CHECK TRAP EXECUTION.  
00214 0 00001 0 00210 PZE \*-4,0,1  
  
00215 0020 00 0 00220 TRA \*+3 OK-TRAPPED CORRECTLY  
  
00216 0074 00 4 04703 TSX SPLAT,4  
00217 0 00000 0 05153 PZE D

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9 I O T A  
8-15-59  
PAGE 5

\*CHECK THAT MACHINE LEAVES THE TRAP MODE ON RESET.

00220	0500	00	0	04255		CLA RF2	L TRA DW6+2
00221	0601	00	0	00000		STO 0	
00222	0564	00	0	04236	DW6	ENB CNA	ENABLE FOR COMMAND TRAP
00223	0000	00	0	00224		HTR *+1	RESET MACHINE + START
00224	0766	00	0	01222		WTBA 2	
00225	0540	00	0	04254		RCHA CNTL	IOCT-WC1
00226	0060	00	0	00226		TCOA *	SHOULD NOT TRAP HERE
00227	0774	00	2	04236		AXT CNA,2	
00230	0074	01	4	03460		TSX SCHCK,4,1	CHECK FOR NO TRAP
00231	0	00001	2	00226		PZE *-3,2,1	
00232	0020	00	0	00235		TRA *+3	OK-DID NOT TRAP
00233	0074	00	4	04703		TSX SPLAT,4	
00234	0	00000	0	05203		PZE H	

\*CHECK THAT IT IS POSSIBLE TO ENABLE AND TRAP AFTER THE MACHINE HAS BEEN RESET.

00235	0074	00	4	00124	DW7	TSX SETUP,4	
00236	0564	00	0	04236		ENB CNA	ENABLE FOR COMMAND TRAP
00237	0766	00	0	01222		WTBA 2	
00240	0540	00	0	04254		RCHA CNTL	IOCT-WC1
00241	0060	00	0	00241		TCOA *	SHOULD TRAP HERE AND RETURN HERE
00242	0774	00	2	04236		AXT CNA,2	
00243	0074	01	4	03460		TSX SCHCK,4,1	CHECK TRAP EXECUTION
00244	0	00001	0	00241		PZE *-3,0,1	
00245	0020	00	0	00250		TRA *+3	OK-TRAPPED CORRECTLY
00246	0074	00	4	04703		TSX SPLAT,4	
00247	0	00000	0	05214		PZE J	

\*CHECK THAT THE MACHINE CANNOT BE IN MANUAL STATUS IN ORDER

\*TO TRAP ON A HALT INSTRUCTION.

\*SYSTEMS 4.05.01-AND CKT. 1034N-CANNOT TURN OFF MST IN MANUAL.

\*IT IS NECESSARY TO ONLY TRST ONE TYPE OF HALT IN THIS SECTION.

00250	0000	00	0	00251	DW8	HTR *+1	PUT MACHINE IN MANUAL STATUS AND PUSH SINGLE
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9 I O T A  
8-15-59  
PAGE 6

STEP BUTTON TWICE

00251	0564	00	0	04236	ENB CNA	ENABLE FOR COMMAND TRAP
00252	0766	00	0	01222	WTBA 2	
00253	0540	00	0	04254	RCHA CNTL	IOCT-WC1
00254	0000	00	0	00255	HTR *+1	SHOULD NOT TRAP UNTIL START * SINGLE STEP ARE DEPRESSED THREE TIMES. AFTER TRAPPING THE PROGRAM AGAIN MUST RETURN TO AUTO AND PRESS START AFTER 2NO HALT AT THIS LOCATION
00255	0774	00	2	04236	AXT CNA,2	
00256	0074	01	4	03460	TSX SCHCK,4,1	CHECK FOR TRAP
00257	0	00001	0	00254	PZE *-3,0,1	
00260	0020	00	0	00263	TRA *+3	OK-TRAPPED CORRECTLY
00261	0074	00	4	04703	TSX SPLAT,4	
00262	0	00000	0	05226	PZE K	
00263	0074	00	4	06511	TSX OK,4	
00264	0020	00	0	00135	TRA DW	
00265	622330216060				BCD 1SCHA	
00266	0074	00	4	04617	CK TSX CLEAR,4	CHECK SEQUENCE
00267	0600	00	0	04253	STZ SKIP1	SET SKIP CHECK
00270	0766	00	0	01222	WTBA 2	
00271	0540	00	0	04332	RCHA CRTB2	NO INDS ON WC 2
00272	0640	00	0	04333	SCHA CSAVE	STORE DSC RESGISTERS
00273	0500	00	0	04333	CLA CSAVE	INFORMATION FROM DSC
00274	0560	00	0	04334	LDQ CCC	CORRECT INFO.
00275	0340	00	0	04334	CAS CCC	
00276	0020	00	0	00300	TRA *+2	ERROR
00277	0020	00	0	00302	TRA *+3	OK
00300	0074	00	4	06503	TSX ERROR-1,4	
00301	0761	00	0	00266	NOP CK	
00302	0060	00	0	00302	TCOA *	WAIT
00303	0640	00	0	04333	SCHA CSAVE	STORE CHANNEL INFO.
00304	0500	00	0	04333	CLA CSAVE	INFORMATION FROM DSC
00305	0560	00	0	04335	LDQ CCC1	CORRECT DATA
00306	0340	00	0	04335	CAS CCC1	
00307	0020	00	0	00311	TRA *+2	ERROR
00310	0020	00	0	00313	TRA *+3	OK
00311	0074	00	4	06503	TSX ERROR-1,4	

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9 I O T A  
8-15-59  
PAGE 7

00312 0761 00 0 00266 NOP CK  
00313 0074 00 4 06511 TSX OK, 4  
00314 0020 00 0 00266 TRA CK  
00315 0761 00 0 00000 NOP

\*CHECK THAT THE MACHINE WILL TRAP ON A HPR INSTRUCTION.

00316 0074 00 4 04617 DW3 TSX CLEAR, 4  
00317 0074 00 4 00124 TSX SETUP, 4 RESET I/O TRIGGERS  
00320 0564 00 0 04236 ENB CNA ENABLE FOR COMMAND TRAP  
00321 0766 00 0 01222 WTBA 2  
00322 0540 00 0 04254 RCHA CNTL IOCT-WC1  
00323 0761 00 0 00000 NOP SHOULD NOT COME BACK FOR  
LCH FOR APPROXIMATELY 36 US  
  
00324 0420 00 0 00000 HPR SHOULD TRAP HERE AND  
RETURN HERE, AND CONTINUE  
WITHOUT HALTING  
  
00325 0774 00 2 04236 AXT CNA, 2  
00326 0074 01 4 03460 TSX SCHCK, 4, 1 CHECK TRAP EXECUTION.  
00327 0 00001 0 00325 PZE \*-2, 0, 1  
  
00330 0020 00 0 00333 TRA \*+3 OK-TRAPPED CORRECTLY  
  
00331 0074 00 4 04703 TSX SPLAT, 4  
00332 0 00000 0 05161 PZE E

\*CHECK THAT THE MACHINE WILL TRAP ON A DVH INSTRUCTION.

00333 0564 00 0 04236 DW4 ENB CNA ENABLE FOR COMMAND TRAP  
00334 0766 00 0 01222 WTBA 2  
00335 0540 00 0 04254 RCHA CNTL IOCT-WC1  
00336 0761 00 0 00000 NOP SHOULD NOT COME BACK FOR  
LCH FOR APPROXIMATELY 36 US  
  
00337 0220 00 0 04263 DVH ZEROS SHOULD TRAP HERE AND  
RETURN HERE, AND CONTINUE  
WITHOUT HALTING  
  
00340 0774 00 2 04236 AXT CNA, 2  
00341 0074 01 4 03460 TSX SCHCK, 4, 1 CHECK TRAP EXECUTION.  
00342 0 00001 0 00340 PZE \*-2, 0, 1  
  
00343 0020 00 0 00346 TRA \*+3 OK-TRAPPED CORRECTLY  
  
00344 0074 00 4 04703 TSX SPLAT, 4  
00345 0 00000 0 05161 PZE F  
  
00346 0760 00 0 00012 DCT TURN OFF DIV. CK. LITE  
00347 0020 00 0 00351 TRA \*+2

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00350 0000 00 0 00351 HTR \*+1 DID NOT TURN ON CK LIGHT  
00351 0074 00 4 06511 TSX OK, 4  
00352 0020 00 0 00316 TRA DW3

\*THIS SECTION TEST ALL COMBINATIONS OF INDICATORS TO MAKE  
\*SURE THEY OPERATE CORRECTLY BEFORE USING INDICATOR 18

\*ONE ERROR WILL CAUSE OTHER. IGNORE ALL ERRORS, EXCEPT FIRST

00353 622330216060 BCD 1SCHA  
00354 0074 00 4 04617 CL TSX CLEAR, 4  
00355 0074 00 4 00124 TSX SETUP, 4  
00356 0766 00 0 01222 WTBA 2 USE ALL COMBINATIONS  
00357 0540 00 0 04337 RCHA CFCTL OF INDICATORS WITH  
ON RESET LOAD CHANNEL  
00360 0640 00 0 04333 SCHA CSAVE STORE CHANNEL DATA  
00361 0500 00 0 04333 CLA CSAVE BRING IN CHANNEL INFO.  
00362 0560 00 0 04407 LDQ CHECK CORRECT CONTENTS  
00363 0340 00 0 04407 CAS CHECK  
00364 0020 00 0 00366 TRA \*+2 ERROR  
00365 0020 00 0 00370 TRA \*+3 OK  
00366 0074 00 4 06503 TSX ERROR-1, 4  
00367 0761 00 0 00354 NOP CL  
00370 0544 00 0 04345 LCHA CFCTL+6 IOST-WC 2  
00371 0640 00 0 04333 SCHA CSAVE STORE CONTENTS DSC  
00372 0500 00 0 04333 CLA CSAVE CONTENTS DSC  
00373 0560 00 0 04410 LDQ CHECK+1 CORRECT CONTENTS  
00374 0340 00 0 04410 CAS CHECK+1  
00375 0020 00 0 00377 TRA \*+2 ERROR  
00376 0020 00 0 00401 TRA \*+3 OK  
00377 0074 00 4 06503 TSX ERROR-1, 4  
00400 0761 00 0 00354 NOP CL  
00401 0544 00 0 04346 LCHA CFCTL+7 IORT-WC 2  
00402 0640 00 0 04333 SCHA CSAVE STORE CONTENTS DSC  
00403 0500 00 0 04333 CLA CSAVE CONTENTS DSC  
00404 0560 00 0 04411 LDQ CHECK+2 CORRECT CONTENTS  
00405 0340 00 0 04411 CAS CHECK+2  
00406 0020 00 0 00410 TRA \*+2 ERROR  
00407 0020 00 0 00412 TRA \*+3 OK  
00410 0074 00 4 06503 TSX ERROR-1, 4  
00411 0761 00 0 00354 NOP CL  
00412 0544 00 0 04347 LCHA CFCTL+8 IOCD-WC 2  
00413 0640 00 0 04333 SCHA CSAVE STORE CONTENTS DSC  
00414 0500 00 0 04333 CLA CSAVE CONTENTS DSC  
00415 0560 00 0 04412 LDQ CHECK+3 CORRECT CONTENTS  
00416 0340 00 0 04412 CAS CHECK+3  
00417 0020 00 0 00421 TRA \*+2 ERROR  
00420 0020 00 0 00423 TRA \*+3 OK  
00421 0074 00 4 06503 TSX ERROR-1, 4

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9 I O T A  
8-15-59  
PAGE 9

00422	0761	00	0	00354		NOP	CL	
00423	0060	00	0	00423		TCOA *		WAIT
00424	0640	00	0	04333		SCHA	CSAVE	STORE CONTENTS DSC
00425	0500	00	0	04333		CLA	CSAVE	CONTENTS DSC
00426	0560	00	0	04413		LDQ	CHECK+4	CORRECT CONTENTS
00427	0340	00	0	04413		CAS	CHECK+4	
00430	0020	00	0	00432		TRA	*+2	ERROR
00431	0020	00	0	00434		TRA	*+3	OK
00432	0074	00	4	06503		TSX	ERROR-1,4	
00433	0761	00	0	00354		NOP	CL	
00434	0074	00	4	06511		TSX	OK,4	
00435	0020	00	0	00354		TRA	CL	
00436	314524600111					BCD	1IND	19
00437	0074	00	4	04617	CM	TSX	CLEAR,4	CHECK SEQUENCE
00440	0766	00	0	01222		WTBA	2	
00441	0540	00	0	04505		RCHA	CWTB6	IOCD-WC3
00442	0764	00	0	01202		BSRA	2	BACKSPACE RECORD
00443	0762	00	0	01222		RTBA	2	
00444	0540	00	0	04336		RCHA	CRTB6	IND 19 ON - WC 2
00445	0600	00	0	04371		STZ	CREAD	CLEAR
00446	0600	00	0	04372		STZ	CREAD+1	READ AREA
00447	0774	00	2	00000		AXT	0,2	
00450	0774	00	1	00002		AXT	2,1	SET
00451	0500	00	0	04256		CLA	ONE	UP
00452	0601	00	0	06557		STO	RECNO	FOR
00453	0754	00	1	00000		PXA	,1	PRINT
00454	0400	00	0	04256		ADD	ONE	ROUTINE
00455	0601	00	0	06556		STO	WDNO	
00456	0060	00	0	00456		TCOA *		WAIT
00457	0500	00	1	04373		CLA	CREAD+2,1	WORD READ
00460	0560	00	0	04263		LDQ	ZEROS	CORRECT WORD
00461	0340	00	0	04263		CAS	ZEROS	
00462	0020	00	0	00464		TRA	*+2	ERROR
00463	0020	00	0	00466		TRA	*+3	OK
00464	0074	00	4	06502		TSX	ERROR-2,4	
00465	0761	00	0	00437		NOP	CM	
00466	2	00001	1	00457		TIX	*-7,1,1	CHECK BOTH WORDS
00467	0074	00	4	06511		TSX	OK,4	OF REPEAT
00470	0020	00	0	00437		TRA	CM	

\*THIS ROUTINE WILL RCH WITH NO SELECT TO INITIALLY  
\*CHECK IND 18 BEFORE MOVING TAPE

00471	314524011060					BCD	1IND18	
00472	0074	00	4	04617	CHUMP	TSX	CLEAR,4	
00473	0540	00	0	04461		RCHA	CHIPS	TCH AND IND 18
00474	0640	00	0	04333		SCHA	CSAVE	
00475	0500	00	0	04333		CLA	CSAVE	INFO FROM CHANNEL

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9 I O T A  
8-15-59  
PAGE 10

00476	0560	00	0	04445	LDQ	CK1+5	CORRECT INFO
00477	0340	00	0	04445	CAS	CK1+5	
00500	0020	00	0	00502	TRA	*+2	ERROR
00501	0020	00	0	00504	TRA	*+3	OK
00502	0074	00	4	06503	TSX	ERROR-1,4	SHOULD HAVE TAKEN ONLY
00503	0761	00	0	00472	NOP	CHUMP	ONE IA CYCLE BEFORE DISC
00504	0020	00	0	00506	TRA	*+2	
00505	314663606060				BCD	1IOT	
00506	0760	00	0	00005	IOT		CHECK IOT
00507	0020	00	0	00512	TRA	*+3	OK
00510	0074	00	0	06503	TSX	ERROR-1	IOT LIGHT SHOULD BE OFF
00511	-3	00000	0	00506	TXL	*-3	

\*THIS SECTION WILL CHECK IND 18 AND TCH IN FIRST CONTROL WORD  
\*TO BE SURE A BCW AND A BDW CYCLE ARE NOT TAKEN AT THE SAME TIME

00512	0766	00	0	01222	WTBA	2	
00513	0540	00	0	04461	RCHA	CHIPS	TCH AND IND 18 TO IOCT-WC2
00514	0640	00	0	04333	SCHA	CSAVE	
00515	0500	00	0	04333	CLA	CSAVE	
00516	0560	00	0	04446	LDQ	CK1+6	CORRECT CONTENTS
00517	0340	00	0	04446	CAS	CK1+6	
00520	0020	00	0	00522	TRA	*+2	ERROR
00521	0020	00	0	00524	TRA	*+3	OK
00522	0074	00	4	06503	TSX	ERROR-1,4	SHOULD HAVE TAKEN ON IA
00523	0761	00	0	00472	NOP	CHUMP	CYCLE, ONE BCW CYCLE, AND
00524	0020	00	0	00556	TRA	CN	ONE BDW CYCLE, BEFORE SCH SHOULD GET IN
00525	0764	00	0	01202	BSRA	2	BACKSPACE THE RECORD
00526	0762	00	0	01222	RTBA	2	
00527	0540	00	0	04503	RCHA	CIOC+4	ICOD-WC2
00530	0774	00	1	00002	AXT	2,1	CLEAR
00531	0600	00	0	04373	STZ	CREAD+2	READ
00532	2	00001	1	00531	TIX	*-1,1,1	AREA

\*SET CONSTANTS FOR PRINT ROUTINE

00533	0774	00	1	00002	AXT	2,1	
00534	0754	00	1	00000	PXA	0,1	
00535	0400	00	0	04256	ADD	ONE	
00536	0601	00	0	06556	STO	WDNO	
00537	0774	00	2	00000	AXT	0,2	
00540	0500	00	0	04256	CLA	ONE	
00541	0601	00	0	06557	STO	RECNO	
00542	0060	00	0	00542	TCOA	*	
00543	0500	00	1	04373	CLA	CREAD+2,1	WORD READ
00544	0560	00	1	04355	LDQ	CWRIT+2,1	CORRECT WORD
00545	0340	00	1	04355	CAS	CWRIT+2,1	
00546	0020	00	0	00550	TRA	*+2	ERROR

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9 I O T A  
8-15-59  
PAGE 11

00547	0020	00	0	00552	TRA	++3	OK
00550	0074	00	4	06502	TSX	ERROR-2,4	ERROR HERE MIGHT MEAN
00551	0761	00	0	00472	NOP	CHUMP	THAT BCW AND BDW
00552	2	00001	1	00543	TIX	*-7,1,1	CYCLES CAME AT SAME TIME DURING WRITE
00553	0074	00	4	06511	TSX	OK,4	
00554	0020	00	0	00472	TRA	CHUMP	

\*THIS ROUTINE CHECKS IND 18 WITH ALL CONBINATIONS OF OTHER INDICATORS

\*ONE ERROR WILL CAUSE OTHER, DISREGARD ALL ERRORS, EXCEPT THE FIRST

00555	314524600110				BCD	1IND	18	
00556	0074	00	4	04617	CN	TSX	CLEAR,4	CHECK SEQUENCE
00557	0766	00	0	01222		WTBA	2	
00560	0540	00	0	04347		RCHA	CFCTL+8	IOCD-WC2
00561	0764	00	0	01202		BSRA	2	BACKSPACE 1 RECORD
00562	0762	00	0	01222		RTBA	2	
00563	0540	00	0	04415		RCHA	CID18	TEST INDICATOR 18
00564	0774	00	1	00016		AXT	14,1	CLEAR
00565	0600	00	1	04407		STZ	CRDFD+14,1	READ
00566	2	00001	1	00565		TIX	*-1,1,1	
00567	0060	00	0	00567		TCOA	*	WAIT
00570	0774	00	1	00002		AXT	2,1	
00571	0500	00	1	04373		CLA	CRDFD+2,1	WORD READ
00572	0560	00	1	04371		LDQ	CWRIT+14,1	CORRECT WORD
00573	0340	00	1	04371		CAS	CWRIT+14,1	
00574	0020	00	0	00576		TRA	++2	ERROR
00575	0020	00	0	00600		TRA	++3	OK
00576	0074	00	4	06502		TSX	ERROR-2,4	
00577	0761	00	0	00556		NOP	CN	
00600	2	00001	1	00571		TIX	*-7,1,1	CHECK ALL WORDS
00601	0074	00	4	06511		TSX	OK,4	
00602	0020	00	0	00556		TRA	CN	
00603	314524600110				BCD	1IND	18	
00604	0074	00	4	04617	CP	TSX	CLEAR,4	
00605	0766	00	0	01222		WTBA	2	
00606	0540	00	0	04350		RCHA	CRUD	IORP-WC6
00607	0764	00	0	01202		BSRA	2	BACKSPACE
00610	0764	00	0	01202		BSRA	2	THREE
00611	0764	00	0	01202		BSRA	2	RECORDS
00612	0762	00	0	01222		RTBA	2	
00613	0540	00	0	04416		RCHA	CID	
00614	0640	00	0	04333		SCHA	CSAVE	STORE CONTENTS DSC
00615	0500	00	0	04333		CLA	CSAVE	CONTENTS DSC
00616	0560	00	0	04440		LDQ	CK1	CORRECT CONTENTS
00617	0340	00	0	04440		CAS	CK1	
00620	0020	00	0	00622		TRA	++2	ERROR
00621	0020	00	0	00624		TRA	++3	OK

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00622	0074	00	4	06503	TSX ERROR-1,4	
00623	0761	00	0	00604	NOP CP	
00624	0544	00	0	04424	LCHA CID+6	IND 18-IOST
00625	0640	00	0	04333	SCHA CSAVE	STORE CONTENTS DSC
00626	0500	00	0	04333	CLA CSAVE	CONTENTS DSC
00627	0560	00	0	04441	LDQ CK1+1	CORRECT CONTENTS
00630	0340	00	0	04441	CAS CK1+1	
00631	0020	00	0	00633	TRA *+2	ERROR
00632	0020	00	0	00635	TRA *+3	OK
00633	0074	00	4	06503	TSX ERROR-1,4	
00634	0761	00	0	00604	NOP CP	
00635	0544	00	0	04425	LCHA CID+7	IND 18-IORT
00636	0640	00	0	04333	SCHA CSAVE	STORE CONTENTS DSC
00637	0500	00	0	04333	CLA CSAVE	CONTENTS DSC
00640	0560	00	0	04442	LDQ CK1+2	CORRECT CONTENTS
00641	0340	00	0	04442	CAS CK1+2	
00642	0020	00	0	00644	TRA *+2	ERROR
00643	0020	00	0	00646	TRA *+3	OK
00644	0074	00	4	06503	TSX ERROR-1,4	
00645	0761	00	0	00604	NOP CP	
00646	0544	00	0	04426	LCHA CID+8	IND 18-IOCD
00647	0640	00	0	04333	SCHA CSAVE	STORE CONTENTS DSC
00650	0500	00	0	04333	CLA CSAVE	CONTENTS DSC
00651	0560	00	0	04443	LDQ CK1+3	CORRECT CONTENTS
00652	0340	00	0	04443	CAS CK1+3	
00653	0020	00	0	00655	TRA *+2	ERROR
00654	0020	00	0	00657	TRA *+3	OK
00655	0074	00	4	06503	TSX ERROR-1,4	
00656	0761	00	0	00604	NOP CP	
00657	0060	00	0	00657	TCOA *	WAIT
00660	0640	00	0	04333	SCHA CSAVE	STORE CONTENTS DSC
00661	0500	00	0	04333	CLA CSAVE	CONTENTS DSC
00662	0560	00	0	04444	LDQ CK1+4	CORRECT CONTENTS
00663	0340	00	0	04444	CAS CK1+4	
00664	0020	00	0	00666	TRA *+2	ERROR
00665	0020	00	0	00670	TRA *+3	OK
00666	0074	00	4	06503	TSX ERROR-1,4	
00667	0761	00	0	00604	NOP CP	
00670	0774	00	1	00006	AXT 6,1	
00671	0774	00	2	00003	AXT 3,2	
00672	0754	00	1	00000	PXA ,1	TO
00673	0400	00	0	04256	ADD ONE	SET UP
00674	0601	00	0	06556	STO WDNO	PRINT
00675	0754	00	2	00000	PXA ,2	ROUTINE
00676	0400	00	0	04256	ADD ONE	
00677	0601	00	0	06557	STO RECNO	
00700	0500	00	1	04377	CLA CRDFD+6,1	WORD READ
00701	0560	00	1	04361	LDQ CWGIT+6,1	CORRECT WORD
00702	0340	00	1	04361	CAS CWGIT+6,1	
00703	0020	00	0	00705	TRA *+2	ERROR

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9 I O T A  
8-15-59  
PAGE 13

00704	0020	00	0	00707	TRA	*+3	OK
00705	0074	00	4	06502	TSX	ERROR-2,4	
00706	0761	00	0	00604	NOP	CP	
00707	2	00001	1	00700	TIX	*-7,1,1	
00710	2	00001	2	00711	TIX	*+1,2,1	DECREMENT REC. NO.
00711	0774	00	1	00006	AXT	6,1	
00712	0500	00	1	04405	CLA	CRDFD+12,1	WORD READ
00713	0560	00	1	04367	LDQ	CWRIT+12,1	CORRECT WORD
00714	0340	00	1	04367	CAS	CWRIT+12,1	
00715	0020	00	0	00717	TRA	*+2	ERROR
00716	0020	00	0	00721	TRA	*+3	OK
00717	0074	00	4	06502	TSX	ERROR-2,4	
00720	0761	00	0	00604	NOP	CP	
00721	2	00001	1	00712	TIX	*-7,1,1	
00722	2	00001	2	00723	TIX	*+1,2,1	DECREMENT REC. NO.
00723	0774	00	1	00002	AXT	2,1	
00724	0500	00	0	04260	CLA	THREE	L +3
00725	0601	00	0	06556	STO	WDNO	
00726	0500	00	1	04407	CLA	CRDFD+14,1	WORD READ
00727	0560	00	1	04371	LDQ	CWRIT+14,1	CORRECT WORD
00730	0340	00	1	04371	CAS	CWRIT+14,1	
00731	0020	00	0	00733	TRA	*+2	ERROR
00732	0020	00	0	00735	TRA	*+3	OK
00733	0074	00	4	06502	TSX	ERROR-2,4	
00734	0761	00	0	00604	NOP	CP	
00735	2	00001	1	00726	TIX	*-7,1,1	
00736	0074	00	4	06511	TSX	OK,4	
00737	0020	00	0	00604	TRA	CP	

\*THIS ROUTINE WILL TEST ALL COMBINATIONS OF  
\*INDICATORS, WITH IND 18 AND 19

\*ONE ERROR WILL CAUSE OTHERS. DISREGARD ALL ERRORS EXCEPT THE FIRST

00740	314524600111				BCD	1IND 19	
00741	0074	00	4	04617	CQ	TSX	CLEAR,4
00742	0766	00	0	01222		WTBA	2
00743	0540	00	0	04350		RCHA	CRUD IORP-WC6
00744	0764	00	0	01202		BSRA	2 BACKSPACE
00745	0764	00	0	01202		BSRA	2 THREE
00746	0764	00	0	01202		BSRA	2 RECORDS
00747	0762	00	0	01222		RTBA	2
00750	0540	00	0	04447		RCHA	IND19
00751	0640	00	0	04333		SCHA	CSAVE STORE CONTENTS DSC
00752	0774	00	1	00016		AXT	14,1 CLEAR
00753	0600	00	1	04407		STZ	CRDFD+14,1 READ
00754	2	00001	1	00753		TIX	*-1,1,1 AREA
00755	0500	00	0	04333		CLA	CSAVE CONTENTS DSC
00756	0560	00	0	04464		LDQ	CK2 CORRECT CONTENTS



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00757	0340	00	0	04464	CAS	CK2		
00760	0020	00	0	00762	TRA	*+2	ERROR	
00761	0020	00	0	00764	TRA	*+3	OK	
00762	0074	00	4	06503	TSX	ERROR-1,4		
00763	0761	00	0	01033	NOP	CR		
00764	0544	00	0	04455	LCHA	IND19+6		
00765	0640	00	0	04333	SCHA	CSAVE	STORE CONTENTS	DSC
00766	0500	00	0	04333	CLA	CSAVE	CONTENTS	DSC
00767	0560	00	0	04465	LDQ	CK2+1	CORRECT	CONTENTS
00770	0340	00	0	04465	CAS	CK2+1		
00771	0020	00	0	00773	TRA	*+2	ERROR	
00772	0020	00	0	00775	TRA	*+3	OK	
00773	0074	00	4	06503	TSX	ERROR-1,4		
00774	0761	00	0	01033	NOP	CR		
00775	0544	00	0	04456	LCHA	IND19+7		
00776	0640	00	0	04333	SCHA	CSAVE	STORE CONTENTS	DSC
00777	0500	00	0	04333	CLA	CSAVE	CONTENTS	DSC
01000	0560	00	0	04466	LDQ	CK2+2	CORRECT	CONTENTS
01001	0340	00	0	04466	CAS	CK2+2		
01002	0020	00	0	01004	TRA	*+2	ERROR	
01003	0020	00	0	01006	TRA	*+3	OK	
01004	0074	00	4	06503	TSX	ERROR-1,4		
01005	0761	00	0	01033	NOP	CR		
01006	0544	00	0	04457	LCHA	IND19+8		
01007	0640	00	0	04333	SCHA	CSAVE	STORE CONTENTS	DSC
01010	0500	00	0	04333	CLA	CSAVE	CONTENTS	DSC
01011	0560	00	0	04467	LDQ	CK2+3	CORRECT	CONTENTS
01012	0340	00	0	04467	CAS	CK2+3		
01013	0020	00	0	01015	TRA	*+2	ERROR	
01014	0020	00	0	01017	TRA	*+3	OK	
01015	0074	00	4	06503	TSX	ERROR-1,4		
01016	0761	00	0	01033	NOP	CR		
01017	0060	00	0	01017	TCOA	*	WAIT	
01020	0640	00	0	04333	SCHA	CSAVE	STORE CONTENTS	DSC
01021	0500	00	0	04333	CLA	CSAVE	CONTENTS	DSC
01022	0560	00	0	04470	LDQ	CK2+4	CORRECT	CONTENTS
01023	0340	00	0	04470	CAS	CK2+4		
01024	0020	00	0	01026	TRA	*+2	ERROR	
01025	0020	00	0	01030	TRA	*+3	OK	
01026	0074	00	4	06503	TSX	ERROR-1,4		
01027	0761	00	0	01033	NOP	CR		
01030	0074	00	4	06511	TSX	OK,4		
01031	0020	00	0	00741	TRA	CQ		
01032	622330216060				BCD	1SCHA		
01033	0074	00	4	04617	CR	TSX CLEAR,4	SEQUENCE	
01034	0766	00	0	01222	WTBA	2		
01035	0540	00	0	04471	RCHA	CCCC		
01036	0761	00	0	00000	NOP			
01037	0640	00	0	04333	SCHA	CSAVE	STORE CONTENTS	DSC

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01040	0500	00	0	04333	CLA	CSAVE	CONTENTS DSC
01041	0560	00	0	04476	LDQ	CK3	CORRECT CONTENTS
01042	0340	00	0	04476	CAS	CK3	
01043	0020	00	0	01045	TRA	*+2	ERROR
01044	0020	00	0	01050	TRA	*+4	OK
01045	0760	00	0	00141	SLN	1	
01046	0074	00	4	06503	TSX	ERROR-1,4	
01047	0761	00	0	01033	NOP	CR	
01050	-0760	00	0	00141	SLT	1	IF LIGHT IS ON-ERROR
01051	0020	00	0	01054	TRA	*+3	OK-OFF
01052	0074	00	4	04703	TSX	SPLAT,4	
01053	0	00000	0	05235	PZE	L	
01054	0074	00	4	06511	TSX	OK,4	
01055	0020	00	0	01033	TRA	CR	

\*TEST FP TRAP OUT OF MODE

01056	262124406060				BCD	1FAD-	
01057	0074	00	4	04673	CS	TSX PART2,4	TURN ON LITE 4-CLAEAR
01060	0500	00	0	04515	CLA	CTTR1	L TRA SEQ
01061	0601	00	0	00010	STO	8	
01062	0774	00	1	01120	AXT	CT,1	RETURN ADDRESS
01063	0634	00	1	04537	SXA	SECT2,1	STORE RETURN ADDRESS
01064	0500	00	0	04507	CLA	CCNST	L 003304725371
01065	0300	00	0	04510	FAD	CCNST+1	L 035015665047
01066	-0600	00	0	04333	STQ	CSAVE	SAVE MQ
01067	0340	00	0	04511	CAS	CCNST+2	L 030673242370
01070	0020	00	0	01072	TRA	*+2	ERROR
01071	0020	00	0	01075	TRA	*+4	OK
01072	0560	00	0	04511	LDQ	CCNST+2	L 030673242370
01073	0074	00	4	06503	TSX	ERROR-1,4	
01074	0761	00	0	01057	NOP	CS	
01075	0131	00	0	00000	XCA		
01076	0340	00	0	04512	CAS	CCNST+3	L 375472537200
01077	0020	00	0	01101	TRA	*+2	ERROR
01100	0020	00	0	01104	TRA	*+4	OK
01101	0560	00	0	04512	LDQ	CCNST+3	L 375472537200
01102	0074	00	4	06503	TSX	ERROR-1,4	
01103	0761	00	0	01057	NOP	CS	
01104	0020	00	0	01106	TRA	*+2	
01105	264760635147				BCD	1FP TRP	
01106	0500	00	0	00000	CLA	0	TRAP ADDRESS
01107	0340	00	0	04513	CAS	CBIT	CORRECT CONTENTS 0
01110	0020	00	0	01112	TRA	*+2	ERROR
01111	0020	00	0	01115	TRA	*+4	OK
01112	0560	00	0	04513	LDQ	CBIT	CORRECT CONTENTS 0

\*  
\*

01113 0074 00 4 06503 TSX ERROR-1,4  
01114 0761 00 0 01106 NOP \*-6  
01115 0074 00 4 06511 TSX OK,4  
01116 0020 00 0 01057 TRA CS

\*TEST STR OUT OF I/O TRAP MODE

01117 626351406060 BCD 1STR-

01120 0074 00 4 04617 CT TSX CLEAR,4  
01121 0500 00 0 04514 CLA CTTR L TTR CT+4  
01122 0601 00 0 00002 STO 2  
01123 -1 00000 0 00000 STR  
01124 0500 00 0 00000 CLA 0 TRAP ADDRESS  
01125 0340 00 0 04516 CAS CBIT1  
01126 0020 00 0 01130 TRA \*+2 ERROR  
01127 0020 00 0 01132 TRA \*+3 OK  
01130 0560 00 0 04516 LDQ CBIT1  
01131 0074 00 4 06504 TSX ERROR,4  
01132 0074 00 4 06511 TSX OK,4  
01133 0020 00 0 01120 TRA CT

\* ----- \*  
\*-----ENTER DS TRAP MODE-----\*  
\* ----- \*

\* SET IN DS TRAPPING MODE AND TEST THAT STR INSTRUCTION PREFORMS  
\* CORRECTLY . CHECK BOTH STORE AND TRAP FUNCTIONS OF STR OPERATION

01134 626351606060 BCD 1STR

01135 0074 00 4 04617 PNABL TSX CLEAR,4 SET MONITOR  
01136 0564 00 0 04246 ENB CNA+8 SET IN MODE

01137 0774 00 1 00027 PSET AXT 23,1  
01140 0500 00 0 04271 CLA PP2 L TRA P2  
01141 0601 00 1 00030 STO 24,1  
01142 2 00001 1 01141 TIX \*-1,1,1  
01143 0600 00 0 00000 STZ 0  
01144 0500 00 0 04272 CLA PP3 L TRA P3  
01145 0601 00 0 00002 STO 2

\* CHECK STR CORRECT EXECUTION IN MODE  
\* -----

01146 -1 00000 0 00000 STR  
01147 0020 00 0 01150 P1 TRA P2

\* SHOULD NEVER ENTER HERE, BUT IF WE SHOULD  
\* CHECK FOR STORE WHEN FAIL TO TRAP TO 2

\*  
\*

9 I O T A  
8-15-59  
PAGE 17

01150 0500 00 0 00000 P2 CLA 0  
01151 -0320 00 0 04270 ANA P7777 AND IN ADDRESS  
01152 0340 00 0 04266 CAS PZR L P1  
01153 0020 00 0 01155 TRA \*+2  
01154 0020 00 0 01165 TRA P4 STR STORED OK  
BUT FAILED TO TRAP  
01155 0074 00 4 06503 TSX ERROR-1,4 STR FAILED TO STORE OR  
01156 -3 00000 0 01135 TXL PNABL TRAP TO LOC 2

\* SHOULD ENTER HERE AFTER STR INSTRUCTION AT PSTR + 1.  
\* IF SO, CHECK STR FOR STORE AND TRAP TO 2

01157 0500 00 0 00000 P3 CLA 0  
01160 0340 00 0 04266 CAS PZR L P1  
01161 0020 00 0 01163 TRA \*+2 ERROR  
01162 0020 00 0 01165 TRA P4 OK STORE AND TRAP 2

01163 0074 00 4 06503 TSX ERROR-1,4 STR TRAPPED OK BUT  
01164 -3 00000 0 01135 TXL PNABL FAILED TO STORE

\* CHECK LOCATIONS 1,3-27 NOT INTERFERRED BY STR  
\* WHEN IN DS TRAP MODE

01165 0774 00 1 00024 P4 AXT 20,1  
01166 0500 00 0 00001 CLA 1 SHOULD BE TRA TO P2  
01167 0340 00 0 04271 CAS PP2 L TRA P2  
01170 0020 00 0 01172 TRA \*+2  
01171 0020 00 0 01174 TRA P4A

01172 0074 00 4 06503 TSX ERROR-1,4 STR STORED AT LOC 1  
01173 -3 00000 0 01135 TXL PNABL

01174 0500 00 0 04271 P4A CLA PP2 L TRA TO P2  
01175 0340 00 1 00027 CAS 23,1  
01176 0020 00 0 01200 TRA \*+2  
01177 0020 00 0 01202 TRA P4B OK

01200 0074 00 4 06503 TSX ERROR-1,4 STR INTERFERRED WITH  
01201 -3 00000 0 01135 TXL PNABL SOME LOC 3-27

01202 2 00001 1 01175 P4B TIX P4A+1,1,1

01203 0074 00 4 06511 TSX OK,4  
01204 0020 00 0 01135 TRA PNABL

\* CHECK FLOATING POINT TRAP IN MODE WITH NO I-O TRAPS  
\* -----

01205 262124406060 BCD 1FAD- TEST INSTRUCT  
01206 0074 00 4 04673 P5 TSX PART2,4  
01207 0774 00 1 00027 AXT 23,1  
01210 0500 00 0 04274 CLA PP6 L TRA P6

\*  
\*

9 I O T A  
8-15-59  
PAGE 18

01211 0601 00 1 00030 STO 24,1 SET ERROR TRA  
01212 2 00001 1 01211 TIX \*-1,1,1  
01213 0600 00 0 00000 STZ 0  
01214 0500 00 0 04275 CLA PP7 L TRA P7  
01215 0601 00 0 00010 STO 8 SET CORRECT TRA

\* ENTER FLOATING POINT TRAP ROUTINE  
\* SHOULD ALWAYS TRAP

01216 0500 00 0 04507 P5A CLA CCNST L ACC FP NO  
01217 0300 00 0 04510 FAD CCNST+1 L SR FP NO

\* DID NOT TRAP TO 10 CHECK CONTENTS OF 0

01220 0500 00 0 00000 P6 CLA 0  
01221 -0320 00 0 04270 ANA P7777 AND IN ADDRESS  
01222 0340 00 0 04323 CAS PP57 L FP ANS  
01223 0020 00 0 01225 TRA \*+2 ERROR  
01224 0020 00 0 01230 TRA P6A CONTENTS 0 OK

01225 0074 00 4 06503 TSX ERROR-1,4 FAD FAILED TO TRAP AND  
01226 -3 00000 0 01206 TXL P5 STORE AT LOC 0

01227 0020 00 0 01242 TRA P8 SKIP TO CHECK INTERFERE

01230 0074 00 4 06503 P6A TSX ERROR-1,4 FAD FAILT TO TRAP, BUT  
01231 -3 00000 0 01206 TXL P5 STORED AT LOC 0  
01232 0020 00 0 01242 TRA P8 PIGGY-BACK LEAP-FROG

\* SHOULD ENTER HERE AFTER FAD TRAP TO 10  
\* TRAPPED TO 10 OK CHECK STORE AT 0

01233 0500 00 0 00000 P7 CLA 0  
01234 -0320 00 0 04270 ANA P7777 AND IN ADDRESS  
01235 0340 00 0 04273 CAS P5BB  
01236 0020 00 0 01240 TRA \*+2 ERROR ON STORE 0  
01237 0020 00 0 01242 TRA P8 OK ON TRAP AND STORE

01240 0074 00 4 06503 TSX ERROR-1,4 FAD TRAPPED OK, BUT FAILED  
01241 -3 00000 0 01206 TXL P5 STORE AT LOC 0

\* CHECK LOCATIONS 1-7, 11-27 NOT INTERFERRED  
\* BY FAD TRAP WHEN IN DS TRAP MODE

01242 0500 00 0 04274 P8 CLA PP6 L TRA P6  
01243 0601 00 0 00010 STO 8  
01244 0774 00 1 00027 AXT 23,1  
01245 0340 00 1 00030 P8A CAS 24,1  
01246 0020 00 0 01250 TRA \*+2 ERROR  
01247 0020 00 0 01253 TRA P8B OK

01250 0074 00 4 06503 TSX ERROR-1,4 FAD INTERFERRED WITH  
01251 -3 00000 0 01206 TXL P5 SOME LOC 1-27

\*  
\*

9 I O T A  
8-15-59  
PAGE 19

01252 0500 00 0 04274 CLA PP6 L TRA P6

01253 2 00001 1 01245 P8B TIX P8A,1,1

01254 0074 00 4 06511 TSX OK,4

01255 0020 00 0 01206 TRA P5

\* ZERO LOCATION 1-27

01256 432450606060 BCD 1LDQ

01257 0074 00 4 04617 PLDQ TSX CLEAR,4

01260 0774 00 1 00027 AXT 23,1

01261 0600 00 1 00030 P9 STZ 24,1

01262 2 00001 1 01261 TIX P9,1,1

\* CHECK THAT ENABLE INSTRUCTION DOES NOT  
\* ACT AS LDQ INSTRUCTION SINCE THEIR  
\* OPERATIONS CODE DIFFER IN ONLY ONE POSITION  
\* LDQ BEING 0560 AND ENABLE 0564

\*

-----  
01263 0560 00 0 04263 LDQ ZEROS L 0  
01264 0564 00 0 04236 ENB CNA ENABLE FOR COMMAND TRAP  
01265 -0754 00 0 00000 PXD 0,0 CLEAR ACC  
01266 0131 00 0 00000 XCA MQ TO ACC FOR CHECK  
01267 0100 00 0 01271 TZE P10

01270 0074 00 4 06504 TSX ERROR,4 ENABLE ACTED AS LDQ

01271 0074 00 4 06511 P10 TSX OK,4

01272 -3 00000 0 01257 TXL PLDQ

01273 432450606060 BCD 1LDQ

01274 0074 00 4 04617 P10A TSX CLEAR,4

01275 0560 00 0 04370 LDQ CWRIT+13 L 161616161616 IN MQ

01276 0564 00 0 04236 ENB CNA ENABLE FOR COMMAND TRAP

01277 0500 00 0 04305 CLA PP42 L +140321513065

01300 0040 00 0 01302 TLQ \*+2

01301 0020 00 0 01303 TRA P11

01302 0074 00 4 06504 TSX ERROR,4 ENABLE ACTED AS LDQ

01303 0074 00 4 06511 P11 TSX OK,4

01304 -3 00000 0 01274 TXL P10A

\* TEST ENABLE INSTRUCTION WORKS CORRECTLY WHEN INDEXED

\*

01305 254626606060 BCD 1EOF

01306 0074 00 4 04617 P12 TSX CLEAR,4 MONITOR

01307 0074 00 4 03602 TSX SREST,4 FOR RESET ONLY

01310 0074 00 4 00124 TSX SETUP,4

01311 0564 00 0 04263 ENB ZEROS ALL CHANNELS DISABLED

01312 0770 00 0 01202 WEFA 2 SET UP EOF

01313 -0764 00 0 01202 BSFA 2 TRAP CONDITION

\*  
\*

9 I O T A  
8-15-59  
PAGE 20

01314	0762	00	0	01202		RTDA 2	
01315	0540	00	0	04264		RCHA PREAD	READ ONE WORD
01316	0060	00	0	01316		TCOA *	WAIT
01317	0774	00	2	00007		AXT 7,2	L +7 IN XRB
01320	0564	00	2	04245	P13	ENB CNA+7,2	ENABLE EOF TRAP
01321	0020	00	0	01324	PTR	TRA *+3	OK RETURN
01322	0000	00	0	01330		HTR *+6	ERROR RETURN
01323	0000	00	0	01330		HTR *+5	ERROR RETURN
01324	0774	00	2	04236		AXT CNA,2	
01325	0074	01	4	03460		TSX SCHCK,4,1	
01326	0	00004	0	01321		PZE PTR,0,4	
01327	0020	00	0	01330		TRA *+1	
01330	0074	00	4	06511		TSX OK,4	
01331	0020	00	0	01306		TRA P12	

\* TEST ENABLE INSTRUCTION WORKS CORRECTLY WHEN INDIRECTLY ADDRESSED

01332	254626606060					BCD 1EOF	
01333	0074	00	4	04617	P14	TSX CLEAR,4	MONITOR
01334	0564	00	0	04263		ENB ZEROS	ALL CHANNELS DISABLED
01335	0770	00	0	01202		WEFA 2	SET UP EOF
01336	-0764	00	0	01202		BSFA 2	TRAP CONDITION
01337	0762	00	0	01202		RTDA 2	
01340	0540	00	0	04264		RCHA PREAD	READ ONE WORD
01341	0060	00	0	01341		TCOA *	WAIT
01342	0564	60	0	04267	P14A	ENB* P1D	ENABLE FOR EOF TRAP
01343	0020	00	0	01346	P15	TRA *+3	OK RETURN
01344	0000	00	0	01352		HTR *+6	ERROR RETURN
01345	0000	00	0	01352		HTR *+5	ERROR RETURN
01346	0774	00	2	04236		AXT CNA,2	
01347	0074	01	4	03460		TSX SCHCK,4,1	
01350	0	00004	0	01343		PZE P15,0,4	
01351	0020	00	0	01352		TRA *+1	
01352	0074	00	4	06511		TSX OK,4	
01353	0020	00	0	01333		TRA P14	

\* TEST THAT ENABLE INSTRUCTION WORKS CORRECTLY USING  
\* BOTH INDEXING AND INDIRECT ADDRESSING

01354	254626606060					BCD 1EOF	
01355	0074	00	4	04617	P16	TSX CLEAR,4	MONITOR
01356	0564	00	0	04263		ENB ZEROS	ALL CHANNELS DISABLED
01357	0770	00	0	01202		WEFA 2	SET UP EOF
01360	-0764	00	0	01202		BSFA 2	TRAP CONDITION
01361	0762	00	0	01202		RTDA 2	
01362	0540	00	0	04264		RCHA PREAD	READ ONE WORD
01363	0060	00	0	01363		TCOA *	WAIT
01364	0774	00	2	00100		AXT 64,2	

\*  
\*

9 I O T A  
8-15-59  
PAGE 21

01365 0564 60 2 04367 P17 ENB\* P1D+64,2 ENABLE FOR EOF TRAP  
  
01366 0020 00 0 01371 P18 TRA \*+3 OK RETURN  
01367 0000 00 0 01375 HTR \*+6 ERROR RETURN  
01370 0000 00 0 01375 HTR \*+5 ERROR RETURN  
01371 0774 00 2 04236 AXT CNA,2  
01372 0074 01 4 03460 TSX SCHCK,4,1  
01373 0 00004 0 01366 PZE P18,0,4  
01374 0020 00 0 01375 TRA \*+1  
  
01375 0074 00 4 06511 TSX OK,4  
01376 0020 00 0 01355 TRA P16

\* TEST TRAP DOES NOT OCCUR ON RESTORE OUT OF MODE  
\* -----

01377 512562634651 BCD 1RESTOR  
01400 0074 00 4 04617 P24 TSX CLEAR,4  
01401 0564 00 0 04263 ENB ZEROS ALL CHANNELS DISABLED

\* SET UP REDUNDANCY TRAP

01402 0766 00 0 01222 WTBA 2  
01403 0540 00 0 04265 RCHA PRD2 L IOCD TEMP,0,2  
01404 0770 00 0 01202 WEFA 2  
01405 0764 00 0 01202 BSRA 2  
01406 0764 00 0 01202 BSRA 2  
  
01407 0762 00 0 01202 RTDA 2  
01410 0540 00 0 04265 RCHA PRD2 L IOCD TEMP,0,2  
01411 0060 00 0 01411 TCOA \* WAIT HERE MF

\* A REDUNDANCY TRAP REQUEST SHOULD NOW BE WAITING

\* GIVE ENABLE FOR REDUNDANCY AND EOF. EOF NOT YET  
\* REQUESTED, BUT WILL BE SET UP DURING INHIBIT  
\* CONDITION THAT FOLLOWS REDUNDANCY TRAP.

01412 0564 00 0 04240 P25 ENB CNA+2 ENABLE ALL TRAPS-ONE CHAN  
  
01413 0020 00 0 01416 TRA \*+3 OK RETURN  
01414 0000 00 0 01422 HTR \*+6 ERROR RETURN  
01415 0000 00 0 01422 HTR \*+5 ERROR RETURN  
01416 0774 00 2 04240 AXT CNA+2,2  
01417 0074 01 4 03460 TSX SCHCK,4,1  
01420 0 00002 0 01413 PZE P25+1,0,2  
01421 0020 00 0 01422 TRA \*+1  
  
01422 0074 00 4 06511 TSX OK,4  
01423 0020 00 0 01400 TRA P24

\* NOW, SET UP EOF TRAP REQUEST WHILE INHIBITED

01424 512562634651 BCD 1RESTOR  
01425 0074 00 4 04617 P26 TSX CLEAR,4 MONITOR



\*  
\*

9 I O T A  
8-15-59  
PAGE 22

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01426 0564 00 0 04263          ENB ZEROS          ALL CHANNELS DISABLED

01427 0762 00 0 01222          RTBA 2
01430 0540 00 0 04264          RCHA PREAD        L IOCD TEMP,0,1
01431 0060 00 0 01431          TCOA *            WAIT HER MF

*      DISABLE NOW AND GIVE RESTOR OUT OF MODE
*      TO MAKE SURE THAT RESTOR INEFFECTIVE OUT OF MODE

01432 0564 00 0 04263          ENB ZEROS          ALL CHANNELS DISABLED

01433 0760 00 0 00014 P27    RCT                GIVEN OUT OF MODE

*      NOW, ENABLE TO SEE THAT EOF TRAP REQUEST WAITING

01434 0564 00 0 04240 P28    ENB CNA+2          ENABLE ALL TRAPS-SAME CHAN

01435 0020 00 0 01440          TRA *+3           OK RETURN
01436 0000 00 0 01444          HTR *+6           ERROR RETURN
01437 0000 00 0 01444          HTR *+5           ERROR RETURN
01440 0774 00 2 04240          AXT CNA+2,2
01441 0074 01 4 03460          TSX SCHCK,4,1
01442 0 00004 0 01435          PZE P28+1,0,4
01443 0020 00 0 01444          TRA *+1

01444 0764 00 0 01202          BSRA 2
01445 0074 00 4 06511          TSX OK,4
01446 0020 00 0 01425          TRA P26

*      TEST THAT WHEN INHIBITED THE INSTRUCTION WHICH
*      FOLLOWS THE NEXT RESTOR OR CORRECT ENABLE INSTRUCTION
*      WILL ALWAYS BE PREFORMED BEFORE TRAP OCCURS.

01447 452567636060
01450 0074 00 4 04617 P29    TSX CLEAR,4       MONITOR
01451 0564 00 0 04263          ENB ZEROS          ALL CHANNELS DISABLED

01452 0766 00 0 01222          WTBA 2
01453 0540 00 0 04265          RCHA PRD2         L IOCD TEMP,0,2
01454 0770 00 0 01202          WEFA 2
01455 0764 00 0 01202          BSRA 2
01456 0764 00 0 01202          BSRA 2

01457 0762 00 0 01202          RTDA 2
01460 0540 00 0 04265          RCHA PRD2         L IOCD TEMP,0,2
01461 0060 00 0 01461          TCOA *            WAIT HERE IN MF

01462 0564 00 0 04240 P30    ENB CNA+2          ENABLE ALL TRAPS-SAME CHAN

01463 0020 00 0 01466          TRA *+3           OK RETURN
01464 0000 00 0 01472          HTR *+6           ERROR RETURN
01465 0000 00 0 01472          HTR *+5           ERROR RETURN
01466 0774 00 2 04240          AXT CNA+2,2
01467 0074 01 4 03460          TSX SCHCK,4,1
01470 0 00002 0 01463          PZE P30+1,0,2
01471 0020 00 0 01472          TRA *+1
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\*  
\*

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01472 0074 00 4 06511      TSX OK,4
01473 0020 00 0 01450      TRA P29

01474 452567636060
01475 0074 00 4 04617 P31  TSX CLEAR,4      MONITOR

01476 0762 00 0 01222      RTBA 2
01477 0540 00 0 04264      RCHA PREAD      L IOCD TEMP,0,1
01500 0060 00 0 01500      TCOA *          WAIT HERE MF

01501 0760 00 0 00014      RCT              OBTAIN RDNCY TRAP
01502 0761 00 0 00000 P31A  NOP              EOF TRAP

01503 0020 00 0 01506      TRA *+3          CORRECT RETURN
01504 0000 00 0 01512      HTR *+6          ERROR RETURN
01505 0000 00 0 01512      HTR *+5          ERROR RETURN
01506 0774 00 2 04240      AXT CNA+2,2
01507 0074 01 4 03460      TSX SCHCK,4,1
01510 0 00004 0 01503      PZE P31A+1,0,4
01511 0020 00 0 01512      TRA *+1

01512 0764 00 0 01202      BSRA 2           BKSP OVER EOF IF REPEAT
01513 0074 00 4 06511      TSX OK,4
01514 0020 00 0 01475      TRA P31

*      CHECK THAT DS TRAP FOLLOWS CORRECT SEQUENCE OF OPERATIONS
*      WHEN USING DIFFERENT TYPE OF OPERATIONS
*      AT EXECUTION LOCATION
*      -----

01515 216763606060
01516 0074 00 4 04617 P32  TSX CLEAR,4      MONITOR
01517 0564 00 0 04263      ENB ZEROS        ALL CHANNELS DISABLED

01520 0770 00 0 01202      WEFA 2           SET UP EOF
01521 -0764 00 0 01202      BSFA 2           TRAP CONDITION
01522 0762 00 0 01202      RTDA 2
01523 0540 00 0 04264      RCHA PREAD      READ ONE WORD
01524 0060 00 0 01524      TCOA *

01525 0564 00 0 04236 P32A  ENB CNA          ENABLE FOR EOF TRAP

01526 0020 00 0 01531      TRA *+3          OK RETURN
01527 0000 00 0 01535      HTR *+6          ERROR RETURN
01530 0000 00 0 01535      HTR *+5          ERROR RETURN
01531 0774 00 2 04236      AXT CNA,2
01532 0074 01 4 03460      TSX SCHCK,4,1
01533 0 00004 0 01526      PZE P32A+1,0,4
01534 0020 00 0 01535      TRA *+1          OK

01535 0074 00 4 06511      TSX OK,4
01536 0020 00 0 01516      TRA P32

01537 635121606060
01540 0074 00 4 04617 P32B  TSX CLEAR,4      MONITOR
```

\*  
\*

01541	0564	00	0	04263		ENB ZEROS	ALL CHANNELS DISABLED
01542	0770	00	0	01202		WEFA 2	SET UP EOF
01543	-0764	00	0	01202		BSFA 2	TRAP CONDITION
01544	0762	00	0	01202		RTDA 2	
01545	0540	00	0	04264		RCHA PREAD	READ ONE WORD
01546	0060	00	0	01546		TCOA *	
01547	0500	00	0	04300		CLA PP33	L TRA TO P33
01550	0601	00	0	00013		STO 11	OCT 13 EXECUTE ON TRAP
01551	0601	00	0	00015		STO 13	OCT 15 EXECUTE ON TRAP
01552	0601	00	0	00017		STO 15	OCT 17 EXECUTE ON TRAP
01553	0601	00	0	00021		STO 17	OCT 21 EXECUTE ON TRAP
01554	0601	00	0	00023		STO 19	OCT 23 EXECUTE ON TRAP
01555	0601	00	0	00025		STO 21	OCT 25 EXECUTE ON TRAP
01556	0564	00	0	04236	P32C	ENB CNA	ENABLE FOR EOF TRAP
01557	0074	00	4	06504		TSX ERROR,4	DID NOT PREFORM TRA AT EXECUTE LOCATION
01560	0074	00	4	06511	P33	TSX OK,4	TRA RETURN OK
01561	-3	00000	0	01540		TXL P32B	
01562	672523606060					BCD 1XEC	
01563	0074	00	4	04617	P34	TSX CLEAR,4	MONITOR
01564	0564	00	0	04263		ENB ZEROS	ALL CHANNELS DISABLED
01565	0770	00	0	01202		WEFA 2	SET UP EOF
01566	-0764	00	0	01202		BSFA 2	TRA CONDITION
01567	0762	00	0	01202		RTDA 2	
01570	0540	00	0	04264		RCHA PREAD	READ ONE WORD
01571	0060	00	0	01571		TCOA *	
01572	0500	00	0	04276		CLA PP31	L XEC PP34
01573	0601	00	0	00013		STO 11	OCT 13 EXECUTE ON TRAP
01574	0601	00	0	00015		STO 13	OCT 15 EXECUTE ON TRAP
01575	0601	00	0	00017		STO 15	OCT 17 EXECUTE ON TRAP
01576	0601	00	0	00021		STO 17	OCT 21 EXECUTE ON TRAP
01577	0601	00	0	00023		STO 19	OCT 23 EXECUTE ON TRAP
01600	0601	00	0	00025		STO 21	OCT 25 EXECUTE ON TRAP
01601	0564	00	0	04236	P35	ENB CNA	ENABLE FOR EOF TRAP
01602	0020	00	0	01605		TRA *+3	CORRECT RETURN - IF EC 298774A HAS BEEN MADE
01603	0000	00	0	01605		HTR *+2	ERROR RETURN - BUT WILL RETURN HERE IF EC 298784A HAS NOT BEEN INSTALLED
01604	0000	00	0	01605		HTR *+1	ERROR RETURN
01605	0560	00	0	04262		LDQ ONES	
01606	0340	00	0	04262		CAS ONES	
01607	0020	00	0	01611		TRA *+2	ERROR
01610	0020	00	0	01613		TRA *+3	OK
01611	0074	00	4	06503		TSX ERROR-1,4	
01612	0761	00	0	01563		NOP P34	

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01613	0074	00	4	06511		TSX OK, 4	
01614	0020	00	0	01563		TRA P34	
01615	672523606060					BCD 1XEC	
01616	0074	00	4	04617	P36	TSX CLEAR, 4	MONITOR
01617	0564	00	0	04263		ENB ZEROS	ALL CHANNELS DISABLED
01620	0770	00	0	01202		WEFA 2	SET UP EOF
01621	-0764	00	0	01202		BSFA 2	TRAP CONDITION
01622	0762	00	0	01202		RTDA 2	
01623	0540	00	0	04264		RCHA PREAD	READ ONE WORD
01624	0060	00	0	01624		TCOA *	
01625	0500	00	0	04277		CLA PP32	L XEC PP38
01626	0601	00	0	00013		STO 11	OCT 13 EXECUTED ON TRAP
01627	0601	00	0	00015		STO 13	OCT 15 EXECUTED ON TRAP
01630	0601	00	0	00017		STO 15	OCT 17 EXECUTED ON TRAP
01631	0601	00	0	00021		STO 17	OCT 21 EXECUTED ON TRAP
01632	0601	00	0	00023		STO 19	OCT 23 EXECUTED ON TRAP
01633	0601	00	0	00025		STO 21	OCT 25 EXECUTED ON TRAP
01634	0564	00	0	04236	P37	ENB CNA	ENABLE FOR EOF TRAP
01635	0074	00	4	06504		TSX ERROR, 4	XEC TO TRA INSTRUCTION FAILED, ON TRAP
01636	0074	00	4	06511	P38	TSX OK, 4	CORRECT RETURN
01637	-3 00000	00	0	01616		TXL P36	FROM TRAP USING XEC TO TRA INST
01640	432431606060					BCD 1LDI	
01641	0074	00	4	04617	P39	TSX CLEAR, 4	MONITOR
01642	0564	00	0	04263		ENB ZEROS	ALL CHANNELS DISABLED
01643	0770	00	0	01202		WEFA 2	SET UP EOF
01644	-0764	00	0	01202		BSFA 2	TRAP CONDITION
01645	0762	00	0	01202		RTDA 2	
01646	0540	00	0	04264		RCHA PREAD	READ ONE WORD
01647	0060	00	0	01647		TCOA *	
01650	0500	00	0	04303		CLA PP40	L LDI ONES
01651	0601	00	0	00013		STO 11	OCT 13 EXECUTED ON TRAP
01652	0601	00	0	00015		STO 13	OCT 15 EXECUTED ON TRAP
01653	0601	00	0	00017		STO 15	OCT 17 EXECUTED ON TRAP
01654	0601	00	0	00021		STO 17	OCT 21 EXECUTED ON TRAP
01655	0601	00	0	00023		STO 19	OCT 23 EXECUTED ON TRAP
01656	0601	00	0	00025		STO 21	OCT 25 EXECUTED ON TRAP
01657	0441	00	0	04263		LDI ZEROS	
01660	0564	00	0	04236	P40	ENB CNA	ENABLE FOR EOF TRAP
01661	0020	00	0	01664		TRA *+3	CORRECT RETURN
01662	0000	00	0	01664		HTR *+2	ERROR RETURN
01663	0000	00	0	01664		HTR *+1	ERROR RETURN

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01664	0446	00	0	04262		ONT ONES	
01665	0020	00	0	01667		TRA *+2	ERROR
01666	0020	00	0	01670		TRA P41	OK
01667	0074	00	4	06504		TSX ERROR,4	LDI FAILED TO EXECUTE ON EOF TRAP
01670	0074	00	4	06511	P41	TSX OK,4	
01671	-3	00000	0	01641		TXL P39	
01672	262124406060					BCD 1FAD-	TEST INSTRUCTION
01673	0074	00	4	04617	P42	TSX CLEAR,4	MONITOR
01674	0564	00	0	04263		ENB ZEROS	ALL CHANNELS DISABLED
01675	0770	00	0	01202		WEFA 2	SET UP EOF
01676	-0764	00	0	01202		BSFA 2	TRAP CONDITION
01677	0762	00	0	01202		RTDA 2	
01700	0540	00	0	04264		RCHA PREAD	READ ONE WORD
01701	0060	00	0	01701		TCOA *	
01702	0500	00	0	04304		CLA PP41	L FAD PP42
01703	0601	00	0	00013		STO 11	OCT 13 EXECUTED ON TRAP
01704	0601	00	0	00015		STO 13	OCT 15 EXECUTED ON TRAP
01705	0601	00	0	00017		STO 15	OCT 17 EXECUTED ON TRAP
01706	0601	00	0	00021		STO 17	OCT 21 EXECUTED ON TRAP
01707	0601	00	0	00023		STO 19	OCT 23 EXECUTED ON TRAP
01710	0601	00	0	00025		STO 21	OCT 25 EXECUTED ON TRAP
01711	0500	00	0	04324		CLA PP58	
01712	0601	00	0	00010		STO 8	L TRA P43
01713	0500	00	0	04507		CLA CCNST	L FP ACC NO
01714	0564	00	0	04236	P43	ENB CNA	ENABLE FOR EOF TRAP
01715	0020	00	0	01721		TRA P43A	
01716	0000	00	0	01721		HTR P43A	ERROR RETURN
01717	0000	00	0	01721		HTR P43A	ERROR RETURN
01720	0000	00	0	01721		HTR P43A	ERROR RETURN
01721	0560	00	0	04307	P43A	LDQ PP44	
01722	0340	00	0	04307		CAS PP44	FAD ANS
01723	0020	00	0	01725		TRA *+2	ERROR
01724	0020	00	0	01727		TRA *+3	OK
01725	0074	00	4	06503		TSX ERROR-1,4	ERROR
01726	0761	00	0	01673		NOP P42	
01727	0074	00	4	06511		TSX OK,4	
01730	0020	00	0	01673		TRA P42	
01731	672523672523					BCD 1XECXEC	
01732	0074	00	4	04617	P43B	TSX CLEAR,4	MONITOR
01733	0564	00	0	04263		ENB ZEROS	ALL CHANNELS DISABLED
01734	0770	00	0	01202		WEFA 2	SET UP EOF
01735	-0764	00	0	01202		BSFA 2	TRAP CONDITION
01736	0762	00	0	01202		RTDA 2	
01737	0540	00	0	04264		RCHA PREAD	READ ONE WORD
01740	0060	00	0	01740		TCOA *	

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01741	0500	00	0	04310		CLA PP45	L FAD PP46
01742	0601	00	0	00013		STO 11	OCT 13 EXECUTED ON TRAP
01743	0601	00	0	00015		STO 13	OCT 15 EXECUTED ON TRAP
01744	0601	00	0	00017		STO 15	OCT 17 EXECUTED ON TRAP
01745	0601	00	0	00021		STO 17	OCT 21 EXECUTED ON TRAP
01746	0601	00	0	00023		STO 19	OCT 23 EXECUTED ON TRAP
01747	0601	00	0	00025		STO 21	OCT 25 EXECUTED ON TRAP
01750	0564	00	0	04236	P44	ENB CNA	ENABLE FOR EOF TRAP
01751	0020	00	0	01763		TRA P44A	CORRECT RETURN - IF EC 298784A HAS BEEN MADE
01752	0000	00	0	01763		HTR P44A	ERROR RETURN - BUT WILL RETURN HERE IF EC 298784A HAS NOT BEEN INSTALLED
01753	0000	00	0	01763		HTR P44A	
01754	0000	00	0	01763		HTR P44A	
01755	0000	00	0	01763		HTR P44A	
01756	0000	00	0	01763		HTR P44A	
01757	0000	00	0	01763		HTR P44A	
01760	0000	00	0	01763		HTR P44A	
01761	0000	00	0	01763		HTR P44A	
01762	0000	00	0	01763		HTR P44A	
01763	0560	00	0	04262	P44A	LDQ ONES	
01764	0340	00	0	04262		CAS ONES	
01765	0020	00	0	01767		TRA *+2	ERROR
01766	0020	00	0	01771		TRA P45	OK
01767	0074	00	4	06503		TSX ERROR-1,4	ERROR
01770	0761	00	0	01732		NOP P43B	
01771	0074	00	4	06511	P45	TSX OK,4	
01772	0020	00	0	01732		TRA P43B	
01773	472263606060					BCD 1PBT	SKIP TEST
01774	0074	00	4	04617	P46	TSX CLEAR,4	MONITOR
01775	0564	00	0	04263		ENB ZEROS	ALL CHANNELS DISABLED
01776	0770	00	0	01202		WEFA 2	SET UP EOF
01777	-0764	00	0	01202		BSFA 2	TRAP CONDITION
02000	0762	00	0	01202		RTDA 2	
02001	0540	00	0	04264		RCHA PREAD	READ ONE WORD
02002	0060	00	0	02002		TCOA *	
02003	0500	00	0	04316		CLA PP51	L PBT
02004	0601	00	0	00013		STO 11	OCT 13 EXECUTED ON TRAP
02005	0601	00	0	00015		STO 13	OCT 15 EXECUTED ON TRAP
02006	0601	00	0	00017		STO 15	OCT 17 EXECUTED ON TRAP
02007	0601	00	0	00021		STO 17	OCT 21 EXECUTED ON TRAP
02010	0601	00	0	00023		STO 19	OCT 23 EXECUTED ON TRAP
02011	0601	00	0	00025		STO 21	OCT 25 EXECUTED ON TRAP
02012	-0500	00	0	04262		CAL ONES	ONE IN P

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02013 0564 00 0 04236 P47 ENB CNA ENABLE FOR EOF TRAP  
02014 0000 00 0 02021 HTR P48 ERROR RETURNS  
02015 0020 00 0 02021 TRA P48 OK RETURN  
02016 0000 00 0 02021 HTR P48  
02017 0000 00 0 02021 HTR P48  
02020 0000 00 0 02021 HTR P48  
02021 0074 00 4 06511 P48 TSX OK,4  
02022 0020 00 0 01774 TRA P46

\* TEST THAT FLOATING POINT TRAP TAKES PRIORITY  
\* OVER CHANNEL TRAPS WHEN THEY OCCUR AT SAME TIME

02023 262124254626 BCD 1FADEOF  
02024 0074 00 4 04617 P49 TSX CLEAR,4 TRAP EXPECTED  
02025 0074 00 4 03602 TSX SREST,4  
02026 0074 00 4 00124 TSX SETUP,4 RESET I/O TRIGGERS  
02027 0564 00 0 04263 ENB ZEROS ALL CHANNELS DISABLED

\* WRITE IN BINARY MODE AND READ IN DECIMAL MODE  
\* TO SET UP REDUNDANCY TRAP REQUEST. THEN, WHILE  
\* INHIBITED, SET UP EOF TRAP SIGNAL AND INITIATE  
\* A DEMAND FOR EOF TRAP AND FLOATING POINT TRAP AT  
\* THE SAME TIME.

02030 0766 00 0 01222 WTBA 2  
02031 0540 00 0 04265 RCHA PRD2 L IOCD TEMP,0,2  
02032 0770 00 0 01202 WEFA 2  
02033 0764 00 0 01202 BSRA 2  
02034 0764 00 0 01202 BSRA 2  
02035 0762 00 0 01202 RTDA 2  
02036 0540 00 0 04265 RCHA PRD2 L IOCD TEMP,0,2  
02037 0060 00 0 02037 TCOA \* MF WAIT HERE

\* INITIATE REDUNDANCY TRAP

02040 0564 00 0 04240 P50 ENB CNA+2 ENABLE ALL TRAPS-ONE CHAN  
02041 0020 00 0 02044 TRA \*+3 CORRECT RETURN  
02042 0000 00 0 02050 HTR \*+6 ERROR RETURN  
02043 0000 00 0 02050 HTR \*+5 ERROR RETURN  
02044 0774 00 2 04240 AXT CNA+2,2  
02045 0074 01 4 03460 TSX SCHCK,4,1  
02046 0 00002 0 02041 PZE P50+1,0,2  
02047 0020 00 0 02050 TRA \*+1  
02050 0762 00 0 01222 P51 RTBA 2 ASK FOR EOF TRAP  
02051 0540 00 0 04264 RCHA PREAD L IOCD TEMP,0,1  
02052 0060 00 0 02052 TCOA \* MF WAIT HERE  
02053 0500 00 0 04322 CLA PP56 L TRA P52  
02054 0601 00 0 00010 STO 8 FP TRAP RETURN

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9 I O T A  
8-15-59  
PAGE 29

02055 0500 00 0 04507           CLA CCNST           L ACC FP NO  
02056 0760 00 0 00014 P51A RCT           OBTAIN TRAP DURING FP TRAP  
02057 0300 00 0 04510 P51B FAD CCNST+1       L SR FP NO

\*       SHOULD NOT ENTER HERE. SHOULD RETURN  
\*       TO P52. A RETURN HERE INDICATES A RETURN  
\*       FROM THE EOF TRAP.

02060 0020 00 0 02063           TRA \*+3           DS TRAP RETURN  
02061 0000 00 0 02067           HTR \*+6           ERROR RETURN  
02062 0000 00 0 02067           HTR \*+5           ERROR RETURN  
02063 0774 00 2 04240           AXT CNA+2,2  
02064 0074 01 4 03460           TSX SCHCK,4,1  
02065 0 00004 2 02060           PZE P51B+1,2,4  
02066 0020 00 0 02067           TRA \*+1  
  
02067 0074 00 4 04703           TSX SPLAT,4  
02070 0 00000 0 05245           PZE M

\*       SHOULD ENTER HERE AFTER EXECUTING RESTOR  
\*       AND FAD INSTRUCTIONS, CAUSING TRAP TO 10  
\*       AND TRA TO P52. FLOATING POINT TRAP TAKING  
\*       PRIORITY OVER DS TRAPS

02071 0560 00 0 04323 P52   LDQ PP57       L 030673242370  
02072 0340 00 0 04323           CAS PP57       L FP ANS  
02073 0020 00 0 02075           TRA \*+2       ERROR  
02074 0020 00 0 02077           TRA P54       OK  
02075 0074 00 4 06503           TSX ERROR-1,4  
02076 0761 00 0 02024           NOP P49

02077 0760 00 0 00014 P54 RCT  
02100 0761 00 0 00000 P55 NOP

02101 0020 00 0 02104           TRA \*+3       OK RETURN  
02102 0000 00 0 02110           HTR \*+6       ERROR RETURN  
02103 0000 00 0 02110           HTR \*+5       ERROR RETURN  
02104 0774 00 2 04240           AXT CNA+2,2  
02105 0074 01 4 03460           TSX SCHCK,4,1  
02106 0000 04 0 00010           HTR 8,0,4  
02107 0020 00 0 02110           TRA \*+1

02110 0074 00 4 06511           TSX OK,4       OK  
02111 0020 00 0 02024           TRA P49

\* TEST COMPLETION OF INSTRUCTION BEING EXECUTED WHEN TRAP OCCURS  
\* AT EXECUTE

02112 672523606060           BCD 1XEC

02113 0074 00 4 04617 SXEC TSX CLEAR,4   MONITOR  
02114 0074 00 4 00124           TSX SETUP,4   RESET I/O TRIGGERS



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02115	0564	00	0	04263	ENB ZEROS	DISABLE ALL CHANNELS
02116	0770	00	0	01202	WEFA 2	CONDITION
02117	-0764	00	0	01202	BSFA 2	FOR
02120	0762	00	0	01202	RTDA 2	END OF FILE
02121	0540	00	0	04264	RCHA PREAD	TRAP
02122	0754	00	0	00000	PXA 0,0,0	CLEAR ACC
02123	0060	00	0	02123	TCOA *	DELAY
02124	0564	00	0	04236	ENB CNA	ENABLE FOR END OF FILE TRAP
02125	0522	00	0	04325	XEC PP59	CLA ALL ONES
02126	0020	00	0	02131	TRA *+3	CORRECT RETURN IF EC298784A HAS BEEN INSTALLED
02127	0000	00	0	02131	HTR *+2	ERROR RETURN - BUT WILL RETURN HERE IF EC 298784A HAS NOT BEEN INSTALLED
02130	0000	00	0	02131	HTR *+1	ERROR RETURN
02131	0774	00	2	04236	AXT CNA,2	
02132	0074	01	4	03460	TSX SCHCK,4,1	GO TO CHECK TRAP
02133	0000	04	0	02125	HTR *-6,0,4	CORRECT INFORMATION FOR TRAP LOCATION
02134	0020	00	0	02135	TRA *+1	
02135	0340	00	0	04262	CAS ONES	CHECK IF EXECUTE COMPLETED OPERATION BEFORE TRAP
02136	0020	00	0	02140	TRA *+2	ERROR
02137	0020	00	0	02145	TRA *+6	OK
02140	0560	00	0	04262	LDQ ONES	L ALL ONES IN MQ
02141	0074	00	4	06503	TSX ERROR-1,4	
02142	0761	00	0	02113	NOP SXEC	
02143	0074	00	4	04703	TSX SPLAT,4	INSTRUCTION BEING EXECUTED AT TIME TRAP OCCURRED
02144	0	00000	0	05256	PZE SA	FAILED TO COMPLETE OPERATION
02145	0074	00	4	06511	TSX OK,4	
02146	0020	00	0	02113	TRA SXEC	

\*THIS SECTION WILL TEST THAT ONE ENABLE RESETS THE  
\*PREVIOUS ENABLE, SO THAT IT NO LONGER HAS ANY AFFECT.

\*A TEST WILL ALSO BE PREFORMED TO SEE THAT LCH GINVEN  
\*IN TIME DOES NOT TRAP.

02147	254521224325				BCD 1ENABLE	
02150	0074	00	4	04617	CU TSX CLEAR,4	CHECK SEQUENCE
02151	0074	00	4	00124	TSX SETUP,4	RESET I/O TRIGGERS
02152	0500	00	0	04226	CLA STRA1	L TRA SAA
02153	0601	00	0	00000	STO 0	POST RESTART
02154	0564	00	0	04236	ENB CNA	ENABLE FOR COMMAND TRAP
02155	0766	00	0	01222	WTBA 2	WRITE ONE RECORD-BINARY

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02156	0540	00	0	04522	RCHA CALL	IOCT-WC2
02157	0544	00	0	04523	LCHA CALL+1	IOST-WC2
02160	0544	00	0	04524	LCHA CALL+2	IOCT-WC2
02161	0544	00	0	04525	LCHA CALL+3	IOST-WC2
02162	0544	00	0	04526	LCHA CALL+4	IORT-WC6.
02163	0544	00	0	04263	LCHA ZEROS	
02164	0020	00	0	02166	TRA *+2	
02165	0000	00	0	02171	HTR *+4	
02166	0774	00	2	04236	AXT CNA, 2	
02167	0074	01	4	03460	TSX SCHCK, 4, 1	OUT TO CHECK FOR TRAP
02170	0000	00	2	00000	HTR 0, 2, 0	
02171	0020	00	0	02174	TRA *+3	OK
02172	0074	00	4	04703	TSX SPLAT, 4	SPACE PRINTER AND
02173	0	00000	0	05273	PZE N	

02174	0074	00	4	06511	TSX OK, 4	
02175	0020	00	0	02150	TRA CU	

\*THIS SECTION WILL TEST EACH TYPE OF TRAP INDIVIDUALLY

02176	635121476260				BCD 1TRAPS		
02177	0074	00	4	04617	CV	TSX CLEAR, 4	CHECK SEQUENCE
02200	0074	00	4	00124		TSX SETUP, 4	RESET I/O TRIGGERS
02201	0564	00	0	04236		ENB CNA	ENABLE FOR COMMAND TRPA
02202	0766	00	0	01222		WTBA 2	
02203	0540	00	0	04522		RCHA CALL	IOCT-WC2
02204	0060	00	0	02204		TCOA *	SHOULD TRAP HERE
02205	0020	00	0	02207		TRA *+2	
02206	0000	00	0	02212		HTR *+4	IN CASE OF IC FAILURE
02207	0774	00	2	04236		AXT CNA, 2	ENABLE Y LOCATION
02210	0074	01	4	03460		TSX SCHCK, 4, 1	OUT TO CHECK TRAP
02211	0000	01	0	02204		HTR *-5, 0, 1	THE TRAP ADDRESS SHOULD CONTAIN THIS INFORMATION
02212	0020	00	0	02215		TRA *+3	OK
02213	0074	00	4	04703		TSX SPLAT, 4	SPACE PRINTER-ERROR
02214	0	00000	0	05307		PZE P	
02215	0074	00	4	06511		TSX OK, 4	
02216	0020	00	0	02177		TRA CV	
02217	635121476260					BCD 1TRAPS	

\* TEST FOR EOF TRAP

02220	0074	00	4	04617	CW	TSX CLEAR, 4	
02221	0074	00	4	00124		TSX SETUP, 4	RESET I/O TRIGGERS
02222	0564	00	0	04236		ENB CNA	ENABLE FOR EOF TRAP

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02223	0766	00	0	01222	WTBA 2	
02224	0540	00	0	04347	RCHA CFCTL+8	IOCD-WC2
02225	0770	00	0	01202	WEFA 2	
02226	0764	00	0	01202	BSRA 2	BKSPACE OVER EOF
02227	0764	00	0	01202	BSRA 2	BACKSPACE ONE RECORD
02230	0762	00	0	01222	RTBA 2	
02231	0540	00	0	04330	RCHA CRTB	READ RECORD
02232	0762	00	0	01222	RTBA 2	READ EOF
02233	0774	00	1	07777	AXT 4095,1	IF NO TRAP OCCURS PROGRAM
02234	3	00100	1	02234	TXH *,1,64	WILL REMAIN AT THIS LOC
02235	0020	00	0	02237	TRA *+2	
02236	0000	00	0	02242	HTR *+4	IN CASE OF IC FAILURE
02237	0774	00	2	04236	AXT CNA,2	ENABLE Y LOCATION
02240	0074	01	4	03460	TSX SCHCK,4,1	OUT TO CHECK TRAP
02241	0000	04	0	02234	HTR *-5,0,4	THE TRAP ADDRESS SHOULD CONTAIN THIS INFORMATION
02242	0020	00	0	02245	TRA *+3	OK
02243	0074	00	4	04703	TSX SPLAT,4	
02244	0	00000	0	05321	PZE Q	
02245	0074	00	4	06511	TSX OK,4	
02246	0020	00	0	02220	TRA CW	
02247	635121476260				BCD 1TRAPS	
*					TEST FOR REDUNDANCY TRAP	
02250	0074	00	4	04617	CX TSX CLEAR,4	
02251	0074	00	4	00124	TSX SETUP,4	RESET I/O TRIGGERS
02252	0564	00	0	04237	ENB CNA+1	ENABLE FOR EOF TRAP
02253	0766	00	0	01222	WTBA 2	
02254	0540	00	0	04517	RCHA CWTB	WRITE ONE WORD-BINARY
02255	0766	00	0	01202	WTDA 2	
02256	0540	00	0	04520	RCHA CWTB+1	WRITE ONE WORD-BCD
02257	0764	00	0	01202	BSRA 2	BACKSPACE OVER 1 RECORD
02260	0764	00	0	01202	BSRA 2	BACKSPACE OVER 1 RECORD
02261	0074	00	4	06560	TSX RDNCK,4	CHECK FOR REDUNDANCY
02262	0761	00	0	02250	NOP CX	
02263	0600	00	0	04372	STZ CRDFD+1	
02264	0762	00	0	01222	RTBA 2	READ BOTH RECORDS-BINARY
02265	0540	00	0	04414	RCHA CHECK+5	READ ONE WORD RECORD
02266	0544	00	0	04521	LCHA CWTB1	READ ONE WORD RECORD 2ND RECORD SHOULD TRAP AND DISCONNECT WITHOUT TRANSMITTING WORD
02267	0774	00	1	07777	AXT 4095,1	IF NO TRAP OCCURS PROGRAM
02270	3	00100	1	02270	TXH *,1,64	WILL REMAIN AT THIS LOC
02271	0774	00	2	04237	AXT CNA+1,2	

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02272	0074	01	4	03460	TSX SCHCK,4,1	OUT TO CHECK TRAP
02273	0000	02	0	02270	HTR *-3,0,2	THE TRAP ADDRESS SHOULD CONTAIN THIS INFORMATION
02274	0020	00	0	02277	TRA *+3	OK
02275	0074	00	4	04703	TSX SPLAT,4	
02276	0	00000	0	05332	PZE R	
02277	0774	00	2	00002	AXT 2,2	SET UP
02300	0500	00	0	04256	CLA ONE	SET UP
02301	0601	00	0	06556	STO WDNO	ERROR
02302	0754	00	2	00000	PXA 0,2	ROUTINE
02303	0400	00	0	04256	ADD ONE	CONSTANT
02304	0601	00	0	06557	STO RECNO	
02305	0500	00	0	04371	CLA CRDFD	WORD READ
02306	0560	00	0	04353	LDQ CWRIT	CORRECT WORD
02307	0340	00	0	04353	CAS CWRIT	
02310	0020	00	0	02312	TRA *+2	ERROR
02311	0020	00	0	02314	TRA *+3	OK
02312	0074	00	4	06502	TSX ERROR-2,4	
02313	0761	00	0	02250	NOP CX	
02314	2	00001	2	02315	TIX *+1,2,1	
02315	0500	00	0	04372	CLA CRDFD+1	WORD READ
02316	0560	00	0	04263	LDQ ZEROS	CORRECT WORD
02317	0340	00	0	04263	CAS ZEROS	
02320	0020	00	0	02322	TRA *+2	ERROR
02321	0020	00	0	02324	TRA *+3	OK
02322	0074	00	4	06502	TSX ERROR-2,4	ERROR HERE INDICATES
02323	0761	00	0	02250	NOP CX	THAT WORD WAS TRANSMITTED AFTER REDUNDANCY

\*THIS SECTION WILL TEST THAT ENABLE WITH ZERO  
\*RESETS THE PREVIOUS ENABLE INSTRUCTION AND THAT  
\*A TRAP WILL NOT OCCUR

02324	0760	00	0	00014	RCT	TURN OFF INHIBIT TRIGGER
02325	0764	00	0	01202	BSRA 2	GET BACK TO
02326	0764	00	0	01202	BSRA 2	BEGINNING
02327	0762	00	0	01222	RTBA 2	
02330	0540	00	0	04414	RCHA CHECK+5	READ TO GET
02331	0544	00	0	04521	LCHA CWTB1	REDUNDANCY CHECK
02332	0774	00	1	07777	AXT 4095,1	IF NO TRAP OCCURS PROGRAM
02333	3	00100	1	02333	TXH *,1,64	WILL REMAIN AT THIS LOC
02334	0020	00	0	02336	TRA *+2	
02335	0000	00	0	02341	HTR *+4	IN CASE OF IC FAILURE
02336	0774	00	2	04237	AXT CNA+1,2	
02337	0074	01	4	03460	TSX SCHCK,4,1	OUT TO CHECK FOR TRAP THE TRAP ADDRESS SHOULD CONTAIN THIS INFORMATION
02340	0000	02	0	02333	HTR *-5,0,2	

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02341	0020	00	0	02344	TRA *+3	OK
02342	0074	00	4	04703	TSX SPLAT,4	
02343	0	00000	0	05343	PZE S	
*TEST THAT ENABLE WITH 0 RESETS PREVIOUS ENABLE						
02344	0074	00	4	00124	TSX SETUP,4	RESET I/O TRIGGERS
02345	0564	00	0	04247	ENB CNA+9	ENABLE WITH ZERO
02346	0764	00	0	01202	BSRA 2	BACKSPACE TWO
02347	0764	00	0	01202	BSRA 2	RECORDS
02350	0762	00	0	01222	RTBA 2	
02351	0540	00	0	04414	RCHA CHECK+5	READ ONE RECORD
02352	0544	00	0	04521	LCHA CWTB1	READ REDUNDANCY RECORD
02353	0060	00	0	02353	TCOA *	
02354	0020	00	0	02356	TRA *+2	
02355	0000	00	0	02361	HTR *+4	IN CASE OF IC FAILURE
02356	0774	00	2	04247	AXT CNA+9,2	
02357	0074	01	4	03460	TSX SCHCK,4,1	OUT TO CHECK FOR TRAP THE TRAP ADDRESS SHOULD CONTAIN THIS INFORMATION
02360	0000	02	2	02353	HTR *-5,2,2	
02361	0020	00	0	02364	TRA *+3	OK
02362	0074	00	4	04703	TSX SPLAT,4	
02363	0	00000	0	05355	PZE T	
02364	0074	00	4	06511	TSX OK,4	
02365	0020	00	0	02250	TRA CX	
*THIS SECTION TESTS THAT ONE TRAPS INHIBITS ANOTHER AND ALL TRAPS *ON ONE CHANNEL AT THE SAME TIME WILL INDICATE AFTER ENABLE						
02366	635121476260				BCD 1TRAPS	
02367	0074	00	4	04617	CZ TSX CLEAR,4	
02370	0074	00	4	00124	TSX SETUP,4	RESET I/O TRIGGERS
02371	0766	00	0	01202	WTDA 2	WRITE 1 WORD RECORD BCD
02372	0540	00	0	04517	RCHA CWTB	
02373	0764	00	0	01202	BSRA 2	
02374	0564	00	0	04240	ENB CNA+2	ENABLE ALL TRAPS-ONE CHAN
02375	0762	00	0	01222	RTBA 2	READ RECORD
02376	0540	00	0	04521	RCHA CWTB1	IN BINARY TO FORCE TRAP
02377	0774	00	1	07777	AXT 4095,1	IF NO TRAP OCCURS PROGRAM
02400	3	00100	1	02400	TXH *,1,64	WILL REMAIN AT THIS LOC
02401	0020	00	0	02403	TRA *+2	
02402	0000	00	0	02406	HTR *+4	
02403	0774	00	2	04240	AXT CNA+2,2	
02404	0074	01	4	03460	TSX SCHCK,4,1	OUT TO CHECK FOR TRAP

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02405	0000	02	0	02400	HTR *-5,0,2	CONTAIN THIS INFORMATION
02406	0020	00	0	02411	TRA *+3	OK
02407	0074	00	4	04703	TSX SPLAT,4	
02410	0	00000	0	05367	PZE U	
02411	0766	00	0	01222	WTBA 2	WRITE ONE WORD IN BINARY
02412	0540	00	0	04517	RCHA CWTB	
02413	0766	00	0	01202	WTDA 2	WRITE ONE WORD IN DECIMAL
02414	0540	00	0	04520	RCHA CWTB+1	
02415	0770	00	0	01202	WEFA 2	WRITE EOF
02416	0764	00	0	01202	BSRA 2	BACKSPACE OVER EOF
02417	0764	00	0	01202	BSRA 2	BACKSPACE OVER BCD RECORD
02420	0762	00	0	01222	RTBA 2	READ BCD IN BINARY
02421	0540	00	0	04521	RCHA CWTB1	FOR RDNCY TRAP-IOCD WC 1
02422	0762	00	0	01222	RTBA 2	READ EOF
02423	0540	00	0	04521	RCHA CWTB1	IOCD-WC 1
02424	0766	00	0	01222	WTBA 2	WRITE ONE WORD
02425	0540	00	0	04504	RCHA CRTB3	IOCT-WC 2 NO LCH SHOULD BRING UP COMMAND TRAP
02426	0060	00	0	02426	TCOA *	IF DESIRED-PLACE HTR HERE TO GIVE VISUAL CHECK FOR ALL TRAPS BEING UP
02427	0771	00	0	00115	ARS 77	DELAY FOR ALL TRAPS
02430	0564	00	0	04240	ENB CNA+2	ENABLE ALL TRAPS-ONE CHAN
02431	0020	00	0	02433	TRA *+2	
02432	0000	00	0	02436	HTR *+4	
02433	0774	00	2	04240	AXT CNA+2,2	
02434	0074	01	4	03460	TSX SCHCK,4,1	OUT TO CHECK FOR TRAP
02435	0000	07	0	02433	HTR *-2,0,7	TRAP ADDRESS SHOULD CONTAIN THIS INFORMATION
02436	0020	00	0	02441	TRA *+3	OK
02437	0074	00	4	04703	TSX SPLAT,4	
02440	0	00000	0	05400	PZE V	
02441	0074	00	4	06511	TSX OK,4	
02442	0020	00	0	02367	TRA CZ	
*THIS SECTION WILL TEST THAT ENABLE AFTER TRAP INDICATION						
*WILL TRAP IMMEDIATELY AND FUTURE TRAPS ARE INHIBITED						
02443	635121476260				BCD 1TRAPS	
02444	0074	00	4	04617	CZA TSX CLEAR,4	
02445	0074	00	4	00124	TSX SETUP,4	RESET I/O TRIGGERS
02446	0766	00	0	01222	WTBA 2	

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02447	0540	00	0	04524	RCHA CALL+2	IOCT-WC2
02450	0770	00	0	01202	WEFA 2	SHOULD NOT TRAP-ALL TRAP CONDITIONS WERE RESET BY LAST ENABLE
02451	0020	00	0	02453	TRA *+2	
02452	0000	00	0	02456	HTR *+4	
02453	0774	00	2	04247	AXT CNA+9, 2	
02454	0074	01	4	03460	TSX SCHCK, 4, 1	OUT TO CHECK FOR TRAP
02455	0000	01	2	02450	HTR *-5, 2, 1	
02456	0020	00	0	02461	TRA *+3	OK
02457	0074	00	4	04703	TSX SPLAT, 4	
02460	0	00000	0	05411	PZE W	
02461	0764	00	0	01202	BSRA 2	BACKSPACE. TWO
02462	0764	00	0	01202	BSRA 2	RECORDS
02463	0762	00	0	01222	RTBA 2	
02464	0540	00	0	04330	RCHA CRTB	READ TWO WORDS
02465	0762	00	0	01222	RTBA 2	
02466	0540	00	0	04330	RCHA CRTB	READ EOF
02467	0060	00	0	02467	TCOA *	
02470	0564	00	0	04240	ENB CNA+2	ENABLE ALL TRAPS-ONE CHAN
02471	0020	00	0	02473	TRA *+2	SHOULD TRAP HERE
02472	0000	00	0	02476	HTR *+4	
02473	0774	00	2	04236	AXT CNA, 2	
02474	0074	01	4	03460	TSX SCHCK, 4, 1	OUT TO CHECK FOR TRAP
02475	0000	04	0	02471	HTR *-4, 0, 4	
02476	0020	00	0	02500	TRA *+2	OK
02477	0761	00	0	00000	NOP	
02500	0766	00	0	01222	WTBA 2	
02501	0540	00	0	04477	RCHA CIOC	2OCT-WC1
02502	0060	00	0	02502	TCOA *	COMAMND TRAP CONDITIONED BUT SHOULD BE INHIBITED
02503	0020	00	0	02505	TRA *+2	
02504	0000	00	0	02510	HTR *+4	
02505	0774	00	2	04237	AXT CNA+1, 2	
02506	0074	01	4	03460	TSX SCHCK, 4, 1	OUT TO CHECK FOR TRAP
02507	0000	01	2	02502	HTR *-5, 2, 1	
02510	0020	00	0	02513	TRA *+3	OK
02511	0074	00	4	04703	TSX SPLAT, 4	
02512	0	00000	0	05426	PZE X	
02513	0074	00	4	06511	TSX OK, 4	
02514	0020	00	0	02444	TRA CZA	
*THIS SECTION WILL TEST THAT NO TRAP OCCURS UNTIL						
*AFTER EXECUTING THE INSTRUCTION FOLLOWING A SELECT						
02515	254521224325				BCD 1ENABLE	
02516	0074	00	4	04617	CZB TSX CLEAR, 4	CHECK SEQUENCE
02517	0074	00	4	00124	TSX SETUP, 4	RESET I/O TRIGGERS
02520	0564	00	0	04236	ENB CNA	ENABLE FOR COMMAND TRAP
02521	0766	00	0	01222	WTBA 2	

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9 I O T A  
8-15-59  
PAGE 37

02522	0540	00	0	04500	RCHA	CIOC+1	IORT-WC1
02523	0060	00	0	02523	TCOA	*	GET TRAP HERE
02524	0760	00	0	00014	RCT		TURN OFF INHIBIT TRIGGER
02525	0766	00	0	01202	WTDA	2	
02526	0540	00	0	04501	RCHA	CIOC+2	IOST-WC1
02527	0761	00	0	00000	NOP		
02530	0766	00	0	01202	WTDA	2	SHOULD NOT COME BACK FOR LCH FOR APPROX. 36 US
02531	0540	00	0	04352	RCHA	CWRIT-1	IOCD-WC 2
02532	0020	00	0	02534	TRA	*+2	SHOULD TRAP AT THIS LOC.
02533	0000	00	0	02537	HTR	*+4	IN CASE OF IC FAILURE
02534	0774	00	2	04236	AXT	CNA, 2	
02535	0074	01	4	03460	TSX	SCHCK, 4, 1	OUT TO CHECK TRAP
02536	0000	01	0	02532	HTR	*-4, 0, 1	
02537	0020	00	0	02542	TRA	*+3	OK
02540	0074	00	4	04703	TSX	SPLAT, 4	
02541	0	00000	0	05440	PZE	Y	
02542	0764	00	0	01202	BSRA	2	BACKUP 1 RECORD
02543	0762	00	0	01202	RTDA	2	READ BCD
02544	0540	00	0	04330	RCHA	CRTB	IOCD-WC2
02545	0060	00	0	02545	TCOA	*	
02546	0500	00	0	04260	CLA	THREE	SET UP
02547	0601	00	0	06556	STO	WDNO	PRINT
02550	0601	00	0	06557	STO	RECNO	ROUTINE
02551	0774	00	3	00002	AXT	2, 3	CONSTANTS
02552	0500	00	1	04373	CLA	CREAD+2, 1	WORD READ
02553	0560	00	1	04371	LDQ	CWRIT+14, 1	CORRECT WORD
02554	0340	00	1	04371	CAS	CWRIT+14, 1	
02555	0020	00	0	02557	TRA	*+2	ERROR
02556	0020	00	0	02563	TRA	*+5	OK
02557	0074	00	4	06502	TSX	ERROR-2, 4	
02560	0761	00	0	02444	NOP	CZA	
02561	0074	00	4	04703	TSX	SPLAT, 4	
02562	-0	00000	0	05452	MZE	Z	
02563	2	00001	2	02564	TIX	*+1, 2, 1	
02564	2	00001	1	02552	TIX	*-10, 1, 1	
02565	0074	00	4	06511	TSX	OK, 4	
02566	0020	00	0	02516	TRA	CZB	
02567	635121476260				BCD	1TRAPS	
02570	0074	00	4	04617	CZZ	TSX CLEAR, 4	CHECK SEQUENCE
02571	0074	00	4	00124	TSX	SETUP, 4	RESET I/O TRIGGERS
02572	0564	00	0	04236	ENB	CNA	ENABLE FOR EOF TRAP
02573	0770	00	0	01202	WEFA	2	WRITE EOF
02574	0764	00	0	01202	BSRA	2	BACKUP OVER TM
02575	0762	00	0	01222	RTBA	2	SHOULD HIT EOF HERE
02576	0766	00	0	01222	WTBA	2	SHOULD NOT TRAP HERE
02577	0020	00	0	02601	TRA	*+2	SHOULD NOT TRAP HERE
02600	0000	00	0	02604	HTR	*+4	



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9 I O T A  
8-15-59  
PAGE 38

02601	0774	00	2	04236	AXT CNA,2	SHOULD TRAP HERE
02602	0074	01	4	03460	TSX SCHCK,4,1	
02603	0000	04	0	02601	HTR *-2,0,4	
02604	0020	00	0	02607	TRA *+3	OK
02605	0074	00	4	04703	TSX SPLAT,4	
02606	0	00000	0	07713	PZE AA	
02607	0074	00	4	06511	TSX OK,4	
02610	0020	00	0	02570	TRA CZZ	

\*THIS SECTION TEST THAT TRA AND RDNCK AND TRA AND EOF  
\*WILL ACT AS NOPS IF ENABLED FOR THESE CONDITIONS  
\*ALSO THAT A SELECT WILL NOT RESET THE COMMAND DISC  
\*TRG IF ENABLED FOR COMMAND DISC

02611	454647626060				BCD 1NOPS	TEST CONDITION
02612	0074	00	4	04617	NOPS TSX CLEAR,4	
02613	0074	00	4	00124	TSX SETUP,4	
02614	0564	00	0	04240	ENB CNA+2	ENABLE ALL TRAPS-ONE CHAN
02615	0766	00	0	01222	WTBA 2	
02616	0540	00	0	04504	RCHA CRTB3	IOCT - WC 2 - TO BRING UP
02617	0060	00	0	02617	TCOA *	TRAP AND INHIBIT
02620	0770	00	0	01202	WEFA 2	WRITE EOF
02621	0764	00	0	01202	BSRA 2	OVER EOF
02622	0764	00	0	01202	BSRA 2	OVER RECORD
02623	0762	00	0	01202	RTDA 2	READ IN BCD TO FORCE RDNCK
02624	0540	00	0	04521	RCHA CWTB1	IOCD - WC 1
02625	0762	00	0	01202	RTDA 2	READ EOF
02626	0540	00	0	04521	RCHA CWTB1	IOCD - WC 1
02627	0766	00	0	01222	WTBA 2	
02630	0540	00	0	04504	RCHA CRTB3	TOCT - WC 2
02631	0030	00	0	02633	TEFA *+2	SHOULD ACT AS NOP
02632	0020	00	0	02635	TRA *+3	OK
02633	0074	00	4	06503	TSX ERROR-1,4	TEF SHOULD ACT AS NOP IF
02634	-3	00000	0	02612	TXL NOPS	ENBALED AND RDNCK TRG IS ON
02635	0022	00	0	02637	TRCA *+2	SHOULD ACT AS NOP
02636	0020	00	0	02641	TRA *+3	OK
02637	0074	00	4	06503	TSX ERROR-1,4	TCR SHOULD ACT AS NOP IF
02640	-3	00000	0	02612	TXL NOPS	ENBALED AND EOF TRG SI ON
02641	0766	00	0	01222	WTBA 2	SELECT TO SEE THAT IT
02642	0540	00	0	04352	RCHA CWRTIT-1	DOES NOT TURN OFF COMM DISC
02643	0060	00	0	02643	TCOA *	
02644	0760	00	0	00014	RCT	SHOULD INDICATE ALL TRAPS
02645	0761	00	0	00000	NOP	
02646	0020	00	0	02650	TRA *+2	SHOULD TRAP HERE
02647	0000	00	0	02653	HTR *+4	
02650	0774	00	2	04240	AXT CNA+2,2	
02651	0074	01	4	03460	TSX SCHCK,4,1	OUT TO CHECK TRAP

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9 I O T A  
8-15-59  
PAGE 39

02652	0000	07	0	02646	HTR *-4,0,7	
02653	0020	00	0	02656	TRA *+3	NO ERROR
02654	0074	00	4	04703	TSX SPLAT,4	
02655	0	00000	0	07745	PZE AC	
02656	0074	00	4	06511	TSX OK,4	
02657	0020	00	0	02612	TRA NOPS	

\*THIS SECTION TEST THAT ALL TRAP INDICATORS ARE TURNED  
\*OFF WHEN A CORRESPONDING TRAP OCCURS

02660	635121476260				BCD 1TRAPS	TEST CONDITION
02661	0074	00	4	04617	CZC TSX CLEAR,4	CHECK SEQUENCE
02662	0074	00	4	00124	TSX SETUP,4	RESET I/O TRIGGERS
02663	0766	00	0	01202	WTDA 2	WRITE THREE WORDS BCD
02664	0540	00	0	04347	RCHA CFCTL+8	
02665	0770	00	0	01202	WEFA 2	WRITE EOF
02666	0764	00	0	01202	BSRA 2	BACKSPACE OVER EOF
02667	0764	00	0	01202	BSRA 2	BACKSPACE OVER RECORD
02670	0762	00	0	01222	RTBA 2	
02671	0540	00	0	04521	RCHA CWTB1	CONDITION RDNCK-IOCD WC 1
02672	0762	00	0	01222	RTBA 2	
02673	0540	00	0	04521	RCHA CWTB1	CONDITION EOF-IOCD WC 1
02674	0766	00	0	01222	WTBA 2	
02675	0540	00	0	04504	RCHA CRTB3	IOCT WC 2 CONDITIONS COMMAND
02676	0060	00	0	02676	TCOA *	
02677	0564	00	0	04240	ENB CNA+2	ENABLE ALL TRAPS-ONE CHAN
02700	0761	00	0	00000	NOP	
02701	0564	00	0	04263	ENB ZEROS	ALL CHANNELS DISABLED
02702	0030	00	0	02704	TEFA *+2	SHOULD NOT BE ON
02703	0020	00	0	02706	TRA *+3	OK
02704	0074	00	4	06503	TSX ERROR-1,4	ERROR - TRAP SHOULD HAVE RESET EOF TRIGGER
02705	-3	00000	0	02661	TXL CZC	
02706	0022	00	0	02710	TRCA *+2	SHOULD NOT BE ON
02707	0020	00	0	02712	TRA *+3	OK
02710	0074	00	4	06503	TSX ERROR-1,4	ERROR - TRAP SHOULD HAVE RESET RDNCK TRIGGER
02711	-3	00000	0	02661	TXL CZC	
02712	0774	00	2	04247	AXT CNA+9,2	
02713	0074	01	4	03460	TSX SCHCK,4,1	OUT TO CHECK TRAP
02714	0000	07	0	02700	HTR *-12,0,7	
02715	0020	00	0	02720	TRA *+3	NO ERROR

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9 I O T A  
8-15-59  
PAGE 40

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02716 0074 00 4 04703  OMG    TSX SPLAT,4 ERROR
02717 0 00000 0 07730          PZE AB

02720 0074 00 4 06511          TSX OK,4
02721 0020 00 0 02661          TRA CZC
02722 0761 00 0 00000          NOP

02723 -0500 00 0 04121          CAL SMSK+2    L 777777777770
02724 0320 00 0 02733          ANS S1ULN    CLEAR CHANNEL
02725 -0500 00 0 02253          CAL CX+3     L SELECT
02726 -0320 00 0 04122          ANA SMSK+3   AND WITH 000000007000
02727 0771 00 0 00011          ARS 9
02730 -0602 00 0 02733          ORS S1ULN

02731 0074 00 4 04703          TSX SPLAT,4
02732 -0 00001 0 00007          MZE 7,0,1
02733 602330456021          S1ULN BCD 5 CHN A    SINGLE CHANNEL OPERAT
02734 606060623145
02735 274325602330
02736 214545254360
02737 464725512163
02740 314645602346          BCD 2ION COMPLETE
02741 444743256325

02742 0074 00 4 03342  SCTX   TSX SCAN,4    GO TO SET SCAN ROUTINE
02743 0 00000 0 02253          PZE CX+3     LOC OF SELECT FOR SCAN
02744 0074 00 4 05512          TSX CTX,4    GO TO ADJUST PROGRAM
02745 0 02716 0 00114          PZE ALF,0,OMG MODIFICATION AREA
02746 0074 00 4 03354          TSX SCAN1,4  GO TO SCAN FOR TSX SCHCK,4
02747 0 02716 0 00114          PZE ALF,0,OMG SCAN AREA
02750 0020 00 0 00112          TRA SAC

02751 0500 00 0 04506          CLA TRA     L TRA 1,4
02752 0601 00 0 02700          STO CZC+15
02753 0074 00 4 02674          TSX CZC+11,4 RETURN TO TURN ON INHIBIT TGR
02754 0500 00 0 01502          CLA P31A    L NOP
02755 0601 00 0 02700          STO CZC+15  RESTORE NOP
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\* MULTI-CHANNEL OPERATION

\*THIS SECTION WILL TEST MULTI-CHANNEL

\*OPERATION FOR SEQUENCE TRAPS

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02756 0020 00 0 02761          TRA *+3     SKIP BCD WORD
02757 0020 00 0 02661          TRA CZC

02760 622550606347          BCD 1SEQ TP

02761 0074 00 4 04617  CZIB   TSX CLEAR,4
02762 -0520 00 0 05504          NZT CTRA    TAPE CHANNEL A
02763 0020 00 0 02770          TRA *+5     NO
02764 -0760 00 0 01000          ET'TA
02765 0074 00 2 03325          TSX SREW,2  GO TO REWIND ALL UNITS
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02766	0766	00	0	01222	WTBA 2	
02767	0540	00	0	04517	RCHA CWTB	IOCD-WC 1
02770	-0520	00	0	05505	NZT CTRA+1	TAPE CHANNEL B
02771	0020	00	0	02776	TRA *+5	NO
02772	-0760	00	0	02000	ETTB	
02773	0074	00	2	03325	TSX SREW,2	GO REWIND ALL UNITS
02774	0766	00	0	02222	WTBB 2	
02775	-0540	00	0	04517	RCHB CWTB	IOCD-WC 1
02776	-0520	00	0	05506	NZT CTRA+2	TAPE CHANNEL C
02777	0020	00	0	03004	TRA *+5	NO
03000	-0760	00	0	03000	ETTC	
03001	0074	00	2	03325	TSX SREW,2	GO REWIND ALL UNITS
03002	0766	00	0	03222	WTBC 2	
03003	0541	00	0	04517	RCHC CWTB	IOCD-WC 1
03004	-0520	00	0	05507	NZT CTRA+3	TAPE CHANNEL D
03005	0020	00	0	03012	TRA *+5	NO
03006	-0760	00	0	04000	ETTD	
03007	0074	00	2	03325	TSX SREW,2	GO REWIND ALL UNITS
03010	0766	00	0	04222	WTBD 2	
03011	-0541	00	0	04517	RCHD CWTB	IOCD-WC 1
03012	-0520	00	0	05510	NZT CTRA+4	TAPE CHANNEL E
03013	0020	00	0	03020	TRA *+5	NO
03014	-0760	00	0	05000	ETTE	
03015	0074	00	2	03325	TSX SREW,2	GO REWIND ALL UNITS
03016	0766	00	0	05222	WTBE 2	
03017	0542	00	0	04517	RCHE CWTB	IOCD-WC 1
03020	-0520	00	0	05511	NZT CTRA+5	TAPE CHANNEL F
03021	0020	00	0	03026	TRA *+5	NO
03022	-0760	00	0	06000	ETTF	
03023	0074	00	2	03325	TSX SREW,2	GO REWIND ALL UNITS
03024	0766	00	0	06222	WTBF 2	
03025	-0542	00	0	04517	RCHF CWTB	IOCD-WC 1
*TEST FOR WRITING EOF						
03026	-0520	00	0	05504	NZT CTRA	
03027	0020	00	0	03033	TRA *+4	
03030	0770	00	0	01202	WEFA 2	WRITE EOF
03031	0764	00	0	01202	BSRA 2	
03032	0764	00	0	01202	BSRA 2	
03033	-0520	00	0	05505	NZT CTRA+1	
03034	0020	00	0	03040	TRA *+4	
03035	0770	00	0	02202	WEFB 2	AND
03036	0764	00	0	02202	BSRB 2	

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03037	0764	00	0	02202	BSRB	2	
03040	-0520	00	0	05506	NZT	CTRA+2	
03041	0020	00	0	03045	TRA	*+4	
03042	0770	00	0	03202	WEFC	2	BACKSPACE
03043	0764	00	0	03202	BSRC	2	
03044	0764	00	0	03202	BSRC	2	
03045	-0520	00	0	05507	NZT	CTRA+3	
03046	0020	00	0	03052	TRA	*+4	
03047	0770	00	0	04202	WEFD	2	OVER EOF
03050	0764	00	0	04202	BSRD	2	
03051	0764	00	0	04202	BSRD	2	
03052	-0520	00	0	05510	NZT	CTRA+4	
03053	0020	00	0	03057	TRA	*+4	
03054	0770	00	0	05202	WEFE	2	AND BINARY
03055	0764	00	0	05202	BSRE	2	
03056	0764	00	0	05202	BSRE	2	
03057	-0520	00	0	05511	NZT	CTRA+5	
03060	0020	00	0	03064	TRA	*+4	
03061	0770	00	0	06202	WEFF	2	RECORD
03062	0764	00	0	06202	BSRF	2	
03063	0764	00	0	06202	BSRF	2	

\*BRING UP ALL TRAP CONDITIONS FOR ALL CHANNELS SELECTED

03064	-0520	00	0	05504	NZT	CTRA	
03065	0020	00	0	03074	TRA	*+7	SKIP TO NEXT CHANNEL
03066	0762	00	0	01202	RTDA	2	READ BINARY RECORD
03067	0540	00	0	04521	RCHA	CWTB1	IOCD-WC 1
03070	0762	00	0	01222	RTBA	2	READ EOF
03071	0540	00	0	04521	RCHA	CWTB1	IOCD-WC 1
03072	0766	00	0	01222	WTBA	2	CONDITION COMMAND DISC
03073	0540	00	0	04504	RCHA	CRTB3	IOCT-WC 2
03074	-0520	00	0	05505	NZT	CTRA+1	
03075	0020	00	0	03104	TRA	*+7	SKIP TO NEXT CHANNEL
03076	0762	00	0	02202	RTDB	2	READ BINARY RECORD
03077	-0540	00	0	04521	RCHB	CWTB1	IOCD-WC 1
03100	0762	00	0	02222	RTBB	2	READ EOF
03101	-0540	00	0	04521	RCHB	CWTB1	IOCD-WC 1
03102	0766	00	0	02222	WTBB	2	CONDITION COMMAND DISC
03103	-0540	00	0	04504	RCHB	CRTB3	IOCT-WC 2
03104	-0520	00	0	05506	NZT	CTRA+2	
03105	0020	00	0	03114	TRA	*+7	SKIP TO NEXT CHANNEL
03106	0762	00	0	03202	RTDC	2	READ BINARY RECORD
03107	0541	00	0	04521	RCHC	CWTB1	IOCD-WC 1
03110	0762	00	0	03222	RTBC	2	READ EOF
03111	0541	00	0	04521	RCHC	CWTB1	IOCD-WC 1
03112	0766	00	0	03222	WTBC	2	CONDITION COMMAND DISC
03113	0541	00	0	04504	RCHC	CRTB3	IOCT-WC 2

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03114	-0520	00	0	05507	NZT CTRA+3	
03115	0020	00	0	03124	TRA *+7	SKIP TO NEXT CHANNEL
03116	0762	00	0	04202	RTDD 2	READ BINARY RECORD
03117	-0541	00	0	04521	RCHD CWTB1	IOCD-WC 1
03120	0762	00	0	04222	RTBD 2	READ EOF
03121	-0541	00	0	04521	RCHD CWTB1	IOCD-WC 1
03122	0766	00	0	04222	WTBD 2	CONDITION COMMAND DISC
03123	-0541	00	0	04504	RCHD CRTB3	IOCT-WC 2
03124	-0520	00	0	05510	NZT CTRA+4	
03125	0020	00	0	03134	TRA *+7	SKIP TO NEXT CHANNEL
03126	0762	00	0	05202	RTDE 2	READ BINARY RECORD
03127	0542	00	0	04521	RCHE CWTB1	IOCD-WC 1
03130	0762	00	0	05222	RTBE 2	READ EOF
03131	0542	00	0	04521	RCHE CWTB1	IOCD-WC 1
03132	0766	00	0	05222	WTBE 2	CONDITION COMMAND DISC
03133	0542	00	0	04504	RCHE CRTB3	IOCT-WC 2
03134	-0520	00	0	05511	NZT CTRA+5	
03135	0020	00	0	03144	TRA *+7	SKIP TO NEXT CHANNEL
03136	0762	00	0	06202	RTDF 2	READ BINARY RECORD
03137	-0542	00	0	04521	RCHF CWTB1	IOCD-WC 1
03140	0762	00	0	06222	RTBF 2	READ EOF
03141	-0542	00	0	04521	RCHF CWTB1	IOCD-WC 1
03142	0766	00	0	06222	WTBF 2	CONDITION COMMAND DISC
03143	-0542	00	0	04504	RCHF CRTB3	IOCT-WC 2
03144	0060	00	0	03144	TCOA *	WAIT
03145	0061	00	0	03145	TCOB *	FOR
03146	0062	00	0	03146	TCOC *	ALL
03147	0063	00	0	03147	TCOD *	CHANNELS
03150	0064	00	0	03150	TCOE *	TO
03151	0065	00	0	03151	TCOF *	STOP
03152	0074	00	4	03602	TSX SREST,4	RESET TRAP LOCATIONS
*ENABLE ALL CHANNELS, ALL TRAPS AND SEQUENCE						
03153	-0520	00	0	05504	NZT CTRA	CHANNEL A
03154	0020	00	0	03166	TRA *+10	NO
03155	0564	00	0	04246	ENB CNA+8	SHOULD OBTAIN COMMAND TRAP
03156	0761	00	0	00000	NOP	REDUNDANCY TRAP, AND EOF
03157	0020	00	0	03161	TRA *+2	TRAP HERE
03160	0000	00	0	03166	HTR *+6	
03161	0774	00	2	04246	AXT CNA+8,2	
03162	0074	01	4	03460	TSX SCHCK,4,1	CHECK TRAPS
03163	0000	07	0	03157	HTR *-4,0,7	
03164	0020	00	0	03166	TRA *+2	
03165	0760	00	0	00141	SLN 1	TURN ON LITE ONE IF ERROR
03166	-0520	00	0	05505	NZT CTRA+1	CHANNEL B
03167	0020	00	0	03201	TRA *+10	NO
03170	0564	00	0	04246	ENB CNA+8	OBTAIN TRAPS ON CHAN B
03171	0761	00	0	00000	NOP	SHOULD GET ALL
03172	0020	00	0	03174	TRA *+2	TRAPS HERE

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03173	0000	00	0	03201	HTR	*+6	
03174	0774	00	2	04246	AXT	CNA+8,2	
03175	0074	02	4	03460	TSX	SCHCK,4,2	CHECK TRAPS
03176	0000	07	0	03172	HTR	*-4,0,7	
03177	0020	00	0	03201	TRA	*+2	
03200	0760	00	0	00141	SLN	1	LITE ONE IF ERROR
03201	-0520	00	0	05506	NZT	CTRA+2	CHANNEL C
03202	0020	00	0	03214	TRA	*+10	NO
03203	0564	00	0	04246	ENB	CNA+8	OBTAIN TRAPS ON CHAN C
03204	0761	00	0	00000	NOP		SHOULD GET ALL
03205	0020	00	0	03207	TRA	*+2	TRAPS HERE
03206	0000	00	0	03214	HTR	*+6	
03207	0774	00	2	04246	AXT	CNA+8,2	
03210	0074	04	4	03460	TSX	SCHCK,4,4	
03211	0000	07	0	03205	HTR	*-4,0,7	
03212	0020	00	0	03214	TRA	*+2	
03213	0760	00	0	00141	SLN	1	LITE ONE ON-IF ERROR
03214	-0520	00	0	05507	NZT	CTRA+3	CHANNEL D
03215	0020	00	0	03227	TRA	*+10	NO
03216	0564	00	0	04246	ENB	CNA+8	OBTAIN TRAPS ON CHAN D
03217	0761	00	0	00000	NOP		SHOULD GET ALL
03220	0020	00	0	03222	TRA	*+2	TRAPS HERE
03221	0000	00	0	03227	HTR	*+6	
03222	0774	00	2	04246	AXT	CNA+8,2	
03223	0074	10	4	03460	TSX	SCHCK,4,8	
03224	0000	07	0	03220	HTR	*-4,0,7	
03225	0020	00	0	03227	TRA	*+2	
03226	0760	00	0	00141	SLN	1	LITE ONE ON-IF ERROR
03227	-0520	00	0	05510	NZT	CTRA+4	CHANNEL E
03230	0020	00	0	03242	TRA	*+10	NO
03231	0564	00	0	04246	ENB	CNA+8	OBTAIN TRAPS ON CHAN E
03232	0761	00	0	00000	NOP		SHOULD GET ALL
03233	0020	00	0	03235	TRA	*+2	TRAPS HERE
03234	0000	00	0	03242	HTR	*+6	
03235	0774	00	2	04246	AXT	CNA+8,2	
03236	0074	20	4	03460	TSX	SCHCK,4,16	
03237	0000	07	0	03233	HTR	*-4,0,7	
03240	0020	00	0	03242	TRA	*+2	
03241	0760	00	0	00141	SLN	1	LITE ONE ON IF ERROR
03242	-0520	00	0	05511	NZT	CTRA+5	CHANNEL F
03243	0020	00	0	03255	TRA	*+10	NO
03244	0564	00	0	04246	ENB	CNA+8	OBTAIN TRAPS ON CHAN E
03245	0761	00	0	00000	NOP		SHOULD GET ALL
03246	0020	00	0	03250	TRA	*+2	TRAPS HERE
03247	0000	00	0	03255	HTR	*+6	
03250	0774	00	2	04246	AXT	CNA+8,2	
03251	0074	40	4	03460	TSX	SCHCK,4,32	
03252	0000	07	0	03246	HTR	*-4,0,7	

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03253	0020	00	0	03255	TRA	++2	
03254	0760	00	0	00141	SLN	1	LITE ONE IF ERROR
03255	-0760	00	0	00141	SLT	1	TEST FOR ERROR
03256	0020	00	0	03275	TRA	++15	NO ERROR
03257	0074	00	4	04703	TSX	SPLAT,4	
03260	0	00001	0	00014	PZE	12,0,1	
03261	212246652560				BCD	6ABOVE	ERRORS OCCURRED WHILE TRYING T
03262	255151465162						
03263	604623236451						
03264	512524606630						
03265	314325606351						
03266	703145276063						
03267	466062255064				BCD	60	SEQUENCE TRAPS ON ALL CHANNELS
03270	254523256063						
03271	512147626046						
03272	456021434360						
03273	233021454525						
03274	436260606060						
03275	0074	00	4	06511	TSX	OK,4	
03276	0020	00	0	02761	TRA	CZIB	
03277	0761	00	0	00000	NOP		
03300	0074	00	4	04703	SPAS1	TSX	SPLAT,4
03301	-0	00006	0	00007	MZE	7,0,6	
03302	113146636040				BCD	59IOT	- PASS COMPLETE ON ALL UN
03303	604721626260						
03304	234644474325						
03305	632560464560						
03306	214343606445						
03307	316362602321				BCD	2ITS	CALLED
03310	434325246060						
03311	0760	00	0	00165	CZIC	SWT	5 TEST SWITCH 5
03312	0020	00	0	03314	TRA	++2	UP-TEST SWITCH 6
03313	0020	00	0	00065	TRA	RUC	DOWN - REPEAT WITHOUT 9IOM HALT
03314	0760	00	0	00166	SWT	6	
03315	0020	00	0	03317	TRA	++2	UP-CALL NEXT PROGRAM
03316	0020	00	0	00046	TRA	CBEGN	REPEAT AFTER HALT TO ENTER KEYS
03317	0074	00	2	03325	TSX	SREW,2	GO TO REWIND ALL UNITS
03320	0	00000	0	00000	FINL1	PZE	** READ SELECT NEXT PROGRAM
03321	0540	00	0	03324	RCHA	++3	
03322	0544	00	0	00000	LCHA	0	
03323	0020	00	0	00001	TRA	1	



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03324 -1 00003 0 00000 IOCT 0,0,3

\* REWIND ALL TEST UNITS

03325 0520 00 0 05504 SREW ZET CTRA  
03326 0772 00 0 01202 REWA 2  
03327 0520 00 0 05505 ZET CTRB  
03330 0772 00 0 02202 REWB 2  
03331 0520 00 0 05506 ZET CTCR  
03332 0772 00 0 03202 REWC 2  
03333 0520 00 0 05507 ZET CTRD  
03334 0772 00 0 04202 REWD 2  
03335 0520 00 0 05510 ZET CTRE  
03336 0772 00 0 05202 REWE 2  
03337 0520 00 0 05511 ZET CTRF  
03340 0772 00 0 06202 REWF 2  
03341 0020 00 2 00001 TRA 1,2 RETURN

03342 0500 60 4 00001 SCAN CLA\* 1,4 L CURRENT SELECT  
03343 0601 00 0 04227 STO SCANA SAVE  
03344 0634 00 4 04107 SXA SXRC,4 COMPLEMENT  
03345 0535 00 4 04107 LAC SXRC,4 INDEX  
03346 -0754 00 0 00000 PXD 0,0 CLEAR ACC  
03347 0754 00 4 00000 PXA 0,4  
03350 0400 00 0 04256 ADD ONE  
03351 0621 00 0 03354 STA SCAN1  
03352 0534 00 4 04107 LXA SXRC,4 RELOAD XRC  
03353 0020 00 4 00002 TRA 2,4 RETURN

03354 -0500 60 0 00000 SCAN1 CAL\* \*\* L ALTERED SELECT  
03355 0601 00 0 04230 STO SCANB

03356 0500 00 4 00001 CLA 1,4 L SCAN ADDRESSES  
03357 0621 00 0 03432 STA SHIFT+2 SET FIRST  
03360 0621 00 0 03412 STA SCNW LOC TO CHECK  
03361 0771 00 0 00022 ARS 18 MOVE DECR TO ADDR  
03362 0400 00 0 04256 ADD ONE  
03363 0621 00 0 04231 STA SLNTR SAVE LAST LOC TO CHECK

03364 0774 00 1 00002 SCNZ AXT 2,1 L 2 IN XRA  
03365 -0500 00 1 04231 CAL SCANA+2,1 L SELECT  
03366 -0320 00 0 04122 ANA SMSK+3 AND WITH 07000  
03367 0771 00 0 00011 ARS 9  
03370 0601 00 1 04231 STO SCANA+2,1 SAVE CHANNEL COUNT  
03371 2 00001 1 03365 TIX \*-4,1,1

03372 0774 00 1 00002 AXT 2,1  
03373 -0340 00 0 04227 LAS SCANA  
03374 0020 00 0 03403 TRA SCNY NEW CHN HIGHER - SHIFT  
03375 0020 00 0 03410 TRA SCNX NO CHANGE - NO SHIFT

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03376	0500	00	0	04227		CLA SCANA	NEW CHN LOWER - SHIFT R
03377	0402	00	0	04230		SUB SCANB	
03400	0621	00	0	04233		STA SHF1	
03401	0500	00	0	04233		CLA SHF1	L ARS **
03402	0020	00	0	03411		TRA SCNX+1	
03403	0500	00	0	04230	SCNY	CLA SCANB	
03404	0402	00	0	04227		SUB SCANA	
03405	0621	00	0	04234		STA SHF2	
03406	0500	00	0	04234		CLA SHF2	L ALS **
03407	0020	00	0	03411		TRA SCNX+1	
03410	0500	00	0	04235	SCNX	CLA SNP	L NOP
03411	0601	00	0	03430		STO SHIFT	
03412	-0500	00	0	00000	SCNW	CAL **	L INSTRUCTION
03413	-0320	00	0	04123		ANA SMSK+4	AND WITH 777700777777
03414	-0340	00	0	04232		LAS SCMP	COMPARE TSX SCHCK,4
03415	0020	00	0	03417		TRA *+2	
03416	0020	00	0	03426		TRA SHIFT-2	YES - IS TSX INSTR
03417	0500	00	0	03412		CLA *-5	
03420	0402	00	0	04256		SUB ONE	STEP ADDRESS
03421	0621	00	0	03432		STA SHIFT+2	
03422	0621	00	0	03412		STA SCNW	
03423	0400	00	0	04231		ADD SLNTR	CHECK FOR LAST INSTR
03424	-0120	00	0	03434		TMI SHNBL-6	IS LAST INSTRUCTION
03425	0020	00	0	03412		TRA SCNW	CONTRINUE TO SCAN
03426	0522	00	0	03412		XEC SCNW	
03427	-0320	00	0	04120		ANA SMSK+1	AND WITH 000077000000
03430	0	00000	0	00000	SHIFT	PZE **	VARIABLE SHIFT
03431	-0501	00	0	04232		ORA SCMP	
03432	0602	00	0	00000		SLW **	RESTORE INSTR
03433	0020	00	0	03417		TRA SCNW+5	CHECK NEXT INSTR
03434	0634	00	4	04107		SXA SXRC,4	
03435	0522	00	0	03354		XEC SCAN1	L SELECT
03436	0074	00	4	03443		TSX SHNBL+1,4	TO SET ENABLE WORDS
03437	0761	00	0	00000		NOP	
03440	0534	00	4	04107		LXA SXRC,4	
03441	0020	00	4	00002		TRA 2,4	RETURN TO PROGRAM
03442	0500	60	4	00001	SHNBL	CLA* 1,4	L SELECT
03443	-0320	00	0	04122		ANA SMSK+3	AND WITH 07000
03444	0771	00	0	00011		ARS 9	
03445	0402	00	0	04256		SUB ONE	L +1
03446	0621	00	0	03451		STA *+3	
03447	0774	00	1	00003		AXT 3,1	L +3 IN XRA
03450	0500	00	1	04253		CLA NABLR+3,1	
03451	0767	00	0	00000		ALS **	
03452	0601	00	1	04241		STO NABL+3,1	
03453	0760	00	0	00006		COM	
03454	-0320	00	0	04246		ANA NABL+8	

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9 I O T A  
8-15-59  
PAGE 48

03455 0601 00 1 04244 STO NABL+6,1  
03456 2 00001 1 03450 TIX \*-6,1,1  
  
03457 0020 00 4 00002 TRA 2,4 RETURN

\* I-O TRAP ERROR CHECK SUBROUTINE

03460 0760 00 0 00162 SCHCK SWT 2  
03461 0020 00 0 03463 TRA \*+2 UP - PROCEED  
03462 0020 00 0 03627 TRA SEGRS DN-RETURN TO PROGRAM

\* SAVE TRAP INFORMATION

03463 0634 00 4 04111 SXA SRTA,4 SAVE XRC FOR RETURN  
03464 0535 00 4 04111 LAC SRTA,4 COMPLEMENT TO INDEX  
03465 0634 00 4 04107 SXA SXRC,4 SAVE ERROR EXIT  
03466 0534 00 4 04111 LXA SRTA,4 RELOAD XRC  
03467 0634 00 1 04106 SXA SXQN,1 SAVE EXECUTION LOC  
03470 0634 00 2 04110 SXA SXRB,2 SAVE LOC OF ENABLE WORD  
03471 0634 00 2 03664 SXA SCK3,2 SET ADDR OF ENABLE  
  
03472 0600 00 0 04112 STZ STRAP RESET TRAP-NO TRAP CHECK  
03473 0601 00 0 04113 STO SACC SAVE ACC  
03474 0771 00 0 00043 ARS 35 SHIFT P AND Q BITS  
03475 0602 00 0 04114 SLW SACC+1 SAVE P AND Q BITS  
03476 -0600 00 0 04115 STQ SACC+2 SAVE MQ  
03477 0604 00 0 04116 STI SIND SAVE INDICATORS  
03500 0600 00 0 04135 STZ SZCK RESET  
03501 0500 00 0 04262 CLA ONES L ALL ONES  
03502 0601 00 0 04134 STO SERCK SET NO ERROR CHECK

\* SET FOR TYPE OF TRAP EXPECTED AND INDICATED

03503 -0500 00 4 00001 CAL 1,4 L DUMMY INSTRUCTION  
03504 0625 00 0 04112 STT STRAP SET TRAP-NO TRAP CHECK  
ZERO FOR TRAP EXPECTED  
03505 -0320 00 0 04117 ANA SMSK AND WITH 777777707777  
03506 0602 00 0 04125 SLW SDUM SAVE DUMMY INSTRUCTION  
  
03507 0774 00 1 00004 AXT 4,1 L 4 IN XRA  
03510 -0760 00 1 00145 SLT 1+4,1 CHECK SENSE LIGHT  
03511 0020 00 0 03514 TRA \*+3 OFF  
03512 0601 00 1 04132 STO SLCK+4,1 ON - SAVE ON CHECK  
03513 0020 00 0 03515 TRA \*+2  
03514 0600 00 1 04132 STZ SLCK+4,1 SAVE OFF CHECK  
03515 2 00001 1 03510 TIX \*-5,1,1 LOOP THROUGH 4 LIGHTS  
  
03516 0760 00 0 00140 SLF TURN OFF ALL SENSE LIGHTS

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03517	0774	00	2	00001		AXT 1,2	L CHN A COUNT IN XRB
03520	-0500	00	4	00000		CAL 0,4	L TSX SCHCK,4 INSTRUCTION
03521	-0320	00	0	04120		ANA SMSK+1	AND WITH 077000000
03522	0771	00	0	00021		ARS 17	MOVE BIT 0T
03523	0771	00	0	00001		ARS 1	LOW ORDER
03524	0760	00	0	00001		LBT	CHECK FOR BIT
03525	1 00001	2	03523			TXI *-2,2,1	NO BIT - STEP CHN COUNT
03526	0634	00	2	04133		SXA SCHN1,2	INITIALIZE CURRETN CHANNEL
03527	0634	00	2	04132		SXA SCHN,2	SAVE CORRECT TRAP CHANNEL
03530	-0520	00	0	04106		NZT SXQN	CHECK TRAP EXECUTION
03531	0020	00	0	03541		TRA SCHK	ZERO - NO EXECUTION
03532	0520	00	0	04112		ZET STRAP	CHECK TRAP-NO TRAP
03533	0020	00	0	03632		TRA SCHK2+2	NOT ZERO - GO TO PRINT
03534	0500	00	2	04167		CLA SEXLC+6,2	L EXECUTION RESULT EXPECTED
03535	0340	00	0	04106		CAS SXQN	COMPARE EXECUTION RESULT
03536	0020	00	0	03632		TRA SCHK2+2	ERROR
03537	0020	00	0	03543		TRA *+4	SAME - OK
03540	0020	00	0	03632		TRA SCHK2+2	ERROR
03541	0500	00	0	04262	SCHK	CLA ONES	L ALL ONES
03542	0601	00	0	04135		STO SZCK	
03543	-0500	60	2	04160		CAL* STRLC+6,2	L TRAP LOCATION
03544	0100	00	0	03551		TZE *+5	ZERO - CHECK OTHER LOCS
03545	0340	00	0	04125		CAS SDUM	NOT ZERO - COMPARE
03546	0020	00	0	03632		TRA SCHK2+2	ERROR
03547	0020	00	0	03553		TRA *+4	SAME - OK
03550	0020	00	0	03632		TRA SCHK2+2	ERROR
03551	0500	00	0	04262		CLA ONES	L ALL ONES
03552	0601	00	0	04135		STO SZCK	
03553	0760	00	0	00141		SLN 1	TURN ON SENSE LIGHT ONE TO SHOW NO PRINT YET
03554	0634	00	2	03563	SCHK1	SXA SCK2-1,2	SET CHANNEL COUNT FROM XRB
03555	2 00001	2	03557		SCK1	TXI *+2,2,1	
03556	0020	00	0	03563		TRA SCK2-1	
03557	0634	00	2	04133		SXA SCHN1,2	SAVE CHN UNDER INSPECTION
03560	-0500	60	2	04160		CAL* STRLC+6,2	L TRAP LOCATION
03561	0100	00	0	03555		TZE SCK1	OK - TRAP LOCATION ZERO
03562	0020	00	0	03630		TRA SCHK2	NOT ZERO - ERROR
03563	0774	00	2	00000		AXT **,2	
03564	3 00005	2	03572		SCK2	TXH *+6,2,5	
03565	1 00001	2	03566			TXI *+1,2,1	
03566	0634	00	2	04133		SXA SCHN1,2	SAVE CHN UNDER INSPECTION
03567	-0500	60	2	04160		CAL* STRLC+6,2	L TRAP LOCATION
03570	0100	00	0	03564		TZE SCK2	OK - TRAP LOCATION ZERO
03571	0020	00	0	03631		TRA SCHK2+1	NOT ZERO - ERROR
03572	0520	00	0	04112		ZET STRAP	CHECK TRAP-NO TRAP
03573	0020	00	0	03600		TRA SREST-2	NOT ZERO - NOT TRAP OK

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9 I O T A  
8-15-59  
PAGE 50

03574	-0520	00	0	04135	NZT SZCK	TRAP EXPECTED - CHECK NO TRAP INDICATION
03575	0020	00	0	03600	TRA SREST-2	ZERO - TRAP INDICATED
03576	0760	00	0	00143	SLN 3	NOT ZERO - TURN ON SENSE LIGHT 3 TO SHOW FAILURE TO TRAP
03577	0020	00	0	03632	TRA SCHK2+2	
* RESET FOR NEXT ROUTINE AND RETURN TO PROGRAM						
03600	0534	00	4	04111	LXA SRTA,4	RESTORE XRC FOR RETURN
03601	0020	00	0	03604	TRA *+3	SKIP PROGRAM ENTRY
03602	0600	00	0	04134	SREST STZ SERCK	CLEAR ERROR CHECK
03603	1 00002	4	03613	TXI SRST1,4,2	INCREMENT XRC BY 2	
03604	0441	00	0	04116	LDI SIND	RESTORE INDICATORS
03605	0760	00	0	00140	SLF	TURN OFF ALL SENSE LIGTHS
03606	0774	00	1	00004	AXT 4,1	L +4 IN XRA
03607	0500	00	1	04132	CLA SLCK+4,1	
03610	0100	00	0	03612	TZE *+2	
03611	0760	00	1	00145	SLN 1+4,1	NOT ZERO - TURN ON SL
03612	2 00001	1	03607	TIX *-3,1,1		
03613	0774	00	1	00016	SRST1 AXT 14,1	L +14 IN XRA
03614	0500	00	1	04154	CLA SAXT+14,1	L AXT INSTRUCTION
03615	0601	00	1	00031	STO 11+14,1	RESET EXECUTION LOCATION'
03616	0600	00	1	00030	STZ 10+14,1	RESET TRAP LOCATION
03617	2 00002	1	03614	TIX *-3,1,2		
03620	0500	00	0	04114	CLA SACC+1	L P AND Q BITS
03621	0560	00	0	04113	LDQ SACC	RESTORE
03622	0763	00	0	00043	LLS 35	ACC
03623	0560	00	0	04115	LDQ SACC+2	RESTORE MQ
03624	0774	00	3	00000	AXT 0,3	CLEAR XRA AND XRB
03625	-0520	00	0	04134	NZT SERCK	CHECK FOR ERROR
03626	0020	00	4	00003	TRA 3,4	ZERO - ERROR RETURN
03627	0020	00	4	00002	SEGRS TRA 2,4	NOT ZERO - NO ERROR RETURN

\* INDICATE ERROR IN TRAP OPERATION

03630	0760	00	0	00142	SCHK2 SLN 2	TURN ON SENSE LIGHT 2
03631	0020	00	0	03633	TRA *+2	
03632	0760	00	0	00141	SLN 1	TURN ON SENSE LIGHT 1
03633	0600	00	0	04135	STZ SZCK	CLEAR NO INDICATION CHECK
03634	0760	00	0	00163	SWT 3	CHECK SENSE SWITCH 3
03635	0020	00	0	03637	TRA *+2	PRINT ON ERROR
03636	0000	00	0	03600	HTR SREST-2	HALT ON ERROR
03637	-0760	00	0	00141	SLT 1	CHECK SENSE LIGHT 1
03640	0020	00	0	04014	TRA STSP3	OFF - SKIP FIRST LINE

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9 I O T A  
8-15-59  
PAGE 51

ON - PRINT FIRST LINE

\* SET PRINT IMAGE FOR 1ST LINE OF ERROR PRINT

03641	0500	00	0	04263	CLA	ZEROS	
03642	0601	00	0	03726	STO	S1LNB	CLEAR
03643	0601	00	0	03725	STO	S1LNA+5	INFORMATION
03644	0630	00	0	03722	STP	S1LNA+2	FROM
03645	0622	00	0	03722	STD	S1LNA+2	PRINT
03646	0621	00	0	03721	STA	S1LNA+1	IMAGES

\* SET PROGRAM EXIT LOC IN PRINT IMAGE

03647	-0754	00	0	00000	PXD	0,0	CLEAR ACC
03650	0560	00	0	04107	LDQ	SXRC	L PROGRAM EXIT IN MQ
03651	0074	00	4	04077	TSX	SSLW,4	INSERT
03652	-0773	00	0	00011	RQL	9	
03653	0621	00	0	03721	STA	S1LNA+1	PROGRAM
03654	0074	00	4	04077	TSX	SSLW,4	
03655	0761	00	0	00000	NOP		EXIT IN
03656	0630	00	0	03722	STP	S1LNA+2	
03657	0622	00	0	03722	STD	S1LNA+2	
03660	0500	00	0	04261	CLA	SIX	
03661	0767	00	0	00017	ALS	15	
03662	0625	00	0	03721	STT	S1LNA+1	

\* SET ENABLE CONTROL WORD IN PRINT IMAGE

03663	0074	00	4	04077	TSX	SSLW,4	INSERT
03664	0560	00	0	00000	SCK3	LDQ **	ENABLE
03665	0602	00	0	03725	SLW	S1LNA+5	WORD
03666	0074	00	4	04077	TSX	SSLW,4	IN BCD
03667	-0754	00	0	00000	PXD	0,0	PRINT
03670	0602	00	0	03726	SLW	S1LNB	IMAGE

\* CHECK IF SHOULD TRAP AND DID OR DID NOT TRAP

03671	0520	00	0	04112	ZET	STRAP	CHECK TRAP-NO TRAP
03672	0020	00	0	03703	TRA	STSP1	NOT ZERO - SHOULD NOT TRAP
							SKIP 2ND LINE PRINT
03673	-0760	00	0	00143	SLT	3	STRAP ZERO - SHOULD TRAP
							CHECK FOR TRAP INDICATION
03674	0020	00	0	03676	TRA	*+2	OFF - TRAP INDICATED
03675	0020	00	0	03711	TRA	STSP2	ON - NO TRAP INDICATED

\* SET SHOULD TRAP, TRAP IN ERROR IN 1ST LINE IMAGE

03676	0774	00	1	00005	AXT	5,1	INSERT -
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03677 0500 00 1 04174           CLA SBCD1+5,1 SHOULD TRAP, TRAP IN ERROR  
03700 0601 00 1 03734           STO S1LNB+6,1 IN BCD  
03701 2 00001 1 03677           TIX \*-2,1,1     PRINT IMAGE  
03702 0020 00 0 03716           TRA SPRT         GO PRINT 1ST LINE

\*        SET NO TRAP SHOULD OCCUR IN 1ST LINE IMAGE

03703 0760 00 0 00143   STSP1   SLN 3            TURN ON SENSE LIGHT 3  
03704 0774 00 1 00005            AXT 5,1            INSERT -  
03705 0500 00 1 04201            CLA SBCD2+5,1 NO TRAP SHOULD OCCUR  
03706 0601 00 1 03734            STO S1LNB+6,1 IN BCD  
03707 2 00001 1 03705            TIX \*-2,1,1     PRINT IMAGE  
03710 0020 00 0 03716            TRA SPRT         GO TO PRINT 1ST LINE

\*        SET SHOULD TRAP, NO TRAP SHOWN IN 1ST LINE IMAGE

03711 0760 00 0 00144   STSP2   SLN 4            TURN ON SENSE LIGHT 4  
03712 0774 00 1 00005            AXT 5,1            INSERT -  
03713 0500 00 1 04206            CLA SBCD3+5,1 SHOULD TRAP, NO TRAP SHOWN  
03714 0601 00 1 03734            STO S1LNB+6,1 IN BCD  
03715 2 00001 1 03713            TIX \*-2,1,1     PRINT IMAGE

03716 0074 00 4 04703   SPRT    TSX SPLAT,4     PRINT 1ST LINE  
03717 -0 00001 0 00014            MZE 12,0,1  
03720 475127446025        S1LNA   BCD 6PRGM EXIT         TRAP ENABLE  
03721 673163606060  
03722 606060606060  
03723 635121476025  
03724 452122432560  
03725 606060606060  
03726 606060606060        S1LNB   BCD 6  
03727 606060606060  
03730 606060606060  
03731 606060606060  
03732 606060606060  
03733 606060606060

\*        CHECK IF SHOULD PRINT 2ND LINE

03734 -0760 00 0 00143            SLT 3            CHECK SENSE LIGHT 3  
03735 0020 00 0 03737            TRA \*+2          OFF - PRINT LINE 2  
03736 0020 00 0 04014            TRA STSP3        ON - SKIP LINE 2

\*        SET CORRECT TRAP INFORMATION IN 2ND LINE IMAGE

03737 0534 00 2 04132            LXA SCHN,2        INSERT -  
03740 0560 00 2 04160            LDQ STRLC+6,2    CORRECT  
03741 0074 00 4 04077            TSX SSLW,4        TRAP LOCATION  
  
03742 -0773 00 0 00022            RQL 18            IN BCD  
03743 0602 00 0 04003            SLW S2LNA+3      IMAGE





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\* SET ERROR TRAP INFORMATION IN 3RD LINE IMAGE

04014	0600	00	0	04134	STSP3	STZ SERCK	SET ERROR CHECK
04015	-0760	00	0	00144		SLT 4	CHECK SENSE LITE 4
04016	0020	00	0	04020		TRA *+2	
04017	0020	00	0	03600		TRA SREST-2	ON
04020	0534	00	2	04133		LXA SCHN1,2	INSERT -
04021	0560	00	2	04160		LDQ STRLC+6,2	ERROR
04022	0074	00	4	04077		TSX SSLW,4	TRAP LOC
04023	-0773	00	0	00022		RQL 18	IN BCD
04024	0602	00	0	04063		SLW S3LNA+3	IMAGE
04025	-0500	00	0	04006		CAL S2LNB	
04026	0630	00	0	04063		STP S3LNA+3	
04027	0560	00	0	04106		LDQ SXQN	INSERT -
04030	0074	00	4	04077		TSX SSLW,4	ERROR
04031	-0773	00	0	00022		RQL 18	EXECUTION LOC
04032	0602	00	0	04073		SLW S3LNB+5	IN BCD IMAGE
04033	-0500	00	0	04006		CAL S2LNB	
04034	0630	00	0	04073		STP S3LNB+5	
04035	0074	00	4	04077		TSX SSLW,4	INSERT -
04036	0560	60	2	04160		LDQ* STRLC+6,2	ERROR
04037	0767	00	0	00022		ALS 18	TRAP
04040	0602	00	0	04065		SLW S3LNA+5	LOCATION
04041	-0500	00	0	04206		CAL SB4	DECREMENT
04042	-0602	00	0	04065		ORS S3LNA+5	IN BCD IMAGE
04043	-0754	00	0	00000		PXD 0,0	CLEAR ACC
04044	0074	00	4	04077		TSX SSLW,4	INSERT -
04045	-0765	00	0	00006		LGR 6	TRAP
04046	0602	00	0	04070		SLW S3LNB+2	LOCATION
04047	-0500	00	0	04207		CAL SB4+1	ADDRESS
04050	-0602	00	0	04070		ORS S3LNB+2	IN BCD
04051	0074	00	4	04077		TSX SSLW,4	IMAGE
04052	0761	00	0	00000		NOP	OF
04053	0602	00	0	04071		SLW S3LNB+3	
04054	-0500	00	0	04210		CAL SB4+2	3RD LINE
04055	-0602	00	0	04071		ORS S3LNB+3	
04056	0074	00	4	04703		TSX SPLAT,4	PRINT 3RD LINE
04057	0	00001	0	00014		PZE 12,0,1	
04060	255151465160				S3LNA	BCD 6ERROR - -	TRP LOC TYPE

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04061 406040606063  
04062 514760434623  
04063 606060606060  
04064 606060637047  
04065 256060606060  
04066 606063514760  
04067 434623602124  
04070 245160606060  
04071 606060606067  
04072 252360434623  
04073 606060606060

S3LNB BCD 6 TRP LOC ADDR XEC LOC

04074 -0760 00 0 00142 SLT 2 CHECK SENSE LIGHT 2  
04075 0020 00 0 03564 TRA SCK2 OFF  
04076 0020 00 0 03555 TRA SCK1 ON

\* SUBROUTINE TO ADJUST BCD IMAGE

04077 0774 00 1 00006 SSLW AXT 6,1  
04100 0522 00 4 00001 XEC 1,4  
04101 0767 00 0 00003 ALS 3 SAPCE  
04102 -0763 00 0 00003 LGL 3 MOVE DIGIT TO ACC  
04103 2 00001 1 04101 TIX \*-2,1,1  
04104 0522 00 4 00002 XEC 2,4  
04105 0020 00 4 00003 TRA 3,4 RETURN

\* CONSTANTS FOR I-O TRAP ERROR CHECK ROUTINE

04106 +000000000000 SXQN OCT \*\* STG FOR EXECUTION LOC  
04107 +000000000000 SXRC OCT \*\* SAVE ERROR ADDRESS  
04110 +000000000000 SXR B OCT \*\* SAVE LOC OF ENABLE WORD  
04111 +000000000000 SR TA OCT \*\* SAVE XRC FOR RETURN  
04112 +000000000000 STR AP OCT \*\* TRAP-NO TRAP CHECK  
04113 +000000000000 SACC OCT \*\* STG FOR ACC  
04114 +000000000000 OCT \*\* STG FOR P AND Q BITS  
04115 +000000000000 OCT \*\* STG FOR MQ  
04116 +000000000000 SIND OCT \*\* STG FOR INDICATORS  
  
04117 -377777077777 SMSK OCT 777777077777 MASK OUT TAG  
04120 +000077000000 OCT 077000000 MASK FOR CHANNEL  
04121 -377777777777 OCT 777777777777  
04122 +000000007000 OCT 000000007000  
04123 -377700777777 OCT 777700777777  
04124 +000000000000 OCT \*\* TEMP STORAGE  
  
04125 +000000000000 SDUM OCT \*\* STG FOR DUMMY INSTRUCTION  
04126 +000000000000 SLCK OCT \*\* CHECK FOR SENSE LIGHT 1

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04127	+0000000000000		OCT **	CHECK FOR SENSE LIGHT 2
04130	+0000000000000		OCT **	CHECK FOR SENSE LIGHT 3
04131	+0000000000000		OCT **	CHECK FOR SENSE LIGHT 4
04132	+0000000000000	SCHN	OCT **	STG FOR CHANNEL
04133	+0000000000000	SCHN1	OCT **	STG FOR CURRENT CHANNEL
04134	+0000000000000	SERCK	OCT **	ERROR-NO ERROR CHECK
04135	+0000000000000	SZCK	OCT **	FIRST LINE PRINT CHECK
04136	0774 00 1 00013	SAXT	AXT 11,1	INSTRUCTIONS
04137	0 00000 0 00000		PZE 0	
04140	0774 00 1 00015		AXT 13,1	USED
04141	0 00000 0 00000		PZE 0	
04142	0774 00 1 00017		AXT 15,1	TO
04143	0 00000 0 00000		PZE 0	
04144	0774 00 1 00021		AXT 17,1	RESET
04145	0 00000 0 00000		PZE 0	
04146	0774 00 1 00023		AXT 19,1	TRAP
04147	0 00000 0 00000		PZE 0	
04150	0774 00 1 00025		AXT 21,1	LOCATIONS
04151	0 00000 0 00000		PZE 0	
04152	+0000000000024	STRLC	OCT 24	TRAP LOC - CHN F
04153	+0000000000022		OCT 22	TRAP LOC - CHN E
04154	+0000000000020		OCT 20	TRAP LOC - CHN D
04155	+0000000000016		OCT 16	TRAP LOC - CHN C
04156	+0000000000014		OCT 14	TRAP LOC - CHN B
04157	+0000000000012		OCT 12	TRAP LOC - CHN A
04160	+0000000000000	SLHA	OCT **	STG FOR BCD INFO
04161	+0000000000025	SEXLC	OCT 25	EXECUTION LOC - CHN F
04162	+0000000000023		OCT 23	EXECUTION LOC - CHN E
04163	+0000000000021		OCT 21	EXECUTION LOC - CHN D
04164	+0000000000017		OCT 17	EXECUTION LOC - CHN C
04165	+0000000000015		OCT 15	EXECUTION LOC - CHN B
04166	+0000000000013		OCT 13	EXECUTION LOC - CHN A
04167	606060623046	SBCD1	BCD 5	SHOULD TRAP, TRAP IN ERROR
04170	644324606351			
04171	214773606351			
04172	214760314560			
04173	255151465160			
04174	606060454660	SBCD2	BCD 5	NO TRAP SHOULD OCCUR
04175	635121476062			
04176	304664432460			
04177	462323645160			
04200	606060606060			
04201	606060623046	SBCD3	BCD 5	SHOULD TRAP, NO TRAP SHOWN
04202	644324606351			
04203	214773604546			
04204	606351214760			
04205	623046664560			
04206	256000606060	SBCD4	BCD 1E 0	
04207	245160000000		BCD 1DR 000	

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04210 000060606067 BCD 100 X

04211 0766 00 0 01222 SK WTBA 2  
04212 +0000000000077 OCT 0000000000077  
04213 +0000770000000 OCT 0000770000000  
04214 +0000770000077 OCT 0000770000077  
04215 -000000000000077 OCT -000000000000077

04216 0766 00 0 01221 SK1 WTBA 1  
04217 0762 00 0 01321 RCDA

04220 +000000100450 SCH OCT 000000100450 EXCLU UNIT 2 - CHN A  
04221 +000000145000 OCT 000000145000 EXCLU UNIT 2 - CHN B  
04222 +000000200450 OCT 000000200450 EXCLU UNIT 2 - CHN C  
04223 +000000245000 OCT 000000245000 EXCLU UNIT 2 - CHN D  
04224 +000000400450 OCT 000000400450 EXCLU UNIT 2 - CHN E  
04225 +000000445000 OCT 000000445000 EXCLU UNIT 2 - CHN F

04226 0020 00 0 00120 STRA1 TRA SAA  
04227 +0000000000000 SCANA OCT \*\* STG FOR PREVIOUS CHANNEL  
04230 +0000000000000 SCANB OCT \*\* STG FOR NEW SELECT  
04231 0500 00 0 00000 SLNTR CLA \*\* STG  
04232 0074 00 4 03460 SCMP TSX SCHCK,4 COMPARISON FOR SCAN  
04233 0771 00 0 00000 SHF1 ARS \*\* VARIABLE SHIFT FOR SCAN  
04234 0767 00 0 00000 SHF2 ALS \*\* VARIABLE SHIFT FOR SCAN  
04235 0761 00 0 00000 SNP NOP

04236 +0000000000001 NABL OCT 0000000000001  
04237 +0000010000000 OCT 0000010000000  
04240 +0000010000001 OCT 0000010000001

04241 +0000000000076 OCT 0000000000076  
04242 +0000760000000 OCT 0000760000000  
04243 +0000760000076 OCT 0000760000076

04244 +0000000000077 OCT 0000000000077  
04245 +0000770000000 OCT 0000770000000  
04246 +0000770000077 OCT 0000770000077

04247 +0000000000000 OCT 0000000000000

04250 +0000000000001 NABLR OCT 0000000000001  
04251 +0000010000000 OCT 0000010000000  
04252 +0000010000001 OCT 0000010000001

04253 +0000000777777 SKIP1 OCT 77777 SKIP CHK FOR HALT TESTS

CONSTANTS FOR RFW AND DW

04254 -1 00001 0 04262 CNTL IOCT ONES,0,1  
04255 0020 00 0 00224 RF2 TRA DW6+2

\*           CONSTANTS AND IMAGES  
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04256	+0000000000001	ONE	OCT 1		
04257	+0000000000002	TWO	OCT 2		
04260	+0000000000003	THREE	OCT 3		
04261	+0000000000006	SIX	OCT 6		
04262	-3777777777777	ONES	OCT 7777777777777		
04263	+0000000000000	ZEROS	OCT 0		
04264	0000 01 0 04326	PREAD	IOCD TEMP,0,1		
04265	0000 02 0 04326	PRD2	IOCD TEMP,0,2		
04266	0 00000 0 01147	PZR	PZE P1		
04267	0 00000 0 04236	P1D	PZE CNA		
04270	+0000000777777	P7777	OCT 77777	MASK FOR ADDRESS	
04271	0020 00 0 01150	PP2	TRA P2		
04272	0020 00 0 01157	PP3	TRA P3		
04273	0 00000 0 01220	P5BB	PZE P6		
04274	0020 00 0 01220	PP6	TRA P6		
04275	0020 00 0 01233	PP7	TRA P7		
04276	0522 00 0 04301	PP31	XEC PP34		
04277	0522 00 0 04302	PP32	XEC PP38		
04300	0020 00 0 01560	PP33	TRA P33		
04301	0500 00 0 04262	PP34	CLA ONES		
04302	0020 00 0 01636	PP38	TRA P38		
04303	0441 00 0 04262	PP40	LDI ONES		
04304	0300 00 0 04510	PP41	FAD CCNST+1		
04305	+140321513065	PP42	OCT 140321513065	SR NO.	
04306	-366375071640	PP43	OCT 766375071640	ACC NO.	
04307	-365772163500	PP44	OCT 765772163500	ACC ANS	
04310	0522 00 0 04311	PP45	XEC PP46		
04311	0522 00 0 04312	PP46	XEC PP47		
04312	0522 00 0 04313	PP47	XEC PP48		
04313	0522 00 0 04314	PP48	XEC PP49		
04314	0522 00 0 04315	PP49	XEC PP50		
04315	0522 00 0 04301	PP50	XEC PP34		
04316	-0760 00 0 00001	PP51	PBT		
04317	0300 00 0 04305	PP53	FAD PP42		
04320	0 00000 0 01475	PP54	PZE P31		
04321	0000 00 0 01475	PP55	HTR P31		
04322	0020 00 0 02071	PP56	TRA P52		
04323	+030673242370	PP57	OCT 030673242370		
04324	0020 00 0 01732	PP58	TRA P43B		
04325	0500 00 0 04262	PP59	CLA ONES		
04326	0 00000 0 00000	TEMP	PZE **	TEMPORARY	
04327	0 00000 0 00000		PZE **	STORAGE	
04330	0000 02 0 04371	CRTB	IOCD CREAD,0,2		
04331	0000 02 0 04373	CTRB1	IOCD CREAD+2,0,2		
04332	0000 02 0 04262	CRTB2	IOCD ONES,0,2		
04333	+0000000000000	CSAVE	OCT 0		
04334	0043 33 0 04263	CCC	IOCD ONES+1,0,CRTB2+1		
04335	0043 33 0 04264	CCC1	IOCD ONES+2,0,CRTB2+1		

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04336	0000 02 2	04371	CRTB6	IOCD	CREAD,2,2	
04337	-0000 02 0	04353	CFCTL	IOCP	CWRIT,0,2	
04340	-2 00002 0	04355		IOSP	CWRIT+2,0,2	
04341	2 00002 0	04357		IORP	CWRIT+4,0,2	
04342	1 00000 0	04344		TCH	*+2	
04343	0000 00 0	00000		IOCD		
04344	-1 00002 0	04361		IOCT	CWRIT+6,0,2	
04345	-3 00002 0	04363		IOST	CWRIT+8,0,2	
04346	3 00002 0	04365		IORT	CWRIT+10,0,2	
04347	0000 02 0	04367		IOCD	CWRIT+12,0,2	
04350	2 00006 0	04353	CRUD	IORP	CWRIT,0,6	
04351	2 00006 0	04361		IORP	CWRIT+6,0,6	
04352	0000 02 0	04367		IOCD	CWRIT+12,0,2	
04353	+010101010101		CWRIT	OCT	010101010101	
04354	+020202020202			OCT	020202020202	
04355	+030303030303			OCT	030303030303	
04356	+040404040404			OCT	040404040404	
04357	+050505050505			OCT	050505050505	
04360	+060606060606			OCT	060606060606	
04361	+070707070707			OCT	070707070707	
04362	+101010101010			OCT	101010101010	
04363	+111111111111			OCT	111111111111	
04364	+121212121212			OCT	121212121212	
04365	+131313131313			OCT	131313131313	
04366	+141414141414			OCT	141414141414	
04367	+151515151515			OCT	151515151515	
04370	+161616161616			OCT	161616161616	
		04371	CRDFD	BSS	14	
04407	-0043 40 0	04354	CHECK	IOCP	CWRIT+1,0,CFCTL+1	
04410	-3 04346 0	04364		IOST	CWRIT+9,0,CFCTL+7	
04411	3 04347 0	04366		IORT	CWRIT+11,0,CFCTL+8	
04412	0043 50 0	04370		IOCD	CWRIT+13,0,CFCTL+9	
04413	0043 50 0	04371		IOCD	CWRIT+14,0,CFCTL+9	
04414	-1 00001 0	04371		IOCT	CRDFD,0,1	
04415	0000 02 4	04414	CID18	IOCD	CID18-1,4,2	
04416	-0000 02 4	04427	CID	IOCP	CADDR,4,2	THE ADDRESSES
04417	-2 00002 4	04430		IOSP	CADDR+1,4,2	OF THESE
04420	2 00002 4	04431		IORP	CADDR+2,4,2	CONTROL WORDS
04421	1 00000 4	04432		TCH	CADDR+3,4	WILL BE
04422	0000 00 0	00000		IOCD		CHANGED
04423	-1 00002 4	04434		IOCT	CADDR+5,4,2	TO THE
04424	-3 00002 4	04435		IOST	CADDR+6,4,2	ADDRESSES OF
04425	3 00002 4	04436		IORT	CADDR+7,4,2	THE FOLLOWING
04426	0000 02 4	04437		IOCD	CADDR+8,4,2	SET OF CONTROL WORDS
						BY THE USE OF IND 18
04427	-0000 02 0	04371	CADDR	IOCP	CRDFD,0,2	
04430	-2 00002 0	04373		IOSP	CRDFD+2,0,2	THESE ADDRESSES
04431	2 00001 0	04375		IORP	CRDFD+4,0,1	WILL BE PICKED
04432	1 00000 0	04423		TCH	CID+5,0	UP BY IND 18
04433	0000 00 0	00000		IOCD		

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04434	-1	00001	0	04377		IOCT	CRDFD+6,0,1
04435	-3	00001	0	04401		IOST	CRDFD+8,0,1
04436	3	00001	0	04403		IORT	CRDFD+10,0,1
04437	0000	01	0	04405		IOCD	CRDFD+12,0,1
04440	-0044	17	0	04371	CK1	IOCP	CRDFD,0,CID+1
04441	-3	04425	0	04401		IOST	CRDFD+8,0,CID+7
04442	3	04426	0	04403		IORT	CRDFD+10,0,CID+8
04443	0044	27	0	04405		IOCD	CRDFD+12,0,CID+9
04444	0044	27	0	04407		IOCD	CRDFD+14,0,CID+9
04445	1	04462	0	04463		TCH	CHIPS+2,0,CHIPS+1
04446	-1	04464	0	04354		IOCT	CWRIT+1,0,CHIPS+3
04447	-0000	02	6	04427	IND19	IOCP	CADDR,6,2
04450	-2	00002	6	04430		IOSP	CADDR+1,6,2
04451	3	00002	6	04431		IORT	CADDR+2,6,2
04452	1	00002	6	04460		TCH	CHUNK,6,2
04453	0000	00	0	00000		IOCD	
04454	-1	00002	6	04434		IOCT	CADDR+5,6,2
04455	-3	00002	6	04435		IOST	CADDR+6,6,2
04456	3	00002	6	04436		IORT	CADDR+7,6,2
04457	0000	02	6	04437		IOCD	CADDR+8,6,2
04460	1	00000	0	04454	CHUNK	TCH	IND19+5,0
04461	1	00000	4	04462	CHIPS	TCH	CHIPS+1,4,0
04462	1	00000	0	04463		TCH	CHIPS+2
04463	-1	00002	0	04353		IOCT	CWRIT,0,2
04464	-0044	50	2	04371	CK2	IOCP	CRDFD,2,IND19+1
04465	-3	04456	2	04401		IOST	CRDFD+8,2,IND19+7
04466	3	04457	2	04403		IORT	CRDFD+10,2,IND19+8
04467	0044	60	2	04405		IOCD	CRDFD+12,2,IND19+9
04470	0044	60	2	04407		IOCD	CRDFD+14,2,IND19+9
04471	1	00005	4	04472	CCCC	TCH	CHOP,4,5
04472	1	00000	0	04473	CHOP	TCH	CHOP+1
04473	1	00005	4	04474		TCH	CHOP+2,4,5
04474	1	00000	0	04475		TCH	CHOP+3
04475	0000	16	0	04353		IOCD	CWRIT,0,14
04476	0044	76	0	04354	CK3	IOCD	CWRIT+1,0,CHOP+4
04477	-1	00001	0	04353	CIOC	IOCT	CWRIT,0,1
04500	3	00001	0	04354		IORT	CWRIT+1,0,1
04501	-3	00001	0	04355		IOST	CWRIT+2,0,1
04502	0000	01	0	04356		IOCD	CWRIT+3,0,1
04503	0000	02	0	04371		IOCD	CREAD,0,2
04504	-1	00002	0	04371	CRTB3	IOCT	CREAD,0,2
04505	0000	03	0	04353	CWTB6	IOCD	CWRIT,0,3
04506	0020	00	4	00001	TRA	TRA	1,4
04507	+003304725372				CCNST	OCT	003304725372
04510	+035015665047					OCT	035015665047
04511	+030673242370					OCT	030673242370

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04512 +375472537200      OCT 375472537200
04513 0000 01 0 01063  CBIT  HTR CS+4,0,1
04514 0021 00 0 01124  CTTR  TTR CT+4
04515 0021 00 0 04527  CTTR1 TTR SEQ
04516 0000 00 0 01124  CBIT1 HTR CT+4
04517 0000 01 0 04353  CWTB  IOCD CWRIT,0,1
04520 0000 01 0 04354      IOCD CWRIT+1,0,1
04521 0000 01 0 04372  CWTB1 IOCD CRDFD+1,0,1

04522 -1 00002 0 04353  CALL  IOCT CWRIT,0,2
04523 -3 00002 0 04355      IOST CWRIT+2,0,2
04524 -1 00002 0 04357      IOCT CWRIT+4,0,2
04525 -3 00002 0 04361      IOST CWRIT+6,0,2
04526 3 00006 0 04363      IORT CWRIT+8,0,6
```

\*THE FOLLOWING SUBROUTINES ARE THE MONITOR AND TRAP  
\*SEQUENCE ROUTINES

```
04527 -0760 00 0 00007  SEQ    LTM
04530 -0760 00 0 00144      SLT 4          WAS TRAP EXPECTED
04531 1 77777 0 04540      TXI WHAT,0,32767 NO, ERROR
04532 0760 00 0 00144      SLN 4          YES, TRAP EXPECTED
04533 3 00000 4 04564      TXH XRCE,4,0  IF XRC IS STILL
04534 0534 00 4 00000      LXA 0,4       ZERO-OK
04535 -0634 00 4 04545      SXD COMP+2,4  SAVE TRAP ADDRESS
04536 -0534 00 4 04537      LXD SECT2,4   CLEAR XRC
04537 1 00000 0 00000  SECT2 TXI 0          RETURN

04540 -0634 00 1 04552  WHAT  SXD TRAP-2,1
04541 0534 00 1 00000      LXA 0,1       WAS AN ADDRESS PUT AT 0
04542 -3 00000 1 04577      TXL OUTER,1,0 IF NOT, ERROR
04543 -0634 00 1 04701  COMP  SXD FREE,1    IF SO, IS IT LAST
04544 -0535 00 1 04701      LDC FREE,1    TRAP ADDRESS
04545 1 00000 1 04546      TXI *+1,1,0
04546 -3 00000 1 04577      TXL OUTER,1,0 IF ZERO, NO TRAP
                                BUT SKIPPED TO REM

04547 0534 00 1 00000      LXA 0,1
04550 -0634 00 1 04545      SXD COMP+2,1  SAVE TRAP ADDRESS
04551 -0534 00 1 04552      LXD TRAP-2,1  RESTORE XRA
04552 1 00000 0 04560      TXI FADED     TRAP ERROR

04553 264760635147      BCD 1FP TRP

04554 0534 00 4 00000  TRAP  LXA 0,4       RETURN TO PROG
04555 0634 00 4 04557      SXA *+2,4
04556 -0534 00 4 04557      LXD *+1,4     RESTORE XRC
04557 1 00000 0 00000      TXI          RETURN

04560 -0634 00 4 04557  FADED  SXD *-1,4    SAVE XRC
04561 0074 00 4 06503      TSX ERROR-1,4 TRAP IN ERROR, OR
04562 0020 00 0 04554      TRA TRAP      TRS TO 10 IS ILLEGAL
04563 0020 00 0 04554      TRA TRAP      SET ADDRESS AT ZERO
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04564 -0634 00 2 04701 XRCE SXD FREE,2 SAVE XRB
04565 -0634 00 4 04702 SXD FREE+1,4 AND XRC
04566 -0534 00 2 04702 LXD FREE+1,2 MOVE XRC TO XRB
04567 1 00000 0 04571 TXI *+2

04570 316331442540 BCD 1ITIME-

04571 0074 00 4 06503 TSX ERROR-1,4 XRC WAS NOT ZERO
04572 0761 00 0 04571 NOP XRCE+5
04573 0534 00 4 00000 LXA 0,4 SAVE TRAP
04574 -0634 00 4 04545 SXD COMP+2,4 ADDRESS
04575 -0534 00 2 04701 LXD FREE,2 RESTORE XRB
04576 0020 00 0 04536 TRA SECT2-1 RETURN TO TRAP PROG
04577 -0534 00 1 04552 OUTER LXD TRAP-2,1 RESTORE XRA
04600 0074 00 4 04602 TSX SPACE,4 GO TO 10 BY MISTAKE

04601 624721232560 BCD 1SPACE

04602 -0634 00 4 04676 SPACE SXD BIN,4 SPACE ADDRESS
04603 -0535 00 4 04676 LDC BIN,4 XRC TRUE DECREMENT
04604 -0634 00 4 04676 SXD BIN,4 OF BIN
04605 -0535 00 4 04677 LDC MONIT,4 ADDRESS OF TEST
04606 0634 00 4 04676 SXA BIN,4 THAT LOST CONTROL
TO ADDRESS

04607 0441 00 0 04676 LDI BIN ADDRESS PROGRAM SKIPPED
TO IN DECREMENT OF
INDICATORS.

ADDRESS OF TEST BEING
PERFORMED IN ADDRESS
OF INDICATORS

04610 0074 00 4 06503 TSX ERROR-1,4
04611 0761 00 0 04602 NOP SPACE

04612 -0534 00 4 04677 LXD MONIT,4
04613 0500 00 4 77776 CLA -2,4 RESET MONIT
04614 0737 00 2 00000 PAC 0,2 AND RETURN
04615 -0634 00 2 04677 SXD MONIT,2 TO PROPER
04616 0020 00 0 04622 TRA *+4 SEQUENCE

04617 0760 00 0 00140 CLEAR SLF
04620 0760 00 0 00161 SWT 1
04621 0020 00 0 04623 TRA *+2
04622 0020 00 0 04625 TRA *+3
04623 0760 00 0 00164 SWT 4
04624 0020 00 0 04630 TRA *+4 NOT REPEATED
04625 -0754 00 4 00000 PXD 0,4 TEST REPEATED
04626 0402 00 0 04677 SUB MONIT OR WILL BE
04627 0100 00 0 04655 TZE RESET+1 REPEATED-IF ZERO
PROGRAM SEQUENCE OK.

04630 0600 00 0 04701 STZ FREE
04631 -0634 00 4 04701 SXD FREE,4 SAVE TEST ADDRESS
04632 0500 00 4 77776 CLA -2,4 PRECEDING TEST ADDRESS
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04633	0737	00	4	00000	PAC 0,4	COMPLEMENT
04634	-0754	00	4	00000	PXD 0,4	
04635	0402	00	0	04677	SUB MONIT	SHOULD BE ZERO
04636	-0534	00	4	04701	LXD FREE,4	RESTORE XRC
04637	0100	00	0	04655	TZE RESET+1	IF ZERO, PROGRAM SEQUENCE OK.
04640	0760	00	0	00004	ENK	CHECK FOR MANUAL TRANSFER
04641	0131	00	0	00000	XCA	
04642	0737	00	4	00000	PAC 0,4	COMPLEMENT KEYS ADDRESS
04643	0765	00	0	00025	LRS 21	CHECK TRA ONLY
04644	0402	00	0	04700	SUB K41	-0200
04645	-0100	00	0	04652	TNZ *+5	SEQUENCE N.G. IF NOT 0
04646	-0754	00	4	00000	PXD 0,4	OK, CHECK ADDRESS
04647	0402	00	0	04701	SUB FREE	
04650	-0534	00	4	04701	LXD FREE,4	RESTORE
04651	0100	00	0	04655	TZE RESET+1	OK IF ZERO
04652	-0534	00	4	04701	LXD FREE,4	PROGRAM OUT OF
04653	0021	00	0	04602	TTR SPACE	SEQUENCE
04654	0760	00	0	00140	RESET SLF	
04655	-0634	00	4	04677	SXD MONIT,4	MONITOR
04656	-0535	00	4	04677	LDC MONIT,4	
04657	1 00001	4	4	04660	TXI *+1,4,1	FOR RETURN
04660	0634	00	4	04672	SXA EXIT,4	
04661	-0754	00	0	00000	PXD 0,0	CLEAR ACC
04662	0600	00	0	00000	STZ 0	CLEAR LOC ZERO
04663	0560	00	0	00000	LDQ	CLEAR MQ
04664	0140	00	0	04665	TOV *+1	TURN OFF
04665	0761	00	0	00000	NOP	
04666	0760	00	0	00012	DCT	
04667	0761	00	0	00000	NOP	
04670	0044	00	0	00000	PAI	RESET
04671	-0534	00	7	00000	LXD 0,7	CLEAR ALL XRS
04672	0020	00	0	00000	EXIT TRA	RETURN TO PROGRAM
04673	0760	00	0	00140	PART2 SLF	
04674	0760	00	0	00144	SLN 4	LIGHT 4 ON
04675	0020	00	0	04620	TRA CLEAR+1	
04676	+0000000000000			BIN	OCT 0	
04677	+0000000000000			MONIT	OCT 0	
04700	+0000000000200			K41	OCT 200	
	04701			FREE	BSS 2	
						INDEXABLE BCD PRINT SUBROUTINE.
04703	0020	00	0	05072	SPLAT TRA SPLT1	CHECK FOR SENSE PRINTER
04704	0634	00	1	05000	SXA SPLAT+61,1	
04705	0634	00	2	05001	SXA SPLAT+62,2	
04706	0634	00	4	05071	SXA SUBET,4	SAVE ORIGINAL XRC.
04707	-0520	00	4	00001	NZT 1,4	IF CONTROL WORD ZERO.
*5						
04710	0020	00	4	00002	TRA 2,4	RETURN

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04711	-0500	00	4	00001	CAL	1,4	GET NON-ZERO WORD
04712	0602	00	0	05030	SLW	SPLAT+85	SAVE CONTROL WORD
04713	-0734	00	1	00000	PDX	0,1	TYPE WHEEL NO.
04714	-3	00000	1	05004	TXL	SPLAT+65,1,0	IF DECR. ZERO, GET NEW CONTROL WORD

\*10

04715	-0634	00	4	04717	SXD	*+2,4	GET EXIT ADDRESS
04716	0737	00	2	00000	PAC	0,2	BY ADDING TWOS COMP.
04717	1	00000	2	04720	TXI	*+1,2,0	OF N TO XRC.
04720	0634	00	2	05002	SXA	SPLAT+63,2	EXIT VALUE.

SET BIT INDEX TO STARTING WHEEL

04721	0634	00	1	04724	SXA	*+3,1	FOR SHIFTING
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\*15

04722	0774	00	3	00001	AXT	1,3	1 TO XRA AND XRB
04723	-0500	00	0	05025	CAL	SPLAT+82	BIT INDEX TO P
04724	-0765	00	1	00000	LGR	0,1	SHIFT TO STARTING POINT
04725	-0100	00	0	04730	TNZ	*+3	IF ACC IS ZERO, SET FOR
04726	-0600	00	0	05026	STQ	SPLAT+83	RIGHT ROW, AND MAKE

\*20

04727	1	00001	2	04731	TXI	*+2,2,1	XRB A DUECE
04730	0602	00	0	05026	SLW	SPLAT+83	OTHERWISE, LEFT ROW.
04731	0774	00	1	00032	AXT	26,1	
04732	0600	00	1	05071	STZ	CI+26,1	CLEAR CARD IMAGE
04733	2	00001	1	04732	TIX	*-1,1,1	

FORM CARD IMAGE.

\*25

04734	2	00001	4	04735	TIX	*+1,4,1	ADDRESS OF FIRST WORD.
04735	0774	00	1	00006	AXT	6,1	CHARACTER COUNT.
04736	0560	00	4	00001	LDQ	1,4	GET THE WORD. SOME PEOPLE NEVER DO, YOU KNOW
04737	0634	00	1	04771	SXA	SPLAT+54,1	SAVE CHARACTER COUNT.
04740	-0754	00	0	00000	PXD		CLEAR ACC

\*30

04741	-0763	00	0	00002	LGL	2	ZONE
04742	0767	00	0	00001	ALS	1	TIMES 2
04743	0734	00	1	00000	PAX	0,1	
04744	0634	00	1	04760	SXA	SPLAT+45,1	FOR FUTURE REFERENCE.
04745	0760	00	0	00000	CLM		

\*35

04746	-0763	00	0	00004	LGL	4	DIGIT
04747	0767	00	0	00001	ALS	1	TIMES 2
04750	0602	00	0	05037	SLW	CI	TEMPO
04751	-0500	00	0	05026	CAL	SPLAT+83	BIT INDEX
04752	-0520	00	0	05037	NZT	CI	IS DIGIT ZERO.

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9 I O T A  
8-15-59  
PAGE 65

\*40

04753	3	00000	1	05023	TXH SPLAT+80,1,0	IS ZERO ZONE TOO.
04754	0534	00	1	05037	LXA CI,1	OK, PROCEED
04755	3	00030	1	04763	TXH SPLAT+48,1,24	CHECK FOR ILLEGAL
04756	3	00024	1	05021	TXH SPLAT+78,1,20	SPECIAL CHARACTER.
04757	-0602	60	2	05037	ORS* SPLAT+92,2	XRB PICKS LEFT OR RIGHT.

\*45

04760	0774	00	1	00000	AXT 0,1	ZONE AGAIN.
04761	-3	00000	1	04763	TXL *+2,1,0	NOTHING FOR ZERO ZONE
04762	-0602	60	2	05035	ORS* SPLAT+90,2	PLACE ZONE BIT.

COLUMN SET.

04763	0771	00	0	00001	ARS 1	SET BIT INDEX TO
04764	-0100	00	0	04770	TNZ *+4	NEXT COLUMN, IF ANY.

\*50

04765	3	00001	2	04777	TXH SPLAT+60,2,1	IF BX ZERO,+XRB 1, STOP
04766	-0500	00	0	05025	CAL SPLAT+82	IF NOT, SET TO RIGHT
04767	1	00001	2	04770	TXI *+1,2,1	ROW AND PROCEED.
04770	0602	00	0	05026	SLW SPLAT+83	BX READY FOR NEXT COLUMN.
04771	0774	00	1	00000	AXT 0,1	MORE CHARACTERS.

\*55

04772	2	00001	1	04737	TIX SPLAT+28,1,1	NEXT COLUMN
04773	0534	00	1	05030	LXA SPLAT+85,1	MORE WORDS MAYBE.
04774	-2	00001	1	04777	TNX *+3,1,1	IF NOT, STOP.
04775	0634	00	1	05030	SXA SPLAT+85,1	YUMMY, GO GET EM.
04776	1	00000	0	04734	TXI SPLAT+25	

FIFTEEN MEN ON A DEAD MANS CHEST.

\*60

04777	0540	00	0	05027	RCHA SPLAT+84	LET HER RIP
05000	0774	00	1	00000	AXT 0,1	
05001	0774	00	2	00000	AXT 0,2	
05002	0774	00	4	00000	AXT 0,4	
05003	0020	00	4	00002	TRA 2,4	EXIT

GET NEW CONTROL WORD FROM SOMPLACE

\*65

05004	0634	00	4	05002	SXA SPLAT+63,4	FOR EXIT
05005	0534	00	1	05000	LXA SPLAT+61,1	RESTORE XRA
05006	-0520	60	0	05030	NZT* SPLAT+85	IF CONTROL WORD ZERO
05007	0020	00	0	05000	TRA SPLAT+61	RETURN.
05010	-0500	00	0	05030	CAL SPLAT+85	OLD CONTROL WORD

\*70

05011	0625	00	0	05012	STT *+1	BRING OUT INDEX
05012	-0634	00	0	05014	SXD *+2,0	REGISTER, IF ONE IS TAGED.

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05013	0737	00	4	00000	PAC	0,4	
05014	1	00000	4	05015	TXI	*+1,4,0	GET EFFECTIVE ADDRESS.
05015	-0500	00	4	00000	CAL	0,4	NEW CONTROL WORD.
*75							
05016	-0734	00	1	00000	PDX	0,1	TYPE WHEEL ID.
05017	0602	00	0	05030	SLW	SPLAT+85	
05020	1	00001	4	04721	TXI	SPLAT+14,4,1	PROCEED
YOUR AN OLD SMOOTHY.							
05021	-0602	60	2	05033	ORS*	SPLAT+88,2	PUT EIGHTH IN, TAKE
05022	2	00020	1	04757	TIX	SPLAT+44,1,16	16 OUTM, - GOOD BUSINESS
*80							
05023	-3	00004	1	04762	TXL	SPLAT+47,1,4	IF NOT BLANK, SET ZONE.
05024	0020	00	0	04763	TRA	SPLAT+48	BLANK.
05025	-0	00000	0	00000	MZE		FOR BIT INDEX.
05026	0000	00	0	00000	HTR		DYNAMIC BIT INDEX.
05027	0000	30	0	05041	IOCD	CI+2,,24	BUFFER COMMAND
*85							
05030	0000	00	0	00000	HTR		SPECIAL SALON FOR THE CONTROL WORD
05031	0000	00	0	05044	HTR	CI+5	
05032	0000	00	0	05043	HTR	CI+4	BROW ADDRESSES
05033	0000	00	1	05072	HTR	CI+27,1	
05034	0000	00	1	05071	HTR	CI+26,1	ZONE ROW ADDRESSES
*90							
05035	0000	00	1	05064	HTR	CI+21,1	
05036	0000	00	1	05063	HTR	CI+20,1	DIGIT ROW ADDRESSES
				05037	CI	BSS 26	
				05071	SUBET	BSS 1	
05072	0760	00	0	00162	SPLT1	SWT 2	AND SWITCHES
05073	0020	00	0	05075	TRA	*+2	CHECK SWITCH 3
05074	0020	00	0	05106	TRA	SPLIT	IGNORE ERROR
05075	0760	00	0	00163	SWT	3	TEST THREE
05076	0020	00	0	05100	TRA	*+2	UP-PRINT
05077	0020	00	0	05106	TRA	SPLIT	DOWN-RETURN
05100	0500	00	4	00001	CLA	1,4	
05101	0766	00	0	01361	WPRA		
05102	-0120	00	0	05104	TMI	*+2	SENSE PRINTER
05103	0020	00	0	04704	TRA	SPLAT+1	
05104	0760	00	0	01363	SPRA	3	
05105	0020	00	0	04704	TRA	SPLAT+1	
05106	0500	00	4	00001	SPLIT	CLA 1,4	SPLAT PROGRAM CONTROL WORD
05107	0621	00	0	05114	STA	*+5	SET RETURN ADDRESS
05110	0771	00	0	00022	ARS	18	MOVE DECREMENT TO ADDRESS
05111	-0100	00	0	05113	TNZ	*+2	ZERO IF REMOTE

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05112	0621	00	0	05114		STA	**2	SET RETURN ADDRESS
05113	2	00002	4	05114		TIX	**1,4,2	
05114	0020	00	4	00000		TRA	** ,4	RETURN TO PROGRAM
05115	0774	00	1	70015	START	AXT	32767-TERM,1	
05116	0500	00	0	05122		CLA	**4	L TSX SPACE,4
05117	0601	00	1	00000		STO	0,1	
05120	2	00001	1	05117		TIX	*-1,1,1	
05121	0020	00	0	00030		TRA	24	
05122	0074	00	4	04602		TSX	SPACE,4	CONSTANT
05123	0	00001	0	00010	A	PZE	8,0,1	
05124	243124604546					BCD	6DID NOT TRAP CORRECTLY BEFORE DECODI	
05125	636063512147							
05126	602346515125							
05127	236343706022							
05130	252646512560							
05131	242523462431							
05132	452760306351					BCD	2NG HTR.	
05133	336060606060							
05134	0	00001	0	00005	B	PZE	5,0,1	
05135	623046644324					BCD	5SHOULD NOT TRAP WHEN DISABLED	
05136	604546636063							
05137	512147606630							
05140	254560243162							
05141	212243252460							
05142	0	00001	0	00010	C	PZE	8,0,1	
05143	243124604546					BCD	6DID NOT TRAP CORRECTLY 1 INSTRUCTION	
05144	636063512147							
05145	602346515125							
05146	236343706001							
05147	603145626351							
05150	642363314645							
05151	602225264651					BCD	2 BEFORE HTR.	
05152	256030635133							
05153	0	00001	0	00005	D	PZE	5,0,1	
05154	243124604546					BCD	5DID NOT TRAP CORRECTLY ON HTR.	
05155	636063512147							
05156	602346515125							
05157	236343706046							
05160	456030635133							
05161	0	00001	0	00005	E	PZE	5,0,1	
05162	243124604546					BCD	5DID NOT TRAP CORRECTLY ON HPR.	
05163	636063512147							
05164	602346515125							
05165	236343706046							
05166	456030475133							
05167	0	00001	0	00005	F	PZE	5,0,1	
05170	243124604546					BCD	5DID NOT TRAP CORRECTLY ON DVH.	
05171	636063512147							

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9 I O T A  
8-15-59  
PAGE 68

05172 602346515125  
05173 236343706046  
05174 456024653033

05175 0 00001 0 00005 G PZE 5,0,1  
05176 243124604546 BCD 5DID NOT TRAP CORRECTLY ON DVP.  
05177 636063512147  
05200 602346515125  
05201 236343706046  
05202 456024654733

05203 0 00001 0 00010 H PZE 8,0,1  
05204 442123303145 BCD 6MACHINE TRAPPED AFTER BEING DISABLED  
05205 256063512147  
05206 472524602126  
05207 632551602225  
05210 314527602431  
05211 622122432524  
05212 602270605125 BCD 2 BY RESET.  
05213 622563336060

05214 0 00001 0 00011 J PZE 9,0,1  
05215 243124604546 BCD 6DID NOT TRAP WHEN ENABLED AFTER HAVI  
05216 636063512147  
05217 606630254560  
05220 254521224325  
05221 246021266325  
05222 516030216531  
05223 452760222525 BCD 3NG BEEN RESET.  
05224 456051256225  
05225 633360606060

05226 0 00001 0 00006 K PZE 6,0,1  
05227 243124604546 BCD 6DID NOT TRAP CORRECTLY IN MANUAL.  
05230 636063512147  
05231 602346515125  
05232 236343706031  
05233 456044214564  
05234 214333606060

05235 0 00022 0 00007 L PZE 7,0,18  
05236 446443633140 BCD 6MULTI-LEVEL INDIRECT ADDRESSING FAIL  
05237 432565254360  
05240 314524315125  
05241 236360212424  
05242 512562623145  
05243 276026213143  
05244 252460606060 BCD 1ED

05245 0 00001 0 00010 M PZE 8,0,1  
05246 264760635121 BCD 6FP TRAP FAILED TO TAKE PRIORITY OVER  
05247 476026213143  
05250 252460634660  
05251 632142256047  
05252 513146513163  
05253 706046652551

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9 I O T A  
8-15-59  
PAGE 69

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05254 602462606351          BCD 2 DS TRAP
05255 214760606060

05256 0 00001 0 00014  SA    PZE 12,0,1
05257 314562635164          BCD 6INSTRUCTION BEING EXECUTED WHEN TRAP
05260 236331464560
05261 222531452760
05262 256725236463
05263 252460663025
05264 456063512147
05265 604623236451          BCD 6 OCCURRED FAILED COMPLETE OPERATION
05266 512524602621
05267 314325246023
05270 464447432563
05271 256046472551
05272 216331464560

05273 0 00001 0 00013  N    PZE 11,0,1
05274 212246652560          BCD 6ABOVE ERROR OCCURRED WITH LCH GIVEN
05275 255151465160
05276 462323645151
05277 252460663163
05300 306043233060
05301 273165254560
05302 314560633144          BCD 5IN TIME-NO TRAP WAS EXPECTED
05303 254045466063
05304 512147606621
05305 626025674725
05306 236325246060

05307 0 00001 0 00011  P    PZE 9,0,1
05310 212246652560          BCD 6ABOVE ERROR OCCURRED TESTING DS COMM
05311 255151465160
05312 462323645151
05313 252460632562
05314 633145276024
05315 626023464444
05316 214524606351          BCD 3AND TRAP ALONE
05317 214760214346
05320 452560606060

05321 0 00001 0 00010  Q    PZE 8,0,1
05322 212246652560          BCD 6ABOVE ERROR OCCURRED TESTING EOF TRA
05323 255151465160
05324 462323645151
05325 252460632562
05326 633145276025
05327 462660635121
05330 476021434645          BCD 2P ALONE
05331 256060606060

05332 0 00001 0 00010  R    PZE 8,0,1
05333 212246652560          BCD 6ABOVE ERROR OCCURRED TESTING RDNCK T
05334 255151465160
05335 462323645151
05336 252460632562
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9 I O T A  
8-15-59  
PAGE 70

05337	633145276051		
05340	244523426063		
05341	512147602143		BCD 2RAP ALONE
05342	464525606060		
05343	0 00001 0 00011	S	PZE 9,0,1
05344	233021454525		BCD 6CHANNEL DID NOT STAY ENABLED AFTER T
05345	436024312460		
05346	454663606263		
05347	217060254521		
05350	224325246021		
05351	266325516063		
05352	512147602145		BCD 3RAP AND RESTORE
05353	246051256263		
05354	465125606060		
05355	0 00001 0 00011	T	PZE 9,0,1
05356	512562634651		BCD 6RESTORE WITH ZEROS DID NOT RESET THE
05357	256066316330		
05360	607125514662		
05361	602431246045		
05362	466360512562		
05363	256360633025		
05364	604751256531		BCD 3 PREVIOUS ENABLE
05365	466462602545		
05366	212243256060		
05367	0 00001 0 00010	U	PZE 8,0,1
05370	512445234260		BCD 6RDNCK DID NOT TRAP AFTER PREVIOUSLY
05371	243124604546		
05372	636063512147		
05373	602126632551		
05374	604751256531		
05375	466462437060		
05376	222531452760		BCD 2BEING TESTED
05377	632562632524		
05400	0 00001 0 00010	V	PZE 8,0,1
05401	623046644324		BCD 6SHOULD HAVE INDICATED ALL TRAPS-SAME
05402	603021652560		
05403	314524312321		
05404	632524602143		
05405	436063512147		
05406	624062214425		
05407	602330214545		BCD 2 CHANNEL
05410	254360606060		
05411	0 00001 0 00014	W	PZE 12,0,1
05412	623046644324		BCD 6SHOULD NOT HAVE TRAPPED-LAST ENABLE
05413	604546636030		
05414	216525606351		
05415	214747252440		
05416	432162636025		
05417	452122432560		
05420	314562635160		BCD 6INSTR RESET ALL PREVIOUS ENABLES
05421	512562256360		

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9 I O T A  
8-15-59  
PAGE 71

05422 214343604751  
05423 256531466462  
05424 602545212243  
05425 256260606060

05426 0 00001 0 00011 X PZE 9,0,1  
05427 623046644324 BCD 6SHOULD NOT HAVE TRAPPED-INHIBITED BY  
05430 604546636030  
05431 216525606351  
05432 214747252440  
05433 314530312231  
05434 632524602270  
05435 604321626360 BCD 3 LAST PREVIOUS TRAP  
05436 475125653146  
05437 646260635121

05440 0 00001 0 00011 Y PZE 9,0,1  
05441 635121476024 BCD 6TRAP DID NOT DELAY FOR SELECT AND RE  
05442 312460454663  
05443 602425432170  
05444 602646516062  
05445 254325236360  
05446 214524605125  
05447 622563604346 BCD 3SET LOAD CHANNEL  
05450 212460233021  
05451 454525436060

05452 -0 00001 0 00014 Z MZE 12,0,1  
05453 635121476066 BCD 6TRAP WAS NOT DELAYED UNTIL SELECT AN  
05454 216260454663  
05455 602425432170  
05456 252460644563  
05457 314360622543  
05460 252363602145  
05461 246051256225 BCD 6D RESET LOAD CHANNEL WERE COMPLETED  
05462 636043462124  
05463 602330214545  
05464 254360662551  
05465 256023464447  
05466 432563252460

07713 07713 ORG 4043  
07713 0 00001 0 00014 AA PZE 12,0,1  
07714 623046644324 BCD 6SHOULD NOT HAVE TRAPPED UNTIL AFTER  
07715 604546636030  
07716 216525606351  
07717 214747252460  
07720 644563314360  
07721 212663255160  
07722 622523464524 BCD 6SECOND SELECT HAS BEEN PERFORMED  
07723 606225432523  
07724 636030216260  
07725 222525456047  
07726 255126465144  
07727 252460606060

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07730 0 00001 0 00014 AB PZE 12,0,1  
07731 623046644324 BCD 6SHOULD SHOW ALL TRAPS SAME CHAN. EOF  
07732 606230466660  
07733 214343606351  
07734 214762606221  
07735 442560233021  
07736 453360254626  
07737 602145246051 BCD 6 AND RDNCY TRIGGERS SHOULD BE OFF  
07740 244523706063  
07741 513127272551  
07742 626062304664  
07743 432460222560  
07744 462626606060

07745 0 00001 0 00014 AC PZE 12,0,1  
07746 255151465162 BCD 6ERRORS SHOW THAT WHILE ENABLED AND T  
07747 606230466660  
07750 633021636066  
07751 303143256025  
07752 452122432524  
07753 602145246063  
07754 512147602346 BCD 6RAP COND. - TRIGGERS WERE TURNED OFF  
07755 452433604060  
07756 635131272725  
07757 516260662551  
07760 256063645145  
07761 252460462626

07762 TERM EQU 4082  
06511 OK EQU 3401  
06504 ERROR EQU 3396  
05504 CTRA EQU 2884  
05505 CTRB EQU 2885  
05506 CTRC EQU 2886  
05507 CTRD EQU 2887  
05510 CTRE EQU 2888  
05511 CTRF EQU 2889  
05513 IOCNT EQU 2891  
05514 IOC EQU 2892  
05512 CTX EQU 2890  
05503 IOCT EQU 2883  
05500 CTRL1 EQU 2880  
05501 CTRL2 EQU 2881  
05502 CTRL3 EQU 2882  
06556 WDNO EQU 3438  
06557 RECNO EQU 3439  
06560 RDNCK EQU 3440  
04236 CNA EQU NABL  
04371 CREAD EQU CRDFD  
  
00000 END

EOF\*