

IBM - POUGHKEEPSIE
DEPT 855 BLDG 990
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7 0 9 0 / 7 0 9 4 D I A G N O S T I C E N G I N E E R I N G
D I A G N O S T I C P R O G R A M R E L E A S E

DIAGNOSTIC PROGRAM - XCOMC

TITLE - 704/7090 or 704/7094 Compatibility Program

C O M M E N T S

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

DISTRIBUTION - All 7090 and 7094 installations

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

REQUESTS FOR DATA SYSTEMS DIVISION SERIES DIAGNOSTIC WRITE-UPS,
LISTINGS, AND/OR CARDS (INCLUDING OPTIONAL AND SPECIAL FEATURES)
SHOULD BE DIRECTED TO---

PRODUCT RELIABILITY AND SERVICEABILITY ENGINEERING
DEPARTMENT 855 , BUILDING 990
POUGHKEEPSIE, NEW YORK

-----INCLUDE CUSTOMER'S NAME AND INSTALLATION NUMBER-----



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XCOMC
704/7090 or 704/7094
COMPATIBILITY PROGRAM



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PURPOSE OF CHANGE

1. To allow this program to be run on the 7094.
2. This program now contains a routine to printout unexpected traps showing the location +1 of where the trap occurred.
3. There are 3 new optional routines which check BTTX and ETTX (709 instructions). See Section C - 4.
4. To update printouts to conform with present level of program i.e. XCOMB to be XCOMC.
5. Sense Switch 5 can now be used to provide a clean program halt. The program will now run properly if it is desired not to change modes.

MACHINE EC LEVEL

7090- EC 248939

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

7094- EC 252597

XCOMC

704/7090/7094 COMPATIBILITY DIAGNOSTIC

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

1. Purpose of Diagnostic

- a. Check ability to nullify 32K storage from 16K.
- b. Check ability to nullify 32K storage from 8K.
- c. Check 7090/7094 in specified modes will trap when encountering 704 or 7090/7094 SELECT, SENSE, CPY, CAD, or LDA instructions.
- d. Check ability of 7090/7094 to perform floating point operations as per 704.
- e. Check Reset and Load buttons restore the machine to 7090/7094 operating Mode.
- f. For reliability, execute 9M05B with compatibility triggers on.

2. Method of Test

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

B. MACHINE UNITS AND STORAGE AREA

1. Units Required

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

2. Storage Requirements

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

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

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

 40020 - 40125 To check illegal traps from 9M05B.

C. PROGRAM CONTROL

1. Card Deck

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

2. Sense Switch Control

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

Sense Switch 5

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

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

Sense Switch 6

UP - End XCOM and simulate Load Cards or Tape.

DN - Repeat XCOM

3. Sense Light Control

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

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

4. Sign Key (S)

UP - Load next diagnostic program from tape.

DN - Load next diagnostic program from cards.

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

Key 34

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

DN - Test BTTx and ETTx instruction for trapping

Note: See Page 20

Key 35

UP - Set program to check
16K nullify storage.

DN - Set program to check
8K nullify storage.

D. NORMAL STOPS

- 1. 11462 RESET BUTTON TEST - Push reset and start buttons to con-
tinue.
- 2. 11613 LOAD BUTTON TEST - Push load tape button to continue.
- 3. 12250 Set key 35 and console switch for desired nullified storage
and set key 34 to run or bypass BTTx and ETTx routines.
Push start to continue. (On initial pass set sign key also).

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

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

F. PRINTOUTS

1. Program identification and size of nullified storage testing is printed out immediately after a nullify storage selection is made if sense switch 3 is up.
2. The printer will print two lines if the RESET BUTTON routines are executed successfully.
3. Illegal traps from 9M05 showing the location plus one from where the trap occurred are printed out.
4. With sense switches 3 and 5 up and sense switch 6 down, the program is repeating with the same selected nullify storage and the printer will indicate every 100 passes made.
5. Whenever sense switch 5 is depressed, (an indication that the alternate nullify storage size is to be tested), the total number of passes completed with the size of nullify storage tested is printed out if sense switch 3 is up.
6. With sense switch 3 and 6 up, the total number of passes completed by the program is printed out prior to loading the next program.

G. COMMENTS

1. On a machine with only a 16K nullified storage, sense switch 5 can be used to provide a clean halt.
2. Although the XCOM basic routine program is contained within locations 10000 - 13260 the program maintains an exit routine for a SELECT, SENSE, CPY, CAD or LDA trap in locations 40001-40006. Locations 40007 - 40017 are used when storage is nullified from 16K and locations 20007-20017 are used when storage is nullified from 8K.
3. Locations 40020 - 40225 contain a routine inserted to determine locations trapped from in 9M05.

- G.
4. If the sign key is up and sense switch 3 is down the reset and load button tests are bypassed.
 5. A one word record is written on tape to avoid run-a-way.
 6. 9M05 uses a modified version of 9DEPR which can be found on Page 66 of the listing.
 7. Sense switch 5 has been made ineffective when executing 9M05 and therefore the FDH stop at Location 00621 is bypassed.
 8. All unoccupied storage locations are filled with STR when executing XCOM and TSX 06174 when executing 9M05.
 9. 9M05 monitor location 06253 has been altered to transfer to location 06273. Locations 06273 - 06347 provide routines to check the correct status of the compatibility triggers after execution of a 9M05 test, the 2 page instruction sequence can be found just before the modified version of DEPR of the listing.
 10. A manual transfer to any routine in either section of XCOM should be to the initial instruction of the routine. To avoid a false monitor error stop, leave the keys down, since both monitors check the keys for a manual transfer.
 11. When encountering an error stop, refer to the appropriate listing for comments and instructions to determine the type of error.
 12. BTTx with the trigger ON, if selected to be tested, is only tested on first pass. This prevents wearing out the tape in one spot due to re-winds. If Key 34 was not down on the first pass, this test routine will never be performed.

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FOR 16/16 OR 8/24 NULLIFY STORAGE

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X C O M C

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

10000 ORG 4096

COMMENCE TEST

CHECK ESNT DIVIDES STORAGE CORRECTLY

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

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

10003	0020	00	0	77777		TRA 32K	TRA TO LOC 37777 ON 16/16 K TRA TO LOC 17777 ON 8/24 K
10004	0760	00	0	00162	AY1	SWT 2	ERROR
10005	0420	00	0	00000		HPR	TRA 37777 ON 8/24K TRA 17777 ON 16/16K
10006	0020	00	0	10011		TRA **3	
10007	0760	00	0	00162	AY2	SWT 2	ERROR
10010	0420	00	0	00000		HPR	TRA 77777 ON 8/24 OR 16/16K
10011	0760	00	0	00161	AY3	SWT 1	TEST SWITCH 1
10012	0020	00	0	10014		TRA **2	CONTINUE
10013	0020	00	0	10000		TRA AY	REPEAT

CHECK TRA INSTRUCTION DOES NOT TURN ON MEMORY NULLIFICATION TRIGGER

10014	0774	00	1	10014	AZ	AXT *,1	LOCATION TO XRA
10015	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
10016	0500	00	0	13031		CLA K+1	L TRA AZA-2
10017	0601	00	0	00007		STO 7	STORE IN LOCATION 00007
10020	0500	00	0	10017		CLA *-1	SAVE ADDRESS FOR NEXT
10021	0621	00	0	12145		STA COR	ROUTINE INITIALIZATION
10022	0020	00	0	10023		TRA **1	IS NULLIFY TGR TURNED ON
10023	0020	00	0	00000	FXM01	TRA **	IF NO, TRA TO LOCATION 20007 OR 40007.
10024	0760	00	0	00162		SWT 2	ERROR
10025	0420	00	0	00000		HPR	CHECK COMPONENTS MENTIONED ABOVE
10026	0760	00	0	00161	AZA	SWT 1	TEST SWITCH 1
10027	0020	00	0	10031		TRA **2	CONTINUE
10030	0020	00	0	10014		TRA AZ	REPEAT

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10031	0774	00	1	10031	A	AXT *,1	THIS LOCATION IN XRA
10032	0020	00	0	12042		TRA MONIT	MONITOR PROGRAM
10033	0500	00	0	13032		CLA K+2	L TRA AA
10034	0601	00	0	00011		STO 9	STORE IN LOCATION 00011
10035	0500	00	0	10034		CLA *-1	SAVE ADDRESS FOR NEXT
10036	0621	00	0	12145		STA COR	ROUTINE INITIALIZATION
10037	-0021	00	0	10040		ESNT **1	ENTER NULLIFICATION MODE
10040	0020	00	0	00000	FXM02	TRA **	TRY TRA TO UPPER HALF OF STORAGE LOCATION- 20011 OR 40011.
10041	0760	00	0	00162		SWT 2	ERROR
10042	0420	00	0	00000		HPR	CHECK NULLIFY TRIGGER

CHECK ABILITY TO TURN OFF NULLIFY TRIGGER FOR FULL STORAGE USE

10043	0500	00	0	13033	AA	CLA K+3	L TRA AB-5
10044	0601	00	0	00012		STO 10	STORE IN LOCATION 00012
10045	0500	00	0	10044		CLA *-1	SAVE ADDRESS FOR NEXT
10046	0621	00	0	12146		STA COR+1	ROUTINE INITIALIZATION
10047	-0754	00	0	00000		PXD	CLEAR ACCUMULATOR
10050	0560	00	0	05551		LDQ 2921	L BIT IN MQ POSITION 1

10051	-0760	00	0	00010		LSNM	EXIT NULLIFICATION MODE
10052	0020	00	0	00000	FXM03	TRA **	TRA TO LOC 20012 OR 40012.
10053	0760	00	0	00162		SWT 2	ERROR
10054	0420	00	0	00000		HPR	CHECK NULLIFY TRIGGER

CHECK LSM DID NOT CONDITION RND

10055	0100	00	0	10060		TZE AB	PR SIGN MINUS, NO RND
10056	0760	00	0	00162		SWT 2	ERROR
10057	0420	00	0	00000		HPR	PR SIGN MINUS SHOULDNT RND
10060	0760	00	0	00161	AB	SWT 1	TEST SWITCH 1
10061	0020	00	0	10063		TRA **2	CONTINUE
10062	0020	00	0	10031		TRA A	REPEAT

CHECK TTR +0021 HAS NO EFFECT ON NULLIFY TRIGGER

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

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

10072	0020 00 0 00000	FXM04 TRA **	TRA TO LOC 20013 OR 40013.
10073	0760 00 0 00162	SWT 2	ERROR
10074	0420 00 0 00000	HPR	CHECK NULLIFY TRIGGER
10075	0760 00 0 00161	A1A SWT 1	TEST SWITCH 1
10076	0020 00 0 10100	TRA **2	CONTINUE
10077	0020 00 0 10063	TRA A1	REPEAT

CHECK TEFD -0031 HAS NO EFFECT ON NULLIFY TRIGGER

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

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

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

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

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

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

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

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

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

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CHECK XR INCREMENTED IN NULLIFY MODE

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

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

CHECK AN XR WITH TIX IN NULLIFY MODE

10153	0774	00	1	10153	A5	AXT *,1	THIS LOCATION TO XRA
10154	0020	00	0	12042		TRA MONIT	CHECK PROGRAM MONITORED
10155	0774	00	2	00000	FXM07	AXT **,2	SET 20000 OR 40000 TO XRB.
10156	-0021	00	0	10162		ESNT **4	TURN ON NULLIFY TGR
10157	0760	00	0	00162		SWT 2	
10160	0420	00	0	00000		HPR	TIX TRANSFERRED
10161	0020	00	0	10163		TRA **2	
10162	2 00000	2		10157	FXM08	TIX *-3,2,**	NO TRA UNDER ANY CONDITION DECR SET TO 17777 OR 37777.
10163	0754	00	2	00000		PXA 0,2	XRB TO ACC
10164	0560	00	0	13077		LDQ NUM	L +0
10165	0340	00	0	13077		CAS NUM	
10166	0020	00	0	10170		TRA **2	ERROR
10167	0020	00	0	10172		TRA **3	OK-XRB ZERO
10170	0760	00	0	00162		SWT 2	ERROR
10171	0420	00	0	00000		HPR	CHECK FOR ADDER AND XRB COL 3 OUTPUT
10172	0760	00	0	00161		SWT 1	TEST SWITCH 1
10173	0020	00	0	10175		TRA **2	CONTINUE
10174	0020	00	0	10153		TRA A5	REPEAT

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CHECK TSX IN AND OUT OF NULLIFICATION MODE

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

CHECK TSX WITH NULLIFY TRIGGER ON

10201	-0021	00	0	10202	ESNT **1	TURN ON NULLIFY TGR
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10202	0074	00	2	00000	FXM09 TSX **2	HIGH ORDER ADDR LINE DOWN.
10203	0020	00	0	10205	TRA **2	ADDR SET TO 20016 OR 40016.
10204	0020	00	0	10207	TRA **3	ERROR
						OK-PROCEED
10205	0760	00	0	00162	SWT 2	ERROR
10206	0420	00	0	00000	HPR	TRANSFERRED TO LOC 40016

CHECK TSX WITH NULLIFY TRIGGER OFF

10207	-0760	00	0	00010	LSNM	TURN OFF NULLIFY TGR
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10210	0074	00	2	00000	FXM10 TSX **2	TRA TO LOC 20016 OR 40016.
10211	0020	00	0	10214	TRA **3	OK-PROCEED
10212	0760	00	0	00162	SWT 2	ERROR
10213	0420	00	0	00000	HPR	TRANSFERRED TO LOC 00016
10214	0760	00	0	00161	SWT 1	TEST SWITCH 1
10215	0020	00	0	10217	TRA **2	CONTINUE
10216	0020	00	0	10175	TRA A5X	REPEAT

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CHECK AN XR COUNT DOWN WITH TIX IN NULLIFY MODE

10217	0774	00	1	10217	A6	AXT *,1	THIS LOCATION TO XRA
10220	0020	00	0	12042		TRA MONIT	CHECK PROGRAM MONITORED
10221	0774	00	2	77777		AXT 32K,2	L 77777 IN XRB
10222	-0021	00	0	10223		ESNT **1	TURN ON NULLIFY TGR
10223	2 00001	2		10224		TIX **1,2,1	
10224	-0754	00	2	00000		PXD 0,2	
10225	0560	00	0	13156		LDQ NMBR	MQ DECREMENT VALUE SHOULD BE IN XRB
10226	0340	00	0	13156		CAS NMBR	
10227	0020	00	0	10231		TRA **2	ERROR
10230	0020	00	0	10233		TRA **3	XRБ REDUCTION OK
10231	0760	00	0	00162		SWT 2	ERROR
10232	0420	00	0	00000		HPR	CHECK IF HIGH ORDER POSITIONS BLOCKED
10233	2 00001	2		10233		TIX *,2,1	COUNT DOWN XRБ
10234	0754	00	2	00000		PXA 0,2	XRБ TO ACC
10235	0560	00	0	13100		LDQ NUM+1	L +1
10236	0340	00	0	13100		CAS NUM+1	
10237	0020	00	0	10241		TRA **2	ERROR
10240	0020	00	0	10243		TRA **3	XRБ COUNT DOWN OK
10241	0760	00	0	00162		SWT 2	ERROR
10242	0420	00	0	00000		HPR	ERROR IN COUNT DOWN
10243	0760	00	0	00161		SWT 1	TEST SWITCH 1
10244	0020	00	0	10246		TRA **2	CONTINUE
10245	0020	00	0	10217		TRA A6	REPEAT

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CHECK ESNT IS INDIRECT ADDRESSABLE

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

10255	0074	00	2	00000	A6XX	TSX **,2	SHOULD TRA TO LOC 00016. ADDR SET TO 20016 OR 40016.
10256	0020	00	0	10260		TRA **2	ERROR
10257	0020	00	0	10266		TRA **7	NULLIFY + IA TRGRS OK

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

10262	0020	00	0	10266		TRA **4	
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10263	-0760	00	0	00010		LSNM	DO NOT EXECUTE INSTR USE ADR PORTION ONLY TO GET ADR FOR ESNT INSTR TO TRANSFER TO
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10264	0760	00	0	00162		SWT 2	ERROR
10265	0420	00	0	00000		HPR	WAS IA CONTROL TRGR ON

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

CHECK I/O SENSE AND TRAP MODE TRIGGER

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

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

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

10302	-0021	00	0	10303		ESNT **1	TURN ON NULLIFY TGR AND SIMULATE INDICATOR
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BRINGING UP STORE AND TRAP CONTROLS, WILL PLACE THE LOCATION PLUS 1 OF
SELECT INSTRUCTION IN ADDRESS PORTION LOCATION 40000 AND TRAP TO
LOCATION 40001.

10303	0762	00	0	01222	RTBA 2	SEC OP 0,2
10304	0760	00	0	00162	A7A SWT 2	ERROR
10305	0420	00	0	00000	HPR	DID NOT TRAP-SEE COMMENT

CHECK MEMORY NULLIFICATION TRIGGER TURNED OFF

10306	0074	00	2	00000	FXM11 TSX **,2	TRA TO LOC 20016 OR 40016.
10307	0020	00	0	10312	TRA **3	OK-PROCEED
10310	0760	00	0	00162	SWT 2	ERROR
10311	0420	00	0	00000	HPR	CHECK IF NULLIFY TGR OFF

CHECK CONTENTS OF LOCATION 40000

10312	0500	00	0	40000	CLA 16K+1	L CONTENTS LOC 40000
10313	0560	00	0	13040	LDQ K+8	L HTR A7A
10314	0340	00	0	13040	CAS K+8	
10315	0020	00	0	10317	TRA **2	ERROR
10316	0020	00	0	10321	TRA **3	LOC 40000 OK-PROCEED
10317	0760	00	0	00162	SWT 2	
10320	0420	00	0	00000	HPR	ERROR LOC 40000

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

10321	0762	00	0	01222	RTBA 2	
10322	0760	00	0	01352	RDCA	DISCONNECT I/O UNIT
10323	0020	00	0	10326	TRA **3	OK-NO TRAP-TRANSFER
10324	0760	00	0	00162	SWT 2	ERROR
10325	0420	00	0	00000	HPR	TRAPPED
10326	0760	00	0	00161	SWT 1	TEST SWITCH 1
10327	0020	00	0	10331	TRA **2	CONTINUE
10330	0020	00	0	10271	TRA A7	REPEAT

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

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

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

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

CHECK NULLIFY TRIGGER STILL ON

10344	0074	00	2	00000	FXM12 TSX **2		SHOULD TRA TO LOC 00016. ADDR SET TO 20016 OR 40016.
10345	0020	00	0	10347		TRA **2	ERROR
10346	0020	00	0	10351		TRA **3	OK-PROCEED
10347	0760	00	0	00162		SWT 2	ERROR
10350	0420	00	0	00000		HPR	IS NULLIFY TGR OFF

CHECK CONTENTS LOCATION 40000

10351	-0760	00	0	00010		LSNM	EXIT NULLIFY MODE
10352	0500	00	0	40000		CLA 16K+1	L LOC 40000
10353	0560	00	0	13077		LDQ NUM	L +0
10354	0340	00	0	13077		CAS NUM	
10355	0020	00	0	10357		TRA **2	ERROR
10356	0020	00	0	10361		TRA **3	OK-PROCEED
10357	0760	00	0	00162		SWT 2	ERROR
10360	0420	00	0	00000		HPR	LOC 40000 NOT ZERO
10361	0760	00	0	00161		SWT 1	TEST SWITCH 1
10362	0020	00	0	10364		TRA **2	CONTINUE
10363	0020	00	0	10331		TRA A8	REPEAT

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

WRITE SELECT INSTRUCTION-SEC OPN 0,6

10366	-0760	00	0	00005	ESTM	I/O TRAP TRIGGER ON
10367	0766	00	0	00221	WTB 1	704 SELECT INSTR
10370	0760	00	0	00162	SWT 2	ERROR
10371	0420	00	0	00000	HPR	NO TRAP

REWIND SEC OPN 1,2

10372	-0760	00	0	00005	ESTM	I/O TRAP TRIGGER ON
10373	0772	00	0	00201	REW 1	704 SELECT INSTR
10374	0760	00	0	00162	SWT 2	ERROR
10375	0420	00	0	00000	HPR	NO TRAP

-WRITE END OF FILE-SEC OPN 1,0

10376	-0760	00	0	00005	ESTM	I/O TRAP TRIGGER ON
10377	0770	00	0	00201	WEF 1	704 SELECT INSTR
10400	0760	00	0	00162	SWT 2	ERROR
10401	0420	00	0	00000	HPR	NO TRAP

BACKSPACE TAPE-SEC OPN 0,4

10402	-0760	00	0	00005	ESTM	I/O TRAP TRIGGER ON
10403	0764	00	0	00201	BST 1	704 SELECT INSTR
10404	0760	00	0	00162	SWT 2	ERROR
10405	0420	00	0	00000	HPR	NO TRAP
10406	0760	00	0	00161	SWT 1	TEST SWITCH 1
10407	0020	00	0	10411	TRA **2	CONTINUE
10410	0020	00	0	10364	TRA A9	REPEAT

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CHECK SENSE PUNCH INSTRUCTION

10411	0774	00	1	10411	A10	AXT *,1	LOCATION TO XRA
10412	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
10413	-0760	00	0	00005		ESTM	I/O TRAP TRIGGER ON
10414	0760	00	0	00341		PSE 225	SHOULD TRAP
10415	0760	00	0	00162		SWT 2	ERROR
10416	0420	00	0	00000		HPR	CHECK COMPONENTS NOTED IN COMMENTS
10417	-0760	00	0	00005		ESTM	I/O TRAP TRIGGER ON
10420	0760	00	0	01341		SPUA 1	SHOULD TRAP
10421	0760	00	0	00162		SWT 2	ERROR
10422	0420	00	0	00000		HPR	CHECK COMPONENTS NOTED IN COMMENTS
10423	0760	00	0	00161		SWT 1	TEST SWITCH 1
10424	0020	00	0	10426		TRA **2	PROCEED
10425	0020	00	0	10411		TRA A10	REPEAT

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

CHECK BTTA WITH TRIGGER ON (NO-SKIP CONDITION)

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

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

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CHECK BT TA WITH TRIGGER OFF (SKIP CONDITION)

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

CHECK ET TA WITH TRIGGER OFF (SKIP CONDITION)

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

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CHECK SENSE PRINTER

10530	0774	00	1	10530	A11	AXT *,1	LOCATION TO XRA
10531	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
10532	-0760	00	0	00005		ESTM	I/O TRAP TRIGGER ON
10533	0760	00	0	01360		SPTA	SHOULD TRAP
10534	0760	00	0	00162		SWT 2	ERROR
10535	0420	00	0	00000		HPR	NO TRAP
10536	0760	00	0	01360		SPTA	SHOULD NOT TRAP
10537	0020	00	0	10543		TRA **4	OK
10540	0020	00	0	10543		TRA **3	OK
10541	0760	00	0	00162		SWT 2	ERROR
10542	0420	00	0	00000		HPR	CHECK TRIGGER TURNED OFF 15 TIME AFTER TRAP
10543	0760	00	0	01352		RDCA	CLEAR BUFFER
10544	0760	00	0	00161		SWT 1	TEST SWITCH 1
10545	0020	00	0	10547		TRA **2	CONTINUE
10546	0020	00	0	10530		TRA A11	REPEAT

CHECK SENSE PRINTER

10547	0774	00	1	10547	A12	AXT *,1	LOCATION TO XRA
10550	0020	00	0	12042		TRA MONIT	MONITOR PROGRAM
10551	-0760	00	0	00005		ESTM	I/O TRAP ON-2.10.70.1
10552	0760	00	0	00360		SPT	SHOULD TRAP
10553	0760	00	0	00162		SWT 2	ERROR-NO TRAP
10554	0420	00	0	00000		HPR	CHECK COMPONENTS NOTED IN COMMENTS
10555	0760	00	0	00161		SWT 1	TEST SWITCH 1
10556	0020	00	0	10560		TRA **2	CONTINUE
10557	0020	00	0	10547		TRA A12	REPEAT

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

10560	0774	00	1	10560	A13	AXT *,1	LOCATION TO XRA
10561	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
10562	-0760	00	0	00005		ESTM	I/O TRAP TRIGGER ON
10563	0760	00	0	00011		FRN	SHOULD NOT TRAP
10564	0020	00	0	10570		TRA **4	OK--NO TRAP
10565	0761	00	0	00000		NOP	
10566	0760	00	0	00162		SWT 2	ERROR
10567	0420	00	0	00000		HPR	FRN TRAPPED
10570	0500	00	0	13065		CLA K1-4	SET TRAP TRA IN LOC 10
10571	0601	00	0	00010		STO 8	
10572	-0500	00	0	13150		CAL MINON	SET ACC P TO A ONE
10573	0560	00	0	13151		LDQ MQNIN	SET MQ 9 TO A ONE
10574	-0760	00	0	00011		ETT 1	SHOULD TRAP
10575	0760	00	0	00162		SWT 2	ERROR--NO TRAP
10576	0420	00	0	00000		HPR	CHECK COMPONENTS NOTED IN COMMENT
NOTE THAT TRIGGER IS TURNED OFF BY THE NEXT 15 PULSE							
10577	0760	00	0	00161		SWT 1	TEST SWITCH 1
10600	0020	00	0	10602		TRA **2	CONTINUE
10601	0020	00	0	10560		TRA A13	REPEAT

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

10602	0774	00	1	10602	A14	AXT *,1	LOCATION TO XRA
10603	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
10604	-0760	00	0	00005		ESTM	I/O TRAP TRIGGER ON
10605	0760	00	0	00012		DCT	INDICATOR IS OFF
10606	0761	00	0	00000		NOP	NO TRAP AND
10607	0020	00	0	10612		TRA **3	SKIP TO HERE
10610	0760	00	0	00162		SWT 2	ERROR
10611	0420	00	0	00000		HPR	SEE COMMENT ABOVE
10612	-0760	00	0	00012		RTT	SHOULD TRAP
10613	0760	00	0	00162		SWT 2	ERROR
10614	0420	00	0	00000		HPR	NO RTT TRAP--SEE COMMENT ABOVE
10615	0760	00	0	00161		SWT 1	TEST SWITCH 1
10616	0020	00	0	10620		TRA **2	CONTINUE
10617	0020	00	0	10602		TRA A14	REPEAT

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CHECK TAGGED SENSE INSTRUCTION WITH COMPATABILITY FEATURE

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

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

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

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

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

CHECK NULLIFY TRIGGER REMAINED ON

10636	0074	00	2	00000	FXM13	TSX **,2	SHOULD TRA TO LOC 00016. ADDR SET TO 20016 OR 40016.
10637	0020	00	0	10641		TRA **2	ERROR
10640	0020	00	0	10643		TRA **3	OK-PROCEED
10641	0760	00	0	00162		SWT 2	ERROR
10642	0420	00	0	00000		HPR	IS NULLIFY TGR OFF

CHECK COMPATABILITY FEATURE WITH XRB ZERO

10643	0774	00	2	00000		AXT 0,2	CLEAR XRB
10644	0760	00	2	00363		PSE 243,2	
10645	0760	00	0	00162	A15A	SWT 2	ERROR
10646	0420	00	0	00000		HPR	NO TRAP

CHECK NULLIFY TRIGGER TURNED OFF

10647	0074	00	2	00000	FXM14	TSX **,2	TRA TO LOC 20016 OR 40016.
10650	0020	00	0	10653		TRA **3	OK-NULIFY TRIGGER OFF
10651	0760	00	0	00162		SWT 2	ERROR
10652	0420	00	0	00000		HPR	IS NULLIFY TRIGGER ON

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CHECK CONTENTS LOCATION 40000

10653	0500	00	0	40000	CLA 16K+1	L CONTENTS LOC 40000
10654	0560	00	0	13041	LDQ K+9	L HTR A15A
10655	0340	00	0	13041	CAS K+9	
10656	0020	00	0	10660	TRA **2	ERROR
10657	0020	00	0	10662	TRA **3	OK-PROCEED
10660	0760	00	0	00162	SWT 2	ERROR
10661	0420	00	0	00000	HPR	ADR IN LOC 40000 NOT A15A
10662	0760	00	0	00161	SWT 1	TEST SWITCH 1
10663	0020	00	0	10665	TRA **2	CONTINUE
10664	0020	00	0	10620	TRA A15	REPEAT

CHECK SELECT INSTRUCTION AT LAST LOCATION IN LOWER HALF OF STORAGE

10665	0774	00	1	10665	A15X AXT *,1	LOCATION TO XRA
10666	0020	00	0	12042	TRA MONIT	PROGRAM MONITOR
10667	0500	00	0	10367	CLA A9+3	WTB 1 STORED IN THE LAST
10670	0601	00	0	00000	FXM15 STO **	STORE IN 17777 OR 37777.
10671	0500	00	0	13143	CLA NUM2+5	L TRA A15Y
10672	0601	00	0	40001	STO 16K+2	AND STORE
10673	0760	00	0	00005	ESTM	I/O TRAP TGR ON
10674	0020	00	0	00000	FXM16 TRA **	TRA TO LOC 17777 OR 37777.
10675	0500	00	0	40000	A15Y CLA 16K+1	TRAP ON I/O.
10676	0340	00	0	13130	CAS NUM1+16	L CONTENTS 40000
10677	0020	00	0	10701	TRA **2	20000 OR 40000 IN LOC 40000
10700	0020	00	0	10704	TRA **4	ERROR
10701	0560	00	0	13130	LDQ NUM1+16	LOC 40000 OK
10702	0760	00	0	00162	SWT 2	20000 OR 40000 TO MQ
10703	0420	00	0	00000	HPR	ERROR
10704	0500	00	0	00000	CLA	LOC 40000 WRONG
10705	0560	00	0	13145	LDQ NUM2+7	L CONTENTS LOCATION 00000
10706	0340	00	0	13145	CAS NUM2+7	L STR 17777
10707	0020	00	0	10711	TRA **2	COMPARE
10710	0020	00	0	10713	TRA **3	ERROR
10711	0760	00	0	00162	SWT 2	CONTENTS LOCATION 00000 OK
10712	0420	00	0	00000	HPR	ERROR
10713	0500	00	0	40002	CLA 16K+3	CONTENTS LOCATION 00000 NG
10714	0601	00	0	40001	STO 16K+2	RESTORE CORRECT
10715	0760	00	0	00161	SWT 1	INSTRUCTION
10716	0020	00	0	10720	TRA **2	TEST SWITCH 1
10717	0020	00	0	10665	TRA A15X	CONTINUE
						REPEAT

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CHECK COMPATABILITY FEATURE IN TRAPPING MODE

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

10733	0162	00	0	10734		TQP **1	
10734	-0760	00	0	00007		LTM	LEAVE TRAP MODE
10735	0020	00	0	10742		TRA **5	ERROR
10736	-0760	00	0	00007		LTM	LEAVE TRAP MODE
10737	0760	00	0	00162		SWT 2	ERROR
10740	0420	00	0	00000		HPR	TRAPPED TO LOC 40001
10741	0020	00	0	10744		TRA **3	PROCEED
10742	0760	00	0	00162		SWT 2	ERROR
10743	0420	00	0	00000		HPR	TQP DID NOT TRAP TO 00001

CHECK CONTENTS LOCATION 00000

10744	-0760	00	0	00007	A16A	LTM	LEAVE TRAP MODE
10745	0500	00	0	00000		CLA	L CONTENTS LOC 00000
10746	0560	00	0	13043		LDQ K+11	L STR A16A-9
10747	0340	00	0	13043		CAS K+11	
10750	0020	00	0	10752		TRA **2	ERROR
10751	0020	00	0	10754		TRA **3	CONTENTS LOC 00000 OK
10752	0760	00	0	00162		SWT 2	ERROR
10753	0420	00	0	00000		HPR	CONTENTS LOC 00000 WRONG

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CHECK CONTENTS LOCATION 40000

10754 -0760 00 0 00010
10755 0500 00 0 40000
10756 0560 00 0 13077
10757 0340 00 0 13077
10760 0020 00 0 10762

LSNM
CLA 16K+1
LDQ NUM
CAS NUM
TRA **2

NULLIFY TGR OFF
L LOCATION 40000
L +0
ERROR

10761 0766 00 0 00333

WRS 219

CONTENTS LOC 40000 OK
SELECT INSTR TO TURN OFF
I/O SENSE TRAP TRGR-TRAP
AND TRANSFER TO A17-3

10762 0760 00 0 00162
10763 0420 00 0 00000

SWT 2
HPR

ERROR
CONTENTS LOC 40000 WRONG

10764 0760 00 0 00161
10765 0020 00 0 10767
10766 0020 00 0 10720

SWT 1
TRA **2
TRA A16

TEST SWITCH 1
CONTINUE
REPEAT

10767 0774 00 1 10767
10770 0020 00 0 12042

A17

AXT *.1
TRA MONIT

LOCATION TO XRA
PROGRAM MONITOR

10771 0700 00 0 00000
10772 0020 00 0 10776
10773 0761 00 0 00000

CPY
TRA **4
NOP

TURN ON IOT LIGHT
AND NO TRAP

10774 0760 00 0 00162
10775 0420 00 0 00000

SWT 2
HPR

ERROR
TRAPPED

10776 0760 00 0 00005
10777 0020 00 0 11002

IOT
TRA **3

CHECK IOT LITE
OK-LIGHT WAS ON

11000 0760 00 0 00162
11001 0420 00 0 00000

SWT 2
HPR

ERROR
LIGHT WAS OFF

CHECK LOCATION 40000

11002 0500 00 0 40000
11003 0560 00 0 13077
11004 0340 00 0 13077
11005 0020 00 0 11007
11006 0020 00 0 11011

CLA 16K+1
LDQ NUM
CAS NUM
TRA **2
TRA **3

L LOCATION 40000
L +0

11007 0760 00 0 00162
11010 0420 00 0 00000

SWT 2
HPR

CONTENTS LOC 40000 OK

ERROR
CONTENTS LOC 40000 WRONG

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CHECK COPY AND ADD LOGICAL WORD

11011	-0700	00	0	00000	CAD	
11012	0020	00	0	11016	TRA **4	OK
11013	0761	00	0	00000	NOP	
11014	0760	00	0	00162	SWT 2	ERROR
11015	0420	00	0	00000	HPR	TRAPPED
11016	0760	00	0	00005	IOT	CHECK IOT LIGHT
11017	0020	00	0	11022	TRA **3	OK-LIGHT WAS ON
11020	0760	00	0	00162	SWT 2	ERROR
11021	0420	00	0	00000	HPR	LIGHT WAS OFF

CHECK CONTENTS LOCATION 40000

11022	0500	00	0	40000	CLA 16K+1	L CONTENTS LOC 40000
11023	0560	00	0	13077	LDQ NUM	L +0
11024	0340	00	0	13077	CAS NUM	
11025	0020	00	0	11027	TRA **2	ERROR
11026	0020	00	0	11031	TRA **3	CONTENTS LOCATION 40000 OK
11027	0760	00	0	00162	SWT 2	ERROR
11030	0420	00	0	00000	HPR	CONTENTS LOCATION 40000 NG

CHECK LDA

11031	0460	00	0	00001	LDA 1	
11032	0020	00	0	11036	TRA **4	OK-NO TRAP
11033	0761	00	0	00000	NOP	
11034	0760	00	0	00162	SWT 2	ERROR
11035	0420	00	0	00000	HPR	TRAPPED
11036	0760	00	0	00005	IOT	CHECK IOT LIGHT
11037	0020	00	0	11042	TRA **3	OK-LIGHT WAS ON
11040	0760	00	0	00162	SWT 2	ERROR
11041	0420	00	0	00000	HPR	LIGHT WAS OFF

CHECK CONTENTS LOCATION 40000

11042	0500	00	0	40000	CLA 16K+1	L LOCATION 40000
11043	0560	00	0	13077	LDQ NUM	L +0
11044	0340	00	0	13077	CAS NUM	
11045	0020	00	0	11047	TRA **2	ERROR
11046	0020	00	0	11051	TRA **3	CONTENTS LOC 40000 OK
11047	0760	00	0	00162	SWT 2	ERROR
11050	0420	00	0	00000	HPR	CONTENTS LOC 40000 WRONG
11051	0760	00	0	00161	SWT 1	TEST SWITCH 1
11052	0020	00	0	11054	TRA **2	CONTINUE
11053	0020	00	0	10767	TRA A17	REPEAT

CHECK OPERATION WITH COPY TRAP TRIGGER ON

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

11057	-0760	00	0	00006		ECTM	TURN ON CPY TRAP TGR
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CHECK ECTM DOES NOT CONDITION COM

11060	0100	00	0	11063		TZE *+3	ACC SHOULD BE ZERO
11061	0760	00	0	00162		SWT 2	ERROR
11062	0420	00	0	00000		HPR	PR SIGN MINUS SHOULDNT COM

11063	0700	00	0	00000		CPY	SHOULD TRAP
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11064	0760	00	0	00162	A18A	SWT 2	ERROR
11065	0420	00	0	00000		HPR	NO TRAP

CHECK NULLIFY TRIGGER NOW OFF

11066	0074	00	2	00000	FXM17	TSX **,2	TRA TO LOC 20016 OR 40016.
11067	0020	00	0	11072		TRA *+3	OK-NULIFY TGR OFF
11070	0760	00	0	00162		SWT 2	ERROR
11071	0420	00	0	00000		HPR	CHECK NULLIFY TGR TURNED OFF BY OUTPUT FROM +OR

CHECK CONTENTS LOCATION 40000

11072	0500	00	0	40000		CLA 16K+1	L CONTENTS LOC 40000
11073	0560	00	0	13044		LDQ K+12	L HTR A18A
11074	0340	00	0	13044		CAS K+12	
11075	0020	00	0	11077		TRA *+2	ERROR
11076	0020	00	0	11101		TRA *+3	CONTENTS LOC 40000 OK
11077	0760	00	0	00162		SWT 2	ERROR
11100	0420	00	0	00000		HPR	CHECK ADR LOC 40000

CHECK IOT LIGHT

11101	0760	00	0	00005		IOT	CHECK IOT LITE
11102	0020	00	0	11104		TRA *+2	ERROR
11103	0020	00	0	11106		TRA *+3	OK-LIGHT WAS OFF
11104	0760	00	0	00162		SWT 2	ERROR
11105	0420	00	0	00000		HPR	IOT LIGHT WAS ON

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CHECK CPY TRAP TRIGGER NOW OFF

11106	0700	00	0	00000	CPY	
11107	0020	00	0	11113	TRA **4	OK-PROCEED
11110	0761	00	0	00000	NOP	
11111	0760	00	0	00162	SWT 2	ERROR
11112	0420	00	0	00000	HPR	IS CPY TRAP TGR OFF SEE OUTPUT FROM +OR CIRCUIT TURNS OFF CPY TRAP TGR
11113	0760	00	0	00161	SWT 1	TEST SWITCH 1
11114	0020	00	0	11116	TRA **2	CONTINUE
11115	0020	00	0	11054	TRA A18	REPEAT

CHECK CAD AND LDA TRAPS

11116	0774	00	1	11116	A18X AXT *.1	LOCATION TO XRA
11117	0020	00	0	12042	TRA MONIT	PROGRAM MONITOR
11120	-0760	00	0	00006	ECTM	TURN ON CPY TRAP TGR
11121	-0700	00	0	00000	CAD	SHOULD TRAP LIKE CPY
11122	0760	00	0	00162	SWT 2	ERROR
11123	0420	00	0	00000	HPR	SEE COMMENTS FOR A CPY TRAP IN SECTION A17
11124	-0760	00	0	00006	ECTM	TURN ON CPY TRAP TGR
11125	0460	00	0	00001	LDA 1	SHOULD TRAP LIKE CPY
11126	0760	00	0	00162	SWT 2	ERROR
11127	0420	00	0	00000	HPR	NO TRAP-SEE INPUT E TO LOGIC BLOCK 5I SYSTEMS 2.10.71.1
11130	0760	00	0	00161	SWT 1	TEST SWITCH 1
11131	0020	00	0	11133	TRA **2	CONTINUE
11132	0020	00	0	11116	TRA A18X	REPEAT

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

11133	0774	00	1	11133	A19	AXT *,1	LOCATION TO XRA
11134	0020	00	0	12042		TRA MONIT	
11135	0760	00	0	00006		COM	SHOULD NOT TURN ON CPY TRAP TRIGGER

CHECK CPY TRAP TRG REMAINED OFF

11136	0700	00	0	00000		CPY	
11137	0020	00	0	11143		TRA **4	OK-NO TRAP
11140	0761	00	0	00000		NOP	
11141	0760	00	0	00162		SWT 2	ERROR
11142	0420	00	0	00000		HPR	CPY TGR SHOULD STAY OFF WITH PR SIGN PLUS
11143	0760	00	0	00161		SWT 1	TEST SWITCH 1
11144	0020	00	0	11146		TRA **2	CONTINUE
11145	0020	00	0	11133		TRA A19	REPEAT

CHECK CPY INSTRUCTION AT LAST LOCATION IN LOWER HALF OF STORAGE

11146	0774	00	1	11146	A20X	AXT *,1	LOCATION TO XRA
11147	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
11150	0500	00	0	11136		CLA A19+3	CPY STORED IN THE LAST
11151	0601	00	0	00000	FXM18	STO **	STORE IN LOC 17777 OR 37777.
11152	0500	00	0	13144		CLA NUM2+6	L TRA A20Y
11153	0601	00	0	40002		STO 16K+3	AND STORE
11154	-0760	00	0	00006		ECTM	CPY TRAP TGR ON
11155	0020	00	0	00000	FXM19	TRA **	TRA TO LOC 17777 OR 37777. TRAP ON COPY.
11156	0500	00	0	40000	A20Y	CLA 16K+1	L CONTENTS 40000
11157	0340	00	0	13130		CAS NUM1+16	20000 OR 40000 IN LOC 40000
11160	0020	00	0	11162		TRA **2	ERROR
11161	0020	00	0	11165		TRA **4	LOC 40000 OK
11162	0560	00	0	13130		LDQ NUM1+16	20000 OR 40000 TO MQ
11163	0760	00	0	00162		SWT 2	ERROR
11164	0420	00	0	00000		HPR	LOC 40000 WRONG
11165	0500	00	0	00000		CLA	L CONTENTS LOCATION 00000
11166	0560	00	0	13145		LDQ NUM2+7	L STR 17777
11167	0340	00	0	13145		CAS NUM2+7	COMPARE
11170	0020	00	0	11172		TRA **2	ERROR
11171	0020	00	0	11174		TRA **3	CONTENTS LOCATION 00000 OK
11172	0760	00	0	00162		SWT 2	ERROR
11173	0420	00	0	00000		HPR	CONTENTS LOCATION 00000 NG
11174	0500	00	0	40001		CLA 16K+2	RESTORE CORRECT
11175	0601	00	0	40002		STO 16K+3	INSTRUCTION
11176	0760	00	0	00161		SWT 1	TEST SWITCH 1
11177	0020	00	0	11201		TRA **2	CONTINUE
11200	0020	00	0	11146		TRA A20X	REPEAT

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CHECK STR TRAPS TO LOCATION 00002 WITH COMPATABILITY FEATURE

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

11210 -1 00000 0 00000 STR

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

CHECK CONTENTS LOCATION 00000

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

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

CHECK CONTENTS LOCATION 40000

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

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

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

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

11234	0774	00	1	11234	A21	AXT *,1	LOCATION TO XRA
11235	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
11236	-0760	00	0	00005		ESTM	TURN ON I/O TRAP TGR
11237	-0760	00	0	00006		ECTM	TURN ON CPY TRAP TGR
11240	0766	00	0	00301		WDR 1	TURN I/O TRAP AND CPY TRAP TGRS OFF
11241	0760	00	0	00162		SWT 2	ERROR
11242	0420	00	0	00000		HPR	FAILED TO TRAP
11243	0700	00	0	00000		CPY	HAS CPY TRAP TRGR BEEN TURNED OFF
11244	0760	00	0	00005		IOT	YES AND LITE
11245	0020	00	0	11250		TRA **3	SHOULD BE ON
11246	0760	00	0	00162		SWT 2	ERROR
11247	0420	00	0	00000		HPR	CPY TRAP TGR NOT TURNED OFF SEE COMMENTS OF ROUTINE
CHECK CPY TRAP TGR TURNED OFF ALSO TURNS OFF I/O TRAP TGR							
11250	-0760	00	0	00005		ESTM	TURN ON I/O TRAP TGR
11251	-0760	00	0	00006		ECTM	TURN ON CPY TRAP TGR
11252	0700	00	0	00000		CPY	
11253	0760	00	0	00162		SWT 2	ERROR
11254	0420	00	0	00000		HPR	FAILED TO TRAP
11255	0762	00	0	00301	A21X	RDR 1	HAS I/O SENSE TRAP TGR BEEN TURNED OFF
11256	0760	00	0	00005		IOT	YES AND LITE
11257	0020	00	0	11262		TRA **3	SHOULD BE ON
11260	0760	00	0	00162		SWT 2	ERROR
11261	0420	00	0	00000		HPR	I/O TRAP TGR NOT TURNED OFF SEE COMMENTS OF ROUTINE
11262	0760	00	0	00161		SWT 1	TEST SWITCH 1
11263	0020	00	0	11265		TRA **2	CONTINUE
11264	0020	00	0	11234		TRA A21	REPEAT

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CHECK SELECT CRT INSTRUCTION

11265	0774	00	1	11265	A21A	AXT *,1	LOCATION TO XRA
11266	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
11267	-0760	00	0	00005		ESTM	TURN ON I/O TRAP TGR
11270	0766	00	0	00030		WTV	TRAP AND TURN OFF I/O TRAP TRIGGER
11271	0760	00	0	00162		SWT 2	ERROR
11272	0420	00	0	00000		HPR	FAILED TO TRAP
11273	0766	00	0	00030		WTV	WAS I/O TRAP TGR TURNED OFF
11274	0760	00	0	00005		IOT	YES AND LITE
11275	0020	00	0	11300		TRA *+3	SHOULD BE ON
11276	0760	00	0	00162		SWT 2	ERROR
11277	0420	00	0	00000		HPR	CHECK I/O TRAP TGR NOT TURNED OFF
11300	0760	00	0	00161		SWT 1	TEST SWITCH 1
11301	0020	00	0	11303		TRA *+2	CONTINUE
11302	0020	00	0	11265		TRA A21A	REPEAT

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

11303	0774	00	1	11303	A22	AXT *,1	LOCATION TO XRA
11304	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
11305	0500	00	0	13046		CLA K+14	L TRA A22A
11306	0601	00	0	00010		STO 8	STORE IN LOCATION 00010
11307	0500	00	0	11306		CLA *-1	SAVE ADDRESS FOR NEXT
11310	0621	00	0	12145		STA COR	ROUTINE INITIALIZATION
11311	-0760	00	0	00004		LFTM	TURN OFF FP TMODE TGR
11312	0161	00	0	11313		TQO *+1	MQ INDICATOR OFF
11313	0502	00	0	13106		CLS NUM+7	L -001007777777

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

11314	0760 00 0 00002	CHS	
11315	0300 00 0 13107	FAD NUM+8	L +004004444444
CHECK ACCUMULATOR INDICATOR			
11316	0140 00 0 11321	TOV **3	OK-ACC IND WAS TURNED ON TURN OFF AND TRANSFER
11317	0760 00 0 00162	SWT 2	ERROR
11320	0420 00 0 00000	HPR	ACC INDICATOR OFF
11321	0162 00 0 11324	TQP **3	SHOULD TRANSFER
11322	0760 00 0 00162	SWT 2	ERROR
11323	0420 00 0 00000	HPR	MQ SHOULD BE PLUS
11324	0161 00 0 11327	TQO **3	TQO SHOULD EXECUTE-MQ IND WAS TURNED ON-TURN OFF AND TRANSFER
11325	0760 00 0 00162	SWT 2	ERROR
11326	0420 00 0 00000	HPR	MQ OVFLD IND OFF
11327	0161 00 0 11335	TQP **3	SHOULD ^{NOT} TRANSFER
11330	0760 00 0 00162	SWT 2	ERROR
11331	0420 00 0 00000	HPR	MQ SHOULD BE PLUS ERROR
11332	0020 00 0 11335	TRA **3	PROCEED TQO TRANSFER
11333	0760 00 0 00162	A22A SWT 2	ERROR
11334	0420 00 0 00000	HPR	TRAPPED TO LOC 00010
CHECK CONTENTS LOCATION 00000			
11335	0500 00 0 00000	CLA	L CONTENTS LOCATION 00000
11336	0560 00 0 13145	LDQ NUM2+7	L STR 17777
11337	0340 00 0 13145	CAS NUM2+7	COMPARE
11340	0020 00 0 11342	TRA **2	ERROR
11341	0020 00 0 11344	TRA **3	CONTENTS LOC 00000 OK
11342	0760 00 0 00162	SWT 2	ERROR
11343	0420 00 0 00000	HPR	CONTENTS LOC 00000 WRONG
11344	0760 00 0 00161	SWT 1	TEST SWITCH 1
11345	0020 00 0 11347	TRA **2	CONTINUE
11346	0020 00 0 11303	TRA A22	REPEAT

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TEST FLOATING POINT 709 MODE WITH TRAP AND ACCUMULATOR INDICATOR OFF

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

11355	-0760	00	0	00002	EFTM	TURN ON FP TMODE TGR
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BEFORE PROCEEDING CHECK ENK +0760---04 DOES NOT TURN OFF FP TMODE TGR

11356	0760	00	0	00004	ENK	TRGR REMAIN RESET
11357	0760	00	0	00000	CLM	CLEAR ACCUMULATOR
11360	0560	00	0	13104	LDQ NUM+5	L -032404040404
11361	0763	00	0	00043	LLS 35	NO ACC OVERFLOW
11362	0241	00	0	13105	FDP NUM+6	L +344440404040
11363	0760	00	0	00162	SWT 2	ERROR
11364	0420	00	0	00000	HPR	FAILED TO TRAP-SEE COMMENT

CHECK ACCUMULATOR INDICATOR OFF

11365	-0140	00	0	11370	A24A	TNO **3	OK-ACC IND OFF
11366	0760	00	0	00162	SWT 2	ERROR	
11367	0420	00	0	00000	HPR	ACC IND ON-NOTE ABOVE	COMMENT

CHECK CONTENTS LOCATION 00000

11370	0500	00	0	00000	CLA	L CONTENTS LOCATION 00000	
11371	0560	00	0	13051	LDQ K+17	L FP LOC + 1 IN ADR AND	BITS IN DECREMENT POSITIONS
						14,16,17 WITH OP CODE -1	
11372	0340	00	0	13051	CAS K+17		
11373	0020	00	0	11375	TRA **2	ERROR	
11374	0020	00	0	11377	TRA **3	CONTENTS LOC 00000 OK	
11375	0760	00	0	00162	SWT 2	ERROR	
11376	0420	00	0	00000	HPR	CONTENTS LOC 00000 WRONG	
11377	0760	00	0	00161	SWT 1	TEST SWITCH 1	
11400	0020	00	0	11402	TRA **2	CONTINUE	
11401	0020	00	0	11347	TRA A24	REPEAT	

CHECK EXECUTION TQO AND OPERATION MQ INDICATOR IN 709 MODE

11402	0774	00	1	11402	A26	AXT *1	LOCATION TO XRA
11403	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
11404	0500	00	0	13064		CLA K+28	L TRA A26A
11405	0601	00	0	00010		STC 8	STORE IN LOCATION 00010
11406	0500	00	0	11405		CLA *-1	SAVE ADDRESS FOR NEXT
11407	0621	00	0	12145		STA COR	ROUTINE INITIALIZATION
11410	-0760	00	0	00004		LFTM	TURN OFF FP TMODE TGR
11411	0161	00	0	11412		TQO *+1	MQ INDICATOR OFF
11412	0500	00	0	13103		CLA NUM+4	L -000100000000

EXECUTE A FLOATING POINT INSTRUCTION TO TURN ON MQ OVFL0 INDICATOR

11413	-0300	00	0	13103		UFA NUM+4	L -000100000000
11414	-0760	00	0	00002		EFTM	TURN ON FP TMODE TGR

11415	0761	00	0	00000		NOP	TURN OFF MQ OVFL0 TGR
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CHECK FP TRAP MODE RESETS MQ OVERFLOW INDICATOR

11416	-0760	00	0	00004		LFTM	TURN OFF FP TMODE TGR
11417	0161	00	0	11421		TQO *+2	INDICATOR SHOULD BE OFF
11420	0020	00	0	11426		TRA *+6	OK, INDICATOR OFF
11421	0760	00	0	00162		SWT 2	ERROR
11422	0420	00	0	00000		HPR	MQ INDICATOR ON
11423	0020	00	0	11426		TRA *+3	
11424	0760	00	0	00162	A26A	SWT 2	ERROR
11425	0420	00	0	00000		HPR	CHECK FP TMODE TGR ON
11426	0760	00	0	00161		SWT 1	TEST SWITCH 1
11427	0020	00	0	11431		TRA *+2	CONTINUE
11430	0020	00	0	11402		TRA A26	REPEAT

11431	0520	00	0	13160		ZET PASS+1	LOAD AND/OR RESET BUTTON
11432	0020	00	0	11660		TRA M05	TESTS ON EACH INITIAL PASS
11433	0760	00	0	00163		SWT 3	SKIP RESET AND LOAD
11434	0020	00	0	11440		TRA *+4	BUTTON TESTS
11435	0772	00	0	01201		REWA 1	IS PRINTER ON LINE
11436	0020	00	0	11566		TRA A28X	REWIND TAPE
							TEST LOAD BUTTON ONLY
11437	0020	00	0	11402		TRA A26	DUMMY INST FOR MONITOR

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CHECK RESET BUTTON RESTORES MACHINE TO 7090 MODE

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

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

TURN ON MQ OVERFLOW INDICATOR

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

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

CHECK I/O TRAP TRIGGER WAS TURNED OFF

11462	0766	00	0	01361	A27A	WPRA	SELECT PRINTER
11463	0020	00	0	11467		TRA **4	OK-PROCEED
11464	0761	00	0	00000		NOP	
11465	0760	00	0	00162		SWT 2	ERROR
11466	0420	00	0	00000		HPR	CHECK I/O TRAP TGR OFF
11467	0760	00	0	01363		SPRA 3	
11470	0020	00	0	11474		TRA **4	OK-PROCEED
11471	0761	00	0	00000		NOP	
11472	0760	00	0	00162		SWT 2	ERROR
11473	0420	00	0	00000		HPR	
11474	0540	00	0	00000	FXM20 RCHA **		LOAD FROM LOC 20017 OR 40017. PRINT A LINE

CHECK CPY TRAP TRIGGER WAS TURNED OFF

11475	0700	00	0	00000	CPY	SHOULD NOT TRAP
11476	0020	00	0	11502	TRA **4	OK-PROCEED
11477	0761	00	0	00000	NOP	
11500	0760	00	0	00162	SWT 2	ERROR
11501	0420	00	0	00000	HPR	

CHECK LOCATION 40000

11502	0500	00	0	40000	CLA 16K+1	L LOCATION 40000
11503	0560	00	0	13077	LDQ NUM	L +0
11504	0340	00	0	13077	CAS NUM	
11505	0020	00	0	11507	TRA **2	ERROR
11506	0020	00	0	11511	TRA **3	CONTENTS LOC 40000 OK
11507	0760	00	0	00162	SWT 2	ERROR
11510	0420	00	0	00000	HPR	CONTENTS LOC 40000 WRONG

CHECK FP TMODE TRIGGER TURNED ON

11511	0500	00	0	13053	CLA K+19	L TRA A27B
11512	0601	00	0	00010	STO 8	STORE IN LOCATION 00010
11513	0500	00	0	11512	CLA *-1	SAVE ADDRESS FOR NEXT
11514	0621	00	0	12146	STA COR+1	ROUTINE INITIALIZATION
11515	0500	00	0	13106	CLA NUM+7	L +001007777777
11516	0300	00	0	13107	FAD NUM+8	L +004004444444
11517	0760	00	0	00162	SWT 2	ERROR
11520	0420	00	0	00000	HPR	CHECK INPUT E TO LOGIC BLOCK 3B SYSTEMS 2.10.71.1
11521	0500	00	0	00000	A27B CLA	L CONTENTS LOCATION 00000
11522	0560	00	0	13054	LDQ K+20	L FP LOC + 1 WITH BITS IN DEC POSITIONS 16,17 AND OP CODE 0000
11523	0340	00	0	13054	CAS K+20	
11524	0020	00	0	11526	TRA **2	ERROR
11525	0020	00	0	11530	TRA **3	CONTENTS LOC 00000 OK
11526	0760	00	0	00162	SWT 2	ERROR
11527	0420	00	0	00000	HPR	CONTENTS LOC 00000 WRONG
11530	0060	00	0	11530	TCOA *	WAIT IF CHANNEL IN USE
11531	0500	00	0	13102	CLA NUM+3	FIX
11532	0771	00	0	00001	ARS 1	THE
11533	0601	00	0	12523	STO RE+16	PRINT
11534	0771	00	0	00003	ARS 3	IMAGE
11535	-0602	00	0	12517	ORS RE+12	LOCATIONS
11536	0760	00	0	00005	IOT	TURN OFF
11537	0761	00	0	00000	NOP	IOT LIGHT

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CHECK NEXT SEQUENCE OF INSTRUCTIONS WHICH HAVE BEEN KNOWN TO FAIL

11540	0766	00	0	01361	A27C	WPRA	PRINT
11541	0540	00	0	00000	FXM21	RCHA **	LOAD FROM LOC 20017 OR 40017.
11542	0760	00	0	00005		ESTM	I/O TRAP TGR ON
11543	0760	00	0	00361		PSE 241	TRAP ON I/O
11544	0760	00	0	00162		SWT 2	ERROR
11545	0420	00	0	00000		HPR	NO I/O TRAP
11546	0760	00	0	00005		IOT	CHECK IOT LIGHT
11547	0020	00	0	11551		TRA **2	ERROR
11550	0020	00	0	11553		TRA **3	OK, IOT LIGHT OFF
11551	0760	00	0	00162		SWT 2	ERROR
11552	0420	00	0	00000		HPR	IOT LIGHT ON
11553	0500	00	0	40000		CLA 16K+1	L CONTENTS LOCATION 40000
11554	0560	00	0	13147		LDQ NUM2+9	L HTR A27C+4
11555	0340	00	0	13147		CAS NUM2+9	COMPARE
11556	0020	00	0	11560		TRA **2	ERROR
11557	0020	00	0	11562		TRA **3	LOCATION IS OK
11560	0760	00	0	00162		SWT 2	ERROR
11561	0420	00	0	00000		HPR	CONTENTS LOCATION NG
11562	0760	00	0	00161		SWT 1	TEST SWITCH 1
11563	0020	00	0	11574		TRA A28	CONTINUE
11564	0020	00	0	11440		TRA A27	REPEAT
11565	0020	00	0	11402		TRA A26	DUMMY INSTR FOR MONITOR
11566	0774	00	1	11566	A28X	AXT *,1	LOCATION TO XRA
11567	0020	00	0	12042		TRA MONIT	PROGRAM MONITOR
11570	0534	00	1	11573		LXA **3,1	L XRA WITH ADR OF INSTR
11571	0634	00	1	13152		SXD HOLD,1	PUT IN DEC OF LOC
11572	0020	00	0	11574		TRA A28	PROCEED
11573	0020	00	0	11440		TRA A27	DUMMY INSTR FOR MONITOR

CHECK LOAD TAPE BUTTON RESTORES MACHINE TO 7090 MODE

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

WRITE 3 WORDS ON TAPE

11602	0766	00	0	01221	WTBA 1	SELECT TAPE 1 CHAN A
11603	0540	00	0	13056	RCHA K+22	
11604	0764	00	0	01201	BSRA 1	BACKSPACE TAPE
11605	0060	00	0	11605	TCOA *	
11606	-0021	00	0	11607	ESNT **1	TURN ON NULLIFY TGR
11607	-0760	00	0	00005	ESTM	TURN ON I/O TRAP TGR
11610	-0760	00	0	00006	ECTM	TURN ON CPY TRAP TGR
11611	-0760	00	0	00004	LFTM	TURN OFF FP TMODE TGR
11612	0420	00	0	00000	HPR	

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

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

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

CHECK NULLIFY TRIGGER TURNED OFF

11615	0074	00	2	00000	A28B	TSX **,2	TRA TO LOC 20016 OR 40016.
11616	0020	00	0	11621		TRA **3	TRANSFERRED OK
11617	0760	00	0	00162		SWT 2	ERROR
11620	0420	00	0	00000		HPR	

CHECK CPY TRAP TRIGGER TURNED OFF

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

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

CHECK LOCATION 40000

11626	0500	00	0	40000	CLA 16K+1	L LOCATION 40000
11627	0560	00	0	13077	LDQ NUM	L +0
11630	0340	00	0	13077	CAS NUM	
11631	0020	00	0	11633	TRA **2	ERROR
11632	0020	00	0	11635	TRA **3	CONTENTS LOC 40000 OK
11633	0760	00	0	00162	SWT 2	ERROR
11634	0420	00	0	00000	HPR	CONTENTS LOC 40000 WRONG

CHECK FP TMODE TRIGGER TURNED ON

11635	0500	00	0	13062	CLA K+26	L TRA A28C
11636	0601	00	0	00010	STO 8	STORE IN LOCATION 00010
11637	0500	00	0	13106	CLA NUM+7	L +001007777777
11640	0300	00	0	13107	FAD NUM+8	L +004004444444
11641	0760	00	0	00162	SWT 2	ERROR
11642	0420	00	0	00000	HPR	
11643	0500	00	0	00000	A28C CLA	L CONTENTS LOC 00000
11644	0560	00	0	13063	LDQ K+27	L FP LOC+1 WITH BITS IN DEC POSITIONS 16,17 AND OP CODE 0000
11645	0340	00	0	13063	CAS K+27	
11646	0020	00	0	11650	TRA **2	ERROR
11647	0020	00	0	11652	TRA **3	CONTENTS LOC 00000 OK
11650	0760	00	0	00162	SWT 2	ERROR
11651	0420	00	0	00000	HPR	CONTENTS LOC 00000 WRONG
11652	0760	00	0	00161	SWT 1	TEST SWITCH 1
11653	0020	00	0	11655	TRA **2	CONTINUE
11654	0020	00	0	11574	TRA A28	REPEAT

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

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

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

11660	0774	00	1	00130	M05	AXT ERROR-4-E5-1,1	FILL
11661	0500	00	0	06117		CLA 3151	
11662	0601	00	1	06500		STO ERROR-4,1	
11663	2	00001	1	11662		TIX *-1,1,1	
11664	0774	00	1	24607		AXT 16K-TOTAL,1	THESE
11665	0601	00	1	40000		STO 16384,1	
11666	2	00001	1	11665		TIX *-1,1,1	LOCATIONS
11667	0774	00	1	01224		AXT AY-KONST-3,1	WITH 9M05
11670	0601	00	1	10000		STO AY,1	
11671	2	00001	1	11670		TIX *-1,1,1	
11672	0774	00	1	37462		AXT 16178,1	TSX SPACE,4
11673	0601	00	1	00026		STO 22,1	
11674	2	00001	1	11673		TIX *-1,1,1	
11675	0774	00	1	00006		AXT 6,1	L 6 IN XRA
11676	0500	00	1	12232		CLA TRAP+8,1	TRAP ROUTINE
11677	0601	00	1	40007		STO 16K+8,1	TO LOCATIONS
11700	2	00001	1	11676		TIX *-2,1,1	40001-40006
11701	0500	00	0	00041		CLA 33	TRA 00030 TO
11702	0601	00	0	00026		STO 22	LOCATION 00026
11703	0500	00	0	13146		CLA NUM2+8	9M05 TTR SEQ TO
11704	0601	00	0	00010		STO 8	LOCATION 00010
11705	0760	00	0	00005		IOT	TURN OFF
11706	0761	00	0	00000		NOP	LIGHT IF ON
11707	0760	00	0	00140		SLF	SENSE LIGHTS OFF
11710	0774	00	1	11716		AXT **6,1	SET RETURN
11711	0634	00	1	05124		SXA 2644,1	FROM 9M05
11712	-0760	00	0	00002		EFTM	TURN
11713	-0760	00	0	00005		ESTM	ON
11714	-0760	00	0	00006		ECTM	TRIGGERS
11715	-0021	00	0	00030		ESNT 24	START EXECUTING 9M05
11716	-0772	00	0	01202	MORE	RUNA 2	RESET TRIGGERS
11717	0760	00	0	00162		SWT 2	ERROR
11720	0420	00	0	00000		HPR	NO REWIND-UNLOAD WANTED

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

11721	0500	00	0	13160	COUNT	CLA PASS+1	ADD ONE TO TOTAL PASS
11722	0400	00	0	13100		ADD NUM+1	COUNTER FOR EACH PASS
11723	0601	00	0	13160		STO PASS+1	AND SAVE COUNT
11724	0500	00	0	13161		CLA PASS+2	INCREMENT THIS
11725	0400	00	0	13100		ADD NUM+1	COUNTER ON
11726	0601	00	0	13161		STO PASS+2	EVERY PASS
11727	0760	00	0	00166	SWT 6		TEST SENSE SWITCH 6
11730	0020	00	0	12011	TRA ATSAI		TOTAL THE PASSES EXECUTED
							AND LOAD NEXT DIAGNOSTIC
11731	0534	00	1	13157	LXA PASS,1		ADD ONE TO 100
11732	1 00001	1	1	11733	TXI *+1,1,1		DECIMAL PASS COUNTER
11733	0634	00	1	13157	SXA PASS,1		AND SAVE COUNTER
11734	3 00143	1	1	11736	TXH *+2,1,99		REPEAT DIAGNOSTIC
11735	0020	00	0	11763	TRA SS5		100 DECIMAL TIMES
							IF SENSE SWITCH 5 UP
11736	0600	00	0	13157	STZ PASS		CLEAR 100 PASS COUNTER

TEST SENSE SWITCH 3 TO PRINT TOTAL PASSES EVERY 100 PASSES

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

TRANSLATE TOTAL PASS COUNT TO BCD FOR PRINTING

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

OVER BCD 6100 PASSES COMPLETE XCOMC WITH

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

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CHECK SENSE SWITCH 5 TO DETERMINE TEST OF ALTERNATE STORAGE DIVISION
IF ALTERNATING TESTING 2 NULLIFY STORAGE DIVISIONS, SENSE SWITCH 5 DOWN

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

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

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

11776	672346442360	OUT	BCD 5XCOMC TEST COMPLETE WITH
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11777	632562636023
12000	464447432563
12001	256066316330
12002	606060606060
12003	606060606060
12004	606346632143
12005	604721626225
12006	626023464447
12007	432563252460

BCD 5	TOTAL PASSES COMPLETED
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12010	0020 00 0 12245	TRA GO+2	TO ROUTINES TO ALTER LOCS
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WITH SENSE SWITCH 3 UP, TOTAL THE PASSES COMPLETED BEFORE LOADING NEXT
DIAGNOSTIC

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

12023	606060606060	BCD 5	TOTAL PASSES COMPLETED.
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12024	606346632143
12025	604721626225
12026	626023464447
12027	432563252433
12030	672346442360
12031	263145316230
12032	252473604346
12033	212460452567
12034	636024312127
12035	454662633123

BCD 6XCOMC FINISHED, LOAD NEXT DIAGNOSTIC

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

PROGRAM MONITOR

TEST SENSE SWITCH 1 FOR LOCKED-IN ROUTINE

12042	0760	00	0	00161	MONIT SWT 1	TEST SENSE SWITCH 1
12043	0020	00	0	12047	TRA **4	ROUTINE NOT LOCKED IN
12044	-0754	00	1	00000	PXD 0,1	XRA TO DEC OF ACC
12045	0402	00	0	13152	SUB HOLD	START ADR TEST LOC
12046	0100	00	0	12120	TZE RESET	PROGRAM SEQUENCE OK

CHECK PROGRAM SEQUENCE IF ROUTINE IS NOT LOCKED IN

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

IF PROGRAM SEQUENCE WRONG, CHECK FOR TRA INSTRUCTION IN KEYS

12060	0760	00	0	00004	ENK	KEYS TO MQ
12061	0131	00	0	00000	XCA	MQ TO ACC
12062	0734	00	1	00000	PAX 0,1	ACC ADR TO XRA
12063	0771	00	0	00022	ARS 18	SHIFT TO ACC ADR
12064	0402	00	0	13102	SUB NUM+3	L +000000002000
12065	-0100	00	0	12072	TNZ **5	SHOULD BE ZERO
12066	-0754	00	1	00000	PXD 0,1	XRA TO DEC OF ACC
12067	0402	00	0	13153	SUB HOLD+1	SAVED ADR
12070	-0534	00	1	13153	LXD HOLD+1,1	RESTORE XRA
12071	0100	00	0	12075	TZE RELI	SEQUENCE OK, CHECK SW 4
12072	-0534	00	1	13153	LXD HOLD+1,1	RESTORE XRA
12073	-0754	00	1	00000	PXD 0,1	XRA TO DEC OF ACC
12074	0020	00	0	12177	TRA SPACE+9	INDICATE SEQUENCE ERROR

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TEST SENSE SWITCH 4 FOR REPEATING ROUTINE 50 OCTAL TIMES

12075	0760	00	0	00164	RELI	SWT 4	TEST SENSE SWITCH 4
12076	0020	00	0	12120		TRA RESET	SENSE SWITCH 4 UP
12077	0500	00	0	13165		CLA TIMES	L ROUTINE COUNTER
12100	0402	00	0	13100		SUB NUM+1	L +1
12101	0601	00	0	13165		STO TIMES	SAVE ROUTINE COUNTER,
12102	-0100	00	0	12106		TNZ **4	REPEAT ROUTINE AGAIN
12103	0500	00	0	13166		CLA TIMES+1	ROUTINE REPEATED 50 OCTAL
12104	0601	00	0	13165		STO TIMES	TIMES, RESET COUNTER
12105	0020	00	0	12120		TRA RESET	AND PROCEED.

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

12106	0500	00	0	13076		CLA K1+5	L HTR 0,0,A6X
12107	0402	00	0	13152		SUB HOLD	IS PROGRAM IN ROUTINE A6X
12110	-0100	00	0	12113		TNZ **3	NO
12111	0760	00	0	00140		SLF	YES, TURN OFF SENSE LITE 4
12112	0020	00	0	12117		TRA **5	
12113	0500	00	0	13075		CLA K1+4	L HTR 0,0,A8
12114	0402	00	0	13152		SUB HOLD	IS PROGRAM IN ROUTINE A8
12115	-0100	00	0	12117		TNZ **2	NO
12116	0760	00	0	00144		SLN 4	YES, TURN ON SENSE LITE 4
12117	-0534	00	1	13152		LXD HOLD,1	CORRECT VALUE IN XRA TO REPEAT ROUTINE

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

CHECK IF ROUTINE WILL SELECT TAPE

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

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

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

RESET AND INITIALIZE

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

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PROGRAM OUT-OF-CONTROL ROUTINE

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

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

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

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

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INSTRUCTIONS FOR LOWEST LOCATIONS IN UPPER DIVISION OF STORAGE

12222 0020 00 0 10011 TRAP TRA AY3

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

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

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

12243	-0760	00 0	00016	GO	EMTM	ENTER MULTIPLE MODE
12244	0761	00 0	00000		NOP	
12245	0500	00 0	13140		CLA NUM2+2	L TRA AY2
12246	0601	00 0	77777		STO 32K	STORE IN LOC 77777

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

12247 0420 00 0 00000 HPR

* * * * *

PERFORM NEXT 4 STEPS HERE

* * * * *

ON INITIAL PASS ONLY, SIGN KEY -- UP FOR TAPE LOADING
-- DOWN FOR CARD LOADING

* * * * *

SET SWITCH FOR 16/16 OR 8/24 NULLIFY STORAGE

* * * * *

SET KEY 34 DOWN TO TEST BTTX AND ETTX

* * * * *

SET KEY 34 UP TO BYPASS BTTX AND ETTX TEST

* * * * *

IF A 16/16 NULLIFY DIVIDED STORAGE, KEY 35 UP

* * * * *

IF A 8/24 NULLIFY DIVIDED STORAGE, KEY 35 DOWN

* * * * *

IF SENSE SWITCH 5 IS DOWN, PUT IT UP BEFORE PUSHING START BUTTON

* * * * *

12250	0600	00 0	13157	STZ PASS	CLEAR THESE
12251	0600	00 0	13160	STZ PASS+1	LOCATIONS
12252	0760	00 0	00004	ENK	KEYS TO MQ
12253	0131	00 0	00000	XCA	MQ TO ACC
12254	0044	00 0	00000	PAI	ACC TO IND
12255	0520	00 0	13161	ZET PASS+2	HAS PASS BEEN MADE
12256	0020	00 0	12265	TRA *+7	YES

CHECK IF NEXT DIAGNOSTIC WILL BE LOADED FROM TAPE

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

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

12260	0500	00 0	13141	CLA NUM2+3	ALTER
12261	0601	00 0	12036	STO CRSL	NECESSARY
12262	0500	00 0	13142	CLA NUM2+4	INSTRUCTIONS
12263	0601	00 0	11435	STO A27-3	FOR TAPE
12264	0621	00 0	11563	STA A28X-3	LOAD
12265	0056	00	000001	RNT 1	IS KEY 35 DOWN
12266	0020	00 0	12275	TRA GO1	NO

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ADJUST PROGRAM LOCATIONS FOR AN 8/24 NULLIFY DIVIDED STORAGE

12267	0500	00	0	13111	CLA	NUM1+1	ADJUST ALL
12270	0601	00	0	12322	STO	G02+2	PRINT IMAGES
12271	0500	00	0	13121	CLA	NUM1+9	FOR 8/24 NULLIFY
12272	0601	00	0	11755	STO	OVER+5	STORAGE
12273	0601	00	0	12002	STO	OUT+4	DIVISION
12274	0020	00	0	12302	TRA	**6	

ADJUST PROGRAM LOCATIONS FOR A 16/16 NULLIFY DIVIDED STORAGE

12275	0500	00	0	13117	G01	CLA	NUM1+7	ADJUST ALL
12276	0601	00	0	12322		STO	G02+2	PRINT IMAGES
12277	0500	00	0	13120		CLA	NUM1+8	FOR 16/16 NULLIFY
12300	0601	00	0	11755		STO	OVER+5	STORAGE
12301	0601	00	0	12002		STO	OUT+4	DIVISION
12302	0056	00	0	000002	G01A	RNT	2	IS KEY 34 DOWN
12303	0020	00	0	12310		TRA	**5	NO
12304	0500	00	0	10441		CLA	A10B	GET A NOP
12305	0601	00	0	10430		STO	A10A+2	STORE IN
12306	0601	00	0	10462		STO	A10C+2	TRANSFER
12307	0601	00	0	10506		STO	A10E+2	LOCATIONS

WITH SENSE SWITCH 3 UP, IDENTIFY PROGRAM

12310	0074	00	4	12725		TSX	SPLT1+3,4	TO BCD PRINT ROUTINE
12311	-2	00001	0	00014		MTW	12,0,1	SPLAT CONTROL WORD
12312	472551264651					BCD	6PERFORMING	XCOMC 704/7090/7094 COMPA
12313	443145276067							
12314	234644236007							
12315	000461070011							
12316	006107001104							
12317	602346444721							
12320	632122314331	G02				BCD	6TABILITY ON	NULLIFY STORAGE
12321	637060464560							
12322	606060606060							
12323	456443433126							
12324	706062634651							
12325	212725606060							

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ADJUST PROGRAM AS PER STORAGE DIVISION

12326	0534	00	1	12322	LXA	G02+2,1	8/24K,XRA	20460
12327	-3	10660	1	12343	TXL	STG16,1,4528	16/16K, XRA	10660

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

12330	0774	00	4	00011	AXT	9,4		
12331	0634	00	4	12424	SXA	STG,4		
12332	0774	00	4	04606	AXT	8K-TOTAL-1,4		
12333	0634	00	4	12430	SXA	STG+4,4		
12334	0520	00	0	13163	ZET	NUL8	HAS A PASS BEEN MADE IN THE	
							8/24K NULLIFY STORAGE MODE.	
12335	0020	00	0	12341	TRA	++4	YES- OMIT RESET, LOAD TESTS.	
12336	0500	00	0	13133	CLA	NUM1+19		
12337	0601	00	0	11433	STO	A27-5		
12340	0601	00	0	13163	STO	NUL8		
12341	0774	00	4	17776	AXT	8K-1,4		
12342	0020	00	0	12355	TRA	BOTH		

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

12343	0774	00	4	00021	STG16	AXT	17,4	
12344	0634	00	4	12424	SXA	STG,4		
12345	0774	00	4	24606	AXT	16K-TOTAL-1,4		
12346	0634	00	4	12430	SXA	STG+4,4		
12347	0520	00	0	13162	ZET	NUL16	HAS A PASS BEEN MADE IN THE	
							16/16K NULLIFY STORAGE MODE.	
12350	0020	00	0	12354	TRA	++4	YES- OMIT RESET, LOAD TESTS.	
12351	0500	00	0	13133	CLA	NUM1+19		
12352	0601	00	0	11433	STO	A27-5		
12353	0601	00	0	13162	STO	NUL16		
12354	0774	00	4	37776	AXT	16K-1,4		

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XRC CONTAINS EITHER 17776 OR 37776.

12355	-0634	00	4	13156	BOTH	SXD	NMBR,4		
12356	1	00001	4	12357		TXI	*+1,4,1	XRC CONT-	17777 OR 37777.
12357	0634	00	4	06273		SXA	3259,4		
12360	0634	00	4	12432		SXA	STG+6,4		
12361	-0634	00	4	10162		SXD	FXM08,4		
12362	0634	00	4	10670		SXA	FXM15,4		
12363	0634	00	4	10674		SXA	FXM16,4		
12364	0634	00	4	11151		SXA	FXM18,4		
12365	0634	00	4	11155		SXA	FXM19,4		
12366	1	00001	4	12367		TXI	*+1,4,1	XRC CONT-	20000 OR 40000.
12367	0634	00	4	13130		SXA	NUM1+16,4		
12370	0634	00	4	10155		SXA	FXM07,4		
12371	1	00007	4	12372		TXI	*+1,4,7	XRC CONT-	20007 OR 40007.
12372	0634	00	4	10023		SXA	FXM01,4		
12373	1	00002	4	12374		TXI	*+1,4,2	XRC CONT-	20011 OR 40011.
12374	0634	00	4	10040		SXA	FXM02,4		
12375	1	00001	4	12376		TXI	*+1,4,1	XRC CONT-	20012 OR 40012.
12376	0634	00	4	10052		SXA	FXM03,4		
12377	1	00001	4	12400		TXI	*+1,4,1	XRC CONT-	20013 OR 40013.
12400	0634	00	4	10072		SXA	FXM04,4		
12401	1	00001	4	12402		TXI	*+1,4,1	XRC CONT-	20014 OR 40014.
12402	0634	00	4	10110		SXA	FXM05,4		
12403	1	00001	4	12404		TXI	*+1,4,1	XRC CONT-	20015 OR 40015.
12404	0634	00	4	10126		SXA	FXM06,4		
12405	1	00001	4	12406		TXI	*+1,4,1	XRC CONT-	20016 OR 40016.
12406	0634	00	4	10202		SXA	FXM09,4		
12407	0634	00	4	10210		SXA	FXM10,4		
12410	0634	00	4	10255		SXA	A6XX,4		
12411	0634	00	4	10306		SXA	FXM11,4		
12412	0634	00	4	10344		SXA	FXM12,4		
12413	0634	00	4	10636		SXA	FXM13,4		
12414	0634	00	4	10647		SXA	FXM14,4		
12415	0634	00	4	11066		SXA	FXM17,4		
12416	0634	00	4	11615		SXA	A28B,4		
12417	1	00001	4	12420		TXI	*+1,4,1	XRC CONT-	20017 OR 40017.
12420	0634	00	4	11474		SXA	FXM20,4		
12421	0634	00	4	11541		SXA	FXM21,4		
12422	1	00001	4	12423		TXI	*+1,4,1	XRC CONT-	20020 OR 40020.
12423	0634	00	4	12426		SXA	STG+2,4		

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INSERT INSTRUCTIONS IN LOCATIONS AS PER NULLIFY DIVIDED STORAGE

PUT GROUP OF INSTR IN LOWER LOCATIONS OF UPPER DIVISION OF STORAGE

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

FOR 16/16 NULLIFY STORAGE, FILL LOCATIONS 13171 THRU 37776 WITH STR.
FOR 8/24 NULLIFY STORAGE, FILL LOCATIONS 13171 THRU 31776 WITH STR.

12430	0774	00	4	24606		AXT 16K-TOTAL-1,4	NO OF LOCATIONS TO XRC
12431	0500	00	0	13145		CLA NUM2+7	L STR 17777
12432	0601	00	4	37777		STO 16K,4	STORE IN LOCATIONS AS
12433	2	00001	4	12432		TIX *-1,4,1	PER NULLIFY STORAGE

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

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

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

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

12445	0534	00	4	12322		LXA G02+2,4	FOR 8/24 XRC 20460
12446	-3	10660	4	12471		TXL STGB-2,4,4528	FOR 16/16 XRC 10660

FILL LOCATIONS 20000-20006 AND 20020-37777 WITH STR

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

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

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

INSERT SELECT, SENSE AND CPY TRAP ROUTINE IN LOCATIONS 40000-40006

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

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

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INSERT ERROR DETECTING INSTRUCTION IN LOCATION 37777

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

INSERT ERROR DETECTING INSTRUCTION IN LOCATION 17777

12471	0500	00	0	13137	CLA	NUM2+1	L TRA	AY1
12472	0601	00	0	17777	STO	8K	STORE	IN LOC 17777
12473	0500	00	0	13145	STGB	CLA	NUM2+7	L STR 17777
12474	0774	00	4	00027	AXT	23,4	L	27 IN XRC
12475	0601	00	4	00027	STO	23,4	FILL	LOCATIONS
12476	2	00001	4	12475	TIX	*-1,4,1	00000-00026	
12477	0500	00	0	13030	CLA	K	L TRA	SPACE
12500	0601	00	0	00002	STO	2	STORE	IN LOCATION 00002
12501	0760	00	0	00140	SLF		SENSE	LIGHTS OFF
12502	0020	00	0	10000	TRA	AY	COMMENCE	TEST

PRINT IMAGE FOR CHECKING RESET BUTTON IN COMPATABILITY TEST

12503	+0000000420004	RE	OCT	420004	9	L
12504	+142101000000		OCT	142101000000	9	R
12505	+000000000000		OCT		8	L
12506	+000000000000		OCT		8	R
12507	+000000000201		OCT	201	7	L
12510	+200000200000		OCT	200000200000	7	R
12511	+000000200000		OCT	200000	6	L
12512	+000600000000		OCT	600000000	6	R
12513	+000000014002		OCT	14002	5	L
12514	+024010400000		OCT	24010400000	5	R
12515	+000000100020		OCT	100020	4	L
12516	+000000000000		OCT		4	R
12517	+000000040000		OCT	40000	3	L
12520	+010022000000		OCT	10022000000	3	R
12521	+000000000410		OCT	410	2	L
12522	+000004000000		OCT	4000000	2	R
12523	+000000001100		OCT	1100	1	L
12524	+000000000000		OCT		1	R
12525	+000000140030		OCT	140030	0	L
12526	+010026000000		OCT	10026000000	0	R
12527	+000000610002		OCT	610002	11	L
12530	+322300400000		OCT	322300400000	11	R
12531	+000000025105		OCT	25105	12	L
12532	+044411200000		OCT	44411200000	12	R

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INDEXABLE BCD PRINT SUBROUTINE.

12533	0020	00	0	12722	SPLAT TRA SPLT1	CHECK FOR SENSE PRINTER
12534	0634	00	1	12630	SXA SPLAT+61,1	
12535	0634	00	2	12631	SXA SPLAT+62,2	
12536	0634	00	4	12721	SXA SUBET,4	SAVE ORIGINAL XRC.
12537	-0520	00	4	00001	NZT 1,4	IF CONTROL WORD ZERO.
12540	0020	00	4	00000	TRA 2,4	RETURN
12541	-0500	00	4	00001	CAL 1,4	GET NON-ZERO WORD
12542	0602	00	0	12660	SLW SPLAT+85	SAVE CONTROL WORD
12543	-0734	00	1	00000	PDX 0,1	TYPE WHEEL NO.
12544	-3	00000	1	12634	TXL SPLAT+65,1,0	IF DECR. ZERO, GET NEW CONTROL WORD
12545	-0634	00	4	12547	SXD **2,4	GET EXIT ADDRESS
12546	0737	00	2	00000	PAC 0,2	BY ADDING TWOS COMP.
12547	1	00000	2	12550	TXI **1,2,0	OF N TO XRC.
12550	0634	00	2	12632	SXA SPLAT+63,2	EXIT VALUE.

SET BIT INDEX TO STARTING WHEEL

12551	0634	00	1	12554	SXA **3,1	FOR SHIFTING
12552	0774	00	3	00001	AXT 1,3	1 TO XRA AND XRB
12553	-0500	00	0	12655	CAL SPLAT+82	BIT INDEX TO P
12554	-0765	00	1	00000	LGR 0,1	SHIFT TO STARTING POINT
12555	-0100	00	0	12560	TNZ **3	IF ACC IS ZERO, SET FOR
12556	-0600	00	0	12656	STQ SPLAT+83	RIGHT ROW, AND MAKE
12557	1	00001	2	12561	TXI **2,2,1	XRB A DUECE
12560	0602	00	0	12656	SLW SPLAT+83	OTHERWISE, LEFT ROW.
12561	0774	00	1	00032	AXT 26,1	
12562	0600	00	1	12721	STZ CI+26,1	CLEAR CARD IMAGE
12563	2	00001	1	12562	TIX *-1,1,1	

FORM CARD IMAGE.

12564	2	00001	4	12565	TIX **1,4,1	ADDRESS OF FIRST WORD.
12565	0774	00	1	00006	AXT 6,1	CHARACTER COUNT.
12566	0560	00	4	00001	LDQ 1,4	GET THE WORD.
12567	0634	00	1	12621	SXA SPLAT+54,1	SAVE CHARACTER COUNT.
12570	-0754	00	0	00000	PXD	CLEAR ACC.
12571	-0763	00	0	00002	LGL 2	ZONE
12572	0767	00	0	00001	ALS 1	TIMES 2
12573	0734	00	1	00000	PAX 0,1	
12574	0634	00	1	12610	SXA SPLAT+45,1	FOR FUTURE REFERENCE.
12575	0760	00	0	00000	CLM	
12576	-0763	00	0	00004	LGL 4	DIGIT

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12577 0767 00 0 00001
12600 0602 00 0 12667
12601 -0500 00 0 12656
12602 -0520 00 0 12667

12603 3 00000 1 12653
12604 0534 00 1 12667
12605 3 00030 1 12613
12606 3 00024 1 12651
12607 -0602 60 2 12667

12610 0774 00 1 00000
12611 -3 00000 1 12613
12612 -0602 60 2 12665

12613 0771 00 0 00001
12614 -0100 00 0 12620

12615 3 00001 2 12627

12616 -0500 00 0 12655
12617 1 00001 2 12620
12620 0602 00 0 12656
12621 0774 00 1 00000

12622 2 00001 1 12567
12623 0534 00 1 12660
12624 -2 00001 1 12627
12625 0634 00 1 12660
12626 1 00000 0 12564

12627 0540 00 0 12657
12630 0774 00 1 00000
12631 0774 00 2 00000
12632 0774 00 4 00000
12633 0020 00 4 00002

12634 0634 00 4 12632
12635 0534 00 1 12630
12636 -0520 60 0 12660
12637 0020 00 0 12630
12640 -0500 00 0 12660

12641 0625 00 0 12642
12642 -0634 00 0 12644
12643 0737 00 4 00000
12644 1 00000 4 12645
12645 -0500 00 4 00000

12646 -0734 00 1 00000

ALS 1 TIMES 2
SLW CI TEMPO
CAL SPLAT+83 BIT INDEX
NZT CI IS DIGIT ZERO.

TXH SPLAT+80,1,0 IS ZONE ZERO TOO.
LXA CI,1 OK, PROCEED
TXH SPLAT+48,1,24 CHECK FOR ILLEGAL
TXH SPLAT+78,1,20 SPECIAL CHARACTER.
ORS* SPLAT+92,2 XRB PICKS LEFT OR RIGHT.

AXT 0,1 ZONE AGAIN.
TXL **2,1,0 NOTHING FOR ZERO ZONE
ORS* SPLAT+90,2 PLACE ZONE BIT.

COLUMN SET.

ARS 1 SET BIT INDEX TO
TNZ **4 NEXT COLUMN, IF ANY.

TXH SPLAT+60,2,1 IF BX ZERO,+XRB 1, STOP

CAL SPLAT+82 IF NOT, SET TO RIGHT
TXI **1,2,1 ROW AND PROCEED.
SLW SPLAT+83 BX READY FOR NEXT COLUMN.
AXT 0,1 MORE CHARACTERS.

TIX SPLAT+28,1,1 NEXT COLUMN
LXA SPLAT+85,1 MORE WORDS MAYBE.
TNX **3,1,1 IF NOT, STOP.
SXA SPLAT+85,1 YUMMY, GO GET EM.
TXI SPLAT+25

RCHA SPLAT+84 LET HER RIP
AXT 0,1
AXT 0,2
AXT 0,4
TRA 2,4 EXIT

GET NEW CONTROL WORD FROM SOMPLACE

SXA SPLAT+63,4 FOR EXIT
LXA SPLAT+61,1 RESETORE XRA
NZT* SPLAT+85 IF CONTROL WORD ZERO
TRA SPLAT+61 RETURN.
CAL SPLAT+85 OLD CONTROL WORD

STT **1 BRING OUT INDEX
SXD **2,0 REGISTER, IF ONE IS TAGED.
PAC 0,4
TXI **1,4,0 GET EFFECTIVE ADDRESS.
CAL 0,4 NEW CONTROL WORD.

PDX 0,1 TYPE WHEEL ID.

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12647	0602	00	0	12660	SLW SPLAT+85	
12650	1	00001	4	12551	TXI SPLAT+14,4,1	PROCEED
12651	-0602	60	2	12663	ORS* SPLAT+88,2	PUT EIGHT IN, TAKE
12652	2	00020	1	12607	TIX SPLAT+44,1,16	16 OUT, - GOOD BUSINESS
12653	-3	00004	1	12612	TXL SPLAT+47,1,4	IF NOT BLANK, SET ZONE.
12654	0020	00	0	12613	TRA SPLAT+48	BLANK.
12655	-0	00000	0	00000	MZE	FOR BIT INDEX.
12656	0000	00	0	00000	HTR	DYNAMIC BIT INDEX.
12657	0000	30	0	12671	IOCD CI+2,,24	BUFFER COMMAND
12660	0000	00	0	00000	HTR	SPECIAL SALON FOR THE CONTROL WORD
12661	0000	00	0	12674	HTR CI+5	
12662	0000	00	0	12673	HTR CI+4	8ROW ADDRESSES
12663	0000	00	1	12722	HTR CI+27,1	
12664	0000	00	1	12721	HTR CI+26,1	ZONE ROW ADDRESSES
12665	0000	00	1	12714	HTR CI+21,1	
12666	0000	00	1	12713	HTR CI+20,1	DIGIT ROW ADDRESSES
				12667	CI	BSS 26
				12721	SUBET	BSS 1
12722	0760	00	0	00162	SPLT1 SWT 2	AND SWITCHES
12723	0020	00	0	12725	TRA **2	CHECK SWITCH 3
12724	0020	00	0	12743	TRA SPLIT	IGNORE ERROR
12725	0760	00	0	00163	SWT 3	TEST THREE
12726	0020	00	0	12730	TRA **2	UP-PRINT
12727	0020	00	0	12743	TRA SPLIT	DOWN-RETURN
12730	-0500	00	4	00001	CAL 1,4	L CONTROL WORD
12731	0766	00	0	01361	WPRA	SELECT PRINTER
12732	-0760	00	0	00001	PBT	P BIT IN CNTRL WORD
12733	0020	00	0	12534	TRA SPLAT+1	NO
12734	0760	00	0	01363	SPRA 3	YES-TAKE A CYCLE
12735	0767	00	0	00001	ALS 1	MOVE 1 TO LEFT
12736	-0760	00	0	00001	PBT	P BIT
12737	0020	00	0	12534	TRA SPLAT+1	NO
12740	0766	00	0	01361	WPRA	YES-DOUBLE
12741	0760	00	0	01363	SPRA 3	SPACE
12742	0140	00	0	12534	TOV SPLAT+1	
12743	0500	00	4	00001	SPLIT CLA 1,4	CONTROL WORD
12744	0621	00	0	12746	STA **2	STORE NO. OF WORDS
12745	2	00002	4	12746	TIX **1,4,2	DECREMENT XRC BY 2
12746	0020	00	4	00000	TRA 0,4	

FIXED BINARY TO FIXED BCD. BINARY WORD IN THE ACC ON
ENTRY, BCD WORDS IN ACC AND MQ ON EXIT.

LEADING BLANKS FOR LEADING ZEROS.
BLANK FOR PLUS, - FOR MINUS.

IF THE HIGH ORDER 6 CHARACTERS ARE BLANK, RETURN IS
MADE TO X+2, OTHERWISE TO X+1.

XRC IS STORED AT SUBET, WHICH MUST
BE SUPPLIED BY THE PROGRAM.

12747	0634	00	1	12776	BTEN	SXA	BTEN+23,1	
12750	0634	00	2	12777		SXA	BTEN+24,2	
12751	0634	00	4	12721		SXA	SUBET,4	SAVE XRC
12752	0602	00	0	13016		SLW	FREE	DROP SIGN
12753	0760	00	0	00000		CLM		
12754	0601	00	0	13021		STO	FREE+3	SAVE SIGN
12755	0600	00	0	13017		STZ	FREE+1	
12756	0600	00	0	13020		STZ	FREE+2	
12757	0774	00	2	00002		AXT	2,2	
12760	0774	00	1	00044		AXT	36,1	
12761	-0754	00	0	00000		PXD		CLEAR ACC.
12762	0560	00	0	13016		LDQ	FREE	
12763	-0520	00	0	13016		NZT	FREE	WHEN ZERO-
12764	0020	00	0	13001		TRA	BTEN+26	FINISHED.
12765	0221	00	0	13015		DVP	BTEN+38	BY 10 DECIMAL.
12766	-0600	00	0	13016		STQ	FREE	
12767	0767	00	1	00044		ALS	36,1	SHIFT TO POSITION.
12770	0361	00	2	13021		ACL	FREE+3,2	TACK ON LOW ORDER-
12771	0602	00	2	13021		SLW	FREE+3,2	SAVE PARTIAL RESULT.
12772	2 00006	1	12761			TIX	BTEN+10,1,6	GET NEXT DIGIT, OR
12773	2 00001	2	12760			TIX	BTEN+9,2,1	SECOND WORD.
12774	-0500	00	0	13020		CAL	FREE+2	IF XRB RUNS OUT BEFORE
								QUOT. IS ZERO, NO
								ROOM FOR SIGN.
12775	0560	00	0	13017		LDQ	FREE+1	LOW ORDER TO MQ.
12776	0774	00	1	00000		AXT	0,1	
12777	0774	00	2	00000		AXT	0,2	
13000	0020	00	4	00001		TRA	1,4	EXIT-TO X+1 FOR 2 WORDS.
13001	0500	00	0	13021		CLA	FREE+3	BRING IN SIGN
13002	-0501	00	0	13013		ORA	BTEN+36	BLANK-MINUS
13003	-0120	00	0	13005		TMI	*+2	WAS WORD MINUS
13004	-0500	00	0	13014		CAL	BTEN+37	NO GET BLANKS
13005	0767	00	1	00044		ALS	36,1	BUMBSIE DAISY
13006	0361	00	2	13021		ACL	FREE+3,2	NON-ZERO DIGITS
13007	-3 00001	2	12775			TXL	BTEN+22,2,1	OUT ON HIGH ORDER
13010	-0130	00	0	00000		XCL		
13011	-0500	00	0	13014		CAL	BTEN+37	HIGH ORDER BLANK.
13012	1 77777	4	12776			TXI	BTEN+23,4,-1	RETURN TO X+2
13013	-006060606040					OCT	-406060606040	BLANK MINUS.
13014	-206060606060					OCT	606060606060	BLANK PLUS
13015	0000	00	0	00012		HTR	10	DIVISOR

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CONSTANTS

13030	0020	00	0	12166	K	TRA	SPACE
13031	0020	00	0	10024		TRA	AZA-2
13032	0020	00	0	10043		TRA	AA
13033	0020	00	0	10053		TRA	AB-5
13034	0020	00	0	10073		TRA	A1A-2
13035	0020	00	0	10111		TRA	A2A-2
13036	0020	00	0	10131		TRA	A3A
13037	0020	00	2	00002		TRA	2,2
13040	0000	00	0	10304		HTR	A7A
13041	0000	00	0	10645		HTR	A15A
13042	0021	00	0	10744		TTR	A16A
13043	-1	00000	0	10733		STR	A16A-9
13044	0000	00	0	11064		HTR	A18A
13045	0020	00	0	11213		TRA	A20A
13046	0020	00	0	11333		TRA	A22A
13047	0021	00	0	00002		TTR	2
13050	0020	00	0	11365		TRA	A24A
13051	-1	00013	0	11363		STR	A24A-2,0,11
13052	0020	00	0	11462		TRA	A27A
13053	0020	00	0	11521		TRA	A27B
13054	0000	03	0	11517		HTR	A27B-2,0,3
13055	0020	00	0	11613		TRA	A28A
13056	0000	03	0	13057		IOCD	K+23,0,3
13057	0000	00	0	00000		HTR	
13060	0762	00	0	01221		RTBA	1
13061	0020	00	0	11615		TRA	A28B
13062	0020	00	0	11643		TRA	A28C
13063	0000	03	0	11641		HTR	A28C-2,0,3
13064	0020	00	0	11424		TRA	A26A
13065	0020	00	0	10575		TRA	A14-5
13066	0000	00	0	10441		HTR	A10B
13067	0000	00	0	10470		HTR	A10D
13070	0000	00	0	10514		HTR	A10F
13071	-1	00000	0	11211	K1	STR	A20A-2
13072	0000	00	0	11207		HTR	A20A-4
13073	0020	00	0	10255		TRA	A6XX
13074	0100	00	0	00000		HTR	0,0,AY
13075	0103	31	0	00000		HTR	0,0,A8
13076	0102	46	0	00000		HTR	0,0,A6X
13077	+000000000000				NUM	OCT	0
13100	+000000000001					OCT	1
13101	+000000000002					OCT	2
13102	+000000002000					OCT	2000
13103	-000100000000					OCT	400100000000
13104	-032404040404					OCT	432404040404
13105	+344440404040					OCT	344440404040
13106	+001007777777					OCT	1007777777
13107	+004004444444					OCT	400444444444

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

13136	0000 00 0 10221	NUM2	HTR	A6+2
13137	0020 00 0 10004		TRA	AY1
13140	0020 00 0 10007		TRA	AY2
13141	0762 00 0 01221		RTBA	1
13142	0020 00 0 11656		TRA	M05-2
13143	0020 00 0 10675		TRA	A15Y
13144	0020 00 0 11156		TRA	A20Y
13145	-1 00000 0 17777		STR	8191
13146	+002100006121		OCT	2100006121
13147	0000 00 0 11544		HTR	A27C+4
13150	-000000000000	MINON	OCT	400000000000
13151	+000400000000	MQNIN	OCT	000400000000
13152	+000000000000	HOLD	OCT	+0
13153	+000000000000		OCT	
13154	+000000000000		OCT	
13155	+000000000000	LADR	OCT	
13156	+000000000000	NMBR	OCT	
13157	+000000000000	PASS	OCT	
13160	+000000000000		OCT	
13161	+000000000000		OCT	
13162	+000000000000	NUL16	OCT	
13163	+000000000000	NUL8	OCT	
13164	+000000000000	TGR	OCT	
13165	+0000000000050	TIMES	OCT	50
13166	+0000000000050		OCT	50

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

17777	8K	EQU	8191
37777	16K	EQU	16383
77777	32K	EQU	32767

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06273 ORG 3259

CHECK NULLIFY TRIGGER STILL ON

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

CHECK CPY OR SELECT TRIGGER STILL ON

06300	0700	00	0	00000	CKTGR CPY	IS TRIGGER STILL ON
06301	0761	00	0	00000	NOP	
06302	0074	00	4	06327	TSX NOCOM,4	NO, INDICATE ERROR
06303	-0520	00	0	13164	NZT TGR	IS LOCATION CLEAR
06304	0020	00	0	06311	TRA **5	YES
06305	0600	00	0	13164	STZ TGR	NO, CLEAR LOCATION
06306	0500	00	0	11136	CLA A19+3	L COPY
06307	0601	00	0	06300	STO CKTGR	AND STORE
06310	0020	00	0	06314	TRA **4	PROCEED
06311	-0625	00	0	13164	STL TGR	STORE LOCATION
06312	0500	00	0	11716	CLA MORE	L RUNA 2
06313	0601	00	0	06300	STO CKTGR	AND STORE
06314	-0021	00	0	06315	ESNT **1	TURN ON TRIGGER
06315	-0760	00	0	00005	ESTM	TURN ON TRIGGER
06316	0760	00	0	00005	IOT	IS LIGHT ON
06317	0074	00	4	06331	TSX NOCOM+2,4	YES, ERROR
06320	-0754	00	0	00000	PXD	CLEAR ACCUMULATOR
06321	-0760	00	0	00002	EFTM	FP TRAP TGR ON
06322	0120	00	0	06324	TPL **2	WAS SIGN CHANGED
06323	0074	00	4	06331	TSX NOCOM+2,4	YES, INDICATE ERROR
06324	-0760	00	0	00006	ECTM	TURN ON TRIGGER
06325	0020	00	0	06254	TRA 3244	PROCEED

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06326	436560234644		BCD 1LV COM	
06327	0760 00 0 00005	NOCOM	IOT	TURN OFF THE
06330	0761 00 0 00000		NOP	THE LIGHT IF ON
06331	0600 00 0 06116		STZ 3150	CLEAR LOCATION
06332	-0754 00 4 00000		PXD 0,4	GET TRUE
06333	-0737 00 4 00000		PDC 0,4	FAILURE
06334	-0634 00 4 06116		SXD 3150,4	LOCATION
06335	-0534 00 4 06120		LXD 3152,4	ROUTINE THAT
06336	0500 00 4 77776		CLA -2,4	MIGHT
06337	0621 00 0 06116		STA 3150	HAVE
06340	0500 00 0 06116		CLA 3150	FAILED
06341	0074 00 4 06503		TSX ERROR-1,4	TO ERROR
06342	0761 00 0 06327		NOP NOCOM	ROUTINE

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

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

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06500

ORG 3392

MODIFIED VERSION OF 9DEPR FOR USE WITH 9M05 FOR RELIABILITY

06502	+000000000001		BSS 2	
06503	0020 00 0 06536		OCT 1	
06504	0600 00 0 06551		TRA ERR	
06505	0600 00 0 06552	ERROR	STZ KONST	DO NOT REPEAT SECTION
			STZ KONST+1	IF SW 4 IS DOWN
06506	0760 00 0 00162		SWT 2	IF SENSE SW 2 IS UP, THEN
06507	0020 00 0 06515		TRA SSW3	CHECK SSW3
06510	2 00001 4 06511		TIX OK,4,1	
06511	-0634 00 4 06501	OK	SXD ERROR-3,4	2-S COMPL OF PROGRAM
				LOCATION LAST PERFORMED
06512	0760 00 0 00161		SWT 1	IF SENSE SW 1 IS UP, THEN
06513	0020 00 0 06523		TRA RELY	CHECK SS4
06514	0020 00 4 00001		TRA 1,4	IF DOWN REPEAT SECTION
06515	0634 00 4 06500	SSW3	SXA ERROR-4,4	SAVE XRC TO GET
06516	0535 00 4 06500		LAC ERROR-4,4	TRUE ERROR LOCATION
06517	0420 00 0 00000		HPR	REFER TO LOCATION IN XRC
06520	0634 00 4 06500		SXA ERROR-4,4	RESTORE
06521	0535 00 4 06500		LAC ERROR-4,4	ORIGINAL XRC
06522	0020 00 0 06510		TRA OK-1	FOR RETURN
06523	0760 00 0 00164	RELY	SWT 4	IF SWT 4 IS UP, GO TO NEXT
06524	0020 00 4 00003		TRA 3,4	SECTION OF PROGRAM. IF IT
				IS DOWN, REPEAT SECTION
06525	0500 00 0 06552			50 OCTAL TIMES
06526	0402 00 0 06551		CLA KONST+1	COUNTER
06527	0601 00 0 06552		SUB KONST	REDUCE COUNT BY 1
06530	-0100 00 0 06514		STO KONST+1	
06531	0500 00 0 06553		TNZ OK+3	
06532	0601 00 0 06552		CLA KONST+2	RESTORE
06533	0500 00 0 06502		STO KONST+1	THE
06534	0601 00 0 06551		CLA ERROR-2	COUNTER
06535	0020 00 4 00003		STO KONST	VALUES
			TRA 3,4	RETURN
06536	0760 00 0 00162	ERR	SWT 2	IF SWT 2 IS UP, CHECK
06537	0020 00 0 06543		TRA SSW3A	SENSE SWITCH 3
06540	0760 00 0 00161	OK2	SWT 1	SSW1 UP, GO TO NEXT ROUTINE
06541	0020 00 4 00002		TRA 2,4	EXIT
06542	0020 00 4 00001		TRA 1,4	REPEAT
06543	0634 00 4 06500	SSW3A	SXA ERROR-4,4	SAVE XRC TO GET
06544	0535 00 4 06500		LAC ERROR-4,4	TRUE ERROR LOCATION
06545	0420 00 0 00000		HPR	REFER TO LOCATION IN XRC
06546	0634 00 4 06500		SXA ERROR-4,4	RESTORE
06547	0535 00 4 06500		LAC ERROR-4,4	ORIGINAL XRC
06550	0020 00 0 06540		TRA OK2	FOR RETURN

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FOR 16/16 OR 8/24 NULLIFY STORAGE

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06551 +000000000001
06552 +000000000050
06553 +000000000050

KONST OCT 1
OCT 50
OCT 50

40020

ORG 16400

40020	0000 00 0 06300	UXTRP HTR SHAVE	TO 9M05
40021	0500 00 0 40000	TRLOC CLA 16384	GET TRAP STORE LOC
40022	0340 00 0 40020	CAS UXTRP	COMPARE TO 9M05 ADDR.
40023	0020 00 0 40003	TRA 16387	HIGH
40024	0020 00 0 40003	TRA 16387	EQUAL
40025	0500 00 0 40053	CLA ABCDX	GET STI INSTR.
40026	0340 00 0 00000	CAS 0	COMPARE TO ZERO
40027	0020 00 0 40036	TRA XYZAB	
40030	0020 00 0 40033	TRA *+3	OK
40031	0020 00 0 40036	TRA XYZAB	
40032	0600 00 0 00000	STZ **	CLEAR ZERO
40033	-0760 00 0 00006	ECTM 0	COPY TRAP
40034	-0760 00 0 00005	ESTM 0	SELECT TRAP
40035	-0021 00 0 00000	ESNT 0	STRG. NULL AND TRANSFER
40036	0500 00 0 40000	XYZAB CLA 16384	GET STORE TRAP LOC.
40037	0621 00 0 40051	STA ZEBRA	STORE INTO STORE INSTR.
40040	0621 00 0 40050	STA ZEBRA-1	STORE IN IND INSTR.
40041	0621 00 0 40053	STA ABCDX	
40042	0500 00 0 40053	CLA ABCDX	GET STI INSTR.
40043	0601 00 0 00000	STO 0	STORE IN ZERO
40044	0500 00 0 40072	CLA XRAYA	GET TRAP MODE TRA
40045	0601 00 0 00001	STO 1	STORE IN LOC 1
40046	0500 00 0 06264	CLA EXIT	GET 9M05 ADDR.
40047	0621 00 0 40035	STA XYZAB-1	STORE IN ESNT ADDR.
40050	0441 00 0 00000	LDI **	LOAD IND WITH STORE TRAP LOC.
40051	0601 00 0 00000	ZEBRA STO **	STORE 9M05 ADDR.
40052	0020 00 0 40054	TRA *+2	SKIP
40053	0604 00 0 00000	ABCDX STI **	STORE TRAP LOC)
40054	0560 00 0 40000	LDQ 16384	GET LOC 40000
40055	-0773 00 0 00022	RQL 18	ROTATE
40056	0774 00 4 00006	AXT 6,4	SET XRC
40057	0767 00 0 00003	ALS 3	SET INTO BCD
40060	-0763 00 0 00003	LGL 3	
40061	2 00001 4 40057	TIX *-2,4,1	
40062	0601 00 0 40101	STO XRAYB+6	STORE INTO PRINT IMAGE
40063	0074 00 4 12533	TSX SPLAT,4	TO PRINT ROUT.
40064	0 00000 0 40073	PZE XRAYB	
40065	0074 00 4 12533	TSX SPLAT,4	PRINT
40066	0 00000 0 40102	PZE XRAYC	
40067	0074 00 4 12533	TSX SPLAT,4	ERROR
40070	0 00000 0 40114	PZE XRAYD	
40071	0000 00 0 40033	HTR XYZAB-3	ROUTINE

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40072	0020 00 0 40032	XRAYA TRA TRLOC+9
40073	0 00001 0 00006	XRAYB PZE 6,,1
40074	314343252721	BCD 6ILLEGAL TRAP FROM 9M05 LOC+1
40075	436063512147	
40076	602651464460	
40077	114400056043	
40100	462320016060	
40101	606060606060	
40102	0 00001 0 00011	XRAYC PZE 9,,1
40103	475125626260	BCD 6PRESS START PROG. WILL LOOP IN AREA
40104	626321516360	
40105	475146273360	
40106	663143436043	
40107	464647603145	
40110	602151252160	
40111	232164623145	BCD 3CAUSING FAILURE.
40112	276026213143	
40113	645125336060	
40114	0 00001 0 00011	XRAYD PZE 9,,1
40115	634660512562	BCD 6TO RESTORE PROG. AND CONTINUE PUSH R
40116	634651256047	
40117	514627336021	
40120	452460234645	
40121	633145642560	
40122	476462306051	
40123	256225636021	BCD 3ESET AND START.
40124	452460626321	
40125	516333606060	
40126	+000000000000	UNIQ OCT +0
	06300	SHAVE DEFINE 06300
	06264	EXIT DEFINE 06264

12243

END GO