

# Diagnostic Engineering Publication

IBM POUGHKEEPSIE  
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1410/7010

Subject: Diagnostic Program M012 - 1410/7010-1401 I/O Compatibility

Sequence Number 283  
Replaces

- I. System and Channel 1 Cards 2 cards 001 - 002
- II. Program also includes a 70 card reader test deck for 1402 reader tests. Reader test deck is punched 001 - 070 in columns 78-80. Description of this deck is provided in paragraph 5, Section 2.xx.03.0 of program write-up.

Enclosures: 82 Pages  
Card Deck for CARD ONLY SYSTEMS (as punched by UP51)  
8 Cards - Card Loader (1-7) and 1 Core Clear  
159 Cards No. 001 - 159 Data Cards  
1 Card Execute Card

Distribution: X 1410  
X 7010  
Other



**M012**

**Page 001**

**M012A**

**RELIABILITY TEST OF  
1410/7010-1401  
I/O COMPATIBILITY**

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**2. XX.00.0**    **TEST DESCRIPTION****00.1**    **MODIFICATIONS**

This is a new program.

**00.2**    **DESCRIPTION**

This program is designed to test the reliability of the 1410/7010 I/O while operating in 1401 mode. The following I/O attachments are tested:

1402 Card Read-Punch  
1403 Printer  
729 and/or 7330 Tape

**Note:** A 70 card reader test deck is required for reader tests. See Paragraph 5 in Comments section.

The program assumes that all I/O is functioning properly while the system is in 1410/7010 mode and, therefore, tests only those areas of I/O affected by 1401 compatibility circuits. The following program should be run before testing with M012:

**M011 - 1410/7010-1401 CPU Compatibility**

All test routines communicate with two common control routines to test for inquiry and to test TAD locations for looping routines, indicating errors and halting on error. Errors will normally be indicated by a six character typeout as follows:

**ERR XXX\***

\* XXX indicates the 3 digit representation of the 5 digit error address.

Reference to the error address in the program listing will provide an explanation for the error.

The program will normally make 1 complete pass of all ready channel 1 I/O units indicated as available in control area before typing Pass and Testing TAD3 for repeat or continue.

## 00.2 DESCRIPTION (continued)

If TAD3 is not 1, the program will halt to change mode back to 1410/7010. Pressing computer reset and start will call in the next program. If TAD3 is a 1, program will halt to allow set up of I/O for next pass. Pressing computer reset and start will begin execution of next pass.

## 00.3 EQUIPMENT REQUIRED

CPU, Console Printer, 1402 Reader-Punch and/or 1403 Printer and/or 729-7330 Tapes

## 00.4 CARD DECK

7 Cards	Load Program
1 Card	Core Clear Card
Cards Numbered 001 - 159	Program
Card Numbered 001	Is standard system control card
Card Numbered 002 -	Is standard Channel 1 control card
1 Card	Execute card (Branch to 2000)

## 00.5 MACHINE E. C. LEVEL

## 00.6 PASS LENGTH

1.5 minutes (approximate)

The above time estimate is an approximation assuming all I/O devices are being tested and that all routines requiring manual intervention are being bypassed.

2.XX.01.0 LOADING PROCEDURE

## 01.1 FROM CARDS

- A. 7010-1410 without Load Button
1. Clear Memory
  2. Display memory location 00000

## 01.1 FROM CARDS (continued)

## 3. Alter to -

 $\begin{matrix} \vee \vee \\ \text{RL}\%1100011\$ \end{matrix}$ 

For Channel 1 reader

 $\begin{matrix} \vee \vee \\ \text{XL}\square 1100011\$ \end{matrix}$ 

For Channel 2 reader

## 4. Set to Run, Computer Reset, Start.

## B. 7010 with Load Button

## 1. Clear Memory

## 2. Computer Reset

## 3. Depress Load Button

## 01.2 FROM TAPE (80 Character Master or Memory Dump Tape)

## A. 7010-1410 without Load Button

## 1. Clear Memory

## 2. Display memory location 00000

## 3. Alter to -

 $\begin{matrix} \vee \vee \\ \text{RL}\%B000011\$ \end{matrix}$ 

For Channel 1 TP Drive

 $\begin{matrix} \vee \vee \\ \text{XL}\square B000011\$ \end{matrix}$ 

For Channel 2 TP Drive

## 4. Set to Run, Computer Reset, Start.

## B. 7010 with Load Button

## 1. Clear Memory

## 2. Computer Reset

## 3. Depress Tape Load Button

2. XX. 02. 0 OPERATING PROCEDURE

## Load Program

Program will type the following:

M012A  
 SET SENSE SW A ON  
 SET I/O CK STOP SW OFF  
 SET COMPATIBILITY SW TO 1401  
 PRESS START

A normal program halt will occur at 02008 to allow the operator to set switches. At this point all channel 1 I/O units indicated as available but found to be not ready will have been deleted from the control area. If it is desired to include a previously non-ready device in the test, make it ready and alter control area accordingly. To include Tapes, it will be necessary to alter loc. 7991 to the unit number to be tested. The following are control locations that are tested by the program.

Loc. 1291	Test 729 or 7330 tapes if this loc. is a 1. (Unit Number designated in loc. 7991)
Loc. 1301	Test 1402 Reader if this loc. is an R.
Loc. 1303	Test 1402 Punch if this loc. is a P.
Loc. 1305	Test 1403 Printer if this loc. is a P.
Loc. 1306	If N print only numeric data for numeric chain. If A print data for alpha chain.
Loc. 1307	If 1 prog. assumes 100 psn printer; if 2 - 132 psns.
Loc. 1256	Prog. tests this loc. for X to determine if mach. is 7010. If not X, 1410 mach. is assumed.
Loc. 1257	Prog. tests this loc. for 0 to determine 10K memory. If not 0, greater than 10K memory is assumed.

Note: 70 card reader test deck will be required for reader tests. See Paragraph 5 in Comments section.

Once set-up is completed program will begin executing I/O tests in the following order:

Reader  
 Punch  
 Printer



2. XX. 02. 0 OPERATING PROCEDURE (continued)

Reader-Punch  
 Punch-Printer  
 Reader-Printer  
 Reader-Punch-Printer  
 Tapes  
 Check of Punch Output (If TAD4 contains 1)

Under normal conditions (all TADS 0 and no errors encountered) program will make one complete pass of all ready channel 1 I/O units indicated as available in control section. The lowest numbered ready Tape drive (1-9) on channel 1 will be used in the test. Routines requiring manual intervention will be bypassed. It is recommended that an occasional pass of the program be made with TAD4 (loc. 1004) set to 1 to execute these manual routines. After making a complete pass, program will type "PASS" and then halt after typing message to return compatibility switch to 1410/7010. Press computer reset and start to load next program.

Normal program operations may be altered by using the Console Printer Inquiry Routine to set one or several of the following TAD locations to "1".

<u>TAD</u>	<u>ADDRESS</u>	<u>IF NOT 1 (NORMAL)</u>	<u>IF SET TO 1</u>
0	01000 (=00)	Normal Typeouts	Bypass all typeouts for scoping
1	01001 (=01)	No loops	Loop on present routine
2	01002 (=02)	No Halts	Halt on error
3	01003 (=03)	1 Pass Only	Cycle program indefinitely
4	01004 (=04)	Bypass Manual Routines	Execute manual routines

The Console Printer Inquiry Routine mentioned above may be used to alter TADS. To alter TADS do the following:

**Depress Inquiry Request Key**

Note: If program is stopped when this key is depressed, it will be necessary to press computer start to branch on inquiry. Mach. should type an I, make a space and unlock the Keyboard for insertion of chars. (1's or 0's) beginning at loc. 01000.

## 2. XX. 02. 0 OPERATING PROCEDURE (continued)

Key in the 5 numbers (0's and 1's) for desired set-up of TAD0 - TAD4 (Loc. 1000 - 1004)

Note: The program requires that the five digits always be altered even though it may be desired to change only TAD3 (Loc. 01003). If an error is made during the key-in, the inquiry cancel key may be depressed to terminate the inquiry and branch program back to the same read console printer instruction.

Depress the inquiry release key to resume running.

## 2. XX. 03. 0 OPERATING HINTS AND COMMENTS

1. Post restart for all routines is contained in locations 81-84. Locs. 0001-0004 will contain a branch to 0081 to allow restart of any routine by depressing computer reset and start.
2. If a routine is causing an alarm failure and it is desired to loop the routine for scoping, do the following:
  - a. Alter TAD1 to 1 to loop the routine.
  - b. Turn the check control switch to RESET AND RESTART mode.
  - c. If failure is occurring within a reader test, it may be desirable to duplicate the set of cards indicated in the failing routine several times to allow for continuous looping.

Note: Altering TAD1 to 1 is desired for intermittent alarm failures to insure that the program will stay in the failing routine.

3. Making TAD4 (loc. 1004) a 1 will allow certain routines requiring manual intervention to be executed. These routines include the following:
  - a. Test of I/O Ck stop sw.
  - b. Test of Stacker Select operation for STKRS 1 and 2.
  - c. Test for branch on last card with Sw A.
  - d. Reader check of punched output.

## 2.XX.03.0

OPERATING HINTS AND COMMENTS (continued)

4. One routine within the Reader test will cause cards to be selected to Stackers 1 and 2 if TAD4 (loc. 1004) is set to 1.

Cards 23, 24 and 25 - Stacker 1  
Cards 26, 27 and 28 - Stacker 2

These cards must be inserted back in their proper sequence within test deck before this deck is used again. It may be desirable to label these cards "STKR1" and "STKR2" so they may be easily identified.

5. A 70 card reader test deck prescribing to the following format will be required for reader tests.

```

+++++ ----- 00000      0
34567 34567 3456734567+-2
B081 FGHIJKLMNOPQRSTUVWXYZ012345678988888+88888-/8888888888008 A
BCDEFGHIJKLMNOP***

```

\*\*\* shown above will be a 3 digit sequence number 001-070. Cards 16-19, 21 and 22 will contain the following punches for cols. 25, 63 and 77 to make them invalid.

Col. 25 - 0, 8 and 9 punch  
Col. 63 - 8 and 9 punch  
Col. 77 - 11, 5, 8 and 9 punches

## 2.XX.04.0

PROGRAM STOPS AND RESTARTS

- 7393 Error halt - occurs following error typeout when TAD2 contains a 1. This halt provides an opportunity to examine the failing routine to help determine the cause of the failure. Press start to return to routine.
- N 2008 Normal halt while in 1410/7010 mode following typeout of program ID and instructions to set switches. Set appropriate switches and press Start.
- N 2403 Normal halt following typeout regarding test of I/O check stop switch. Follow typed instructions.

2. XX. 04. 0 PROGRAM STOPS AND RESTARTS (continued)

- N 2409 Normal system check stop having read invalid  
 N 2410 card with I/O check stop switch ON. Turn off  
 I/O check stop switch and press computer reset  
 and start to continue.
- 6630 Tape Write Error halt - Occurs following type-  
 out of Tape Write error message when TAD2  
 contains a 1. Press start to attempt write again.
- 6775 Tape Read Error halt - Occurs following type-  
 out of Tape Read error message when TAD2  
 contains a 1. Press start to continue.
- 6909 False Tape End of File Error halt - Occurs  
 following typeout of False TP EOF when TAD2  
 contains a 1. Press start to continue.
- N 6963 Normal halt following message to insert cards  
 from punch normal stacker in reader hopper for  
 checking. Insert these cards in reader hopper  
 and press start.
- N 7194 Normal halt following message to set com-  
 patibility switch to 1410/7010. Set switch and  
 press computer reset and start.
- N 7204 Normal halt following PASS typeout when TAD3  
 contains a 1. Ready I/O units and press com-  
 puter reset and start to begin next pass.

Note: If running from Tape and M014 is to be  
 run following this test, ready the M014  
 Reader Test Deck at this point if reader  
 is to be included in M014 test.

2. XX. 05. 0 TYPEOUTS

## 05. 1 NON ERROR TYPEOUTS

M012A  
 SET SENSE SW A ON  
 SET I/O CK STOP SW OFF  
 SET COMPATIBILITY SW TO 1401  
 PRESS START

This typeout occurs after program is loaded while  
 system is still in 1410/7010 mode.

## .05.1 NON ERROR TYPEOUTS (continued)

TURN ON I/O CK STOP SW PRESS COMPUTER START  
OBSERVE MACH STOP TURN OFF I/O CK STOP SW AND  
PRESS COMPUTER RESET AND START TO CONTINUE

This message is typed within reader routine to  
test I/O Ck Stop Sw when TAD4 is set to 1.

TEMP WR ERRS XXXX

TEMP RD ERRS XXXX

This typeout occurs after a complete pass of all  
tape routines.

END OF REEL

This typeout occurs whenever END OF REEL is  
sensed when writing tape.

READY CARDS FROM NORMAL PUNCH STACKER IN  
READER HOPPER AND PRESS START TO CHECK  
PUNCHED OUTPUT

This typeout occurs at end of test if both reader  
and punch are available and TAD4 does not contain  
a 1.

SET COMPATIBILITY SW TO 1410/7010

PRESS COMPUTER RESET AND START

This message is typed after typeout of PASS if  
TAD3 does not contain a 1.

## .05.2 ERROR TYPEOUTS

ERR XXX

This typeout occurs whenever an error is detected  
within a test routine and TAD0 does not contain a 1.  
XXX is the 3 digit representation of the 5 digit error  
address. Error address may be deciphered as follows:

B = 2		B = 8
A = 1		A = 4
0	0	0
Hunds.		Units

EX. ERR P2S

	B A	
P2S =	722 =	06722

TP WR ERR XXX

This typeout occurs when 10 consecutive attempts to  
write on tape have resulted in error--occurs only  
when TAD0 does not contain a 1 - XXX is the 3 digit  
representation of 5 digit error address.

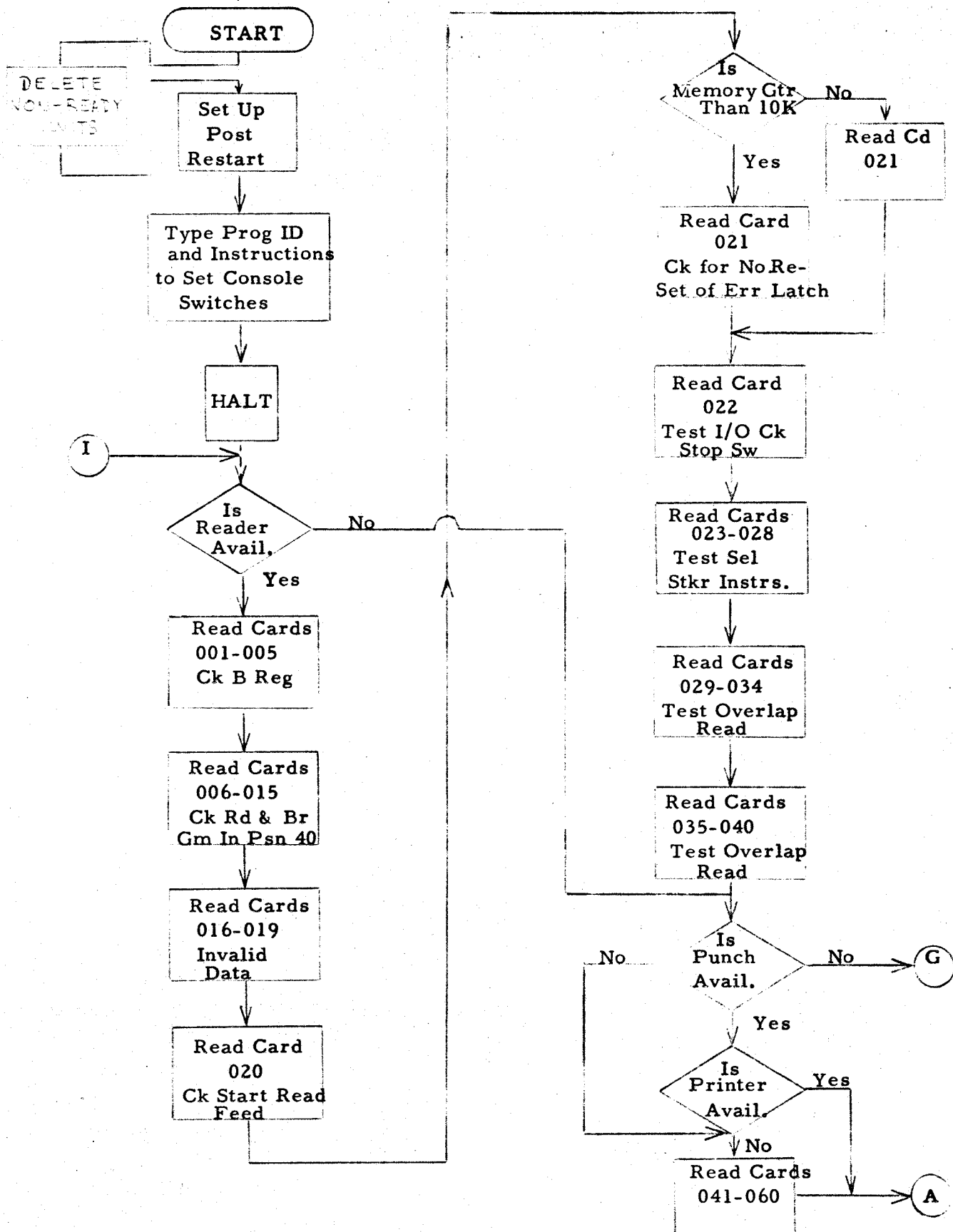
05.2 ERROR TYPEOUTS (continued)

**TP RD ERR XXX**

This typeout occurs when 10 consecutive attempts to read a tape record have resulted in error--occurs only when TAD0 does not contain a 1 - XXX is the 3 digit representation of the 5 digit error address.

**FALSE TP EOF XXX**

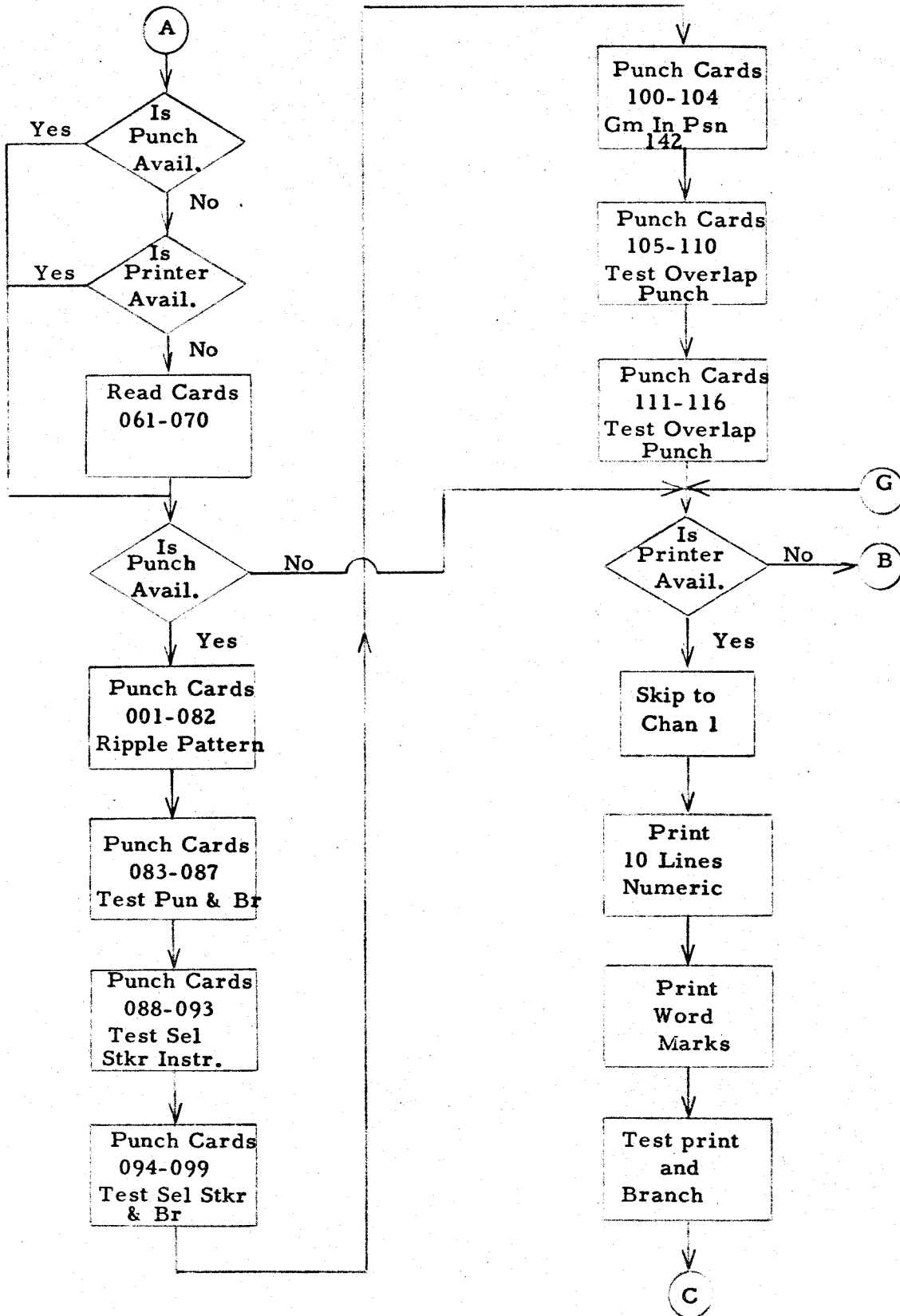
This typeout occurs whenever a false end of file is detected when reading tape. XXX is the 3 digit representation of the 5 digit error address--occurs only when TAD0 does not contain a 1.



M012 GENERAL PROGRAM FLOW  
(Continued)

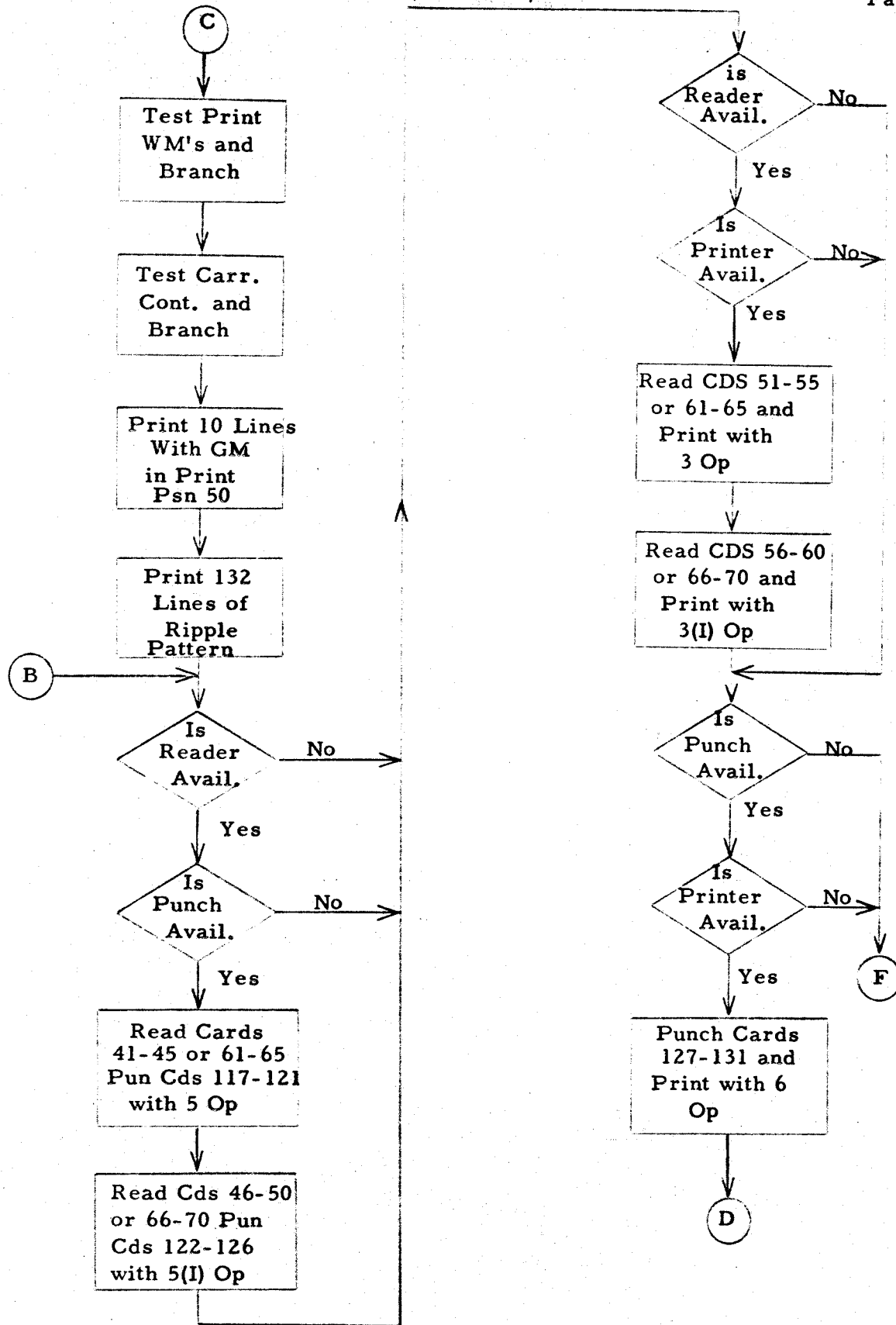
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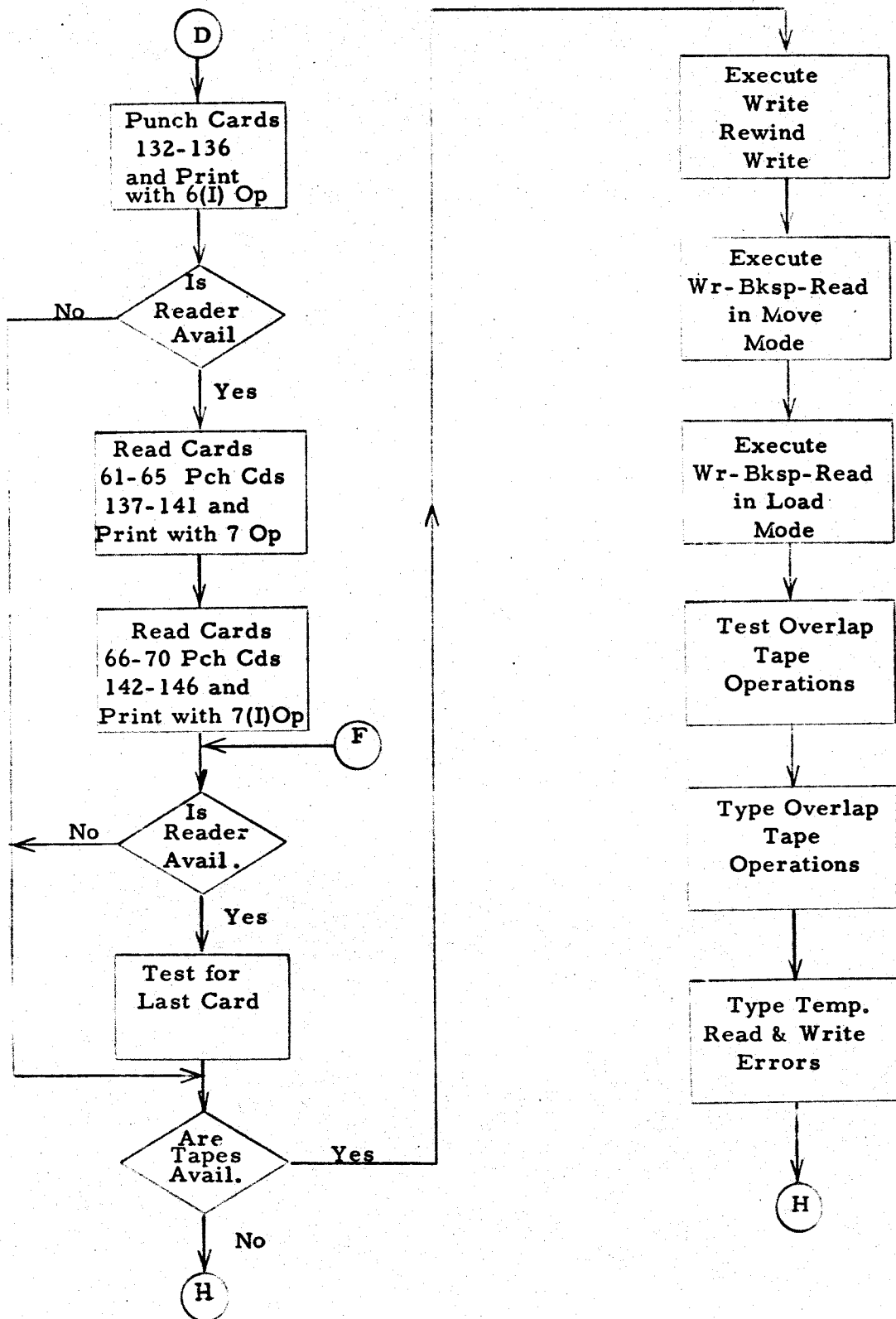
M012 GENERAL PROGRAM FLOW  
(Continued)

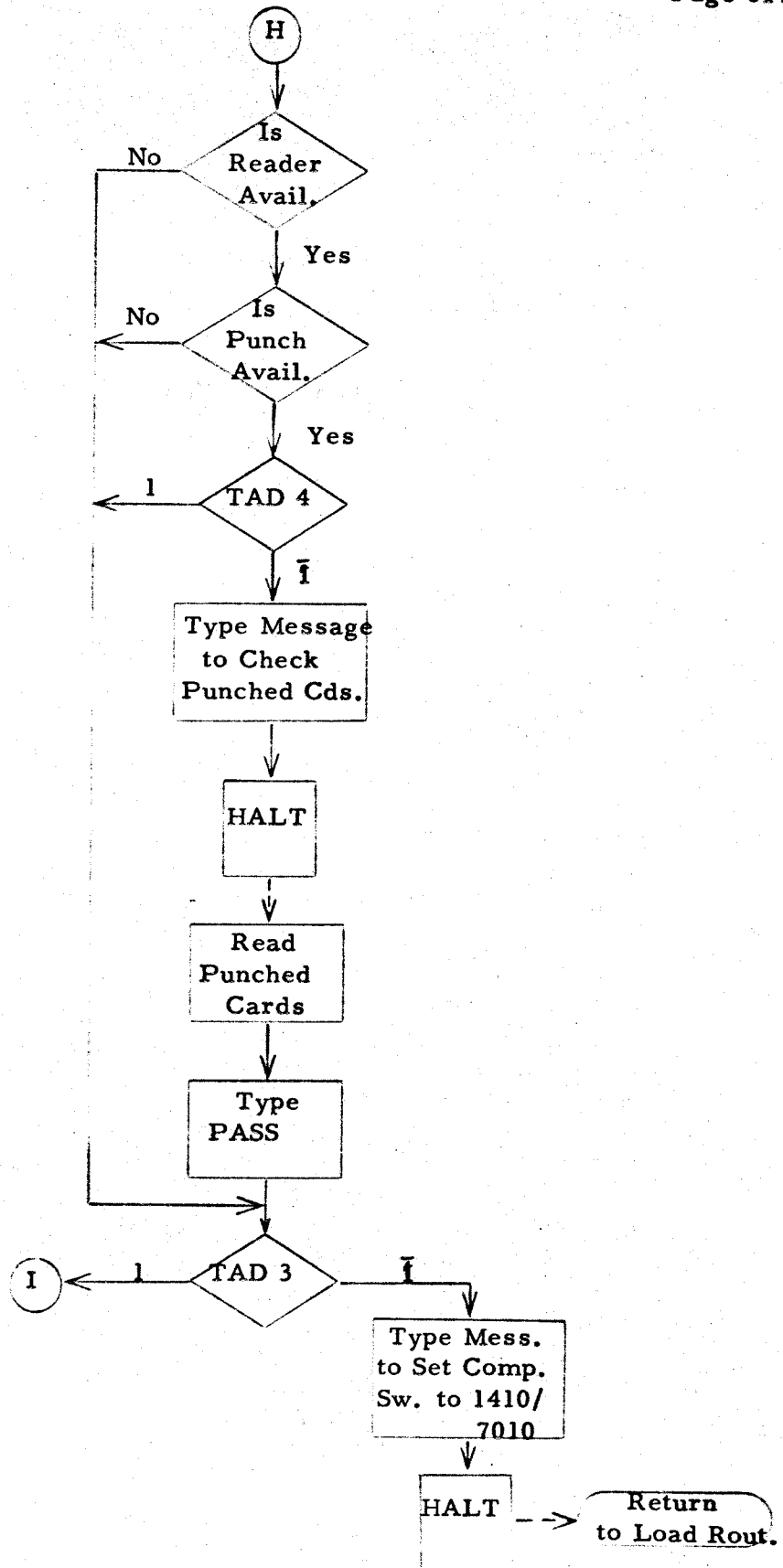


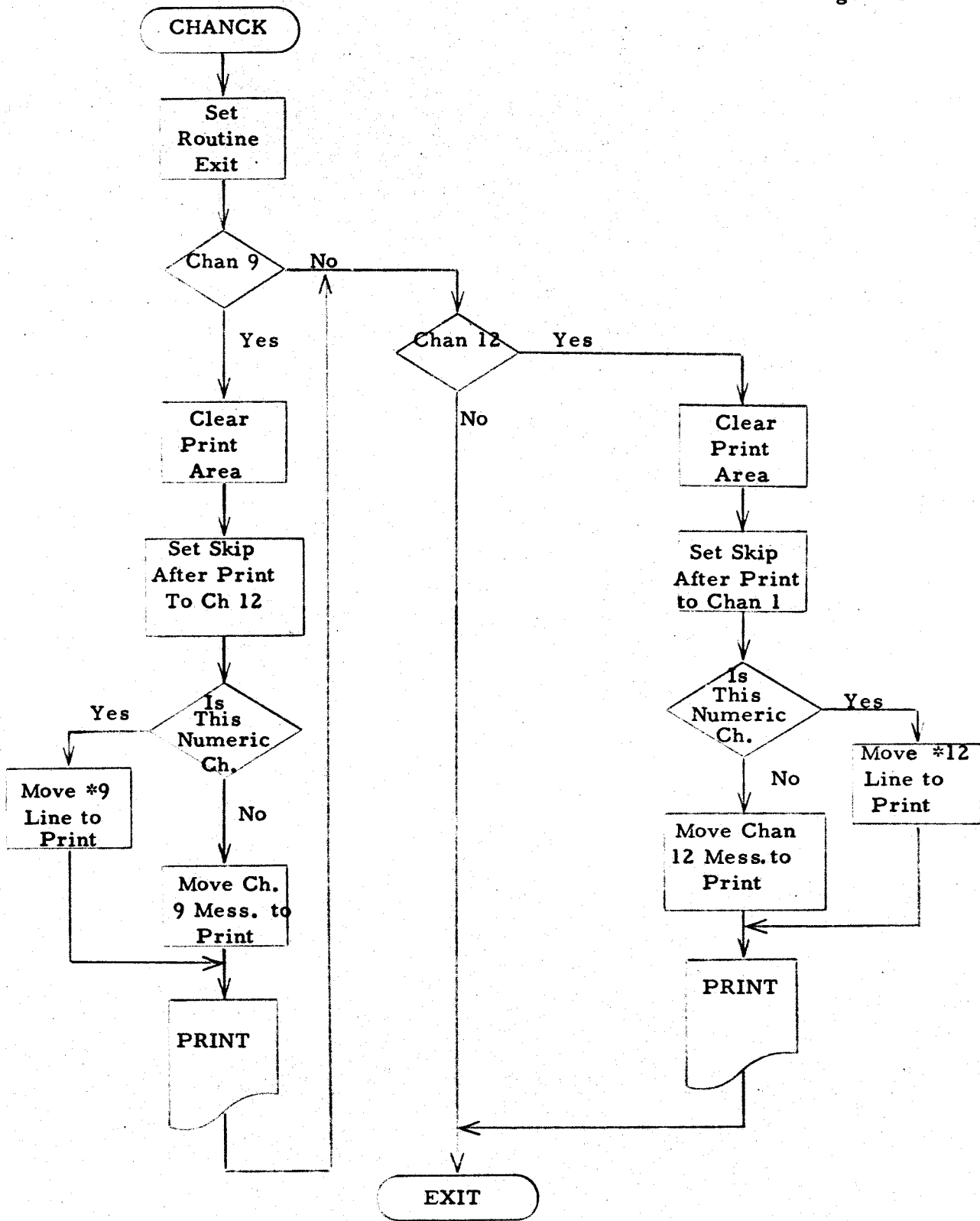
M012 GENERAL PROGRAM FLOW  
(Continued)

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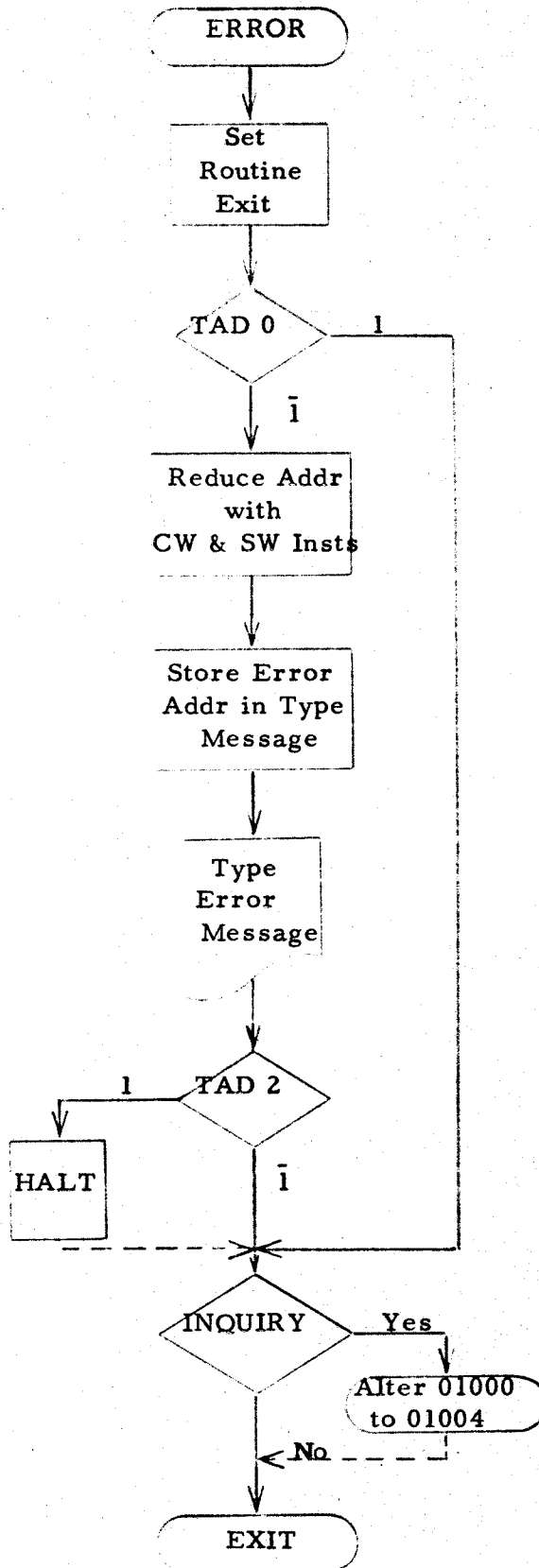




ERROR ROUTINE

M012

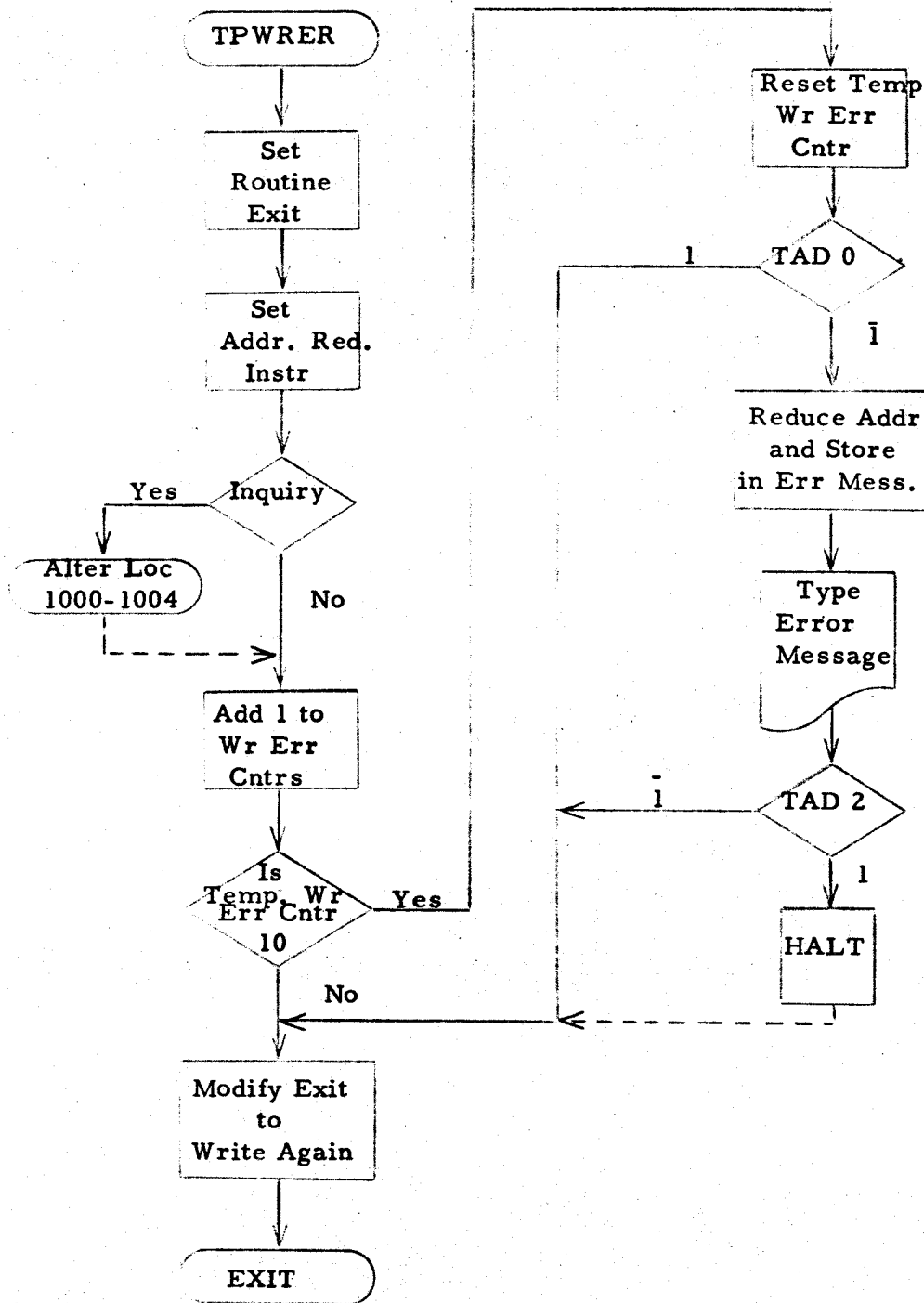
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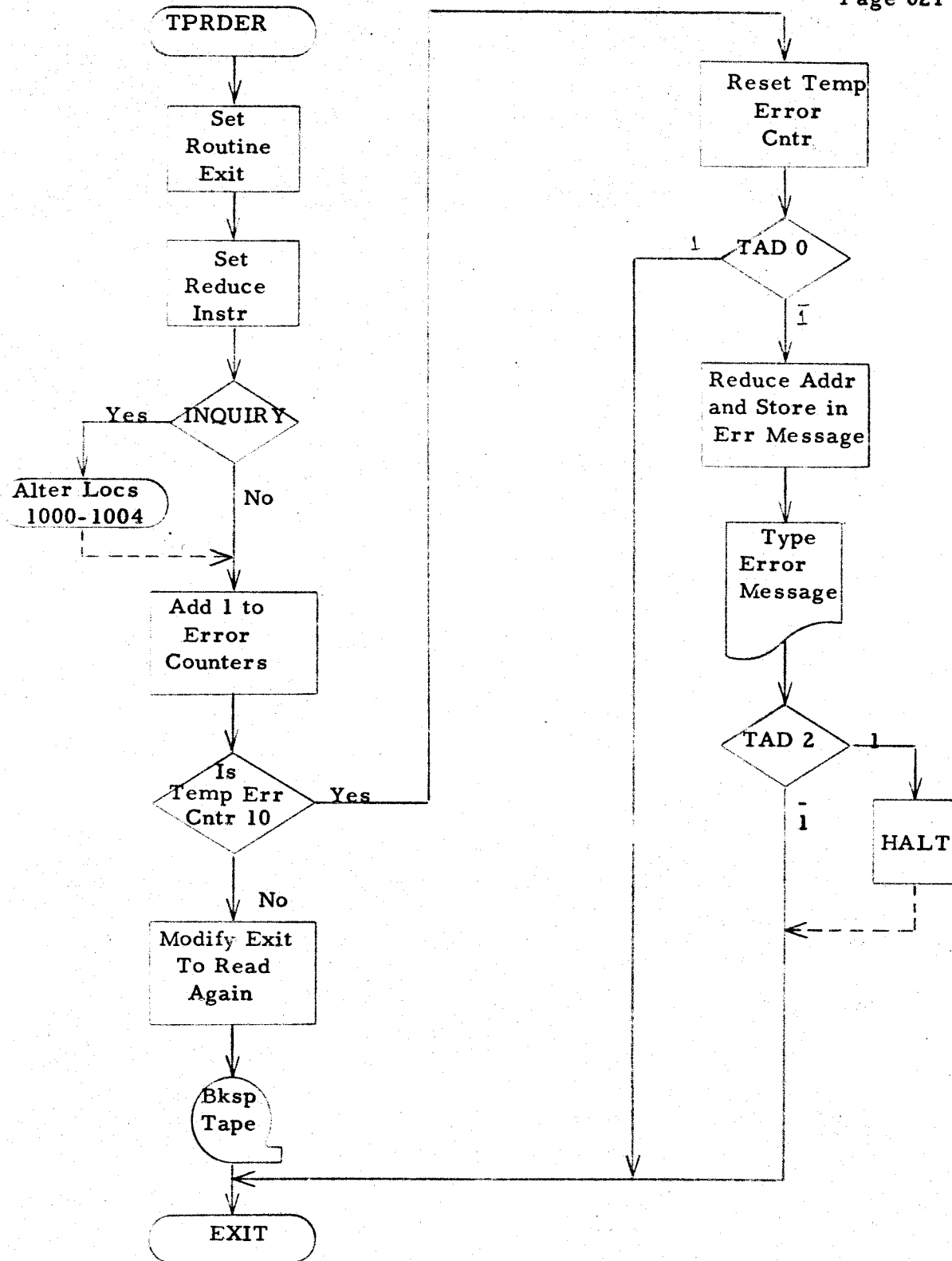


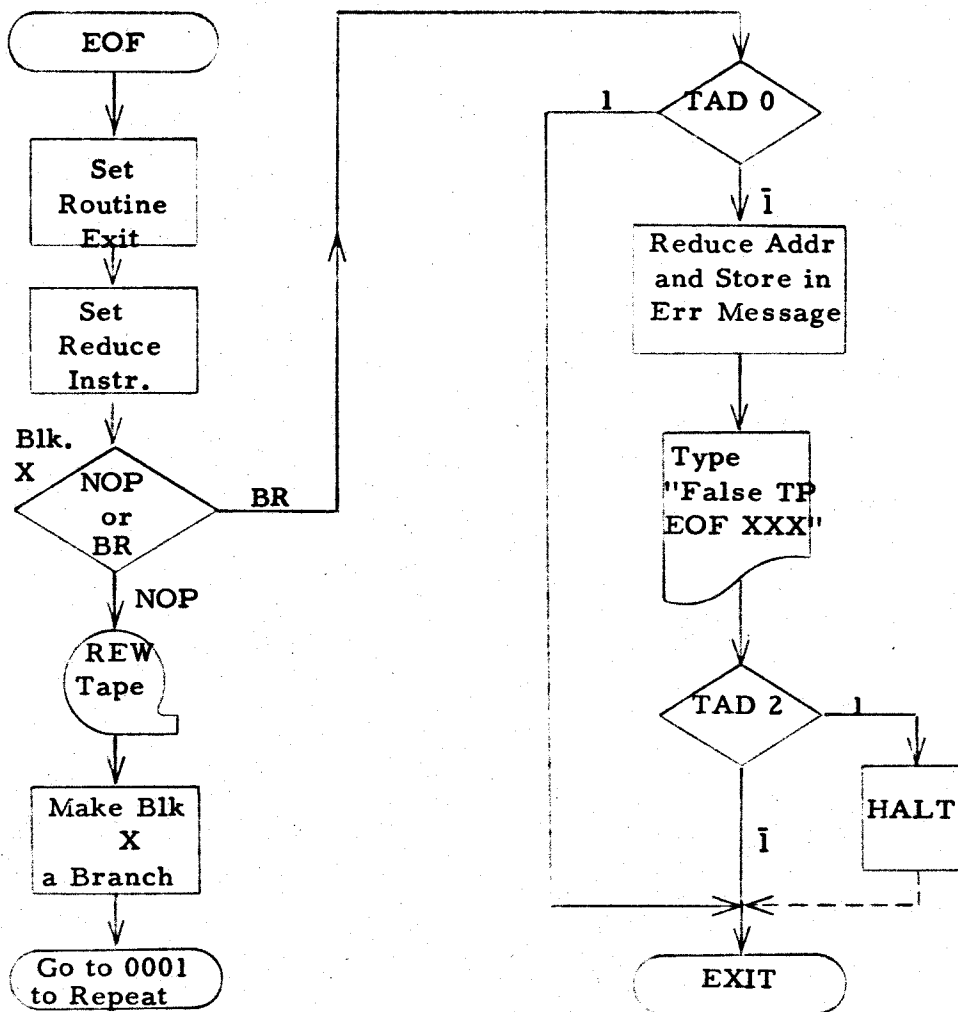
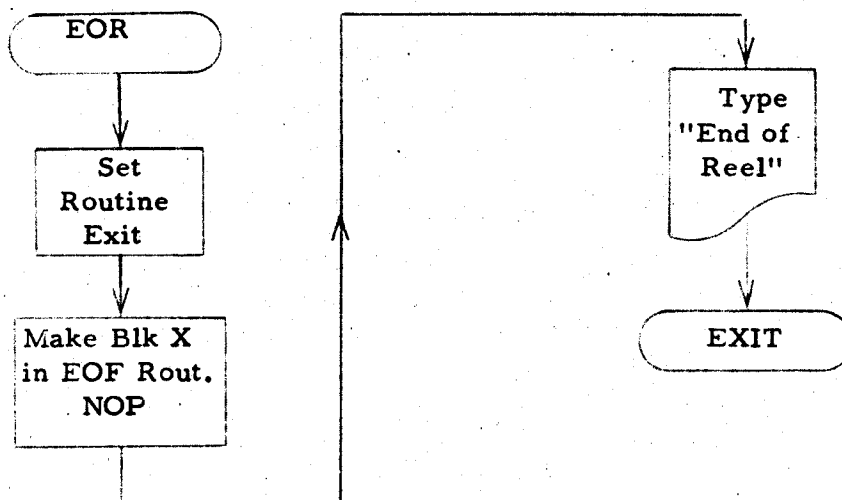
TAPE WRITE ERROR ROUTINE

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ACTUAL ADDRESSES	ZONE BITS OVER HUNDREDS POSITION	ZONE BITS OVER UNITS POSITION	3-CHARACTER ADDRESSES
0000 to 0999 1000 to 1999 2000 to 2999 3000 to 3999	No Zone Bits A-Bit (Zero-Zone) B-Bit (11-Zone) AB-Bits (12-Zone)	No Zone Bits No Zone Bits No Zone Bits No Zone Bits	000 to 999 †00 to Z99 †00 to R99 †00 to I99
4000 to 4999 5000 to 5999 6000 to 6999 7000 to 7999	No Zone Bits A-Bit (Zero-Zone) B-Bit (11-Zone) AB-Bits (12-Zone)	A-Bit (Zero-Zone) A-Bit (Zero-Zone) A-Bit (Zero-Zone) A-Bit (Zero-Zone)	00† to 99Z †0† to Z9Z †0† to R9Z †0† to I9Z
8000 to 8999 9000 to 9999 10000 to 10999 11000 to 11999	No Zone Bits A-Bit (Zero-Zone) B-Bit (11-Zone) AB-Bits (12-Zone)	B-Bit (11-Zone) B-Bit (11-Zone) B-Bit (11-Zone) B-Bit (11-Zone)	00! to 99R †0! to Z9R †0! to R9R †0! to I9R
12000 to 12999 13000 to 13999 14000 to 14999 15000 to 15999	No Zone Bits A-Bit (Zero-Zone) B-Bit (11-Zone) AB-Bits (12-Zone)	AB-Bits (12-Zone) AB-Bits (12-Zone) AB-Bits (12-Zone) AB-Bits (12-Zone)	00? to 99I †0? to Z9I †0? to R9I †0? to I9I























SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
101	AA	00							
102	AA	01		JOB	1410/7010-1401 I/O COMPATIBILITY TEST				
103	AA	03		CTL	461111				
104	AA	04			*****				
105	AA	05			M012				
106	AA	06			1410/7010 -1401				
107	AA	07			COMPATIBILITY TEST				
108	AA	08			*****				
109	AA	09			*****				
110	AA	10	TADO	EQU	1000				1000
111	AA	11	TAD1	EQU	1001				1001
112	AA	12	TAD2	EQU	1002				1002
113	AA	13	TAD3	EQU	1003				1003
114	AA	14	TAD4	EQU	1004				1004
115	AA	15	SYSL	EQU	1256				1256
116	AA	16	CHN1	EQU	1289				1289
117	AA	17	START	EQU	2000				2000
118	AA	18							
119	AA	19							
120	AA	20		ORG	SYSL				
121	AA	21		DC	a				1256
122	AA	22		DC	a				32 1287
123	AA	23							1 1288
124	AA	24		ORG	1239				
125	AA	25		DCW	@1J8X@0283-9a				11 1249
126	AA	26		DCW	@M012a				5 1254
127	AA	27		DCW	@a				1 1255
128	AA	28							
129	AA	29		ORG	1000				1000
130	AA	30		DC	@0000a				5 1004
131	AA	31		DCW	@a				1 1005
132	AA	32							
133	AA	33		ORG	CHN1				
134	AA	34		DC	a				32 1320
135	AA	35		DC	a				25 1345
136	AA	36		ORG	1010				
137	AA	37	TRE	DCW	@TEMP WR ERRS 0000a				17 1026
138	AA	38		DCW	@a				1 1027
139	AA	39	WRE	DCW	@TEMP RD ERRS 0000a				17 1044
140	AA	40		DCW	@a				1 1045
141	AA	41	NOP	DCW	@a				1 1046
142	AA	42	BRANCH	DCW	@a				1 1047
143	AA	43	PUNCK	DCW	@READY CARDS FROM NORMAL PUNCH STa				32 1079
144	AA	44		DC	@ACKER IN READER HOPPER AND PRESSa				32 1111
145	AA	45		DC	@ COMPUTER START TO CHECK PUNCHEDa				32 1143
146	AA	46		DC	@ OUTPUTa				7 1150
147	AA	47		DCW	@a				1 1151

1410/7010-1401 I/O COMPATIBILITY TEST

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SEQ	RG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
148	AA	48		DCH	2CHAN 9 TEST SKIP TO 12 AFTER PR2		32	1183	
149	AA	49	CH9MES	DC	2INT2		3	1186	
150	AA	50		DCH	2LAST LINE OF PAGE START NEW PAGE		32	1218	
151	AA	51	CH12MS	DC	222		1	1219	

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
------------	-------	----	----------	-----	----	------	-------------

152 AA 53		JOB	1410/7010-1401 I/O COMPATIBILITY TEST				
153 AA 55		ORG	1439				1439

LOOP CHECK ROUTINE  
 THIS ROUTINE IS ENTERED AT  
 COMPLETION OF TEST ROUTINE  
 TO CK FOR INQUIRY AND LOOP

156 AA 58	LOOPCK	SBR	LPEX003		4	1439	H U59
162 AA 64		BIN	ALTER,Q		5	1443	B U68 Q
163 AA 65		BCE	0081,TAD1,1		8	1448	B 081 #01 1
164 AA 66	LPEX	B	0000		4	1456	B 000
165 AA 67	ERRLOC	DCW	@ERR @		7	1466	B 000
166 AA 68		DCW	@#		1	1467	

CONSOLE PRINTER INQUIRY ROUTINE

172 AA 74	ALTER	SBR	ALTEX003		4	1468	H U88
173 AA 75		MCW	%T0,1000,R		8	1472	M %T0 #00 R
174 AA 76		BIN	*-012,*		5	1480	B U72 *
175 AA 77	ALTEX	B	0000		4	1485	B 000

ROUTINE TO SPREAD CHARACTERS  
LOCATED FROM LOC 291-300  
OVER 100 OR 132 PSNS OF PRINT AREA

182 AA 84	SCAT	SBR	SCATEX003		4	1489	H V45
183 AA 85		LCA	0300,0290		7	1493	L 300 290
184 AA 86		LCA			1	1500	L
185 AA 87		LCA			1	1501	L
186 AA 88		LCA			1	1502	L
187 AA 89		LCA			1	1503	L
188 AA 90		LCA			1	1504	L
189 AA 91		LCA			1	1505	L
190 AA 92		LCA			1	1506	L
191 AA 93		LCA			1	1507	L
192 AA 94		BCE			8	1508	B V20 T07 2
193 AA 95		B	EXP,1307,2		4	1516	B V42
194 AA 96	EXP	LCA	SCATEX		7	1520	L 300 332
195 AA 97		LCA	0300,0332		7	1527	L 332 322
196 AA 98		LCA	0332,0322		1	1534	L
197 AA 99		LCA			7	1535	L 292 302
198 AB 00	SCATEX	B	0292,0302		4	1542	B 000
199 AB 01			0000				
200 AB 02							
201 AB 03							

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION
202 AB 04						
203 AB 05						
204 AB 06						
205 AB 07						
206 AB 08						
207 AB 09						
208 AB 10						
209 AB 11						
210 AB 12						
211 AB 13	CHANK	SBR	CNCX&003	4	1546	H W56
212 AB 14		BC9	CHN9	5	1550	B V64 9
213 AB 15		BCV	CHN12	5	1555	B W11 a
214 AB 16		B	CNCEX	4	1560	B W53
215 AB 17	CHN9	CS	0332	4	1564	/ 332
216 AB 18		CS		1	1568	/
217 AB 19		CC		2	1569	F B
218 AB 20						
219 AB 21		BCE	NUMCHN,1306,N	8	1571	B V96 T06 N
220 AB 22		MCH	CH9MES,0235	7	1579	M /86 235
221 AB 23	PTT	W		1	1586	2
222 AB 24		BCV	CHN12	5	1587	B W11 a
223 AB 25		B	CNCEX	4	1592	B W53
224 AB 26	NUMCHN	LCA	SPL9,0300	7	1596	L F1V 300
225 AB 27		B	SCAT	4	1603	B U89
226 AB 28		B	PTT	4	1607	B V86
227 AB 29	CHN12	CS	0332	4	1611	/ 332
228 AB 30		CS		1	1615	/
229 AB 31		CC		2	1616	F A
230 AB 32						
231 AB 33		BCE	NUMC,1306,N	8	1618	B W38 T06 N
232 AB 34		MCH	CH12MS,0245	7	1626	M S19 245
233 AB 35	PTT	W		1	1633	2
234 AB 36		B	CNCEX	4	1634	B W53
235 AB 37	NUMC	LCA	SPL12,0300	7	1638	L F2V 300
236 AB 38		B	SCAT	4	1645	B U89
237 AB 39		B	PTT	4	1649	B W33
238 AB 40	CNCEX	B	0000	4	1653	B 000

ROUTINE TO CK FOR CHAN 9 AND 12  
 PUNCHES IF NUMERIC CHAIN PRINTER  
 PRINT A ROW OF \*9\*9\*9\*9 FOR CH 9  
 AND A ROW OF 12\*1212\*12 FOR CH 12  
 IF REGULAR CHAIN PRINT CHAN 9 TEST  
 SKIP TO 12 AFTER PRINT FOR CHAN 9  
 AND LAST LINE OF PAGE START NEW  
 PAGE AFTER PRINT FOR CHAN 12

SET ROUT EXIT  
 CK FOR CHAN 9  
 CK FOR CHAN 12  
 GO TO EXIT  
 CLEAR  
 PRINT AREA  
 TO CHAN 12  
 CK FOR NUM CHAIN  
 MV MESS. TO PRT  
 PRINT & GO TO 12  
 CK FOR 12 PUN  
 GO TO EXIT  
 LOAD NUM REC  
 GO TO SCATTER RC  
 GO TO PRINT  
 CLEAR  
 PRINT AREA  
 TO CHAN 1  
 CK FOR NUM CHAIN  
 MV MESS. TO PRT  
 PRINT LINE  
 GO TO EXIT  
 LOAD NUM REC  
 GO TO SCATTER RC  
 GO TO PRINT  
 ROUTINE EXIT

1410/7010-1401 I/O COMPATIBILITY TEST

SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
239	AB	42		JOB	1410/7010-1401 I/O COMPATIBILITY TEST				
240	AB	44							
241	AB	45							
242	AB	46							
243	AB	47	COCNT	DCW	a a		3	1659	
244	AB	48	CDEND	DCW	a a		3	1662	
245	AB	49		DCW	a0801 FGHJKLMNPQRSTUVMXYZ012345a		32	1694	
246	AB	50		DC	a6789.a(<#E\$#);A-/#E-#Aa		32	1726	
247	AB	51	RDCOMP	DC	aBCDEFGHIJKLMNa		13	1739	
248	AB	52		DC	a0PQa		3	1742	
249	AB	53		DCW	a#a		1	1743	
250	AB	54	EIYTMO	DCW	a082a		3	1746	
251	AB	55	GMNM	DCW	a#a		1	1747	
252	AB	56	CCNT	DCW	a a		3	1750	
253	AB	57	NUMPRT	DCW	a000000000a		10	1760	
254	AB	58		DCW	a111111111a		10	1770	
255	AB	59		DCW	a222222222a		10	1780	
256	AB	60		DCW	a333333333a		10	1790	
257	AB	61		DCW	a444444444a		10	1800	
258	AB	62		DCW	a555555555a		10	1810	
259	AB	63		DCW	a666666666a		10	1820	
260	AB	64		DCW	a777777777a		10	1830	
261	AB	65		DCW	a888888888a		10	1840	
262	AB	66		DCW	a999999999a		10	1850	
263	AB	67		DCW	aTURN ON I/O CK STOP SW PRESS COa		32	1882	
264	AB	68		DC	aMPUTER START OBSERVE MACH STOP a		32	1914	
265	AB	69		DC	a TURN OFF I/O CK STOP SW AND PRea		32	1946	
266	AB	70		DC	aSS COMPUTER RESET AND START TO Ca		32	1978	
267	AB	71	IOCSTP	DC	aONTINUEa		7	1985	
268	AB	72		DCW	a#a		1	1986	
269	AB	73	ZZZ	DCW	a000a		3	1989	
270	AB	74	ZZI	DCW	a001a		3	1992	
271	AB	75	ZZS	DCW	a003a		3	1995	

P R O G R A M C O N S T A N T S



1410/7010-1401 I/O COMPATIBILITY TEST

SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

272	AB	77							
273	AB	79	JOB		1410/7010-1401 I/O COMPATIBILITY TEST				
274	AB	80	ORG		2000				2000
275	AB	81							
276	AB	82	DCM		@J08500 @		7	2006	
277	AB	83							
278	AB	84							
279	AB	85							
280	AB	86							
281	AB	87							
282	AB	88	DCM		@.@		1	2007	
283	AB	89							
284	AB	90							
285	AB	91							
286	AB	92							
287	AB	93							
288	AB	94							
289	AB	95							
290	AB	96							
291	AB	97							
292	AB	98	BCE		RN1,1301,R		8	2008	B -20 T01 R
293	AB	99	B		TESPUN		4	2016	B R41
294	AC	00							
295	AG	01							
296	AG	02							
297	AG	03							
298	AG	04							
299	AG	05							
300	AC	06							
301	AC	07							
302	AC	08							
303	AC	09							
304	AC	10							
305	AG	11							
306	AC	12							
307	AC	13							
308	AC	14							
309	AC	15							
310	AC	16							
311	AC	17							
312	AG	18							
313	AG	19							
314	AC	20							
315	AG	21							
316	AC	22							
317	AC	23							
318	AC	24							
319	AC	25							
320	AC	26							
321	AC	27							

GO TO 8500 TO TEST FOR READY DEVICES, SET RESTART AND TYPE PROG ID

HALT TO SET COMP SW TO 1401 PRESS START

EXAMINE CONTROL AREA FOR READER IF LOC 1301 IS R START AT ROUTINE 1 IF NOT R GO TO TEST FOR PUNCH

CK FOR READER BYPASS READ TEST

RN001 READER TEST RCDS 001-005 READ FIVE CARDS AND CK B REG FOR 082 FOLLOWING READ CK FOR CORRECT READ

303	AC	09	RN1		*@005		4	2020	N -28
304	AC	10	SAR		0084		4	2024	Q 084
305	AG	11	LCA		ZZ1,CDCNT		7	2028	L Z92 W59
306	AC	12	B		READCD		4	2035	B 85+
307	AC	13	B		TYPI-031		4	2039	B C1T
308	AC	14							
309	AC	15	C		COEND,ETY TWO		7	2043	C W62 X46
310	AC	16	BU		TYPI		5	2050	B C4U /
311	AC	17							
312	AG	18	B		CKREAD		4	2055	B 80U
313	AG	19	B		TYPI-031		4	2059	B C1T
314	AC	20							
315	AG	21							
316	AC	22	C		CDCNT,ZZ6		7	2063	C W59 DIU
317	AC	23	BU		RD1		5	2070	B -35 /
318	AC	24	B		LOOPCK		4	2075	B U39
319	AC	25							
320	AC	26							
321	AC	27							

RN002

SEQ PG LIN	LABEL	OP	OPERANDS	INSTRUCTION	SFX	CT	LOCN	INSTRUCTION
322 AC 28				READER TEST %CDS 006-0150				
323 AC 29				READ TEN CARDS USING READ				
324 AC 30				AND BR INSTR WITH GM-WM IN PSN				
325 AC 31				40 OF READ AREA CK FOR CORRECT				
326 AC 32				READ AND CK B REG				
327 AC 33				FOLLOWING READ - CK FOR BRANCH				
328 AC 34								
329 AC 35	RNZ	NOP	*E005	SET ROUT. START	4	2079	N -87	
330 AC 36		SAR	0084	ADDR IN 82-84	4	2083	Q 084	
331 AC 37		LCA	ZZ6,CDCNT	SET CDCNT TO 6	7	2087	L DIU W59	
332 AC 38		GS	0080	CLEAR READ AREA	4	2094	/ 080	
333 AC 39		SM	0001	SET WM IN 1	4	2098	, 001	
334 AC 40		LCA	GMM,0040	LOAD GROUP MARK	7	2102	L X47 040	
335 AC 41		BLC	TYP1	TEST FOR LAST CD	5	2109	B C4U A	
336 AC 42				ERR TYPE HERE				
337 AC 43				INDS FALSE EOF				
338 AC 44				EXEC RD & BR	4	2114	I J22	
339 AC 45	RBR2	B	NX1 TYP1-031	R%IP INSTRUCTION	4	2118	B C1T	
340 AC 46				FAILED TO BRANCH				
341 AC 47	NX1	SBR	CDEND	STORE B REG	4	2122	H W62	
342 AC 48		BIN	TYP1,6	CK FOR RD ERROR	5	2126	B C4U &	
343 AC 49				ERR TYPE HERE				
344 AC 50				INDS INVALID RD				
345 AC 51		C	CDEND,RBR	CK STORED B REG	7	2131	C W62 G3Z	
346 AC 52		BU	TYP1	CONTENTS OF B	5	2138	B C4U /	
347 AC 53				REG AFTER READ				
348 AC 54				IS INCORRECT				
349 AC 55		C	RDCOMP,0077	CK DATA READ	7	2143	C X39 077	
350 AC 56		BU	TYP1	INCORRECT READ	5	2150	B C4U /	
351 AC 57		C	RDCOMP-038,0039	CK DATA READ	7	2155	C X01 039	
352 AC 58		BU	TYP1	INCORRECT READ	5	2162	B C4U /	
353 AC 59		C	0080,CDCNT	CK CD SEQ	7	2167	C 080 W59	
354 AC 60		BU	TYP1	CD SEQ ERROR	5	2174	B C4U /	
355 AC 61		A	ONE,CDCNT	UP CD CNT	7	2179	A F2M W59	
356 AC 62		C	CDCNT,Z16	CK FOR 5 CDS	7	2186	C W59 D2+	
357 AC 63		BU	RN2E015	GET NEXT CARD	5	2193	B -94 /	
358 AC 64		B	LOOPCK	CK FOR LOOP	4	2198	B U39	
359 AC 65								
360 AC 66								
361 AC 67								
362 AC 68								
363 AC 69								
364 AC 70								
365 AC 71								
366 AC 72								
367 AC 73	RM4	NOP	*E005	SET ROUT. START	4	2202	N K10	
368 AC 74		SAR	0084	ADDR IN 82-84	4	2206	Q 084	
369 AC 75		LCA	Z16,CDCNT	SET CDCNT TO 16	7	2210	L D2+ W59	
370 AC 76		B	READCD	GO TO READ CD	4	2217	B 85+	
371 AC 77		B	NX48		4	2221	B K29	

RN004

READER TEST %CDS 016-0190  
 READ FOUR CDS CONTAINING INVALID PUNCHES  
 TEST FOR READ ERROR LATCH ON  
 TEST FOR RESET OF RD ERR LAT

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
372 AC 78		B	TYPI-031	4	2225	B C1T	FAILED TO BRANCH
373 AC 79							ON READ ERROR
374 AC 80		BIN	*E005,ε	5	2229	B K38 ε	CK FOR RESET
375 AC 81	NX48	B	NX4CD	4	2234	B K42	OK
376 AC 82		B	TYPI-031	4	2238	B C1T	ERR LAT FAILED
377 AC 83							TO RESET
378 AC 84	NX4CD	C	0080, CDCNT	7	2242	C 080 W59	CK CD SEQUENCE
379 AC 85		BU	TYPI	5	2249	B C4U /	CD SEQUENCE ERR
380 AC 86		A	ONE, CDCNT	7	2254	A F2W W59	UP CD COUNT
381 AC 87		C	CDCNT, Z20	7	2261	C W59 D2T	CK FOR 4 CDS
382 AC 88		BU	RN4&015	5	2268	B K17 /	GET NEXT CD
383 AC 89		B	LOOPCK	4	2273	B U39	CK FOR LOOP
384 AC 90							
385 AC 91							
386 AC 92							
387 AC 93							
388 AC 94							
389 AC 95							
390 AC 96							
391 AC 97							
392 AC 98							
393 AC 99							
394 AD 00							
395 AD 01							
396 AD 02							
397 AD 03							
398 AD 04							
399 AD 05							
400 AD 06							
401 AD 07							
402 AD 08							
403 AD 09							
404 AD 10							
405 AD 11							
406 AD 12							
407 AD 13							
408 AD 14							
409 AD 15							
410 AD 16							
411 AD 17							
412 AD 18							
413 AD 19							
414 AD 20							
415 AD 21							
416 AD 22							
417 AD 23							
418 AD 24							
419 AD 25							
420 AD 26							
421 AD 27							

RN005  
 READER TEST %CD 020□  
 EXECUTE START READ FEED INSTRS  
 AND READ CARD CK FOR CORRECT READ

RN5	NOP	*E005	SET ROUT. START	4	2277	N K85
	SAR	0084	ADDR IN 82-84	4	2281	Q 084
	LCA	ZZL, CCNT	ZERO LP COUNT	7	2285	L Z89 X50
	CS	0080	CLEAR READ AREA	4	2292	/ 080
	SW	0001	SET WM IN LOC 1	4	2296	, 001
	SRF		START RD FEED	1	2300	8
	A	ONE, CCNT	UP COUNT	7	2301	A F2W X50
	C	CCNT, Z25	EXEC 5 TIMES	7	2308	C X50 D1/
	BU	RN5&015	SET CDCNT TO 20	5	2315	B K92 /
	LCA	Z20, CDCNT	CK FOR LAST CD	7	2320	L D2T W59
	BLC	TYPI	ERR TYPE HERE	5	2327	B C4U A
			INDS FALSE EOF			
	R	TYPI, ε	READ CARD	1	2332	1
	BIN		CK FOR READ ERR	5	2333	B C4U ε
			ERR TYPE HERE			
	B	CKREAD	INDS INVALID RD			
	B	TYPI-031	CK DATA READ	4	2338	B 80U
			ERR TYPE HERE	4	2342	B C1T
			INDS INCORRECT			
	B	LOOPCK	READ OR SEQ ERR	4	2346	B U39
			CK FOR LOOP			

RN006  
 READER TEST%CD 021□  
 READ INVALID CARD AND EXECUTE  
 BRANCH INSTR WITH UNITS PSN OF  
 A ADDR CONTAINING ε CK FOR  
 NO RESET OF ERROR LATCH  
 THIS ROUTINE IS EXECUTED ONLY

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
422	AD 28						
423	AD 29						
424	AD 30	BCE	*E005,1257,0	8	2350	B L62	S57 0
425	AD 31	B	8300	4	2358	B 30-	
426	AD 32						
427	AD 33	R		1	2362	I	
428	AD 34	BIN	*E001,ε	5	2363	B L68	ε
429	AD 35						
430	AD 36						
431	AD 37						
432	AD 38						
433	AD 39						
434	AD 40						
435	AD 41						
436	AD 42						
437	AD 43						
438	AD 44						
439	AD 45						
440	AD 46						
441	AD 47						
442	AD 48						
443	AD 49						
444	AD 50						
445	AD 51						
446	AD 52						
447	AD 53						
448	AD 54						
449	AD 55						
450	AD 56						
451	AD 57						
452	AD 58						
453	AD 59						
454	AD 60						
455	AD 61						
456	AD 62						
457	AD 63						
458	AD 64						
459	AD 65						
460	AD 66						
461	AD 67						
462	AD 68						
463	AD 69						
464	AD 70						
465	AD 71						
466	AD 72						
467	AD 73						
468	AD 74						
469	AD 75						
470	AD 76						
471	AD 77						

ON SYSTEMS WITH MEM GREATER THAN 10K

CK FOR 10K MEM  
GO TO 8300 TO  
EXEC ROUTINE  
READ CARD  
RESET ERR LATCH

RN007  
READER TEST %CD 022□  
SET I/O CHECK STOP SW ON  
READ INVALID CD AND TEST  
FOR PROG HANG WITH RD CK LITE ON  
THIS ROUTINE CANNOT BE RESTARTED  
WITH COMPUTER RESET AND START

CK FOR MANUAL TS  
RD TO KEEP SEQ  
RESET ERROR LAT  
GO TO NEXT ROUT  
ε GO TO NEXT RTN  
SET BYPASS ADDR  
ADDR IN 82-84  
TYPE MESSAGE  
HALT TO SET I/O  
CK STOP SW ON  
TEST FOR LAST CD  
ERR TYPE HERE

INDS FALSE EOF  
READ CARD  
MACH SHOULD HALT  
HERE-TURN OFF IO  
CK STOP SW  
AND PRESS  
COMPUTER RESET  
AND START  
RESET ERR LAT  
CK FOR INQUIRY  
LOOP ROUTINE

RN008  
READER TEST %CDS 023-028□  
READ SIX CARDS SELECTING  
STACKERS 1 AND 2

SET ROUT. START  
ADDR IN 82-84  
SET FOR STKR 1

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
472 AD 78	LCA		ZZZ,0089	7	2444	L 289 089	RESET XR 1
473 AD 79	LCA		Z23,CDCNT	7	2451	L D2M W59	SET CDCNT TO 23
474 AD 80	B		READCD	4	2458	B 85+	GO TO READ CD
475 AD 81	B		TYPI-031	4	2462	B CIT	ERR TYPE HERE
476 AD 82							INDS INVALID RD
477 AD 83	BCE		SEL8,TAD4,1	8	2466	B M78 #04 1	CK FOR SEL STKR
478 AD 84	B		*E003	4	2474	B M80	BYPASS SS
479 AD 85	SS		1	2	2478	K 1	CK DATA READ
480 AD 86	B	SEL8	CKREAD	4	2480	B 80U	ERR TYPE HERE
481 AD 87	B		TYPI-031	4	2484	B CIT	INDS INCORRECT
482 AD 88							READ OR SEQ ERR
483 AD 89							UP XR 1
484 AD 90	A		ONE,0089	7	2488	A F2M 089	CK FOR 3 CDS
485 AD 91	C		0089,ZZ3	7	2495	C 089 Z95	NOT 3 CDS
486 AD 92	BU		GON8	5	2502	B N14 /	SET FOR STKR 2
487 AD 93	MCH		TWO,SEL8E001	7	2507	M F2X M79	CK FOR 6 CDS
488 AD 94	C	GON8	CDCNT,Z29	7	2514	C W59 D2Z	NOT 3 CDS
489 AD 95	BU		RN8E029	5	2521	B M58 /	CK FOR LOOP
490 AD 96	B		LOOPCK	4	2526	B U39	
491 AD 97							
492 AD 98							
493 AD 99							
494 AE 00							
495 AE 01							
496 AB 02							
497 AE 03							
498 AE 04							
499 AE 05							
500 AB 06							
501 AE 07							
502 AE 08							
503 AE 09							
504 AE 10	CL8A		ZZZZ,CYCNT	7	2545	L D7Y D9/	SET ROUT. START
505 AE 11	SS		\$	2	2552	K \$	ADDR IN 82-84
506 AE 12	CS		0080	4	2554	/ 080	SET CDCNT TO 29
507 AE 13	SW		0001	4	2558	, 001	RESET CNTR
508 AE 14	BLC		TYPI	5	2562	B C4U A	CLEAR READ AREA
509 AE 15							TEST FOR LAST CD
510 AB 16	R		SVTY10,1256,X	1	2567	1	ERR TYPE HERE
511 AE 17	BCE		NX8A	8	2568	B N80 S56 X	INDS FALSE EOF
512 AE 18	B						READ CARD
513 AE 19							CK FOR 7010
514 AE 20	SVTY10		CKBUSY,H	4	2576	B N97	BYPASS OVLP TEST
515 AE 21	C		CYCNT,ZZZZ	5	2580	B 88Y H	CK FOR BUSY
516 AB 22	BE		TYPI	7	2585	C D9/ D7Y	CK CNTR FOR 0000
517 AE 23							NO PROC OCCURED
518 AE 24							DURING OVERLAP
519 AB 25	BIN		TYPI,-	5	2597	B C4U -	READ
520 AB 26	B		CKREAD	4	2602	B 80U	INVALID READ
521 AE 27	B		TYPI-031	4	2606	B CIT	CK DATA READ
							ERR TYPE HERE

RN08A  
 READER TEST %CDS 029-034  
 READ SIX CARDS IN ALTERNATE  
 OVERLAP AND NON OVERLAP MODES  
 CK FOR CORRECT READ AND FOR NO  
 INTERLOCK OF NORMAL PROCESSING  
 DURING OVERLAP READS

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ	RG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
522	AE	28							
523	AE	29							
524	AE	30							
525	AE	31		SS	0080	2		2610	K
526	AE	32		CS	0001	4		2612	/ 080
527	AE	33		SW	0001	4		2616	, 001
528	AE	34		BLC	TYPI	5		2620	B C4U A
529	AE	35							
530	AE	36		R					
531	AE	37		BIN	TYPI,H	1		2625	I
532	AE	38							
533	AE	39							
534	AE	40							
535	AE	41		BIN	TYPI,&	5		2631	B C4U &
536	AE	42		B	CKREAD	4		2636	B 80U
537	AE	43		B	TYPI-031	4		2640	B CIT
538	AE	44							
539	AE	45							
540	AE	46		C	CDCNT,Z35	7		2644	C W59 D9U
541	AE	47		BU	CL8A	5		2651	B N45 /
542	AE	48		B	LOOPCK	4		2656	B U39
543	AE	49							
544	AE	50							
545	AE	51							
546	AE	52							
547	AE	53							
548	AE	54							
549	AE	55							
550	AE	56							
551	AE	57							
552	AE	58							
553	AE	59							
554	AE	60							
555	AE	61		NOP	*&005	4		2660	N 068
556	AE	62		SAR	0084	4		2664	Q 084
557	AE	63		LCA	Z35,CDCNT	7		2668	L D9U W59
558	AE	64	CL8B	LCA	ZZZZ,CYCNT	7		2675	L D7Y D9/
559	AE	65		SSB	NX8B,\$	5		2682	K D91 \$
560	AE	66		B	TYPI-031	4		2687	B CIT
561	AE	67	NX8B	CS	0080	4		2691	/ 080
562	AE	68		SW	0001	4		2695	, 001
563	AE	69		BLC	TYPI	5		2699	B C4U A
564	AE	70							
565	AE	71							
566	AE	72		R	BCK8B	4		2704	I P12
567	AE	73		B	TYPI-031	4		2708	B CIT
568	AE	74	BCK8B	BCE	SV10B,1256,X	8		2712	B P24 S56 X
569	AE	75		B	NX8BBB	4		2720	B P41
570	AE	76	SV10B	BIN	CKBUSY,H	5		2724	B 88Y H
571	AE	77		C	CYCNT,ZZZZ	7		2729	C D9/ D7Y

INDS INCORRECT  
 READ OR SEQ ERR  
 CLEAR READ AREA  
 TEST FOR LST CD  
 ERR TYPE HERE  
 INDS FALSE EOF  
 READ CARD  
 CK FOR BUSY ERR  
 TYPE HERE INDS  
 THAT OVERLAP WAS  
 NOT RESET  
 INVALID READ  
 CK DATA READ  
 ERR TYPE HERE  
 INDS INCORRECT  
 READ OR SEQ ERR  
 CK FOR 6 CDS  
 GET NEXT CD  
 CK FOR LOOP

RN08B  
 READER TEST%CD5 035-040  
 READ SIX CARDS IN ALTERNATE  
 OVERLAP AND NON OVERLAP MODES  
 USING SET OVERLAP AND BRANCH AND  
 RESET OVERLAP AND BRANCH INSTRS  
 CK FOR CORRECT READ AND FOR NO  
 INTERLOCK OF NORMAL PROCESSING  
 DURING OVERLAP READS

SET ROUT. START  
 ADDR IN 82-84  
 SET CDCNT TO 35  
 RESET CNTR  
 SET OVLP AND BR  
 FAILED TO BR  
 CLEAR READ AREA  
 CK FOR LAST CD  
 ERR TYPE HERE  
 INDS FALSE EOF  
 READ AND BRANCH  
 FAILED TO BRANCH  
 CK FOR 7010  
 BYPASS QVLP TEST  
 CK FOR BUSY  
 CK FOR NOV 0000

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
572	AE	78		BE	TYPI				NO PROC OCCURRED DURING OVERLAP READ
573	AE	79							
574	AE	80							
575	AE	81	NX88B8	BIN	TYPI,-	5		2736	B C4U S
576	AE	82		B	CKREAD				INVALID READ
577	AB	83		B	TYPI-031	4		2741	B C4U -
578	AE	84				4		2746	B B0U
579	AE	85						2750	B CIT
580	AE	86		SSB	NX88B,-	5		2754	K P63 *
581	AE	87		B	TYPI-031	4		2759	B CIT
582	AE	88	NX88B	CS	0080	4		2763	/ 080
583	AB	89		SW	0001	4		2767	, 001
584	AB	90		BLC	TYPI	5		2771	B C4U A
585	AE	91							CK FOR LAST CD
586	AE	92							ERR TYPE HERE
587	AE	93		R	TYPI,H	1		2776	I
588	AB	94		BIN		5		2777	B C4U H
589	AE	95							INDS FALSE EOF
590	AE	96							READ CD
591	AE	97							CK FOR BUSY ERR
592	AE	98		BIN	TYPI,&				TYPE HERE INDS
593	AE	99		B	CKREAD				THAT OVERAP WAS
594	AF	00		B	TYPI-031				NOT RESET
595	AF	01							INVALID READ
596	AF	02		C	CDCNT,Z41	5		2782	B C4U &
597	AF	03		BU	CL8B	4		2787	B B0U
598	AF	04		B	LOOPCK	4		2791	B CIT
599	AF	05							READ OR SEQ ERR
600	AF	06							CK FOR 6 CDS
601	AF	07							GET NEXT CD
602	AF	08							CK FOR LOOP
603	AF	09							
604	AF	10							
605	AF	11							
606	AF	12							
607	AF	13							
608	AF	14							
609	AF	15							
610	AF	16		BCE	CKP,1303,P	8		2811	B Q23 T03 P
611	AF	17		B	CN9	4		2819	B Q31
612	AF	18	CKP	BCE	RN13,1305,P	8		2823	B R53 T05 P
613	AF	19	CN9	NOP	*&005	4		2831	N Q39
614	AF	20		SAR	0084	4		2835	Q 084
615	AF	21		LCA	Z41,CDCNT	7		2839	L D9X W59
616	AF	22		B	READCD	4		2846	B B5+
617	AF	23	CL9	B	TYPI-031	4		2850	B CIT
618	AF	24							ERR TYPE HERE
619	AF	25		B	CKREAD	4		2854	B B0U
620	AF	26		B	TYPI-031	4		2858	B CIT
621	AF	27							INDS INCORRECT

RN009  
 READER TEST %CDS 041-060#  
 TEST LOC 1303 AND 1305 FOR P  
 %PUNCH AND PRINTER AVAILABILITY#  
 IF BOTH ARE NOT P EXECUTE THE  
 FOLLOWING ROUTINE - OTHERWISE SAVE  
 CDS FOR RD-PRT-PUN COMBINATION

CK FOR PUNCH  
 PUNCH NOT AVAIL.  
 CK FOR PRINTER  
 SET ROUT. START  
 ADDR IN 82-84  
 SET CDCNT TO 041  
 GO TO READ CD  
 ERR TYPE HERE  
 INDS INVALID RD  
 CK DATA READ  
 ERR TYPE HERE  
 INDS INCORRECT

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

622 AF 28 C CDCNT,Z61 READ OR SEQ ERR  
 623 AF 29 BU CL9 CK FOR 20 CDS  
 624 AF 30 B LOOPCK GET NEXT CARD  
 625 AF 31 B LOOPCK CK FOR LOOP

RN010  
 READER TEST %CDS 061-070  
 TEST FOR AVAILABILITY OF PUN OR PRINTER  
 IF NEITHER AVAILABLE EXECUTE THE  
 FOLLOWING ROUT-OTHERWISE SAVE CARDS  
 FOR RD-PRT OR RD-PUN COMBINATION

634 AF 40 BCE TESPUN,1303,P CK FOR PUNCH  
 635 AF 41 BCE TESPUN,1305,P CK FOR PRINTER  
 636 AF 42 NOP \*E005 SET ROUT. START  
 637 AF 43 SAR 0084 ADDR IN 82-84  
 638 AF 44 LCA Z61,CDCNT SET CDCNT TO 061  
 639 AF 45 B READCD GO TO READ CD  
 640 AF 46 B TYPI-031 ERR TYPE HERE  
 641 AF 47 B INDS INVALID RD  
 642 AF 48 B CKREAD CK DATA READ  
 643 AF 49 B TYPI-031 ERR TYPE HERE  
 644 AF 50 B INDS INCORRECT  
 645 AF 51 C CDCNT,Z71 READ OR SEQ ERR  
 646 AF 52 BU CL10 CK FOR 10 CDS  
 647 AF 53 B LOOPCK GET NEXT CD  
 648 AF 54 B LOOPCK CK FOR LOOP

CL10

TEST FOR PUNCH AVAILABILITY  
 TEST LOC. 1303 FOR P  
 IF P START AT ROUTINE 13  
 IF NOT P GO TO TEST FOR PRINTER

651 AF 57 TESPUN BCE RN13,1303,P TEST FOR PUNCH  
 652 AF 58 B TESPRT AVAILABILITY  
 653 AR 59 B PUNCH NOT AVAIL.  
 654 AF 60  
 655 AF 61  
 656 AF 62  
 657 AF 63  
 658 AF 64  
 659 AF 65  
 660 AF 66  
 661 AF 67  
 662 AF 68  
 663 AF 69  
 664 AF 70

RN013  
 PUNCH TEST% CDS 001-082  
 PUNCH 82 CARDS OF RIPPLE PATTERN

665 AF 71 RNI3 RESTA,0005 SET RESTART  
 666 AF 72 NOP \*E005 SET ROUT START  
 667 AF 73 SAR 0084 ADDR IN 82-84  
 668 AF 74 LCA RDCOMP,WKAREA&076 MV PATTERN  
 669 AF 75 LCA ZZ1,CDCNT SET CDCNT TO 1  
 670 AF 76 CL13 0180 CLEAR PUNCH AREA  
 671 AF 77

8 2878 B R41 T03 P  
 8 2886 B R41 T05 P  
 4 2894 N R02  
 4 2898 Q 084  
 7 2902 L D3S W59  
 4 2909 B B5+  
 4 2913 B CIT  
 4 2917 B B0U  
 4 2921 B CIT  
 7 2925 C W59 D3V  
 5 2932 B R09 /  
 4 2937 B U39  
 8 2941 B R53 T03 P  
 4 2949 B F33  
 7 2953 L G5# 005  
 4 2960 N R68  
 4 2964 Q 084  
 7 2968 L X39 H7M  
 7 2975 L Z92 W59  
 4 2982 / 180



1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION
672 AF 78		MW	WKAREA&076,0177	7	2986	M H7M 177
673 AF 79		MW	CDCNT,0180	7	2993	M W59 180
674 AF 80		P		1	3000	4
675 AF 81		BIN	TYPL,-	5	3001	B C4U -
676 AF 82						
677 AF 83						
678 AF 84		MW	WKAREA&076,WKAREA&077	7	3006	M H7M H7X
679 AF 85		MW	WKAREA&077,WKAREA	7	3013	M H7X H0#
680 AF 86		A	ONE,CDCNT	7	3020	A F2M W59
681 AF 87		C	CDCNT,Z83	7	3027	C W59 D4/
682 AF 88		BU	CL13	5	3034	B R82 /
683 AF 89		B	LOOPCK	4	3039	B U39
684 AF 90						
685 AF 91						
686 AF 92						
687 AF 93						
688 AF 94						
689 AF 95						
690 AF 96						
691 AF 97						
692 AF 98						
693 AF 99						
694 AG 00	CL14	LCA	Z83,CDCNT	4	3043	N &51
695 AG 01		CS	0180	4	3047	Q 084
696 AG 02		MW	RDCOMP,0177	7	3051	L D4/ W59
697 AG 03		MW	CDCNT,0180	4	3058	/ 180
698 AG 04		P	CK14	7	3062	M X39 177
699 AG 05		B	TYPL-031	4	3069	M W59 180
700 AG 06		BIN	TYPL,-	4	3076	4 &84
701 AG 07	CK14			4	3080	B CIT
702 AG 08						
703 AG 09		A	ONE,CDCNT	5	3084	B C4U -
704 AG 10		C	CDCNT,Z88	7	3089	A F2M W59
705 AG 11		BU	CL14	7	3096	C W59 D4U
706 AG 12		B	LOOPCK	5	3103	B &58 /
707 AG 13				4	3108	B U39
708 AG 14						
709 AG 15						
710 AG 16						
711 AG 17						
712 AG 18						
713 AG 19						
714 AG 20						
715 AG 21						
716 AG 22						
717 AG 23						
718 AG 24						
719 AG 25	CL15	CS	Z88,CDCNT	4	3112	N A20
720 AG 26		MW	RDCOMP,0177	4	3116	Q 084
721 AG 27		MW	CDCNT,0180	7	3120	L D4U W59
				4	3127	/ 180
				7	3131	M X39 177
				7	3138	M W59 180

RN014  
PUNCH TEST&CDS 083-087  
PUNCH FIVE CARDS AND TEST  
PUNCH AND BRANCH INSTRUCTION

SET ROUT. START  
ADDR IN 82-84  
SET CDCNT TO 83  
CLEAR PUNCH AREA  
MV IN  
PUNCH DATA  
PUNCH AND BRANCH  
4&84 INSTR  
FAILED TO BRANCH  
CK FOR PUNCH ERR  
ERR TYPE HERE  
INDS INVALID PUN

RN015  
PUNCH TEST&CDS 088-093  
PUNCH SIX CARDS TESTING  
STACKER SELECT OPERATION  
SELECT 3 CDS TO STACKER 4  
AND 3 CDS TO STACKER 8

SET ROUT. START  
ADDR IN 82-84  
SET CDCNT TO 88  
CLEAR PUNCH AREA  
MV IN  
PUNCH DATA

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
722 AG 28		P			1	3145	4
723 AG 29		BIN	TYPI,-		5	3146	B C4U -
724 AG 30							
725 AG 31							
726 AG 32							
727 AG 33							
728 AG 34		SS	4		2	3151	K 4
729 AG 35		A	ONE,CDCNT		7	3153	A F2M W59
730 AG 36		C	CDCNT,Z91		7	3160	C W59 D4X
731 AG 37		BU	CL15		5	3167	B A27 /
732 AG 38		CS	0180		4	3172	/ 180
733 AG 39	CL15A	MCM	RDCOMP,0177		7	3176	M X39 177
734 AG 40		MCM	CDCNT,0180		7	3183	M W59 180
735 AG 41		P			1	3190	4
736 AG 42		BIN	TYPI,-		5	3191	B C4U -
737 AG 43							
738 AG 44							
739 AG 45							
740 AG 46							
741 AG 47		SS	8		2	3196	K 8
742 AG 48		A	ONE,CDCNT		7	3198	A F2M W59
743 AG 49		C	CDCNT,Z94		7	3205	C W59 D5+
744 AG 50		BU	CL15A		5	3212	B A72 /
745 AG 51		B	LOOPCK		4	3217	B U39
746 AG 52							
747 AG 53							
748 AG 54							
749 AG 55							
750 AG 56							
751 AG 57							
752 AG 58							
753 AG 59							
754 AG 60		NOP	*E005		4	3221	N B29
755 AG 61		SAR	0084		4	3225	Q 084
756 AG 62		LCA	Z94,CDCNT		7	3229	L D5+ W59
757 AG 63		CS	0180		4	3236	/ 180
758 AG 64		MCM	RDCOMP,0177		7	3240	M X39 177
759 AG 65		MCM	CDCNT,0180		7	3247	M W59 180
760 AG 66		P			1	3254	4
761 AG 67		BIN	TYPI,-		5	3255	B C4U -
762 AG 68							
763 AG 69							
764 AG 70							
765 AG 71		SSB	UP16,8		5	3260	K B69 8
766 AG 72		R	TYPI-031		4	3265	B C11
767 AG 73							
768 AG 74							
769 AG 75	UP16	A	ONE,CDCNT		7	3269	A F2M W59
770 AG 76		C	CDCNT,0NF00		7	3276	C W59 D5W
771 AG 77		F	CL16		5	3283	B B36 /

RN016  
 PUNCH TEST#CDS 094-099  
 PUNCH SIX CDS AND TEST  
 STKR SEL AND BRANCH INSTR  
 SIX CDS SHOULD FALL IN STKR 8

SET ROUT START  
 ADDR IN 82-84  
 SET CDCNT TO 94  
 CLEAR PUNCH AREA  
 MV IN  
 PUNCH DATA  
 PUNCH CD  
 CK FOR PUN ERR  
 ERR TYPE HERE  
 INDS INV PUN-CD  
 SHOULD FALL IN  
 NORMAL POCKET  
 SEL 8 AND BRANCH  
 FRR K81E INSTR  
 FAILED TO BRANCH  
 UP CARD COUNT  
 CK FOR 6 CDS  
 PUNCH NEXT CD

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
772 AG 78		B	LOOPCK		4	3288	B U39
773 AG 79							
774 AG 80							
775 AG 81							
776 AG 82							
777 AG 83							
778 AG 84							
779 AG 85							
780 AG 86							
781 AG 87							
782 AG 88							
783 AG 89							
784 AG 90							
785 AG 91							
786 AG 92							
787 AG 93							
788 AG 94							
789 AG 95							
790 AG 96							
791 AG 97							
792 AG 98							
793 AG 99							
794 AH 00							
795 AH 01							
796 AH 02							
797 AH 03							
798 AH 04							
799 AH 05							
800 AH 06							
801 AH 07							
802 AH 08							
803 AH 09							
804 AH 10							
805 AH 11							
806 AH 12							
807 AH 13							
808 AH 14							
809 AH 15							
810 AH 16							
811 AH 17							
812 AH 18							
813 AH 19							
814 AH 20							
815 AH 21							
816 AH 22							
817 AH 23							
818 AH 24							
819 AH 25							
820 AH 26							
821 AH 27							

RN018  
PUNCH TEST% CDS 100-104  
PUNCH FIVE CDS WITH GM-WM IN  
PUNCH LOC. 142

SET ROUT. START  
ADDR IN 82-84  
SET CDCNT TO 100  
CLEAR PUNCH AREA  
MV IN  
PUNCH DATA  
SET WM WITH GM  
PUNCH CARD  
CK FOR PUNCH ERR  
ERR TYPE HERE  
INDS INV PUNCH  
UP CARD COUNT  
CK FOR 5 CARDS  
PUNCH NEXT CD  
CK FOR LOOP

RN18A  
PUNCH TEST% CDS 105-110  
PUNCH SIX CARDS IN ALTERNATE  
OVERLAP AND NON OVERLAP MODES  
CK FOR NO INTERLOCK OF NORMAL  
PROCESSING DURING PUNCHING WITH OVLP

SET ROUT START  
ADDR IN 82-84  
SET CDCNT TO 105  
RESET CNTR  
CLEAR PUN AREA  
MV IN  
PUNCH DATA  
PUNCH  
CK FOR 7010  
BYPASS OVLP TEST  
CK FOR PUN BUSY  
CK FOR NOT 0000  
NO PROC OCCURED  
DURING OVLP PUN  
PUNCH CHECK  
UP CDCNT  
MV IN PUN DATA

SEQ PG LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION
822 AH 28		SS	.	2	3449	K .
823 AH 29		P		1	3451	4
824 AH 30		BIN	TYPI,I	5	3452	B C4U I
825 AH 31						
826 AH 32						
827 AH 33						
828 AH 34		BIN	TYPI,-	5	3457	B C4U -
829 AH 35		A	ONE,CDCNT	7	3462	A F2W W59
830 AH 36		C	CDCNT,ONE11	7	3469	C W59 EOT
831 AH 37		BU	CL18A	5	3476	B C73 /
832 AH 38		B	LOOPCK	4	3481	B U39
833 AH 39						
834 AH 40						
835 AH 41						
836 AH 42						
837 AH 43						
838 AH 44						
839 AH 45						
840 AH 46						
841 AH 47						
842 AH 48						
843 AH 49						
844 AH 50						
845 AH 51						
846 AH 52						
847 AH 53	CLI18B	LCA	ONE11,CDCNT	7	3493	L EOT W59
848 AH 54		SSB	ZZZZ,CYCNT	7	3500	L D7Y D9/
849 AH 55		B	NX18B,\$	5	3507	K E16 \$
850 AH 56	NX18B	CS	TYPI-031	4	3512	B C1T
851 AH 57		MCW	O180	4	3516	/ 180
852 AH 58		MCW	RDCOMP,0177	7	3520	M X39 177
853 AH 59		P	CDCNT,0180	4	3527	M W59 180
854 AH 60		B	BCK18B	4	3534	4 E42
855 AH 61	BCK18B	BCE	TYPI-031	4	3538	B C1T
856 AH 62		B	SVT18B,1256,X	8	3542	B E54 S56 X
857 AH 63	SVT18B	BIN	CKBUSY,I	4	3550	B E71
858 AH 64		C	CYCNT,ZZZZ	5	3554	B 88Y I
859 AH 65		BE	TYPI	7	3559	C D9/ D7Y
860 AH 66				5	3566	B C4U S
861 AH 67	NX18C	BIN	TYPI,-	5	3571	B C4U -
862 AH 68		A	ONE,CDCNT	7	3576	A F2W W59
863 AH 69		MCW	CDCNT,0180	7	3583	M W59 180
864 AH 70		SSB	NX18BB,.	5	3590	K E99 .
865 AH 71		B	TYPI-031	4	3595	B C1T
866 AH 72	NX18BB	P	TYPI,I	1	3599	4
867 AH 73		BIN		5	3600	B C4U I
868 AH 74						
869 AH 75						
870 AH 76						
871 AH 77		BIN	TYPI,-	5	3605	B C4U -

RN18B  
 TEST%CD5 111-1160  
 PUNCH SIX CDS IN ALTERNATE  
 OVERLAP AND NON OVERLAP MODES  
 USING SET OVERLAP AND BRANCH  
 AND RESET OVERLAP AND BR INSTRS  
 CK FOR NO INTERLOCK OF NORMAL  
 PROCESSING DURING PUNCHING WITH OVLV

SET ROUT. START  
 ADDR IN 82-84  
 SET CDCNT TO 111  
 RESET CNTR  
 SET OVLV & BR  
 FAILED TO BRANCH  
 CLEAR PUN AREA  
 MV IN  
 PUNCH DATA  
 PUNCH AND BRANCH  
 FAILED TO BRANCH  
 CK FOR 7010  
 BYPASS OVLV TEST  
 CK FOR PUN BUSY  
 CK FOR NOT 0000  
 NO PROC OCCURED  
 DURING OVLV PUN  
 PUNCH CHECK  
 UP CDCNT  
 MV IN PUN DATA  
 RESET OVLV & BR  
 FAILED TO BRANCH  
 PUNCH  
 CK FOR BUSY ERR  
 TYPE HERE INDS  
 THAT OVLV WAS  
 NOT RESET  
 PUNCH CK



SEQ	PG	LN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
922	AI	28		SAR	0084				ADDR IN 82-84
923	AI	29		LCA	ZZZ,0089			4 3722	Q 084
924	AI	30		CS	0332			7 3726	L Z89 089
925	AI	31	CL20	CS				4 3733	/ 332
926	AI	32		LCA	NUMPRT,0300			1 3737	/
927	AI	33		B	SCAT			7 3738	L X60 300
928	AI	34						4 3745	B U89
929	AI	35							
930	AI	36		2H BIN	TYPI,†			2 3749	2 □
931	AI	37		B	CHANCK			5 3751	B C4U †
932	AI	38		A	TEN,0089			4 3756	B V46
933	AI	39		C	0089,0NE00			7 3760	A E9V 089
934	AI	40		BU	CL20			7 3767	C 089 D5W
935	AI	41		B	LOOPCK			5 3774	B G33 /
936	AI	42						4 3779	B U39
937	AI	43							
938	AI	44							
939	AI	45							
940	AI	46							
941	AI	47							
942	AI	48							
943	AI	49							
944	AI	50							
945	AI	51							
946	AI	52							
947	AI	53	CL21	CS	0332			4 3798	/ 332
948	AI	54		CS				1 3802	/
949	AI	55		BCE	NUM21,1306,N			8 3803	B H22 T06 N
950	AI	56		LCA	RDCOMP--067,0300			7 3811	L W72 300
951	AI	57		B	GOS21			4 3818	B H29
952	AI	58	NUM21	LCA	NUMCHS,0300			7 3822	L FOV 300
953	AI	59	GOS21	B	SCAT			4 3829	B U89
954	AI	60							
955	AI	61							
956	AI	62		W	ERC21			4 3833	2 H41
957	AI	63		B	TYPI-031			4 3837	B CIT
958	AI	64							
959	AI	65	ERC21	BIN	TYPI,†			5 3841	B C4U †
960	AI	66							
961	AI	67							
962	AI	68		B	CHANCK			4 3846	B V46
963	AI	69		A	TEN,0089			7 3850	A E9V 089
964	AI	70		C	0089,0NE00			7 3857	C 089 D5W
965	AI	71		BU	CL21			5 3864	B G98 /
966	AI	72		B	LOOPCK			4 3869	B U39
967	AI	73							
968	AI	74							
969	AI	75							
970	AI	76							
971	AI	77							

RN021  
 PRINTER TEST  
 PRINT 10 LINES AND TEST  
 PRINT AND BRANCH INSTRUCTION

SET ROUT. START  
 ADDR IN 82-84  
 RESET XR 1  
 CLEAR  
 PRINT AREA  
 CK FOR NUM CHAIN  
 LOAD RECORD

LOAD NUM REC  
 GO TO SCAT ROUT  
 TO SPREAD REC IN  
 100 OR 132 PSNS  
 PRINT AND BRANCH  
 2 I INSTRUCTION  
 FAILED TO BRANCH  
 CK FOR PRINT ERR  
 ERR TYPE HERE  
 INDS PRINT CHECK  
 CK FOR CHAN 9&12  
 UP IXR 1  
 CK FOR 10 LINES  
 PRINT NEXT LINE  
 CK FOR LOOP

RN022  
 PRINTER TEST  
 PRINT 10 LINES AND TEST

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
972	AI	78							
973	AI	79		NOP	*E005				SET ROUT. START
974	AI	80		SAR	0084			4 3873	N H81
975	AI	81		LCA	ZZZ,0089			4 3877	Q 084
976	AI	82		CS	0332			7 3881	L Z89 089
977	AI	83	CL22	CS				4 3888	/ 332
978	AI	84		CS				1 3892	/
979	AI	85		LCA	NUMPRT,0300			7 3893	L X60 300
980	AI	86		B	SCAT			4 3900	B U89
981	AI	87							
982	AI	88							
983	AI	89							
984	AI	90		B	2 $\square$ ERC22			5 3904	2 I13 $\square$
985	AI	91			TYPI-031			4 3909	B CIT
986	AI	92		BIN	TYPI, #			5 3913	B C4U #
987	AI	93	ERC22						
988	AI	94							
989	AI	95		B	CHANCK			4 3918	B V46
990	AI	96		A	TEN,0089			7 3922	A E9V 089
991	AI	97		C	0089,ONE00			7 3929	C 089 D5W
992	AI	98		BU	CL22			5 3936	B H88 /
993	AI	99		B	LOOPCK			4 3941	B U39
994	AJ	00							
995	AJ	01							
996	AJ	02							
997	AJ	03							
998	AJ	04							
999	AJ	05							
1000	AJ	06							
1001	AJ	07							
1002	AJ	08		NOP	*E005			4 3945	N I53
1003	AJ	09		SAR	0084			4 3949	Q 084
1004	AJ	10		LCA	ZZZ,0089			7 3953	L Z89 089
1005	AJ	11	CL23	CS	0332			4 3960	/ 332
1006	AJ	12		CS				1 3964	/
1007	AJ	13		BCE	NUM23,1306,N			8 3965	B I84 T06 N
1008	AJ	14		LCA	RDCOMP-067+0300			7 3973	L W72 300
1009	AJ	15		B	G0S23			4 3980	B I91
1010	AJ	16	NUM23	LCA	NUMCHS,0300			7 3984	L F0V 300
1011	AJ	17	G0S23	B	SCAT			4 3991	B U89
1012	AJ	18							
1013	AJ	19							
1014	AJ	20		W				1 3995	2
1015	AJ	21		BIN	TYPI, #			5 3996	B C4U #
1016	AJ	22							
1017	AJ	23		B	CHANCK			4 4001	B V46
1018	AJ	24		CC8	NX23,J			5 4005	F 01U J
1019	AJ	25							
1020	AJ	26		B	TYPI-031			4 4010	B CIT
1021	AJ	27							

RN023  
 PRINTER TEST  
 PRINT 10 LINES AND TEST  
 CONTROL CARR. AND BRANCH INSTR

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1022	AJ 28	B	CHANCK		4	4014	B V46
1023	AJ 29	A	TEN,0089		7	4018	A E9V 089
1024	AJ 30	C	0089,0NE00		7	4025	C 089 D5W
1025	AJ 31	BU	CL23		5	4032	B I60 /
1026	AJ 32	B	LOOPCK		4	4037	B U39
1027	AJ 33						
1028	AJ 34						
1029	AJ 35						
1030	AJ 36						
1031	AJ 37						
1032	AJ 38						
1033	AJ 39						
1034	AJ 40						
1035	AJ 41	NOP	*E005		4	4041	N 04Z
1036	AJ 42	SAR	0084		4	4045	Q 084
1037	AJ 43	LCA	ZZZ,0089		7	4049	L Z89 089
1038	AJ 44	CS	0332		4	4056	/ 332
1039	AJ 45	CS			1	4060	/
1040	AJ 46	LCA	NUMPRI&010,0300		7	4061	L X70 300
1041	AJ 47	B	SCAT		4	4068	B U89
1042	AJ 48						
1043	AJ 49						
1044	AJ 50	LCA	GMWM,0250		7	4072	L X47 250
1045	AJ 51	W			1	4079	Z
1046	AJ 52	BIN	TYPI, #		5	4080	B C4U #
1047	AJ 53						
1048	AJ 54						
1049	AJ 55	B	CHANCK		4	4085	B V46
1050	AJ 56	A	TEN,0089		7	4089	A E9V 089
1051	AJ 57	C	0089,0NE00		7	4096	C 089 D5W
1052	AJ 58	BU	CL24		5	4103	B 05W /
1053	AJ 59	B	LOOPCK		4	4108	B U39
1054	AJ 60						
1055	AJ 61						
1056	AJ 62						
1057	AJ 63						
1058	AJ 64						
1059	AJ 65						
1060	AJ 66						
1061	AJ 67						
1062	AJ 68						
1063	AJ 69						
1064	AJ 70						
1065	AJ 71						
1066	AJ 72						
1067	AJ 73						
1068	AJ 74	BCE	NUM25,1306,N		8	4137	B 16X T06 N
1069	AJ 75	SW	WKAREA		4	4145	, H0#
1070	AJ 76	MCW	RDCOMP&003,WKAREA&079		7	4149	M X42 H7Z
1071	AJ 77	MCW	RDCOMP-025,WKAREA&131		7	4156	M X14 13/
		6	MVIN25		4	4163	B 19S

RN024  
 PRINTER TEST  
 PRINT 10 LINES WITH GRP MRK  
 WD MRK IN PRINT PSN 50  
 CK FOR FULL LINE OF PRINT

RN025  
 PRINTER TEST  
 PRINT 132 LINES OF RIPPLE PATTERN

SET ROUT. START  
 ADDR IN 82-84  
 RESET IXR 1  
 CLEAR  
 PRINT AREA  
 LOAD NUM REC  
 GO TO SCAT ROUT.  
 TO SPREAD REC IN  
 100 OR 132 PSNS  
 LOAD GM-WM  
 PRINT LINE  
 CK FOR PRINT ERR  
 ERR TYPE HERE  
 INDS PRINT CHECK  
 CK FOR CHAN 9&12  
 UP XR 1  
 CK FOR 10 LINES  
 PRINT NEXT LINE  
 CK FOR LOOP

SET ROUT. START  
 ADDR IN 82-84  
 RESET XR 1  
 CLEAR  
 WORK AREA  
 CLEAR  
 PRINT AREA  
 CK FOR NUM CHAIN  
 MU IN  
 RIPPLE RECORD  
 FILL CUT 132 PSN  
 GO TO MV RECORD



1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

1072	AJ	78	NUM25	SW	WKAREA	4	4167	• H0#
1073	AJ	79		MCW	NUMCHS, WKAREA&129	7	4171	M FOV I2Z
1074	AJ	80		MCW	WKAREA&129, WKAREA&119	7	4178	M I2Z I1Z
1075	AJ	81		MCW	NUMCHS-008, WKAREA&131	7	4185	M E9X I3/
1076	AJ	82	MVIN25	BCE	EXP25, I307, 2	8	4192	B 21/ T07 2
1077	AJ	83		MCW	WKAREA&099, 0300	7	4200	M H9Z 300
1078	AJ	84		B	GOP25	4	4207	B 21Y
1079	AJ	85	EXP25	MCW	WKAREA&131, 0332	7	4211	M I3/ 332
1080	AJ	86	6OR25	W		1	4218	2
1081	AJ	87		BIN	TYPL, #	5	4219	B C4U #
1082	AJ	88						
1083	AJ	89						
1084	AJ	90		B	CHANCK	4	4224	B V46
1085	AJ	91		CS	0332	4	4228	/ 332
1086	AJ	92		CS		1	4232	/
1087	AJ	93		MCW	WKAREA&131, WKAREA&132	7	4233	M I3/ I3S
1088	AJ	94		MCW	WKAREA&132, WKAREA	7	4240	M I3S H0#
1089	AJ	95		A	ONE, 0089	7	4247	A F2M 089
1090	AJ	96		C	0089, ONE32	7	4254	C 089 D6V
1091	AJ	97		BU	MVIN25	5	4261	B I9S /
1092	AJ	98		B	LOOPCK	4	4266	B U39
1093	AJ	99						
1094	AK	00						
1095	AK	01						
1096	AK	02						
1097	AK	03						
1098	AK	04						
1099	AK	05						
1100	AK	06	TSCOMB	BCE	TPN1, I301, R	8	4270	B 28S T01 R
1101	AK	07		B	TRDPT	4	4278	B 55X
1102	AK	08	TPN1	BCE	RN26, I303, P	8	4282	B 29U T03 P
1103	AK	09		B	TRDPT	4	4290	B 55X
1104	AK	10						
1105	AK	11						
1106	AK	12						
1107	AK	13						
1108	AK	14						
1109	AK	15						
1110	AK	16						
1111	AK	17						
1112	AK	18						
1113	AK	19	RN26	NOP	*6005	4	4294	N 30S
1114	AK	20		SAR	0084	4	4298	Q 084
1115	AK	21		LCA	ONE17, PUNCNT	7	4302	L EOW E9T
1116	AK	22		BCE	LDC126, I305, P	8	4309	B 32Y T05 P
1117	AK	23		LCA	Z61, CDCNT	7	4317	L D3S W59
1118	AK	24		B	GON26	4	4324	B 33V
1119	AK	25	LDC126	LCA	Z41, CDCNT	7	4328	L D9X W59
1120	AK	26	GON26	CS	0080	4	4335	/ 080
1121	AK	27		CS	0180	4	4339	/ 180

TEST FOR AVAILABILITY OF  
READER AND PUNCH  
IF BOTH ARE NOT AVAILABLE  
GO TO TEST FOR RD-PRT COMB.

1100	AK	06	TSCOMB	BCE	TPN1, I301, R	8	4270	B 28S T01 R
1101	AK	07		B	TRDPT	4	4278	B 55X
1102	AK	08	TPN1	BCE	RN26, I303, P	8	4282	B 29U T03 P
1103	AK	09		B	TRDPT	4	4290	B 55X
1104	AK	10						
1105	AK	11						
1106	AK	12						
1107	AK	13						
1108	AK	14						
1109	AK	15						
1110	AK	16						
1111	AK	17						
1112	AK	18						
1113	AK	19	RN26	NOP	*6005	4	4294	N 30S
1114	AK	20		SAR	0084	4	4298	Q 084
1115	AK	21		LCA	ONE17, PUNCNT	7	4302	L EOW E9T
1116	AK	22		BCE	LDC126, I305, P	8	4309	B 32Y T05 P
1117	AK	23		LCA	Z61, CDCNT	7	4317	L D3S W59
1118	AK	24		B	GON26	4	4324	B 33V
1119	AK	25	LDC126	LCA	Z41, CDCNT	7	4328	L D9X W59
1120	AK	26	GON26	CS	0080	4	4335	/ 080
1121	AK	27		CS	0180	4	4339	/ 180

RN026  
COMBINATION READER PUNCH TEST  
READ CDS 041-045 OR 061-065  
PUNCH CDS 117-121  
READ FIVE CDS AND PUNCH FIVE  
CARDS USING COMB RD-PUN OP

SET ROUT. START  
ADDR IN 82-84  
SET PUNCNT- 117  
CK FOR PRINTER  
SET CDCNT TO 61  
SET CDCNT TO 41  
CLEAR  
RD & PUN AREAS

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

```

1122 AK 28 SW 0001 SET WM
1123 AK 29 MCH RDCOMP,0177 MV IN
1124 AK 30 MCH PUNCNT,0180 PUNCH DATA
1125 AK 31 RP RD AND PUNCH RD AND PUNCH
1126 AK 32 BIN CK FOR RD ERROR CK FOR RD ERROR
1127 AK 33 BIN TYPI,C ERR TYPE HERE
1128 AK 34 BIN TYPI,- INDS INVALID RD
1129 AK 35 BIN CK FOR PUN ERROR CK FOR PUN ERROR
1130 AK 36 BIN TYPI,- ERR TYPE HERE
1131 AK 37 BIN CKREAD INDS PUNCH CHECK
1132 AK 38 B TYPI-031 CK DATA READ
1133 AK 39 B CK FOR 5 CDS CK FOR 5 CDS
1134 AK 40 B CKIN26 CK FOR PRINTER
1135 AK 41 B ONE,PUNCNT CK FOR 5 CDS
1136 AK 42 A CKC026,1305,P GET NEXT CD
1137 AK 43 B BCE CDCNT,Z66 CK FOR LOOP
1138 AK 44 C CKIN26
1139 AK 45 C CDCNT,Z46
1140 AK 46 C CKCD26 BU
1141 AK 47 C GON26
1142 AK 48 B LDDPCK
1143 AK 49 B
1144 AK 50 B
1145 AK 51 B
1146 AK 52 B
1147 AK 53 B
1148 AK 54 B
1149 AK 55 B
1150 AK 56 B
1151 AK 57 B
1152 AK 58 B
1153 AK 59 B
1154 AK 60 B
1155 AK 61 B
1156 AK 62 B
1157 AK 63 B
1158 AK 64 B
1159 AK 65 B
1160 AK 66 B
1161 AK 67 B
1162 AK 68 B
1163 AK 69 B
1164 AK 70 B
1165 AK 71 B
1166 AK 72 B
1167 AK 73 B
1168 AK 74 B
1169 AK 75 B
1170 AK 76 B
1171 AK 77 B
    
```

RN027  
 COMBINATION READER PUNCH TEST  
 READ CDS 046-050 OR 066-070  
 PUNCH CDS 122-126  
 READ FIVE CDS AND PUNCH FIVE  
 CDS USING COMB RD-PUN AND BR OP

```

1151 AK 57 NOP *E005
1152 AK 58 SAR 0084
1153 AK 59 LCA ONE22,PUNCNT
1154 AK 60 BCE LDC127,1305,P
1155 AK 61 LCA Z66,CDCNT
1156 AK 62 B GON27
1157 AK 63 LDC127 LCA Z46,CDCNT
1158 AK 64 GON27 CS 0080
1159 AK 65 CS 0180
1160 AK 66 SW 0001
1161 AK 67 MCH RDCOMP,0177
1162 AK 68 MCH PUNCNT,0180
1163 AK 69 RP NX27
1164 AK 70 B TYPI-031
1165 AK 71 B TYPI,C
1166 AK 72 B
1167 AK 73 B
1168 AK 74 B
1169 AK 75 B
1170 AK 76 B
1171 AK 77 B
    
```

```

4 4422 N 43# SET ROUT. START
4 4426 Q 084 ADDR IN 82-84
7 4430 L E0Z E9T
8 4437 B 45W T05 P CK FOR PRINTER
7 4445 L E1S W59 SET CDCNT TO 66
4 4452 B 46T SET CDCNT TO 46
4 4463 / 080 CLEAR
4 4467 / 180 RD & PUN AREAS
4 4471 , 001 SET WM
7 4475 M X39 I77 MV IN
4 4482 M E9T I80 PUNCH DATA
4 4489 S 49X RD-PUN & BR
4 4493 B C1T 5 I INSTR
5 4497 B C4U & FAILED TO BRANCH
5 4502 B C4U - CK FOR READ ERR
ERR TYPE HERE
INDS INVALID RD
CK FOR PUN ERR
ERR TYPE HERE
    
```

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

1172	AK	78								
1173	AK	79	B	CKREAD				4	4507	B 80U
1174	AK	80	B	TYPI-031				4	4511	B CIT
1175	AK	81								
1176	AK	82								
1177	AK	83	A	ONE,PUNCNT				7	4515	A F2W E9T
1178	AK	84	BCE	CKCD27,1305,P				8	4522	B 54/ T05 P
1179	AK	85	C	CDCNT,Z71				7	4530	C W59 D3V
1180	AK	86	B	CKIN27				4	4537	B 54Y
1181	AK	87								
1182	AK	88	CKCD27 C	CDCNT,Z51				7	4541	C W59 E1Y
1183	AK	89	CKIN27 BU	GON27				5	4548	B 46T /
1184	AK	90	B	LOOPCK				4	4553	B U39
1185	AK	91								
1186	AK	92								
1187	AK	93								
1188	AK	94								
1189	AK	95								
1190	AK	96								
1191	AK	97								
1192	AK	98	TRDPT	TP11,1301,R				8	4557	B 56Z T01 R
1193	AK	99	B	TPNPT				4	4565	B 83*
1194	AL	00	BCE	RN28,1305,P				8	4569	B 58/ T05 P
1195	AL	01	B	TPNPT				4	4577	B 83*
1196	AL	02								
1197	AL	03								
1198	AL	04								
1199	AL	05								
1200	AL	06								
1201	AL	07								
1202	AL	08								
1203	AL	09	RN28	*E005				4	4581	N 58Z
1204	AL	10	SAR	0084				4	4585	Q 084
1205	AL	11	BCE	LDC128,1303,P				8	4589	B 60Y T03 P
1206	AL	12	LCA	Z61,CDCNT				7	4597	L D3S W59
1207	AL	13	B	GON28				4	4604	B 61V
1208	AL	14	LCA	Z51,CDCNT				7	4608	L E1Y W59
1209	AL	15	GON28	0332				4	4615	/ 332
1210	AL	16	CS					1	4619	/
1211	AL	17	CS	0080				4	4620	/ 080
1212	AL	18	SW	0001				4	4624	/ 001
1213	AL	19	LCA	NUMPRT&010,0300				7	4628	L X70 300
1214	AL	20	B	SCAT				4	4635	B U89
1215	AL	21	BLC	TYPI				5	4639	B C4U A
1216	AL	22								
1217	AL	23								
1218	AL	24								
1219	AL	25	WR	TYPI,#				1	4644	3
1220	AL	26	BIN					5	4645	B C4U #
1221	AL	27								

TEST FOR AVAILABILITY OF  
READER AND PRINTER  
IF BOTH ARE NOT AVAILABLE  
GO TO TEST FOR PUN-PRT COMB

RN028  
COMBINATION READER PRINTER TEST  
READ CDS 051-055 OR 061-065  
READ FIVE CDS AND PRINT FIVE LINES  
USING COMB READ-PRINT OP

SET ROUT. START  
ADDR IN 82-84  
CK FOR PUNCH  
SET CDCNT TO 61  
SET CDCNT TO 51  
CLEAR  
PRINT AREA  
CLEAR RD AREA  
SET WM  
LOAD PRINT  
AREA WITH ONES  
TEST FOR LAST CD  
ERR TYPE HERE  
INDS FALSE READR  
EOF  
PRINT & READ  
CK FOR PRINT ERR  
ERR TYPE HERE

SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

```

1222 AL 28      IND$ PRINT CK
1223 AL 29      CK FOR READ ERR
1224 AL 30      ERR TYPE HERE
1225 AL 31      IND$ INVALID RD
1226 AL 32      CK DATA READ
1227 AL 33      ERR TYPE HERE
1228 AL 34      IND$ INCORRECT
1229 AL 35      READ OR SEQ ERR
1230 AL 36      CK FOR CHAN 9&12
1231 AL 37      CK FOR PUNCH
1232 AL 38      CK FOR 5 CDS
1233 AL 39      CK FOR 5 CDS
1234 AL 40      GET NEXT CD
1235 AL 41      CK FOR LOOP
1236 AL 42
1237 AL 43
1238 AL 44
1239 AL 45
1240 AL 46
1241 AL 47
1242 AL 48
1243 AL 49
1244 AL 50
1245 AL 51
1246 AL 52
1247 AL 53
1248 AL 54
1249 AL 55
1250 AL 56
1251 AL 57
1252 AL 58
1253 AL 59
1254 AL 60
1255 AL 61
1256 AL 62
1257 AL 63
1258 AL 64
1259 AL 65
1260 AL 66
1261 AL 67
1262 AL 68
1263 AL 69
1264 AL 70
1265 AL 71
1266 AL 72
1267 AL 73
1268 AL 74
1269 AL 75
1270 AL 76
1271 AL 77

```

RN029  
COMBINATION READER PRINTER TEST  
READ CDS 056-060 OR 066-070  
READ FIVE CARDS AND PRINT FIVE LINES  
USING COMB. RD-PRT AND BR OP

```

      *0005      SET ROUT. START
      0084      ADDR IN 82-84
      LDCT29+1303,P  CK FOR PUNCH
      266, CDCNT   SET CDCNT TO 66
      GON29       SET CDCNT TO 56
      256, CDCNT  CLEAR
      0332       PRINT AREA
      CS         CLEAR READ AREA
      0080       SET WM
      0001       LOAD PRINT
      LCA       AREA WITH ONES
      NUMPRT&010,0300 TEST FOR LAST CD
      SCAT       ERR TYPE HERE
      TYP1      IND$ FALSE READR
      BLC      EOF
      WR       PRINT-RD & BR
      B       3 I INSTR
      NX29    FAILED TO BRANCH
      TYP1-031 CK FOR PRINT ERR
      BIN     ERR TYPE HERE
      TYP1,+& IND$ PRINT CK
      BLC    CK FOR RD ERR
      BIN     ERR TYPE HERE
      TYP1,+& IND$ PRINT CK
      B       CK DATA READ
      B       ERR TYPE HERE

```

```

      5 4650 B C4U &
      4 4655 B B0U
      4 4659 B C1T
      4 4663 B V46
      8 4667 B 68W T03 P
      7 4675 C W59 E1S
      4 4682 B 69T
      7 4686 C W59 E2/
      5 4693 B 61V /
      4 4698 B U39

```

```

      4 4702 N 71+
      4 4706 Q 084
      8 4710 B 72Z T03 P
      7 4718 L E1S W59
      4 4725 B 73W
      7 4729 L E2/ W59
      4 4736 / 332
      1 4740 /
      4 4741 / 080
      4 4745 * 001
      7 4749 L X70 300
      4 4756 B U89
      5 4760 B C4U A
      4 4765 3 77T
      4 4769 B C1T
      5 4773 B C4U +
      5 4778 B C4U &
      4 4783 B 80U
      4 4787 B C1T

```

14-10/7010-1401 I/O COMPATIBILITY TEST

SEQ PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1272	AL 78							INDS INCORRECT
1273	AL 79							READ OR SEQ ERR
1274	AL 80		B	CHANCK			4 4791	B V46
1275	AL 81		BCE	CKCD29,1303,P			8 4795	B 81U T03 P
1276	AL 82		C	CDCNT,271			7 4803	C W59 D3V
1277	AL 83		B	CKIN29			4 4810	B 82/
1278	AL 84	CKCD29	C	CDCNT,261			7 4814	C W59 D3S
1279	AL 85	CKIN29	BU	GON29			5 4821	B 73M /
1280	AL 86		B	LOOPCK			4 4826	B U39
1281	AL 87							
1282	AL 88							
1283	AL 89							
1284	AL 90							
1285	AL 91							
1286	AL 92							
1287	AL 93							
1288	AL 94	TPNPT	BCE	TPT2,1303,P			8 4830	B 84S T03 P
1289	AL 95		B	TESLC			4 4838	B S9U
1290	AL 96	TPT2	BCE	RN30,1305,P			8 4842	B 85U T05 P
1291	AL 97		B	TESLC			4 4850	B S9U
1292	AL 98							
1293	AL 99							
1294	AM 00							
1295	AM 01							
1296	AM 02							
1297	AM 03							
1298	AM 04							
1299	AM 05							
1300	AM 06	RN30	NOP	*6005			4 4854	N 86S
1301	AM 07		SAR	0084			4 4858	Q 084
1302	AM 08		LCA	ONE27,PUNCNT			7 4862	L E2U E9T
1303	AM 09		CS	0332			4 4869	/ 332
1304	AM 10	CL30	CS				1 4873	/
1305	AM 11		CS	0180			4 4874	/ 180
1306	AM 12		MCW	RDCOMP,0177			7 4878	M X39 177
1307	AM 13		MCW	PUNCNT,0180			7 4885	M E9T 180
1308	AM 14		LCA	NUMPRTE040,0300			7 4892	L Y00 300
1309	AM 15		B	SCAT			4 4899	B U89
1310	AM 16		WP				1 4903	6
1311	AM 17		BIN	TYPI,*			5 4904	B C4U †
1312	AM 18							
1313	AM 19							
1314	AM 20		BIN	TYPI,-			5 4909	B C4U -
1315	AM 21							
1316	AM 22							
1317	AM 23		B	CHANCK			4 4914	B V46
1318	AM 24		A	ONE,PUNCNT			7 4918	A F2M E9T
1319	AM 25		C	PUNCNT,ONE32			7 4925	C E9T D6V
1320	AM 26		BU	CL30			5 4932	B 86Z /
1321	AM 27		B	LOOPCK			4 4937	B U39

TEST FOR AVAILABILITY OF  
 PRINTER AND PUNCH  
 IF BOTH ARE NOT AVAILABLE  
 GO TO LAST CARD TEST

RN030  
 COMBINATION PUNCH PRINTER TEST  
 PUNCH CDS 127-131  
 PUNCH 5 CDS AND PRINT 5 LINES  
 USING COMB. PUN-PRINT OP

SET ROUT. START  
 ADDR IN 82-84  
 SET PUNCNT- 127  
 CLEAR  
 PRINT AREA  
 CLEAR PUNCH AREA  
 LOAD  
 PUNCH DATA  
 SET PRINT AREA  
 TO FOURS  
 PRINT & PUNCH  
 CK FOR PRINT ERR  
 ERR TYPE HERE  
 INDS PRINT CK  
 CK FOR PUNCH ERR  
 ERR TYPE HERE  
 INDS PUNCH CK  
 CK FOR CHAN 9&12  
 UP PUNCNT  
 CK FOR 5 CDS  
 GET NEXT CD  
 CK FOR LOOP

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1322	AM	28							
1323	AM	29							
1324	AM	30							
1325	AM	31							
1326	AM	32							
1327	AM	33							
1328	AM	34							
1329	AM	35							
1330	AM	36							
1331	AM	37							
1332	AM	38							
1333	AM	39	CL91	CS	ONE32,PUNCNT				
1334	AM	40		CS	0332				
1335	AM	41		CS	0180				
1336	AM	42		MCW	RDCOMP,0177				
1337	AM	43		MCW	PUNCNT,0180				
1338	AM	44		LCA	NUMPRT£040,0300				
1339	AM	45		B	SCAI				
1340	AM	46		WP	NX31				
1341	AM	47		B	TYPL-031				
1342	AM	48							
1343	AM	49	NX31	BIN	TYPL,†				
1344	AM	50							
1345	AM	51							
1346	AM	52							
1347	AM	53		BIN	TYPL,-				
1348	AM	54							
1349	AM	55		B	CHANCK				
1350	AM	56		A	ONE,PUNCNT				
1351	AM	57		C	PUNCNT,ONE37				
1352	AM	58		BU	CL31				
1353	AM	59		B	LOOPCK				
1354	AM	60							
1355	AM	61							
1356	AM	62							
1357	AM	63							
1358	AM	64							
1359	AM	65							
1360	AM	66							
1361	AM	67							
1362	AM	68							
1363	AM	69							
1364	AM	70							
1365	AM	71							
1366	AM	72							
1367	AM	73							
1368	AM	74							
1369	AM	75							
1370	AM	76							
1371	AM	77							

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1372	AM	28							
1373	AM	29							
1374	AM	30							
1375	AM	31							
1376	AM	32							
1377	AM	33							
1378	AM	34							
1379	AM	35							
1380	AM	36							
1381	AM	37							
1382	AM	38							
1383	AM	39							
1384	AM	40							
1385	AM	41							
1386	AM	42							
1387	AM	43							
1388	AM	44							
1389	AM	45							
1390	AM	46							
1391	AM	47							
1392	AM	48							
1393	AM	49							
1394	AM	50							
1395	AM	51							
1396	AM	52							
1397	AM	53							
1398	AM	54							
1399	AM	55							
1400	AM	56							
1401	AM	57							
1402	AM	58							
1403	AM	59							
1404	AM	60							
1405	AM	61							
1406	AM	62							
1407	AM	63							
1408	AM	64							
1409	AM	65							
1410	AM	66							
1411	AM	67							
1412	AM	68							
1413	AM	69							
1414	AM	70							
1415	AM	71							
1416	AM	72							
1417	AM	73							
1418	AM	74							
1419	AM	75							
1420	AM	76							
1421	AM	77							

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SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP DPERANDS

SEQ	PG	LIN	LABEL	OP	DPERANDS	SFX	CT	LOCN	INSTRUCTION
1372	AM	78		LCA	Z61,CDCNT		7	5062	L D3S W59
1373	AM	79	CL32	CS	0332		4	5069	/ 332
1374	AM	80		CS			1	5073	/ 080
1375	AM	81		CS	0080		4	5074	/ 180
1376	AM	82		CS	0180		4	5078	/ 001
1377	AM	83		SW	0001		4	5082	M X39 177
1378	AM	84		MCM	RDCOMP,0177		7	5086	M E9T 180
1379	AM	85		MCM	PUNCNT,0180		7	5093	M E9T 180
1380	AM	86		LCA	NUMPRT&050,0300		7	5100	L Y10 300
1381	AM	87		B	SCAT		4	5107	B U89
1382	AM	88		BLC	TYPI		5	5111	B C4U A
1383	AM	89							
1384	AM	90							
1385	AM	91							
1386	AM	92		WRP	TYPI, #		1	5116	7
1387	AM	93		BIN			5	5117	B C4U #
1388	AM	94							
1389	AM	95		BIN	TYPI, E		5	5122	B C4U E
1390	AM	96							
1391	AM	97							
1392	AM	98		BIN	TYPI, -		5	5127	B C4U -
1393	AM	99							
1394	AM	00							
1395	AM	01		B	CKREAD		4	5132	B 80U
1396	AM	02		B	TYPI-031		4	5136	B C1T
1397	AM	03							
1398	AM	04							
1399	AM	05		B	CHANCK		4	5140	B V46
1400	AM	06		A	ONE,PUNCNT		7	5144	A F2M E9T
1401	AM	07		C	CDCNT,266		7	5151	C W59 E1S
1402	AM	08		BU	CL32		5	5158	B #62 /
1403	AM	09		B	LOOPCK		4	5163	B U39
1404	AM	10							
1405	AM	11							
1406	AM	12							
1407	AM	13							
1408	AM	14							
1409	AM	15							
1410	AM	16							
1411	AM	17							
1412	AM	18							
1413	AM	19		NOP	*E005		4	5167	N /7V
1414	AM	20		SAR	0084		4	5171	Q 084
1415	AM	21		LCA	ONE42,PUNCNT		7	5175	L E3T E9T
1416	AM	22		LCA	Z66,CDCNT		7	5182	L E1S W59
1417	AM	23	CL33	CS	0332		4	5189	/ 332
1418	AM	24		CS			1	5193	/
1419	AM	25		CS	0180		4	5194	/ 180
1420	AM	26		CS	0080		4	5198	/ 080
1421	AM	27		SW	0001		4	5202	, 001

RN033  
COMBINATION RD-PUN-PRT TEST  
USING RD-PUN-PRT AND BR OP  
READ CDS 066-070  
PUNCH CDS 142-146

SET ROUT. START  
ADDR IN 82-84  
SET PUNCNT- 142  
SET CDCNT TO 066  
CLEAR  
PRINT AREA  
CLEAR PUNCH  
AND READ AREAS  
SET WM

SEQ PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1422	AN 28		MCW	RDCOMP,0177				
1423	AN 29		MCW	PUNCT,0180				
1424	AN 30		LCA	NUMPRTE050,0300				
1425	AN 31		B	SCAT				
1426	AN 32		BLC	TYPI				
1427	AN 33							LOAD PUNCH DATA
1428	AN 34							7 5206 M X39 I77
1429	AN 35							7 5213 M E9T I80
1430	AN 36		WRP	NX33				7 5220 L Y10 300
1431	AN 37		B	TYPI-031				4 5227 B U89
1432	AN 38							5 5231 B C4U A
1433	AN 39	NX33	BIN	TYPI,*				
1434	AN 40							
1435	AN 41							
1436	AN 42		BIN	TYPI,E				
1437	AN 43							
1438	AN 44							
1439	AN 45		BIN	TYPI,-				
1440	AN 46							
1441	AN 47							
1442	AN 48		B	CKREAD				
1443	AN 49		B	TYPI-031				
1444	AN 50							
1445	AN 51							
1446	AN 52		B	CHACK				
1447	AN 53		A	ONE,PUNCT				
1448	AN 54		C	CDCNT,271				
1449	AN 55		BU	CL33				
1450	AN 56		B	LOOPCK				
1451	AN 57							
1452	AN 58							
1453	AN 59							
1454	AN 60							
1455	AN 61							
1456	AN 62							
1457	AN 63		BCE	RN34,1301,R				
1458	AN 64		B	TESTAP				
1459	AN 65							
1460	AN 66							
1461	AN 67							
1462	AN 68							
1463	AN 69							
1464	AN 70							
1465	AN 71		NOP	*E005				
1466	AN 72		SAR	0084				
1467	AN 73		BCE	*E005,TAD*,1				
1468	AN 74		B	TESTAP				
1469	AN 75		BLC	NX34C				
1470	AN 76		B	TYPI-031				
1471	AN 77	NX34C	B	LOOPCK				

TEST FOR AVAILABILITY  
OF READER IF NOT AVAILABLE  
GO TO TAPE TEST

RN034  
TEST BRANCH ON LAST CARD

8	5294	B	TOW	T01	R
4	5302	B	T3Z		
4	5306	N	T1U		
4	5310	Q	084		
8	5314	B	T2W	+04	1
4	5322	B	T3Z		
5	5326	B	T3V	A	
4	5331	B	C1T		
4	5335	B	U39		

CK FOR READER  
GO TO TAPE TEST

SET ROUT. START  
ADDR IN 82-84  
CK FOR MANUAL IS  
BYPASS TEST  
TEST FOR LAST CD  
FAILED TO BRANCH  
ON LAST CARD  
CK FOR LOOP



1410/7010-1401 I/O COMPATIBILITY TEST

SFX CT LOCN INSTRUCTION

OPERANDS

SEQ PG LIN LABEL OP

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1472	AN	78							
1473	AN	79							
1474	AN	80							
1475	AN	81							
1476	AN	82							
1477	AN	83							
1478	AN	84							
1479	AN	85							
1480	AN	86							
1481	AN	87							
1482	AN	88							
1483	AN	89							
1484	AN	90							
1485	AN	91							
1486	AN	92							
1487	AN	93							
1488	AN	94							
1489	AN	95							
1490	AN	96							
1491	AN	97							
1492	AN	98							
1493	AN	99							
1494	AO	00							
1495	AO	01							
1496	AO	02							
1497	AO	03							
1498	AO	04							
1499	AO	05							
1500	AO	06							
1501	AO	07							
1502	AO	08							
1503	AO	09							
1504	AO	10							
1505	AO	11							
1506	AO	12							
1507	AO	13							
1508	AO	14							
1509	AO	15							
1510	AO	16							
1511	AO	17							
1512	AO	18							
1513	AO	19							
1514	AO	20							
1515	AO	21							
1516	AO	22							
1517	AO	23							
1518	AO	24							
1519	AO	25							
1520	AO	26							
1521	AO	27							
			TESTAP	BCE	STPDRV,1291,1		8	5339	B I5/ S91 I
				B	CKPXX-012		4	5347	B R1T
			STPDRV	SW	0087,0092		7	5351	087 092
				NOP	RN35		4	5358	N U7M
				SAR	0089		4	5362	Q 089
				NOP	EOFEY		4	5366	N ROZ
				SAR	0094		4	5370	Q 094
			OPCK	BWZ	CKPERU,0000EX1,1		8	5374	V UOV 0+0 I
			GDD	MA	ZZ1,0089		7	5382	# 292 089
				C	0089,0094		7	5389	C 089 094
				BU	OPCK		5	5396	B 17U /
				B	RN35		4	5401	B U7M
			CKPERU	BCE	CKTT,0000EX1,M		8	5405	B U3T 0+0 M
				BCE	CKTT,0000EX1,L		8	5413	B U3T 0+0 L
				BCE	CKTT,0000EX1,U		8	5421	B U3T 0+0 U
				B	GDD		4	5429	B T8S
			CKJT	C	0002EX1,TPINS1		7	5433	C 0+2 DOT
				BE	FIX1		5	5440	B U6/ S
				C	0002EX1,TPINS2		7	5445	C 0+2 DOV
				BE	FIX1		5	5452	B U6/ S
				B	GDD		4	5457	B T8S
			FIX1	MN	RTX,0003EX1		7	5461	D 19/ 0+3
				B	GDD		4	5468	B T8S
				B	RN35		4	5472	B U7M
			RN35	NOP	*E005		4	5476	N U8U
				SAR	0084		4	5480	Q 084
				LCA	RESTA,0005		7	5484	L G5+ 005
				LCA	ZZ,RDCNT		7	5491	L F4/ F3Z
				LCA	ZZ		4	5498	L F4/
				LCA	ZZZZ		4	5502	L D7Y
				LCA	ZZZZ		4	5506	L D7Y
				CU	XUI,R		5	5510	U XUI R
				B	WTAP35		4	5515	B VZZ
				CU	XUI,B		5	5519	U XUI B
				CU	XUI,E		5	5524	U XUI E
									SET ROUT. START
									ADDR IN 82-84
									SET RESTART
									RESET
									ALL
									ERROR
									COUNTERS
									REWIND TAPE
									GO TO WRITE TAPE
									BACKSPACE
									AND SKIP TAPE

RN035  
TAPE TEST  
EXECUTE TAPE REWIND INSTRUCTION  
WRITE AN 80 CHAR RECORD,REWIND  
AGAIN AND READ COMPARE DATA  
READ WITH DATA WRITTEN

SET ROUT. START  
ADDR IN 82-84  
SET RESTART  
RESET  
ALL  
ERROR  
COUNTERS  
REWIND TAPE  
GO TO WRITE TAPE  
BACKSPACE  
AND SKIP TAPE

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1522	A0	28	WTAP35	MCW	ZU1,RDCOMP-076,M	8	5529	M ZU1	W63 M
1523	A0	29		NOP	0000	4	5537	N 000	
1524	A0	30		BEF	ENREEL	5	5541	B Q1X	K
1525	A0	31		BER	TPWRER	5	5546	B N4T	L
1526	A0	32							
1527	A0	33							
1528	A0	34							
1529	A0	35							
1530	A0	36							
1531	A0	37		LCA	ZZ,WRCNT	7	5551	L F4/	F3X
1532	A0	38		CU	ZU1,R	5	5558	U ZU1	R
1533	A0	39		CS	WKAREA&090	4	5563	/ H9#	
1534	A0	40		MCW	ZU1,WKAREA,R	8	5567	M ZU1	H0# R
1535	A0	41		NGP	0000	4	5575	N 000	
1536	A0	42		BEF	EOF1	5	5579	B Q4#	K
1537	A0	43							
1538	A0	44							
1539	A0	45		BER	TPRDER	5	5584	B 08Y	L
1540	A0	46							
1541	A0	47							
1542	A0	48							
1543	A0	49							
1544	A0	50		LCA	ZZ,RDCNT	7	5589	L F4/	F3Z
1545	A0	51		C	WKAREA&079,RDCOMP&003	7	5596	C H7Z	X42
1546	A0	52		BU	TYP1	5	5603	B C4U	/
1547	A0	53		B	LOOPCK	4	5608	B U39	
1548	A0	54							
1549	A0	55							
1550	A0	56							
1551	A0	57							
1552	A0	58							
1553	A0	59							
1554	A0	60							
1555	A0	61							
1556	A0	62							
1557	A0	63							
1558	A0	64		NOP	*C005	4	5612	N W2#	
1559	A0	65		SAR	0084	4	5616	Q 084	
1560	A0	66		LCA	ZZZ,0089	7	5620	L Z89	089
1561	A0	67		B	WRTP36	4	5627	B W47	
1562	A0	68		CU	ZU1,B	5	5631	U ZU1	B
1563	A0	69		CU	ZU1,E	5	5636	U ZU1	E
1564	A0	70		WRTP36	MCW	8	5641	M ZU1	W63 M
1565	A0	71		NOP	0000	4	5649	N 000	
1566	A0	72		BEF	ENREEL	5	5653	B Q1X	K
1567	A0	73		BER	TPWRER	5	5658	B N4T	L
1568	A0	74							
1569	A0	75							
1570	A0	76							
1571	A0	77							

RN036  
 TAPE TEST  
 WRITE AN 80 CHAR TAPE RECORD  
 BACKSPACE,READ & STORE B REG  
 CK RESULT OF STORE B REGS AND  
 COMPARE DATA READ WITH DATA WRITTEN  
 EXECUTE ROUTINE 50 TIMES

SET ROUT START  
 ADDR IN 82-84  
 RESET XR I  
 GO TO WRITE TAPE  
 BACKSPACE  
 AND SKIP TAPE  
 WRITE RECORD  
 CK FOR EOR  
 CK FOR WRITE ERR  
 ERR TYPE HERE  
 INDS THAT IO  
 TRYS USING BKSP-  
 SKIP HAVE BEEN

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

1572	AD 78	LCA	ZZ,WRCNT	7	5663	L F4/ F3X
1573	AD 79	CU	ZU1,B	5	5670	U ZU1 B
1574	AD 80	CS	WKAREA&090	4	5675	/ H9#
1575	AD 81	MCH	ZU1,WKAREA,R	8	5679	M ZU1 H0# R
1576	AD 82	SBR	RDLEN	4	5687	H F4X
1577	AD 83	BEF	EDF1	5	5691	B Q4# K
1579	AD 85					
1580	AD 86	BER	TPRDER	5	5696	B 08Y L
1581	AD 87					
1582	AD 88					
1583	AD 89					
1584	AD 90					
1585	AD 91					
1586	AD 92	LCA	ZZ,RDCNT	7	5701	L F4/ F3Z
1587	AD 93	C	RDLEN,LEN82R	7	5708	C F4X F5T
1588	AD 94	BU	TYPI	5	5715	B C4U /
1589	AD 95					
1590	AD 96	C	WKAREA&079,RDCOMP&003	7	5720	C H7Z X42
1591	AD 97	BU	TYPI	5	5727	B C4U /
1592	AD 98	A	ONE,0089	7	5732	A F2M 089
1593	AD 99	C	0089,FIFTY	7	5739	C 089 F5W
1594	AP 00	BU	WRTP36	5	5746	B W4/ /
1595	AP 01	B	LOOPCK	4	5751	B U39
1596	AP 02					
1597	AP 03					
1598	AP 04					
1599	AP 05					
1600	AP 06					
1601	AP 07					
1602	AP 08					
1603	AP 09					
1604	AP 10					
1605	AP 11					
1606	AP 12					
1607	AP 13	NOP	*&005	4	5755	N X6T
1608	AP 14	SAR	0084	4	5759	Q 084
1609	AP 15	CS	WKAREA&180	4	5763	/ 18#
1610	AP 16	CS		1	5767	/
1611	AP 17	LCA	NUMCHS,WKAREA&180	7	5768	L FOV 18#
1612	AP 18	LCA	WKAREA&180,WKAREA&170	7	5775	L 18# 17#
1613	AP 19	LCA		1	5782	L
1614	AP 20	LCA		1	5783	L
1615	AP 21	LCA		1	5784	L
1616	AP 22	LCA		1	5785	L
1617	AP 23	LCA		1	5786	L
1618	AP 24	LCA		1	5787	L
1619	AP 25	LCA	ZZZ,0089	7	5788	L Z89 089
1620	AP 26	LCA	GMWM,WKAREA&181	7	5795	L X47 18/
1621	AP 27	B	WRTP37	4	5802	B Y1M

MADE TO WR REC  
 RESET ERR CNTR  
 BACKSPACE TAPE  
 CLEAR TP RD AREA  
 READ TP RECORD  
 STORE B REG  
 CK FOR EOF  
 ERR TYPE HERE  
 INDS FALSE EOF  
 CK FOR READ ERR  
 ERR TYPE HERE  
 INDS THAT 10  
 TRYS HAVE BEEN  
 MADE TO READ REC  
 RESET ERR CNTR  
 CK LEN OF RD REC  
 LEN OF REC READ  
 IS NOT 80 CHAR  
 CK DATA READ  
 INCORRECT READ  
 UP XR 1  
 CK FOR 50 RECS  
 GET NEXT REC  
 CK FOR LOOP

RN037  
 TAPE TEST  
 WRITE AN 80 CHAR REC IN LOAD MODE  
 BACKSPACE AND READ AND COMPARE  
 DATA READ WITH DATA WRITTEN  
 EXECUTE ROUTINE 50 TIMES

SET ROUT. START  
 ADDR IN 82-84  
 CLEAR  
 WORK AREA  
 SET  
 WRITE AREA  
 TO 8 10 CHAR  
 WORDS OF  
 \$...-0\$..\*

RESET XRI  
 LOAD GM-WM  
 GO TO WRITE TAPE

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1622 AP 28		CU	ZU1,B				BACKSPACE
1623 AP 29		CU	ZU1,E				AND SKIP TAPE
1624 AP 30	WRTP37	LCA	ZU1,WKAREA&101,W				WRITE TAPE REC
1625 AP 31		NOP	0000				EXTRA INSTR
1626 AP 32		BEF	ENREEL				CK FOR EDR
1627 AP 33		BER	TPWRER				CK FOR WRITE ERR
1628 AP 34							ERR TYPE HERE
1629 AP 35							INDS THAT IO
1630 AP 36							TRYS USING BKSP-
1631 AP 37							SKIP HAVE BEEN
1632 AP 38							MADE TO WR REC
1633 AP 39		LCA	ZZ,WRCNT				RESET ERR CNTR
1634 AP 40		CU	ZU1,B				BACKSPACE TAPE
1635 AP 41		CS	WKAREA&090				CLEAR TP RD AREA
1636 AP 42		LCA	ZU1,WKAREA,R				READ RECORD
1637 AP 43		NOP	0000				EXTRA INSTR
1638 AP 44		BEF	EOF1				CK FOR EOF
1639 AP 45							ERR TYPE HERE
1640 AP 46							INDS FALSE EOF
1641 AP 47		BER	TPRDER				CK FOR READ ERR
1642 AP 48							ERR TYPE HERE
1643 AP 49							INDS THAT IO
1644 AP 50							TRYS HAVE BEEN
1645 AP 51							MADE TO READ REC
1646 AP 52		LCA	ZZ,RDCNT				RESET ERR CNTR
1647 AP 53		LCA	ZZZ,0094				RESET XR2
1648 AP 54	COMP37 C	BU	NUMCHS,WKAREA&009&X2				CK DATA READ
1649 AP 55		BU	TYPI				INCORRECT READ
1650 AP 56		A	TEN,0094				UP XR 2
1651 AP 57		C	0094,ETTY				CK FOR 8 WORDS
1652 AP 58		BU	COMP37				CK NEXT WORD
1653 AP 59		A	ONE,0089				UP XR 1
1654 AP 60		C	0089,FIFTY				CK FOR 50 RECS
1655 AP 61		BU	WRTP37				GET NEXT RECORD
1656 AP 62		B	LODPCK				CK FOR LOOP
1657 AP 63							
1658 AP 64							
1659 AP 65							
1660 AP 66							
1661 AP 67							
1662 AP 68							
1663 AP 69							
1664 AP 70							
1665 AP 71							
1666 AP 72							
1667 AP 73							
1668 AP 74		NOP	*&005				SET ROUT START
1669 AP 75		SAR	0084				ADDR IN 82-84
1670 AP 76		LCA	ZZZ,0089				RESET IXR 1
1671 AP 77	NXR38	LCA	ZZZ,0094				RESET IXR 2

RN038  
 TAPE TEST  
 WRITE 10 RECORDS WITH SKIP BEFORE  
 EACH REC AND THEN WRITE TAPE MARK  
 BACKSPACE AND READ FIRST 40 CHAR  
 OF EACH OF 10 REC AND THEN READ  
 TAPE MARK CK DATA READ AND  
 CHECK BRANCH ON EOF

4 5944 N Z55  
 4 5948 Q 084  
 7 5952 L Z89 089  
 7 5959 L Z89 094

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1672 AP 78		B	WRTP38	4	5966	B 27V	GO TO WRITE TAPE
1673 AP 79		CU	ZU1,B	5	5970	U ZU1 B	BACKSPACE
1674 AP 80	WRTP38	CU	ZU1,E	5	5975	U ZU1 E	AND SKIP TAPE
1675 AP 81		MCW	ZU1,RDCOMP-076,M	8	5980	M ZU1 M63 W	WRITE REC
1676 AP 82		NOP	0000	4	5988	N 000	EXTRA INSTR
1677 AP 83		BEF	ENREEL	5	5992	B Q1X K	CK FOR EOR
1678 AP 84		BER	TPWRER	5	5997	B N4T L	CK FOR WRITE ERR
1679 AP 85							ERR TYPE HERE
1680 AP 86							INDS 10 TRYS
1681 AP 87							USING BKSP-SKIP
1682 AP 88							HAVE BEEN MADE
1683 AP 89							TO WRITE REC
1684 AP 90		LCA	ZZ,WRCNT	7	6002	L F4/ F3X	RESET ERR CNTR
1685 AP 91		A	ONE,0094	7	6009	A F2W 094	UP XR 2
1686 AP 92		C	0094,TEN	7	6016	C 094 E9V	CK FOR 10 RECS
1687 AP 93		BU	WRTP38	5	6023	B 27V /	WRITE NEXT REC
1688 AP 94		CU	ZU1,M	5	6028	U ZU1 M	WRITE TP MARK
1689 AP 95		LCA	ZZZ,0094	7	6033	L Z89 094	RESET XR 2
1690 AP 96	BKSP38	CU	ZU1,B	5	6040	U ZU1 B	BKSP TAPE
1691 AP 97		A	ONE,0094	7	6045	A F2M 094	UP XR 2
1692 AP 98		C	0094,ELEVEN	7	6052	C 094 F5Z	CK FOR 11 BKSPS
1693 AP 99		BU	BKSP38	5	6059	B -4# /	BKSP AGAIN
1694 AQ 00		LCA	ZZZ,0094	7	6064	L Z89 094	RESET XR 2
1695 AQ 01	CL38	CS	WKAREA090	4	6071	L / H9#	CLEAR READ AREA
1696 AQ 02		LCA	GMM,WKAREA040	7	6075	L X47 H4#	MV IN GM-MM
1697 AQ 03		MCW	ZU1,WKAREA,R	8	6082	M ZU1 H0# R	READ RECORD
1698 AQ 04		SBR	RDLEN	4	6090	H F4X	STORE B REG
1699 AQ 05		NOP	0000	4	6094	N 000	EXTRA
1700 AQ 06		DC	00000000000000000000	13	6110	B Q4# K	CK FOR EOF
1701 AQ 07		BEF	EDF1	5	6111	B Q4# K	ERR TYPE HERE
1702 AQ 08							INDS FALSE EOF
1703 AQ 09		BER	TPRDER-019	5	6116	B 06Z L	CK FOR TP RD ERR
1704 AQ 10							ERR TYPE HERE
1705 AQ 11							INDS THAT 10
1706 AQ 12							TRYS HAVE BEEN
1707 AQ 13							MADE TO READ REC
1708 AQ 14		LCA	ZZ,RDCNT	7	6121	L F4/ F3Z	RESET ERR CNTR
1709 AQ 15		C	RDLEN,LEN40R	7	6128	C F4X F6S	CK LEN OF WR REC
1710 AQ 16		BU	TYPI	5	6135	B C4U /	REC RD NOT 40 CH
1711 AQ 17		C	WKAREA039,RDCOMP-037	7	6140	C H3Z X02	CK DATA READ
1712 AQ 18		BU	TYPI	5	6147	B C4U /	INCORRECT READ
1713 AQ 19		C	WKAREA050,BLNK5	7	6152	C H5# F6X	CK AREA FOR BLNK
1714 AQ 20		BU	TYPI	5	6159	B C4U /	INCORRECT READ
1715 AQ 21		A	ONE,0094	7	6164	A F2W 094	UP XR 2
1716 AQ 22		C	0094,TEN	7	6171	C 094 E9V	CK FOR 10 READS
1717 AQ 23		BU	CL38	5	6178	B -7/ /	READ NEXT REC
1718 AQ 24		CS	WKAREA090	4	6183	/ H9#	CLEAR READ AREA
1719 AQ 25		MCW	ZU1,WKAREA,R	8	6187	M ZU1 H0# R	READ TP MRK
1720 AQ 26		BEF	NX38	5	6195	B KOU K	CK FOR EDF
1721 AQ 27							

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

1722 AQ 28 B TYP1-031  
 1723 AQ 29 BEF TYP1  
 1724 AQ 30  
 1725 AQ 31  
 1726 AQ 32  
 1727 AQ 33  
 1728 AQ 34 A ONE,0089  
 1729 AQ 35 C 0089,TEN  
 1730 AQ 36 BU NXR38  
 1731 AQ 37 B LOOPCK  
 1732 AQ 38  
 1733 AQ 39  
 1734 AQ 40  
 1735 AQ 41  
 1736 AQ 42  
 1737 AQ 43  
 1738 AQ 44  
 1739 AQ 45  
 1740 AQ 46  
 1741 AQ 47  
 1742 AQ 48  
 1743 AQ 49  
 1744 AQ 50  
 1745 AQ 51  
 1746 AQ 52  
 1747 AQ 53  
 1748 AQ 54  
 1749 AQ 55  
 1750 AQ 56  
 1751 AQ 57  
 1752 AQ 58  
 1753 AQ 59  
 1754 AQ 60  
 1755 AQ 61  
 1756 AQ 62  
 1757 AQ 63  
 1758 AQ 64  
 1759 AQ 65  
 1760 AQ 66  
 1761 AQ 67  
 1762 AQ 68  
 1763 AQ 69  
 1764 AQ 70  
 1765 AQ 71  
 1766 AQ 72  
 1767 AQ 73  
 1768 AQ 74  
 1769 AQ 75  
 1770 AQ 76  
 1771 AQ 77

RN039  
 TAPE TEST  
 WRITE TAPE IN OVERLAP MODE  
 BACKSPACE AND READ IN OVERLAP MODE  
 CK CONTENTS OF 0 REG AT COMPLETION  
 OF OVLV TAPE OPS CK FOR CORRECT READ  
 AND FOR NO INTERLOCK OF NORMAL  
 PROCESSING DURING OVLV READ OR WRITE  
 EXECUTE ROUTINE FIFTY TIMES

1772 AQ 28 B TYP1-031  
 1773 AQ 29 BEF TYP1  
 1774 AQ 30  
 1775 AQ 31  
 1776 AQ 32  
 1777 AQ 33  
 1778 AQ 34 A ONE,0089  
 1779 AQ 35 C 0089,TEN  
 1780 AQ 36 BU NXR38  
 1781 AQ 37 B LOOPCK  
 1782 AQ 38  
 1783 AQ 39  
 1784 AQ 40  
 1785 AQ 41  
 1786 AQ 42  
 1787 AQ 43  
 1788 AQ 44  
 1789 AQ 45  
 1790 AQ 46  
 1791 AQ 47  
 1792 AQ 48  
 1793 AQ 49  
 1794 AQ 50  
 1795 AQ 51  
 1796 AQ 52  
 1797 AQ 53  
 1798 AQ 54  
 1799 AQ 55  
 1800 AQ 56  
 1801 AQ 57  
 1802 AQ 58  
 1803 AQ 59  
 1804 AQ 60  
 1805 AQ 61  
 1806 AQ 62  
 1807 AQ 63  
 1808 AQ 64  
 1809 AQ 65  
 1810 AQ 66  
 1811 AQ 67  
 1812 AQ 68  
 1813 AQ 69  
 1814 AQ 70  
 1815 AQ 71  
 1816 AQ 72  
 1817 AQ 73  
 1818 AQ 74  
 1819 AQ 75  
 1820 AQ 76  
 1821 AQ 77

SET ROUT. START  
 ADDR IN 82-84  
 RESET IX 1  
 RESET CNTR  
 GO TO WRITE TAPE  
 RESET CNTR  
 BACKSPACE  
 AND SKIP TAPE  
 WRITE REC  
 CK FOR 7010  
 BYPASS BSY CK  
 CK FOR TP BUSY  
 STORE 0 REG  
 CK FOR EDR  
 CK FOR WRITE ERR  
 ERR TYPE HERE  
 INDS THAT IO  
 TRYS USING BKSP-  
 SKIP HAVE BEEN  
 MADE TO WR REC  
 RESET ERR CNTR  
 CK FOR 7010  
 BYPASS OVLV CK  
 CK FOR NOT 0000  
 ERR TYPE HERE  
 INDS NO PROC  
 OCCURED WITH  
 OVLV WRITE

•L005  
 0084  
 ZZZ,0089  
 ZZZZ,CYCNT  
 WRTP39  
 ZZZZ,CYCNT  
 XUI,B  
 XUI,E  
 \$\$,RDCOMP-076,W  
 NX39A,1256,X  
 NX39B  
 CKBUSY,J  
 DREG  
 ENREEL  
 TPWRER-019

ZZ,WRCNT  
 SV1040,1256,X  
 CK40  
 CYCNT,ZZZZ  
 TYP1

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1772	AQ	78		C	OREG,CWOREG	7	6345	C D8X G4V	
1773	AQ	79		BU	TYPI	5	6352	B C4U /	
1774	AQ	80							
1775	AQ	81							
1776	AQ	82	CK40	CU	XU1,B	5	6357	U XU1 B	
1777	AQ	83		CS	WKAREA,090	4	6362	/ H9#	
1778	AQ	84		LCA	ZZZZ,CYCNT	7	6366	L D7Y D9/	
1779	AQ	85		MCW	\$\$,WKAREA,R	8	6373	M@UI HO# R	
1780	AQ	86		BCE	NX39C,1256,X	8	6381	B L9T S56 X	
1781	AQ	87		B	NX39D	8	6389	B MOS	
1782	AQ	88	NX39C	BIN	CKBUSY,J	4	6393	B 88Y J	
1783	AQ	89		SBR	OREG	4	6398	H D8X	
1784	AQ	90	NX39D	BSS	EOF1,C	5	6402	B Q4# C	
1785	AQ	91							
1786	AQ	92							
1787	AQ	93		BER	TPRDER-019	5	6407	B D6Z L	
1788	AQ	94							
1789	AQ	95							
1790	AQ	96							
1791	AQ	97							
1792	AQ	98		LCA	ZZ,RDCNT	7	6412	L F4/ F3Z	
1793	AQ	99		BCE	SV1039,1256,X	8	6419	B M3/ S56 X	
1794	AR	00		B	CK39	4	6427	B M5V	
1795	AR	01	SV1039	C	OREG,CTOREG	7	6431	C D8X G4S	
1796	AR	02		BU	TYPI	5	6438	B C4U /	
1797	AR	03							
1798	AR	04							
1799	AR	05		C	CYCNT,ZZZZ	7	6443	C D9/ D7Y	
1800	AR	06		BE	TYPI	5	6450	B C4U S	
1801	AR	07							
1802	AR	08	CK39	C	WKAREA,079,RDCOMP,003	7	6455	C H7Z X42	
1803	AR	09		BU	TYPI	5	6462	B C4U /	
1804	AR	10		A	ONE,0089	7	6467	A F2W 089	
1805	AR	11		C	0089,FIFTY	7	6474	C 089 F5W	
1806	AR	12		BU	CL39	5	6481	B K4X /	
1807	AR	13		B	LOOPCK	4	6486	B U39	
1808	AR	14							
1809	AR	15							
1810	AR	16							
1811	AR	17							
1812	AR	18							
1813	AR	19		MCW	TRDCNT,TRE	7	6490	M F3V #26	
1814	AR	20		MCW	TWRCNT,WRE	7	6497	M F3/ #44	
1815	AR	21		MCW	%TO,TRE-016,W	8	6504	M %TO #10 W	
1816	AR	22		MCW	%TO,WRE-016,W	8	6512	M %TO #28 W	
1817	AR	23		B	CKPXX-012	4	6520	B R1T	
1818	AR	24							
1819	AR	25							
1820	AR	26							
1821	AR	27							

ROUTINE TO INDICATE NUMBER  
OF TEMP READ AND WRITE ERRS  
FOR ONE PASS OF TAPE SECTION

TAPE WRITE ERROR ROUTINE  
THIS ROUTINE IS ENTERED WHENEVER

SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1822	AR	28			A TAPE WRITE ERROR IS ENCOUNTERED WITHIN TEST ROUTINE				
1823	AR	29							
1824	AR	30							
1825	AR	31	SBR		TWREX&003	4	6524	H 06S	
1826	AR	32	SBR		REDA&003	4	6528	H 00#	
1827	AR	33	LCA		BRANCH,MODIFY	7	6532	L #47 03#	
1828	AR	34	B		*&009	4	6539	B N5/	
1829	AR	35	TPMRER	SBR	TWREX&003	4	6543	H 06S	
1830	AR	36	SBR		REDA&003	4	6547	H 00#	
1831	AR	37	BIN		ALTER,Q	5	6551	B U68 Q	
1832	AR	38	A		ONE,TWRCNT	7	6556	A F2M F3/	
1833	AR	39	A		ONE,WRCNT	7	6563	A F2M F3X	
1834	AR	40	C		TWRCNT,TEN	7	6570	C F3/ E9V	
1835	AR	41	BU		MODIFY	5	6577	B 03# /	
1836	AR	42	LCA		ZZ,WRCNT	7	6582	L F4/ F3X	
1837	AR	43	BCE		MODIFY,TADO,1	8	6589	B 03# #00.1	
1838	AR	44	REDA	SW	0000	4	6597	. 000	
1839	AR	45		CW		1	6601	□	
1840	AR	46		CW		1	6602	□	
1841	AR	47		CW		1	6603	□	
1842	AR	48		CW		1	6604	□	
1843	AR	49	SAR		ERRLO	4	6605	Q E4W	
1844	AR	50	MCH		ZTO,ERRLO-012,W	8	6609	M ZTO E3U W	
1845	AR	51	BCE		ERHA,TAD2,1	8	6617	B 02Z #02.1	
1846	AR	52	B		MODIFY	4	6625	B 03#	
1847	AR	53	ERHA	H		1	6629	. 04V	
1848	AR	54	MODIFY	NOP	DVLPMD	4	6630	N 04V	
1849	AR	55							
1850	AR	56							
1851	AR	57	MA		BK32,TWREX&003	7	6634	# 06V 06S	
1852	AR	58	B		TWREX	4	6641	B 05Z	
1853	AR	59	OVLPMO	LCA	NOP,MODIFY	7	6645	L #46 03#	
1854	AR	60	MA		BK56,TWREX&003	7	6652	# 06V 06S	
1855	AR	61	TWREX	B	0000	4	6659	B 000	
1856	AR	62							
1857	AR	63	BK32	DCW	016H0	3	6665		
1858	AR	64	BK56	DCW	014D0	3	6668		
1859	AR	65							
1860	AR	66							
1861	AR	67							
1862	AR	68							
1863	AR	69							
1864	AR	70							
1865	AR	71							
1866	AR	72	SBR		TRREX&003	4	6669	H P7Y	
1867	AR	73	SBR		REDA&003	4	6673	H P4V	
1868	AR	74	LCA		BRANCH,MODIF	7	6677	L #47 P7Z	
1869	AR	75	B		*&009	4	6684	B 09M	
1870	AR	76	TPRDER	SBR	TRREX&003	4	6688	H P7Y	
1871	AR	77	SBR		REDA&003	4	6692	H P4V	

TAPE READ ERROR ROUTINE  
THIS ROUTINE IS ENTERED WHENEVER  
A TAPE READ ERROR IS  
ENCOUNTERED WITHIN TEST ROUTINE

SET EXIT AND  
REDUCE INSTR  
SET SW TO BR

SET ROUTINE EXIT  
SET REDUCE INSTR  
CK FOR INQUIRY

ADD 1  
TO ERROR CNTRS  
CK FOR 10 TRYS  
NOT 10 TRY AGAIN  
RESET ERR CNTR  
BYPASS ERR IND  
REDUCE

ADDRESS  
AND  
STORE  
IN  
ERRLO  
TYPE ERR LOC  
CK FOR ERR HALT

ERROR HALT  
BR-NOP SW THIS  
WILL BE A BR FOR  
TP OPS IN DVLPMO  
DEC ADDR BY 32  
GO TO EXIT  
SET SW TO NOP  
DEC ADDR BY 56  
ROUTINE EXIT

SET EXIT AND  
REDUCE INSTR  
SET SW TO BR

SET ROUTINE EXIT  
SET REDUCE INSTR



SEQ PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1872	AR 78		BIN	ALTER,Q	5		6696	B U68 Q
1873	AR 79		A	ONE,TRDCNT	7		6701	A F2M F3V
1874	AR 80		A	ONE,RDCNT	7		6708	A F2M F3Z
1875	AR 81		C	TRDCNT,IEN	7		6715	C F3V E9V
1876	AR 82		BU	MODIF	5		6722	B P7Z /
1877	AR 83		LCA	ZZ,RDCNT	7		6727	L F4/ F3Z
1878	AR 84		BCE	TRREX,TADO,I	8		6734	B P7V #00 1
1879	AR 85	REDAD	SW	0000	4		6742	• 000
1880	AR 86		CW		1		6746	□
1881	AR 87		CW		1		6747	□
1882	AR 88		CW		1		6748	□
1883	AR 89		CW		1		6749	□
1884	AR 90		SAR	ERRL	4		6750	Q E6+
1885	AR 91		MCH	%TO,ERRL-012,W	8		6754	M %TO E4Y M
1886	AR 92		BCE	ERH,TAD2,I	4		6762	B P7U #02 1
1887	AR 93		B	TRREX	8		6770	B P7V
1888	AR 94	ERH	H		1		6774	•
1889	AR 95	TRREX	B	0000	4		6775	B 000
1890	AR 96	MODIF	CU	%UL,B	5		6779	U %UL B
1891	AR 97		NOP	DVLPM	4		6784	N P9Z
1892	AR 98							
1893	AR 99							
1894	AS 00		MA	BK26,TRREX%003	7		6788	# D8/ P7Y
1895	AS 01		B	TRREX	4		6795	B P7V
1896	AS 02	DVLPM	LCA	NOP,MODIF%005	7		6799	L #46 P8U
1897	AS 03		MA	BK50,TRREX%003	7		6806	# D8U P7Y
1898	AS 04		B	TRREX	4		6813	B P7V
1899	AS 05							
1900	AS 06							
1901	AS 07							
1902	AS 08							
1903	AS 09							
1904	AS 10							
1905	AS 11							
1906	AS 12	ENREEL	SBR	ENREX%003	4		6817	H Q3Z
1907	AS 13		LCA	NOP,E0FSW	7		6821	L #46 Q4Y
1908	AS 14		MCH	%TO,REELN-010,W	8		6828	M %TO E6S W
1909	AS 15	ENREX	B	0000	4		6836	B 000
1910	AS 16							
1911	AS 17							
1912	AS 18							
1913	AS 19							
1914	AS 20							
1915	AS 21							
1916	AS 22							
1917	AS 23							
1918	AS 24	EOFL	SBR	E0FEX%003	4		6840	H R1S
1919	AS 25		SBR	INDE0F%003	4		6844	H Q7/
1920	AS 26	E0FSW	B	INDE0F	4		6848	B Q6Y
1921	AS 27							

TAPE END OF REEL ROUTINE  
THIS ROUTINE IS ENTERED WHENEVER  
END OF REEL IS ENCOUNTERED  
DURING TAPE WRITE OPERATION

TAPE END OF FILE ROUTINE  
THIS ROUTINE IS ENTERED WHENEVER  
END OF REEL OR END OF FILE  
IS ENCOUNTERED DURING A  
TAPE READ OPERATION

SET ROUTINE EXIT  
SET EOF SW  
TYPE MESSAGE  
ROUTINE EXIT

SET ROUTINE EXIT  
SET REDUCE INSTR  
THIS WILL BE A  
BR TO IND ERR IF

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

1922	AS	28			EOR WAS NOT					
1923	AS	29			ENCTRD ON WRITE					
1924	AS	30			REWIND TAPE					
1925	AS	31			RESTORE SW					
1926	AS	32			RETRY ROUTINE					
1927	AS	33			BYPASS ERR IND					
1928	AS	34			REDUCE					
1929	AS	35			ADDRESS					
1930	AS	36			AND					
1931	AS	37			STORE					
1932	AS	38			IN					
1933	AS	39			EOFIN					
1934	AS	40			WRITE MESSAGE					
1935	AS	41			CK FOR ERR HALT					
1936	AS	42			GO TO EXIT					
1937	AS	43			ERROR HALT					
1938	AS	44			ROUTINE EXIT					
1939	AS	45								

ROUTINE TO CHECK PUNCHED CDS  
USING 1402 READER

1940	AS	46								
1941	AS	47								
1942	AS	48								
1943	AS	49								
1944	AS	50								
1945	AS	51								
1946	AS	52								
1947	AS	53								
1948	AS	54								
1949	AS	55								
1950	AS	56								
1951	AS	57								
1952	AS	58								
1953	AS	59								
1954	AS	60								
1955	AS	61								
1956	AS	62								
1957	AS	63								
1958	AS	64								
1959	AS	65								
1960	AS	66								
1961	AS	67								
1962	AS	68								
1963	AS	69								
1964	AS	70								
1965	AS	71								
1966	AS	72								
1967	AS	73								
1968	AS	74								
1969	AS	75								
1970	AS	76								
1971	AS	77								

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG	LN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1972	AS 78		B	ENDCK				
1973	AS 79		B	RRCD	4		7061	B A55
1974	AS 80	RR5	C	0089,ONE47	4		7065	B 68V
1975	AS 81		BU	RR5	7		7069	C 089 E2X
1976	AS 82		B	ENDCK	5		7076	B 66V /
1977	AS 83				4		7081	B A55
1978	AS 84	RRCD	SBR	RRCDEX&003	4		7085	H A5/
1979	AS 85		CS	0080	4		7089	/ 080
1980	AS 86		R		1		7093	1
1981	AS 87		BIN	TYPL,ε	5		7094	B C4U ε
1982	AS 88							
1983	AS 89							
1984	AS 90							
1985	AS 91		C	0077,WKAREA&076	7		7099	C 077 H7M
1986	AS 92		BE	NXA	5		7106	B AIX S
1987	AS 93		SS	1	2		7111	K 1
1988	AS 94		B	TYPL-031	4		7113	B CIT
1989	AS 95	NXA	C	0080,0089	7		7117	C 080 089
1990	AS 96		BE	NXB	5		7124	B A3Z S
1991	AS 97		SS	1	2		7129	K 1
1992	AS 98		B	TYPL-031	4		7131	B CIT
1993	AS 99		B	ADDDX	4		7135	B A4/
1994	AT 00	NXB	SS	2	2		7139	K 2
1995	AT 01	ADDDX	A	ONE,0089	7		7141	A F2W 089
1996	AT 02	RRCDEX	B	0000	4		7148	B 000
1997	AT 03							
1998	AT 04							
1999	AT 05							
2000	AT 06							
2001	AT 07							
2002	AT 08							
2003	AT 09	ENDCK	MCH	XT0,PAS-003,W	8		7152	M XT0 F6Y W
2004	AT 10		BCE	REPEAT,TAD3,1	8		7160	B A9V #03 1
2005	AT 11		LCA	G088,0007	7		7168	L A9U 007
2006	AT 12		SM	0008	4		7175	, 008
2007	AT 13		MCH	XT0,MD1410-031,W	8		7179	M XT0 F7T W
2008	AT 14		H		1		7187	.
2009	AT 15							
2010	AT 16	G08B	DCM	QJ00400 ε	7		7194	
2011	AT 17	REPEAT	NOP	2008	4		7195	N -08
2012	AT 18		SAR	0084	4		7199	Q 084
2013	AT 19		H		1		7203	.
2014	AT 20							
2015	AT 21							
2016	AT 22							
2017	AT 23							
2018	AT 24							
2019	AT 25							
2020	AT 26							
2021	AT 27	CKREAD	SBR	CDRDEX&003	4		7204	H B4Z

ROUTINE TO TYPE PASS AND TEST  
TAD3 FOR REPEAT IF TAD3 IS 1  
HALT BEFORE RETURNING TO ROUTINE 1  
IF 0 TYPE COMP SW MESSAGE AND  
HALT BEFORE CALLING IN NEXT PROGRAM

ROUTINE TO COMPARE DATA READ  
WITH READ CARD INSTRUCTION

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
2022	AT	28		C	0077,RDCOMP				CK DATA READ
2023	AT	29		BU	CDRDEX-007			7 7208	C 077 X39
2024	AT	30		C	0080, CDCNT			5 7215	B 83Z /
2025	AT	31		BU	CDRDEX-007			7 7220	C 080 W59
2026	AT	32		MA	ZZ4, CDRDEX&003			5 7227	B 83Z /
2027	AT	33		A	ONE, CDCNT			7 7232	# D0Y 84Z
2028	AT	34		CDRDEX B	0000			7 7239	A F2W W59
2029	AT	35						4 7246	B 000
2030	AT	36							
2031	AT	37							
2032	AT	38							
2033	AT	39							
2034	AT	40							
2035	AT	41							
2036	AT	42							
2037	AT	43							
2038	AT	44							
2039	AT	45							
2040	AT	46							
2041	AT	47							
2042	AT	48							
2043	AT	49							
2044	AT	50							
2045	AT	51							
2046	AT	52							
2047	AT	53							
2048	AT	54							
2049	AT	55							
2050	AT	56							
2051	AT	57							
2052	AT	58							
2053	AT	59							
2054	AT	60							
2055	AT	61							
2056	AT	62							
2057	AT	63							
2058	AT	64							
2059	AT	65							
2060	AT	66							
2061	AT	67							
2062	AT	68							
2063	AT	69							
2064	AT	70							
2065	AT	71							
2066	AT	72							
2067	AT	73							
2068	AT	74							
2069	AT	75							
2070	AT	76							
2071	AT	77							

ROUTINE TO CLEAR READ AREA  
READ CARD AND TEST FOR READ ERROR

SET ROUTINE EXIT  
CLEAR READ AREA  
SET W/M IN LOC 1  
TEST FOR LAST CD  
ERR TYPE HERE  
INDS FALSE EOF  
READ A CARD  
STORE B REG  
CK FOR READ ERR  
INC ADDR BY 4  
ROUTINE EXIT

SET EXIT  
UP CYCNT BY 1  
MOD ADDR

ERROR ROUTINE  
THIS ROUTINE IS ENTERED WHEN AN ERROR  
IS ENCOUNTERED WITHIN TEST ROUTINE  
TEST TADD  
IF 1 BYPASS ERR IND AND CK INQUIRY  
IF 0 TYPE ERROR ADDRESS AND TEST  
TAD2 IF 1 HALT BEFORE INQUIRY TEST  
IF 0 PROCEED TO TEST FOR INQUIRY

SET ROUTINE EXIT  
SET REDUCE INSTR  
BYPASS ERR IND  
REDUCE ADDRESS  
TO INDICATE  
ERROR  
LOCATION  
STORE FOR TYPING  
GO TO TYPE  
SET ROUTINE EXIT  
SET REDUCE INSTR

1410/7010-1401 I/O COMPATIBILITY TEST

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
2072 AT 78		BCE	LPC,TAD0,1				
2073 AT 79	REDADD	SW	0000	8	7352	B C9T #00 I	
2074 AT 80		CW		4	7360	, 000	
2075 AT 81		CW		1	7364	□	
2076 AT 82		CW		1	7365	□	
2077 AT 83		CW		1	7366	□	
2078 AT 84		SAR	ERRLOC	1	7367	□	
2079 AT 85	TYPYR	MCH	%TO,ERRLOC-006,W	4	7368	Q U66	
2080 AT 86		BCE	ERHALT,TAD2,1	8	7372	M %TD U60 W	
2081 AT 87		B	LPC	8	7380	B C9S #02 I	
2082 AT 88	ERHALT	H		4	7388	B C9T	
2083 AT 89	LPC	BIN	ALTER,Q	1	7392	, U68 Q	
2084 AT 90	TPEXIT	B	0000	5	7393	B U68 Q	
2085 AT 91				4	7398	B 000	

BYPASS ERR IND  
 REDUCE ADDRESS  
 TO INDICATE  
 ERROR  
 LOCATION  
  
 STORE FOR TYPING  
 TYPE ERROR LOC  
 CK FOR ERR HALT  
 CK FOR INQ.  
 ERROR HALT  
 CK FOR INQUIRY  
 ROUTINE EXIT

SEQ PG LIN LABEL OP OPERANDS

SFX CT LOCN INSTRUCTION

2086 AT 93 JOB 1410/7010-1401 I/O COMPATIBILITY TEST  
 2087 AT 95  
 2088 AT 96  
 2089 AT 97  
 2090 AT 98  
 2091 AT 99  
 2092 AU 00  
 2093 AU 01  
 2094 AU 02  
 2095 AU 03  
 2096 AU 04  
 2097 AU 05  
 2098 AU 06  
 2099 AU 07  
 2100 AU 08  
 2101 AU 09  
 2102 AU 10  
 2103 AU 11  
 2104 AU 12  
 2105 AU 13  
 2106 AU 14  
 2107 AU 15  
 2108 AU 16  
 2109 AU 17  
 2110 AU 18  
 2111 AU 19  
 2112 AU 20  
 2113 AU 21  
 2114 AU 22  
 2115 AU 23  
 2116 AU 24  
 2117 AU 25  
 2118 AU 26  
 2119 AU 27  
 2120 AU 28  
 2121 AU 29  
 2122 AU 30  
 2123 AU 31  
 2124 AU 32  
 2125 AU 33  
 2126 AU 34  
 2127 AU 35  
 2128 AU 36  
 2129 AU 37  
 2130 AU 38  
 2131 AU 39  
 2132 AU 40  
 2133 AU 41  
 2134 AU 42  
 2135 AU 43

TPINS1 DCM @ZU@  
 TPINS2 DCM @AU@  
 ZZ4 DCM @004@  
 ZZ5 DCM @005@  
 ZZ6 DCM @006@  
 ZZ7 DCM @007@  
 Z16 DCM @016@  
 Z20 DCM @020@  
 Z23 DCM @023@  
 Z29 DCM @029@  
 Z61 DCM @061@  
 Z71 DCM @071@  
 EIGHTY DCM @081@  
 Z83 DCM @083@  
 Z88 DCM @088@  
 Z91 DCM @091@  
 Z94 DCM @094@  
 Z99 DCM @099@  
 ONE00 DCM @100@  
 ONE05 DCM @105@  
 ETTY DCM @080@  
 ONE32 DCM @132@  
 ONE83 DCM @183@  
 THRO3 DCM @303@  
 THR35 DCM @335@  
 ZZZ DCM @000@  
 BK26 DCM @170@  
 BK50 DCM @150@  
 GREG DCM @ @  
 CYCNT DCM @000@  
 Z35 DCM @035@  
 Z41 DCM @041@  
 ONE80 DCM @181@  
 ONE11 DCM @111@  
 ONE17 DCM @117@  
 ONE22 DCM @122@  
 Z66 DCM @066@  
 Z46 DCM @046@  
 Z51 DCM @051@  
 Z56 DCM @056@  
 ONE27 DCM @127@  
 ONE47 DCM @147@  
 ONE37 DCM @137@  
 ONE42 DCM @142@  
 ERRLO DCM @TP WR ERR @  
 DCM @@

2 7403  
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 3 7408  
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 13 7546  
 1 7547

1410/7010-1401 I/O COMPATIBILITY TEST

SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
2136	AU	44	ERRL	DCW	@TP RD ERR @	13		7560	
2137	AU	45		DCW	@#@	1		7561	
2138	AU	46	REELBN	DCW	@END OF REEL@	11		7572	
2139	AU	47		DCW	@#@	1		7573	
2140	AU	48	EOFIN	DCW	@FALSE TP EOF @	16		7589	
2141	AU	49		DCW	@#@	1		7590	
2142	AU	50	WKAREA	EQU	7600			7800	
2143	AU	51	PUNCNT	DCW	@	3		7593	
2144	AU	52	TEN	DCW	@10@	2		7595	
2145	AU	53	NUMCHS	DCW	@\$. . . - - - - - . . . * @	10		7605	
2146	AU	54	SPL9	DCW	@*9*9*9*9*9@	10		7615	
2147	AU	55	SPL12	DCW	@12*1212*12@	10		7625	
2148	AU	56	ONE	DCW	@1@	1		7626	
2149	AU	57	TWO	DCW	@2@	1		7627	
2150	AU	58	TWRCNT	DCW	@	4		7631	
2151	AU	59	TRDCNT	DCW	@	4		7635	
2152	AU	60	WRCNT	DCW	@	2		7637	
2153	AU	61	RDCNT	DCW	@	2		7639	
2154	AU	62	ZZ	DCW	@00@	2		7641	
2155	AU	63	WRLEN	DCW	@	3		7644	
2156	AU	64	RDLEN	DCW	@	3		7647	
2157	AU	65	LEN82W	DSA	&RDCOMP&005	3		7650	X44
2158	AU	66	LEN82R	DSA	&WKAREA&081	3		7653	H8/
2159	AU	67	FIFTY	DCW	@050@	3		7656	
2160	AU	68	ELEVEN	DCW	@011@	3		7659	
2161	AU	69	LEN40R	DSA	&WKAREA&041	3		7662	H4/
2162	AU	70	BLNK5	DCW	@	5		7667	
2163	AU	71	PAS	DCW	@PASS@	4		7671	
2164	AU	72		DCW	@#@	1		7672	
2165	AU	73	M01410	DCW	@SET COMPATIBILITY SW TO 1410/701@	32		7704	
2166	AU	74		DC	@0 PRESS COMPUTER RESET & START @	31		7735	
2167	AU	75		DCW	@#@	1		7736	
2168	AU	76	R8R	DSA	&R8R2	3		7739	J18
2169	AU	77	CTDREG	DSA	&WKAREA&081	3		7742	H8/
2170	AU	78	CTDREG	DSA	&RDCOMP&005	3		7745	X44
2171	AU	79	RESTA	DCW	@B081 @	5		7750	
2172	AU	80	RTX	EQU	7991			7991	

SEQ PG LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION
2173 AU 82		JOB				
2174 AU 84		ORG				
2175 AU 85						
2176 AU 86						
2177 AU 87						
2178 AU 88						
2179 AU 89						
2180 AU 90						
2181 AU 91						
2182 AU 92						
2183 AU 93						
2184 AU 94						
2185 AU 95						
2186 AU 96						
2187 AU 97						
2188 AU 98						
2189 AU 99						
2190 AV 00						
2191 AV 01						
2192 AV 02						
2193 AV 03						
2194 AV 04						
2195 AV 05						
2196 AV 06						
2197 AV 07						
2198 AV 08						
2199 AV 09						
2200 AV 10						
2201 AV 11						
2202 AV 12						
2203 AV 13						
2204 AV 14						
2205 AV 15						
2206 AV 16						
2207 AV 17						
2208 AV 18						
2209 AV 19						
2210 AV 20						
2211 AV 21						
2212 AV 22						
2213 AV 23						
2214 AV 24						
2215 AV 25						
2216 AV 26						
2217 AV 27						
2218 AV 28						
2219 AV 29						
2220 AV 30						
2221 AV 31						
2222 AV 32						

1410/7010-1401 I/O COMPATIBILITY TEST  
8000

1410 ROUTINE TO SET UP POST  
RESTART, TYPE PROGRAM ID AND  
SET UP INSTRUCTIONS

DCW	@D0802800004Xa	12	8011
DCW	@.00005a	6	8017
DCW	@J08029 a	7	8024
DCW	@B-08a	4	8028
DCW	@M%T001250W@	10	8038
DCW	@R08029@a	7	8045
DCW	@M%T008167W@	10	8055
DCW	@R08046@a	7	8062
DCW	@M%T008185W@	10	8072
DCW	@R08063@a	7	8079
DCW	@M%T008208W@	10	8089
DCW	@R08080@a	7	8096
DCW	@M%T008138W@	10	8106
DCW	@R08097@a	7	8113
DCW	@M%T008228W@	10	8123
DCW	@R08114@a	7	8130
DCW	@J08240 a	7	8137
DCW	@SET COMPATIBILITY SW TO 1401a	28	8165
DCW	@#a	1	8166
DCW	@SET SENSE SW A ONa	17	8183
DCW	@#a	1	8184
DCW	@SET I/O CK STOP SW OFFa	22	8206
DCW	@#a	1	8207
DCW	@READY ALL I/O UNITSa	19	8226
DCW	@#a	1	8227
DCW	@PRESS STARTa	11	8238
DCW	@#a	1	8239
DCW	@D0802800084Xa	12	8251
DCW	@.00085a	6	8257
DCW	@J02007 a	7	8264
DCW	@.a	1	8265
ORG	8300		8300
NOP	*L005	4	8300
SAR	0084	4	8304
CS	0080	4	8308
SW	0001	4	8312
BLC	TYPI	5	8316
R		1	8321
LCA	BRBK6E003*12003	7	8322

SET ROUT START  
ADDR IN 82-84  
CLEAR READ AREA  
SET WM  
TEST FOR LAST CD  
ERR TYPE HERE  
INDS FALSE EOF  
READ CARD  
SET RETURN INST

N 30Q  
Q 084  
/ 080  
\* 001  
B C4U A  
L 35P 00C



1410/7010-1401 I/O COMPATIBILITY TEST

SEQ	RG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
2223	AV	33		SW	12004	4	8329		00D
2224	AV	34		B	12000	4	8333		B 00E
2225	AV	35	BK6	BIN	NX6,ε	5	8337		B 340 ε
2226	AV	36		B	TYPI-031	4	8342		B CIT
2227	AV	37	NX6	B	LOOPCK	4	8346		B U39
2228	AV	38		B	RN7	4	8350		B L68
2229	AV	39	BRBK6	B	BK6	4	8354		B 33P
2230	AV	40							
2231	AV	41		ORG	8500				8500
2232	AV	42		DCW	@B0851901301R@	12	8511		
2233	AV	43		DCW	@J08569 @	7	8518		
2234	AV	44		DCW	@M%1909000R@	10	8528		
2235	AV	45		DCW	@R085192@	7	8535		
2236	AV	46		DCW	@R08543@	7	8542		
2237	AV	47		DCW	@R085571@	7	8549		
2238	AV	48		DCW	@J08569 @	7	8556		
2239	AV	49		DCW	@D09002013013@	12	8568		
2240	AV	50		DCW	@B0858801303P@	12	8580		
2241	AV	51		DCW	@J08638 @	7	8587		
2242	AV	52		DCW	@M%4909000W@	10	8597		
2243	AV	53		DCW	@R085882@	7	8604		
2244	AV	54		DCW	@R08612@	7	8611		
2245	AV	55		DCW	@R086261@	7	8618		
2246	AV	56		DCW	@J08638 @	7	8625		
2247	AV	57		DCW	@D09002013033@	12	8637		
2248	AV	58		DCW	@B0865701305P@	12	8649		
2249	AV	59		DCW	@J08699 @	7	8656		
2250	AV	60		DCW	@F1@	2	8658		
2251	AV	61		DCW	@R086572@	7	8665		
2252	AV	62		DCW	@R08673@	7	8672		
2253	AV	63		DCW	@R086871@	7	8679		
2254	AV	64		DCW	@J08699 @	7	8686		
2255	AV	65		DCW	@D09002013053@	12	8698		
2256	AV	66		DCW	@N@	1	8699		
2257	AV	67		DCW	@D08710079911@	12	8711		
2258	AV	68		DCW	@B08743012911@	12	8723		
2259	AV	69		DCW	@N08919012921@	12	8735		
2260	AV	70		DCW	@J08000 @	7	8742		
2261	AV	71		DCW	@D07991087581@	12	8754		
2262	AV	72		DCW	@U@ R@	5	8759		
2263	AV	73		DCW	@R087552@	7	8766		
2264	AV	74		DCW	@R08774@	7	8773		
2265	AV	75		DCW	@R087881@	7	8780		
2266	AV	76		DCW	@J08000 @	7	8787		
2267	AV	77		DCW	@A0871007991@	11	8798		
2268	AV	78		DCW	@J088132@	7	8805		
2269	AV	79		DCW	@J08743 @	7	8812		
2270	AV	80		DCW	@D09002012913@	12	8824		
2271	AV	81		DCW	@N09002012923@	12	8836		
2272	AV	82		DCW	@J08000 @	7	8843		

EXEC BRANCH  
 CK ERR LATCH  
 ER LAT WAS RESET  
 CK FOR LOOP  
 GO TO NEXT ROUT

1410/7010-1401 I/O COMPATIBILITY TEST

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SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
2273	AV 83	DCW	a.a		1	8844	
2274	AV 84	ORG	9000				9000
2275	AV 85	DC	a a		1	9000	
2276	AV 86	DCW	a#a		1	9001	
2277	AV 87	DC	a a		1	9002	
2278	AV 88	END	START				/ -00 080