

IBM POUGHKEEPSIE

Diagnostic Engineering Publication

Dept. B59, Bldg. 965
Date 11/15/63

1410/7010

Subject: Diagnostic Program CC01A - 1410/7010 Limited CPU
Sequence Number 001 Instruction Test
Replaces New Program

This Program uses no System or Channel Control Cards

This Program should be run only from tape.

Enclosures: 44 Pages
Card Deck for CARD ONLY SYSTEMS (as punched by UP51)
8 Cards - Card Loader (1-7) and 1 Core Clear
160 Cards No. 001-160 Data Cards
1 Card Execute Card

Distribution: X 1410
X 7010
Other

CC01A

11/15/1963

1410/7010 LIMITED CPU INSTRUCTION TEST

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2. xx. 00. 0 TEST DESCRIPTION

2. xx. 00. 1 MODIFICATIONS

CC01A is the first release version of this program and it does not obsolete any program.

2. xx. 00. 2 DESCRIPTION

CC01 was taken directly from C021 to test enough of the basic instruction set to read in and operate the Tape Control Program. It does not contain any Error Typeouts, Loops, Tad Controls or Options to repeat, it is strictly a special purpose test that runs prior to the Tape Control Program and halts for any error.

The Load Program utilizes a few instructions to Load CC01 and they are: BCE, MRCW, MLCS, BAI, RT, BEX1 , MLCWA and a Branch instruction.

This test will only be used in conjunction with the Tape Control Program operating from tape.

2. xx. 00. 3 EQUIPMENT REQUIRED

Minimum Storage
One tape Unit on any channel
Console Printer

2. xx. 00. 4 CARD DECK

7	Cards	L1 Loader
1	Card	Core Clear
160	Cards	Program Cards
1	Card	Execute (Branch to 1972) to operate TC50

2. xx. 00. 5 ENGINEERING LEVEL

CC01 will operate on any 1410/7010 system unless an Engineering Change modifies the operations of the standard Instruction set.

2. xx. 01. 0 LOADING PROCEDURES

2. xx. 01. 1 1410 TAPE INPUT

A. Display and Alter Locations 00000-00011 as follows:

- 1. $\begin{matrix} v & v & & & v \end{matrix}$
RL%B000011\$. If tape unit on E channel
- 2. $\begin{matrix} v & v & & & v \end{matrix}$
XL B000011\$. If tape unit on F channel

B. Set Mode switch to RUN, Computer Reset and Start.

2. xx. 01. 2 7010 TAPE INPUT

A. If tape unit is on E channel, use 7010 Load Key and disregard steps (B) and (C)

B. If tape unit is not on E channel, Display and Alter Locations 00000-00011 as follows:

- 1. $\begin{matrix} v & v & & & v \end{matrix}$
XL B000011\$. If tape unit on F channel
- 2. $\begin{matrix} v & v & & & v \end{matrix}$
3L?B000011\$. If tape unit on G channel
- 3. $\begin{matrix} v & v & & & v \end{matrix}$
1L!B000011\$. If tape unit on H channel

C. Set MODE switch to Run, Computer Reset and Start.

2. xx. 02. 0 OPERATING PROCEDURES

No special instructions are necessary to run this program. The test is ONE, QUICK check of a portion of the basic instruction set and unless there is an error it immediately reads in TC50 and begins to operate TC50

2. xx. 03. 0 OPERATING HINTS AND COMMENTS

If there is an error the program will stop. The CE must then consult the listing to find out which instruction failed and determine if he can continue. It is possible to continue to the next instruction by pushing the Start Key. If a number of errors occur it would not be possible for TC50 to operate. If there are a few errors it may be possible that TC50 will work and be able to bring into Core C020 or C021 to completely check out CPU instructions and give the CE the benefit of different Loops and Options.

At Location 01000-01100 is a pattern of characters to be looked at only by the C. E to determine if there are any Information Transfer errors between TAU and CPU.

2. xx. 04. 0 PROGRAM STOPS

All stops are Error Stops

2. xx. 05. 0 TYPEOUTS

2. xx. 05. 1 NORMAL

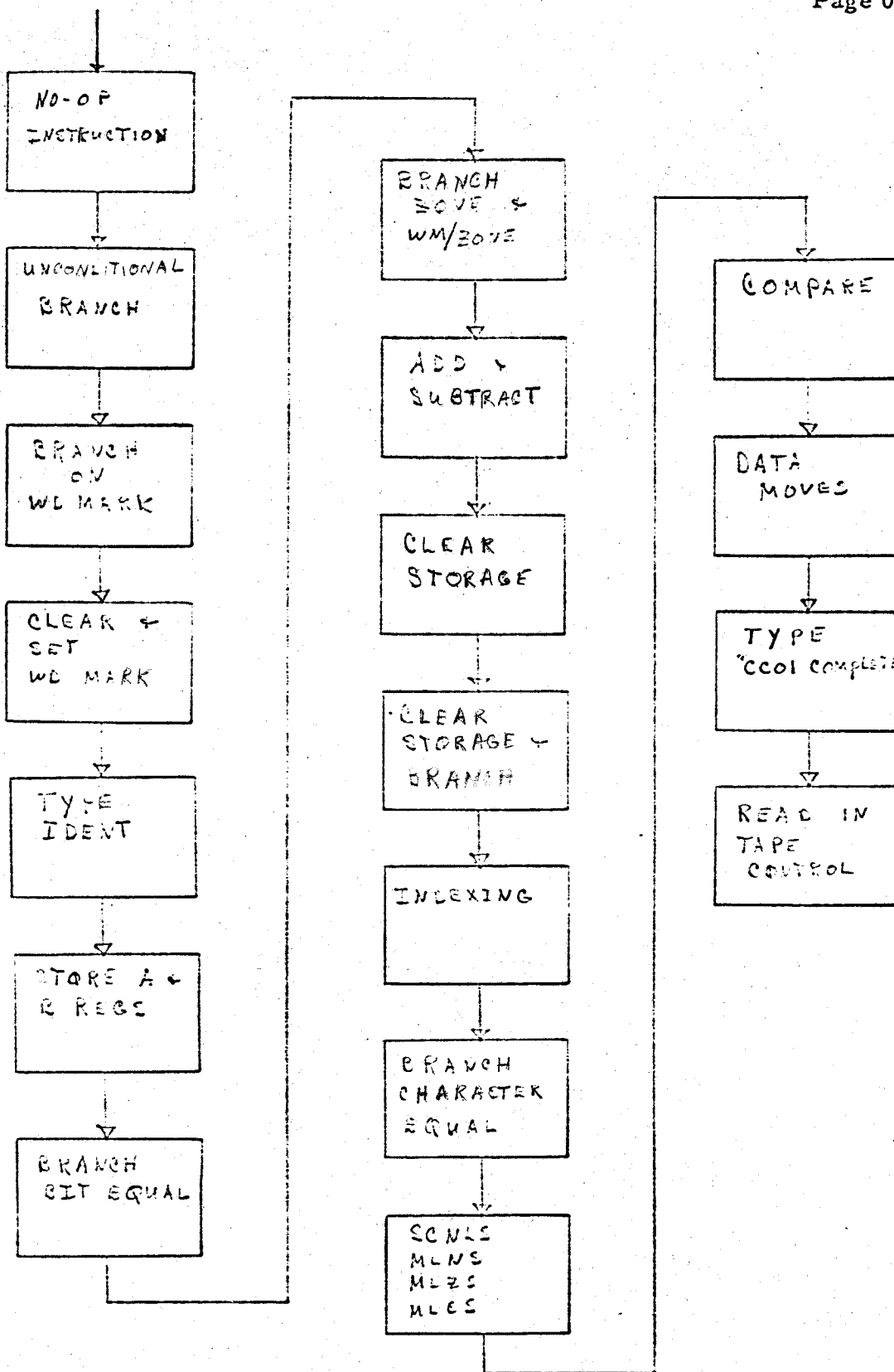
"CC01A" Test Ident.
"CC01 COMPLETE" Indicate End of Test.

2. xx. 05. 2 ERROR

None.

FLOW CHART

CC01
Page 006



* SUB-RTN 19.01 CHECK SCNLS FOR MOVE NO DATA

1606	LK	MLCS	NWP63,WORK6	12	05139	D	09064	09176	3
1607		SW	WORK6	6	05151	.	09176		
1608		SCNLS	NW00,WORK6	12	05157	D	09002	09176	
1609		C	ALLBIT,WORK6	11	05169	C	09071	09176	
1610		BE	LL	7	05180	J	05188	S	
1611		H		1	05187	.			
1612									

SHOULD BRANCH

* SUB-RTN 19.02 CHECK MLNS FOR MOVE NUMERIC, NO ZONES, NO WM

1613	LL	MLCS	NWP62,WORK6	12	05188	D	09063	09176	3
1614		SW	WORK6	6	05200	.	09176		
1615		MLNS	NW01,WORK6	12	05206	D	09003	09176	1
1616		C	AYE,WORK6	11	05218	C	09092	09176	
1617		BE	LM	7	05229	J	05237	S	
1618		H		1	05236	.			

SHOULD BRANCH

* SUB-RTN 19.03 CHECK MLZS FOR MOVE ZONES, NO NUMERIC, NO WM

1620	LM	MLCS	NWP31,WORK6	12	05237	D	09032	09176	3
1621		SW	WORK6	6	05249	.	09176		
1622		MLZS	NW32,WORK6	12	05255	D	09033	09176	2
1623		C	DELTA,WORK6	11	05267	C	09077	09176	
1624		BE	LN	7	05278	J	05286	S	
1625		H		1	05285	.			

SHOULD BRANCH

* SUB-RTN 19.04 CHECK MLCS FOR MOVE NUMERIC, ZONE, NO WM

1627	LN	MLNS	NWP25,WORK6	12	05286	D	09027	09176	1
1628		MLZS	NW25,WORK6	12	05298	D	09027	09176	2
1629		SW	WORK6	6	05310	.	09176		
1630		MLCS	NWP38,WORK6	12	05316	D	09039	09176	3
1631		C	OH,WORK6	11	05328	C	09107	09176	
1632		BE	LP	7	05339	J	05347	S	
1633		H		1	05346	.			

SHOULD BRANCH

* SUB-RTN 19.05 CHECK MLWS FOR MOVE WM, NO ZONE, NO NUMERIC

1635	LP	MLCS	NW63,WORK6	12	05347	D	09064	09176	3
1636		SW	WORK6	6	05359	.	09176		
1637		MLWS	BLANK,WORK6	12	05365	D	09066	09176	4
1638		C	ALLBIT,WORK6	11	05377	C	09071	09176	
1639		BE	LQ	7	05388	J	05396	S	
1640		H		1	05395	.			

SHOULD BRANCH

* SUB-RTN 19.06 CHECK MLNWS FOR MOVE NUMERIC, WM, NO ZONE

1642	LQ	MLCS	NW54,WORK6	12	05396	D	09055	09176	3
1643				6	05398	J	05396	S	
1644				1	05395	.			

1645	MLNWS	NINE,WORK6				12	05414	D	09129	09176	5
1646	C	EYE,WORK6				11	05426	C	09100	09176	
1647	BE	LR		SHOULD BRANCH		7	05437	J	05445	S	
1648	H					1	05444	.			
1649	* SUB-RTN	19.07	CHECK MLZWS FOR MOVE ZONE, WM, NO NUMERIC								
1650	LR	MLCS	NWM31,WORK6			12	05445	D	09032	09176	3
1651	CW	WORK6				6	05457	D	09176		
1652	PLZWS	DASH,WORK6				12	05463	D	09078	09176	6
1653	C	DELTA,WORK6				11	05475	C	09077	09176	
1654	BE	LS		SHOULD BRANCH		7	05486	J	05494	S	
1655	H					1	05493	.			
1656	* SUB-RTN	19.08	CHECK MLCWS FOR MOVE CHARACTER AND WORD MARK								
1657	LS	MLCS	NW00,WORK6			12	05494	D	09002	09176	3
1658	CW	WORK6				6	05506	D	09176		
1659	MLCWS	ALLBIT,WORK6				12	05512	D	09071	09176	7
1660	C	ALLBIT,WORK6				11	05524	C	09071	09176	
1661	BE	LT		SHOULD BRANCH		7	05535	J	05543	S	
1662	H					1	05542	.			
1663	* SUB-RTN	19.09	CHECK SCNR FOR MOVE NO DATA, PROPER ADDR REG STEP								
1664	LT	MLCWS	NWM63,100			12	05543	D	09064	00100	7
1665	MLCHS	BLANK,101				12	05555	D	09066	00101	7
1666	SCNR	10C,101				12	05567	D	00100	00101	8
1667	SAR	HOLDA2				7	05579	G	09181	A	
1668	SBR	HOLDB2				7	05586	G	09186	B	
1669	C	HOLDA2,000101a		CK AAR FOR PROPER STEPPING		11	05593	C	09181	09613	
1670	BU	LU		SHOULD NOT BRANCH		7	05604	J	05709	/	
1671	C	HOLDB2,000102a		CK BAR FOR PROPER STEPPING		11	05611	C	09186	09618	
1672	BU	LU		SHOULD NOT BRANCH		7	05622	J	05709	/	
1673	C	BLANK,101		TEST LOC 00101 FOR WM-BLANK		11	05629	C	09066	00101	
1674	BU	LU		SHOULD NOT BRANCH		7	05640	J	05709	/	
1675	SCNR	101,100				12	05647	D	00101	00100	8
1676	SAR	HOLDA2				7	05659	G	09181	A	
1677	SBR	HOLDB2				7	05666	G	09186	B	
1678	C	HOLDA2,000102a		CK AAR FOR PROPER STEPPING		11	05673	C	09181	09618	
1679	BU	LU		SHOULD NOT BRANCH		7	05684	J	05709	/	
1680	C	HOLDB2,000101a		CK BAR FOR PROPER STEPPING		11	05691	C	09186	09613	
1681	BE	LV		SHOULD BRANCH & EXIT		7	05702	J	05710	S	
1682	H					1	05709	.			
1683	* SUB-RTN	19.10	CHECK MRN SIMILAR TO MLNS								
1684	LV	MLCWS	NWP50,WORK6			12	05710	D	09051	09176	7

CT ADDR INSTRUCTION

CC01 CPU TEST
OPCODE OPERAND

PGLIN LABEL

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
2318	HOLDA3	ECU	HOLDA	5	09538	
2319	HOLDA4	ECU	HOLDA	4	09542	
2320	HOLD81	ECU	HOLD8	3	09546	
2321	HOLD82	ECU	HOLD8	3	09549	
2322	HOLD83	ECU	HOLD8	5	09554	
2323	HOLD84	ECU	HOLD8	5	09559	
2324		LTORG	*	5	09564	
2324			654321	1	09565	
2324			69876	4	09569	
2324			6123	1	09570	
2324			645679	1	09571	
2324			-45679	1	09572	
2324			-54321	1	09573	
2324			-1	5	09578	03747
2324			89R1V8	5	09583	03740
2324			80	5	09588	08988
2324			87	5	09593	04504
2324			88	5	09598	09086
2324			81	5	09603	04558
2324			JD	5	09608	04551
2324			JC	5	09613	
2324			RESET	5	09618	
2324			KFC2			
2324			POUND			
2324			KFC7			
2324			KFC6			
2324			80C1018			
2324			80C1028			
2325		END	2000			J02000

END OF ASSEMBLY

