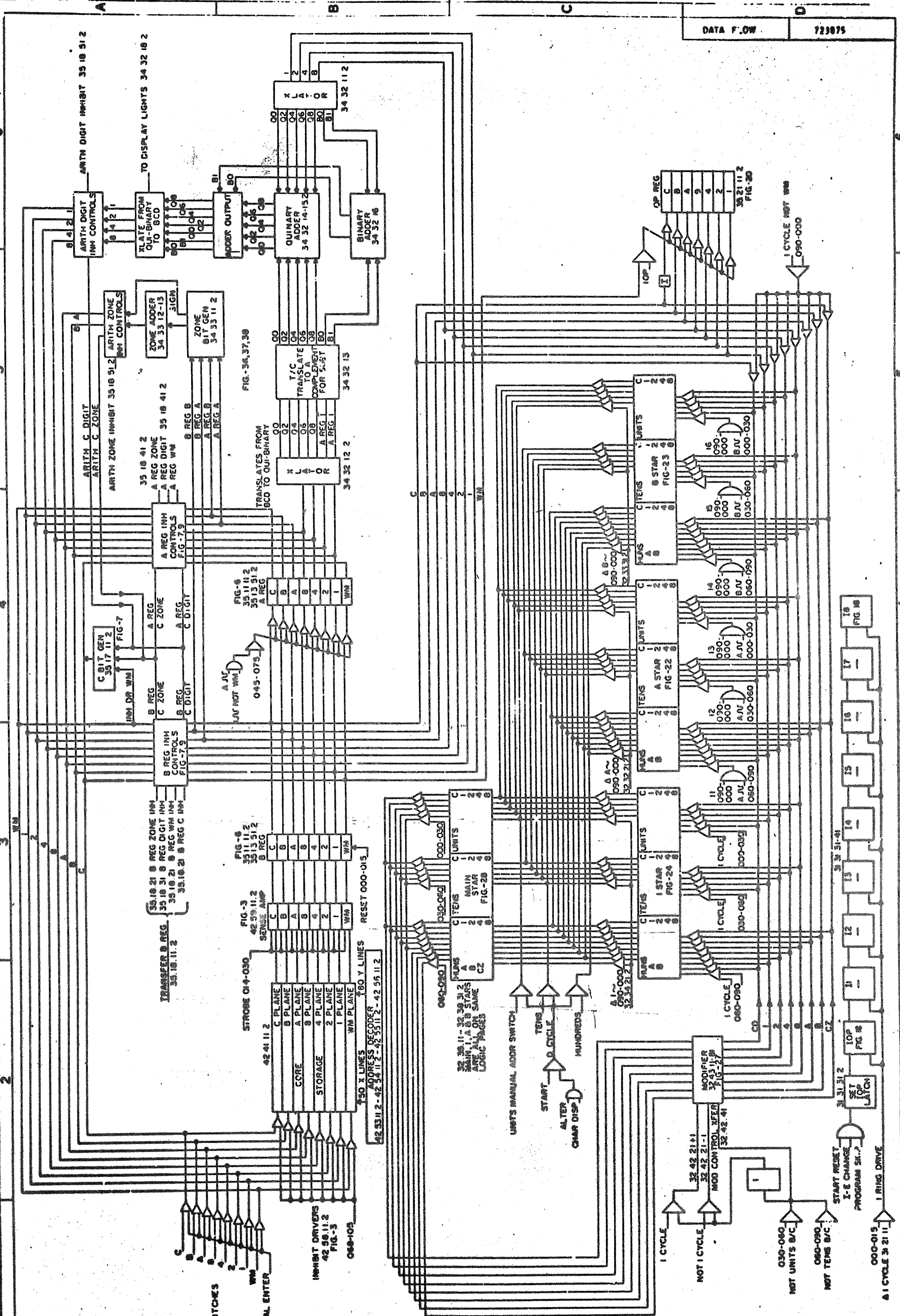


1401 TIMING CHARTS

1-5 ARITHMETIC OPERATIONS
 6-24 MOVE, LOAD, COMPARE AND LOGIC OPERATIONS
 25-28 ADVANCE PROGRAMMING
 29-37 INPUT OUTPUT
 38-49 MAGNETIC TAPE
 50-52 EXPANDED STORAGE

PART NO.	FIG. NO.	NAME	PART NO.	FIG. NO.	NAME
723925	1	RESET ADD O (AAA)(BBB)	724853	29	READ
723926	2	TRUE ADD	724854	30	PUNCH
723927	3	COMPLEMENT ADD-RECOMPLEMENT A (AAA)(BBB)			
723928	4	COMPLEMENT ADD-NO RECOMPLEMENT	724855	32	COLUMN BINARY READ SEQUENCE
723929	5	COMPLEMENT ADD-ONE CHARACTER FIELD	724856	33	COLUMN BINARY PUNCH SEQUENCE
			724857	34	MOVE AND UNSCRAMBLE COLUMN BINARY SEQUENCE
723930	6	MOVE M (AAA)(BBB)	724858	35	MOVE AND SCRAMBLE COLUMN BINARY SEQUENCE
723931	7	MOVE DIGIT D (AAA)(BBB)	724859	36	PUNCH FEED READ SEQUENCE
723932	8	MOVE ZONE Y (AAA)(BBB)	724860	37	STACKER SELECT K AND STACKER SELECT BRANCH
723933	9	MOVE ZERO SUPPRESS Z (AAA)(BBB)			
723934	10	LOAD L (AAA)(BBB)	724861	38	MOVE (LOAD) TAPE READ OPERATION
723935	11	CLEAR OP / (AAA)	724862	39	MOVE (LOAD) WRITE OPERATION
723936	12	WORD MARK CLEAR (AAA)(BBB)	724863	40	LOAD TAPE AND READ A WORD SEPARATOR CHARACTER
723937	13	WORD MARK SET (AAA)(BBB)	724864	41	LOAD TAPE AND WRITE A WORD SEPARATOR CHARACTER
723938	14	COMPARE C (AAA)(BBB)	724865	42	BACKSPACE TAPE OPERATION
723939	15	HIGH-LOW-EQUAL COMPARE SEQUENCE C (AAA)(BBB)	724866	43	ERASE TAPE OPERATION
723940	16	BRANCH B (IIII), UNCONDITIONAL BRANCH	724867	44	WRITE TAPE MARK
723941	17	TEST AND BRANCH B (IIII) (TEST ANY ONE OF TEN CHARACTER)	724868	45	REWIND TAPE-OPERATION
723942	18	TEST CHARACTER AND BRANCH B (IIII)(BBB) (ANY ONE OF NINE CHARACTERS)	724869	46	REWIND AND UNLOAD TAPE
			724870	47	TAPE END OF FILE INDICATOR TEST AND TAPE TRANSMISSION ERROR TEST
723943	19	TEST ZONE OR WORD MARK OR BOTH AND BRANCH V (IIII)(BBB)			
723944	20	CLEAR AND BRANCH / (IIII)(BBB)	724871	48	MOVE COMPRESSED TAPE READ OPERATION
723945	21	STOP AND BRANCH . (IIII)	724872	49	MOVE WITH ZERO INSERTION X (AAA)(BBB)
723946	22	STOP (.)			
723947	23	NO-OP (NO)	724873	50	ADDRESS MODIFY TIMING # (AAA)(BBB)
723948	24	EDIT OPERATION - ZERO SUPPRESS	724874	51	MULTIPLY
			724875	52	% AAA BBB DIVIDE
723949	25	INSTRUCTION CYCLE WITH INDEXING			
724850	26	STORE A STAR Q (AAA) STORE B STAR M (AAA)			
724851	27	BRANCH B (IIII) ADVANCED PROGRAMMING (I-B STAR TRANSFER)			
724852	28	MOVE RECORD P (AAA)(BBB)			

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113530 0	31-7-62	TA 1370 K	NAME	1401 TIMING CHARTS		
				DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 3-7-62
				APPRO		CHECK	

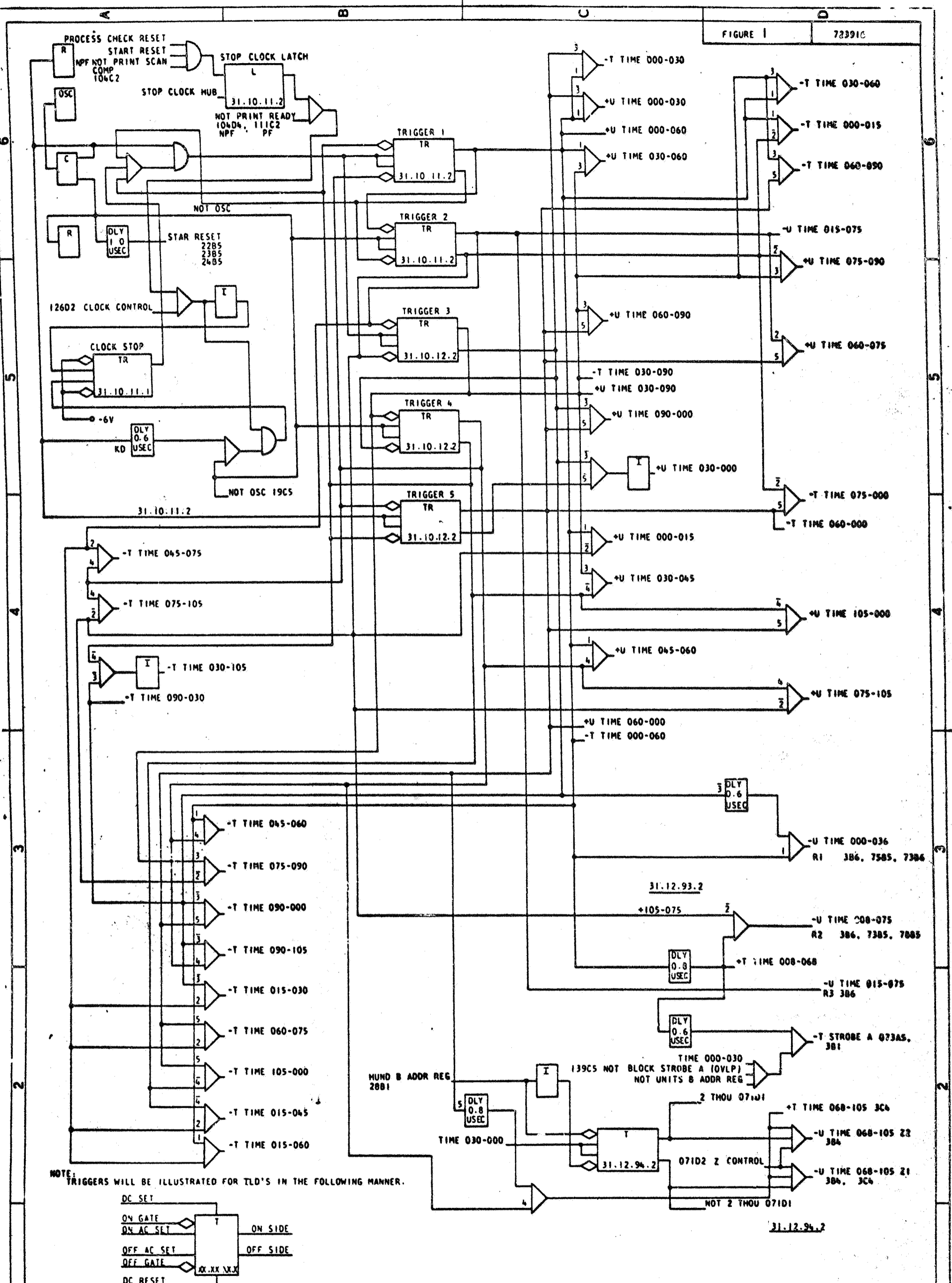


DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
1-2-62	15P50D	31.7.62	TA 1370K	NAME	1401 BASIC SYSTEM DATA FLOW		
4-2-63	114144C	4.6.63	TA 1862	DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 3-20-62
				APPRO		CHECK	

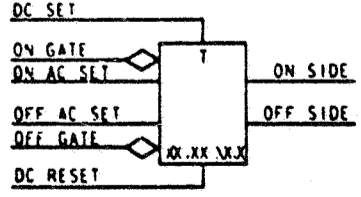
INDEX FOR IFC
 1-3 CLOCKING AND STORAGE
 6-32 DATA FLOW AND CONTROLS
 36-50 ARITHMETIC OPERATIONS
 56-63 BASIC OPERATIONS
 66-69 ADVANCED PROGRAMMING
 71-76 1406 EXPANDED STORAGE
 81-120 INPUT/OUTPUT
 126-133 MAGNETIC TAPE AND I-O ATTACHMENT CONTROLS
 136-139 OVERLAP CONTROLS

PART NO.	FIG. NO.	NAME	PART NO.	FIG. NO.	NAME
723875	—	1401 BASIC SYSTEM DATA FLOW	723859	74	STORAGE DECODE SWITCHES 12 TO 16K
723916	1	CLOCK CONTROL AND CLOCK PULSES	723860	75	CORE STORAGE DRIVE CIRCUITS AND SENSE CIRCUITS 12 TO 16K
723917	2	STORAGE DECODE SWITCHES	723861	76	FULL STORAGE PRINT OUT
723918	3	CURRENT SWITCHES, INHIBIT DRIVERS, PRESENSE AND SENSE AMPS			
723919	6	DATA FLOW 1 (A AND B REG AND INHIBIT DRIVE CKTS.)	723862	81	READ CONTROLS AND DATA FLOW WITH PFR
723920	7	DATA FLOW 2 (C BIT GENERATOR)	723863	82	PUNCH A REG DECODE AND PUNCH CHECK DECODE
			723864	83	PUNCH ADDRESS DECODES
723922	5	DATA FLOW (CONTROLS) 3	723865	84	PUNCH CONTROLS WITH PFR
			723866	85	READ-PUNCH CHECK CIRCUITS
723809	11	A AND B CHECK			
			723868	87	READ AND PUNCH CHECK CIRCUITS 1 WITH PFR
723811	13	INHIBIT CHECK AND METER CIRCUITS	723869	88	READ AND PUNCH CHECK CIRCUITS 2
723812	14	I-E CHANGE, A CYCLE ELIM, EXEC ELIM	723870	89	P.F.R. CONTROLS
723813	15	I-A-B CYCLE GENERATION			
723814	16	START, STOP, PROCESS AND DELTA PROCESS			
723815	17	D CYCLE, MANUAL ENTRY, LOAD AND REVERSE SCAN CONTROL			
723816	18	I RING AND PROGRAM SKIP			
723817	19	ADDRESS STOP			
723818	20	OP REG AND OP CODE DEVELOPMENT	723876	94	COLUMN BINARY CONTROLS 1
723819	21	OP CHECK	723877	95	COLUMN BINARY CONTROLS 2
723820	22	A STAR			
723821	23	B STAR	723879	97	SI COLUMN FEED
723822	24	I STAR	723880	98	PRINT HAMMER DRIVE LINES
723823	25	I STAR, AUTO SCAN, STAR MANUAL SET			
723824	26	ADDRESS REG SET CONTROLS	723882	100	HAMMER DRIVE RESET
723825	27	MODIFIER CONTROLS	723883	101	PRINT SUB SCAN COUNTERS (NPF)
723826	28	ADDRESS REGISTER AND SERIAL GATES	723884	102	PRINT COMPARE (NPF)
723827	29	MODIFIER 1-2-4-8 BUS			
723828	30	MODIFIER CD-A-B-CZ BUS	723886	104	PSS RING AND PRINT CONTROL (NPF)
723829	31	MODIFIER UNITS A-B-C BUS	723887	105	PRINT SCAN COUNTER (NPF)
723830	32	STORAGE ADDRESS VALIDITY CHECK	723888	106	PRINT BUFFER STORAGE AND DATA FLOW 1 (PF)
			723889	107	PRINT BUFFER STORAGE AND DATA FLOW 2 (PF)
723831	36	ADD SUBTRACT AND ADDER CONTROLS	723890	108	PRINT BUFFER CLOCK (PF)
723832	37	ADD SUBTRACT AND ADDER CONTROLS	723891	109	PRINT BUFFER RINGS (PF)
723833	38	ADD SUBTRACT AND ADDER CONTROLS	723892	110	PRINT BUFFER COUNTER (PF)
			723893	111	PRINT BUFFER CONTROLS 1 (PF)
723835	40	A AUX STAR AND B AUX STAR CTRLS 1	723894	112	PRINT BUFFER CONTROLS 2 (PF)
723835	41	B AUX STAR AND GATE CONTROLS 2			
			723896	114	PRINT BUFFER CONTROLS 3 (PF)
723837	43	MULTIPLY AND DIVIDE CONTROLS 1	723897	115	PRINT BUFFER CONTROLS 4 (PF)
723838	44	MULTIPLY AND DIVIDE CONTROLS 2	723898	116	CARRIAGE CONTROLS 1 AND SELECTIVE TAPE LISTER
723839	46	MULTIPLY AND DIVIDE CONTROLS 3	723899	117	CARRIAGE CONTROLS 2
			723900	118	DUAL SPEED CARRIAGE CONTROLS
723841	47	MULTIPLY AND DIVIDE CONTROLS 4	723901	119	RAMAC, INQUIRY 1 AND 1311 (LCF)
			723902	120	RAMAC, INQUIRY 2 AND 1311 (LCF)
723843	50	MULTIPLY AND DIVIDE CONTROLS 5			
			723903	126	READ AND WRITE TAPE 1
723844	56	MOVE, LOAD, COMPARE, CLEAR, AND THE MISC. OP CODES FUNCTIONAL PURPOSES.	723904	127	READ AND WRITE TAPE 2
			723905	128	READ AND WRITE TAPES WITH LOAD MARKS
723846	58	COMPARE OPR	723906	129	TAPE BRANCH CODES
723847	59	HI-LO EQUAL COMPARE	723907	130	MANUAL TAPE OPERATION RESET AND LOAD
			723908	131	I-O CONTROLS
723850	62	EDIT AND EXPANDED EDIT 1	723909	132	I-O SELECT LINES
723851	63	EDIT AND EXPANDED EDIT 2	723910	133	COMPRESSED TAPE CONTROLS
723852	66	ADVANCED PROGRAMMING CONTROLS 1	723911	136	OVERLAP ADDRESSING
723853	67	ADVANCED PROGRAMMING CONTROLS 2	723912	137	"0" REGISTER
723854	68	ADVANCED PROGRAMMING CONTROLS 3	723913	138	OVERLAP CONTROLS 1
723855	69	ADVANCED PROGRAMMING CONTROLS 4	723914	139	OVERLAP CONTROLS 2
723856	71	MODIFY OP AND STORAGE CONTROL PULSES			
723857	72	STORAGE DECODE SWITCHES 4 TO 12K			
723858	73	CORE STORAGE DRIVE CIRCUIT, AND SENSE CIRCUITS 4 TO 12K			

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES			
9-2-62	1138300			NAME	INDEX FOR 1401 MACHINES		
6-2-63	114144C	31.7.62	TA 1370K	ABOVE SERIAL 25000			
9-25-63	118584	15.11.6R	TA 604D	DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 10-24-62
				APPRO		CHECK	AND 2-2-61

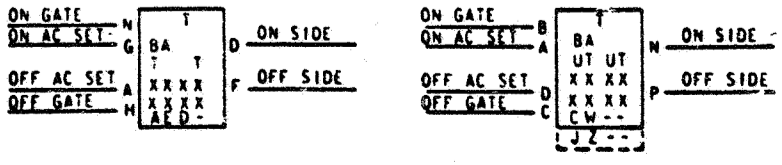


NOTE: TRIGGERS WILL BE ILLUSTRATED FOR TLD'S IN THE FOLLOWING MANNER.



THIS STANDARD WILL BE FOLLOWED REGARDLESS OF TRIGGER TYPE. IT SHOULD BE NOTED THAT TRIGGERS IN THE ALD'S DO NOT NECESSARILY CORRESPOND TO THIS STANDARD.

FOR EXAMPLE:



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113030D			NAME
6-21-62	116164B			CLOCK CONTROL AND
6-2-63	116164C	31.7.62	TA 1370K	CLOCK PULSES
9-25-63	118584	15.11.63	TA 604D	DESIGN
				TYPE
				SCPAE
				NONE
				CHECK
				DRAW
				VE
				11-9-61
				APPRO
				CHECK
				27/11-16-61

72391C

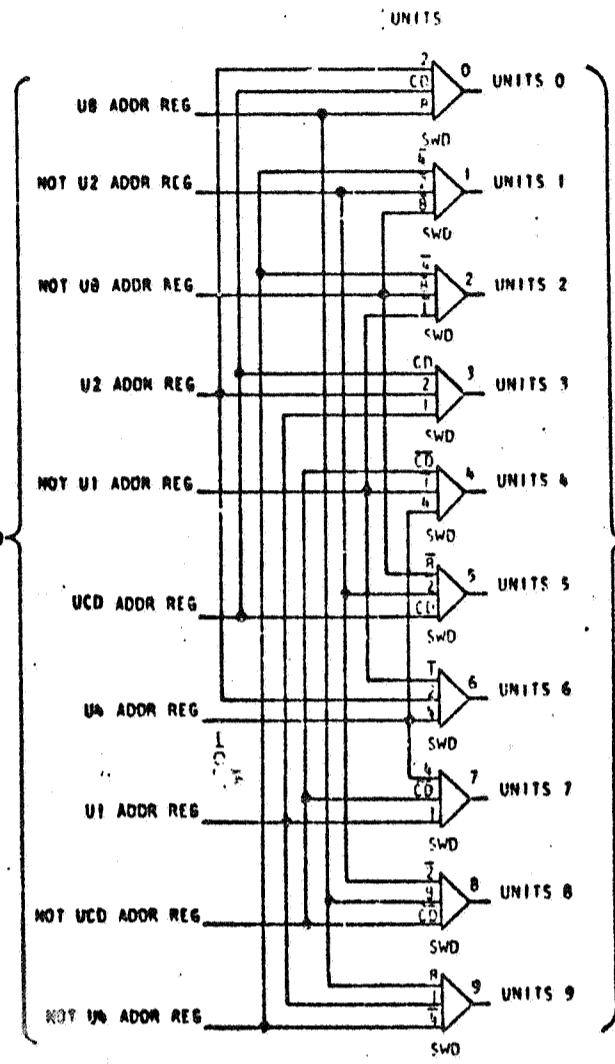
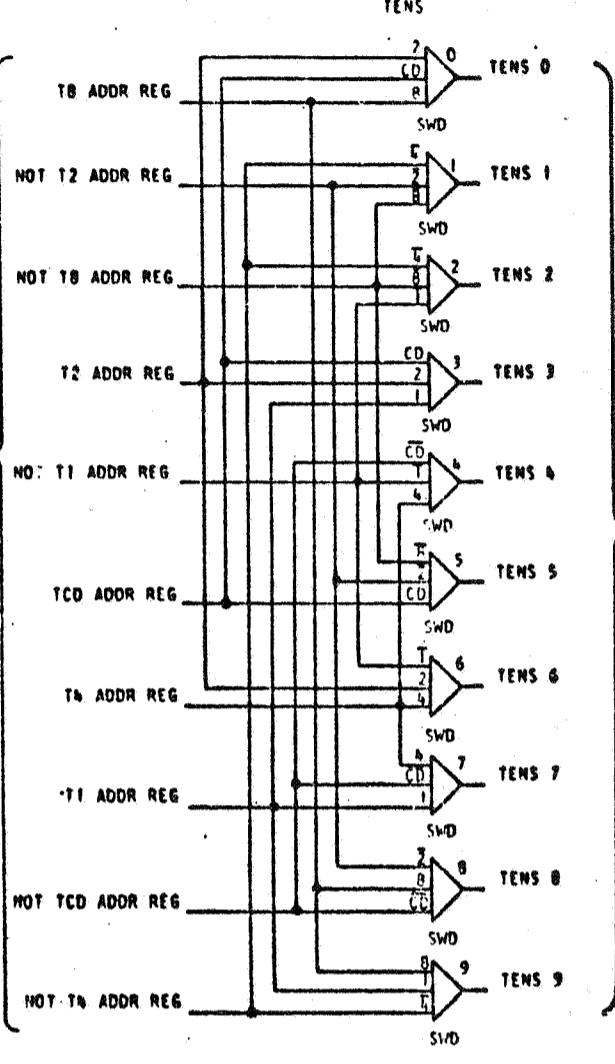


FIG. 28

5 X 10 MATRIX

42.53.11.2



8 X 10 MATRIX

42.54.11.3

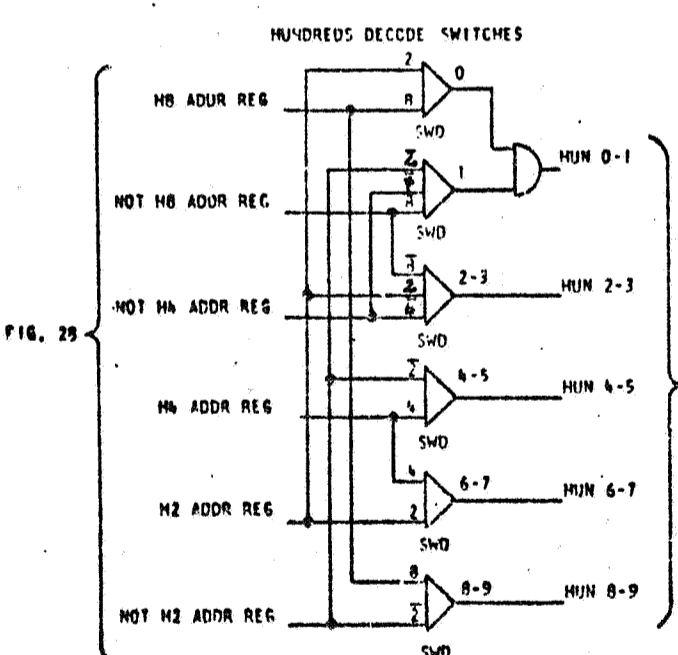
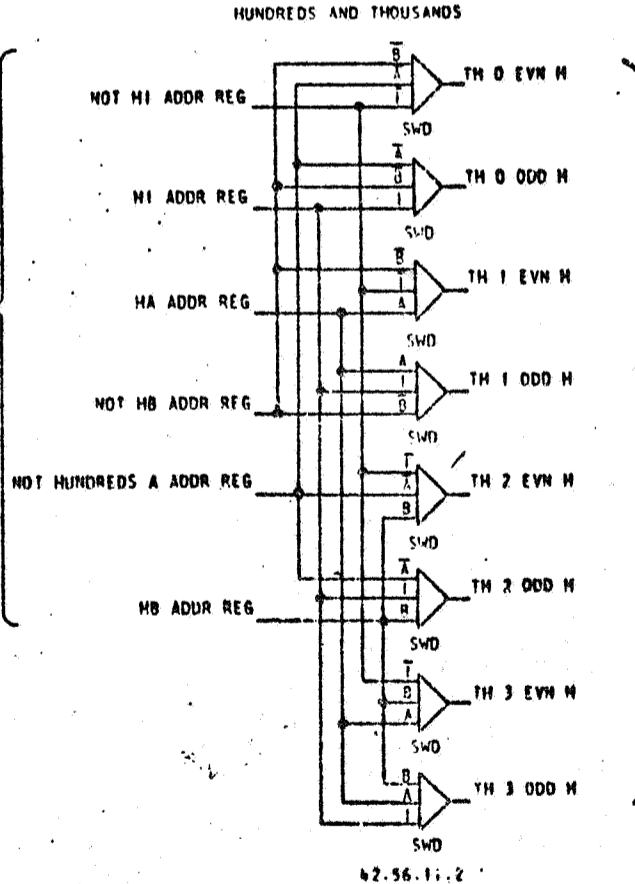


FIG. 28

5 X 10 MATRIX

42.55.11.2



8 X 10 MATRIX

42.56.11.2

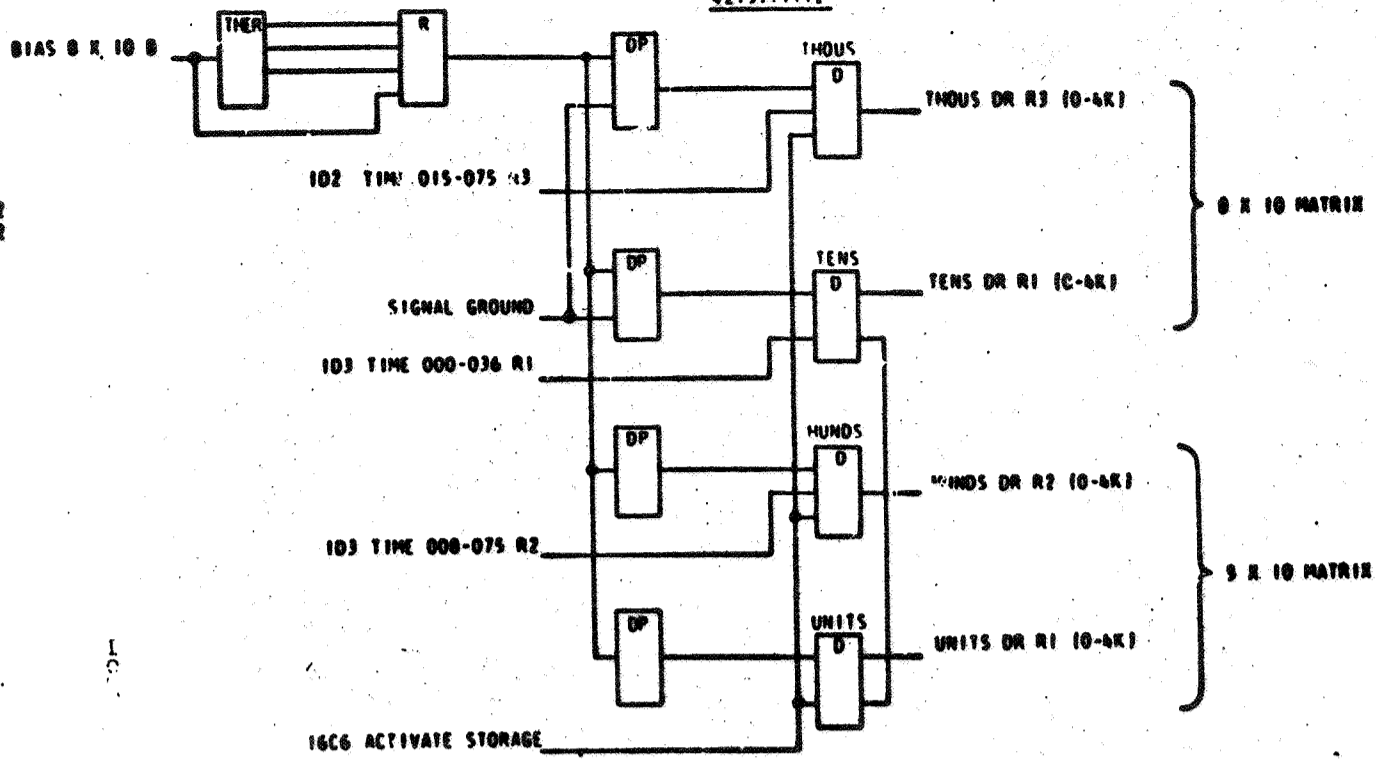
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERSTATE BUSINESS MACHINES CORP
4-10-62	INITIAL	11-10-62	1A	NAME STORAGE DECODE
4-2-63	INITIAL	1-10-63	1A	SWITCHES
				DESIGN
				DETAIL
				CHECK
				APPROV
				TYPE
				SCALE NONE
				DRW VE 10-42-51
				CHECK 10-42-51

723917
1062

4K CURRENT DRIVERS AND CURRENT SOURCES

62.57.11.2

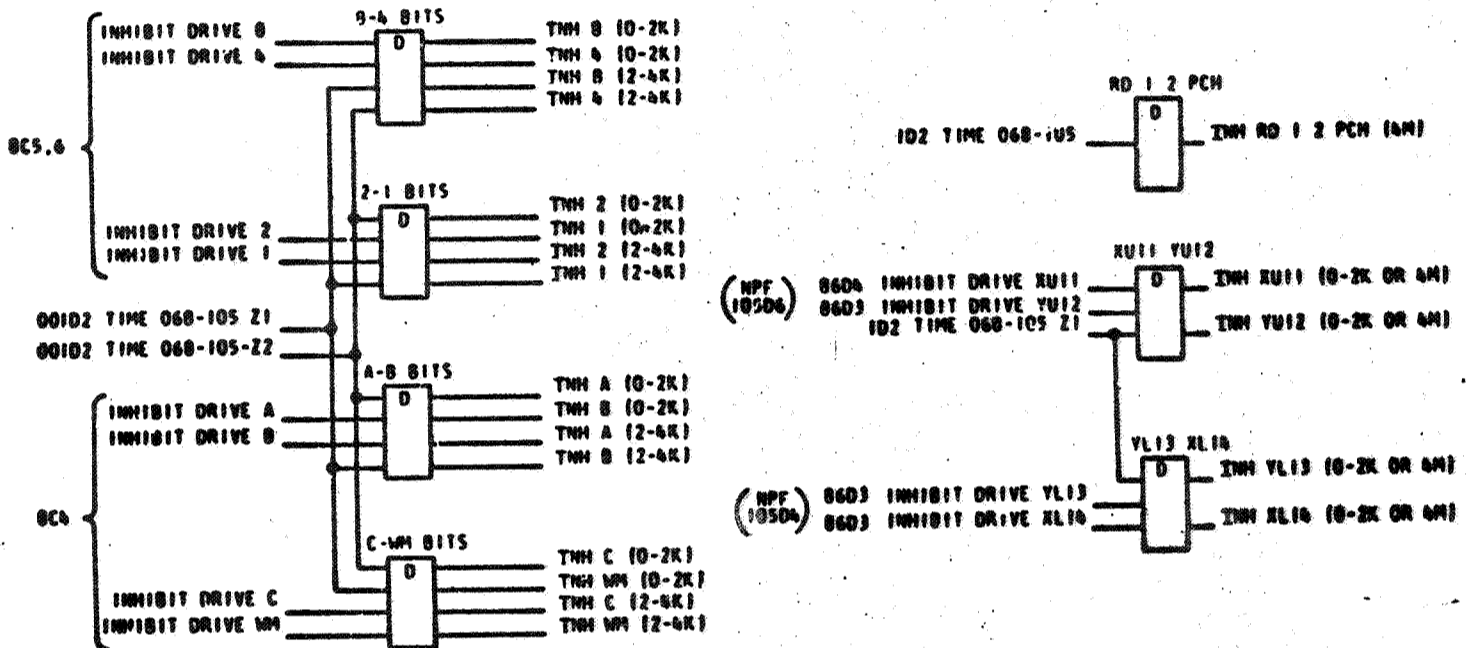
OK - 62.69.11.2
 1OK - 62.79.11.2



4K - INHIBIT DRIVERS

62.58.11.2

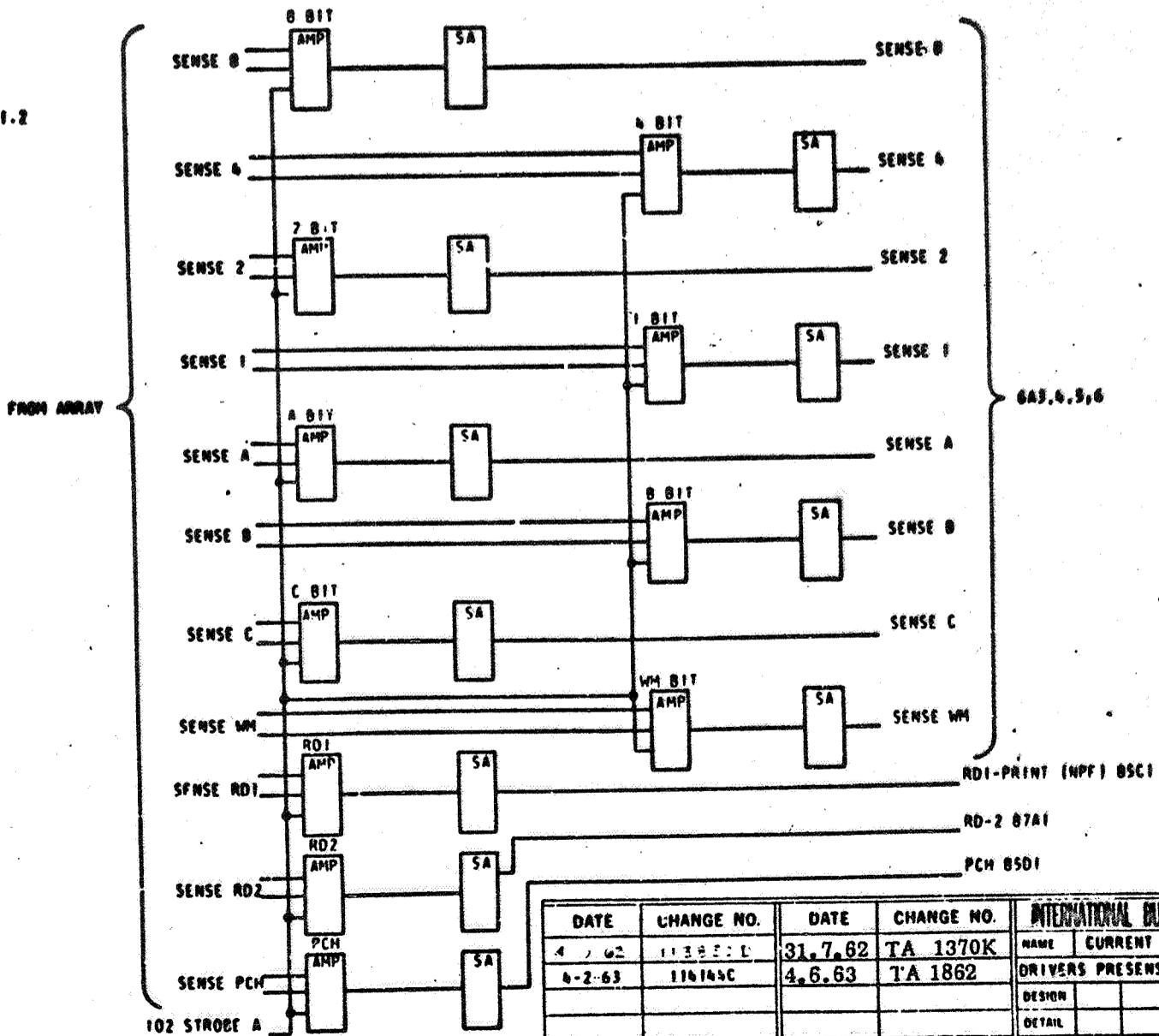
OK - 62.60.11.2
 1OK - 62.70.11.2



4K - PRE-SENSE AND SENSE AMPLIFIERS

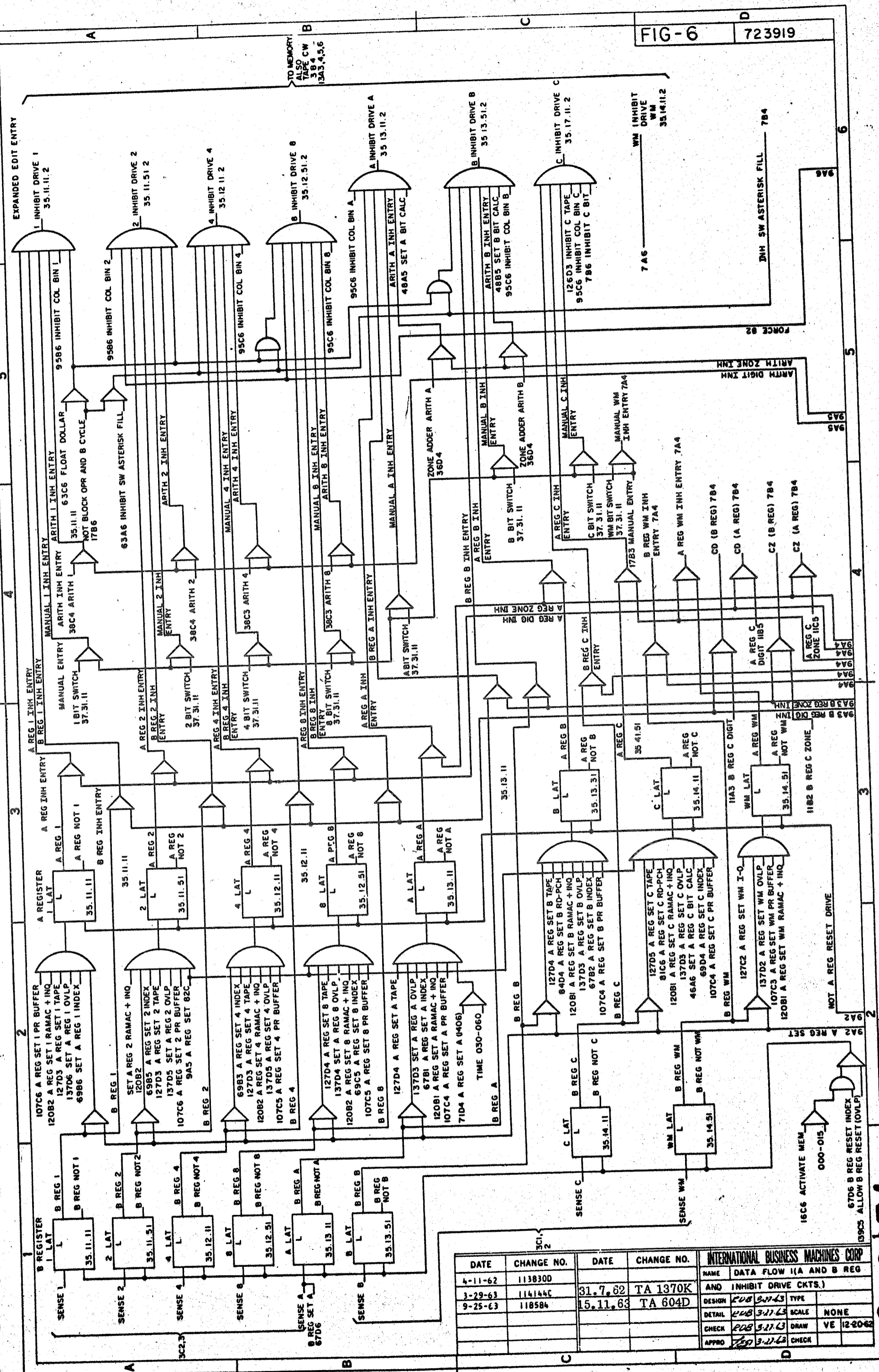
62.59.11.2

OK AND 12K - 62.69.11.2
 1OK - 62.79.11.2



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-2-63	113333L	31.7.62	TA 1370K	NAME	CURRENT SWITCHES, INHIBIT		
	110149C	4.6.63	TA 1862	DRIVERS PRESENSE AND SENSE AMPS			
				DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 12-12-61
				APPRO		CHECK	28 12-13-61

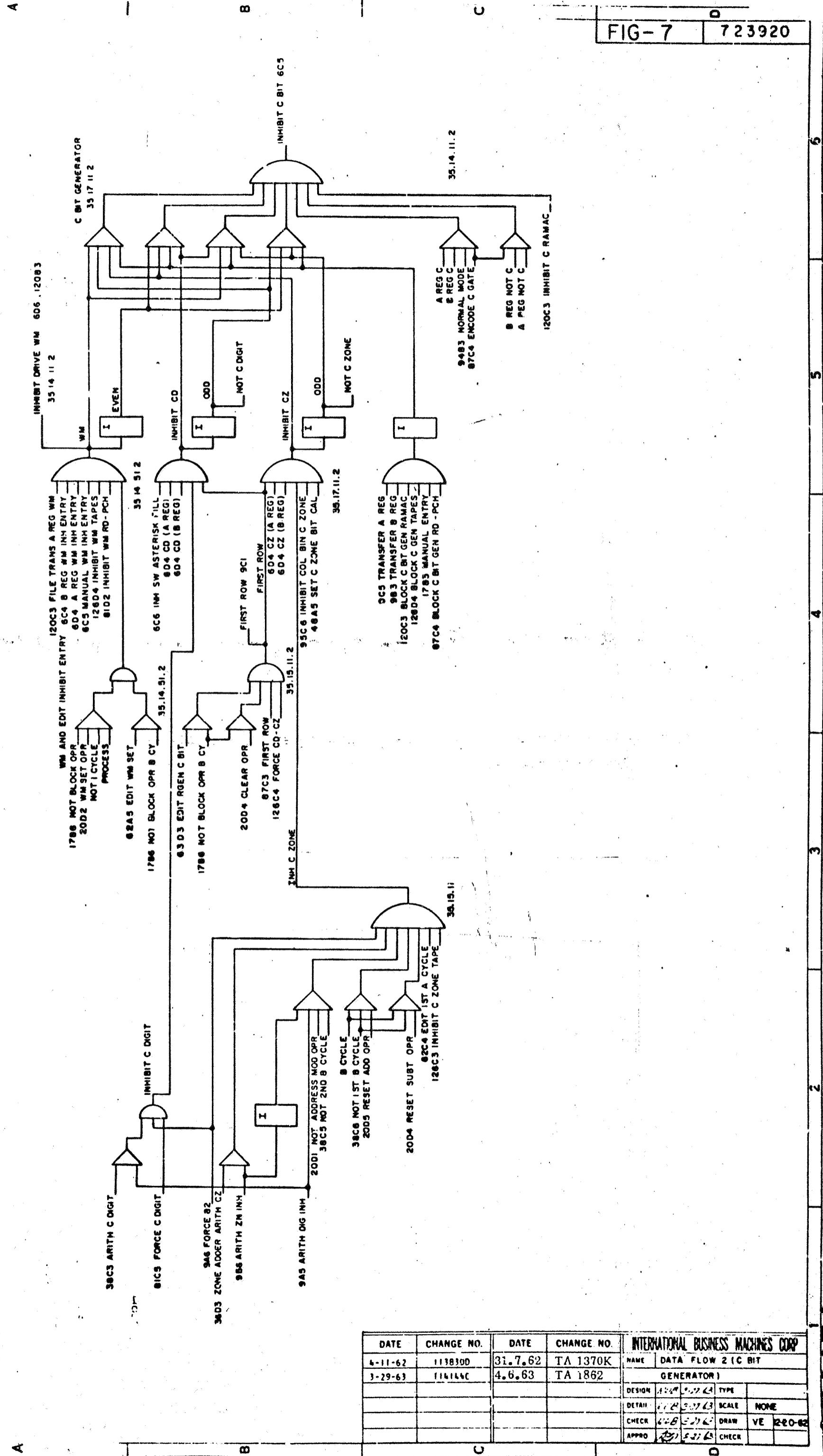
723918



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-11-62	1138300			NAME	DATA FLOW I(A AND B REG AND INHIBIT DRIVE CKTS.)
3-29-63	114144C	31.7.62	TA 1370K	DESIGN	FUB 3-11-63
9-25-63	118584	15.11.63	TA 604D	DETAIL	FUB 3-11-63
				CHECK	FUB 3-11-63
				APPRO	FUB 3-11-63
				SCALE	NONE
				DRAW	VE 12-20-62
				CHECK	

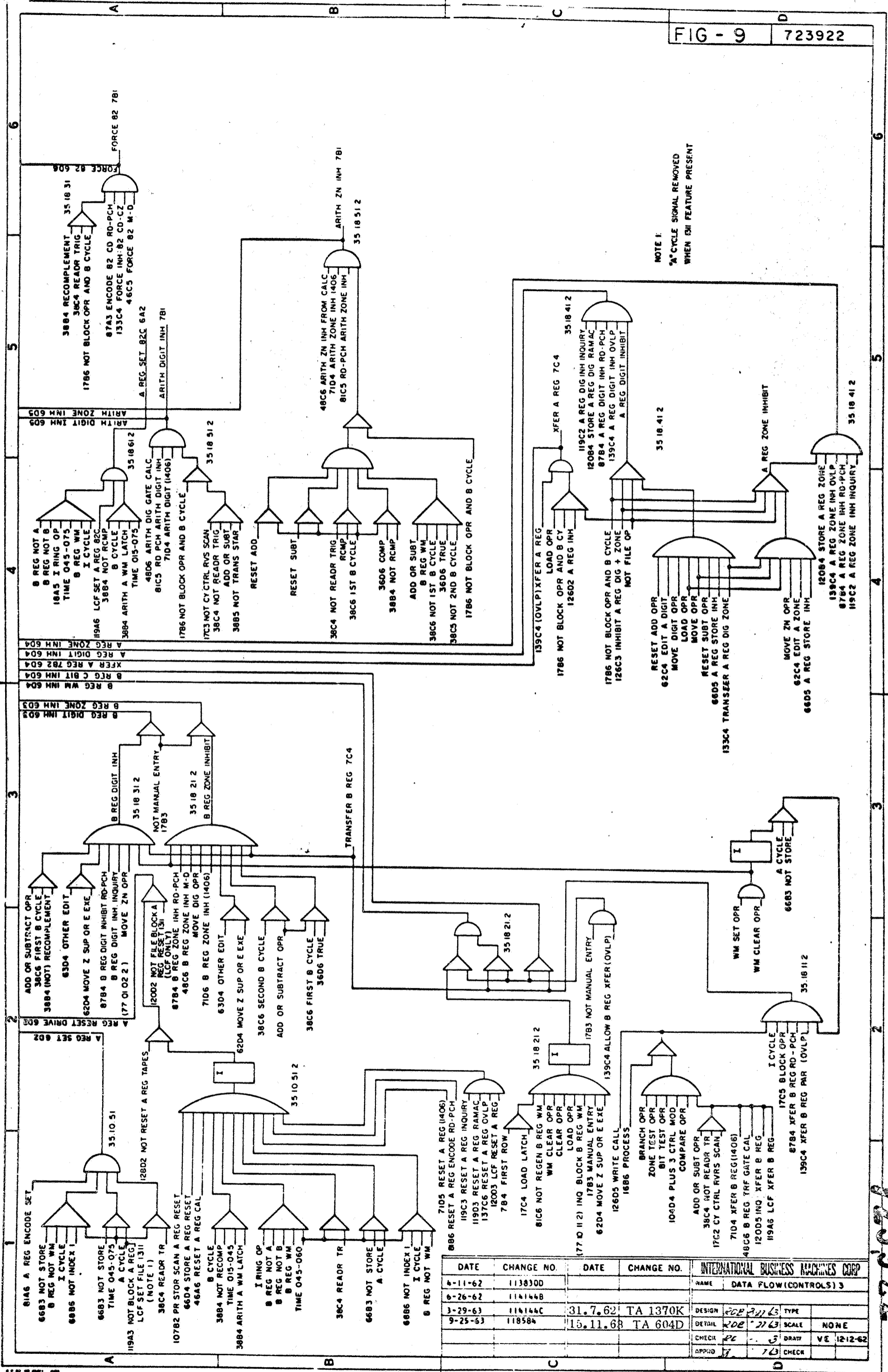
723919

17 D 2



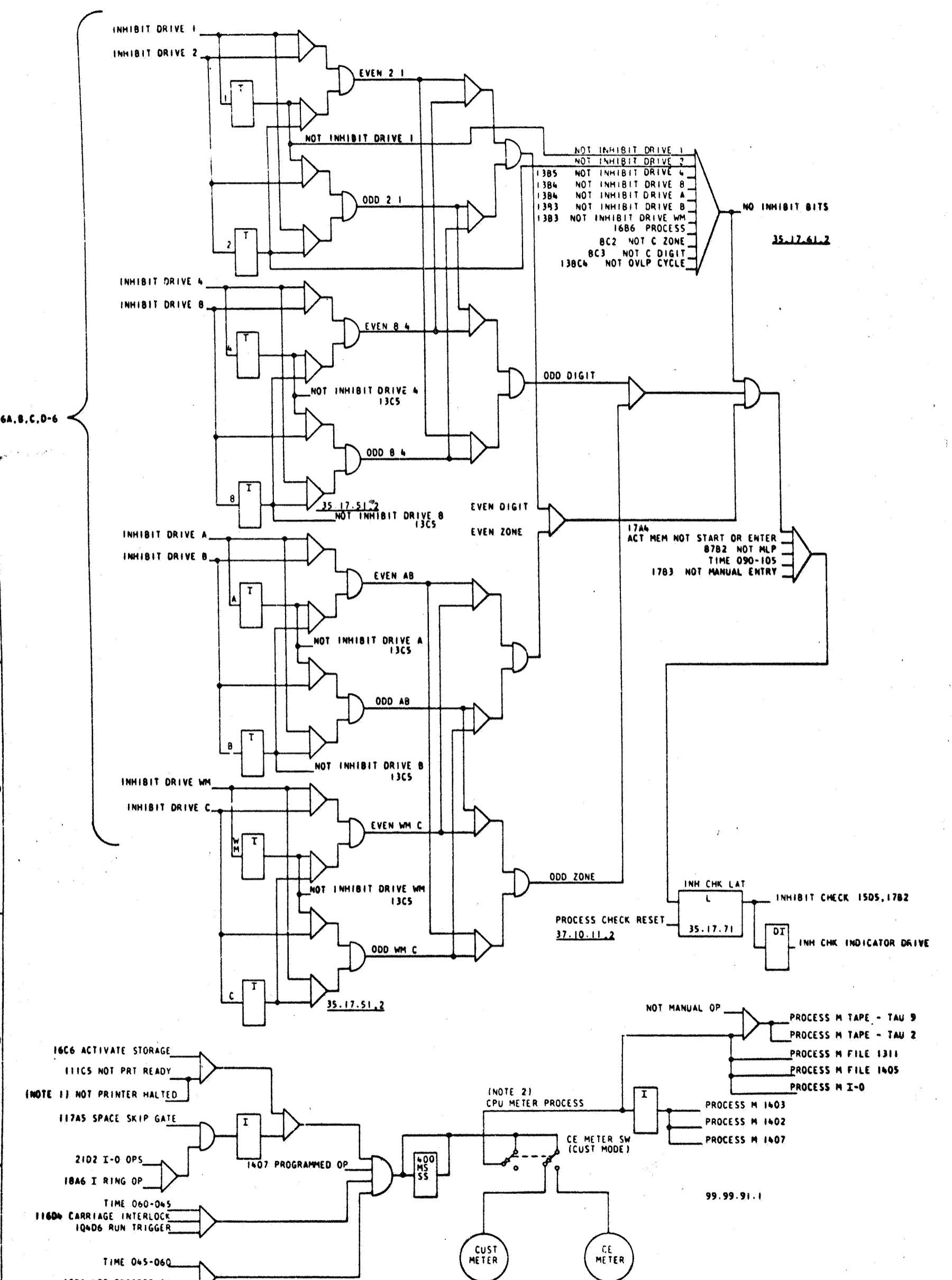
INTERNATIONAL BUSINESS MACHINES CORP			
DATE	CHANGE NO.	DATE	CHANGE NO.
4-11-62	113830D	31.7.62	TA 1370K
3-29-63	114144C	4.6.63	TA 1862
NAME		DATA FLOW 2 (C BIT GENERATOR)	
DESIGN	DATE	TYPE	
DETAIL	DATE	SCALE	NONE
CHECK	DATE	DRAW	VE 2-20-62
APPRO	DATE	CHECK	

723920



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-11-62	113830D			NAME DATA FLOW (CONTROLS) 3
6-26-62	114144B			
3-29-63	114144C	31.7.62	TA 1370K	DESIGN 202 211 63 TYPE
9-25-63	118584	15.11.68	TA 604D	DETAIL 202 211 63 SCALE NONE
				CHECK PL 5 DRAW VE 12-12-62
				APPROD 11 73 CHECK

723922

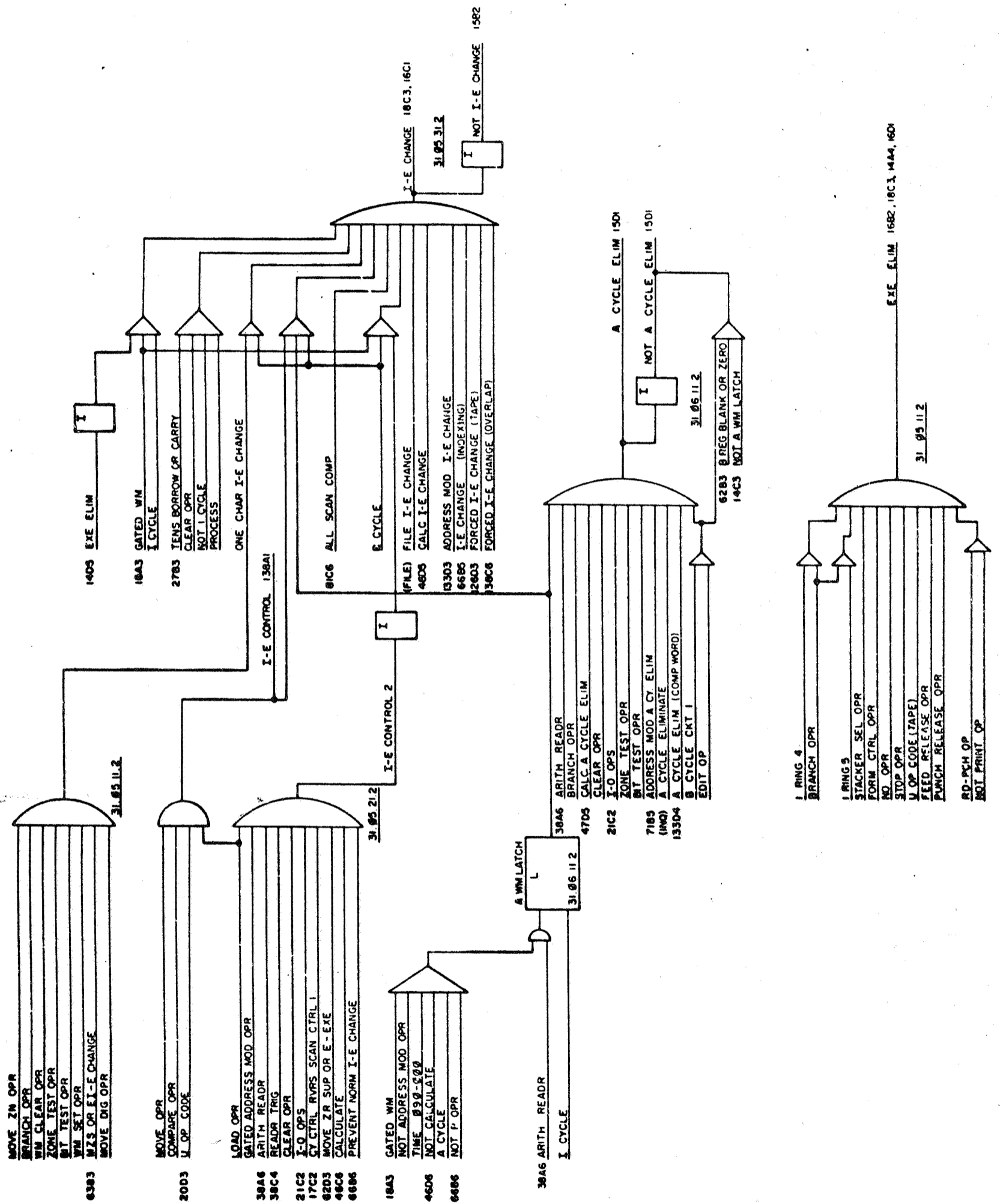


6A, B, C, D-6

NOTE 1: USED ON PF MACHINES BELOW SERIAL NUMBER 25,000
 NOTE 2: OUTPUT OF SINGLE SHOT (400 M.L. SEC.) IS A NEGATIVE SIGNAL

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	11383CD			NAME INHIBIT CHECK AND
4-2-63	114144C	31.7.62	TA 1370K	METER CIRCUITS
9-25-63	118584	15.11.63	TA 604D	DESIGN TYPE
				DETAIL SCALE NONE
				CHECK DRAW VE 1-5-62
				APPRO CHECK MW 1-0-62

130011



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113830D	31.7.62	TA 1370K	NAME: I-E CHANGE, WM A CYCLE			
4-2-63	114144C	4.6.63	TA 1862	ELIM. EXEC ELIM			
				DESIGN		TYPE	
				DETAIL		SCALE	
				CHECK		DRAW	VE 3-7-61
				APPRO		CHECK	10 67

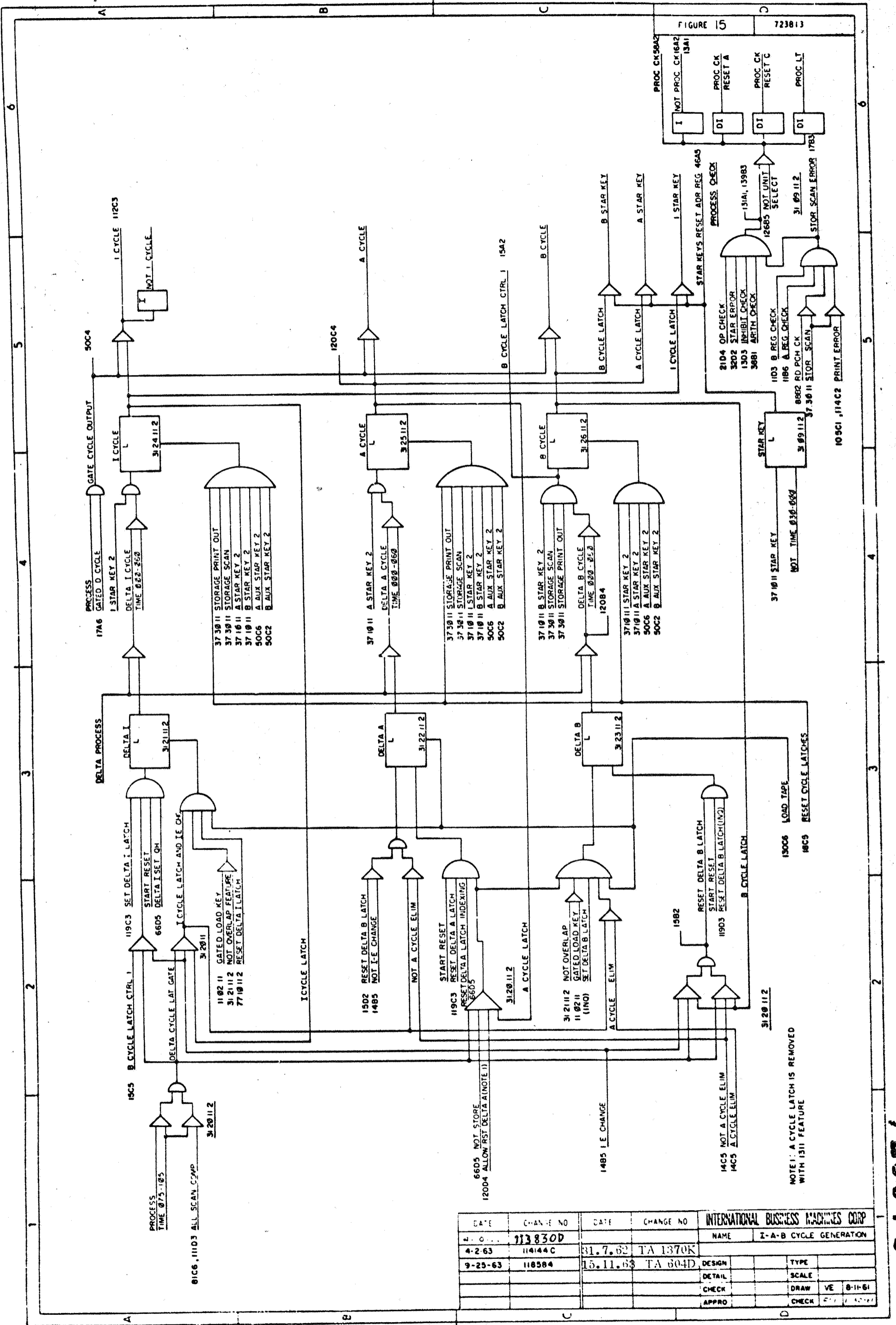
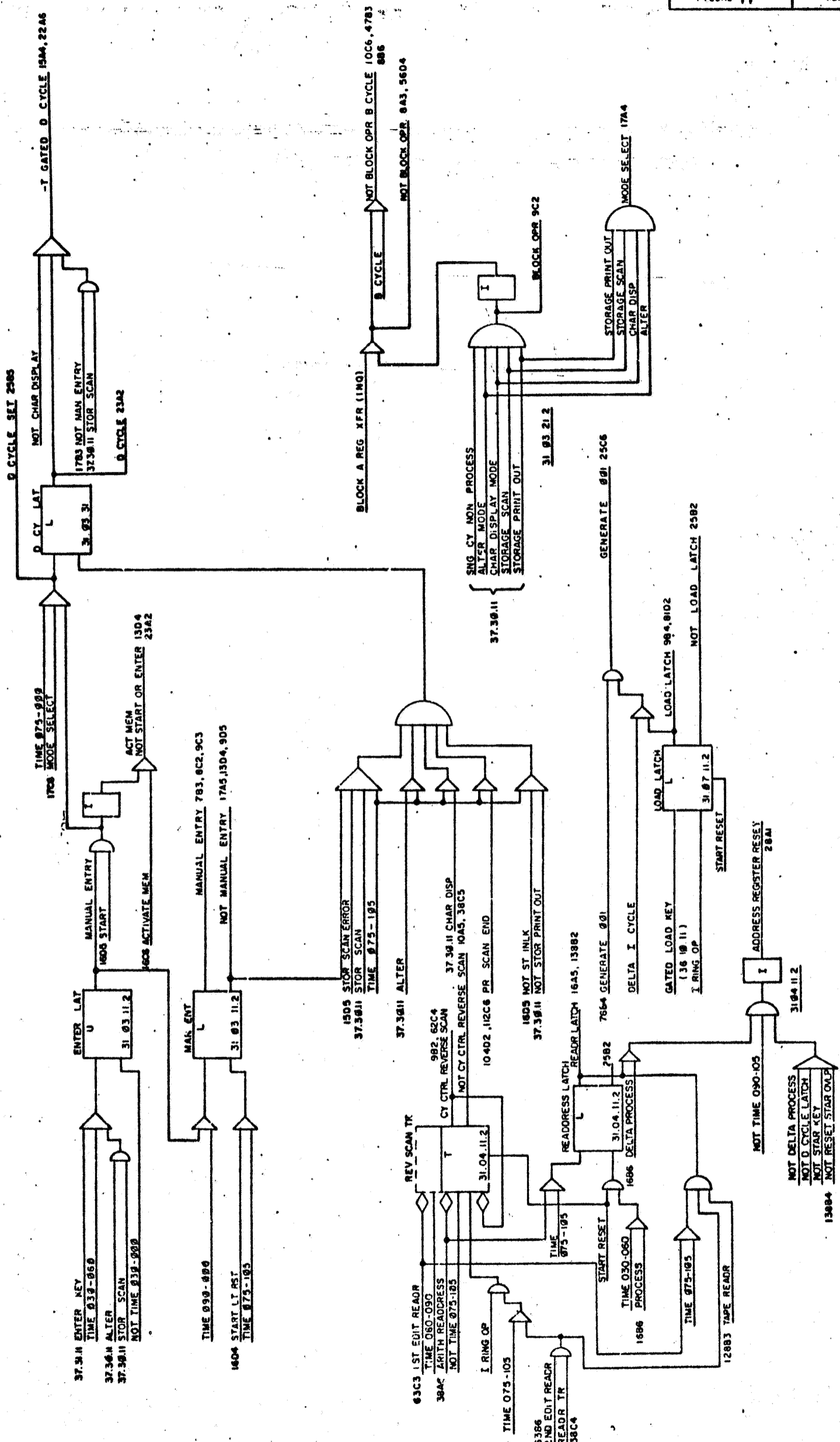


FIGURE 15
723813

DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP			
4-0-63	113830D			NAME	Z-A-B CYCLE GENERATION		
4-2-63	114144C	11.7.62	TA 1370K	DESIGN		TYPE	
9-25-63	118584	15.11.63	TA 604D	DETAIL		SCALE	
				CHECK		DRAW	VE 8-11-61
				APPRO		CHECK	

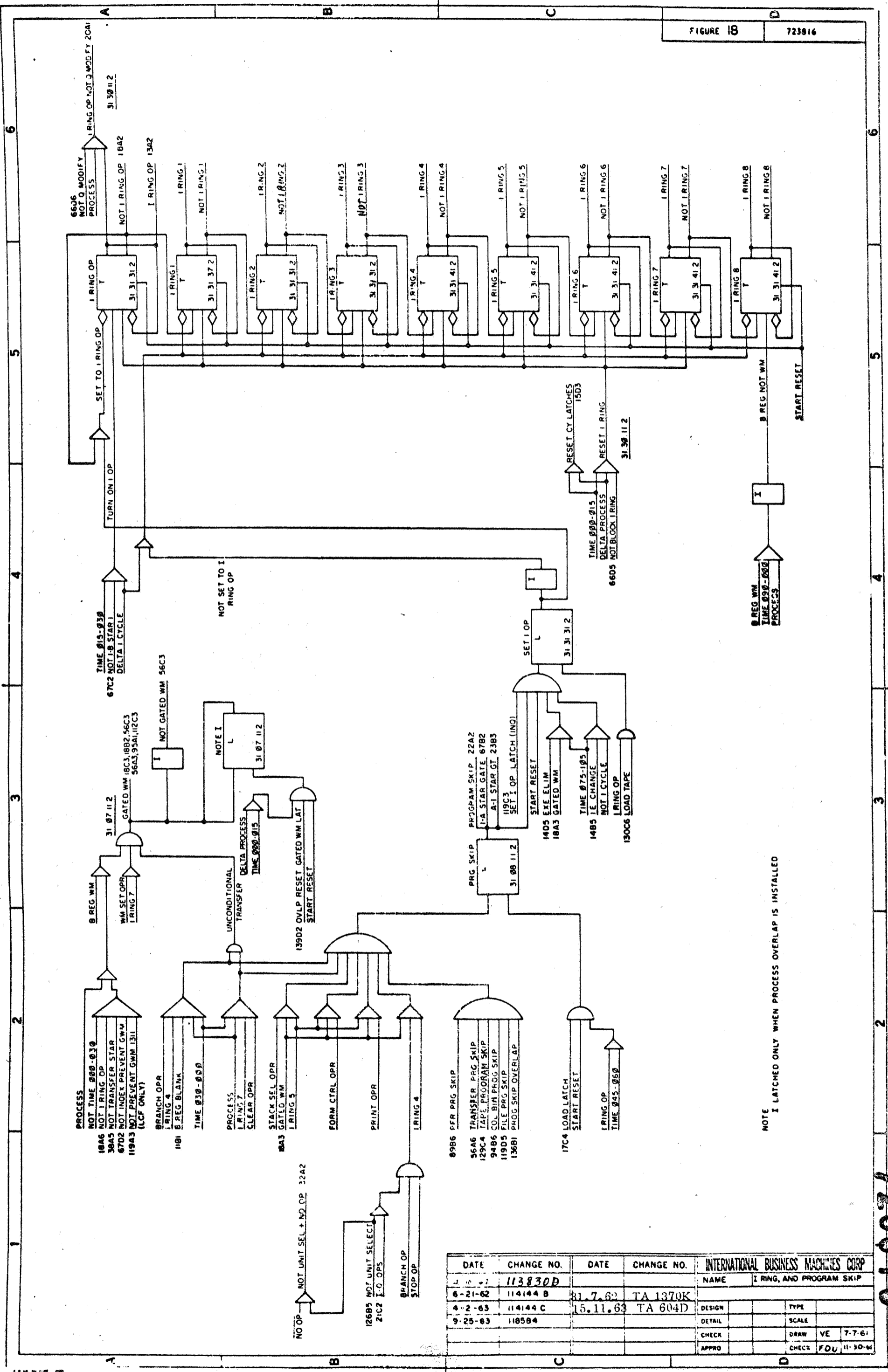
NOTE 1: A CYCLE LATCH IS REMOVED WITH 1311 FEATURE

010871



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113932 L	31.7.62	TA 1370K	NAME	D CYCLE MANUAL ENTRY,		
4-2-63	114144 C	4.6.63	TA 1862	LOAD AND REVERSE SCAN CONTROLS			
				DESIGN		TYPE	
				DETAIL		SCALE	
				CHECK		DRAW	VE 8-7-61
				APPRO		CHECK	FQU 11-10-61

145095



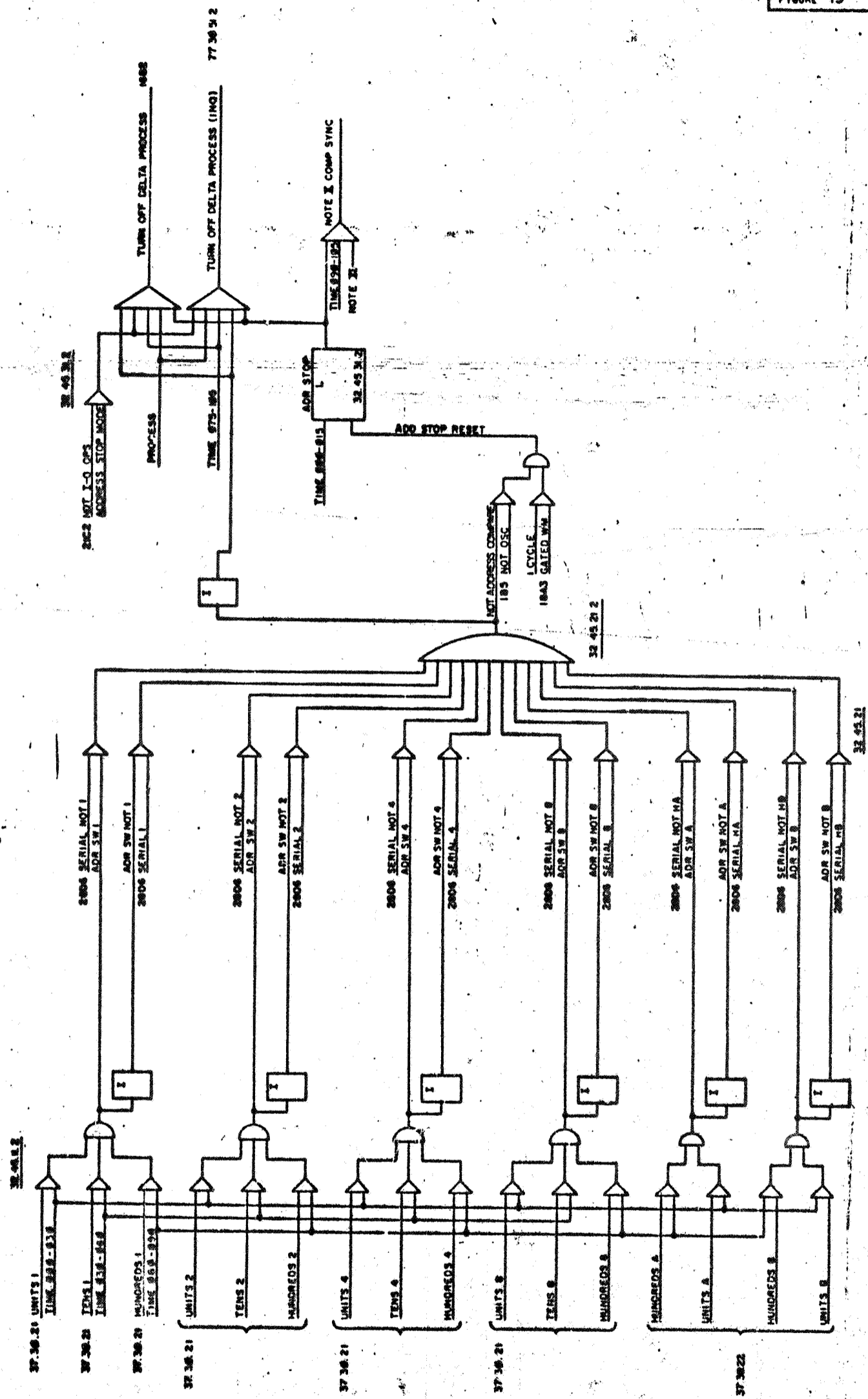
NOTE I LATCHED ONLY WHEN PROCESS OVERLAP IS INSTALLED

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
	113830D			NAME	I RING AND PROGRAM SKIP
6-21-62	114144 B	31.7.62	TA 1370K	DESIGN	
4-2-63	114144 C	15.11.63	TA 604D	DETAIL	SCALE
9-25-63	118584			CHECK	DRAW VE 7-7-61
				APPRO	CHECK FOU 11-30-61

723816

FIGURE 19

723817

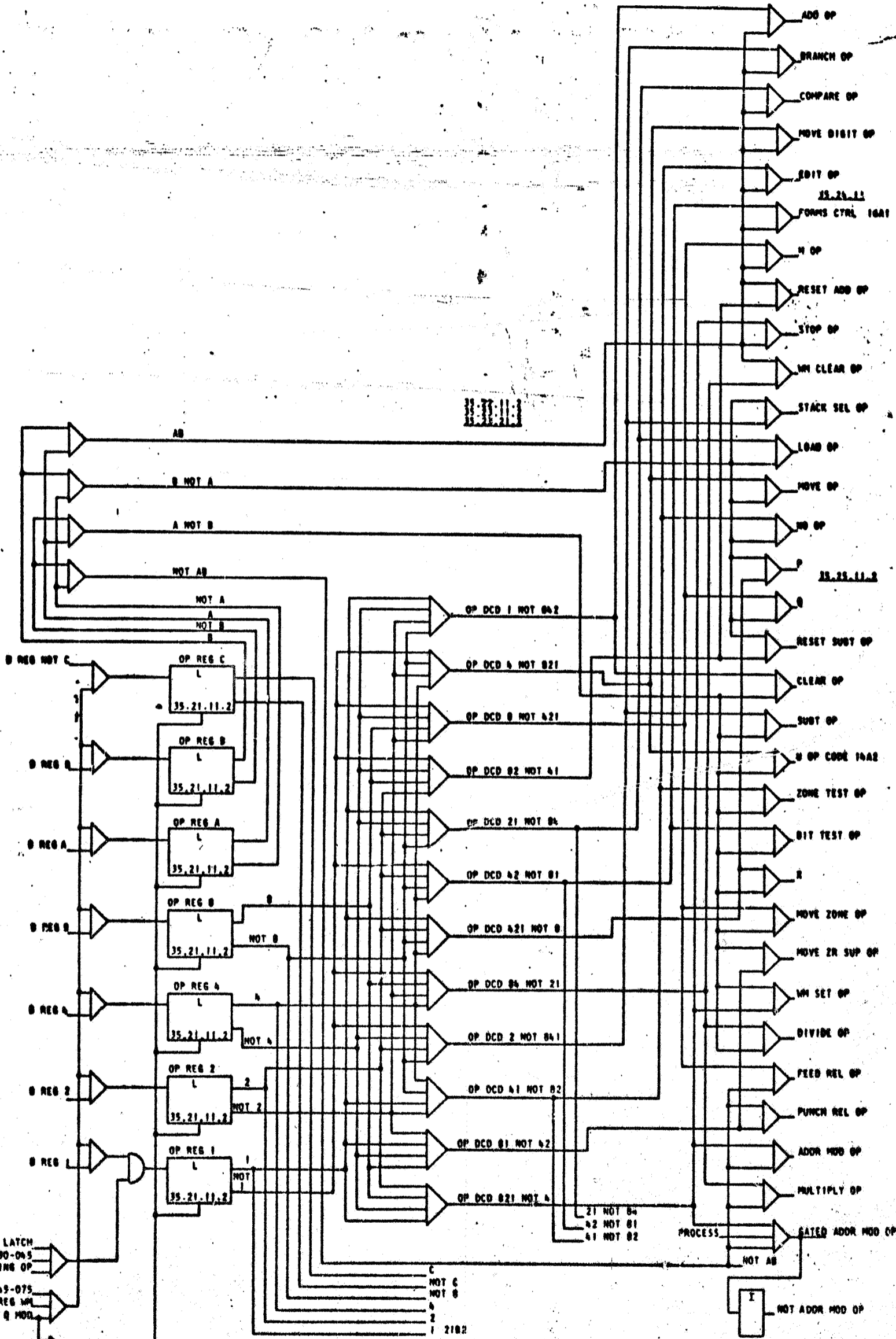


NOTE
 X AVAILABLE AS CE SCORE SYNC POINT (8844)
 XI CAN BE 3 INPUT SWITCH SEE LOGIC 32 45 31 2

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-2-62	115810 D	31.7.62	JA-1070K	NAME	ADDRESS STOP		
4-2-63	114144C	6.4.66	TA 1862	DESIGN		TYPE	
				DETAIL		SCALE	
				CHECK		DRAW	VE 8-8-61
				APPRO		CHECK	7/23/64 41

723817

1062



17CA LOAD LATCH
TIME 030-045
NOT I RING OP

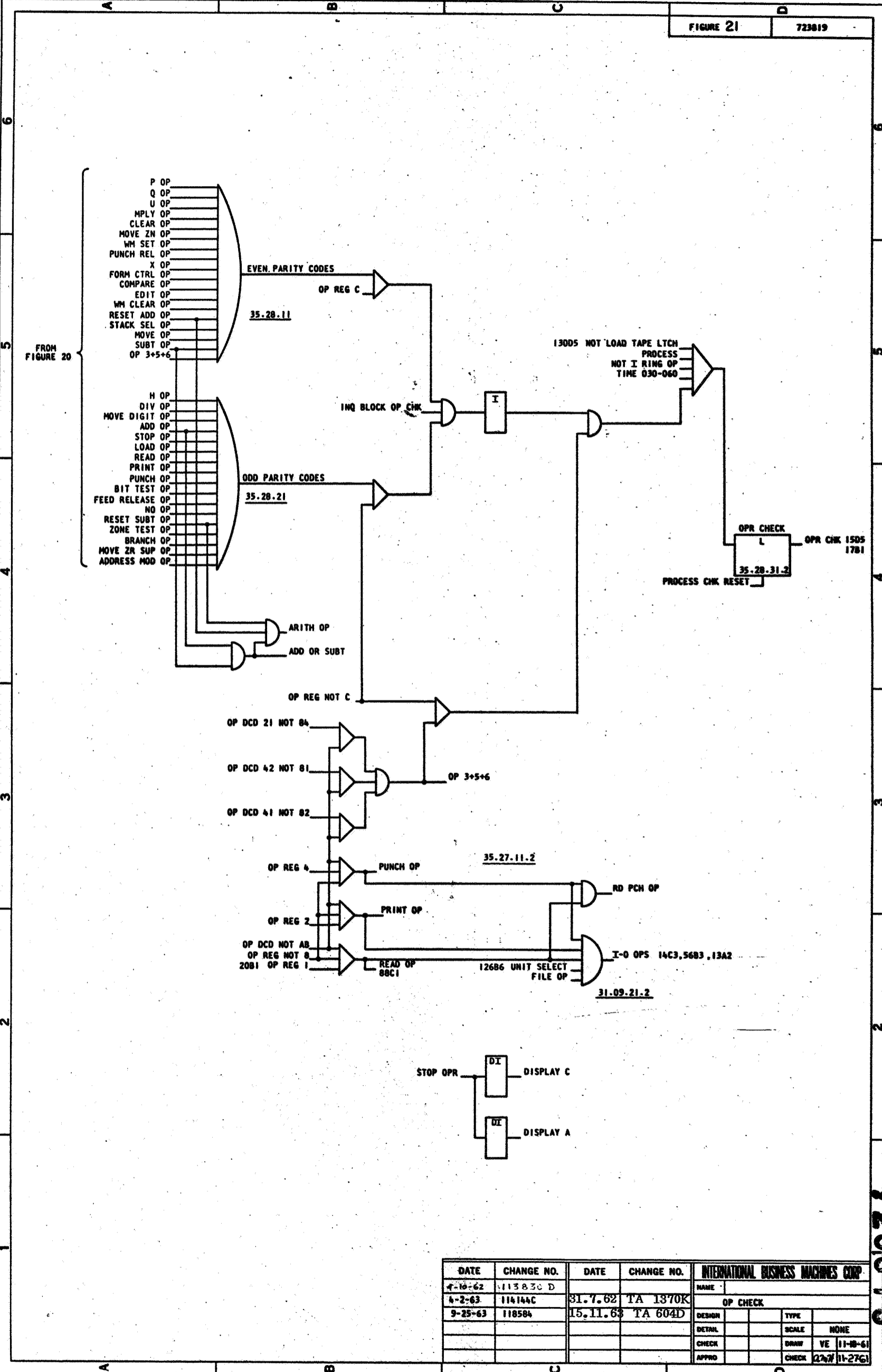
TIME 045-075
B REG WH
I RING OP NOT Q MOD
18A6

TIME 030-P45

130CS LOAD TAPE RESET
36.10.11 GATED LOAD KEY
START RESET

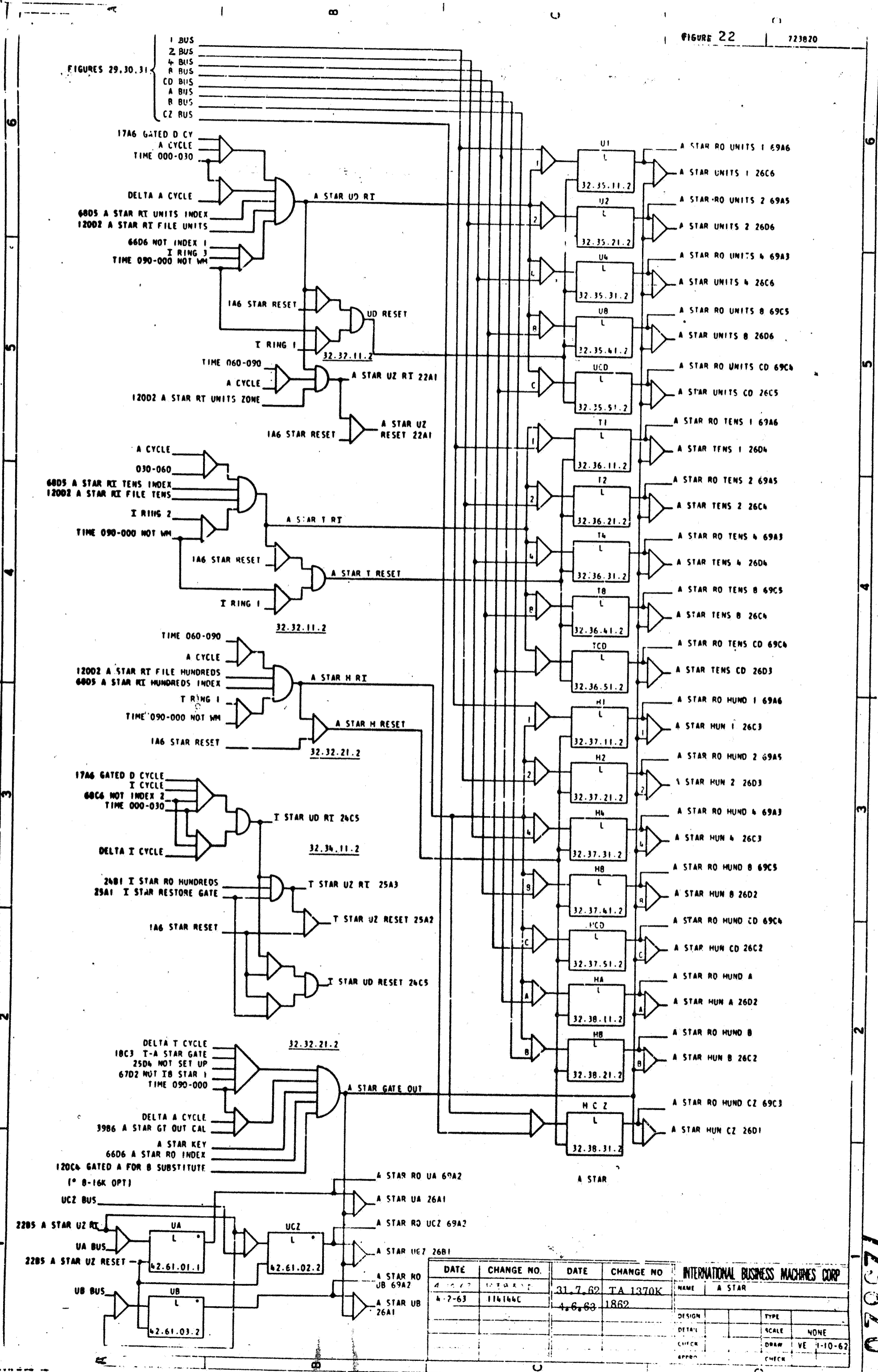
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113830 D	31.7.62	TA 1370K	NAME OP REG AND OP CODE
8-2-63	114144 C	4.8.63	TA 13762	DEVELOPMENT
				DESIGN
				DETAIL
				CHECK
				APPRO
				TYPE
				SCALE NONE
				DRAW VE 11-18-61
				CHECK 23-11-27C

1862
723818



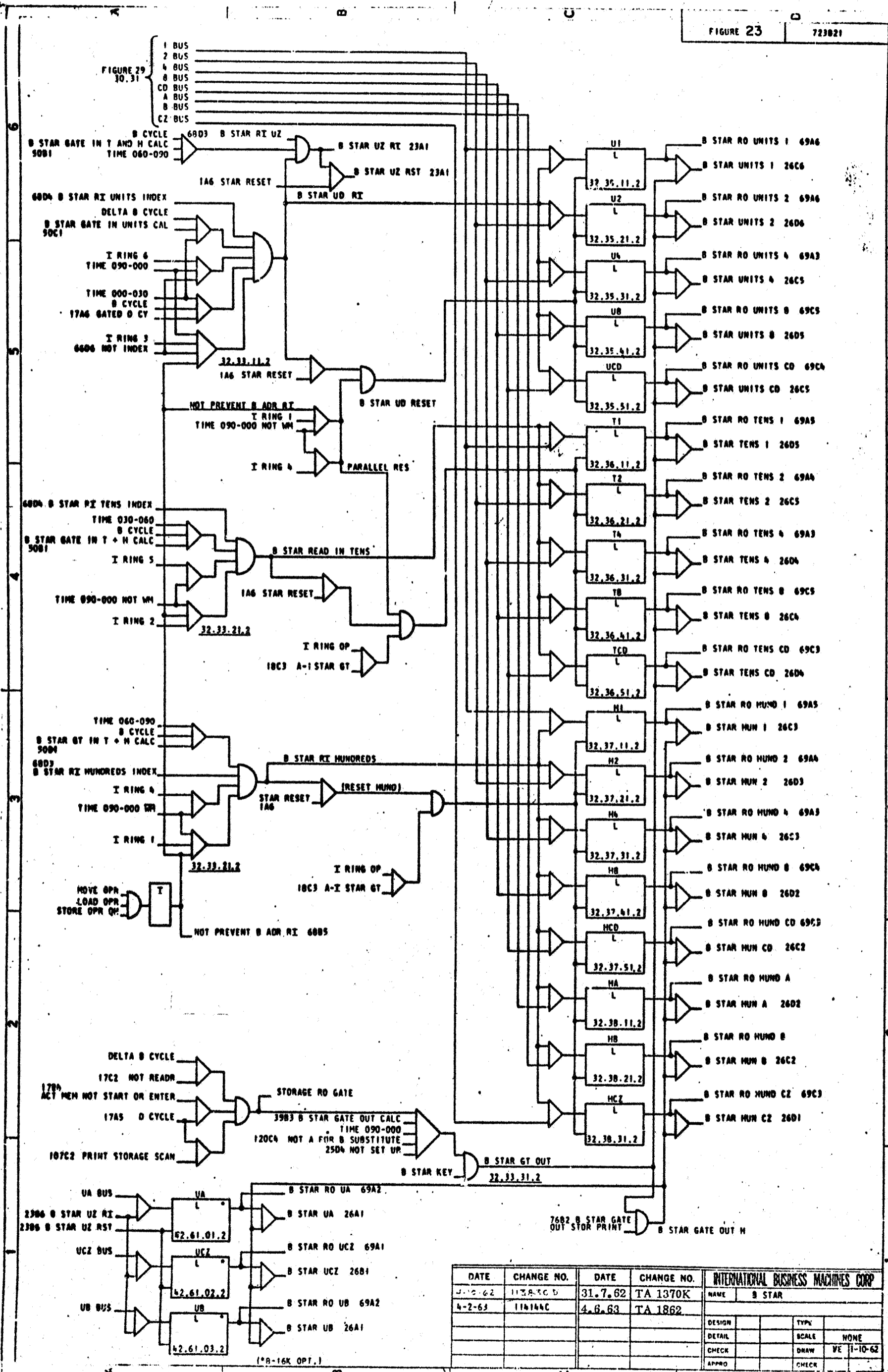
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP.		
4-10-62	113830 D			NAME		
4-2-63	114144 C	31.7.62	TA 1370K	OP CHECK		
9-25-63	118584	15.11.63	TA 604D	DESIGN	TYPE	
				DETAIL	SCALE	NONE
				CHECK	DRAW	VE 11-10-61
				APPRO	CHECK	22/7 11-27G1

723819



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-7-63	116146C	31-7-62	TA 1370K	NAME	A STAR
		4-6-63	1862	DESIGN	
				DETAIL	SCALE NONE
				CHECK	DRAW VE 1-10-62
				APPROV	CHECK

723820

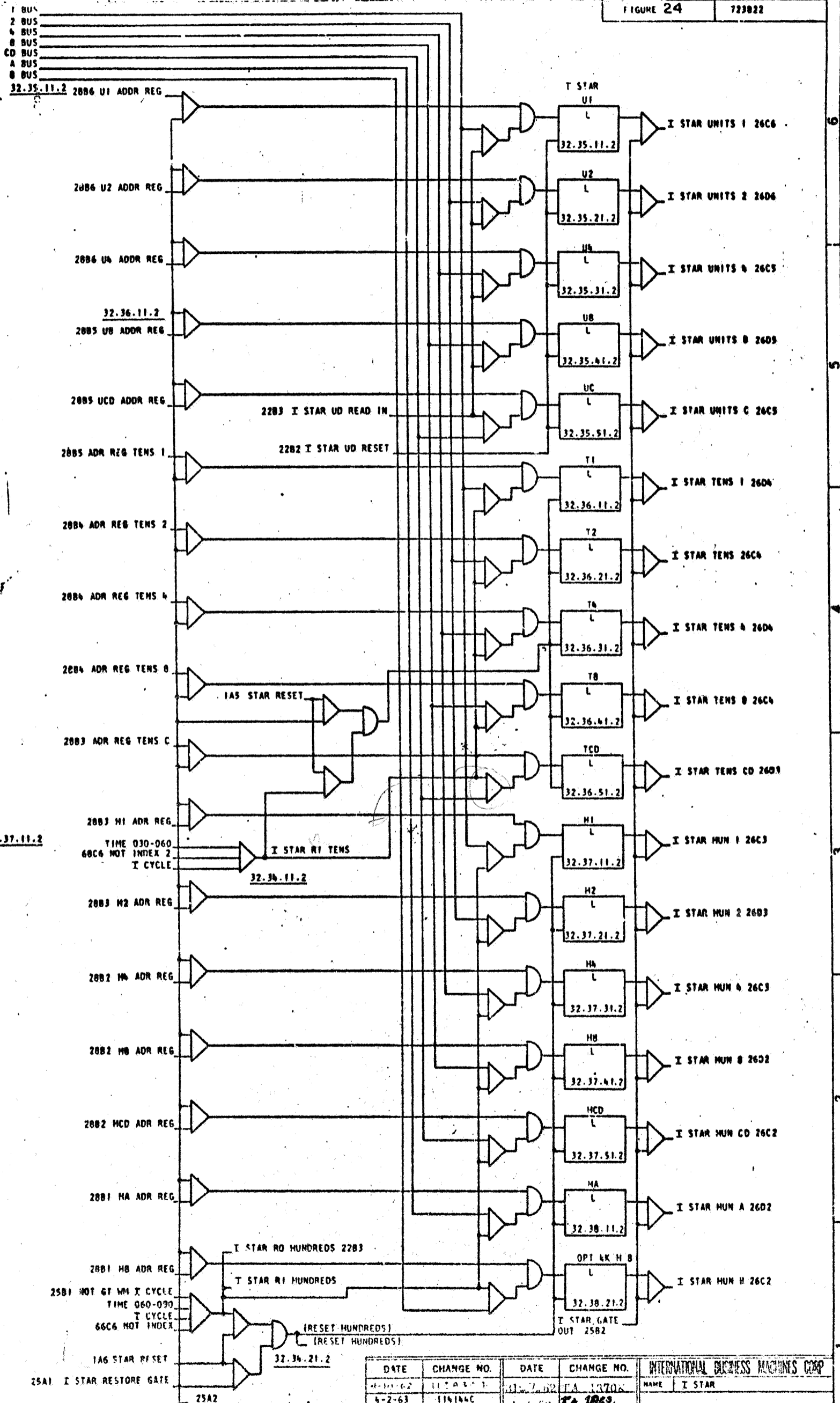


INTERNATIONAL BUSINESS MACHINES CORP			
DATE	CHANGE NO.	DATE	CHANGE NO.
4-10-62	113830D	31.7.62	TA 1370K
4-2-63	116144C	4.6.63	TA 1862
NAME: B STAR			
DESIGN		TYPE	
DETAIL		SCALE	NONE
CHECK		DRAWN	VE 1-10-62
APPRO		CHECK	

723821

FIGURE 24 723822

FIGURES 29, 30, 31



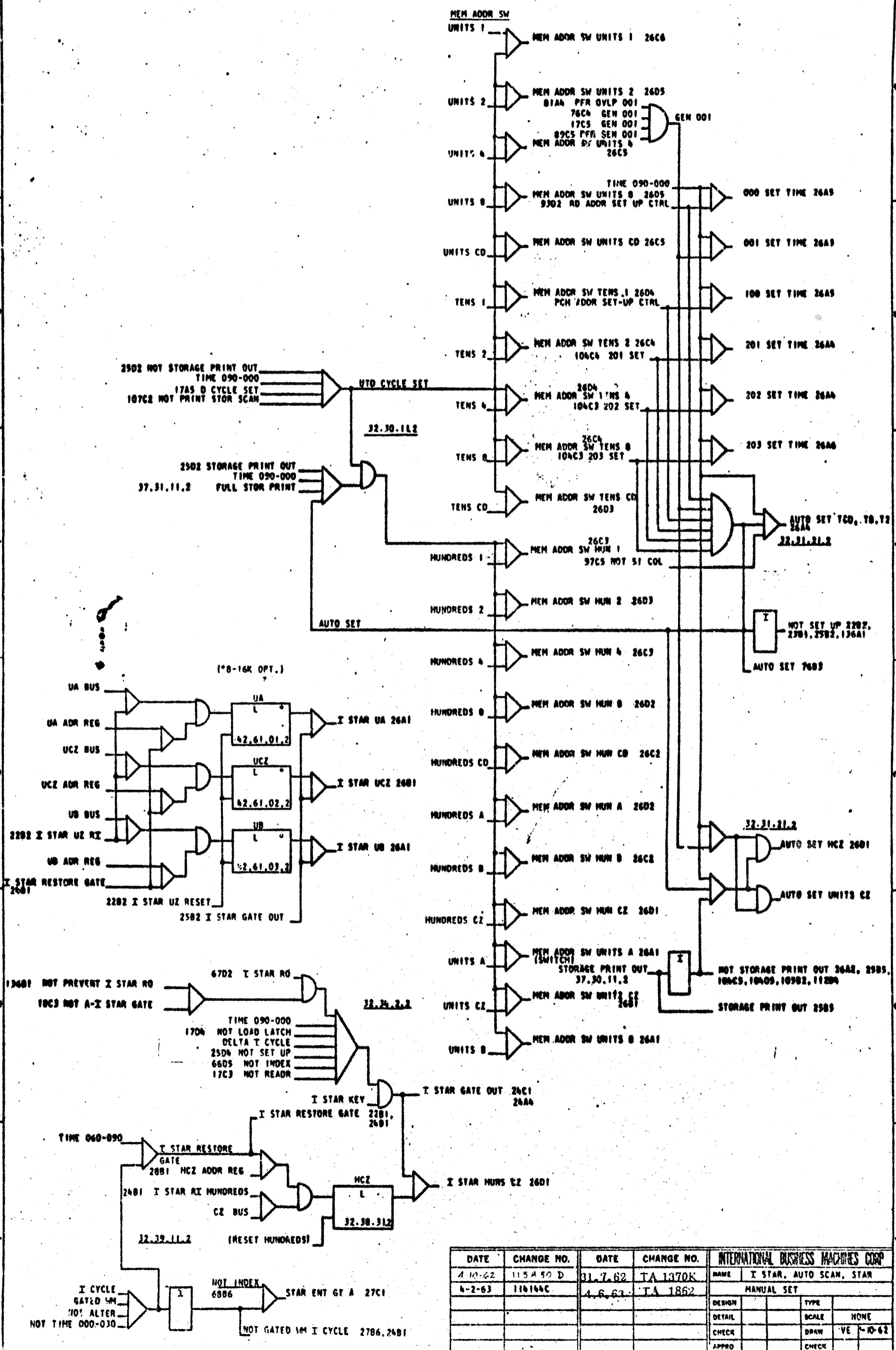
32.37.11.2

TIME 030-060
68C6 NOT INDEX 2
I CYCLE

(RESET HUNDREDS)
(RESET HUNDREDS)

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	112833	3-7-62	EA 13706	NAME I STAR			
4-2-63	116144C		EA 1862	DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 1-10-62
				APPRO		CHECK	

4862
723822



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	115A 50 D	31-7-62	TA 1370K	NAME	I STAR, AUTO SCAN, STAR		
4-2-63	116146C	4-6-63	TA 1862	MANUAL SET			
				DESIGN	TYPE	SCALE	NONE
				DETAIL		DRAW	VE 10-62
				CHECK		CHECK	
				APPRO			

10662
723023

AUTO SCAN SET UP

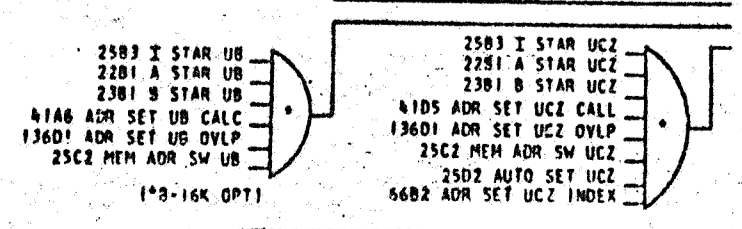
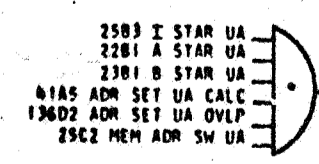
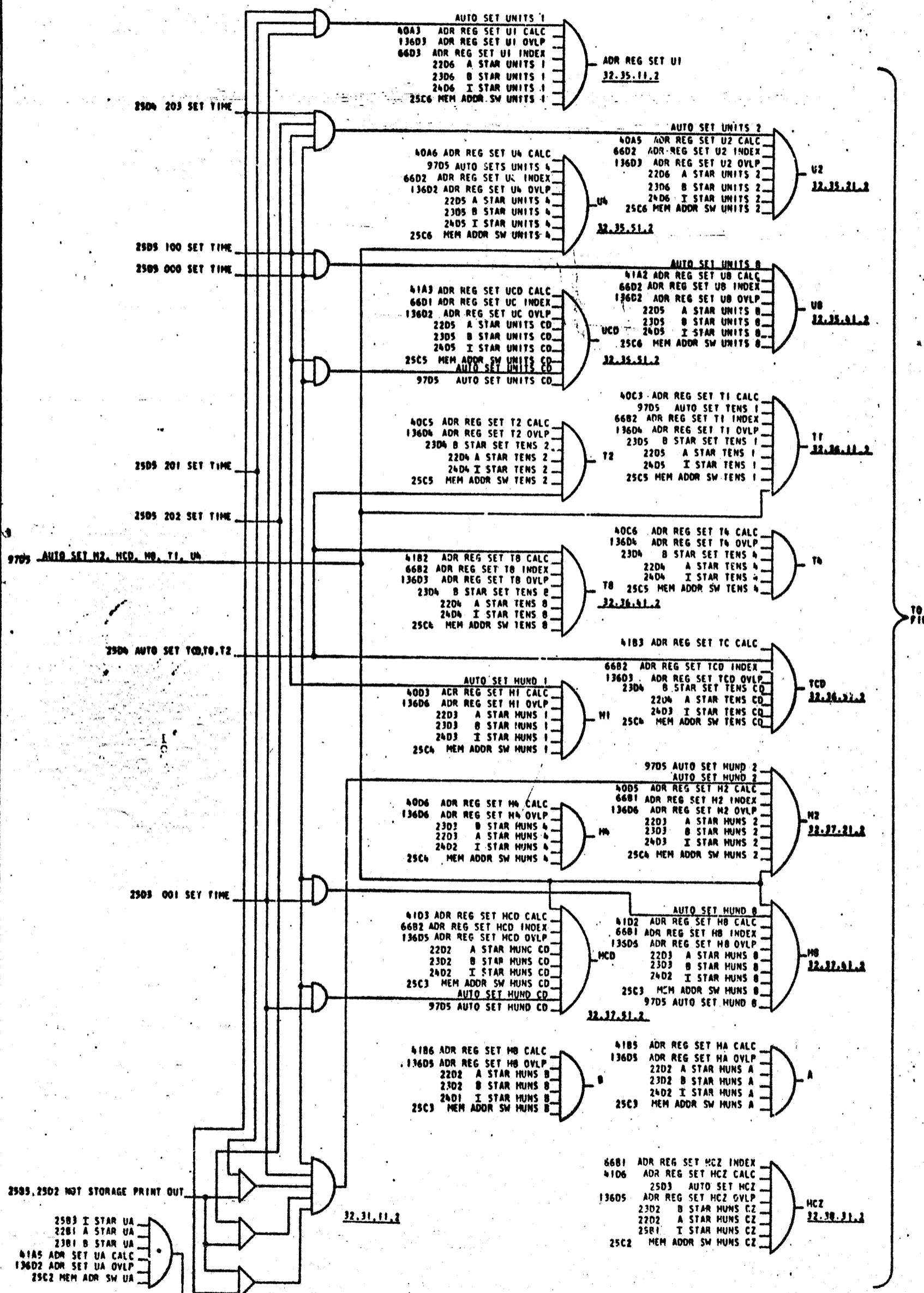
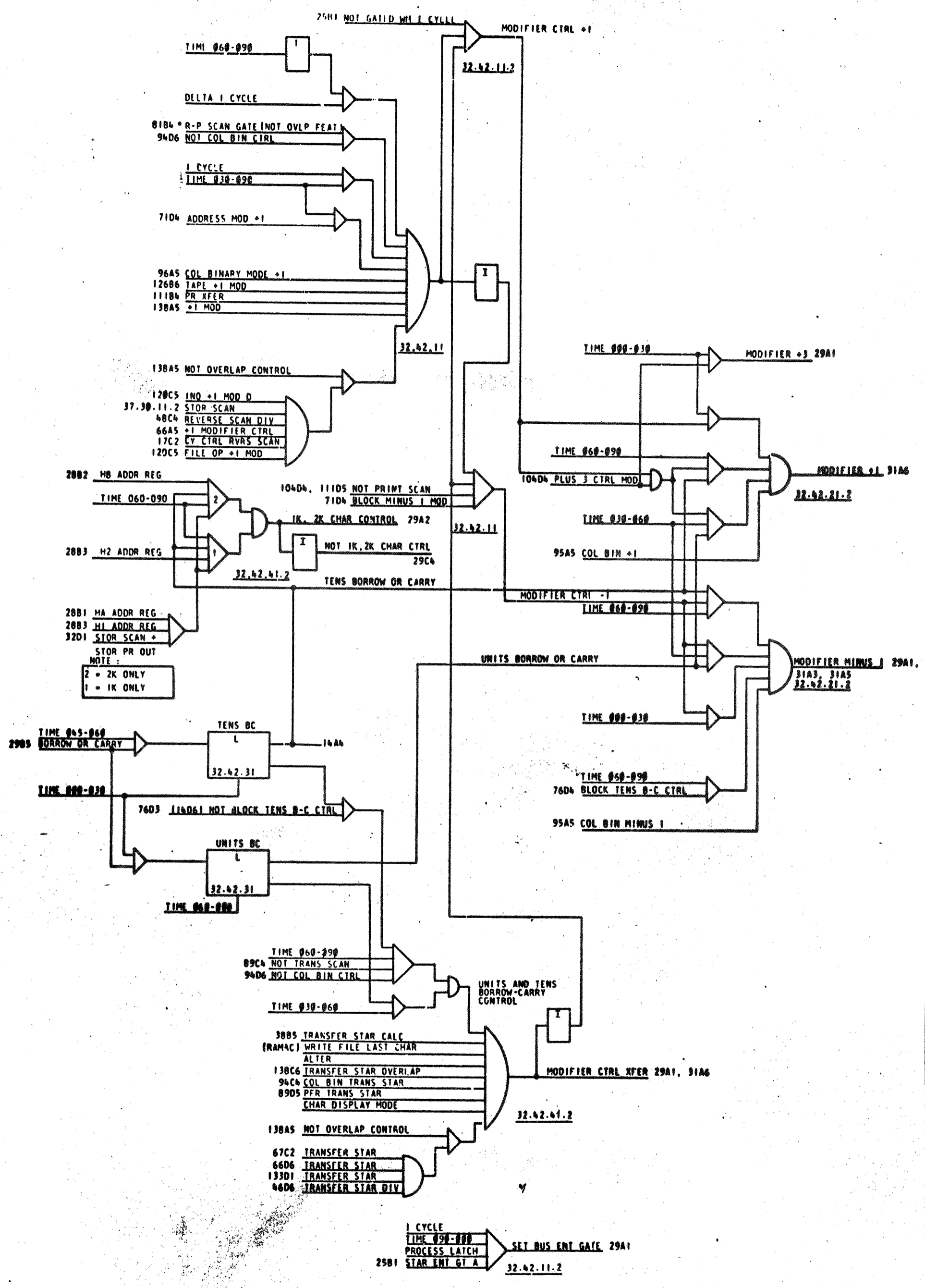


FIGURE 26

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP.	
4-10-62	113830 B	31.7.62	TA 1370K	NAME	ADR REG SET CONTROLS
4-2-63	114144C	4.6.63	TA 1862	DESIGN	TYPE
				DETAIL	SCALE NONE
				CHECK	DRAW VE 1-10-62
				APPRO	CHECK

1007
723824



*REMOVE WITH OVERLAP FEATURE

INTERNATIONAL BUSINESS MACHINES CORP			
DATE	CHANGE NO	DATE	CHANGE NO
31.7.62	TA 1370K	4.6.63	TA 1862
4-2-63	114144C		
NAME		MODIFIER CONTROLS	
DESIGN		TYPE	
DETAIL		SCALE	
CHECK		DRAW	VE 7-13-61
APPRO		CHECK	TO 11 30 61

10001

3826

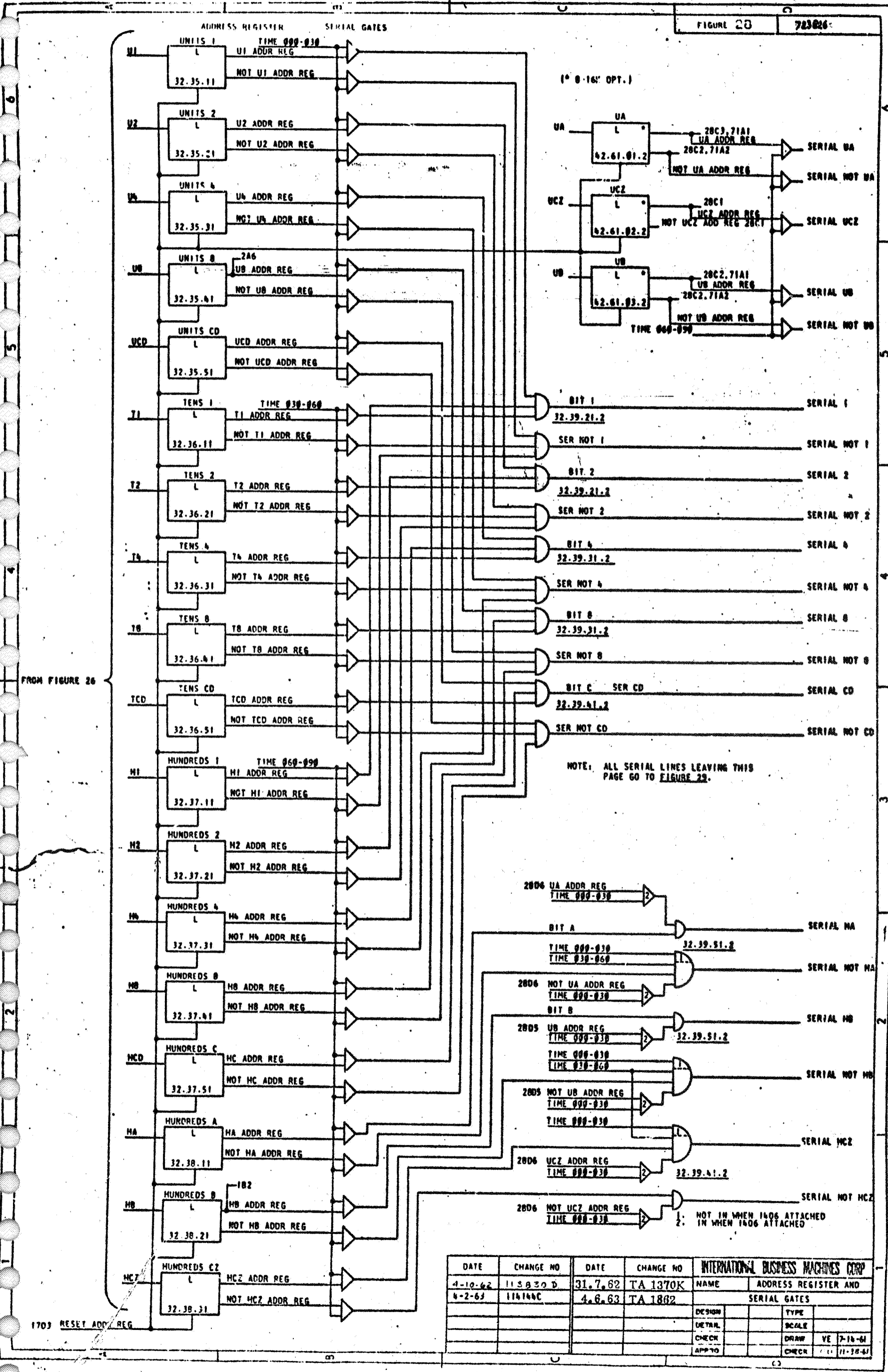


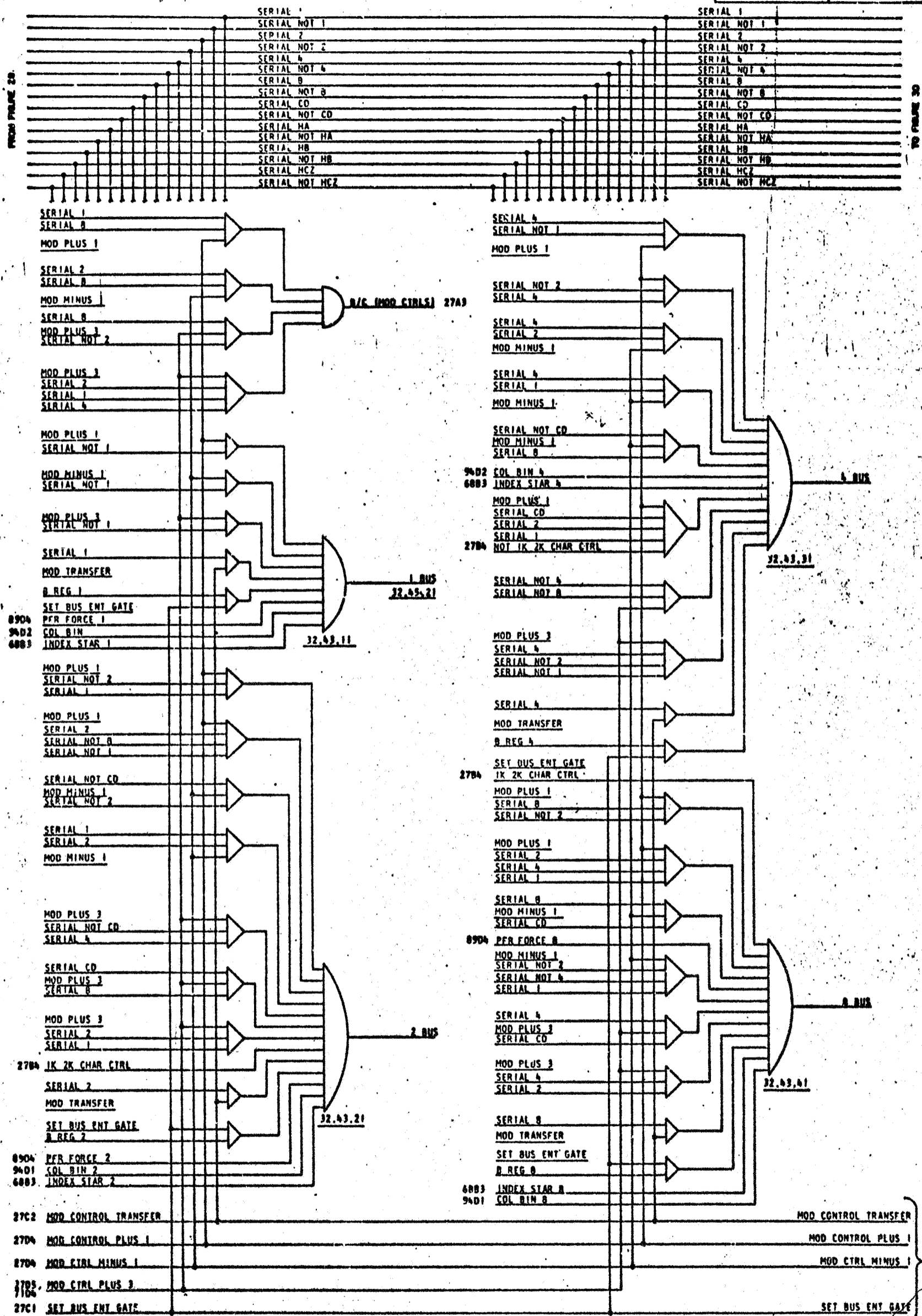
FIGURE 20 723826

FROM FIGURE 26

DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP	
4-10-62	115830 D	31.7.62	TA 1370K	NAME	ADDRESS REGISTER AND
4-2-63	116146C	4.6.63	TA 1882	SERIAL GATES	
				DESIGN	TYPE
				DETAIL	SCALE
				CHECK	DRAW VE 7-16-61
				APPRO	CHECK 11-30-61

723826

1862

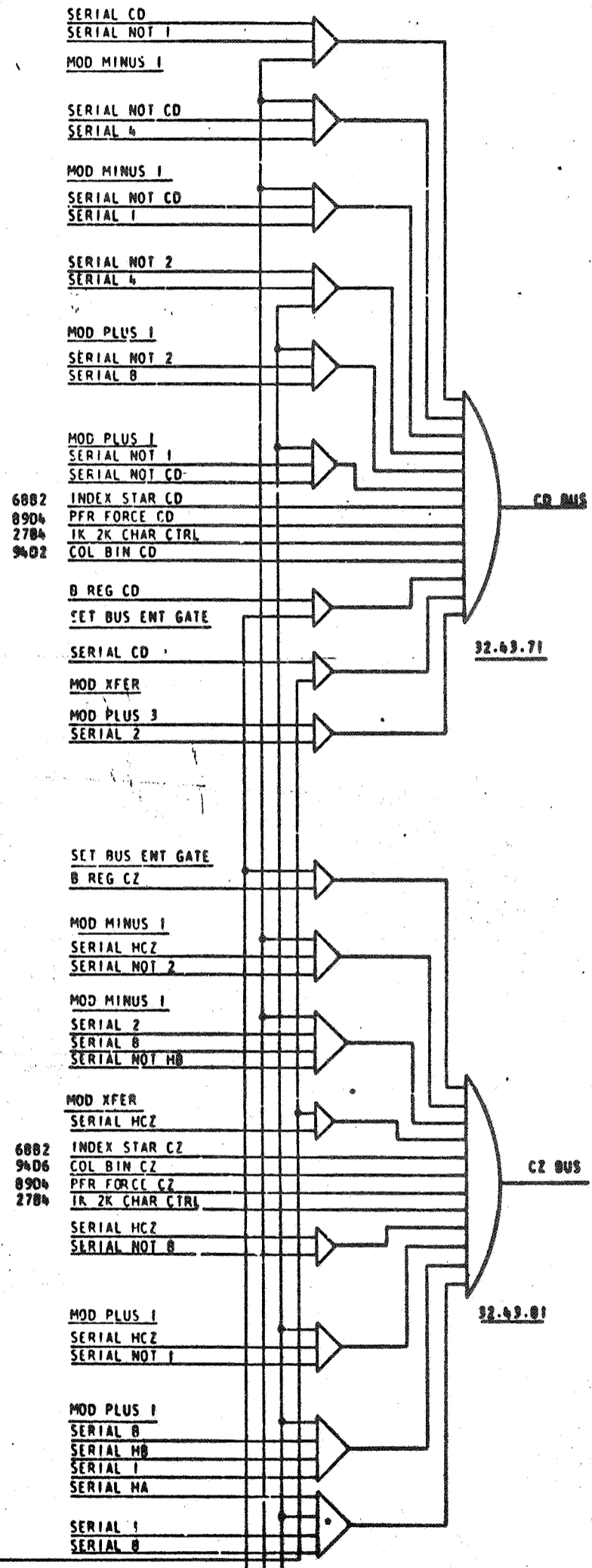
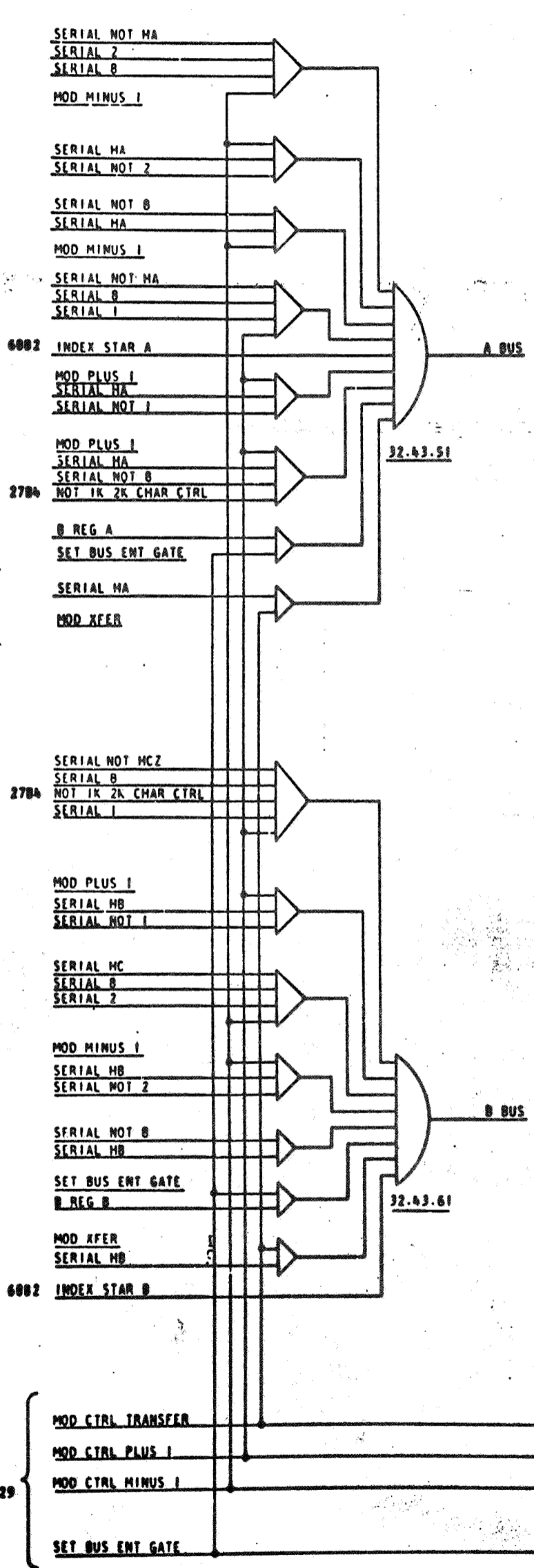
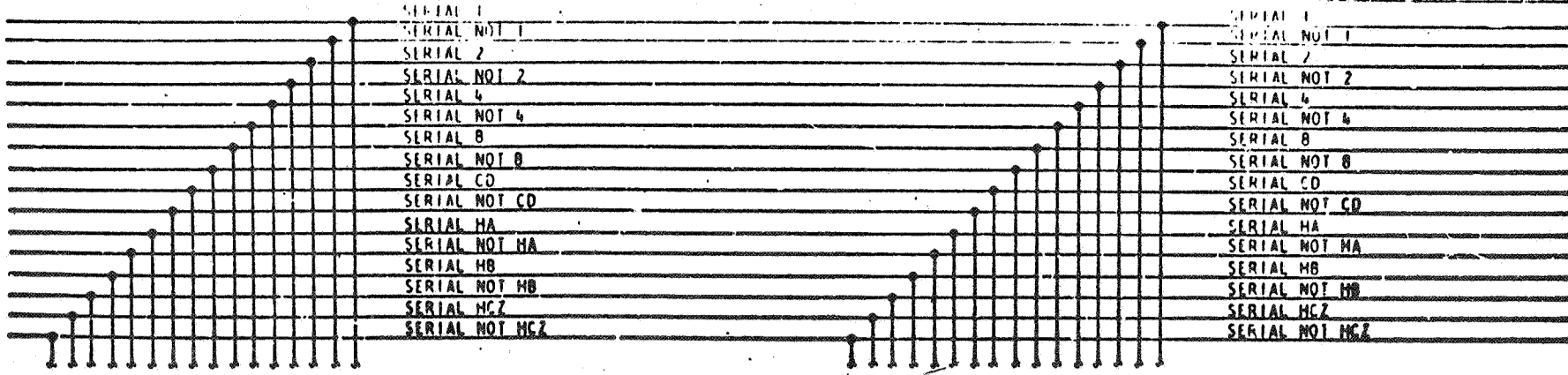


DATE	CHANGE-NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	115A30 D	31-7-62	TA 1370K	NAME MODIFIER 1-2-4-B BUS
4-2-63	116A4C	4-6-63	TA 1862	
				DESIGN
				TYPE
				SCALE
				DRAW VF 7-13-61
				CHECK
				APPRO
				CHECK FOU H-30-61

723827

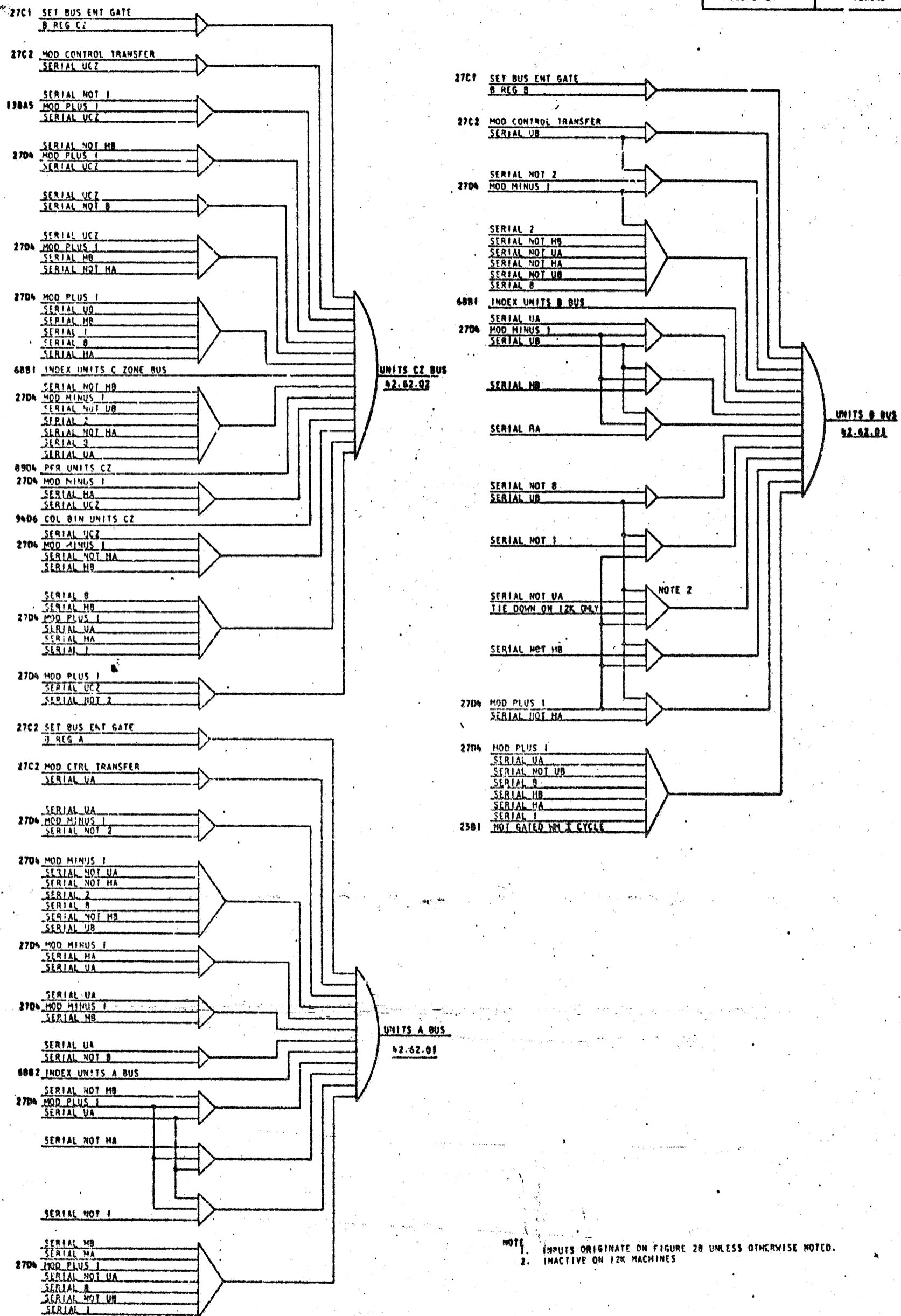
FROM FIGURE 29

TO FIGURE 31, 32



FROM FIGURE 29

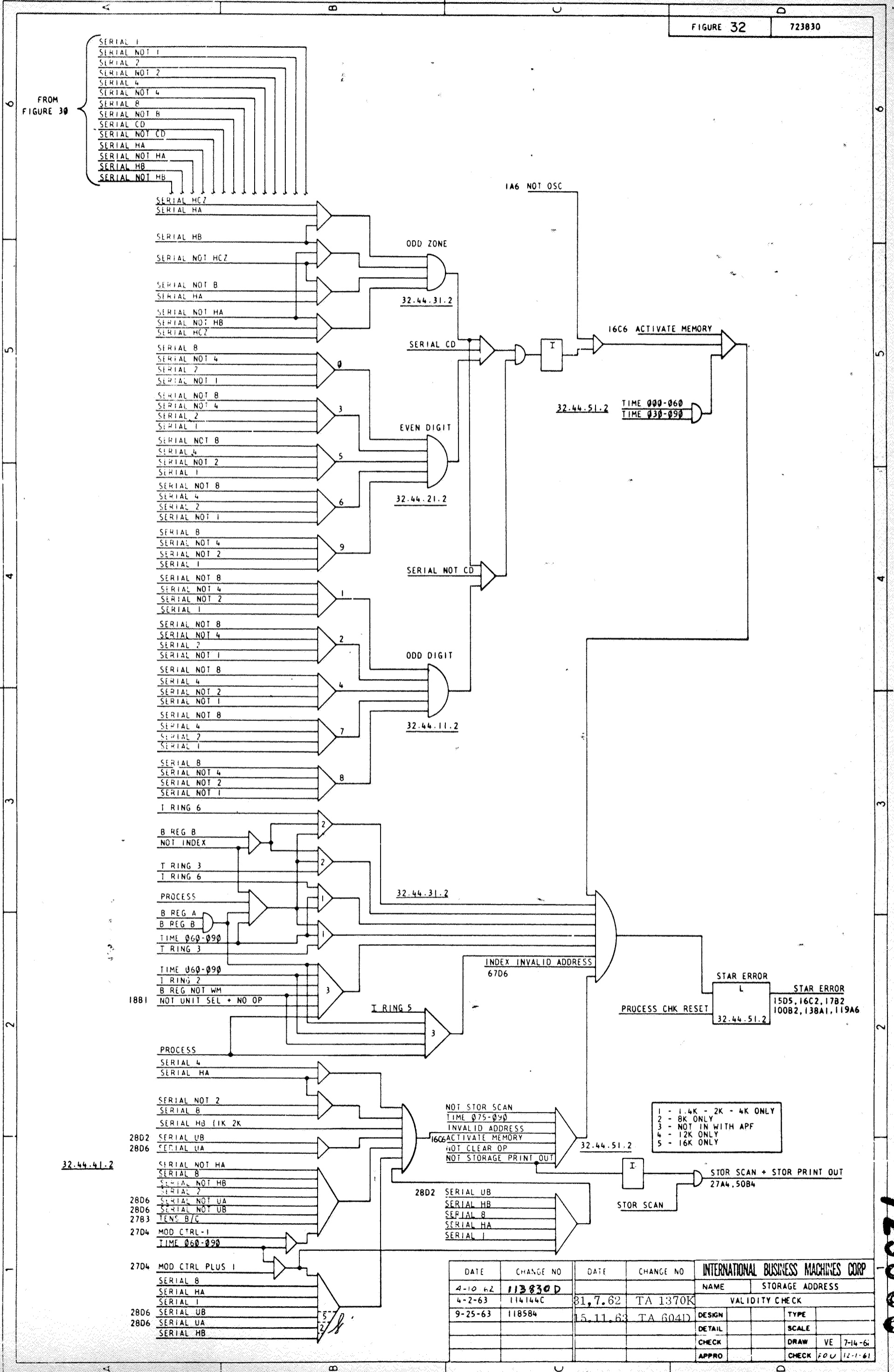
DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113830 D	31.7.62	TA 1370K	NAME	MODIFIER CD-A-B-CZ		
4-2-63	114146 C	4.6.63	TA 1862	BUS			
				DESIGN		TYPE	
				DETAIL		SCALE	
				CHECK		DRAW	VE 7-16-61
				APPRO		CHECK	



NOTE 1. INPUTS ORIGINATE ON FIGURE 28 UNLESS OTHERWISE NOTED.
 2. INACTIVE ON 12K MACHINES

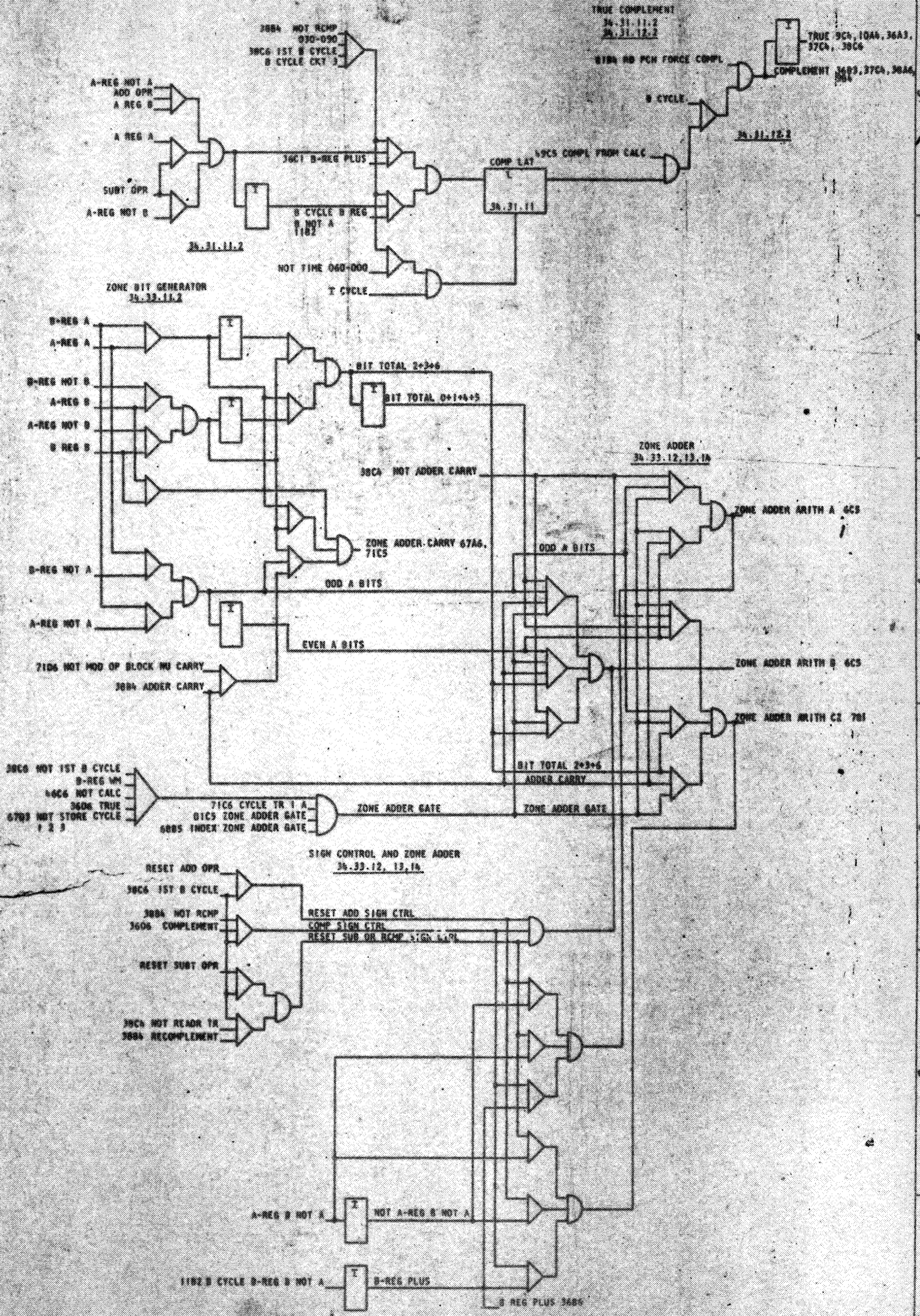
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113830 D	11-7-62	1A 1370A	NAME MODIFIER UNITS A-B-C BUS
4-2-63	111144C	1-1-63	1A 1862	
				DESIGN
				DETAIL
				CHECK
				APPROV
				TYPE
				SCALE
				DRAW VE 3-12-61
				CHECK

1862
723829



DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113830D			NAME	STORAGE ADDRESS		
4-2-63	114144C	81.7.62	TA 1370K	VALIDITY CHECK			
9-25-63	118584	15.11.63	TA 604D	DESIGN		TYPE	
				DETAIL		SCALE	
				CHECK		DRAW	VE 7-14-61
				APPRO		CHECK	FOU 12-1-61

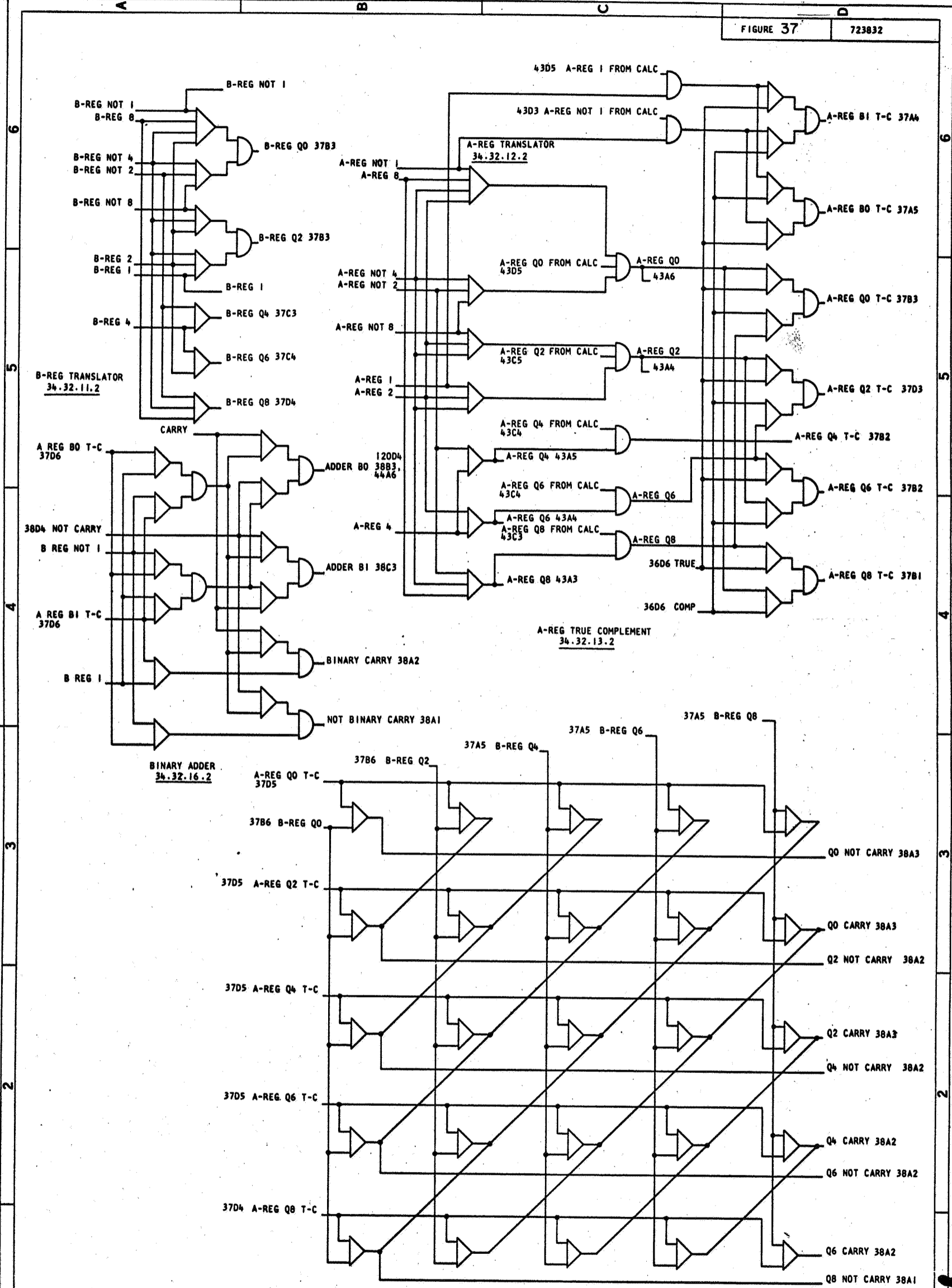
723830



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	115250-D	31-7-62	TA 1270K	NAME ADD SUBTRACT AND ADDER
4-2-63	116166C	4-6-63	TA 1202	CONTROLS
				DESIGN
				TYPE
				DESIGN
				BOILER
				HERE
				CHECK
				DATE VE 12-12-61
				APPROV
				CHECK
				DATE 1/12/62

723831

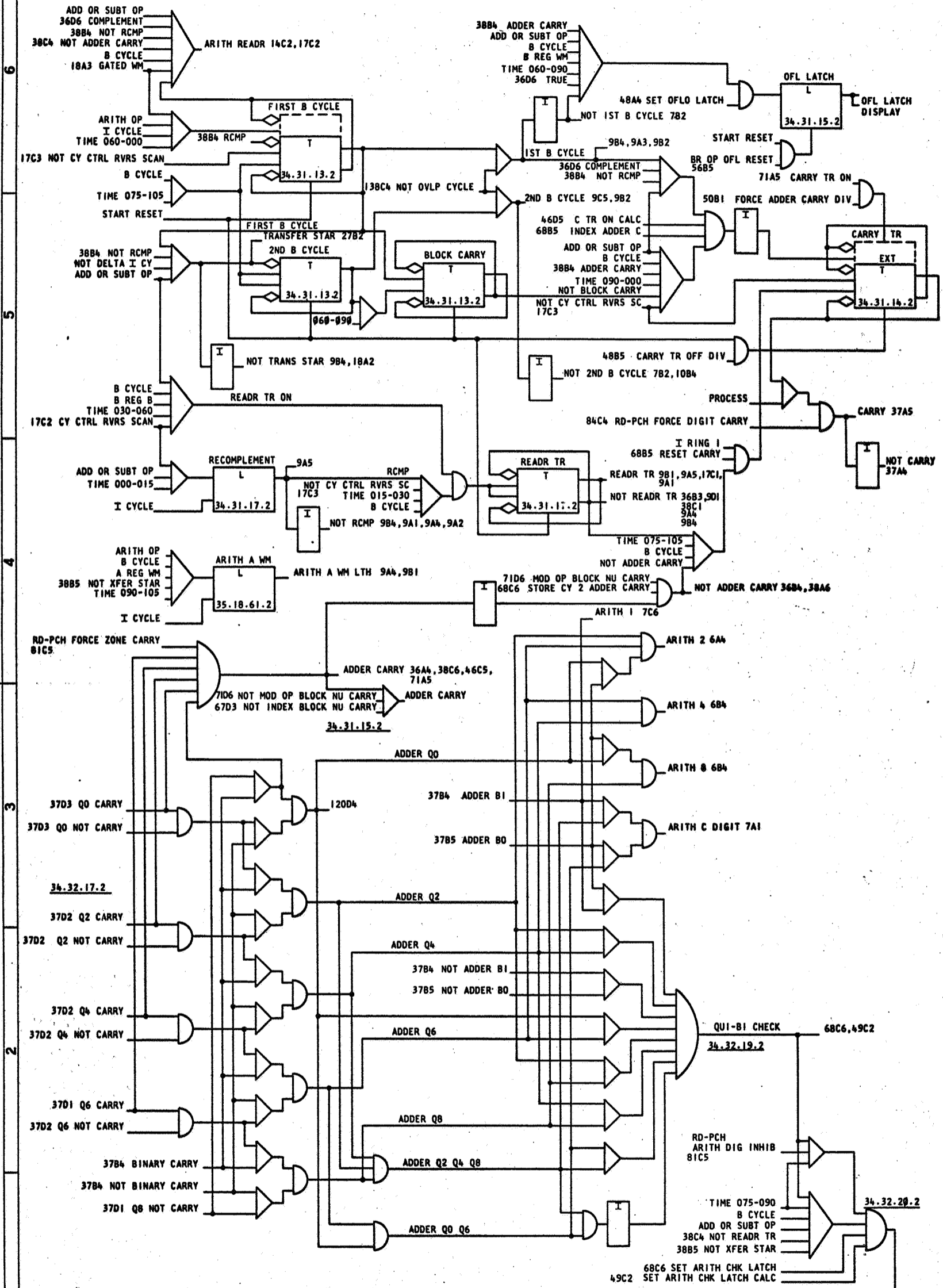
FIGURE 37 723832



QUINARY ADDER
34.32.14.15

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP		
4-10-62	113830 D			NAME ADD SUBTRACT AND ADDER		
4-2-63	114144 C	31.7.62	TA 1370K	CONTROLS		
9-25-63	118584	15.11.63	TA 604D	DESIGN	TYPE	
				DETAIL	SCALE	NONE
				CHECK	DRAW	VE 12-12-61
				APPRO	CHECK	11-10-61

723832

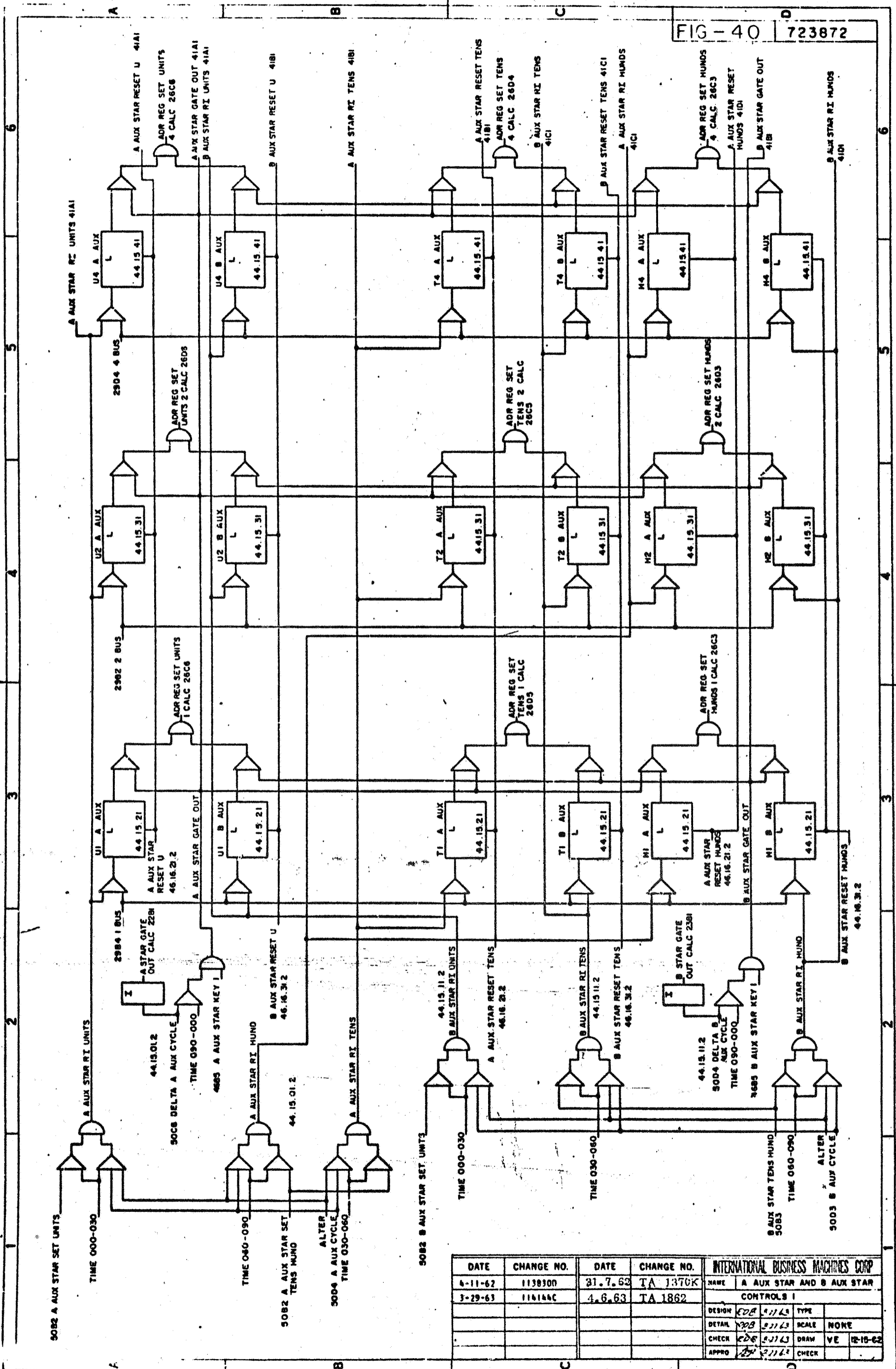


ARITH CHECK 1505.17B2
 ARITH CK INDICATE
 34.32.20.2
 PROC CHK RESET

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113830-D			NAME	ADD SUBT AND		
6-21-62	114144B			ADDER CTRLS			
4-2-63	114144C	31.7.62	TA 1370K	DESIGN		TYPE	
9-25-63	118584	15.11.62	TA 604D	DETAIL		SCALE	NONE
				CHECK		DRAW	VE 12-12-61
				APPRO		CHECK	

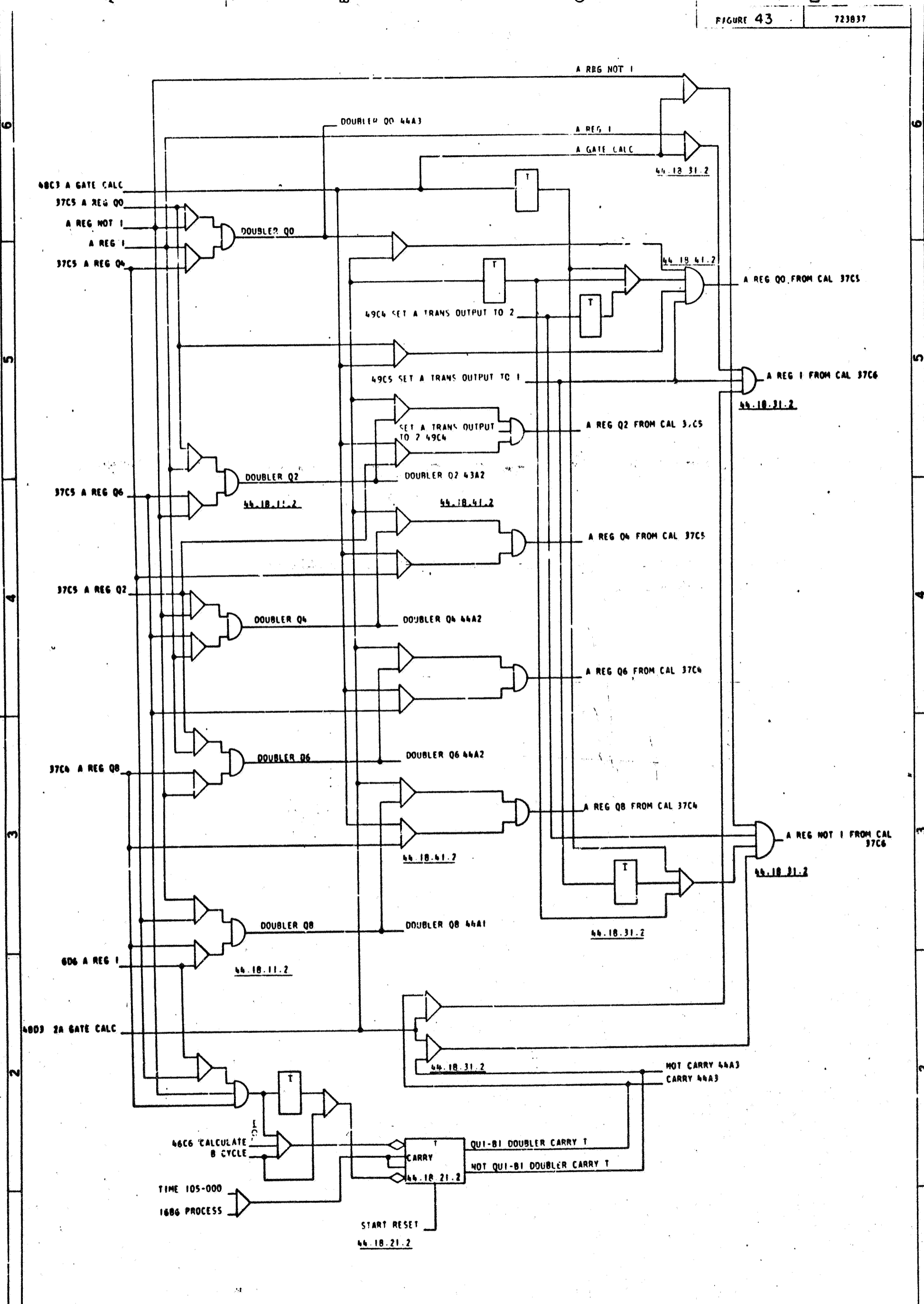
723833

FIG - 40 723872

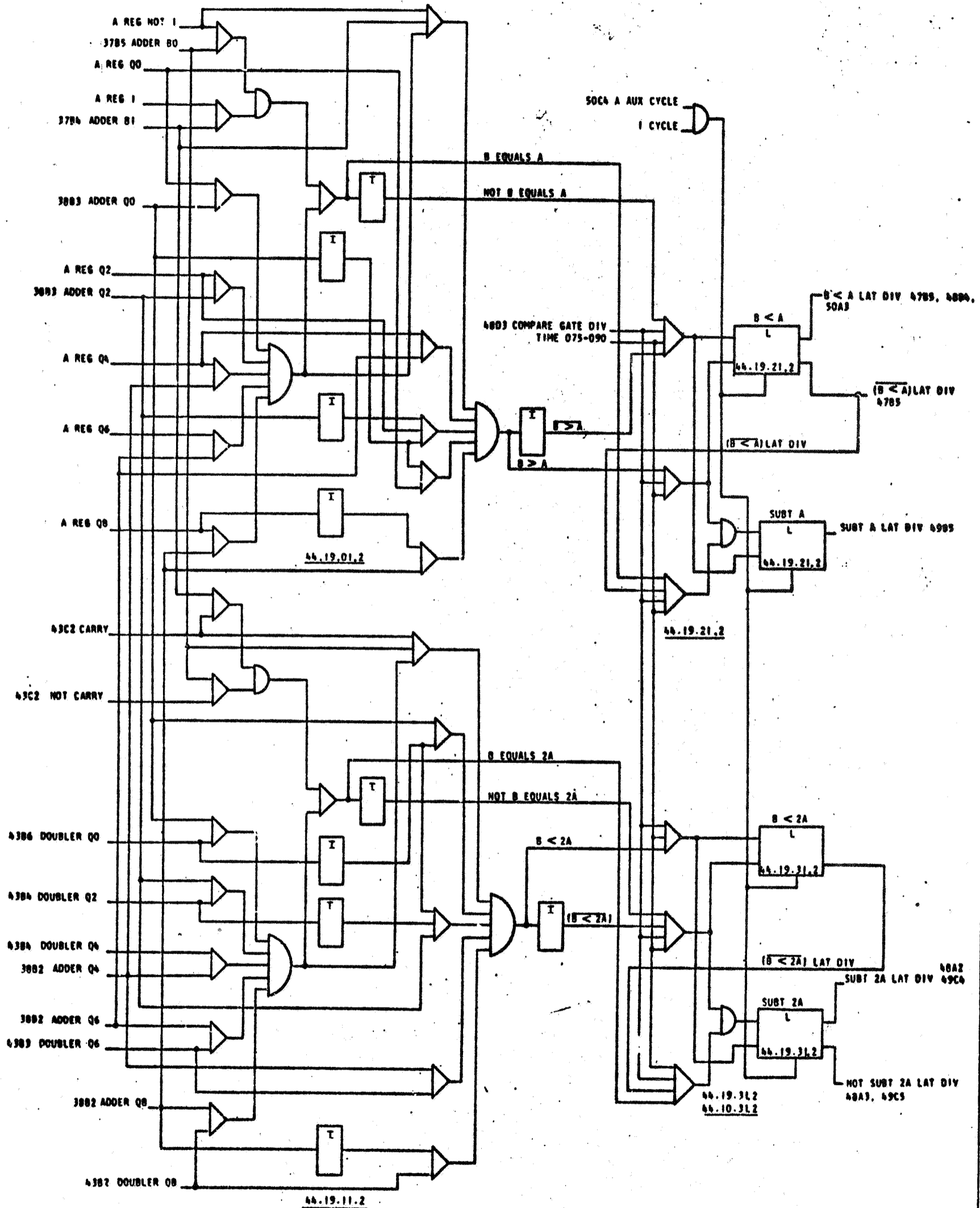


DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
6-11-62	113830D	31.7.63	TA 1376K	NAME A AUX STAR AND B AUX STAR
3-29-63	1161A6C	4.6.63	TA 1862	CONTROLS I
				DESIGN <i>EDB</i> 4/1/63 TYPE
				DETAL <i>EDB</i> 5/1/63 SCALE NONE
				CHECK <i>EDB</i> 5/1/63 DRAW VE 12-15-62
				APPRO <i>EDB</i> 5/1/63 CHECK

723872
1862

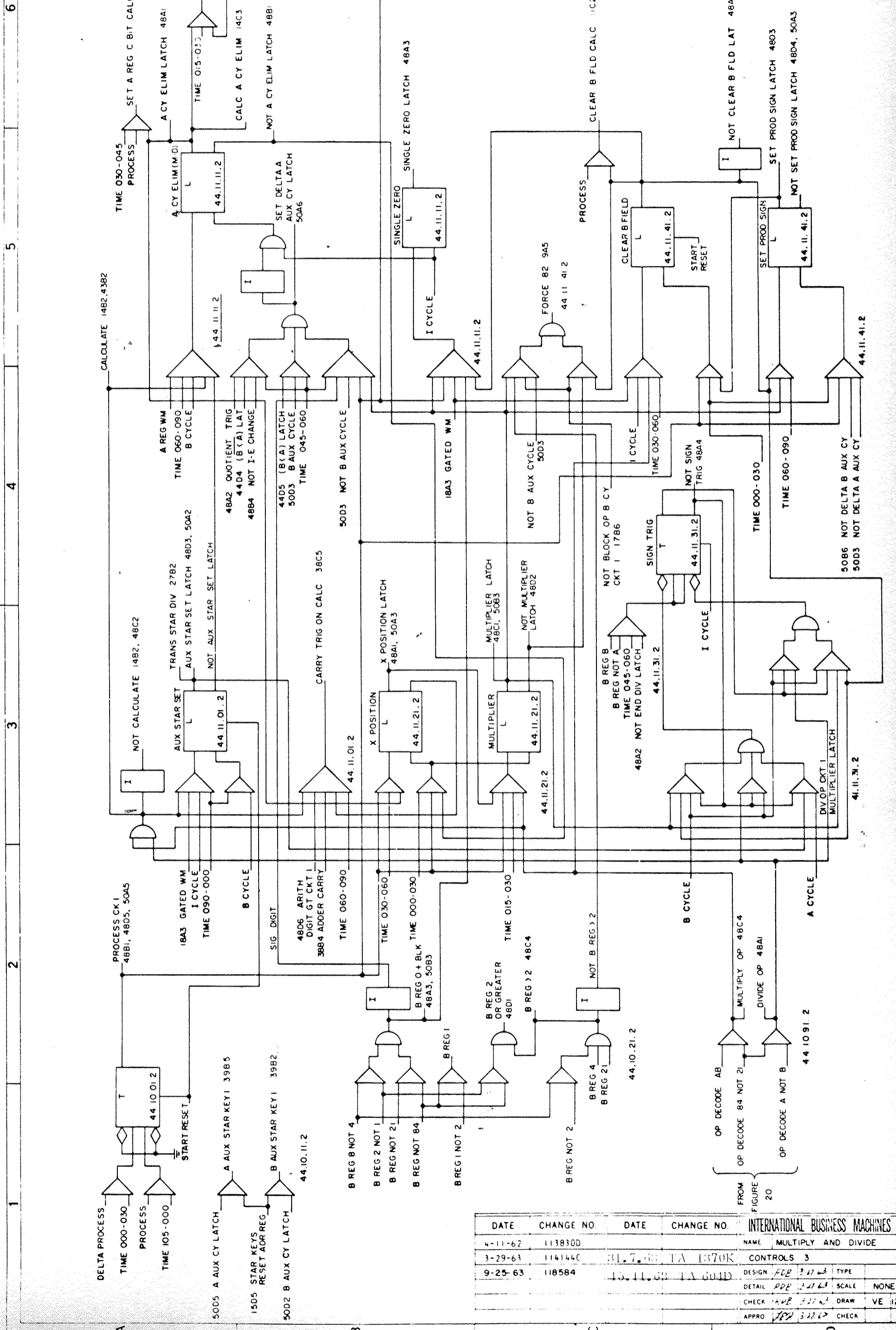


DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
		31.7.62	TA 1370K	NAME	MULTIPLY AND DIVIDE
4-2-63	114144C	4.6.63	TA 1862	CONTROLS 1	
				DESIGN	TYPE
				DETAIL	SCALE NONE
				CHECK	DRAW VE 1-10-62
				APPRO	CHECK



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	115830 D	31.7.62	TA 1370K	NAME	MULTIPLY AND DIVIDE		
5-2-63	T16146C	4.6.63	TA 1862	CONTROLS 2			
				DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 11-10-62
				APPRO		CHECK	

723838
1864

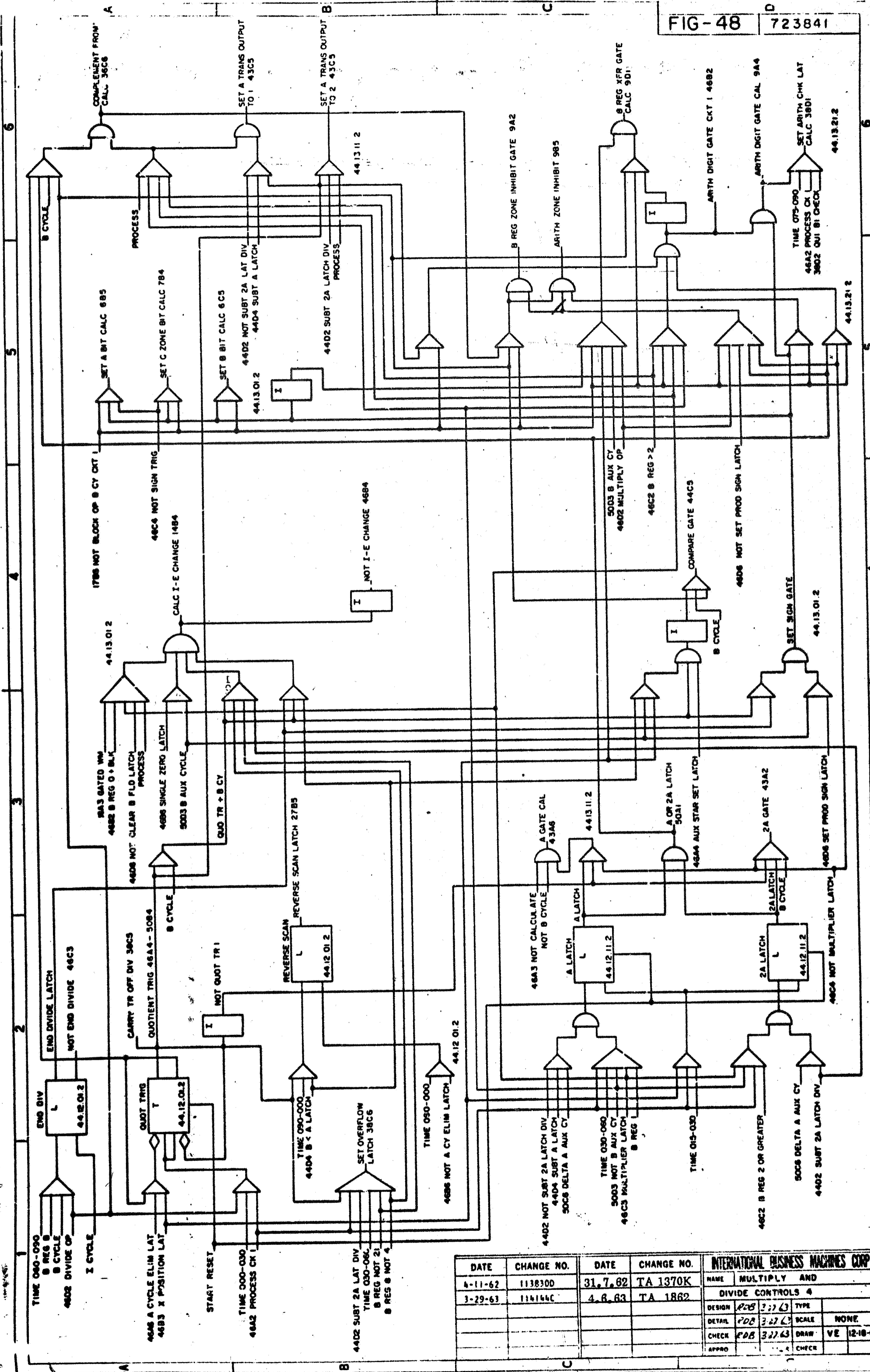


DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-11-62	1138300			NAME MULTIPLY AND DIVIDE
3-29-63	114144C	31.7.63	TA 1370K	CONTROLS 3
9-25-63	118584	13.11.63	TA 601D	DESIGN FDP 3.21.63 TYPE
				DETAIL PDP 3.21.63 SCALE NONE
				CHECK FDP 3.21.63 DRAW VE 12-20-62
				APPRO 1.22.63 CHECK

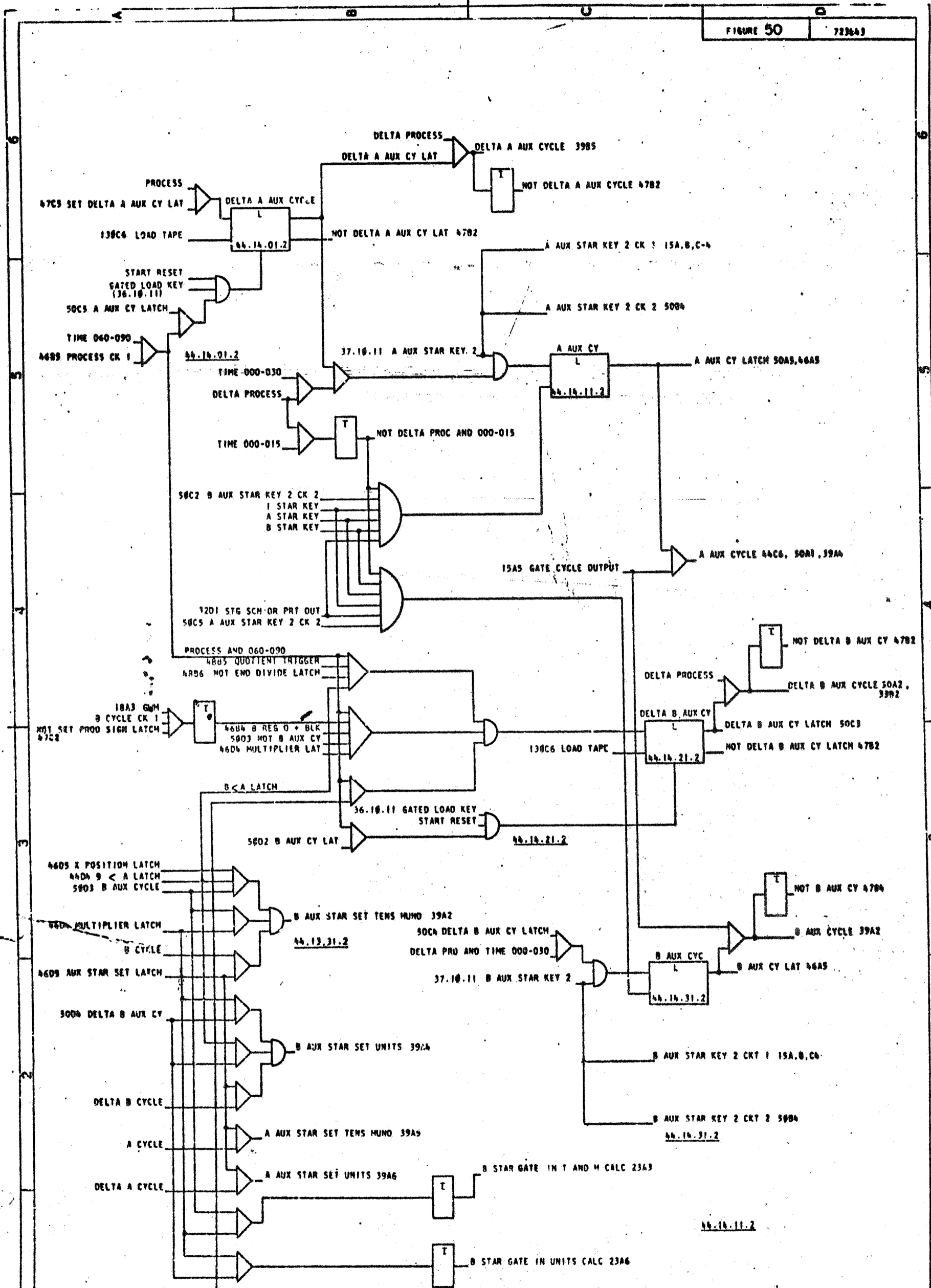
1 2 3 4 5 6

1 2 3 4 5 6

600071

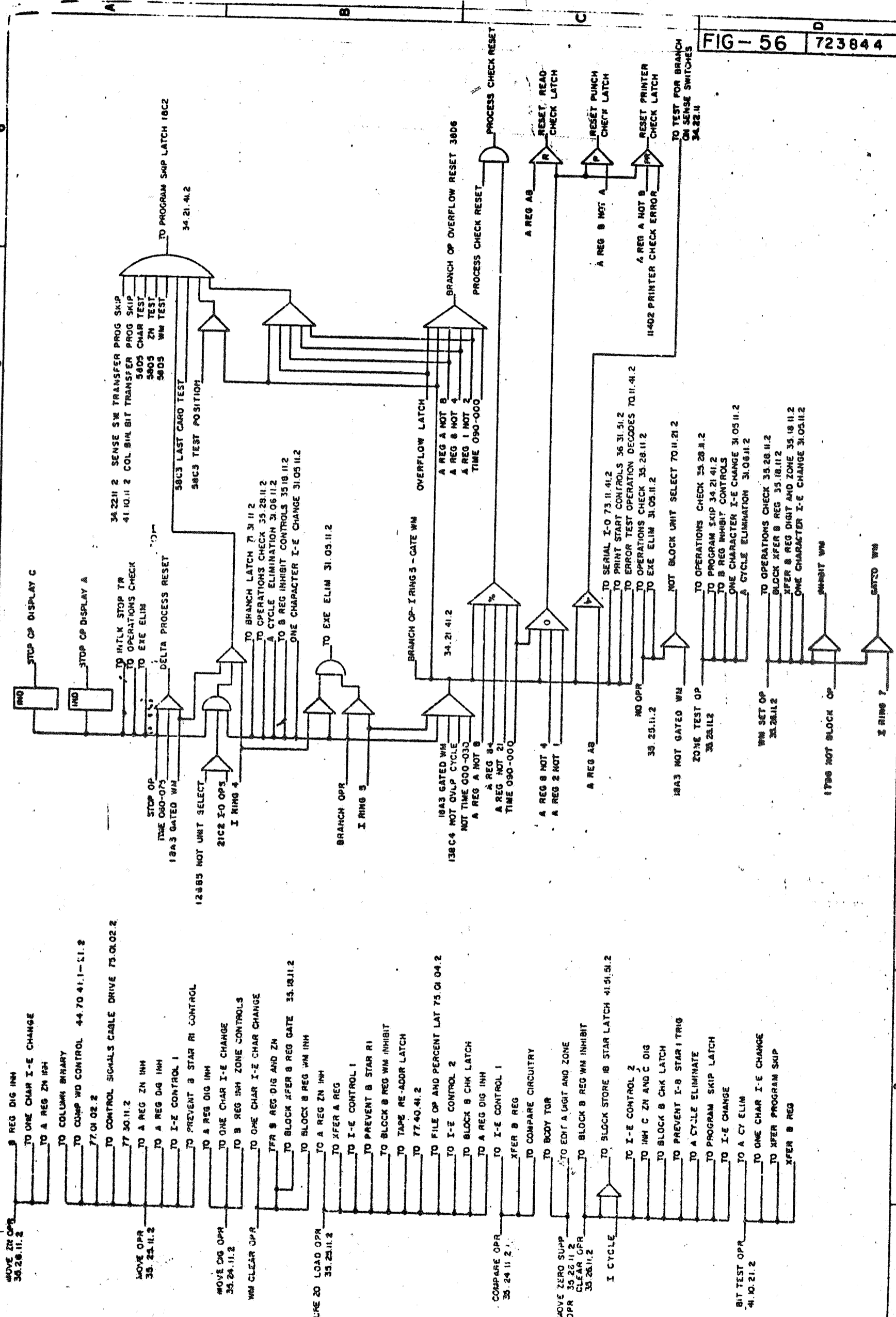


INTERNATIONAL BUSINESS MACHINES CORP			
DATE	CHANGE NO.	DATE	CHANGE NO.
4-11-62	1138300	31.7.62	TA 1370K
3-29-63	114144C	4.6.63	TA 1862
NAME MULTIPLY AND			
DIVIDE CONTROLS 4			
DESIGN	PDB 32743	TYPE	
DETAIL	PDB 32743	SCALE	NONE
CHECK	PDB 32743	DRAW	VE 12-18-62
APPRO		CHECK	



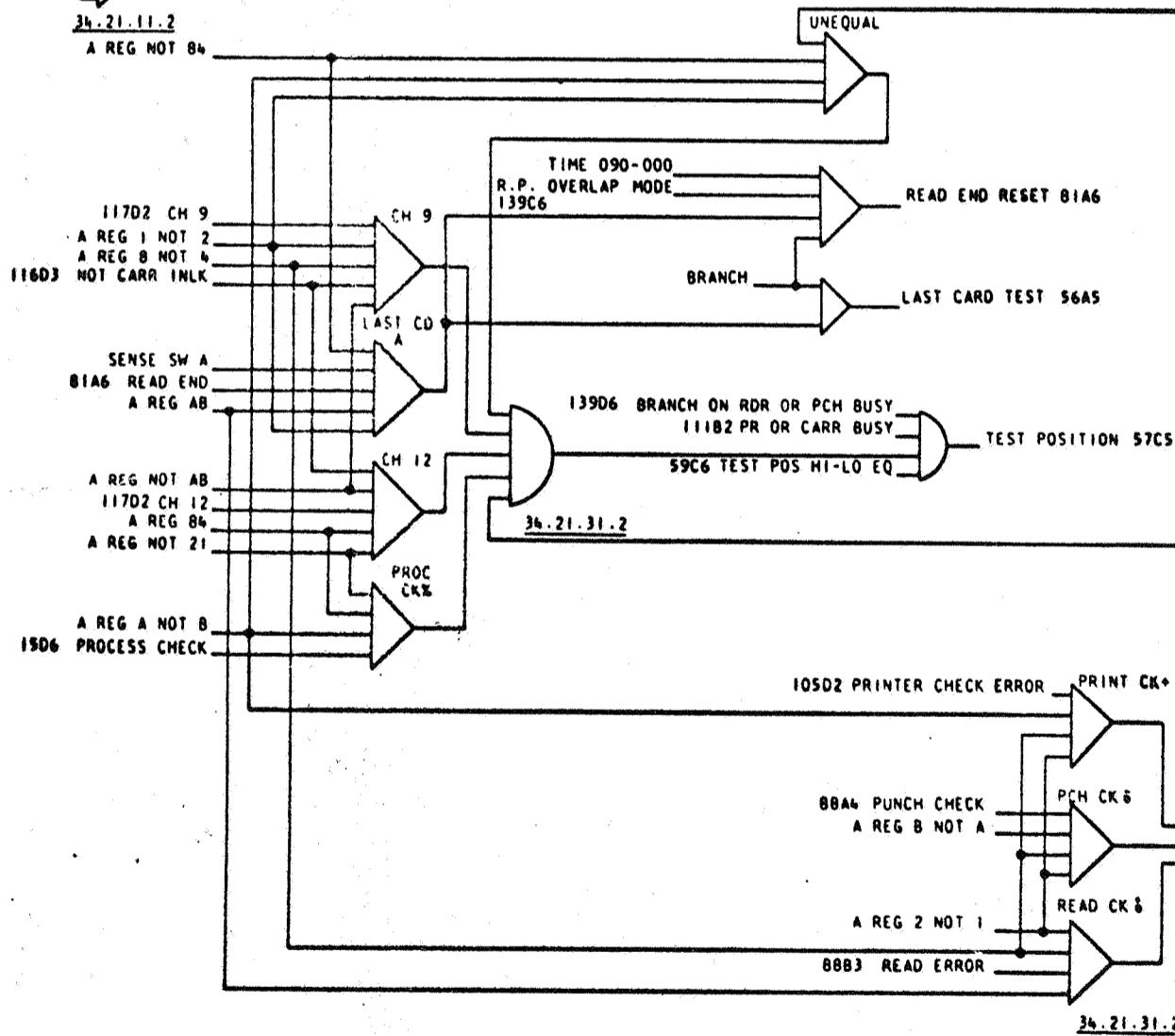
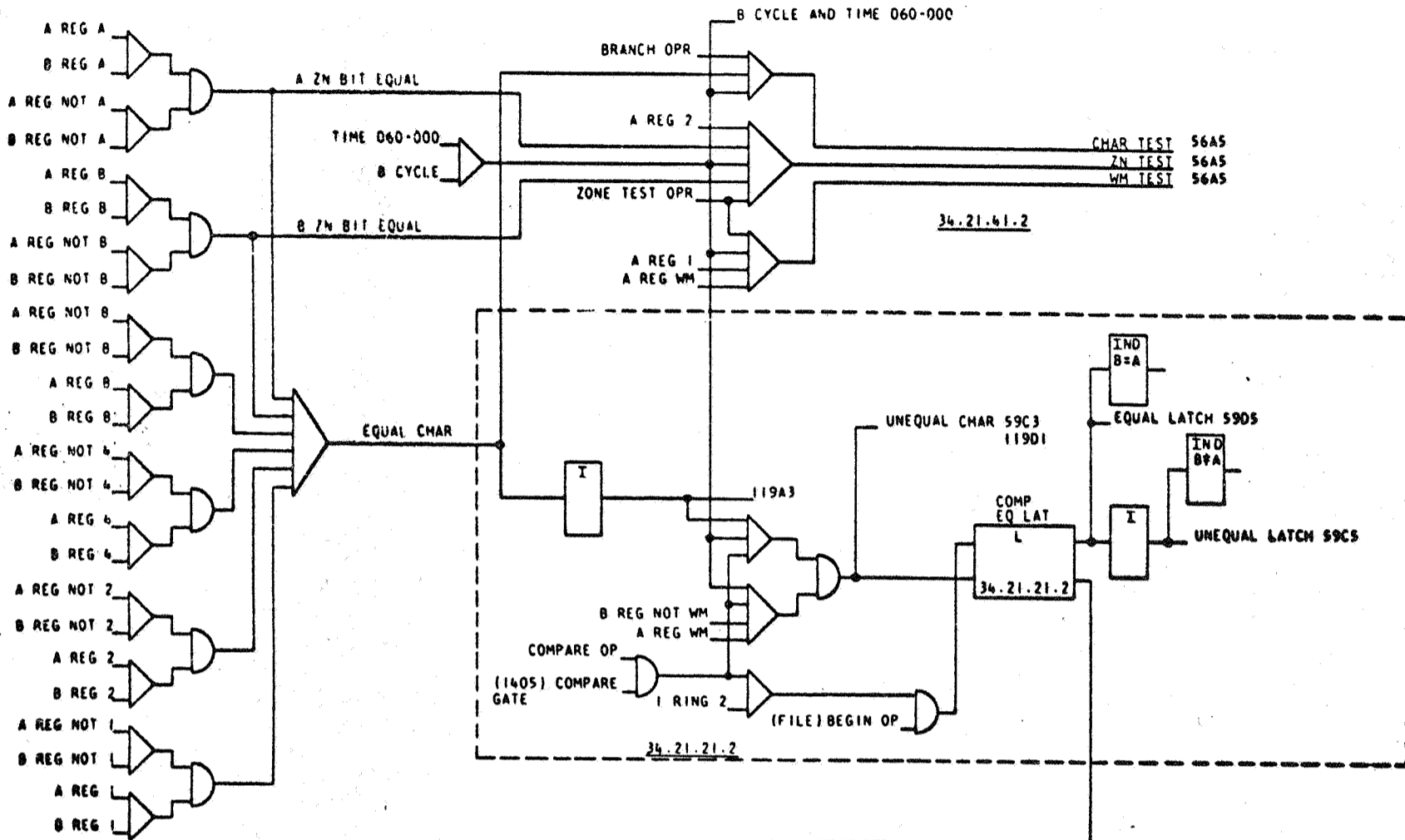
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113850 D	31-7-62	TA 1370K	NAME	MULTIPLY AND		
4-2-63	111144C	4-6-63	FA 1882	DIVIDE CONTROLS 5			
				DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VI 12-9-61
				APPRO		CHECK	12/12/61

723843



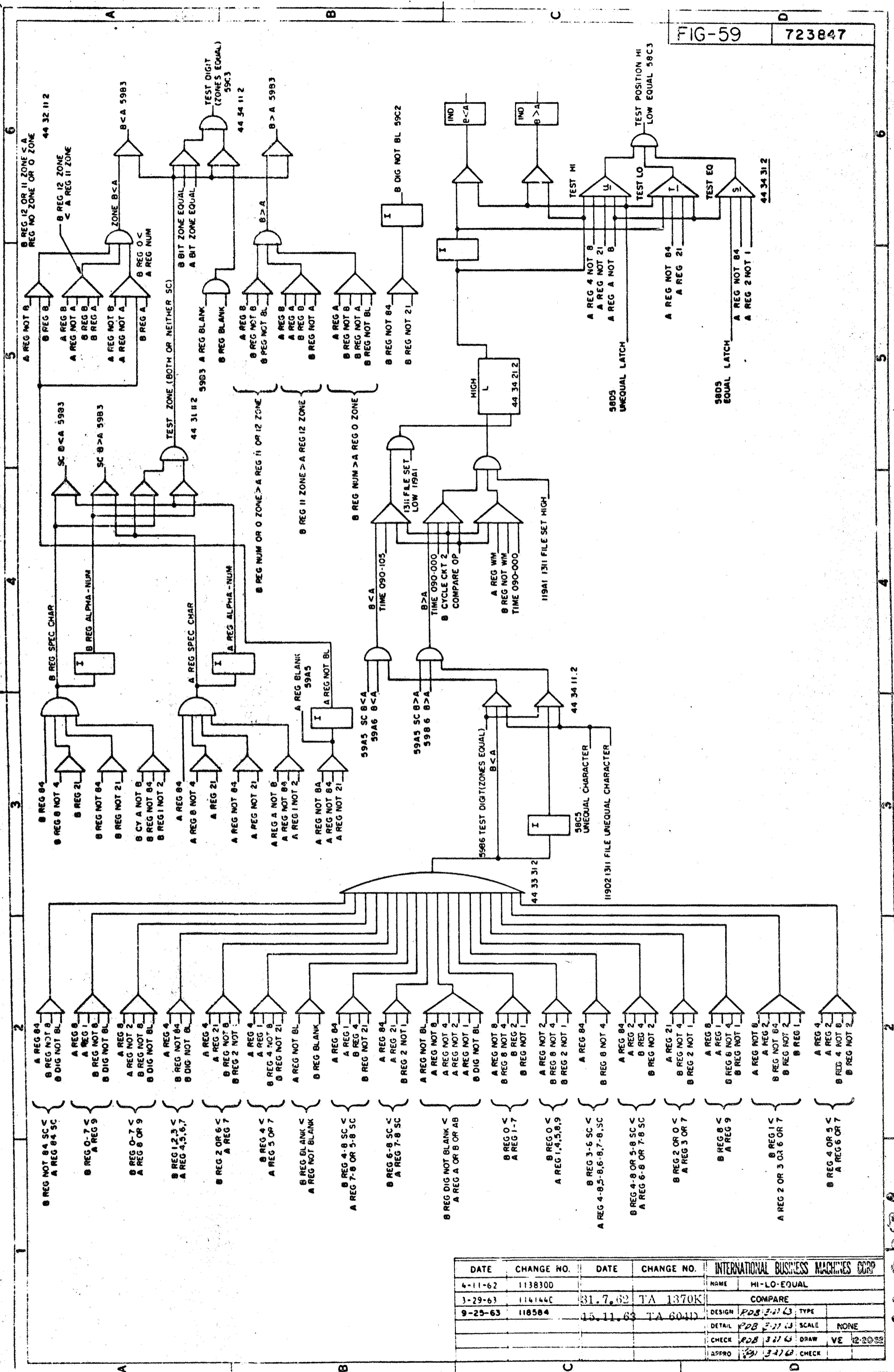
DATE	CHANGE NO.	DATE	CHANGE NO.	INTER-NATIONAL BUSINESS MACHINES CORP
4-11-62	1138300	51.7.63	PA 1370K	NAME MOVE, LOAD, BRANCH AND THE MISC OF CODES FUNCTIONAL PURPOSES DESIGN POB 5/2/63 TYPE DETAIL POB 5/2/63 SCALE NONE CHECK POB 5/2/63 DRAW VE 12-18-62 APPROV POB 5/2/63 CHECK
1-29-63	114144C	1.5.64	PA 1382	

723844



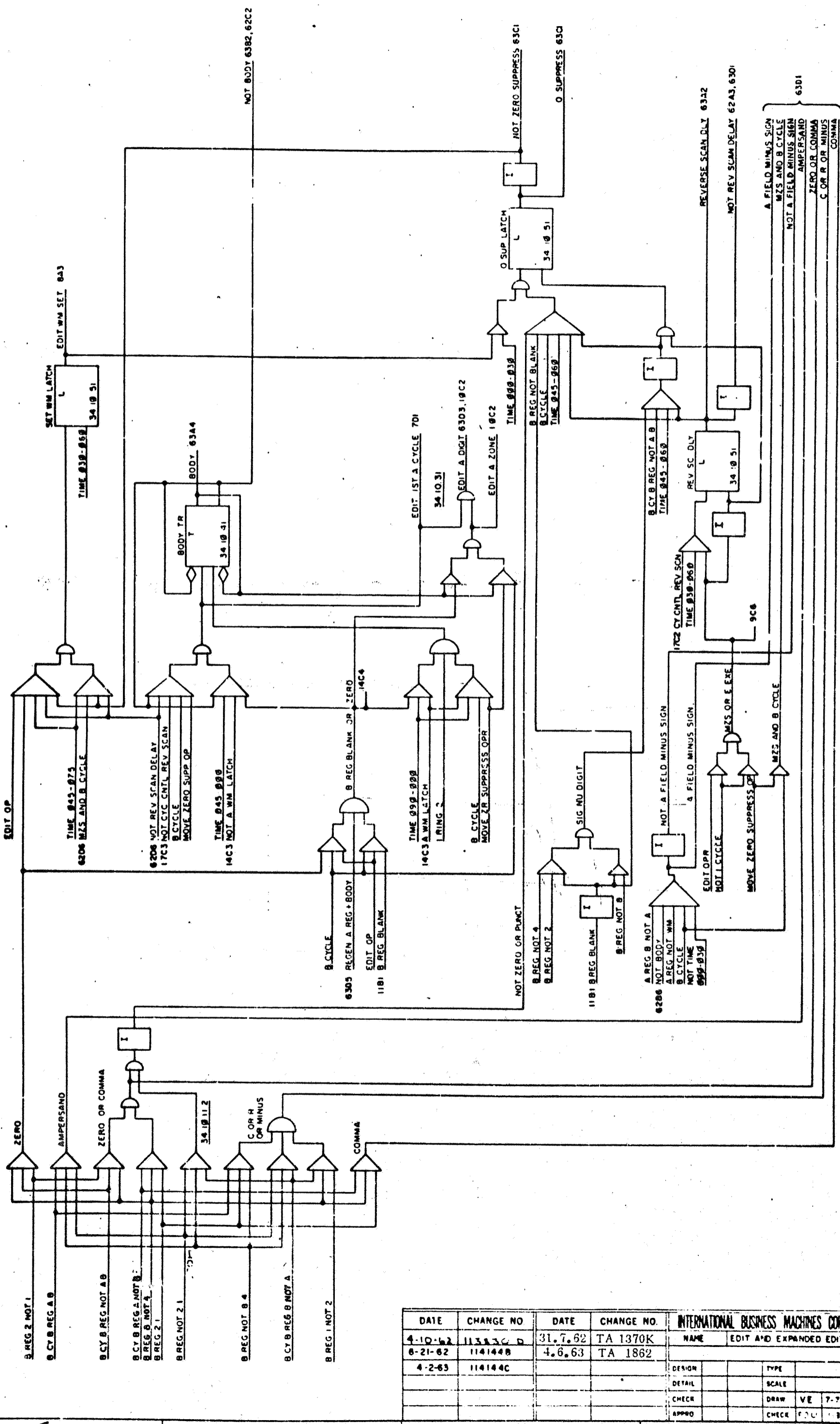
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
				NAME COMPARE OPR
4-2-63	116144C	31.7.62	TA 1370K	DESIGN
9-25-63	118584	15.11.63	TA 604D	DETAIL
				CHECK
				APPRO
				TYPE
				SCALE NONE
				DRAW VE 1-9-62
				CHECK

723846



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-11-62	1138300			NAME HI-LO-EQUAL
3-29-63	114144C	31.7.62	7A 1370K	COMPARE
9-25-63	118584	15.11.63	TA 604D	DESIGN PDB 3213 TYPE
				DETAIL PDB 3213 SCALE NONE
				CHECK PDB 3213 DRAW VE 12-20-62
				APPRO 3213 CHECK

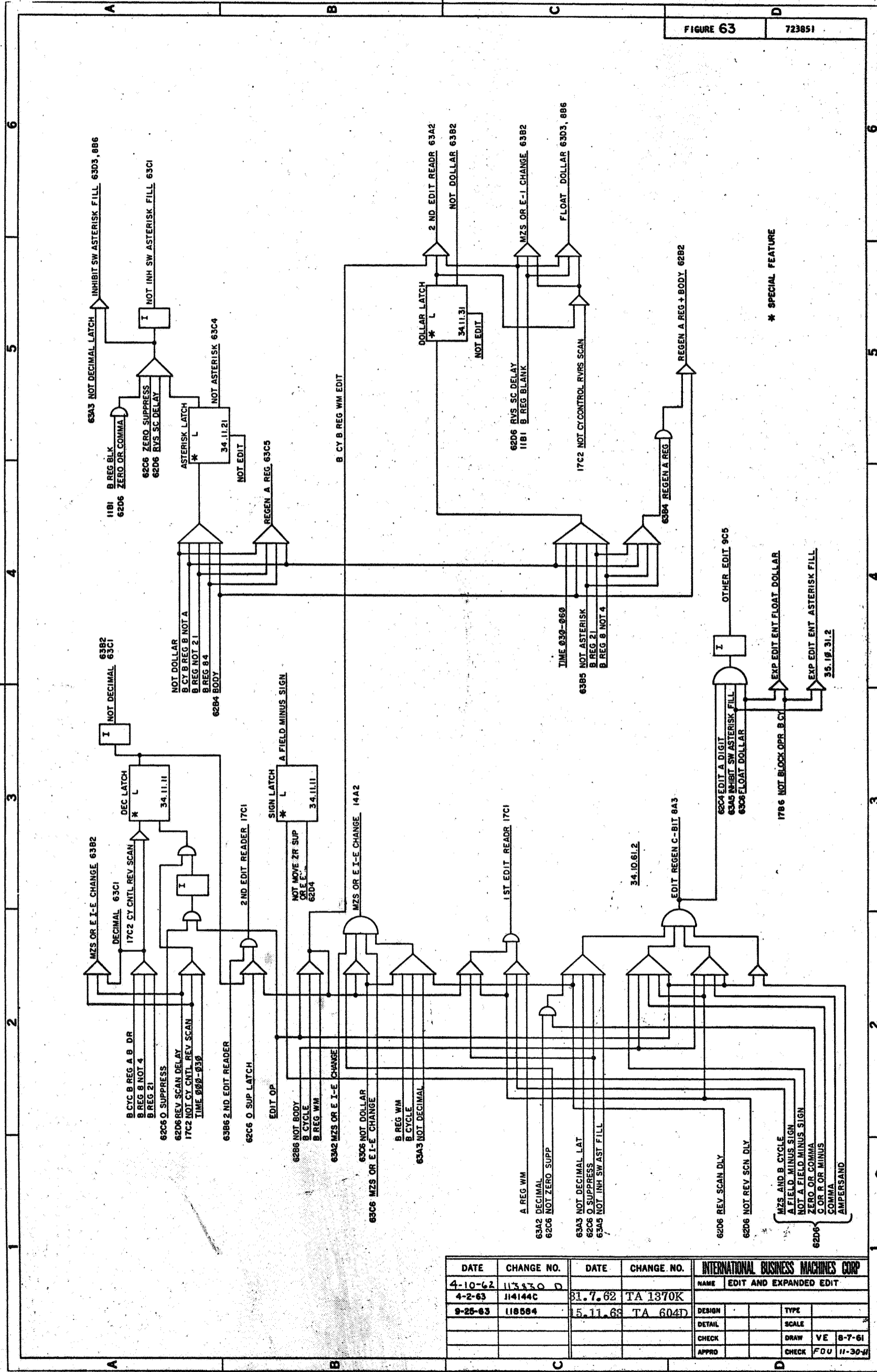
723847



DATE	CHANGE NO	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-10-62	113830 D	31.7.62	TA 1370K	NAME	EDIT AND EXPANDED EDIT I
8-21-62	114144B	4.6.63	TA 1862	DESIGN	TYPE
4-2-63	114144C			DETAIL	SCALE
				CHECK	DRAW VE 7-7-61
				APPRO	CHECK FUL 80-W

723850

FIGURE 63 723851



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-10-62	113330 D			NAME	EDIT AND EXPANDED EDIT
4-2-63	114144C	31.7.62	TA 1370K	DESIGN	TYPE
9-25-63	118584	15.11.63	TA 604D	DETAIL	SCALE
				CHECK	DRAW VE 8-7-61
				APPRO	CHECK FDU 11-30-61

723851

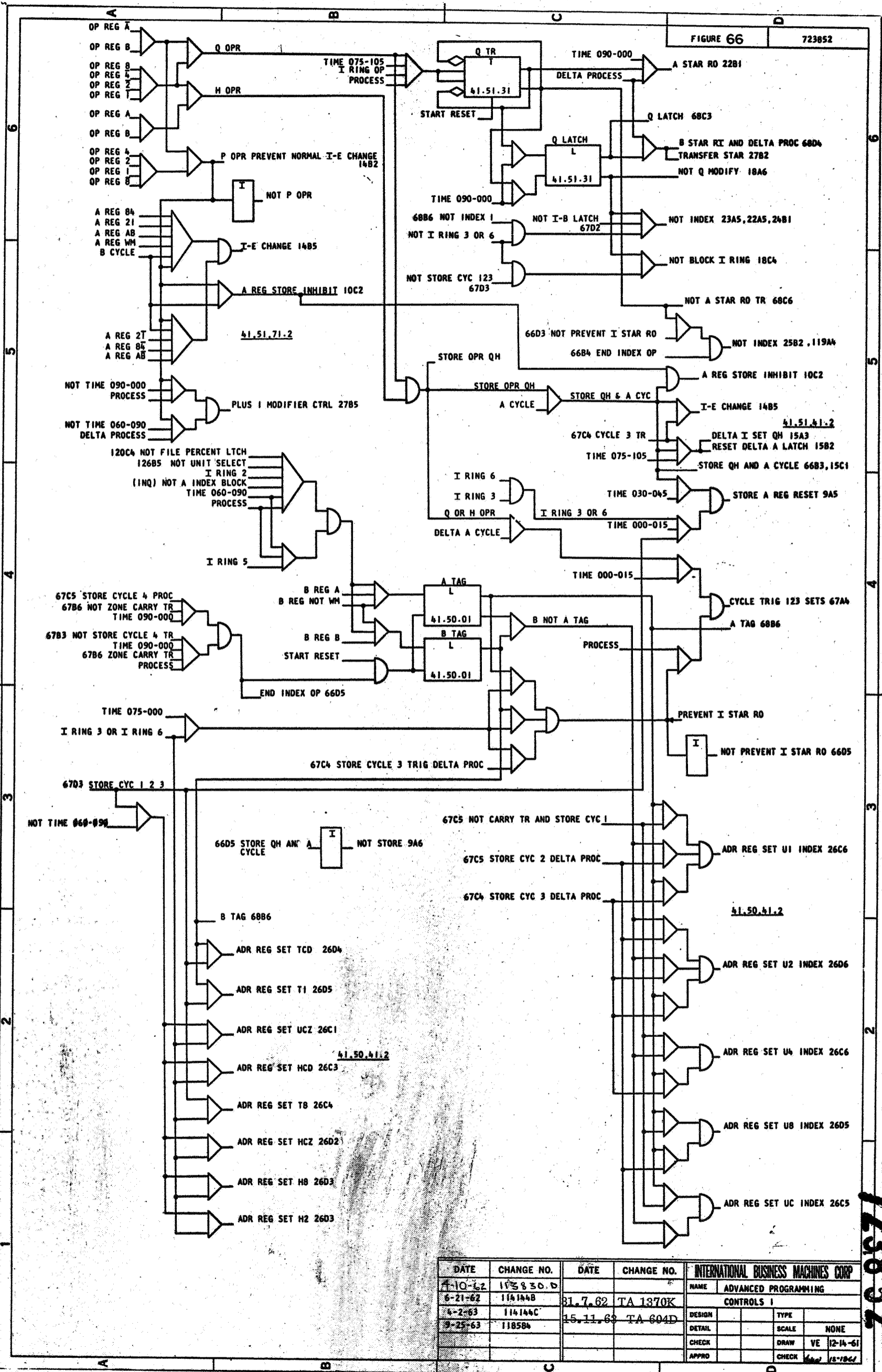
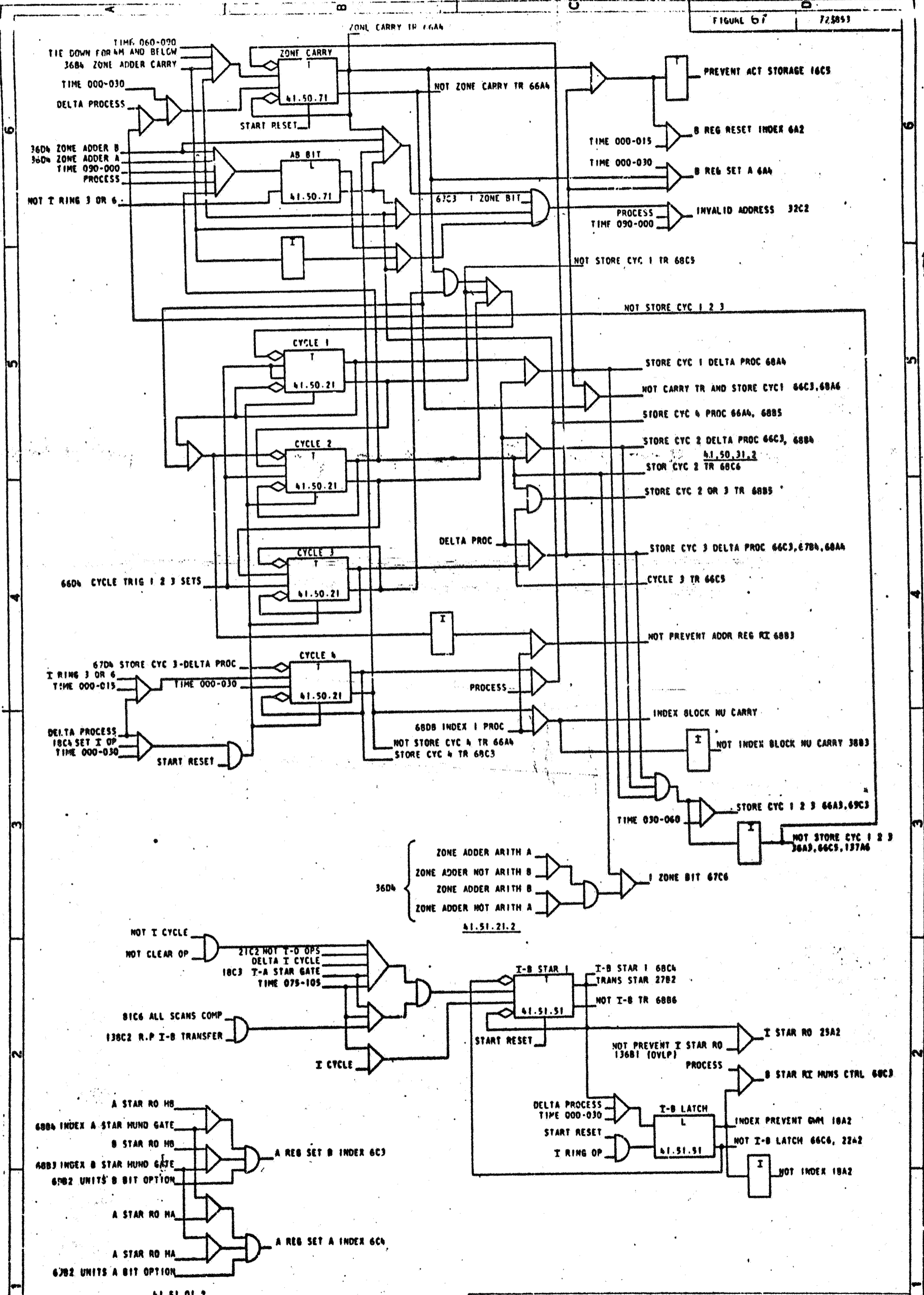


FIGURE 66 723852

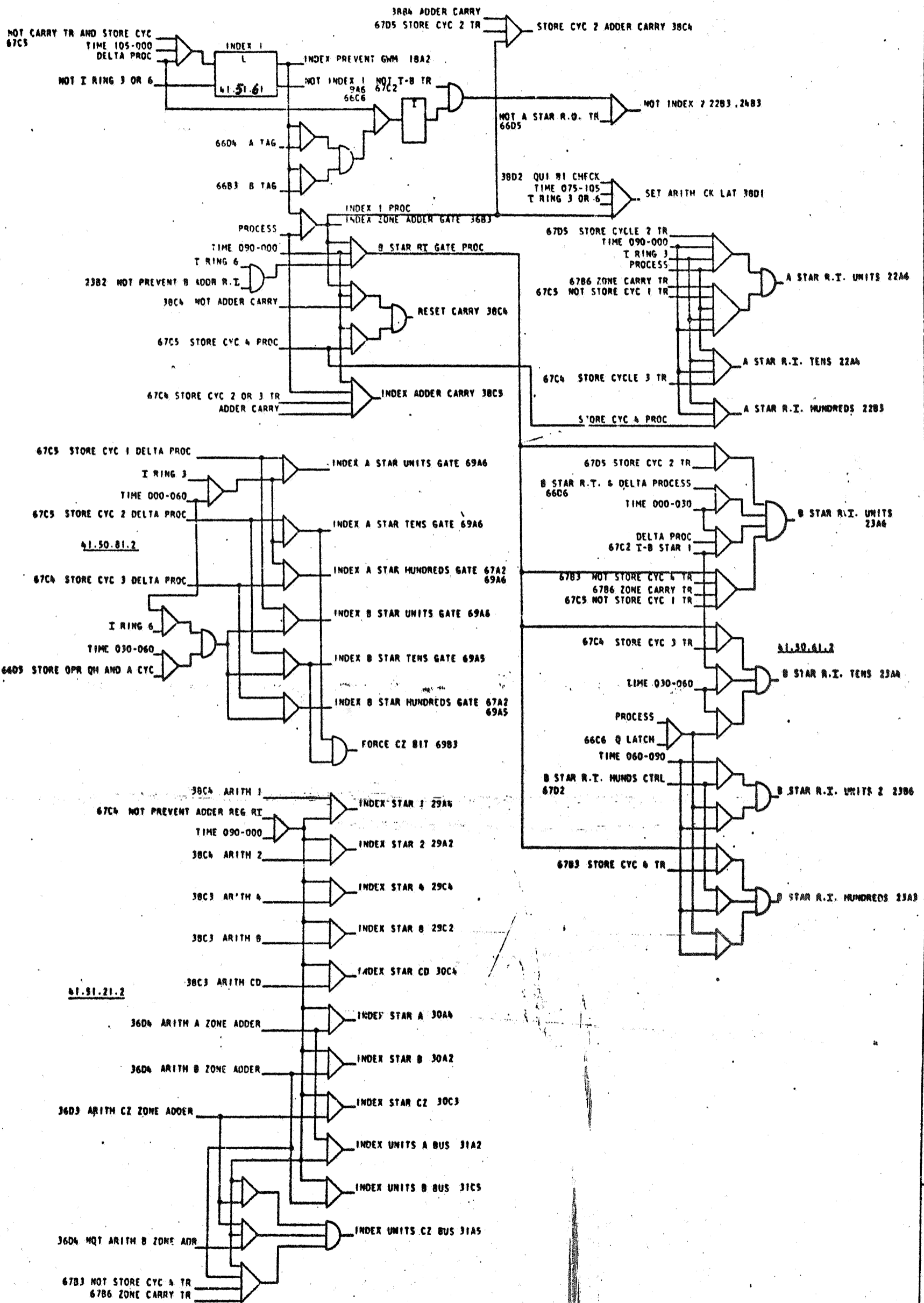
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	118330.D			NAME	ADVANCED PROGRAMMING		
6-21-62	114144B	81.7.62	TA 1370K	CONTROLS I			
4-2-63	114144C	15.11.63	TA 604D	DESIGN		TYPE	
9-25-63	11858a			DETAIL		SCALE	NONE
				CHECK		DRAW	VE 12-14-61
				APPRO		CHECK	6/2 12-18-61

723852



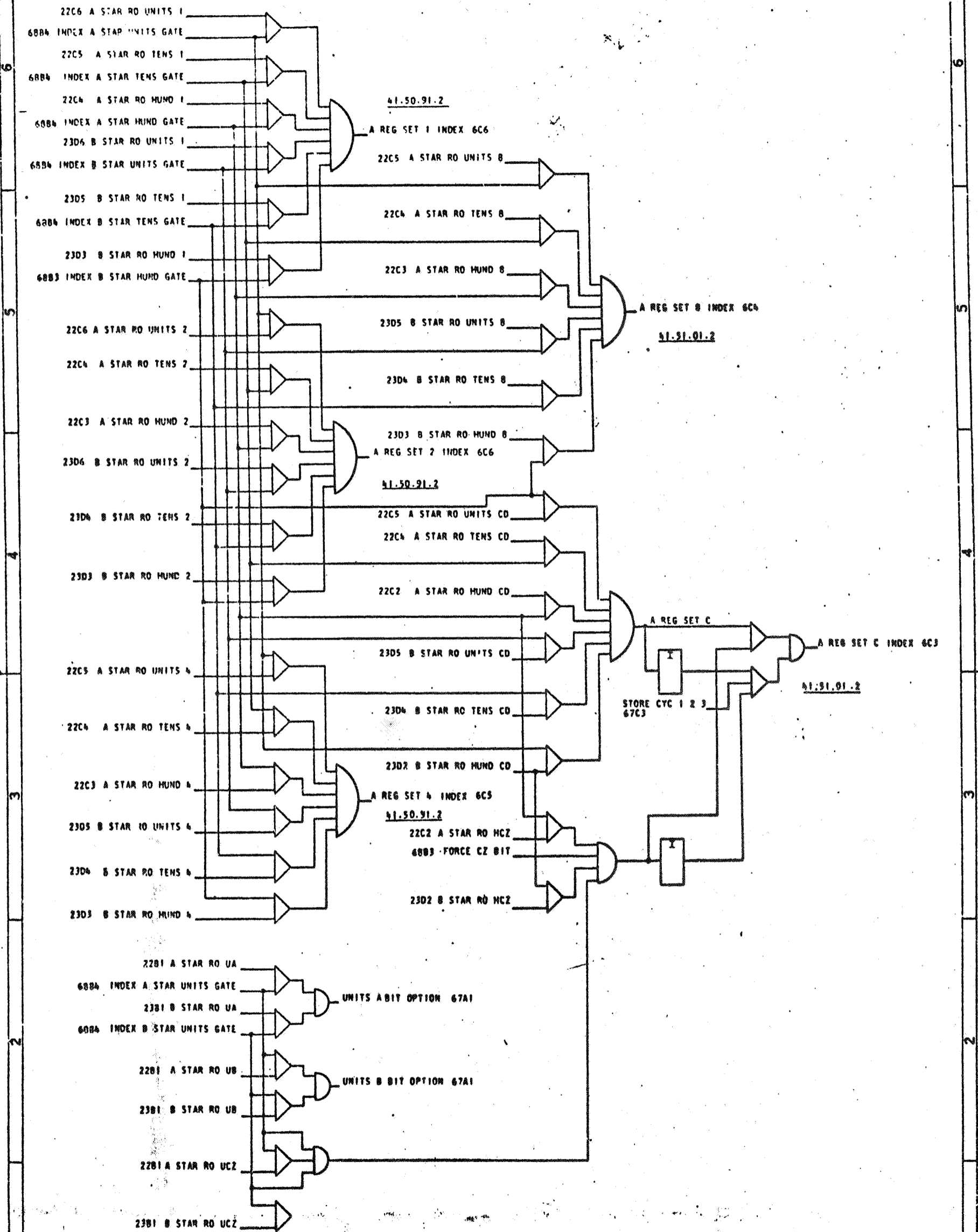
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113430 D	31.7.62	TA 1370K	NAME	ADVANCED		
6-21-62	114144B	4.6.63	TA 1862	PROGRAMMING CONTROLS 2			
6-2-63	114144C			DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 12-4-61
				APPRO		CHECK	12-19-61

12-19-61



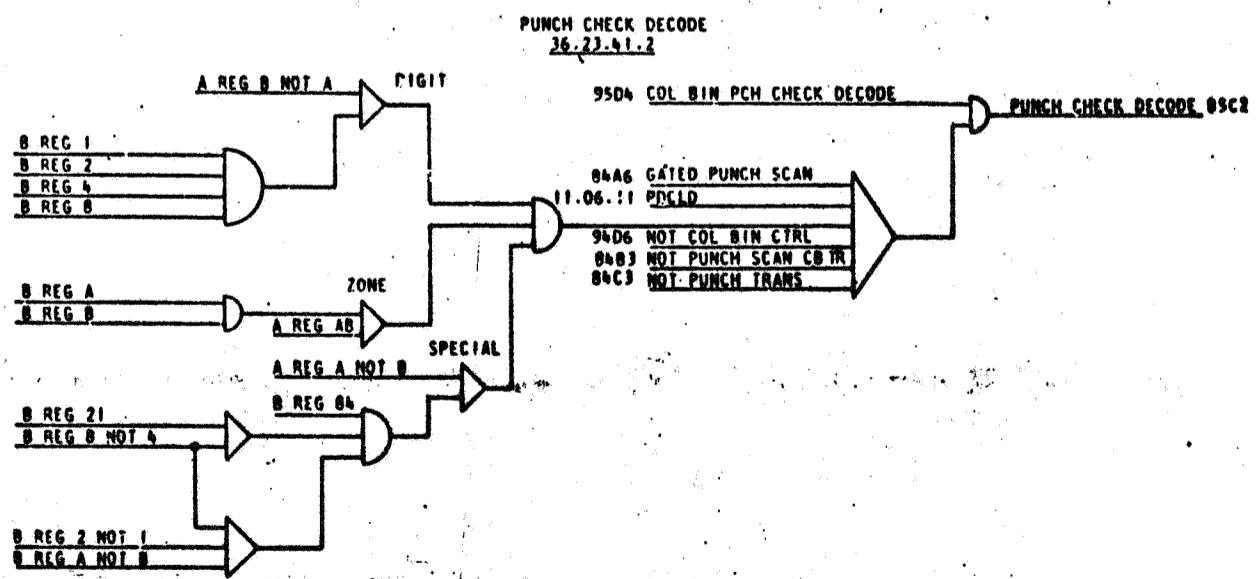
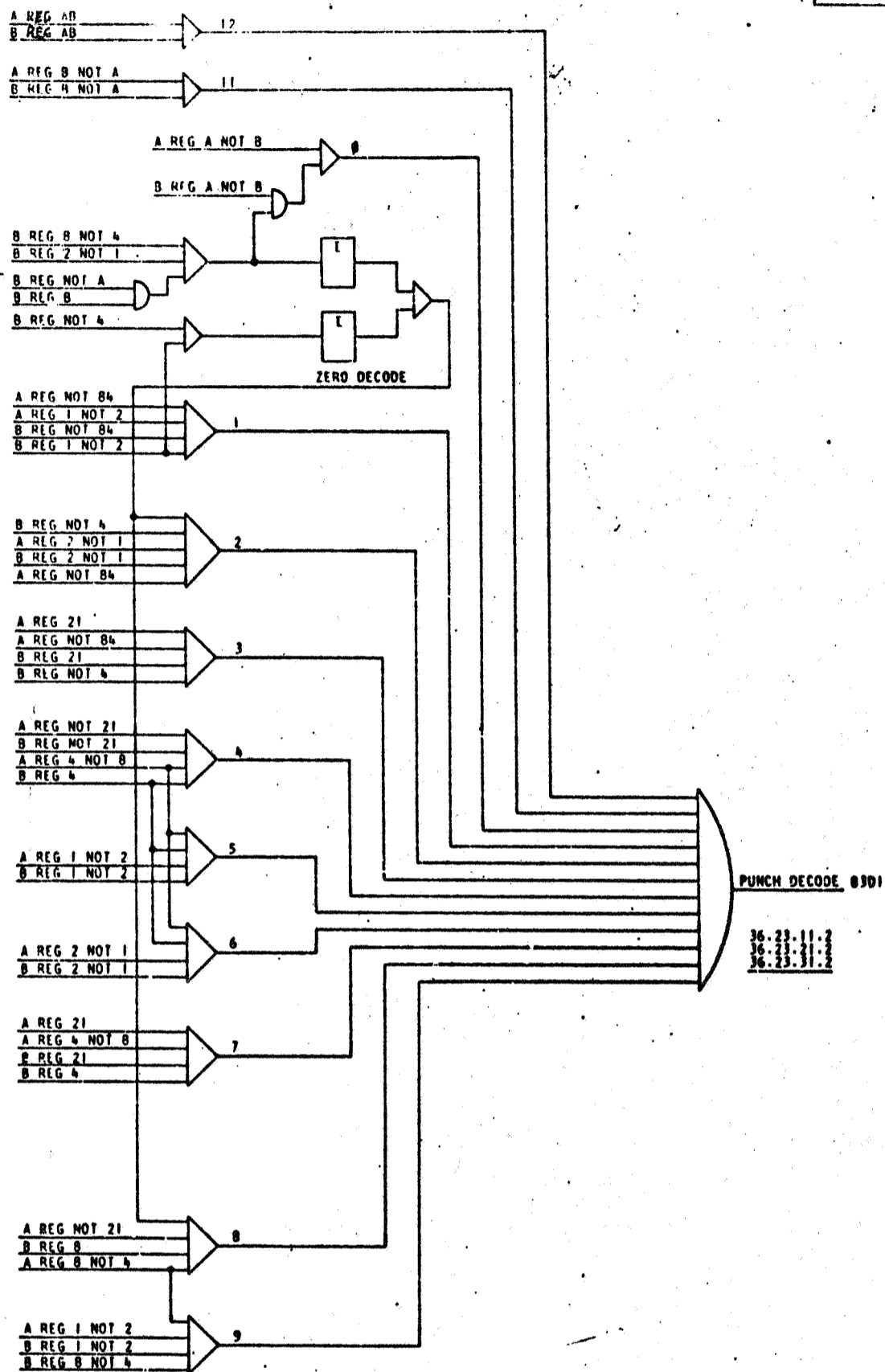
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113850	31.7.62	TA 1370K	NAME	ADVANCED PROGRAMMING		
4-2-63	114144C	4.8.63	TA 1862	CONTROLS 3			
				DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 12-16-61
				APPRO		CHECK	4/2/62

723854
 114144C
 4/2/62



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-61	113930 D	31.7.62	TA 1370K	NAME	ADVANCED PROGRAMMING		
4-2-63	116140C	4.6.63	TA 1862	CONTROLS 4			
				DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 12-14-61
				APPRO		CHECK	12-14-61

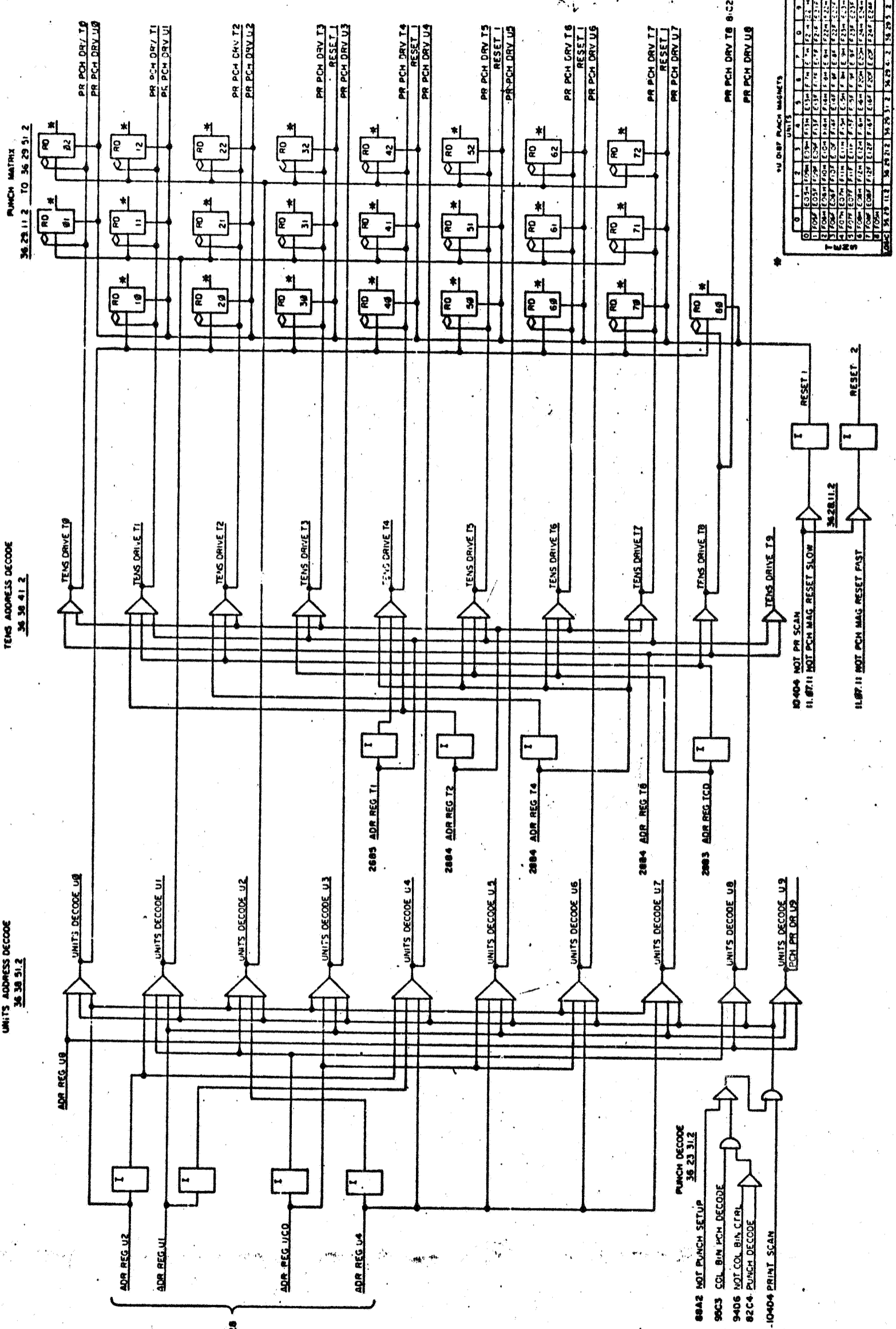
170000
1862



DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113810 D	31.7.62	TA 1370K	NAME	PUNCH A REG DECODE		
4-2-63	114144C	4.6.63	TA 1862	AND PUNCH CHECK DECODE			
				DESIGN		TYPE	
				DETAIL		SCALE	
				CHECK		DRAW VE	7-11-61
				APPRO		CHECK	

723863

1862



NO. DUMP PUNCH MAGNETS

UNIT	1	2	3	4	5	6	7	8	9
0	1034	1035	1036	1037	1038	1039	1040	1041	1042
1	1043	1044	1045	1046	1047	1048	1049	1050	1051
2	1052	1053	1054	1055	1056	1057	1058	1059	1060
3	1061	1062	1063	1064	1065	1066	1067	1068	1069
4	1070	1071	1072	1073	1074	1075	1076	1077	1078
5	1079	1080	1081	1082	1083	1084	1085	1086	1087
6	1088	1089	1090	1091	1092	1093	1094	1095	1096
7	1097	1098	1099	1100	1101	1102	1103	1104	1105
8	1106	1107	1108	1109	1110	1111	1112	1113	1114
9	1115	1116	1117	1118	1119	1120	1121	1122	1123
10	1124	1125	1126	1127	1128	1129	1130	1131	1132
11	1133	1134	1135	1136	1137	1138	1139	1140	1141
12	1142	1143	1144	1145	1146	1147	1148	1149	1150
13	1151	1152	1153	1154	1155	1156	1157	1158	1159
14	1160	1161	1162	1163	1164	1165	1166	1167	1168
15	1169	1170	1171	1172	1173	1174	1175	1176	1177
16	1178	1179	1180	1181	1182	1183	1184	1185	1186
17	1187	1188	1189	1190	1191	1192	1193	1194	1195
18	1196	1197	1198	1199	1200	1201	1202	1203	1204
19	1205	1206	1207	1208	1209	1210	1211	1212	1213
20	1214	1215	1216	1217	1218	1219	1220	1221	1222
21	1223	1224	1225	1226	1227	1228	1229	1230	1231
22	1232	1233	1234	1235	1236	1237	1238	1239	1240
23	1241	1242	1243	1244	1245	1246	1247	1248	1249
24	1250	1251	1252	1253	1254	1255	1256	1257	1258
25	1259	1260	1261	1262	1263	1264	1265	1266	1267
26	1268	1269	1270	1271	1272	1273	1274	1275	1276
27	1277	1278	1279	1280	1281	1282	1283	1284	1285
28	1286	1287	1288	1289	1290	1291	1292	1293	1294
29	1295	1296	1297	1298	1299	1300	1301	1302	1303
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31	1313	1314	1315	1316	1317	1318	1319	1320	1321
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36	1358	1359	1360	1361	1362	1363	1364	1365	1366
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42	1412	1413	1414	1415	1416	1417	1418	1419	1420
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44	1430	1431	1432	1433	1434	1435	1436	1437	1438
45	1439	1440	1441	1442	1443	1444	1445	1446	1447
46	1448	1449	1450	1451	1452	1453	1454	1455	1456
47	1457	1458	1459	1460	1461	1462	1463	1464	1465
48	1466	1467	1468	1469	1470	1471	1472	1473	1474
49	1475	1476	1477	1478	1479	1480	1481	1482	1483
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51	1493	1494	1495	1496	1497	1498	1499	1500	1501
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54	1520	1521	1522	1523	1524	1525	1526	1527	1528
55	1529	1530	1531	1532	1533	1534	1535	1536	1537
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61	1583	1584	1585	1586	1587	1588	1589	1590	1591
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73	1691	1692	1693	1694	1695	1696	1697	1698	1699
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81	1763	1764	1765	1766	1767	1768	1769	1770	1771
82	1772	1773	1774	1775	1776	1777	1778	1779	1780
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85	1799	1800	1801	1802	1803	1804	1805	1806	1807
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91	1853	1854	1855	1856	1857	1858	1859	1860	1861
92	1862	1863	1864	1865	1866	1867	1868	1869	1870
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95	1889	1890	1891	1892	1893	1894	1895	1896	1897
96	1898	1899	1900	1901	1902	1903	1904	1905	1906
97	1907	1908	1909	1910	1911	1912	1913	1914	1915
98	1916	1917	1918	1919	1920	1921	1922	1923	1924
99	1925	1926	1927	1928	1929	1930	1931	1932	1933
100	1934	1935	1936	1937	1938	1939	1940	1941	1942
101	1943	1944	1945	1946	1947	1948	1949	1950	1951
102	1952	1953	1954	1955	1956	1957	1958	1959	1960
103	1961	1962	1963	1964	1965	1966	1967	1968	1969
104	1970	1971	1972	1973	1974	1975	1976	1977	1978
105	1979	1980	1981	1982	1983	1984	1985	1986	1987
106	1988	1989	1990	1991	1992	1993	1994	1995	1996
107	1997	1998	1999	2000	2001	2002	2003	2004	2005
108	2006	2007	2008	2009	2010	2011	2012	2013	2014
109	2015	2016	2017	2018	2019	2020	2021	2022	2023
110	2024	2025	2026	2027	2028	2029	2030	2031	2032
111	2033	2034	2035	2036	2037	2038	2039	2040	2041
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113	2051	2052	2053	2054	2055	2056	2057	20	

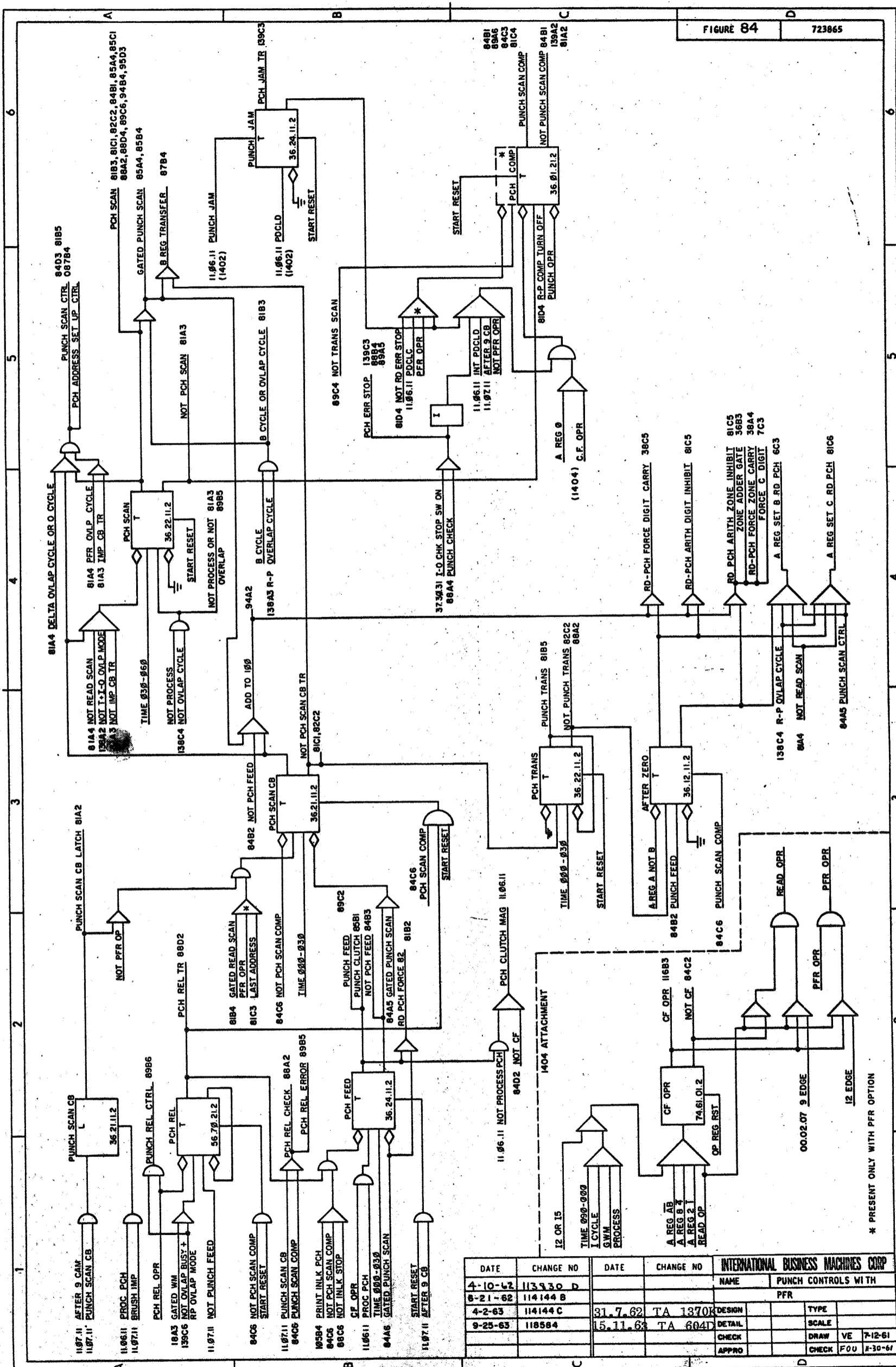
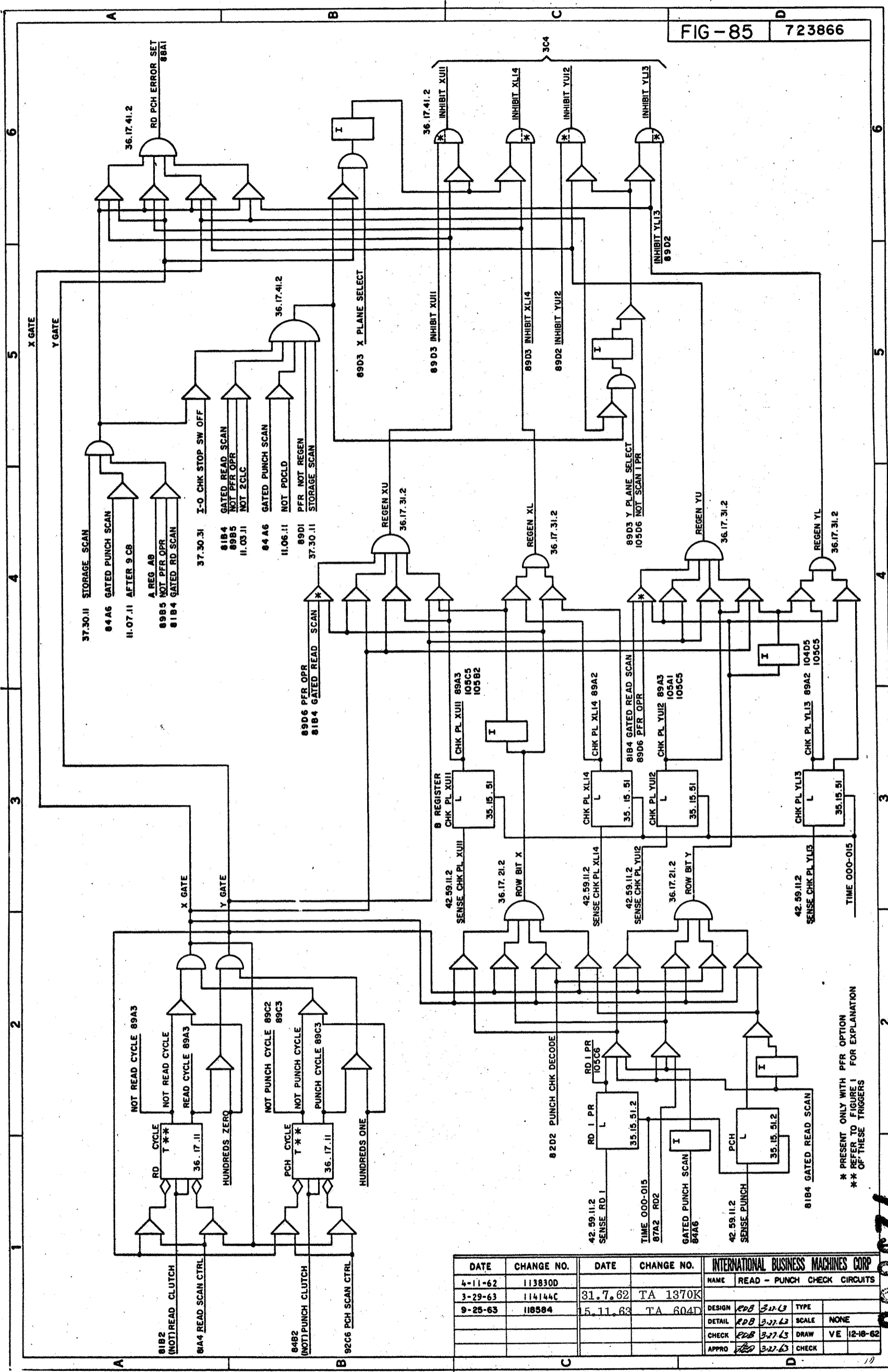


FIGURE 84 723865

DATE		CHANGE NO		INTERNATIONAL BUSINESS MACHINES CORP	
4-10-62	113530 D			NAME	PUNCH CONTROLS WITH
8-21-62	114144 B				PFR
4-2-63	114144 C	31.7.62	TA 1370K	DESIGN	TYPE
9-25-63	118584	15.11.63	TA 604D	DETAIL	SCALE
				CHECK	DRAW VE 7-12-61
				APPRO	CHECK FOU 11-30-61

723865

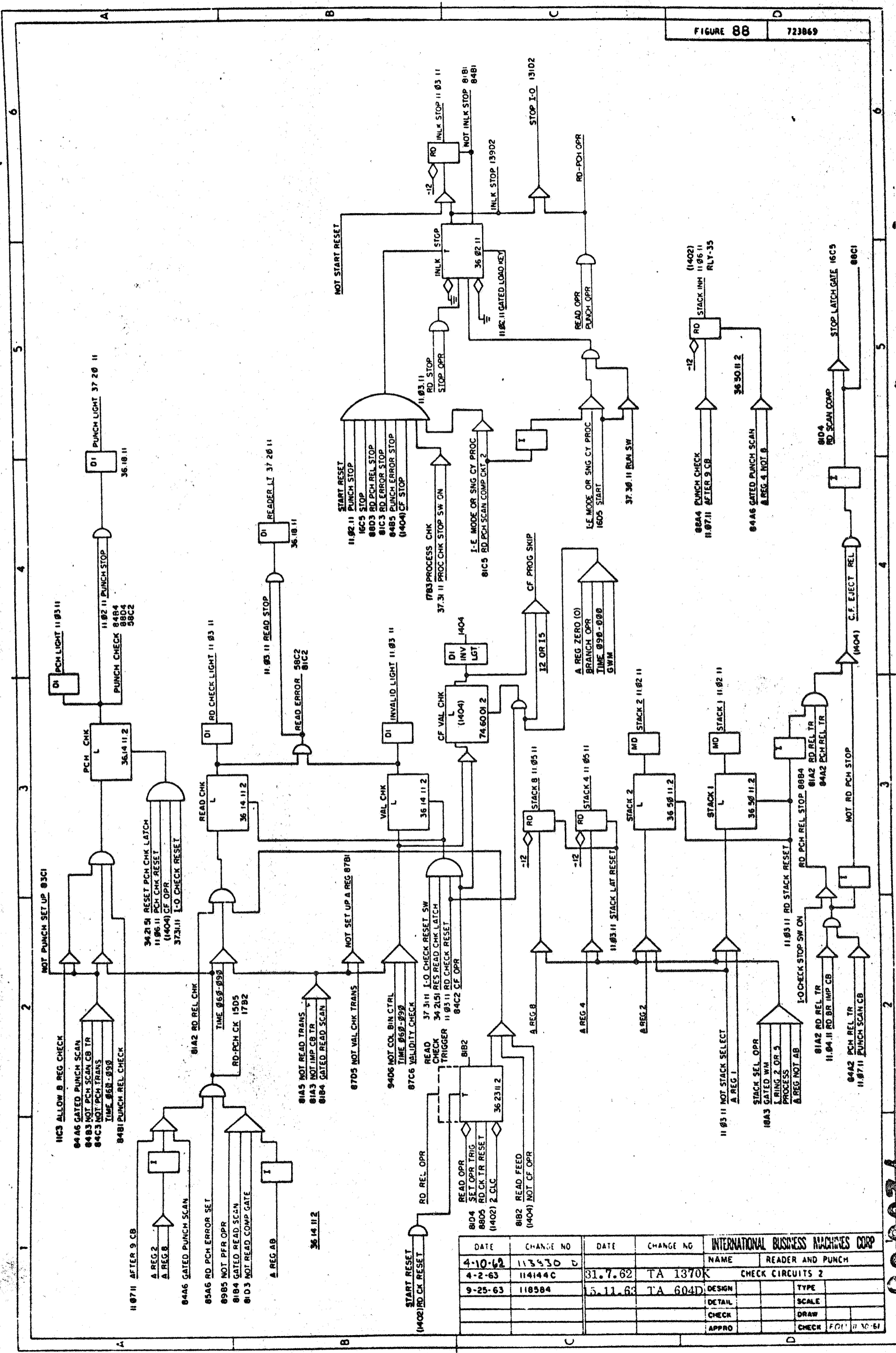
* PRESENT ONLY WITH PFR OPTION



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-11-62	113830D			NAME	READ - PUNCH CHECK CIRCUITS
3-29-63	114144C	31.7.62	TA 1370K	DESIGN	RDB 3-27-63
9-25-63	118584	15.11.63	TA 604D	DETAIL	RDB 3-27-63
				CHECK	RDB 3-27-63
				APPRO	RDB 3-27-63
				TYPE	NONE
				SCALE	VE
				DRAW	12-18-62
				CHECK	

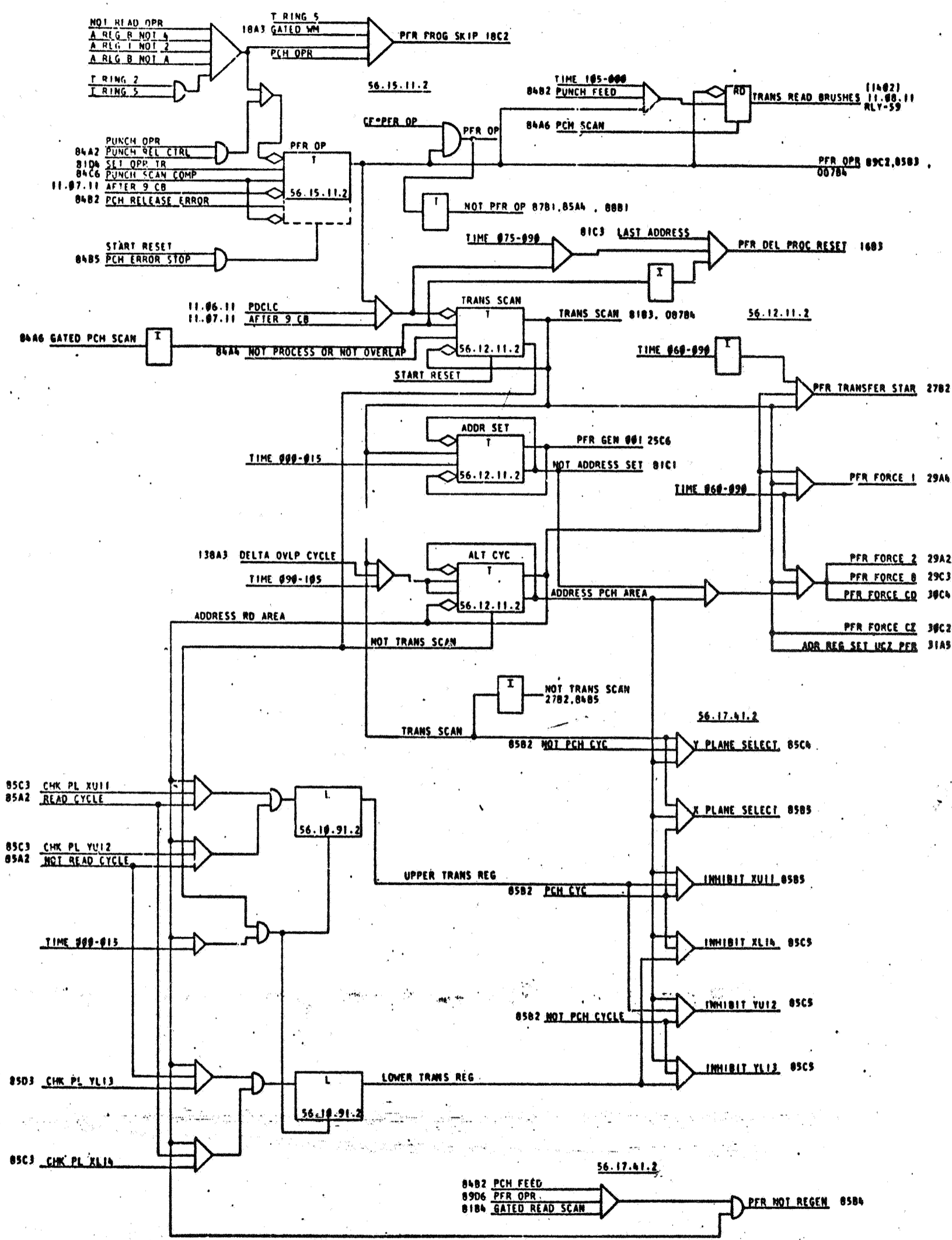
* PRESENT ONLY WITH PFR OPTION
 ** REFER TO FIGURE 1 FOR EXPLANATION OF THESE TRIGGERS

723866



DATE		CHANGE NO		INTERNATIONAL BUSINESS MACHINES CORP	
4-10-63	113530	0		NAME	READER AND PUNCH
4-2-63	114144	C		CHECK CIRCUITS 2	
9-25-63	118584			DESIGN	TYPE
				DETAIL	SCALE
				CHECK	DRAW
				APPRO	CHECK

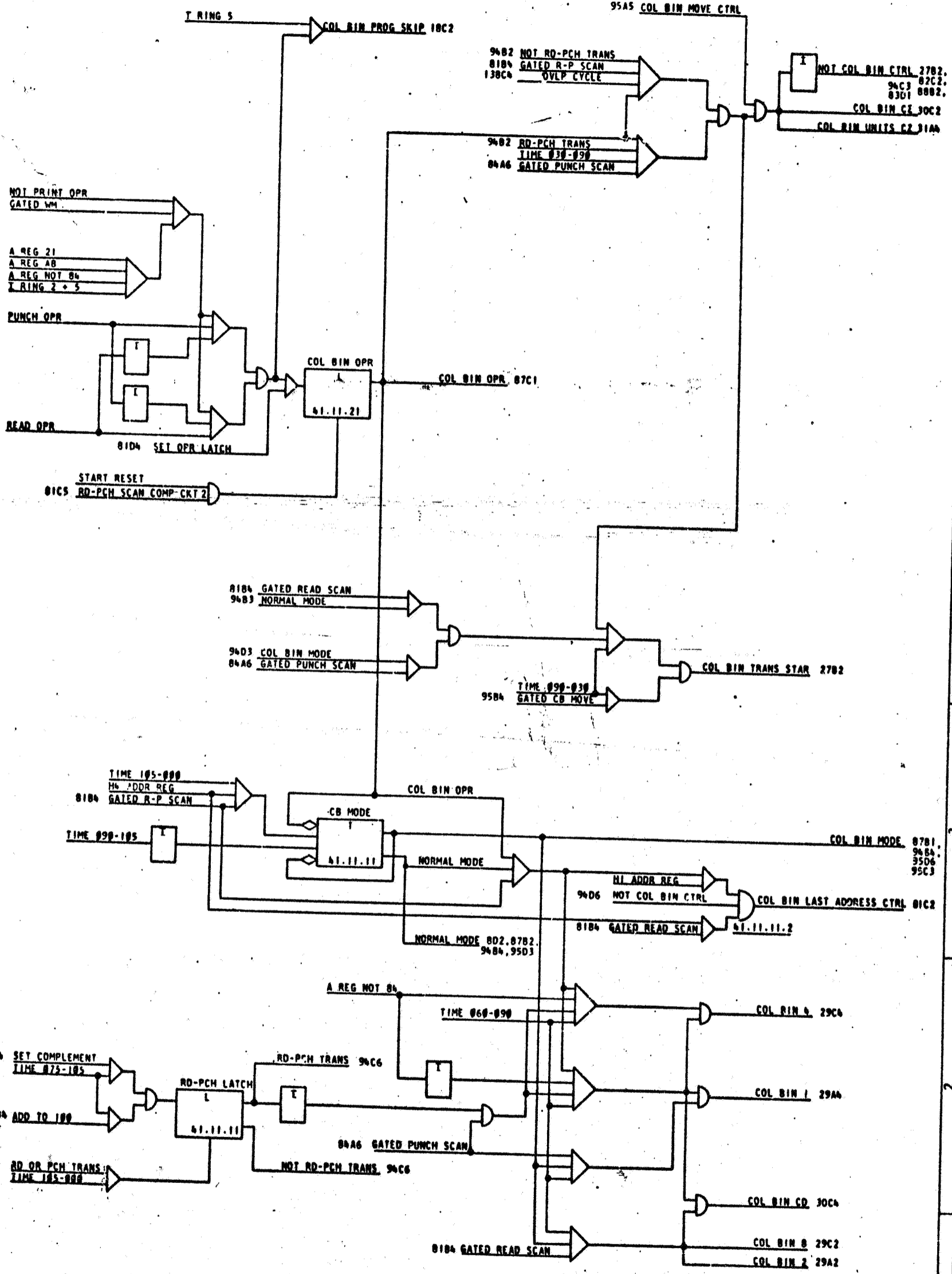
723869



DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP	
4-10-62	113830	31.7.62	TA 1370K	NAME	PFR CONTROLS
6-21-62	114144B	4.6.63	TA 1862	DESIGN	TYPE
4-2-63	114144C			DETAILED	SCALE
				CHECK	DRAW VE 7-8-61
				APPRO	CHECK

1862
 723870

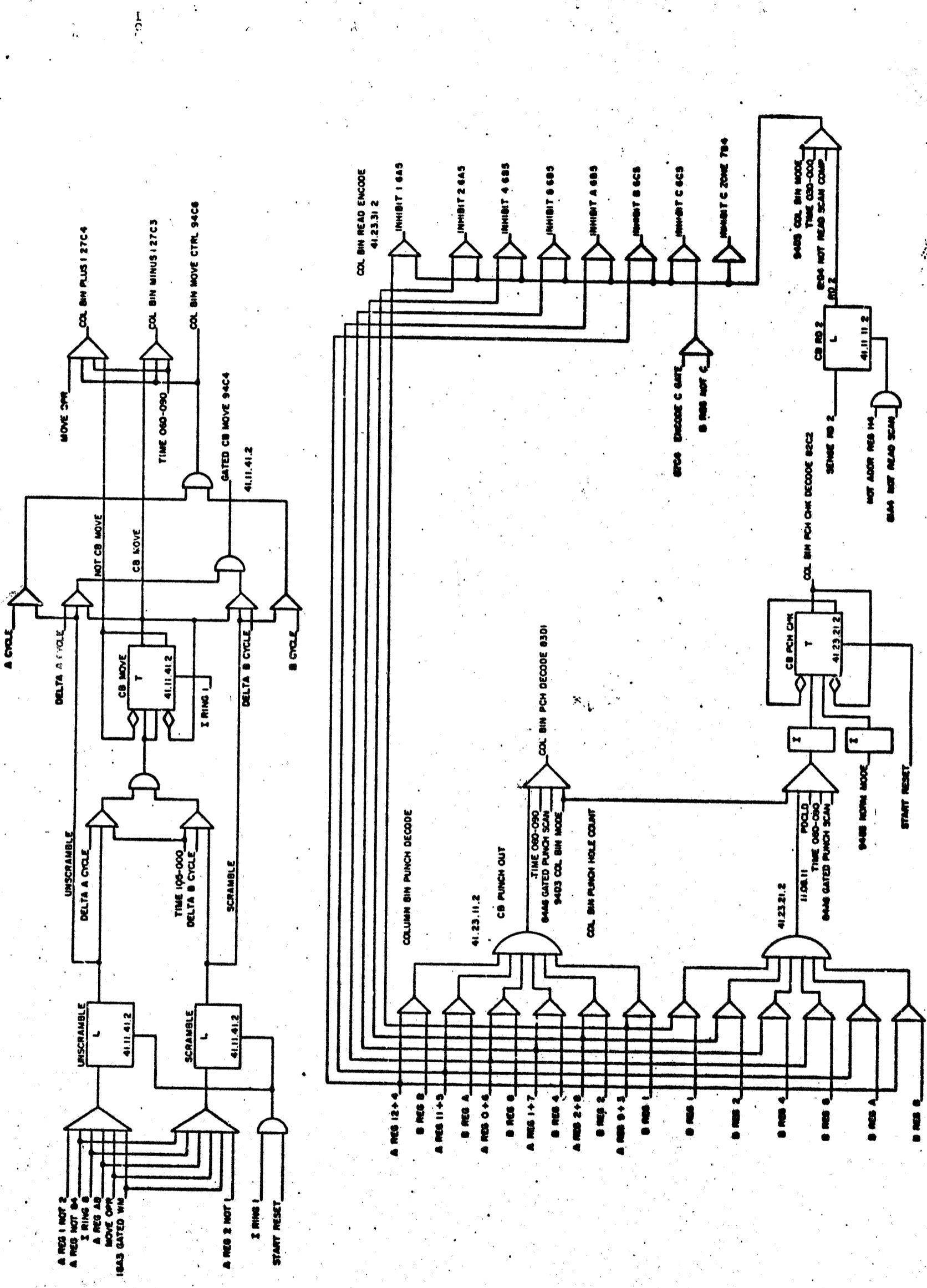
41.11.21.2



DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113930 D	31-7-62	TA 1370K	NAME	COLUMN BINARY		
4-2-63	116164C	4-6-63	TA 1862	CONTROLS I			
				DESIGN		TYPE	
				DETAIL		SCALE	
				CHECK		DRAW	VE 7-8-61
				APPRO		CHECK	

723876
1862

FIG-95 723877



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-11-62	1138300	31.7.62	TA 1370K	NAME	COLUMN BINARY CONTROLS 2		
3-29-63	114144C	4.6.62	TA 1862	DESIGN	EDS	3.11.63	TYPE
				DETAIL	EDS	3.11.63	SCALE
				CHECK	EDS	3.11.63	DRAW
				APPRO	450		CHECK

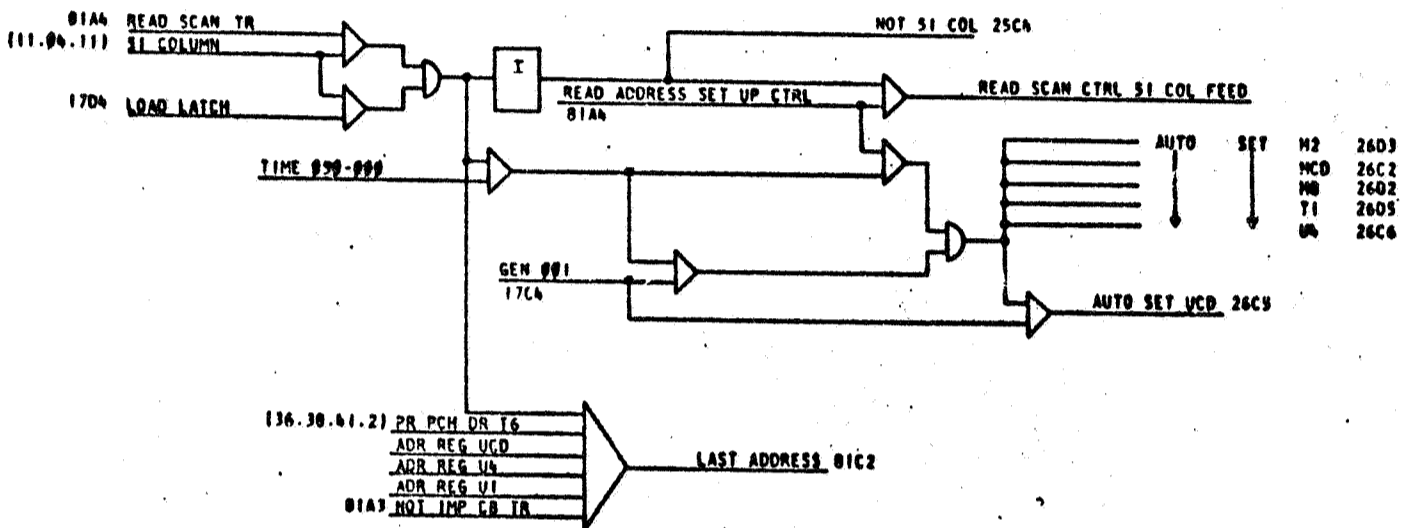
723877

1862

FIGURE 97

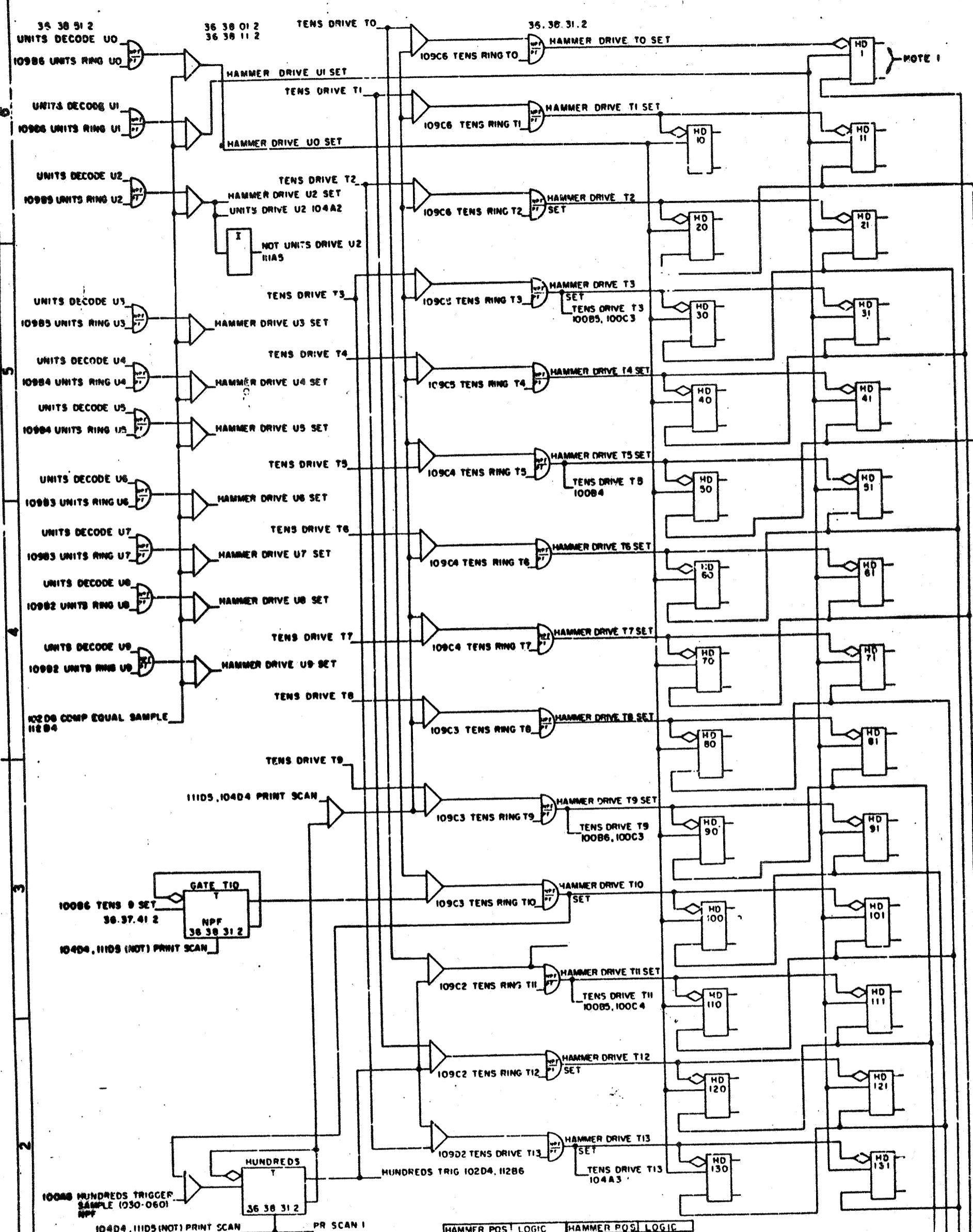
723879

SI COLUMN FEED
56.80.11.2



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113930 D	31.7.62	TA 1370K	NAME SI COLUMN FEED			
6-2-63	116144C	4.6.63	TA 1862	DESIGN		TYPE	
				DETAIL		SCALE	
				CHECK		DRAW	VE 9-12-61
				APPRO		CHECK	

723879
4862



HAMMER FIRE TEST POINTS V OIB5

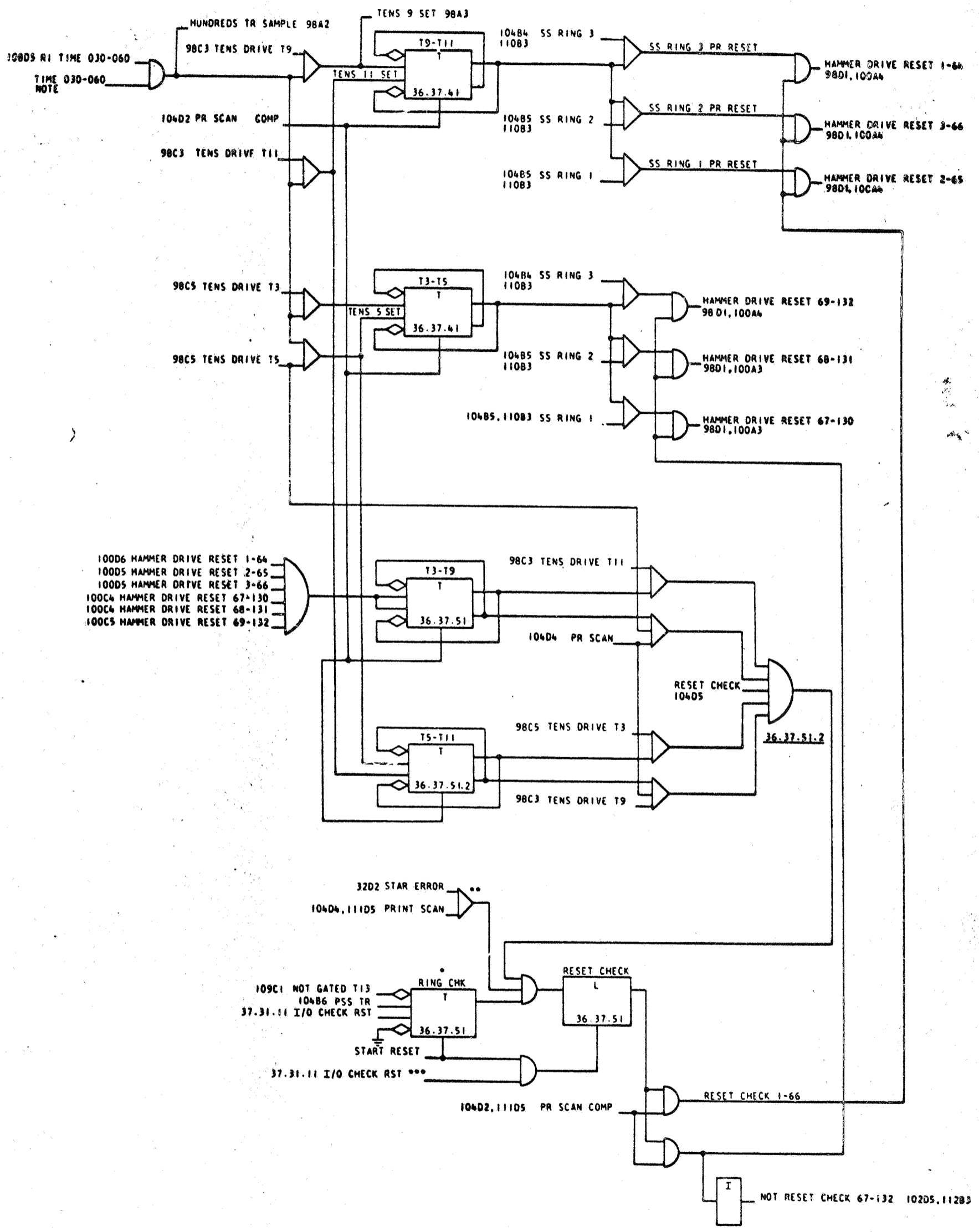
	UNITS								
	1	2	3	4	5	6	7	8	9
0	B05D	C05R	D05D	B05R	C05D	C05R	B06D	C06R	D06D
1	B06R	C06D	D06R	B07D	C07R	D07D	B07R	C07D	D07R
2	C08R	D08D	B08R	C08D	D08R	B09D	C09R	D09D	B09R
3	D09R	B10D	C10R	D10D	B10R	C10D	D10R	B11D	C11R
4	B11R	C11D	D11R	B12D	C12R	D12D	B12R	C12D	D12R
5	C13R	D13D	B13R	C13D	D13R	B14D	C14R	D14D	B14R
6	D14R	B15D	C15R	D15D	B15R	C15D	D15R	B16D	C16R
7	B16R	C16D	D16R	B17D	C17R	D17D	B17R	C17D	D17R
8	C18R	D18D	B18R	C18D	D18R	B19D	C19R	D19D	B19R
9	D19R	B20D	C20R	D20D	B20R	C20D	D20R	B21D	C21R
10	B21R	C21D	D21R	B22D	C22R	D22D	B22R	C22D	D22R
11	C23R	D23D	B23R	C23D	D23R	B24D	C24R	D24D	B24R
12	D24R	B25D	C25R	D25D	B25R	C25D	D25R	B26D	C26R
13	B26R	C26D	D26R						

HAMMER POS	LOGIC	HAMMER POS	LOGIC
1 - 9	36 38 61 2	90 - 99	36 39 51 2
10 - 19	36 38 71 2	100 - 109	36 39 61 2
20 - 29	36 38 81 2	110 - 119	36 39 71 2
30 - 39	36 38 91 2	120 - 129	36 39 81 2
40 - 49	36 39 01 2	130 - 132	36 39 91 2
50 - 59	36 39 11 2		
60 - 69	36 39 21 2		
70 - 79	36 39 31 2		
80 - 89	36 39 41 2		

- 10005 HAMMER RESET 69-132
- 10004 HAMMER RESET 67-130
- 10004 HAMMER RESET 68-131
- 10005 HAMMER RESET 3-68
- 10005 HAMMER RESET 1-64
- 10005 HAMMER RESET 2-65

NOTE 1 - TOP HALF OF HD'S GOES TO HAMMER COILS BOTTOM HALF OF HD'S GOES OUT AS RESPONSE LINES

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-11-62	113830D	31.7.62	TA 1370K	NAME	PRINT - DATA FLOW
1-29-63	114144C	4.6.63	TA 1862	DESIGN	TYPE
				DETAIL	SCALE NONE
				CHECK	DRAW VE 12-10-62
				APPRO	

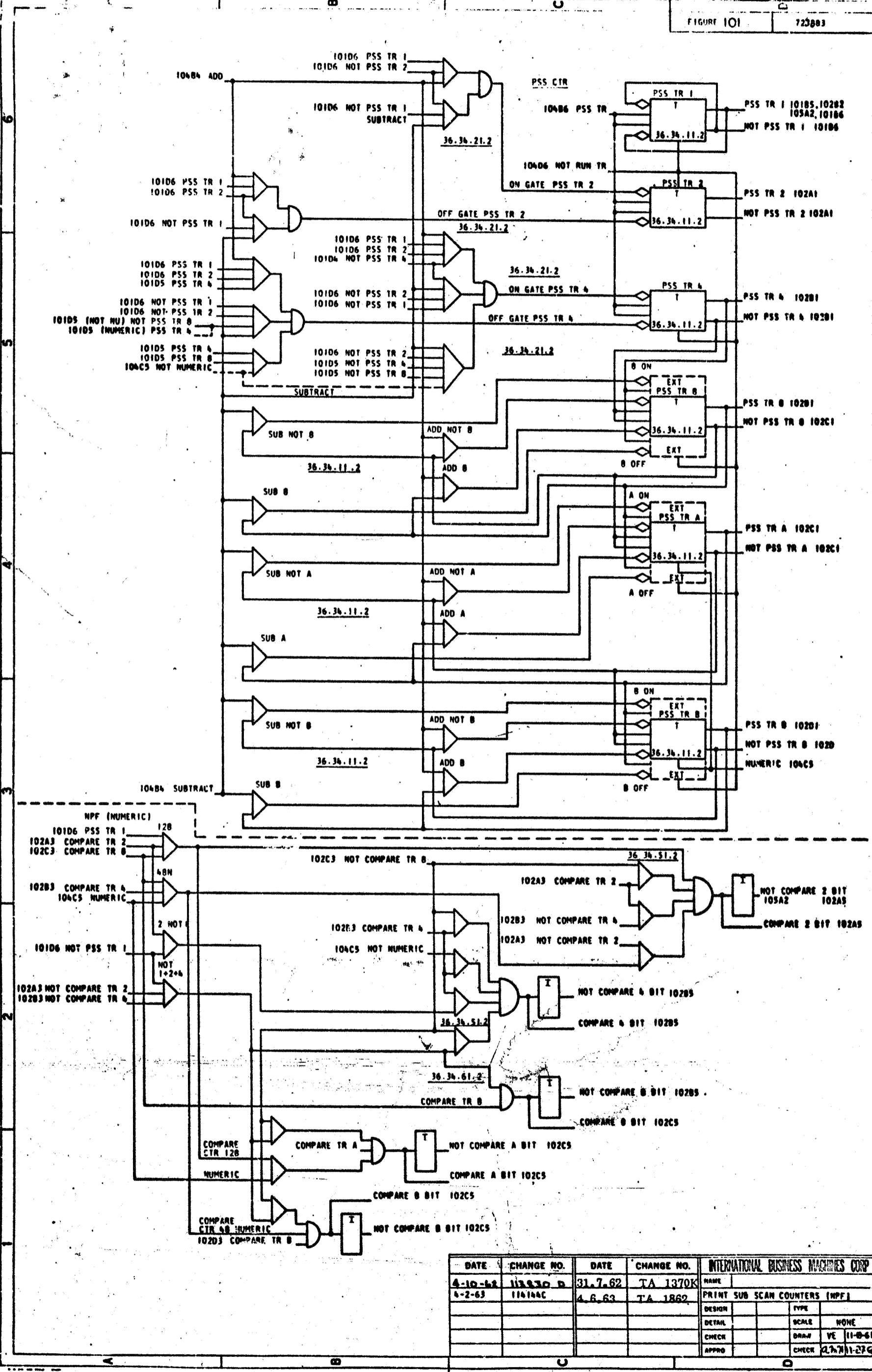


*PRESENT WITH PF OPTION ONLY
 **PRESENT WITH NPF OPTION ONLY
 ***CAPACITOR INPUT-LATCH CAN NOT BE HELD IN THE OFF CONDITION

NOTE: REFER TO LOGIC 36.37.41 FOR DIFFERENCE OF PF AND NPF

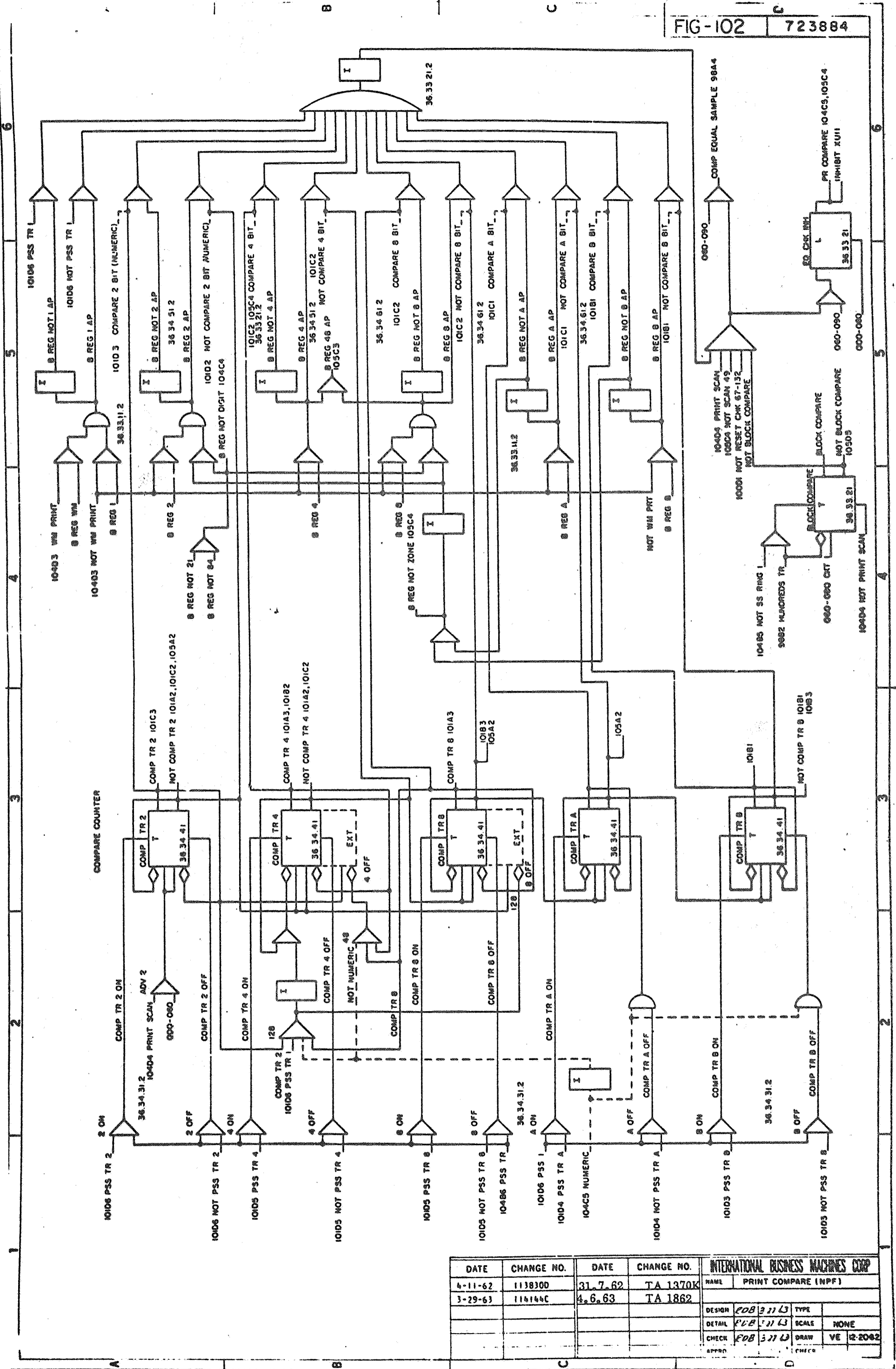
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP		
4-10-62	113530 D			NAME	HAMMER DRIVE RESET	
6-21-62	114144B			DESIGN		TYPE
4-2-63	114144C	31.7.62	TA 1370K	DETAIL		SCALE NONE
9-25-63	118584	15.11.63	TA 604T	CHECK		DRAW VE. 1-9-63
				APPRO		CHECK

723882



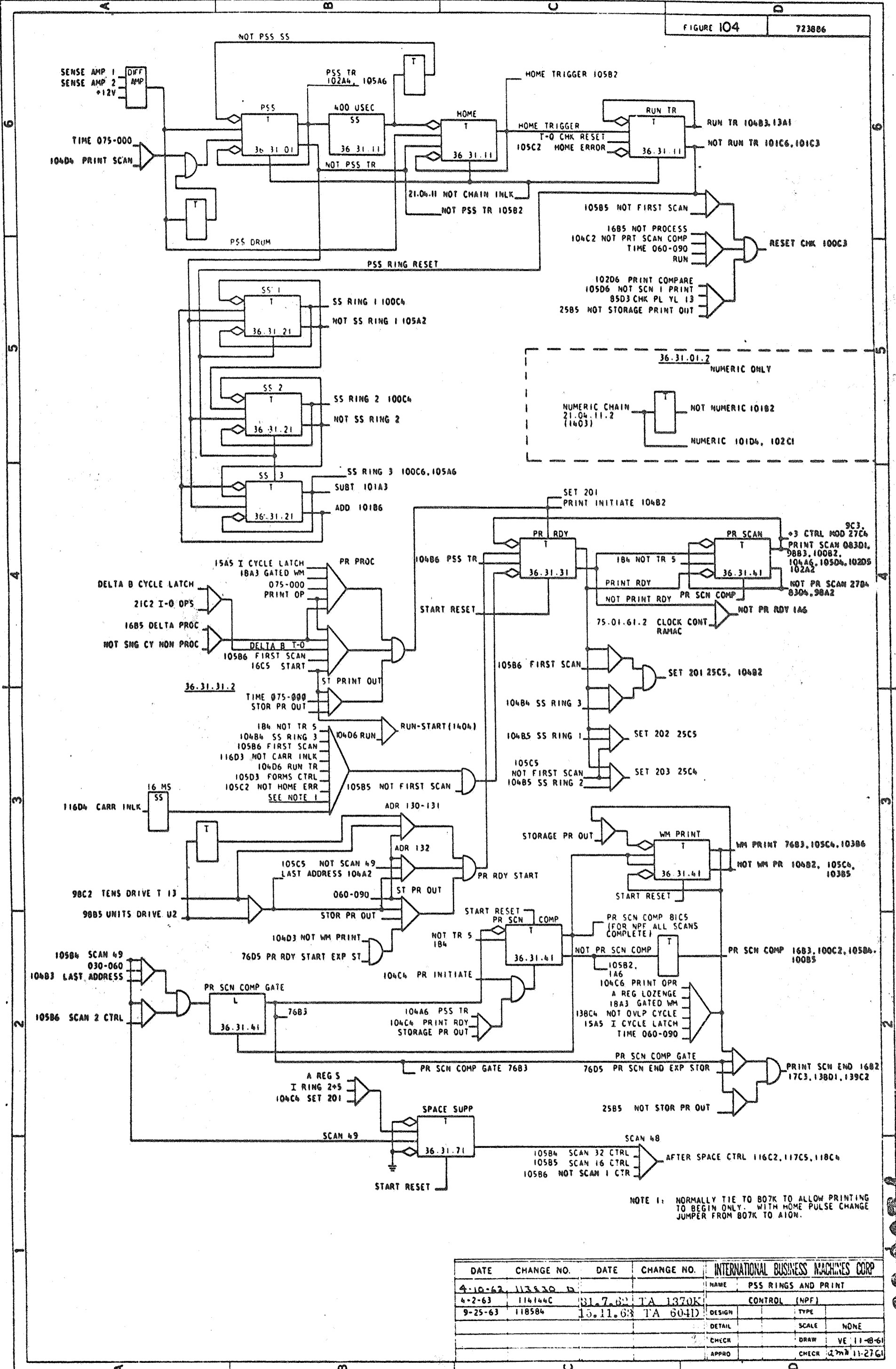
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP		
4-10-62	11330 D	31.7.62	TA 1370K	NAME		
4-2-63	11614AC	4.6.63	TA 1862	PRINT SUB SCAN COUNTERS (NPF)		
				DESIGN	TYPE	
				DETAIL	SCALE	NONE
				CHECK	DRAWN	VE 11-0-61
				APPRO	CHECK	2.7.711-2761

723803
228177



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-11-62	113830D	31.7.62	TA 1370K	NAME	PRINT COMPARE (NPF)
3-29-63	116166C	4.6.63	TA 1862	DESIGN	FDB 311 L3
				DETAIL	FDB 311 L3
				CHECK	FDB 311 L3
				TYPE	
				SCALE	NONE
				DRAW	VE 12-2082
				CHECK	

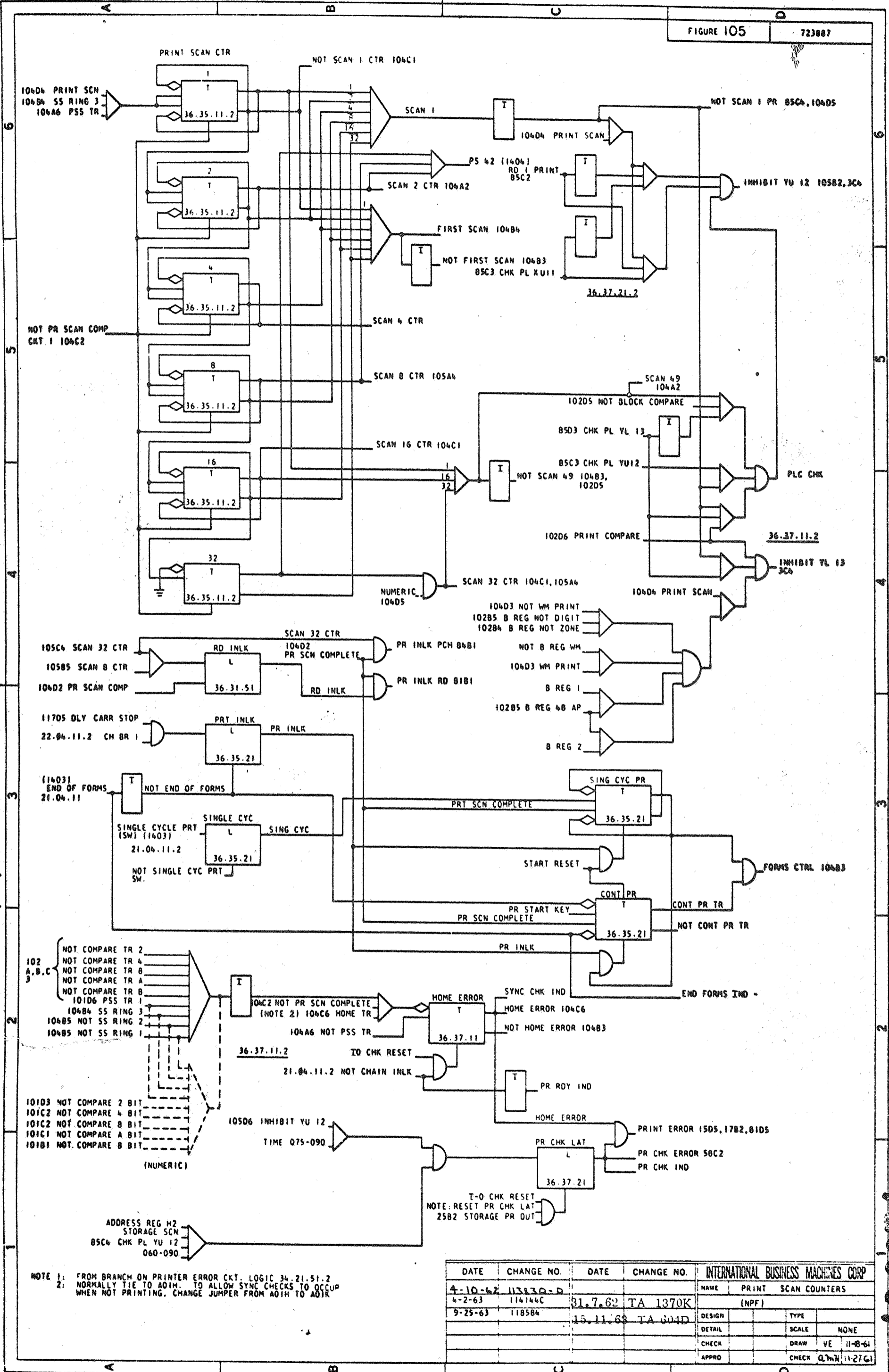
723884



NOTE 1: NORMALLY TIE TO 807K TO ALLOW PRINTING TO BEGIN ONLY. WITH HOME PULSE CHANGE JUMPER FROM 807K TO A10N.

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-63	113930 D			NAME PSS RINGS AND PRINT
4-2-63	114144C	31.7.63	TA 1370K	CONTROL (NPF)
9-25-63	118584	15.11.63	TA 604D	DESIGN TYPE
				DETAIL SCALE NONE
				CHECK DRAW VE 11-8-61
				APPRO CHECK 11-27-61

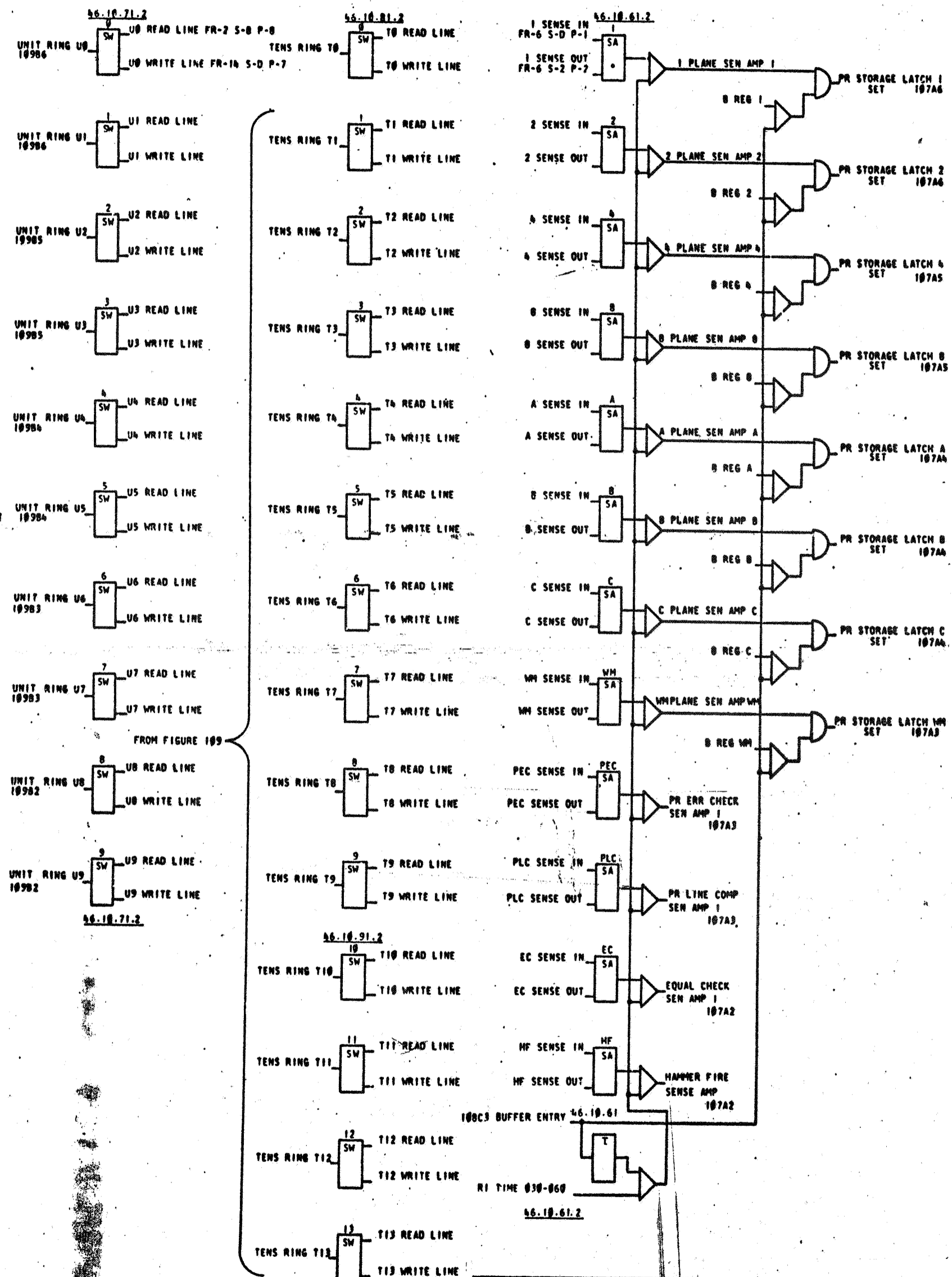
723886



NOTE 1: FROM BRANCH ON PRINTER ERROR CKT. LOGIC 36.21.51.2
 2: NORMALLY TIE TO ADIM. TO ALLOW SYNC CHECKS TO OCCUR WHEN NOT PRINTING. CHANGE JUMPER FROM ADIM TO ADIR

DATE		CHANGE NO.		INTERNATIONAL BUSINESS MACHINES CORP		
4-10-62	113830-D			NAME PRINT SCAN COUNTERS		
4-2-63	116144C	31.7.62	TA 1370K	(NPF)		
9-25-63	118584	15.11.63	TA 301D	DESIGN	TYPE	
				DETAIL	SCALE	NONE
				CHECK	DRAW	VE 11-8-64
				APPRO	CHECK	Q.7M 11-27-64

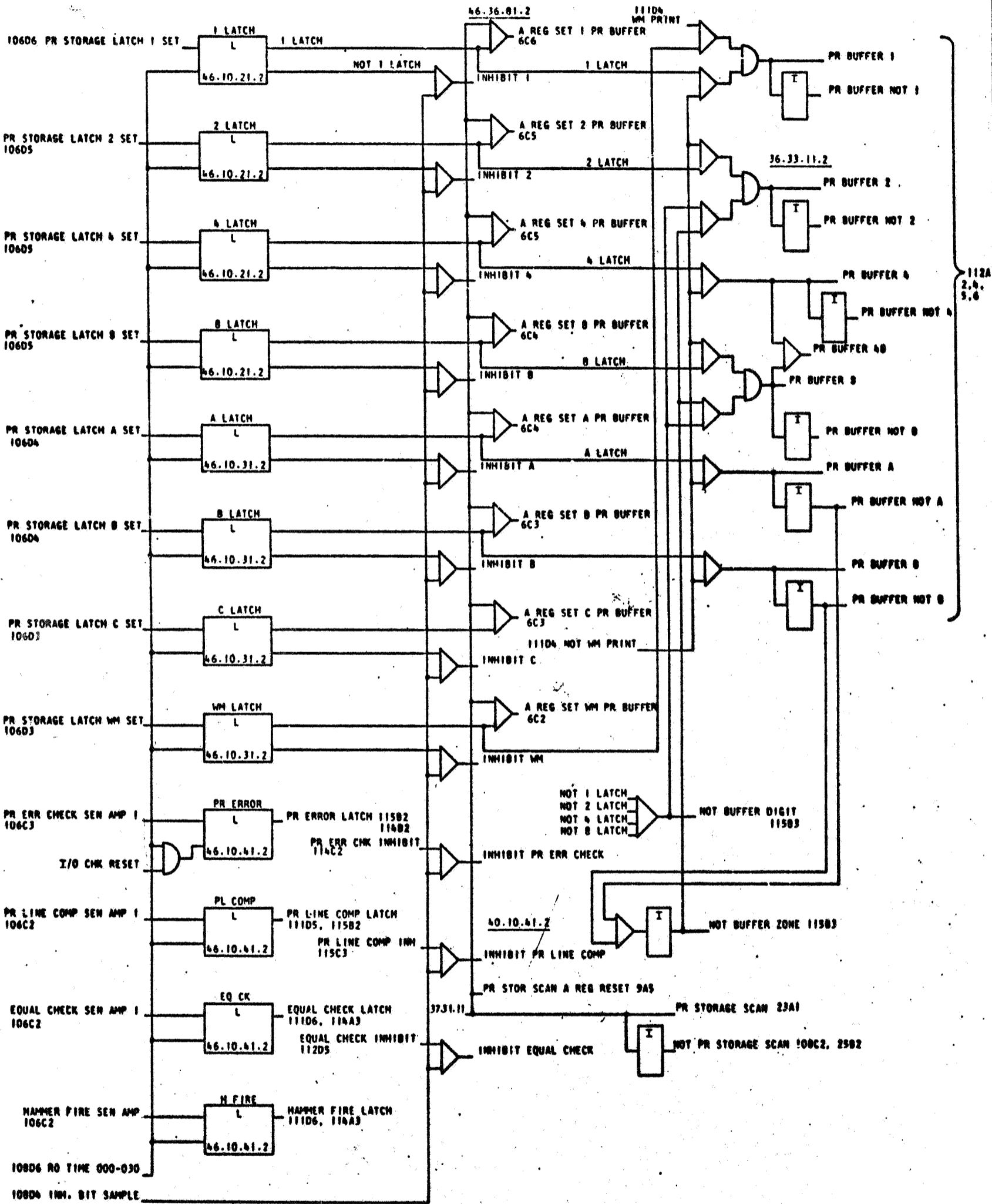
723887



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	11320 D	31.7.62	TA 1370K	NAME PRINT BUFFER STORAGE AND			
4-2-63	114144C	4.6.63	TA 1862	DATA FLOW 1 (PF)			
				DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 11-29-61
				APPRO		CHECK	12-4-61

723888

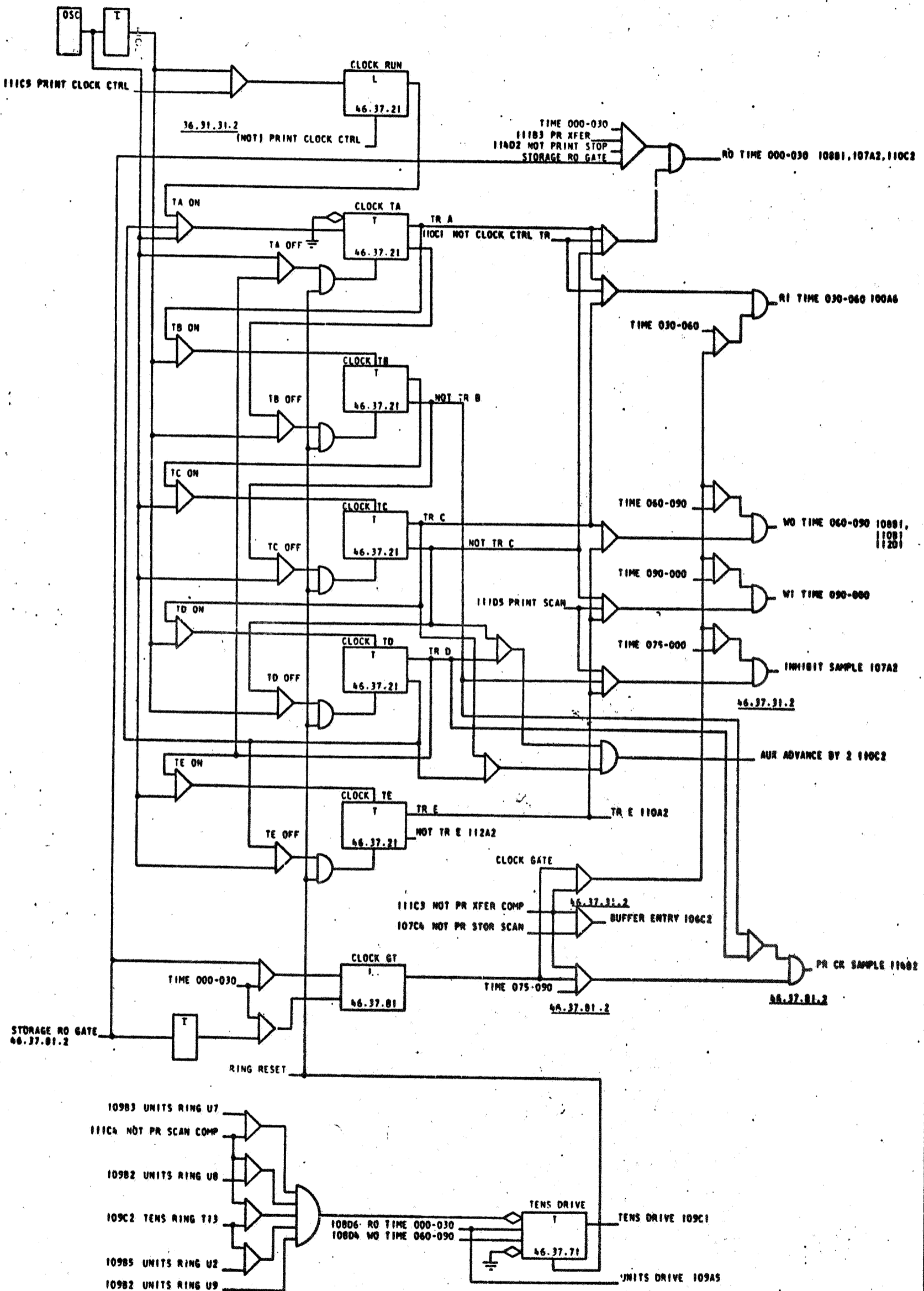
PRINT STORAGE LATCHES



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113330 S	31.7.62	TA 1370K	NAME	PRINT BUFFER STORAGE AND		
4-2-63	114144C	4.6.63	TA 1862		DATA FLOW 2 (PF)		
				DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 11-29-61
				APPRO		CHECK	12-4-61

723899

723890

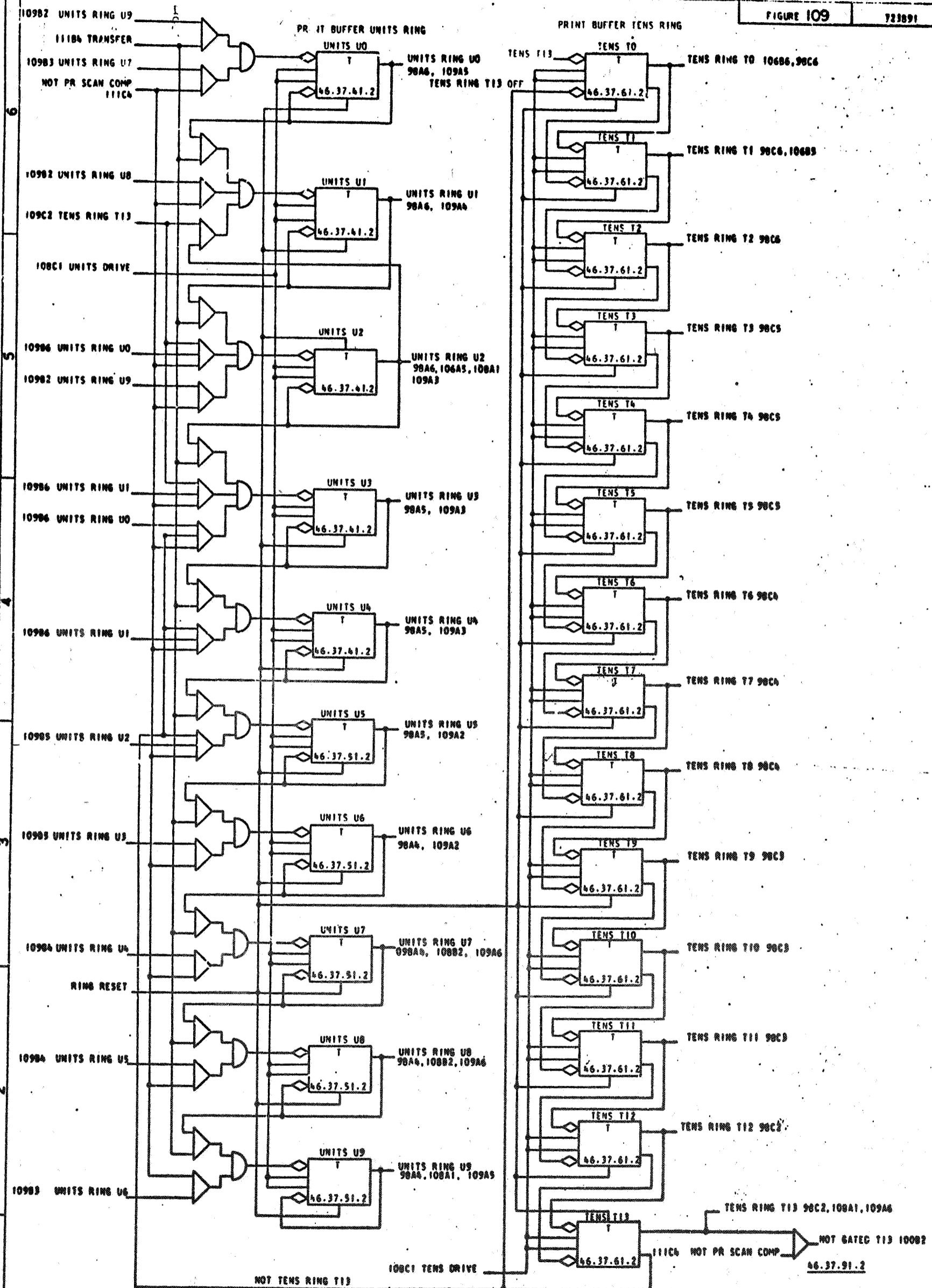


DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-10-62	113930 D	31.7.62	TA 1370K	NAME	PRINT BUFFER CLOCK (PF)
4-2-63	114144C	4.8.63	TA 1842	DESIGN	TYPE
				DETAIL	SCALE
				CHECK	DRAW
				APPRO	CHECK

723890

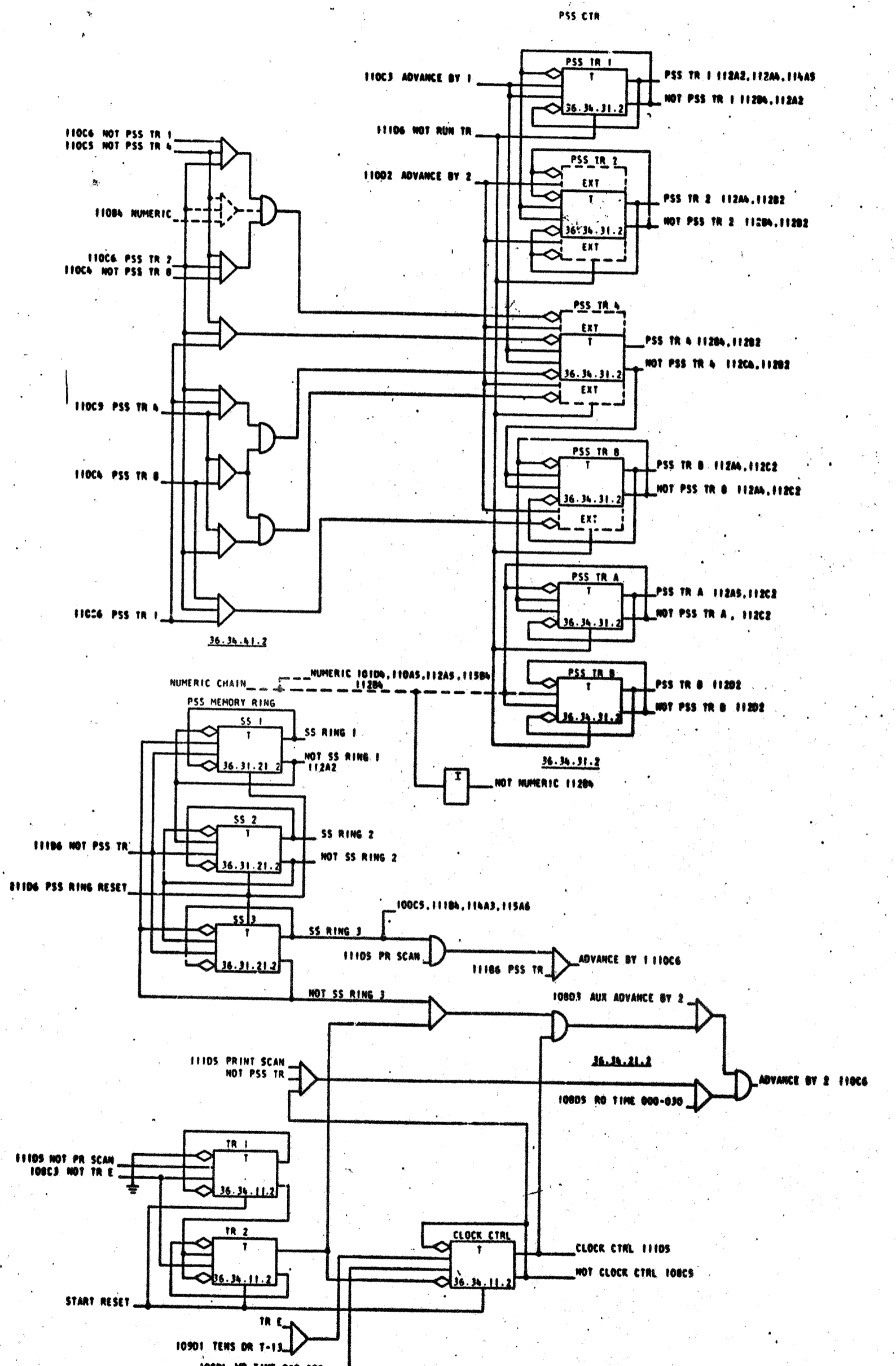
FIGURE 109

723891



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-10-62	11330	31.7.62	TA 1370K	NAME	PRINT BUFFER RINGS
4-2-63	11616C	4.6.63	TA 1862		(PF)
				DESIGN	TYPE
				DETAIL	SCALE NONE
				CHECK	DRAW VE 1-10-62
				APPRO	CHECK

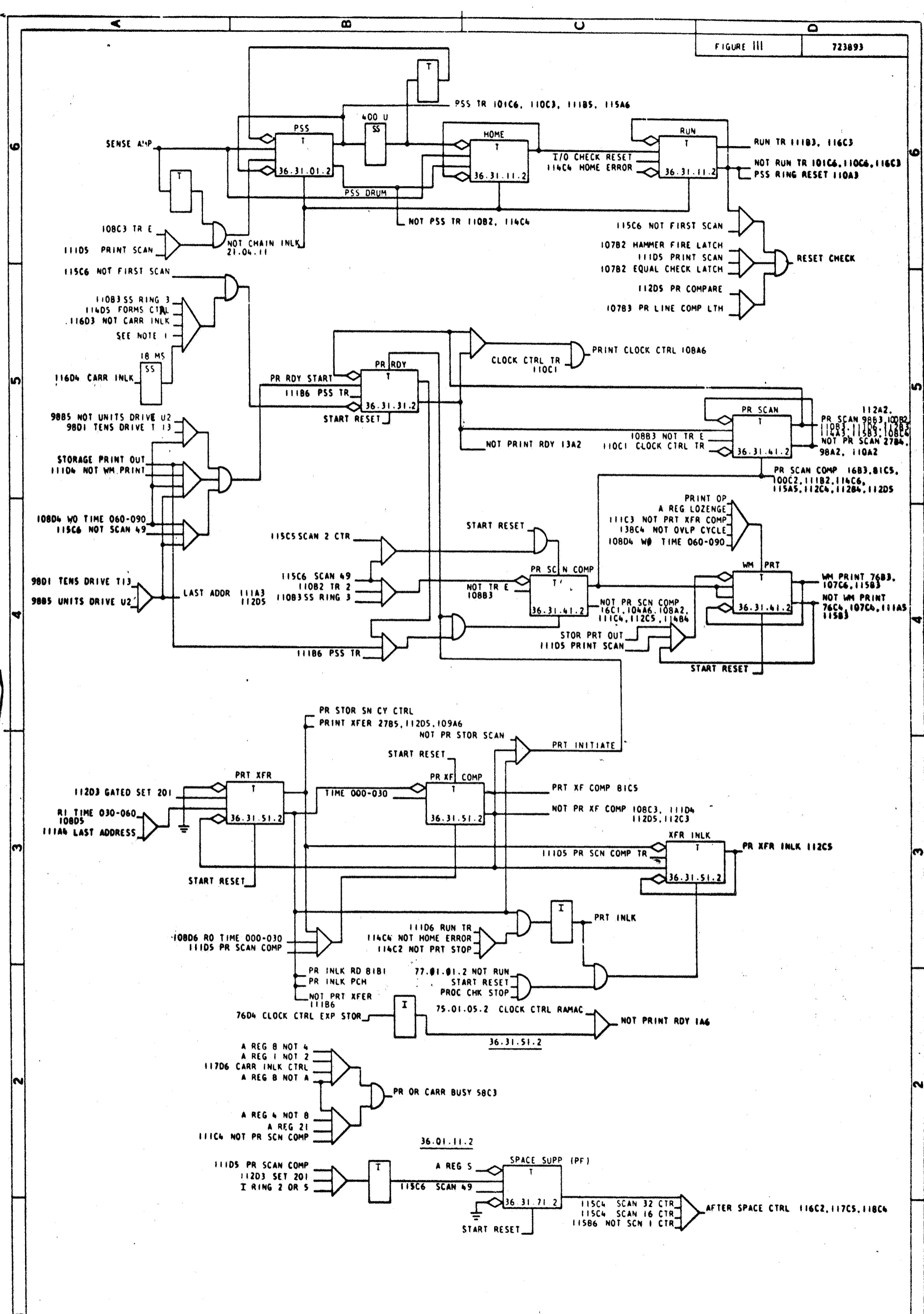
723891



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	11330 D	31-7-62	TA 1370K	NAME	PRINT BUFFER COUNTERS		
6-2-63	114144C	4-6-63	TA 1862	(PF)			
				DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECK		DRAW	VE 11-10-61
				APPRO		CHECK	Q27N(11-27-61)

723892

1862

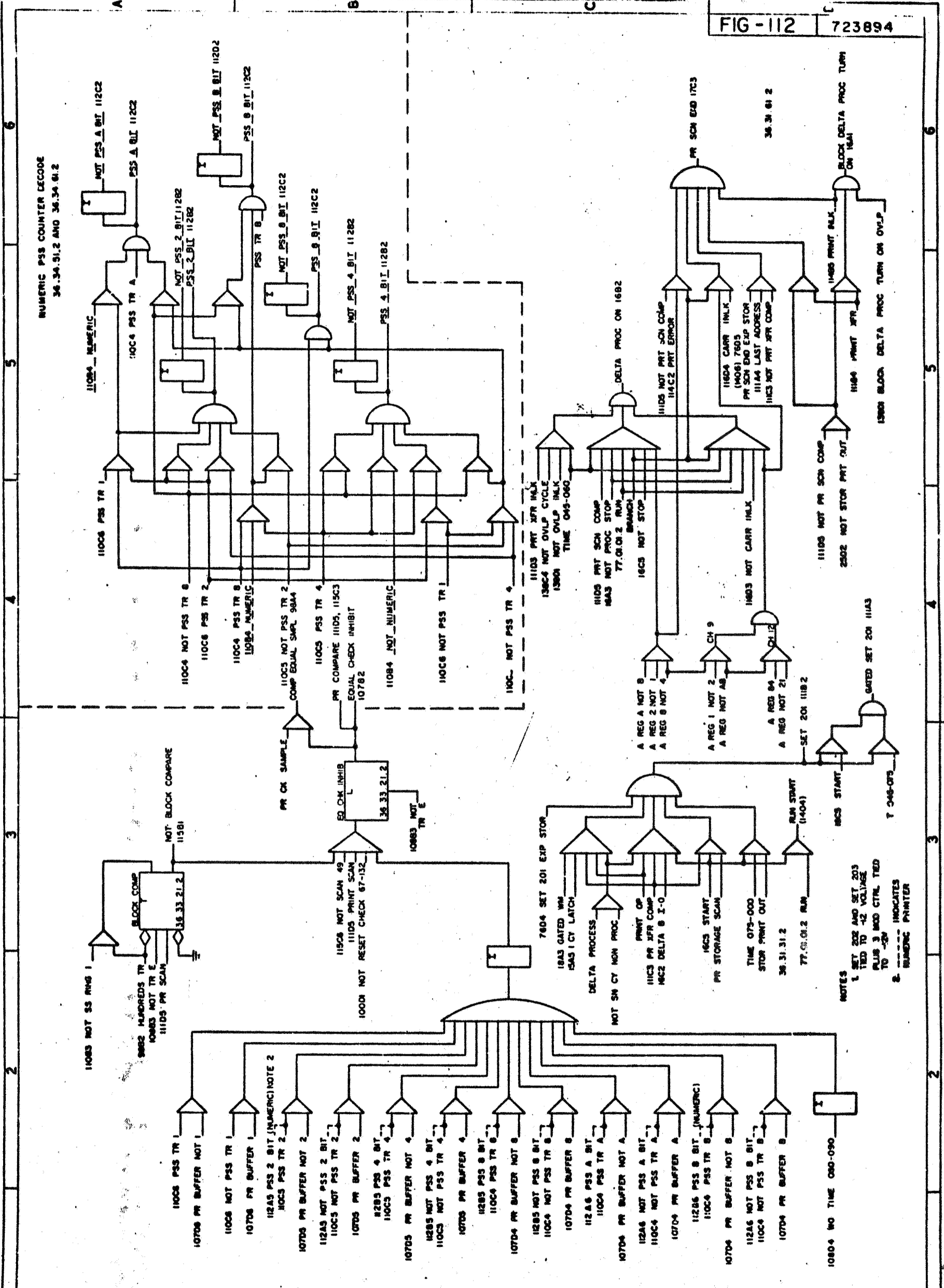


NOTE 1 JUMPER HOME PULSE TO ALLOW PRINTING TO BEGIN AT HOME TIME ONLY FOR DIAGNOSTIC USE

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113920 D			NAME PRINT BUFFER CONTROLS I
4-2-63	114144 C	31.7.62	TA 1370K	(PF)
9-25-63	118584	18.11.63	TA 6041	DESIGN
				TYPE
				DETAIL
				SCALE NONE
				CHECK
				DRAW VE 148-61
				APPRO
				CHECK 2774 112761

36871

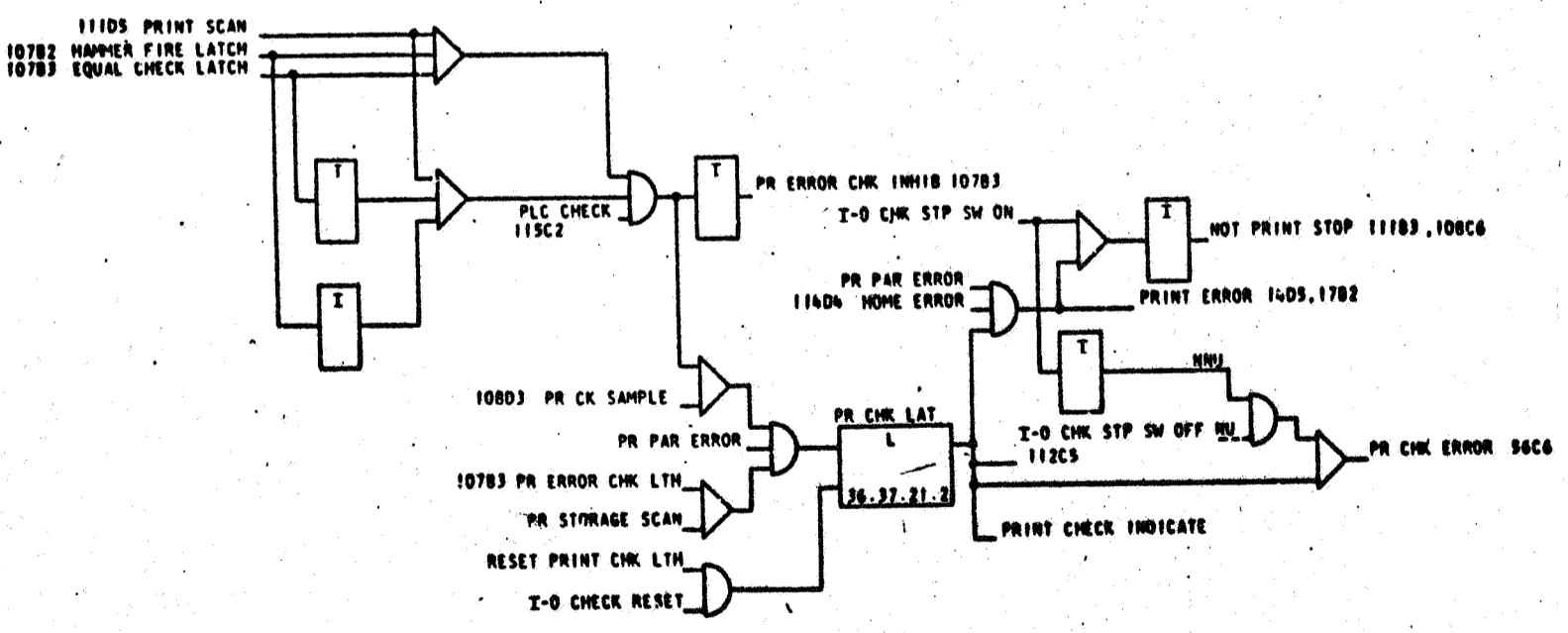
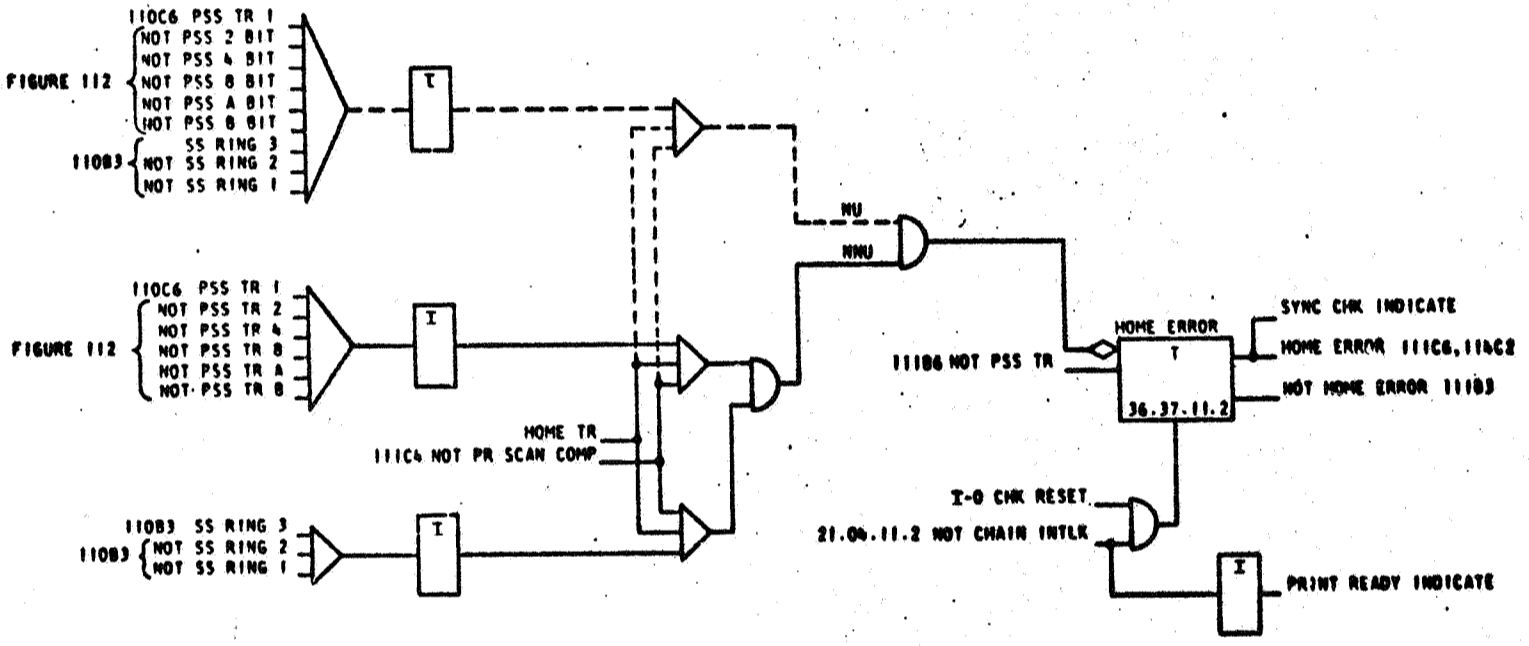
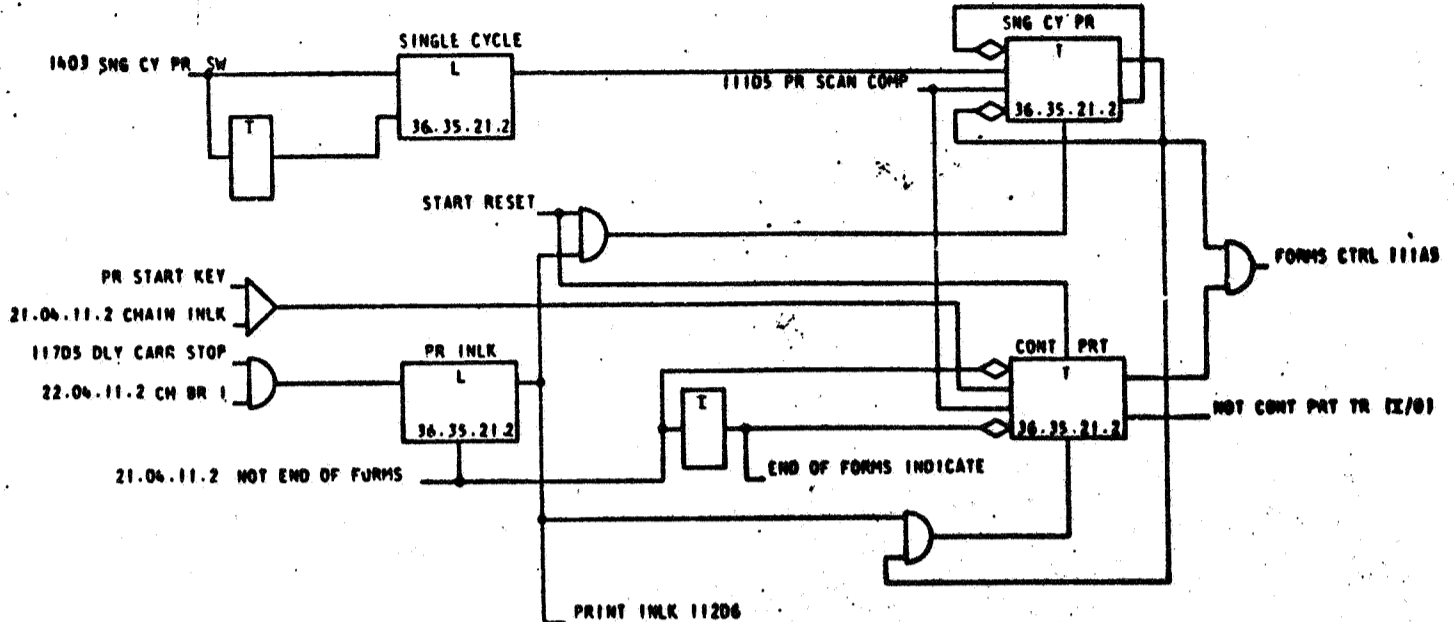
NUMERIC PSS COUNTER DECODE
36.34.91.2 AND 36.34.91.2



NOTES
1. SET 202 AND SET 203 TIED TO -42 VOLTAGE PLUS 3 MOD CTRL TIED TO -24V
2. --- INDICATES NUMERIC PRINTER

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-11-62	113830D	31.7.62	TA 1370K	NAME	PRINT BUFFER CONTROLS 2
6-26-62	1141AAB	4.6.63	TA 1862	DESIGN	EDB 3/11/63
3-23-63	1141AAC			DETAIL	EDB 3/11/63
				CHECK	EDB 3/11/63
				APPROV	EDB 3/11/63
					TYPE
					SCALE
					NONE
					VE 12-21-62
					CHECK

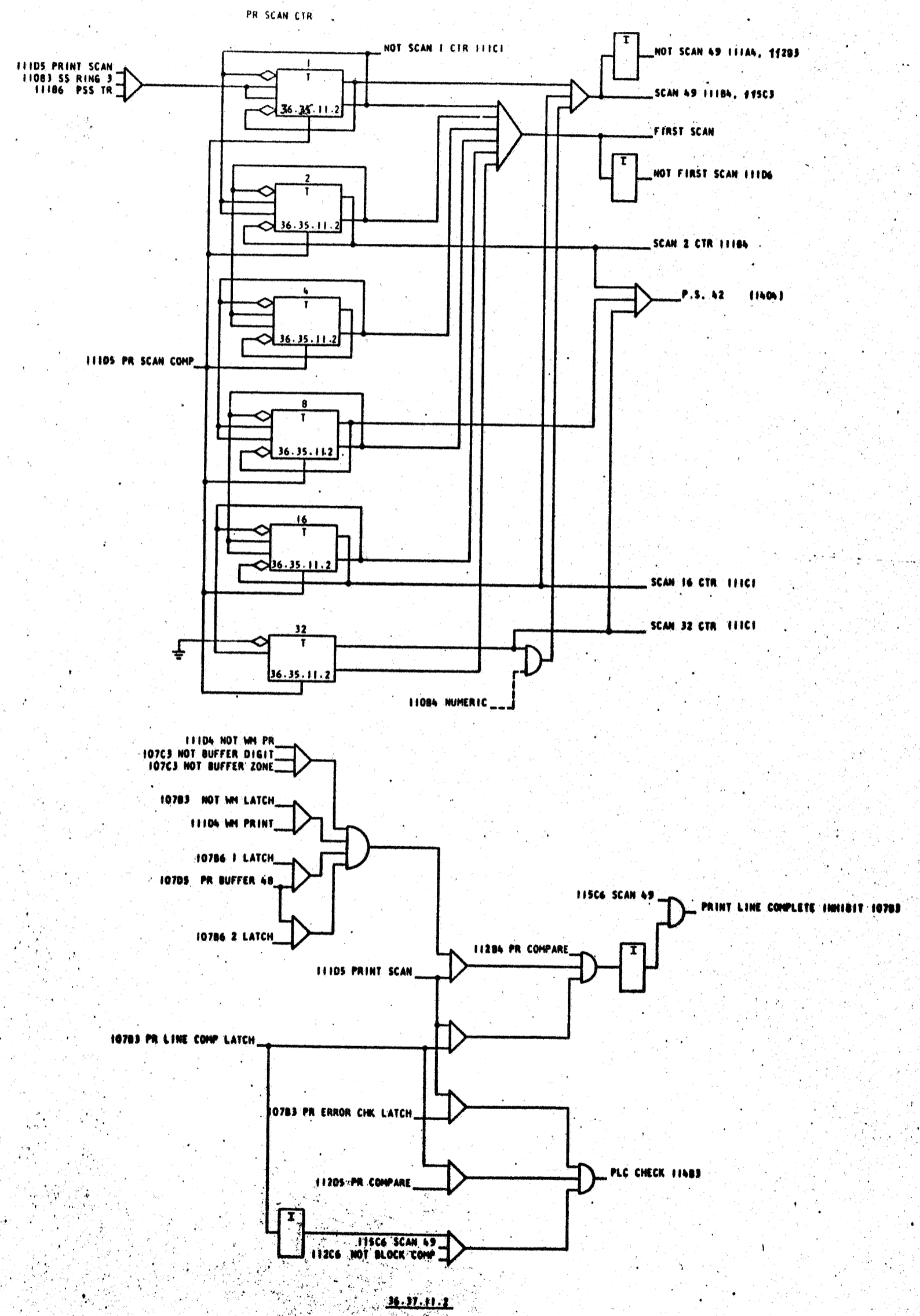
723894
1862



DATE		CHANGE NO.		INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113330-D	31.7.62	TA 1370K	NAME	PRINT BUFFER CONTROL 3		
4-2-63	110744C	4.6.63	TA 1862		(PP1)		
				DESIGN		TYPE	
				DETAIL		SCALE	NONE
				CHECR		DRAW	VE 11-8-61
				APPRO		CHECK	2/7/71 (11-276)

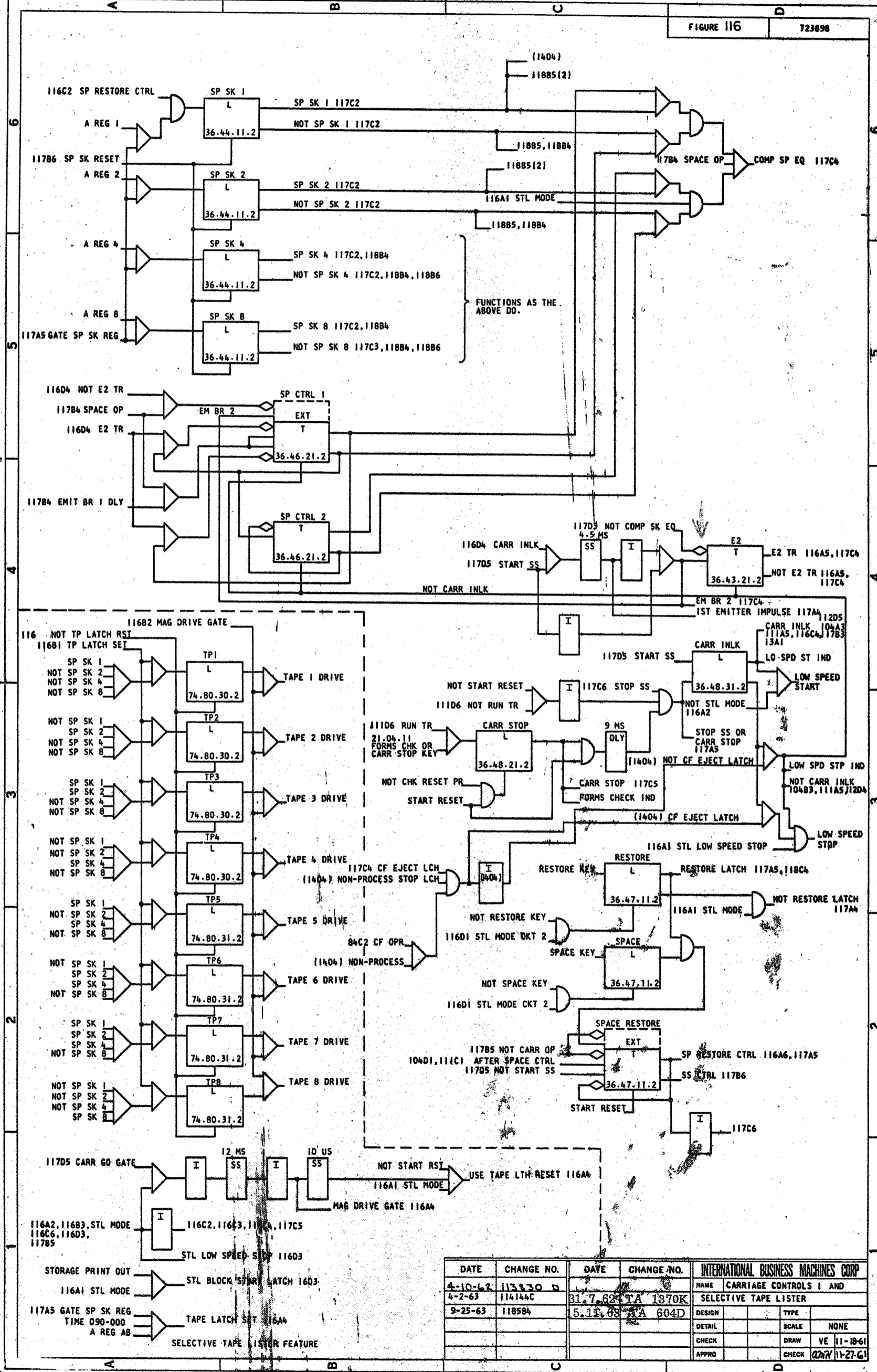
723896

FIGURE 115 723897



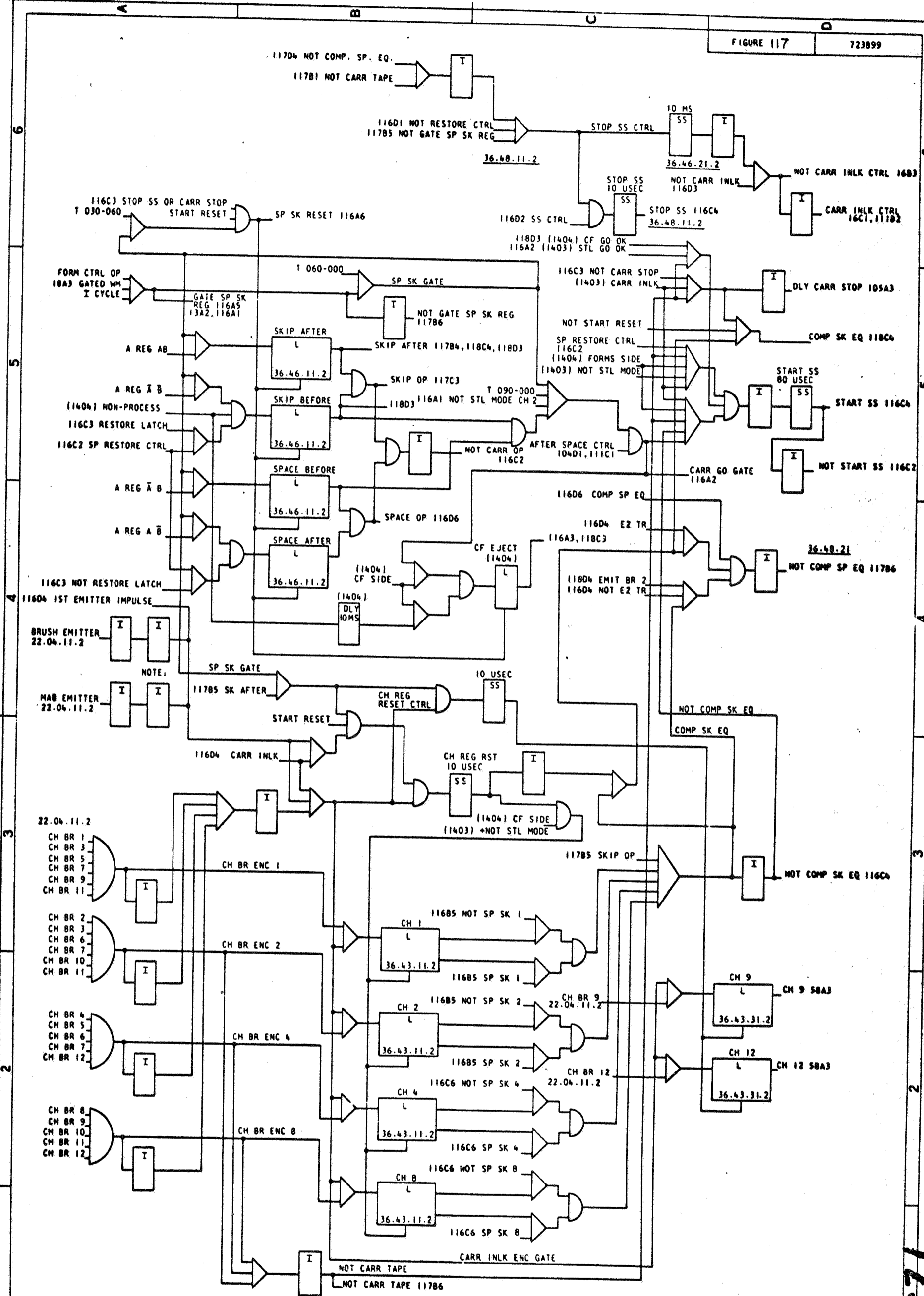
INTERNATIONAL BUSINESS MACHINES CORP			
DATE	CHANGE NO.	DATE	CHANGE NO.
4-10-62	111330 D	31.7.62	TA 1370K
4-2-63	114144C	4.6.63	TA 1862
NAME PRINT BUFFER CONTROLS 4			
(PF)			
DESIGN		TYPE	
DETAIL		SCALE	NONE
CHECK		DRAW	VE 11-18-61
APPRO		CHECK	2/7/11-27/61

723897
1862



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113330 D			NAME CARRIAGE CONTROLS I AND
4-2-63	114144C	31-7-68	TA 1870K	SELECTIVE TAPE LISTER
9-25-63	118584	5-31-68	TA 604D	DESIGN
				TYPE
				SCALE NONE
				CHECK
				DRAW VE 11-18-61
				APPRO
				CHECK 227 11-27-61

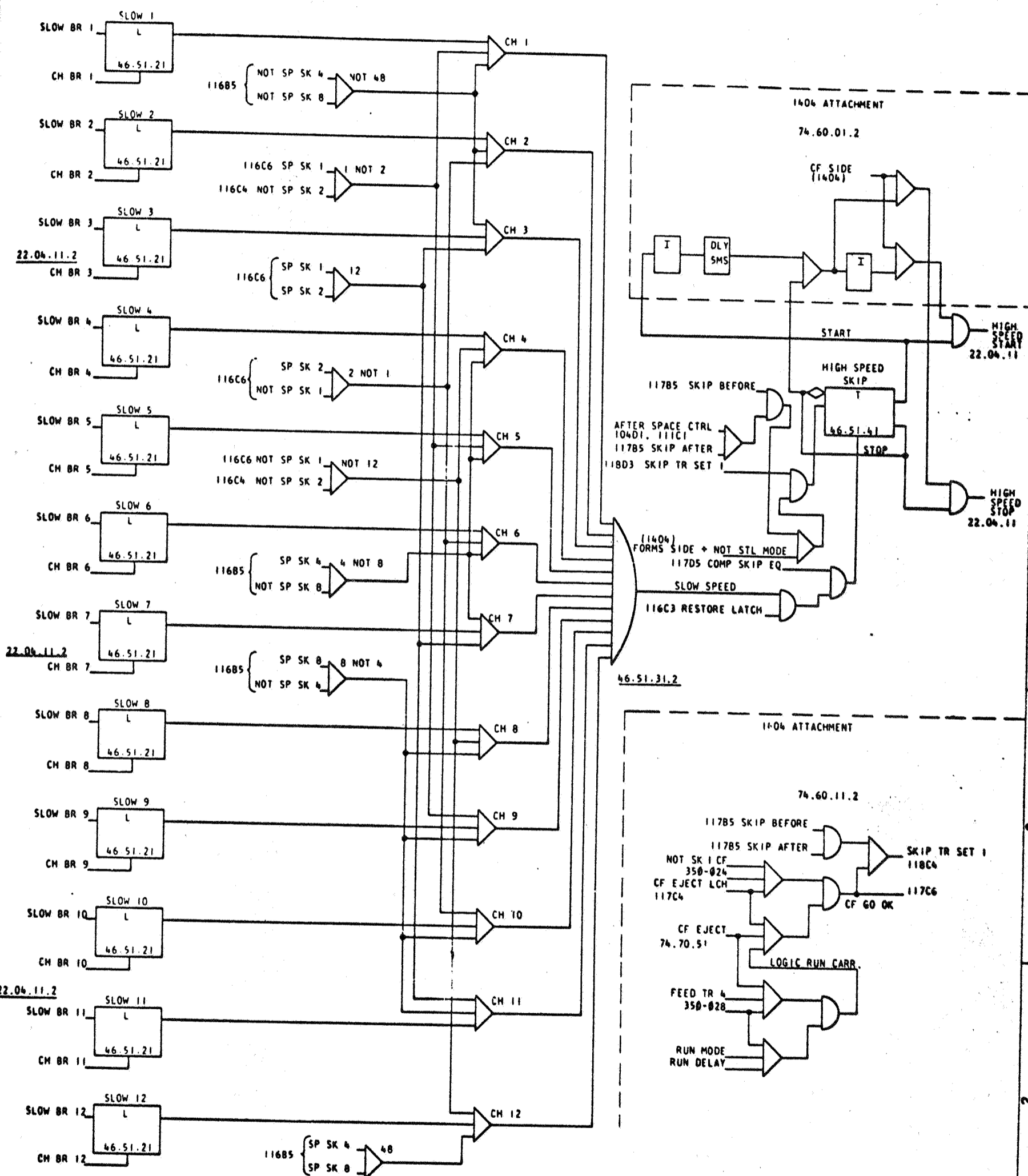
723898



NOTE: THE 1401 MACHINE MAY HAVE EITHER THE MAGNETIC EMITTER OR THE BRUSH EMITTER. WHICHEVER ONE IT HAS THE OTHER SHOULD BE TIED OFF.

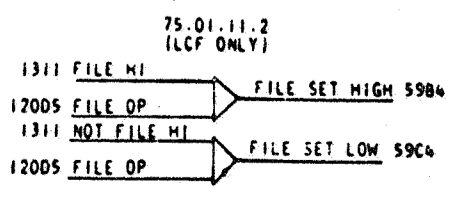
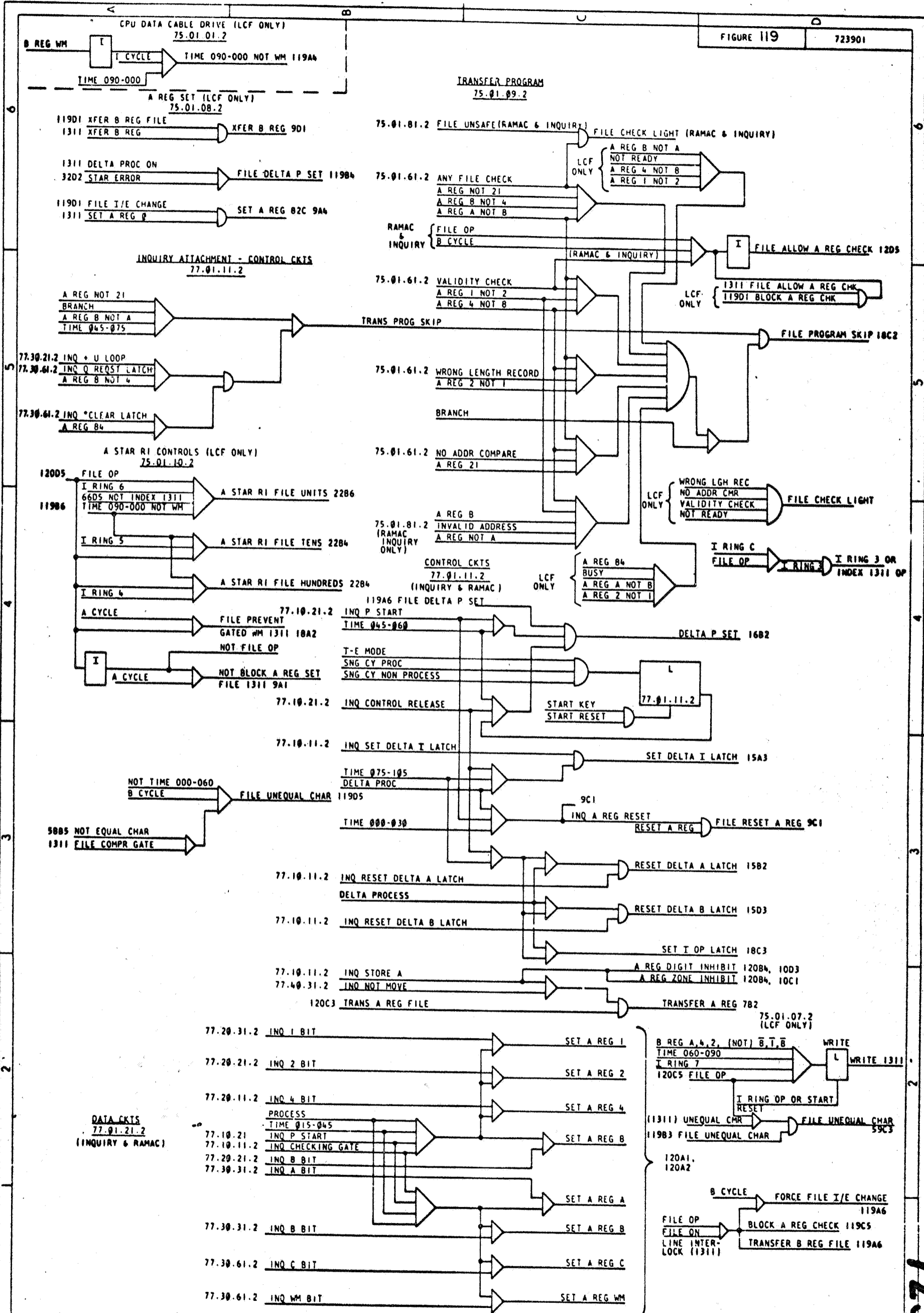
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP		
4-10-62	11330 D			NAME	CARRIAGE CONTROLS 2	
6-21-62	114144B			DESIGN		TYPE
4-2-63	114144C	11.7.62	TA 1370K	DETAIL		SCALE NONE
9-25-63	118584	15.11.63	TA 604D	CHECK		DRAW VE 11-18-61
				APPRO		CHECK DWH 11-27-61

723899



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113930 D			NAME DUAL SPEED CARRIAGE
4-2-63	114144C	31.7.62	TA 1370K	CONTROLS
9-25-63	118584	16.11.63	TA 604D	DESIGN
				TYPE
				SCALE NCNE
				CHECK DRAW VE 11-29-61
				APPRO CHECK 11-24-61

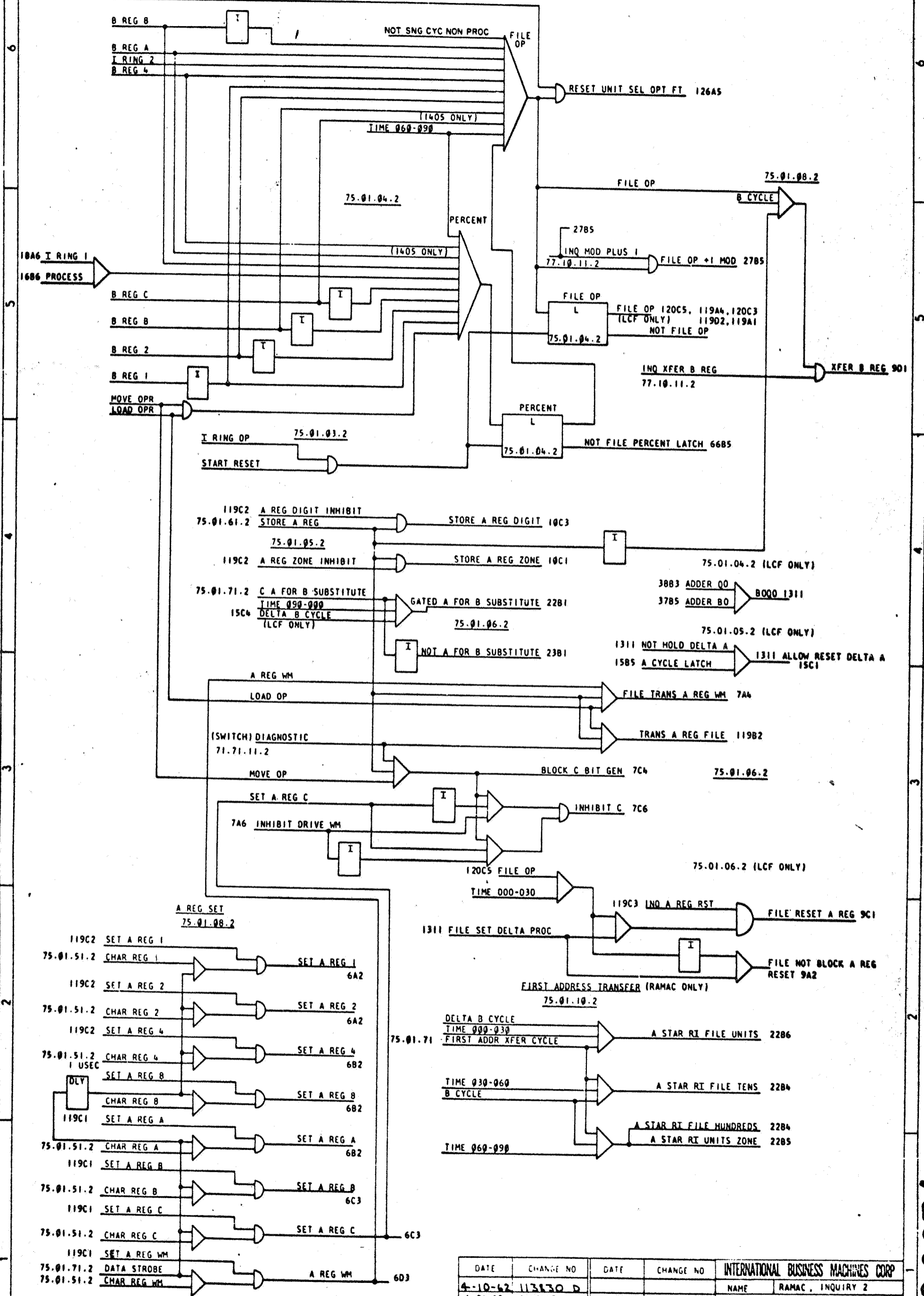
723900



DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113130 D			NAME RAMAC, INQUIRY I AND
6-21-62	114144B			1311 (LCF)
4-2-63	114144C	31.7.62	TA 1370	DESIGN
9-25-63	118584	15.11.62	TA 604D	DETAIL
				CHECK
				APPRO
				TYPE
				SCALE
				DRAW VE 7-11-61
				CHECK

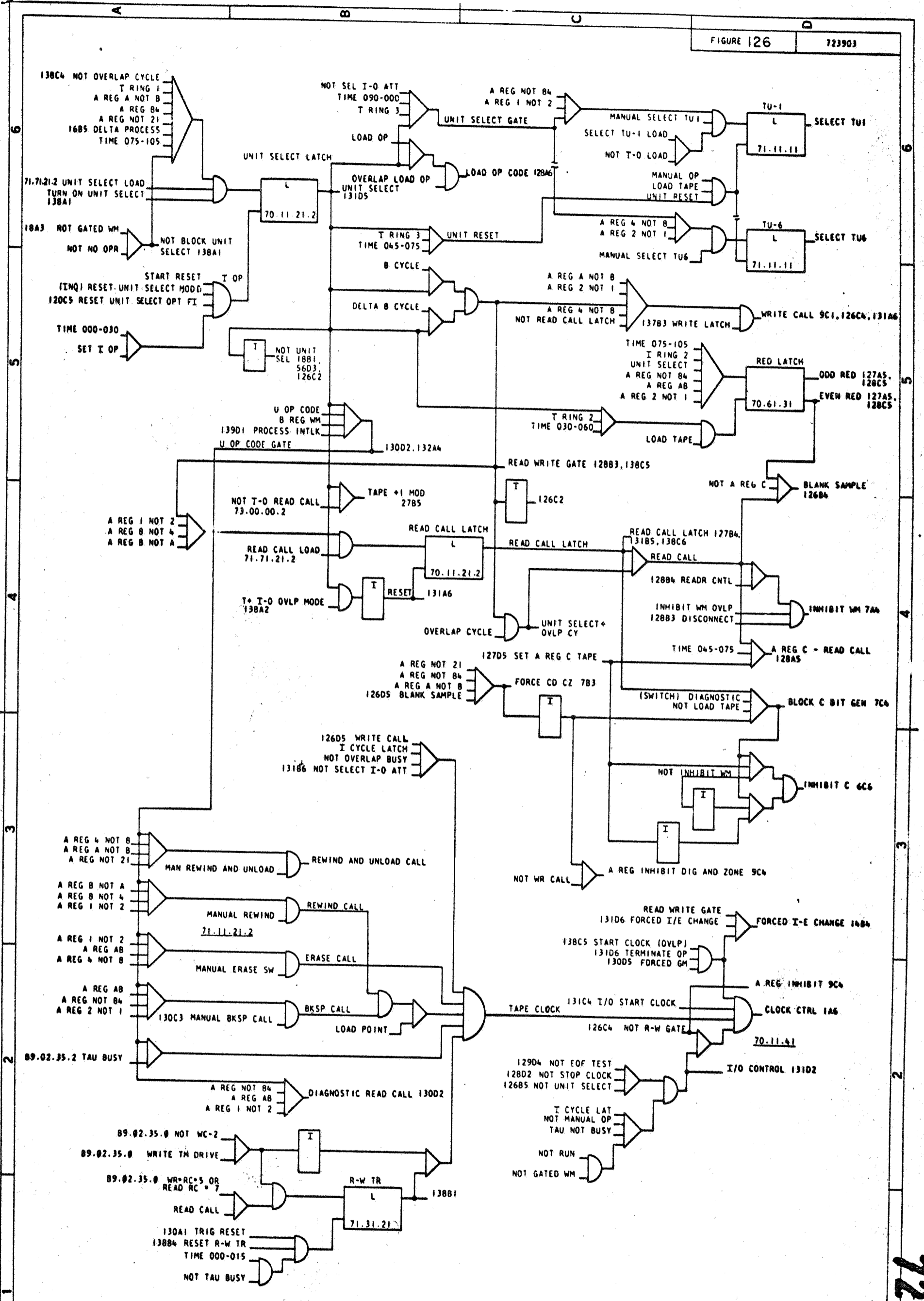
723901

77.10.21.2 INQ RESET UNIT SELECT



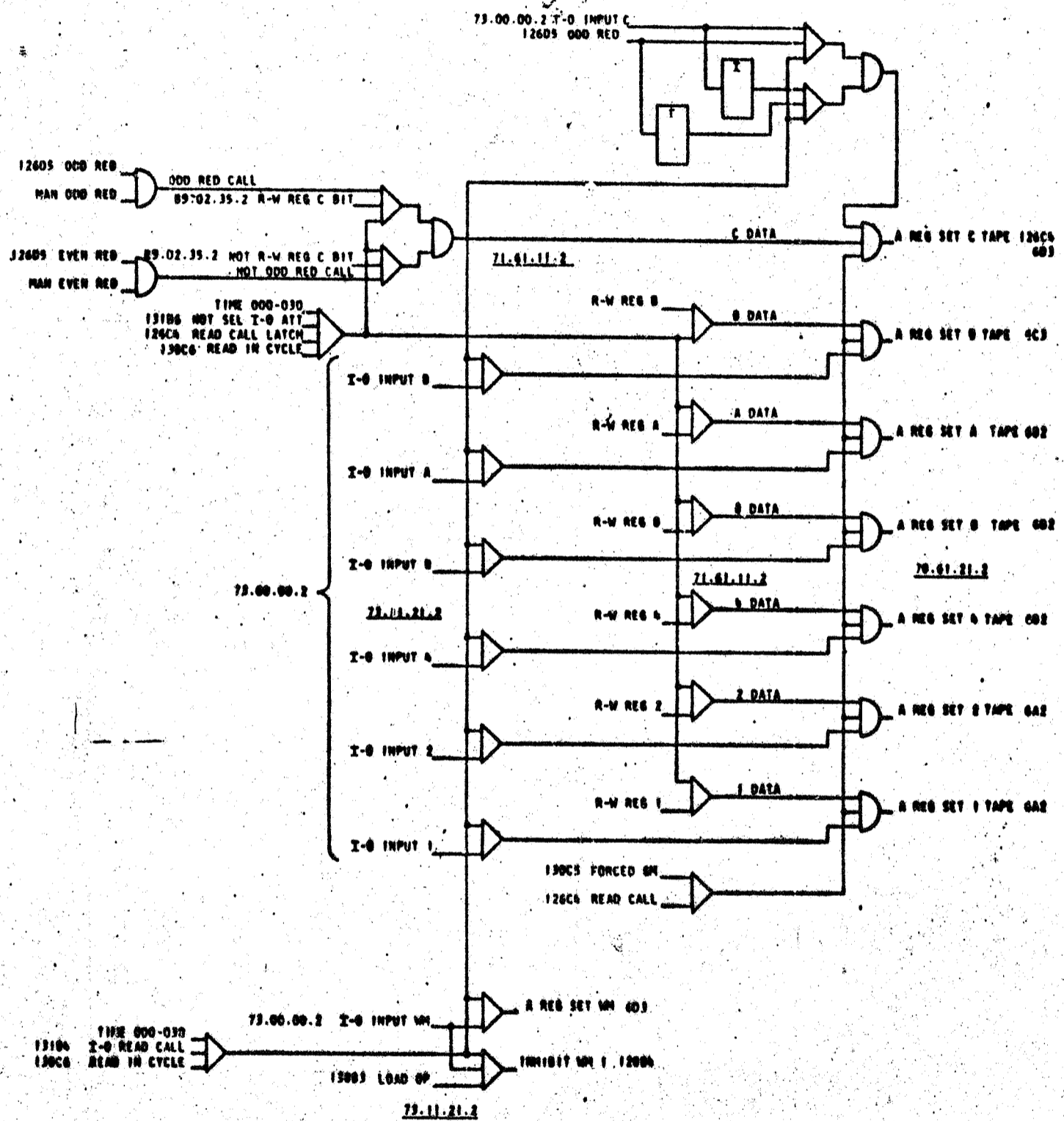
DATE		CHANGE NO		INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113130 D			NAME	RAMAC, INQUIRY 2		
6-21-62	114144B				AND 1311 (LCF)		
4-2-63	114144C	31.7.62	TA 1370K	DESIGN		TYPE	
9-25-63	118584	15.11.63	TA 604D	DETAIL		SCALE	
				CHECK		DRAW	VE 7-11-61
				APPRO		CHECK	

723902



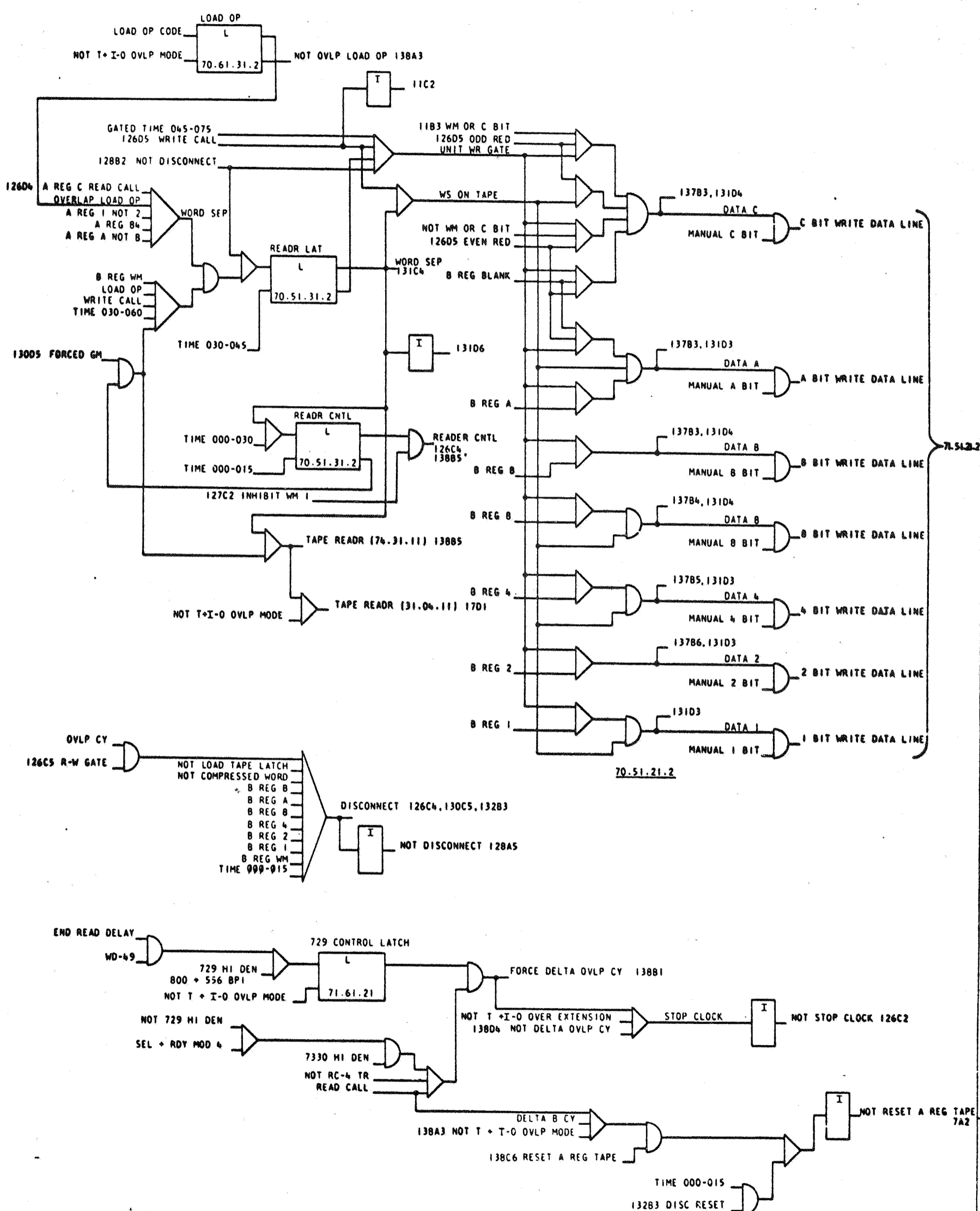
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113830 D			NAME READ AND WRITE TAPE I
6-21-62	114144B			
4-2-63	114144C	31.07.63	TA 1370K	DESIGN
9-25-63	118584	15.11.63	TA 604D	DETAIL
				CHECK
				APPRO

723903



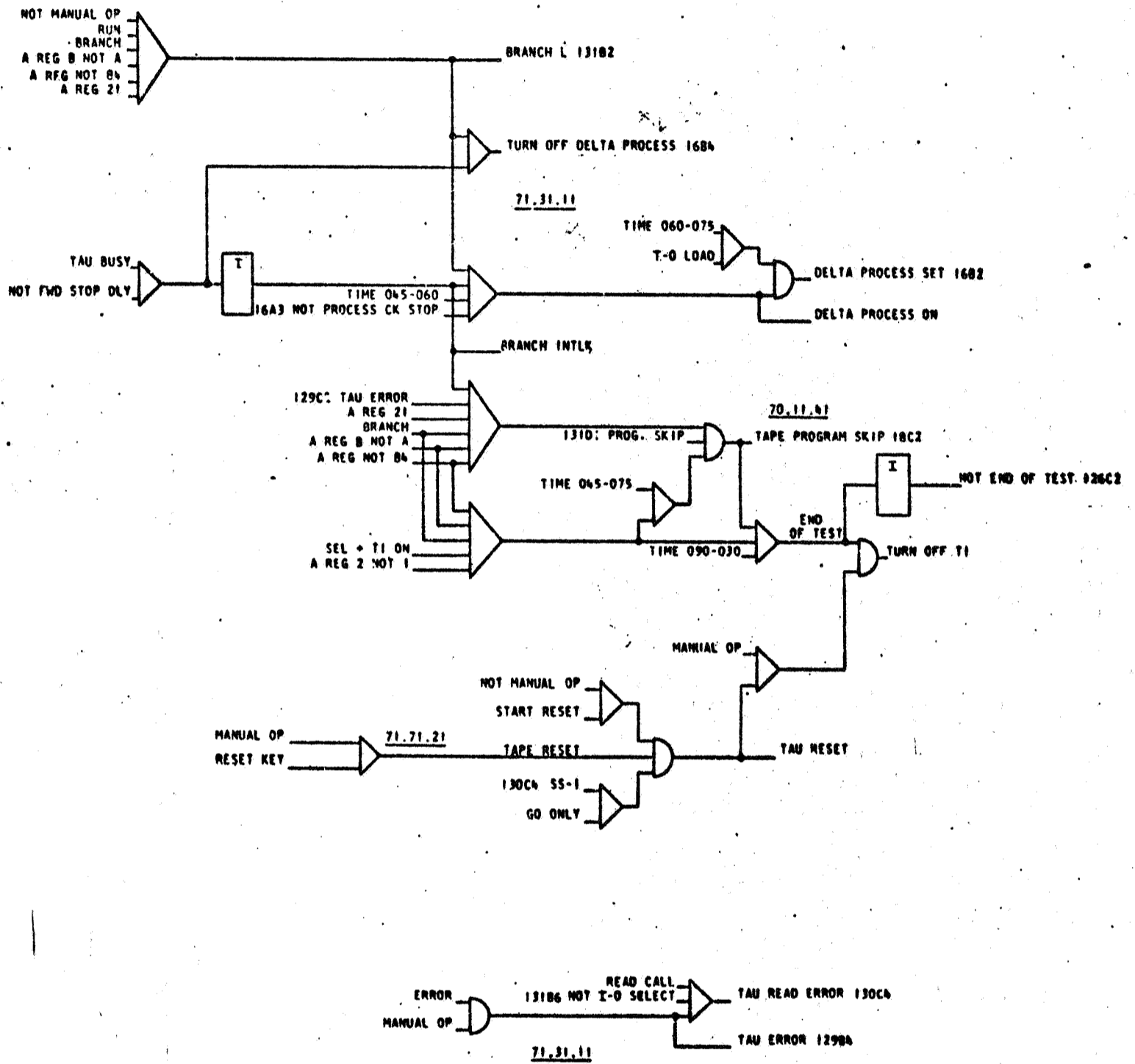
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP.			
4-10-62	113330 D	11.7.62	TA 1370<	NAME	READ AND WRITE TAPE 2		
4-2-63	114144C	1.8.63	TA-1862	DESIGN	TYPE		
				DETAIL	SCALE	NONE	
				CHECK	DRAWN	VE	1-3-61
				APPROV	CHECK	MW	1-5-62

723904
1862



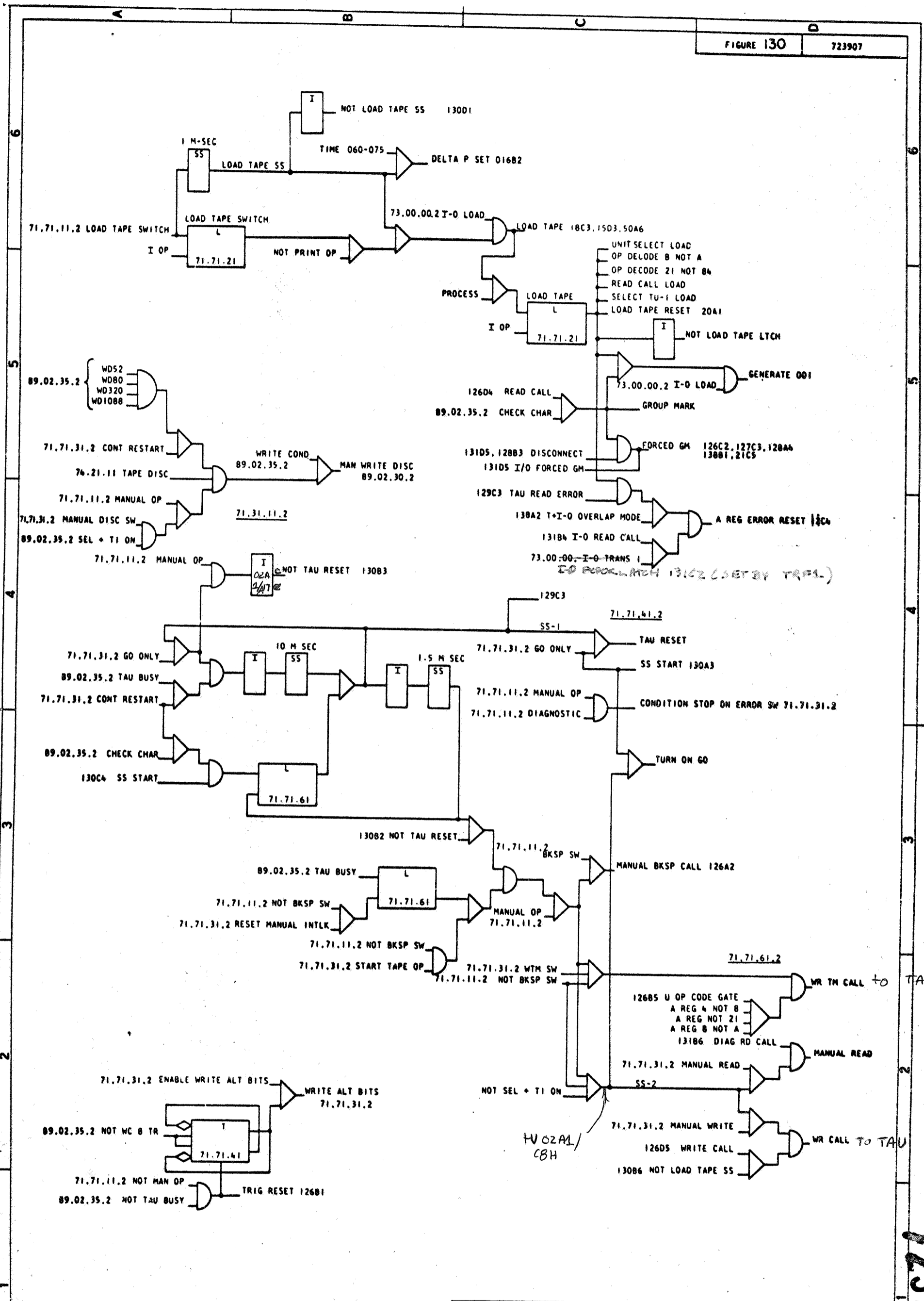
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113930 D			NAME	READ AND WRITE TAPES		
6-21-62	114144B			WITH WORD MARKS			
6-2-63	114144C	31.7.62	TA 1370K	DESIGN		TYPE	
9-25-63	118584	15.11.63	TA 604D	DETAIL		SCALE	NONE
				CHECK		DRAW	VE 1-3-62
				APPRO		CHECK	MW 1-5-62

723905



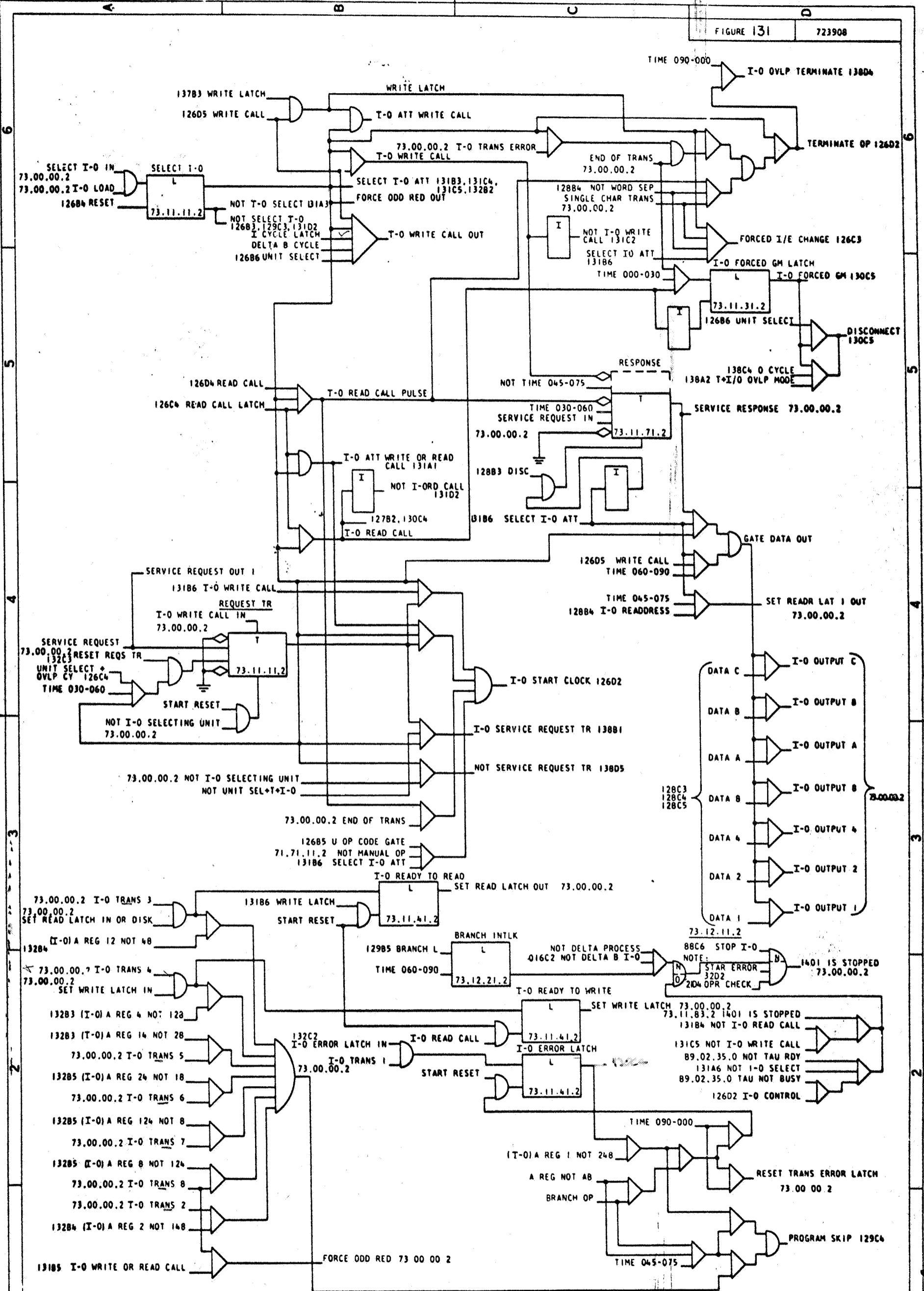
DATE		CHANGE NO.		INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113330 D	31.7.62	TA 1370K	NAME	TAPE BRANCH CODES		
3-21-62	114144B	4.6.63	TA 1862	DESIGN		TYPE	
4-2-63	114144C			DETAIL		SCALE	NONE
				CHECK		DRAW	VE 1-3-62
				APPRO		CHECK	M.W. 1-4-61

016571



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113930 D			NAME MANUAL TAPE OPERATION.			
6-21-62	114144B			RESET AND LOAD			
4-2-63	114144C	31.7.62	TA 1370K	DESIGN		TYPE	
9-25-63	118584	15.11.63	TA 604D	DETAIL		SCALE	NONE
				CHECK		DRAW	VE 1-3-62
				APPRO		CHECK	M.W 1-4-62

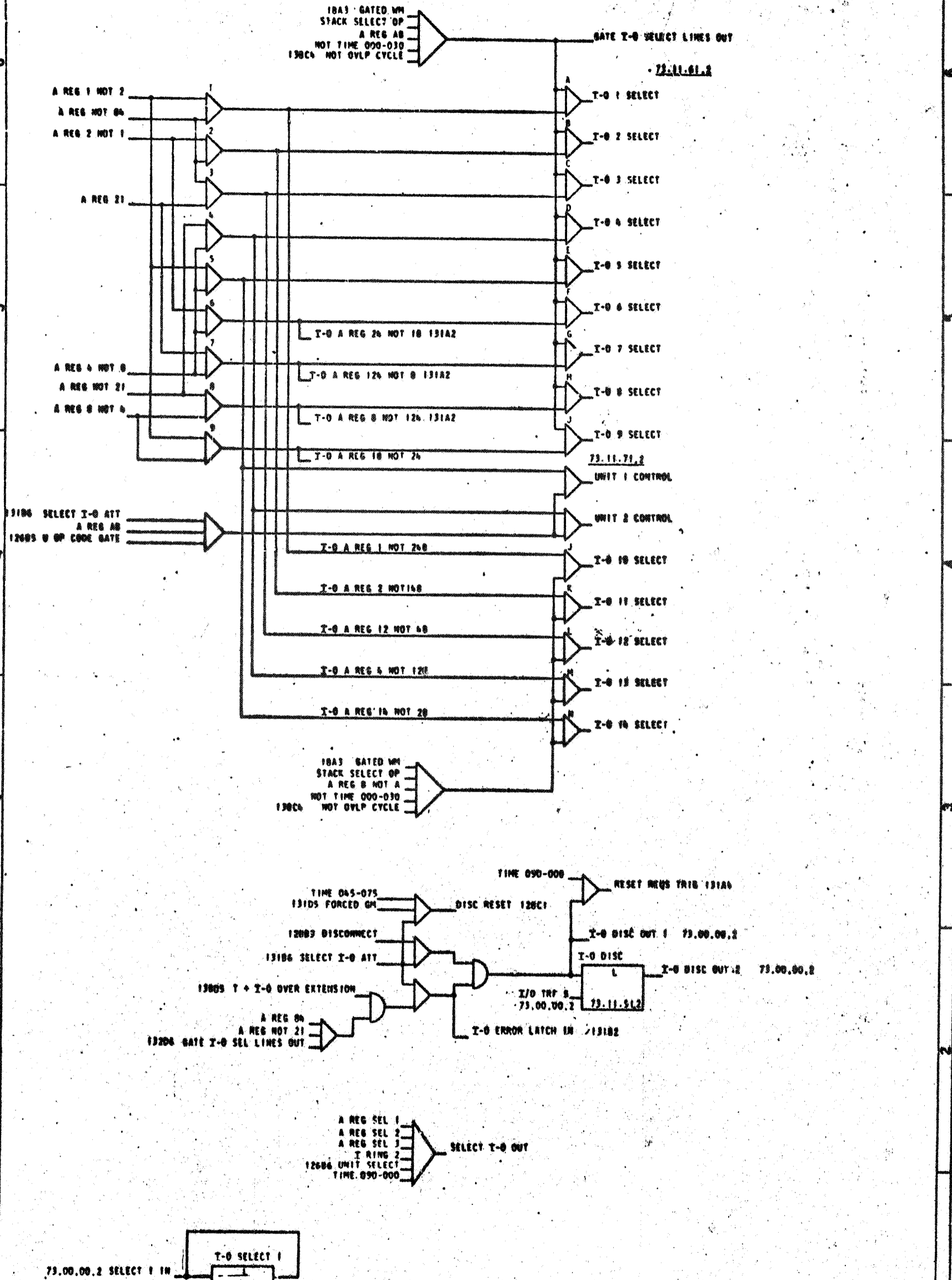
723907



NOTE: N - NORMAL I/O (THIS WILL NOT BE PRESENT ON OVERLAP SYSTEMS)
O - OVERLAP & I/O

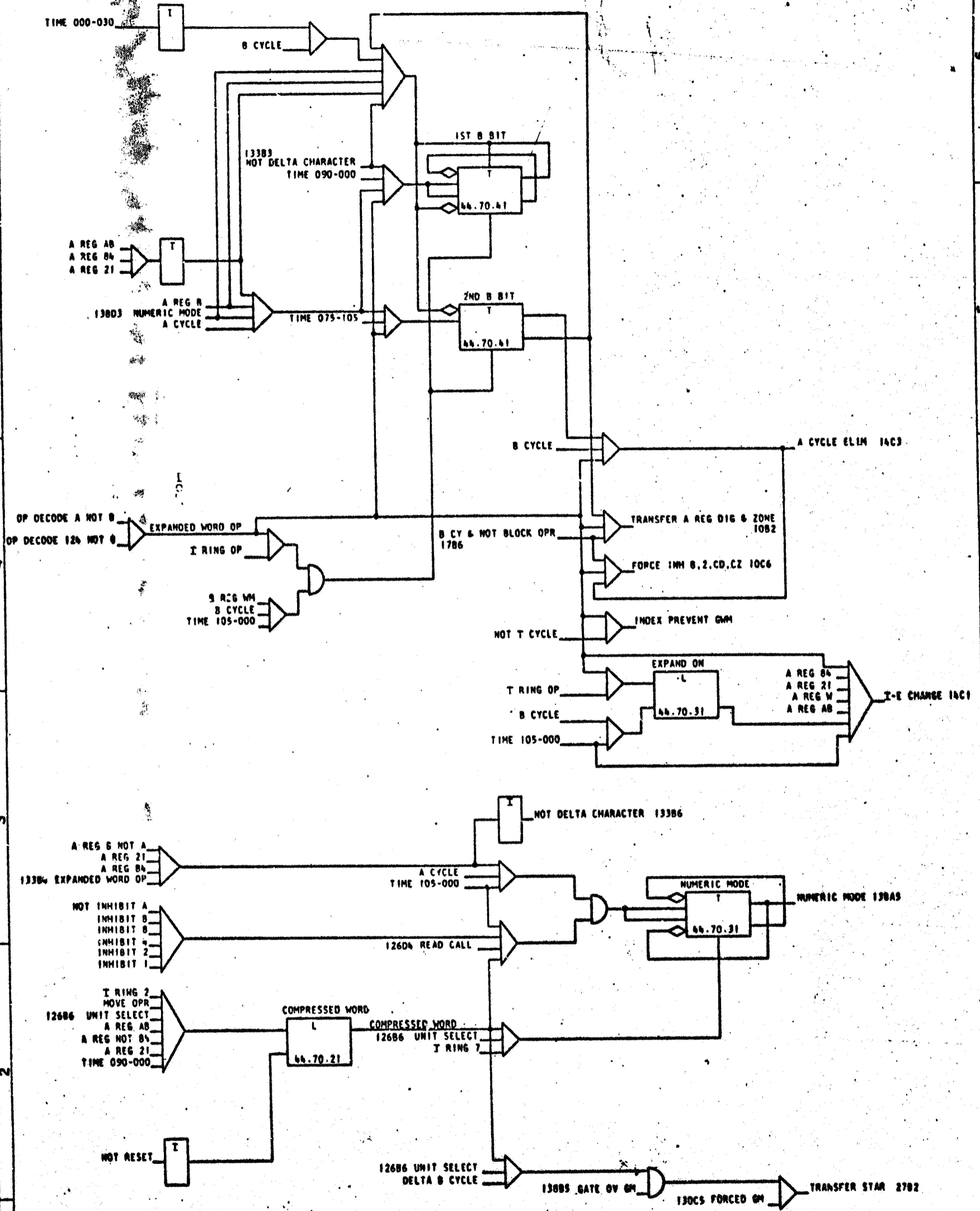
DATE		CHANGE NO.		INTERNATIONAL BUSINESS MACHINES CORP			
NAME		I-O CONTROLS		DESIGN	TYPE	SCALE	NONE
4-10-62	11330 D						
6-21-62	114144B						
4-2-63	116144C	31.7.62	TA 1370K				
9-25-63	118584	15.11.63	TA 604D				
				CHECK	DRAW	VE	1-3-62
				APPRO	CHECK	MW	1-4-62

723908



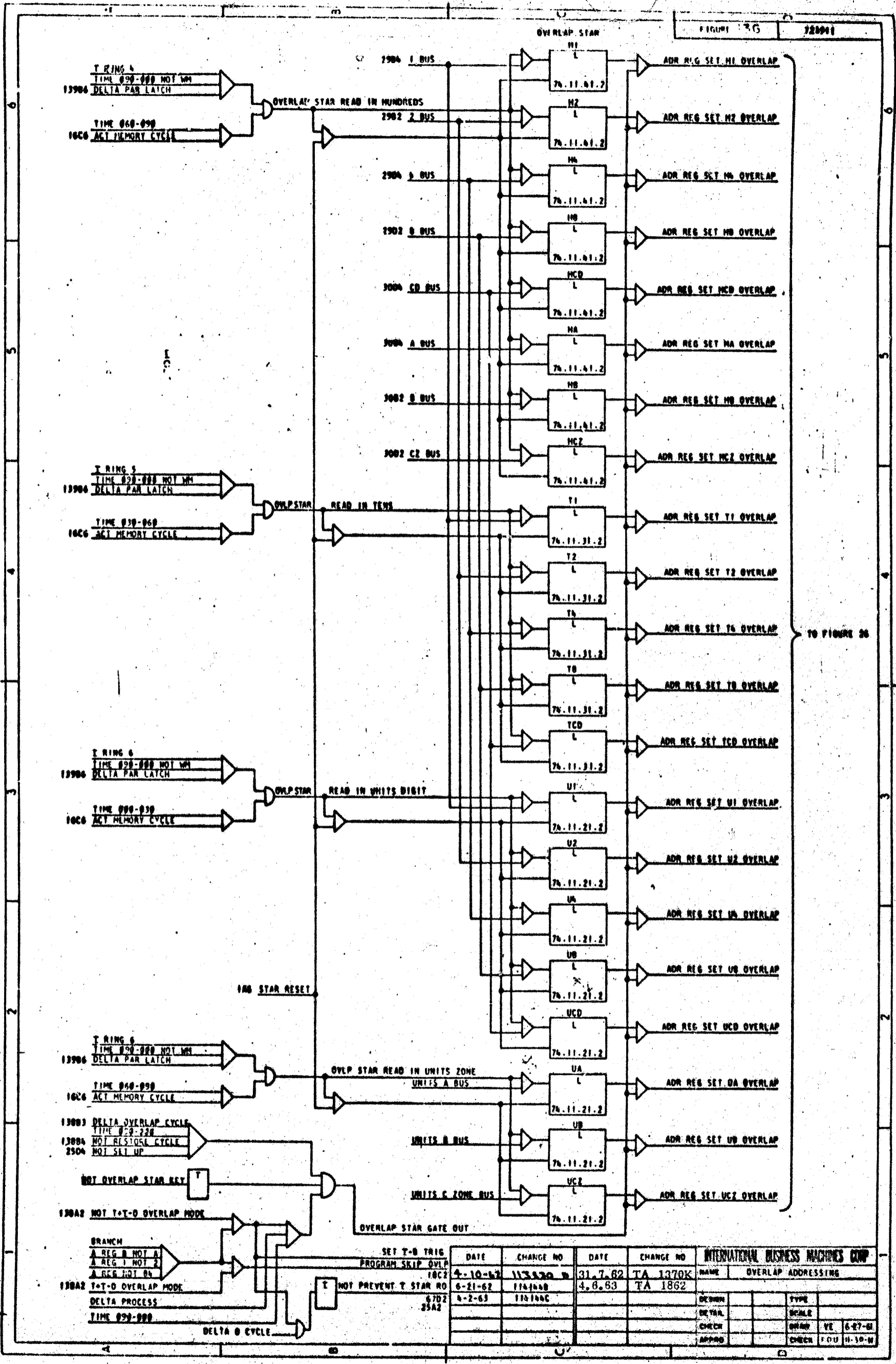
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113830 D	31.7.62	TA 1370E	NAME I-0 SELECT LINES 2
6-21-62	114144B	1.6.63	TA 1862	
4-2-63	114156C			DESIGN
				DETAIL
				CHECK
				APPRO
				TYPE
				SCALE NONE
				DRAW VE 1-3-62
				CHECK MWK 1:4-61

723909
1862

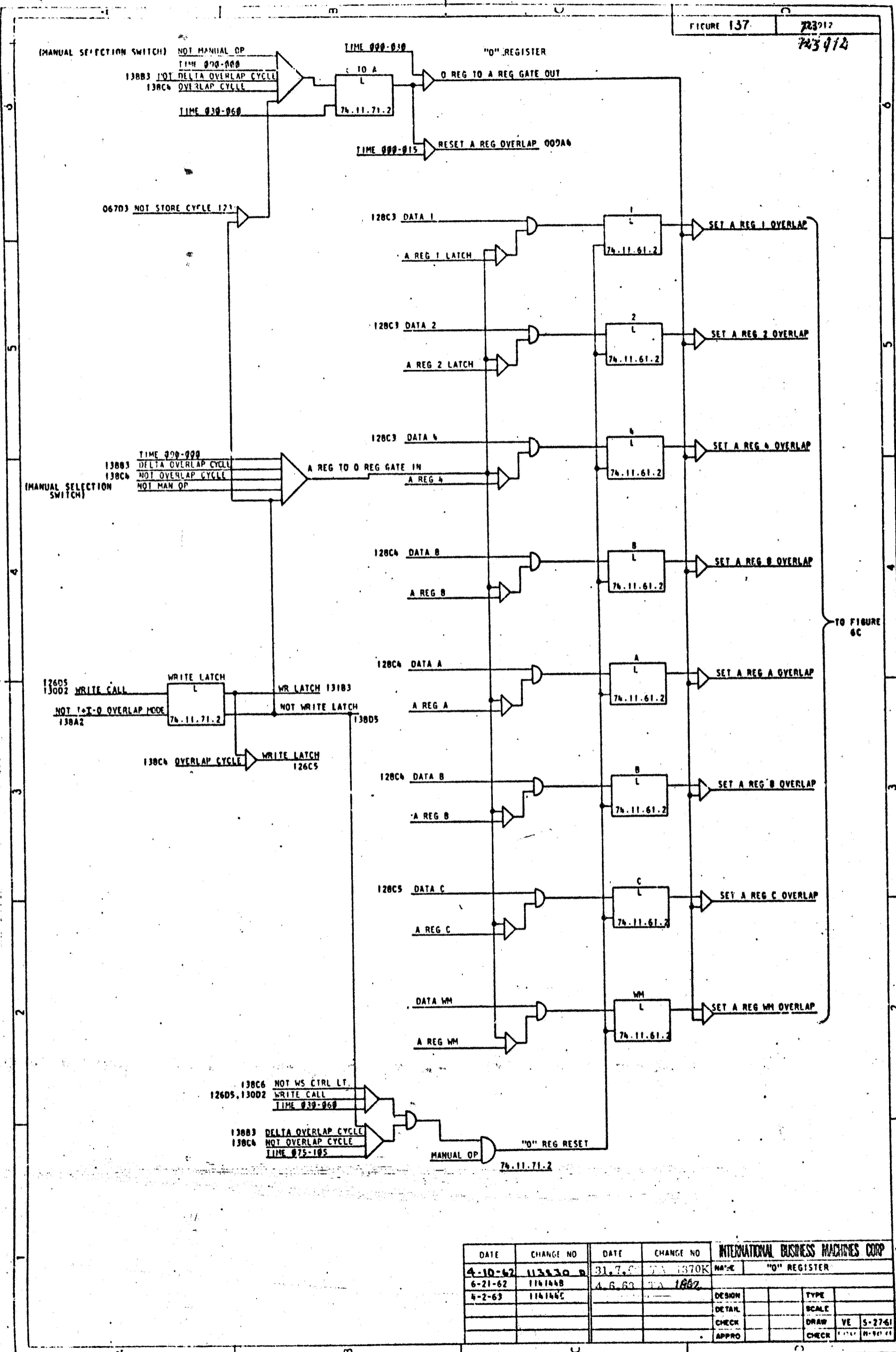


DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-10-62	113376 S	31-7-62	TA 1370K	NAME	COMPRESSED TAPE CONTROLS
6-2-63	116164C	4-6-63	TA 1862	DESIGN	TYPE
				DETAIL	SCALE NONE
				CHECK	DRAW VE 2243-61
				APPRO	CHECK

723910

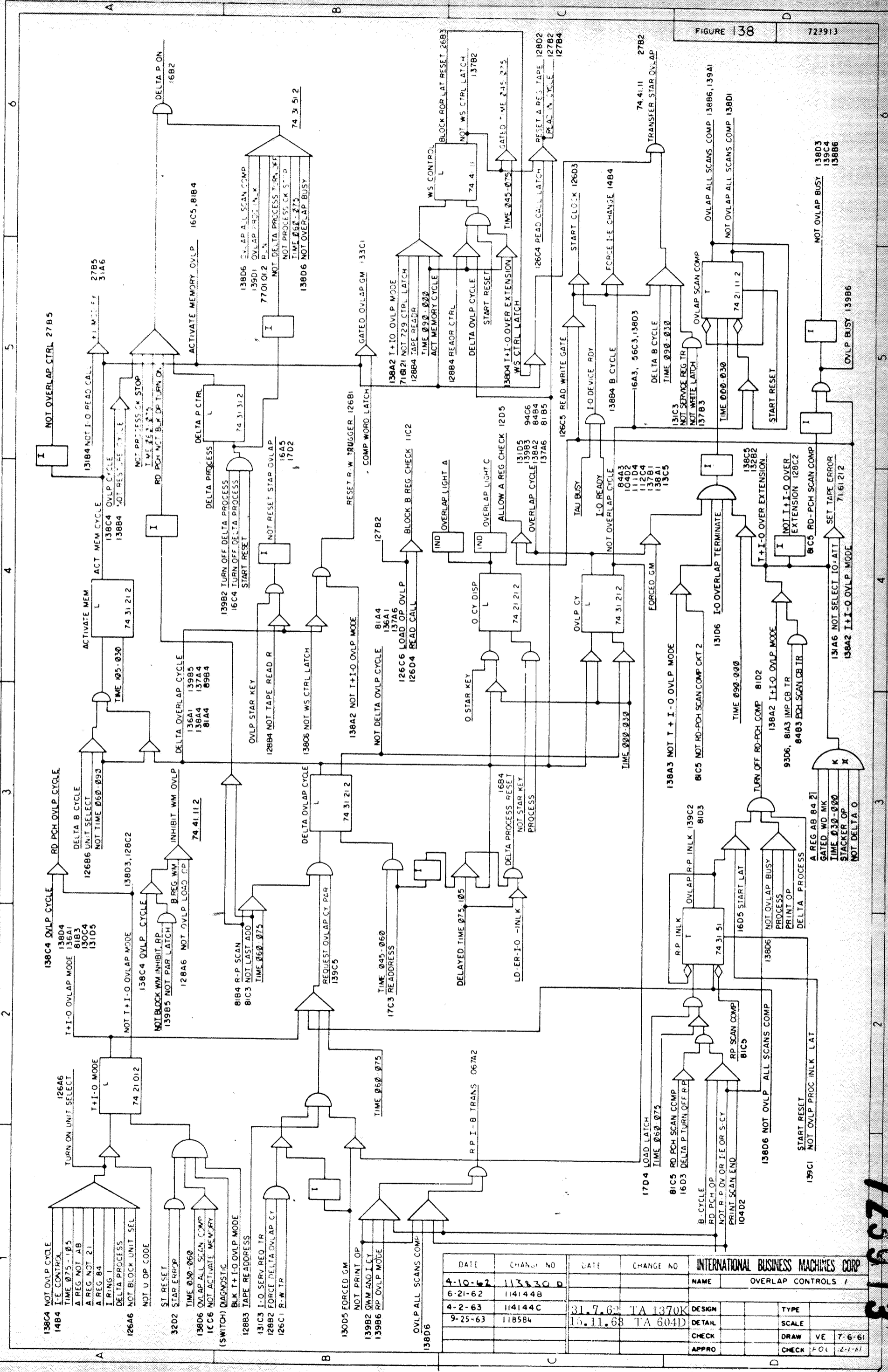


723911
1862



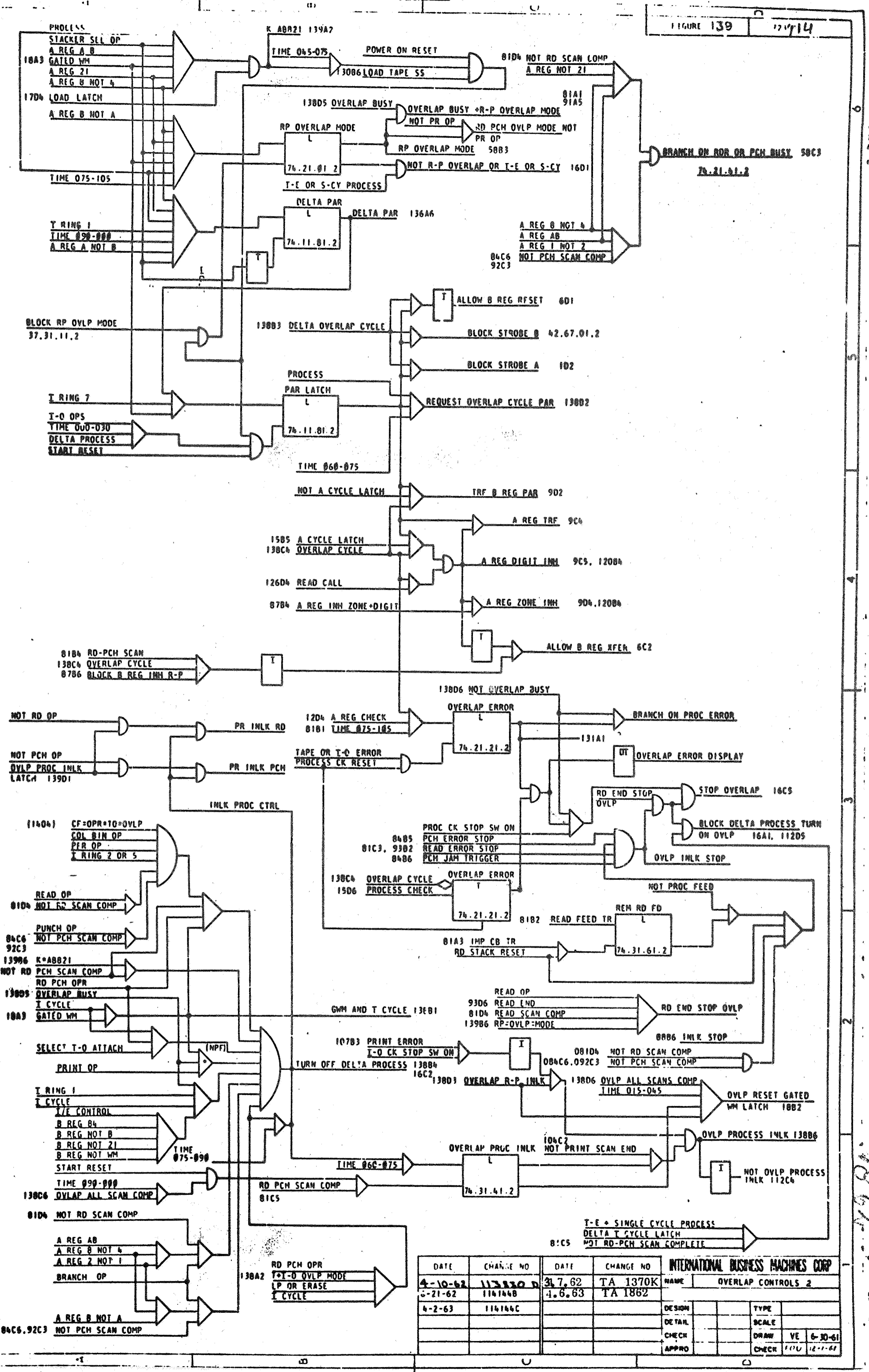
INTERNATIONAL BUSINESS MACHINES CORP			
DATE	CHANGE NO	DATE	CHANGE NO
4-10-62	113330 B	31.7.62	TA 1370K
6-21-62	116144B	4.6.63	TA 186Z
4-2-63	116146C		
		DESIGN	TYPE
		DETAIL	SCALE
		CHECK	DRAW VE 5-27-61
		APPRO	CHECK

723912
1862



DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113830 D			NAME OVERLAP CONTROLS /
6-21-62	114144 B			
4-2-63	114144 C	31.7.63	TA 1370K	DESIGN
9-25-63	118584	15.11.68	TA 604D	DETAIL
				CHECK
				APPRO
				TYPE
				SCALE
				DRAW VE 7-6-61
				CHECK FOL 2-1-61

723913



DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	112320 D	3.7.62	TA 1370K	NAME OVERLAP CONTROLS 2
5-21-62	116144B	4.6.63	TA 1862	
4-2-63	116146C			DESIGN
				DETAIL
				CHECK
				APPRO

12714

(900) A ORIG A-FIELD
 (901) Q (458) (678) ORIG B-FIELD
 (908) Z

ABS 4 A2 6 5 RESULTANT A-FIELD
 BI FINAL RESULTANT B-FIELD Q 0 2 6 5
 ABS

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																			
				I 7	A	B	A	B	A	B	B	B	I OP										
1 STORAGE ADDRESS REGISTER	-		32.35.XX.2	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
2 B-REGISTER	-		35.11.XX.2	908	458	678	457	677	456	676	675	674	908										
3 A-REGISTER	-		35.11.XX.2	WMC2	C41	C81	C42	2	WMA2	C21	4	AB41	WH2C										
4 -T RESET ADD OP	O1B1		35.24.11.2	8	1	C41	C42	WMA2	1	C82	C82	C82											
5 -T ARITH OPERATION	O1B1		35.27.11.2	4																			
6 -T GATED WORD MARK	O1B2		31.07.11.2	B WM					A WM				B WM										
7 -T I-E CHANGE	O1B2		31.05.31.2	6									6										
8 +U DELTA I CYCLE	O1B2		31.21.11.2	7	9								7	14									
9 -T I-CYCLE LATCH	O1B2		31.24.11.2	8									8										
10 +U I-STAR RESTORE GATE	O1A7		32.39.11.2	6	9																		
11 +U DELTA A-CYCLE	O1B2		31.22.11.2	7	9																		
12 -T A-CYCLE LATCH	O1B2		31.25.11.2																				
13 -T DELTA B-CYCLE LATCH	O1B2		31.23.11.2																				
14 +U B-CYCLE	O1B2		31.26.11.2																				
15 -T FIRST B-CYCLE TRIGGER	O1B3		34.31.13.2	5	6	9																	
16 -T B-REGISTER ZONE INHIBIT	O1A3		35.10.21.2																				
17 -T B-REGISTER DIGIT INHIBIT	O1A3		35.10.31.2																				
18 -T B-REGISTER C-BIT INHIBIT	O1A3		35.10.21.2																				
19 -T B-REGISTER WORD MARK INHIBIT	O1A3		35.10.21.2																				
20 -T A-REGISTER DIGIT INHIBIT	O1A3		35.10.41.2																				
21 -T ARITHMETIC ZONE INHIBIT	O1A3		35.10.51.2																				
22 +U INHIBIT C-ZONE	O1A3		35.15.11.2																				
23 +U A-WORD MARK LATCH	O1B2		31.06.11.2																				
24 +U A-CYCLE ELIMINATE	O1B2		31.06.11.2																				
25 -T ARITHMETIC A-WORD MARK LATCH	O1A3		35.10.61.2																				
26 +U A-REG SET B-2-C	O1A3		35.10.61.2																				
27 +U MODIFIER CONTROL / 1	O1A8		32.42.11.2																				
28 +U MODIFIER CONTROL - 1	O1A8		32.42.11.2																				
29 -T MODIFIER CONTROL XFER	O1A8		32.42.41.2																				
30 +U MODIFIER OUTPUT ON BUS LINES	-		32.43.XX.2	909/908	457	677	456	676	455	675	674	673	909										
31 DATA ON INHIBIT DRIVE LINES	-		-	WMC2	C841	C841	C24	C24	WMA2	C2	C82	WH82	WMC2										

1900) 4
1901) 5 458 678
1908) 2

ORIGINAL A-FIELD A0 2 6 B5
ORIGINAL B-FIELD A1 9 8 A4

RESULTANT A-FIELD A0 2 6 B5
FINAL RESULTANT B-FIELD B2 2 4 A9

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																												
				T	A	B	A	B	A	B	A	B	A	B	A	B	OP															
1 STORAGE ADDRESS REGISTER			32.35.XX.2	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	
2 B-REGISTER			35.11.XX.2	908	458	678	458	678	457	677	456	676	455	675	908																	
3 A-REGISTER			35.11.XX.2	C2	B41	CA4	B41	CA4	C42	B	2	C01	CAB2	A1	C2																	
4 -T SUBTRACT OP	01B1		35.26.11.2	OP DECODE A B 2 T 5 B																												
5 -T ARITH OPERATION	01B1		35.27.11.2																													
6 -T GATED WM	01B2		31.07.11.2	B WM																												
7 -T T-E CHANGE	01B2		31.05.31.2	A WM B WM																												
8 +U DELTA T CYCLE	01B2		31.21.11.2	7 9																												
9 -T T-CYCLE LATCH	01B2		31.24.11.2	8																												
10 +U T-STAR RESTORE GATE	01A7		32.39.11.2	6 9																												
11 +U DELTA A - CYCLE	01B2		31.22.11.2	7 9																												
12 -T A-CYCLE LATCH	01B2		31.25.11.2	NOT 7 RESET 13																												
13 -T DELTA B-CYCLE LATCH	01B2		31.23.11.2	11																												
14 +U B-CYCLE	01B2		31.26.11.2	12																												
15 -T FIRST B-CYCLE TRIGGER	01B3		34.31.13.2	5 6 9 16																												
16 -T SECOND B-CYCLE TRIGGER	01B3		34.31.13.2	13 NOT 15 15																												
17 -T B-REGISTER ZONE INHIBIT	01A3		35.18.21.2	B NOT 1 MANUAL ENTRY XFER B REG																												
18 -T B-REGISTER DIGIT INHIBIT	01A3		35.18.31.2	B NOT MANUAL ENTRY XFER B REG																												
19 -T B-REGISTER C-BIT INHIBIT	01A3		35.18.21.2	B XFER B-REG B REG																												
20 -T B-REGISTER WORD MARK INHIBIT	01A3		35.18.21.2	NOT MANUAL ENTRY																												
21 -T ARITHMETIC ZONE INHIBIT	01A3		35.18.51.2	B WM & NOT 15 ORIG																												
22 -T ARITHMETIC DIGIT INHIBIT	01A3		35.18.51.2	4 NOT 26																												
23 +U INHIBIT C-ZONE	01A3		35.15.11.2	22 NOT 16 OR 21 21																												
24 +U TRANSFER STAR	01B3		34.31.13.2	4 15 NOT 8 15																												
25 -T ADDEN CARRY	01B3		34.31.15.2																													
26 -T CARRY TRIGGER	01B3		34.31.14.2	4 14 25 NOT 15 OR 16 NOT 125																												
27 +U ZONE ADDER GATE	01B3		34.33.11.2	B WM NOT 15																												
28 +U MODIFIER CONTROL PLUS 1	01A8		32.42.11.2	8																												
29 +U MODIFIER CONTROL MINUS 1	01A8		32.42.11.2	NOT 9 OR 30																												
30 -T MODIFIER CONTROL XFER	01A8		32.42.41.2	26 26																												
31 +U MODIFIER OUTPUT ON BUS LINES			32.43.XX.2	909/908	458	678	457	677	456	676	455	675	454	674	909																	
32 DATA ON INHIBIT DRIVE LINES				C2	B41	CA4	B41	A81	C42	4	2	2	CAB2	B2	C2																	

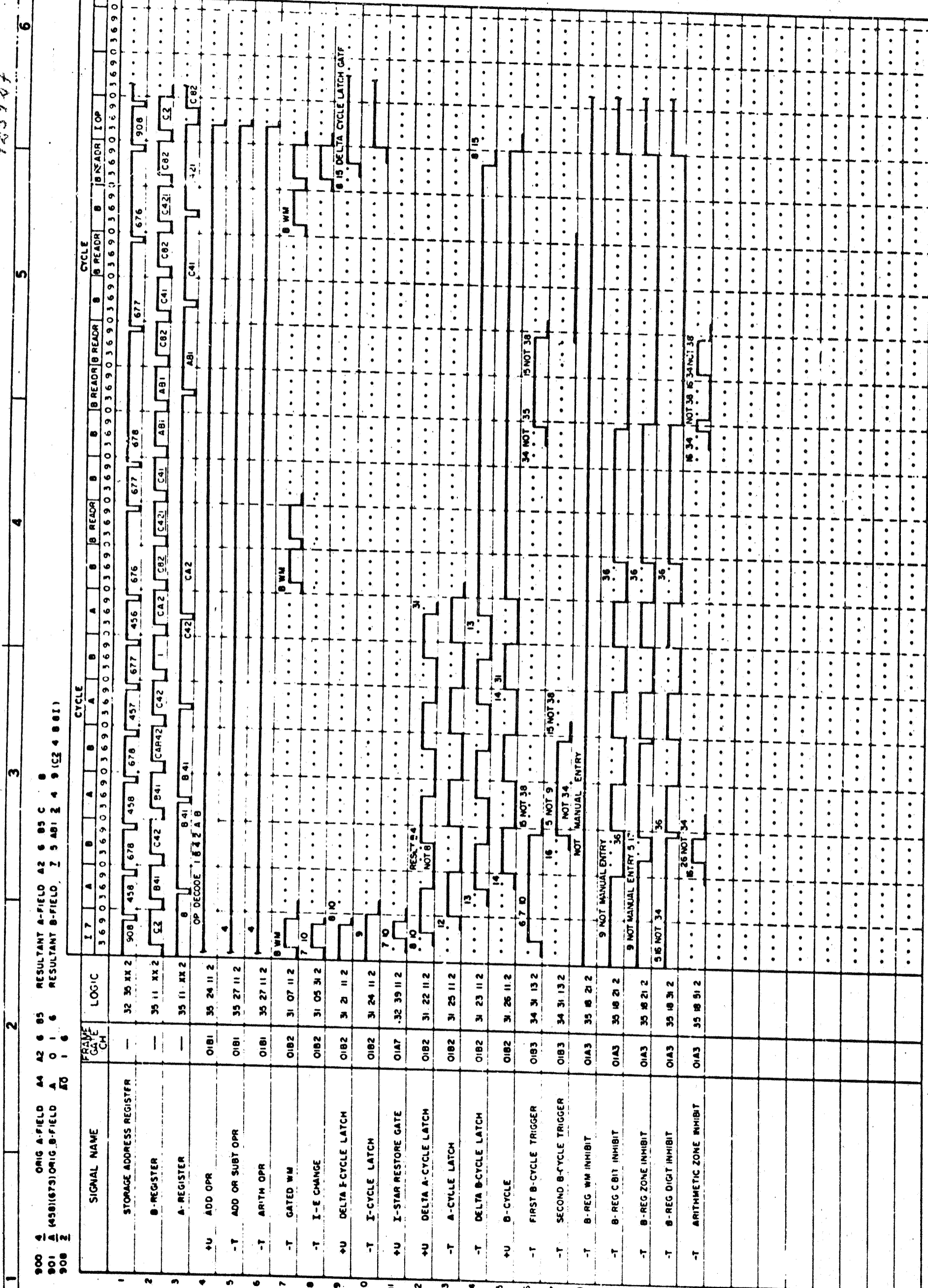
DATE 4-10-62 CHANGE NO 1-30 DATE 31.7.62 CHANGE NO TA 1370 K

INTERNATIONAL BUSINESS MACHINES CORP
NAME FIGURE 2 TRUE ADD

DESIGN DETAIL CHECK APPRO TYPE SCALE DRAW CHECK NONE VE 1-10-62

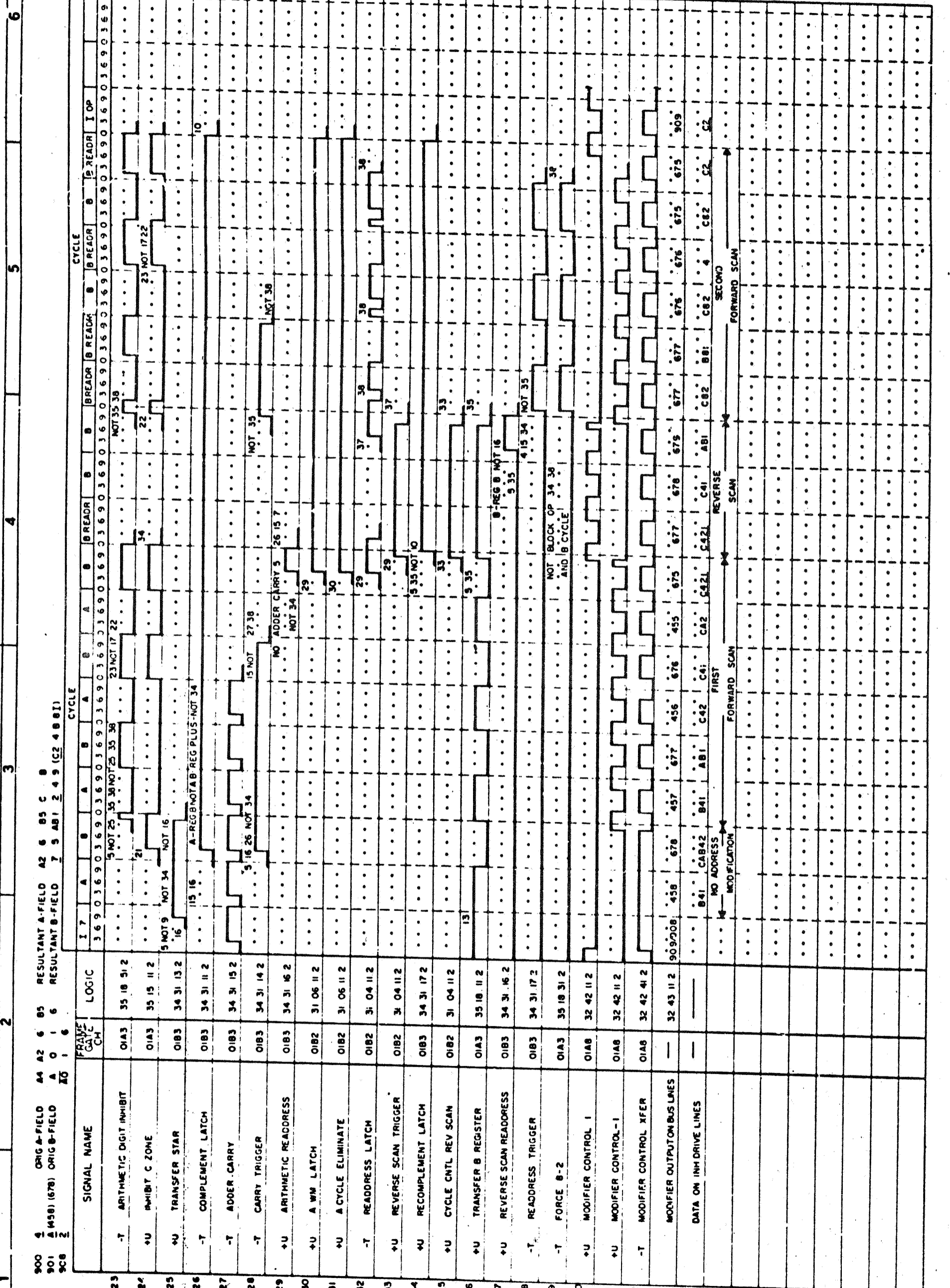
723926

1370 K 723927



900 4 ORIG A-FIELD A4 A2 6 B5 RESULTANT A-FIELD A2 6 B5 C 0
 901 A (458)(673) ORIG B-FIELD A 0 1 6 RESULTANT B-FIELD 2 5 A1 2 4 9 (C2 4 0 0 1)
 908 2

DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62		31-7-62	TA 1370 K	NAME: FIGURE 3 COMPLEMENT ADD-RECOMPLEMENT A (AAA) (BBB)
				DESIGN: TYPE
				DETAIL: SCALE: NONE
				CHECK: DRAW: VE 3-28-62



900 4 ORIG A-FIELD A4 A2 6 B5 RESULTANT A-FIELD A2 6 B5 C 8
 901 4 (458) (678) ORIG B-FIELD A 0 1 6 RESULTANT B-FIELD 7 5 A B1 2 4 9 (C2 4 B 8 I)
 902 2

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
10-62	3330	31-7-62	TA 1370 K	NAME FIGURE 3 COMPLEMENT ADD-RECOMPLEMENT A (AAA) (BBB)
				DESIGN
				TYPE
				SCALE NONE
				CHECK
				DRAW VE 3-28-62

(900) 5
(901) A 650 670
(908) 2

ORIGINAL A-FIELD A2 6 B5
ORIGINAL B-FIELD A3 1 A6

RESULTANT A-FIELD A2 6 B5
FINAL RESULTANT B-FIELD Q 0 5 A81

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																							
				T	A	B	A	B	A	B	A	B	A	B	I OP												
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0				
1 STORAGE ADDRESS REGISTER	---		32.35.XX.2	908	458	678	458	680	457	677	456	676	675	908	1												
2 B-REGISTER	---		35.11.XX.2	C2	B41	A42	B41	CAB42	C42	1	A2	C21	CAB2	C2													
3 A-REGISTER	---		35.11.XX.2																								
4 -T ADD OPERATION	01B1		35.24.11.2	OP DECODE 1 2 4 8																							
5 -T ARITH OPERATION	01B1		35.27.11.2																								
6 -T GATED WORD MARK	01B2		31.07.11.2	A WM B WM																							
7 -T I/E CHANGE	01B2		31.05.31.2																								
8 +U DELTA T CYCLE LATCH	01B2		31.21.11.2	79																							
9 -T T-CYCLE LATCH	01B2		31.26.11.2																								
10 +U DELTA A-CYCLE LATCH	01B2		31.22.11.2	7 9																							
11 -T A-CYCLE LATCH	01B2		31.25.11.2	10																							
12 -T DELTA B-CYCLE LATCH	01B2		31.27.11.2	11																							
13 +U B-CYCLE	01B2		31.26.11.2	12																							
14 -T FIRST B-CYCLE LATCH	01B3		34.31.13.2	5 6 9																							
15 -T SECOND B-CYCLE LATCH	01B3		35.31.13.2																								
16 -T B-REGISTER ZONE INHIBIT	01A3		35.18.21.2	B NOT MANUAL ENTRY																							
17 -T B-REGISTER DIGIT INHIBIT	01A3		35.18.31.2	B NOT MANUAL ENTRY XFER B REG																							
18 -T B-REGISTER C-BIT INHIBIT	01A3		35.18.21.2	B XFER B-REG																							
19 -T B-REGISTER WORD MARK INHIBIT	01A3		35.18.21.2	NOT MANUAL ENTRY																							
20 -T ARITHMETIC DIGIT INHIBIT	01A3		35.18.51.2	NOT 23																							
21 -T ARITHMETIC ZONE INHIBIT	01A3		35.18.51.2																								
22 +U INHIBIT C-ZONE	01A3		35.15.11.2																								
23 +U TRANSFER STAR	01B3		34.31.13.2	4 16 NOT 8																							
24 +U COMPLEMENT LATCH	01B3		34.31.11.2																								
25 -T ADDER CARRY	01B3		34.31.15.2																								
26 -T CARRY TRIGGER	01B3		34.31.14.2																								
27 +U A-WORD MARK LATCH	01B2		31.06.11.2																								
28 +U A-CYCLE ELIMINATE	01B2		31.06.11.2																								
29 -T ARITHMETIC A-WORD MARK LATCH	01A3		35.18.61.2																								
30 A-REGISTER SET B2 C	01A3		35.18.61.2																								
31 MODIFIER CONTROL PLUS 1	01A8		32.42.11.2																								
32 MODIFIER CONTROL MINUS 1	01A8		32.42.11.2																								
33 MODIFIER CONTROL TRANSFER	01A8		32.42.41.2																								
34 MODIFIER OUTPUT ON BUS LINES	---		32.43.XX.2	458	678	457	677	456	676	455	675	676	908														
35 DATA ON INHIBIT DRIVE LINES	---		---	C2	B41	CAB 42	B41	AB1	C42	C41	A2	C02	B2	C2													

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	1132 SC D	31.7.62	TA 1970 K	NAME FIGURE 4 COMPLEMENT ADD
				NO RECOMPLEMENT
DESIGN		TYPE		
DETAIL		SCALE	NONE	
CHECK		DRAW	VE	1-22-62
APPRO		CHECK		

(901) A 458 678
 (908) L 778 678
 (915) B 901

ORIGINAL A-FIELD 87
 ORIGINAL B-FIELD 6

RESULTANT A-FIELD 87
 FIRST RESULTANT B-FIELD A 89

FINAL RESULTANT B-FIELD 87

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																			
				17	A	B	A	B	B-READR	B-READR	B-READR	T OP											
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
1 STORAGE ADDRESS REGISTER			32.35.XX.2	908	458	678	458	678							908								
2 B-REGISTER			35.11.XX.2	BC21	CB421	42	CB421	AB42	ABB1	ABB1	B2	BC21											
3 A-REGISTER			35.11.XX.2			CB 421		CB 421		ABB1		BAB											
4 +U ADD OPERATION	01B1		35.24.11.2	OP DECODE AB 1 B 4 2																			
5 -T ADD OR SUBT OPERATION	01B1		35.27.11.2																				
6 -T ARITH OPERATION	01B1		35.27.11.2																				
7 -T GATED WORD MARK	01B2		31.07.11.2	B WM																			
8 -T T-E CHANGE	01B2		31.05.31.2																				
9 +U DELTA I-CYCLE	01B2		31.21.11.2																				
10 -T I-CYCLE LATCH	01B2		31.24.11.2																				
11 +U I-STAR RESTORE GATE	01A7		32.39.11.2																				
12 +U DELTA A-CYCLE LATCH	01B2		31.22.11.2	RESET #4																			
13 -T A-CYCLE LATCH	01B2		31.25.11.2	NOT 8																			
14 -T DELTA B-CYCLE LATCH	01B2		31.23.11.2	B 15																			
15 +U B-CYCLE	01B2		31.26.11.2																				
16 -T FIRST B-CYCLE TR	01B3		34.31.13.2	6 7 10 15 NOT 38 34 NOT 35 15 NOT 38																			
17 -T SECOND B-CYCLE TR	01B3		34.31.13.2	5 16 NOT 9 34 15 NOT 38																			
18 -T B-REGISTER WORD MARK INHIBIT	01A3		35.18.21.2	NOT MANUAL ENTRY																			
19 -T B-REGISTER C-BIT INHIBIT	01A3		35.18.21.2	9 NOT MANUAL ENTRY 36 36																			
20 -T B-REGISTER ZONE INHIBIT	01A3		35.18.21.2	9 NOT MANUAL ENTRY 17 5 36																			
21 -T B-REGISTER DIGIT INHIBIT	01A3		35.18.31.2	5 16 NOT 34 36 36																			
22 -T ARITH ZONE INHIBIT	01A3		35.18.51.2	16 26 NOT 34 34 NOT 38																			
23 -T ARITH DIGIT INHIBIT	01A3		35.18.51.2	5 NOT 25 35 38 NOT 35 38 34 NOT 35 38																			
24 +U INHIBIT C-ZONE	01A3		35.15.11.2	20																			
25 +U TRANSFER STAR	01B3		34.31.13.2	5 16 NOT 9 34 NOT 16																			
26 +U COMPLEMENT LATCH	01B3		34.31.11.2	15 16 A-REG NOT A B-REG PLUS NOT 34 10																			
27 -T ADDER CARRY	01B3		34.31.15.2																				
28 -T CARRY TRIGGER	01B3		34.31.14.2	5 16 26 27 NOT 35 NOT 38																			
29 +U ARITH READDRESS	01B3		34.31.16.2	5 26 NOT 27 34 29																			
30 +U A WORD MARK LATCH	01B2		31.06.11.2	30																			
31 +U A-CYCLE ELIMINATE	01B2		31.06.11.2	30																			
32 -T READDRESS LATCH	01B2		31.04.11.2	29 37 38																			
33 +U REVERSE SCAN TRIGGER	01B2		31.04.11.2	29 37																			
34 +U RECOMPLEMENT LATCH	01B3		34.31.17.2	5 35 NOT 10																			
35 +U CYCLE CNTRL REVERSE SCAN	01B2		31.04.11.2	33 33																			
36 +U TRANSFER B-REGISTER	01A3		35.18.11.2	10 NOT 13 13 NOT 13 5 35 NOT 35																			
37 +U REVERSE SCAN READDRESS	01B3		34.31.16.2	B-REG B NOT 16 5 35 11																			
38 -T READDRESS TRIGGER	01B3		34.31.17.2	15 34 NOT 35																			
39 -T FORCE B 2	01A3		35.18.31.2	NOT BLOCK OP 34 AND B-CYCLE 38																			
40 +U MODIFIER CONTROL 1	01A8		32.42.11.2	7 10																			
41 +U MODIFIER CONTROL - 1	01A8		32.42.11.2																				
42 -T MODIFIER CONTROL XFER	01A8		32.42.41.2	25																			
43 MODIFIER OUTPUT ON BUS LINES			32.43.11.2	909/908	458	678	457	677	679	677	677	909											
44 DATA ON INHIBIT DRIVE LINES				BC 21	CB421	AB42	CB421	ABB1	ABB1	B2	B1	BC21											

NO ADDRESS MODIFICATION FIRST FORWARD SCAN REVERSE SCAN SECOND FORWARD SCAN

DATE 1-10-62 CHANGE NO. 113430 D DATE 31.7.62 CHANGE NO. TA 1370 K

INTERNATIONAL BUSINESS MACHINES CORP
 NAME: FIGURE 5 COMPLEMENT ADD-DNE
 CHARACTER FIELD

CHECK APPROV

TYPE SCALE NONE
 DRAW VE 1-16-62
 CHECK

723929

9370 K

299 A
400 (219) (319)
407 S

ORIG A-FIELD DATA 4973
ORIG B-FIELD DATA 03965

RESULTANT A-FIELD 4973
RESULTANT B-FIELD 04973

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																					
				T		A		B		A		B		A		B		I OP							
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6
1 STORAGE ADDRESS REGISTER	—		32.XX.XX.2	407	219	319	218	318	217	317	216	316	215	315	408										
2 B-REGISTER LATCHES	—		35.XX.XX.2	5	3	5	7	6	9	9	4	3													
3 A-REGISTER LATCHES	—		35.XX.XX.2																						
4 +U MOVE OPERATION	01B1		35.25.11.2	OP DECODE B A 4 8 2 1																					
5 -T GATED WORD MARK	01B2		31.07.11.2	B-WM																					
6 -T T/E CHANGE	01B2		31.05.31.2	5 NO EXE ELIM 13 15 13 23																					
7 +U DELTA I-CYCLE	01B2		31.21.11.2	6 8 6 13 DELTA CYC LAT GATE																					
8 -T I-CYCLE LATCH	01B2		31.24.11.2	7 RESET CY LATS																					
9 +U I-STAR RESTORE GATE	01A7		32.39.11.2	5 8 ALTER																					
10 +U DELTA A-CYCLE	01B2		31.22.11.2	6 8 NOT A-CYCLE ELIM RESET DELTA B 11 075																					
11 -T A-CYCLE LATCH	01B2		31.25.11.2	10 RESET CY LATS																					
12 -T DELTA B-CYCLE LATCH	01B2		31.23.11.2	075-105 11 075 6 13																					
13 +U B-CYCLE	01B2		31.26.11.2	12 GATE CY OUT RESET CY LATS																					
14 +U TRANSFER B-REGISTER	01A3		35.18.11.2	11																					
15 +U T/E CONTROL I	01B2		31.05.21.2	4																					
16 -T B-REG ZONE INHIBIT	01A3		35.18.21.2	14																					
17 -T B-REG DIGIT INHIBIT	01A3		35.18.31.2	14																					
18 -T B-REG C-BIT INHIBIT	01A3		35.18.21.2	14																					
19 -T B-REG WM INHIBIT	01A3		35.18.21.2	14																					
20 -T A-REG ZONE INHIBIT	01A3		35.18.41.2	4 NOT BLOCK OPR & B-CYCLE																					
21 -T A-REG DIGIT INHIBIT	01A3		35.18.41.2	4 NOT BLOCK OPR & B-CYCLE																					
22 +U A-REG DIGIT AND ZONE C BIT GEN TAKES OVER																									
23 +U A-REG WM LATCH	01B2		31.06.11.2	5 090-000 8																					
24 +U MODIFIER CONTROL -I	01A8		32.42.11.2																						
25 +U MODIFIER CONTROL I	01A8		32.42.11.2																						
26 -T MODIFIER CONTROL XFER	01A8		32.42.41.2																						
27 MODIFIER OUTPUT ON BUS LINES	—		32.43.XX.2		218	318	217	317	216	316	215	315	408												
28 DATA ON INHIBIT DRIVE LINES	—		—		3	3	7	7	9	9	4	4													
29 +U INHIBIT DRIVE C	01A3		35.17.11.2																						

DATE 4-10-62 CHANGE NO. 113230 DATE 31.7.62 CHANGE NO. TA 1370 K

INTERNATIONAL BUSINESS MACHINES CORP
NAME FIG 6 MOVE M (AAA) (BBB)

DESIGN		TYPE	
DETAIL		SCALE	NONE
CHECK		DRAW	VE
APPRO		CHECK	

1-25-62

599 A ORIG A-FIELD CHAR C-B-A-B-A
 603 Y (407) (507) ORIG B-FIELD CHAR WM-B-2
 607 A

RESULTANT B-FIELD CHAR WM-C-B-A-2

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE															
				I7	A	B	T OP												
1 STORAGE ADDRESS REGISTER			32.XX.XX.2	090-105															
2 B-REGISTER LATCHES			35.XX.XX.2	025 STROBE															
3 A-REGISTER LATCHES			35.XX.XX.2																
4 +U MOVE ZONE OP	01B1		35.26.11.2	OP DECODE A B B 2															
5 1 GATED WORD MARK	01B2		31.07.11.2	6-WM															
6 T T-E CHANGE	01B2		31.05.31.2	5 NO EXE ELIM 13 14															
7 +U DELTA E-CYCLE	01B2		31.21.11.2	61 8 6 B CYC LATCH CNTL															
8 T T-CYCLE	01B2		31.24.11.2	7 RESET CY LATS															
9 +U T STAR RESTORE GATE	01A7		32.39.11.2	5 T CYCLE ALTER															
10 +U DELTA A-CYCLE	01B2		31.22.11.2	8 6 NOT A-CYC ELIM 11 075															
11 -T A-CYCLE	01B2		31.25.11.2	10 RESET CY LATS															
12 -T DELTA B-CYCLE	01B2		31.23.11.2	6 A CYCLE ELIM RESET DELTA B LAT															
13 +U B-CYCLE	01B2		31.26.11.2	12 000-015 DELTA PROCESS															
14 +U 1 CHAR T-E CHANGE	01B2		31.05.11.2	4															
15 +U TRANSFER B-REGISTER	01A3		35.18.11.2	8/11															
16 T B REG ZONE INHIBIT	01A3		35.18.21.2	15															
17 T B REG DIGIT INHIBIT	01A3		35.18.31.2	4															
18 -T B-REG C-BIT INHIBIT	01A3		35.18.21.2	15															
19 -T B-REG WM INHIBIT	01A3		35.18.21.2	15															
20 -T A-REG ZONE INHIBIT	01A3		35.18.41.2	NOT BLOCK OPR AND B-CYCLE															
21 +U MODIFIER CONTROL - 1	01A8		32.42.11.2																
22 +U MODIFIER CONTROL + 1	01A8		32.42.11.2																
23 -T MODIFIER CONTROL XFER	01A8		32.42.41.2																
24 MODIFIER OUTPUT ON BUS LINES			32.43.XX.2 406 . . 506 608															
25 DATA ON INHIBIT DRIVE LINES				. 7 . C-B-A-B-WM-C-B-A-2 . A															

DATE 4-10-62 CHANGE NO 113930 DATE 31.7.62 CHANGE NO TA 1370 K

INTERNATIONAL BUSINESS MACHINES CORP
 NAME FIGURE 8 MOVE ZONE Y
 (AAA) (BBB)

DESIGN		TYPE	
DETAIL		SCALE	NONE
CHECK		DRAW	VE 1-11-
APPRO		CHECK	

899 S ORIGINAL A-FIELD DATA 4973
 900 L (409) (509) ORIGINAL B-FIELD DATA 03965
 907 A

RESULTANT B-FIELD 04973

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																															
				T 7	A	B	A	B	A	B	A	B	A	B	T OP																				
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0				
STORAGE ADDRESS REGISTER	—		32.XX.XX.2	907	409	509	408	508	407	507	406	506																							
B-REGISTER LATCHES	—		35.XX.XX.2	A	3	5	7	6	9	9	4	3																							
A-REGISTER LATCHES	—		35.XX.XX.2																																
+U LOAD OPERATION	01B1		35.25.11.2	OP DECODE B A 1 2 4 B																															
-T GATED WORD MARK	01B2		31.07.11.2	B-WM																															
-T I/E CHANGE	01B2		31.05.31.2	5 NO EXE ELIM. 13 16 26																															
+U DELTA I-CYCLE	01B2		31.21.11.2	6 DELTA CYC LAT GATE B CY LAT CTRL																															
-T I-CYCLE	01B2		31.24.11.2	7 RESET CYCLE LATCHES																															
+U I-STAR RESTORE GATE	01A7		32.39.11.2	5 8 NOT ALTER																															
+U DELTA A-CYCLE	01B2		31.22.11.2	6 NOT A CYC ELIM RESET DELTA B LATCH 11 075																															
-T A-CYCLE	01B2		31.25.11.2	10 RESET CYCLE LATCHES																															
-T DELTA B-CYCLE	01B2		31.23.11.2	075-105 13 6 13																															
+U B-CYCLE	01B2		31.26.11.2	12 GATE CY OUT RESET CY LATCHES																															
+U TRANSFER A-REGISTER	01A3		35.18.41.2	4 NOT BLOCK OPR AND B CYCLE																															
+U TRANSFER B-REGISTER	01A3		35.18.11.2	11																															
+U I/E CONTROL 1	01B2		31.05.21.2	4																															
+U I/E CONTROL 2	01B2		31.05.21.2	4																															
-T B-REG ZONE INHIBIT	01A3		35.18.21.2	15																															
-T B-REG DIGIT INHIBIT	01A3		35.18.31.2	15																															
-T B-REG C-BIT INHIBIT	01A3		35.18.21.2	15																															
-T B-REG WM INHIBIT	01A3		35.18.21.2	SUPPRESSED BY 4																															
-T A-REG ZONE INHIBIT	01A3		35.18.41.2	4 NOT BLOCK OPR AND B-CYCLE																															
-T A-REG DIGIT INHIBIT	01A3		35.18.41.2	4 NOT BLOCK OPR AND B-CYCLE																															
+U INHIBIT C	01A3		35.14.11.2	14 A REG C																															
+U INHIBIT DRIVE WM	01A3		35.14.51.2	14 A REG WM																															
+U A-WORD MARK LATCH	01B2		31.06.11.2	5 4 8																															
+U MODIFIER CONTROL-I	01A8		32.42.11.2																																
+U MODIFIER CONTROL+I	01A8		32.42.11.2																																
-T MODIFIER CONTROL XFER	01A8		32.42.41.2																																
MODIFIER OUTPUT ON BUS LINES	—		32.43.XX.2		408	508	407	507	406	506	405	505																							
DATA ON INHIBIT DRIVE LINES	—		—		3	3	7	7	9	9	4	4																							

723934 7370

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP			
4-10-62	113830 D	31.7.62	TA 1370 K	NAME	FIG 10 LOAD L (AAA) (BBB)		
DESIGN		TYPE		DETAIL	SCALE	NONE	
CHECK		DRAW	VE	1-26-62			
APPRO		CHECK					

899 2 ORIG B-FIELD 73487
900 1 (404) RESULTANT B-FIELD 00000
904 8

723935
1370K

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																			
				T 4	B	B	B	B	B	I OP													
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
STORAGE ADDRESS REGISTER			32.XX.XX.2	904	404	403	402	401	400	904													
B-REGISTER LATCHES			35.XX.XX.2	A	7	8	4	3	7	A													
A-REGISTER LATCHES			35.XX.XX.2																				
•U CLEAR OPERATION	01B1		35.26.11.2	OP DECODE A B 1 8 5 21																			
-T GATED WORD MARK	01B2		31.07.11.2	B-WM																			
-T T-E CHANGE	01B2		31.05.31.2	5 NO EXE ELIM 18 4 NOT I CY																			
•U DELTA T-CYCLE	01B2		31.21.11.2	6 8 6 11 DELTA CYC LAT GATE																			
-T T-CYCLE	01B2		31.24.11.2	7 RESET CYCLE LATCHES																			
•U T-STAR RESTORE GATE	01A7		32.39.11.2	.5 8																			
-T DELTA B-CYCLE	01B2		31.23.11.2	6 18 6 11																			
•U B-CYCLE	01B2		31.26.11.2	10 RESET CYCLE LATCHES																			
-T B-REG ZONE INHIBIT	01A3		35.18.21.2	SUPPRESSED BY 4																			
-T B-REG DIGIT INHIBIT	01A3		35.18.31.2	SUPPRESSED BY 4																			
-T FIRST ROW	01A3		35.15.11.2	4 NOT BLOCK OPR AND B-CYCLE																			
-T B-REG WM INHIBIT	01A3		35.18.21.2	SUPPRESSED BY 4																			
•U A-CYCLE ELIM	01B2		31.06.11.2	4																			
•U UNITS BORROW-CARRY	01A8		32.42.31.2	BORROW OR CARRY 000-030																			
•U TENS BORROW-CARRY	01A8		32.42.31.2	TENS POSITION SERIAL 2 AND 8 045-060																			
•U MODIFIER CONTROL • I	01A8		32.42.11.2	17 18																			
•U MODIFIER CONTROL • I	01A8		32.42.11.2	7 NOT 21																			
-T MODIFIER CONTROL XFER	01A8		32.42.41.2																				
MODIFIER OUTPUT ON BUS LINES			32.43.XX.2	403 402 401 400 399 905																			
DATA ON INHIBIT DRIVE LINES				b . b . b . b . b .																			

723936
 1370K
 6
 5
 4
 3
 2
 1

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																			
				I	7	A	B	I	OP														
1 STORAGE ADDRESS REGISTER	---		32.XX.XX.2	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
2 B-REGISTER LATCHES	---		35.XX.XX.2	907	409	509	A																
3 A-REGISTER LATCHES	---		35.XX.XX.2	A	B	B																	
4 +U WORD MARK CLEAR	01B1		35.26.11.2	OP DECODE A B B 4 Z T																			
5 -T GATED WORD MARK	01B2		31.07.11.2	B-WM																			
6 -T I-E CHANGE	01B2		31.05.31.2	5 NO EXE ELIM 13 15																			
7 +U DELTA I-CYCLE	01B2		31.21.11.2	6 8 . . . 16 13 DELTA CYC LAT GATE																			
8 -T I-CYCLE	01B2		31.24.11.2	7 RESET CY LATS																			
9 +U I-STAR RESTORE GATE	01A7		32.39.11.2	5 I-CYCLE																			
10 +U DELTA A-CYCLE	01B2		31.22.11.2	6 8 NOT A CYC ELIM RESET DELTA B LAT																			
11 -T A-CYCLE	01B2		31.25.11.2	10 RESET CY LATS																			
12 -T DELTA B-CYCLE	01B2		31.23.11.2	11 13																			
13 +U B-CYCLE	01B2		31.26.11.2	12 GATE RESET CY OUT CY LATS																			
14 +U B-REG TRANSFER DIGIT AND ZONE	01A3		35.18.11.2	4																			
15 +U I CHAR I-E CHANGE	01B2		31.05.11.2	4																			
16 -T B-REG ZONE INHIBIT	01A3		35.18.21.2	14																			
17 -T B-REG DIGIT INHIBIT	01A3		35.18.31.2	14																			
18 -T B-REG WM INHIBIT	01A3		35.18.21.2	BLOCKED BY 4																			
19 +U MODIFIER CONTROL -I	01A8		32.42.11.2																				
20 +U MODIFIER CONTROL + I	01A8		32.42.11.2																				
21 -T MODIFIER CONTROL XFER	01A8		32.42.41.2																				
22 MODIFIER OUTPUT ON BUS LINES	---		32.43.XX.2 408 . 508 . 908																			
23 DATA ON INHIBIT DRIVE LINES	---		---	. A . . B . . B . . A																			

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4 10 62	10685	31.7.62	TA 1370 K	NAME FIGURE 12 WORD MARK CLEAR (AAA) (BBB)
				DESIGN
				TYPE
				DETAIL
				SCALE NONE
				CHECK
				DRAW VE 1-11-6
				APPRO
				CHECK

899 S
900 L (409) (509)
907 A

ORIG A-FIELD DATA
ORIG B-FIELD DATA

RESULTANT A-FIELD
RESULTANT B-FIELD

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																																				
				I7	A	B	I OP																																	
1 STORAGE ADDRESS REGISTER			32.XX.XX.2	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	
2 B-REGISTER LATCHES			35.XX.XX.2	906	409	509	907																																	
3 A-REGISTER LATCHES			35.XX.XX.2	9	8	B	A																																	
4 *U WORD MARK SET	01B1		35.26.11.2	9	8	B	A																																	
5 -T GATED WORD MARK	01B2		31.07.11.2	4	I RING 7																																			
6 -T T-E CHANGE	01B2		31.05.31.2	4	I RING 7		13	15																																
7 *U DELTA I-CYCLE	01B2		31.21.11.2	6	8		13	15																																
8 -T T-CYCLE	01B2		31.26.11.2	7																																				
9 *U T-STAR RESTORE GATE	01A7		32.39.11.2	5	8																																			
10 *U DELTA A-CYCLE	01B2		31.22.11.2	6	8																																			
11 -T A-CYCLE	01B2		31.25.11.2																																					
12 -T DELTA B-CYCLE	01B2		31.23.11.2																																					
13 *U B-CYCLE	01B2		31.26.11.2																																					
14 *U B-REG TRANSFER DIGIT AND ZONE	01A3		35.18.11.2	4																																				
15 *U 1 CHAR T-E CHANGE	01B2		31.05.11.2	4																																				
16 -T B-REG ZONE INHIBIT	01A3		35.18.21.2	14																																				
17 -T B-REG DIGIT INHIBIT	01A3		35.18.31.2	14																																				
18 *U INHIBIT DRIVE WORD MARK	01A3		35.14.51.2	4																																				
19 *U MODIFIER CONTROL - 1	01A3		32.42.11.2																																					
20 *U MODIFIER CONTROL + 1	01A8		32.42.11.2																																					
21 -T MODIFIER CONTROL XFER	01A8		32.42.41.2																																					
22 MODIFIER OUTPUT ON BUS LINES			32.43.XX.2	.907.	.408.	.508.	.908.																																	
23 DATA ON INHIBIT DRIVE LINES				.2.	.8.	.8.	.A.																																	

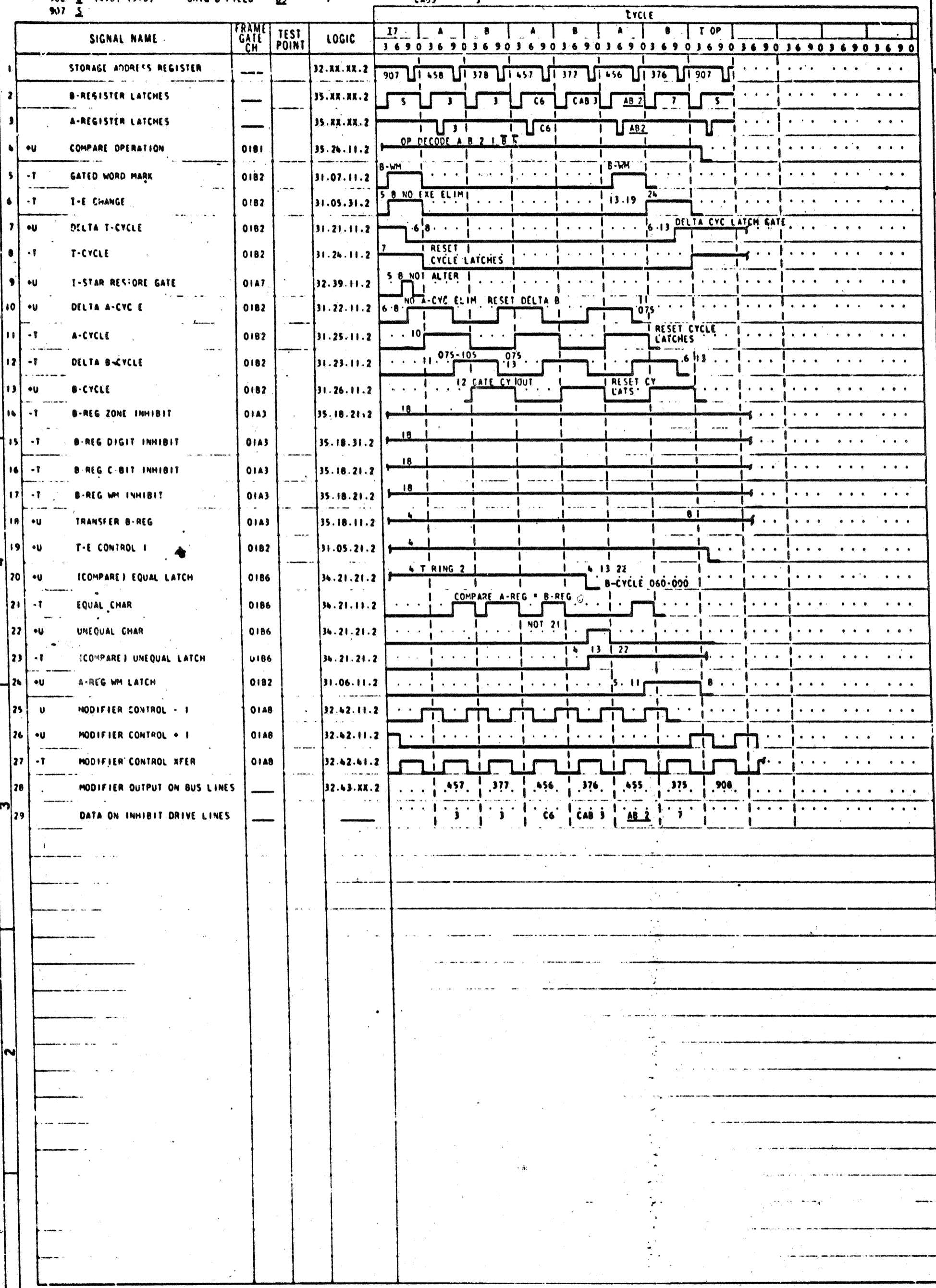
899 A
900 L (458) (378)
907 S

ORIG A-FIELD
ORIG B-FIELD B2

AB2
7

C6
CAB3

3
3 RESULTANT B-FIELD (SAME AS ORIG)



ORIGINAL A FIELD "863" WM AB2 C62 21
 OR
 ORIGINAL B FIELD "7C3" WM 421 CAB21 21

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																																			
				T	A	B	A	B	A	B	T	OP																											
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
1 STORAGE ADDRESS REGISTER			32.35.XX 32.36.XX	[Timing diagram for Storage Address Register]																																			
2 B-REGISTER			35.11.XX	[Timing diagram for B-Register]																																			
3 A-REGISTER			35.16.XX	[Timing diagram for A-Register]																																			
4 +U COMPARE OPERATION	01B1		35.24.11	[Timing diagram for Compare Operation]																																			
5 -T GATED WORD MARK	01B2		31.07.11	[Timing diagram for Gated Word Mark]																																			
6 -T I/E CHANGE	01B2		31.05.31	[Timing diagram for I/E Change]																																			
7 +U DELTA T CYCLE	01B2		31.21.11	[Timing diagram for Delta T Cycle]																																			
8 -T T CYCLE	01B2		31.24.11	[Timing diagram for T Cycle]																																			
9 +U T STAR RESTORE	01A8		32.39.11	[Timing diagram for T Star Restore]																																			
10 -T DELTA A CYCLE	01B2		31.22.11	[Timing diagram for Delta A Cycle]																																			
11 -T A CYCLE	01B2		31.25.11	[Timing diagram for A Cycle]																																			
12 -T DELTA B CYCLE	01B2		31.23.11	[Timing diagram for Delta B Cycle]																																			
13 +U B CYCLE	01B2		31.26.11	[Timing diagram for B Cycle]																																			
14 +U TRANSFER B REGISTER	01A3		35.18.11	[Timing diagram for Transfer B Register]																																			
15 +U I/E CONTROL 1	01B2		31.05.21	[Timing diagram for I/E Control 1]																																			
16 -T B REG ZONE INHIBIT	01B4		36.13.21	[Timing diagram for B Reg Zone Inhibit]																																			
17 -T B REG DIGIT INHIBIT	01B4		36.13.21	[Timing diagram for B Reg Digit Inhibit]																																			
18 -T B REG C BIT INHIBIT	01A3		35.18.21	[Timing diagram for B Reg C Bit Inhibit]																																			
19 -T B REG WM INHIBIT	01A3		35.40.21	[Timing diagram for B Reg WM Inhibit]																																			
20 +U COMPARE EQ LATCH OUTPUT	01B6		34.21.21	[Timing diagram for Compare EQ Latch Output]																																			
21 -T EQUAL CHARACTER	01B6		34.21.11	[Timing diagram for Equal Character]																																			
22 -T COMPARE UNEQUAL LAT OUTPUT	01B6		34.21.21	[Timing diagram for Compare Unequal Lat Output]																																			
23 +U HIGH LATCH	02A8		44.34.21	[Timing diagram for High Latch]																																			
24 +U A REG WM LATCH	01B2		31.06.11	[Timing diagram for A Reg WM Latch]																																			
25 -T MODIFIER CONTROL - 1	01A8		32.42.21	[Timing diagram for Modifier Control - 1]																																			
26 -T MODIFIER CONTROL TRANSFER	01A8		32.42.41	[Timing diagram for Modifier Control Transfer]																																			

DATE CHANGE NO DATE CHANGE NO
 4-10-62 115650 D 31.7.62 TA 1370 K

INTERNATIONAL BUSINESS MACHINES CORP

NAME FIGURE 15 HIGH-LOW EQUAL
 COMPARE SEQUENCE C (AAA) (BBB)

DESIGN		TYPE	
DETAIL		SCALE	NONE
CHECK		DRAW	VE
APPRO		CHECK	

1-12-62

653 A 701 A
 654 B (701)
 658 BLANK

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																				
				T4	T OP																			
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	
1 STORAGE ADDRESS REGISTER			32.XX.XX.2	65R	701																			
2 B-REGISTER LATCHES			35.XX.XX.2	C-BIT	A																			
3 A-REGISTER LATCHES			35.XX.XX.2																					
4 -T BRANCH OPR	0151		35.26.11.2	OP DEC A	B 2 B 5 T																			
5 -T GATED WORD MARK	0182		31.07.11.2	B-WM OR 16																				
6 +U UNCOND. TRANSFER	0182		31.08.11.2	B-REG BLANK	030-000	4	T-RING	4																
7																								
8 +U DELTA T-CYCLE LATCH	0182		31.21.11.2	B-CYC LAT CMTL	7 9																			
9 -T T-CYCLE LATCH	0182		31.24.11.2	DELTA CYC LAT GT	8 000-060																			
10 +U T-STAR RESTORE GATE	01A7		32.39.11.2	5 8	NOT ALTER	060-090																		
11 +U EXECUTE ELIMINATE	0182		31.05.11.2	4	T-RING	4																		
12 +U TRANSFER PROGRAM SKIP	0186		34.21.41.2	T-RING	4 5																			
13 -T PROGRAM SKIP LATCH	0182		31.08.11.2	4 OR 12	17	045-060																		
14 +U T-A STAR GATE	0182		31.08.11.2	13																				
15 +U SET TO T-RING OP	0182		31.30.11.2	13																				
16 -T A-STAR GATE OUT	01A7		32.32.21.2	8 14	NOT SET-UP																			
17 -T T-RING OP TRG	0182		31.31.31.2	030-000	015-030	8																		
18				15		DELTA PROC																		
19 +U MODIFIER CONTROL +1	01A8		32.42.11.2																					
20 -T MODIFIER CONTROL XFER	01A8		32.42.41.2																					
21 MODIFIER OUTPUT ON BUS LINES			32.43.XX.2			.702																		
22 DATA ON INHIBIT DRIVE LINES				5	A																			

1070K 23940

6

5

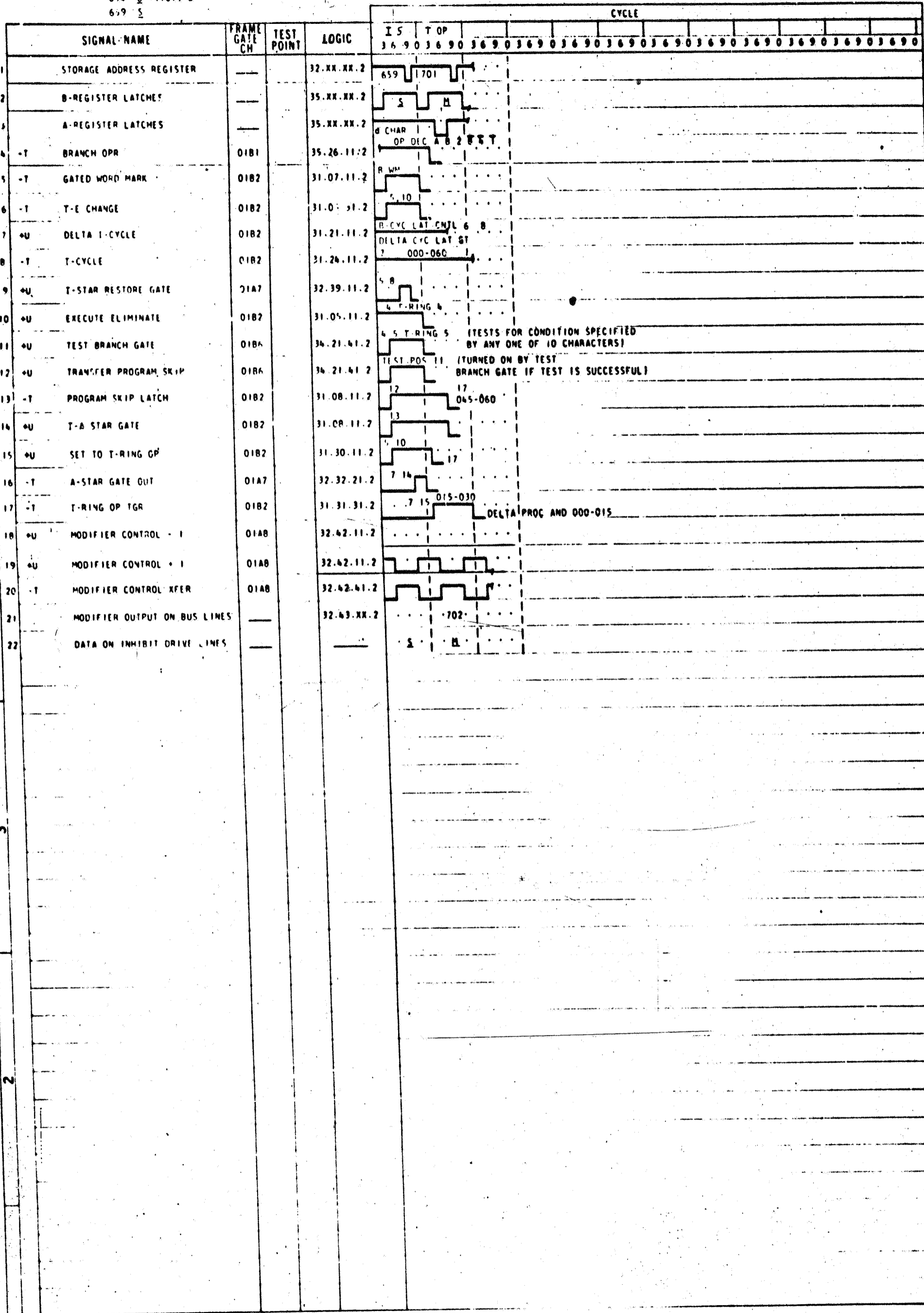
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3

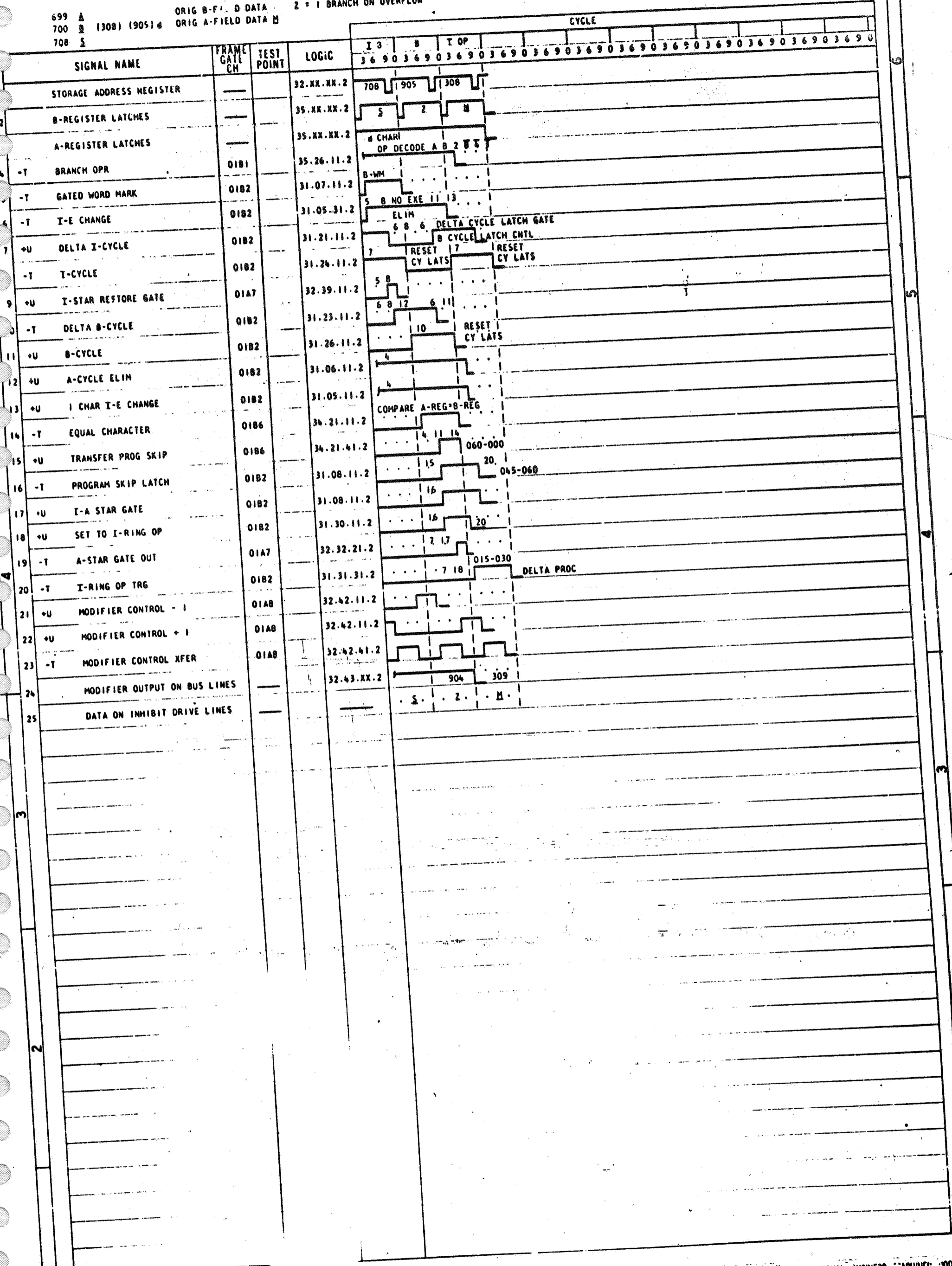
2

1

659 A 701 M
654 B (701) d
659 S



699 A ORIG B-FIELD DATA Z = 1 BRANCH ON OVERFLOW
 700 B (308) (905) d ORIG A-FIELD DATA M
 708 S



DATE CHANGE NO DATE CHANGE NO
 10-62 1.5430 31.7.62 TA 1370 K

INTERNATIONAL BUSINESS MACHINES CORP
 NAME FIG 18 TEST CHAR AND BRAN
 B (111) (BBB) d (ANY ONE
 OF NINE CHARACTERS)

DESIGN	TYPE
DETAIL	SCALE
CHECK	DRAW
APPRO	CHECK

NONE
 VE 1-11

902 S
903 Y (1303) (402) C
911 M (409) (1307)

402 T (WM-C-A-2-1)
303 S

TEST BOTH ZONE AND WM AND BRANCH

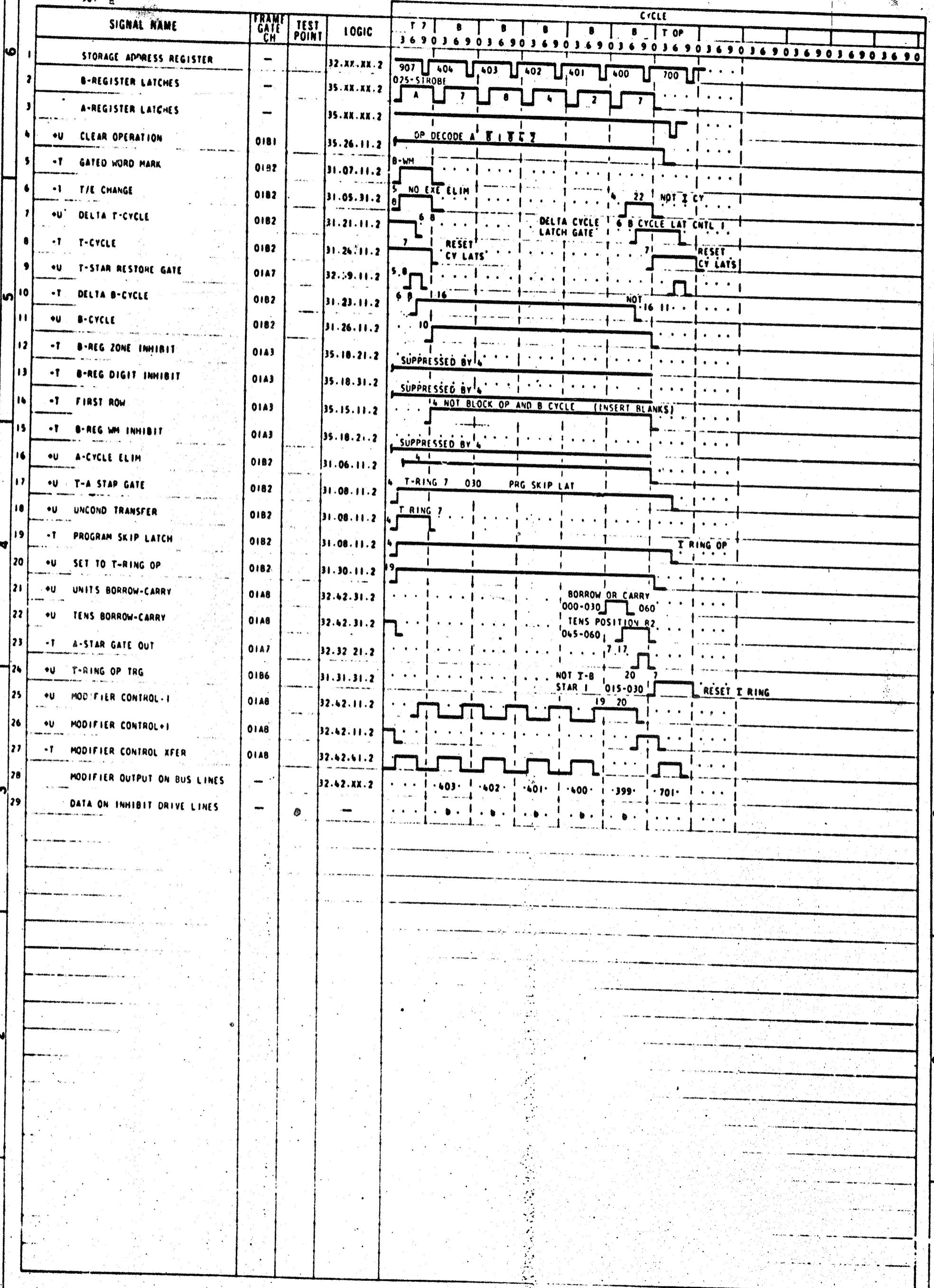
6
5
4
3
2
1

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																						
				T	B	T	OP																			
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0			
1 STORAGE ADDRESS REGISTER			32.XX.XX.2	911		402		303																		
2 B-REGISTER LATCHES			35.XX.XX.2	M		WM		T		S																
3 A-REGISTER LATCHES			35.XX.XX.2																							
4 +U ZONE TEST OPR	01B1		35.26.11.2	d CHAR OP DEC A, B & I B ?																						
5 -T GATED WORD MARK	01B2		31.07.11.2	B-WM																						
6 -T T-E CHANGE	01B2		31.05.31.2	5 11 12																						
7 +U DELTA T-CYCLE	01B2		31.21.11.2	6 B 6 DELTA CYC LAT GATE																						
8 T T-CYCLE	01B2		31.24.11.2	7 000-060																						
9 +U T-STAR RESTORE GATE	01A7		32.39.11.2	5 8																						
10 -T DELTA B-CYCLE	01B2		31.23.11.2	6 R 12 6 11																						
11 +U B-CYCLE	01B2		31.26.11.2	10																						
12 +U I CHAR T-E CHANGE	01B2		31.05.11.2	4																						
13 +U TRANSFER B-REGISTER	01A3		35.18.11.2	4 11																						
14 +U A CYCLE ELIM	01B2		31.06.11.2	4																						
15 -T A ZONE BIT EQUAL	01B6		34.21.11.2	A-REG A A-REG NOT A B-REG A B-REG NOT B																						
16 -T B ZONE BIT EQUAL	01B6		34.21.11.2	A-REG B A-REG NOT B B-REG B B-REG NOT B																						
17 +U ZONE TRANSFER GATE	01B6		34.21.41.2	A REG 2 15 16																						
18 +U TRANSFER PROGRAM SKIP	01B6		34.21.41.2	A REG 1 4 11 B REG WM																						
19 -T PROGRAM SKIP LATCH	01B2		31.08.11.2	18 045-060 23																						
20 +U T-A STAR GATE	01B2		31.08.11.2	19																						
21 +U SET TO T RING OP LATCH	01B2		31.30.11.2	19 20																						
22 -T A-STAR GATE OUT	01A7		32.32.21.2	7 20																						
23 -T T-RING OP TRG	01B2		31.31.31.2	7 21 015-030 DELTA PROC																						
24 +U MODIFIER CONTROL - I	01A8		32.42.11.2																							
25 +U MODIFIER CONTROL + I	01A8		32.42.11.2																							
26 -T MODIFIER CONTROL XFER	01A8		32.42.41.2																							
27 MODIFIER OUTPUT ON BUS LINES			32.43.XX.2	403 304																						
28 DATA ON INH DR LINES				M WM-T S																						

899 2 ORIG B-FIELD 7 2 4 8 7
 900 2 17003(404) RESULTANT B-FIELD 0 0 0 0 0
 907 A

SHEET 1 OF 1 723948

1300K 723447



DATE CHANGE NO DATE CHANGE NO INTERNATIONAL BUSINESS MACHINES CORP
 31.7.62 TA 1370 K NAME FIG 20 CLEAR AND BRANCH/
 (11) (888)
 DESIGN DETAIL CHECK TYPE NONE DRAW VE 1-26-62

691 S 305 M
 692 A (305)
 696 A

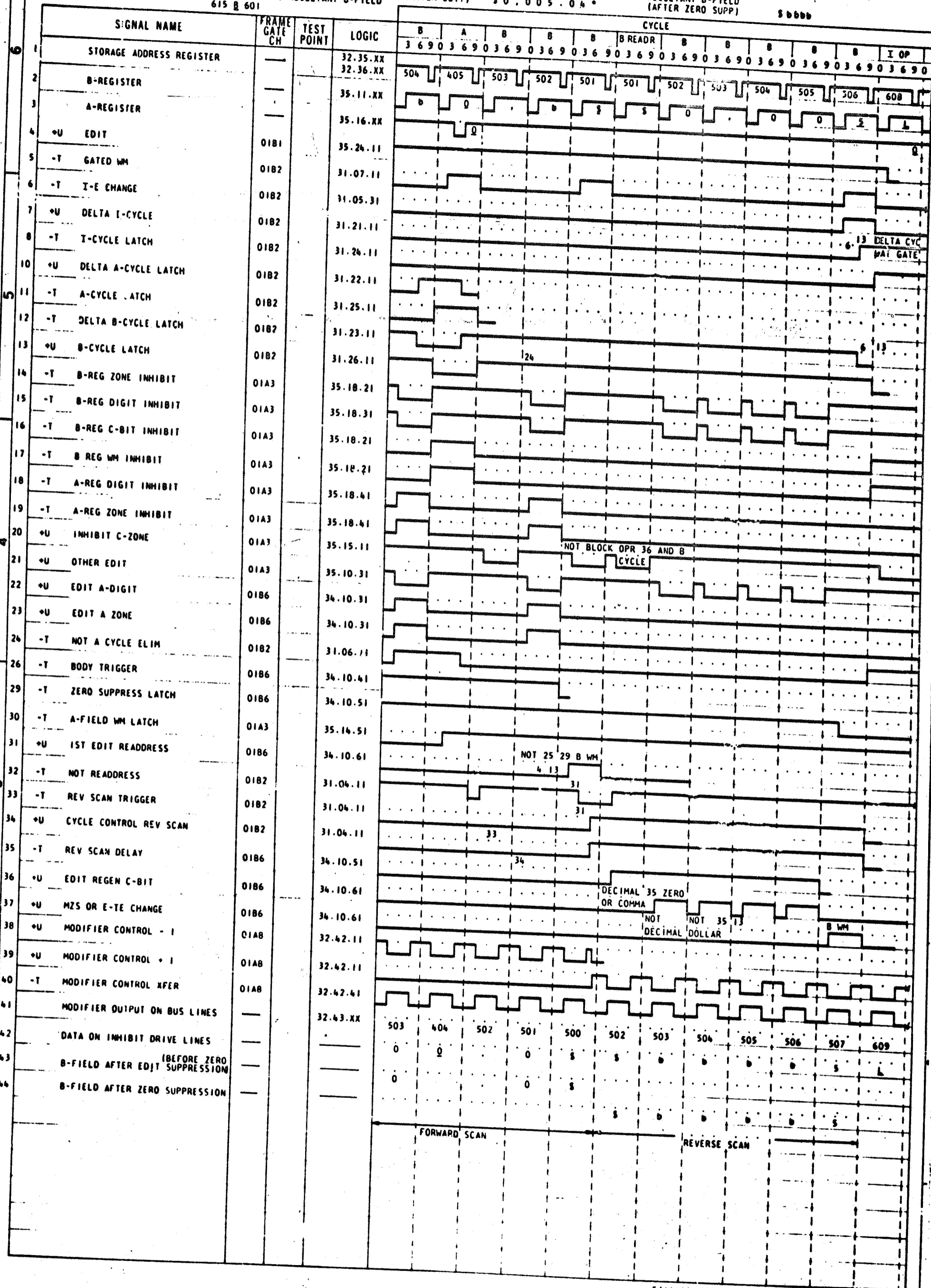
SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE											
				T OP	T 1	T 2	T 3	T 4	T OP						
				3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0
1 STORAGE ADDRESS REGISTER			32.XX.XX.2	692	693	694	695	696	305						
2 B-REGISTER LATCHES			35.XX.XX.2		3	0	5	A	M						
3 A-REGISTER LATCHES			35.XX.XX.2												
4 +U STOP OPR	01B1		35.24.11.2	OP DECODE A B 8 2 1 4											
5 -T GATED WORD MARK	01B2		31.07.11.2	SUPPRESSED BY T-OP											
6 +U DELTA I-CYCLE LATCH	01B2		31.21.11.2	075 OF PREVIOUS CYCLE											
7 -T I-CYCLE LATCH	01B2		31.24.11.2	6											
8 +U DELTA PROCESS LATCH	01B2		31.02.11.2					14							
9 +U T-STAR RESTORE GATE	01A7		32.39.11.2					5 7							
10 +U EXECUTE ELIM	01B2		31.05.11.2	4											
11 -T PROGRAM SKIP LATCH	01B2		31.08.11.2					4 5 T-RING	4	60					16
12 +U I-A STAR GATE	01B2		31.08.11.2												
13 +U SET TO T-RING OP LATCH	01B2		31.30.11.2												16.
14 +U DELTA PROCESS RESET	01B2		31.02.31.2					4 5							
15 -T A-STAR GATE OUT	01A7		32.32.21.2					060-075	6 12						
16 -T T-RING OP TRG	01B6		31.31.31.2												DELTA PROC
17 +U MODIFIER CONTROL - 1	01A8		32.42.11.2												61
18 +U MODIFIER CONTROL + 1	01A8		32.42.11.2												
19 -T MODIFIER CONTROL XFER	01A8		32.42.41.2												
20 MODIFIER OUTPUT ON BUS LINES				.693.	.694.	.695.	.696.	.697.	.306.						
21 DATA ON INH DRIVE LINES					3	0	5	A	M						

DATE CHANGE NO. DATE CHANGE NO. INTERNATIONAL BUSINESS MACHINES
 4-10-62 1133C D 31.7.62 TA 1370 K NAME: FIGURE 21 STOP AND BRANCH (111)

DESIGN	TYPE	SCALE	NONE
DETAIL		DRAW	VE 1-12 63
CHECR		CHECR	
APPRO			

651 A
652 B (400)
656 A

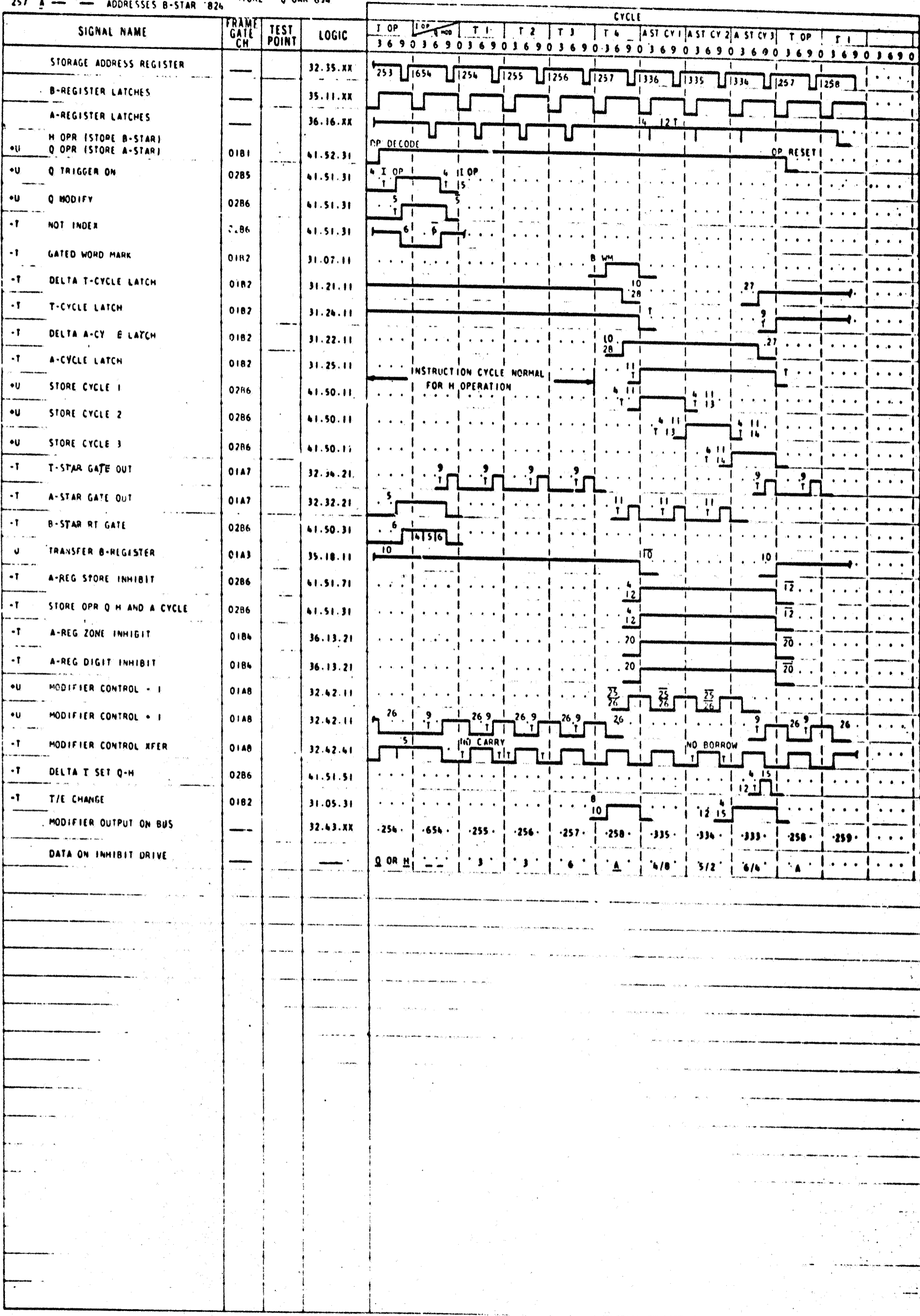
SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																
				T OP	T 1	T 2	T 3	T 4	T OP	T 1	T 2	T 3	T 4	T OP	T 1	T 2	T 3	T 4		
1 STORAGE ADDRESS REGISTER	---		32.XX.XX.2	652	653	654	655	656	656											
2 B-REGISTER LATCHES	---		35.XX.XX.2	N	4	9	6	A	A											
3 A-REGISTER LATCHES	---		35.XX.XX.2																	
4 +U NO-OP OPR	0181		35.25.11.2	OP DEC B	A 4	1 8 2	9	6												
5 -T GATED WORD MARK	0182		31.07.11.2	SUPPRESSED BY I OP																
6 -T T-E CHANGE	0182		31.05.31.2	SUPPRESSED BY II																
7 +U DELTA T-CYCLE	0182		31.21.11.2	075 OF PREVIOUS CYCLE																
8 -T T-CYCLE LATCH	0182		31.24.11.2	7 000-060																
9 +U T-STAR RESTORE GATE	01A7		32.39.11.2							S B										
10 +U UNCOND TRANSFER	0182		31.08.11.2																	
11 +U EXECUTE ELIMINATE	0182		31.05.11.2																	
12 +U SET TO T-RING OP LATCH	0182		31.30.11.2							075-105	11									
13 -T T-RING OP TRG	0182		31.31.31.2							7 12 015-030										DELTA PROC 000-015
14 +U MODIFIER CONTROL - 1	01A8		32.42.11.2																	
15 +U MODIFIER CONTROL + 1	01A8		32.42.11.2																	
16 -T MODIFIER CONTROL XFER	01A8		32.42.61.2																	
17 MODIFIER OUTPUT ON BUS LINES	---		32.43.XX.2	653	654	655	656	657	657											
18 DATA ON INHIBIT DRIVE LINES	---		---	N	4	9	6	A	A											



E(AAA)(BBB)

253 Q/H (336) PREVIOUS A-STAR 654 STORE Q ORR 654
257 A -- ADDRESSES B-STAR 824

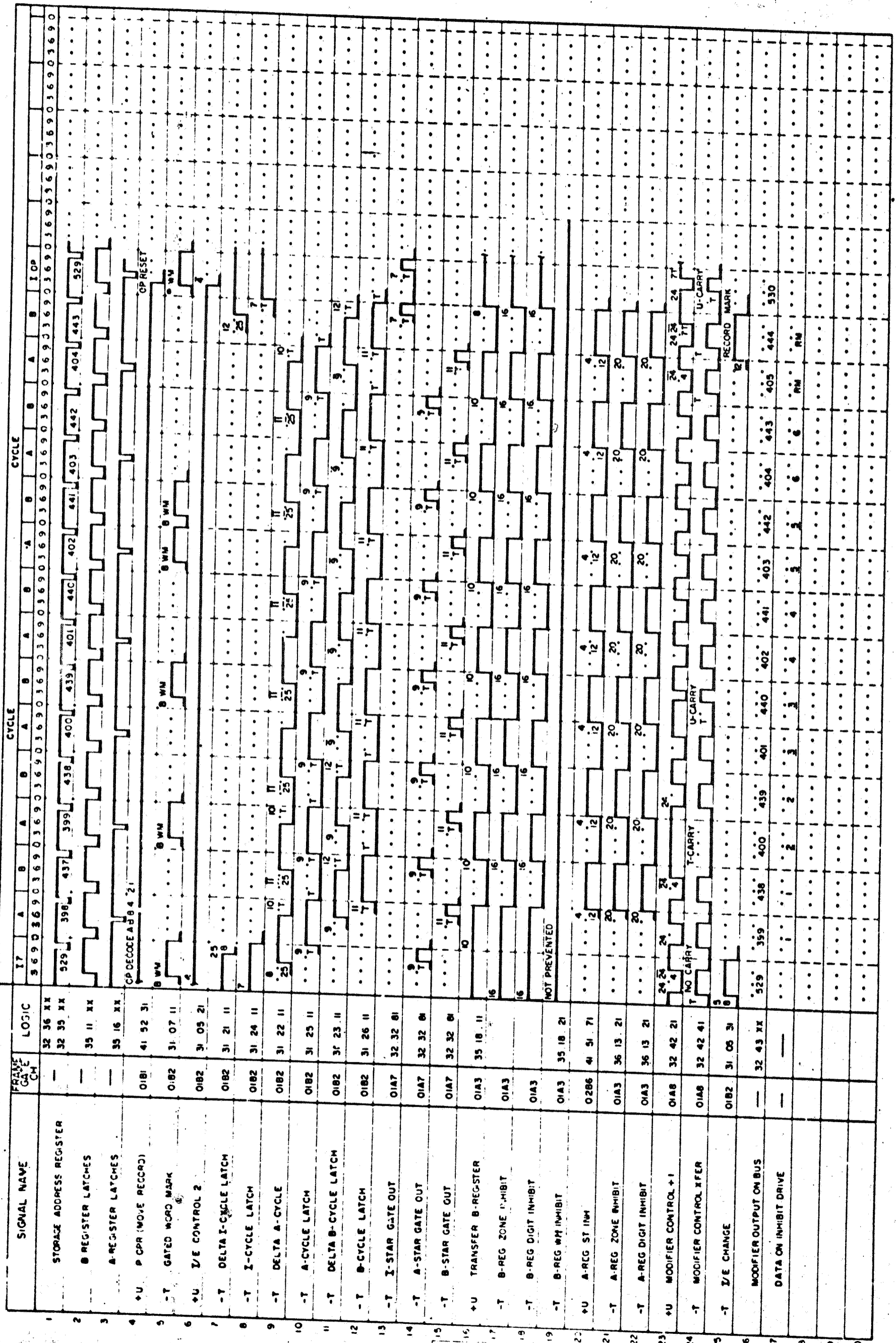
6
5
4
3
2
1



T-STAR & STAR R-STAR
 654 B (701) EFF T/E XFER 658 701 XXX
 658 P — — AFTER XFER 658 701 658
 701 H (336)

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE															
				I 4	T-B STAR	T OP	I 1												
				3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0			
1 STORAGE ADDRESS REGISTER			32.35.XX 32.36.XX	658	658	701	702												
2 B-REGISTER LATCHES			35.11.XX																
3 A-REGISTER LATCHES			36.16.XX																
4 -T BRANCH OPERATION	01B1		35.26.11																
5 -T GATED WORD MARK	01B2		31.07.11																
6 -T T/E CHANGE	01B2		31.05.11																
7 -T DELTA T-CYCLE LATCH	01B2		31.21.11																
8 -T T-CYCLE LATCH	01B2		31.24.11																
9 +U T-STAR RESTOR	01A8		32.39.11																
10 +U EXECUTE ELIMINATION	01A2		31.05.11																
11 +U TRANSFER PROGRAM SKIP	01B6		36.21.41																
12 -T PROGRAM SKIP LATCH	01B2		31.08.11																
13 +U T-A STAR GATE	01B2		31.08.11																
14 +U SET TO I RING OP	01B2		31.30.11																
15 -T T-B STAR 1	02B6		41.51.51																
16 +U T-B STAR TRIGGER	02B6		41.51.51																
17 +U T STAR R0	02B6		41.51.51																
18 -T T-B STAR 2 (B-STAR R1)	02B6		41.51.51																
19 +U T RING OP	01B2		31.31.11																
20 -T A-STAR GATE OUT	01A7		32.32.21																
21 -T T-STAR GATE OUT	01A7		32.34.21																
22 +U MODIFIER CONTROL + I	01A8		32.42.41																
23 -T MODIFIER CONTROL XFER	01A8		32.42.41																
24 MODIFIER OUTPUT ON BUS			32.43.XX	659	658	702	703												
25 DATA ON INHIBIT DRIVE				A	A	H	B												

523 P (398) (437) A-FIELD CRG 1 2 3 4 5 6 RM 7 RESULT 1 2 3 4 5 6 RM 7
 529 I - B-FIELD CRG A B C D E F GH RESULT 1 2 3 4 5 6 RM 7



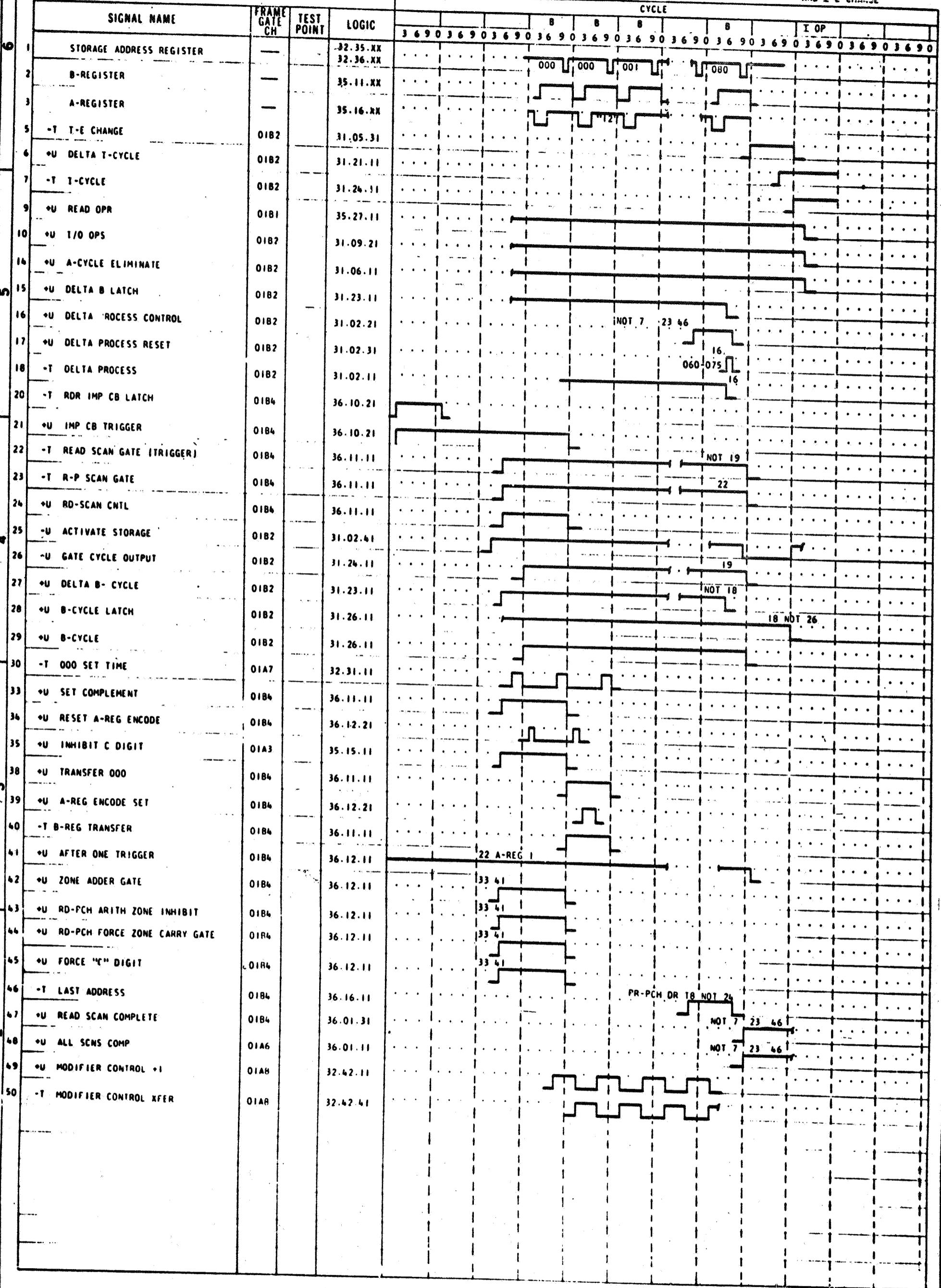
DATE 10-62 CHANGE NO. 31.7.62 DATE TA 1370 K
 INTERNATIONAL BUSINESS MACHINES CORP
 NAME FIGURE 28 MOVE RECORD P
 (AAA)(BBB)
 DESIGN TYPE
 DETAIL SCALE NONE

903 (1)
904 A

A-REG SET-UP FOR READ SCAN
10-12

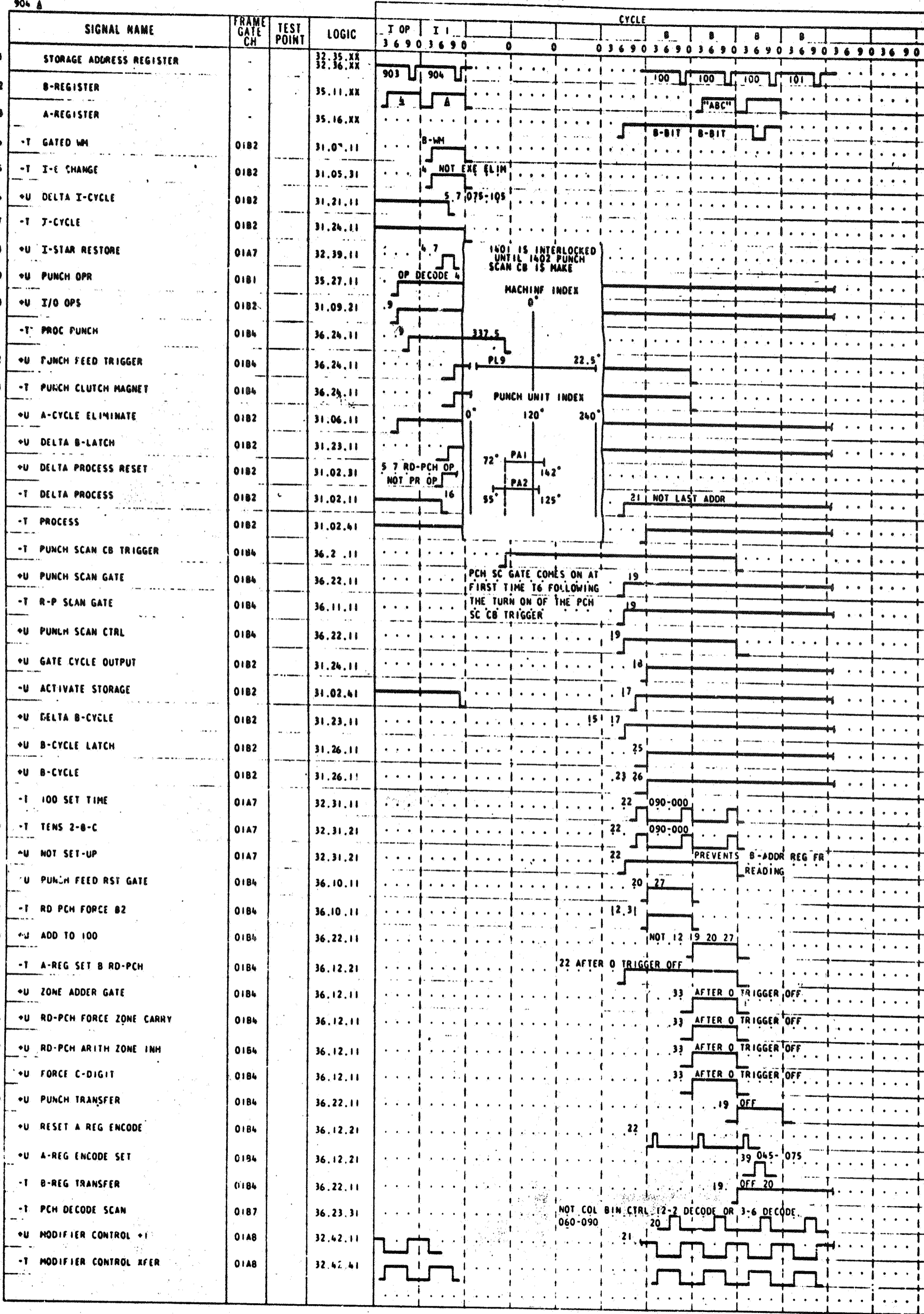
LAST ADDRESS OR
READ SCANS 1-12

ALL SCANS COMPLETE
AND I-E CHANGE



SET A-REG TO 12
DIGIT TIME

903 5
904 A



DATE CHANGE NO DATE CHANGE NO
10-62 115-20 31.7.62 TA 1370 K

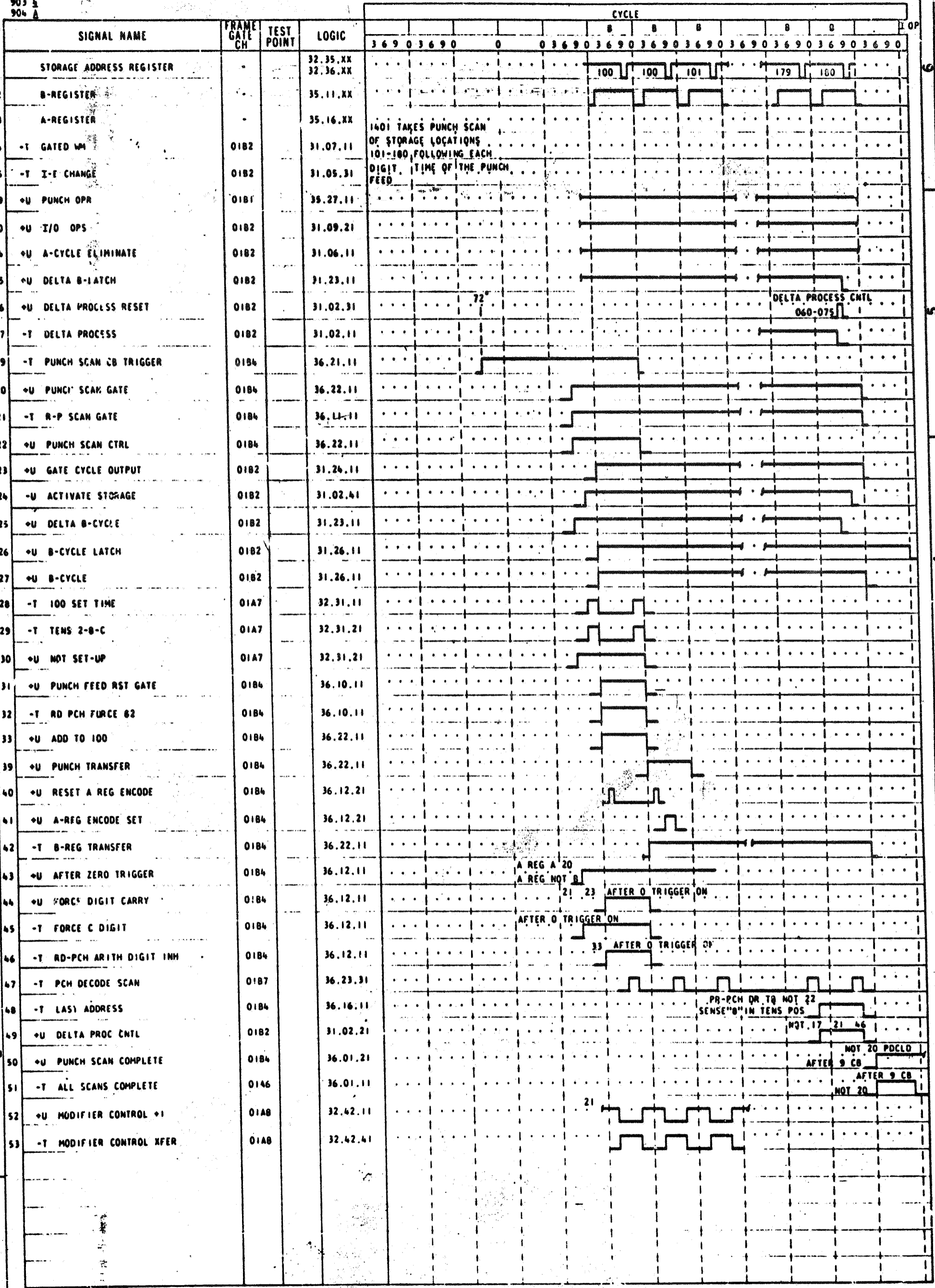
INTERNATIONAL BUSINESS MACHINES CO.
NAME FIGURE 30 PUNCH

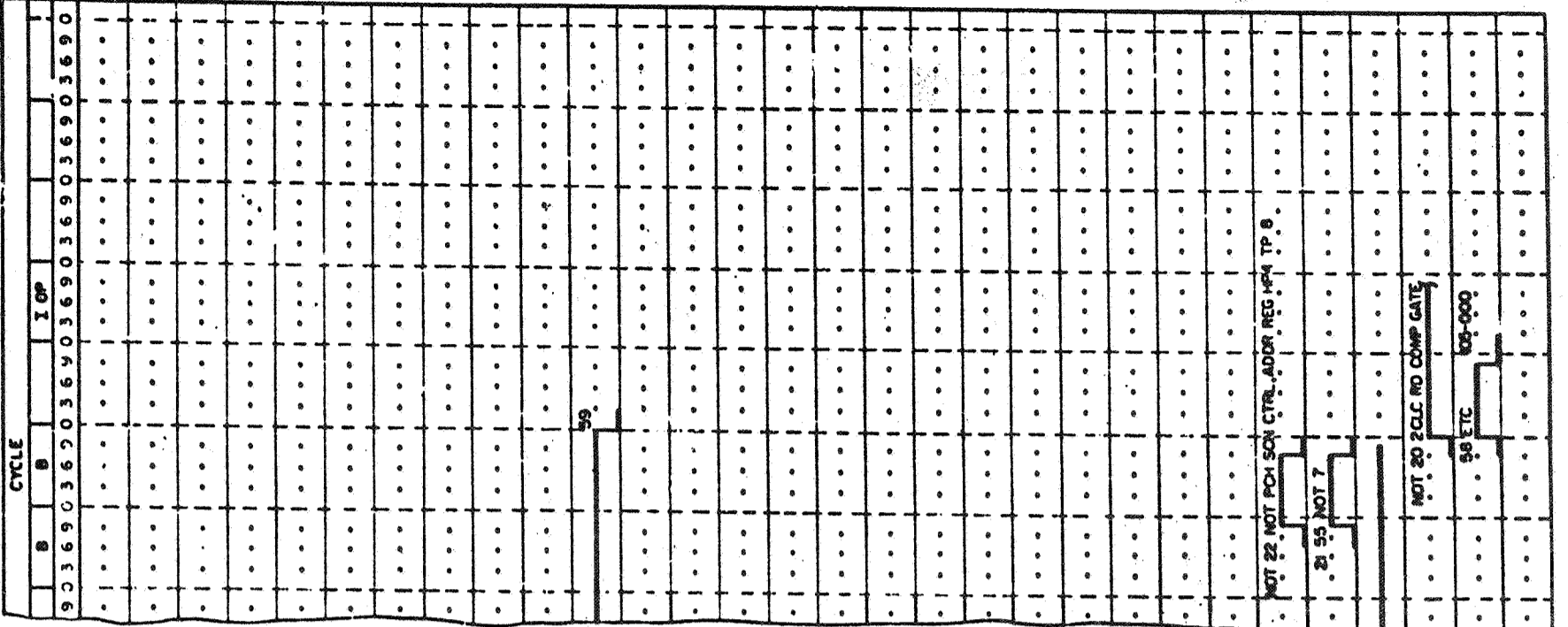
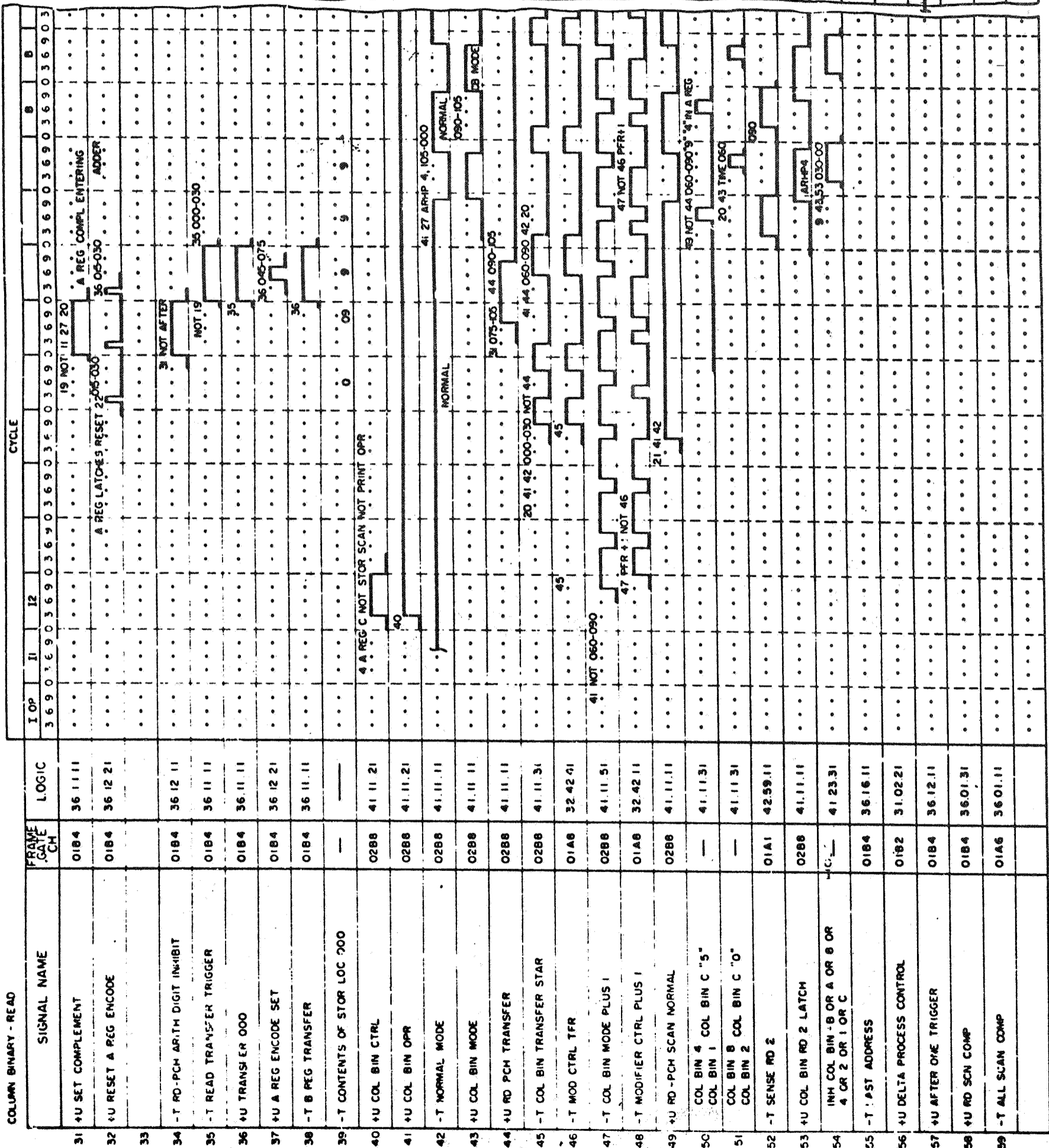
DESIGN	TYPE	SCALE	NONE
DETAIL	CHECK	DRAW	VE
CHECK	APPRO	CHECK	3-26-62

A-REG SET-UP FOR PUNCH SCANS
1-9

LAST ADDRESS OF PCH SCANS
12, 11, 0, 1-9, 13

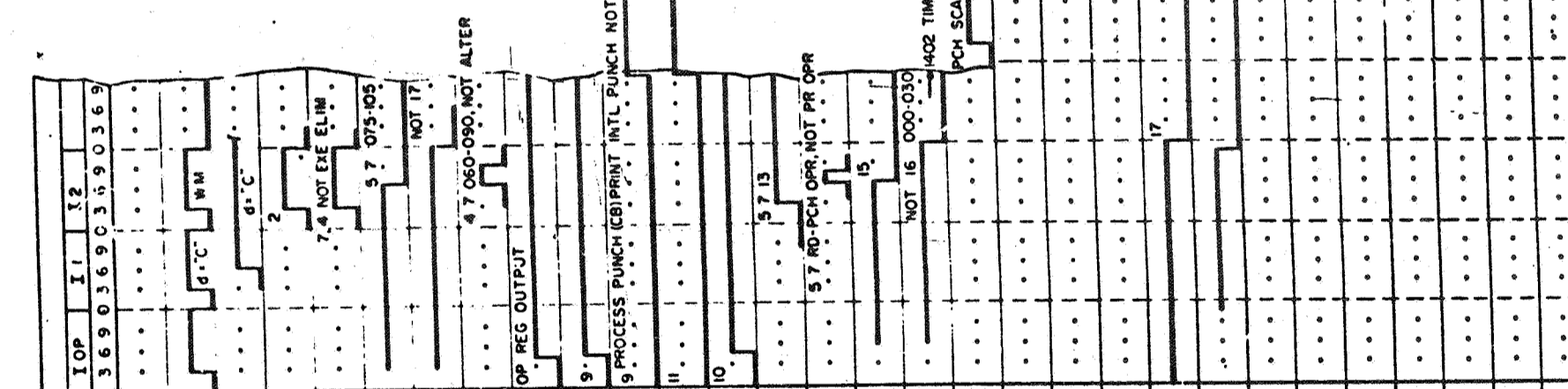
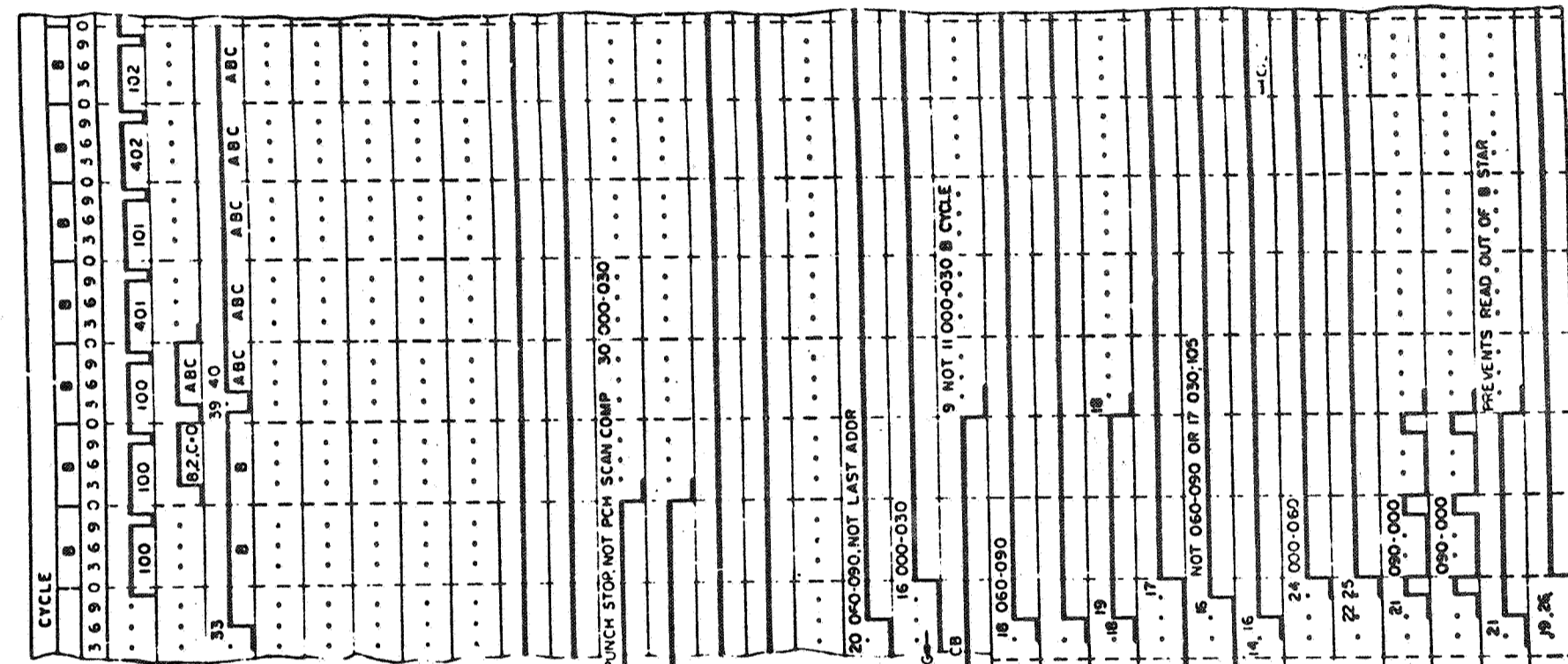
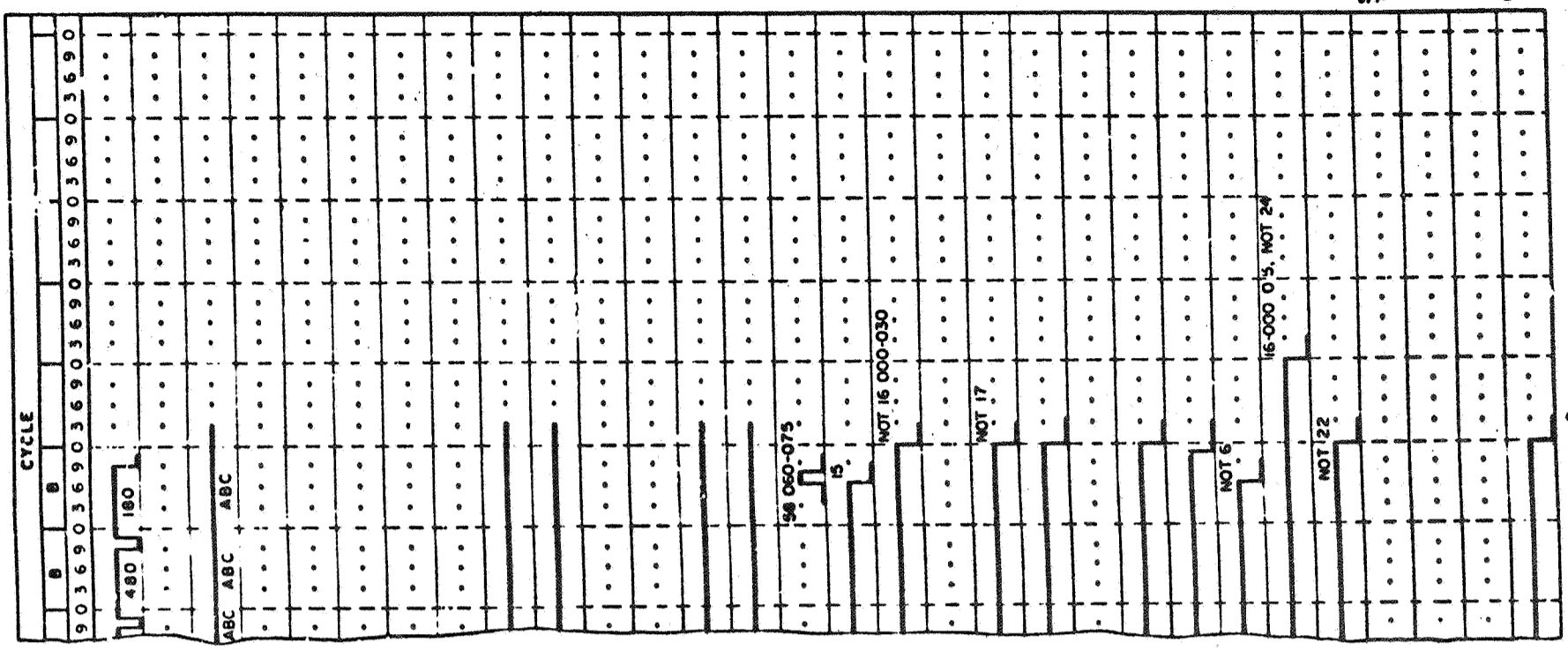
903 h
904 A





DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINE, CORP
4-10-62	1310 D	31.7.62	TA 1370 K	NAME
				FIGURE 32 COLUMN BINARY
				READ SEQUENCE
DESIGN		TYPE		
DETAIL		SCALE	NONE	
CHECK		DRAWN	VE	3-28-62
APPRO		CHECK		

1 2 3 4 5 6



COLUMN BINARY - PUNCH	FRAME GATE CH	LOGIC
STORAGE ADDRESS REGISTER	-	32 35 XX 32 36 XX
B-REGISTER	-	35 11 XX
A-REGISTER	-	35 16 XX
-T GATED WM	O1B2	31 07 11
-T I/E CHANGE	O1B2	31 05 31
+U DELTA I CYCLE	O1B2	31 21 11
+U I CYCLE	O1B2	31 24 11
+U I STAR RESTORE	O1A8	32 39 11
+U PUNCH OPR	O1B1	35 27 11
+U I/O OPS	O1B2	31 09 21
+U PUNCH FEED TRIGGER	O1B4	36 24 11
-T PUNCH CLUTCH MAGNET	O1B4	36 24 11
+U A CYCLE ELIMINATE	O1B2	31 06 11
+U DELTA B LATCH	O1B2	31 23 11
+U DELTA PROCESS RESET	O1B2	31 02 31
-T DELTA PROCESS	O1B2	31 02 11
-T PROCESS LATCH	O1B2	31 02 41
-T PCH SCAN CB TRIGGER	O1B4	36 21 11
+U PUNCH SCAN GATE	O1B4	36 22 11
-T R-P SCAN GATE	O1B4	36 11 11
+U PUNCH SCAN CTRL	O1B4	36 22 11
+U GATE CYCLE OUTPUT	O1B2	31 24 11
-U ACTIVATE STORAGE	O1B2	31 02 41
+U DELTA B CYCLE	O1B2	31 23 11
+U B CYCLE LATCH	O1B2	31 26 11
+U B CYCLE	O1B2	31 26 11
-T 100 SET TIME	O1A7	32 31 11
-T TENS 2 B C	O1A7	32 31 21
+U NOT SET UP	O1A7	32 31 21
+U PCH FEED RST GATE	O1B4	36 10 11

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP.
4-10-62	13330 D	31-7-62	TA 1370 K	NAME
				FIGURE 33 COLUMN BINARY
PUNCH SEQUENCE				
DESIGN		TYPE		
DETAIL		SCALE	NONE	
CHECK		DRAW	VE	13-28-62
APPRO		CHECK		

4

3

2

1

6

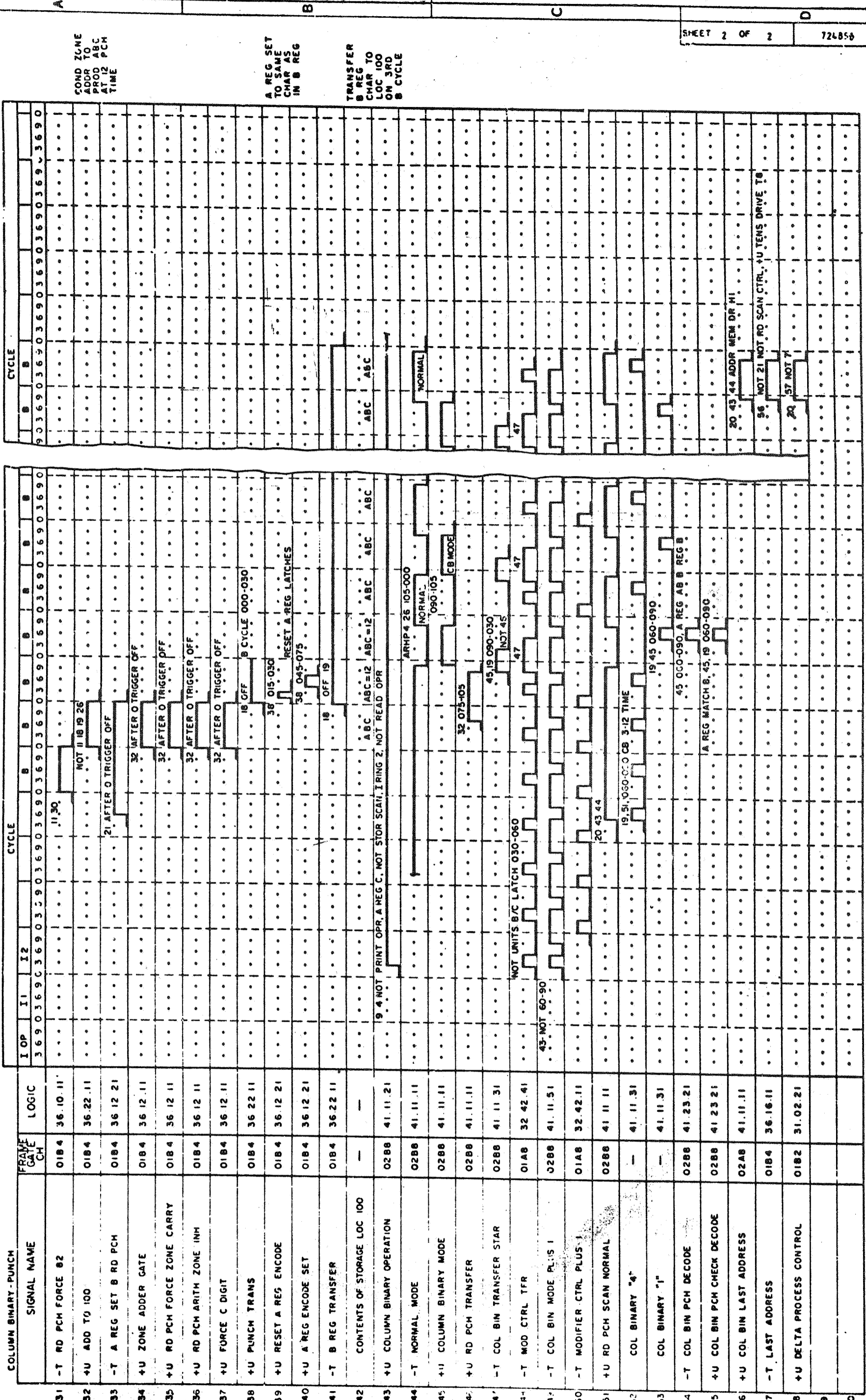
5

4

3

2

1



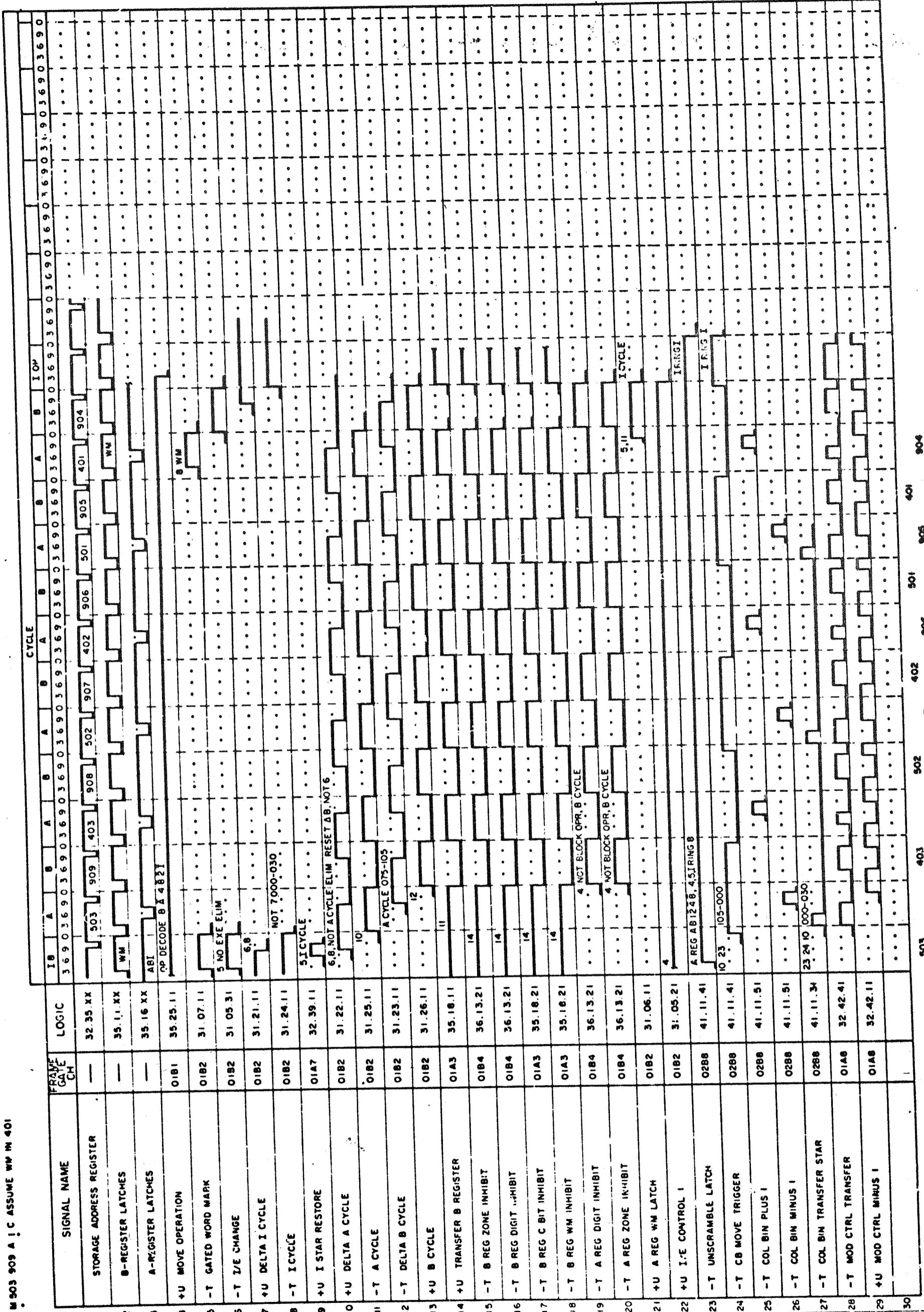
DATE	CHANGE NO.	DATE	CHANGE NO.	NAME
4.10.62	1	31.7.62	TA 1370 K	FIGURE 33 COLUMN BINARY

PUNCH SEQUENCE	
DESIGN	TYPE
DETAIL	SCALE
CHECK	DRAW
APPRO.	CHECK

1 2 3 4 5 6

A B C D

M 903 909 A I C ASSUME WM IN 401



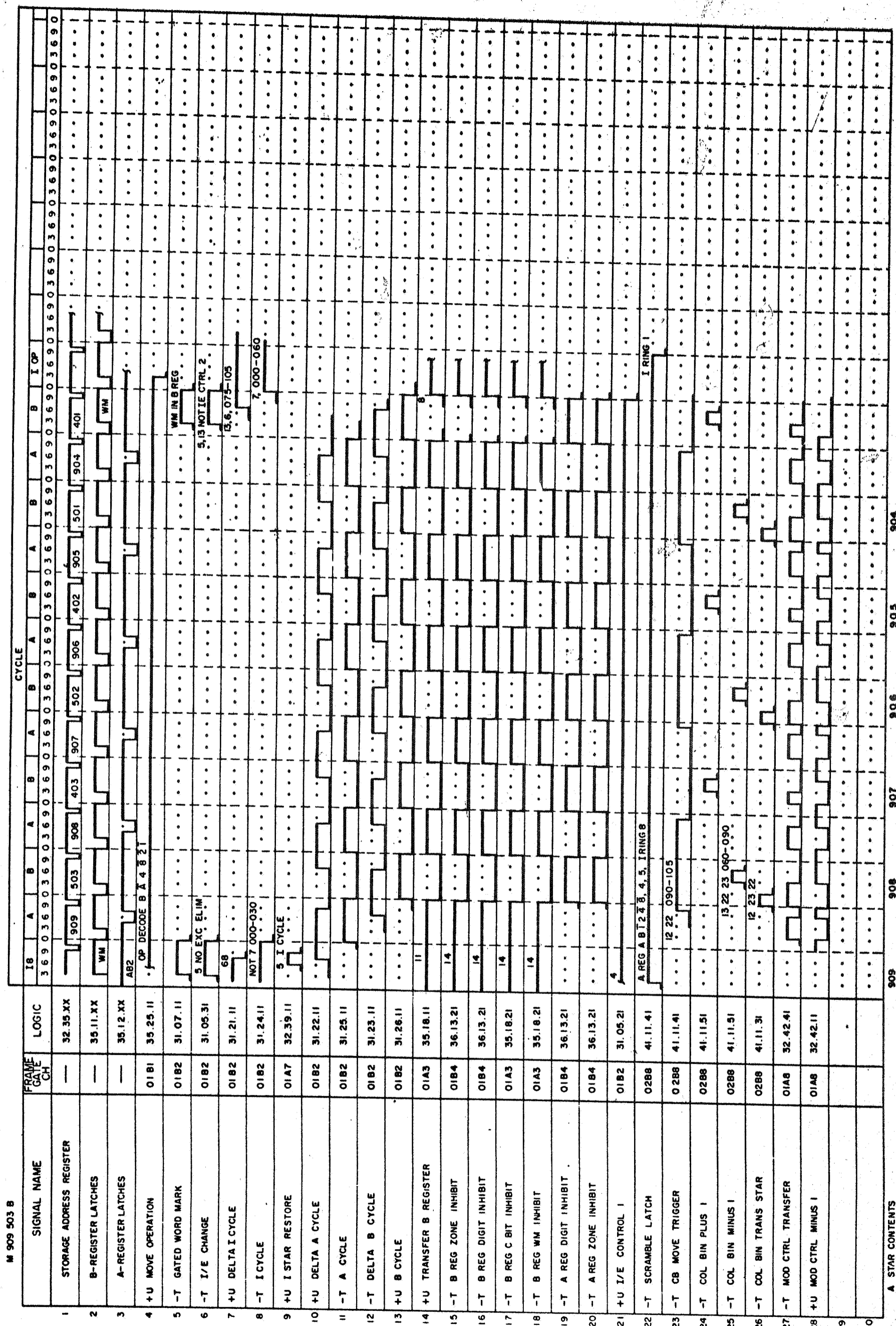
SIGNAL NAME	FRAME GATE CH	LOGIC
STORAGE ADDRESS REGISTER	—	32.35.XX
B-REGISTER LATCHES	—	35.11.XX
A-REGISTER LATCHES	—	35.16.XX
+U MOVE OPERATION	01B1	35.25.11
-T GATED WORD MARK	01B2	31.07.11
-T Z/E CHANGE	01B2	31.05.31
+U DELTA I CYCLE	01B2	31.21.11
-T I CYCLE	01B2	31.24.11
+U I STAR RESTORE	01A7	32.39.11
+U DELTA A CYCLE	01B2	31.22.11
-T A CYCLE	01B2	31.25.11
-T DELTA B CYCLE	01B2	31.23.11
+U B CYCLE	01B2	31.26.11
+U TRANSFER B REGISTER	01A3	35.18.11
-T B REG ZONE INHIBIT	01B4	36.13.21
-T B REG DIGIT INHIBIT	01B4	36.13.21
-T B REG C BIT INHIBIT	01A3	35.18.21
-T B REG WM INHIBIT	01A3	35.18.21
-T A REG DIGIT INHIBIT	01B4	36.13.21
-T A REG ZONE INHIBIT	01B4	36.13.21
+U A REG WM LATCH	01B2	31.06.11
+U I/E CONTROL I	01B2	31.05.21
-T UNSCRAMBLE LATCH	02B8	41.11.41
-T CB MOVE TRIGGER	02B8	41.11.41
-T COL BIN PLUS I	02B8	41.11.51
-T COL BIN MINUS I	02B8	41.11.51
-T COL BIN TRANSFER STAR	02B8	41.11.31
-T MOD CTRL TRANSFER	01A8	32.42.41
+U MOD CTRL MINUS I	01A8	32.42.11

369 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 909

A STAR CONTENTS
B STAR CONTENTS

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	13350 D	31.7.62	TA 1370 K	NAME
				FIGURE 34
				MOVE AND
				UNSCRAMBLE COLUMN BINARY SEQUENCE
				DESIGN
				TYPE
				SCALE
				NONE
				DRAW
				VE
				3-28-62
				CHECK
				CHECK

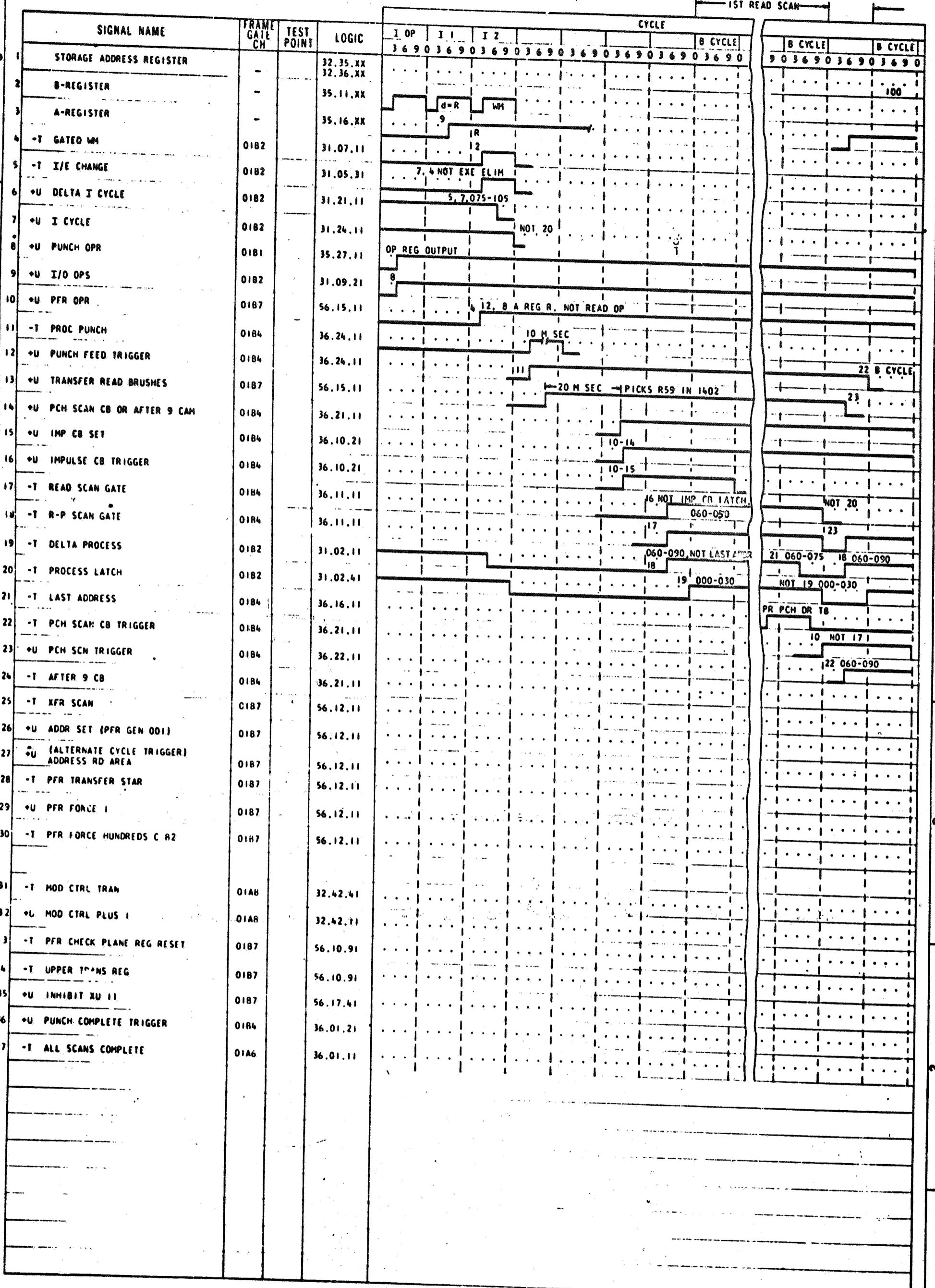
1370 K 724858



M 909 903 B

A STAR CONTENTS
B STAR CONTENTS

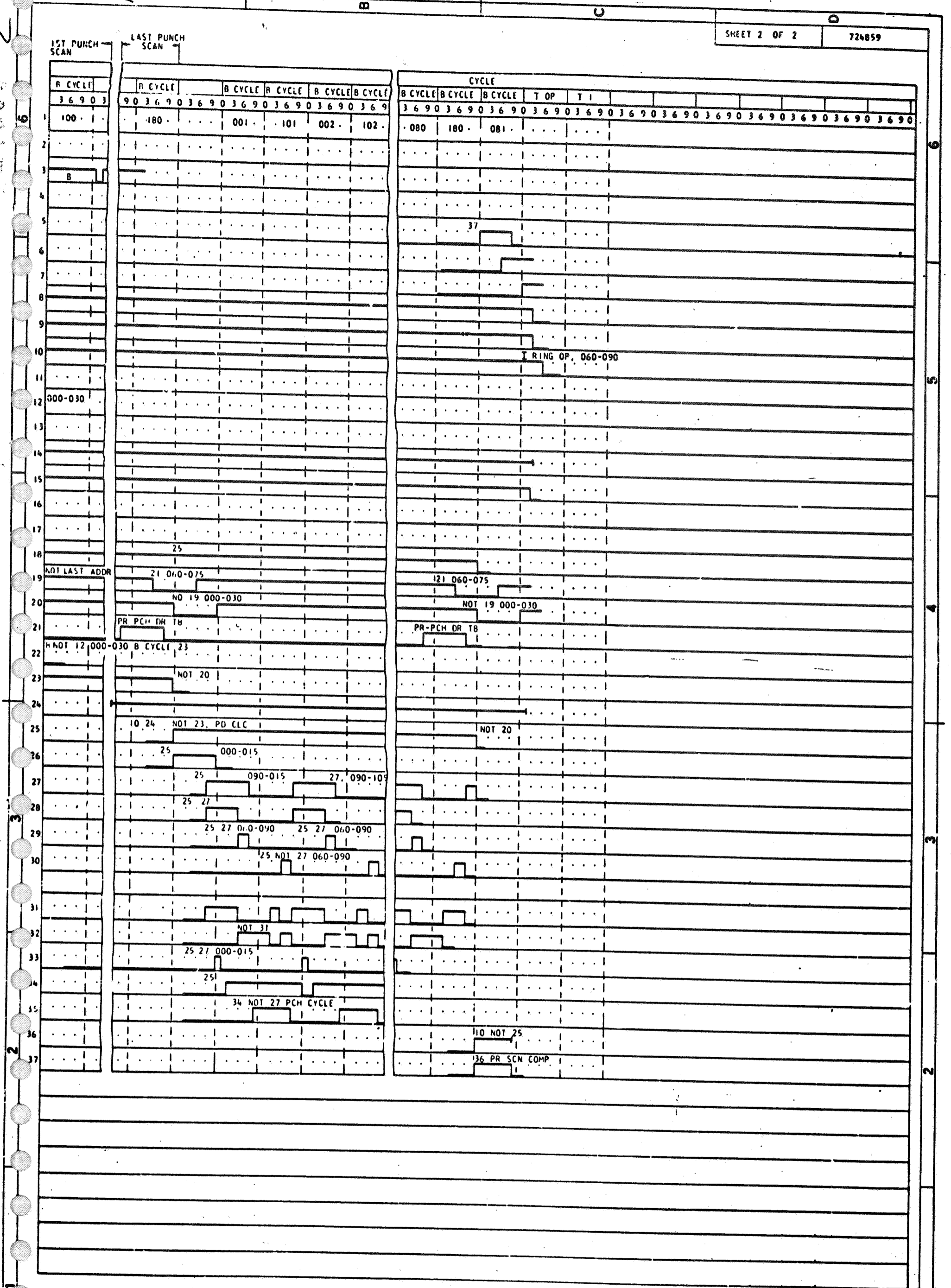
DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP		
4-10-62	115850	31.7.62	TA 1370 K	NAME	FIGURE 35 MOVE AND SCRAMBLE	
				COLUMN BINARY SEQUENCE		
				DESIGN		TYPE
				DETAIL		SCALE NONE
				CHECK		DRAW VE 3-28-62
				APPRO		CHECK



DATE 4-10-62 CHANGE NO. 113830 D DATE 31.7.62 CHANGE NO. TA 1370 K

INTERNATIONAL BUSINESS MACHINES CORP
 NAME FIG 36- PUNCH FEED READ
 SEQUENCE

DESIGN		TYPE	
DETAIL		SCALE	NONE
CHECK		DRAW	VE 11-24-62
APPRO		CHECK	



DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	115450	31-7-62	TA 1370 K	NAME FIG 36- PUNCH FEED READ
				SEQUENCE
DES'GN		TYPE		
DETAILED		SCALE	NONE	
CHECK		DRAWN	VE	1-24-62
APPROV		CHECK		

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	I CYCLE								B CYCLE								
				I RING OP	I RING 1	I RING 2	I RING 3	I RING 4	I RING 5	I RING 6	I RING 7	I RING 8	FIRST	LAST	I RING OP					
				3 6 9 0	3 6 5 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0					
J-REGISTER (WM) B4 (M)	-		35.21.11	[Pulse]																
*U MOVE OPERATION	01B1		35.25.11	[Pulse]																
B REGISTER (WM) C021 (L)	-		35.21.11	[Pulse]																
*U LOAD OPERATION	01B1		35.25.11	[Pulse]																
A REGISTER A04 (X)	-		70.11.21		[Pulse]															
*U UNIT SELECT LATCH, UNIT SELECT	02A2		70.11.21		[Pulse]															
-T TAPE *1 MODE	02A2		70.11.21		[Pulse]															
*U I/O OPS	01B2		31.09.21			[Pulse]														
*U A CYCLE ELIMINATION	01B2		31.06.11			[Pulse]														
A REGISTER RA 2 (B) (ODD REDUNDANCY)	-		70.61.31			[Pulse]														
-T REDUNDANCY LATCH	02A2		70.61.31			[Pulse]														
*U UNIT SELECT GATE	02A2		70.11.21			[Pulse]														
A REGISTER 1, 2, 3, 4, 5, OR 6	-		71.11.11 71.11.31			[Pulse]														
*U SELECT TAPE UNIT (TAPE UNIT LAT 1, 2, 3, 4, 5, OR 6)	02A1		71.11.11 71.11.31			[Pulse]														
*U B REGISTER WORD MARK	01B2		31.07.11			[Pulse]														
*U GATED WORD MARK	01B2		31.07.11			[Pulse]														
*U I CYCLE	01B2		31.26.11			[Pulse]														
-T I/E CHANGE	01B2		31.05.31			[Pulse]														
*U DELTA B-CYCLE	01B2		31.23.11			[Pulse]														
-T B CYCLE	01B2		31.26.11			[Pulse]														
A REGISTER B 01 (R)	-		70.11.21			[Pulse]														
*U READ CALL	02A2		70.11.21			[Pulse]														
*U CLOCK START CONTROL	02A1		71.31.21			[Pulse]														
-T TAPE CLOCK	02A1		71.31.21			[Pulse]														
*U CHECK CHARACTER	02A1		71.71.21			[Pulse]														
-T GROUP MARK	02A1		71.71.21			[Pulse]														
-T FORCED GROUP MARK	02A2		70.61.31			[Pulse]														
FORCE GROUP MARK INTO A REGISTER	02A2		70.61.21			[Pulse]														
-T FORCED I/E CHANGE	02A2		70.11.41			[Pulse]														
*U SET TO I RING OP	01B2		31.30.11			[Pulse]														
-T DELTA I CYCLE	01B2		31.21.11			[Pulse]														
*U DELTA PROCESS	01B2		31.02.11 31.31.11			[Pulse]														
*U UNIT RESET	02A2		70.11.21			[Pulse]														

(SET WHEN IN ODD REDUNDANCY)

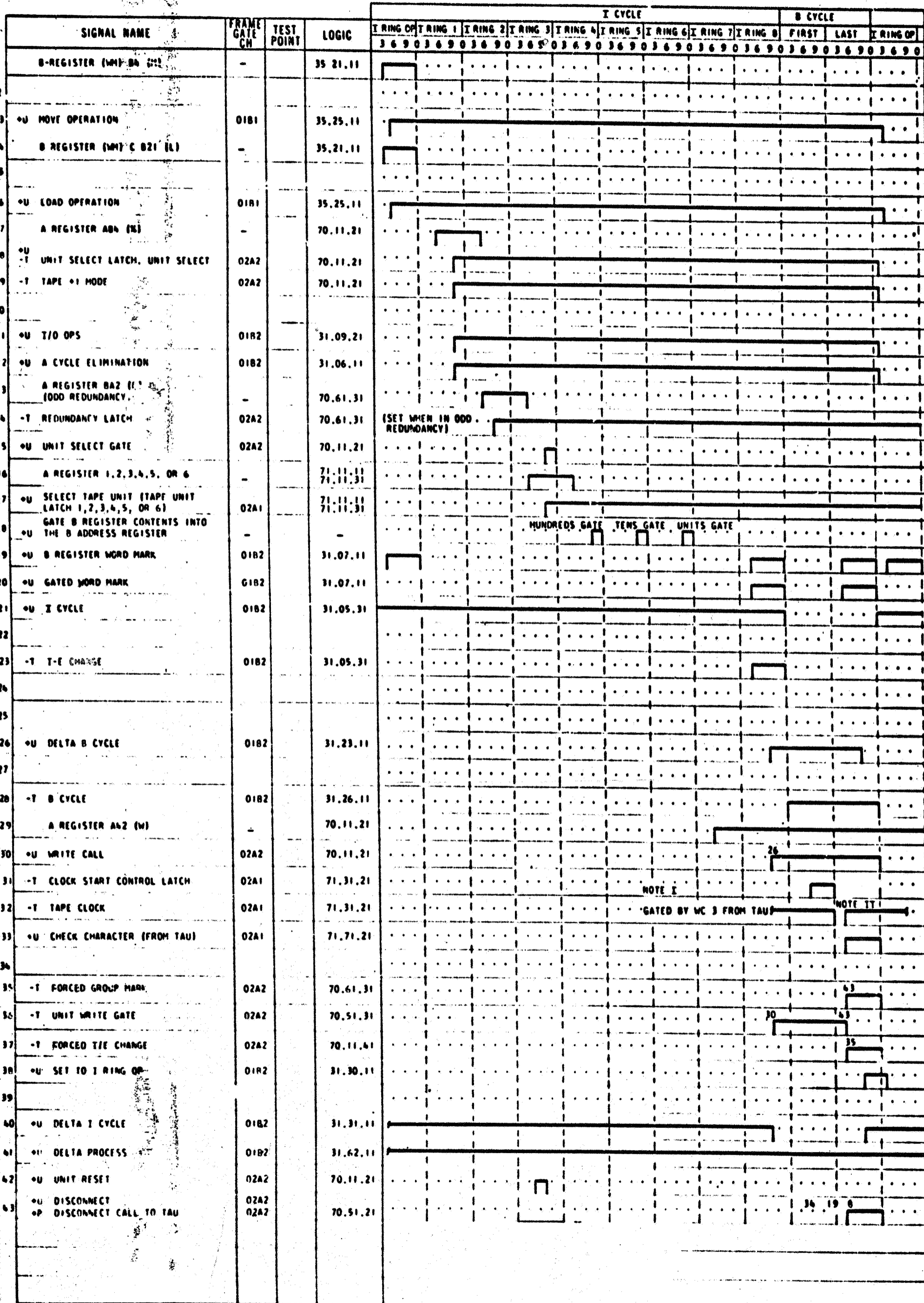
NOTE I GATED BY RC 7 FROM TAU

NOTE II

NOTE I THERE IS NO 1401 TIMING RELATIONSHIP WITH THE TURN ON OF THIS LATCH.
NOTE II BETWEEN I RING 8 AND THE START OF THE FIRST B CYCLE, SEVERAL MILLISECONDS ELAPSE DURING WHICH TIME THE 1401 CLOCK DOES NOT RUN.

DATE CHANGE NO DATE CHANGE NO
31.7.62 TA 1370 K

INTERNATIONAL BUSINESS MACHINES CORP
NAME FIG 38 TIMING FOR MOVE
(LOAD) TAPE READ OPERATION
DESIGN TYPE
DETAIL SCALE NONE
CHECK DRAW VE 1-2-4
APPRO CHECK



NOTE I THERE IS NO 1401 TIMING RELATIONSHIP WITH THE TURN ON OF THIS LATCH.
NOTE II BETWEEN THE FIRST AND SECOND B CYCLE SEVERAL MILLISECOUNDS ELAPSE DURING WHICH TIME THE 1401 CLOCK DOES NOT RUN

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																							
				B	R	B	R	B	R	B	R	B	R	B	R												
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0				
1 -T DELTA B CYCLE LATCH	01B2		31.23.11	[Timing diagram for DELTA B CYCLE LATCH]																							
2 +U DELTA B CYCLE	01B2		31.23.11	[Timing diagram for DELTA B CYCLE]																							
3 -T B CYCLE	01B2		31.26.11	[Timing diagram for B CYCLE]																							
4 +U LOAD OPERATION	01B1		35.25.11	[Timing diagram for LOAD OPERATION]																							
5 DATA FROM TAPE	-		70.61.21	CHAR 1	WS CHAR	CHAR 2	CHAR 3	CHAR 4	CHAR 5	CHAR 6	CHAR 7	WS CHAR	CHAR 8	CHAR 9	[Timing diagram for DATA FROM TAPE]												
6 C REGISTER AN4 (WS CHAR)	-		70.61.21	[Timing diagram for C REGISTER AN4]																							
7 -T WS READ	02A2		70.61.31	[Timing diagram for WS READ]																							
8 +U TAPE READDRESS	02A2		70.51.31	[Timing diagram for TAPE READDRESS]																							
9 -T READDRESS LATCH (CY CONTROL)	01B2		31.04.11	[Timing diagram for READDRESS LATCH]																							
10 -T NOT READDRESS LATCH	02A2		70.51.31	[Timing diagram for NOT READDRESS LATCH]																							
11 +U INHIBIT WORD MARK	02A2		70.61.31	[Timing diagram for INHIBIT WORD MARK]																							
12	-			[Timing diagram]																							
13	-			[Timing diagram]																							
14 RESET B ADDRESS REGISTER	-		32.33.11	[Timing diagram for RESET B ADDRESS REGISTER]																							
15 GATE INTO B ADDRESS REGISTER FROM MODIFIER	-		32.33.11	[Timing diagram for GATE INTO B ADDRESS REGISTER]																							
16 GATE OUT THE B ADDRESS REGISTER	01A7		32.33.31	[Timing diagram for GATE OUT THE B ADDRESS REGISTER]																							
17 -T NOT ADDRESS REGISTER RESET	01B2		31.04.11	[Timing diagram for NOT ADDRESS REGISTER RESET]																							
18 GATE ADDRESS REG CONTENTS INTO MOD	-		32.39.21	[Timing diagram for GATE ADDRESS REG CONTENTS]																							

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																			
				B	B	B	B	B	B	B	B	B	B	B	B								
1 -T DELTA B CYCLE LATCH	01B2		31.23.11	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
2 +U DELTA B CYCLE	01B2		31.23.11	[Timing diagram showing pulse transitions]																			
3 -T B CYCLE	01B2		31.26.11	[Timing diagram showing pulse transitions]																			
4 DATA READ FROM STORAGE			70.51.21	[Timing diagram showing pulse transitions]																			
5 +U LOAD OPERATION	01B1		35.25.11	[Timing diagram showing pulse transitions]																			
6 -T WRITE CALL	02A2		70.11.21	[Timing diagram showing pulse transitions]																			
7 -T B REGISTER WORD MARK	02A2		70.51.21	[Timing diagram showing pulse transitions]																			
8 -T READDRESS LATCH	02A2		70.51.31	[Timing diagram showing pulse transitions]																			
9 +T NOT READDRESS LATCH	02A2		70.51.31	[Timing diagram showing pulse transitions]																			
10 +U TAPE READDRESS	02A2		70.51.31	[Timing diagram showing pulse transitions]																			
11 -T READDRESS LATCH (CY CONTROL)	01B2		31.04.11	[Timing diagram showing pulse transitions]																			
12 -T WS ON TAPE	02A2		70.51.31	[Timing diagram showing pulse transitions]																			
13 FORCE LINES A,B,C, I TO TAU			70.51.21	[Timing diagram showing pulse transitions]																			
15 RESET B ADDRESS REGISTER			32.33.11	[Timing diagram showing pulse transitions]																			
16 GATE INTO B ADDRESS REGISTER FROM MODIFIER			32.33.11	[Timing diagram showing pulse transitions]																			
17 -T GATE OUT THE B ADDRESS REGISTER	01A7		32.33.31	[Timing diagram showing pulse transitions]																			
18 -T NOT ADDRESS REGISTER RESET	01B2		31.04.11	[Timing diagram showing pulse transitions]																			
20 GATE ADDRESS REG CONTENTS INTO MOD AND INTO STORAGE				[Timing diagram showing pulse transitions]																			

U% UZ (d) B d* B

6	SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE											
					T RING 0 P	T RING 1	T RING 2	T RING 3	T RING 4	T RING 5	T RING 0 P	T RING 1	T RING 2	T RING 3	T RING 4	T RING 5
					3	6	9	0	3	6	9	0	3	6	9	0
1	-T DELTA I CYCLE	01B2		31.21.11	[Timing diagram for DELTA I CYCLE]											
2	B-REGISTER (WM) A4 (U)			35.21.11	[Timing diagram for B-REGISTER]											
3	OP DECODE (WM) A4 (U)			35.26.11	[Timing diagram for OP DECODE]											
4	+U U OP CODE	01B2		35.26.11	[Timing diagram for U OP CODE]											
5	+U EXECUTE ELIMINATE	01B2		31.05.11	[Timing diagram for EXECUTE ELIMINATE]											
6	A-REGISTER A B4 (X)			70.11.21	[Timing diagram for A-REGISTER]											
7	-T UNIT SELECT LATCH. UNIT SELECT	02A2		70.11.21	[Timing diagram for UNIT SELECT LATCH]											
8	-T TAPE + I MODE	02A2		70.11.21	[Timing diagram for TAPE + I MODE]											
9	+U T/O OPERATE	01B2		31.09.21	[Timing diagram for T/O OPERATE]											
10	+U A CYCLE ELIMINATION	01B2		31.06.11	[Timing diagram for A CYCLE ELIMINATION]											
11					[Timing diagram]											
12					[Timing diagram]											
13	+U UNIT SELECT GATE	02A2		70.11.21	[Timing diagram for UNIT SELECT GATE]											
14	A REGISTER I			71.11.11	[Timing diagram for A REGISTER I]											
15	+U SELECT TAPE UNIT (TAPE UNIT LATCH I)			71.11.11	[Timing diagram for SELECT TAPE UNIT]											
16	+U B REGISTER WORD MARK	01B2		31.07.11	[Timing diagram for B REGISTER WORD MARK]											
17	+U U OP CODE GATE	02A1		71.11.21	[Timing diagram for U OP CODE GATE]											
18	A REGISTER BA 2 (B)			71.11.21	[Timing diagram for A REGISTER BA 2]											
19	+P BACKSPACE TO TAU	02A1		71.11.21	[Timing diagram for BACKSPACE TO TAU]											
20	+U GATED WORD MARK	01B2		31.07.11	[Timing diagram for GATED WORD MARK]											
21	+U SET T OP LATCH	01B2		31.30.11	[Timing diagram for SET T OP LATCH]											
22	-T TAPE CLOCK	02A1		71.31.21	[Timing diagram for TAPE CLOCK]											
23					[Timing diagram]											
24	+U UNIT RESET	02A2		70.11.21	[Timing diagram for UNIT RESET]											

(GATED BY TAU BUSY) 17

UT (d) B 02 E

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																			
				X RING 0P	X RING 1	X RING 2	X RING 3	X RING 4	X RING 5	X RING 0P	X RING 1	X RING 2	X RING 3	X RING 4	X RING 5	X RING 0P	X RING 1	X RING 2	X RING 3	X RING 4	X RING 5		
1 -T DELTA T CYCLE	01B2		31.21.11	[Timing diagram for DELTA T CYCLE]																			
2 B-REGISTER (WM) A6 (U)			35.21.11	[Timing diagram for B-REGISTER (WM) A6 (U)]																			
3 OP DECODE (WM) A4 (U)			35.26.11	[Timing diagram for OP DECODE (WM) A4 (U)]																			
4 +U OP CODE	01B2		35.26.11	[Timing diagram for OP CODE]																			
5 +U EXECUTE ELIMINATE	01B2		31.05.11	[Timing diagram for EXECUTE ELIMINATE]																			
6 A-REGISTER A04 (X)			70.11.21	[Timing diagram for A-REGISTER A04 (X)]																			
7 -T UNIT SELECT LATCH UNIT SELECT	02A2		70.11.21	[Timing diagram for UNIT SELECT LATCH UNIT SELECT]																			
8 -T TAPE + I MODE	02A2		70.11.21	[Timing diagram for TAPE + I MODE]																			
9 +U T/O OPS	01B2		31.09.21	[Timing diagram for T/O OPS]																			
10 +U A CYCLE ELIMINATION	01B2		31.06.11	[Timing diagram for A CYCLE ELIMINATION]																			
11				[Empty row]																			
12				[Empty row]																			
13 +U UNIT SELECT GATE	02A2		70.11.21	[Timing diagram for UNIT SELECT GATE]																			
14 A REGISTER I			71.11.11	[Timing diagram for A REGISTER I]																			
15 +U SELECT TAPE UNIT (TAPE UNIT LATCH I)			71.11.11	[Timing diagram for SELECT TAPE UNIT (TAPE UNIT LATCH I)]																			
16 +U B-REGISTER WORD MARK	01B2		31.07.11	[Timing diagram for B-REGISTER WORD MARK]																			
17 +U U OP CODE GATE	02A2		70.11.21	[Timing diagram for U OP CODE GATE]																			
18 A-REGISTER C0A01 (E)			71.11.21	[Timing diagram for A-REGISTER C0A01 (E)]																			
19 -T ERASE CALL TO TAU	02A1		71.11.21	[Timing diagram for ERASE CALL TO TAU]																			
20 +U GATED WORD MARK	01B2		31.07.11	[Timing diagram for GATED WORD MARK]																			
21 +U SET I OP LATCH	01B2		31.30.11	[Timing diagram for SET I OP LATCH]																			
22 -T TAPE CLOCK	02A1		71.31.21	[Timing diagram for TAPE CLOCK]																			
23				[Empty row]																			
24 +U UNIT RESET	02A2		70.11.21	[Timing diagram for UNIT RESET]																			

DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP	
4-10-62	113630	31.7.82	TA 1370 K	NAME	FIGURE 43 TIMING FOR ERASE
TAPE OPERATION					
DESIGN		TYPE		SCALE	NONE
DETAIL		DRAW	VE	DATE	1-12-62
CHECK					
APPRO					

U X U I M B

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE											
				X RING 0P	X RING 1	X RING 2	X RING 3	X RING 4	X RING 5	X RING 0P	X RING 1	X RING 2	X RING 3	X RING 4	X RING 5
				3	6	9	0	3	6	9	0	3	6	9	0
1 -T DELTA T-CYCLE	01B2		31.21.11	[Timing diagram showing a long pulse starting at cycle 1]											
2 B-REGISTER (WM) A4 (U)			35.21.11	[Timing diagram showing a pulse at the start of cycle 1]											
3 OP DECODE (WM) A4 (U)			15.26.11	[Timing diagram showing a pulse at the start of cycle 1]											
4 +U U OP CODE	01B2		35.26.11	[Timing diagram showing a pulse at the start of cycle 1]											
5 +U EXECUTE ELIMINATE	01B2		31.05.11	[Timing diagram showing a pulse at the start of cycle 1]											
6 A REGISTER A04 (X)			70.11.21	[Timing diagram showing a pulse at the start of cycle 1]											
7 -T UNIT SELECT LATCH, UNIT SELECT	02A2		70.11.21	[Timing diagram showing a pulse at the start of cycle 1]											
8 -T TAPE + I MODE	02A2		70.11.21	[Timing diagram showing a pulse at the start of cycle 1]											
9 +U T/O OPS	01B2		31.09.21	[Timing diagram showing a pulse at the start of cycle 1]											
10 +U A CYCLE ELIMINATION	01B2		31.06.11	[Timing diagram showing a pulse at the start of cycle 1]											
11				[Timing diagram showing a pulse at the start of cycle 1]											
12				[Timing diagram showing a pulse at the start of cycle 1]											
13 +U UNIT SELECT GATE	02A2		70.11.21	[Timing diagram showing a pulse at the start of cycle 1]											
14 A REGISTER 1			71.11.11	[Timing diagram showing a pulse at the start of cycle 1]											
15 -T SELECT TAPE UNIT (TAPE UNIT LATCH 1)	02A1		71.11.11	[Timing diagram showing a pulse at the start of cycle 1]											
16 +U B-REGISTER WORD MARK	01B2		31.07.11	[Timing diagram showing a pulse at the start of cycle 1]											
17 +U U OP CODE GATE	02A2		70.11.21	[Timing diagram showing a pulse at the start of cycle 1]											
18 A-REGISTER C04 (M)			71.11.21	[Timing diagram showing a pulse at the start of cycle 1]											
19 -T WRITE TAPE MARK CALL	02A2		70.11.41	[Timing diagram showing a pulse at the start of cycle 1]											
20 +U GATED WORD MARK	01B2		31.07.11	[Timing diagram showing a pulse at the start of cycle 1]											
21 +U SET T OP LATCH	01B2		31.30.11	[Timing diagram showing a pulse at the start of cycle 1]											
22 -T TAPE CLOCK	02A1		71.31.21	[Timing diagram showing a long pulse with a label '17 (GATED BY TAU BUSY)']											
23				[Timing diagram showing a pulse at the start of cycle 1]											
24 +U UNIT RESET	02A2		70.11.21	[Timing diagram showing a pulse at the start of cycle 1]											

DATE 4-10-62 CHANGE NO 113830 DATE 31.7.62 CHANGE NO TA 1370 K

INTERNATIONAL BUSINESS MACHINES CORP
 NAME FIGURE 66 TIMING FOR WRITE
 TAPE MARK OPERATION

DESIGN		TYPE	NONE
DETAIL		SCALE	
CHECK		DRAW	VE
APPRO		CHECK	

1-12-62

USURB

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																			
				1 RING OP	1 RING 1	1 RING 2	1 RING 3	1 RING 4	1 RING 5	1 RING OP	1 RING 1	1 RING 2	1 RING 3	1 RING 4									
1 -T DELTA T CYCLE	01B2		31.21.11	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
2 B-REGISTER (MM) AN (U)			35.21.11																				
3 OP DECODE (MM) AN (U)			35.26.11																				
4 +U U OP CODE	01B2		35.26.11																				
5 +U EXECUTE ELIMINATE	01B2		31.05.11																				
6 A REGISTER A06 (R)			70.11.21																				
7 -T UNIT SELECT LATCH, UNIT SELECT	02A2		70.11.21																				
8 -T TAPE 1 MODE	02A2		70.11.21																				
9 +U T/O OPS	01B2		31.09.21																				
10 +U A CYCLE ELIMINATION	01B2		31.06.11																				
11																							
12																							
13 +U UNIT SELECT GATE	02A2		70.11.21																				
14 A-REGISTER 1			71.11.11																				
15 -T SELECT TAPE UNIT (TAPE UNIT SELECT 1)	02A1		71.11.11																				
16 +U B REGISTER WORD MARK	01B2		70.11.21 31.07.11																				
17 +U U OP CODE GATE	02A2		70.11.21																				
18 A REGISTER B01 (R)			71.11.21																				
19 -T REWIND	02A1		71.11.21																				
20 +U GATED WORD MARK	01B2		31.07.11																				
21 +U SET T OP LATCH	01B2		31.30.11																				
22 -T TAPE CLOCK	02A1		71.31.21																				
23																							
24 +U UNIT RESET	02A2		70.11.21																				

d = K (END OF FILE) OR L (TAPE ERROR)

B (AAA) (d) B

AAA - S

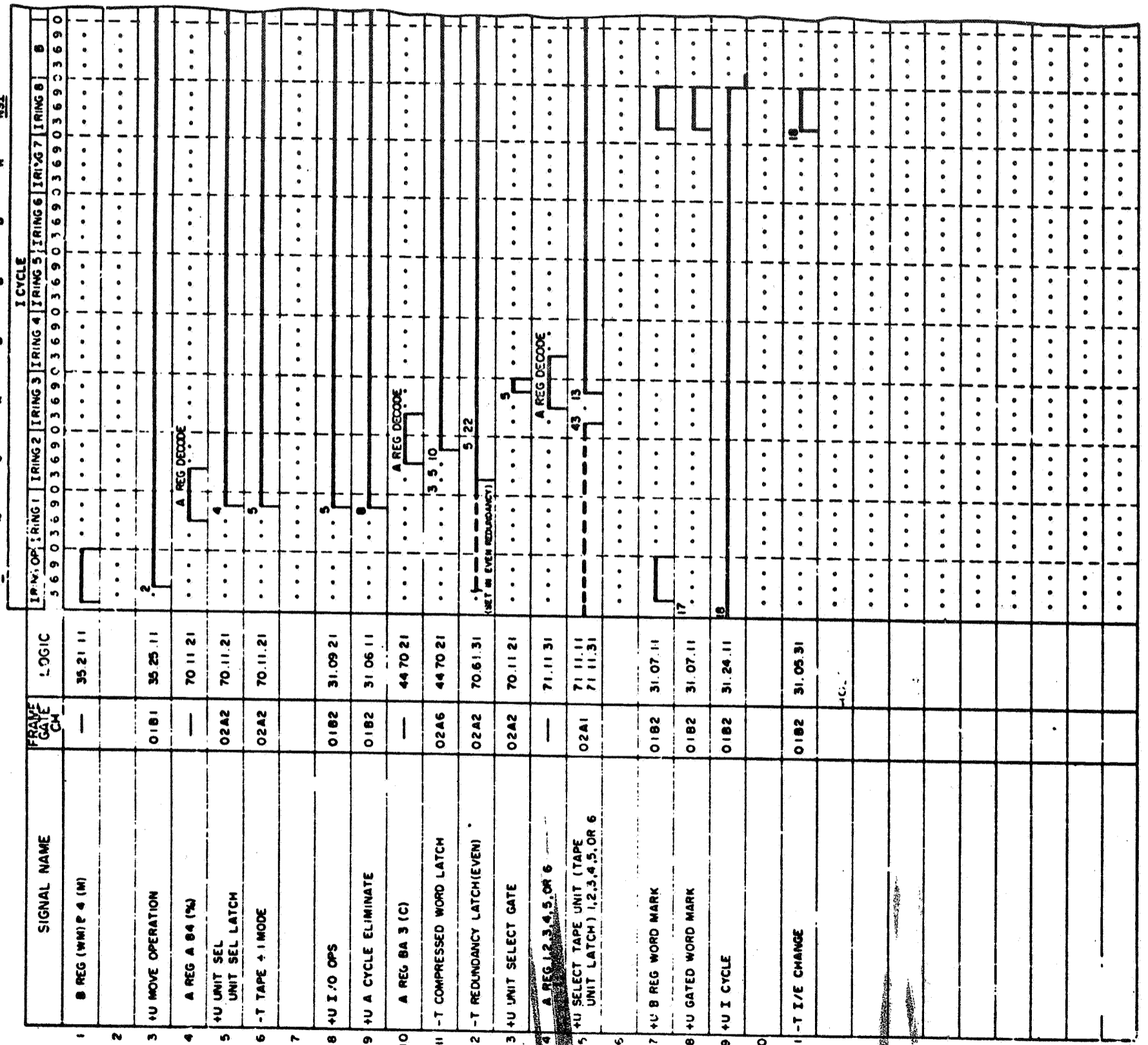
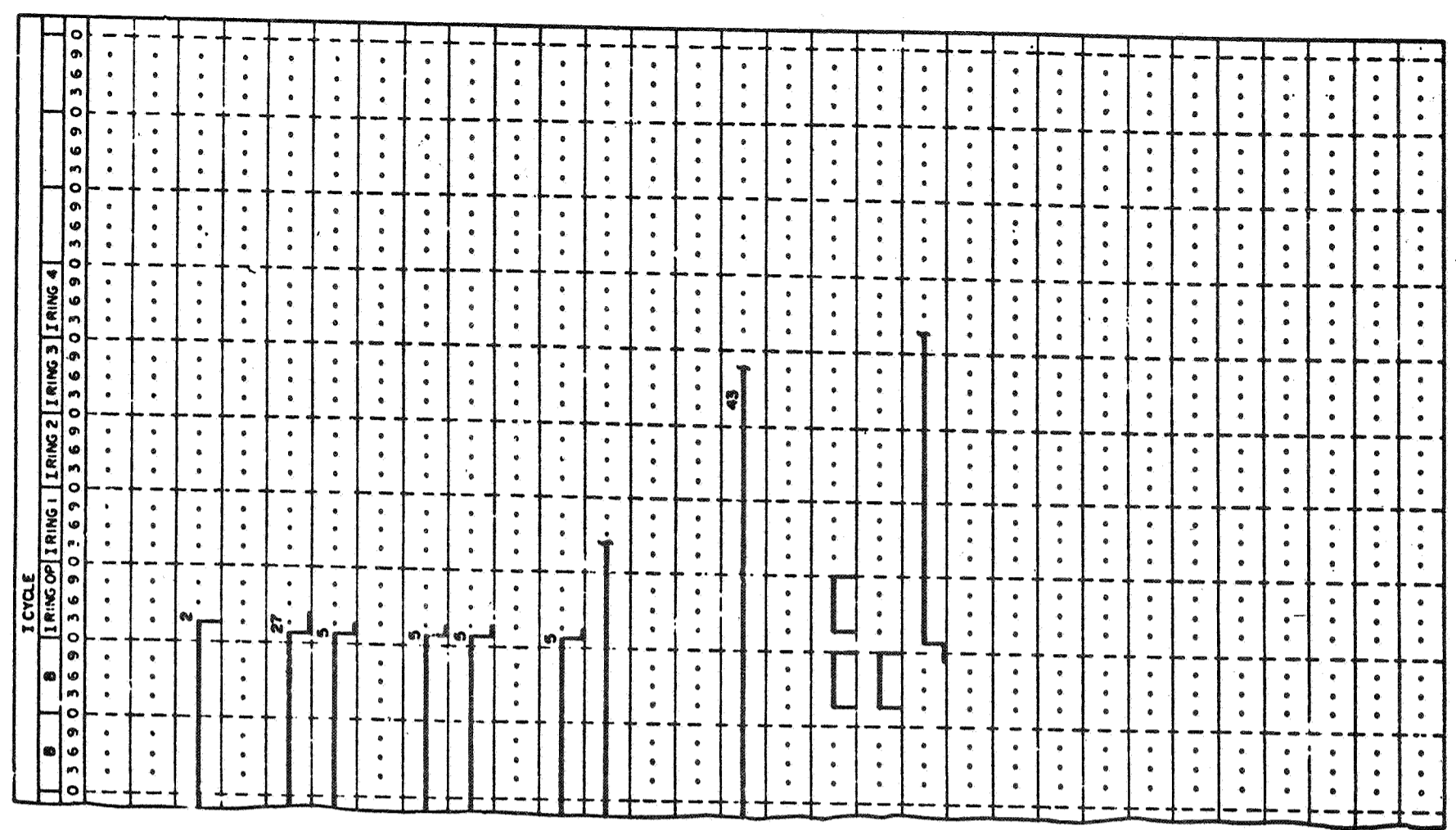
CYCLE

19370K

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																																			
				I RING OP	I RING 1	I RING 2	I RING 3	I RING 4	I RING 5	I RING OP	I RING 1	I RING 2	I RING 3	I RING 4	I RING 5																								
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
1 -T DELTA T CYCLE	01B2		31.21.11	_____																																			
2 B REGISTER	---		35.21.11	CBA2 WM (A1) (A2) (A3) (d) CBA2 WM A2 WM																																			
3 OP DECODE (WM) CBA 2 (B)	---		35.26.11	_____																																			
4 -T BRANCH OPERATION	02A1		70.11.41	_____																																			
5 GATE B REGISTER CONTENTS INTO A ADDRESS REG (DIGIT BY DIGIT)	---		32.42.11	_____																																			
6 +U EXECUTE ELIMINATE	01B2		31.05.11	_____																																			
7 A REGISTER B2 (K) OR A REGISTER B21 (L)	---		70.11.41 71.11.11	_____																																			
8				_____																																			
9 -T B REGISTER WORD MARK	02A2		70.51.31	_____																																			
10 +U GATED WORD MARK	01B2		31.07.11	_____																																			
11 +U TAU ERROR OR	02A2		70.11.41	_____																																			
12 +U SEL + TI ON	02A2		70.11.41	_____																																			
13				_____																																			
14 +U TAPE PROGRAM SKIP	02A2		70.11.41	_____																																			
15 -T PROGRAM SKIP LATCH	01B2		31.08.11	_____																																			
16 +U SET TO I RING OP LATCH	01B2		31.30.11	_____																																			
17 -T A ADDRESS REGISTER GATE OUT	01A7		32.32.21	_____																																			

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP.			
4-10-62	113830 D	31.7.62	TA 1370 K	NAME: FIGURE 47 TIMING FOR TAPE END-OF-FILE INDICATOR TEST AND TAPE TRANSMISSION ERROR TEST			
DESIGN		TYPE		SCALE	NONE		
DETAIL		SCALE		DRAW	VE	1-12-62	
CHECK		DRAW		CHECK			
APPRO		CHECK					

1370 K

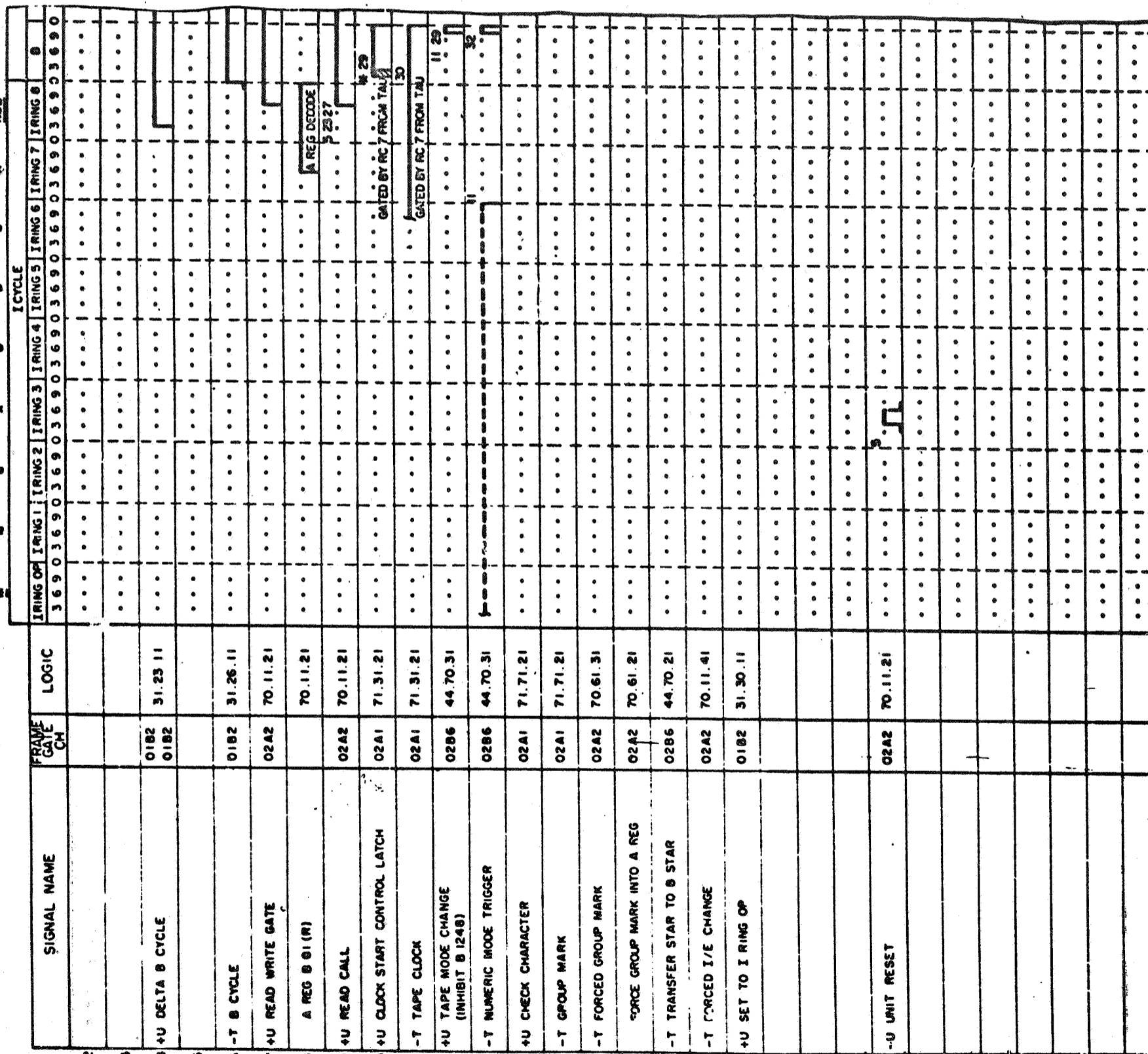
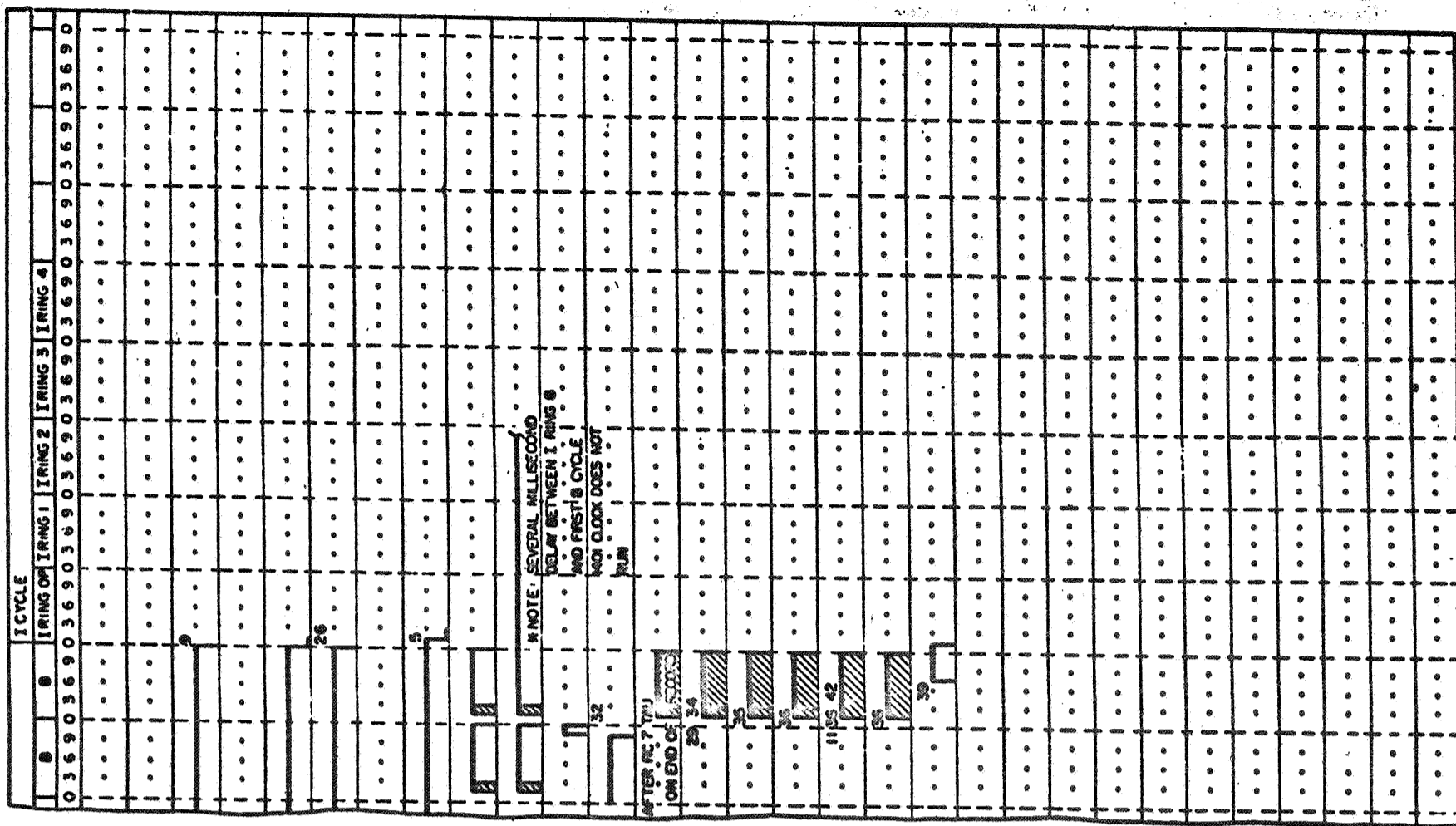


SIGNAL NAME	FRAME GATE CH	LOGIC
B REG (WM) P 4 (M)	—	35.21.11
+U MOVE OPERATION	01B1	35.25.11
A REG A B4 (%)	—	70.11.21
+U UNIT SEL UNIT SEL LATCH	02A2	70.11.21
-T TAPE +1 MODE	02A2	70.11.21
+U I/O OPS	01B2	31.09.21
+U A CYCLE ELIMINATE	01B2	31.06.11
A REG BA 3 (C)	—	44.70.21
-T COMPRESSED WORD LATCH	02A6	44.70.21
-T REDUNDANCY LATCH (EVEN)	02A2	70.61.31
+U UNIT SELECT GATE	02A2	70.11.21
A REG 1, 2, 3, 4, 5, OR 6	—	71.11.31
+U SELECT TAPE UNIT (TAPE UNIT LATCH) 1, 2, 3, 4, 5, OR 6	02A1	71.11.11 71.11.31
+U B REG WORD MARK	01B2	31.07.11
+U GATED WORD MARK	01B2	31.07.11
+U I CYCLE	01B2	31.24.11
-T I/E CHANGE	01B2	31.05.31

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113830 D	31.7.62	TA 1370 K	NAME
				FIGURE 68 MOVE COMPRESSFD
				TAPE READ OPERATION
DESIGN		TYPE		
DETAIL		SCALE	NONE	
CHCK		DRAW	VE	3-28-62
APPRO		CHECK		

SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE											
				X RING 0P	X RING 1	X RING 2	X RING 3	X RING 4	X RING 5	X RING 0P	X RING 1	X RING 2	X RING 3		
				3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0
1 -T DELTA T CYCLE	01B2		31.21.11	[Timing diagram for DELTA T CYCLE]											
2 B-REGISTER (WM) A4 (U)			35.21.11	[Timing diagram for B-REGISTER (WM) A4 (U)]											
3 OP DECODE (WM) A4 (U)			35.26.11	[Timing diagram for OP DECODE (WM) A4 (U)]											
4 +U U OP CODE	01B2		35.26.11	[Timing diagram for U OP CODE]											
5 +U EXECUTE ELIMINATE	01B2		31.05.11	[Timing diagram for EXECUTE ELIMINATE]											
6 A REGISTER A84 (X)			70.11.21	[Timing diagram for A REGISTER A84 (X)]											
7 +U -T UNIT SELECT LATCH. UNIT SELECT	02A2		70.11.21	[Timing diagram for UNIT SELECT LATCH. UNIT SELECT]											
8 -T TAPE + I MODE	02A2		70.11.21	[Timing diagram for TAPE + I MODE]											
9 +U T/O OPS	01B2		31.09.21	[Timing diagram for T/O OPS]											
10 +U A CYCLE ELIMINATION	01B2		31.06.11	[Timing diagram for A CYCLE ELIMINATION]											
11				[Timing diagram]											
12				[Timing diagram]											
13 +U UNIT SELECT GATE	02A2		70.11.21	[Timing diagram for UNIT SELECT GATE]											
14 A REGISTER I			71.11.11	[Timing diagram for A REGISTER I]											
15 +U SELECT TAPE UNIT (TAPE UNIT LATCH I)			71.11.11	[Timing diagram for SELECT TAPE UNIT (TAPE UNIT LATCH I)]											
16 -T B REGISTER WORD MARK	01B2		70.11.21 31.07.11	[Timing diagram for B REGISTER WORD MARK]											
17 +U U OP CODE GATE	02A2		70.11.21	[Timing diagram for U OP CODE GATE]											
18 A REGISTER CA4 (U)			71.11.21	[Timing diagram for A REGISTER CA4 (U)]											
19 +N REWIND UNLOAD TO TAU	02A1		71.11.21	[Timing diagram for REWIND UNLOAD TO TAU]											
20 +U GATED WORD MARK	01B2		31.07.11	[Timing diagram for GATED WORD MARK]											
21 +U SET T OP LATCH	01B2		31.30.11	[Timing diagram for SET T OP LATCH]											
22 -T TAPE CLOCK	02A1		71.31.21	[Timing diagram for TAPE CLOCK]											
23				[Timing diagram]											
24 +U UNIT RESET	02A2		70.11.21	[Timing diagram for UNIT RESET]											

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP	
4-10-62	113639 D	31.7.62	TA 1370 K	NAME	FIGURE 46 TIMING FOR
				REWIND AND UNLOAD TAPE OPERATION	
DESIGN		TYPE		SCALE	NONE
DETAIL		DRAW	VE	1-12-62	
CHECK		CHECK			
APPRO					



SIGNAL NAME	FRAME GATE CH	LOGIC
+U DELTA B CYCLE	01B2 01B2	31.25.11
-T B CYCLE	01B2	31.26.11
+U READ WRITE GATE	02A2	70.11.21
A REG B 01 (R)		70.11.21
+U READ CALL	02A2	70.11.21
+U CLOCK START CONTROL LATCH	02A1	71.31.21
-T TAPE CLOCK	02A1	71.31.21
+U TAPE MODE CHANGE (INHIBIT B 1248)	02B6	44.70.31
-T NUMERIC MODE TRIGGER	02B6	44.70.31
+U CHECK CHARACTER	02A1	71.71.21
-T GROUP MARK	02A1	71.71.21
-T FORCED GROUP MARK	02A2	70.61.31
FORCE GROUP MARK INTO A REG	02A2	70.61.21
-T TRANSFER STAR TO B STAR	02B6	44.70.21
-T FORCED I/E CHANGE	02A2	70.11.41
+U SET TO I RING OP	01B2	31.30.11
-U UNIT RESET	02A2	70.11.21

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP		
4-10-62	113430	31.7.62	TA 1370 K	NAME	FIGURE 48 MOVE COMPRESSED	
				TAPE READ OPERATION		
				DESIGN	TYPE	
				DETAIL	SCALE	NONE
				CHECK	DRAW	VE 3-28-62
				APPRO	CHECK	

900 1 TR3 675 457 2 B
 907 @ 458 678 673 2 033 21
 914 2

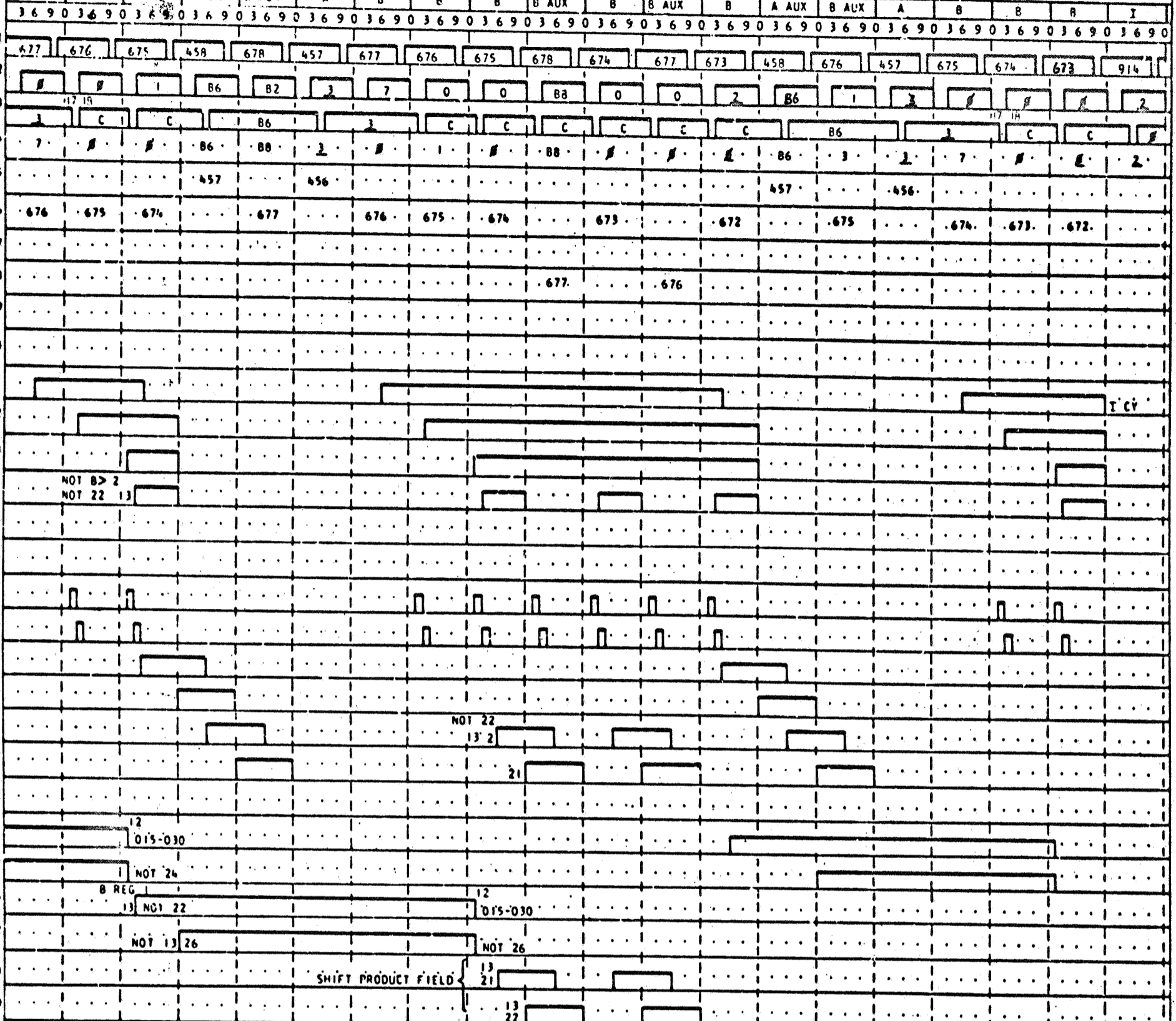
SIGNAL NAME	FRAME GATE CH	TEST POINT	LOGIC	CYCLE																							
				I	A	B	A	B	A	B	B	B	A AUX	B AUX	A												
1 STOR ADDR REG				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
2 B REG				914	458	678	458	678	457	677	676	675	458	678	457												
3 A REG				2	B6	1	B6	1	2	2	3	3	B6	1	2												
4 TO INHIBIT				B	B6	B6	B6	2	C	C	B6																
5 A STAR				2	B6	1	B6	1	2	2	3	3	B6	1	2												
6 B STAR				458	458		457		456				457		456												
7 A AUX STAR				678		678		677		676	675	674		677													
8 B AUX STAR				XXX	458																						
9 AUX STAR SET LATCH	0287		44.11.01	YYY		678																					
10 CLEAR B FLD LATCH	0287		44.11.41	090-000		090-000																					
11 A CYCLE ELIM	0287		44.11.11	@ OP GMM																							
12 X POSITION LATCH	0287		44.11.21	@ OP																							
13 MULTIPLIER LATCH	0287		44.11.21	GMM																							
14 FORCE B-2	0287		44.11.41																								
15 SET PRODUCT SIGN LATCH	0287		44.11.41																								
16 SET B BIT CALC	0287		44.13.01																								
17 RESET A REG CALC	0287		44.11.11																								
18 SET A REG C	0287		44.11.11																								
19 DELTA A AUX LATCH	0287		44.14.01																								
20 A AUX LATCH	0287		44.14.11																								
21 DELTA B AUX LATCH	0287		44.14.21																								
22 C AUX LATCH	0287		44.14.31																								
23 SET A REG XFER TO I	0287		44.13.11																								
24 2A LATCH	0287		44.12.11																								
25 2A GATE	0287		44.12.11																								
26 A LATCH	0287		44.12.11																								
27 A GATE	0287		44.12.11																								
28 B AUX STAR SET UNITS	0287		44.13.31																								
29 B AUX STAR SET T H	0287		44.13.31																								

DATE 4-10-62 CHANGE NO 113870 DATE 31.7.62 CHANGE NO TA 1378 K

INTERNATIONAL BUSINESS MACHINES CORP
 NAME FIG 51 MULTIPLY

DESIGN		TYPE	
DETAIL		SCALE	NONE
CHECK		DRAW	VE 1-23-62
APPRO		CHECK	

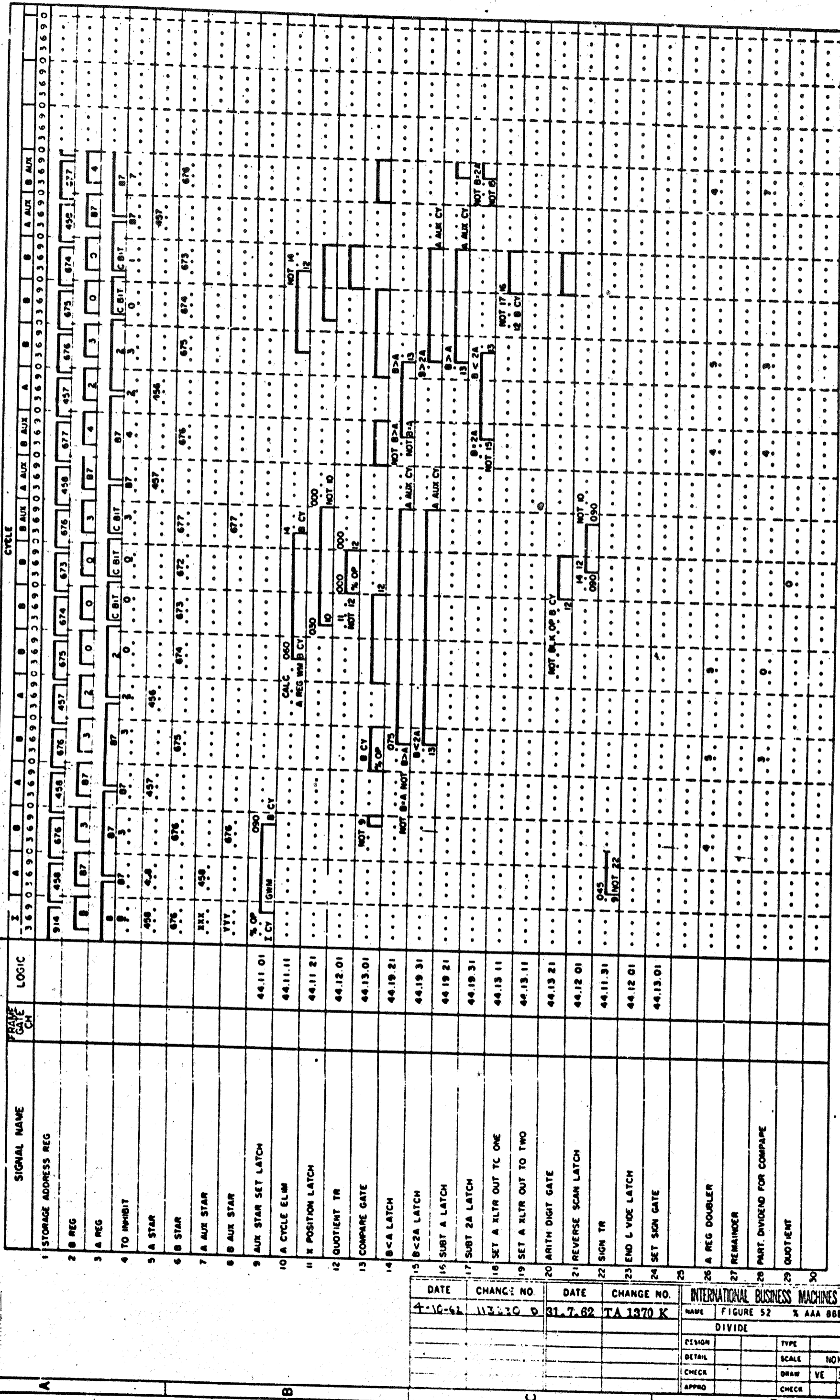
CYCLE



DATE	CHANGE NO	DATE	CHANGE NO	INTERNATIONAL BUSINESS MACHINES CORP
4-10-62	113430	31-7-62	TA 1370 K	NAME FIG 51 MULTIPLY
DESIGN	DETAIL	CHECK	APPRO	TYPE
				SCALE NONE
				DRAW VE 1-23-62
				CHECK

900 2 183 678
 907 3 458 676
 914 8 900

457 2¹ (A FIELD - 271)
 673 00C 340 (DIVIDEND - 340)
 918 010 (QUOTIENT - 012 REMAINDER - 016)



DATE	CHANG. NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP		
4-10-62	113-10 0	31.7.62	TA 1370 K	NAME	FIGURE 52	% AAA 888
				DIVIDE		
				DESIGN		TYPE
				DETAIL		SCALE NONE
				CHECK		DRAW VE 326-62
				APPRO		CHECK

900 103 678 457 2P (A FIELD -27)
 907 458 676 673 000 345 DIVIDEND - 344
 914 900 918 010 QUOTIENT - 012 REMAINDER - 016

CYCLE	A		B		A AUX		B AUX		A		B		I			
	676	675	674	677	678	677	675	678	677	676	675	674	677	676	675	674
1	457	676	675	674	677	678	677	675	678	677	676	675	677	676	675	674
2	2	3	0	1	7	87	80	2	0	0	0	87	80	2	0	82
3	2	0	0	1	7	87	80	2	0	0	0	87	80	2	0	82
4	2	0	0	1	7	87	80	2	0	0	0	87	80	2	0	82
5	456	675	674	673	678	677	676	675	674	677	676	675	674	676	675	674
6	675	674	673	678	677	676	675	674	677	676	675	674	677	676	675	674
7																
8																
9																
10																
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30																

DATE	CHANGE NO.	DATE	CHANGE NO.	INTERNATIONAL BUSINESS MACHINES CORP.
4-10-62	113230	01.7.62	TA 1970 K	NAME
				FIGURE 52
				% AAA BBB
				DIVIDE
				DESIGN
				TYPE
				DETAIL
				SCALE
				NONE
				CHECK
				DRAW
				VE
				3-28-62