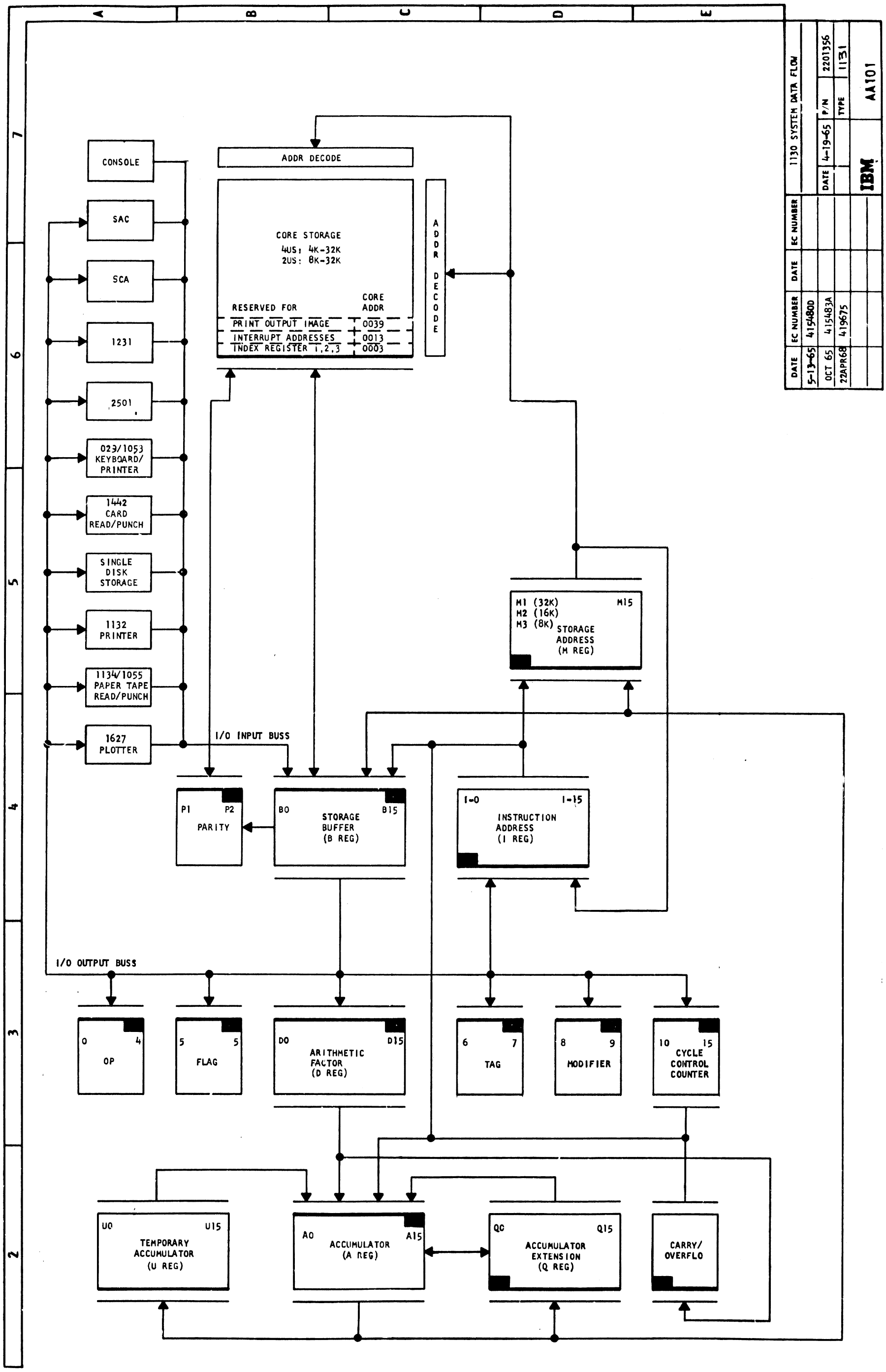


DATE	EC NUMBER	DATE	EC NUMBER
5-13-65	415480D		
OCT 65	415483A		
22APR68	419675		

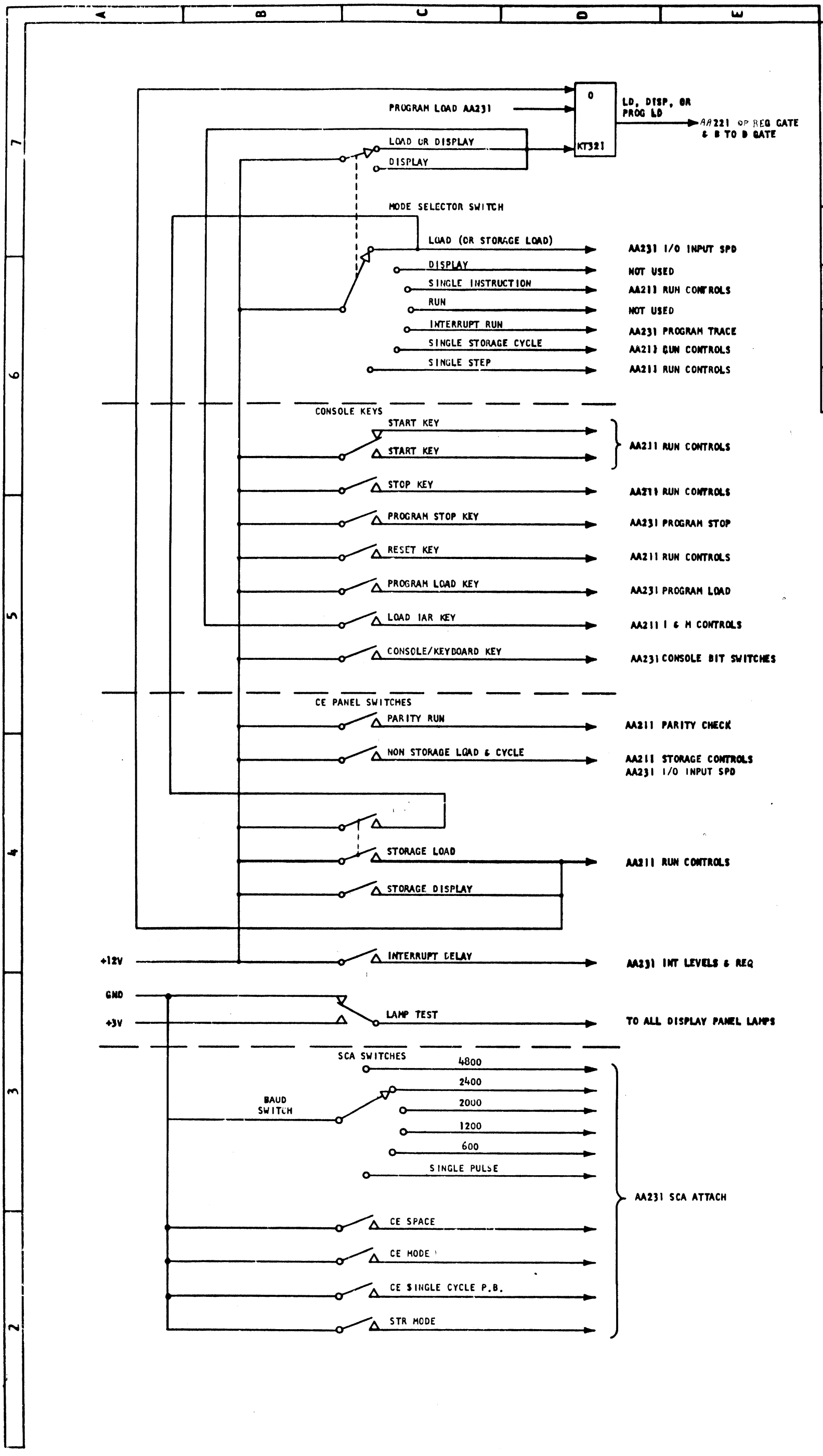
1130 SYSTEM DATA FLOW

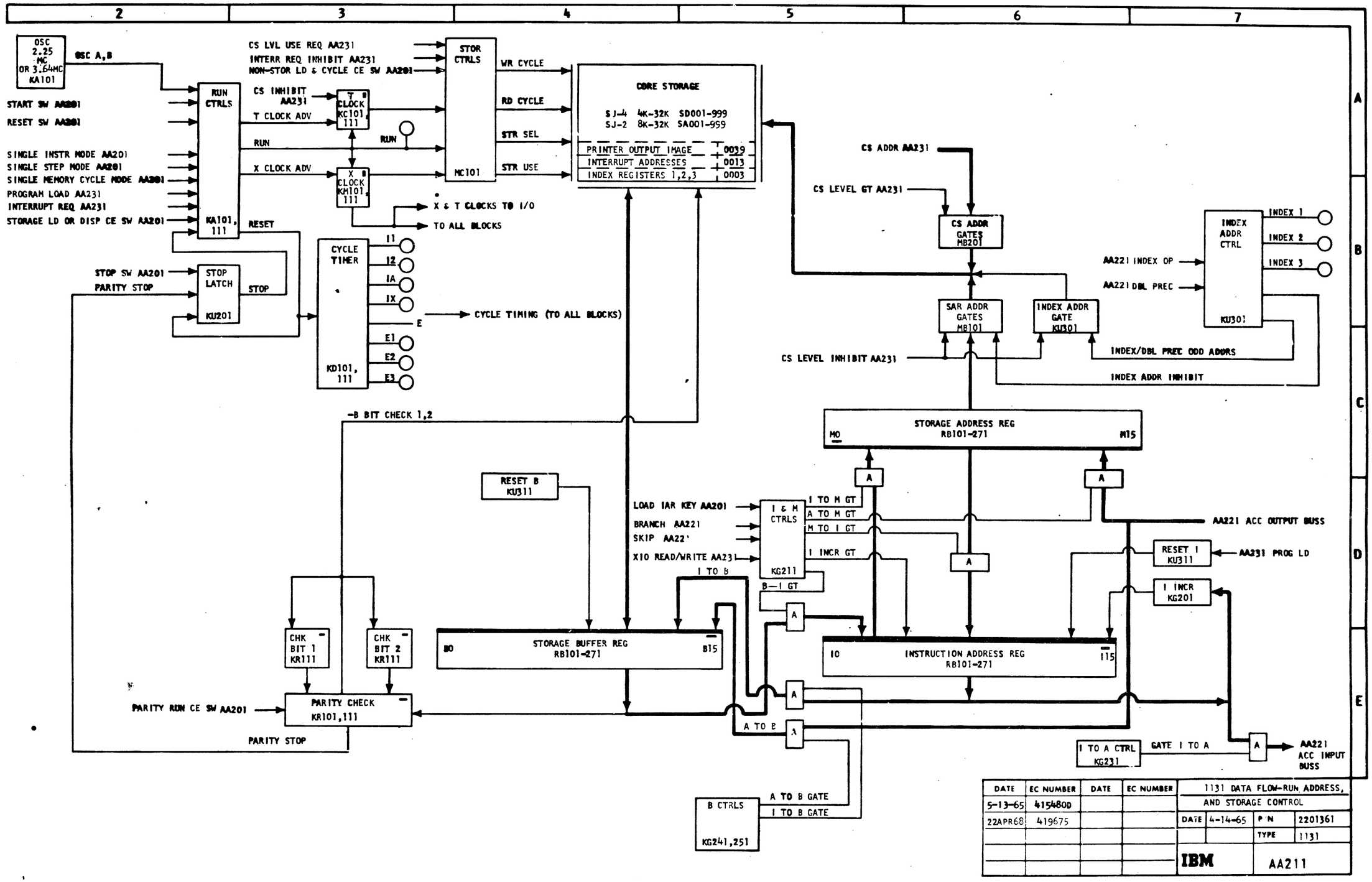
DATE 4-19-65 P/N 2201356

TYPE 1131

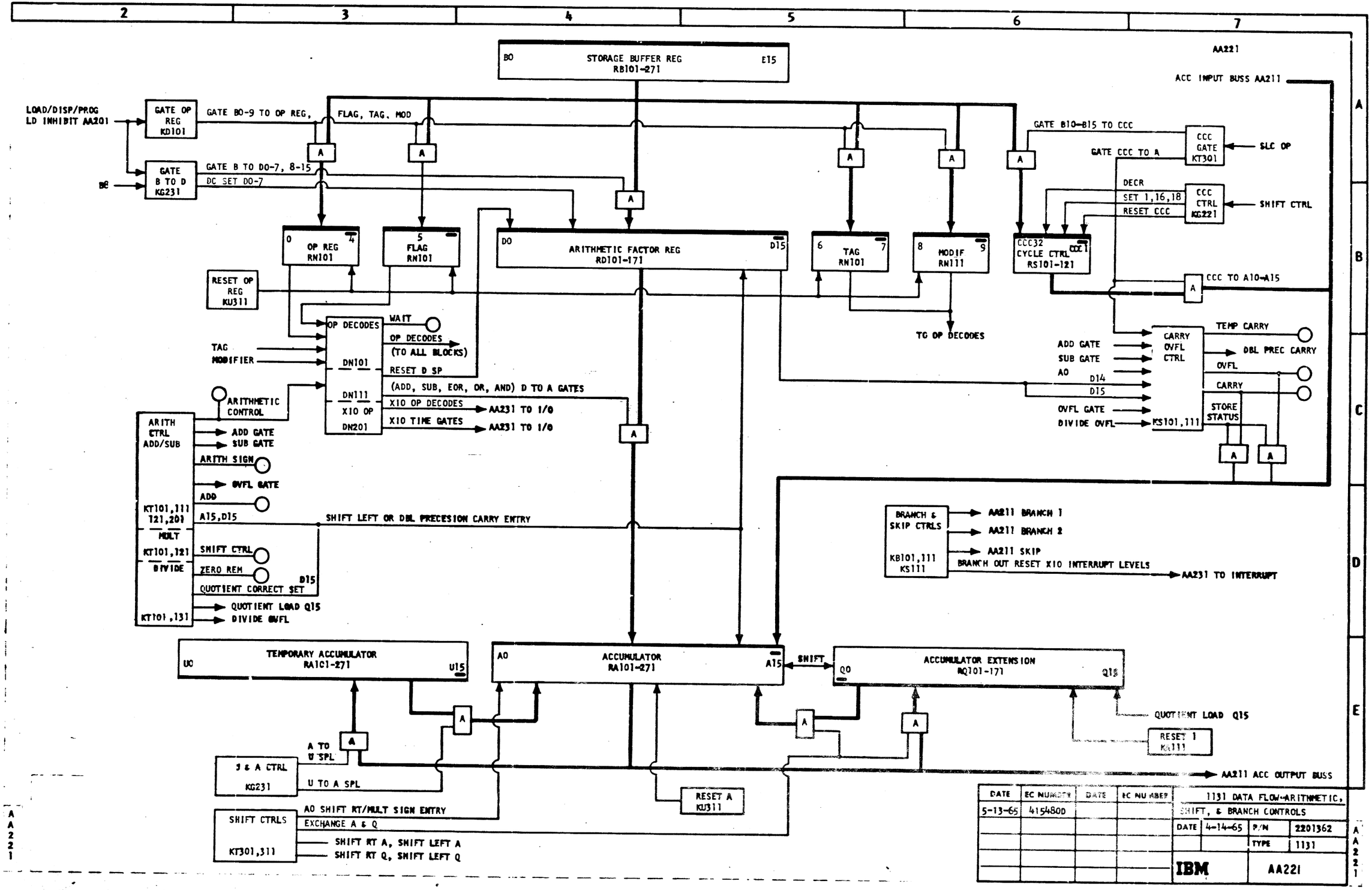
IBM

AA101

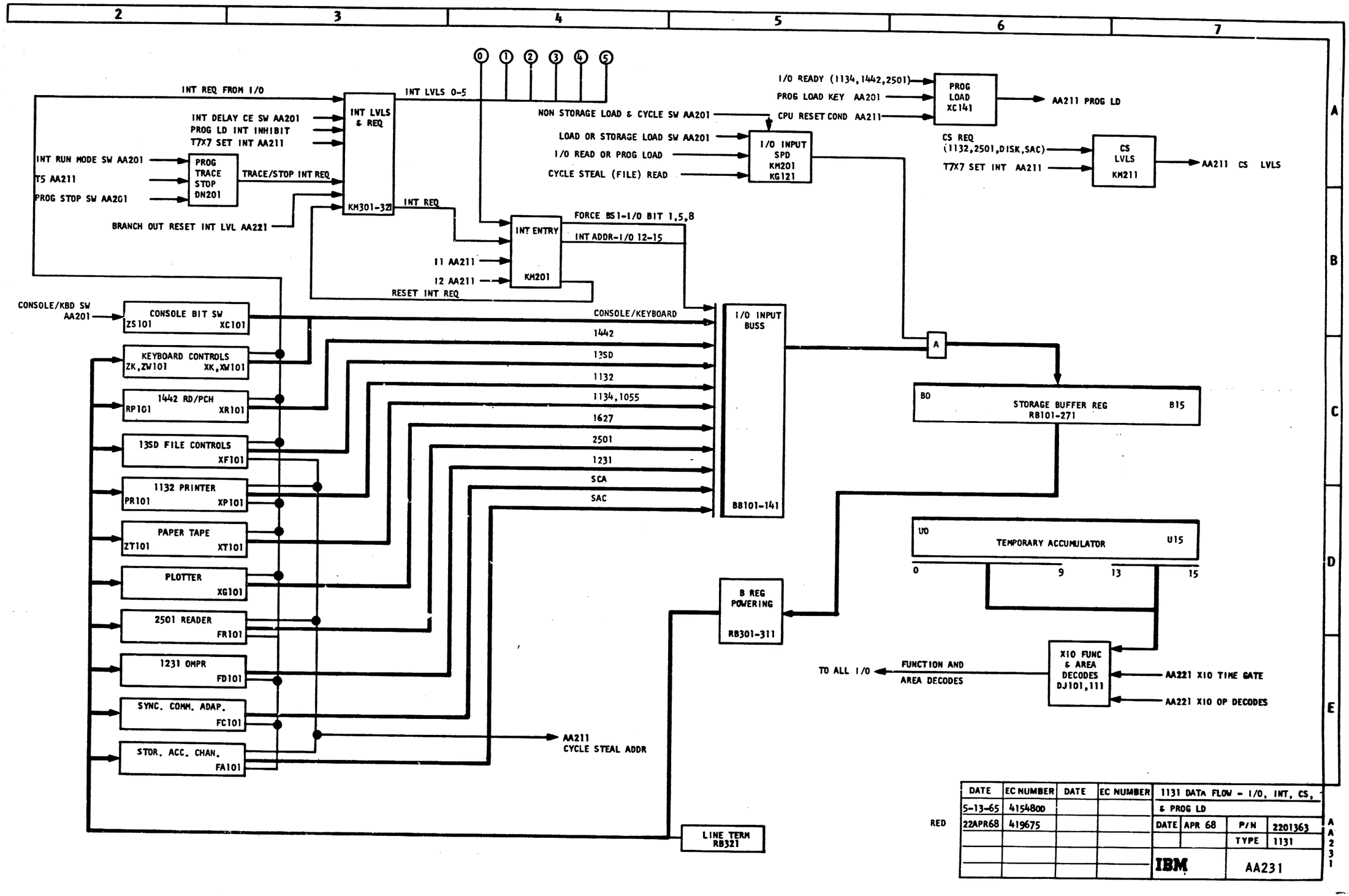

A
B
C
D
E
7
6
5
4
3
2
PROGRAM LOAD AA231
0
KT321
LD, DISP, OR PROG LD
AA221 OP REG GATE & B TO B GATE
LOAD OR DISPLAY
DISPLAY
MODE SELECTOR SWITCH
LOAD (OR STORAGE LOAD)
AA231 I/O INPUT SPD
DISPLAY
NOT USED
SINGLE INSTRUCTION
AA211 RUN CONTROLS
RUN
NOT USED
INTERRUPT RUN
AA231 PROGRAM TRACE
SINGLE STORAGE CYCLE
AA211 RUN CONTROLS
SINGLE STEP
AA211 RUN CONTROLS
CONSOLE KEYS
START KEY
START KEY
AA211 RUN CONTROLS
STOP KEY
AA211 RUN CONTROLS
PROGRAM STOP KEY
AA231 PROGRAM STOP
RESET KEY
AA211 RUN CONTROLS
PROGRAM LOAD KEY
AA231 PROGRAM LOAD
LOAD IAR KEY
AA211 I & M CONTROLS
CONSOLE/KEYBOARD KEY
AA231 CONSOLE BIT SWITCHES
CE PANEL SWITCHES
PARITY RUN
AA211 PARITY CHECK
NON STORAGE LOAD & CYCLE
AA211 STORAGE CONTROLS
AA231 I/O INPUT SPD
STORAGE LOAD
AA211 RUN CONTROLS
STORAGE DISPLAY
+12V
INTERRUPT DELAY
AA231 INT LEVELS & REQ
GND
+3V
LAMP TEST
TO ALL DISPLAY PANEL LAMPS
SCA SWITCHES
4800
2400
BAUD SWITCH
2000
1200
600
SINGLE PULSE
AA231 SCA ATTACH
CE SPACE
CE MODE
CE SINGLE CYCLE P.B.
STR MODE
1131 DATA FLOW
SWITCH LOGIC
DATE 4-15-65
P/N 2201360
TYPE 1131
IBM
AA201
DATE
EC NUMBER
5-13-65 4154800
22APR68 419675



DATE	EC NUMBER	DATE	EC NUMBER	1131 DATA FLOW-RUN ADDRESS, AND STORAGE CONTROL			
5-13-65	415480D			DATE	4-14-65	P/N	2201361
22APR68	419675					TYPE	1131
				IBM		AA211	



DATE	EC NUMBER	DATE	EC NUMBER	1131 DATA FLOW-ARITHMETIC, SHIFT, & BRANCH CONTROLS			
5-13-65	415480D			DATE	4-14-65	P/N	2201362
						TYPE	1131
				IBM		AA221	



DATE	EC NUMBER	DATE	EC NUMBER
5-13-65	4154800		
22APR68	419675		

RED

1131 DATA FLOW - I/O, INT, CS, & PROG LD

DATE	APR 68	P/N	2201363
		TYPE	1131

IBM AA231

A A231

1131 INSTRUCTION CYCLE PATTERNS

CODE	INSTRUCTIONS	I1	I2	IX	IA	E1	E2	E3
0 0 1 1 0 } 0 0 0 0 0 }	WAIT NOTE (1) (4)	YES (2)	NO	NO	NO	NO	NO	NO
0 0 0 0 1	EXEC I/O	YES	F=1	T ≠ 0	F=1 IA=1	YES	YES	R/W
0 0 0 1 0	SHIFT LEFT (1)	YES (2)	NO	T ≠ 0	NO	SLC AO=1	NO	NO
0 0 0 1 1	SHIFT RIGHT (1)	YES (2)	NO	T ≠ 0	NO	NO	NO	NO
0 0 1 0 0	LOAD STATUS (1)	YES (2)	NO	NO	NO	NO	NO	NO
0 0 1 0 1	STORE STATUS	YES	F=1	T ≠ 0	F=1 IA=1	YES	NO	NO
0 1 0 0 0	BRANCH & STORE IAR	YES (2)	F=1 BR	T ≠ 00 BR	F=1 IA=1 BR	BR	NO	NO
0 1 0 0 1	BRANCH/SKIP CONDITIONAL	YES (2) (3)	F=1 BR	T ≠ 00 BR	F=1 IA=1 BR	NO	NO	NO
0 1 1 0 0	LOAD INDEX	YES (3)	F=1	NO	F=1 IA=1	T ≠ 00	NO	NO
0 1 1 0 1	STORE INDEX	YES	F=1	NO	F=1 IA=1	YES	T ≠ 00	NO
0 1 1 1 0	MODIFY INDEX T=00/T≠00	YES (3)	F=1	NO	F=1/F=1 IA=1	F=1/YES	F=1/YES	NO
1 0 0 0 0	ADD	YES	F=1	T ≠ 0	F=1 IA=1	YES	NO	NO
1 0 0 0 1	ADD DOUBLE	YES	F=1	T ≠ 0	F=1 IA=1	YES	YES	NO
1 0 0 1 0	SUB	YES	F=1	T ≠ 0	F=1 IA=1	YES	NO	NO
1 0 0 1 1	SUB DOUBLE	YES	F=1	T ≠ 0	F=1 IA=1	YES	YES	NO
1 0 1 0 0	MULTIPLY	YES	F=1	T ≠ 0	F=1 IA=1	YES	YES	NO
1 0 1 0 1	DIVIDE	YES	F=1	T ≠ 0	F=1 IA=1	YES	YES	NO
1 1 0 0 0	LOAD ACCU	YES	F=1	T ≠ 0	F=1 IA=1	YES	NO	NO
1 1 0 0 1	LOAD ACCU DOUBLE	YES	F=1	T ≠ 0	F=1 IA=1	YES	YES	NO
1 1 0 1 0	STORE ACCU	YES	F=1	T ≠ 0	F=1 IA=1	YES	NO	NO
1 1 0 1 1	STORE ACCU DOUBLE	YES	F=1	T ≠ 0	F=1 IA=1	YES	YES	NO
1 1 1 0 0	AND	YES	F=1	T ≠ 0	F=1 IA=1	YES	NO	NO
1 1 1 0 1	OR	YES	F=1	T ≠ 0	F=1 IA=1	YES	NO	NO
1 1 1 1 0	EXCL OR	YES	F=1	T ≠ 0	F=1 IA=1	YES	NO	NO

NOTE 1. VALID SHORT FORMAT ONLY.

NOTE 2. NOT STANDARD I1 CYCLE, E CYCLES NOT ALWAYS ENTERED

NOTE 3. BRANCH EXTENDED LAST I CYCLE, E CYCLES NOT ALWAYS ENTERED

NOTE 4. FOR 1130 SYSTEM ALL UNASSIGNED OP CODES ARE DECODED AS WAIT OPS.

SHEET 1

DATE	EC NUMBER	DATE	EC NUMBER
	415480D		
OCT 65	415483A		
MAY 67	419633		
22APR68	419675		

1131 INSTRUCTION CYCLE PATTERNS

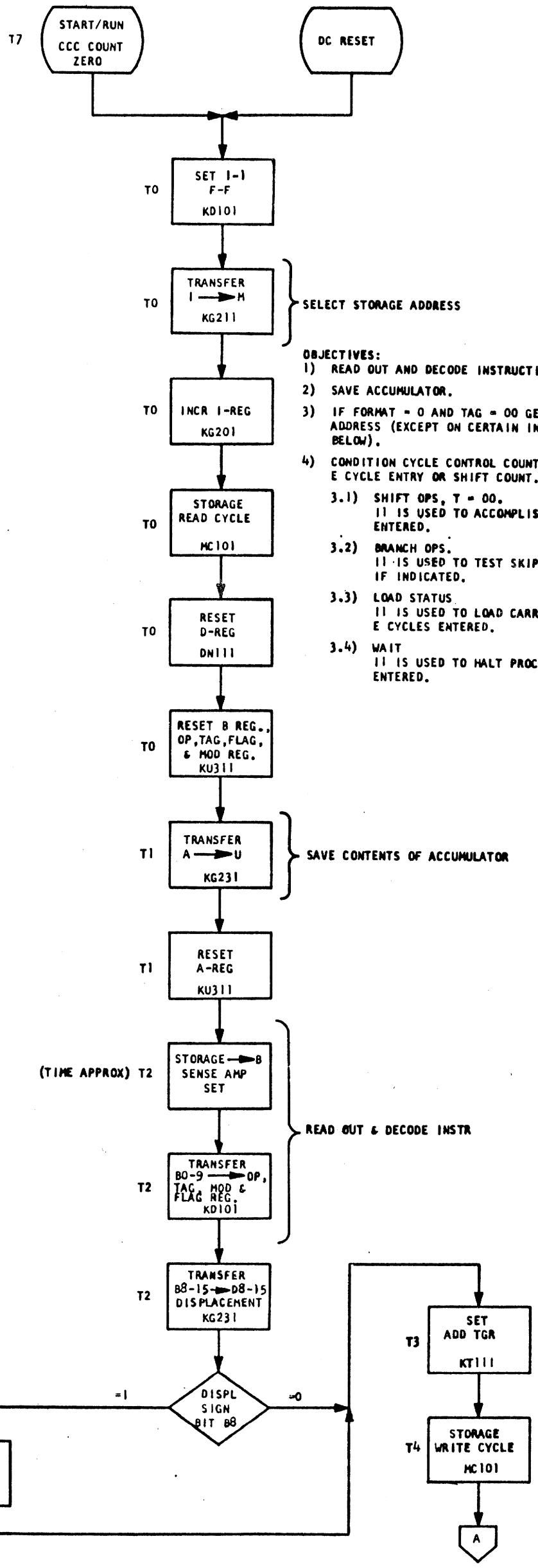
DATE 5-24-65 P/N 2201425

TYPE 1131

IBM AA601

I-1 CYCLE

SHEET 2



OBJECTIVES:

1) READ OUT AND DECODE INSTRUCTION FOUND AT IAR ADDRESS.
2) SAVE ACCUMULATOR.
3) IF FORMAT = 0 AND TAG = 00 GENERATE EFFECTIVE ADDRESS (EXCEPT ON CERTAIN INSTRUCTIONS AS NOTED BELOW).
4) CONDITION CYCLE CONTROL COUNTER TO DETERMINE E CYCLE ENTRY OR SHIFT COUNT.
   - 3.1) SHIFT OPS, T = 00. I1 IS USED TO ACCOMPLISH SHIFTS, NO E CYCLES ENTERED.
   - 3.2) BRANCH OPS. I1 IS USED TO TEST SKIP CONDITIONS AND SKIP IF INDICATED.
   - 3.3) LOAD STATUS I1 IS USED TO LOAD CARRY AND OVERFLO, NO E CYCLES ENTERED.
   - 3.4) WAIT I1 IS USED TO HALT PROCESSOR, NO E CYCLES ENTERED.

DATE	EC NUMBER	DATE	EC NUMBER
	415480D		
OCT 65	415483A		
MAY 67	419633		
22APR68	419675		

I-1 CYCLE

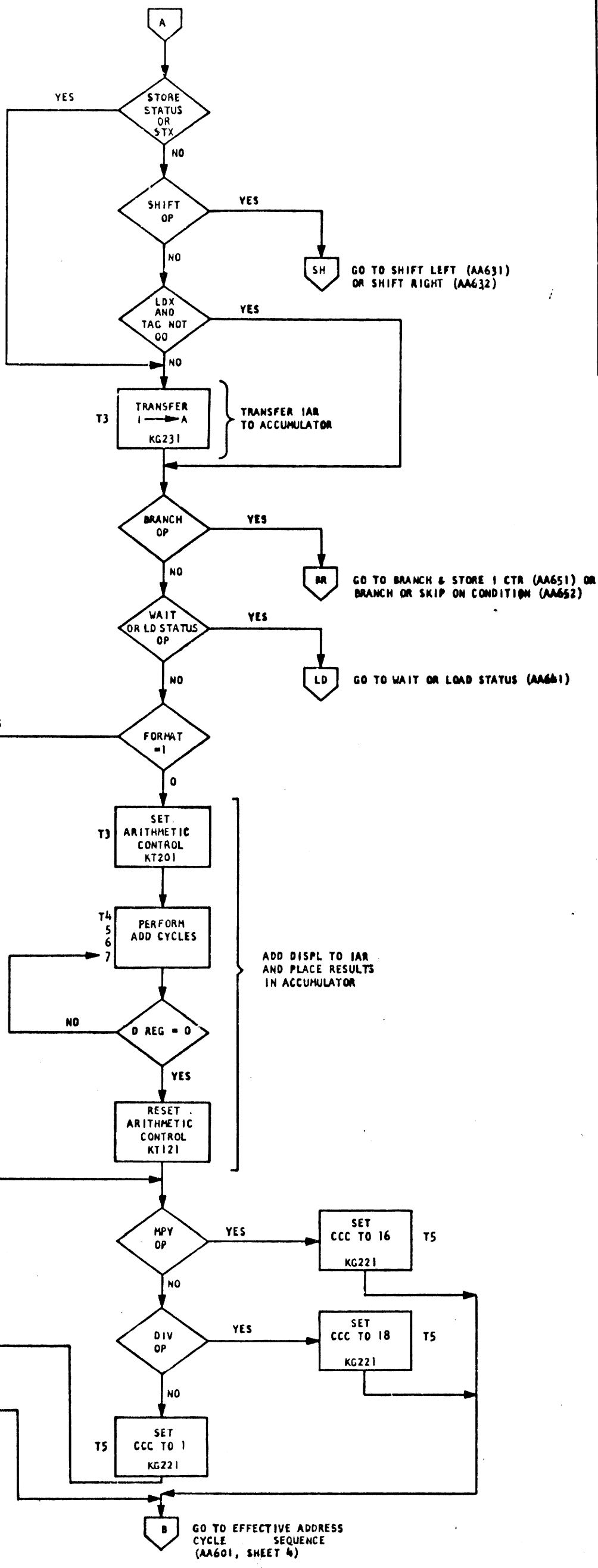
DATE 5-5-65 P/N 2301425

TYPE 1131

IBM AA601

I-1 CYCLE

SHEET 3



DATE	EC NUMBER	DATE	EC NUMBER
	4154800		
OCT 65	4154834		
MAY 67	419633		
APR68	419675		

I-1 CYCLE

DATE 5-5-65 P N 2201425

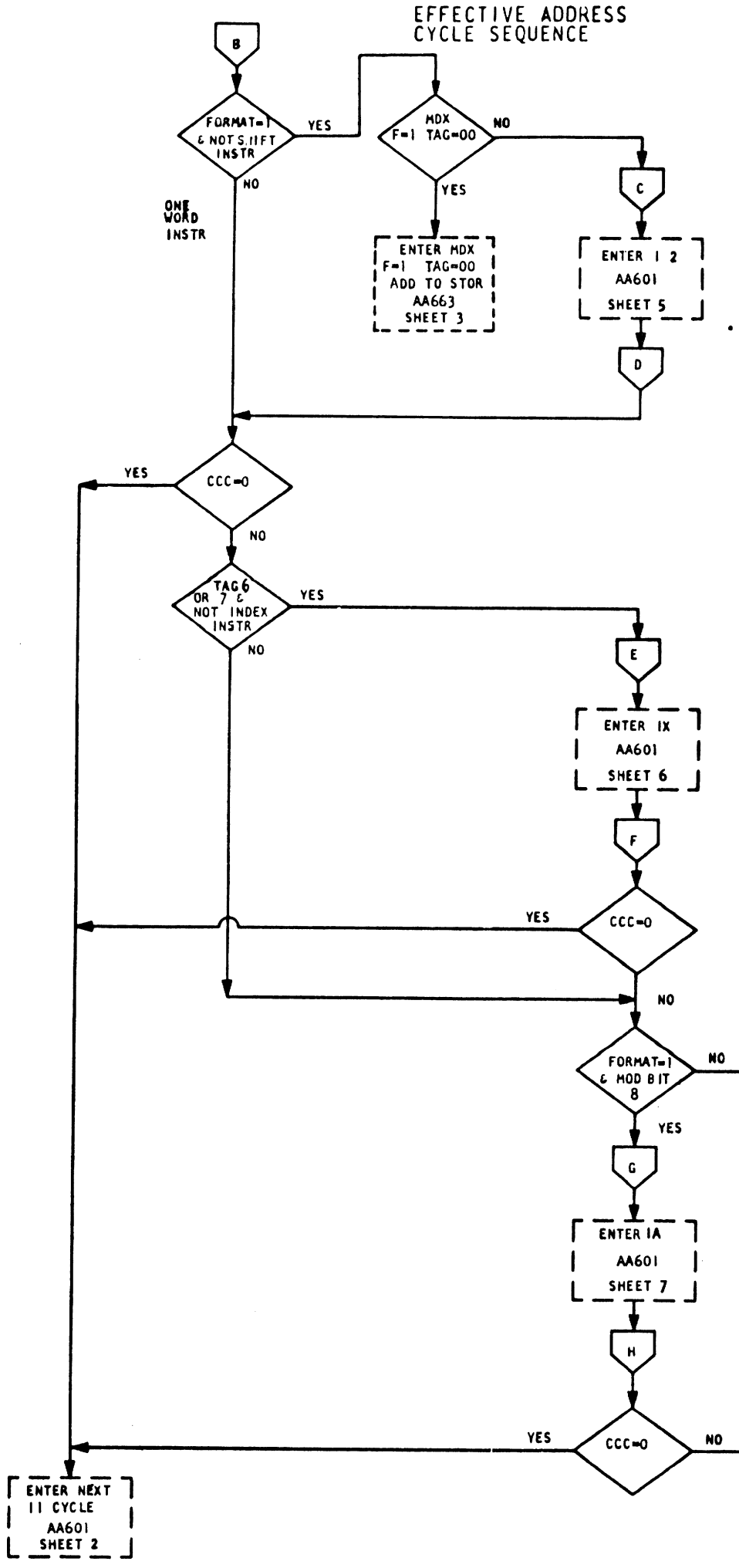
TYPE 1131

IBM

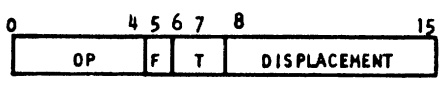
AA601

EFFECTIVE ADDRESS CYCLE SEQUENCE

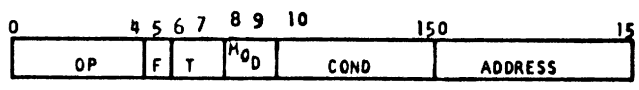
SHEET 4



ONE WORD INSTR



TWO WORD INSTR



EFFECTIVE ADDRESSING SEQUENCE

FORMAT	TAG	MOD 8	I1	I2*	IX**	IA	EFFECTIVE ADDRESS
0	00	-	✓				DISPLACEMENT + IAR + 1
0	NOT 00	-	✓		✓		DISPLACEMENT & INDEX REG CONTENTS
1	00	0	✓	✓			ADDRESS
1	00	1	✓	✓		✓	(ADDRESS) CONTENTS
1	NOT 00	0	✓	✓	✓		ADDRESS & INDEX REG CONTENTS
1	NOT 00	1	✓	✓	✓	✓	(ADDRESS & INDEX REG CONT) CONTENTS

* NOT SHIFT INSTR. ** NOT INDEX INSTR.

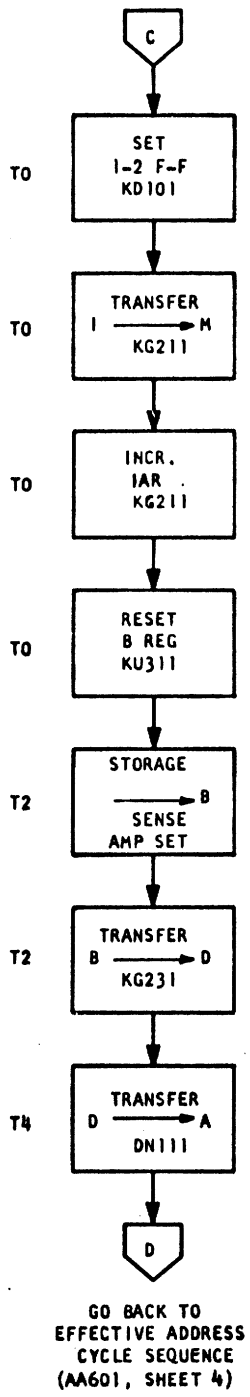
DATE	EC NUMBER	DATE	EC NUMBER
	4154600		
OCT 65	4154834		
MAY 67	419633		
22 APR 68	419675		

EFFECTIVE ADDRESS CYCLE SEQUENCE

DATE 5-5-65 | P/N 2201425 | TYPE 1131

IBM

AA601

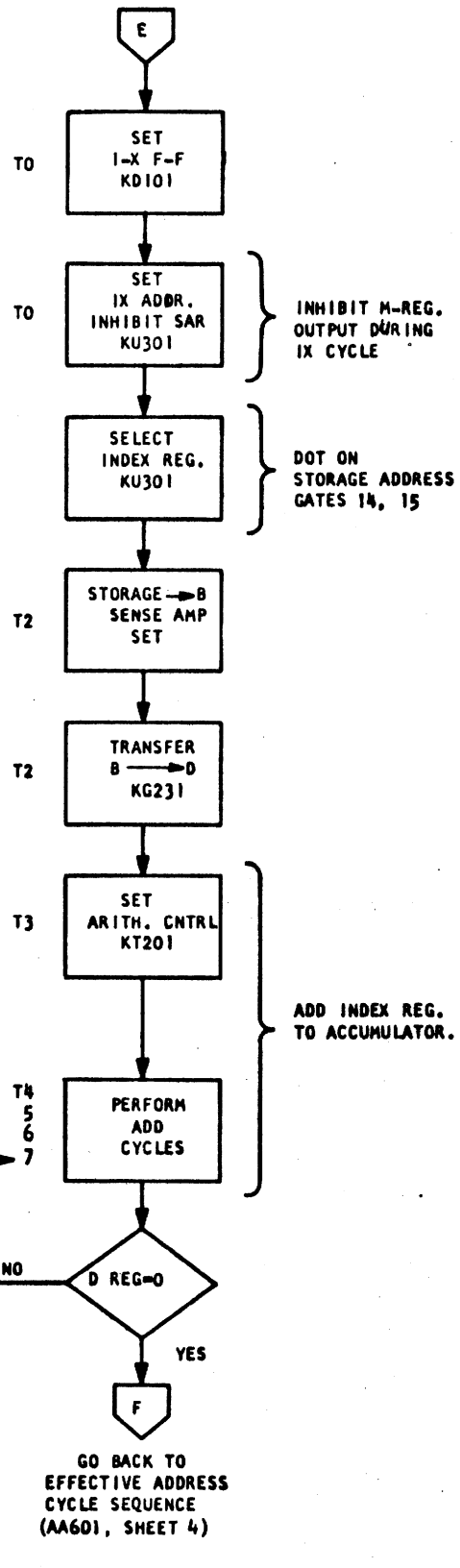


OBJECTIVES:

1. PLACE ADDRESS WORD OF A TWO WORD INSTRUCTION IN ACCUMULATOR.
2. SEE MDX INSTR. FOR I2 CYCLE ON MDX ADD TO STORAGE OP.

DATE	EC NUMBER	DATE	EC NUMBER	1-2 CYCLE		
	4154800			DATE 5-24-65	P/N 2201425	
OCT 65	4154834				TYPE 1131	
MAY 67	419633			IBM		AA601
28APR68	419675					

IX CYCLE



OBJECTIVES:

1. ADD THE DISPLACEMENT OR THE ADDRESS PORTION OF THE INSTRUCTION TO THE SPECIFIED INDEX REGISTER.
2. SEE OP. CODE FLOW CHARTS FOR FUNCTION OF IX CYCLE ON SHIFT AND MDX.

DATE	EC NUMBER
	4154800
OCT 65	415483A
MAY 67	419633
22APR68	419675

EC NUMBER	DATE

IX CYCLE

DATE 5-5-65 P/N 2201425

TYPE 1131

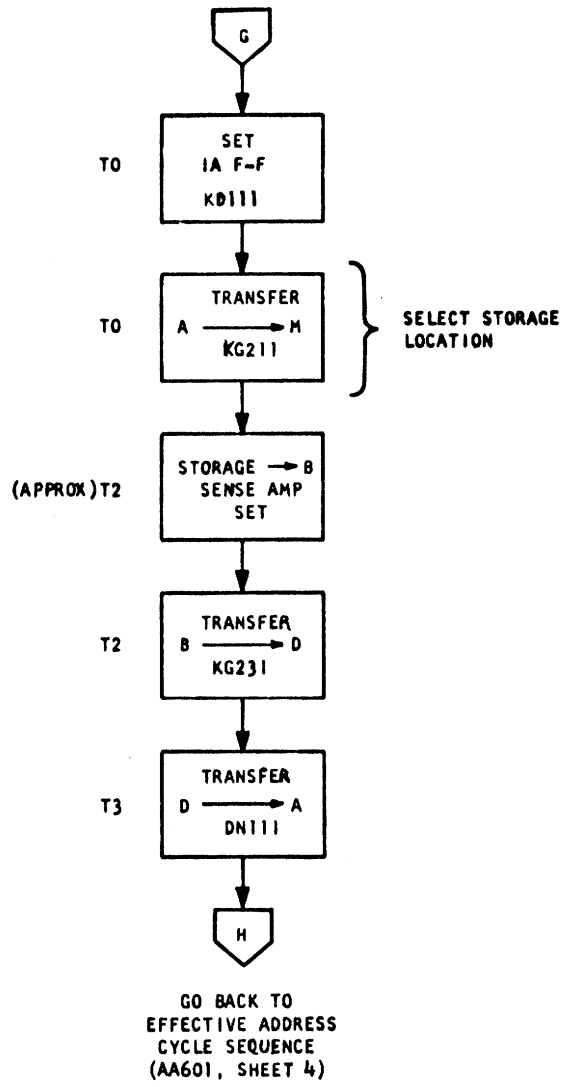
IBM

AA601

1 A CYCLE

OBJECTIVE:

1) TRANSFER THE CONTENTS OF THE WORD SPECIFIED BY THE ADDRESS OF A TWO WORD INSTRUCTION TO THE ACCUMULATOR.



DATE	EC NUMBER	DATE	EC NUMBER
	4154800		
OCT 65	4154834		
MAY 67	419633		
22APR68	419675		

1A CYCLE

DATE 5-24-65 P/N 2201425

TYPE 1131

IBM

AA601

INTERRUPT
FORCED BRANCH AND STORE I CTR INDIRECT

SHEET 1

OBJECTIVE:

TO SERVICE AN INTERRUPT REQUEST BY FORCING A BSI INSTRUCTION WHICH WILL: a. BRANCH TO THE INTERRUPT SUBROUTINE FOR THE APPROPRIATE LEVEL, b. STORE THE I CTR TO PERMIT A RETURN TO THE MAIN LINE PROGRAM.

INTERRUPT REQ FROM I/O

INTR DELAY SW — ON / OFF

CCC COUNT=ø (END OP) — NO / YES

THAT LEVEL TGGR ALREADY ON — YES / NO

T7X7B — SET LEVEL AND REQ TGR FOR THAT LEVEL KM 301,11,21

HI PRIORITY LV TGR ON — YES / NO

CONTINUE INSTRUCTION SEQUENCE

THAT LEVEL REQ TGR ON — NO / YES

INTERRUPT REQUEST DN201

NOTE THAT INTERRUPT OCCURS ONLY AT THE END OF A COMPLETE INSTRUCTION CYCLE.

WAIT OP — YES / NO

T7X7B — SET RUN TRIGGER KU211

ANY CYCLE STEAL LEVEL ON — YES / NO

CS — ENTER CYCLE STEAL (AA611, SHEET 2)

BLOCK STORAGE USE DN201

BSI I1 CYCLE KD101

TO — BLOCK I-COUNTER INCREMENT KG211

TO — GATE BSI OP MOD 8 FORMAT BITS ON I/O BUS KM201

T1 — TRANSFER I/O → B KM201

FORCE BSI INDIRECT OP

REQ LEVEL	B BITS 11	12	13	14	15
0		1			
1		1			1
2		1		1	
3		1		1	1
4		1	1		
5		1	1		1
6		1	1	1	
7		1	1	1	1

RPQ

CONTINUE NORMAL BSI I1 CYCLE

ENTER BSI I2 CYCLE KD101

TO — BLOCK I-CTR INCR KG211

TO — GATE INT ADDRESS ON I/O BUSS KM201

T1 — TRANSFER I/O → B KM201

CONTINUE NORMAL BSI I2 CYCLE

T7 — RESET HIGHEST PRI REQUEST TRB KM201

T7 — STORAGE USE UNBLOCKED

G — ENTER BSI IA CYCLE (AA601, SHEET 7) (FINISH OP AS A NORMAL BSI INSTR.)

FORCE BSI INDIRECT ADDRESS TO INTERRUPT SUBROUTINE

DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	415483A		
	415480D		

INTERRUPT FORCED BRANCH AND STORE I CTR INDIRECT

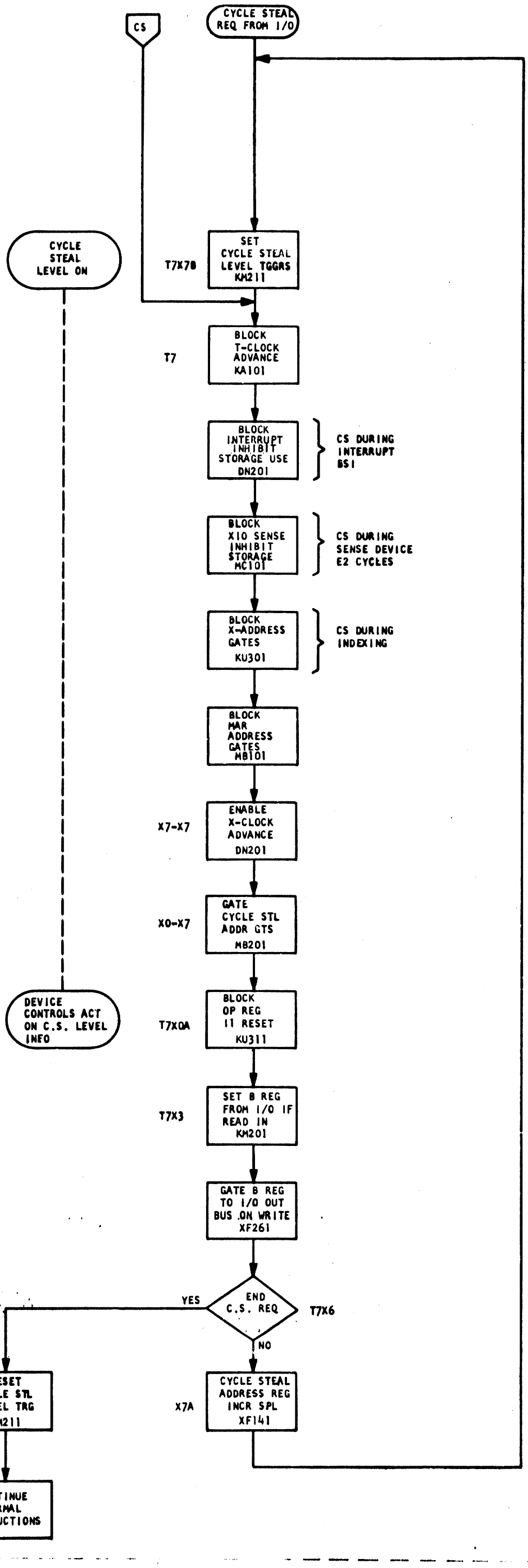
DATE 3-24-5 | P/N 2201432 | TYPE 1131

IBM

PAGE NO AA611

CYCLE STEAL

SHEET 2



OBJECTIVE:
TO OBTAIN A MACHINE CYCLE FOR EACH C.S. REQUEST. THE DEVICE REQUESTING SERVICE CONTROLS DATA WRITTEN INTO STORAGE FROM THE B REGISTER.
NOTE THAT CYCLES MAY BE STOLEN AT THE END OF ANY MACHINE CYCLE.

DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	4154800		
	415483A		

CYCLE STEAL

DATE 3-25-65 P/N 2201432
TYPE 1131
PAGE NO AA611
IBM

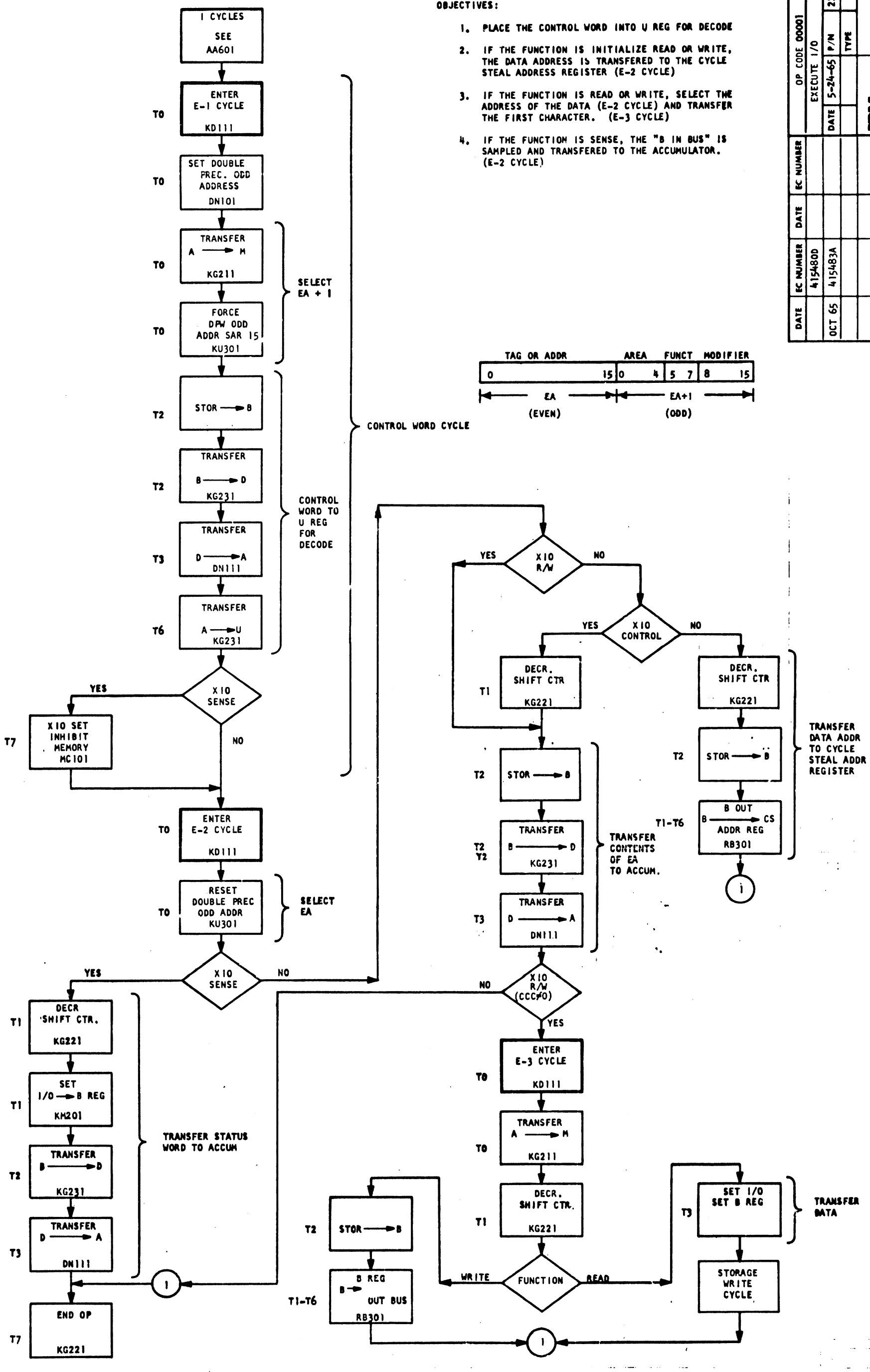
OP CODE 00001
EXECUTE I/O

OBJECTIVES:

1. PLACE THE CONTROL WORD INTO U REG FOR DECODE
2. IF THE FUNCTION IS INITIALIZE READ OR WRITE, THE DATA ADDRESS IS TRANSFERED TO THE CYCLE STEAL ADDRESS REGISTER (E-2 CYCLE)
3. IF THE FUNCTION IS READ OR WRITE, SELECT THE ADDRESS OF THE DATA (E-2 CYCLE) AND TRANSFER THE FIRST CHARACTER. (E-3 CYCLE)
4. IF THE FUNCTION IS SENSE, THE "B IN BUS" IS SAMPLED AND TRANSFERED TO THE ACCUMULATOR. (E-2 CYCLE)

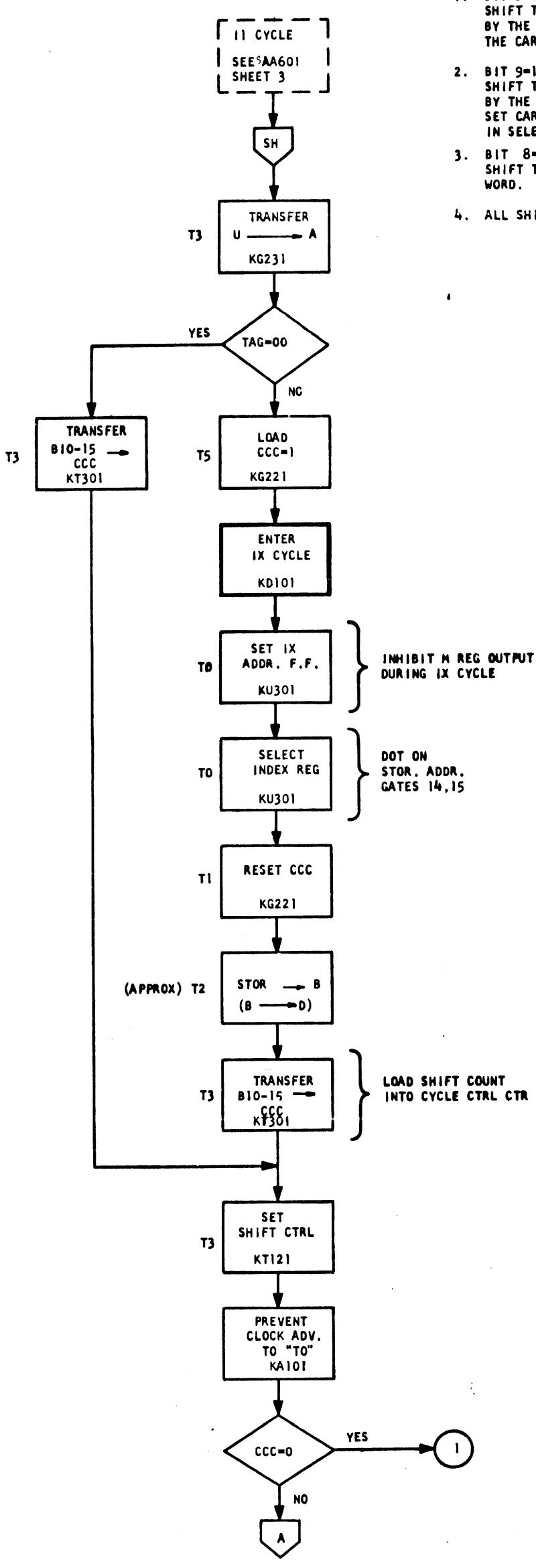
DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	415483A		415480D

OP CODE 00001 — EXECUTE I/O — DATE 5-24-65 — P/N 2201435 — TYPE 1131 — IBM — AA621



OP CODE 00010 SHIFT LEFT

SHEET 1



OBJECTIVES:

1. BIT 8=0 (SLA OP)
   SHIFT THE ACCUM LEFT THE NO. OF POSITIONS INDICATED BY THE SHIFT CTR (CCC). BIT LEAVING A0 SHIFTS INTO THE CARRY TRG.
2. BIT 9=1, TAG ≠00 (SLC OP)
   SHIFT THE ACCUM LEFT THE NO. OF POSITIONS INDICATED BY THE CCC. TERMINATE SHIFT IF ONE IS FOUND IN A0, SET CARRY TRG ON, AND PLACE REMAINDER OF CCC COUNT IN SELECTED INDEX REG.
3. BIT 8=1
   SHIFT THE ACCUM AND THE Q REG AS A 32 BIT DOUBLE PRECISION WORD.
4. ALL SHIFT OPS ARE SHORT FORMAT (F-0) ONLY.

TAG	CCC SHIFT CNT
00	DISPLACEMENT
01	INDEX 1
10	INDEX 2
11	INDEX 3

DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	4154830		

OP CODE 00010
SHIFT LEFT
DATE 5-14-65 P/N 2201437
TYPE 1131
IBM
AA631

OP CODE 00010 SHIFT LEFT

SHEET 2

DATE	EC NUMBER	DATE	EC NUMBER	OP CODE 00010 SHIFT LEFT	DATE 5-24-65	P/N 2201437
OCT 65	4154800					TYPE 1131
	4154834				IBM	AA631

A — 1 CYCLE

TAG=00 — YES

NO

MOD 9 — 1: SHIFT LEFT AND COUNT ACC; 0: SHIFT LEFT

T3 RESET B8-15 KU311

T3 RESET CARRY F.F. KU311

A0 — 1 / 0

1: RESET SHIFT CTRL. KT121

T7 INHIBIT RESET X ADDR KU301

T0 ENTER E-1 CYCLE KD111

T1 TRANSFER A → U; RESET A KG231

T2 SET CARRY F.F. KS101

T2 TRANSFER CCC → A10-15 RS111

T3 TRANSFER A → B8-15 KG241

B → STORAGE

T6 RESET CCC KB101

T7 TRANSFER U → A KG231

T7 END OP KG221

TRANSFER REMAINDER OF SHIFT COUNT INTO BITS 10-15 OF INDEX REG

0: MOD 8 — 1: SHIFT LEFT A & Q KT311; SET Q15=0 RQ171

0: SHIFT LEFT A KT311; SET A15=0 KT201

SHIFT SAMPLES T4 T5 T6 T7 - -

DECREMENT CCC KG221

CCC=0 — NO

YES

1

RESET SHIFT CTRL KT121

A0 — 1: SET CARRY FF KS101; 0: RESET CARRY FF. KS101

MOD 8 — 1: SHIFT LEFT A & Q KT311; SET Q15 = 0 RQ171

0: SHIFT LEFT A KT311; SET A15 = 0 KT201

DECREMENT CCC KG221

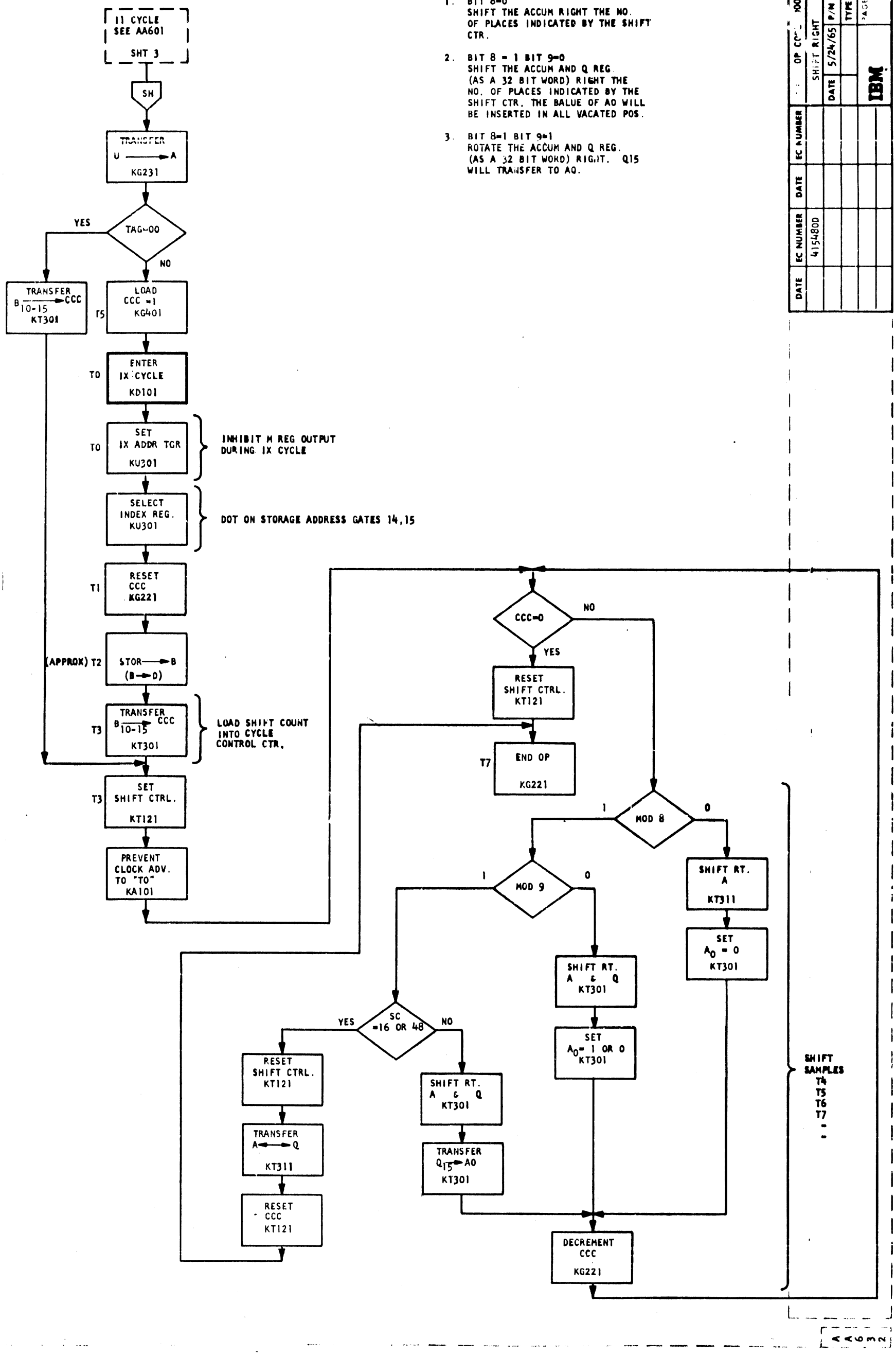
CCC=0 — NO

YES

SHIFT SAMPLES T4 T5 T6 T7 - -

OP CODE 00011 SHIFT RIGHT

AA632



OBJECTIVES:

1. BIT 8=0
   SHIFT THE ACCUM RIGHT THE NO. OF PLACES INDICATED BY THE SHIFT CTR.

2. BIT 8 = 1 BIT 9=0
   SHIFT THE ACCUM AND Q REG. (AS A 32 BIT WORD) RIGHT THE NO. OF PLACES INDICATED BY THE SHIFT CTR. THE BALUE OF AO WILL BE INSERTED IN ALL VACATED POS.

3. BIT 8=1 BIT 9=1
   ROTATE THE ACCUM AND Q REG. (AS A 32 BIT WORD) RIGHT. Q15 WILL TRANSFER TO AO.

DATE	EC NUMBER	DATE	EC NUMBER
			4154800

OP CODE 00011
SHIFT RIGHT

DATE	5/24/65	P/N	2201438
		TYPE	1131

IBM

PAGE NO AA632

A 6 3 2

OP CODE 00100 LOAD STATUS

AA641

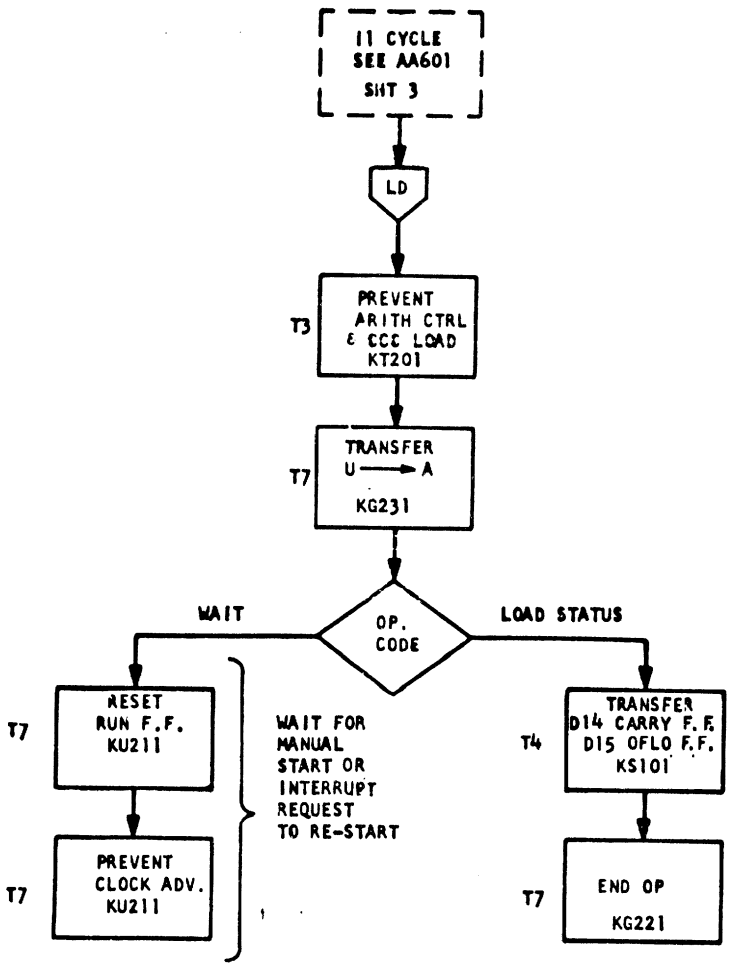
OP CODE { 00000, 00110, 00111, 01010, 01011, 01111, 10110, 10111, 11111 } WAIT

LOAD STATUS
OBJECTIVES:

1. LOAD THE CARRY INDICATOR WITH THE STATUS OF BIT 14 IN THE INSTRUCTION WORD.
2. LOAD THE OVERFLOW INDICATOR WITH THE STATUS OF BIT 15 IN THE INSTRUCTION WORD.
3. A "1" IN THESE BIT POSITIONS WILL TURN ON THE INDICATOR.
4. A "0" IN THESE BIT POSITIONS WILL TURN OFF THE INDICATOR.

WAIT
OBJECTIVES:

1. STOP THE PROCESSOR IN A WAIT CONDITION
2. LOAD STATUS AND WAIT ARE VALID IN SHORT FORMAT (F=0) ONLY.



DATE	EC NUMBER	DATE	EC NUMBER	DATE
	4154800			

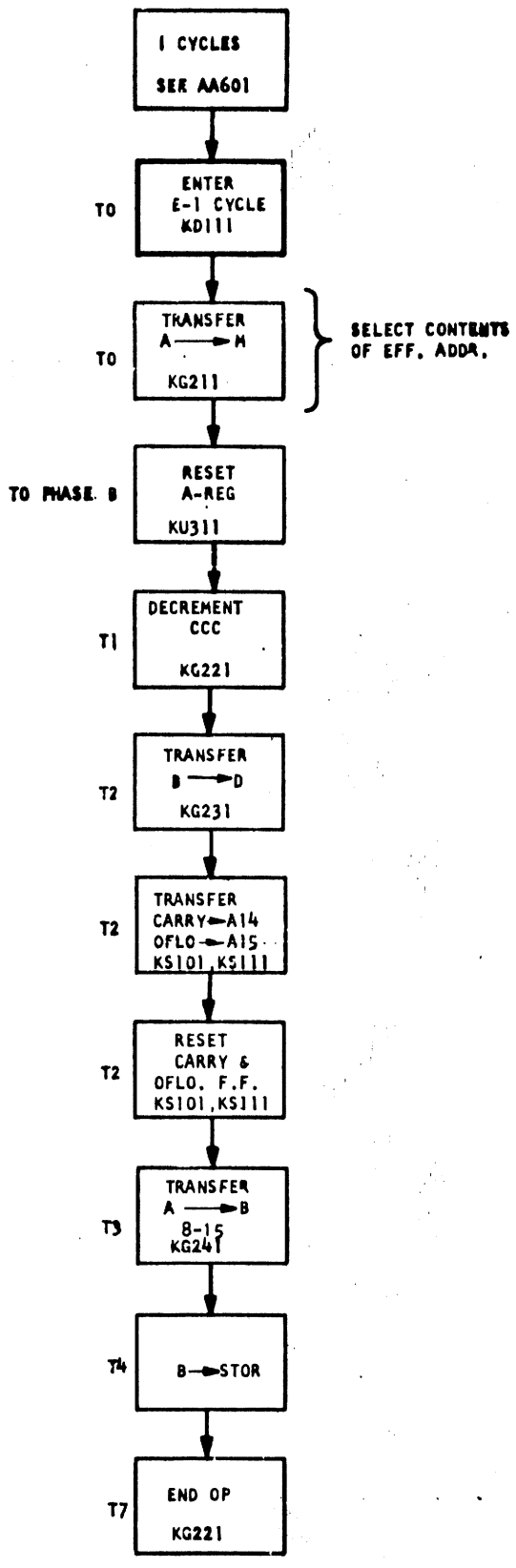
OP CODE 00100 LOAD STATUS
OP CODE ---- WAIT
DATE 5-24-65 | P/N 2201440 | TYPE 1131 | PAGE NO. AA641
IBM

AA641

OP CODE 00101 STORE STATUS

OBJECTIVE:

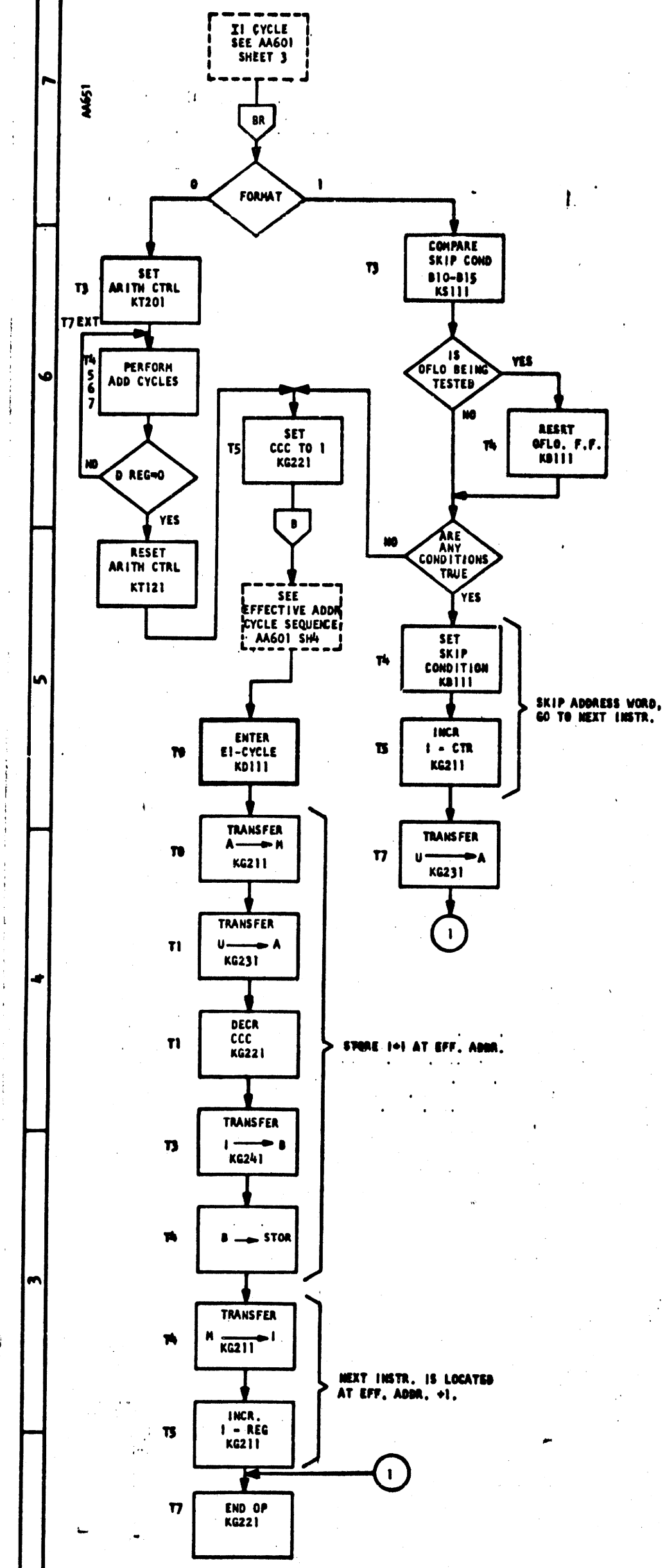
1. STORE THE STATUS OF THE CARRY INDICATOR INTO BIT 14 OF THE CONTENTS OF THE EFF. ADDR.
2. STORE THE STATUS OF THE OVERFLOW INDICATOR INTO BIT 15 OF THE CONTENTS OF THE EFF. ADDR.
3. IF THE INDICATOR IS ON A "ONE" WILL BE STORED.
4. IF THE INDICATOR IS OFF A "ZERO" WILL BE STORED.
5. RESET CARRY AND OVERFLOW.



DATE	EC NUMBER	DATE	EC NUMBER
	4154800		

OP CODE 00101
STORE STATUS
DATE 5-24-65
P/N 2201441
TYPE 1131
IBM
AA642
A A 6 4 2

OP CODE 01000 BRANCH AND STORE INSTRUCTION CTR



BRANCH CONDITIONS

BIT POSITION OF BSI INSTRUCTION	10	11	12	13	14	15
ACCUM = 0	1	0	0	0	0	0
ACCUM < 0	0	1	0	0	0	0
ACCUM > 0	0	0	1	0	0	0
ACCUM IS EVEN	0	0	0	1	0	0
CARRY IS OFF	0	0	0	0	1	0
OFLO IS OFF	0	0	0	0	0	1

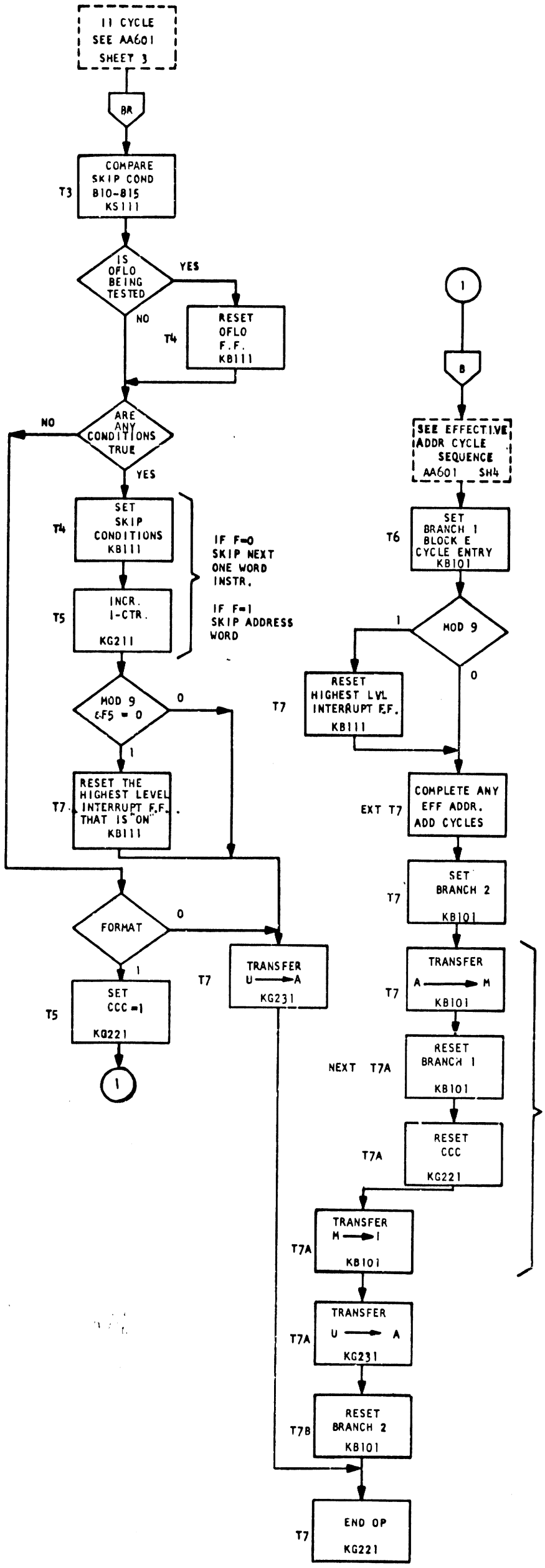
OBJECTIVES:

1. F=0 STORE THE I-CTR. IN THE EFF. ADDR. THE NEXT INSTRUCTION PERFORMED WILL BE AT E.A.+1
2. F=1 IF NONE OF THE BRANCH CONDITIONS BEING TESTED IS TRUE, THE L CTR. IS STORED AT THE EFF. ADDR. THE NEXT INSTR. PERFORMED WILL BE IN EA+1.
3. F=1 IF ANY OF THE BRANCH CONDITIONS BEING TESTED ARE TRUE, THE NEXT INSTRUCTION IN SEQUENCE IS PERFORMED.
4. RESET OVERFLO IF TESTED

OP CODE 01000 BRANCH AND STORE INSTRUCTION CTR	DATE	5-24-65	A1
	P/N	2201443	A1
	TYPE	1131	651
IBM	FACIL NO	AA651	
DATE	EC NUMBER		
	4154000		

OP CODE 01001 BR OR SKIP ON CONDITION

AA652



BRANCH CONDITIONS

BIT POSITION OF BSC INSTRUCTION	10	11	12	13	14	15
ACCUM=0	1	0	0	0	0	0
ACCUM < 0	0	1	0	0	0	0
ACCUM > 0	0	0	1	0	0	0
ACCUM IS EVEN	0	0	0	1	0	0
CARRY IS OFF	0	0	0	0	1	0
OFLO IS OFF	0	0	0	0	0	1

OBJECTIVES:

1. F=0 IF ANY OF THE CONDITIONS BEING TESTED ARE TRUE, THE I-CTR WILL SKIP THE NEXT ONE WORD INSTR.
2. F=1 IF NONE OF THE CONDITIONS BEING TESTED IS TRUE THE PROGRAM WILL BRANCH TO THE EFF. ADDR.
3. MOD 9=1 IF INST. SKIPS WITH F_5=0 OR DOES NOT SKIP WITH F_5=1 (BRANCH) RESET HIGHEST PRIORITY INTERRUPT LEVEL IN OPERATION.
4. RESET OVERFLO IF TESTED.

DATE	EC NUMBER	DATE	EC NUMBER	OP CODE G10C1	A
	4154800			BR OR SKIP ON CONDITION	A 6 5 2
				DATE 5-24-65 P/N 2201444	
				TYPE 1131	
				IBM	AA652

AA652

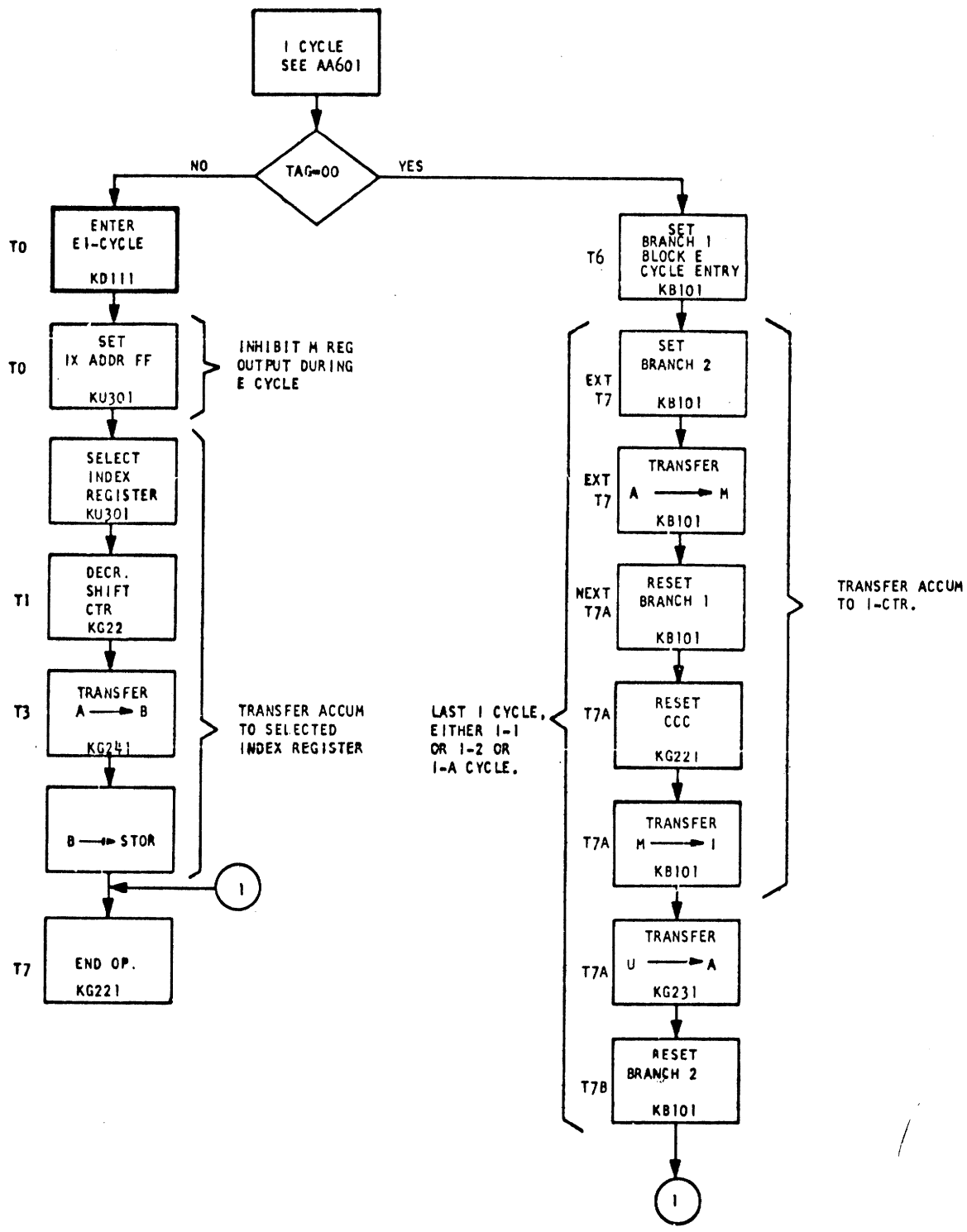
OP CODE 01100 LOAD INDEX

AA661

OBJECTIVES:

1. F=0 LOAD THE I CTR. OR AN INDEX REGISTER WITH THE DISPL.
2. F=1 LOAD THE I CTR. OR AN INDEX REGISTER WITH THE ADDR. PORTION OF THE INSTRUCTION.
3. F=1 MOD 8 LOAD THE I CTR OR AN INDEX REGISTER WITH THE CONTENTS OF THE STORAGE LOCATION SPECIFIED BY THE ADDRESS.

TAG	LOAD
00	I CTR
01	INDEX 1
10	INDEX 2
11	INDEX 3



DATE	EC NUMBER	DATE	EC NUMBER
	4154800		

OP CODE 01100 LOAD INDEX

DATE 5-24-65 | P/N 2201446 | A

TYPE 1131 | A

PAGE NO AA661 | 6

IBM | 1

OP CODE 01101 STORE INDEX

AA662

I CYCLES
SZE AA601

OBJECTIVE:
1. STORE THE I CTR OR AN INDEX REGISTER AT THE EFF. ADDR.

TO ENTER E-1 CYCLE KD111

TO TRANSFER A → M KG211

TRANSFER EFF. ADDR. TO M REG.

YES TAG=00 ··

NO

TO SET XADDR. F.F. KU301

INHIBIT M REG. OUTPUT DURING NEXT E CYCLE

TO SELECT INDEX REG KU301

T1 DECR CCC KG221

T3 TRANSFER I → B KG241

T4 B → STOR

STORE I-CTR. AT LOCATION SPECIFIED BY EFF. ADDR.

(1)

APPROX T2 STOR → B

T2 TRANSFER B → D KG231

T4 TRANSFER D → A DN111

TRANSFER C (INDEX REG) TO ACCUM.

TO ENTER E-2 CYCLE KD111

T1 DECR. CCC KG221

T3 TRANSFER A → B KG241

T4 B → STOR

STORE ACCUM IN LOCATION SPECIFIED BY EFF. ADDR.

(1)

T7 TRANSFER U → A KG231

T7 END OP KG221

DATE	EC NUMBER	DATE	EC NUMBER
	4154600		

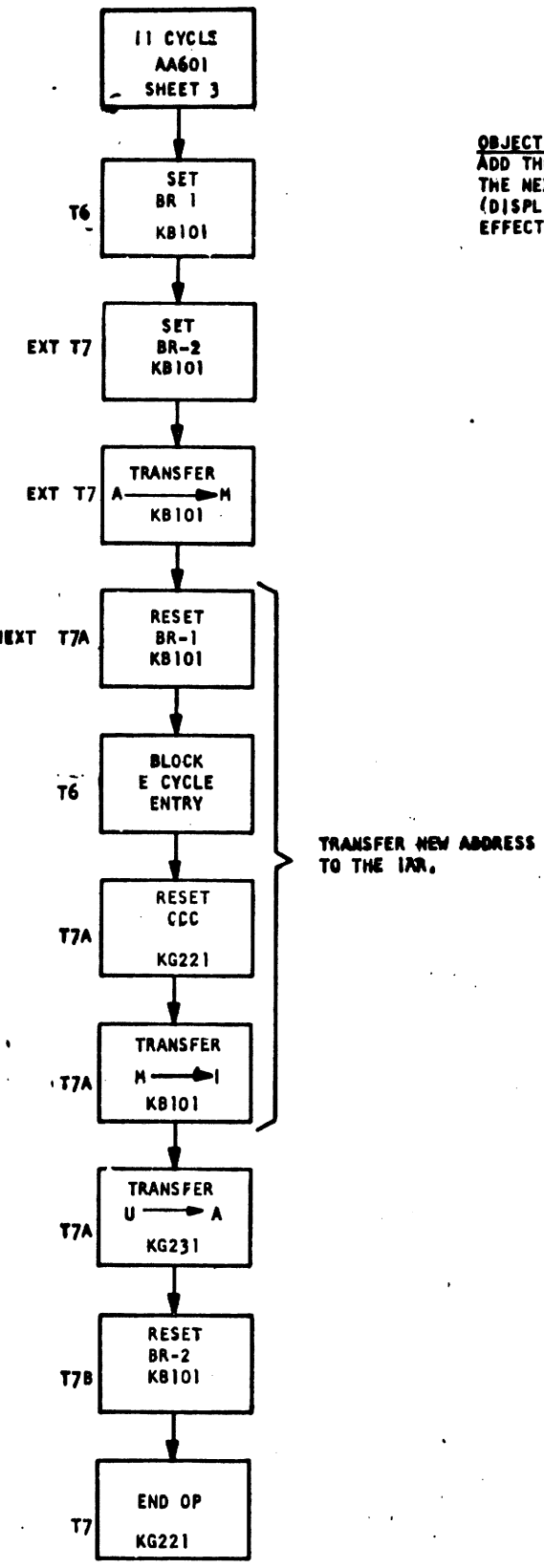
OP CODE 01101
STORE INDEX

DATE	P/N	2201447
5-24-65	TYPE	1131

IBM AA662 A A662

SHEET 1

OP CODE 01110 MODIFY INDEX AND SKIP FORMAT = 0 TAG = 00



OBJECTIVE:
ADD THE DISPLACEMENT TO THE I-COUNTER. THE NEXT INSTRUCTION WILL BE LOCATED AT (DISPL.) + (I-CTR.+1). THIS PROVIDES AN EFFECTIVE BRANCH TO THE NEW IAR VALUE.

DATE	EC NUMBER	DATE	EC NUMBER
	4154800		
OCT 65	4154834		
JAN 66	4157726		
22APR68	4196754		

OP CODE 01110 MODIFY INDEX AND SKIP FORMAT=0 TAG=00

DATE 5-24-65 P/N 2201448

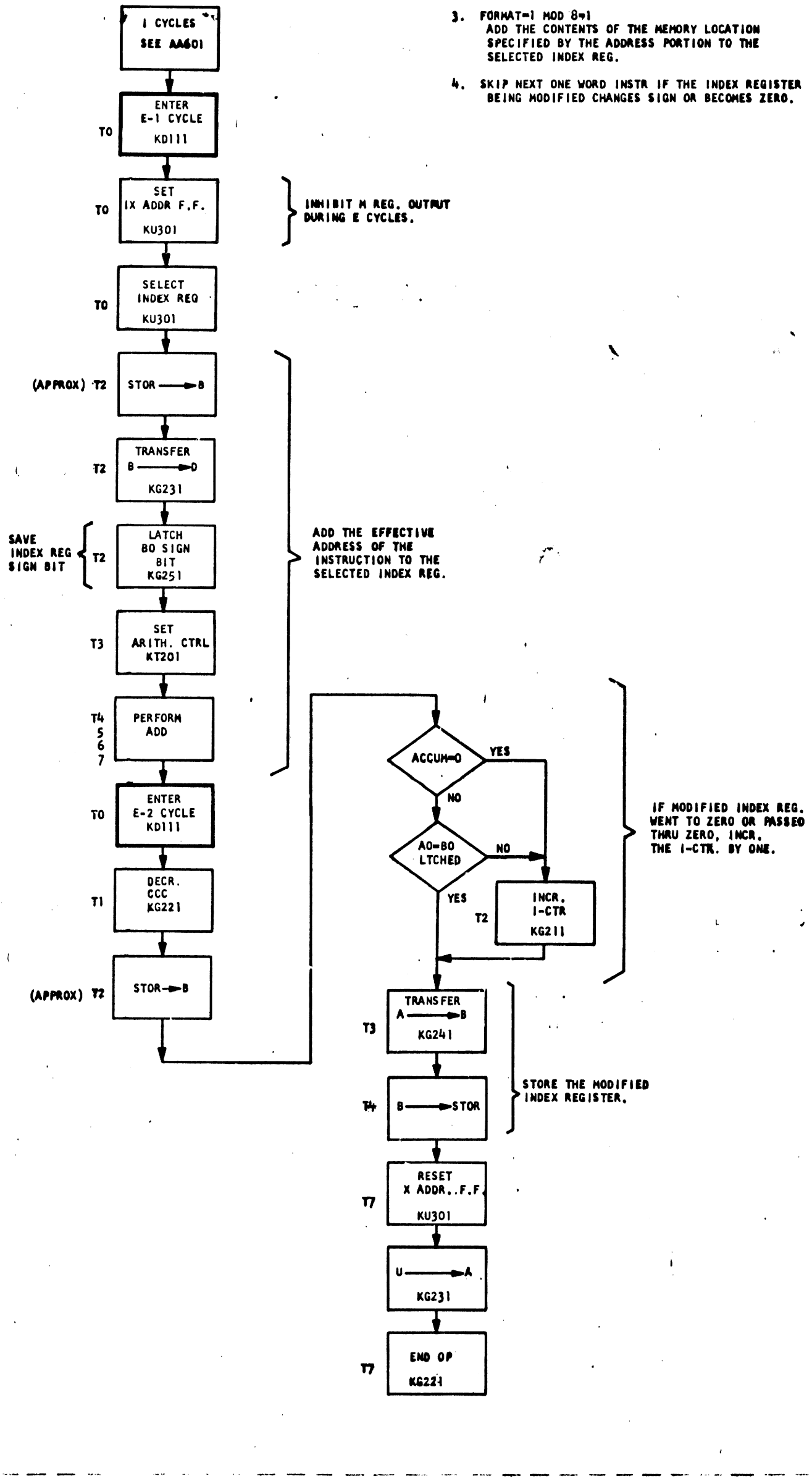
TYPE 1131

IBM AA663

OP CODE 01110 MODIFY
INDEX AND SKIP TAG ≠ 00

OBJECTIVES:

1. FORMAT=0
   ADD DISPLACEMENT TO SELECTED INDEX REGISTER.
2. FORMAT=1 MOD 8=0
   ADD THE ADDRESS PORTION OF THE INSTRUCTION TO THE SELECTED INDEX REGISTER.
3. FORMAT=1 MOD 8≠1
   ADD THE CONTENTS OF THE MEMORY LOCATION SPECIFIED BY THE ADDRESS PORTION TO THE SELECTED INDEX REG.
4. SKIP NEXT ONE WORD INSTR IF THE INDEX REGISTER BEING MODIFIED CHANGES SIGN OR BECOMES ZERO.



DATE	EC NUMBER	DATE	EC NUMBER
	415480D		
OCT 65	415483A		
JAN 66	415726		
APR 68	419675		

OP CODE 01110 MODIFY
INDEX & SKIP TAG≠00

DATE 5-24-65 | P/N 2801448
TYPE 1131

IBM

AA663

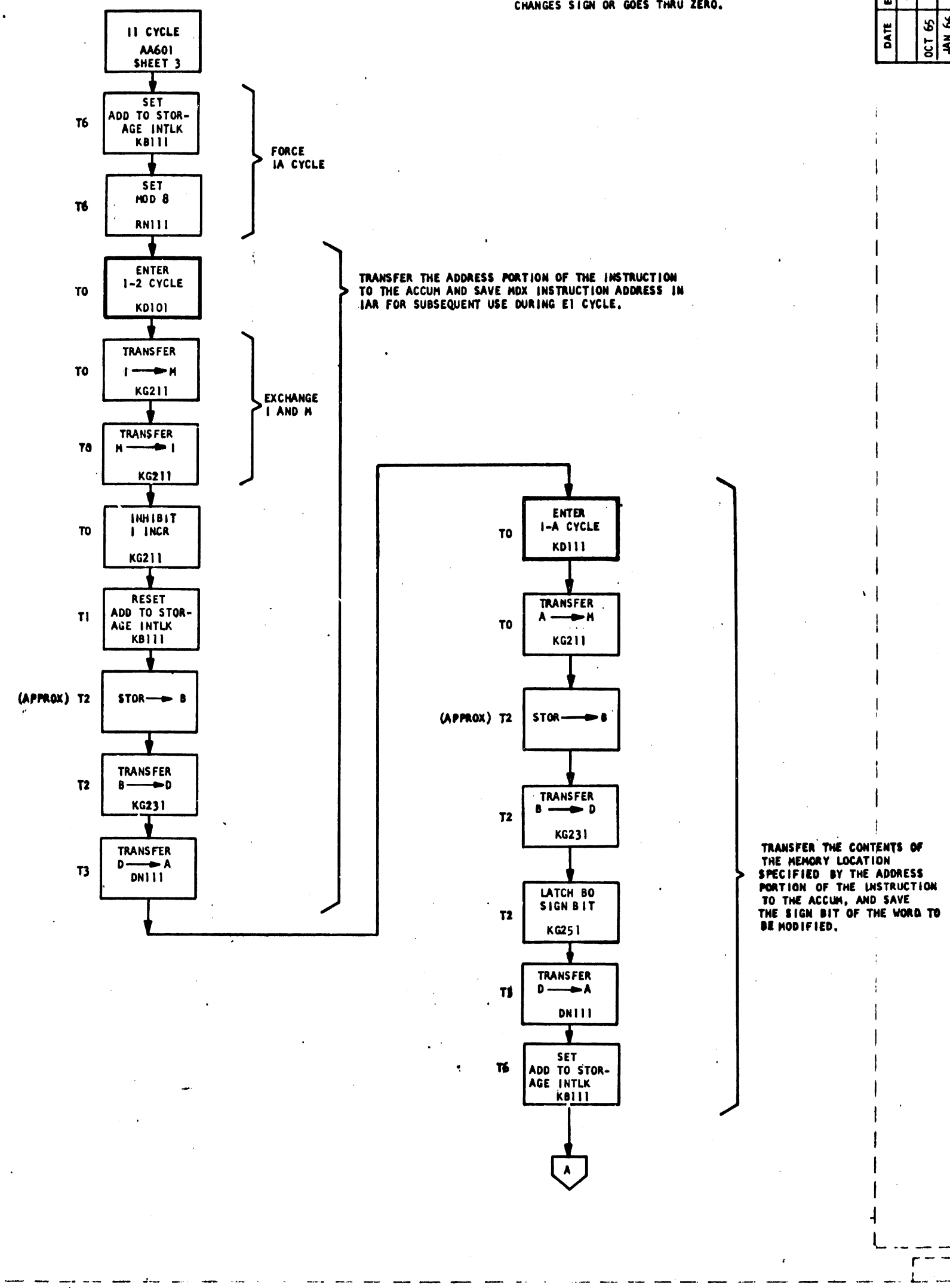
OP CODE 01110 MODIFY INDEX & SKIP - FORMAT = 1 TAG = 00 (ADD TO STORAGE)

SHEET 3

OBJECTIVE:

1. ADD THE DISPLACEMENT TO THE CONTENTS OF THE MEMORY LOCATION SPECIFIED BY THE ADDRESS PORTION OF THE INSTRUCTION.

2. SKIP NEXT ONE WORD INSTR. IF MODIFIED WORD CHANGES SIGN OR GOES THRU ZERO.



DATE	EC NUMBER	DATE	EC NUMBER
	4154800		
OCT 65	4154834		
JAN 66	415726		
APR 68	419675		

OP CODE 01110 MODIFY INDEX & SKIP-FORMAT=1 TAG=00

DATE 5-24-65 | P/N 2201448

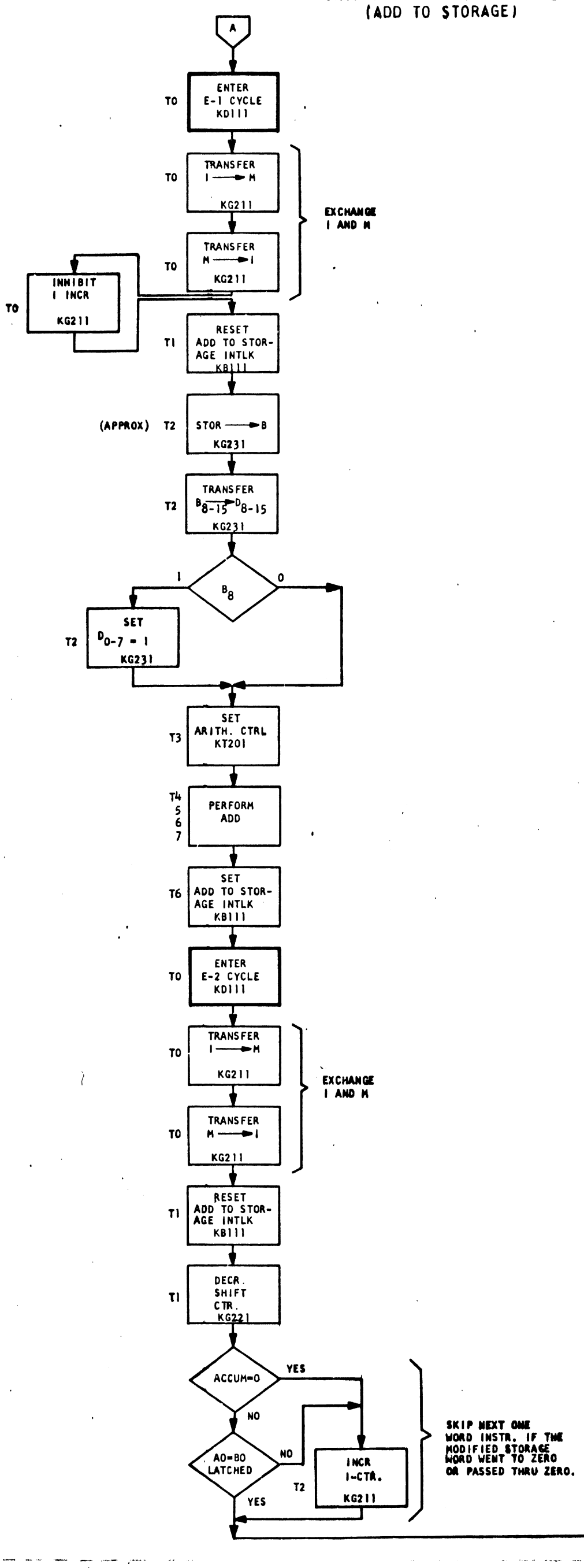
TYPE 1131

IBM

AA663

OP CODE 01110 MODIFY INDEX & SKIP FORMAT = 1 TAG = 00 (ADD TO STORAGE)

SHEET 4



ADD DISPLACEMENT OF MDX INSTUCTION TO THE MEMORY WORD SPECIFIED BY THE ADDRESS , AND SAVE ADDRESS FOR E2 CYCLE.

DATE	EC NUMBER	DATE	EC NUMBER
	4154800	OCT 65	4154834
JAN 66	4157226	APR 68	4196754

OP CODE 01110 MODIFY INDEX & SKIP FORMAT=1 TAG=00

DATE 5-24-65 P/N 2201448 TYPE 1131

IBM AA663

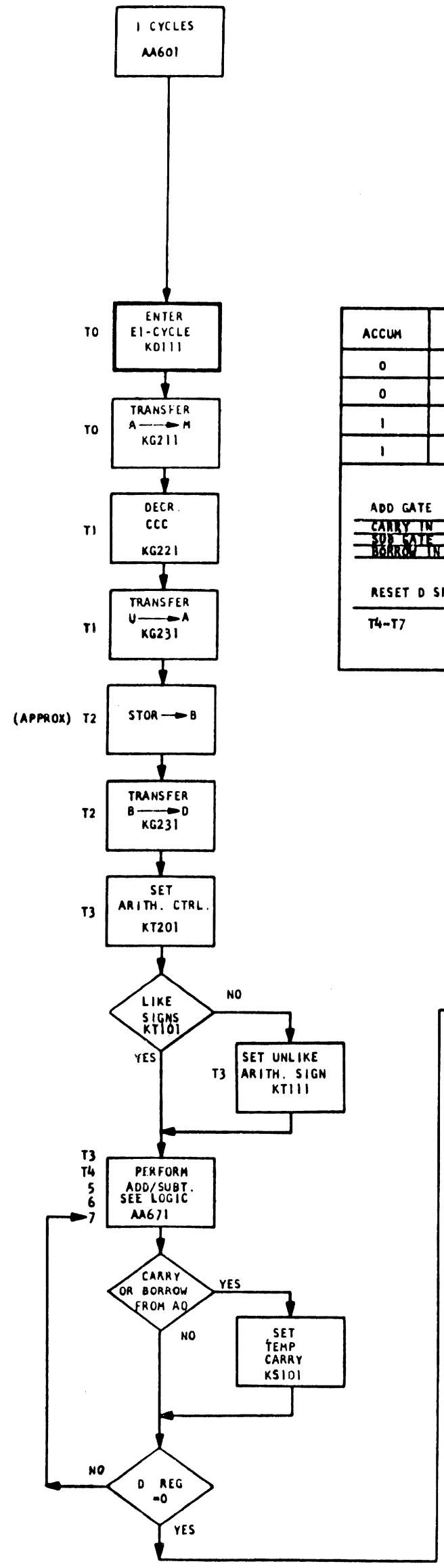
OP CODE 10000 ADD/
OP CODE 10010 SUBT

DATE	EC NUMBER	DATE	EC NUMBER
22APR68	4196575		
	4154800		

OP CODE 10000 ADD
OP CODE 10010 SUBTRACT
DATE 5-24-65 P N 2201450 TYPE 1151
IBM AA671

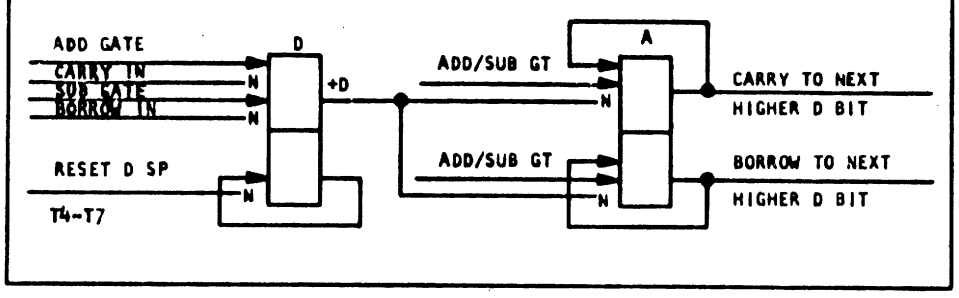
OBJECTIVES:

1. ADD (OR SUBT.) THE CONTENTS OF THE EFF. ADDR. TO THE ACCUM. THE RESULT WILL BE IN THE ACCUM.
2. TURN ON OVERFLO INDICATOR:
   IF SUM > $2^{15} - 1$
   IF DIFF < -2^{15}
3. SET CARRY IF CARRY OR BORROW IS DETECTED OUT OF A0.



ADD/SUBTRACT LOGIC

ACCUM	D REG	SUM / DIFF	CARRY	BORROW	ACTION ON RESET D REG S.P.
0	0	0	0	0	NO ACTION
0	1	1	0	1	RESET D, SET A, GENERATE BORROW
1	0	1	0	0	NO ACTION
1	1	0	1	0	RESET D, RESET A, GENERATE CARRY



ADD/SUB OVERFLO

ACCUM RESULT NEG(A0=1)	TEMP CARRY OR BORROW	ARITH SIGN (UNLIKE)	OVERFLO
POS	0	LIKE	NO
POS	0	UNLIKE	YES
POS	1	LIKE	YES
POS	1	UNLIKE	NO
NEG	0	LIKE	YES
NEG	0	UNLIKE	NO
NEG	1	LIKE	NO
NEG	1	UNLIKE	YES

OP CODE 10001 DBL PRECISION ADD
OP CODE 10011 DBL PRECISION SUBT

OBJECTIVES:

1. ADD OR SUBTRACT THE CONTENTS OF EA AND EA + 1 TO THE ACCUM AND THE ACCUM EXT (QREQ) AS ONE DOUBLE PRECISION (32 BIT) WORD.
2. EA MUST BE EVEN FOR CORRECT OPERATION.
3. SET CARRY AND OVERFLO AS IN SINGLE ADD OR SUB.

DATE	EC NUMBER	DATE	EC NUMBER
	415480D		
OCT 65	4154834		
JAN 66	415726		
22APR68	419575		

OP CODE 10001 DBL PRECISION
AND OP CODE 10011 DBL PRECISION SUBT

DATE 5-24-65 | P/N 2201451 | TYPE 1131

IBM

AA672

OP CODE 10100 MULTIPLY

SHEET 1

OBJECTIVE:

1. MULTIPLY CONTENTS OF EFFECTIVE ADDRESS BY THE CONTENTS OF THE ACCUMULATOR.
2. THE RESULT WILL BE A 32 BIT DOUBLE PRECISION PRODUCT LOCATED IN THE ACCUM AND EXT.
3. THERE IS NO CARRY OR OVERFLO IN MULTIPLY.

ALGORITHM:

1. RAPID MULTIPLICATION DEPENDS ON THE FACT THAT ANY BINARY NUMBER MAY BE REPRESENTED BY POWERS OF TWO AS FOLLOWS.

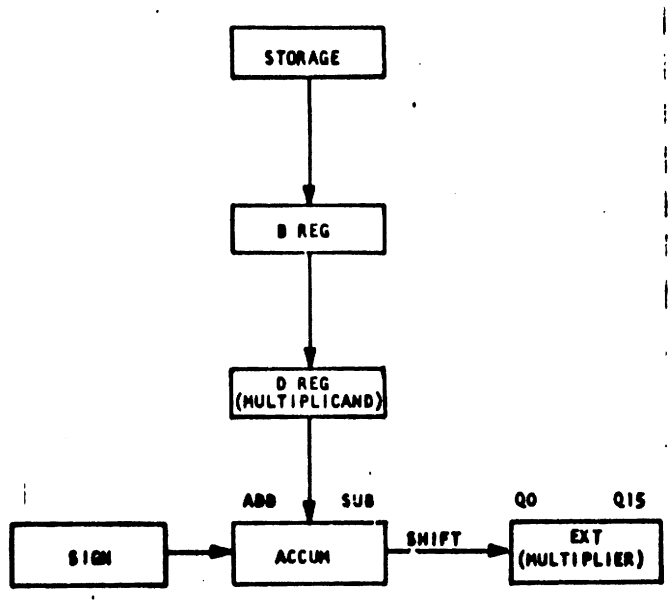
PWR OF 2	8 7 6 5 4 3 2 1 0	RAPID EQUIV	LONG EQUIVALENT
BINARY	0 0 1 1 1 1 0 1 0	$2^7-2^3+2^1$	$2^6+2^5+2^4+2^3+2^1$
BINARY	0 0 1 1 1 0 1 1 1	$2^7-2^3-2^0$	$2^6+2^5+2^4+2^2+2^1+2^0$

2. THUS IT IS NOT NECESSARY TO FORM THE PARTIAL PRODUCT BY ADDING FOR EACH BIT POSITION. WE MAY EXAMINE THE MULTIPLIER (TWO LOWEST ORDER BITS AT A TIME) TO DETERMINE WHEN TO ADD THE MULTIPLICAND, WHEN TO SUBTRACT, OR WHEN TO JUST SHIFT THE MULTIPLIER.

MULTIPLIER Q14	MULTIPLIER Q15	PREVIOUS ACTION	NEW ACTION	EXPLANATION
0	0	ADD	SHIFT	NO ACTION
0	1	ADD	ADD,SHIFT	SINGLE ONE IN STRING OF ZEROS
1	0	ADD	SHIFT	NO ACTION
1	1	ADD	SUB,SHIFT	START STRING OF ONES
0	0	SUB	ADD,SHIFT	END OF STRING OF ONES
0	1	SUB	SHIFT	NO ACTION
1	0	SUB	SUB,SHIFT	SINGLE ZERO IN STRING OF ONES
1	1	SUB	SHIFT	NO ACTION

3. THIS ALGORITHM PERMITS THE 1130 TO USE FEWER ADD CYCLES THAN WOULD BE POSSIBLE WITH CONVENTIONAL MULTIPLY.

4. DATA FLOW.



DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	4154834	22APR68	4196751

OP CODE 10100 MULTIPLY

DATE · NOV 65 P/N 2201452 TYPE 1130

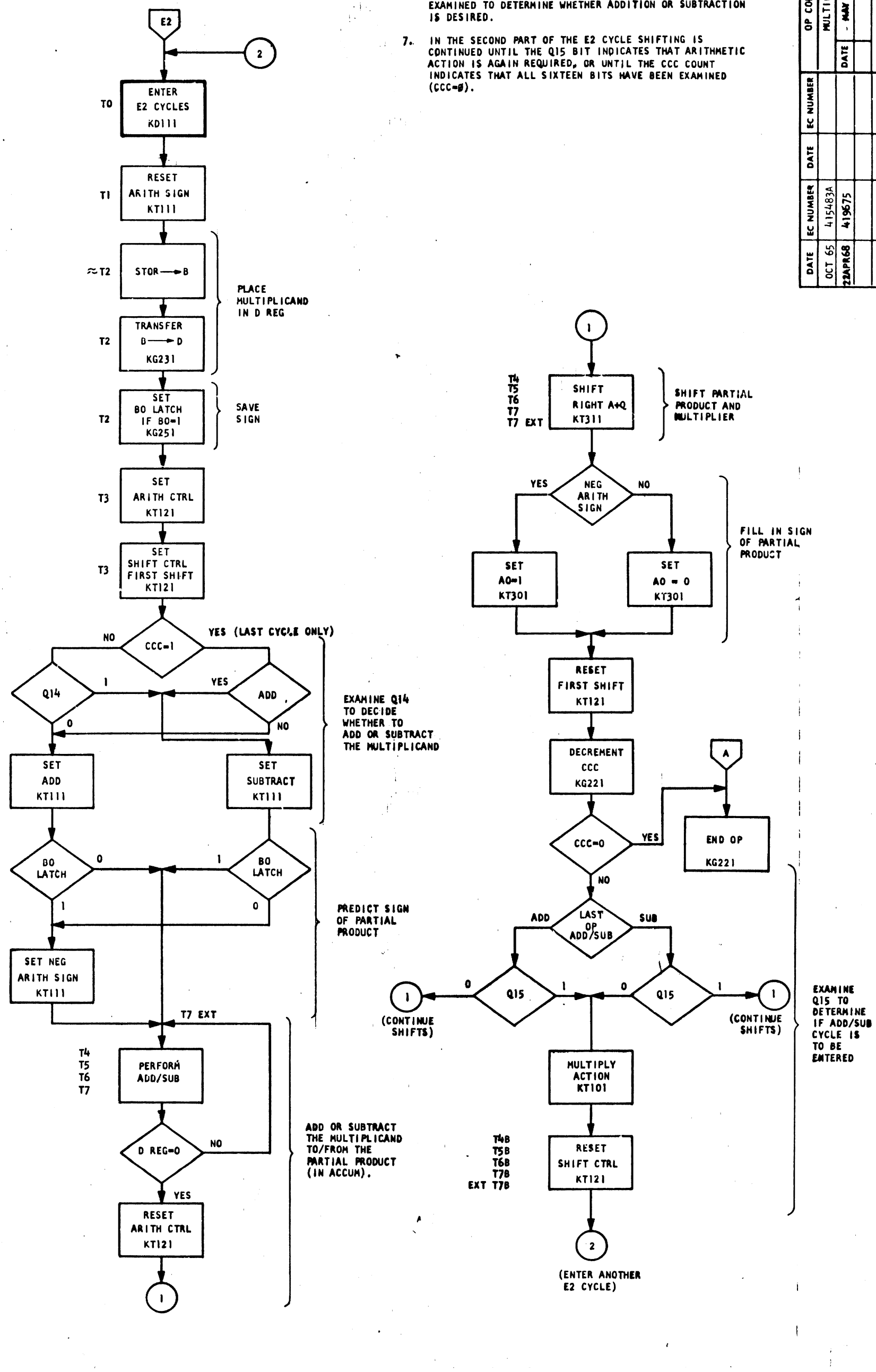
IBM AA673

OP CODE 10100 MULTIPLY

SHEET 2

ALGORITHM (CONT):

5. MULTIPLY E2 CYCLES ARE ENTERED WHEN AN EXAMINATION OF THE Q15 BIT INDICATES THAT IT IS DESIRED TO ADD OR SUBTRACT THE MULTIPLICAND TO/FROM THE ACCUMULATOR PARTIAL PRODUCT.
6. IN THE FIRST PART OF THE E2 CYCLE THE Q14 BIT IS EXAMINED TO DETERMINE WHETHER ADDITION OR SUBTRACTION IS DESIRED.
7. IN THE SECOND PART OF THE E2 CYCLE SHIFTING IS CONTINUED UNTIL THE Q15 BIT INDICATES THAT ARITHMETIC ACTION IS AGAIN REQUIRED, OR UNTIL THE CCC COUNT INDICATES THAT ALL SIXTEEN BITS HAVE BEEN EXAMINED (CCC=0).



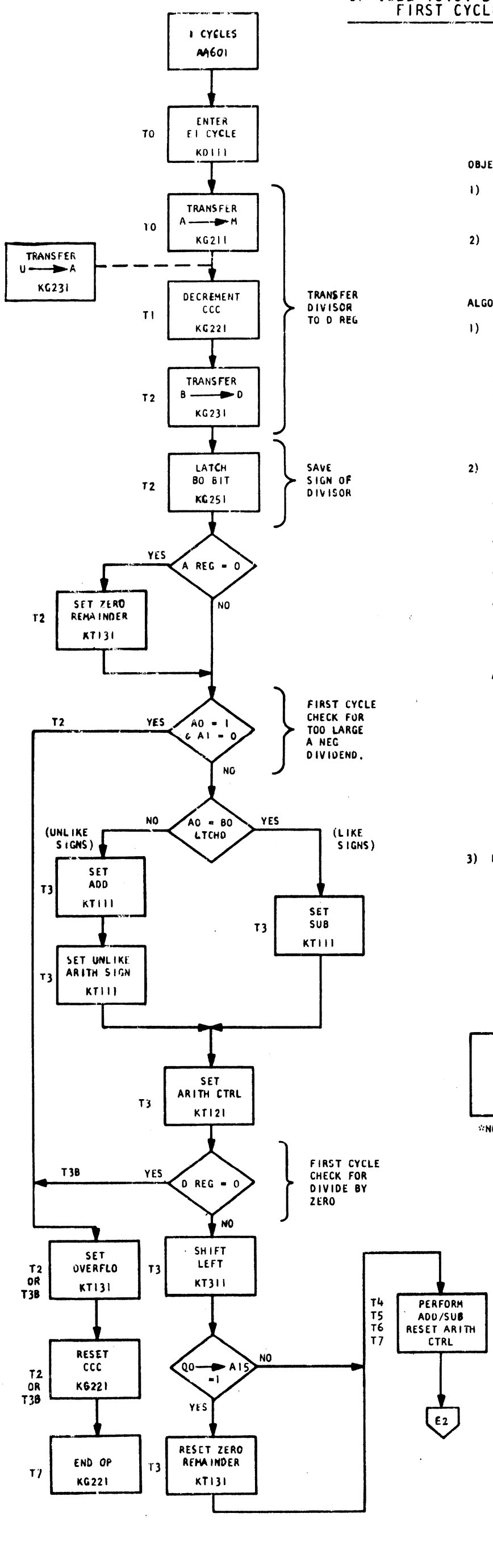
DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	415483A		
22APR68	419675		

OP CODE 10100 MULTIPLY

DATE - MAY 65 P/N 2201452 TYPE 1130

IBM AA673

OP CODE 10101 DIVIDE
FIRST CYCLE



OBJECTIVES:

1) THE CONTENTS OF THE ACCUMULATOR AND THE Q REG (TREATED AS A 32 BIT DOUBLE PRECISION WORD) ARE DIVIDED BY THE CONTENTS OF THE EFFECTIVE ADDRESS.

2) AT THE END OF THE OPERATION, THE QUOTIENT WILL BE FOUND IN THE ACCUMULATOR AND THE REMAINDER IN THE Q REGISTER.

ALGORITHM:

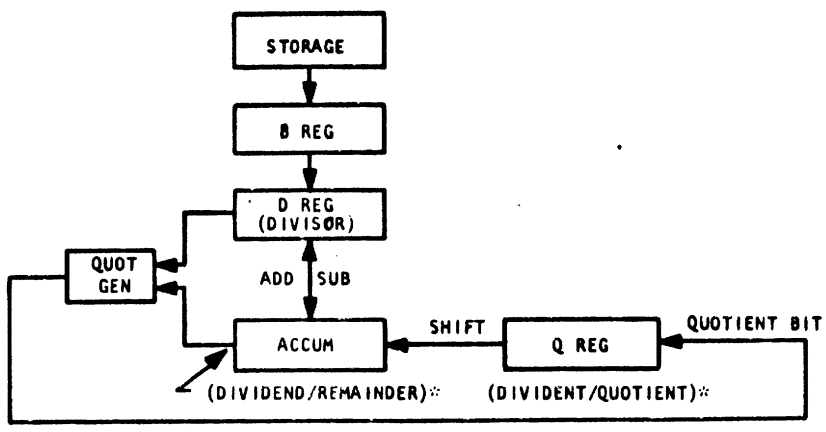
1) THE QUOTIENT OF TWO BINARY NUMBERS MAY BE GENERATED BY SUCCESSIVELY SHIFTING AND SUBTRACTING THE DIVISOR FROM APPROPRIATE ORDERS OF THE DIVIDEND. IF THE SUBTRACTION WAS SUCCESSFUL (REMAINDER SIGN BIT SAME AS DIVISOR SIGN BIT) A QUOTIENT ONE BIT IS GENERATED AND ANOTHER REDUCTION CYCLE IS TRIED. IF THE SUBTRACTION WAS NOT SUCCESSFUL (REMAINDER SIGN BIT NOT THE SAME AS DIVISOR SIGN BIT) A QUOTIENT ZERO BIT IS GENERATED AND AN ADDITION CYCLE IS TAKEN TO RESTORE THE REMAINDER.

2) THIS SHIFT-ADD/SUB PROCEDURE MAY BE ILLUSTRATED AS FOLLOWS: DIVIDE BINARY 00111001 (57) BY 0101 (5)

		QUOTIENT
SHIFT & SUB:	0 0 1 1 1 0 0 1 0 1 0 1	
	+ 0 0 0 1 0 0 0 1	1
SHIFT & SUB:	0 1 0 1	
	- 1 1 1 1 1 1 0 1	0
SHIFT & ADD:	0 1 0 1	
	0 0 0 0 0 1 1 1	1
SHIFT & SUB:	0 1 0 1	
	+ 0 0 0 0 0 0 1 0	1

ANSWER: QUOTIENT 1011 (11) REMAINDER 0010 (2).

3) DATA FLOW



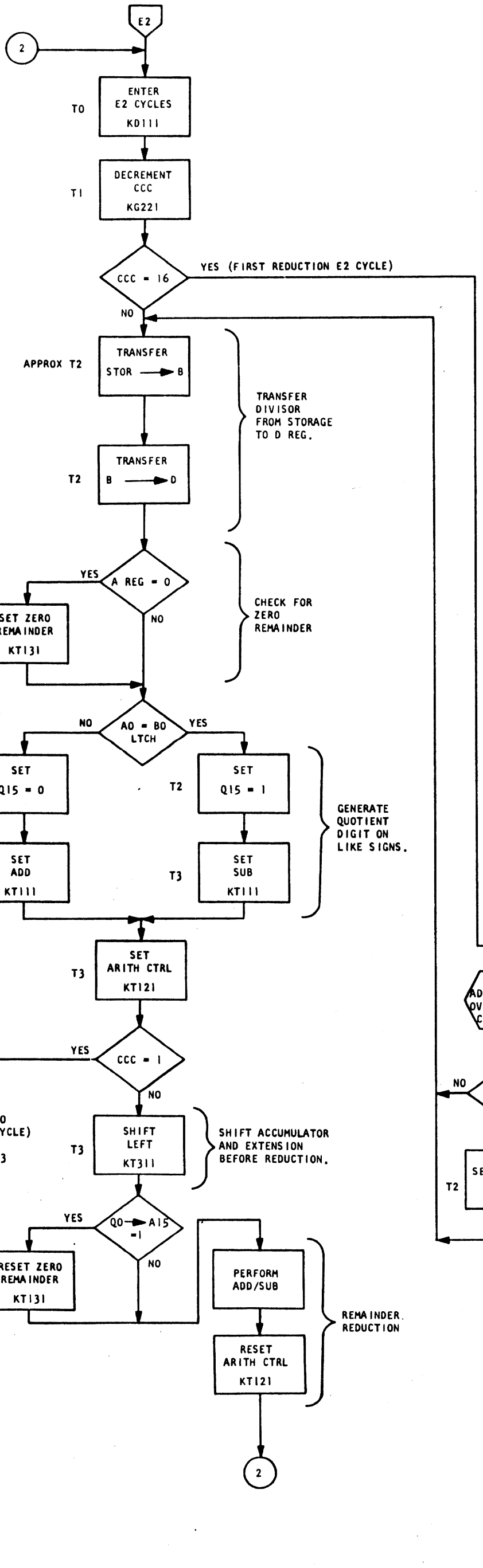
*NOTE THAT A AND Q ARE EXCHANGED AT END OF OP.

DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	415463A		
22APR68	419675		

OP CODE 10101 DIVIDE
DATE AUG 65 P/N 2201453
TYPE 1130
IBM
AA674

OP CODE 10101 DIVIDE REDUCTION CYCLES

SHEET 2



ALGORITHM (CONT.):

4) THE DIVIDE INSTRUCTION CONSUMES EIGHTEEN E CYCLES (ONE E1 AND SEVENTEEN E2). DURING THE FIRST SIXTEEN THE QUOTIENT IS BUILT UP BY THE SHIFT-ADD/SUB PROCESS. THE SEVENTEENTH AND EIGHTEENTH CYCLE ARE USED FOR CORRECTION AND CHECKING AS EXPLAINED ON SHEET 3.

5) OVERFLOW:

THE PURPOSE OF DIVIDE OVERFLO IS TO DETECT QUOTIENT OVERFLO CONDITIONS RESULTING FROM A DIVIDEND WHICH IS TOO LARGE IN RELATION TO THE DIVISOR. THIS MAY BE BROKEN DOWN AS FOLLOWS:

5.1 FIRST CYCLE CHECKS -

CHECK FOR ZERO DIVISOR
CHECK FOR TOO LARGE A NEGATIVE DIVIDEND

5.2 CHECKS AFTER FIRST REDUCTION CYCLE -

CHECKS FOR A REMAINDER WHICH IS TOO LARGE TO BE REPRESENTED CORRECTLY IN THE ACCUMULATOR (SIMILAR TO ADD/SUB OVERFLOW). CHECKS FOR EXCEPTIONAL CASES (OF UNLIKE DIVIDEND AND DIVISOR SIGNS), WHICH ARE NOT DETECTABLE BY THE LAST CYCLE CHECK.

5.3 LAST CYCLE CHECK -

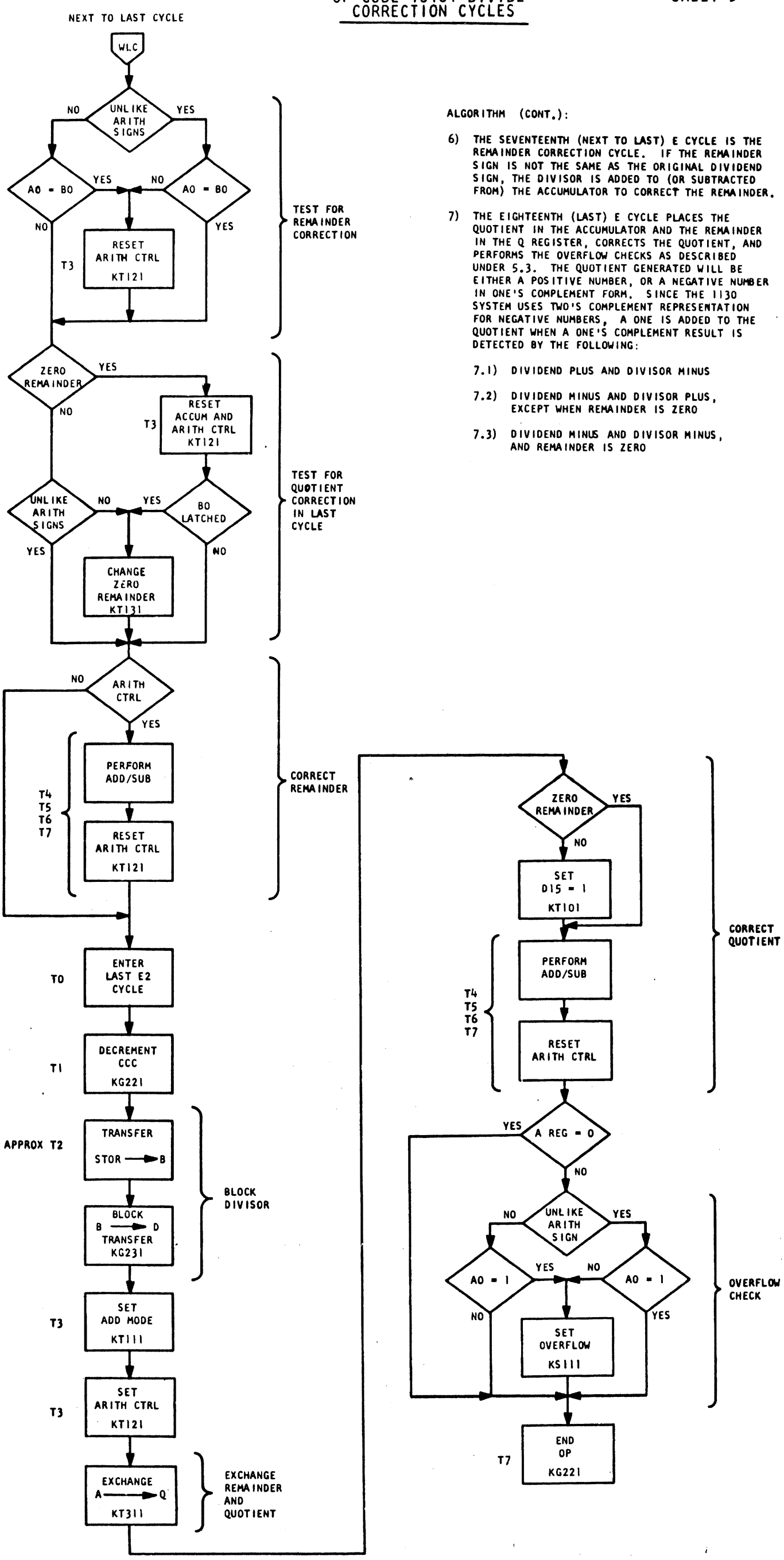
CHECKS THAT LIKE DIVIDEND AND DIVISOR SIGNS GIVE A POSITIVE QUOTIENT. CHECKS THAT UNLIKE DIVIDEND AND DIVISOR SIGNS GIVE A NEGATIVE QUOTIENT.

DATE	EC NUMBER	DATE	EC NUMBER	OP CODE 10101 DIVIDE		
OCT 65	415483A			DATE AUG 65	P/N 2201453	AA674
22APR68	419675				TYPE 1130	

IBM

OP CODE 10101 DIVIDE CORRECTION CYCLES

SHEET 3



ALGORITHM (CONT.):

6) THE SEVENTEENTH (NEXT TO LAST) E CYCLE IS THE REMAINDER CORRECTION CYCLE. IF THE REMAINDER SIGN IS NOT THE SAME AS THE ORIGINAL DIVIDEND SIGN, THE DIVISOR IS ADDED TO (OR SUBTRACTED FROM) THE ACCUMULATOR TO CORRECT THE REMAINDER.

7) THE EIGHTEENTH (LAST) E CYCLE PLACES THE QUOTIENT IN THE ACCUMULATOR AND THE REMAINDER IN THE Q REGISTER, CORRECTS THE QUOTIENT, AND PERFORMS THE OVERFLOW CHECKS AS DESCRIBED UNDER 5.3. THE QUOTIENT GENERATED WILL BE EITHER A POSITIVE NUMBER, OR A NEGATIVE NUMBER IN ONE'S COMPLEMENT FORM. SINCE THE 1130 SYSTEM USES TWO'S COMPLEMENT REPRESENTATION FOR NEGATIVE NUMBERS, A ONE IS ADDED TO THE QUOTIENT WHEN A ONE'S COMPLEMENT RESULT IS DETECTED BY THE FOLLOWING:

7.1) DIVIDEND PLUS AND DIVISOR MINUS

7.2) DIVIDEND MINUS AND DIVISOR PLUS, EXCEPT WHEN REMAINDER IS ZERO

7.3) DIVIDEND MINUS AND DIVISOR MINUS, AND REMAINDER IS ZERO

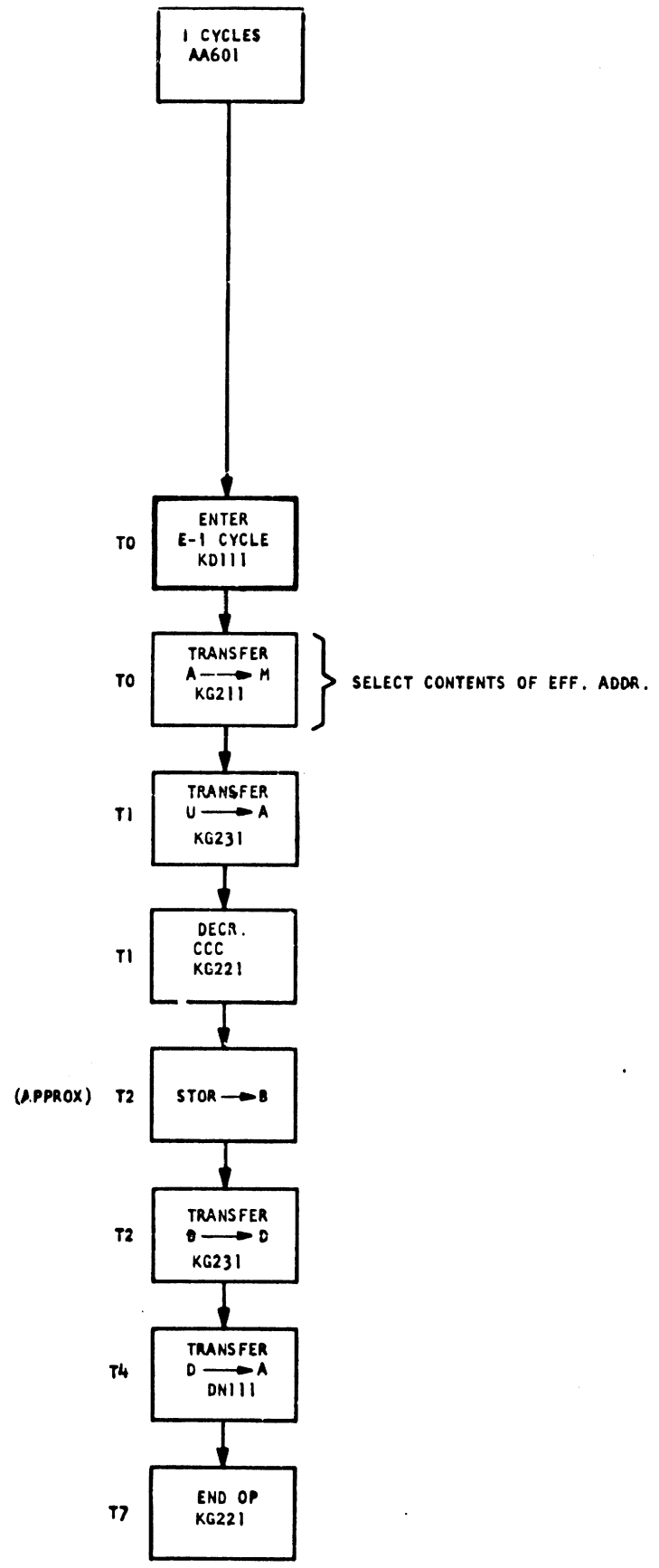
DATE	EC NUMBER	DATE	EC NUMBER	OP CODE 10101 DIVIDE	DATE	P/N	
OCT 65	415483A				AUG 65	TYPE	AA674
22APR68	419675					1130	IBM
						2201453	

OP CODE 11000
LOAD ACCUM

AA681

OBJECTIVES:

TRANSFER THE CONTENTS OF THE EFF. ADDR. INTO THE ACCUM.

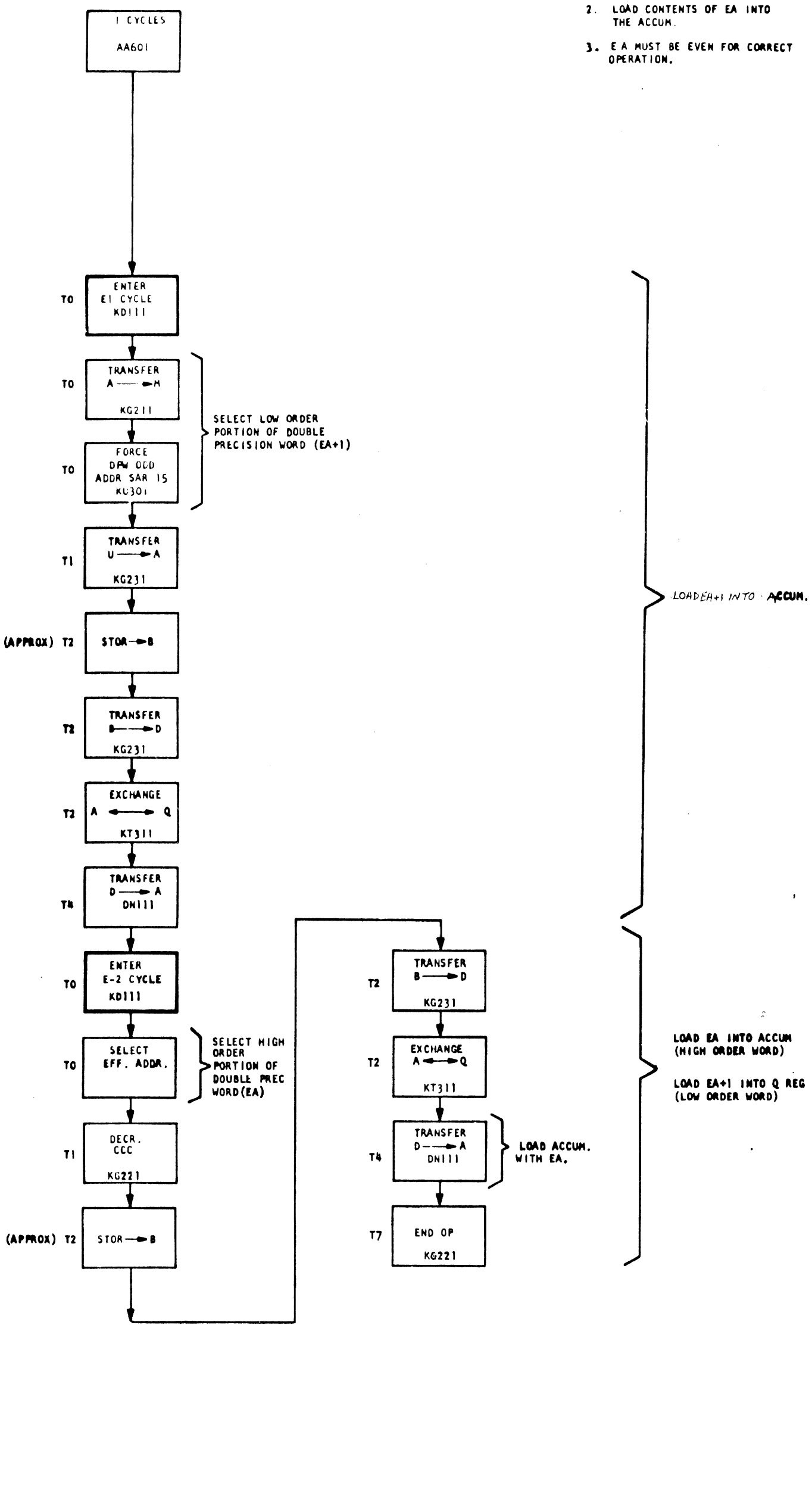


DATE	EC NUMBER	DATE	EC NUMBER	1 OP CODE 11000 LOAD ACCUM
	4154800			DATE 5-24-65 P/N 2201455 TYPE 1131 IBM AA681

OP CODE 11001 DOUBLE PREC LOAD

OBJECTIVES:

1. LOAD CONTENTS OF EA+1 INTO THE Q REG.
2. LOAD CONTENTS OF EA INTO THE ACCUM.
3. E A MUST BE EVEN FOR CORRECT OPERATION.



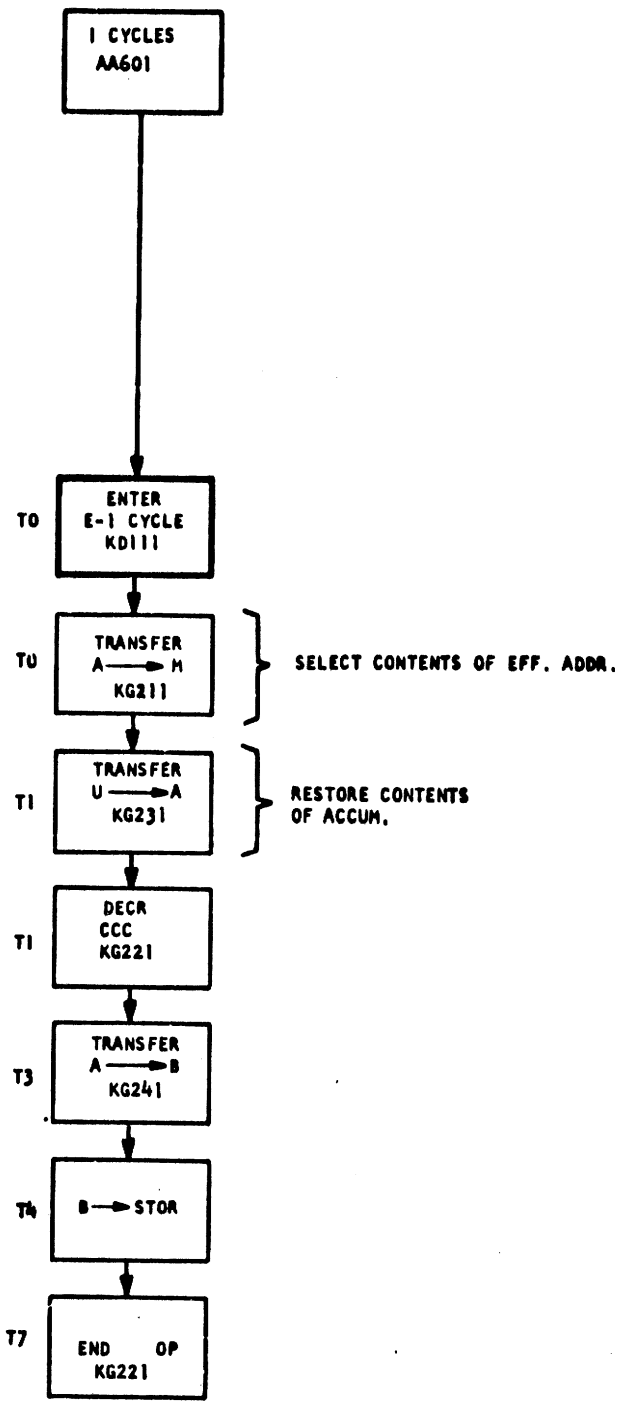
DATE	EC NUMBER	DATE	EC NUMBER	OP CODE 11001 DOUBLE PREC LOAD			
	4154800			DATE	5-24-65	P/N	2201456
OCT 65	4154834					TYPE	1131

IBM AA682

OP CODE 11010 STORE ACCUM

AA683

OBJECTIVE:
STORE THE ACCUM INTO THE EFF. ADDR.



DATE	EC NUMBER	DATE	EC NUMBER
	4154800		

OP CODE 11010
STORE ACCUMULATOR

DATE	5-24-65	P/N	2201457
		TYPE	1131

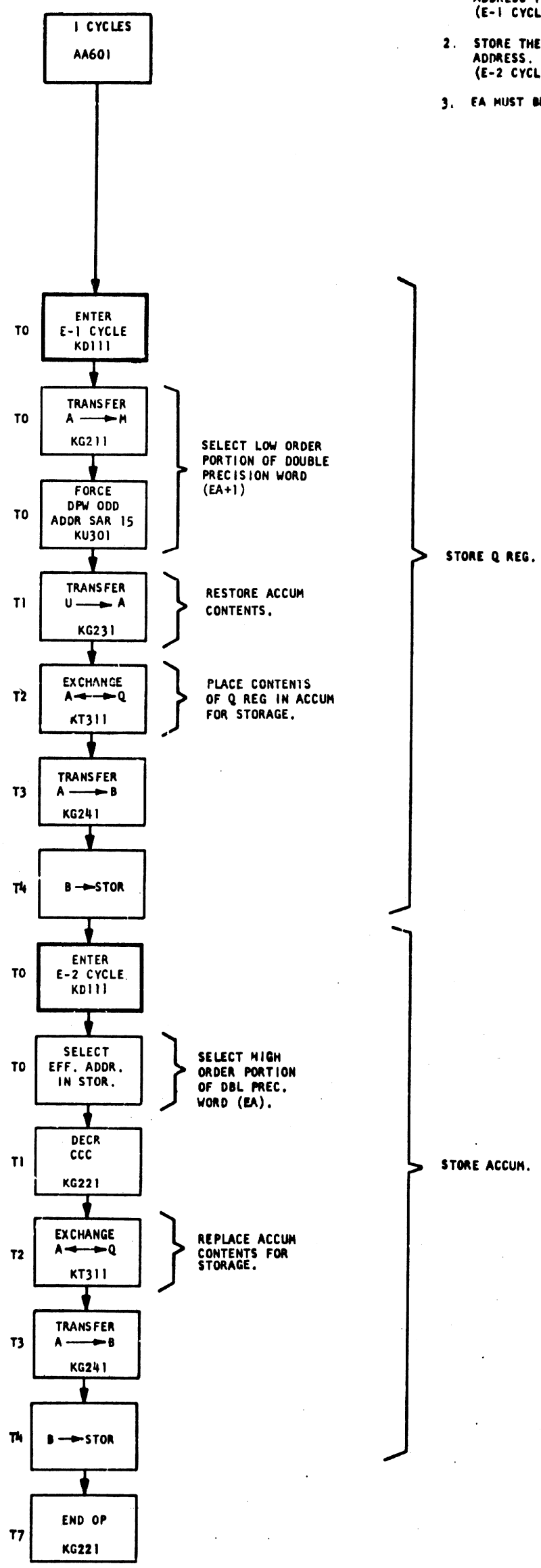
IBM

PAGE NO AA683

OP CODE 11011
DOUBLE PREC STORE

OBJECTIVES:

1. STORE THE Q REG. INTO THE EFFECTIVE ADDRESS PLUS ONE. (E-1 CYCLE)
2. STORE THE ACCUM INTO THE EFFECTIVE ADDRESS. (E-2 CYCLE)
3. EA MUST BE EVEN FOR CORRECT OPERATION.



DATE	EC NUMBER	DATE	EC NUMBER	DATE
	4154800			
OCT 65	4154834			

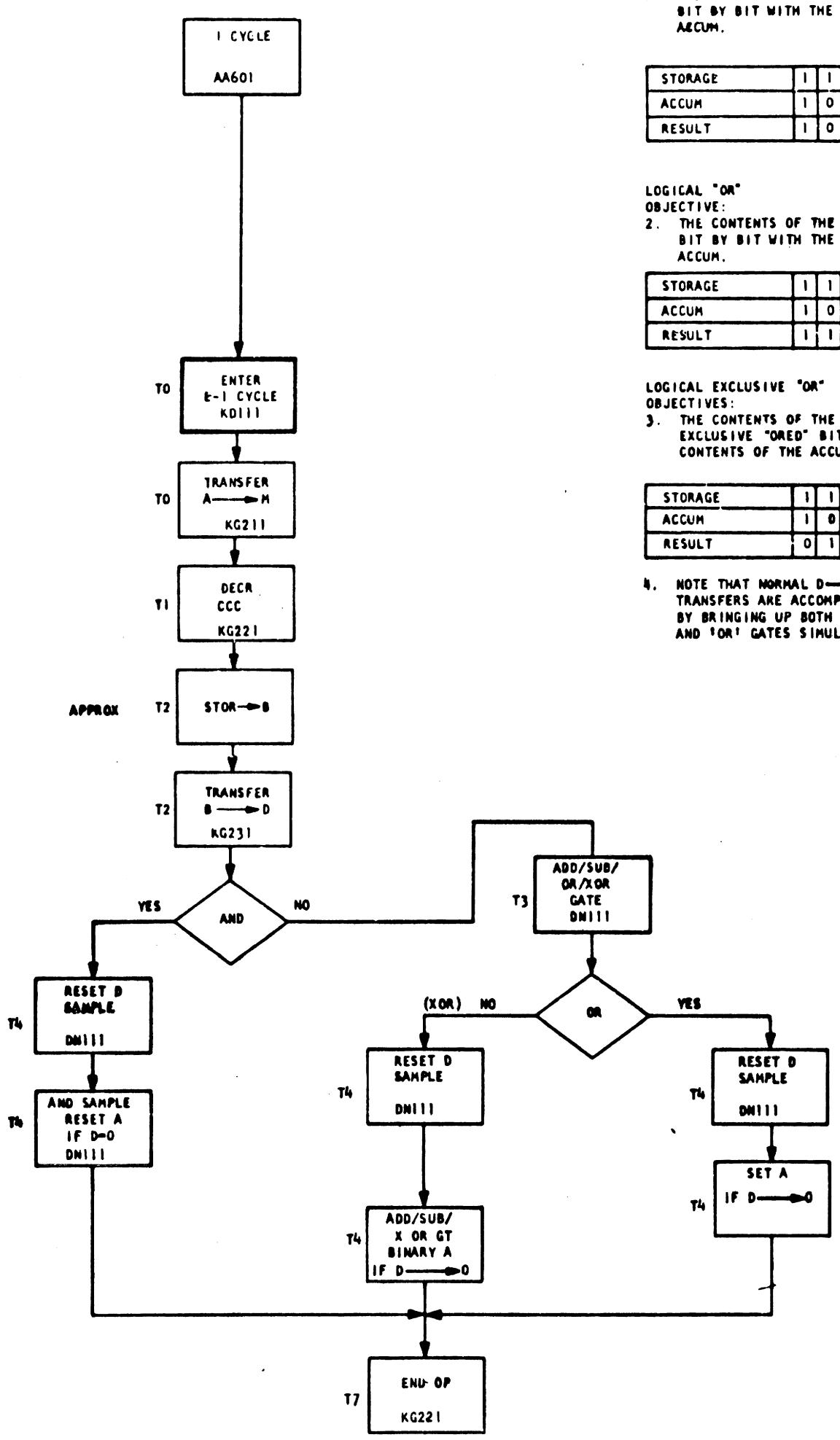
OP CODE 11011
DOUBLE PREC STORE

DATE 5-24-65 | P/N 2201458 | TYPE 1131

IBM

AA684

OP CODE 11100 LOGICAL AND/OP CODE 11101 LOGICAL OR/OP CODE 11110 LOGICAL EXCLUSIVE OR



LOGICAL "AND"
OBJECTIVE:
1. THE CONTENTS OF THE EFF. ADDR ARE "ANDED" BIT BY BIT WITH THE CONTENTS OF THE ACCUM.

STORAGE	1	1	0	0
ACCUM	1	0	1	0
RESULT	1	0	0	0

LOGICAL "OR"
OBJECTIVE:
2. THE CONTENTS OF THE EFF. ADDR. ARE "ORED" BIT BY BIT WITH THE CONTENTS OF THE ACCUM.

STORAGE	1	1	0	0
ACCUM	1	0	1	0
RESULT	1	1	1	0

LOGICAL EXCLUSIVE "OR"
OBJECTIVES:
3. THE CONTENTS OF THE EFF. ADDR. ARE EXCLUSIVE "ORED" BIT BY BIT WITH THE CONTENTS OF THE ACCUM.

STORAGE	1	1	0	0
ACCUM	1	0	1	0
RESULT	0	1	1	0

4. NOTE THAT NORMAL D ⟶ A TRANSFERS ARE ACCOMPLISHED BY BRINGING UP BOTH 'AND' AND 'OR' GATES SIMULTANEOUSLY.

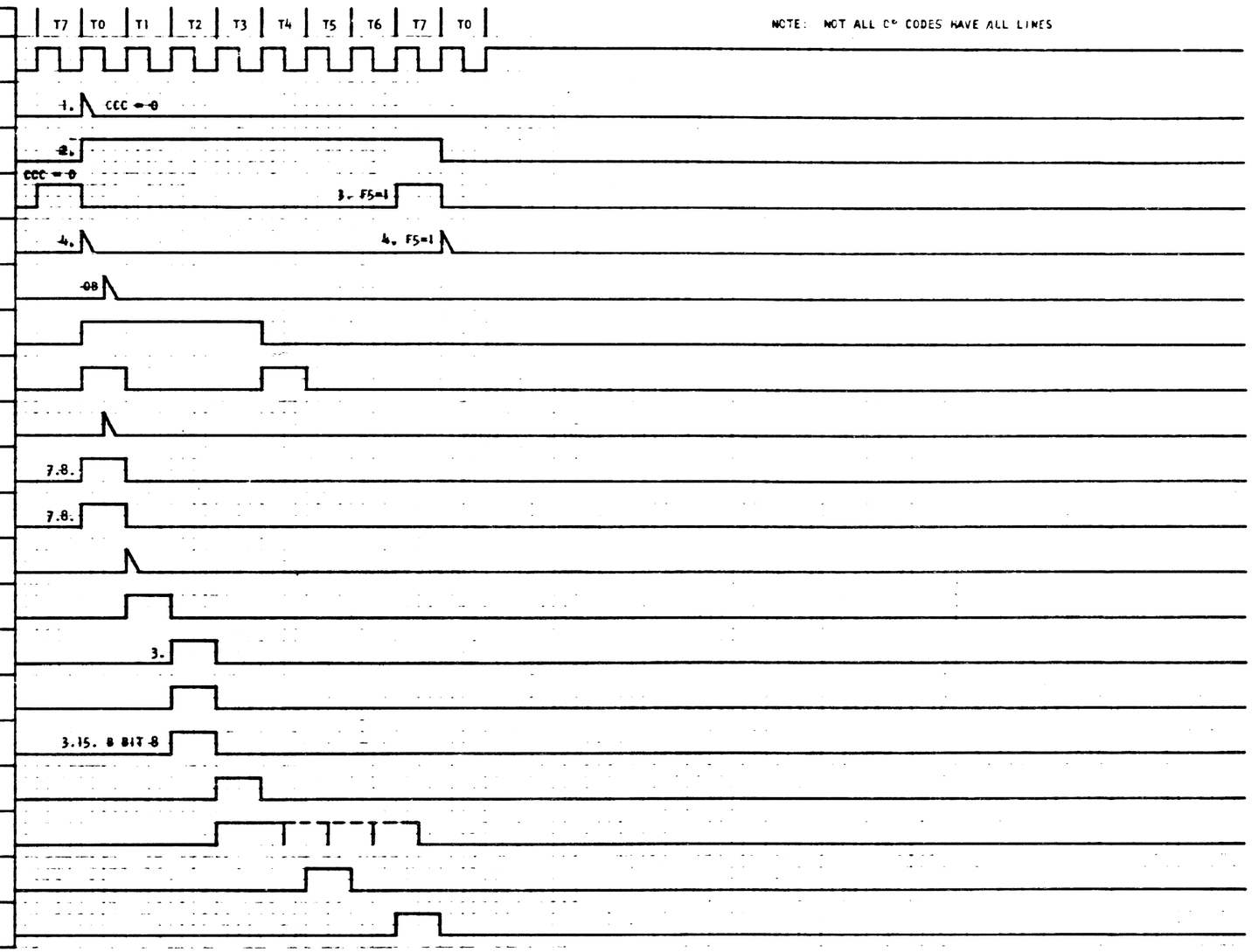
DATE	EC NUMBER	DATE	EC NUMBER
MAY-65	4154800		
AUG-65	4154801		
OCT 65	4154803		

OP CODE 11100 LOGICAL AND
OP CODE 11101 LOGICAL OR OP CODE 11110 LOGICAL EXCLUSIVE OR

DATE 5-24-65 | P/N 2201460 | TYPE 1131 | IBM | AA691

11 CYCLE TIMING CHART

NO	SIGNAL NAME	LOGIC PAGE	TEST POINT	LVL
1	T CLOCK ADV SAMPLE	KA101 BC4	BA1C4G03	-
2	END TO SP	KT331 AR2	BA1B4D04	-
3	1 1 CYCLE (FF)	KD101 AS2	BA1G2J09	+
4	I TO H SPD GATE	KG211 AS4	BA1H2J06	-
5	I TO H SP 0-7 8-15	KG101 AL2	BB1F3B12	-
6	START IAR INCREMENT	KG101 AT2	BB1G5B03	-
7	STORAGE READ CYCLE	MC101 AQ4	BA1J2B13	+
8	STORAGE SELECT	MC101 AZ4	BA1J2B10	+
9	RESET D REG SP	KG151 AS2	BA1H2D02	-
10	DC RESET B 0-7	KU311 AR4	BA1H2D10	-
11	DC RESET OP REG AND OP FLAGS	KU311 AS4	BA1H2B07	-
12	A TO U SP 0-7	KG131 AL2	BB1F4B08	-
13	DC RESET A REG	KU311 AT4	BA1H2D04	-
14	GATE B BITS 0-9 TO OP REG	KD101 AZ4	BA1G2J06	+
15	GATE B TO D 8-15	KG231 AL4	BA1H4D02	+
16	DC SET D 0-7	KG231 AM4	BA1H4B10	-
17	GATE I TO A 0-7	KG231 BA4	BA1H4B02	+
18	ARITH CONTROL	KT121 AZ2	BA1H4J06	+
19	SET CCC 1	KG221 AF4	BA1E2G12	-
20	A TO H SPD GATE	KG211 BF4	BA1H2G05	-



DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	415483A		
22APR68	419675		

11 CYCLE TIMING CHART

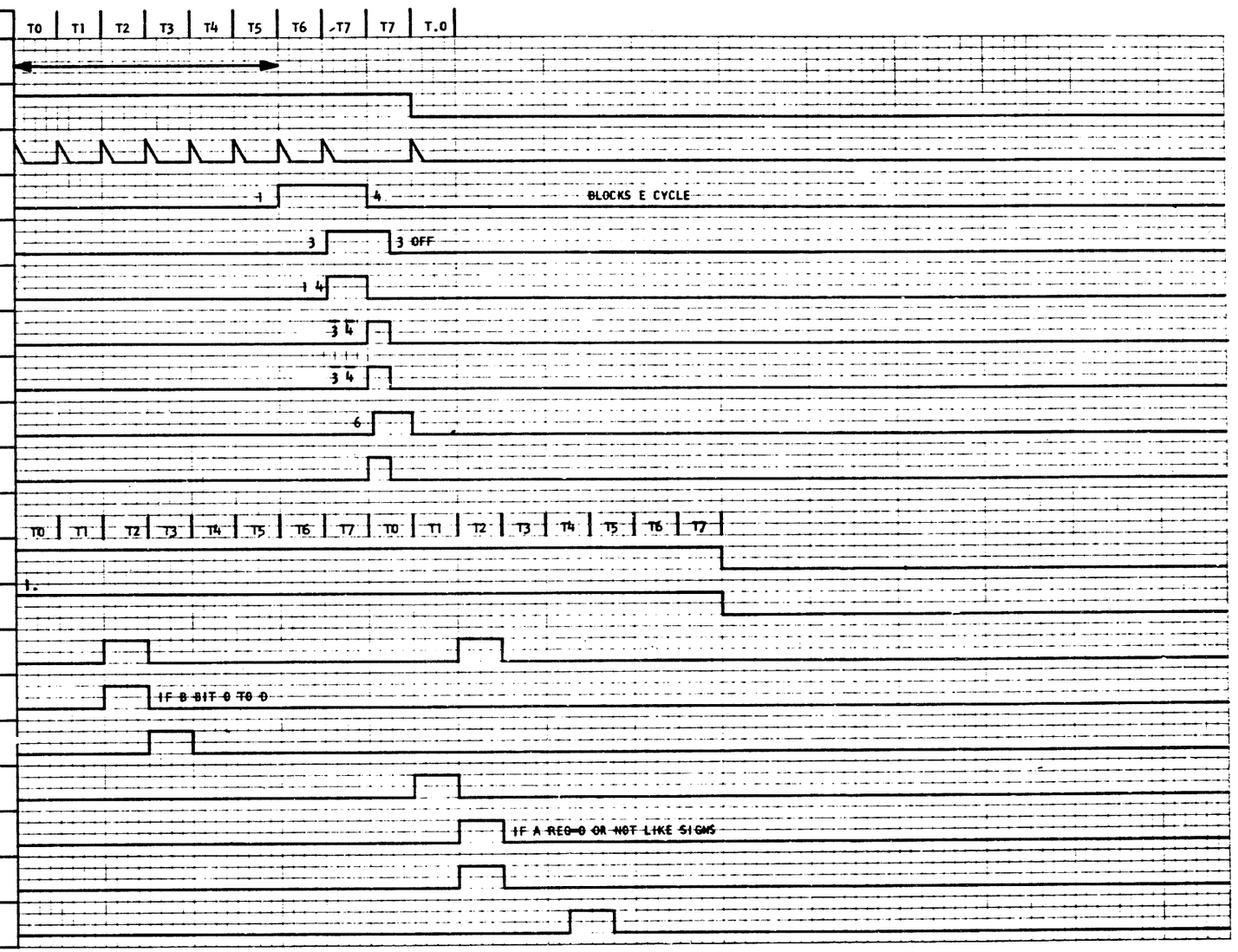
DATE | P N 2201299

TYPE 1130

IBM AA701

OP CODE 01110 MDX TIMING CHART

	NO	SIGNAL NAME	LOGIC PAGE	TEST POINT	LVL
F=0 TAG=00	0	NORMAL I-1 STEPS	-	-	+
	1	MDX	KG241 AF4	BA1L2G13	-
	2	T CLOCK ADV SP	KA101 BH2	BA1C4D02	-
	3	BRANCH 1	KB101 AY2	BA1K2B10	+
	4	BRANCH 2	KB101 AZ2	BA1K2D12	+
	5	A TO M SPD SAMPLE	KB101 BA4	BA1K2B09	-
	6	DC RESET CCC	KG221 AK4	BA1E2B02	-
	7	M TO I SPD SAMPLE	KB101 BB4	BA1K2D06	-
	8	T7 END OP	KG221 AM4	BA1E2J13	+
	9	U TO A SPD SAMPLE	KG231 AZ4	BA1M4G07	-
F=0 TAG 01		E-1 & E2 CYCLES			
	1	IX INHIBIT SAR	KU301 AT2	BA1H2G02	+
	2	IX ADDR SAR 15	KU301 AW4	BA1H2J06	-
	3	GATE B TO D	KG231 AK4	BA1M4B13	+
	4	B BIT 0 LATCHED	KG251 AX2	BA1L2J12	+
	5	SET ARITH CONTROL	KT201 AP4	BA1F4B04	-
	6	CCC DECREM SAMPLE	KG221 AW4	BA1E2B13	-
	7	INC IAR SAMPLE	KG211 BD4	BA1M2G13	-
	8	A TO B SPD GATE	KG241 AM4	BA1L2B07	-
	9	B TO STOR	-	-	

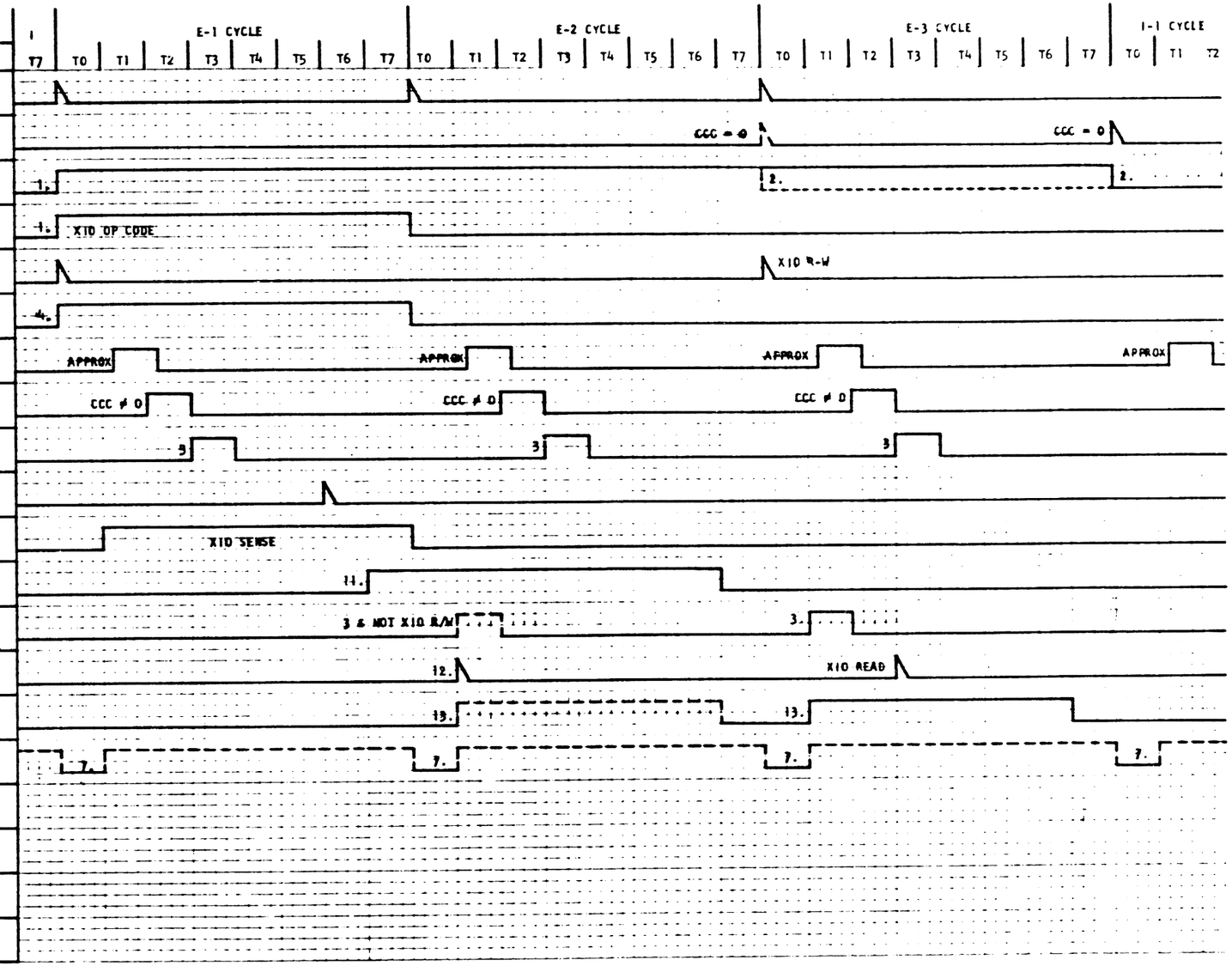


DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	415483A		
22APR68	419675		

OP CODE 01110 MDX
TIMING CHART
DATE | P/N 2201338
TYPE 1130
IBM AA711

OP CODE 00001 - X10 TIMING CHART

NO	SIGNAL NAME	LOGIC PAGE	TEST POINT	LVL
1	NOT END OP TO SP	KT331 AQ2	BA1B4B10	-
2	END OP TO SP	KT331 AR2	BA1B4D04	-
3	E CYCLES	KD111 AZ6	BA1G2B07	-
4	DBL WORD ODD ADDR	RN111 AT6	BA1B2G12	-
5	A TO M SP 0-7	KG101 AJ2	BB1F3D04	-
6	DPW ODD ADDR SAR 15	KU301 AW4	BA1H2J06	-
7	STORAGE TO B			
8	GATE B TO D 0-7	KG231 AK4	BA1N4B13	+
9	ADD, SUB OR EOR GATE (D TO A)	DN111 AY4	BA1D2G09	-
10	A TO U SP 0-7	KG131 AL2	BB1F4B08	-
11	GATE SENSE INHIBIT STORAGE USE	DN201 AS4	BA1H7B10	-
12	NOT STORAGE USE	DN201 AB4	BA1J7B02	+
13	CCC DECREM SAMPLE	KG221 AW4	BA1E2B13	-
14	I/O TO B SP	KG121 AL2	BB1F4B12	-
15	X10 TIME GATE	DN201 BE4	BA1K7D06	-
16	B BIT 0 PWR	RB301 AA4	BB1K6D05	-

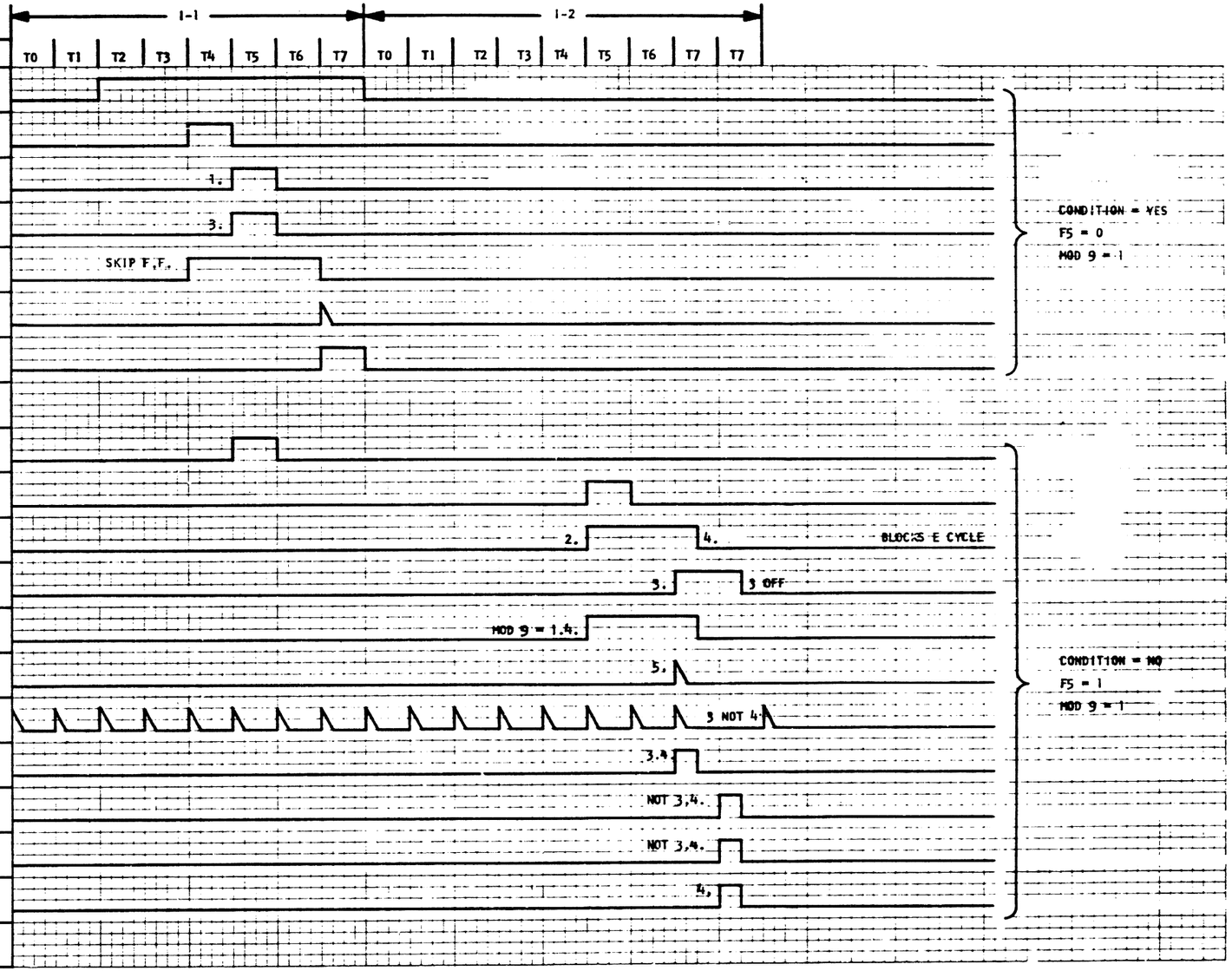


DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	415483A		
22APR68	419675		

OP CODE 00001 - X10
TIMING CHART
DATE
P N 2201297
TYPE 1130
IBM AA721

OP CODE 01001 BSC TIMING CHART

NO	SIGNAL NAME	LOGIC PAGE	TEST POINT	LVL
1	SKIP CONDITION	KS111 AX4	BA1J4B08	-
2	BSI OR BSC RESET OVERFLOW	KB111 AX4	BA1K2B12	-
3	SKIP SAMPLE	KB111 AW4	BA1K2D04	-
4	INC IAR SAMPLE	KG211 BD4	BA1M2G13	-
5	BRANCH OUT	KB111 AY4	BA1K2J09	-
6	RESET INT LVLS SP	KT331 AM2	BA1B4B02	-
7	-U TO A SPD SAMPLE	KG231 AZ4	BA1M4G07	-
1	SET CCC 1	KG221 AF4	BA1E2G12	-
2	E GATE TURN ON	KD111 AB4	BA1G2D12	-
3	BRANCH 1	KB101 AY2	BA1K2B10	+
4	BRANCH 2	KB101 AZ2	BA1K2D12	+
5	BRANCH OUT	KB111 AY4	BA1K2J09	-
6	RESET INT LVLS SP	KT331 AM2	BA1B4B02	-
7	T CLOCK ADV SP	KA101 BH2	BA1C4D02	-
8	A TO M SPD SAMPLE	KB101 BA4	BA1K2B09	-
9	DC RESET CCC	KG221 AK4	BA1E2B02	-
10	M TO I SPD SAMPLE	KB101 BB4	BA1K2D06	-
11	U TO A SPD SAMPLE	KG231 AZ4	BA1M4G07	-



DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	415483A		
22APR68	419675		

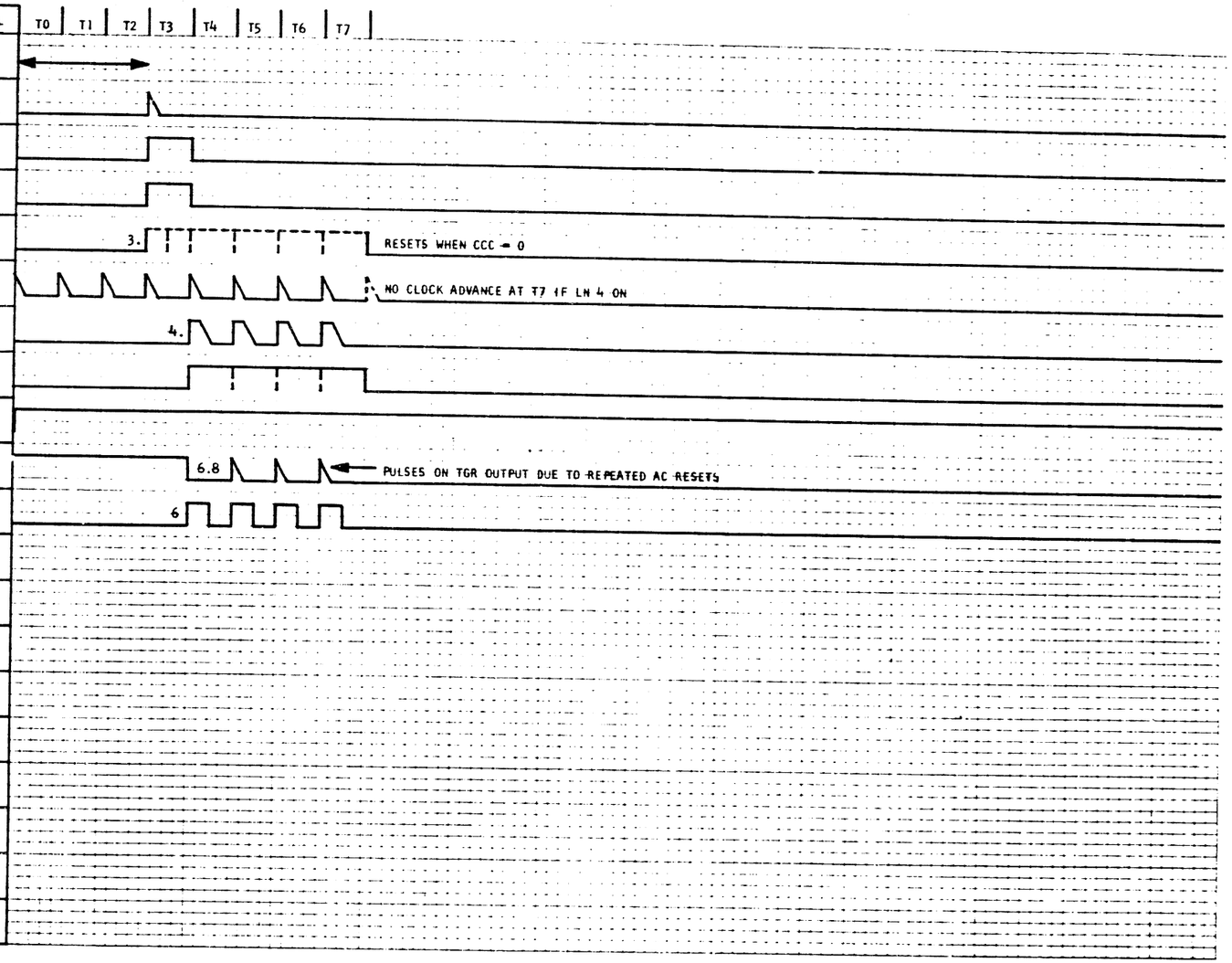
OP CODE 01001 BSC
TIMING CHART

DATE | P/N 2201340
TYPE 1130

IBM AA731

OP CODE 00010 SLA TIMING CHART

NO	SIGNAL NAME	LOGIC PAGE	TEST POINT	LVL
	NORMAL I CYCLE STEPS			
1	U TO A SP 0-7	KG131 AM2	BB1F5B08	-
2	GT B10-15 TO CCC	KT301 BE4	BA1K4D06	+
3	SHIFT OP GATE T3	KT301 BB4	BA1K4B08	-
4	SHIFT CTRL	KT121 AY6	BA1H4G07	-
5	T CLOCK ADVANCE SP	KA101 BH2	BA1C4D02	-
6	SHIFT LEFT SAMPLE	KT311 AE4	BA1L4G12	-
7	CARRY	KS101 BD2	BA1J4D04	+
8	ACC BIT 15 SHIFT LT ENTRY	KT201 AZ4	BA1F4G07	+
9	A BIT 15	RA271 AU2	BB1L4J05	+
10	CCC DECREM SAMPLE	KG221 AW4	BA1E2B13	-



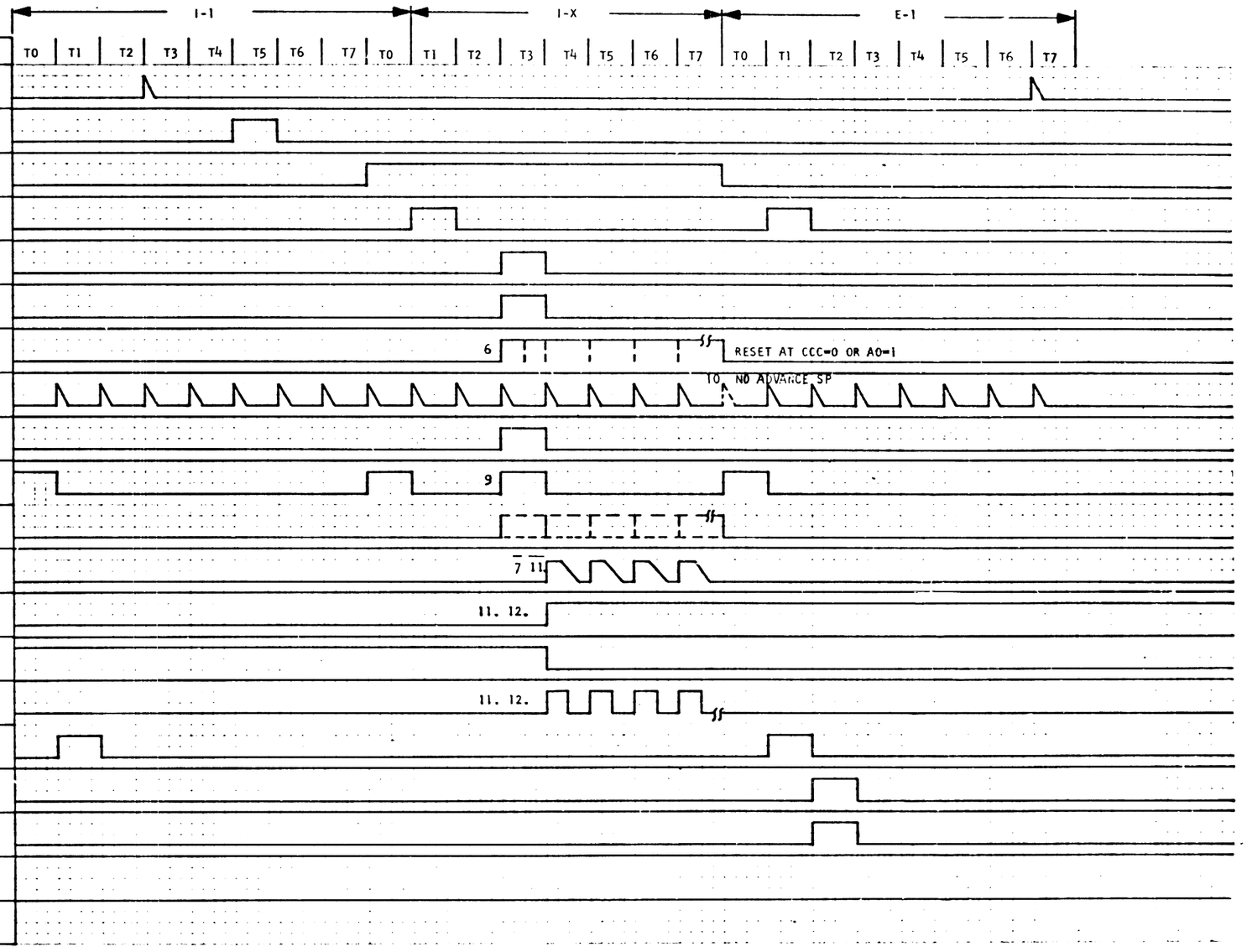
DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	415483A		
22APR68	419675		

OP CODE 00010 SLA
TIMING CHART
DATE
P N 2201341
TYPE 1130
IBM
AA741

OP CODE 00010 SLCA TIMING CHART

F=0 TAG≠00 MOD 9=;

NO	SIGNAL NAME	LOGIC PAGE	TEST POINT	LVL
1	U TO A SP	KG131 AM2	BB1F5B08	-
2	SET CCC 1	KG221 AF4	BA1E2G12	-
3	IX ADDR INHIBIT SAR	KU301 AT6	BA1H2J12	-
4	DC RESET CCC	KG221 AK4	BA1E2B02	-
5	GATE B10-15 TO CCC	KT301 BE4	BA1K4D06	+
6	SHIFT OP GATE	KT301 BB4	BA1K4B08	-
7	SHIFT CONTROL	KT121 AY6	BA1H4G07	-
8	T CLOCK ADVANCE SP	KA101 BH2	BA1C4D02	-
9	SLC RESET CARRY	KU301 AH4	BA1H2D12	-
10	DC RESET B 8-15	KU311 AQ4	BA1H2D11	-
11	A BIT 0	RA101 AU2	BB1B4D11	+
12	SHIFT LEFT SAMPLE	KT311 AE4	BA1L4G12	-
13	CARRY	KS101 BD2	BA1J4D04	+
14	BIT 15	RA271 AU2	BB1L4J05	+
15	CCC DECREM SAMPLE	KG221 AW4	BA1E2B13	-
16	A TO U SPD SAMPLE	KG231 AY4	BA1H4G12	-
17	GATE CCC TO A10-A15	KT301 AZ4	BA1K4B07	-
18	A TO B 8-15 SPD GATE	KG241 AQ4	BA1L2B04	-



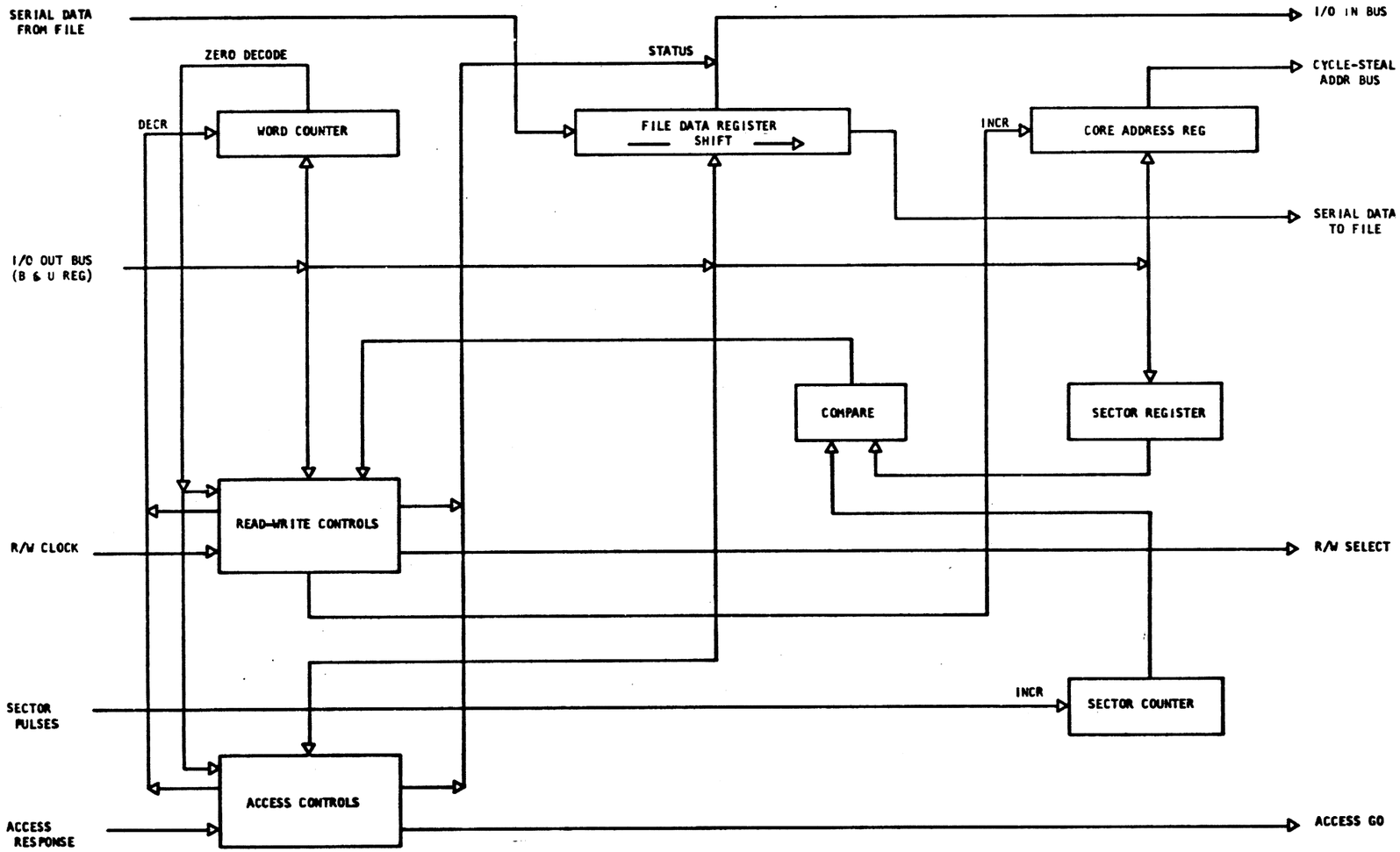
DATE	EC NUMBER	DATE	EC NUMBER
OCT 65	415483A		
22APR68	419675		

OP CODE 00010 SLCA
TIMING CHART

DATE		P.N	2201339
		TYPE	1130

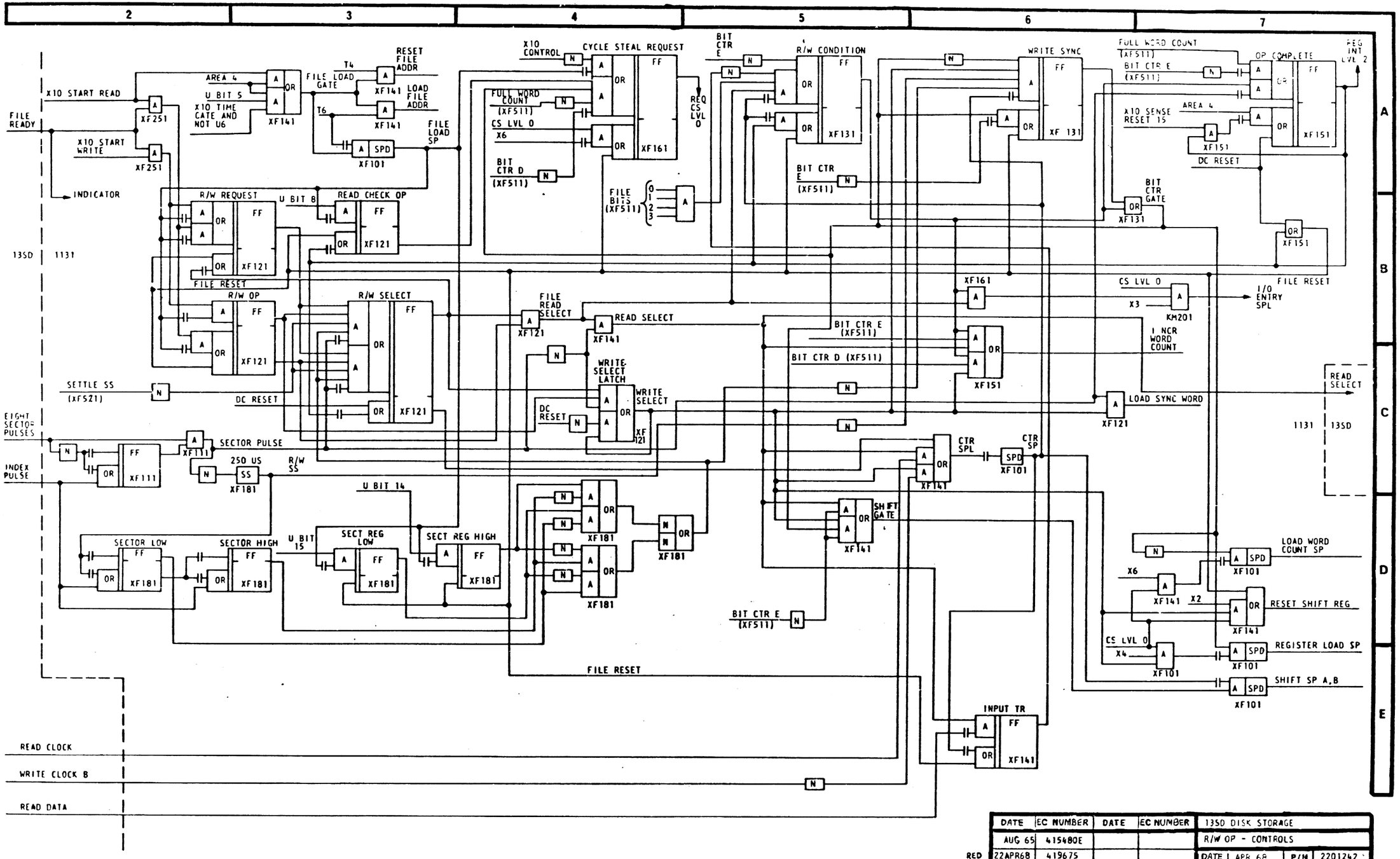
IBM AA751

XF401



DATE	EC NUMBER	DATE	EC NUMBER	DISK FILE UNIT DATA AND CONTROL DIAGRAM			
AUG-65	415480 E			DATE		P/N	2201241
						TYPE	1130
				IBM		XF401	

XF401



DATE	EC NUMBER	DATE	EC NUMBER
AUG 65	415480E		
RED 22APR68	419675		

1350 DISK STORAGE

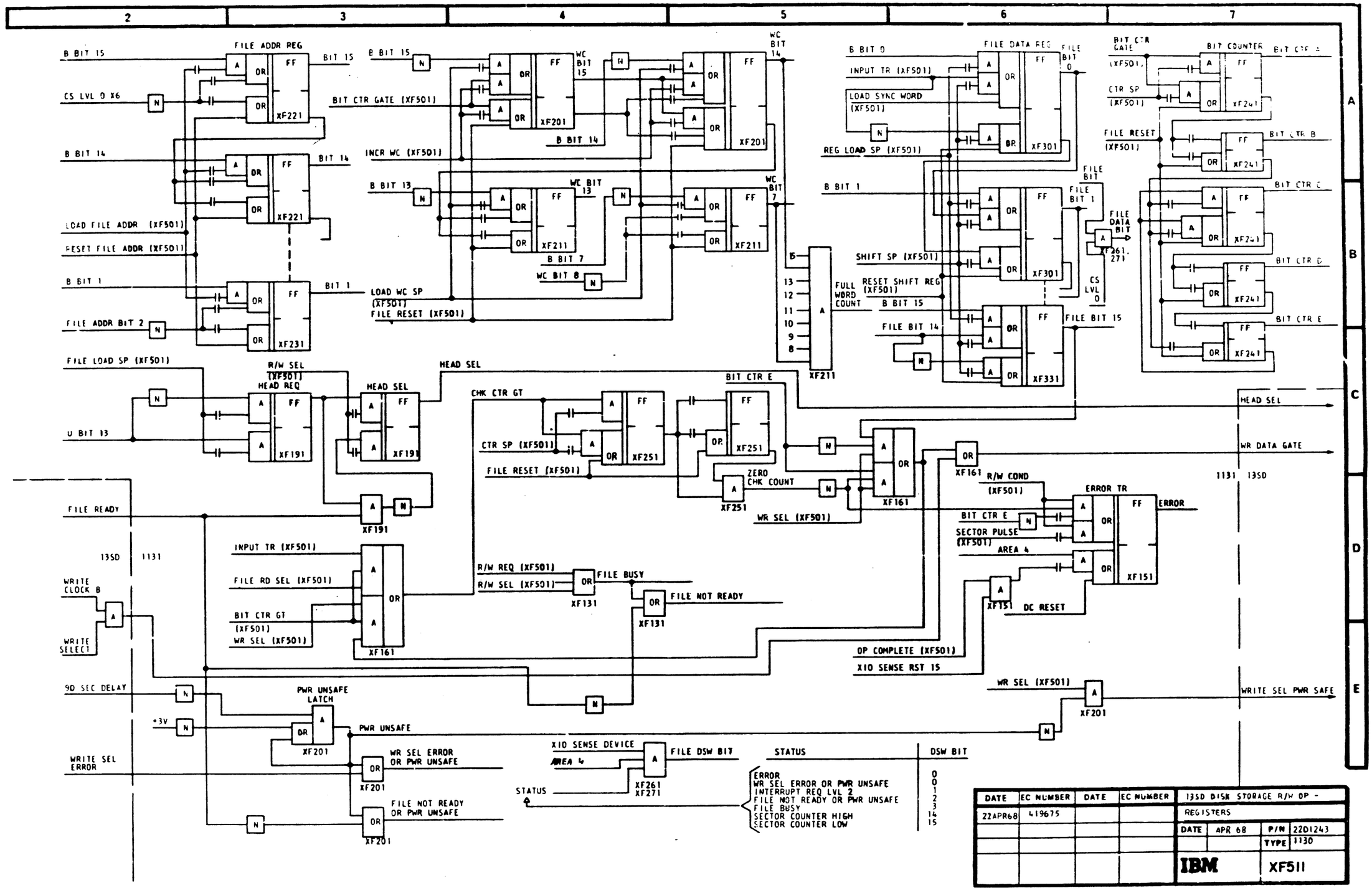
R/W OP - CONTROLS

DATE APR 68 P/N 2201242

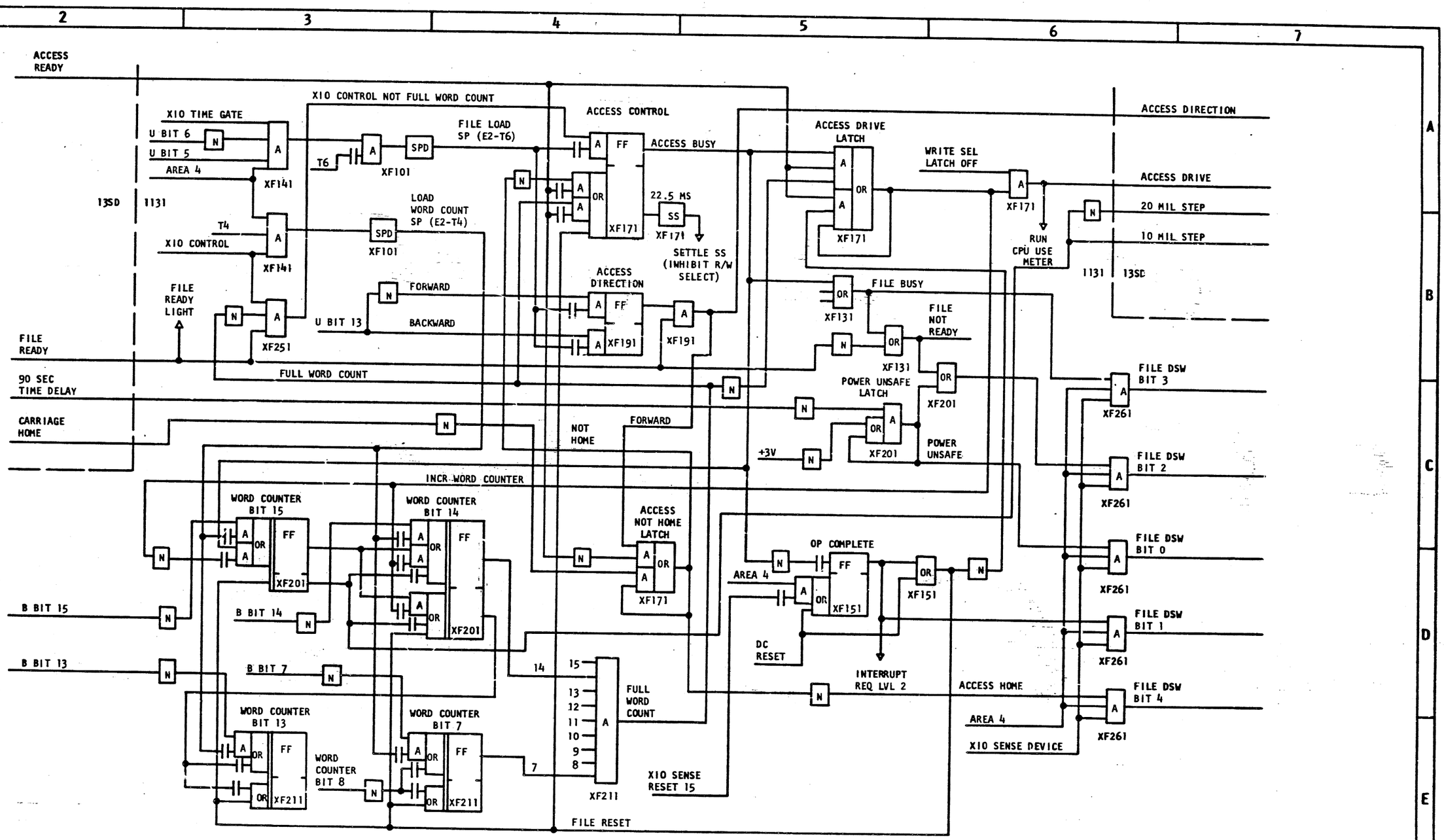
TYPE 1130

IBM

XF501



DATE	EC NUMBER	DATE	EC NUMBER	135D DISK STORAGE R/W OP - REGISTERS
22APR68	419675			DATE APR 68 P/N 2201243
				TYPE 1130
				IBM XF511



DATE	EC NUMBER	DATE	EC NUMBER
AUG 65	415480E		
OCT 65	415483A		
22APR68	419675		

RED

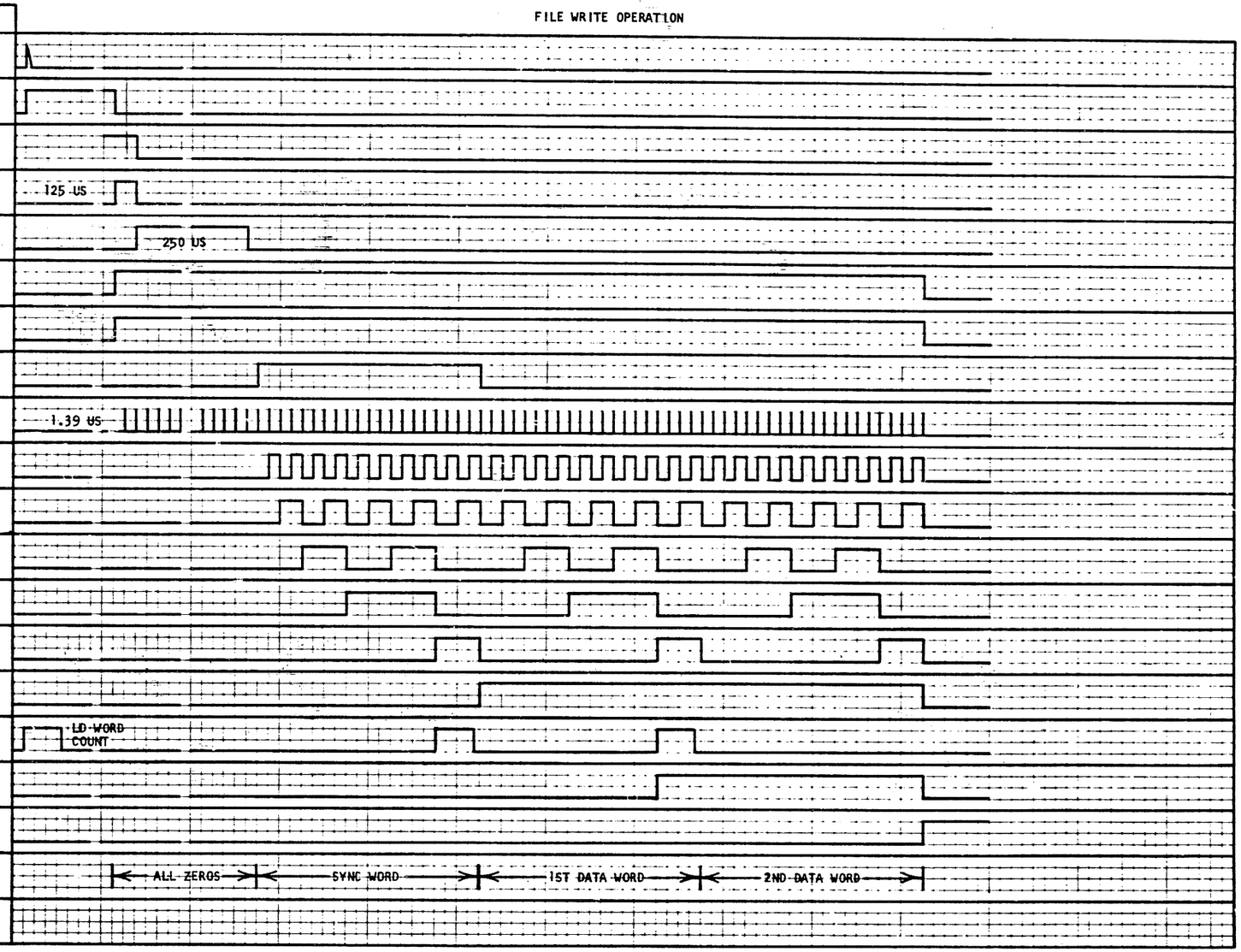
DISK FILE-CONTROL OP (ACCESS)

DATE	APR 68	P/N	2201244
		TYPE	1130

IBM XF521

2	3	4	5	6	7

LVL	SIGNAL NAME	SOURCE PAGE	TEST POINT
-	FILE LOAD SP (X10 E-2 T-6)	XF101AR2	A-C1H6D11
-	R-W REQUEST	XF121AN6	A-C1J6B04
+	SECTOR EQUAL	XF181BH4	A-C1M6D11
+	SECTOR PULSE	XF181AB4	A-C1M6G10
-	R-W SINGLE SHOT	XF181AQ4	A-C1M6J13
-	R-W SELECT	XF121AY6	A-C1J6B07
+	WRITE SELECT	XF121BH4	A-C1J6J07
+	WRITE SYNC	XF131AQ2	A-C1J6G13
-	COUNTER SP	XF101AP2	A-C1H6B08
+	BIT CTR A	XF241AJ2	A-C1L6J10
+	BIT CTR B	XF241AY2	A-C1L6B03
+	BIT CTR C	XF241AK2	A-C1L6D05
+	BIT CTR D	XF241BA2	A-C1L6B05
+	BIT CTR E	XF241AZ2	A-C1L6B13
+	R-W CONDITION	XF131AR2	A-C1J6G05
+	CYCLE STEAL REQ	XF161AQ2	A-C1L6B08
-	FULL WORD COUNT	XF211BT4	A-C1G6B04
+	OP COMPLETE	XF151AR2	A-C1K6D12
	FILE DATA		



DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		
22APR68	419675		

DISC FILE

WRITE TIMING

DATE	3-18-65	P/N	2201245
		TYPE	1130

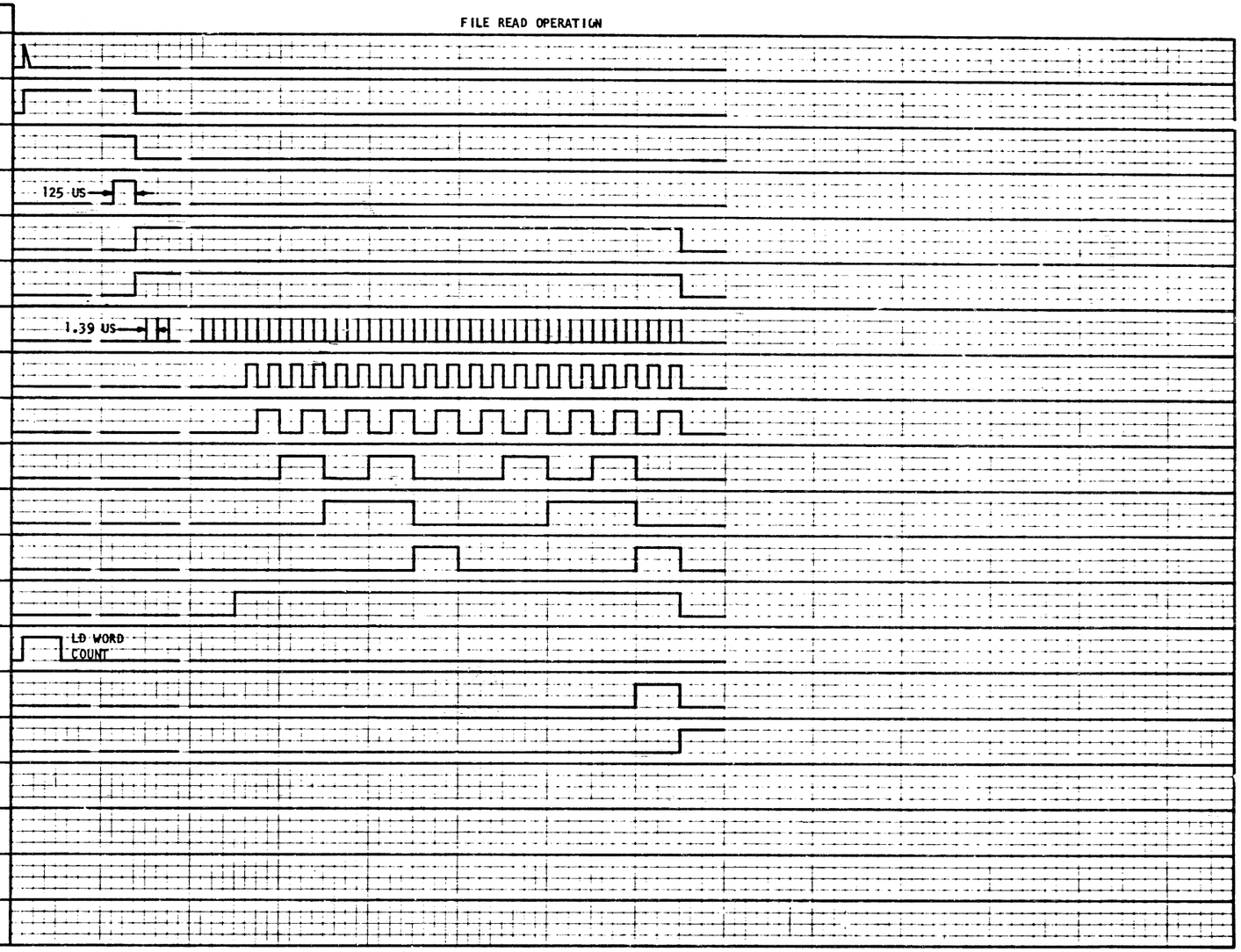
IBM

XF701

A B C D E

2	3	4	5	6	7

LVL	SIGNAL NAME	SOURCE PAGE	TEST POINT
-	FILE LOAD SP (X10 E-2 T-6)	XF101AR2	A-C1H6D11
-	R-W REQUEST	XF121AN6	A-C1J6B04
+	SECTOR EQUAL	XF181BH4	A-C1H6D11
+	SECTOR PULSE	XF181AB4	A-C1H6G10
-	R-W SELECT	XF121AY6	A-C1J6B07
+	FILE READ SELECT	XF121BG4	A-C1J6B10
-	COUNTER SP	XF101AP2	A-C1H6B08
+	BIT CTR A	XF241AJ2	A-C1L6J10
+	BIT CTR B	XF241AY2	A-C1L6B03
+	BIT CTR C	XF241AK2	A-C1L6D05
+	BIT CTR D	XF241BA2	A-C1L6B05
+	BIT CTR E	XF241AZ2	A-C1L6B13
+	R-W CONDITION	XF131AR2	A-C1J6G05
+	CYCLE STEAL REQ	XF161AQ2	A-C1L6B08
-	FULL WORK COUNT	XF211BT4	A-C1G6B04
+	OP COMPLETE	XF151AR2	A-C1K6D12

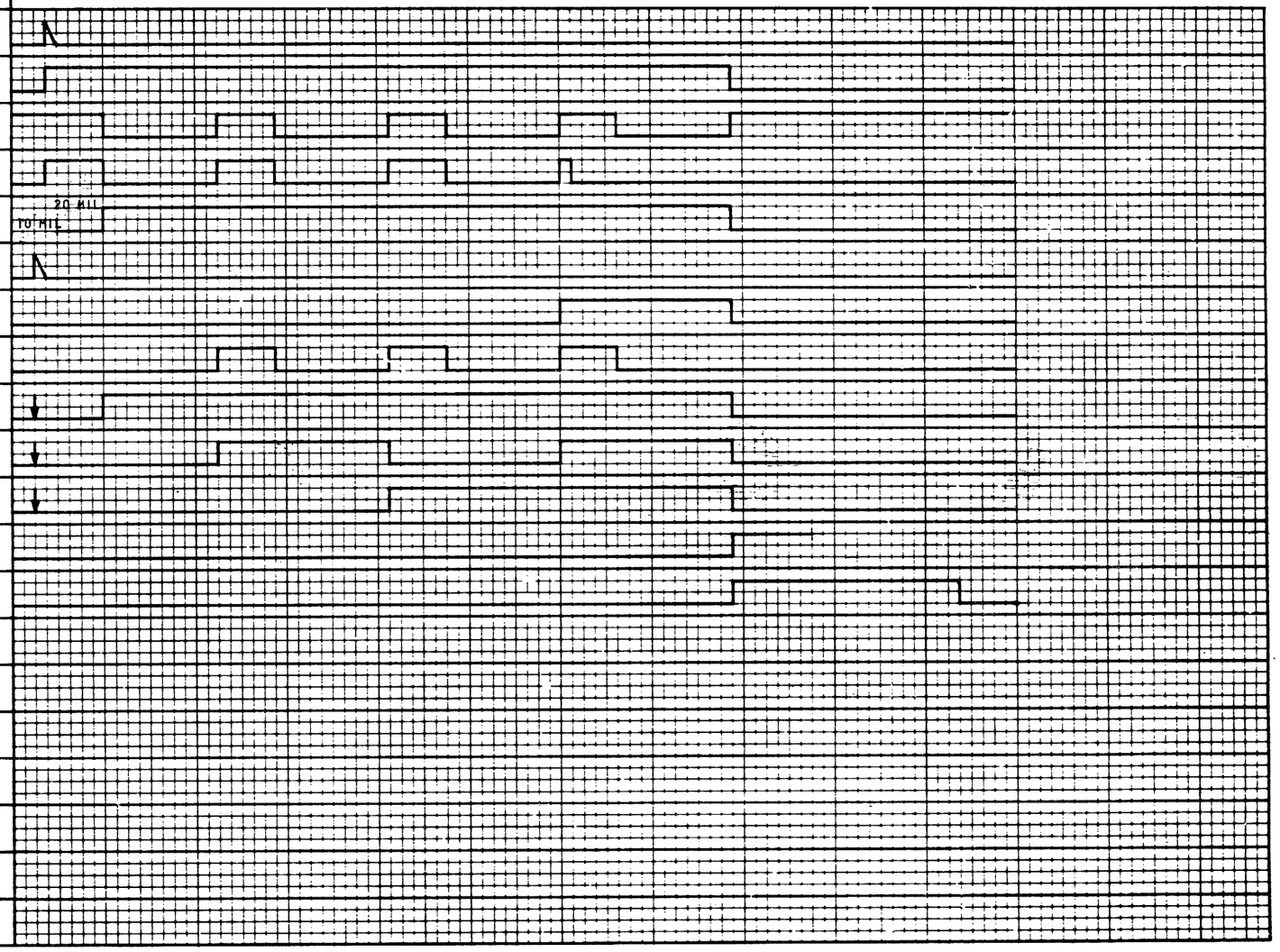


A
B
C
D
E

DATE	EC NUMBER	DATE	EC NUMBER	DISC FILE			
AUG-65	415480 E			READ TIMING			
22APR68	419675			DATE 3-17-65		P/N	2201246
						TYPE	1130
				IBM		XF711	

2	3	4	5	6	7

LVL	SIGNAL NAME	SOURCE PAGE	TEST POINT
1	- FILE LOAD SP (X10 - E - 2 T - 6)	XF101AR2	A-C1H6D11
2	+ ACCESS CONTROL TGR	XF171AH2	A-C1M6B10
3	+ ACCESS READY PWR	XF171AX4	A-C1E7B12
4	+ ACCESS DRIVE	XF171AN4	A-C1M6G04
5	- STEPPING MODE	XF201AG2	A-C1M6G12
6	- LOAD WORD CTR $P (X10 E - 2 T - 4)	XF101AS2	A-C1H6D04
7	- FULL WORD COUNT	XF211BT4	A-C1G6B04
8	- INCR WORD COUNT	XF151AQ4	A-C1K6B05
9	+ WORD COUNTER 15	XF201AG2	A-C1M6G12
10	+ WORD COUNTER 14	XF201AS2	A-C1M6G09
11	+ WORD COUNTER 13	XF211AN2	A-C1G6D10
12	+ OP COMPLETE	XF151AR2	A-C1K6D12
13	- SETTLE S-S	XF171AQ4	A-C1L2D13



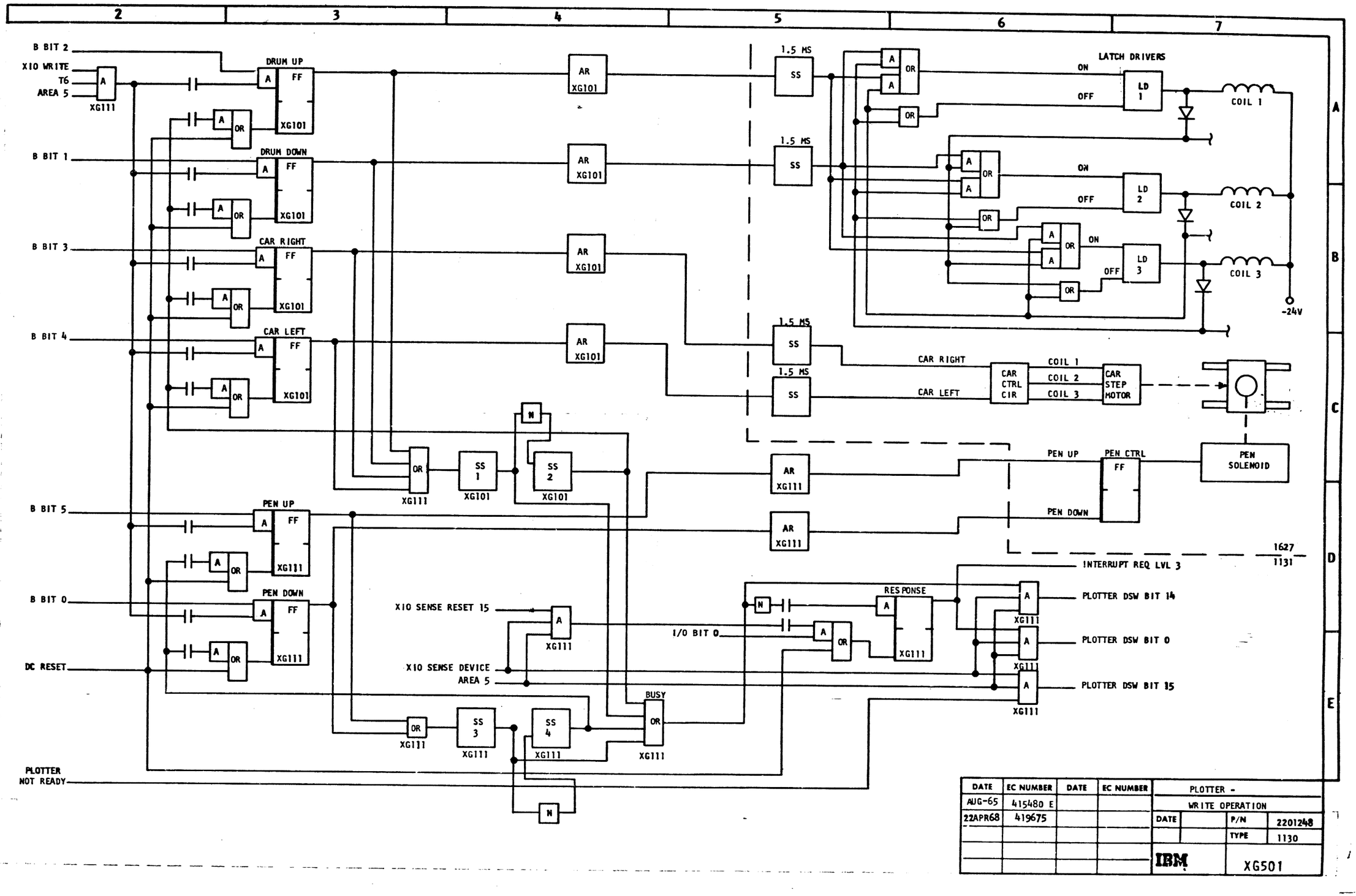
A
B
C
D
E

DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		
22APR68	419675		

DISK FILE -
ACCESS TIMING

DATE	3-19-65	P/N	2201247
		TYPE	1130

IBM XF721



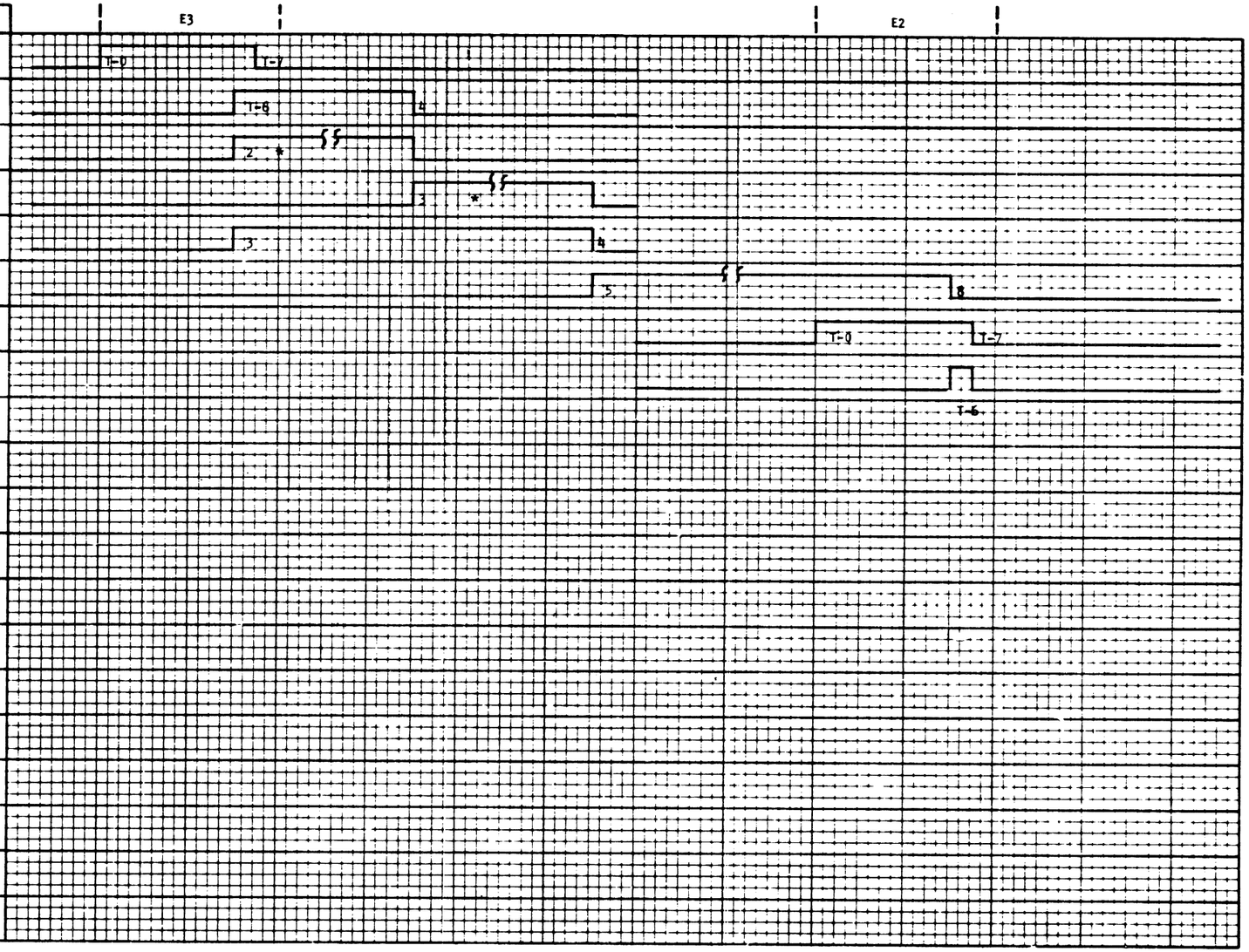
DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		
22APR68	419675		

PLOTTER -
WRITE OPERATION

DATE		P/N	2201248
		TYPE	1130

IBM XG501

LVL	SIGNAL NAME	SOURCE PAGE	TEST POINT
1	+ XIO WRITE	DU101BE4	A-C1M4J12
2	- CONTROL TRIGGERS	XG101 XG111	A-C1M4
3	- SS-1 OR - SS-3	XG101BC4 XG111AZ4	A-C1M4J07 A-C1M4J09
4	- SS-2 OR - SS-4	XG101BD4 XG111BA4	A-C1M4G04 A-C1M4G10
5	+ BUSY	XG111BC4	A-C1M4G08
6	- PLOTTER RESPONSE	XG111BB6	A-C1M4B09
7	+ XIO SENSE DEVICE	DU101AY4	A-C1M4D11
8	+ XIO SENSE RESET 15	DU111AM4	A-C1M4D09



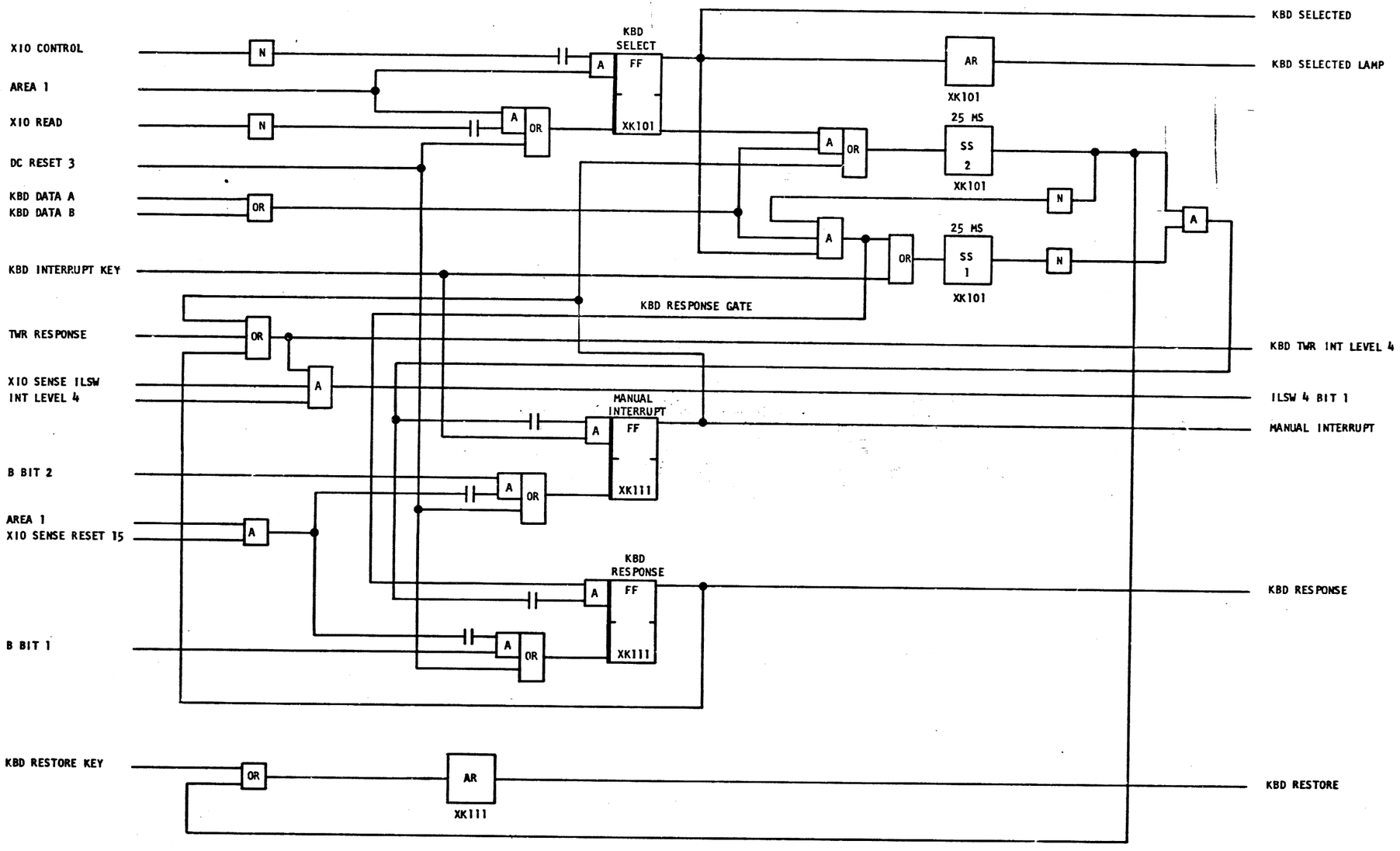
NOTE: DRUM OR CARRIAGE : 1.9 MS FOR 12" 1627
2.9 MS FOR 30" 1627

PEN : 50 MS

DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		

PLOTTER
WRITE TIMING
DATE | P/N 2201249
TYPE 1130
IBM XG701

XG701



DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		
22APR68	419675		

KEYBOARD READ & CONTROL OPS

DATE 6-28-65 P/N 2201250

TYPE 1130

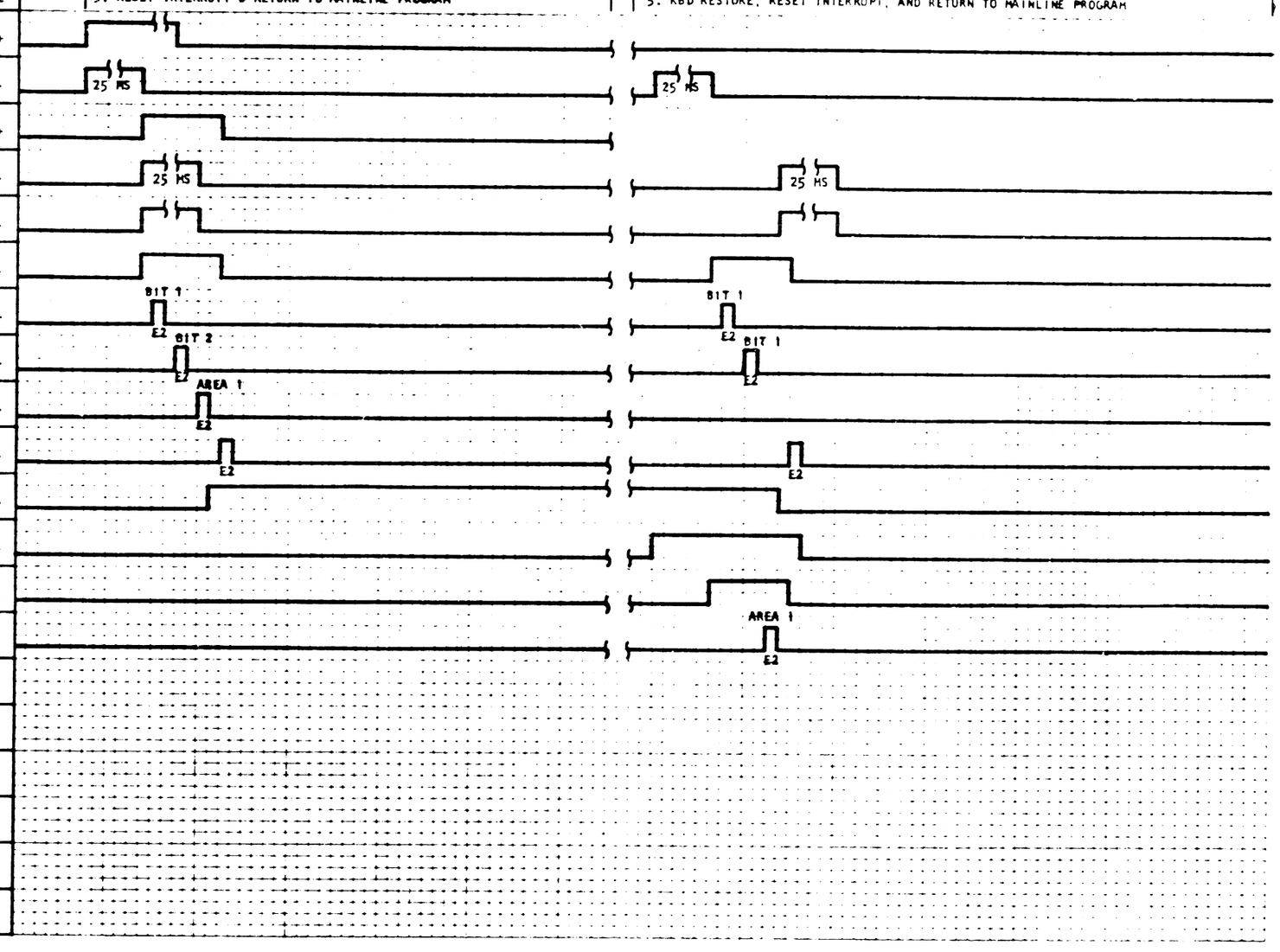
IBM XK501

2	3	4	5	6	7

NO	SIGNAL NAME	LOGIC PAGE	TEST POINT	LVL
1	KBD INTER KEY	XK111AW4	A-C1D3B07	+
2	KBD SS 1	XK101AU4	A-C1E3B03	-
3	MANUAL INTERRUPT	XK111AR2	A-C1E2B04	+
4	KBD SS 2	XK101AT4	A-C1E3B07	-
5	KBD RESTORE	XK111AT4	A-C1D5D06	-
6	KBD-TWR INTERRUPT LVL 4	XK101AJ4	A-C1D3B03	-
7	X10 SENSE ILSW	DU101BA4	A-C1G4B12	+
8	X10 SENSE DEVICE	DU101AY4	A-C1G3B12	+
9	X10 CONTROL	DU101BD4	A-C1E2D12	+
10	X10 SENSE RST 15	DU111AH4	A-C1F2B02	+
11	KBD SELECT	XK101AK2	A-C1E2D09	+
12	KBD DATA (A OR B)	XK101AE4	A-C1D2D06	+
13	KBD RESPONSE	XK111AS2	A-C1E2B09	+
14	X10 READ	DU101BB4	A-C1E2D13	+

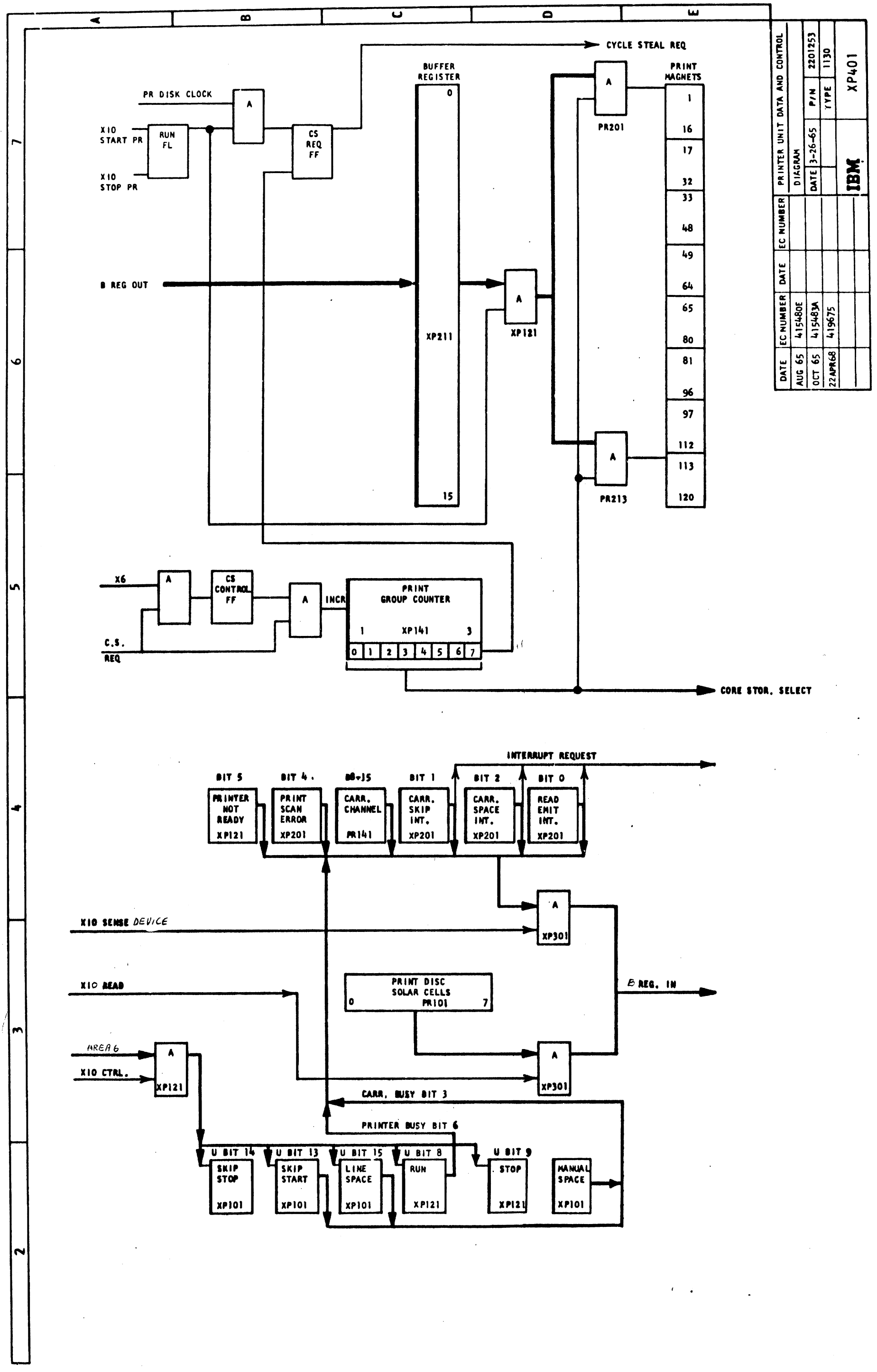
1. KBD INTERRUPT REQUEST KEY DEPRESSED
2. LVL 4 INTERRUPT & KBD RESTORE
3. PROGRAM INTERROGATION OF ILSW AND DSW
4. KBD SELECT LATCH SET
5. RESET INTERRUPT & RETURN TO MAINLINE PROGRAM

1. DEPRESS CHARACTER KEY
2. LVL 4 INTERRUPT
3. PROGRAM INTERROGATION OF ILSW AND DSW
4. READ CHARACTER INTO B REGISTER & RESET KBD SELECT
5. KBD RESTORE, RESET INTERRUPT, AND RETURN TO MAINLINE PROGRAM



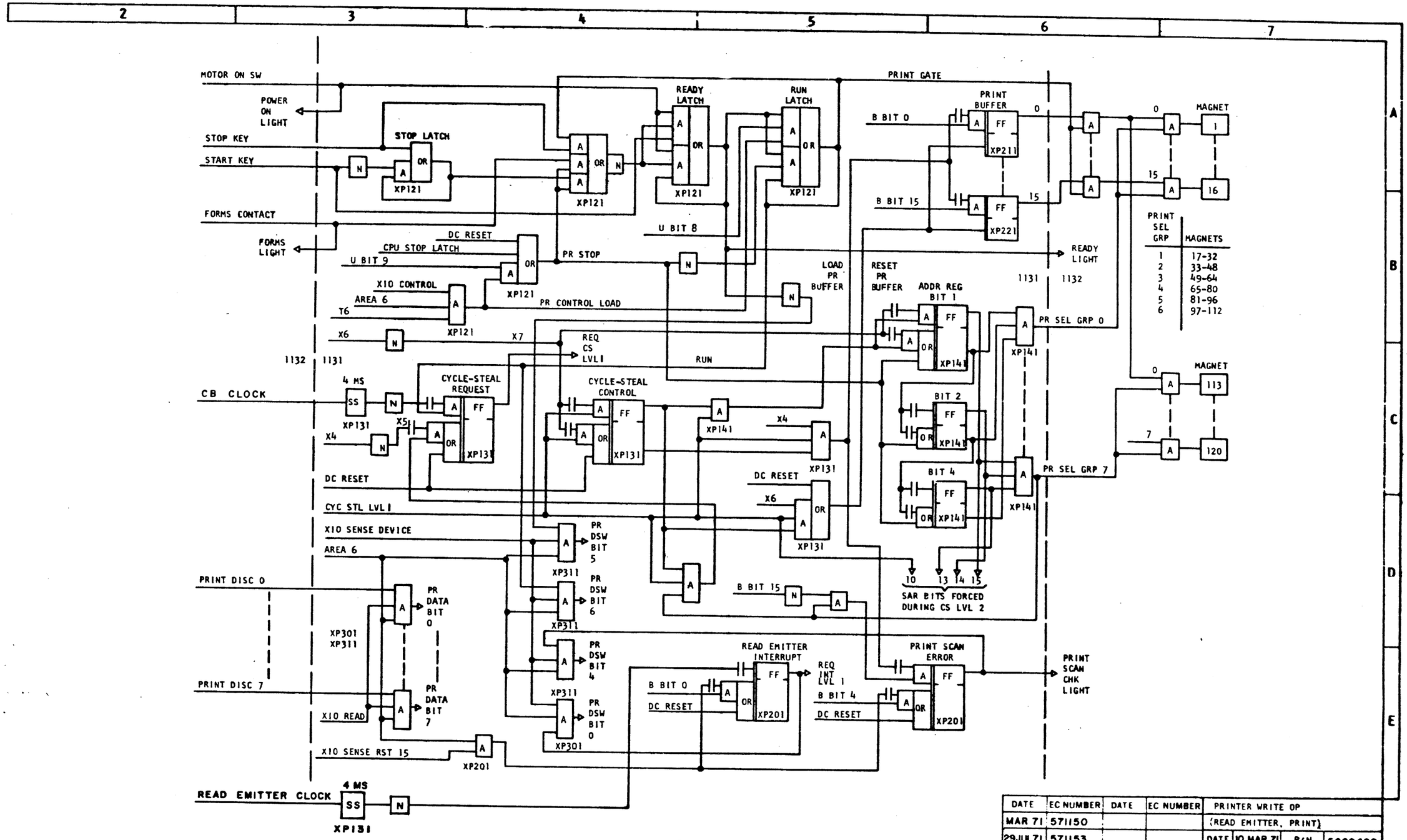
A
B
C
D
E

DATE	EC NUMBER	DATE	EC NUMBER	KEYBOARD			
OCT 65	415483A			READ & CONTROL TIMING			
				DATE		P N	2201251
						TYPE	1130
				IBM		XK701	

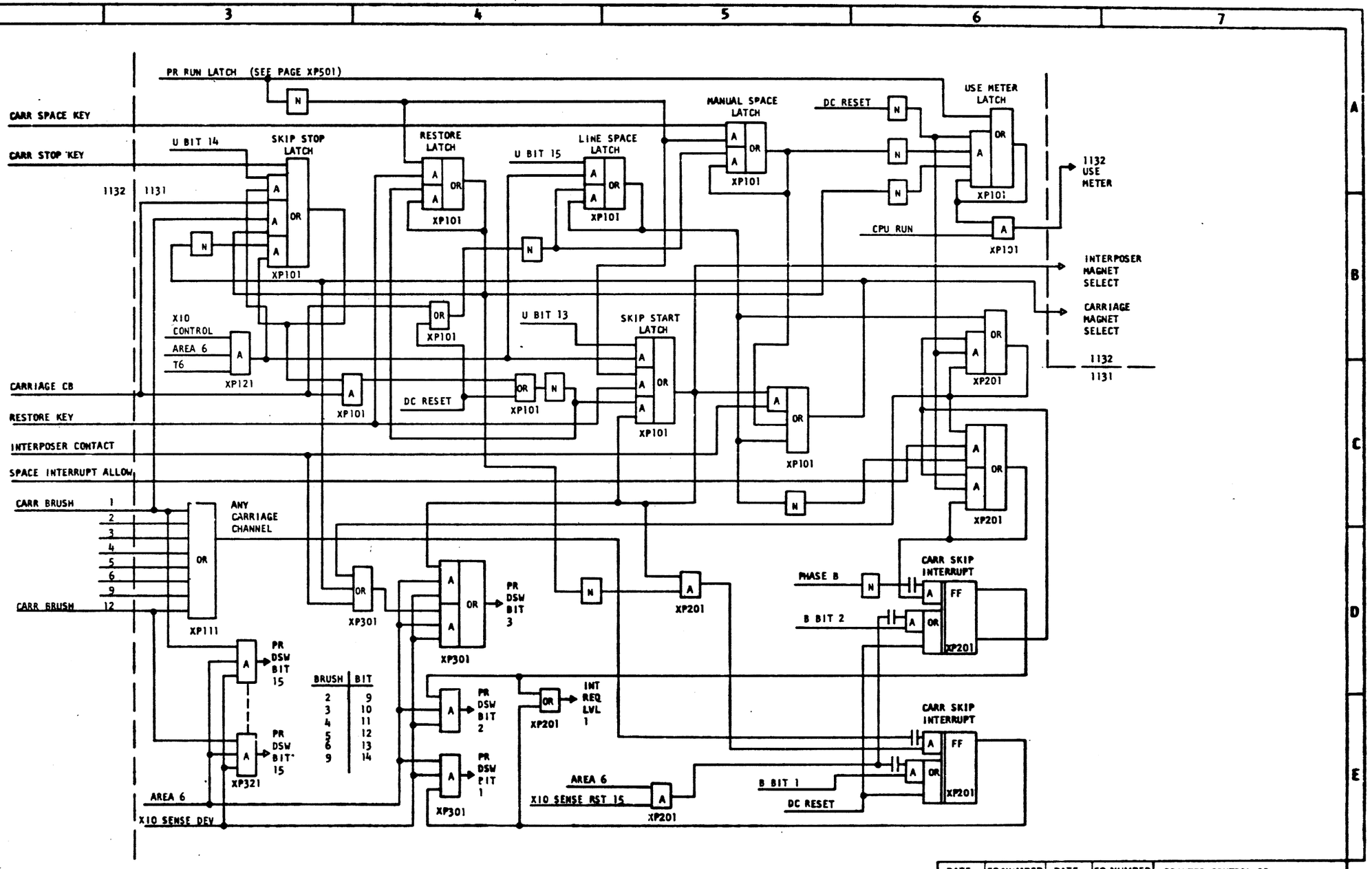


DATE	EC NUMBER	DATE	EC NUMBER
AUG 65	415480E		
OCT 65	415483A		
22APR68	419675		

PRINTER UNIT DATA AND CONTROL
DIAGRAM
DATE 3-26-65
P/N 2201253
TYPE 1130
IBM
XP401



DATE	EC NUMBER	DATE	EC NUMBER	PRINTER WRITE OP
MAR 71	571150			(READ EMITTER, PRINT)
29JUL71	571153			DATE 10 MAR 71 P/N 5889420
				TYPE 1130-C
				IBM XP501



DATE	EC NUMBER	DATE	EC NUMBER
AUG 65	415480E		
OCT 65	415483A		
AUG 66	419622		
22APR68	419675		

PRINTER CONTROL OP
(START, STOP, SPACE)

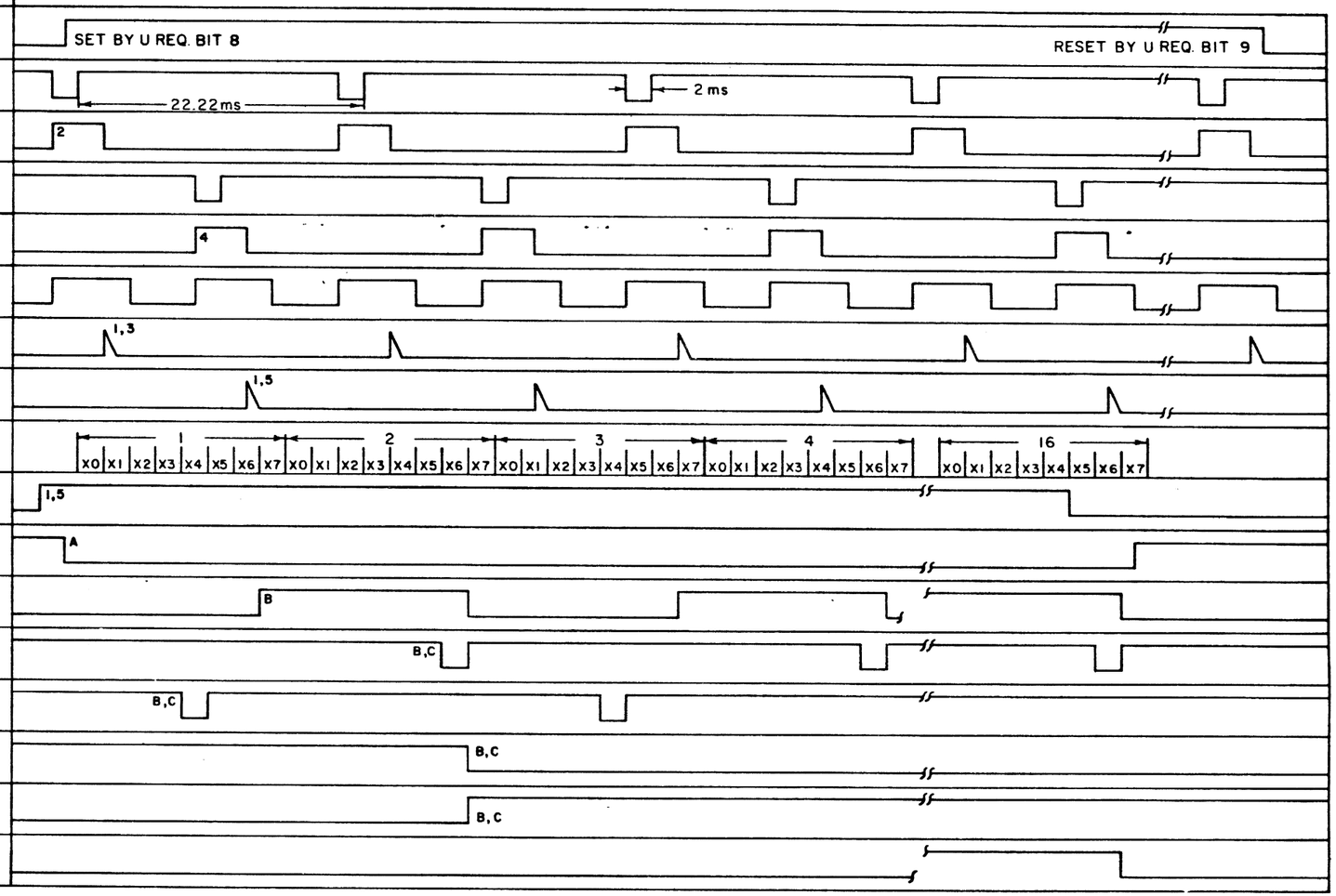
DATE	APR 68	P/N	2201255
		TYPE	1130

IBM

XP511

RED

	LVL	SIGNAL NAME	SOURCE PAGE	TEST POINT
MULTIPLE SCAN CYCLES	1	- RUN LATCH	XP121AP4	A-BIF5B02
	2	+ READ EMITTER CLK	XP331AM4	A-BIJ7D12
	3	+ READ EMITTER SS	XP131BG4	A-BIJ7D11
	4	+ PRINT DISK CLK (CB)	XP331AM3	A-BIJ6D12
	5	+ PRINT DISK SS	XP131BD4	A-BIJ6D11
	6	+ PRINT DISK CODE	XP331—	A-BIA7—
	7	+ READ EMIT INT	XP201AU2	A-BIJ5D09
	8	+ PRINTER CS REQ	XP131AN2	A-BIH5B04
		X CLOCK	KM101—	B-AID5—
ONE PRINT SCAN CYCLE	A	+ PRINTER CS REQ	XP131AN2	A-BIH5B04
	B	- CS LEVEL 1	KM211AS4	B-AIF7D12
	C	+ PRINTER CS CTRL	XP131AP2	A-BIH5B09
	D	- RESET PRINT BUFFER	XP131AZ4	A-BIG5B07
	E	- LOAD PRINT BUFFER	XP131AU4	A-BIK5B09
	F	+ PRINT SELECT GROUP 0	XP141BD4	A-BID5B12
	G	+ PRINT SELECT GROUP 1	XP141BE4	A-BID5B13
	H	+ PRINT SELECT GROUP 7	XP141BL4	A-BID5B09



EC HISTORY		DRAWING TITLE
10FEB71	571150	PRINTER WRITE TIMING (READ
29JUL71	571153	MACH 1131-C EMITTER, PRINT)
		PART NO 5889421
		CLASSIFICATION

D

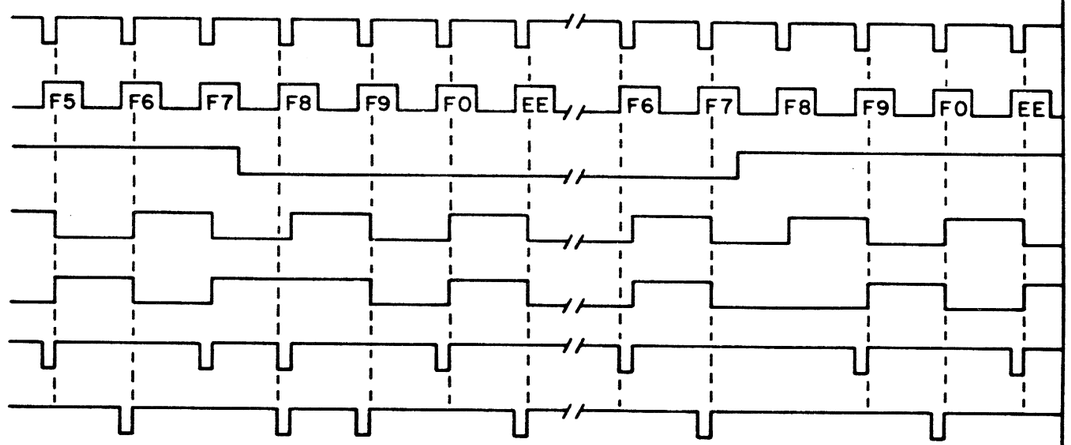
IBM CORP

XP701

XP706

1132 SLT BOARD A-A1

NO.	SIGNAL NAME	LOGIC PAGE	TEST POINT	LVL
1	PRINT DISK CLOCK	PR112	F3D12	+
2	PRINT DISK BITS	PR112		+
3	HOME PULSE	PR112	G3D09	+
4	BLOCK EMITTER	PR112	G3B04	+
5	CLOCK FOLLOWER	PR113	G3B09	+
6	READ EMITTER CLK	PR113	K2D07	+
7	C B CLK	PR113	E3D06	+



EC HISTORY		DRAWING TITLE
29JUL71	571153	PRINT DISK CLOCK TIMING
		MACH 1130 MOD 2
		PART NO 5889448
		CLASSIFICATION

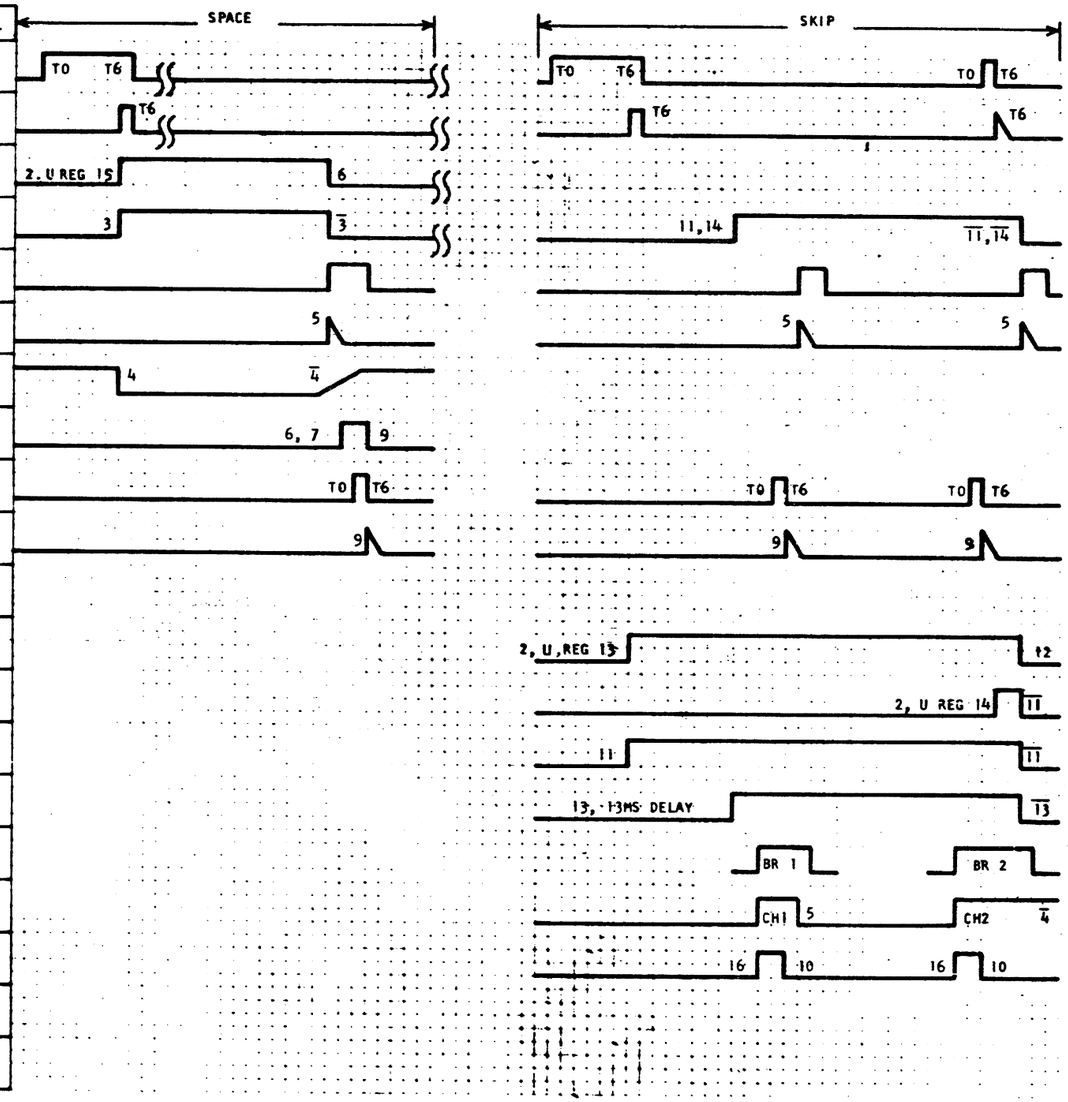
C

IBM CORP

XP706

XP706

NO	SIGNAL NAME	LOGIC PAGE	TEST POINT	LVL
1	X10 CONTROL	DU101 BD4	A-BIG5D10	+
2	PRINTER CONTROL LOAD	XP121 AD4	A-BIG5D09	-
3	LINE SPACE LATCH	XP101 AY4	A-BID6D10	-
4	CARRIAGE MAGNET SELECT	XP101 BD4	A-BIF6D12	-
5	CARRIAGE CB	PR131 AR4	LTCHCDC2	-
6	CARRIAGE CB PULSE	XP101 CM4	A-BIG6D04	+
7	SPACE INT ALLOW	XP331 AP6	A-BIB6B05	+
8	CARRIAGE SPACE INT	XP201 AW2	A-BIJ5B04	+
9	X10 SENSE DEVICE	DU 101AY4	A-BIL6B13	+
10	X10 SENSE, AREA 6 RESET BIT 15	XP201 BH4	A-BIM5B02	-
11	SKIP START LATCH	XP101 AU4	A-BID6B03	+
12	SKIP STOP LATCH	XP101 AR4	A-BID6D04	-
13	INTERPOSER MAG SELECT	XP101 AZ4	A-BI66D11	-
14	INTERPOSER CONTACT	XP331 AM1	A-BIE6D09	+
15	CARRIAGE BRUSH	PR141		+
16	ANY CARRIAGE CHANNEL	XP111 AS4	A-BIF6B02	-
17	CARRIAGE SKIP INT	XP201 AV2	A-BIJ5B09	+



DATE	EC NUMBER	DATE	EC NUMBER
MAR 71	571150		
29JUL71	571153		

PRINTER CONTROL TIMING
START, STOP, SPACE

DATE 30 MAR 71 P/N 5889434
TYPE 1130

IEC XP711

XP711

X10 FUNCTION DECODES

B POWERED OUTPUT BUSS

READ LAMP SCA RP111 RP121

X10 START READ OR PROGLOAD

X10 START PUNCH

PUNCH CHECK RP141 RP151 RP161

REG COMP GATES

XR321 XR331

LOAD PUNCH DATA

REG COMPLEMENT DATA

REG COMP CONTROL

A

A

RD/PCH DATA REG

XR341 XR351 XR361

X10 READ OR PROG LD

X10 SENSE DSW

DATA/DSW BUSS ASSEMBLY

XR371 XR381

I/O INPUT BUSS

X10 WRITE

PUNCH DATA GATE

PUNCH MAGNET GATES

XR271

PUNCH MAGNETS RP141 RP151 RP161

U REGISTER X10 DECODES

PROGRAM LOAD

X10 CONTROL

RD/PCH FUNCTION CONTROL

XR241 XR251 XR261

READ EMITTER RP121

READ EMITTER SCA

RD/PCH TIMING

XR301 XR311

RD/FEED/ PUNCH CB RP131

INTERRUPT

XR281 XR291

REQUEST INTERRUPT LEVEL 0

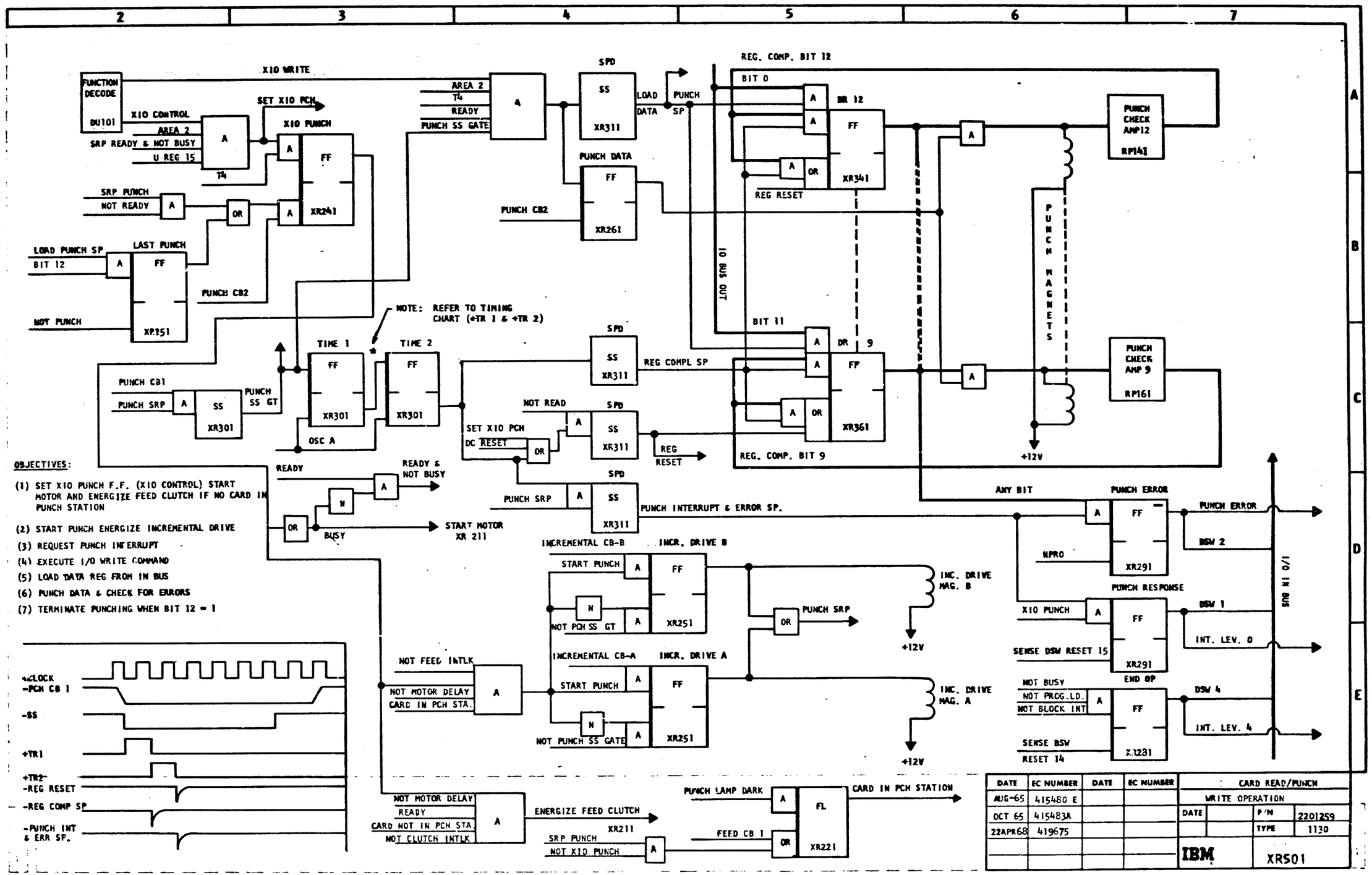
REQUEST INTERRUPT LEVEL 4

A B C D E

XR401

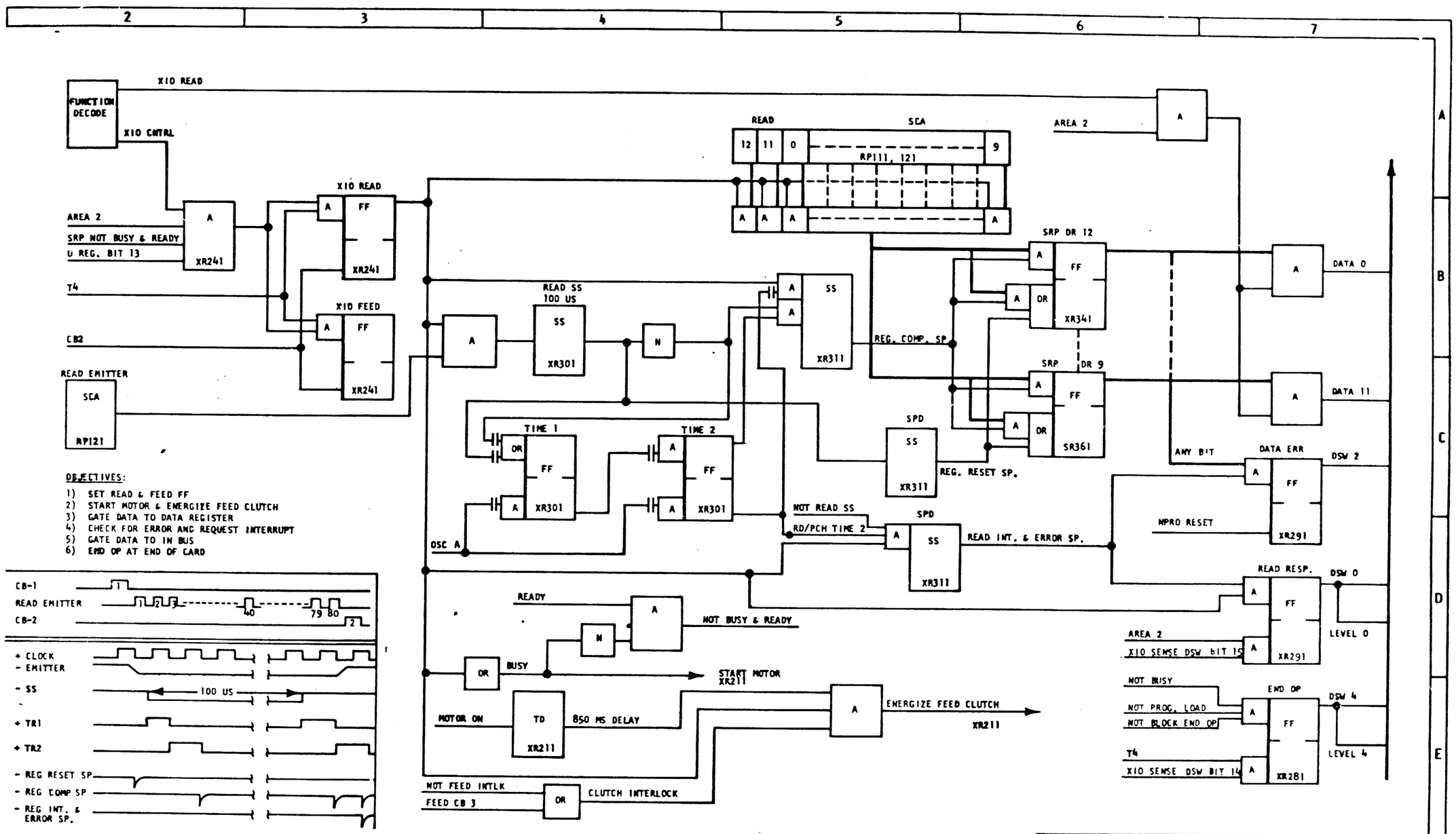
DATE	EC NUMBER	DATE	EC NUMBER	CARD READ/PUNCH UNIT DATA AND CONTROL DIAGRAM			
AUG-65	415480 E			DATE	3-25-65	P/N	2201258
						TYPE	1130
				IBM		XR401	

XR401



DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		
OCT 65	415483A		
22APR68	419675		

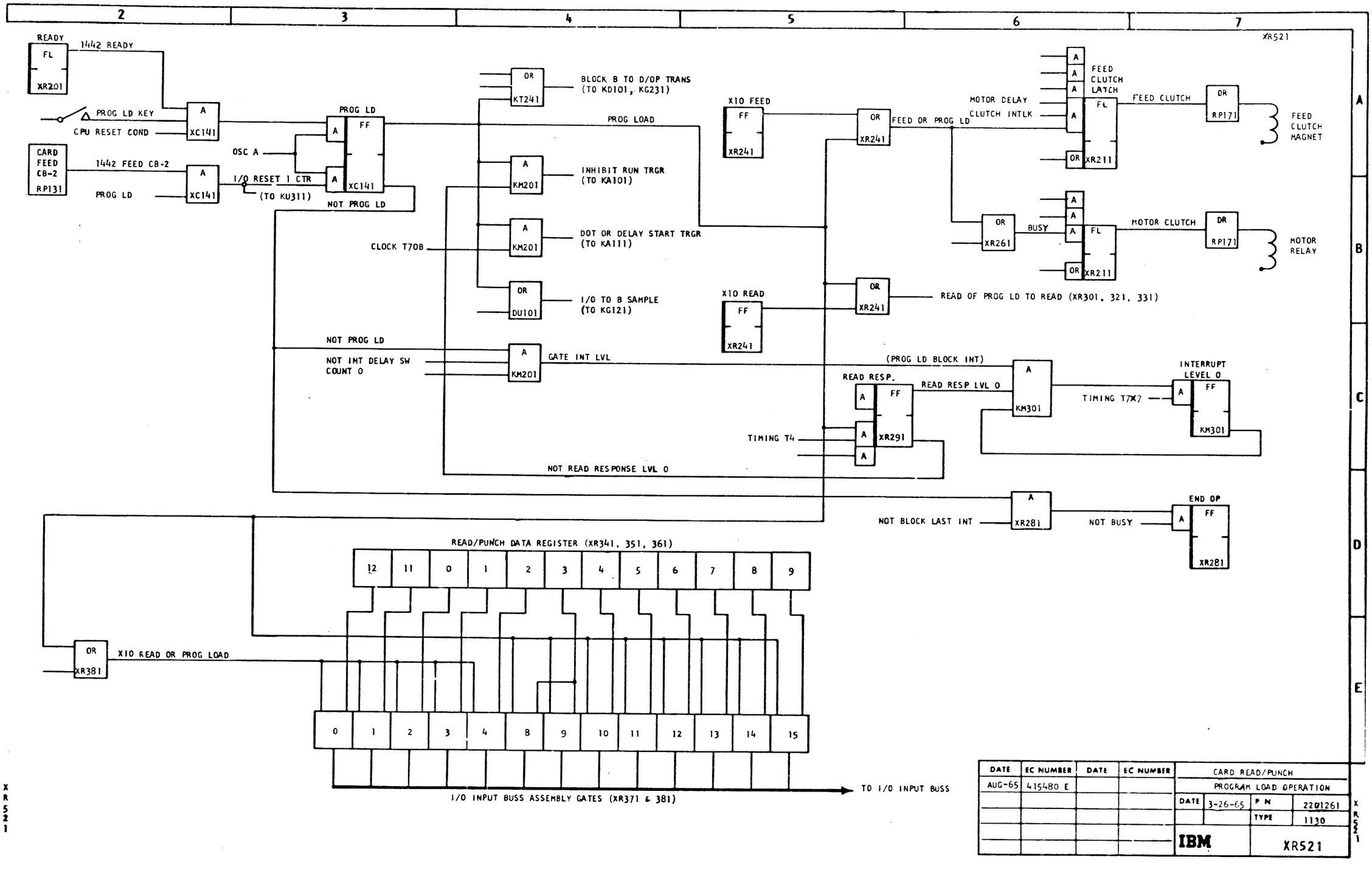
CARD READ/PUNCH
WRITE OPERATION
DATE | P/N 2201259
TYPE 1130
IBM XR501



OBJECTIVES:

1) SET READ & FEED FF
2) START MOTOR & ENERGIZE FEED CLUTCH
3) GATE DATA TO DATA REGISTER
4) CHECK FOR ERROR AND REQUEST INTERRUPT
5) GATE DATA TO IN BUS
6) END OP AT END OF CARD

DATE	EC NUMBER	DATE	EC NUMBER	CARD READ PUNCH - READ OPERATION			
AUG-65	415480 E						
OCT 65	415483A			DATE	3-25-65	P N	2201260
22APR68	419675					TYPE	1130
				IBM		XR511	

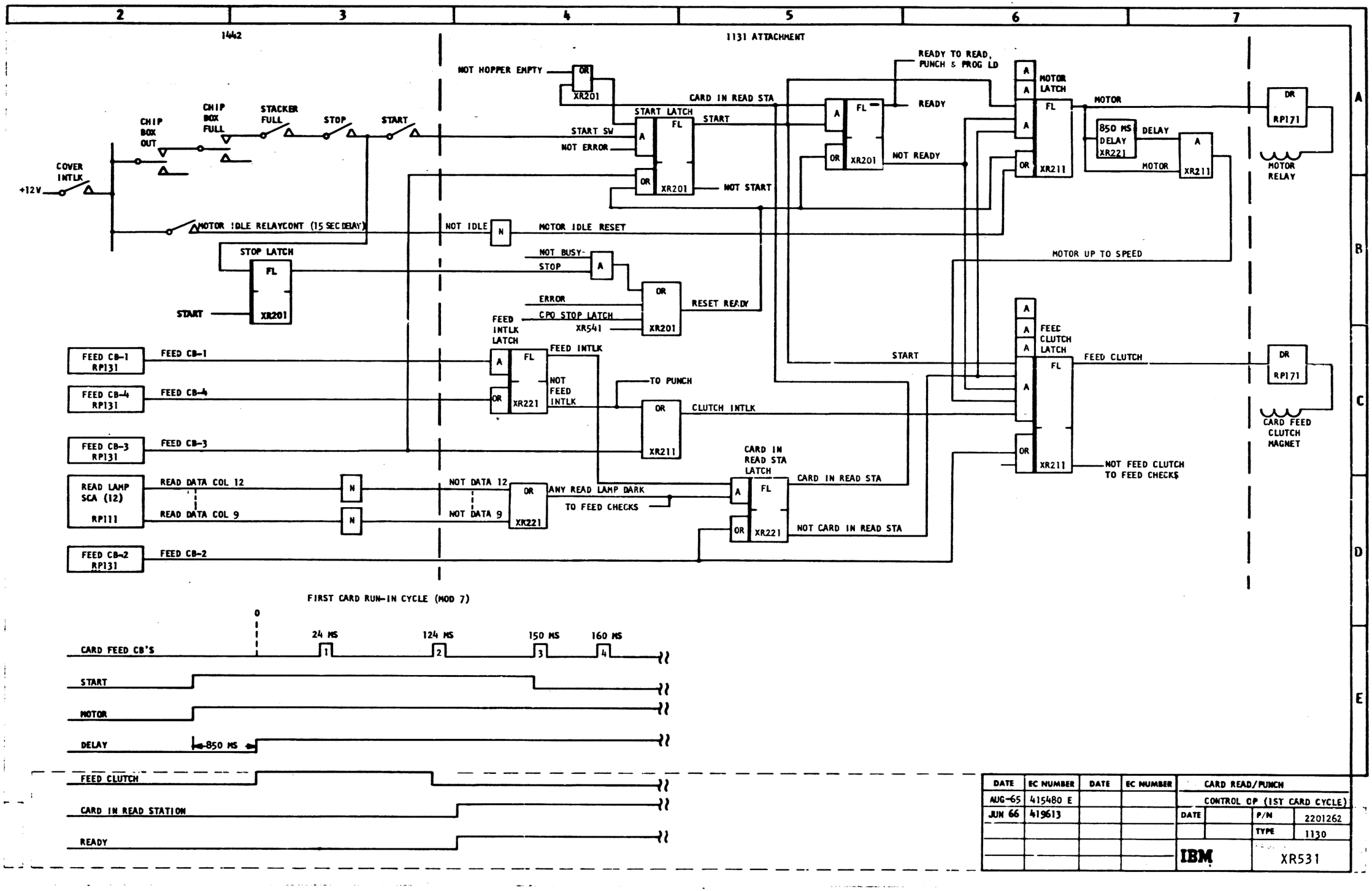


DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		

CARD READ/PUNCH
PROGRAM LOAD OPERATION
DATE 3-26-65 P N 2201261
TYPE 1130
IBM XR521

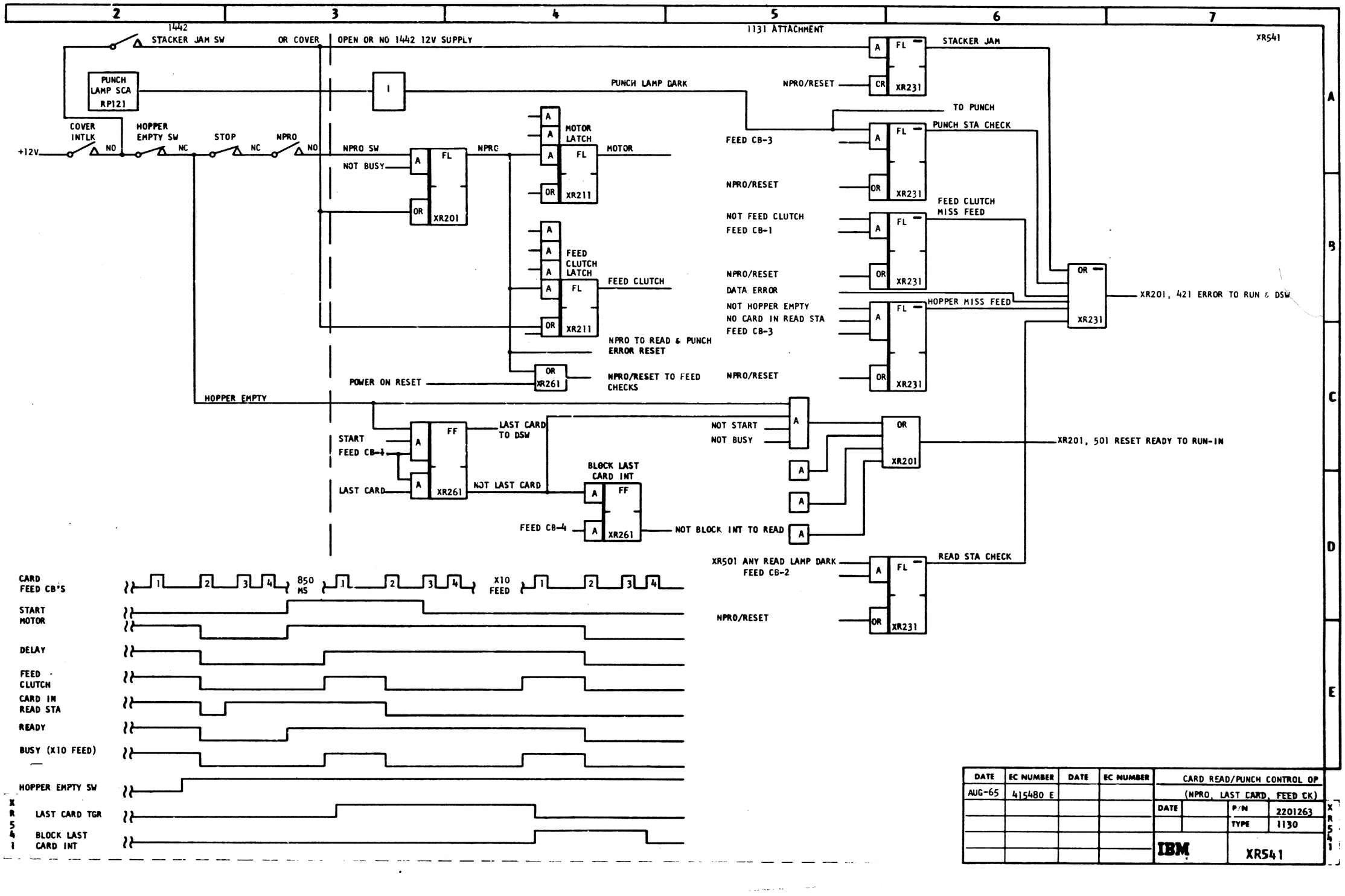
XR521

XR521



DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		
JUN 66	419613		

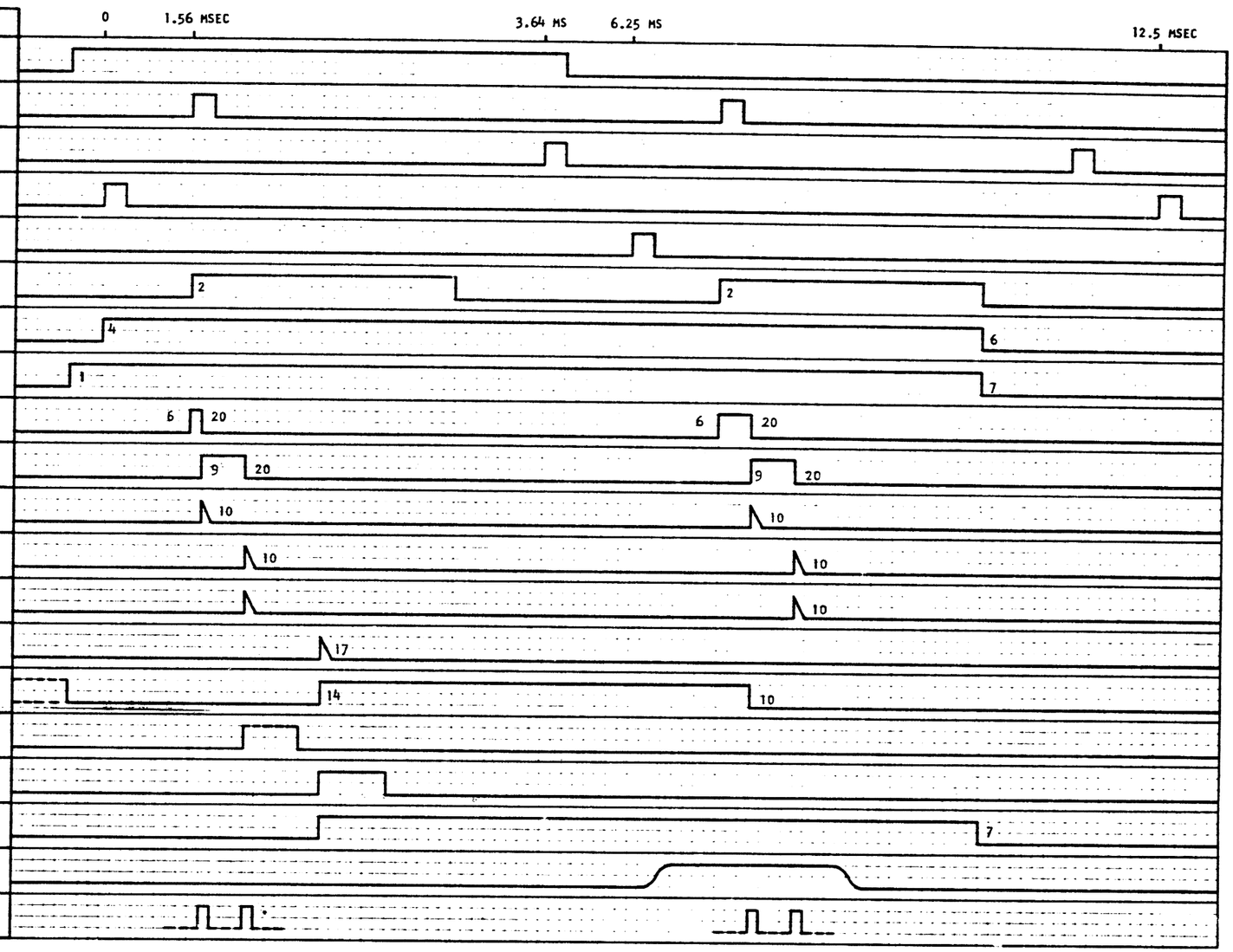
CARD READ/PUNCH
CONTROL OP (1ST CARD CYCLE)
DATE
P/N 2201262
TYPE 1130
IBM
XR531



DATE	EC NUMBER	DATE	EC NUMBER	CARD READ/PUNCH CONTROL OP (NPRO, LAST CARD, FEED CK)
AUG-65	415480 E			DATE P/N 2201263
				TYPE 1130
				IBM XR541

XR541

LVL	SIGNAL NAME	SOURCE PAGE	TEST POINT
1	+SRP X10 PUNCH	XR241BB2	A-B1F3D09
2	+PUNCH CB-1	XR121AF4	A-B1M3G04
3	-PUNCH CB-2	XR121AH1	A-B1M3G07
4	+INCR DRIVE CB-A	XR121AH5	A-B1M3G02
5	-INCR DRIVE CB-B	XR121AH9	A-B1M3J13
6	-PUNCH SS2	XR301AS4	A-B1K3B07
7	+PUNCH SRP	XR261AD4	A-B1G4D09
8	+SRP BUSY	XR261AE4	A-B1J4B02
9	+SRP RD/PCH TIMING 1	XR301AT2	A-B1M3B10
10	+SRP RD/PCH TIMING 2	XR301BB2	A-B1M3D09
11	-REG COMPLEMENT SP	XR311AP2 XR311AQ2	A-B1L3B12 A-B1L3D11
12	-REG RESET SP	XR311AR2	A-B1L3D04
13	-PUNCH INT & ERROR SP	XR311AG2	A-B1L3B03
14	-LOAD PUNCH DATA SP	XR311AS2	A-B1L3B08
15	-REGISTER NOT ZERO	XR291BD4	A-B1G2D13
16	+PUNCH RESPONSE	XR291AY2	A-B1K4B09
17	+X10 WRITE	DU101BE4	A-B1G3D11
18	+LAST PUNCH	XR251BM2	A-B1H3D09
19	+PUNCH CHECK AMP BITS	XR121	A-B1N2 A-B1N3
20	-OSC A PWR	XR301AC4	A-B1G4D13



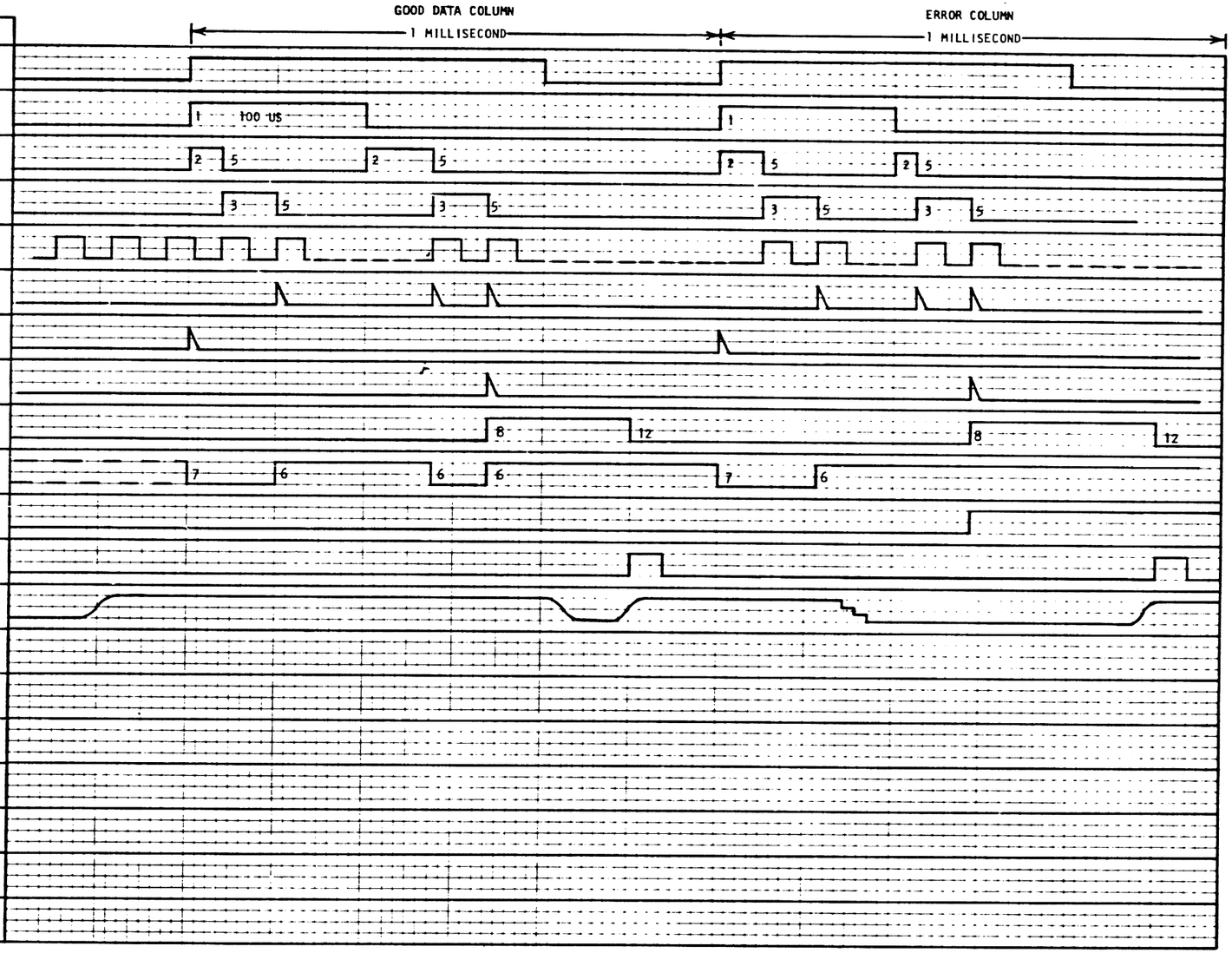
DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		
22APR68	419675		

CARD READ/PUNCH
WRITE TIMING

DATE		P/N	2201264
		TYPE	1130

IBM XR701

LVL	SIGNAL NAME	SOURCE PAGE	TEST POINT
1	+ READ EMITTER	XR121AD7	A-B1N3B08
2	- SRP READ SS	XR301AR4	A-B1K3B03
3	+ SRP RD/PCH TIMING 1	XR301AT2	A-B1M3B10
4	+ SRP RD/PCH TIMING 2	XR301BB2	A-B1M3D09
5	- OSC A PWR -.OSC PHASE A	XR301AC4	A-B1G4D13
6	- REG COMP SP	XR311AQ2 XR311AP2	A-B1L3D11 A-B1L3B12
7	- REG RESET SP	XR311AR2	A-B1L3D04
8	- READ INT AND ERROR SP	XR311AM2	A-B1L3D07
9	+ READ RESPONSE	XR291AX2	A-B1K4B04
10	- REGISTER NOT ZERO	XR291BD4	A-B1G2D13
11	+ READ ERROR	XR291AZ2	A-B1H4B04
12	+ X10 SENSE RESET 15	DU111AM4	A-B1B2B12
0	+ READ SCA BIT	XR111 XR121	A-B1N2



DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		
22APR68	419675		

CARD READ/PUNCH READ AND PROGRAM LOAD TIMING

DATE | P/N 2201265

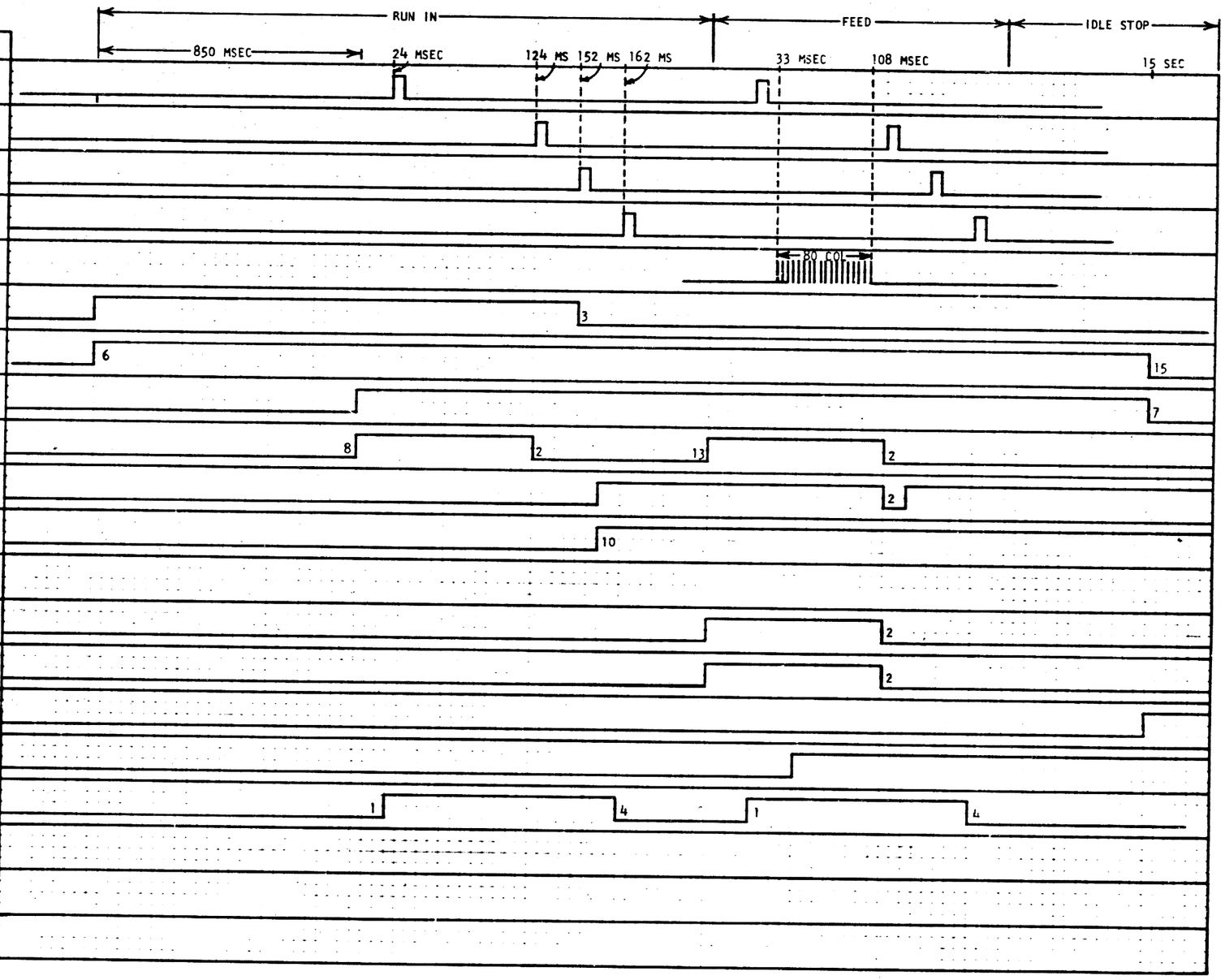
TYPE 1130

IBM

XR711

XR721

LVL	SIGNAL NAME	SOURCE PAGE	TEST POINT
1	+ FEED CB-1	XR121AF2	A-B1N3B09
2	+ FEED CB-2	XR121AF6	A-B1N3D12
3	+ FEED CB-3	XR121AH3	A-B1N3B12
4	- FEED CB-4	XR121AH7	A-B1N3B13
5	+ READ EMITTER	XR121AD7	A-B1N3B08
6	+ START SRP	XR201AS4	A-B1B3J02
7	+ SRP MOTOR	XR211AS4	A-B1B3D06
8	+ SRP MOTOR DELAY	XR211AX4	A-B1B3D10
9	+ SRP FEED CLUTCH	XR211AV4	A-B1B3B08
10	+ CARD IN READ STA	XR221AY4	A-B1C4D09
11	+ SRP READY PWR	XR201BA4	A-B1B3D13
13	+ X10 FEED	XR241BA2	A-B1F3B09
14	+ SRP BUSY	XR261AE4	A-B1J4B02
15	- IDLE RELAY CONTACT	XR111AT6	A-B1A3D10
16	+ CARD IN PCH STA	XR221AW4	A-B1C4D06
17	+SRP FEED INTLK	XR221AV4	A-B1M3G13



DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		

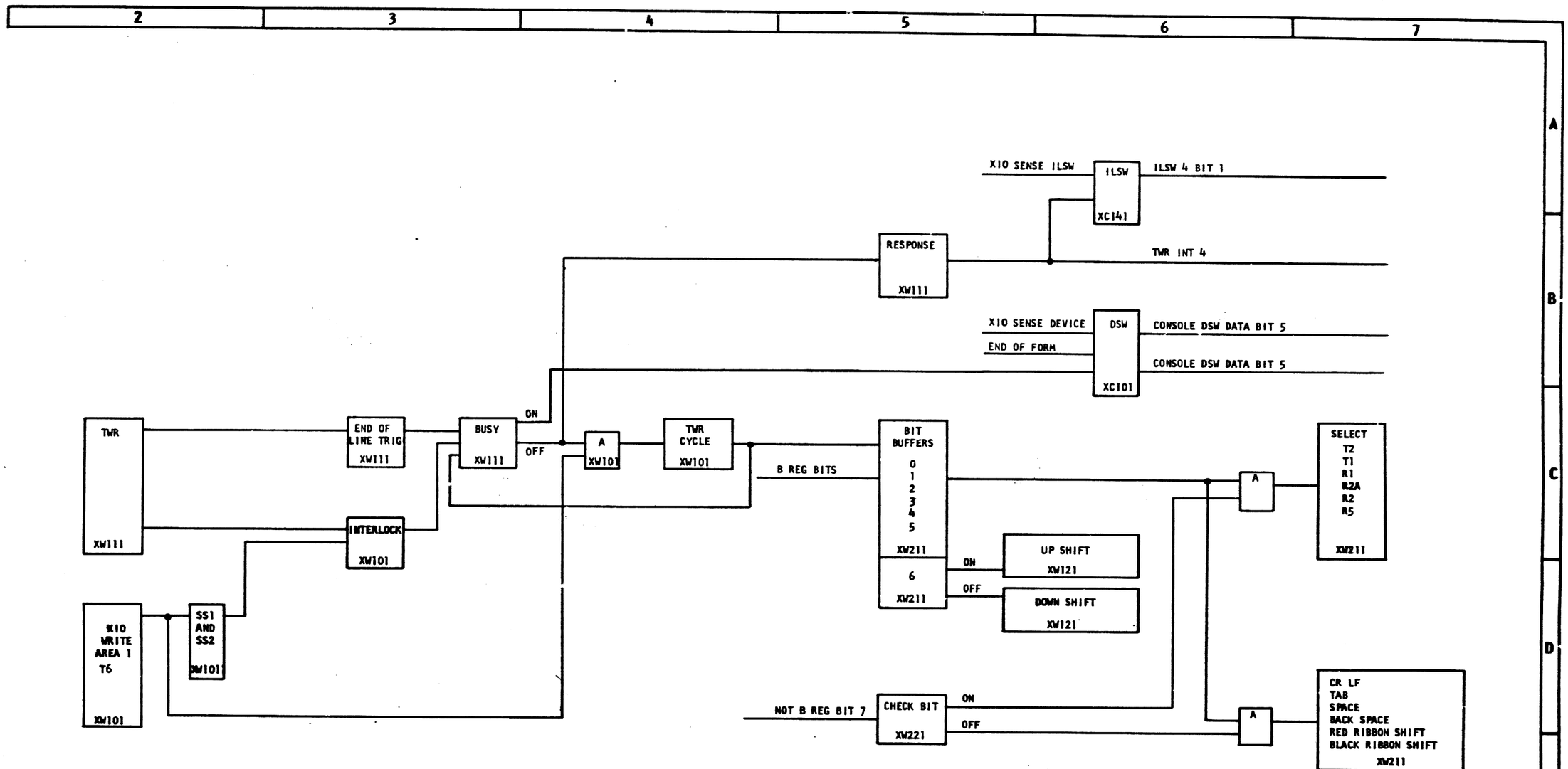
CARD READ/PUNCH
CONTROL TIMING

DATE	3-26-65	P/N	2201266
		TYPE	1130

IBM XR721

XR721

XR721



DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		
22APR68	419675		

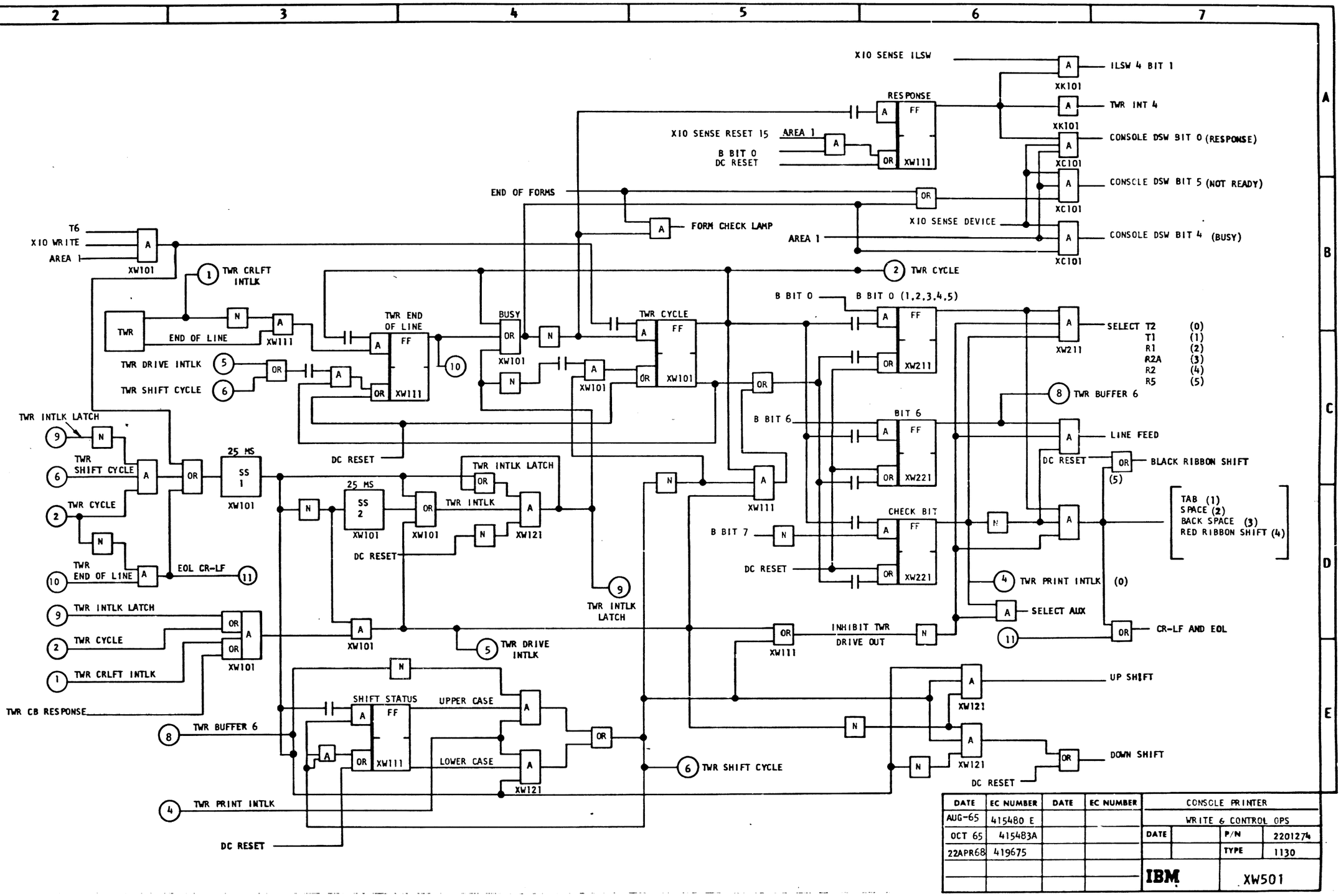
CONSOLE PRINTER UNIT

DATA AND CONTROL DIAGRAM

DATE		P/N	2201273
		TYPE	1130

IBM

XW401



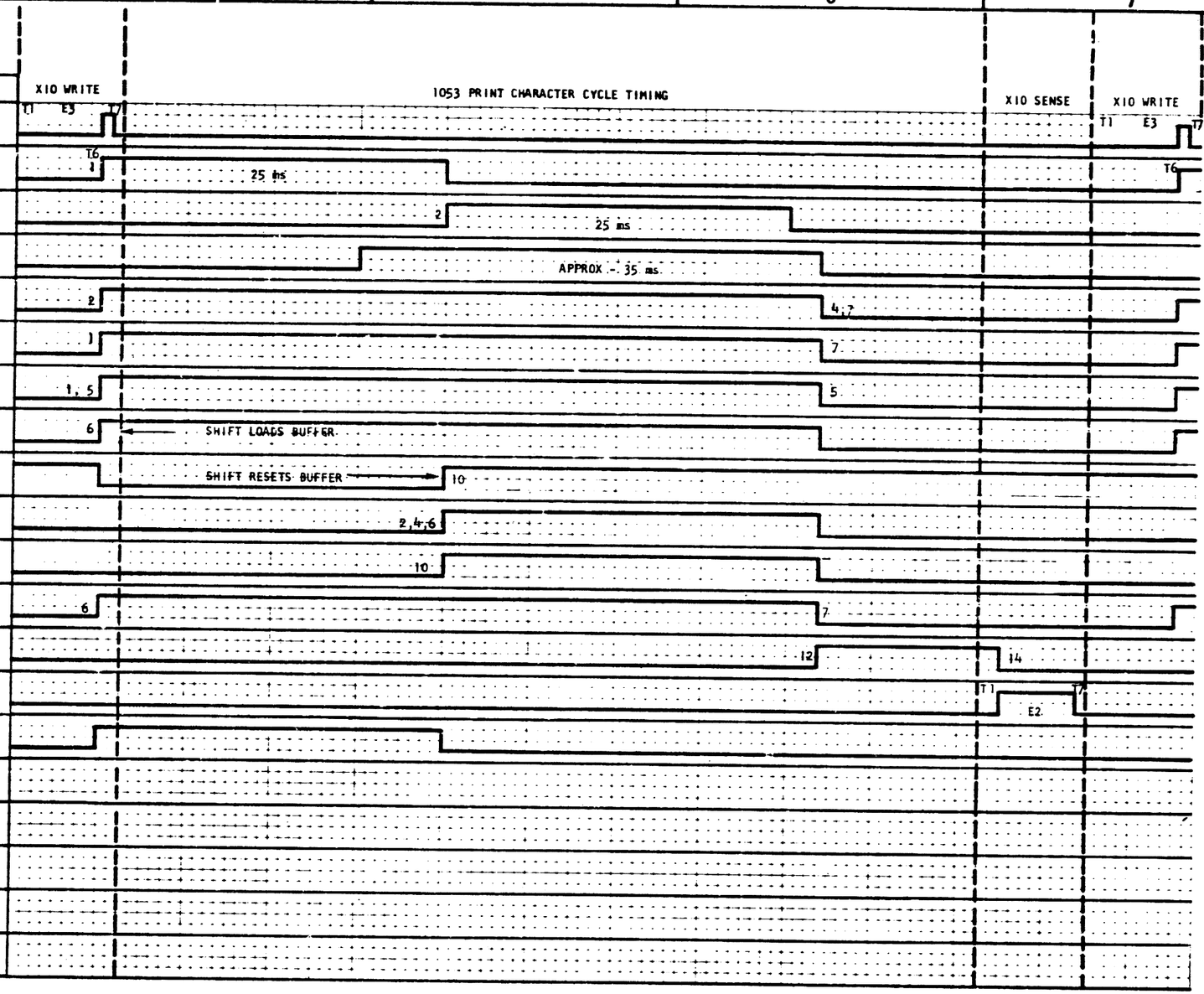
DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		
OCT 65	415483A		
22APR68	419675		

CONSOLE PRINTER
WRITE & CONTROL OPS

DATE		P/N	2201274
		TYPE	1130

IBM XW501

LVL	SIGNAL NAME	SOURCE PAGE	TEST POINT
1	- X10 WRITE, AREA 1, T6	XW101AA4	A-C1H7B02
2	- SINGLE SHOT 1	XW101BF4	A-C1F5B03
3	- SINGLE SHOT 2	XW101AJ4	A-C1F5B07
4	- TWR, C.B. RESPONSE	XW101AD4	A-C1E4D13
5	- TWR, INTERLOCK	XW101AH4	A-C1D4D02
6	- TWR CYCLE	XW101AS6	A-C1C4J07
7	- TWR. INTLK. LATCH	XW121BB4	A-C1F7B04
8	- TWR. BUFFER LOAD SP	XW101BD4	A-C1D4B09
9	- TWR. BUFFER RESET SP	XW111AR4	A-C1D4B13
10	- TWR. DRIVE INTLK.	XW101BG4	A-C1E4B07
11	- INH. TWR. DRIVE OUT	XW111AK4	A-C1D4B12
12	+ TWR. BUSY	XW101BE4	A-C1G5B02
13	+ TWR. RESPONSE	XW111BB2	A-C1F4D09
14	- X10 SENSE RESET 15 AREA 1	XK111AX4	A-C1F4D13
15	- SELECT T1	XW211BH4	A-C1B4D06



DATE	EC NUMBER	DATE	EC NUMBER
AUG-65	415480 E		

CONSOLE PRINTER WRITE AND CONTROL TIMING

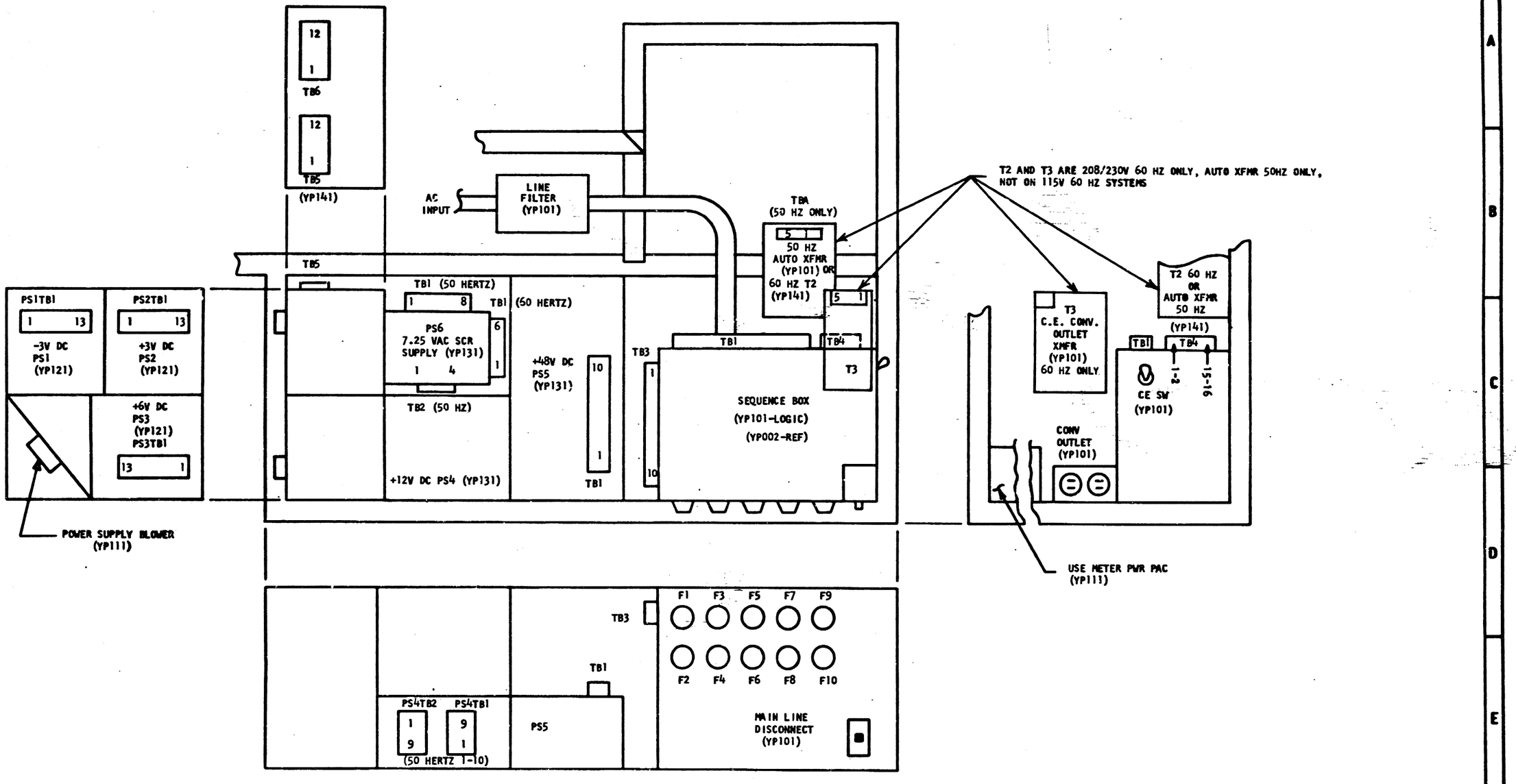
DATE | P/N 2201275

TYPE 1130

IBM XW701

XW701

XW701

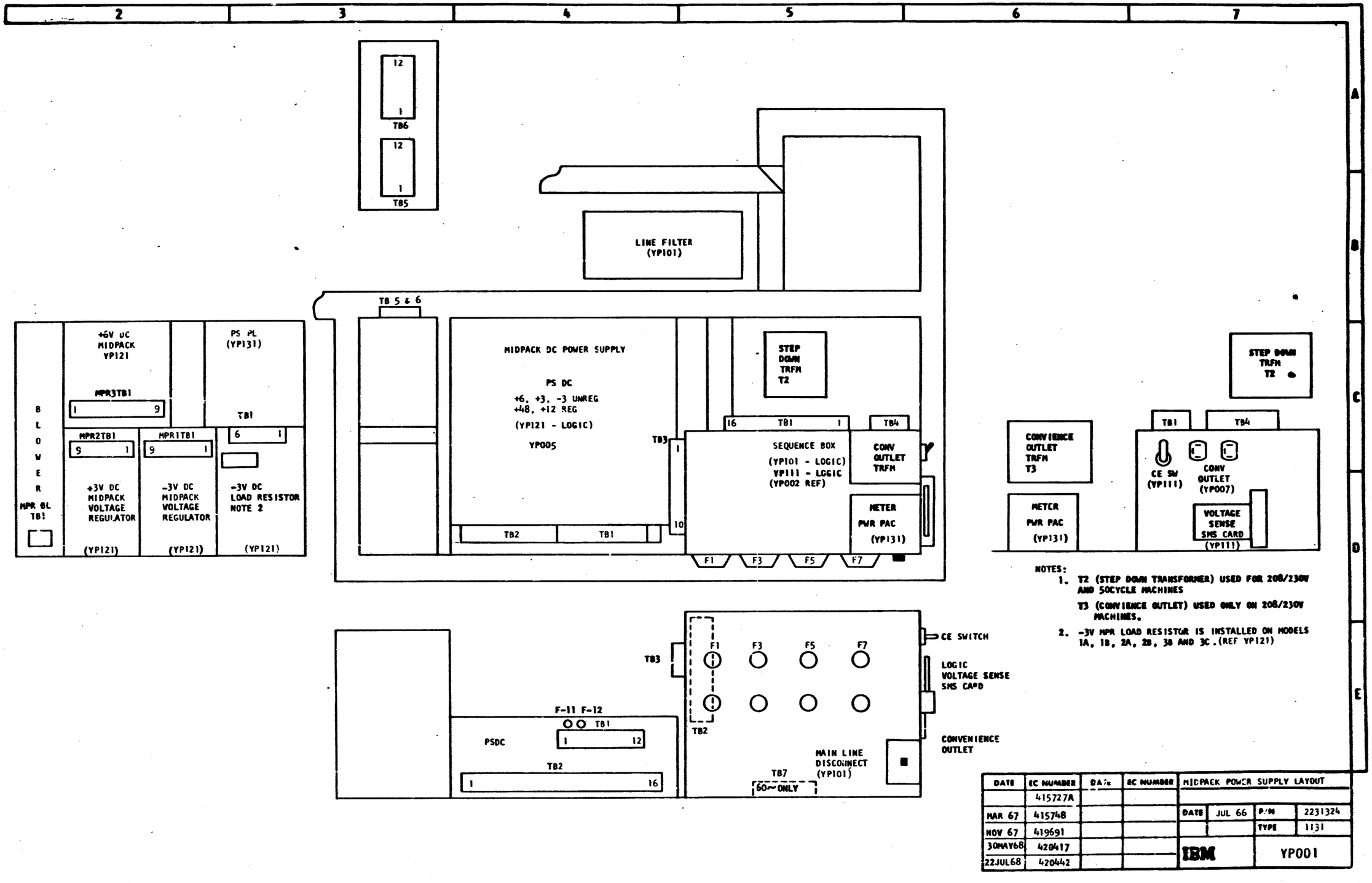


DATE	EC NUMBER	DATE	EC NUMBER
MAY65	415480D	RED MAR 67	419610B
AUG65	415480E	MAY 67	415777H
OCT65	415483B		
MAY66	419608		
JAN67	419610B		

POWER SUPPLY
LAYOUT 50 & 60 HZ

DATE		P/N	2201315
		TYPE	1131

IBM YP001



NOTES:

1. T2 (STEP DOWN TRANSFORMER) USED FOR 208/230V AND 50CYCLE MACHINES

   T3 (CONVIENCE OUTLET) USED ONLY ON 208/230V MACHINES.

2. -3V MPR LOAD RESISTOR IS INSTALLED ON MODELS 1A, 1B, 2A, 2B, 3B AND 3C.(REF YP121)

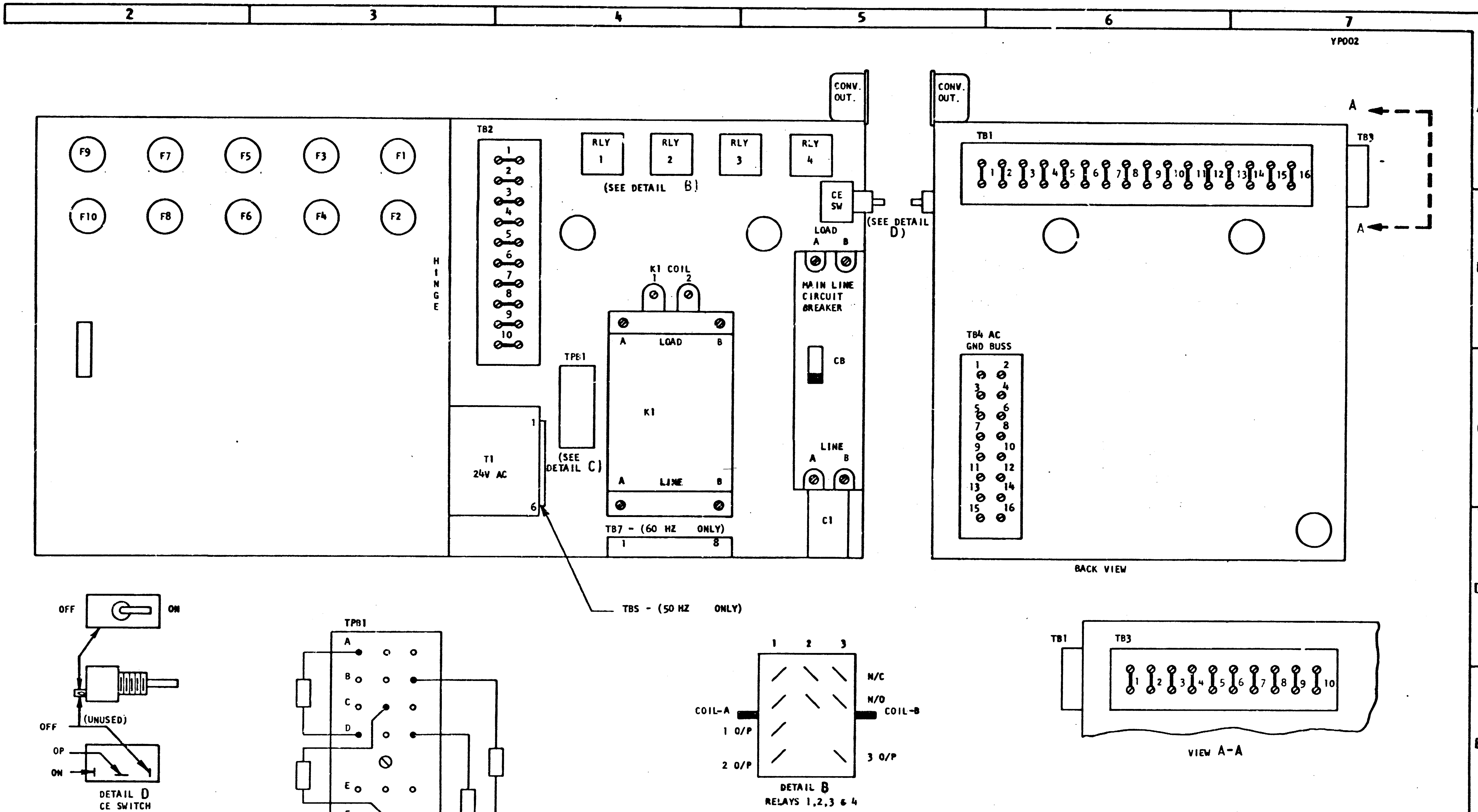
DATE	EC NUMBER	DATE	EC NUMBER
	415727A		
MAR 67	415748		
NOV 67	419691		
30MAY68	420417		
22JUL68	420442		

MIDPACK POWER SUPPLY LAYOUT

DATE	JUL 66	P/N	2231324
		TYPE	1131

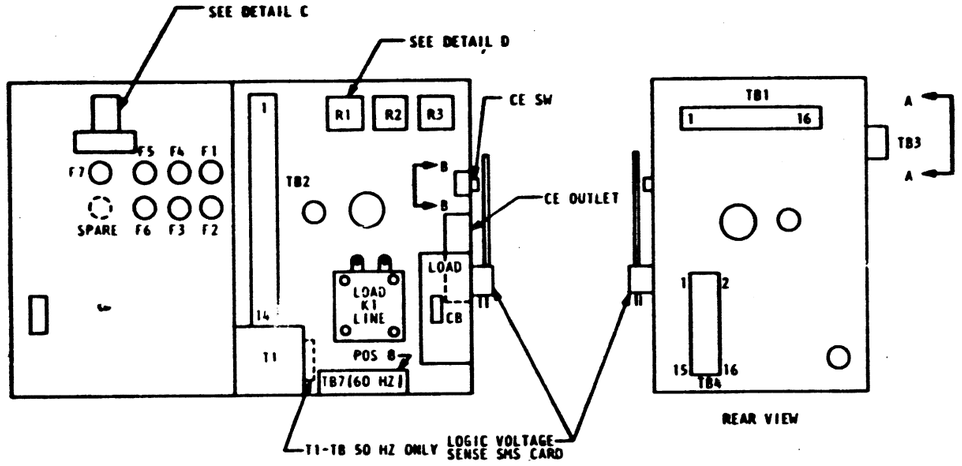
IBM

YP001

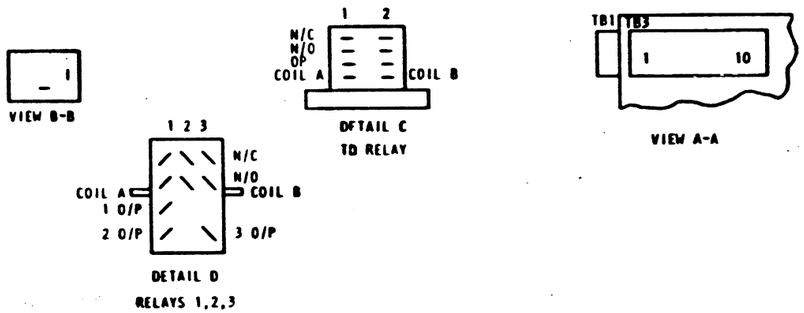


DATE	EC NUMBER	DATE	EC NUMBER	PHYSICAL LAYOUT
MAY-65	415480D			SEQUENCE BOX 50 & 60 HERTZ
AUG-65	415480E			DATE 5-15-65 P N 2201316
MAR 66	415497			TYPE 1131
DEC66	419610B			IBM YP002

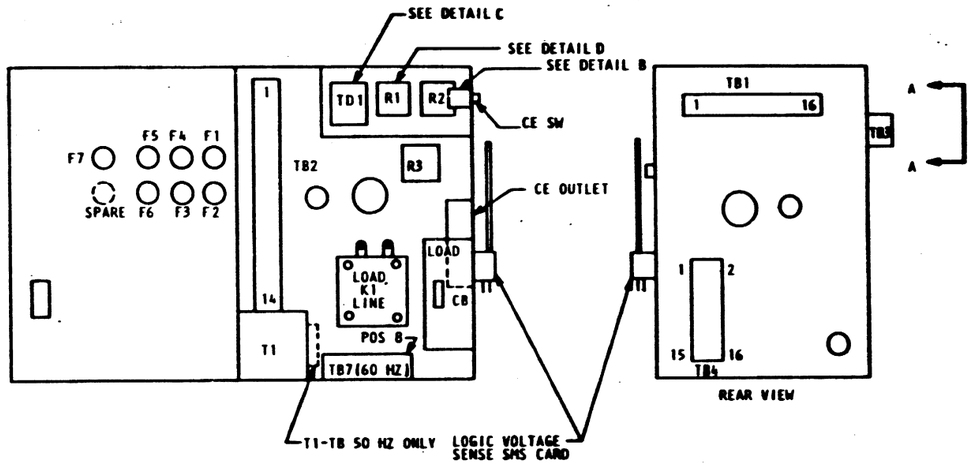
PREVIOUS LEVEL



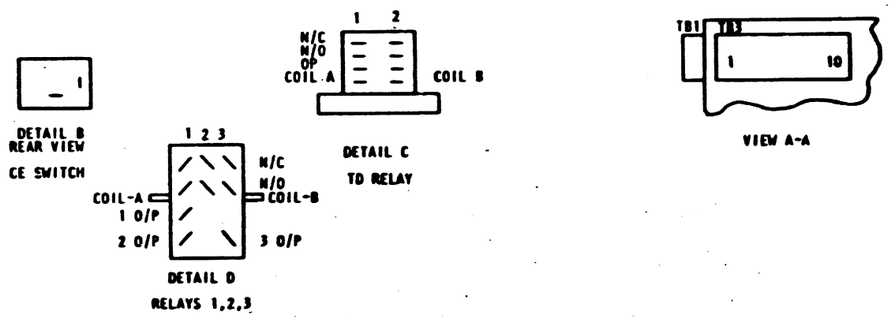
FRONT VIEW WITH DOOR OPEN



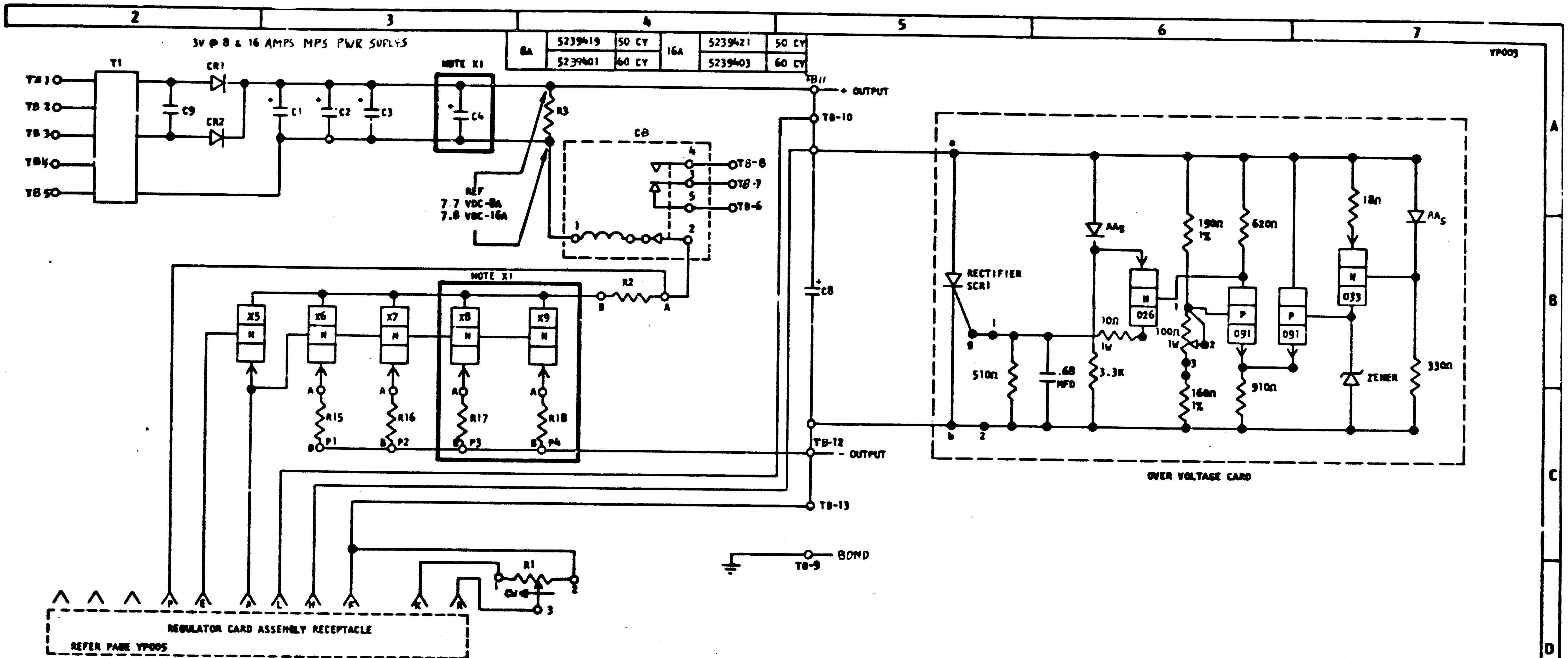
LATEST LEVEL



FRONT VIEW WITH DOOR OPEN



DATE	EC NUMBER	DATE	EC NUMBER	REFERENCE DWG.			
JUL66	415727A						
MAR67	415748			DATE	AUG 68	D/B	2231325
NOV67	420325A					TYPE	
1 JUL68	420442			IBM		YP002	

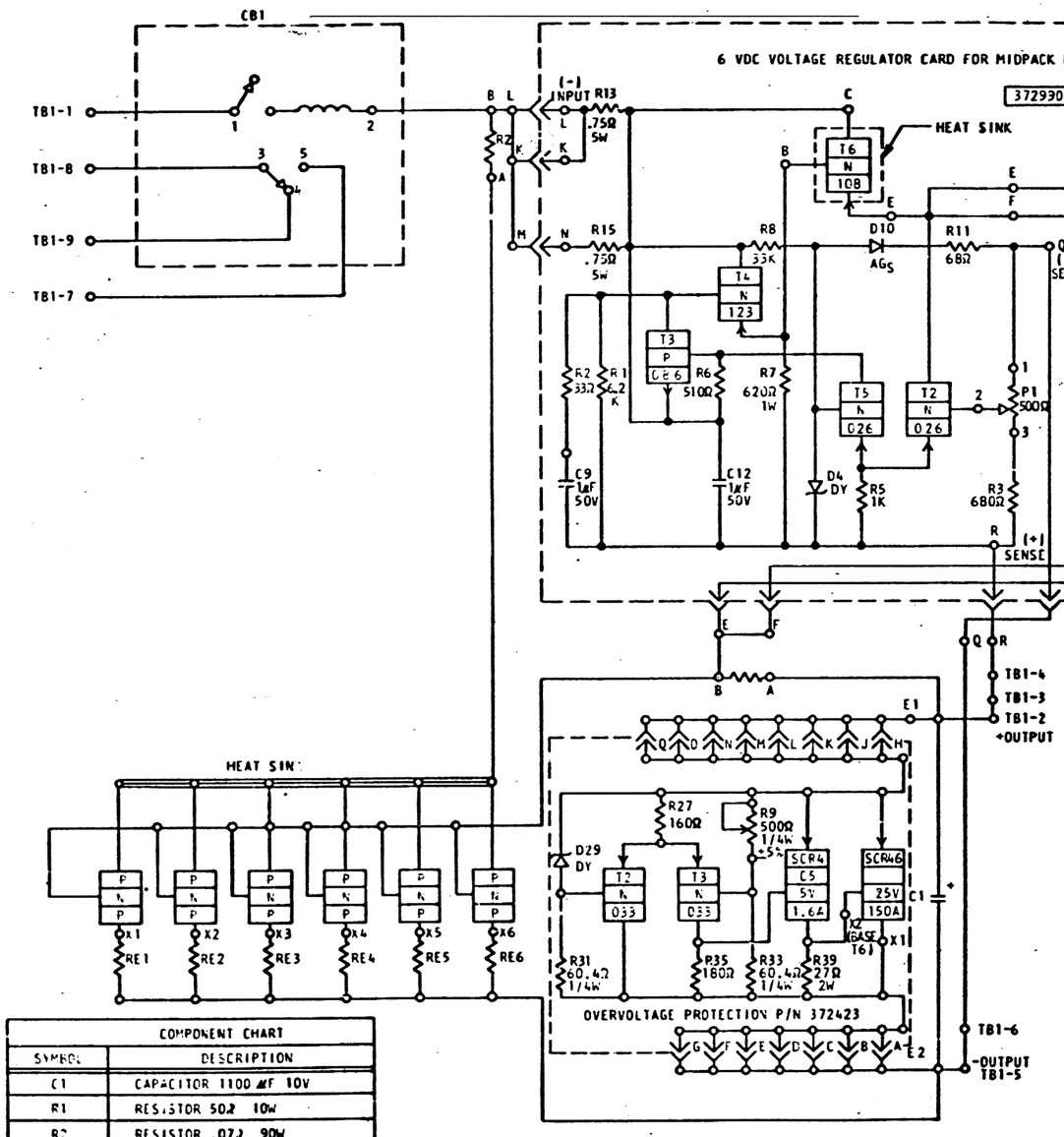


COMPONENT CHART 3V 8A & 16A	
CODE	DESCRIPTION
C1-4	CAPACITOR 24K UF
C8	CAPACITOR 10K UF
C9	CAPACITOR .01 UF
R1	POTENTIOMETER 100Ω 1/2W
R2-8A	RESISTOR .06Ω 25W
R2-16A	RESISTOR .04Ω 25W
R3	RESISTOR 330Ω 2W
R15-18	RESISTOR 0.1Ω 5W
X5	TRANSISTOR 119
X6-X9	TRANSISTOR 108

NOTES:
X1 COMPONENTS WITHIN THE HEAVY BLACK LINES ARE PRESENT ON THE 3V 16 AMP SUPPLY ONLY

DATE	EC NUMBER	DATE	EC NUMBER	3V 8A & 3V 16A PWR SUPPLIES			
AUG-65	415480E			50 & 60 HERTZ			
DEC-66	419610B			DATE	JUL 65	P/N	2201 328
						TYPE	1131
				IBM		YP003	

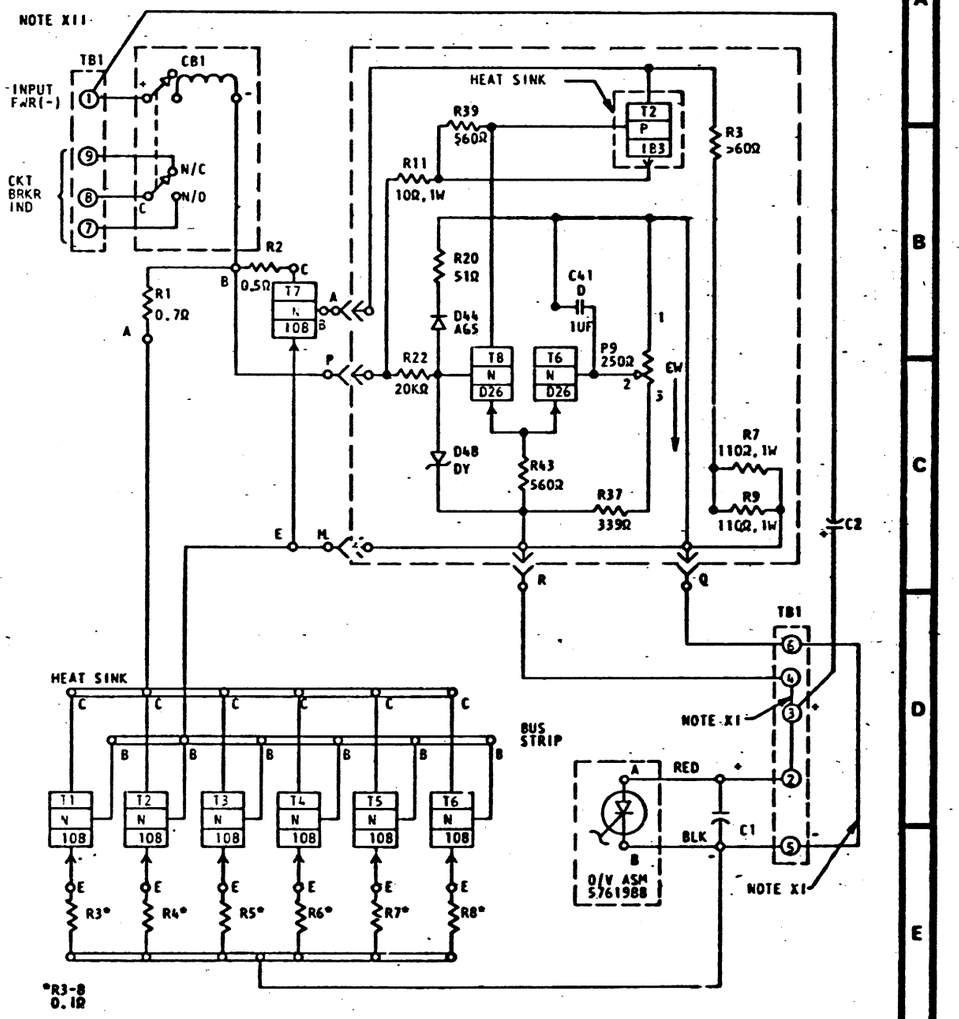
POWER SUPPLY 6V AT 24A MID-PAC P/N 730490 (PREVIOUS LEVEL)



COMPONENT CHART	
SYMBOL	DESCRIPTION
C1	CAPACITOR 1100 μF 10V
R1	RESISTOR 50Ω 10W
R2	RESISTOR .07Ω 90W
RE1-6	RESISTOR 0.1Ω 5W
X1-6	TRANSISTOR TYPE 108

NOTE ADJUST P1 OF VR CARD FOR +6V OUTPUT

POWER SUPPLY 6V AT 24A MID-PAC P/N 5762030 (LATEST LEVEL)



*R3-8 0.1Ω

NOTES:

X1 FOR REMOTE SENSING REMOVE INDICATED JUMPERS AND SENSE BETWEEN TB1-4 AND TB1-6.

XII INPUT POWER APPLIED BETWEEN TERMINALS TB1-1 AND TB1-2.

DATE	EC NUMBER	DATE	EC NUMBER
8JUL6E	420442		

ITEM

(-) 24A PWR SUP MID-PAC REF ONLY

DATE [illegible] 6E P/N 2231326

TYPE 1131

IBM YP003

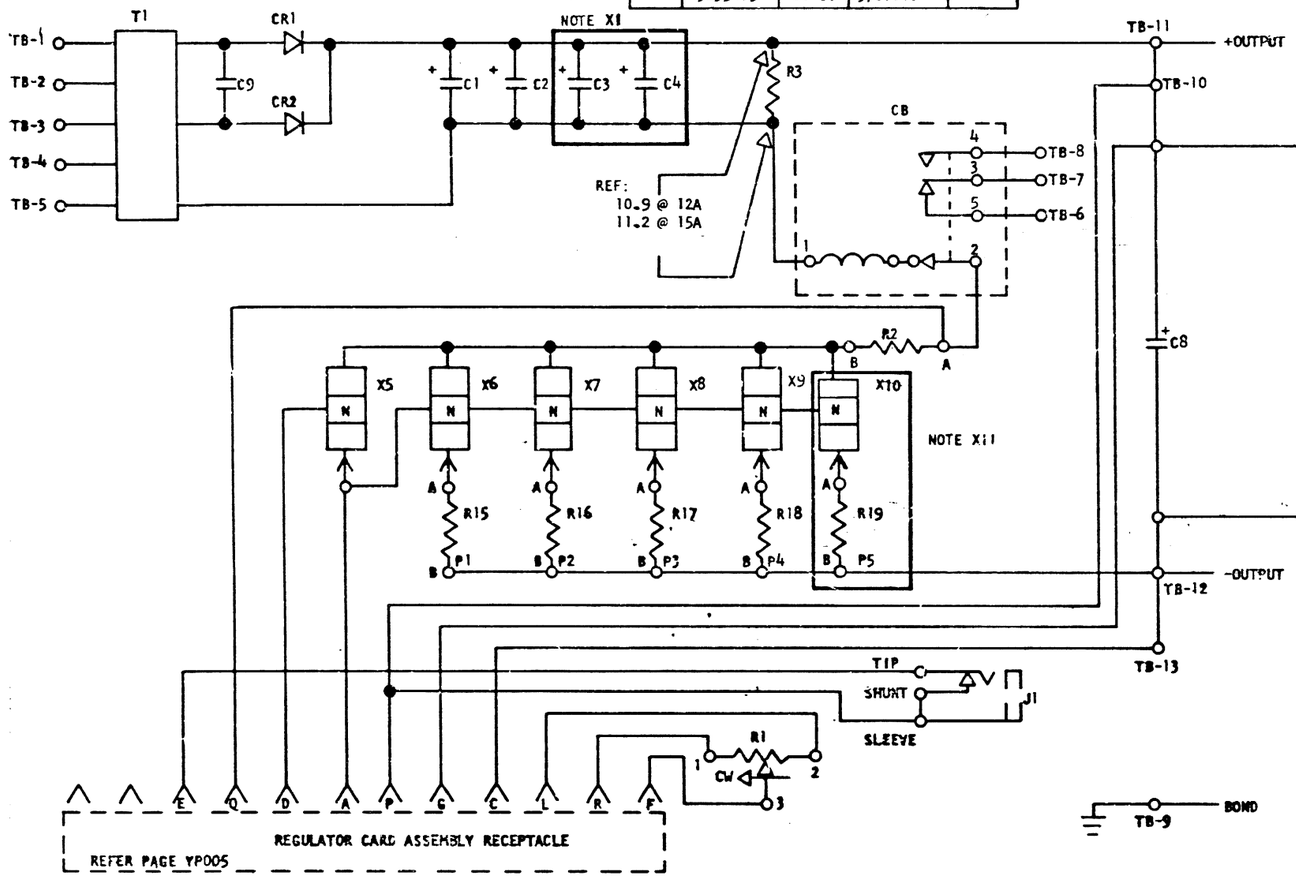
2231326

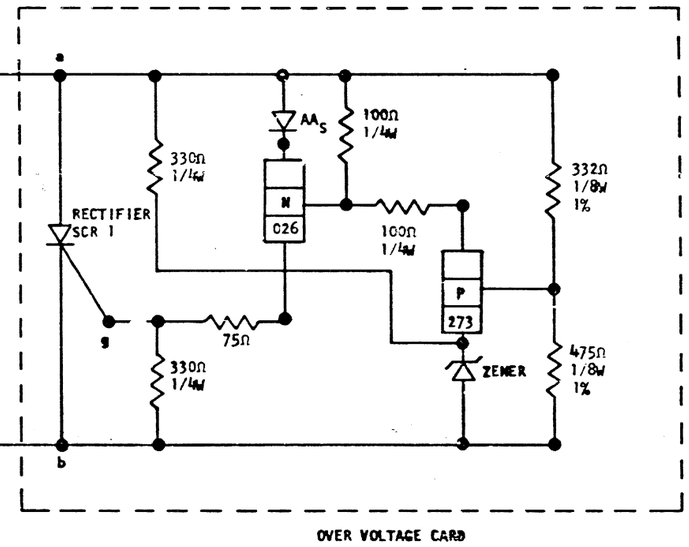
2	3	4	5	6	7

YP004

6V @ 12 AMPS MPS PWR SPLY

12A	5239427	50 CY	5760690	15A
	5239409	60 CY	5760610	





COMPONENT CHART 6V 12A		COMPONENT CHART 6V 15A
CODE	DESCRIPTION	DESCRIPTION
C1-4	CAPACITOR 17K UF	CAPACITOR K UF
C8	CAPACITOR 23K UF	CAPACITOR 7.3K UF
C9	CAPACITOR .01 UF	CAPACITOR .01 UF
R1	POTENTIOMETER 100Ω 1/2W	POTENTIOMETER 100Ω 1/2W
R2	RESISTOR .04Ω 25W	RESISTOR .04Ω 25W
R3	RESISTOR 330Ω 2W	RESISTOR 200Ω 5W
R15-19	RESISTOR 0.1Ω 5W	RESISTOR 0.1Ω 5W
X5	TRANSISTOR 119	TRANSISTOR 119
X6-X10	TRANSISTOR 108	TRANSISTOR 108

NOTES

XI COMPONENTS WITHIN HEAVY BLACK LINES ARE PRESENT ONLY ON THE 6V @ 12A SUPPLY

XII COMPONENTS WITHIN HEAVY BLACK LINES ARE PRESENT ONLY ON THE 6V @ 15A SUPPLY

DATE	EC NUMBER	DATE	EC NUMBER
MAY 65	4154800		
AUG 65	4154800		
MAY 66	419610A		

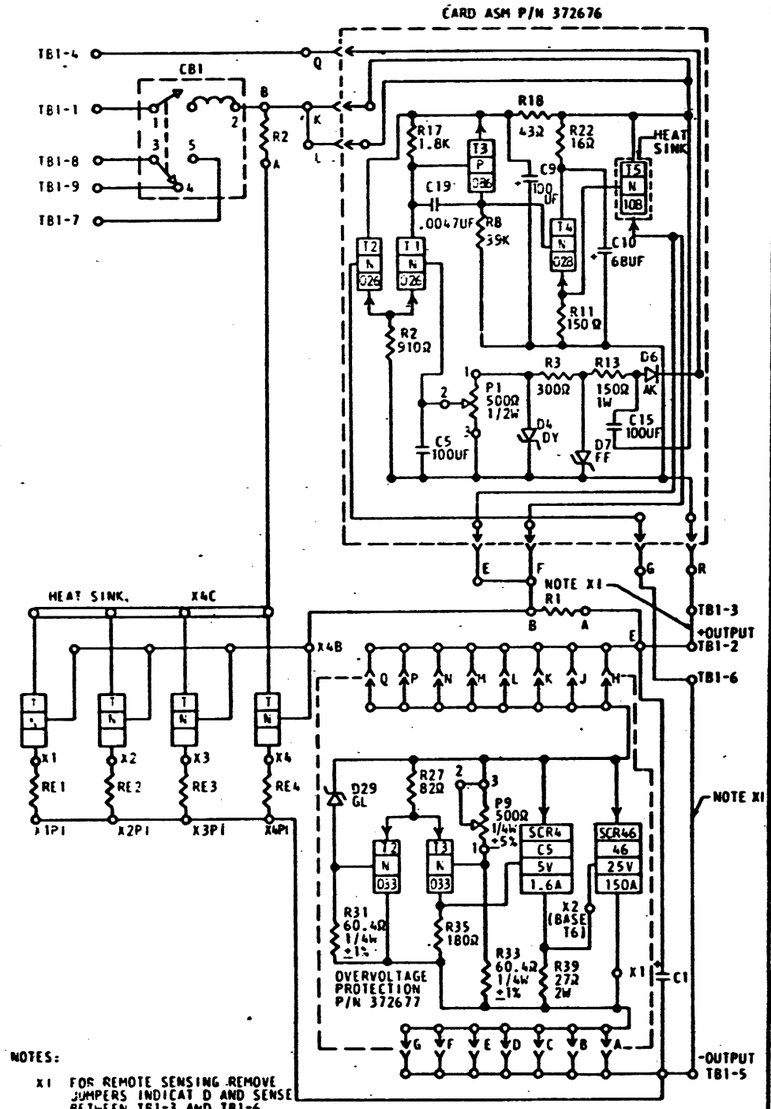
6V 12A PWR SPLY 50 & 60 CYCLE

DATE	MAY 65	P/N	2201317
		TYPE	1131

IBM YP004

YP004

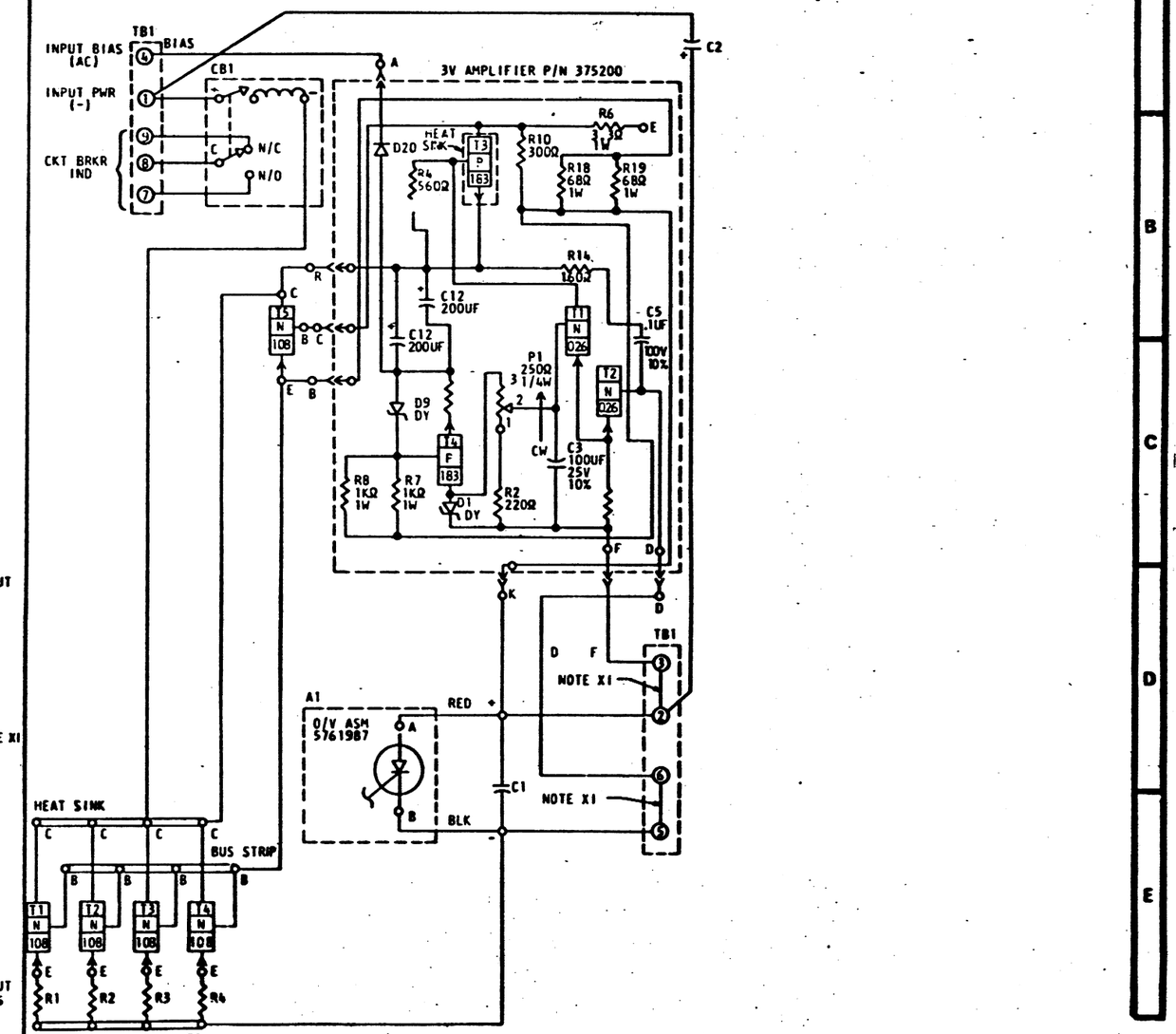
POWER SUPPLY 3V AT 20A MID-PAC
P/N 5234379(PREVIOUS LEVEL)



NOTES:

X1 FOR REMOTE SENSING REMOVE JUMPERS INDICAT D AND SENSE BETWEEN TB1-3 AND TB1-6

POWER SUPPLY 3V AT 20A MIDPAC
P/N 5762000 (LATEST LEVEL)



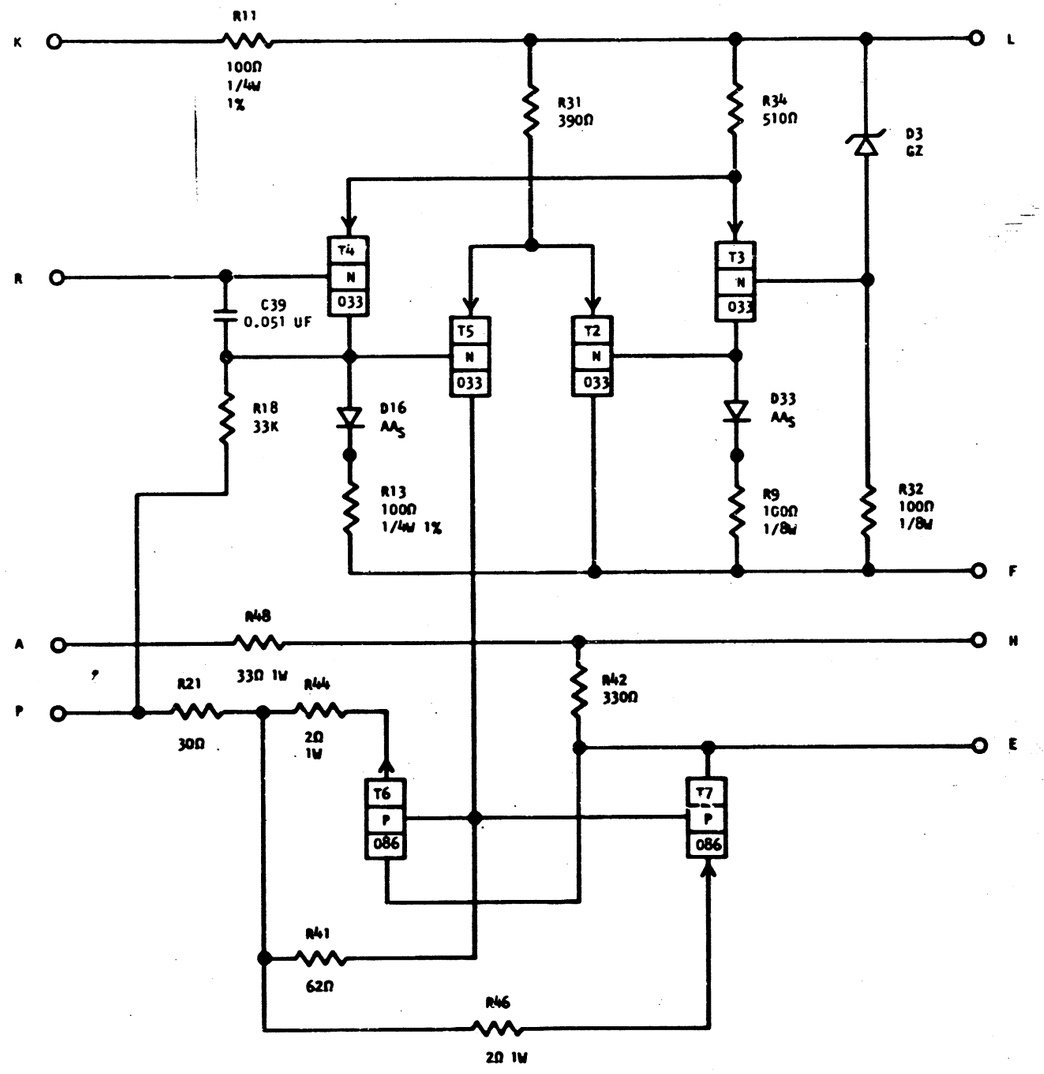
DATE	EC NUMBER	DATE	EC NUMBER	3V 20A PWR.SUP.MID-PAC
8 JUL 68	420442			REFERENCE ONLY
				DATE JUL 68 P/N 2231327
				TYPE 1131
				IBM YP004

2	3	4	5	6	7

YP005

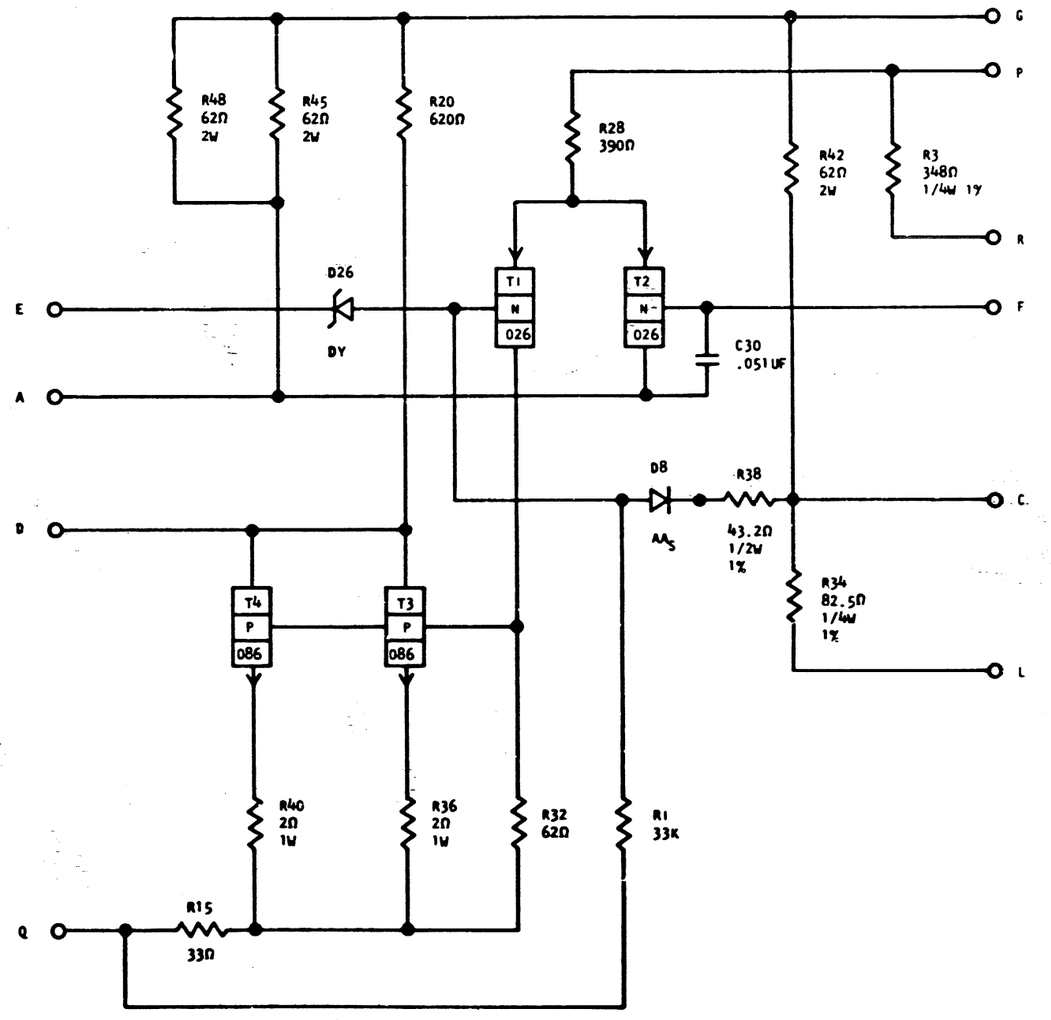
372083

3V AMPLIFIER CARD FOR MPS POWER SUPPLY



374621

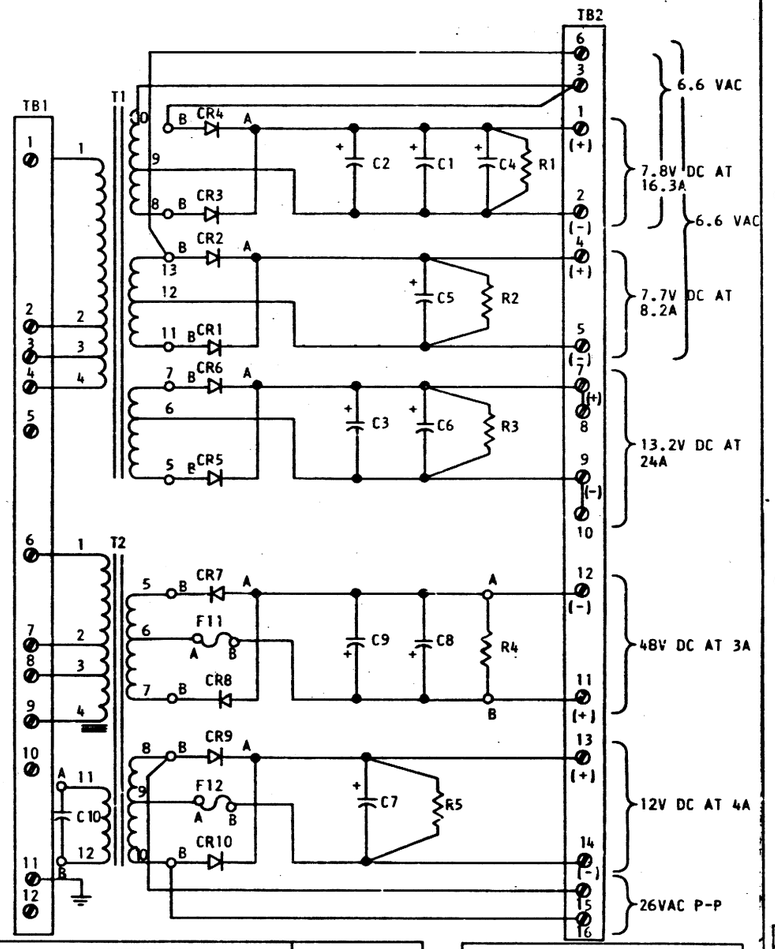
6V AMPLIFIER CARD FOR MPS POWER SUPPLY



YP005

DATE	EC NUMBER	DATE	EC NUMBER	3V & 6 AMPLIFIER CARDS			
MAY-65	415480D			50 & 60 CYCLE			
AUG-65	415480E			DATE	1-11-65	P/N	2201318
						TYPE	1131
				IBM		YP005	

YP005

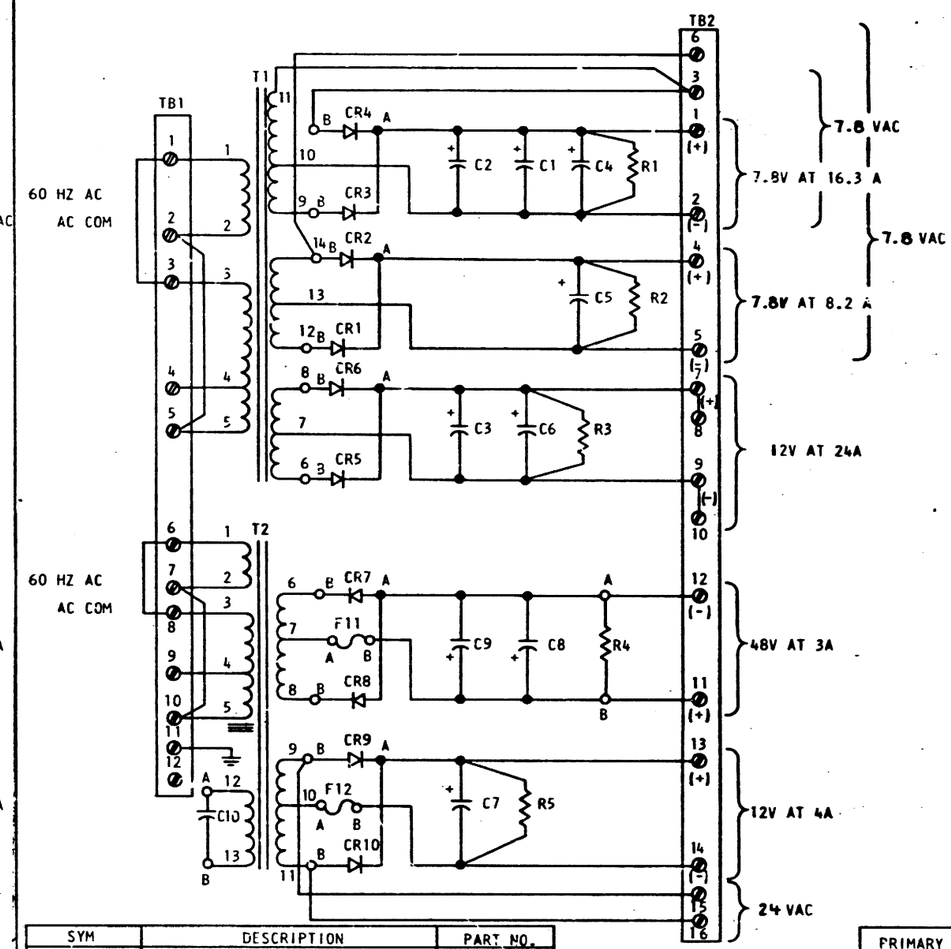


SYM	DESCRIPTION	PART NO.
C1,C2,C4&C5	CAPACITOR 49,000 UF 10V DC	5709382
C3&C6	CAPACITOR 54,000 UF 15V DC	5760613
C7	CAPACITOR 70,000 UF 13V DC	5239120
C8&C9	CAPACITOR 18,000 UF 55V DC	5239119
C10	CAPACITOR 15 UF 330 VAC	1143069
CR1,2,9&10	RECTIFIER 10A, 150V	598479
CR3,4,5&6	RECTIFIER 30A, 150V	127324
CR7&CR8	RECTIFIER 10A, 150V	598480
F11	FUSE 4A	1143492
F12	FUSE 5A	512137
R1&R2	RESISTOR 70Ω, 5W	208190
R3&R5	RESISTOR 200Ω, 5W	477144
R4	RESISTOR 200Ω, 50W	504694
T1	TRANSFORMER	5760699
T2	TRANSFORMER	5760719

P/N 5760711 50 HZ

PRIMARY TERM CONN FOR (T1)		
INPUT VOLTAGE	JUMPER	LINE CONN
195	-	1&2
220	-	1&3
235	-	1&4

PRIMARY TERM CONN FOR (T2)		
INPUT VOLTAGE	JUMPER	LINE CONN
195	-	6&7
220	-	6&8
235	-	6&9



SYM	DESCRIPTION	PART NO.
C1,C2,C4&C5	CAPACITOR 49,000 UF 10V DC	5709382
C3&C6	CAPACITOR 54 K UF 15V DC	5760613
C7	CAPACITOR 70,000 UF 13V DC	5239120
C8&C9	CAPACITOR 18,000 UF 55V DC	5239119
C10	CAPACITOR 15 UF 330 VAC	1143069
CR1,2,9&10	RECTIFIER 10A AT 150V	598479
CR3,4,5&6	RECTIFIER 30A AT 150V	127324
CR7&CR8	RECTIFIER 10A AT 150V	598480
R1&R2	RESISTOR 70Ω, 5W	208190
R3,R5	RESISTOR 200Ω, 5W	477144
R4	RESISTOR 200Ω, 50W	504694
T1	TRANSFORMER	5760703
T2	TRANSFORMER	5760704
F11	FUSE 4A	1143492
F12	FUSE 5A	512137

PRIMARY TERM CONN FOR (T1)		
INPUT VOLTAGE	JUMPER	LINE CONN
115	1&3,2&5	2&3
208	1&4	2&3
230	1&5	2&3

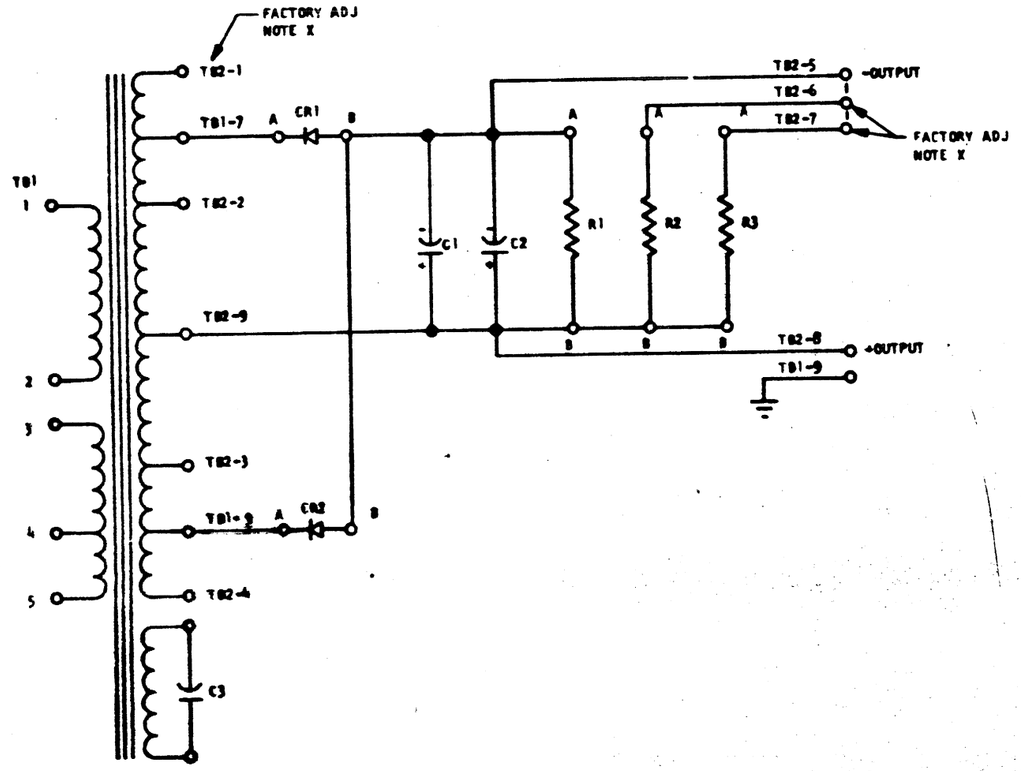
PRIMARY TERM CONN FOR (T2)		
INPUT VOLTAGE	JUMPER	LINE CONN
115	6&8,7&10	7&8
208	6&9	7&8
230	6&10	7&8

P/N 5760701 60 HZ

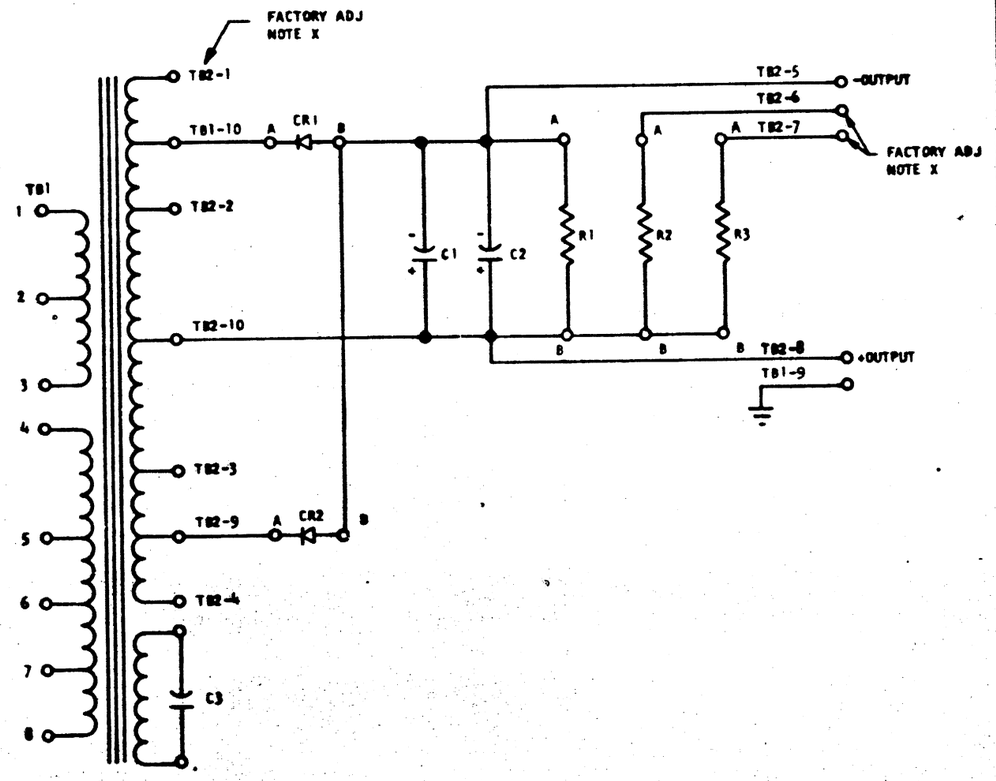
DATE	EC NUMBER	DATE	EC NUMBER	MID-PACK DC POWER SUPPLY			
8 JUL68	420442			REFERENCE DWG.			
9 DEC68	571003			DATE	JUL 68	P/N	2231328
						TYPE	
				IBM		YP005	

YP006

12 V AT 4 AMPS, 60 CYCLE 5261823



12 V AT 4 AMPS, 50 CYCLE 5261993



COMPONENT CHART

SYMBOL	DESCRIPTION
C1 & C2	CAP 42,000 UF 13V DC
C3-50 CY	CAP 8 UF 330V AC
C3-60 CY	CAP 7 UF 330V AC
R1	RESISTOR 25Ω, 25W
R2 & R3	RESISTOR 10Ω, 25W

NOTES:

X THE VOLTAGE TAPS AND BLEEDER SHOULD BE CONNECTED AS REQUIRED DEPENDING ON LOAD CONDITIONS TO INSURE AN OUTPUT VOLTAGE WITHIN 1% TOLERANCE.

FIELD USE

DATE	EC NUMBER	DATE	EC NUMBER
MAY-65	4154800		
AUG-65	4154806		
SEP67	420313		

12V POWER SUPPLY -
50 & 60 CYCLE

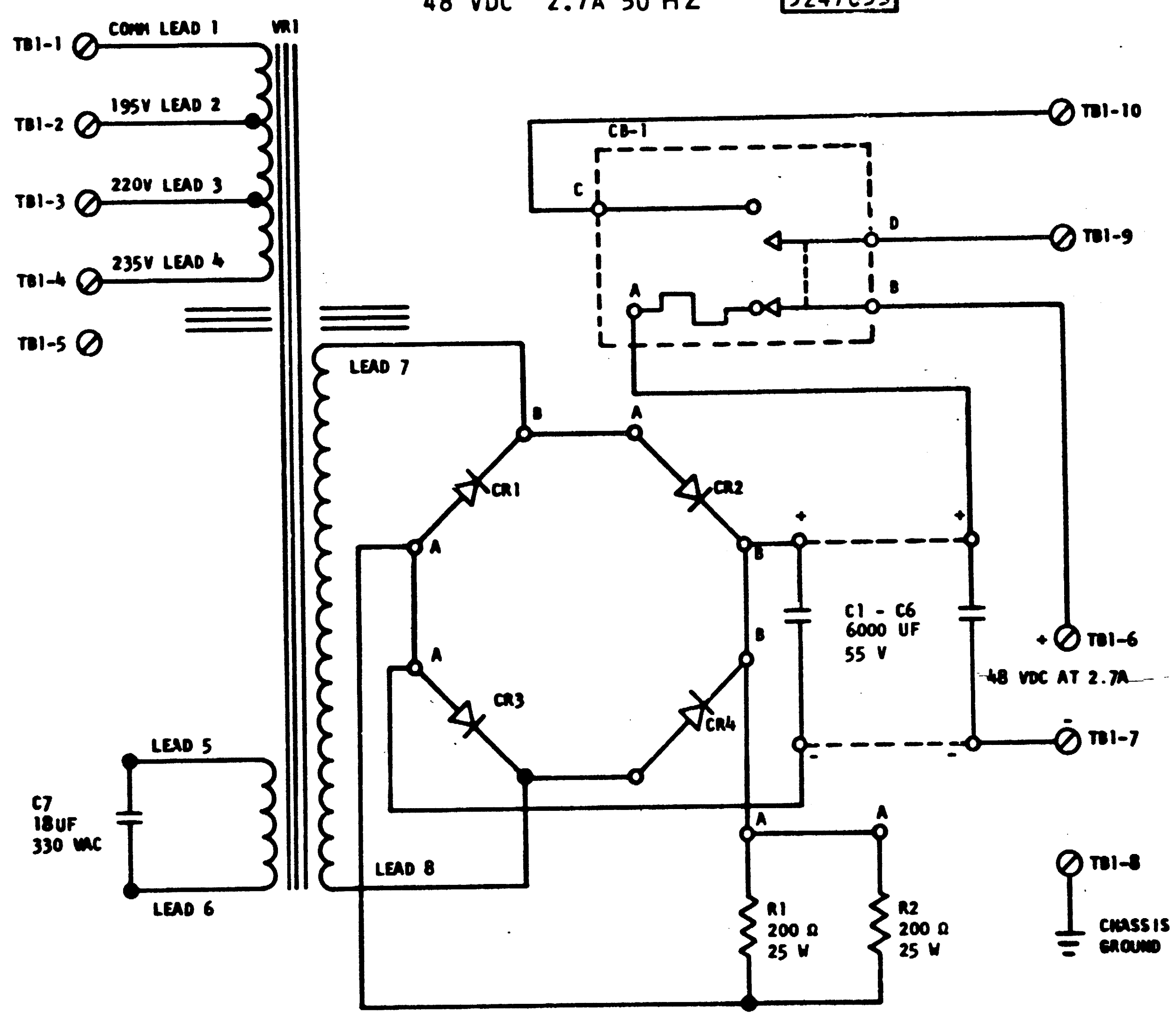
DATE	JAN-65	P/N	2201319
		TYPE	1131

IBM YP006

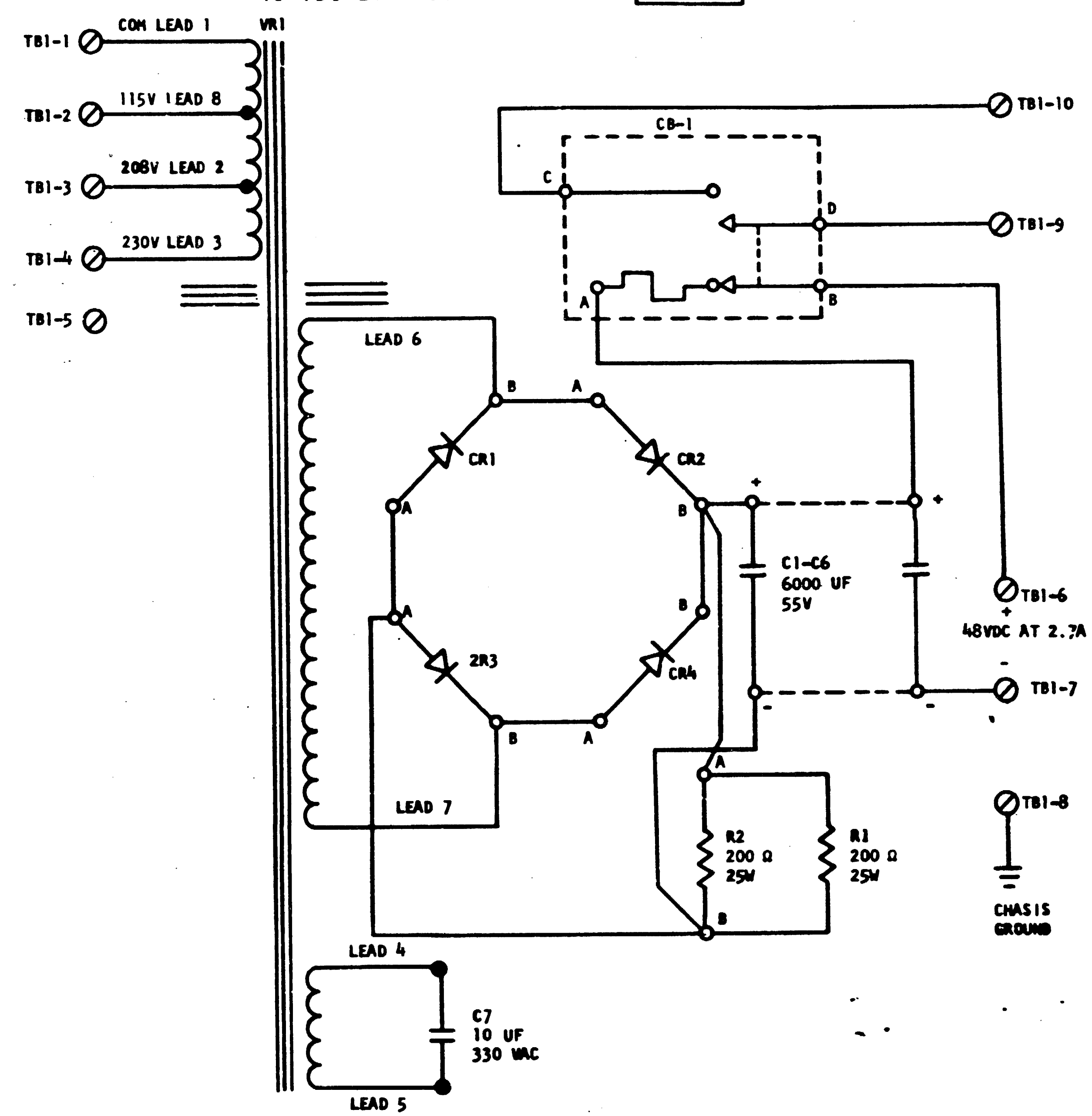
YP006

2 3 4 5 6 7

48 VDC 2.7A 50 HZ 5247055



48 VDC 2.7A 60 HZ 2158753

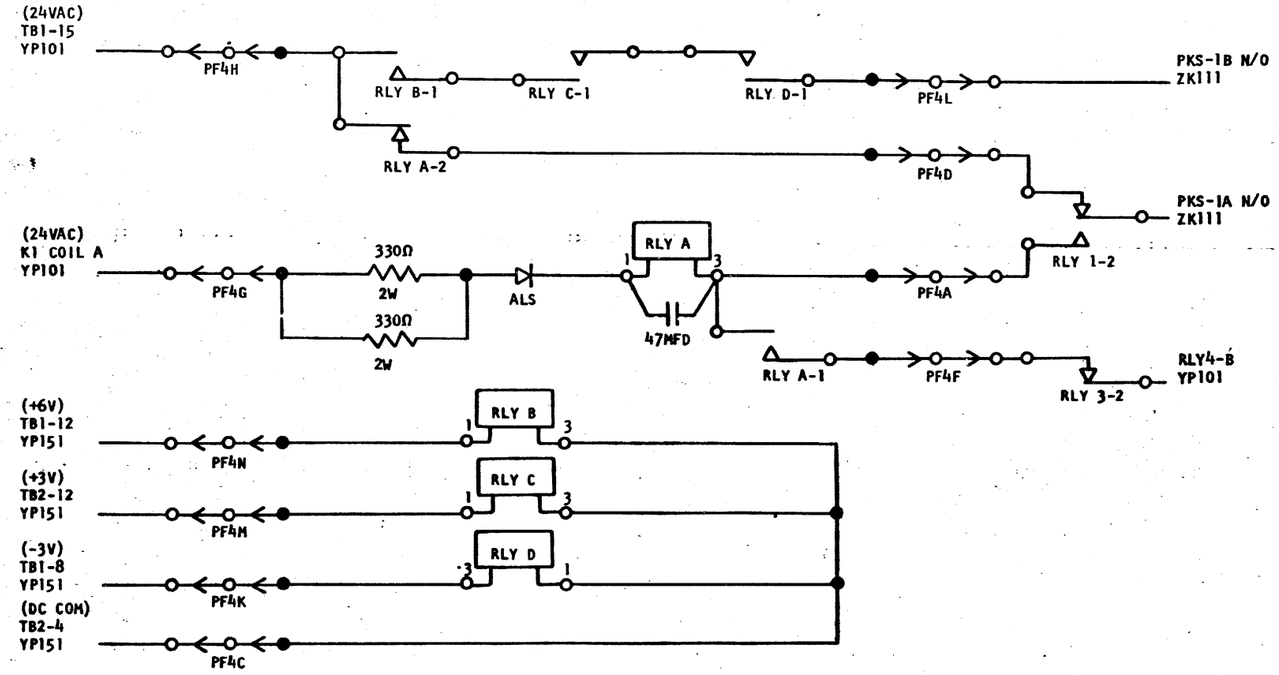


A B C D E

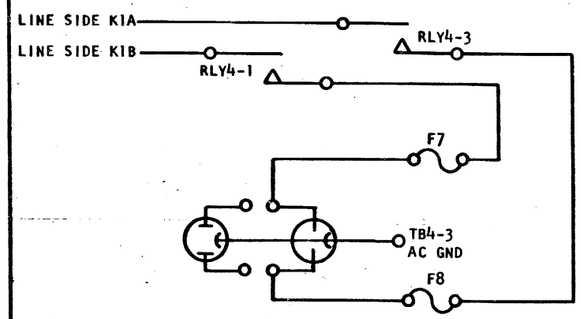
DATE	EC NUMBER	DATE	EC NUMBER	48 V POWER SUPPLY 50 & 60 HERTZ
MAY-65	415480D			DATE
AUG-65	415480E			P/N 2201320
DEC-66	419610B			TYPE 1131
				IBM YP007

2	3	4	5	6	7

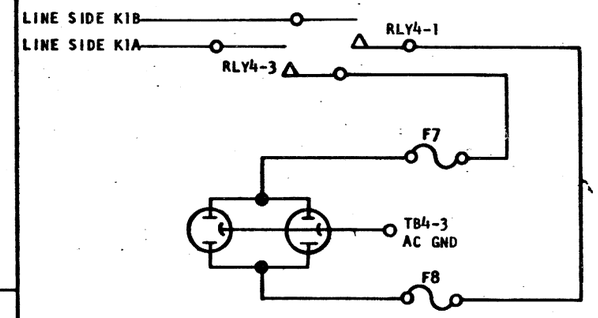
SCHEMATIC OF LOGIC VOLTAGE SENSE CARD P/N 374744



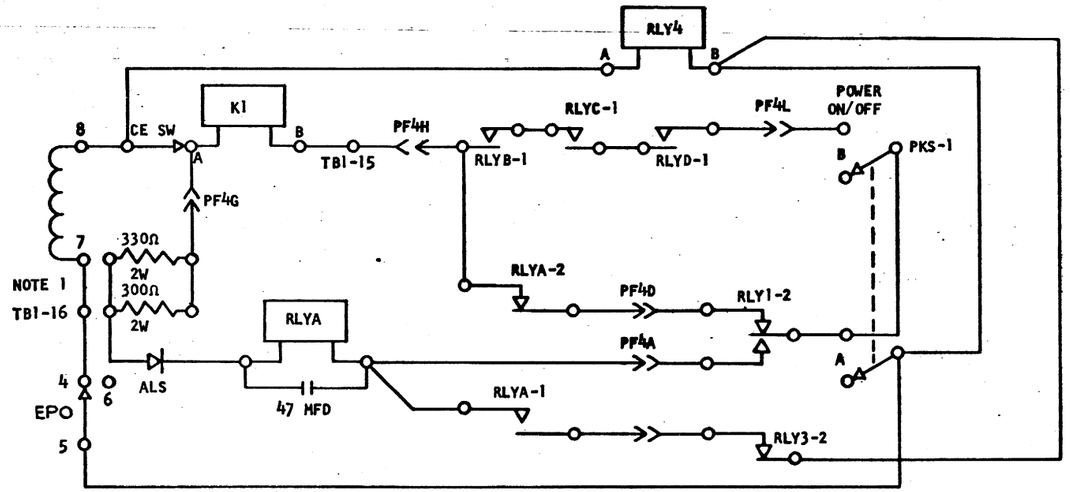
50 CYCLE



60 CYCLE



SCHEMATIC OF LOGIC VOLTAGE SENSING CIRCUIT



NOTES:

1. ON 50 CYCLE MACHINES THE 24 VAC CONNECTIONS WILL BE TB 5 & 6.
   IF 1131 HAS PC5 RECEPTICLE INSTALLED, TB1-16 DOES NOT CONNECT DIRECTLY TO 24 VAC. (REF. YP101)
   IF SYSTEM INCLUDES AN 1133, THE 24 VAC IS SUPPLIED BY THE 1133.

LOGIC VOLTAGE SENSING OPERATION

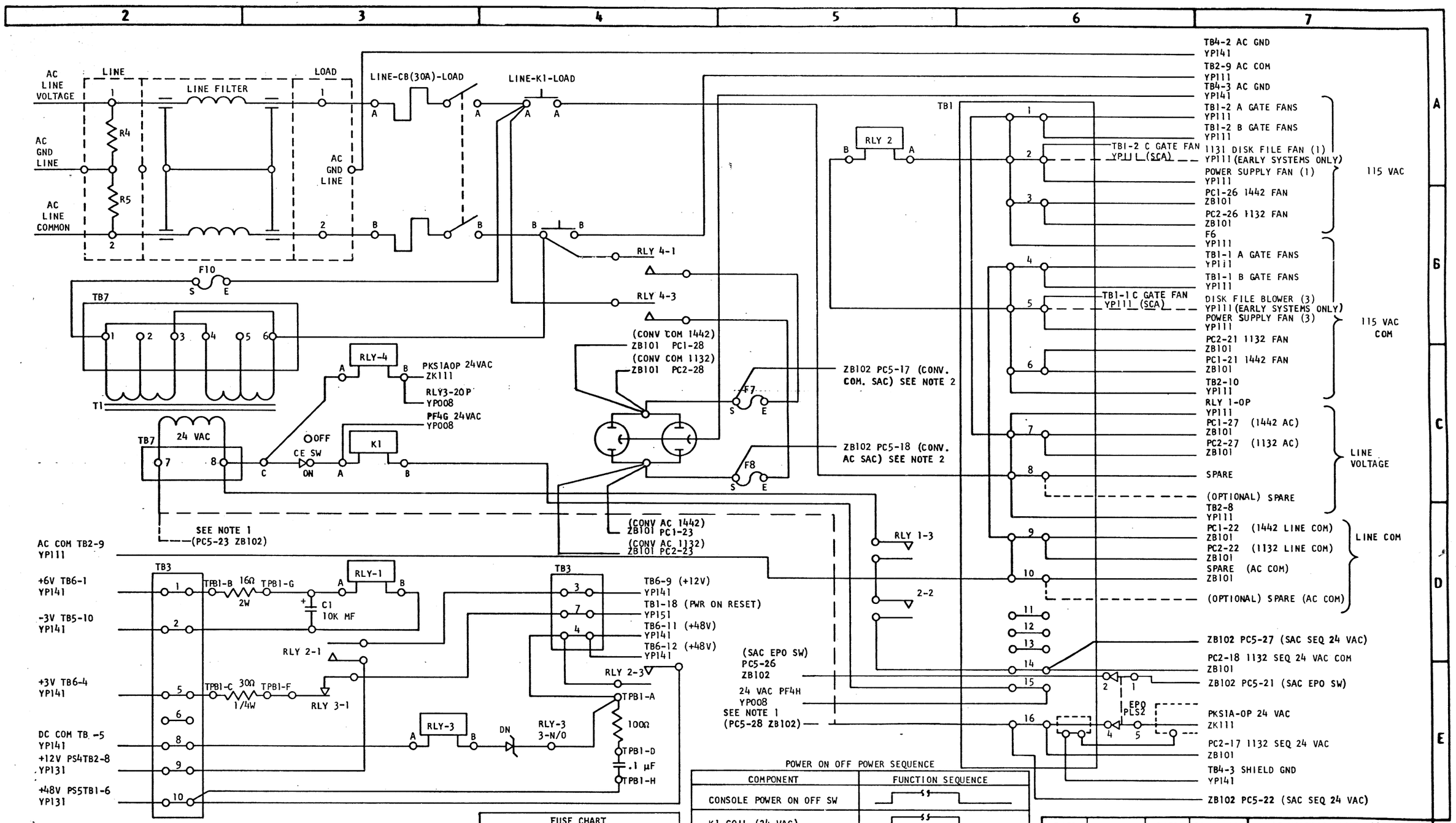
THIS CIRCUIT MONITORS THE LOGIC VOLTAGES (+3, -3, & +6). THE LOSS OF A LOGIC VOLTAGE WILL DROP CONTACTOR K1. RELAYS 1,2 & 3 WILL DROP OUT. RELAY 3 WILL DROP BEFORE RELAY 1, ESTABLISHING A HOLD CIRCUIT TO RELAY A THROUGH RA-1N/O & R3-2NC. RA-2 N/C DISABLES THE POWER ON/OFF SWITCH TO PREVENT POWER ON ATTEMPTS WITH A LOGIC VOLTAGE MISSING. TO RESET THE CIRCUIT, RELAY A MUST BE DROPPED OUT BY THE C.E. MANUALLY OPERATING EITHER THE C.E. SWITCH OR THE MAINLINE C.B. ON THE AC SEQUENCE BOX.
(IF 1133 IS ATTACHED, RESET WITH MAIN LINE CB ON THE 1133, OR CE SWITCH ON 1131.)

DATE	EC NUMBER	DATE	EC NUMBER
MAR 66	415497		
MAY 66	415497A		
JAN 68	420414		

LOGIC VOLTAGE SENSE
50/60 CYCLE

DATE		P/N	2201000
		TYPE	1131

IBM YP008



NOTES:

1. TB7-7 IS CONNECTED DIRECTLY TO TB1-16 AS SHOWN BY DOTTED LINE UNLESS SAC EPO (PC5) IS INSTALLED, THEN PC5-23 & 28 SAC EPO) ARE USED.
2. PC5 MAY NOT BE ON ALL SYSTEMS WITH SAC.

FUSE CHART		
FUSE NO.	AMPS	PART NO.
7	6.25A	107667
8	6.25A	107667
10	0.4A	117403

POWER ON OFF POWER SEQUENCE

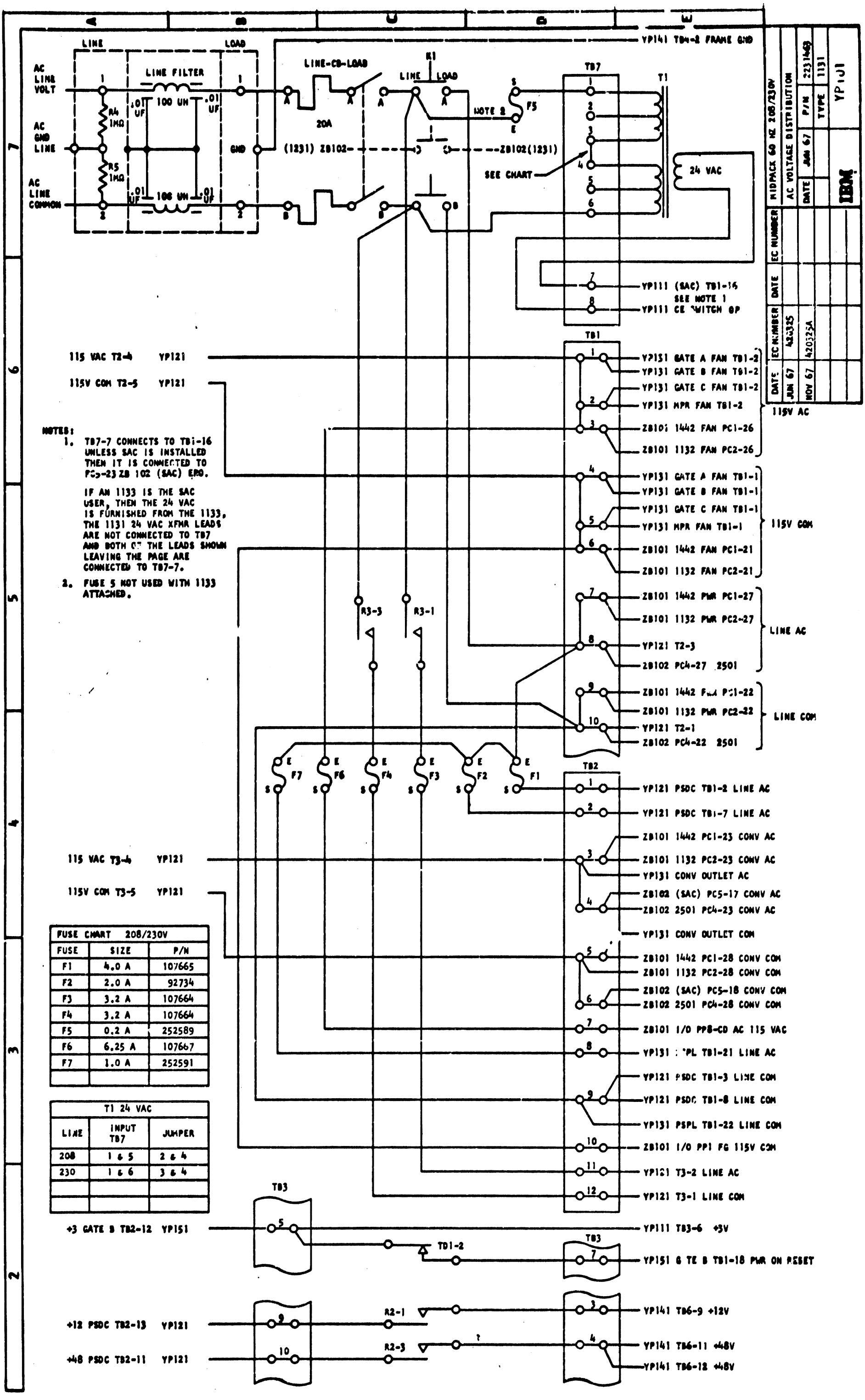
COMPONENT	FUNCTION SEQUENCE
CONSOLE POWER ON OFF SW	
K1 COIL (24 VAC)	
RLY 2 (115 VAC)	
RLY 1 (+6, -3, VDC)	
RLY 3 (+48 VDC)	

DATE	EC NUMBER	DATE	EC NUMBER
MAY 65	415480D	MAR 66	415497
AUG 65	415480E	MAY 66	415497A
OCT 65	415483B	JAN 67	419610B
JAN 66	415499	MAY 67	420319
MAR 66	415719	FEB 68	420364

AC VOLTAGE DISTR. 115V
SEQ BOX - 60 HERTZ

DATE	DEC 65	P/N	2201321
		TYPE	1131

IBM YP101



NOTES:

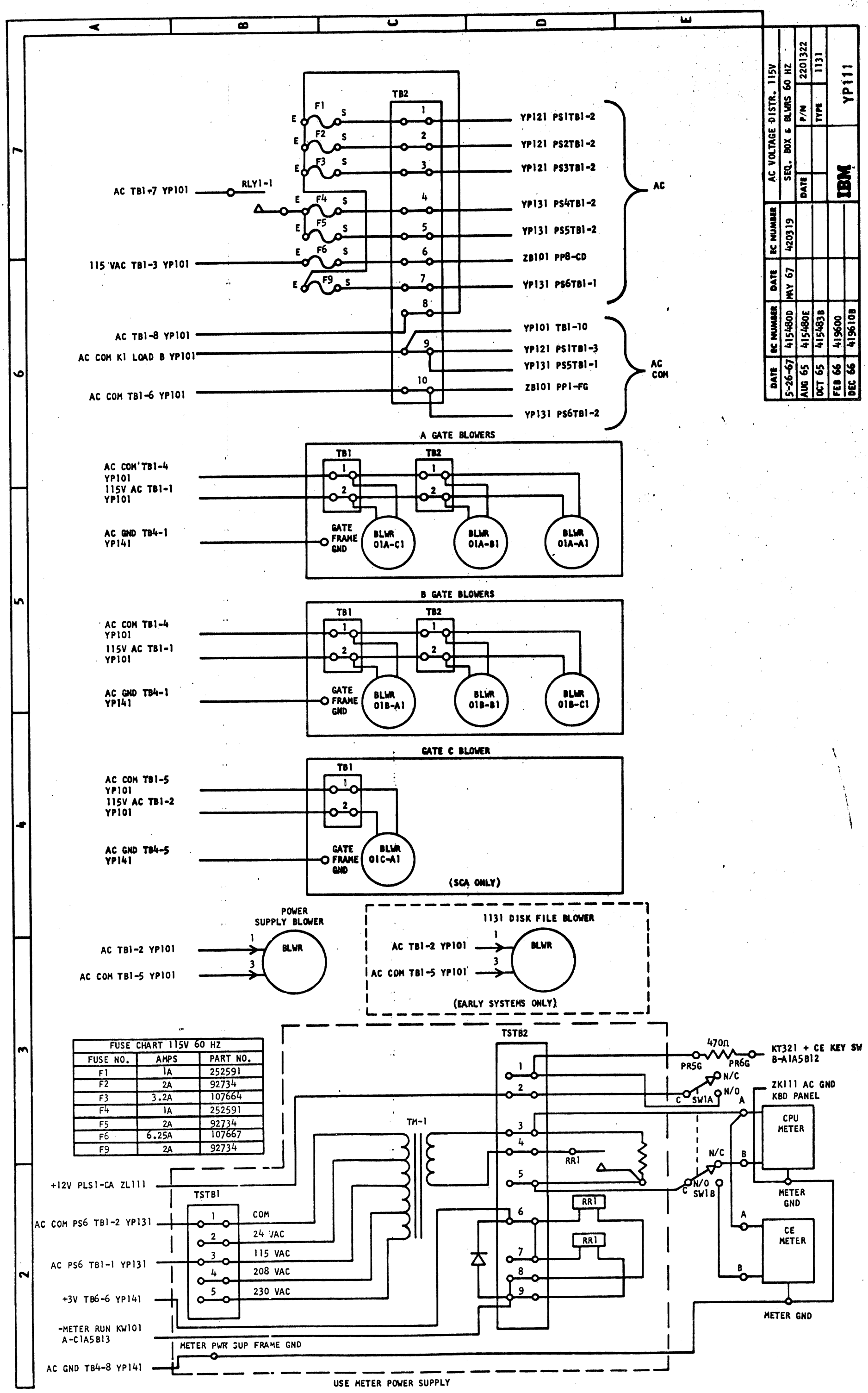
1. TB7-7 CONNECTS TO TB1-16 UNLESS SAC IS INSTALLED THEN IT IS CONNECTED TO PC5-23 ZB 102 (SAC) ERO.

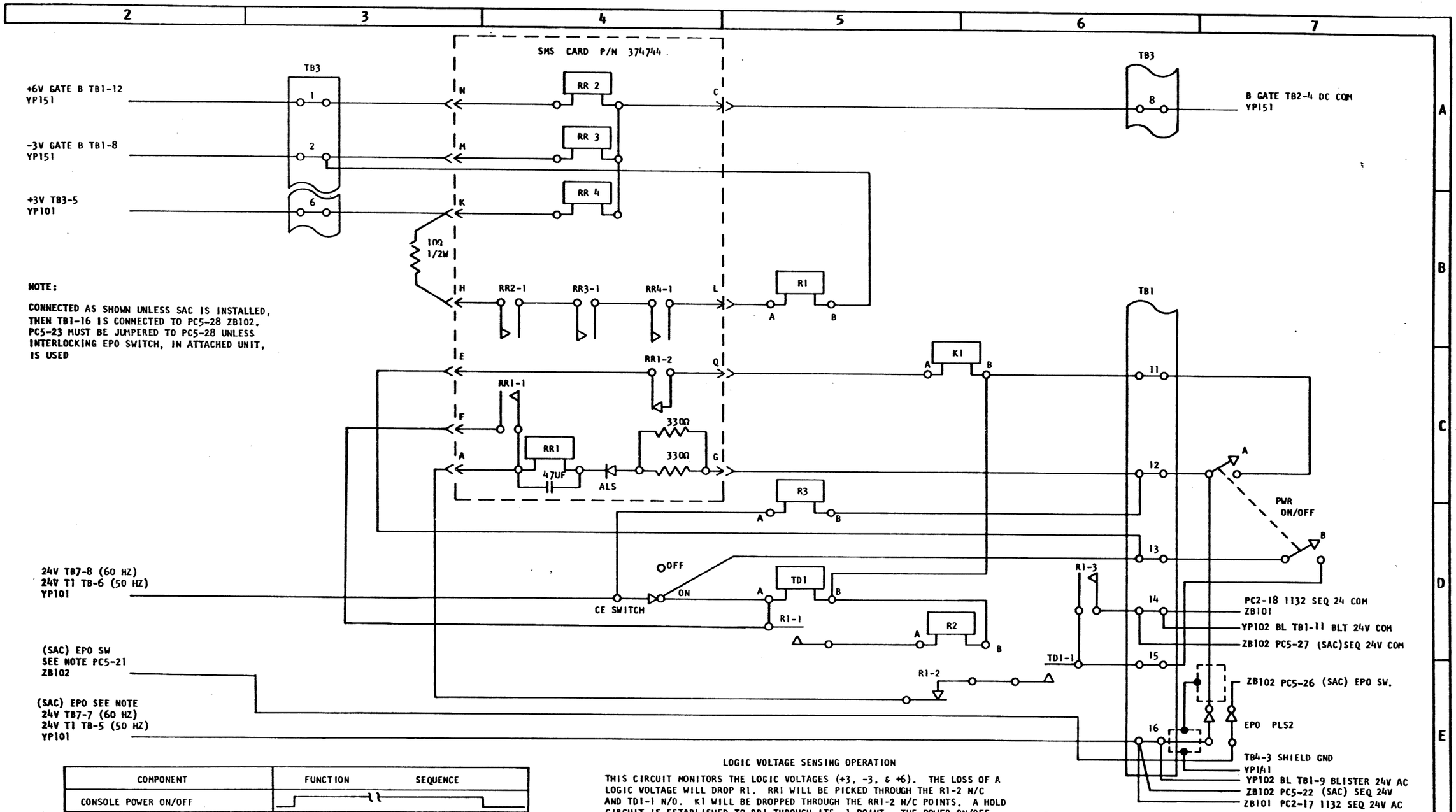
   IF AN 1133 IS THE SAC USER, THEN THE 24 VAC IS FURNISHED FROM THE 1133, THE 1131 24 VAC XFMR LEADS ARE NOT CONNECTED TO TB7 AND BOTH OF THE LEADS SHOWN LEAVING THE PAGE ARE CONNECTED TO TB7-7.

2. FUSE 5 NOT USED WITH 1133 ATTACHED.

FUSE CHART 208/230V		
FUSE	SIZE	P/N
F1	4.0 A	107665
F2	2.0 A	92734
F3	3.2 A	107664
F4	3.2 A	107664
F5	0.2 A	252589
F6	6.25 A	107667
F7	1.0 A	252591

T1 24 VAC		
LINE	INPUT TB7	JUMPER
208	1 & 5	2 & 4
230	1 & 6	3 & 4


A
B
C
D
E
7
6
5
4
3
2
TB2
F1
F2
F3
F4
F5
F6
F9
E
S
1
2
3
4
5
6
7
8
9
10
AC TB1-7 YP101
RLY1-1
115 VAC TB1-3 YP101
AC TB1-8 YP101
AC COM K1 LOAD B YP101
AC COM TB1-6 YP101
YP121 PS1TB1-2
YP121 PS2TB1-2
YP121 PS3TB1-2
YP131 PS4TB1-2
YP131 PS5TB1-2
ZB101 PP8-CD
YP131 PS6TB1-1
AC
YP101 TB1-10
YP121 PS1TB1-3
YP131 PS5TB1-1
ZB101 PP1-FG
YP131 PS6TB1-2
AC COM
A GATE BLOWERS
TB1
TB2
AC COM TB1-4 YP101
115V AC TB1-1 YP101
AC GND TB4-1 YP141
GATE FRAME GND
BLWR 01A-C1
BLWR 01A-B1
BLWR 01A-A1
B GATE BLOWERS
AC COM TB1-4 YP101
115V AC TB1-1 YP101
AC GND TB4-1 YP141
GATE FRAME GND
BLWR 01B-A1
BLWR 01B-B1
BLWR 01B-C1
GATE C BLOWER
AC COM TB1-5 YP101
115V AC TB1-2 YP101
AC GND TB4-5 YP141
GATE FRAME GND
BLWR 01C-A1
(SCA ONLY)
POWER SUPPLY BLOWER
AC TB1-2 YP101
AC COM TB1-5 YP101
BLWR
1131 DISK FILE BLOWER
AC TB1-2 YP101
AC COM TB1-5 YP101
BLWR
(EARLY SYSTEMS ONLY)
FUSE CHART 115V 60 HZ
FUSE NO. | AMPS | PART NO.
F1 | 1A | 252591
F2 | 2A | 92734
F3 | 3.2A | 107664
F4 | 1A | 252591
F5 | 2A | 92734
F6 | 6.25A | 107667
F9 | 2A | 92734
TSTB2
TSTB1
TM-1
RR1
RR1
RR1
470Ω
PR5G
PR6G
KT321 + CE KEY SW B-A1A5B12
N/C
N/O
C
SW1A
ZK111 AC GND KBD PANEL
A
B
CPU METER
METER GND
N/C
N/O
C
SW1B
A
B
CE METER
METER GND
+12V PLS1-CA ZL111
AC COM PS6 TB1-2 YP131
AC PS6 TB1-1 YP131
+3V TB6-6 YP141
-METER RUN KW101 A-C1A5B13
AC GND TB4-8 YP141
COM
24 VAC
115 VAC
208 VAC
230 VAC
METER PWR SUP FRAME GND
USE METER POWER SUPPLY
AC VOLTAGE DISTR. 115V
SEQ. BOX & BLWRS 60 HZ
DATE
P/N 2201322
TYPE 1131
IBM
YP111
DATE | EC NUMBER | DATE | EC NUMBER
5-26-67 | 4154800 | MAY 67 | 420319
AUG 65 | 4154806
OCT 65 | 4154838
FEB 66 | 419600
DEC 66 | 419610B



COMPONENT	FUNCTION SEQUENCE
CONSOLE POWER ON/OFF	
K1 COIL & TD COIL	
R1 (+6, +3, -3)	
R2 (+12, +48)	
TD1 CONTACTS 5 SEC. DELAY	

LOGIC VOLTAGE SENSING OPERATION

THIS CIRCUIT MONITORS THE LOGIC VOLTAGES (+3, -3, & +6). THE LOSS OF A LOGIC VOLTAGE WILL DROP R1. RR1 WILL BE PICKED THROUGH THE R1-2 N/C AND TD1-1 N/O. K1 WILL BE DROPPED THROUGH THE RR1-2 N/C POINTS. A HOLD CIRCUIT IS ESTABLISHED TO RR1 THROUGH ITS -1 POINT. THE POWER ON/OFF SWITCH IS THUSLY DISABLED TO PREVENT POWER ON ATTEMPTS WITH A LOGIC VOLTAGE MISSING.

TO RESET THE CIRCUIT, RR1 MUST BE DROPPED OUT BY THE CE MANUALLY OPERATING EITHER THE CE SWITCH OR THE MAINLINE CB ON THE AC SEQUENCE BOX. (IF 1133 IS ATTACHED, RESET WITH MAINLINE CB ON 1133, OR CE SWITCH ON 1131.)

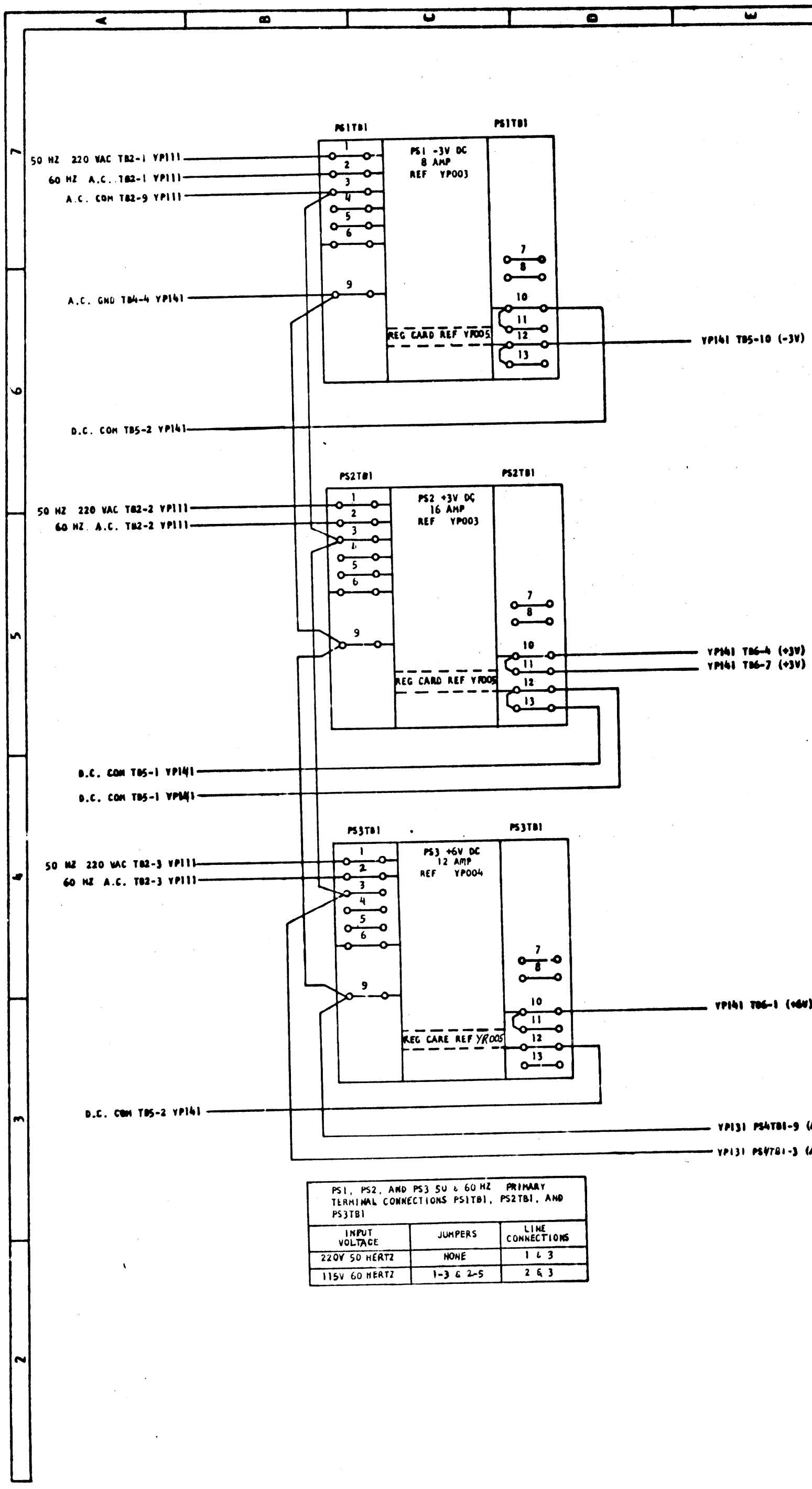
DATE	EC NUMBER	DATE	EC NUMBER
NOV 66	415727A		
APR 67	415727G		
JULY 67	420325A		

MIDPACK POWER ON
SEQUENCE & VOLTAGE SENSE

DATE	JUL 66	P/N	2231332
		TYPE	1131

IBM

YP111



PS1, PS2, AND PS3 50 & 60 HZ PRIMARY TERMINAL CONNECTIONS PS1TB1, PS2TB1, AND PS3TB1		
INPUT VOLTAGE	JUMPERS	LINE CONNECTIONS
220V 50 HERTZ	NONE	1 & 3
115V 60 HERTZ	1-3 & 2-5	2 & 3

DATE	EC NUMBER
NOV 66	415727A
MAR 67	4157276
JUN 67	420325
AUG 67	420368
OCT 67	420327

DATE	EC NUMBER
NOV 67	420325A
NOV 67	419691
FEB 68	420364
22JUL68	420442
13JAN69	571003

60HZ MIDPACK POWER SUPPLY SCHEG
+6, +3, -3, +12, +48VDC

DATE JUL 66 P/N 2231333
TYPE 1131

YP121

YP131 TSTB1-1

YP131 TSTB1-3

SEE JUMPER LIST

TB1 TB2

PSD

UNREG +3V 16A

BIAS

UNREG -3V 8A

BIAS

UNREG +6V 24A

REG +48V 3A

REG +12V 4A

REF. YP005

LINE AC TB2-1 YP101

LINE COM TB2-9 YP101

LINE AC TB2-2 YP101

LINE COM TB2-9 YP101

AC GND TB4-4 YP141

60 HZ MIDPACK P.S. JUMPER LIST		
115V	208V	230V
TB1-1 TO TB1-3	TB1-1 TO TB1-4	TB1-1 TO TB1-5
TB1-2 TO TB1-5		
TB1-6 TO TB1-8	TB1-6 TO TB1-9	TB1-6 TO TB1-10
TB1-7 TO TB1-10		

TB3-10 +48V YP101

TB5-3 DC COM YP141

BLTB2-6 +12 YP102

TB3-9 +12V YP101

TB5-3 DC COM YP141

DIODE 1 OR TB1-15 YP162 (SCA)

DIODE 2 OR TB1-13 YP162 (SCA)

TB1

MPR-1 -3V REGULATOR

REF YP004

1Ω 50W

TB5-1 DC COM YP141

TB5-10 -3V YP141

NOTE: -3 MPR LOAD RESISTOR IS INSTALLED ON MODELS 1A, 1B, 2A, 2B, 3B AND 3C (REF YP001)

TB1 TB1

MPR-2 +3V REGULATOR

REF YP004

TB6-7 +3V YP141

TB5-2 DC COM YP141

TB1 TB1

MPR-3 +6V REGULATOR

REF YP003

TB6-1 +6V YP141

TB5-3 DC COM YP141

POWER SUPPLY LAYOUT REF PAGE YP001

208/230V 60 HZ ONLY		
T2	T3	LINE
1 - 2	1 - 2	208
1 - 3	1 - 3	230

LINE AC TB1-8 YP101

LINE AC TB1-10 YP101

LINE AC TB2-11 YP101

LINE AC TB2-12 YP101

T2 (230) (208) (COM)

T3 COM

YP102 BLTB1-6 LINE AC (SJ2 ONLY).

YP101 TB1-1

YP102 BL TB1-1

YP102 BL TB1-3

YP101 TB1-4

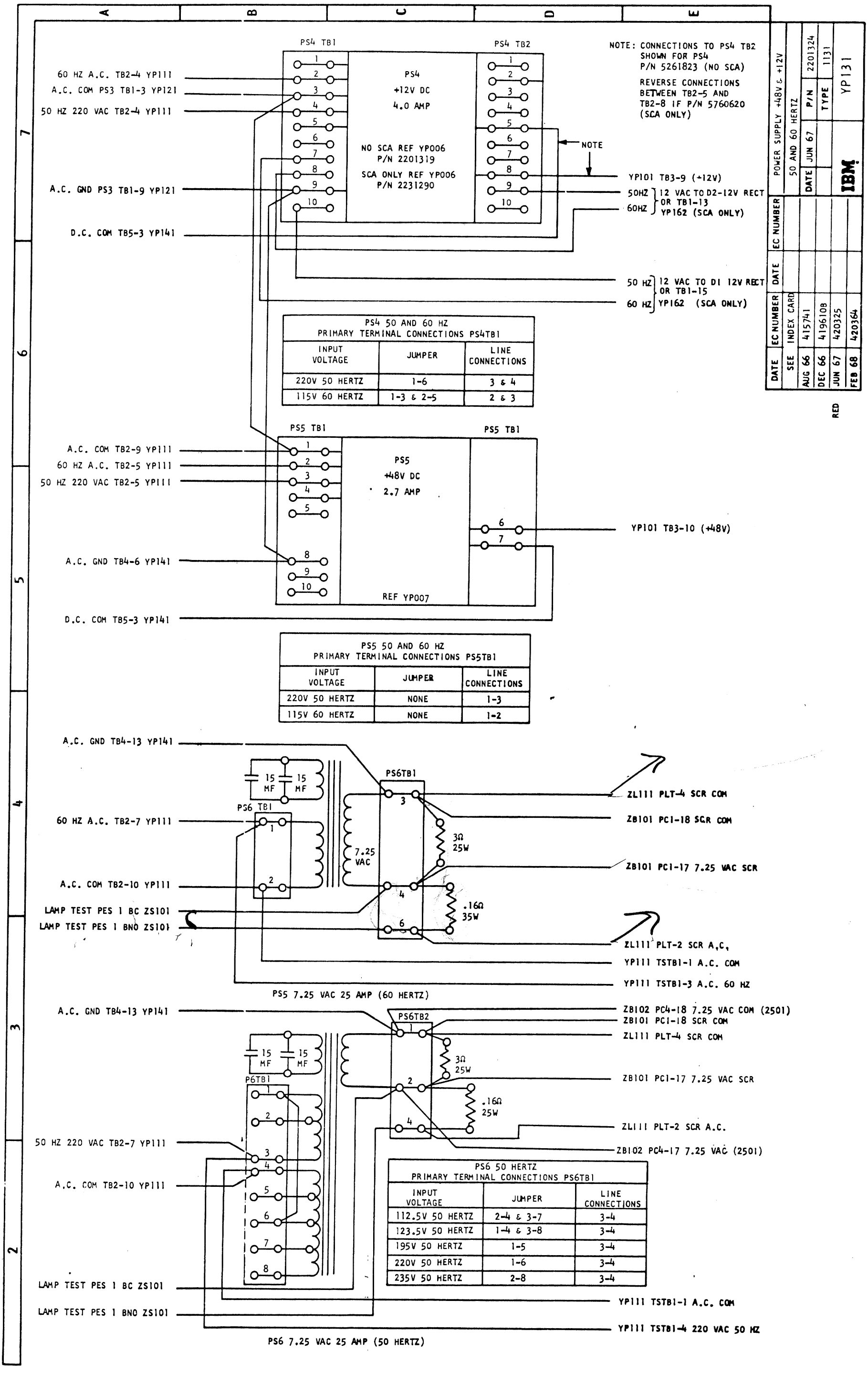
115V AC

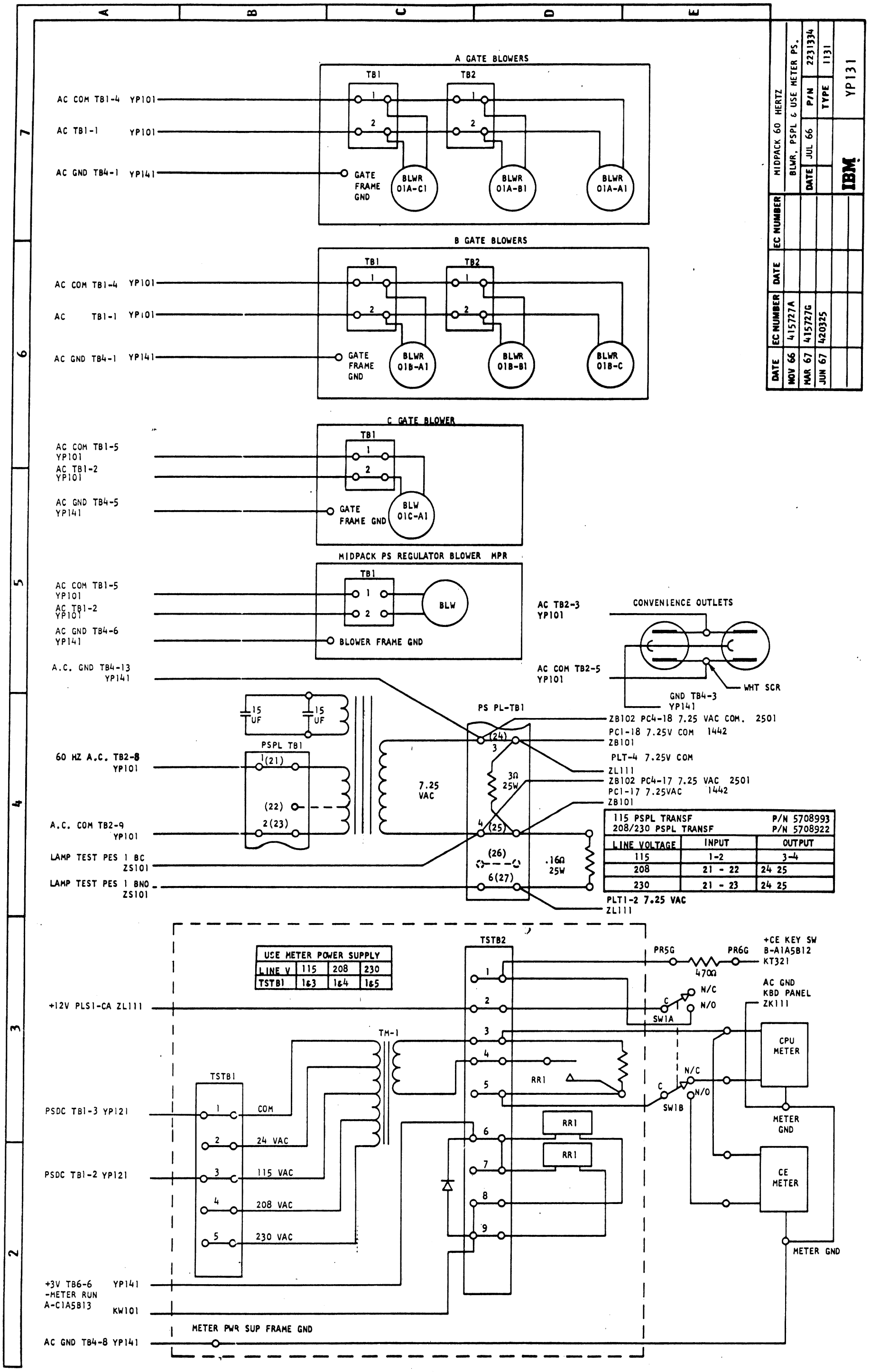
YP102 BLTB1-5 LINE AC (SJ2 ONLY)

YP101 TB2-3

YP101 TB2-5

115V AC


PS4 TB1
PS4 TB2
PS4
+12V DC
4.0 AMP
NO SCA REF YP006
P/N 2201319
SCA ONLY REF YP006
P/N 2231290
NOTE: CONNECTIONS TO PS4 TB2 SHOWN FOR PS4 P/N 5261823 (NO SCA)
REVERSE CONNECTIONS BETWEEN TB2-5 AND TB2-8 IF P/N 5760620 (SCA ONLY)
NOTE
60 HZ A.C. TB2-4 YP111
A.C. COM PS3 TB1-3 YP121
50 HZ 220 VAC TB2-4 YP111
A.C. GND PS3 TB1-9 YP121
D.C. COM TB5-3 YP141
YP101 TB3-9 (+12V)
50HZ 12 VAC TO D2-12V RECT OR TB1-13
60HZ YP162 (SCA ONLY)
50 HZ 12 VAC TO D1 12V RECT OR TB1-15
60 HZ YP162 (SCA ONLY)
PS4 50 AND 60 HZ PRIMARY TERMINAL CONNECTIONS PS4TB1
INPUT VOLTAGE | JUMPER | LINE CONNECTIONS
220V 50 HERTZ | 1-6 | 3 & 4
115V 60 HERTZ | 1-3 & 2-5 | 2 & 3
PS5 TB1
PS5 TB1
PS5
+48V DC
2.7 AMP
REF YP007
A.C. COM TB2-9 YP111
60 HZ A.C. TB2-5 YP111
50 HZ 220 VAC TB2-5 YP111
A.C. GND TB4-6 YP141
D.C. COM TB5-3 YP141
YP101 TB3-10 (+48V)
PS5 50 AND 60 HZ PRIMARY TERMINAL CONNECTIONS PS5TB1
INPUT VOLTAGE | JUMPER | LINE CONNECTIONS
220V 50 HERTZ | NONE | 1-3
115V 60 HERTZ | NONE | 1-2
A.C. GND TB4-13 YP141
PS6TB1
15 MF
15 MF
PS6 TB1
60 HZ A.C. TB2-7 YP111
A.C. COM TB2-10 YP111
LAMP TEST PES 1 BC ZS101
LAMP TEST PES 1 BNO ZS101
7.25 VAC
3Ω 25W
.16Ω 35W
ZL111 PLT-4 SCR COM
ZB101 PC1-18 SCR COM
ZB101 PC1-17 7.25 VAC SCR
ZL111 PLT-2 SCR A.C.
YP111 TSTB1-1 A.C. COM
YP111 TSTB1-3 A.C. 60 HZ
PS5 7.25 VAC 25 AMP (60 HERTZ)
A.C. GND TB4-13 YP141
PS6TB2
P6TB1
15 MF
15 MF
3Ω 25W
.16Ω 25W
50 HZ 220 VAC TB2-7 YP111
A.C. COM TB2-10 YP111
LAMP TEST PES 1 BC ZS101
LAMP TEST PES 1 BNO ZS101
ZB102 PC4-18 7.25 VAC COM (2501)
ZB101 PC1-18 SCR COM
ZL111 PLT-4 SCR COM
ZB101 PC1-17 7.25 VAC SCR
ZL111 PLT-2 SCR A.C.
ZB102 PC4-17 7.25 VAC (2501)
PS6 50 HERTZ PRIMARY TERMINAL CONNECTIONS PS6TB1
INPUT VOLTAGE | JUMPER | LINE CONNECTIONS
112.5V 50 HERTZ | 2-4 & 3-7 | 3-4
123.5V 50 HERTZ | 1-4 & 3-8 | 3-4
195V 50 HERTZ | 1-5 | 3-4
220V 50 HERTZ | 1-6 | 3-4
235V 50 HERTZ | 2-8 | 3-4
YP111 TSTB1-1 A.C. COM
YP111 TSTB1-4 220 VAC 50 HZ
PS6 7.25 VAC 25 AMP (50 HERTZ)
POWER SUPPLY +48V & +12V
50 AND 60 HERTZ
DATE JUN 67
P/N 2201324
TYPE 1131
YP131
IBM
DATE | EC NUMBER | DATE
SEE INDEX CARD
AUG 66 415741
DEC 66 4196108
JUN 67 420325
FEB 68 420364
RED



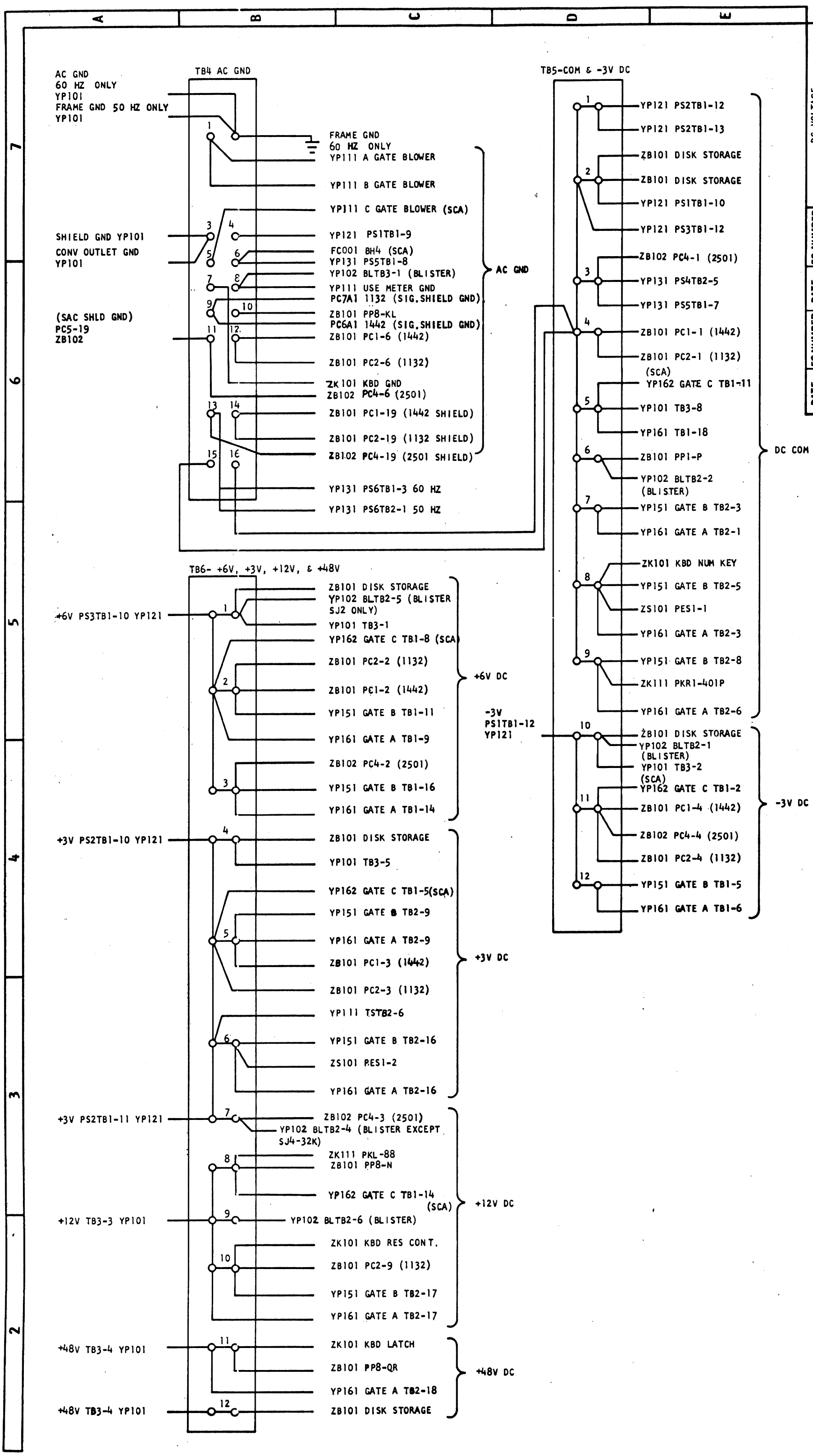
DATE	EC NUMBER	DATE	EC NUMBER
NOV 66	4157276		
MAR 67	4157276		
JUN 67	420325		

MIDPACK 60 HERTZ
BLWR, PSPL & USE METER PS.

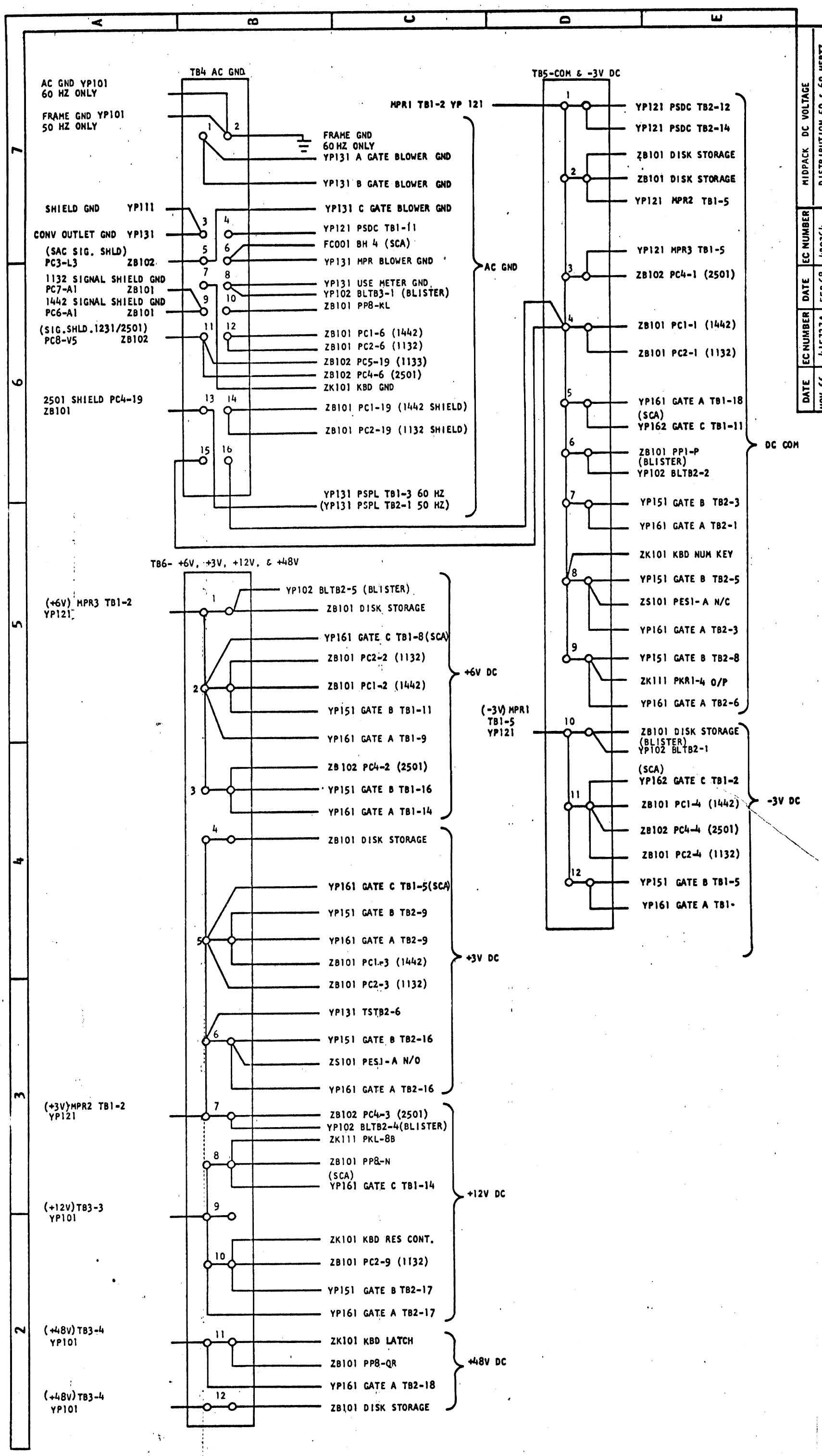
DATE	JUL 66	P/N	2231334
		TYPE	1131

IBM

YP131

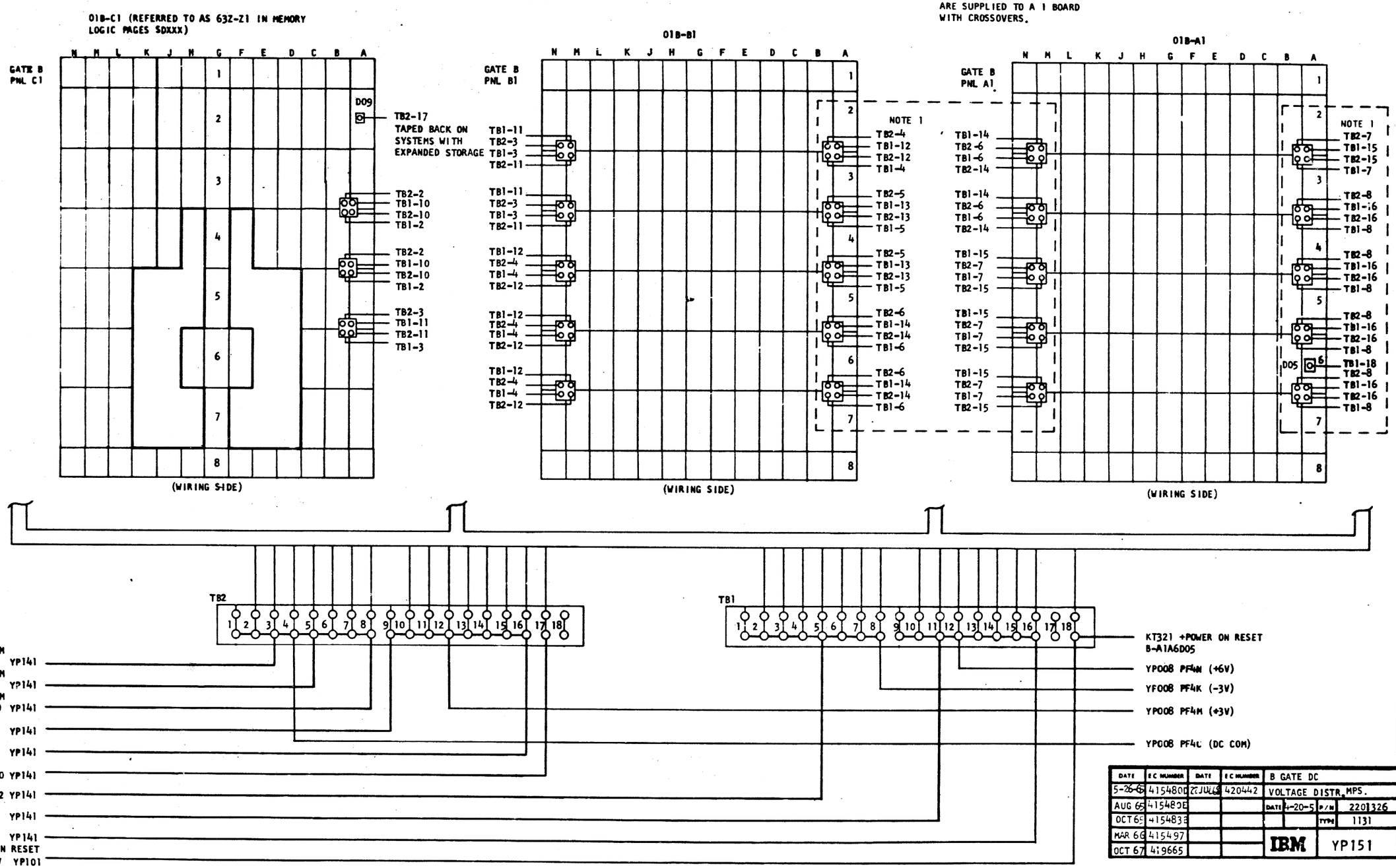


DC VOLTAGE DISTRIBUTION 50 & 60 HZ					
DATE	EC NUMBER	DATE	EC NUMBER	DATE	JAN-65
MAY-65	4154800	MAR66	415497	P/N	2201325
AUG-65	415480E	SEPT66	415734	TYPE	1131
OCT 65	415483B	JAN 67	4196108		
JAN 66	415499	APR 67	420319	IBM	YP141
MAR 66	415719	OCT 67	420327		


A
B
C
D
E
7
6
5
4
3
2
TB4 AC GND
AC GND YP101
60 HZ ONLY
FRAME GND YP101
50 HZ ONLY
SHIELD GND YP111
CONV OUTLET GND YP131
(SAC SIG. SHLD)
PC3-L3 ZB102
1132 SIGNAL SHIELD GND
PC7-A1 ZB101
1442 SIGNAL SHIELD GND
PC6-A1 ZB101
(SIG.SHLD.1231/2501)
PC8-V5 ZB102
2501 SHIELD PC4-19
ZB101
FRAME GND
60 HZ ONLY
YP131 A GATE BLOWER GND
YP131 B GATE BLOWER GND
YP131 C GATE BLOWER GND
YP121 PSDC TB1-11
FC001 BH 4 (SCA)
YP131 MPR BLOWER GND
YP131 USE METER GND
YP102 BLTB3-1 (BLISTER)
ZB101 PP8-KL
ZB101 PC1-6 (1442)
ZB101 PC2-6 (1132)
ZB102 PC5-19 (1133)
ZB102 PC4-6 (2501)
ZK101 KBD GND
ZB101 PC1-19 (1442 SHIELD)
ZB101 PC2-19 (1132 SHIELD)
YP131 PSPL TB1-3 60 HZ
(YP131 PSPL TB2-1 50 HZ)
MPR1 TB1-2 YP 121
AC GND
TB5-COM & -3V DC
YP121 PSDC TB2-12
YP121 PSDC TB2-14
ZB101 DISK STORAGE
ZB101 DISK STORAGE
YP121 MPR2 TB1-5
YP121 MPR3 TB1-5
ZB102 PC4-1 (2501)
ZB101 PC1-1 (1442)
ZB101 PC2-1 (1132)
YP161 GATE A TB1-18
(SCA)
YP162 GATE C TB1-11
ZB101 PP1-P
(BLISTER)
YP102 BLTB2-2
YP151 GATE B TB2-3
YP161 GATE A TB2-1
ZK101 KBD NUM KEY
YP151 GATE B TB2-5
ZS101 PES1-A N/C
YP161 GATE A TB2-3
YP151 GATE B TB2-8
ZK111 PKR1-4 O/P
YP161 GATE A TB2-6
DC COM
TB6- +6V, +3V, +12V, & +48V
(+6V) MPR3 TB1-2
YP121
YP102 BLTB2-5 (BLISTER)
ZB101 DISK STORAGE
YP161 GATE C TB1-8(SCA)
ZB101 PC2-2 (1132)
ZB101 PC1-2 (1442)
YP151 GATE B TB1-11
YP161 GATE A TB1-9
ZB102 PC4-2 (2501)
YP151 GATE B TB1-16
YP161 GATE A TB1-14
+6V DC
(-3V) MPR1
TB1-5
YP121
ZB101 DISK STORAGE
(BLISTER)
YP102 BLTB2-1
(SCA)
YP162 GATE C TB1-2
ZB101 PC1-4 (1442)
ZB102 PC4-4 (2501)
ZB101 PC2-4 (1132)
YP151 GATE B TB1-5
YP161 GATE A TB1-
-3V DC
ZB101 DISK STORAGE
YP161 GATE C TB1-5(SCA)
YP151 GATE B TB2-9
YP161 GATE A TB2-9
ZB101 PC1-3 (1442)
ZB101 PC2-3 (1132)
YP131 TSTB2-6
YP151 GATE B TB2-16
ZS101 PES1-A N/O
YP161 GATE A TB2-16
+3V DC
(+3V) MPR2 TB1-2
YP121
ZB102 PC4-3 (2501)
YP102 BLTB2-4(BLISTER)
ZK111 PKL-8B
ZB101 PP8-N
(SCA)
YP161 GATE C TB1-14
+12V DC
(+12V) TB3-3
YP101
ZK101 KBD RES CONT.
ZB101 PC2-9 (1132)
YP151 GATE B TB2-17
YP161 GATE A TB2-17
(+48V) TB3-4
YP101
ZK101 KBD LATCH
ZB101 PP8-QR
YP161 GATE A TB2-18
(+48V) TB3-4
YP101
ZB101 DISK STORAGE
+48V DC
MIDPACK DC VOLTAGE
DISTRIBUTION 50 & 60 HERTZ
DATE
P/N 2231335
TYPE 1131
YP141
IBM
DATE EC NUMBER DATE EC NUMBER
NOV 66 415727A FEB 68 420364
MAR 67 415727G
JUN 67 420325
AUG 67 420368
OCT67 420327

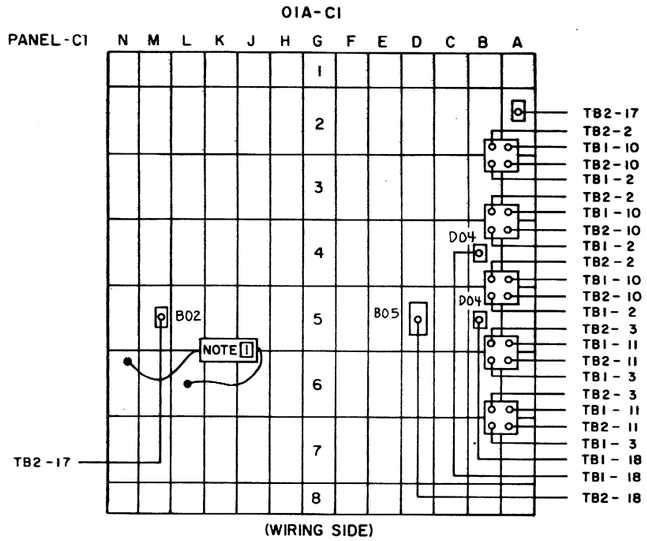
YP151

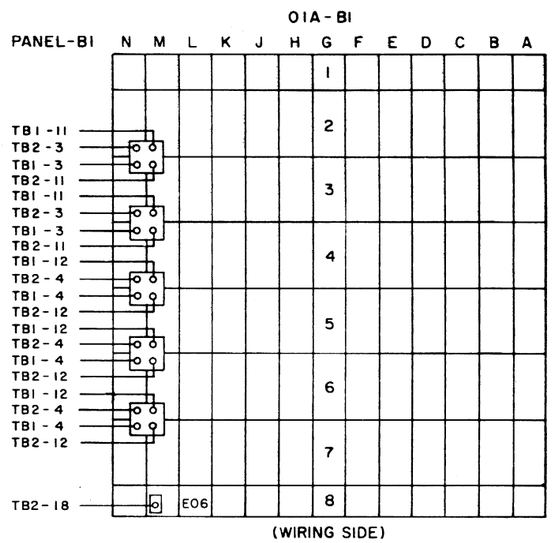
NOTE 1: TERMINALS NOT USED ON LATER SYSTEMS. VOLTAGES ARE SUPPLIED TO A 1 BOARD WITH CROSSOVERS.

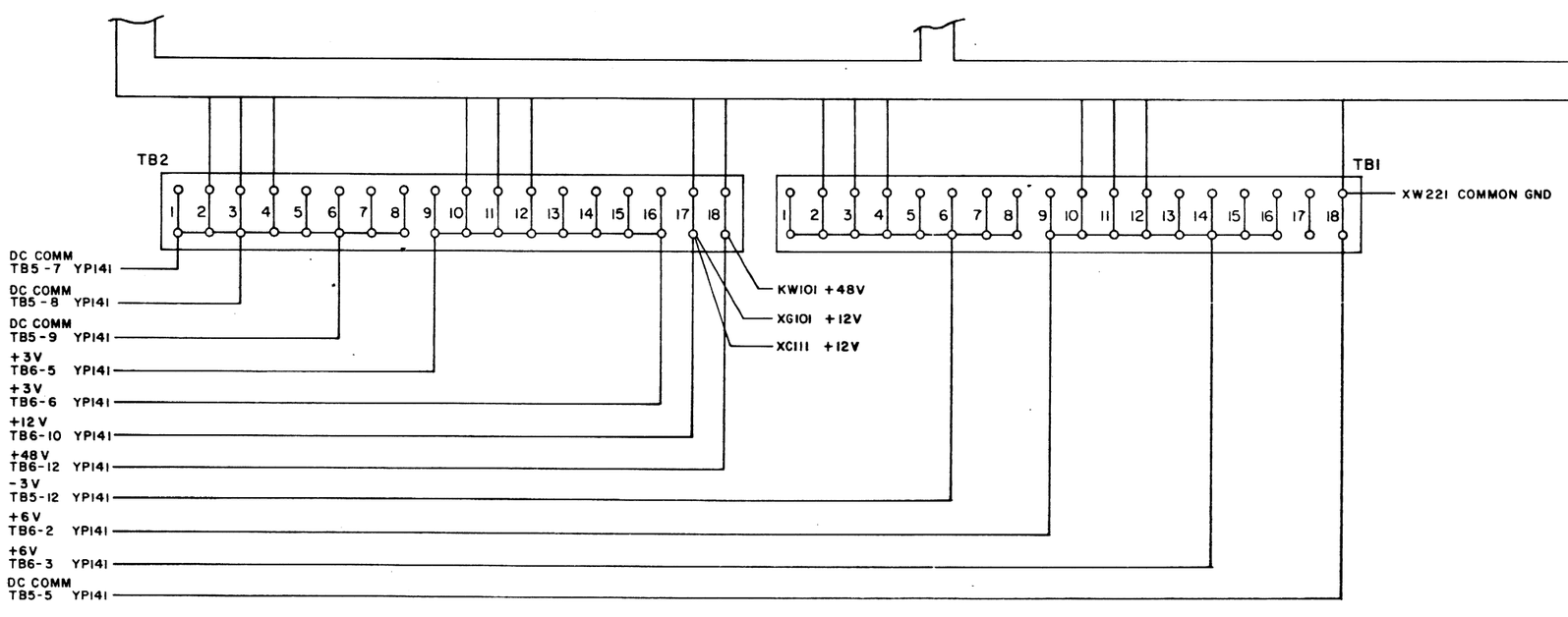


DATE	EC NUMBER	DATE	EC NUMBER	B GATE DC
5-26-65	415480	22JUL66	420442	VOLTAGE DISTR. MPS.
AUG 65	415480E			DATE 4-20-5 P/N 2201326
OCT 65	415483E			TYPE 1131
MAR 66	415497			IBM YP151
OCT 67	419665			

YP151







YP161

NOTES:

[1] 0.22 UF CAP N6D02-L6D08 REF LP KR111

EC HISTORY		DRAWING TITLE
22MAR71	571150	A GATE DC VOLTAGE DISTR
3JUN71	571152	MACH 1131-C
10APR72	571155	PART NO 5889438
		CLASSIFICATION

D

IBM CORP

YP161

1131 CONSOLE PRINTER (PF1 & 2) SIGNAL CONNECTIONS

FROM LOGIC	CONNECTION	LINE TITLE	TO LOGIC	CONNECTION
XW211	A-C1A4B02	-SELECT T2	ZW101	PF1A
XW211	A-C1A4D02	-SELECT T1	ZW101	PF1B
XW211	A-C1A4B03	-SELECT R2A	ZW101	PF1C
XW211	A-C1A4D04	-SELECT R1	ZW101	PF1D
XW221	A-C1A4B04	-SELECT R5	ZW101	PF1E
XW221	A-C1A4D05	-SELECT R2	ZW101	PF1F
XW221	A-C1A4B05	-SELECT AUX	ZW101	PF1G
XW221	A-C1A4D06	-LINE FEED	ZW101	PF1H
XW211	A-C1A4B07	-TAB	ZW101	PF1J
XW211	A-C1A4D07	-CR-LF AND EOL	ZW101	PF1K
XW121	A-C1A4B08	-UP SHIFT	ZW101	PF1L
-	-	NO CONNECTION	-	PF1M
-	-	NO CONNECTION	-	PF1N
-	-	NO CONNECTION	-	PF1P
-	-	NO CONNECTION	-	PF1Q
XW121	A-C1A4D09	-DOWN SHIFT	ZW101	PF1R
ZW101	PF2A	+TWR END OF LINE	XW111	A-C1A4B09
-	PF2B	NO CONNECTION	-	-
ZW101	PF2C	+12V E.O.L. INPUT	ZW101	PF2L (SEE ZW101)
-	PF2D	NO CONNECTION	-	-
ZW101	PF2E	-TWR CB RESPONSE	XW101	A-C1A4D10
ZW101	PF2F	CAR RET INLK	-	NOT USED
ZW101	PF2G	CRLFT INLK 2	-	NOT USED
XW211	A-C1A4B10	-SPACE	ZW101	PF2H
XW211	A-C1A4D11	-BACKSPACE	ZW101	PF2J
XW221	A-C1A4B12	-BLACK RIBBON SHIFT	ZW101	PF2K
ZW101	PF2L	-TWR END OF FORMS	XW121	A-C1A4D12
-	PF2M	NO CONNECTION	-	-
ZW101	PF2N	+TWR CRLFT INLK	XW121	A-C1A4B13
XW221	A-C1A4D13	-RED RIBBON SHIFT	ZW101	PF2P
-	NOT USED	DOUBLE LINE FEED	ZW101	PF2Q
-	NOT USED	SINGLE LINE FEED	ZW101	PF2R

1134 PAPER TAPE READER (PR3) SIGNAL CONNECTIONS

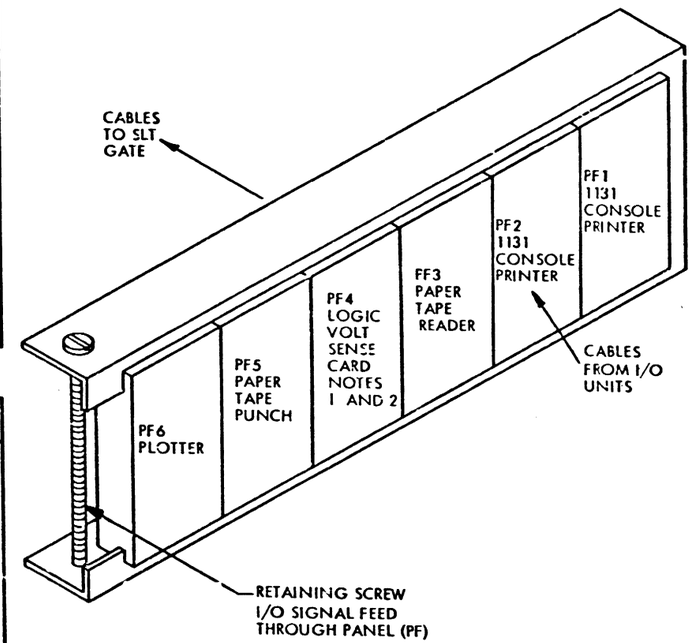
FROM LOGIC	CONNECTION	LINE TITLE	TO LOGIC	CONNECTION
XT331	A-B1A6D02	-PT READER CLUTCH DRIVE B	ZT101	PF3A
ZT101	PF3B	-PT READER READY	XT311	A-B1A6B03
ZT101	PF3C	-PT READ CONTACT 8TH CHNL	XT321	A-B1A6B12
-	NOT USED	REVERSE DRIVE A	ZT101	PF3D
-	NOT USED	REVERSE DRIVE B	ZT101	PF3E
XT331	A-B1A6D06	-PT READER CLUTCH DRIVE A	ZT101	PF3F
-	-	NO CONNECTION	-	PF3G
-	-	NO CONNECTION	-	PF3H
XT331	A-B1A6B02	-GATE PT CONTACTS COM	ZT101	PF3J
ZT101	PF3K	-PT READ CONTACT C	XT321	A-B1A6B10
ZT101	PF3L	-PT READ CONTACT 1	XT311	A-B1A6B04
ZT101	PF3M	-PT READ CONTACT 2	XT311	A-B1A6B05
ZT101	PF3N	-PT READ CONTACT 4	XT311	A-B1A6D07
ZT101	PF3P	-PT READ CONTACT 8	XT311	A-B1A6D09
ZT101	PF3Q	-PT READ CONTACT A	XT321	A-B1A6D13
ZT101	PF3R	-PT READ CONTACT B	XT321	A-B1A6D12

1055 PAPER TAPE PUNCH (PF5) SIGNAL CONNECTIONS

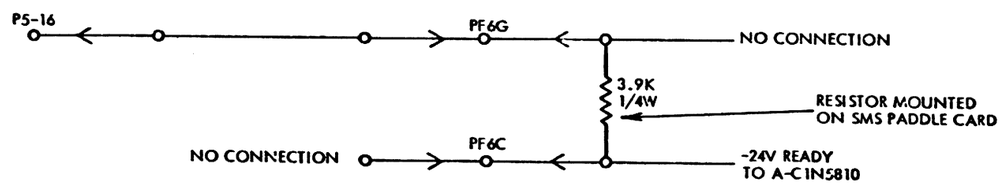
FROM LOGIC	CONNECTION	LINE TITLE	TO LOGIC	CONNECTION
ZT111	PF5A	BKSP PUNCH	-	NOT USED
-	-	R & S COUNTER	ZT111	PF5B
-	PF5C	NO CONNECTION	-	-
-	PF5D	NO CONNECTION	-	-
-	PF5E	NO CONNECTION	-	-
XT201	A-B1N5D04	-DRIVE P.T. PUNCH CLUTCH	ZT111	PF5F
XT211	A-B1N5B08	-P.T. PUNCH 8TH CHAN DRIVE	ZT111	FF5G
ZT111	PF5H	-P.T. PUNCH READY	XT201	A-B1N5B03
ZT111	PF5J	GND 8TH CHAN		NOT USED
XT221	A-B1N5B09	-P.T. PUNCH C DRIVE	ZT111	PF5K
XT211	A-B1N5D06	-P.T. PUNCH 1 DRIVE	ZT111	PF5L
XT221	A-B1N5B10	-P.T. PUNCH 2 DRIVE	ZT111	PF5M
XT221	A-B1N5D10	-P.T. PUNCH 4 DRIVE	ZT111	PF5N
XT221	A-B1N5B13	-P.T. PUNCH 8 DRIVE	ZT111	PF5P
XT211	A-B1N5D07	-P.T. PUNCH A DRIVE	ZT111	PF5Q
XT211	A-B1N5B07	-P.T. PUNCH B DRIVE	ZT111	PF5R

1627 MOD I OR II PLOTTER (PF6) SIGNAL CONNECTIONS

FROM LOGIC	CONNECTION	LINE TITLE	CONNECTION	PLUG P5
		NO CONNECTION	PF6A	-
		NO CONNECTION	PF6B	-
XG111	A-C1N5B10	-24V READY	PF6C*	-
-	-	PF6A TO 6F NO CONNECTION		
-	NO CONN.	-24V	PF6G*	16
-			PF6H	N.C.
-	-	NO CONNECTION	PF6J	-
-	-	NO CONNECTION	PF6K	-
XG111	A-C1N5D05	-PEN DOWN DRIVE	PF6L	12
XG111	A-C1N5B04	-PEN UP DRIVE	PF6M	11
XG101	A-C1N5D04	-CARR LEFT DRIVE	PF6N	7
XG101	A-C1N5B03	-CARR RIGHT DRIVE	PF6P	8
XG101	A-C1N5D02	-DRUM DOWN DRIVE	PF6Q	6
XG101	A-C1N5B02	-DRUM UP DRIVE	PF6R	5



NOTES:
1. ALL PF4 CONNECTIONS SHOWN ON YP008
2. ON MIDPACK MACHINES LOGIC VOLTAGE SENSE CARD IS LOCATED ON THE SIDE OF SEQ BOX ALL CONNECTIONS ARE ON YP111 P/N 2231332



*READY CIRCUIT (1627)

DATE	EC NUMBER	DATE	EC NUMBER
MAY 65	415480D	JAN 67	4196108
SEPT 65	415484A	MAR 67	415727G
SEPT 65	415485	MAY 67	420325
OCT 65	415483B		
MAR 66	415497		

I/O SIGNAL FEED THROUGH

DATE | P/N 2201309

TYPE 1131

IBM ZA101

ZA101

1131 CONSOLE PRINTER (PF1 & 2) SIGNAL CONNECTIONS

FROM LOGIC	CONNECTION	LINE TITLE	TO LOGIC	CONNECTION
XW211	A-C1A4B02	-SELECT T2	ZW101	PF1A
XW211	A-C1A4D02	-SELECT T1	ZW101	PF1B
XW211	A-C1A4B03	-SELECT R2A	ZW101	PF1C
XW211	A-C1A4D04	-SELECT R1	ZW101	PF1D
XW221	A-C1A4B04	-SELECT R5	ZW101	PF1E
XW221	A-C1A4D05	-SELECT R2	ZW101	PF1F
XW221	A-C1A4B05	-SELECT AUX	ZW101	PF1G
XW221	A-C1A4D06	-LINE FEED	ZW101	PF1H
XW211	A-C1A4B07	-TAB	ZW101	PF1J
XW211	A-C1A4D07	-CR-LF AND EOL	ZW101	PF1K
XW121	A-C1A4B08	-UP SHIFT	ZW101	PF1L
-	-	NO CONNECTION	-	PF1M
-	-	NO CONNECTION	-	PF1N
-	-	NO CONNECTION	-	PF1P
-	-	NO CONNECTION	-	PF1Q
XW121	A-C1A4D09	-DOWN SHIFT	ZW101	PF1R
ZW101	PF2A	+TWR END OF LINE	XW111	A-C1A4B09
-	PF2B	NO CONNECTION	-	-
ZW101	PF2C	+12V E.O.L. INPUT	ZW101	PF2L (SEE ZW101)
-	PF2D	NO CONNECTION	-	-
ZW101	PF2E	-TWR CB RESPONSE	XW101	A-C1A4D10
ZW101	PF2F	CAR RET INLK	-	NOT USED
ZW101	PF2G	CRLFT INLK 2	-	NOT USED
XW211	A-C1A4B10	-SPACE	ZW101	PF2H
XW211	A-C1A4D11	-BACKSPACE	ZW101	PF2J
XW221	A-C1A4B12	-BLACK RIBBON SHIFT	ZW101	PF2K
ZW101	PF2L	-TWR END OF FORMS	XW121	A-C1A4D12
-	PF2M	NO CONNECTION	-	-
ZW101	PF2N	+TWR CRLFT INLK	XW121	A-C1A4B13
XW221	A-C1A4D13	-RED RIBBON SHIFT	ZW101	PF2P
-	NOT USED	DOUBLE LINE FEED	ZW101	PF2Q
-	NOT USED	SINGLE LINE FEED	ZW101	PF2R

1134 PAPER TAPE READER (PR3) SIGNAL CONNECTIONS

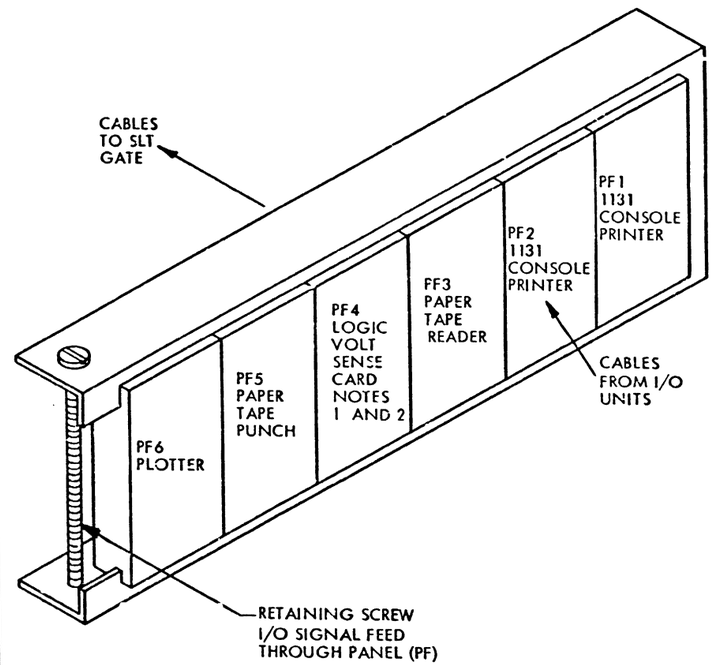
FROM LOGIC	CONNECTION	LINE TITLE	TO LOGIC	CONNECTION
XT331	A-B1A6D02	-PT READER CLUTCH DRIVE B	ZT101	PF3A
ZT101	PF3B	-PT READER READY	XT311	A-B1A6B03
ZT101	PF3C	-PT READ CONTACT 8TH CHNL	XT321	A-B1A6B12
-	NOT USED	REVERSE DRIVE A	ZT101	PF3D
-	NOT USED	REVERSE DRIVE B	ZT101	PF3E
XT331	A-B1A6D06	-PT READER CLUTCH DRIVE A	ZT101	PF3F
-	-	NO CONNECTION	-	PF3G
-	-	NO CONNECTION	-	PF3H
XT331	A-B1A6B02	-GATE PT CONTACTS COM	ZT101	PF3J
ZT101	PF3K	-PT READ CONTACT C	XT321	A-B1A6B10
ZT101	PF3L	-PT READ CONTACT 1	XT311	A-B1A6B04
ZT101	PF3M	-PT READ CONTACT 2	XT311	A-B1A6B05
ZT101	PF3N	-PT READ CONTACT 4	XT311	A-B1A6D07
ZT101	PF3P	-PT READ CONTACT 8	XT311	A-B1A6D09
ZT101	PF3Q	-PT READ CONTACT A	XT321	A-B1A6D13
ZT101	PF3R	-PT READ CONTACT B	XT321	A-B1A6D12

1055 PAPER TAPE PUNCH (PF5) SIGNAL CONNECTIONS

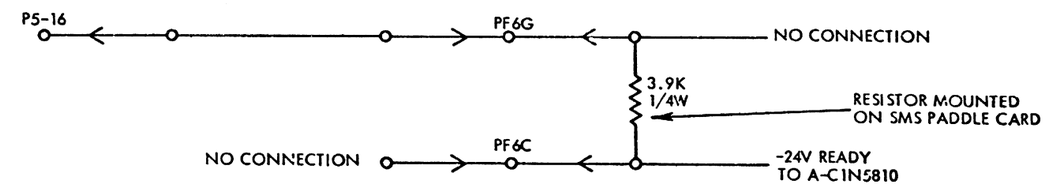
FROM LOGIC	CONNECTION	LINE TITLE	TO LOGIC	CONNECTION
ZT111	PF5A	BKSP PUNCH	-	NOT USED
-	-	R & S COUNTER	ZT111	PF5B
-	PF5C	NO CONNECTION	-	-
-	PF5D	NO CONNECTION	-	-
-	PF5E	NO CONNECTION	-	-
XT201	A-B1N5D04	-DRIVE P.T. PUNCH CLUTCH	ZT111	PF5F
XT211	A-B1N5B08	-P.T. PUNCH 8TH CHAN DRIVE	ZT111	FF5G
ZT111	PF5H	-P.T. PUNCH READY	XT201	A-B1N5B03
ZT111	PF5J	GND 8TH CHAN		NOT USED
XT221	A-B1N5B09	-P.T. PUNCH C DRIVE	ZT111	PF5K
XT211	A-B1N5D06	-P.T. PUNCH 1 DRIVE	ZT111	PF5L
XT221	A-B1N5B10	-P.T PUNCH 2 DRIVE	ZT111	PF5M
XT221	A-B1N5D10	-P.T. PUNCH 4 DRIVE	ZT111	PF5N
XT221	A-B1N5B13	-P.T. PUNCH 8 DRIVE	ZT111	PF5P
XT211	A-B1N5D07	-P.T. PUNCH A DRIVE	ZT111	PF5Q
XT211	A-B1N5B07	-P.T. PUNCH B DRIVE	ZT111	PF5R

1627 MOD I OR II PLOTTER (PF6) SIGNAL CONNECTIONS

FROM LOGIC	CONNECTION	LINE TITLE	CONNECTION	PLUG P5
		NO CONNECTION	PF6A	-
		NO CONNECTION	PF6B	-
XG111	A-C1N5B10	-24V READY	PF6C*	-
-	-	PF6A TO 6F NO CONNECTION		
-	NO CONN.	-24V	PF6G*	16
-			PF6H	N.C.
-	-	NO CONNECTION	PF6J	-
-	-	NO CONNECTION	PF6K	-
XG111	A-C1N5D05	-PEN DOWN DRIVE	PF6L	12
XG111	A-C1N5B04	-PEN UP DRIVE	PF6M	11
XG101	A-C1N5D04	-CARR LEFT DRIVE	PF6N	7
XG101	A-C1N5B03	-CARR RIGHT DRIVE	PF6P	8
XG101	A-C1N5D02	-DRUM DOWN DRIVE	PF6Q	6
XG101	A-C1N5B02	-DRUM UP DRIVE	PF6R	5



NOTES:
1. ALL PF4 CONNECTIONS SHOWN ON YP008
2. ON MIDPACK MACHINES LOGIC VOLTAGE SENSE CARD IS LOCATED ON THE SIDE OF SEQ BOX ALL CONNECTIONS ARE ON YP111 P/N 2231332



*READY CIRCUIT (1627)

DATE	EC NUMBER	DATE	EC NUMBER
MAY 65	415480D	JAN 67	419610B
SEPT 65	415484A	MAR 67	415727G
SEPT 65	415485	MAY 67	420325
OCT 65	415483B		
MAR 66	415497		

I/O SIGNAL FEED THROUGH

DATE | P/N 2201309

TYPE 1131

IBM ZA101

ZA101

2	3	4	5	6	7

1442 POWER CONNECTIONS

FROM 1131 LOGIC PAGE	CONN POSITION	LINE TITLE 50 HZ	LINE TITLE 60 HZ	TO 1442 LOGIC PAGE
YP141	PC1-1	DC COM	DC COM	YA100
YP141	PC1-2	+6V	+6V	YA100
YP141	PC1-3	+3V	+3V	YA100
YP141	PC1-4	-3V	-3V	YA100
YP141	PC1-6	A.C. GND	A.C. GND	YA100
-	PC1-9	SPARE	SPARE	-
YP131	PC1-17	SCR AC	SCR AC	YA100
YP131	PC1-18	SCR COM	SCR COM	YA100
YP141	PC1-19	SHIELD GND	SHIELD GND	-
YP101	PC1-21	FAN AC COM	FAN AC COM	YA100
YP101	PC1-22	220V AC COM	LINE COM	YA100
YP101	PC1-23	CONV AC	CONV AC	YA100
YP101	PC1-26	FAN 220V AC	FAN 115V AC	YA100
YP101	PC1-27	220V AC	LINE V	YA100
YP101	PC1-28	CONV COM	CONV COM	YA100

1132 POWER CONNECTIONS

FROM 1131 LOGIC PAGE	CONN POSITION	LINE TITLE 50 HZ	LINE TITLE 60 HZ	TO 1132 LOGIC PAGE
YP141	PC2-1	DC COM	DC COM	YA101
YP141	PC2-2	+6V	+6V	YA101
YP141	PC2-3	+3V	+3V	YA101
YP141	PC2-4	-3V	-3V	YA101
YP141	PC2-6	AC GND	AC GND	YA111
YP141	PC2-9	+12V	+12V	YA101
YP101	PC2-17	24V AC	24V AC	YA111
YP101	PC2-18	24V AC COM	24V AC COM	YA111
YP141	PC2-19	SHIELD GND	SHIELD GND	-
YP101	PC2-21	FAN AC COM	FAN AC COM	YA111
YP101	PC2-22	220V AC COM	LINE COM	YA111
YP101	PC2-23	CONV AC	CONV AC	YA111
YP101	PC2-26	FAN 220V AC	FAN 115V AC	YA111
YP101	PC2-27	220V AC	LINE V	YA111
YP101	PC2-28	CONV COM	CONV COM	YA111

I/O CONNECTOR INTERFACE POWER CONNECTIONS

SMS POWER PANEL (PP) I/O UNIT CONNECTIONS

VOLTAGE	POSITION	I/O UNIT	TO LOGIC PAGE
220 V AC (50HZ)	PP1-AB	CONSOLE PR	ZW101
A.C. COMMON	PP1-FG	CONSOLE PR	ZW101
115V AC (60HZ)	PP1-CD	CONSOLE PR	ZW101
AC GND	PP1-KL	CONSOLE PR	ZW101
+12V	PP1-MN	CONSOLE PR	ZW101
D.C. COMMON	PP1-P	CONSOLE PR	NOT USED
+48V	PP1-QR	CONSOLE PR	ZW101
NOT USED	PP2-AB	----	-----
A.C. COMMON	PP2-FG	PLOTTER	CONN P5-17
115V A.C. *	PP2-CD	PLOTTER	CONN P5-18
A.C. GND	PP2-KL	PLOTTER	CONN P5-14
+12V	PP2-MN		NOT USED
D.C. COMMON +48V HZ	PP2-P PP2-QR	PLOTTER	CONN P5-15
220 VAC (50HZ)	PP3-AB	DISK STORAGE	XA101
A.C. COMMON	PP3-FG	DISK STORAGE	XA101
115 VAC (60HZ)	PP3-CD	DISK STORAGE	XA101
A.C. GND	PP3-KL	DISK STORAGE	XA101
+12V	PP3-MN	NOT USED	SEE BELOW
D.C. COMMON	PP3-P	NOT USED	FOR DC
+48V HZ	PP3-QR	NOT USED	CONNECTIONS
220 VAC (50HZ)	PP4-AB	1134 P.T. RDR	ZT101
A.C. COMMON	PP4-FG	1134 P.T. RDR	ZT101
115 VAC (60HZ)	PP4-CD	1134 P.T. RDR	ZT101
A.C. GND	PP4-KL	1134 P.T. RDR	ZT101
D.C. COMMON	PP4-MNP	1134 P.T. RDR	ZT101
+48V HZ	PP4-QR	1134 P.T. RDR	ZT101
220 VAC (50HZ)	PP5-AB	1055 P.T. PUN	ZT111
A.C. COMMON	PP5-FG	1055 P.T. PUN	ZT111
115 VAC (60HZ)	PP5-CD	1055 P.T. PUN	ZT111
A.C. GND	PP5-KL	1055 P.T. PUN	ZT111
D.C. COMMON	PP5-MNP	1055 P.T. PUN	ZT111
+48V	PP5-QR	1055 P.T. PUN	ZT111

DISK STORAGE DC VOLTAGE CONNECTIONS

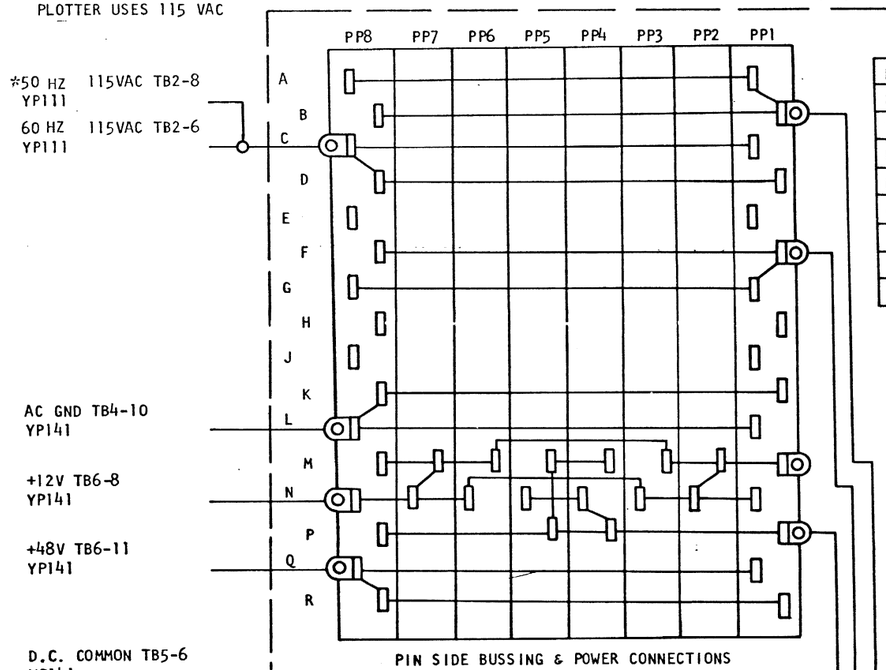
FROM CPU LOGIC	1131 CONN	VOLTAGE	TO FILE LOGIC
YP141	TB5-2	D.C. COMMON	XA101
YP141	TB5-10	-3V	XA101
YP141	TB6-1	+6V	XA101
YP141	TB6-4	+3V	XA101
YP141	TB6-12	+48V	XA101
YP141	TB5-2	+48V GND	XA101

DISK STORAGE CONTROL LINES

FROM CPU LOGIC	SIGNAL NAME	TO FILE LOGIC
ZK111	-DISK UNLOCK LAMP	XA101
ZK111	+48V	XA101
ZK111	-FILE MOTOR LATCH ON	XA101
ZK111	48V GND	XA101
ZK111	-NOT HEAD LOAD SWITCH	XA101
ZK111	-START FILE MOTOR	XA101

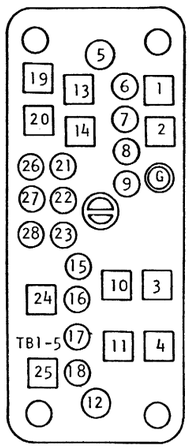
* NOTE: ON 50 HZ SYSTEMS THE PLOTTER USES 115 VAC

SMS I/O POWER PANEL (PP)

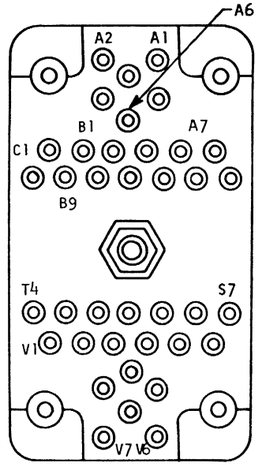


SOCKET ASSIGNMENT

POS	UNIT
PP1	CONSOLE PRINTER
PP2	PLOTTER
PP3	DISK STORAGE
PP4	1134 P.T. RDR
PP5	1055 P.T. PUNCH
PP6	SPARE
PP7	SPARE
PP8	SPARE

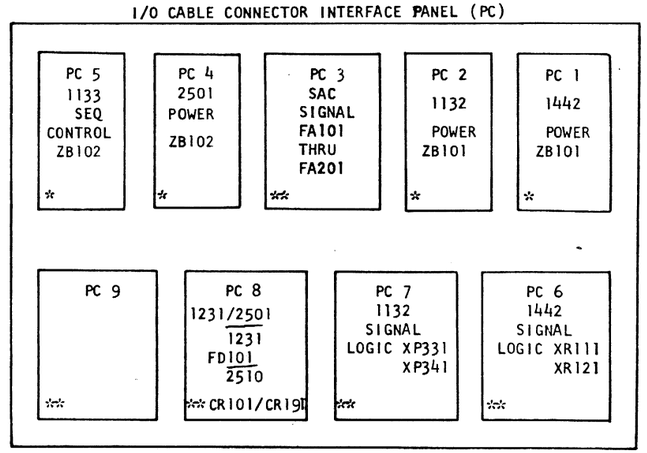


* POWER CONN DETAIL



** SIGNAL CONN DETAIL

I/O CABLE CONNECTOR INTERFACE PANEL (PC)



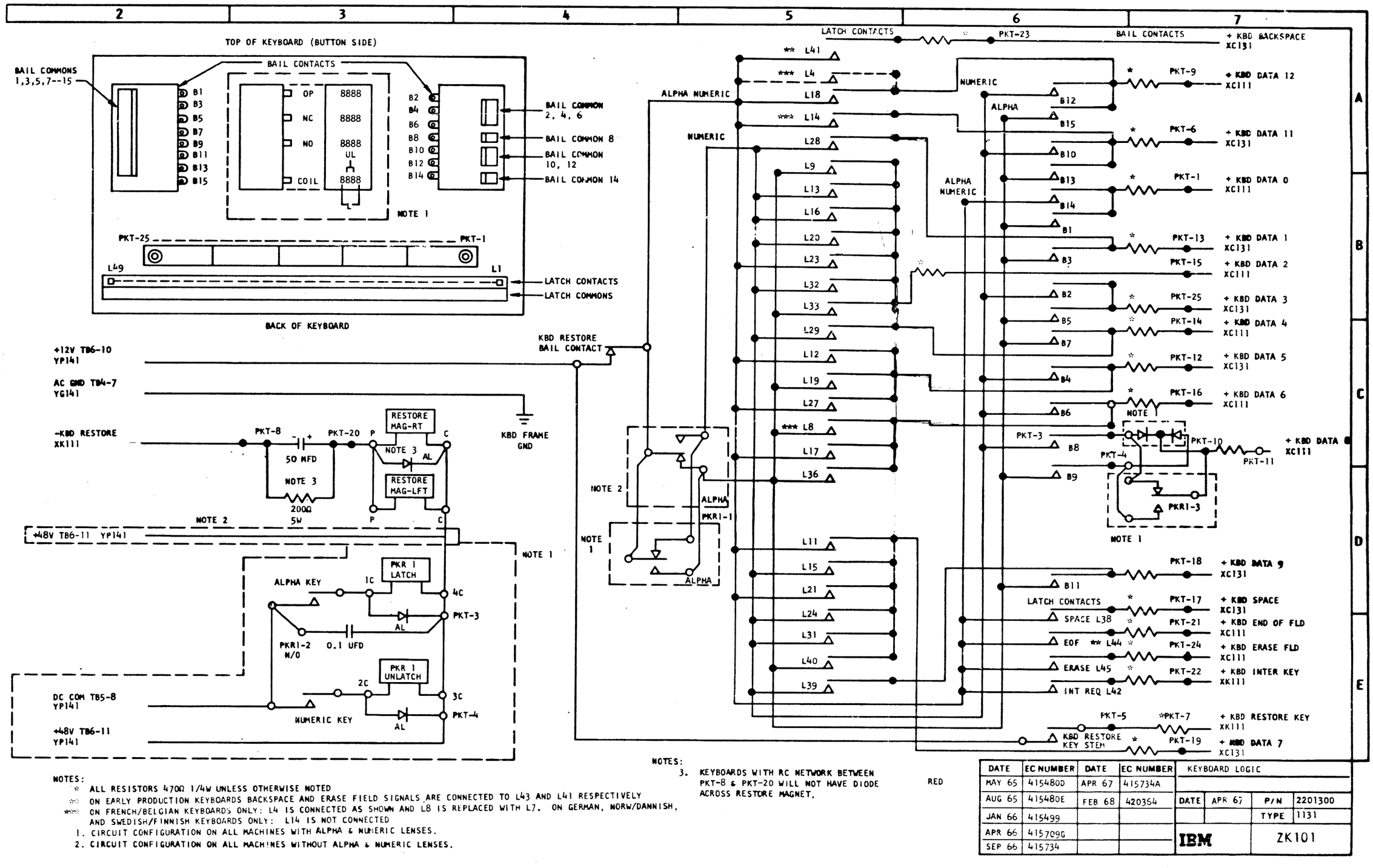
VIEW FROM I/O CABLE PLUG SIDE

DATE	EC NUMBER	DATE	EC NUMBER
SEE INDEX CARD			
DEC 66	419610B		
NOV 67	420325A		
FEB 68	420364		

I/O POWER DISTRIBUTION

DATE	JAN 65	P/N	2201312
		TYPE	1131

IBM ZB101



NOTES:

* ALL RESISTORS 470Ω 1/4W UNLESS OTHERWISE NOTED

** ON EARLY PRODUCTION KEYBOARDS BACKSPACE AND ERASE FIELD SIGNALS ARE CONNECTED TO L43 AND L41 RESPECTIVELY

*** ON FRENCH/BELGIAN KEYBOARDS ONLY: L4 IS CONNECTED AS SHOWN AND L8 IS REPLACED WITH L7. ON GERMAN, NORW/DANNISH, AND SWEDISH/FINNISH KEYBOARDS ONLY: L14 IS NOT CONNECTED

1. CIRCUIT CONFIGURATION ON ALL MACHINES WITH ALPHA & NUMERIC LENSES.
2. CIRCUIT CONFIGURATION ON ALL MACHINES WITHOUT ALPHA & NUMERIC LENSES.

NOTES:

3. KEYBOARDS WITH RC NETWORK BETWEEN PKT-8 & PKT-20 WILL NOT HAVE DIODE ACROSS RESTORE MAGNET.

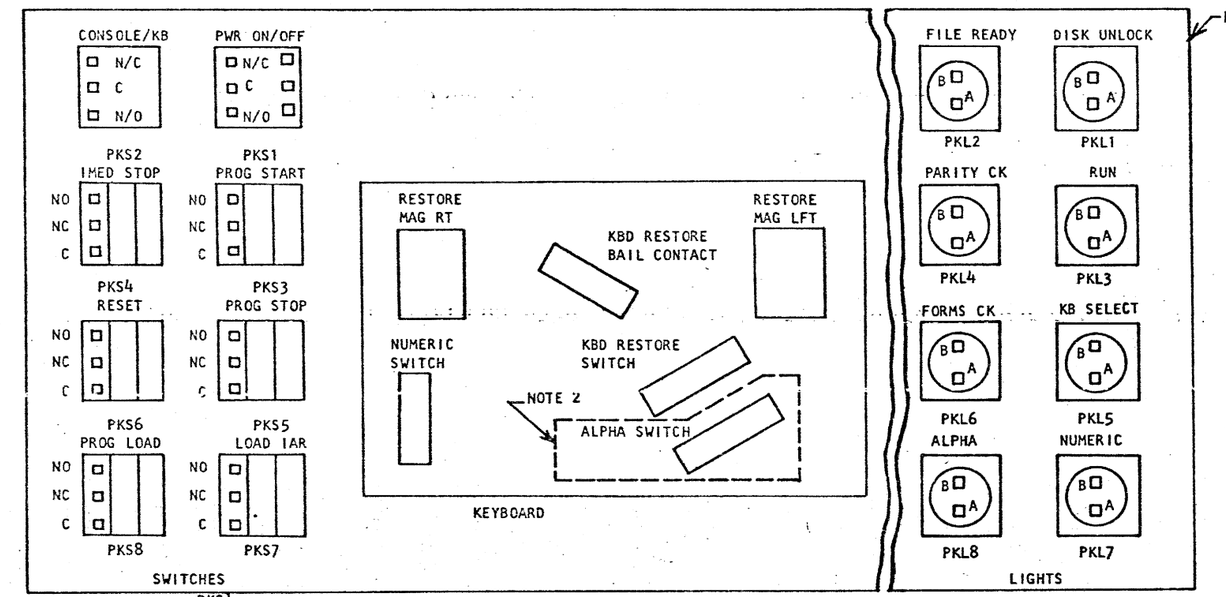
RED

DATE	EC NUMBER	DATE	EC NUMBER
MAY 65	4154800	APR 67	415734A
AUG 65	4154806	FEB 68	420364
JAN 66	415499		
APR 66	4157096		
SEP 66	415734		

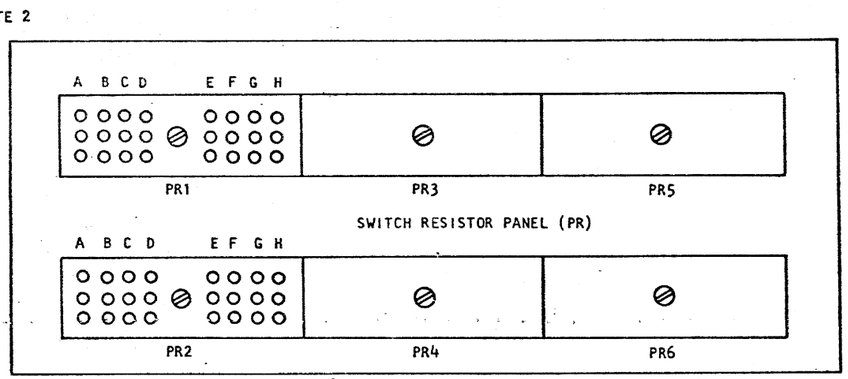
KEYBOARD LOGIC

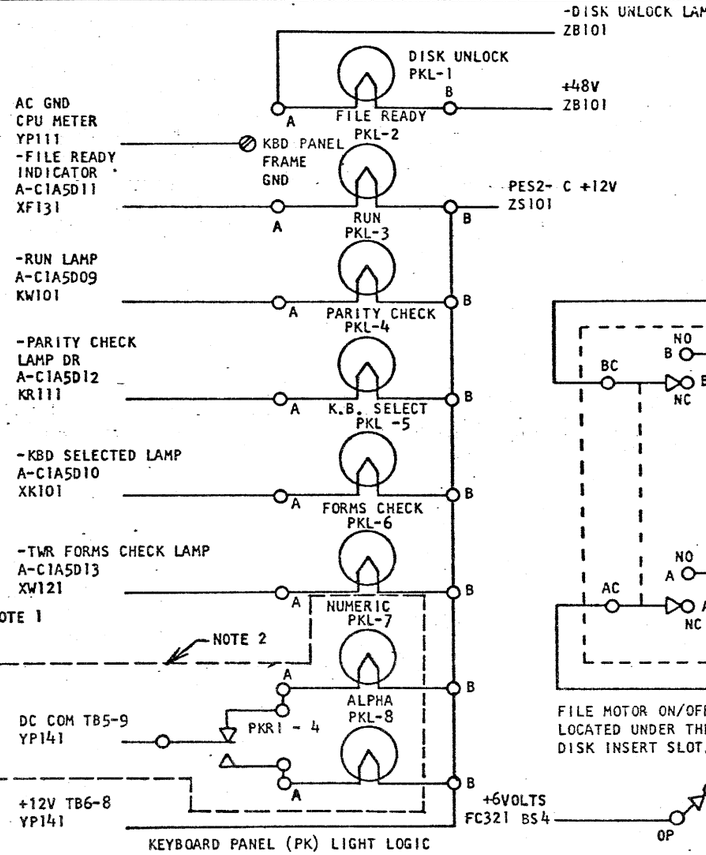
DATE	APR 67	P/N	2201300
		TYPE	1131

IBM ZK101

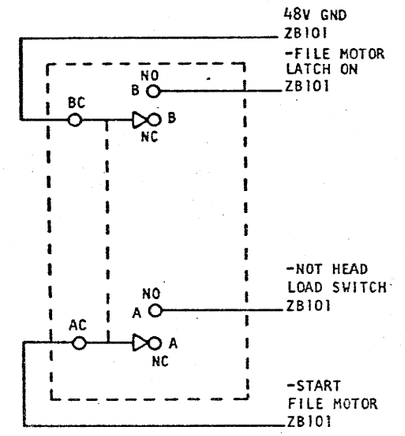


KEYBOARD PANEL (PK) BACK VIEW

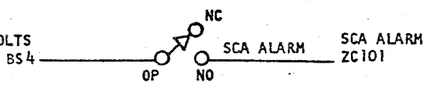


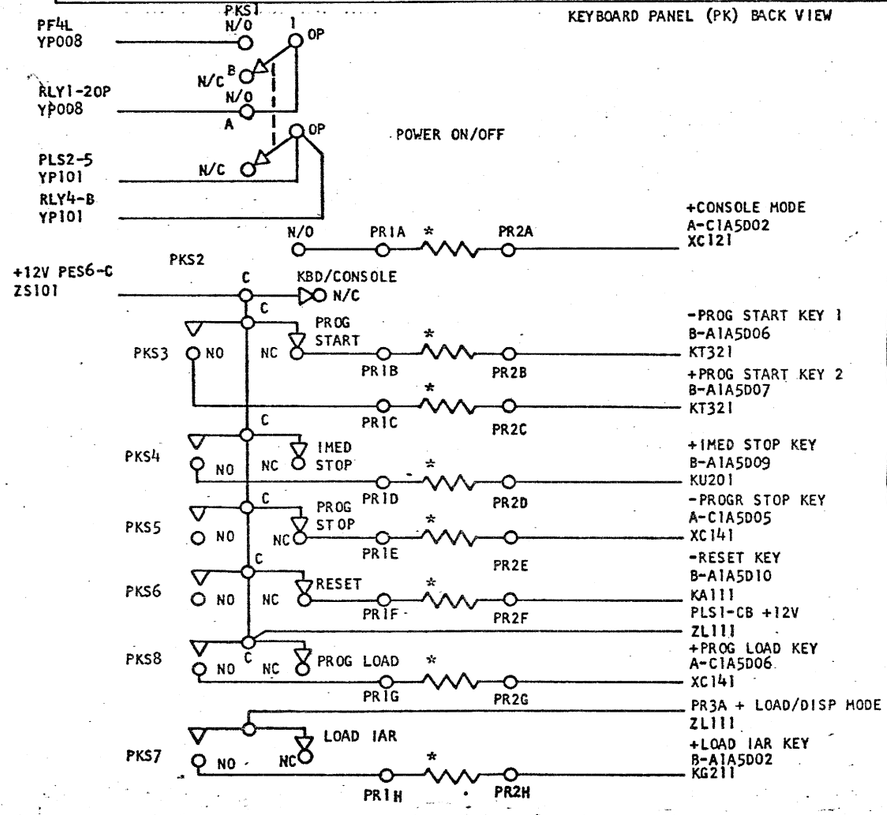


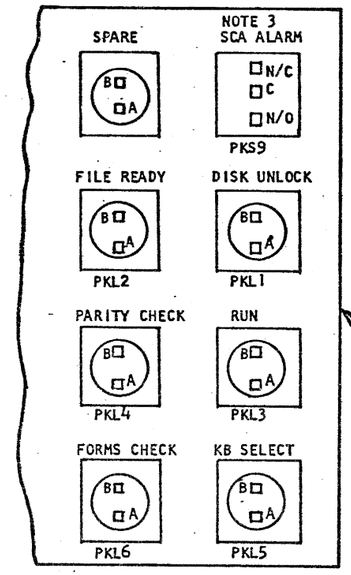
KEYBOARD PANEL (PK) LIGHT LOGIC



FILE MOTOR ON/OFF SWITCH LOCATED UNDER THE FILE DISK INSERT SLOT.





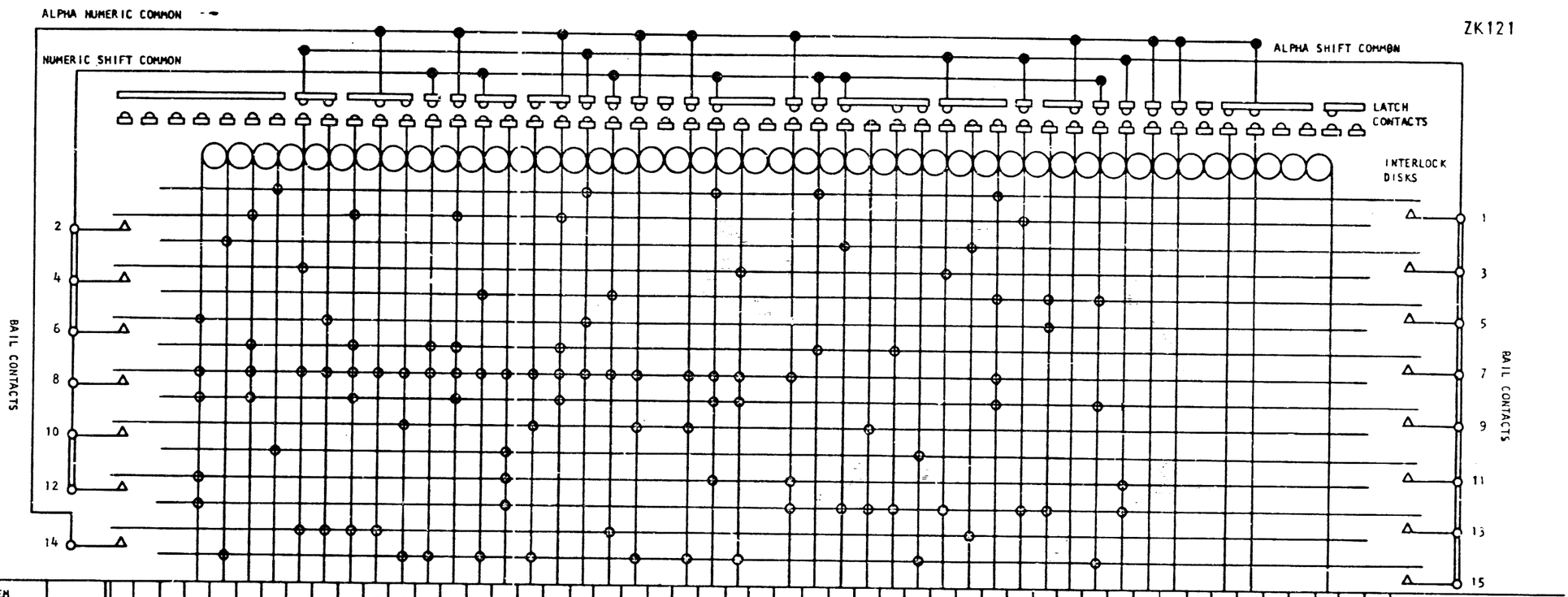


KEYBOARD PANEL (PK) PUSH BUTTON SWITCH LOGIC *

* NOTE: ALL RESISTORS 470Ω 1/4W
NOTE 1: PRESENT IF NO ALPHA-NUMERIC LIGHTS
NOTE 2: PRESENT IF ALPHA-NUMERIC LIGHTS
NOTE 3: SPARE SOCKET IF NO SCA

DATE	EC NUMBER	DATE	EC NUMBER	KEYBOARD SW & LITE PANEL			
5-26-65	415480D	MAY 66	415497A				
AUG 65	415480E	SEP 66	415734 B	DATE	JUL 66	P/N	2201301
JAN 66	415704P	DEC 66	419610			TYPE	1131
FEB 66	419600	APR 67	415734A	IBM		ZK III	
MAR 66	415497	FEB 68	420364				

ZK121



STEM POSITION		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41 *	42	43 *	44 *	45	46	47	48	49	50
CHARACTER SET	ALPHA SHIFT		RESTORE KB	NUMERIC	Q	A	@	Z	W	S	*	X	E	D	$	C	R	F	<	V	T	G	BLANK	B	Y	H	BLANK	N	U	J	-	M	I	K	/	,	O	L	SPACE BAR	.	P		INT REQ	BLANK	EOF	ERASE FIELD		ALPHA		BLANK	BLANK
	NUMERIC SHIFT				+		#		!	>	-	?	)	:	%	¢	¢	;	.	=	0.8.2	⌐	BLANK		!	¶	BLANK	(	)	4	-	7	2	5	0	8	3	6		9	¢			BLANK							BLANK	BLANK
		11	12										12	12	11	12	11	12	12			12		12		12		11		11	11	11	12	11			11	11		12	11										
ALPHA KBD DATA CODE							8				8				8				8						0				0						0	0	8			8										
					8	1	4	9	6	2	4	7	5	4	4	3	9	6	4	5	3	7		2	8	8		5	4	1		4	9	2	1	3	6	3		3	7										
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					8		8		8	8	8	8	8	8	8	8	8	8	8	8	8	8		8	8	8		8																								
					6		3		5	6	3	7	5	2	3	7	2	6	3	6	2	7		2	7	5		5	1	4		7	2	5	0	8	3	6		9	12										

* NOTE: ON EARLY PRODUCTION KEYBOARDS STEM POSITIONS 41,43, AND 44 CONTAIN THE FOLLOWING NOMENCLATURE:
41 - EOF
43 - BACKSPACE
44 - BLANK

DATE	EC NUMBER	DATE	EC NUMBER
MAY-65	4154800		
AUG-65	4154806		
APR 66	4157096		

KEYBOARD CONTACT DECODE
DOMESTIC KBD

DATE	JAN-65	P/N	2201302
		TYPE	1131

IBM ZK121

ZK121

ZK121

2	3	4	5	6	7

LIGHT POSITION	LINE TITLE	FROM LOGIC	GATE AND POSITION	NOTE 1
PLA02	+ OP BIT 4	RN101	B-A1A2B07	1-D07
PLA03	+ OP BIT 3	RN101	B-A1A2B05	1-D06
PLA04	+ OP BIT 2	RN101	B-A1A2B04	1-D05
PLA05	+ OP BIT 1	RN101	B-A1A2B03	1-D03
PLA06	+ OP BIT 0	RN101	B-A1A2B02	1-B02
PLA11	+ T7	KC111	B-A1A3D12	3-D12
PLA12	+ T6	KC111	B-A1A3B12	3-B12
PLA13	+ T5	KC111	B-A1A3D11	3-D11
PLA14	+ T4	KC111	B-A1A3B10	3-B11
PLA15	+ T3	KC101	B-A1A3D10	3-D10
PLA16	+ T2	KC101	B-A1A3B09	3-B10
PLA17	+ T1	KC101	B-A1A3D09	3-D09
PLA18	+ T0	KC101	B-A1A3B08	3-B09
PLA20	+ INSTR ADDR BIT 15	RB271	B-B1N2D10	6-D10
PLA21	+ INSTR ADDR BIT 14	RB261	B-B1N2B09	6-B10
PLA22	+ INSTR ADDR BIT 13	RB251	B-B1N2D09	6-D09
PLA23	+ INSTR ADDR BIT 12	RB241	B-B1N2B08	6-B09
PLA24	+ INSTR ADDR BIT 11	RB231	B-B1N2D07	6-D08
PLA25	+ INSTR ADDR BIT 10	RB221	B-B1N2B07	6-D07
PLA26	+ INSTR ADDR BIT 9	RB211	B-B1N2D06	6-B07
PLA27	+ INSTR ADDR BIT 8	RB201	B-B1N2B05	6-D06
PLA28	+ INSTR ADDR BIT 7	RB171	B-B1N2D05	6-B06
PLA29	+ INSTR ADDR BIT 6	RB161	B-B1N2B04	6-D05
PLA30	+ INSTR ADDR BIT 5	RB151	B-B1N2D04	6-D04
PLA31	+ INSTR ADDR BIT 4	RB141	B-B1N2B03	6-D03
PLA32	+ INSTR ADDR BIT 3	RB131	B-B1N2D02	6-D02
PLA33	+ INSTR ADDR BIT 2	RB121	B-B1N2B02	6-B02
PLA34	+ INSTR ADDR BIT 1	RB111	B-B1N4D13	8-D13
PLB02	+ MOD 9	RN111	B-A1A2D07	1-D08
PLB03	+ MOD 8	RN111	B-A1A2D06	1-B07
PLB04	+ TAG 7	RN101	B-A1A2D05	1-B06
PLB05	+ TAG 6	RN101	B-A1A2D04	1-D04
PLB06	+ FORMAT 5	RN101	B-A1A2D02	1-D02
PLB11	+ X7	KM111	B-A1A4D07	2-D08
PLB12	+ E3 CYCLE	KD111	B-A1A3D05	3-B06
PLB13	+ E2 CYCLE	KD111	B-A1A3D04	3-D04
PLB14	+ E1 CYCLE	KD111	B-A1A3D02	3-D02
PLB15	+ 1A CYCLE	KD111	B-A1A3B04	3-D05
PLB16	+ 1X CYCLE	KD101	B-A1A3B05	3-D06
PLB17	+12 CYCLE	KD101	B-A1A3B03	3-D03
PLB18	+11 CYCLE	KD101	B-A1A3B02	3-B02

LIGHT POSITION	LINE TITLE	FROM LOGIC	GATE AND POSITION	NOTE 1
PLB20	+ STORAGE ADDR BIT 15	MB101	B-B1M2D10	4-D10
PLB21	+ STORAGE ADDR BIT 14	RB261	B-B1M2B09	4-B10
PLB22	+ STORAGE ADDR BIT 13	RB251	B-B1M2D09	4-D09
PLB23	+ STORAGE ADDR BIT 12	RB241	B-B1M2B08	4-B09
PLB24	+ STORAGE ADDR BIT 11	RB231	B-B1M2D07	4-D08
PLB25	+ STORAGE ADDR BIT 10	RB221	B-B1M2B07	4-D07
PLB26	+ STORAGE ADDR BIT 9	RB211	B-B1M2D06	4-B07
PLB27	+ STORAGE ADDR BIT 8	RB201	B-B1M2B05	4-D06
PLB28	+ STORAGE ADDR BIT 7	RB171	B-B1M2D05	4-B06
PLB29	+ STORAGE ADDR BIT 6	RB161	B-B1M2B04	4-D05
PLB30	+ STORAGE ADDR BIT 5	RB151	B-B1M2D04	4-D04
PLB31	+ STORAGE ADDR BIT 4	RB141	B-B1M2B03	4-D03
PLB32	+ STORAGE ADDR BIT 3	RB131	B-B1M2D02	4-D02
PLB33	+ STORAGE ADDR BIT 2	RB121	B-B1M2B02	4-B02
PLB34	+ STORAGE ADDR BIT 1	RB111	B-B1N4B13	8-B13
PLC03	+ INDEX ADDR 3	KU201	B-A1A2D13	1-D13
PLC04	+ INDEX ADDR 2	KU201	B-A1A2B13	1-B13
PLC05	+ INDEX ADDR 1	KU201	B-A1A2B12	1-B12
PLC11	+ SHIFT CTRL TR	KT121	B-A1A4B04	2-D05
PLC12	+ ARITH CTRL TR	KT121	B-A1A4B03	2-D03
PLC13	+ ADD TR	KT111	B-A1A4B02	2-B02
PLC15	+ WAIT OP	KU211	B-A1A2D12	1-D12
PLC17	+ CK BIT P2	KR111	B-A1A3D07	3-D08
PLC18	+ CK BIT P1	KR111	B-A1A3B07	3-D07
PLC20	+ B REG BIT 15	RB271	B-B1M3D11	7-D11
PLC21	+ B REG BIT 14	RB261	B-B1M3B10	7-B11
PLC22	+ B REG BIT 13	RB251	B-B1M3D10	7-D10
PLC23	+ B REG BIT 12	RB241	B-B1M3B09	7-B10
PLC24	+ B REG BIT 11	RB231	B-B1M3D09	7-D09
PLC25	+ B REG BIT 10	RB221	B-B1M3B08	7-B09
PLC26	+ B REG BIT 9	RB211	B-B1M3D07	7-D08
PLC27	+ B REG BIT 8	RB201	B-B1M3B07	7-D07
PLC28	+ B REG BIT 7	RB171	B-B1M3D06	7-B07
PLC29	+ B REG BIT 6	RB161	B-B1M3B05	7-D06
PLC30	+ B REG BIT 5	RB151	B-B1M3D05	7-B06
PLC31	+ B REG BIT 4	RB141	B-B1M3B04	7-D05
PLC32	+ B REG BIT 3	RB131	B-B1M3D04	7-D04
PLC33	+ B REG BIT 2	RB121	B-B1M3B03	7-D03
PLC34	+ B REG BIT 1	RB111	B-B1M3D02	7-D02

LIGHT POSITION	LINE TITLE	FROM LOGIC	GATE AND POSITION	NOTE 1
PLC35	+ B REG BIT 0	RB101	B-B1M3B02	7-B02
PLD01	+ INT LEVEL 5	KM321	B-A1A4D11	2-D11
PLD02	+ INT LEVEL 4	KM321	B-A1A4B10	2-B11
PLD03	+ INT LEVEL 3	KM311	B-A1A4D10	2-D10
PLD04	+ INT LEVEL 2	KM311	B-A1A4B09	2-B10
PLD05	+ INT LEVEL 1	KM301	B-A1A4D09	2-D09
PLD06	+ INT LEVEL 0	KM301	B-A1A4B08	2-B09
PLD11	+ ZERO RMDR TR	KT131	B-A1A4D05	2-B06
PLD12	+ TEMP CARRY TR	KS101	B-A1A4D04	2-D04
PLD13	+ ARITH SIGN TR	KT111	B-A1A4D02	2-D02
PLD20	+ D REG BIT 15	RD171	B-B1N4D11	8-D11
PLD21	+ D REG BIT 14	RD171	B-B1N4B10	8-B11
PLD22	+ D REG BIT 13	RD161	B-B1N4D10	8-D10
PLD23	+ D REG BIT 12	RD161	B-B1N4B09	8-B10
PLD24	+ D REG BIT 11	RD151	B-B1N4D09	8-D09
PLD25	+ D REG BIT 10	RD151	B-B1N4B08	8-B09
PLD26	+ D REG BIT 9	RD141	B-B1N4D07	8-D08
PLD27	+ D REG BIT 8	RD141	B-B1N4B07	8-D07
PLD28	+ D REG BIT 7	RD131	B-B1N4D06	8-B07
PLD29	+ D REG BIT 6	RD131	B0B1N4B05	8-D06
PLD30	+ D REG BIT 5	RD121	B-B1N4D05	8-B06
PLD31	+ D REG BIT 4	RD121	B-B1N4B04	8-D05
PLD32	+ D REG BIT 3	RD111	B-B1N4D04	8-D04
PLD33	+ D REG BIT 2	RD111	B-B1N4B03	8-D03
PLD34	+ D REG BIT 1	RD101	B-B1N4D02	8-D02
PLD35	+ D REG BIT 0	RD101	B-B1N4B02	8-B02
PLE01	+ CCC 1	RS101	B-A1A2B08	1-B09
PLE02	+ CCC 2	RS101	B-A1A2B09	1-B10
PLE03	+ CCC 4	RS111	B-A1A2B10	1-B11
PLE04	+ CCC 8	RS111	B-A1A2D09	1-D09
PLE05	+ CCC 16	RS121	B-A1A2D10	1-D10
PLE06	+ CCC 32	RS121	B-A1A2D11	1-D11
PLE11	+ CE LAMP 8		B-B1M2D13	4-D13
PLE12	+ CE LAMP 7		B-B1M2B13	4-B13
PLE13	+ CE LAMP 6		B-A1A4D13	2-D13
PLE14	+ CE LAMP 5		B-A1A4B13	2-B13
PLE15	+ CE LAMP 4		B-A1A4D12	2-D12
PLE16	+ CE LAMP 3		B-A1A4B12	2-B12
PLE17	+ CE LAMP 2		B-A1A3D13	3-D13
PLE18	+ CE LAMP 1		B-A1A3B13	3-B13
PLE20	+ A REG BIT 15	RA271	B-B1N3D13	9-D13
PLE21	+ A REG BIT 14	RA261	B-B1N3B13	9-B13

LIGHT POSITION	LINE TITLE	FROM LOGIC	GATE AND POSITION	NOTE 1
PLE22	+ A REG BIT 13	RA251	B-B1N3D12	9-D12
PLE23	+ A REG BIT 12	RA241	B-B1N3B12	9-B12
PLE24	+ A REG BIT 11	RA231	B-B1M3D13	7-D13
PLE 25	+ A REG BIT 10	RA221	B-B1M3B13	7-B13
PLE26	+ A REG BIT 9	RA211	B-B1M3D12	7-D12
PLE27	+ A REG BIT 8	RA201	B-B1M3B12	7-B12
PLE28	+ A REG BIT 7	RA171	B-B1N2D12	6-D12
PLE29	+ A REG BIT 6	RA161	B-B1N2B12	6-B12
PLE30	+ A REG BIT 5	RA151	B-B1N2D11	6-D11
PLE31	+ A REG BIT 4	RA141	B-B1N2B10	6-B11
PLE32	+ A REG BIT 3	RA131	B-B1M2D12	4-D12
PLE33	+ A REG BIT 2	RA121	B-B1M2B12	4-B12
PLE34	+ A REG BIT 1	RA111	B-B1M2D11	4-D11
PLE35	+ A REG BIT 0	RA101	B-B1M2B10	4-B11
PLF05	+ OVERFLOW TR	KS111	B-A1A4D06	2-B07
PLF06	+ CARRY TR	KS101	B-A1A4B05	2-D06
PLF11	CP	FC371	C-A1N3B05	5-D09
PLF12	D1	FC411	C-A1N3D05	5-B08
PLF13	CLK	FC121	C-A1N3D02	5-D07
PLF14	BFR	FC741	C-A1N3D06	5-B06
PLF15	TSM	FC311	C-A1N3D04	5-D05
PLF16	REC	FC311	C-A1N3B03	5-D04
PLF17	ABL	FC341	C-A1N3B02	5-B03
PLF18	RDY	FC361	C-A1N3B04	5-D02
PLF20	+ Q REG BIT 15	RQ171	B-B1N3D11	9-D11
PLF21	+ Q REG BIT 14	RQ171	B-B1N3B10	9-B11
PLF22	+ Q REG BIT 13	RQ161	B-B1N3D10	9-D10
PLF23	+ Q REG BIT 12	RQ161	B-B1N3B09	9-B10
PLF24	+ Q REG BIT 11	RQ151	B-B1N3D09	9-D09
PLF25	+ Q REG BIT 10	RQ151	B-B1N3B08	9-B09
PLF26	+ Q REG BIT 9	RQ141	B-B1N3D07	9-D08
PLF27	+ Q REG BIT 8	RQ141	B-B1N3B07	9-D07
PLF28	+ Q REG BIT 7	RQ131	B-B1N3D06	9-B07
PLF29	+ Q REG BIT 6	RQ131	B-B1N3B05	9-D06
PLF30	+ Q REG BIT 5	RQ121	B-B1N3D05	9-B06
PLF31	+ Q REG BIT 4	RQ121	B-B1N3B04	9-D05
PLF32	+ Q REG BIT 3	RQ111	B-B1N3D04	9-D04
PLF33	+ Q REG BIT 2	RQ111	B-B1N3B03	9-D03
PLF34	+ Q REG BIT 1	RQ101	B-B1N3D02	9-D02
PLF35	+ Q REG BIT 0	RQ101	B-B1N3B02	9-B02
-	SPARE	-	B-A1A4B07	
-	SPARE	-	B-A1A3D06	
-	SPARE	-	B-B1N4B13	
-	SPARE	-	B-B1N4D13	

A B C D E

NOTES:

1. 1ST DIGIT IS SCRID CARD NUMBER FOLLOWED BY INPUT PIN DESIGNATION REF. ZL111 FOR SCRID CARD SCHEMATIC AND INPUT OUTPUT PIN CHART.

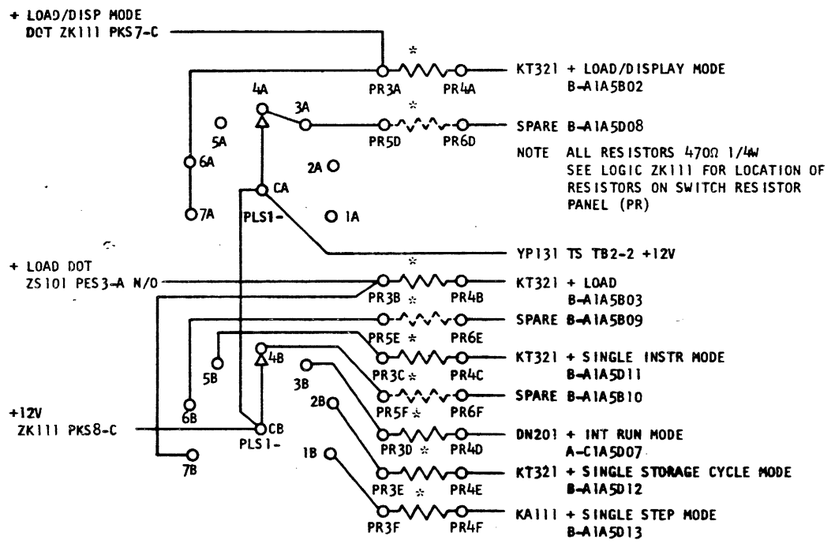
DATE	EC NUMBER	DATE	EC NUMBER
SEP 66	419610A		
JUN 67	420325		
FEB 68	420364		
2JUL68	420442		
19MAR69	571037		

LIGHT PANEL COLLECTOR LISTING

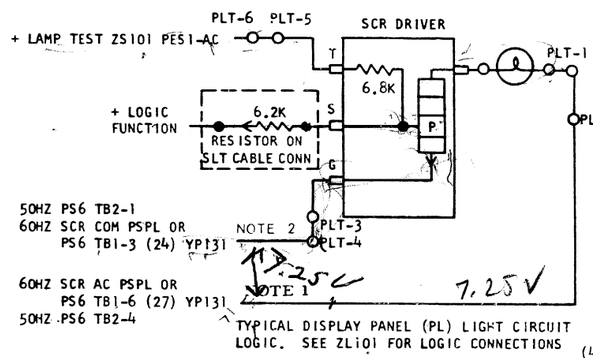
DATE	MAY 68	P/N	2231565
		TYPE	1131

IBM ZL101

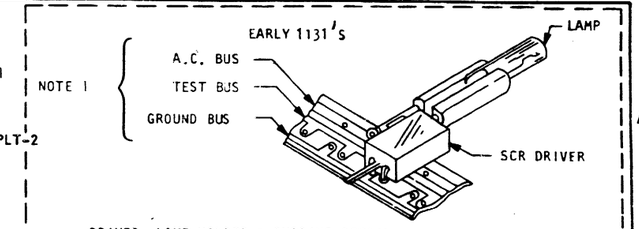
RED



CONSOLE LIGHT PANEL (PL) MODE SWITCH LOGIC



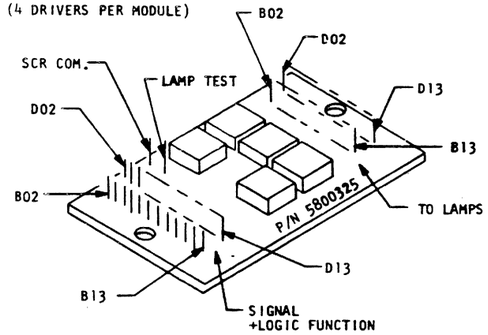
TYPICAL DISPLAY PANEL (PL) LIGHT CIRCUIT LOGIC. SEE ZL101 FOR LOGIC CONNECTIONS



DRIVER, LAMP HOLDER & BUSSING DETAIL

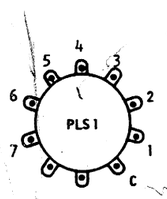
NOTE 1: COPPER LANDS ARE ON THE OPPOSITE SIDE FROM THE SCR MOUNTING.

TYPICAL SCRID CARD
(4 DRIVERS PER MODULE)

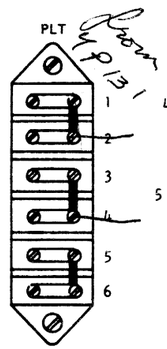


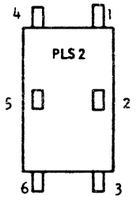
COLUMN

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
ROW A		4	3	2	1	0					T7	T6	T5	T4	T3	T2	T1	T0		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
		OPERATION REGISTER												CLOCK						INSTRUCTION ADDRESS (I REG)															
B		M9	M8	T7	T6	F5					X7	E3	E2	E1	1A	1X	12	11		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
		OPERATIONS FLAG												CYCLE						STORAGE ADDRESS (M REG)															
C			3	2	1						SC	AC	ADD		W		P2	P1		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
		INDEX REGISTER									ARITHMETIC CONDITION				WAIT OP		PARITY			STORAGE BUFFER (B REG)															
D	5	4	3	2	1	0					OR	TC	AS							15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
		INTERRUPT IN PROCESS									ARITHMETIC CONDITION									ARITHMETIC FACTOR (D REG)															
E	1	2	4	8	16	32					8	7	6	5	4	3	2	1		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
		CYCLE CONTROL COUNTER									CE LAMPS									ACCUMULATOR (A REG)															
F					0	C					CP	D1	CLK	BFR	TSM	REC	ABL	RDY		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
		CONDITION REGISTER									SCA LAMPS									ACCUMULATOR EXTENSION (Q REG)															



MODE SWITCH
(2 DECK ROTARY, DECKS A & B FROM PANEL OUT)





EMERGENCY POWER OFF SWITCH (SEE LOGIC YP101 FOR CONNECTIONS)

SCRID CARD	
INPUT	OUTPUT
B02	D02
B06	D05
B07	B04
B09	D08
B10	B09
B11	B10
B12	B13
B13	B12
D02	D03
D03	B03
D04	B02
D05	B05
D06	D04
D07	B07
D08	B06
D09	B08
D10	B11
D11	D10
D12	D13
D13	D12

NOTES:
1. THIS WIRE CONNECTED TO PS6 TB1-6 (115V) OR PS6 TB1-27, (208/230V).
2. THIS WIRE CONNECTED TO PS6 TB1-3 (115V) PS6 TB1-24 (208/230V).

FIGURE 3 - BACK VIEW OF LIGHT PANEL (PL)

DATE	EC NUMBER	DATE	EC NUMBER
MAY 66	415480D	FEB 68	420364
AUG 65	415480E	RED 2JUL68	420442
OCT 65	415483B	11DEC68	571003
NOV 66	415727A		
MAR 67	415727G		

LIGHT PANEL

DATE	MAY 68	P/N	2201304
		TYPE	1131

IBM ZL111

DATE	EC NUMBER
MAY 65	4154800
AUG 65	4154806
OCT 65	4154838
AUG 66	419616
NOV 66	415727A

DATE	EC NUMBER
MAR 67	4157276
FEB 68	420364

BIT SWITCH & LIGHT LOGIC

DATE DEC 64 P/N 2201305 TYPE 1131

IBM

ZS101

1131 CONSOLE PRINTER			EC NUMBER	DATE	EC NUMBER	DATE
50 & 60 CYCLE			419624	DEC 66	415480D	MAY 65
P/N 2201308	DEC 64	DATE	420325A	AUG67	415480E	AUG 65
TYPE 1131			571003	11DEC68	415483B	OCT 65
ZW101	IBM				415494A	NOV 65
					415499	JAN 66

NOTES:

1. _ * PINS C & L CONNECTED TOGETHER ON SMS PADDLE CARD ON CABLE TO SLT GATE.
2. ** RESISTORS MOUNTED ON SMS PADDLE CARD ON CABLE TO SLT GATE
3. *** DOUBLE-ENDED PADDLE CONNECTOR P/N 747579 IS REQUIRED FOR CONNECTING PF2 TO OLSA. THE PADDLE CONNECTOR REVERSES THE PIN LOGIC; I.E. PF2A CONNECTS TO PIN B-R IN OLSA, PF2B TO B-Q, ETC. PF1 CONNECTS INTO OLSA (A), PP1 CONNECTS INTO OLSA (P)
3A. *** TO USE OLSA THE FOLLOWING MODIFICATIONS MUST BE MADE: REMOVE THE WIRE FR TERM H7 TO R8 AT H7. INTERCHANGE WITH H8. RETURN TO NORMAL FOR 1130 OPERATION.
4. — — — — BROKEN LINES ENCLOSE CIRCUITRY PRESENT ON EARLY MACHINES ONLY.
5. **** DIODES MAY BE AM OR AL.

-TWR CB RESPONSE ZA101
-TWR END OF FORMS ZA101
+TWR CRLFT INLK ZA101
+TWR END OF LINE ZA101
2.7K** 2W
470** 1/4W
(OLSA TEST) ***
PF2E
PF2L *
PF2C
PF2N
PF2A
SHIFT B-15° +10° M-115° ±5°
TAB SP BKSP B-15° +10° M-105° ±5°
PRINT CYCLE B-20° ±3° M-120° ±3°
END OF FORMS CONTACT (SW OPEN WITH NO PAPER)
CR INLK M-200° ±0° -20°
CR-LF CYCLE M-0° B-340° ±20°
TAB CYCLE M-0° B-160° ±20°
TAB INLK M-95° ±20 +CRLFT INLK-)
CB7
CB5
CB2
FC2
FC1
END OF LINE
82 Ω
P8
.05 mfd
R8
H8
H7
D2
C4
C1
C2
F3
F4
F1
F2
RED
BLK
ONE
TWO
J1
J2
J3
J4
**** AM ****
NOTE 4
FRONT OF PRINTER
PRINTER TERMINAL BLOCK LOCATION (BOTTOM VIEW)
NOTE 4
T2
AUX
T1
R2A
R1
R2
R5
TAB
SP
BKSP
CR
LF
UC
LC
G2
G4
G6
G8
H2
H4
H6
D4
D5
D6
D7
D8
E5
E7
G1
G3
G5
G7
H1
H3
H5
C5
C7
C8
D1
D3
E1
E3
PF1A
PF1G
PF1B
PF1C
PF1D
PF1F
PF1E
PP1QR
PF1J
PF2H
PF2J
PP1M
PF1K
PF1H
PF1L
PF1R
-SELECT T2 ZA101
-SELECT AUX ZA101
-SELECT T1 ZA101
-SELECT R2A ZA101
-SELECT R1 ZA101
-SELECT R2 ZA101
-SELECT R5 ZA101
+48V ZB101
-TAB ZA101
-SPACE ZA101
-BACKSPACE ZA101
+12V ZB101
-CR-LF AND EOL ZA101
-LINE FEED ZA101
-UP SHIFT ZA101
-DOWNSHIFT ZA101
-RED RIBBON SHIFT PF2P ZA101
-BLACK RIBBON SHIFT ZA101
-R1B SHIFT UP
-R1B SHIFT DOWN
PF2K
SINGLE LINE FEED (NOT USED)
DOUBLE LINE FEED (NOT USED)
MOTOR SWITCH
RED
BLACK
WHITE
50 CPS 220 VAC ZB101
60 CPS 115 VAC ZB101
AC COMMON ZB101
AC GND AB101
PP1AB
PP1CD
PP1FG
PP1KL