

P/N 2219161  
SHEET 1 OF 6

# IBM

## FIELD ENGINEERING INSTALLATION INSTRUCTIONS

MACHINE TYPE 13 SINGLE DISK FILE

ENGINEERING CHANGE HISTORY			
E/C NO.	DATE	SHEET	NO.
415416	12/30/65		
415438	23MAR66	1-4	
421028	17MAR67		
421046			
421072	27OCT70		

23 HOLE PUNCH FOR INSTALLATION BINDER

**INSTALLATION INSTRUCTIONS**

P/N 2219161  
SHEET 2 OF     

**UNIT INSTALLATION INSTRUCTIONS**

Unpacking & Machine Location	Page 2
Baseplate Grounding Check	2
Cabling to FCU	2
Mechanical Checks	2
Power Check (13SD File Off)	3
Head - Disk Check (Power Off)	3
File Motor & Head Loading Check	4
Head Unloading Check	4
Power - On Motor Sequence Check	4
Head Alignment Check	4
General Checks	4

ENG. DATE	12/30/65	23MAR66	17MAR67	10NOV67	27OCT70	
CHANGE NO.	415416	415438	421028	421046	421072	

## INSTALLATION INSTRUCTIONS

P/N 2219161  
SHEET 3

**NOTE:** Do the following steps in the sequence given unless otherwise noted. For adjustment procedures consult the 13 single disk F.E. Maintenance Manual.

### A. Unpacking

1. Remove packing. Check machines for possible shipping damage.
2. Inventory the parts in the CPU shipping group.
3. Remove shipping braces, head covers, etc.
4. Install the 13SD file inmounting brackets of host system.

### B. Baseplate Grounding Check

1. Measure resistance between the base of the 13SD file and the frame of the host system. The reading should be 5 megohms or higher.

(The baseplate is the large aluminum casting on which the access mechanism is mounted. It is normally grounded at the point only by means of a lead connected to the gate DC terminal.)

2. If no extra grounds exist, continue. Any shorts between 13SD baseplate and host system frames must be eliminated.
3. Repeat item B for all 13SD files being installed.
4. Install motor start/stop and indicator lamp cable from FCU. Plug into taper pin blocks TB3 and TB3A (XA101).
5. Install control cable between FCU and 13SD file. In the 13SD file, plug the control cable into SLT board position A1A2.

### C. Cabling to CPU or FCU

1. Remove all AC power to CPU/FCU.
2. Install AC cable between CPU/FCU and 13SD file. Plugging one end into the FCU AC plug provided and connect the other end to AC terminal block TB-4.
3. Install DC cable between CPU/FCU. Connect to TB1. CAUTION: Incorrect wiring can destroy SLT board and cards.

### D. Mechanical Checks

1. Check head load springs for proper seating against R/W heads. Check that arm clamps are snug.
2. Check the R/W head plugs for no loose connectors.
3. Check transducers for no loose connectors.
4. Check terminal voice coil and tachometer for no loose terminals or shorts.
5. Check motor drive belt for proper tension and tracking.

ENG. DATE	12/30/65	23MAR66	17MAR67	10NOV67	27OCT70	
CHANGE NO.	415416	415438	421028	421046	421072	



FIELD ENGINEERING  
INSTALLATION INSTRUCTIONS

P/N 2219161

SHEET 4

MACHINE TYPE 13 SINGLE DISK FILE

6. Check that SLT cards and paddle cards are securely plugged in the gate.
  7. Repeat steps D1 - D6 for all 13SD files being installed.
- E. Head-Disk Check (Power Off)
1. inspect CE disk cartridge for shipping damage.
  2. Vacuum entire base plate and clean if necessary.
  3. When machine has been exposed to extreme shipping environments, check for rust and corrosion. Special attention should be given to detents, disk drive spindle, and disk cartridge door opener. Corrosion may be removed with 90% Isopropyl Alcohol.
  4. Check R/W heads for damage.
  5. Check the head unload mechanism.
  6. mount CE disk cartridge.
  7. **WARNING:** Do not let heads load during this step. Carefully move carriage forward into disk cartridge.
  8. Check closely for interference between heads, head cables, and disk. Move the carriage all the way to positive stop.
  9. Restore the carriage to the fully retracted position.
  10. Repeat steps E2-9 on all 13SD files being installed.

ENG. DATE	12-30-65	23MAR66	17MAR67	10NOV67	27OCT70	
CHANGE NO.	415416	415438	421028	421046	421072	



FIELD ENGINEERING  
INSTALLATION INSTRUCTIONS  
MACHINE TYPE 13 SINGLE DISK FILE

P/N 2219161  
SHEET 5

F. Power Check 13SD File (Drive Motor Switch Off)

1. Check line voltage and cycle rating on all 13SD files being installed to insure they match the CPU or FCU. Line voltage and cycle ratings are located on spindle drive motor and blower motor nameplates.
2. Apply CPU/FCU AC power and check the following voltages. Adjust if necessary to nominal voltages.

<u>Voltage</u>	<u>TBI Terminal No.</u>	<u>Source</u>
+48	5	FCU/CPU
+ 6	3	FCU/CPU
+ 3	1	FCU/CPU
- 3	2	FCU/CPU

3. Check the operation of the fan.

Note: Units with 208/230 vac input only. Refer to the system ECA listing for the field B/M to replace the start relays, K3 & K4, if either of the following conditions exist:

1. If input voltage is in excess of 230 volts and the start relay for the blower or the drive motor fails to drop during start resulting in motor shut down due to motor thermal.
2. If input voltage is less than 208 volts and the blower motor rotates in the reverse direction (counterclockwise when viewed through the electronic gate housing) or the blower motor or drive motor fails to turn.

ENG. DATE	12/30/65	23MAR66	17MAR67	10NOV67	27OCT70	
CHANGE NO.	415416	415438	421028	421046	421072	

## INSTALLATION INSTRUCTIONS

P/N 2219161  
SHEET 6 OF 6

### G. File motor and head loading check

1. Insert CE disk cartridge and turn on the motor file Start, Stop switch.
2. Check the following items:
  - a. Disk cartridge drive motor starts.  
See note in Section F.3.
  - b. After heads have loaded use flashlight to check that head cables, etc., are clear of disks. Note: Head load delay circuit requires 90 to 125 seconds.
  - c. Carriage is detented at track 000.
  - d. Ready light is on. (in CPU)

### H. Head Unloading Check

1. While watching the heads, turn the file off. The heads should unload immediately.
2. If the heads do not unload at once, before the disks slow down appreciably, determine and eliminate the cause of this failure before proceeding. Then power up and repeat step 1 above.
3. Repeat Sections G and H above on all 13SD files being installed.
4. With all file motors on, turn system power off. All motors should turn off, all heads should unload.

### I. Head Alignment Check

Notice: All heads must be checked and aligned at installation to insure interchangeability of disk cartridges.  
(Note: Set scope and heads as if to align heads. Allow 15 minutes warm up time. The head amplitude must not vary more than 25% of the optimum level. See figure in 13SD F.E. Maintenance Manual, Section 4.6.3)

### J. General Checks:

Run diagnostics to check the operation of files.

ENG. DATE	12/30/65	23MAR66	17MAR67	10NOV67	27OCT70	
CHANGE NO.	415416	415438	421028	421046	421072	

LISTING BY PAGE SEQ	PAGE TITLE	PAGE NO.	PAGE P/N	DATE	ENG CHNG.
XA000	1.44 MC OSC WRITE SELECT AND SAFETY	XA011	2199521	NOV 68	421063
XA001	ACCESS LOGIC AND CONTROLS	XA031	2199523	NOV 67	421047
XA011	BASEPLATE ELECTRONICS	XA101	2199575	NOV 68	421063
XA012	BLOCK DIAGRAM	XA110	2199580	NOV 67	421047
XA013	CPU INTERFACE	XA061	2199526	NOV 67	421047
XA021	INDEX PAGE	XA000	2199571	NOV 68	421063
XA031	INTERLOCK HEAD LOAD	XA052	2199567	NOV 68	421063
XA041	LINE DRIVERS AND TERMINATORS	XA062	2199566	NOV 67	421047
XA042	READ AMPLIFIER AND DATA SEPARATOR	XA021	2199522	NOV 67	421047
XA051	SOCKET LISTING	XA001	2199527	NOV 68	421063
XA052	SOCKET LOCATION AND CABLE GUIDE	XA081	2199573	NOV 67	421047
XA061	TACHOMETER AMP AND DETENT SELECT	XA041	2199524	NOV 68	421063
XA062	TRANSDUCER INTERLOCK	XA051	2199525	NOV 67	421047
XA081	VOICE COIL BRIDGE	XA042	2199565	NOV 67	421047
XA101	WRITE DRIVER AND HEADS	XA013	2199563	NOV 67	421047
XA110	WRITE TRIGGER AND SELECT	XA012	2199564	NOV 67	421047

DATE	EC NUMBER	DATE	EC NUMBER	INDEX PAGE		
SEE INDEX CARD	NOV 67	421047				
DEC 66	421025	15 JUL 68	421057	DATE	SEP 65	P/N 2199571
JAN 67	421029	NOV 68	421063			TYPE 13SD
FEB 67	421032			<b>IBM</b>		XA000
AUG 67	421043					

A  
B  
C  
D  
E  
X  
A  
0  
0  
0

A2 CONNECTOR  
 B02 XA101AA2  
 B03 XA021AM4  
 B04 XA061AB1  
 B05 XA011AT2  
 B07 XA031AW1  
 B08 XA011AF2  
 B09 XA021AW4  
 B10 XA061AB3  
 B12 XA051AG4  
 B13 XA061AB4  
 D02 XA021AS4  
 D04 XA031BN4  
 D05 XA011AS2  
 D06 XA051AH4  
 D07 XA061AB6  
 D09 XA061AB7  
 D10 XA061AB8  
 D11 XA061AB9  
 D12 XA101AA6  
 D13 XA052BK4

A3 CONNECTOR  
 B02 XA062AY4  
 B04 XA061AB1  
 B05 XA061AD2  
 B07 XA062AL4  
 B08 XA011AF2  
 B09 XA061AD3  
 B10 XA061AB3  
 B12 XA051AG4  
 B13 XA061AB4  
 D02 XA101AA6  
 D04 XA061AD6  
 D06 XA062AJ4  
 D07 XA061AB6  
 D09 XA061AB7  
 D10 XA061AB8  
 D11 XA061AB9  
 D12 XA062AK4  
 D13 XA052BK4

B2 SINGLE CARD 2310  
 5803758 3758  
 XA062 A1 A4 B1 B4 C1 C4  
 D1 D2 E1 E2 E3 E4  
 F1 F2 F3 F4 G1 G2  
 G3 G4  
 UNUSED PORTIONS  
 H

B4 CONNECTOR  
 A06 XA042AC4  
 B04 XA101AA3  
 B06 XA041AK4  
 C04 XA011AV4  
 C06 XA041AE2  
 D04 XA041AE4  
 E04 XA041AK2  
 E06 XA052BT2

C2 DOUBLE CARD SDS  
 C3 5807319 7319  
 XA021 A1 A2 A3 A4 A5 A6  
 A7 A8 A9 AA  
 UNUSED PORTIONS  
 B C D

C4 CONNECTOR  
 A06 XA101AA6  
 B04 XA052BX2  
 B06 XA052BE4  
 C04 XA042AA4  
 C06 XA042AC4  
 D04 XA101AA5  
 E04 XA101AA2  
 E06 XA011AV4

D2 DOUBLE CARD  
 D3 5806298 6298  
 XA011 A1  
 XA021 A2 A3 A4 A5 A6 A7

D4 CONNECTOR  
 A04 XA041AW2  
 A06 XA041AW5  
 E04 XA011AV4  
 E06 XA051AB1  
 1E2 DOUBLE CARD  
 E3 5804679 4679

XA012 A1 A2 A3 A4 A5 A6  
 AB A9 AA AB AC AD  
 AE AF AG AH AL  
 XA013 AN AP AQ AR AS AT  
 XA012 AU  
 XA013 AW  
 XA021 AX  
 XA013 AY  
 XA012 AZ B1

E4 CONNECTOR  
 A04 XA011AV4  
 A06 XA011AV4  
 D04 XA051AA3  
 D06 XA051AA7

F2 DOUBLE CARD  
 F3 5807198 7198  
 XA041 A1 A2 A3 A4 A5 A6  
 A7 A8 A9 AA AB AC  
 AD AE AF AG AH AJ  
 AK

F4 CONNECTOR  
 A04 XA011AV4

G2 DOUBLE CARD  
 G3 5807234 7234  
 XA031 A1 A2 A3 A5 A6 A7  
 A9 AB AC AD AE AF  
 AG AH AJ AK AN AP  
 AQ AY  
 UNUSED PORTIONS  
 B

G4 CONNECTOR  
 E04 XA012AB2  
 E06 XA011AU4

H2 SINGLE CARD  
 5800764 0764  
 XA011 A1 A2 A7 A8 A9 AA  
 AB AC

H3 SINGLE CARD SDS  
 5803780 3780  
 XA011 A1 A2 A3 A4

H4 CONNECTOR  
 A06 XA011AU4  
 B04 XA031AB2  
 B06 XA011AU4  
 C04 XA041AA2  
 C06 XA052BX2  
 D04 XA101AA2  
 E04 XA101AA3  
 E06 XA011AV4

J2 DOUBLE CARD  
 J3 5807235 7235  
 XA051 02 05 06 07 09 14  
 15  
 XA052 17 18  
 XA051 20 21  
 XA052 22 23 25 26 27 29  
 30  
 XA051 31  
 XA052 32 33  
 XA051 34  
 XA052 AC  
 XA051 B1 C1 D1 D2 D3 D4

J4 CONNECTOR  
 A06 XA031AZ3  
 B04 XA031AY7  
 B06 XA042AA4  
 C04 XA031AX7  
 C06 XA061AB6  
 D04 XA012AB2  
 E04 XA041AA2  
 E06 XA031AE4

K2 DOUBLE CARD  
 K3 5807511 7511  
 XA051 A1 A2 A3 A4 A5 A6  
 A7 A8  
 UNUSED PORTIONS  
 B C

K4 CONNECTOR  
 A04 XA031AB2  
 A06 XA031AB1

L2 SINGLE CARD  
 5815  
 XA011 A2  
 XA052 B1  
 XA011 B3

M2 DOUBLE CARD  
 M3 5804613 4613  
 XA042 A1 A2 A3 A4  
 XA052 B1

N2 DOUBLE CARD  
 N3 5804673 4673

XA042 A1 A2 A3 A5 A6 A7  
 AB A9 AA AB  
 XA031 AC  
 XA042 AD AE AF AG

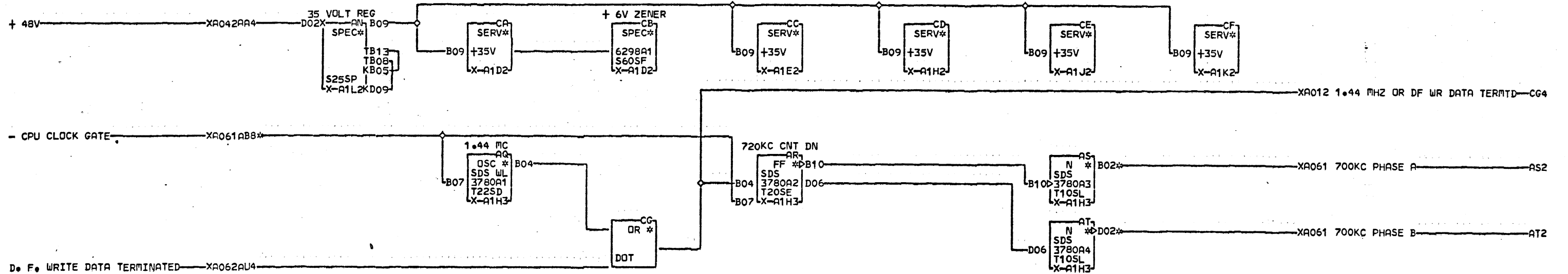
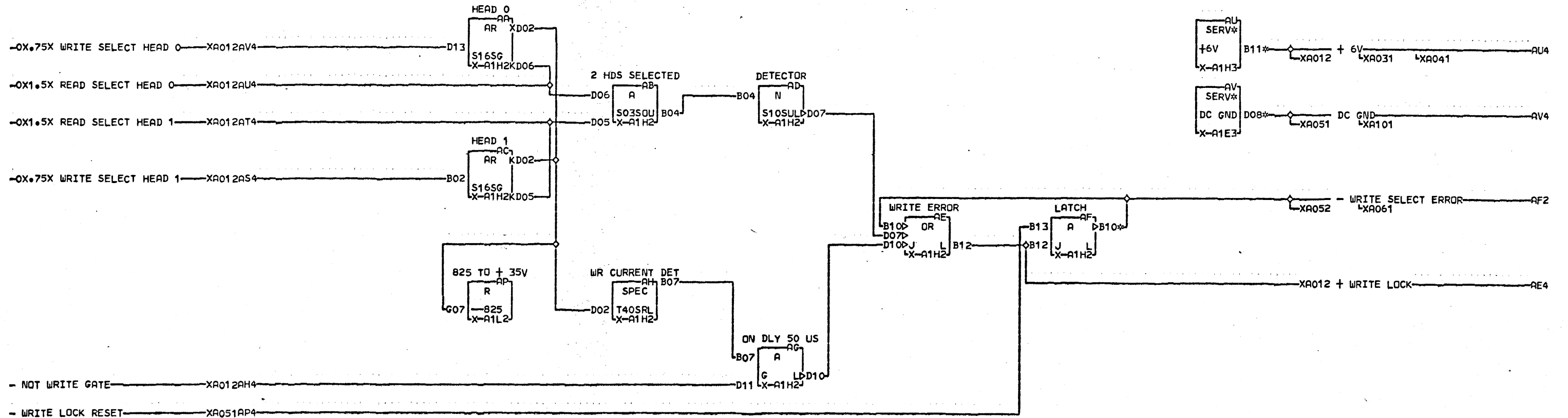
PLUG LIST				
PART NO	ACC	TYPE	SOCKETS	TOTAL
5800764		0764 H2		01
5803758	2310	3758 B2		01
5803780	SDS	3780 H3		01
5804613		4613 M2		01
5804673		4673 N2		01
5804679		4679 E2		01
5806298		6298 D2		01
5807198		7198 F2		01
5807234		7234 G2		01
5807235		7235 J2		01
5807319	SDS	7319 C2		01
5807511		7511 K2		01
		5815 L2		01
		CONN	A2 A3 B4 C4 D4 E4 F4 G4 H4 J4 K4	11

SOCKET LISTING  
 DATE 11-26-68 MACH. 13SD  
 LOG 3322 BOARD 01X-A1  
 PREV. ENGR. 11-15-67 421047  
 PRES. ENGR. 11-26-68 421063  
 P.N. 2199527  
 IBM CORP. SDD BLK.

X  
A  
O  
O  
1  
E2  
E3

X  
A  
O  
O  
1  
000



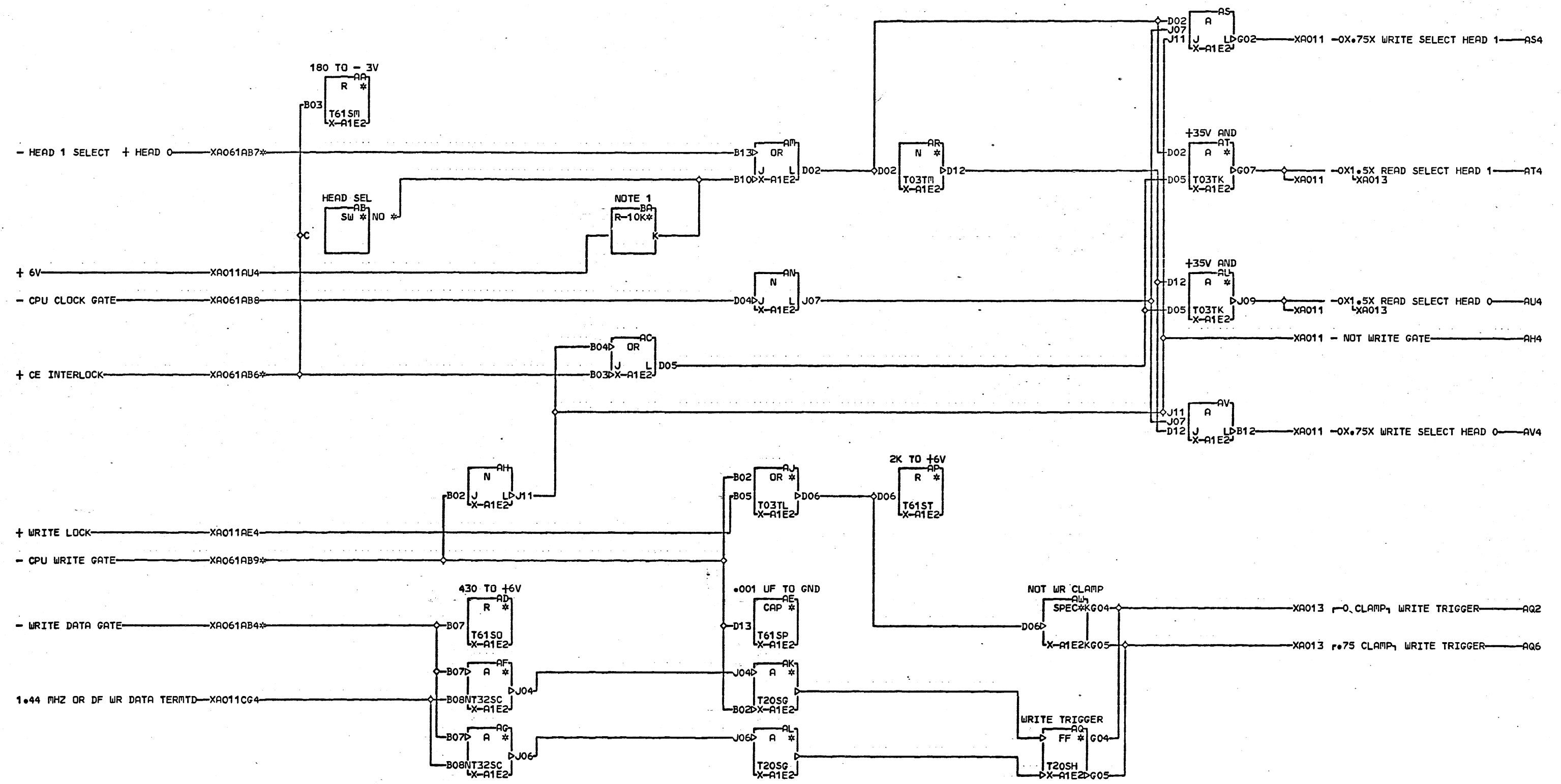


NOTE: MAY USE 5804612 OR 5801352 IN PLACE OF 5805815  
 X ACC SDS USED  
 A IN SELF CONTAINED  
 O VERSION WITHOUT  
 1 LINE DRIVERS AND  
 1 TERMINATORS

XA061AB8 01X-A1A2D10 AV4 X-A1E4A04  
 01X-A1A3D10 01X-A1D4E04  
 AF2 X-A1A2B08 01X-A1E4A06  
 01X-A1A3B08 01X-A1C4E06  
 AS2 X-A1A2D05 01X-A1H4E06  
 AT2 X-A1A2B05 01X-A1B4C04  
 AU4 X-A1G4E06 01X-A1F4A04  
 01X-A1H4A06

LOC. TYPE  
 X-A1D2 6298  
 X-A1H2 0764  
 X-A1H3 3780  
 X-A1L2 5815

1.44 MC OSC WRITE SELECT AND SAFETY			
E.C.-HISTORY		MACH.13SD	
415374	415444		
415374A	421025	FRAME	01
415433	421032		
415433B	421047	IBM CORP. SDD	
DATE	LAST EC		
11-26-68	421063	PaN. 2199521	

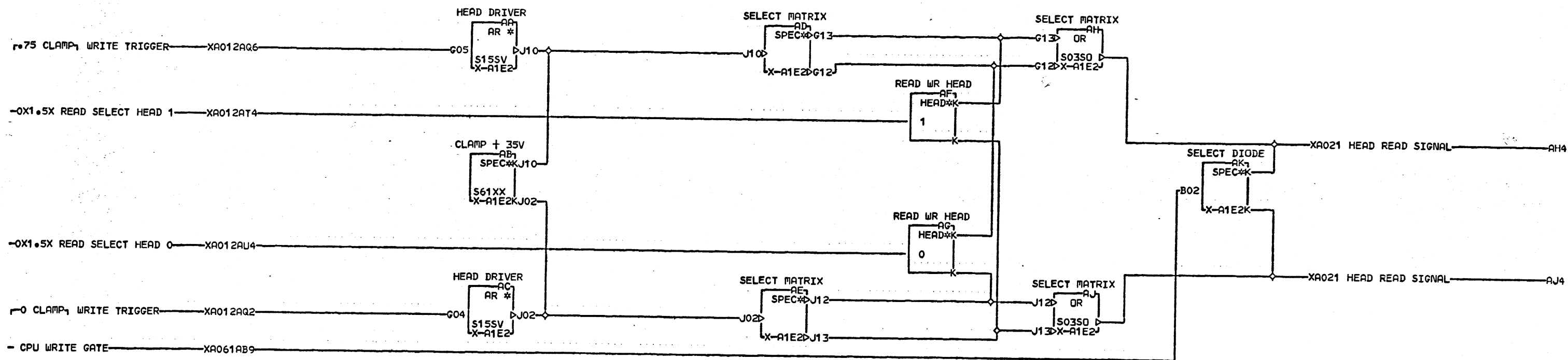


NOTE 1. RESISTOR LOCATED ON PADDLE CARD OF CABLE IN A POS T7. SEE XA081.

- XA061AB4 01X-A1A3D09
- 01X-A1A2B13 XA061AB9
- 01X-A1A3B13 01X-A1A2D11
- XA061AB6 01X-A1A3D11
- 01X-A1A2D07 AB2 X-A1J4D04
- 01X-A1A3D07 01X-A1G4E04
- 01X-A1J4C06
- XA061AB7
- 01X-A1A2D09

LOC. TYPE X-A1E2 4679

WRITE TRIGGER AND SELECT			
E.C. HISTORY		MACH. 13SD	
415412D	415433	FRAME	01
415411V	415433B	IBM CORP. SDD	
415352	415444		
415374A	421032		
DATE LAST EC			
12-12-67	421047	P.N.	2199564

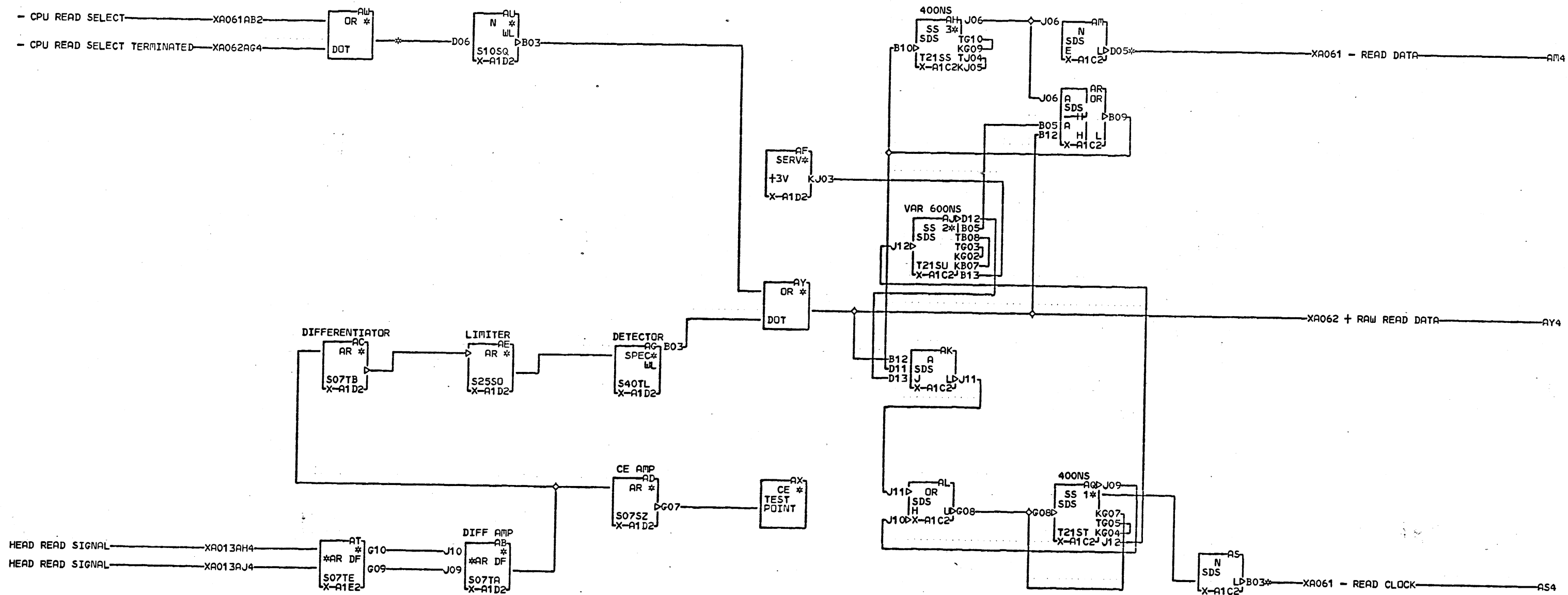


X  
A  
0  
1  
3  
000

LOC. TYPE  
X-A1E2 4679

WRITE DRIVER AND HEADS			
E.C. HISTORY		MACH. 13SD	
415412D	415433B	FRAME	01
415411V	415444	IBM CORP. SDD	
415374A			
415433			
DATE	LAST EC	P.No.	2199563
11-13-67	421047		

X  
A  
0  
1  
3  
000



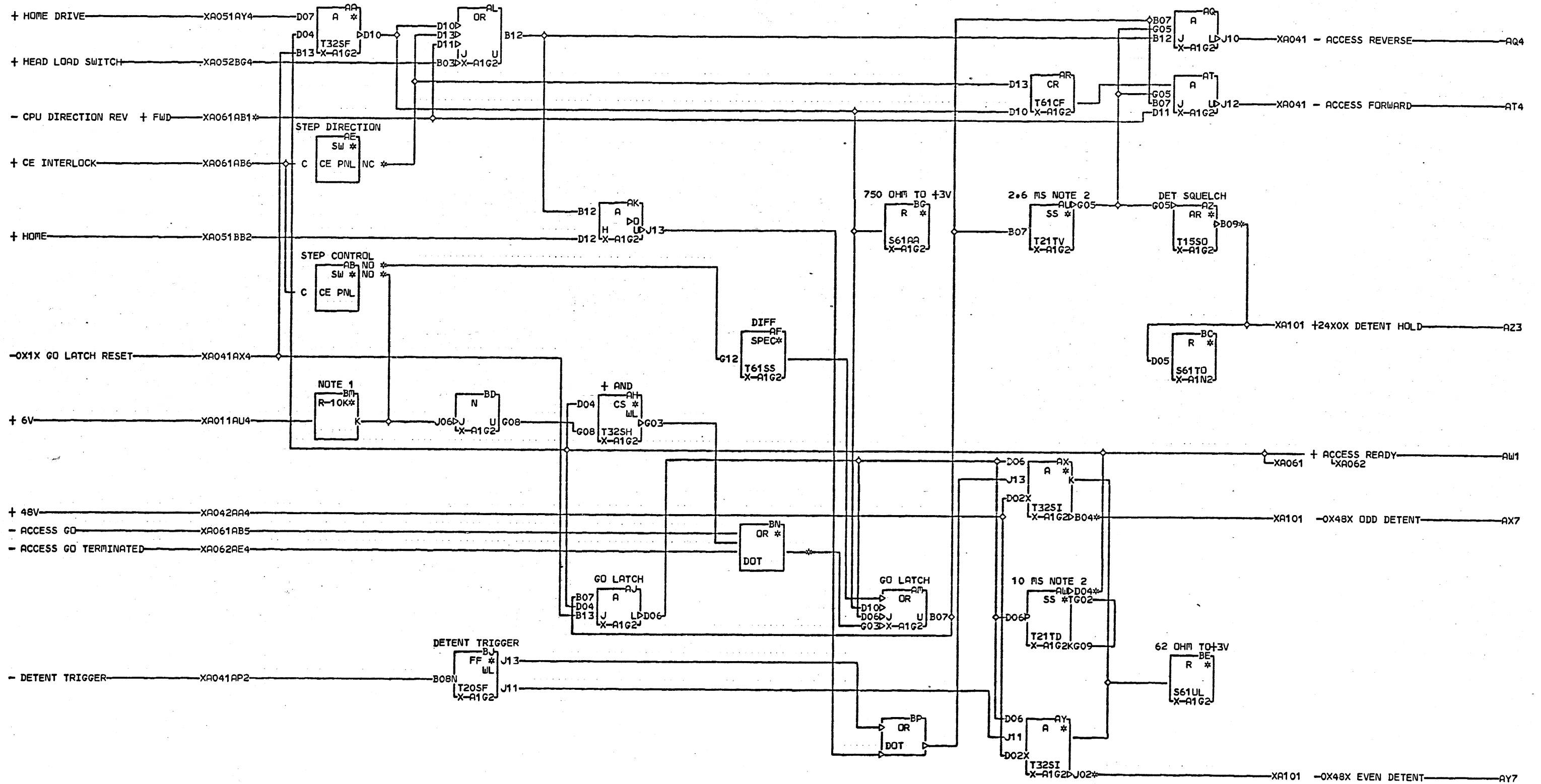
NOTE CARD CODE SDS  
 USED IN SELF CONTAINED  
 X VERSION WITHOUT LINE  
 A DRIVERS AND TERMINATORS  
 0  
 2 NOTE MAY USE 7319  
 1 INSTEAD OF 4665

AM4 X-A1A2B03  
 AS4 X-A1A2D02  
 AW4 X-A1A2B09

LOC. TYPE  
 X-A1C2 7319  
 X-A1D2 6298  
 X-A1E2 4679

READ AMPLIFIER AND DATA SEPARATOR			
-E.C.-HISTORY		MACH.13SD	
415410U	415433		
415412D	415433B	FRAME	01
415411V	415444		
415408	415447	IBM CORP. SDD	
DATE	LAST EC		
12-12-67	421047	P.No. 2199522	

X  
 A  
 0  
 2  
 1  
 000



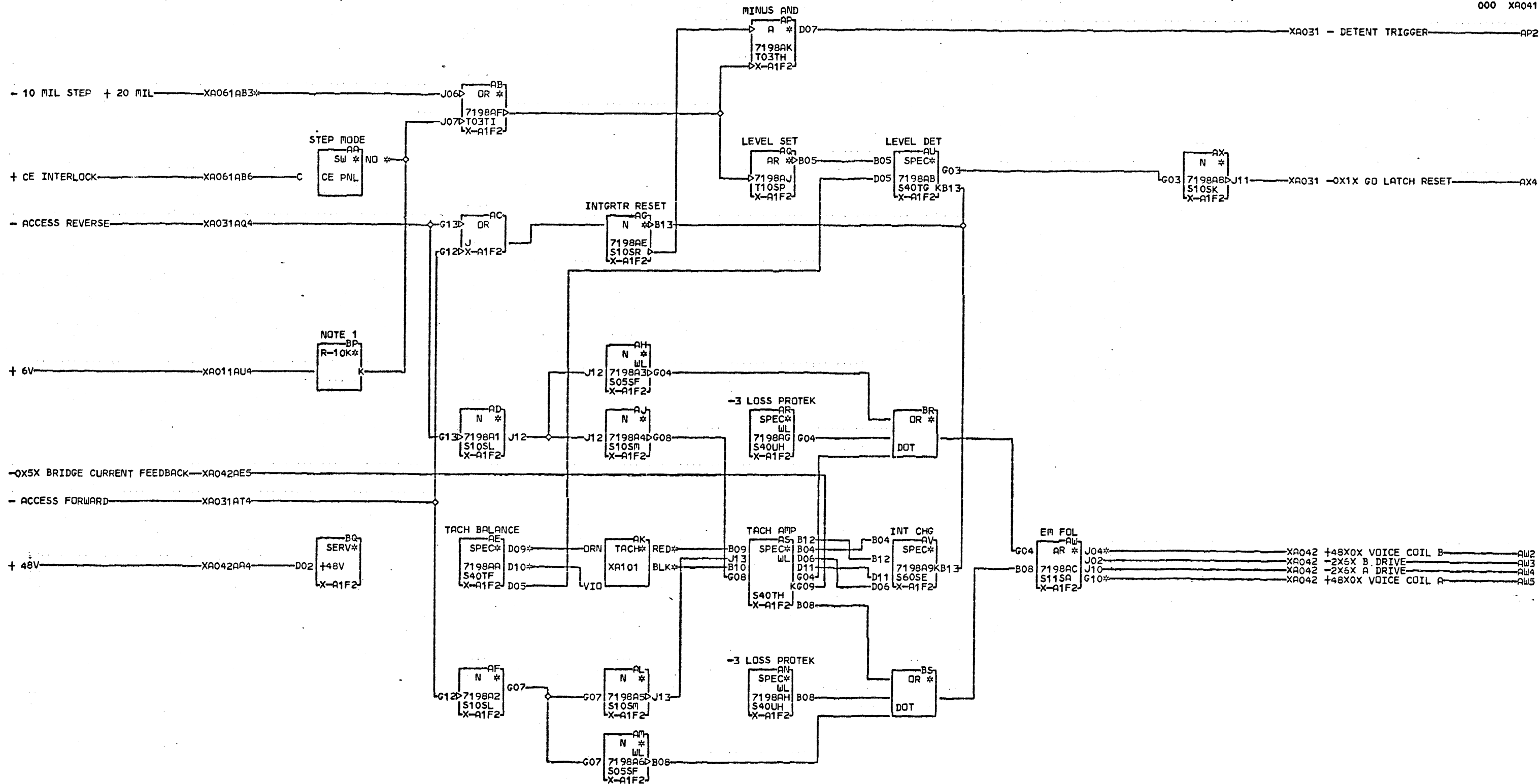
NOTE 1. RESISTOR LOCATED ON PADDLE X CARD OF CABLE IN A POS T7. SEE XA081.  
 NOTE 2. CARDS REWORKED INTO 3 5807234 FROM 5804674 MAY NOT BE USED ON BOARDS ETCHED AT EC LEVEL 421047 AND LATER  
 000

XA061AB1 AY7 X-A1J4B04  
 01X-A1A2B04 AZ3 X-A1J4A06  
 01X-A1A3B04 BN4 X-A1A2D04  
 AB1 X-A1K4A06  
 AB2 X-A1K4A04  
 01X-A1H4B04  
 AE4 X-A1J4E06  
 AW1 X-A1A2B07  
 AX7 X-A1J4C04

LDC. TYPE  
 X-A1G2 7234  
 X-A1N2 4673

ACCESS LOGIC AND CONTROLS			
E.C. HISTORY		MACH. 13SD	
415352	415433B	FRAME	01
415374	415444	IBM CORP. SDD	
415374A	415447		
415433	421032		
DATE	LAST EC		
12-12-67	421047	P.N.	2199523

XA031  
1  
000



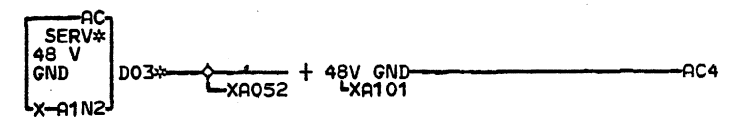
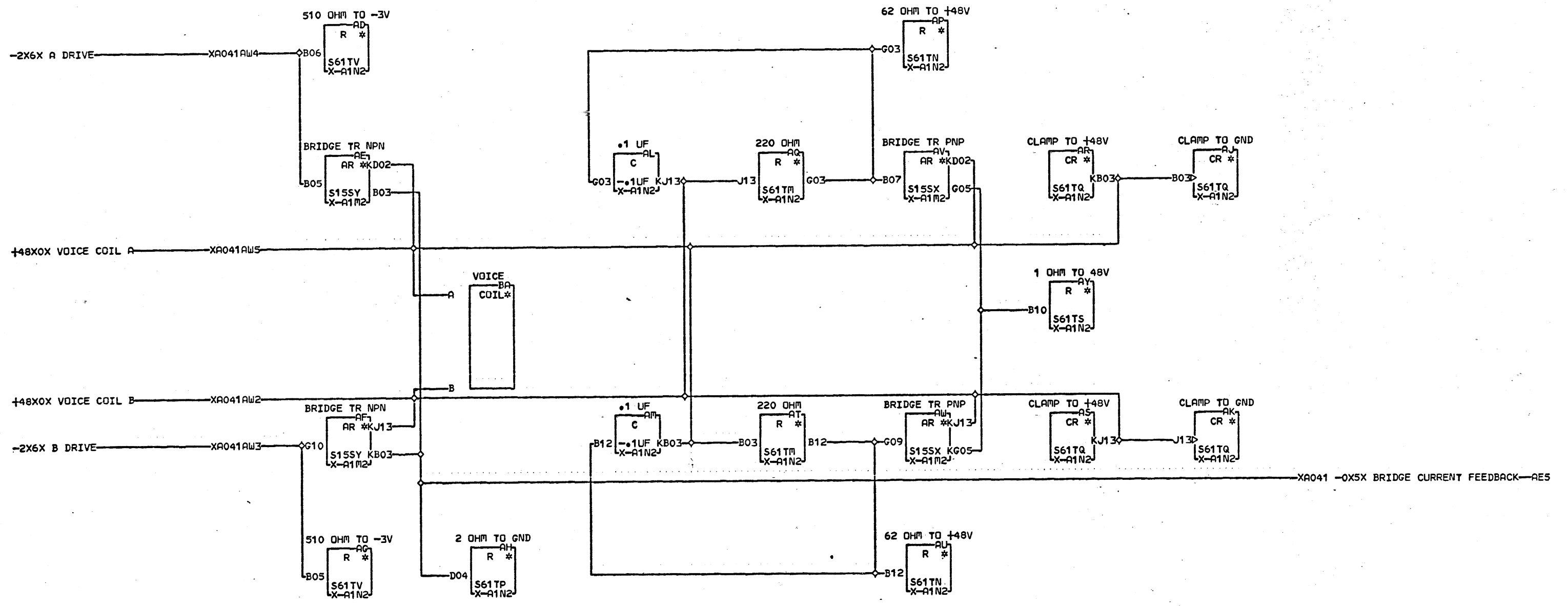
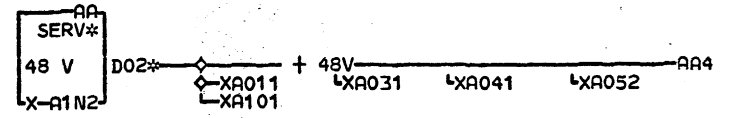
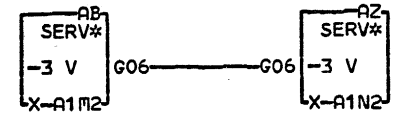
NOTE MAY USE  
4667 INSTEAD OF  
7198  
X NOTE 1. RESISTOR  
O LOCATED ON PADDLE  
4 CARD OF CABLE IN  
1 POS T7. SEE XA081.

XA061AB3 AW2 X-A1D4A04  
01X-A1A2B10 AW5 X-A1D4A06  
01X-A1A3B10  
AA2 X-A1J4E04  
01X-A1H4C04  
AE2 X-A1B4C06  
AE4 X-A1B4D04  
AK2 X-A1B4E04  
AK4 X-A1B4B06

LOC. TYPE  
X-A1F2 7198

E.C. HISTORY		MACH. 13SD	
415352	415433B	FRAME	01
415374	415444	IBM CORP. SDD	
415374A	421032		
415433	421047		
DATE	LAST EC		
11-26-68	421063	P.N. 2199524	

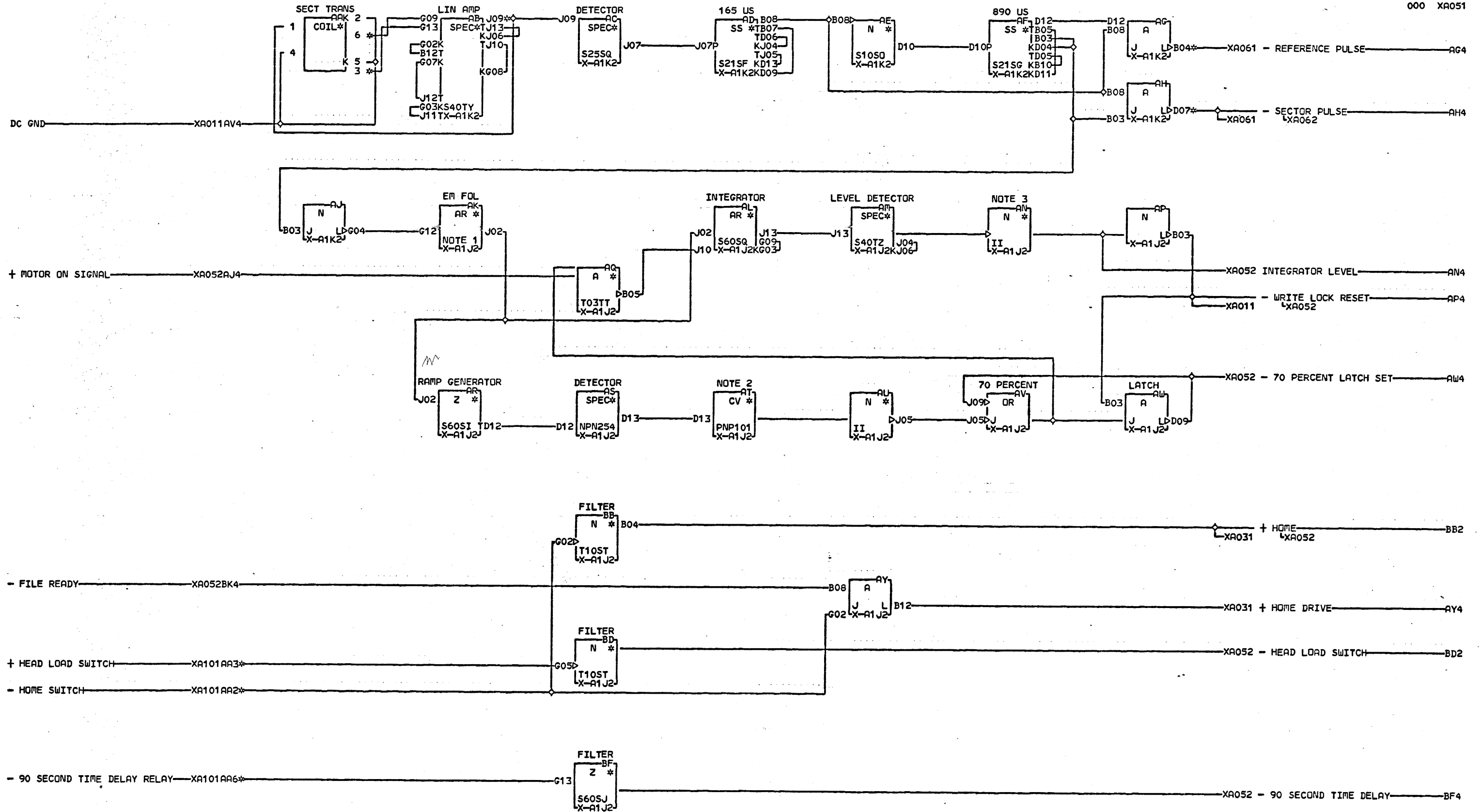
X  
A  
0  
4  
1  
000



AA4 X-A1C4C04  
01X-A1J4B06  
AC4 X-A1C4C06  
01X-A1B4A06

LOC. TYPE  
X-A1M2 4613  
X-A1N2 4673

VOICE COIL BRIDGE			
E.C. HISTORY		MACH.13SD	
415412D	415374A	FRAME	01
415411V	415433	IBM CORP. SDD	
415352	415433B		
415374	415444		
DATE	LAST EC		
12-15-67	421047	P.N.	2199565



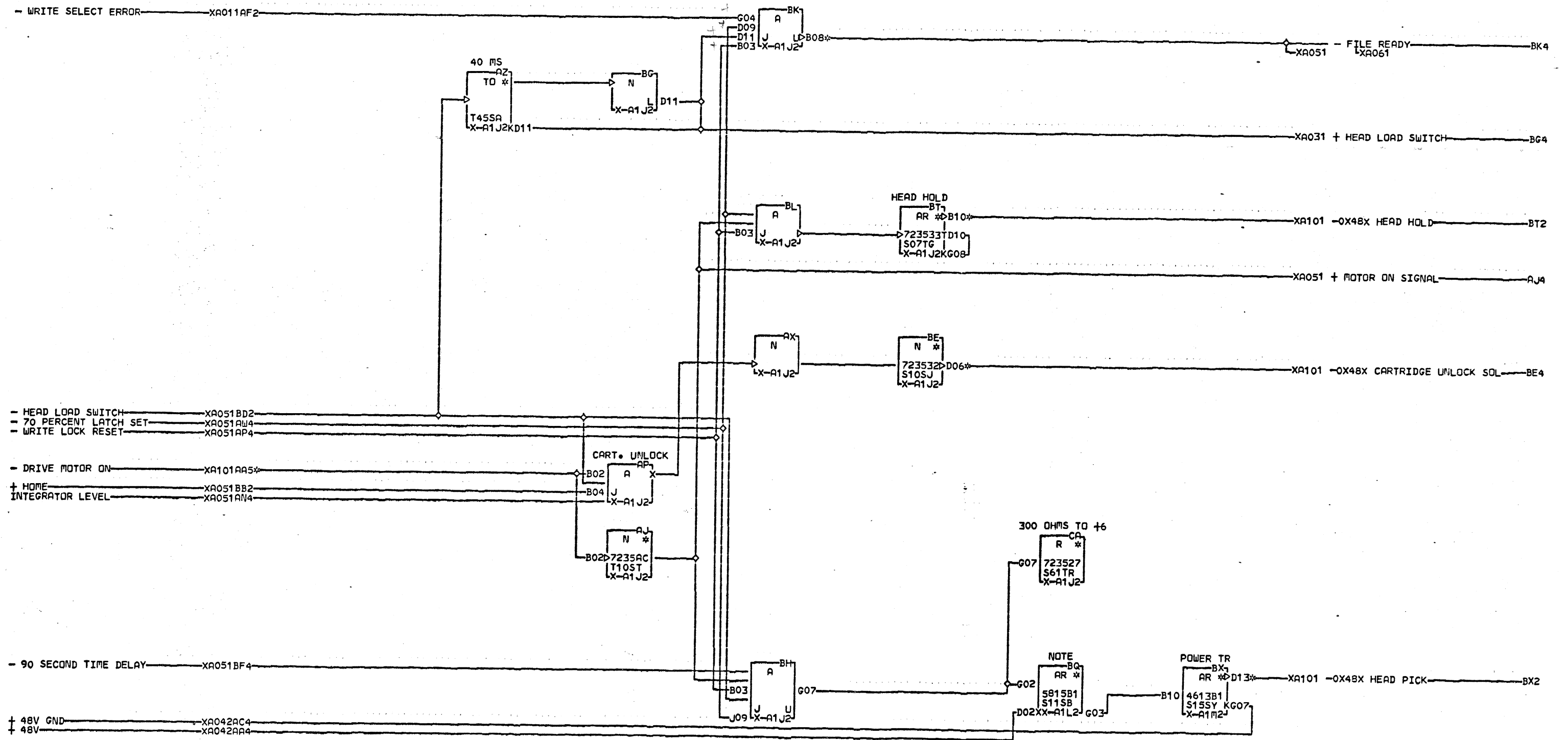
NOTE 1. PART OF S60SQ  
 NOTE 2. BLOCKS D1 TO D4  
 ARE CKT FLYER S60SI  
 NOTE 3. PART OF BLOCK AM  
 CKT FLYER S40TZ

XA101AA2 01X-A1A3D02  
 01X-A1C4E04 01X-A1A2D12  
 01X-A1A2B02 AA3 X-A1E4D04  
 01X-A1H4D04 AA7 X-A1E4D06  
 XA101AA3 AB1 X-A1D4E06  
 01X-A1H4E04 AG4 X-A1A2B12  
 01X-A1B4B04 01X-A1A3B12  
 XA101AA6 AH4 X-A1A2D06  
 01X-A1C4A06

LOC. TYPE  
 X-A1J2 7235  
 X-A1K2 7511

E.C. HISTORY		MACH. 13SD	
415419	415447	FRAME	01
415433	421019	IBM CORP. SDD	
415433B	421029		
415444	421032		
DATE	LAST EC		
12-15-67	421047	PoN. 2199525	





NOTE. MAY USE 5804612 OR 5801352 IN PLACE OF 5805815

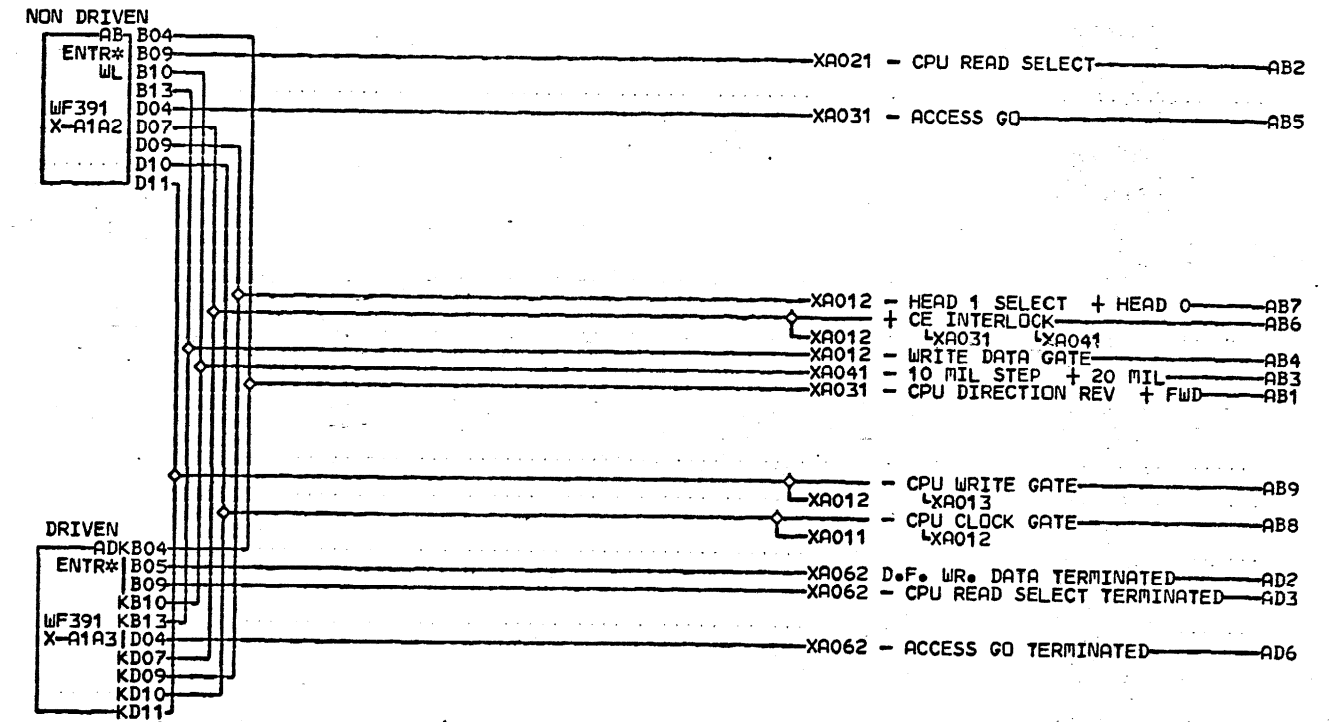
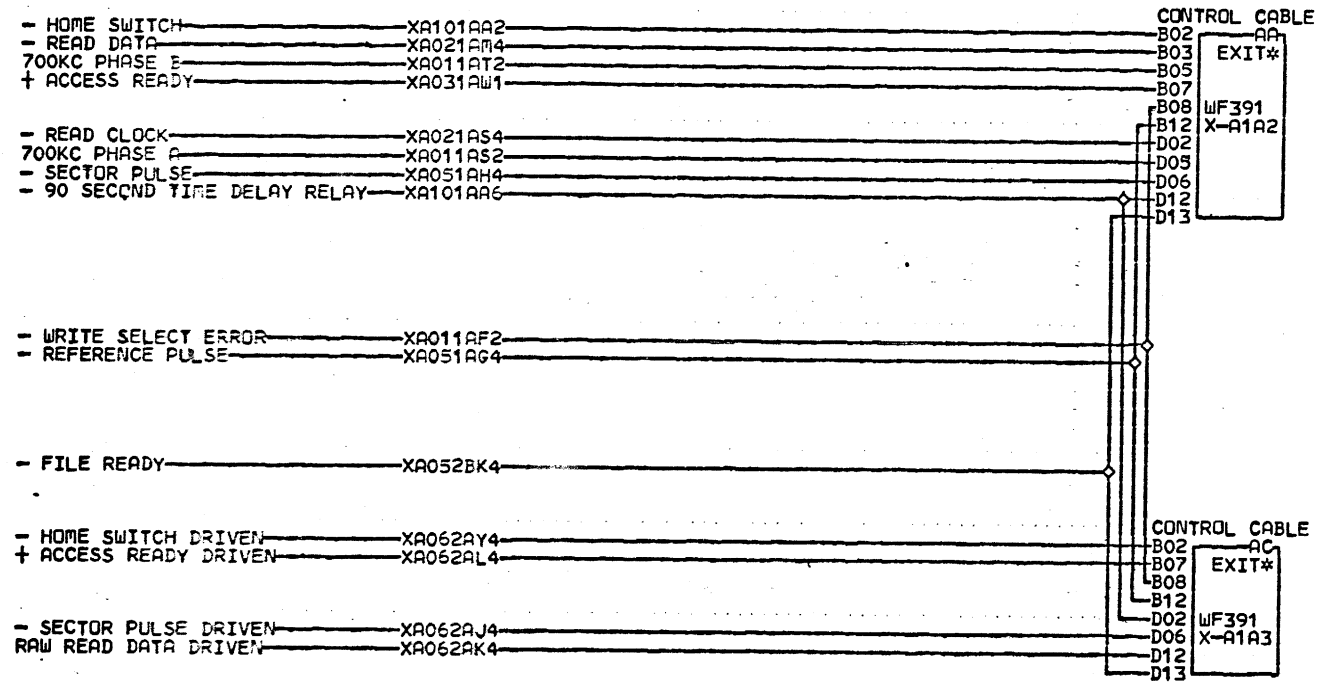
XA101AA5  
 01X-A1C4D04  
 BE4 X-A1C4B06  
 BK4 X-A1A2D13  
 01X-A1A3D13  
 BT2 X-A1B4E06  
 BX2 X-A1H4C06  
 01X-A1C4B04

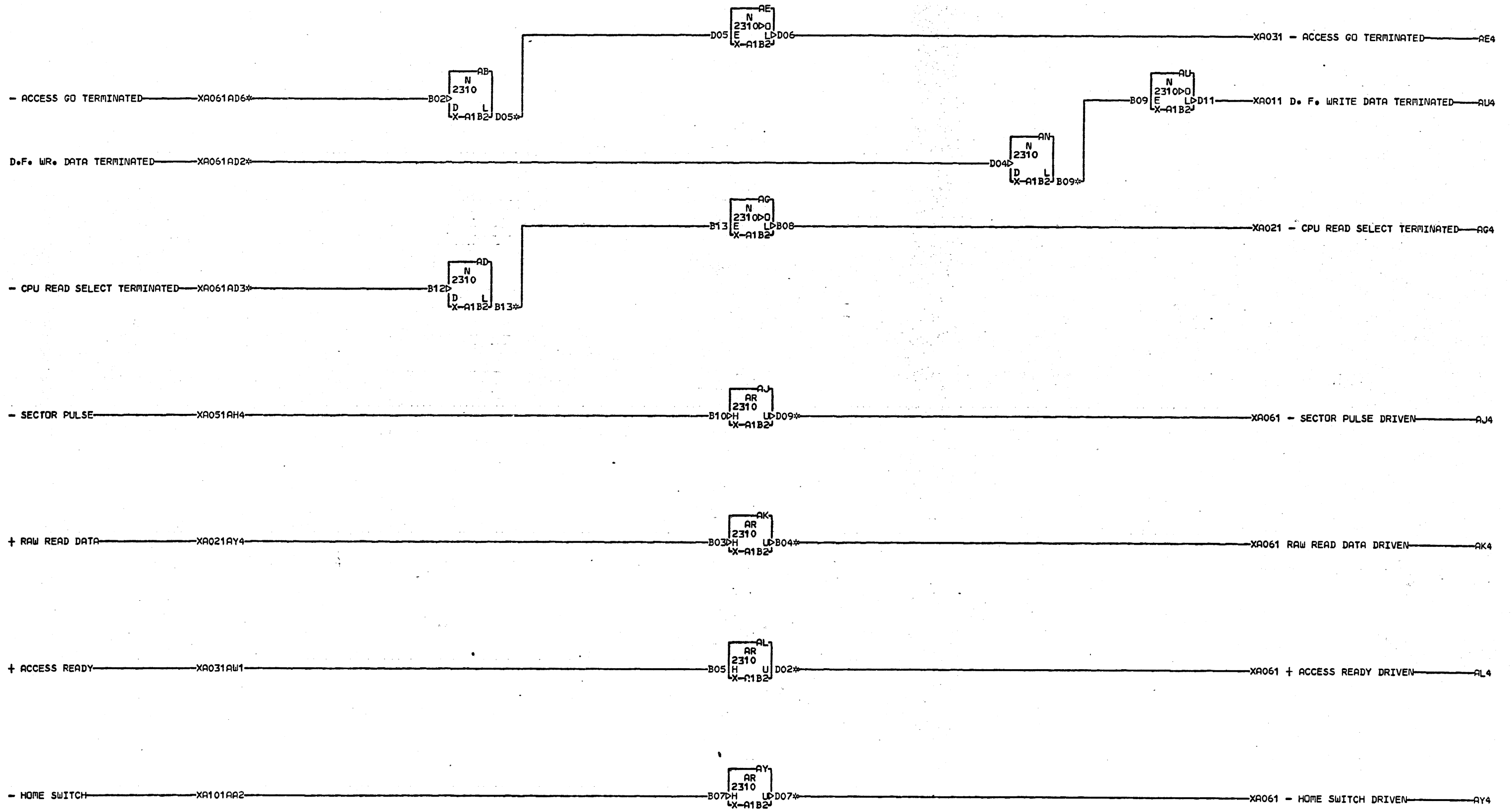
LOC. TYPE  
 X-A1J2 7235  
 X-A1L2 5815  
 X-A1M2 4613

E.C. HISTORY		MACH. 13SD	
415374A	415447	FRAME	01
415433	421016	IBM CORP. SDD	
415433B	421032		
415444	421047		
DATE	LAST EC		
11-26-68	421063	P.N.	2199567

000 XA052

000 XA052





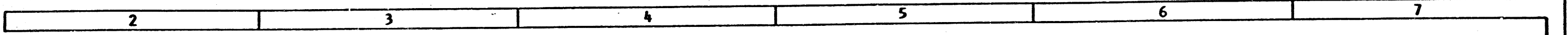
NOTE. ACC 2310 USED  
IN REMOTE VERSION  
X WITHOUT WRITE OSC  
A AND DATA SEPARATOR  
O r2310-B<sub>1</sub>  
6  
2  
000

XA061AD2	01X-A1A3B05	RESISTOR	AK4	X-A1A3D04	RESISTOR	AY4	X-A1A3B02	RESISTOR
	X-A1B2D04	RESISTOR	AB6	X-A1B2B02	RESISTOR		X-A1B2D07	
XA061AD3	01X-A1A3B09	RESISTOR	AD6	X-A1B2B04	RESISTOR			
	X-A1B2B12	RESISTOR	AJ4	X-A1B2B07	RESISTOR			
XA061AD6		RESISTOR		X-A1B2D05	RESISTOR	AL4	X-A1A3B07	RESISTOR
				X-A1B2B13	RESISTOR		X-A1B2D02	RESISTOR
				X-A1A3D06	RESISTOR	AN6	X-A1B2B09	RESISTOR

LOC. TYPE  
X-A1B2 3758

2310-B LINE DRIVERS AND TERMINATORS			
E.C. HISTORY		MACH. 13SD	
415411V	415433B		
415352	415444	FRAME	01
415374A	415447		
415433	421032	IBM CORP. SDD	
DATE	LAST EC		
11-22-67	421047	P.No. 2199566	

X  
A  
0  
6  
2  
000



TERMINAL STRIPS, SWITCHES, RELAYS, COILS  
SOLENOIDS, AND DIODES

POINTS	TERMINAL BARRIER TB					
	1	2	3	3A	4	5
1	XA101	OPEN	XA101	XA101	XA101	OPEN
2	XA101	XA101	XA101	XA101	OPEN	OPEN
3	XA101	XA101	XA101	XA101	XA101	OPEN
4	XA101	XA101	XA101	XA101	XA101	OPEN
5	XA101	XA101	XA101	XA101	XA101	XA101
6	XA101	OPEN	XA101	XA101	XA101	XA101
7	-	XA101	XA101	XA101	XA101	XA101
8	-	XA101	XA101	XA101	XA101	XA101
9	-	-	-	-	XA101	-
10	-	-	-	-	XA101	-

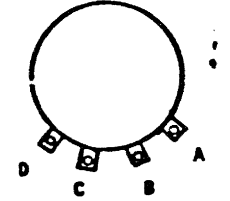
SWITCH	NO.	LOCATION
CART. IN PLACE	1	XA101
CART. UNLOCKED	2	XA101
HOME	3	XA101
HEAD LOAD	4	XA101
CE HEAD SEL	5	XA012
CE STEP MODE	6	XA041
CE DIRECTION	7	XA031
CE STEP CONTROL	8	XA031
MOTOR START	REF	XA101
MOTOR STOP	REF	XA101

RELAY	NO.	COIL	CONTACTS		
			1	2	3
START	K1	XA101	XA101	OPEN	XA101
TIMER	K2	XA101	XA101	OPEN	-
DR MOTOR	K3	XA101	XA101	-	-
BLOWER MTR	K4	XA101	XA101	-	-

COIL/SOL	LOCATION
R/W HEAD #0	XA013
R/W HEAD #1	XA013
TACHOMETER	XA041
TRANSDUCER	XA051
VOICE COIL	XA042
HEAD LOAD	XA101
ODD DETENT	XA101
EVEN DETENT	XA101
CART. UNLOCK	XA101

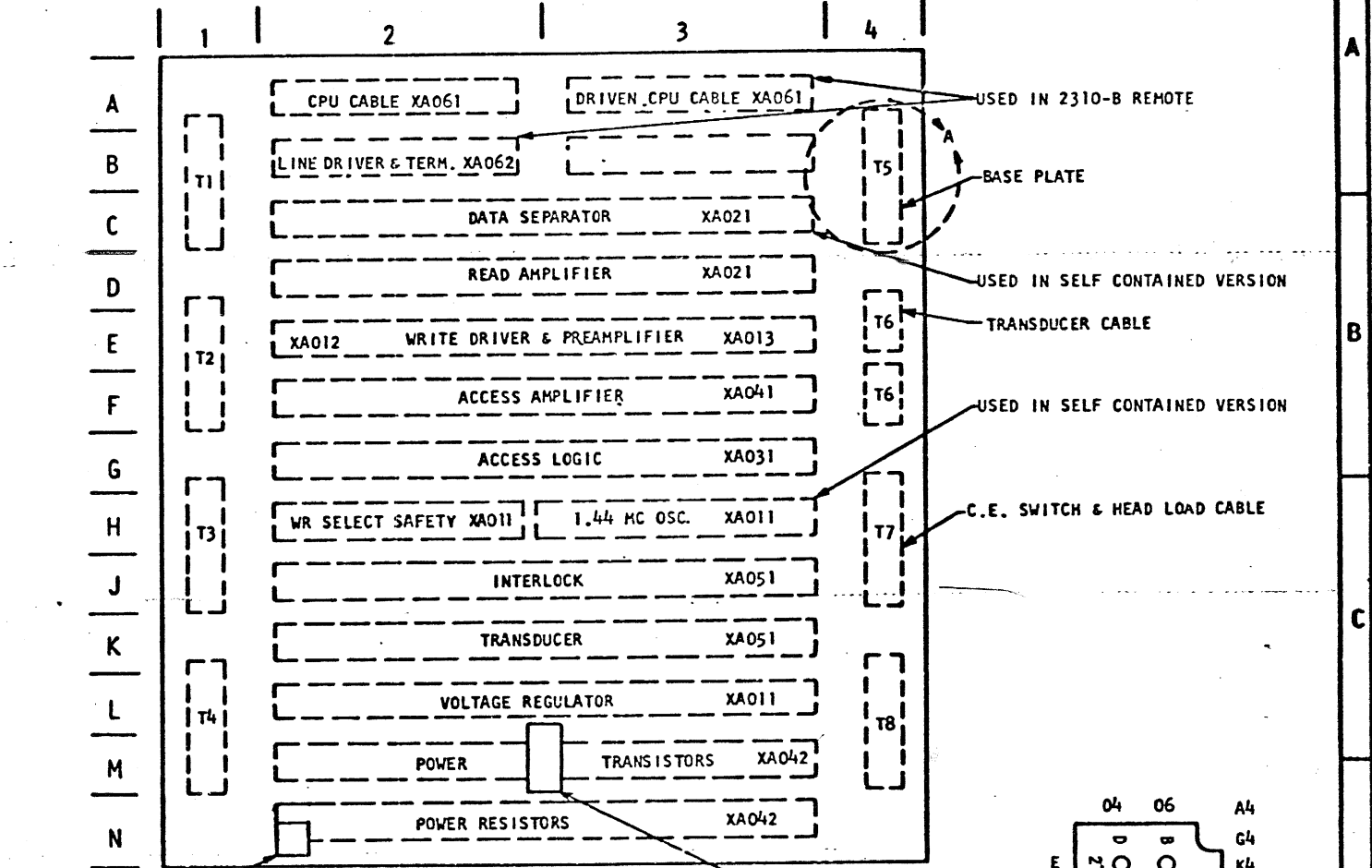
DIODES	LOCATION
DIODE D1	XA101
DIODE D2	XA101
DIODE CR1	XA101

TACHOMETER CONNECTORS  
VIEW FROM FRONT OF  
MACHINE

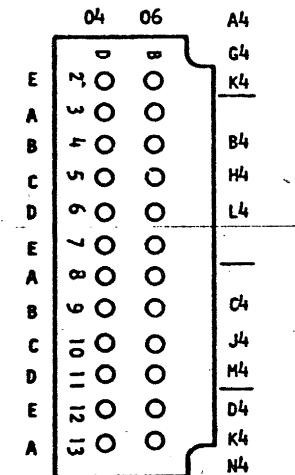


HEAD CABLE CONNECTIONS XA011		
WIRE COLOR	0T	1B
GREY	E2 J12	E2 J13
RED	E2 J09	E2 G07
VIOLET	E2 G12	E2 G13
BLACK	D2 J08	E2 J08

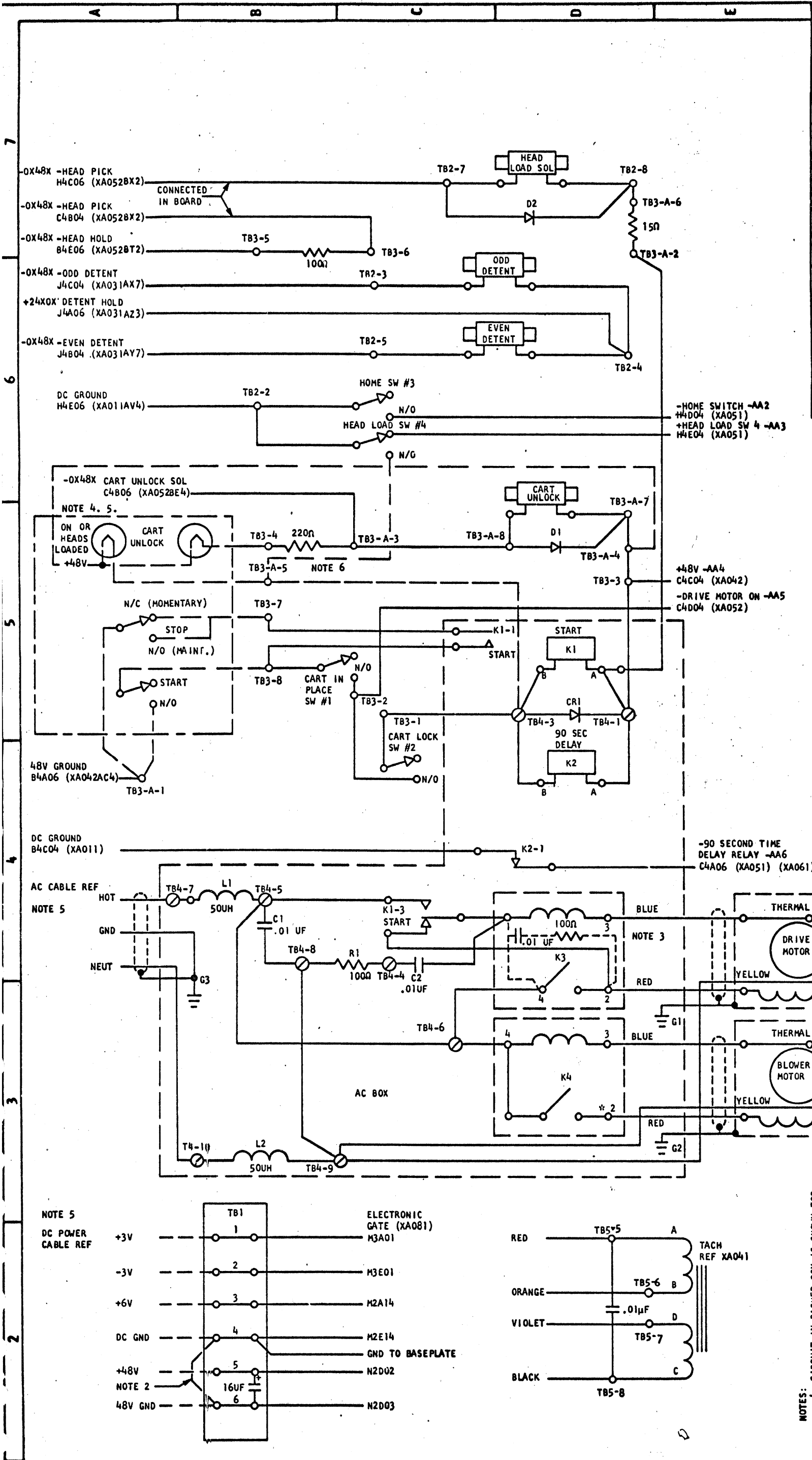
LARGE CARD SOCKET ASSIGNMENTS & NOMENCLATURE. PIN SIDE SHOWN



48V CONNECTOR		WHERE FOUND
TBI-#	VOLTAGE	
TBI-5	+48V	N2D02, G2D02, F2D02, L2D02, C4C04, J4B06
TBI-6	48V GND	N2D03, M3B07, B4A06, C4C06
TBI-2	+35V REG	D2B09, E2B09, H2B09, J2B09, K2B09, L2B09
TBI-4	-3V	B06 SOCKETS B THRU M ROWS 2 AND 3, M3B06
TBI-4	DC GND	D08 SOCKETS A THRU N ROWS 2 AND 3
TBI-1	+3V	D03 SOCKETS B THRU M ROWS 2 AND 3
TBI-3	+6V	B11 SOCKETS B THRU M ROWS 2 AND 3 64E06, H4A06, H4B06

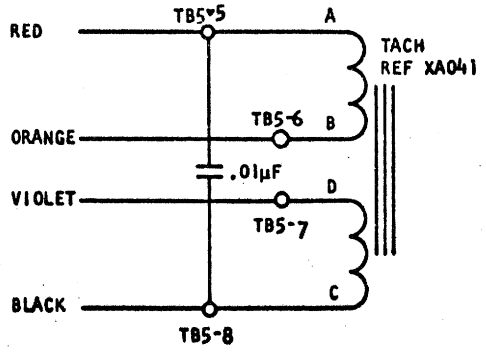
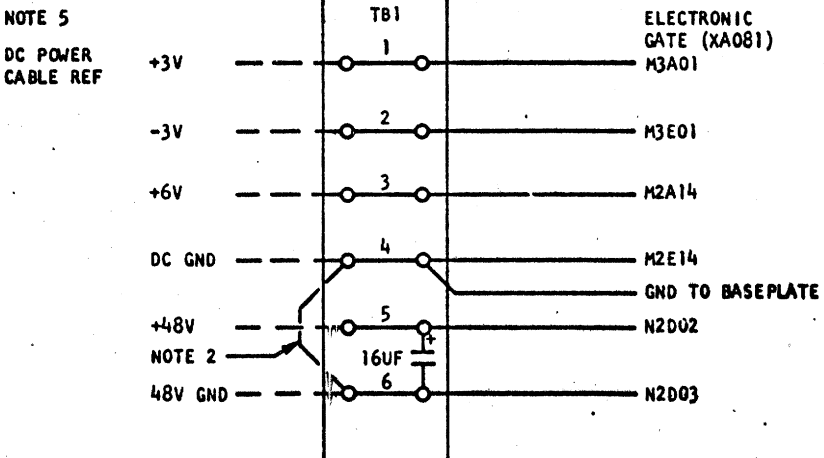


DATE	EC NUMBER	DATE	EC NUMBER	SOCKET LOCATION AND CABLE			
SEPT65	415326	FEB 67	421032	GUIDE			
NOV 65	415374	AUG 67	421043	DATE	SEPT65	P/M	2199573
DEC 65	415374A	NOV 67	421047			TYPE	13SD
MAR 66	415433			ICM		XA081	
MAY 66	415444						



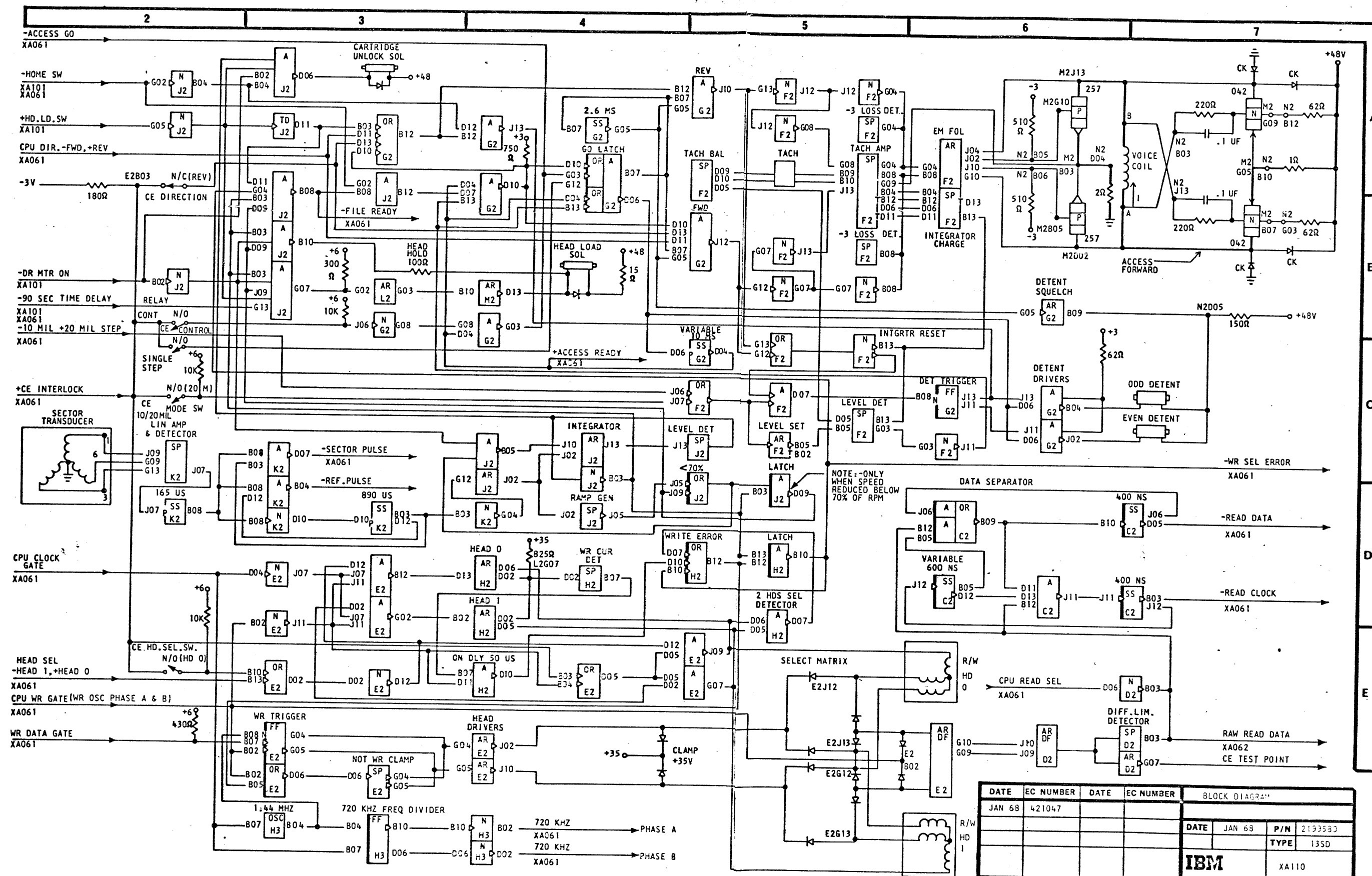
DATE		EC NUMBER	DATE	EC NUMBER	BASEPLATE AND AC BOX ELECTRONICS	
SEE INDEX CARD	421043					
AUG 67	421043					
NOV 67	42047					
15 JUL 68	421057					
NOV 68	421063					

NOTES:  
 1. THIS JUMPER USED IN 1130 SYSTEM.  
 2. THIS RC NET USED ON 115V 13 SD'S IN 1131 AFTER JUNE 1968 AND ALL 13 SD'S AFTER SEPT 1968.



**NOTES:**  
 4. CIRCUIT IN DASHED BOX IS SHOWN FOR REFERENCE ONLY.  
 5. ACTUAL CIRCUIT SHOWN ON ZB101/UF112 IN SYSTEM LOGIC OR UF111 IF S-D-STOR IS IN 2310B  
 6. USED WITH 2310B ONLY. WIRE BETWEEN TB3A-5 AND TB4-3 TAPED OR REMOVED FOR OTHER SYSTEMS

ICM  
 XA101



DATE	EC NUMBER	DATE	EC NUMBER	BLOCK DIAGRAM
JAN 68	421047			
		DATE	JAN 68	P/N 21935B3
			TYPE	13SD
<b>IBM</b>				XA110

FIELD ENGINEERING DIAGRAM MANUAL  
FOR  
SINGLE DISK STORAGE (INCREMENTAL ACCESS)  
MACHINE TYPE NUMBER, MODEL NUMBER (IF APPLICABLE) AND MACHINE NAME

CONSISTS OF THE FOLLOWING:

FORM NUMBER (BASE FEDM)\* Y26-4126-2  
FORM NUMBER (FES)\*\* \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOTES

- XI THE FEDM AND ITS FES'S INCLUDE A SYSTEM DATA FLOW DIAGRAM, UNIT DATA AND CONTROL DIAGRAM, I/O OPERATION DIAGRAMS, AND CONDENSED LOGIC FLOW CHARTS AS APPLICABLE TO THE UNIT(S) BEING SHIPPED.
- XII WHEN A FEDM IS ORDERED FROM MECHANICSBURG, ALL APPLICABLE SUPPLEMENTS WILL BE AUTOMATICALLY SUPPLIED. SUPPLEMENTS CAN BE ORDERED SEPARATELY BY APPLICABLE FORM NUMBER.

\* FIELD ENGINEERING DIAGRAM MANUAL  
\*\* FIELD ENGINEERING SUPPLEMENT

INTERNATIONAL BUSINESS MACHINES CORP.				DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	FEDM ID DWG			FEB 68	421047.			X PRINT TO ENG. SPEC. NO.	2207720
				MAR 68	421047A				
DESIGN		MODEL		5MAR69	421063				
DETAIL				8AUG69	421070				
CHECK		DRAW							
APPRO		CHECK							

Table of Contents Vol.	For 9005SJ4	Mode -	Version 010		
Logic No.	Description	Part No.	EC No.	Seq. #	REA
SLT Boards					
AA1	Customized Board	2510214	731504	E0004	