

LD 2230

LD 2230

# LOGIC DIAGRAMS for DISC STORAGE UNIT

August 1, 1975

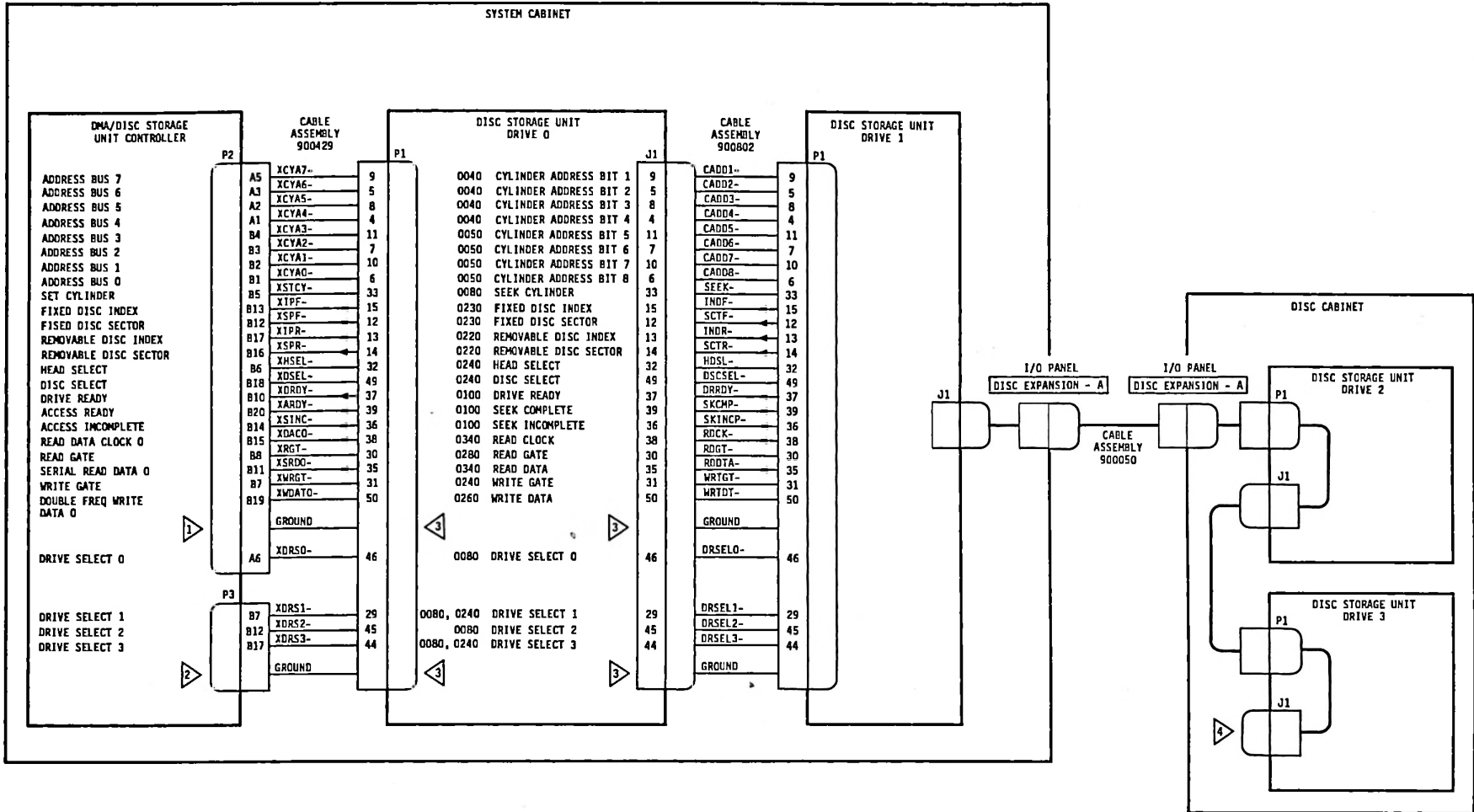
REVISED: July 15, 1976

basic / FOUR corporation   
an MAI company

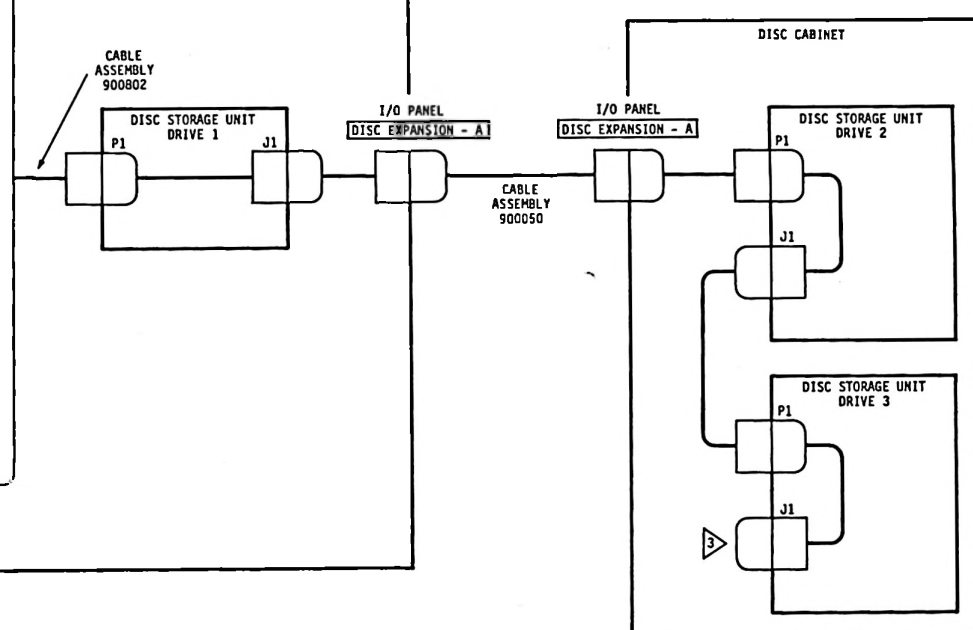
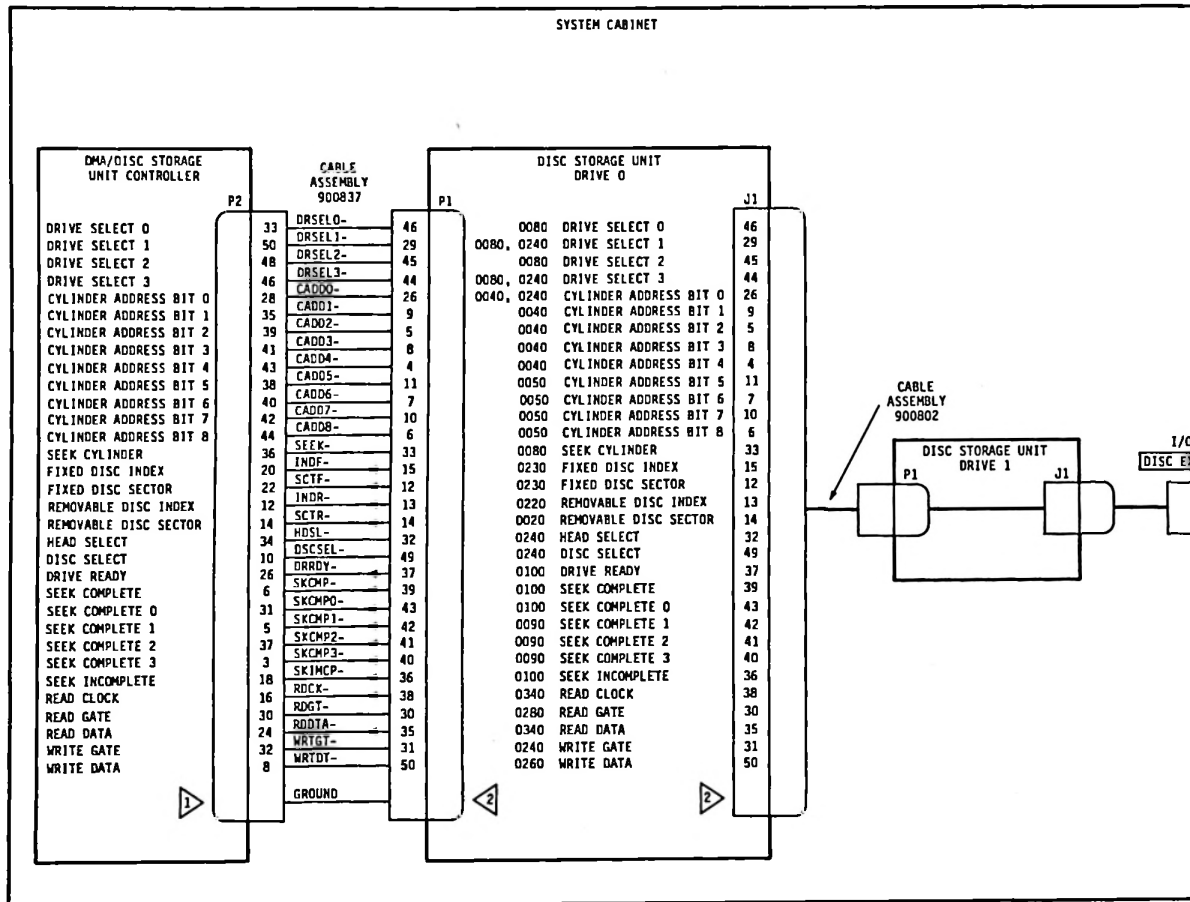
DISC STORAGE UNIT

<u>Title</u>	<u>Unit</u>	<u>Page</u>	<u>Revision Date</u>
Power On Circuits . . . . .	Drive Control Logic Board . . . . .	0010	Original
Initializing Circuits . . . . .	Drive Control Logic Board . . . . .	0020	Original
Home Detect Circuits . . . . .	Servo Card No. 1 . . . . .	0030	Original
Cylinder Address Input, Sheet 1 . . . . .	Drive Control Logic Board . . . . .	0040	Original
Cylinder Address Input, Sheet 2 . . . . .	Drive Control Logic Board . . . . .	0050	07-15-76
Cylinder Address/Present Address Difference . . . . .	Drive Control Logic Board . . . . .	0060	Original
Cylinder Address Equals Zero and 200 Millisecond Timeout . . . . .	Drive Control Logic Board . . . . .	0070	Original
Drive Select Input . . . . .	Drive Control Logic Board . . . . .	0080	Original
Drive Select and Access Circuits . . . . .	Drive Control Logic Board and Interface Board . . . . .	0090	Original
Ready Circuits . . . . .	Drive Control Logic Board . . . . .	0100	Original
Difference Detection Circuits . . . . .	Drive Control Logic Board . . . . .	0110	Original
Count Clock Circuits . . . . .	Drive Control Logic Board . . . . .	0120	Original
Shaped Error Circuits . . . . .	Servo Card No. 2 . . . . .	0130	Original
Position Detection Circuits . . . . .	Drive Control Logic Board and Servo Card No. 1 . . . . .	0140	Original
Count Up Detection and Direction Enable Circuits . . . . .	Drive Control Logic Board . . . . .	0150	Original
Count Down and Arrival Detection Circuits . . . . .	Servo Card No. 1 . . . . .	0160	Original
Tach and Positioner Drive Circuits . . . . .	Servo Card No. 1 . . . . .	0170	07-15-76
Servo Enable and Feedback Control Circuits . . . . .	Servo Card No. 2 . . . . .	0180	Original
Forward/Reverse and Linear Zone Latches . . . . .	Servo Card No. 2 . . . . .	0190	Original
Tachometer Drive Control . . . . .	Servo Card No. 2 . . . . .	0200	Original
Preamplifier Drive Circuits . . . . .	Servo Card No. 2 . . . . .	0210	Original
Removable Disc Index/Sector Pulse Circuits . . . . .	Interface Circuit Board . . . . .	0220	Original
Fixed Disc Index/Sector Pulse Circuits . . . . .	Interface Circuit Board . . . . .	0230	Original

<u>Title</u>	<u>Unit</u>	<u>Page</u>	<u>Revision Date</u>
Head Select Circuits . . . . .	Drive Control Logic Board . . . . .	0240	Original
Read/Write Safe and Write Control Circuits . . . . .	Drive Control Logic Board . . . . .	0250	Original
Head Selection Circuits . . . . .	Read/Write Circuit Board and Drive Control Logic Board . . . . .	0260	Original
Write Circuits . . . . .	Read/Write Circuit Board . . . . .	0270	Original
Read Circuits, Sheet 1 . . . . .	Read/Write Circuit Board . . . . .	0280	Original
Read Circuits, Sheet 2 . . . . .	Read/Write Circuit Board . . . . .	0290	Original
Read Circuits, Sheet 3 . . . . .	VFO Circuit Board and Read/Write Circuit Board . . . . .	0300	Original
Digital Restoration of Read Signal, Sheet 1 . . . . .	VFO Circuit Board . . . . .	0310	Original
Digital Restoration of Read Signal, Sheet 2 . . . . .	VFO Circuit Board . . . . .	0320	Original
Digital Restoration of Read Signal, Sheet 3 . . . . .	VFO Circuit Board . . . . .	0330	Original
Digital Restoration of Read Signal, Sheet 4 . . . . .	VFO Circuit Board and Drive Control Logic Board . . . . .	0340	Original
Digital Restoration of Read Signal, Sheet 5 . . . . .	VFO Circuit Board . . . . .	0350	Original
Digital Restoration of Read Signal, Sheet 6 . . . . .	VFO Circuit Board . . . . .	0360	Original
Line Power Distribution . . . . .	Chassis and Switch Panels . . . . .	0370	Original
±15 Volt Regulators . . . . .	Power Supply Circuit Board . . . . .	0380	Original
+5 Volt Regulator . . . . .	Power Supply Circuit Board . . . . .	0390	Original
Head Positioner Drive Circuits . . . . .	Power Supply Circuit Board and Drive Control Logic Board . . . . .	0400	Original
DC Power Distribution . . . . .	Drive Control Logic Board, Servo Card No. 1, Servo Card No. 2, Interface Board, VFO Board, and Read/Write Circuit Board . . . . .	0410	Original



- NOTES:
- 1 PINS A8, A9, A10, A14 THRU A19 AND A22 OF P2 ARE GROUND.
  - 2 PINS A7, A12 AND A17 OF P3 ARE GROUND.
  - 3 PINS 18, 20 THRU 25 AND 27 ARE GROUND.
  - 4 PLUG TERMINATOR ASSEMBLY INTO LAST DRIVE OF SYSTEM.



- NOTES:
- 1 PINS 1, 2, 4, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 45, 47 AND 49 OF P2 ARE GROUND.
  - 2 PINS 1, 2, 3, 16, 18 THRU 25, 27, 28, 34, 47 AND 48 OF P1 AND J1 ARE GROUND.
  - 3 PLUG TERMINATOR ASSEMBLY INTO LAST DRIVE OF SYSTEM.

REV. JULY 15, 1976

LD 2230  
DISC STORAGE UNIT

MODEL 600 INTERCONNECTION DIAGRAM

0220 SPIN SPEED 70% NORMAL  
0070 200 MILLISECOND TIMEOUT

0010 MOTOR SWITCH ON

0280 READ OR WRITE GATE  
0220 SPIN SPEED 70% NORMAL  
0250 READ/WRITE SAFE

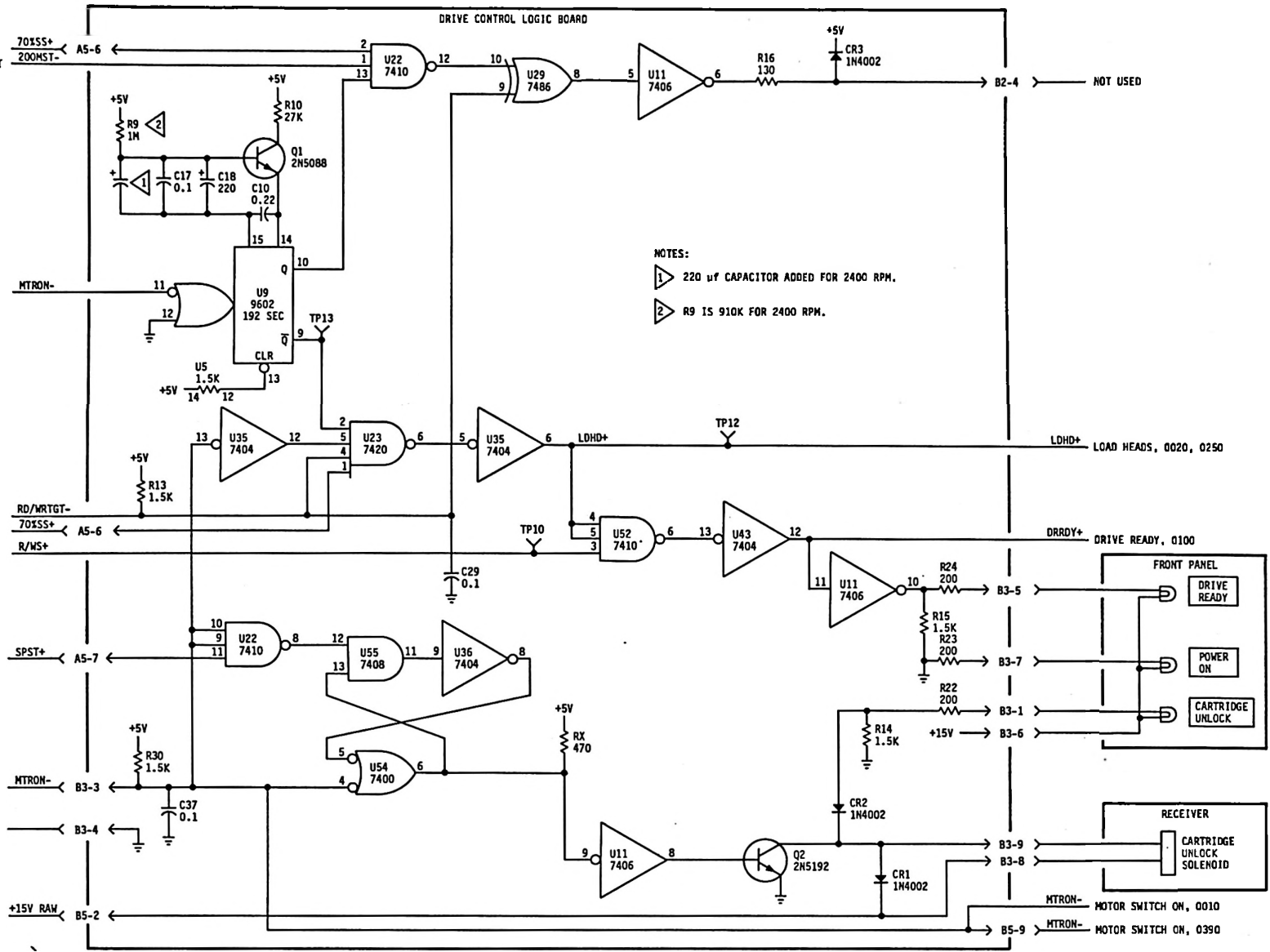
0230 SPIN STOPPED

0370 MOTOR SWITCH ON

0370 MOTOR SWITCH ON RETURN

0380 +15 VOLTS RAW

DRIVE CONTROL LOGIC BOARD

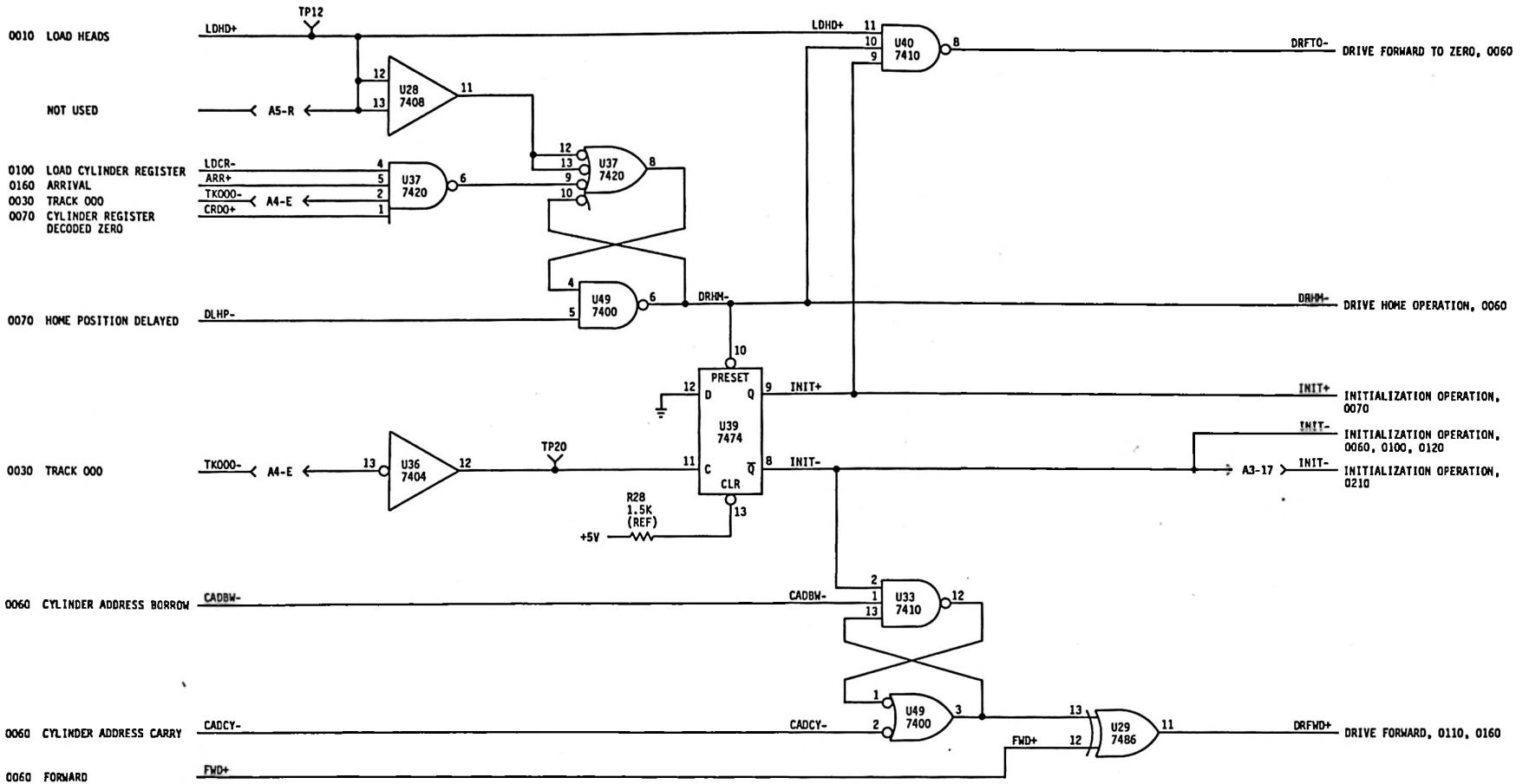


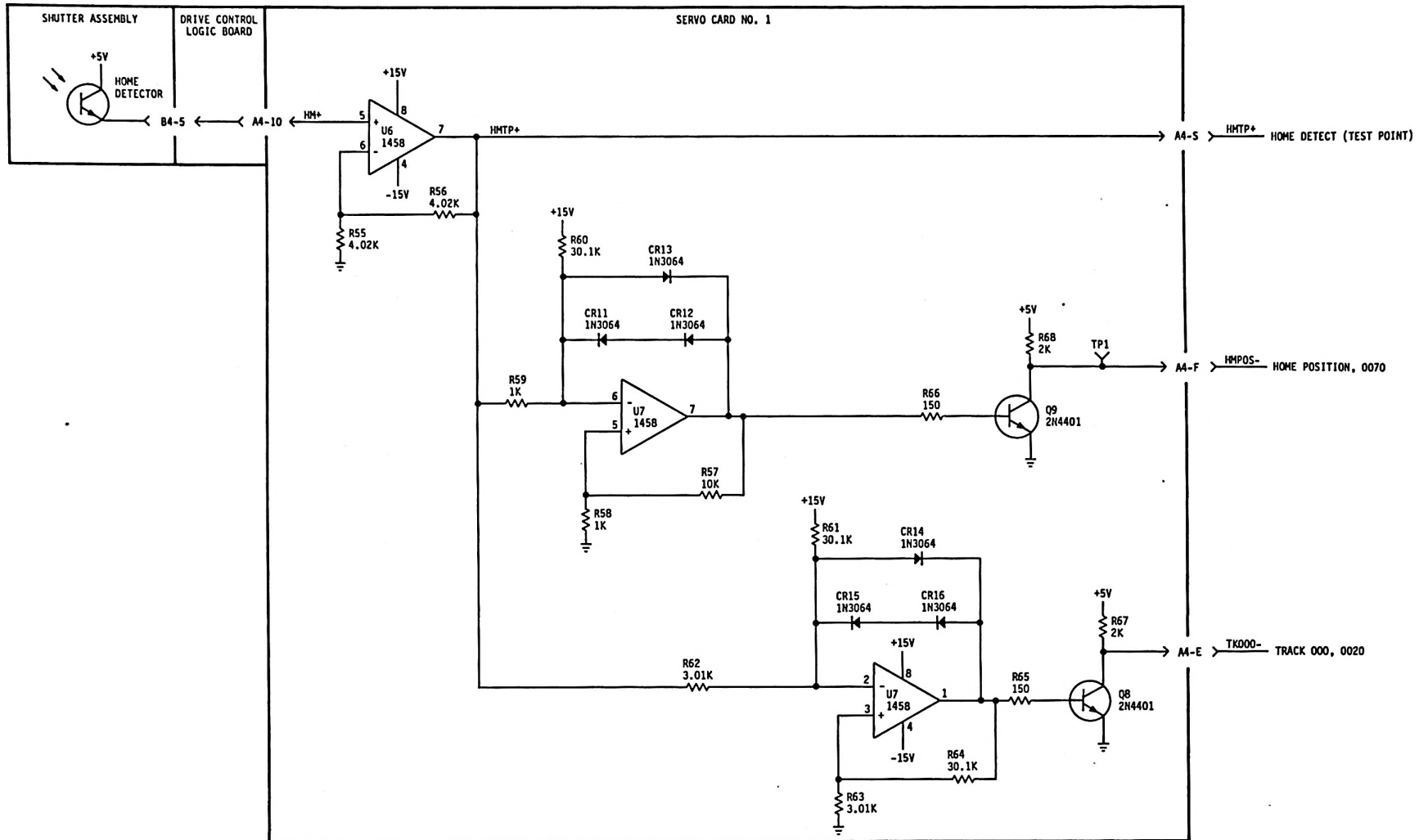
NOTES:  
1 220 uf CAPACITOR ADDED FOR 2400 RPM.  
2 R9 IS 910K FOR 2400 RPM.

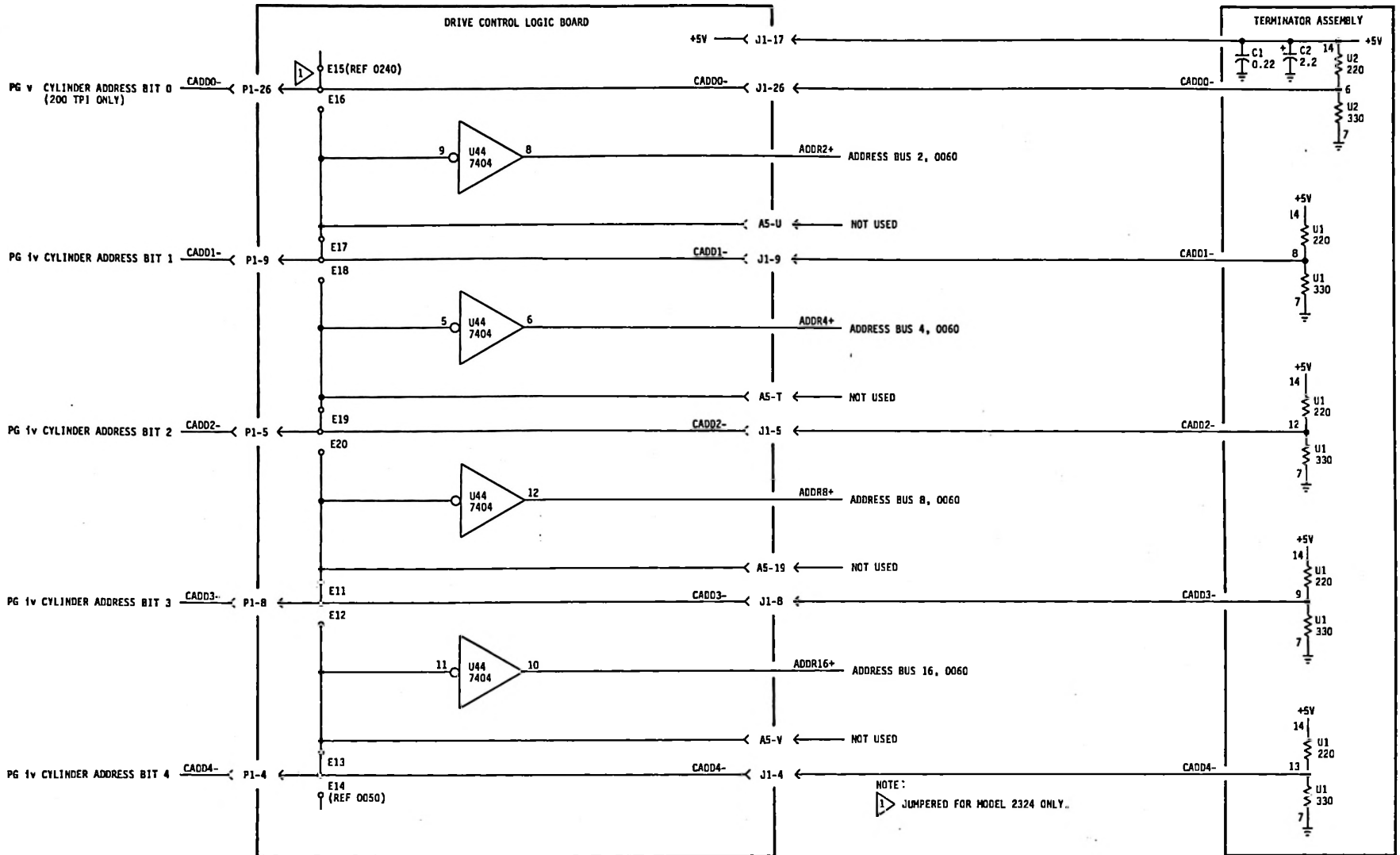
POWER ON CIRCUITS

LD 2230  
DISC STORAGE UNIT

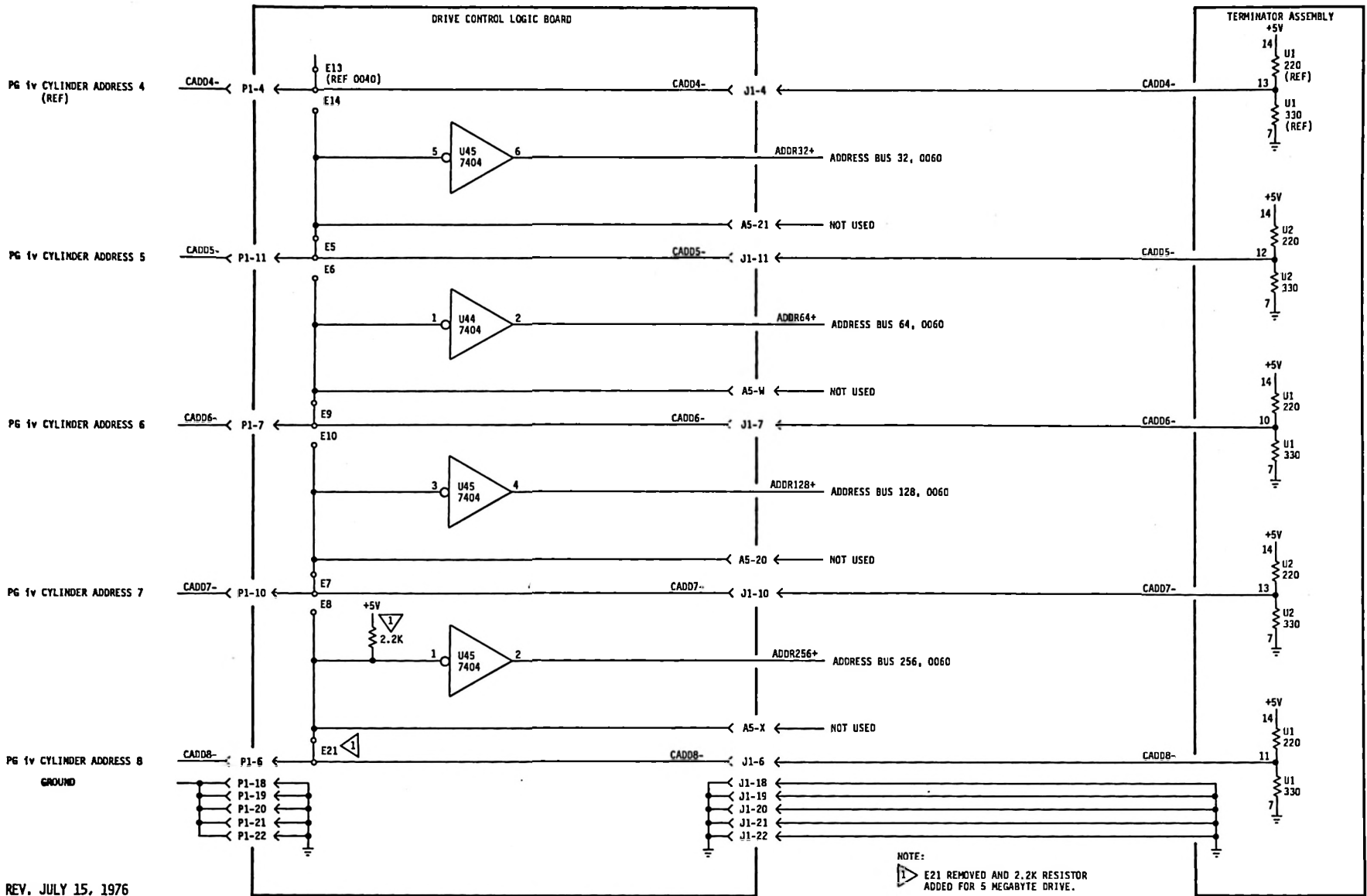
DRIVE CONTROL LOGIC BOARD  
0010









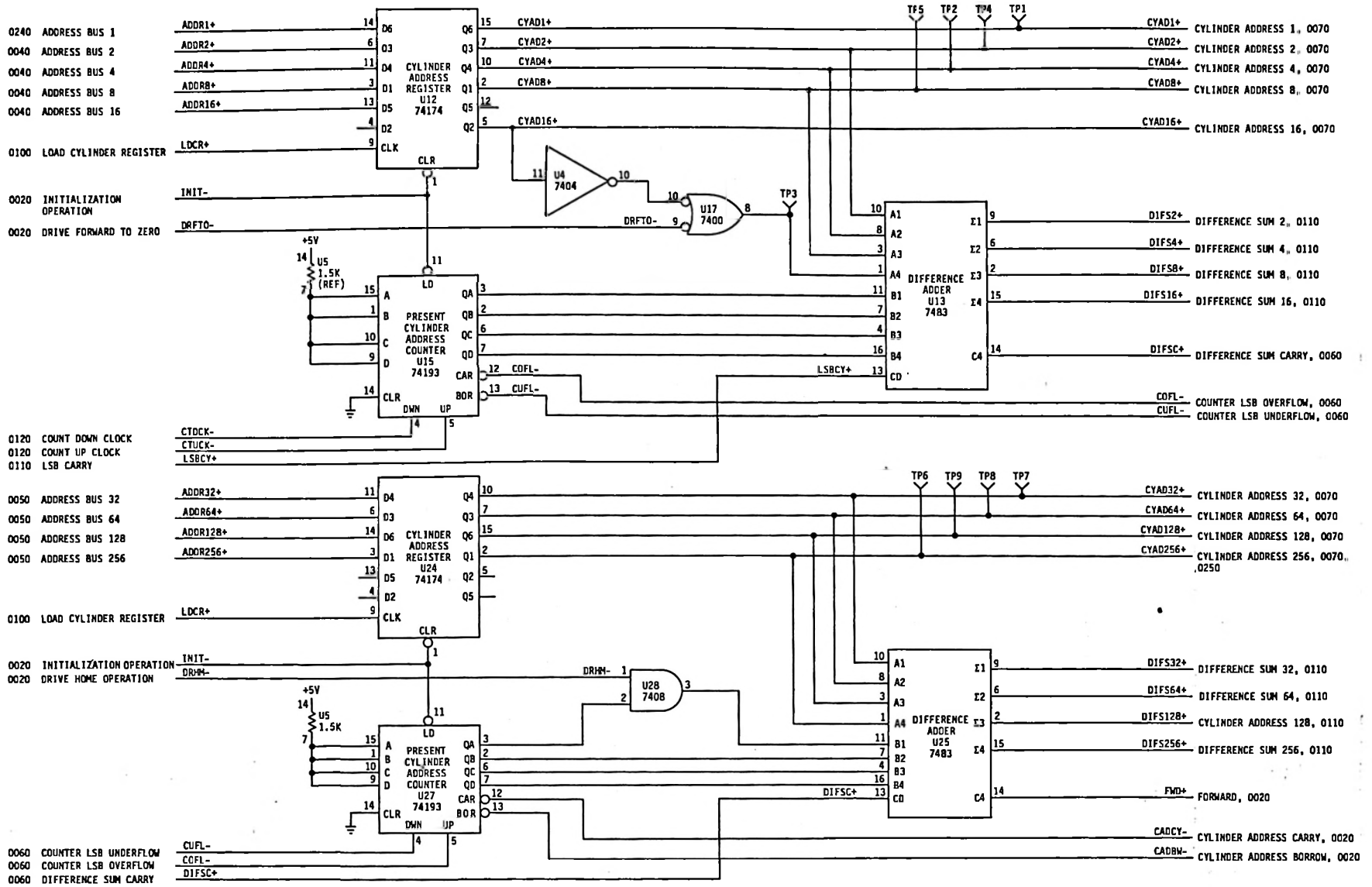


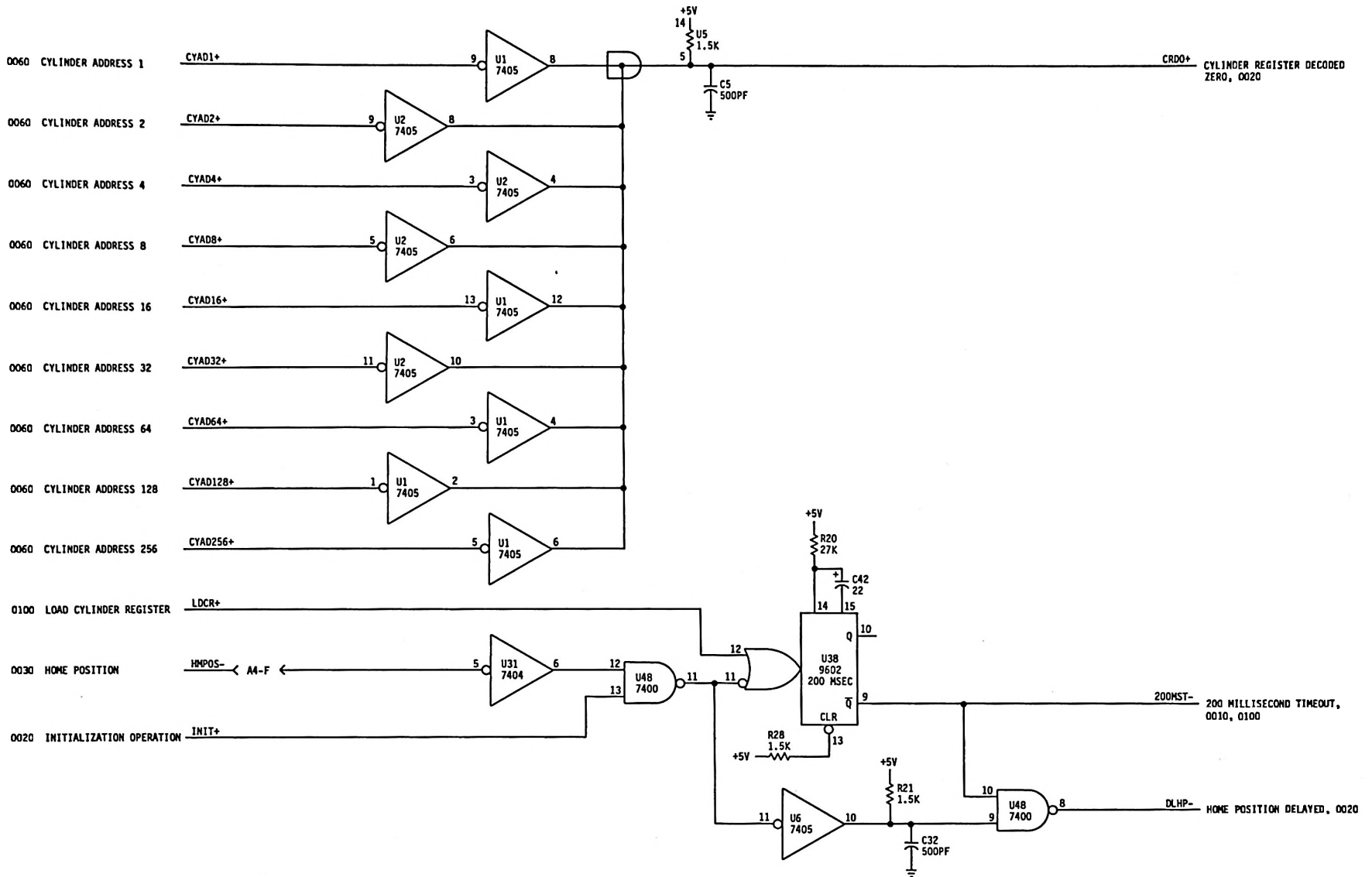
REV. JULY 15, 1976

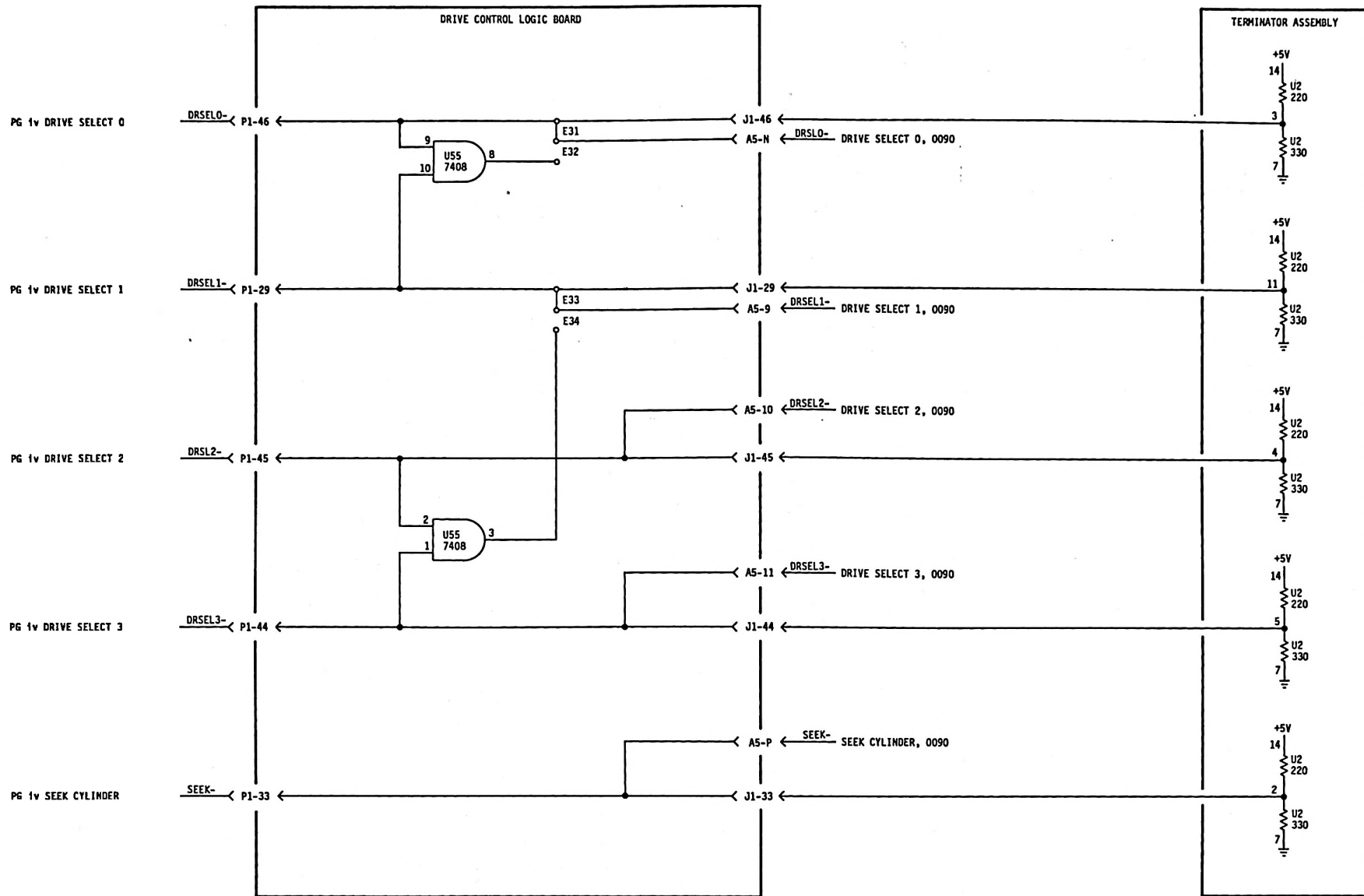
LD 2230  
DISC STORAGE UNIT

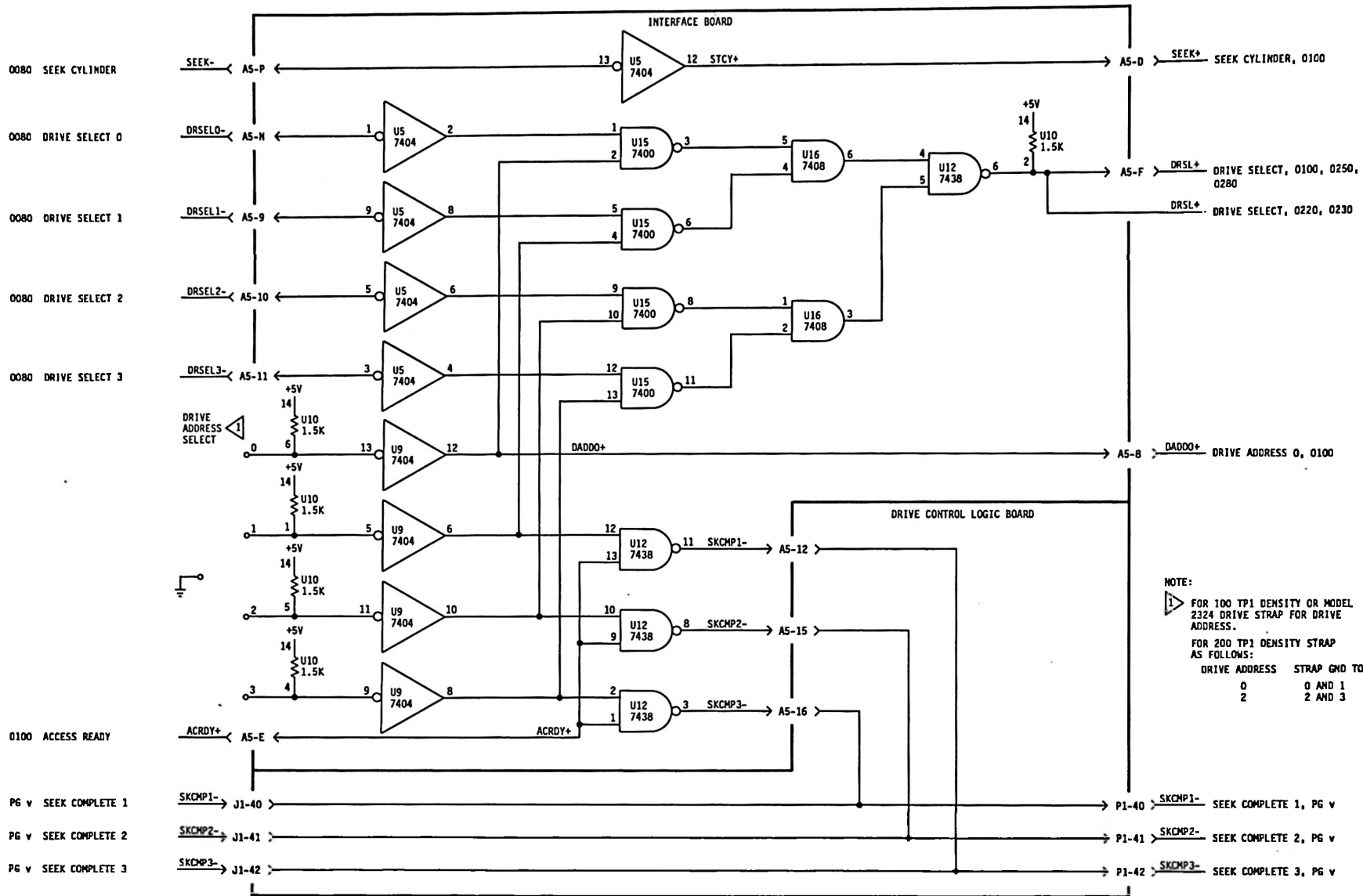
CYLINDER ADDRESS INPUT (SHEET 2 OF 2)

DRIVE CONTROL LOGIC BOARD  
0050

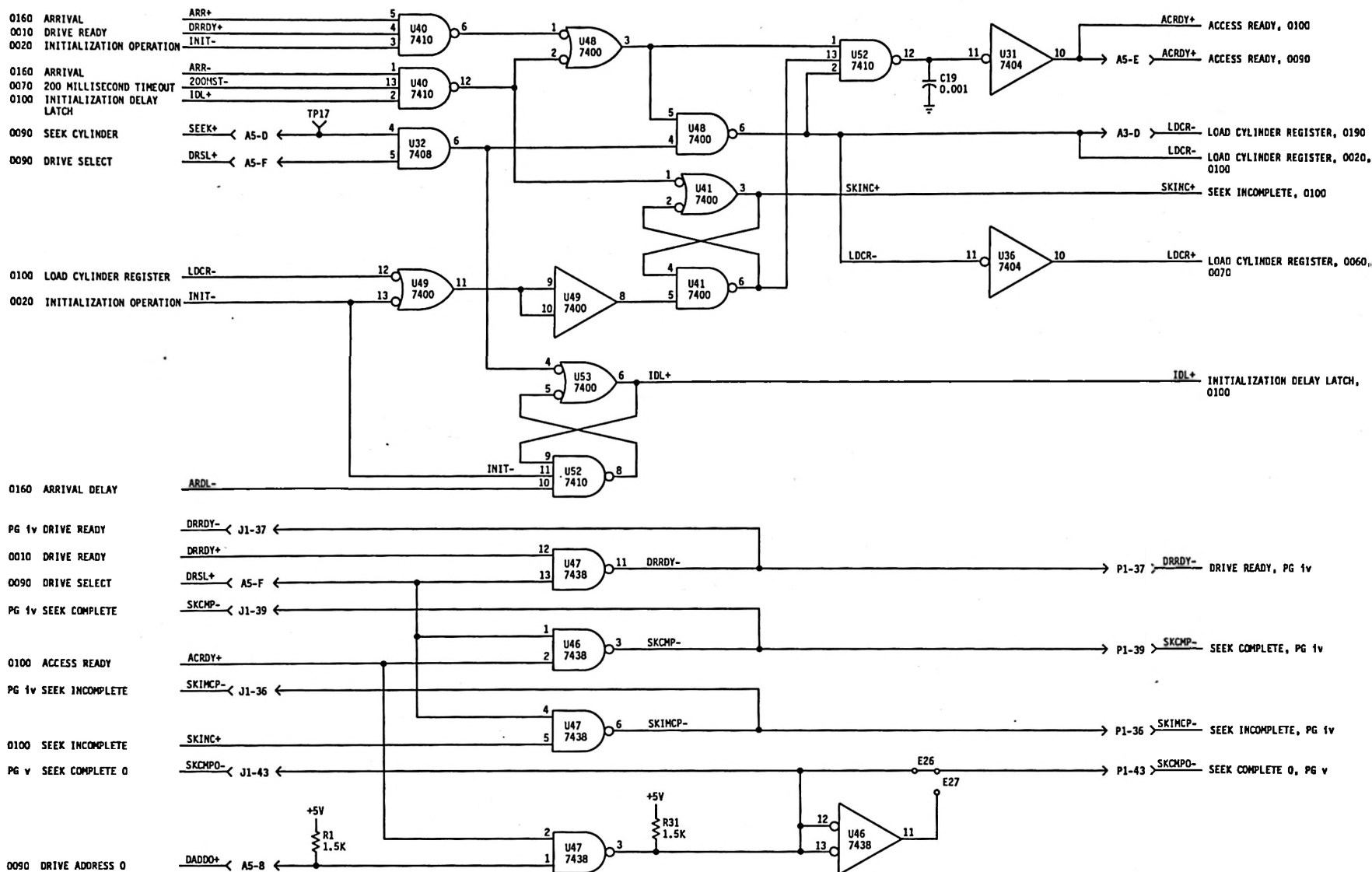




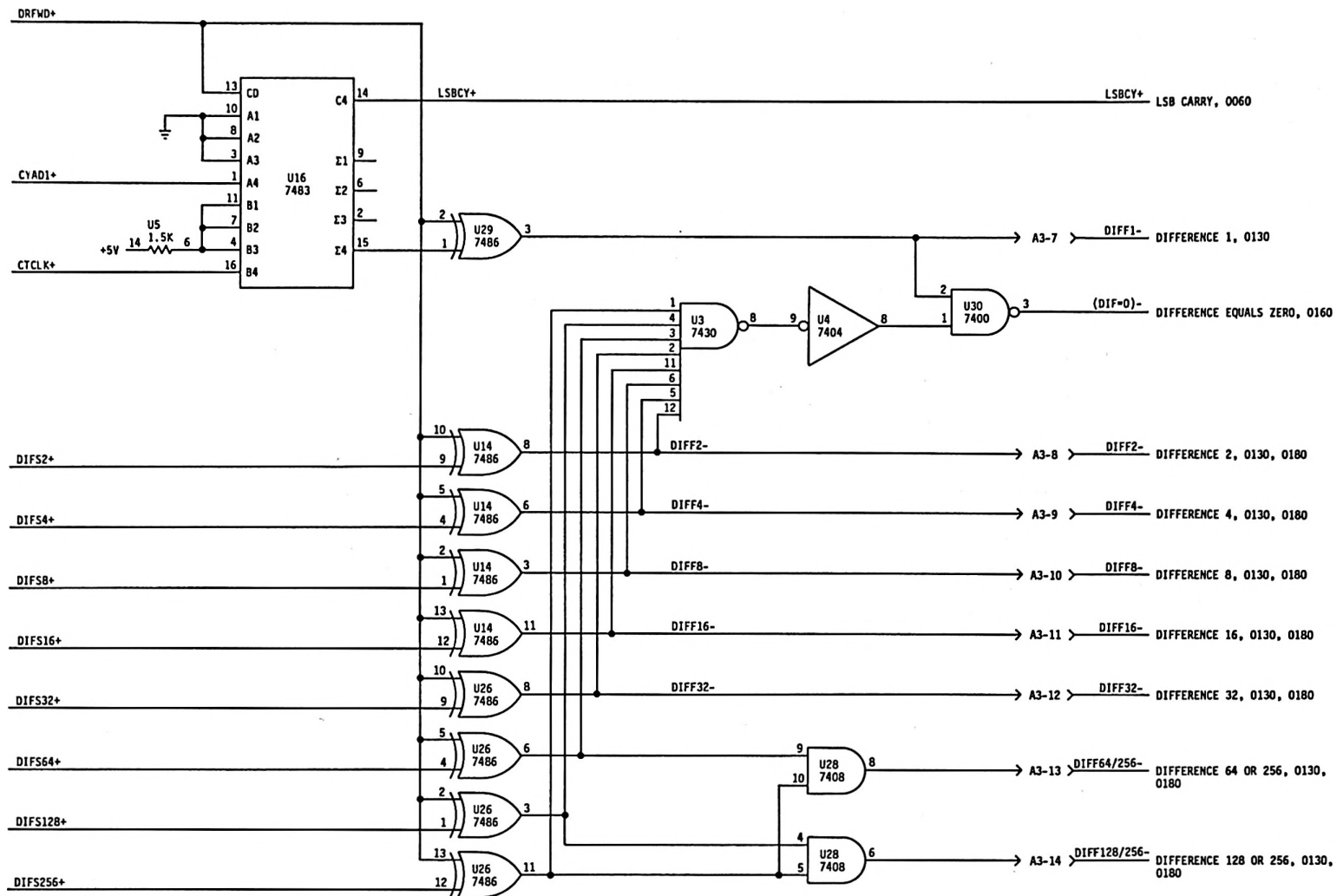


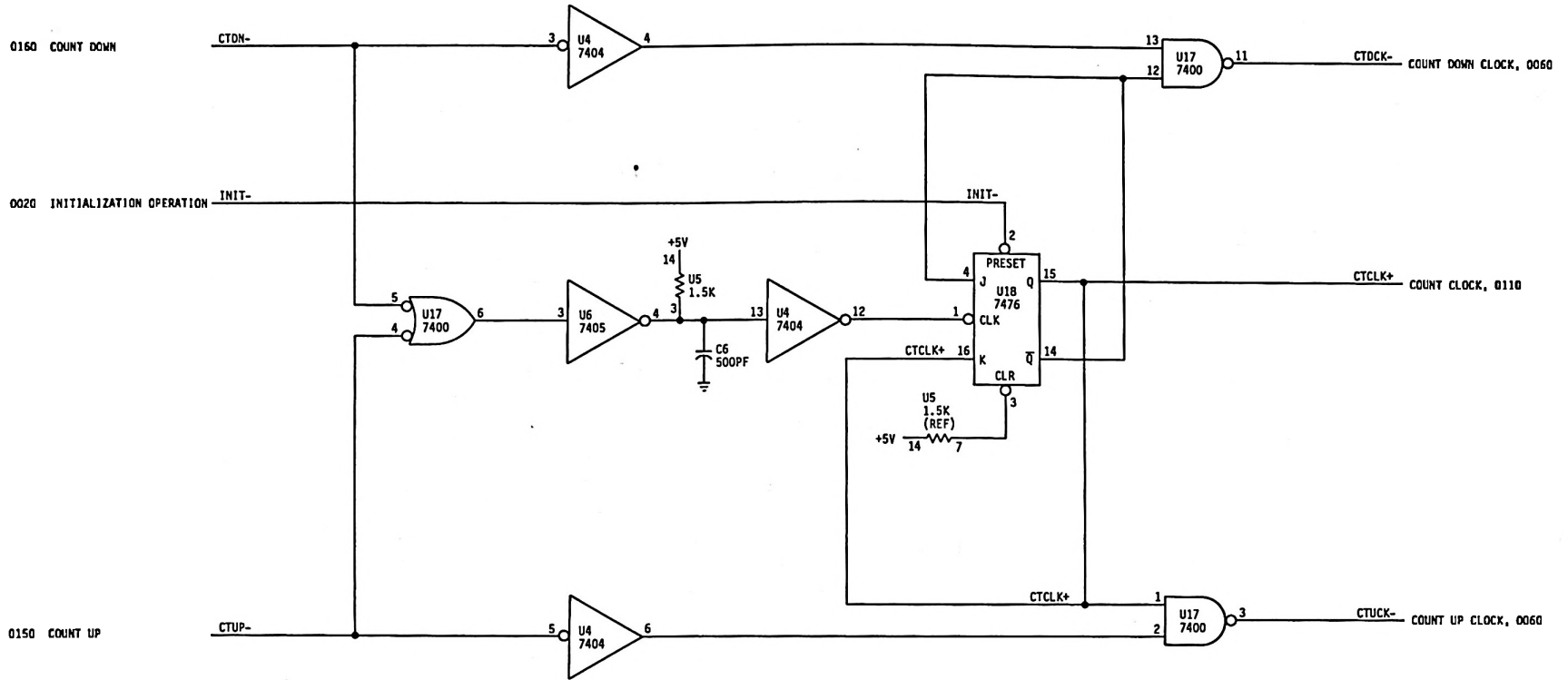


NOTE:  
 1 FOR 100 TP1 DENSITY OR MODEL 2324 DRIVE STRAP FOR DRIVE ADDRESS.  
 FOR 200 TP1 DENSITY STRAP AS FOLLOWS:  
 DRIVE ADDRESS STRAP GND TO  
 0 0 AND 1  
 2 2 AND 3

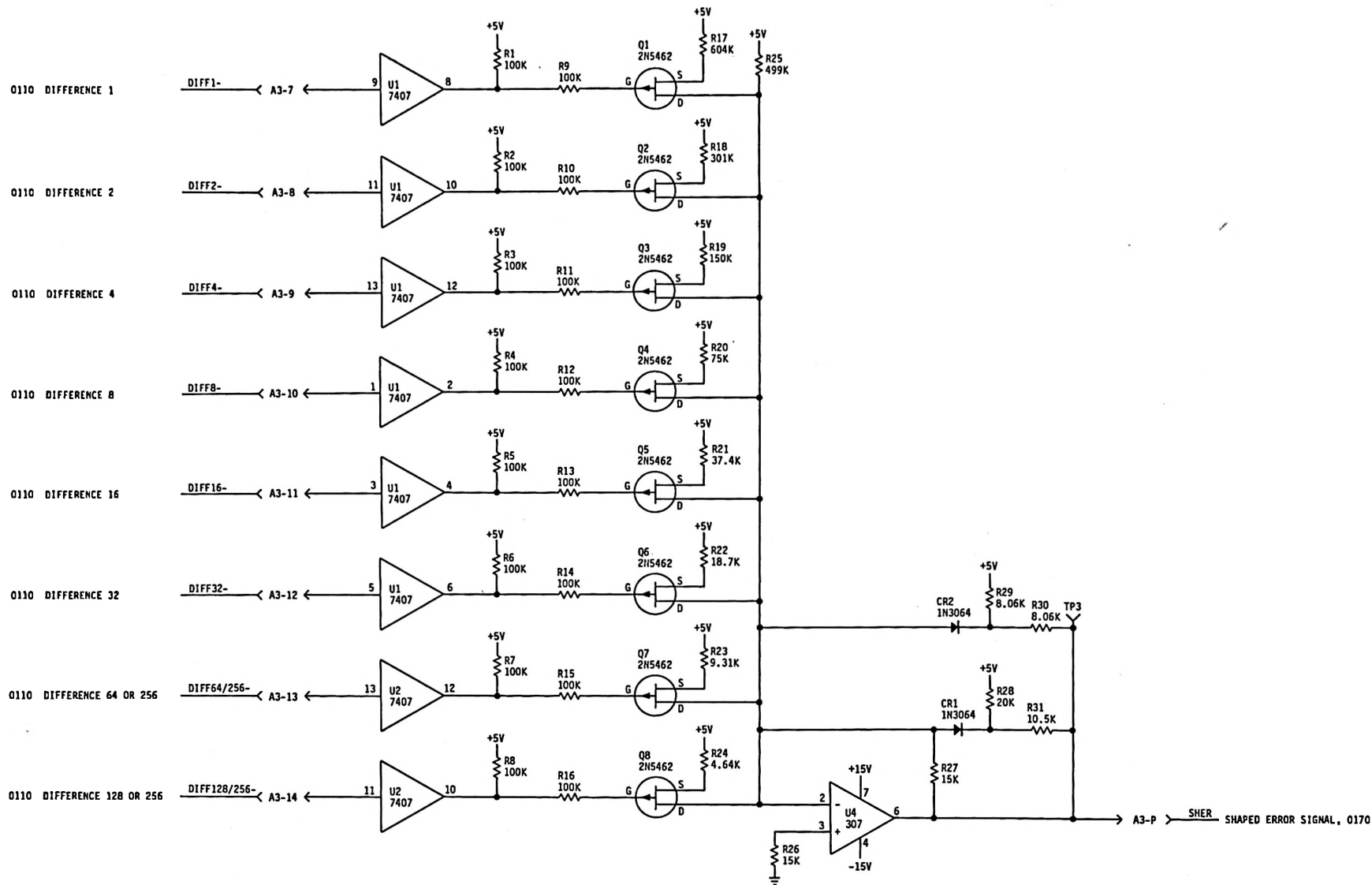


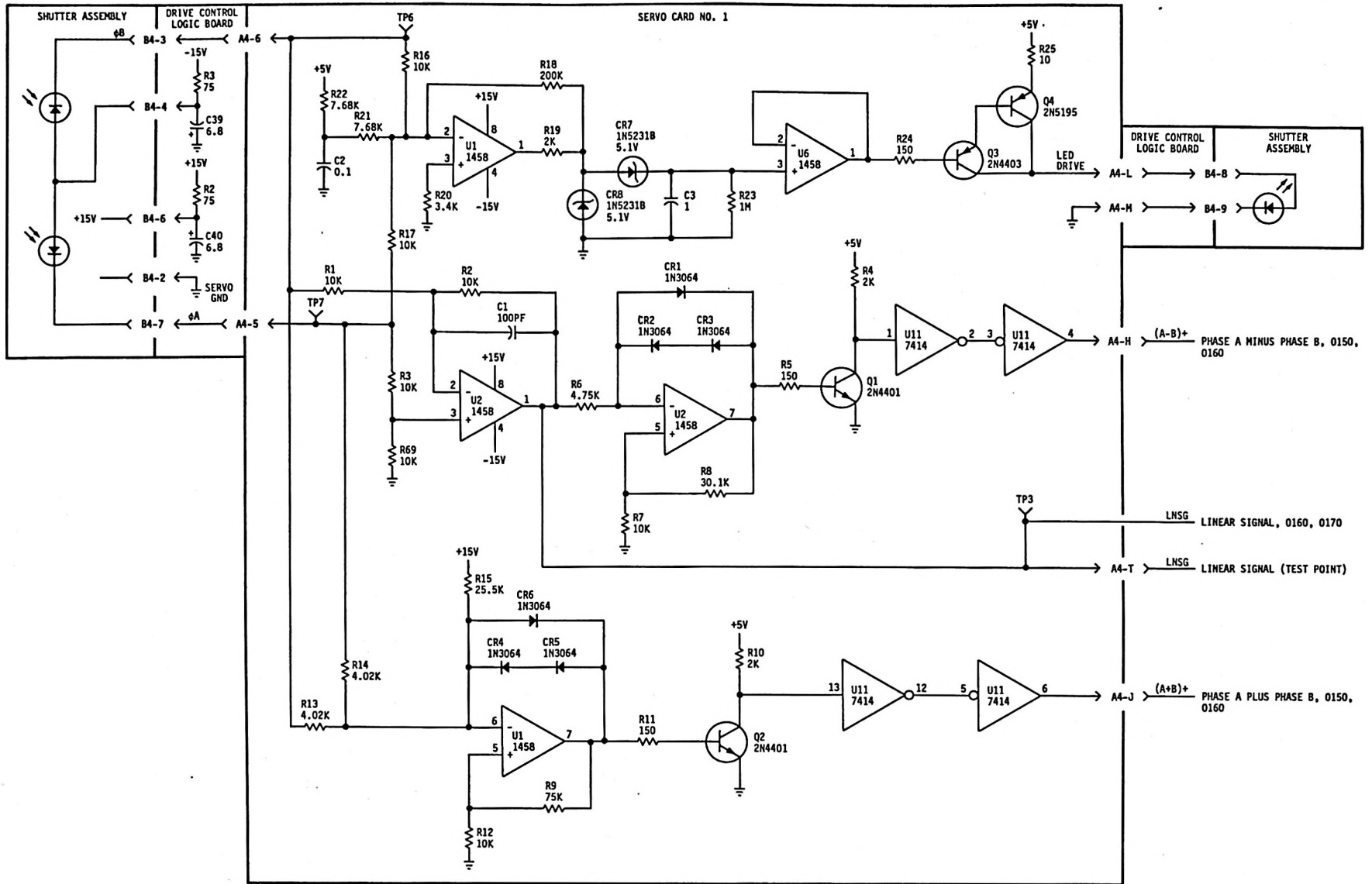
0020 DRIVE FORWARD  
 0060 CYLINDER ADDRESS 1  
 0120 COUNT CLOCK  
 0060 DIFFERENCE SUM 2  
 0060 DIFFERENCE SUM 4  
 0060 DIFFERENCE SUM 8  
 0060 DIFFERENCE SUM 16  
 0060 DIFFERENCE SUM 32  
 0060 DIFFERENCE SUM 64  
 0060 DIFFERENCE SUM 128  
 0060 DIFFERENCE SUM 256

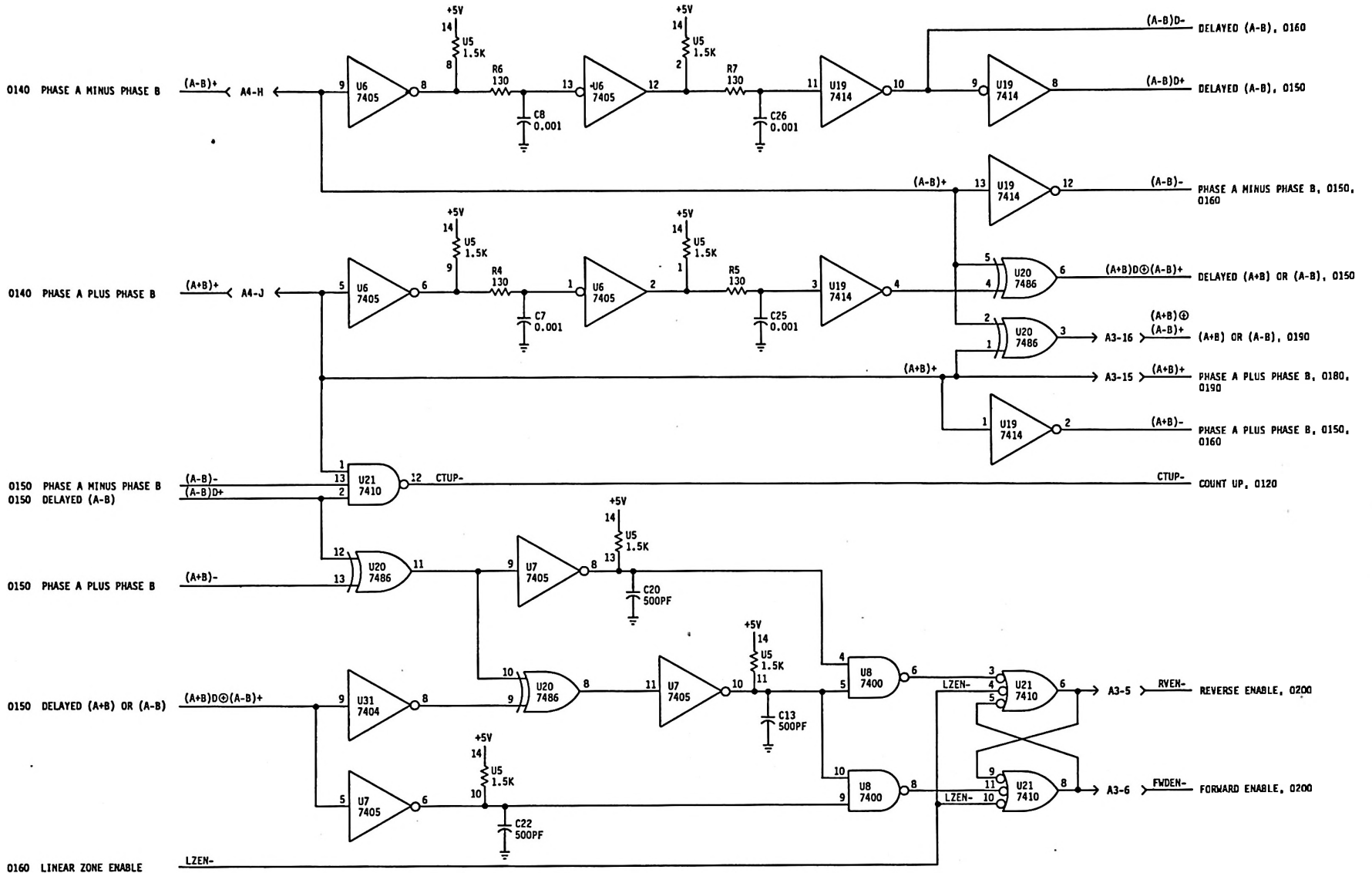




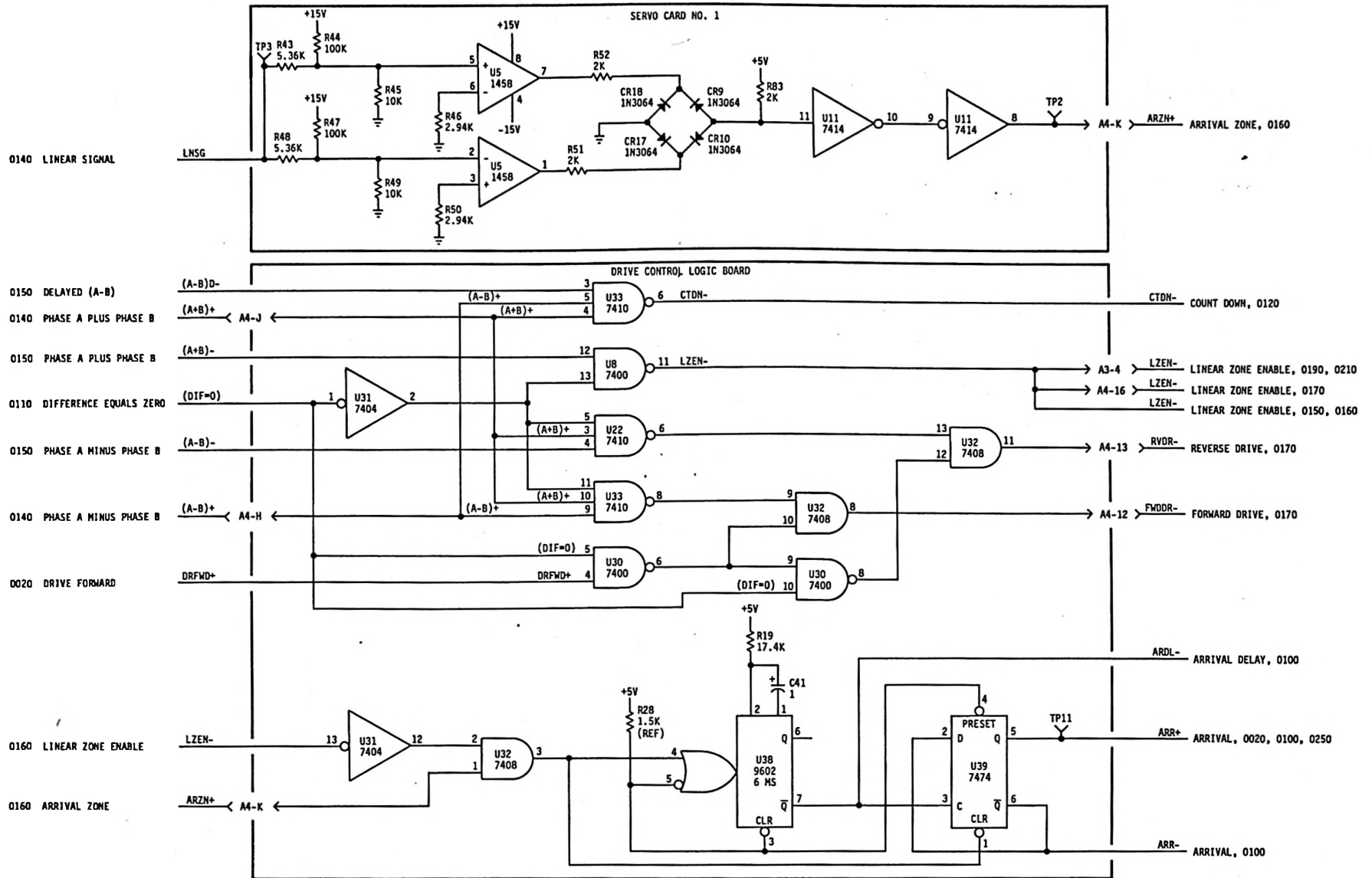


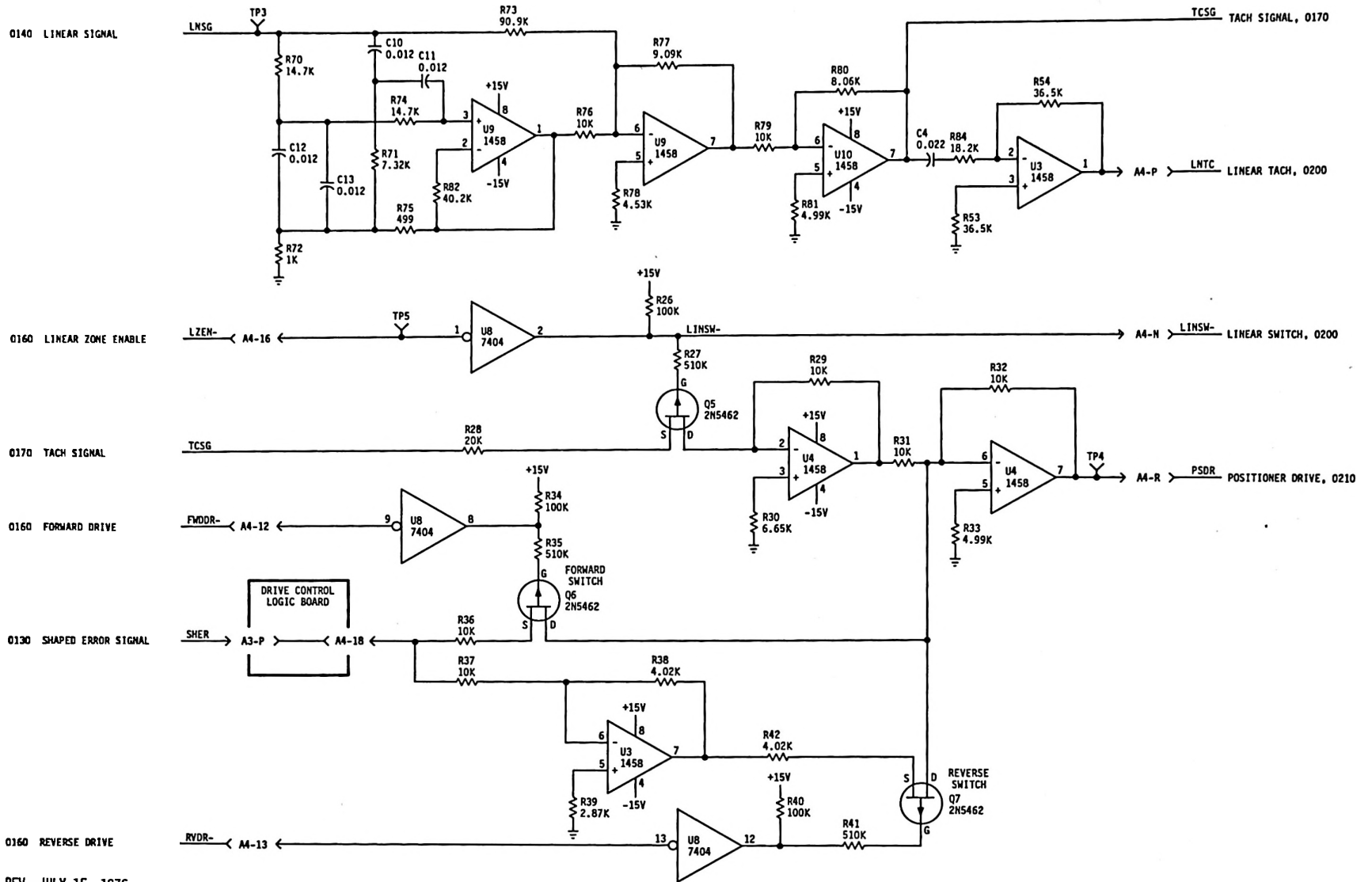






COUNT DOWN AND ARRIVAL DETECTION CIRCUITS



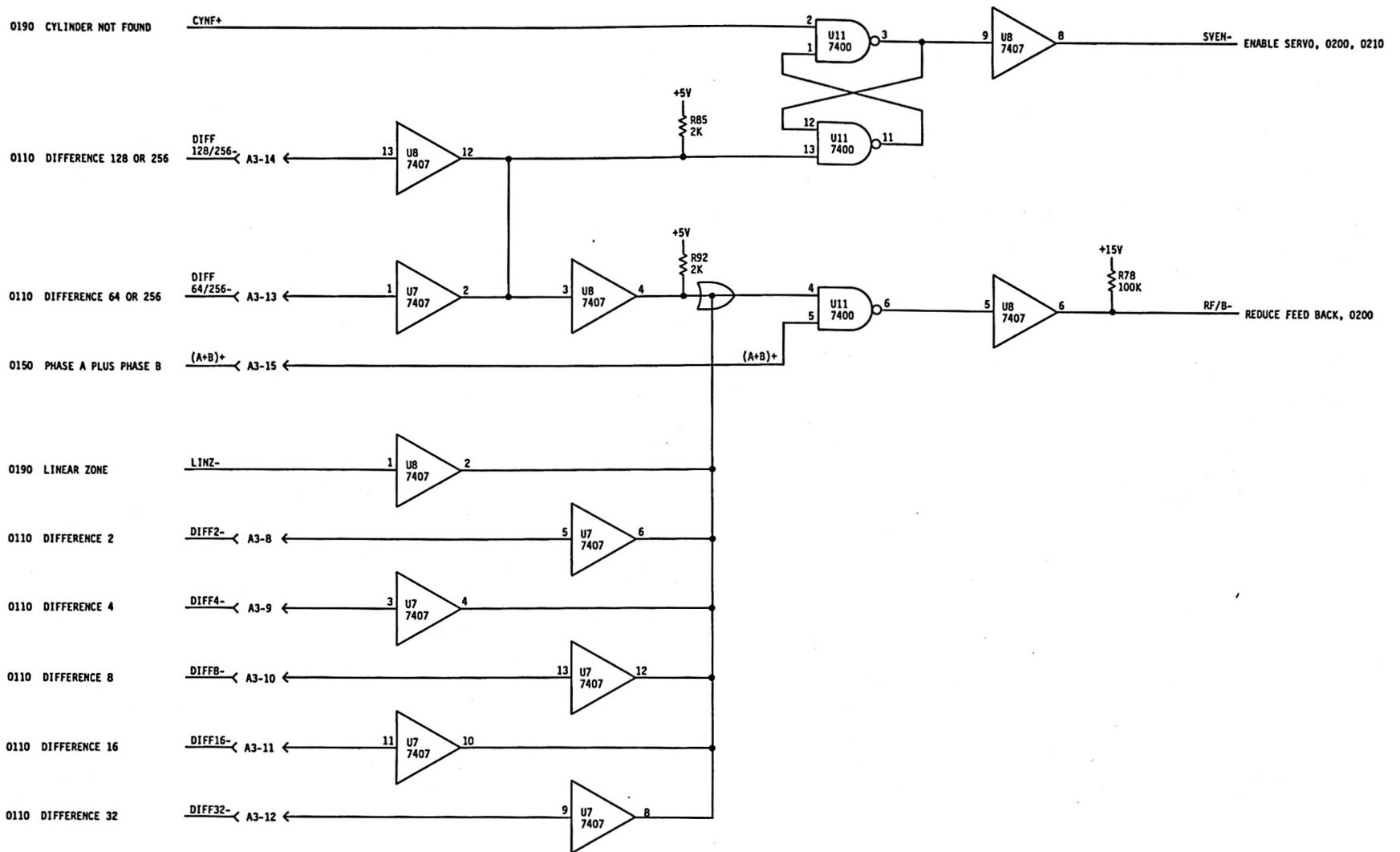


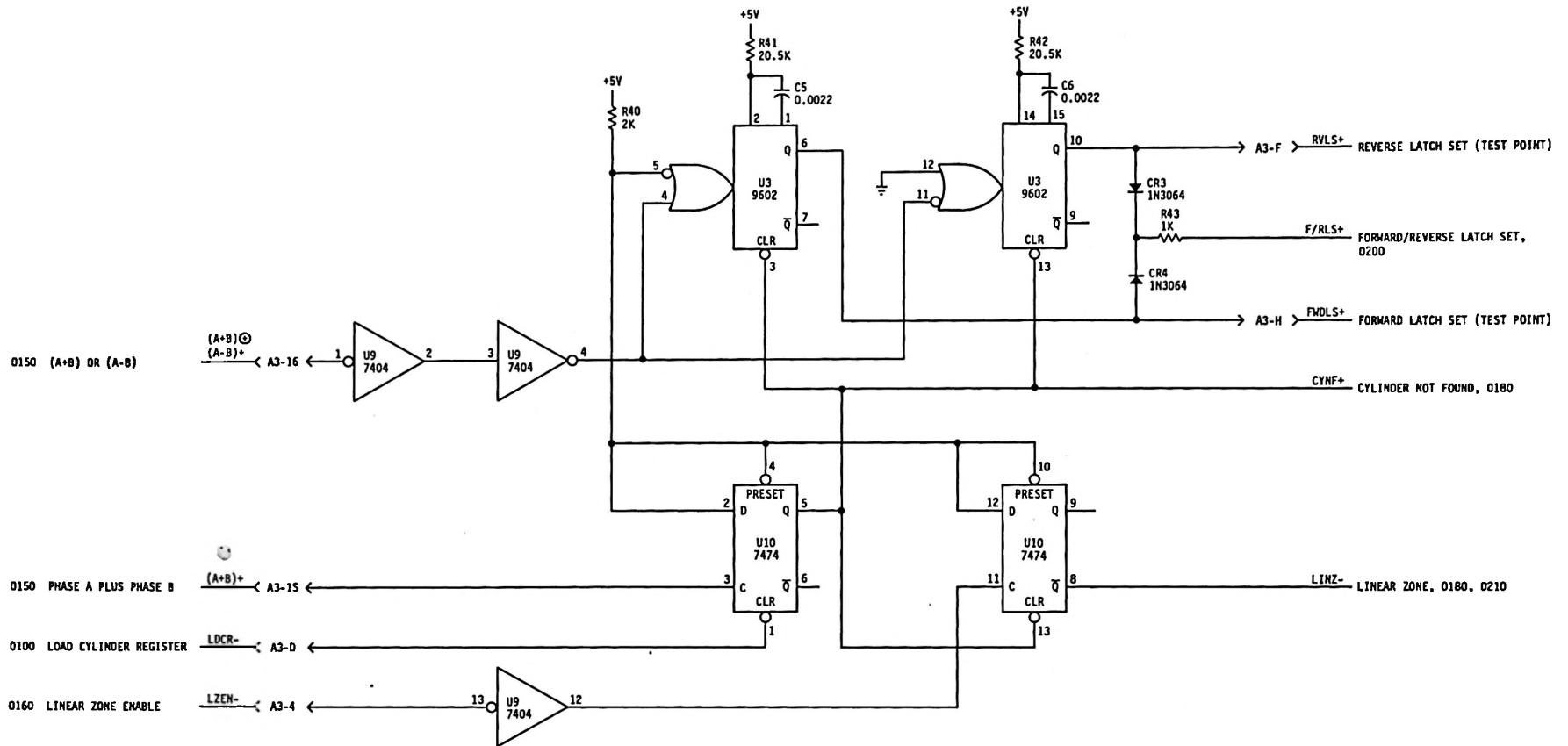
REV. JULY 15, 1976

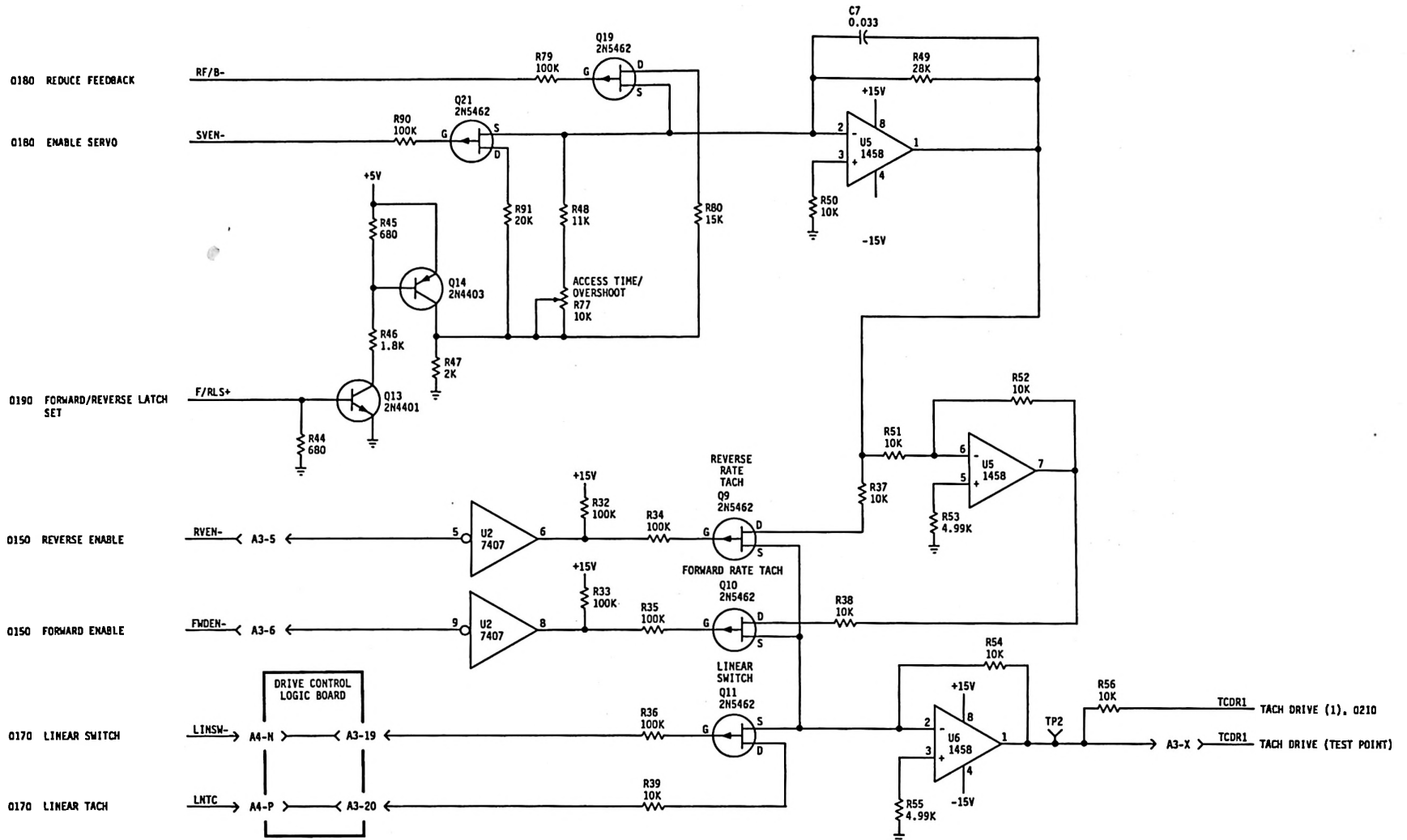
LD 2230  
DISC STORAGE UNIT

TACH AND POSITIONER DRIVE CIRCUITS

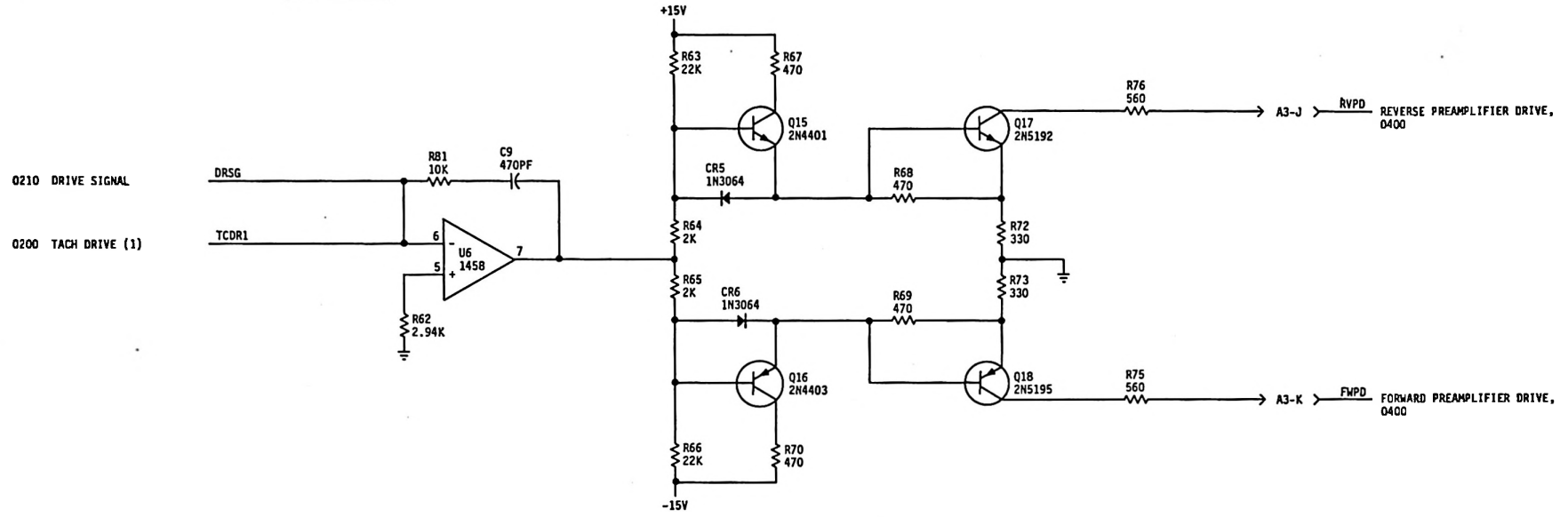
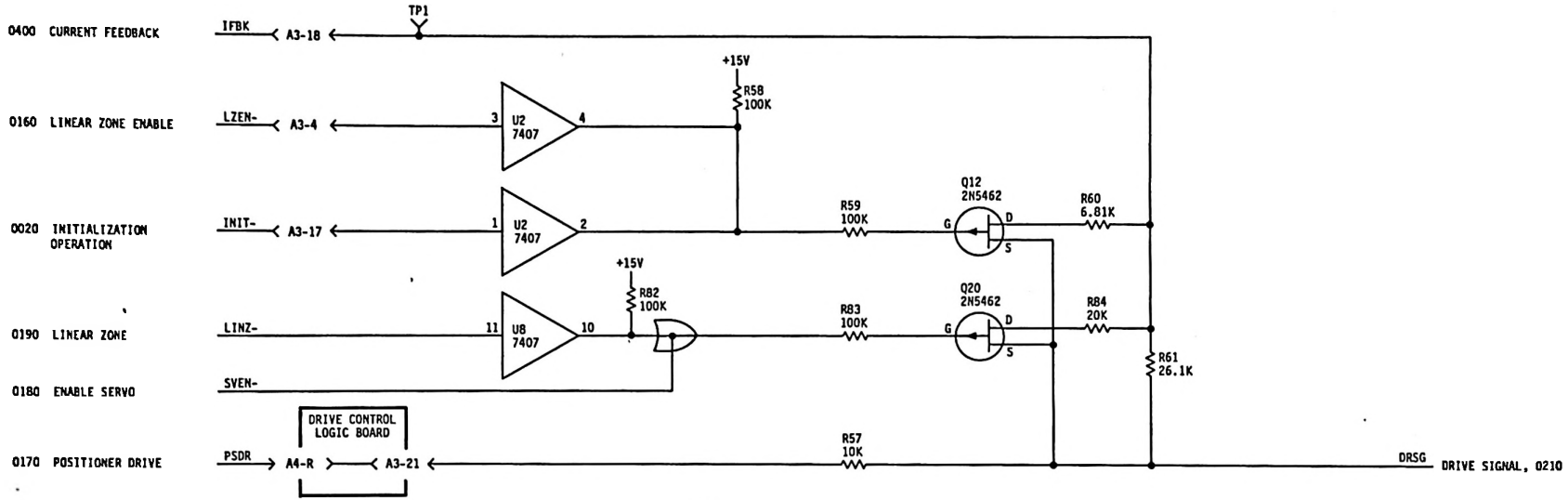
SERVO CARD NO. 1  
0170

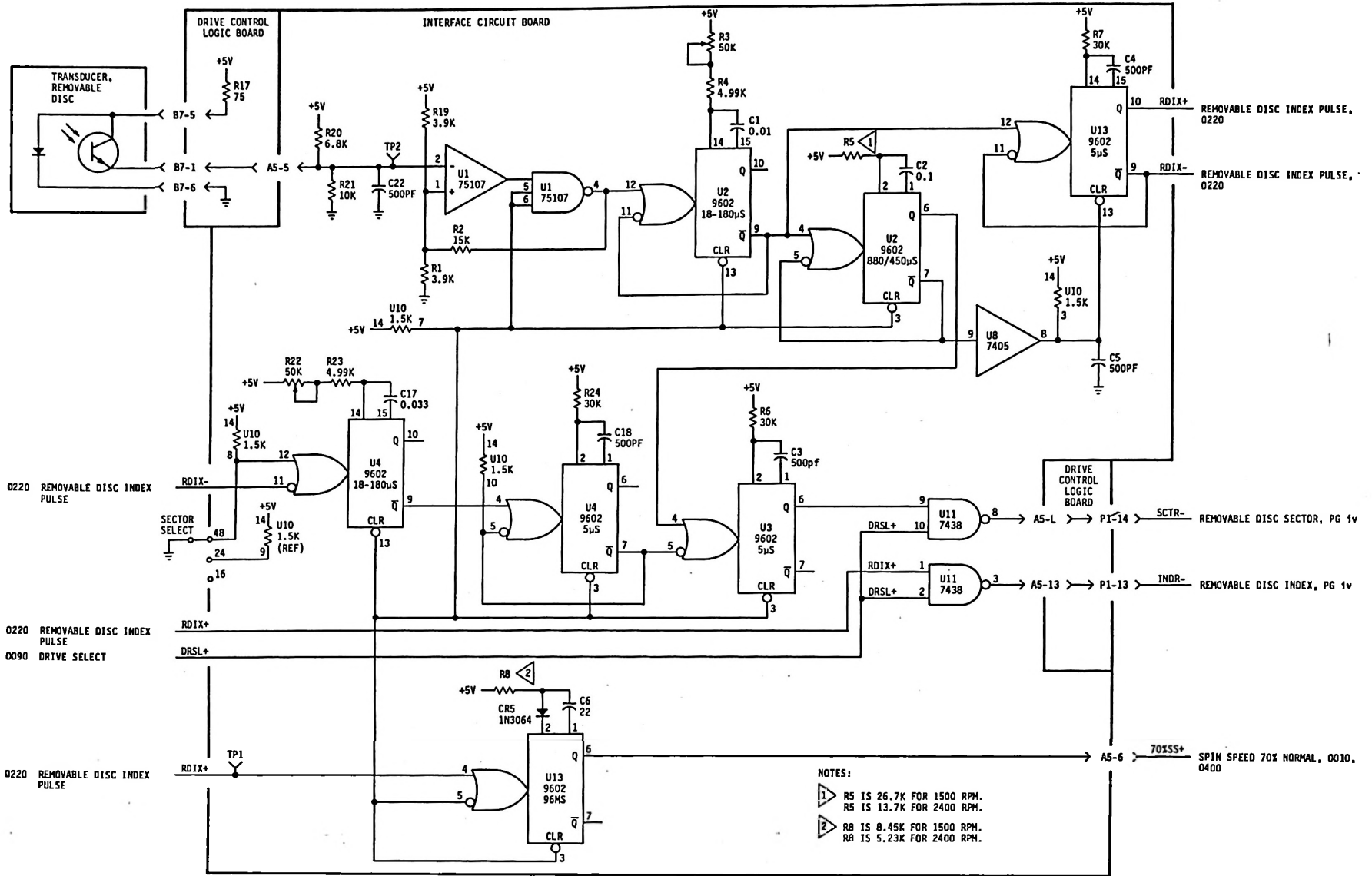


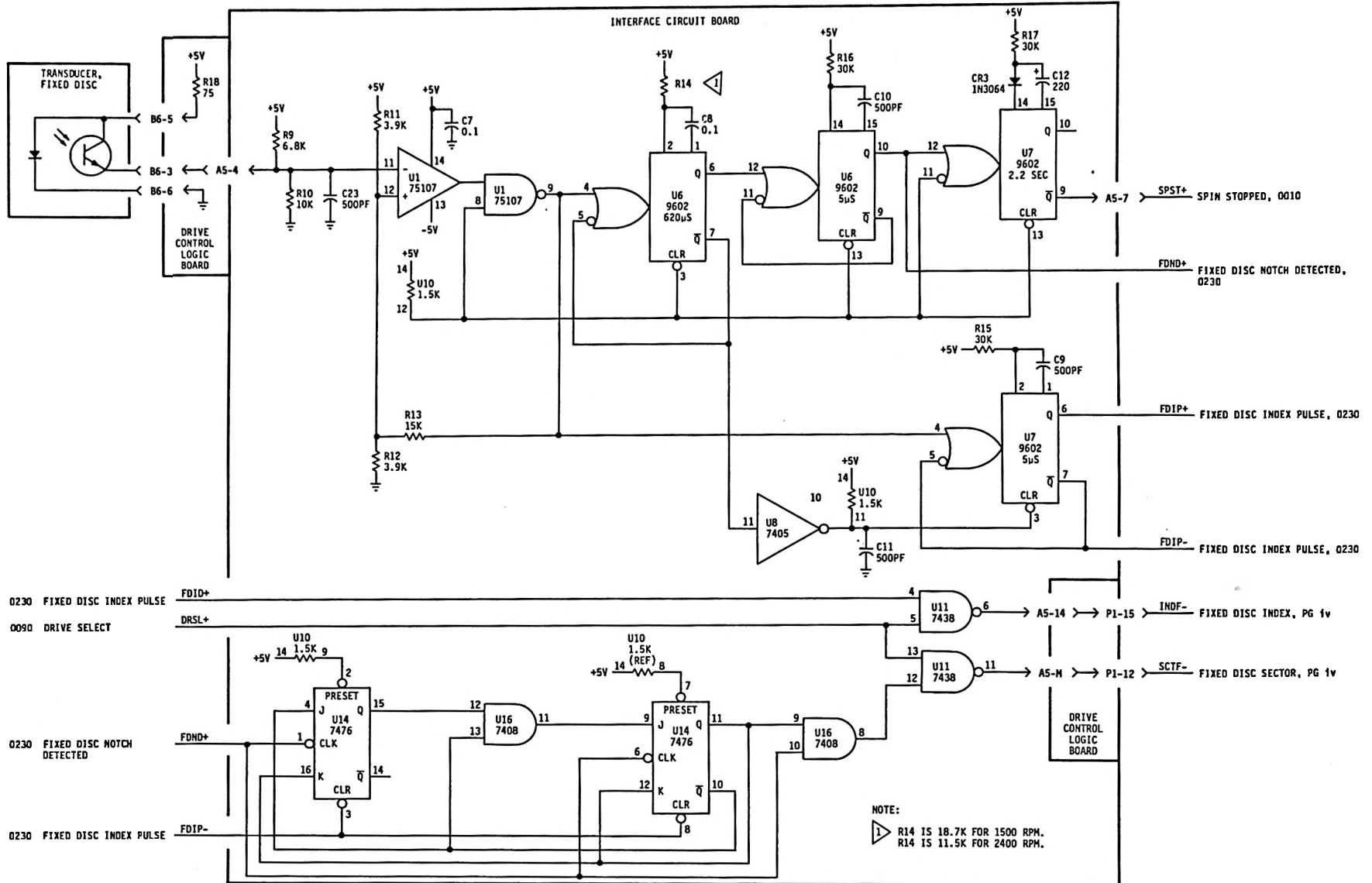








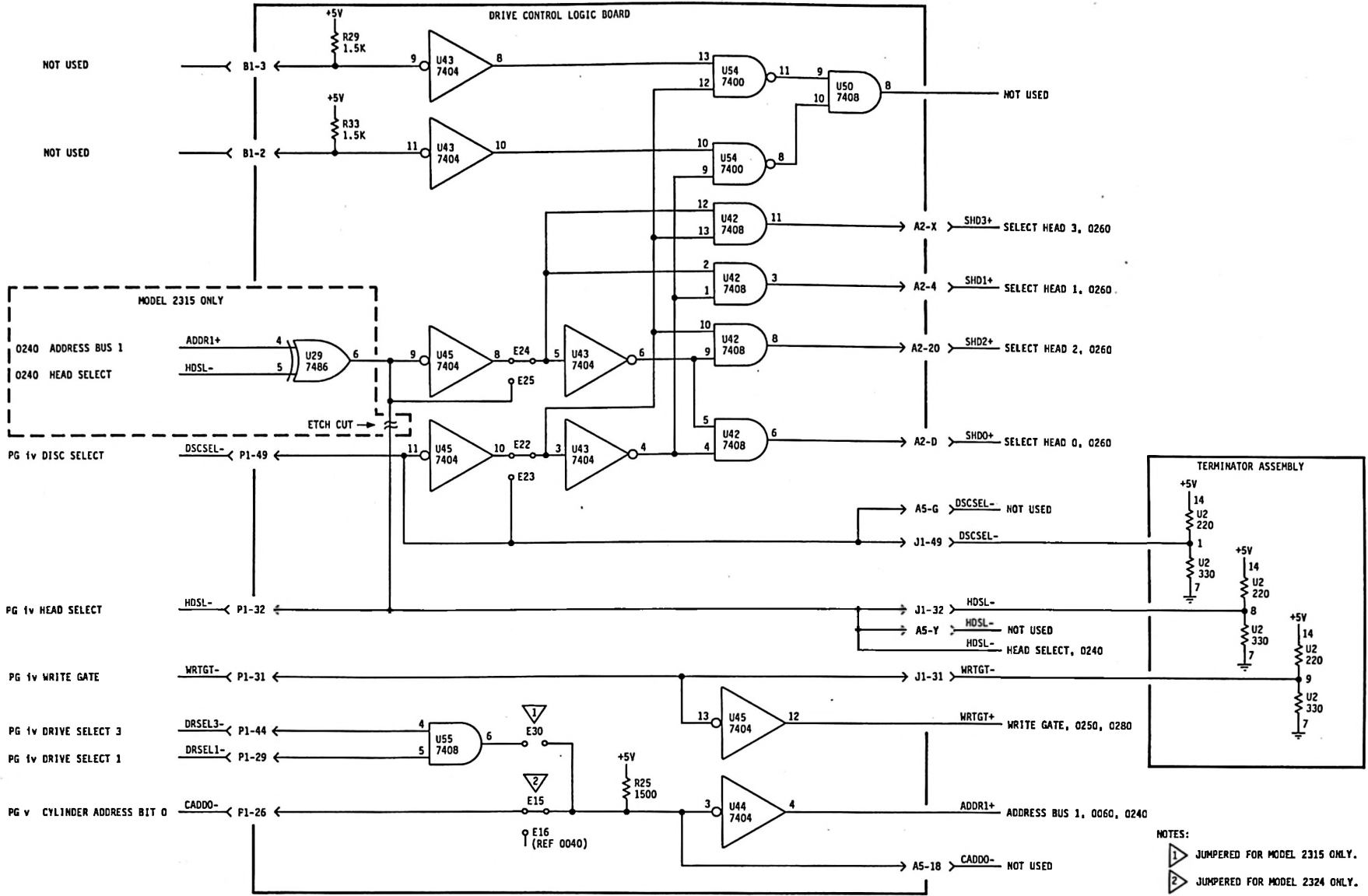




0230 FIXED DISC INDEX PULSE  
 0090 DRIVE SELECT  
 0230 FIXED DISC NOTCH DETECTED  
 0230 FIXED DISC INDEX PULSE

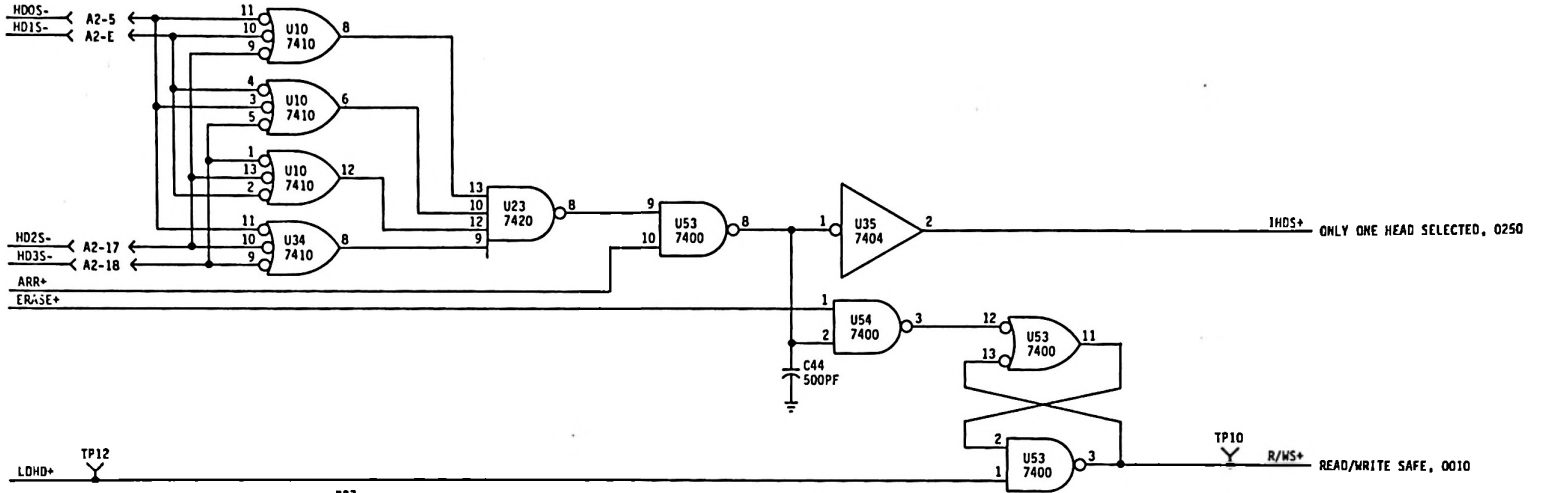
NOTE:  
 R14 IS 18.7K FOR 1500 RPM.  
 R14 IS 11.5K FOR 2400 RPM.

HEAD SELECT CIRCUITS



NOTES:  
 1 JUMPERED FOR MODEL 2315 ONLY.  
 2 JUMPERED FOR MODEL 2324 ONLY.

0260 HEAD 0 SELECTED  
0260 HEAD 1 SELECTED



0260 HEAD 2 SELECTED  
0260 HEAD 3 SELECTED  
0160 ARRIVAL  
0250 ERASE SEPARATOR

0010 LOAD HEADS

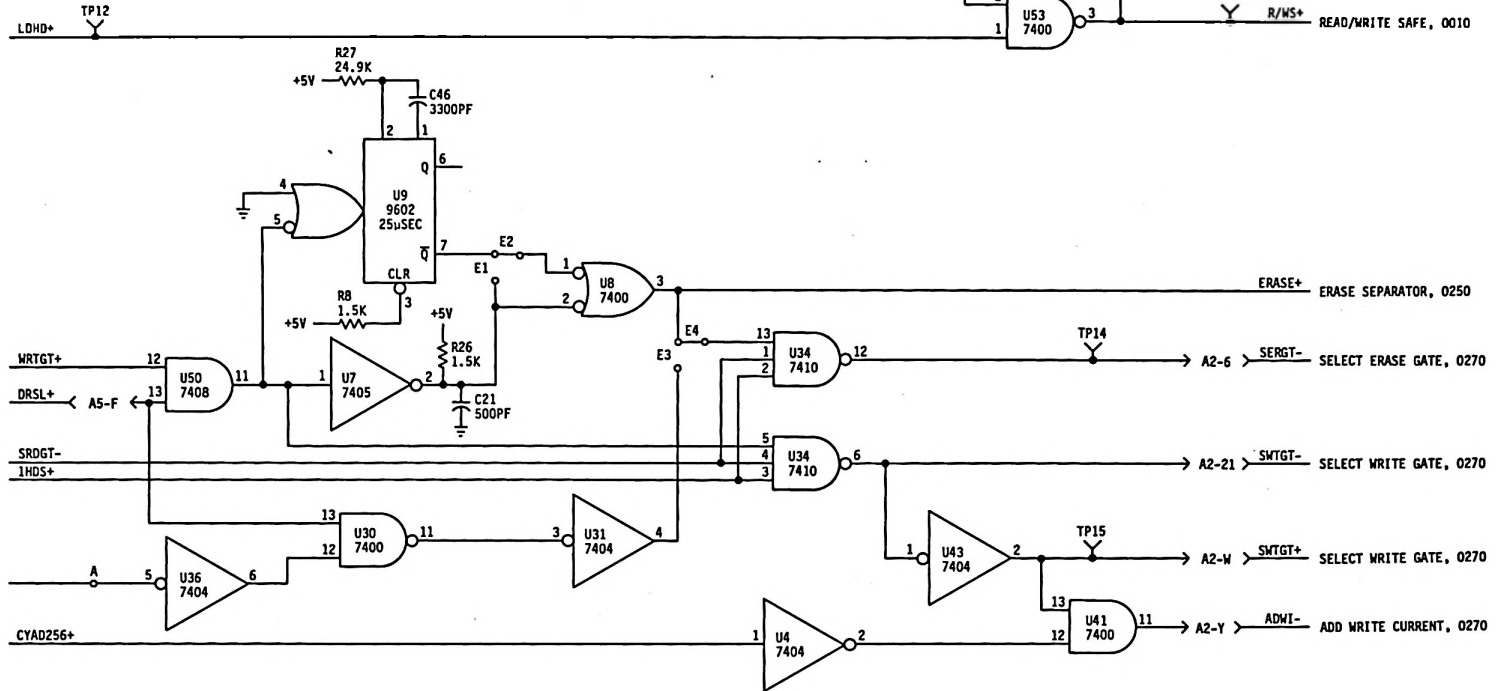
0240 WRITE GATE

0090 DRIVE SELECT

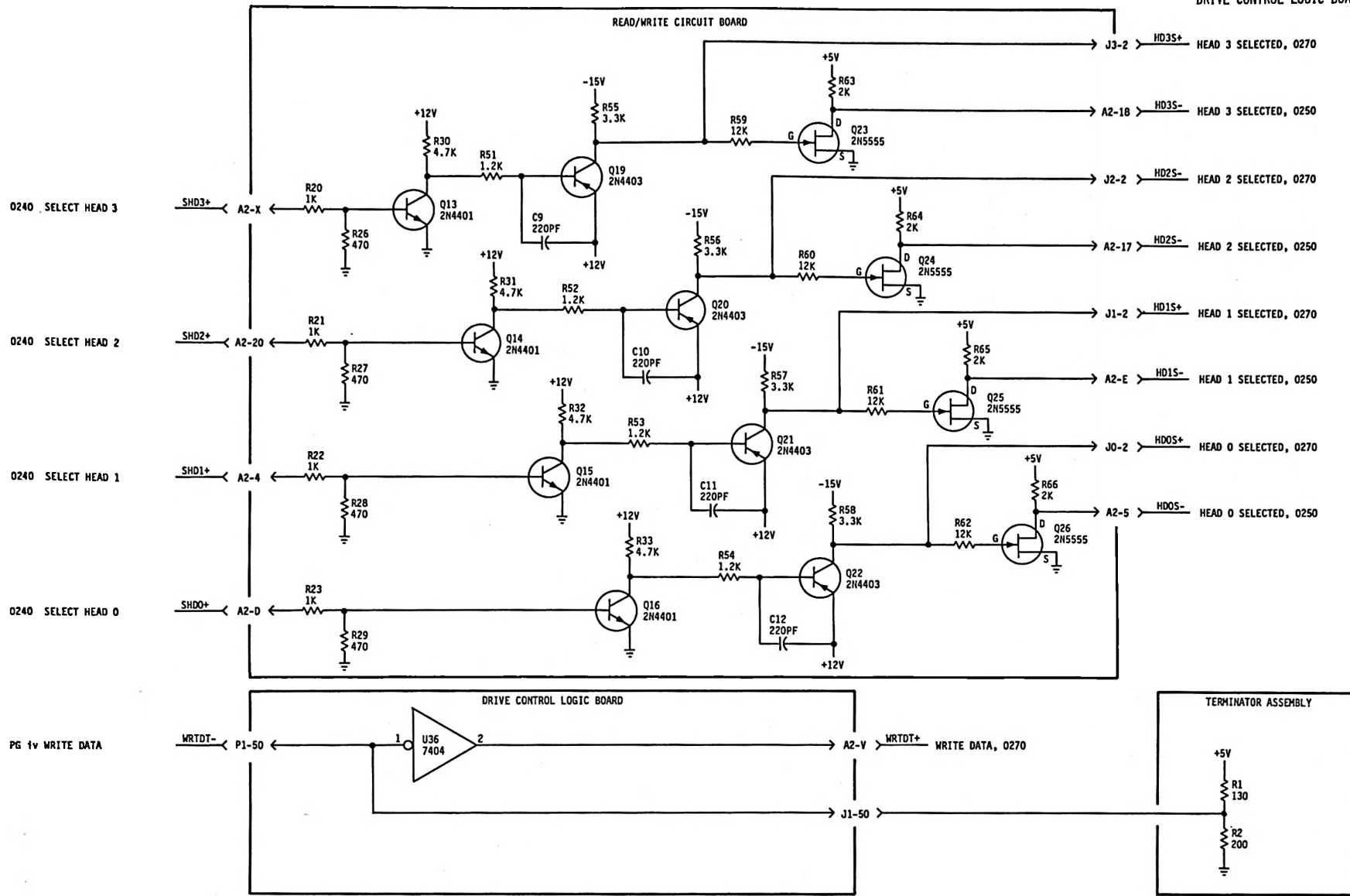
0280 SELECTED READ GATE  
0250 ONLY ONE HEAD SELECTED

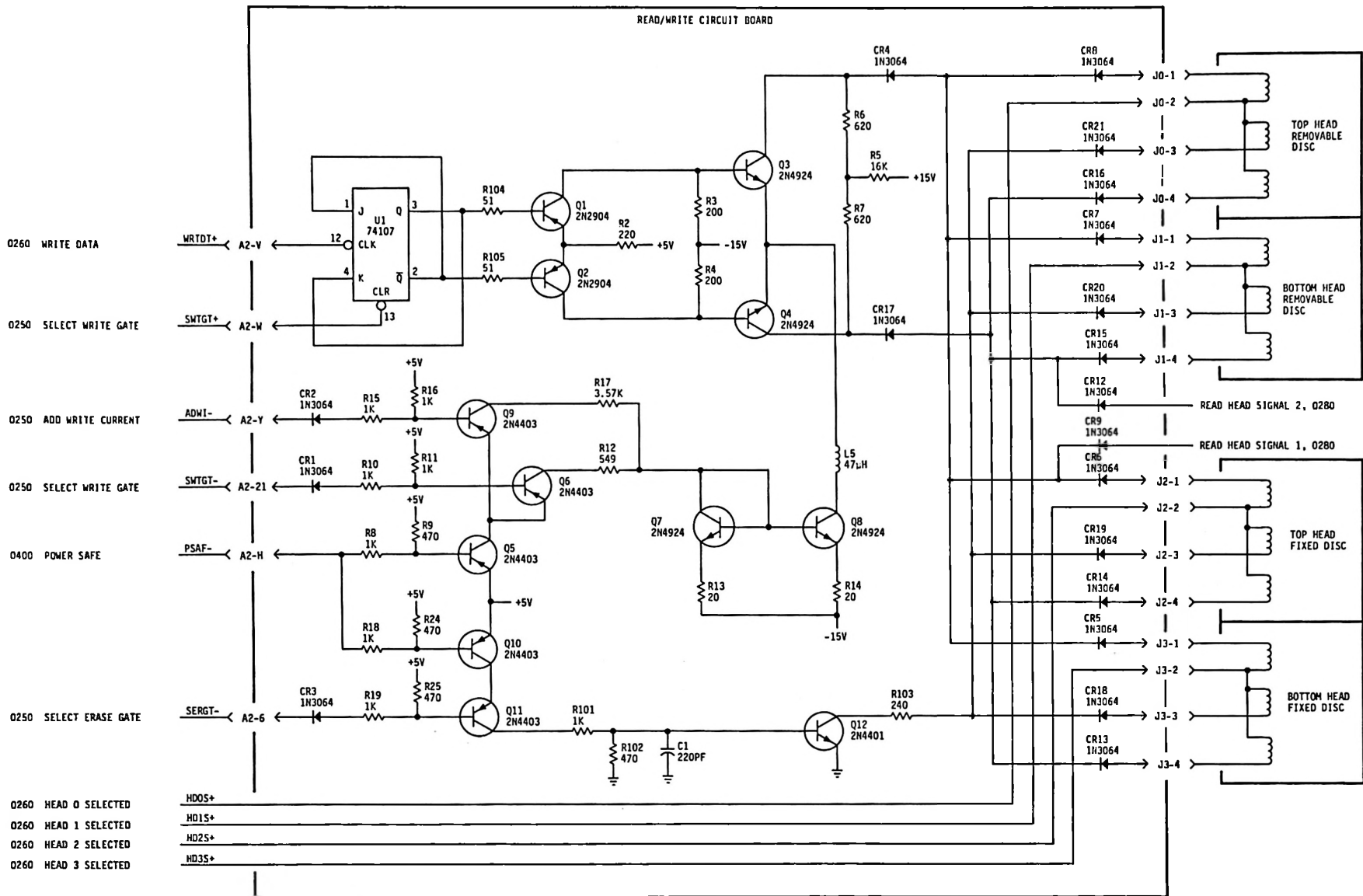
NOT USED

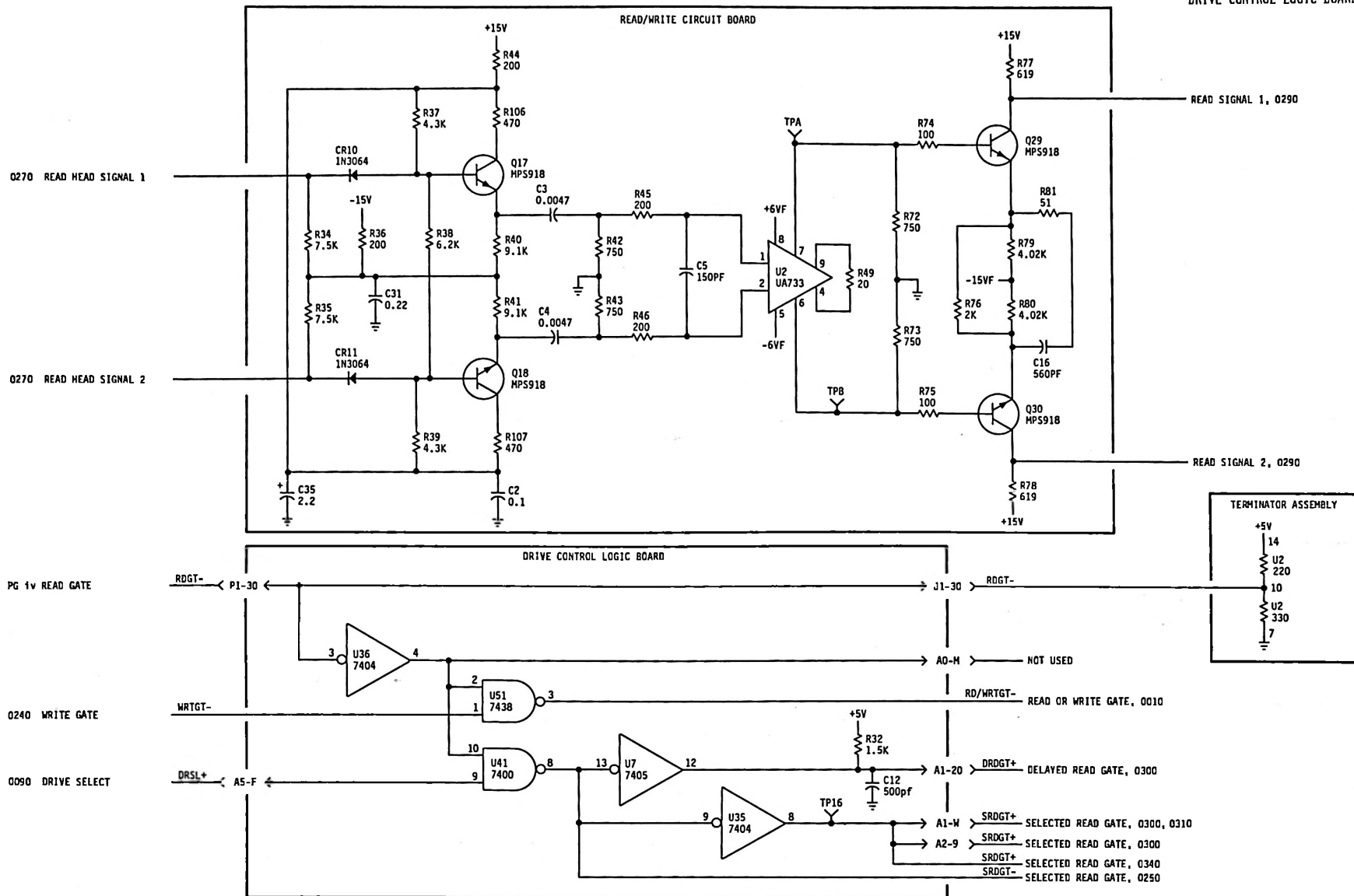
0060 CYLINDER BIT 256



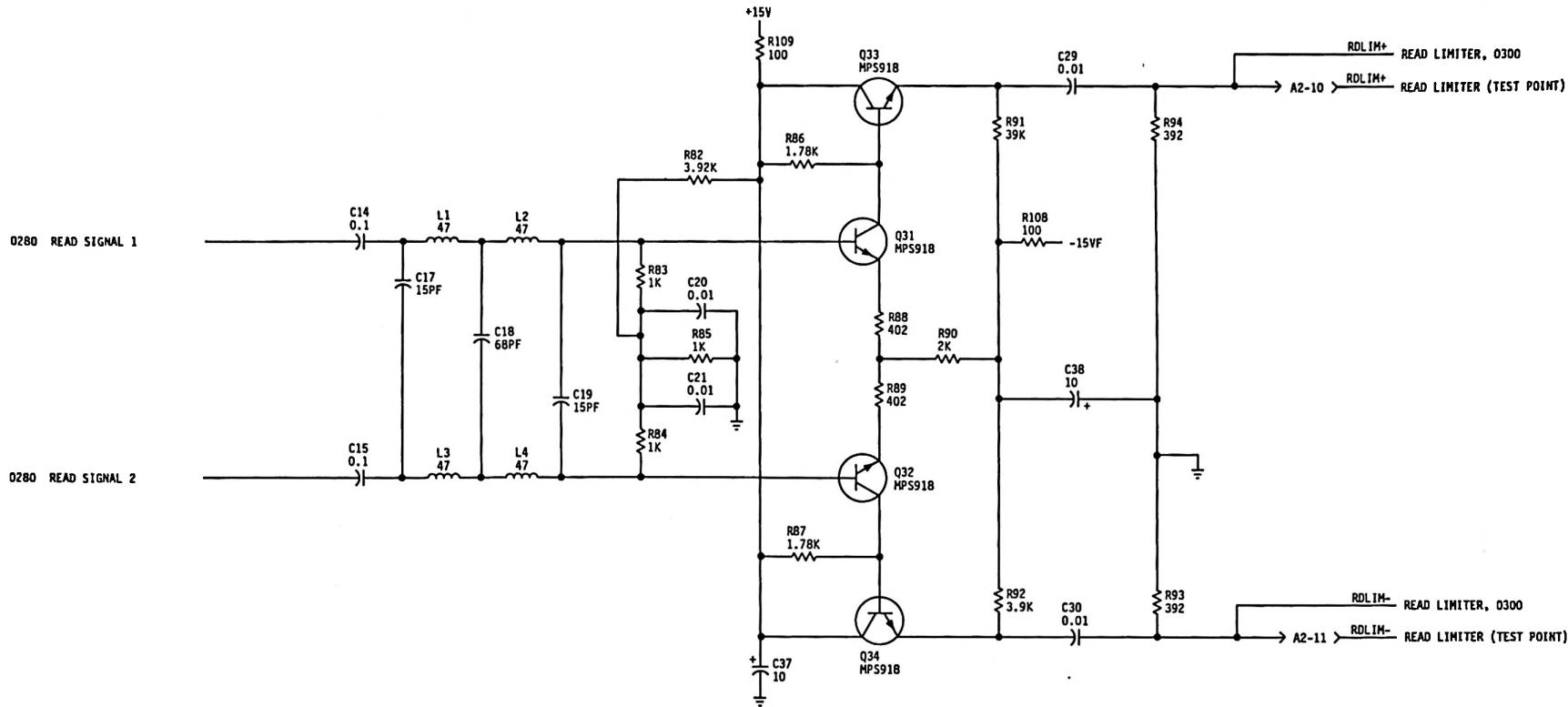
HEAD SELECTION CIRCUITS

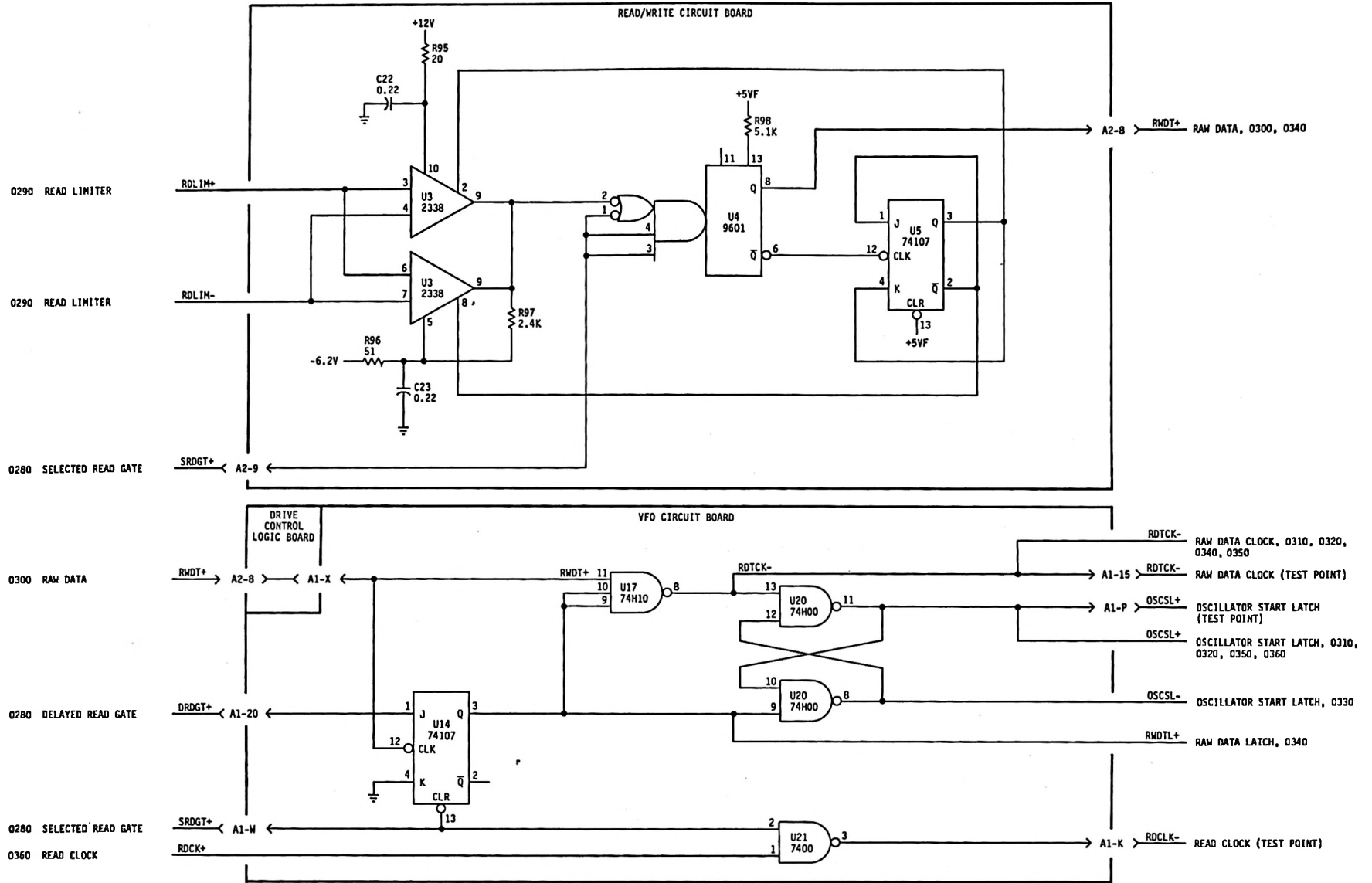


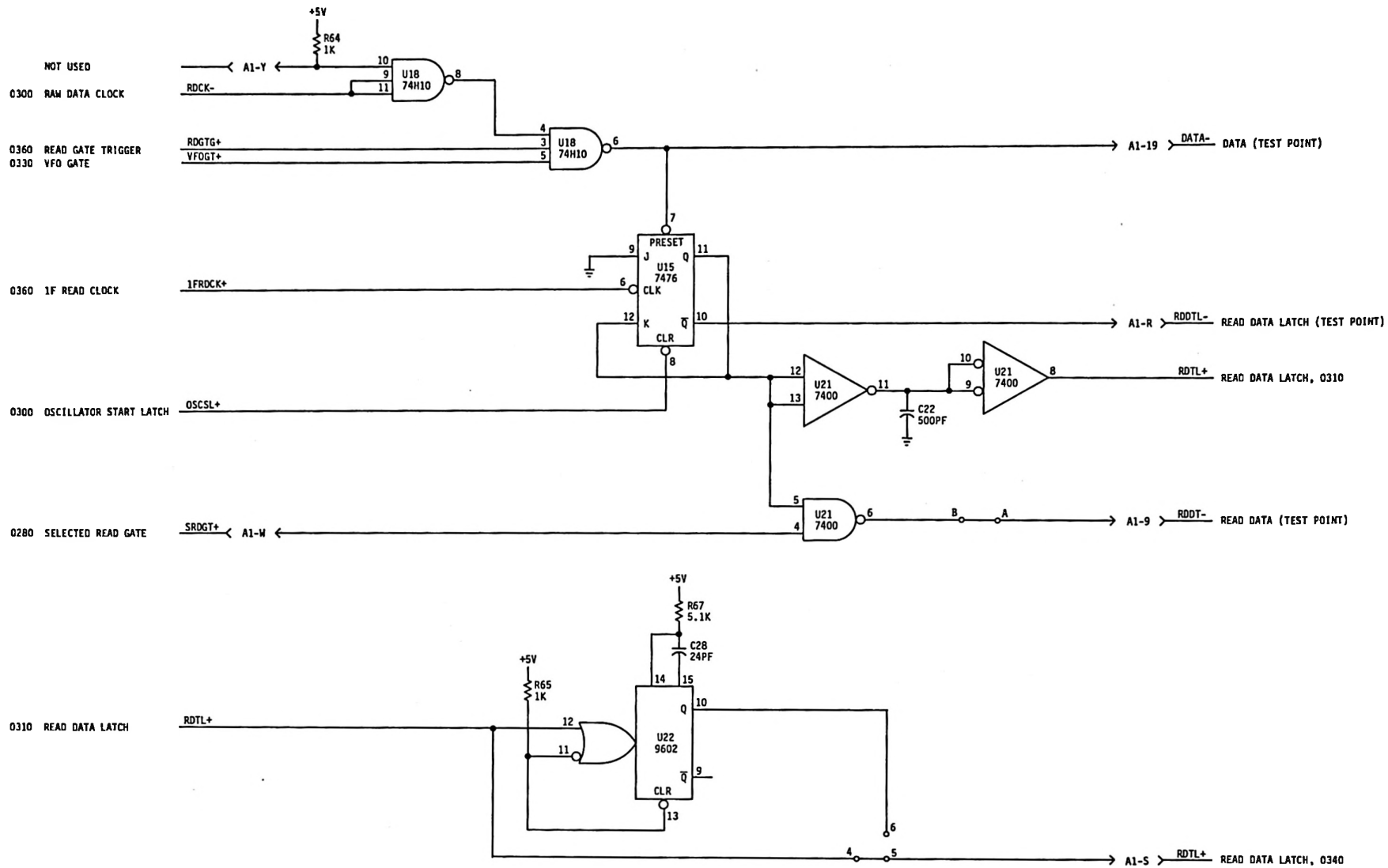


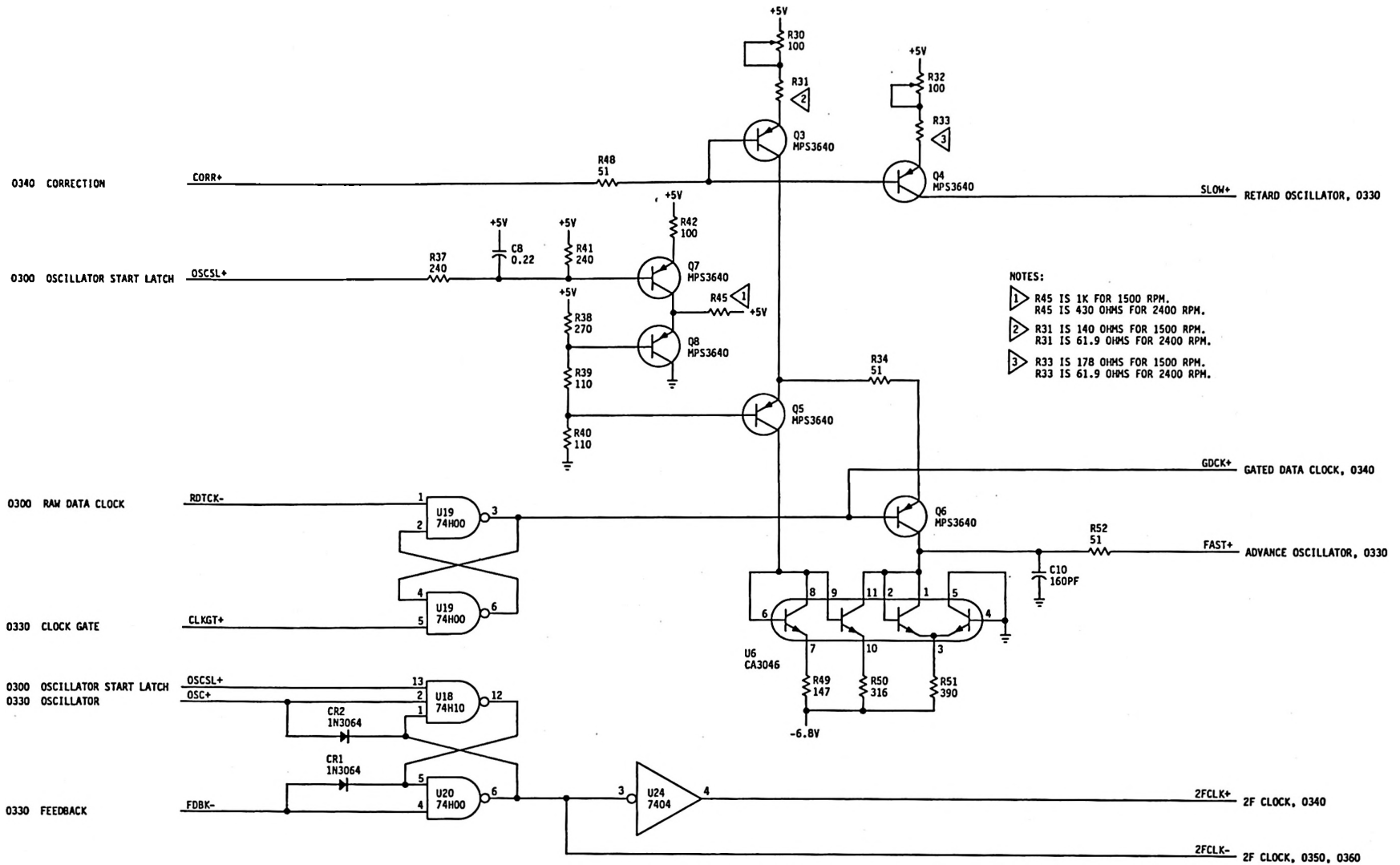









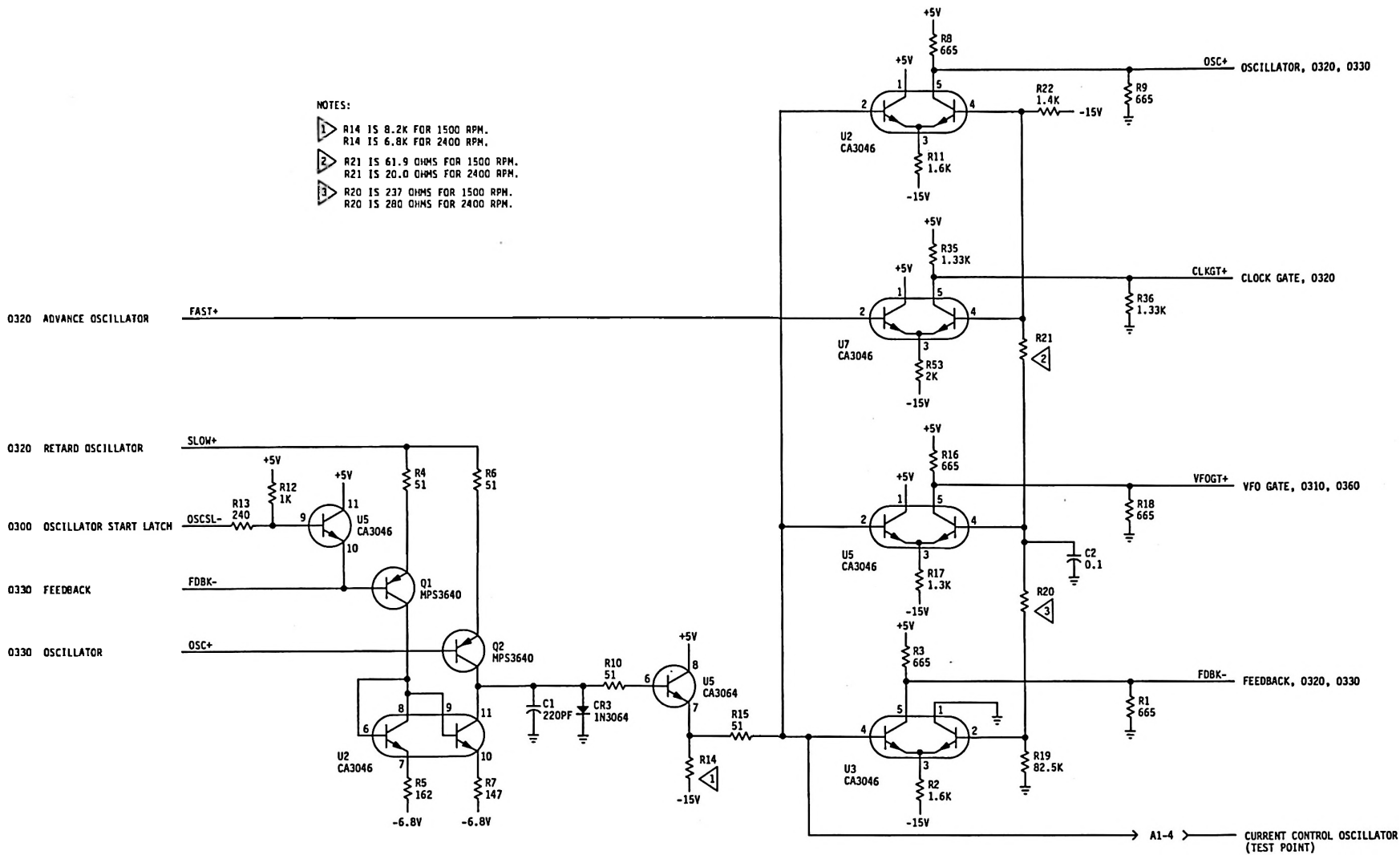


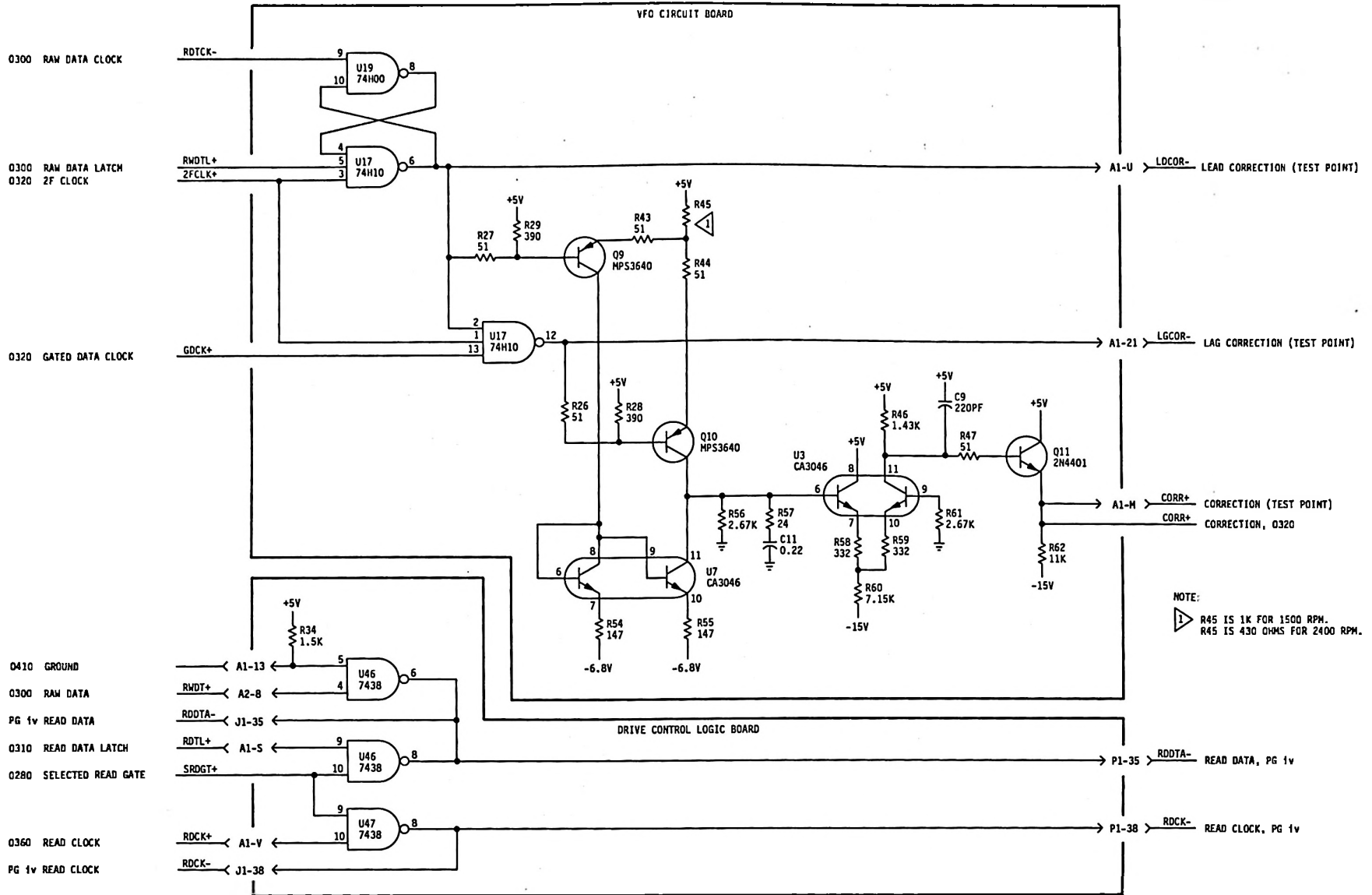


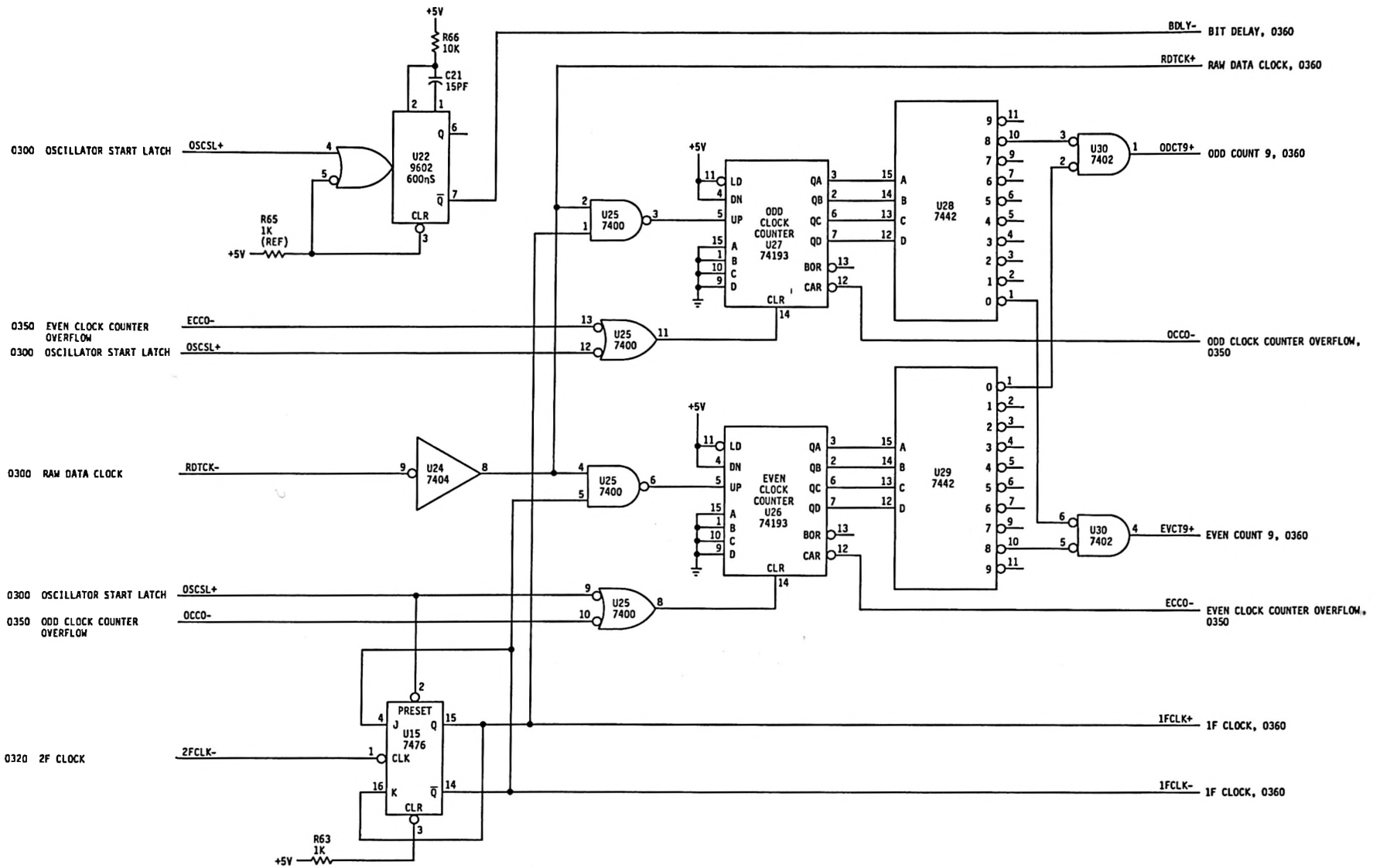


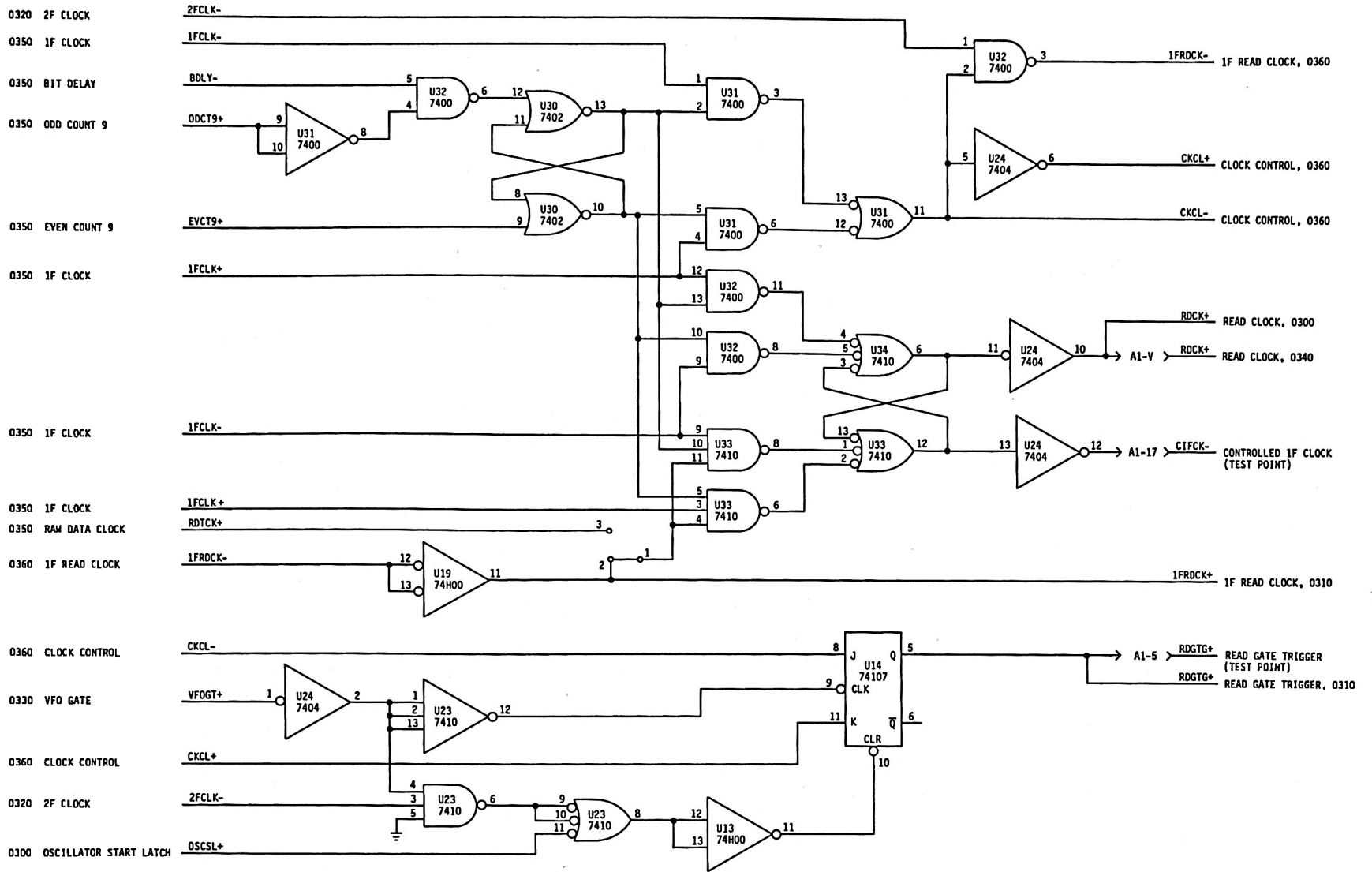
NOTES:

-  R14 IS 8.2K FOR 1500 RPM.  
R14 IS 6.8K FOR 2400 RPM.
-  R21 IS 61.9 OHMS FOR 1500 RPM.  
R21 IS 20.0 OHMS FOR 2400 RPM.
-  R20 IS 237 OHMS FOR 1500 RPM.  
R20 IS 280 OHMS FOR 2400 RPM.

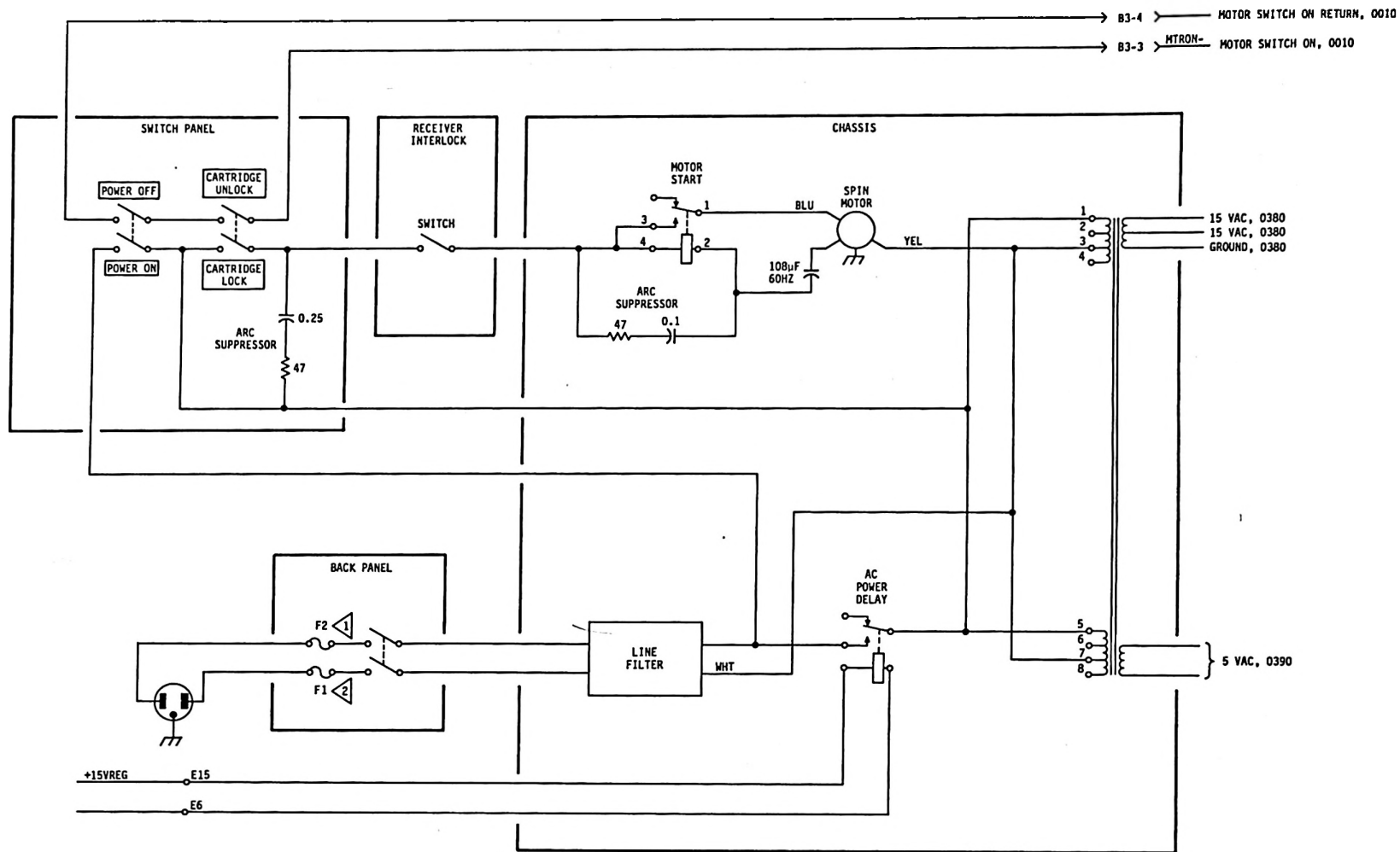








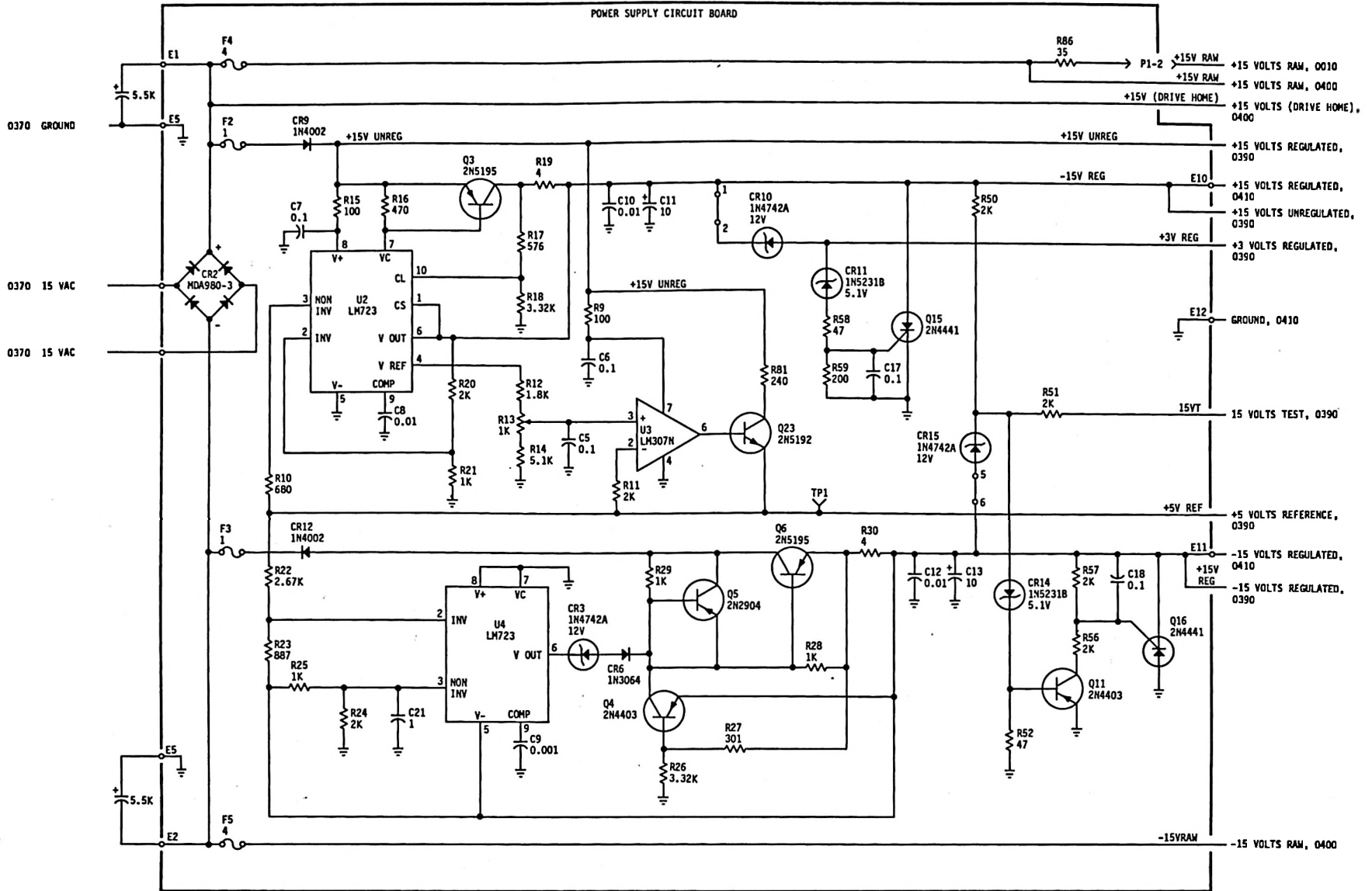




0390 DELAY RELAY  
 0390 DELAY RELAY

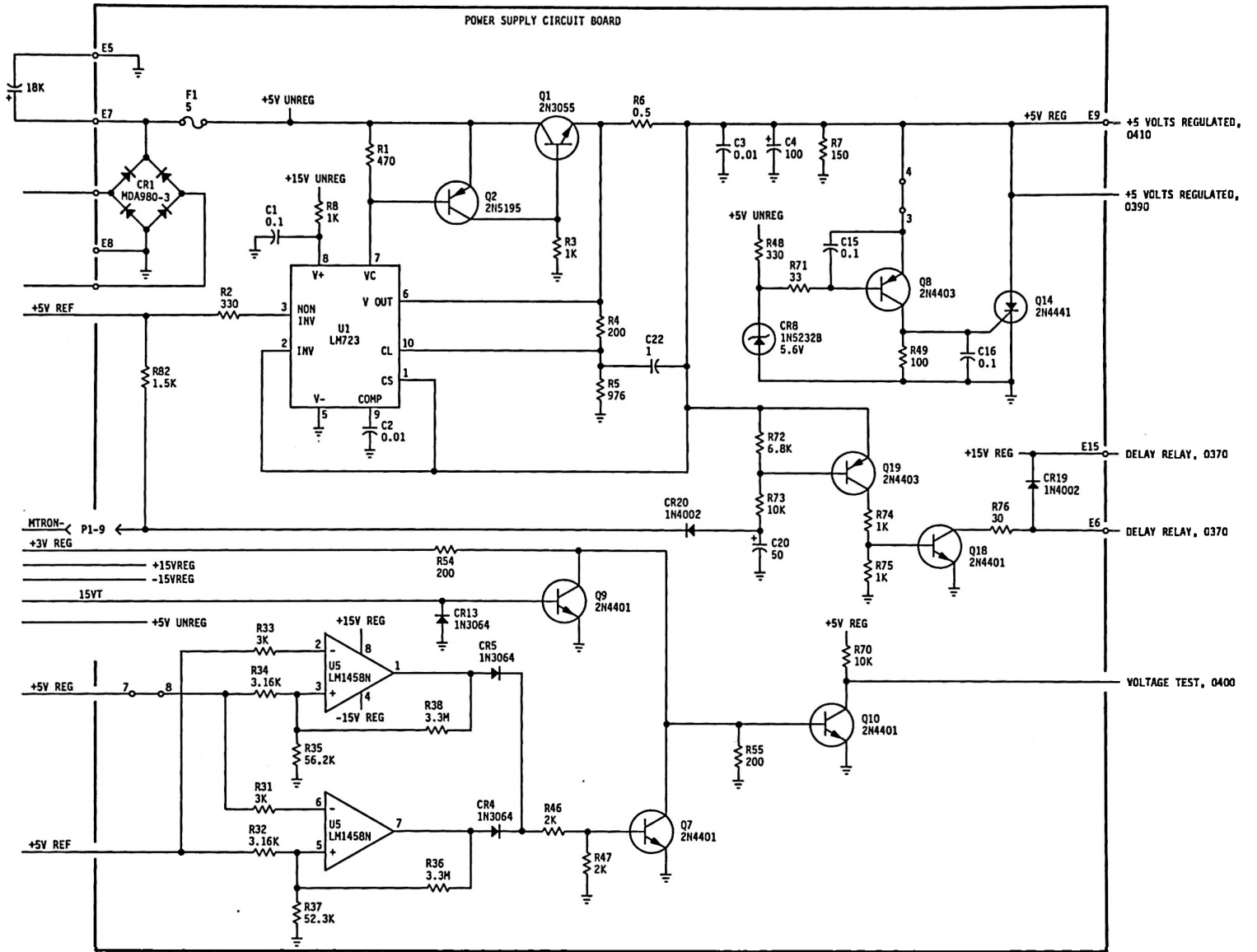
NOTES:

- ① 7A FOR 115V POWER SOURCE.  
4A FOR 220V POWER SOURCE.
- ② NOT FUSED FOR 115V POWER SOURCE.  
4A FOR 220V POWER SOURCE.

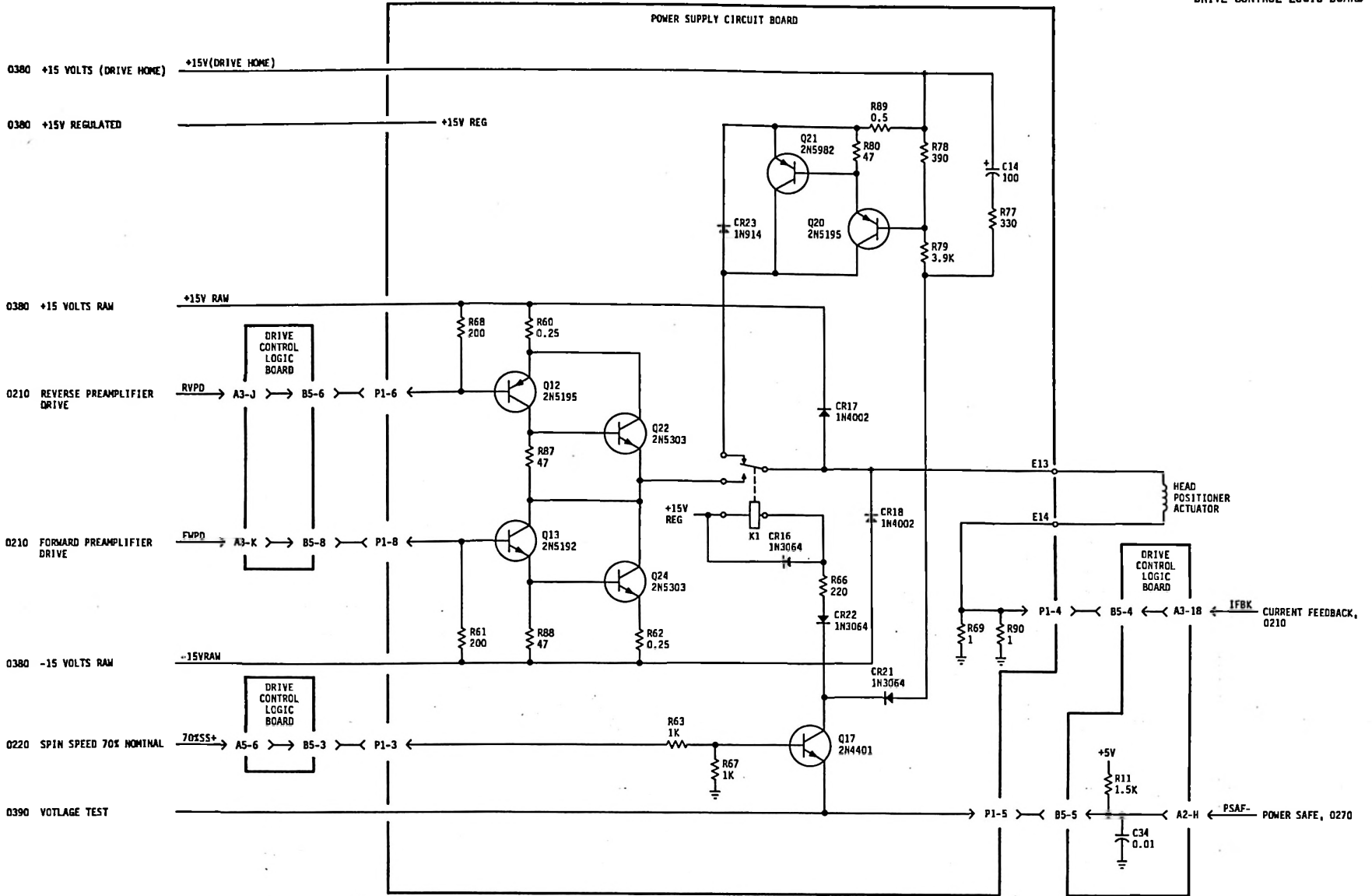


- 0370 5 VAC
- 0370 5 VAC
- 0380 +5 VOLTS REFERENCE

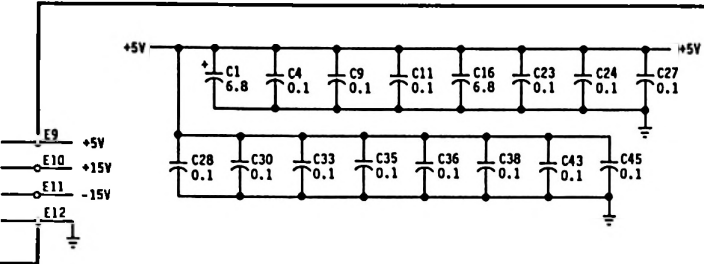
- 0010 MOTOR SWITCH ON
- 0380 +3 VOLTS REGULATED
- 0380 +15 VOLTS REGULATED
- 0380 -15 VOLTS REGULATED
- 0380 15 VOLTS TEST
- 0380 +15 VOLTS UNREGULATED
- 0380 +5 VOLTS REFERENCE
- 0390 +5 VOLTS REGULATED
- 0380 +5 VOLTS REFERENCE



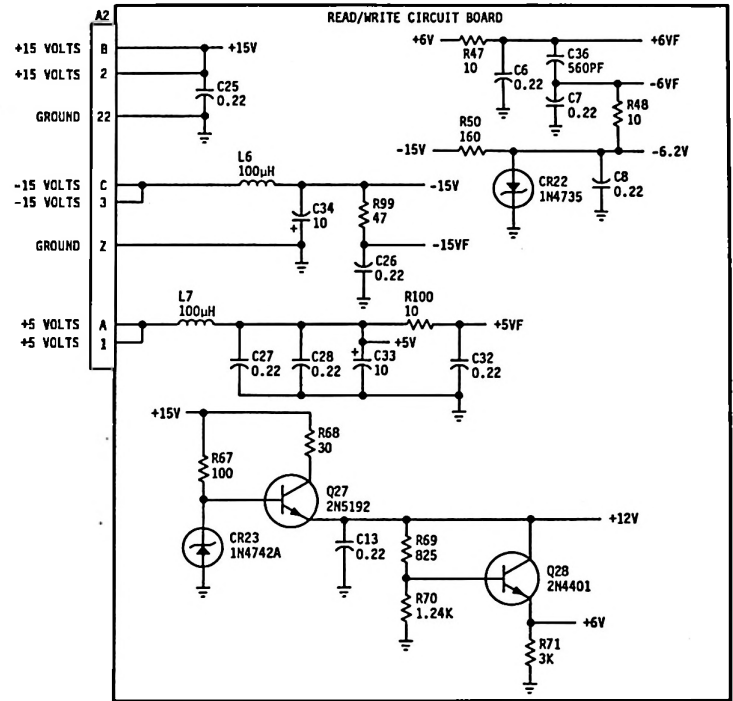
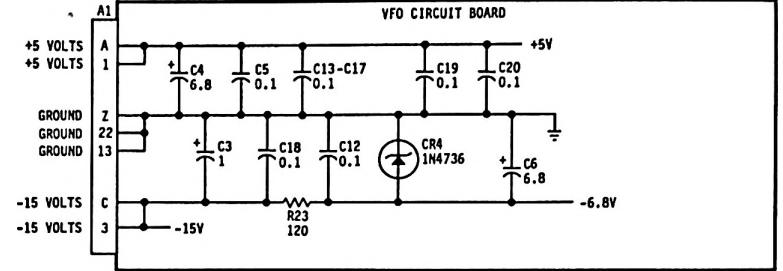
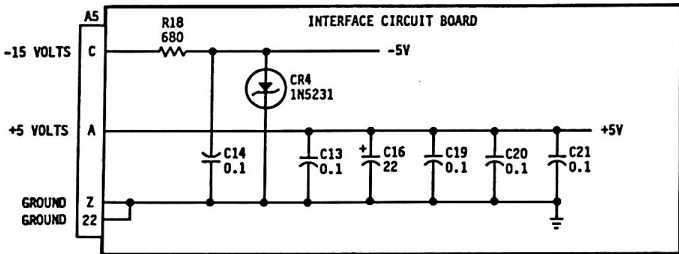
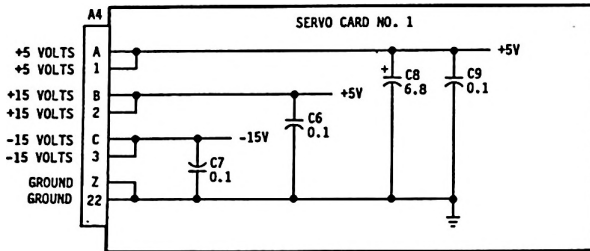
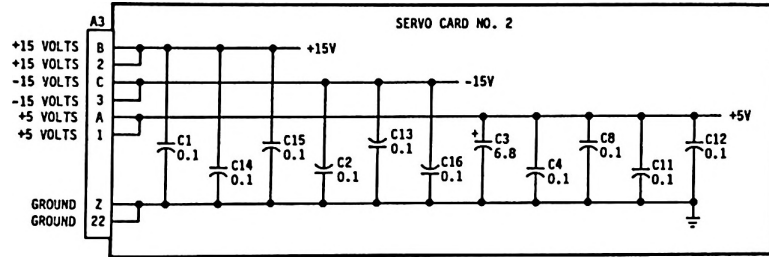
HEAD POSITIONER DRIVE CIRCUITS



0390 +5 VOLTS  
 0380 +15 VOLTS  
 0380 -15 VOLTS  
 0380 GROUND



DRIVE CONTROL LOGIC BOARD



DRIVE CONTROL LOGIC BOARD, SERVO CARD NO. 1, SERVO CARD NO. 2,  
 INTERFACE BOARD, VFO BOARD, AND READ/WRITE CIRCUIT BOARD  
 0410