

Digital Equipment Corporation
Maynard, Massachusetts

digital

**Maintenance Manual
Volume II**

RK8 Disk System

**RK8 DISK SYSTEM
MAINTENANCE MANUAL
VOLUME II**

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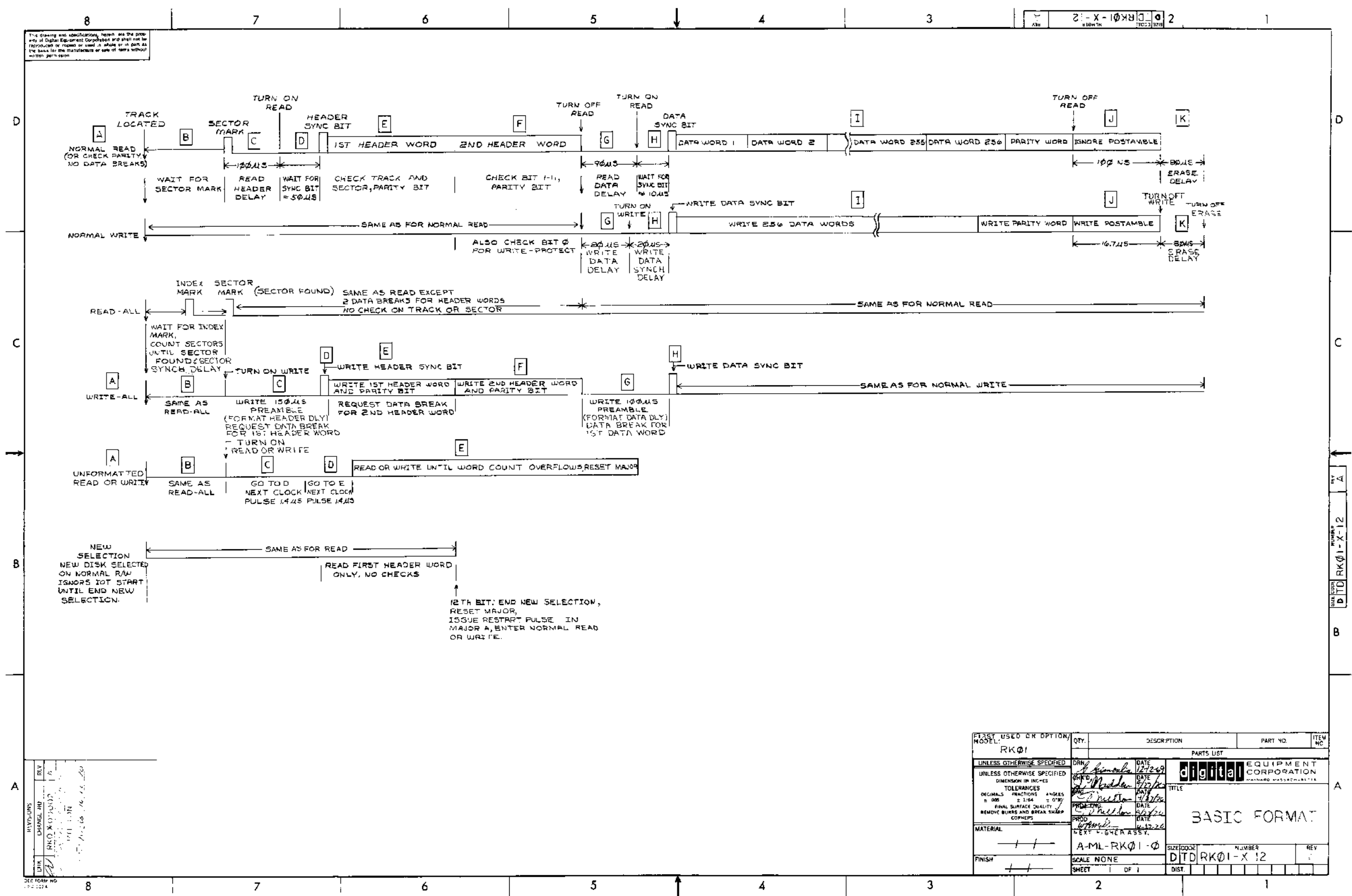
DEC	PDP
FLIP CHIP	FOCAL
DIGITAL	COMPUTER LAB

CONTENTS

Figure Number	Description	Drawing Number
RK01 Disk Drive		
Figure II-1	RK01 Basic Format Diagram	D-TD-RK01-X-12
Figure II-2	RK01 Block Diagram	D-BD-RK01-X-13
Figure II-3	RK01 Flow Diagram	D-FD-RK01-X-14
Figure II-4	RK01/RK08 Timing Diagram	D-TD-RK01-X-15
Figure II-5	Format Delays Block Schematic Diagram	D-BS-RK01-X-01
Figure II-6	Cable to RK08 Block Schematic Diagram	D-BS-RK01-X-09
Figure II-7	Track Seek Block Schematic Diagram	D-BS-RK01-X-02
Figure II-8	Disk and Track Address Block Schematic Diagram	D-BS-RK01-X-03
Figure II-9	Compare Track Address Block Schematic Diagram	D-BS-RK01-X-04
Figure II-10	Disk Selection Block Schematic Diagram	D-BS-RK01-X-05
Figure II-11	Disk Cables Block Schematic Diagram	D-BS-RK01-X-06
Figure II-12	+3V Loads Block Schematic Diagram	D-BS-RK01-X-07
Figure II-13	+3V Clamp Block Schematic Diagram	D-BS-RK01-X-08
RK08 Disk Control		
Figure II-14	IOT Decoding Block Schematic Diagram	D-BS-RK08-0-05 Sheet 1 of 2
Figure II-15	IOT Decoding Block Schematic Diagram	D-BS-RK08-0-05 Sheet 2 of 2
Figure II-16	Skip and Break Block Schematic Diagram	D-BS-RK08-0-06
Figure II-17	Maintenance Register Block Schematic Diagram	D-BS-RK08-0-07
Figure II-18	Major Sequencer Register Block Schematic Diagram	D-BS-RK08-0-08
Figure II-19	R/W Command, Find Sector, End transfer Block Schematic Diagram	D-BS-RK08-0-09
Figure II-20	Read Block Schematic Diagram	D-BS-RK08-0-10
Figure II-21	Write Block Schematic Diagram	D-BS-RK08-0-11
Figure II-22	Data Buffer Block Schematic Diagram	D-BS-RK08-0-12
Figure II-23	Data Shift Register Block Schematic Diagram	D-BS-RK08-0-13
Figure II-24	Longitudinal Parity Block Schematic Diagram	D-BS-RK08-0-14 Sheet 1 of 2
Figure II-25	Longitudinal Parity Block Schematic Diagram	D-BS-RK08-0-14 Sheet 2 of 2

CONTENTS (Cont)

Figure Number	Description	Drawing Number
RK08 Disk Control (Cont)		
Figure II-26	Status Register Block Schematic Diagram	D-BS-RK08-0-15
Figure II-27	Sector Addressing Block Schematic Diagram	D-BS-RK08-0-16 Sheet 1 of 2
Figure II-28	Sector Addressing Block Schematic Diagram	D-BS-RK08-0-16 Sheet 2 of 2
Figure II-29	Bit and Block Counter Block Schematic Diagram	D-BS-RK08-0-17
Figure II-30	Word Count (WC) Register Block Schematic Diagram	D-BS-RK08-0-18
Figure II-31	Current Address and EMA Register Block Schematic Diagram	D-BS-RK08-0-19
Figure II-32	AC Input Gating 00-05 Block Schematic Diagram	D-BS-RK08-0-20
Figure II-33	AC Input Gating 06-11 Block Schematic Diagram	D-BS-RK08-0-21
Figure II-34	AC Memory Buffer (MB) Inverters Block Schematic Diagram	D-BS-RK08-0-22
Figure II-35	+3V Clamps Block Schematic Diagram	D-BS-RK08-0-23
Figure II-36	Cable to RK01-X Block Schematic Diagram	D-BS-RK08-0-24
Figure II-37	I/O and Data Break Cables Block Schematic Diagram	D-BS-RK08-0-25
Figure II-38	Indicator Cables Block Schematic Diagram	D-BS-RK08-0-26
Power Supply		
Figure II-39	Type 716 Power Supply Circuit Schematic Diagram	C-CS-716-0-1
Figure II-40	Type 854 Power Control Panel Wiring Diagram	B-CS-854-0-1
Figure II-41	Type 854 Power Control Panel Component Pin Location Diagram	D-UA-854-0-0
Figure II-42	Register Indicator Panel Circuit Schematic Diagram	D-CS-5408458-0-1
Figure II-43	Control Panel Switch Assembly Diagram	E-AD-7006672-0-0
Figure II-44	AC/DC Power Wiring Diagram	E-IC-RK01-0-2



FIRST USED OR OPTION MODEL:	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK01				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED				
DIMENSION IN INCHES		DATE	12-2-69	
TOLERANCES		DATE	12/2/69	
DECIMALS FRACTIONS ANGLES		DATE	12/2/69	
± .005 ± .001 ± .010		DATE	12/2/69	
FINISH SURFACE QUALITY		DATE	12/2/69	
REMOVE BURRS AND BREAK SHARP CORNERS		DATE	12/2/69	
MATERIAL		DATE	12-12-70	
FINISH		DATE	12-12-70	
A-ML-RK01-0		DATE	12-12-70	
SCALE NONE		DATE	12-12-70	
SHEET 1 OF 1		DATE	12-12-70	
DISY.		DATE	12-12-70	
TITLE		DATE	12-12-70	
BASIC FORMAT		DATE	12-12-70	
SIZE/DWG		DATE	12-12-70	
D1D RK01-X 12		DATE	12-12-70	
NUMBER		DATE	12-12-70	
REV		DATE	12-12-70	

Figure II-1 RK01 Basic Format Diagram

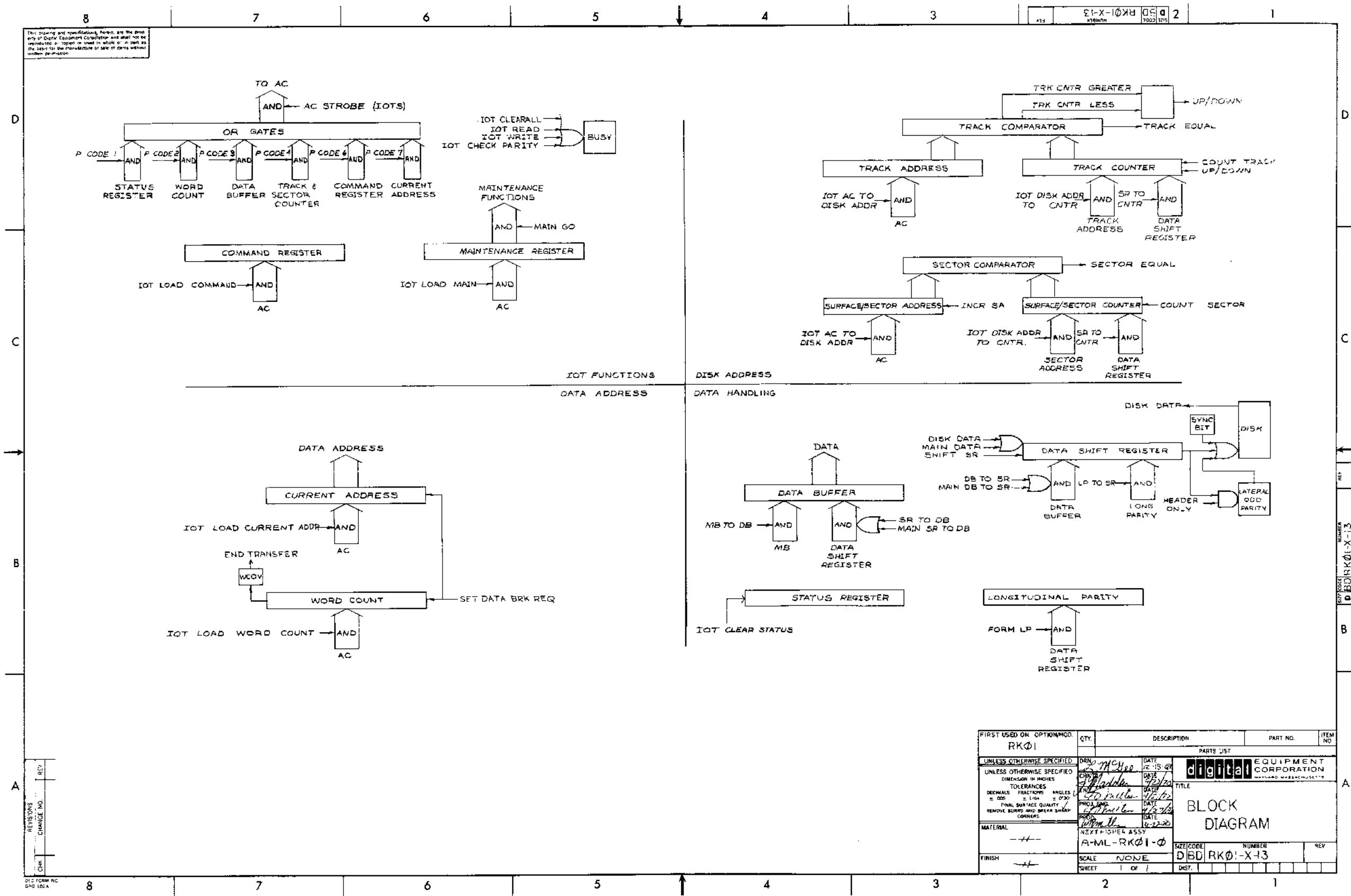


Figure II-2 RK01 Block Diagram

FIRST USED ON	OPTION/NO.	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK01					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED					
DIMENSION IN INCHES					
TOLERANCES					
DECIMALS	FRACTIONS	ANGLES			
± .005	± 1/32	± 0°30'			
FINAL SURFACE QUALITY					
REMOVE BURRS AND BREAK SHARP CORNERS					
MATERIAL	NEXT HIGHER ASSY				
FINISH	A-ML-RK01-0				
SCALE NONE			NUMBER		
SHEET 1 OF 1			D BD RK01-X-13		
			REV		

digital EQUIPMENT CORPORATION

BLOCK DIAGRAM

D BD RK01-X-13

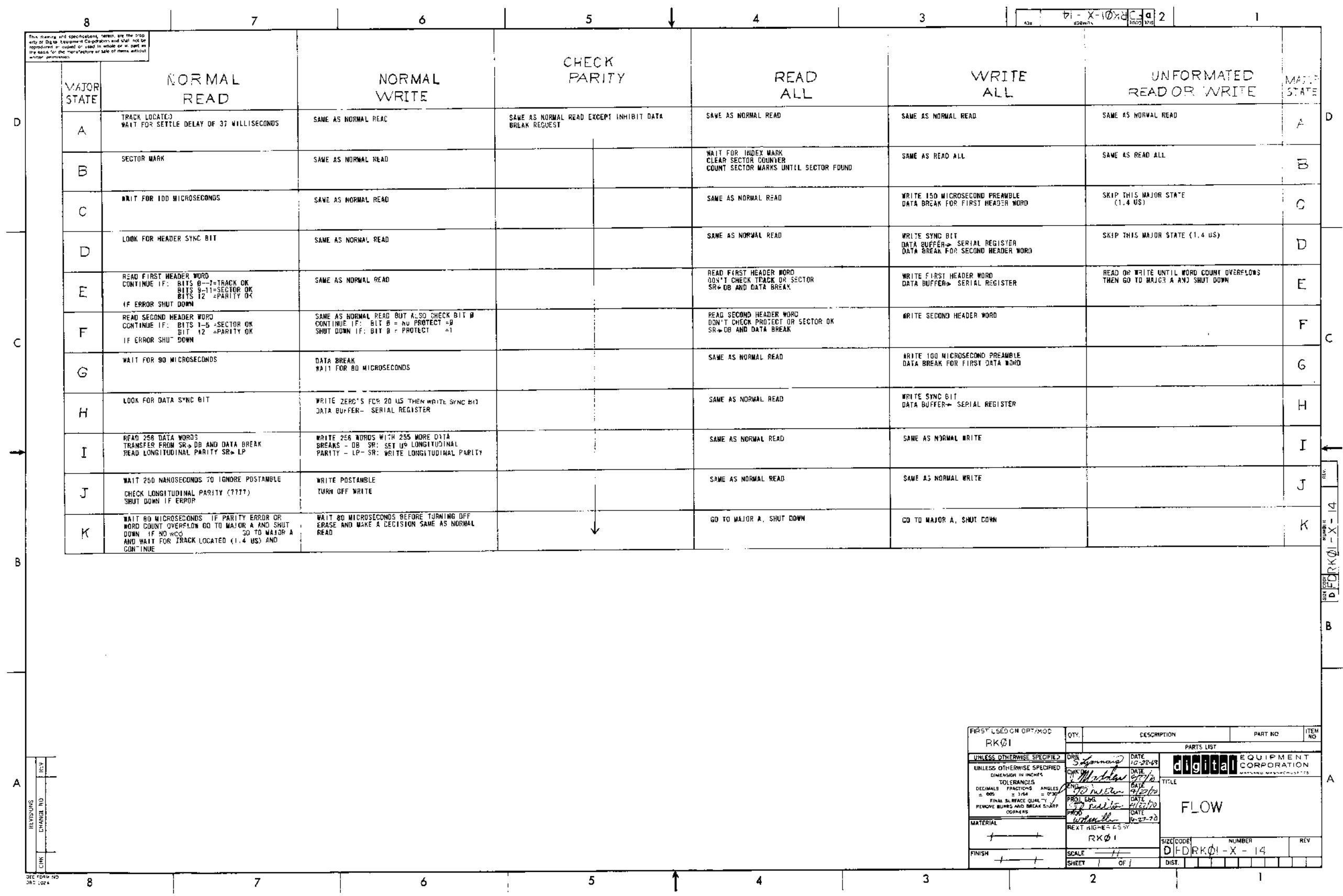


Figure II-3 RK01 Flow Diagram

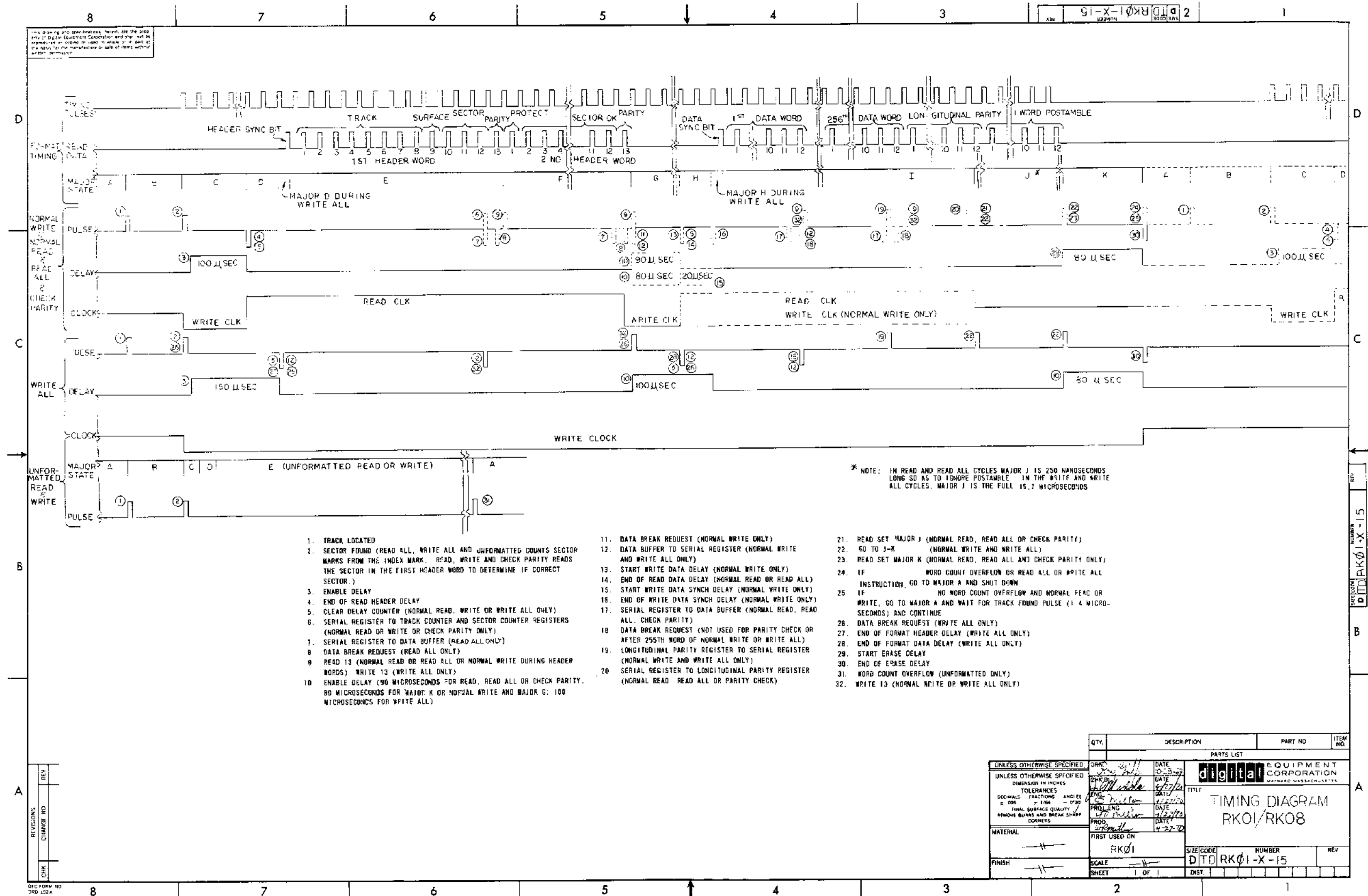


Figure II-4 RK01/RK08 Timing Diagram

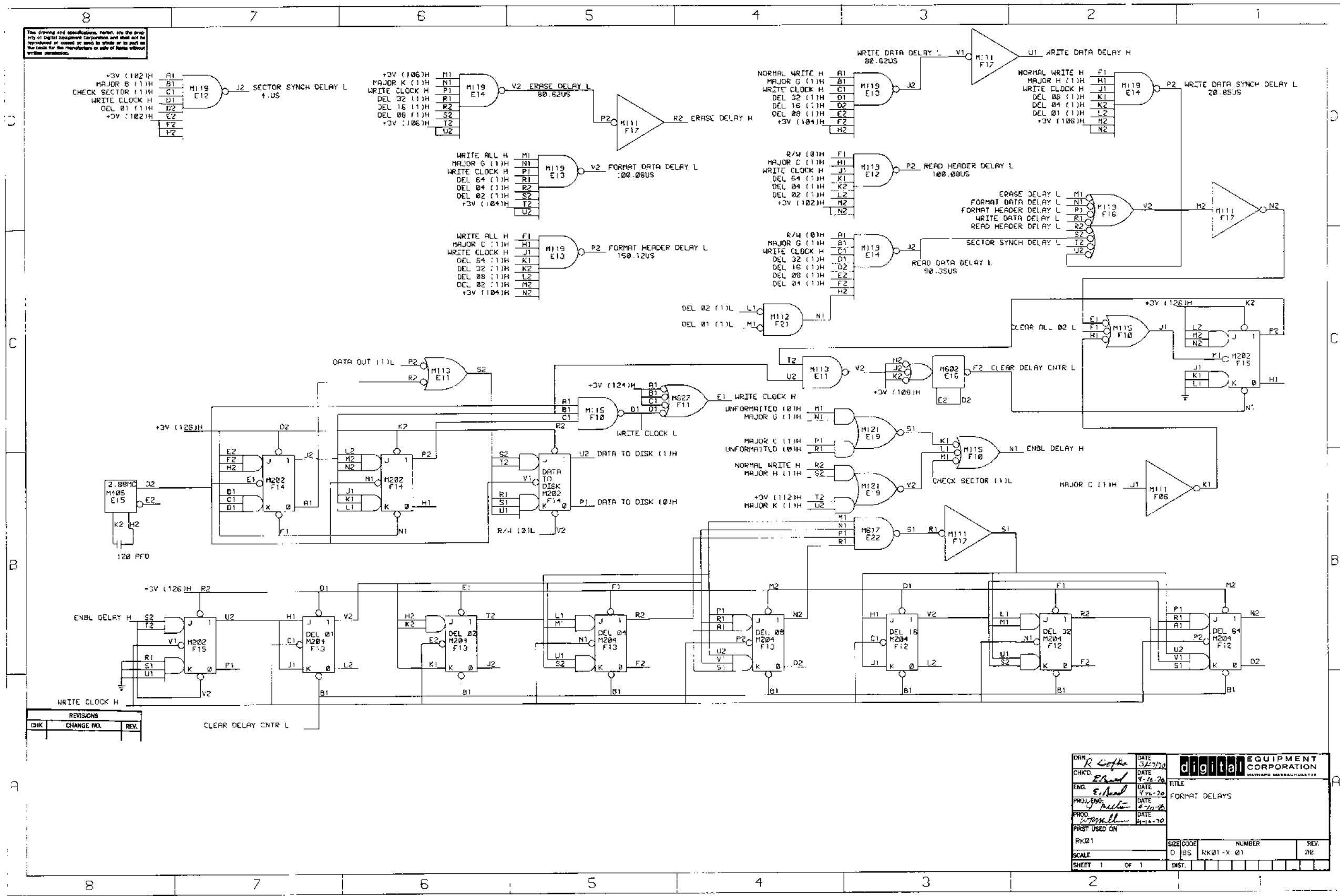


Figure II-5 Format Delays Block Schematic Diagram

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M901
E06

- A1 TRACK LOCATED L
- B1 NEW SELECT I I L
- C1 NEW SELECT PULSE L
- D1 SECTOR PROTECT SW H
- E1 SET TIME OUT ERROR L
- F1 SET TRACK FOUND H
- H1 PROTECT L
- J1 ERASE DELAY L
- K1 SECTOR SYNCH DELAY L
- L1 ERASE DELAY H
- M1 WRITE DATA DELAY H
- N1 WRITE DATA DELAY L
- P1 FORMAT HEADER DELAY L
- R1 READ HEADER DELAY L
- S1 READ DATA DELAY L
- T1 WRITE CLOCK H
- U1 FORMAT DATA DELAY L
- V1 WRITE DATA SYNCH DELAY L

M901
E07

- A1 AC 00 (1)H
- B1 AC 01 (1)H
- C1 AC 02 (1)H
- D1 AC 03 (1)H
- E1 AC 04 (1)H
- F1 AC 05 (1)H
- H1 AC 06 (1)H
- J1 AC 07 (1)H
- K1 AC 08 (1)H
- L1 AC 09 (1)H
- M1 AC 10 (1)H
- N1 AC 11 (1)H
- PT CLEAR ALL 02 H
- RT CLEAR ALL 02 L
- S1 LOAD DISK ADDR H
- T1 LOAD COMMAND H
- U1 TOT START L
- V1 LOAD DISK ADDR L

M901
E08

- A1 TRACK ADDR 00 (1)H
- B1 TRACK ADDR 01 (1)H
- C1 TRACK ADDR 02 (1)H
- D1 TRACK ADDR 03 (1)H
- E1 TRACK ADDR 04 (1)H
- F1 TRACK ADDR 05 (1)H
- H1 TRACK ADDR 06 (1)H
- J1 TRACK ADDR 07 (1)H
- K1 DISK READ CLOCK L
- L1 TOT START H
- M1 MAJOR C (1)H
- N1 MAJOR B (1)H
- P1 MAJOR A (1)H
- R1 MAJOR K (1)H
- S1 I/O CLEAR L
- T1 MAJOR B (1)H
- U1 MAJOR A (1)H
- V1 NEW SELECT (1)H

M901
E06

- A2 EXT DISK 00 (1)H
- B2 EXT DISK 01 (1)H
- C2 EXT DISK 02 (1)H
- D2 INDEX PULSE H
- E2 SECTOR PULSE H
- F2 DISK READ DATA H
- H2 SET NON-DRIVE ERROR L
- J2 TRACK EQUAL L
- K2 SR 00 (1)H
- L2 SR 01 (1)H
- M2 SR 02 (1)H
- N2 SR 03 (1)H
- P2 SR 04 (1)H
- R2 SR 05 (1)H
- S2 SR 06 (1)H
- T2 SR 07 (1)H
- U2 SR TO COUNTER H
- V2 RESET NEW SELECT H

M901
E07

- A2 DISK ADDR TO COUNTER H
- B2 UNFORMATTED (0)H
- C2 MAIN 00 (1)H
- D2 LOAD COMMAND L
- E2 R/W (0)H
- F2 R/W (0)H
- H2 SELECT SURFACE (1)H
- J2 CHECK SECTOR (1)H
- K2 CHECK SECTOR (1)H
- L2 DATA OUT (1)H
- M2 NORMAL WRITE H
- N2 SEEK TRACK (0)H
- P2 SEEK TRACK (1)H
- R2 UNFORMATTED WRITE L
- S2 WRITE ALL L
- T2 WRITE ALL H
- U2 BUSY (0)H
- V2 NORMAL R/W H

M901
E08

- A2 TRACK CNTR 00 (1)H
- B2 TRACK CNTR 01 (1)H
- C2 TRACK CNTR 02 (1)H
- D2 TRACK CNTR 03 (1)H
- E2 TRACK CNTR 04 (1)H
- F2 TRACK CNTR 05 (1)H
- H2 TRACK CNTR 06 (1)H
- J2 TRACK CNTR 07 (1)H
- K2 WRITE CLOCK L
- L2 RESET TRK SEC CNTRS L
- M2 DM ERRPR (1)H
- N2 ERASE (1)H
- P2 WRITE FLOP (1)H
- R2
- S2 INITIALIZE L
- T2
- U2
- V2 MAJOR D+E+F+H+I+P

REVISIONS		
CHK	CHANGE NO.	REV.


DRW: <i>S. Shaw</i>	DATE: 5-22-70	 digital EQUIPMENT CORPORATION <small>MAYNARD, MASSACHUSETTS</small>
CHKD: <i>S. Shaw</i>	DATE: 4-14-70	
ENG: <i>S. Shaw</i>	DATE: 4-14-70	TITLE: CABLE TO RK08
PROJ. ENG: <i>S. Shaw</i>	DATE: 4-14-70	
PROD: <i>W. Merrill</i>	DATE: 4-14-70	
FIRST USED ON: RK01		
SCALE: 1	SIZE CODE: D I C	NUMBER: RK01-X-09
SHEET 1 OF 1	DIST.	REV: 02

Figure II-6 Cable to RK08 Block Schematic Diagram

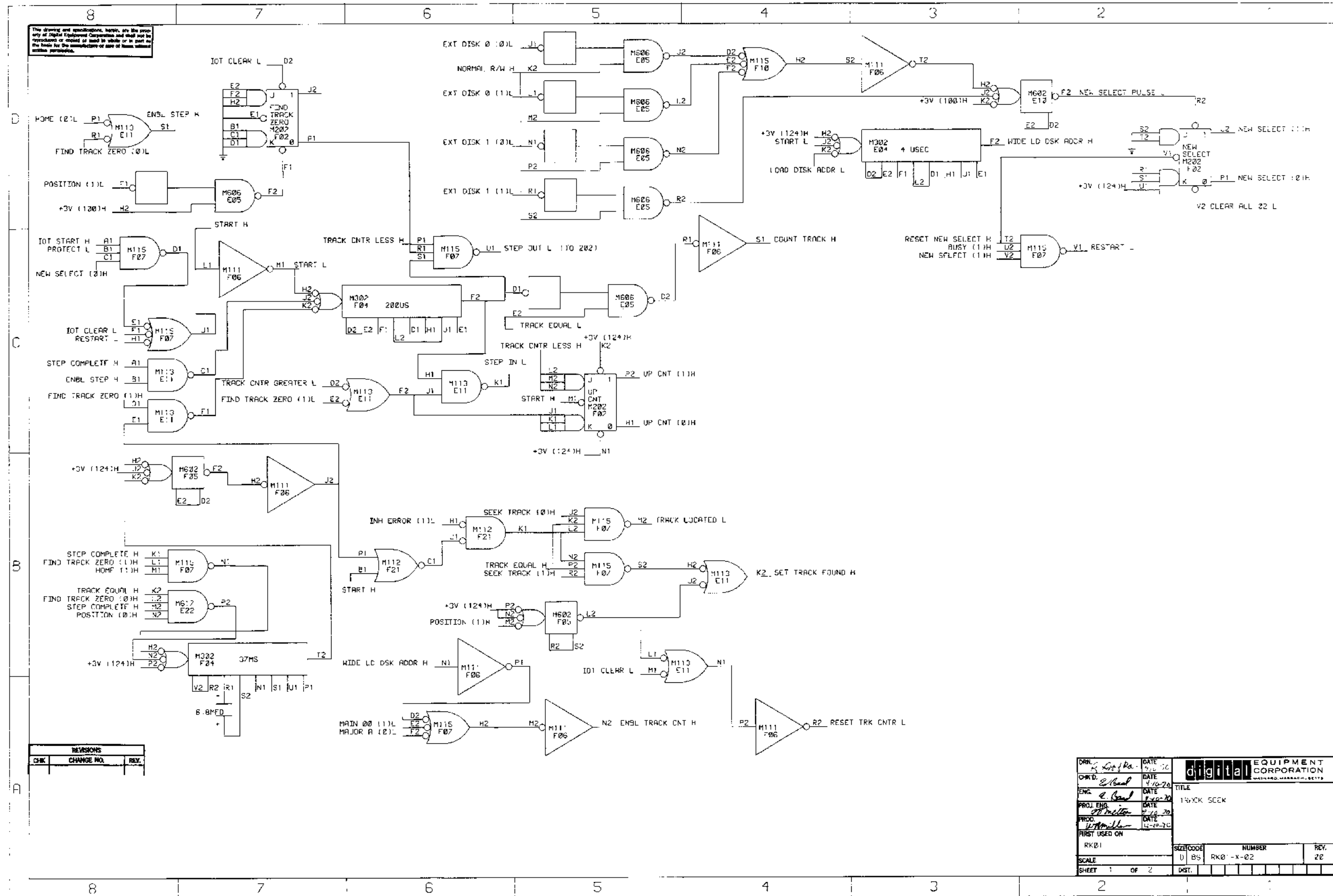
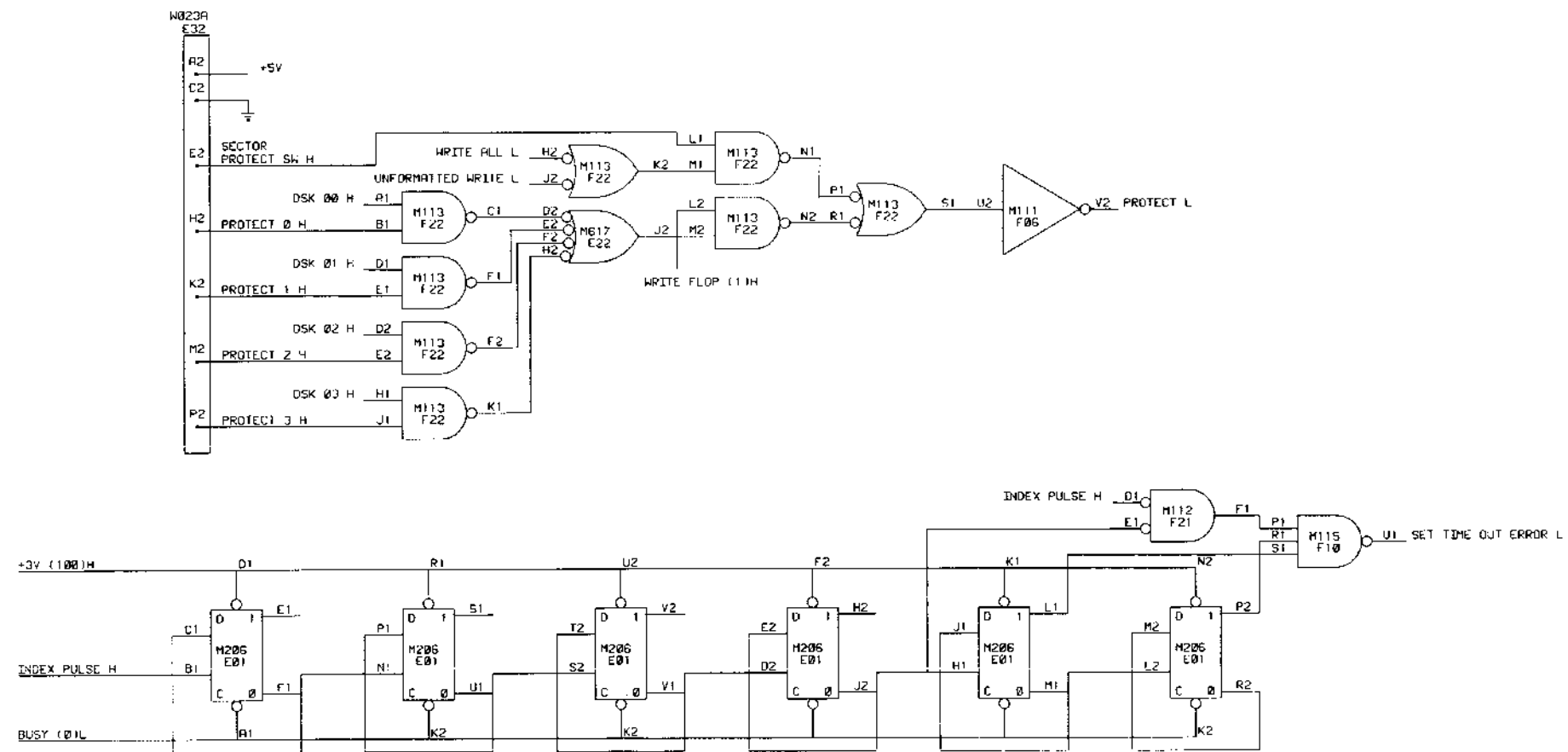


Figure II-7 Track Seek Block Schematic Diagram (Sheet 1)

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CHK'D: E. Reed	DATE: 4/10/70	
ENG: E. Reed	DATE: 4/10/70	TITLE: TRACK SEEK
PROJ. ENG: J. Miller	DATE: 4/10/70	
PROD. W. Brimmer	DATE: 4/10/70	
FIRST USED ON		
RK01	SIZE CODE: D BS	NUMBER: RK01-X-02
SCALE:		REV. 00
SHEET 2 OF 2	DIST.	

Figure II-7 Track Seek Block Schematic Diagram (Sheet 2)

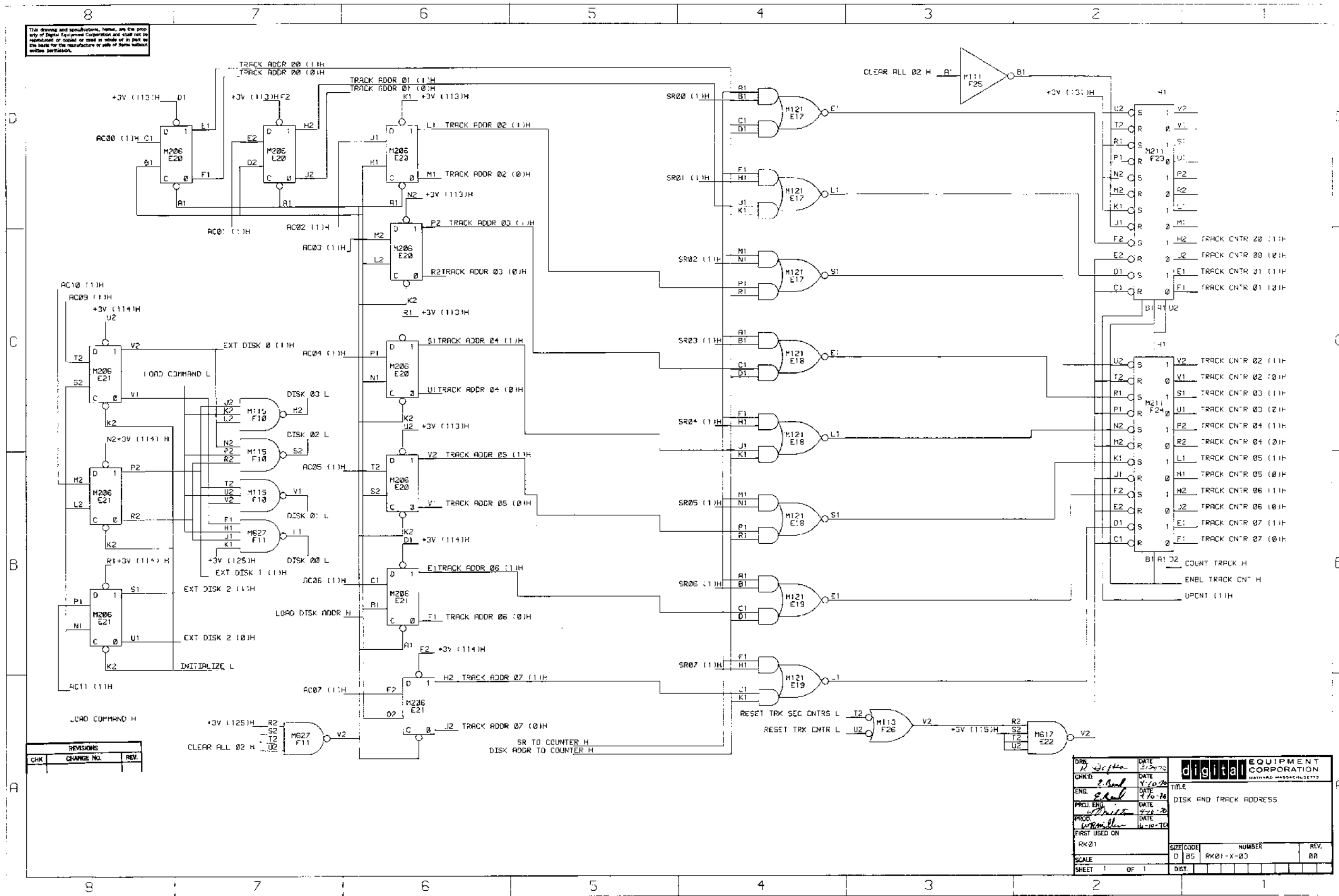


Figure II-8 Disk and Track Address Block Schematic Diagram

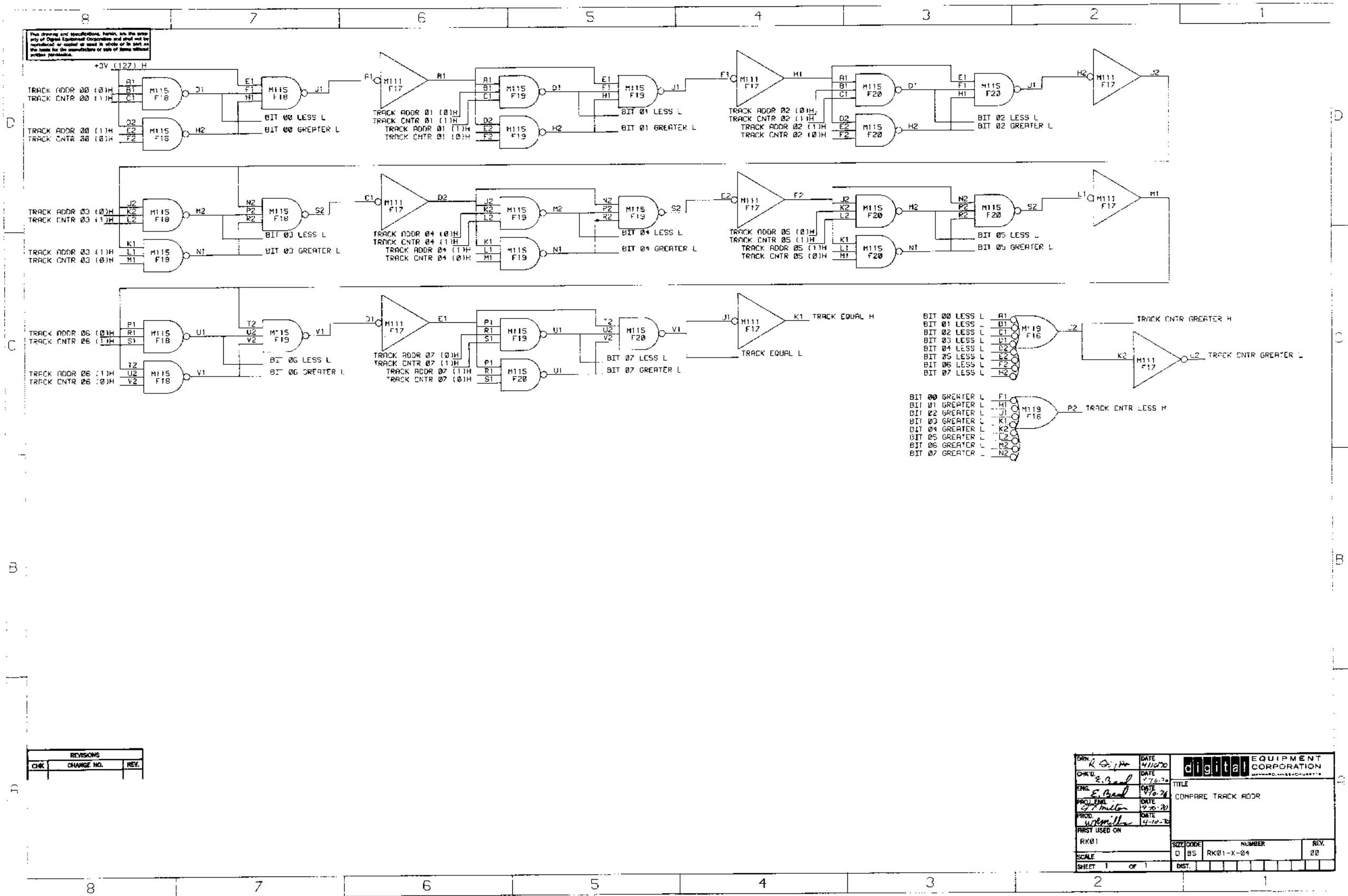
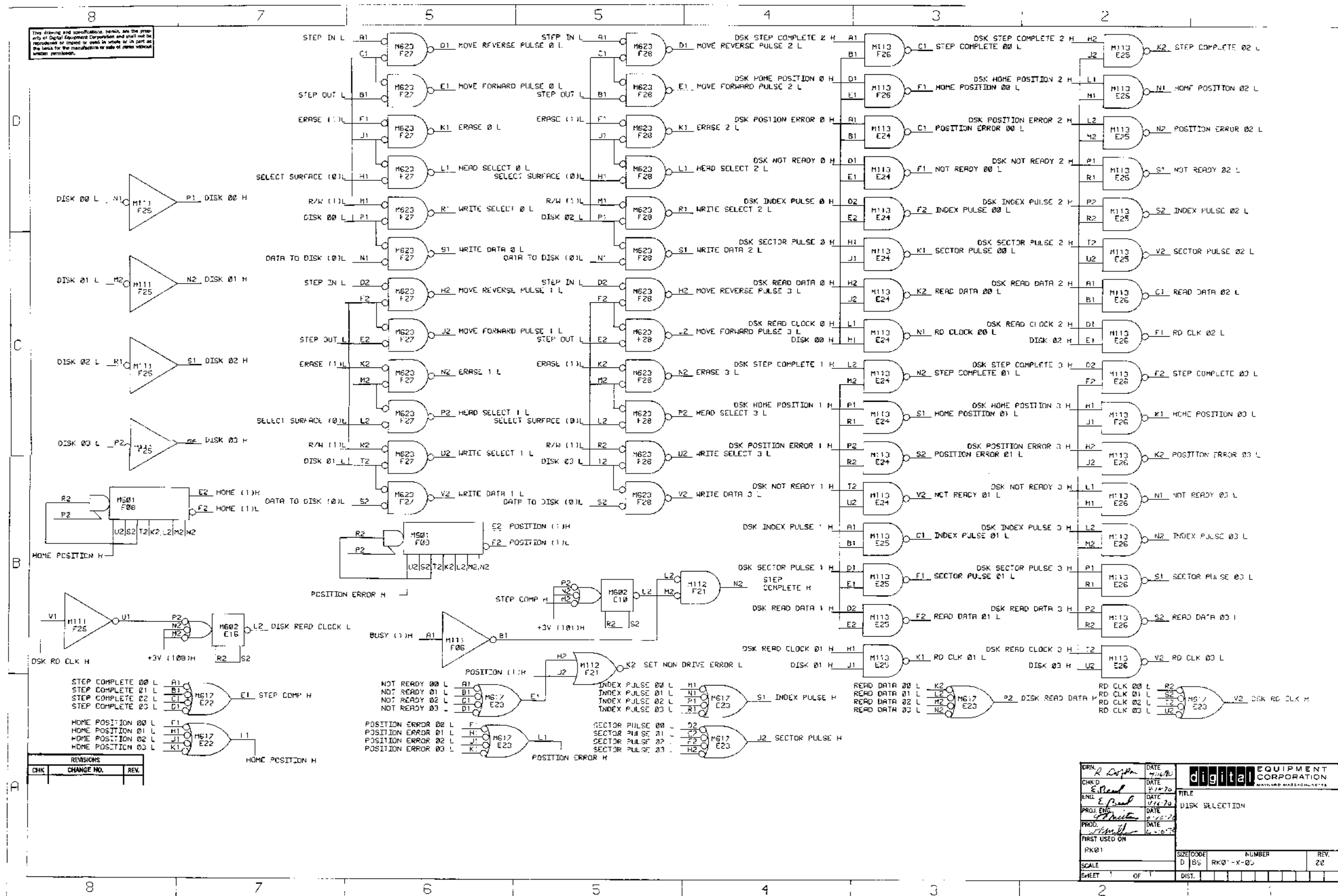


Figure II-9 Compare Track Address Block Schematic Diagram



DRN. <i>R. Dwyer</i>	DATE <i>4-11-70</i>	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D <i>E. Paul</i>	DATE <i>4-11-70</i>	
ENGR. <i>E. Paul</i>	DATE <i>4-11-70</i>	TITLE
PROJ. ENG. <i>W. Smith</i>	DATE <i>4-11-70</i>	DISK SELECTION
PROD. <i>W. Smith</i>	DATE <i>4-11-70</i>	
FIRST USED ON		
RK01	SIZE/CODE	NUMBER
SCALE	D 8S	RK01-X-03
SHEET 1 OF 1	DIST.	REV. 20

Figure II-10 Disk Selection Block Schematic Diagram

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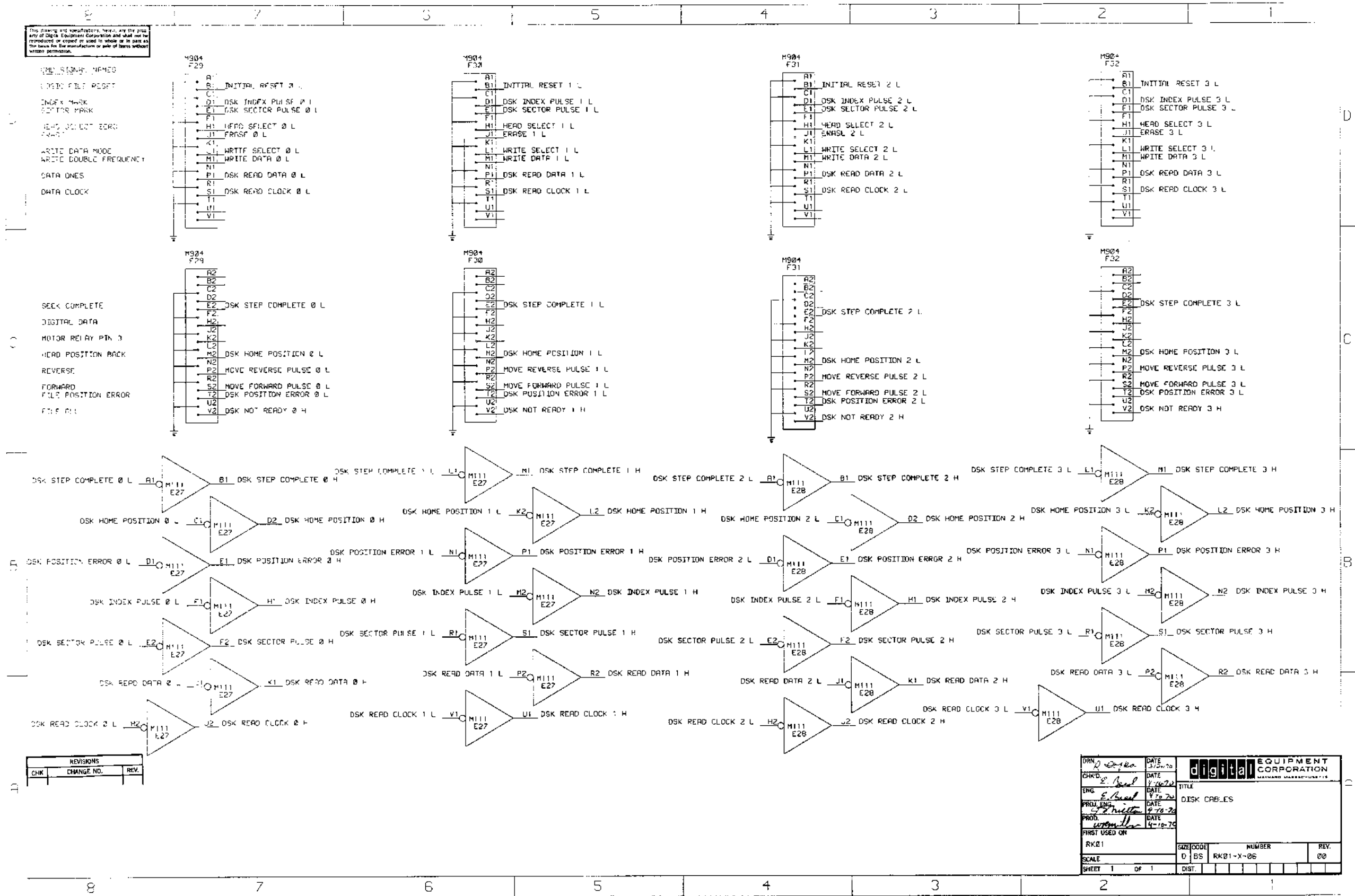


Figure II-11 Disk Cables Block Schematic Diagram

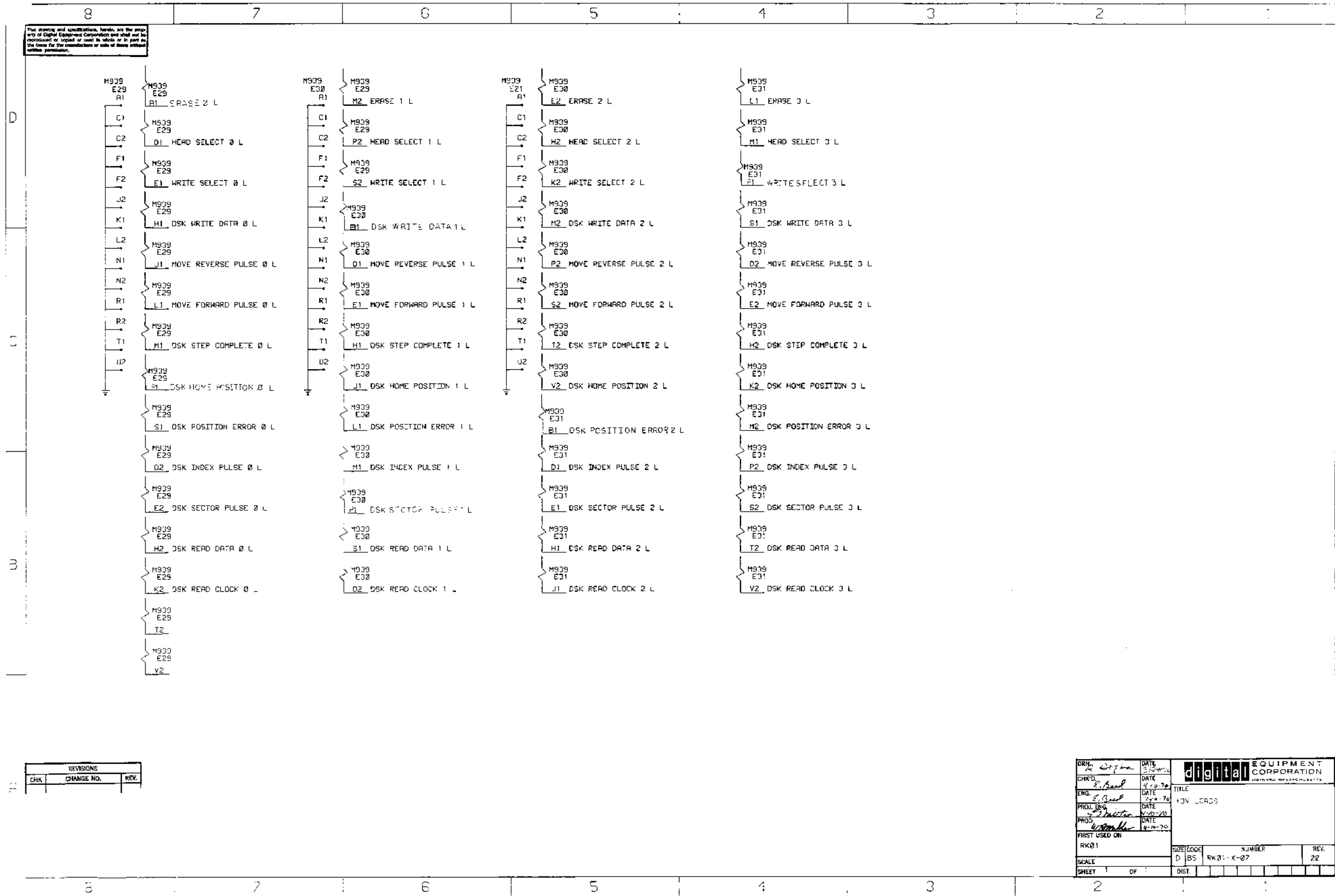


Figure II-12 +3V Loads Block Schematic Diagram

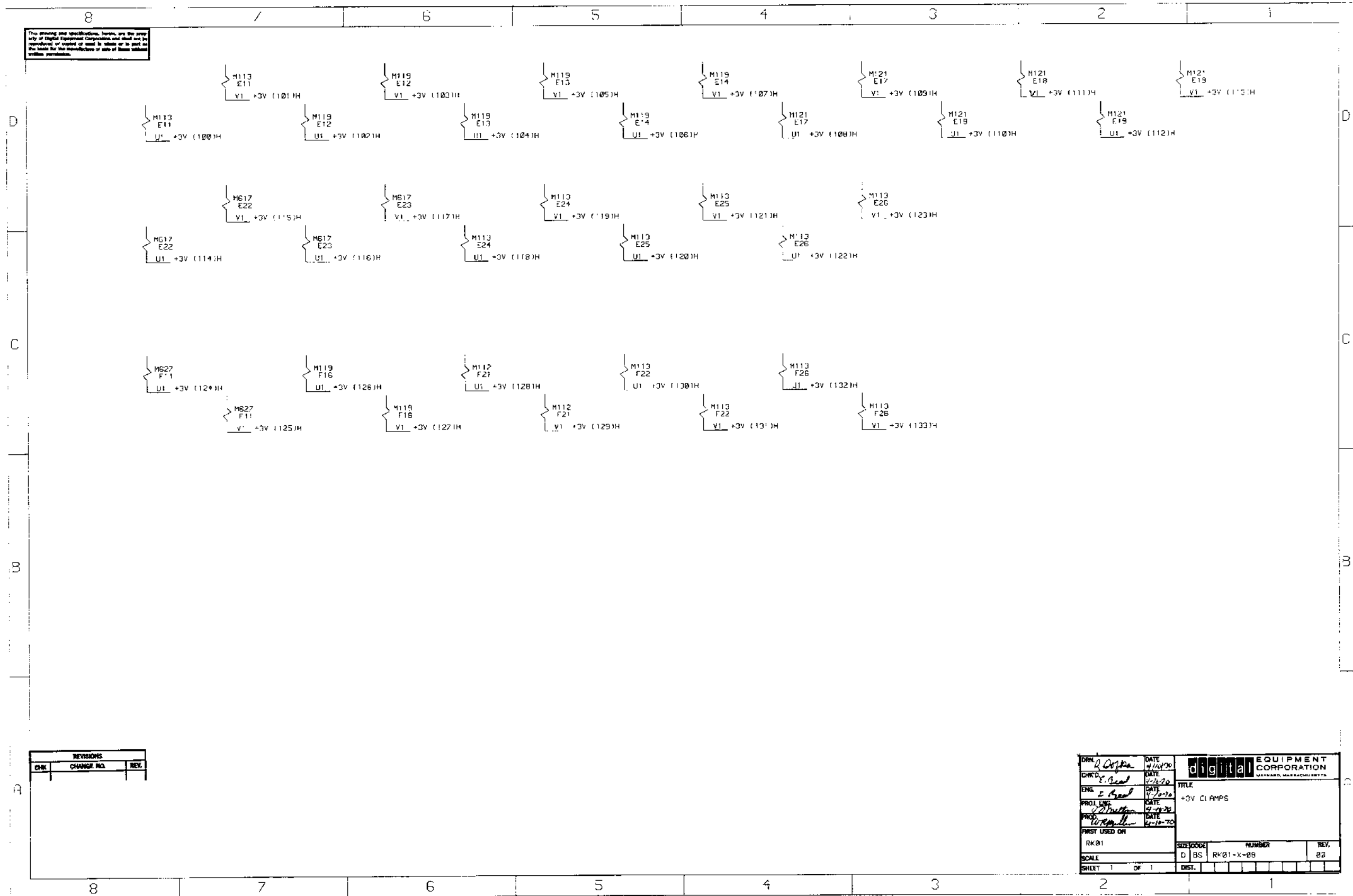


Figure II-13 +3V Clamp Block Schematic Diagram

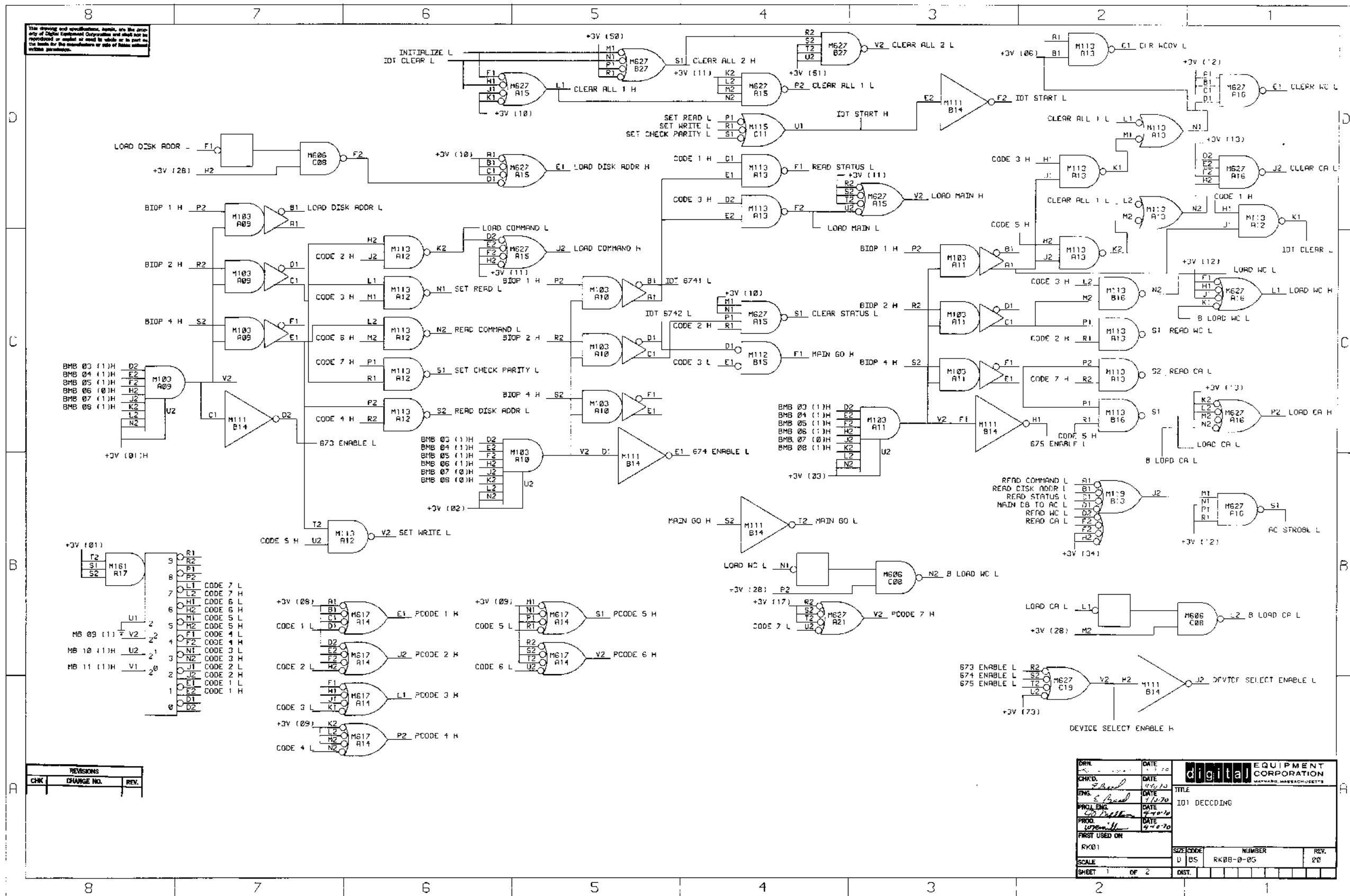


Figure II-14 IOT Decoding Block Schematic Diagram

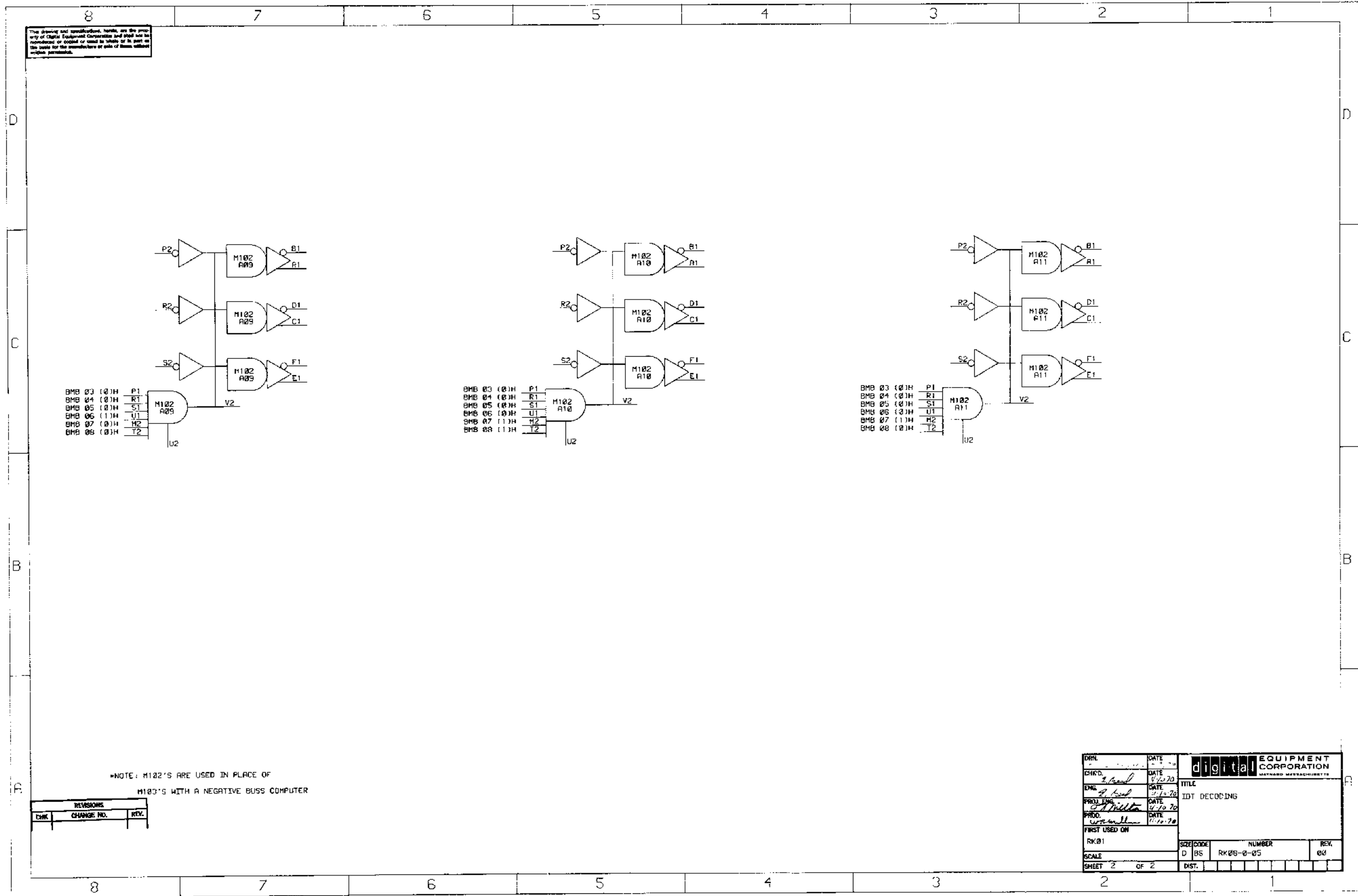


Figure II-15 IOT Decoding Block Schematic Diagram

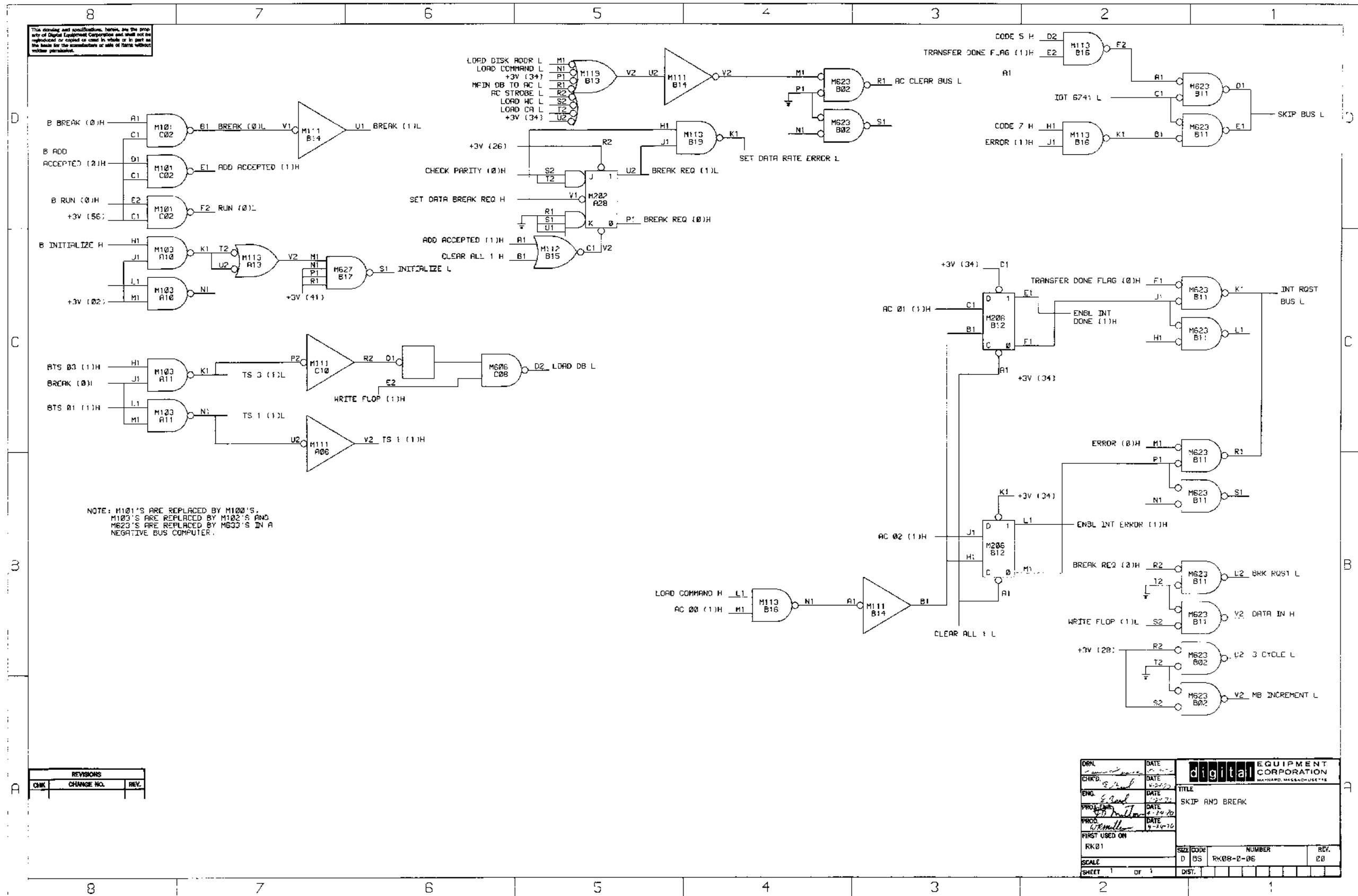


Figure II-16 Skip and Break Block Schematic Diagram

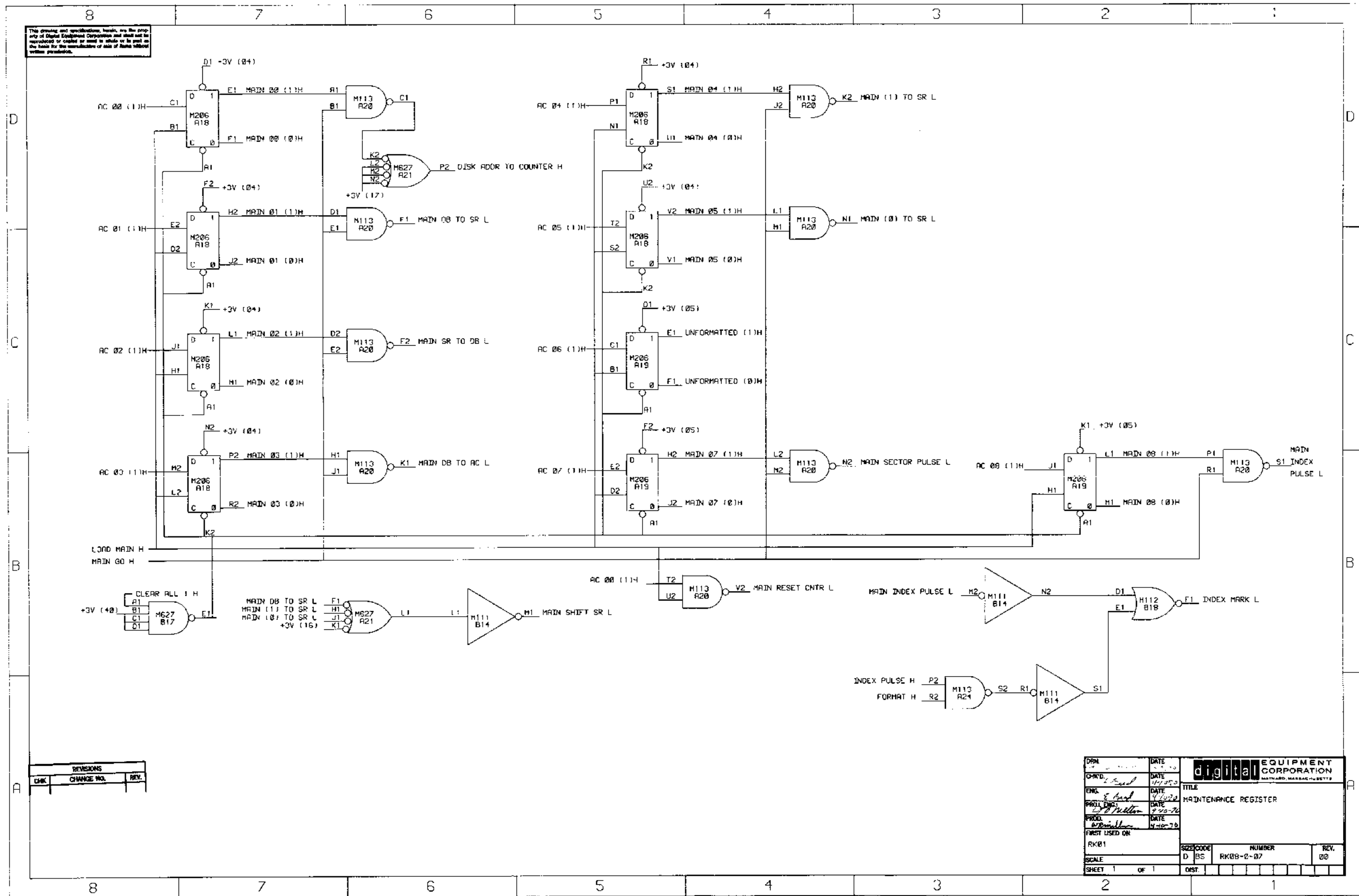


Figure II-17 Maintenance Register Block Schematic Diagram

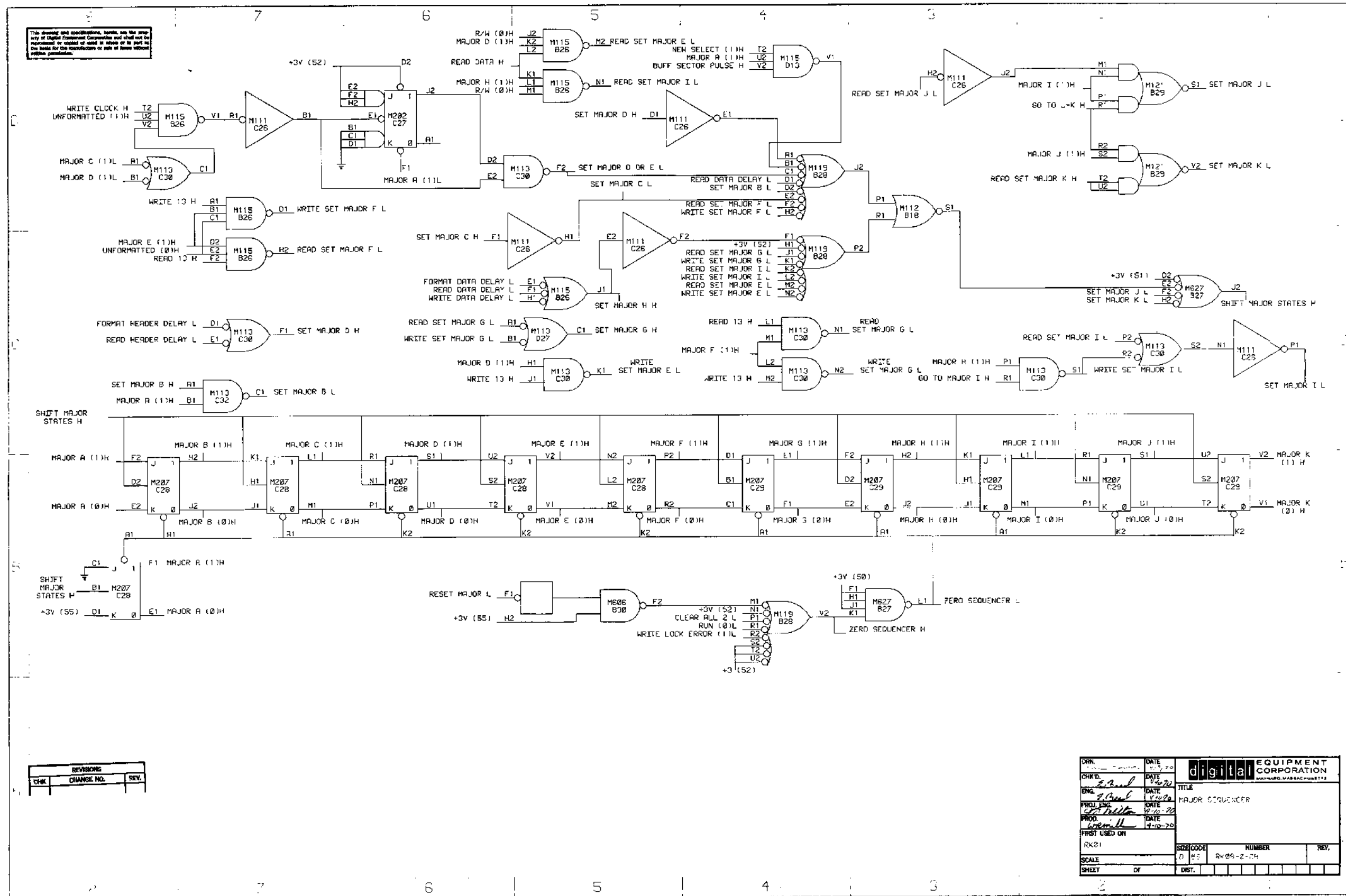


Figure II-18 Major Sequencer Register Block Schematic Diagram

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DRW	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD	DATE	
ENG	DATE	TITLE
PROJ. ENG.	DATE	MAJOR SEQUENCER
PROD.	DATE	
FIRST USED ON	DATE	
RK21		
SCALE		
SHEET		

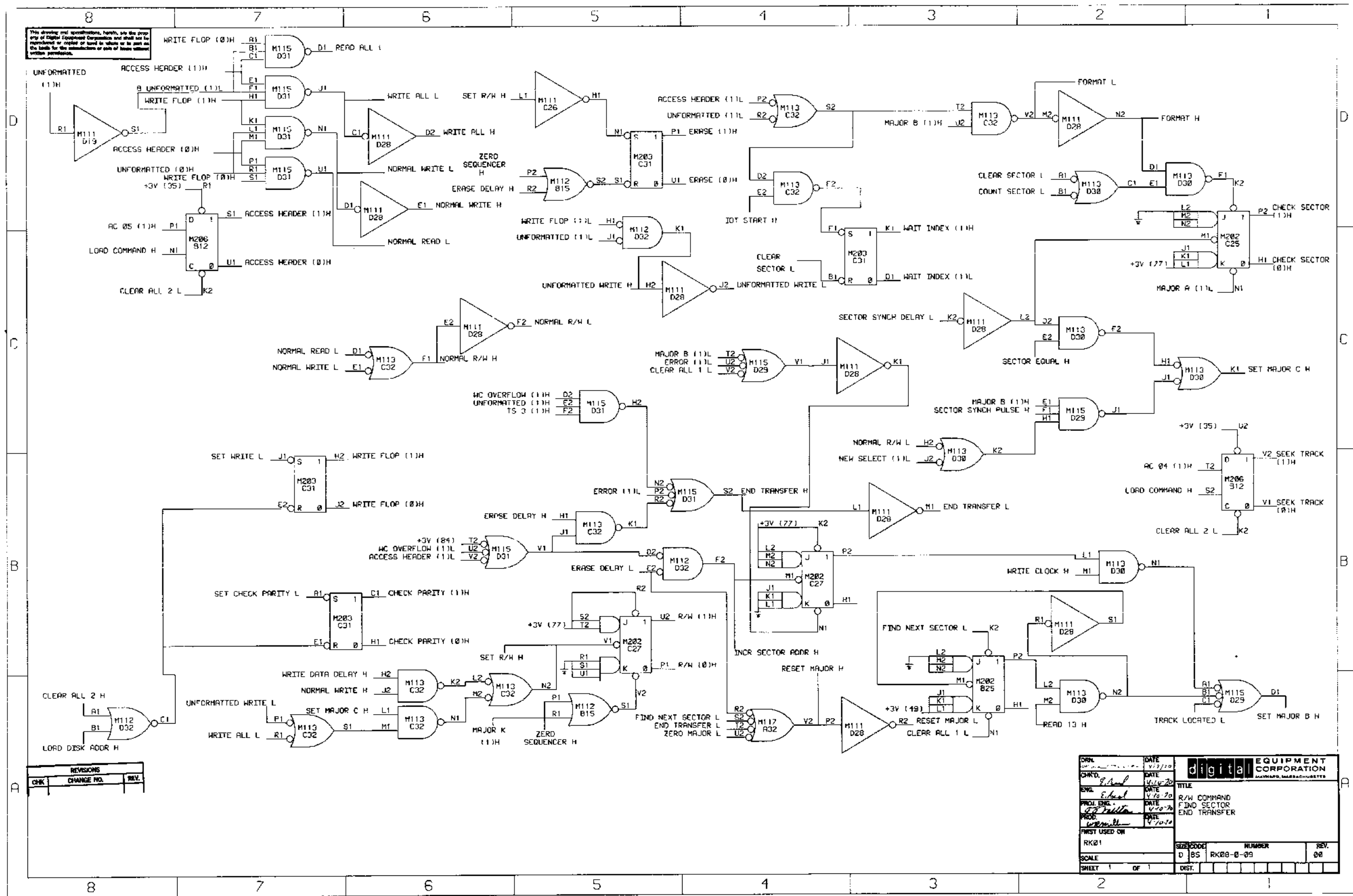
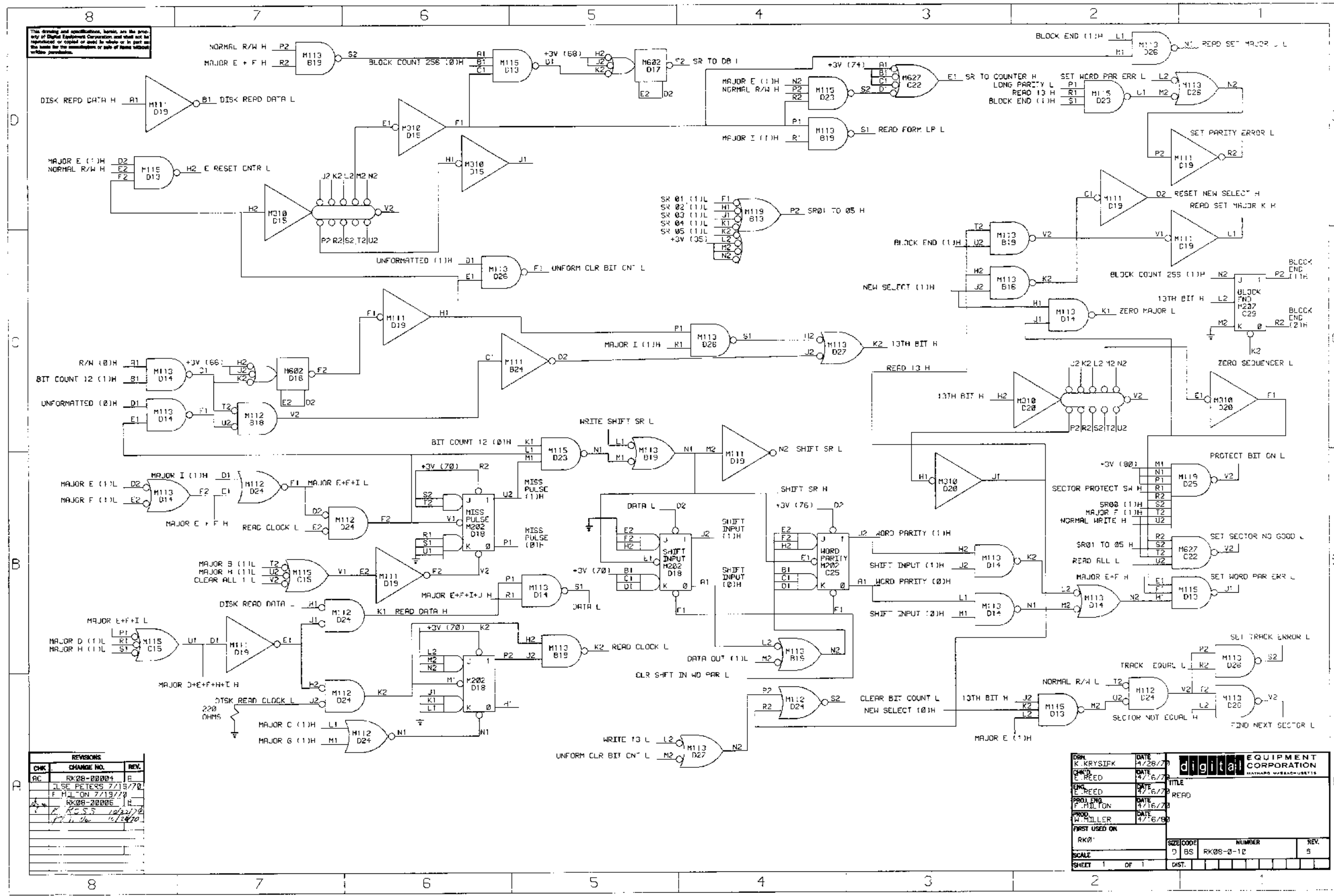


Figure II-19 R/W Command, Find Sector, End transfer
 Block Schematic Diagram



REVISIONS		
CHK	CHANGE NO.	REV.
AC	RK08-20004	E
	ELSE PETERS 7/19/70	
	F.M.L. ON 7/19/70	
	RK08-20005	H
	P. ROSS 12/21/70	
	P.L. ON 12/21/70	

DRW	K. KRYSIJK	DATE	4/28/70	
CHKD	E. REED	DATE	4/26/70	
ENG	E. REED	DATE	4/16/70	TITLE
PROJ. ENG.	F. MILLTON	DATE	4/16/70	READ
PROD.	W. MILLER	DATE	4/16/70	
FIRST USED ON				
RK08		SIZE CODE	D BS	NUMBER
SCALE				RK08-2-10
SHEET	1	OF	1	REV.
				5

Figure II-20 Read Block Schematic Diagram

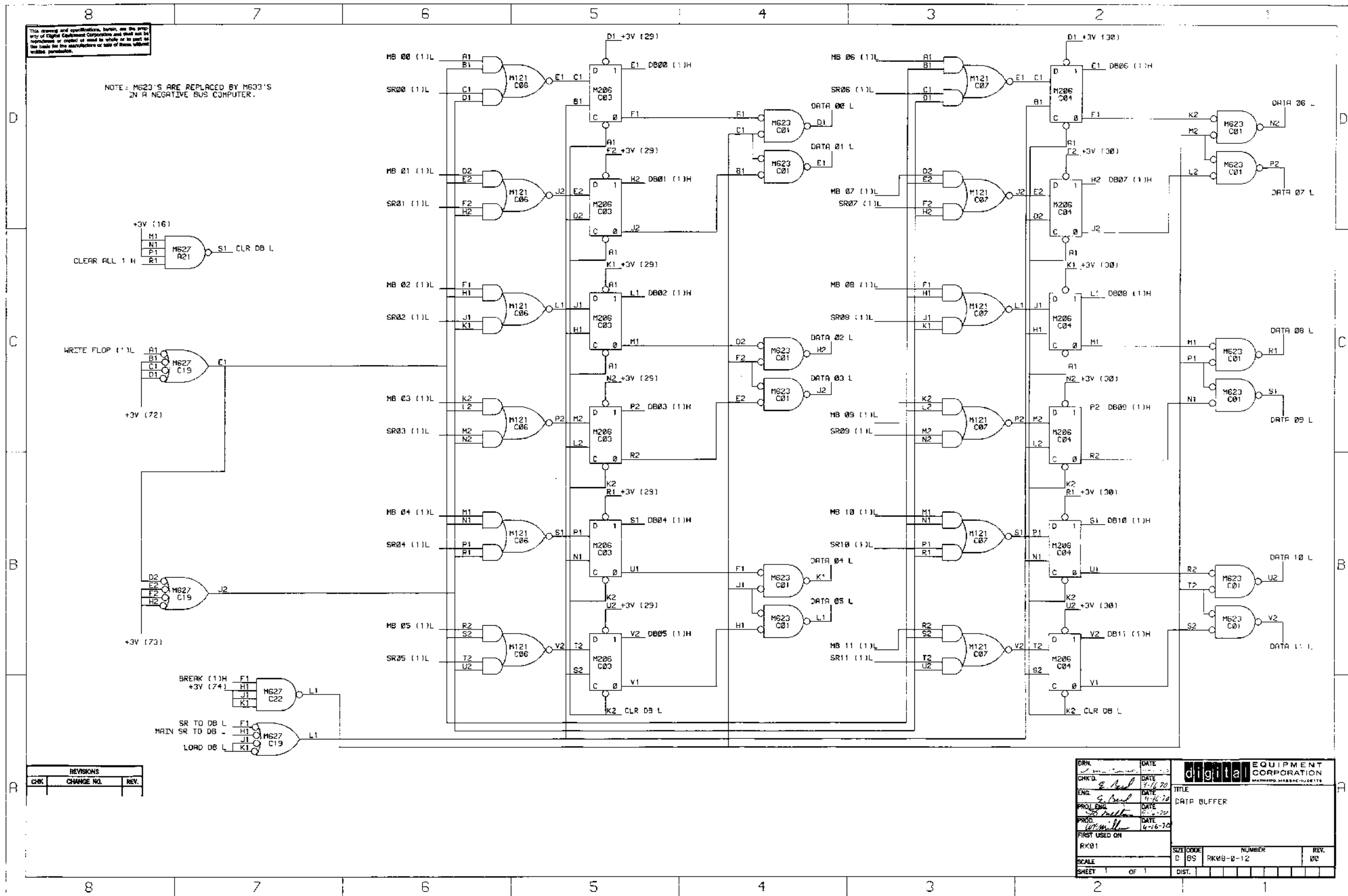
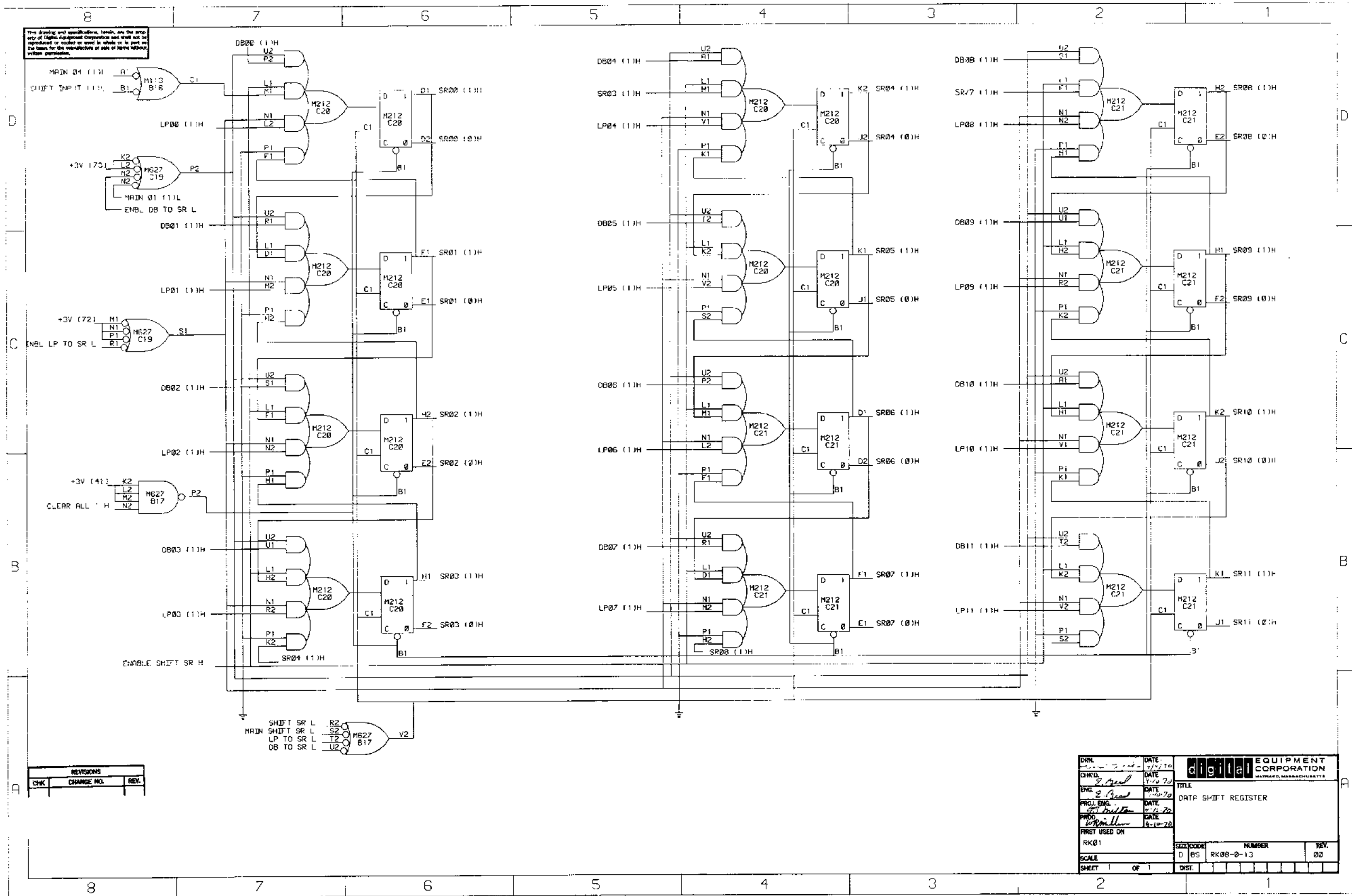


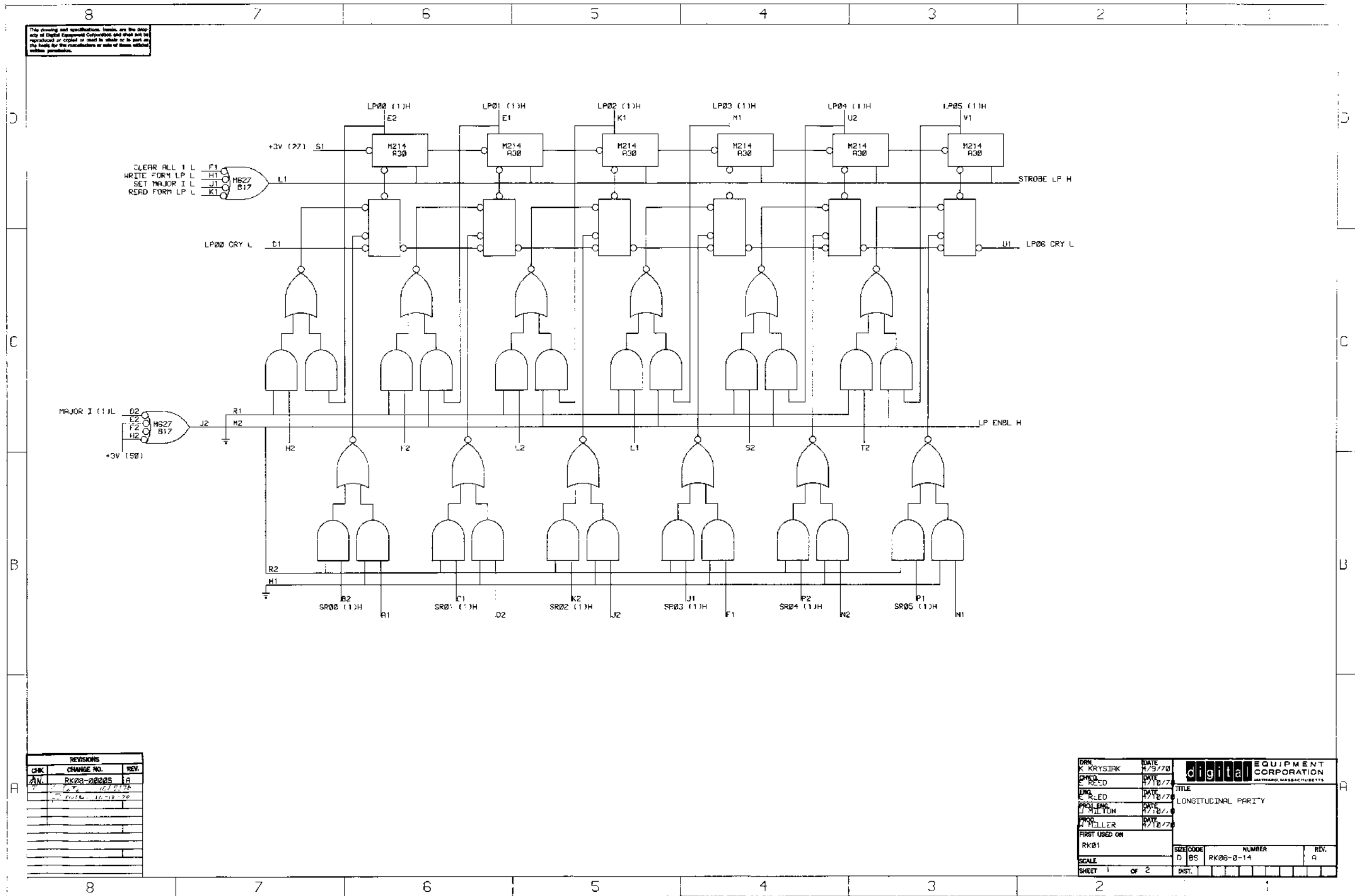
Figure 11-22 Data Buffer Block Schematic Diagram



REVISIONS		
CHK	CHANGE NO.	REV.

DRN	DATE	digital EQUIPMENT CORPORATION <small>WATFORD, MASSACHUSETTS</small>
CHKD	DATE	
ENG	DATE	
PROJ. ENG.	DATE	
PROD.	DATE	
FIRST USED ON		TITLE
RK01		DATA SHIFT REGISTER
SCALE	SHEET	OF
1	1	1

Figure II-23 Data Shift Register Block Schematic Diagram

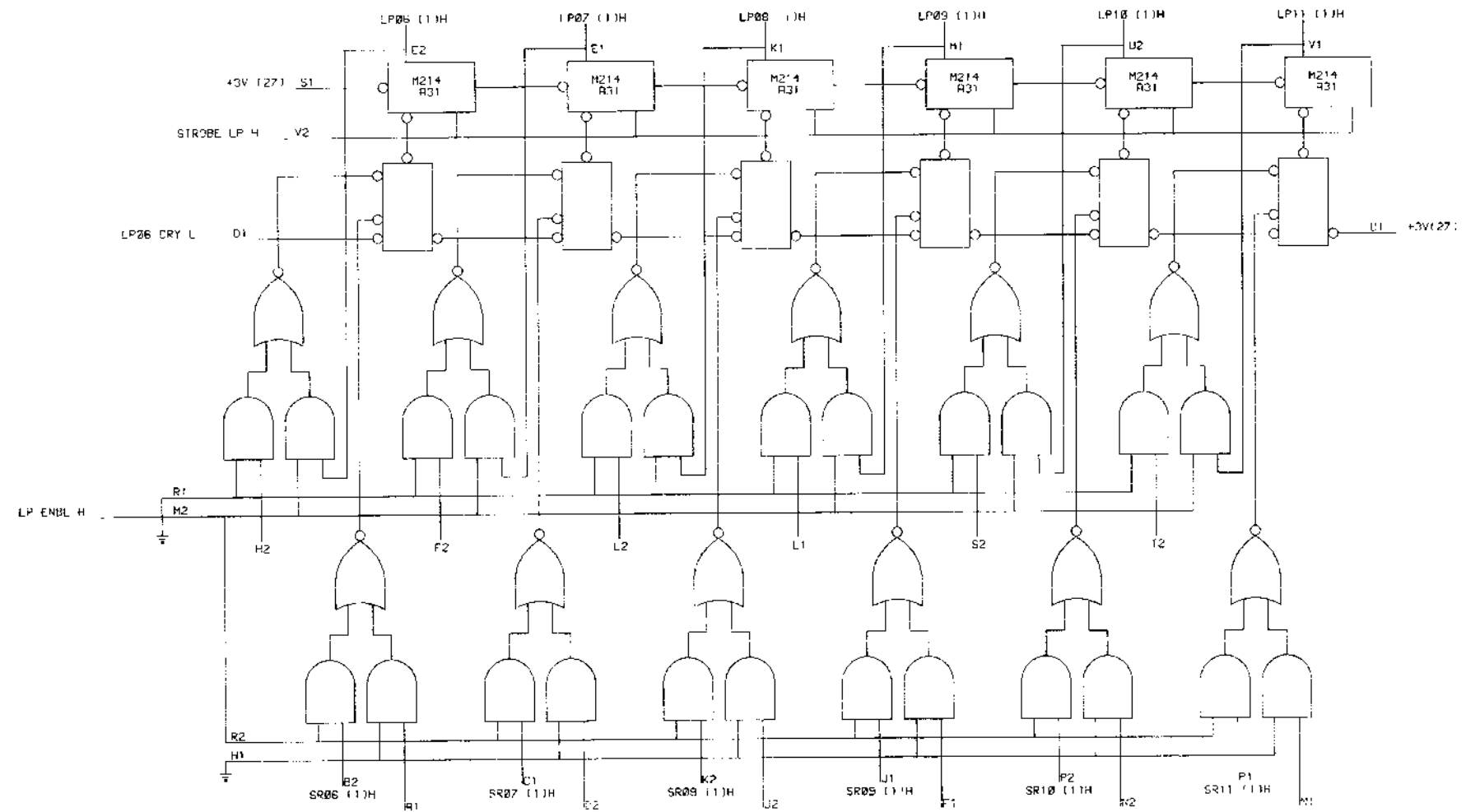


REVISIONS		
CHK	CHANGE NO.	REV.
AN	RK08-08025	1A

DRN K KRYSIRK	DATE 4/3/70	
CHKD E REED	DATE 7/10/70	
ENR E REED	DATE 4/10/70	TITLE LONGITUDINAL PARITY
PRO ENR J MILLON	DATE 4/10/70	
PRO J MILLER	DATE 4/10/70	
FIRST USED ON RK01		
SCALE D	SIZE/CODE D BS	NUMBER RK08-0-14
SHEET 1 of 2	DIST.	REV. A

Figure II-24 Longitudinal Parity Block Schematic Diagram (Sheet 1 of 2)

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CHKD	E. REED	DATE	4/10/70	
CHKD	E. REED	DATE	4/10/70	
CHKD	J. HILLON	DATE	4/10/70	
CHKD	W. MILLER	DATE	4/10/70	
FIRST USED ON				TITLE
RK01				LONGITUDINAL PARITY
SCALE	D BS	SIZE CODE	NUMBER	REV.
2		RK09-0-14	A	
SHEET 2	OF 2	DIST.		

Figure II-25 Longitudinal Parity Block Schematic Diagram
(Sheet 2 of 2)

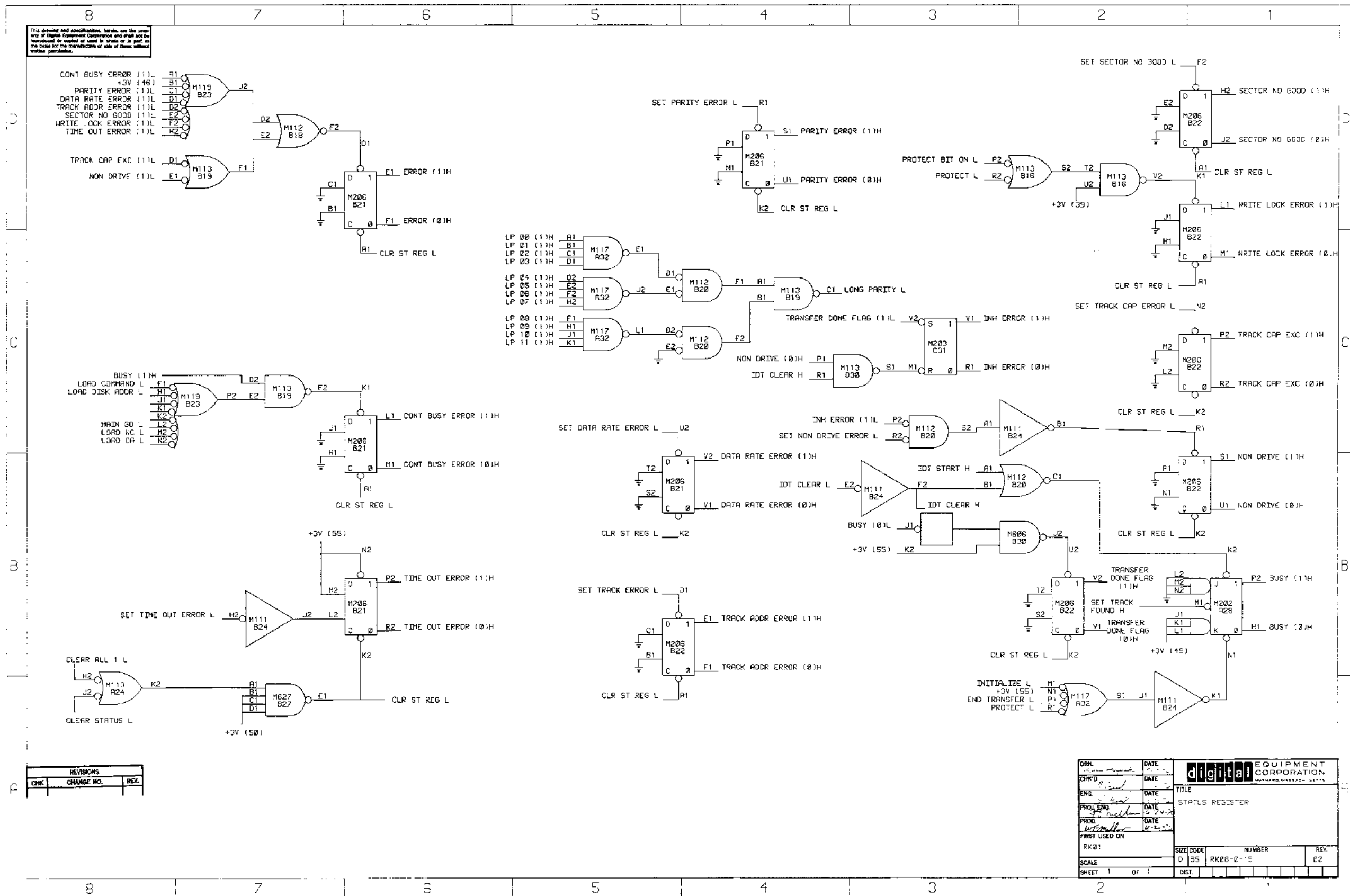
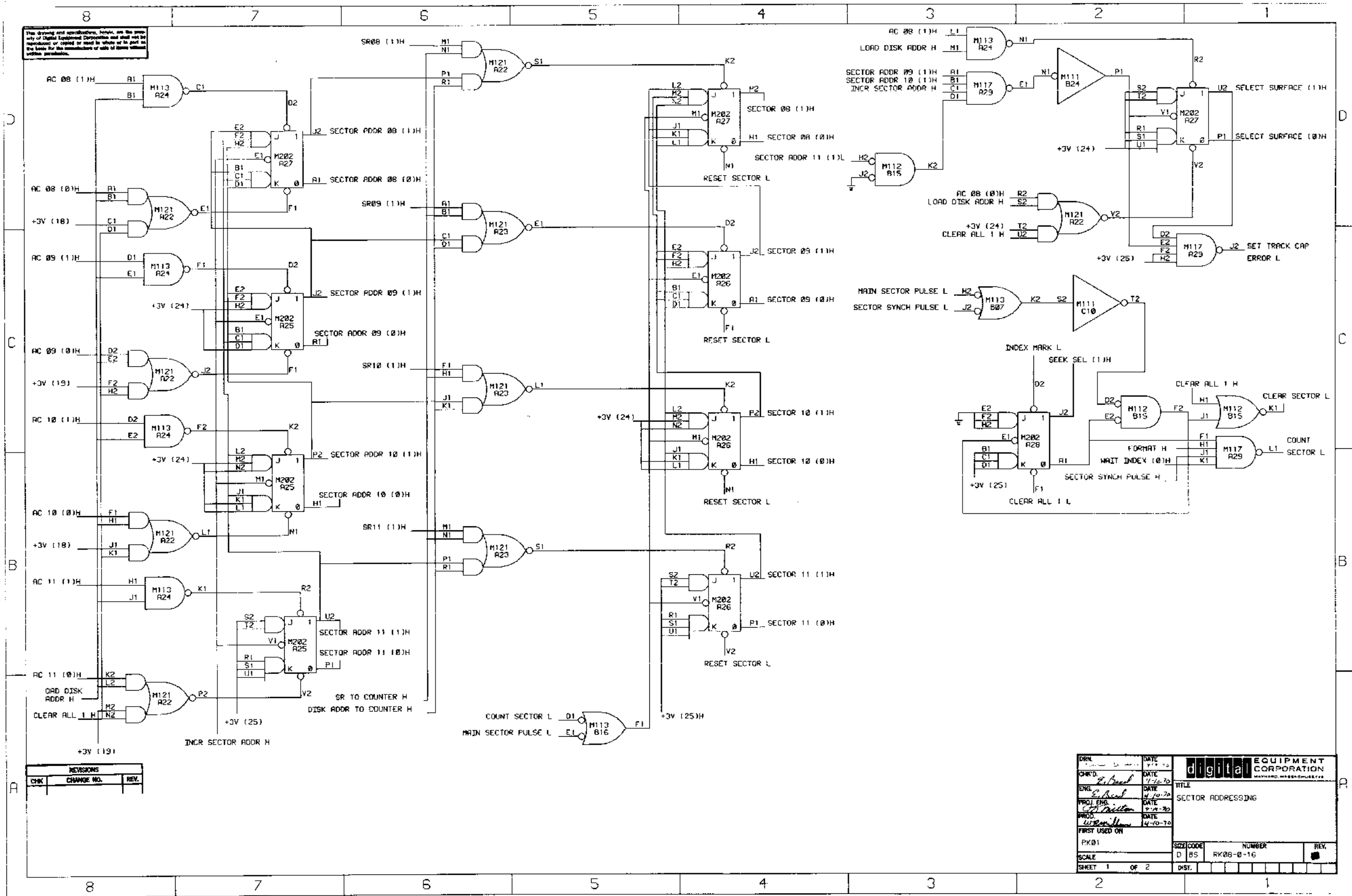


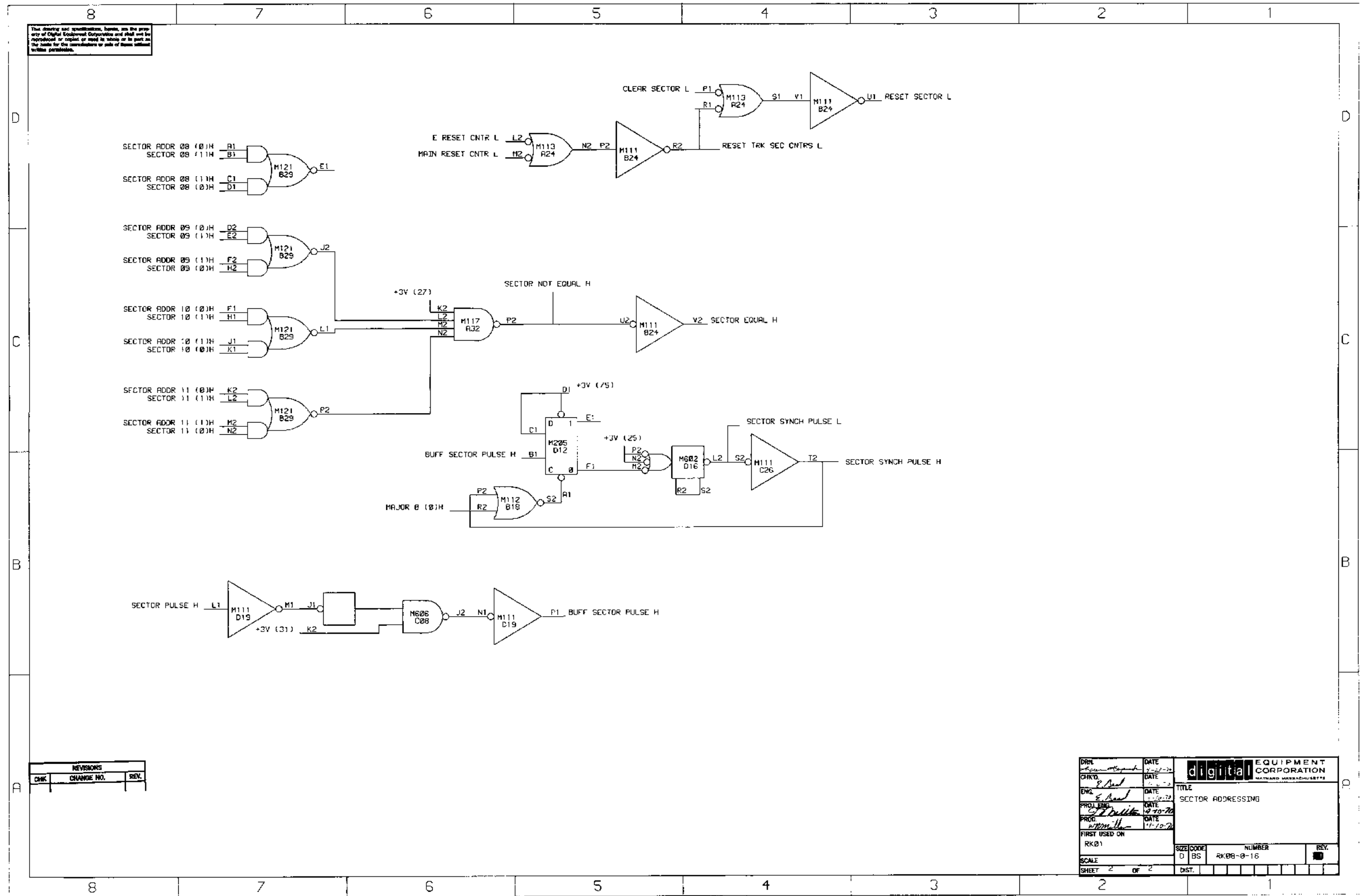
Figure II-26 Status Register Block Schematic Diagram



REVISIONS		
CHK	CHANGE NO.	REV.

DATE		11-10-70		TITLE
CHAR'D	DATE	11-10-70		
ENG	DATE	11-10-70		SECTOR ADDRESSING
PROJ ENG	DATE	11-10-70		
PRD	DATE	11-10-70		
FIRST USED ON				SIZE CODE
PK01				D BS
SCALE				NUMBER
SHEET 1 OF 2				RK08-0-16
DIST.				REV.

Figure II-27 Sector Addressing Block Schematic Diagram (Sheet 1 of 2)



REVISIONS		
CHK	CHANGE NO.	REV.

DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D	DATE	
ENG.	DATE	TITLE
PROJ. ENG.	DATE	SECTOR ADDRESSING
PROD.	DATE	
FIRST USED ON		
RK01		
SCALE	SIZE CODE	NUMBER
	D BS	RK08-0-16
SHEET 2 OF 2	DIST.	

Figure II-28 Sector Addressing Block Schematic Diagram
(Sheet 2 of 2)

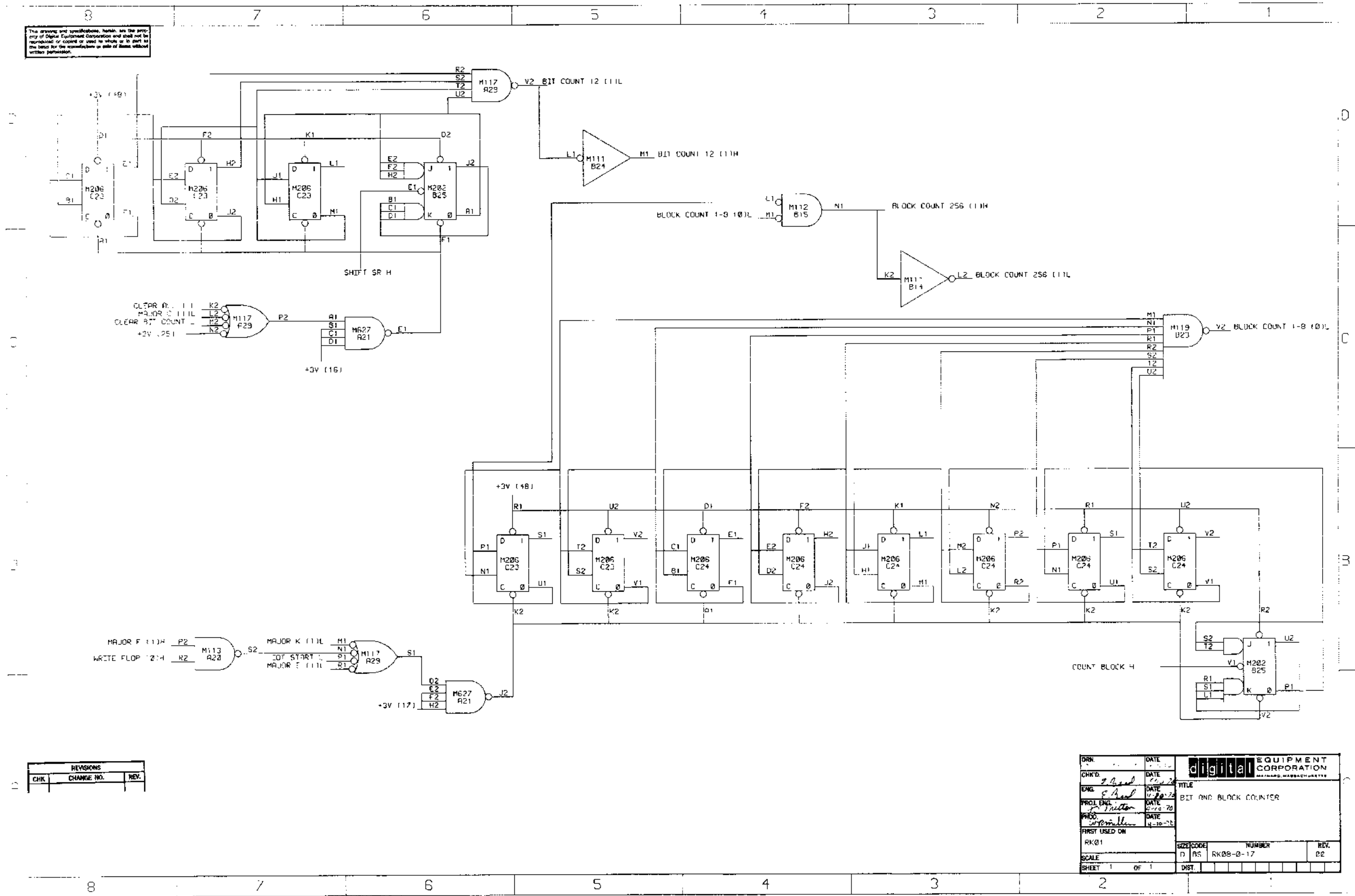


Figure II-29 Bit and Block Counter Block Schematic Diagram

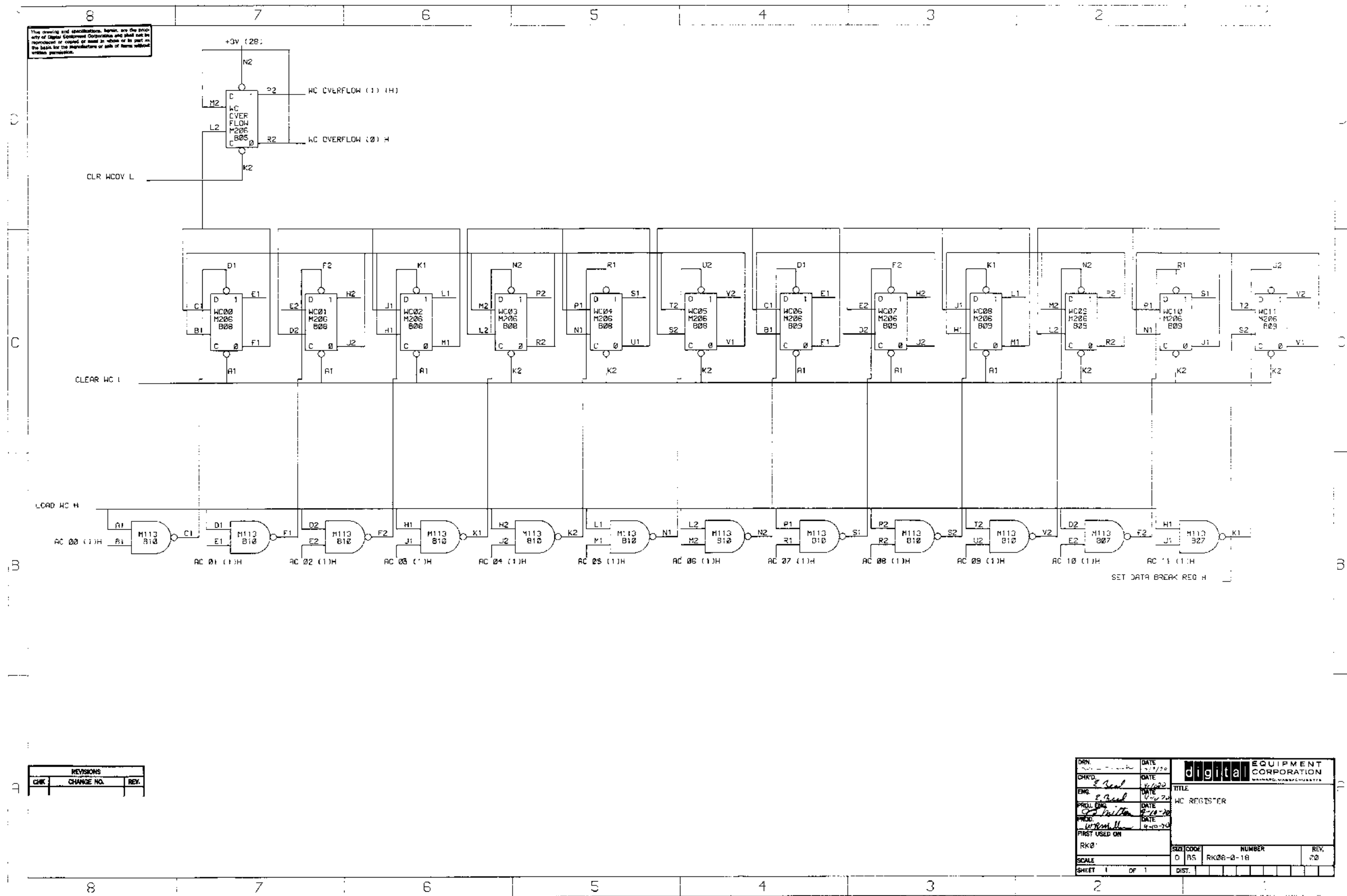


Figure II-30 Word Count (WC) Register Block Schematic Diagram

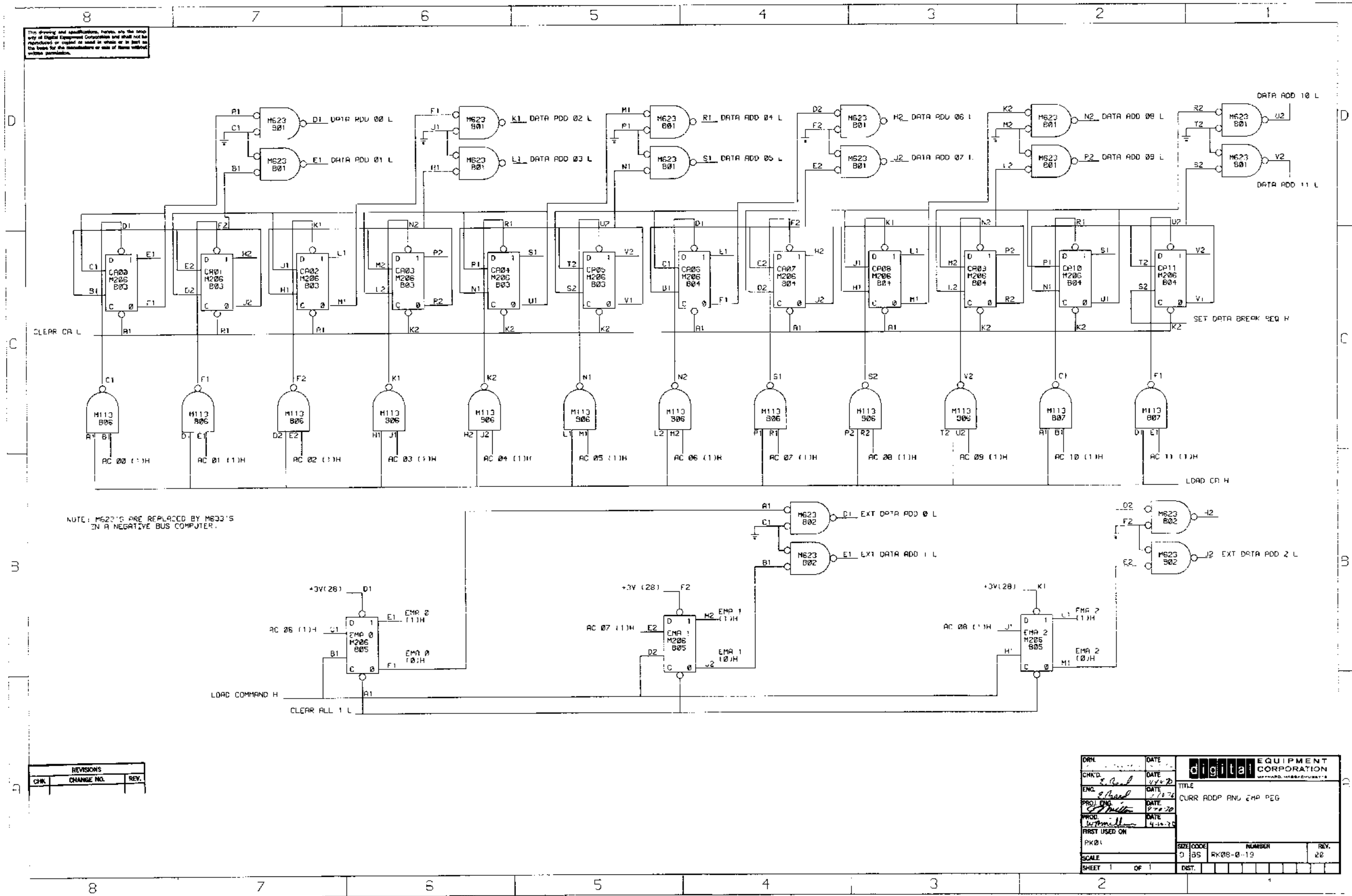
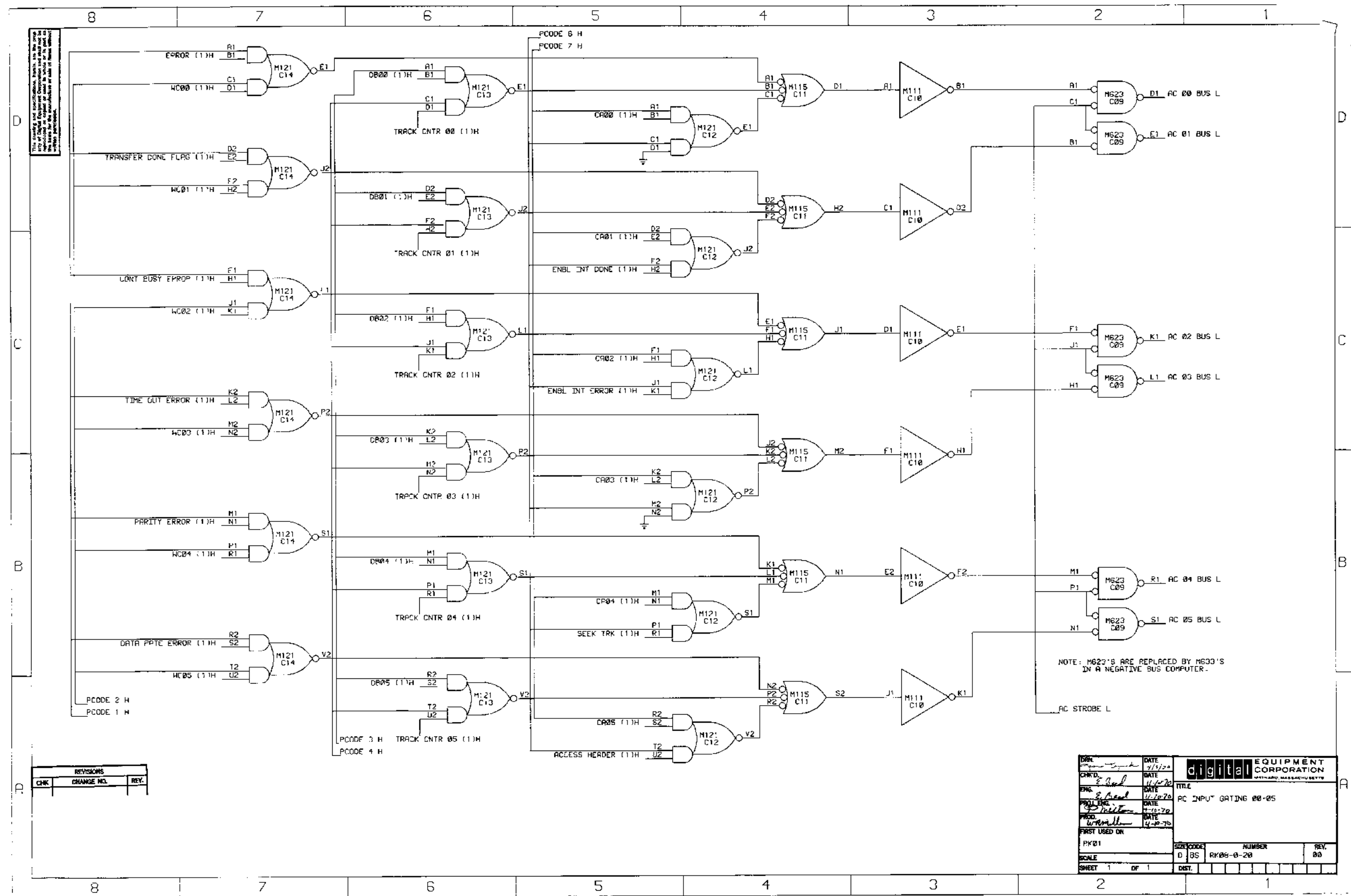


Figure II-31 Current Address and EMA Register Block Schematic Diagram



REVISIONS		
CHK	CHANGE NO.	REV.

DRN	DATE	digital EQUIPMENT CORPORATION MAYFIELD, MASSACHUSETTS
CHKD	DATE	
ENG	DATE	TITLE
PRG. ENG.	DATE	AC INPUT GATING 00-05
PROD.	DATE	
FIRST USED ON		
PK01		
SCALE	SIZE CODE	NUMBER
	D 05	RY06-0-20
SHEET 1 OF 1	DIST.	REV. 00

Figure II-32 AC Input Gating 00-05 Block Schematic Diagram

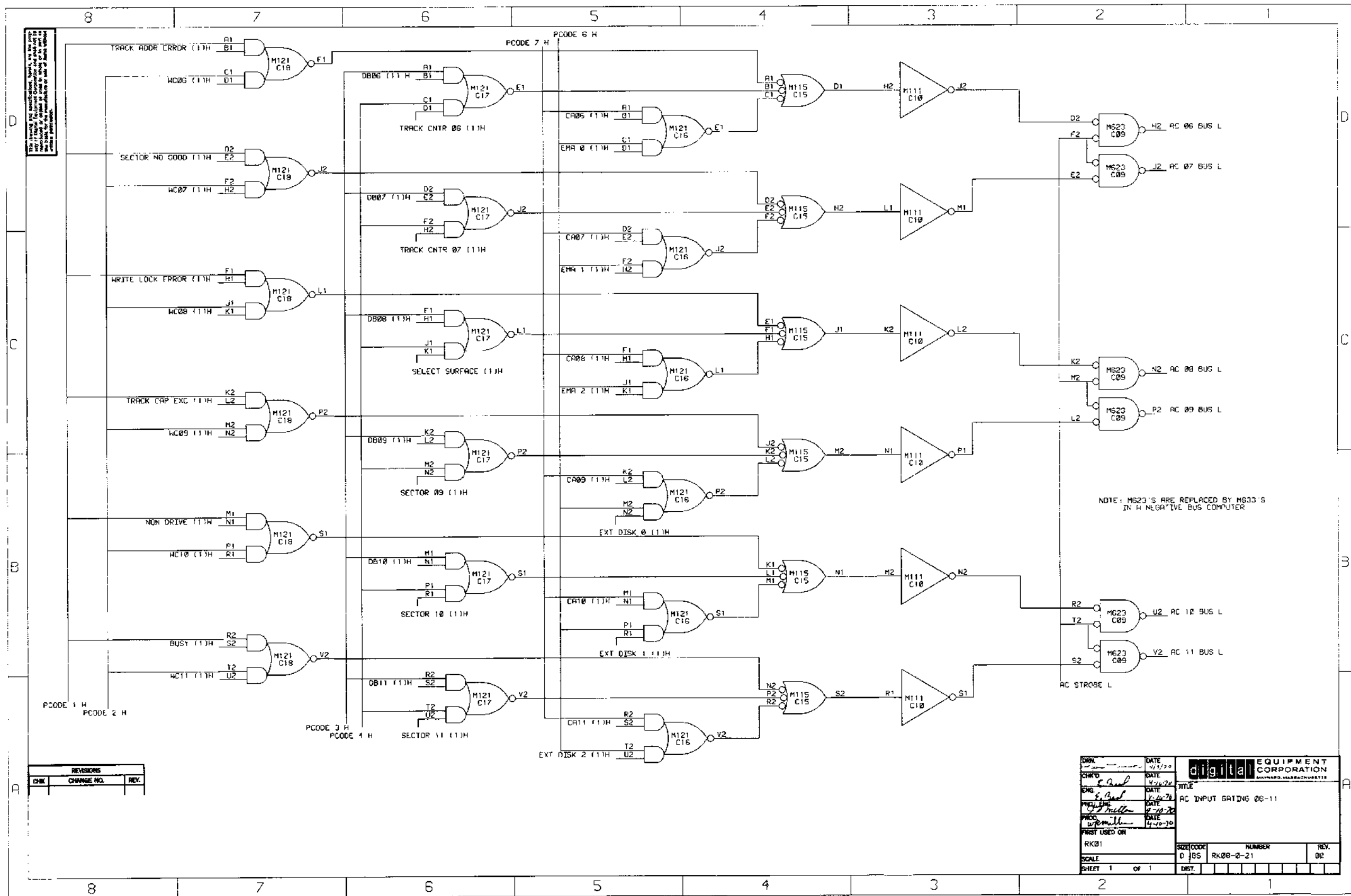


Figure II-33 AC Input Gating 06-11 Block Schematic Diagram

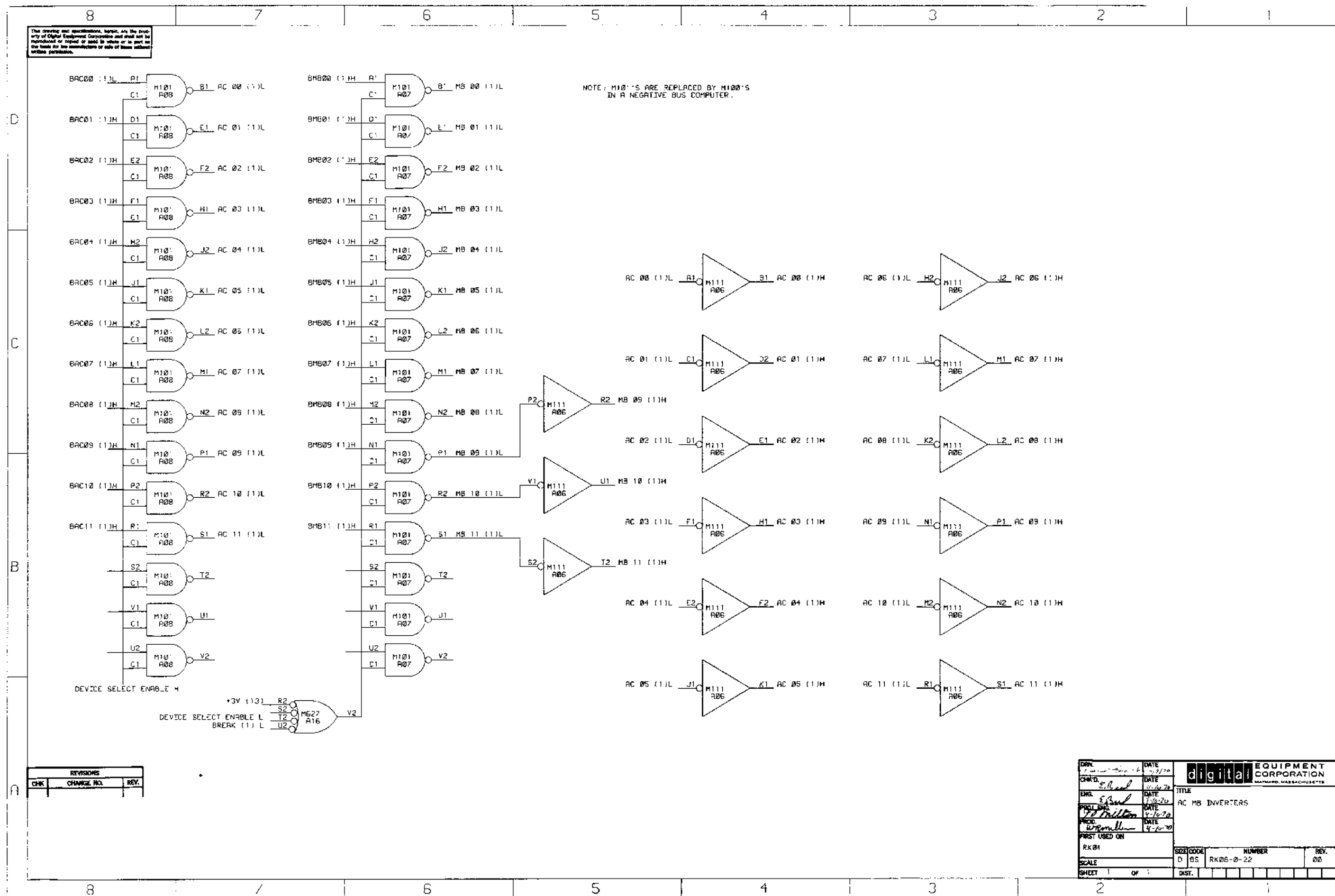


Figure II-34 AC Memory Buffer (MB) Inverters Block Schematic Diagram

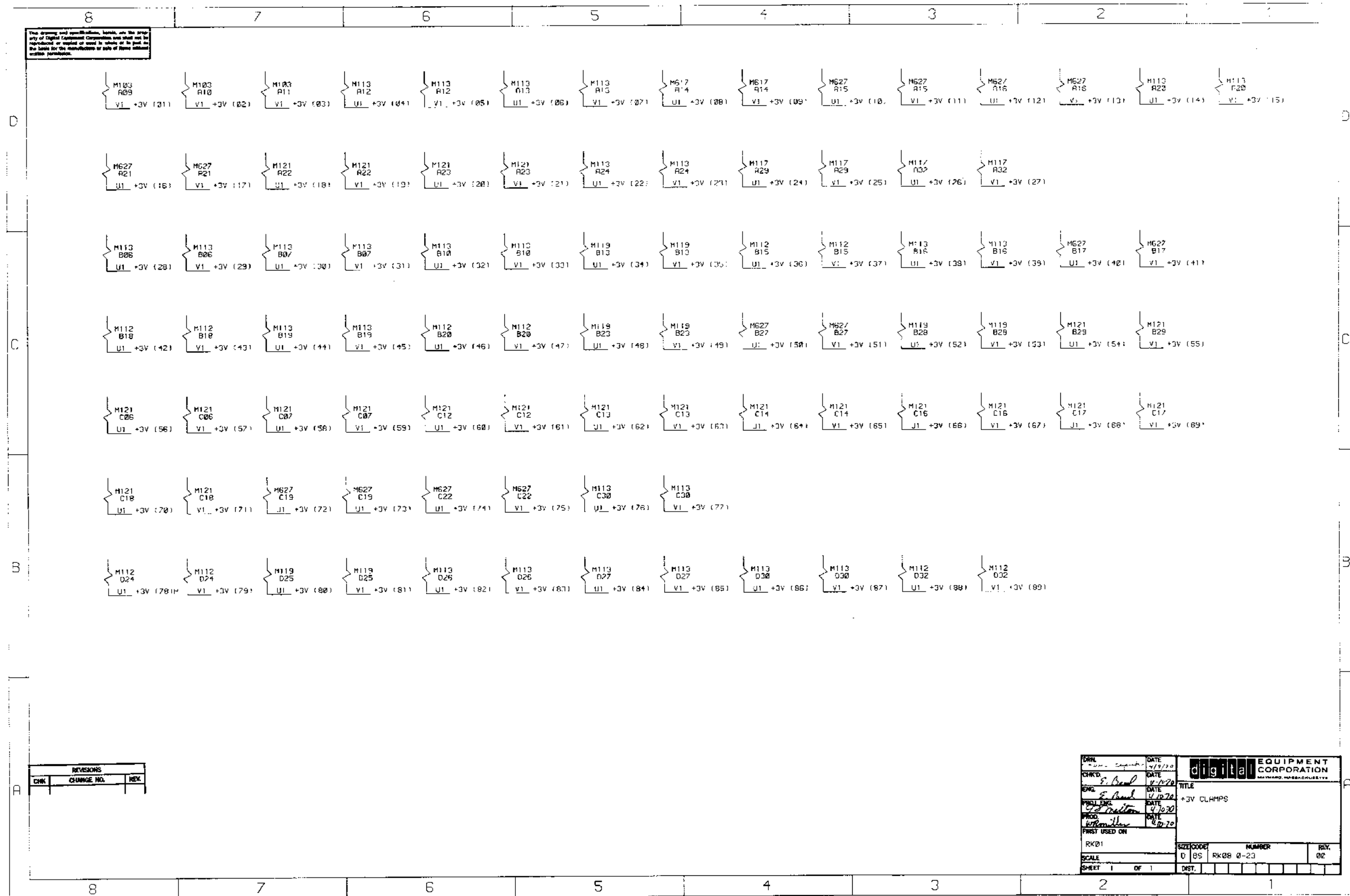


Figure II-35 +3V Clamps Block Schematic Diagram

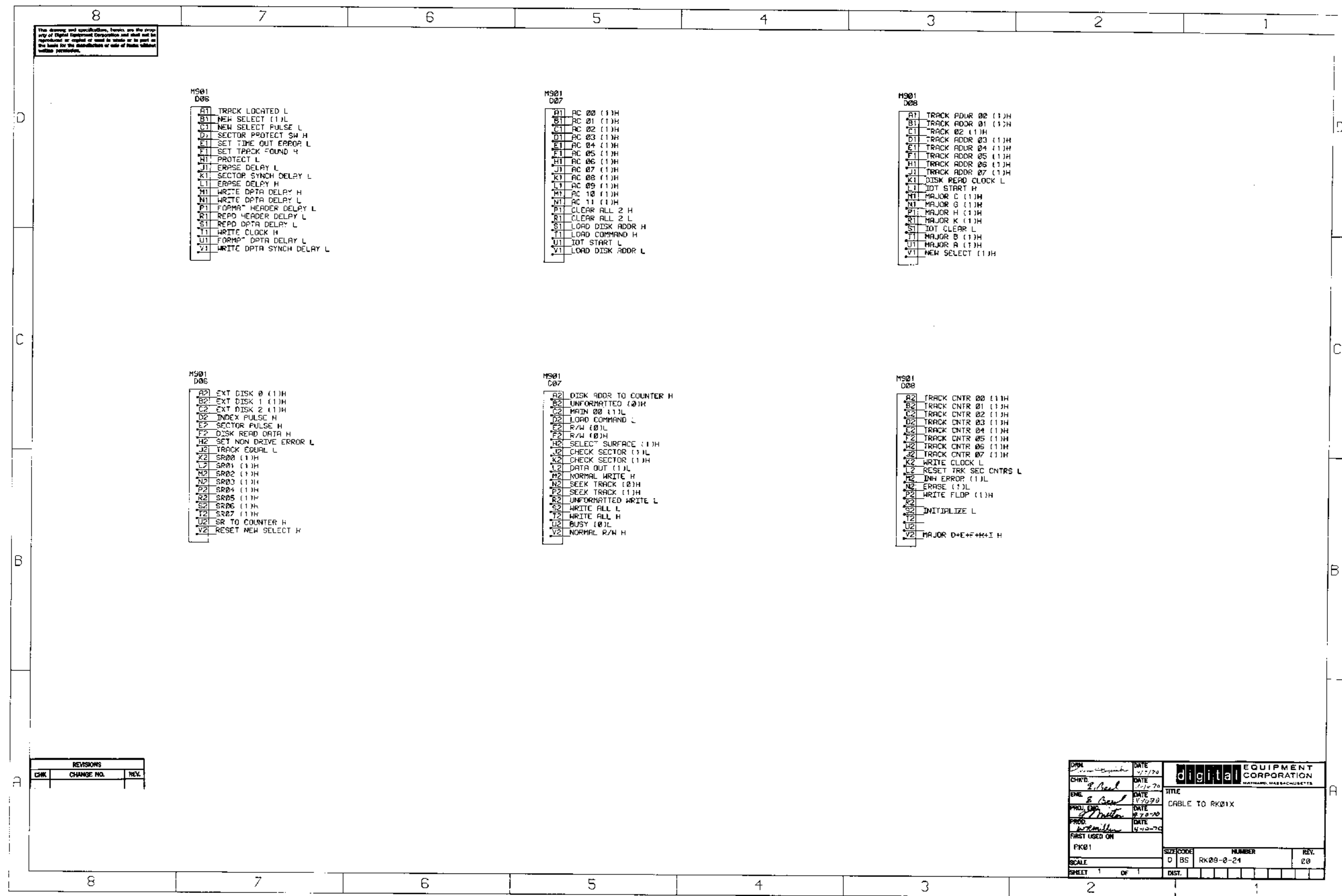


Figure II-36 Cable to RK01-X Block Schematic Diagram

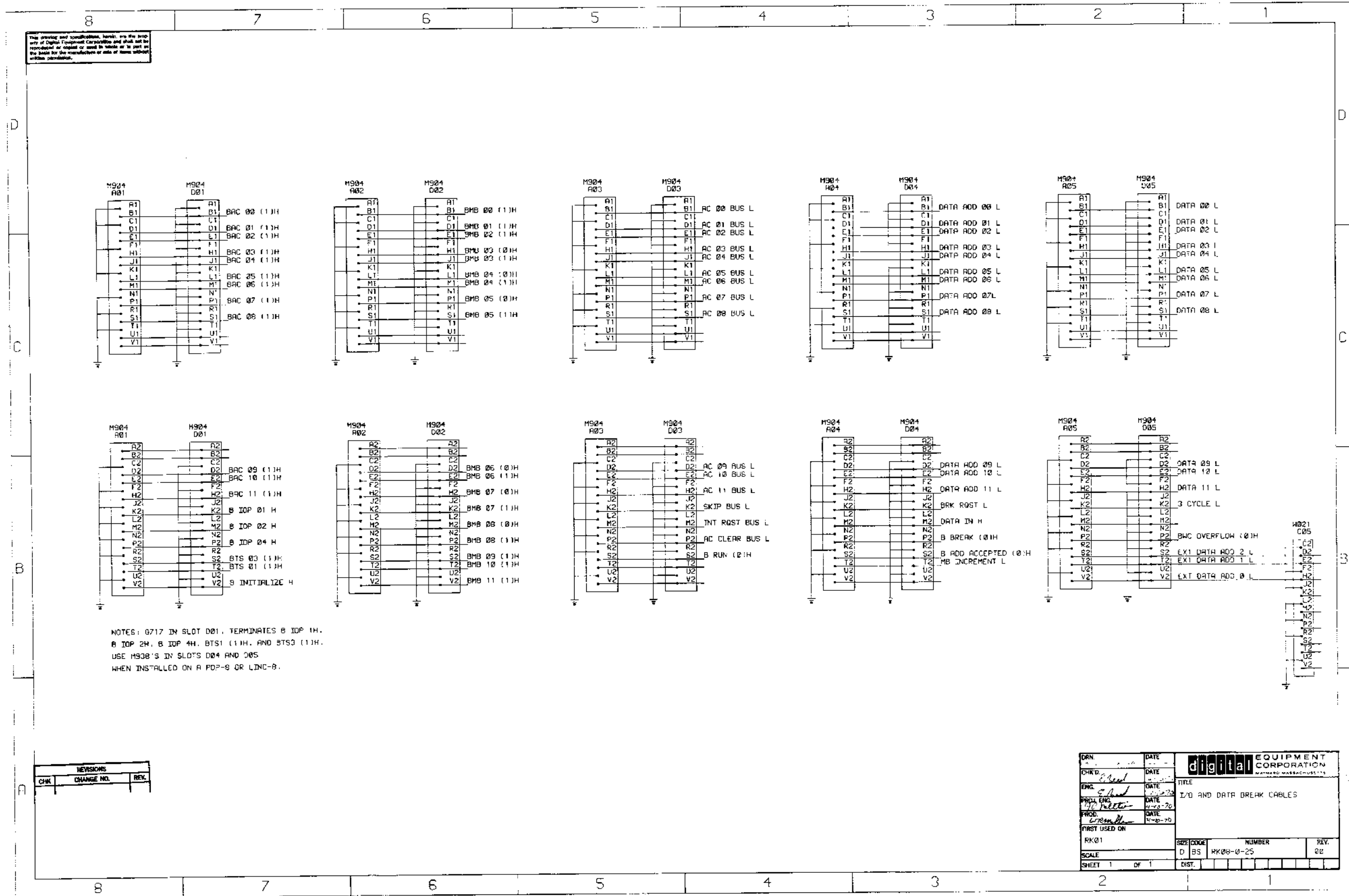


Figure II-37 I/O and Data Break Cables Block Schematic Diagram

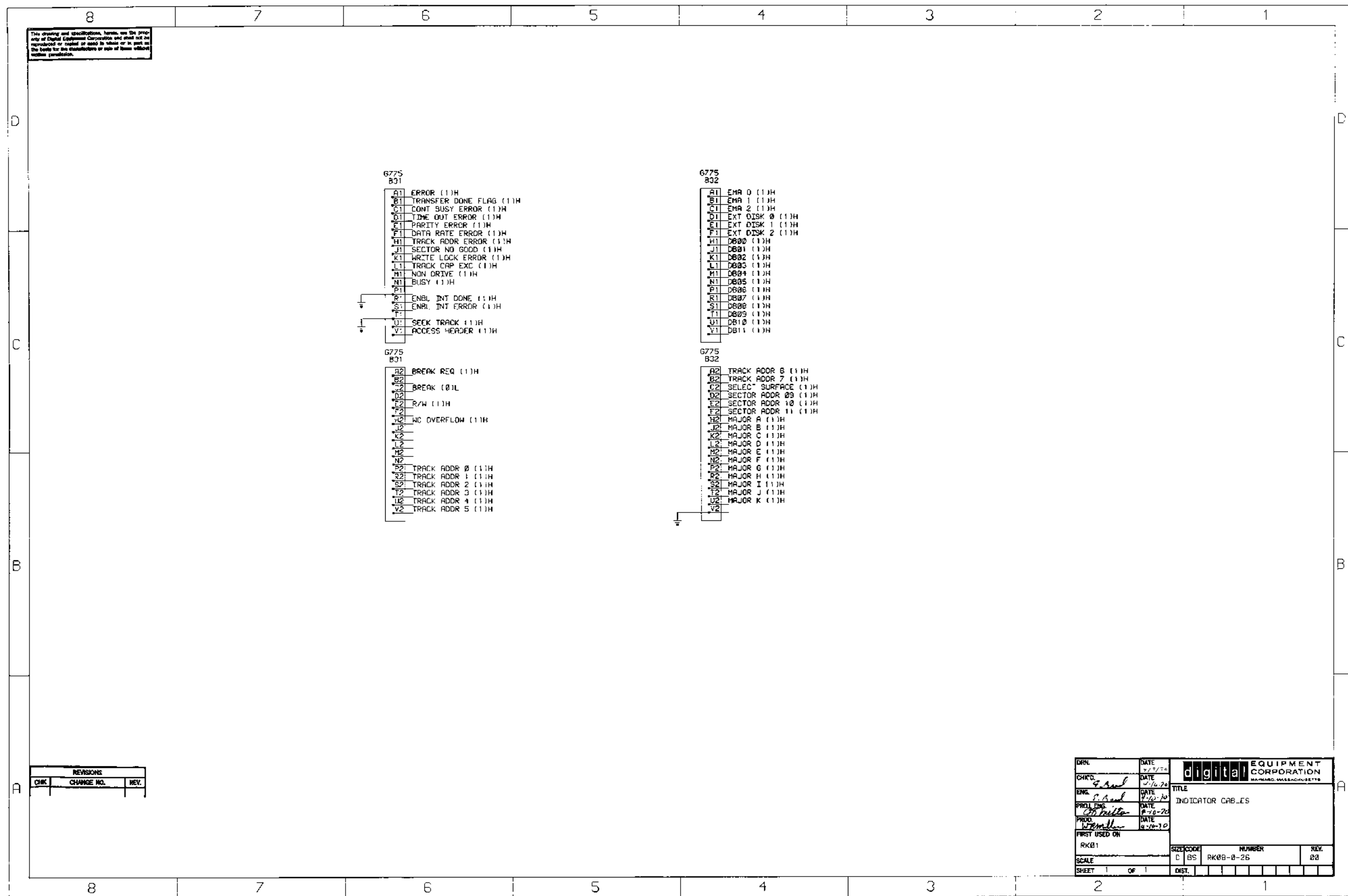


Figure II-38 Indicator Cables Block Schematic Diagram

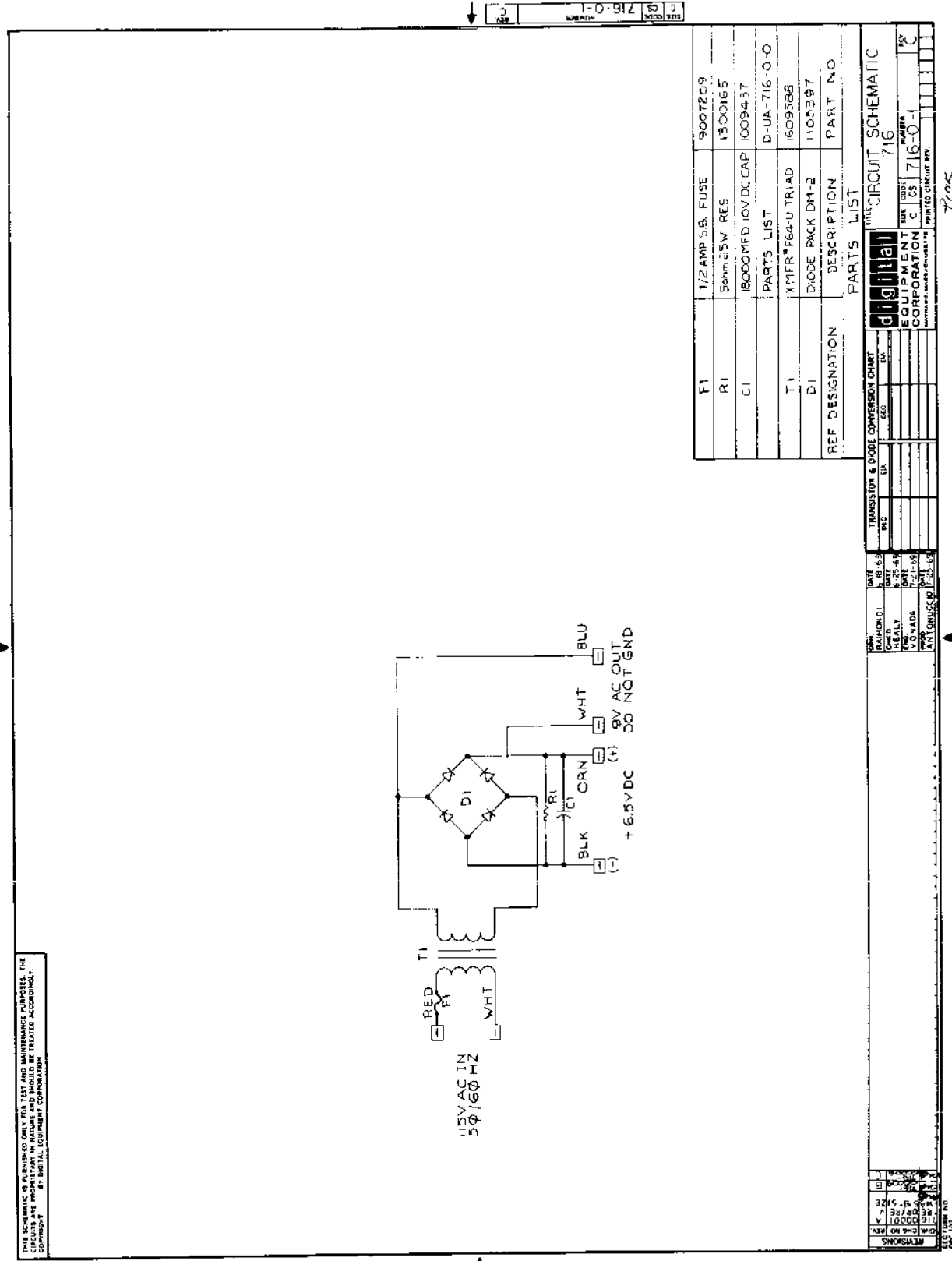


Figure II-39 Type 716 Power Supply Circuit Schematic Diagram

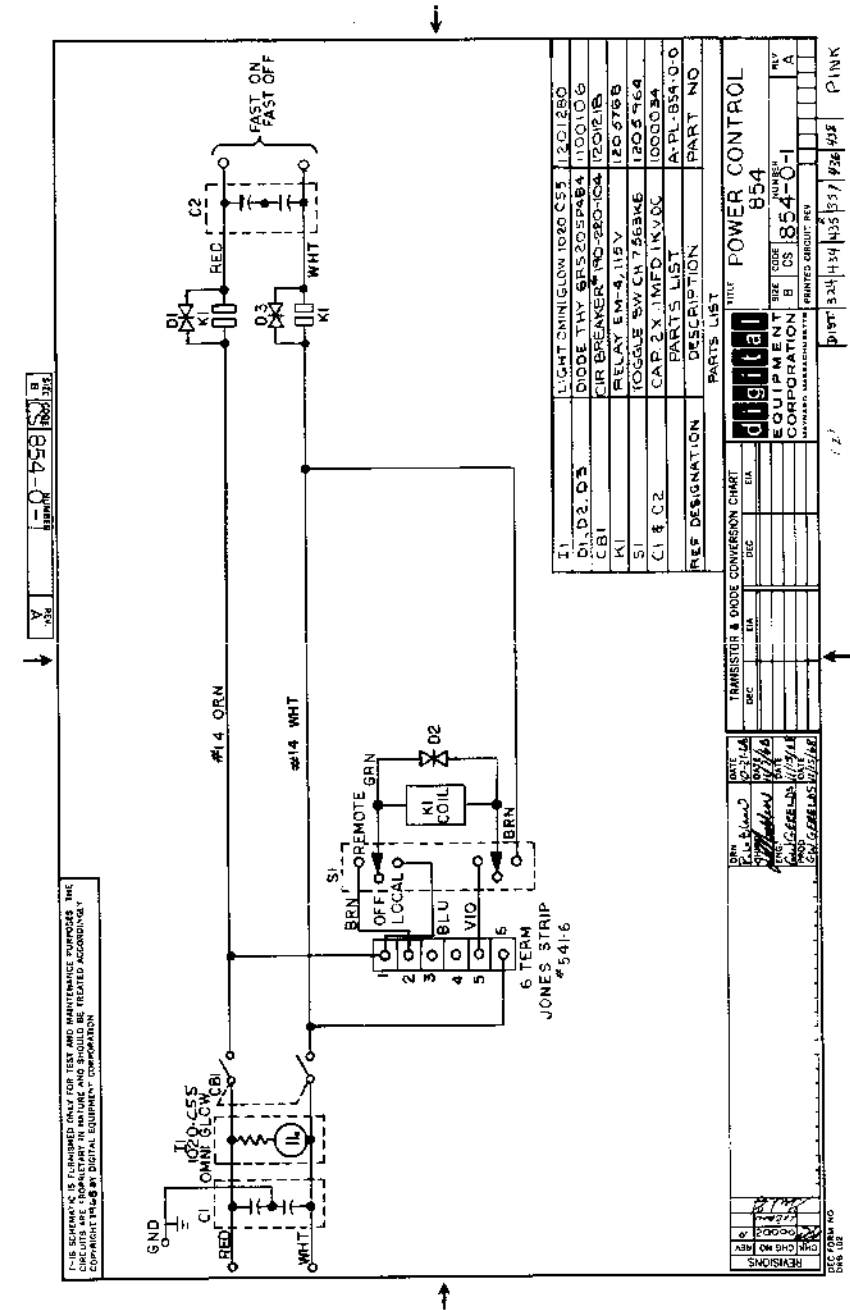


Figure II-40 Type 854 Power Control Panel Wiring Diagram

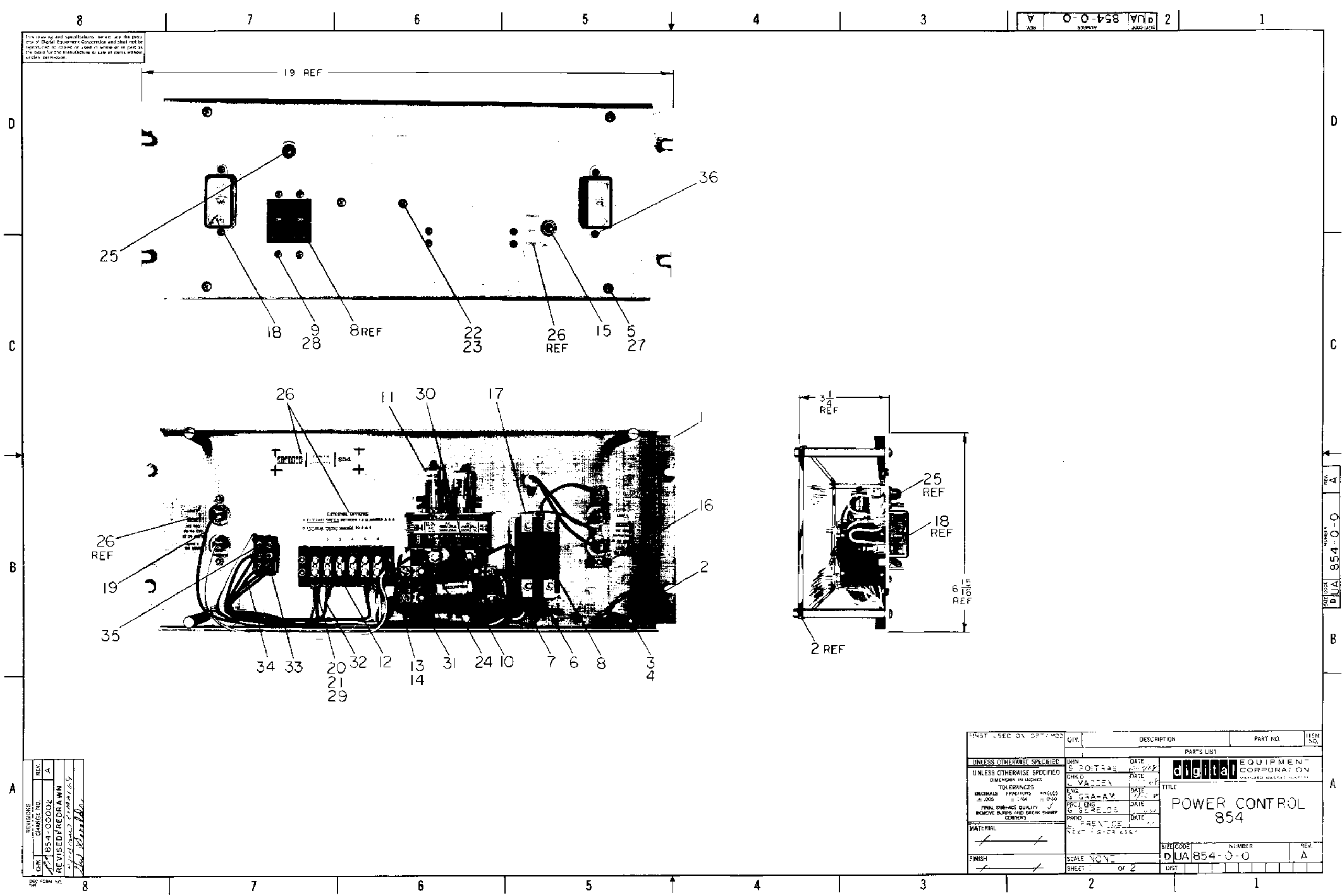


Figure II-41 Type 854 Power Control Panel
Component Pin Location Diagram
(Sheet 1)

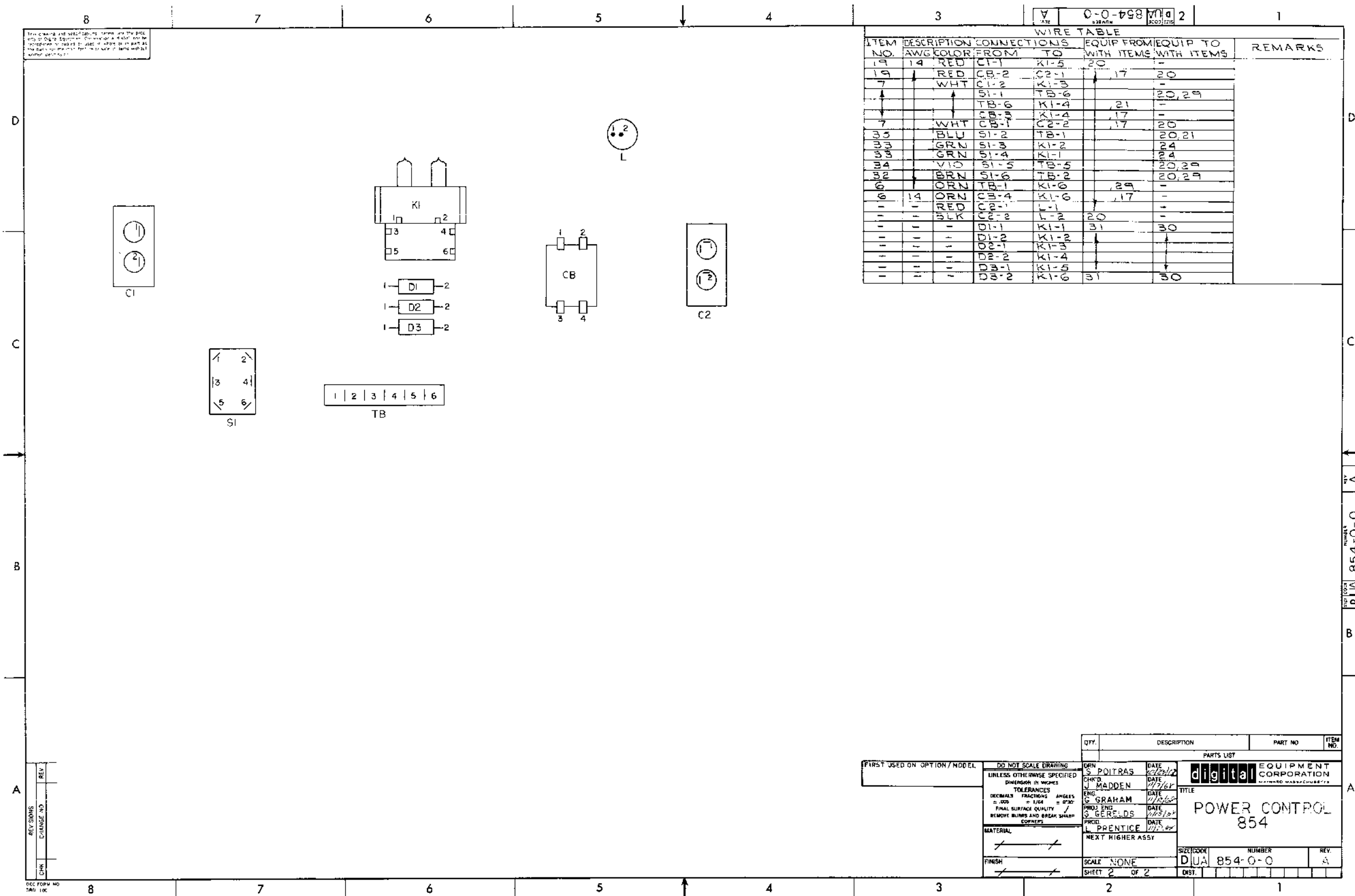


Figure II-41 Type 854 Power Control Panel
Component Pin Location Diagram
(Sheet 2)

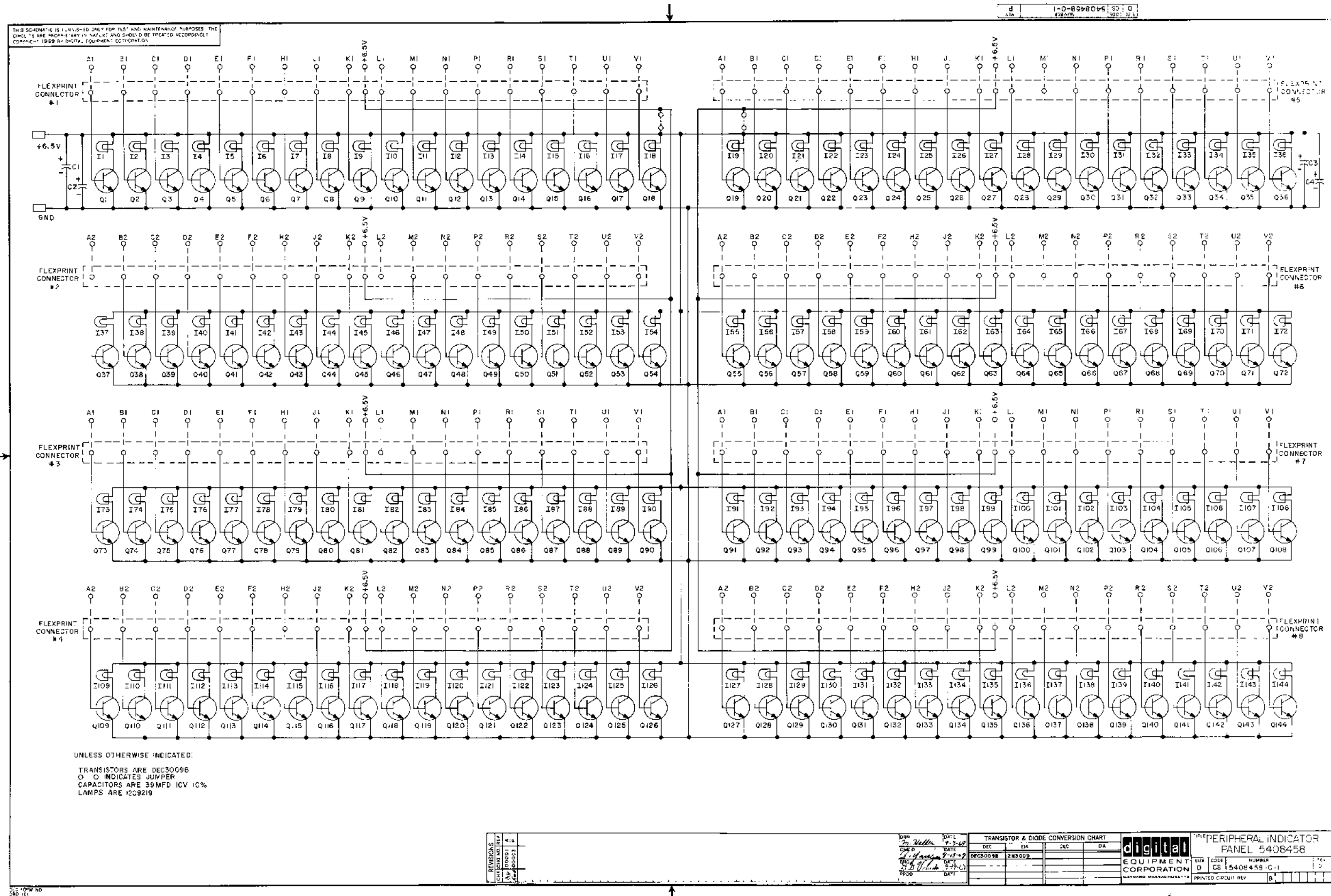
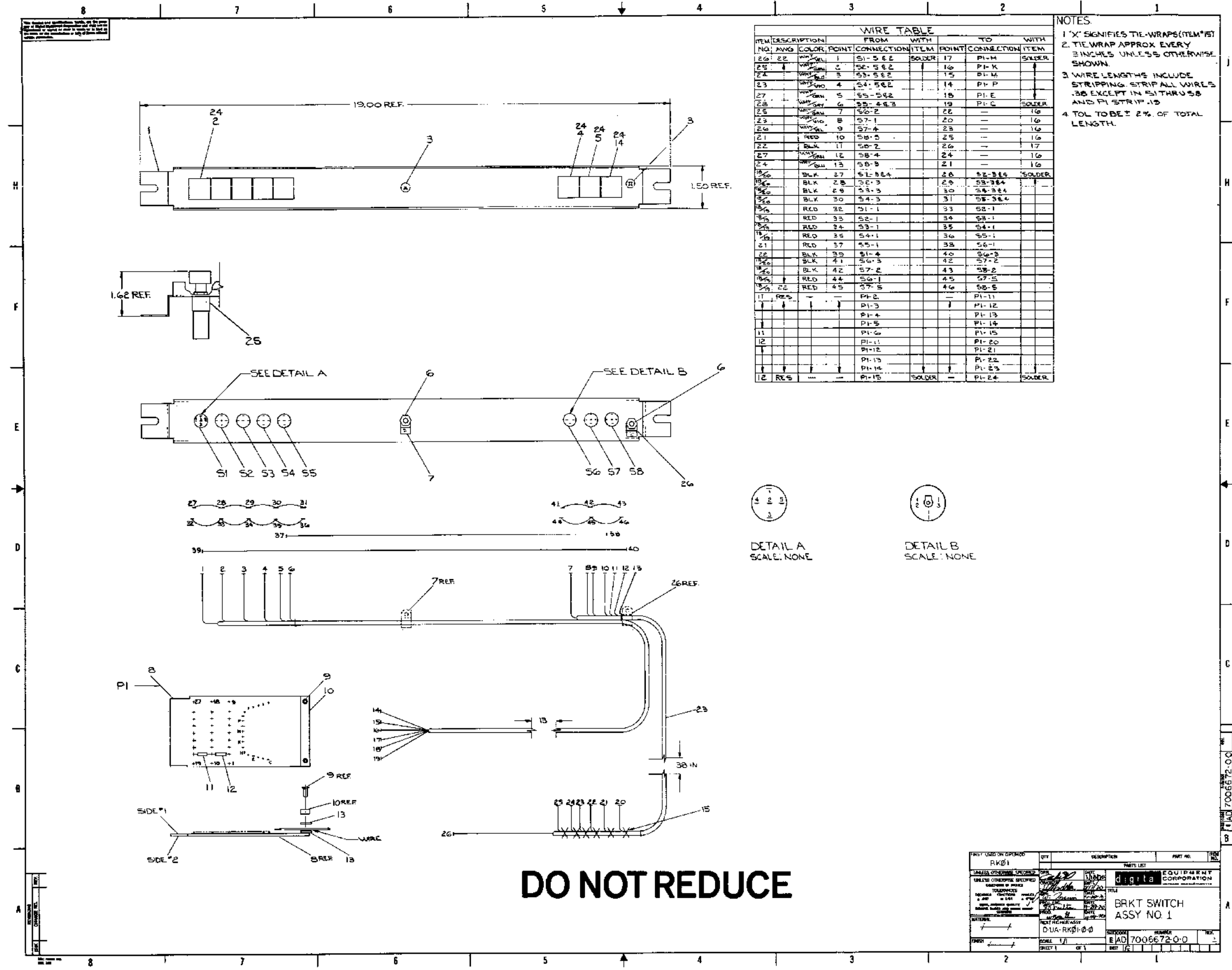


Figure II-42 Register Indicator Panel Circuit Schematic Diagram



DO NOT REDUCE

REV	DESCRIPTION	DATE	BY	CHKD
1	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
2	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
3	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
4	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
5	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
6	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
7	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
8	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
9	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
10	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
11	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
12	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
13	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
14	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
15	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
16	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
17	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
18	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
19	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
20	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
21	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
22	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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25	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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32	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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34	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
35	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
36	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
37	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
38	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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45	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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53	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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55	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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57	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
58	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
59	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
60	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
61	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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63	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
64	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
65	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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67	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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69	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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71	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
72	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ
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100	REVISED TO SHOW CHANGES TO WIRE TABLE	11/20/67	EAD	WJ

Figure II-43 Control Panel Switch Assembly Diagram

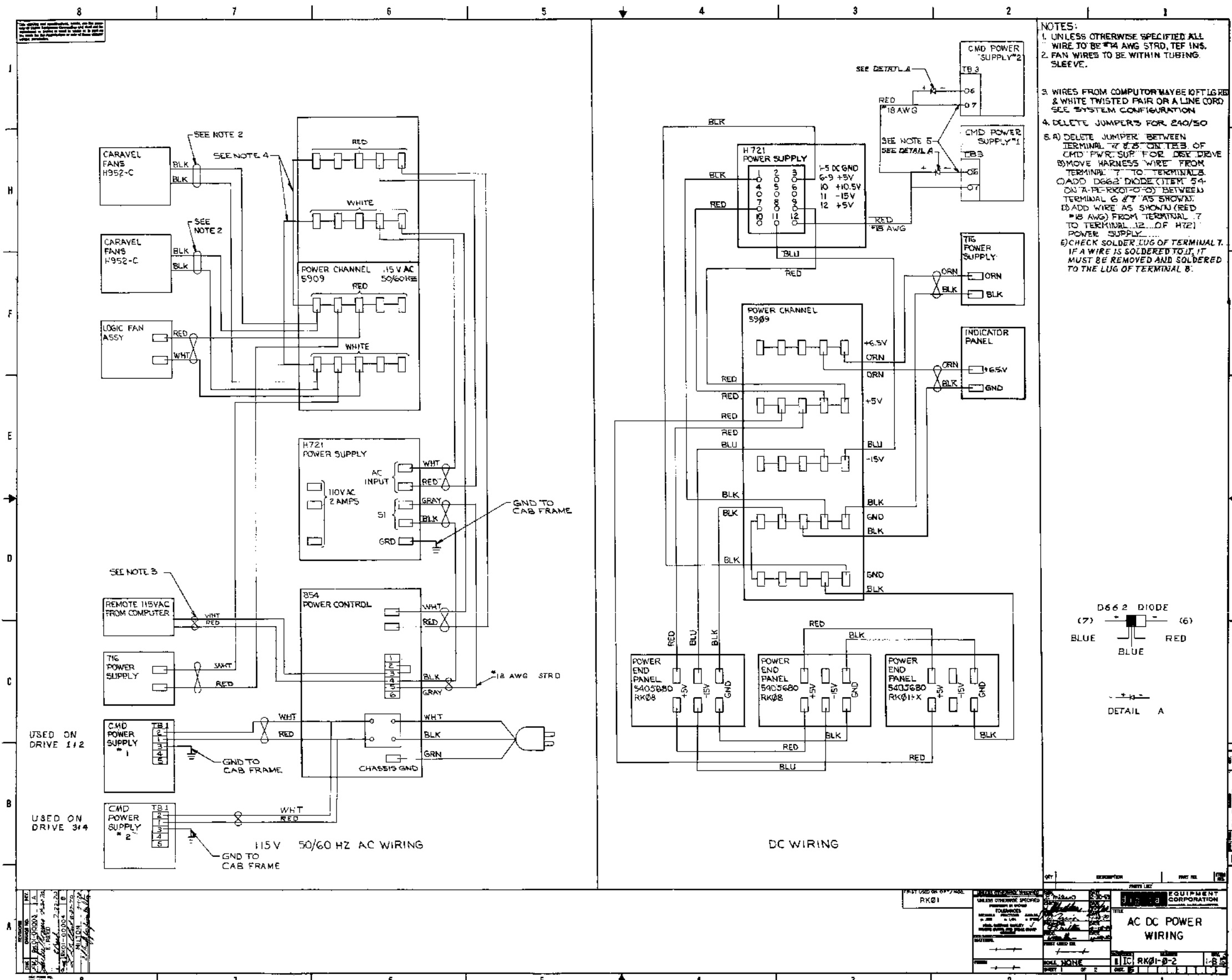
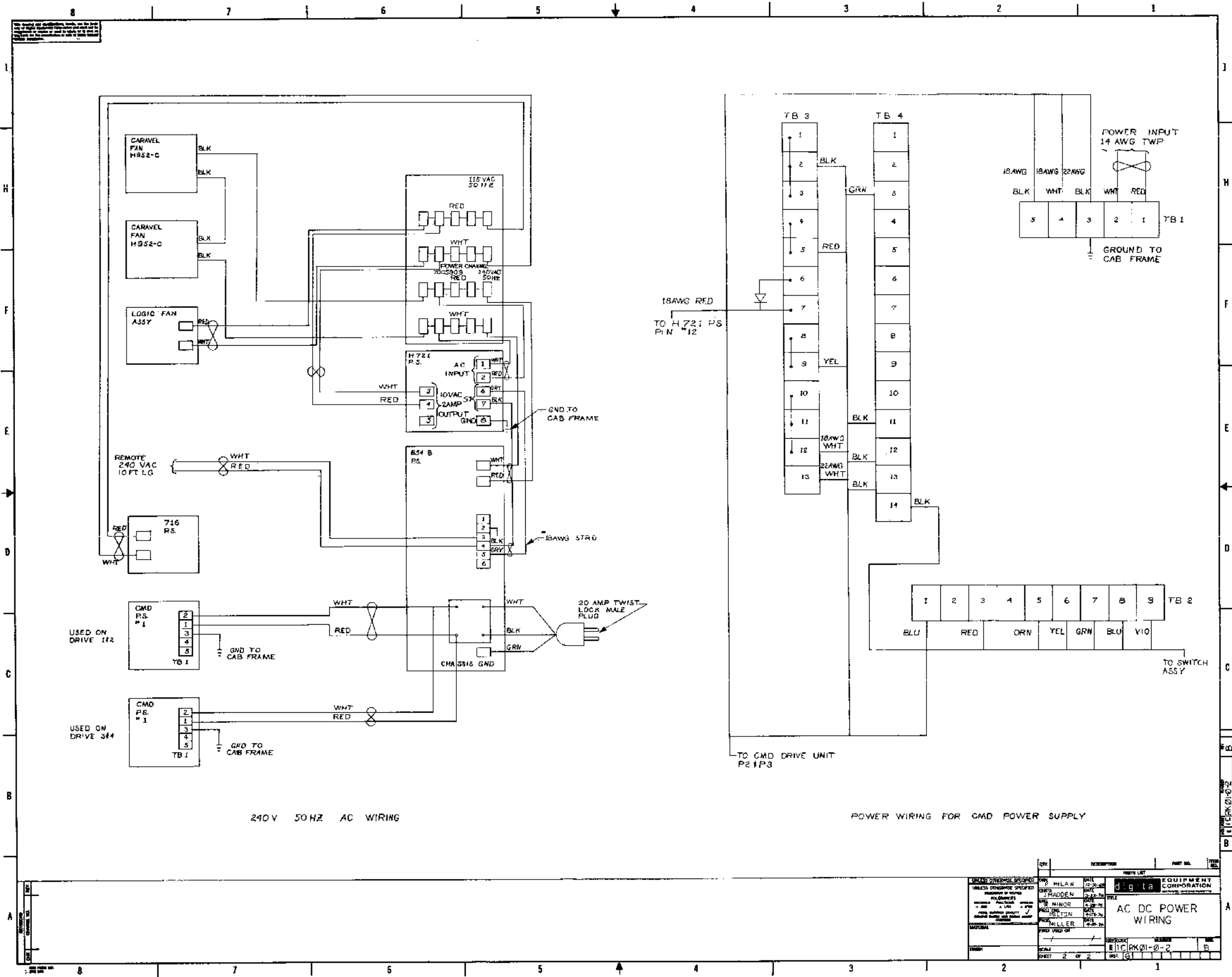


Figure II-44 AC/DC Power Wiring Diagram



240 V 50 HZ AC WIRING

POWER WIRING FOR GMD POWER SUPPLY

REV.	DESCRIPTION	DATE	BY	CHKD.
1	ISSUED	12-20-78	MYLAN	DAVE
2	REVISED	01-24-79	BRADEN	DAVE
3	REVISED	02-28-79	MINOR	DAVE
4	REVISED	03-28-79	REVISION	DAVE
5	REVISED	04-20-79	MILLER	DAVE

DATE	12-20-78	BY	MYLAN	CHKD.	DAVE
SCALE	1:1	PROJECT	11C PK01-0-2	SHEET	2 OF 2

PROJECT	11C PK01-0-2	SHEET	2 OF 2
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EQUIPMENT CORPORATION
delta
 AC DC POWER WIRING
 11C PK01-0-2
 2 OF 2