

# TU77 Magnetic Tape Transport

Technical Manual  
Volume 1

TU77  
Magnetic Tape  
Transport

Technical Manual  
Volume 1

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2nd Edition, July 1981

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	MASSBUS	

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27	Schematic, Data L	72
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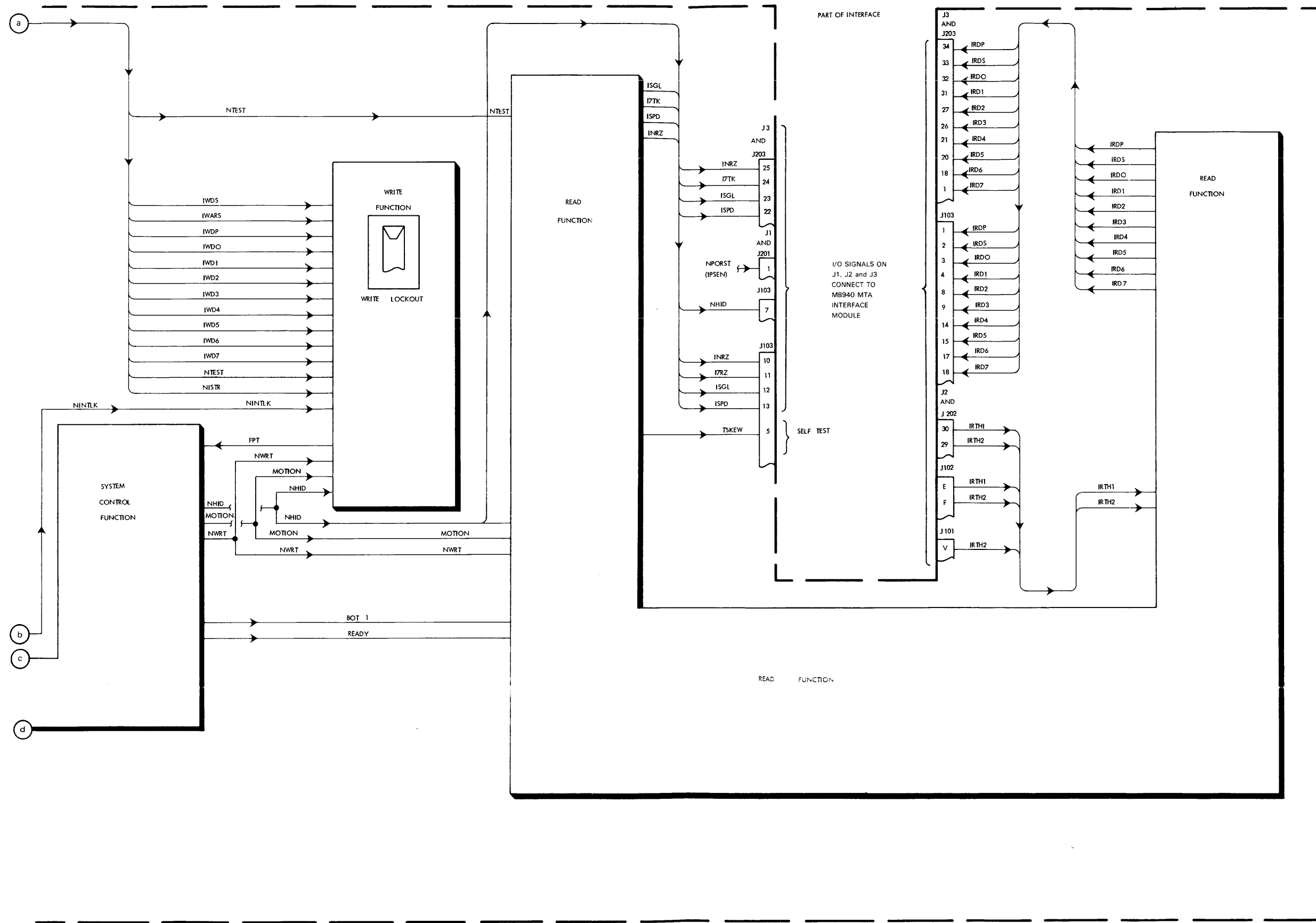


Figure 1 System Functional Block Diagram (Sheet 2 of 2)

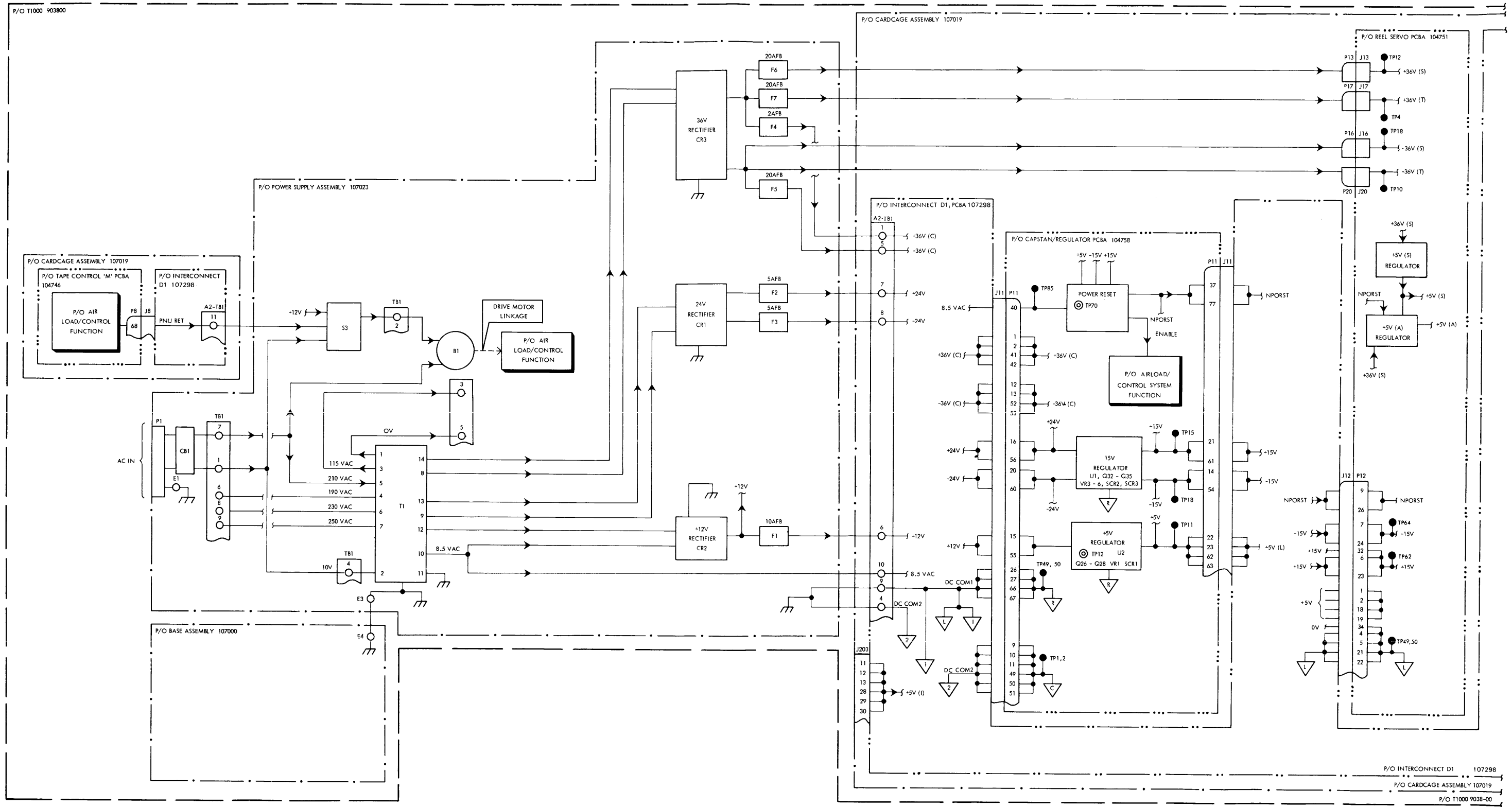


Figure 2 Power Supply and Distribution Functional Block Diagram (Sheet 1 of 2)





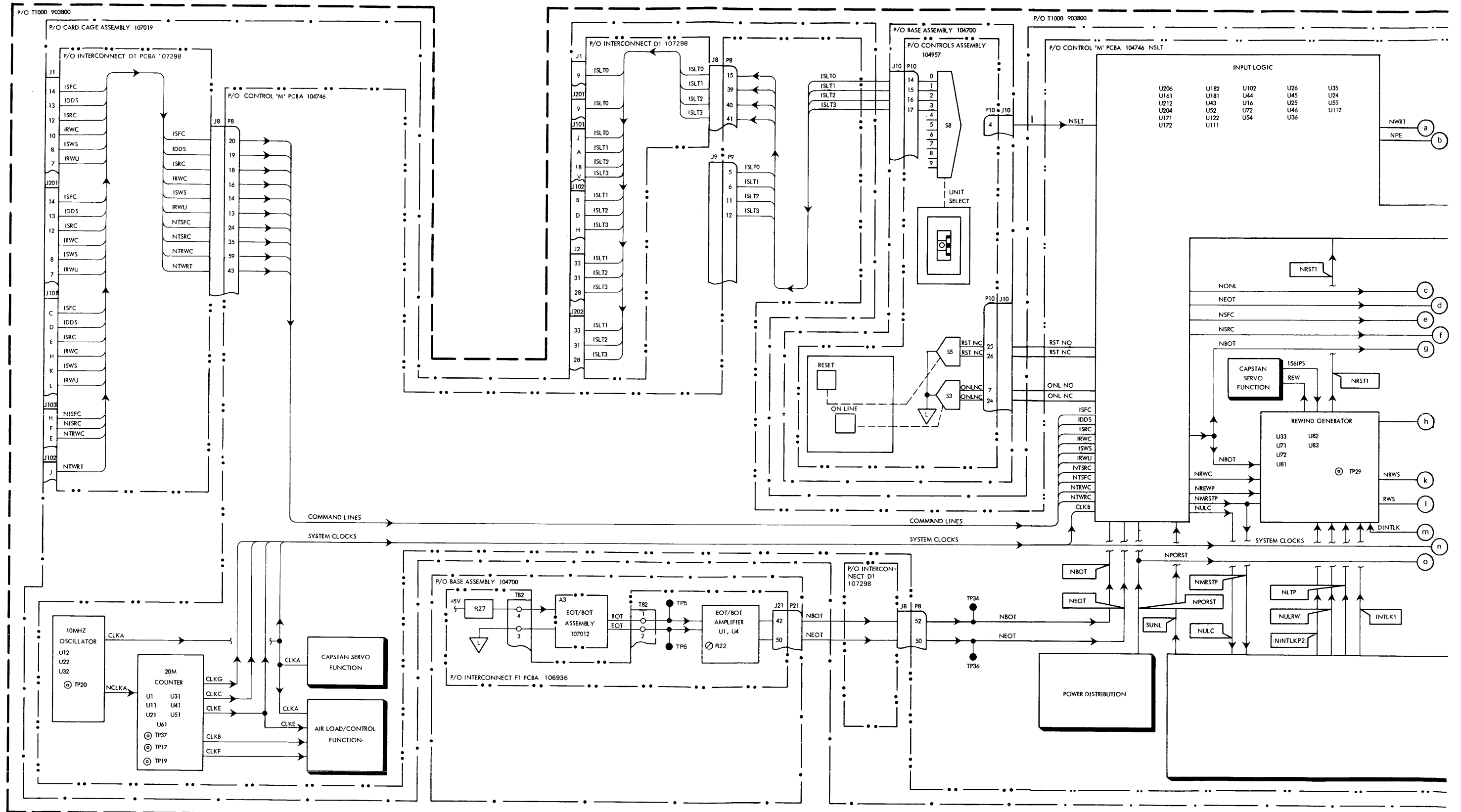


Figure 3 System Control Functional Block Diagram (Sheet 1 of 2)

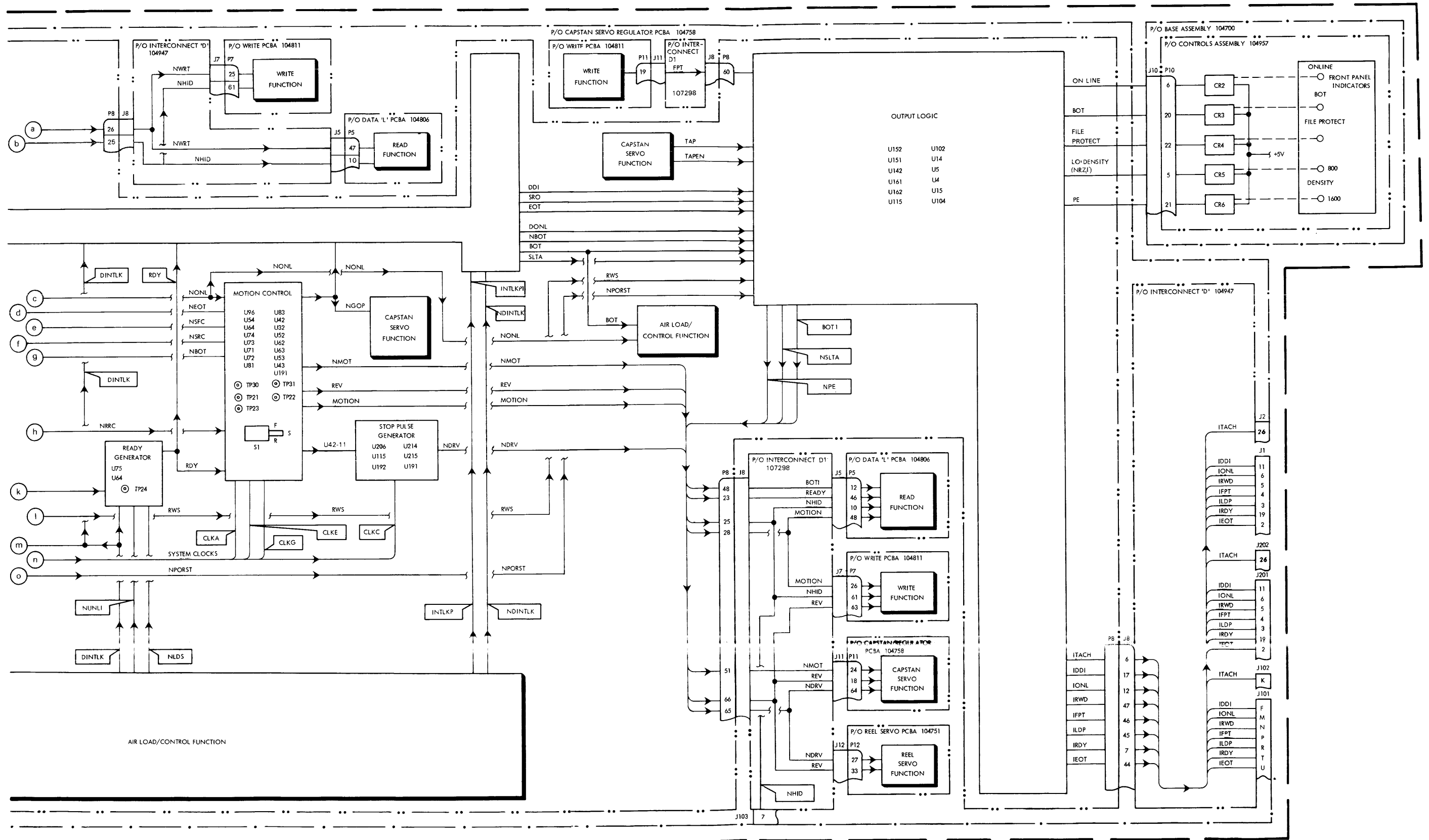
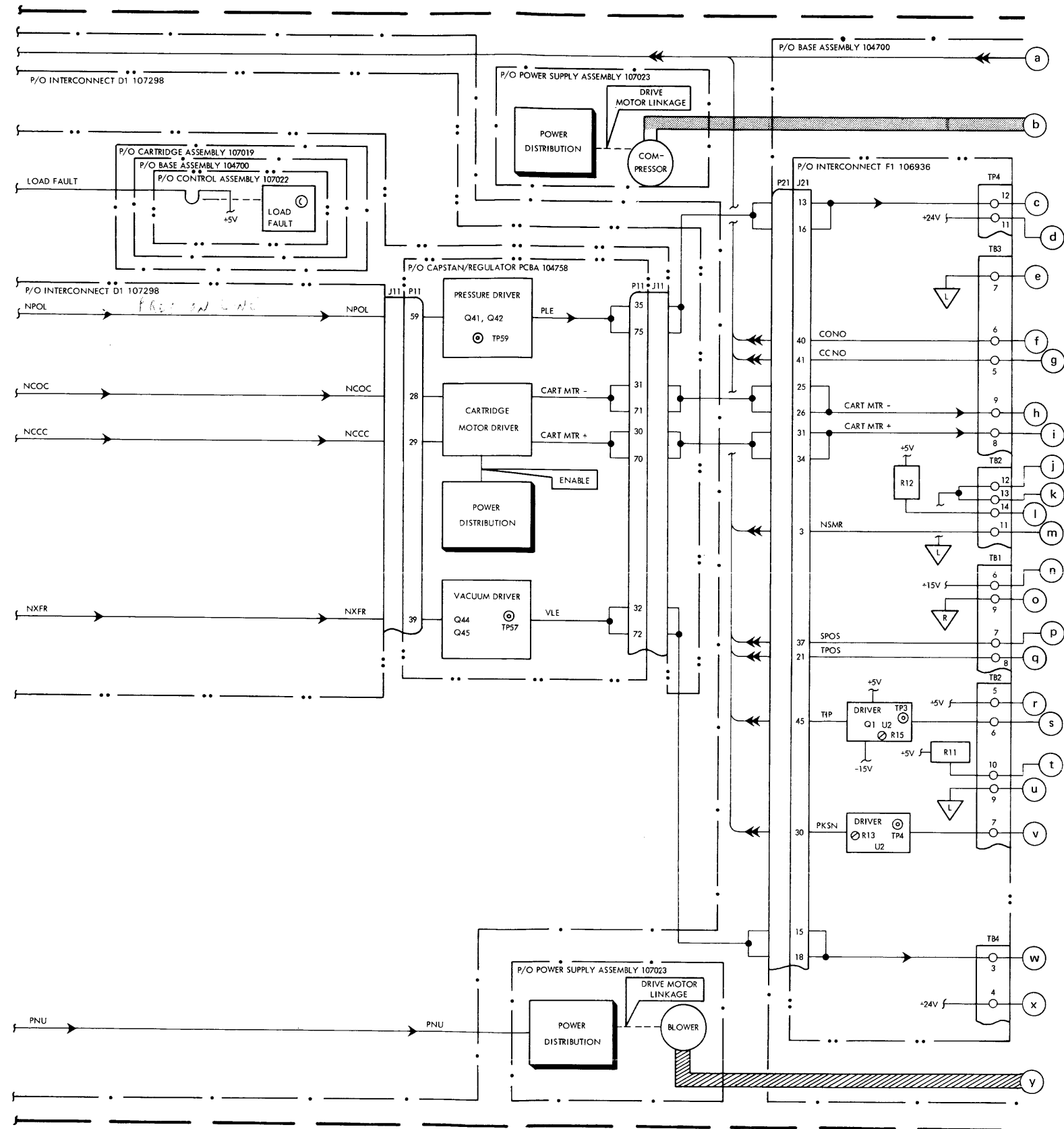


Figure 3 System Control Functional Block Diagram (Sheet 2 of 2)

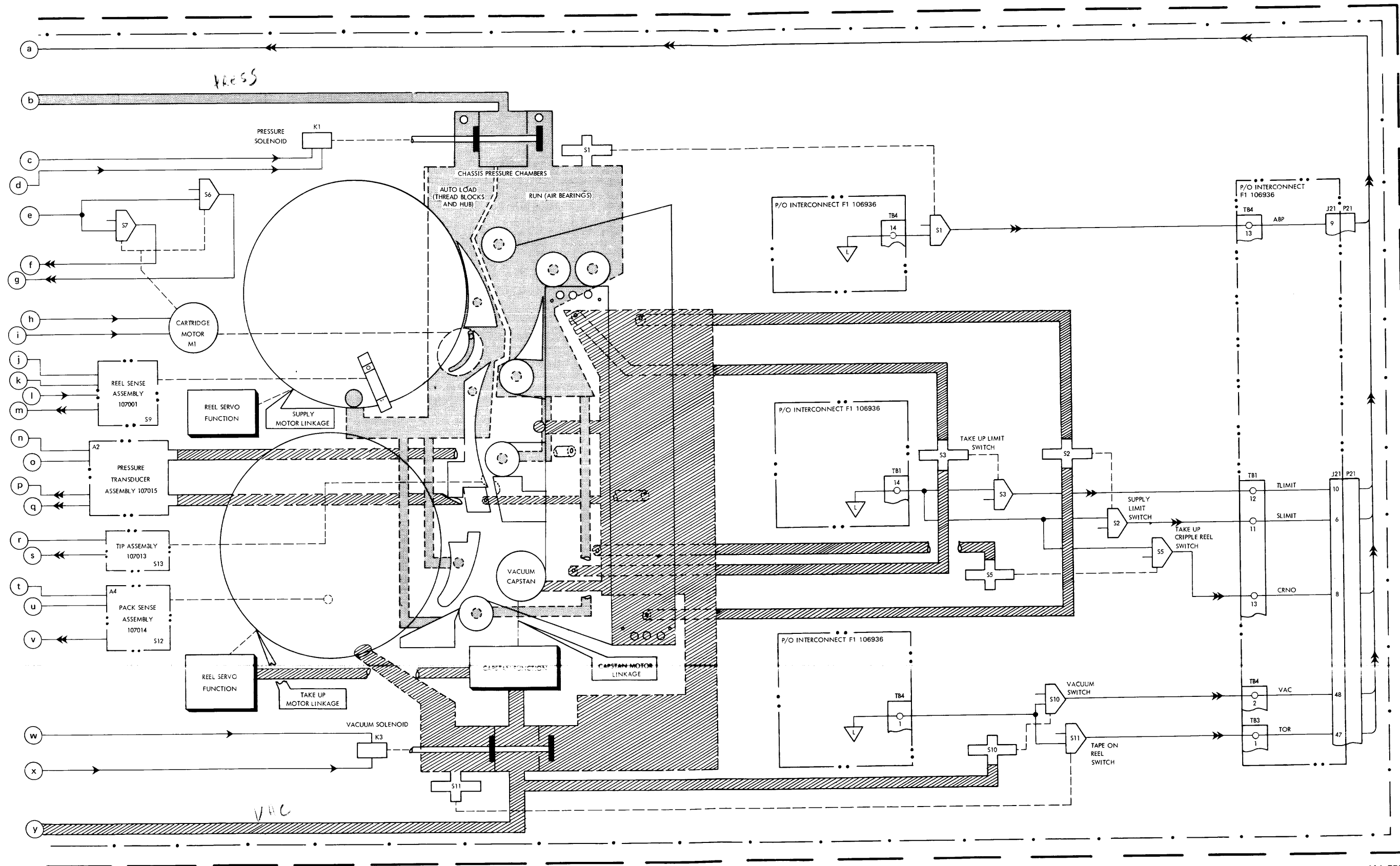






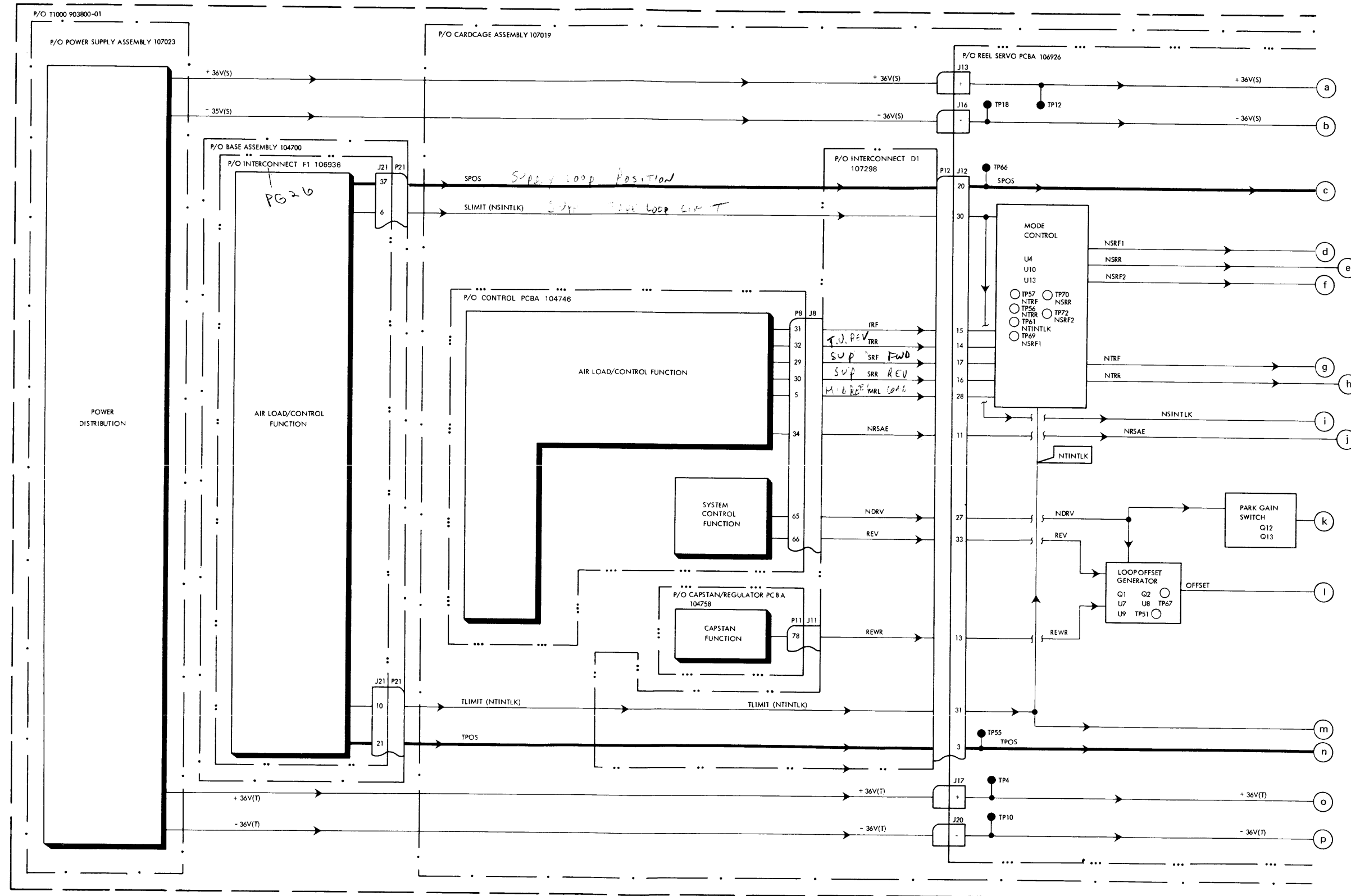
MA-5787

Figure 4 Air Load/Control Functional Block Diagram (Sheet 3 of 4)



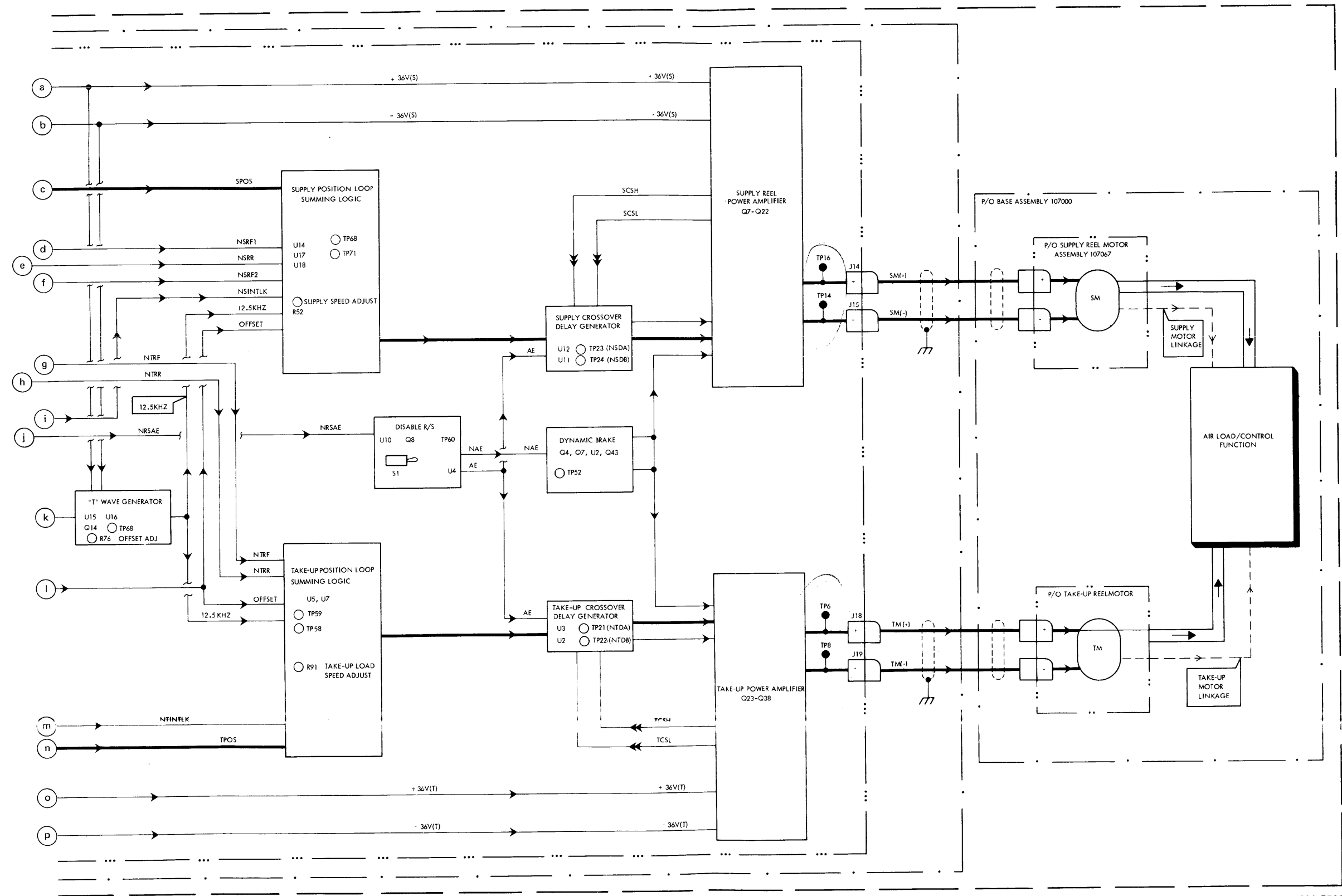
MA-5788

Figure 4 Air Load/Control Functional Block Diagram (Sheet 4 of 4)



MA-5789

Figure 5 Reel Servo Functional Block Diagram (Sheet 1 of 2)



MA-5790

Figure 5 Reel Servo Functional Block Diagram (Sheet 2 of 2)



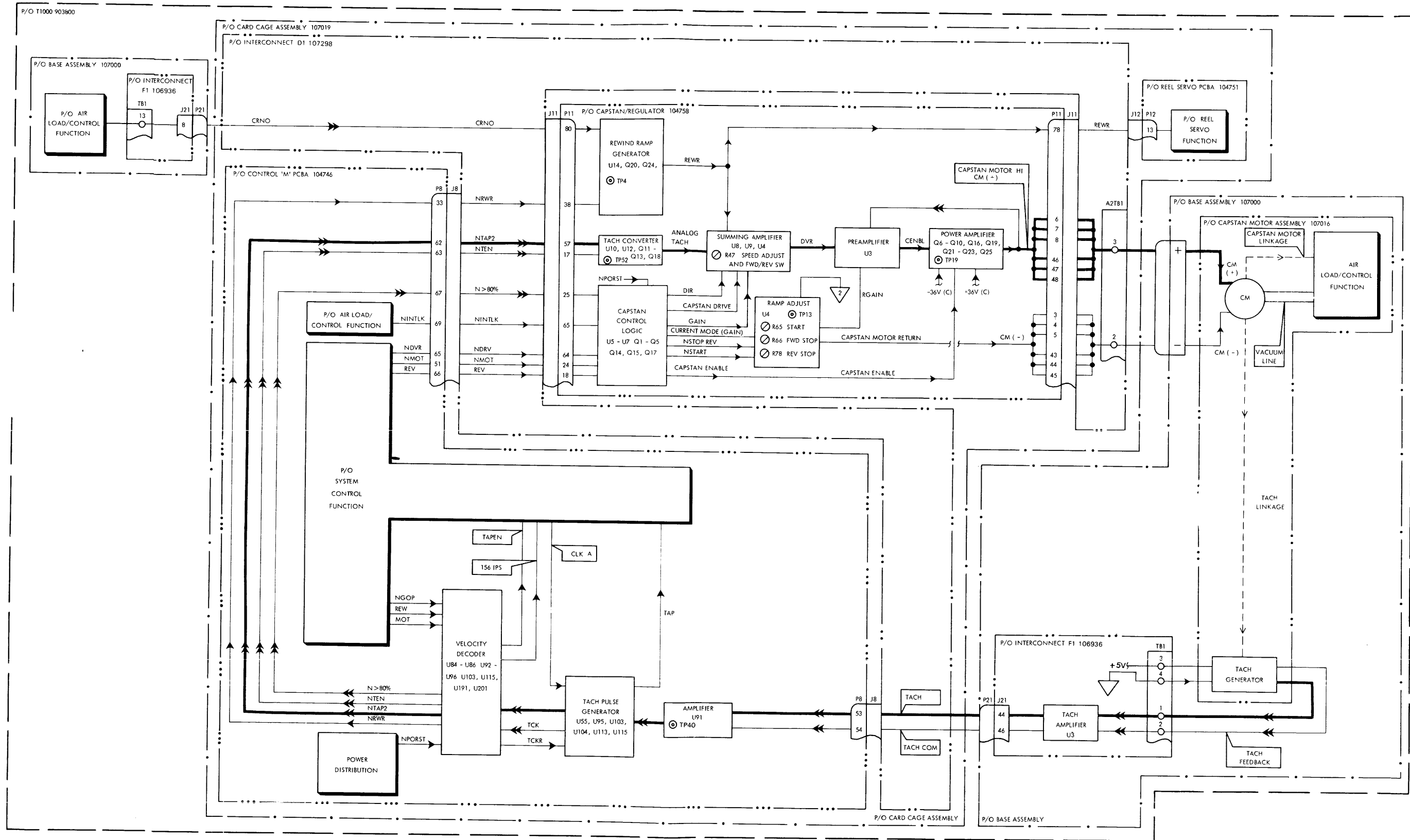
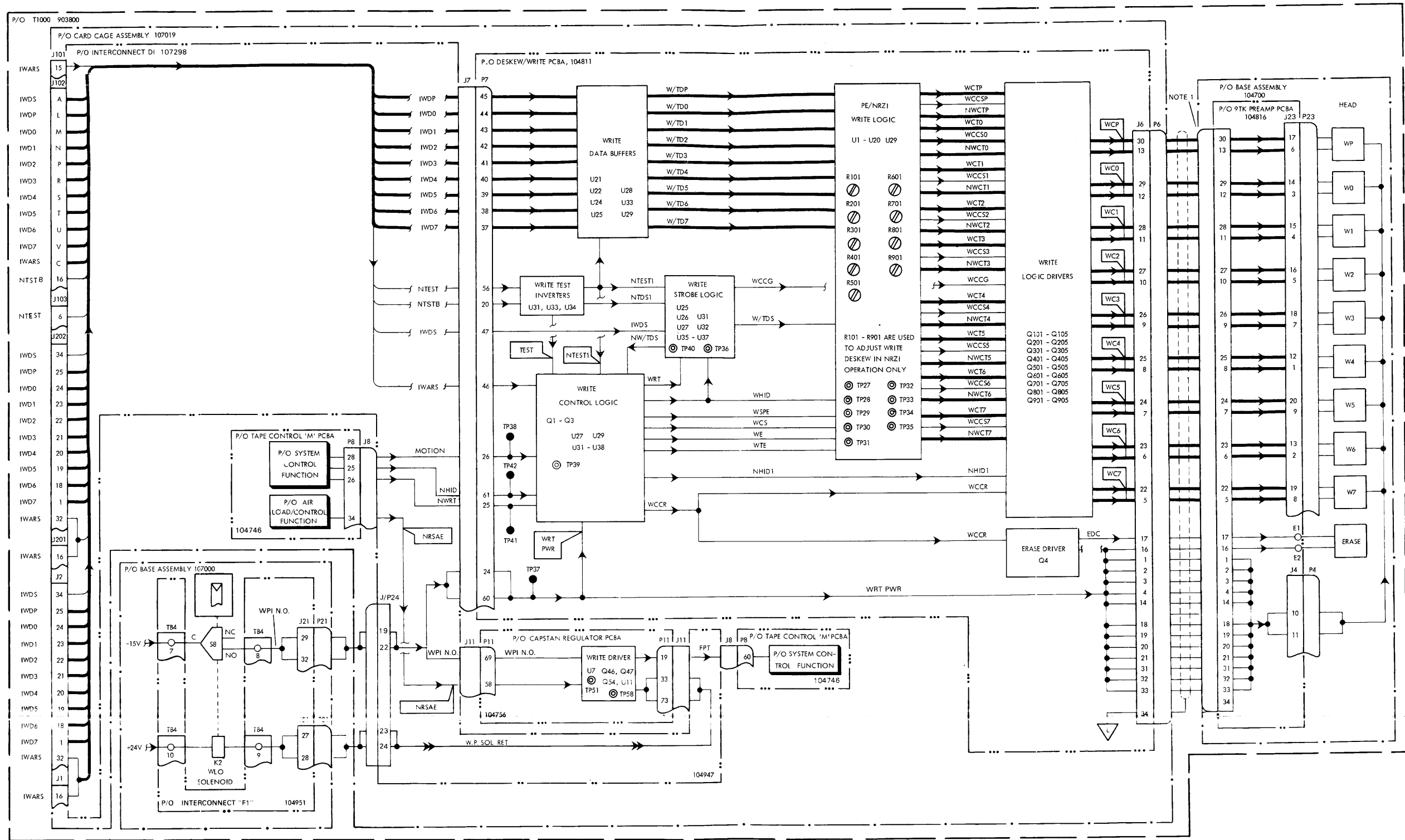


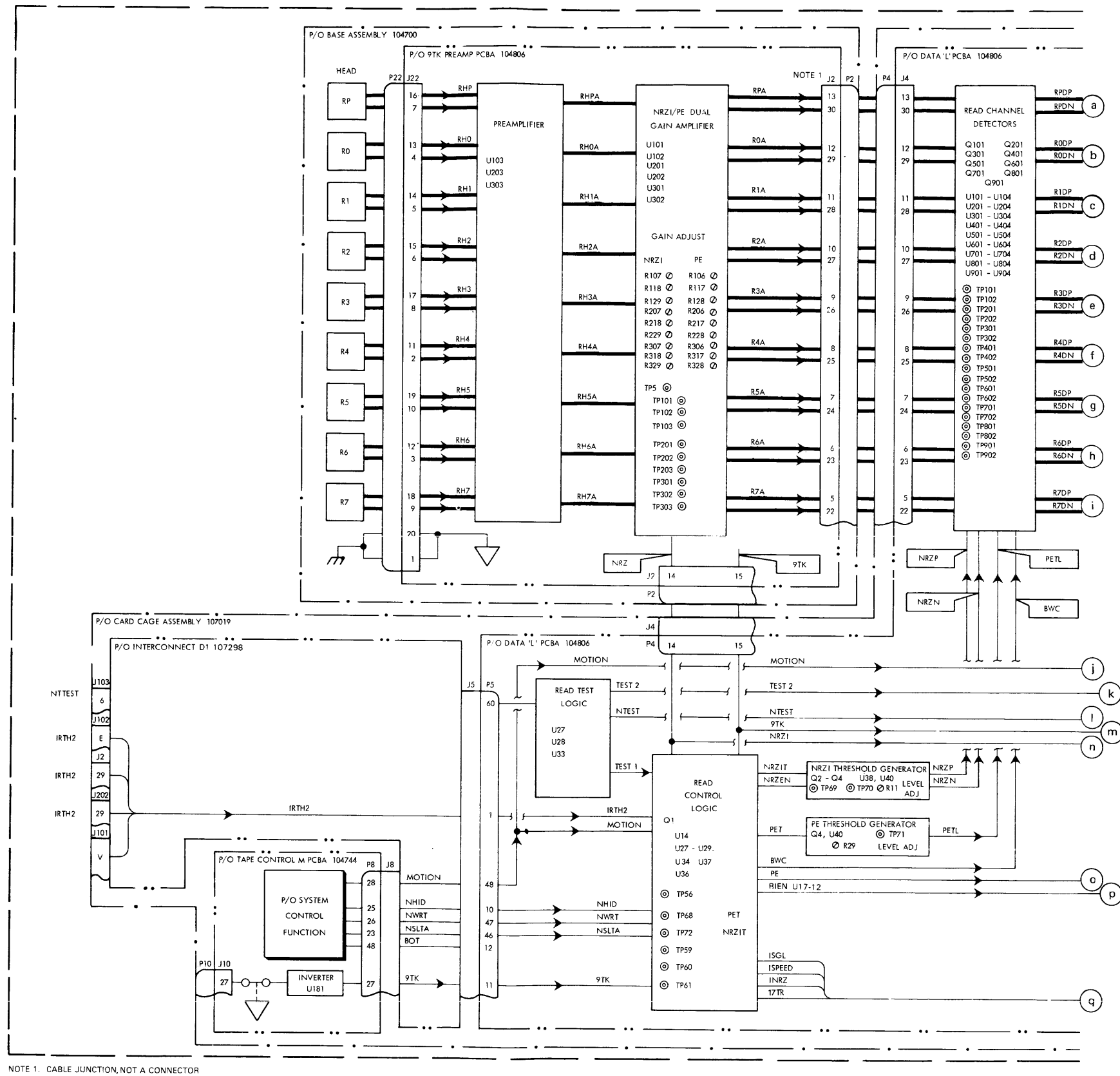
Figure 6 Capstan Servo Functional Block Diagram



NOTE 1. CABLE JUNCTION. NOT A CONNECTOR.

MA-5792

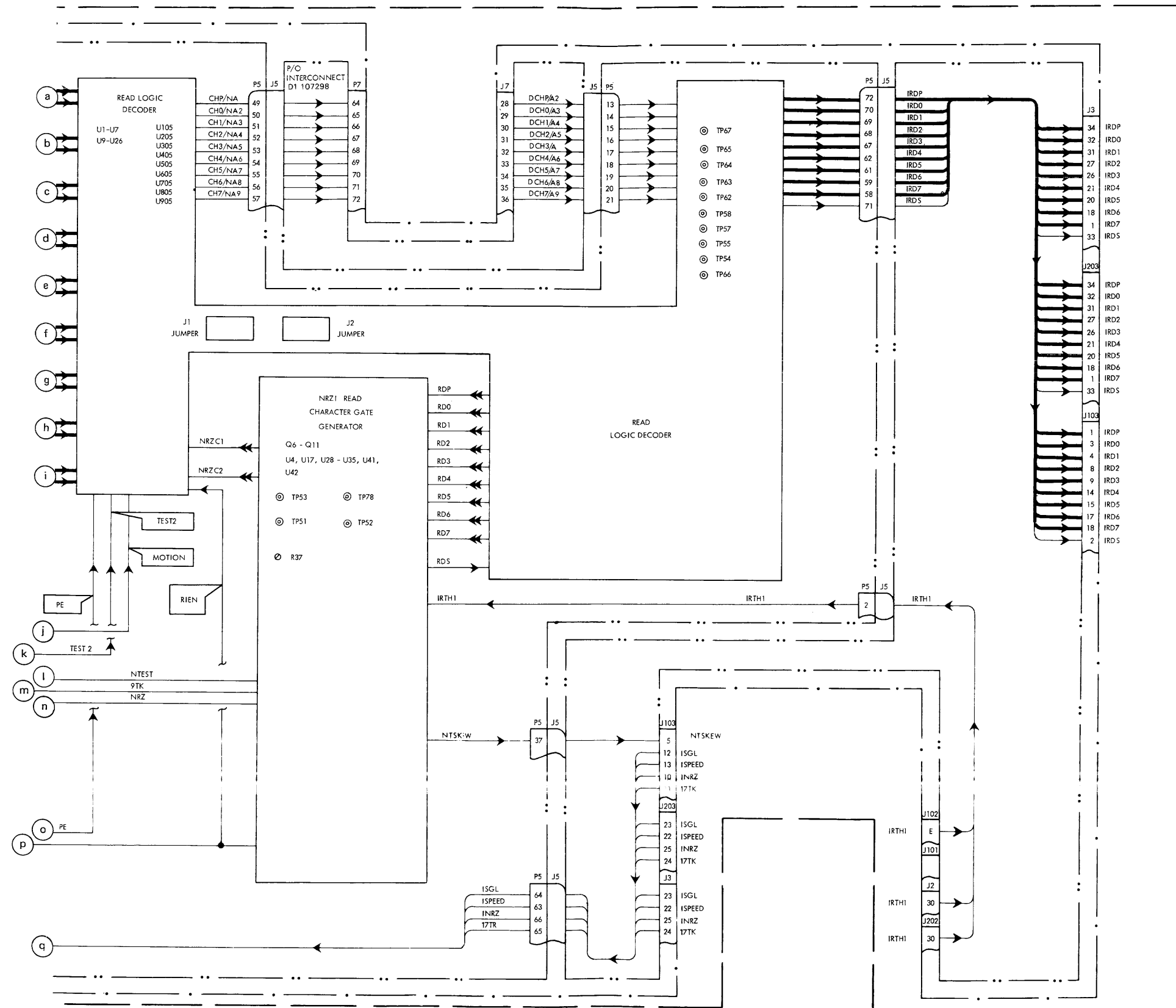
Figure 7 Write Functional Block Diagram



NOTE 1. CABLE JUNCTION, NOT A CONNECTOR

MA-5793

Figure 8 Read Functional Block Diagram (Sheet 1 of 2)



MA-5794

Figure 8 Read Functional Block Diagram (Sheet 2 of 2)





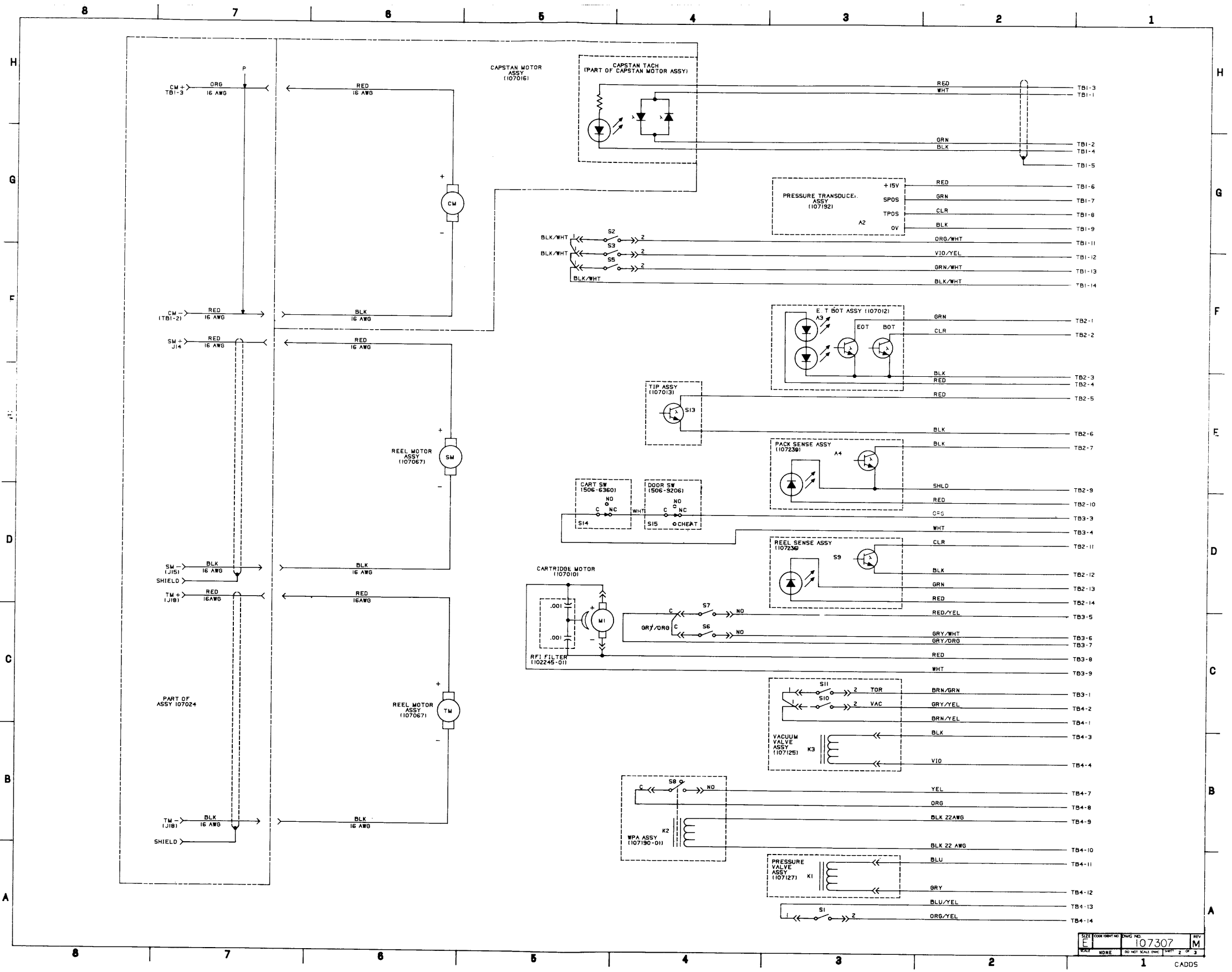
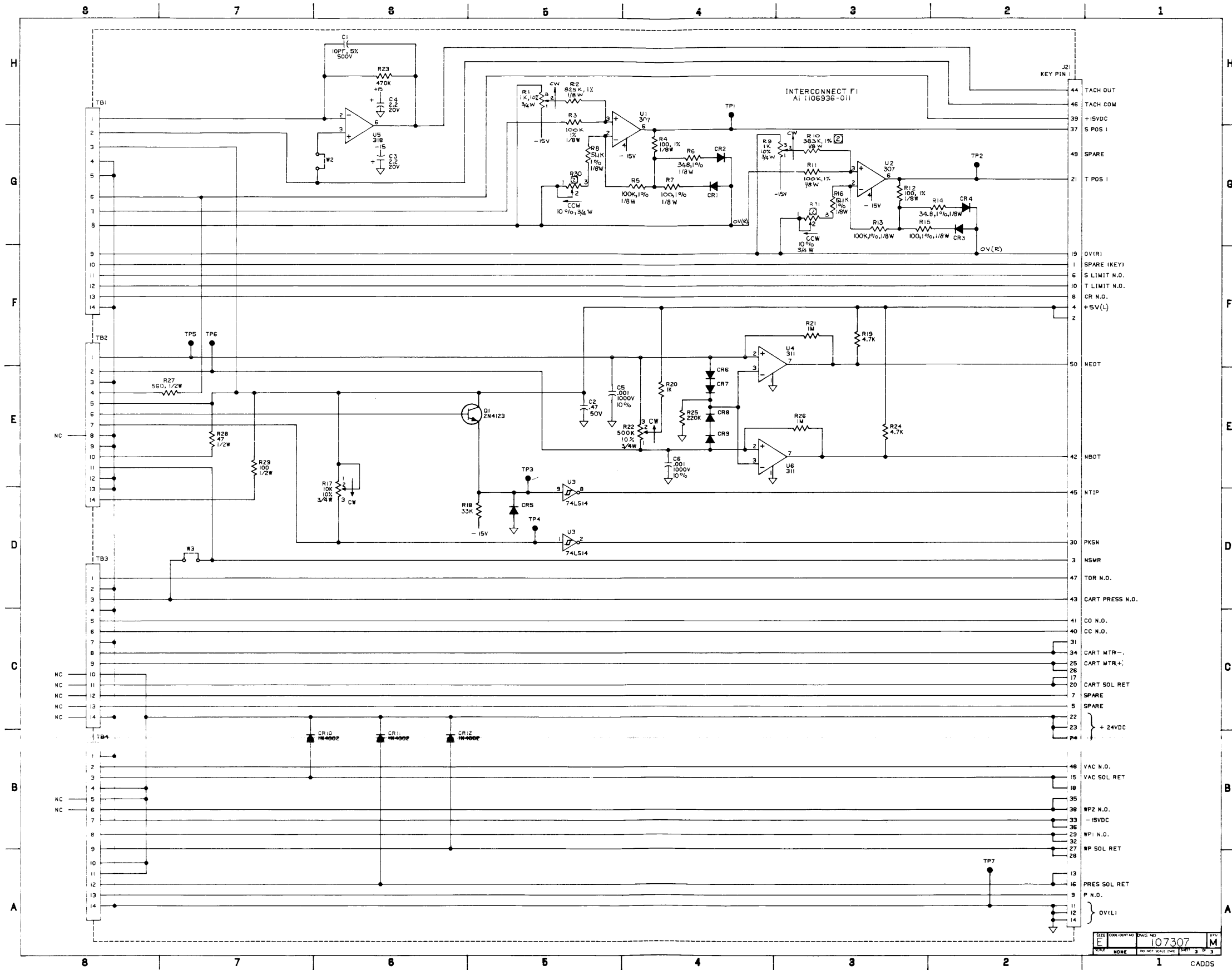


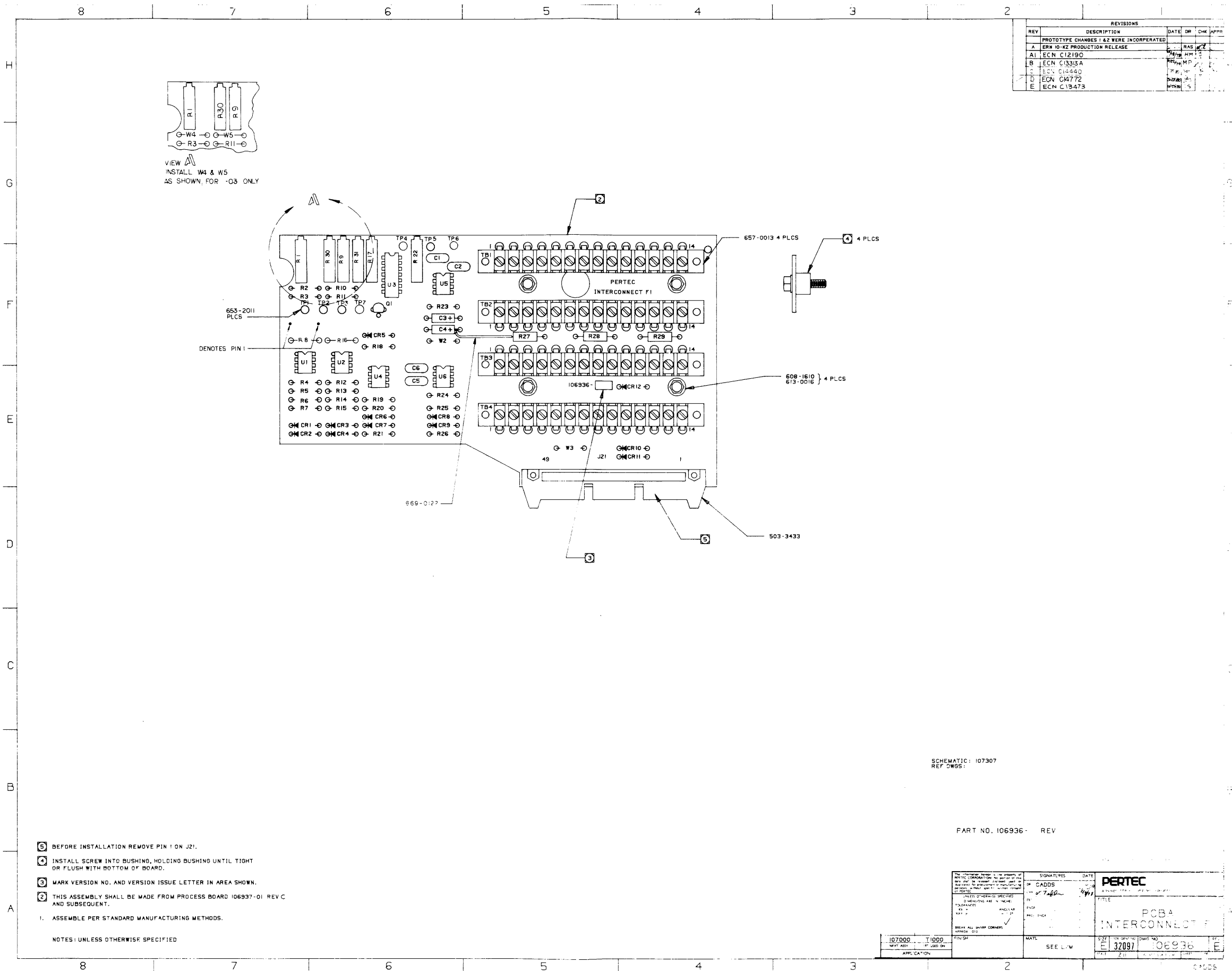
Figure 9 Schematic, Base Assembly (10730) (Sheet 2 of 3)



SIZE: 107307  
 E M  
 107307  
 3 3

Figure 9 Schematic, Base Assembly (10730) (Sheet 3 of 3)





REVISIONS				
REV	DESCRIPTION	DATE	DR	CHK
	PROTOTYPE CHANGES 1 & 2 WERE INCORPORATED			
A	ERN 10-KZ PRODUCTION RELEASE		RAS	
A1	ECN C12190			
B	ECN C13313A			
C	ECN C14440			
D	ECN C4772			
E	ECN C13473			

SCHEMATIC: 107307  
REF DWGS:

FART NO. 106936- REV

- 5 BEFORE INSTALLATION REMOVE PIN 1 ON J21.
  - 4 INSTALL SCREW INTO BUSHING, HOLDING BUSHING UNTIL TIGHT OR FLUSH WITH BOTTOM OF BOARD.
  - 3 MARK VERSION NO. AND VERSION ISSUE LETTER IN AREA SHOWN.
  - 2 THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 106937-01 REV C AND SUBSEQUENT.
1. ASSEMBLE PER STANDARD MANUFACTURING METHODS.
- NOTES: UNLESS OTHERWISE SPECIFIED

107000	T 1000	DATE	
APP. ASSY	PLASD DR	SIGNATURES	DATE
APPLICATION		DR	CADD5
		BY	7/80
		ENGR	
		PRO. ENGR	
		CHECKED	
		DATE	
		BREAK ALL SHARP CORNERS	
		APPROX. 50%	
		MATERIAL	SEE LHM
		SIZE	32097
		DRAWING NO.	106936
		REV.	E

Figure 10 PCBA, Interconnect F1



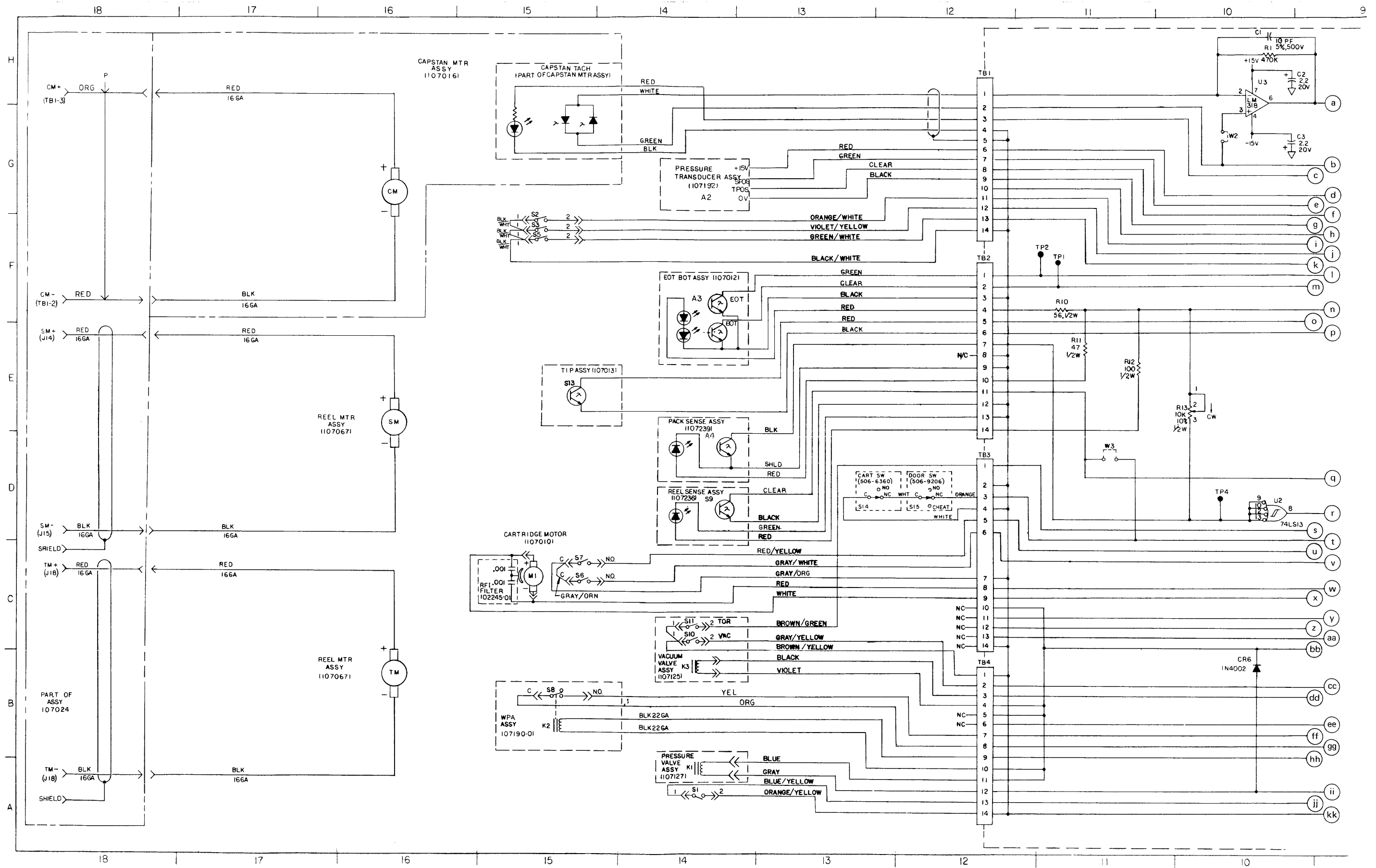


Figure 11 Schematic, Base Assembly (107189) (Sheet 1 of 2)

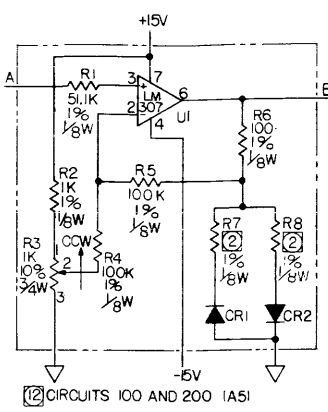
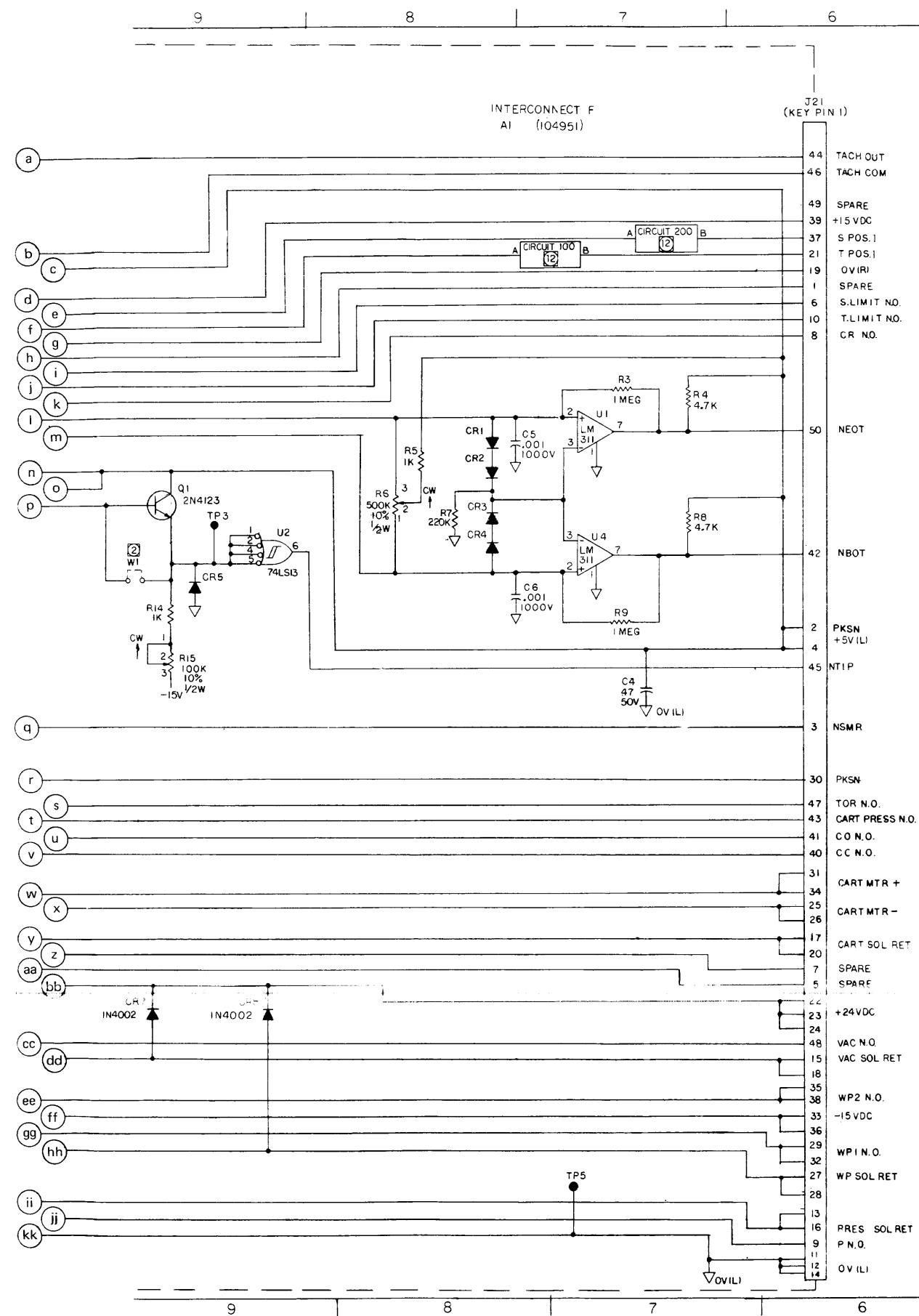


TABLE I

PART NO.	REFERENCE DESIGNATION
100-0005	W2
100-1025	R5,14
100-1055	R3,9
100-2245	R7
100-4725	R4,8
101-1015	R12
101-4705	R11
101-5605	R10
107-1000	R 106, 206
107 1001	R 102, 202
124-1030	R13
124-1040	R15
124-5040	R6
107-1003	R104, 105, 204, 205
107-5112	R101, 201
121-1020	R 103, 203
100-4745	R1
130-1005	C1
135-1002	C5,6
135-4742	C4
139-2244	C2,3
200-4123	Q1
300-4002	CR6,7,8
300-4446	CR1, 2,3,4,5,101,102,201,202
400-0307	U101, 201
400-0311	U1,4
400-0318	U3
691-6030	W3
710-7413	U2

REVISIONS

REV	DESCRIPTION	DATE	BY	CHK	APP
A	ERN 9-PV PROD RELEASE	2/1/84	CF	CF	CF
B	ECN 10618	2/1/84	CF	CF	CF
C	ECN 10674	2/1/84	CF	CF	CF
D	ECN 10757	2/1/84	CF	CF	CF
E	ECN 10881	2/1/84	CF	CF	CF
F	ECN 10824	2/1/84	CF	CF	CF
G	ECN 10945A	2/1/84	CF	CF	CF
H	ECN 11157	2/1/84	CF	CF	CF
J	ECN 11251	2/1/84	CF	CF	CF
K	ECN 11219D	2/1/84	CF	CF	CF

REFERENCE DESIGNATION

LAST USED	NOT USED	DELETED
C6	②	②
CR8	CR2	
Q1		
R15	R8	R2
TB4		
TP5		
U4	U1	
W3		
S15		

TABLE II

ASSEMBLY VERSION NO	VERSION CHARACTERISTIC	W1	R107, 208	R 108	R 207
107000	-01	OMIT	100	107-1000	34.8 107-0348 51.1 107-0511

- ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATION PREFIX WITH CIRCUIT NUMBER (R1 IN CIRCUIT 200 & R201)
  - 11. WIRE IS 24GA WHITE.
  - 10. DIODES ARE 1N4446.
  - 9. (RESERVED)
  - 8. (RESERVED)
  - 7. CAPACITORS ARE IN MICROFARADS, ±20%
  - 6. RESISTOR VALUES ARE IN OHMS, 1/4W, 5%
  - 5. (RESERVED)
  - 4. (RESERVED)
  - 3. (RESERVED)
  - ② FOR VALUE PART NO AND USAGE OF COMPONENTS AFFECTED BY VERSION NO, SEE TABLE II.
  - ① FOR PART NO. OF COMPONENTS NOT AFFECTED BY VERSION NO SEE TABLE I.
- NOTES: UNLESS OTHERWISE SPECIFIED

ASSEMBLY NO 107000  
WIRE LIST NO 107007

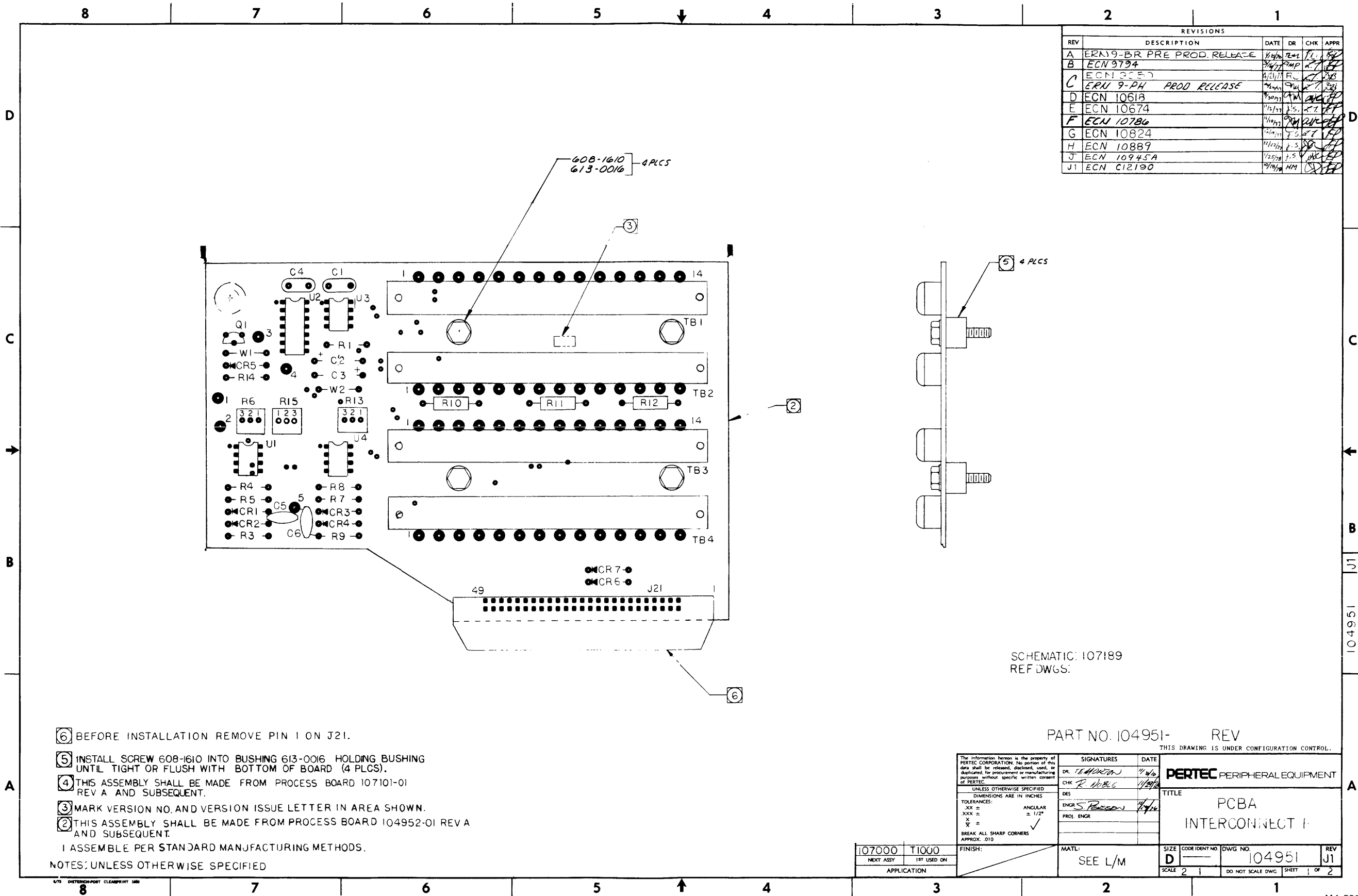
PERTEC PERIPHERAL EQUIPMENT DIVISION

TITLE: SCHEMATIC BASE ASSY

DATE: 107189

APP: JI

Figure 11 Schematic, Base Assembly (107189) (Sheet 2 of 2)



REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN9-BR PRE PROD. RELEASE	11/4/76	F.S.	W.P.	[Signature]
B	ECN 9794	11/17/77	F.S.	W.P.	[Signature]
C	ECN 10657	11/17/77	F.S.	W.P.	[Signature]
D	ERN 9-PH PROD RELEASE	11/17/77	F.S.	W.P.	[Signature]
E	ECN 10618	11/20/77	F.S.	W.P.	[Signature]
F	ECN 10674	11/20/77	F.S.	W.P.	[Signature]
G	ECN 10786	11/20/77	F.S.	W.P.	[Signature]
H	ECN 10824	11/20/77	F.S.	W.P.	[Signature]
I	ECN 10889	11/20/77	F.S.	W.P.	[Signature]
J	ECN 10945A	11/25/78	F.S.	W.P.	[Signature]
J1	ECN C12190	9/16/78	HM	[Signature]	[Signature]

SCHEMATIC: 107189  
REF DWGS:

PART NO. 104951- REV

THIS DRAWING IS UNDER CONFIGURATION CONTROL.

- ⑥ BEFORE INSTALLATION REMOVE PIN 1 ON J21.
- ⑤ INSTALL SCREW 608-1610 INTO BUSHING 613-0016 HOLDING BUSHING UNTIL TIGHT OR FLUSH WITH BOTTOM OF BOARD (4 PLCS).
- ④ THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 107101-01 REV A AND SUBSEQUENT.
- ③ MARK VERSION NO. AND VERSION ISSUE LETTER IN AREA SHOWN.
- ② THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 104952-01 REV A AND SUBSEQUENT.

1 ASSEMBLE PER STANDARD MANUFACTURING METHODS.

NOTES: UNLESS OTHERWISE SPECIFIED

<small>The information herein is the property of PERTEC CORPORATION. No portion of this data shall be released, disclosed, used, or duplicated, for procurement or manufacturing purposes without specific written consent of PERTEC.</small>		SIGNATURES DR: <i>TEADWTON</i> 11/4/76 CHK: <i>R. URBEL</i> 11/17/76		DATE 11/4/76
DIMENSIONS ARE IN INCHES TOLERANCES: .XXX ± .005 .XX ± .005 .X ± .005 ANGULAR ± 1/2° BREAK ALL SHARP CORNERS APPROX. .010		TITLE PCBA INTERCONNECT F		PERTEC PERIPHERAL EQUIPMENT
107000 T1000 NEXT ASSY 1ST USED ON APPLICATION	FINISH:	MATL: SEE L/M	SIZE D SCALE 2:1	CODE IDENT NO. DWG NO. 104951 DO NOT SCALE DWG SHEET 1 OF 2

Figure 12 PCBA, Interconnect F (Sheet 1 of 2)

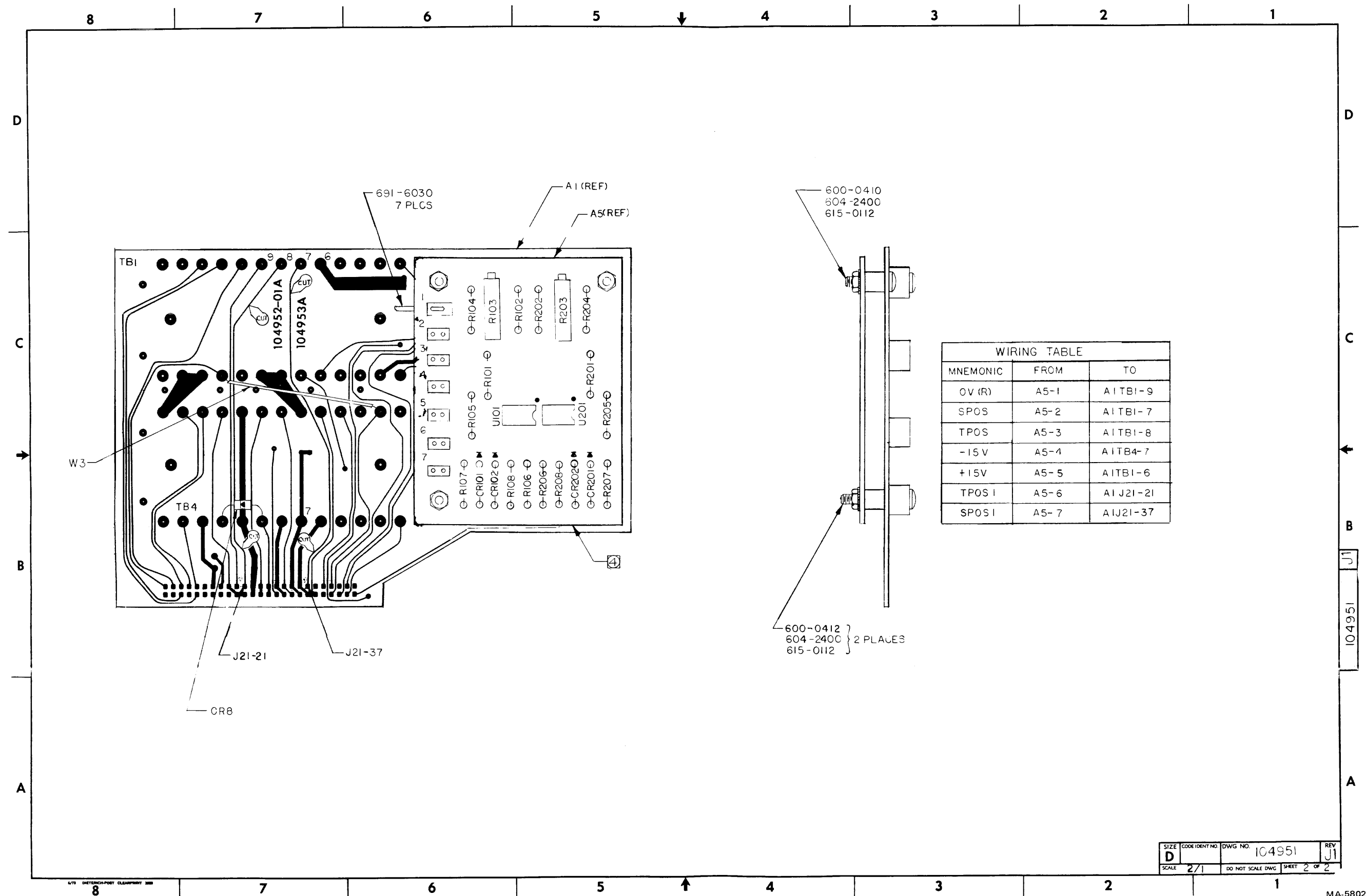


Figure 12 PCBA, Interconnect F (Sheet 2 of 2)

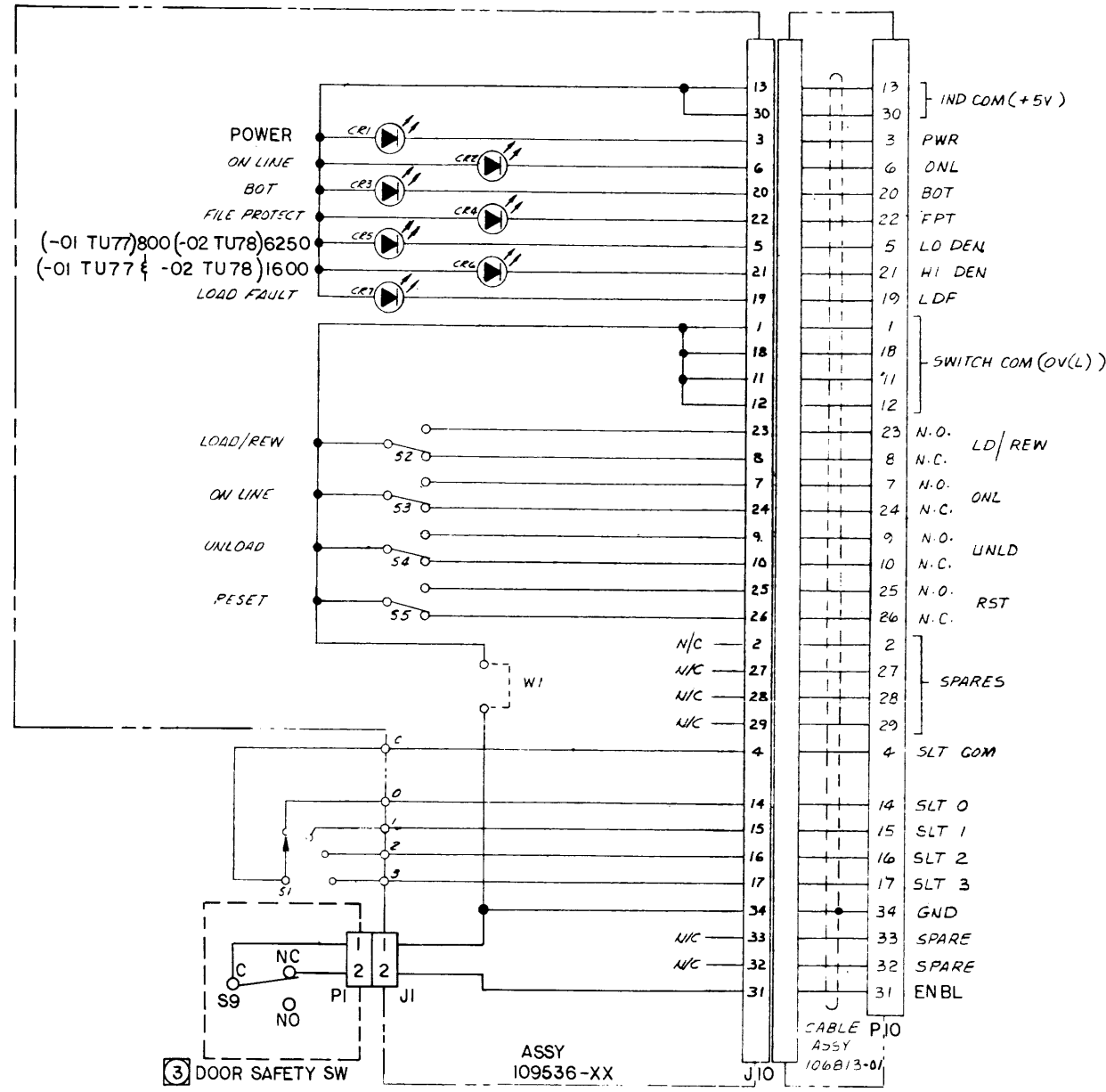
REVISIONS				
REV	DESCRIPTION	DATE	DR	APP
2	ERN 12-MY PROD. RELEASE	2-12-80	SRC	AM

① TABLE I

PART NO.	REF. DESIGNATION
301-0002	CR1, CR2, CR3, CR4, CR5 CR6, CR7
514-0011	S2, S3, S4, S5
506-6303	S1
691-0022	W1

TABLE II

REF DESIGNATION		
LAST USED	NO USED	DELETED
CR7		
S9 ③	S6,7,8	
W1		



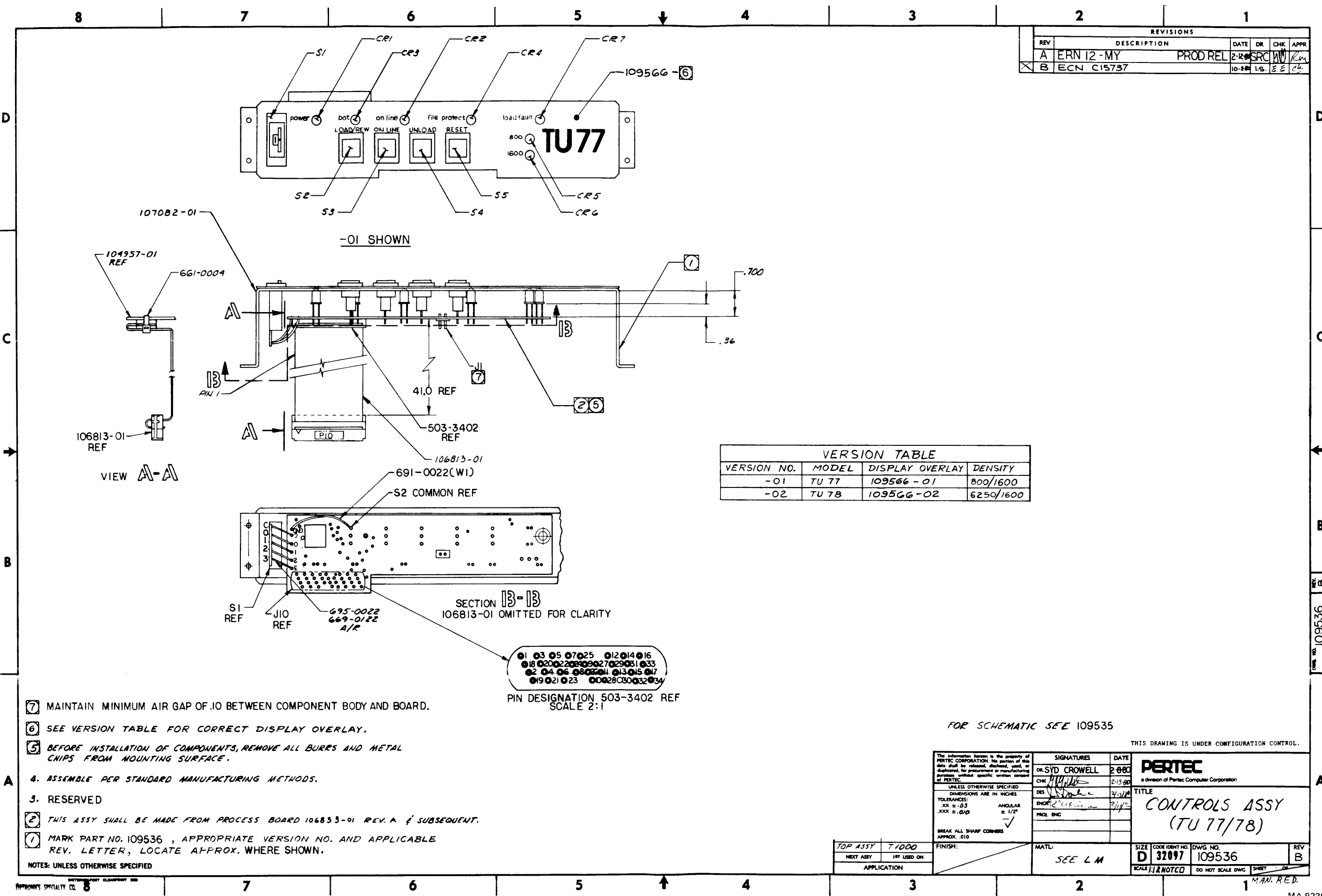
- ③ DOOR SAFETY SWITCH-SEE TOP ASSY FOR USE AGE.
- 2. FOR ASSY DWG SEE 109536.
- ① FOR PART NUMBERS OF COMPONENTS NOT AFFECTED BY VERSION NUMBER SEE TABLE I.

NOTES: UNLESS OTHERWISE SPECIFIED. THIS DRAWING IS UNDER CONFIGURATION CONTROL.

<small>The information herein is the property of PERTEC CORPORATION. No portion of this data shall be released, disclosed, used, or duplicated, for procurement or manufacturing purposes without specific written consent of PERTEC.</small>	SIGNATURES	DATE	<b>PERTEC</b> <small>a division of Peritek Computer Corporation</small>
	DR. SYD CROWELL	2-12-80	
UNLESS OTHERWISE SPECIFIED	DIMENSIONS ARE IN INCHES		TITLE
TOLERANCES:	DES	ENGR	<b>SCHEMATIC,          CONTROLS ASSEMBLY          (TU77/78)</b>
XX ±	ANGULAR	PROJ ENGR	
XXX ±	± 1/2°		
BREAK ALL SHARP CORNERS	FINISH:	MATL:	SIZE
APPROX. 0.010			<b>D 32097</b>
			CODE IDENT NO
			<b>109535</b>
			DWG NO
			REV
			<b>A</b>
			SCALE
			<b>NONE</b>
			DO NOT SCALE DWG
			SHEET
			<b>1</b>

109536	7/1000
NEXT ASSY	1ST USED ON
APPLICATION	

Figure 13 Schematic, Controls Assembly



REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN 12-MY	PROD REL	2-12-80	SRC	WU/Km
B	ECN C15737		10-28-80	I.S.	E.E. CL

VERSION NO.	MODEL	DISPLAY OVERLAY	DENSITY
-01	TU 77	109566-01	800/1600
-02	TU 78	109566-02	6250/1600

01	03	05	07	025	012	014	016
018	020	022	024	026	027	029	031
033	035	037	039	041	043	045	047
049	051	053	055	057	059	061	063

- 7 MAINTAIN MINIMUM AIR GAP OF .10 BETWEEN COMPONENT BODY AND BOARD.
  - 6 SEE VERSION TABLE FOR CORRECT DISPLAY OVERLAY.
  - 5 BEFORE INSTALLATION OF COMPONENTS, REMOVE ALL BURRS AND METAL CHIPS FROM MOUNTING SURFACE.
  - 4. ASSEMBLE PER STANDARD MANUFACTURING METHODS.
  - 3. RESERVED
  - 2 THIS ASSY SHALL BE MADE FROM PROCESS BOARD 106813-01 REV. A & SUBSEQUENT.
  - 1 MARK PART NO. 109536, APPROPRIATE VERSION NO. AND APPLICABLE REV. LETTER, LOCATE APPROX. WHERE SHOWN.
- NOTES: UNLESS OTHERWISE SPECIFIED

FOR SCHEMATIC SEE 109535

THIS DRAWING IS UNDER CONFIGURATION CONTROL.

<small>The information herein is the property of PERTEC CORPORATION. No portion of this data shall be released, disclosed, used, or duplicated, for procurement or manufacturing purposes without specific written consent of PERTEC.</small> <small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN INCHES</small> <small>TOLERANCES:</small> <small>.XX ± .03</small> <small>.XXX ± .010</small> <small>ANGULAR ± 1/2°</small> <small>BREAK ALL SHARP CORNERS APPROX. .010</small> <small>FINISH:</small>	<b>SIGNATURES</b> DR: SYD CROWELL CHK: [Signature] DES: [Signature] ENGR: [Signature] PROJ. ENG:	<b>DATE</b> 2-8-80 2/13/80 2/14/80	<b>PERTEC</b> <small>a division of Perdec Computer Corporation</small> <b>TITLE</b> CONTROLS ASSY (TU 77/78)
	TOP ASSY T/1000 NEXT ASSY 1ST USED ON APPLICATION	MATL: SEE L M	SIZE D CODE IDENT NO. 32097 DWG NO. 109536 SCALE 1/2" = 1" NOTED DO NOT SCALE DWG SHEET 1 MAN. R.E.D.

Figure 14 Controls Assembly



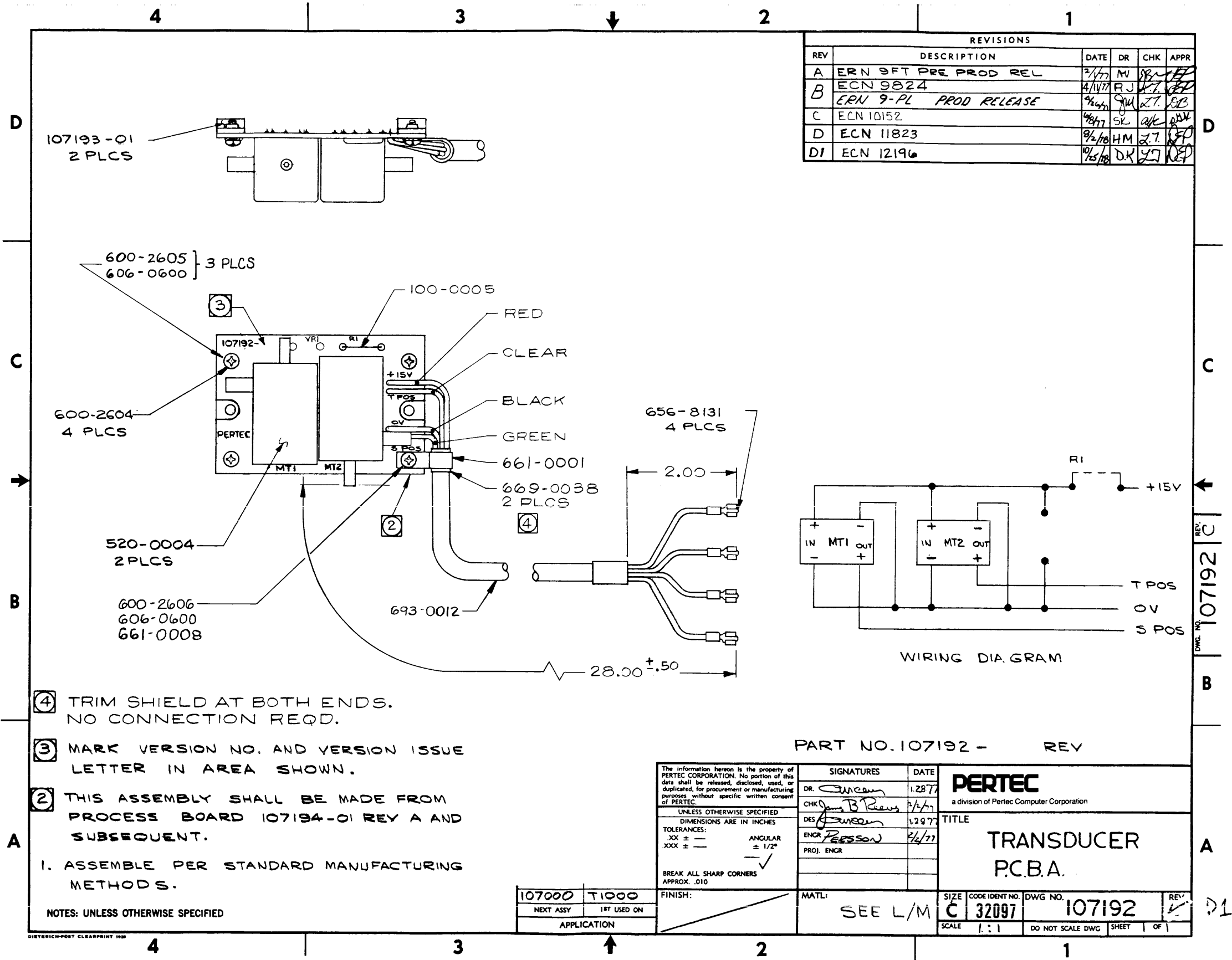


Figure 15 PCBA, Transducer



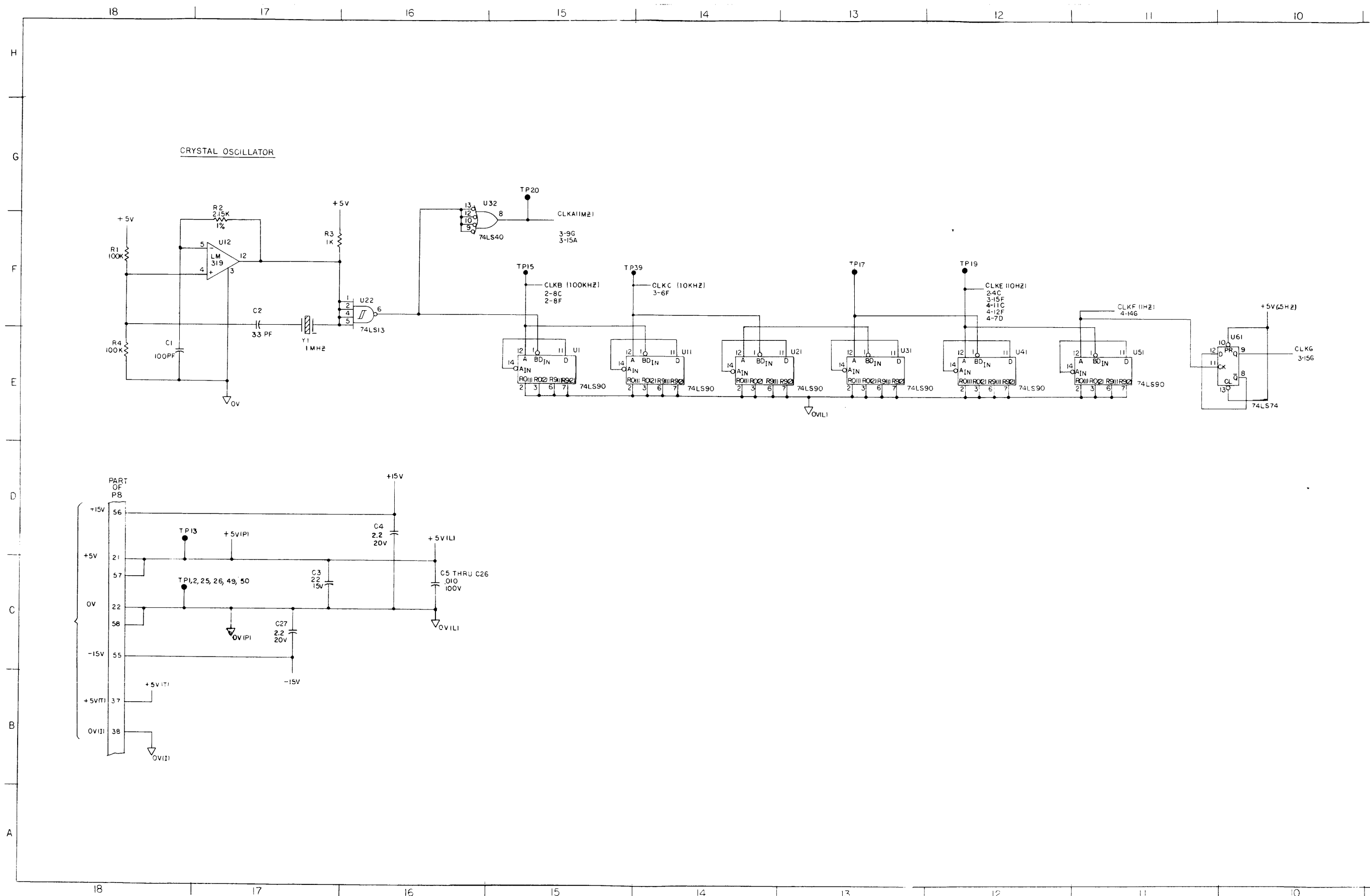


Figure 17 Schematic, Control M (Sheet 1 of 10)



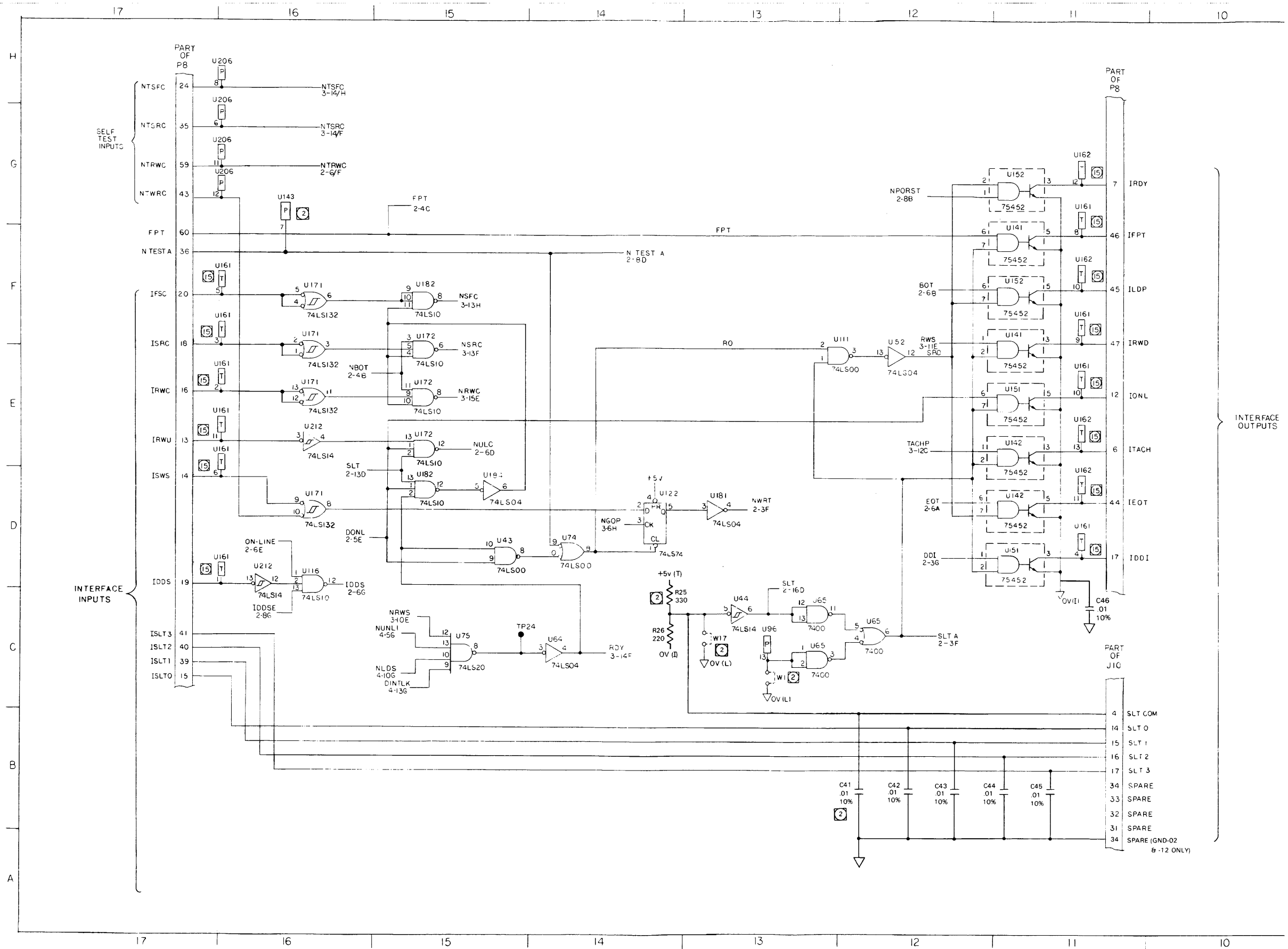


Figure 17 Schematic, Control M (Sheet 3 of 10)

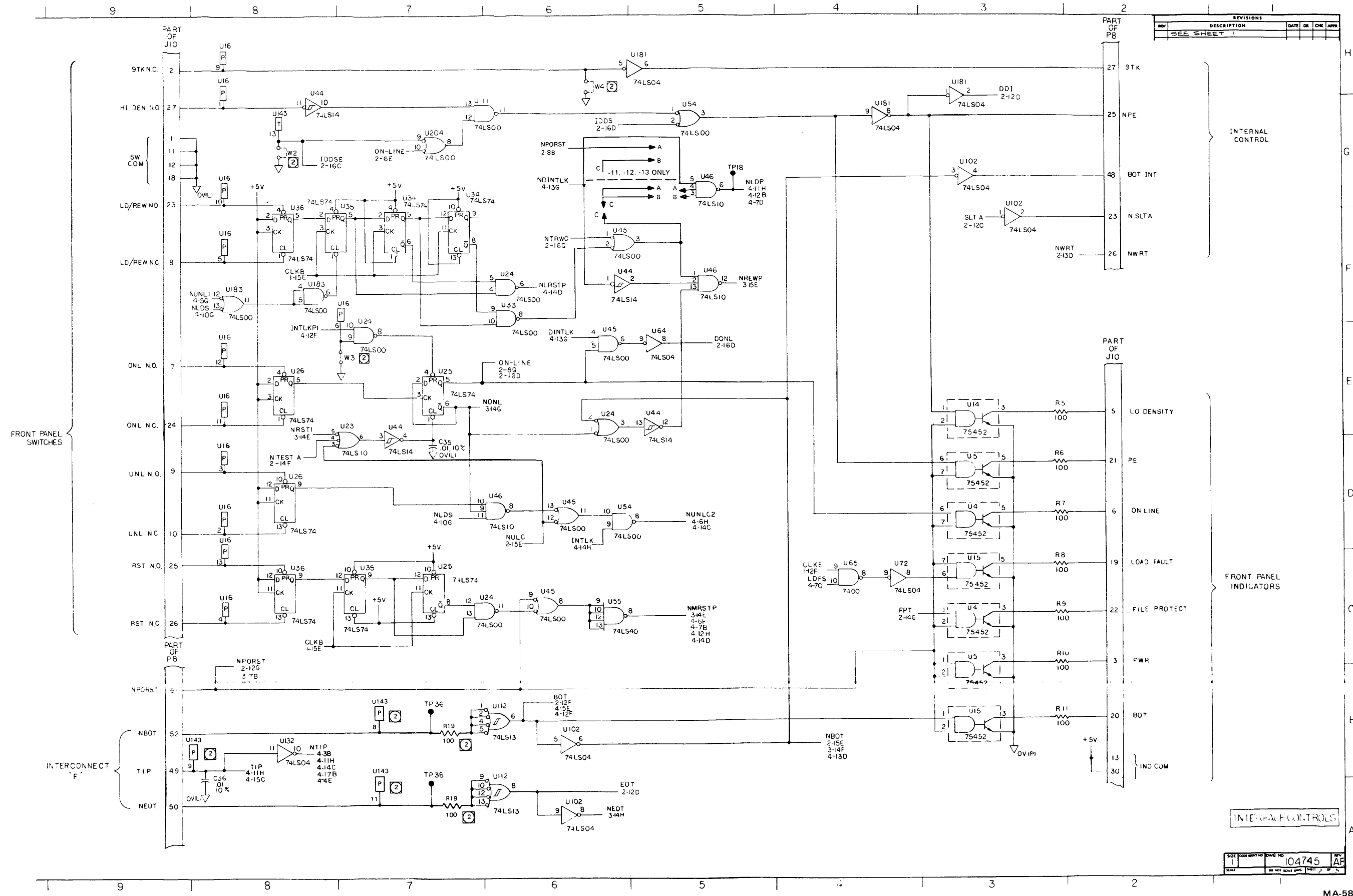
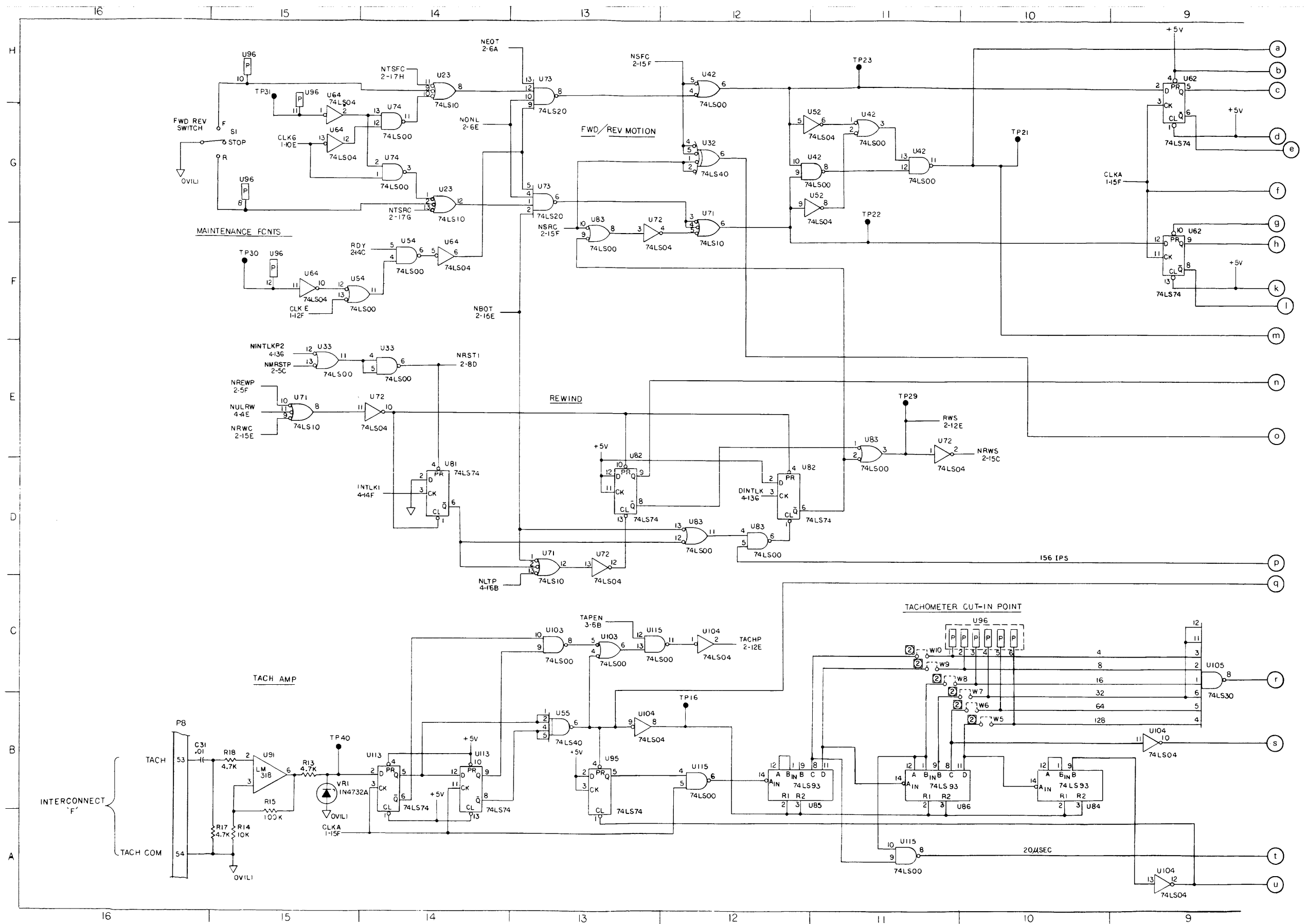


Figure 17 Schematic, Control M (Sheet 4 of 10)



MA-5809

Figure 17 Schematic, Control M (Sheet 5 of 10)

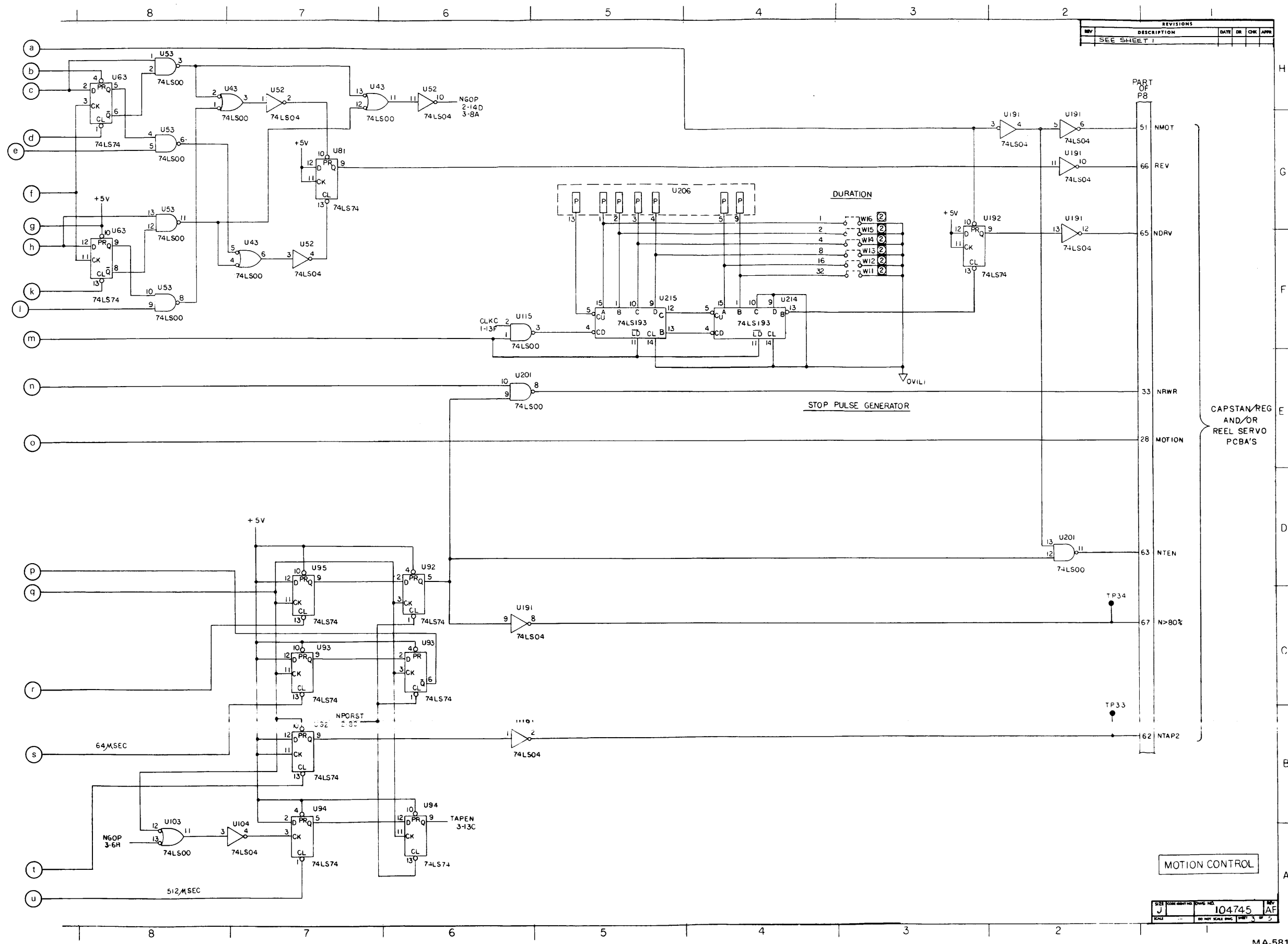


Figure 17 Schematic, Control M (Sheet 6 of 10)



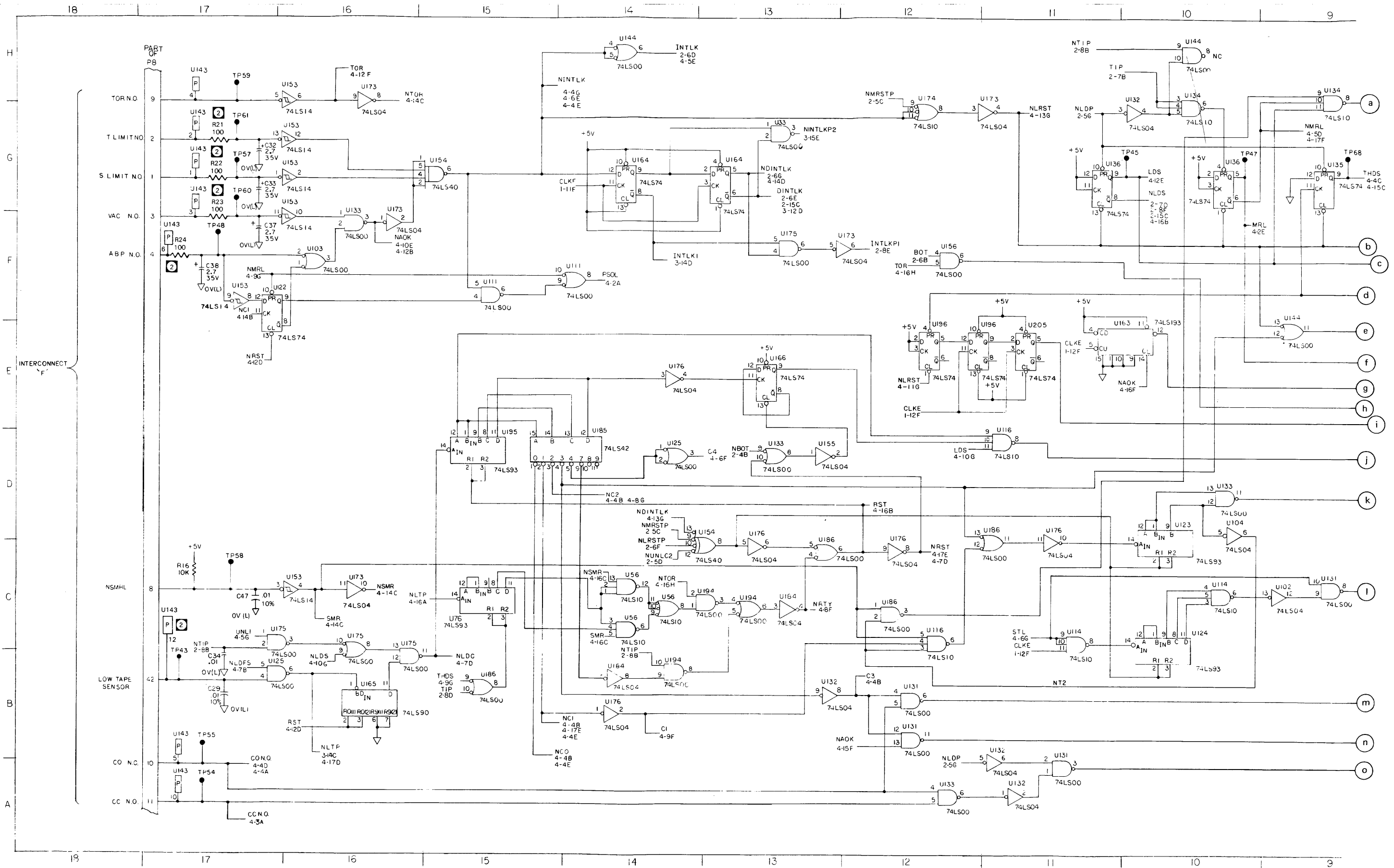
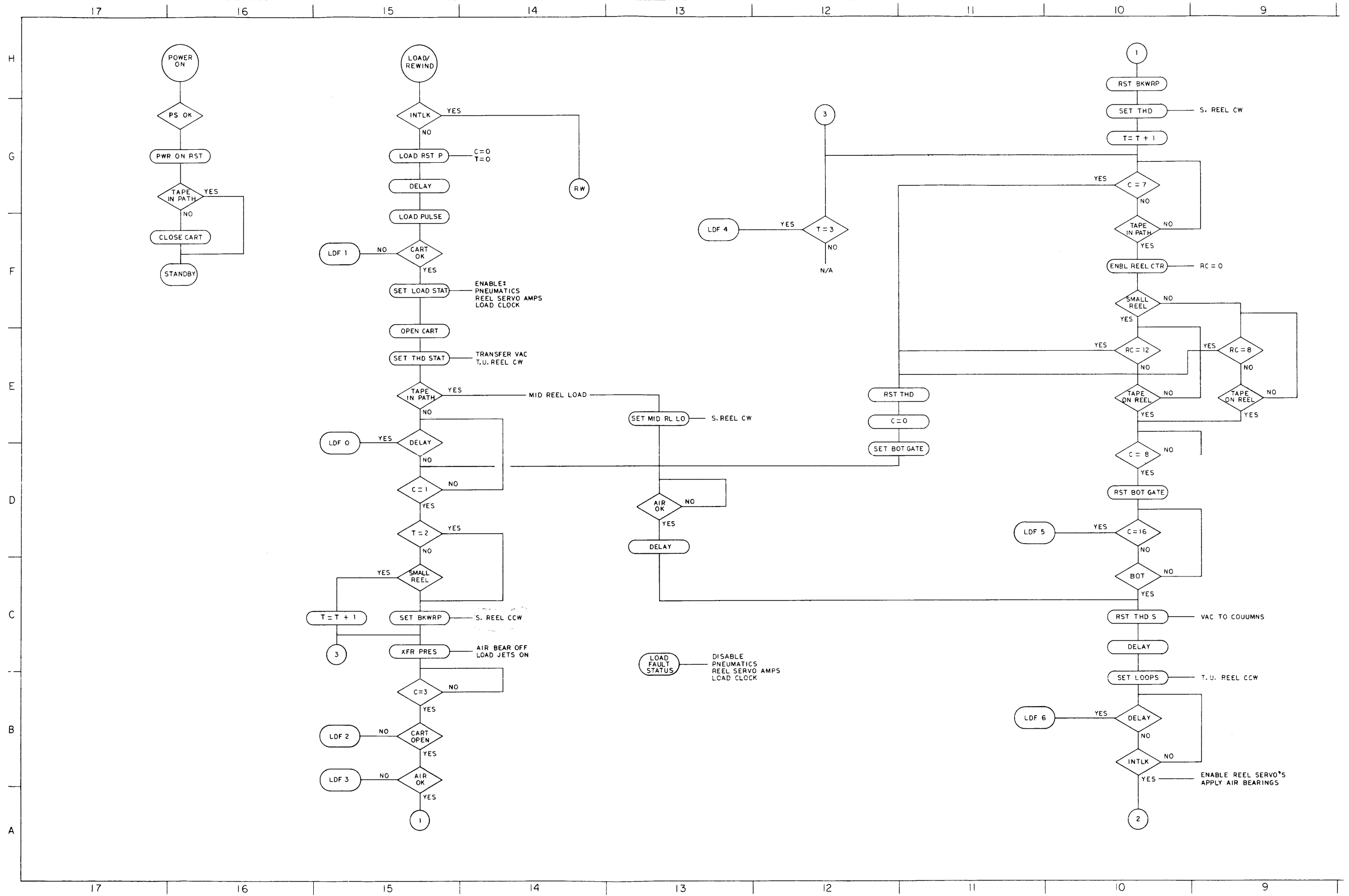


Figure 17 Schematic, Control M (Sheet 7 of 10)





MA-5813

Figure 17 Schematic, Control M (Sheet 9 of 10)

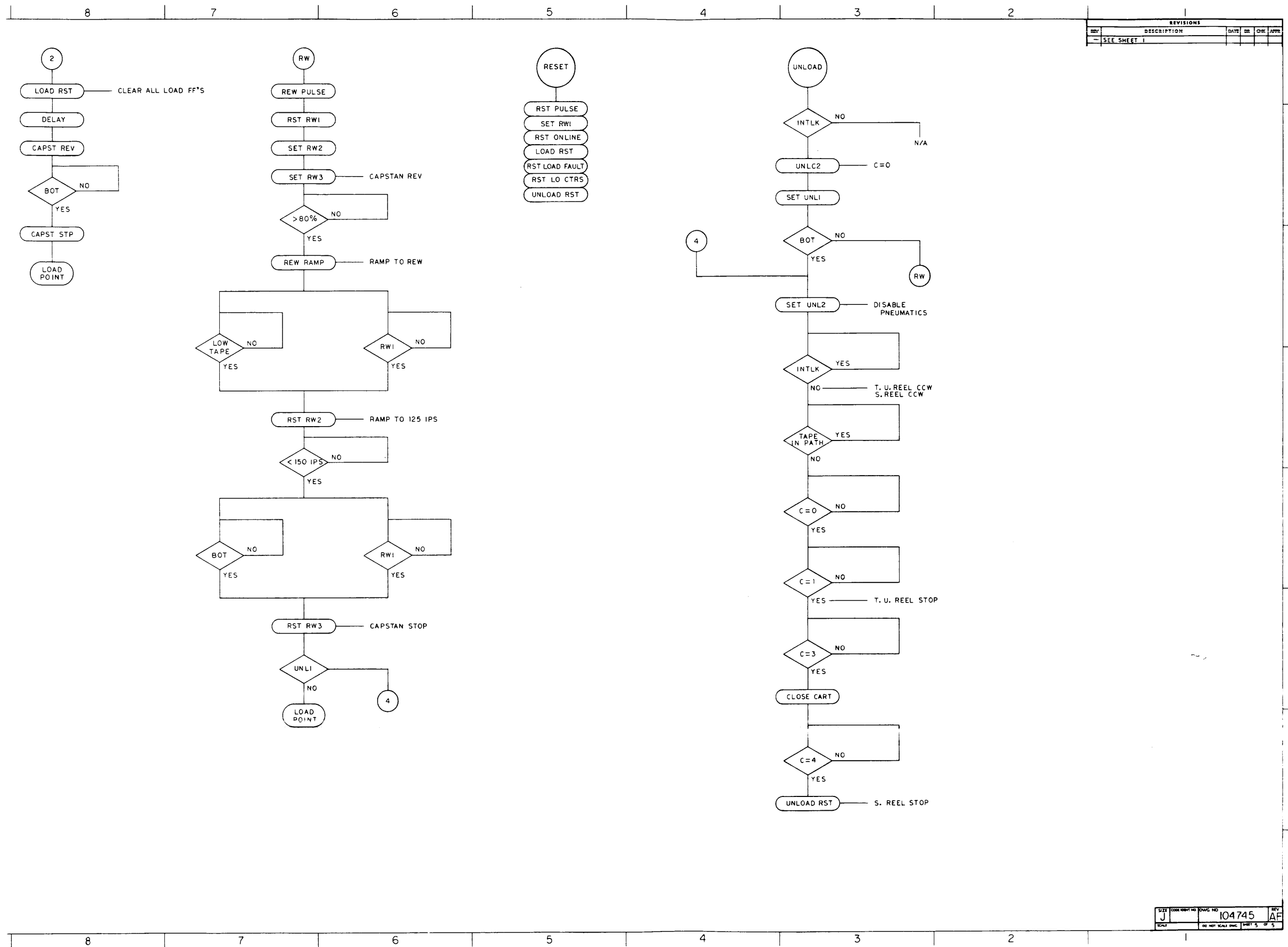
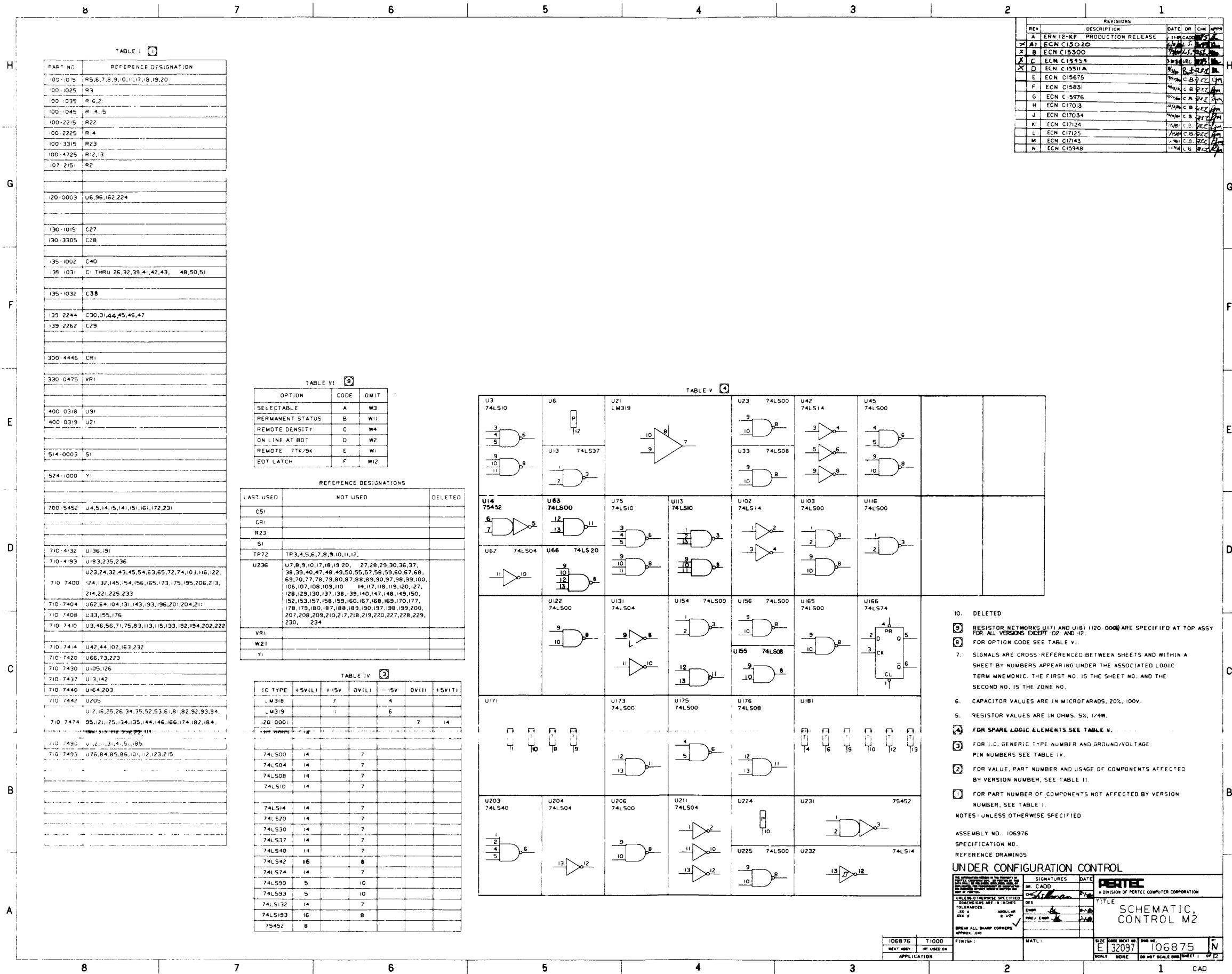


Figure 17 Schematic, Control M (Sheet 10 of 10)





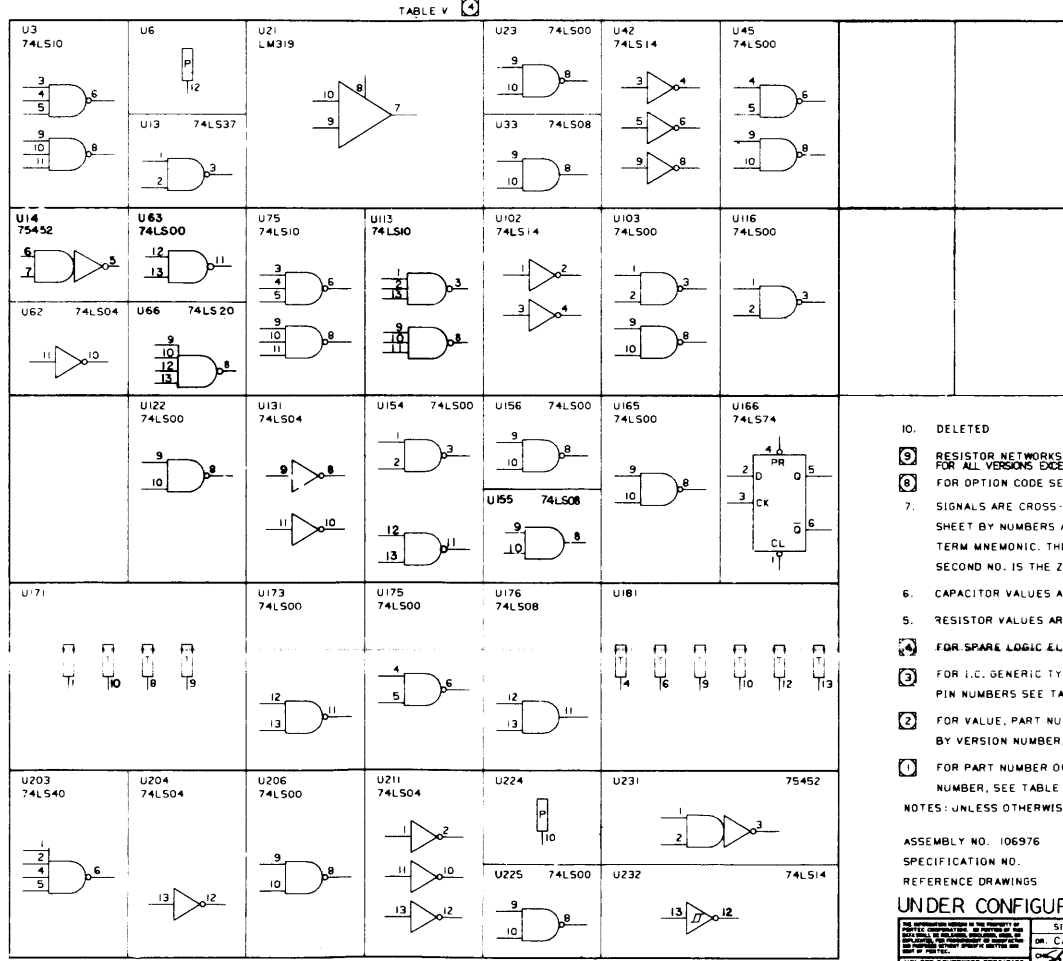
REVISIONS			
REV	DESCRIPTION	DATE	CHK
A	ERN 12-KF PRODUCTION RELEASE	11-81	CAD
X	ECN C15020	11-81	DES
X	ECN C15300	11-81	DES
X	ECN C15454	11-81	DES
X	ECN C15511A	11-81	DES
E	ECN C15675	11-81	DES
F	ECN C15831	11-81	DES
G	ECN C15976	11-81	DES
H	ECN C17013	11-81	DES
J	ECN C17034	11-81	DES
K	ECN C17124	11-81	DES
L	ECN C17125	11-81	DES
M	ECN C17143	11-81	DES
N	ECN C15948	11-81	DES

PART NO	REFERENCE DESIGNATION
00-1015	R5,6,7,8,9,10,11,17,18,19,20
00-1025	R3
00-1035	R1,6,2
00-1045	R1,4,5
100-2215	R22
100-2225	R1,4
100-3315	R23
100-4725	R12,13
107-215	R2
120-0003	U6,96,162,224
130-1015	C27
130-3305	C28
135-1002	C40
135-1031	C1 THRU 26,32,39,41,42,43, 48,50,51
135-1032	C38
139-2244	C30,31,44,45,46,47
139-2262	C29
300-4446	CR1
330-0475	VR1
400-0318	U91
400-0319	U21
514-0003	S1
524-1000	Y1
700-5452	U4,5,14,15,141,151,161,172,231
710-4132	U136,191
710-4193	U183,235,236
710-7400	U23,24,32,43,45,54,63,65,72,74,103,116,122, 124,132,145,154,156,165,173,175,195,206,213, 214,221,225,233
710-7404	U62,64,104,131,143,193,196,201,204,211
710-7408	U33,155,176
710-7410	U3,46,56,71,75,83,113,115,133,192,194,202,222
710-7414	U42,44,102,163,232
710-7420	U66,73,223
710-7430	U105,126
710-7437	U13,142
710-7440	U164,203
710-7442	U205
710-7474	U12,16,25,26,34,35,52,53,61,81,82,92,93,94, 95,121,125,134,135,144,146,166,174,182,184, 185,191,192,193,194,195,196,197,198,199,200, 201,202,203,204,205,206,207,208,209,210,217,218,219,220,227,228,229, 230,234
710-7490	U12,13,14,51,85
710-7493	U76,84,85,86,101,112,123,215

OPTION	CODE	DMIT
SELECTABLE	A	W3
PERMANENT STATUS	B	W11
REMOTE DENSITY	C	W4
ON LINE AT BOT	D	W2
REMOTE 7TK/3K	E	W1
EOT LATCH	F	W12

LAST USED	NOT USED	DELETED
CS1		
CR1		
R23		
S1		
TP72	TP3,4,5,6,7,8,9,10,11,12	
U236	U7,8,9,10,17,18,19,20, 27,28,29,30,36,37, 38,39,40,47,48,49,50,55,57,58,59,60,67,68, 69,70,77,78,79,80,87,88,89,90,97,98,99,100, 105,107,108,109,110, 14,117,118,119,120,127, 128,129,130,137,138,139,140,147,148,149,150, 152,153,157,158,159,160,167,168,169,170,177, 178,179,180,187,188,189,190,197,198,199,200, 207,208,209,210,217,218,219,220,227,228,229, 230, 234	
VR1		
W21		
Y1		

IC TYPE	+5VILI	+5V	OVILI	-15V	OVIII	+5VITI
LM318		7		4		
LM319		11		5		14
120-0001					7	14
74LS00	14		7			
74LS04	14		7			
74LS08	14		7			
74LS10	14		7			
74LS14	14		7			
74LS20	14		7			
74LS30	14		7			
74LS37	14		7			
74LS40	14		7			
74LS42	16		8			
74LS74	14		7			
74LS90	5		10			
74LS93	5		10			
74LS132	14		7			
74LS193	16		8			
75452	8					



- DELETED
  - RESISTOR NETWORKS U171 AND U181 (120-0001) ARE SPECIFIED AT TOP ASSY FOR ALL VERSIONS EXCEPT -02 AND -12 FOR OPTION CODE SEE TABLE VI.
  - SIGNALS ARE CROSS-REFERENCED BETWEEN SHEETS AND WITHIN A SHEET BY NUMBERS APPEARING UNDER THE ASSOCIATED LOGIC TERM MNEMONIC. THE FIRST NO. IS THE SHEET NO. AND THE SECOND NO. IS THE ZONE NO.
  - CAPACITOR VALUES ARE IN MICROFARADS, 20%, 100V.
  - RESISTOR VALUES ARE IN OHMS, 5%, 1/4W.
  - FOR SPARE LOGIC ELEMENTS SEE TABLE V.
  - FOR I.C. GENERIC TYPE NUMBER AND GROUND/VOLTAGE PIN NUMBERS SEE TABLE IV.
  - FOR VALUE, PART NUMBER AND USAGE OF COMPONENTS AFFECTED BY VERSION NUMBER, SEE TABLE II.
  - FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.
- NOTES: UNLESS OTHERWISE SPECIFIED

ASSEMBLY NO. 106876  
 SPECIFICATION NO.  
 REFERENCE DRAWINGS

**UNDER CONFIGURATION CONTROL**

DESIGNED BY: [Signature]	DATE: [Date]	SIGNATURES DR: CAD	DATE: [Date]
CHECKED BY: [Signature]	DATE: [Date]		
SUBMITTED BY: [Signature]		DATE: [Date]	
TOLERANCES ARE IN THOUSHS UNLESS OTHERWISE SPECIFIED		TITLE: SCHEMATIC, CONTROL M2	
SCALE: NONE	DO NOT SCALE	SHEET NO. 1	TOTAL SHEETS 12

106876 T1000 FINISH: [ ]  
 NEXT ASSY: [ ] IF USED ON APPLICATION

SCALE: NONE DO NOT SCALE SHEET 1 OF 12

SIZE: 106876 SHEET NO. 106875

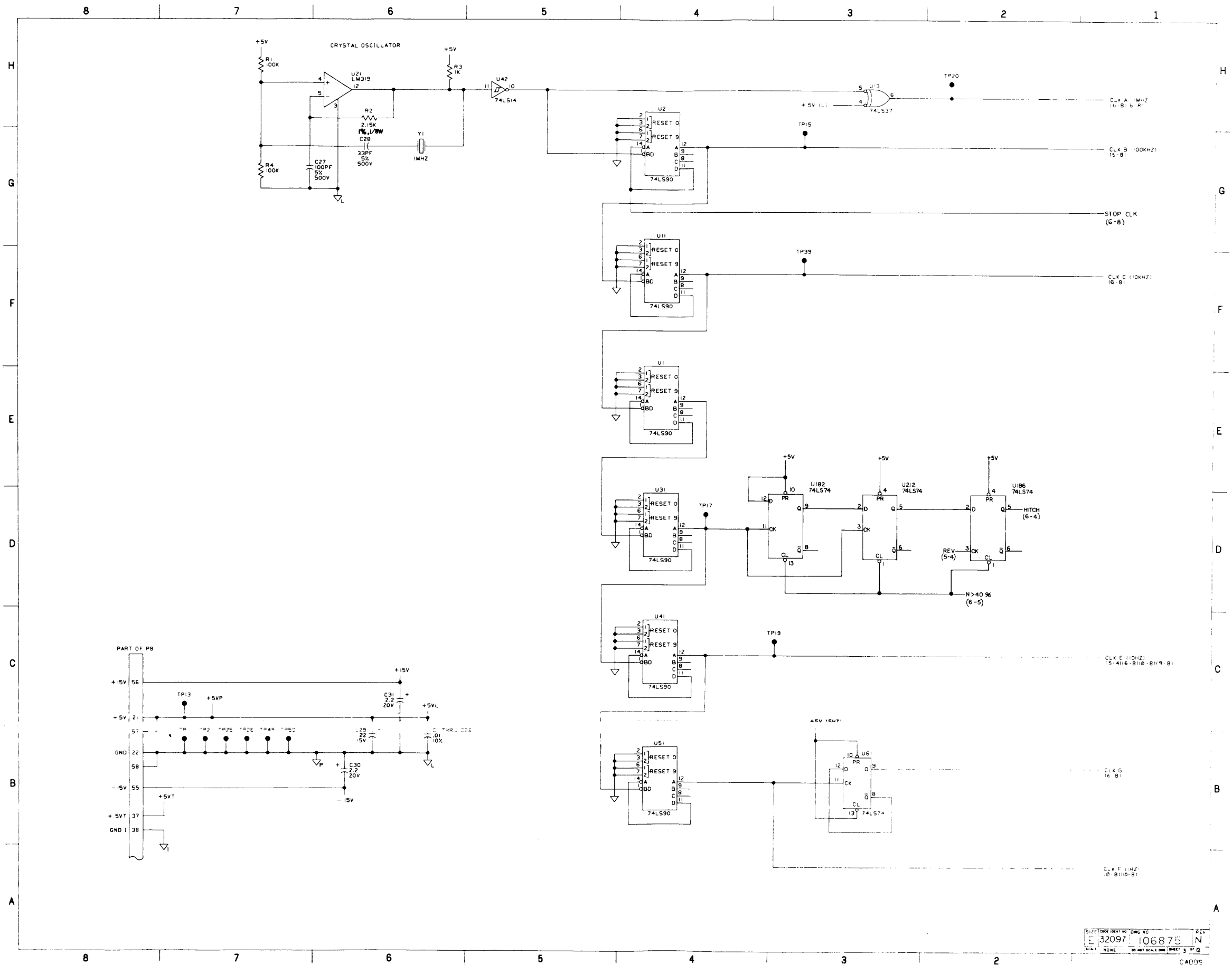
Figure 19 Schematic, Control M2 (Sheet 1 of 12)

MODEL	SPD (IPS)	OPTION CODE	ASSEMBLY 106876 VERSION NO.	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20	W21	U171,U181	C33,34,35,36,37
				503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	691-6030	691-6030
STD	125	A	-01	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	OMIT	USE	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	USE	OMIT	USE	OMIT	OMIT
STD	125	B,C	-02	USE	USE	USE	OMIT	OMIT	OMIT	OMIT	OMIT	USE	USE	OMIT	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	USE	OMIT	USE	USE	USE
STD	125	A,C	-03	USE	USE	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT	USE	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	USE	OMIT	USE	OMIT	OMIT
GCR	125	A	-11	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	OMIT	USE	OMIT	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	OMIT	USE	OMIT	USE	OMIT
GCR	125	B,C	-12	USE	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	OMIT	USE	OMIT	OMIT	USE	USE	OMIT	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	USE
GCR	125	A,C	-13	USE	USE	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT	USE	OMIT	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	OMIT	USE	OMIT	USE	OMIT
STD	75	A	-21	USE	USE	OMIT	USE	OMIT	OMIT	USE	USE	OMIT	USE	USE	OMIT	OMIT	OMIT	OMIT	USE	USE	USE	USE	USE	OMIT	USE	OMIT
STD	75	B,C	-22	USE	USE	USE	OMIT	OMIT	OMIT	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	OMIT	OMIT	USE	USE	USE	USE	USE	OMIT	USE	OMIT
GCR	75	A	-31	USE	USE	OMIT	USE	USE	USE	USE	USE	USE	USE	USE	OMIT	OMIT	USE	USE	USE	USE	USE	USE	OMIT	USE	OMIT	OMIT
GCR	75	B,C	-32	USE	USE	USE	OMIT	USE	USE	USE	USE	USE	USE	USE	OMIT	OMIT	USE	USE	USE	USE	USE	USE	OMIT	USE	OMIT	OMIT

SIZE: 106876 DWG NO: 106875 REV: N  
 E 32097  
 NONE NO APP SCALE UNIT: INCH 2 OF 12

MA-9236

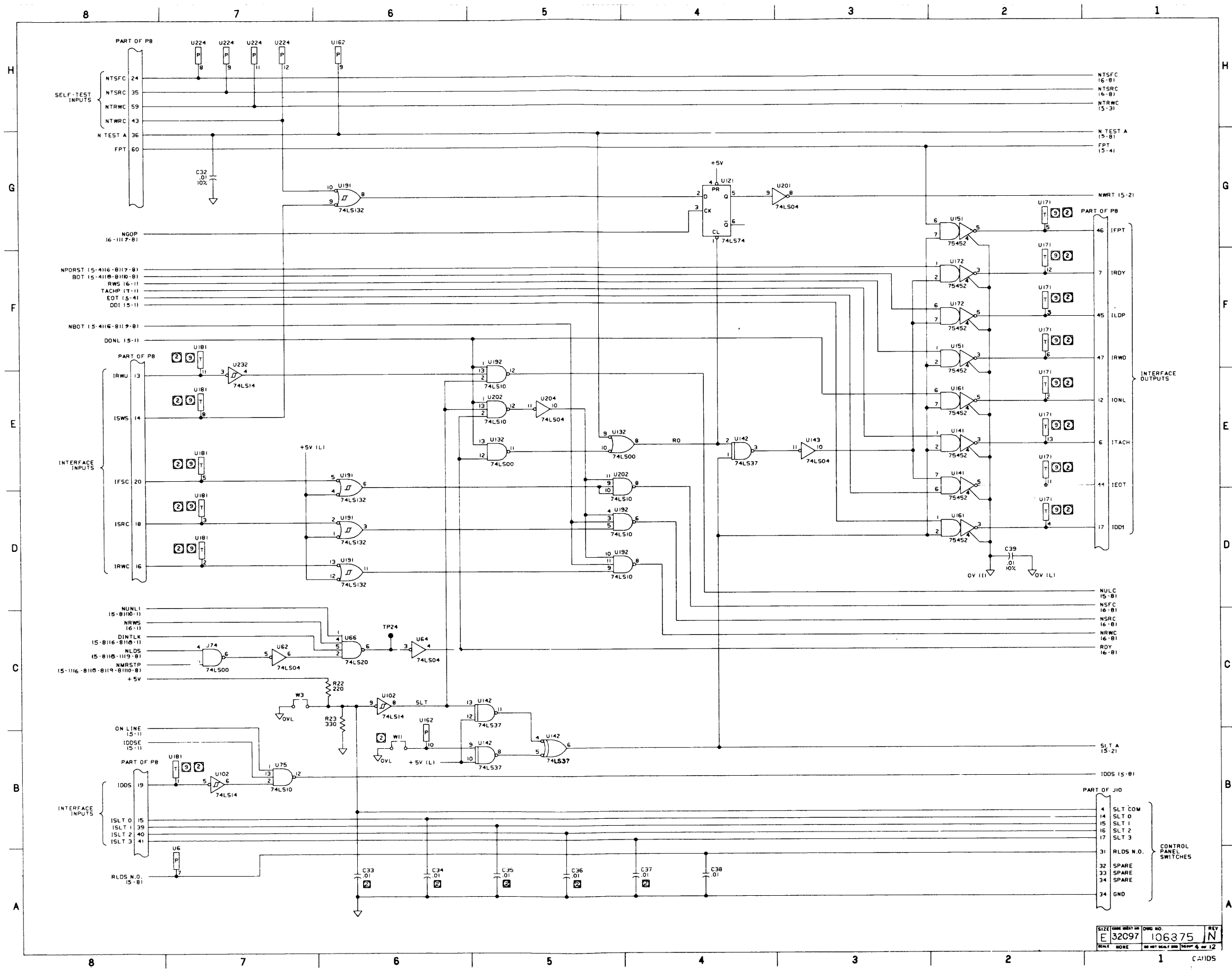
Figure 19 Schematic, Control M2 (Sheet 2 of 12)



5/17/2008 08:41:00 DWG NO. 32097 106875 IN  
 DATE NONE  
 CADD5  
 MA-9237

Figure 19 Schematic, Control M2 (Sheet 3 of 12)





SIZE	DATE	REV	NO.
E	32097	106375	N
SCALE	NONE	BY NOT SCALE	DATE 4/12

Figure 19 Schematic, Control M2 (Sheet 4 of 12)



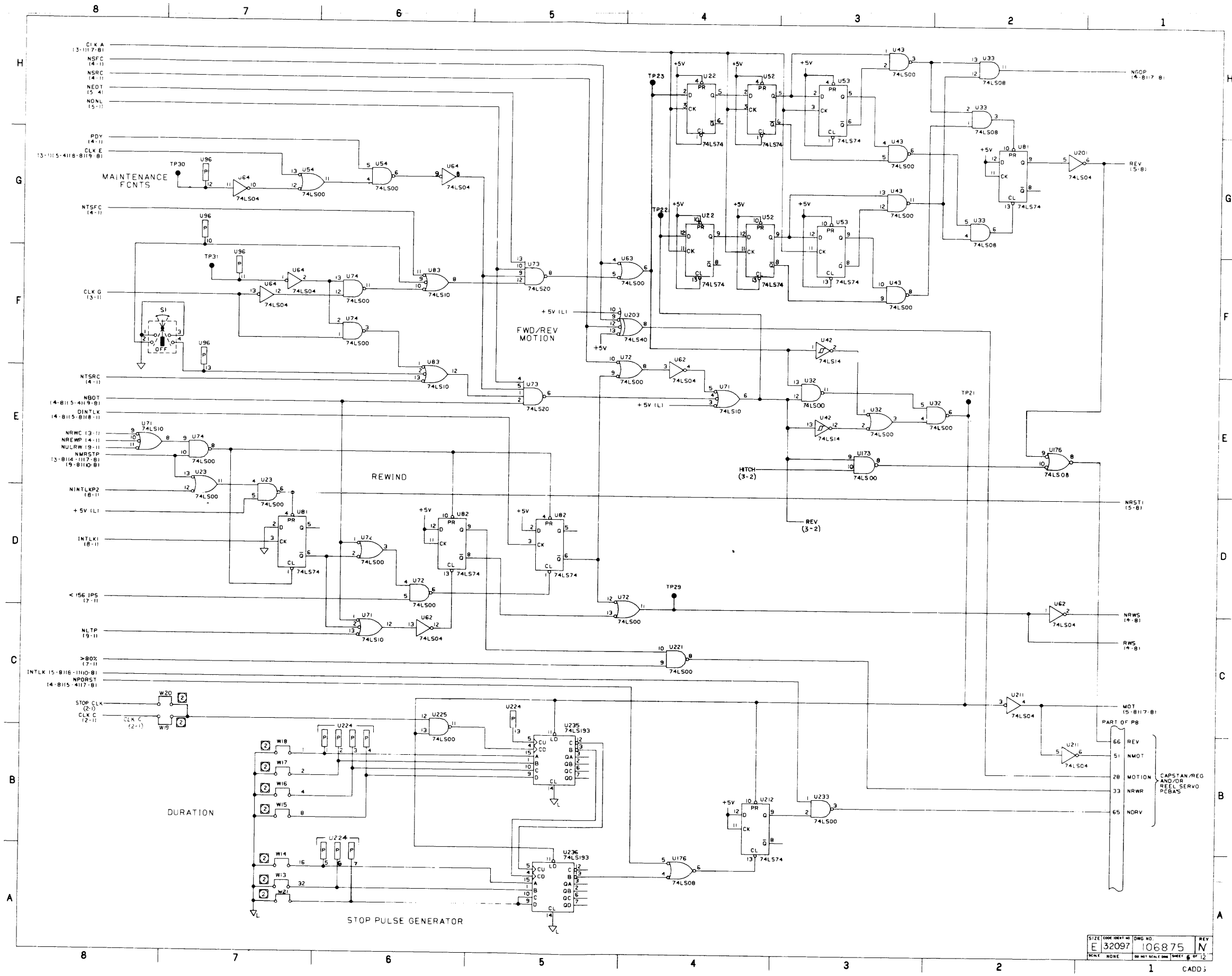
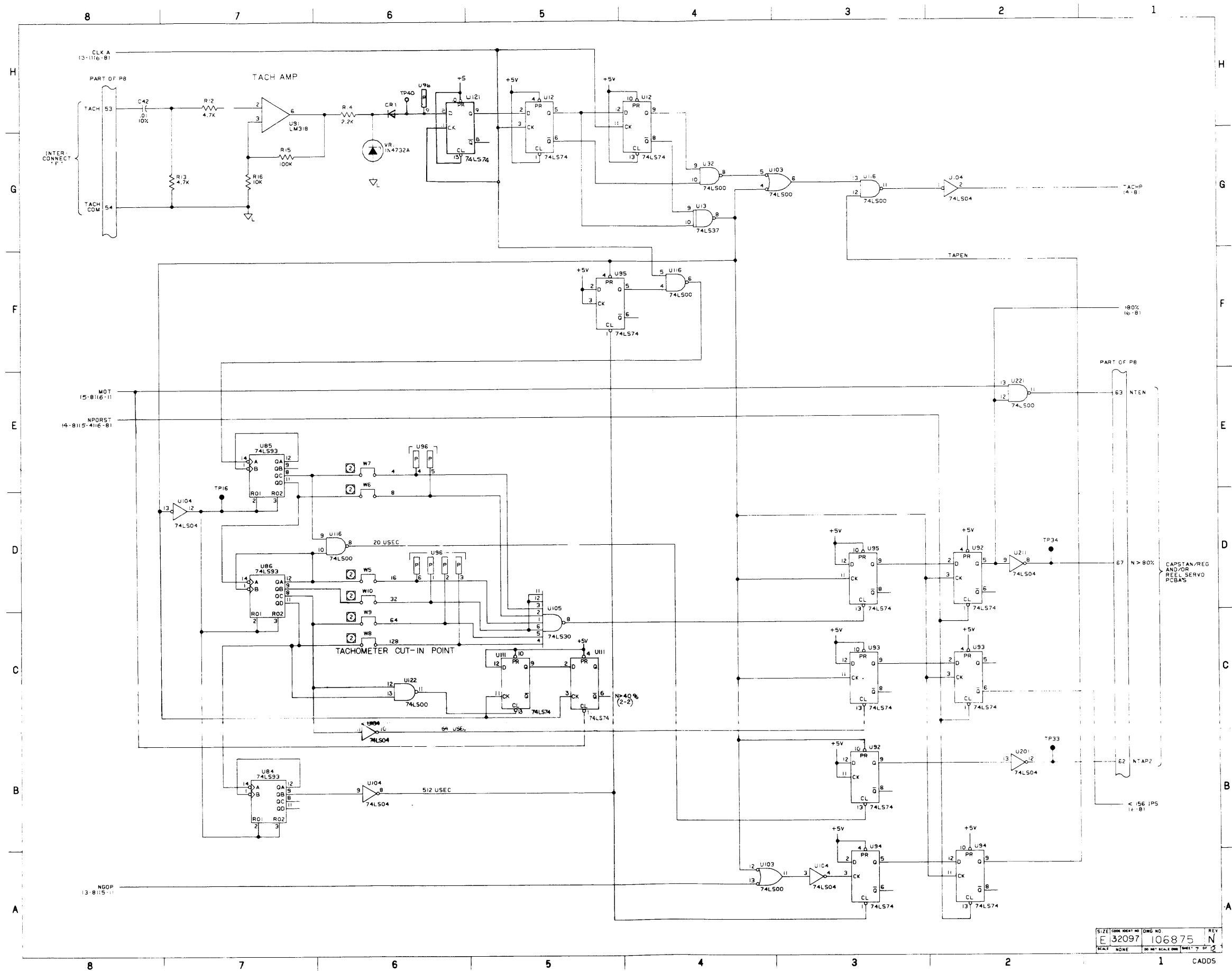


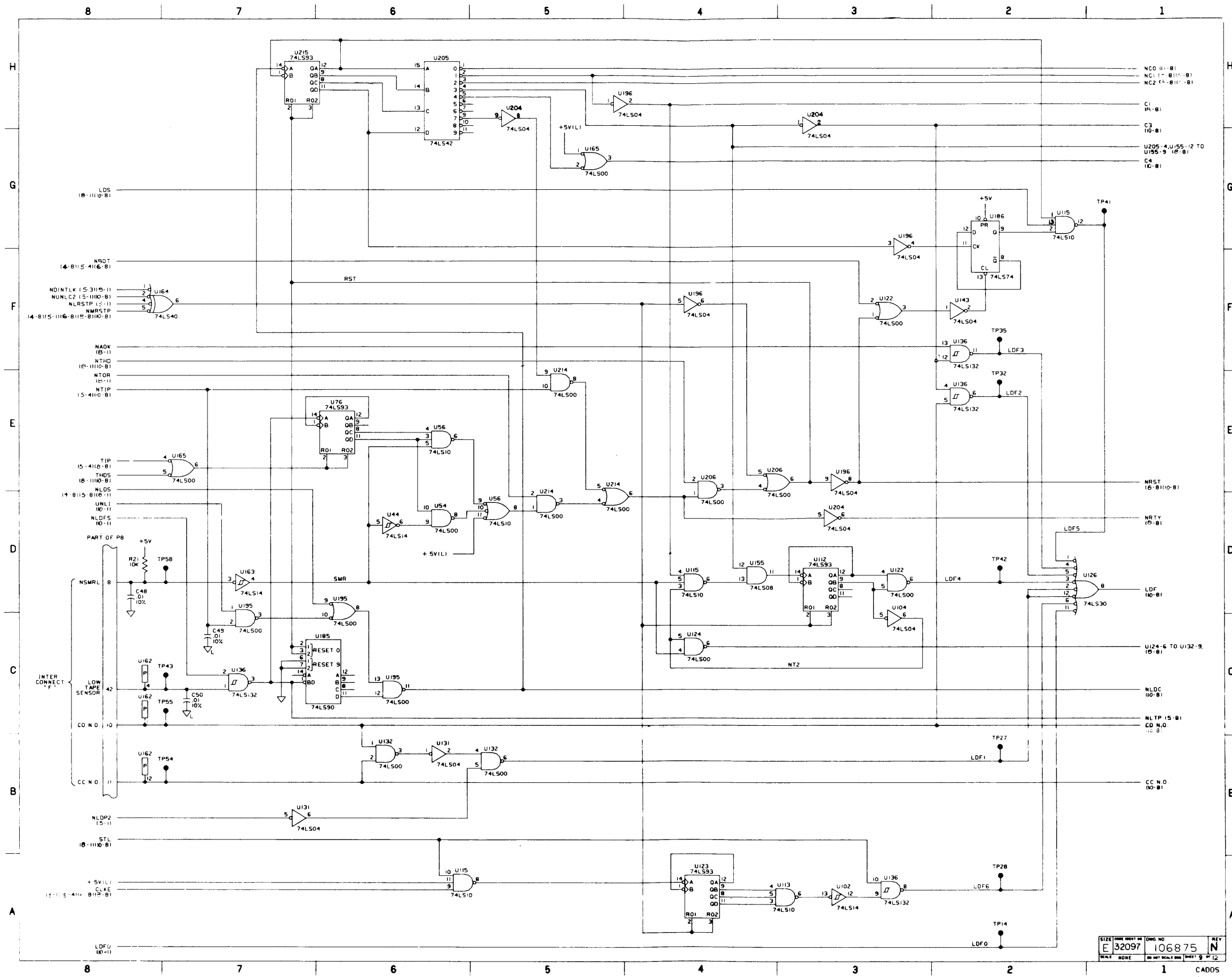
Figure 19 Schematic, Control M2 (Sheet 6 of 12)



SIZE	CODE	DRWT NO	DRWG NO	REV
E	32097		106875	N
SCALE	NONE	BY	SCALE	DATE
				7 82

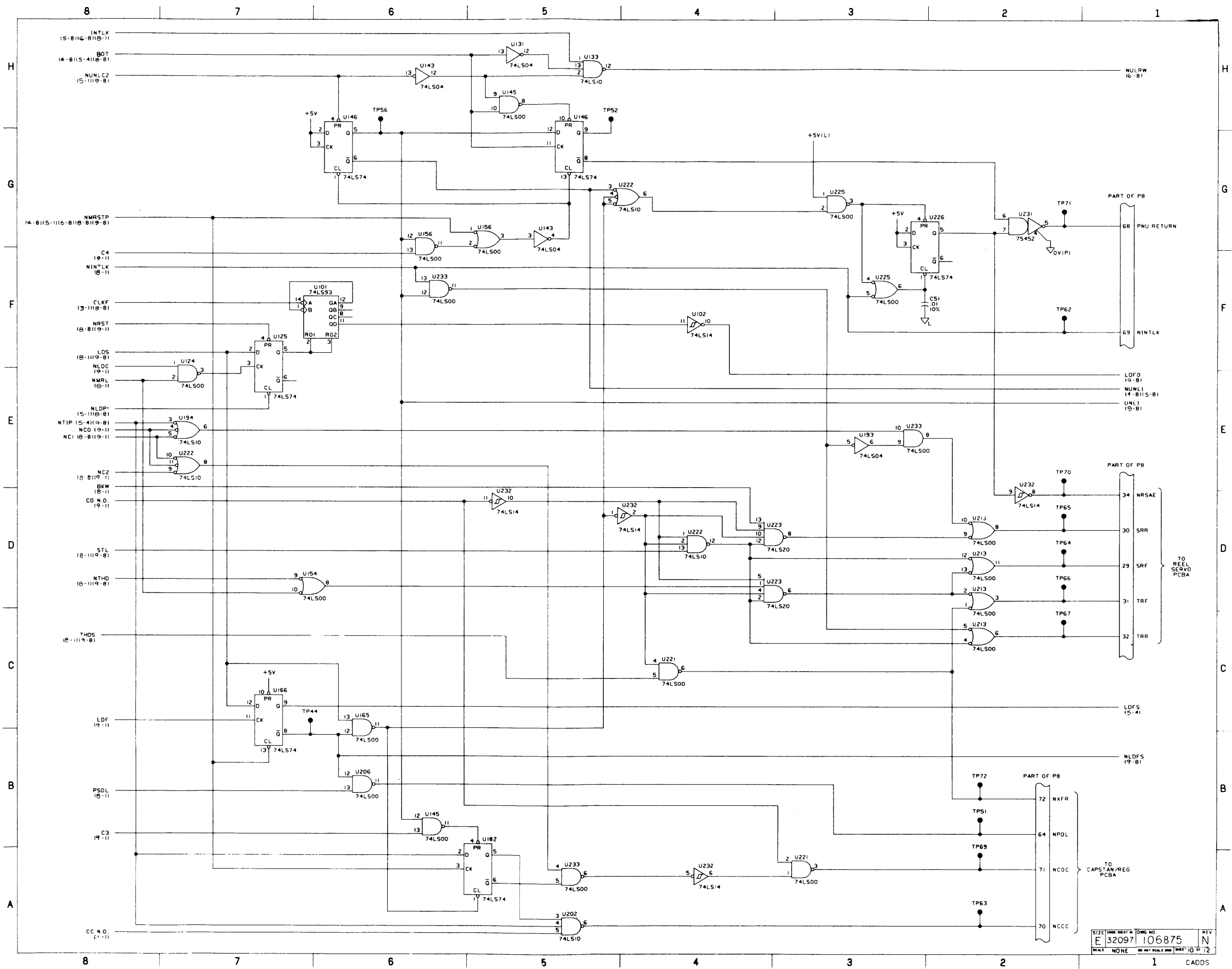
Figure 19 Schematic, Control M2 (Sheet 7 of 12)





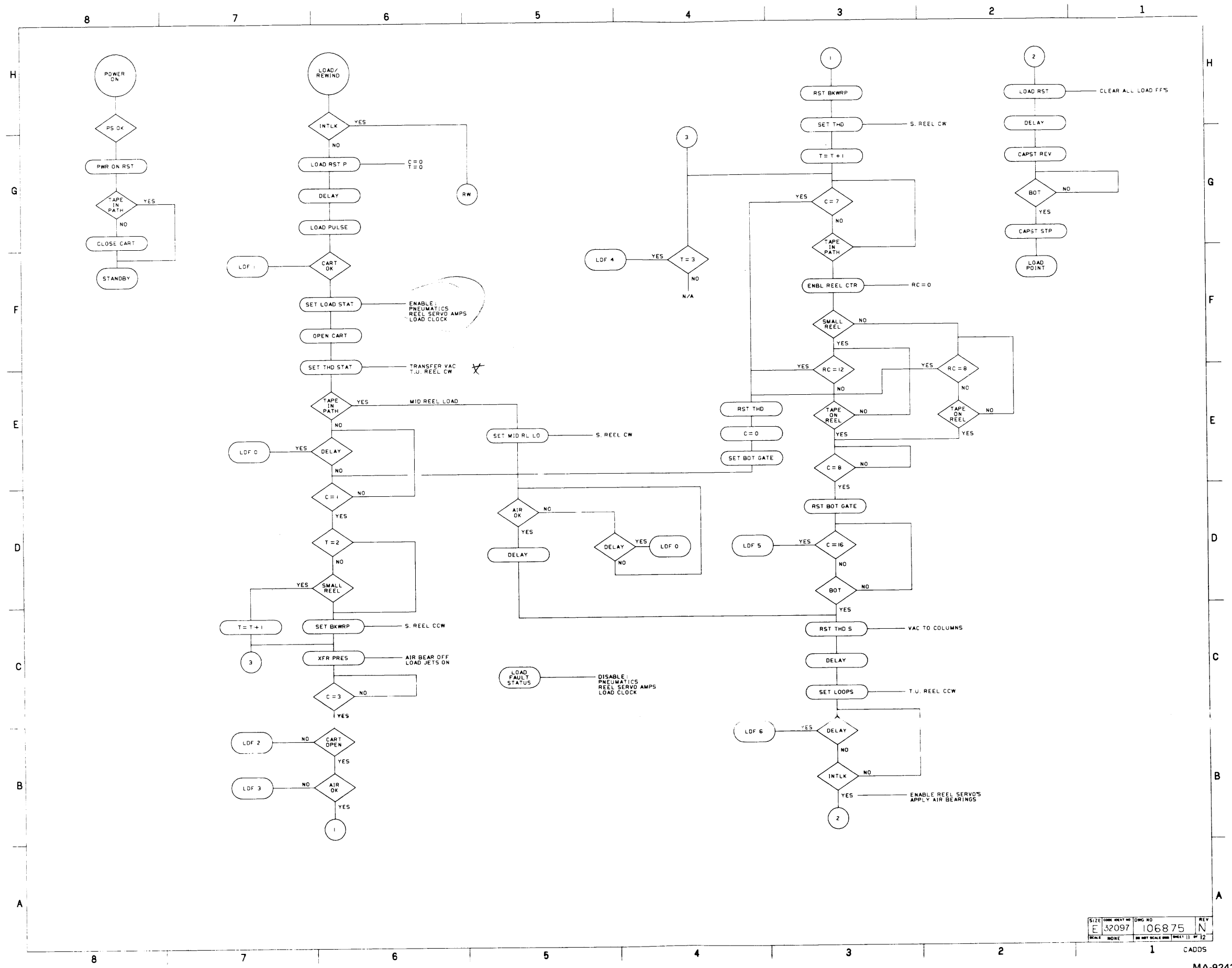
SIZE	DATE	REV
E 32097	106875	N
BY	CHK	APP
W	R	

Figure 19 Schematic, Control M2 (Sheet 9 of 12)



SIZE: 100mm X 150mm | DWG. NO: 106875 | REV: N  
 SCALE: NONE | DATE: 10/21/12

Figure 19 Schematic, Control M2 (Sheet 10 of 12)

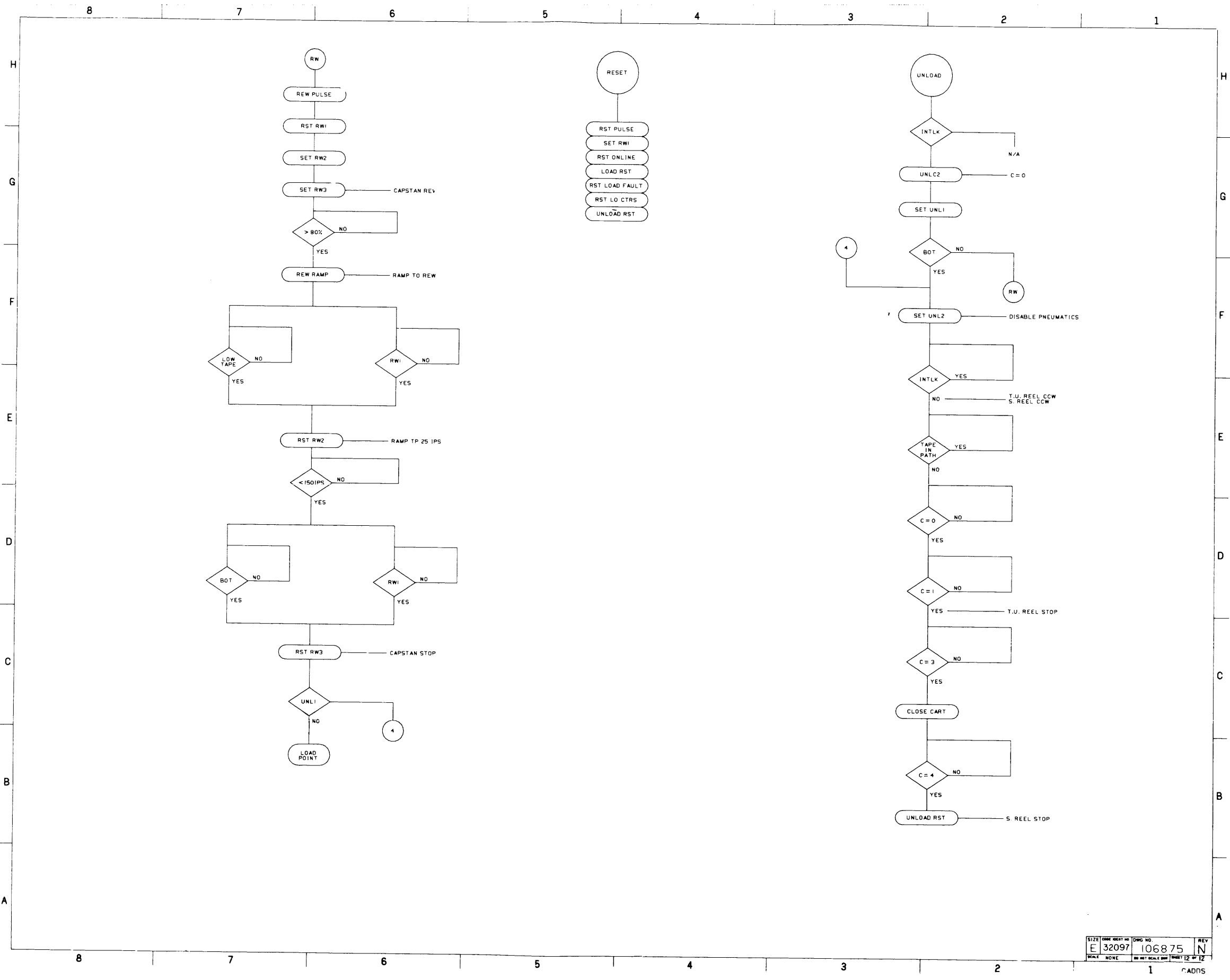


SIZE	DATE	NO	DWG NO	REV
E	32097		106875	N
SCALE	NONE		NO NET SCALE	SHEET 11 OF 12

CADD5  
MA-9242

Figure 19 Schematic, Control M2 (Sheet 11 of 12)





SIZE	DATE	REV
E	32097	106875
SCALE	NONE	12 OF 12

1 CADDS

MA-9241

Figure 19 Schematic, Control M2 (Sheet 12 of 12)

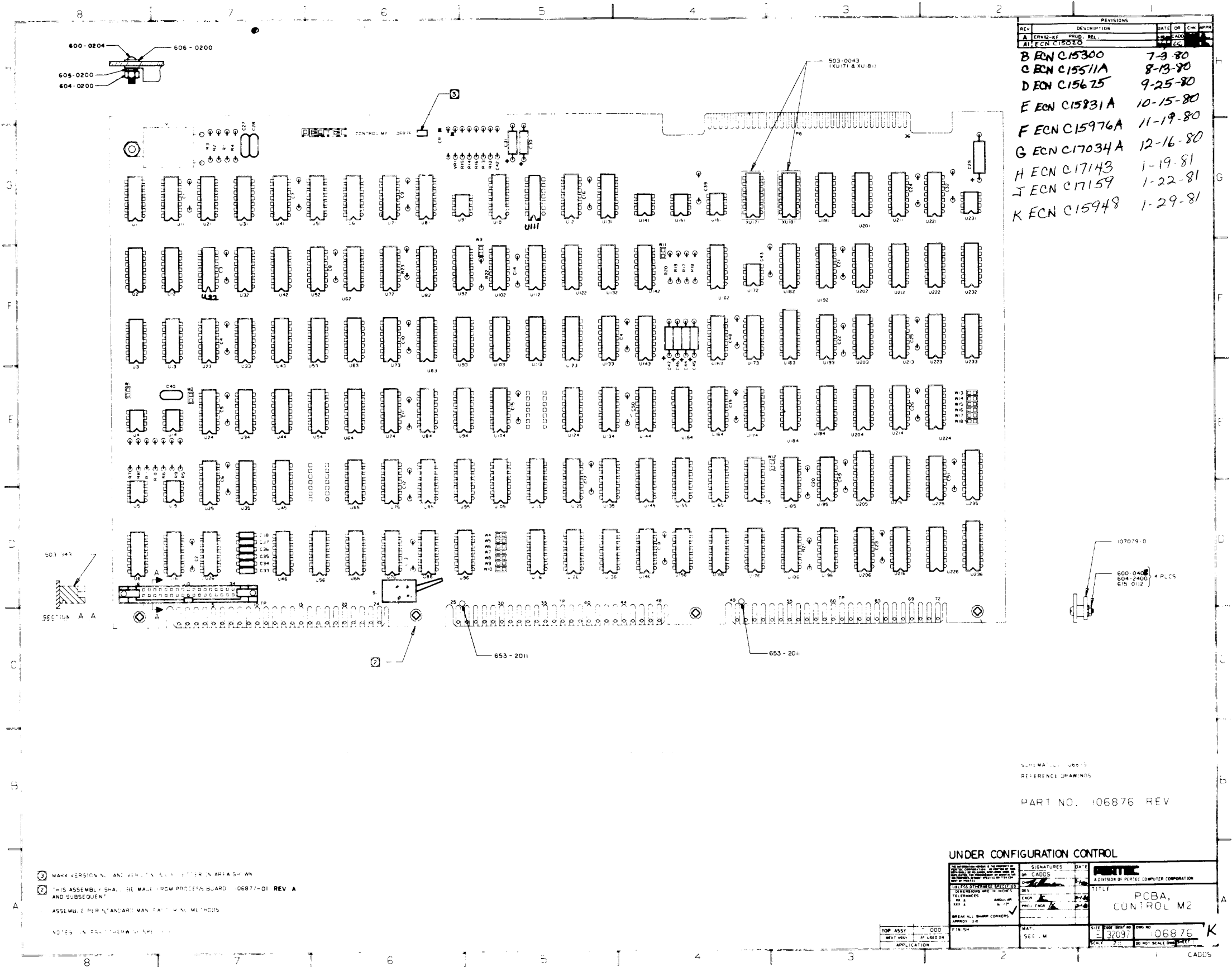


Figure 20 PCBA, Control M2

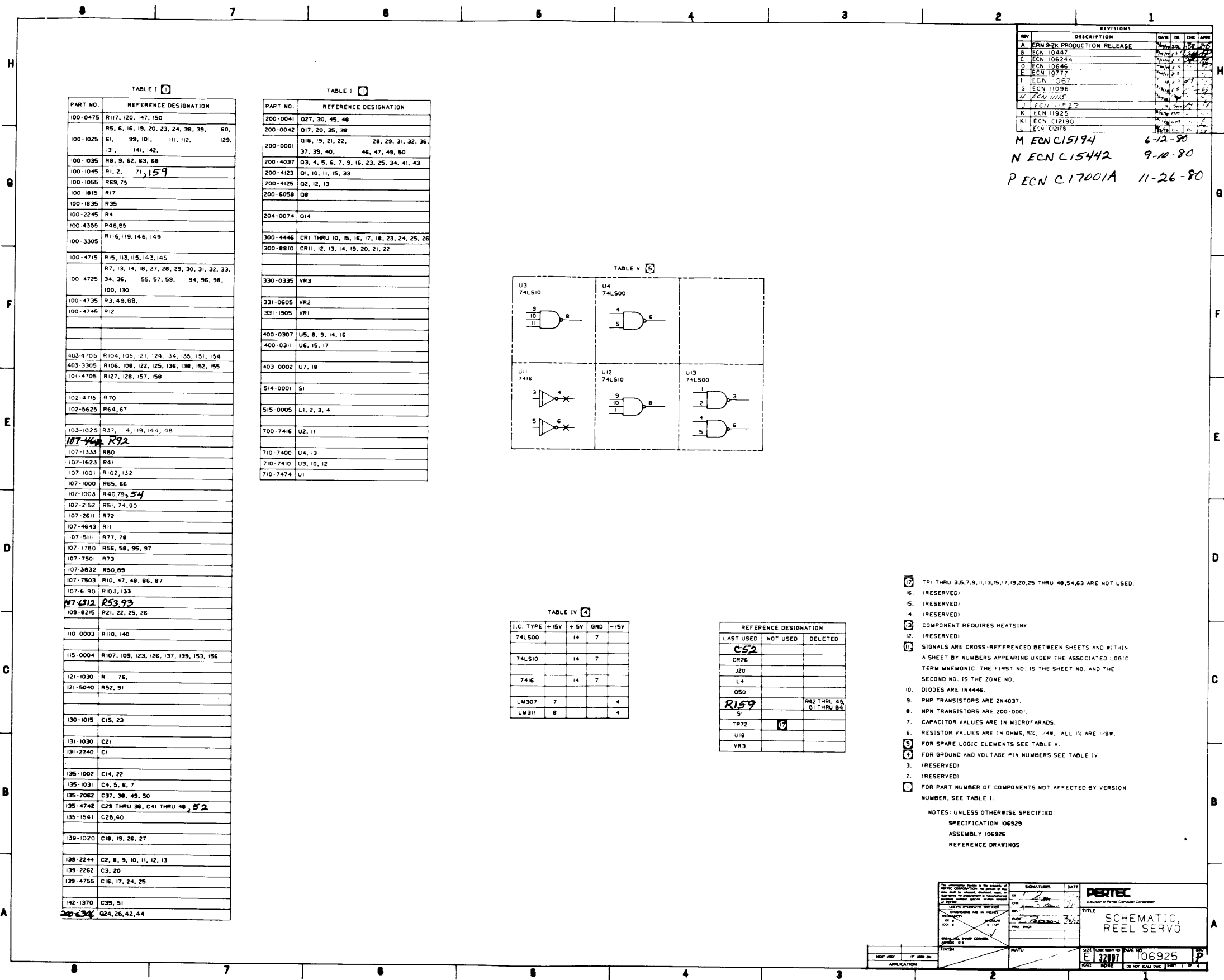


Figure 21 Schematic, Reel Servo (Sheet 1 of 4)

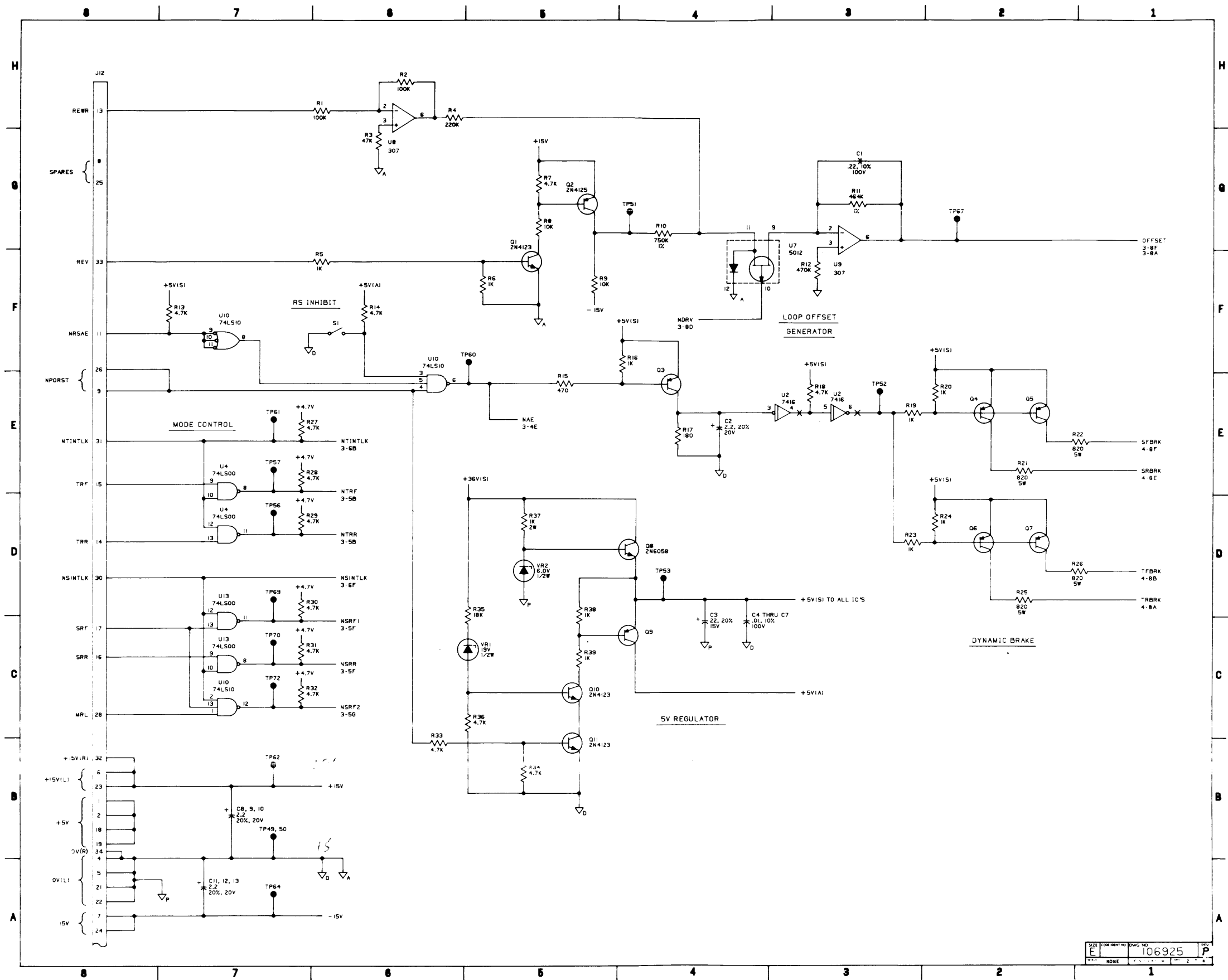
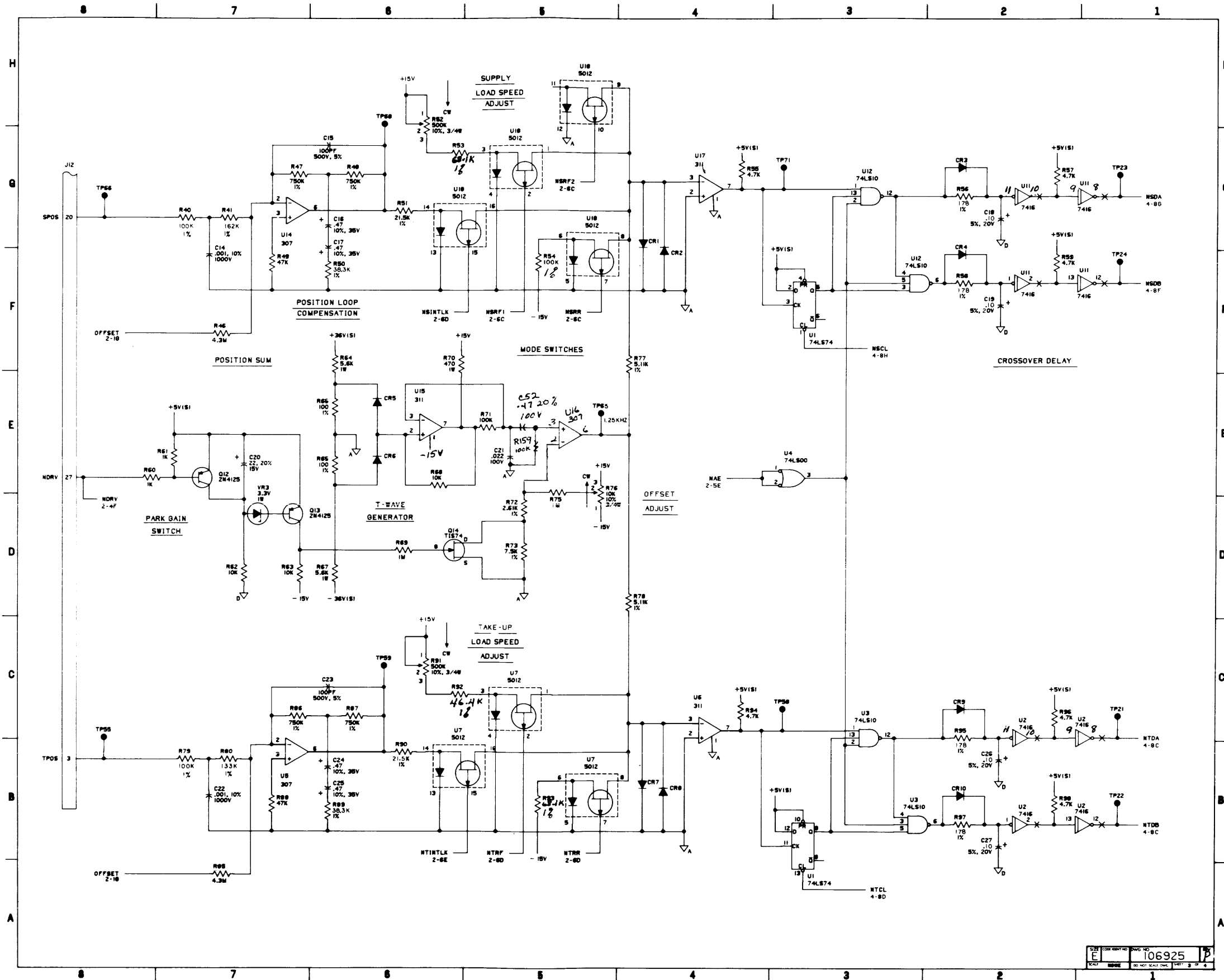


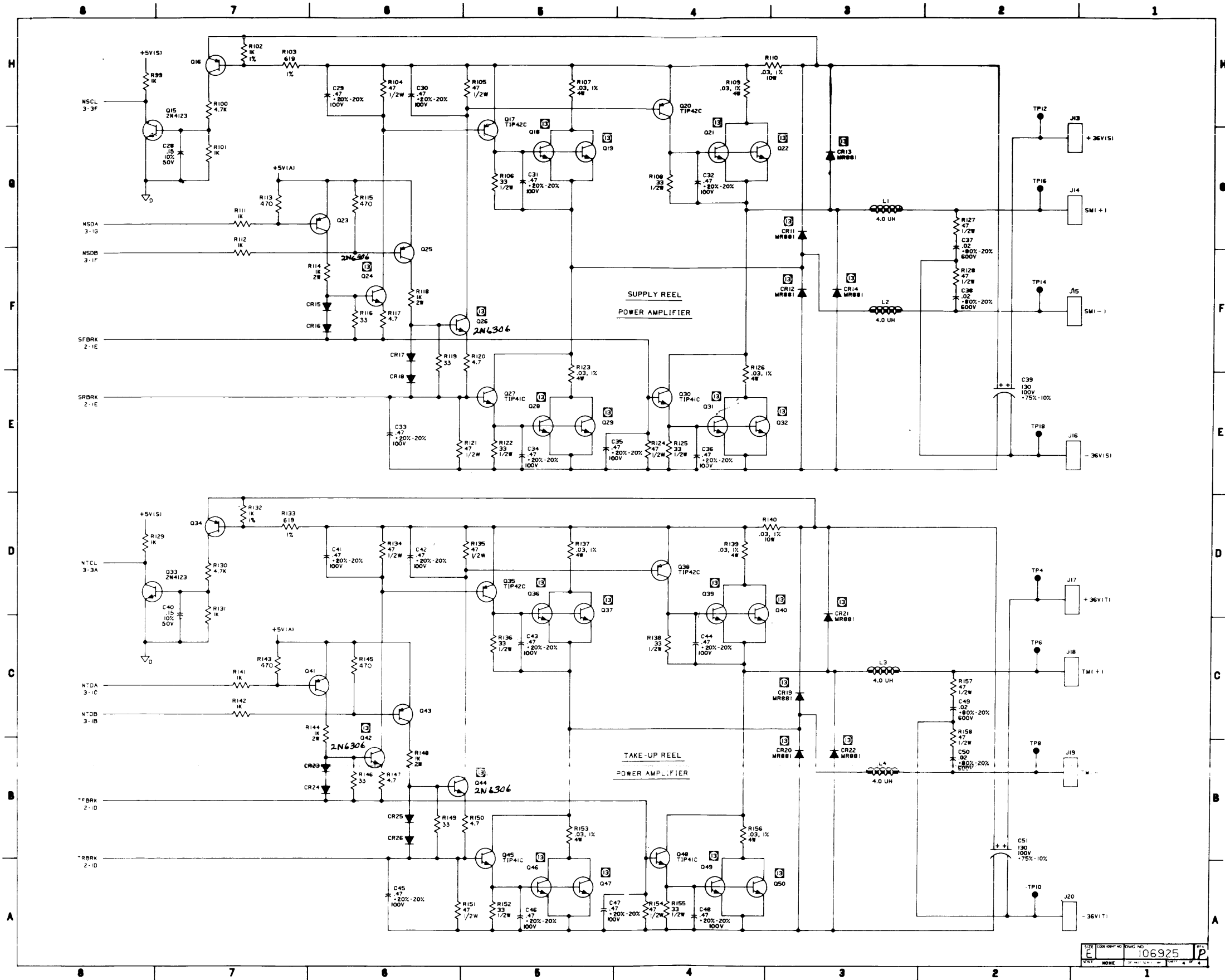
Figure 21 Schematic, Reel Servo (Sheet 2 of 4)



E 106925  
 3 of 4

MA-9256

Figure 21 Schematic, Reel Servo (Sheet 3 of 4)



106925

Figure 21 Schematic, Reel Servo (Sheet 4 of 4)



REVISIONS				
REV	DESCRIPTION	DATE	BY	CHK
1	PROTOTYPE NO. 2, 3, 4			
A	ECN 98WPRE PROD. RELEASE			
B	ECN 9811			
C	ECN 9903			
D	ECN 9918			
E	ECN 9918			
F	ECN 10473			
G	ECN 10493			
H	ECN 10815			
I	ECN 10842			
K	ECN 11626 B			
L	ECN 11938 A			
M	ECN 12190			
N	ECN 12183 A			
O	ECN 12380			
P	ECN 12867			
Q	ECN 13427			
R	ECN 13618			
S	ECN 13697			
T	ECN 13697			
U	ECN 14044			
V	ECN 14222 A			
W	ECN 14251			
X	ECN 14528 A			
Y	ECN 14528			
AA	ECN 14586			
AB	ECN 15149			
AC	ECN 15329 A			
AD	ECN 15330			

TABLE I

PART NO.	REFERENCE DESIGNATION
100-1015	R24, 49, 130, 132, 137, 137, 154, 158, 176
100-1025	R1, 3, 14, 18, 21, 22, 42, 44, 54, 63, 62, 73, 79, 84, 85, 87, 88, 89, 98, 120, 129, 130, 131, 132, 144, 149, 150, 151, 152, 155, 167, 171, 172, 173
100-1035	R2, 4, 6, 8, 10, 11, 13, 16, 17, 27, 45, 52, 55, 56, 57, 61, 63, 67, 71, 115, 121, 130, 149, 164 THRU 169
100-1045	R38, 50, 75
100-1055	R5, 15, 53, 86, 131, 134, 177
100-1065	R174
100-1085	R34, 35, 76, 114, 122
100-2225	R156, 99
100-3315	R108, 125, 126, 177
100-4705	R91
100-4715	R128, 139
100-4725	R7, 9, 12, 19, 74, 129, 136, 138, 170
100-5605	R95, 96, 104, 116, 117, 118, 119, 120, 124
100-7725	R46
110-107	R175
101-1015	R146, 153, 157
403-1805	R30, 87
100-1015	R51
100-4715	R135, 148
100-1001	R27, 106
100-1002	R25, 37, 39, 40, 41, 49, 103
100-1008	R48
107-2151	R94
100-3832	R36
107-6810	R 64
100-4811	R26
100-5112	R72
100-4715	R23, 44
100-0900	R193
100-2715	R40
111-0001	R89
115-0008	R51, 52, 55, 81, 87, 85
118-0013	R127
121-0010	R59, 66, 78
121-1020	R47, 179
130-1015	C14, 29
130-2215	C18
130-3315	C4
131-3320	C2, 5, 8, 34
131-4720	C3, 6, 7
131-4890	C30

TABLE I (CONT'D)

PART NO.	REFERENCE DESIGNATION
135-131	C12, 13, 32
139-2244	C19, 25, 30, 31
139-2262	C9, 10, 17, 20, 21, 16
139-3302	C15
139-6845	C24, 28, 35, 36
142-1070	C26, C22, 38
142-5907	C1, 11
200-0941	C19, 42, 48, 45, 47
200-0942	C6, 36
200-0004	C26, 32, 35
200-4037	C41
200-4023	C2, 4, 11, 17, 18, 20, 24, 30, 31, 37, 38, 51, 52, 55, 56
200-4125	C1, 3, 13, 14, 28, 29, 33, 34, 52, 54, 58
200-4048	C7, 8, 9, 21, 22, 23
200-5321	C10
200-5323	C16, 27, 44, 46
201-0126	SCR2, 3
201-3669	SCR1
204-0074	C5, 12, 15, 25, 53
300-4002	CR1, 4, 5, 8, 10, 11
300-4446	CR2, 3, 6, 7, 9, 12
331-0395	VR2
330-0075	VR4, 5, 9
330-0565	VR1
330-0515	VR7
330-1275	VR8
331-1005	VR3, 6
400-0905	U2
400-0907	U3, 8, 9, 10, 15
400-0825	U1
400-0918	U12
400-0022	U4, 13
710-7400	U5, 11, 14
710-7404	U7
710-7410	U6

TABLE II

ASSEMBLY VERSION NO.	VERSION CHARACTERISTIC	Q39, 40, 49, 41 (140, 141, 142, 143, 159, 160, 161, 162) USAGE	R112 VALUE	R28, 29 PART NO.	R58, 65, 77 PART NO.	C37 VALUE	L1 PART NO.	990 VALUE	R92 PART NO.	R105 PART NO.	W1 PART NO.	
-01	BASIC	OMIT	0.3	118-7093	26, 1K	10 <sup>7</sup> -2612	82, 5	10 <sup>7</sup> -0825	OMIT	515-1011	515-1011	515-1011
-02	GCR	OMIT	0.15	118-7013	16, 2K	10 <sup>7</sup> -1622	562	10 <sup>7</sup> -5620	USE	515-1011	515-1011	515-1011
-03	OEM STD	OMIT	0.3	118-0033	26, 1K	10 <sup>7</sup> -2612	82, 5	10 <sup>7</sup> -0825	OMIT	515-1011	515-1011	515-1011

TABLE III

PART NO.	REFERENCE DESIGNATIONS
100-1015	R143, 162
100-1025	R140, 142, 159, 160
101-1015	R141, 161
200-0041	Q4, Q, 49
200-4037	Q39
200-5323	Q48

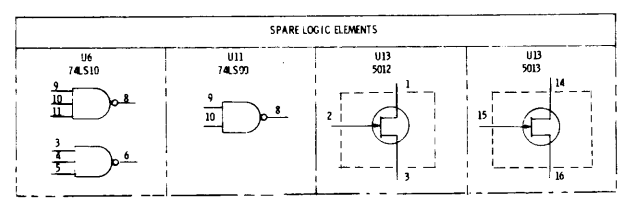
TABLE IV

I.C. TYPE	GROUND & VOLTAGE PIN NO.			
	+15V	+5V	GND (R)	-15V
74LS00		14	7	
74LS04		14	7	
74LS10		14	7	
LM937	7			4
LM213	7			4

REFERENCE DESIGNATIONS

LAST USED	NOT USED	DELETED
C38		C27, C28
CR12		
P11		
Q56		
L1		
R179	R9, 113, 123	R107
SCR3		
TP11		
U15		
VR9		
W1		

TABLE V



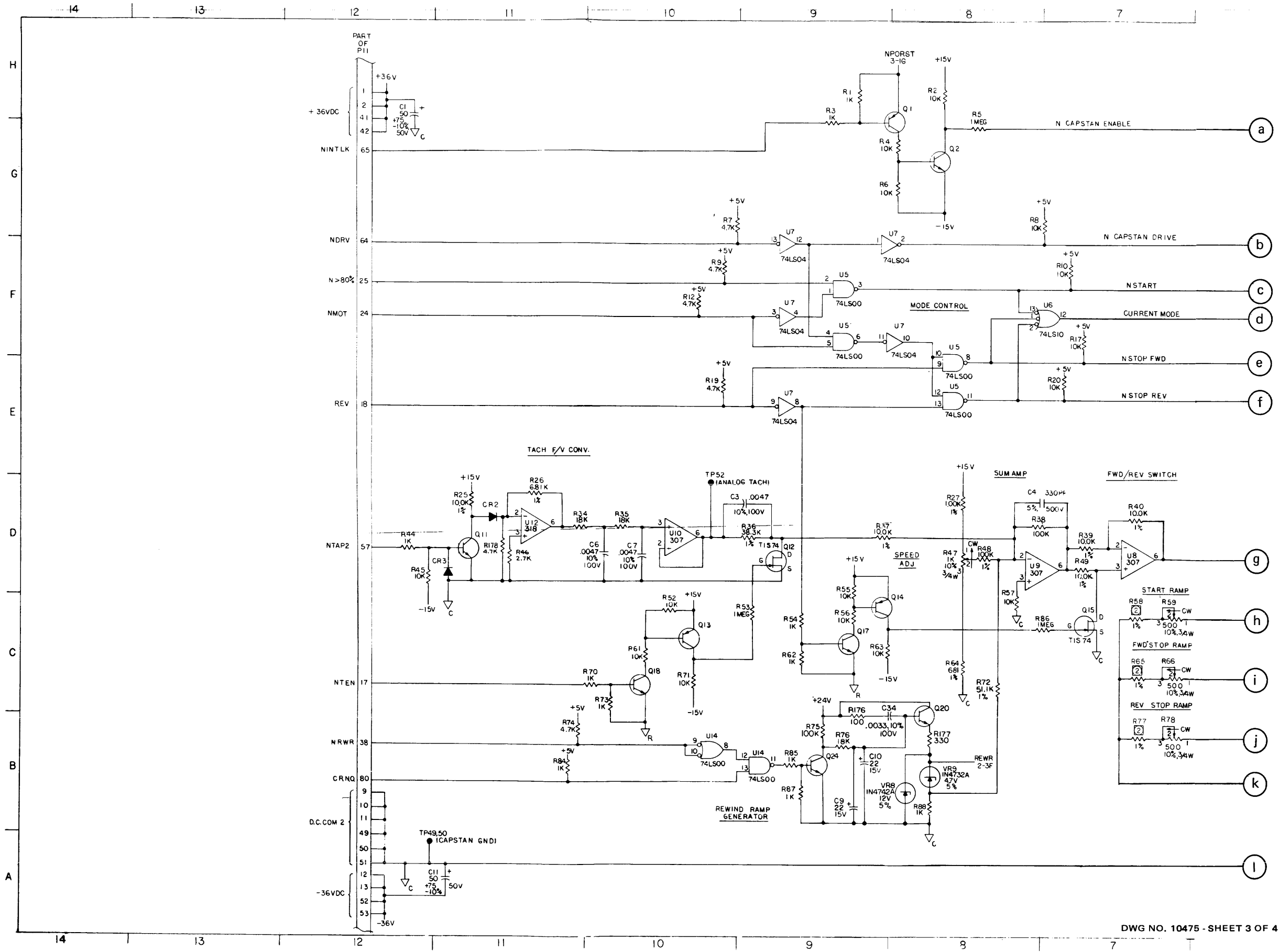
- 14. TP3, 4, 5 THRU 10, 14, 16, 17, 20, 21, 22, 23, 25 THRU 48, 53, 54, 60 THRU 64, 66, 67, 68, 69, 72
  - 15. COMPONENTS REQUIRE HEATSINK.
  - 12. RESISTORS WITH 1% TOL. ARE USRW.
  - 11. SIGNALS ARE CROSS-REF BETWEEN SHEETS AND WITHIN A SHEET BY NUMBERS APPEARING UNDER THE ASSOCIATED LOGIC TERM MNEMONIC. THE FIRST NO. IS THE SHEET NO. AND THE SECOND NO. IS THE ZONE NO.
  - 10. DIODES ARE IN4466.
  - 9. PNP TRANSISTORS ARE 2N4125.
  - 8. NPN TRANSISTORS ARE 2N4123.
  - 7. CAPACITOR VALUES ARE IN MICROFARADS, 20%, 35V.
  - 6. RESISTOR VALUES ARE IN OHMS, 5%, 1/4W.
  - 5. FOR SPARE LOGIC ELEMENTS, SEE TABLE V.
  - 4. FOR I.C. GENERIC TYPE NOS. AND GROUND/VOLTAGE PIN NOS. SEE TABLE IV.
  - 3. FOR PART NUMBER, SEE TABLE III.
  - 2. FOR VALUE, PART NUMBER AND USAGE OF COMPONENTS AFFECTED BY VERSION NUMBER, SEE TABLE II.
  - 1. FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.
- NOTES: UNLESS OTHERWISE SPECIFIED

THIS DRAWING IS UNDER CONFIGURATION CONTROL.

PREPARED BY: [Signature] CHECKED BY: [Signature] DATE: 7/8/64 TITLE: SCHEMATIC CAPSTAN/REGULATOR PART NO.: 104757 REV: AD MAN. REF:	PERTEC PERIPHERAL EQUIPMENT DIVISION DATE: 7/8/64 TITLE: SCHEMATIC CAPSTAN/REGULATOR PART NO.: 104757 REV: AD MAN. REF:
---	---

Figure 23 Schematic, Capstan/Regulator (Sheet 1 of 4)

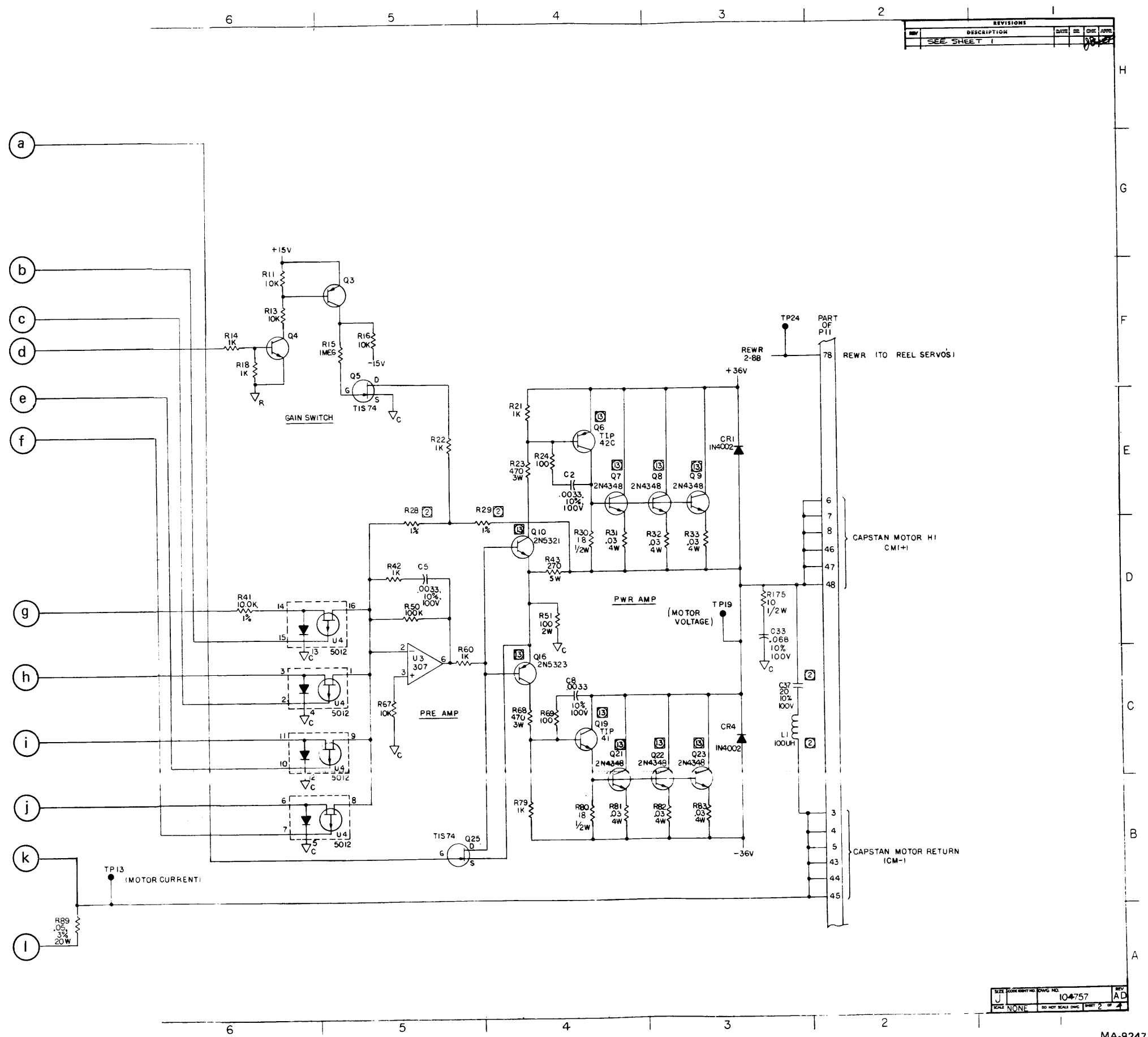




DWG NO. 10475 - SHEET 3 OF 4

MA-9248

Figure 23 Schematic, Capstan/Regulator (Sheet 2 of 4)



REVISIONS			
REV	DESCRIPTION	DATE	BY
1	SEE SHEET 1		

SIZE	CODE	REV	DATE	BY
J	NONE	104757		AD

Figure 23 Schematic, Capstan/Regulator (Sheet 3 of 4)

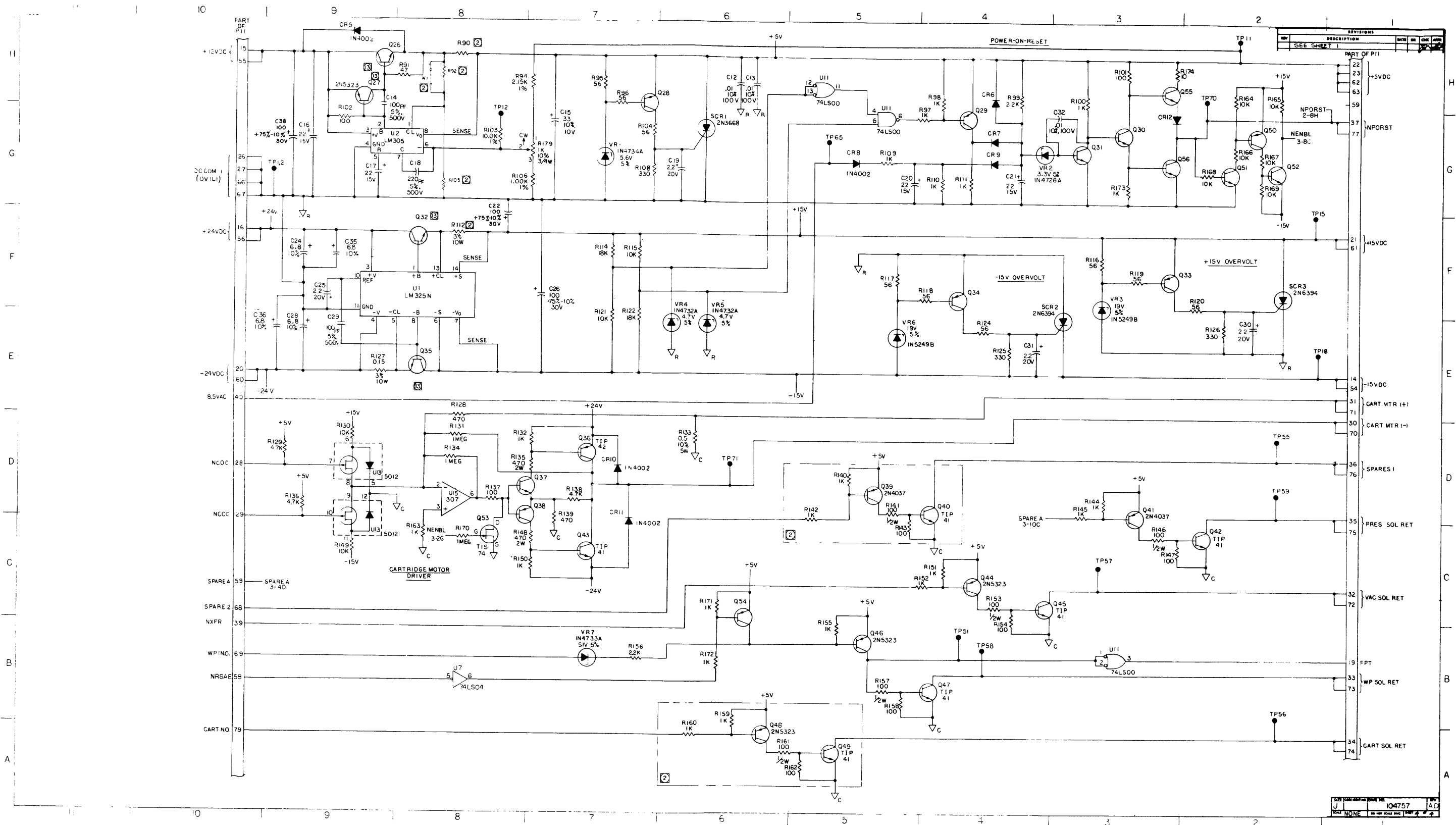
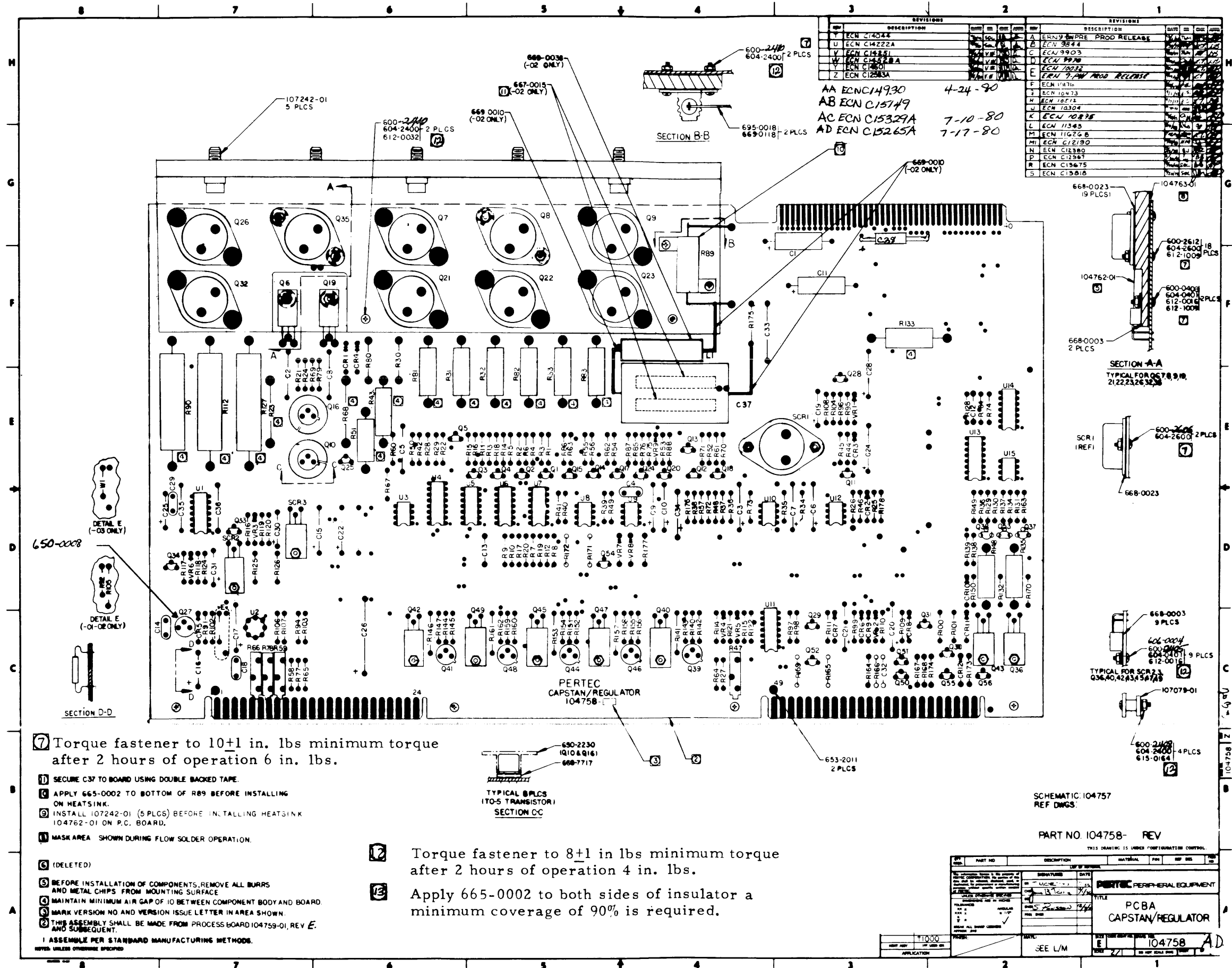


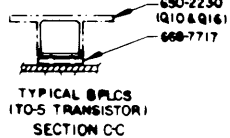
Figure 23 Schematic, Capstan/Regulator (Sheet 4 of 4)



REV	DESCRIPTION	DATE	BY	CHK	APP
Y	ECN C14544				
U	ECN C14222A				
V	ECN C15251				
W	ECN C15258A				
X	ECN C14501				
Z	ECN C1283A				
A	ERN9 SMPRE PROD RELEASE				
B	ECN 3844				
C	ECN 9903				
D	ECN 9970				
E	ECN 10032				
F	ECN 7-AM PROD RELEASE				
F	ECN 1476				
F	ECN 10473				
H	ECN 18212				
J	ECN 10304				
K	ECN 10878				
L	ECN 11343				
M	ECN 11026 B				
M	ECN C12190				
N	ECN C12380				
P	ECN C1267				
R	ECN C13675				
S	ECN C13818				

AA ECN C14930 4-24-90  
 AB ECN C15149  
 AC ECN C15329A 7-10-80  
 AD ECN C15265A 7-17-80

- 7 Torque fastener to 10±1 in. lbs minimum torque after 2 hours of operation 6 in. lbs.
- 1 SECURE C37 TO BOARD USING DOUBLE BACKED TAPE.
- 4 APPLY 665-0002 TO BOTTOM OF R89 BEFORE INSTALLING ON HEATSINK.
- 9 INSTALL 107242-01 (5 PLCS) BEFORE INSTALLING HEATSINK 104762-01 ON P.C. BOARD.
- 1 MASK AREA SHOWN DURING FLOW SOLDER OPERATION.
- 6 (DELETED)
- 5 BEFORE INSTALLATION OF COMPONENTS, REMOVE ALL BURRS AND METAL CHIPS FROM MOUNTING SURFACE.
- 4 MAINTAIN MINIMUM AIR GAP OF 10 BETWEEN COMPONENT BODY AND BOARD.
- 3 MARK VERSION NO AND VERSION ISSUE LETTER IN AREA SHOWN.
- 2 THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 104759-01, REV E AND SUBSEQUENT.
- 1 ASSEMBLE PER STANDARD MANUFACTURING METHODS.



- 2 Torque fastener to 8±1 in lbs minimum torque after 2 hours of operation 4 in. lbs.
- 3 Apply 665-0002 to both sides of insulator a minimum coverage of 90% is required.

SCHEMATIC: 104757  
 REF DWGS:

PART NO. 104758- REV

REV	PART NO	DESCRIPTION	MATERIAL	FIN	REP	DES	APP
		PERTEC PERIPHERAL EQUIPMENT					
		PCBA					
		CAPSTAN/REGULATOR					
		104758					

Figure 24 PCBA, Capstan/Regulator

H  
G  
F  
E  
D  
C  
B  
A

**TABLE I (1)**

PART NO.	REFERENCE DESIGNATION
100-1025	R2, 4, 5, 11, 18, 22, 23, 27, 29, 30, 31, 33 THRU 38, 111, 112, 114, 211, 212, 214, 311, 312, 314, 411, 412, 414, 511, 512, 514, 611, 612, 614, 711, 712, 714, 811, 812, 814, 911, 912, 914
100-1085	R13
100-1045	R9
100-1225	R15
100-1515	R24, 25, 26, 32
100-1525	R102, 202, 302, 402, 502, 602, 702, 802, 902
100-1535	R8
100-1815	R104, 116, 204, 216, 304, 316, 404, 416, 504, 516, 604, 616, 704, 716, 804, 816, 904, 916
100-1825	R20
100-2225	R7, 12
100-2245	R10
100-2735	R108, 208, 308, 408, 508, 608, 708, 808, 908
100-3315	R19
100-3325	R108, 208, 308, 408, 508, 608, 708, 808, 908
100-3485	R3
100-4725	R6, 28
101-1015	R17, 107, 109, 207, 209, 307, 309, 407, 409, 507, 509, 607, 609, 707, 709, 807, 809, 907, 909
101-1025	R1, 21
101-1215	R39, 40, 41, 42
101-3205	R16
101-7505	R105, 205, 305, 405, 505, 605, 705, 805, 905
107-1212	R110, 210, 310, 410, 510, 610, 710, 810, 910
107-1621	R108, 208, 308, 408, 508, 608, 708, 808, 908
107-3161	R113, 213, 313, 413, 513, 613, 713, 813, 913
107-8251	R115, 215, 315, 415, 515, 715, 815, 915
(1-3) 120-0001	U22, 25
121-1080	R101, 201, 301, 401, 501, 601, 701, 801, 901
130-4705	C3, 20
135-4742	C5
139-2244	C1, 2, 4, 7 THRU 19, 21, 22
200-487	Q101, 201, 301, 401, 501, 601, 701, 801, 901, 102, 202, 302, 402, 502, 602, 702, 802, 902, 103, 203, 303, 403, 503, 603, 703, 803, 903
200-4123	Q2, 104, 105, 204, 205, 304, 305, 404, 405, 504, 505, 604, 605, 704, 705, 804, 805, 904, 905
200-4125	Q1

**TABLE I (CONT'D)**

PART NO.	REFERENCE DESIGNATION
200-5325	Q3, 4
300-4446	CR1
400-2741	U38
700-7416	U33, 37
710-4132	U21, 24, 28
710-4221	U2, 5, 7, 10, 12, 15, 17, 20, 23, 35
710-7400	U31, 32
710-7404	U34
710-7414	U27
710-7438	U36
710-7474	U4, 9, 14, 19, 26
710-7476	U1, 6, 11, 16, 30
710-7486	U3, 8, 13, 18, 29

**TABLE II (2)**

ASSEMBLY VERSION NO.	VERSION CHARACTERISTIC	C6		C101, 201, 301, 401, C501, 601, 701, 801, C901		C102, 202, 302, 402, C502, 602, 702, 802, C902	
		VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.
-01	75 IPS	.0022	131-2220	750 PF	130-7515	56 PF	130-5605
-02	100 IPS	.0022	131-2220	750 PF	130-7515	49 PF	130-6005
-03	112.5/125 IPS	.0015	131-1520	560 PF	130-5615	33 PF	130-3305

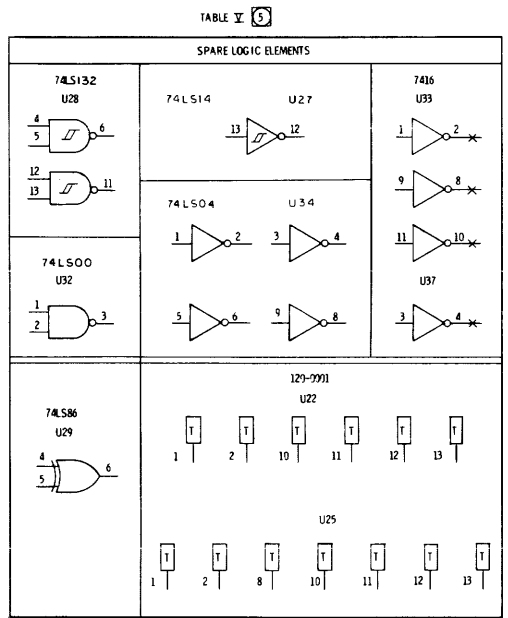


Figure 25 Schematic, Write (Sheet 1 of 4)

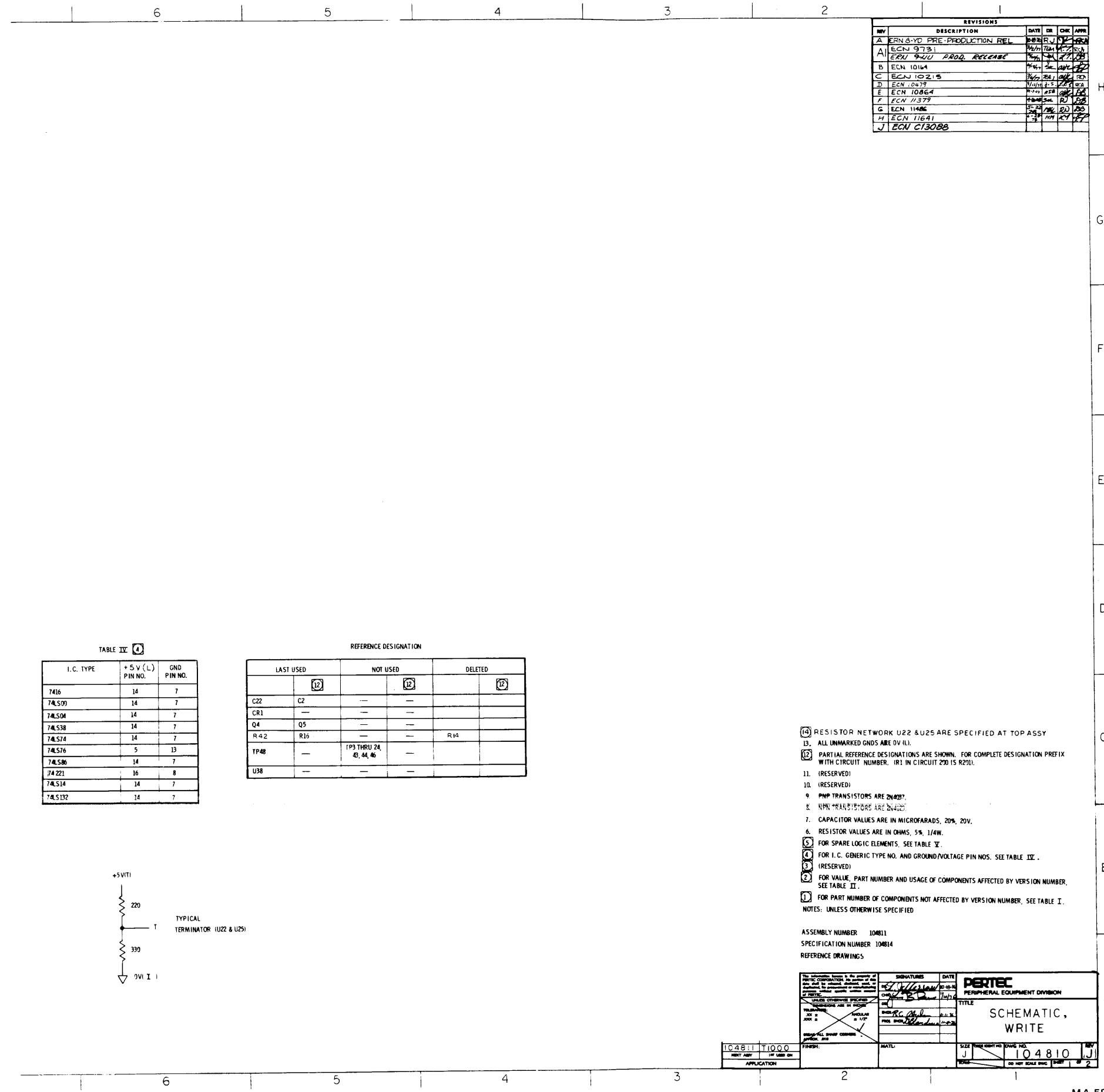
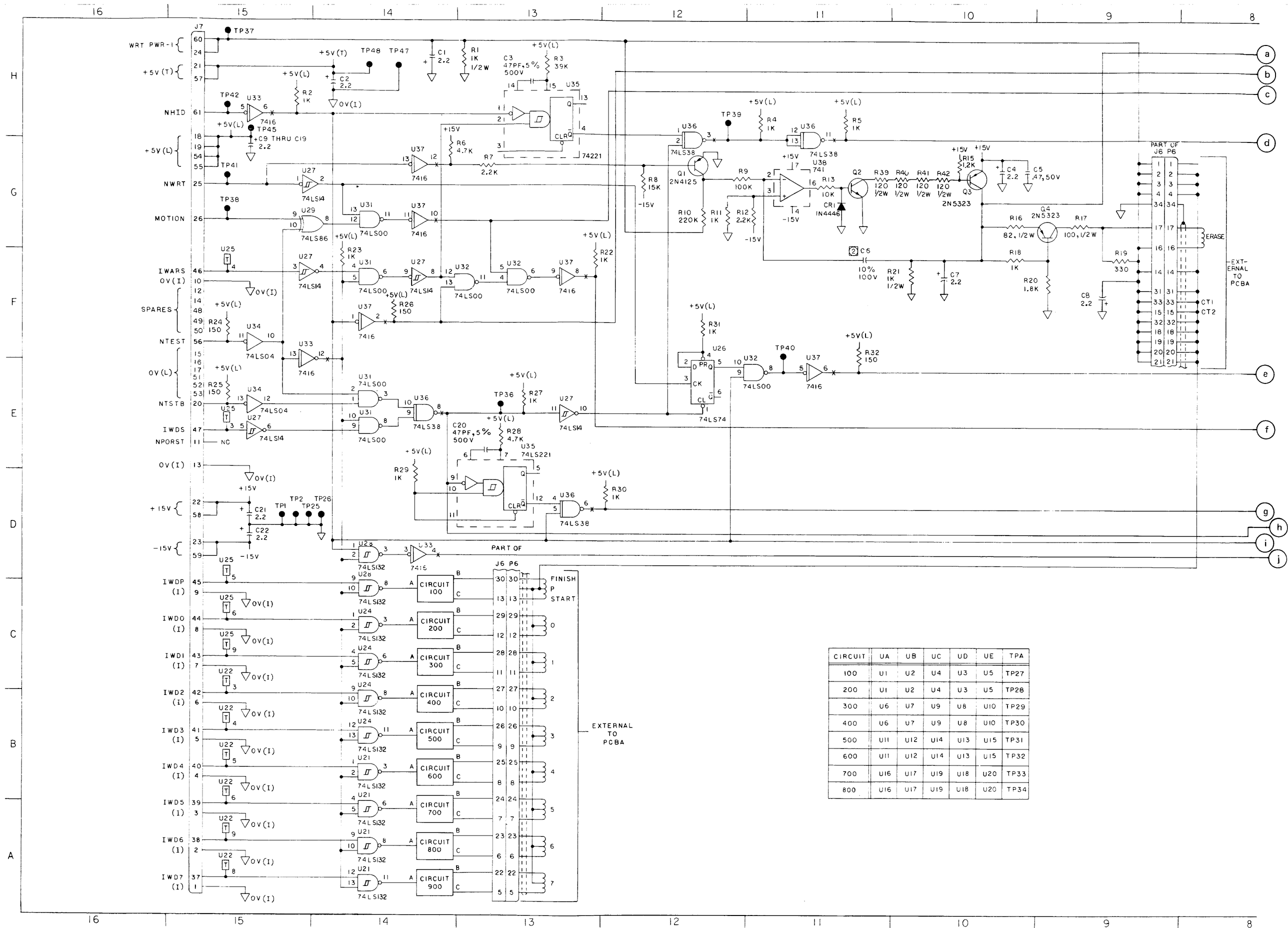


Figure 25 Schematic, Write (Sheet 2 of 4)



CIRCUIT	UA	UB	UC	UD	UE	TPA
100	U1	U2	U4	U3	U5	TP27
200	U1	U2	U4	U3	U5	TP28
300	U6	U7	U9	U8	U10	TP29
400	U6	U7	U9	U8	U10	TP30
500	U11	U12	U14	U13	U15	TP31
600	U11	U12	U14	U13	U15	TP32
700	U16	U17	U19	U18	U20	TP33
800	U16	U17	U19	U18	U20	TP34

Figure 25 Schematic, Write (Sheet 3 of 4)

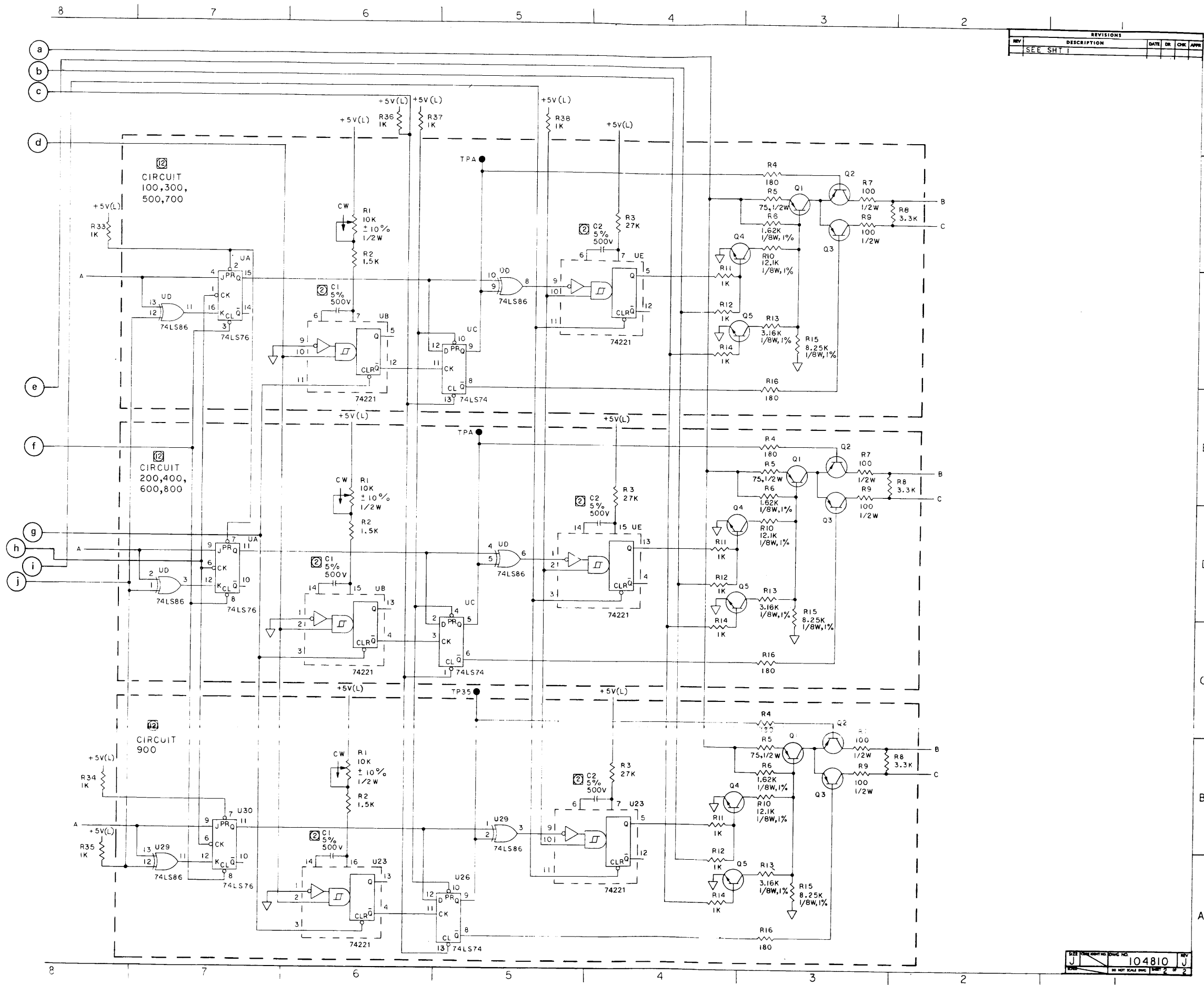
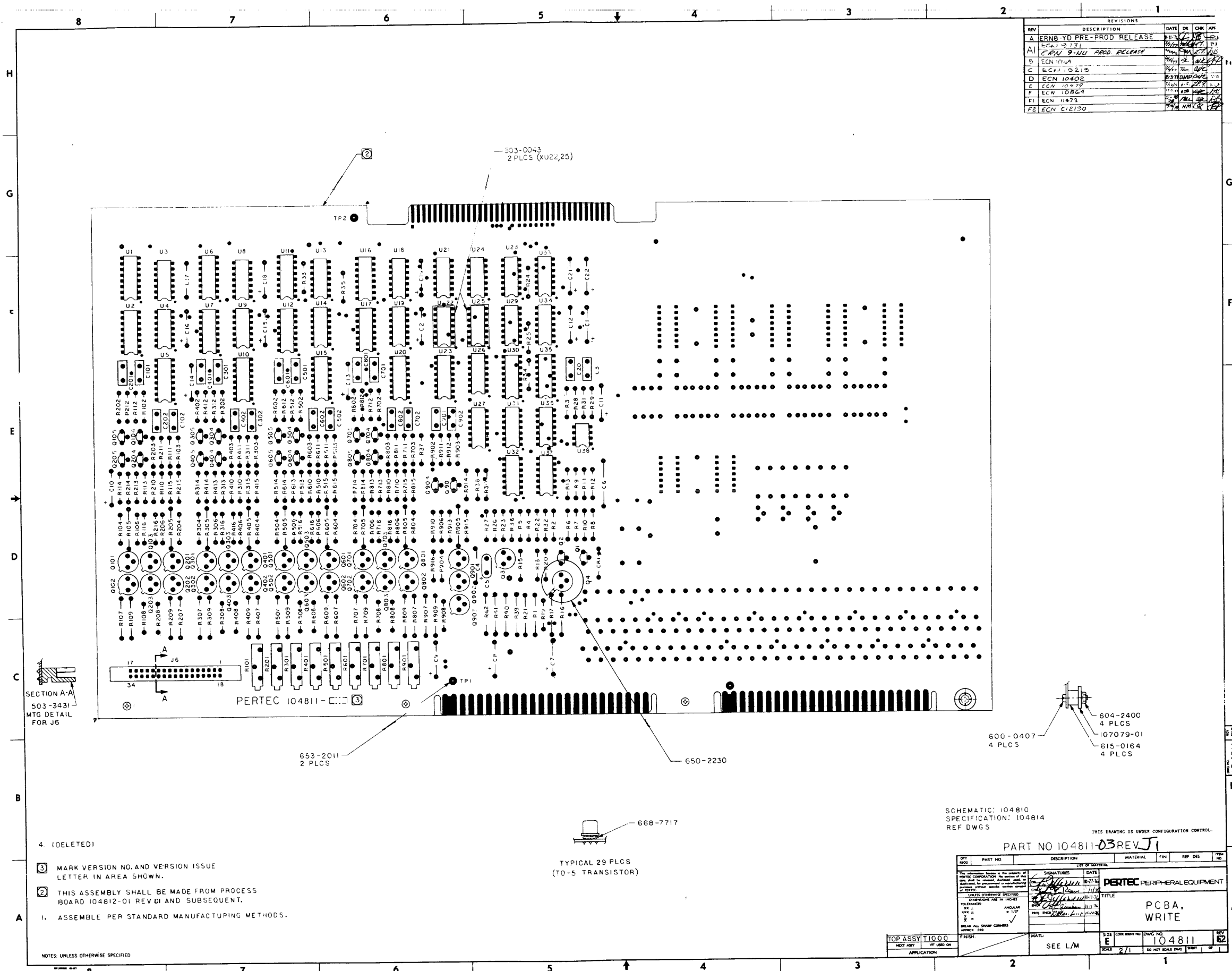


Figure 25 Schematic, Write (Sheet 4 of 4)





REV	DESCRIPTION	DATE	DR	CHK	APP
A	ERNB-YO PRE-PROD RELEASE	11/21/73	WJ	WJ	WJ
A1	ECN 10215	11/21/73	WJ	WJ	WJ
B	ECN 10402	11/21/73	WJ	WJ	WJ
C	ECN 10479	11/21/73	WJ	WJ	WJ
D	ECN 10864	11/21/73	WJ	WJ	WJ
E	ECN 11473	11/21/73	WJ	WJ	WJ
F	ECN 12190	11/21/73	WJ	WJ	WJ

SECTION A-A  
503-3431  
MTG DETAIL  
FOR J6

- 4 (DELETED)
- ③ MARK VERSION NO. AND VERSION ISSUE LETTER IN AREA SHOWN.
- ② THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 104812-01 REV D1 AND SUBSEQUENT.
- 1. ASSEMBLE PER STANDARD MANUFACTURING METHODS.

NOTES: UNLESS OTHERWISE SPECIFIED

SCHEMATIC: 104810  
SPECIFICATION: 104814  
REF DWGS

THIS DRAWING IS UNDER CONFIGURATION CONTROL.

PART NO 104811-03 REV J1

REV	PART NO	DESCRIPTION	MATERIAL	FIN	REF DES	ITEM NO
1	104811	PCBA, WRITE				

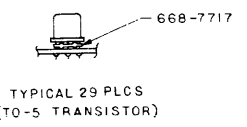
DATE	SIGNATURES	DATE	PERTEC PERIPHERAL EQUIPMENT
11/21/73	[Signature]	11/21/73	
11/21/73	[Signature]	11/21/73	
11/21/73	[Signature]	11/21/73	

TOLERANCES	UNLESS OTHERWISE SPECIFIED	CONVERSIONS ARE IN INCHES	TITLE
FRACTIONAL	AS SHOWN		PCBA, WRITE
DECIMAL	0.005		
ANGULAR	0.005		
WELDING	AS SHOWN		
APPROX	0.005		

TOP ASSY 11000	FINISH:	MATL:	SIZE (CODE) DWG NO.	REV
NOT ASSY	SEE L/M	SEE L/M	E 104811	02
APPLICATION:			SCALE 2/1	DO NOT SCALE DIMS



TYPICAL 29 PLCS  
(TO-5 TRANSISTOR)

Figure 26 PCBA, Write

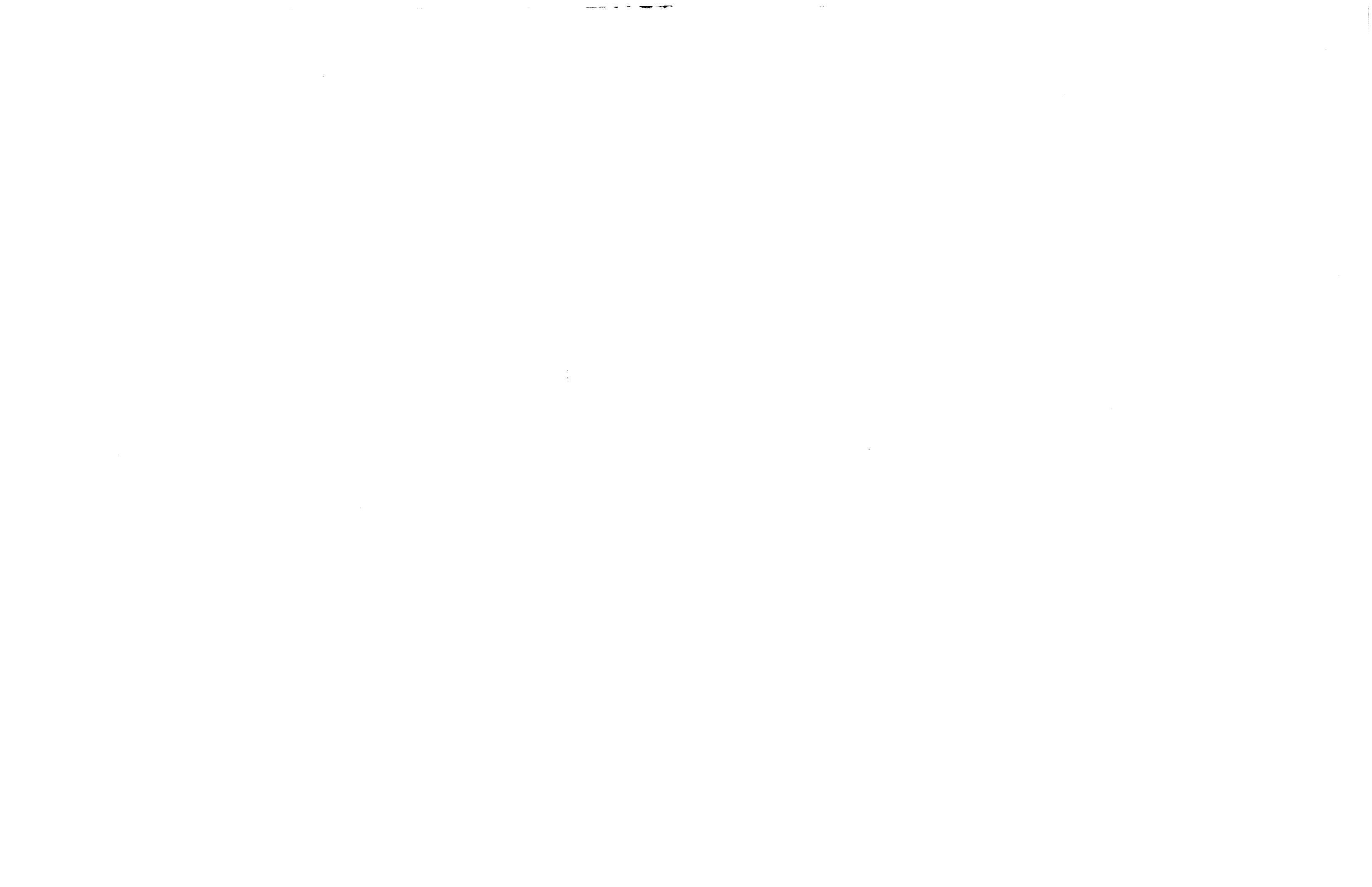


TABLE I

PART NO.	REFERENCE DESIGNATION
100-1015	R136, 137, 236, 237, 336, 337, 436, 437, 536, 537, 636, 637, 736, 737, 836, 837, 936, 937
100-1025	R4, 13, 33 THRU 34, 47, 48, 53, 63, 73, 137, 237, 337, 447, 537, 637, 737, 837, 937, 7, 3
100-1035	R1, 2, 15, 16, 36, 66
100-1055	R52, 58, 68, 104, 118 THRU 121, 234, 218 THRU 221, R334, 318 THRU 321, 434, 418 THRU 421, 534, R518 THRU 521, 634, 618 THRU 621, 734, R718 THRU 721, 834, 818 THRU 821, 934, R918 THRU 921
100-2205	R57, 54
100-2225	R35
100-2235	R3
100-4745	R74
100-3925	R55, 56, 57, 63, 67, 113 THRU 117, 213 THRU 217, R313 THRU 317, 413 THRU 417, 513 THRU 517, R613 THRU 617, 713 THRU 717, 813 THRU 817, R913 THRU 917
100-4715	R48, 51, 59, 69, 122, 123, 222, 223, 322, 323, 422, 423, R522, 523, 622, 623, 722, 723, 822, 823, 922, 923
100-4725	R14, 61
107-0100	R72
107-0196	R75
107-4048	R10, 28
107-0511	R9, 27
107-1002	R19, 20, 22, 108, 208, 308, 408, 508, 608, 708, 808, 908, 1, 7
107-1101	R7
107-1212	R109, 105, 209, 309, 305, 409, 405, 509, 505, 609, R609, 709, 705, 809, 805, 909, 905
107-1330	R8, 26
107-1622	R38
107-2151	R64, 65
107-2371	R62
107-2810	R5
107-3830	R23
107-4641	R12
107-5111	R21
107-5113	R101, 102, 201, 202, 301, 302, 401, 402, 501, 502, 601, R602, 701, 702, 801, 802, 901, 902
107-3161	R18
107-3210	R6
120-0001	U12, 14
121-1010	R11, 29
121-1030	R37
130-1515	C64
130-2215	C65
130-4705	C63, 66, 67, 807 THRU 110, 207 THRU 210, C307 THRU 310, 407 THRU 410, 507 THRU 510, C607 THRU 610, 707 THRU 710, 807 THRU 810, C907 THRU 910
135-1031	C73
135-4742	C68 THRU 58, 68, C31 THRU 34, C69 THRU 72
139-4755	C59, 60, 61
139-2244	C1 THRU 30, 35 THRU 46, 101, 102, 201, C202, 301, 302, 401, 402, 501, 502, 601, 602, 701, 102, C801, 802, 901, 902

TABLE I (CONT'D)

PART NO.	REFERENCE DESIGNATION
200-4123	O4, 10, 11
200-4125	O1, 2, 3, 5, 6, 9
204-0074	O191, 201, 301, 401, 501, 601, 701, 801, 901
300-4446	CR1, 2, 101 THRU 108, 201 THRU 208, 301 THRU 308, CR401 THRU 408, 501 THRU 508, 601 THRU 608, CR701 THRU 708, 801 THRU 808, 901 THRU 908
400-0518	U101, 102, 201, 202, 301, 302, 401, 402, 501, 502, 601, U602, 701, 702, 801, 802, 901, 902
400-0519	U41, 42, 119, 104, 209, 204, 303, 304, 403, 404, 503, U504, 603, 604, 703, 704, 803, 804, 903, 904
400-2741	U38, 39, 40
515-1015	L1 THRU 6
700-5452	U7, 8, 9, 18 THRU 26
700-7416	U17, 34
710-4123	U105, 205, 305, 405, 505, 605, 705, 805, 905
710-7400	U29, 30
710-7404	U27, 28
710-7410	U33
710-7427	U1, 3, 6, 31
710-7430	U32
710-7438	U36, 37
710-7474	U10, 11, 13, 15, 16
710-7486	U2, 4, 5
104-1471	R76
107-1621	R25
104-2610	R71
107-9090	R24

TABLE III

PART NO.	REFERENCE DESIGNATION
100-1235	R40, 44
100-2225	R39, 43
107-3162	R42
107-5112	R46
121-5330	R41, 45
200-4125	O7, 8
710-7426	U35

Figure 27 Schematic, Data L (Sheet 1 of 4)

TABLE II

ASSEMBLY VERSION NO.	VERSION CHARACTERISTIC	C62		C10B, 20B, 30B, 40B, 50B, 60B, 70B, 80B, 90B		C10A, 20A, 30A, 40A, 50A, 60A, 70A, 80A, 90A		C17B, 20B, 30B, 40B, 50B, 60B, 70B, 80B, 90B		C10C, 20C, 30C, 40C, 50C, 60C, 70C, 80C, 90C		C11L, 21L, 31L, 41L, 51L, 61L, 71L, 81L, 91L		C11Z, 21Z, 31Z, 41Z, 51Z, 61Z, 71Z, 81Z, 91Z	
		VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.
-01	75 IPS	.001	131-120	33 PF	130-3305	100 PF	130-1715	560 PF	130-5615	56 PF	130-5605	.0033	131-3320	.0022	131-2220
-02	100 IPS	.001	131-120	22 PF	130-2205	68 PF	130-6875	330 PF	130-3315	33 PF	130-3305	.0033	131-3320	.0022	131-2220
-0B	112.5/125 IPS	750 PF	130-7515	15 PF	130-1505	56 PF	130-5675	330 PF	130-3315	33 PF	130-3305	.0022	131-2220	.0015	131-1520

REV	DESCRIPTION	DATE	DR	CHK	APP
A	ERN 87C PRE PROD RELEASE	7/81	RM	SA	SA
B	ECN 9653A	10/11	LO	EO	PA
C	ECN 9-117 PROD RELEASE	11/11	SA	SA	SA
D	ECN 10455B	11/11	SA	SA	SA
E	ECN 10800G	11/11	SA	SA	SA
F	ECN 11127	11/11	SA	SA	SA
G	ECN 11327	11/11	SA	SA	SA
H	ECN 11736	11/11	SA	SA	SA
I	ECN 11953	11/11	SA	SA	SA
L	ECN C13184				
M	ECN C13495A				

TABLE II (CONT'D)

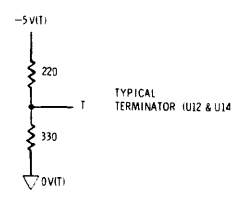
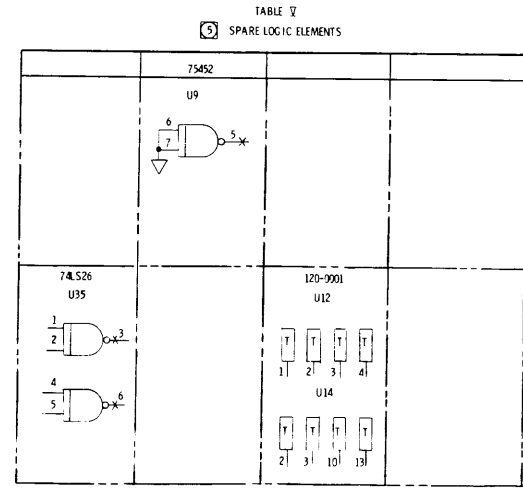
ASSEMBLY VERSION NO.	VERSION CHARACTERISTIC	R124, 125, 224, 225, 324, 325, 424, 425, 524, 525, 624, 625, 724, 725, 824, 825, 924, 925		J1, 2		Q7, 8 R39, 40, 41, 42, 43, 44, 45, 46 U35	
		VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.
-01	75 IPS	27K	100-2735	120/113-01	120/113-01	USAGE	3
-02	100 IPS	18K	100-1835	USE	OMIT		
-0B	112.5/125 IPS	22K	100-2235	USE	OMIT		

REFERENCE DESIGNATIONS

LAST USED	NOT USED	DELETED
	112	112
C73	C12	C47
CR2	CR8	
J5		
L6		
Q11	Q1	
R24	R25	
TP7B	TP2	TP1 THRU 48
U42	U5	TP77

TABLE IV

I. C. VOLTAGE AND GROUND PIN NO.'S								
I. C. TYPE	+15 VIF2	+15 VIF1	+5 VIL1	+5 VIT1	0VIL1	0VIT1	-15 VIF2	-15 VIF1
318		7						4
319		11			3, 8			6
741	7						4	6
7416			14		7			
75452			8		4			
74LS00			14		7			
74LS04			14		7			
74LS12			14		7			
74LS26			14		7			
74LS27			14		7			
74LS30			14		7			
74LS38			14		7			
74LS74			14		7			
74LS86			14		7			
74LS123			16		8			
120-0001				14		7		



- 14. RESISTOR NETWORK U12 & U14 ARE SPECIFIED AT TOP ASSY.
  - 13. CAPACITORS LISTED AS PICOFARADS ARE 5% 500V.
  - 12. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH CIRCUIT NUMBER. (R1 IN CIRCUIT 200 IS R201).
  - 11. SIGNALS ARE CROSS-REF WITHIN SHEET 2 BY NUMBERS APPEARING UNDER THE ASSOCIATED LOGIC TERM MNEMONIC. THE FIRST NO. IS THE SHEET NO. AND THE SECOND NO. IS THE ZONE NO.
  - 10. DIODES ARE 1N4466.
  - 9. PNP TRANSISTORS ARE 2N4125.
  - 8. NPN TRANSISTORS ARE 2N4123.
  - 7. CAPACITORS ARE IN MICROFARADS, 20%, 20V.
  - 6. RESISTOR VALUES ARE IN OHMS, 5% 1/4W, 1% ARE 1/8W.
  - 5. FOR SPARE LOGIC ELEMENTS, SEE TABLE V.
  - 4. FOR C, GENERIC TYPE NO. AND PART NUMBER PREFIX, SEE TABLE IV.
  - 3. FOR PART NUMBER, SEE TABLE III.
  - 2. FOR VALUE, PART NUMBER AND USAGE OF COMPONENTS AFFECTED BY VERSION NUMBER, SEE TABLE II.
  - 1. FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.
- NOTES: UNLESS OTHERWISE SPECIFIED

ASSEMBLY DWG. NO. 104806  
SPECIFICATION DWG. NO. 104809  
REFERENCE DRAWINGS

SIGNATURES		DATE	PERTEC PERIPHERAL EQUIPMENT DIVISION
DR: 1/10/81	SA: 1/10/81	7/81	
CHK: [Signature]	APP: [Signature]	11/11	
DESIGNER: [Signature]			SCALE: 1:1
DRAWN: [Signature]			
CHECKED: [Signature]			MATERIAL: [Blank]
APPROVED: [Signature]			
DATE: 10/4/80			SHEET: 2 OF 2
JOB NO. 104806			
DRAWN BY: [Signature]			NO. NOT SCALE DWG. SHEET 2 OF 2
CHECKED BY: [Signature]			

Figure 27 Schematic, Data L (Sheet 2 of 4)



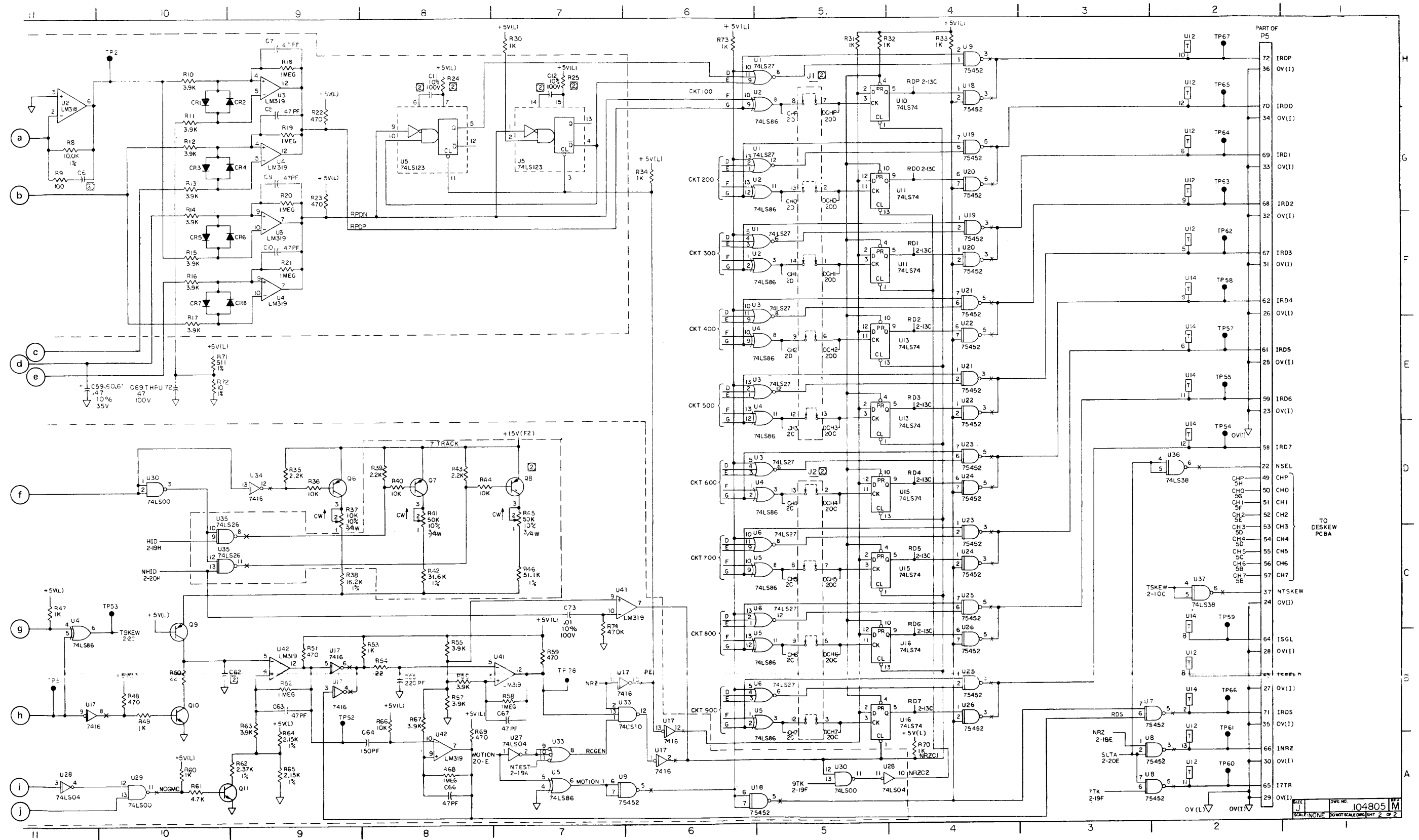


Figure 27 Schematic, Data L (Sheet 4 of 4)

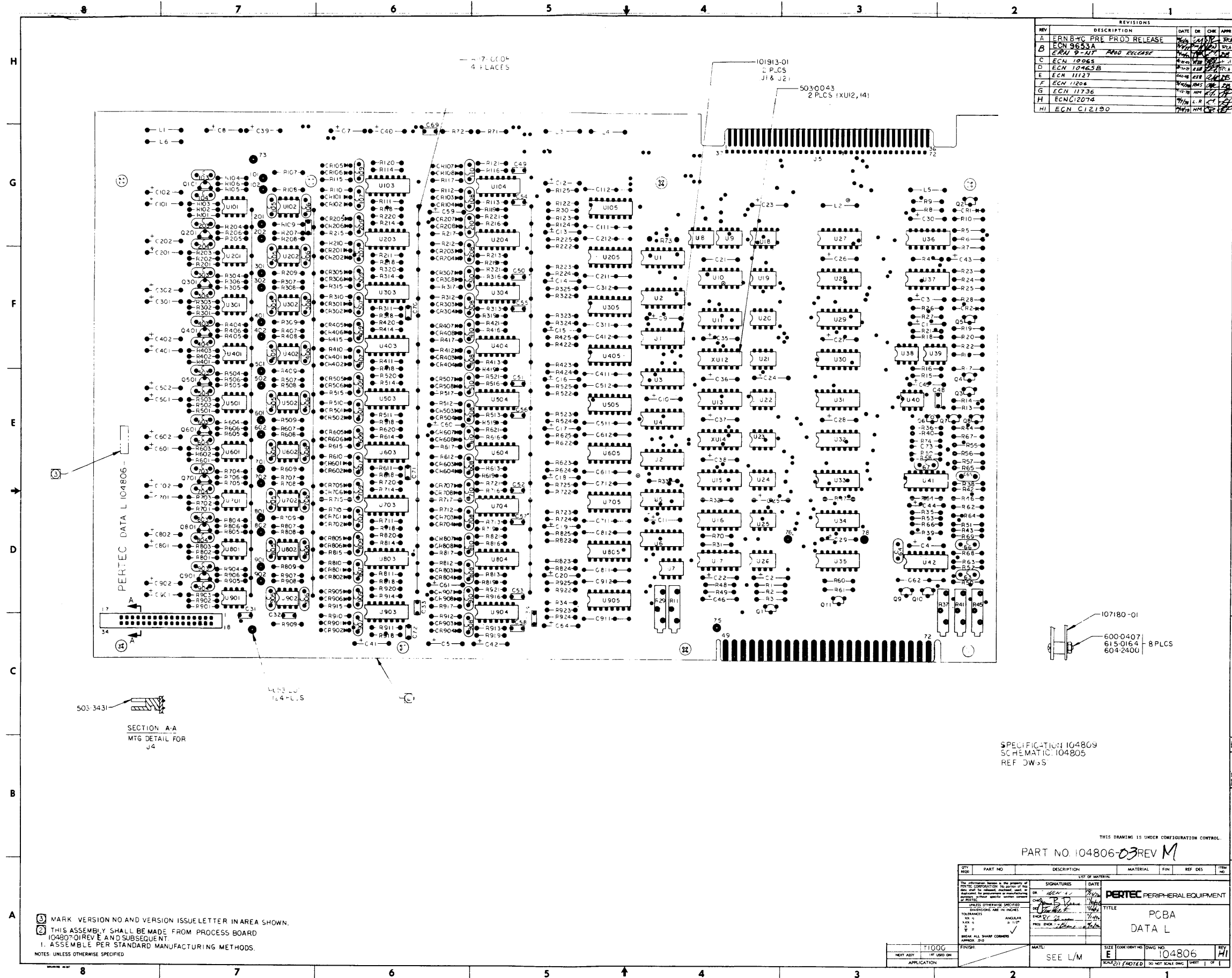


Figure 28 PCBA, Data L

MA-5835





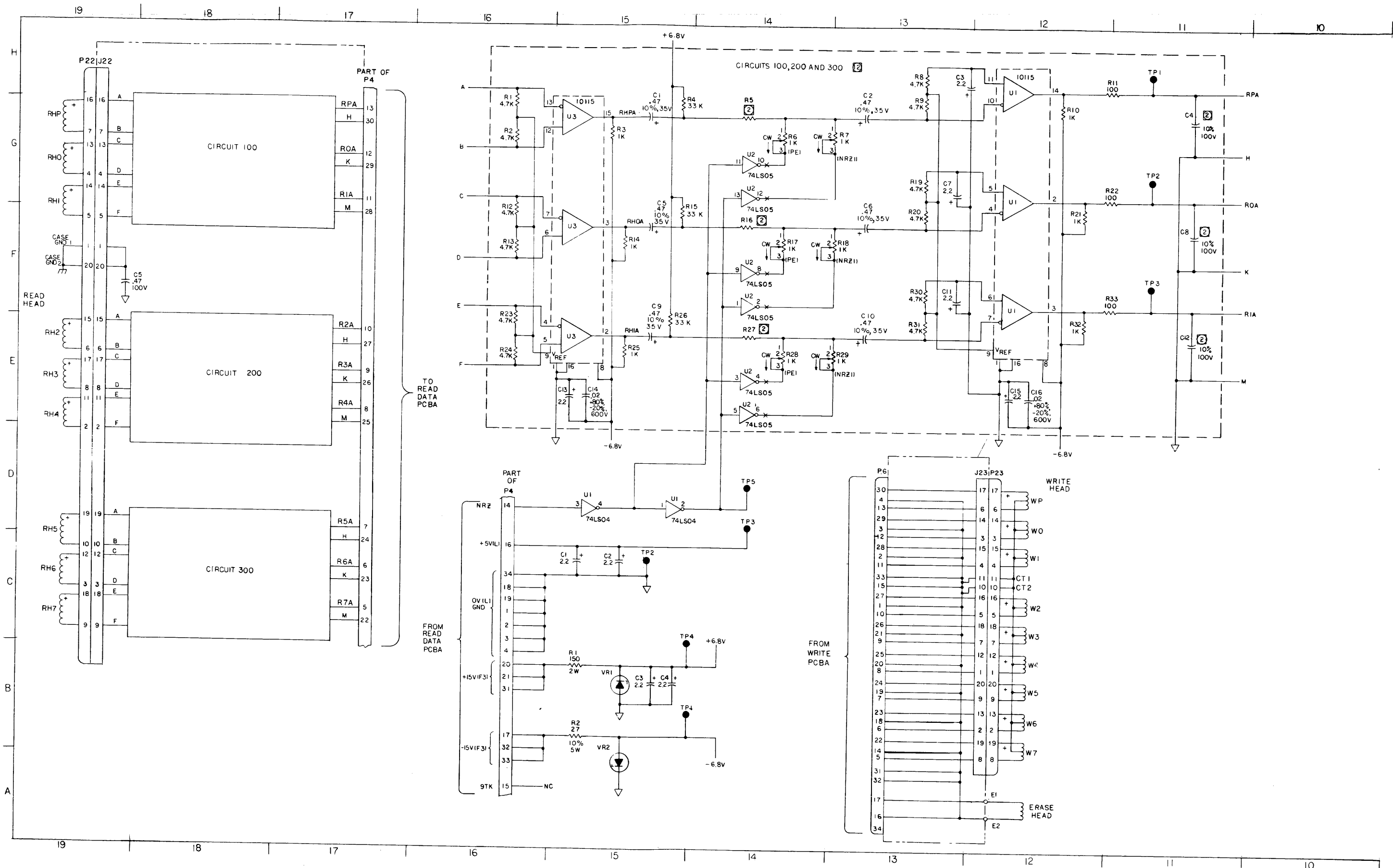


Figure 29 Schematic, 9 TK Preamp (Sheet 1 of 2)

1 TABLE I

PART NO.	REFERENCE DESIGNATOR
100-1015	R111, 122, 133, 211, 222, 233, 311, 322, 333
100-1025	R108, 110, 114, 121, 125, 132, 208, 210, 214, 221, 225, 232, 308, 310, 314, 321, 325, 332
100-3335	R104, 115, 126, 204, 215, 226, 304, 315, 326
100-4725	R101, 102, 108, 109, 112, 113, 119, 120, 123, 124, 130, 131, 201, 202, 208, 209, 212, 213, 218, 220, 223, 224, 230, 231, 301, 302, 308, 309, 312, 313, 319, 320, 323, 324, 330, 331
103-1515	R1
109-2705	R2
123-1020	R106, 107, 117, 118, 128, 129, 206, 207, 217, 218, 228, 229, 306, 307, 317, 318, 328, 329
135-2862	C114, 116, 214, 216, 314, 316
135-3352	C5
139-2244	C1, 2, 3, 4, 108, 107, 111, 113, 115, 209, 207, 211, 213, 215, 309, 307, 311, 313, 315
139-4755	C101, 102, 105, 106, 109, 110, 201, 202, 205, 206, 209, 210, 301, 302, 305, 306, 309, 310
330-0685	VR1, 2
700-0115	U101, 108, 201, 208, 301, 308
710-7405	U102, 202, 302
710-7404	U1

2 TABLE II

ASSEMBLY VERSION NO.	VERSION CHARACTERISTIC	C104, 108, 112, C204, 208, 212, C304, 308, 312		R105, 116, 127, 205, 216, 227, R305, 316, 327	
		SPEED	VALUE	PART NO.	VALUE
-01	75 IPS	.0068	131-6820	220	100-2215
-02	100 IPS	.0047	131-4720	560	100-5615
-03	112.5 IPS	.0033	131-3320	560	100-5615

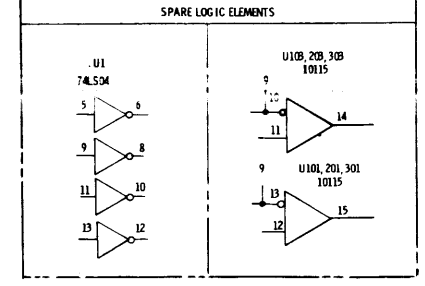
4 TABLE III

I.C. TYPE	GROUND AND VOLTAGE PIN NO.	
	+5V	GND
74LS05	14	7
74LS04	14	7

REFERENCE DESIGNATIONS

LAST USED	DELETED
C5	C16
E2	---
J4	---
P4	---
R2	R33
TP5	TP3
U1	U3
VR2	---
W1	W1

5 TABLE IV

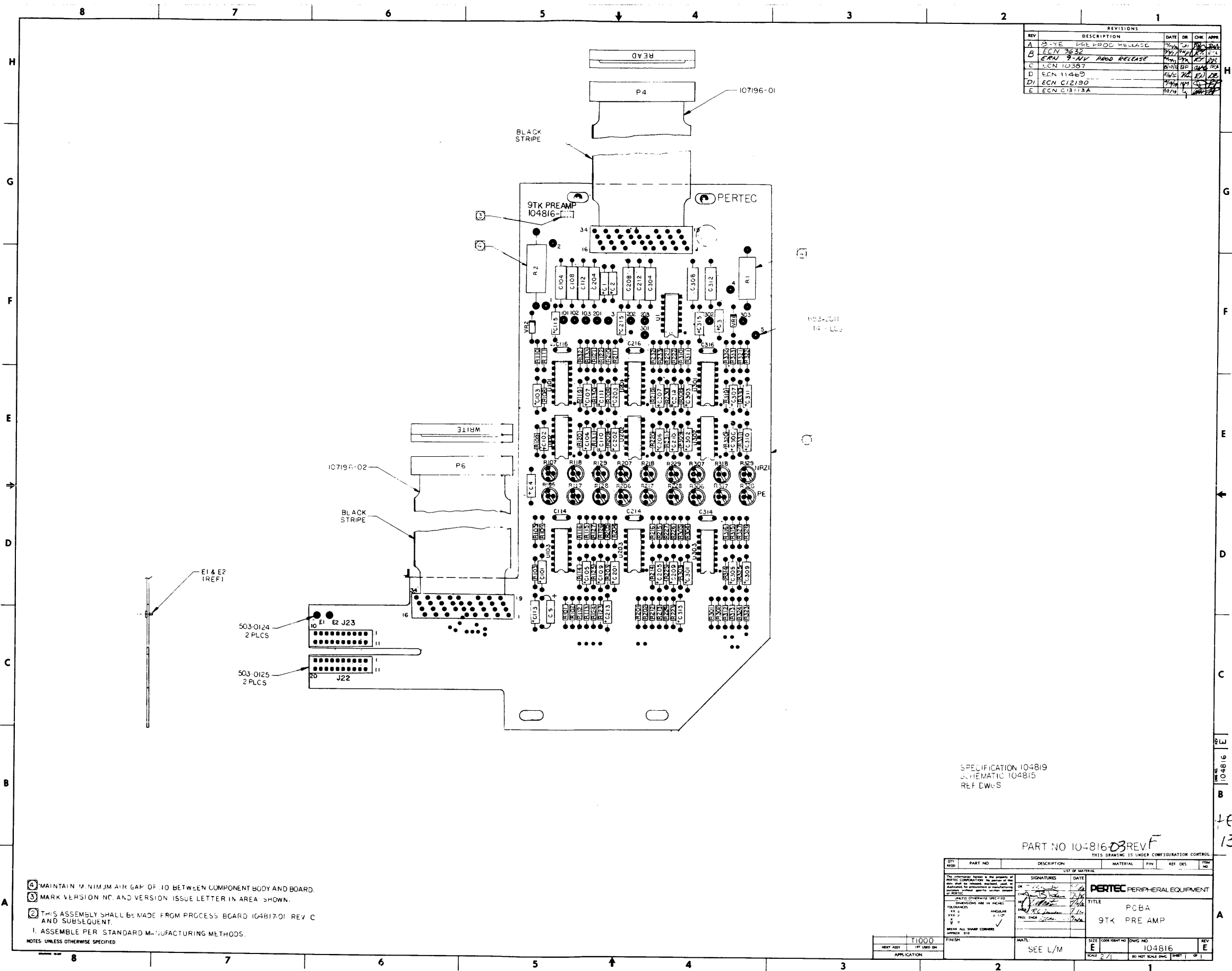


REVISIONS				
REV	DESCRIPTION	DATE	CHK	APPV
A	ERN 8-7E PREPROD RELEASE	7/20/70	WJ	WJ
B	ECN 9832	7/20/70	WJ	WJ
C	ECN 9-11V PROD. RELEASE	7/20/70	WJ	WJ
D	ECN 10178	7/20/70	WJ	WJ
E	ECN 10307	7/20/70	WJ	WJ
F	ECN 10936	7/20/70	WJ	WJ
G	ECN 10990	7/20/70	WJ	WJ
H	ECN 11209	7/20/70	WJ	WJ
G1	ECN C12100			
H	ECN C12113A			

- 10. DIODES ARE IN4736.
  - 9. (RESERVED)
  - 8. (RESERVED)
  - 7. CAPACITOR VALUES ARE IN MICROFARADS ± 20%, 20V.
  - 6. RESISTOR VALUES ARE IN OHMS, 5%, 1/4W.
  - 5. FOR SPARE LOGIC ELEMENTS, SEE TABLE IV.
  - 4. FOR I.C. GENERIC TYPE NO. AND GROUND/VOLTAGE PIN NOS. SEE TABLE III.
  - 3. POTENTIOMETERS ARE ± 10% 1/2W.
  - 2. FOR VALUE, PART NUMBER AND USAGE OF COMPONENTS AFFECTED BY VERSION NUMBER, SEE TABLE II.
  - 1. FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.
- NOTES: UNLESS OTHERWISE SPECIFIED  
SPECIFICATION 104819  
ASSEMBLY 104816
- REFERENCE DRAWINGS:

104816	11000	DATE	7/20/70	<b>PERTEC</b> PERIPHERAL EQUIPMENT DIVISION TITLE <b>SCHEMATIC          9TK PREAMP</b>
REV. NO.	REV. NO.	SIGNATURE	WJ	
APPLICATION	DATE	DATE	DATE	5721 CHECK SHEET NO. 104815 104815 104815

Figure 29 Schematic, 9 TK Preamp (Sheet 2 of 2)



REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APP
A	DATE PRE PROD RELEASE	7/24/71	WJ	WJ	WJ
B	ECN 9632	7/24/71	WJ	WJ	WJ
C	ECN 9-111 PROD RELEASE	7/24/71	WJ	WJ	WJ
D	ECN 10387	8/17/71	WJ	WJ	WJ
E	ECN 11463	8/17/71	WJ	WJ	WJ
F	ECN C12130	7/24/71	WJ	WJ	WJ
G	ECN C13113A	8/24/71	WJ	WJ	WJ

- ④ MAINTAIN MINIMUM AIR GAP OF .10 BETWEEN COMPONENT BODY AND BOARD.
  - ③ MARK VERSION NO. AND VERSION ISSUE LETTER IN AREA SHOWN.
  - ② THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 104817-01 REV C AND SUBSEQUENT.
  - 1. ASSEMBLE PER STANDARD MANUFACTURING METHODS.
- NOTES: UNLESS OTHERWISE SPECIFIED

SPECIFICATION 104819  
SCHEMATIC 104815  
REF DWGS

PART NO 104816-03 REV F

QTY	PART NO	DESCRIPTION	MATERIAL	FIN	REF DES	ITEM NO
THIS DRAWING IS UNDER CONFIGURATION CONTROL.						
SIGNATURES		DATE				
PERTEC PERIPHERAL EQUIPMENT		TITLE				
PCBA		9TK PRE AMP				
MATERIAL		SCALE		DWG NO		REV
SEE L/M		E		104816		E

1E LN  
13113A

Figure 30 PCBA, 9 TK Preamp