

## CHAPTER 8

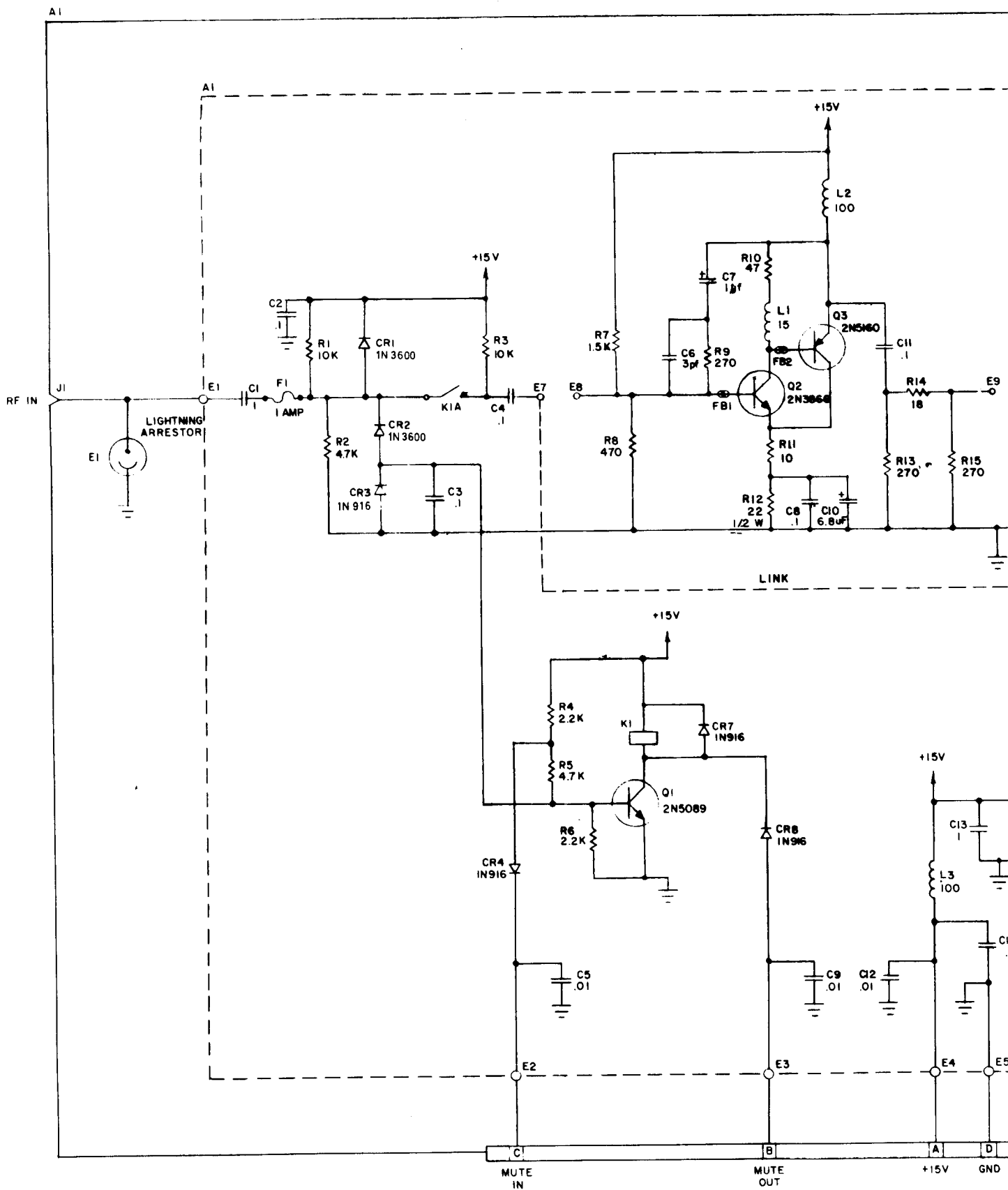
### DIAGRAMS

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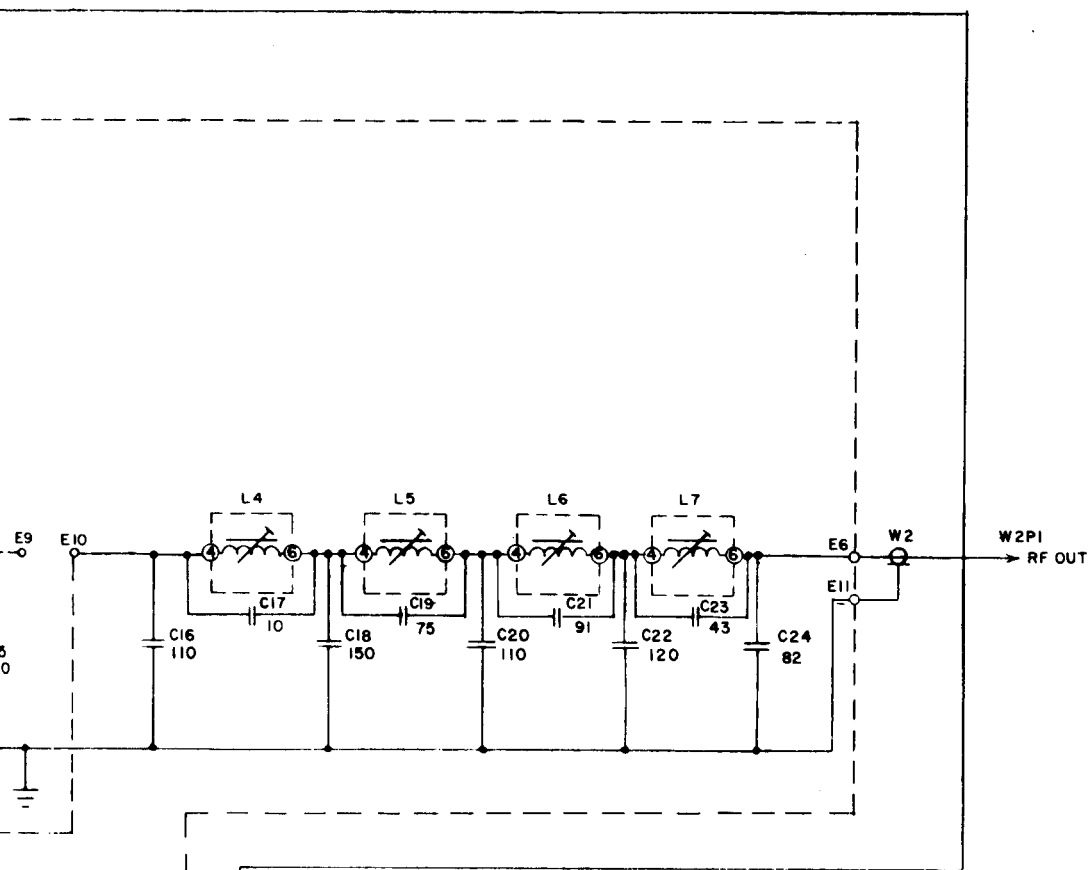
- |      |   |
|------|---|
| 8.1  | Circuit: RF Amplifier/LPF Module A1               |
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TH1496 D08075

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**ADJUSTMENTS:**

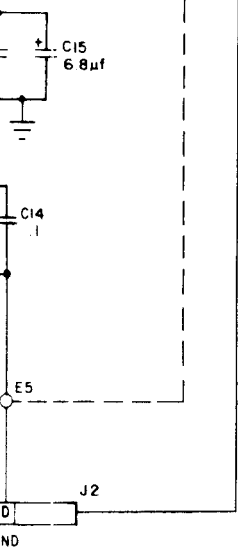
- L4: ADJUST FOR MAXIMUM ATTENUATION AT 92.35 MHz
- L5: ADJUST FOR MAXIMUM ATTENUATION AT 43.19 MHz
- L6: ADJUST FOR MAXIMUM ATTENUATION AT 40.455 MHz
- L7: ADJUST FOR MAXIMUM ATTENUATION AT 52.30 MHz

**RF AMPLIFIER**

- BYPASSED BY LINKING E7 TO E10
- FITTED BY LINKING E7 TO E8 AND E9 TO E10

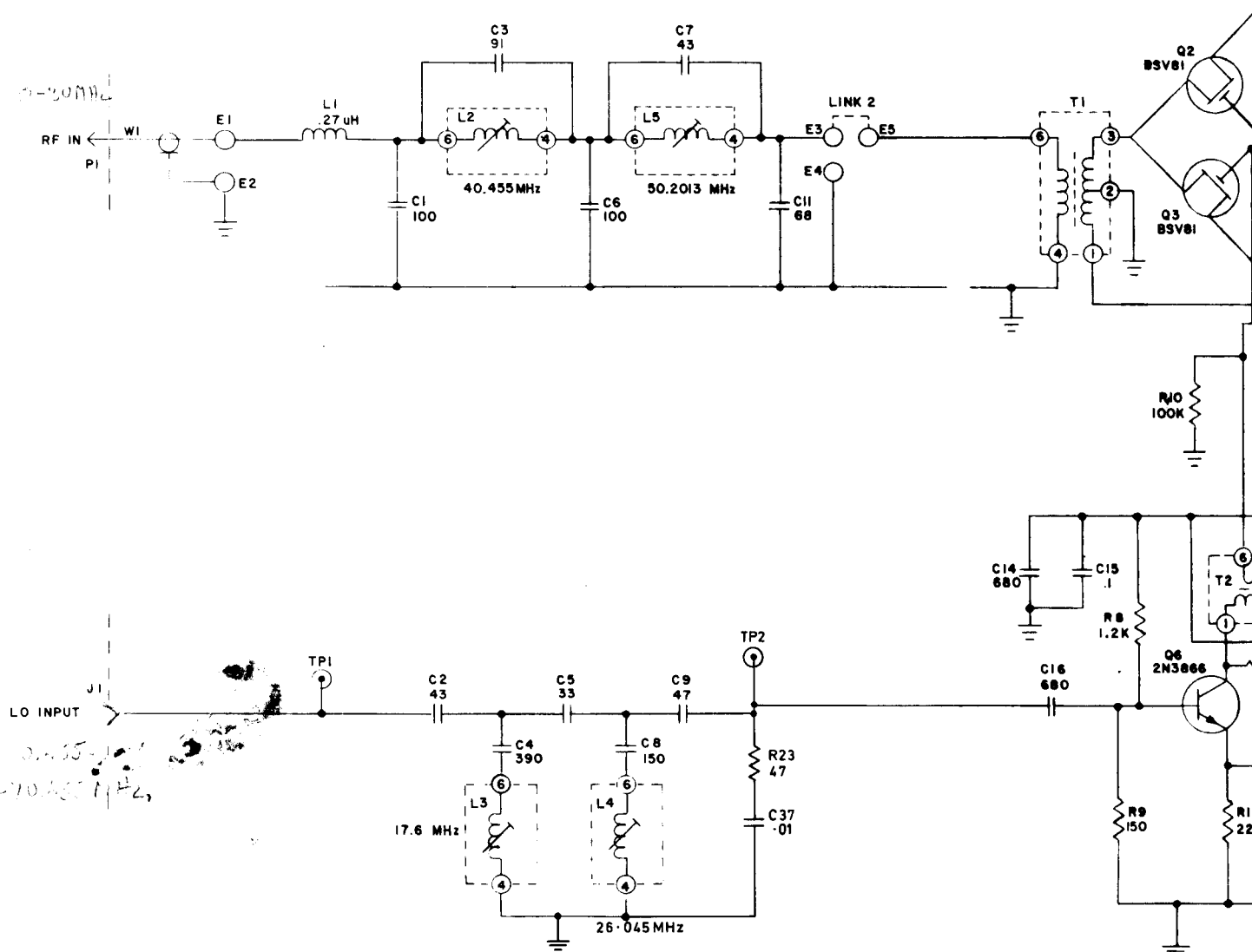
UNLESS OTHERWISE NOTED

1. RESISTOR VALUES ARE IN OHMS 1/4 WATT  
K=1,000 M=1,000,000
2. CAPACITOR VALUES ONE OR GREATER  
ARE IN PICO FARADS, LESS THAN ONE  
ARE IN MICRO FARADS.
3. INDUCTANCE VALUES ONE OR GREATER  
ARE IN MICROHENRIES, LESS THAN ONE  
ARE IN MILLIHENRIES.



Circuit: RF Amplifier/LPF Module A1

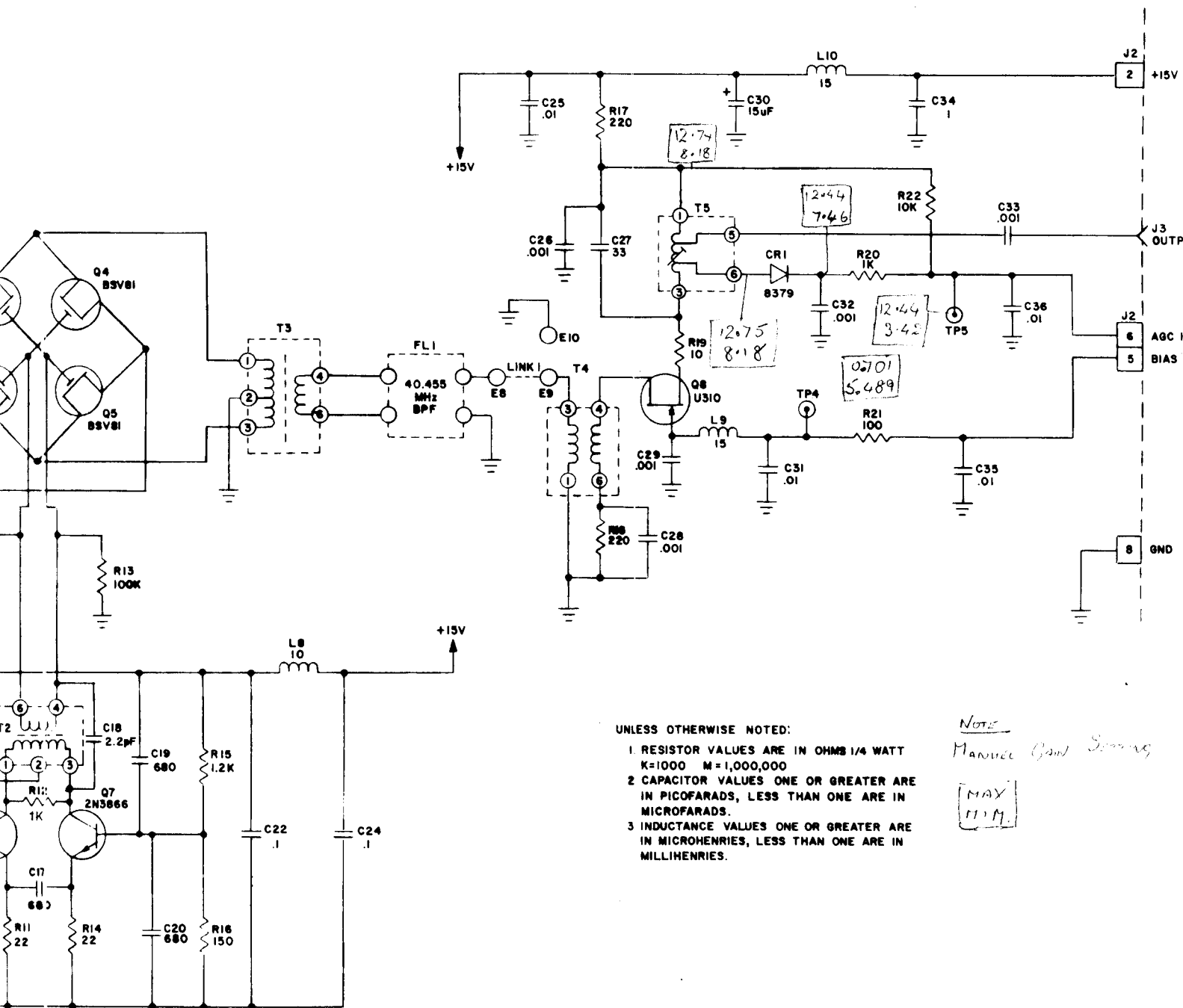
Fig. 8.



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UNLESS OTHERWISE NOTED:

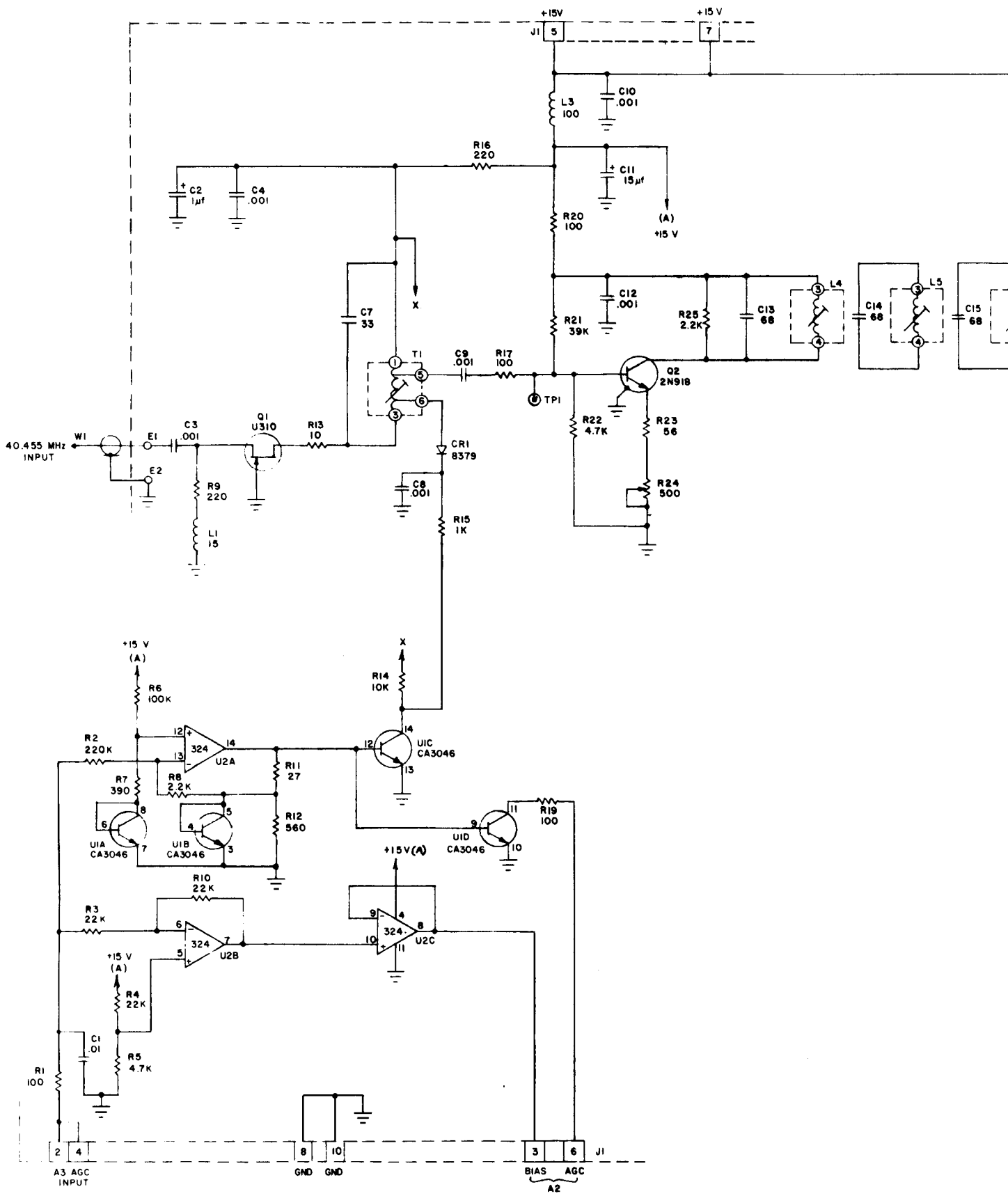
1. RESISTOR VALUES ARE IN OHMS 1/4 WATT  
K=1000 M=1,000,000
2. CAPACITOR VALUES ONE OR GREATER ARE  
IN PICO FARADS, LESS THAN ONE ARE IN  
MICROFARADS.
3. INDUCTANCE VALUES ONE OR GREATER ARE  
IN MICROHENRIES, LESS THAN ONE ARE IN  
MILLIHENRIES.

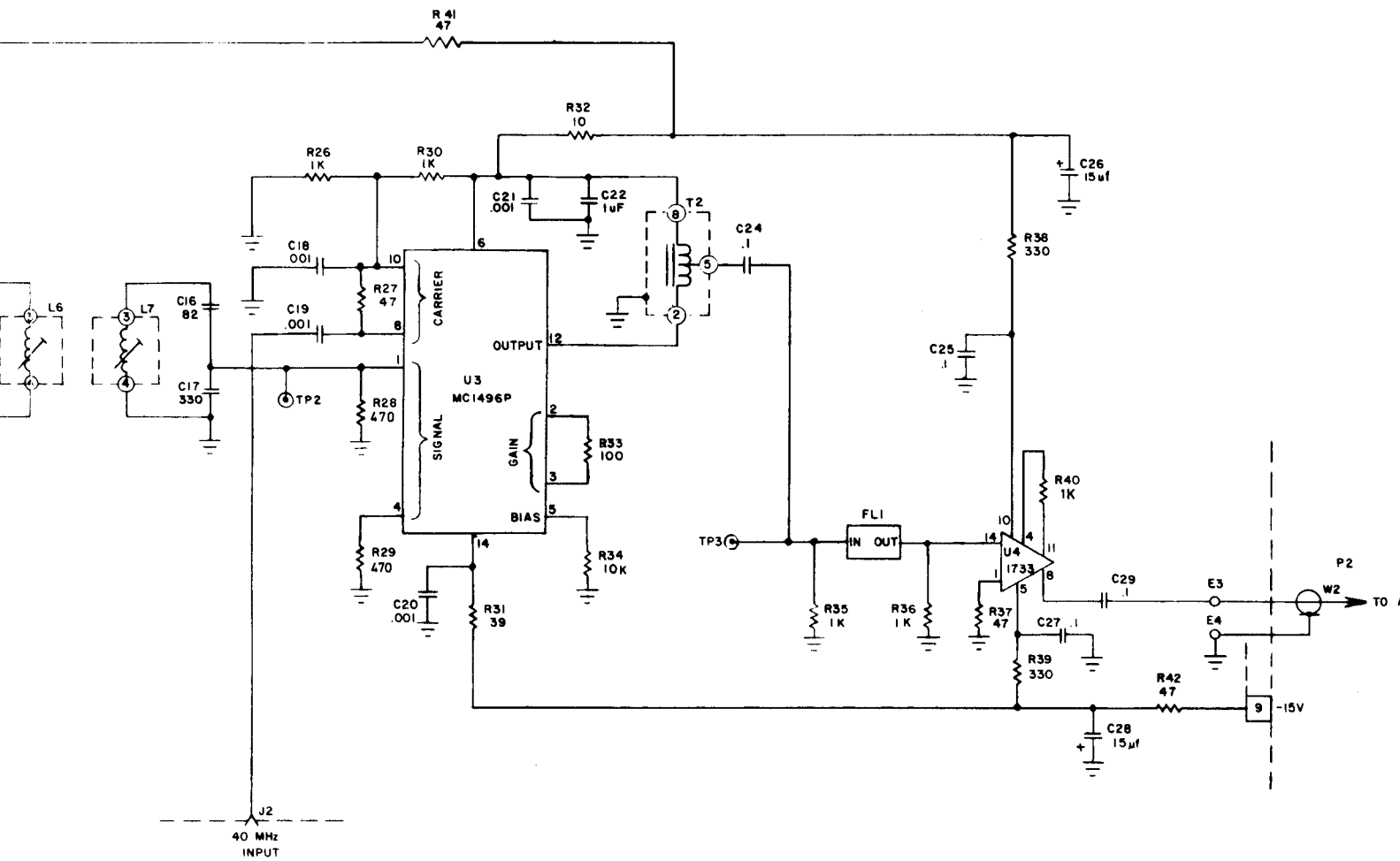
*NOTE*  
Manual Gain Setting

MAX  
11.1

Circuit: First Mixer Module A2

Fig.8.2



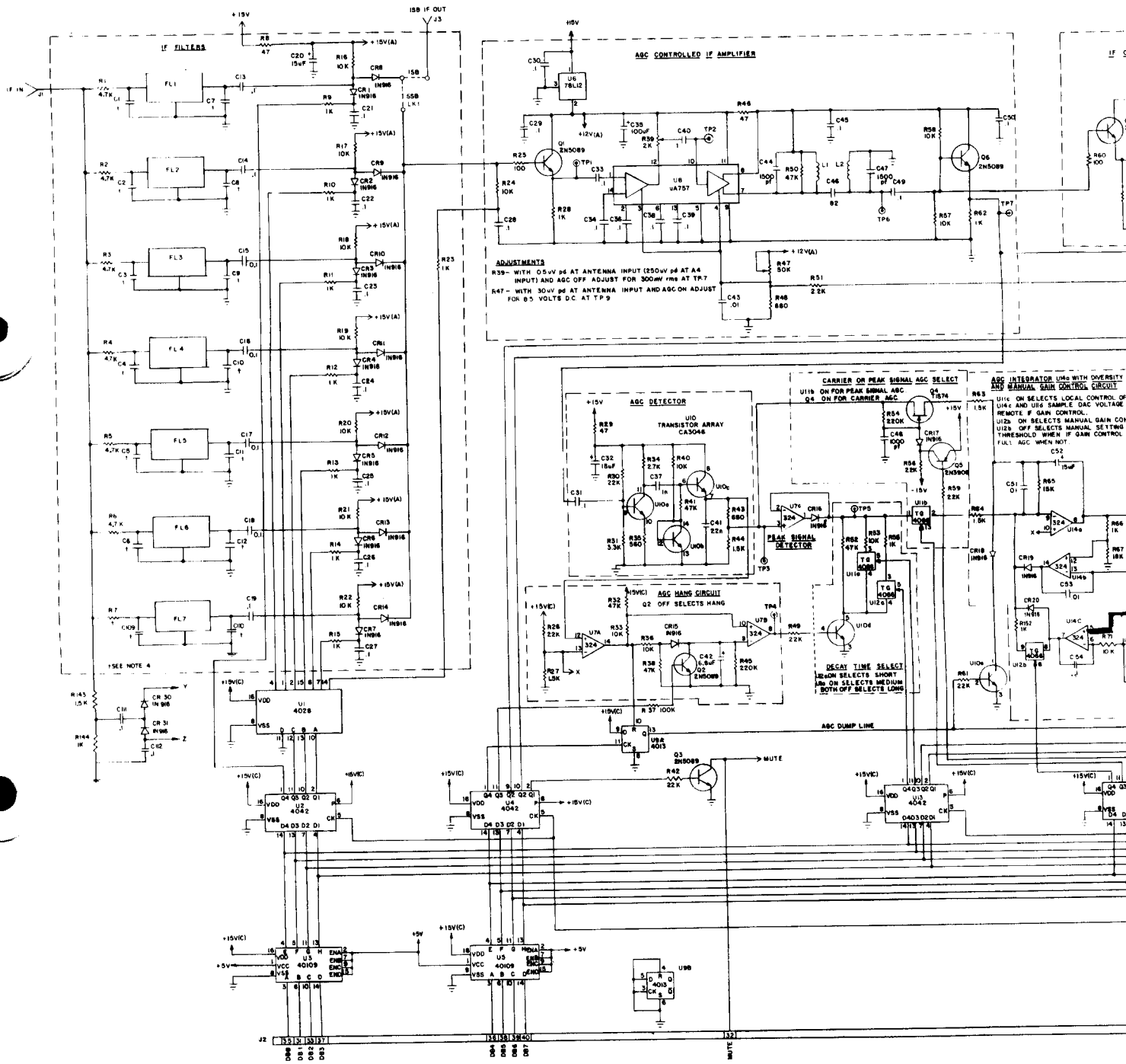


UNLESS OTHERWISE NOTED:

- 1 RESISTOR VALUES ARE IN OHMS 1/4 WATT  
K=1000 M=1,000,000
- 2 CAPACITOR VALUES ONE OR GREATER ARE  
IN PICO FARADS, LESS THAN ONE ARE IN  
MICROFARADS.
- 3 INDUCTANCE VALUES ONE OR GREATER ARE  
IN MICROHENRIES, LESS THAN ONE ARE IN  
MILLIHENRIES.
- 4 C5, C6, C23, L2, R18 NOT USED

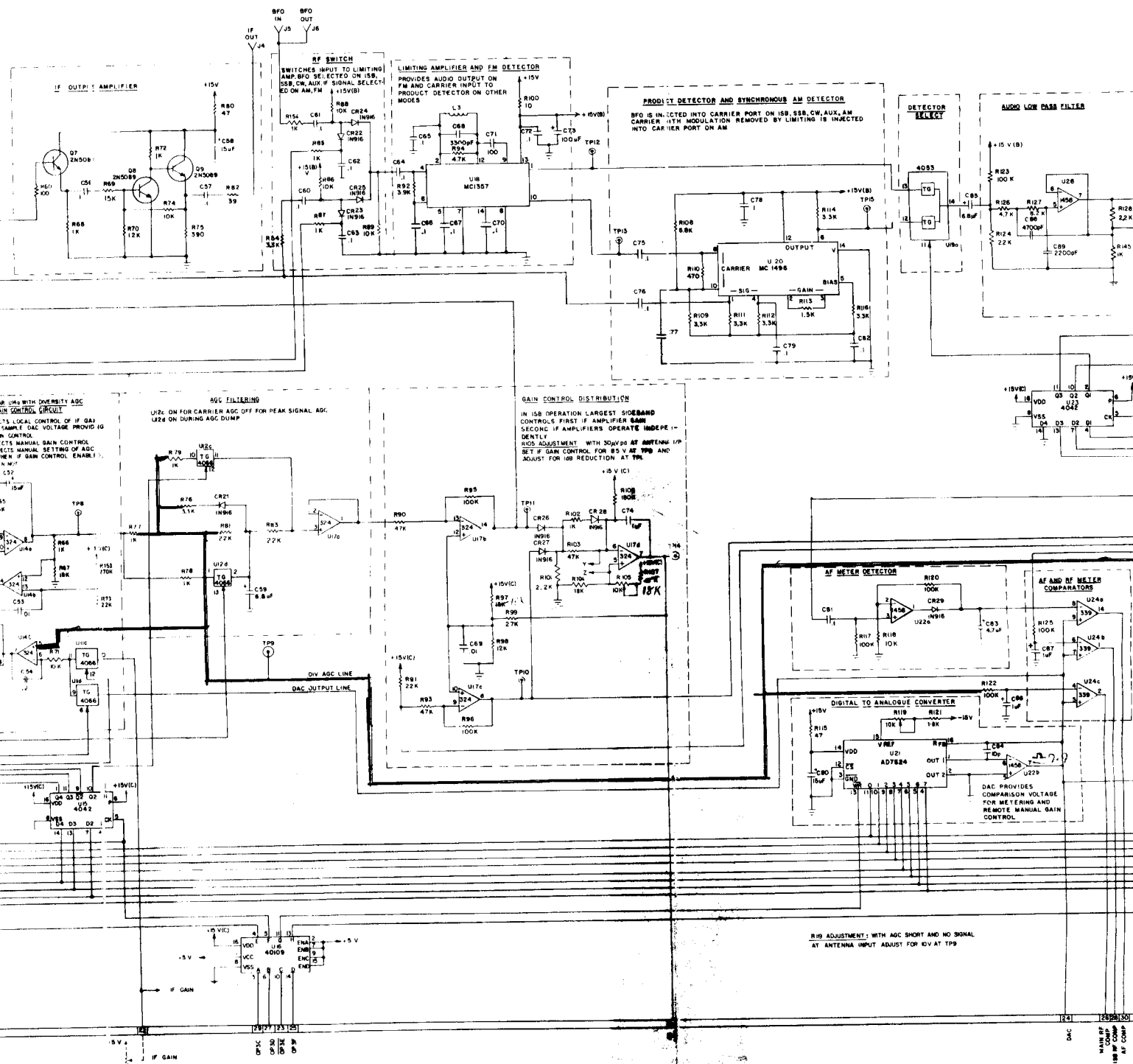
Circuit: Second Mixer Module A3

Fig.8.3



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AMPLIFIER WITH DIVERSITY AGC  
**LOCAL GAIN CONTROL**  
 SELECTS LOCAL CONTROL OF IF GAIN  
 SELECTS MANUAL GAIN CONTROL  
 SELECTS MANUAL SETTINGS OF AGC  
 SELECTS MANUAL GAIN CONTROL ENABLE

**AGC FILTERING**  
 U12C ON FOR CARRIER AGC OFF FOR PEAK SIGNAL AGC  
 U12B ON DURING AGC DUMP

**GAIN CONTROL DISTRIBUTION**  
 IN ISB OPERATION LARGEST SIDEBAND  
 CONTROLS FIRST IF AMPLIFIER GAIN  
 SECOND IF AMPLIFIERS OPERATE INDEPENDENTLY  
 R10S ADJUSTMENT WITH 50μV/MS AT ANTENNA INPUT  
 SET IF GAIN CONTROL FOR 85 V AT TP9 AND  
 ADJUST FOR 100 REDUCTION AT TP9

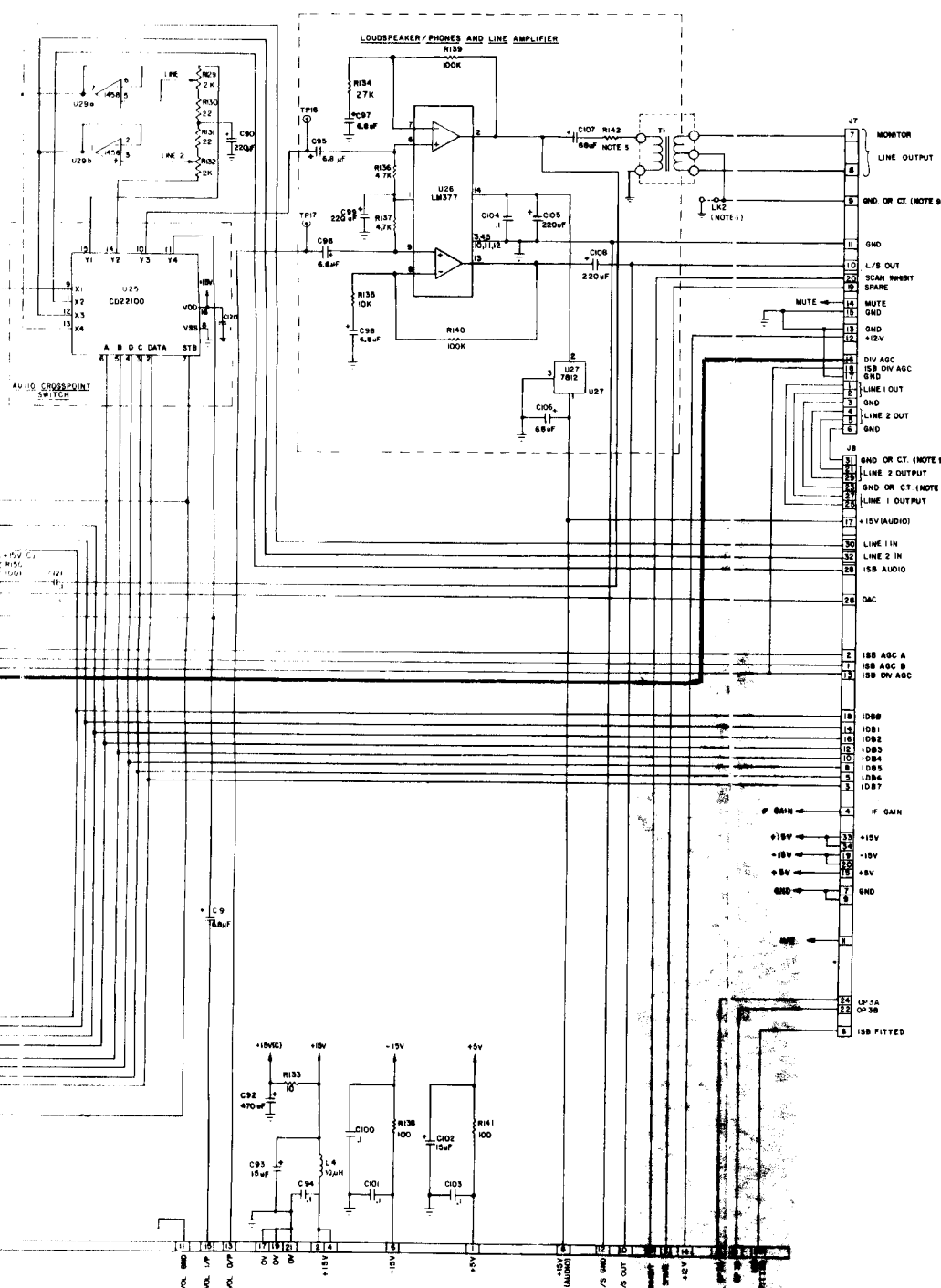
**AF METER DETECTOR**  
**AF AND RF METER COMPARATORS**

**DIGITAL TO ANALOGUE CONVERTER**  
 DAC PROVIDES COMPARISON VOLTAGE FOR METERING AND REMOTE MANUAL GAIN CONTROL

R19 ADJUSTMENT: WITH AGC SHORT AND NO SIGNAL AT ANTENNA INPUT ADJUST FOR 10V AT TP9

IF GAIN  
 VREF  
 5V  
 15V

DAC  
 MAIN RF COMP  
 100μV/MS  
 AT COMP

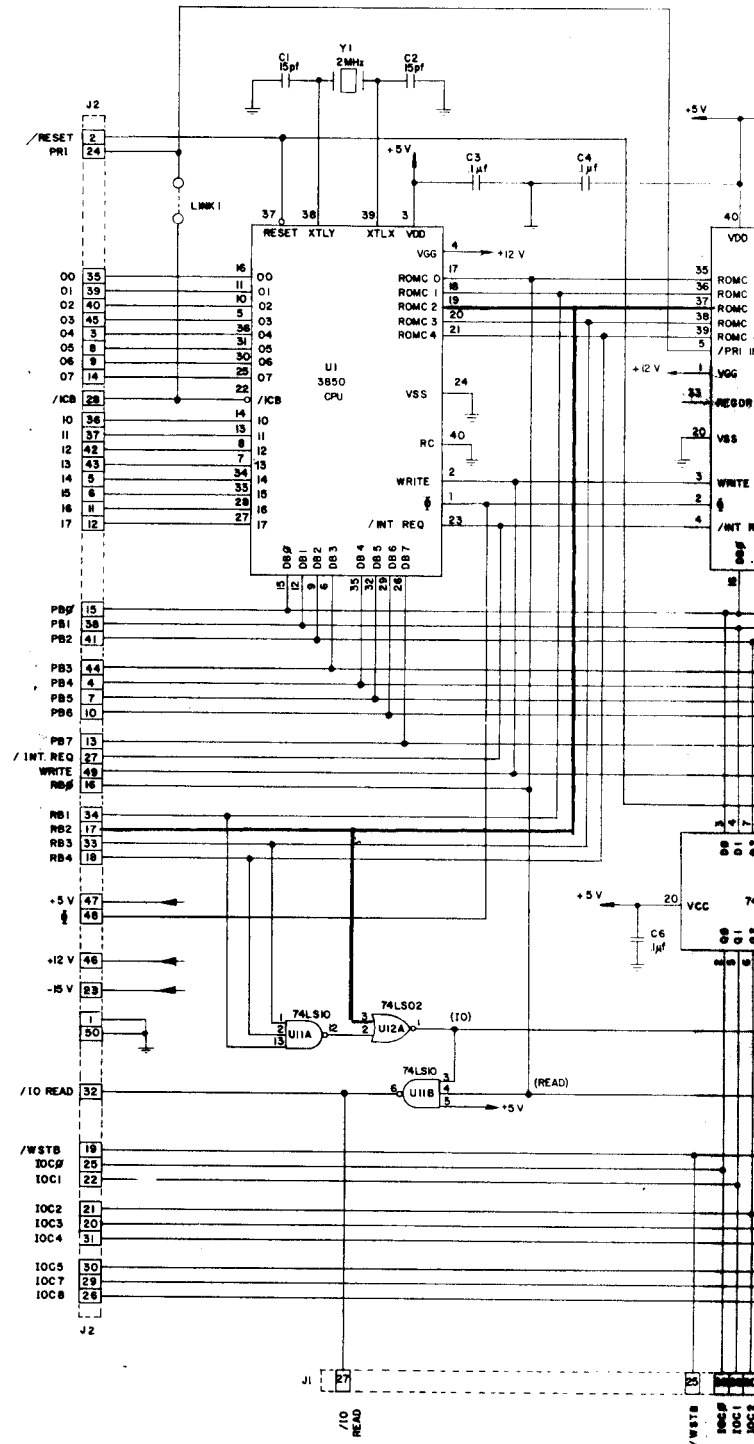


- NOTES**
1. RESISTOR VALUES ARE IN OHMS, K=1000, M=1000000
  2. CAPACITOR VALUES ONE OR GREATER ARE IN PICO FARADS, LESS THAN ONE ARE IN MICROFARADS
  3. INDUCTANCE VALUES ONE OR GREATER ARE IN MICROHENRIES, LESS THAN ONE ARE IN MILLIHENRIES
  4. \* VALUE DEPENDENT ON FILTER COMPONENT
  5. R142 VALUE DEPENDS ON T1
  6. IF T1 HAS NO CENTRE TAP LK2 IS OMITTED IF T1 HAS CENTRE TAP LK2 IS OMITTED

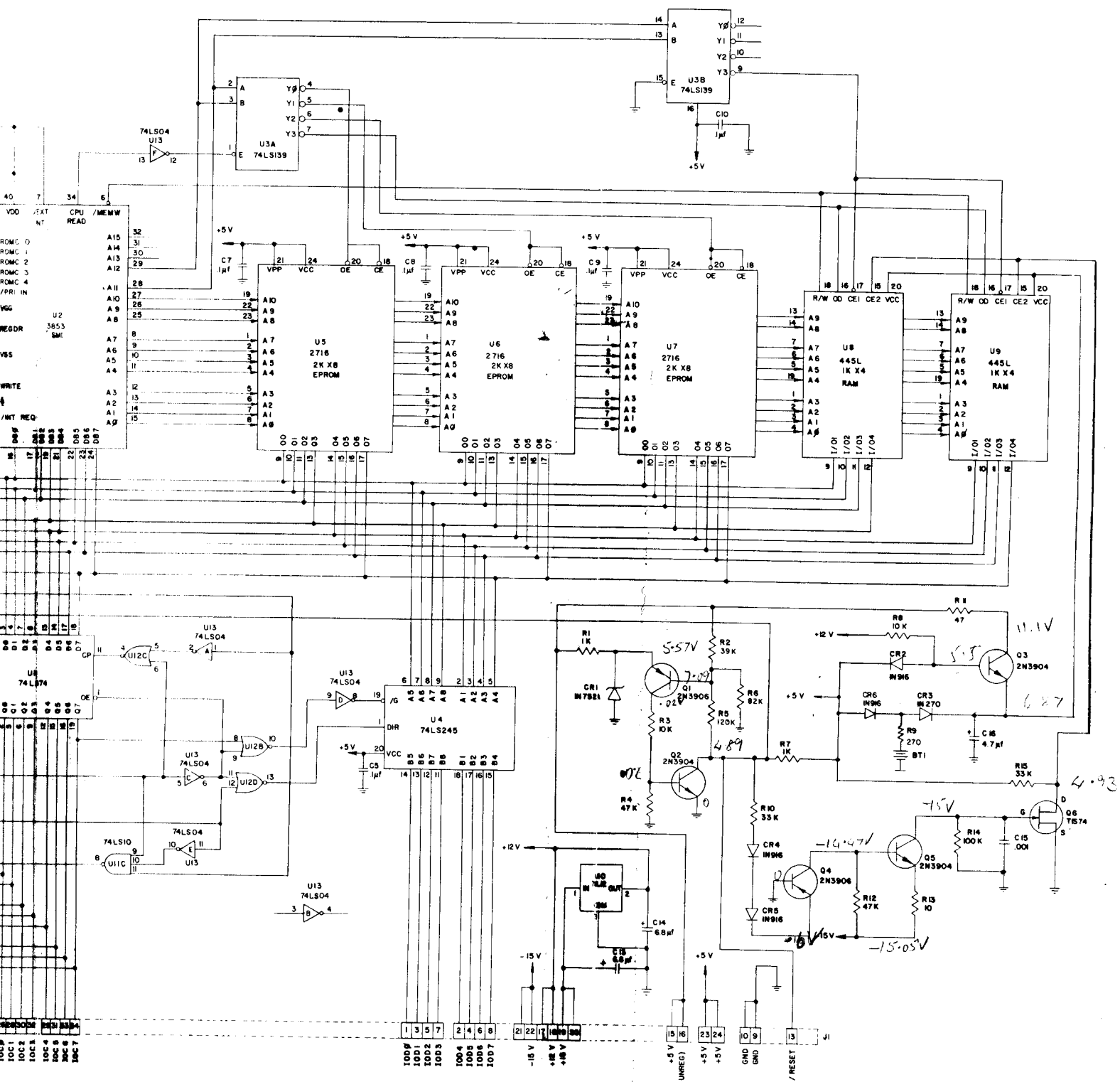
IC NO	DEVICE	QND	+15V(B)	+15V(C)	-15V
U7	324	11			4
U14	324	11			4
U17	324	11			4
U8	4013	7			16
U11	4068	7			16
U12	4066	7			16
U19	4053	6,7,8			16
U22	1458				8, 4
U24	339	12			3
U28	1458				4
U29	1458	4			8

Circuit: Main IF/AF Module A4 Fig.8.4

	U1	U2	U3	U4	U5	U6	U7	U8	U9	U10	U11	U12	U13	U14
RD	24	20	8	10	12	12	12	8	8	3	7	7	7	10
+5	3	40	16	20	21	21	21	24			14	14	14	20
+12	4	1												
+15										1				



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**TH1496 E08202**  
**1**



Circuit : Microcomputer Module A6 A2

Fig.8.5

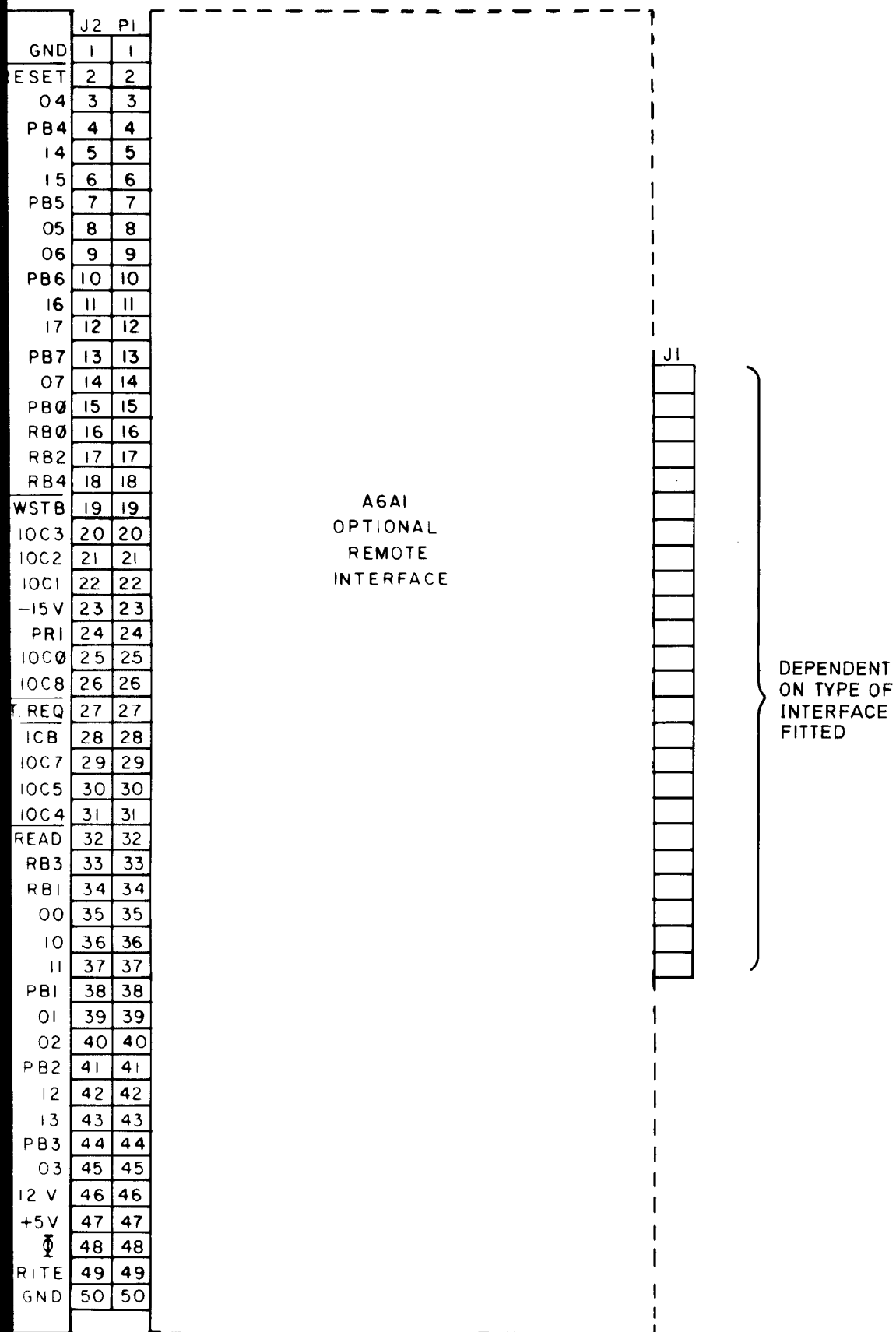
J1	
1	I0D0
2	I0D4
3	I0D1
4	I0D5
5	I0D2
6	I0D6
7	I0D3
8	I0D7
9	GND
10	GND
11	N/C
12	N/C
13	RESET
14	N/C
15	+5V (UNREG)
16	+5V (UNREG)
17	+12V
18	+12V
19	+15V
20	+15V
21	-15V
22	-15V
23	+5V
24	+5V
25	WSTB
26	I0C0
27	I0 READ
28	I0C1
29	I0C4
30	I0C2
31	I0C5
32	I0C3
33	I0C6
34	I0C7

A6A2  
MICROCOMPUTER  
MODULE  
E08202

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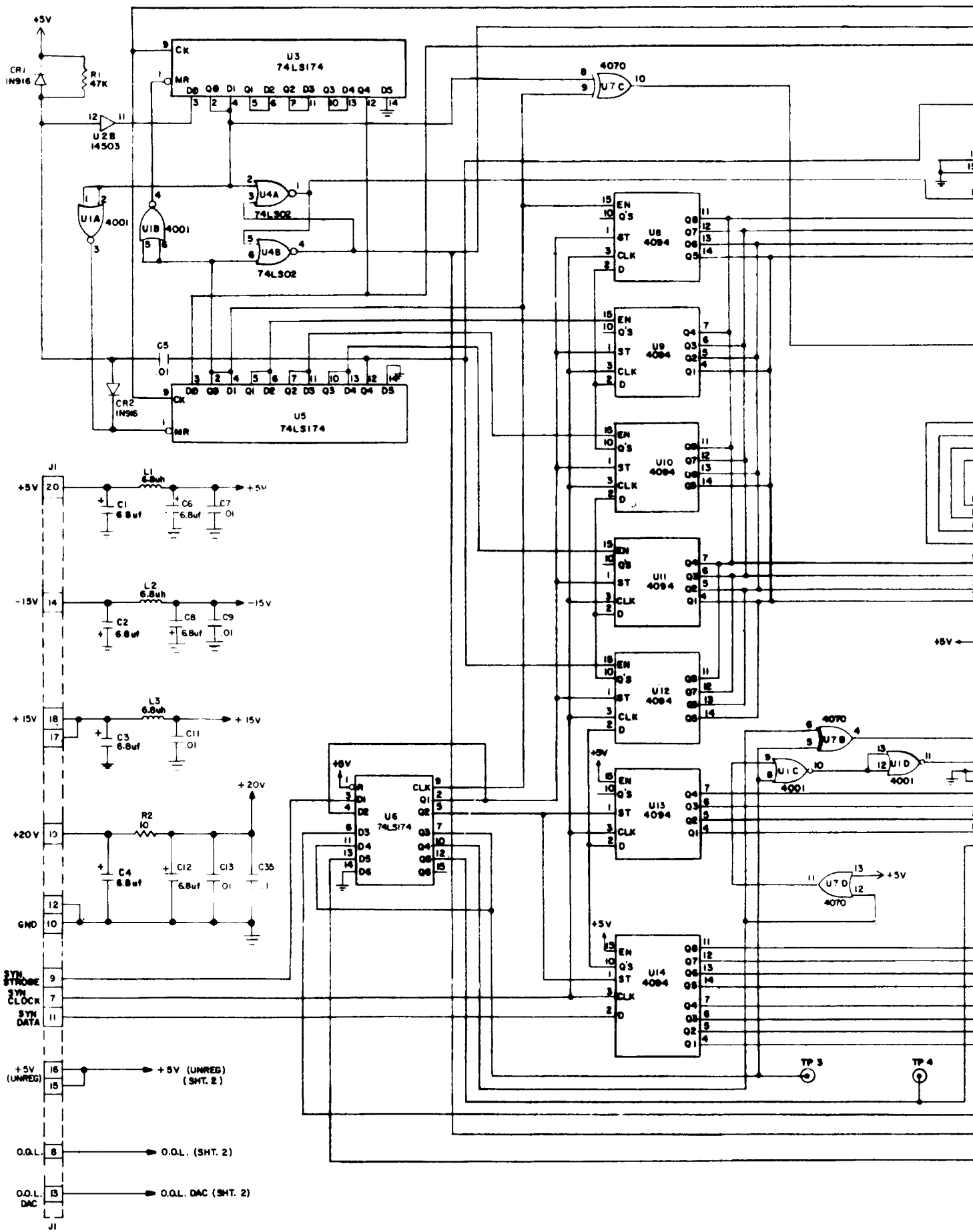
TH1496 DO 8305

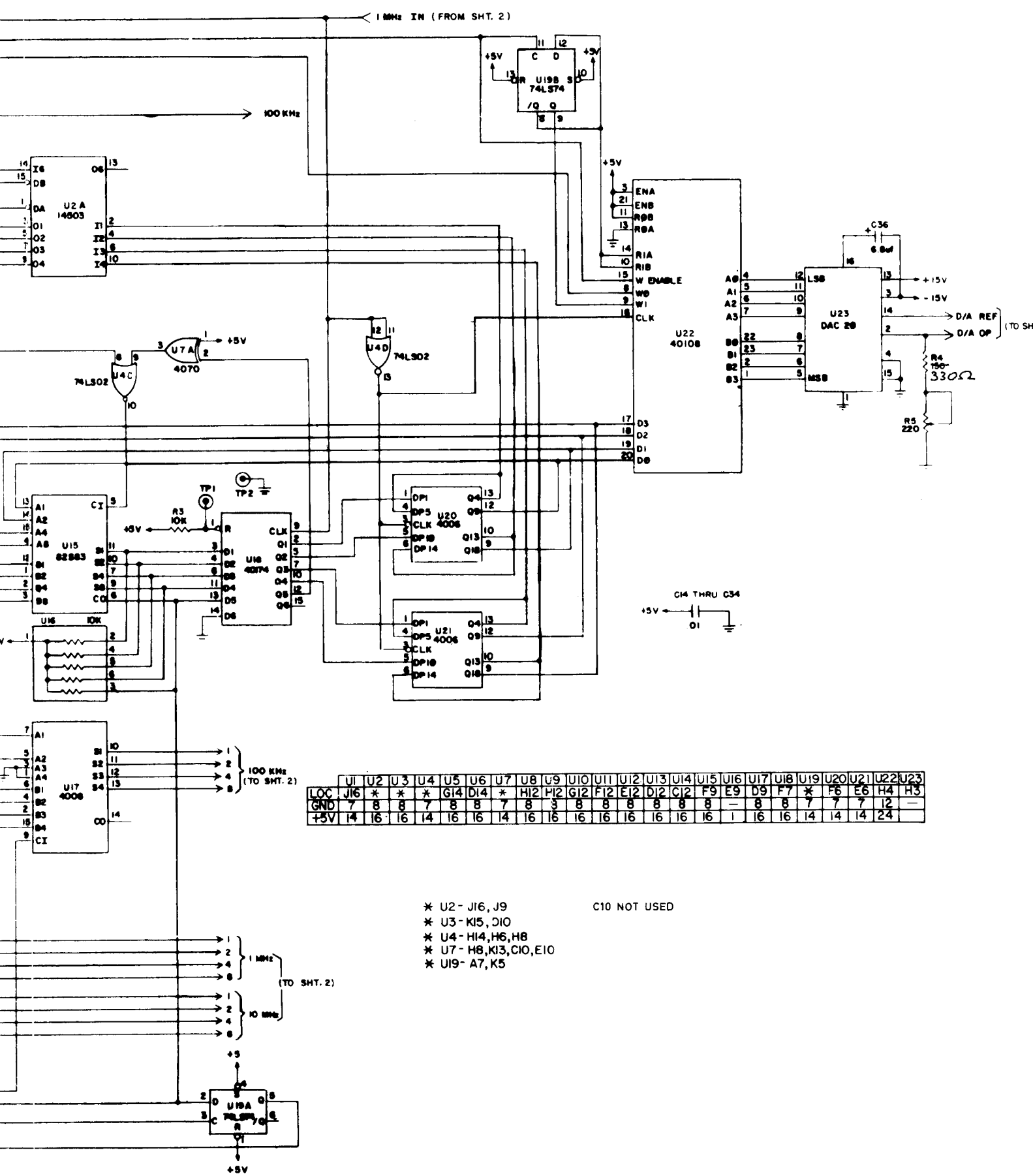
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Interconnection Diagram : A6 A1 and A6 A2

Fig.8.6





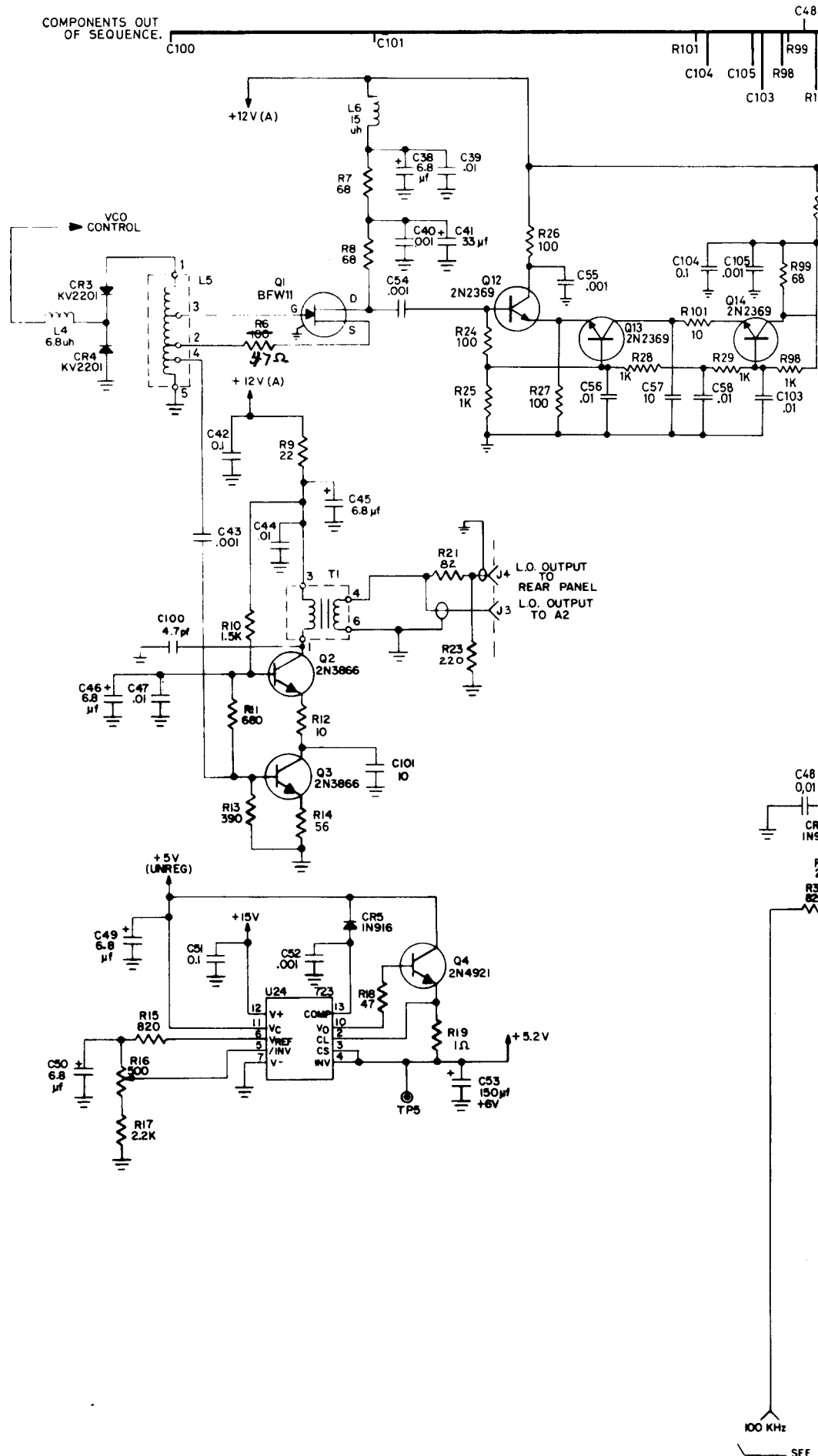
	U1	U2	U3	U4	U5	U6	U7	U8	U9	U10	U11	U12	U13	U14	U15	U16	U17	U18	U19	U20	U21	U22	U23
LOC	J16	*	*	*	G14	D14	*	H12	F12	G12	F12	E12	D12	C12	F9	E9	D9	F7	*	F6	E6	H4	H3
GND	7	8	8	7	8	8	7	8	3	8	8	8	8	8	8	—	8	8	7	7	7	12	—
+5V	14	16	16	14	16	16	14	16	16	16	16	16	16	16	16	1	16	16	14	14	14	24	—

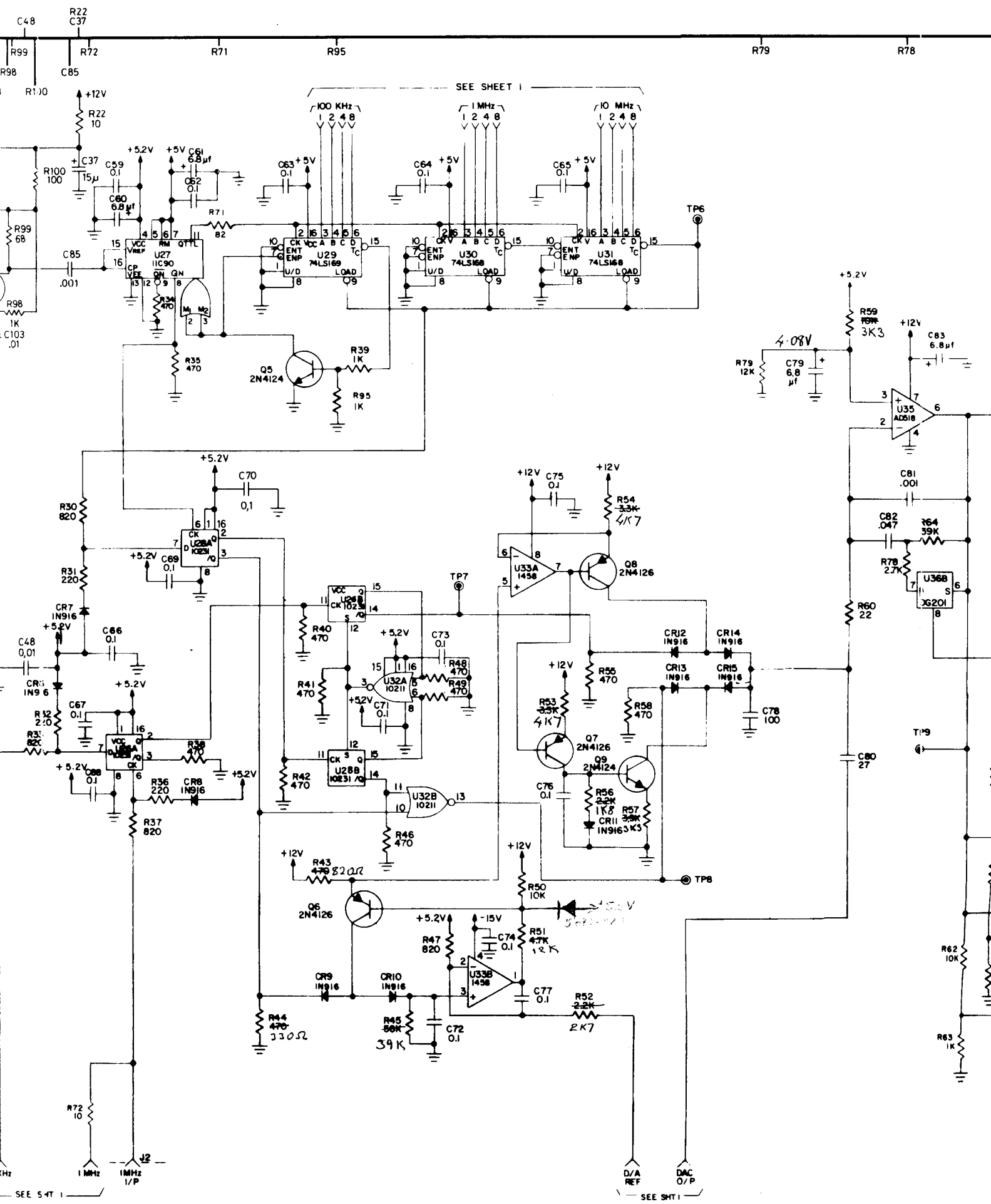
- \* U2 - J16, J9
  - \* U3 - K15, D10
  - \* U4 - H14, H6, H8
  - \* U7 - H8, K13, C10, E10
  - \* U19 - A7, K5
- C10 NOT USED

Circuit: First LO Synthesizer A7 (Sheet 1) Fig. 8



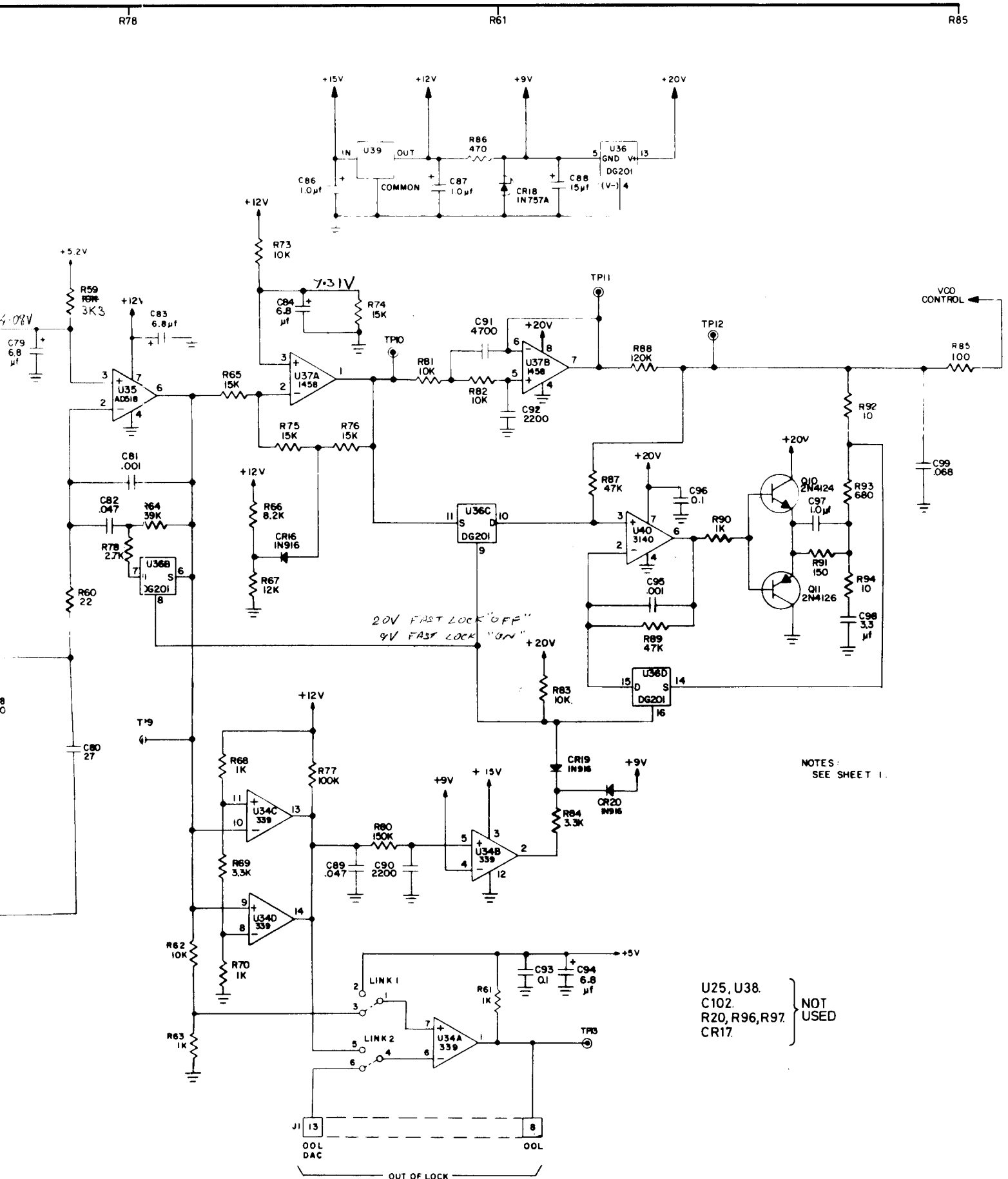
COMPONENTS OUT OF SEQUENCE.





SEE SHT 1

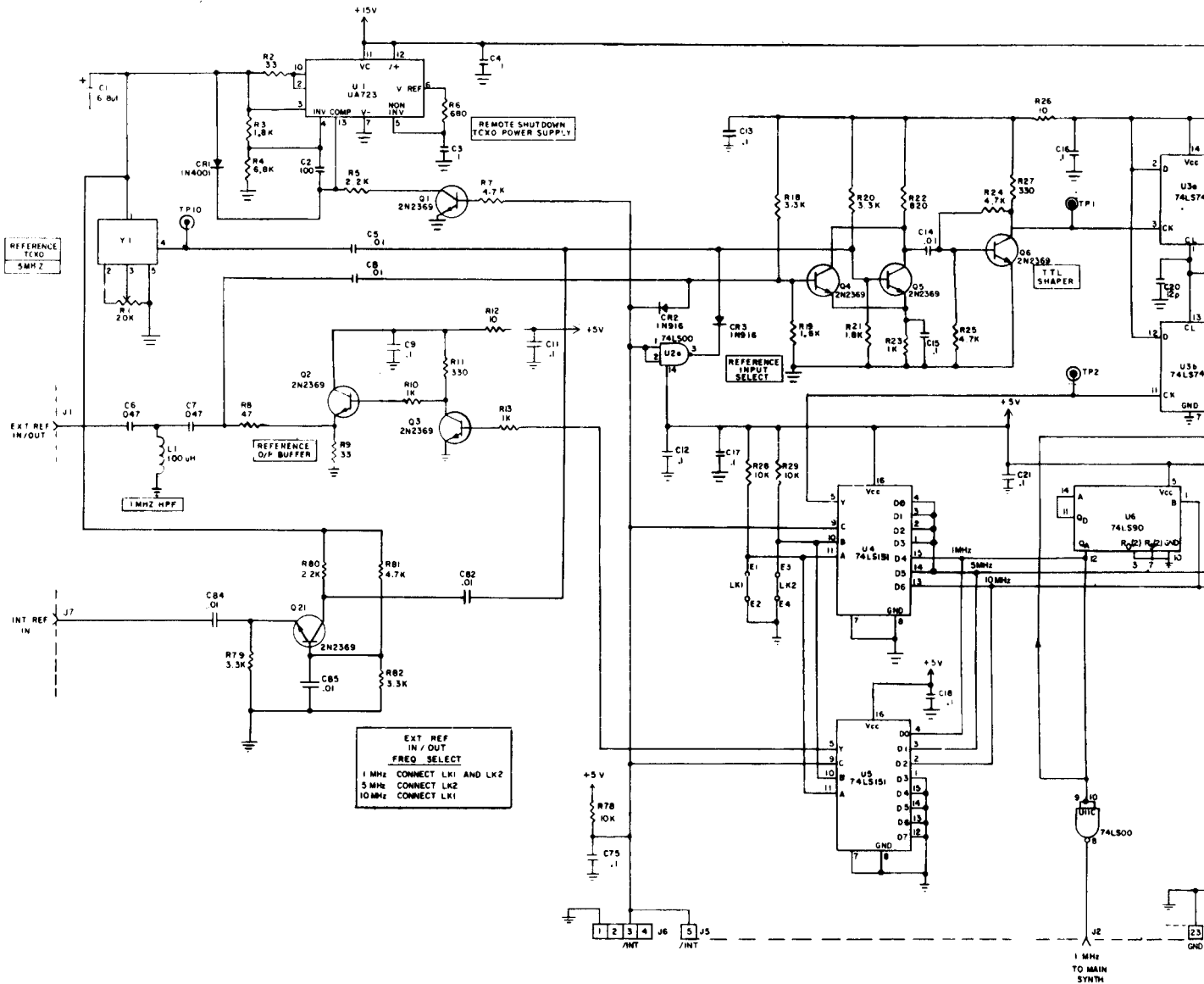
SEE SHT 1



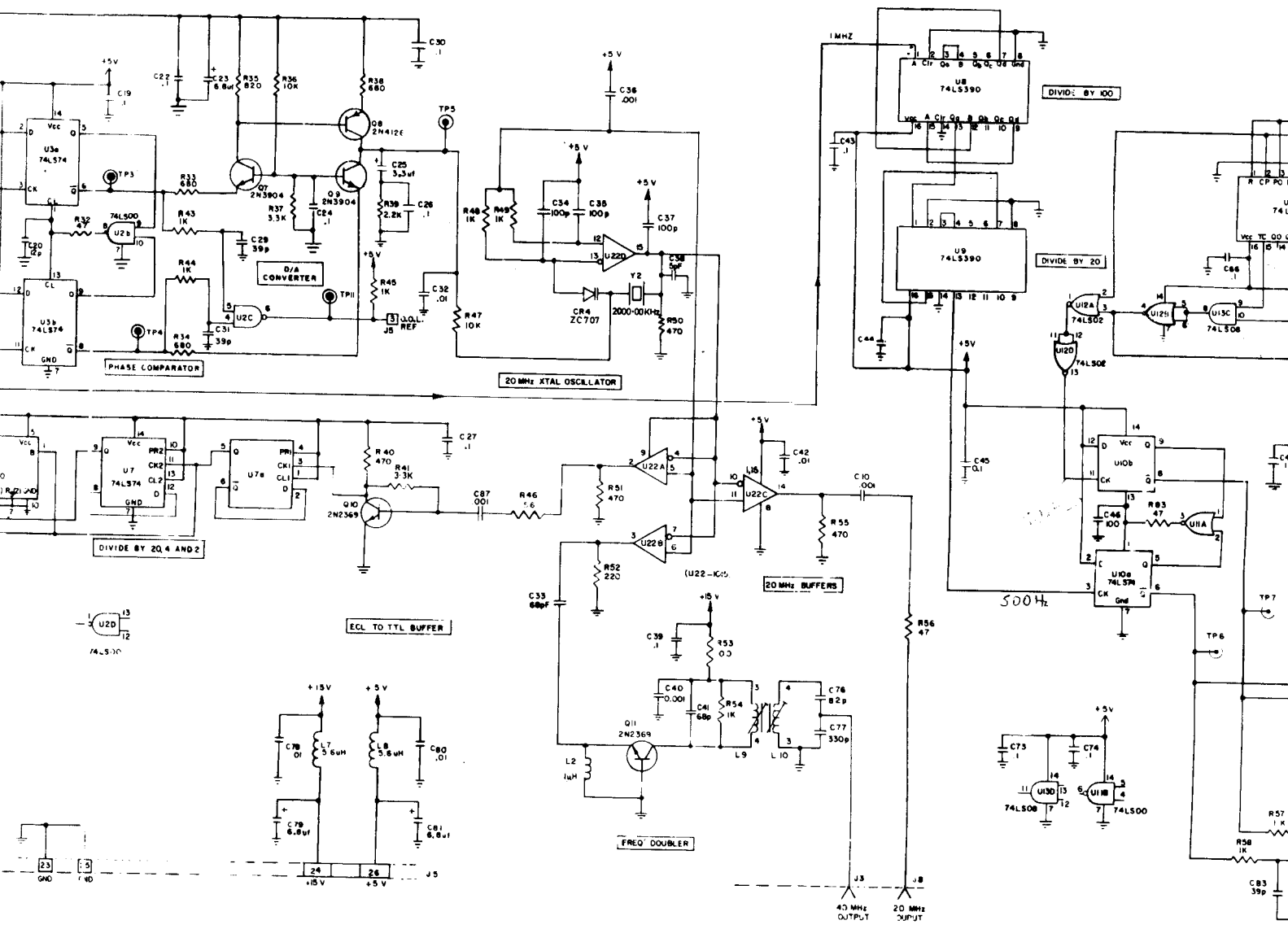
NOTES:  
SEE SHEET 1.

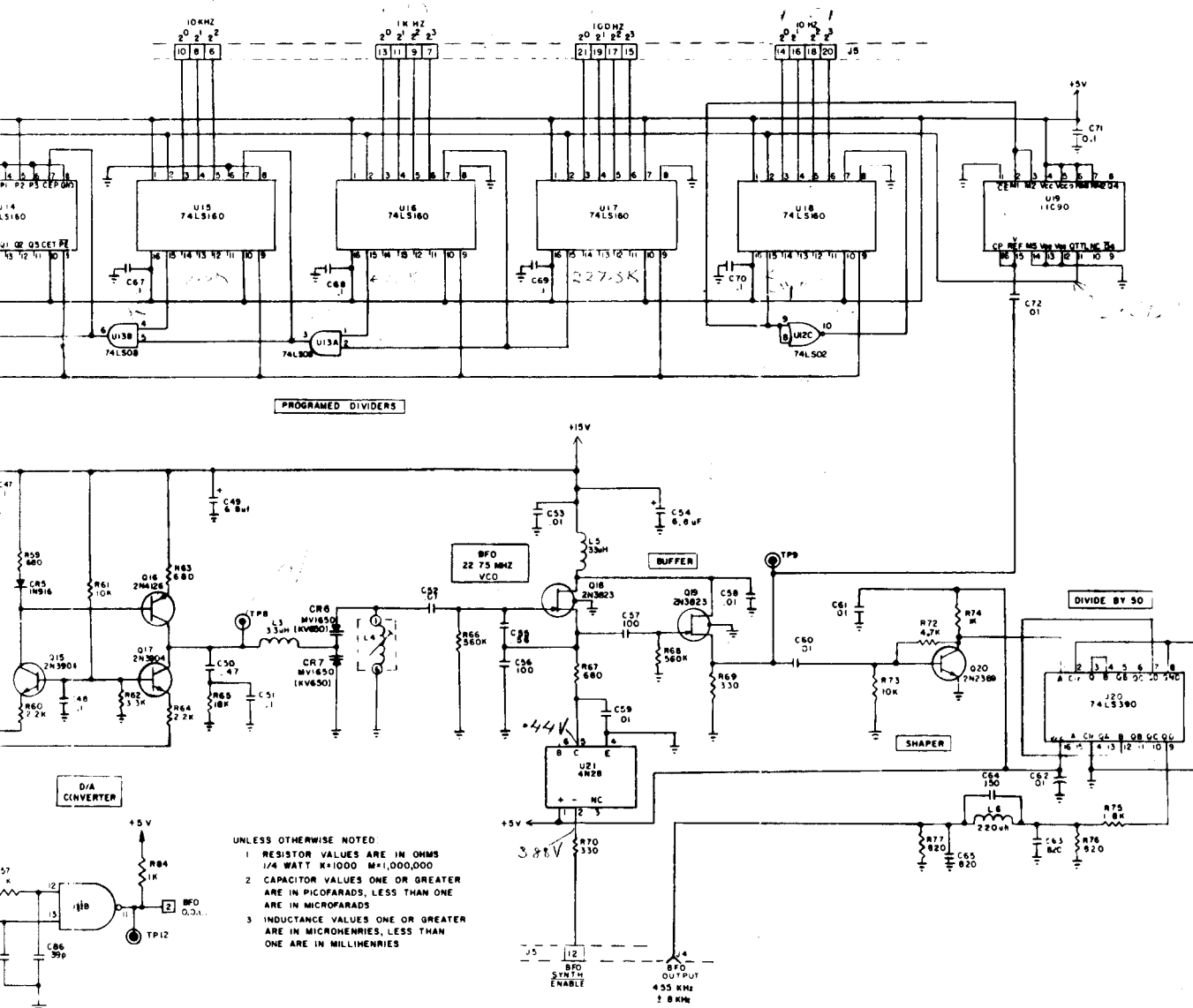
U25, U38.  
C102.  
R20, R96, R97.  
CR17. } NOT USED

Circuit: First LO Synthesizer A7 Fig.8.8



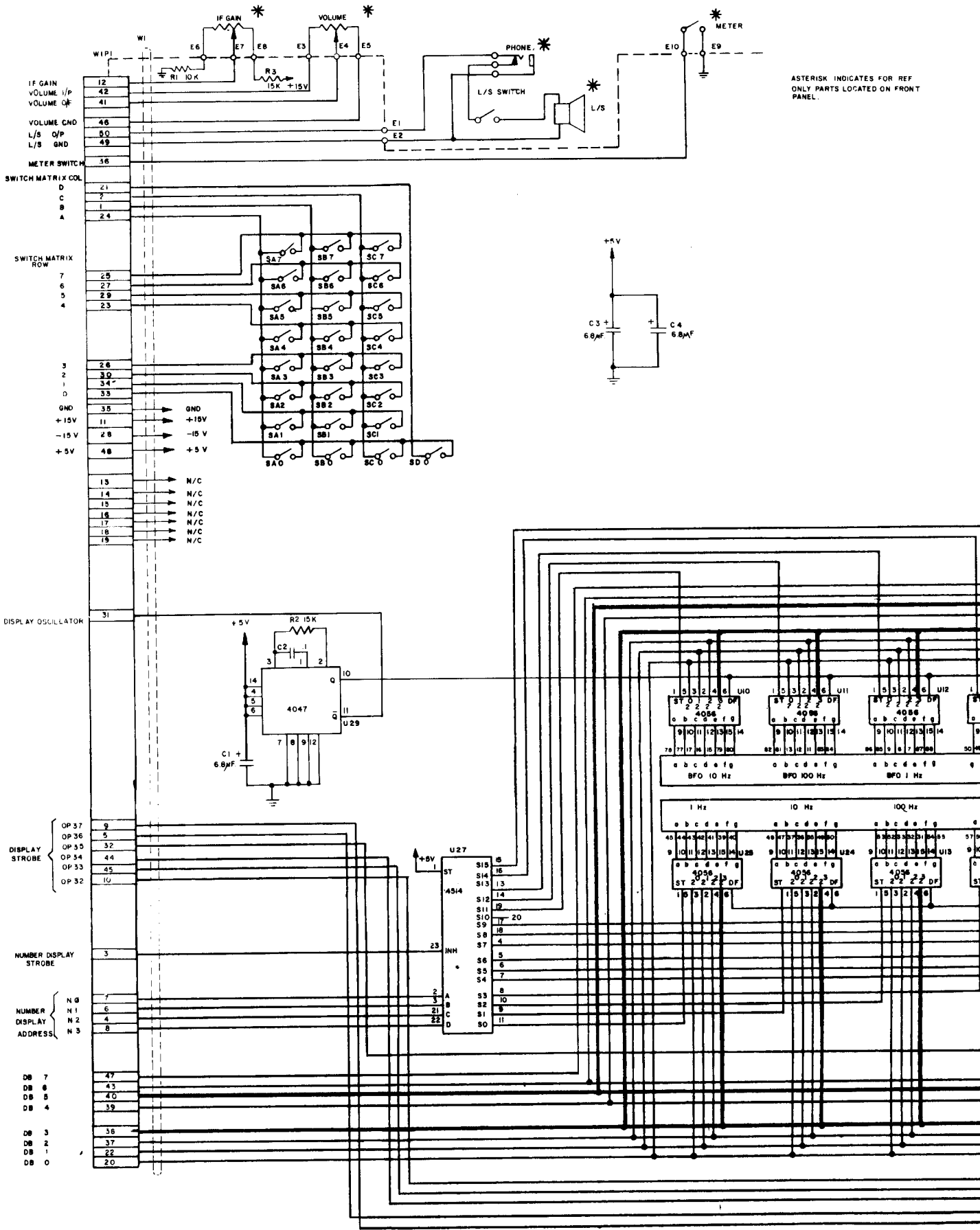
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Circuit: Second LO/BFO Synthesizer Module A8

Fig. 8.9

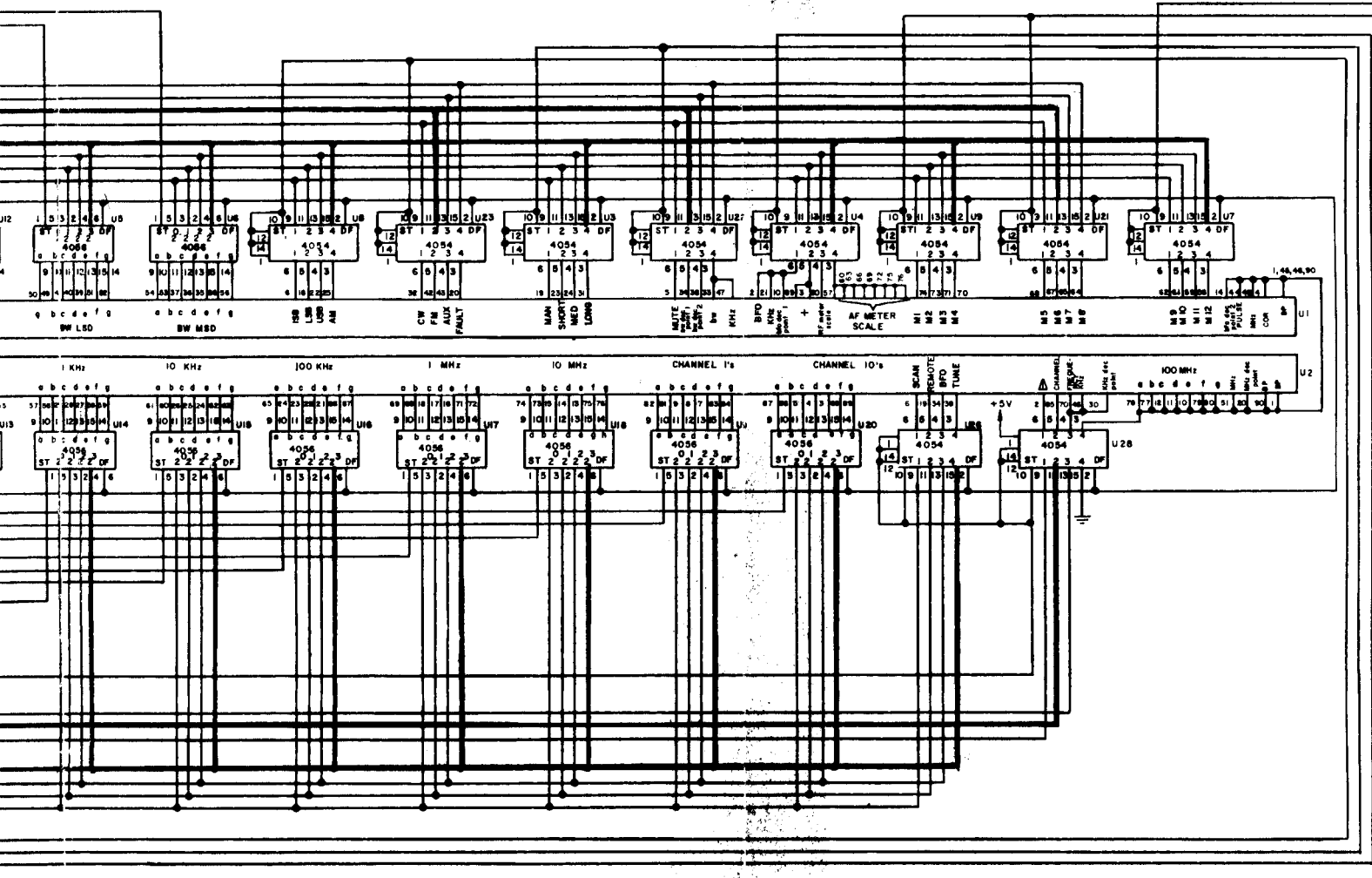


ASTERISK INDICATES FOR REF ONLY PARTS LOCATED ON FRONT PANEL.

SWITCH FUNCTIONS

COLUMN ROW	A	B	C	D
7	ENTER	AUX	TUNE	
6	SCAN	LONG	BFO	
5	RECALL	MED	FM	
4	CHAN	SHORT	CW	
3	FREQ	MAN	AM	
2	BW 3	BW 5	USB	
1	BW 1	BW 4	LSB	
0	REMOTE	BW 2	LSB	STORE

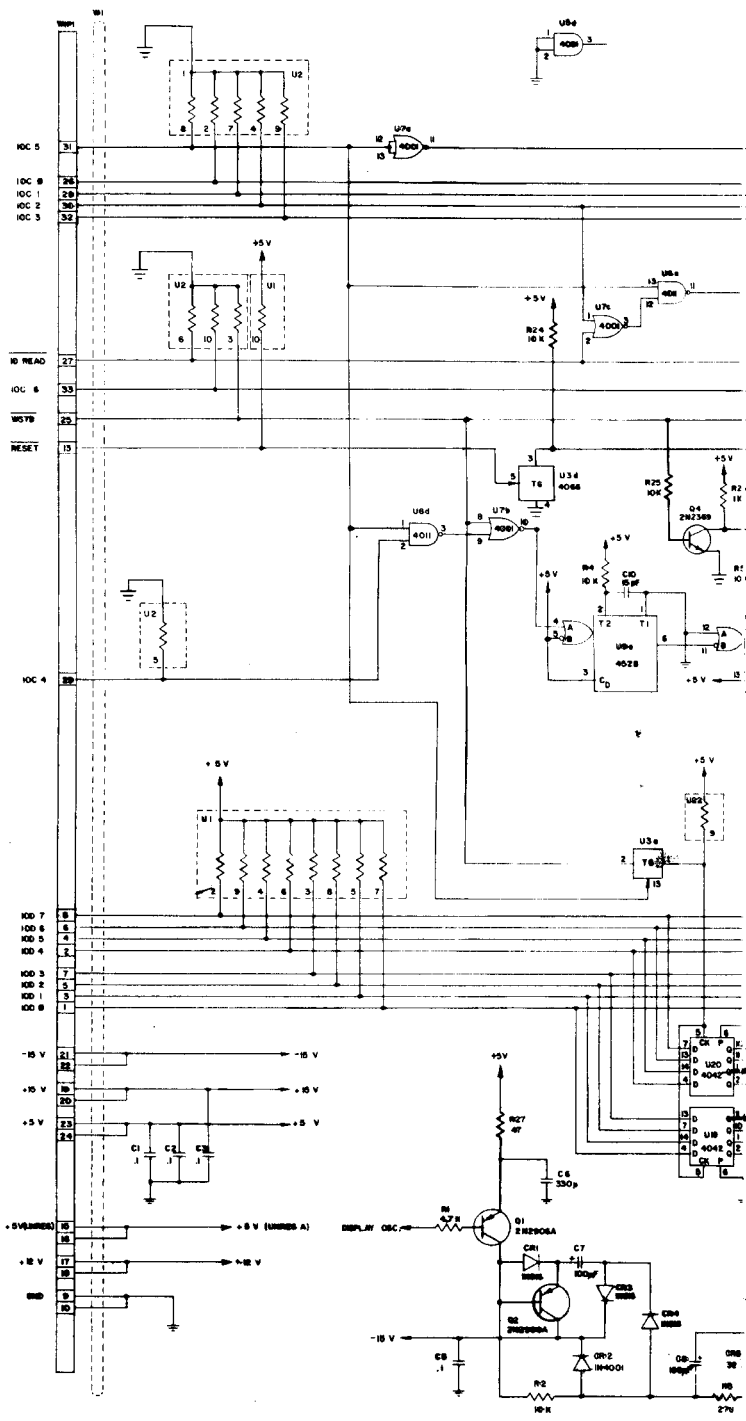
	+5V	GND
4047	14	7
4054	16	7,8
4056	16	7,8
4514	24	12



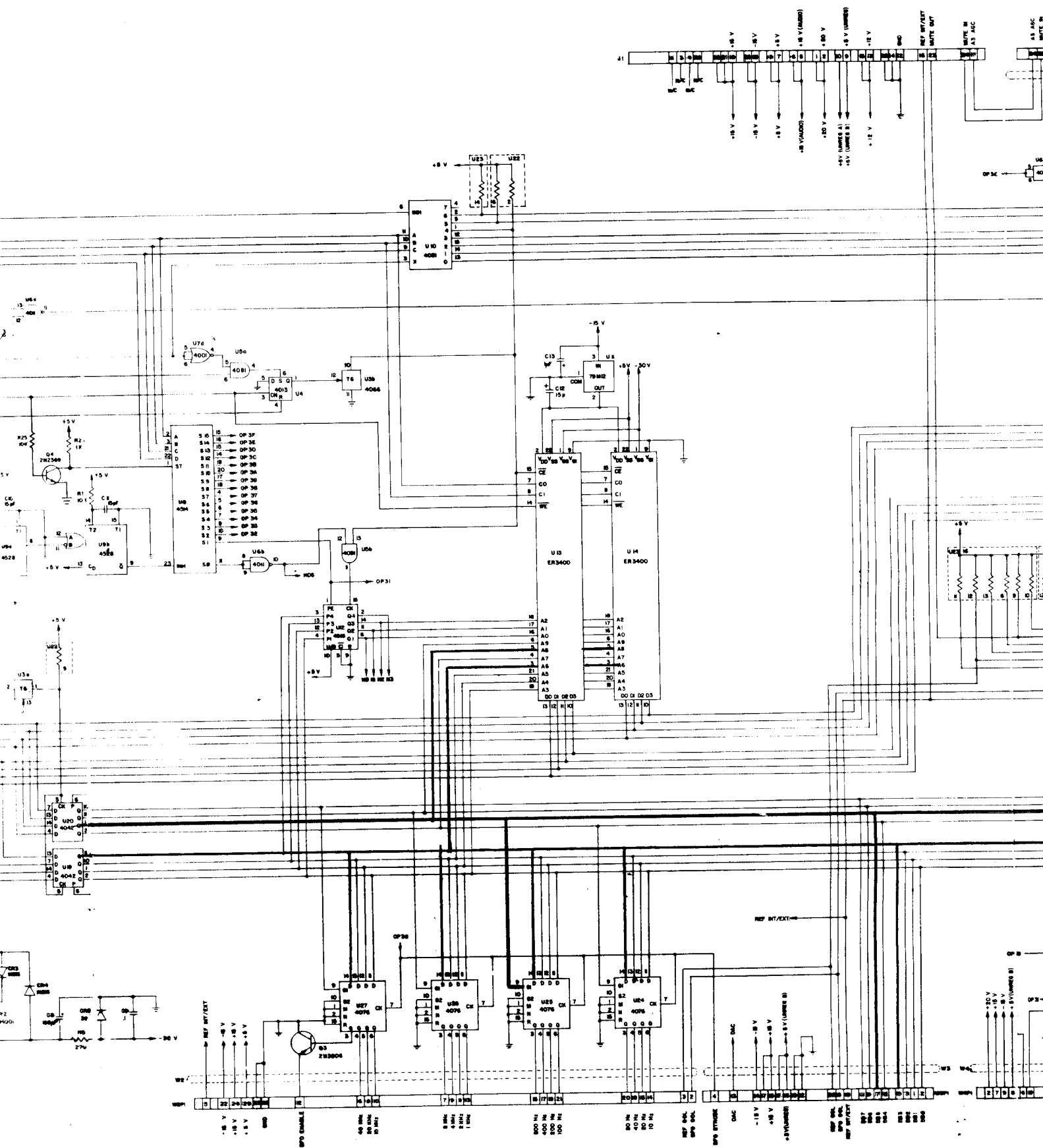
Control Panel Switch/Display Board A9 A1

Fig. 8





REF. DESIG.	IC	QND	+5V	+15V
U7	4001	7	16	
U6	4006	7	16	
U4	4018	7	14	
U5/U2/D	4042	8	16	
U10	4001	7	16	
U3	4066	7	14	
U4/U5/U6/U7	4076	8	16	
U8	4081	7	14	
U21	40107	4	8	
U8/U9/U10	4000	8	16	
U9	4084	12	24	
U12	4086	8	16	
U9	4038	8	16	
U28	330	12	3	



Circuit : Front Panel Memory Board A9 A2

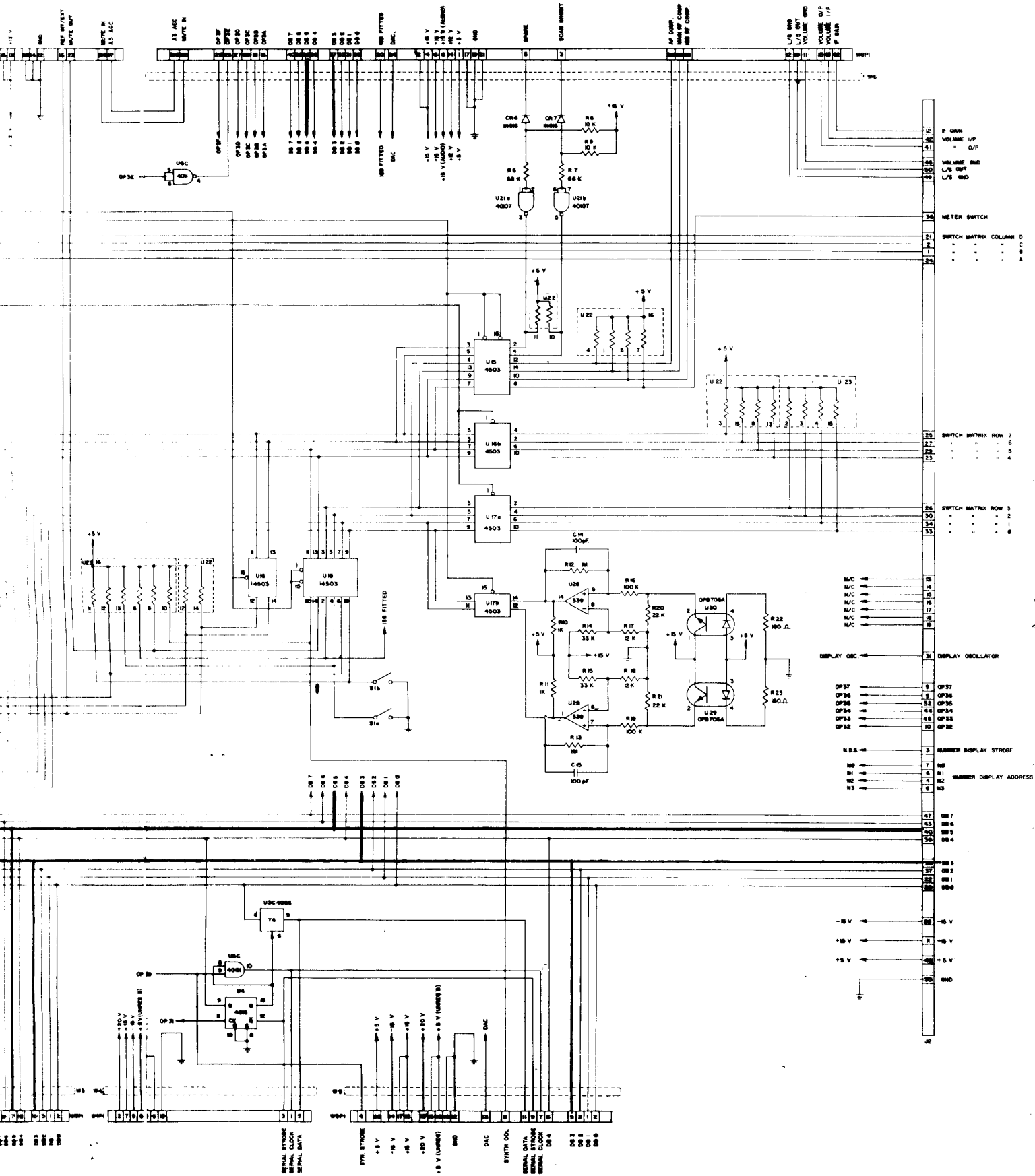
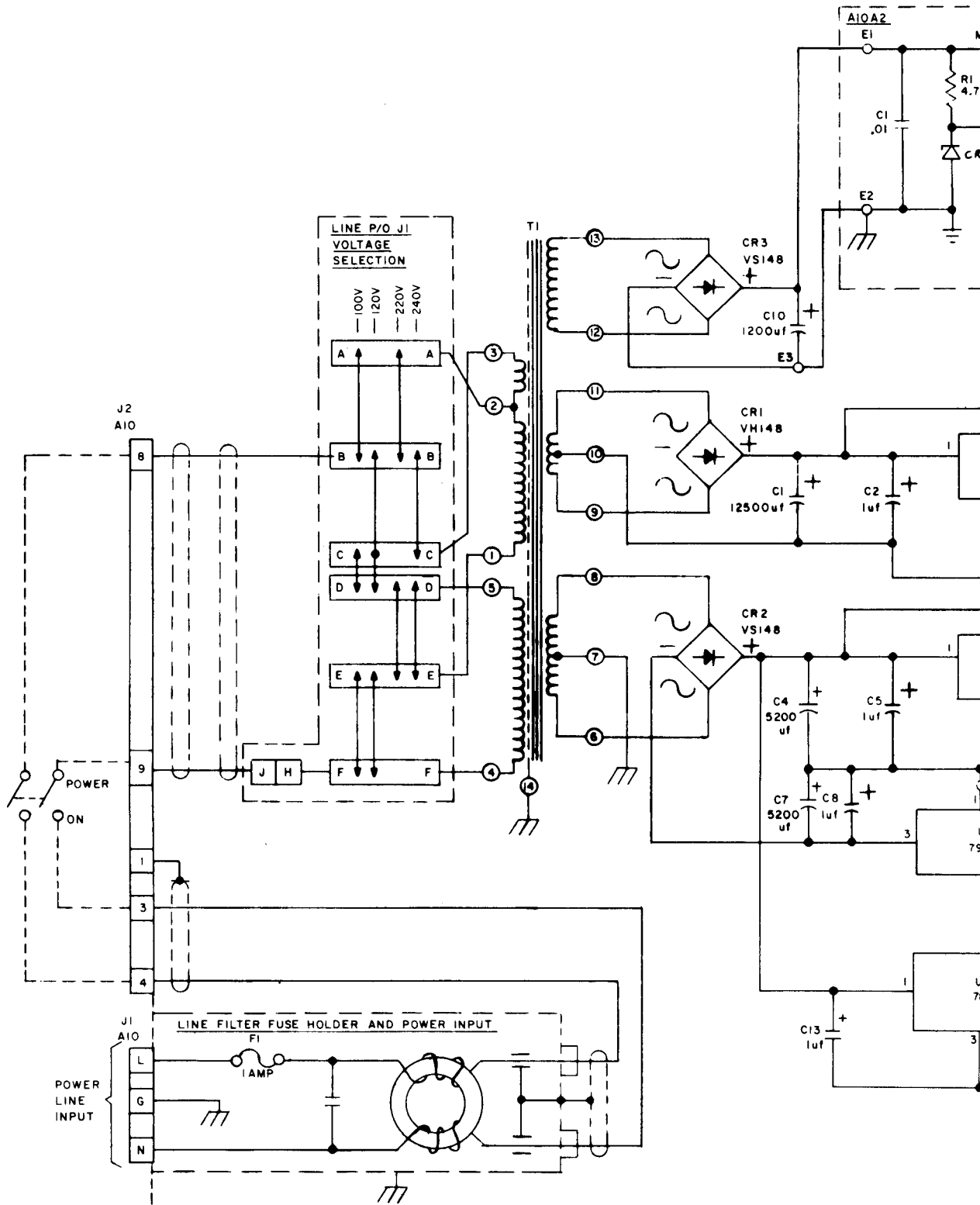
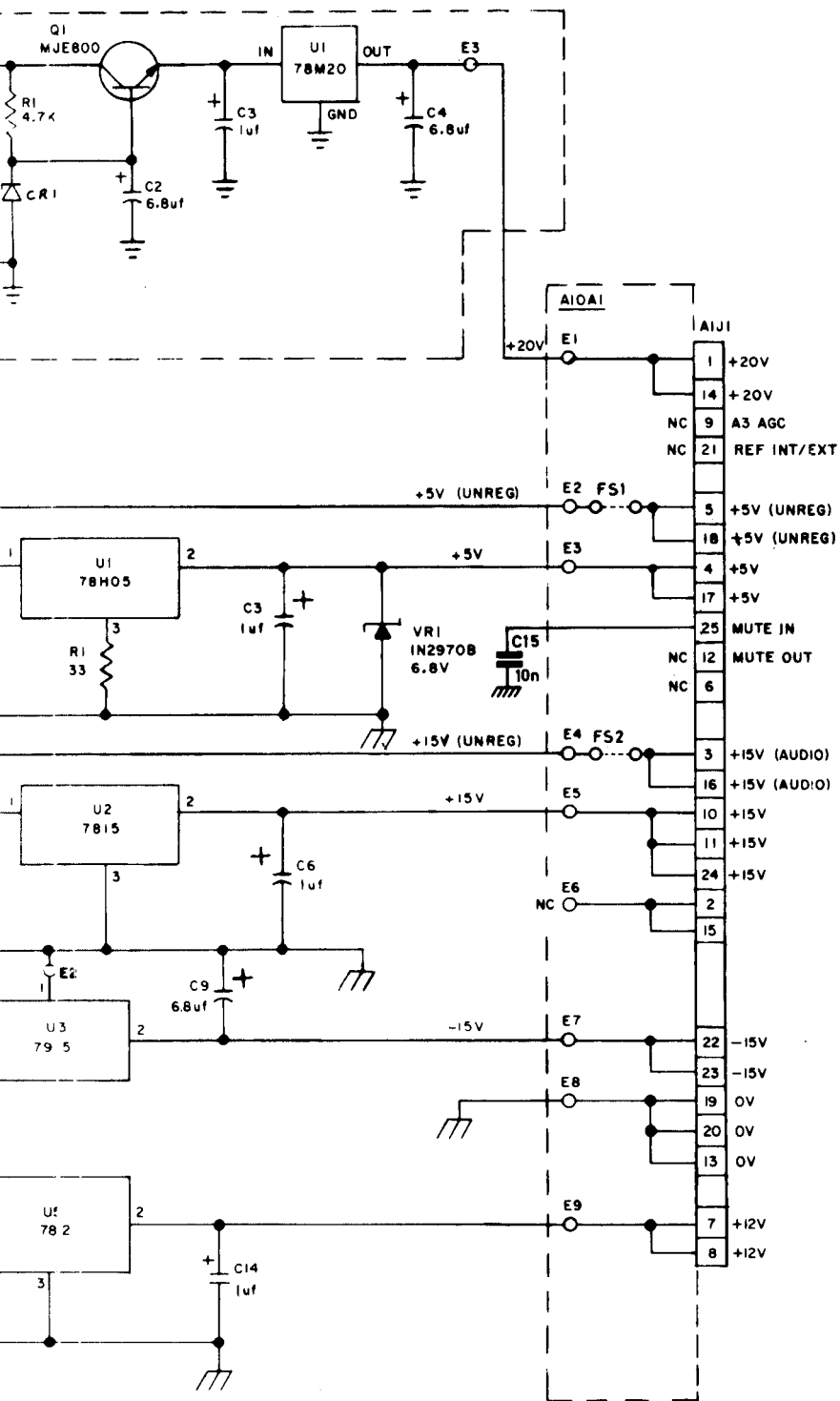


Fig. 8.11

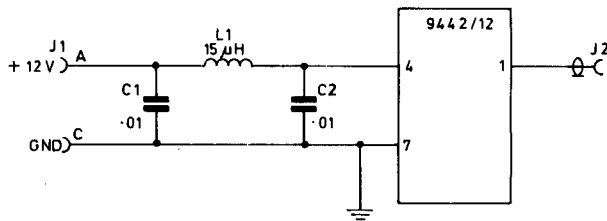
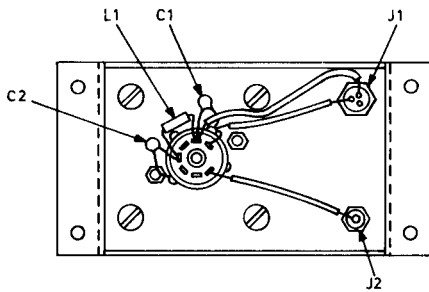
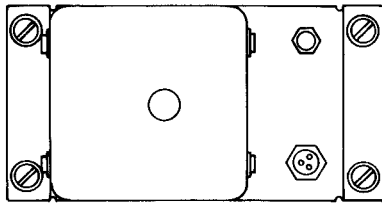


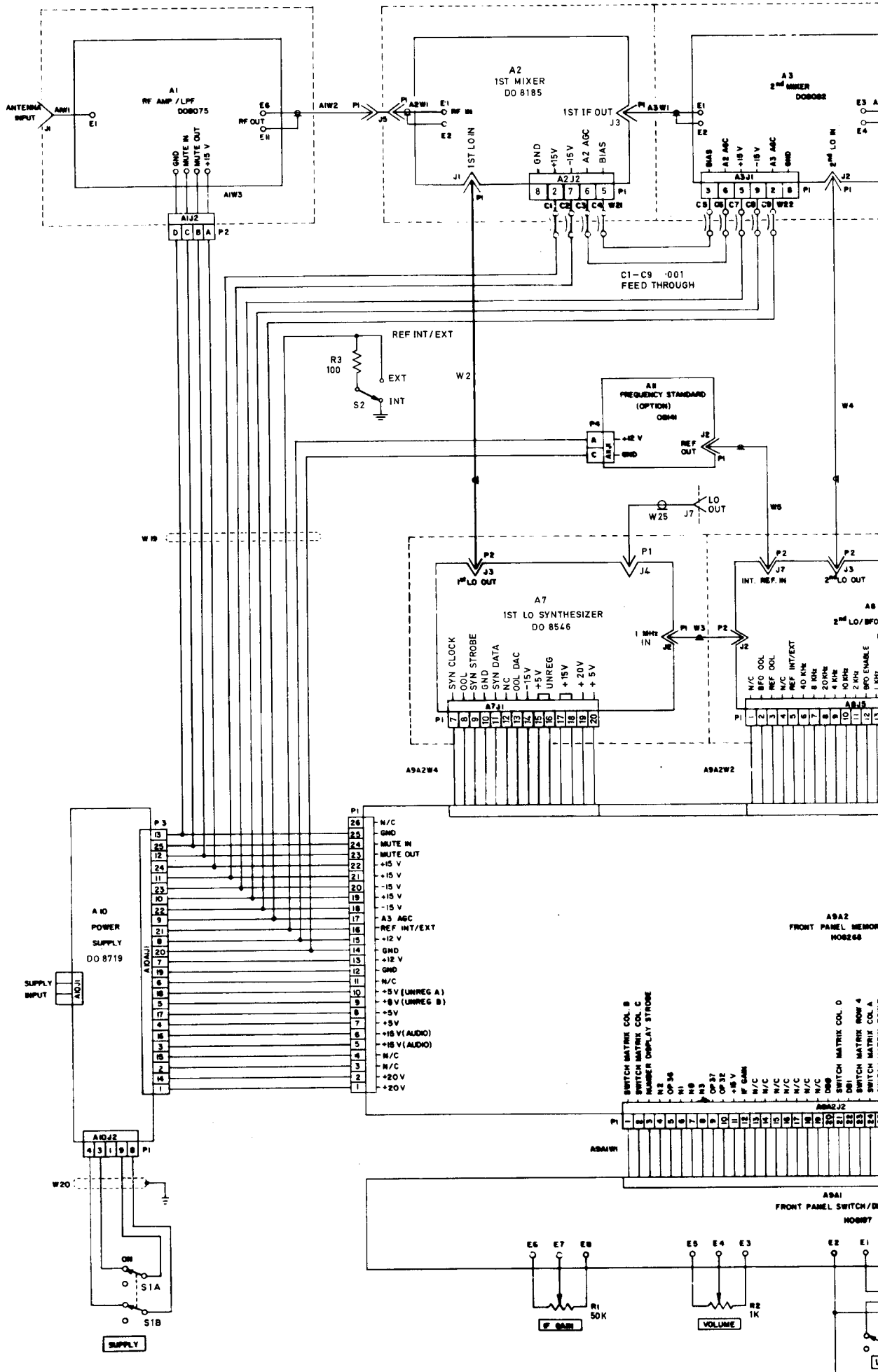
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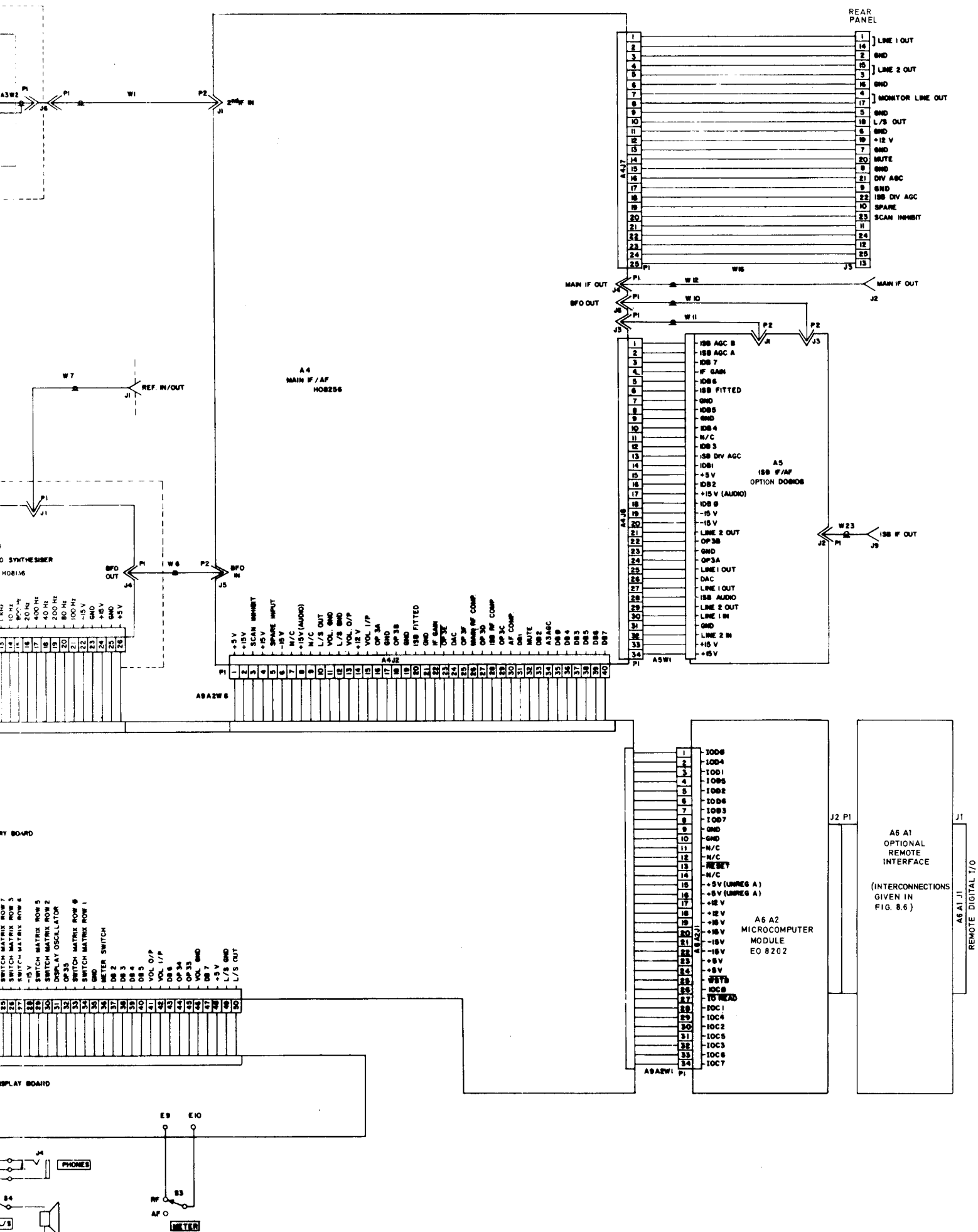
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Circuit: AC Power Supply Module A10 Fig. 8.







Interconnection Diagram Fig. 8.14