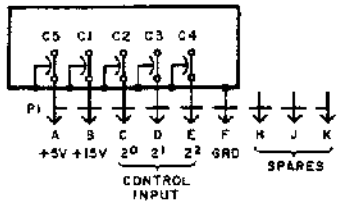
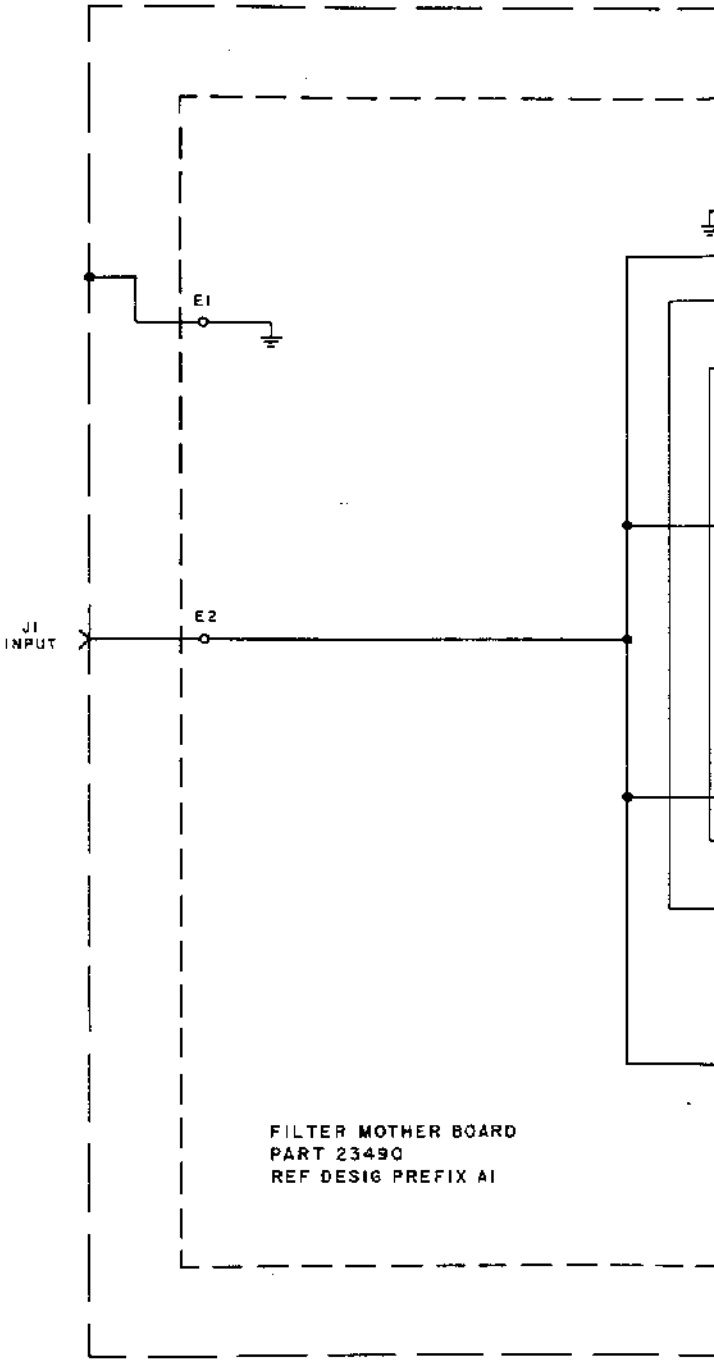
SECTION VII
SCHEMATIC DIAGRAMS

NOTES:
1. UNLESS OTHERWISE SPECIFIED, CAPACITANCE IS IN μF.
2. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PINS.
3. SEE DETAIL A FOR WIRING TO PLUG.

DETAIL A
WIRING TO PLUG





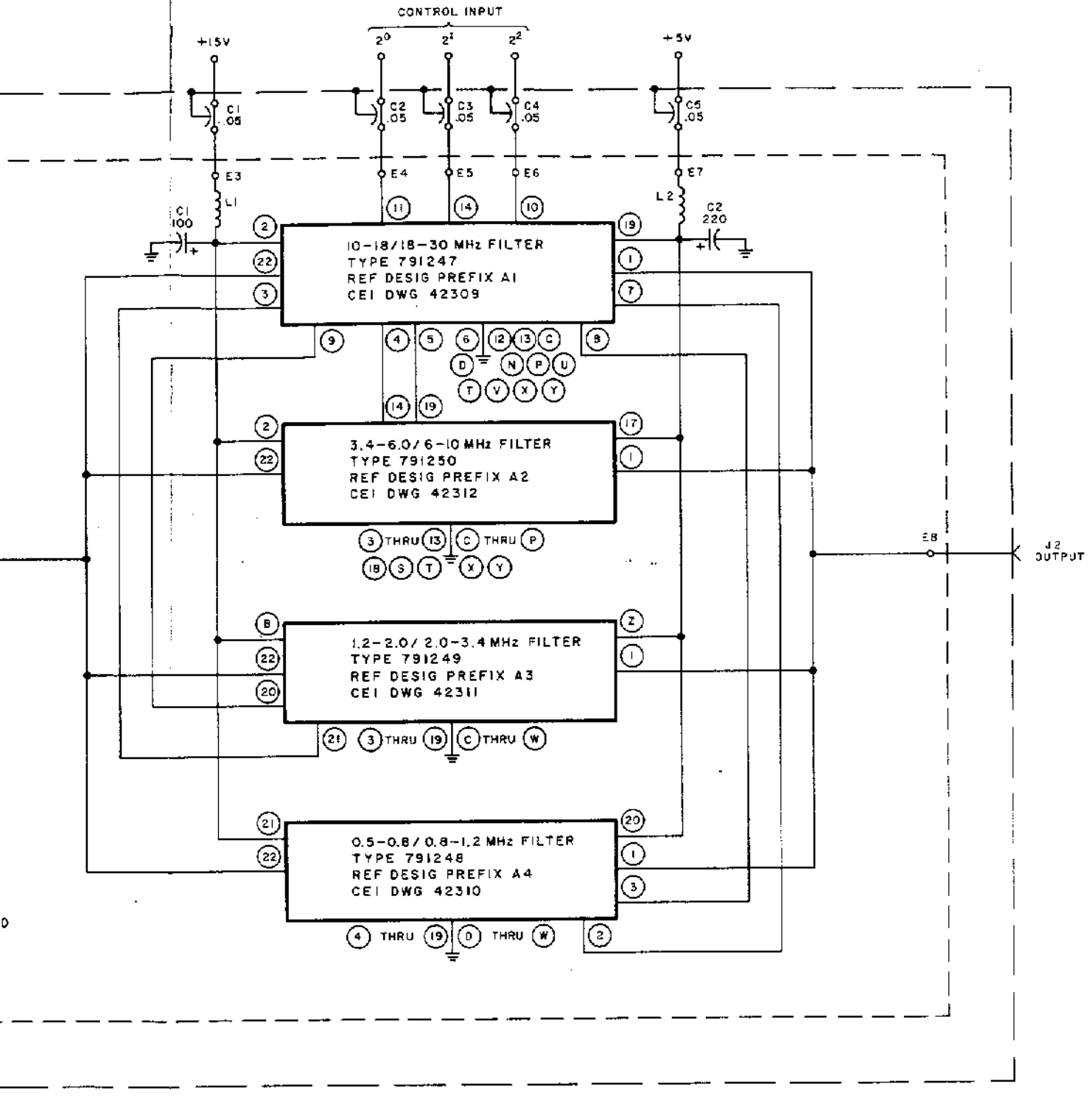
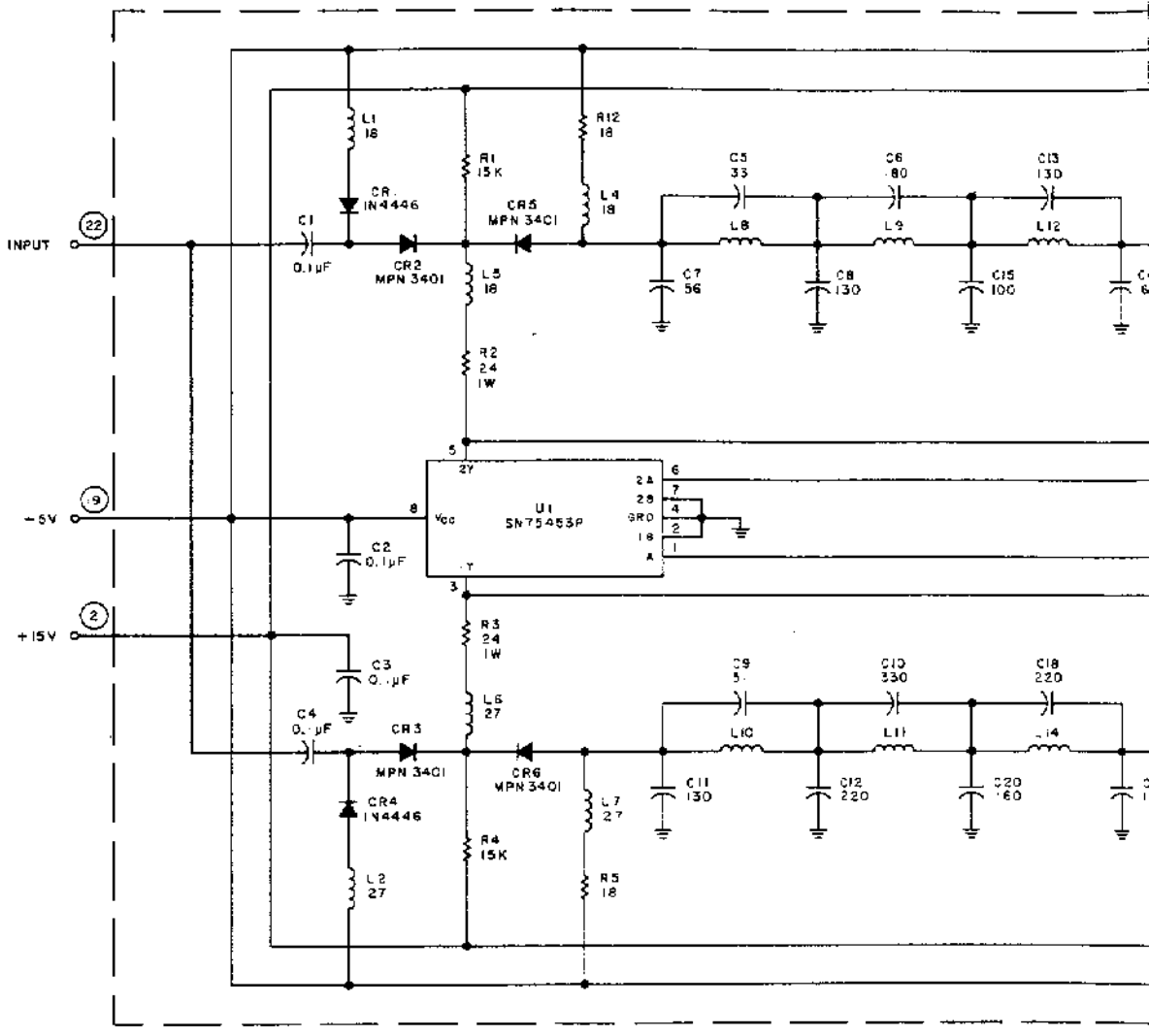
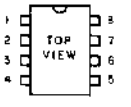


Figure 7-1. Type 791199 Input Filter Assembly (A1), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN pF.
   c) INDUCTANCE IS IN μH.
2. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PINS.
3. LEAD ARRANGEMENT FOR U1 IS SHOWN IN DETAIL A.
4. LEAD ARRANGEMENT FOR U2 IS SHOWN IN DETAIL B.



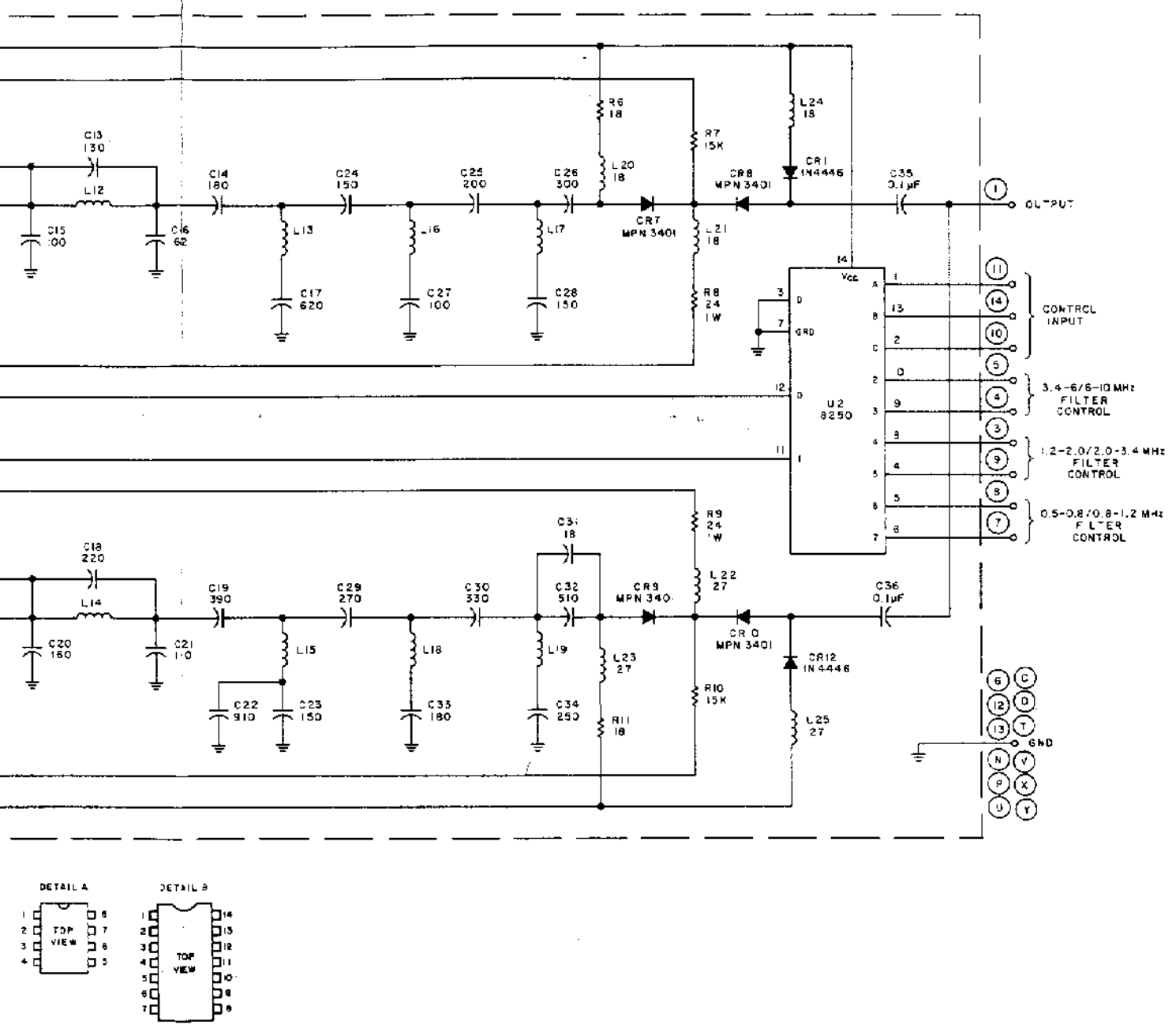
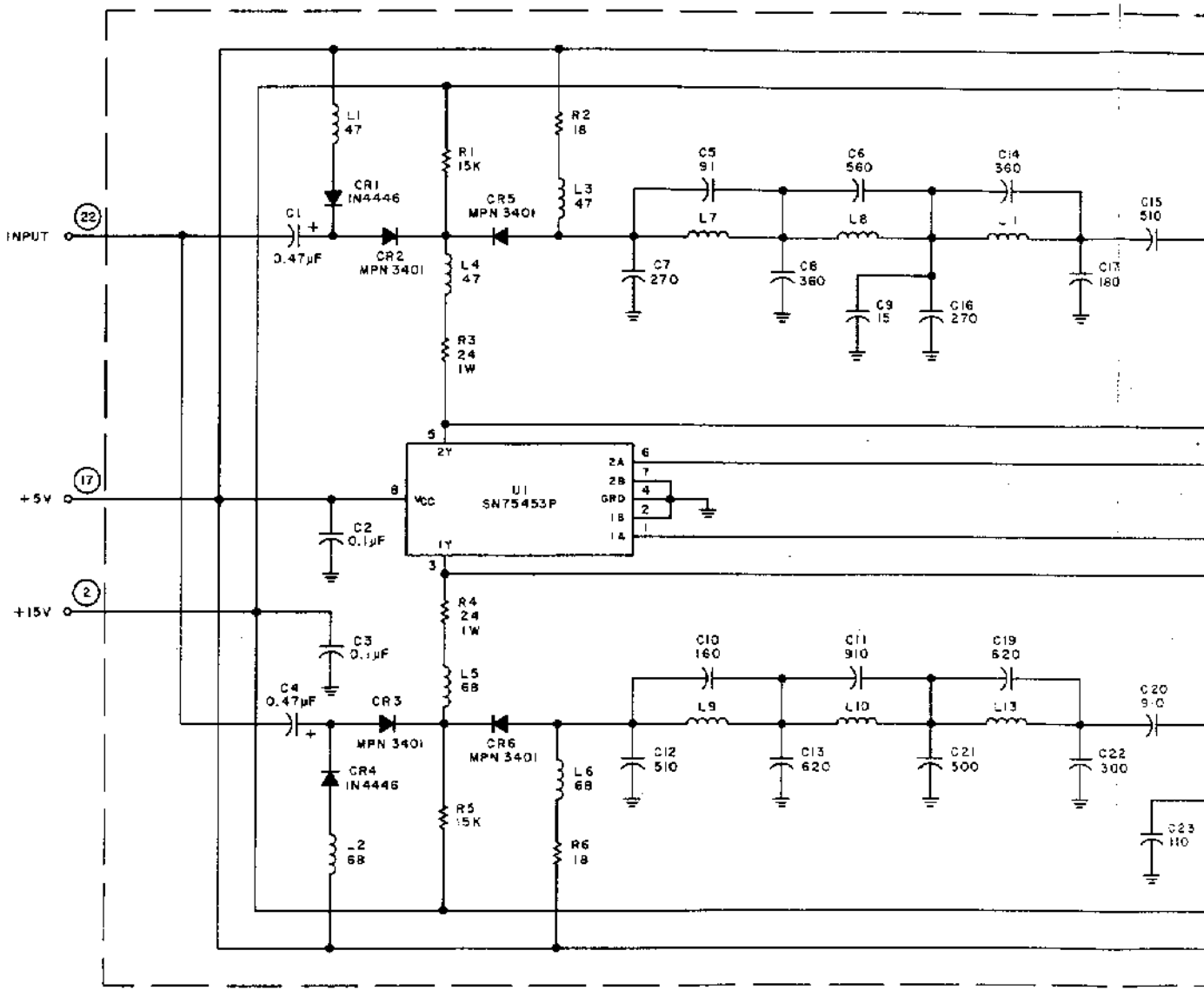
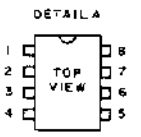


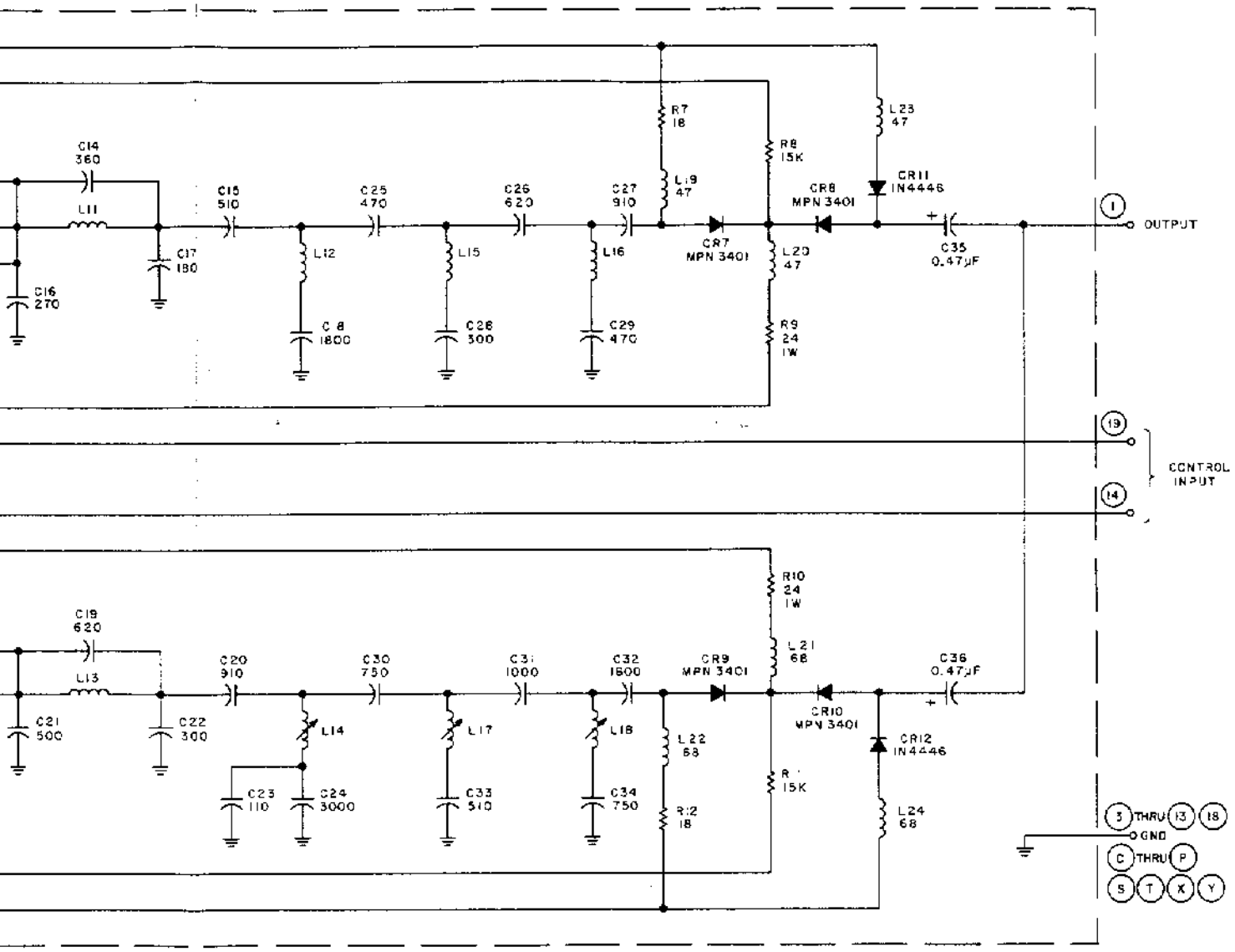
Figure 7-2. Type 791247 10-18/18-30 MHz Filter (A1A1A1), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN pF.
   c) INDUCTANCE IS IN μH.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. LEAD ARRANGEMENT FOR U1 IS SHOWN IN DETAIL A.





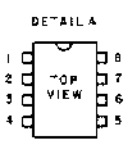
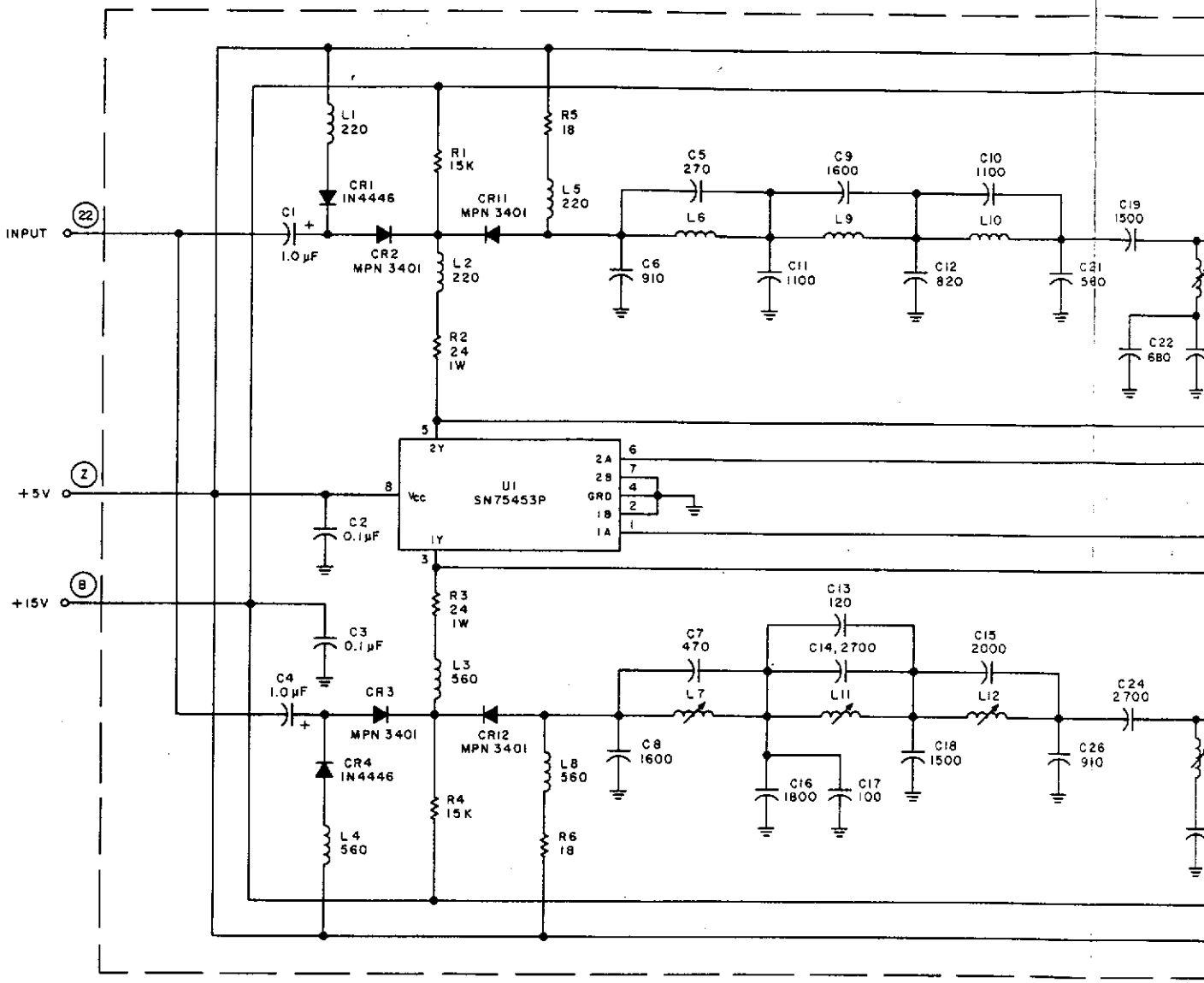


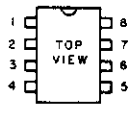
Figure 7-3. Type 791250 3.4-6.0/6-10 MHz Filter (A1A1A2), Schematic Diagram

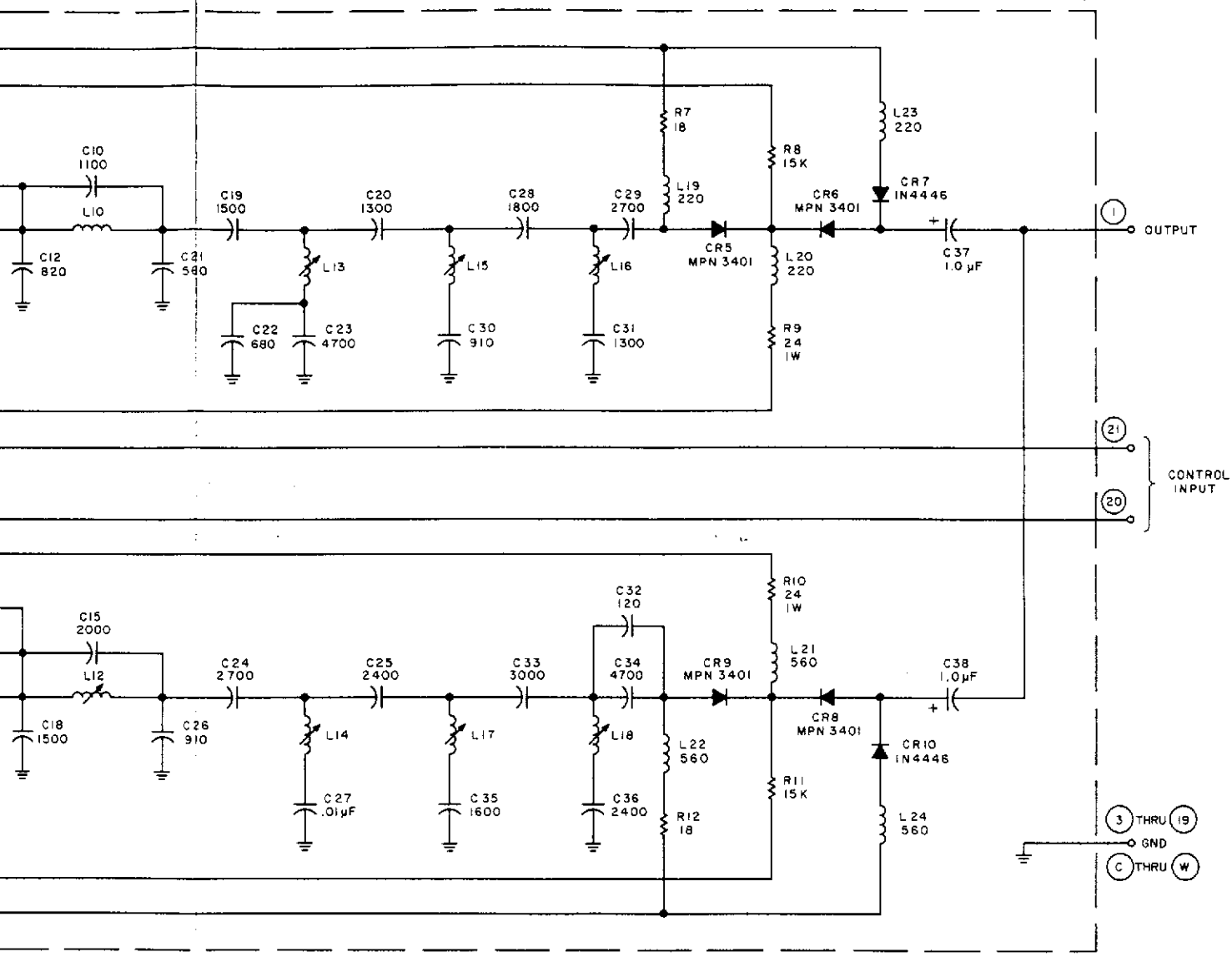


NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN pF.
   c) INDUCTANCE IS IN µH.
2. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PINS.
3. LEAD ARRANGEMENT FOR U1 IS SHOWN IN DETAIL A.

DETAIL A





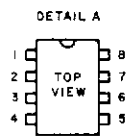
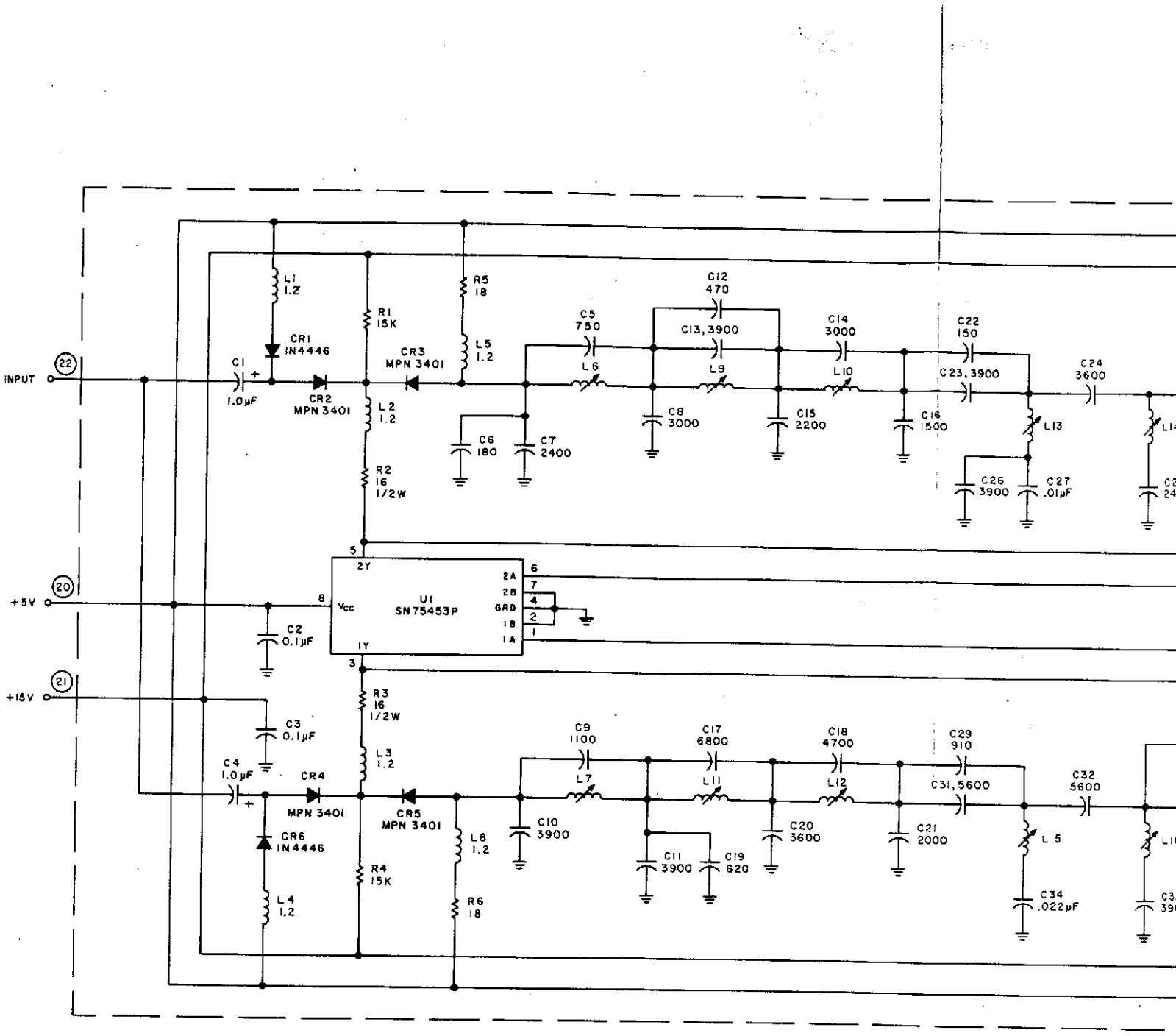


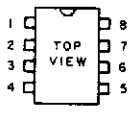
Figure 7-4. Type 791249 1.2-2.0/2.0-3.4 MHz Filter (A1A1A3), Schematic Diagram

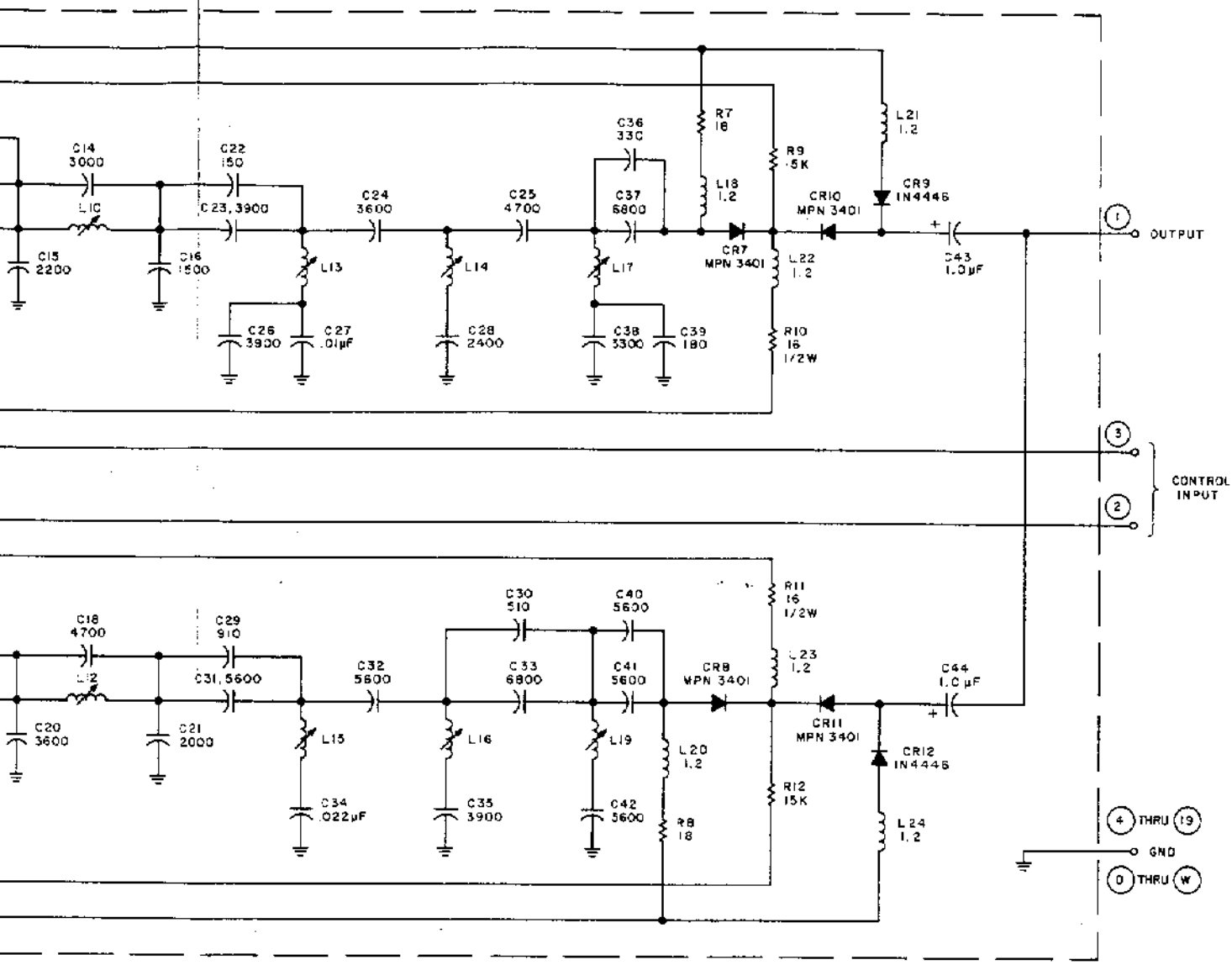


NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN pF.
   c) INDUCTANCE IS IN mH.
2. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PINS.
3. LEAD ARRANGEMENT FOR U1 IS SHOWN IN DETAIL A.

DETAIL A





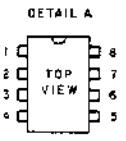
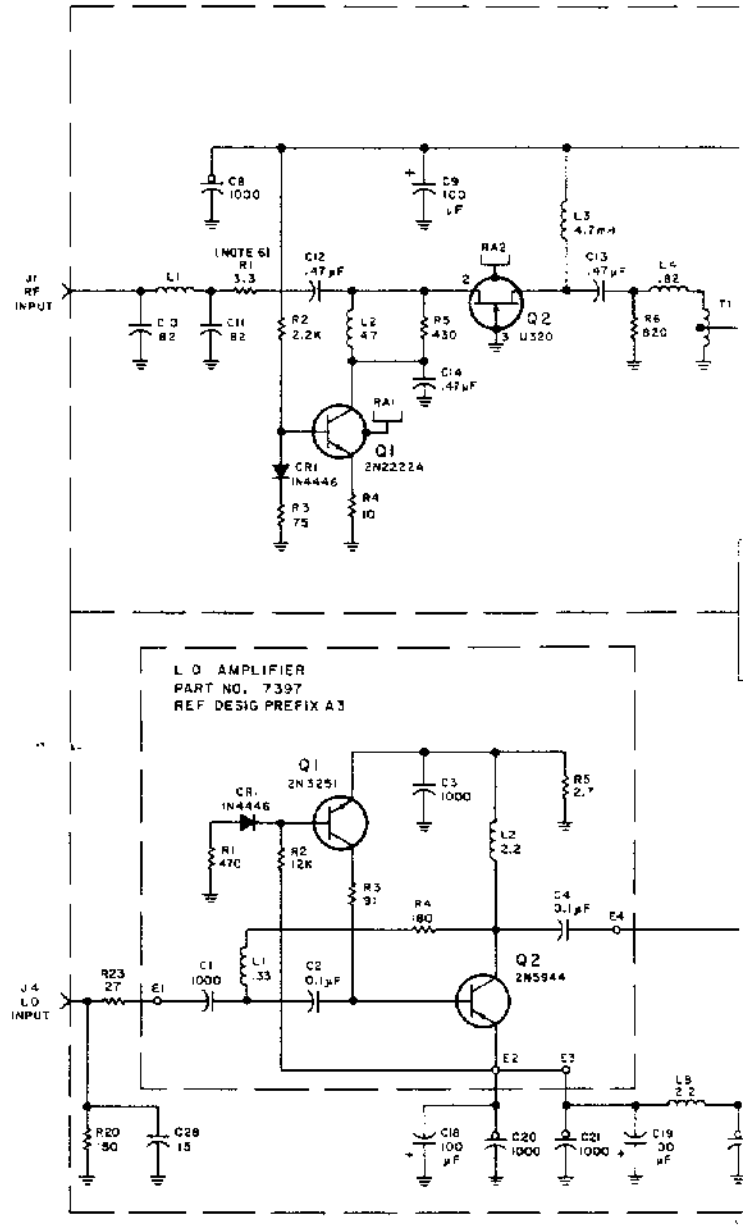
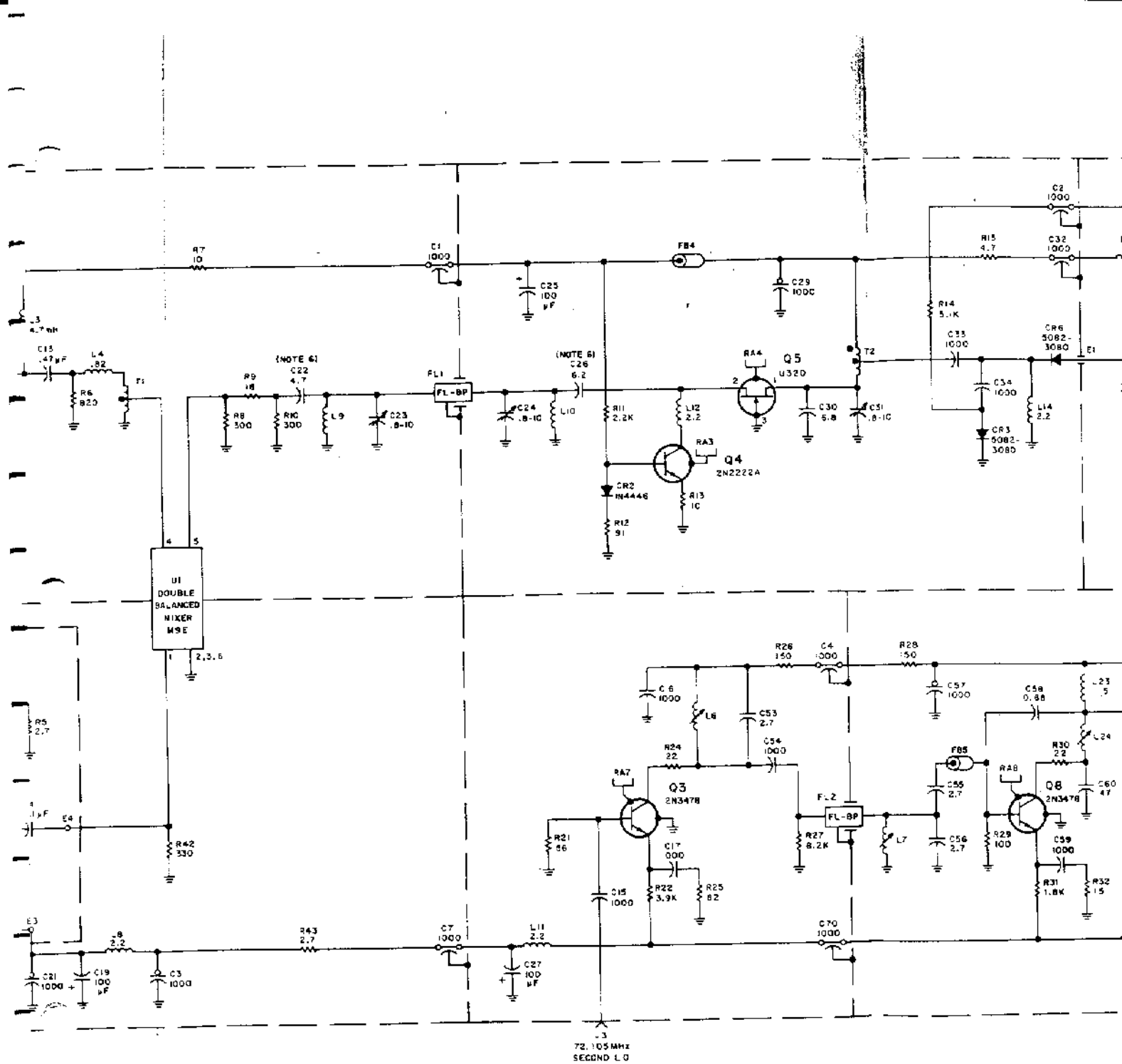


Figure 7-5. Type 791248 0.5-0.8/0.8-1.2 MHz Filter (A1A1A4), Schematic Diagram

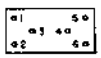

C8 1000
C9 100 µF
L3 4.7m
(NOTE 6)
R1 3.3
C12 .47µF
RA2
C13 .47µF
L4 82
J1 RF INPUT
L1
C3 82
C11 82
R2 2.2K
L2 47
R5 430
2
3
Q2 U320
R6 820
T1
C14 .47µF
RA1
Q1 2N2222A
CR1 1N4446
R3 75
R4 10
L O AMPLIFIER
PART NO. 7397
REF DESIG PREFIX A3
Q1 2N3251
CR1 1N4446
C3 1000
R5 2.7
R1 470
R2 12K
L2 2.2
R3 91
R4 180
C4 0.1µF
E4
J4 LO INPUT
R23 27
E1
C1 1000
L1 .33
C2 0.1µF
Q2 2N5944
E2
E3
L5 2.2
R20 50
C28 15
C18 100 µF
C20 1000
C21 1000
C19 30 µF



NOTES

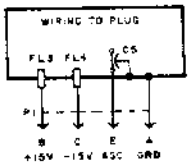
1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ± 5%, ¼ W.
   b) CAPACITANCE IS IN pF.
   c) INDUCTANCE IS IN µH.
2. PIN ARRANGEMENT FOR U1, SEE DETAIL A.
3. PIN ARRANGEMENT FOR U2, SEE DETAIL B.
4. WIRING TO PLUG, SEE DETAIL C.
5. PIN ARRANGEMENT FOR Q2, Q5, Q7, SEE DETAIL D.
6. NOMINAL VALUE, FINAL VALUE FACTORY SELECTED.

DETAIL A

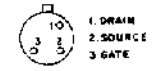


DETAIL B

DETAIL C



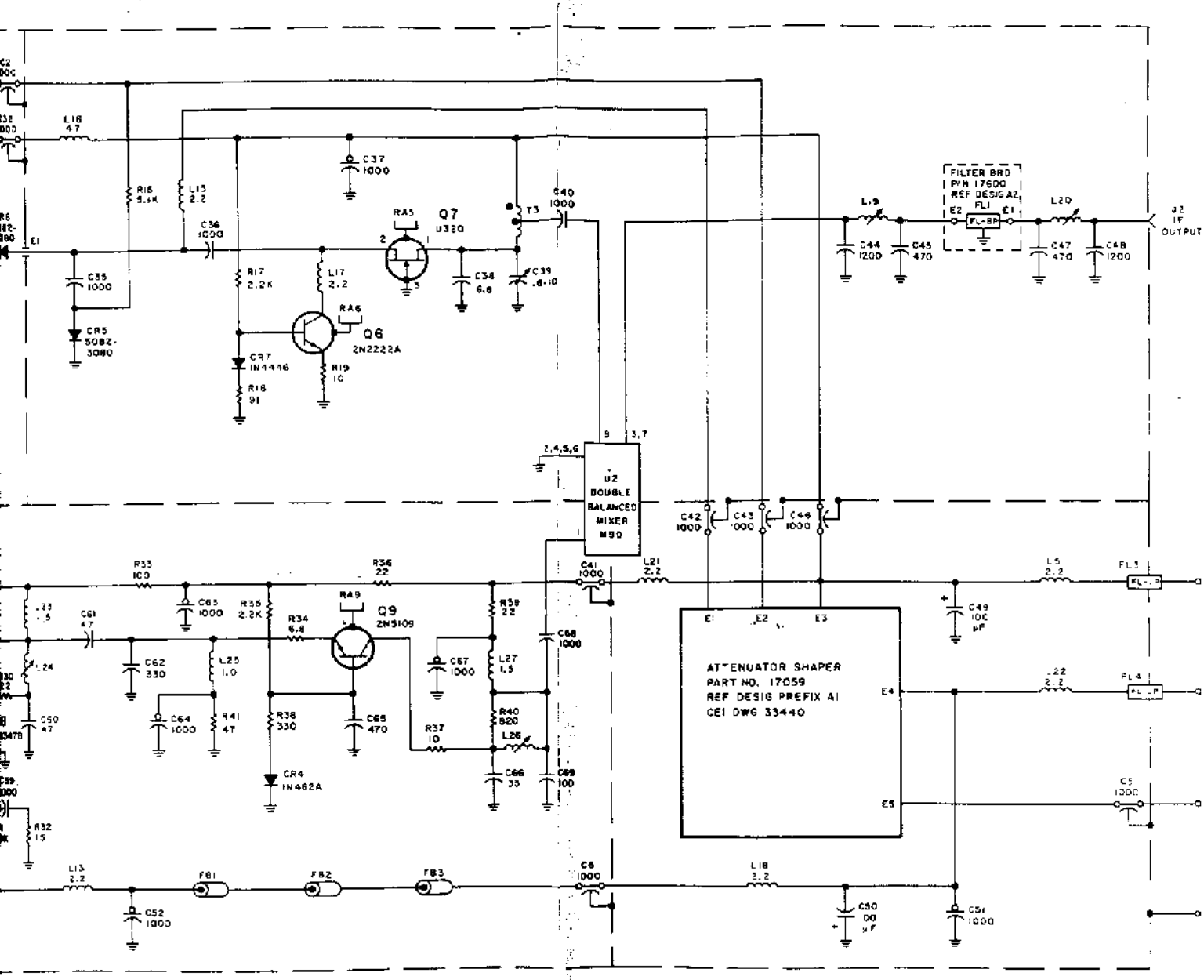
DETAIL D



HIGHEST REF DESIG USED	REF DESIG NOT USED
A3	—
C70	—
CR7	—
E1	—
FB4	—
FL4	—
J4	—
L27	—
P1	—
Q9	—
R43	—
R49	—
T3	—
U2	—

A3

HIGHEST REF DESIG USED	REF NOT
C4	—
CR1	—
E4	—
L2	—
Q2	—
R5	—



MOST REF DES USED	REF DESIG NOT USED
E4	—
CR	—
E4	—
L2	—
Q2	—
R5	—

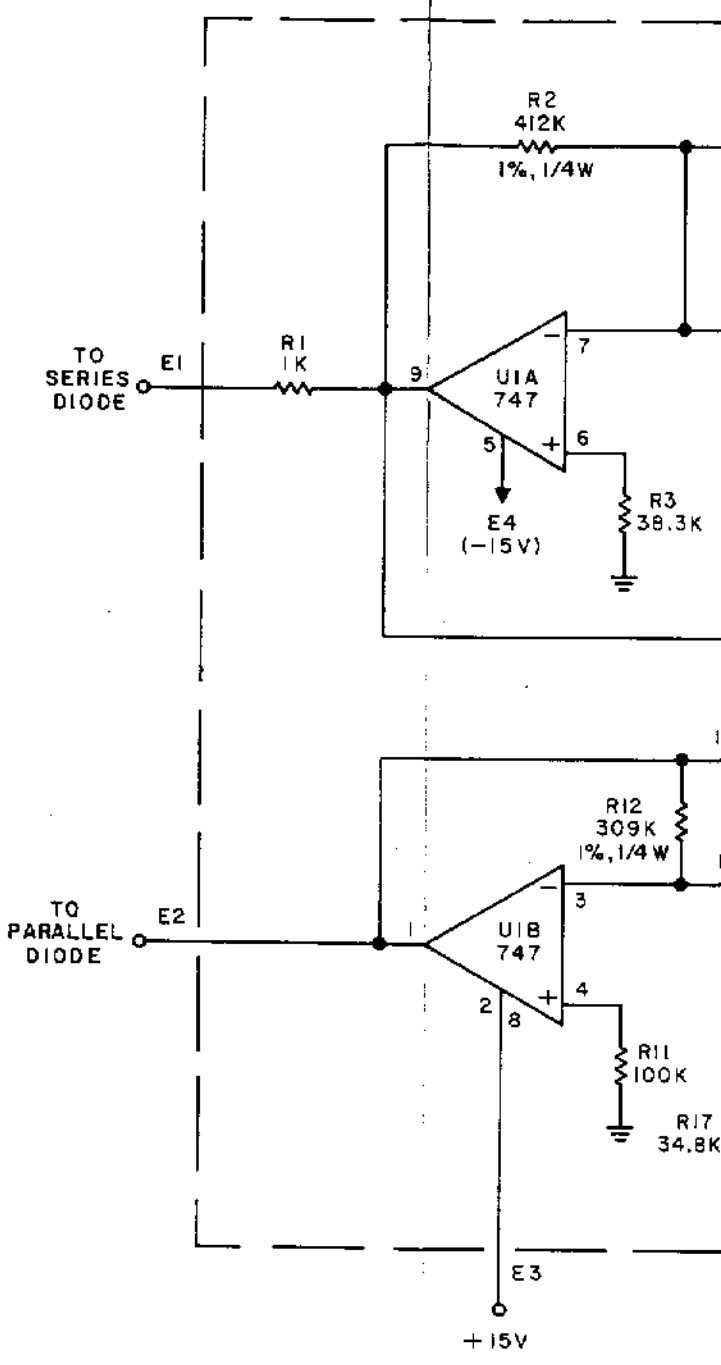
Figure 7-6. Type 791166 Inpu
Converter (A2),
Schematic Diagra

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±1%, 1/10W.
   b) CAPACITANCE IS IN μF.
2. CW ON R6, R16 INDICATES CLOCKWISE ROTATION OF ACTUATOR.
3. PIN ARRANGEMENT FOR U1 IS SHOWN IN DETAIL A.

DETAIL A

BOTTOM VIEW



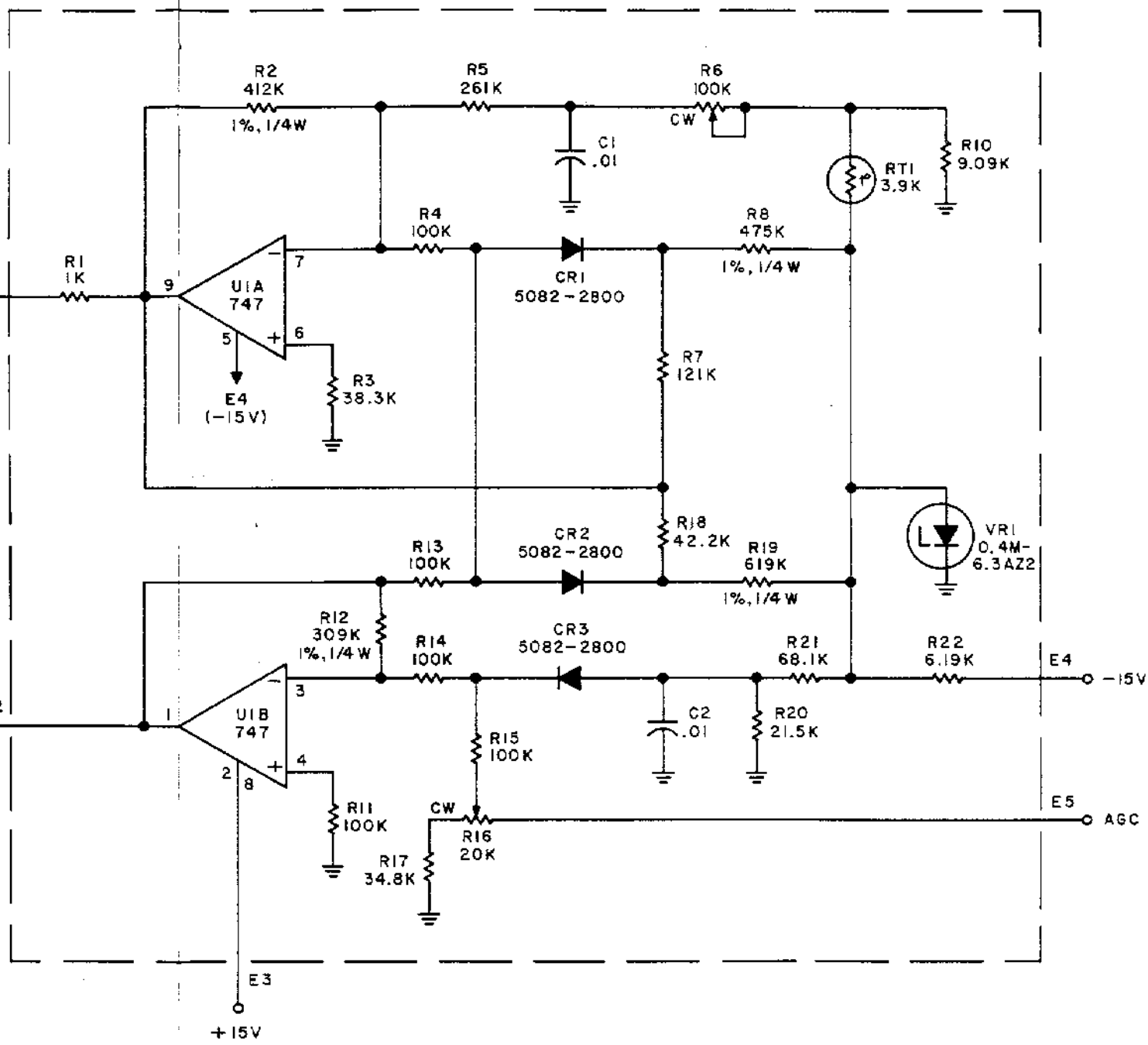
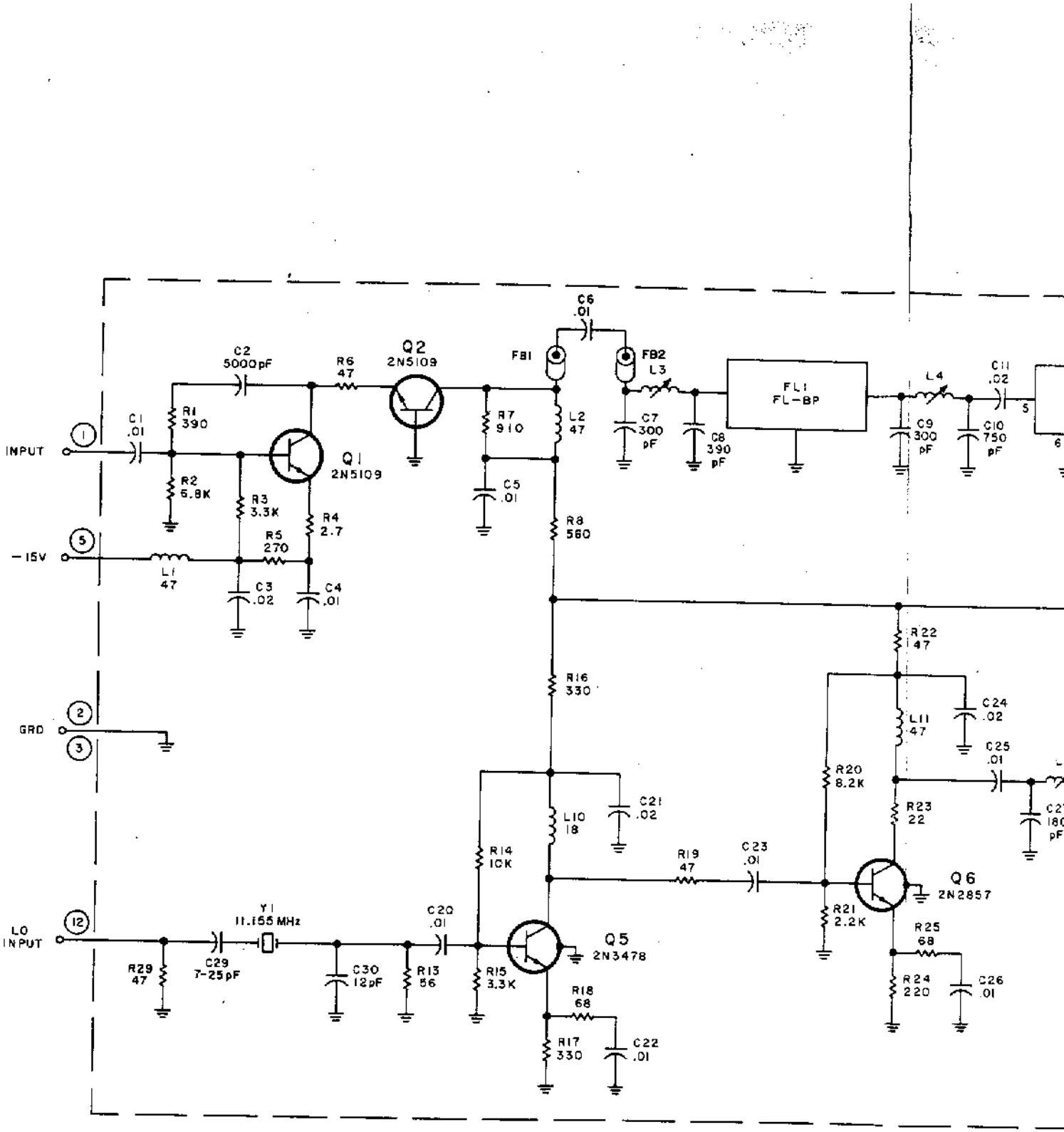


Figure 7-7. Part 17059 Attenuator Shaper (A2A1), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4 W.
   b) CAPACITANCE IS IN μF.
   c) INDUCTANCE IS IN μH.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.

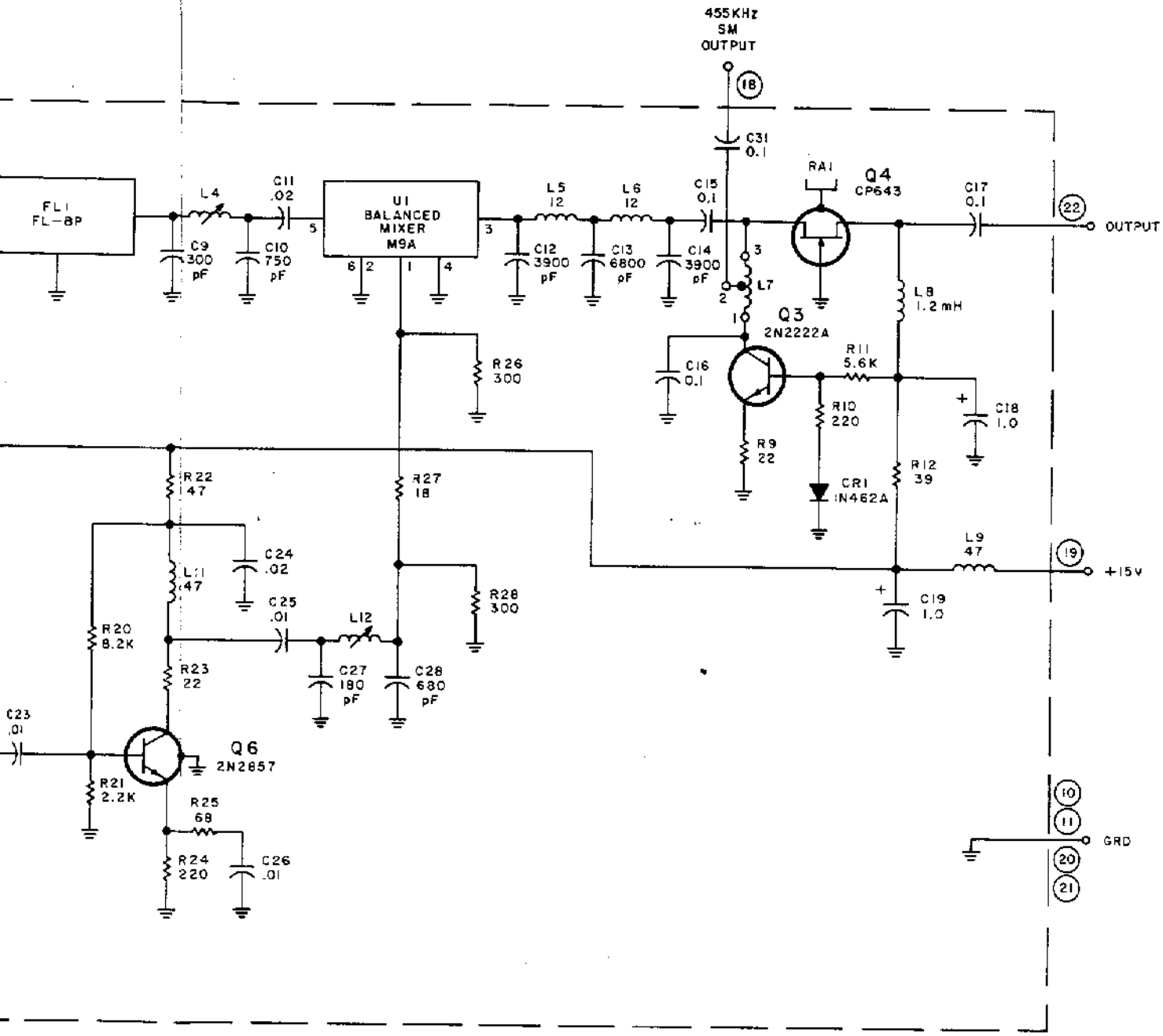
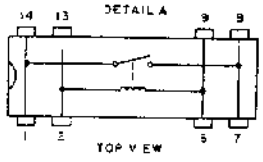


Figure 7-8. Type 791198 10.7/455 Converter (A3), Schematic Diagram

NOTES:

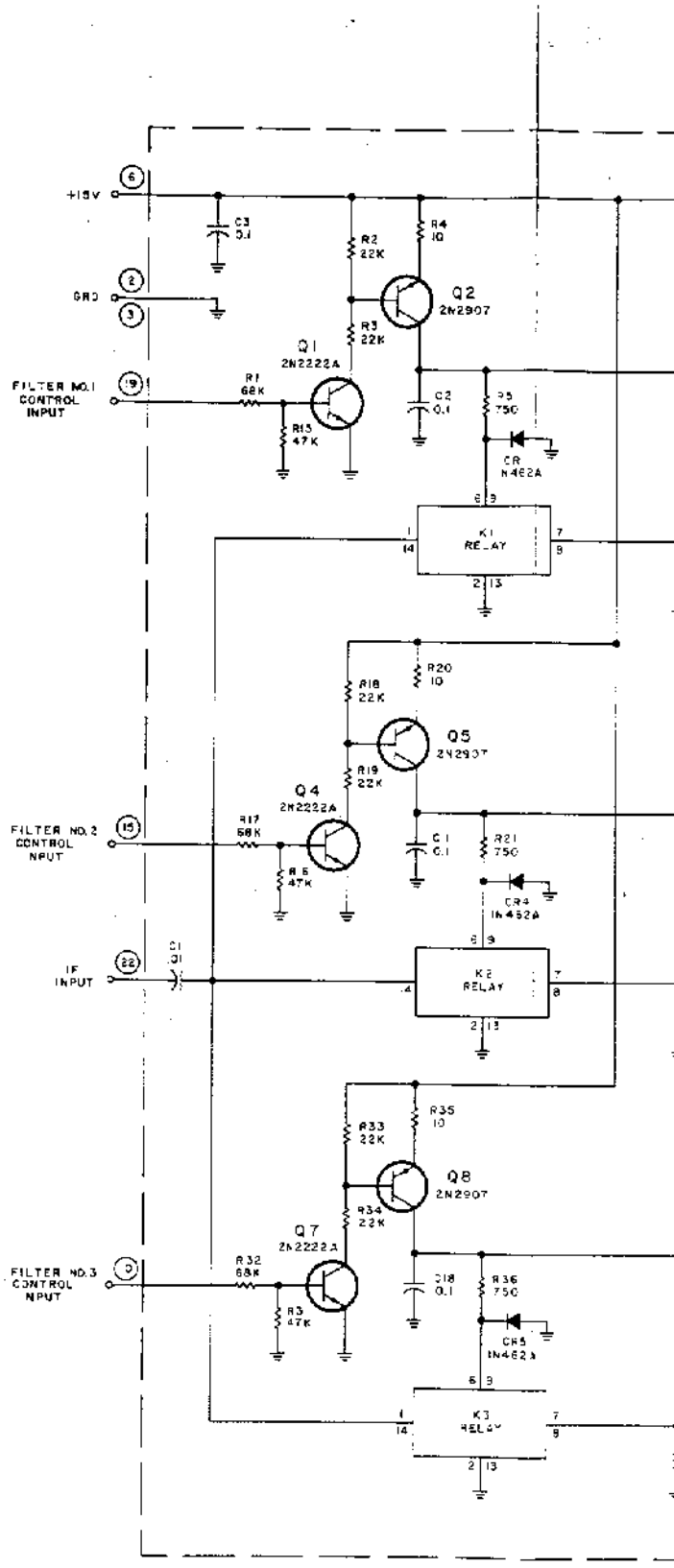
1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4 W.
   b) CAPACITANCE IS IN µF.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. DIFFERENCE BETWEEN TYPES 9 SHOWN IN DETAIL B.
4. DETAIL LEAD ARRANGEMENT FOR K1, K2, K3 IS SHOWN IN DETAIL A.
5. CW ON R12, R28, R43 INDICATES CLOCKWISE ROTATION OF ACTUATOR.



HIGHEST REF DESIG USED	REF DESIG NOT USED
C24	C10
CR6	
FL3	
K3	
Q8	
R48	

DETAIL B (CAPACITANCE IS IN µF)

TYPE	FL1	FL2	FL3	C4	C7	C19	C22
72399-1	NOT USED	92062-2 (500Hz)	92062-4 (2KHz)	N/U	N/U	51	51
72399-2	92062-6 (4KHz)	92062-8 (8KHz)	NOT USED	51	51	N/U	N/U
72399-3	92062-7 (6KHz)	92062-2 (500Hz)	92062-4 (2KHz)	51	51	51	5
72399-4	92062-6 (4KHz)	92062-8 (8KHz)	92062-10 (16KHz)	51	51	51	51
72399-5	92062-1 (200Hz)	92062-2 (500Hz)	92062-4 (2KHz)	51	51	5	51
72399-6	92062-6 (4KHz)	92062-8 (8KHz)	92062-3 (1KHz)	51	51	51	51
72399-7	92062-7 (6 KHz)	92062-2 (500 Hz)	92062-4 (3 KHz)	51	51	5	51
72399-8	92062-2 (500 Hz)	92062-3 (1 KHz)	92062-4 (2 KHz)	51	51	51	5



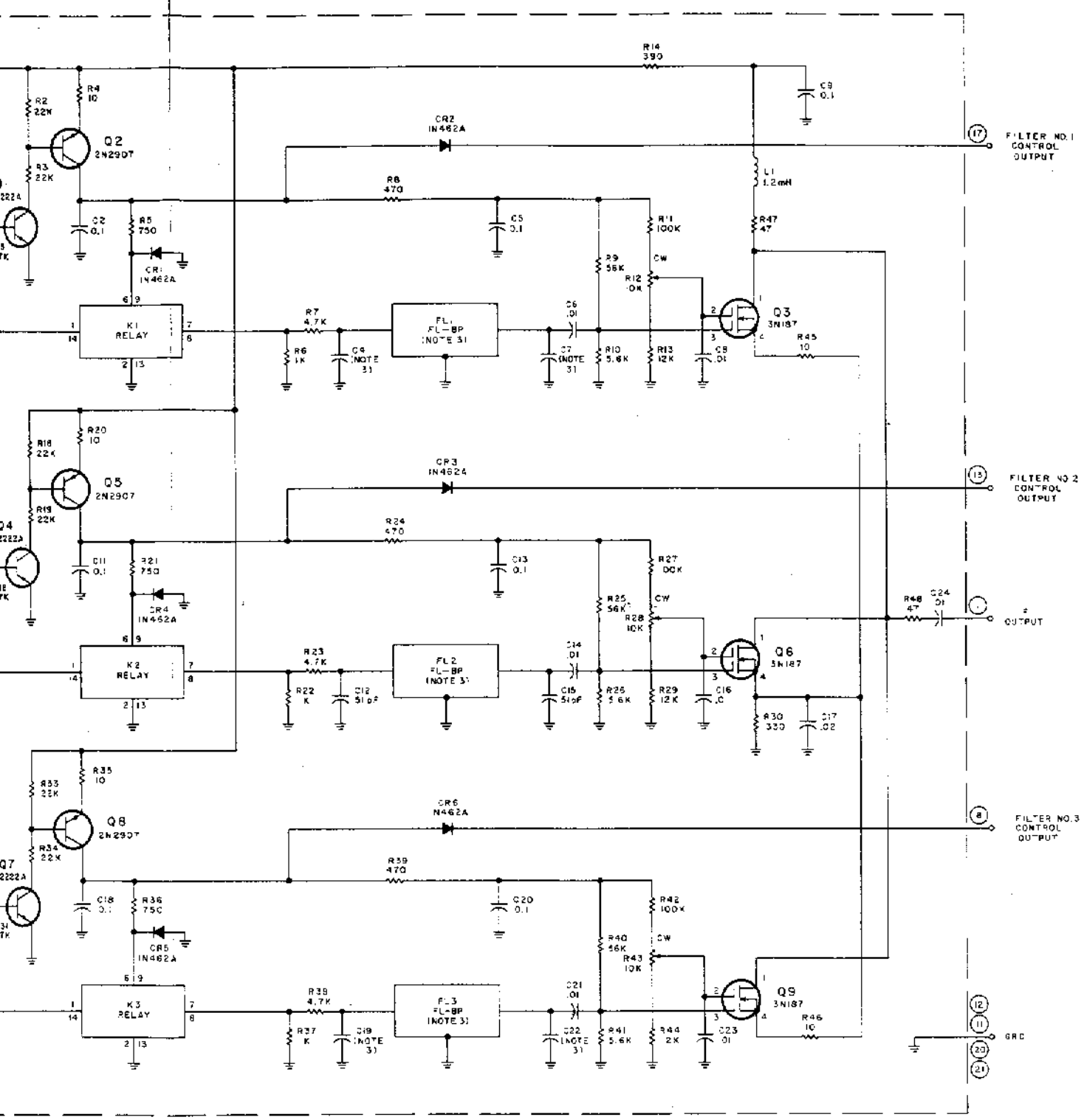
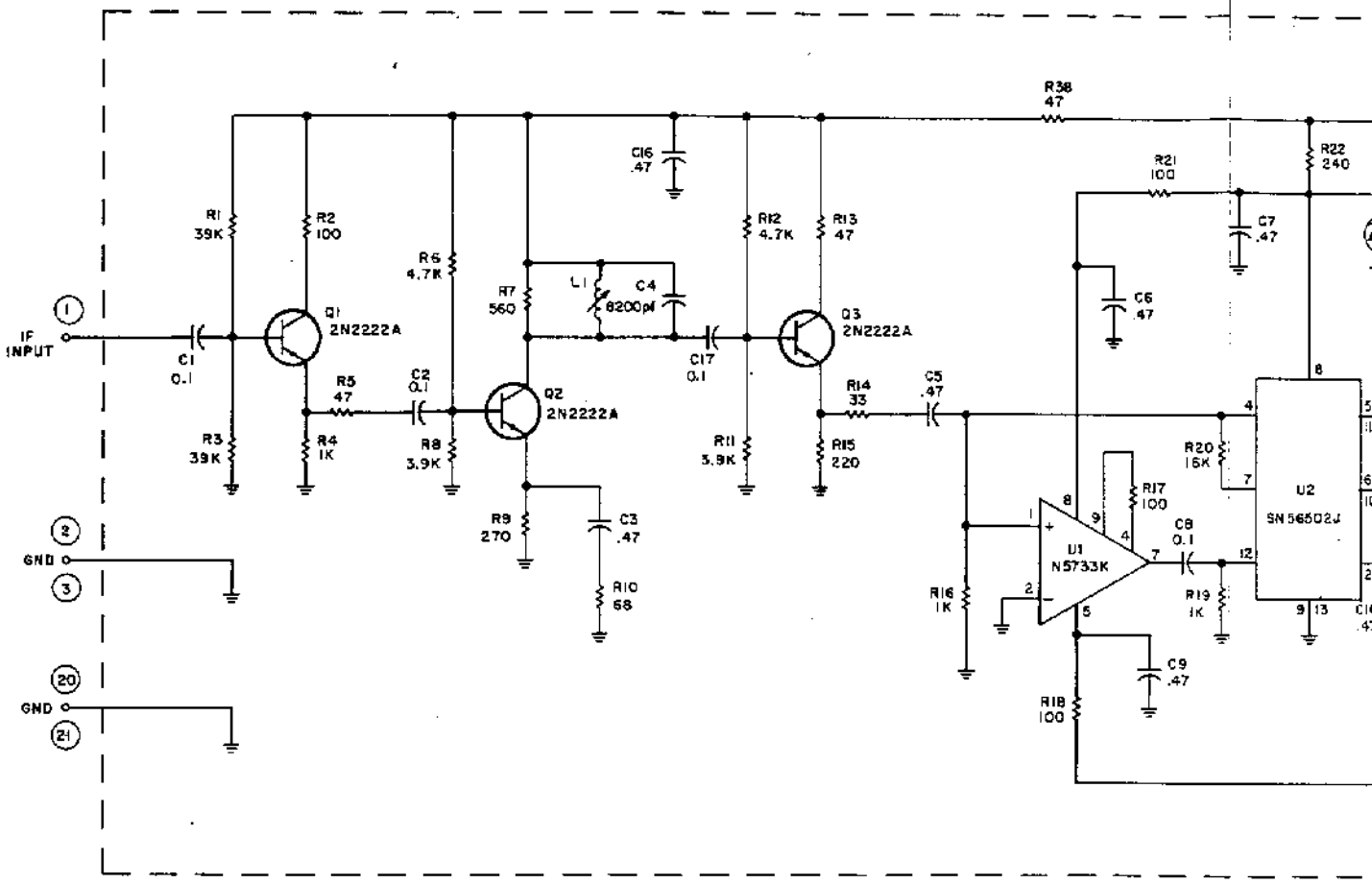


Figure 7-9. Type 72399-(X) IF Filter Assembly (A4, A6), Schematic Diagram

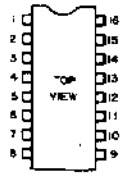


NOTES:

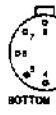
1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4 W.
   b) CAPACITANCE IS IN μF
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. CW ON R34 INDICATES FULL CLOCKWISE POSITION OF ACTUATOR.
4. LEAD ARRANGEMENTS FOR U1, U2, U3 ARE SHOWN IN DETAILS A, B, C RESPECTIVELY.

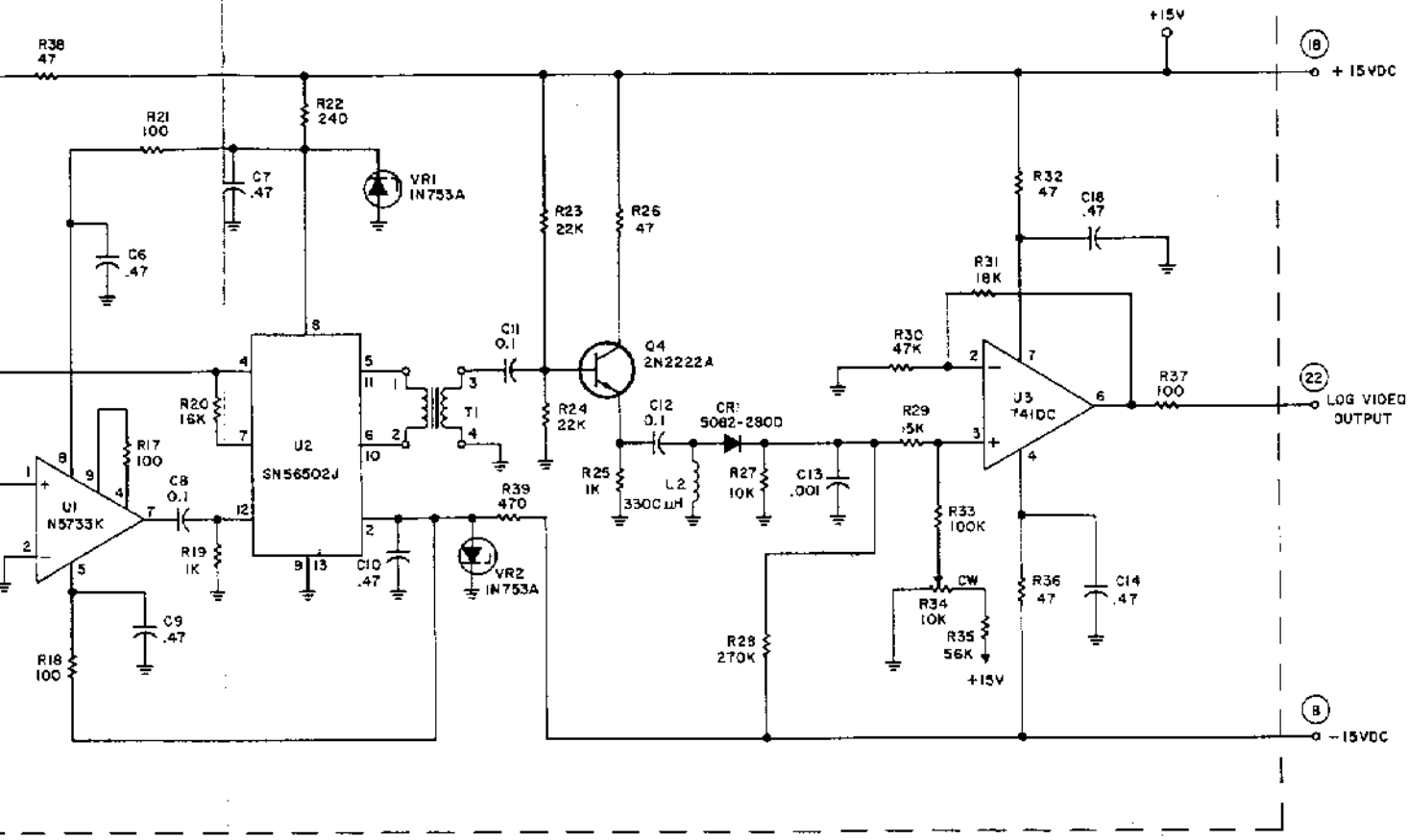
DETAIL A

DETAIL B



DETAI





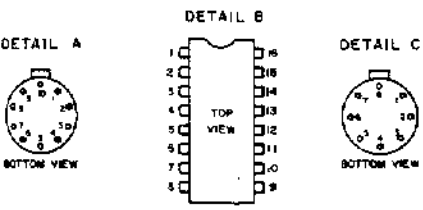
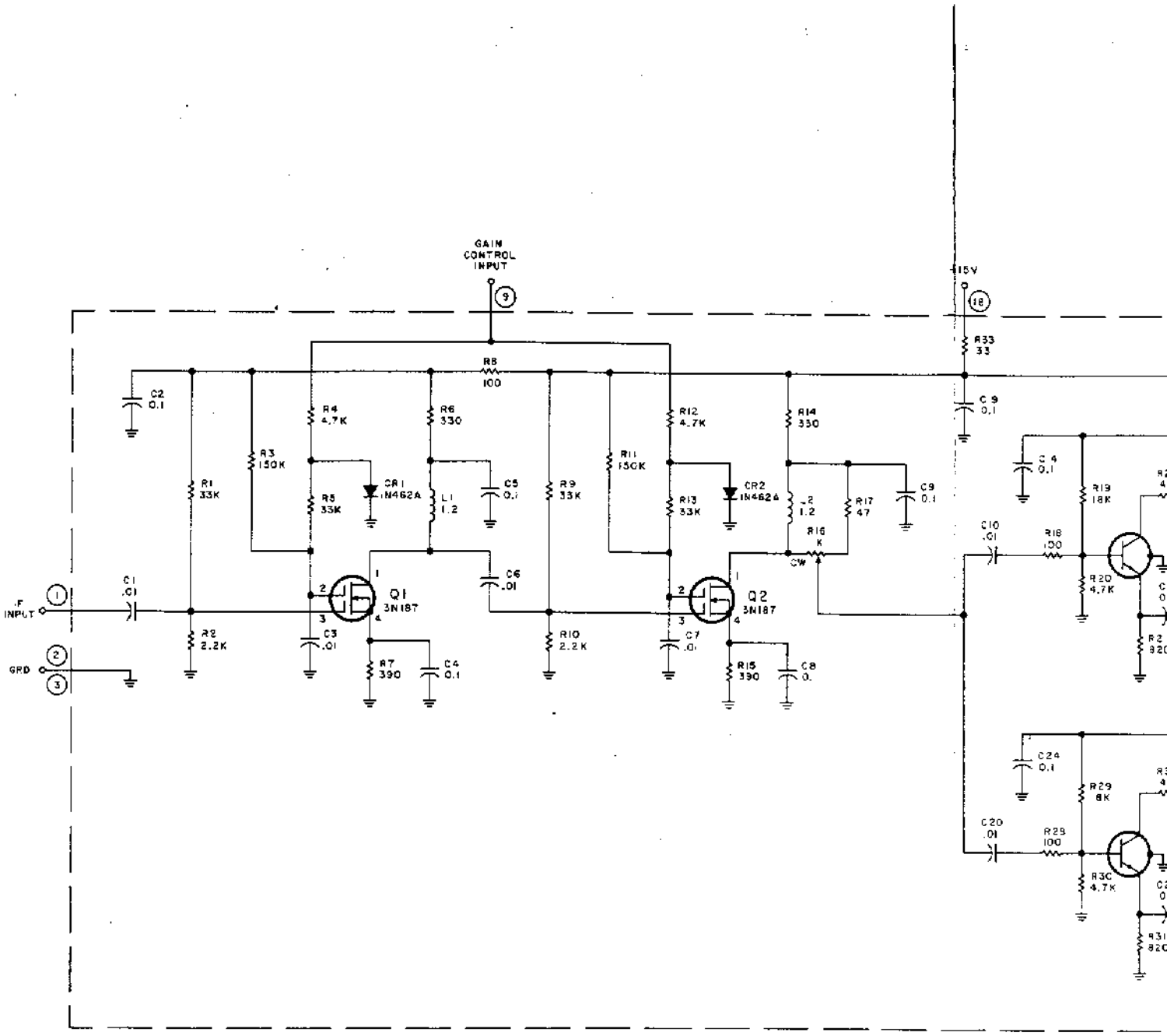


Figure 7-10. Type 791451 Log IF Amplifier (A7), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4 W.
   b) CAPACITANCE IS IN μF.
   c) INDUCTANCE IS IN mH.
2. CW ON R16 INDICATES CLOCKWISE ROTATION OF ACTUATOR.
3. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.

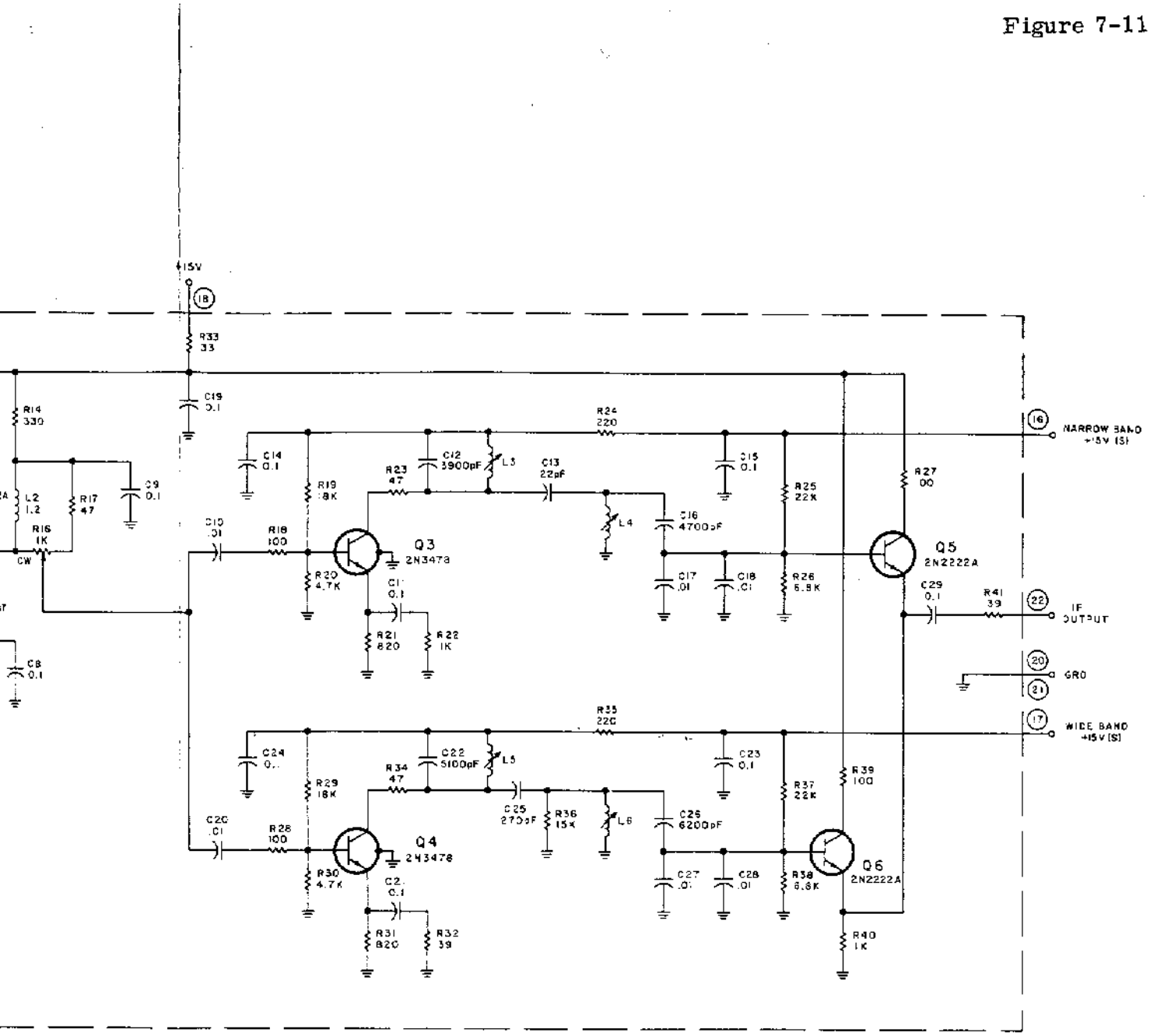
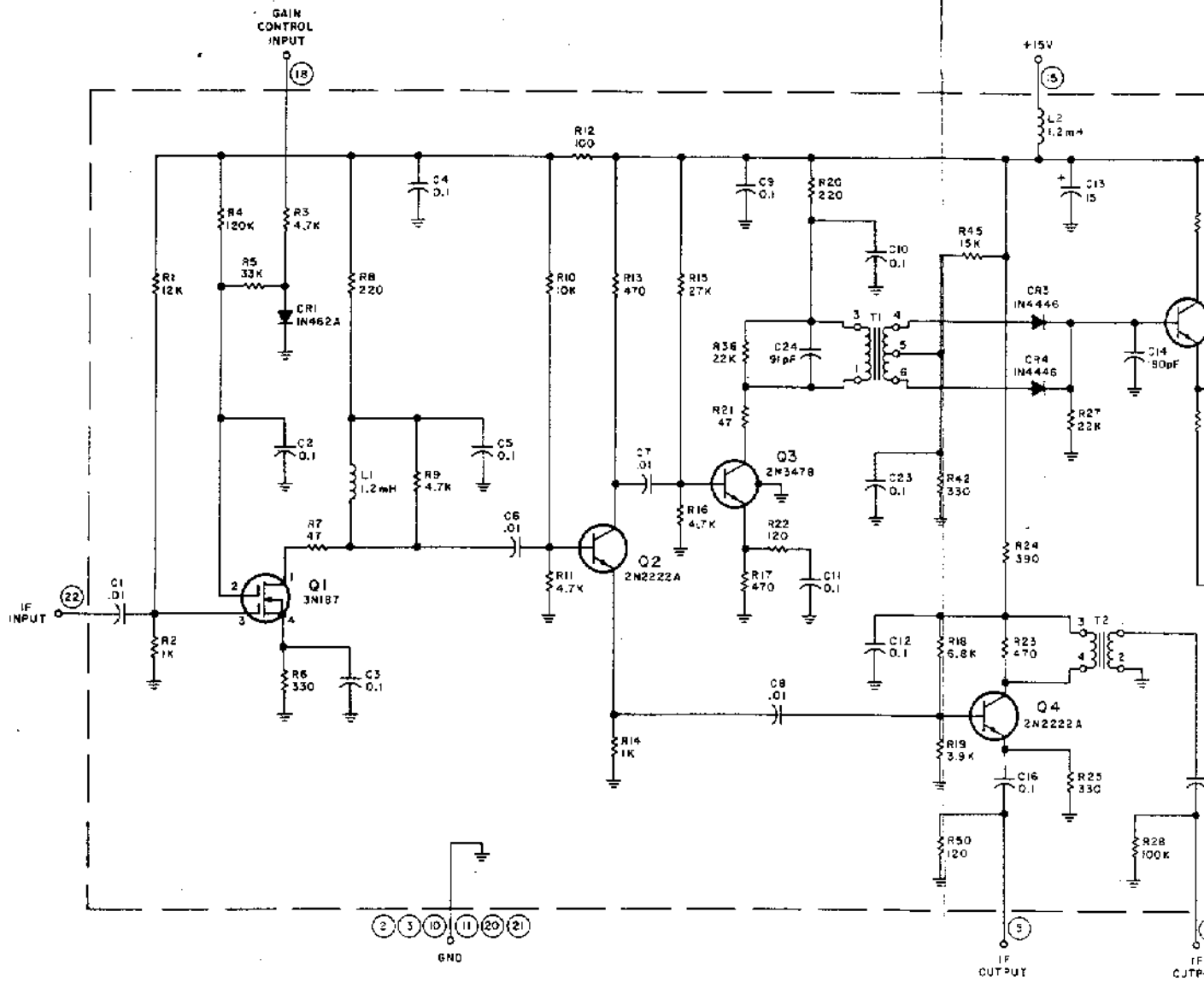


Figure 7-11. Type 72409 455 kHz IF Amplifier (A8), Schematic Diagram

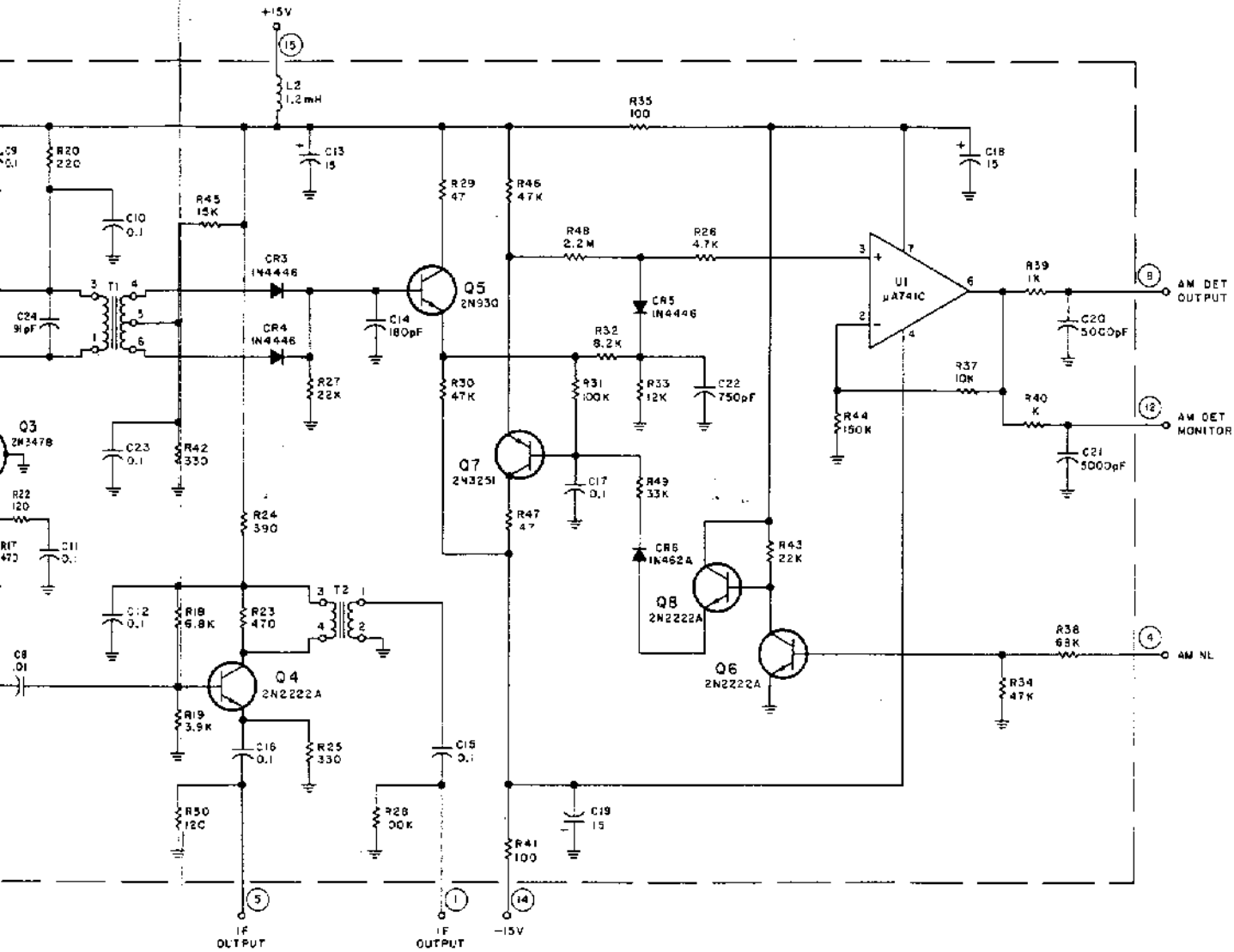


NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, ¼W.
   b) CAPACITANCE IS IN µF.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. LEAD ARRANGEMENT FOR U1 IS SHOWN IN DETAIL A.

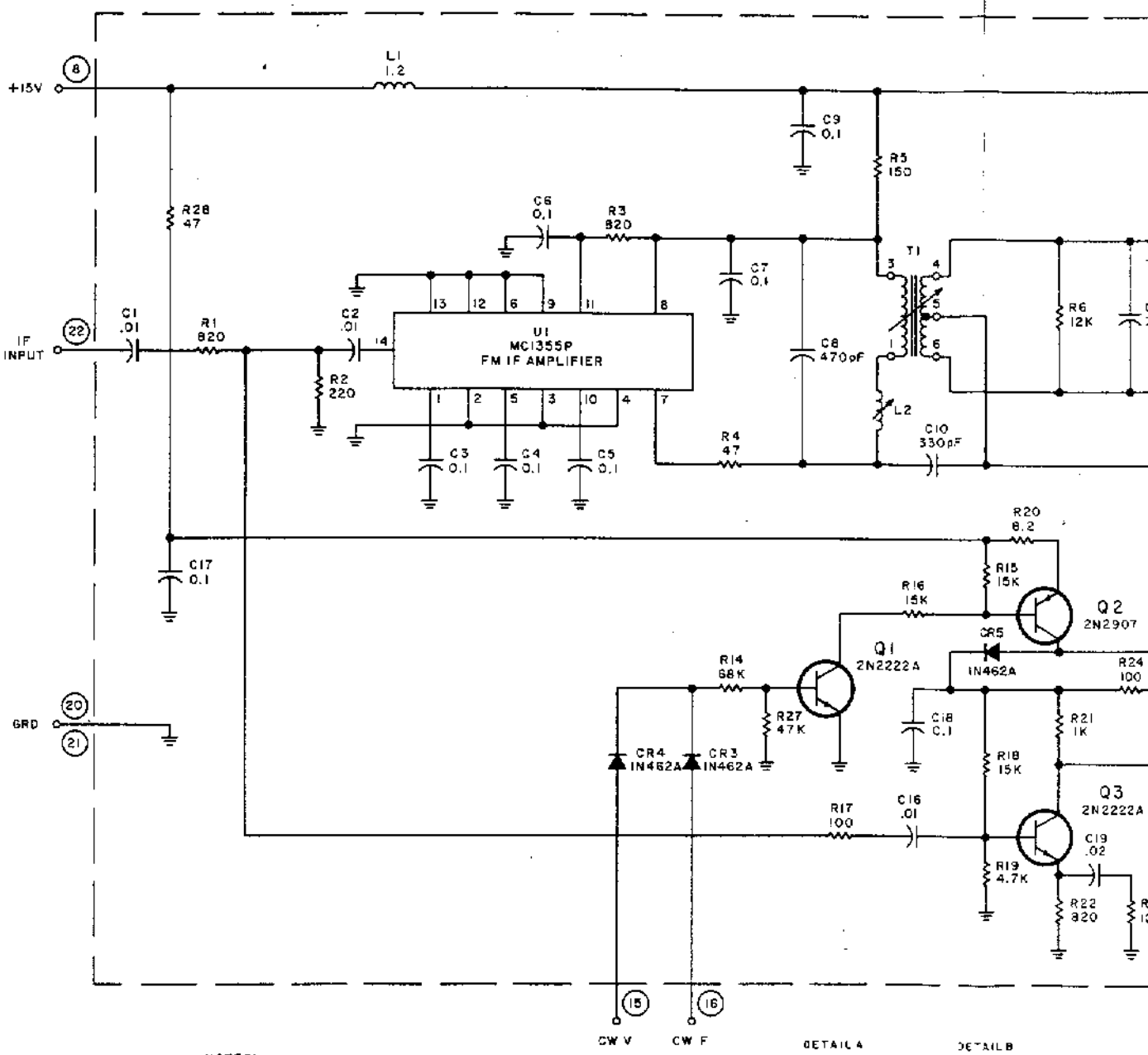
DETAIL A

HIGHEST REF DESIG USED	REF DESIG NOT USED
C23	
CR6	
L2	
Q6	
R50	
T2	
U1	



HIGHEST REF DESIG USED	REF DESIG NOT USED
C23	
CR6	
L2	
Q8	
R50	
T2	
U1	

Figure 7-12. Type 791113 AM Demodulator (A9), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN μF.
   c) INDUCTANCE IS IN μH.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. LEAD ARRANGEMENT FOR U1 IS SHOWN IN DETAIL A.
4. LEAD ARRANGEMENT FOR U2 IS SHOWN IN DETAIL B.

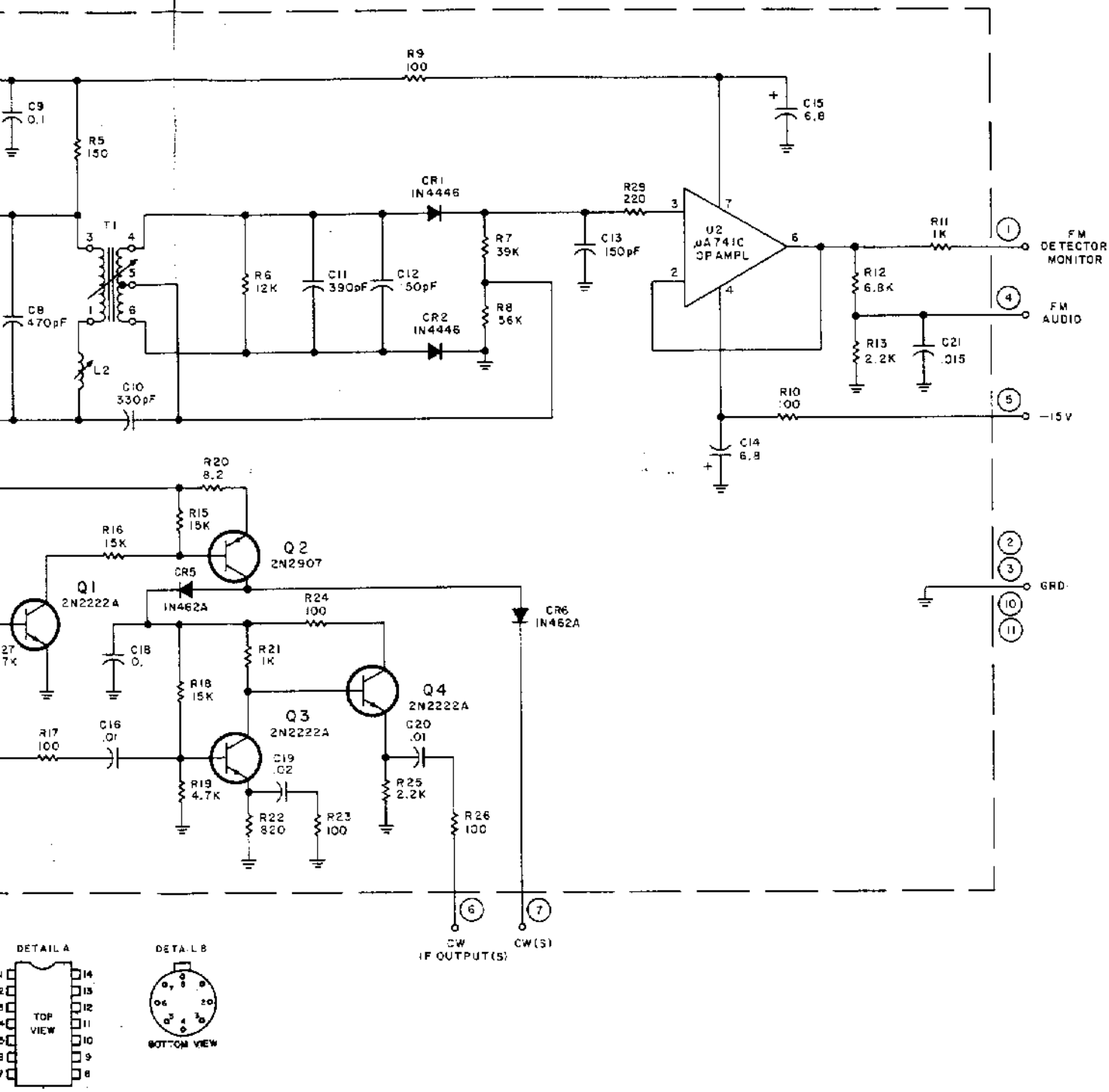
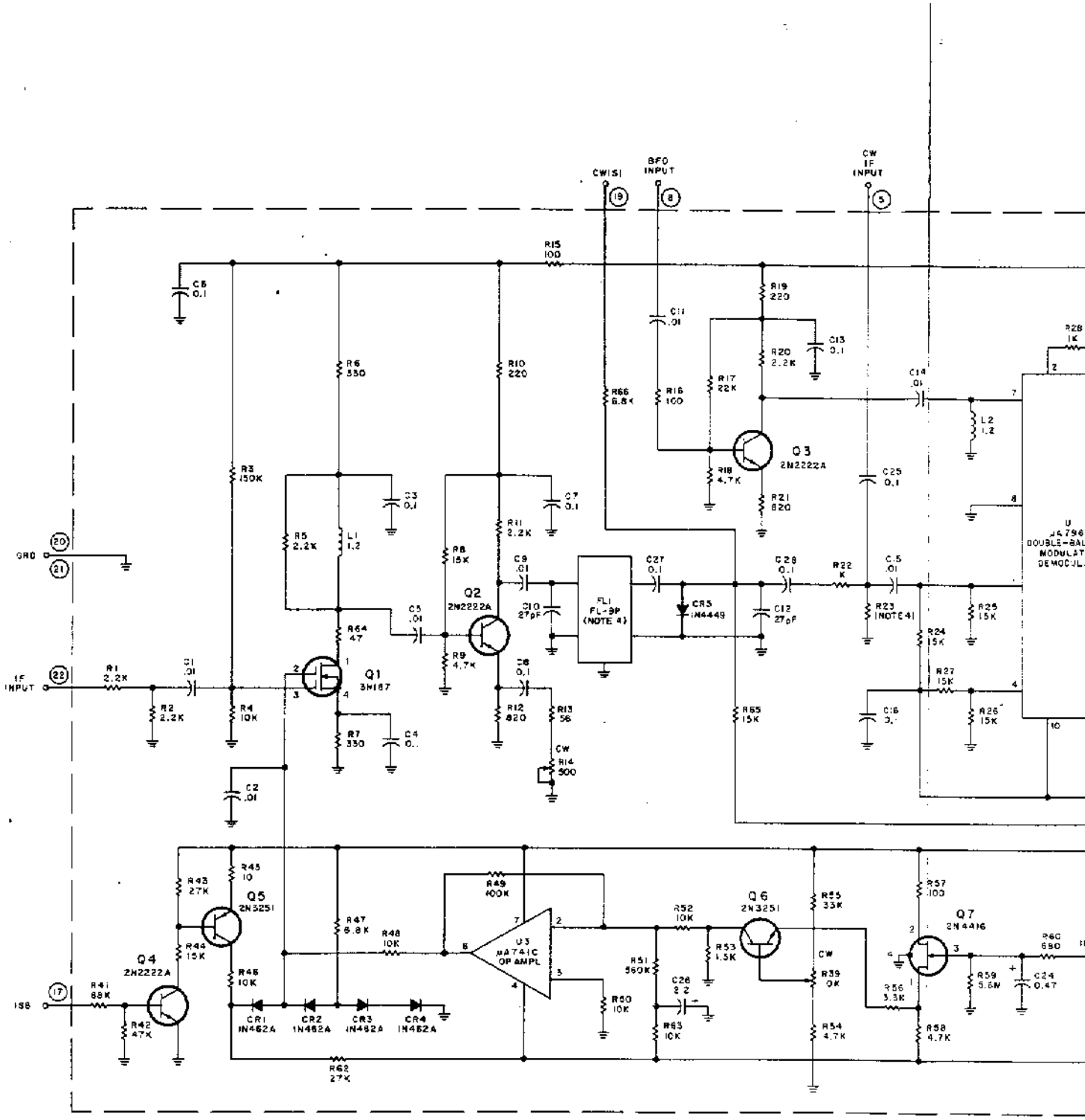


Figure 7-13. Type 791162 FM Demodulator (A10), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN μF.
   c) INDUCTANCE IS IN mH.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. CW ON R14 INDICATES CLOCKWISE ROTATION OF ACTUATOR
4. DIFFERENCE BETWEEN TYPE NUMBERS IS SHOWN IN DETAIL A.
5. LEAD ARRANGEMENT FOR U1 IS SHOWN IN DETAIL B.
6. LEAD ARRANGEMENT FOR U2, U3 IS SHOWN IN DETAIL C.

DETAIL A

TYPE	FL1	MODE	R23
791180-1	526-9685-010	LSB/CW	2.4K
791180-2	526-9686-010	LSB/CW	1.2K

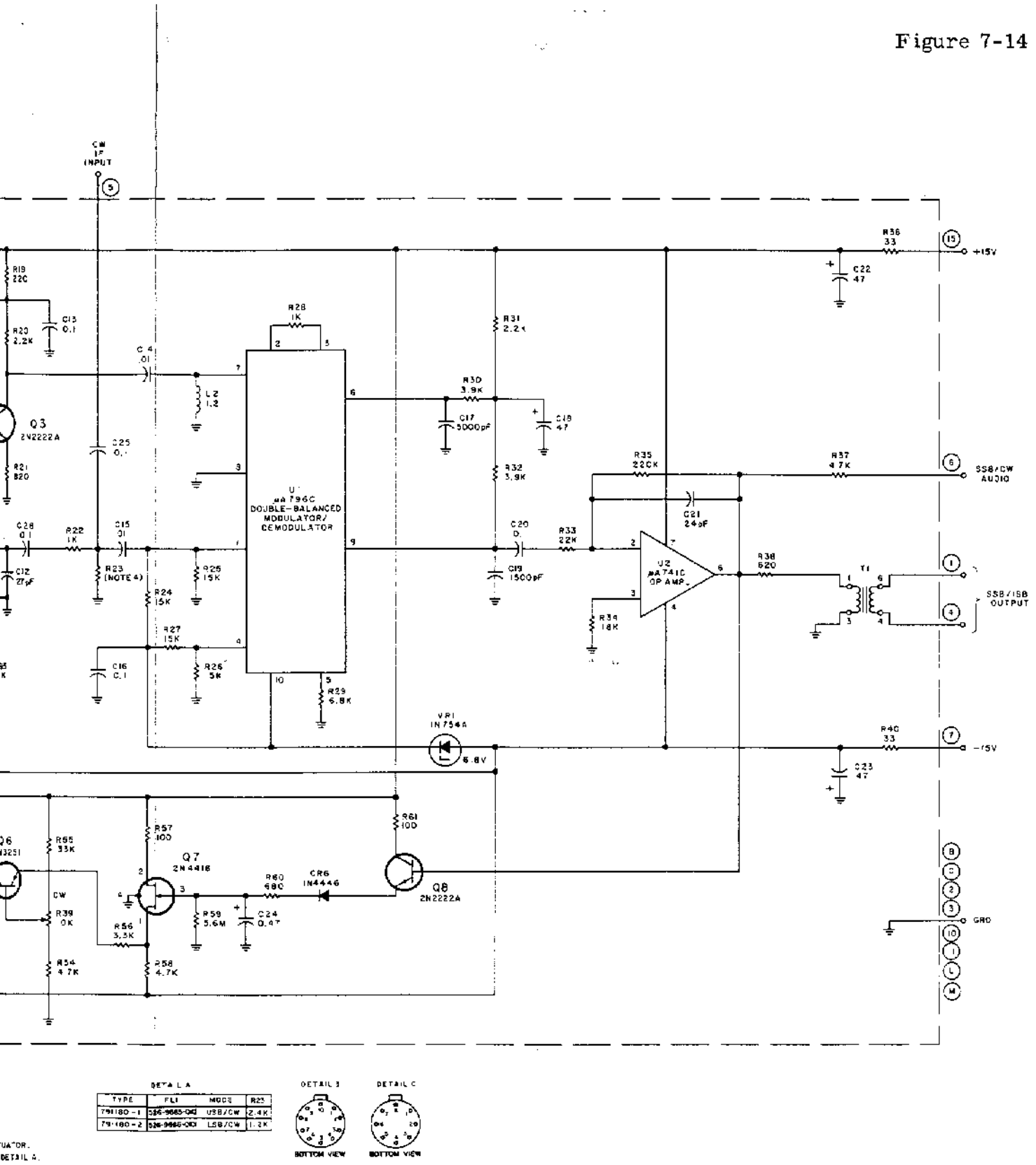
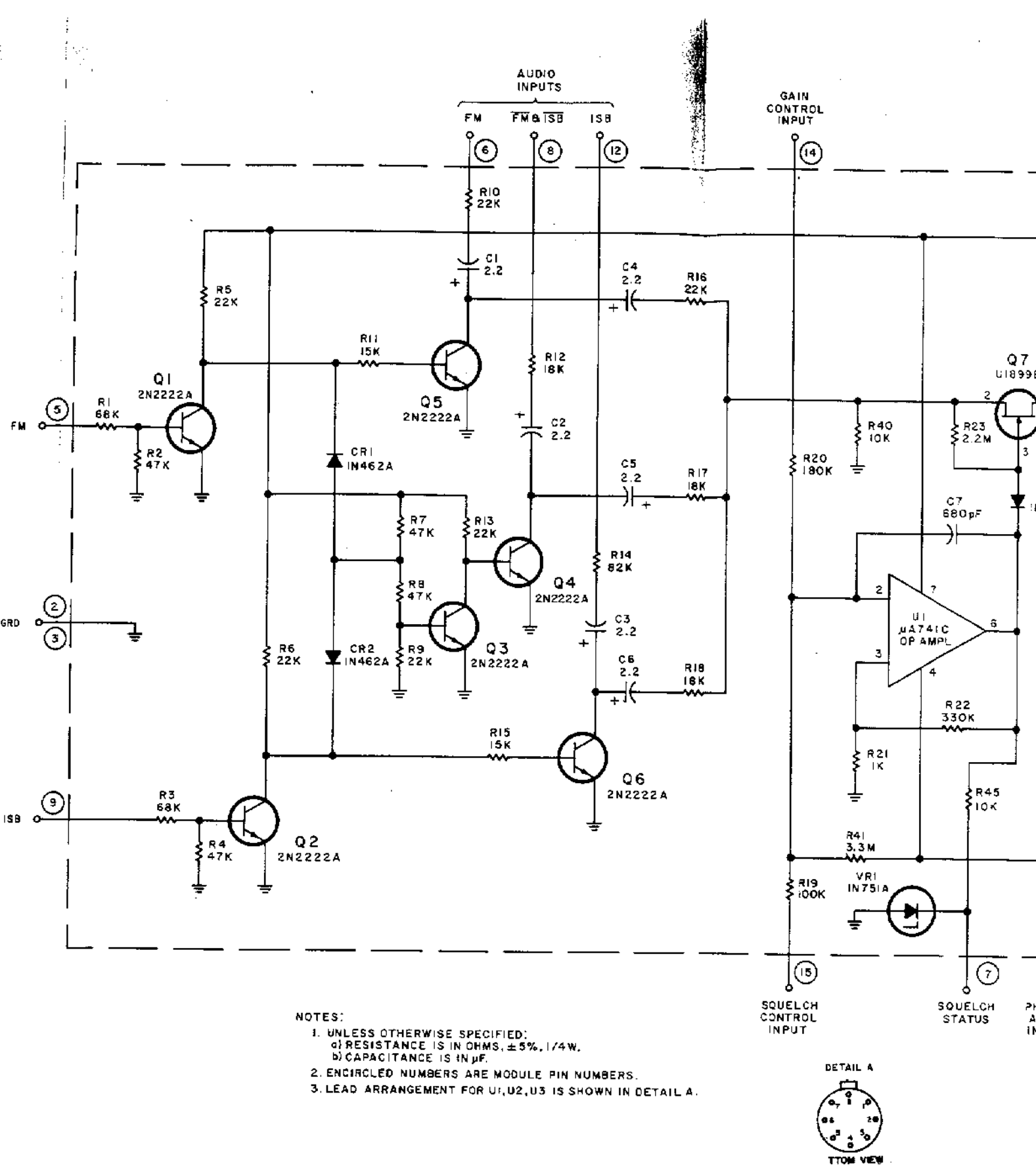


Figure 7-14. Type 791180-(X) LSB/USB/CW Demodulator (A11, A12), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN µF.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. LEAD ARRANGEMENT FOR U1, U2, U3 IS SHOWN IN DETAIL A.

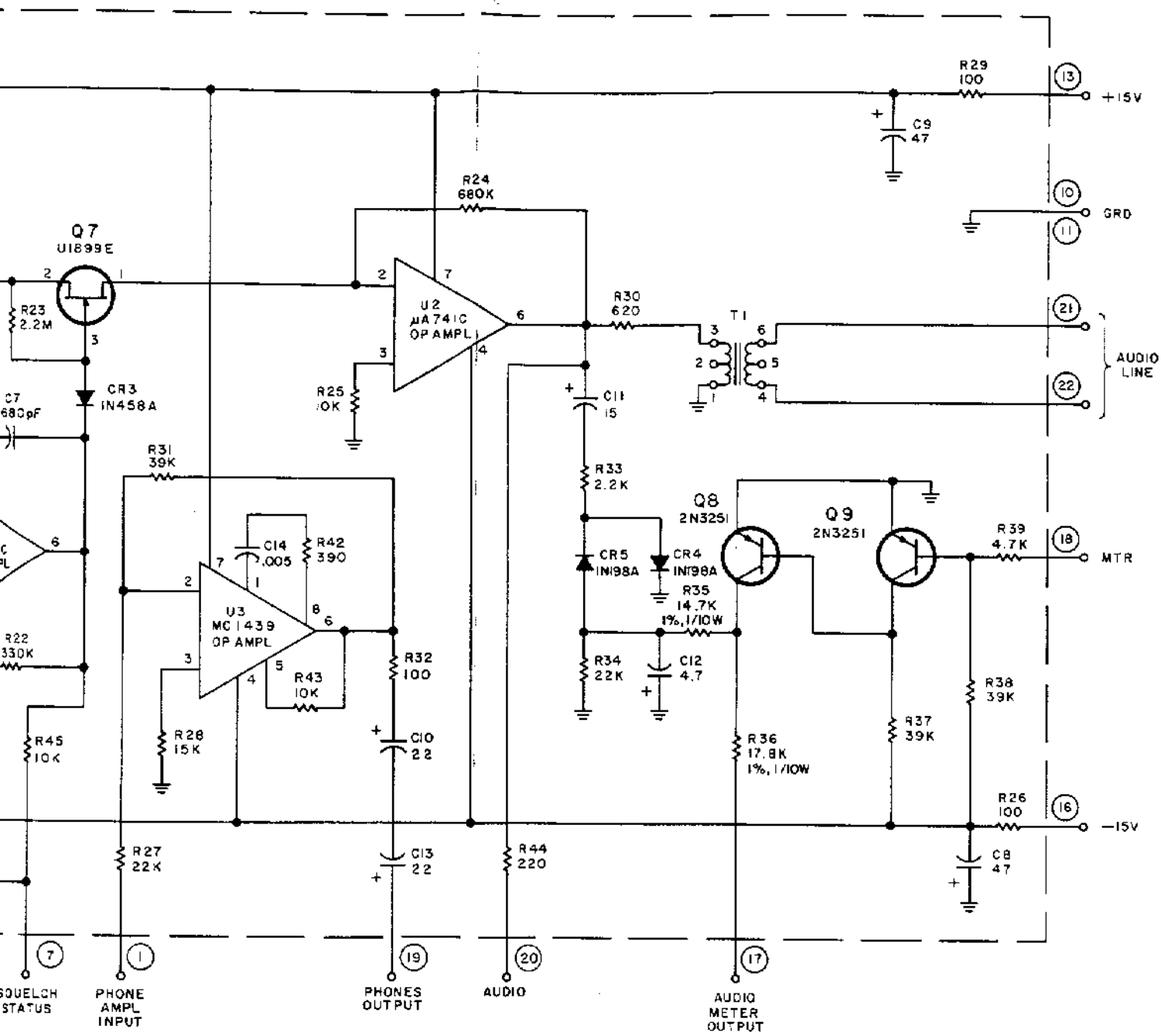
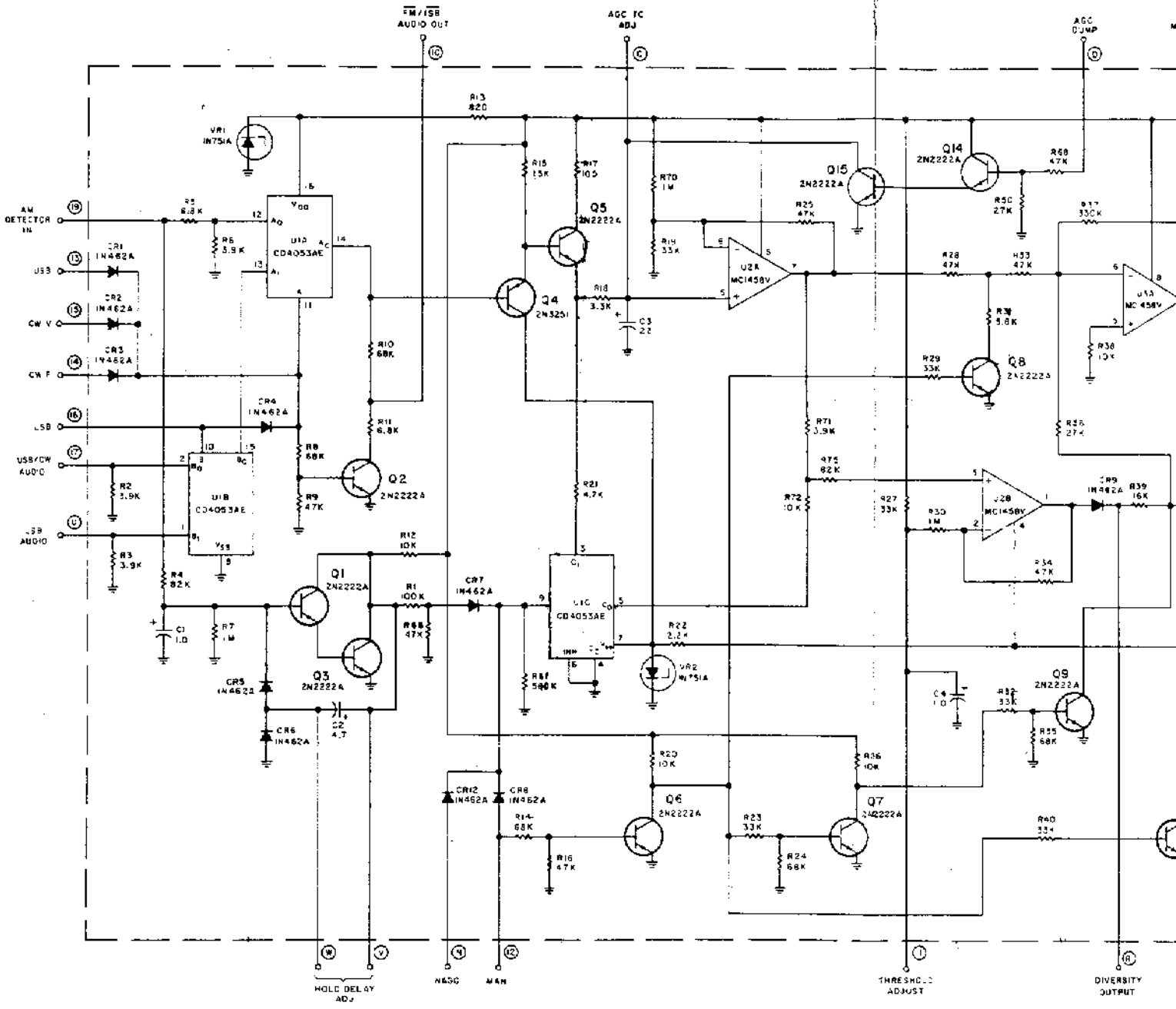


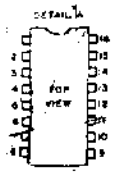
Figure 7-15. Type 7453 Audio Amplifier (A13), Schematic Diagram



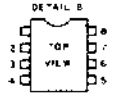
NOTES:

1. UNLESS OTHERWISE SPECIFIED
   a) RESISTANCE IS IN OHMS, ±5%, 1/4 W
   b) CAPACITANCE IS IN µF
2. PIN ARRANGEMENT FOR U1, SEE DETAIL A
3. PIN ARRANGEMENT FOR U2,U3, U4, SEE DETAIL B

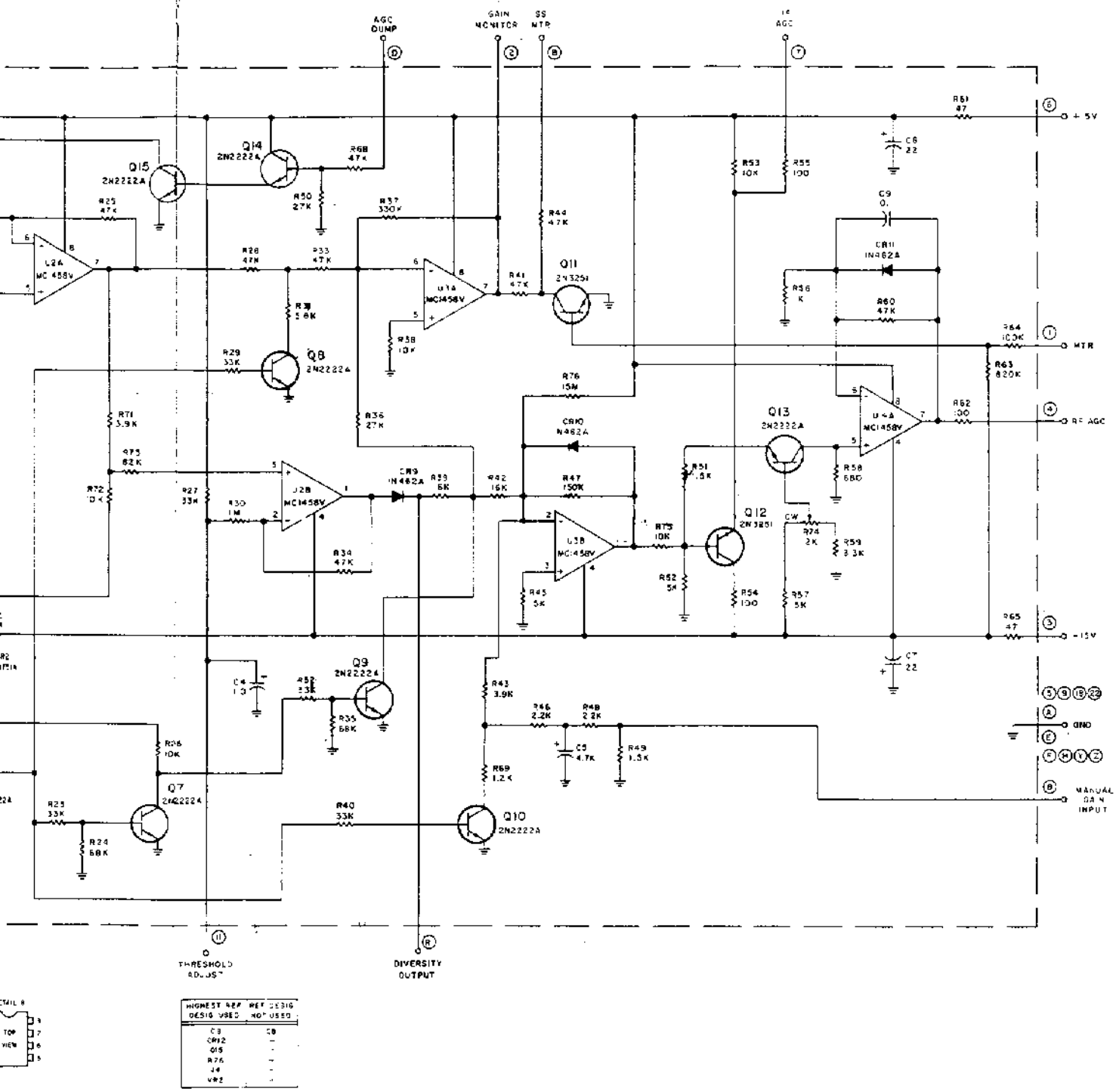
DETAIL A



DETAIL B

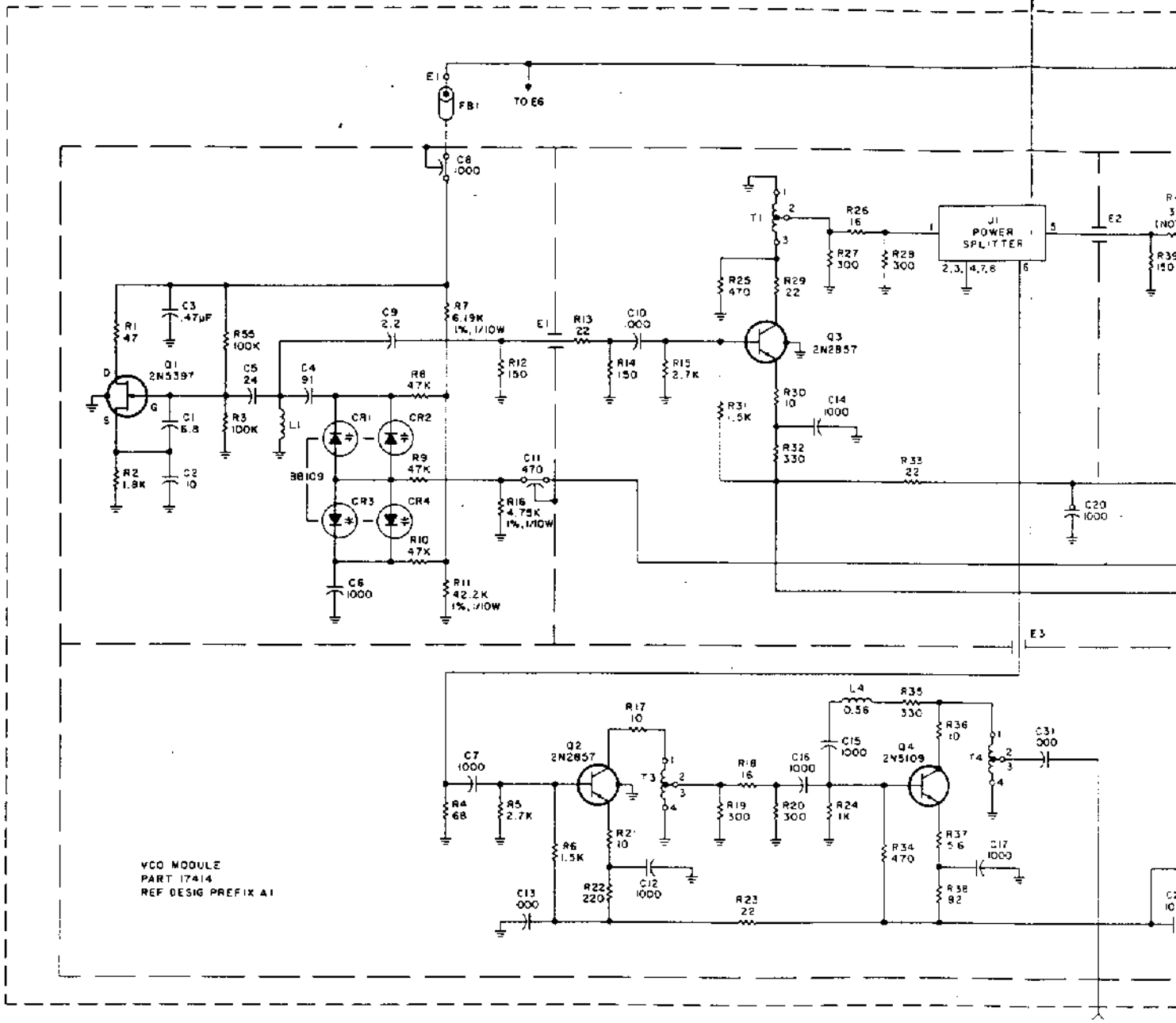


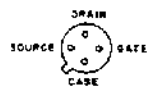
HIGHEST REF DESIG USED	REF DESIG NOT USED
C9	C9
CR12	–
J15	–
R76	–
U4	–
VR2	–



HIGHEST REF DESIG USED	NEXT REF DESIG NOT USED
C9	C10
CR12	–
Q15	–
R76	–
J4	–
VR2	–

Figure 7-16. Type 7899 Gain Control Amplifier (A14), Schematic Diagram



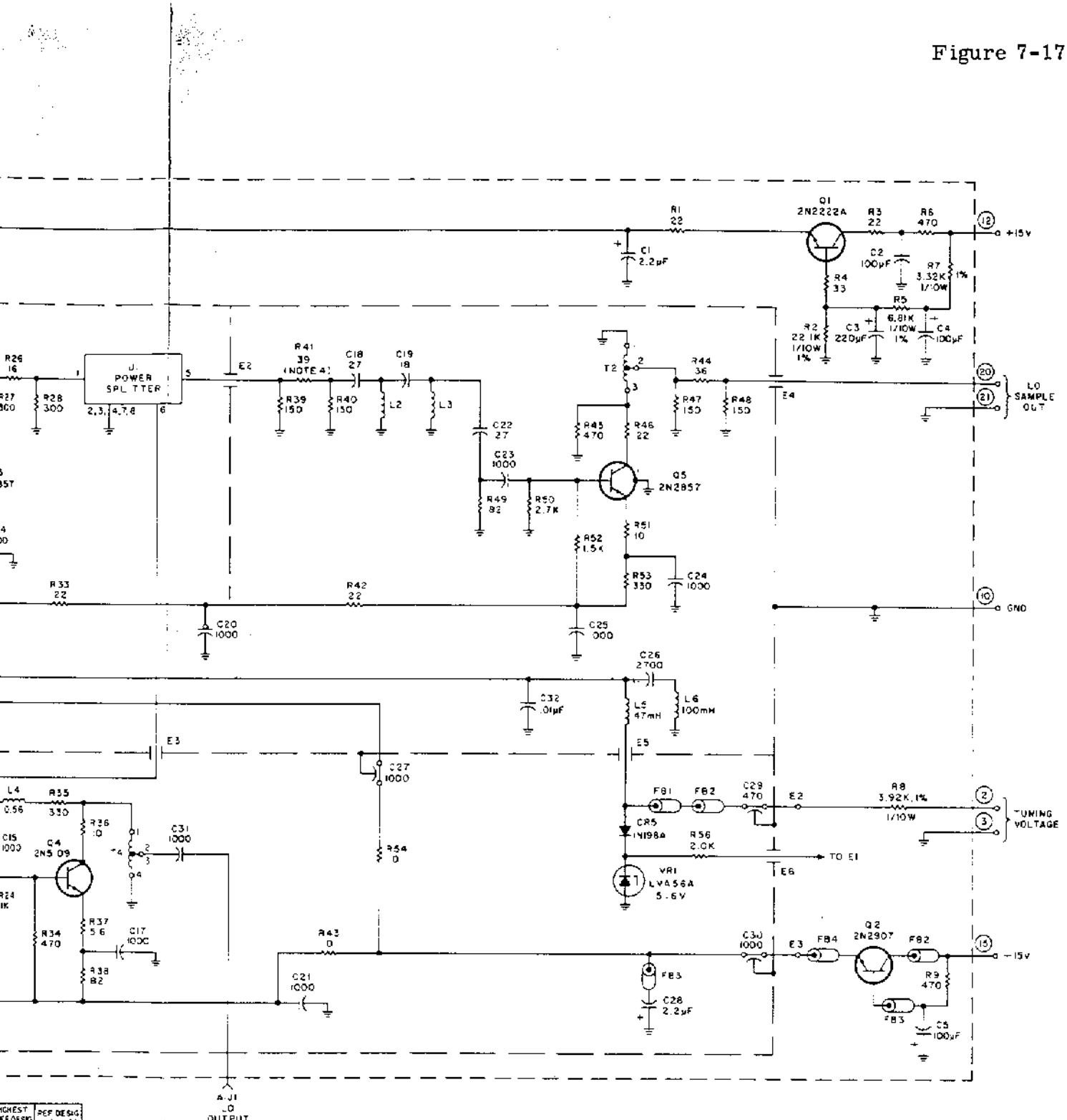


DETAIL A

NOTES

1. UNLESS OTHERWISE SPECIFIED.
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN pF.
   c) INDUCTANCE IS IN μH.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS
3. FOR A1Q1 LEAD ARRANGEMENT, SEE DETAIL A
4. NOMINAL VALUE. FINAL VALUE FACTORY SELECTED

HIGHEST REF DESIG USED	REF DESIG NOT USED
A1 C32	
A1 CR5	
A1 E5	
A1 FB3	
A1 J1	
A1 L5	
A1 Q5	
A1 R55	
A1 T4	
A1 U1	
A1 VR1	



HIGHEST REF DESIG USED	REF DESIG NOT USED
A1 C32	
A1 CR5	
A1 E5	
A1 FB3	
A1 J1	
A1 L6	
A1 Q5	
A1 R35	
A1 T4	
A1 J1	
A1 VR1	

Figure 7-17. Type 791271 VCO (A15), Schematic Diagram

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN μF.
2. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PIN NUMBERS.
3. LEAD ARRANGEMENT FOR IC'S IS SHOWN AS FOLLOWS: U1, U2, U4-U6 DETAIL A; U3, U7-U9: DETAIL B.
4. Vcc AND GROUND PINS FOR U1-U9 ARE AS FOLLOWS:

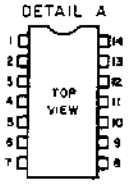
	U1, U2, U6	U3	U4	U5	U7	U8, U9
+5V	14	1,	14	12, 13, 14	1, 11	7, 9, 16
GND	7	8	3, 4, 5, 6, 7	7	8	8

5. DIFFERENCE BETWEEN TYPE NUMBERS IS AS FOLLOWS:

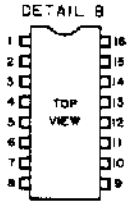
TYPE	JW1	JW2
791200-1	USED	OMIT
791200-2	OMIT	USED

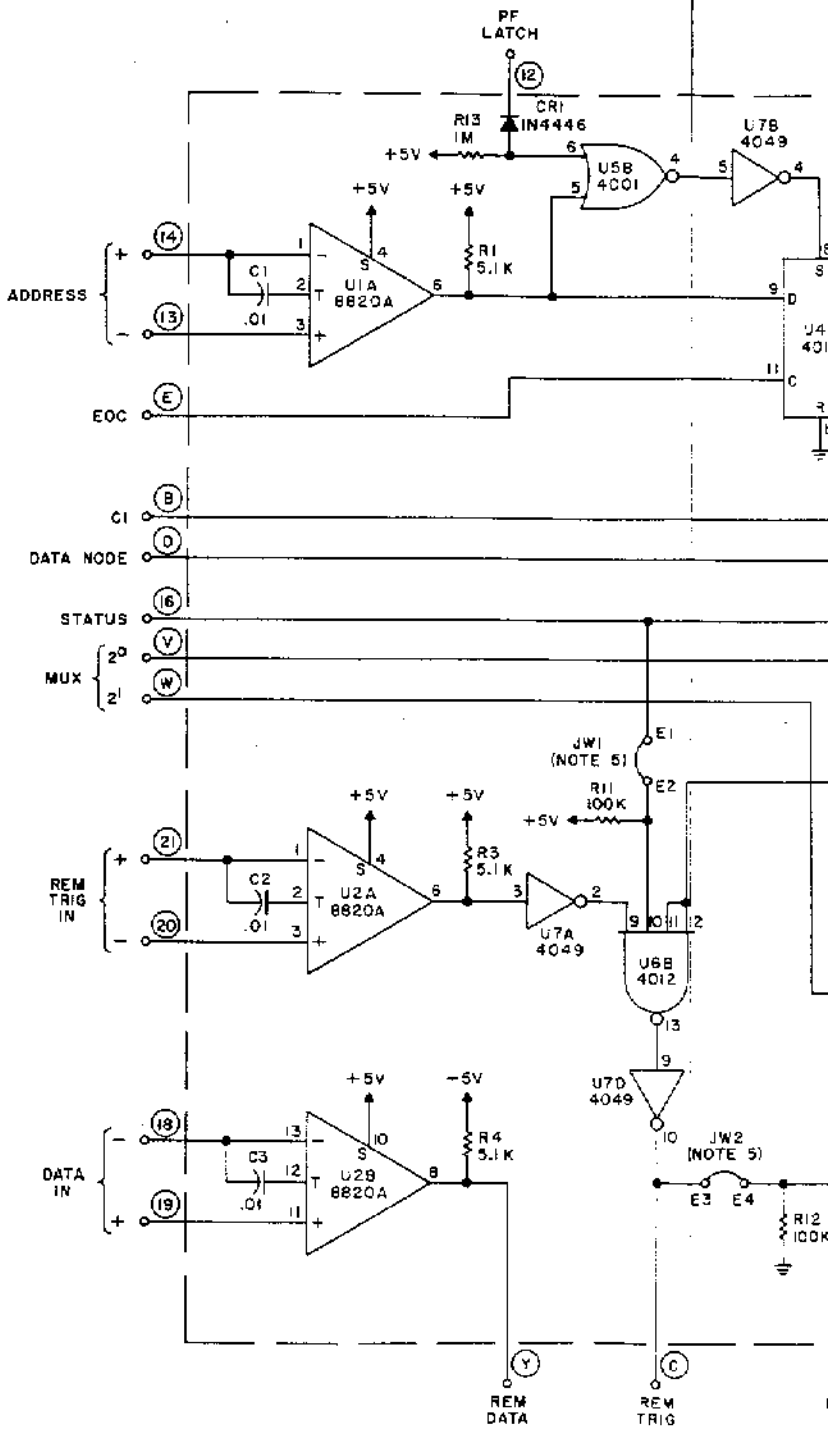
HIGHEST REF DESIG USED	REF DESIG NOT USED
C9 CR1 E4 JW2 R13 U9	

DETAIL A



DETAIL B





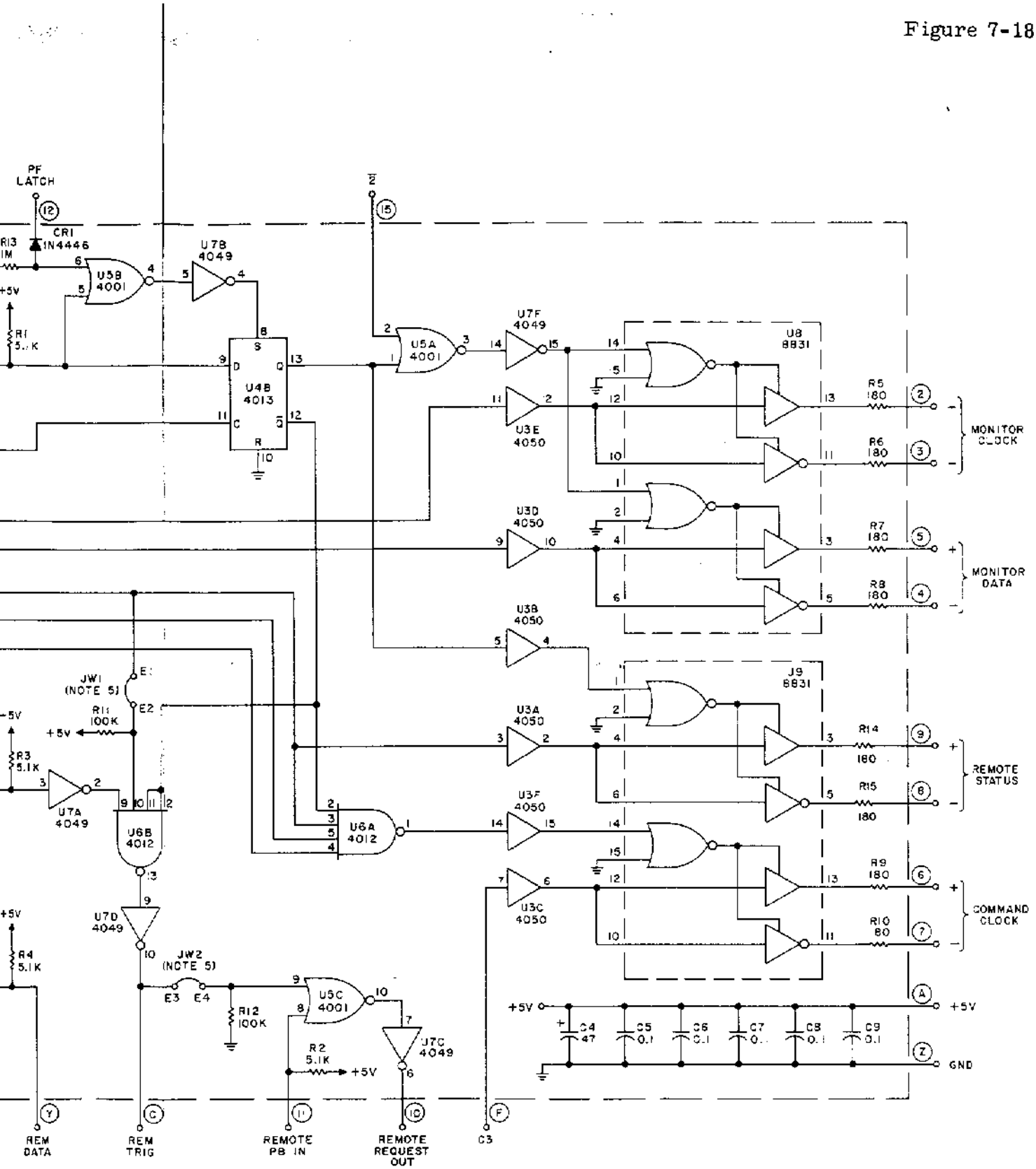
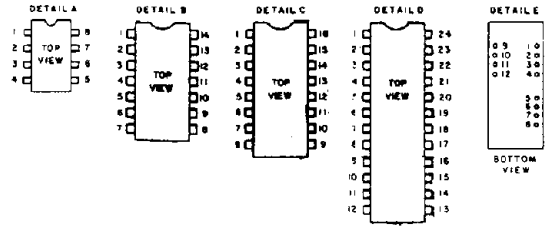


Figure 7-18. Type 791200 Synchronous Remote I/O (A16), Schematic Diagram



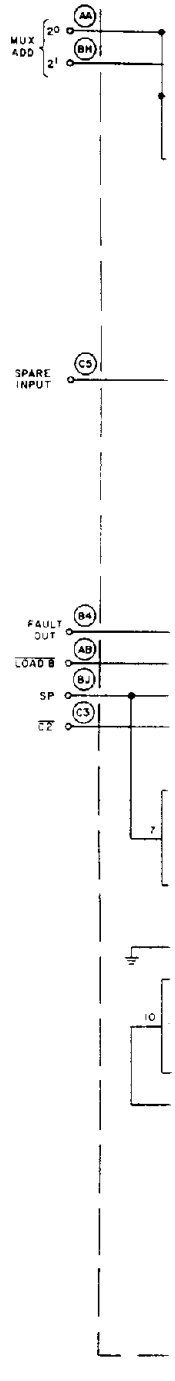
DETAIL F

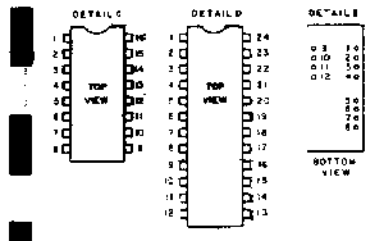
IC	U1	U2–U12	U13–U19	U24–U28	U29	U30	U31	U32	U33	U34	U35	U36	U37	U38	U39
GRD	12	8	11	8	11	7		11	8	7	7	8	7	7	12
+5V	24	16	4	1		14			16	14	14	16	16	14	14
+15V					8	5	8	8							3
-15V						4	4								11

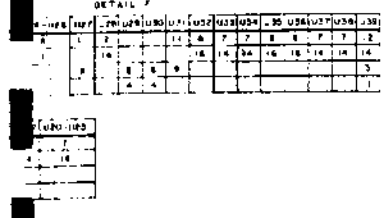
IC	U40	U41–U44	U45	U46	U47	U20–U23
GRD	7	8	8	12	7	7
+5V	14	16	1	14	14	16
+15V				3		
-15V				11		

NOTES:

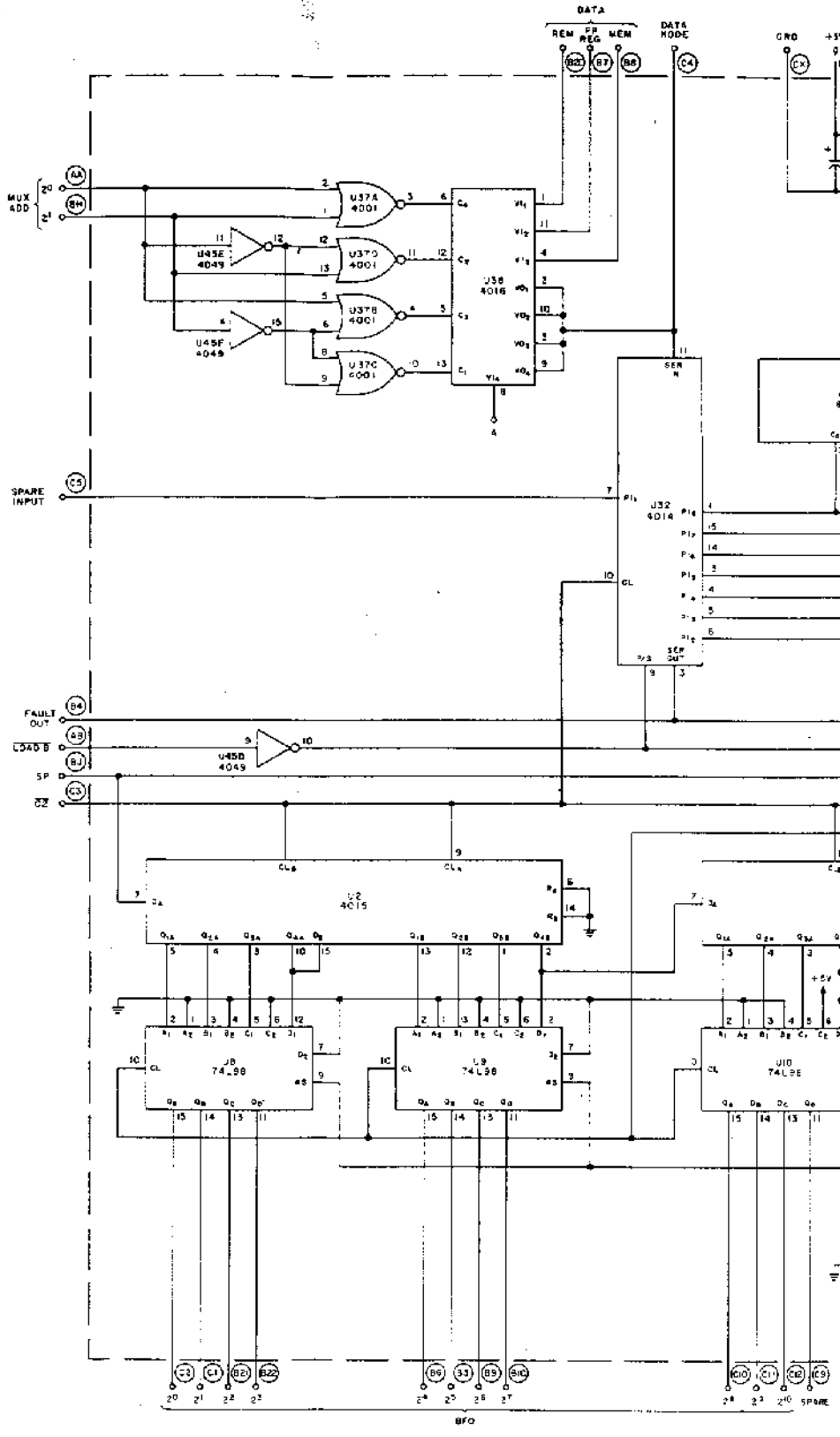
1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN μF.
2. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PINS.
3. LEAD ARRANGEMENT FOR U29, U30 IS SHOWN IN DETAIL A.
4. LEAD ARRANGEMENT FOR U13 THRU U23, U28, U33, U34, U37, U38, U39, U40, U46, AND U47 IS SHOWN IN DETAIL B.
5. LEAD ARRANGEMENT FOR U2 THRU U12, U24, U25, U26, U32, U35, U36, AND U41 THRU U45 IS SHOWN IN DETAIL C.
6. LEAD ARRANGEMENT FOR U1 IS SHOWN IN DETAIL D.
7. LEAD ARRANGEMENT FOR U27, U31 IS SHOWN IN DETAIL E.
8. V_{CC} AND GROUND PINS FOR U1 THRU U47 ARE SHOWN IN DETAIL F.

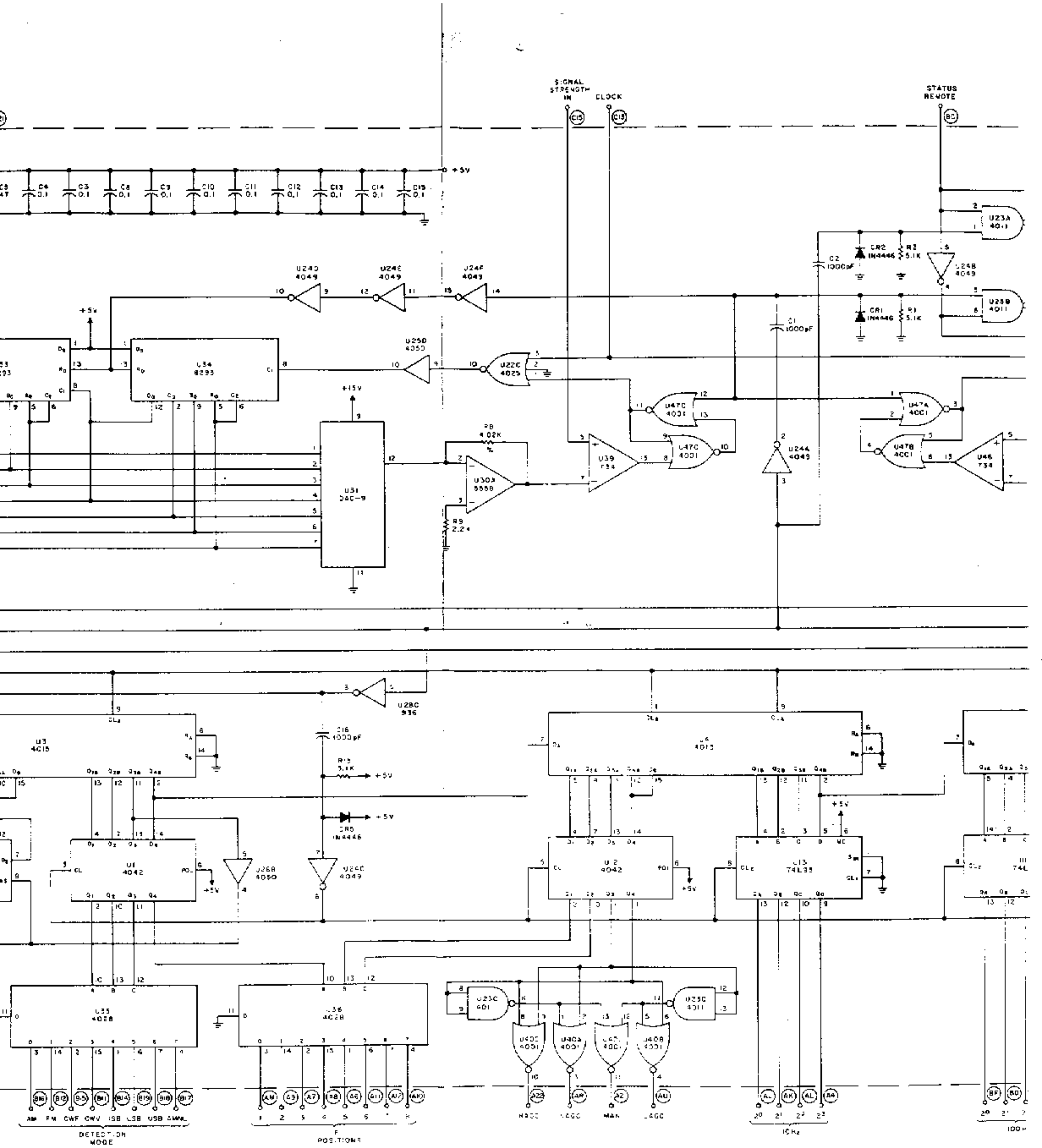




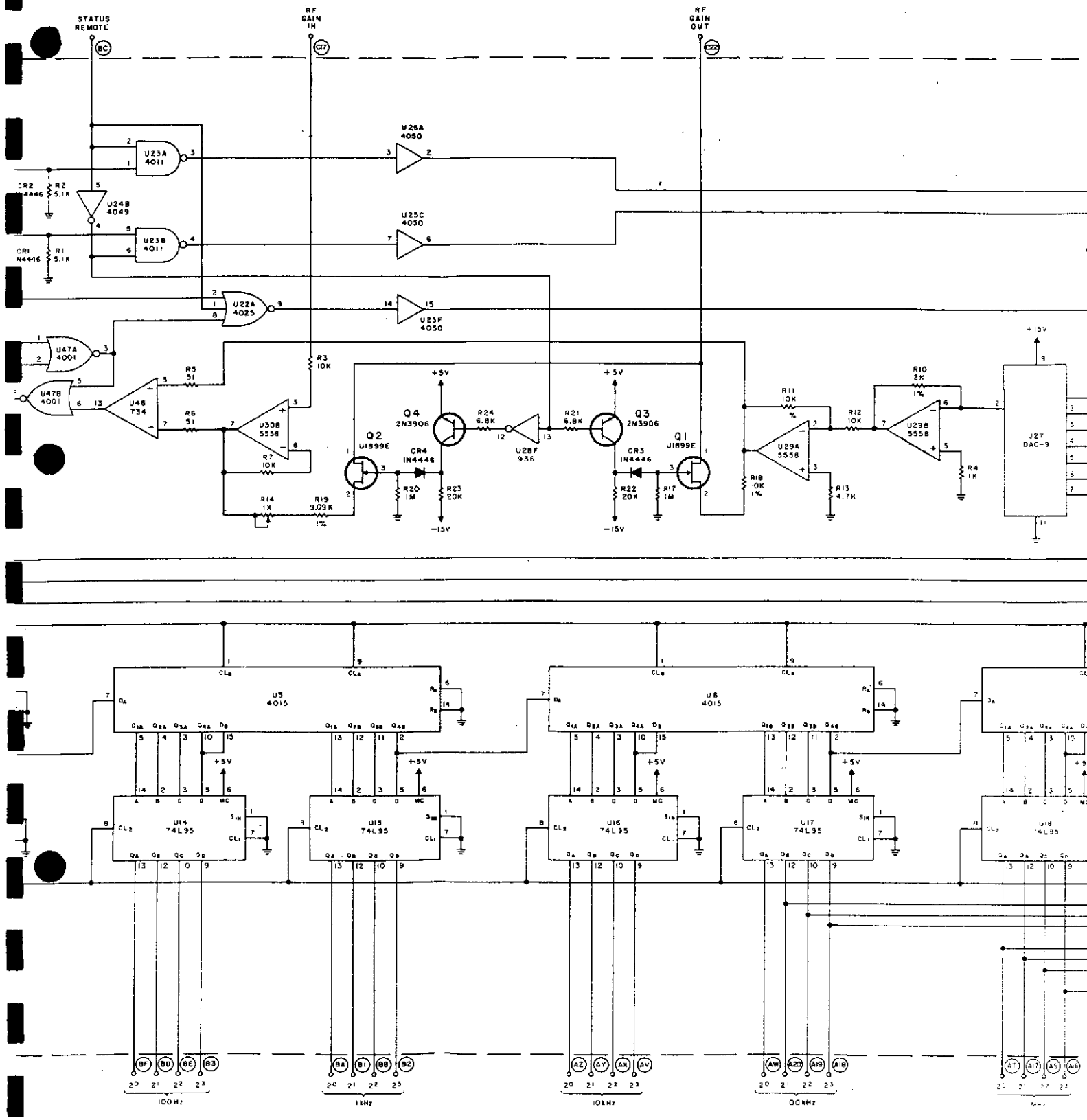


E SPEC FIED.
N OHMS, ± 5%, 1/4W.
S IN pF.
ERS (LETTERS) ARE MODULE PINS.
NT FOR U29, U30 IS SHOWN IN DETA _ 4.
NT FOR U13 THRU U23, U28, U33, U34, U37, U38 U39,
S SHOWN IN DETAIL B.
NT FOR U2 THRU U-2, U24, U25, U26, U32, U35, L36, AND
HOWN IN DETAIL C
T FOR J1 IS SHOWN IN DETAIL D.
T FOR U37, U31 IS SHOWN IN DETAIL E.
NS FOR U1 THRU U47 ARE SHOWN IN DETAIL F





SIGNAL STRENGTH IN
CLOCK
STATUS REMOTE
+5V
C4 0.1
C3 0.1
C8 0.1
C9 0.1
C10 0.1
C11 0.1
C12 0.1
C13 0.1
C14 0.1
C15 0.1
U24D 4049
U24E 4049
U24F 4049
U25D 4050
U22C 4025
U34 8293
U31 DAC-9
+15V
R8 4.02K
U30A 5558
R9 2.2K
U39 734
U47C 4001
U47D 4001
U24A 4049
C1 1000pF
C2 1000pF
CR2 1N4446
R2 5.1K
CR1 1N4446
R1 5.1K
U23A 4011
U24B 4049
U23B 4011
U47A 4001
U47B 4001
U46 734
U28C 936
U3 4015
C16 1000pF
R15 5.1K
CR5 1N4446
U1 4042
U26B 4050
U24C 4049
U4 4015
U12 4042
U13 74L35
U35 4028
U36 4028
U23C 4011
U23D 4011
U40C 4001
U40A 4001
U40D 4001
U40B 4001
AM FM CWF CWV ISB LSB USB AM NL
DETECTION MODE
1 2 3 4 5 6 7 8
IF POSITIONS
NAGC
AGC
MAN
LAGC
2^0 2^1 2^2 2^3
1KHz
100H


STATUS REMOTE
RF GAIN IN
RF GAIN OUT
U23A 4011
U23B 4011
U24B 4049
U26A 4050
U25C 4050
U25F 4050
U22A 4025
U47A 4001
U47B 4001
U46 734
U30B 5558
U29A 5558
U29B 5558
Q1 U1899E
Q2 U1899E
Q3 2N3906
Q4 2N3906
U28F 936
CR1 IN4446
CR2 IN4446
CR3 IN4446
CR4 IN4446
R1 5.1K
R2 5.1K
R3 10K
R4 1K
R5 51
R6 51
R7 10K
R10 2K
R11 10K
R12 10K
R13 4.7K
R14 1K
R17 1M
R18 10K
R19 9.09K
R20 1M
R21 6.8K
R22 20K
R23 20K
R24 6.8K
+5V
+15V
-15V
U27 DAC-9

U3 4015
U6 4015
U14 74L95
U15 74L95
U16 74L95
U17 74L95
U18 74L95
+5V
100 Hz
1 kHz
10 kHz
100 kHz
1 MHz

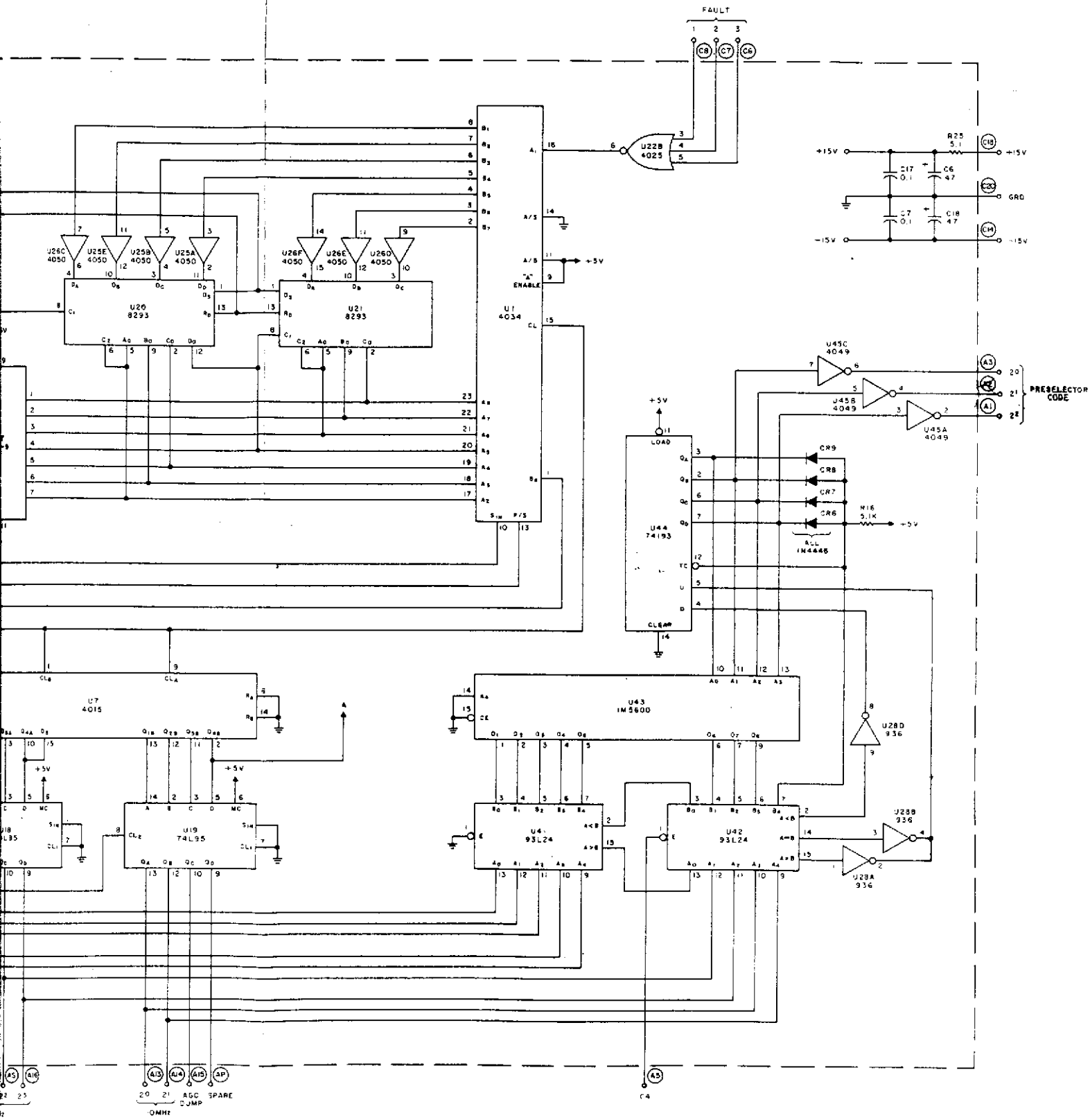
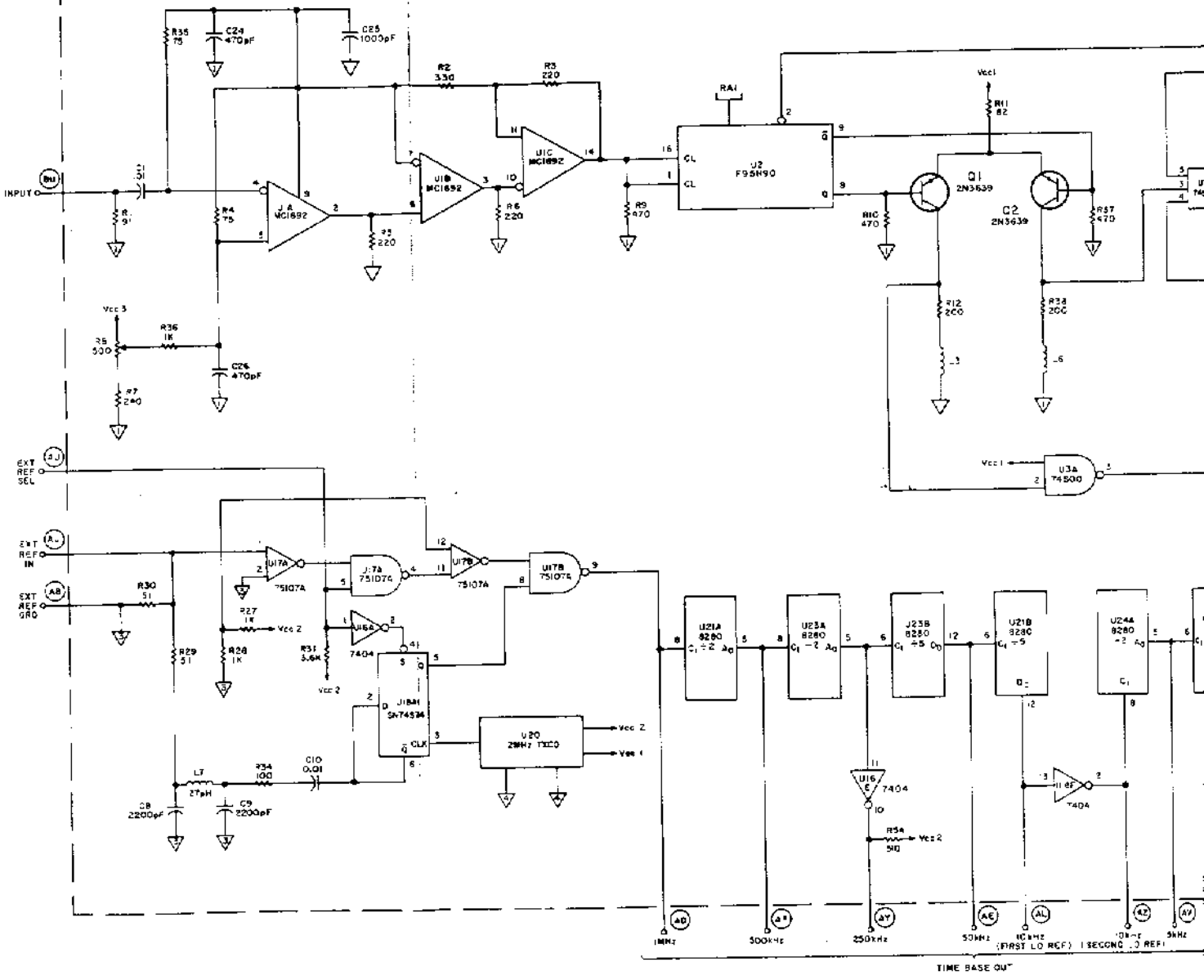
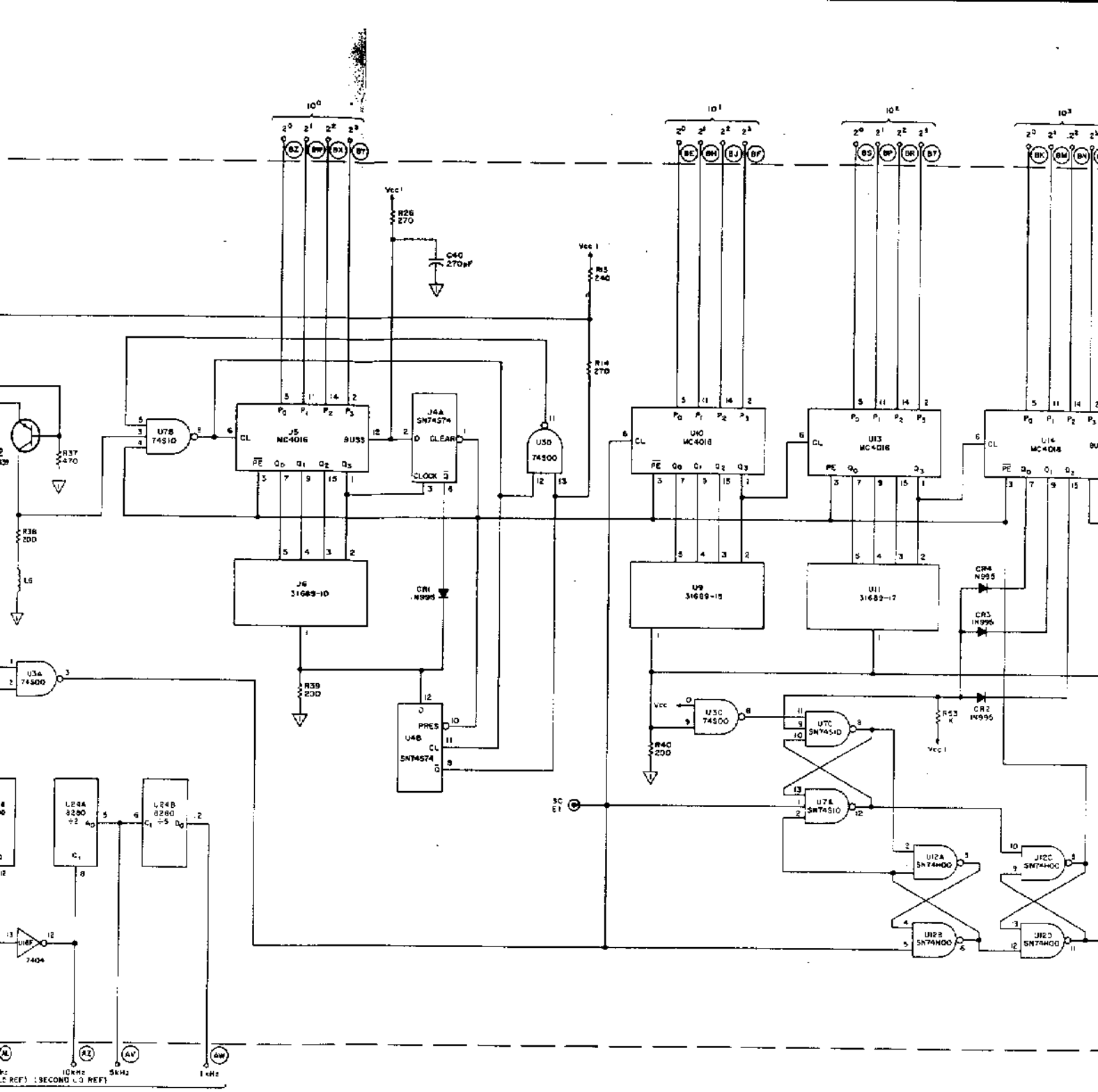


Figure 7-19. Type 791140 Receiver Register (A17), Schematic Diagram



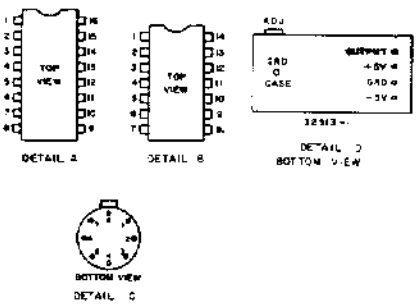
DETAIL 5

	J1	J2	U5, U10, U13, U14	U3, U4, U7, U 2,	U17	U15	U18, U21, U23, U24	U16
Vcc 1			16	14				
GRD	8	12	8	7				
Vcc 2					14	14	14	14
GRD 2							7	
Vcc					13			
GRD 3					7	7		7
Vcc 3	1, 16	4, 5						



U1 & U2, U23, U24	U18
14	14
7	
	7

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN μF.
2. CW ON POTENTIOMETERS INDICATES CLOCKWISE ROTATION OF ACTUATOR.
3. PIN ARRANGEMENT FOR U1, U2, U5, U10, U13, U14, U18 & U25, SHOWN IN DETAIL A.
4. PIN ARRANGEMENT FOR U3, U4, U7, U12, U15, U16, U17 U21, U23 AND U24 IS SHOWN IN DETAIL B.
5. PIN ARRANGEMENT FOR U22 IS SHOWN IN DETAIL C.
6. PIN ARRANGEMENT FOR U20 IS SHOWN IN DETAIL D.
7. PIN ARRANGEMENT FOR Vcc 1, Vcc 2, Vcc 3, GRD 1, GRD 2, GRD 3, GRD 4 AND Vee 1 IS SHOWN IN DETAIL E.
8. ▽ INDICATES COMMON CONNECTIONS.
9. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PIN NUMBERS.
10. NOMINAL VALUE. FINAL VALUE FACTORY SELECTED.



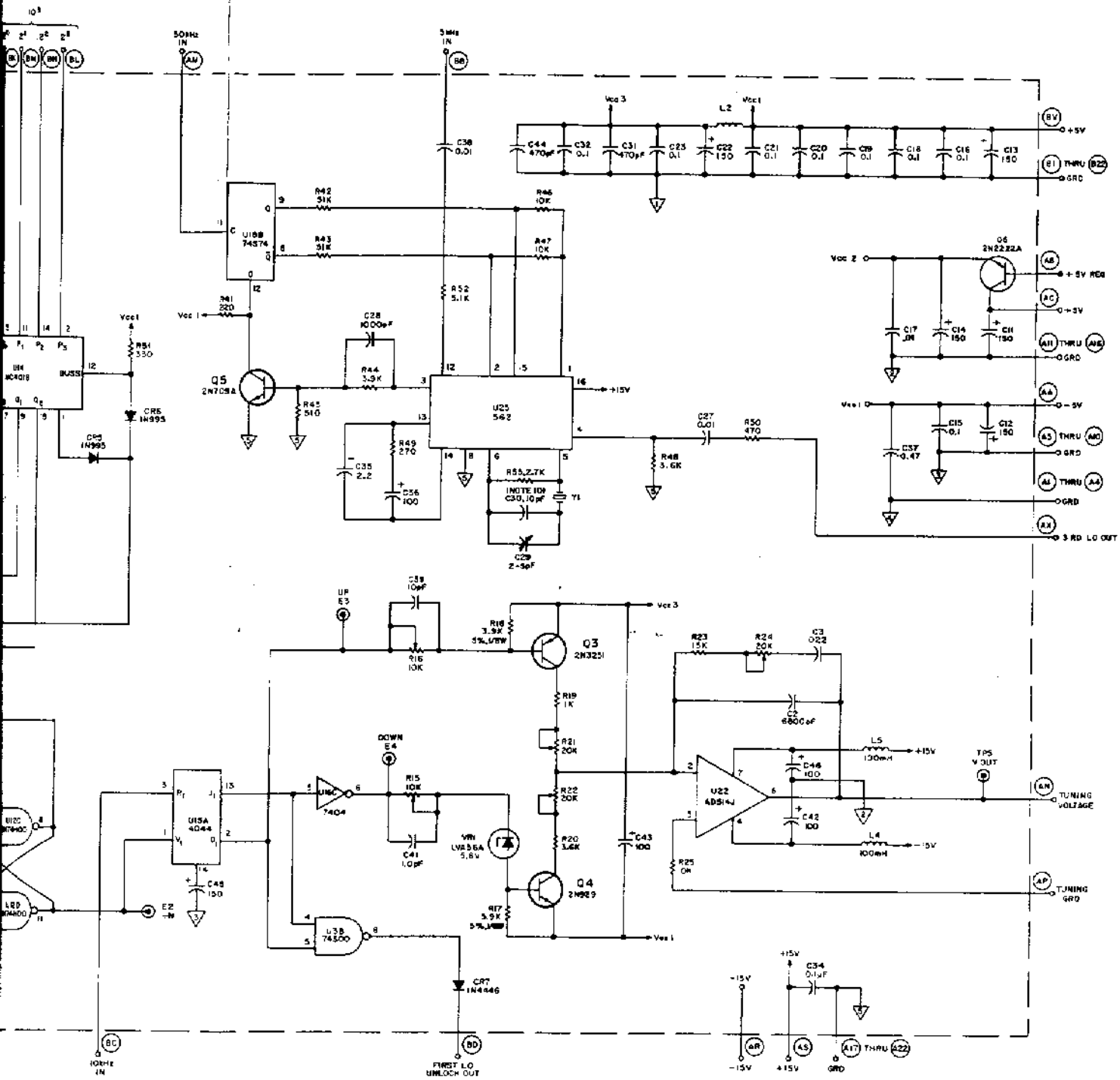
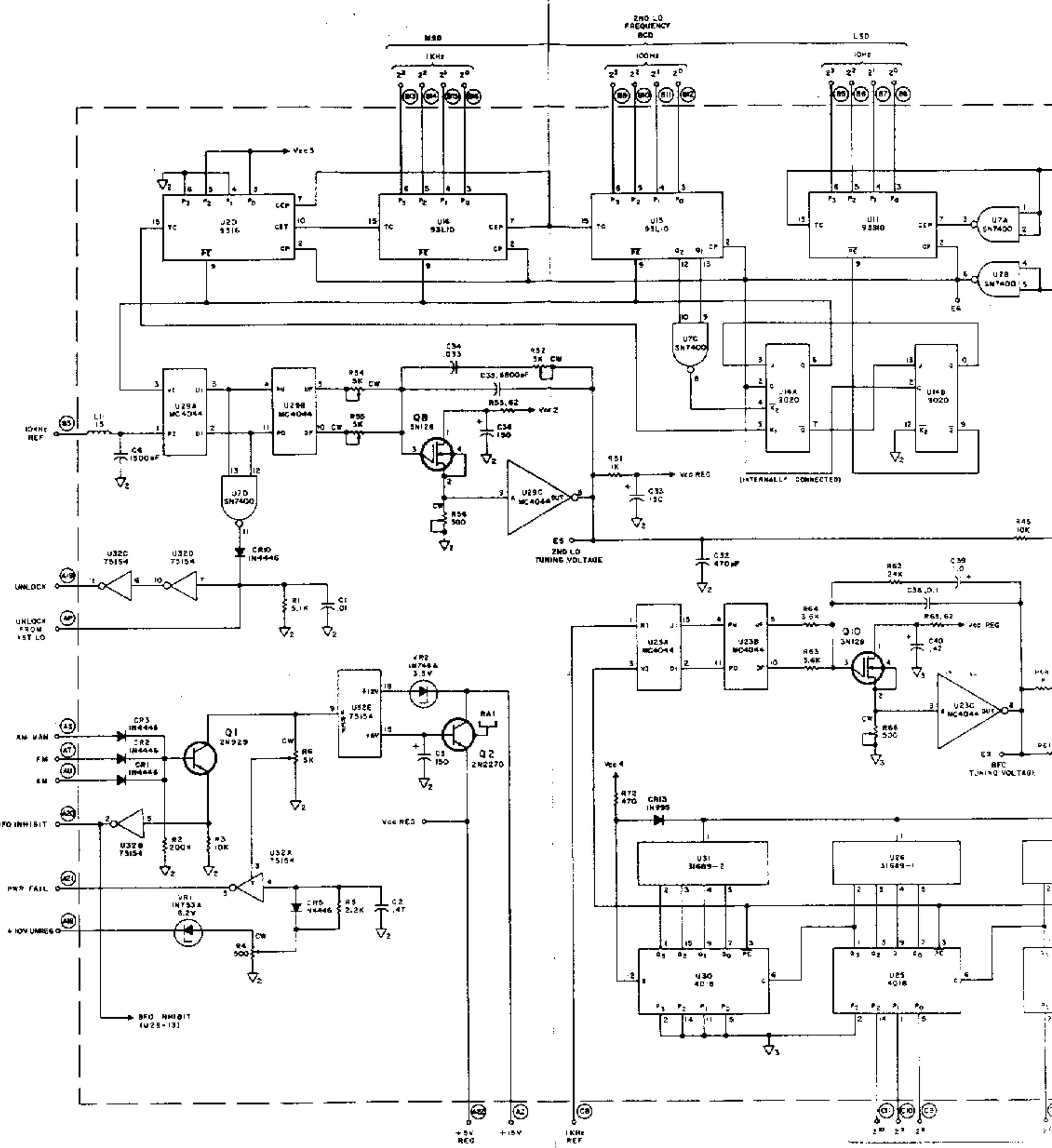


Figure 7-20. Type 791109 1st LO/3rd LO/ Time Base (A18), Schematic Diagram


2ND LO FREQUENCY BCD
MSD
LSD
1KHz
100Hz
10Hz
U23 9316
U16 93L10
U15 93L10
U11 93S10
U7A SN7400
U7B SN7400
U7C SN7400
U7D SN7400
U14A 3020
U14B 3020
U29A MC4044
U29B MC4044
U29C MC4044
Q8 3N128
10KHz REF
L1 15
C6 1500pF
C34 .033
C35 6800pF
R52 5K CW
R54 5K CW
R55 5K CW
R53, 62
C36 150
R51 1K
VCC REG
C33 150
R56 500
E5
2ND LO TUNING VOLTAGE
C32 470pF
R45 10K
(INTERNALLY CONNECTED)
U32C 75154
U32D 75154
CR10 1N4446
UNLOCK
UNLOCK FROM 1ST LO
R1 5.1K
C1 .01
R62 24K
C39 1.0
C38 0.1
R64 3.6K
R63 3.6K
Q10 3N128
R65, 62
C40 .47
U25A MC4044
U23B MC4044
U23C MC4044
R66 500
E3
BFC TUNING VOLTAGE
AM MAN
FM
AM
BFO INHIBIT
PWR FAIL
+10V UNREG
CR3 1N4446
CR2 1N4446
CR1 1N4446
Q1 2N929
U32B 75154
R2 200K
R3 10K
U32A 75154
CR5 4446
R5 2.2K
C2 .47
VR1 1N753A 6.2V
R4 500
BFO INHIBIT (U29-13)
U32E 75154
VR2 1N746A 3.3V
R6 5K
C5 150
Q2 2N2270
RA1
VCC REG
+5V REG
+15V
1KHz REF
R72 470
CR13 1N995
U31 31689-2
U26 31689-1
U30 4018
U25 4018

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W
   b) CAPACITANCE IS IN μF.
   c) INDUCTANCE IS IN μH.
2. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PINS.
3. LEAD ARRANGEMENT FOR U1, U2, U3, U6, U11, U14 THRU U17, U19, U20, U21, U23, U30, U32 IS SHOWN IN DETAIL A.
4. LEAD ARRANGEMENT FOR U4, U5, U7, U9, U10, U23, U24, U27, U28, U29, U35 IS SHOWN IN DETAIL B.
5. Vcc AND GROUND PINS FOR IC'S ARE SHOWN IN DETAIL C.
6. LEAD ARRANGEMENT FOR U18, U22, U26, U34 IS SHOWN IN DETAIL D.

IC	U1, 2, 3	U4	U5	U6	U7	U9	U10	U11
Vcc 1	14	6						
Vcc 2		14	14	8	1	14	8	
Vcc 3				4,5	14			18
Vcc 4								
Vcc 5								
GRD 1	8	8						
GRD 2		8	12,8	7		7	7	
GRD 3					12	7		8
GRD 5								

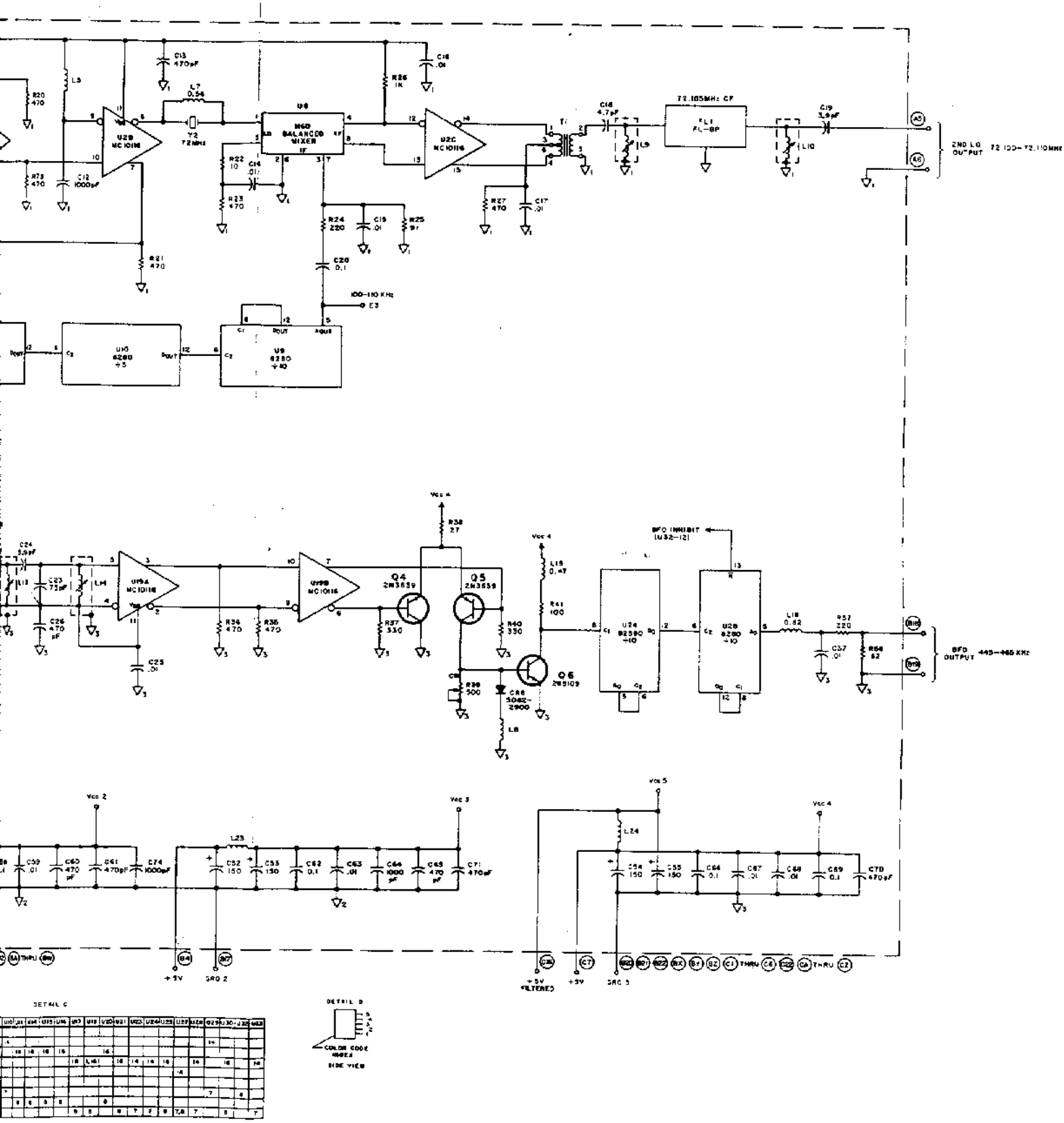
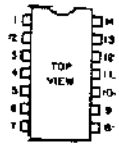


Figure 7-21. Type 791117 2nd LO/BFO (A19), Schematic Diagram

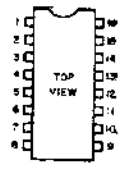
NOTES.

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN μF.
2. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PINS.
3. LEAD ARRANGEMENT FOR U2 THRU U10, U12 THRU U15, U17 THRU U26, U30, U31, AND U32 ARE SHOWN IN DETAIL A.
4. LEAD ARRANGEMENT FOR U1, U11, U16, U27, U28, U29 IS SHOWN IN DETAIL B.
5. GROUND AND VEE PINS FOR U1 THRU U32 ARE SHOWN IN DETAIL C.

DETAIL A

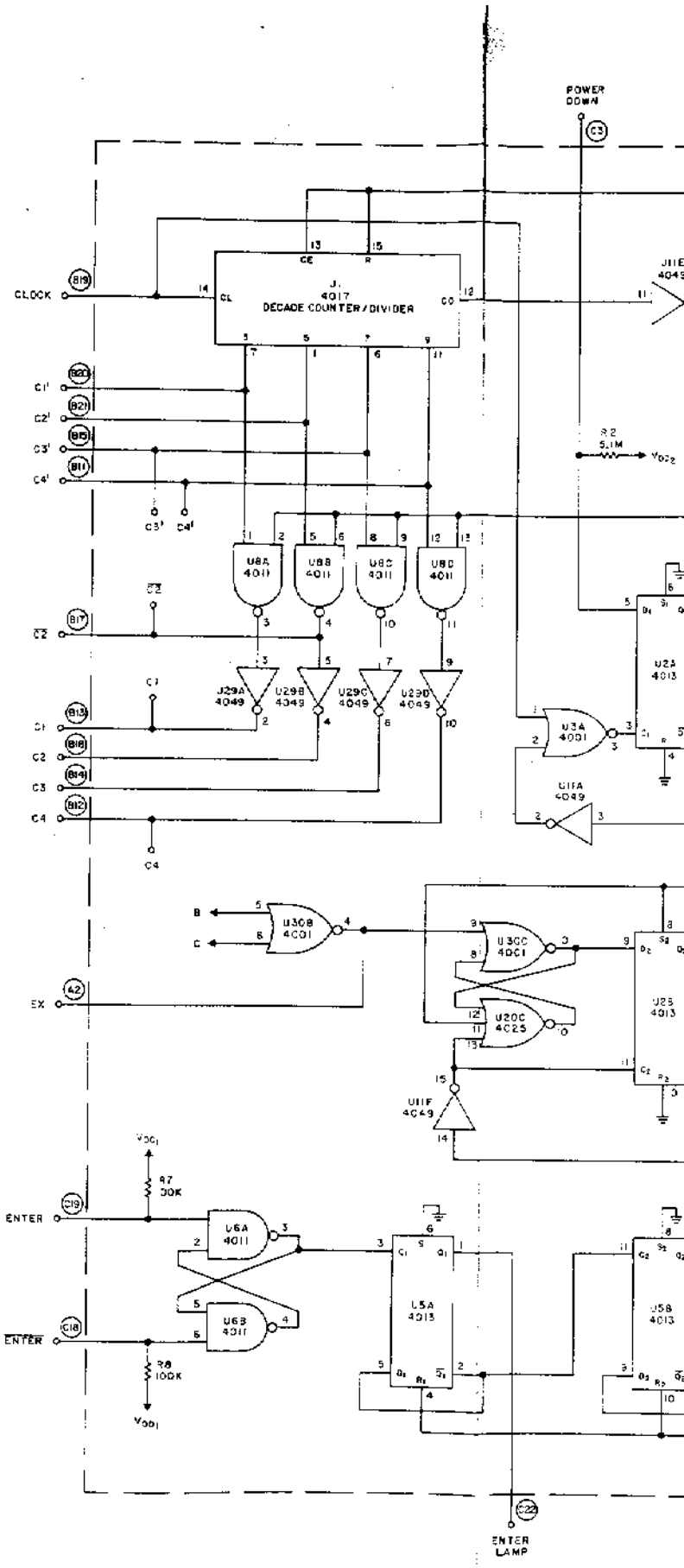


DETAIL B



DETAIL

IC	U1	U2	U3-U10	U11	U12-U15
V_{DD}	16		14		4
GRD	8 , 7		7 , 8		7
V_{DEE}		4			

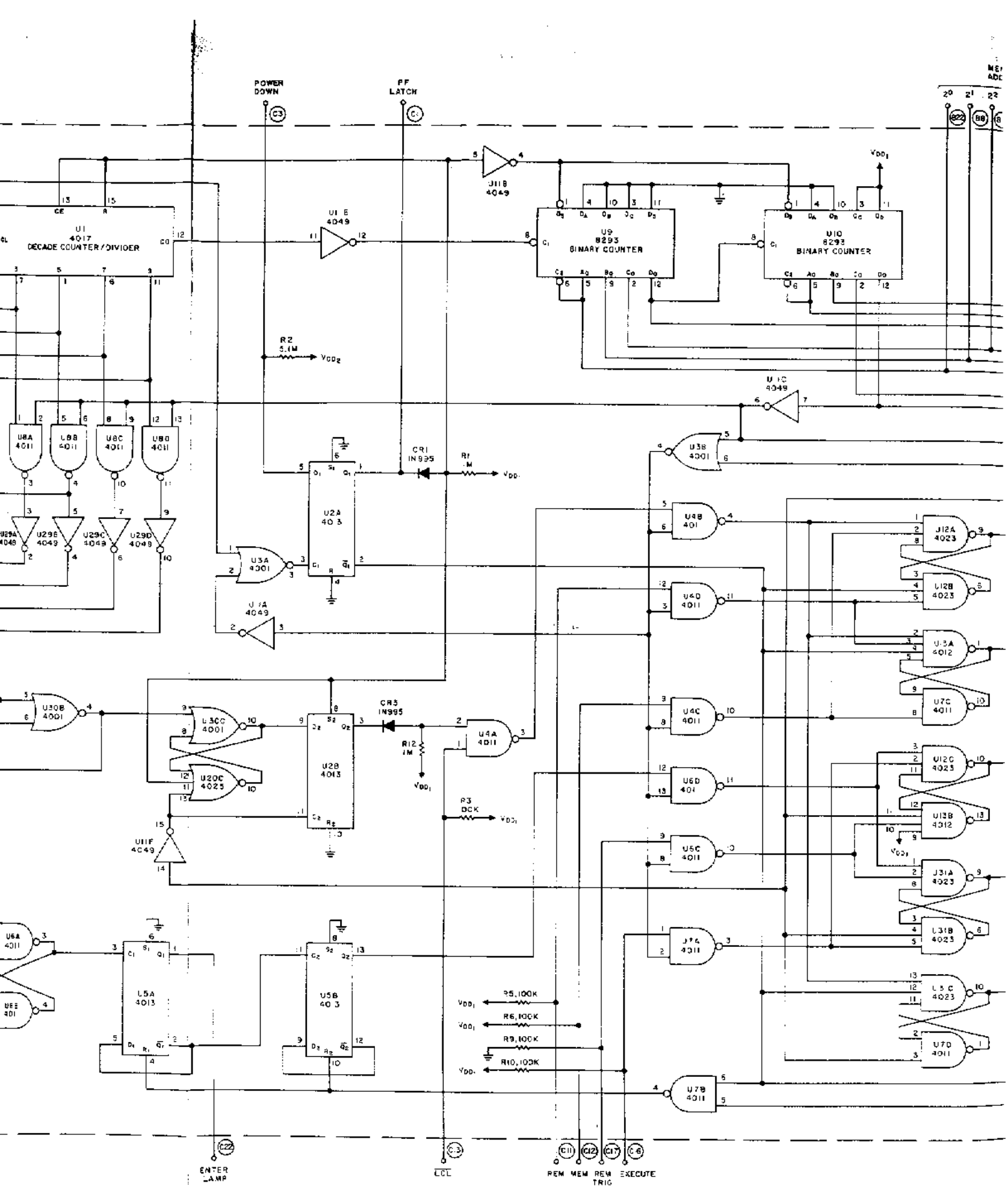


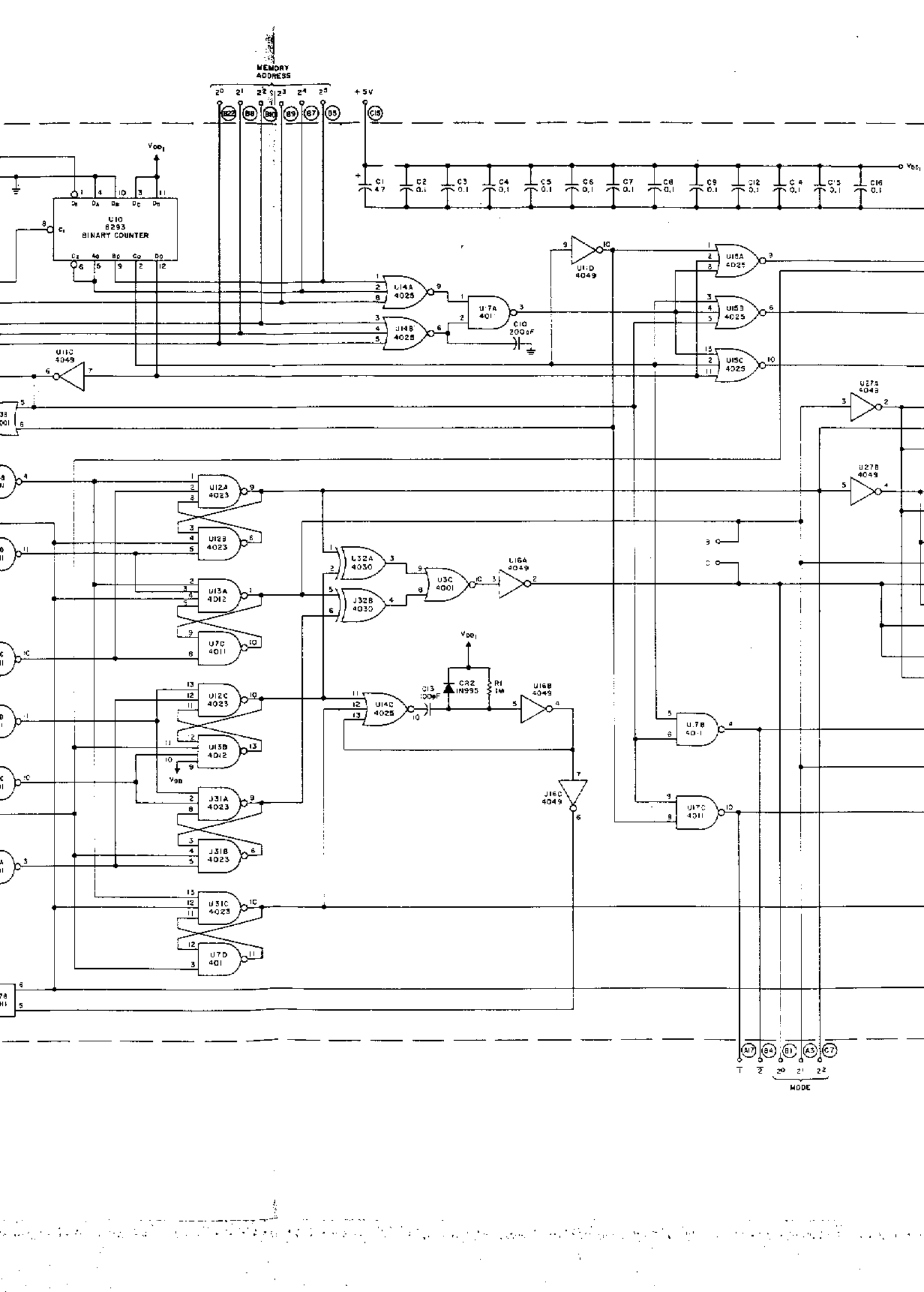
DETAIL C

U2	U3-U10	U11	U12-U15	U16	U17-U26	U27-U29	U30-U32
8	14	1	14	1	14	1	14
7	7	5	7	8	7	8	7
14							

SPARES

C	PART
U30	4001
U11E	4049
U32C,D	4030
U16E,F	4049
U20C	4025
U22B	4002
U25B	4012
U28C	4049
U30A	4001


POWER DOWN
FF LATCH
U1
4017
DECADE COUNTER/DIVIDER
U1B 4049
U1C 4049
U1D 4049
U1E 4049
U1F 4049
U9
8293
BINARY COUNTER
U10
8293
BINARY COUNTER
R2
5.1M
R1
1M
CR1
IN995
U2A
4013
U3A
4001
U8A
4011
U8B
4011
U8C
4011
U8D
4011
U29A
4049
U29B
4049
U29C
4049
U29D
4049
U38
4001
U48
4011
U4D
4011
U4C
4011
U6D
4011
U5C
4011
U7A
4011
U7B
4011
U12A
4023
U12B
4023
U3A
4012
U7C
4011
U12C
4023
U13B
4012
U31A
4023
U31B
4023
U3C
4023
U7D
4011
U30B
4001
U30C
4001
U30C
4025
U2B
4013
CR3
IN995
R12
1M
U4A
4011
R3
DCK
U11F
4049
U6A
4011
U5A
4013
U5B
4013
R5,100K
R6,100K
R9,100K
R10,103K
ENTER LAMP
LCL
REM MEM REM TRIG
EXECUTE


MEMORY ADDRESS
+5V
U10 8293 BINARY COUNTER
U14A 4025
U14B 4025
U7A 401
C10 200pF
U11D 4049
U15A 4025
U15B 4025
U15C 4025
U11C 4049
U27A 4049
U27B 4049
U12A 4023
U12B 4023
U13A 4012
U7C 4011
U32A 4030
U32B 4030
U3C 4001
U16A 4049
U12C 4023
U13B 4012
U14C 4025
C13 100pF
CR2 IN995
R1 1M
U16B 4049
U16C 4049
U31A 4023
U31B 4023
U31C 4023
U7D 401
U7B 401
U17C 4011
MODE

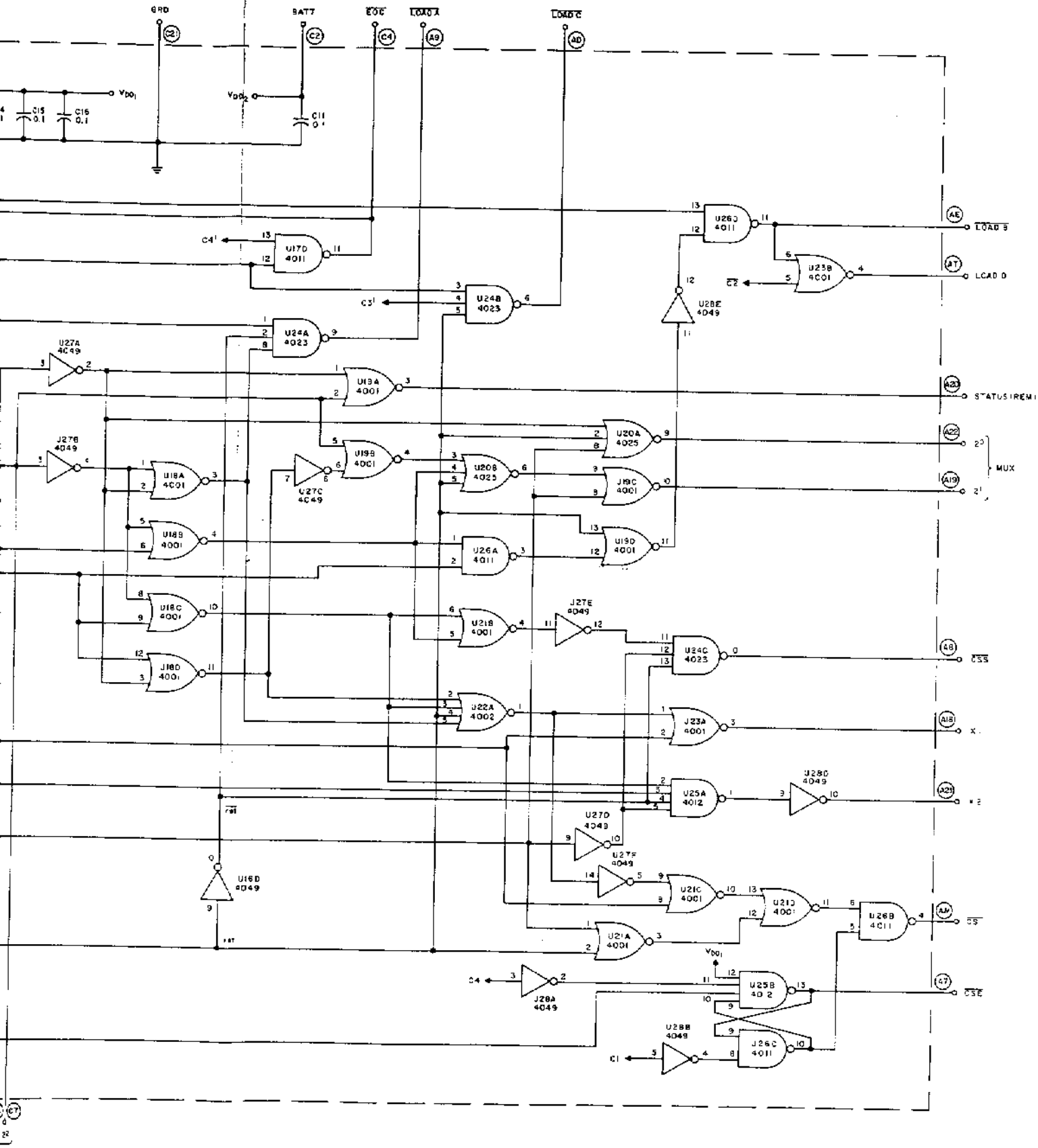
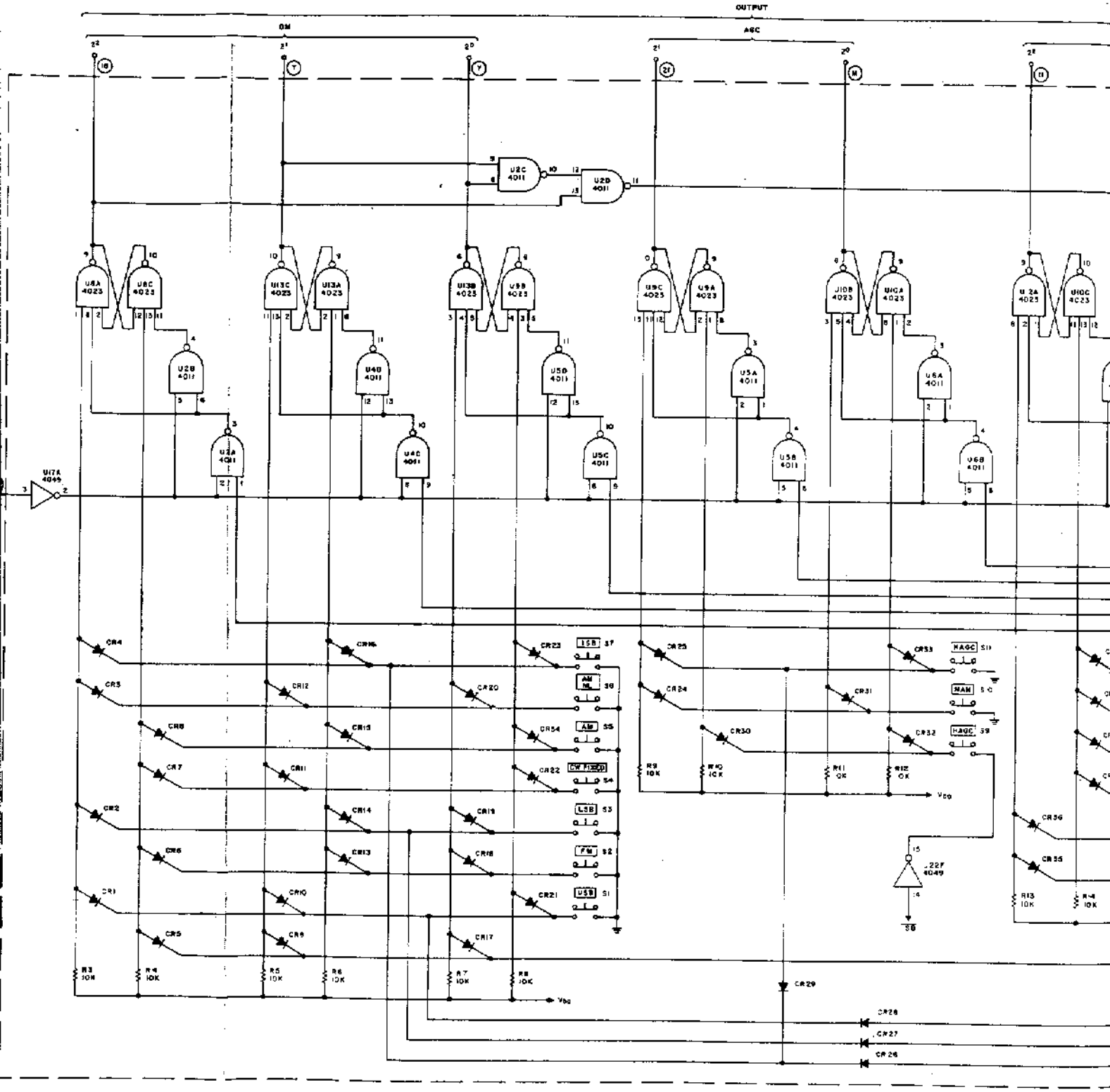
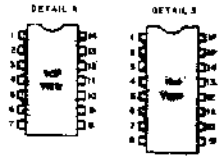


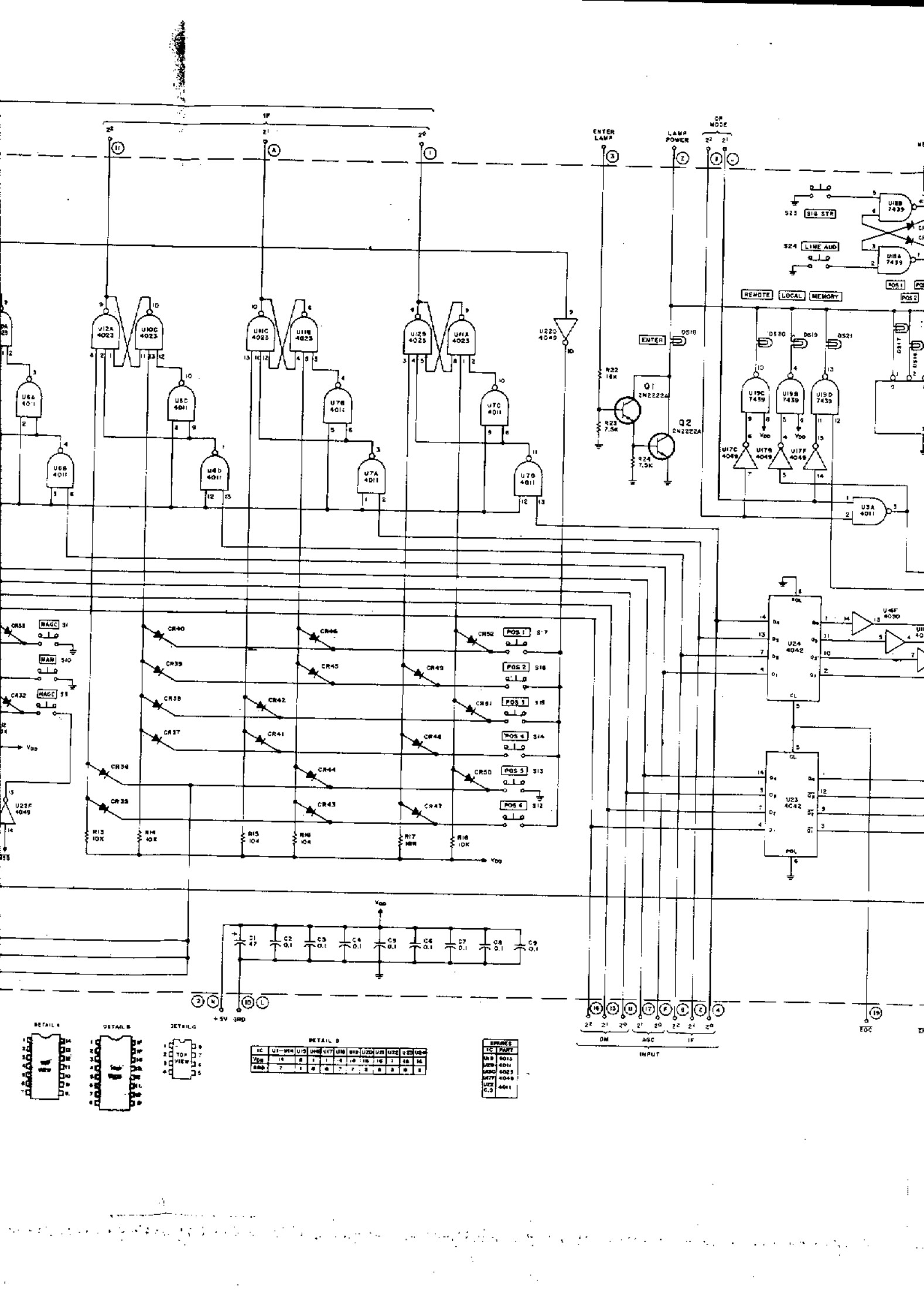
Figure 7-22. Type 791124 Program Sequencer (A20), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED,
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN μF.
2. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PINS.
3. LEAD ARRANGEMENT FOR U1 THRU U14, U18, U19 IS SHOWN IN DETAIL A.
4. LEAD ARRANGEMENT FOR U16, U17, U20 THRU U24 IS SHOWN IN DETAIL B.
5. V_{DD} AND GRD PINS FOR U1 THRU U24 ARE SHOWN IN DETAIL D.
6. LEAD ARRANGEMENT FOR U15 IS SHOWN IN DETAIL C.
7. DIODES, CR1 THRU CR54, ARE 1N995.




ENTER LAMP
LAMP POWER
OP MODE
S23 SIG STR
S24 LINE AUD
REMOTE
LOCAL
MEMORY
ENTER
Q1 2N2222A
Q2 2N2222A
R22 18K
R23 7.5K
R24 7.5K
MAGC
MAN
POS 1
POS 2
POS 3
POS 4
POS 5
POS 6
R13 10K
R14 10K
R15 10K
R16 10K
R17 10K
R18 10K
+5V
GND
DM
AGC
IF
INPUT
EOC
DETAIL A
DETAIL B
DETAIL C
TOP VIEW

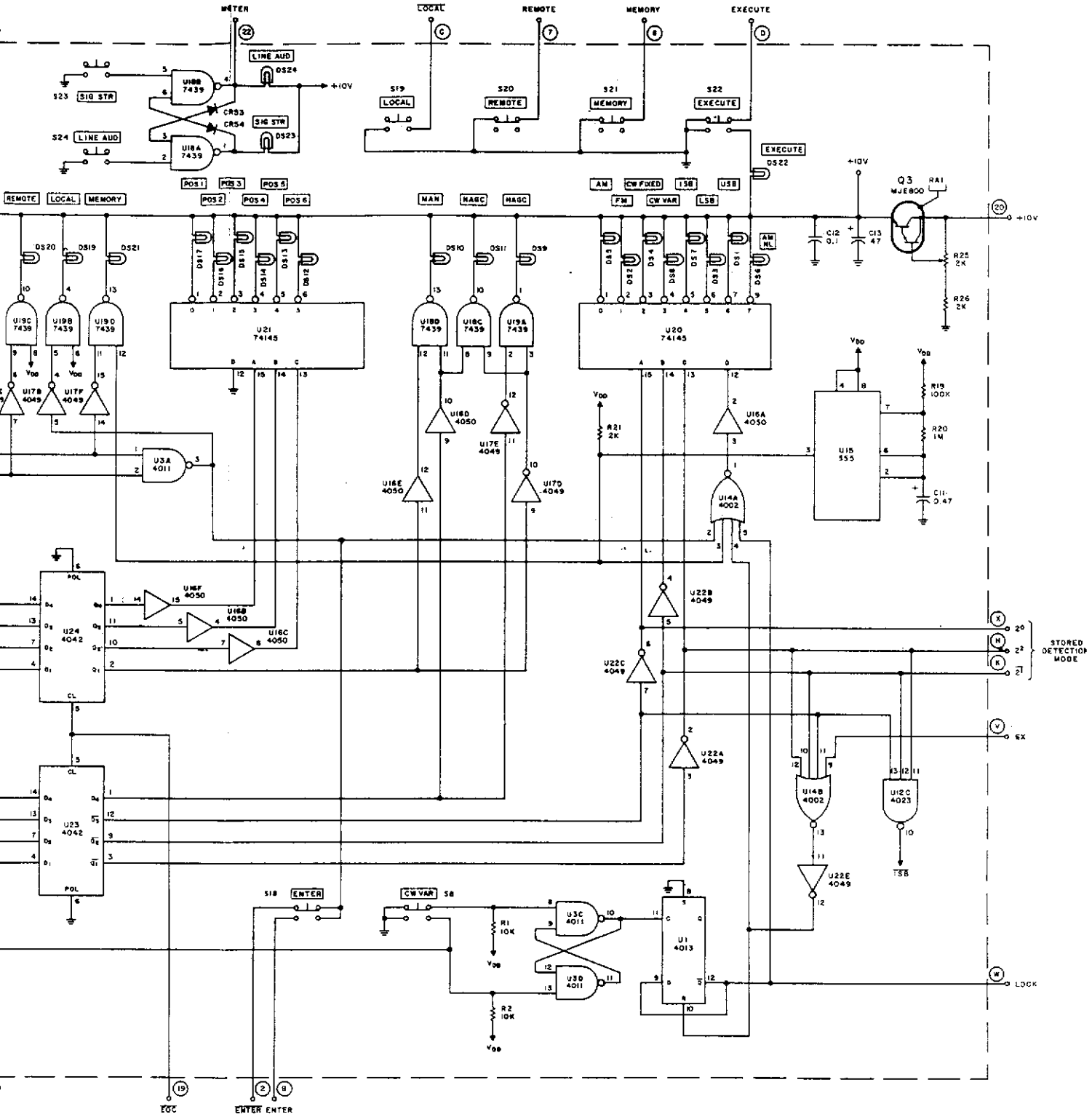
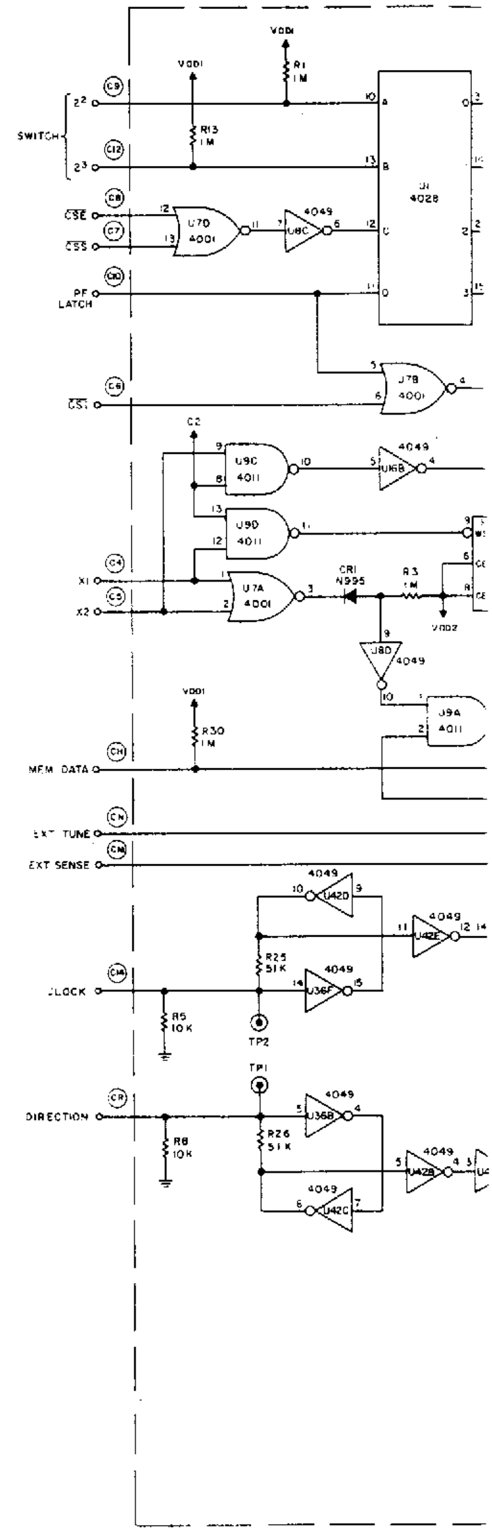
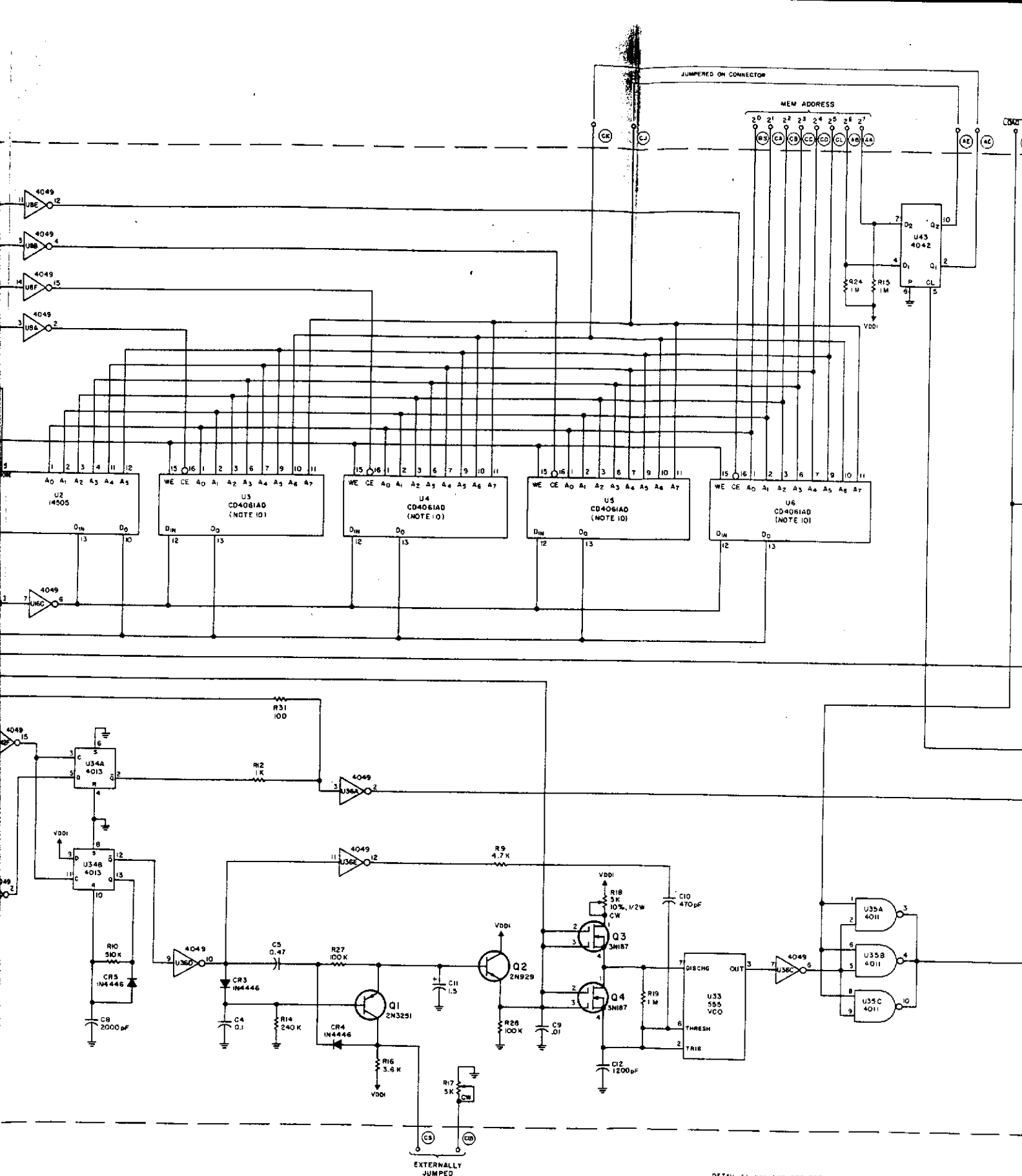


Figure 7-23. Type 791137 Switch Encoder (A21), Schematic Diagram



VDD1
R1
1M
R13
1M
SWITCH
C9
C12
C8
C7
C10
C6
CSE
CSS
PF LATCH
CS1
U70
4001
U8C
4049
U1
4028
U7B
4001
C2
U9C
4011
U16B
4049
U9D
4011
U7A
4001
CR1
N995
R3
1M
VDD2
U8D
4049
U9A
4011
C4
C5
X1
X2
R30
1M
MEM DATA
EXT TUNE
EXT SENSE
U42D
4049
U42E
R25
51K
U36F
CLOCK
R5
10K
TP2
TP1
U36B
DIRECTION
R8
10K
R26
51K
U42B
U42C



DETAIL E: VDD AND GRD FOR U1-U43

	U1	U2	U3-6	U8	U14, 33	U16, 36, 37, 42	U20-23	U18, 19, 24-31, 45	U9-15, 17, 32, 34, 35, 38-41	U7
V_{DD1}					4, 8	1	24	16	14	
V_{DD2}	16	14	5	1						8, 9, 14
GRD	8	7	4	8	1	8	12	8	7	7

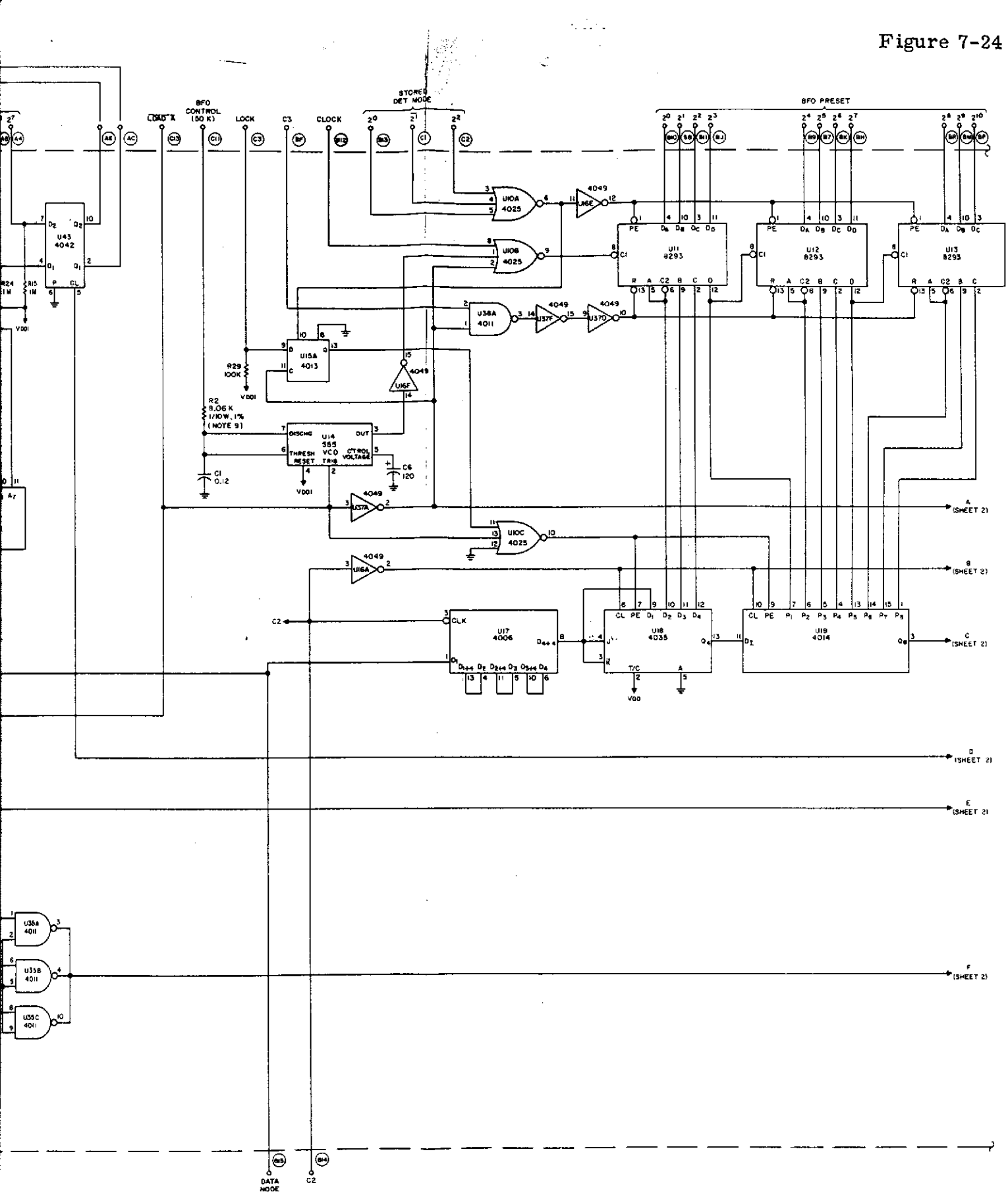
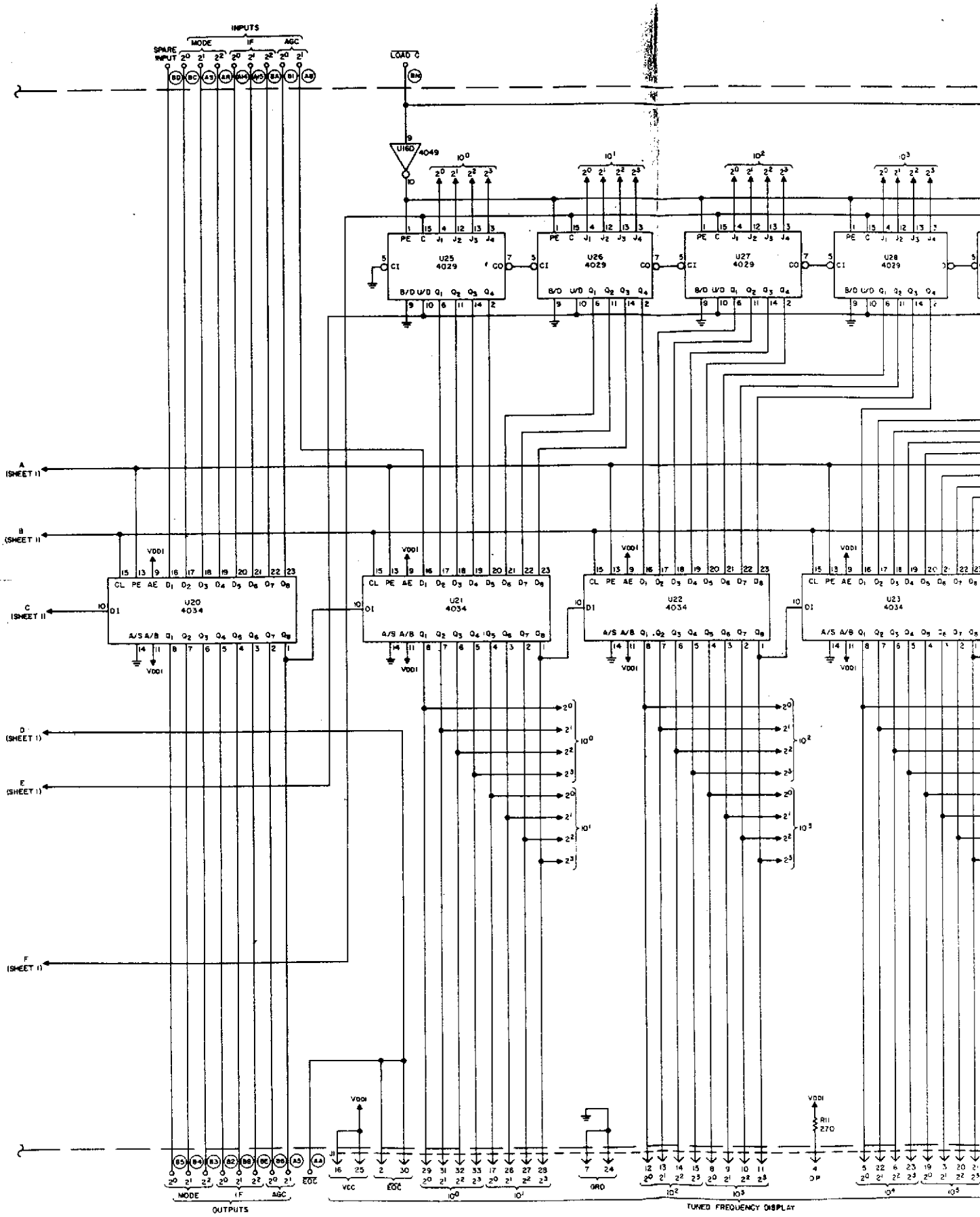
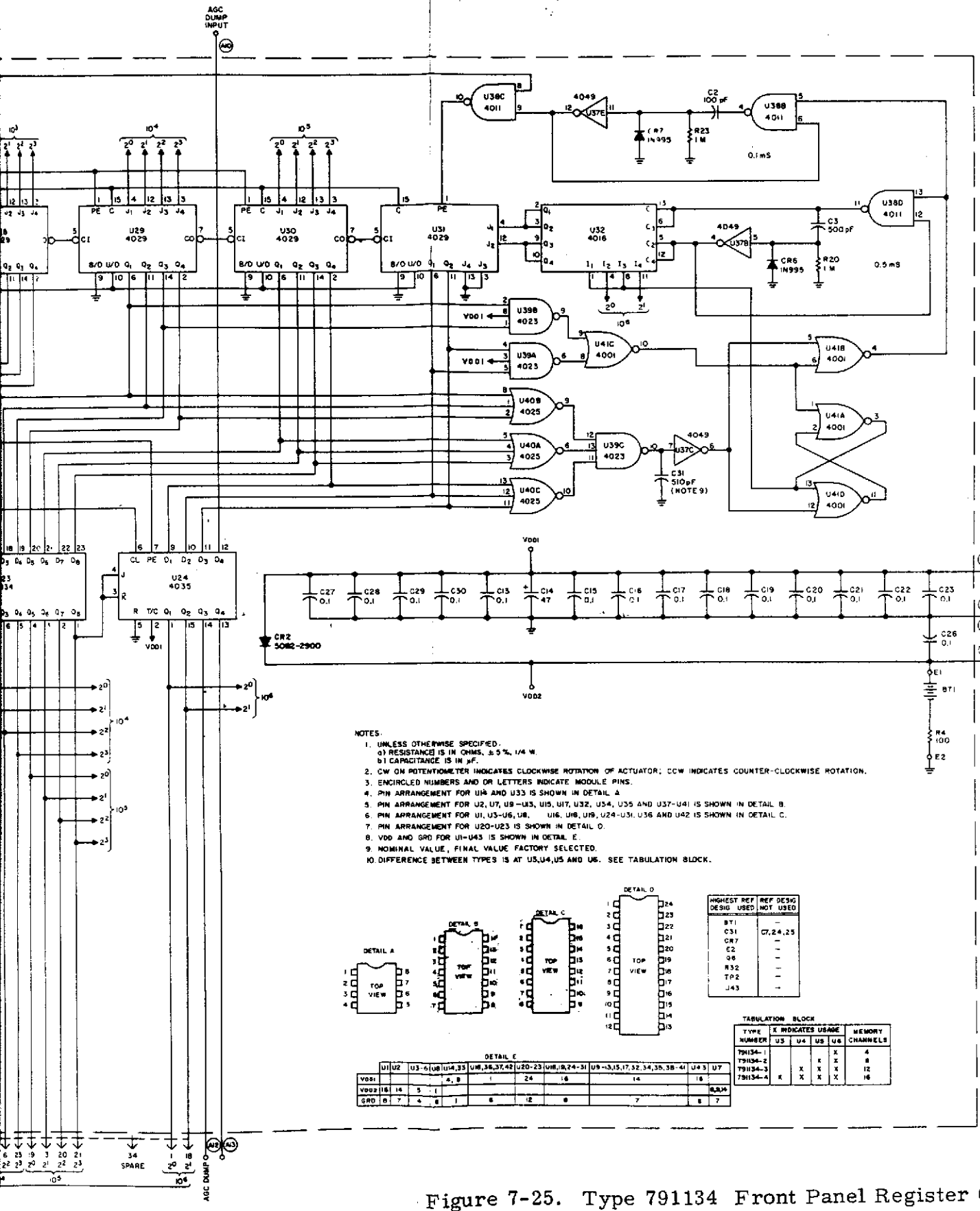


Figure 7-24. Type 791134 Front Panel Register (A22), Schematic Diagram, Sheet 1 of 2


INPUTS
MODE
IF
AGC
SPARE INPUT
LOAD C
U25 4029
U26 4029
U27 4029
U28 4029
U20 4034
U21 4034
U22 4034
U23 4034
A (SHEET 1)
B (SHEET 1)
C (SHEET 1)
D (SHEET 1)
E (SHEET 1)
F (SHEET 1)
VDD1
R11 270
OUTPUTS
MODE
IF
AGC
EOC
VCC
GRD
TUNED FREQUENCY DISPLAY



NOTES:

1. UNLESS OTHERWISE SPECIFIED.
   a) RESISTANCE IS IN OHMS, ± 5 %, 1/4 W.
   b) CAPACITANCE IS IN μF.
2. CW ON POTENTIOMETER INDICATES CLOCKWISE ROTATION OF ACTUATOR; CCW INDICATES COUNTER-CLOCKWISE ROTATION.
3. ENCIRCLED NUMBERS AND OR LETTERS INDICATE MODULE PINS.
4. PIN ARRANGEMENT FOR U14 AND U33 IS SHOWN IN DETAIL A.
5. PIN ARRANGEMENT FOR U2, U7, U9–U13, U15, U17, U32, U34, U35 AND U37–U41 IS SHOWN IN DETAIL B.
6. PIN ARRANGEMENT FOR U1, U3–U6, U8, U16, U18, U19, U24–U31, U36 AND U42 IS SHOWN IN DETAIL C.
7. PIN ARRANGEMENT FOR U20–U23 IS SHOWN IN DETAIL D.
8. VDD AND GRD FOR U1–U43 IS SHOWN IN DETAIL E.
9. NOMINAL VALUE, FINAL VALUE FACTORY SELECTED.
10. DIFFERENCE BETWEEN TYPES IS AT U3,U4,U5 AND U6. SEE TABULATION BLOCK.

DETAIL A (TOP VIEW)

DETAIL B (TOP VIEW)

DETAIL C (TOP VIEW)

DETAIL D (TOP VIEW)

HIGHEST REF DESIG USED	REF DESIG NOT USED
B1	—
C31	C7, 24, 25
CR7	—
E2	—
Q6	—
R32	—
TP2	—
U43	—

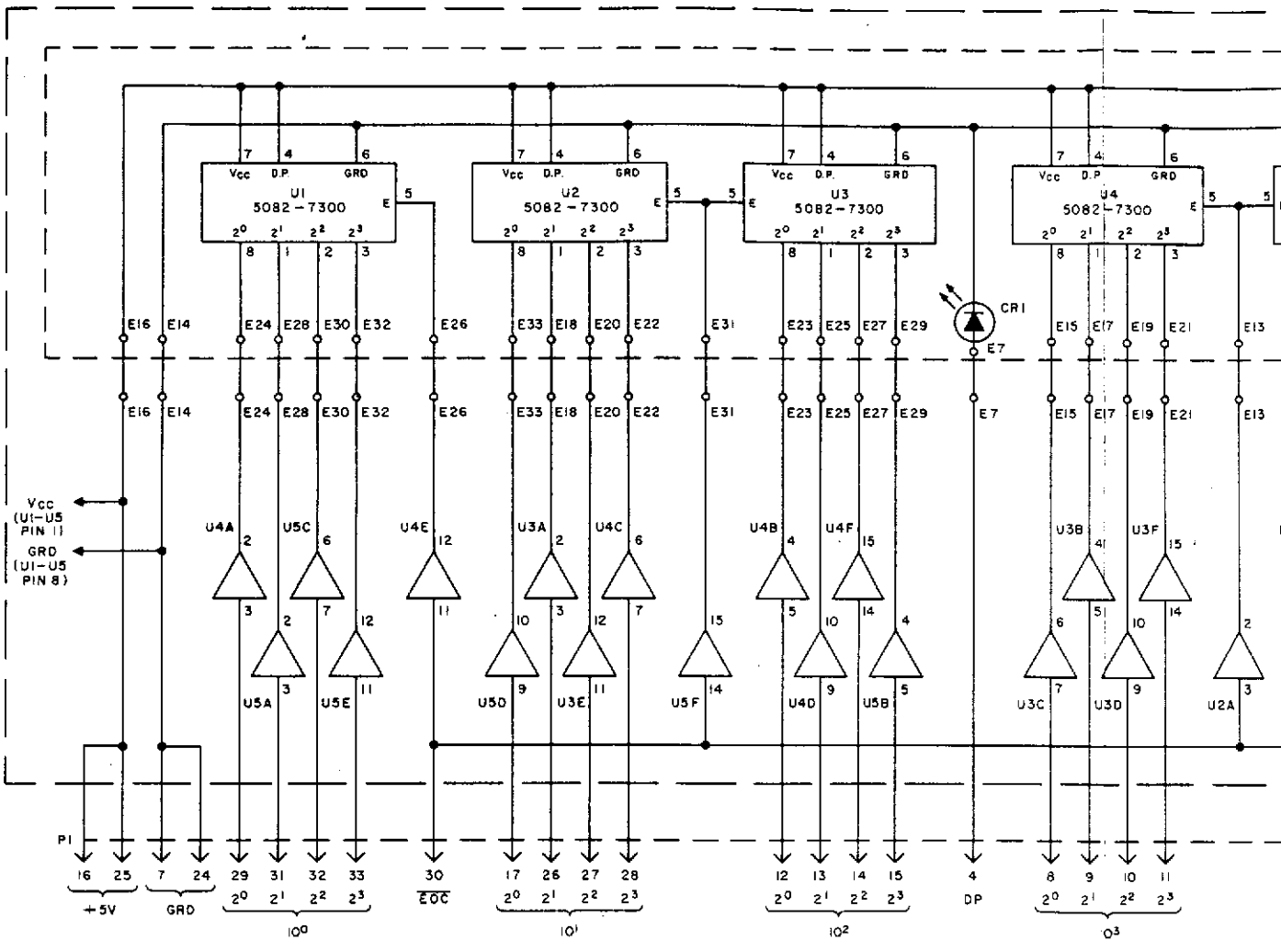
TABULATION BLOCK

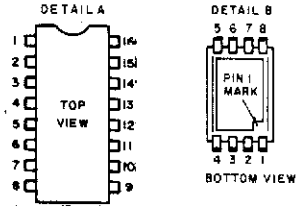
TYPE NUMBER	X INDICATES USAGE U3	U4	U5	U6	MEMORY CHANNELS
791134-1				X	4
791134-2			X	X	8
791134-3		X	X	X	12
791134-4	X	X	X	X	16

DETAIL E

	U1, U2	U3–6, U8	U14, 33	U16, 36, 37, 42	U20–23	U18, 19, 24–31	U9–13, 15, 17, 32, 34, 35, 38–41	U43	U7
VDD1			4, 8	1	24	16	14	16	
VDD2	16	14	5	1					8, 14
GRD	8	7	4	8	1	8	12	8	7

Figure 7-25. Type 791134 Front Panel Register (A22), Schematic Diagram, Sheet 2 of 2





NOTES:
1. LEAD ARRANGEMENT FOR U1 THRU U5 IS SHOWN IN DETAIL A.
2. LEAD ARRANGEMENT FOR A1U1 THRU A1U7 IS SHOWN IN DETAIL B.
3. U1 THRU U5 ARE 4050.

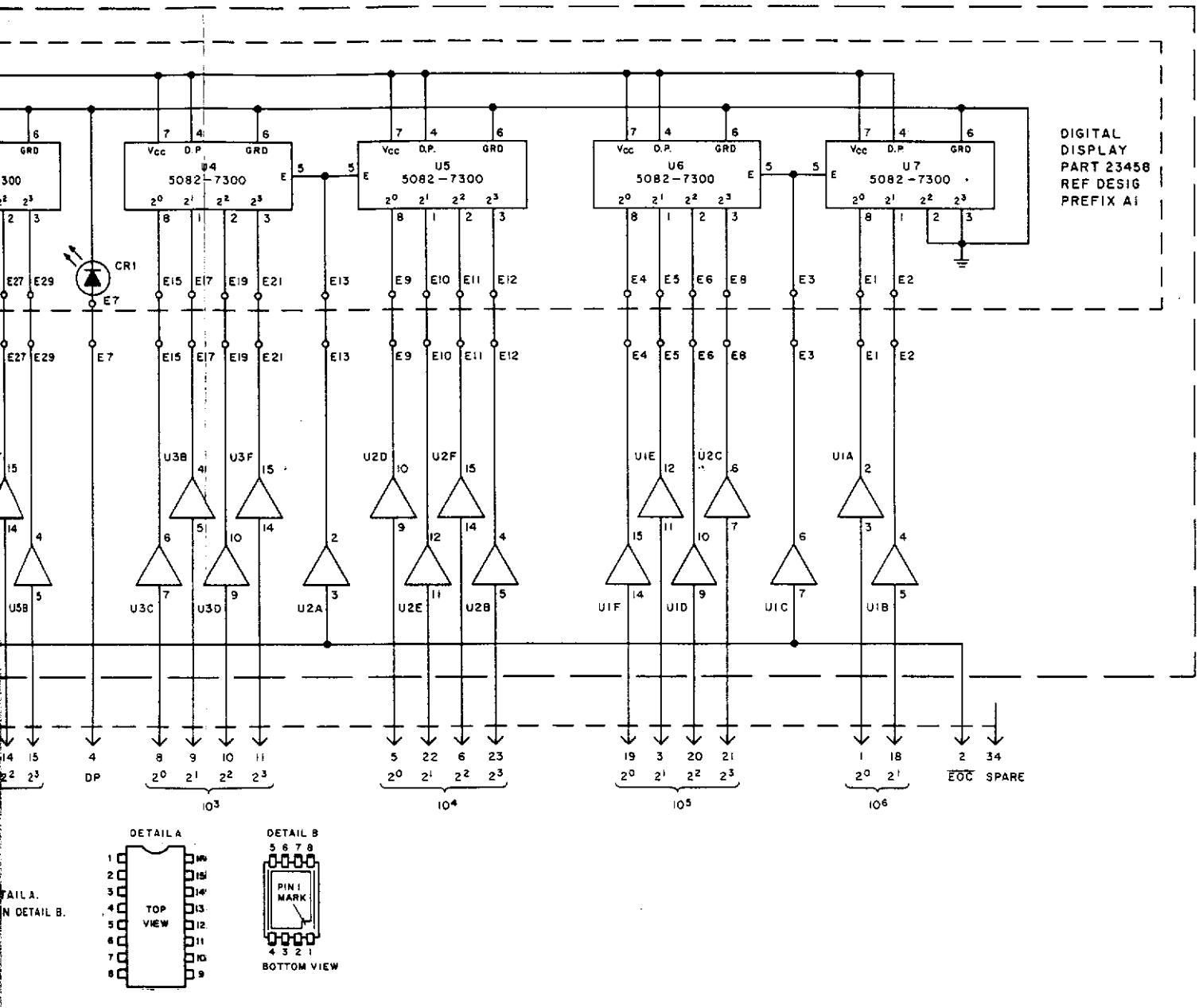


Figure 7-26. Type 791126 Display Buffer (A23), Schematic Diagram

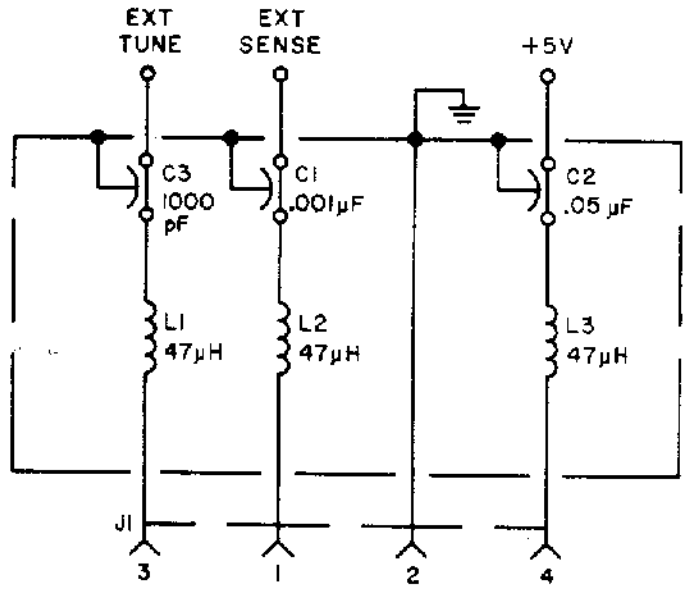
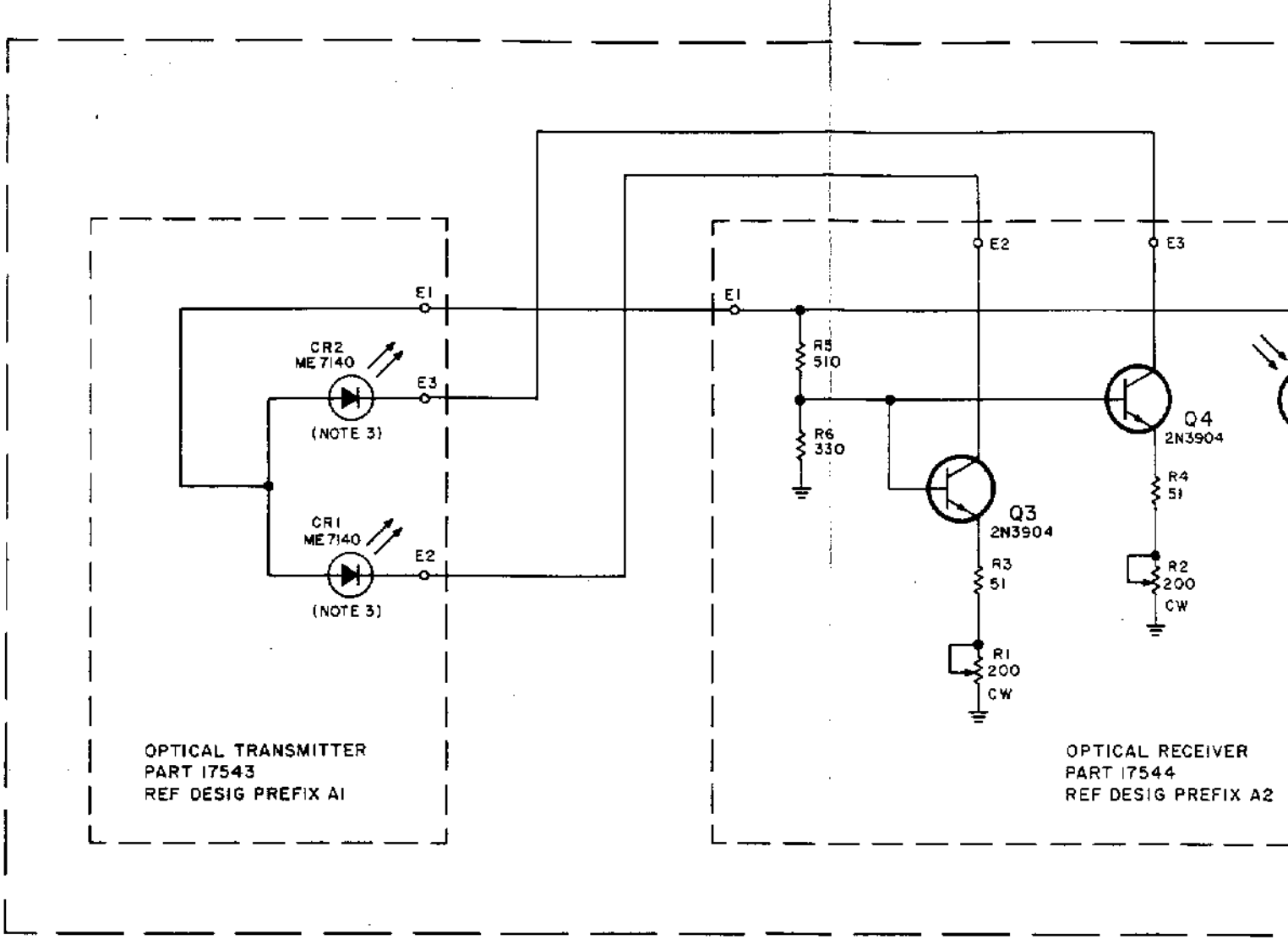


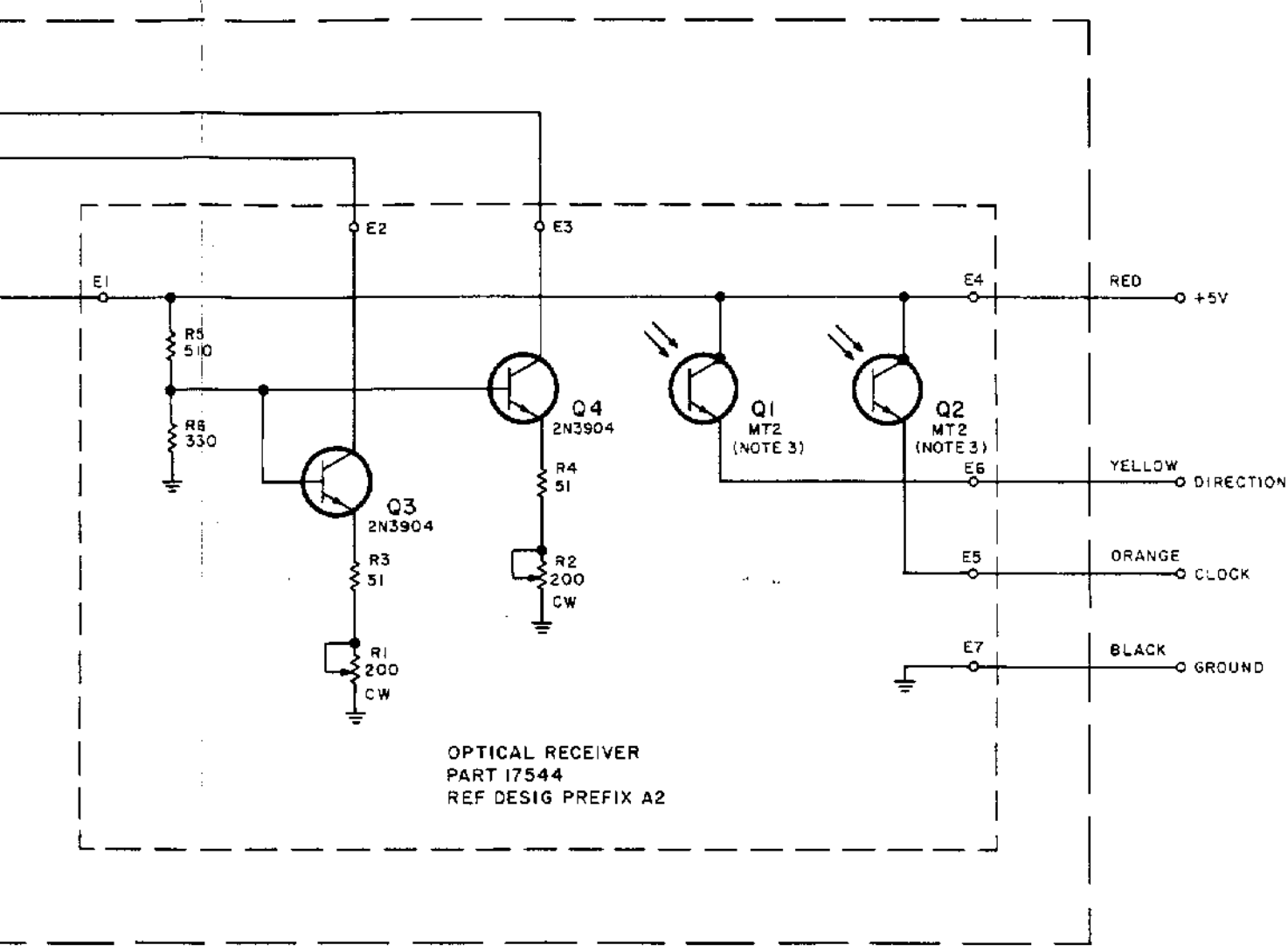
Figure 7-27. Type 791276 Optional Tuning Connector Filter (A24), Schematic Diagram



NOTES :

1. UNLESS OTHERWISE SPECIFIED, RESISTANCE IS IN OHMS, ±5%, 1/4W.
2. CW ON R1 & R2 INDICATES CLOCKWISE ROTATION OF ACTUATOR.
3. A1CR1 EMITS LIGHT ONTO A2Q1, AND A1CR2 EMITS LIGHT ONTO A2Q2.

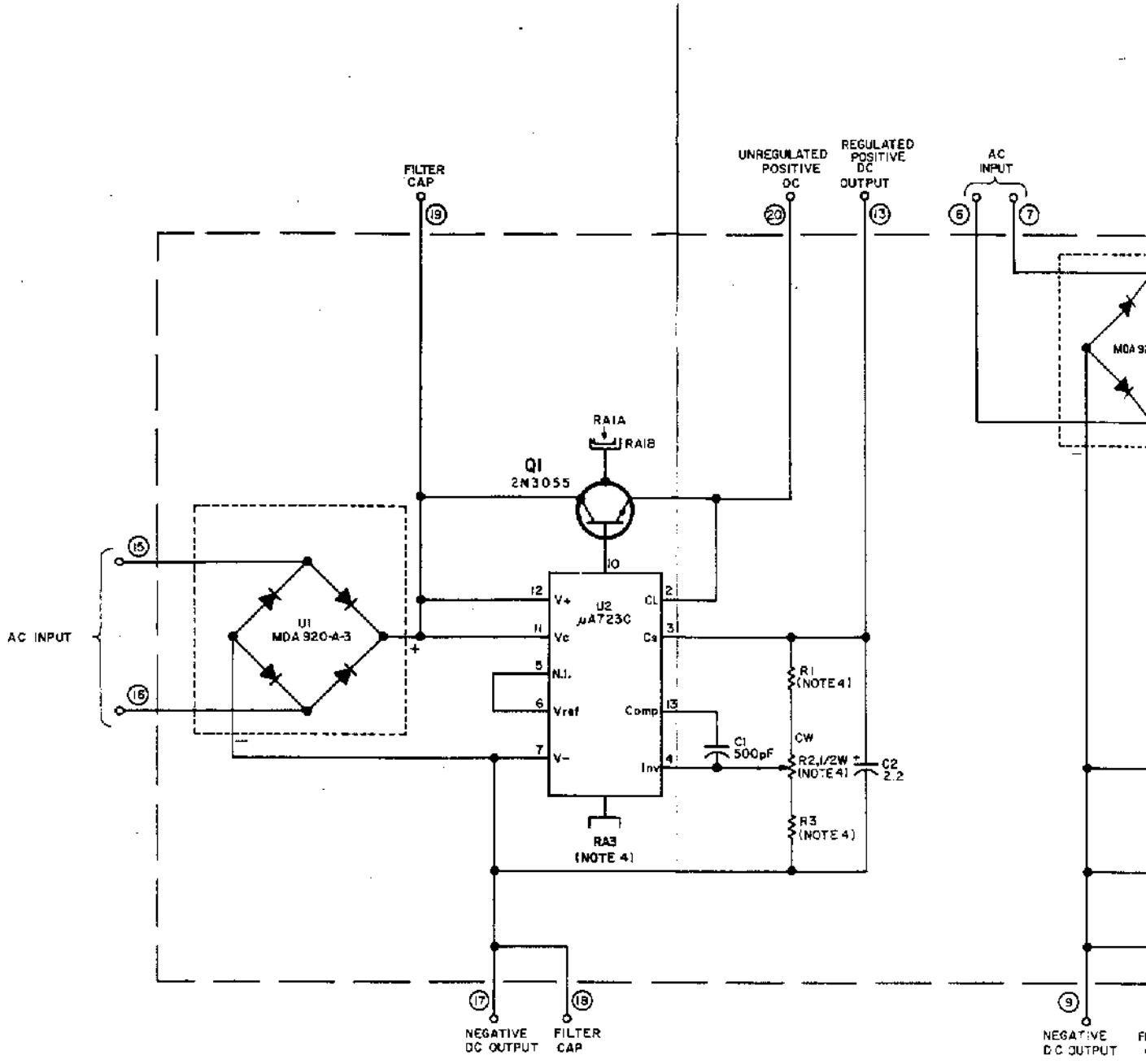
Figur



NOTES:

1. UNLESS OTHERWISE SPECIFIED, RESISTANCE IS IN OHMS, ±5%, 1/4W.
2. CW ON R1 & R2 INDICATES CLOCKWISE ROTATION OF ACTUATOR.
3. A1CR1 EMITS LIGHT ONTO A2Q1, AND A1CR2 EMITS LIGHT ONTO A2Q2.

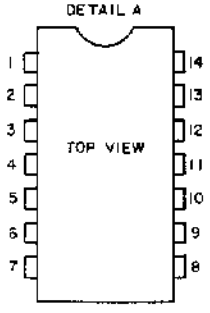
Figure 7-28. Type 791202 Encoder Assembly (A25), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED;
   a) RESISTANCE IS MEASURED IN OHMS ±5%, 1/4W
   b) CAPACITANCE IS MEASURED IN μF
2. ENCIRCLED NUMBERS ARE PIN MODULE NUMBERS
3. FOR LEAD ARRANGEMENT OF U2 & U4, SEE DETAIL "A"
4. THE DIFFERENCE BETWEEN TYPES IS SHOWN IN TABULATION BLOCK
5. TYPE 76210-3 USED ON 6472C00000-1 RECEIVER.

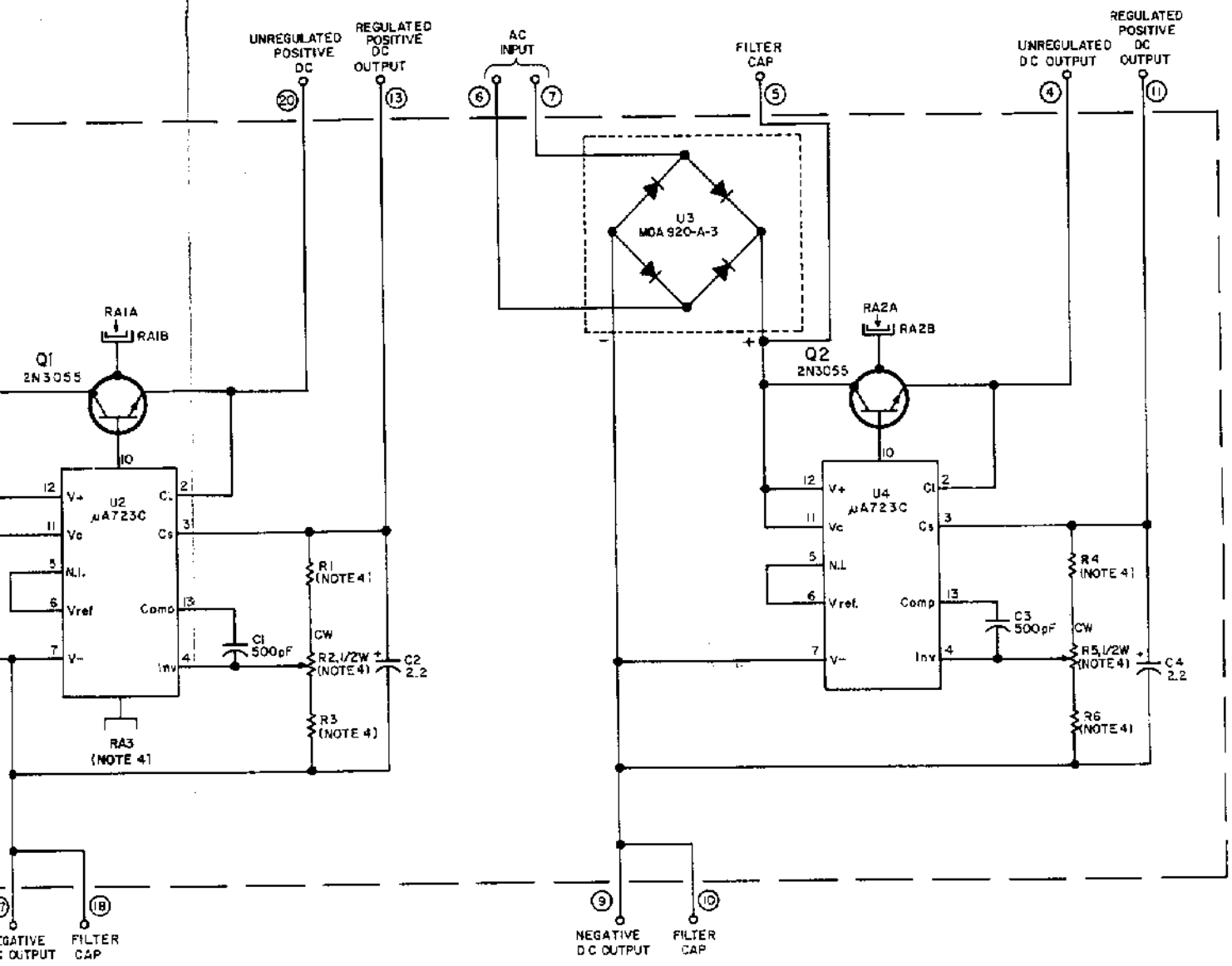
DETAIL A



(NOTE-5)

TYPE	VOLTAGE OUT	R1	R2	R3	R4	R5	R6	RA3
76210-1	± 15-18	3.3K	1K	2.7K	3.3K	1K	2.7K	—
76210-2	± 15&24	5.1K	1K	2K	3.3K	1K	2.7K	—
76210-3	± 15-18	3.3K	1K	2.7K	3.3K	1K	2.7K	—
76210-4	± 24	5.1K	1K	2K	5.1K	1K	2K	—
76210-5	± 12	2K	1K	3K	2K	1K	3K	—
76210-6	±20	—	—	—	4.7K	1K	2.2K	—
76210-7	± 15-18	3.3K	1K	2.7K	3.3K	1K	2.7K	1

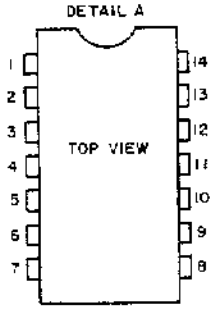
Figure 7-



HMS ±5%, 1/4W
µF
NUMBERS
SEE DETAIL "A"
HOWN IN TABULATION BLOCK
RECEIVER.

2	R3	R4	R5	R6	RA3
K	2.7K	3.3K	1K	2.7K	—
K	2K	3.3K	1K	2.7K	—
K	2.7K	3.3K	1K	2.7K	—
K	2K	5.1K	1K	2K	—
K	3K	2K	1K	3K	—
—	—	4.7K	1K	2.2K	—
K	2.7K	3.3K	1K	2.7K	1

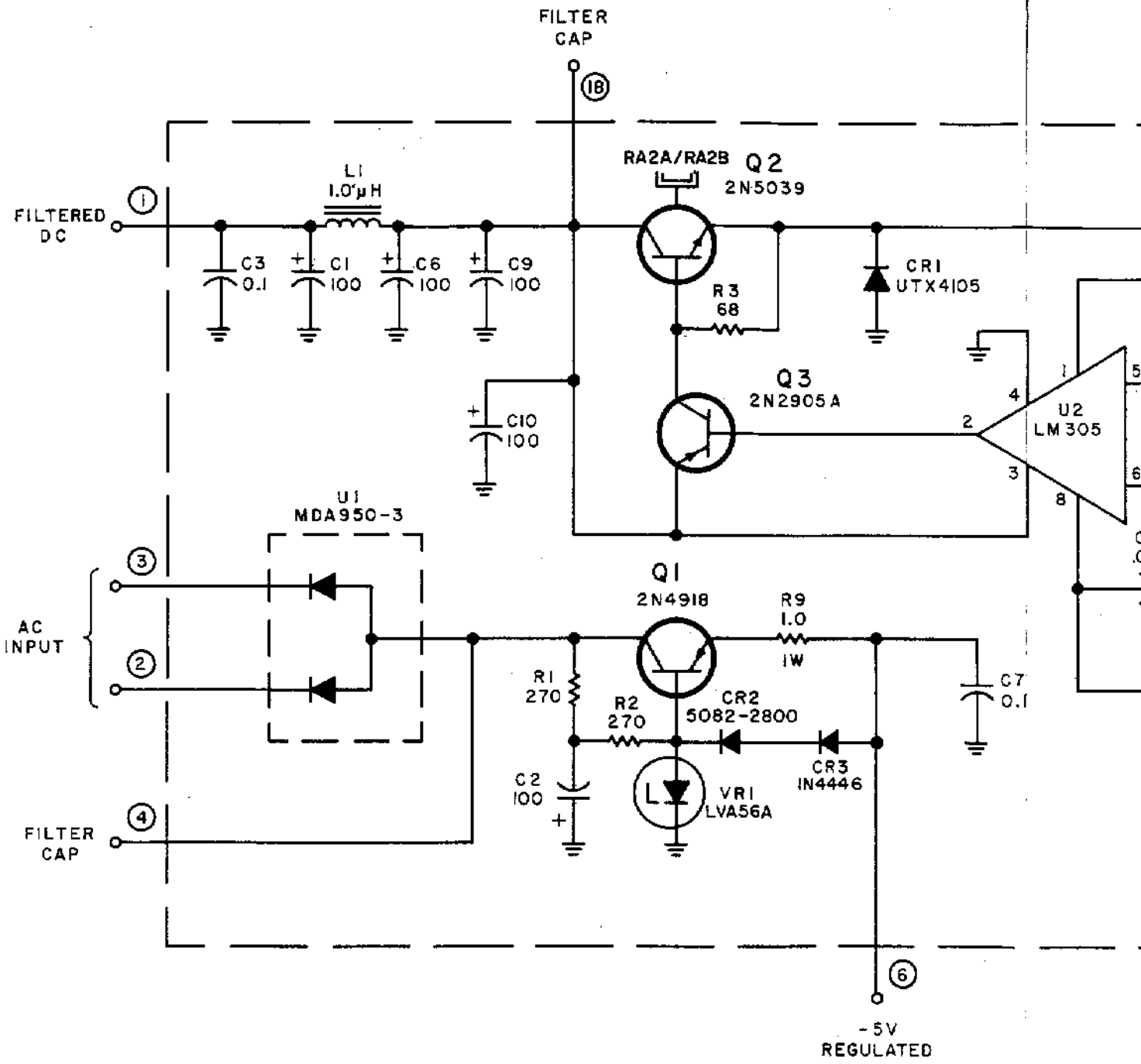
DETAIL A



FOR −6 ONLY

HIGHEST REF DESIG USED	REF DESIG NOT USED
C4 Q2 RA2 R6 U4	C1, C2 Q1 RA1 R1, 2 & 3 U1 & U2

Figure 7-29. Type 76210-1 ± 15 V Power Supply (A26), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ± 5%, 1/4W.
   b) CAPACITANCE IS IN µF.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. FOR U2 PIN ARRANGEMENT, SEE DETAIL A.

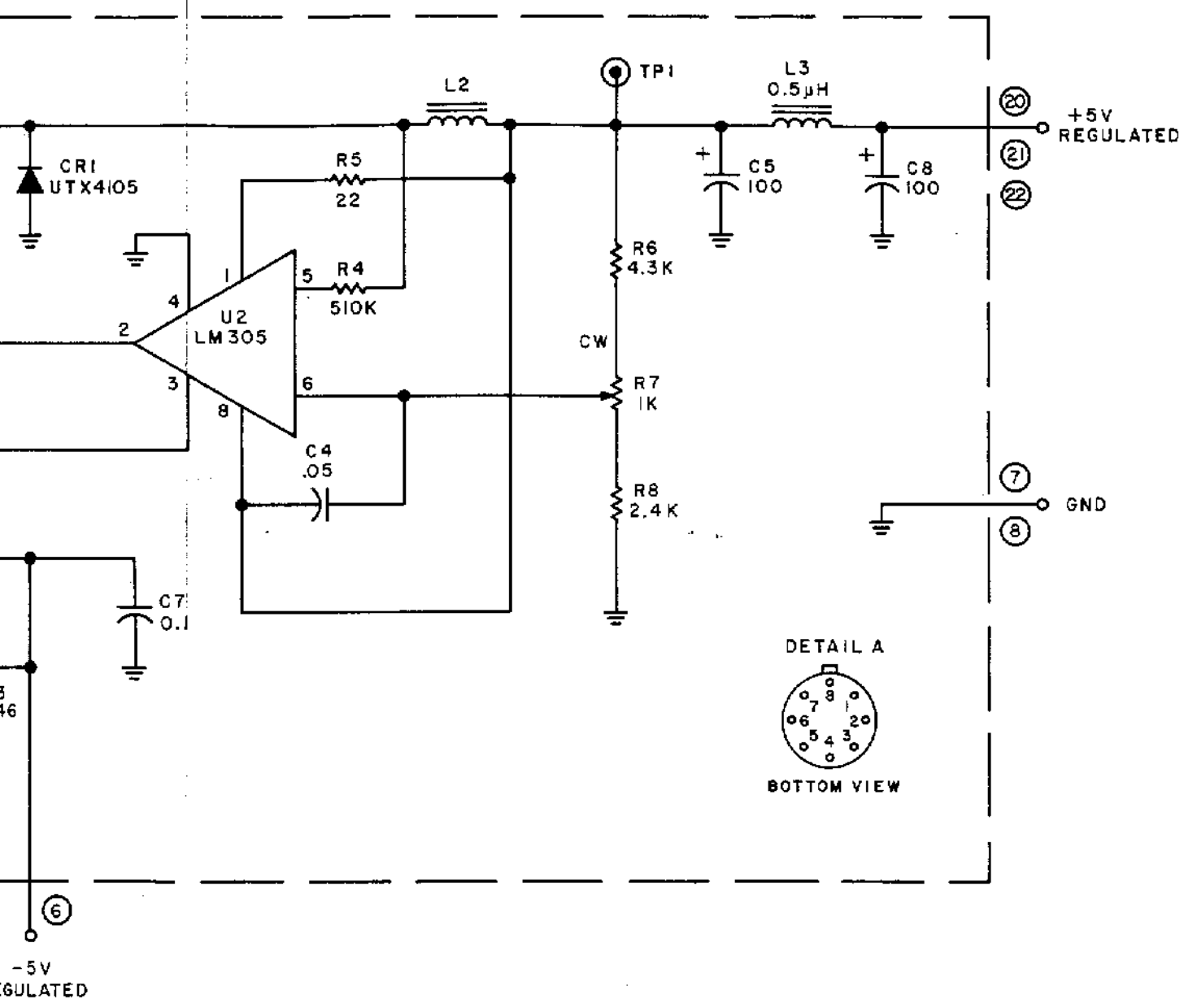


Figure 7-30. Type 76209 ±5 V Switching Regulator (A27), Schematic Diagram

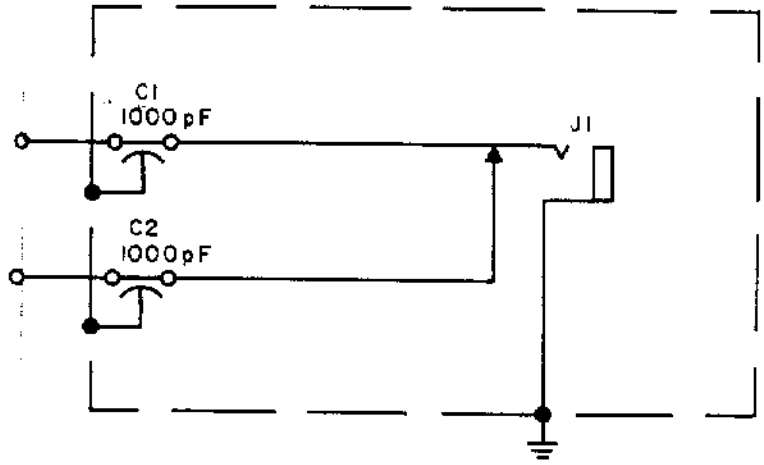
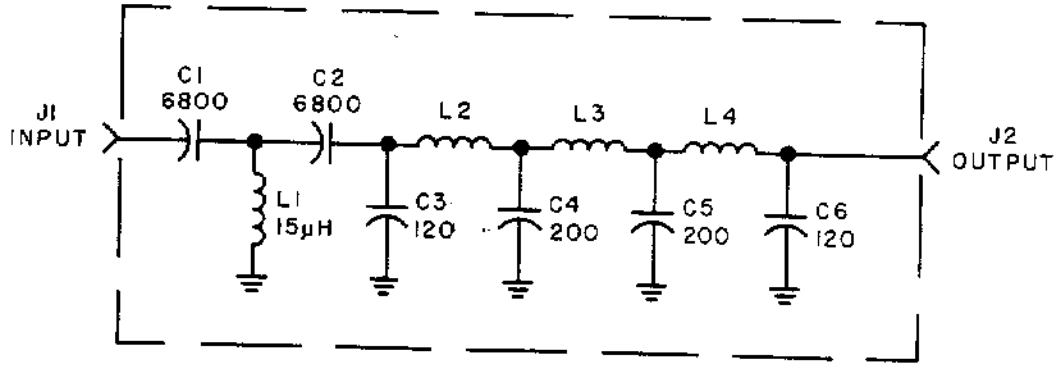


Figure 7-31. Type 791275 Phone Jack Assembly (A28), Schematic Diagram



NOTE:
CAPACITANCE IS IN pF.

Figure 7-32. Type 791312 0.5-30 MHz Bandpass Filter (A30), Schematic Diagram

NOTES:

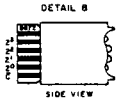
1. UNLESS OTHERWISE SPECIFIED:
   a) RESISTANCE IS IN OHMS, ±5%, 1/4W.
   b) CAPACITANCE IS IN μF.
   c) ALL FEEDTHRU CAPACITORS (SOLDERED OR THREADED) ARE 0.05μF, EXCEPT THOSE SPECIFIED IN NOTE 9
2. ENCIRCLED NUMBERS (LETTERS) ARE MODULE PINS.
3. CW ON POTENTIOMETERS INDICATES CLOCKWISE ROTATION OF ACTUATOR.
4. ▭ INDICATES FRONT PANEL CONTROL.
5. SWITCH S3 IS SHOWN IN EXTREME CCW POSITION AND IS VIEWED FROM END OPPOSITE CONTROL KNOB. ARROW INDICATES CW ROTATION OF CONTROL KNOB.
6. IN ALL CASES THE ANGLE OF APPROACH TO ALL GROUPED CONDUCTORS INDICATES DIRECTION TO BE FOLLOWED ALONG THOSE CONDUCTORS.
7. ⏚ INDICATES SEPARATE WIRED GROUP RETURN SYSTEM. THE ⏚ SYMBOL INDICATES THE POINT AT WHICH THAT RETURN IS GROUNDED TO THE CHASSIS. SEE DETAIL A FOR GROUP RETURNS.
8. P ⟿ INDICATES TWISTED WIRE PAIR.
9. CAPACITORS C47 THRU C80 ARE 1000pF.
10. UNIT SHOWN WIRED FOR 115/220V OPERATION. FOR 115/230V OPERATION DISCONNECT FUSE F2 FROM T1 PIN 5 AND CONNECT IT TO T1 PIN 3. CHANGE THE REFERENCE AT FLIP1 AND S2 TO 115/230V.
11. DASH NUMBER OF IF FILTER A4 AND A6 IS DETERMINED BY BANDWIDTH SELECTED.
12. TYPE NUMBER OF A16 IS A CUSTOMER SELECTED OPTION. UNLESS OTHERWISE SPECIFIED, SYNCHRONOUS I/O WILL BE SUPPLIED.

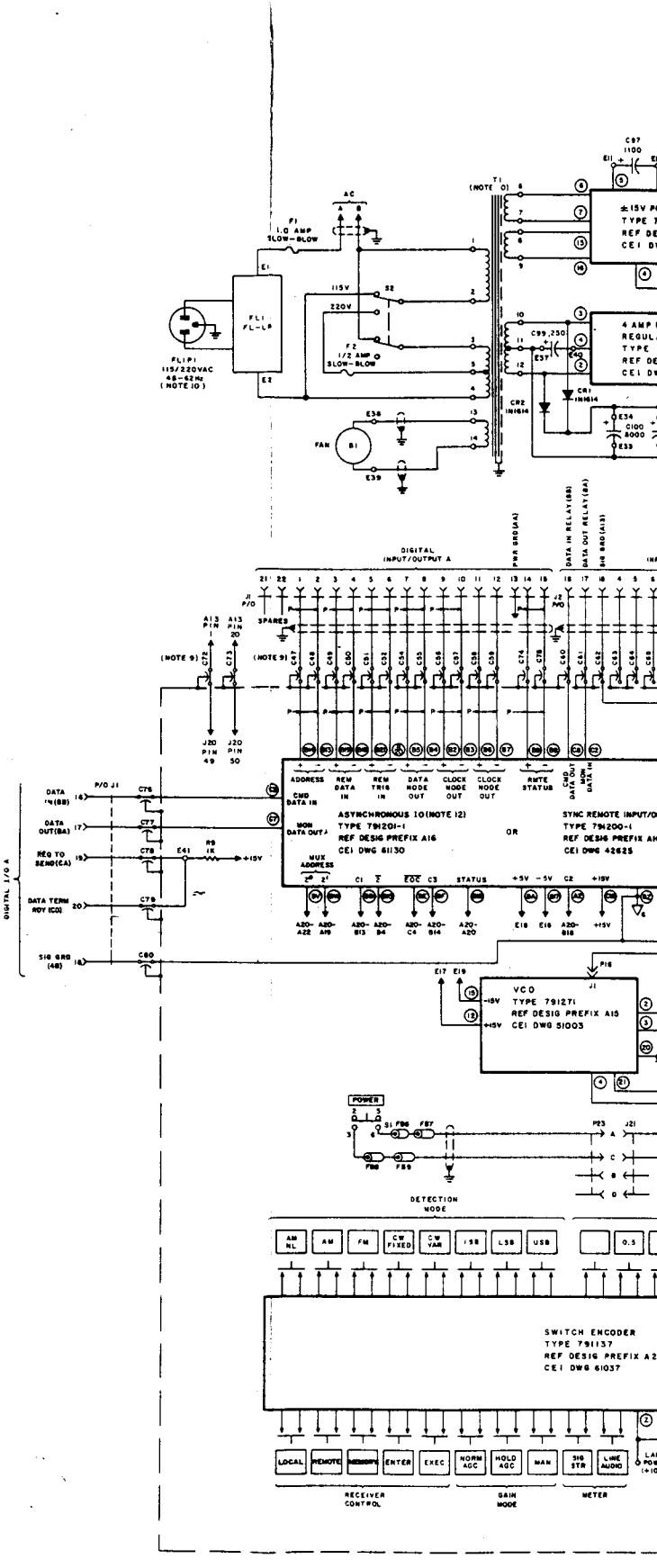
DETAIL A

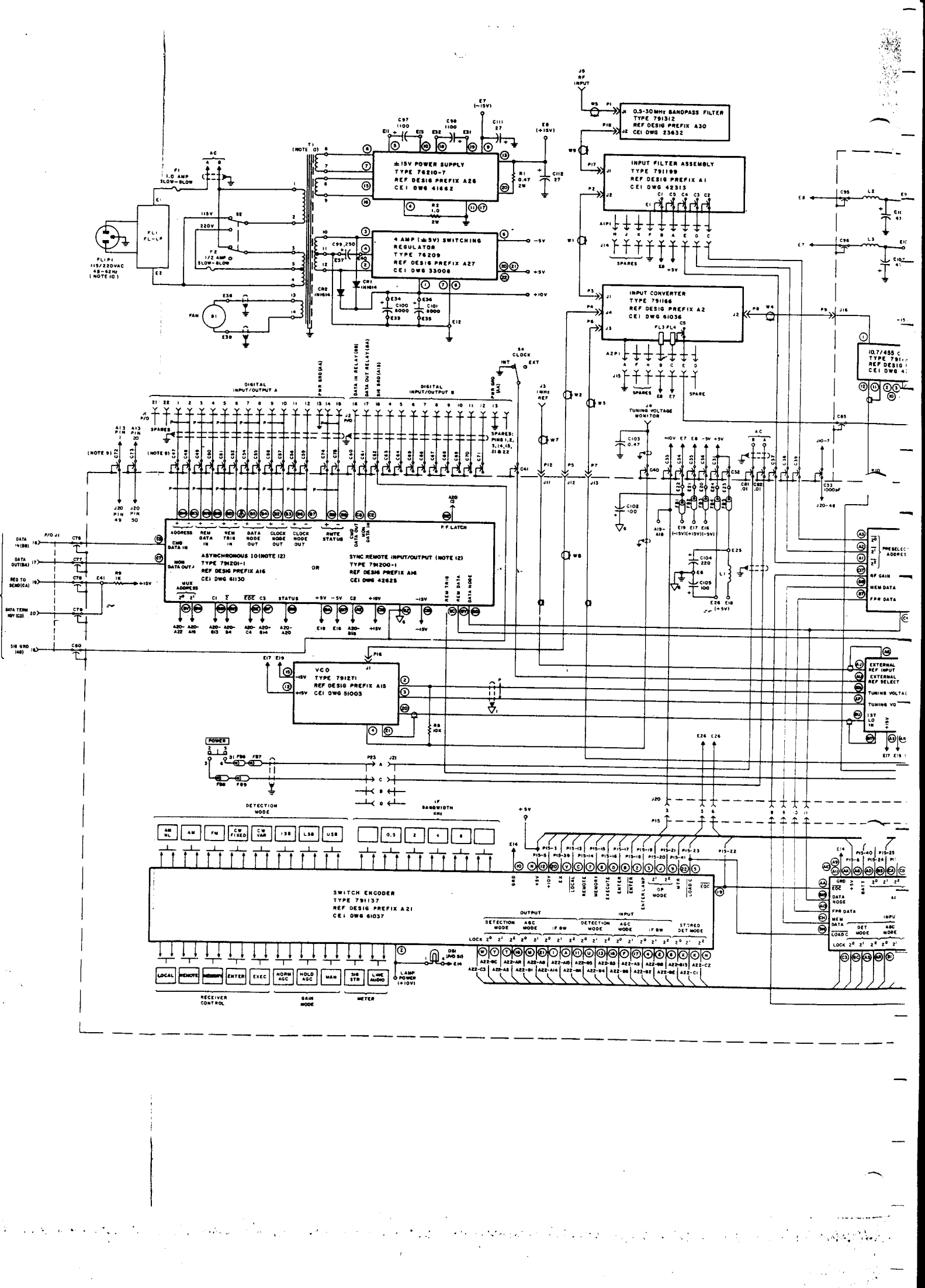
GROUND GROUP	REF DESIG	MODULE PIN NUMBERS (LETTERS)
⏚1	A18	A1 – A22.
⏚2	A18	B1 – B22
⏚3	A19	A1, A6–A8, AA–AM, B17, BL–BW
⏚4	A19	B20–B22, BX–BZ, C1–C6, C22, CA–CZ
⏚5	A19	A16, A17, AV–AY, B1, B2, BA–BK

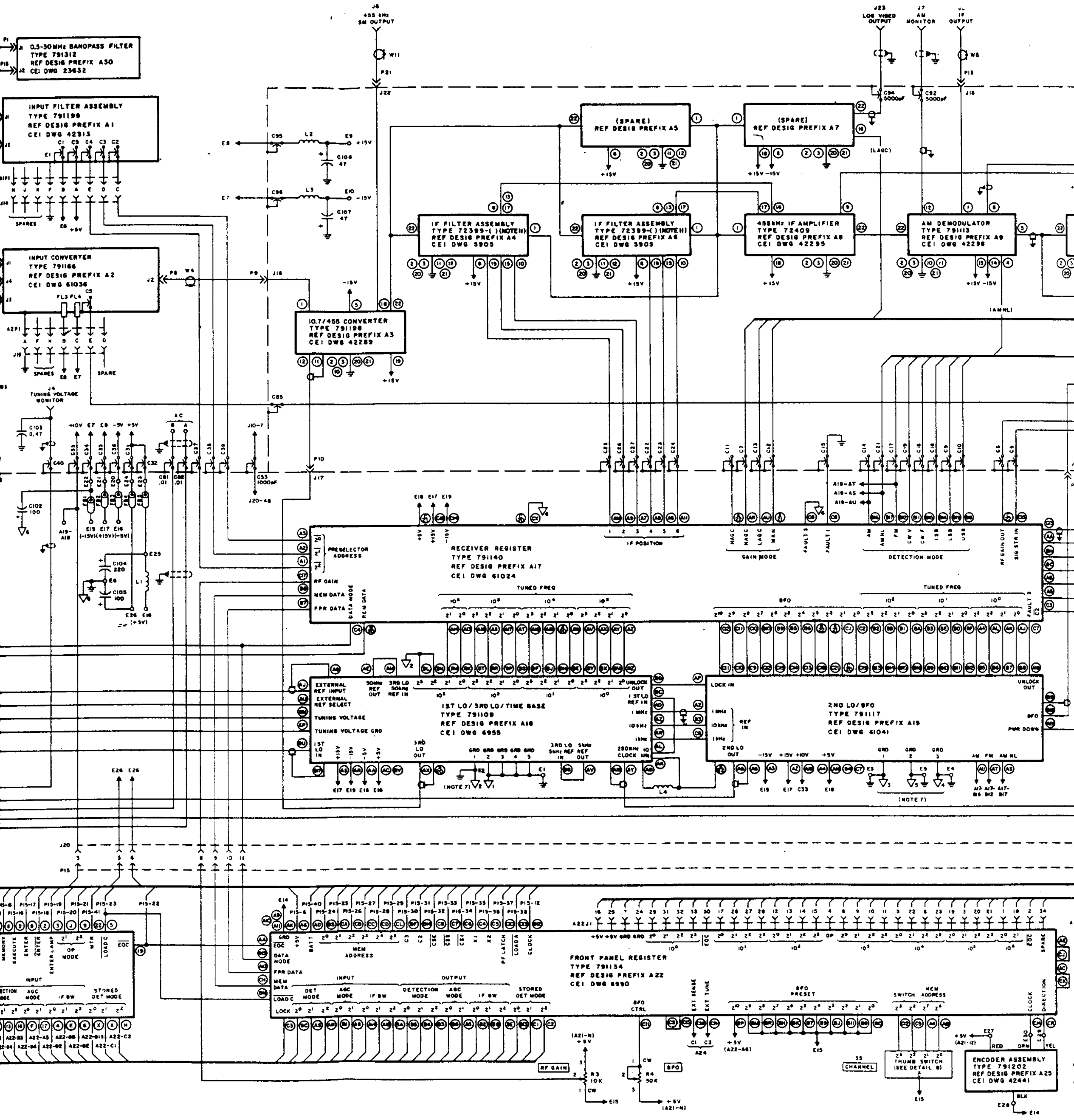
HIGHEST REF DESIG USED	REF DESIG NOT USED
A30	C8, C20,
B1(FAN)	C42–C46,
C112	
CR2	C91, C93
DS1	J6
E41	P11
F2	P19
FB5	P20
FL1	P22
J23	R5
L3	W10
M1	
P23	
R9	
S5	
T1	
W11	

DETAIL B






0.5-30 MHz BANDPASS FILTER
TYPE 791312
REF DESIG PREFIX A30
CEI DWG 23632
INPUT FILTER ASSEMBLY
TYPE 791199
REF DESIG PREFIX A1
CEI DWG 42313
±15V POWER SUPPLY
TYPE 76210-7
REF DESIG PREFIX A26
CEI DWG 41662
4 AMP (±5V) SWITCHING
REGULATOR
TYPE 76209
REF DESIG PREFIX A27
CEI DWG 33008
INPUT CONVERTER
TYPE 791166
REF DESIG PREFIX A2
CEI DWG 61036
ASYNCHROMOUS IO(NOTE 12)
TYPE 791201-1
REF DESIG PREFIX A16
CEI DWG 61130
OR
SYNC REMOTE INPUT/OUTPUT (NOTE 12)
TYPE 791200-1
REF DESIG PREFIX A16
CEI DWG 42625
VCO
TYPE 791271
REF DESIG PREFIX A15
CEI DWG 51003
SWITCH ENCODER
TYPE 791137
REF DESIG PREFIX A21
CEI DWG 61037
DIGITAL INPUT/OUTPUT A
DIGITAL INPUT/OUTPUT B
P/F LATCH
TUNING VOLTAGE MONITOR
DETECTION MODE
IF BANDWIDTH KHz
RECEIVER CONTROL
GAIN MODE
METER


0.5-30MHz BANDPASS FILTER
TYPE 791312
REF DESIG PREFIX A30
CEI DWG 23632
INPUT FILTER ASSEMBLY
TYPE 791199
REF DESIG PREFIX A1
CEI DWG 42313
INPUT CONVERTER
TYPE 791166
REF DESIG PREFIX A2
CEI DWG 61036
10.7/455 CONVERTER
TYPE 791198
REF DESIG PREFIX A3
CEI DWG 42289
455 kHz SM OUTPUT
LOG VIDEO OUTPUT
AM MONITOR
IF OUTPUT
(SPARE)
REF DESIG PREFIX A5
(SPARE)
REF DESIG PREFIX A7
IF FILTER ASSEMBLY
TYPE 72399-( )(NOTE H)
REF DESIG PREFIX A4
CEI DWG 5905
IF FILTER ASSEMBLY
TYPE 72399-( )(NOTE H)
REF DESIG PREFIX A6
CEI DWG 5905
455kHz IF AMPLIFIER
TYPE 72409
REF DESIG PREFIX A8
CEI DWG 42295
AM DEMODULATOR
TYPE 791113
REF DESIG PREFIX A9
CEI DWG 42296
TUNING VOLTAGE MONITOR
RECEIVER REGISTER
TYPE 791140
REF DESIG PREFIX A17
CEI DWG 61024
PRESELECTOR ADDRESS
RF GAIN
MEM DATA
FPR DATA
IF POSITION
GAIN MODE
DETECTION MODE
TUNED FREQ
BFO
1ST LO/3RD LO/TIME BASE
TYPE 791109
REF DESIG PREFIX A18
CEI DWG 6955
EXTERNAL REF INPUT
EXTERNAL REF SELECT
TUNING VOLTAGE
TUNING VOLTAGE GRD
UNLOCK OUT
2ND LO/BFO
TYPE 791117
REF DESIG PREFIX A19
CEI DWG 61041
LOCK IN
PWR DOWN
(NOTE 7)
FRONT PANEL REGISTER
TYPE 791134
REF DESIG PREFIX A22
CEI DWG 6990
MEM ADDRESS
INPUT
OUTPUT
DETECTION MODE
AGC MODE
IF BW
STORED DET MODE
BFO PRESET
SWITCH
MEM ADDRESS
BFO CTRL
RF GAIN
BFO
CHANNEL
THUMB SWITCH (SEE DETAIL B)
ENCODER ASSEMBLY
TYPE 791202
REF DESIG PREFIX A25
CEI DWG 42441

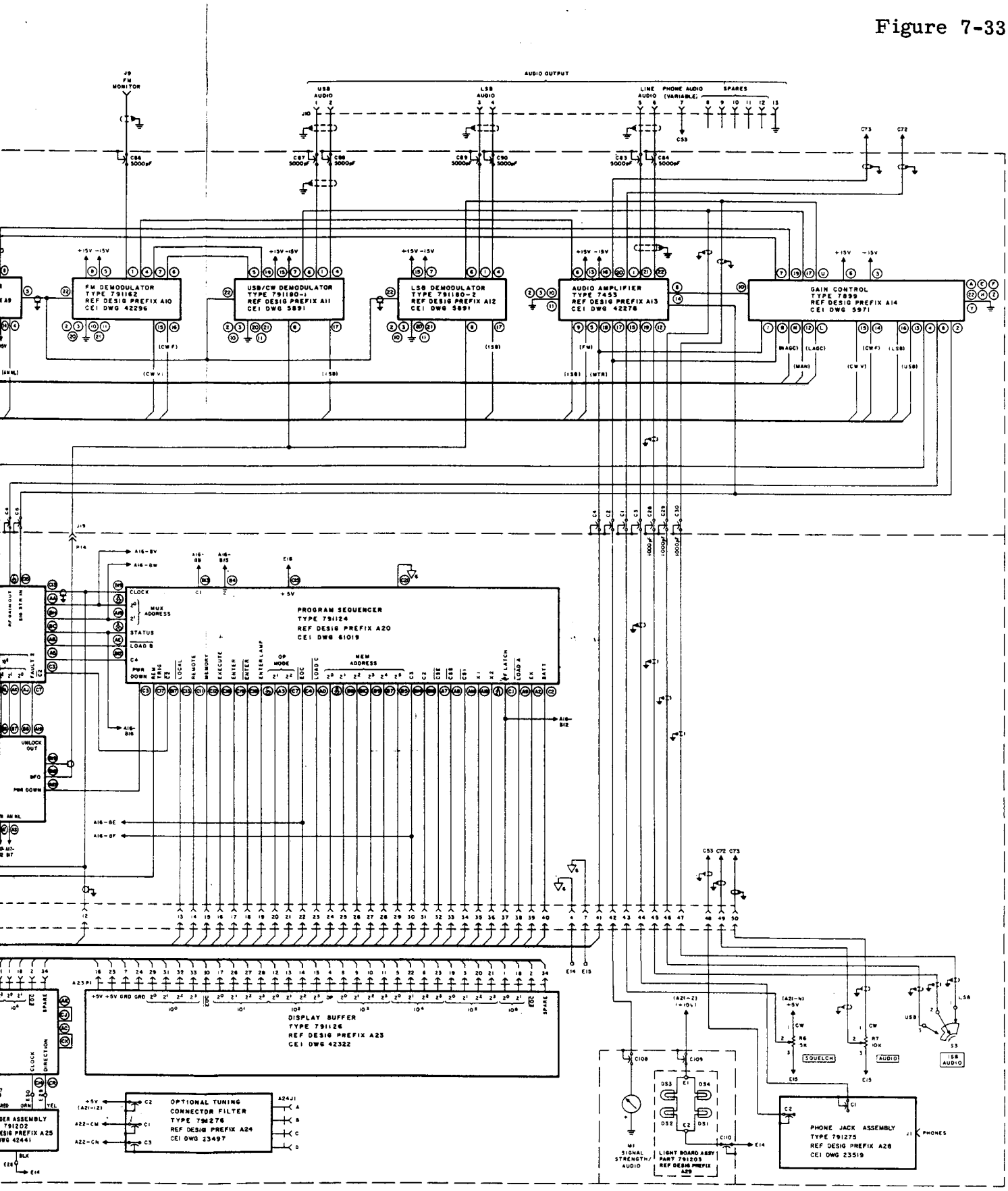


Figure 7-33. WJ-8888 HF Receiver, Schematic Diagram