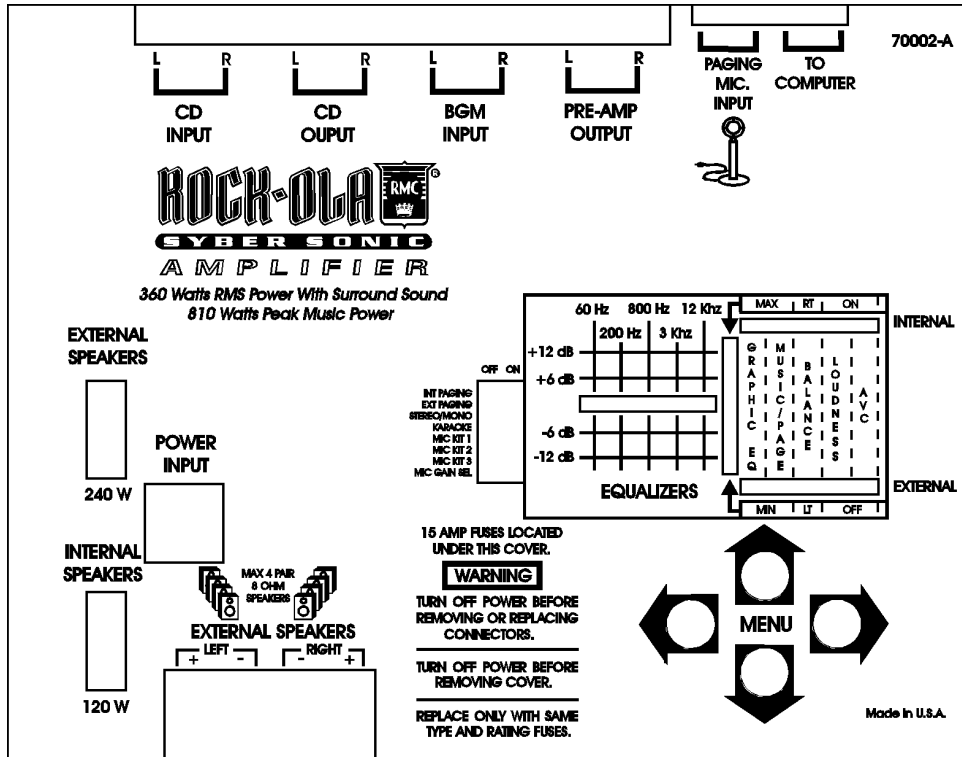
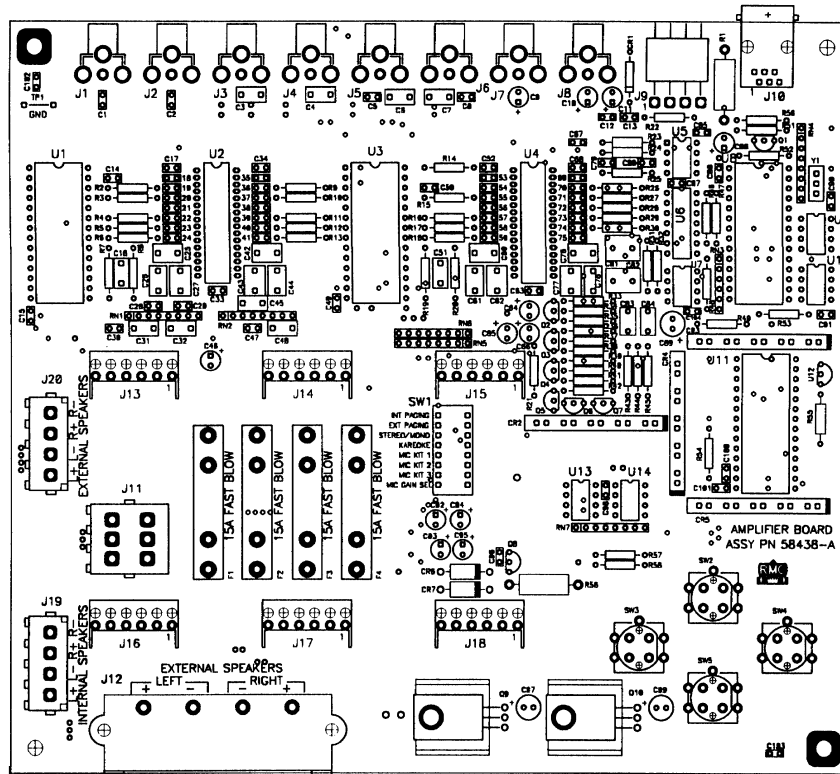


# Amplifier



## Pre-Amp Component Layout



Pre-Amp Board 58438-2A

## Pre-Amp Bill of Materials

Qty	Description	Reference Designation
1	PCB Amplifier #58439	PCB
1	Test Point, Ground	TP1
4	Capacitor: 1000pF, 50V, Mono	C15, C32, C49, C61
26	Capacitor: .1uF, 50V, Mono	C8, C9, C10, C28, C43, C44, C57, C69 - C76, C78 - C83, C88, C89, C90, C93, C94
4	Capacitor: 4700pF, 50V, Mono	C12, C29, C46, C58
4	Capacitor: 220pF, 100V, Mono	C23, C24, C25, C41
4	Capacitor: 820pF, 100V, Mono	C14, C31, C48, C60
8	Capacitor: .18uF, 50V, MF	C20, C21, C37, C39, C54, C55, C66, C68
10	Capacitor: .22uF, 50V, MF	C1, C2, C3, C4, C11, C26, C27, C40, C42, C45
4	Capacitor: .33uF, 50V, MF	C22, C38, C56, C67
3	Capacitor: 100uF, 25V, Elect	C6, C86, C87
2	Capacitor: 10uF, 35V, Elect	C5, C7
4	Capacitor: 1uF, 50V, Elect	C84, C85, C91, C92
8	Capacitor: .015uF, 63V, Mono	C16, C17, C33, C34, C50, C51, C62, C63
4	Capacitor, 3300pF, 63V, Mono	C13, C30, C47, C59
4	Capacitor: .047uF, 63V, Mono	C19, C36, C53, C65
4	Capacitor: .068uF, 63V, Mono	C18, C35, C52, C64
1	Connector: RJ Type (6-4) Phone Jack	J10
8	Connector: RCA Phono Jack RA	J1 - J8
1	Connector: 4P .156" RA Lock	J9
1	Connector: 6P MNL PCB Header	J11
6	Connector: 6P .156" Bot-Ent	J13 - J18
2	Connector: 4P MNL PCB Header	J19, J20
1	XTAL, Ceramic Resonator w/ Caps 4Mhz	Y1
2	Diode IN4002, 1A 100V	CR7, CR8
2	Diode IN 4148, Switching	CR1, CR2
8	Fuse Clip	FC1 - FC8
4	Fuse, 15A, Fast	F1 - F4
2	Heatsink TO-220	HS1, HS2
1	I.C. LM7805C Voltage Regulator +5VDC	Q3
1	I.C. LM7809C Voltage Regulator +9VDC	Q2
1	I.C. MM5480 23 Bit LED Display Driver	U10
2	I.C. LM358N, Low Power Dual Op-Amp	U9, U12
1	I.C. ADC0831 CMOS 8 Bit Serial A/D	U5
2	I.C. LMC1982CIN, Digital 2IN Stereo Tone Volume	U1, U3
2	I.C. TEA6360N, 5 Band Stereo Equalizer	U2, U4
1	I.C. LM317L, Low Power Adjustable Voltage Reg.	Q4
1	I.C. 16C57 PIC Microcontroller 8 Bit	U6
1	I.C. Voltage Detector MC34064	U11
1	I.C. 93LC46, EEPROM, Serial, 1K	U7
1	I.C. 75176B, Differential Bus Transceiver	U8
4	Diode, Light Emitting 5 pos. Array LN05202P	CR3 - CR6
2	Resistor: 1K, 1/4W, 1% MF	R39, R40
4	Resistor: 10K, 1/4W, 1% MF	R31, R32, R33, R34

Qty	Description	Reference Designation
2	Resistor: 2.49K, 1/4W, 1% MF	R12, R24
12	Resistor: 5.11K, 1/4W, 1% MF	R6, R8, R9, R13, R15, R16, R18, R20, R21, R25, R27, R28
4	Resistor: 6.19K, 1/4W, 1% MF	R10, R17, R22, R29
4	Resistor: 6.81K, 1/4W, 1% MF	R7, R14, R19, R26
2	Resistor: 681K, 1/4W, 1% MF	R11, R23
1	Resistor: 100ohm, 1W, 5% MO	R46
1	Resistor: 1K, 1/4W, 5% CF	R5
4	Resistor: 10K, 1/4W, 5% CF	R4, R37, R38, R41
1	Resistor: 100K, 1/4W, 5% CF	R30
1	Resistor: 240 ohm, 1/4W, 5% CF	R44
1	Resistor: 2.7K, 1/4W, 5% CF	R36
2	Resistor: 39K, 1/4W, 5% CF	R3, R45
1	Resistor: 4.3K, 1/4W, 5% CF	R43
1	Resistor: 470K, 1/4W, 5% CF	R35
1	Resistor: 62 ohm, 1/4W, 5% CF	R1
1	Resistor: 47 ohm, 2W, 5% MO	R2
1	Resistor SIP Network 10K ohm 6P Isolated	RN1
1	Resistor SIP Network, 1.5K Ohm, 8P Isolated	RN4
2	Resistor SIP Network, 56K ohm, 8P Isolated	RN3, RN6
1	Resistor SIP Network, 47K ohm, 6P Common	RN7
1	Socket, 28 pin	SU6
4	Switch, SPST Momentary, Pushbutton No	SW2 - SW5
1	Swich, SPDT, Horizontal PCB Slide	SW1
1	Connector: 4P Spring loaded	J12
1	Transistor PNP PN2907	Q1
2	Keps Nut #6	HW3, HW4
2	Screw #6-32 x 3/8 Pan Hd	HW1, HW2

## Pre-Amp Connector Pinouts

### RCA Jacks

Center = +

Outside = Ground

- J1 - Left CD Input
- J2 - Right CD Input
- J3 - Left CD Output
- J4 - Right CD Output
- J5 - Left BGM Input
- J6 - Right BGM Input
- J7 - Left Pre-Amp Out
- J8 - Right Pre-Amp Out

### Microphone Input: J9

- Pin #1 Ground
- 2 Signal
- 3 Switch -
- 4 Switch +

### Communication (RS485) to Computer: J10

- Pin #1 Blank
- 2 Blank
- 3 Signal +
- 4 Signal -
- 5 Ground
- 6 Blank

### Power In: J11 (From Power Supply)

- Pin #1 22 VAC
- 2 22 VAC
- 3 Center Tap
- 4 Center Tap
- 5 22 VAC
- 6 22 VAC

### External Speakers Push Connectors: J12

- Pin #1 Left External +
- 2 Left External -

- 3 Right External -
- 4 Right External +

### Left Channel Power Amp Supply: J13

- Pin #1 22 VAC
- 2 22 VAC
- 3 22 VAC
- 4 22 VAC
- 5 Ground
- 6 Ground

### Left Channel Pre-Amp Output: J14

- Pin #1 Internal
- 2 Ground
- 3 External
- 4 Ground
- 5 Blank
- 6 +32 VDC

### Left Channel Power Amp Output: J15

- Pin #1 Left Internal +
- 2 Left Internal -
- 3 Left External +
- 4 Left External -
- 5 Left External +
- 6 Left External -

### Right Channel Power Amp Supply: J16

- Pin #1 22 VAC
- 2 22 VAC
- 3 22 VAC
- 4 22 VAC
- 5 Ground
- 6 Ground

### Right Channel Pre-Amp Out: J17

- Pin #1 Internal
- 2 Ground
- 3 External
- 4 Ground
- 5 Blank
- 6 +32 VDC

### Right Channel Power Amp Output: J18

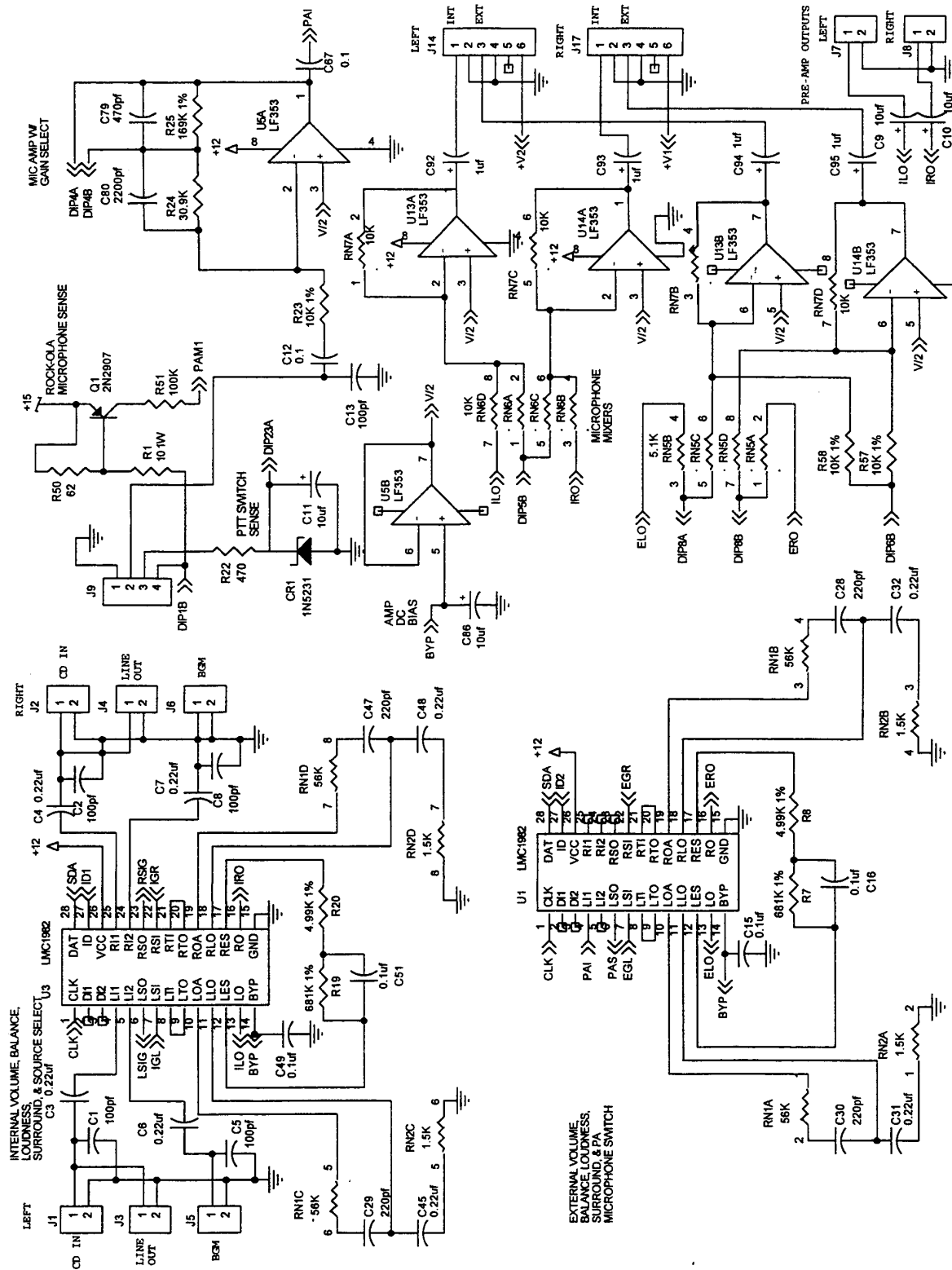
- Pin #1 Right Internal +
- 2 Right Internal -
- 3 Right External +
- 4 Right External -
- 5 Right External +
- 6 Right External -

### Internal Speakers: J19

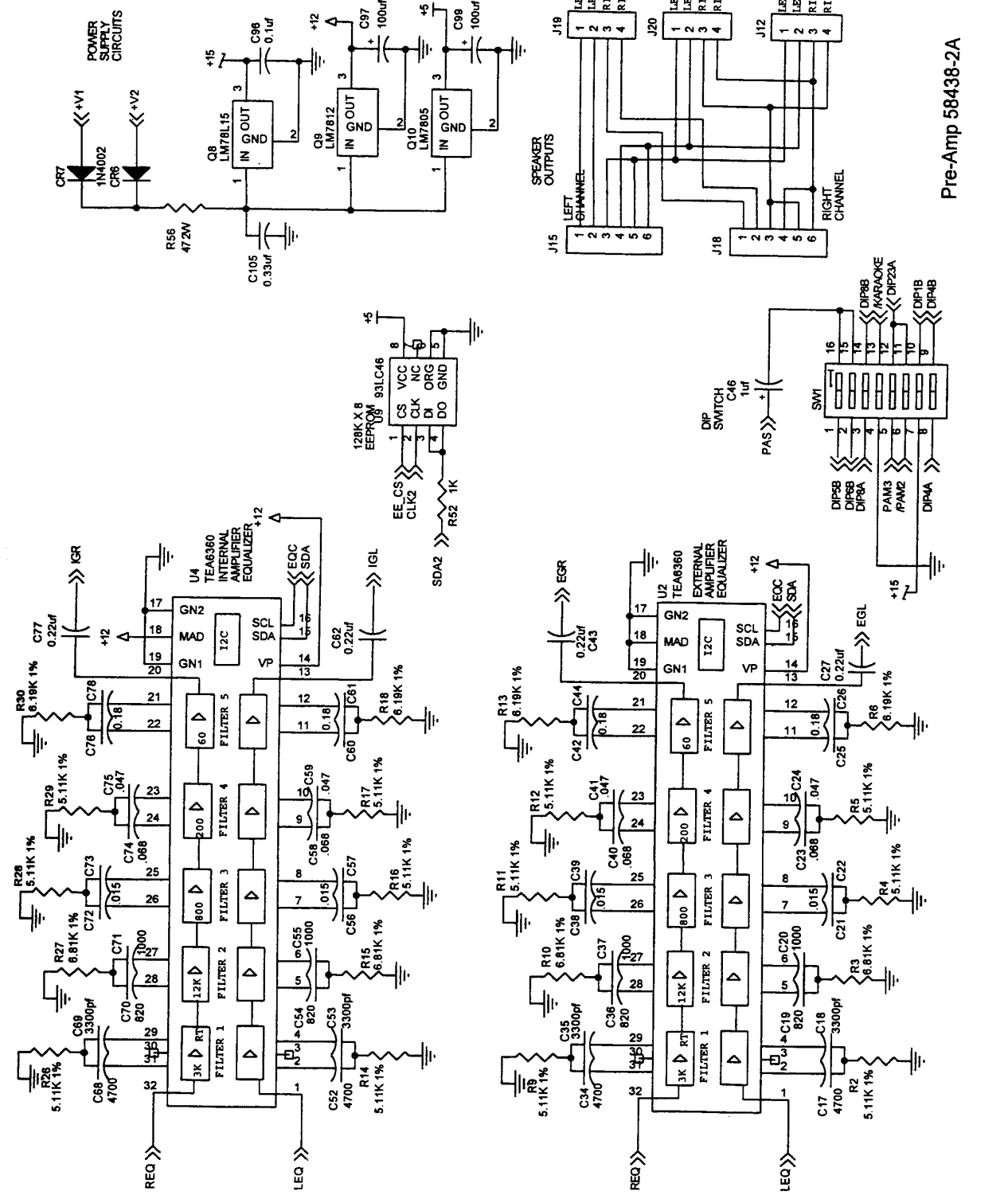
- Pin #1 Left Internal +
- 2 Left Internal -
- 3 Right Internal +
- 4 Right Internal -

### External Speakers: J20 To Transformer Package

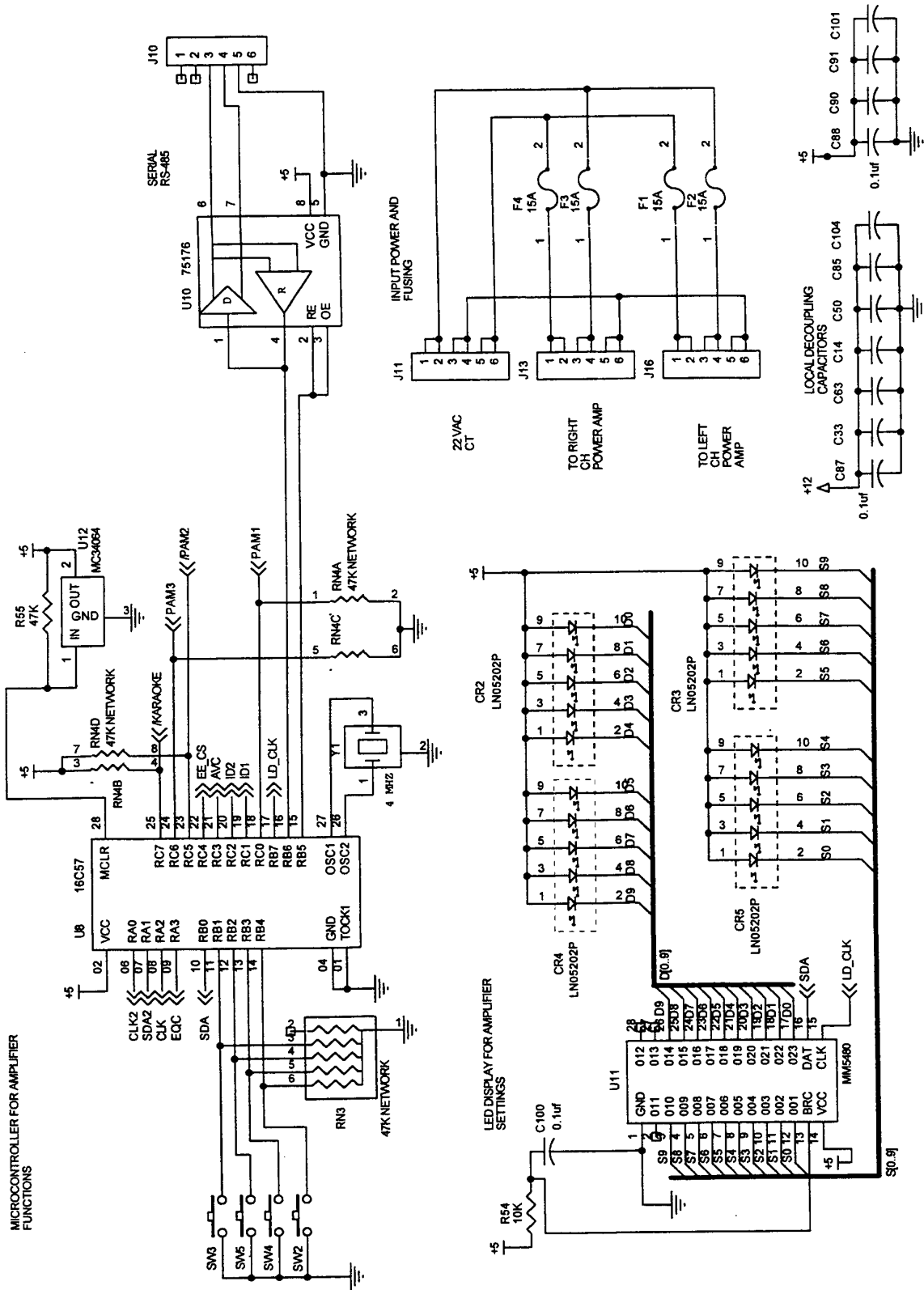
- Pin #1 Left External +
- 2 Left External -
- 3 Right External +
- 4 Right External -



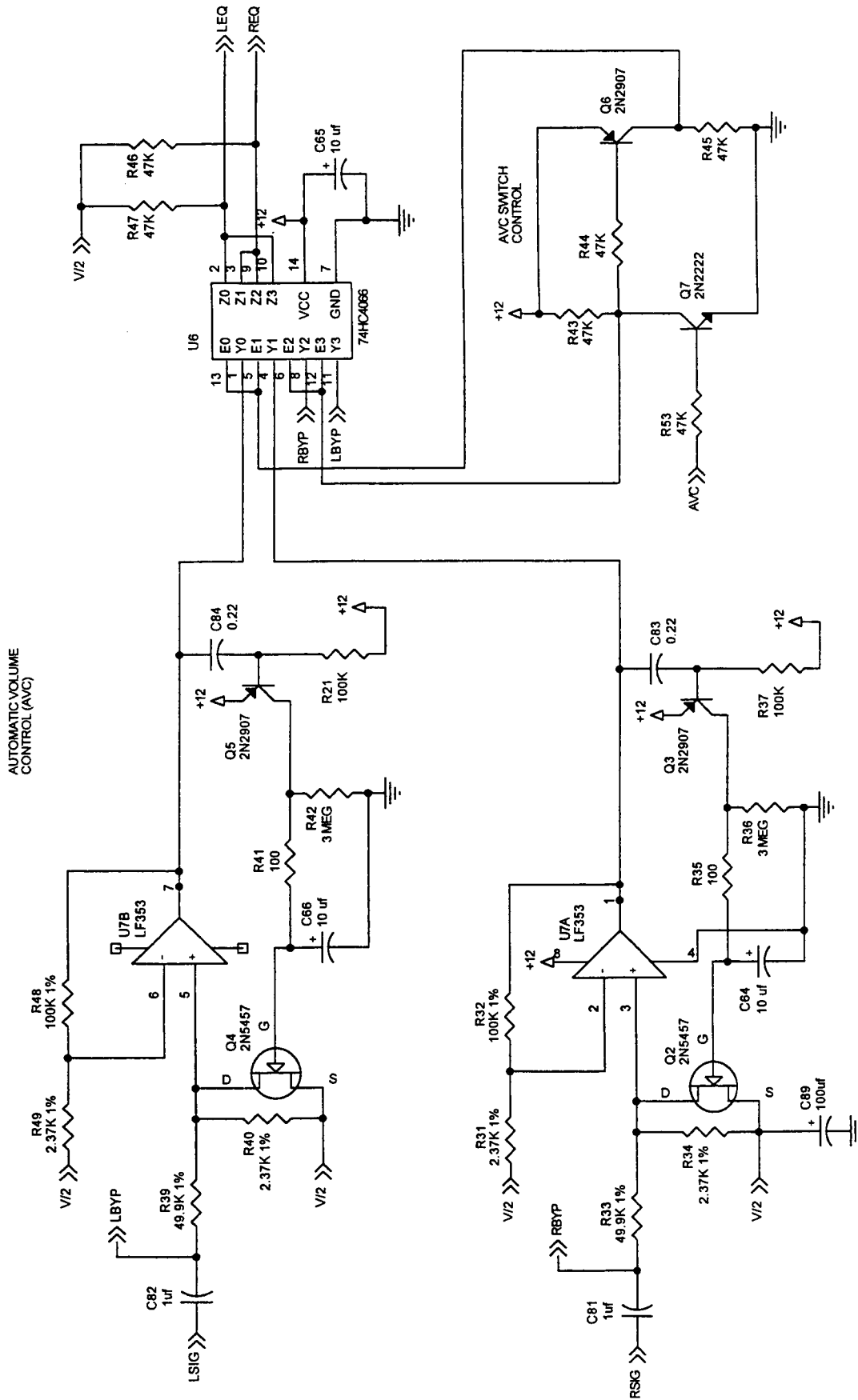
Pre-Amp 58438-2A



Pre-Amp 58438-2A

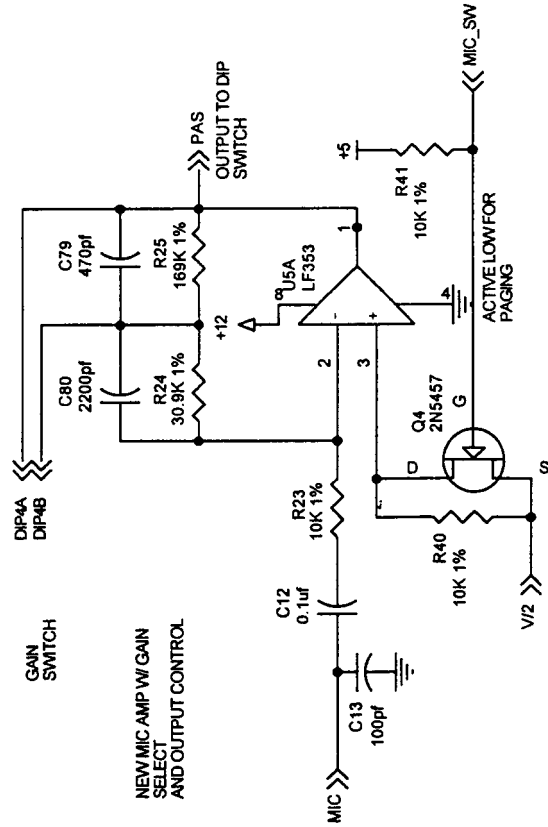


Pre-Amp 58438-2A



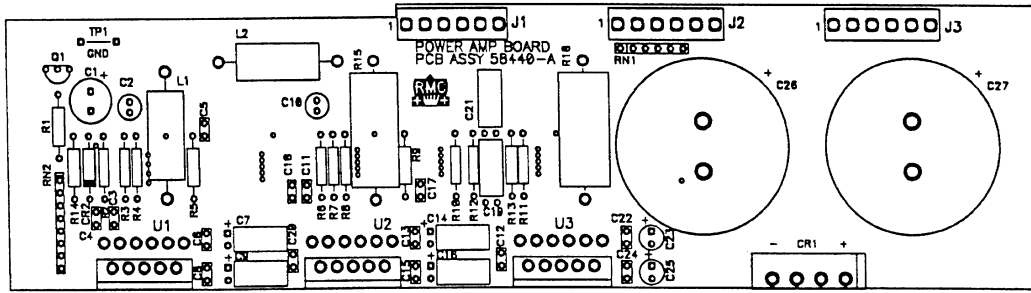
Pre-Amp 58438-2A





Pre-Amp 58438-2A

**Power Amp Component Layout**



Power Amp Board 58440-A

**Power Amp Bill of Materials**

Qty	Description	Reference Designation
1	PCB, Power Amp #58441	PCB
1	Test Point	TP1
8	Capacitor: 0.1uF, 50V Mono	C5, C6, C8, C13, C15, C17, C22, C24
2	Capacitor: 100pF, 100V	C3, C11
3	Capacitor: 220pF, 100V Mono	C4, C12, C20
1	Capacitor: 47pF, 100V Mono	C18
1	Capacitor: 470uF, 6.3V, Elect	C1
6	Capacitor: 10uF, 35V, Elect	C7, C9, C14, C16, C23, C25
4	Capacitor: 22uF, 10V, Bi-polar	C2, C10, C19, C21
2	Capacitor: 15000uF, 35V, Elect	C26, C27
2	Choke, 7uH, 10 ohms	L1, L2
3	Connector: 6P	J1, J2, J3
1	Zener, IN5245, 15V, 1/2W	CR2
1	Diode, 8A, 100V, Bridge	CR1
3	I.C. LM3886T, 150W Audio Power Amplifier	U1, U2, U3
4	Resistor: 1K, 1/4W, 1% MF	R2, R6, R12, R13
2	Resistor: 10K, 1/4W, 1% MF	R10, R11
4	Resistor: 29.4K, 1/4W, 1% MF	R3, R4, R7, R8
1	Resistor: 15K, 1/4W, 5% CF	R1
2	Resistor: 2.7 ohms, 1/4W, 5% CF	R5, R9
1	Resistor: 4.3K, 1/4W, 5% CF	R14
2	Resistor: 0.2 ohm, 5W, 5% WW	R15, R16
1	Resistor SIP Network, 1K ohm, 8P Isolated	RN2
1	Resistor SIP Network, 22K ohm, 6P Common	RN1
1	Transistor PNP, PN2907	Q1

**Power Amp Connector Pinouts**

**Outputs: J1**  
to Pre-Amp Board: J15 or J18

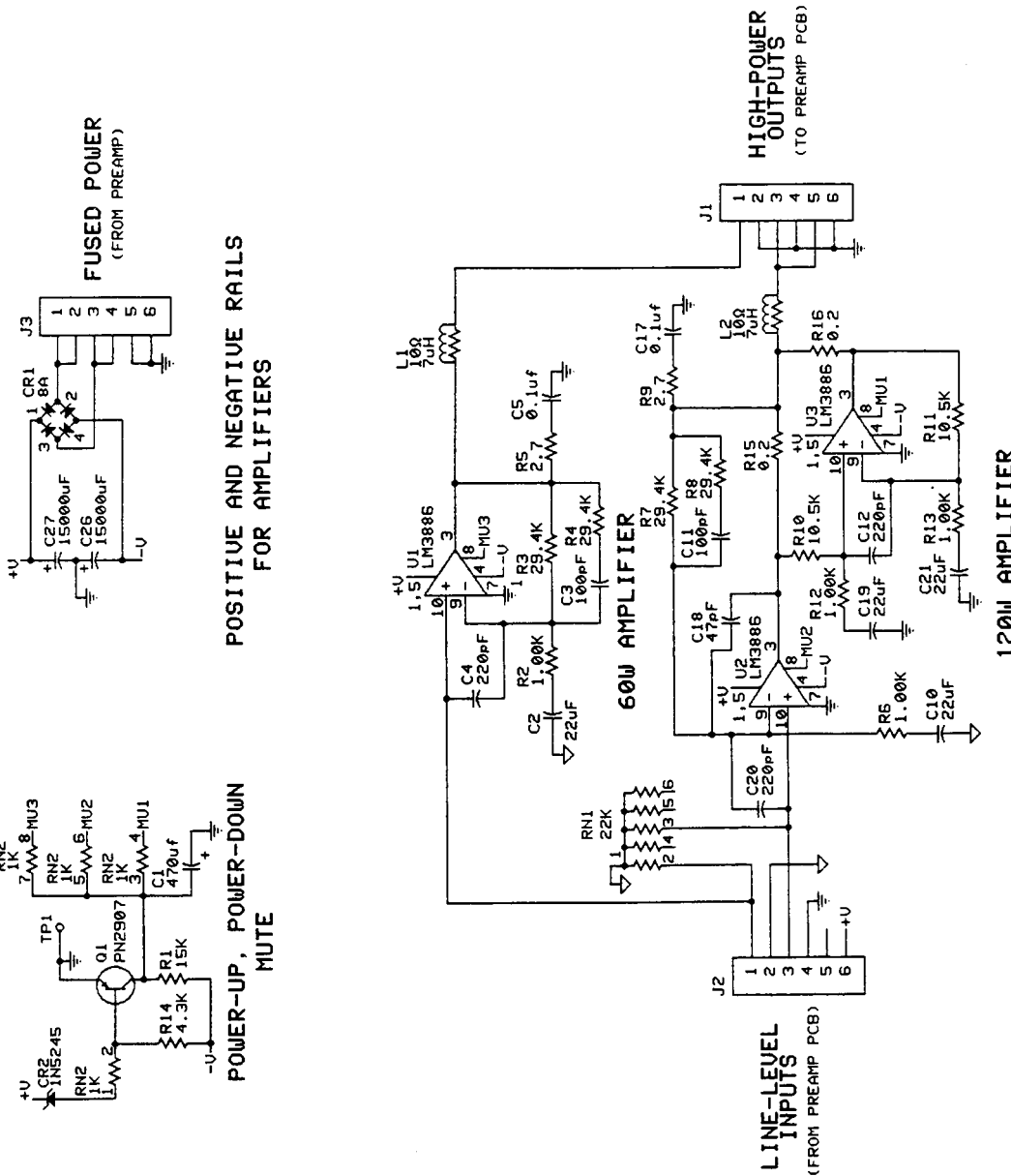
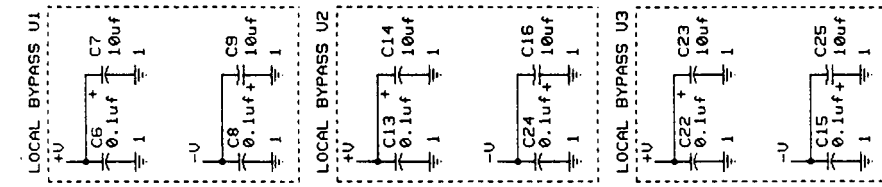
Pin #1	Internal +
2	Ground
3	External +
4	Ground
5	External +
6	Ground

**Input: J2**  
from Pre-Amp: J14 or J17

Pin #1	Internal +
2	Ground
3	External +
4	Ground
5	Blank
6	+32 VDC (+V)

**Fused Power: J3**  
from Pre-Amp: J13 or J16

Pin #1	22 VAC
2	22 VAC
3	22 VAC
4	22 VAC
5	Ground
6	Ground



Power Amp 58440-A