

MUZAK®

MA-50 AMPLIFIER

OPERATING INSTRUCTIONS



OPERATION

CONTROLS AND INDICATORS

A primary power ON-OFF switch and pilot indicator are located on the front panel. A VOLUME control with cover cap is located on the rear of the chassis.

HIGH-PASS FILTER

A two-section high-pass filter is provided with the MA-50 to protect driver loudspeakers from excessive low-frequency power demands. Filter use is indicated when high power output from the amplifier is applied to driver loudspeakers not equipped with protective crossover networks. The 3 dB frequency of the high-pass filter is approximately 400 Hz.

A FILTER IN-OUT switch is located on the rear of the chassis (see Figure 2). The switch is placed in the OUT position when the MA-50 is shipped from the factory.

INSTALLATION

The MA-50 may be installed in a standard 19-inch equipment rack. Vertical space required is 5¼ inches.

RACK INSTALLATION

1. Remove four screws securing front panel. Open and lower panel as shown in Figure 1.
2. Install MA-50 in equipment rack with appropriate four screws supplied.
3. Close front panel and secure with four screws previously removed.

VENTILATION

The MA-50 generates minimal heat during normal use. Although the amount of heat is relatively low, the amplifier must be ventilated to prevent an excessive temperature rise. Because transistors are heat sensitive, the MA-50 should not be placed adjacent to heat-generating equipment or in areas where ambient temperature exceeds 55°C (131°F).

If the MA-50 is installed in an equipment rack or cabinet with other heat-producing equipment installed above and/or below (two or more MA-50's or one MA-50 with real time analyzer, oscilloscope, etc.), space must be provided between the units or the MA-50 may become too warm. A 1¾" perforated panel is recommended

for this purpose. When several amplifiers or other heat-producing units are installed in a single rack or cabinet, acceptable air temperature may be in doubt. To determine temperature conditions, operate the system until temperature stabilizes, then measure air temperature with a bulb-type thermometer held at the bottom of the uppermost amplifier. Do not let the thermometer bulb touch metal because the metal probably will be hotter than the ambient air. If air temperature exceeds 55°C (131°F), the equipment should be spaced farther apart or a blower should be installed to ventilate the cabinet.

ELECTRICAL

120 Volt, 50/60 Hz Power Connections

Equipment supplied for domestic use is provided with the power transformer primary strapped for 120 volts (terminals 1 to 2 and 3 to 4 on TB3). The power input rating is adjacent to the power cord on the chassis (see Figure 2). Verify that line voltage is in accordance with the voltage rating before connecting the MA-50 to line power.

240 Volt, 50/60 Hz Power Connections

Export equipment is provided with the power transformer primary strapped for 240 volts (terminals 2 to 3 on TB3). The

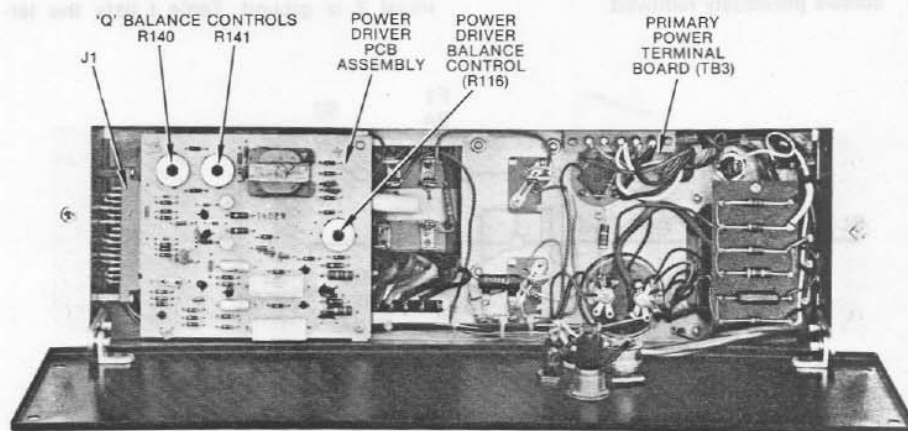


Figure 1. Front View with Hinged Panel Open

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Specifications and components subject to change without notice. Overall performance will be maintained or improved.

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Table II. Speaker Outputs

Terminal	Function
70V	70.7V speaker distribution

When using stranded wire be sure no frayed wire strands short circuit one terminal to another terminal.

Speaker Power Distribution

Total power distributed to all speakers should be not greater than the power rating of the amplifier system. The 25V or 70.7V distribution outlet permits connection to a large number of speakers, each speaker operating at its required power level. Computing impedance is not necessary for this application. Each speaker is equipped with a line transformer having various power taps. Select the tap which yields the power desired for that speaker.

SERVICE AND MAINTENANCE INSTRUCTIONS

NOTICE

REPAIR PERFORMED BY OTHER THAN ALTEC FACTORY SERVICE SHALL VOID THE WARRANTY PERIOD OF THIS UNIT. TO AVOID LOSS OF WARRANTY, CALL ALTEC CUSTOMER SERVICE DIRECTLY AT (714) 774-2900, OR WRITE:
ALTEC Customer Service/Repair
1491 N. Main Street
Orange, California 92667

For factory service, ship the MA-50 prepaid to ALTEC Customer Service/Repair, 1491 N. Main Street, Orange, California 92667. For additional information or technical assistance, call (714) 774-2900 or Telex 65-5415.

ACCESS

Remove the four screws securing the front panel, then open and lower the hinged front panel to gain access to the chassis interior.

ADJUSTMENT OF POWER DRIVER BALANCE CONTROL

The Power Driver Balance Control (R116 on Power Driver PCB) balances the outputs of transistors Q1 and Q2. If adjustment is indicated, the following procedure is recommended:

1. Connect a 16-ohm dummy load across 25V and COM (common) terminals of TB2 (see Figure 7).

2. Adjust R116 for balance output.

5. Remove four screws securing front panel, then open and lower panel.

6. Adjust R116 on Power Driver PCB (see Figures 1 and 7) until minimum distortion is observed on distortion-measuring instrument.

7. Close front panel and secure with four screws previously removed.

ADJUSTMENT OF OUTPUT "Q" BALANCE CONTROLS

Output "Q" Balance Controls R140 and R141 on Power Driver PCB (see Figure 1) balance the bias current of power transistors Q1, Q2, Q3 and Q4. Inadequate adjustment of these controls may result in distortion and excessive current drain from one or more power transistors. If adjustment is indicated (such as replacement of one or more power transistors), the following procedure is recommended:

1. Turn VOLUME control, located on chassis, fully counterclockwise.
2. Remove four screws securing front panel, then lower panel for access to interior.

CAUTION

High voltage may be encountered when the chassis is opened for service. This procedure should be referred to a qualified service technician.

3. Turn Output "Q" Balance Controls R140 and R141 fully counterclockwise (see Figure 1).

4. Turn on power and allow a 5-minute warmup period.

5. Adjust R140 and R141 by one of the and adjust R141 for a "Q" current of 30 mA.

- (b) Remove two screws securing Power Driver PCB to chassis and remove PCB. Connect a millivoltmeter across resistor R4 (see Figure 5), starting with highest scale to protect meter. Plug in PCB. Adjust R140 for meter reading of 10 mV. Change connection of millivoltmeter to read across resistor R5, and adjust R141 for meter reading of 10 mV. Remove millivoltmeter and secure PCB to chassis with two screws previously removed.

6. Close front panel and secure with four screws removed in Step 2.

ASSEMBLY REPLACEMENTS

Fuses

The ac primary power fuse is mounted on the front panel (see cover photo). The battery power fuse is located on the rear of the chassis (see Figure 2). If fuse replacement is required, determine and correct any cause of failure before replacing fuse. Install an identical fuse (see PARTS LIST) by unscrewing fuse holder, replacing fuse and resealing fuse holder.

Pilot Lamp

The pilot lamp is located on the front panel (see cover photo). If replacement is required, unscrew the red pilot lamp shield to expose the bulb. Press bulb inward and turn counterclockwise (ccw) to remove. Install an identical bulb (see PARTS LIST), then replace red pilot-lamp shield.

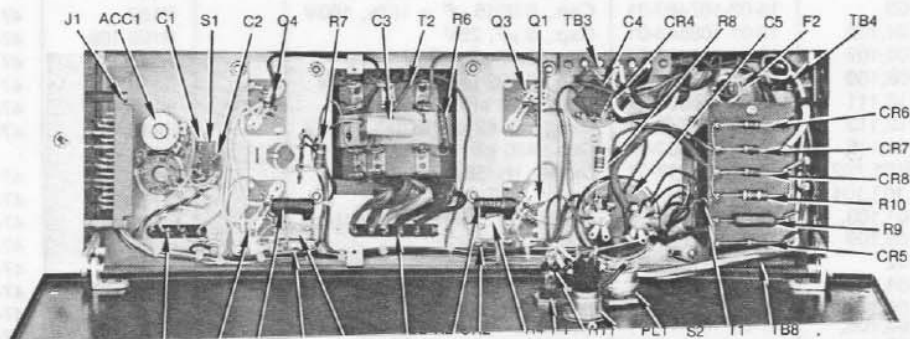
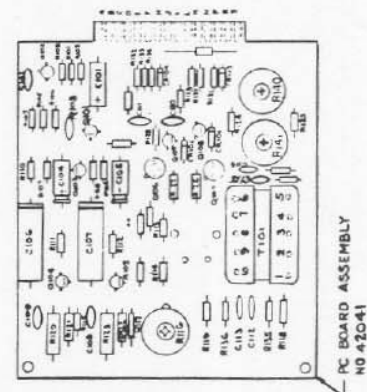


Figure 5. Component Locations Inside Main Chassis



3. VOLTAGE SHOWN UNDERSCORED ARE OC VOLTAGES MEASURED TO CHASSIS (GND) WITH ZERO SIGNAL AND 120VOLTS AC LINE.
2. CAPACITANCE IN MFD EXCEPT AS NOTED
1. RESISTANCE IN OHMS

Figure 7. Schematic (9C446), MA-50 Power Amplifier