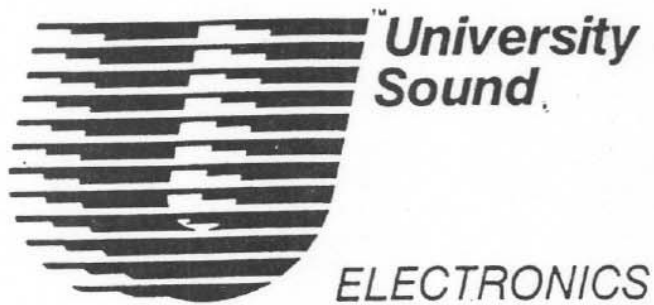
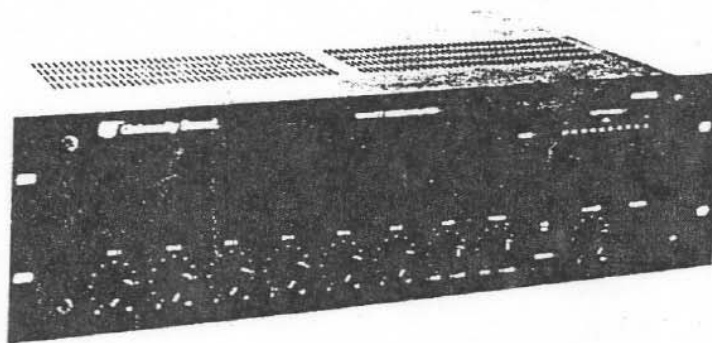




Overheat mod

OWNER'S MANUAL



MA-1506 MIXER/POWER AMPLIFIER

TABLE OF CONTENTS

	Page
INTRODUCTION	
Features and Description	2
SPECIFICATIONS	3
MAINFRAME BLOCK DIAGRAM	4
INPUT MODULE BLOCK DIAGRAM	5
OPERATION	
Front Panel Controls	6
Rear Panel Controls and Connectors	7
INSTALLATION	
Configuring the IM-1 Input Module	8
Programming the IM-1 Input Module	9
Mute "Priority" Mode	9
Mute "Slave" Mode	9
Mute "Off" Mode	9
Phantom Power Mode	9
Remote Volume Control	9
Installing the IM-1 Input Module in the Mainframe	10
Preparing the Mainframe	11
Electrical Connections	11
Ventilation	12
Output Connections	12
Preamp Out/Amp In Connections	14
Aux Out Connections	14
DC Output Connections	15
Final Adjustments to the Input Module	15
MAINTENANCE	
Output Fuse Replacement	16
AC Line Fuse Replacement	16
Replacement Parts	16
SERVICE and WARRANTY	16

WARNING: "TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE."

INTRODUCTION

FEATURES

Mainframe

- 150-watts of output power.
- Transformer output provides for 25-, 35-, and 70-volt constant-voltage speaker systems or low-impedance 4- or 8-ohm speaker systems.
- Separate mixer and power amplifier sections for connecting external electronic-processing devices.
- Shelving tone controls with a defeat switch.
- Inputs to the mix-buses circuitry that allows accumulative mixing of multiple devices.
- Access to the mute control buses for linking multiple mainframe components for external muting.
- Thermal and short-circuit speaker protection.
- A bargraph LED display that indicates power amplifier output level.
- Six ports that will accept any combination and arrangement of input modules.

Input Module

- A plug-in input module with an electronically-balanced differential-input circuit and variable gain that accepts a wide range of varying microphone and line level signals.
- Programmable input modules that are available with three styles of input connectors: RCA phono, 3-pin male XLR, or a 5-lug screw-type terminal.
- Dual RCA-type input jacks with internal resistive mixing to combine stereo input signals to mono.
- A low frequency cut control and gain control for each input.
- Attenuation pad provides 0 or -20 dB of attenuation.
- Jumper-configured phantom power.

DESCRIPTION

The MA-1506 Mixer/Power Amplifier provides you with 150-watts of clean, undistorted power. It is the ideal choice for small businesses that wish to provide a comfortable environment of background music with an added "paging" system.

The MA-1506 may be configured for multi-zone paging from a standard 600 Ω paging line that automatically mutes (silences) the background music.

The MA-1506 incorporates an input module with a choice of input connector options that will accept balanced low-impedance and unbalanced high-impedance microphones, as well as high-impedance line level signals.

Each input may be attenuated with a rear panel pushbutton switch. The low-frequency response of each input may be rolled off with a control that is located on the back panel.

A jumper-configurable phantom power feature on the input module allows the use of condenser microphones without the need of an additional power supply.

A VCA (voltage-controlled amplifier) circuit allows remote control levels of the input signals.

An EQ In/Defeat switch on the mainframe allows shaping of the overall sound response with the bass and treble controls, or defeating the controls entirely.

A Master Level control, combined with the bargraph LED display, allows adjustment of the mixed input signal levels to the power amplifier for optimum output.

The MA-1506 provides a 9-pin D-connector interface on the rear panel. All outputs of the input modules are available at this connector.

The power amplifier includes thermal and short-circuit protection to help prevent amplifier damage due to open or shorted speaker lines, or overheating. The amplifier is muted during turn-on/off to prevent speaker damage from ramp-up voltage spikes.

SPECIFICATIONS

MAINFRAME

POWER OUTPUT —
150 watts RMS

**TOTAL HARMONIC DISTORTION AT
RATED OUTPUT, 1,000 Hz —**
< 0.05%

FREQUENCY RESPONSE —
20 Hz - 18 kHz, ± 2 dB

TONE CONTROLS —
Bass: ± 12 dB at 100 Hz
Treble: ± 12 dB at 10,000 Hz

SIGNAL-TO-NOISE RATIO —
Master (at Max): > 75 dB
Master (at Min): > 110 dB

INPUT SENSITIVITY/IMPEDANCE —
With IM-1: 1.0 - 300 mV/8000 ohms
Aux In: 100 mV/47,000 ohms
Interface: 100mV (-20 dB) at 47,000 ohms
Amp In: 0.775V rms/10 kohms

OUTPUT LEVEL/IMPEDANCE —
Preamp Out: 0.775 V/600 ohms
Aux Out: 0.775 V/10,000 ohms
Transformer Output: 25.0 V/4.2 ohms
Transformer Output: 34.6 V/8 ohms
Transformer Output: 70.7 V/33 ohms

OUTPUT REGULATION —
Transformer Output: < 1.0 dB

PROTECTION —
Amplifier: Short-circuit current limited, Thermal cut-out
Load: DC, Turn-on/turn-off transients (delay), Output fuse
Mainframe: AC line fuse

FRONT PANEL CONTROLS —
Input Level (6), Bass, Treble, EQ/Defeat, Master, Power

METER —
LED Bargraph

FRONT PANEL INDICATORS —
Mute LED, Power "on" LED

REAR PANEL CONTROLS —
Aux In Level, Aux Out Level

REAR PANEL OUTPUT CONNECTORS —
Preamp Out: 1/4-inch phone jack
Aux Out: Screw terminals
External Mute: Screw terminals
Speakers: 6 screw terminals on barrier strip
(0 v. ground, common, 25 (4 ohms), 35 (8 ohms), and 70 volts)
DC Out: 3 screw terminals on barrier strip (+48, -48 volts, and ground)
Interface: 9-pin D-connector

REAR PANEL INPUT CONNECTORS —
Aux In: Screw terminals
Amp In: 1/4-inch phone jack
Input modules: Refer to "Installation" on page 8

POWER REQUIREMENTS —
120 Vac, 60 Hz, 230 watts
100, 200, 220, and 240 Vac, 50/60 Hz, 365 watts

TEMPERATURE OPERATING RANGE —
Up to 60°C (140°F)

DIMENSIONS —
Height: 13.3 cm (5.25 in.)
Width: 48.2 cm (19 in.)
Depth: 31.7 cm (12.5 in.)

WEIGHT —
14.6 kg (515 oz.)

ENCLOSURE —
Steel chassis, aluminum front panel, painted black with white graphics

INPUT MODULE —
IM-1 Programmable Input Module

MODULE INPUT CONNECTOR OPTIONS —
IM-2 - Female XLR; IM-3 - Dual-phonos; IM-4 - 5-lug screw terminals

INPUT MODULE

GAIN —
Variable from 0 - 50 dB

INPUT SENSITIVITY —
1.0 - 300 mV RMS

INPUT IMPEDANCE —
Electronically-Balanced: > 1200 ohms
With IM-3 Dual Phone Connector: > 7500 ohms

**TOTAL HARMONIC DISTORTION AT
RATED OUTPUT, 1,000 Hz —**
< 0.05%

FREQUENCY RESPONSE —
20 Hz - 20,000 Hz, ± 1 dB
10 Hz - 40,000 Hz ± 3 dB

EQUIVALENT INPUT NOISE —
< -124 dBm

MAXIMUM OUTPUT LEVEL —
+18 dBu

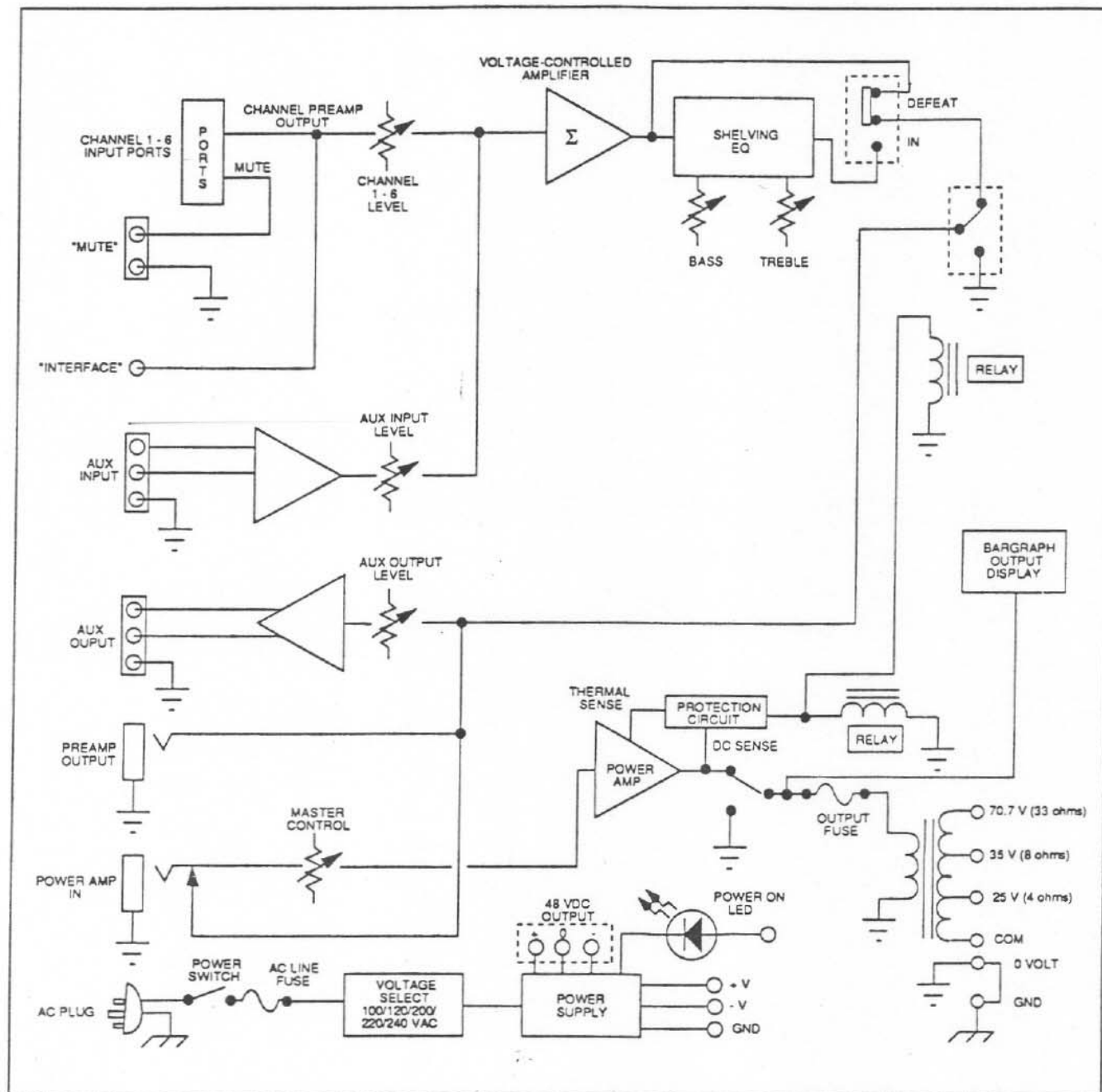
LOW-CUT FILTER (AT FULL CUT) —
320 Hz (> 10 dB at 100 Hz)

PROGRAMMABLE MODES —
Mute: Priority, Slave, Off
Remote Volume Control: On (attenuate) or Off
Phantom Power: On, Off

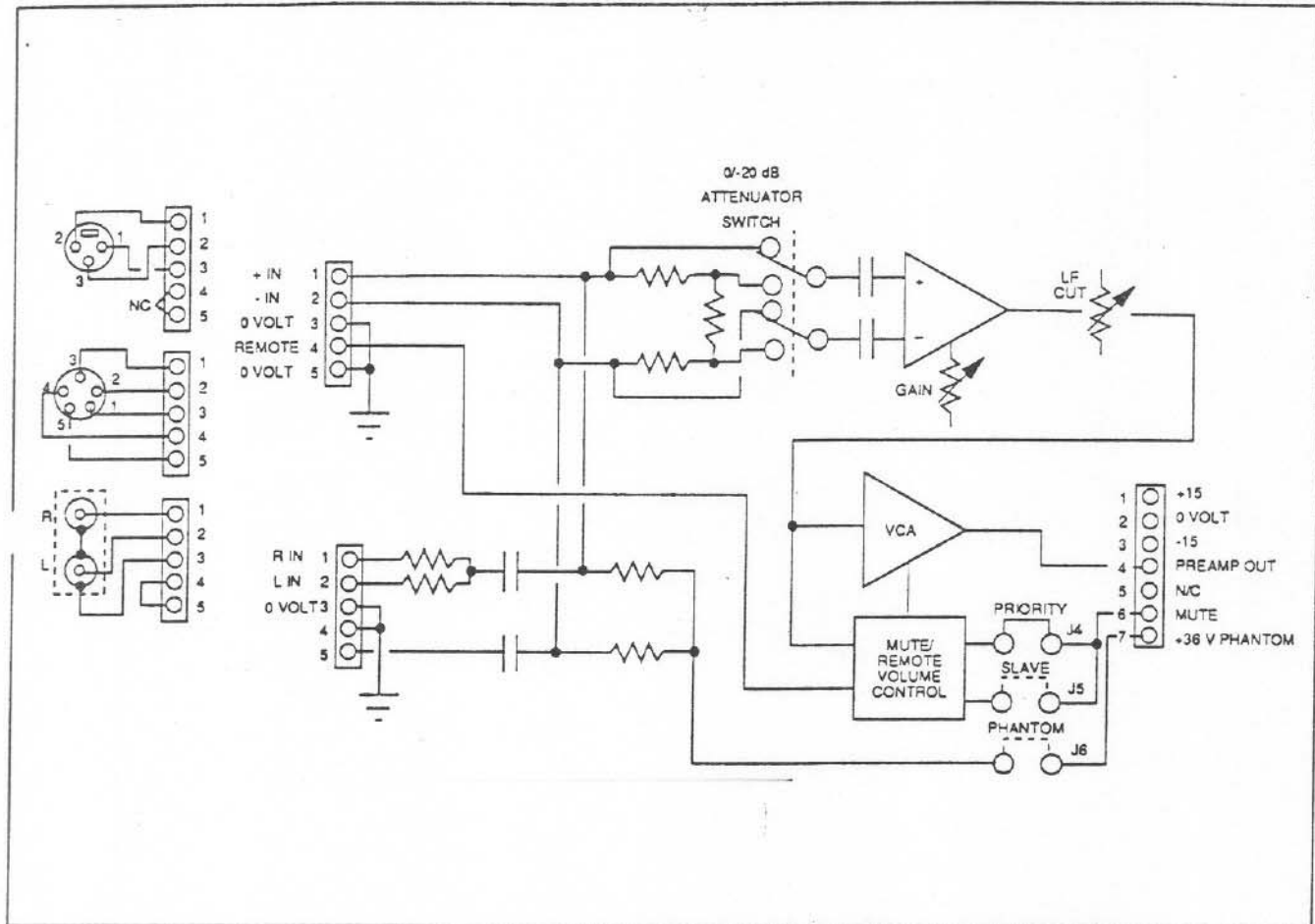
ATTENUATION —
Mute: > 60 dB
With Remote Volume Control: Variable from 0-60 dB

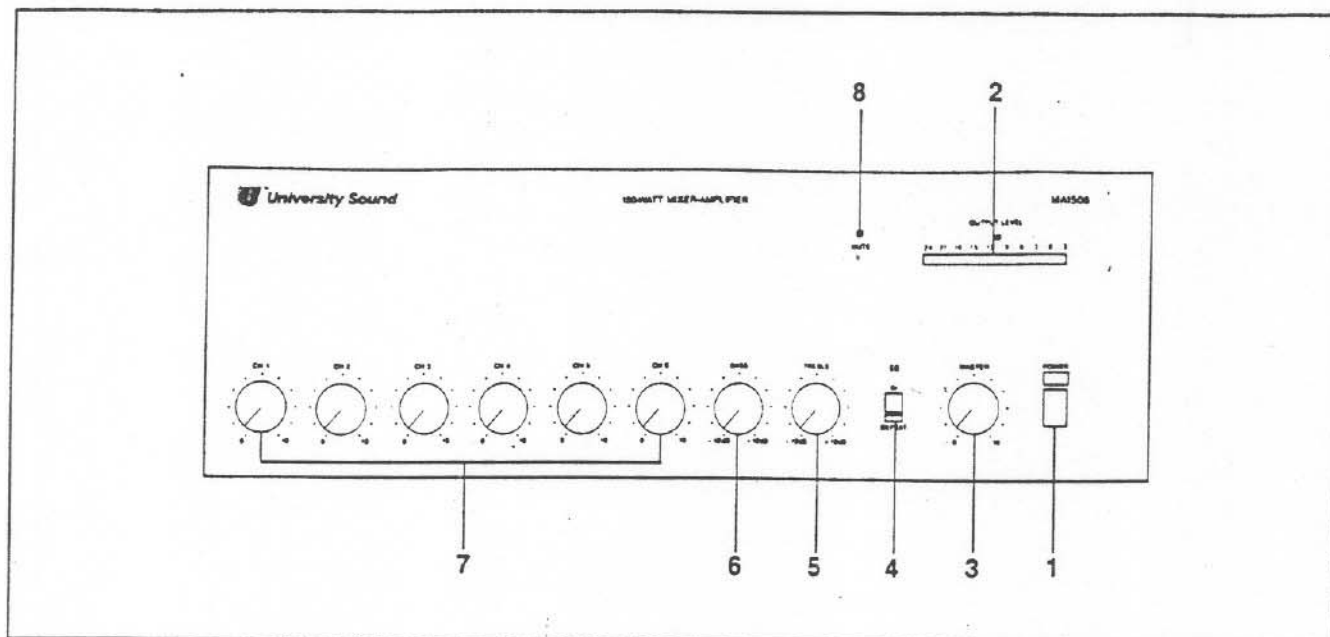
PHANTOM POWER VOLTAGE —
+36 Vdc

CONTROLS —
Input Gain, Attenuation Pad, Low-Frequency Cut Control

MAINFRAME
BLOCK DIAGRAM

INPUT MODULE BLOCK DIAGRAM



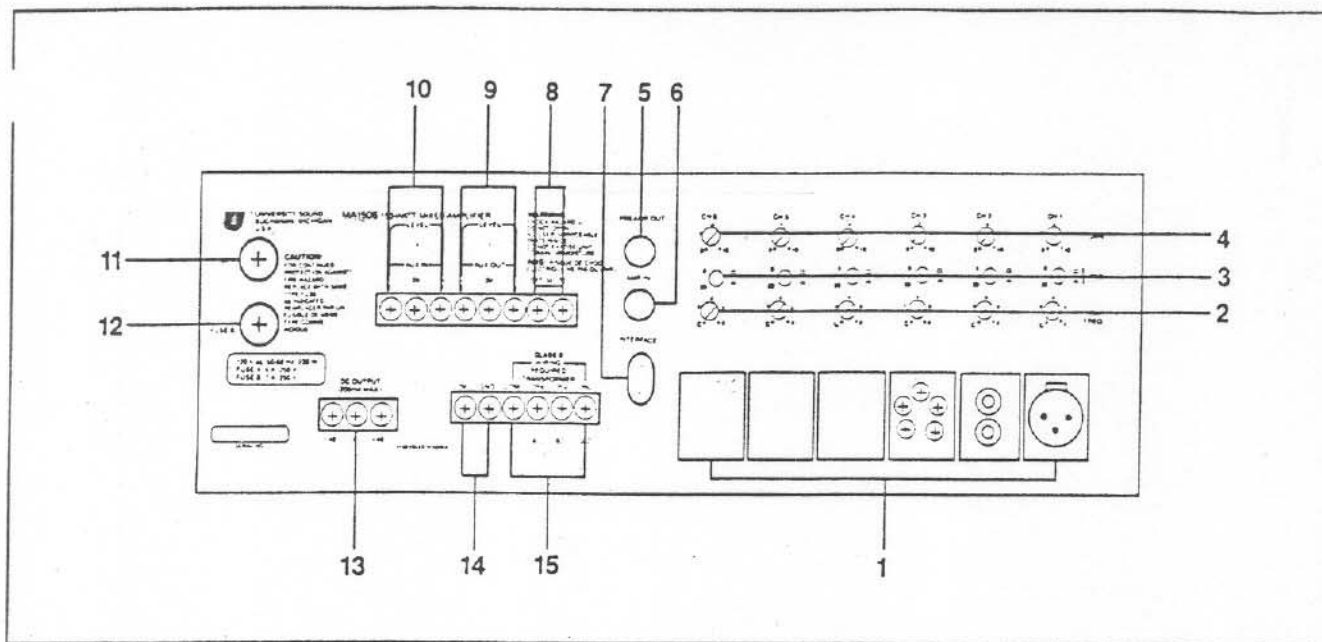


PICTORIAL 1.1 — Front Panel Diagram

OPERATION

FRONT PANEL CONTROLS (Refer to Front Panel Diagram, Pictorial 1.1)

1. **Power Switch:** This switch applies primary power to the unit and lights the Power LED.
2. **LED Bargraph Display:** This display indicates audio output levels. TO AVOID DISTORTION, DO NOT EXCEED "0 dB."
3. **Master Control:** This control adjusts the level of the combined six input channel signals to the power amplifier.
4. **EQ In/Defeat Switch:** This switch activates or defeats the Bass and Treble controls. With the switch in the "EQ IN" position, the Bass and Treble controls equalize the audio signal. With the switch in the "Defeat" position, the controls are bypassed and no equalization is added to the signal.
5. **Treble Control:** This control adjusts the high-frequency response by providing up to 12 dB of boost or 12 dB of cut at 10 kHz.
6. **Bass Control:** This control adjusts the low-frequency response by providing up to 12 dB of boost or 12 dB of cut at 100 Hz.
7. **CH 1-6 Level Controls:** These controls adjust the levels for the corresponding input channels.
8. **Mute LED:** This LED lights whenever the mute function is activated by the priority input channel or a master mute switch closes.



PICTORIAL 1.2 — Back Panel Diagram

REAR PANEL CONTROLS AND CONNECTORS (Refer to Back Panel Diagram, Pictorial 1.2)

A description on how to use these controls and connectors is described in the "Installation" section beginning on page 8.

1. **Access Holes:** Allows access for the input modules.
2. **Low-Frequency Cut Controls:** These controls attenuate the low-frequency response from 0 to -10 dB at 100 Hz.
3. **Attenuator Pads:** These switches attenuate the corresponding input channel signal level by -20 dB.
4. **Gain Controls:** These controls adjust the gain of the input module from 0 to 50 dB.
5. **Preamplifier Output Connector:** This output, along with the Power Amplifier Input, allows insertion of an equalizer, or other signal processor equipment, before the power amplifier. The Preamplifier Output may be used alone to drive an external power amplifier.
6. **Power Amplifier Input Connector:** This input, along with the Preamplifier Output, allows insertion of an equalizer, or other signal processor, before the power amplifier.
7. **Interface Connector:** This connector is used for external mixing, for test equipment, or for auxiliary inputs when no input module is used in one or more channels.
8. **External Mute Terminals:** These terminals connect to an external switch to control the system's muting.
9. **Auxiliary Output Terminals:** These terminals provide a buffered signal source from the mixer/preamplifier's input for any auxiliary equipment. This signal level is set by the Auxiliary Output Level control.
10. **Auxiliary Input Terminals:** These terminals provide an input for auxiliary equipment to the mixer buss. The Auxiliary Input Level control adjusts the signal level.
11. **Output Fuse:** This fuse protects the speakers from excessive current. NOTE: REPLACE THIS FUSE ONLY WITH ONE THAT IS OF THE SAME TYPE AND THE SAME RATING.
12. **AC Fuse:** Protects the internal circuitry from excessive current overloads. NOTE: REPLACE THIS FUSE ONLY WITH THE SAME TYPE AND RATING. (Refer to Table 4 on page 12.)
13. **DC Output Terminals:** These terminals provide -48 Vdc and +48 Vdc at approximately 300 mA of current for use with externally-connected devices.
14. **0-Volt and Ground Terminals:** The 0-Volt terminal is for signal ground, while the Ground terminal is for grounding external equipment to minimize hum.
15. **Transformer Speaker Output Terminals:** These terminals allow connection to either low-impedance speaker lines, (4- or 8-ohms), or to constant-voltage speaker lines.

INSTALLATION

CONFIGURING THE IM-1 INPUT MODULE
(Refer to Figures 1A and 1B)

The IM-1 Programmable Input Module has two 5-pin male connectors (J1 and J2) which can be used to interface with the IM series of connector assemblies. Due to circuit differences between a balanced mic input (+ & -) and a tape input (L & R), use J1 with the IM-2 or the IM-4 modules. Use J2 only with the IM-3 Dual Phono Connector.

When using the IM-3 Connector Assembly, make sure that the phantom power jumper is removed from the pins at J6.

The connector pinouts for cable interfacing are shown in Table 1.

Table 1. Connector Pinouts

	IM-2 XLR-F	IM-4 5-lug Screw Terminal
Pin 1	Gnd (Shield)	Gnd (Shield)
Pin 2	+ in (Hi)	+ in (Hi)
Pin 3	- in (Lo)	- in (Lo)
Pin 4	Chassis (Shell)	RVC
Pin 5	N/A	RVC Gnd

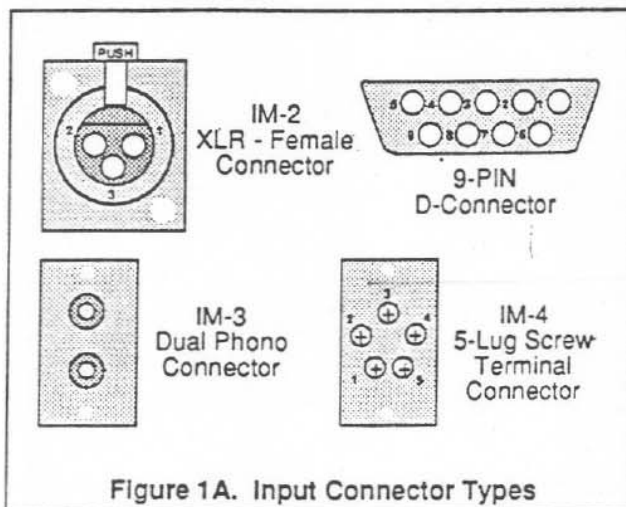
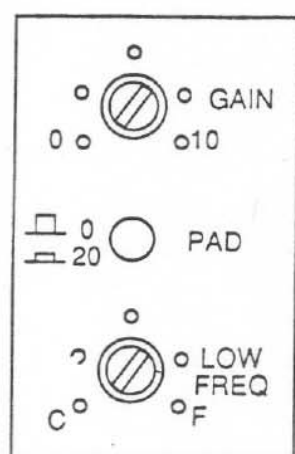
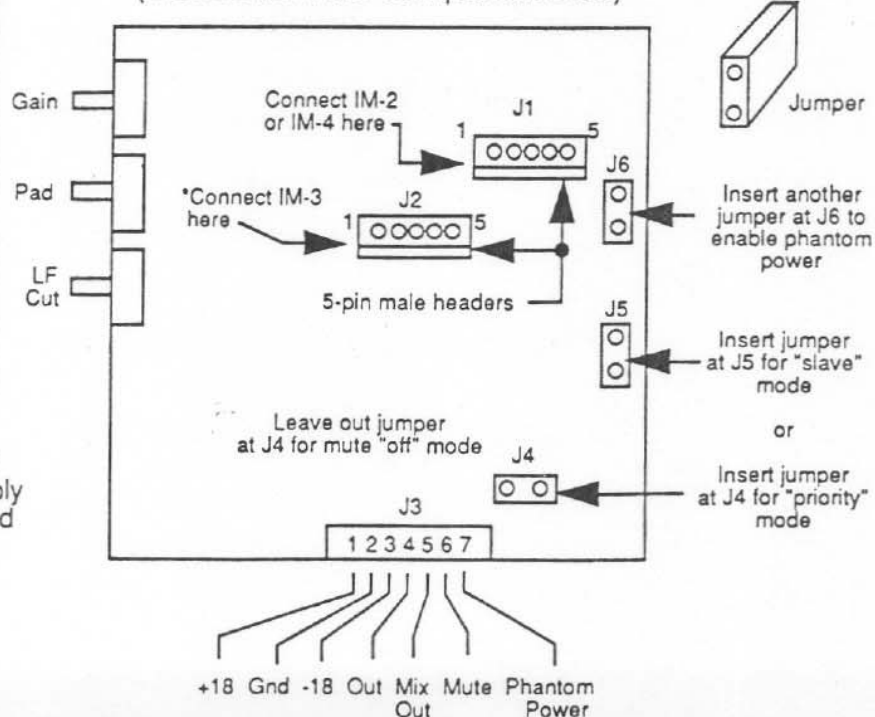


Figure 1A. Input Connector Types



*Only one input connector assembly may be connected to the module at a time.

IM-1 Programmable Input Module
(Viewed from the Component Side)

PROGRAMMING THE IM-1 INPUT MODULE (Refer to Figure 1B)

Mute "Priority" Mode

In the priority mode, an applied signal of reasonable level will cause all other input channels configured in the "slave" mode (described in the following paragraph) to be fully attenuated.

To configure the module for this mode, install a jumper over the pins at J4.

Mute "Slave" Mode

In this mode, any priority mode signals will cause the slave inputs to be fully attenuated. This effect can also be achieved by connecting an external shorting switch between the "Mute" and "Common" terminals on the 8-screw terminal barrier strip connector on the back of the mainframe.

To configure the module for this mode, install a jumper over the pins at J5.

Mute "Off" Mode

If muting of the slave channel inputs is not desired, jumpers should not be installed over the pins at J4 or J5.

Phantom Power Mode

This mode provides 36 Vdc to power a condenser-type microphone without the use of an external power source.

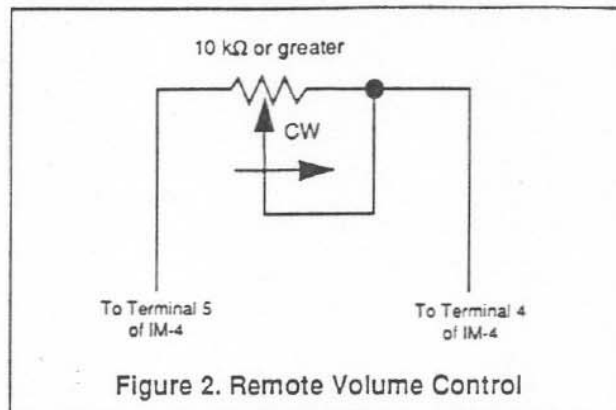
To configure the input module for this mode, install a jumper over the pins at J6.

NOTE: When using the IM-3 Connector Assembly, make sure that the phantom power jumper is removed from the pins at J6.

REMOTE VOLUME CONTROL (Refer to the Mainframe Block Diagram on Page 4)

A remote volume control (RVC) may be used with the IM-4 input connector assembly to control the output level. This control will determine the amount of gain in the voltage-controlled amplifier (VCA). It can be placed long distances from the mainframe. The RVC function may also be used with any of the mute operational modes.

To use the remote volume control feature, connect a linear-taper potentiometer (10 k Ω or greater), between pins 4 and 5 of the IM-4 module, as shown in Figure 2.



A switch in series with a fixed value resistor (R) may be used in place of the 10 k Ω control to attenuate (or mute) the channel to a predetermined level as shown in Figure 3.

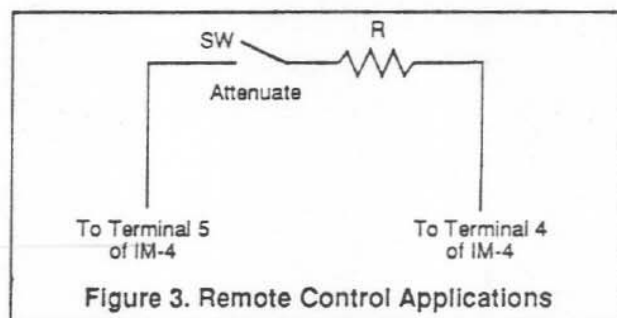


Table 1 shows the typical attenuation for various values of resistor R.

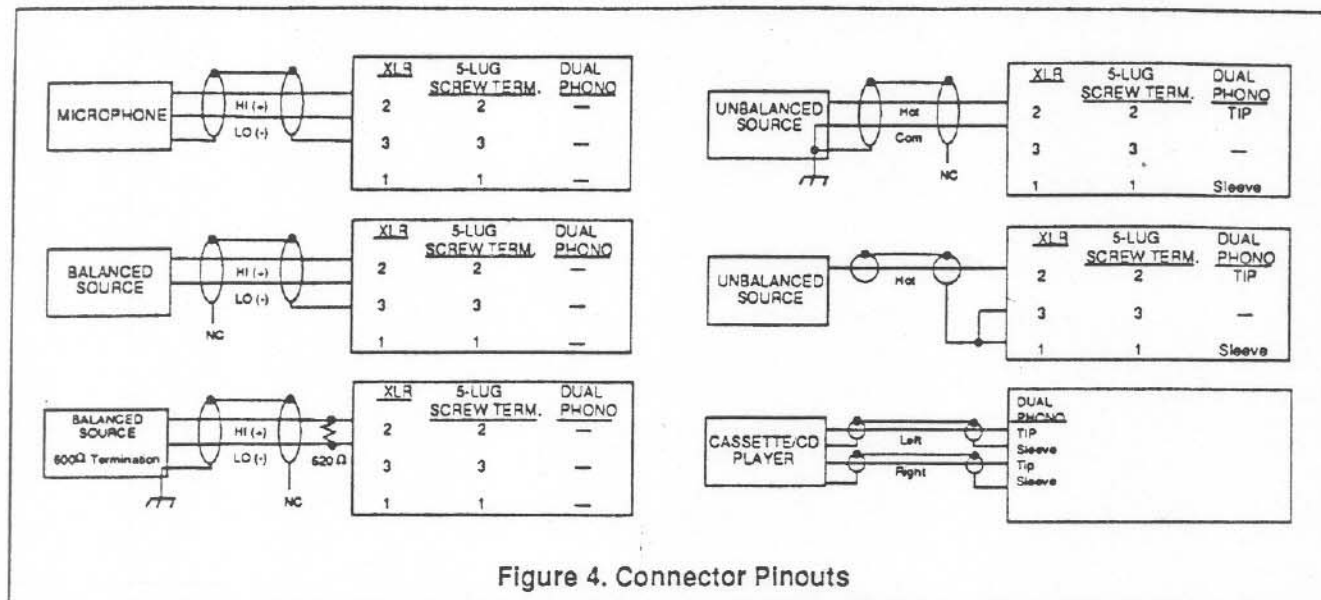
Table 1. Resistance Table for Fixed Attenuation

Amount of Attenuation (± 1 dB typical)	Approximate value of R (in ohms, 1/4-watt, 1%)
10 dB	6040
20 dB	4020
30 dB	3090
40 dB	2490
50 dB	2150
60 dB	1870

If the resistor (R) is replaced with a short circuit, closing the switch will fully attenuate the channel.

A detailed illustration showing typical input module connections is shown in Figure 4. Also refer to Figure 1A on page 8 for the various connector types and their pinout numbers.

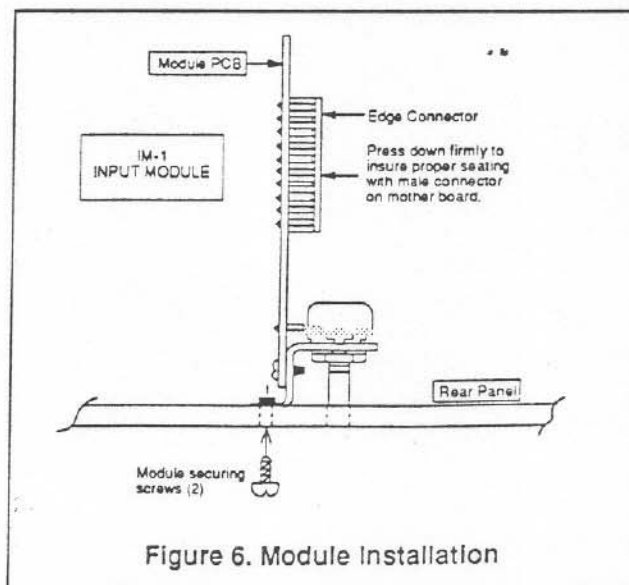
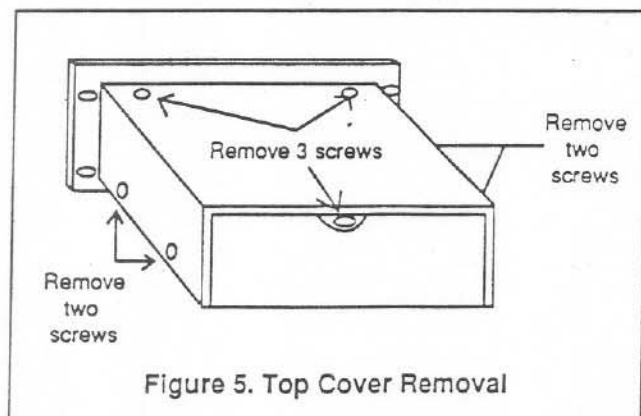
Never attach more than one input connector assembly to the module at a time.



INSTALLING THE IM-1 INPUT MODULE IN THE MAINFRAME

1. Unplug the power cord from the ac outlet.
2. To install the IM-1 Input Module in the mixer/amplifier mainframe, refer to Figure 5 and remove the seven screws that secure the top cover to the chassis. Then lift the cover from the chassis and set it and the screws aside.

3. Plug the module into the desired channel position with the controls facing the rear as shown in Figure 6. Secure the module with the two screws supplied with the module.



- Remove the blank cover panel as shown in Figure 7. Then install the selected connector assembly with the screws that were supplied with the assembly. Plug the connector into its appropriate mate on the module (J1 or J2 as shown in Figure 1B on page 8).

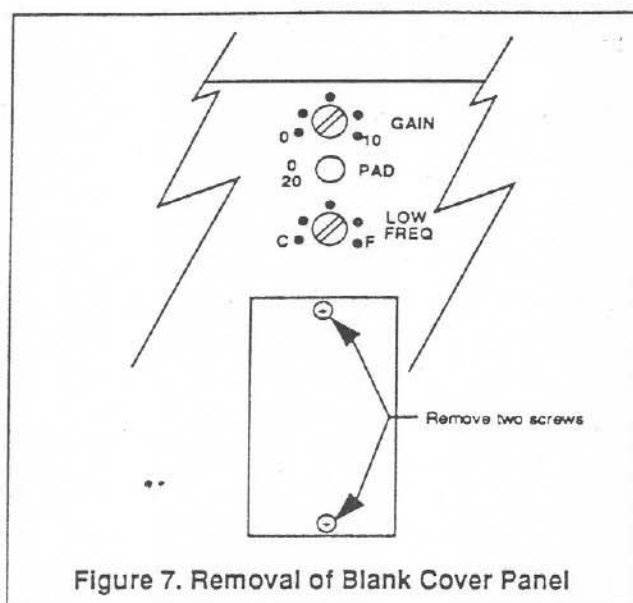


Figure 7. Removal of Blank Cover Panel

- Included in this manual is a "System Configuration" label. Use a permanent marker to check off the module type, configuration, and options (if any) for future reference. Affix the label to the unit as shown in Figure 8.

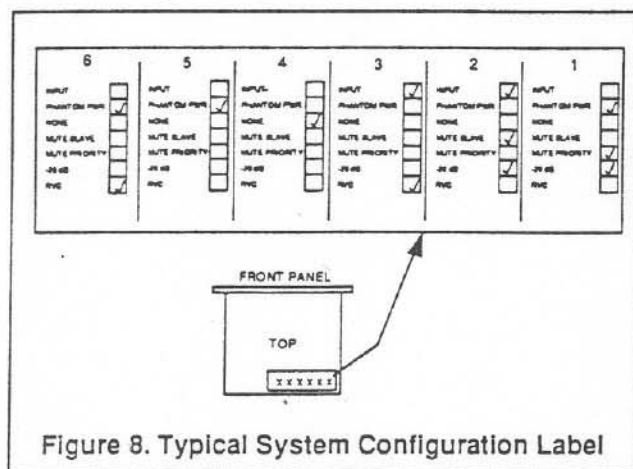


Figure 8. Typical System Configuration Label

PREPARING THE MAINFRAME

Electrical Connections

CAUTION: HAZARDOUS VOLTAGES AND CURRENTS MAY BE PRESENT INSIDE THE CHASSIS. THE SERVICE INFORMATION CONTAINED WITHIN THIS MANUAL IS FOR USE BY ELECTRO-VOICE AUTHORIZED WARRANTY SERVICE STATIONS AND QUALIFIED SERVICE PERSONNEL ONLY.

The mainframe is factory-configured to operate with 120 Vac, 50/60 Hz line voltage. To operate the mainframe with a line voltage other than this configuration, refer to Table 3 and determine the primary power transformer lead changes that are necessary.

Primary Line Voltage	Primary Lead Color				
	Wht	Yel	Red	Blu	Org
100 V	5	2	11	9	3
120 V	2	5	11	3	9
200 V	5	2	7	10	8
220 V	5	2	7	8	10
240 V	2	5	7	8	10

Table 3. AC Line Input Voltage Selection Chart

Use the following procedure to make the power transformer primary lead changes:

- Unplug the mixer/amplifier's power cord from the ac outlet.
- If not already done, remove the seven screws that secure the top cover to the chassis. Then remove the top cover and set it and the screws aside.
- Locate the voltage selection terminal block between the side of the chassis and the power transformer.
- Refer to Table 3 and disconnect all of the power transformer's primary leads from the terminal block by pulling out on them until they disengage. Use Table 3 and reconnect the lead colors to their numbered terminal block connectors by inserting the lead connectors into their holes and pressing in until they lock into place.

CAUTION: Carefully recheck to make sure that you have made the proper power transformer wiring changes before you connect the unit to the ac line.

4. Select the appropriate fuse value shown in Table 4. Purchase the fuse and then install it in the AC line fuseholder on the back of the MA-1506. **CAUTION:** Use of fuses other than those listed in Table 4 will void the Warranty should damage occur as a result.

AC Line Voltage	AC Line Fuse (Type 3AG)
100 VAC	7-amp/250 Volt
120 VAC	7-amp/250 Volt
200 VAC	4-amp/250 Volt
220 VAC	4-amp/250 Volt
240 VAC	4-amp/250 Volt

Table 4. Fuse Selection Chart

5. Reinstall the top cover on the unit and secure it with the seven screws you removed earlier.

Ventilation

The MA-1506 Mixer/Amplifier can be mounted on a shelf or in a rack. For shelf or countertop mounting, rubberfeet are provided to protect the resting surfaces and to provide elevation for airflow underneath the unit. For rack or cabinet mounting, remove the four rubber feet from the bottom of the chassis and install the unit with the screws and washers provided for that purpose.

If the MA-1506 is mounted in a rack or an enclosed cabinet with other heat-producing equipment, provide a space of approximately 1-3/4" (4.45 cm) between the front panel edges for ventilation.

If the MA-1506 is mounted on a countertop or a shelf, do not place it between other heat-producing equipment without enough space for good airflow. The unit should not be placed in an area where the temperature will exceed 60°C (140°F).

If the temperature environment of the unit is in doubt, use a bulb-type thermometer to determine the ambient temperature after the system has been in operation for several hours. Do not allow the thermometer to touch

any of the units and keep the thermometer near the bottom of the upper-most unit, for a rack mount system. If the temperature exceeds 60°C (140°F), space the units farther apart and possibly add a cooling fan to provide additional air movement. **CAUTION:** Do not block the air intake holes in the bottom of the chassis or the exhaust holes in the top cover.

Input and Output Connections

The amplifier can accommodate both low-impedance (4 and 8-ohms) and high-impedance constant-voltage speaker loads (25-, 35-, and 70.7-volt lines). However, there are several considerations to be aware of before connecting one or more speakers to the amplifier:

1. **Matching speaker impedance to the amplifier's rated impedance.** Generally, power amplifiers deliver the rated power into a rated load impedance. Lower impedances reduce the maximum available power at the rated distortion. Significantly lower impedances may cause the amplifier's protection fuses to open, especially at high volume levels. These low-impedances should be avoided.
2. **Power loss in speaker wire.** An ideal connecting wire would equal zero ohms so that it could deliver all the power from the amplifier to the speaker. However, all wire has some inherent resistance, therefore, it produces some power loss. The longer the wire, the greater the resistance, and the more power loss will occur. Wire impedance is proportional to its size and length; as the wire size is reduced and its length is increased, the higher the impedance will be between the amplifier and its load (speaker).

Table 5 at the top of the next page, shows the 2-wire cable (copper) lengths permissible for a number of wire sizes and speaker impedances to avoid a loss of more than 0.5 dB. For a 1 dB loss (basically imperceptible), double the wire lengths. For a 2 dB loss, multiply the lengths by 4.4. In general, note that higher load impedances will allow the use of longer, smaller gauge wiring.

Low-Impedance Systems				High-Impedance Systems				
AWG Size	Resistance (ohms/1000 feet)	4 Ω	8 Ω	100W/70.7V 24.5W/35V 12.5W/25V (50 Ω)	50W/70.7V 12.25W/35V 6.25W/25V (100 Ω)	25W/70.7V 6.13W/35V 3.13W/25V (200 Ω)	5W/70.7V 1.23W/35V 63W/25V (1000 Ω)	1W/70.7V 25W/35V 13W/25V (5000 Ω)
10	1.00	120	240	1,500	3,000	6,000	30,000	150,000
12	1.59	75	150	940	1,900	3,800	19,000	94,000
14	2.50	48	96	600	1,200	2,400	12,000	60,000
16	4.02	30	60	370	750	1,500	7,500	37,000
18	6.39	19	38	230	470	940	4,700	23,000
20	10.1	12	24	150	300	590	3,000	15,000
22	16.2	7	15	93	190	370	1,900	9,300

Table 5. 2-Wire Copper Cable Lengths
In Feet for 0.5 dB Loss in SPL

3. **Balancing relative speaker levels.** There is no electrically efficient way to balance and adjust the sound levels among multiple speakers in a low-impedance installation. Constant-voltage, high-impedance systems ease this process because they employ speakers equipped with transformers that have multiple input taps marked in watts.

The "University Sound Guide to Commercial Sound Reinforcement and Public Address Systems" discusses this subject in greater detail and is available from University Sound at no charge. A basic example of the subject follows.

Low-Impedance Speakers. The 4- and 8-ohm output terminals on the back of the unit are provided for direct connection of one or more standard low-impedance speaker systems. For example, connect a single 8 Ω speaker to the common and 8 Ω terminals, or more than one speaker, as shown in Figure 9.

When connecting several low-impedance speakers, make sure to follow the rules of proper series and parallel impedance summation, which is covered in the "University Sound Guide to Commercial Sound Reinforcement and Public Address Systems"

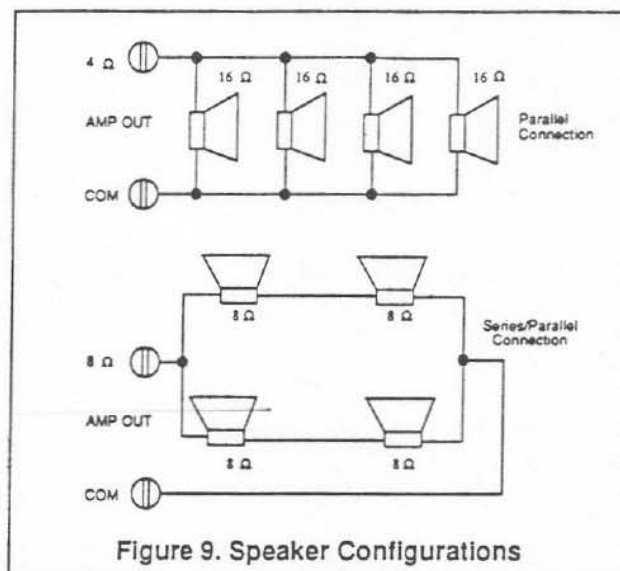
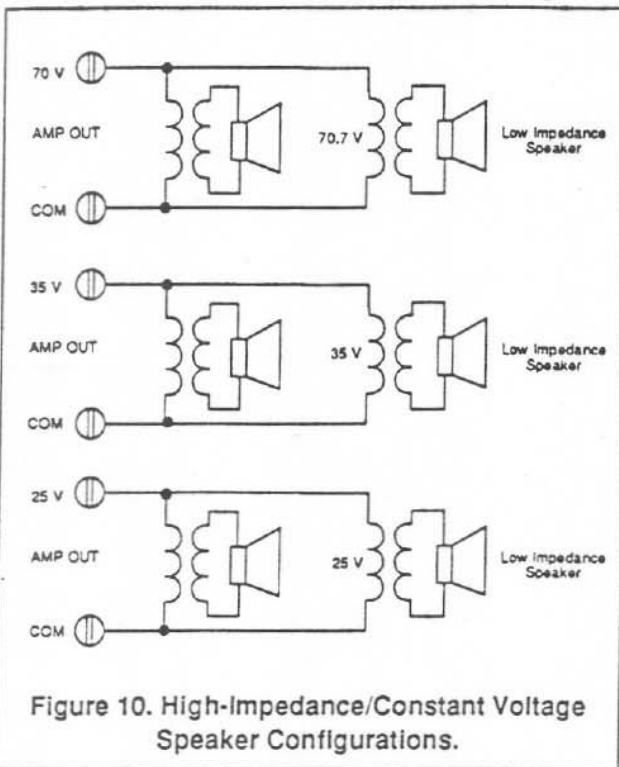


Figure 9. Speaker Configurations

High-Impedance/Constant Voltage Systems. When connecting high-impedance speaker loads to the amplifier, use smaller diameter wire for a given power loss in the speaker lines. Usually, low-impedance speakers are still used in such systems, but transformers are used at the speaker locations to increase the impedance to the desired value. Multiple transformer taps, labeled in watts, permit easy adjustment of the individual speaker levels. Connect the transformer primaries (inputs) as shown in Figure 10.



For proper operation, the speakers should have transformers with the same voltage rating (i.e. 25 V, 35 V, or 70.7 V). The total of all the power taps should be equal to or less than the amplifier's rated output power.

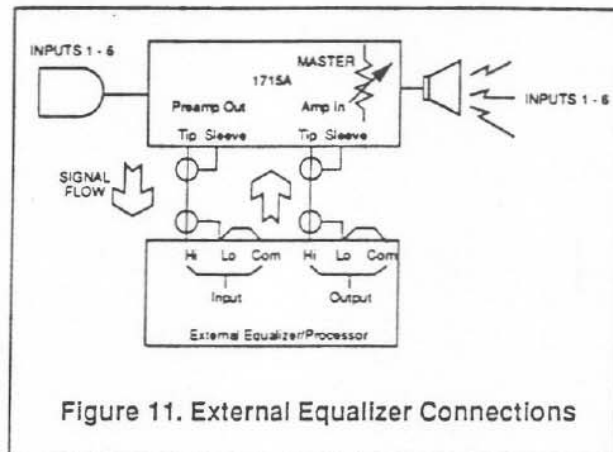
When the total of the taps equals the rated power, the amplifier may deliver the rated power to the load, depending upon the input signal levels. Totals that are less than the rated amplifier output will not damage the amplifier, since the resultant load impedance is higher

than the amplifier's rated impedance, and thus, will only reduce the power delivered at the maximum amplifier level. However, avoid using power totals that are greater than the rated amplifier power, since the total load impedance will drop below the rated load.

Preamp Out/Amp In Connections

The Preamp Out signal is used to drive external sound equipment, such as an equalizer. The output from the external device(s) is/are then fed to the input of the power amplifier in the MA-1506.

Refer to Figure 11 on how to connect the unit to any external equipment. NOTE: The Preamp Out signal is not affected by the Master Level control setting.



Aux Out Connections

The Auxiliary Output is connected to the audio input, but is also buffered to drive any external equipment. It can also be used to drive a second power amplifier or a tape deck. Refer to the Mainframe Block Diagram on Page 4 for additional information.

Aux In Connections

The Auxiliary Input is for high-level unbalanced sources such as a tape player, AM/FM tuner, mixer-preamplifier, wireless microphone or turntable equipped with a ceramic or crystal cartridge. Turntables usually have a separate ground wire. Connect this wire to the ground terminal to minimize hum.

DC Output Connections

The DC Output screw terminal strip provides 48 Vdc for use with external equipment. Connect the equipment to the 3-terminal barrier strip located on the rear of the unit as shown in Figure 12.

FINAL ADJUSTMENTS TO THE INPUT MODULE

Refer to Pictorials 1.1 and 1.2 on pages 6 and 7 as necessary.

1. Turn the front panel Level and Master controls to their "normal" position (about the 6 o'clock position).
2. Place the EQ IN/DEFEAT switch in the "defeat" position.
3. Rotate the Gain control to the maximum (fully clockwise) position for microphone inputs, or to the minimum (fully counterclockwise) position for line inputs.
4. Rotate the LF Cut control to the "Flat" (fully clockwise) position.
5. Apply an input signal and adjust the signal control on the module until the green LED (0 dB) on the front panel bargraph display is fully illuminated.

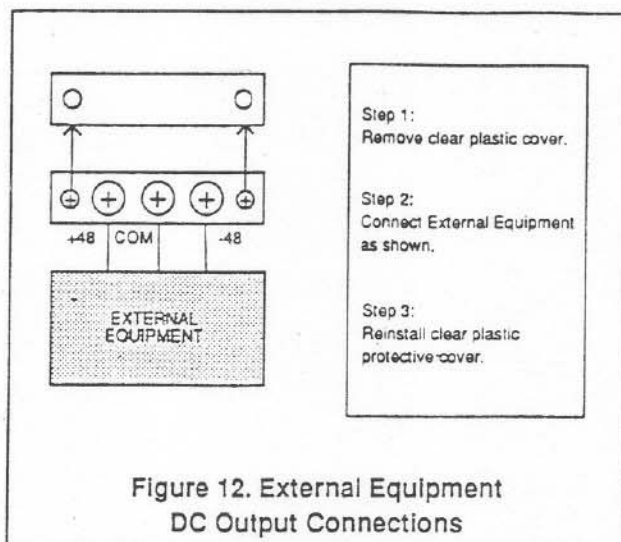


Figure 12. External Equipment DC Output Connections

NOTE: This represents the nominal level for optimum performance and headroom. On occasion, you may see the red LED light briefly on sound peaks. This is permissible as long as it does not flash more than 20% of the time. If this should occur, rotate the Gain control counterclockwise, or use the Attenuation Pad to reduce the gain.

6. Adjust the LF Cut controls for the best response. To obtain the widest possible bandwidth, rotate both of these controls to the "Flat" position.