

# Fender®

MADE IN U.S.A.

## MA4 MIXER AMPLIFIER (PUBLIC ADDRESS SYSTEM)



## OPERATION INSTRUCTION MANUAL

MANUAL NO. 018608

**MA4**  
**MIXER AMPLIFIER**  
**OPERATION INSTRUCTION MANUAL**

BY

**Fender**<sup>®</sup>  
 MADE IN U.S.A.



**PHYSICAL DIMENSIONS (APPROXIMATE, FOR SHIPPING PURPOSES)**

	<b>MIXER AMPLIFIER</b>		<b>SPEAKER COLUMN</b>	
	<b>U.S. System</b>	<b>Metric System</b>	<b>U.S. System</b>	<b>Metric System</b>
<b>Weight</b>	22 Pounds	10 kg	37 Pounds	17 kg
<b>Width</b>	19 Inches	48 cm	17 Inches	43 cm
<b>Depth</b>	12 Inches	30.5 cm	13 Inches	33 cm
<b>Height</b>	7 Inches	18 cm	21.5 Inches	54.6 cm

**P.O. BOX 4137 • 1300 EAST VALENCIA DRIVE • FULLERTON, CALIFORNIA 92634**

**NOTE: See accompanying limited warranty folder**

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## INTRODUCTION

The Fender MA4 is composed of a mixer with four input channels and one output channel, a reverb unit, a 100 watt power amplifier, and two speaker system enclosures. The mixer, reverb, and power amplifier are contained in one compact package hereafter referred to as the "Mixer." Each speaker enclosure contains one 12-in. special design cone speaker and a high frequency compression driver, with associated horn and crossover network, mounted in a Thiele aligned vented enclosure.

The remaining pages of this Manual detail the functions of the various controls and jacks (in total, the unit has 21 controls, and 14 connectors and jacks). BEFORE ATTEMPTING TO USE THE SYSTEM, FAMILIARIZE YOURSELF WITH THE INFORMATION CONTAINED IN THIS MANUAL.

# SECTION I

## MIXER OPERATION

The architecture of the Mixer is explained most easily with the accompanying block diagram (Fig.1). Although only one pre-amplifier channel is shown, the actual system has four which are identical. Refer to the diagram as you read the following descriptions of the control functions.

## INPUT CHANNEL CONTROL FUNCTIONS (Fig. 2)

### Volume

This controls the level of signal going into the program mix and the level going to the Reverb Control. This control also adjusts the gain of the channel pre-amplifier to provide optimum noise performance and prevent overload of the pre-amplifier circuit.

### Reverb Control

This controls the level of the channel signal that is sent to the internal reverb unit and the Auxiliary Reverb Send jack on the front panel. The control functions post volume control.

### Bass Control

This boosts or cuts the low frequency content of the input signal. See Figure 5 for the frequency response range of this control.

### Treble Control

This boosts or cuts the high frequency content of the input signal. See Figure 5 for the frequency response range of this control.

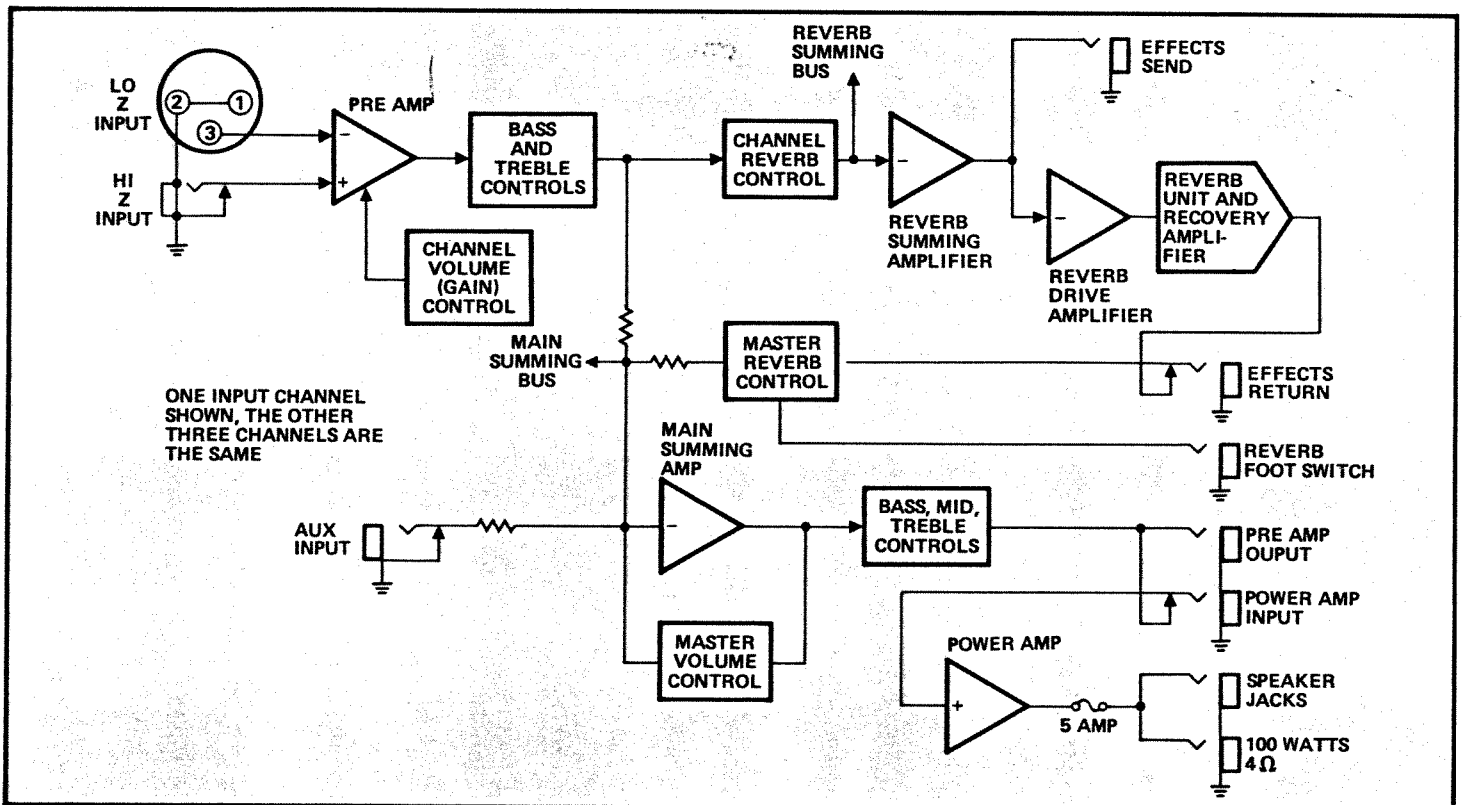


FIGURE 1 — Pre-Amp Section (one of four) Block Diagram

## MASTER SECTION CONTROL FUNCTIONS

Master Level Control (Fig. 3). This adjusts the composite level for the program output. It actually controls the gain of the summing amplifier thereby preventing overload. This means that the Channel Level Controls can be operated at higher levels while the Master Level can be operated at lower levels, improving the usable signal-to-noise ratio.

### Clipping Indicator

Overload, or clipping of the internal 100 watt amplifier is indicated by the red LED located above the Master Volume Control.



FIGURE 2 — Pre-Amp Section Control

### Reverb Return

This controls the amount of the reverb return (or reverb output) signal that is added to the program mix. If nothing is plugged into the Auxiliary Reverb Return jack on the front panel, the reverb return signal is obtained from the internal spring type reverb. If a signal is plugged into the Auxiliary Reverb Return jack, this signal will be used instead of the internal spring.

### Bass Control

This boosts or cuts the low frequency content of the complete program mix. See Figure 6 for the frequency response range of this control.

### Mid Control

This boosts or cuts the middle frequency content of the complete program mix. See Figure 6 for the frequency response range of this control.

### Treble Control

This boosts or cuts the high frequency content of the complete program mix. See Figure 6 for the frequency response range of this control.

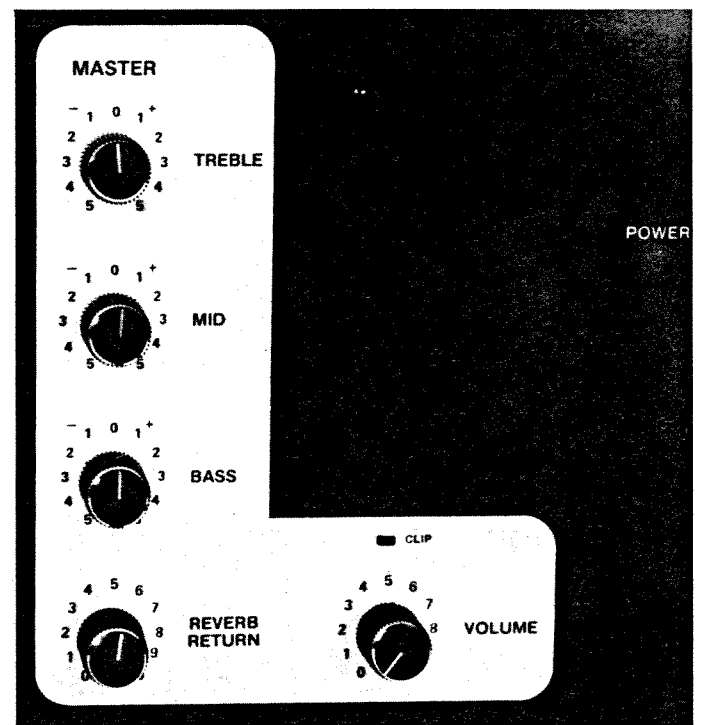


FIGURE 3 — Master Section Controls

## PRE-AMP INPUT CONNECTORS

Each channel is provided with a detent lock three-pin low impedance (Lo-Z) microphone connector, designed to be used with a low impedance balanced or unbalanced microphone in the range of 50 to 250 ohms. The input is unbalanced and pin 3 is the signal input pin. A high impedance (Hi-Z) phone jack is also provided for each channel. This jack allows use of a high impedance (50K to 150K ohms) microphone, and will also accept most line level signals.

### NOTE:

Only one input should be used at any one time on each channel. While both inputs are active simultaneously, the gain balance between the two inputs will most likely be unsatisfactory.

## AUXILIARY CONNECTORS

### Front Panel

The front panel also contains six auxiliary phone jacks that function as described below:

#### Pre-Amp Out

This jack provides the program channel mixer output (just ahead of the power amplifier), for use in an external signal processor, or for adding additional power amplifiers.

#### Power Amp Input

This jack is used to connect an external signal directly to the internal power amplifier. When a plug is inserted into the jack, the signal going to the power amplifier from the mixer section is disconnected.

#### Effects Reverb Send

This jack is used to provide an input signal to an external reverb unit. The reverb mix produced by the four channel reverb controls is present at this jack.

#### Effects Reverb Return

This jack is used to connect the output of the external reverb unit to the mixer. Use of the jack disconnects the return signal from the internal reverb unit.

#### Direct Input

This jack allows connection of a signal directly into the program summing amplifier. It is useful for chaining additional mixers.

#### Reverb Foot Switch

Provides connection for the Reverb Foot Switch which can be used to turn the reverb On and Off. The foot switch will function only if the front panel controls are set to provide reverb.

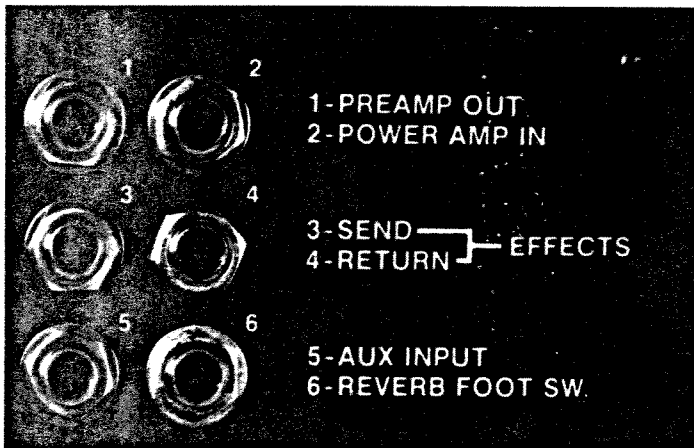
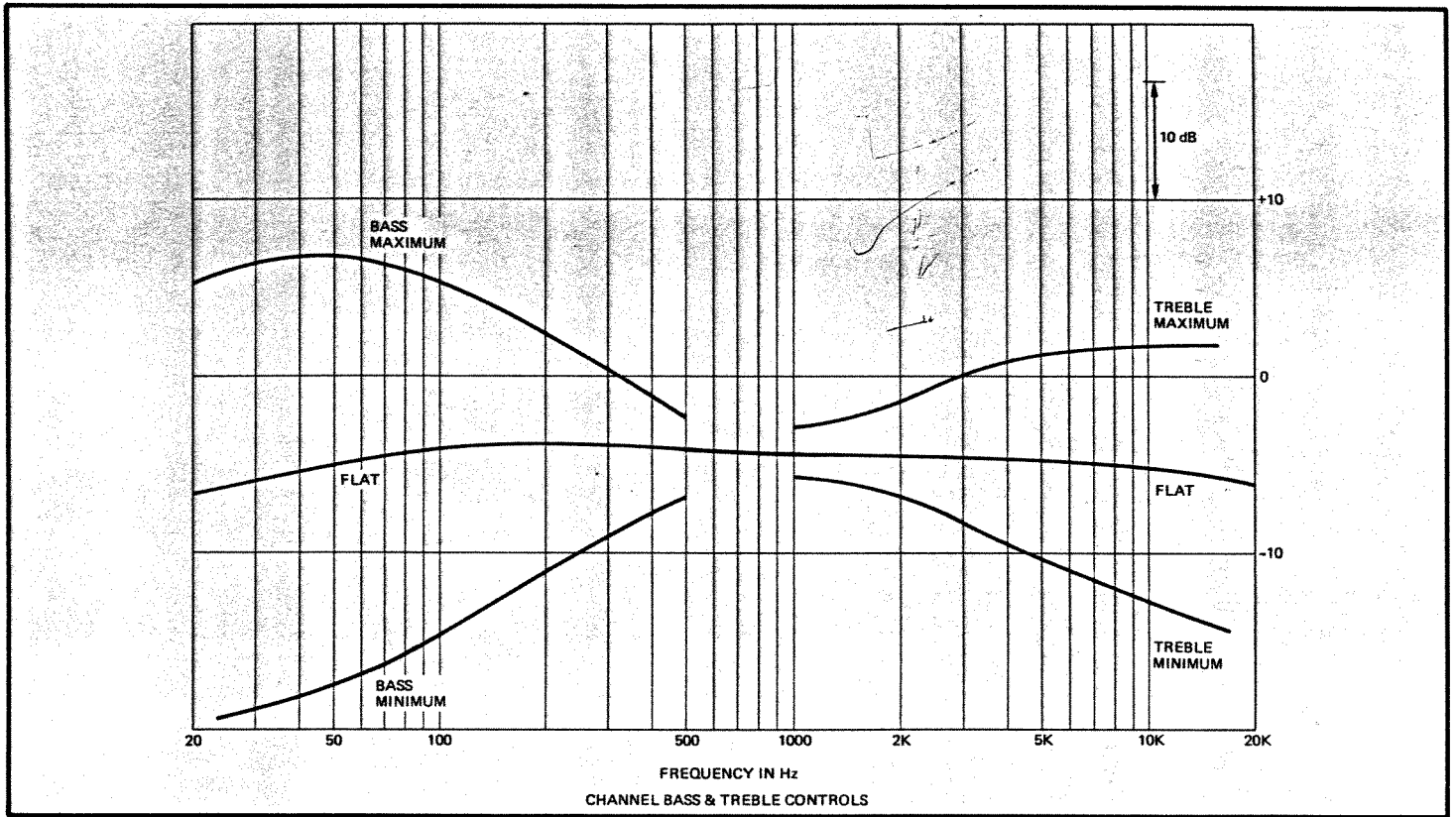
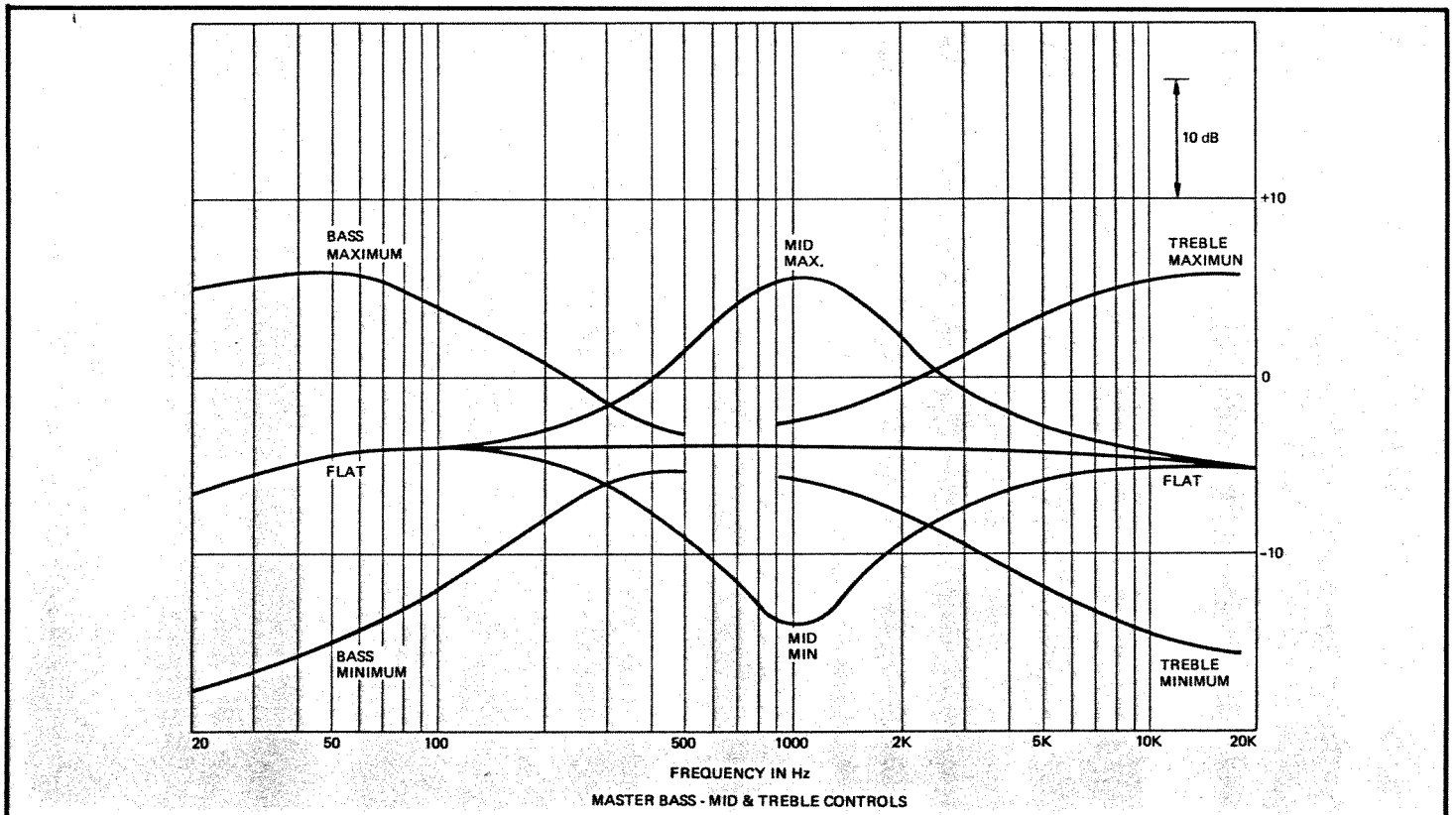


FIGURE 4 — Auxiliary Phone Jacks Connectors, Front Panel



**FIGURE 5 — Pre-Amp Tone Control Response Curves**



**FIGURE 6 — Master Tone Control Frequency Response Curves**



# SECTION II

## SETTING UP THE SYSTEM

### Speaker Placement

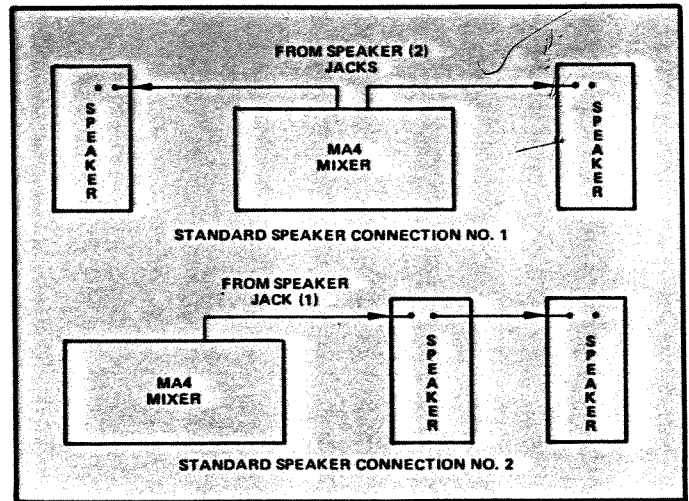
Placing the speakers forward of the microphones (Fig. 7) will allow much higher volume levels before feedback occurs.

### Speaker Connections (Fig. 8)

Connect speaker cables to the phone jacks on the rear panel of the Mixer, marked "Speaker." Use only "line" or "zip" cord for speaker connections. The use of shielded guitar cords for speaker hookups may cause a loss of volume.

NOTE:

Shielded cables can be used in an *emergency* with no damage to the power amp or speakers.



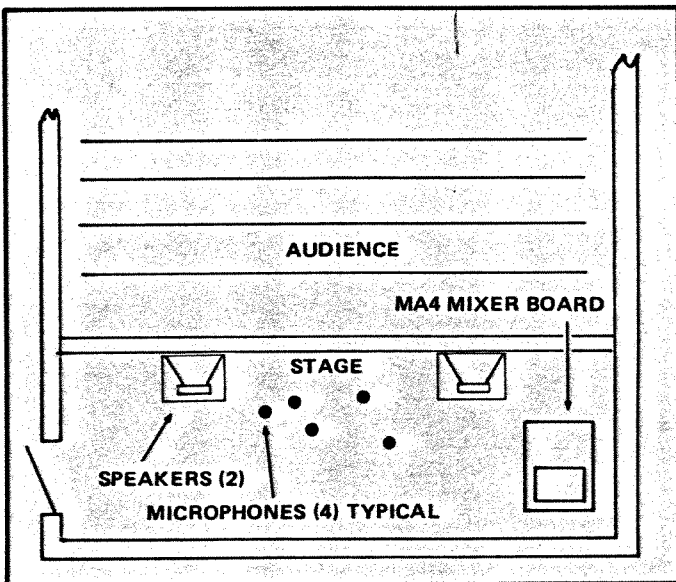
**FIGURE 8 — Speaker Connections**

High impedance microphones plug into the Hi-Z phone jacks (Fig. 2).

Low impedance microphones plug into Lo-Z 3-pin connectors (Fig. 2).

Use only the Hi-Z or the Lo-Z input in each channel at one time.

Plug the 120 VAC power cord into a source of 120V, 50 or 60 Hz power. DO NOT remove the grounding prong of the AC plug — it prevents hum and possible electric shock. If necessary, use a three-prong to two-prong adapter.



**FIGURE 7 — Typical Stage Setup**

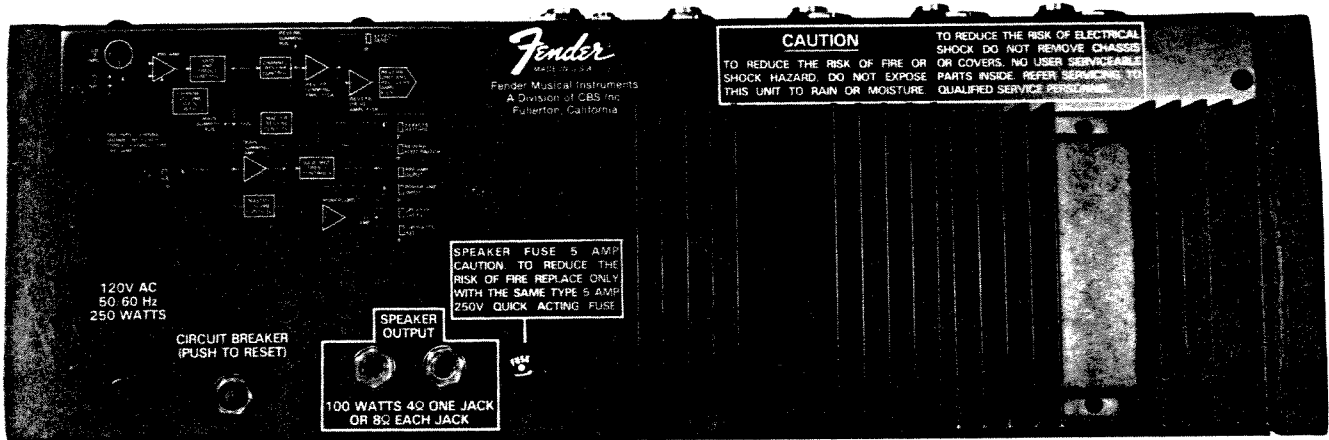


FIGURE 9 — Rear Panel

### Preliminary Control Settings

1. Set all Channel, Volume and Reverb Controls to their minimal positions.
2. Set all Bass and Treble Tone Controls to the "flat" center positions.
3. Set the Reverb Return and Master Volume Controls to their minimum positions.
4. Set the Master Bass, Mid, and Treble Controls to their "flat" (center) positions.
5. Turn the power switch On. If the switch pilot indicator does not light up, check the power cord connections and circuit breaker. If it lights up but no sound comes from the speakers, check the speaker cable connections and the speaker fuse on the rear of the Mixer.
6. Set the Main Level Control to "4" or "5."

### Final Control Adjustments

Volume — while someone is singing into the microphone at a performing level, slowly turn up the Channel Volume Control until the speakers are producing the desired volume.

If reverb is desired, turn the Reverb Control to the right (clockwise). Also, turning Reverb Return Control clockwise. The reverb footswitch, when plugged in, switches the internal (or external, if used) reverb On and Off. Set the Channel Volume Controls for the proper mix or "blend." Use the Master Volume Control to set the overall volume level.

*The preceding covers the basic set-up of the MA4 P.A. System.*

# MIXER USE

## Use of an Additional Mixer (Fig.10)

The Fender MA4 can be used either as a Master unit when chaining another mixer to gain additional input channels, or as an expander. If it is used as a Master unit, connect the Main Channel output of the other mixer to the Direct Input jack. This allows control of the entire system with the Master section controls of the MA4. If the MA4 is to be used as an expander with another Master unit, the Pre-Amp Out jack should be connected to the Master unit. Use the Master section controls of the MA4 as Submasters.

## Pre-Amp Output Jack

To use an additional amplifier to power more speakers, connect the Pre-Amp Output jack to the input of the additional power amp. This may also be used to drive monitor speakers.

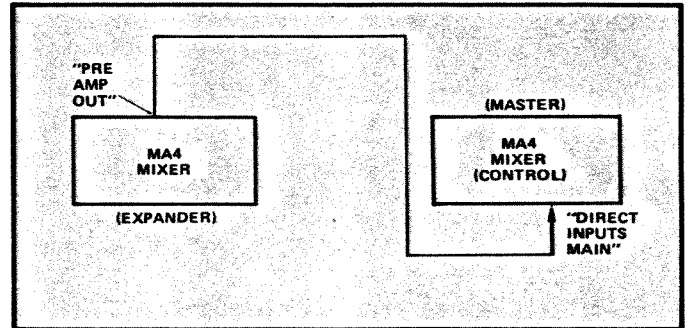


FIGURE 10 — Chaining Mixers

## Auxiliary Reverb Send and Return Jacks (Fig. 11)

Use these jacks to bypass the internal reverb system. A typical connection is shown below (Fig. 11).

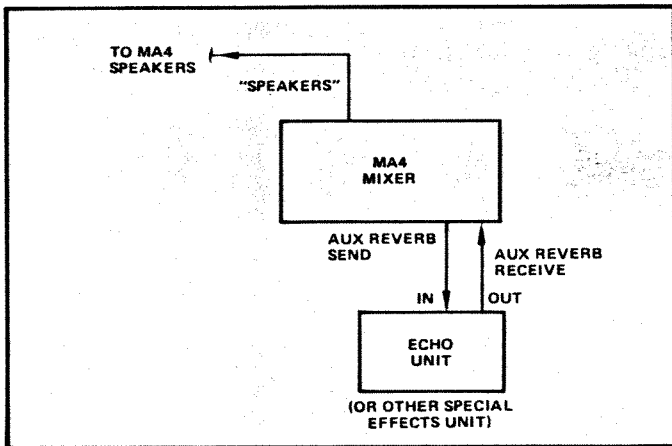


FIGURE 11 — Aux Reverb Jack Connections

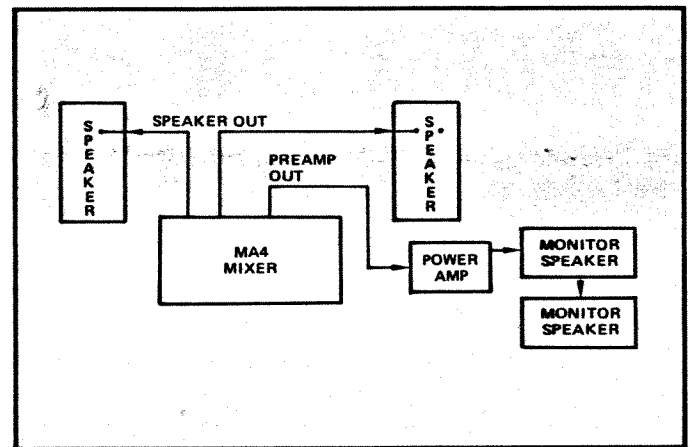


FIGURE 12 — Typical Speaker and Monitor Connections

## **Bi-Amping with an Additional P.A. System**

(Fig. 13)

Connect the Pre-Amp Output jack to an electronic crossover. If the MA4 is to be used for bass, use bass speaker enclosures and connect the Power Amp In jack to the "low" output of the crossover, and connect the "high" output of the crossover to the additional P.A. amplifier, which should use high frequency speakers. If the MA4 is to be used for highs, reverse the System.

## **Speaker Output Jacks and Speaker Systems**

The Power Amp will supply 100 watts into a 4 ohm load through a 5 amp fuse mounted on the rear panel. The fuse protects the amplifier from damage which could be caused by speaker loads of less than 4 ohms. Replace the fuse only with the same type. Each speaker system (enclosure) is 8 ohms and has two jacks in parallel. Two systems connected together make a 4 ohm load.

## **Tape Recording**

To record the main channel signal, connect the tape recorder input to the Pre-Amp Output jack (Fig. 14).

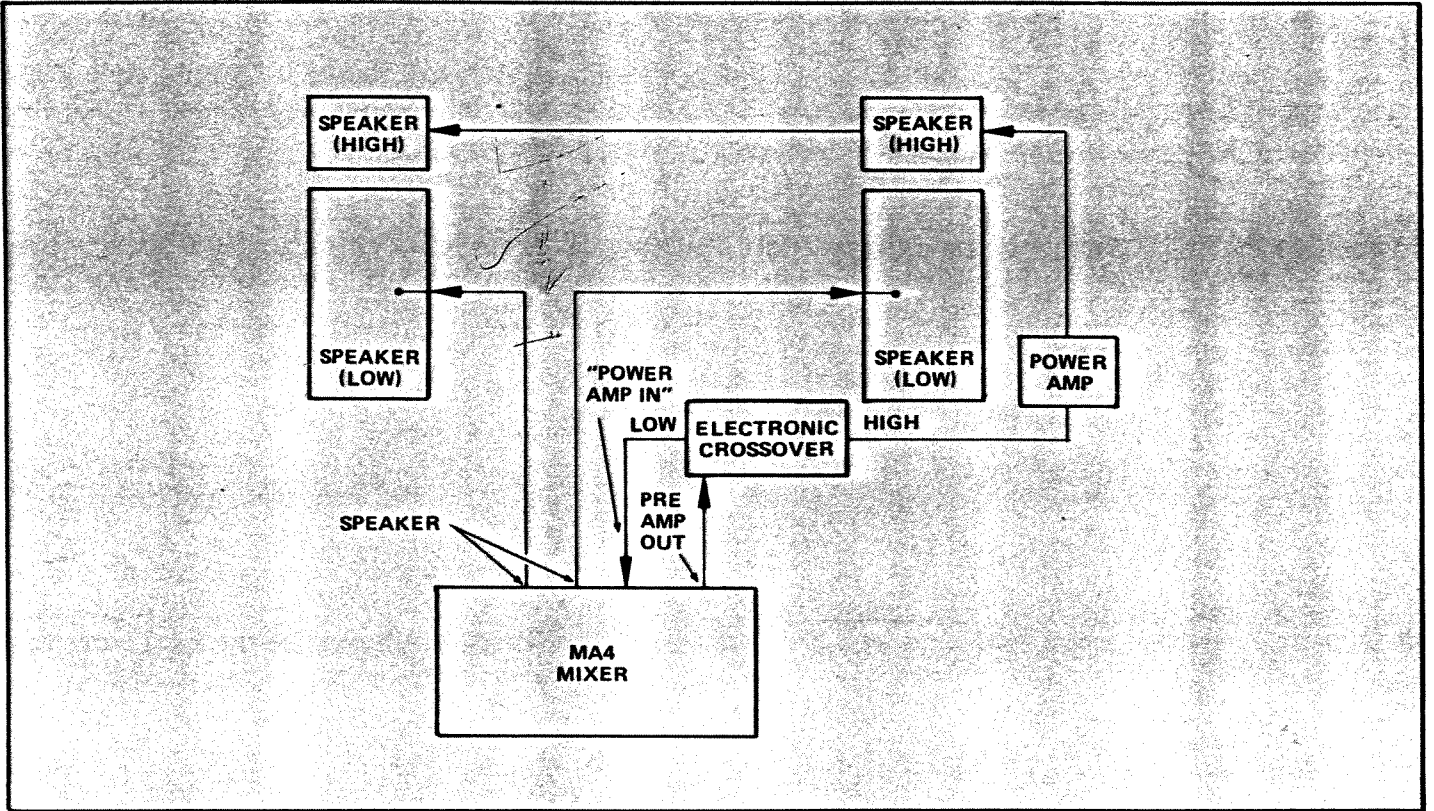


FIGURE 13 — Bi-Amp Connections

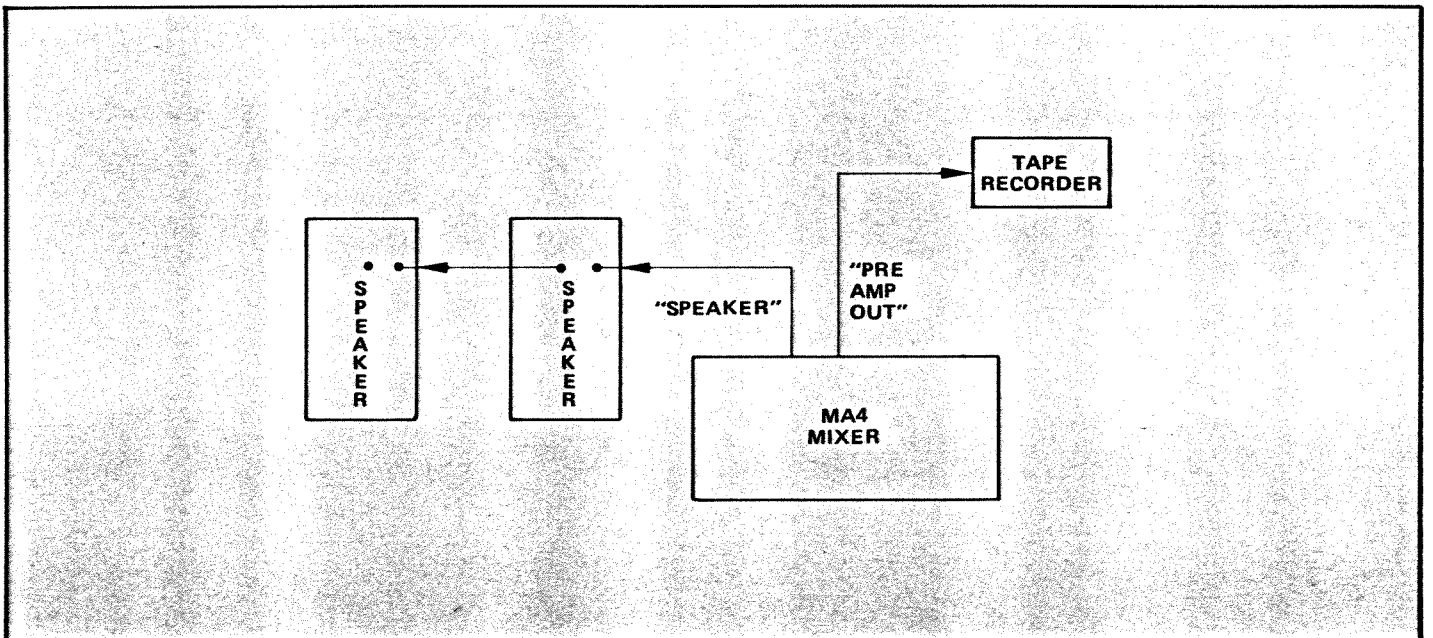


FIGURE 14 — Tape Recording

## SECTION III

### 4 CHANNEL PA SPEAKER SYSTEM

#### Speaker Enclosure System (Fig. 15)

The Fender MA4 Public Address System is supplied with two speaker enclosures. Each enclosure contains one high frequency 12-in. low frequency speaker mounted in a Thiele aligned vented box enclosure, and a compression driver mid and high frequency horn. An internal crossover network provides the correct frequency input to the horn and

bass speakers. The electrical connection to the speakers is achieved through either of the two ¼-in. phone jacks, connected in parallel, on the rear of the cabinet. The nominal impedance of each speaker system is 8 ohms. The two speaker systems connected in parallel will provide the desired 4 ohm amplified load.

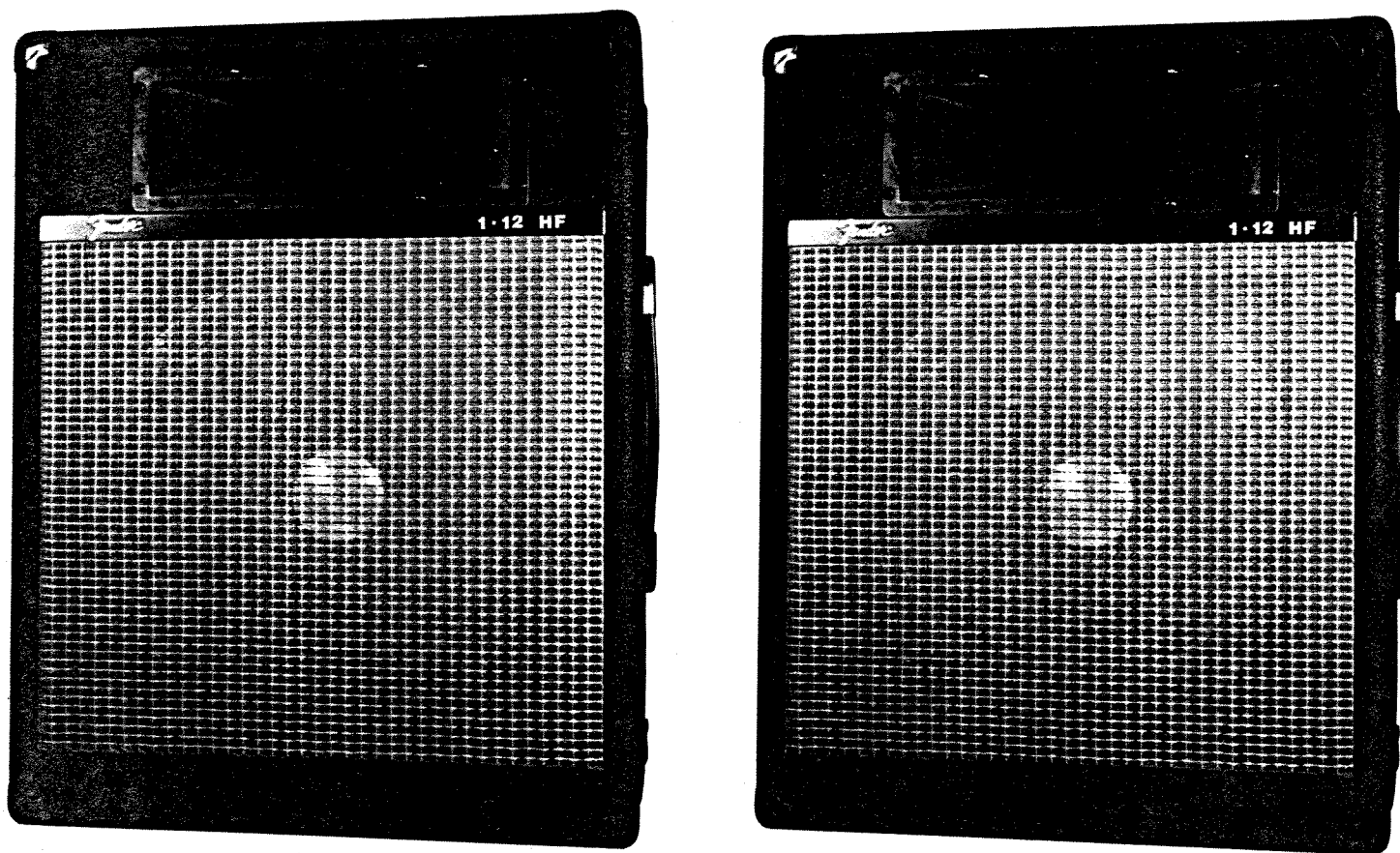


FIGURE 15 — Speaker Enclosure System