

# OWNERS MANUAL

**Fender**<sup>®</sup>  
MUSICAL INSTRUMENTS  
1300 E. Valencia, Fullerton, California 92631

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**160 PS  
VOCAL AMPLIFIER**

MANUAL NO. 011996 (K/GE)

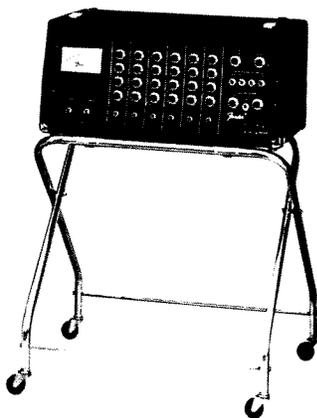
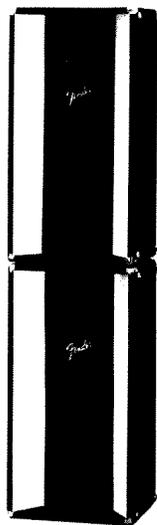


## **160 PS VOCAL AMPLIFIER**

**This manual is designed to familiarize you with the 160 PS Vocal Sound System and to acquaint you with its many fine features. Read it carefully before setting up the equipment for the first time.**

## FEATURES

- 160 watts rms power, 350 watts peak music power.
- Six input channels, each with its own controls.  
Volume, Treble, Bass, Reverb.
- Accepts high or low impedance microphones.
- Four portable speaker columns each containing three 10" high fidelity speakers.
- Lighted amplifier control panel.
- Heavy duty metal corners.
- Professional VU meter.
- Anti-feedback filters.



Note: Amplifier Stand is Optional.



# FRONT PANEL

VU METER

VOLUME

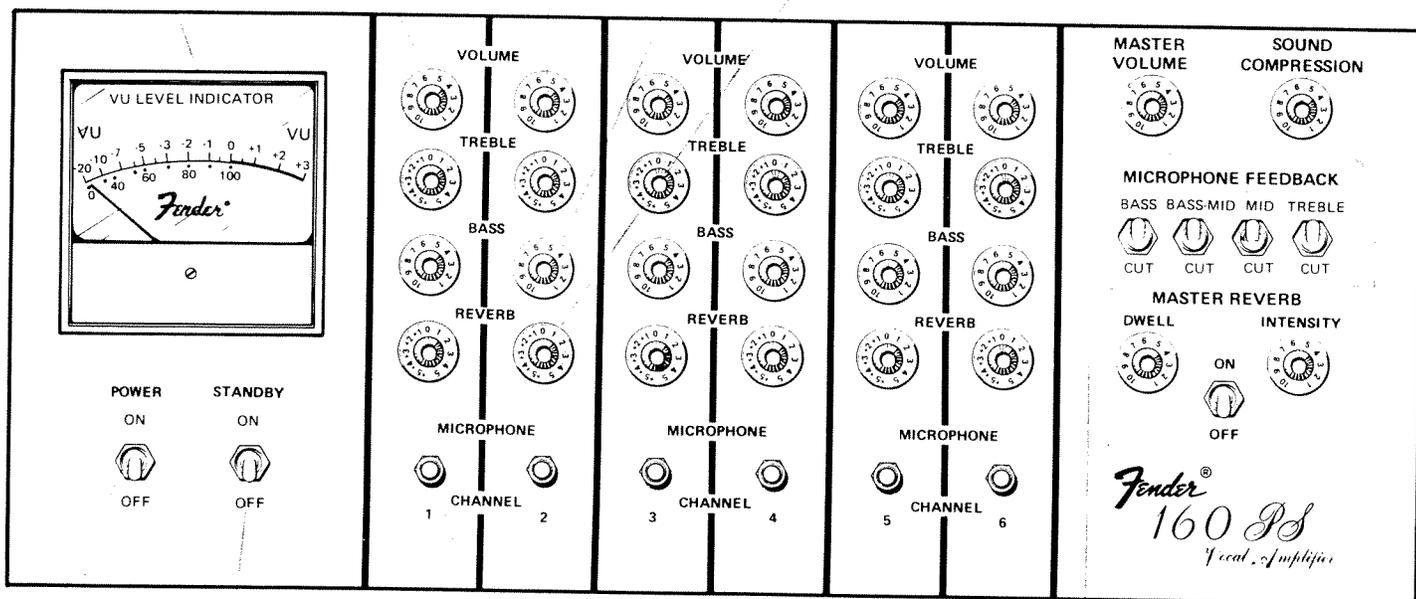
TREBLE

BASS

REVERB

MASTER VOLUME

HIGH LEVEL  
BASS  
COMPRESSION



POWER

STANDBY

INPUT JACKS (B)

MASTER REVERB

FEEDBACK  
CONTROL

## FRONT PANEL FUNCTIONS

### POWER SUPPLY CONTROLS

#### **Power Switch**

Turns the amplifier on and off.

#### **Standby Switch**

Allows the tube filaments to remain heated during standby periods. Amplification is instantly available without warm-up time. No danger of unwanted sound when in quiet periods.

### VU METER

The VU or "Volume Unit" meter indicates the amount of the available amplifier output which is being used. For minimum distortion, the amplifier should be operated so that the VU Meter only occasionally reads in excess of 0 VU (red portion of the meter scale). The VU Meter and the controls are illuminated when the power switch is turned on.

### CHANNEL CONTROLS

**Volume Control** — Adjusts volume from zero to maximum.

**Treble Control** — Offers boost or cut of High-frequency response.

**Bass Control** — Offers boost or cut of low frequency response.

**Reverb Control** — Adjusts the amount of reverb from zero to maximum.

**Input Jack** — High-impedance microphones are recommended; however, in the event that microphone cables in excess of 20 feet are necessary, low-impedance microphones with plug-in matching transformers are recommended in order to maintain maximum treble response.

### MASTER CONTROLS

**Master Volume Control** — Simultaneously controls the output of all channels of the amplifier.

**Sound Compression** — Provides automatic limiting of loud bass signals. This allows more power for voice amplification when loud bass signals would otherwise overdrive the amplifier.

Microphone Feedback (See Page 7, Minimizing Feedback)

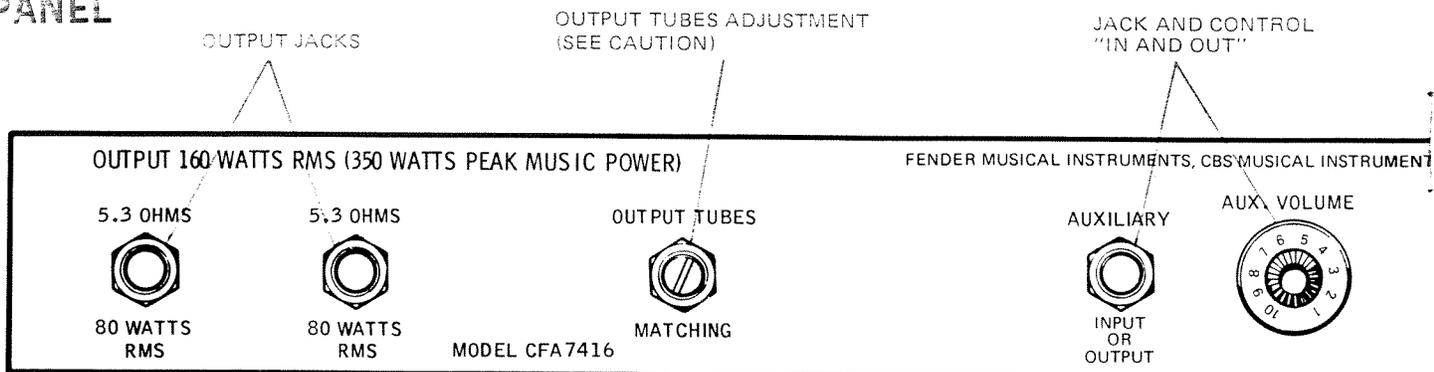
### MASTER REVERB CONTROLS

**Switch** — Turns reverb signals on or off.

**Dwell Control** — Regulates the amount of reverb "sustain".

**Intensity Control** — Regulates the amount of reverb that is added to the amplifier output.

## REAR PANEL



## REAR PANEL FUNCTIONS

**Output Jacks (2) 5.3 ohms – 80 watts rms**  
Each jack is normally used to connect two speaker columns. (See connection diagram next page.)

Maximum power output requires the use of four 10.6 ohm loads (MODEL SC 3-10 Sound Columns). These loads may be connected to either one or to both of the jacks. Other load values may be used but the power output will be reduced.

### Reverb Pedal

This jack accepts a foot switch for on/off foot control of reverb.

### Auxiliary Input or Output Jack and Aux. Volume Control

The jack may be used to input the signal from a tape recorder or other high level device into the amplifier. The signal will be amplified as a function of the Master Volume Control and the Aux. Volume Control.

The jack can also be used to feed a signal to a tape recorder or other amplifier device with an input impedance greater than 10K ohms. The signal is the sum of all individual channel volume settings, subject to the Aux. Volume Control and independent of the Master Volume Control.

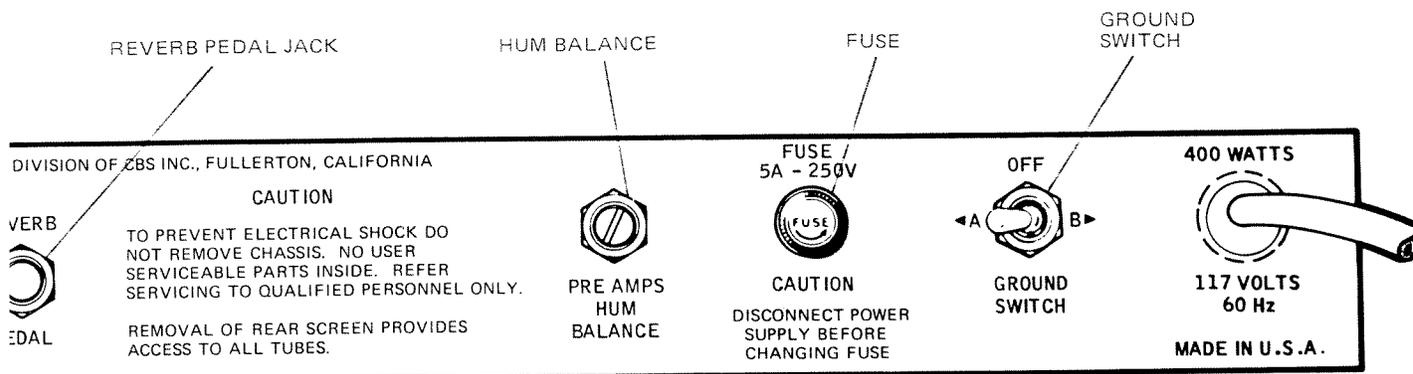
### Output Tubes, Matching

This control makes it unnecessary to use matched power output tubes for optimum performance.

Caution: Should be adjusted only by a technician if the output tubes are replaced.

### Hum Balance

This control should not need adjustment unless tubes or other components have been changed. Should adjustment be required, first set the ground switch to minimum hum.



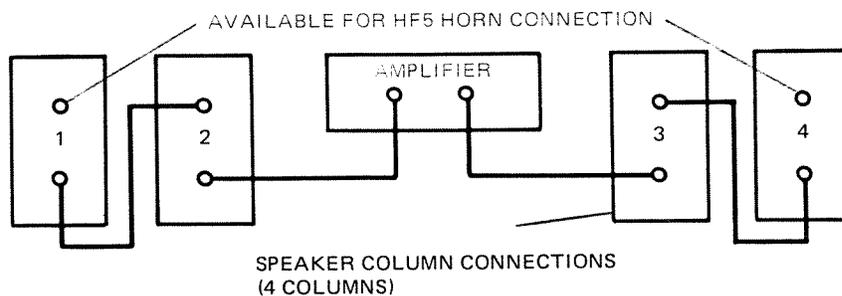
### Fuse 5A-250V

Provides protection from sudden AC power source surges.

Caution: Disconnect amplifier AC plug from outlet before changing fuse. Remove fuse by pressing in and unscrewing cap. Use fuse type specified on chassis back plate.

### Ground Switch

Gives player control of polarity. Positions "A" and "B" ground to each side of the AC line respectively. The "OFF" position disconnects all but the third line chassis ground. Try each position to find minimum hum condition. Set to "OFF" position when three conductor A.C. outlet is available for power source.

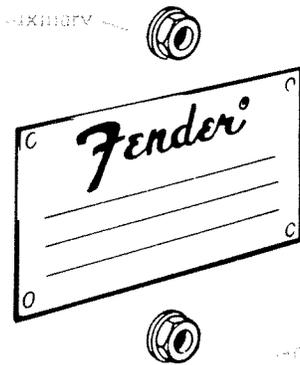


### SOUND COLUMN FEATURES

Each 10.6 ohm column is equipped with three 10 inch, high efficiency speakers.

Two jacks are installed on each column.

It is suggested that the lower jack be used to connect the SOUND COLUMN to the amplifier. The upper jack is convenient for connecting an optional auxiliary horn tweeter, monitor speakers, or any additional sound column.



### OPERATION NOTES

If the meter panel does not light when the power switch is turned on, verify that the AC cord is plugged into an operating outlet and that the fuse is installed and operable. If in doubt, try a new fuse.

If there is no sound:

1. Verify that the "STANDBY" switch is in the "ON" position.
2. Check the volume control on the channels in use and the Master Volume Control.
3. Inspect the microphone and speaker plugs for positioning in their respective jacks.
4. If the microphone you are using has an on/off switch, be sure this switch is in the "on" position.

### MAINTENANCE NOTES

1. Check for bad connections or broken lines or connectors between the major components of the PA System.
2. Defective tubes are the cause of over 80% of amplifier malfunctions. Some of the following problems arise from defective tubes: loud hissing noise, vibrato failure, popping noises, distortion of tone, and general amplifier failure.
3. If any hissing, popping noise, or distortion is in evidence, tap each tube with your finger. A defective tube will often cause noise or a sharp microphonic sound when tapped briskly.
4. If there is no sound, remove the tubes and test them on a regulation tube tester.
5. Operating the amplifier without a speaker column plugged in can cause serious amplifier damage.

## MINIMIZING FEEDBACK

Acoustic feedback is the condition which occurs when the microphone picks up sound from the speakers and the sound is reamplified over and over until it builds into a loud, ear-splitting roar. This condition can develop with any Public Address System. In any room, feedback results when the volume is raised above a certain level. The following suggestions may be useful for increasing the volume before feedback occurs.

Start with the four switches in the upper position (away from "CUT"). These switches

can be used to reduce feedback caused by room acoustics, allowing a greater speaker output without feedback. This is done by flipping down the switch that affects the "feedback" frequency of the room. More than one switch may be used at the same time but using them all merely reduces the speaker volume which must then be restored by turning up the Master Volume Control.

Use high quality uni-directional microphones of a high impedance dynamic type.

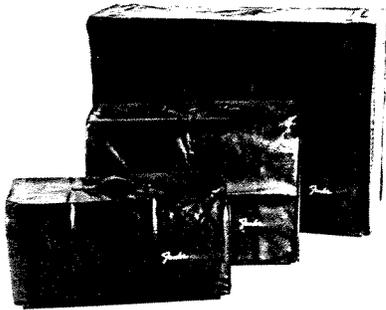
Experiment with the placement of the speakers and microphones. Placing the speakers in front of the microphones is a good place to start.

Tone control settings are most important. Careful checking of various tone settings will often improve coverage and increase the intelligibility factor.

Experiment with use of the four "MICROPHONE FEEDBACK" switches.

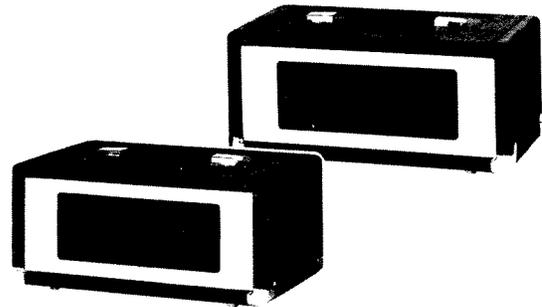
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## ACCESSORIES



### COVERS

Waterproof, tear, and abrasion-resistant covers are available for every Fender Public Address System. They prevent surface damage and keep out dust.

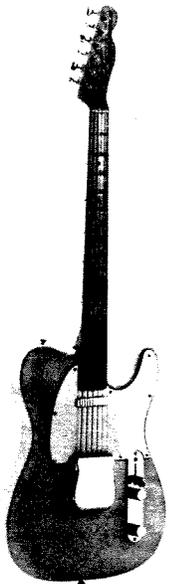


### HIGH FREQUENCY HORNS

Increase treble response. Especially useful where maximum projection is required.

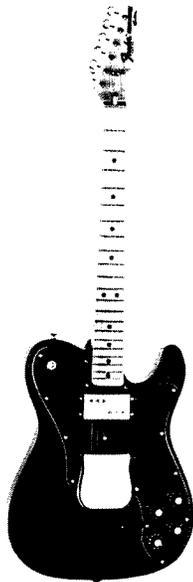
# GUITARS

*"Fender guitars are engineered to perfectly match the electronic circuitry of your new Fender amplifier."*



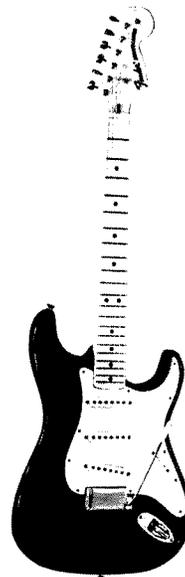
## TELECASTER

The original Fender guitar, still enjoying great popularity. Available in a variety of finishes. Original Fender Lead and Rhythm pickups for that great Fender sound.



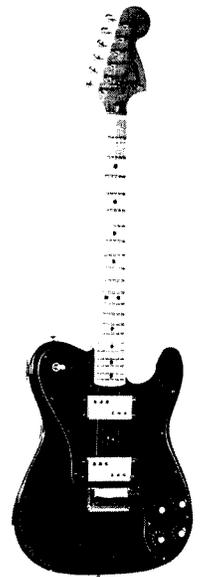
## TELECUSTOM

Solid body guitar with two pickups — the standard "Tele" lead pickup and the humbucking rhythm pickup. Individual controls for each pickup. Exclusive bullet truss rod and tilt neck "micro" adjustment features.



## STRATOCASTER

3 patented wide-range high-fidelity pickups—each individually adjustable. 6 independent bridge sections for perfect string adjustment. Exclusive Fender contoured waist design for maximum playing comfort.



## TELECASTER DELUXE

Single piece hard rock maple neck with flat radius & wide frets. 6 specially designed individual bridge sections. Contoured body. Deluxe precision machine heads. Individual controls for each pickup.