

Mk III SERIES PROFESSIONAL LOUDSPEAKER ENCLOSURES

**Reference / Owner's Manual
for 1211 Mk III / 1225 Mk III
/ 1226 Mk III**

P/N 053566 REV C

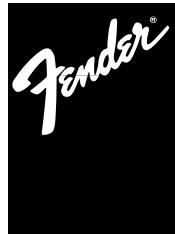
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Fender Musical Instruments
7975 North Hayden Road, Scottsdale, Arizona 85258 U.S.A.

A Message from the Chairman

At Fender, we know the importance of sound reinforcement. From the simple box-top powered mixer to today's touring concert systems, the need to communicate to make the connection between the performer and the audience is foremost in our mind.

Perhaps no other piece of gear can make or break your message or your band's sound than your sound reinforcement gear. Your sound system is far more than just a combination of dials, wires and speakers. It is an integral part of the audio chain and should be treated with special care and attention to detail.

Fender knows what building quality musical instruments and sound reinforcement equipment is all about. In fact, many of the world's best sounding electric musical instruments and sound reinforcement equipment proudly wear the Fender name.

Whether you need a small powered mixer for your Saturday afternoon "jam" or a professional full-size concert system, Fender has the sound reinforcement gear to meet your needs. Likewise, your decision to purchase quality Fender Professional Audio Equipment is one you will appreciate with each performance for years to come.

Wishing you years of enjoyment and a heartfelt *thank you*,

Bill Schultz

Bill Schultz
Chairman of the Board
Fender Musical Instruments Corporation



**MK III
PROFESSIONAL LOUDSPEAKER
SYSTEMS**

INTRODUCTION

All Wood Construction with Sturdy Dado Joints

High Current 1/4" Phone Jacks and Neutrik Speakon™ Connectors

Titanium Diaphragm Horn

Active / Passive Crossover Operation

Metal Corners and Rubber Feet

Tough Indoor / Outdoor Synthetic Carpet Covering

Thank you for purchasing a Mk III Series Loudspeaker System from Fender® Pro Audio. We are sure you will find it both a unique and effective sound reinforcement product, providing years of trouble-free service day in and day out.

Mk III Series Loudspeaker Systems are professional, full-range, two-way, compact loudspeakers designed for the most demanding permanent or portable sound reinforcement requirements. Moreover, these speakers are ideal for use as a two-way system or as the mid / high pack in a three-way set-up incorporating a Fender subwoofer loudspeaker system.

With a wide response, low distortion and controlled directivity, Mk III Series Loudspeaker Systems are designed to form the basis of everything from a small public address system to the nightly rigors of a "working band's" sound system. After moisture sealing, the Mk III Loudspeaker cabinets are covered in tough black indoor/outdoor synthetic carpet covering. Likewise, Mk III Loudspeaker cabinets also feature metal corners and rubber feet for a longer life and lasting looks.

Only the finest components are used to provide maximum efficiency and response. In order to more fully understand the operational characteristics of your Mk III Series Loudspeaker enclosure, please read through this operational user's guide.

CAUTION: Almost all speakers produce strong magnetic fields which may interfere with the normal operation of nearby electronic devices, including televisions and computer video monitors. To reduce or eliminate interference, increase the distance between this product and other nearby electronic devices.

SPEAKER WIRING AND CONNECTIONS

Parallel or *series* are the two basic ways which multiple speakers can be connected to a single power amplifier. When speakers are connected in parallel, their combined impedance decreases. For speakers wired in series the opposite is true, their combined impedance increases. Thus, when speakers are wired in series, higher impedance speakers in the series draw more power from the amplifier than do speakers in the series with lower impedances. When speakers are wired in parallel, the opposite is true. Higher impedance speakers will draw less power from the amplifier than lower impedance speakers will draw.

At Fender®, we recommend connecting multiple speakers in parallel for several reasons. First, if one speaker fails, the others will continue to operate. Second, because in a series connection one speaker affects the output of the other speakers, unpredictable frequency response is a concern. Third, most speaker cabinets are already wired for parallel connections making parallel connections the most common wiring method.

Below are two charts demonstrating how to calculate both parallel and series impedance.

| PARALLEL IMPEDANCE | | | | |
|--|--|--|--|---|
| Cabinet B Impedance | | | | $Z_p = \frac{1}{\frac{1}{Z_1} + \frac{1}{Z_2} \dots \frac{1}{Z_n}}$ |
| $16\Omega^*$ | | | | |
| 8Ω | | | | |
| $8\Omega^* 16\Omega$ | | | | |
| Cabinet A Impedance | | | | |
| *Example- Cabinet A is 8 ohms. Cabinet B is 16 ohms. The total impedance when connected in parallel is: | | | | |
| $Z_p = \frac{1}{\frac{1}{8} + \frac{1}{16}} = 5.3 \text{ ohms.}$ | | | | |
| SERIES IMPEDANCE | | | | |
| Cabinet B Impedance | | | | $Z_s = Z_1 + Z_2 \dots Z_n$ |
| $16\Omega^*$ | | | | |
| $18 20^* 24 32$ | | | | |
| 8Ω | | | | |
| $10 12 16 24$ | | | | |
| 4Ω | | | | |
| $6 8 12 20$ | | | | |
| 2Ω | | | | |
| $4 6 10 18$ | | | | |
| Cabinet A Impedance | | | | |
| $2\Omega 4\Omega^* 8\Omega 16\Omega$ | | | | |
| *Example- Cabinet A is 4 ohms. Cabinet B is 16 ohms. The total impedance when connected in series is $4 + 16 = 20$ ohms. | | | | |

Keep in mind, power and audio signal cables are the most common sources of sound system failure. Well made and carefully maintained cables are essential to the reliability of the entire sound system. If long speaker cables are required, it is important to ensure the cable's gauge is sufficient to transfer all of the available amplifier power to the speakers rather than absorbing the power itself. As a rule of thumb, larger wires are better as they conduct more power to the speakers (larger wire has smaller gauge numbers).

Below are two charts listing speaker wire gauges and recommendations for best results.

| SPEAKER WIRE GAUGE | | | |
|---|------------------------|---|-----|
| SPEAKER WIRE LENGTH | 100'-UP (30.5 m-UP) | 12 | 14 |
| 50'-100' (15.25-30.5 m) | 12 | 14 | 16 |
| *25'-50' (7.60-15.25 m) | 14 | *16 | 18 |
| 10'-25' (3.05-7.60 m) | 16 | 18 | 18 |
| 0'-10' (0.00-3.05 m) | 18 | 18 | 18 |
| | 4Ω | *8Ω | 16Ω |
| SPEAKER IMPEDANCE [Z] | | | |
| *Example - If the speaker wire length required is between 25-50 feet (7.60-15.25 meters) and the speaker impedance is 8Ω, the minimum recommended speaker wire gauge is 16. | | | |
| AWG | Cross-Section [mm²] | Resistance in Ω per foot (30.5 cm) @ 77° F (25° C) | |
| 18 | 0.83 | .00651 | |
| 16 | 1.32 | .00409 | |
| 14 | 2.10 | .00258 | |
| 12 | 3.32 | .00162 | |
| 10 | 5.27 | .00102 | |
| 8 | 8.38 | .00064 | |

Mk III SERIES SPEAKER CONNECTIONS

In normal operation (using the passive internal crossover), the 1/4" jacks and the Speakon™ Connectors are wired in parallel allowing any one of the connectors to be used as an input and any other as an output. This allows "daisy chaining" of multiple loudspeakers, eliminating the need for several long, cumbersome runs of speaker cable. During normal mode, the connections are as follows:

| Polarity | Phone Jack | Speakon™ |
|--------------|------------|--------------|
| Positive (+) | Tip | 1+ and/or 2+ |
| Negative (-) | Sleeve | 1- and/or 2- |

When the switch on the back of the speaker is in the bi-amp mode, the internal crossover and high frequency attenuator are disabled. Thus, an external crossover must be used with the speaker and two channels of power amplification will be required: one for the low frequencies and another for the high frequencies. In bi-amp mode, the connections are as follows:

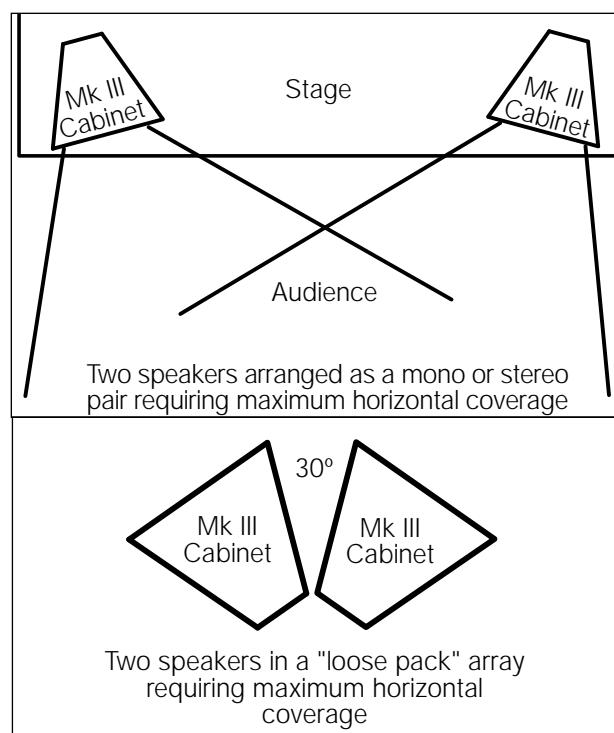
| Phone Jacks | | | | | |
|-------------|--------------|--------|--------|---------|--|
| Frequency | Polarity | Left | Right | Speakon | |
| Lows | Positive (+) | N/A | Tip | 1+ | |
| Lows | Negative (-) | N/A | Sleeve | 1- | |
| Highs | Positive (+) | Tip | N/A | 2+ | |
| Highs | Negative (-) | Sleeve | N/A | 2- | |

IMPORTANT: If the crossover switch is set to external, DO NOT plug a full range signal into the High Frequency input. Doing so will destroy the compression driver.

SETUP SUGGESTIONS

The placement of any speaker can dramatically affect its sound. Thus, there are several considerations to review when placing loudspeakers.

First, the range of the horizontal coverage should be determined. The speaker may be used as a single unit, as part of a pair, or as part of a group of widely spaced enclosures. In any case, maximum horizontal coverage will be desired. Examples of these types of setups are shown. The horn in this configuration has a horizontal coverage angle of 90° and a vertical coverage of 40°.



NOTE: When setting up your Mk III Series enclosures, be sure to place the cabinets in such a way as to minimize overlapping radiating patterns.

A **second** consideration is for feedback and bass performance. If the speaker is placed near a large, flat wall, the bass output will increase by approximately 6 dB. Placing the speaker near a wall can cause feedback. If this occurs, the speaker must be moved.

A **third** consideration is to what degree the speaker should be "heard and not seen", especially in permanent installations. Remember, where the speaker cabinets are placed will effect both their tone and radiating patterns.

BI-AMP OPERATION

For versatility and increased headroom, some users may choose to use an active electronic crossover / processor, such as the Fender PCN-2 or PCN-4, with the system. The electronic crossover takes the place of the internal crossover of the speaker system. The "Normal / Bi-Amp" switch on the back of the cabinet must be set to the "Bi-Amp" position. **Always check to ensure the internal/external crossover switch which selects passive or biamp operation is in the correct position prior to use. Failure to do so may damage the speakers.** A typical set-up of a bi-amp configuration is shown at right.

For those situations requiring a subwoofer, Mk III loudspeakers can still be used if a three-way electronic crossover is used. An example of this configuration is shown on the next page.

It is strongly recommended that a fourth-order "Linkwitz-Riley" or a digital FIR fourth-order active crossover be used. The crossover frequency, for both the 1225 Mk III / 1226 Mk III, should be set at approximately 2200 Hz, the 1211 Mk III should be set at approximately 1200 Hz. Since the output sensitivity of the compression driver is higher than that of the woofer, the high frequency output of the system must be decreased at either the crossover (if such a control is provided) or at the power amplifier(s) that are used for the high frequencies.

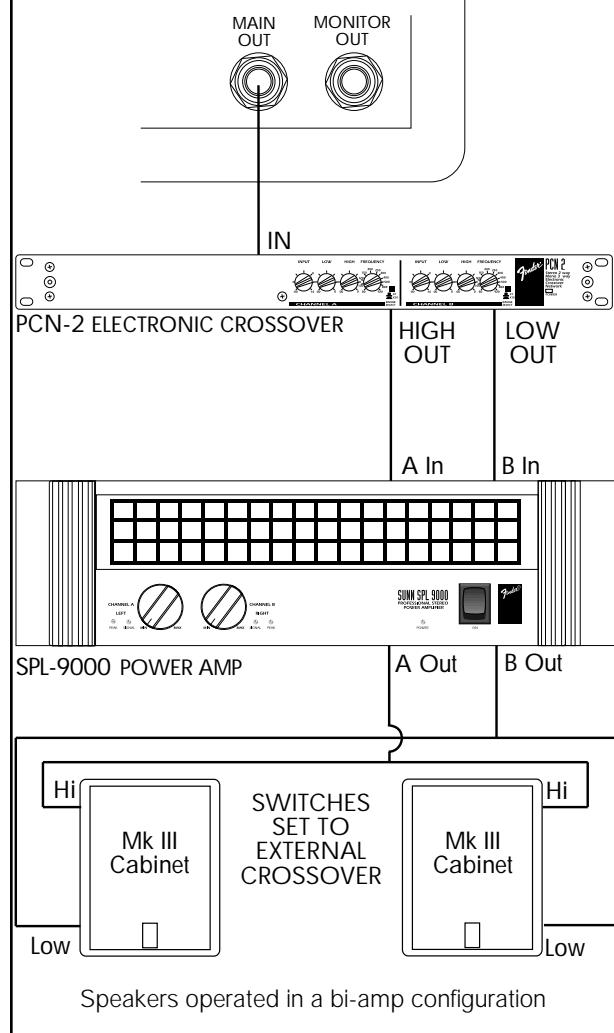
CAUTION: Be sure to connect the high frequencies and low frequencies to their correct inputs indicated on the back of the speaker cabinets.

CARPET COVERING CARE

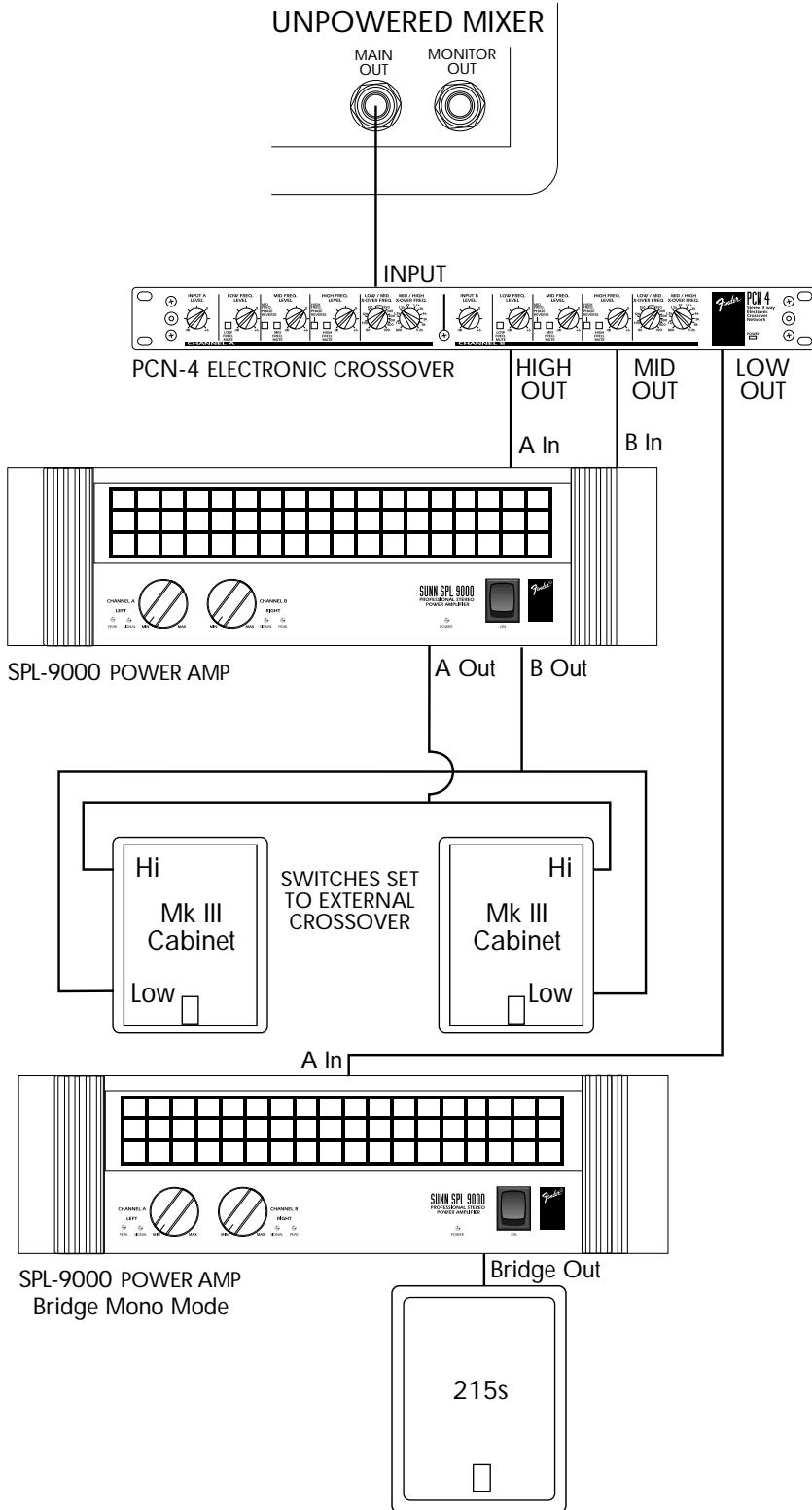


Mk III Series cabinets are covered in a tough, black indoor/outdoor synthetic carpet for long life and lasting good looks. To clean the carpet covering, use a sponge and a light soapy water solution to wipe away any smudges or dirt. For stubborn stains, a slightly more concentrated soapy solution or carpet shampoo with a brush may be used. Avoid spilling liquids on the input panel, grille and speakers.

UNPOWERED MIXER



USING A 3-WAY ELECTRONIC CROSSOVER WITH MK III ENCLOSURES



SPECIFICATIONS

| | | | | |
|----------------------------|--|---|---|--|
| MODEL | 1211 Mk III | 1225 MK III | 1226 MK III | |
| PART NUMBER | 071-1211-200 | 071-1225-200 | 071-1226-200 | |
| CABINET | 5/8" (1.6 cm) Particle Board | 3/4" (1.9 cm) Birch Plywood | 3/4" (1.9 cm) Birch Plywood | |
| CONNECTIONS | (2) 1/4" Phone Jacks (2) Speakon™ Jacks | (2) 1/4" Phone Jacks (2) Speakon™ Jacks | (2) 1/4" Phone Jacks (2) Speakon™ Jacks | |
| DRIVER | Low: 15" (38 cm) woofer 2.5" (6.4 cm) voice coil | 15" (38 cm) woofer 3" (7.6 cm) voice coil | 15" (38 cm) woofers 3" (7.6 cm) voice coil | |
| | High: 1" (2.5 cm) Exit Throat Titanium Diaphragm | 1" (2.5 cm) Exit Throat Titanium Diaphragm | 1" (2.5 cm) Exit Throat Titanium Diaphragm | |
| FREQUENCY RESPONSE | On Axis +/- 3 dB: 50 Hz to 15kHz | 50 Hz to 15kHz | 38 Hz to 15kHz | |
| ON AXIS SENSITIVITY | SPL @ 1W/1m: 95 dB | 100 dB | 100 dB | |
| COVERAGE PATTERN | Horizontal Vertical | 90° @ 5 kHz 40° @ 5 kHz | 90° @ 5 kHz 40° @ 5 kHz | |
| POWER RATING | 300W program 150W EIA | 400W program 200W EIA | 800W program 400W EIA | |
| NOMINAL IMPEDANCE | 8Ω | 8Ω | 4Ω | |
| CROSSOVER FREQUENCY | 1200 Hz | 2200 Hz | 2200 Hz | |
| DIMENSIONS | Height Width Depth | 28.6" (72.6 cm) 20.3" (51.6 cm) 14" (35.6 cm) | 28.6" (72.6 cm) 19.8" (50.3 cm) 19.2" (48.8 cm) | 46.5" (118.1 cm) 25" (63.5 cm) 20.2" (51.3 cm) |
| WEIGHT | 68 lbs. (31 kg) | 84 lbs. (38 kg) | 126 lbs. (57 kg) | |

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FENDER MUSICAL INSTRUMENTS CORP.
 CORONA, CA 91720 USA