

SPL 215S Subwoofer Owner's Manual

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P/N 041012

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INTRODUCTION

The Fender Electronics SPL Tour Series 215S professional loudspeaker is a top-of-the-line subwoofer, perfect for even the most demanding concert sound applications. With its scientifically designed band-pass cabinet and small size, the speaker is adaptable to almost any situation as a single unit or as part of an array.

Featuring a continuous power handling of over 800 Watts, a versatile input/output panel, high sensitivity and the ability to pole-mount full range speakers above it, the 215S subwoofer is designed to complement the performance of the full range cabinets of the SPL Tour Series (called mid/high packs when used with a subwoofer), dramatically extending the low frequency range and output of a Tour Series System.

Features

The cabinet is a 13-ply, Baltic Birch Plywood band-pass enclosure with multiple cavities and internal wood bracing to eliminate any side wall movement. The bandpass design results in low distortion, very high power handling and very high output SPL. All ports are large to prevent compression at high SPL due to large exit velocities. After moisture sealing, the cabinet is primed, finish sanded, and then painted in the strongest textured black finish available.

The pole mount adapter for the subwoofer is used to mount a mid/high pack on the optional 4 foot pole over the subwoofer. The adapter has been completely redesigned from the ground up to accommodate the stresses encountered from this situation, and no tools are required to install or remove the pole assembly. **WARNING: Use only Fender Extension Pole Assembly (P/N 041082) to support the full range cabinets.**

The drivers are custom designed, 15" woofers using 4" voice coils wrapped around a polyimide Kapton former with a vented pole design for optimum heat transfer. They are mounted on precision cast alloy frames to support the weight of the powerful 120 oz. magnet structure.

Careful thought has also been given to the input panel. The panel is made of a tough ABS plastic with internal ribbing to prevent both damage to the outside of the panel and induced sympathetic vibrations caused by the intense sound pressure inside the cabinet. The panel houses 1/4" Phone Jack connectors and Neutrik 4-pole Speakon connectors wired in parallel to provide for a variety of interconnection schemes and flexibility in the field.

Connection Convention

The two 1/4" Phone Jacks and the two 4-Pole Speakon Connectors are wired in full parallel so that any one of the connectors may be used as an input and any other may be used as an output to another subwoofer. This allows "daisy chaining" of multiple subwoofers, obviating the need for several long, cumbersome runs of speaker cable.

NOTE: A single 215S subwoofer presents a 4 Ohm load to the amplifier. Daisy chaining two of them in parallel will present a 2 Ohm load to the amplifier and only amplifiers rated for output into 2 Ohms should be used in this configuration.

The following polarity convention should be used when making connections to the 215S:

<u>Polarity</u>	<u>Phone Jacks</u>	<u>Speakon</u>
Positive (+)	Tip	1+ and/or 2+
Negative (-)	Sleeve	1- and/or 2-

Using the 215S in a system

The purpose of the 215S subwoofer is to augment the low frequency performance of the main P.A. speakers using bi-amplification. The 215S is designed to reproduce very high levels of the low bass frequencies, thus relieving the smaller main speakers from having to supply this energy. In order to send certain frequencies to one type of speaker and other frequencies to another type, a line-level electronic crossover such as the Fender PCN-2 or PCN-4, is required. Two different configurations are shown in figures 1 and 2 demonstrating how easy it is to add a subwoofer to a system. Figures 3 and 4 show more extensive configurations for those requiring more power.

Setup Procedure

Placement of any speaker can affect the sound dramatically. There are three primary considerations when placing subwoofers, the first of which is time alignment. The mid/high packs should be as close as possible to the subwoofer so that the sound from the subwoofer reaches the audience at about the same time as that from the mid/high packs. Otherwise, a slight smearing of the lower bass frequencies may occur. While ideal placement for this consideration would involve stacking the mid/high pack on top of the subwoofer, this effect is quite subtle and an obvious effect may not be heard until the separation between the two cabinets is large enough to cause an audible time delay.

The second consideration is obtaining as much bass as possible from the subwoofer. A subwoofer hanging in free air is referred to as operating in "full space" since the subwoofer is free to radiate in all directions (omnidirectionally). A speaker down on the middle of the floor or up in the air with its back against the wall is referred to as operating in "half space". The 215S was designed assuming that it would be used in a "half space" configuration. Full space operation will result in a decrease of about three dB of output compared to half space and you may need to compensate by turning up the power

amplifier. Placing a speaker near a large, flat wall and on the floor (quarter space) will boost the bass performance by about three dB compared to half space. Putting a speaker in a corner on the floor (eighth space) will boost the output about six dB compared to half space. The more surfaces you can place the subwoofer against, the fewer subwoofers you will need to achieve a certain SPL.

The third consideration is convenience and the visual aspect of the speaker array. For temporary installations, the subwoofer can be used as a support for a mid/high pack with the mid/high pack mounted either directly on top of the subwoofer or supported by the 4 foot pole mount assembly and using the subwoofer as a base. For more permanent installations, the 215S, given its small size, can be set under a stage, table, etc.

A compromise among these three factors will yield the best solution to your particular situation. After the speaker system has been placed, the crossover point needs to be set for maximum benefit. While the 15" driver in the 215S is fully capable of accurately reproducing frequencies above 350 Hz, the band-pass enclosure has been designed to acoustically roll off frequencies above 170 Hz, thereby decreasing distortion and boosting the frequencies below 170 Hz. Thus, the crossover point must be set lower than about 130 Hz to ensure that all frequencies are reproduced. Setting the crossover point too low (below 80 Hz) will not take full advantage of the subwoofer as it puts too high of a demand on the mid/high packs. For these reasons, we recommend a crossover point ranging between 80 Hertz and 130 Hertz, depending on the placement of the speakers.

The output level of the subwoofer(s) should be matched by ear to the output level of the full range cabinets by adjusting the level control at the crossover (if it has one) or at the power amplifiers. Normally, the output of the full range cabinets is subjectively higher than that of the subwoofers so a balance can be achieved by turning down the mid/high frequency signal at or before the power amplifiers.

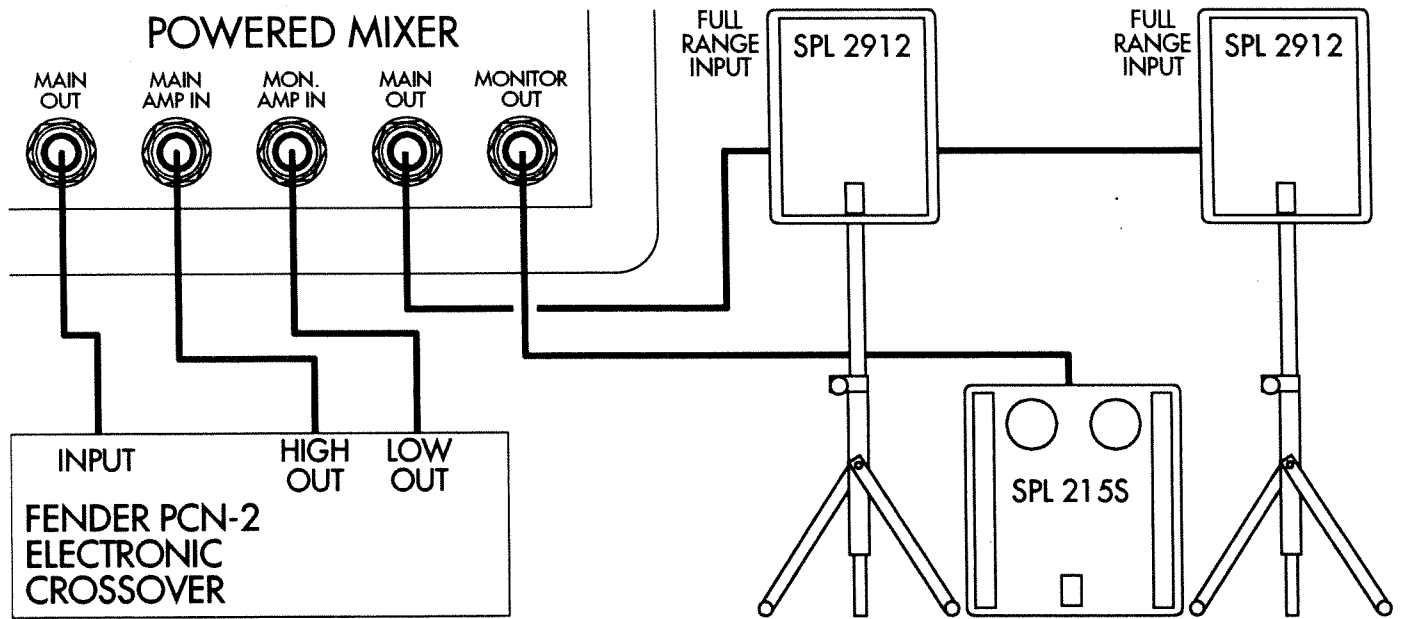


Figure 1.

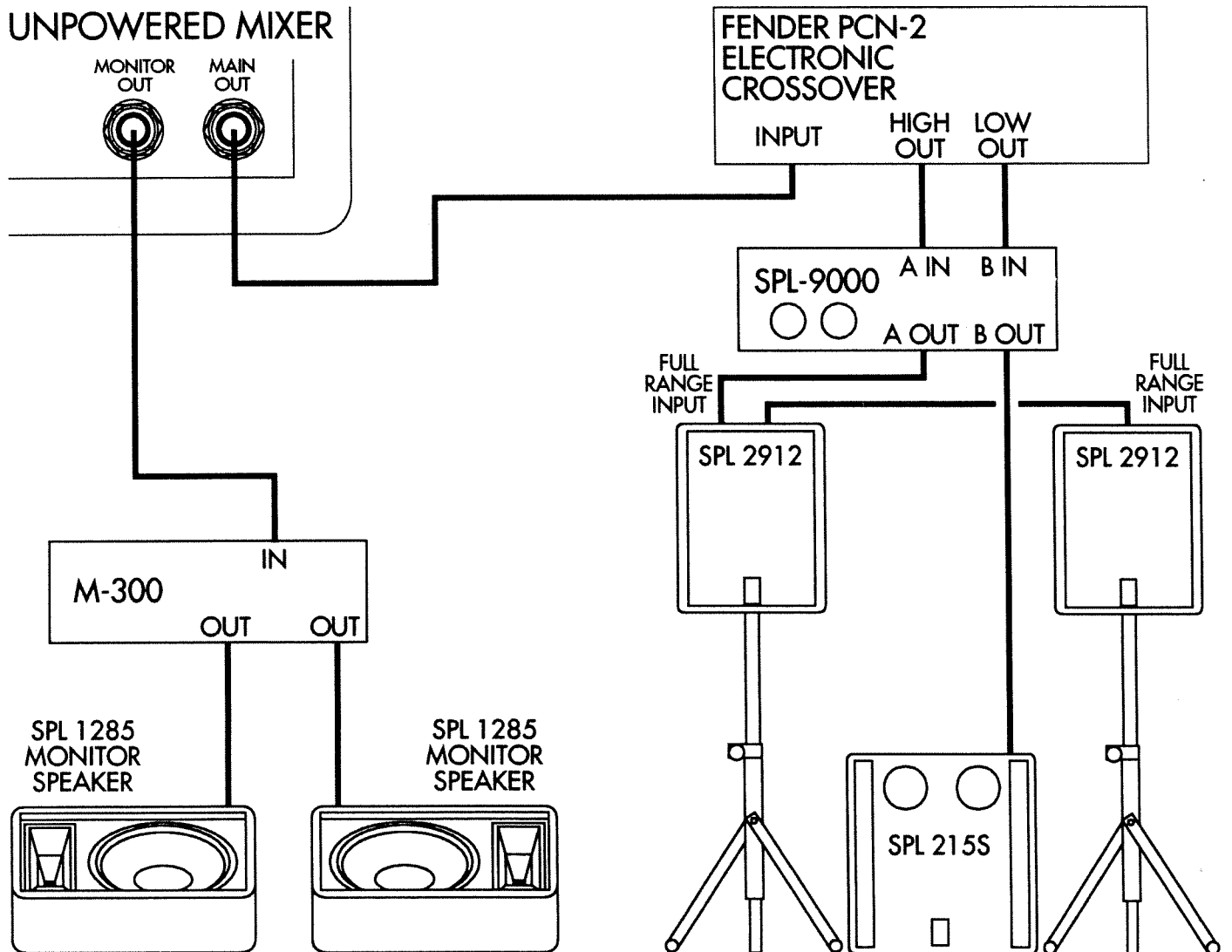


Figure 2.

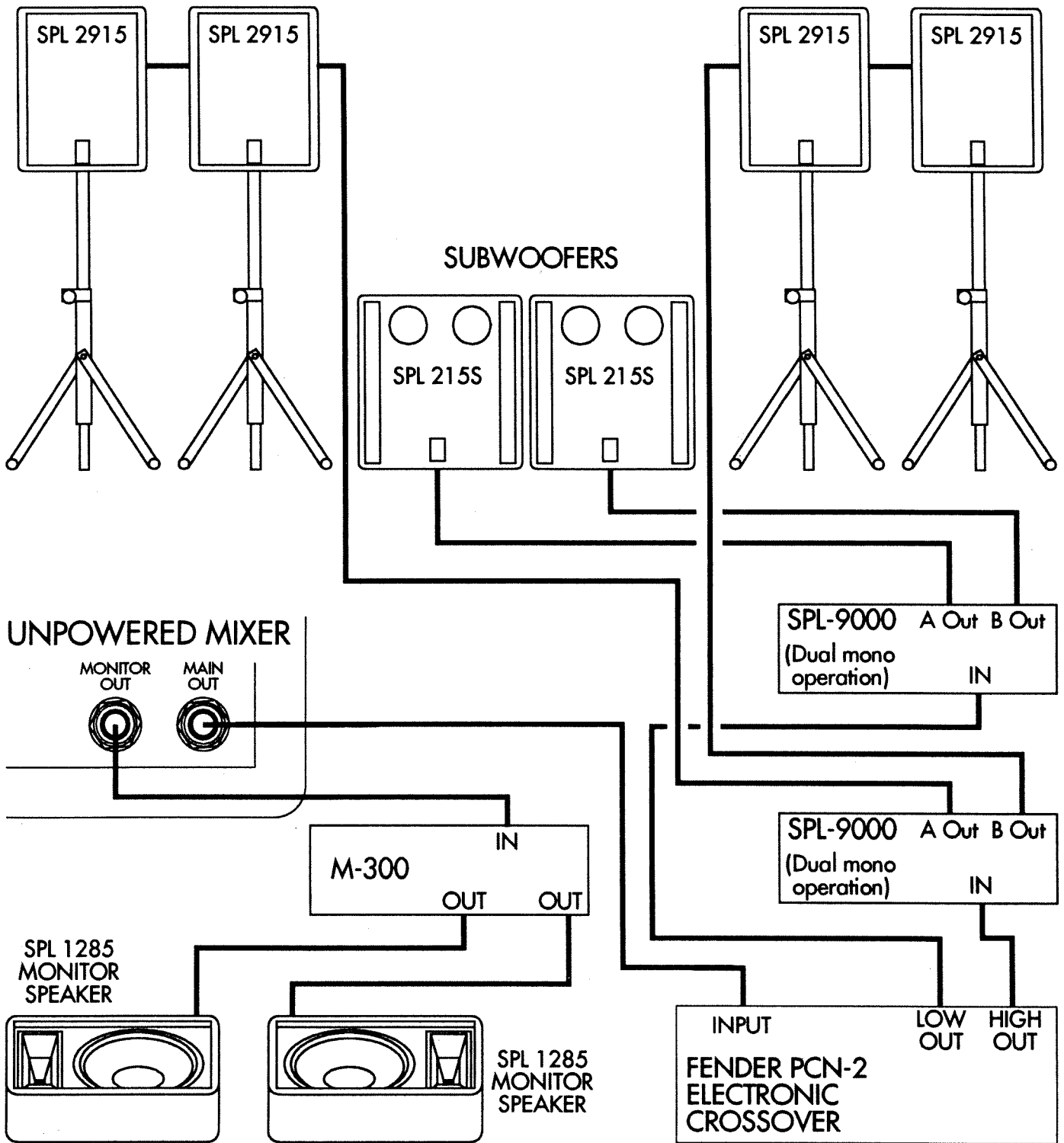


Figure 3.

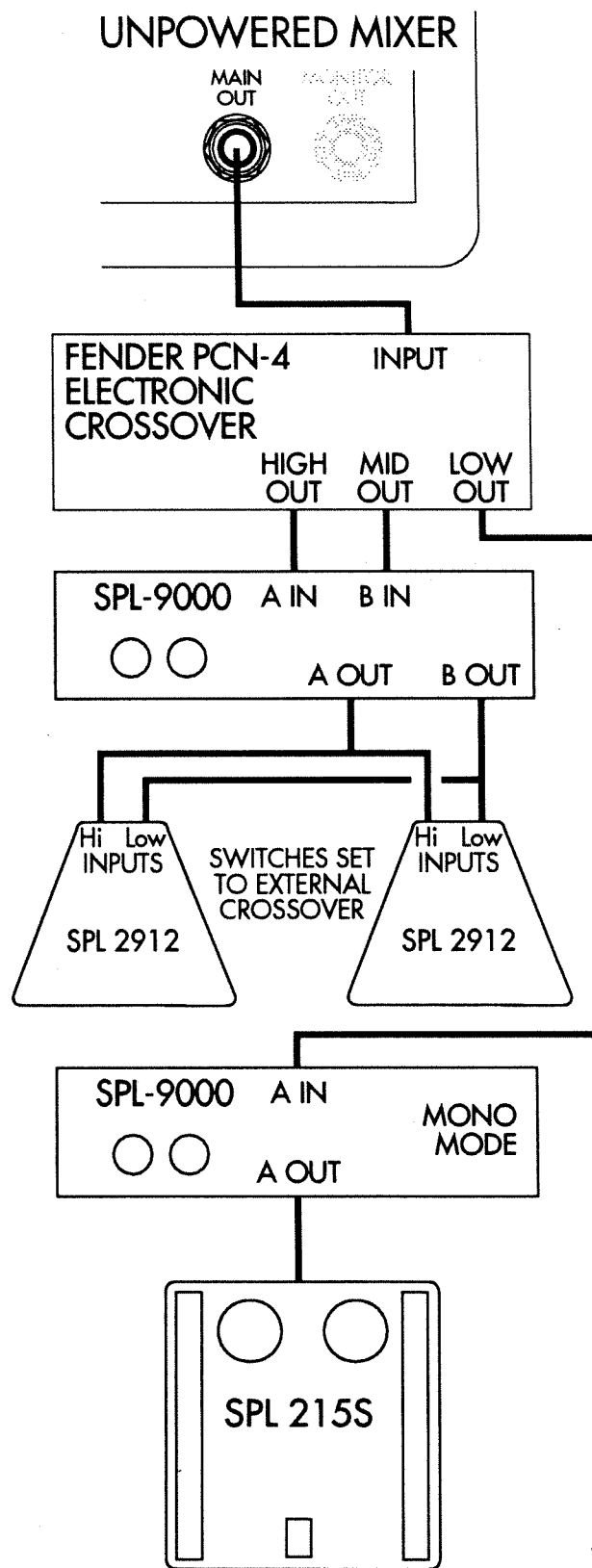


Figure 4. Example of operating speakers in BI-AMP mode with a subwoofer (tri-amping).

Specifications

Part Number: 071-1320-000

Frequency Response –

Axial +/- 3dB:	45 Hz to 170 Hz
LF Limit +/- 3dB:	45 Hz
LF Limit +/- 10dB:	37 Hz

Axial Sensitivity –

SPL 1W @ 1M:	101 dB
1/2 Space Efficiency:	4.50%

Maximum dB SPL Output Long Term: 130 dB

Power Handling –

EIA RS 426-B Noise:	800 Watts, for 8 Hrs.
Nominal Impedance:	4 Ohms

Dimensions and Weights –

Height:	27.25 in.	(69.21 cm)
Width:	25.75 in.	(65.40 cm)
Depth:	20.625 in.	(52.38 cm)
Weight:	135 Lbs.	(61.36 kg)