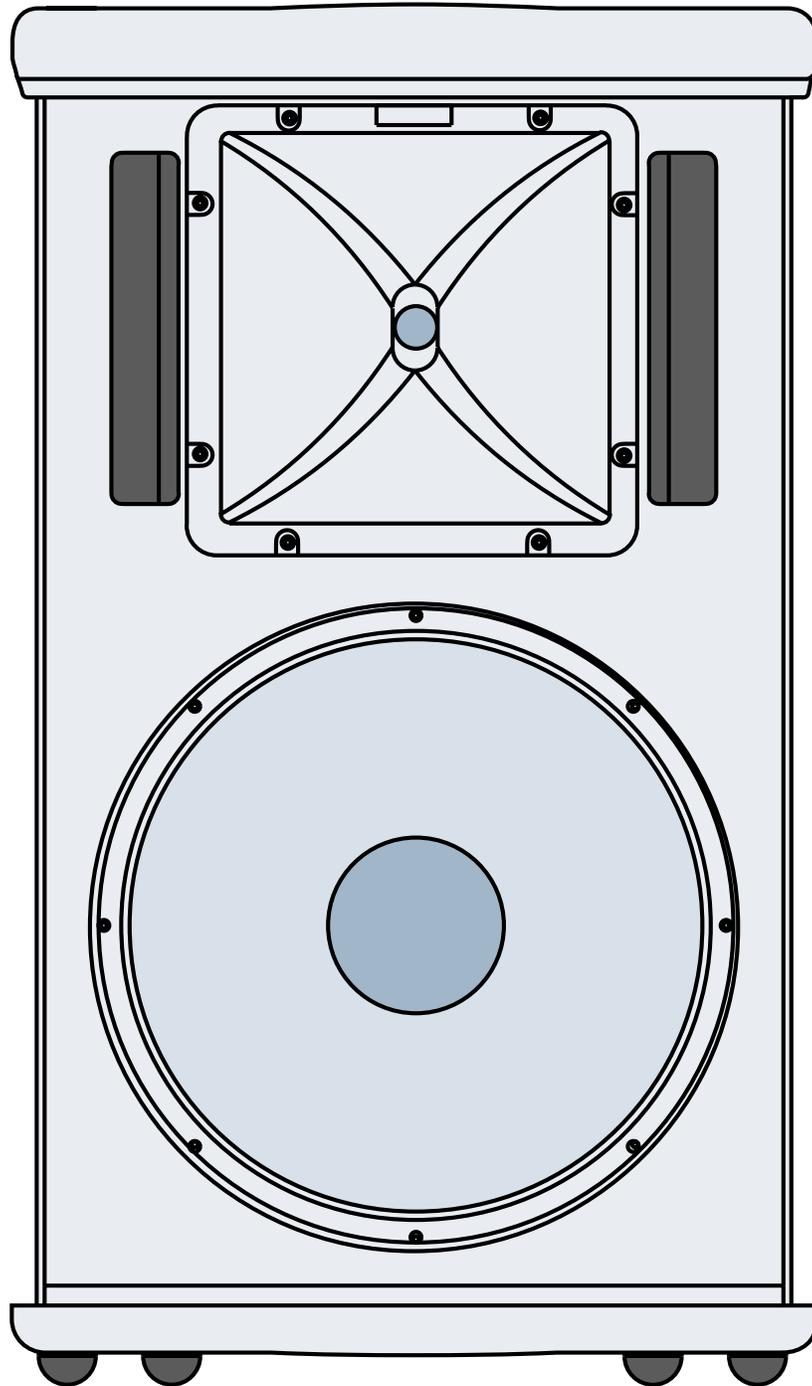


[®]
JBL
SPEAKERS
MANUAL

S500 TWO-WAY SOUND REINFORCEMENT SPEAKER USER'S MANUAL



SAFETY INSTRUCTIONS

1. **Read Instructions** — All the safety and operation instructions should be read before this Mackie product is operated.
2. **Retain Instructions** — The safety and operating instructions should be kept for future reference.
3. **Heed Warnings** — All warnings on this Mackie product and in these operating instructions should be followed.
4. **Follow Instructions** — All operating and other instructions should be followed.
5. **Water and Moisture** — This Mackie product should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool, swamp or salivating St. Bernard dog, etc.
6. **Damage Requiring Service** — This Mackie product should be serviced only by qualified service personnel when:
 - A. Objects have fallen, or liquid has spilled into this Mackie product; or
 - B. This Mackie product has been exposed to rain; or
 - C. This Mackie product does not appear to operate normally or exhibits a marked change in performance; or
 - D. This Mackie product has been dropped, or its chassis damaged.
7. **Service** — The user should not attempt to service this Mackie product beyond those means described in this operating manual. All other servicing should be referred to the Mackie Service Department.



Lend Me Your Ears

Exposure to extremely high noise levels may cause permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a period of time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible noise level exposures shown in this chart.

According to OSHA, any exposure in excess of these permissible limits could result in some hearing loss. To ensure against potentially dangerous exposure to high sound-pressure levels, it is recommended that all persons exposed to equipment capable of producing these levels use hearing protectors while this unit is in operation. Ear plugs or protectors in the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss if exposure is in excess of the limits set forth here.



The S500 can produce a maximum SPL of 127 dB @ 1m

Duration Per Day In Hours	Sound Level dBA, Slow Response	Typical Example
8	90	Duo in small club
6	92	
4	95	Subway Train
3	97	
2	100	Very loud classical music
1.5	102	
1	105	Patrice screaming at Ron about deadlines
0.5	110	
0.25 or less	115	Loudest parts at a rock concert

INTRODUCTION

Thank you for choosing Mackie Designs' sound reinforcement speakers.

The S500 is a high-efficiency, extreme-output, 2-way, wide-dispersion sound reinforcement speaker system. The combination of precision-manufactured, high-efficiency acoustic components and high-quality, low-impedance, phase-precise crossover technology allows the S500 to

operate continuously at peak output levels safely while providing high-resolution audio.

The components inside the S500 incorporate several state-of-the-art advancements in transducer technology, which have been in development at Mackie for over two years. The compression driver is a new 1.75-inch titanium diaphragm design featuring a 3-slot, low-distortion geometry

phase plug. The result is frequency response linearity and extension never before available for a product in this class. The S500 also features a low-distortion, high-output horn design developed to provide the correct power response and phase alignment characteristics at the crossover frequency. With the resulting 75° x 65° dispersion pattern, the S500 provides very open, natural sound reproduction at extreme output levels.

The S500 produces deep bass through a 15-inch high-efficiency RCF® precision woofer. The magnetic structure designed for the woofer motor is responsible for the system’s resulting high sensitivity of 100 dB (1 watt@1 meter). More importantly, the high-efficiency motor provides an extraordinary amount of force that provides complete control of the cone mass. This type of control allows the woofer to deliver extended bass response and to reach the mid-frequency crossover point efficiently.

The S500 frequency response is linear between 75 Hz and 20 kHz. Protection for

the high-frequency driver is provided via an integrated MOSFET circuit that actively monitors and controls the power delivered to the compression driver. There is also a circuit breaker button on the rear control panel designed to protect the woofer from excessive power. The breaker “sees” the amplifier signal being delivered to the woofer and opens when the combination of amperage and voltage exceeds the maximum rated power levels. The breaker switch can be reset by pressing the button.

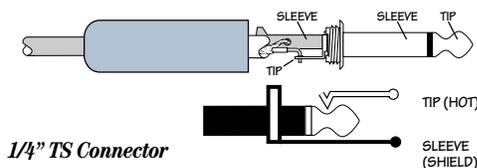
The rear control panel features both a 1/4” speaker jack and a Neutrik® Speakon® connector, wired in parallel. The S500 cabinet is constructed using both multi-layered plywood and pressure-injected structural resin. The top and bottom sections both have handles for easy movement and relocation. There is an integrated pole-mount on the bottom of the enclosure. In addition, there are two, three-part cast-aluminum handles on each side of the enclosure as well as a full size, oval-punched, weather-resistant steel grille.

CONNECTIONS

The S500 has a 1/4” TS jack and a Neutrik Speakon™ connector, wired in parallel. Use high-quality speaker cable as recommended by the amplifier manufacturer.

The 1/4” TS jack uses the following wiring standard:

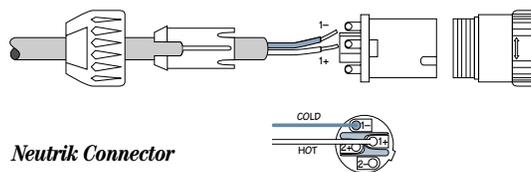
- Tip = Signal (+)
- Sleeve = Ground (Shield)



1/4” TS Connector

The Speakon connector uses the following wiring standard:

- Pin 1+ = Signal (+)
- Pin 1- = Ground (-)



Neutrik Connector

SERVICE INFORMATION

Warranty Service

If you think your loudspeaker has a problem, please do everything you can to confirm it before calling for service.

Repair

Service for the S500 is available only from one of our authorized domestic service stations or at the factory service center located in Whitinsville, Massachusetts.

Service outside the United States can be obtained through local dealers or distributors.

If your S500 needs service, please follow these instructions:

1. Call Tech Support at 1-800-258-6883, 8 am to 5 pm PST, to explain the problem in detail. They will ask you all sorts of impertinent questions in the hope of sorting out the problem. If it appears that the S500 needs repair, request an RA (Return Authorization) number.

Have your loudspeaker's serial number ready. You must have an RA number before you can obtain service at the factory or an authorized service center.

2. Keep this owner's manual. We don't need it to repair the loudspeaker.
3. Pack the loudspeaker in its original package, including protective wrap, endcaps, and box. This is very important. When you call for the RA number, please let Tech Support know if you need new packaging. Mackie is not responsible for any damage that occurs due to non-factory packaging.
4. Include a legible note stating your name, shipping address (no P.O. boxes), daytime phone number, RA number, and a detailed description of the problem, including how we can duplicate it.
5. Write the RA number in **BIG PRINT** on top of the box.
6. Ship the loudspeaker to us. We suggest insurance for all forms of cartage. Ship to this address:

Mackie Designs
SERVICE DEPARTMENT
Building #11
One Main Street
Whitinsville, MA 01588

7. We'll try to fix the loudspeaker within three to five business days. Ask Tech Support for the latest turnaround times when you call for your RA number. The product **MUST** be packaged in its original packing box and have the RMA number appear on the box. Once it is repaired, we'll ship it back the same way in which it was received. This paragraph does not necessarily apply to non-warranty service.

SPECIFICATIONS

Transducer Specifications

Low-Frequency Transducer

Diameter 15" (381 mm)
Voice Coil Diameter 2.5" (64 mm)

High-Frequency Driver and Horn

Diaphragm Diameter 1.75" (44 mm)
Voice Coil Diameter 1.75" (44 mm)
Diaphragm Material Titanium
Power Handling 30 watts RMS (long term)

Horn Type Constant Directivity
Mouth Size 10.6" (269 mm) W x 10.6" (269 mm) H
Throat Size 1.0" (25 mm)

System Specifications

Frequency Range (-10 dB) 50 Hz–22 kHz
Frequency Response (-3 dB) 75 Hz–20 kHz
Horizontal Coverage (-6 dB) 75° averaged
1 kHz–10 kHz
Vertical Coverage (-6 dB) 65° averaged
1 kHz–10 kHz
Directivity Factor; DI (Q) 10.93 (12.38) averaged
2 kHz–10 kHz
Sensitivity (1W@1m) 100 dB
Rated Maximum SPL@1m 124 dB long term
127 dB peak
Crossover Point 1300 Hz
Nominal System Impedance 8 ohms
Power Handling 250 watts RMS
Safety Features

High Frequency: Monitoring and limiting of continuous input power via MOSFET-based electronic circuit

Low Frequency: Monitoring of amplifier signal delivered to woofer via current breaker switch. Overpowering of woofer opens circuit and requires resetting by pressing the circuit breaker button.

Physical Properties

Height 32.1" (817 mm)
Front Width 19.1" (484 mm)
Rear Width 13.9" (353 mm)
Depth 18.1" (460 mm)
Net Weight 75 lbs. (34 kg)
Connector Type 1/4" TS jack and Neutrik Speakon
Enclosure Geometry
Trapezoidal, 10° side angles, 18 mm multi-layered plywood, top and bottom high pressure resin injected "caps"
Handles One on top, one on bottom cap, two three-piece handles on each side
Color Black, PVC coated finish
Grille Custom perforated oval steel grille with anti-corrosive treatment

Disclaimer

Since we are always striving to make our products better by incorporating new and improved materials, components, and manufacturing methods, we reserve the right to change these specifications at any time without notice.

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