



NILES®



INSTALLATION GUIDE



**AVAILABLE AT
DIGITAL CINEMA**



FOR USE IN DISTRIBUTED AUDIO OR HOME THEATER SYSTEMS
INDOOR/OUTDOOR WEATHERPROOF LOUDSPEAKERS

OS7.5 OS6.5 OS5.5

CONGRATULATIONS!

Thank you for choosing Niles **OS Indoor/Outdoor Loudspeakers**. With proper installation and operation, you'll enjoy years of trouble-free use.

Niles manufactures the industry's most complete line of custom installation components and accessories for audio/video systems. To see the complete Niles product assortment, visit us on the Internet at: www.nilesaudio.com

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INTRODUCTION

Niles once again raises the bar. With our first OS Indoor/Outdoor models, we revealed a radical new understanding of loudspeaker capabilities. Niles original OS Indoor/Outdoor Loudspeakers are constantly praised for their ability to deliver exemplary reliability and outstanding sound quality. These attributes have made Niles OS Indoor/Outdoor Loudspeakers the bestselling loudspeakers in their class.

The goal of our new OS Indoor/Outdoor line-up is to raise this bar with refined appearance and superior sonic performance, once again establishing a benchmark by which all others are judged. The new Niles OS Indoor/Outdoor Loudspeakers owe much of their performance and sound quality advantage to design elements pioneered in the award-winning Niles DS Directed Soundfield™ Loudspeakers. Their engineering advances come from our integrated approach to driver and cabinet design. By integrating the woofer basket into the baffle of the cabinet, we are able to increase the woofer cone-area to cabinet-width ratio, thus enabling OS Indoor/Outdoor Loudspeakers to provide levels of bass performance that substantially exceed their physical size. Deeper and more powerful bass isn't the only refinement in the new OS Indoor/Outdoor line-up. A new and modern style enables OS Indoor/Outdoor Loudspeakers to blend seamlessly with architectural elements, both indoors and out. After the installation is complete, you will be astonished by the experience of hearing such clean and powerful sound coming from such elegant-appearing loudspeakers.



FEATURES AND BENEFITS

PATENT-PENDING INTEGRATED WOOFER/BAFFLE ASSEMBLY

Increases the woofer cone-area to cabinet-width ratio for enhanced bass output

CARBON-WEAVE POLYPROPYLENE WOOFER CONE

Reduces breakup and lowers distortion

BUTYL-RUBBER WOOFER CONE SURROUND

Damps resonance and provides exceptional durability

DISPERSION STABILIZER

Distributes midrange tones for clear off-axis sound

TRI-LAMINATE TETERON DOME TWEETER

One-inch fluid-cooled tweeter provides ultra-wide dispersion for clear, detailed, and extended high-frequencies

WEATHERPROOF ENGINEERING

Enables OS loudspeakers to handle extreme hot, cold, and moist environments, exceeding the military's strict anti-corrosion specification MIL-STD-883D

ADVANCED MATERIAL SCIENCE

Elevates appearance and longevity of the cabinet and grille, plus enhances the performance of the woofers, tweeters, and crossovers

ARCHITECTURALLY-FRIENDLY DESIGN

Delivers stellar acoustical performance, yet tucks discreetly away into corners and under eaves

LOW-DIFFRACTION GRILLE AND FRONT BAFFLE

Ensures that the sound waves emanating from the woofer and tweeter are not reflected by the surrounding parts of the loudspeaker for precise imaging and acoustical accuracy



RIGID, ACOUSTICALLY-INERT CABINET

Prevents transmission of unwanted vibrations for clean and dynamic bass response

ALL-WEATHER VERSATILITY

Reduces installation limitations to provide great sound from the beaches of Miami to the harsh winters of Minneapolis

HOME THEATER APPLICABILITY

Enables OS loudspeakers to be used as left, center, right, or surround loudspeakers in home theater systems

INTEGRATED MOUNTING BRACKET AND SHELF STAND

Provide a variety of secure, quick and easy mounting solutions

TAPERED SHAPE

Facilitates mounting in corners and under eaves

INVERTED GOLD-PLATED 5-WAY BINDING POSTS

Repel moisture and ensure positive connections in virtually any conditions over long periods of time

PARTS GUIDE

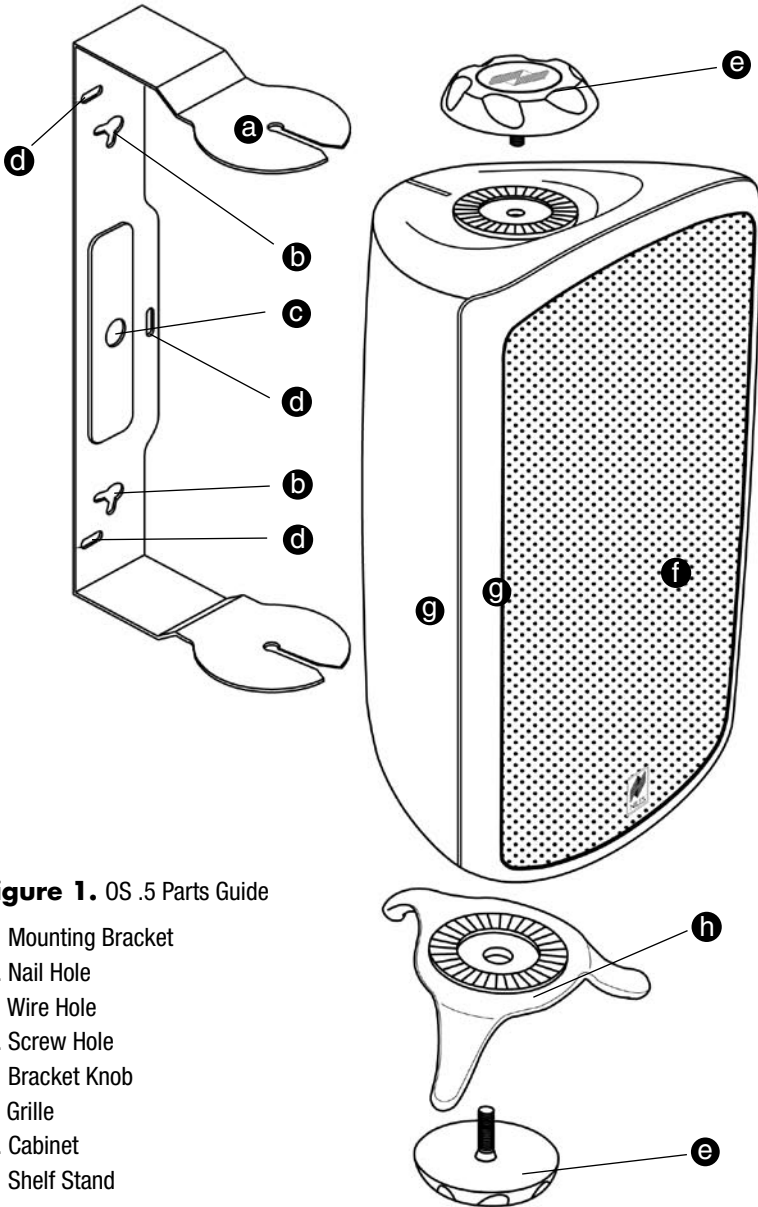


Figure 1. OS .5 Parts Guide

- a. Mounting Bracket
- b. Nail Hole
- c. Wire Hole
- d. Screw Hole
- e. Bracket Knob
- f. Grille
- g. Cabinet
- h. Shelf Stand

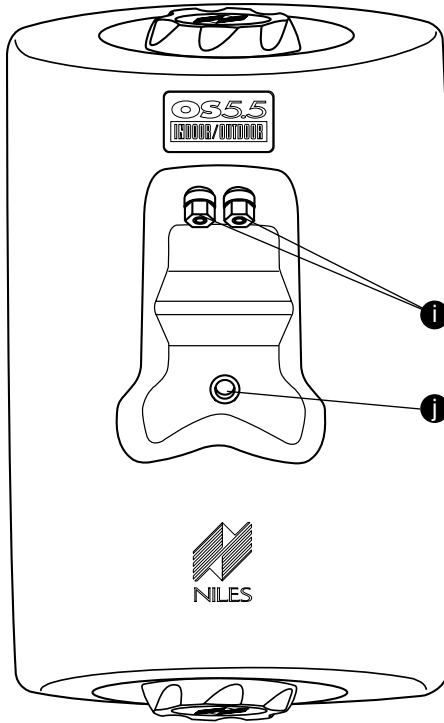


Figure 2. OS .5 Parts Guide (continued)

- i. Binding Posts
- j. Threaded Insert (1/4"-20 Thread size)

NOTE: Bracket and Shelf Stand are used depending upon installation requirements.
See **INSTALLATION** on page 14.

INSTALLATION CONSIDERATIONS

TOOLS AND MATERIALS REQUIRED

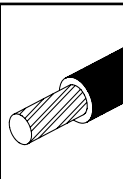
- *Electric drill with 1/4- and 1/2-inch drill bits, and a 1-inch flat drill bit for drilling through studs)*
- *Three screws or bolts suitable for the mounting surface*
- *The proper screwdriver for the mounting hardware*
- *Safety cable (optional)*
- *Cable ties*
- *Wire stripper*
- *Pencil*
- *Level*
- *Rubber gloves and protective eyewear*

WIRING

The OS loudspeakers connect to your receiver or amplifier using 2-conductor loudspeaker wire (see **Figure 3** on the next page). For most applications, we recommend using 16- or 18-gauge wire. For wiring runs longer than 80 feet (24.38 meters), we recommend 14-gauge wire. The binding posts on OS loudspeakers accommodate up to 12-gauge wire directly. Larger sizes can be accommodated using spade, banana, or pin connectors.

TECH TIP

Wire size is expressed by its AWG (American Wire Gauge) number – the lower the number, the larger the wire. For example, 12 AWG is physically larger than 14 AWG.



When you run wire inside walls, outdoors or in marine installations, special jacketing or conduit is required for a trouble-free installation and conformation to the local and national building codes. If you are not sure of the correct wire jacket or type of conduit to use, consult a professional audio/video installer, building contractor, or the local building and inspection department.

INCORPORATING A VOLUME CONTROL

It's possible to control the volume of the sound at the loudspeaker location. Plan to wire the system so that each pair of loudspeakers has its own volume control. Niles makes a wide range of indoor and outdoor volume controls with and without muting capabilities. Consult your local Niles dealer for more information. Volume controls are connected in line with the loudspeaker, so you must connect the wire from the amplifier to the volume control and then from the volume control to the loudspeaker (see **Figure 4** on the next page).



Figure 3. Wiring directly from a receiver or amplifier

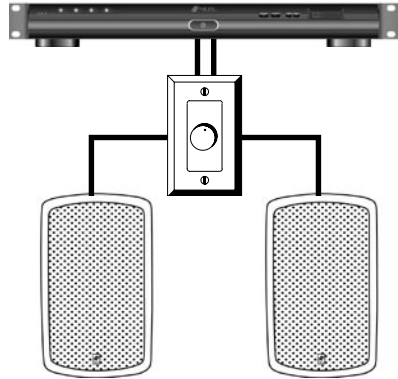


Figure 4. Incorporating a volume control

RECOMMENDED AMPLIFIER POWER

For optimum performance, we recommend amplifiers with the following power ratings:

- For the OS 5.5 loudspeaker, 5 to 100 per channel
- For the OS 6.5 loudspeaker, 5 to 125 per channel
- For the OS 7.5 loudspeaker, 5 to 150 per channel

Ironically, most loudspeakers are not damaged by large amplifiers but by small amplifiers. If you are playing at high volume, a small amplifier will run out of power very quickly. When an amplifier runs out of power it creates damaging “clipping” distortion. A large amplifier will play at the same volume without distorting. See **OPERATION** on page 17 for more information about clipping distortion.

PLACING LOUDSPEAKERS FOR THE BEST SOUND QUALITY

An OS loudspeaker’s dispersion pattern is very broad. This allows good sound quality over an extremely large listening area. However, if a single pair is positioned to provide coverage of a very large room or patio, you will have “hot spots” of loud sound when you are near the loudspeakers. The best way to avoid hot spots for a large space is to use several pairs of loudspeakers evenly spaced throughout the room. A good rule of thumb is to install a pair of loudspeakers for every 200 to 400 square feet (18.58 to 37.16 square meters) of listening area. Your local Niles dealer is a good source for advice on loudspeaker placement for your particular installation.

(CONTINUED ON NEXT PAGE)

PLACING LOUSPEAKERS FOR THE BEST SOUND QUALITY (CONTINUED)

When using more than one pair, it is usually best to alternate a left channel and then a right channel, so that you have the best possible stereo coverage possible.

The position of the loudspeakers and their surroundings play a very important role in how a stereo image is created. You should experiment to find the very best position for your loudspeakers. Here are some guidelines to make the process quick and easy.

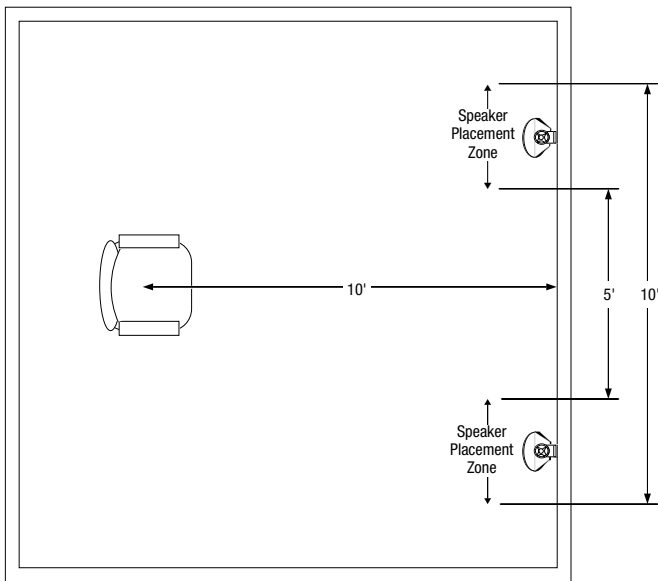


Figure 5. Illustration depicts the optimum placement zone for a listening distance of 10 feet (3.04 meters).

Make sure you are not blocking or reflecting the sound off of furniture or other objects. You should have a direct line of sight with the front of the loudspeaker. To determine the best position, measure the distance between the ideal listening position and the wall you plan to mount the loudspeakers on. Try to place the loudspeakers so that they are at least one-half the listening distance apart (this maintains a large, pleasant stereo “image”) and less than the entire listening distance (this avoids a “hole-in-the-middle” effect). For example; if you are ten feet back from the wall, the loudspeakers should be between 5 and 10 feet (1.5 and 3.04 meters) apart (see **Figure 5**).

If possible, mount the loudspeakers between 8 and 12 feet (2.43 and 3.65 meters) high. The less the downward angle of the loudspeaker, the further the sound will carry. If the sound is carrying into areas where you do not want sound, try pointing the loudspeakers more downward; this will reduce the amount of sound further away from the loudspeaker.



You can control the loudspeaker's bass output by placement. This is called the boundary effect. You will get more bass response by mounting the loudspeaker directly to a wall or other flat surface (any boundary close to the loudspeaker will reinforce the bass frequencies). You can increase the bass output even more by mounting the loudspeaker in a corner or under an eave (see **Figure 6**) This type of placement gives the loudspeaker two boundaries, thus reinforcing the bass sounds even more. Of course, if you wish to hear less bass, try moving the loudspeaker away from the boundary (see **Figure 7**).

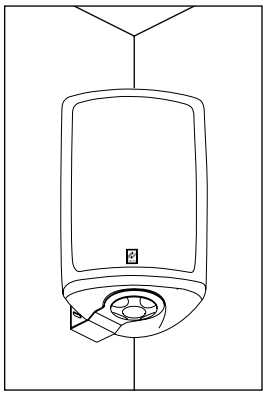


Figure 6. Placement for more bass output

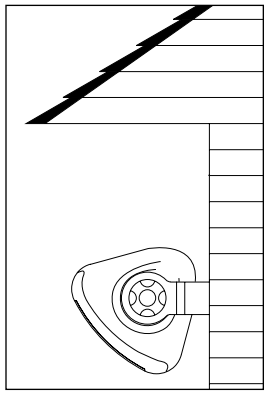
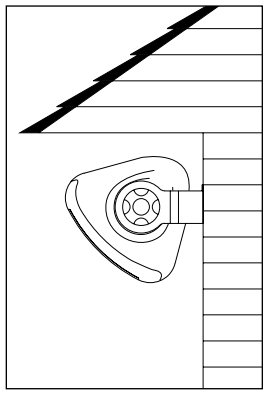


Figure 7. Placement for less bass output

MOUNTING METHODS

The OS loudspeakers can be mounted either horizontally or vertically. The bracket knobs will keep the loudspeaker angled correctly in any position once they are tightened. You can choose from three mounting methods to attach the loudspeaker to the wall, ceiling, or other mounting surface.

- 1. If the loudspeaker is never going to be exposed to sudden accidental impacts, wind, waves, or earthquakes, you can simply hang it on a nail using the nail hole(s) on the bracket (see **Figure 8** on the next page).*
- 2. The safest and most secure way to mount the loudspeaker is by screwing it to the mounting surface using your own hardware (suitable for the surface you are mounting to) and the bracket supplied with the loudspeaker (see **Figure 8**).*
- 3. There is a threaded brass insert (1/4" – 20) on the back of the OS loudspeakers for attaching a custom bracket (see **Figure 8**). This allows you to position the loudspeaker at unusual angles or varying distances from the mounting surface.*

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MOUNTING METHODS (CONTINUED)

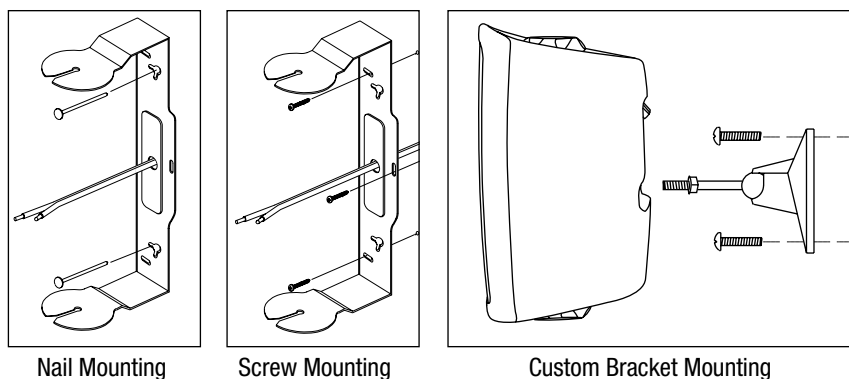


Figure 8. The OS loudspeakers can be mounted three ways

SAFETY FIRST!

Be careful to use hardware that is designed for the surface you are mounting to. The OS 5.5 loudspeaker with the bracket weighs 6 pounds (2.72 Kg) . The OS 6.5 loudspeaker with the bracket weighs 9 pounds (4.08 Kg). The OS 7.5 loudspeaker with the bracket weighs 11 pounds (4.9 Kg). We recommend using attachment methods capable of supporting ten times the weight of the loudspeaker and bracket.

Some local building codes require the use of an additional safety cable to mount loudspeakers on a wall. If so, the 1/4"-20 threaded insert on the rear of the enclosure can be utilized for securing the safety cable to the enclosure. Construction of the safety cable and attachment of the cable to the wall need to meet the local building codes.

If you are not sure of a safe way to mount the loudspeakers or are unsure of your local building codes, consult a professional installer or a building contractor for the proper installation techniques and requirements.

You will maximize the useful life of the loudspeaker by placing the loudspeaker so that it receives less exposure to the elements. Look for the best overall compromise between sound quality, convenience, and exposure. Do not compromise safety.



PAINTING THE LOUDSPEAKER

The enclosure, the brackets, and the grilles of the loudspeaker can all be painted to match the surroundings. Because we want you to preserve the acoustic qualities of the grille, please paint the grille according to the grille painting instructions. Make sure you pick a paint that is appropriate for the mounting location. There are interior and exterior paint types, and even paint for marine uses. If you are not sure what paint to use, consult a paint store professional or a painter.

TOOLS REQUIRED

- *Spray can of primer paint*
- *The correct paint for the environment/use (oil- or water-based paint is fine)*
- *Paint brush or applicator (if the paint is not in a spray can)*
- *Awl (for removing the grille)*
- *Masking tape*
- *Two paint masks (supplied)*
- *A damp cloth and a dry cloth*

PREPARING TO PAINT

1. *Separate the parts of the loudspeaker. You should remove the brackets and the bracket knobs. Remove the grille by hooking it with the tip of an awl and pulling it away from the cabinet (see **Figure 9** on the next page).*
2. *Wipe off the sides of the cabinet, the bracket, bracket knobs, and grille with a damp cloth. Do not touch or rub the loudspeakers on the front baffle. Make sure everything is dry before masking.*
3. *Mask off the binding posts and the brass threaded inserts on the back panel with masking tape.*

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PREPARING TO PAINT (CONTINUED)

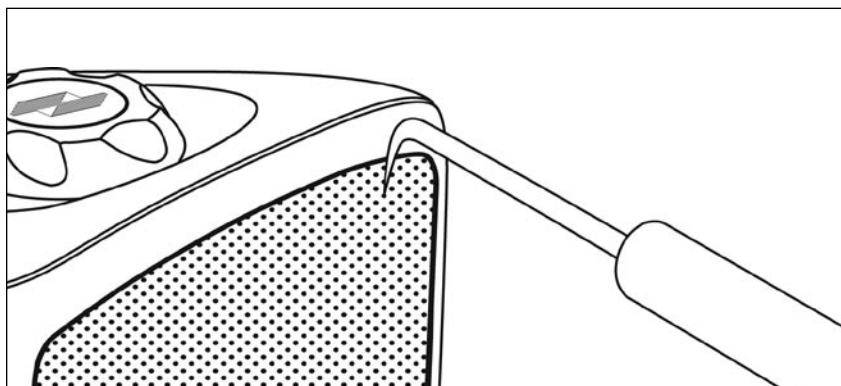


Figure 9. Removing the grille using an awl

4. *Mask off the threaded inserts on the top and bottom with masking tape.*
5. *Protect the front of the loudspeakers by inserting the supplied paint masks in place of the grilles.*

PAINTING THE CABINET, BRACKET KNOBS, AND BRACKET

1. *Apply two thin coats of a sandable spray primer to the cabinet and knobs. The bracket doesn't require a coat of primer.*
2. *Allow the primer to dry completely.*
3. *Apply the finish color.*
4. *Allow the paint to dry completely.*
5. *Carefully remove the masking material.*
6. *Do not reattach the loudspeaker to the bracket until the bracket is mounted. Try to keep all handling of the freshly-painted parts to a minimum.*

PAINTING THE GRILLE

The grille is important to the sound of the loudspeaker. Do not fill the holes of the grille with paint. The grille is constructed of aluminum with a perfectly-even powder coat overall. This powder coat is an ideal primer.

If you are using a spray paint, use two thin coats without any primer. If you are using a compressor and a spray gun, use the finest, most diffuse setting. Practice on paper if you are not experienced in painting with spray paint.

If you are using an applicator or brush and a can of paint, thin the paint first. Thick paint will tend to clog the grille holes. To ensure a uniform appearance, paint the front and back of the grille.

REPLACING THE GRILLE

After the grille dries, carefully fit the grille into its recess so that it is barely in place. Starting with one corner, go around the loudspeaker, pushing in the grille a little bit each time, and making sure not to bend the grille out of shape. You will feel a positive “snap” when it is in place.

INSTALLATION

MOUNTING THE BRACKET (IF ATTACHING THE LOUDSPEAKER TO A WALL, CEILING, BEAM, OR OTHER SOLID STRUCTURE)

1. Loosen the bracket knobs and remove the bracket from the loudspeaker.
2. Hold the bracket up to the mounting surface. The loudspeaker can be mounted either horizontally or vertically. Hold the bracket so that the loudspeaker wire fits through the large, circular wire hole in the center of the bracket. Align the bracket so it is square with the surroundings (use a level for accuracy).
3. Mark the locations of the three oval-shaped screw holes (see **Figure 10**). Be sure to use all of the holes.

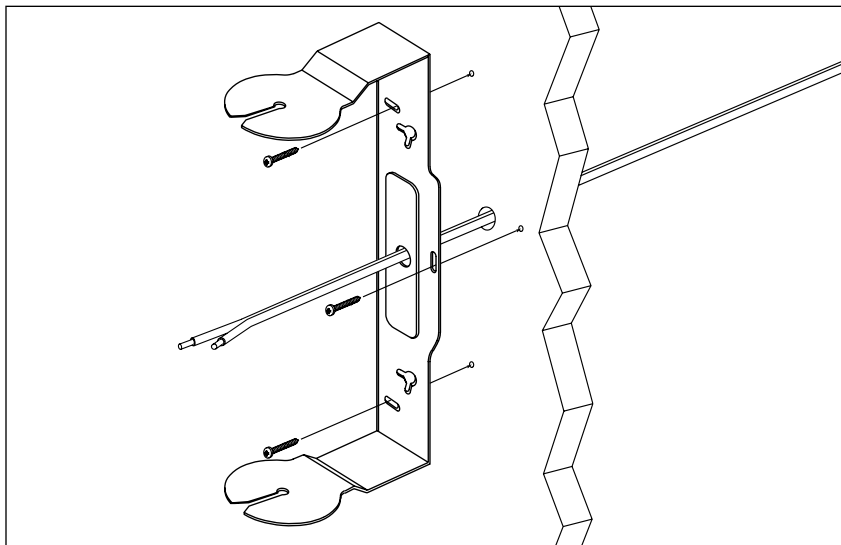


Figure 10. Mounting the bracket

4. Drill pilot holes into the mounting surface.
5. Pull the loudspeaker wire through the wire hole in the center of the mounting bracket. Align the bracket so that the holes all line up.
6. Use your hardware to attach the bracket to the mounting surface.



ATTACHING THE FOOT (IF USING THE LOUDSPEAKER IN FREE-STANDING MODE)

1. Loosen the bracket knobs and remove the bracket from the loudspeaker.
2. Tighten the top knob so it does not vibrate.
3. Remove the bottom knob by unscrewing it from the cabinet.
4. Place the supplied shelf stand on the loudspeaker with the two shorter feet towards the front of the loudspeaker (see **Figure 11**). Make sure the ridges on the shelf stand engage the ridges on the cabinet.
5. Tighten the bottom knob so that the shelf stand does not move.

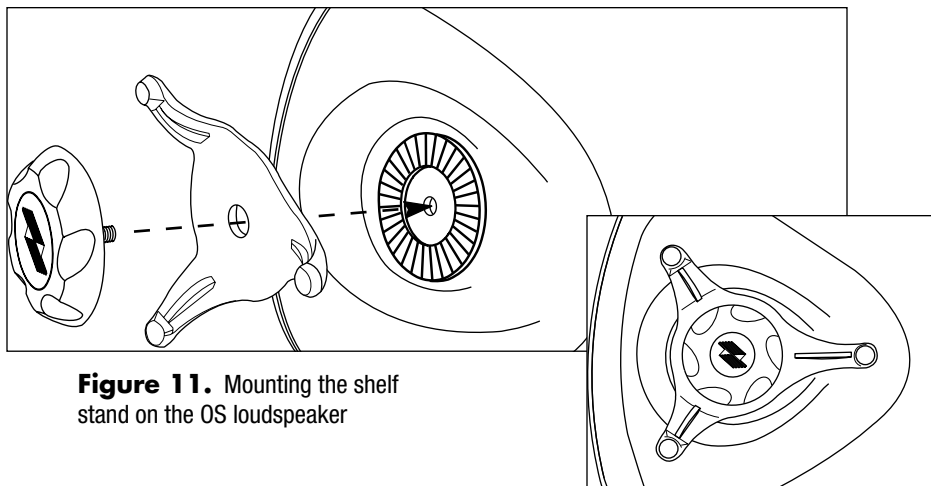


Figure 11. Mounting the shelf stand on the OS loudspeaker

Bottom of Speaker

CONNECTING THE LOUDSPEAKER

1. Separate the two conductors of the loudspeaker wire so that at least 2 inches of each conductor are free.
2. Strip away 1/2 inch of insulation from the end of each conductor of the loudspeaker wire.
3. If you have any connectors (gold pins or bananas) which you prefer to use, affix them to the stripped wire ends now. Only gold-plated connectors should be used outside, as they will not tarnish or corrode.

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CONNECTING THE LOUDSPEAKER (CONTINUED)

- If using the bracket to attach to a solid surface, slide the loudspeaker onto the bracket. Do not tighten the knobs completely. Angle the loudspeaker so that the rear terminals are accessible. If using the shelf stand, position the loudspeaker on the stand and place it on the shelf or table where you want it.*
- Connect one stripped wire end to the black terminal and one to the red terminal, using correct polarity.*

NOTE: OBSERVE CORRECT POLARITY: POSITIVE (+) GOES TO THE RED POST AND NEGATIVE (-) GOES TO THE BLACK POST. IF YOU ARE UNSURE OF WIRE POLARITY, SEE **CHECKING LOUDSPEAKER PHASE** BELOW.

- If required, attach the safety cable to the loudspeaker enclosure. See **SAFETY FIRST** on page 10 for details.*
- Verify that the loudspeakers are in-phase, as described in **CHECKING LOUDSPEAKER PHASE** below.*
- Angle the loudspeaker for the best sound possible.*
- Tighten the bracket knobs by hand only.*

NOTE: DO NOT USE ANY TOOLS FOR TIGHTENING. DOING SO MAY STRIP THE INSERT THREADS.

- Check that the entire installation is safe and secure.*

CHECKING LOUDSPEAKER PHASE

Loudspeaker wire has two conductors. On both your loudspeaker and amplifier, one conductor is attached to the negative (-) terminals, while the other is attached to the positive (+) terminals. Usually, the wire is marked for your convenience, but the marking can be done in the following different ways:

- *Stripe on one wire*
- *Ribbed area you can feel on one conductor*
- *Different colors of metal wire on each conductor*
- *Fabric strand or string wound into one of the conductors*

Of course, there are some wires that appear completely identical. So be careful, or you might make a connection mistake. If you do, one loudspeaker will be playing “out-of-phase” with the other loudspeaker. A pair of out-of-phase loudspeakers works against each other, and the sound of the two playing together will be lacking in bass and sound “phasey.” If you suspect the sound is not right, and you cannot see any markings on the wire, try this simple test:

1. *Stand halfway between the loudspeakers.*
2. *Play some music with the amplifier or receiver set to Mono.*
3. *Listen to the richness of the bass and the loudness of the sound.*
4. *Turn off the amplifier and reverse the connections on one amplifier channel only.*
5. *Repeat the listening test with the same volume control setting. When the sound has a richer bass and is slightly louder, the loudspeakers are working together or “in-phase.”*

OPERATION

LISTENING AT HIGHER VOLUMES

Outdoors there are no walls to reflect and contain the sound. It requires more power to achieve a reasonable volume of sound outside than it does indoors. You also frequently find yourself very far from the loudspeakers. It is possible to turn the volume so high that the amplifier runs out of power. This creates “clipping” distortion.

Clipping distortion makes treble sound very harsh and unmusical. When you hear harsh sounding treble from any good loudspeaker indoors or outdoors, turn the volume down immediately! Those harsh sounds are masking some much more powerful ultra-high-frequency sound spikes which will quickly damage any fine loudspeaker.

CLEANING

Clean the OS loudspeakers with a dampened soft cloth or paper towel. If the loudspeaker is mounted high up on a wall or ceiling, use a broom to gently brush it off. Hosing off the loudspeaker is not recommended, as the tweeter is a precise mechanism which might be damaged by a high-pressure stream of water.

SPECIFICATIONS

OS 7.5 Loudspeaker

Driver Complement

- 7" carbon-weave polypropylene woofer
- 1" Teteron dome tweeter with fluid cooling

Recommended Amplifier Power

5 to 150 watts per channel

Nominal Impedance

8 ohm

Frequency Response

60 Hz to 23 kHz, +/- 3 dB

Sensitivity

91 dB with 2.83 V pink noise input, measured at 1 meter on axis

Wiring Requirements

We recommend using 16- to 18-gauge speaker wire for runs up to 80 feet (24.38 meters) and 14-gauge speaker wire for runs up to 200 feet (60.96 meters). The connectors will accommodate 12- to 22-gauge wire.

Dimensions (Loudspeaker with U-Bracket)

8-3/16" x 13-5/16" x 9-3/16"
(20.8cm x 33.8cm x 23.3cm)

Weight (Loudspeaker and Bracket)

23 lb per pair (10.4 kg)

OS 6.5 Loudspeaker

Driver Complement

- 6" carbon-weave polypropylene woofer
- 1" Teteron dome tweeter with fluid cooling

Recommended Amplifier Power

5 to 125 watts per channel

Nominal Impedance

8 ohm

Frequency Response

70 Hz to 23 kHz, +/- 3 dB

Sensitivity

90 dB with 2.83 V pink noise input, measured at 1 meter on axis

Wiring Requirements

We recommend using 16- to 18-gauge speaker wire for runs up to 80 feet (24.38 meters) and 14-gauge speaker wire for runs up to 200 feet (60.96 meters). The connectors will accommodate 12- to 22-gauge wire.

Dimensions (Loudspeaker with U-Bracket)

7-7/16" x 12" x 7-3/4"
(18.9cm x 30.5cm x 19.7cm)

Weight (Loudspeaker and Bracket)

18 lb per pair (8.2 kg)

OS 5.5 Loudspeaker

Driver Complement

- 5" carbon-weave polypropylene woofer
- 1" Teteron dome tweeter with fluid cooling

Recommended Amplifier Power

5 to 100 watts per channel

Nominal Impedance

8 ohm

Frequency Response

95 Hz to 23 kHz, +/- 3 dB

Sensitivity

90 dB with 2.83 V pink noise input, measured at 1 meter on axis

Wiring Requirements

We recommend using 16- to 18-gauge speaker wire for runs up to 80 feet (24.38 meters) and 14-gauge speaker wire for runs up to 200 feet (60.96 meters). The connectors will accommodate 12- to 22-gauge wire.

Dimensions (Loudspeaker with U-Bracket)

6-1/4" x 9-7/8" x 6-3/4"
(15.9cm x 25.1cm x 17.1cm)

Weight (Loudspeaker and Bracket)

12 lb per pair (5.4 kg)



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