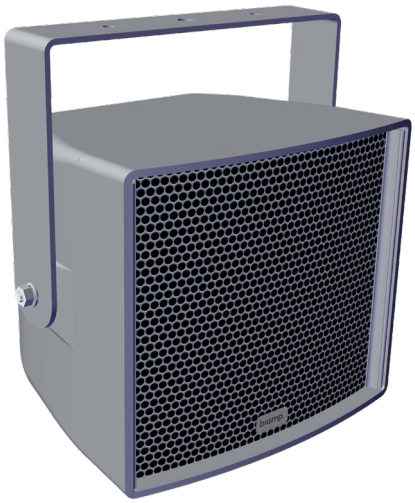
Community
R Series R.15 / R.35 Loudspeakers
Installation and Operation Guide





Models

R.15COAX

R.35COAX

R.35-3896

PRODUCT DESCRIPTION

The R.35-3896-EN is a fully horn-loaded triaxial three-way, full-range loudspeaker system designed to provide high quality voice and music reproduction in applications requiring extreme weather resistance. The R.35-3896-EN features our innovative MultiSource Waveguide™ horn design; the output from the dual midrange compression drivers and 1-inch exit HF driver are combined seamlessly into a single time-coherent source, resulting in excellent musicality, intelligibility and dispersion consistency.

FEATURES

- Excellent musicality and intelligibility, low distortion, and high sensitivity and output
- Weather-resistant, compact, high impact ABS plastic modified-trapezoidal enclosure
- Hydrophobically-treated grille and LF driver cones, polymer HF and MR diaphragms, and moisture-sealed crossover

CONTENTS

- One (1) R.15 or R.35 Loudspeaker
- One (1) Steel Mounting Yoke
- One (1) Weather Cover and Gasket
- Weather Cover Mounting Hardware:
  Pan Head Screws: R.15: 3.5 x 13mm (x4);
  R.35: 3.5 x 19mm (x6)
- One (1) 13.5mm (.5") ID Gland Nut
- Documentation: Safety Guide and Installation Guide and QR sheet directing you to the install manual
- Yoke Mounting Hardware: 8x32 mm threaded studs (x2), 8mm lock washers (x2), 8mm flat washers (x2), 8mm hex nuts (x2),and 2" OD rubber gaskets (x2), All 8 mm hardware is stainless steel.

IMPORTANT SAFETY INSTRUCTIONS

Always follow these basic safety precautions when using or installing R SERIES loudspeakers and accessories:

- Read these instructions prior to assembly.
- Keep these instructions for reference.
- Heed all warnings.
- Follow all instructions, particularly those pertaining to rigging, mounting, hanging and electrical connections.
- Install in accordance with the manufacturer's instruction.
- Only use attachments and accessories that are specified and approved by the manufacturer.

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, does not operate normally, or has been dropped.

The terms CAUTION, WARNING, and DANGER may be used in this manual to alert the reader to important safety considerations. If you have any questions or do not understand the meaning of these terms, do not proceed with installation. Contact your local dealer, distributor, or call Biamp directly for assistance. These terms are defined as:

CAUTION: describes an operating condition or user action that may expose the equipment or user to potential damage or danger.

WARNING: describes an operating condition or user action that will likely cause damage to the equipment or injury to the user or to others in the vicinity.

DANGER: describes an operating condition or user action that will immediately damage the equipment and/or be extremely dangerous or life threatening to the user or to others in the vicinity.

These installation instructions are for use by qualified personnel only. To reduce the risk of fire or electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

UNPACKING / INSPECTION

R SERIES loudspeakers are engineered and manufactured to be rugged and they are carefully packed in sturdy cartons. Ensure that the number of cartons shown on the freight documents have actually been delivered. It is recommended to thoroughly inspect each unit after it has been removed from the packaging, as damage could occur during shipping.

Please note that once the shipment has left your dealer or the Biamp factory, the responsibility for damage is always borne by the freight company. If damage has occurred during shipping, you must file a claim directly with the freight company. It's very important to contact the freight company as soon as possible after receiving your shipment, as most freight companies have a short time limit within which they will investigate claims. Be sure to save the carton and the packing material, as most claims will be denied if these materials are not retained. Your Biamp dealer and the factory will try to help in any way they can, but it is the responsibility of the party receiving the shipment to file the damage claim.

It is always a good idea to retain the carton and packing materials, if possible, in the event that the unit may need to be returned to your dealer or distributor for repair in the future.

RIGGING AND ELECTRICAL SAFETY

IMPORTANT: The loudspeakers described in this manual are designed and intended to be mounted to differing building surfaces using a variety of rigging hardware, means and methods. Installation of loudspeakers should only be performed by trained and qualified personnel. All electrical connections must conform to applicable city, county, state, and national (NEC) electrical codes.

DANGER: R SERIES rigging fittings are rated at a Working Load Limit of 100 lbs (45.4 kg) with a 10:1 safety margin. No single rigging fitting should ever be subjected to a load that is greater than 100 lbs. Failure to heed this warning could result in injury or death!

. **DANGER:** It is possible to experience severe electrical shock from a power amplifier. Always make sure that all power amplifiers are in the "OFF" position and unplugged from an AC Mains supply before performing electrical work.

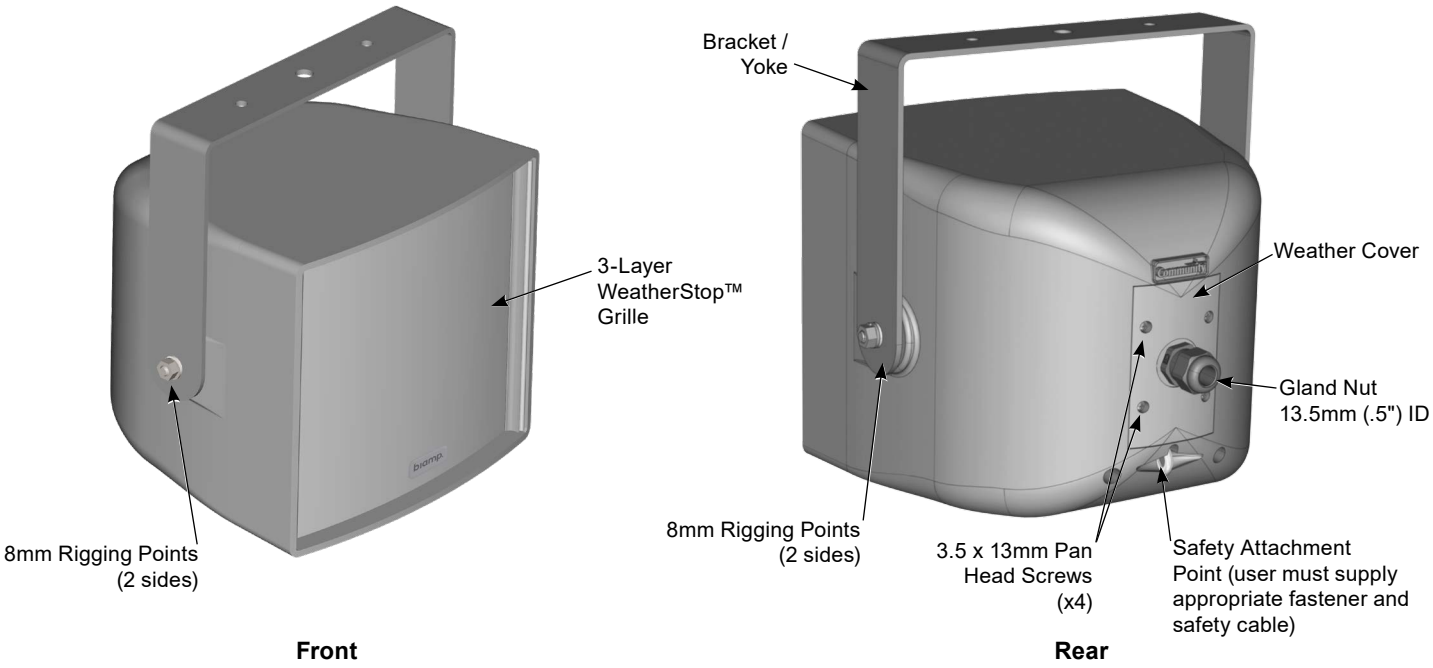
IMPORTANT: Refer to the sections on installation and connections later in this manual for additional information on rigging and electrical safety.

CAUTION: Installation of R SERIES loudspeakers should only be performed by trained and qualified personnel. It is strongly recommended that a licensed and certified professional structural engineer approve the mounting. Severe injury and/or loss of life may occur if this product is improperly installed.

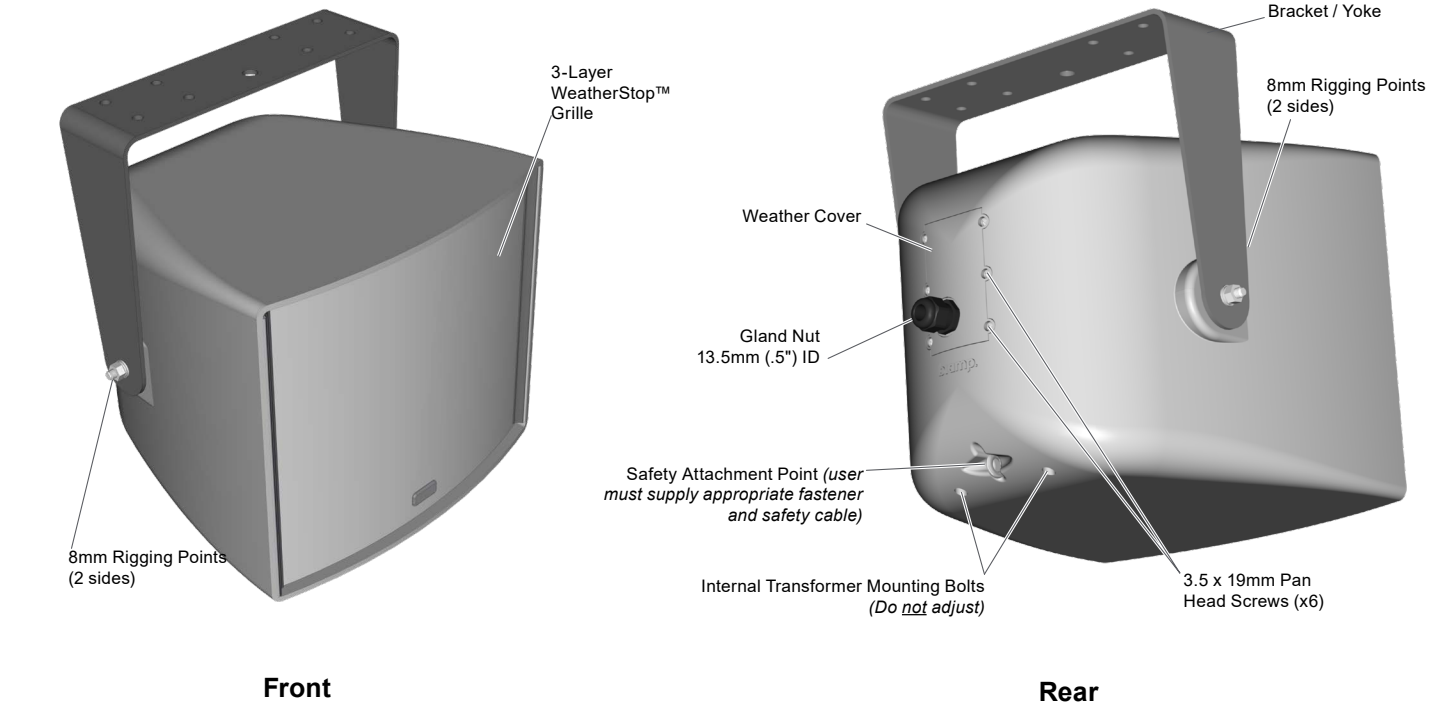
DANGER: It is essential that a safety cable (not supplied) be utilized whenever an R SERIES Loudspeaker is installed. The safety cable must be secured to a suitable load-bearing point separate from the loudspeaker mounting point, with as little slack as possible so as not to develop undue kinetic force if the mounting bracket (yoke) were to fail. The safety cable should be attached to the integrated SS loop on the rear of the cabinet. Refer to the Product Features images.

PRODUCT REPRESENTATION

R.15 COAX



R.35COAX and R.35-3896



RIGGING / SUSPENSION AND SAFETY

TERMINOLOGY: The terms “rigging", “flying" and “suspension" are often used interchangeably to describe the installation of loudspeaker systems above ground level. None of these terms pertain to, or attempt to describe, the actual method that is used (cables, yokes, chains, etc.).

DANGER: The loudspeakers described in this manual are designed and intended to be suspended using a variety of rigging hardware, means, and methods. It is essential that all installation work involving the suspension of these loudspeaker products be performed by competent, knowledgeable persons who understand safe rigging practices. Severe injury and/or loss of life may occur if these products are improperly suspended.

DANGER: All rigging fittings and inserts must remain sealed with the included hardware or they must be fitted with properly rated optional mounting hardware. Any missing fasteners will compromise the weather resistance of the enclosure.

BIAMP RIGGING HARDWARE WARRANTY:
Biamp warrants that its loudspeaker systems and its optional mounting and rigging hardware have been carefully designed and tested. Biamp loudspeakers may be safely suspended when each loudspeaker model is suspended with Biamp-manufactured mounting and rigging brackets or yokes specifically designed for use with that particular model of loudspeaker. This warranty applies only for use under normal environmental conditions, and when all loudspeakers, component parts, yokes and hardware are assembled and installed in strict accordance with Biamp’s installation guidelines contained herein. Beyond this, Biamp assumes no further or extended responsibility or liability, in any way or by any means whatsoever. It is the responsibility of the installer to insure that safe installation practices are followed, and that such practices are in accordance with any and all local, state, federal, or other, codes, conditions, and regulations that may apply to, or govern the practice of, rigging, mounting, and construction work in the relevant geographic territory. Any modifications made to any parts or materials manufactured or supplied by Biamp shall immediately void all pledges of warranty or surety, related in any way to the safe use of those parts and materials.

WARNING
NON-Biamp RIGGING HARDWARE:
Non-Biamp hardware used for rigging an R SERIES loudspeaker must be certified by the supplier for such use and must be properly rated for safety.

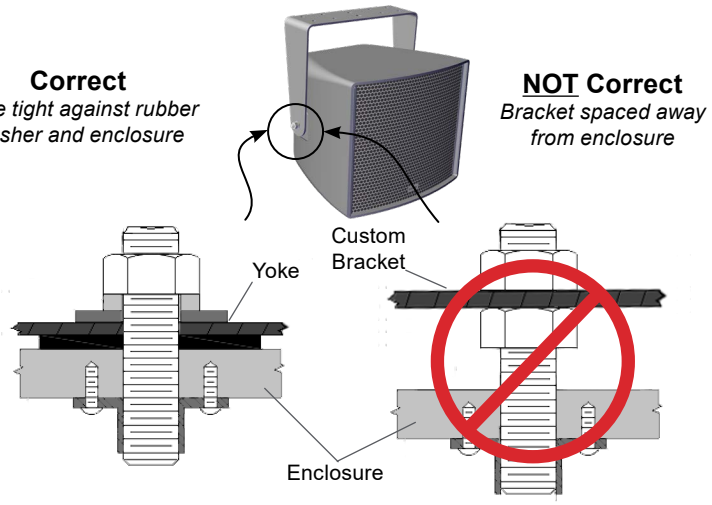


Figure 1. Mounting point load

IMPORTANT NOTES ON RIGGING LOUDSPEAKERS
There are three areas of responsibility for rigging loudspeakers. The first is the building structure. Always consult with the building architect or structural engineer to assure the ability of the structure to support the loudspeaker system. The second area of responsibility is the loudspeaker itself. Biamp certifies its loudspeaker systems and rigging accessories for suspension when they are properly installed according to our published guidelines. The third area of responsibility is everything between the loudspeaker and the building structure and the actual process of installation. The installing contractor assumes this responsibility. Loudspeaker rigging should be performed only by certified rigging professionals using certified rigging hardware chosen for the specific application. Prior to installation, the contractor should present a rigging plan, with drawing and detailed parts list, to a licensed structural engineer (P.E.) or architect for written approval.

WARNING: R SERIES rigging fittings are rated at a Working Load Limit of 100 lbs (45.4kg) with a 10:1 safety margin. No single rigging fitting should ever be subjected to a load that is greater than 100 lbs. Failure to heed this warning could result in injury or death!

ACCEPTABLE MOUNTING POINT LOADING

The mounting points should always be used so that either shear force is applied perpendicular to the direction of and in tight proximity to the mounting hole, or tension force is applied perpendicular to the enclosure surface. See **Figure 1** at left.

DANGER: Use the mounting points only as described above. Do not use them in such a way as to apply sideways leverage to them. Failure to follow this instruction could result in immediate failure of the mounting points resulting in damage to the loudspeaker and serious injury or death to personnel.

INSTALLATION

BEFORE YOU START

Read all instructions before starting the installation including all safety instructions and warnings regarding rigging and installation of the loudspeaker. The latest version of this manual is available by contacting your sales dealer or representative. The revision date is on the rear cover.

MOUNT THE LOUDSPEAKER YOKE

1. Attach the yoke to the support structure before mounting the loudspeaker enclosure with properly rated, corrosion-resistant fasteners. *Mounting hardware is not included and should be specified by a structural engineer.*

NOTES: The wider angled portion of the yoke must be at the rear of the loudspeaker when mounted vertically, and toward the bottom of the enclosure in the horizontal position. See Figure 2 for yoke orientation. *Always use the holes in line with the larger center hole as the primary mounting points.*
Optional pan/tilt and down-firing mounting brackets are available (see Accessories section). Custom brackets may be used, but must be approved by a structural engineer and rated for the expected load.

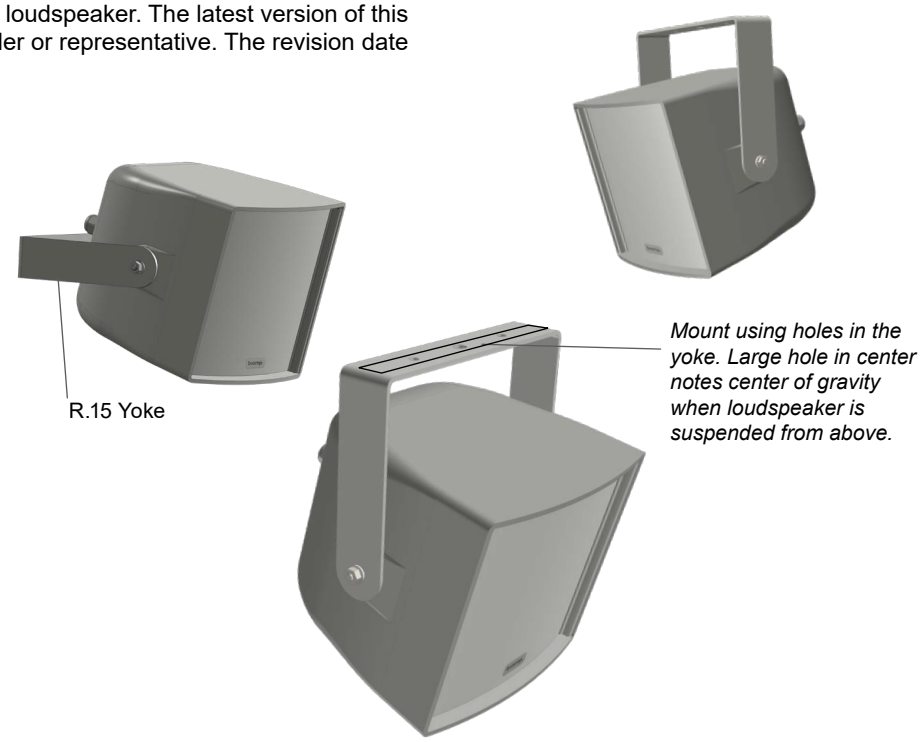


Figure 2a. Orient the R.15 yoke

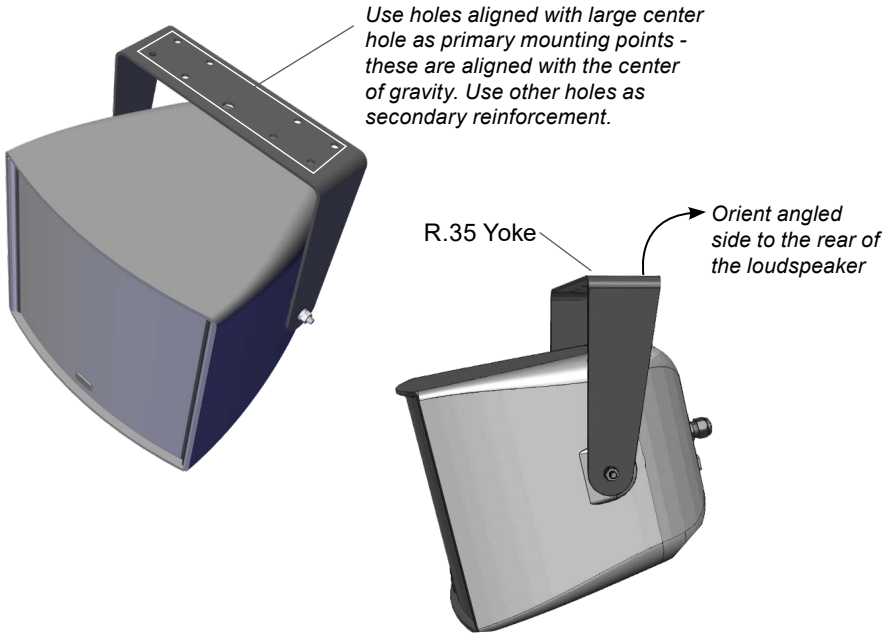


Figure 2. Orient the R.35 yoke correctly

INSTALLATION *(CONTINUED)*

2. Attach the loudspeaker to the yoke. See Figure 3. Screw an 8mm stud into each side of the loudspeaker until it protrudes 3/4" (19mm). Place the rubber washers on the studs and then lift the loudspeaker into place between the yoke arms. Attach remianing hardware. Support the enclosure until both sides are secured. Tighten bolts enough to hold the loudspeaker in position.

3. Determine the approximate angle of downward tilt. It must be angled at least 5° down from horizontal to maintain the stated enclosure IP55 rating. Tighten the hex nuts until sufficiently tight enough to hold the angle.

IMPORTANT: The loudspeaker is not designed to be rotated 90° or mounted upside-down. Doing so may cause water pooling in the safety cable recess, compromising rigging safety and performance, and may void the product warranty. Pan-tilt and full rotation yokes are available for multi-angled and down-fire applications.

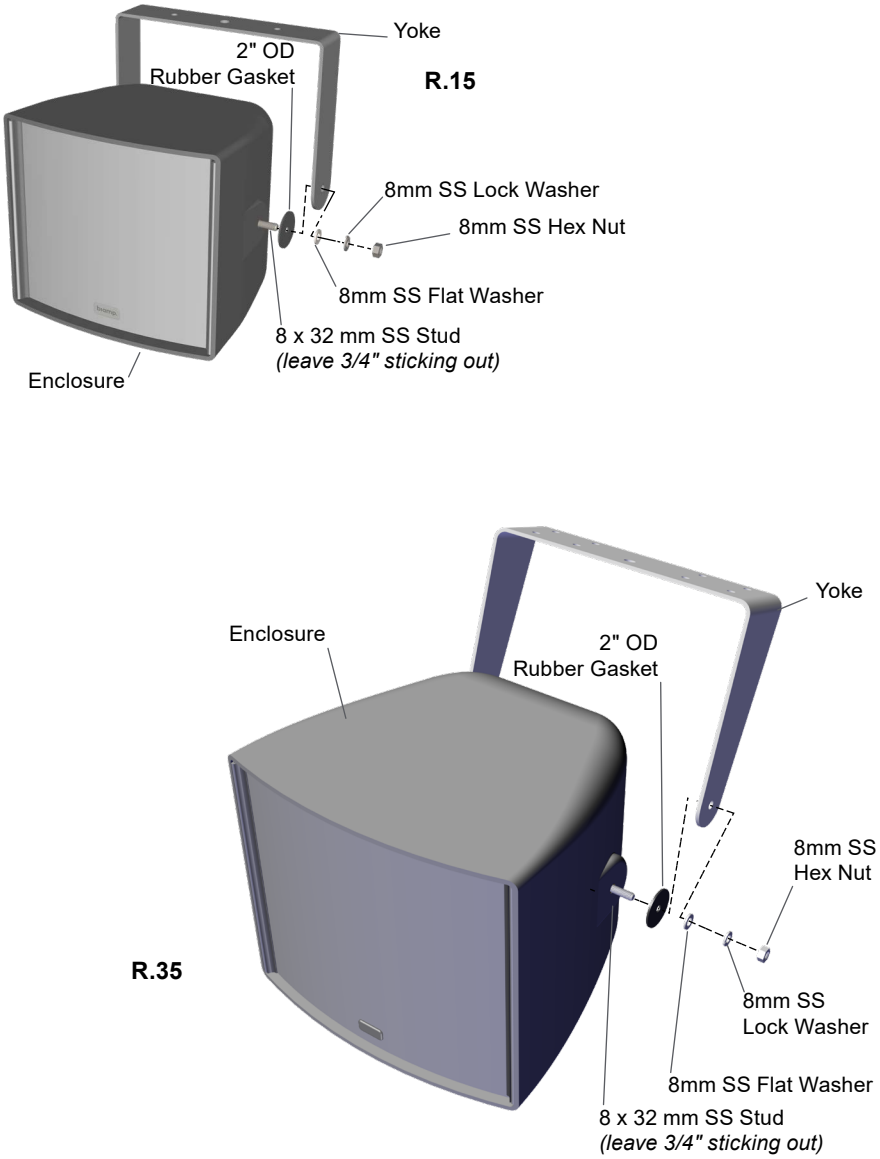


Figure 3. Mount the loudspeaker to the yoke

ATTACH SAFETY CABLE

4. Attach a safety cable to the integrated eyebolt on the rear of each loudspeaker (see Figure 4). *The safety cable and hardware are not included.* Consult a structural engineer for the appropriate cable for the load and application. The safety cable must be secured to a suitable load-bearing point separate from the loudspeaker mounting point, with as little slack as possible, so as not to develop undue kinetic force if the primary mounting were to fail.

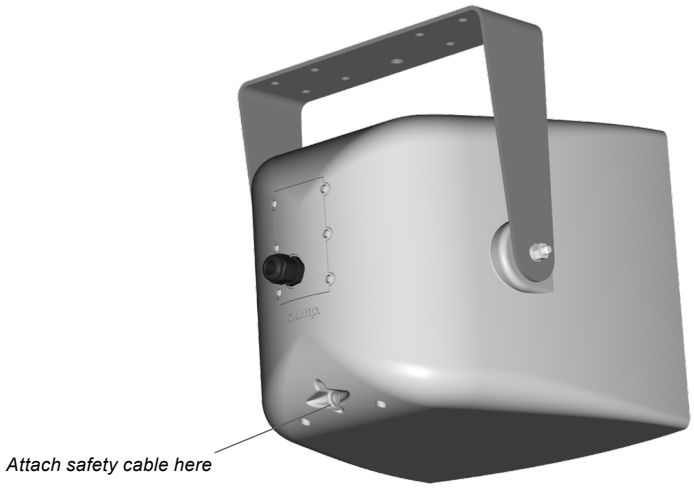


Figure 4. Attach the safety cable

WIRING AND ELECTRICAL SAFETY

All standard R.35 loudspeakers are provided with two methods of connecting the amplifier to the loudspeaker: a standard NL4-type locking connector, and a pressure-screw terminal strip. The loudspeaker is intended to be connected directly to the amplifier.

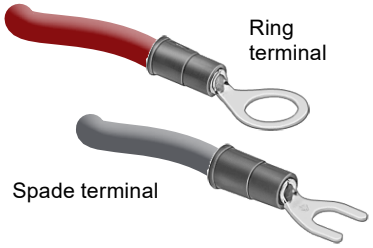
If installed outdoors, the insulation of the installer-provided cabling should be resistant to water, the effects of temperature, and the effects of ultraviolet radiation from the sun. We recommend the use of a SJOW or SJOOW rated cable for most applications. Using the recommended cable with the included gland nut and the weather cover will form a good weather-tight seal.

5. Wire the loudspeaker. Spade or ring terminals with barrel-type crimp connectors that are crimped with a forged crimp tool are recommended. This method results in a gas-tight connection that is quick and easy to accomplish. The maximum width of the ring or spade lug should be 0.375" (9.5mm), or less. The terminal screws are #8 (M4). The maximum wire size that can be accommodated for bare wire connections is 10 AWG (5.26 mm^2).

IMPORTANT: If the NL4 connection is used then the weatherproof cover cannot be attached. Direct connection to the terminal strips is the preferred connection method for all permanent or outdoor applications.



Standard Wiring



Wire Connectors

INSTALLATION *(CONTINUED)*

INPUT PANEL CONNECTIONS

6. Insert the cable through the gland nut and weather cover and wire the unit for your system voltage. Refer to the label - see Figure 5. There is a preinstalled jumper that should be left in the marked position for 70/100V use, or moved to the bottom terminals for 8Ω operation. *Failure to do so can result in damage to the loudspeaker and/or amplifier.* Set the Music/Voice switch to the desired position. *The NL4 connection can only be used for low impedance 8Ω operation.*

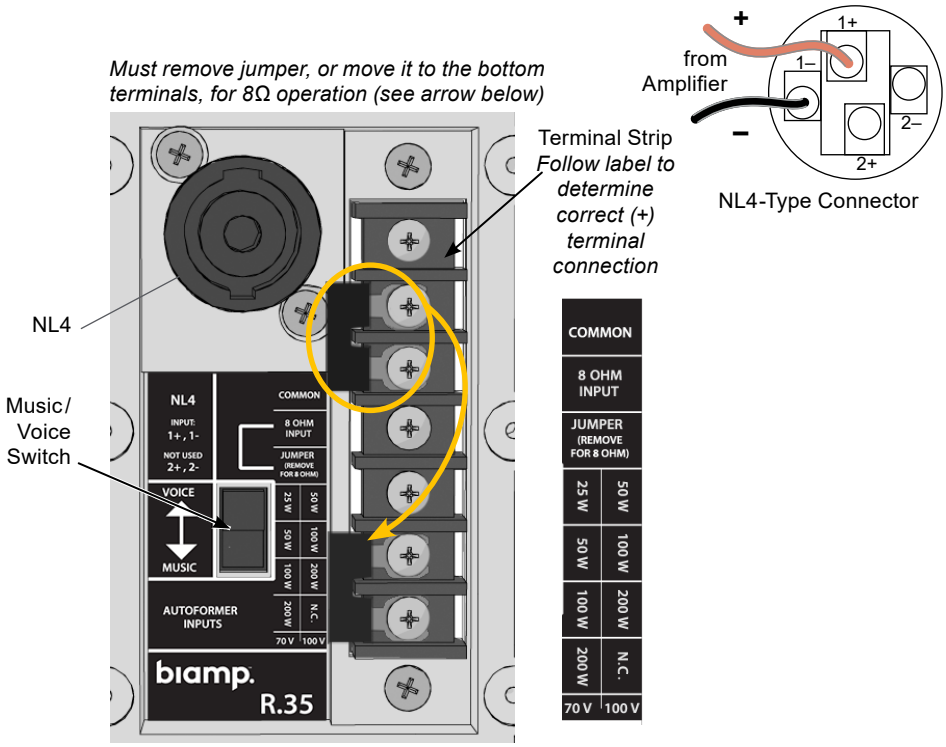


Figure 5. R.35 input panel

IMPORTANT: The gland nut, weather cover and all of the attachment screws must be used in outdoor and indoor harsh environment applications. Without these, the loudspeaker will not have the stated weather-resistant rating and may negate the warranty.

IMPORTANT: All electrical installation connections for loudspeaker lines are subject to all applicable governmental building and fire codes. The selection of appropriate electrical hardware to interface with the R SERIES loudspeaker lies solely with the installation professional. Biamp recommends that an appropriately licensed engineer, electrician, or other qualified professional identify and select the appropriate conduit, fittings, wire, etc. for the installation.

DANGER: The output power capabilities of audio amplifiers present a danger to installers especially in 70-volt and 100-volt distributed systems. To minimize the risk of electric shock from loudspeaker connecting cables, confirm that the power amplifiers are turned "off" before connecting loudspeaker cable(s) to the loudspeaker or amplifier. Always follow local electrical codes and proper electrical safety procedures.

FINAL ASSEMBLY AND TESTING

7. Secure the gland nut to the weather cover. Align the weather cover with the holes and attach using the provided pan head screws. See Figure 6.

8. All provided hardware (or other approved replacement) must be installed in order to maintain weather-resistance and preserve the product warranty.

9. Power and test the system.

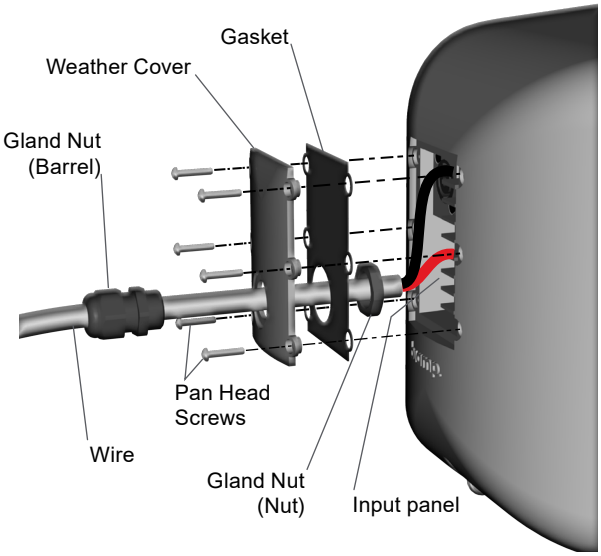


Figure 6. Weather cover attachment

MAINTENANCE

FIELD SERVICE

Remove the loudspeaker from service to ease repair and avoid any exposure of internal components to the elements. Any driver or crossover service required is accessed from the front of the enclosure by first removing the front grille and then unscrewing and removing the horn assembly. Take note of wiring positions prior to removing any drivers from the loudspeaker. In order to maintain the weather resistance, components and assemblies must not remain removed from the loudspeaker any longer than needed for replacement. Extended exposure could cause failures and void the warranty on the loudspeaker.

1. Remove the grille. Refer to illustrations in Figure 7. Remove the screws securing the grille to the enclosure. The grille frame locks into the enclosure frame. Carefully insert a thin flat bladed screwdriver between the grille frame and the enclosure frame while gently pressing down on the grille. Starting at the top and moving down, twist the blade to release the grille from the frame. Repeat as necessary to release the other side and remove the grille.

2. Remove the screws holding the horn assembly to the enclosure and replace or service the components as necessary.

3. Replace the driver assembly securing it with all of the original hardware. Push the grille frame into place - one side and then the other, ensuring that the frames are fully seated. The grille should easily snap into place. Secure the grille with screws (in the same corner locations).

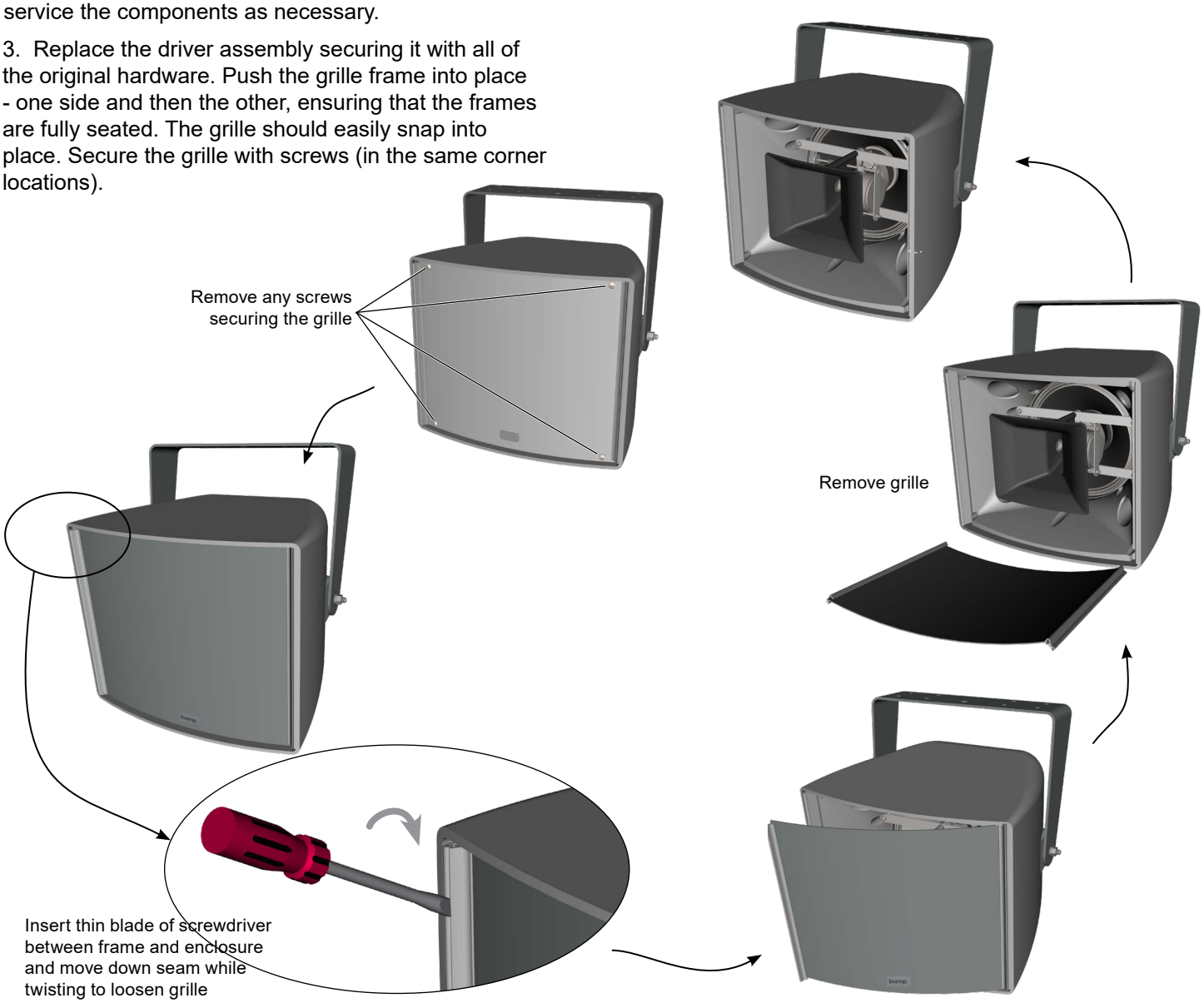


Figure 7. Remove grille

MAINTAINING WEATHER RESISTANCE

GUIDELINES FOR OUTDOOR USE

R.15 and R.35 models are suitable for outdoor installation when used as recommended.

- Always orient the loudspeaker so the mouth of the horn is, at a minimum, pointing at least 5 degrees downward. Failure to do this could result in water collecting inside the enclosure under extreme weather conditions.
- Be careful not to scratch or scrape the finish on the grille, yoke, or enclosure.
- All mounting holes must be sealed off with the stainless steel bolts, washers, and rubber washers supplied. If, for any reason, these bolts must be removed, seal off the hole with silicone caulking or some other suitable weather-tight sealant.
- The rubber washers supplied with the mounting bolts must always seat against the enclosure.
- The grille assembly is designed to prevent normal and wind-driven rain from directly entering the mouth of the loudspeaker. The grille is not designed to withstand such things as being directly sprayed from a hose; therefore this should be avoided.
- If you use any hardware in place of hardware provided with your R SERIES loudspeaker, it should also be made of stainless steel.

PAINTING THE LOUDSPEAKER

These loudspeakers' ABS plastic cabinets accept almost any type of Latex or enamel (oil based) paint. We recommend application of two coats. Note however that painting the grille requires spray painting.

Caution: NEVER use abrasives, & gasoline, kerosene, acetone, methyl ethyl ketone (MEK), paint thinner, harsh detergents or other chemicals. These chemicals and agents may permanently damage the finish. Some are also toxic and highly flammable.

FOLLOW THIS PROCEDURE TO OBTAIN THE BEST RESULTS:

1. Remove the grille (see instructions on page 9), this will be painted separately.
2. Clean the grille assembly and the loudspeaker cabinet by rubbing them with a lightly dampened cloth. Do not use abrasives such as sandpaper or steel wool.
3. Mask the loudspeakers so that the surrounds, cones and center areas will not receive any paint. We advise against using conventional masking tape and NEVER use duct tape in this application; these kinds of tape generally leave adhesive residue that can be difficult to remove and that may actually cause damage. Painters tape is best.
4. After cleaning, apply two or more thin coats of either latex or oil based paints. Latex paint will adhere better if an oil based primer is used first. Apply the paint with a roller or brush, or spray it on, except as noted below.
5. Use ONLY spray paint on the grille assembly; using a roller or brush to paint the grille is apt to cause its metal perforated holes to become clogged with paint. To paint the grille, tape off the Biamp logo, and spray paint with 2 light coats – enough to cover grille and exterior extrusion surface. Let dry and reattach.

PERFORMANCE

USE A DIGITAL SIGNAL PROCESSOR

For best performance, loudspeaker protection and system longevity, a digital signal processor (DSP) should be used with all R SERIES loudspeakers. Biamp recommends using Biamp's Voltera DM series or Amplified Loudspeaker Controllers (ALCs). Each amplifier controller has software (VenueTune™ or ArmoníaPlus™ software*) containing all of the information (high pass filters, limiters, factory tunings) and DSP settings to fully optimize your system. For more information on installing and operating your R SERIES loudspeaker, please contact our Loudspeaker Support Group at support@biamp.com.

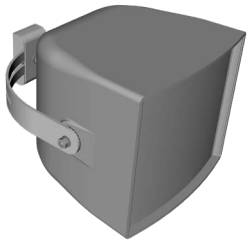
* Software trademarks:

ArmoníaPlus™ is a trademark of Powersoft S.p.A.

VenueTune™ is a trademark of Biamp Systems LLC.

ACCESSORIES

R-VTY15 VARY-TILT YOKE FOR R.15



Provides pan-tilt operation. Zinc-rich epoxy dual-layer powder-coated steel with hardware, color-matched to loudspeaker.

R-VTY35 VARY-TILT YOKE FOR R.35



Provides pan-tilt operation. Zinc-rich epoxy dual-layer powder-coated steel with hardware, color-matched to loudspeaker.

R-FRY35 FULL ROTATION YOKE FOR R.35



Provides full rotation mounting capability for down-firing application (i.e. top of press box). Zinc-rich epoxy dual-layer powder-coated steel with hardware, color-matched to loudspeaker.

CONTACT US

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Warranty: biamp.com/legal/warranty-information

Safety & Compliance: biamp.com/compliance