rbh.

IN-CEILING SPEAKERS
Installation and Instruction Manual

Introduction

Congratulations on your purchase of RBH Sound in-ceiling speakers! Your speakers are the result of many years of research and development dedicated to producing high quality products for home audio and audio/video systems.

This manual is designed to give you, the installer or owner, basic information as to the speaker's installation and operation. We recommend you thoroughly read through the material contained in this manual before installing your speakers. This will ensure that you have an understanding of how to setup your speakers for optimum performance and allow for years of listening enjoyment.

Break In Period

Allow 10-15 hours of listening time to adequately break in the speakers. As the speakers break-in, the driver suspension will loosen. The result of break-in will be an increase in low frequency response, improved definition, clarity and detail.

Features

All RBH Sound in-ceiling speakers feature a swing out dog leg mounting system with pre-started screws for fast and easy installation. Most RBH Sound in-ceiling speakers feature directional swivel tweeters to direct the sound to the main listening area. All RBH Sound in-ceiling speakers feature polyswitch protection circuitry designed to protect the tweeter from being over driven. This circuit will automatically reset itself once the volume is turned down or the problem causing the circuit to activate is removed.

Steep acoustic slope crossovers are used to integrate the drivers. The use of steep crossover slopes allows high power handling, minimized driver interaction anomalies, and maximizes the clarity with which each driver is able to produce its respective frequency band.

Painting the Speakers

A paint shield is included with your speakers. This shield can be used to protect the speaker when painting the speaker's rim (frame). If you plan to paint your speakers, we recommend it be done prior to installation. If you decide to paint your speakers sometime in the future, it is best to remove them from the ceiling or wall. When painting speakers, the paint shield provided in the packaging must be installed in place of the grille. The grille can also be painted. Painting the speaker's grille should be done with a paint sprayer set to fine. Remove the grille from the speaker, peel off the grille fabric on the back of the grilles and set aside. Place the grilles on a flat surface. Do not use a brush or roller on the grilles as this will clog the holes, greatly reducing the sound quality of the speakers. Do not paint the grilles while attached to the speakers. Be sure to remove the paint shields from the speakers and replace the fabric to the back of the grilles before reinstalling them and using the speakers.

Room Setup Suggestions

With nearly endless placement options, careful consideration for placement of the in-ceiling speakers needs to be considered, as installation requires cutting a hole in your wall or ceiling! When using speakers in home theater applications follow the guidelines illustrated below.

Swivel Tweeter Placement

The swivel tweeter allows sound to be directed toward or away from the listening area depending on the application. A tweeter aimed toward your listening position improves imaging and detail. When using a speaker with a swivel tweeter as front/main home theater speakers or as stereo speakers in a distributed audio system, aim the tweeter toward the main listening position. For rear/surround speakers, aim the tweeter toward the nearest reflecting surface (an adjacent wall or ceiling) for a more diffuse sound field (for more direct sound, aim the tweeter at your listening position).

SCREEN

Approximate Listening Postion

← 7.1 Surround Option →

6.1 Surround Option
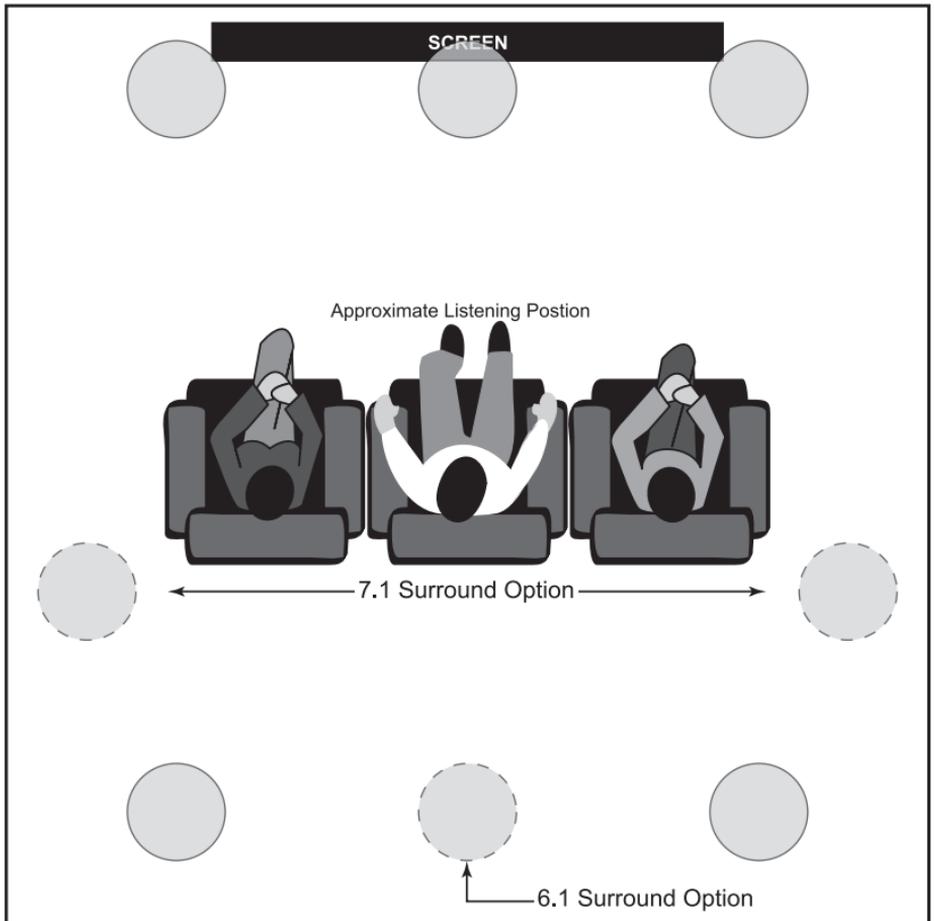
Speaker Installation

RBH Sound in-ceiling speakers are designed on an infinite baffle configuration. This means a back box is not required for the speaker to perform properly. RBH Sound in-ceiling speakers have also been designed to make installation as easy as possible. Upon opening the speaker boxes you will notice that the screws are pre-started into the dog legs. The basic idea behind in-ceiling speakers is the speaker is held in place by sandwiching the speaker and the drywall. A frame around the speaker conceals the cutout in the drywall and presses against the front of the ceiling. Behind the ceiling, the speaker has a set of dog legs which cinch the speaker to the drywall.

CAUTION: Be certain there are no electrical wires, water pipes, heating ducts or any other obstructions in the planned area of installation before starting to drill or cut into the ceiling or wall. If there is an electrical outlet nearby, turn off the circuit breaker to avoid possible injury.

Installing WITH a New Construction Bracket:

If using a new construction bracket for the size of the speaker being installed, cutting the drywall should not be necessary. Continue with *"Connecting the Speaker"* instructions on the next page.

### Installing WITHOUT a New Construction Bracket:

Use the cutout template supplied with the speaker for guidance in cutting the drywall, following *"Using the Template"* instructions below.

Using the Template:

1. These speakers are designed to be mounted between the framing members. Use a stud finder to locate the positions of joists and rafters. Make sure you have a 2-inch clearance from the outside of the cutout hole from joists and rafters.

2. Drill a 1/4-inch hole in the center of the area you plan to mount the speaker. Cut or bend a piece of wire (a coat hanger works well) to a 90-degree angle. Insert the wire into the pilot hole and fish around to make sure there aren't any obstructions which will interfere with the installation.

   NOTE: If you must choose another location, the pilot hole can be easily patched.

3. Once a suitable location is found, use masking tape to temporarily place the supplied cutout template on the ceiling or wall, centered over the pilot hole. Draw a circle around the inside edge of the template.

4. Carefully cut the hole with the appropriate cutting tool to remove the material inside the circle inscribed by the template.
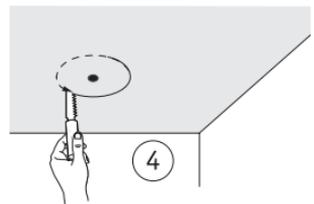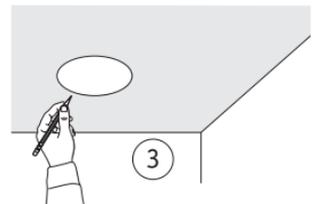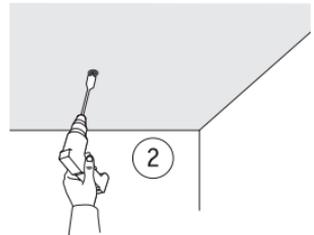
NOTE: The frame will overlap the cutting edge by about a 1/2-inch which will mask any minor cutting inaccuracies.

5. Confirm the speaker easily fits into the hole, without any gaps.

Connecting the Speaker:

6. Pull the speaker wire out of the hole and connect the speaker. Split the two conductors of the speaker wire apart about 3-inches so they form a "Y". Using wire strippers, remove about 1/2-inch of insulation from each of the two conductors of the wire to expose the bare metal and twist each of the conductors into a single unfrayed strand.
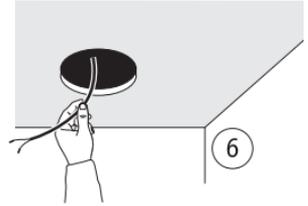
   The speaker terminals will accommodate any speaker wire up to 14-gauge. Select an appropriate wire gauge from the following chart:

   18 gauge for up to 50-feet
   16 gauge for up to 100-feet
   14 gauge for up to 200-feet

   NOTE: When connecting a speaker it is very important to retain the correct polarity (improper polarity will cause reduced bass performance and unnatural imaging effects). To do this, be sure the wire attached to the positive terminal on the speaker (marked [+] or colored red) connects to the positive terminal on the amplifier. Similarly, the negative terminal (marked [-] or colored black) must connect to the negative terminal on the amplifier.
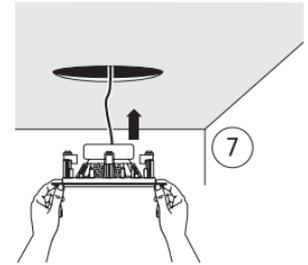
Finishing the Installation

7. Slide the speaker into the pre-cut hole in drywall or new construction bracket keeping the speaker cable above and out of the way to prevent pinching it.

8. Tighten the screws. The dog legs will automatically swing out and tighten (pinch) themselves against the new construction bracket or the drywall with the turning of the screws and will hold the speaker solidly in place. Don't over tighten screws, if you over-tighten the screws the speaker frame may bend which will make it difficult to properly install the grille.

   NOTE: If using a drill/driver, set the clutch to a low setting to prevent over tightening and possible damage to the frame or dog legs. If using hand tools, tighten just until firm.

9. If the speaker has any tone controls or has a pivoting tweeter, leave the grille off until you can listen to the speaker. Once the speaker is adjusted, install the grille.

   NOTE: Handle the grille carefully, as they pressure-fit into the installed speaker. If the grille does not install easily, try loosening the mounting screws before resorting to forcing the grille onto the speaker.

Speaker Accessories

Back Cans

Back Cans (BC's) attach neatly and directly to the back of in-ceiling speakers to prevent sound from being transferred into adjacent floors or rooms. Back cans on in-ceiling speakers are needed to meet building code requirements in select areas. All RBH Sound back cans are UL rated.

Back Cans

Blank Plates

Blank plates are a very clean and efficient way to cover the holes left in drywall when a new construction bracket is used or a speaker is removed. Install blank plates when in-wall/in-ceiling speakers will not be immediately installed after drywall is finished.

Short Back Can

New Construction Brackets

An excellent way to guarantee placement of in-wall and in-ceiling speakers prior to drywall installation, New Construction Brackets (NCB's) also make installation of in-wall and in-ceiling speakers faster and easier by reducing time and mess. Once drywall is installed, just connect the speaker to the speaker wire and install. New Construction Brackets eliminate the time and need to locate and cut drywall before speaker installation.

For more information on RBH Sound in-ceiling speaker accessories go to www.rbhsound.com.

Blank Plates

New Construction Bracket

Specifications

Model:	A-505R	A-605/70	A-615
Series:	Architectural	Architectural	Architectural
System Type:	In-ceiling 2-way Speaker	In-ceiling 2-way Speaker (8 Ohms 70/100 Volt Ready)	In-ceiling 2-way Speaker
Frequency Response:	60Hz-20kHz ±3dB	88Hz-20kHz ±3dB	55Hz-20kHz ±3dB
Sensitivity:	88dB (2.83V @ 1 Meter)	88dB (2.83V @ 1 Meter)	90dB (2.83V @ 1 Meter)
Recommended/Rated Power:	10-75 Watts	2-60 Watts[1]	10-80 Watts
Woofer(s):	(1) 5¼" (133mm) PolyGraphite	(1) 6½" (165mm) PolyGraphite	(1) 6½" (165mm) PolyGraphite
Tweeter(s)	(1) ¾" (19mm) Mylar Dome	(1) ¾" (19mm) Silk Dome	(1) ¾" (19mm) Silk Dome
Swivel Tweeter(s):	No	Yes	Yes
Tweeter Protection:	Yes	Yes	Yes
Crossover Frequency:	3,000 Hz	3,000 Hz	3,000 Hz
Crossover Slope:	6dB/Octave	12dB/Octave	12dB/Octave
Impedance:	8 Ohms	8 Ohms 70/100 Volt[1]	8 Ohms
Cabinet/Color:	White Frame (paintable)	White Frame (paintable)	White Frame (paintable)
Grille:	White Aluminum (paintable)	White Aluminum (paintable)	White Aluminum (paintable)
Cutout Dimensions:	6-3/4" (171mm) Dia.	8" (203mm) Dia.	7-3/4" (197mm) Dia.
Finished Dimensions:	7-3/4" Dia. x 3-1/2" D (197mm Dia. x 89mm D)	9-1/8" (232mm) Dia. x 4-1/2" (232mm Dia. x 114mm D)	9-1/8" Dia. x 3-7/8" D (232mm Dia. x 98mm D)
Weight:	2.7 lbs. (1.22 Kg)	4 lbs. (1.81 Kg)	3.45 lbs. (1.56 Kg)
Warranty:	25 Years	25 Years	25 Years
Back Can:	BC-5R	Included with Speaker	BC-6R
Blank Plates:	BP-5R	N/A	BP-6R
New Construction Bracket:	NCB-5R	N/A	NCB-6R

[1] 70/100 Volt transformer included. Taps @ 2, 4, 8, 16 and 32 Watts.

Specifications (continued)

Model:	A-615D	A-615L	A-815
Series:	Architectural	Architectural	Architectural
System Type:	In-ceiling 2-way Dual Channel Speaker	In-ceiling 15-degree Fixed Offset LCR Speaker	In-ceiling 2-way Speaker
Frequency Response:	55Hz-20kHz ±3dB	55Hz-20kHz ±3dB	50Hz-20kHz ±3dB
Sensitivity:*	90dB (2.83V @ 1 Meter)	90dB (2.83V @ 1 Meter)	90dB (2.83V @ 1 Meter)
Recommended/Rated Power:	10-80 Watts	10-80 Watts	10-100 Watts
Woofer(s):	(1) 6½" (165mm) PolyGraphite	(1) 6½" (165mm) PolyGraphite	(1) 8" (203mm) PolyGraphite
Tweeter(s)	(2) ¾" (19mm) Swivel Silk Dome	(1) 1" (25mm) Swivel Silk Dome	(1) 1" (25mm) Swivel Silk Dome
Swivel Tweeter(s):	Yes	Yes	Yes
Tweeter Protection:	Yes	Yes	Yes
Crossover Frequency:	3,000 Hz	3,000 Hz	3,000 Hz
Crossover Slope:	12dB/Octave	12dB/Octave	12dB/Octave
Impedance:	8 Ohms x 2	8 Ohms	8 Ohms
Cabinet/Color:	White Frame (paintable)	White Frame (paintable)	White Frame (paintable)
Grille:	White Aluminum (paintable)	White Aluminum (paintable)	White Aluminum (paintable)
Cutout Dimensions:	7-3/4" (197mm) Dia.	8-1/4" (210mm) Dia.	9-3/4" (248mm) Dia.
Finished Dimensions:	9-1/8" Dia. x 4" D (232mm Dia. x 102mm D)	9-3/8" Dia. x 4-1/2" D (238mm Dia. x 114mm D)	10-3/4" Dia. X 4-3/4" D (273mm Dia. x 121mm D)
Weight:	3.35 lbs. (1.52 Kg)	3.5 lbs. (1.59 Kg)	5 lbs. (2.27 Kg)
Warranty:	25 Years	25 Years	25 Years
Back Can:	BC-6R (can be used if modified)	N/A	BC-8R
Blank Plates:	BP-6R	N/A	BP-8R
New Construction Bracket:	NCB-6R	NCB-6RL	NCB-8R

Model:	TK-615	MC-615	MC-615L
Series:	TK	MC	MC
System Type:	In-ceiling 2-way Speaker	In-ceiling 2-way Speaker	In-ceiling 15-degree Fixed Offset LCR Speaker
Frequency Response:	50Hz-20kHz ±3dB	50Hz-20kHz ±3dB	50Hz-20kHz ±3dB
Sensitivity:	90dB (2.83V @ 1 Meter)	88dB (2.83V @ 1 Meter)	88dB (2.83V @ 1 Meter)
Recommended/Rated Power:	15-100 Watts	15-120 Watts	15-120 Watts
Woofer:(s)	(1) 6½" (165mm) Fiberglass	(1) 6½" (165mm) Aluminum	(1) 6½" (165mm) Aluminum
Tweeter(s):	(1) ¾" (19mm) Aluminum Dome	(1) ¾" (19mm) Aluminum Dome	(1) 1" (25mm) Aluminum Dome
Swivel Tweeter(s):	Yes	Yes	Yes
Tweeter Protection:	Yes	Yes	Yes
Crossover Frequency:	3,000 Hz	3,000 Hz	3,000 Hz
Crossover Slope:	12dB/Octave	12dB/Octave	12dB/Octave
Impedance:	8 Ohms	8 Ohms	8 Ohms
Cabinet/Color:	White Frame (paintable)	White Frame (paintable)	White Frame (paintable)
Grille:	White Aluminum (paintable)	White Aluminum (paintable)	White Aluminum (paintable)
Cutout Dimensions:	7-3/4" (197mm) Dia.	7-3/4" (197mm) Dia.	8-1/4" (210mm) Dia.
Finished Dimensions:	9-1/8" Dia. x 4-3/8" D (232mm Dia. x 111mm D)	9-1/8 x Dia. x 4-3/8" D (232mm Dia. x 111mm D)	9-3/8" Dia. x 4½" D (238mm Dia. x 114mm D)
Weight:	3.8 lbs. (1.72 Kg)	3.85 lbs. (1.75 Kg)	3.7 lbs. (1.68Kg)
Warranty:	25 Years	25 Years	25 Years
Back Can:	BC-6R	BC-6R	N/A
Blank Plates:	BP-6R	BP-6R	N/A
New Construction Bracket:	NCB-6R	NCB-6R	NCB-6RL

Specifications (continued)

Model:	MC-815	MC-815L	
Series:	MC	MC	
System Type:	In-ceiling 2-way Speaker	In-ceiling 15-degree Fixed Offset LCR Speaker	
Frequency Response:	45Hz-20kHz ±3dB	45Hz-20kHz ±3dB	
Sensitivity:*	92dB	91dB	
Recommended/Rated Power:	15-150 Watts	15-150 Watts	
Woofer:(s)	(1) 8" (203mm) Aluminum	(1) 8" (203mm) Aluminum	
Tweeter(s):	(1) 1" (25mm) Aluminum Dome	(2) 1" (25mm) Aluminum Dome	
Swivel Tweeter(s):	Yes	Yes	
Tweeter Protection:	Yes	Yes	
Crossover Frequency:	2,500 Hz	2,500 Hz	
Crossover Slope:	12dB/Octave	12dB/Octave	
Impedance:	8 Ohms	8 Ohms	
Cabinet/Color:	White Frame (paintable)	White Frame (paintable)	
Grille:	White Aluminium (paintable)	White Aluminium (paintable)	
Cutout Dimensions:	9-3/4" (248mm) Dia.	10-1/8" (258mm) Dia.	
Finished Dimensions:	10-3/4" Dia. X 5" D (273mm Dia. x 127mm D)	11-5/8" Dia. X 5½" D (295mm Dia. x 140mm D)	
Weight:	6.15 lbs. (2.79 Kg)	6.05 lbs. (2.74 Kg)	
Warranty:	25 Years	25 Years	
Back Can:	BC-8R	N/A	
Blank Plates:	BP-8R	N/A	
New Construction Bracket:	NCB-8R	NCB-8RL	

Discontinued Product–Specifications

Model:	A-504D	A-506	A-815D
Series:	Architectural	Architectural	Architectural
System Type:	In-ceiling Dual Channel Speaker	In-ceiling 2-way Synchronous Speaker	In-ceiling 2-way Speaker
Frequency Response:	60Hz-20kHz ±3dB	60Hz-20kHz ±3dB	50Hz-20kHz (±3dB)
Sensitivity:*	88dB	88dB	90dB (2.83V @ 1 Meter)
Recommended/Rated Power:	10-75 Watts	10-75 Watts	20-100 Watts
Woofer:(s)	(1) 5¼" (133mm) Poly Graphite	(1) 5¼" (133mm) Poly Graphite	(1) 8" (203mm) Poly Graphite
Tweeter(s):	(1) 1" (25mm) Mylar Dome	(1) ¾" (19mm) Mylar Dome	(2) 1" (25mm) Silk Dome
Swivel Tweeter(s):	No	No	Yes
Tweeter Protection:	Yes	No	Yes
Crossover Frequency:	2,500 Hz	3,000 Hz	2,500 Hz
Crossover Slope:	6dB/Octave	6dB/Octave	12dB/Octave
Impedance:	8 Ohms x2	8 Ohms	8 Ohms
Cabinet/Color:	White Frame (paintable)	White Frame (paintable)	White Frame (paintable)
Grille:	White Aluminium (paintable)	White Aluminium (paintable)	White Aluminium (paintable)
Cutout Dimensions:	6-3/4" (172mm) Dia.	6-3/4" (172mm) Dia.	9-3/4" (248mm) Dia.
Finished Dimensions:	8" Dia. X 2-1/2" D (203mm Dia. x 64mm D)	7-3/4" W x 11" H x 3-3/4" D (197mm W x 95mm D)	10-3/4" Dia. x 4-3/4" D (273mm Dia. x 121mm D)
Weight:	1.95 lbs. (.88 Kg)	2.3 lbs. (1.04 kg)	4.95 lbs. (2.25 kg)
Warranty:	25 Years	25 Years	25 Years
Back Can:	BC-5R	BC-5R	BC-8R
Blank Plates:	BP-5R	BP-5R	BP-8R
Construction Bracket:	NCB-5R	NCB-5R	NCB-8R
Discontinued Date:	September 2007	September 2007	September 2007

Model:	A-815L	TK-815	
Series:	Architectural	TK	
System Type:	In-ceiling 15-degree Fixed Offset LCR Speaker	In-ceiling 2-way Speaker	
Frequency Response:	50Hz-20kHz ±3dB	50Hz-20kHz ±3dB	
Sensitivity:*	90dB	91dB	
Recommended/Rated Power:	10-100 Watts	15-150 Watts	
Woofer:(s)	(1) 8" (203mm) Poly Graphite	(1) 8" (203mm) Fiberglass Matrix Cone	
Tweeter(s):	(1) 1" (25mm) Silk Dome	(1) 1" (25mm) Aluminum Dome	
Swivel Tweeter(s):	Yes	Yes	
Tweeter Protection:	Yes	Yes	
Crossover Frequency:	3,000 Hz	2,500 Hz	
Crossover Slope:	12dB/Octave	12dB/Octave	
Impedance:	8 Ohms	8 Ohms	
Cabinet/Color:	White Frame (paintable)	White Frame (paintable)	
Grille:	White Aluminium (paintable)	White Aluminium (paintable)	
Cutout Dimensions:	10-1/4" (260mm) Dia.	9-3/4" (248mm) Dia.	
Finished Dimensions:	11-5/8" Dia. x 5-1/4" D (295mm Dia. x 133mm D)	10-3/4" Dia. x 4-7/8" D (273mm Dia. x 124mm D)	
Weight:	4.95 lbs. (2.25 kg)	5.5 lbs. (2.49 kg)	
Warranty:	25 Years	25 Years	
Back Can:	BC-8R	BC-8R	
Blank Plates:	BP-8R	BP-8R	
Construction Bracket:	NCB-8R	NCB-8R	
Discontinued Date	July 2010	September 2007	

Troubleshooting

Situation	Probable Cause	Solution
No sound from speakers.	Speaker wire not connected.	Make sure wire is properly connected to the speaker and the amplifier observing proper polarity.
	Speaker selector on amplifier is not on.	Activate proper speaker selector on amplifier.
No sound from one speaker.	Balance control on receiver or preamp is not centered.	Place balance control in the center.
	Speaker wire not completely connected.	Check all connections at amplifier and speakers.
Very little bass and/or imaging	Speakers are wired out of phase.	Check entire system for proper polarity and make adjustments as necessary.

Warranty

Your RBH Sound in-ceiling speaker is covered by a limited warranty against defects in materials and workmanship for a period of 25 years. This warranty is provided by the authorized RBH Sound dealer where the speaker was purchased. Warranty repair will be performed only when your purchase receipt is presented as proof of ownership and date of purchase. Defective parts will be repaired or replaced without charge by your dealer's store or the location designated by RBH Sound authorized to service RBH Sound products. Charges for unauthorized service and transportation cost are not reimbursable under this warranty. This warranty becomes void if the product has been damaged by alteration, misuse or neglect. RBH Sound assumes no liability for property damage or any other incidental or consequential damage whatsoever which may result from the failure of this product. Any and all warranties of merchantability and fitness implied by law are limited to the duration of this express warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Redefining the Way You Experience Sound.[TM]

382 Marshall Way, Layton, Utah • USA • 84041
Toll Free: (800) 543-2205 • Fax: (801) 543-3300
www.rbhsound.com