

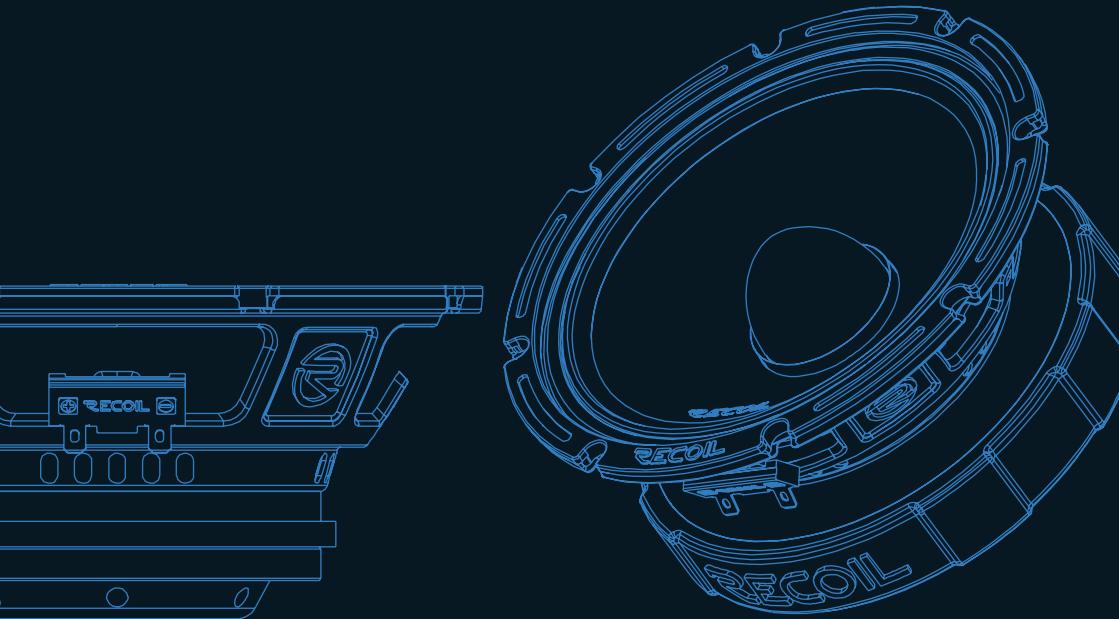
ECHO PRO MIDRANGE SPEAKER

**RECOIL**<sup>®</sup>

**HM65.4/HM65.4NEO**

6.5" MIDRANGE SPEAKER, 4 OHM

**USER MANUAL**



**RECOIL**

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## INSTALLATION

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Congratulations on your purchase of our product! We hope RECOIL AUDIO will delight you with its impressive performance. In producing our speakers, we utilize high-quality components and cutting-edge materials. This manual contains essential instructions for proper system installation and use. Before installation, please carefully review all guidelines provided. Failure to follow these instructions may result in product damage or unintended malfunctions.

## PRECAUTIONS

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Prolonged exposure to sound pressure levels of 100 dB and higher can cause hearing loss. Use common sense and practice safe sound. Remember that prolonged exposure to excessively high sound levels can damage your hearing. Driving safety comes first.

The manufacturer is not responsible for hearing loss, physical injury or property damage due to misuse of this product.

### ATTENTION!

Proceed with installation only if you are a qualified car audio installer, otherwise contact a professional installation service.

- Always wear safety glasses when using tools.
- Before proceeding with the installation, turn off the car head unit and other electronic devices.
- Disconnect the negative (-) terminal from the car battery before starting the installation.
- Store the loudspeaker in its packaging if you have not proceeded to install it, and always place the loudspeaker with the cone facing up. Never use force when installing speakers.
- Determine the location of the fuel lines, brake pipes, oil lines, and vehicle electrical wiring before proceeding with the installation.
- Check that the installation site has sufficient air exchange on both sides of the speakers before drilling holes.
- Check that nothing interferes with the normal operation of the cone, otherwise the cone will be damaged.
- Use a utility knife to cut off excess pieces of fabric near the hole where the speaker will be installed before starting drilling.
- Use a grommet for the speaker wires (not included) when pulling through sheet metal, otherwise the wire may be damaged by the metal edges of the hole.

## **PRECAUTIONS**

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Speakers - 1 PAIR

Adapter Spacer Rings - 1 PAIR

Instruction Manual - 1 PC

Mounting Screw Kit - 4 PAIRS

## **INSTALLATION**

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To install the speakers, the help of a professional installation service is required. In this manual, only the basic rules for connecting the speakers and technical specifications are presented.

### **SELECTING SPEAKER LOCATION**

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The choice of where the speaker will be installed has the greatest influence on sound quality. You need to think carefully about where the speaker system will be installed. Places for installing speakers should be of sufficient size.

It is necessary to check that, due to the chosen installation locations of the speakers, there is no interference in the operation of the mechanical parts and electronics of the car.

### **PREPARING TOOLS**

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Note: You may need the tools listed below

- Electric Drill + Drills
- Hacksaw, Electric metal hacksaw
- Standard Set of Screwdrivers
- Stripping Pliers
- Crimping tool and Needle-nose Pliers
- Silicone Sealant (for Acoustic Enclosure), Sealing gasket / foam ring (for Speakers)

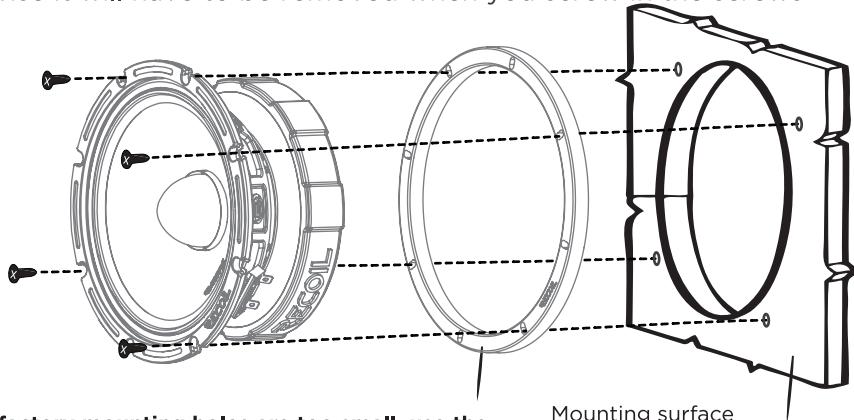
### **INSTALLATION IN THE DOOR**

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Before proceeding with the installation of speakers in the car door, Please check its construction and window operation. There is a stabilizing stop bar in the car door, which is located between the door and the door arch. The check strap / door check strap prevents the door from being opened unnecessarily.

## INSTALLATION IN THE REAR OF THE VEHICLE

Before installing the speakers in the rear part of the vehicle, Please check the operation of the trunk lid hinges and lift supports (or gas struts). Ensure there is enough clearance for the speaker, as these components move when the trunk is opened. Do not install the speakers too close to the rear window, otherwise it will have to be removed when you screw in the screws.



**If the factory mounting holes are too small, use the included adapter spacer rings for proper fitment.**

Mounting surface  
Installation surface should be flat

## INSTALLATION

1. Choose a place to install the speaker. Make sure the mounting surface is flat and fits the mounting dimensions of the speaker. Placing the speaker on an uneven surface will damage the speaker.
2. Make sure that the chosen location for the speaker does not interfere with the operation of the vehicle,
3. Cut a template based on the speaker's outer diameter. Place the template on the mounting surface where the speaker should be installed and trace around it with a pencil.
4. Make a hole for the speaker. The hole can be made either with metal shears or with an electric hacksaw for metal.
5. The speaker wire (not included) needs to be connected to the speaker. Use a grommet for the speaker wire when pulling through sheet metal, otherwise the wire may be damaged by the metal edges of the hole.
6. Drill mounting holes with a 1/8" (3mm) drill bit.
7. Pull the speaker wire through the hole made and connect to the speaker. Observe the polarity when connecting the speakers.
8. Secure the speaker with screws.

## **RECOMMENDED CROSSOVER SETTINGS**

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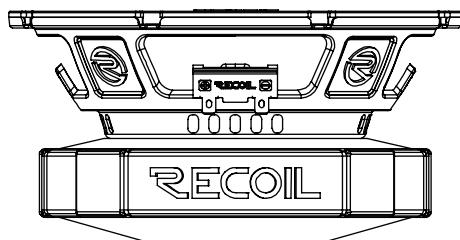
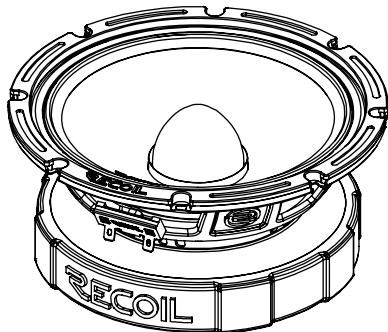
For optimum performance, it is recommended to adjust the crossover according to the recommendations below.

**NOTE:** Crossover settings depend on speaker sizes.

Recommended active crossover settings: 90Hz - 20kHz, 12dB/octave.

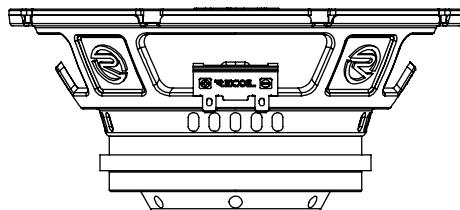
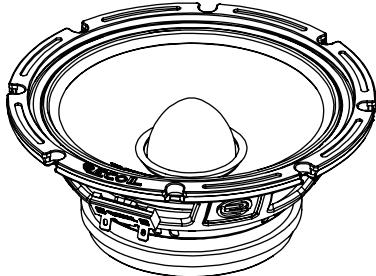
### **HM65.4**

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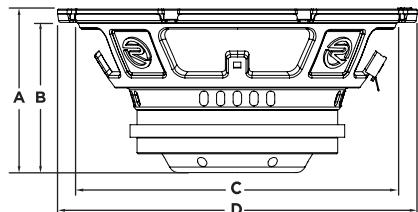
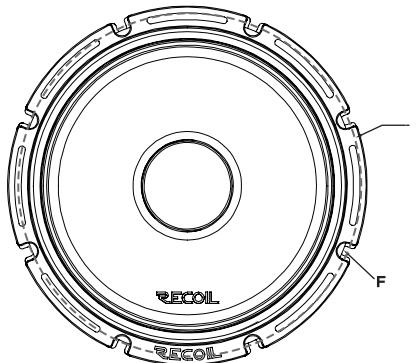


### **HM65.4NEO**

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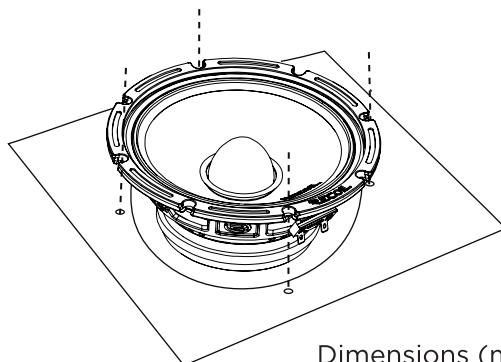
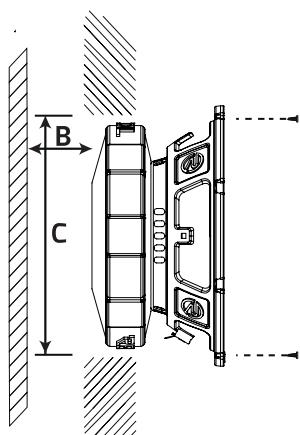


## DIMENSIONS



Dimensions (mm)

## INSTALLATION CUTOUTS



Dimensions (mm)

## Installation dimensions

Model	HM65.4	HM65.4NEO
C	154.5	154.5
B	81	72

**SPECIFICATIONS**

	<b>HM65.4</b>	<b>HM65.4NEO</b>
Configuration	6.5" Midrange Speaker	6.5" Midrange Speaker
Power Handling (RMS)	200W	200W
Max Power	400W	400W
Nominal Impedance (Ohms)	4Ω	4 Ω
Minimum Impedance (Ohms)	3 Ω	3 Ω
Mounting Depth	81mm (3.2")	72mm (2.83")
Mounting Diameter	154.5mm (6.08")	154.5mm (6.08")
Sensitivity (1W/1m)	93.6dB (+/-3dB)	96dB (+/-3dB)
Frequency Range	90-5000Hz	92-5000Hz
Cone Material	Carbon Fiber	Carbon Fiber
Suspension Material	Fabric	Fabric
Voice Coil Diameter	44mm (1.73")	44mm (1.73")
Coil Material	KSV	KSV
Voice Coil Height	8.0mm (0.31")	8.0mm (0.31")
Magnet Material	Ferrite	Neodymium
Magnet Size / Weight	140x50x20mm/(47oz)	103x50x6mm/(10.1oz))

**THIELE- SMALL PA PARAMETERS****HM65.4**

Fs: 90Hz  
 Re: 3.0 Ω  
 Qes: 0.48  
 Qms: 10.15  
 Qts: 0.46  
 Vas: 9.8 L/0.35FT<sup>3</sup>  
 Sd :153.9 cm<sup>2</sup>  
 X max:0.5mm  
 Mms: 10.5 g  
 Bl: 6.1 T·m

**HM65.4NEO**

Fs: 92Hz  
 Re: 3.0 Ω  
 Qes: 0.3  
 Qms: 8.28  
 Qts: 0.29  
 Vas: 9.8 L/0.35FT<sup>3</sup>  
 Sd: 153.9 cm<sup>2</sup>  
 X max: 0.5mm  
 Mms: 10g  
 Bl: 7.6 T·m

# ECHO PRO MIDRANGE SPEAKER



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OF THIS PRODUCT.

封面封底为250g铜板纸，无需印蓝色，黑色白字，蓝色线条为UV黑亮效果，  
其他页面110g铜板纸