



Thru-Hull Transducer Installation Instructions

To obtain the best performance and to avoid damage to your boat, install the Garmin® Thru-Hull transducer according to these instructions.

Read all installation instructions before proceeding with the installation. If you experience difficulty during the installation, contact Garmin Product Support.

Registering Your Device

Help us better support you by completing our online registration today.

- Go to <http://my.garmin.com>.
- Keep the original sales receipt, or a photocopy, in a safe place.

Contacting Garmin Product Support

- Go to www.garmin.com/support and click **Contact Support** for in-country support information.
- In the USA, call (913) 397.8200 or (800) 800.1020.
- In the UK, call 0808 2380000.
- In Europe, call +44 (0) 870.8501241.

Important Safety Information

WARNING

See the *Important Safety and Product Information* guide in the product box for product warnings and other important information.

The device must be installed with at least one of the included anti-rotation bolts. Failure to do so could result in the device rotating while the boat is moving and cause damage to your vessel.

You are responsible for the safe and prudent operation of your vessel. Sonar is a tool that enhances your awareness of the water beneath your boat. It does not relieve you of the responsibility of observing the water around your boat as you navigate.

CAUTION

Failure to install and maintain this equipment in accordance with these instructions could result in damage or injury.

Always wear safety goggles, ear protection, and a dust mask when drilling, cutting, or sanding.

NOTICE

When drilling or cutting, always check what is on the opposite side of the surface.

This equipment must be installed by a qualified marine installer.

Loading the New Software on a Memory Card

You must copy the software update to a memory card.

- 1 Insert a memory card into the card slot on the computer.
- 2 Go to www.garmin.com/support/software/marine.html.
- 3 Select **Download** next to "Garmin Marine Network with SD card".
- 4 Read and agree to the terms.
- 5 Select **Download**.

- 6 If necessary, select **Run** or save and open the file.
- 7 If necessary, select the drive associated with the memory card, and select **Next** > **Finish**.

Updating the Device Software

Before you can update the software, you must obtain a software-update memory card or load the latest software onto a memory card.

- 1 Turn on the chartplotter.
- 2 After the home screen appears, insert the memory card into the card slot.

NOTE: In order for the software update instructions to appear, the device must be fully booted before the card is inserted.

- 3 Follow the on-screen instructions.
- 4 Wait several minutes while the software update process completes.

The device returns to normal operation after the software update process is complete.

- 5 Remove the memory card.

NOTE: If the memory card is removed before the device restarts fully, the software update is not complete.

Tools Needed

- Drill
- 3 mm bit ($\frac{1}{8}$ in.)
- 9 mm bit ($\frac{3}{8}$ in.)
- 13 mm bit ($\frac{1}{2}$ in.)
- 25 mm spade bit (1 in.)
- 32 mm spade bit ($1\frac{1}{4}$ in.)
- Bandsaw or table saw
- Slip-joint pliers or adjustable wrench
- Masking tape
- Marine sealant
- Casting epoxy (cored fiberglass hull)

About the Transducer

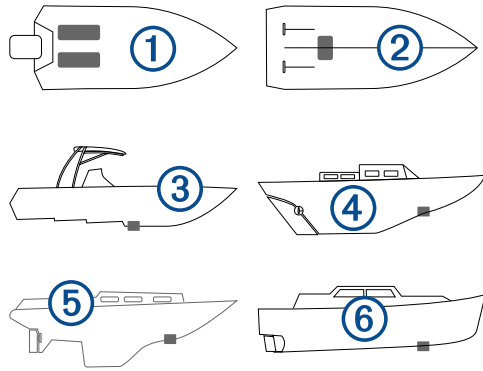
The transducer transmits and receives sound waves through the water, and relays sound-wave information to your Garmin sonar device.

Fairing Block

A fairing block positions your device parallel to the water line for increased sonar accuracy. If the deadrise angle of your mounting location exceeds 5°, you should use a fairing block to mount the device.

Installing a Thru-Hull Transducer with a Fairing Block

Optimal Mounting Locations and Considerations



- On outboard and sterndrive vessels ①, the transducer should be mounted in front of and close to the engine or engines.
- On inboard vessels ②, the transducer should be mounted in front of and far away from the engine propeller and shaft.
- On step-hull vessels ③, the transducer should be mounted in front of the first step.
- On full-keel vessels ④, the transducer should be mounted far away from the keel, at the lowest deadrise point.
- On fin-keel vessels ⑤, the transducer should be mounted in front of the keel and to the side of the centerline.
- On vessels with displacement hulls ⑥, the transducer should be mounted approximately $\frac{1}{3}$ of the waterline length of the vessel and 150 to 300 mm (6 to 12 in.) off of the centerline, on the same side of the hull where the propeller blades move downward.
- The transducer should be mounted parallel to the bow-stern axis of your vessel.
- The transducer should not be mounted behind strakes, struts, fittings, water intake or discharge ports, or anything that creates air bubbles or causes the water to become turbulent.

The transducer must be in clean (non-turbulent) water for optimal performance.

- The transducer should not be mounted in a location where it might be jarred when launching, hauling, or storing.
- On single-drive boats, the transducer must not be mounted in the path of the propeller.

The transducer can cause cavitation that can degrade the performance of the boat and damage the propeller.

- On twin-drive boats, the transducer should be mounted between the drives, if possible.

Drilling the Transducer Stem Hole in a Non-Cored Hull

You should follow these instructions when you are using a fairing block to mount the transducer on a boat that does not have a cored fiberglass hull.

- 1 Check whether the mounting location has an irregular surface or nearby obstructions.
- 2 Select an option:
 - If the mounting surface has no irregularities or obstructions, drill a 3 mm ($\frac{1}{8}$ in.) pilot hole perpendicular to the water line from inside the hull.
 - If the mounting surface has irregularities or nearby obstructions, drill a 3 mm ($\frac{1}{8}$ in.) pilot hole perpendicular to the water line from outside the hull.

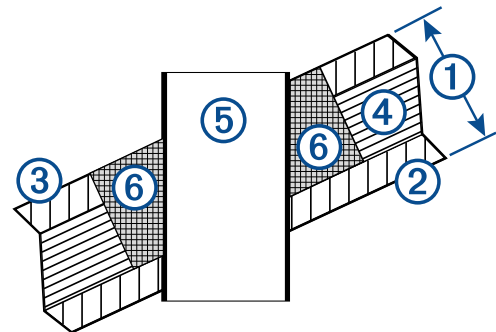
- 3 If the vessel has a fiberglass hull, place masking tape over the pilot hole and surrounding area outside the hull to prevent damage to the fiberglass.
- 4 If you taped over the pilot hole, use a utility knife to cut out the hole in the tape.
- 5 While holding a 25 mm (1 in.) spade bit plumb, cut a hole from outside the hull.
The hole must be perpendicular to the water surface.
- 6 Sand and clean the area around the hole.

Drilling the Transducer Stem Hole in a Cored Fiberglass Hull

The hull and core must be cut and sealed carefully to protect against water seepage.

NOTE: When cutting a hole from inside the hull through the inner skin and core, you must apply light pressure to the hole saw to avoid accidentally cutting the outer skin.

- 1 Check whether the mounting location has an irregular surface or nearby obstructions.
- 2 Select an option:
 - If the mounting surface has no irregularities or obstructions, drill a 3 mm ($\frac{1}{8}$ in.) pilot hole perpendicular to the water line from inside the hull ①.
 - If the mounting surface has irregularities or nearby obstructions, drill a 3 mm ($\frac{1}{8}$ in.) pilot hole perpendicular to the water line from outside the hull.



- 3 Place masking tape over the pilot hole and surrounding area outside the hull to prevent damage to the fiberglass.
- 4 While holding a 25 mm (1 in.) spade bit plumb, cut a hole from outside the hull through the outer skin ② only.
The hole must be perpendicular to the water surface.
- 5 While holding a 32 mm ($1\frac{1}{4}$ in.) spade bit plumb, apply a light pressure to cut a hole from inside the hull through the inner skin ③ and most of the core ④.
The drill must be perpendicular to the hull.
- 6 Remove the plug ⑤ of core material.
- 7 Sand and clean the inner skin, core, and outer skin around hole.
- 8 Seal the exposed inner skin and core with epoxy ⑥.
- 9 Allow the epoxy to set.

Cutting the Fairing Block

⚠ CAUTION

Always wear safety goggles, ear protection, and a dust mask when drilling, cutting, or sanding.

- 1 Measure the deadrise angle of the hull at the mounting location.
- 2 Tilt your band saw table to match the deadrise angle and secure the cutting fence.

- 3 Position the fairing block on the table so the cutting guide rests against the fence and the angle matches the angle of the mounting location.
- 4 Adjust the cutting fence to ensure the fairing block has a minimum thickness of 13 mm ($1/2$ in.).
- 5 Cut the fairing block.
NOTE: The maximum cutting angle of the fairing block is 25°.
- 6 Using a rasp or power tool, shape the fairing block to the hull as precisely as possible.
- 7 Insert the transducer into the fairing block and verify the transducer is flush with the fairing block.
- 8 Use the remaining section of the fairing block as the backing block.

Drilling Anti-Rotation Bolt Holes in a Non-Cored Hull

Before you drill holes for the anti-rotation bolts, you must drill a hole for the transducer stem ([Drilling the Transducer Stem Hole in a Non-Cored Hull](#)) and you must cut the fairing block ([Cutting the Fairing Block](#)).

WARNING

The device must be installed with at least one of the included anti-rotation bolts. Failure to do so could result in the device rotating while the boat is moving and cause damage to your vessel.

- 1 If the anti-rotation bolts are installed on your transducer, remove them.
- 2 Dry assemble the transducer and cut fairing block.
- 3 Insert the transducer into the mounting hole.
The fairing block and transducer must be parallel to the keel.
- 4 Using the transducer as a template, mark holes on the hull for the anti-rotation bolts.
- 5 Remove the transducer from the mounting hole.
- 6 Using an 9 mm ($3/8$ in.) bit, drill holes through the hull.
- 7 Sand and clean the area inside and outside the holes.

Drilling the Anti-Rotation Bolt Holes in a Cored Fiberglass Hull

Before you drill holes for the anti-rotation bolts, you must drill the hole for the transducer stem ([Drilling the Transducer Stem Hole in a Cored Fiberglass Hull](#)) and you must cut the fairing ([Cutting the Fairing Block](#)).

WARNING

The device must be installed with at least one of the included anti-rotation bolts. Failure to do so could result in the device rotating while the boat is moving and cause damage to your vessel.

NOTE: When cutting a hole from inside the hull through the inner skin and core, you must apply light pressure to the hole saw to avoid accidentally cutting the outer skin.

The core must be cut and sealed carefully to protect against water seepage.

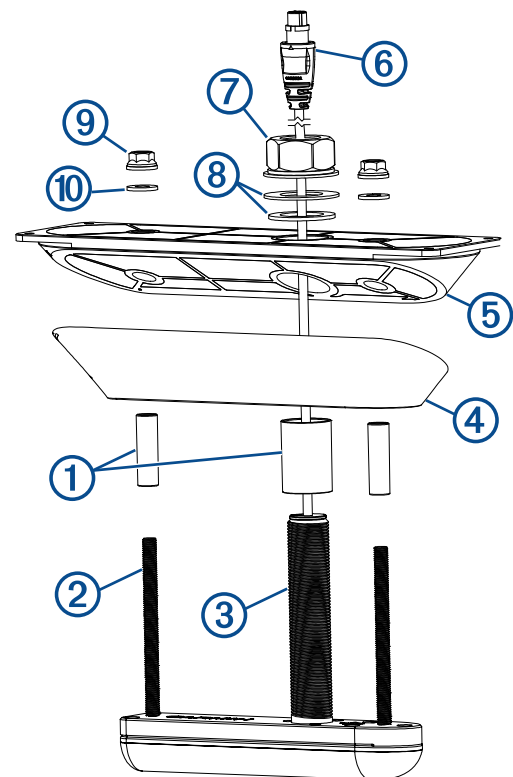
- 1 If the anti-rotation bolts are installed on your transducer, remove them.
- 2 Dry assemble the transducer and cut fairing block.
- 3 Insert the transducer into the mounting hole.
The fairing and transducer must be parallel to the keel.
- 4 Using the transducer as a template, mark holes on the hull for the anti-rotation bolts.
- 5 Remove the transducer from the mounting hole.

- 6 While holding a drill with an 9 mm ($3/8$ in.) bit, drill a hole from outside the hull through the outer skin only.
Hold the drill plum to make certain the hole is perpendicular to the water surface.
- 7 While holding a drill with a 13 mm ($1/2$ in.) bit, apply a light pressure to drill a hole from inside the hull through the inner skin and most of the core.
The drill must perpendicular to the hull.
- 8 Remove the plug of core material.
- 9 Sand and clean the inner skin, core, and outer skin around hole.
- 10 Seal the exposed inner skin and core with epoxy.
- 11 Allow the epoxy to set.

Installing the Transducer with a Fairing Block

NOTE: When installing the transducer in a cored fiberglass hull, avoid over-tightening the nuts to prevent damaging the hull.

- 1 Secure the bushings ① to the anti-rotation bolts ② and transducer stem ③.



- 2 Apply marine sealant to the bushings, transducer stem, and anti-rotation bolts.
- 3 Seat the transducer housing firmly within the fairing block ④ recess.
- 4 Apply marine sealant to the side of the fairing block that must contact the hull.
- 5 Apply marine sealant to the side of the backing block ⑤ that must contact the hull.
- 6 From outside the hull, insert the transducer cable ⑥ and transducer housing through the mounting hole.
- 7 From inside the hull, slide the backing block onto the transducer and seat it firmly against the hull.
- 8 Apply the included anti-seize compound to the exposed transducer stem and anti-rotation bolts.
- 9 Using slip-joint pliers, secure the backing block to the transducer stem with the included 35 mm hull nut ⑦, the nylon 26 mm washer, and the rubber 24 mm washer ⑧.

- 10 Using slip-joint pliers, secure the backing block to the anti-rotation bolts with the included M8 nuts ⑨ and 8 mm washers ⑩.
- 11 Remove all excess sealant on the outside of the fairing block and exterior hull to ensure smooth water flow over the transducer.

Installing a Thru-Hull Transducer without a Fairing Block

If the deadrise angle of your mounting location does not exceed 5°, you do not need to use a fairing block to mount the device.

Drilling the Transducer Stem and Anti-Rotation Bolt Holes Using a Template

⚠ WARNING

The device must be installed with at least one of the included anti-rotation bolts. Failure to do so could result in the device rotating while the boat is moving and cause damage to your vessel.

You should follow these instructions if you are not using a fairing block to mount your transducer.

- 1 Trim the included transducer template.
- 2 Check whether the mounting location has an irregular surface or nearby obstructions.
- 3 Select an option:
 - If the mounting surface has no irregularities or obstructions, make sure the template fits the mounting location on the outside of the hull and tape the template to the mounting location.
 - If the mounting surface has irregularities or nearby obstructions, or if the template doesn't fit the mounting location, select a new mounting location and repeat steps 2 and 3.
- 4 Drill a 3 mm ($\frac{1}{8}$ in.) pilot hole through the marked area on the template for the transducer stem from outside the hull.
- 5 While holding a 25 mm (1 in.) spade bit plumb, cut the transducer stem hole from outside the hull.
The hole must be perpendicular to the water surface.
- 6 While holding a drill with an 9 mm ($\frac{3}{8}$ in.) bit plumb, drill the anti-rotation bolt holes through the template from outside the hull.
The holes must be perpendicular to the water surface.
- 7 Remove the template from the mounting location.
- 8 Sand and clean the area around the hole.

Installing the Transducer without a Fairing Block

NOTE: When installing a transducer in an aluminum or steel hull, you must use the included isolation plate.

NOTE: When installing a transducer in a cored fiberglass hull, avoid over-tightening the nuts to prevent damaging the hull.

- 1 If you are mounting the transducer in an aluminum or steel hull, seat the isolation plate firmly against the transducer.
- 2 Select an option:
 - If you are mounting the transducer in an aluminum or steel hull, apply marine sealant to the transducer stem, anti-rotation bolts, and side of the isolation plate that must contact the hull.
 - If you are not mounting the transducer in an aluminum or steel hull, apply marine sealant to the transducer stem, anti-rotation bolts, and side of the transducer plate that must contact the hull.
- 3 From outside the hull, insert the transducer through the mounting hole and seat it firmly against the hull.

- 4 Apply the included anti-seize compound to the exposed transducer stem and anti-rotation bolts.
- 5 From inside the hull, use slip-joint pliers to secure the included 35 mm hull nut, 26 mm nylon washer, and 24 mm rubber washer to the transducer stem.
- 6 From inside the hull, use slip-joint pliers to secure the included M8 nuts and 8 mm nylon washers to the anti-rotation bolts.
- 7 Remove all excess sealant on the outside of the exterior hull to ensure smooth water flow over the transducer.

Connecting a Pair of Transducers

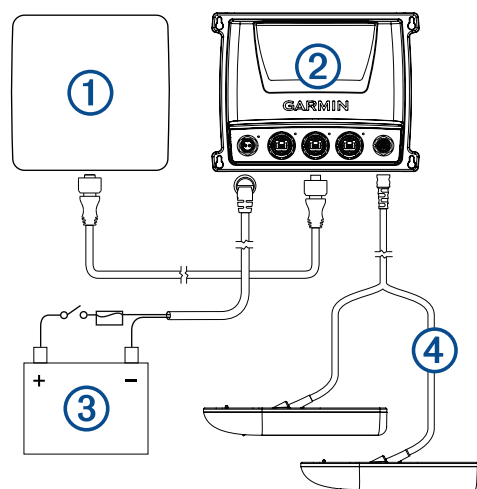
Before you connect a pair of transducers, you must complete all other installation instructions.

You can connect a pair of transducers to the sounder.

- 1 Connect each transducer cable into one of the split cable ends of the included Y-cable.
- 2 Connect the remaining Y-cable end to your sounder.

Installation Diagram

You can use this diagram to identify the connection points from your transducers to the network, power, and sounder using the Y-cable.



Item	Description
①	Chartplotter
②	Sounder
③	Power Source
④	Y-cable

Maintenance

Testing the Installation

NOTICE

You should check your boat for leaks before you leave it in the water for an extended period of time.

Because water is necessary to carry the sonar signal, the transducer must be in the water to work properly. You cannot get a depth or distance reading when out of the water. When you place your boat in the water, check for leaks around any screw holes that were added below the water line.

Anti-Fouling Paint

To prevent corrosion on metal hulls and to slow the growth of organisms that can affect a vessel's performance and durability, you should apply a water-based anti-fouling paint to the hull of your vessel every six months.

NOTE: Never apply ketone-based anti-fouling paint to your vessel, because ketones attack many types of plastic and could damage or destroy your transducer.

Cleaning the Transducer

Aquatic fouling accumulates quickly and can reduce your device's performance.

- 1** Remove the fouling with a soft cloth and mild detergent.
- 2** If the fouling is severe, use a scouring pad or putty knife to remove growth.
- 3** Wipe the device dry.

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