

OWNER'S GUIDE & INSTALLATION INSTRUCTIONS

Transom Mount with Integrated Release Bracket

TRIDUCER® Multisensor
Smart™ Sensor

Model: P39

Patent <http://www.airmar.com/patent.html>

04/08/19 17-297-01-rev.5

Follow the precautions below for optimal product performance and to reduce the risk of property damage, personal injury, and/or death.

WARNING: Always wear safety glasses, a dust mask, and ear protection when installing.

WARNING: When the boat is placed in the water, immediately check for leaks around the screws and any other holes drilled in the hull.

CAUTION: Never pull, carry, or hold the sensor by the cable as this may sever internal connections.

CAUTION: Never strike the transducer with anything except the palm of the hand. Never strike the paddlewheel.

CAUTION: The bracket protects the sensor from frontal impact only.

CAUTION: Never use solvents. Cleaner, fuel, sealant, paint and other products may contain solvents that can damage plastic parts, especially the transducer's face.

IMPORTANT: Please read the instructions completely before proceeding with the installation. These instructions supersede any other instructions in your instrument manual if they differ.

Applications

- Recommended for boats up to 7m (22') long
- Not recommended for boats with inboard engine(s).
- Not recommended for a stepped hull
- Adjusts to *transom* angles from 3°–20°
- Vertically orients sound beam on hull with *deadrise* angle up to 28°
- Good operation up to 44kn (50MPH)

Tools & Materials

- Safety glasses
- Dust mask
- Ear protection
- Pencil
- Electric drill
- Drill bits and hole saws:
 - Bracket holes 4mm, #23, or 9/64"
 - Transom hole (optional) 2mm or 1/16" larger than connector Ø
 - Cable clamp holes 3mm or 1/8"
- Masking tape
- Angle finder
- Grommets (some installations)
- Marine sealant (suitable for below waterline)
- Screwdrivers
- Straight edge
- Cable ties
- Water-based anti-fouling paint (mandatory in salt water)

Record the information found on the cable tag for future reference.

Part No. _____ Date _____ Frequency _____ kHz



Pretest Speed & Temperature Functions

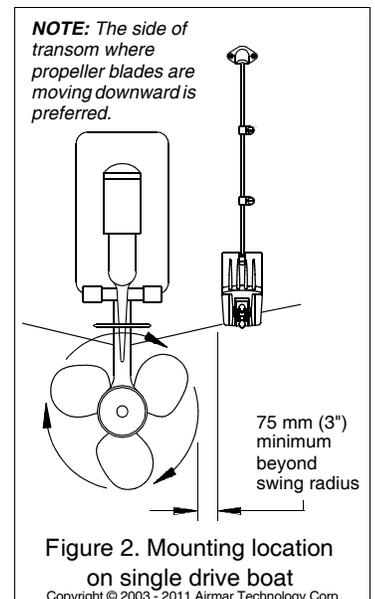
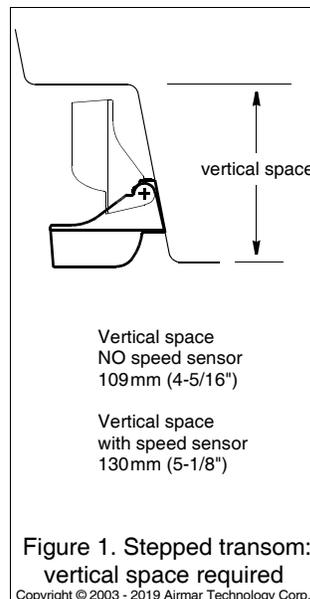
Connect the sensor to the instrument and spin the paddlewheel. Check for a speed reading and the approximate air temperature. If there is no reading(s) or it is inaccurate, check the connections and repeat the test. If there is still no reading(s) or it is inaccurate, return the product to your place of purchase.

Mounting Location

CAUTION: Do not mount the sensor in line with or near water intake or discharge openings; or behind strakes, struts, fittings, or hull irregularities that will disturb the water flow.

CAUTION: Do not mount the sensor in a location where the boat may be supported during trailering, launching, hauling, or storage.

- For the best performance, the sensor must be in contact with smooth water. To identify an area of "clean" water, observe the water flow off the transom while the boat is underway.
- Allow vertical space above the bracket for it to release and rotate the sensor upward (Figure 1).
- Mounting the sensor on the side of the transom where the propeller blades are moving downward is preferred (Figure 2).
- Mount the sensor as close to the centerline (keel) of the boat as possible to ensure the transducer's face remains in the water when the boat is turning.
 - **Single drive boat**—Mount the sensor at least 75mm (3") beyond the swing radius of the propeller.
 - **Twin drive boat**—Mount the sensor between the drives.



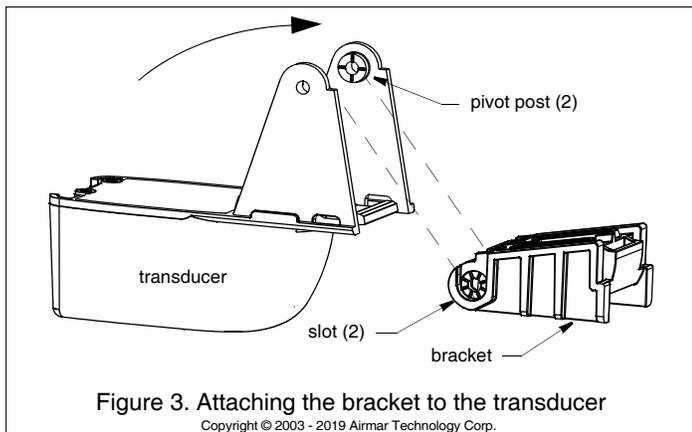


Figure 3. Attaching the bracket to the transducer
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- **Trim tabs**—Mount the sensor inside the trim tab, space permitting.
- **Stepped transom**—Mount the sensor on the lowest step being sure there is enough space above the bracket for it to release and rotate the sensor upward (Figure 1).

Installation

Attaching the Bracket to the Transducer

1. Insert the transducer's pivot posts into the slots in the back of the bracket (Figure 3).
2. With the screw holes aligned, rotate the transducer until it snaps onto the bracket.

Hole Drilling

CAUTION: To prevent drilling too deeply, wrap masking tape around the bit 22mm (7/8") from the point.

NOTE: Fiberglass hull—Minimize surface cracking by running the drill in reverse until the gelcoat is penetrated.

1. At the selected location position the transducer, so it projects 3mm (1/8") below the bottom edge of the transom (Figure 4).
2. Be sure the bottom of the transducer is parallel to the waterline. Using a pencil, trace the bottom of the bracket and both corners onto the hull.
3. Remove the transducer and hold the shim against the outline you have drawn. Mark the screw holes with an "X" in the center of each slot.
4. Using a 4mm, #23, or 9/64" drill bit, drill two holes 22mm (7/8") deep at the marked locations.

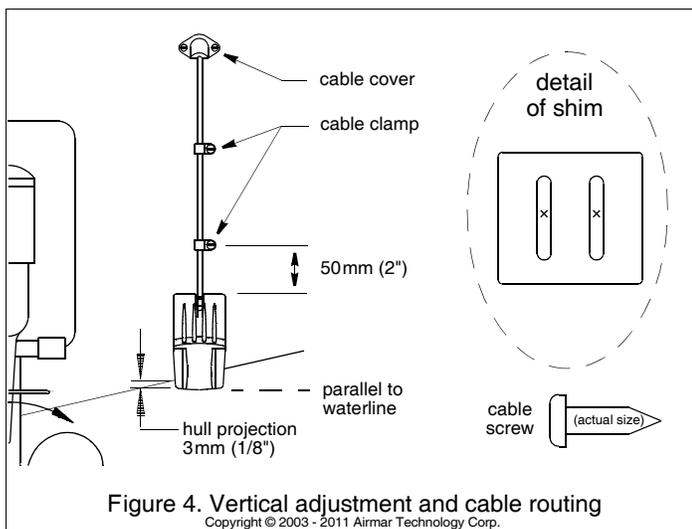


Figure 4. Vertical adjustment and cable routing
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Compensating for Transom Angle: Shim

For the best performance, the transducer beam must be aimed straight at the bottom. Since the transom of most boats is angled, the bracket must compensate for it. Measure the transom angle of the boat with an angle finder.

CAUTION: For boats capable of speeds above 20kn (28MPH)—The trailing edge of the sensor must be deeper in the water than the leading edge. This will ensure that the paddlewheel is in contact with the water at high speeds.

- **Standard transom (12° transom angle)**—The bracket is designed for a standard 12° transom angle. The shim is *not* needed for this installation. Go to "Mounting the Bracket."
- **Stepped transom and jet boats (3° transom angle)**—Use the shim with the taper *down*. Place the nuts in the slots in the back of the bracket (Figure 5). Snap the shim into place.
- **Small aluminum and fiberglass boats (20° transom angle)**—Use the shim with the taper *up* (Figure 5). Place the nuts in the slots in the back of the bracket. Snap the shim into place.
- **If you are unsure about using the shim**—Experiment with the shim by following the instructions "Mounting the Bracket" and "Checking the Sensor Angle and Projection."

Mounting the Bracket

1. Insert the two, lock nuts in the slots in the back of the bracket if this has not been done (Figure 5).
2. Apply marine sealant to the threads of the two, #10 x 1-3/4", self-tapping screws supplied to prevent water seepage into the transom.
3. Screw the bracket (with the shim if needed) to the hull. *Do not tighten the screws at this time.*

Checking the Sensor Angle & Projection

CAUTION: Do not position the leading edge of the sensor deeper in the water than the trailing edge because aeration will occur.

CAUTION: Do not position the sensor deeper into the water than necessary to avoid increasing drag, spray, and water noise and reducing boat speed.

1. Using a straight edge, sight the underside of the sensor relative to the underside of the hull (Figure 6). The trailing edge of the sensor should be 1–3mm (1/16–1/8") below the leading edge or parallel to the bottom of the hull.

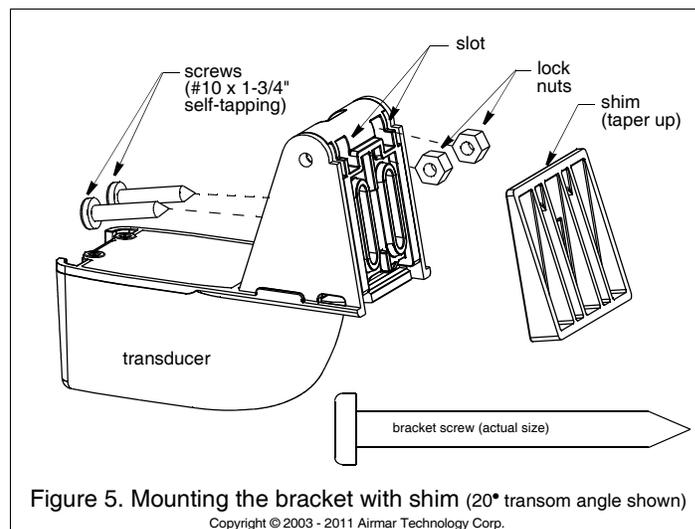
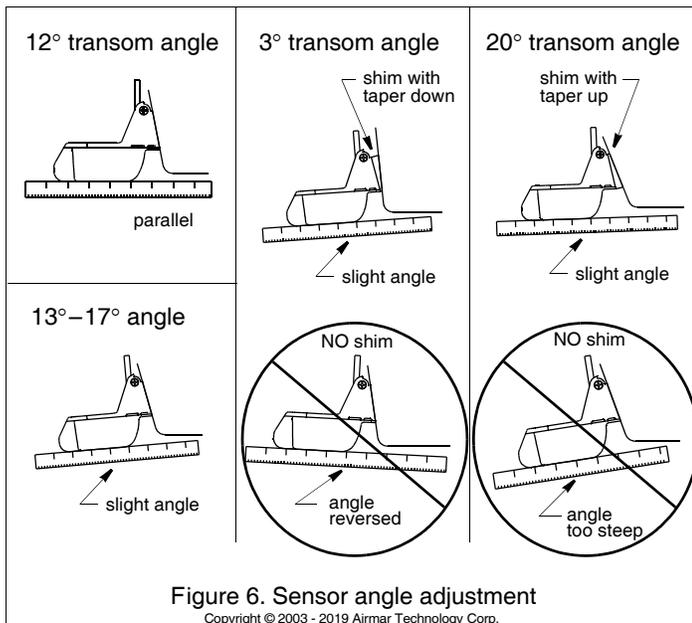


Figure 5. Mounting the bracket with shim (20° transom angle shown)
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- Using the vertical adjustment space in the bracket slots, slide the sensor up or down (Figure 4). Be sure the bottom left corner of the sensor projections 3mm (1/8") below the bottom of the hull.
- When you are satisfied with the position of the sensor, *tighten the bracket screws*.

Attaching the Cover & Speed Sensor or Blank

- Place the cover on the transducer (Figure 7). Align the holes in the cover with the holes in the transducer and bracket.
With speed sensor—Be sure the tab on the cover fits under the speed sensor. This will help to lock the cover in place.
- Insert the two machine screws capturing the nuts in the slots in the back of the bracket. Tighten the machine screws until the transducer will stay in the "up" (released) position unaided.
- No speed sensor**—Insert the side rails of the blank into the channels on the back of the transducer. Slide the blank downward. Fasten it in place with the two, #6 x 5/8", self-tapping screws. *Be sure to capture the tab on the cover*. This will help to lock the cover in place.
With speed sensor—Fasten the speed sensor to the transducer with the two, #6 x 5/8", self-tapping screws.

Testing on the Water

- Become familiar with your echosounder's performance at a speed of 4kn (5MPH).
- Gradually increase the boat speed and observe the gradual decline in performance due to turbulent water flowing under the transducer's face.
- If the decline in performance is sudden (not gradual), identify the boat speed at which the onset occurred. Return the boat to this speed, then gradually increase speed while making moderate turns in both directions.
- If the performance improves while turning to the side on which the sensor is installed, the transducer's position probably needs adjustment. The transducer is probably in turbulent or aerated water.

To improve performance, try the following one at a time in the order given, in small increments.

- Increase the sensor's angle in the water. Review "Compensating for Transom Angle: Shim" and see Figure 6.
- Move the sensor deeper into the water in increments of 3mm (1/8") (Figure 4).
- Move the sensor closer to the centerline of the boat. Fill unused screw holes with marine sealant.

NOTE: High-speed operation [above 35kn (40MPH)] may require less projection in the water to improve performance and reduce the chance that water pressure will cause the bracket to release. Move the sensor upward on the transom.

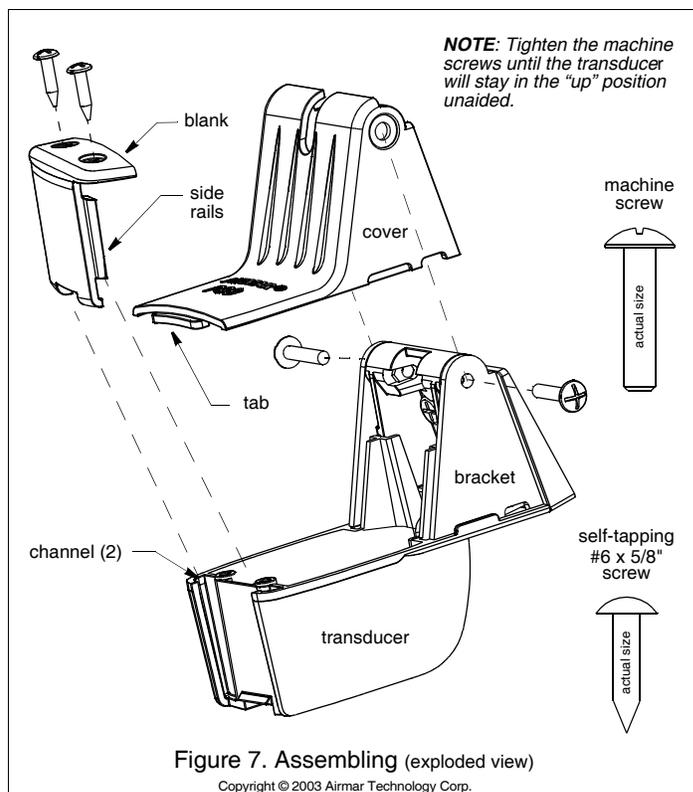
- Calibration**—To match the speed shown on the display to the actual speed of the boat, you may need to calibrate the instrument. Refer to your instrument owner's manual.

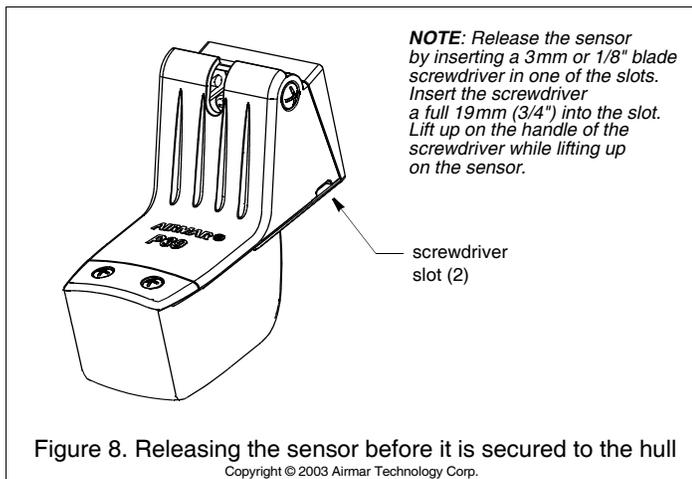
Cable Routing & Connecting

CAUTION: Do not remove the connector to ease cable routing. If the cable must be cut and spliced, use Airmar's splash-proof Junction Box No. 33-035 and follow the instructions provided. Removing the waterproof connector or cutting the cable, except when using a water-tight junction box, will void the sensor warranty.

Route the sensor cable over the transom, through a drain hole, or through a new hole drilled in the transom **above the waterline**.

- If a hole must be drilled through the transom, choose a location **well above the waterline** (Figure 4). Check for obstructions such as trim tabs, pumps, or wiring inside the hull. Mark the location with a pencil. Drill a hole using the appropriate size bit to accommodate the connector.
- Route the cable over or through the transom.
- On the outside of the hull, secure the cable against the transom using the cable clamps. Position a cable clamp 50mm (2") above the bracket and mark the mounting hole with a pencil.
- Position the second cable clamp halfway between the first clamp and the cable hole. Mark this mounting hole.
- If a hole has been drilled in the transom, open the appropriate slot in the cable cover. Position the cover over the cable where it enters the hull. Mark the two mounting holes.
- At each of the marked locations, use a 3mm or 1/8" bit to drill a hole 10mm (3/8") deep.
- Apply marine sealant to the threads of the #6 x 1/2" self-tapping screws to prevent water from seeping into the transom. If you have drilled a hole through the transom, apply marine sealant to the space around the cable where it passes through the transom.





8. Position the two cable clamps and fasten them in place. If used, push the cable cover over the cable and screw it in place.
9. Route the cable to the instrument being careful not to tear the cable jacket when passing it through the bulkhead(s) and other parts of the boat. Use grommets to prevent chaffing. To reduce electrical interference, separate the sensor cable from other electrical wiring and the engine(s). Coil any excess cable and secure it in place with cable ties to prevent damage.
10. Refer to your echosounder owner's manual to connect the sensor to the instrument.

Checking for Leaks

When the boat is placed in the water, **immediately** check for leaks around the screws and any other holes drilled in the hull. Note that very small leaks may not be readily observed. Do not leave the boat in the water unchecked for more than three hours.

Operation & Maintenance

Releasing the Sensor

CAUTION: The screwdriver used to release the sensor must have a blade no more than 3mm or 1/8" wide. Only a small blade can be inserted far enough into the sensor. A larger screwdriver will damage the sensor's housing.

- **Before installation**—If the sensor is snapped onto the bracket but not secured to the hull, use this method. Release the sensor upward by inserting a 3mm or 1/8" blade screwdriver into one of the slots on the side of the sensor (Figure 8). Be sure to insert the screwdriver a full 19mm (3/4") into the slot. Lift up on the handle of the screwdriver while lifting up on the sensor.
- **After installation**—The sensor releases easily when it is fastened to the hull. Give a sharp blow to the bottom of the transducer using the *palm of the hand*. Never strike the speed sensor.

Anti-fouling Paint

Surfaces exposed to salt water that *do not interlock*, must be coated with anti-fouling paint. Use **water-based** anti-fouling paint only. Never use ketone-based paint, since ketones can attack many types of plastic possibly causing damage to the transducer. Reapply paint every 6 months or at the beginning of each boating season.

Cleaning

Aquatic growth can accumulate rapidly on the sensor's surface reducing performance within weeks. Clean the transducer's face with a Scotch-Brite® scour pad and mild household detergent taking care to avoid making scratches. If the fouling is severe, lightly wet sand with fine grade wet/dry paper.

Servicing the Speed Sensor

CAUTION: The paddlewheel must be oriented correctly to measure boat speed.

If the paddlewheel becomes fouled or inoperable, it can be removed for cleaning. Remove the two screws from the speed sensor (Figure 9). Slide the speed sensor upward to remove it from the transducer. Grasp the paddlewheel and pull to access the shaft. After cleaning, slide the paddlewheel onto the shaft. *Orient the short side of the paddlewheel blades as shown on the side view.* Fit the shaft into the holes in the retaining bars. Slide the assembly into the speed sensor housing. Reattach the speed sensor.

Sensor Replacement & Parts

The information needed to order a replacement sensor is printed on the cable tag. Do not remove this tag. When ordering, specify the part number, date, and frequency in kHz. For convenient reference, record this information on the top of page one.

Lost, broken or worn parts should be replaced immediately. The water-lubricated paddlewheel bearings have a life of up to 5 years on low-speed boats [less than 10kn (11 MPH)] and 2 years on high-speed vessels. Some depth/temperature units can be upgraded by adding a speed sensor. Obtain parts from your instrument manufacturer or marine dealer.

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