

## Transducer Installation and Adjustment Manual

The transducer Transom/In-Hull Transducer is suitable for installation and operation on most boats. For optimal performance the transducer should be mounted to the transom of the boat as per the installation instructions. On fiberglass hulls (non-cored) and some aluminum hulls it can be glued to the inside of the hull, but this type of installation will reduce the performance of the depth sounder slightly.

Some boats may require a thru the hull transducer. If after completely reviewing the transducer installation instructions you find that the supplied transducer is not appropriate for your vessel, then this gauge and transducer is not appropriate for your boat.



### PARTS AND TOOLS LIST

Before installing the transducer, please ensure that the following parts are included:

- Transducer with 25' of Cable and Plug
- Transducer Support Bracket with Attached Kick-Up Bracket
- (2) Tapered Plastic Shims
- (2) Cable clamps
- Clam Shell Cable Cover
- (2) #10 x 1.25" self-tapping screws
- (2) #6 x .25" self-tapping screws

If any items are missing or damaged, please contact our Customer Service Department at 941-538-7775.

### Tools and Supplies Required for Installation

- Electric Drill
- 1/4" (6 mm) drill bit, hole saw or spade bit (cable thru-hull pass through)
- 1/8" (3mm) drill bit (cable clamp and clam shell cover mounting holes)
- 9/64" (4 mm) drill bit (Kick-Up Bracket mounting holes)
- Marine Sealant
- Straight Edge
- Screwdrivers
- Pencil
- Tie Wraps
- Water based antifouling paint (transom mount installation)
- Plastic Bag (in-hull installation)
- Petroleum Jelly (in-hull installation)
- 2 Part Epoxy Adhesive (in-hull installation)
- 30 Grit Sandpaper (in-hull installation)
- Safety Goggles
- Dust Mask
- Masking Tape

### TRANSOM MOUNTING THE TRANSDUCER

#### Does the Installation Vessel Have These Characteristics?

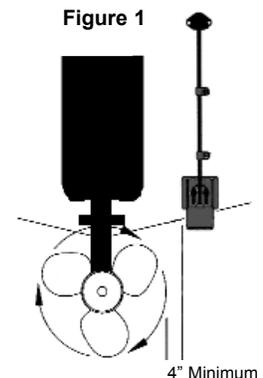
1. Outboard, inboard/outboard, single inboard, or jet-drive propulsion.
2. Hull deadrise angle below 30°.
3. Transom angle from 3-20°.

#### Mounting Location

To obtain the best performance, the transducer should be mounted in a location where the water flow is aeration and turbulence-free. Try to mount the transducer as close to the centerline of the boat as possible.

- On a single drive boat mount on the starboard side at least 4" (101 mm) beyond the radius of the propeller (see Figure 1 above).
- On a twin drive boat mount the transducer between the drives making certain that the Transducer's not directly in front of either drive or propeller.
- On an inboard boat mount the transducers far to the port or starboard as possible so that the propeller turbulence does not effect the performance of the sensor.

**IMPORTANT!!!!**  
*Install the transducer before installing the display to ensure that the transducer cable is long enough to reach your desired mounting location. If the transducer cable needs to be extended, please follow the instructions in the Troubleshooting Guide before starting the installation.*  
**Read ALL the instructions completely before proceeding with the installation.**



**NOTICE!!!!**  
**If the answer to any of these questions is no, skip to the In-Hull Mounting Instructions within this manual.**

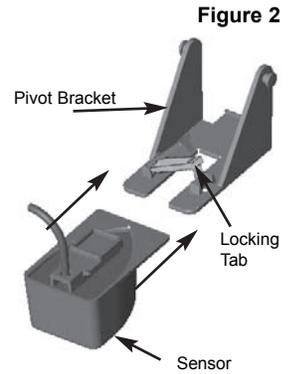
**CAUTION!!!!**  
*Do not mount the transducer in an area of turbulence or bubbles:*

- Near water intake or discharge openings.
- Behind strakes, struts, fittings or hull irregularities.
- Behind eroding paint, hull deformities, or marine growth

**Avoid mounting the transducer where the boat may be supported during trailering, launching, hauling, or storage.**

## Assembling and Mounting

1. With the Locking Tab in the up position, align the transducer and bracket as per Figure 2 and slide the transducer into the Pivot Bracket until it cannot slide any further. (minimal force is required)
2. Press the Locking Tab down against the Pivot Bracket until it locks firmly into place.
3. Tape the template inserted in this manual against the hull as per Figure 3.
4. At the desired mounting location, position the template so the arrow at the bottom is aligned with the bottom edge of the vessel making certain that the template is parallel to the waterline of the vessel.
5. Using a 9/64" (4 mm) drill bit, drill two holes 7/8" (22 mm) deep at the locations indicated on the template marked with an "X". To prevent drilling too deeply, wrap masking tape around the bit 7/8" (22 mm) from the point. To minimize surface cracking on fiberglass hulls use a chamfer or countersink bit. If either is not available, start drilling with a 1/4" (6 mm) bit to a depth of 1/16" (1 mm), then finish the hole with the 9/64" (4mm) bit.
6. Apply a marine sealant to the threads of the two #10 x 1-1/4" self-tapping screws and screw the bracket to the hull. DO NOT tighten the screws completely until you position the transducer as per the next section.



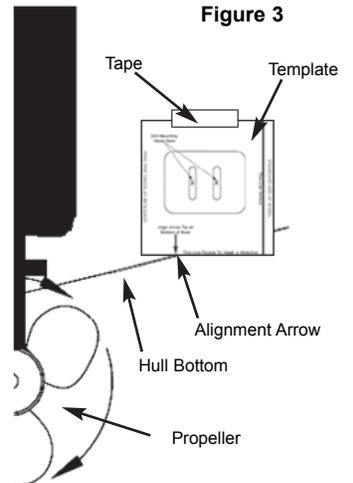
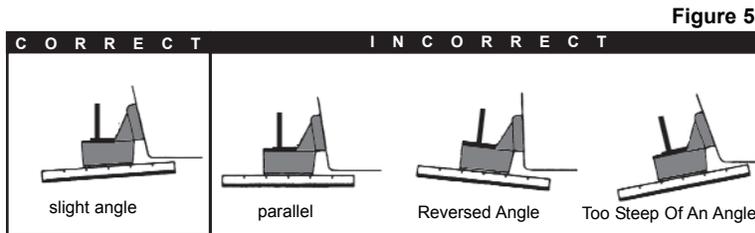
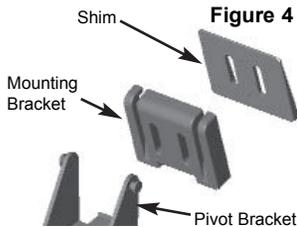
## Positioning

The bracket is designed for a standard 13° transom angle. To determine if the plastic shim is needed, position the transducer at the desired location. Using a straight edge, compare the underside of the transducer relative to the underside of the hull. The stern (trailing edge) of the transducer should be 1/16" – 1/8" (1 – 3 mm)

### IMPORTANT!!!!

Align the included shims (Figure 4) to achieve a slight angle as per Figure 5 below. To prevent aeration, NEVER position the transducer in a manner that the Leading Edge (bow) is LOWER than the Trailing Edge (stern).

below the bow (leading edge) of the sensor.



## Tightening

Slide the transducer up or down to provide a projection of 1/8" inches (3 mm) below the hull bottom and then tighten the screws.

### IMPORTANT!!!!

Do not allow the transducer to extend more than 1/8" (3 mm) of an inch below the bottom of the boat as this will create increased aeration and turbulence.

## Cable Routing

Route the transducer cable over the transom, through a deck or splash-well drain hole or through a new hole drilled in the transom.

1. If a new hole is required, it MUST be drilled well above the waterline.
2. Mark the desired location with a pencil
3. Check for obstructions behind the desired location inside the hull.
4. Drill a hole through the transom using a 3/4" or 19 mm hole saw or spade bit.
5. Route the cable over or through the transom.
6. On the outside of the hull secure the cable against the transom using the included cable clamps. Evenly distribute the clamps between the transducer and the location where the cable passes through or over the hull and mark the location with a pencil (Figure 6).
7. At the marked locations, use a 1/8" (3 mm) bit to drill a hole 3/8" (10 mm) deep. To prevent drilling too deeply, wrap masking tape around the bit 3/8"
8. Apply marine sealant to the threads of the 2 #6 x 1/2" self-tapping screws, position the two cable clamps and fasten them in place. (skip to #13 if the cable was routed over the transom or a hole that was already in the hull)
9. If a hole has been drilled in the transom position the clam shell cover over the cable where it enters the hull and mark the two screw holes.
10. Use a 3 mm or 1/8" bit to drill a hole 10 mm (3/8") deep. To prevent drilling too deeply, wrap masking tape around the bit 10 mm (3/8") from the point of the bit.
11. Fill the remaining space in the hole with marine sealant.
12. Apply marine sealant to the 2 #6 x 1/2" self-tapping screws and fasten the cable clam shell cover into place.
13. Route the cable to the depth sounder to the mounting location of the depth sounder. To reduce electrical interference, separate the transducer cable from other electrical wiring. Coil any excess cable and secure it in place using tie-wraps.
14. Refer to the depth sounder owner's manual to connect the transducer to the instrument.

Figure 6



## Checking for Leaks

### WARNING!!!!

When the boat is placed in the water, immediately check for leaks around the screws and any holes drilled in the hull. Never install a transducer and leave the boat in the water unchecked.

## Antifouling Paint

Marine growth can accumulate rapidly on the transducer's surface. If the vessel is left in saltwater for extended periods of time, all components of the transducer below the waterline must be painted with **WATER BASED** antifouling paint.

- Never use ketone-based paint, as this type of paint can damage to the transducer's plastic shell.
- Clear, spray on antifouling paints are very easy to apply and can be purchased from your local boating supply store.
- Reapply paint as needed to prevent marine growth.

## Testing

1. Become familiar with the depth sounders function and performance at idle speeds.
2. Gradually increase the boat speed and observe performance of the depth sounder.
4. If the performance improves when turning, the sensors position probably needs adjustment because it is in aerated water.
5. Move the transducer farther down on the transom.
6. If the performance does not improve, move the transducer closer to the centerline making sure to fill any unused screw holes with marine sealant.

### IMPORTANT!!!!

*High Speed performance of the depth sounder may require extensive adjustment and testing to find the best transducer mounting location. This transducer has been tested to perform up to 63 MPH in a transom mount application. Not all boat hull configuration will allow for this type of performance. If you are not satisfied with the performance of the depth sounder, it is recommended that you seek the advice of a professional marine electronics installer.*

## IN-HULL MOUNTING THE TRANSDUCER

### IMPORTANT!!!!

*Please read the instructions completely before proceeding with the installation.*

## Applications

- High Speed Boats to increase the performance of the depth sounder.
- Trailer boats to prevent accidental damage to the transducer from trailering.
- Shallow draft boats to prevent accidental damage to the transducer to from intentional or unintentional ground.
- **NON-CORED**, solid fiberglass hulls up to 2 inches thick or Aluminum Hulls thinner than 1/8th of an inch.

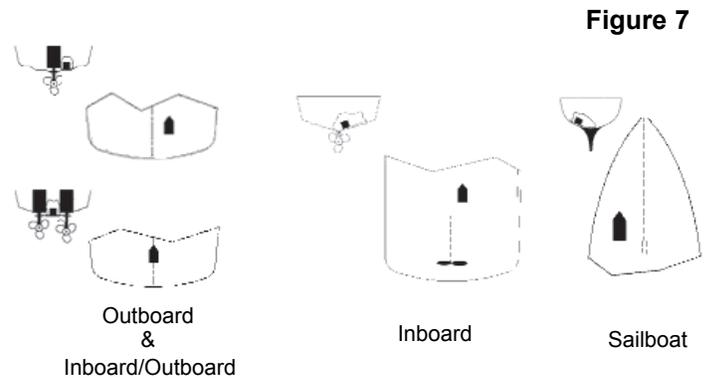
## Hull Material

Since the hull absorbs acoustic energy, transmitting through the hull reduces the transducers performance. Fiberglass hulls are often reinforced in places for added strength. These cored areas contain balsa wood or structural foam which are poor sound conductors. To achieve optimal performance, find a location where the hull laminate is solid (not cored).

## Location

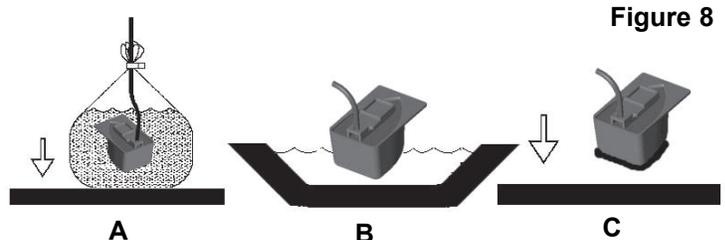
Consult the boat manufacturer for the best in-hull transducer placement. If this information is unavailable, follow the guidelines below and see Figure 7.

- Outboard powerboats - Install as close to the stern as possible
- Inboard / outboard powerboats - Install close to the engine(s)
- Inboard powerboats - Install forward of the propeller(s) and shaft(s)
- Sailboats - Install near the centerline of the hull and forward of the leading edge of the keel



## Testing at the Selected Location

- Place the boat into a body of water where the depth is generally known (you may also consider using a stick to hang the transducer over the side of the vessel to develop known depth readings).
- While the boat is anchored, use one of the methods below in Figure 8 to test the depth sounder with the transducer at the desired in-hull location.
- If the test readings noticeably differ from the known depth you will need to find another location.
- If the readings are similar mark the spot in the hull and proceed to Selecting the Adhesive.



### FIGURE 8A

- If the hull surface is not smooth, sand it with 30 grit sandpaper until a smooth surface is obtained. Partially fill a thin plastic bag with water, place the transducer inside and close it tightly with a tie wrap. Wet the surface of the hull and press the transducer face against it through the bag.

### FIGURE 8B

- If the transducer will be located in an area in the hull that holds water, place the transducer against the hull and allow bilge water to cover the surface where the transducer touches the hull.

### FIGURE 8C

- If the hull surface is not smooth, sand it with 30 grit sandpaper until a smooth surface is obtained. Coat the face of the transducer with petroleum jelly and press it against the hull with a twisting motion. Use duct tape to hold it in place.

### IMPORTANT!!!!

*If you do not get satisfactory depth readings, try different locations inside the hull. If you cannot obtain a satisfactory reading using these methods, you will not be able to mount the transducer in-hull on your vessel.*

## Selecting the Adhesive

Use a viscous slow-cure epoxy or a fairly rigid, one part adhesive sealant. In cold climates, a one-part polyurethane adhesive, such as Boat-Life's Life Seal, may be best. Do not use "5 minute" epoxies because they are generally brittle. RTV (silicone) adhesives (Weather Sealants, "Rubbery" Caulks, 3M 5200, etc) are not recommended because most of the sound energy is lost.

## Gluing In Place

1. All surfaces to be bonded must be smooth, clean and dry. If the hull surface is not smooth, sand it with 30 grit sandpaper until a smooth surface is obtained in an area a little larger in diameter than the length of the transducer.
2. Clean and dry both the selected area and the face of the transducer with a weak solvent to remove any dust, grease or oil.
3. Prepare the adhesive as per the directions supplied with the adhesive.
4. Apply a generous amount of adhesive to the center of the face of the transducer (side opposite from the cable).
5. Press the transducer face onto the hull with a twisting motion to expel all air bubbles. (If the hull is slanted, temporarily secure the transducer in place with duct tape.) Allow the adhesive to cure as per the manufacturer's instructions.
6. After the adhesive has cured, route the cable to the depth sounder mounting location. To reduce electrical interference, separate the transducer cable from other electrical wiring and coil and secure the excess cable in place using tie-wraps.

### WARNING!!!!

DO NOT glue the transducer in place until the location is tested as per the "Testing at the Selected Location" section in this manual.

## TROUBLESHOOTING GUIDE

### Helpful Hints for Transducer Installation (Transom Mounting)

1. Make sure the transducer is not mounted in any area where the water flow is interrupted by propeller turbulence or aerated water. If standing at eye level, behind the transducer and looking forward along the bottom of the boat hull there should NOT be any strakes, chines, steps, or hull fittings inline with the transducer. If there are any of these obstructions, the transducer will need to be relocated to achieve optimal performance. The transducer CAN NOT be transom mounted on a Stepped-Hull vessel, it must only be in-hull mounted.
2. Make sure that the leading edge (bow - side closest to the bow of the boat) of the transducer extends at least 1/8th (3 mm) below the bottom of the hull. Also make sure that the trailing edge (stern - side furthest from the bow of the boat) is 1/16th to 1/18th (1-3 mm) below the leading edge.

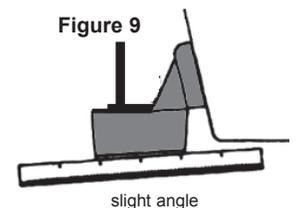
### Helpful Hints for Transducer Installation (In-Hull Mounting)

1. The hull must be made out of solid fiberglass or a maximum 1/8th (3 mm) aluminum. The unit will not work through wood, plastic, or any other composite material.
2. The glue in location must be in direct contact with the water at all times during operation. The transducer CAN NOT be mounted in any area where the water flow is interrupted by propeller turbulence or aerated water. It MUST NOT be mounted behind any strakes, chines, steps, or hull fittings that will disrupt the flow of clean water to the transducer (in line with the mounting location of the transducer and the bow of the boat). If there are any of these obstructions, the transducer will need to be relocated to achieve optimal performance.
3. If mounting in-hull on a stepped hull vessel, the transducer must be mounted in a location where there are no steps forward of the transducer (between the transducer mounting location and the bow of the boat). Keep in mind that the glue in location must be in direct contact with the water at all times during operation or incorrect depth readings will occur.

## The Transducer Cable Supplied with the Transducer is Too Short for My Installation, Can It Be Extended

YES: To extend the transducer cable:

1. Cut the cable on the transducer side 1 inch (28 mm) from the plug. If the depth sounder display also has a plug, you will need to cut this plug off as well.
2. At both cuts, strip back the rubber cable cover 1 inch (28 mm) exposing the three internal wires (blue, white, and bare).
3. Using a soldering iron, solder the desired length extension cable (available at a boating supply store) between the depth sounder display and the transducer. Be certain that the blue, white and bare wires are connected properly between the depth sounder display and the transducer and make sure the colors are consistently matched throughout the splice.
4. Using electrical tape, or heat shrink tubing make certain that the soldered connections are completely sealed and protected against accidental electrical interference.



**WARNING:** Disassembly of the electronic components within this unit may result in exposure to lead in the form of solder, which is known to the state of California to cause cancer, birth defects, and other reproductive harm.

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### Specifications

Sonar Beam Angle	20 Degrees
Sonar Frequency	200 KHZ
Transducer Cable Length	25 Feet (7.6 M)