

Depth Sounder Instructions-

Models: DFG + DFGAW

SELECTING THE PROPER TRANSDUCER INSTALLATION

The D10DX is available with either a Transom Mount (*D10DX.01T*) or a Plastic Thru Hull (*D10DX.06T*) Transducer.

The transom mount can also perform shoot-thru function.

The Transom Mount transducer (*D10DX.01T*) is suitable for the following vessels:

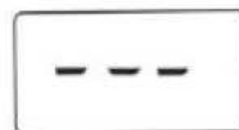
- Outboard, inboard/outboard, single inboard, or jet-drive propulsion.
- Hull dead rise angle below 30°.
- Transom angle from 3-20°.

The Thru Hull Transducer (*D10DX.06T*) is suitable for the following vessels:

- Outboard, inboard/outboard, single or dual inboard, or jet-drive propulsion.
- Hull dead rise angle below 20°.
- Fiberglass or Metal Hull Material. CANNOT be constructed of wood.
- Hull thickness LESS than 1.25" (32 mm)

GETTING TO KNOW YOUR DIGITAL DEPTH SOUNDER DEPTH

The unit's auto-ranging, auto-sensitivity features means that you never have to worry about adjustments. Simply turn the power on, and you're ready to go. The Depth Sounder emits sound signals that travel through water, and then calculates the amount of time that elapsed while the signal traveled down to the bottom and returned back to the transducer. This time is calculated by the microprocessor and displayed as a depth reading. Extremely dirty water, very soft bottom, high speeds, deep water, or a combination of the above will result in incomplete or inaccurate readings. Under these conditions variable readings or "- - -" will be displayed.



NOTICE:



This depth sounder has a non-volatile memory. ALL settings will be stored when the power is turned OFF.

DISPLAY MODE SELECTION


The unit has 3 user selectable modes:

- Depth Sounder
- Water Temperature
- Air Temperature



To Change the Mode:

1. Press the "UP" Button to change the mode to the Right (*The display will change modes from Depth to Water Temperature to Air Temperature*)
2. Press the "DOWN" Button to change the mode to the Left (*The display will change modes from Depth to Air Temperature to Water Temperature*)

NOTICE:	
	When a Temperature Mode is selected the Water or Air indicator will flash on the LCD for 5 seconds while the temperature is calculated.

SHALLOW WATER ALARM

The shallow alarm function can be set for depths ranging from 3 to 200 feet and triggers an alarm when the depth is less than the setting. You must be in the "Depth Sounder" mode to adjust this setting.

To set the **SHALLOW ALARM** (upper alarm):

1. Press and hold the "UP" and "DOWN" keys until the ▼ and ▲ indicators illuminate and the 🚨 icon blinks. (*approximately 3 seconds*).
2. Release the Keys.
3. Press the "UP" key to access the shallow water alarm setting. The 🚨 icon will illuminate and the ▲ indicator will blink.
4. Pressing the "UP" key will increase the selected value. Pressing the "DOWN" key will reduce the value.
5. Pressing and releasing the key will change the value in 1-foot increments per second.
6. Holding down the key will change the value in 9 foot increments per second.
7. After the desired setting is achieved, the display will return to normal operation after 5 seconds.
8. The ▲ and 🚨 indicators will now be illuminated to indicate that a shallow water alarm is set.



When triggered, the alarm sounds an audible buzzer for ten seconds while flashing the warning LED and the ▲ and 🚨 icons on the display. After 10 seconds, the audible alarm mutes and the warning LED and the ▲ and 🚨 icons continue to blink until the depth increases, or the alarm is reset. To reset the alarm repeat steps 1 thru 5.

DEEP WATER ALARM

The deep alarm function can be set for depths ranging from 3 to 200 feet and triggers an alarm when the depth is more than the setting. You must be in the "Depth Sounder" mode to adjust this setting.

To set the **DEEP ALARM** (lower alarm):

1. Press and hold the "UP" and "DOWN" keys until the ▼ and ▲ indicators illuminate and the 🚨 icon blinks. (approximately 3 seconds).
2. Release the Keys.
3. Press the "DOWN" key to access the deep water alarm setting. The 🚨 icon will illuminate and the ▼ indicator will blink.
4. Pressing the "UP" key will increase the selected value. Pressing the "DOWN" key will reduce the value.
5. Pressing and releasing the key will change the value in 1-foot increments per second.
6. Holding down the key will change the value in 9 foot increments per second.
7. After the desired setting is achieved, the display will return to normal operation after 5 seconds.
8. The ▼ and 🚨 indicators will now be illuminated to indicate that a deep water alarm is set.



When triggered, the alarm sounds an audible buzzer for ten seconds while flashing the warning LED and the ▼ and 🚨 icons on the display. After 10 seconds, the audible alarm mutes and the warning LED and the ▼ and 🚨 icons continue to blink until the depth increases, or the alarm is reset. To reset the alarm repeat steps 1 thru 5.

KEEL OFFSET

The Keel Offset feature is used to adjust the depth readings displayed by the device to compensate for the depth of the water required for your vessel to operate safe (typically referred to as your vessel's "Draft")



For Example: If your boat's draft is 3 feet, the Keel Offset feature should be set to 3 feet. The device will then subtract 3 feet from the actual depth reading and display this figure as the depth. If the water depth is 5 feet and the Keel Offset is set to 3 feet, the depth will be displayed as 2 feet, indicating to the operator that there is 2 feet of safe operating water.

The maximum Keel Offset setting is 20 FT (6.1 M), and can be set in .1 (1/10th) Feet or Meter increments. The unit will read "---" when a negative value occurs due to the Keel Offset subtraction.

To set the Keel Offset:

1. Press and hold the "UP" and "DOWN" keys until the K/O indicator begins to blink. (approximately 6 seconds).
2. Release the Keys.
3. Press the "UP" key to increase the Keel Offset value. Press the "DOWN" key to reduce the value.
4. The display will return to the normal operation mode after five seconds if no keys are pressed.
5. "K/O" will remain illuminated in the top left hand corner indicating that the depth readings are adjusted to the Keel Offset setting.



UNITS OF MEASURE

The units of measure for the depth readout and alarm functions can be set in 4 easy steps. The two settings available are Feet (FT) and Meters (M). You must be in the "Depth Sounder" mode to adjust this setting.

To Set the Units of Measure:

1. Press and hold the "UP" and "DOWN" keys until the current unit of measure begins to blink. (approximately 8 seconds).
2. Release the Keys.
3. To set the units to FEET press the "UP" key. "FT" will flash on the Display.
4. To set the units to METERS press the "DOWN" key. "M" will flash on the Display.
5. The display will return to the normal operation mode automatically after five seconds.



IMPORTANT:



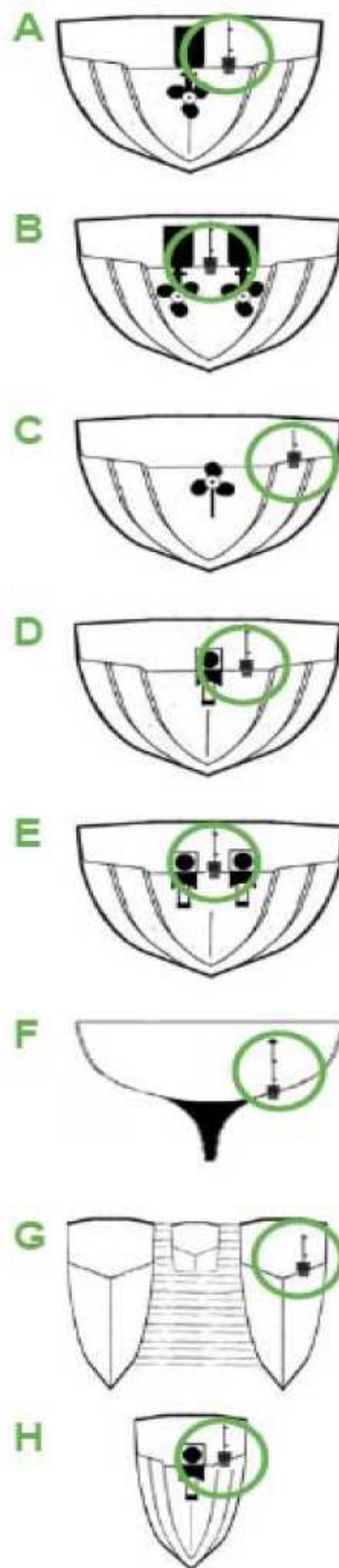
Install and test the display in the desired mounting location before attempting the transducer installation.

STEP 1

Choosing a Mounting Location

To obtain the best performance, the transducer should be mounted in a location where the water flow beneath the hull is aeration and turbulence-free. Try to mount the transducer as close to the centerline of the boat as possible. Consult the boat manufacturer for the best in-hull transducer placement. If this information is unavailable, follow the guidelines below.

- A.** On a single drive outboard or inboard/outboard boat, mount on the starboard side at least 4" beyond the radius of the propeller.
- B.** On a twin outboard or inboard/outboard boat, mount between the drives, making certain that the transducer is not directly in front of either drive or propeller (avoid aligning directly in line with the bottom of the boat if the hull comes to a point).
- C.** On an inboard boat, mount as far to the port or starboard as possible so that the propeller turbulence does not affect the performance of the sensor.
- D.** On a single jet drive boat, mount on the starboard side at least 4" outside the intake grate.
- E.** On twin jet drive boats, mount on the center line, between the intake grates (avoid aligning directly in line with the bottom of the boat if the hull comes to a point).
- F.** On sailboats, mount on the starboard side at least 6" outside the keel.
- G.** On pontoon boats and catamarans, mount on the starboard hull at least 2" outside the hull protector or centerline.
- H.** On PWC's, mount on the starboard side, at least 2" outside the intake grate.



Mounting Location “DONT’s”

NOTICE:

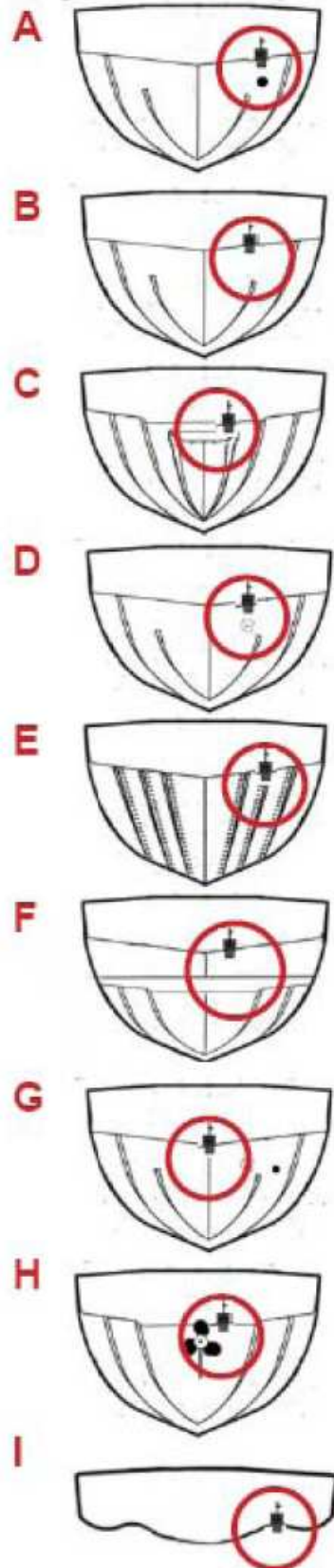


To deliver consistent, accurate readings, the transducer must have a continuous supply of non-turbulent water. Do not mount the transducer in an area of turbulence or bubbles.

Never install the transducer where the boat may be supported during trailering, launching, hauling, or storage.

NEVER MOUNT:

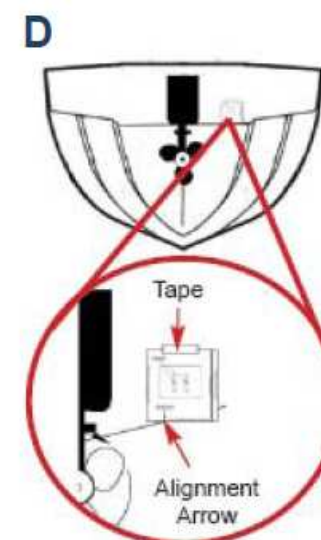
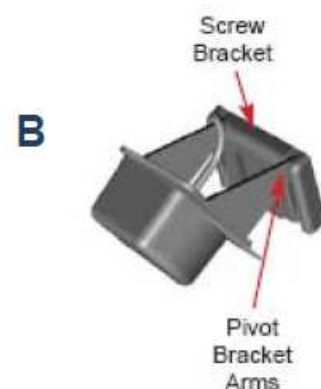
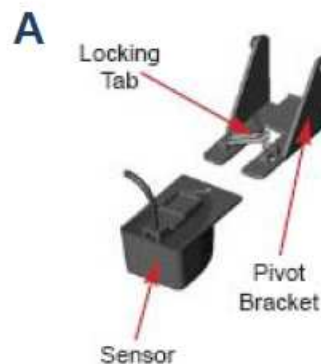
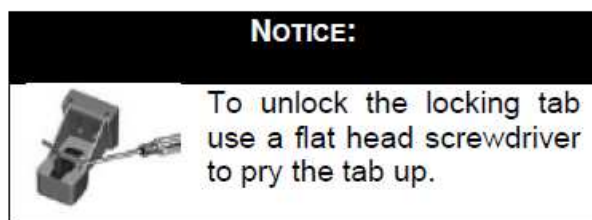
- A.** Behind water intakes, discharge openings, or thru-hull fittings.
- B.** Behind strakes, struts, or hull irregularities.
- C.** Behind transom steps or pockets.
- D.** Behind eroding paint, hull deformities, or marine growth.
- E.** Behind rivets or strakes on aluminum boats.
- F.** Behind the step on stepped hulls.
- G.** Directly on the “V” in the hull.
- H.** Behind propellers or anywhere propeller turbulence will interrupt the flow of “clean” water to the transducer.
- I.** In areas where the hull has a reverse angle.



STEP 2

Assembling the Transom Mount Bracket

1. With the Locking Tab in the up position, align the transducer and bracket, then slide the transducer into the Pivot Bracket until it cannot slide any further (*minimal force is required*) (*illustration A*).
2. Press the Locking Tab down against the Pivot Bracket until it locks firmly into place.
3. Slide the Pivot Bracket arms through the back of Screw Bracket as pictured. (*illustration B*).
4. Grasp the transducer in your hand as shown in the picture to the right. Rest the screw bracket against a solid object (ground) and press the Pivot Bracket into the Screw Bracket with enough force until it snaps into place (*illustration C*).



STEP 3

Mounting the Transom Mount Bracket

1. Locate Transom Template inserted in this manual.
2. 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.
3. 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".

4. 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) below the bow (leading edge) of the sensor.
5. 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 # 4 above.



NOTICE

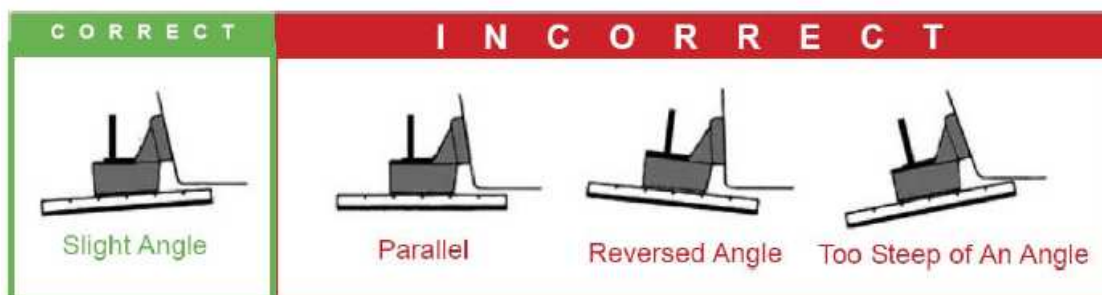


Do not allow the leading edge of the transducer to extend more than 1/8" (3 mm) of an inch below the bottom of the boat as this will create increased aeration and turbulence.

NOTICE:



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



Testing and Troubleshooting the Transom Mount Installation

1. Make sure that the display is functioning properly by following the display testing procedures in the Display Installation and Operation Manual.
2. Place the vessel in the water. Once the display is turned ON, it will display the test sequence and then display the current depth.
3. Become familiar with the depth sounder's function and performance at idle speeds.
4. Gradually increase the boat speed and observe the depth readings (*pay attention to minimum and maximum depth capabilities*).
5. If "---" readings appear:
 - Check to make sure that the transducer is not "kicked-up". To prevent damage to the transducer, it will automatically release from the mounting bracket (kick-up) when it is impacted. If this occurs, refer to Page 4 of this manual to reset the transducer for normal operation. If this happens frequently, make sure that the trailer or boat lift bunks do not interfere with the transducer during loading and unloading.
 - Have someone run the boat on plane for you in smooth water. CAREFULLY look over the transom at the water flowing from the bottom of the boat over the base of the transducer. The water should be "Clean" with very little turbulence (air bubbles). If there are any air bubbles or turbulence seen passing underneath the transducer, move the transducer farther down on the transom bracket. If the performance does not improve, move the transducer to "Clean Water" making sure to fill any unused screw holes with marine sealant.

THRU-HULL DIRECTIONS (IF ORDERED FOR YOUR APPLICATION)

Does the Installation Vessel Have These Characteristics?

- Outboard, inboard/outboard, single or dual inboard, or jet-drive propulsion.
- Hull deadrise angle below 20°.
- Fiberglass or Metal Hull Material. CANNOT be constructed of wood.
- Hull thickness LESS than 1.25" (32 mm)

Tools and Supplies Required for Installation

- Safety goggles
- Dust mask
- Electric drill with minimum 3/8th Inch (10 mm) chuck capacity
- Drill Bit: 1/8" (3 mm)
- Hole Saw: 2" (51mm)
- Sandpaper
- Marine sealant
- Zip-ties
- Water-based antifouling paint (*mandatory in salt water*)

WARNING:




Never install a plastic thru-hull sensor in a wood hull as swelling of the wood could cause damage to the sensor that could cause the vessel to sink.

STEP 1

Test Before Installation

1. Connect the sensor to the instrument as per the instructions supplied with the instrument.
2. Place the sensor in the water with the transducer face in the horizontal position and aimed towards the sea bottom.
3. Check for a depth reading (and temperature reading if applicable).
4. If there is no reading, check all the connections and repeat the test.



NOTICE:	
	Mount the transducer as far as possible away from sources of internal noise as outlined above.


How Acoustic Noise Effects Performance

External sound waves can interfere with the operation of the depth sounder. Background noise from sources such as vegetation, fish, sea surface waves, and other vessels cannot be controlled.

You can limit the amount of noise generated by your vessel by carefully selecting the transducer's mounting location. This will allow the automatic sensitivity settings on your depth sounder display to give you the best possible performance.

Common Sources of Internal Noise Are:

- Propeller(s), shaft(s), fins, rudders and other running gear.
- Engines, Generators, Pumps, etc
- Other echo sounders, fish finders or depth sounders.

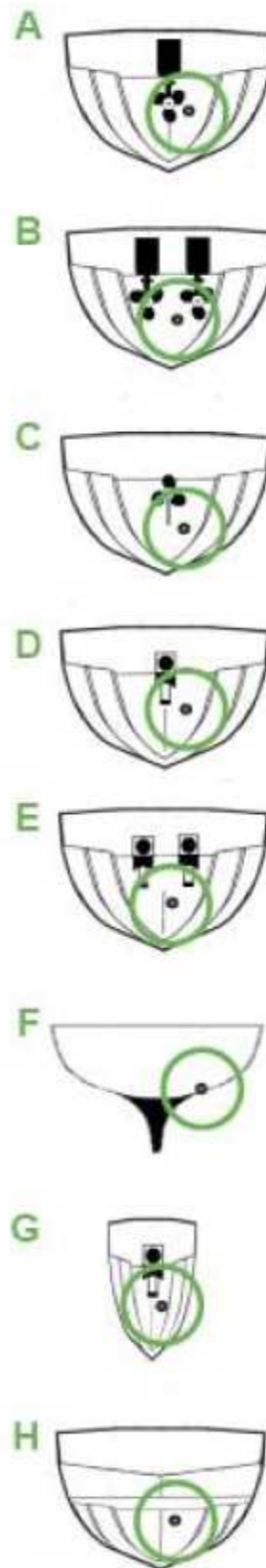
NOTICE:	
	Install and test the display in the desired mounting location before attempting the transducer installation.

STEP 2


Choosing a Mounting Location

To obtain the best performance, the transducer should be mounted in a location where the water flow beneath the hull is aeration and turbulence-free. Try to mount the transducer as close to the centerline of the boat as possible. Consult the boat manufacturer for the best transducer placement. If this information is unavailable, follow the guidelines below.


- A.** On a single drive outboard or inboard/outboard boat, mount towards the back of the boat, on or near the centerline, and well inboard of the first lifting strakes. Mount on the side of the hull where the propeller is moving downward.
- B.** On a twin outboard or inboard/outboard boat, mount between the drives, making certain that the transducer is not directly in front of either drive or propeller (avoid aligning directly in line with the bottom of the boat if the hull comes to a point).
- C.** On a single or twin inboard boat, mount ahead of the propeller(s) and shaft(s) near the centerline.
- D.** On a single jet drive boat, mount on the starboard side at least 4" outside the intake grate.
- E.** On twin jet drive boats, mount on the center line, between the intake grates (avoid aligning directly in line with the bottom of the boat if the hull comes to a point).
- F.** On sailboats, mount on the starboard side at least 6" outside and forward of the keel.
- G.** On PWC's, mount on the starboard side, at least 2" outside and forward of the intake grate.
- H.** On a stepped hull mount just ahead of the first step.



Mounting Location "DONT's"

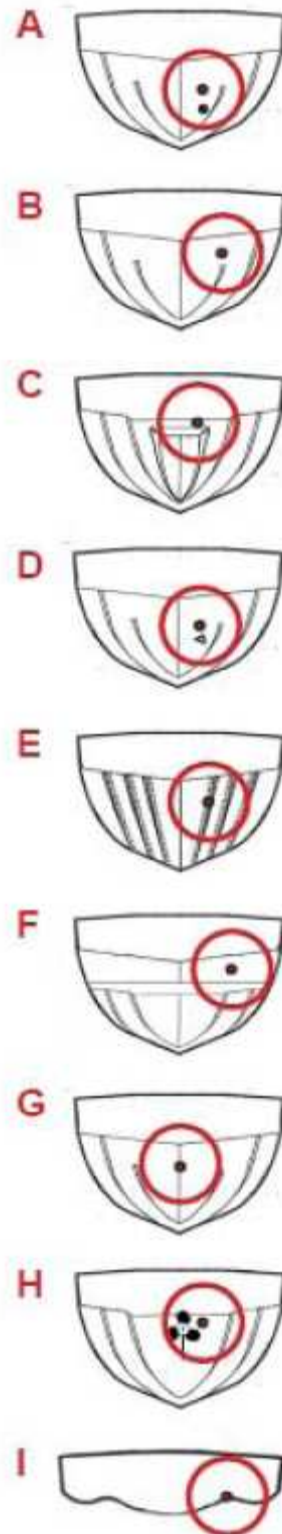
NOTICE:	
	To deliver consistent, accurate readings, the transducer must have a continuous supply of non-turbulent water.
DO NOT MOUNT THE TRANSDUCER IN AN AREA OF TURBULENCE OR BUBBLES.	

Never install the transducer where the boat may be supported during trailering, launching, hauling, or storage.

NOTICE:	
	To Get a Good "View" of the Mounting Location: While the vessel is out of the water, position yourself at the transom and look at the bottom of the hull towards the bow. Using illustrations A thru I, note anything that could interrupt the clean flow of water to the transducer mounting location.

NEVER MOUNT:

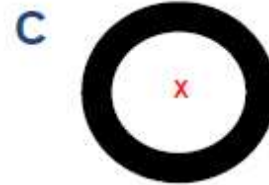
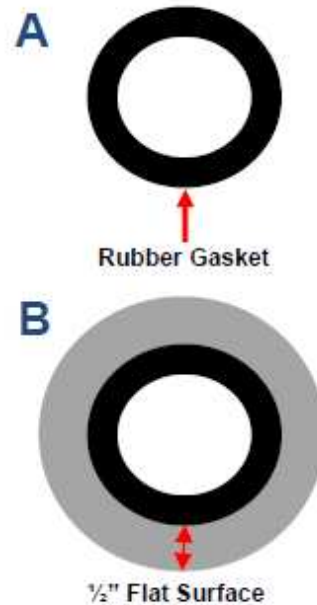
- A.** Behind water intakes, discharge openings, or thru-hull fittings.
- B.** Behind strakes, struts, or hull irregularities.
- C.** Behind transom steps or pockets.
- D.** Behind eroding paint, hull deformities, or marine growth.
- E.** Behind rivets or strakes on aluminum boats.
- F.** Behind the step on stepped hulls.
- G.** Directly on the "V" in the hull.
- H.** Behind propellers or anywhere propeller turbulence will interrupt the flow of "clean" water to the transducer.
- I.** In areas where the hull has a reverse angle.



STEP 3

Drilling the Hole

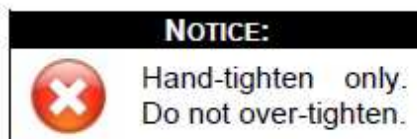
1. After selecting the mounting location based on STEP 2, place the rubber gasket inside the hull against the mounting location. (*illustration A*)
2. Ensure that there is at least 1/2" (12 mm) of flat surface area around the rubber gasket. (*illustration B*)
3. Place a mark in the center of mounting location. (*illustration C*)
4. Drill a 1/8" (3 mm) pilot hole on the mark. If there is a rib, strut, or other hull irregularity on the hull bottom near the selected mounting location, drill from the outside.
5. Using a 2" (51 mm) hole saw, cut a hole from outside the hull. (*Illustration A*)
6. Using sandpaper and mild house hold detergent, sand and clean the area around the hole (inside and outside). Make sure to remove all rough spots and petroleum residue.



STEP 4

Sealing and Installing

1. Remove the nut and rubber gasket from the sensor.
2. Apply a bead of marine sealant around the lip of the sensor housing. (*illustration D*)
3. From outside the hull, feed the cable through the hole (plug first) into the mounting hole until all the cable is inside the hull.
4. Insert the sensor into the hole using a twisting motion to squeeze out excess sealant.
5. From inside the hull, align the arrow on the housing towards the bow of the vessel. (*illustration E*)
6. Slide the rubber gasket onto the housing.
7. Screw the hull nut into place, being sure the arrow on the housing is still positioned forward toward the bow.




8. Remove the excess sealant on the outside of the hull.

Checking for Leaks

Immediately after placing the vessel in the water check around the transducer for leaks.

- If no leaks are evident, recheck the area after 2, 12, 24, and 48 hours.
- If there is a leak, remove the vessel from the water and repeat STEP 4 above immediately.

WARNING:	
	Never install this transducer and leave the vessel in the water unchecked. Refer to STEP 7 above.

CARE AND MAINTENANCE

Aquatic growth can accumulate rapidly on the transducer's surface. This will greatly reduce its performance. If you notice a degradation in performance of your depth sounder, you may need to clean the transducer.

- Clean minor marine growth from the surface with a soft cloth and mild household detergent.
- Clean severe marine growth with a stiff brush or putty knife. Be careful to avoid making scratches on the surface. Wet sanding can be done with fine grade wet/dry paper.

SHOOT-THRU DIRECTIONS (IF ORDERED FOR YOUR APPLICATION)

GLUING THE TRANSDUCER IN-HULL

NOTICE:



Please use extreme caution when selecting your adhesive as the overall performance and enjoyment of your depth sounder depends heavily on the type of adhesive you use. **USE ONLY A 2-PART, SLOW CURE EPOXY**

Vessel Hull Types Acceptable for In-Hull Installation

- 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 from intentional or unintentional ground.
- **NON-CORED** hulls or aluminum hulls thinner than 1/8".
- Inboard vessels that have a lot of running gear that creates significant turbulence.

Test the Selected Location

1. Anchor/Moor the vessel in a body of water away from other boat traffic.

NOTICE:



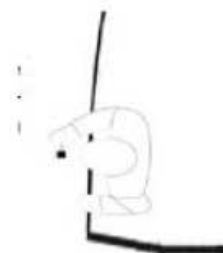
Turn OFF all other sonar devices on your boat and locate the vessel at least 50 feet from the nearest vessel.

2. Plug the transducer cable into the back of the depth sounder display and turn the display ON. Once the display is turned ON, it will display the test sequence and then display the current depth. Make sure the Keel Offset feature is turned OFF.
3. Place the transducer close to your ear (do not press up against your ear). If the transducer is properly connected it will be emitting a ticking sound (*similar to a wrist watch*). If you do not hear this ticking sound, recheck your connections or visit our Customer Service Center for advanced troubleshooting.
4. Hold the transducer over the side of the vessel so that it is the same distance below the water surface as it would be at the in-hull mounting location. Note the depth that is being displayed on the Depth Sounder.

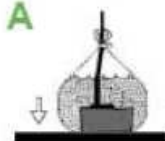
NOTICE:



Certain environmental conditions may restrict the performance of the depth sounder. Extremely dirty water, very soft bottom, high speeds, deep water, or a combination of the above will result in incomplete or inaccurate readings. If "--" appears on the display, relocate the vessel to cleaner water.



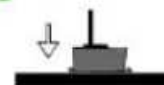
A



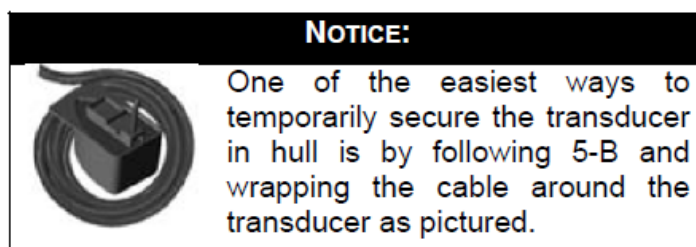
B



C



5. Remove the transducer from the water. Use one of the methods below to test the depth readings with the transducer at the desired in-hull location selected in Step 1.
- A. 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 the hull through the bag. Proceed to # 6.
 - B. 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. Proceed to # 6.
 - C. 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. Proceed to # 6.



6. If “---” readings appear or the readings are noticeably different from the depth displayed when the transducer was hung over the side of the boat, you will need to find another location. If the readings are similar mark the spot in the hull and proceed to # 7.
7. Temporarily anchor the transducer on the marked spot using duct tape.
8. Remove the vessel from its mooring and operate it at idle speeds while getting to know the functions and performance of the depth sounder.
9. Gradually increase the boat speed and observe the depth readings (*make sure you stay in water between 2.5 and 200 feet deep*).
10. If “---” readings appear:
- Put the vessel in a slow turn. If “---” disappears when turning, the transducer’s position probably needs adjustment because it is in aerated water.
 - If “---” does not disappear while turning, relocate the transducer using any one of the methods in # 5 and repeat #5 thru #10.
 - If following 5-B, make sure that your “---” readings are not caused by the bilge water flowing away from the transducer face while turning, accelerating or decelerating.

Gluing the Transducer In Place

Approved Epoxy

- 2- Part Slow Cure Epoxy
- 2 Part Quick Cure Epoxy

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 (*DO NOT mix the epoxy on the transducer*).
4. Apply a generous amount of adhesive to the entire face of the transducer (side opposite from the cable) and the inside of the hull.
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.

NOTICE:



Try to align the transducer so that the point is aimed at the bow of the vessel.

To Remove the Transducer:

1. Place a piece of wood against the base of the transducer.
2. Gently "TAP" the piece of wood with a hammer. DO NOT strike the transducer directly.
3. Once the transducer is removed from the hull, sand the excess epoxy adhesive off with sandpaper (*minor sandpaper scratches will not harm the transducer*). DO NOT use chemicals to remove the excess epoxy



Sonar Cross Talk:

If you experience incorrect depth readings on your Digital Depth Sounder display, but nothing on another fish finder screen on the same boat (or vice versa) then you are experiencing sonar cross-talk interference. The only real solution is to move the transducers further away from each other. This can help keep the transducer cones from intersecting, but because cones get wider as the depth increases, the problem can not usually be completely solved by position only. Changing one of the sounders to another model that runs on a different frequency will solve the problem.

IMPORTANT:



If printing this manual from a computer, make sure that your printer does not adjust the size of this template by aligning the template with the kickup bracket. If the sizes are different, check your printer settings to make sure the print size is 100% with no scaling.

