



OWNER'S GUIDE & INSTALLATION INSTRUCTIONS

Portable Survey

EchoRange™ Transducer *with temperature Smart™ Sensor*

Depth Transducer

EchoRange™ Models: **M195, SS510**
Transducer Models: **M191, SS538, SS549**

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

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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.

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

CAUTION: Never strike the transducer.

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

CAUTION: Never power sand or pressure wash the transducer. It may weaken the structure or damage the internal components.

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

Applications

- M191, SS510, SS538, SS549: Over-the-side mounting recommended
- M195 can be mounted over-the-side or on the outside of a hull.
 - For an over-the-side mount, Airmar recommends a fabricated stainless steel plate and weldment that mounts to a pole.
 - For an exterior mount, Airmar recommends installing the transducer in a welded steel tank.

Tools & Materials

Safety glasses

Dust mask

Ear protection

Model M195 over-the-side mount with fabricated plate

Stainless steel plate min. thickness: 6mm (1/4")

Purchased bolts (3) 1/4" x 20NPS

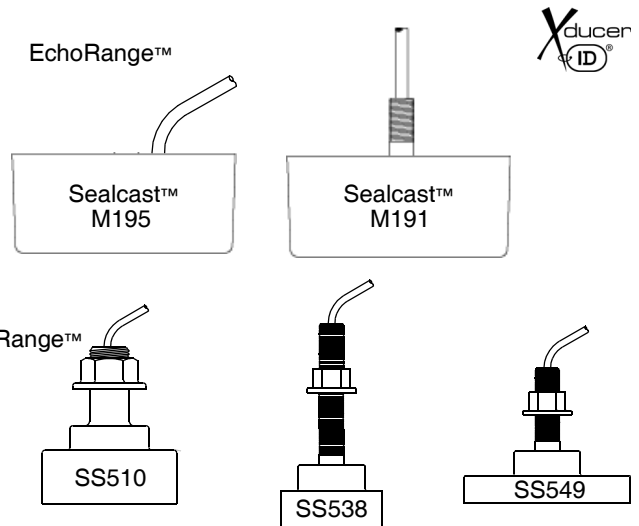
or threaded rods with washers and nuts (3)

Drill bit for bolt holes 7mm, #H, or 17/64"

Hole saw for cable fitting hole 38mm or 1-1/2"

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

Part No. _____ Date _____ Frequency _____ kHz



Models: M191, SS510, SS538, SS549

Pipe

1-1/4 to 2" diameter

Long enough to adjust the depth of the transducer below the water surface

Threaded at each end to match the pipe coupling and elbow

Right-angle pipe elbow (with removable plate)

Pipe coupling(s)

Pipe coupling adaptor:

M191, SS510 1/2" x 14NPS threads

SS538, SS549 3/4" x 14NPS threads

Silicone lubricant or petroleum jelly (Vaseline®) (some installations)

Cable ties (some installations)

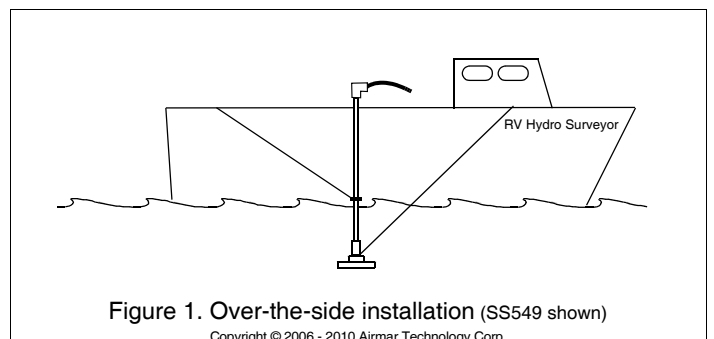
Chains or cables or lines (some installations)

Clamps (some installations)

Water-based anti-fouling coating (**mandatory in salt water**)

Over-the-side Mounting Location

- Locate the transducer at a sturdy support on the side of the hull near the center (Figure 1). This location will minimize noise from the propeller, bubbles caused by the boat's travel, and the effect of heave.
- The transducer must be fully submerged in water and not subjected to air bubbles or turbulent water flowing under the transducer's face. Mount the transducer 1 m (3') below the water surface.



M191, SS510, SS538, SS549: Installation

1. Apply silicone lubricant or petroleum jelly to the threads of the pipe at both ends to facilitate disassembly.
2. Twist the right-angle pipe elbow onto the upper end of the pipe. The elbow will prevent the pipe from dropping off, protect the cable, and can be used to orient the transducer.
3. With the appropriate pipe coupling adaptor in place, twist the pipe coupling onto the opposite end of the pipe.
4. Guide the transducer cable through the pipe.
Alternately, after the transducer is mounted, attach the cable to the outside of the pipe using cable ties.
5. Apply silicone lubricant or petroleum jelly to the transducer stem. Screw the transducer stem into the pipe coupling.
6. Attach chains, cables, or lines to the pipe near the transducer that will support the pipe from the force of the water when the boat is underway (Figure 1).
7. Clamp the pipe to the gunnel. *Be sure the pipe and thus the transducer is perpendicular to the water surface.*
8. Fasten the chains, cables, or lines as far fore and aft as is practical. Use sufficient tension to support the pipe when the boat is underway.
9. Route the cable to the instrument being careful not to tear the cable jacket. To reduce electrical interference, separate the transducer cable from other electrical wiring. Coil any excess cable and secure it in place with cable ties to prevent damage.
10. Refer to the survey recorder owner's manual to connect the transducer to the instrument.

M195, SS510 EchoRange™ Models: Cable Routing & Connecting

1. Route the cable to the instrument being careful not to tear the cable jacket. To reduce electrical interference, separate the transducer cable from other electrical wiring.
2. If the instrument is connected to a power source, the power must be OFF before connecting the transducer to the instrument.
NOTE: *If there is no terminal for the bare wire (shield), cut it off flush with the cable jacket.*
3. Fasten the cable in place.

Maintenance & Replacement

Anti-fouling Coating

Surfaces exposed to salt water must be covered with an anti-fouling coating. Use a *water-based* anti-fouling coating made for transducers only. Never use ketone based paint, since ketones can attack many plastics possibly damaging the transducer. Brush on anti-fouling coating every 6 months.

Inspecting the Cable

Periodically inspect connections and connectors for indications of corrosion. Inspect the cable for kinks, abrasions, and cuts. Repair any damage using Airmar's splash-proof Junction Box No. 33-035.

Cleaning

Keep the transducer assembly free of weeds and debris.

Aquatic growth can accumulate rapidly on the transducer's surface reducing its performance within weeks. Clean it using a Scotch-Brite® scour pad and mild household detergent, being careful to avoid making scratches. In severe cases, lightly wet sand the surface with fine grade wet/dry paper.

Parts & Transducer Replacement

The information needed to order a replacement transducer 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 1.

Lost, broken, or worn parts should be replaced immediately. Obtain parts from your instrument manufacturer or marine dealer.

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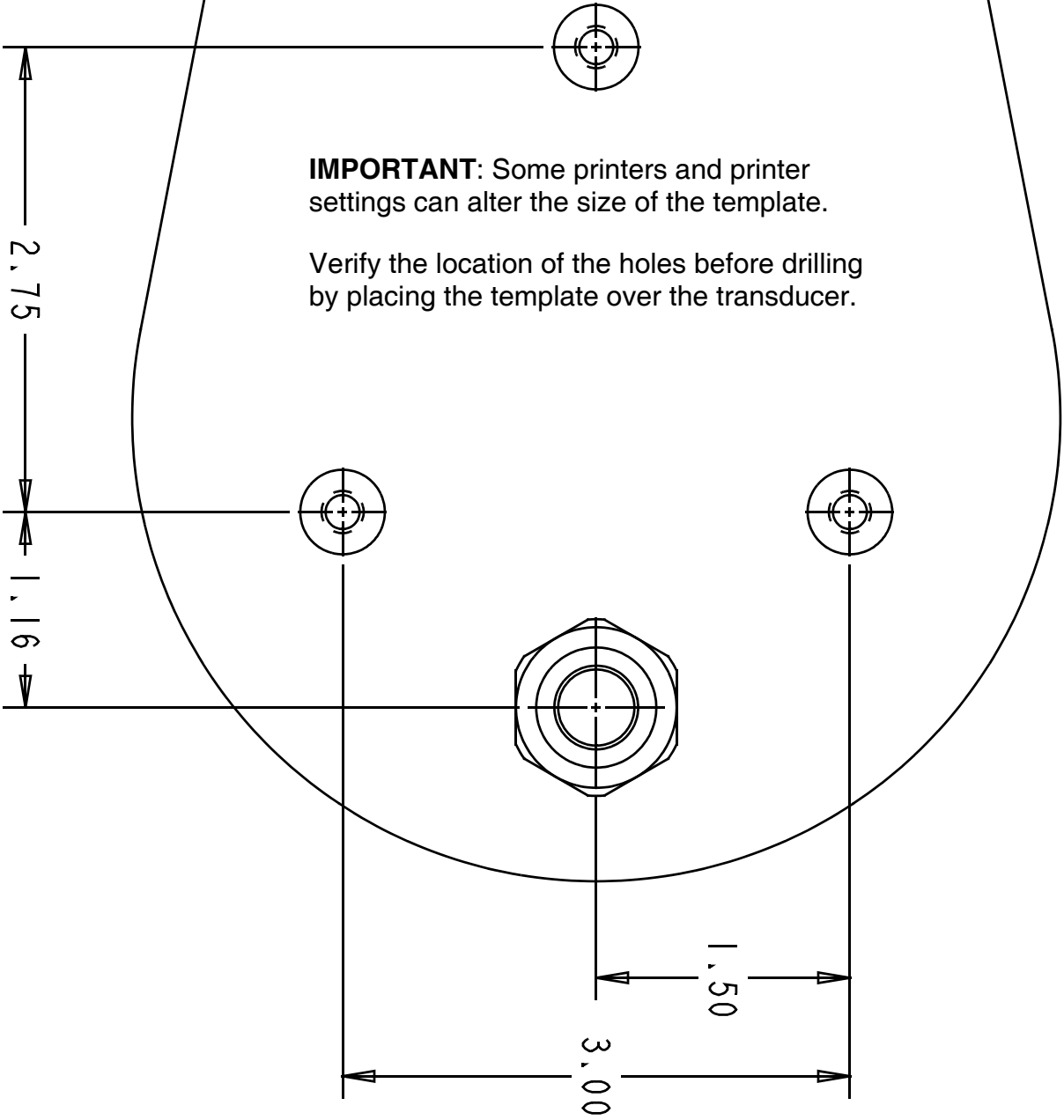
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M195 Template



IMPORTANT: Some printers and printer settings can alter the size of the template.

Verify the location of the holes before drilling by placing the template over the transducer.



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