

OWNER'S GUIDE & INSTALLATION INSTRUCTIONS

Paddlewheel & Valve Kit 33-415

Fits Models: S650, ST650

04/12/11
17-127-01 rev. 03

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 goggles and a dust mask when installing.

WARNING: The valve is not a watertight seal! Always use the insert or long blanking plug secured with the retaining pin, safety rings, and safety wire for a watertight seal.

WARNING: The o-rings must be intact and well lubricated to make a watertight seal.

WARNING: Always attach the safety wire to prevent the insert or blanking plug from backing out in the unlikely event that the cap nut fails or is screwed on incorrectly.

WARNING: When the valve assembly is removed, always insert the emergency plug with the CAP NUT and safety wire for a watertight seal.

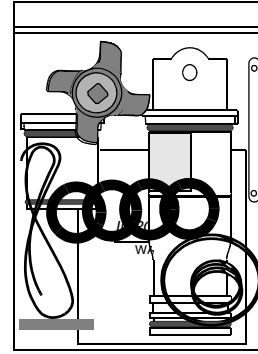
WARNING: If the paddlewheel insert is caught in the valve assembly trapping the cap nut, TEMPORARILY hold the short emergency plug in place with the safety wire. Then, separate the paddlewheel insert from the valve assembly. If they cannot be separated and the sensor must be left unattended, cut the cable [a minimum of 1 m (3') from the insert] to free the cap nut. Later splice the cable with a watertight junction box.

CAUTION: Never use solvents. Cleaners, fuel, sealants, paint, and other products may contain strong solvents, such as acetone, which attack many plastics, greatly reducing their strength.

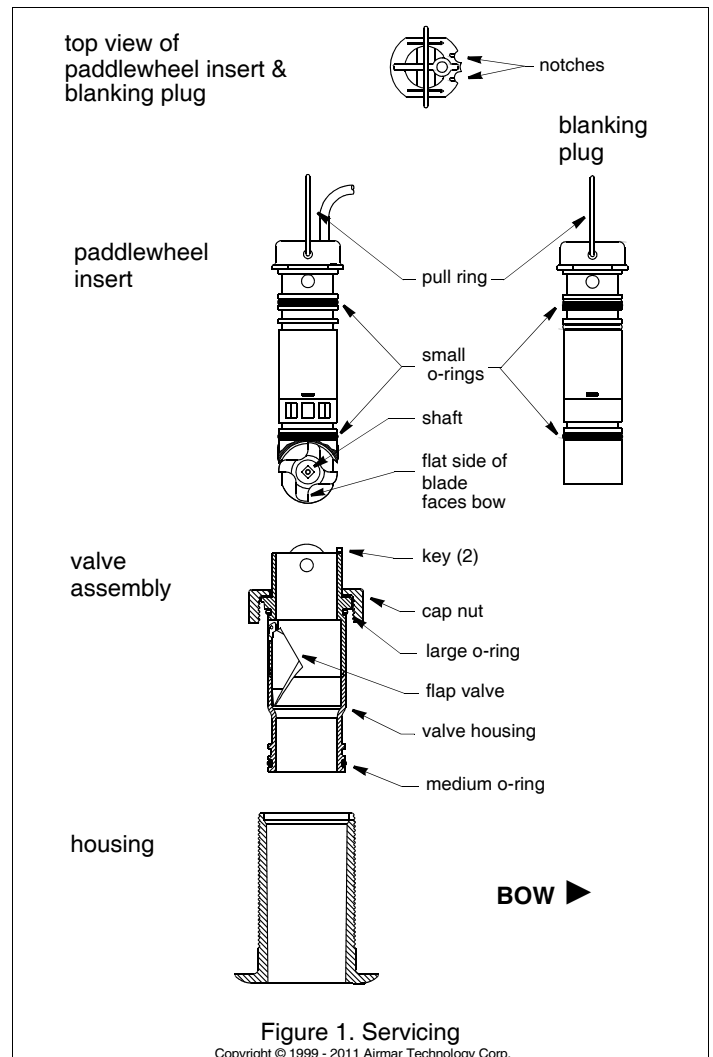
IMPORTANT: Please read the instructions completely before proceeding with the installation. These instructions supersede any other instructions in your instrument manual if they differ.

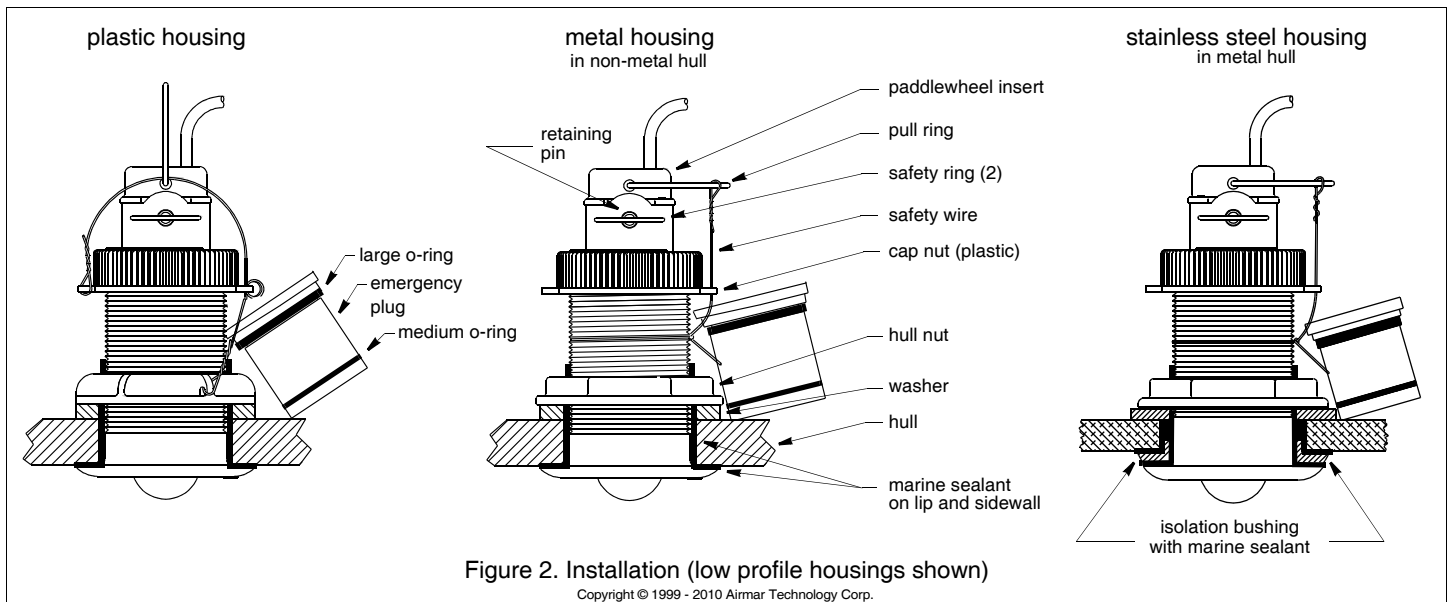
Servicing Paddlewheel Insert & Blanking Plug

1. Use the new paddlewheel shaft to push the old shaft out about 6mm (1/4"). With pliers remove the old shaft (see Figure 1).
2. On the insert, remove any aquatic growth using a stiff brush or putty knife. Clean the surface with mild household detergent. If fouling is severe, lightly wet sand with fine grade wet/dry paper.
3. Place the new paddlewheel in the cavity with the flat side of the blade facing the same direction as the arrows on the top of the insert.



4. Tap the new shaft into place until the ends are flush with the insert.
5. Replace the two small o-rings on the paddlewheel insert and lubricate them with the silicone lubricant supplied. O-rings must be intact and well lubricated to make a watertight seal.
6. Replace the two o-rings on the *long* blanking plug.
7. Re-install the paddlewheel insert with the arrows on the top pointing forward toward the bow. Seat it into place with a twisting motion until the keys fit into the notches. Secure the insert with the retaining pin and safety rings (see Figure 2).





8. Attach the safety wire to prevent the insert from backing out in the unlikely event that the cap nut fails or is screwed on incorrectly..

Plastic housing—Attach the safety wire to one eye in the hull nut. Thread the emergency plug onto the wire. Keeping the wire taut throughout, lead it in a counterclockwise direction and thread it through one eye in the cap nut. Thread the wire through the eye a second time. Then lead the wire through the pull ring and the second eye in the cap nut. Twist the wire securely to itself.

Metal housing—Wrap one end of the safety wire tightly around the housing and twist it together with the long end. Thread the emergency plug onto the wire. Keeping the wire taut throughout, lead it straight up and through one eye in the cap nut. Loop the wire through the pull ring and twist it securely to itself.

Replacing the Valve Assembly

1. On the replacement *short* emergency plug, inspect (replace if necessary) and lubricate the o-rings with silicone lubricant or petroleum jelly (Vaseline®) (see Figure 2). O-rings must be intact and well lubricated for a watertight seal.
2. Remove the old emergency plug from the safety wire and discard it.
3. Unscrew the cap nut. With the replacement *short* emergency plug ready in one hand, remove the paddlewheel insert and valve assembly as one unit by pulling upward on the pull ring. Rapidly install the *short* emergency plug to minimize the flow of water into the boat.

NOTE: The plug is not secure until the cap nut is in place.

4. To free the cap nut, remove the paddlewheel insert from the valve assembly by removing one safety ring and the retaining pin. Grasp the insert by the pull ring and pull slowly upward.

NOTE: If the paddlewheel insert is caught in the valve assembly trapping the cap nut, TEMPORARILY hold the short emergency plug in place with the safety wire. Then, separate the paddlewheel insert from the valve assembly. If they cannot be separated and the sensor must be left unattended, cut the cable [a minimum of 1 m (3') from the insert] to free the cap nut. Later splice the cable with Airmar's Junction Box 33-035.

5. Secure the short emergency plug with the cap nut. **Hand-tighten** only. Do not over-tighten. Reattach the safety wire.

6. Separate the valve assembly from the paddlewheel insert. Discard the old valve assembly (see Figure 1).

7. Check the *replacement* valve assembly to be sure the flap valve moves freely and seats against the valve housing. Inspect (replace if necessary) and lubricate the o-rings with silicone lubricant or petroleum jelly (Vaseline®). The o-rings must be intact and well lubricated to make a watertight seal.

8. Remove the safety wire and cap nut from the emergency plug. With the valve assembly ready in one hand, remove the emergency plug. Rapidly slide the valve assembly into the housing with a pushing twisting motion to engage the key in the notch. Screw the cap nut in place. **Hand-tightening** only. Do not over tighten.

9. Re-install the paddlewheel insert (with lubricated o-rings) with the arrows on the top pointing forward toward the bow. Seat it into place with a pushing twisting motion until the keys fit into the notches. Secure the insert with the retaining pin and safety rings (see Figure 1).

10. Attach the safety wire to prevent the insert from backing out in the unlikely event that the cap nut fails or is screwed on incorrectly (see Figure 2).

Plastic housing—Attach the safety wire to one eye in the hull nut. Thread the emergency plug onto the wire. Keeping the wire taut throughout, lead it in a counterclockwise direction and thread it through one eye in the cap nut. Thread the wire through the eye a second time. Then lead the wire through the pull ring and the second eye in the cap nut. Twist the wire securely to itself.

Metal housing—Wrap one end of the safety wire tightly around the housing and twist it together with the long end. Thread the emergency plug onto the wire. Keeping the wire taut throughout, lead it straight up and through one eye in the cap nut. Loop the wire through the pull ring and twist it securely to itself.