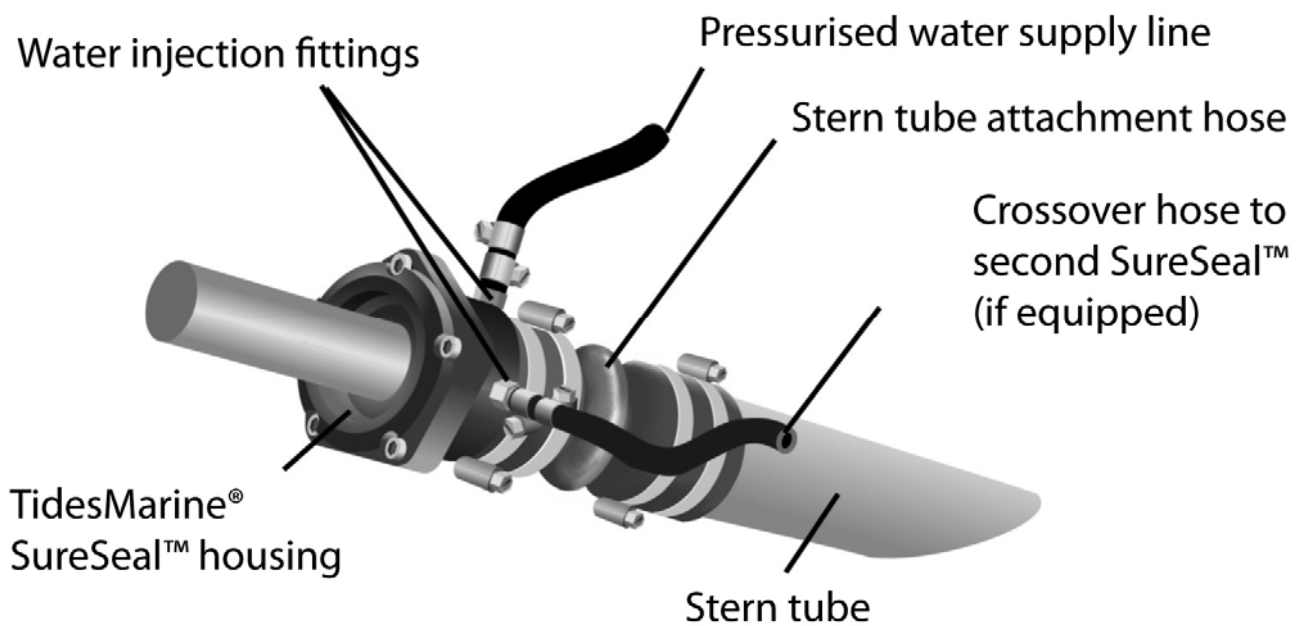


TIDESMARINE

SureSeal™ System

Shaft Seal Installation Instructions



www.tidesmarine.com



Installation Instructions

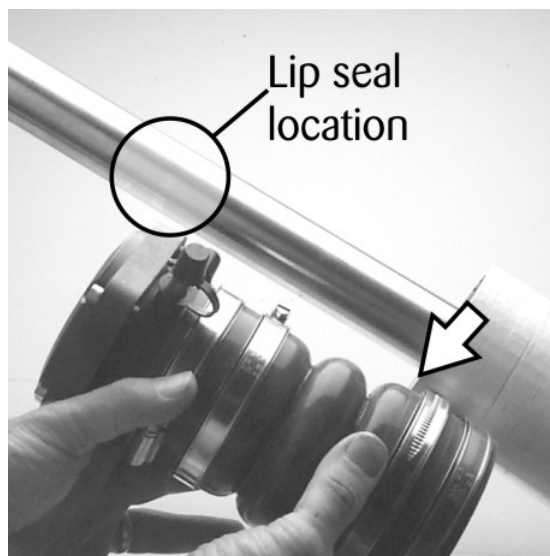
- 1 Remove shaft from transmission coupling. Disassemble and remove the existing shaft sealing system.

DO NOT RE-USE THESE COMPONENTS WITH YOUR NEW SureSeal™.

- 2 Fit the propeller shaft back into the coupling. This will expose the area of the shaft that was located under the old hose and shaft seal system.



- 3 Place four hose clamps onto the stern tube attachment hose. Insert the SureSeal™ into the hose as far as it will go. Do not tighten the hose clamps. Position the assembly (as shown) next to the stern tube to determine approximately where the lip seal will ride on the shaft.





- 4 Examine this area carefully. It must be free of pitting, nicks or surface imperfections which will cause leaking. Polish and clean the shaft using 300 grit wet-dry paper or emery cloth, working around the shaft, not in a fore and aft direction.



- 5 Carefully press the installation hat into the front of the SureSeal™. Make certain it covers the “lip” portion of the seal.



- 6 Back the shaft away from the coupling to provide enough room to install the assembly. Carefully slide the assembly (hose end first) onto the shaft and stern tube.

DO NOT USE GREASE OR ANY OTHER LUBRICANT!

Push the hose over the stern tube as far as it will go. Do not tighten the hose clamps.

- 7 If you are fitting the optional Spare Seal Carrier Kit, this should be fitted before moving to step 8.

Installing the Spare Seal Carrier



- A. Separate the two halves of the carrier housing by undoing the retaining screws.

- B. Carefully press an installation hat into the spare lip seal - smooth side first, and slide the lip seal onto the shaft.

THIS SIDE FACES TOWARD
THE SURESEAL™

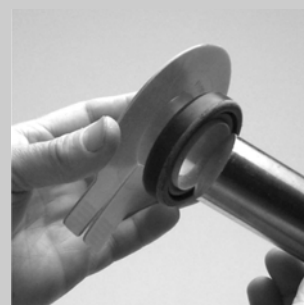
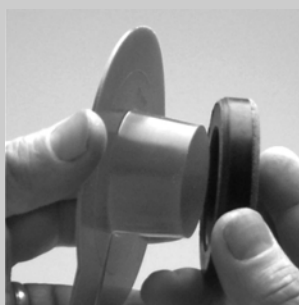


Garter spring

SMOOTH SIDE - FACES AWAY
FROM THE SURESEAL™



Part numbers are marked
on the smooth side



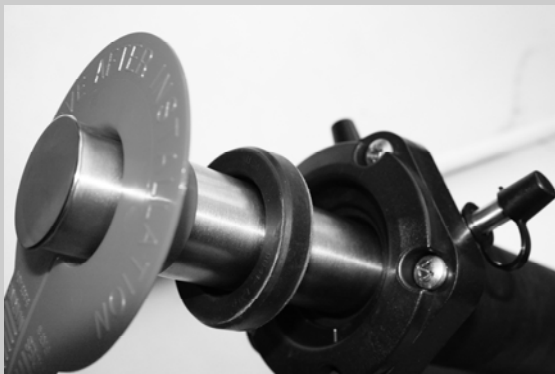
- 8 Reconnect the shaft to the coupling and make certain the coupling is firmly secured to the transmission. Slide the SureSeal™ forward on the shaft until the hose is clear of the stern tube. Check to make certain the shaft is centered in the stern tube. If it is not centered, the shaft / engine alignment must be corrected. Any excessive misalignment will create side loads on the SureSeal™ which will dramatically reducing bearing life and lip seal performance.

Carefully slide the SureSeal™ assembly back onto the stern tube, making sure the hose is not 'loaded' in any direction.



- 9 Evenly space two hose clamps over each end of the hose. Stagger the hose clamp drives on either side of the hose to distribute pressure evenly. Make certain the drives are accessible and tighten the clamps.

- 10 If you have fitted a Spare Seal Carrier Kit, please follow steps A, B and C.



- A. Remove the installation hat and confirm that the smooth side of the spare lip seal is facing away from the SureSeal™ housing. See top of page 3.



- B. Reassemble the two halves of the carrier housing and fit the screws. Do not tighten until the carrier housing is correctly positioned.



- C. Once the SureSeal™ unit is correctly located and the shaft is fitted back into the coupling, you can adjust the position of the Spare Seal Carrier so that it is at least 1" / 25mm away from the front of the SureSeal™ housing - IT MUST NOT BE TOUCHING. Once correctly positioned, tighten the retaining screws.



- 11 Pull the red installation hat from the SureSeal™. Separate the tabs to split the cone and remove it from the shaft. Retain hat for future use or contact your local dealer for replacements.



- 12 Connect the SureSeal™ to a pressurised water supply source (a point in the engine's raw water cooling system) by attaching the water injection hose to the stainless fitting on the SureSeal™ housing. If there is a second injection hose fitting on the SureSeal™, it is used to complete a crossover feed between the port and starboard SureSeals™.

DO NOT USE A HULL SCOOP FITTING TO FEED WATER TO YOUR SURESEAL™. THIS WILL INVALIDATE YOUR WARRANTY.

CHECK WATER SUPPLY FROM THE ENGINE TO THE SURESEAL™ BEFORE OPERATING VESSEL.

There should be at least 1 gpm / 4 lpm flowing into the SureSeal™ at engine idle.

Installation Checklist

SHAFT SEAL

- 1) Has the shaft seal assembly been checked for any pre-loading? See step 8.
- 2) Have the hose clamps been tightened evenly and are the drives staggered on the hose? See step 9.
- 3) Has the installation hat been removed from the seal head and shaft? See step 11.
- 4) Has the pressurised cooling water flow to the shaft seal been checked?
Minimum flow of 1 gpm / 4 lpm at tickover required. See step 12.
- 5) Are all the cooling water pipes neatly clipped and will not kink in operation?

SPARE SEAL CARRIER KIT (when fitted)

- A) Is the spare lip seal correctly orientated?
The smooth side of the lip seal must face away from the SureSeal™ housing.
See Step 7, B.
- B) Has the installation hat been removed from the lip seal? See step 10, A.
- C) Is there a minimum gap of 1" / 25mm between the seal head and the Spare Seal Carrier Case? See step 10, C.
- D) Have the assembly screws been tightened? See step 10, C.
- E) Does the Spare Seal Carrier Case grip the shaft tightly? It should move with the shaft as the shaft rotates.

Maintenance Recommendations

Maintaining your Tides Marine SureSeal™ is a basic component of standard boating responsibility.

Monthly

Make a visual inspection of the shaft seal, looking for obvious signs of water leaking. A clean white cloth beneath the seal will identify any sediment from a leaking lip seal. Check all of the flexible hoses for wear, chafing or damage. Check the hose clamps for tightness and any sign of corrosion. If you have not used your vessel since your previous inspection, start the engine and engage forward, then reverse gear for 30 seconds at engine idle. This will reduce the level of marine growth that develops on the propeller shaft and will extend the life of the lip seal.

Quarterly

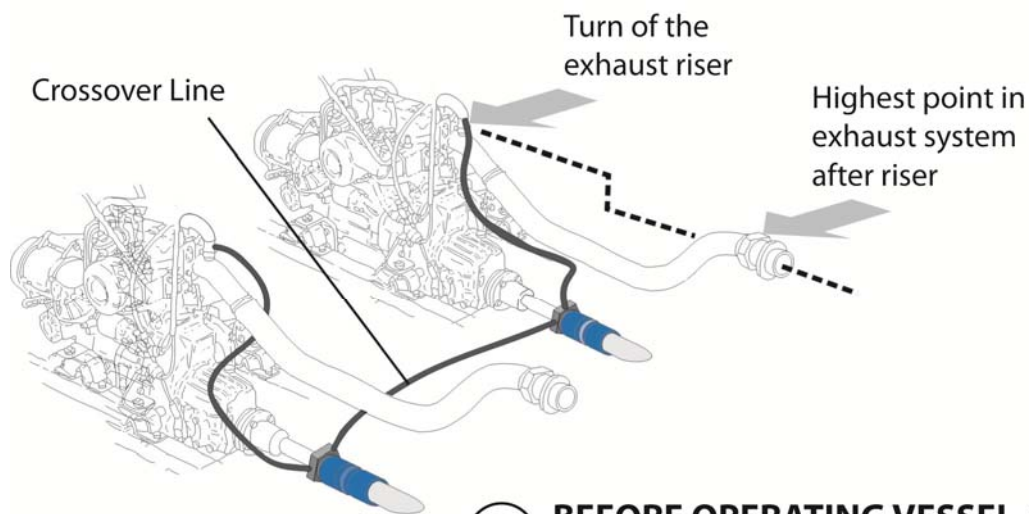
Check the pressurised water flow to the shaft seal as this is the key to good service life. With the engine running and in neutral, remove the water feed line from the water injection fitting, cap the seal fitting, and capture the flow in a bucket or jug. Flow must be at least 1 gpm / 4 lpm at engine idle. Increase your throttle and check that there is a constant flow of water at all engine speeds. Dress hose and secure. Complete one test before removing another line. Test cross over line as well, if so equipped. Inspect the water injection fittings, water pick-up points and hose tees for any signs of corrosion, electrolysis or blockage.

Winterisation

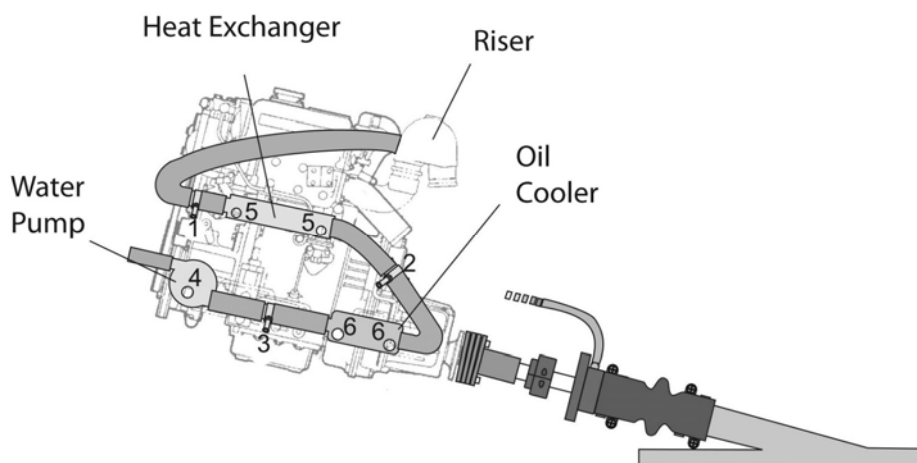
Winterisation fluids will not harm your SureSeal™. At the start of the next season, carry out a detailed inspection of all components and when the vessel is back afloat complete the water flow check detailed above.

WATER PICK-UP POINTS

NOTE: The preferred water pick-up point would be via a hose tee in the raw water discharge hose.



! BEFORE OPERATING VESSEL, YOU MUST TEST THE WATER SUPPLY.



1. Tee — In line between heat exchanger and riser (as close to heat exchanger as possible).
2. Tee — In line between oil cooler and heat exchanger.
3. Tee — In line between water pump and oil cooler.
4. Drain plug — Back of water pump. Be sure the drain is on the pressure side of the pump.
5. Drain plugs — In heat exchanger.
6. Drain plugs — In oil cooler (if cooler is on pressure side of pump and bore is at least 1" / 25mm diameter).

CAUTION!

IN MOST SAILBOATS AND THOSE POWERBOATS WITH ENGINE(S) INSTALLED BELOW THE WATERLINE (OR WHERE WATER-LIFT MUFFLERS ARE USED), A VENTED LOOP MAY BE REQUIRED TO PREVENT BACK FLOODING OF WATER THROUGH THE EXHAUST SYSTEM INTO THE ENGINE. ABYC GUIDELINES REGARDING MATERIALS AND INSTALLATION PRACTICES SHOULD BE FOLLOWED.

The water pick-up fitting should be installed in the "pressure side" of the vented loop "T". This vented loop should be as far above the waterline as is practical (a minimum distance of 12" is required). In twin engine applications with water-lift mufflers, a check valve in the water pick-up line is required if a crossover line is used.

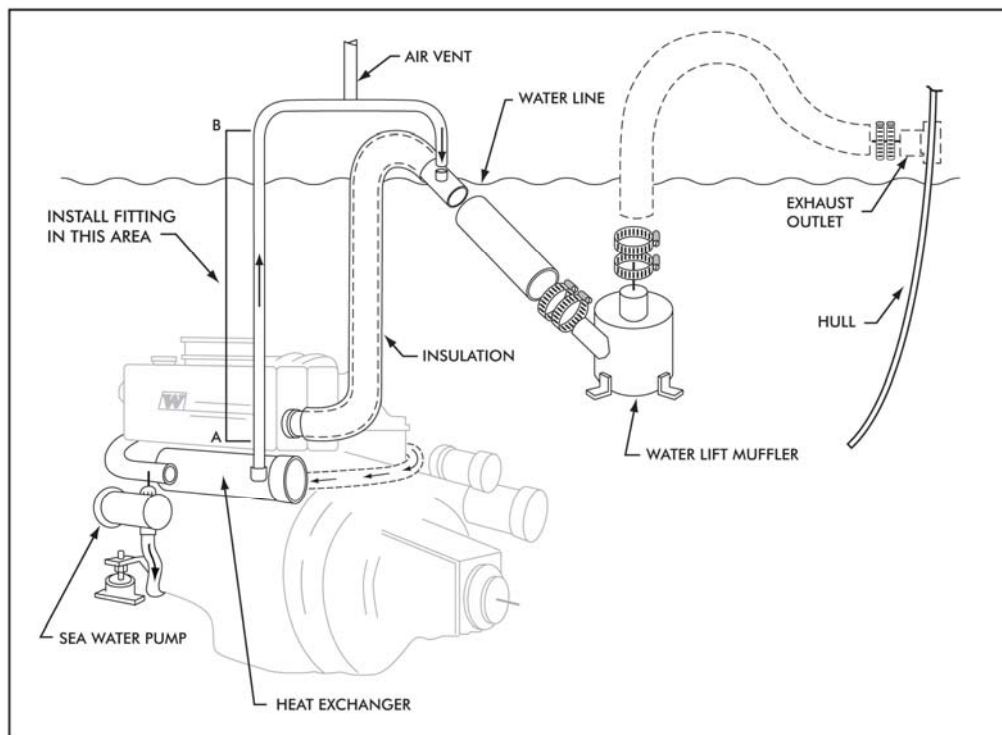
WATER PICK-UP INSTALLATION INSTRUCTIONS

Engine Below (or at) the Waterline

A vented loop (anti-siphon system) is used when an engine's exhaust port is located below the waterline. When a marine engine is shut down (and the system DOES NOT have an anti-siphon valve), raw water continues to siphon into the exhaust system until it reaches the same level as the waterline in which the vessel rests. If the engine is installed below (or at) the waterline, this water will flow back up the exhaust pipe and into the engine itself.

The vented loop closes when the engine is running (under raw water pump pressure) and opens when the engine stops, allowing air into the system which prevents water from moving back through the exhaust system and into the engine.

Exhaust System - Water Lift Muffler Above the Engine

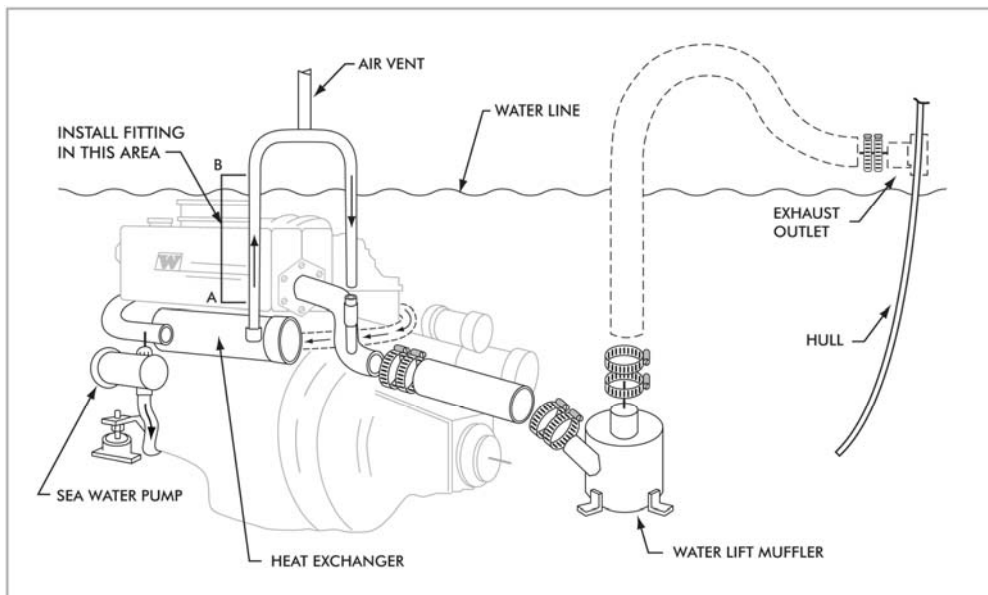


In this installation, the exhaust run comes off the engine and into a vertical pipe with a bend / elbow just above the waterline. From this elbow / bend, the exhaust system runs down past the waterline to a water lift muffler mounted in the engine room above the engine.

The siphon break lies between the heat exchanger and the exhaust riser and is located on the discharge side of the exhaust bend / elbow. It is positioned above the waterline as well as above the elbow / bend of the exhaust riser.

- Step 1 Install a hose tee anywhere on the pressure side of the vented loop between points “A” and “B” to form the water pick-up point for the SureSeal™. The lower you position this fitting in the line (closer to “A”), the higher the head pressure will be to feed water to the SureSeal™.
- Step 2 Put two hose clamps over the end of the water pick-up hose and attach to the branch fitting on the hose tee.
- Step 3 Route the hose from the water pick-up point to the SureSeal in a manner which eliminates/minimizes the possibility of chafing, burning or kinking. Turns in the hose should be minimized to improve water flow.
- Step 4 Support clips used to dress the hose should not be so tight as to crush the hose and restrict water flow. Tides suggests that a bit of slack be left in the hose at the “SureSeal™ end” to allow for some movement during vessel operation. This reduces the chance of the hose “loading” the SureSeal™ on the shaft.

Exhaust System - Water Lift Muffler Below the Engine



In this installation, there is no riser in the exhaust system. Exhaust gases and raw water discharge straight from the engine to the water lift muffler located just below the engine.

However, the positioning of the hose tee to create a water pick-up point for the SureSeal™ is the same as indicated when the muffler is located above the engine. Follow the same installation steps as noted above.

NOTE: Ensure that the water flow to the shaft seal at engine tick-over is a minimum of 4 litres/minute.

NOTE: Check the exhaust temperature for over-heating at engine idle in case excessive water is being supplied to the shaft seal and starving the exhaust system of water.

Customer Comments:

Tides Marine would like to hear from you. Your comments will be helpful as we work to improve our installation brochures.

Please take a moment to complete this questionnaire and fax it back to Tides Marine when you can. If you prefer, you can go to www.tidesmarine.com and complete the form electronically.

1) Were you able to follow the steps easily and in sequence?

☐

Yes

☐

No

If no, please let us know how we can improve the current format/information.

2) Did you discover your own “shortcuts” along the way? If so, please share them with us:

3) Did the accompanying photos help you with your installation?

4) How long did it take you to install your SureSeal™ system?

5) Would you recommend the Sure Seal™ system to other vessel owners?

Please fax your comments to: **TIDES MARINE INC.** +44 1202 697503

Or use the online comment card at: www.tidesmarine.com

TIDES MARINE International

Unit C5, Birch Copse, Technology Road

Poole, Dorset. BH17 7FH. England

Tel: +44 1202 656773 Fax: +44 1202 697503

Email: uk@tidesmarine.eu

www.tidesmarine.co.uk



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