

installation overview

The following are installation instructions for a typical Water Pick-Up Kit installation. **BE SURE TO FOLLOW THEM CLOSELY.** Improper installation could result in damage to the SureSeal™ or your engine.

1. Locate the point in the engine's raw water cooling system from which the water will be taken. Please refer to Page 17 in Section 1.2. It identifies recommended water pick-up points.

Hose Tee Kit

1. Cut one section of a raw water hose cleanly and squarely. Position two hose clamps over each end of the hose at the cut.
2. Insert the Hose Tee orienting the branch fitting in either of the "gray shaded areas" in the diagram below. Do not orient the branch fitting straight down as sediment can gather at the base of the branch fitting in the Hose Tee which could restrict water flow. Do not orient the branch fitting straight up as this may place the end of the fitting outside the flow of water.

Correct Orientation Range

3. Add two small hose clamps (provided) to one end of the Type B Fuel Hose and slide this end of the hose over the branch fitting. Tighten.
4. Route this hose to the water injection fitting on the SureSeal™. Make certain that the hose is not pinched/kinked as this could restrict water flow to the SureSeal™. Cut to length.
5. Remove the black plastic cap from the SureSeal's™ injection fitting (leave tethered to the base of the fitting).
6. Slide two small hose clamps over this end of the hose and press onto the SureSeal's™ injection fitting. Tighten.

Fitting Kit

1. Remove the plug or drain fitting you have selected. Using a small screwdriver or awl, poke/scrape the inside of the opening to dislodge any engine scale, sediment or debris which could clog the fitting or the hose. Coat the threads of the injection fitting with sealant and install.
2. Add two small hose clamps (provided) to one end of the Type B Fuel Hose and slide this end of the hose over the water fitting. Tighten.
3. Route this hose to the water injection fitting on the SureSeal™. Make certain that the hose is not pinched/kinked as this could restrict water flow to the SureSeal™. Cut to length.
4. Remove the black plastic cap from the SureSeal's™ injection fitting (leave tethered to the base of fitting). Slide two small hose clamps over this end of the hose and press onto the SureSeal's™ injection fitting. Tighten.

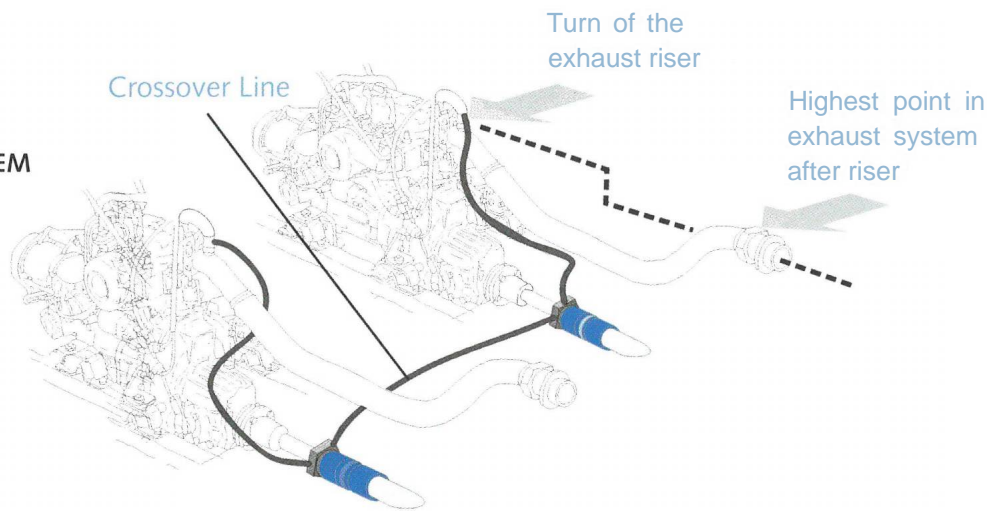
Crossover Kit

For twin-engine installations, Tides recommends the use of a crossover line running between the port and starboard SureSeals™. This will insure water flow to both seals in the event that only one engine is running.

1. Before installing a crossover kit, you must inspect the vessel's raw water exhaust system. **DO NOT USE A CROSSOVER KIT** if the highest point in the exhaust system is above the turn in the exhaust riser. Back-flow could occur while running on only one engine causing serious damage to the other engine/turbo. For all Crossover Kits, a second injection fitting is required on each SureSeal™.
2. Route the Crossover hose between the two SureSeals™ keeping it below the SureSeal's™ water pick-up point on each engine.
3. Remove the black plastic caps and press the ends of the crossover hose over the injection fitting on each SureSeal™. Tighten.

! THE TURN OF THE EXHAUST RISER MUST BE ABOVE THE REST OF THE EXHAUST SYSTEM

BEFORE OPERATING THE VESSEL YOU MUST TEST THE WATER SUPPLY



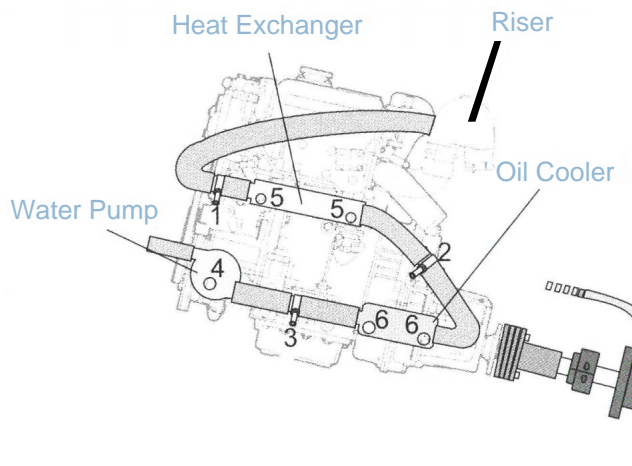
Testing the Water Pick-Up Assembly

1. When the vessel is back in the water, remove the water pick-up hose from one of the SureSeals™ and place the end of the hose into an empty container. Temporarily cap the injection fitting (to prevent ambient water from back-flowing through the SureSeal™). Start the engine and run in neutral.
2. Raise the container one foot above the water pick-up point on the engine and confirm there is water flowing from the hose. At idle speed, water should be flowing 1 gallon / 4 liters per minute. Check rate via measurement. Increase engine speed and confirm that there is a constant flow of water throughout the full RPM range.
3. Reconnect the hose and tighten clamps. Dress the hose and loosely secure with cable ties.

Testing the Crossover Assembly

1. Remove the crossover hose from one SureSeal™. Cap the injection fitting as above. Start the other engine and run in neutral. Hold the end of the crossover hose above the level at which the cooling system water enters the manifold. A steady flow of water indicates there is sufficient pressure for proper function.
2. Reconnect the hose and repeat the process for the other engine. Dress the crossover hose and secure loosely with cable ties.

NOTE: The preferred water pick-up point would be via a hose tee in the raw water discharge hose. Locate the tee AS FAR AWAY FROM THE RISER AS POSSIBLE to insure adequate head pressure.



Recommended Water Pick-Up Points In Order of Preference

1. **Hose Tee:** In-line between the heat exchanger and riser (as close to the heat exchanger as possible).
2. **Hose Tee:** In-line between the oil cooler and the heat exchanger.
3. **Hose Tee:** In-line between the water pump and the oil cooler.
4. **Drain Plug:** Back of the water pump. Be sure the drain is on the pressure side of the pump.
5. **Drain Plug:** In the heat exchanger.
6. **Drain Plug:** In the oil cooler (if oil cooler is on the pressure side of pump). The bore should be at least .200".

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