

# TIDESMARINE

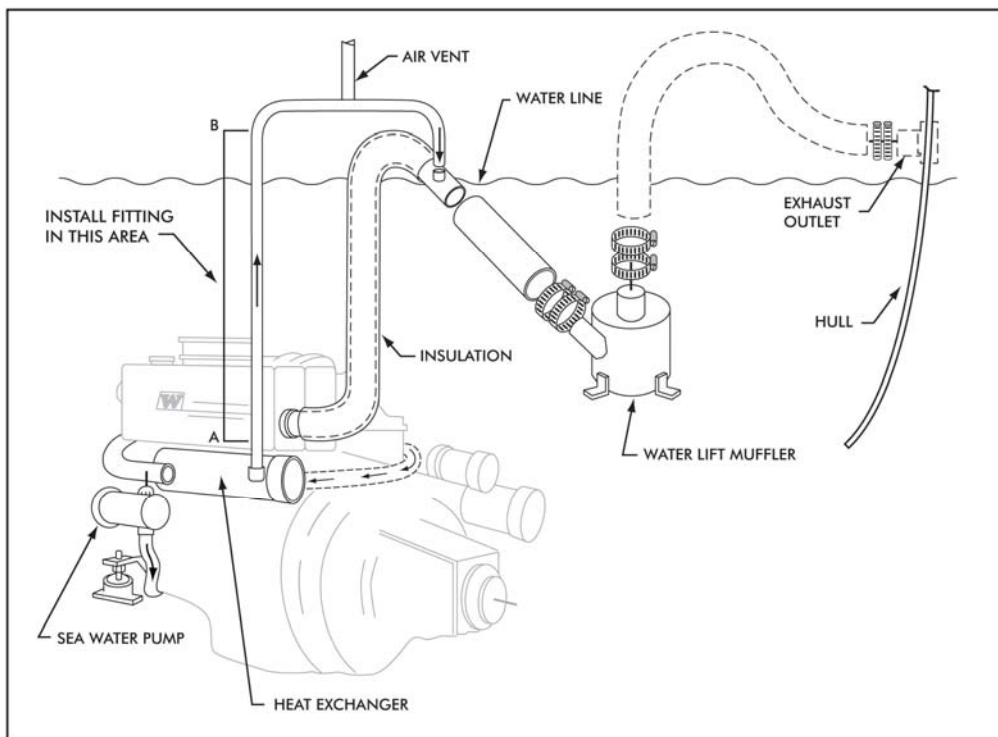
## Water Pick-Up Installation Instructions

### Engine Below (or at) the Waterline

A vented loop, with anti-siphon valve, is used when an engine's exhaust water is injected less than 40 cm (min.) above the waterline into the injection point. 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 anti-siphon valve 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

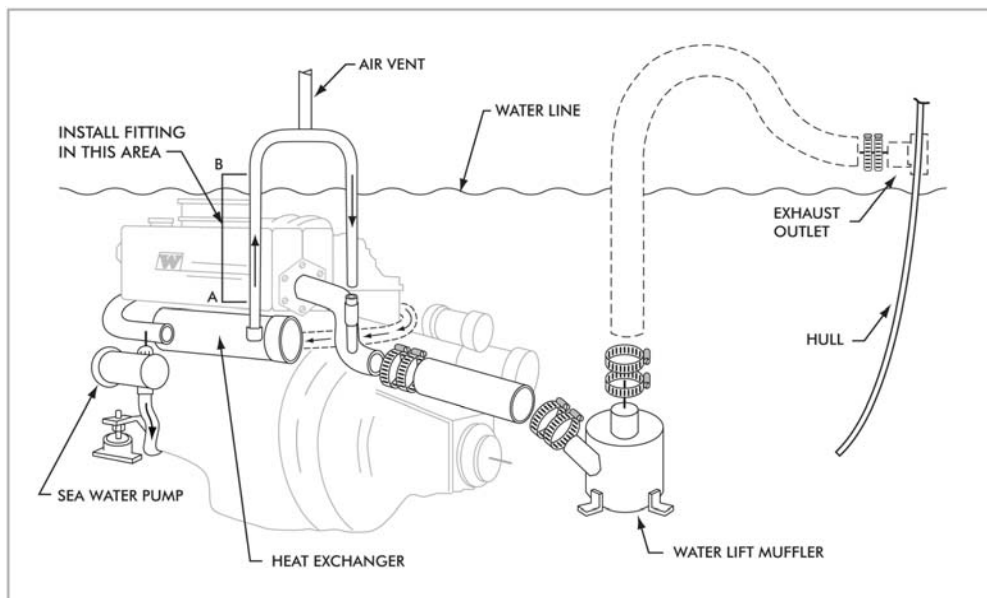


In this installation, the exhaust run comes off the engine and into a vertical pipe with a bend/elbow just above the waterline. From this elbow/bend, the exhaust system runs down past the waterline to a water lift muffler mounted in the engine room above the engine. The water lift muffler must be located at least 30 cm (min.) below the injection point.

The anti-siphon valve 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 anti-siphon valve between points “A” and “B” to form the water pick-up point for the Tides Marine shaft seal. The lower you position this fitting in the line (closer to “A”), the higher the head pressure will be to feed water to the shaft seal.
- 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 shaft seal 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 Marine suggests that a bit of slack be left in the hose at the “shaft seal” to allow for some movement during vessel operation. This reduces the chance of the hose “side-loading” the shaft seal.

### 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 at least 30 cm (min.) below the injection point.

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 tick-over in case excessive water is being supplied to the shaft seal and starving the exhaust system of water.

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