

Water Pump Installation



The first thing you have to do for your water pump installation is to get to the carburetor isolator block. To do this you have to first remove the carburetor and next the isolator block itself. We remove the block because we will get our pressure pulse from it. In the isolator block are two small passages that allow for the crankcase pulse signal to reach the carburetor. Only one of these passages is actually used though. The factory blocks have two passages (one on the top and bottom side of the block) so that the block can be installed either way. The one on the bottom is the one that lines up with the small hole in the engine just below the intake port. This hole communicates directly with the engine crankcase and supplies the pulse signal to operate our carburetor. We will tap into this to use this same pulse for our water pump.

With the block removed, carefully drill a hole in the bottom of the block so that it will break into the small pulse passage. The typical water fittings are threaded 5mm so you will want to drill the hole with 4.2mm drill bit or if you don't have one a 5/32" or 4mm bit should do the trick. After the hole has been drilled, use a 5mm tap to thread the hole for the water fitting. With the tapping done, make sure the passage in the isolator block is clean and there are no filings blocking it. You can now install the water fitting and double check that the passages are clear.



Now find a place to mount your water pump. Ideally mount it as close as possible to the pulse source (isolator block) to keep the pulse line as short as possible. The pulse line should be tubing designed for vacuum or at least tubing that has fairly rigid walls so that it will not absorb the pulse signal. Keeping the pulse signal as strong as possible is also the reason why you want to keep the pulse line as short as possible. If you don't have vacuum tubing handy, you can do like I did and use a piece of used gas tubing. The tubing has a tendency to harden after being used with gasoline for some time and works great as pulse line tubing.



Run a water line from your water pickup (this should be a pickup that is constantly in the water such as a rudder blade pickup or transom mounted pickup, NOT a prop blast pickup) to the pump's inlet and another line from the pump's outlet to your boat's engine. From the engine the water might exit the boat or go to a tuned pipe system, depending on components used.



The final step is to test the water pump. To do this, remove the tubing from your water pickup and drop it in a small container filled with water so that the pump will draw its water from the container. Start your boat's motor and within a few seconds the pump should be working and water should be coming out of the boat's water exit fitting. If water is not circulating, make sure all tubing is correctly connected and that there are no holes or leaks. You can disconnect the tubing from the pump's outlet and blow through it to make sure nothing is blocked in the water lines of the boat. Make sure you do not have inlet and outlet reversed at the pump. They are marked with arrows pointing in and out of the pump. Both inlet and outlet are part of the same casting of the pump. The pulse line nipple is on the opposite casting of the pump body. Whatever you do, do not overheat your engine. Stop it and let it cool. Find the problem and try again. A good working pump will supply more than enough water to cool your engine and tuned pipe system if you have one.

Some common causes of pump malfunction:

- inlet / outlet reversed
- leak at pulse line
- blockage at pulse line/fitting
- excessively long pulse line
- pulse line too soft
- restrictive water cooling circuit (blockage at fittings or in tubing)
- water pickup not continuously submerged
- defective pump (valves or diaphragm failure)

Happy Boating!