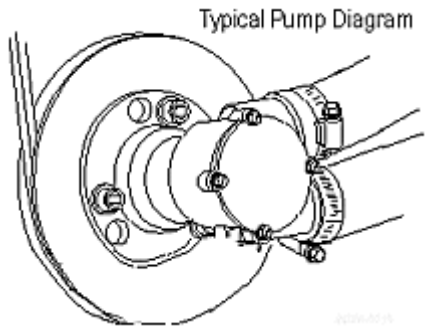
Raw Water Impeller Replacement

Overview

Engines cooled using raw water have two water pumps. One pump is designed to pull water out of the lake, which supplies the circulation pump that keeps the engine cool.

The raw water pump uses the water it pumps to lubricate the impeller. For this reason, the raw water pump should never be run out of water unless you have a device such as a "Fake a Lake" to put water into the system.



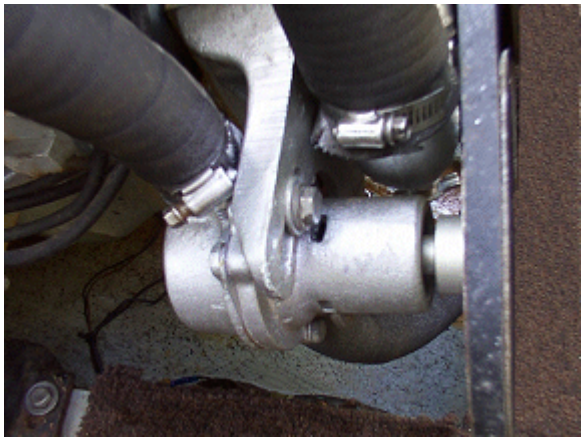
Some manufacturers recommend removing the impeller each season to prevent the rubber from becoming distorted from long term storage in the pump housing. The pump housing where the impeller spins is not a perfect circle but has somewhat of an oblong shape inside of it to create the suction as the blades spin.

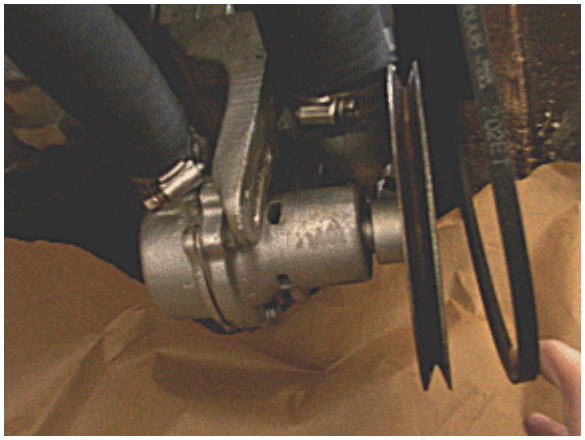
Over a long period of storage the blades will conform to the inner surface of the housing reducing efficiency of the raw water pump that can lead to problems with overheating and potentially result in engine damage. Preventative maintenance is the preferred method when it comes to things such as impellers, which are relatively inexpensive and easy to inspect and replace.

Note: *Always consult with your owners manual or dealer for the recommended procedures which may deviate from those listed here. Repair procedure shown was performed on a 351 PCM using a Sherwood Pump.*

Step 1 - Locate Pump

The first step in impeller replacement is to locate your raw water pump. One side will be connected to the transmission cooler and the other side will be connected to your circulation pump.

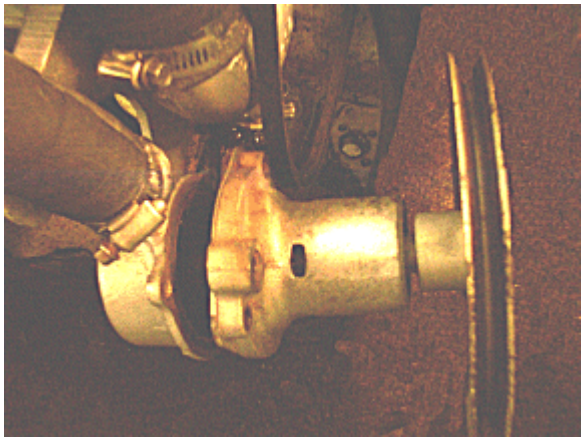




Step 2 - Remove Pump

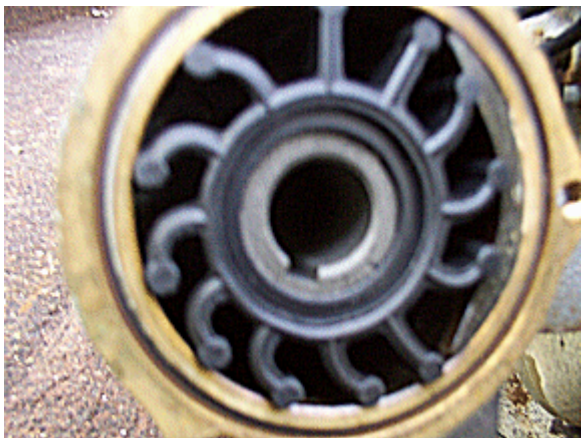
Remove the bolts that secure the raw water pump into the bracket. Remove the belt from around the pump pulley and pull the pump out to where you can get to the screws holding it together. Some boats may require you to remove the water hoses from the pump.

Note: *If the hoses are removed from pump, pay particular attention to the orientation so that the pump is reinstalled correctly. Some pumps can be accidentally reinstalled upside down resulting in no water flow to the engine and potential damage from overheating.*



Step 3 - Disassemble Pump

When you have the pump out and are able to access the bolts holding it together, remove the bolts from the pump housing. After the bolts are removed you should be able to pull the two halves of the pump apart being careful not to pull the impeller out of the housing at this time.



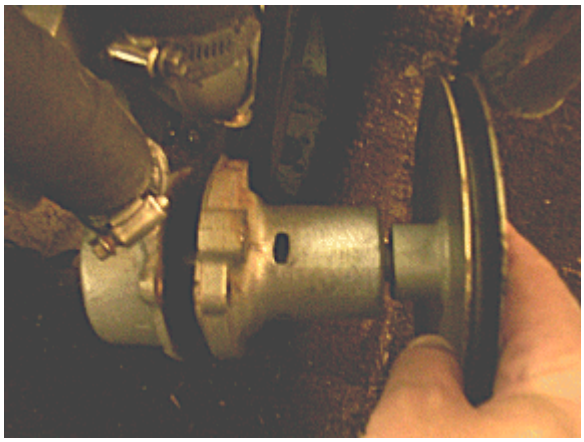
After you have the pump apart, make a note of how the impeller is laying inside of the housing. You want to make sure you put the new pump in the same orientation as the old.

Step 4 - Remove and Replace Impeller

The next step is to remove the impeller from the housing by pulling it straight out of the assembly. Take your new pump, which you should have at this time and put a thin coat of Vaseline or dishwashing detergent on the blades to help it slide back in, and to provide some temporary lubrication until the water can be drawn back into the system. While pushing the impeller back into the pump housing turn it in the direction that is necessary to place it back in the rotation noted prior to removal.

Step 5 - Replace O-Ring Gasket

After the impeller has been reinserted it's then time to replace the rubber o-ring on the housing face. Coat the o-ring with a small amount of Vaseline to help it stay in place until the housing can be put back together.



Step 6 - Re-assemble and Re-install Pump

Following the replacement of the o-ring you may put the pump housing back together being careful that the o-ring remain in place. Afterwards reinstall the bolts into the housing and tighten. Move the pump housing back into position rerouting the belt back around the pulley and securing the pump to the bracket. When the proper tension has been put back on the belt tighten the bolts in the pump bracket fully.

Step 7 - Test Cooling System

You are now ready to put the boat in the water or connect your "Fake a Lake" and test the installation. Start your engine and let the boat run at idle while monitoring the temperature gauge. If your installation was successful the engine should remain within normal operating temperatures. After you determine that the pump is working properly you are finished and should be good for the season.

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