

## Are you pumped up for spring?

Your raw water pump on your engine cooling system is one of the most un-appreciated devices in your engine room. This little guy turns at ½ engine speed and some models at full engine speed. That means this little workhorse could be turning over at 3500 RPM this is considerably fast.

Raw water pump are generally a rubber impeller positive displacement pump. This means the pump will move water at a given rate directly related to speed. The faster the RPM the more water in direct relation.

How these pump work is very simple. A rubber impeller is spun inside round a housing with a cam plate screwed to one side of the housing in-between the water inlet and outlet. This gives the round housing one semi flat side. As the impeller turns the veins of the impeller get compressed by the cam and uncompress over the water inlet. This draws water into the pump and in carried around the housing to the outlet where it is pushed out.

The impeller has many veins as many as a dozen so the above described process happens 12 times per revolution.

Your raw water pump should be serviced annually or after a long lay-up. Remove the cover of the pump and remove the impeller with a large pair of pliers keeping track witch way the veins are folded. Inspect the impeller for cracks and missing pieces. If big chunks are missing you may consider removing the first cooler in line (most often the oil cooler) and remove the impeller parts to prevent flow restrictions. Inspect the inside of the housing for gouges and make sure the cam is in good shape also. Some pump kits include a new cam. Examine the outside of the pump housing, blistered paint close to the drive input may be the early signs of a bearing heating up and abut to fail. Inspect the cover plate, more than likely there will be a pattern worn into the plate. If this is worn heavily you can sand in down with some 50 grit wet paper and a hard wood block or flip it over and use the other side. If you flip it be sure to right down all the information on the plate because the impeller will erase it in short order, even it it's stamped in.

Replace the impeller with the exact same one. Don't accept the parts guy's word for it that it will work. If you put in an impeller that has only 10 veins and the one you took out has 12 no big deal right. Wrong you will overheat your engine at high speed. You have reduced you water flow by over 17%.

When installing the impeller use some waterproof grease to get it in, this will also lubricate the pump during startup for the time that the pump has to lift the water to it. It will burn out very quickly with out water. Remember you noted witch way the veins were pointed now is the time to remember. The veins ALL MUST be pointed in the correct direction or they will break off on startup.

Reassemble the pump with all the brackets in place and test. If you do not get water out of the exhaust in 30 seconds shut off the engine before you burn the hoses and figure out why.

Keep the old parts on board you never know when you may need them.

This little job will keep your engine cool and maybe your mate too.

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