# Proper O-ring Lubricant and Water Treatment on Wet Cylinder Sleeves Critical !!

There are numerous advantages to using wet cylinder sleeves versus dry sleeves. Ease of removal and installation, fewer clearance problems created by the block, and better transfer of heat.

However, wet sleeves have their own set of problems to deal with. One problem that does exist with wet sleeves is making sure the proper type of o-ring lubricant is used during installation. Due to many changes occurring in the materials used to make sleeve o-rings, we can no longer use petroleum based lubricants because of the way they react to the newer o-ring compositions. Petroleum based lubricants can make the o-ring swell more than it should and cause a lower bore restriction which can lead to piston seizure.

Another problem that wet sleeves can have is cavitation. Cavitation is the condition where the iron has been gradually pulled from the outside surface of the sleeve leaving a series of small rough cavities along the torque side of the sleeve. This problem is caused by slight vibration of the sleeve during engine operation.

The piston motion creates a rhythmic vibration causing small vacuum bubbles on the outside of the sleeve to burst. Because these small bubbles have tremendous surface tension when the water goes untreated, the vibration bursts the bubbles with a force high enough to break the granular structure of iron. This problem also seems to be more prevalent in certain engines, perhaps due to differences in how they are designed.

Installing water filters with the chemical additive inside is one approach to this problem but only works if the filters are changed on a regular basis. This chemical additive is not in normal antifreeze. Checking to make sure you have good tight sleeve fit is also important.