What Is Cavitation?

Any liquid, at any temperature, forms a vapor over its surface, which produces a certain amount of pressure. This vapor pressure increases as the liquid temperature rises. When the vapor pressure is equal to or greater than the pressure surrounding the liquid, the liquid boils. Vapor pressure is important because of the way it affects pump operation.

Each pump is designed to operate within a given speed range and under a specific set of intake conditions. Operating a pump at excessive speed or at too high an intake lift, restricting the intake, or any other factor that causes the pressure on the liquid to fall below its vapor pressure produces a condition called *cavitation*. When this condition exists, the liquid vapor released in the low-pressure regions of the pump forms bubbles. These bubbles are carried into the high-pressure sections of the impeller where they collapse with considerable force. This may cause pitting near the impeller surfaces.

Signs of Cavitation:

* Sudden pressure or capacity loss.
* Increasing pump speed without corresponding increase in volume or pressure.
* Excessive pump vibration.
* A rattling sound resembling gravel going through the pump.

Note: Reducing pump speed or improving intake conditions will usually eliminate cavitation.