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Lubricating Systems

LUBRICATING FLUIDS, NAMELY OIL, SERVE MANY VARIED PURPOSES in reciprocating engines. One of the main purposes of oil is to reduce friction—to fill in the microscopic peaks and valleys on the surface of metal. Oil holds metal surfaces apart so the relative movement is actually between two layers of oil. This sliding effect greatly reduces friction and extends the life of the metals, so it is easy to understand why keeping your oil healthy has a significant impact on the health of an engine.

Viscosity is the most important characteristic of a lubricant. Viscosity is the oil's internal resistance to flow. It relates to how “heavy” or “thick” the oil is. Water, for example, has a very low viscosity; molasses is very high. The lubricant industry now uses kinematic viscosity as the standard measurement. Kinematic viscosity, measured in centistokes (cSt), is the measurement of flow time between two determined points. The instrument used to determine the rating is called a *viscometer*.

The first industrywide standards for piston-powered aircraft engine oil have been issued by The Society of Automotive Engineers (SAE). The new system defines specifications for all grades of oil including multiviscosity oils. Previously, military specifications were commonly accepted performance standards for civil aviation, but they did not define newer grades of oil such as SAE 30, SAE 50, and multigrade oils. The chart lists each SAE oil grade and the existing military specification. The new terminology for oils that meet the new SAE standards is also noted for both AllMineral and Ashless Dispersant oils.