



# HUILA



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## An Engine's Lifeblood Part II

*Editor's note:* Recall from the November newsletter, "An Engine's Lifeblood Part I", an article written by Mikey Gentry, a Pennzoil engineer. In the first half of this article he discussed the primary functions of modern motor oils: engine cooling, counter-acting corrosive substances, suspending dirt & metal particles—so that they may be removed with oil changes, lubrication, and filling the tiny gaps between the engine's piston rings and the cylinder walls to form a combustion seal. In Part II, he names, and describes the functions of several of the many sophisticated additives in modern oil.

**B**ase oil alone cannot protect a modern automobile engine. Today's motor oils contain several different sophisticated additives. Modern motor oil must perform a number of difficult tasks. The right motor oil, combined with frequent changes of oil and filter, helps protect and extend the life of an engine.

**Viscosity index improvers** reduce the thinning of an oil at high temperatures and the thickening of oil at low temperatures, allowing oils to work corrected in a wider range of temperatures.

**Anti-wear agents** react chemically with metal to produce a protective coating in high load areas (such as cams, valve lifters, and rocker arms) where an oil film tends to break down.

**Rust and corrosion inhibitors** neutralize the acids that form in an engine to help prevent rusting and wearing away of engine surfaces.

**Friction modifiers** minimize friction between moving parts, helping motorist save gas by reducing power requirements.

**Detergent-dispersants** pick up microscopic engine contaminants and hold them suspended in the oil, where they can be removed with the oil at each change.

**Oxidation inhibitors** prevent oil from thickening in a chemical reaction with the oxygen when an engine reaches high operating temperatures.

**Foam inhibitors** reduce foaming of motor oil, which can diminish its lubrication and cooling capacity and lead to engine noise and oil loss.

**Pour point depressants** prevent congealing of trace amounts of wax in oil at low temperatures, helping the oil flow smoothly.

