An Engine's Lifeblood
Part I

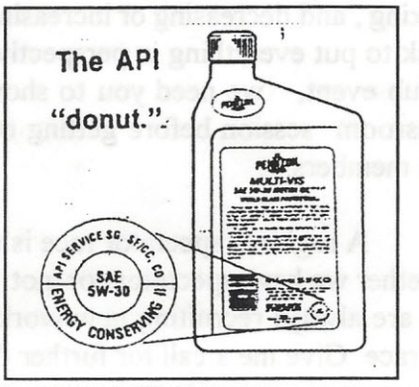
The following are excerpts from an article written by Mikey Gentry, a Pennzoil engineer.

Operating under extremes of heat and compression, turning at revolutions of more than a thousand times per minute, today's car engine is a miracle of precision and power .

Powerful? Yes, but without motor oil a modern engine comes to a screaming halt within seconds as bearings melt and metal parts weld together under the extreme heat caused by friction. Motor oil lubricates the metal surfaces of the engine, allowing moving parts to travel freely and preventing metal from wearing away metal .

It also helps to protect an engine in several other important ways. It helps cool the engine by carrying the heat of combustion and friction as the oil is pumped from the pan to the bearings through a series of lines and tiny openings and back to the pan. It counteracts corrosive substances that form during normal driving and keeps the engine clean by suspending combustion contaminates, dirt and minute metal particles so they can be removed with the oil and filter at each oil change. Oil fills the tiny gaps between the engine's piston rings and the cylinder walls. This forms a seal, allowing pressure to build in the combustion chambers, and reducing leakage (blow-by) between the combustion chamber and the crankcase. Excessive blow-by causes power loss and allows dilution of the engine's oil by the fuel and exhaust gas that escapes from the combustion chambers.

Do you know if your car is protected against it's enemies—heat, friction, and cold? Look for, and know how to read the API "Donut". See below.



First, look in the middle of the donut, select an oil of the proper SAE viscosity grade (weight). Next, choose an oil which lists "SH" and "CD". ("S" means the oil is approved for passenger vehicles, The "C" means that it is approved for commercial vehicles. The "H" and the "D" are the rating quality/standard for the oil—"H" and "D" are currently the highest rating for each category, respectively.) Finally, try to choose an oil which lists that it is an "Energy Conserving II" rated oil. This indicates a high amount of friction modifiers.

Editor's Note:

Part II, next month, discusses some of the many sophisticated additives used in combination with base oils, and their functions to protect modern automobile engines.