

## **WHAT DOES ENGINE OIL DO?**

### **LUBRICATE**

Motor oil must lubricate engine components so that they will easily pass by one another without a significant loss of power due to friction. At start-up, this is especially true. As an engine sits, oil tends to run down into the oil sump. Therefore, when the engine is started, the oil must be quickly pumped throughout the engine to provide sufficient cranking speed for the engine to turn over.

Once the engine is running, engine oil must create a film between moving parts to make them "slippery" which increases power, performance and efficiency. Each different type of engine requires a certain viscosity range in order that the oil will provide an adequate film between moving parts while still flowing quickly and easily enough throughout the engine.

Some people mistakenly believe that if an SAE 30 oil provides good protection, an SAE 50 oil must provide greater protection. That's not necessarily true. If your vehicle was not designed to take an SAE 50 oil, using one may not cause more engine wear, but it will likely cause an increase in engine temperatures. This can be just as bad for the longevity of your engine as engine wear.

### **PROTECT**

The film that an engine oil provides between metal surfaces does more than just lubricate. By keeping engine components from coming in contact with each other, a motor oil also provides protection against wear. However, there is another way in which an oil protects.

Engine oil must protect against corrosion of engine components. Oxidation of the oil and contamination via condensation and combustion by-products all cause acids within an engine oil. If these acids are allowed to come into contact with engine components, corrosion occurs and premature component failure is the result. Engine oils are designed to combat these acids.

### **CLEAN**

If an engine does not remain clean, it does not remain efficient. Deposits within an engine gum up the works and reduce fuel efficiency while robbing your engine of performance. In addition, contaminants within an oil that are left "unguarded" can cause incalculable wear within an engine.

Any particle larger than 5 to 20 microns in size (depending upon the vehicle) will seriously damage an engine if not removed or contained. To give you an idea of how small this is, a human hair is 100 microns thick. Although filtration plays a big role in this area, the oil also has to play it's part by keeping deposits from forming within the engine and by holding contaminants in suspension until they can be removed by the oil filter.

### **COOL**

Engine oil is responsible for a large percentage of the cooling that takes place within your engine. Your radiator is only responsible for cooling the upper portion of your engine. The rest, crankshaft, camshaft, timing gears, pistons, main and connecting rod bearings and many other critical engine components are cooled mainly by the motor oil within your engine.

Heat is generated within an engine from both the combustion process and the friction caused by the motion of engine components. As oil passes through the system it is directed onto these hot surfaces in order to carry the heat away to the oil sump. From

here the heat is dissipated to the air surrounding the sump.