Choosing the Right Type of Motor Oil

The next section will deal with each of the variables in depth to allow an owner to puzzle through the (sometimes confusing) world of engine oil.

Additive packages:

Oil isn’t just oil. Manufacturers add in various chemicals and minerals to change how the oil works within an engine. In high-mileage oil they may add a higher level of anti-wear agents, corrosion inhibitors and seal conditioners to get the most out of an aging engine and keep it running longer.

Despite a bewildering array of oils on the market, with various additive packages and performance standards, finding the right oil for your car is relatively easy. But finding the best oil out of the array is a little more difficult. However, puzzling out the best oil can be a benefit. Oil is what keeps the engine from premature wear, overheating and a host of other life-shortening problems. Finding good oil, not just expensive oil, is an effective tool in helping keep a car on the road longer.

Understanding Oil Basics

The challenge in finding the right oil comes when a driver begins to examine the bewildering assortment of oils available on the market. There are different additive packages, viscosities, oils for high- and low-mileage vehicles, extended life and the list goes on and on. Added to the types are ratings from the American Petroleum Institute (API) and Society of Automotive Engineers (SAE) to consider.

The best place to start the selection process is in the owner’s manual. The manual will lay out what types of oil are best for your vehicle given its mileage, the type of driving you do and even ambient temperatures.

Before shopping around, however, it’s best to understand some basics.

API symbols: The API uses two symbols: The API “donut” and the API Certification “starburst.” The “donut” is divided into three parts with the top half describing the oil’s performance level, the center identifying the oil’s viscosity and the bottom half informing whether the oil has energy conserving potential. Performance levels are illustrated with an “S” for gas engines, and a “C” for diesel. The “S” stands for “service,” and the “C” for “commercial.” The starburst symbol indicates the oil was tested and met the standards set down by the institute and will function as it claims.

Viscosity: This test, developed by the Society of Automotive Engineers, determines how well the oil flows at 0 degrees Fahrenheit (-17.8 degrees Celsius), and at 212 degrees Fahrenheit (100 degrees Celsius). These tests arrive at the oil’s designation, the familiar 5W-20, 5W-30, 10W-30 or 0W-30. Two numbers mean the oil is a multi-grade, tested at two temperatures. There are single-grade oils, but these are generally used for less critical applications, like in lawn mowers.

Type of oil: API approval and viscosity rating are really just the beginning. While oil may be API approved, and the required viscosity, it could be conventional motor oil, semi-synthetic, full synthetic or high-mileage. The owner needs to determine what type they should use. For example, most cars with more than 75,000 miles (120,701 kilometers) could benefit from high-mileage oil, but not always. An owner needs to know other factors, such as how often they changed their oil in the past, whether the engine seems worn and other car peculiarities before they arrive at a final decision.

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Often times a manufacturer will suggest two or more motor oil viscosities for an engine, such as a 5W-20 or 5W-30, based on several different factors – including temperature. The reason for this is that engines often need a different viscosity based on operating conditions. Knowing how scientists see viscosity will help an owner determine the best oil for the engine.

Viscosity, at its most basic, is a fluid’s resistance to flow. Within the engine oil world, viscosity is noted with the common “XW-XX.” The number preceding the “W” rates the oil’s flow at 0 degrees Fahrenheit (-17.8 degrees Celsius). The “W” stands for winter, not weight as many people think. The lower the number here, the less it thickens in the cold. So 5W-30 viscosity engine oil thickens less in the cold than a 10W-30, but more than a 0W-30. An engine in a colder climate, where motor oil tends to...
Choosing the Right Type of Motor Oil

Among the best ways to find the right motor oil for your car or truck is to use the manufacturer's base recommendations, do a little research on the subject and then base oil, the type of oil, viscosity, and a host of other factors. Every oil has a recipe, some will work well in an engine, some will not. Make the call. Also keep in mind that frequent filter changes, as well as frequent filter changes, play a key role in keeping an engine running for the long haul.

Some companies also add viscosity modifiers to thicken the oil, as well as anti-wear additives. We'll discuss those on the next page.

Choosing the Right Oil Additives

Additives, not always listed as part of the oil recipe, are also a factor to take into account. Listed below are some of the more common additives found in motor oil:

- **Detergents:** Help remove some deposits, but mostly inhibit the formation of high-temperature deposits, rust and corrosion.
- **Antiwear additives:** When the lubricating film created by the oil breaks down, the antiwear additives protect the metal surfaces.
- **Viscosity-index improvers:** Lessens the oil's tendency to thin with increasing temperature.
- **Foam inhibitors:** The crankshaft rotating through the oil in the pan causes foaming. Foamy oil does not lubricate as well as full-liquid oil. The inhibitors disperse the foam.
- **Friction modifiers:** These reduce engine friction and (technically) improve mileage.

While additives are an excellent addition to car and truck oil, they have to be balanced against many factors and sometimes too much can be a detriment rather than an advantage.

For example, sulphur compounds provide antiwear properties, but they can also reduce fuel economy and affect catalytic converter operation. Adding too much detergent could affect the antiwear balance of the oil. Friction-reducing additives also may have ingredients that could affect the catalytic converter.

Additives represent anywhere from 5 to 30 percent of a given quantity of oil. How they function within the oil is dependent on the base oil, the type of oil, viscosity, and a host of other factors. Every oil has a recipe, some will work well in an engine, some will not.

Among the best ways to find the right motor oil for your car or truck is to use the manufacturer's base recommendations, do a little research on the subject and then make the call. Also keep in mind that frequent oil changes, as well as frequent filter changes, play a key role in keeping an engine running for the long haul.

For more information about choosing the right oil for your car or truck and other related topics, follow the links on the next page.

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