Mighty On the Line

Normal vs. Severe Service

Selecting the Proper Lube Service Interval

By Larry Hammer
Technical Services

Scheduled vehicle maintenance makes good business sense, especially when compared to costly engine repairs or an engine replacement. Many vehicle owners unknowingly select a service interval that is not healthy for the engine or recommended by the vehicle manufacturer.

Most vehicle manufacturers offer two service schedules… Normal and Severe Service. These options have created much controversy when determining what should be considered as Normal or Severe Service conditions. Many vehicle owners assume that they should operate their vehicle under Normal Service conditions and that is often not the case.

New engine technology and lubricants have made extended service intervals possible. The following information should illustrate what the correct service schedule should be for the operating conditions.

Lubricant Facts

1) The engine oil serves as a lubricant to prevent the moving parts from making metal-to-metal contact by providing a protective film.
2) The oil serves as a coolant to remove the engine heat, preventing damage to the internal engine components.
3) The oil contains inhibitors to prevent corrosion and detergents to help keep the engine clean, minimizing the accumulation of deposits. When these protective chemicals become diluted, bad things happen in the form of worn or broken parts.

4) The engine oil is exposed to high temperatures that can affect the life of the additives, the purpose of which is to control the viscosity of the oil and prevent corrosion and deposit formations.
5) Crankcase condensation can promote the formation of acids in the lubricant.
6) The engine oil becomes diluted due to the collection of fuel and moisture in the crankcase. This is prompted by cold starts and short trip driving, which prevents the engine from reaching its normal operating temperature, whereby evaporation will rid the crankcase of the mentioned elements. This is especially a problem in low ambient temperatures.
7) Reduced sump capacities puts stress on the lubricant.
8) Smaller displacement engines work harder, putting more stress on the lubricant.
9) During the combustion event, gases containing fuel, water and acids get past the piston rings, contaminating the crankcase oil, causing a degrading effect.

Most vehicle owners assume that their driving conditions qualify in the Normal Service category, when the opposite is usually the case. Let's consider some operating conditions that determine which category the vehicle should be placed in.

Severe Service

If the vehicle is driven under one or more of the following conditions, it should be serviced under the Severe Service maintenance interval:

1) Repeatedly short trip driven for distances of five miles or less. If the engine fails to reach its normal operating temperature it cannot burn off the condensation and other contaminants, resulting in an accumulation of sludge, varnish and other deposits.
2) Vehicles driven 10 miles or less in ambient temperatures below freezing.
3) Extended idling, such as taxis, law enforcement vehicles, delivery vehicles, or slow speed driving for long distances, such as in heavy traffic.
4) Vehicles driven in heavy traffic in extreme hot weather (above 90 degrees F).
5) Off-road conditions or a dusty environment.
6) Rough, muddy, sandy, or salt spread roads.
7) Pulling a trailer, top carrier, or boat.
8) Continuous driving while exceeding normal highway speeds.
9) Frequent stopping and starting.

Normal Service

Highway miles are easy on the engine lubricant. If none of the previously mentioned conditions apply to the operating characteristics of the vehicle, then the maintenance should be performed in accordance with the vehicle manufacturer's Normal Service schedule. Some vehicles are equipped with an oil life monitoring system that determines the proper service interval, based on certain engine operating characteristics.

Maintenance cost is pennies on the dollar compared to the cost of mechanical failures due to poor lubrication resulting from improper maintenance.