



Filter Knowledge, Unfiltered

## Technical Service Bulletin 94-1R1

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### **Automotive Oil Change Intervals Severe vs. Normal Driving**

Today, motorists are driving vehicles where preventive maintenance is even more critical than ever before. This maintenance falls under two categories, severe and normal.

It is important for anyone who wants to get the maximum service from their vehicle to read the owner's manual carefully and follow the preventive maintenance recommendations. If, by any chance, a customer has purchased a used vehicle and does not have an owner's manual, the manufacturer should be able to supply one.

Of course, one must understand what is being read in the owner's manual. Over the years, the emphasis in most manuals has been extended service intervals, in order to make the vehicle as "maintenance-free" as possible. It is for this reason the preventive maintenance schedules should be followed to the letter, and the vehicle owner understands the differences in service requirements.

For instance, for a number of years, many new vehicle owners' manuals have recommended oil changes every 7,500 miles (12,000 km)/12 months or longer, and oil filter changed at the first oil change and thereafter at every second oil change, or at 15,000 mile (24,000 km) intervals for "normal" service. For diesel and turbocharged engines, the owners' manuals recommend more frequent oil and filter changes.

For "severe" service, most owners' manuals recommend an oil change every 3,000 miles (5,000 km) and an oil filter change with every oil change. This is the interval also recommended by the Filter Manufacturers Council and the American Petroleum Institute.

However, what the owners' manuals call "normal" operating conditions are really ideal conditions, mostly long highway trips rather than around-town driving. According to a previous survey done by a member company of the Filter Manufacturers Council, history has shown only about 20 percent of vehicles are regularly driven under "normal" conditions. That means four out of five drivers are in the "severe" driving category. But no one likes to think of themselves as a severe driver. You might want to call the two categories "ideal" and "average"

rather than the "normal" and "severe" titles used in the owners' manuals. Since 80 percent of motorists drive under less than ideal conditions, the "average" title is certainly justified.

Severe (or average) service, as defined in most owners' manuals, includes trips of less than four miles (six km), particularly in cold weather. Under these conditions, the engine does not warm up completely, causing moisture to accumulate in the crankcase. Every time the engine is started, the oil is contaminated with blow-by soot, raw gasoline and condensed moisture. Unless the engine gets regular extended highway travel, these contaminants remain in the oil.

After 3,000 miles (5,000 km) of "severe" - or "average" - driving, the oil can be saturated with foreign substances. Within the same time period, chemical detergents, dispersants, anti-oxidants, viscosity improvers, and corrosion inhibitors may be depleted. Although the oil does not wear out, the additives do. Unless they are replenished, the oil cannot properly function in today's internal combustion engines.

Trips of less than four miles (six km) is the key factor in keeping most motorists in the average or "severe" category. In many owner's manuals the following are considered "severe" or average conditions:

- Frequent idling for long periods of time, such as stop-and-go driving in heavy traffic. Many vehicles are subjected to this condition twice a day in commuting to major cities.
- Sustained highway driving in hot weather, such as vacation travel.
- Towing a boat or trailer, carrying heavy objects on a rooftop rack.
- Driving in dusty conditions, such as dirt or gravel roads.
- Prolonged operation at sub-zero temperatures.
- Driving on steep hills or mountains on a regular basis.

Bear in mind that any one of the above conditions can make it mandatory to change oil and filter at 3,000 mile (5,000 km) or three-month intervals.

If one does not know which kind of driving, average or ideal, they do the most, we recommend changing at average intervals. Like most preventive maintenance the oil and filter change is a form of insurance. In addition to the contaminants produced by engine operation, dirt can get into the crankcase and metal particles can flake off internal engine parts and bearings. The purpose of the oil change is to remove the harmful contaminants that have accumulated in the crankcase and to replace the depleted additive package in the used oil.

The oil filter should be changed every time the oil is changed because up to 3/4 of a quart (3/4 of a liter) of used oil remains in the filter when only the oil is changed. This contaminated oil immediately mixes with the clean oil and

contaminates it. It is cheap insurance to make each change a complete one with both new oil and filter.

If one wants to keep their vehicles long term maintenance costs low, there's no better place to start than by scheduling regular oil and filter changes. Other preventive maintenance is recommended on the same basis, plus the necessity of checking oil and other fluid levels frequently. Vehicles where basic maintenance checks have been neglected often have seriously low engine oil, brake fluid, automatic transmission fluid, battery electrolyte or other fluids. Such vehicles are not likely to give extra years of service.

Please refer to TSB 94-7R10 for proper disposal of used oil and filters.

For additional information, contact:

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