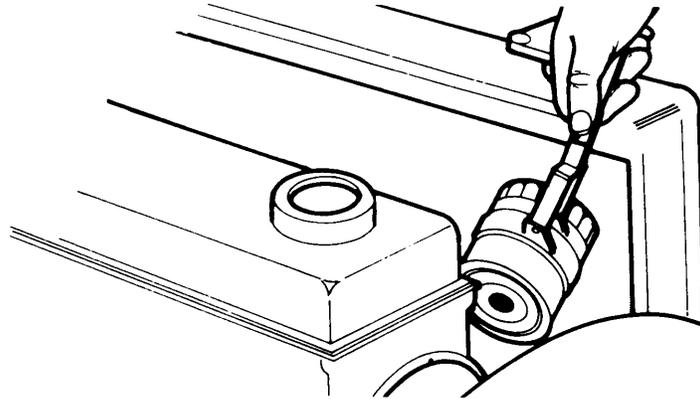




HOW - TO OIL AND FILTER CHANGES



Tool And Material Checklist

- | | |
|---|---|
| <input type="checkbox"/> Filter Wrench | <input type="checkbox"/> Oil and Filter |
| <input type="checkbox"/> Jack and Jack Stands or
Wheel Ramps | <input type="checkbox"/> Pour Spout or Funnel |
| <input type="checkbox"/> Drip pan | <input type="checkbox"/> Sealable Container |
| <input type="checkbox"/> Gloves | <input type="checkbox"/> Grease Gun |
| <input type="checkbox"/> Safety Glasses or Goggles | <input type="checkbox"/> 1/2" Drive Ratchet |
| <input type="checkbox"/> Wheel Chocks | <input type="checkbox"/> Open-ended or Box Wrench |
| <input type="checkbox"/> Clean Rags | <input type="checkbox"/> Engine Flush |

** This How-To Guide is designed as a general overview of a vehicle repair procedure. You should always refer to a service manual designed for your vehicle for detailed instructions. Parts Plus assumes no liability for an incorrect procedure.*

Although doing an oil and filter change is often considered a complicated task by people who have never done one, it is actually one of the simplest operations you can perform on your car. You'll also find that it's one of the easiest ways to save money on vehicle maintenance; you can do the job at home for about half the usual service station cost by following procedures in this booklet.

WHY CHANGE YOUR OIL AND HOW OFTEN?

What does oil do for a car's engine? If asked this question, most people would answer "lubricate." And while lubrication is very important because it reduces friction and wear between the moving parts, it is by no means the only thing that oil does.

Oil also:

- Carries heat away from critical areas and makes parts run cooler.
- Provides a seal between the cylinder walls and pistons.
- Combats rust and corrosion.
- Reduces engine noise.
- Combines with the oil filter to remove contaminants from the engine.

When performing these tasks, oil is subjected to extreme environmental conditions. Engine temperatures can range from below zero during winter shutdown periods to well over 400°F while in operation. A variety of contaminants that eat away at engine parts is constantly being introduced into the system. In addition, oil can be thinned by gasoline and water, and its protective additives can evaporate. With all of these factors taking their toll, it becomes critical that the oil is changed frequently.

Consult your owner's manual to determine how often the oil and filter should be changed. And never be concerned about changing the oil too often; it has been proven that frequent changes are the key to a long and trouble-free engine life. In fact, many professional mechanics claim that a car's life can be doubled or even tripled by changing the oil and filter every three months or 3,000 miles.

Another important thing to keep in mind is this: You can purchase top-quality oil and filters from auto centers and discount stores at much cheaper prices than service stations charge. Many stores also sell oil by the case at even greater savings. Watch for sales and stock up on these items when the price is right. Then you'll have everything you need when it comes time to change your oil, and you'll save lots of money in the long run.

TYPES OF ENGINE OIL

Oil cans are labeled with a letter code indicating the service recommendation. They include SA, SB, SC, SD, SE, SF, CA, CB, CC, and CD. The codes beginning with "S" are designed for normal gasoline engine use, while those beginning with "C" are intended for diesel engines. As for a particular brand, any premium-quality SF oil will provide the required engine protection. It is a good idea, though, to use the same brand regularly, since additives differ from brand to brand.



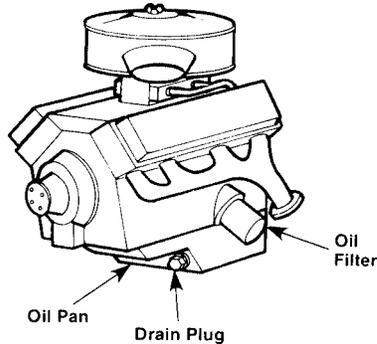
Oil can letter code

In addition to meeting the SE classification, your oil should be a viscosity suitable for your area's driving conditions and temperatures. The best are multi-viscosity oils, which combine protection of the heavier variety. These include 10W-30, 10W-40, 10W-50, 10W-20W-30, 20W-40, and 20W-50. Most auto experts feel that a 10W-40 variety is the best choice for year-round driving under normal conditions. As for using additives and synthetics, your engine does not really need them if you use premium-quality oil and change it regularly. The exception would be if you live in a particularly frigid climate, since synthetic oils flow well even in extremely cold temperatures.

OIL FILTERS

The oil filter is externally mounted on the engine block. Its job is to remove impurities from the oil that would otherwise prove harmful to the engine. Because today's cars are designed to use full-flow oil filters, there is no way oil can get to the engine without first passing through the filter. However, if the amount of impurities becomes so great that the oil can't get through, a bypass valve in the filter allows the unfiltered oil to flow to the engine. This is why it is so important to change the filter at regular intervals.

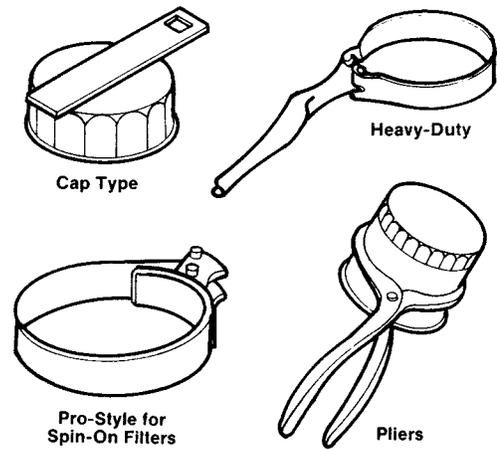
Most auto manufactures recommend a filter change every other oil change. But when the oil is changed without changing the filter, about a quart of used oil is retained. To get maximum benefit, both the oil and filter should be changed together. Make sure the filter you buy meets all manufacturers' warranty requirements. If in doubt as to the right one, most auto supply stores have a catalog listing the correct filter for each car.



Typical oil filter location

DOING THE JOB

Before performing an oil change, there are a few things to consider. First make sure you have the correct filter wrench for the type of filter that you're using and that it can be maneuvered in the cramped area around the filter. There are several styles of filter wrenches available, and most are fairly inexpensive. Also, on most cars an open-ended or box wrench will do for opening the drain plug; however if your car has a recessed drain plug, a socket wrench must be used.



Types of filter wrenches

While it is not necessary to raise a car to change the oil and filter, you might find it more convenient to do so. To raise your car, use either jack stands or wheel ramps. **Never use a bumper jack for this job;** this type of jack is for tire changing only. If you decide to change the oil without raising the car, a drip pan will slide under the car more easily than an old dishpan or other homemade container.

Another important consideration is how dirty your car's oil gets between changes. The purpose of an oil change is to remove dirt and contaminants, but if the new oil immediately picks up dirt from the engine, you're only defeating the purpose. If you have a dirty engine, it's a good idea to use a can of engine flush before draining the old oil. Follow the instructions on the can, and your car is ready for an oil change.

1. Lay out all your tools within easy reach. Wear gloves, a long-sleeved shirt, and safety glasses or goggles to protect yourself from hot oil that can splash or drip.

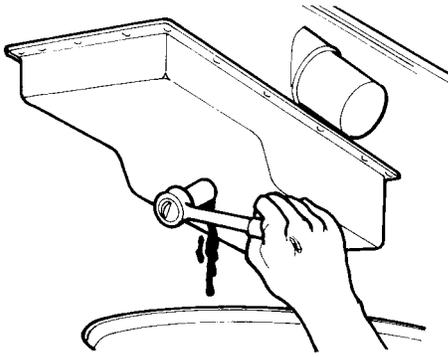
2. Run the engine until it reaches its normal operating temperature. This allows the oil to circulate and pick up the contaminants to be drained out.

3. Turn off the engine. If your car has an automatic transmission, set it in **PARK**; if it's a standard transmission, set it in low gear.

4. Set the parking brake, block the rear wheels, and jack up the front end of the car. If you're using ramps instead, block both front wheels to prevent any movement.

5. Lay a sheet of cardboard under the oil pan and position the drip pan directly under the drain plug.

6. Use the appropriate wrench to loosen the drain plug. If it won't loosen, use a hammer on the free end of the wrench to shock the plug loose.

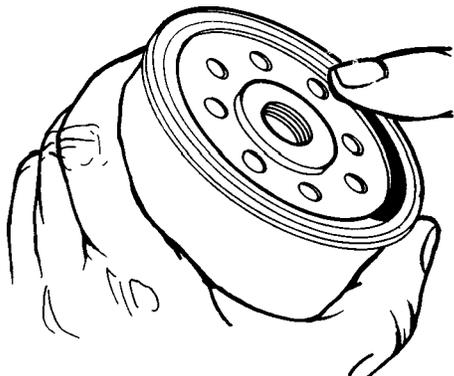


Loosening the drain plug

7. Screw out the plug by hand until the last thread is about to let go. Then give it a quick final turn and pull it away quickly before the hot oil flows out.

8. After most of the oil has drained out, remove the filter; it may be loose enough to remove by hand instead of using a filter wrench. Be sure to place a drip pan under the filter, because the filter will have oil in it. Throw the old filter and gasket away. Make sure the old gasket does not remain on the filter flange or a serious leak will result.

9. Clean off the drain plug threads with a rag and remove any dirt from around the washer (if there is one). Insert the plug and tighten it snugly, first with your fingers and then with a wrench. Do not force it or you will strip the threads.



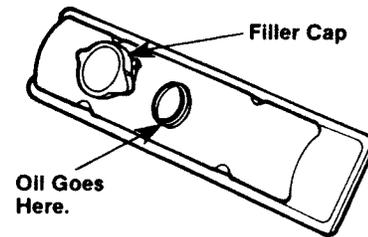
Spreading oil on the new gasket

10. Use a clean cloth to wipe away any oil or grit from the filter recess. Put a few drops of clean oil on the new gasket and spread it around with your fingers.

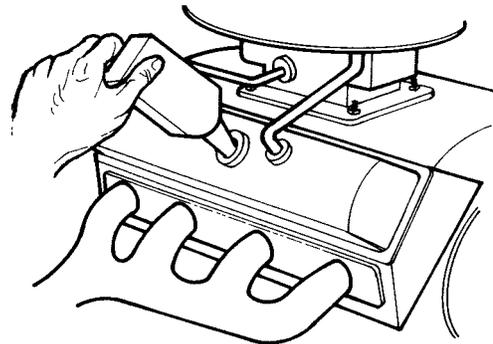
11. Install the new filter and hand tighten it until the turning gets harder. Give it another half turn to seal the gasket. Making it too tight will only distort the gasket and cause a leak.

NOTE: The reason that it takes a wrench to loosen a filter that was only hand tightened is that the extreme heat from the engine eventually causes the gasket to seal very tightly.

12. Locate the filler cap (it is usually on the rocker arm cover) and remove it. Pour in the new oil using a pour spout in the can or a funnel.



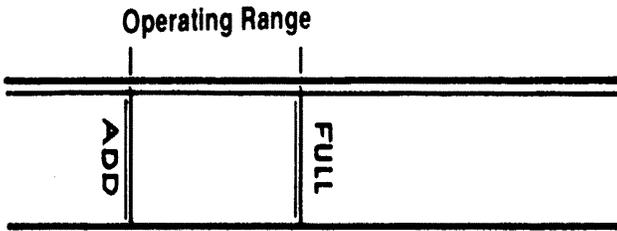
Location of oil filler hole



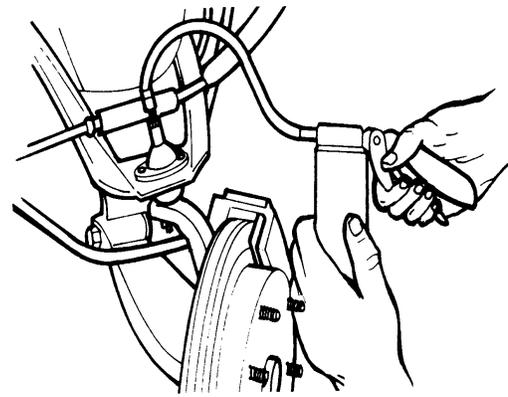
Adding new oil to the crankcase

NOTE: Consult your owner's manual for the number of quarts needed for and oil change with a filter.

13. Turn on the engine and let it idle for a few seconds to allow the new filter to absorb the oil. While the engine is running, inspect the filter and drain plug for leaks.



Reading a dipstick



Using a grease gun

14. Turn off the engine and check the dipstick to make sure the oil is up to the proper level.

15. Fast-idle the engine for a few minutes, turn it off, then check for leaks at the filter; the filter gasket does not always seal correctly.

NOTE: Never pour dirty oil down a street drain. Put the old oil in a sealable container, cap it tightly, and dispose of it properly. Keep in mind that some auto repair shops accept used oil, and many municipalities now provide oil waste facilities.

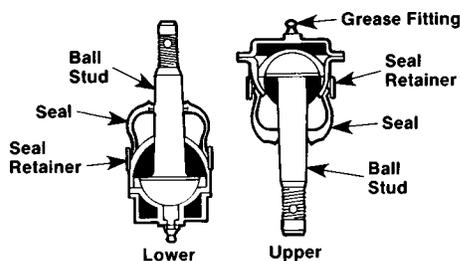
It is important to check the oil level periodically between oil changes. To do this, first turn off the engine. Pull the dipstick, wipe it off, then reinsert it. Pull it out again and note how far the oil comes up on the lower end. If it's wet to the line marked **FULL**, no oil is needed. If it only reaches the **ADD** line, remove the filler cap and put a quart of oil in. While some car owners are in the habit of adding a fraction of a quart often to keep the oil at the **FULL** line, it is safe to operate your car as long as the level ranges between the two lines. Do not overfill – this wastes oil, and is also detrimental to the engine.

Check your owner's manual for the required lubrication frequency and lube chart. As with oil and filter changes, the more often chassis lubrication is done, the better for your car. As a rule, you can find grease fittings on the upper and lower ball joints (two upper, two lower) and the steering tie-rod ends. Most new cars have sealed ball joints, which are filled by removing the solid grease plug and using a grease gun with a special rubber tip. If a rubber tip adapter is not available, screw a regular grease fitting into the hole to add lubricant. Fill only until you feel the joint expand; overfilling it will ruin the seal. Replace the solid plug immediately or the joint might run dry.

NOTE: This job cannot be done with the car on ramps. The wheels must be hanging free when the joints are lubed.

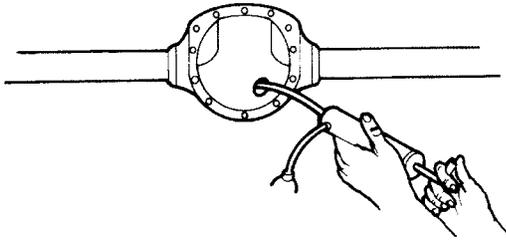
Lubing older cars takes more time because there can be ten or more grease fittings scattered throughout the front end and drivetrain. If a lube chart is not available, look closely for all the fittings; it will probably take longer to find them than to do the actual lubing. After wiping the fitting clean, snap the grease gun nozzle onto it and pump grease into the joint until clean grease oozes out. If the joint has a seal, watch for it to swell; when this happens, remove the gun and wipe away the excess grease. This will prevent it from collecting dirt. Follow the same procedure for the remainder of the fittings.

CHASSIS LUBRICATION



Typical ball joint assembly

CHECKING OTHER LUBRICANT LEVELS



Using a hand suction gun

It is good practice to periodically check the fluid levels of the transmission and the rear axle gear case by unscrewing the plugs at the back or side of the housings. Many of these plugs are designed to be opened with a special wrench, but a 3/8" drive ratchet will do the job on most square-hole plugs. Insert the drive in the plug and twist it loose. If the plug is so tight that it might damage the ratchet, you'll have to get the proper wrench or have the level checked at a service station.

The fluid levels should be at least even with the bottom of the plug holes when the car is sitting level. If the front end is raised, the fluid should seep out when the plug is loosened. If the transmission requires lubricant, check the manufacturer's specifications for the correct type to use; it is available in plastic quart squeeze containers. If the plug hole is not accessible for refilling, your local auto parts store should have a special lubricant syringe to do the job.

Some auto manufacturers recommend changing the differential fluid, usually every two years or 30,000 miles. Others don't – they don't even provide a drain plug. If your owner's manual recommends changing the differential fluid, a hand suction gun with a flexible nozzle must be used to remove the old fluid and add the new. Try to remove as much of the old fluid as possible and always replace it with the proper type and viscosity as recommended in the owner's manual.