

# Auto Repair Guide

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## How to Check Fluid Levels



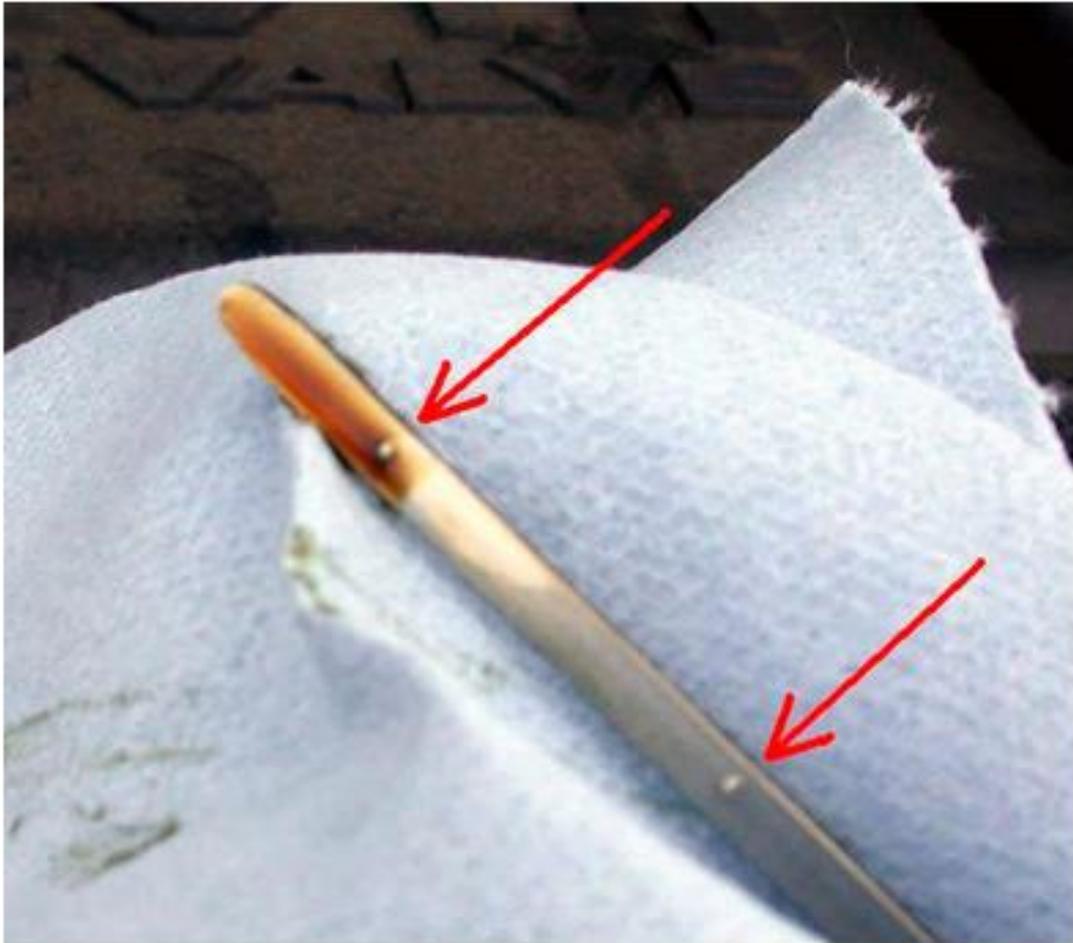


**3** Open the hood.



**4** Check the motor oil. The oil should be checked after the car cools down for an hour or so, so that oil in the return galleries, cylinder head valleys, etc. is drained down so you don't get a false reading. Locate the oil dipstick (use the owner's manual). Hook a finger through the loop and pull the dipstick all the way out, releasing any clips that might be holding it in place. Use a paper towel or rag to wipe the dipstick clean so that you will have a clear reading. Insert the dipstick into its opening and push it firmly all the way back, as far in as it will go. Pull it out all the way, this time reading the oil level. When you are done, replace the dipstick in its opening.

- The dipstick has markings on it indicating a range for acceptable oil level (usually notched, dimpled, or scribed). Double check the markings you see against the owner's manual. If the oil level is too low, appropriate motor oil must be added before the car can be driven. With a new car, take it to the dealer's service or parts department; have them show you how to add oil, and buy the oil and funnel their mechanics use. With an older car, take it to an auto parts store; they will walk to your car, show you where to add oil, and recommend what to buy. Since some engines consume more oil than others, adding oil can also become a frequent task.



- Look at the color of your oil, too. Clean engine oil is a clear, golden color. Dirty engine oil is black or brown. If yours is dark, have a look at your car's records to see when the oil was last changed. Darker engine oil can still run a car just fine, so go by the schedule more than by the color.
- You should also change engine oil according to both mileage and time. Consult your owner's manual for the proper intervals. Even if you don't drive the recommended number of miles, plan to change your oil about once every six months. Just sitting in the driveway, your car's oil can break down and become less effective. Change your oil more frequently than the recommended schedule if your car gets severe use.
- Repeated, pronounced loss of engine oil can indicate a leak in a gasket or that your car is consuming oil. Keep a watchful eye on your driveway where you park. Also look for signs of oil leaks on the outsides of the engine, and if you see any oil or consistently consume oil, take your car to a mechanic and explain what you have seen.
- If the oil looks milky or foamy, it may be contaminated with coolant, and should be checked by a mechanic. This condition could indicate a blown head gasket or other serious problems.



**5 Check the transmission fluid.** This is usually done with the engine running and fully warmed up, either in neutral or park, depending on the make and model. It will be the second of two dipsticks. As with the oil, locate it, pull it out (releasing any clips), wipe it off, push it all the way back in to the bottom of its travel, then pull it out and read the level. Again, look for a level between the two marks on the dipstick.

- This transmission fluid is reddish. Transmission fluid does not need to be changed as frequently as oil, but it does occasionally need to be changed. The interval may be as much as 100,000 miles (160,000 km) in newer cars; consult your manual to be sure. If yours looks brown, black, or burnt, or its appearance suggests that it didn't come out of a bottle lately, consider replacing it. Transmission fluid lubricates the transmission, your car's gear system.





**6 Check the brake fluid.** Consult your manual for the location, or look around for a plastic reservoir such as this one labeled brake fluid. If your reservoir looks like this one, you can read the level of fluid right through the plastic. Wipe dirt off the outside, if you need to. It might help also to jostle the car gently on its suspension with your hip, hands, or knee, so that the fluid level jiggles a bit. If you still can't see it, take the cap off and look in.

- Cars should not consume brake fluid. Low brake fluid can indicate either a leak in the brake line or worn brake surfaces. If your brake fluid is low, have the car checked to find out why. A car with low brake fluid or leaking brake fluid could fail to stop.



**7 Check the power steering fluid.** This will generally also be a plastic reservoir. Read it through the walls, as you did with the brake fluid, by opening the lid and pouring in more of an appropriate power steering fluid. There may be two pairs of lines, one for a hot engine and one for a cold engine. Read the one that is appropriate to the current condition of your car.

- Some cars are now equipped with electronic power steering and will not have a reservoir.



**8 Check the coolant.** Be sure the engine has cooled down, otherwise scalding water could spray out as you open the reservoir! The coolant will most likely be in a reservoir up front, near the radiator.

- Cars are designed to operate with antifreeze as coolant, not water. Antifreeze is a mixture that has a lower freezing point and generally, a higher boiling point than water. If you must replenish your coolant, go buy a bottle of the correct stuff.
- Read the label on antifreeze. Some formulations are intended to be mixed half and half with water; others should be poured in at full strength. The antifreeze label will tell you which type you have.
- Sometimes there can be coolant in the reservoir but no coolant in the radiator. If the car is running hot and there is coolant in the reservoir, then you need to remove the radiator hose to check for fluid in the radiator.



## 9 Check the windshield washer fluid.

- Wiper fluid won't affect the performance of your car, but this is what comes out when you use the sprayers to clean your windshield while driving.
- Washer fluid that's formulated to clean off bugs and other road grime is inexpensive, so it's worth getting the real thing, though topping off with a little water will do in a pinch.
- There is generally no harm in having low washer fluid. You will naturally use this up as you drive your car and clean the windshield. Simply refill it before it gets completely empty.
- If you are expecting very cold weather, be sure to use washer fluid that won't freeze in low temperature. Wiper fluid with a low freezing point is specially marked as such.

**10 Check your tire pressure.** It's not one of the fluids under the hood, but it is essential to the efficiency and safety of your car. You should check your tires even more often than your engine fluids. While you're there, check the tread on your tires.

## Tips

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- Standard transmissions have lubricant which needs checking also, and this is done underneath the car.
- If you find a fluid level low, check it again soon and frequently, and keep a watchful eye under your car and in your driveway for leaks. If you find something leaking, have your car serviced.
- This is a good time to check and update your maintenance records. When was the last time you changed your oil or took the vehicle in for a tune-up? When is the next schedule maintenance? Have you rotated your tires lately?
- A cold engine is one that has not been driven for several hours. A hot or warm engine is one that has been driven recently.
- For rear wheel drive cars, the differential housing should be checked, as well.
- Cars with manual transmissions also may have a clutch master cylinder reservoir which, like the brake master cylinder, can leak down and need refilling.
- Make notes in your maintenance log about anything you find, especially anything out of the ordinary. Also note fluid changes and other maintenance activities.
- It is also a good idea to frequently check your air filter. These come in a variety of shapes and sizes and are housed in a variety of ways. It is not recommended to blow out the filter with an air compressor as this damages the filter. The amount it costs to replace the filter will save you in gas mileage.

## Warnings

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- Brake fluid must be kept perfectly clean and free of moisture. It's extremely important to wipe off all surfaces completely before opening the brake fluid tank in your car. The slightest contamination could keep your brakes from operating. Also, do not use brake fluid which has been open for more than a month or two. An unsealed container of brake fluid takes on moisture from the atmosphere. Too much moisture in your braking system can cause it to fail. If there is any doubt of its age, use a new, (factory) sealed container of brake fluid.
- Be sure when topping off any fluid in your car that you use the proper type of fluid, or it can cause damage to the vehicle. If your car requires Mercon V type transmission fluid and you put regular Mercon/Dexron "3" fluid in, you could damage your transmission.
- Never pour automotive fluids on the ground, in storm drains, or down sinks. Collect them in a bottle and ask your local auto parts store or mechanic shop about recycling them or disposing of them properly. Antifreeze is both attractive to pets, and fatally poisonous.
- Don't check fluids, such as oil, right after turning off the engine. Allow some time to pass in order to allow the oil that has run into the engine to drain back into the reservoir. Otherwise, you may see a reading that it is low, when in fact it is not, with the result that you will overfill.
- Avoid getting fluids on your car's paint; some fluids may damage the finish. If any should spill, clean off the residue thoroughly and promptly.