

# So you want to perform your first oil change?

On average, citizens in the United States drive about thirteen-thousand miles per year. Unfortunately, electric cars are not yet widespread, so the nuances of the internal combustion engine - also known as the gasoline engine - such as the need for routine fluid changes must be attended to. Whether or not you choose to do an oil change yourself because of price, avoidance from dishonest oil change shops (valvoline I'm looking at you), or just to become more in tune with your car, this guide will help you along your way.

## Warnings and Disclosures:

Performing an oil change is quite simple, and there is absolutely no reason to become overwhelmed. However, using the wrong oil, not filling it correctly, forgetting to replug the drain plug, or a number of other actions or lack of actions can cause significant damage to your car. Make sure to cross reference other material (specifically that in your own vehicles owner manual) before performing an oil change. Every car is a little different, and this guide was only made for the most common front engine gasoline car. This warning relieves the author of any responsibility when it comes to your actions with your car.

## Step 1: Making sure you are prepared

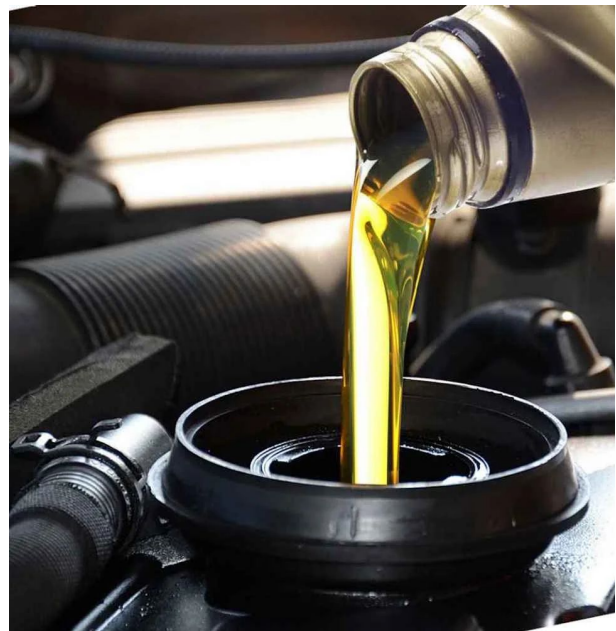
You must be able to:

- Perform light physical activity
- Repeatedly lay and stand on asphalt
- Get oil on your hands

You also must have access to:

- An oil catch can
- Car jack or ramps or car lift (may all be optional)
- Car jack stands (may be optional)
- Ratchet set or wrench set

These parameters will all be discussed in more detail within the rest of this guide.



## Step 2: Getting the necessary equipment assembled

- **Oil:** You must make sure you have the necessary equipment to perform an oil change. First, take the owner's manual out of the glovebox - or search up your car model to find a manual online - and go to the maintenance section. Find the section about oil changes or scheduled maintenance and find the type of oil your car takes. Most often, this will show as a combination of symbols usually something like: SAE 5W-30 or SAE 15W-40. Also search up the oil capacity of your specific model and brand of car, and make sure that you have (or will buy) enough oil to completely fill your oil reservoir.
- **Jacks:** Depending on how low your car is, you may need either a hydraulic or mechanical jack (to lift the car) and a set of jack stands (to support the car in the air after lifting it with the jack), or a set of ramps (to drive your car up on to suspend it in the air) so that you are able to access the oil drain plug on the bottom of the engine. It will be assumed that you do not need this step, as most cars have enough ground clearance stock to slide under your car, however if this step is needed, follow the instructions on your equipment to raise the car.
- **Socket Wrench Set or Wrench Set:** You will need a socket wrench or wrench set in the metric variety to remove the oil drain plug. The exact size of wrench you will need should be in the users manual, or easily accessible online. To give an example, the standard size of wrench needed for removing the drain plug from a 2013 Nissan Nismo 370Z is 13mm. Depending on the model of car, you may need other size socket wrenches to remove the car's skid plate (plastic covering on the bottom of the car covering the bottom of the engine to protect it from road debris) to access the drain plug.
- **Oil Catch Can:** You will need an oil catch can to catch the oil draining from your engine and store it. Engine oil is not something you can just dump down the drain; it must be returned to a store that sells oil (legally they are required to take it). Make sure you have one that has a capacity larger than that of the oil capacity of your car so that oil doesn't overflow and pose a risk to the environment.

- **Safety:** Make sure to always be as safe as possible. This means wearing rubber gloves, eye protection, and clothes that you don't mind getting destroyed. Furthermore, avoid coming into contact with the oil due to the possibility of shrapnel existing within the mixture. None of this should be necessary, however it is best to plan for the worst.



### Step 3: Performing the oil change

1. **Lifting the car:** If your car is too low to slide under, put it up on ramps, or jack stands. For liability purposes, I will not explain how, and you should follow their respective user guides.
2. **Let the car cool off:** The first universal step after optionally performing step one is to let your car sit for at least two hours. This will allow the oil time to cool down so that the oil change is safer for the less experienced reader.
3. **Unlatch the hood:** Open the hood of the car (assuming the car is front engine). The exact way to do this is easily obtainable from the user manual, but the latch to unlock the hood is usually either under the dashboard of the car (near the pedals), or near the trunk latch on the floor of the drivers side door. When you pull the correct lever, you should see and hear the hood latch release and it should pop up about half an inch. Warning: do not begin to drive without closing the hood. Without the hood latch properly functioning and locked to the hood, the hood can fly up when driving and both obscure your vision and damage your windshield.
4. **Open the hood:** Now go to the front of the car and complete the release mechanism by sticking your fingers between the bumper of the car and the hood, finding the latch (which should either be pulled to the side or up towards the hood) and pulling it in the correct direction. Once this is held in the correct place, the hood will be able to be lifted, and the reader should use the hood prop (if needed) to keep the engine bay exposed. Warning: if the hood suddenly closes, your fingers can easily be broken between the hood and the frame/bumper of the car. Make sure the hood is secured in the upward position before continuing.

5.

**Open the oil cap:**

Locate the oil cap and unscrew it. It is usually located in the center of the engine block. It can easily be located by looking for the engine bay diagram in the user manual. Warning: do not touch any other fluid caps.



6. **Locate the oil drain plug:** Slide underneath the car, and search for a single hex bolt protruding from the engine block (largest metal mass of the car). This should be a lone bolt in about the center of the car, usually with a hole through the plastic underskirt of the car to allow ease of access. Again, the best way to guarantee you have found the correct bolt is to check the user manual diagram, but if using intuition, it should be about a 13 mm hex bolt.

7. **Helpful Image:** The drain plug should look something like what you see in the following image:



a.

8. **Prepare and drain the oil:** following the instructions found on the oil catch can, if there is a plug in the catch can hole, remove it, and also remove the small plug near the handle allowing air to escape the catch can as it fills up. Move it under the oil drain plug, but use your own intuition to place it offset in the direction the bolt is facing so that if the oil is under low pressure, the path of the liquid will still end up in the catch can. Carefully remove the bolt using the ratchet or wrench, being gentle

to do it slowly. When it gets extremely loose, I would recommend using your fingers to completely remove it so that you do not drop the bolt. Remember that liquid will start flowing as soon as you remove the bolt, so pull it away fast and do not let it clog up the catch can hole. Make sure to readjust the catch can whenever the oil path gets close to the edge.

9. **Wait for the oil to drain and replace the drain screw:** for the next few minutes, the oil will slowly drain the engine. You want to wait until the oil stops dripping, and then screw the drain plug bolt back on snugly. Do not use your full force to tighten it, but make sure you tighten it enough so it will not fall off. I imagine pushing with about ten to twenty pounds of force on the wrench. Warning: do not start or drive the car! Without oil, the engine will seize and you will have effectively totaled your car.
10. **Side note:** Not included in this guide, but this is an optimal time to replace your oil filter. This is also on the bottom of the car, and to replace it, simply unscrew it, and replace it with a new oil filter designed to fit your car.
11. **Clean off the dipstick:** To be able to tell if the correct amount of oil is in your car, you must now clean off the dipstick. This is the small yellow ring attached to a long steel rod that has markings on it to show how much oil is in the car. Remove this now, and clean it off using a paper towel so that there is very little to no oil on it. Then replace it.
12. **Helpful accompanying picture:** the following photo depicts the usual look of an oil dipstick:



a.

13. **Fill the car with oil:** Now, with the cap that you opened previously on the top of the engine, begin to pour the new store bought oil into this opening. After pouring the first bottle of oil into the car, slow down time between pours, and after each pour, wait a few minutes and check the dipstick level until it is in the correct range. Screw the oil cap back onto its spot, and the oil change is done.
14. **Wait:** give the car a few minutes so that the oil drains through the engine to the oil pan. Then feel free to start up the car and give it a test drive. You shouldn't feel a difference because you should never let the oil get to such bad quality that it affects driving quality.

You have successfully completed your first oil change, congratulations! Remember to be careful when completing these in the future, you may forget a vital step.

## Citations:

- <https://www.repairsmith.com/i/blog/whats-average-miles-driven-per-year-car-lease-guide/>
- <https://www.sthelenschryslerdodgejeepram.com/oil-change.html>
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