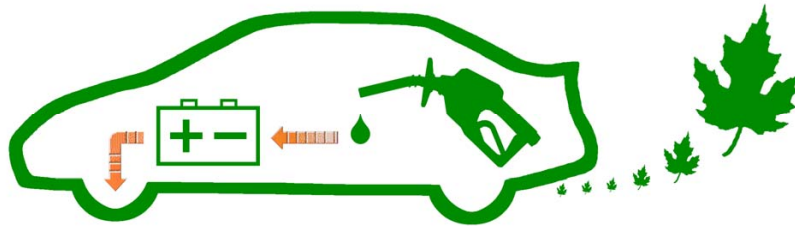


# 2010 Prius Maintenance

## Changing Oil



### **Disclaimer:**

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Please dispose of the used oil & filters properly. Pour the oil into the emptied bottles afterward, then drop them off at a recycling center. If isn't one nearby, many repair shops will accept used oil. (There is sometimes a fee for disposal.) Used filters can often be disposed of at that same location.

**OVERFILL** - This is an irritating problem a number of Prius owners have to deal with. Careless mechanics will sometimes pour too much oil into the engine. Beside the risk of damage from overfill, efficiency is reduced. Excess oil will cause MPG to drop.

**SYNTHETIC** - A simple way to better protect your engine from wear and increase efficiency a little bit is to switch from regular oil to synthetic. And by doing it yourself, rather than paying a mechanic, you'll save some money and have greater confidence that it was done properly.



0W-20 Synthetic Oil



Oil Filter Kit (04152-YZZA6)  
Paper Cartridge & Rubber O-Ring

Plug Gasket (90430-12028)



Filter Wrench 65mm (00113-30359-91016)



Oil Basin with drain spout



Hydraulic Jack (2-Ton displayed)



Vehicle Stand (3-Ton displayed)



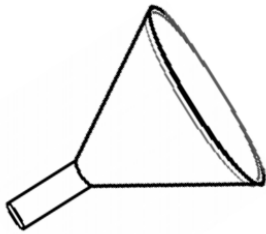
Ratchet & 14mm Socket

Rubber Mallet



## 2.5 inch Ratchet Extension

(shown with a filter-wrench & ratchet attached)



## Funnel

Any type will do.

***AT YOUR OWN RISK*** - No liability is accepted for anything mentioned within this document; all actions are at your own risk. You are responsible for any damage caused by improper use of tools, including over-tightening of components. Proceed with care.

***SEVERE INJURY*** - Lifting and working underneath a vehicle can be *very* dangerous. Inadequate support can cause the vehicle to fall on top of you, resulting in serious bodily harm or even death. Please be *very* cautious.

Lift location is on the side of the Prius.

Use a jack for lifting, then secure it with a stand so the other side can be lifted too.



Before lifting the vehicle you must find a *level* surface to do the work.

Once you drive the Prius there, engage the parking-brake (shown below) by depressing the pedal all the way.



To assure the Prius doesn't roll at all when you are lifting in or while working underneath, secure at least one of the back tires. Any large heavy object that is difficult to push will do, such as the 40lb. bags of rock salt shown below.

**BOTH** sides of the tire should be secured, like the example below.





Carefully observe the placement of the jack grip. Make sure there is no possible way it could slip as the vehicle rises, which causes the jack to move forward. The placement is actually more important than all the grippers needing to make full contact; directly under the connecting bolt for the frame works well.



This closer photo indicates an exposed span of vehicle frame available for stand placement. In this example, the stand is at its lowest. For more work room underneath, you'll want to extend it to a higher setting.



Stand placement is similar for the other side, directly beneath the vehicle frame.

The two stands will be providing primary support, not the jack. Hydraulic jacks sometimes slowly leak, causing the height of the vehicle to progressively decrease. You shouldn't ever trust the jack alone to hold up the vehicle for too long.



Access to the oil pan requires the removal of these 3 plastic secure-pins. You pull the center out to make it relieve tension on the spread-grip holding the pin in place. It slides out when loosened. These will be reused later when you have finished changing the oil and paper-cartridge.



This is what the Prius underneath looks like before exposing the engine, which is covered by an insulated plastic shield. The purpose is for retaining heat, which reduced emissions and allows you to drive using only electricity more often.

Look for all 3 secure-pins (indicated by arrows above). Pull the center out from each and remove. There's no specific order, but you will want to make note of which goes where since. Notice how each looks unique.



With the secure-pins removed, pulling down the plastic flap reveals the oil pan & plug. Note that it is ok to bend the flap if the Prius is jacked up high enough to allow it to swivel freely.



Once you have carefully lifted & secured the vehicle, you may loosen the oil plug.

**COUNTER-CLOCKWISE** is the direction you must turn the plug to loosen it.

This is where the rubber mallet may be needed. If the plug is on so tight that you just plain can't break it loose, it is ok to give the ratchet handle a few taps with the mallet. Just make sure you have a good grip; otherwise, you may strip (damage) the head of the plug.

Be careful not to drop the plug once the oil begins to pour out. And make sure the basin is properly lined up to prevent spilling any oil, since it will stream out quickly causing some splashing. (*Eye protection is recommended.*)

Notice the indentation on this used gasket (commonly referred to as a "crush washer") that caused by tightening.



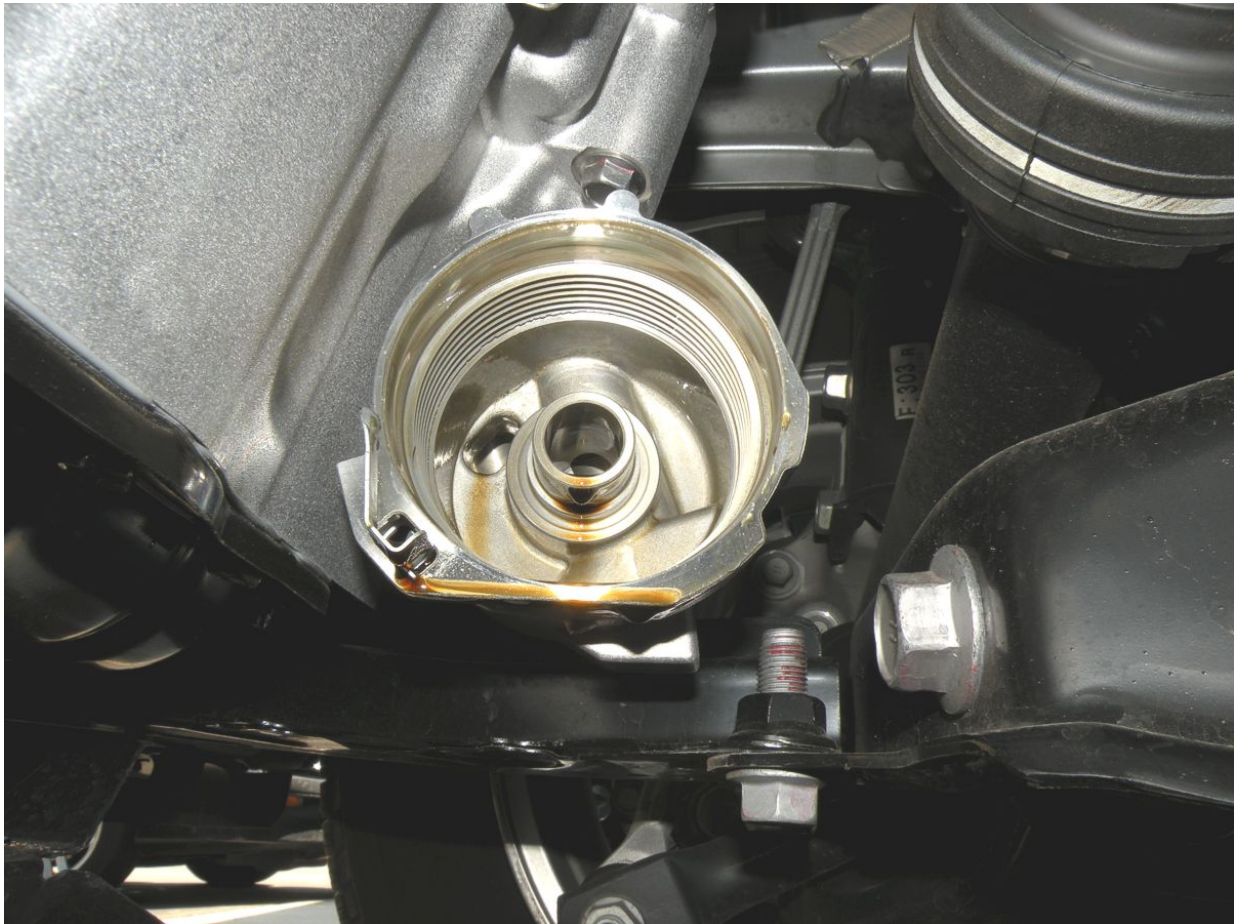
When the oil has finished draining, put the plug back in using a new gasket. 27 ft-lb is the proper amount of torque to use for tightening the plug. Turn it in a **CLOCKWISE** direction.



The oil filter-cap is located slightly above and behind the oil pan on passenger side of the Prius. It's the round black object in the center of the photo above.

**COUNTER-CLOCKWISE** is the direction you must turn the filter to loosen it. Use the ratchet, extension, and filter wrench.

The oil soaked paper-cartridge will probably fall out as you remove the filter-cap, be careful to avoid making a mess.



With the filter-cap removed, this is the exposed part of the engine you'll see.

Wipe off any dripping oil.

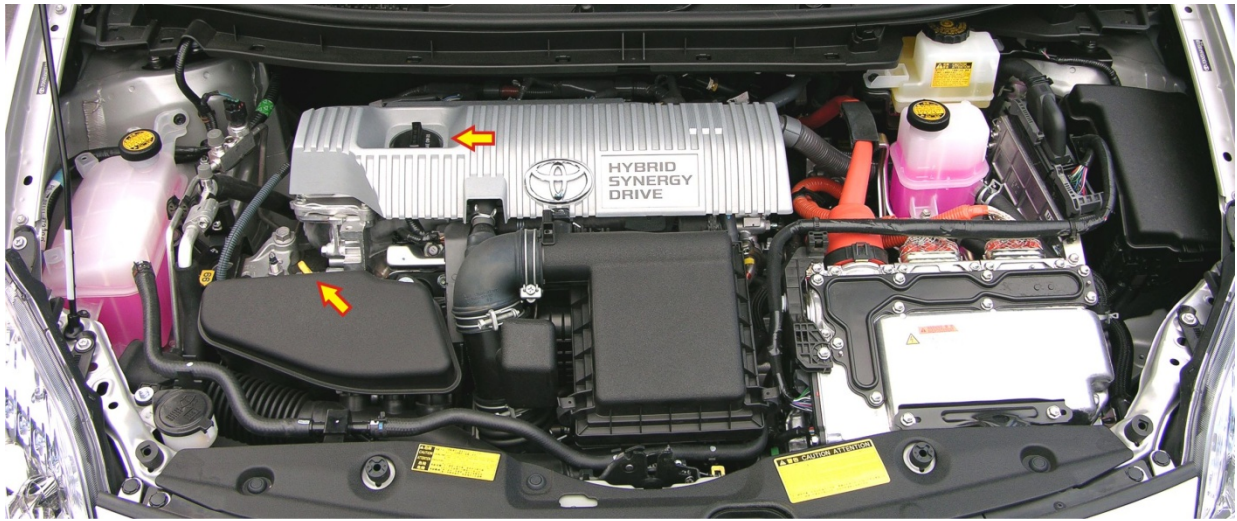


The old rubber O-Ring must be carefully removed at this point. It's located at the base of the filter-cap threading. Both are shown in the photo above (with the wrench still attached at the bottom).

Before putting the new O-Ring on, it must be moistened (for a better seal later). The easiest way to do that is to just dip it into a bottle of new oil. Slide the O-Ring beyond the threads, down to the special groove specifically fit for it.

At this point, time to insert the new paper-cartridge. Just slide onto the center metal post of the filter-cap.

The only filter step left is to screw it back onto the engine. You'll feel the O-Ring squeeze tight as you proceed. The proper amount of torque to use for tightening the plug is 18 ft-lb. Turn it in a **CLOCKWISE** direction.



The black cap on the left side of the silver cosmetic cover over the engine is where the new oil is poured, indicated above by an arrow. (Also indicated is the dipstick location.)

Shown below is a close-up of that cap. It is clearly marked with the recommended 0W-20 weight synthetic oil.



**4.0 quarts** of oil should be poured into the funnel, since it is far too easy to overfill and adding more later is no big deal. Removing excess afterward is very difficult, so being conservative is important. 4.4 quarts is the maximum.

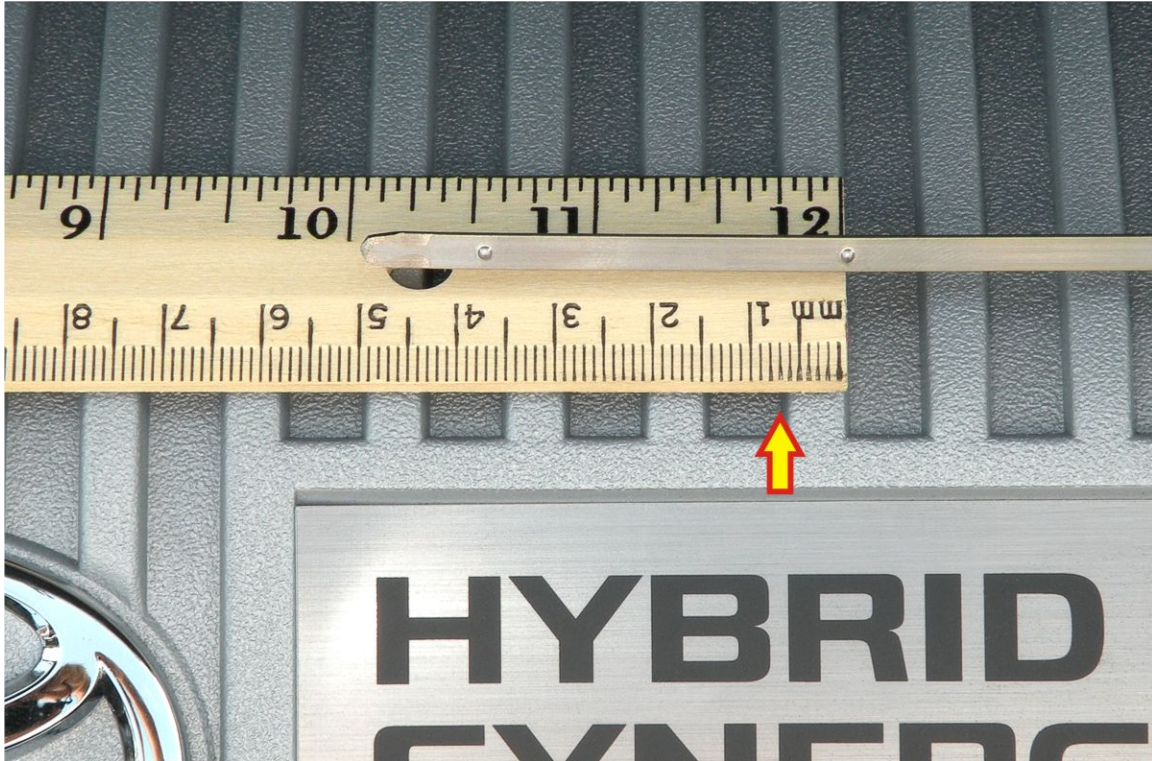
That small, round, yellow handle in front of the cap for the engine is the dipstick (also indicated above), used for checking the oil level afterward.

Pull out the dipstick. It may be difficult at first, so use care to avoid scraping a knuckle on your hand.

Wipe the dipstick dry using a clean paper towel.

Insert the cleaned dipstick back into the engine, pushing all the way until it clicks tight.

Remove the dipstick again, and quickly make note of the oil level.



The ideal level is about 7 mm (one-quarter inch) below the full mark, at the 1 of the inch-side's 12 on the photo above. That point is indicated by the arrow.

**Check your work afterward.** After the engine has been restarted and run for a few minutes, make sure there are not any leaks. If there are, you must fix them since there is a possibility that the component could later loosen completely and fall off. That would result in *serious* engine damage.



That "Oil Maintenance" reminder (shown above) is what you'll see on the Multi-Information Display prior to reset.

Once you have finished adding the oil and carefully removed the vehicle stand & jack, you will want to reset the reminder indicator. Here's how:

- 1) With the power on, switch to the odometer/trip-meter to display "TRIP **A**".
- 2) Power OFF (push the "Power" button).
- 3) Power ON, while holding the button for toggling between "km/h" and "MPH"
- 4) The following will be your confirmation that reset has begun, continue holding.



- 5) When the reset is complete, release the button.



## Appendix

Lifting the front of a vehicle is inherently dangerous. Using a jack and stands is less of a risk, but the preferred method by those who want simple & easy access to the underneath is with ramps.



Rhino Ramps 8,000 are the type pictured above. They have a low profile, making them a nice fit for Prius.

Also shown is a method used for secure, well-aligned placement of the ramps. This simple structure consisting of three 2x8 pieces of wood nailed together along with weight to hold them down has proven very effective.

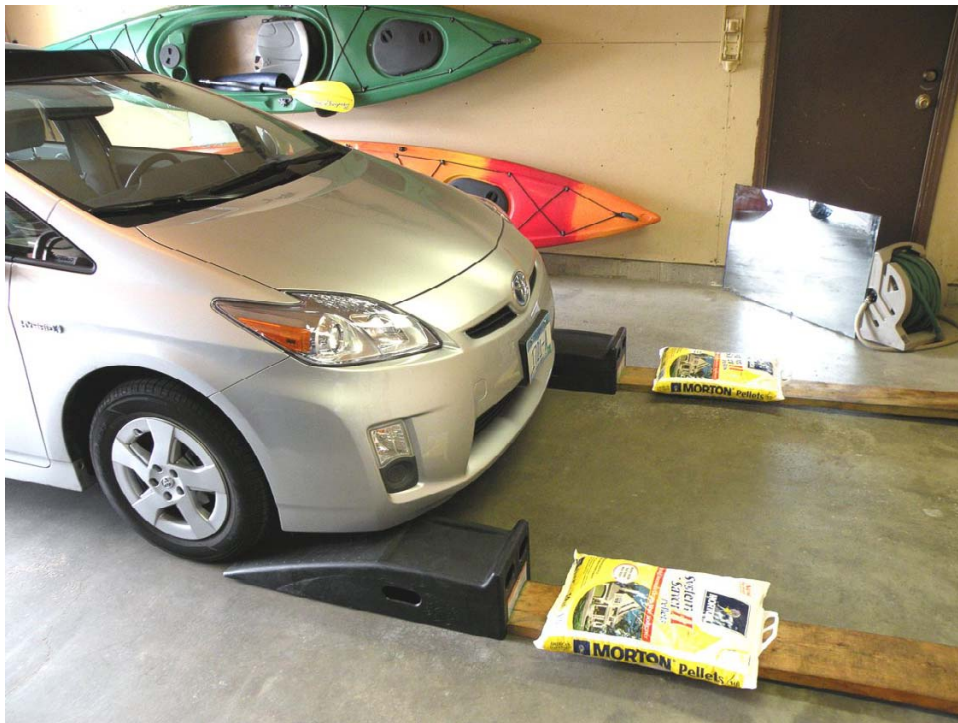
As an added safety measure, there is a mirror in the corner. With careful aiming, you can see the status of both wheels & ramps as you pull forward. That helps to prevent anxiety from the car lifting up, and then stopping.





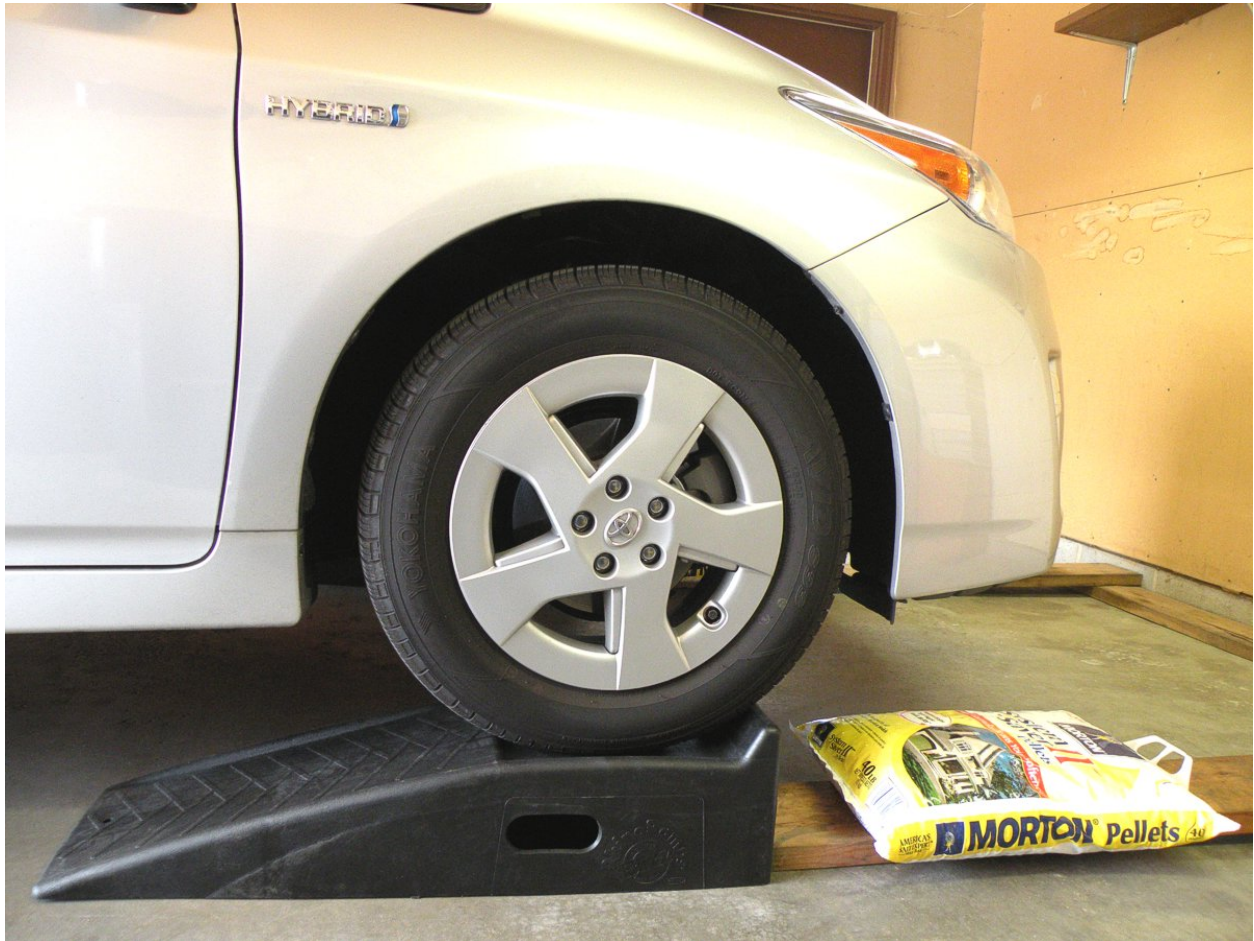


This is the view from behind and in front with the Prius lined up, ready for the climb up the ramps. It is absolutely essential that you pull straight forward for this, then move the ramps to the left or right to adjust. Having the wheels precisely placed is required for an even climb up. Take your time adjusting the ramps. Safety is imperative.



**WARNING** - Never attempt this if there is even a hint of moisture is on a tire. It could cause a slip, resulting in an abrupt spin of the wheel and a surge forward.

Don't forget about preventing car movement afterward by applying the parking-brake and securing a back tire.



When you finally do carefully climb up, this is what it will look like.

Notice how much height is available for the oil-change work underneath.

You'll be glad you took the time required for the ramp setup.