

## '05/'06 AVALON OIL & OIL FILTER CHANGE

Contents of the replacement filter box  
(the \$1 bill is for size reference):

- filter element
- hose adapter
- sealing "O" rings
- instruction sheet

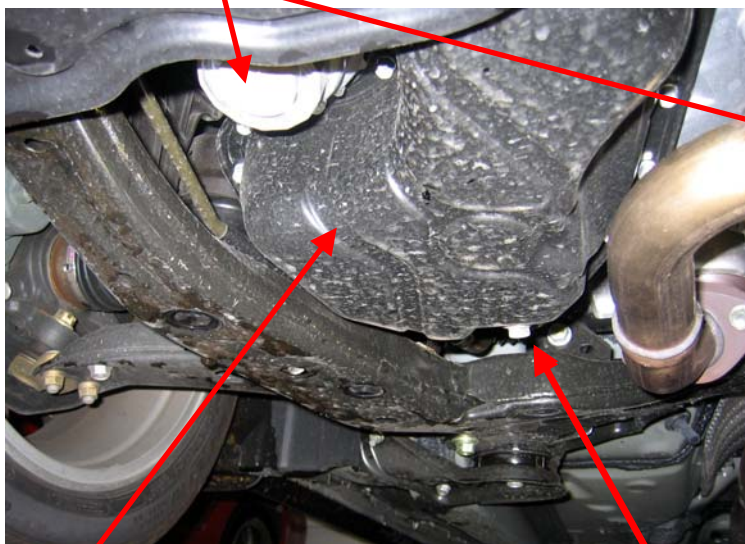


Raise the front of the car (wooden "ramps")  
made from standard 2x10 framing lumber  
are convenient and safe. These raise the  
front tires ~4.5 inches, which is perfect for  
an oil change.



The images directly below show the oil  
pan drain plug and oil filter housing as  
viewed from under the front bumper.

Oil filter housing



Oil pan

Oil pan drain bolt (14mM)



Cap (3/8" square drive)

A 12" long section of old garden hose allows used to be oil drained out of the old filter without spills. Just slide it over the filter adapter as shown below.



### Drain out the old oil

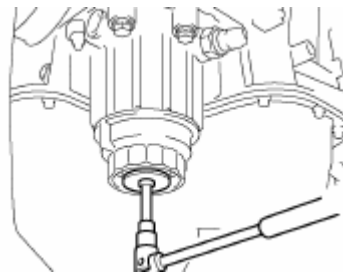
Warm the engine if not already warm.

Position your used oil container directly under the oil pan. Use a 14mm socket or box wrench to remove the drain bolt. Allow the used oil to drain.

### Remove the filter drain cap

Using a 3/8" square socket wrench and extension, remove the oil filter housing cap (see drawing and image at right). Turn counterclockwise and completely remove the cap.

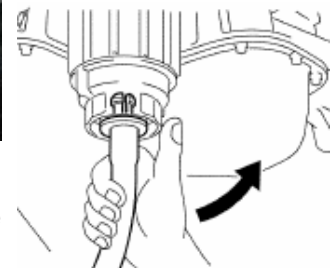
Once the cap has been removed, wipe it clean and check if the small "O" ring seal came off with the cap. If it did, return it to the groove inside the cavity where the cap was removed.



If the "O" ring is not in place, some oil will spill during the next step (draining the filter housing).

### Drain the filter housing

A valve keeps the oil in the filter from draining until you insert the hose adapter. Position the open end of the hose over your container, then just push the adapter into the cavity exposed by removing the cap. Push until it snaps into place. Most of the oil in the filter housing will now drain out.



Once the oil stops running out, remove the adapter by twisting it to one side at the hose, then pull it out and set it aside (see illustration).

### Check for the small "O" ring

The old cap sealing ring (small "O" ring) usually comes out when you remove the hose adapter (see image below right). If it does not, you will have to remove it by hand after the filter housing is removed.

### Remove the filter housing and filter element

Use a 65mm/67mm cap-style oil filter wrench (\$4 at Wal-Mart) and the 3/8" socket wrench and extension to remove the housing. Turn counterclockwise and withdraw it completely. The image at right shows the removed pieces.

Pull out the old filter element (media) with pliers and discard.

Remove the filter wrench and clean both the inside and outside of the housing with rags.

filter element  
"O" ring (large)  
housing  
filter wrench  
3/8" extension

small "O" ring on adapter



### Remove and replace the large "O" ring

Do not use any tools to remove the "O" ring. The housing is aluminum and will leak if gouged or scratched along the sealing groove.

Clean the sealing groove.

Coat the new large "O" ring with fresh motor oil and position it in the groove by hand.

### Replace the small "O" ring seal

If the small "O" ring did not come out with the hose adapter, remove it now (by hand – no tools).

Clean the groove, coat the ring with fresh motor oil, and position it in the groove (see image at right).



new small "O" ring positioned in groove

housing cap

### **Replace the housing cap**

Screw in the housing cap with a 3/8" socket wrench until it bottoms.

### **Install the new filter element**

Insert the new filter element, and push it in as far as it will go (see image at right).



### **Re-install the filter housing**

Clean the housing cavity at the bottom of the engine with a rag. Coat the exposed surface of the large sealing "O" ring with more fresh motor oil.

Spin the housing back in place by hand. Look to be sure that the "O" ring is not dislodged. You should be able to twist the housing completely in (until it bottoms) by hand. Do not cross thread. Note that you are not tightening against a seal like a conventional filter, so the old axiom of "1/16 turn beyond tight" does not apply. If you are not sure if the housing is all the way in, apply light force with the filter wrench and 3/8" socket wrench and extension.

Remove the filter wrench.

Be sure the filter drain cap is tight by applying light force with the 3/8" socket wrench and extension.

### **Finishing steps**

Replace the oil pan drain bolt and tighten.

Refill the crankcase with 6.4 quarts of the recommended oil.

Clean up.

Start the engine and check for leaks under the filter and oil pan drain.

Back off the ramps.

Turn off the engine and check the oil level.