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The Driveway Mechanic: Mercedes-Benz 190D & 190E Oil and Oil Filter Change

by Ken Chipps, North Texas Section

While the following article may seem basic, it provides an opportunity for new 190 owners to get their hands enjoyably dirty and become more familiar with their cars. We intend to publish a series of articles on 190D/E maintenance. To insure warranty coverage, record the work done and keep parts receipts; even better would be entries in the Maintenance Booklet received with the car. Owners who intend to do their own work should buy the appropriate service manuals and read The STAR.

Removing the Old Oil Filter

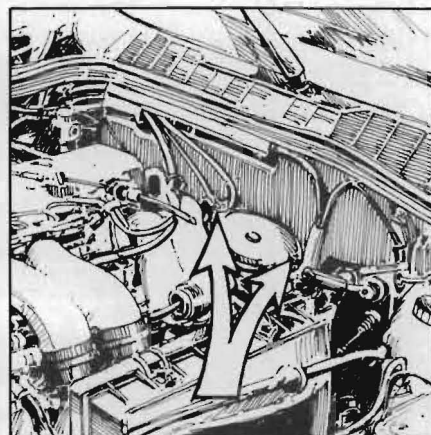
Filtering system design requires removal of the old filter before draining to allow all the old oil to drain into the pan. Oil flows better at operating temperature, so drive the car to warm up the oil, turn off the engine and begin work immediately. The oil filter is at the top rear of the engine, partly hidden under the air cleaner housing on the 190E. On these cars the air cleaner housing must be pulled forward or removed after removing three nuts securing it with a 10-mm socket on a ratchet. Two nuts are visible from the top of the engine; the third is below the housing beside the left (driver's side) strut tower.

1984 190D & E, 1985 190D: 1985 190E's have different oil filters, so we'll cover them separately later. For 190D's and 1984 190E's, proceed as follows. The air cleaner is still attached to the engine by several hoses. Remove the hose from the valve cover. A second hose goes toward the rear of the engine. A third hose wanders off toward the side of the engine. Don't pull these fittings loose. Just slide the air cleaner forward slightly to give you enough room to remove the oil filter. Another way is to detach the crankcase vent hose at the bottom of the air cleaner housing. It is a bear to get back on, but this allows the housing to be removed.

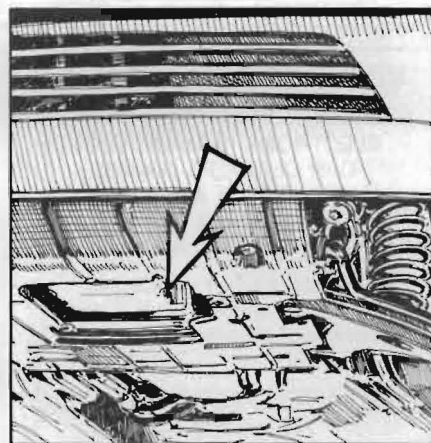
Once the 190E air cleaner is out of the way, remove the bolt in the middle of the canister cap. This 13-mm head size bolt has 45 mm of thread, so there's a lot to unscrew. Withdraw the bolt and washer, then the cap. The 190D's cap is secured by two 13-mm nuts. The oil filter is a 10 by 6-cm round element. Remove it via the handle on top. A small pan helps to avoid spilling oil.

1985 190E: As on the other models, hoses still hold the air cleaner housing to the en-

gine. Remove the hose at the valve cover and pull the air cleaner off the fitting at the manifold. The 1985 190E has a spin-on oil filter under the air cleaner housing. The service manual says that the filter has check valves to prevent oil from dripping when it is removed. This is a problem because the open end of the filter faces downward. In addition, the filter fits right against the manifold. If you can't loosen the old filter by hand, use an oil filter removal wrench; various types are available at auto parts stores. The Mercedes-Benz tool appears to be basically a 74-mm socket. The part number is 103 589 00 09, but you can do without one. To catch dripping oil, put a rag over the open end of the filter and turn it hole-side up as you remove it.



Oil filter is at left rear of engine; this 190D cap is fastened by two nuts.



Oil drain plug (arrow); access may require removal of sound insulation cover.

Mike Mate

Draining the Oil

Before draining the oil, remove the oil filler cap on the camshaft cover. To drain the oil, you must be able to reach the underside of the engine. If you do not have a cover on the bottom of the engine, the ground clearance of the 190 is sufficient for you to drain the oil without raising the car. The 190E has no cover, but to reach the 190D's drain plug, unscrew the four 8-mm head size machine screws, one at each corner of the cover. With these loose, the light plastic cover may be lowered and removed.

If you raise the front of the car, the best method is to use drive-on ramps or to jack up the front end and rest the car on jack stands. Use the approved lifting points to avoid damage. Do not get under a car supported only by a jack. Follow proper safety procedures.

Place a suitable container under the drain plug, ready to catch the old oil. The location of the drain plug and the force with which the oil comes out of the hole require a rather large pan. The oil pan is the box-shaped metal part on the bottom front of the engine. The drain is on its left side. Loosen the plug with a 13-mm socket on a ratchet wrench until it can be unscrewed by hand. Then unscrew the plug with your fingers while pushing in on it. When the drain plug comes to the end of the threads in the oil pan, remove it quickly to lessen the chance of being splashed by hot oil and losing the drain plug or its washer. The plug is brass with a copper sealing washer around it. You can also remove the drain plug completely with the ratchet wrench, letting it fall into the dirty oil, to be fished out later. Now is the time to catch an oil analysis sample. Follow the directions with the kit.

Installing the New Oil Filter

The year of your car determines which filter to use. Be sure to purchase the correct type. They are:

Car	M-B Part Number
190D, 1984-5	601 180 00 09
190E, 1984	102 180 01 09
190E, 1985	102 184 01 01

1984 190D or E, 1985 190D: Place the new filter in the canister, with the handle on top. The hole in the bottom of the filter element must fit over the post in the bottom of the canister. Look into the canister and you will see what I mean. Some say that filling the canister with new oil now will prevent rotating parts from being starved of oil when the engine is re-started. The o-ring in the canister lid and the dark gray washer on the canister bolt must be replaced. These come with the oil filter. Smear new oil on the o-ring before installing it.

Re-install the lid. Tighten the fasteners by hand, then torque to the value listed below. These parts are aluminum, light and strong but soft. Over-tightening can

ruin the parts, so use a torque wrench. Aluminum has a high coefficient of expansion, meaning that such parts expand and contract more than steel parts might, so it is important that they be held tightly. Your torque wrench will get considerable use, so you might as well buy it now.

1985 190E: The spin-on filter used on the 1985 190E screws onto a bolt sticking up from the engine block. Lightly lubricate the o-ring on the filter with new oil before installing it. Screw it on by hand until the o-ring touches the mounting pad, then tighten another three-quarters of a turn. Over-tightening is as likely to cause an oil leak as under-tightening.

Refilling the System

Replace the air cleaner housing, hoses, nuts, etc. Clean the drain plug and put on the new copper washer. Screw the plug into the threaded hole in the oil pan, making sure it screws straight into the hole, not at an angle. Cross-threading will destroy some threads, and oil will leak out. Torque the bolt to the value listed below. Again, a torque wrench is essential. On the 190D, re-install the bottom cover. The screws need to be tight, but there is no specific torque value.

To determine the appropriate oil, check your owners manual and the article *Which Oil Should I Use?* in the May/June 1984 issue of *The STAR*. Put in three to four quarts, then check the level with the car on the ground. It may take another quart to fill, depending on how much old oil remains in the engine.

Checking Your Work

Start the engine. If oil pressure does not register on the gauge within a few seconds, stop it and investigate. If the pressure is OK, check underneath the car and around the filter for oil leaks. Turn the engine off. While the oil drains into the oil pan, clean up the mess you made, then recheck the level. Add oil as needed to reach the proper level.

Changing oil in the 190 sounds more difficult than it is. If you have never worked on your own car, now is the time to start. The better you know how your automobile works, the more comfortable you will be with it.

Torque Values:

Fastener	Bolt Head Size, mm	Torque, ft-lb
Oil drain plug	13	22
Oil filter canister,		
190E	13	16
190D	13	16
Air cleaner nuts	10	snug
Bottom cover machine screws	8	snug

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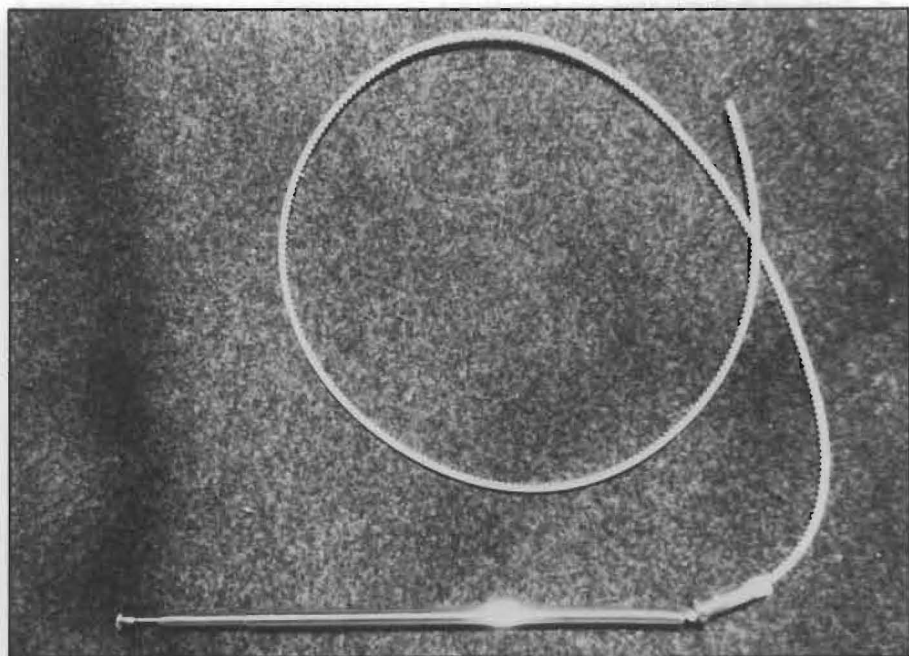
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190D/E Tech Tips

by Ken Chipps, North Texas Section



Antenna Replacement

Although it is retracted when the engine is off, there are ways that the 190's antenna can be bent or broken, but replacement is surprisingly easy.

The 190's antenna, made by Hirschmann, automatically extends and retracts, with two positions selected by a dash-mounted switch. The motor and base unit are mounted in the trunk. The antenna element is a separate part, number 126 827 00 01, costing about \$28, so replacement is easy even though it requires two people.

To remove the old element, set the switch so that the antenna will extend fully. Turn on the ignition just far enough to activate the radio, and turn the radio on so that the antenna extends. Loosen the retaining nut on the antenna with a 12-mm wrench. Turn off the radio for a moment, then turn it back on. The antenna element will now pop out as it extends. While you are turning the radio back on, the second person must prevent the antenna from hitting anything.

As the element leaves the hole, note the direction of the teeth on the drive belt. The teeth on the new element must face the same way to engage the drive gear in the base unit.

Orient the new antenna element so that the teeth face the same way as the old element. Insert the drive belt into the hole in the antenna base, and be sure the belt is engaged by the gear. Now comes another part that requires two people. Turn the

radio off, and the antenna element will be drawn into the base, carefully guided by the second person. If the element doesn't retract into the base when you turn off the radio, the teeth on the drive belt are facing in the wrong direction or weren't pushed in far enough.

Tighten the retaining nut on the new element, and check your work by turning the radio on and off a few times. If you tried to do the job alone, you may also have to go to the body shop to have the left rear fender repaired where the antenna element bent it. Oh, and next time you drive into the garage, don't let the door start to come down before the car's antenna clears it, so you won't have to do this job again.

190 Body Lubrication

190D/E body parts needing periodic lubrication include the hood hinges and latch, trunk hinges and latch, gas filler door hinges, the sunroof mechanism and the power antenna. Lubricants should be applied every 15,000 mi or annually. Door hinges use nylon bushings requiring no lubrication.

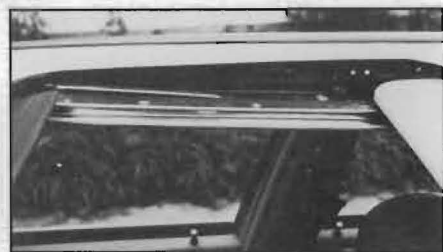
The purpose of lubrication is to reduce friction between moving parts, but too much lubricant is as bad as too little. Excess lubricant attracts dirt and moisture, which can cause damage.

The lubricant must provide a film able to withstand the pressure between the parts, it must not interact adversely with

the parts and it should protect them from dirt and water. In this case, the lubricant has to be able to stick in place, so we want a grease. There are several water-dispersant lubricants available, including WD-40, but it seems to attract dirt more than some others. Lubriplate makes an excellent grease, but I prefer another grease, LPS 2 (made for aircraft use).

Move the hood up and down a bit, and spray a little lubricant between the rubbing surfaces of the hinges. Lubricate the latch parts on the hood and on the body near the radiator. The trunk lid hinges are tough to get to. The determined person will climb into the trunk, lie down and use a light to see while spraying the hinges. Most of us will just lean over and spritz the general area. The trunk latch is lubricated only at the part attached to the body. The gas filler door hinges are easy to reach.

Left: radio antenna element. Below: sunroof rails and hood hinges are easy to lubricate yourself.



Ken Chipps

Use an old rag to clean dirt and excess lubricant from the rails and blocks of the sunroof before applying new lubricant. Lubricate the rails beneath the L-shaped piece on which the roof slides, and apply lubricant to the hinges of the wind deflector, too.

Grease attracts dirt, so a dry silicone lubricant is best for the power antenna. Extend the antenna and clean it, then cover the surrounding body and spray the antenna lightly, wiping off the excess.

190E Air Intake Clamp

The hard plastic snout on the front of the 190E air filter housing draws air from the grille area and tends to loosen at the filter housing. This is easily fixed by using a 2½-in radiator clamp around the connection. Tighten the clamp just snug enough to hold the two pieces together; over-tightening will crack the plastic piece.



Radiator hose clamp fits air intake.

190D/E Air Plenum Housekeeping

Ventilation air for the 190's passenger compartment is taken in at the base of the windshield, below the wiper. This plenum area also collects dirt, leaves and other trash, some of which finds its way into crevices in the bodywork or into the engine compartment, where it can catch and hold moisture, which could cause rust.



Clean area around battery to prevent rust.

Make it a point to regularly check and clean this area. Open the hood to the full vertical position (be careful not to do this in a strong wind, which could damage the hood), and clean the area behind the firewall. Be especially thorough around the battery and fuse box. Keeping this area clean may save you from problems a few years down the road.

Ken Chipps

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