

Car & Garage

Change your own transmission fluid

by Rick Muscoplat

Make \$200 an hour and add years to your transmission's life



LIQUIVAC FLUID PUMP, \$29.95

This pump is the key to saving you time and money when you change your transmission fluid.

You should change your automatic transmission fluid according to the manufacturer's recommendation—whether that's 30,000 or 100,000 miles. This maintenance task will add tens of thousands of miles—which could be years of service—to a transmission's life expectancy and prevent repairs costing thousands down the road. (See p. 84.)

A transmission flush-and-fill from a shop will cost you \$149 to \$199. But you can do it yourself and save about \$100. Draining the old fluid has always been a messy, ugly job. That's because it has meant lying under the car, "dropping" the pan—and then getting drenched in fluid. But here's a new way to change your fluid without going under the car and without spilling a drop. The procedure takes less than 30 minutes.

The trick is to work from the top, sucking out the old fluid up through the filler tube. Then refill with fresh fluid. A hand-operated vacuum pump makes the job simple and clean. You



New fluid is bright red.

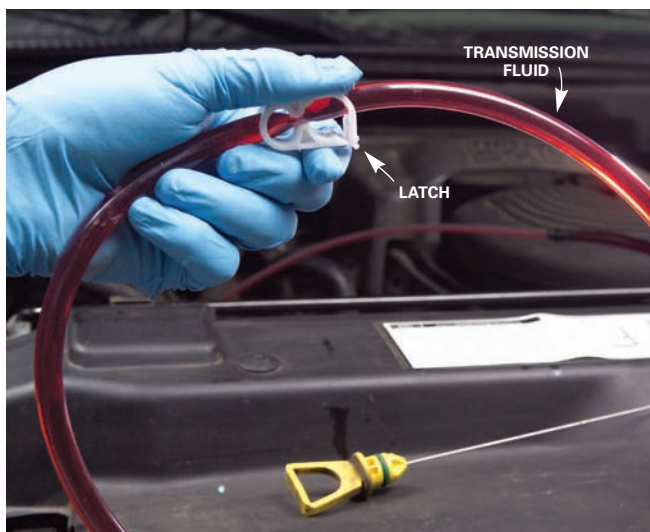


This transmission fluid has been working for 60,000 miles. It turns brown as it degrades—time to change.



1 Remove the dipstick and insert the vacuum tube until you feel it “bottom out” on the bottom of the transmission pan.

2 Close the latch on the vinyl hose and pump up the vacuum tank with 30 to 50 strokes of the plunger.



3 Release the latch on the hose and wait while the vacuum draws the old fluid out.

4 Read on the tank the amount of fluid you withdrew and refill the transmission with that amount of new fluid.

Buy the right stuff

Carmakers have made major improvements to transmission fluids in the past two years. Contact the dealership parts department to see if your car requires a newer fluid. Then call auto parts stores until you find one that stocks it. If you strike out, bite the bullet and buy it from the dealer.



can remove one-third to one-half of the fluid from the transmission at a time. The rest will remain in the torque converter and the transmission cooler. So do the procedure three times at one-week intervals to replace nearly all of the old fluid. The little leftover old fluid will be diluted with plenty of fresh new fluid.

Some manufacturers recommend replacing the filter every time you change the transmission fluid. Go with what your dealership recommends. Note: But if your transmission pan is leaking, you should either “drop” the pan and replace the gasket, or take it in for service.

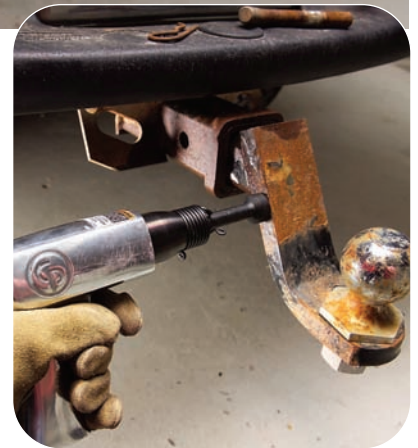
Quick Fix



1 Generously spray the opening to the hitch receiver with a penetrating fluid. Then insert the spray straw deep into the corners of the receiver and spray liberally.

Free up a stuck trailer hitch

When the ball mount on your trailer hitch is rusted in place, don't whack at it with a sledgehammer. Here's what to do instead. Buy a can of CRC Freeze Off penetrating spray (\$6) and an air chisel fitted with a "hammer bit." The air chisel will run about \$15 and the extra bit will be about \$8. Spray the opening to the hitch receiver. This newest style of penetrating fluid chills the metal, causing it to contract to help break the rust seal. Then use an air chisel fitted with a hammer bit (\$8) to knock everything loose. The air hammer will break up the rust, spread the penetrant and free up the ball mount. Once it's free, just tap the rusted ball mount out with a hammer. If you plan to reuse the rusty mount, coat it with a rust converter or water-proof marine grease.



2 Rap the sides, top and bottom of the hitch receiver for 15 seconds with blows from the air hammer. Spray again. Repeat the rapping until the ball mount loosens.



Quick Tips

Great way to store used oil

Storing used oil is a hassle. Here's a tip: Restaurants order liquids such as cooking oil and soy sauce in 5-gallon jugs. Next time you're out to eat, ask if you can have a few empty jugs. Rinse them and use them to store several changes' worth of used oil between trips to the recycling center.



Nitrile gloves protect your health and hands

In the old days, guys called you a wimp if you wore gloves when you worked on cars. Aside from the wimp factor, gloves were too clumsy for fine work. But we now know that some automotive fluids contain caustic or even carcinogenic chemicals. That's why most auto techs now wear nitrile gloves, as should you.

Nitrile is a durable synthetic material that protects your skin from the chemicals. The gloves are available at auto parts stores and online for about \$7.50 for a box of 100. That's 15¢ a pair—a small price to pay to protect your health.



Buy nitrile gloves by the box and use them for all auto and household repair jobs. They cost about 15¢ a pair.

Quick Fix

Clean your MAF sensor and save \$300

A Mass Air Flow (MAF) sensor monitors the temperature and weight of air entering your engine. Your onboard computer needs that information to calculate the right amount of fuel for all engine operating conditions.

The sensor works by heating a delicate platinum wire or plate and measuring the current required to keep it at a constant temperature while air blows past it. Over time, dust and oil particles stick to the hot wire/plate and bake on. Eventually, those baked-on particles insulate the wire/plate from the airstream. This causes starting, idling and acceleration problems, as well as poor gas mileage.

Carmakers recommend that you replace the MAF sensor (\$300) at that point. But if you clean your car's MAF sensor regularly, you can avoid that \$300 repair and keep your engine running at top efficiency. The cleaner only costs \$7! We recommend that you clean the MAF sensor every time you change your air filter. Here's how:

Before going to the store, pull off the air duct between the air filter box and the throttle body to see how the MAF sensor is anchored. If you see Torx screws, buy a Torx tool and a can of CRC Mass Air Flow Sensor Cleaner. *Don't use any other cleaners; they can ruin the MAF.* Everything you need is available at CarQuest, Advance and O'Reilly auto parts stores.

With cleaner and tools in hand, locate the MAF sensor in the air duct between the air filter box and the throttle body. Before you remove the sensor, use a digital camera to record the sensor setup and connections for reference later. Carefully remove the sensor from the air duct and disconnect the electrical connector.

Spray 10 to 15 spurts of the cleaner onto the wire or plate. Don't scrub the parts; you may break the wire or damage the plate. Allow the MAF sensor to dry completely before reinstalling it in the air duct.



Expert Advice

Transmission fluid dilemma

Q I have 105,000 miles on my car and I've never changed the transmission fluid. I was supposed to change it every 30,000 miles. The quick lube shop is now encouraging me to do a transmission fluid exchange. Is this good advice?

Greg Jondahl, Newberry, SC

A Failure to change transmission fluid is the No. 1 cause of expensive transmission problems. When the fluid is neglected, it degrades and loses its ability to lubricate and cool transmission components. Without proper lubrication and cooling, metal parts touch, causing excessive friction and faster wear. The heat generated by this metal-to-metal contact cooks the fluid, leaving charred "varnish" deposits in the clearances. The varnish looks like scorched butter.

In theory, the advice from your quick lube shop to exchange the fluid makes sense. But in reality, it's probably too late. Fresh transmission fluid is highly detergent and it immediately attacks the varnish deposits in the transmission. Some of the deposits dissolve and break away from the wear areas. The varnish that previously filled the clearances is now gone, making for a sloppy fit that causes even more metal wear. The charred grit that breaks away then clogs valves and the filter, causing shifting problems that can literally tear a transmission to pieces.

At this point, it's probably better to leave the old fluid in the transmission. If you develop transmission problems, promptly take your car to a reputable transmission shop. With your next vehicle, be sure you follow the manufacturer's maintenance advice. Good luck.

Richard Muscoplat, ASE Certified Master Technician

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