

# Transmission Fluid

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*Note: This article was revised on 12/5/2001 with procedures provided by Mark Kovalsky.*

## Changing ATF in a '99-up Super Duty

I've done this alone. It's easier with a second person, and sometimes helps prevent spills.

1. Things you need to get started:
  - a. The transmission system holds almost 18 quarts of ATF, and you must waste a couple of quarts to be sure you get it all purged and replaced, so buy 20 quarts of MERCON ATF (**do NOT buy MERCON V!**). Ford also warns against using a fluid that has a dual MERCON and MERCON V rating. You may use either conventional or synthetic, as long as it meets the above requirements.
  - b. A 10 foot length of clear tubing and one hose clamp, sized to fit over your cooler hose. There have been different size cooler lines over the years, so check before buying!
  - c. If you don't already have a special funnel that fits into the transmission dipstick tube, then you will need one of those, too.
2. Drain the pan, then replace and tighten the drain plug.
3. Pour 7 quarts of new ATF into the filler [dipstick] tube.
4. Disconnect the transmission-fluid return line at the transmission - from where the ATF returns to the transmission from the cooler. This is the line towards the rear of the transmission. Clamp the clear tubing over the line that you removed from the transmission. This is where the old ATF from the torque converter and coolers will come out.
5. This is where the second person comes in handy. One person starts the engine, while the other holds the line over the drain bucket. A clothes pin can replace the person holding the line in the bucket.
  - a. Run the engine until you see some air in the clear tubing. As soon as you see air shut off the engine.
  - b. While the engine is running in step 5a above, move the shifter through each position from P to 1, pausing about 5 seconds at each position. This will change some fluid that would otherwise be trapped in the valve body, accumulators, and clutches.
  - c. Refill through the dipstick tube with 6 quarts of new ATF. (That's 13 quarts total so far).
6. Repeat steps 5a and 5c. (That's 19 quarts total so far).
7. Remove the clear line and reconnect the cooler line to the transmission.
8. Check the fluid level and use the last quart of ATF to top off.
9. Properly dispose of the used transmission fluid.
10. Congratulate yourself! And your engine starter/killer person.
11. Then get back in the '99-up forum and tell us your "lessons learned" for those that follow you.

**Now that we understand the basic procedure, let's muddy the water with the options:**

*Optional:* Change the transmission filter. Revise paragraph 2 above to read:

2. Drain the pan, remove the pan, replace the transmission filter, install the pan, then replace and tighten the drain plug.

Don't buy a new pan gasket. The original is reusable.

I replace the transmission filter every other fluid change. Note that Ford does not recommend ever changing the filter. I've opened filters with over 300,000 miles that were not even close to being clogged.

It just pulls out, there are no bolts that hold it. It is held in place by the pan. Make sure that the O-ring is removed, too. Sometimes it does not come out with the filter.

*Optional:* Drain the torque converter. Add the following to paragraph 2 above:

If your truck was built before August, 2001, then you may have a drain plug in the torque converter. If you do, then you can also drain the torque converter as part of step 2 above. Some people think it is necessary, but I don't. Running the engine in the next steps will pump the fluid out of the torque converter. If your transmission was built after August 2001, you don't have a drain plug in the torque converter. To drain the torque converter remove the shield (but NOT the upper right bolt - this one only needs to be loosened) and turn the flywheel until you see the drain plug. If you drain the torque converter, be sure to replace the drain plug before you continue.

If you drain the torque converter, then the old ATF won't come out of the end of the cooler line until the torque converter is filled with ATF. So instead of waiting until you see air bubbles in the drain line in step 5a, run the engine for about 30 seconds while changing gears for step 5b, then cut off the engine.

*Optional:* Blow out the coolers. Add the following to paragraph 4 above.

It's not necessary, but some folks want to get every possible drop of the old ATF out of the system before they add new ATF. If you drained the torque converter, then you might also want to blow the ATF out of the coolers and cooler lines. If you have an air compressor, you can reduce the pressure to about 15 PSI, remove the cooler "hot" line from the front of the transmission, and blow air into that line. That will force the ATF in the coolers and lines out the cooler return line at the back of the transmission. DO NOT use air pressure of more than about 15 PSI! Then be sure to reconnect that line before you continue with paragraph 5.

*Optional:* Don't even drain the pan!

The transmission pump will get almost all of the ATF out of the pan, so some folks don't even drain the pan before they begin. Move paragraph 4 up to the top before paragraph 2, then instead of draining the pan paragraph 2 would say you simply run the engine until you see air bubbles in the drain line.