



THE NUMBER ONE DODGE/CUMMINS TURBO DIESEL RESOURCE

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CHANGE THE TRANSMISSION FLUID

by Robert Patton

"Matt B" submitted a tip that can save you from the fluid mess that accompanies an automatic transmission fluid service job. Matt's tip also allows you to change the majority of the transmission fluid.

The "majority of the fluid;" what do you mean? In a typical drop-the-pan service you are only changing about half of the fluid, there is fluid that remains in the torque converter that does not drain. Okay, how do you change the majority?

Matt would have been one of the contest winners, but this change-the-majority tip was presented back in Issue 42. The following is a reprint from Issue 42. This technique can be used on '94-'07 trucks with the 47RH or 48RE automatic transmission.

Owners With the '94 - '07 47RH or 48RE

If your transmission pan doesn't have a drain plug (read: your very first transmission fluid change), to provide for an easy fluid change, or if you want to change all of the fluid (net change 10-12 quarts), try this method. Pinch-off and then disconnect the return-to-transmission cooler line from the radiator (location: driver's side of vehicle; bottom corner of radiator just beside the radiator coolant/fluid drain petcock). Of the two transmission lines, this is the outboard line and (thankfully) it is the easily accessible line. Take the 1/2" rubber hose and bend it upward to prevent fluid drainage. Next, connect a three-foot length of 1/2" rubber "purge" hose to the metal flare coming from the radiator. Feed your rubber hose into a five-gallon container.



A view of the transmission lines from the front of a Second Generation truck. Follow the "cold" line back to the transmission cooler and disconnect the line at the junction point. Attach your purge hose to the metal flare at the transmission cooler.

With the truck in Park, depress the emergency brake, chock the tires, then start the engine. Shift the transmission into Neutral and ATF will begin flowing into the container. Once the flow begins to dwindle, immediately turn off the engine. This technique will yield 10-12 quarts of fluid. Re-attach the 1/2" rubber hose/cooler line to the metal flare from the radiator. Continue with your transmission maintenance by dropping the pan. (The fluid is gone, so you will avoid the fluid bath that can happen with a full transmission sump.)

Clean the pan. Change the transmission filter. Make a decision about installing a B&M drain plug or temperature sensor.

Owners With the '07.5 and Newer 68RFE

For this transmission the transmission cooler lines attach to the cooler assembly using crimped hoses. Regardless, you can use the same technique to remove the fluid, but you have to find a different disconnect location. Inspection of the transmission cooler lines for the 68RFE reveals that the entry and exit fittings to the transmission are on the passenger side.

Which is supply, which is return? That's why you pay your \$35 TDR subscription—the editor gets to take the 50/50 challenge in hopes of discovering which line is the return line. Before exploratory removal, I tried diagnostics with an infrared temperature gun hoping to see a big temperature difference in the two fluid lines. Perhaps I should have waited for a hot summer day, but deadlines prevail and there was little temperature difference.

The fitting and cooler line that was easiest to reach was on the bottom. As luck would have it, this is the return-to-transmission line. Using a 1" wrench I disconnected it from the transmission. I found a 3/4" heater hose, 3' in length, and hose-clamped it onto the threaded fitting. The hose was directed into a 5-gallon bucket.



The bottom cooler line is the return-to-transmission line. Remove it with a 1" open end wrench. Clamp a 3/4" ID hose over the threaded barb and direct the fluid into a 5-gallon bucket.

I noticed that both the supply and return lines were held with a brace on the driver's side of the transmission. For extra wiggle-room when removing the transmission pan, I removed the brace (14mm bolt) with allows the lines to be pushed out of the way.

With the truck in Park, depress the emergency brake, chock the tires then start the engine. Shift the transmission into Neutral and ATF will begin flowing into the container. Once the flow begins to dwindle, immediately turn off the engine. This technique on the 68RFE yielded 10 quarts (at least that is how much I put back into the transmission to get it to the proper level). Re-attach the cooler line to the transmission and continue your transmission maintenance by dropping the pan. The pan is held on with 8mm bolts. Remove the bolts and you'll find that Mopar TRV sealant holds the pan onto the body of the transmission. Start in the back corner and lightly tap the pan. For what it is worth, there was still enough fluid in the pan to cause a small cascade of ATF over the edge of the pan. Better a small fluid bath than a large one? Remove the pan.

Clean the pan. Change the 68RFE filters. Make a decision about installing a B&M drain plug or temperature sensor.

NEXT ITEM—TEMPERATURE SENSOR

In my previous '03 Turbo Diesel truck I installed a transmission temperature sensor in the transmission pan using a B&M drain plug kit. For the four-years and 120,000 miles that I owned the truck I never saw a transmission fluid temperature higher than 195°. Highest, so far, on my '07.5 truck, 212°. I was pleased with this low temperature number and was thankful that I did the temperature baseline test. The data convinced me that a fancy, finned aluminum transmission pan was not necessary. This is Freddie Frugal speaking, "Establish a baseline, evaluate, modify if the need arises."

TDR members appreciate Freddie's straight-up advice. Aftermarket vendors hate Freddie.

Using the "drain the fluid through the hose" method, it was easier to drop the 68RFE's pan and avoid the big fluid bath that occurs when the pan has not been emptied. There was some overflow on the back corner as I removed the pan. With the pan removed I drilled a 1/2" hole and installed a B&M drain plug. The plug for the B&M kit is a male 1/8" NPT fitting. I removed the fitting and replaced it with an oil temperature sensor that uses 1/8" NPT male threads.



Cleaning the RTV from the 68RFE transmission pan.



From my study of the internal parts of the 68RFE, I determined that the best place for the drain plug was the location that I marked "B&M."

Next I removed the transmission filter using a torx socket.

Remove the transmission's external filter using a strap wrench or filter claw tool.

Reinstall the filters and the transmission pan. Torque the pan bolts to 13ft-lbs. (The 13ft-lb value was verified in the '07 Service Manual and this is the same value as used back to the '94 trucks.)

Refill transmission with Chrysler ATF+4 fluid. I could not find the capacity for the 68RFE in my Owner's Manual. Using my "drain through the hose" and pan removal method I found that 10 quarts were needed to replenish the transmission.

After refill, the correct procedure for checking your transmission fluid is outlined in your Owner's Manual.

- The vehicle must be on level ground.
- The engine should be running at curb idle speed for a minimum of 60 seconds.
- Fully apply parking brake.
- Place the gear selector briefly in each gear position, ending with the lever in N (Neutral).***
- Remove the dipstick and determine if the fluid is hot or warm. Hot fluid is approximately 180° F (82° C) which is the normal operating temperature after the vehicle has been driven at least 15 minutes. The fluid cannot be comfortably held between the finger tips. Warm is when fluid is between 85° - 125° F (29° - 52° C).
- Wipe the dipstick clean and reinsert until seated. Remove dipstick and note reading.
 - a) If the fluid is hot, the reading should be in the crosshatched area marked "OK."
 - b) If the fluid is warm, the reading should be between the two holes. If the fluid level indicates low, add sufficient fluid to bring to the proper level.
- Fluid is added through the dipstick tube.

***I cannot over-emphasize that the transmission fluid should be checked with the gear selector in Neutral. With the vehicle in Park, there is no fluid flow! Hence, if you take a transmission fluid level reading with the vehicle in Park, the reading will always be higher than it actually is. Additionally, should your transmission fluid become too hot, shift the transmission to Neutral—not Park—to ensure that there is fluid flow and thus the opportunity for fluid cooling.

Conclusion

Barlow, Thomas, "Matt B" and I have given you some worthwhile maintenance ideas. The "Turbo Tips" section of the magazine awaits your input.

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