



## Service Procedure

# Transmission Fluid and Filter Change Porsche Cayenne

This tutorial is provided as a courtesy by ECS Tuning.

Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

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The concept of a lifetime transmission fluid is silly. That's why a periodic fluid and filter change to protect your expensive Tiptronic transmission is well worth the time, materials, and effort required.

We're servicing a Tiptronic in a 2006 Porsche Cayenne. It has over 90,000 miles on the odometer, all with the original transmission fluid and filter.

The service procedure starts very much like a transmission service on a standard automatic tranny: drain the fluid, drop the pan, and replace the filter. That's where the similarity ends.

This tranny has no dipstick or dipstick tube. Fluid is added from beneath the vehicle until it runs out of the fill hole at a specified fluid temperature, with the engine running.

# Transmission Fluid/Filter Change Porsche Cayenne

## Parts Required:

Cayenne Automatic Transmission Service Kit ES 2501062

## Kit contents:

- Transmission filter - ES1445418
- Filter o-ring - ES1445477
- Pan gasket - ES1446617
- Filler plug - ES1527701
- Drain plug - ES472231
- Filler plug seal - ES1445460
- Drain plug seal - ES1445451
- Liter container Porsche ATF - ES1353345 (quantity - 9)



## Tools We Used

- T40 Torx
- 17mm hex
- 10 mm socket/ratchet
- torque wrench
- bead thermocouple digital temperature sensor
- level
- catch tray/drain
- clean, lint free towels
- gravity oil fill (Power Fill fluid transfer pump optional)

# Transmission Fluid/Filter Change Porsche Cayenne

## Procedure Overview

Here's a quick outline of the procedure, followed by a more detailed explanation that includes photos and illustrations.

1) Start with the transmission cold. Raise the vehicle: see lift point diagram to the right.

never work  
beneath  
any vehicle while  
alone

2) Remove the under car plastic shield to access the transmission pan.

3) Make sure car is level, fore and aft and side-to-side. Check by placing a level on the oil pan.

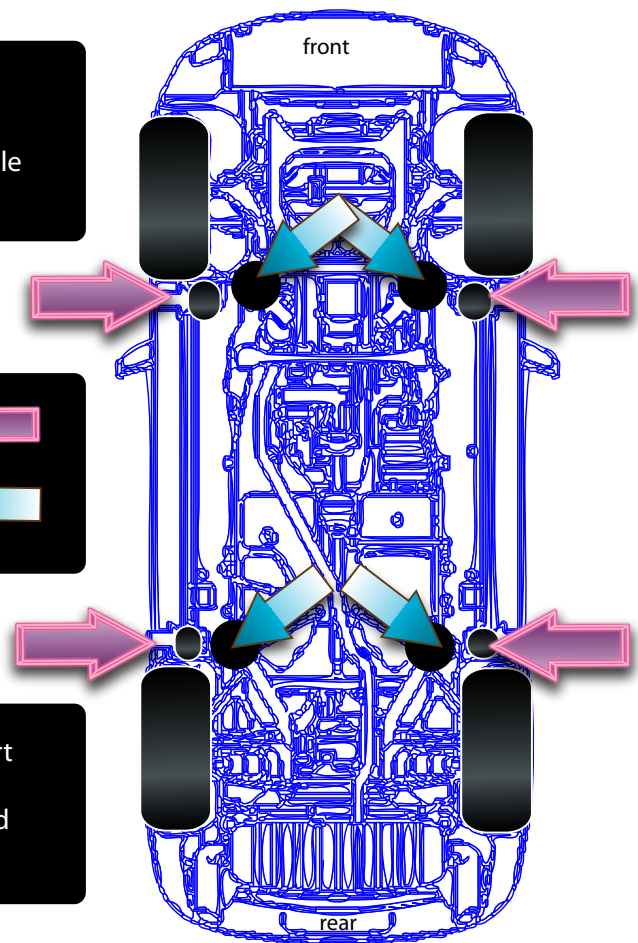
perimeter  
jack points  
main chassis  
mount  
lift points

4) Unscrew the transmission drain plug; drain the fluid.

5) Loosen the pan bolts, allowing the pan to tilt slightly downward toward the drain hole. This will drain more fluid and reduce spillage when the pan is removed.

always support  
the vehicle  
with approved  
jack stands

6) Remove the remaining pan bolts and drop the transmission pan.



7) Unbolt the three bolts holding the filter to the valve body. Remove the old filter. Make sure the old filter seal o-ring comes out with the filter.

8) Install the new filter. Bolt it in place.

9) Install the new pan gasket on the pan.

10) Reinstall the transmission pan. If using the old bolts, apply blue threadlocker. Reinstall the drain plug and torque to 28Nm (21 ft-lb).

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## Procedure Overview - Basic Steps (continued)

- 11) With the engine still off, add fluid through the fill hole until fluid drips from fill hole (initial fill 3-4 liters).
- 12) Start the engine and let it idle. Continue to add fluid.
- 13) Move the gear selector lever from Park to D, pausing for 3-5 seconds, and then to R, pausing again for 3-5 seconds; allow the engine to idle during this process.
- 14) Continue to add fluid while monitoring the transmission fluid temperature; temperature may be monitored using the correct vehicle scan tool interface, or with a thermometer.
- 15) Continue to add fluid. The transmission is full when fluid drips from the fill hole at a fluid temperature of 40 degrees C (104 degrees F).
- 16) Replace the fill/inspection hole plug (M24x1.5) using a new sealing ring, and torque the plug to 70Nm (52 ft-lb).

## Photos and Illustrations Steps and Highlights

### Step 1.

Raise the vehicle. Please observe all safety cautions already mentioned in the procedural outline.

Remove the plastic shield beneath the tranny.

The vehicle must be level. Measure at the transmission pan; fore and aft and side-to-side. Level as needed.

Here we are using a cell phone level app, although a short bubble style level will certainly work.

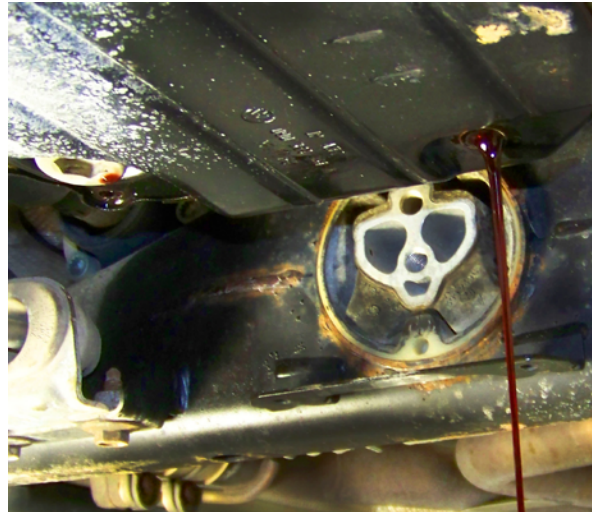




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### Step 2.

Remove the drain plug. Drain the transmission fluid. Loosen the pan bolts to tilt the pan slightly downward toward the drain to remove as much fluid as possible.



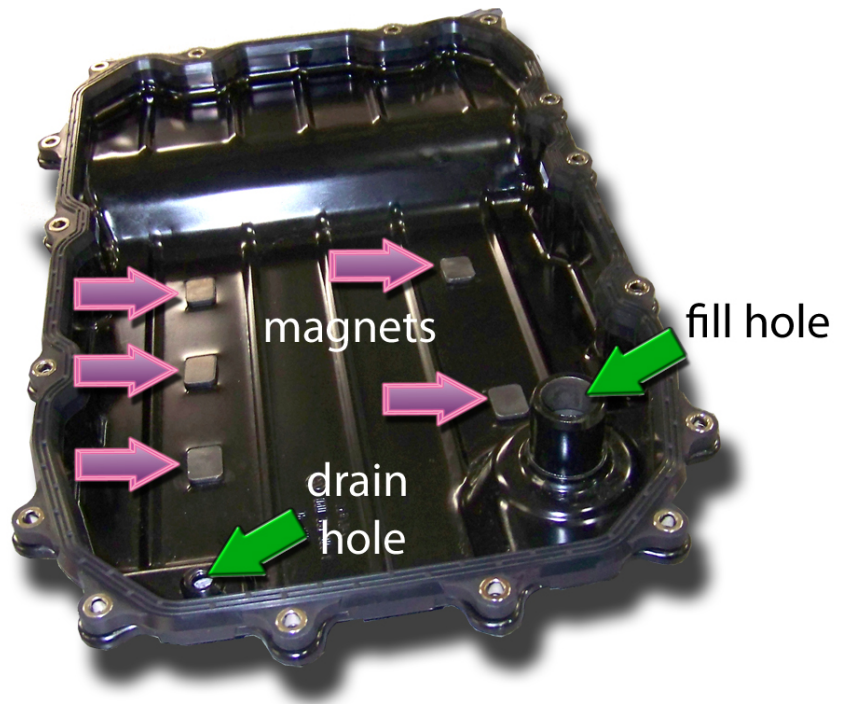
### Step 3.

Remove the pan. Wash it clean and wipe it dry with a lint-free cloth, or blow it dry with compressed air.

Remove the pan magnets and wipe them clean with a clean, lint-free cloth. (Old cotton tee shirts that have been washed a zillion times are a good choice.)

Install the pan gasket on the pan, as shown.

Note the location of the fill tube, and its height above the gasket sealing surface. This is where we will add fluid.



## Transmission Fluid/Filter Change Porsche Cayenne

### Step 4.

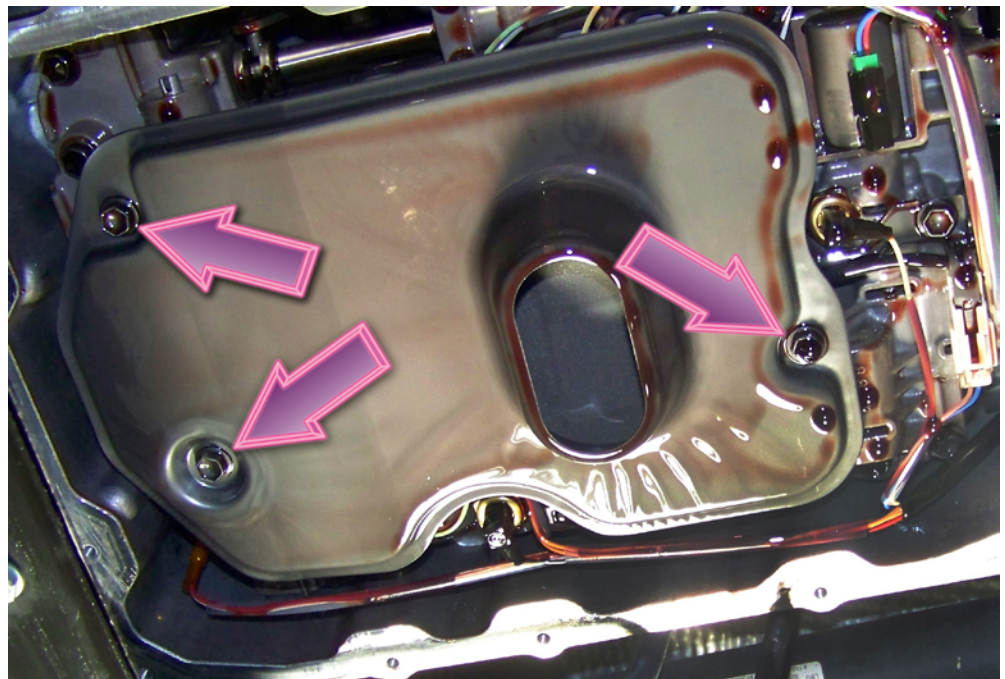
In addition to fresh transmission fluid, your kit includes a new pan gasket, filter and o-ring, and new fill and drain plugs with sealing crush washer and o-ring.



### Step 5.

Remove the filter attachment bolts with a 10mm wrench.

Pull down the old filter and discard it. Make sure the old o-ring comes off with the old filter.



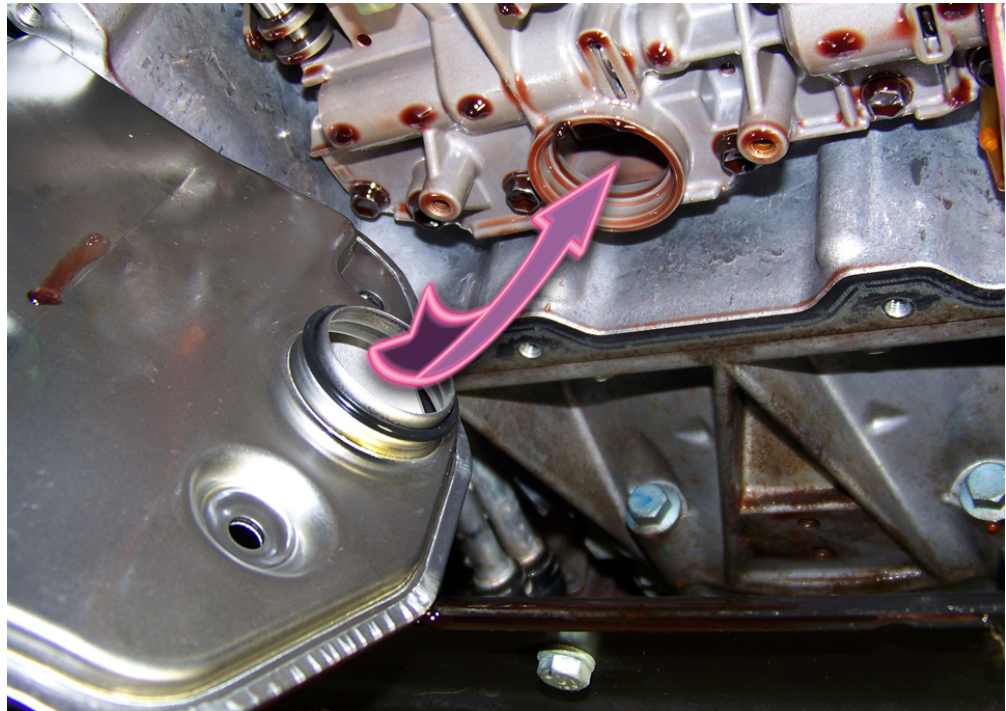


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### Step 6.

Install the new filter. Make sure the o-ring is in place on the filter neck, as shown.

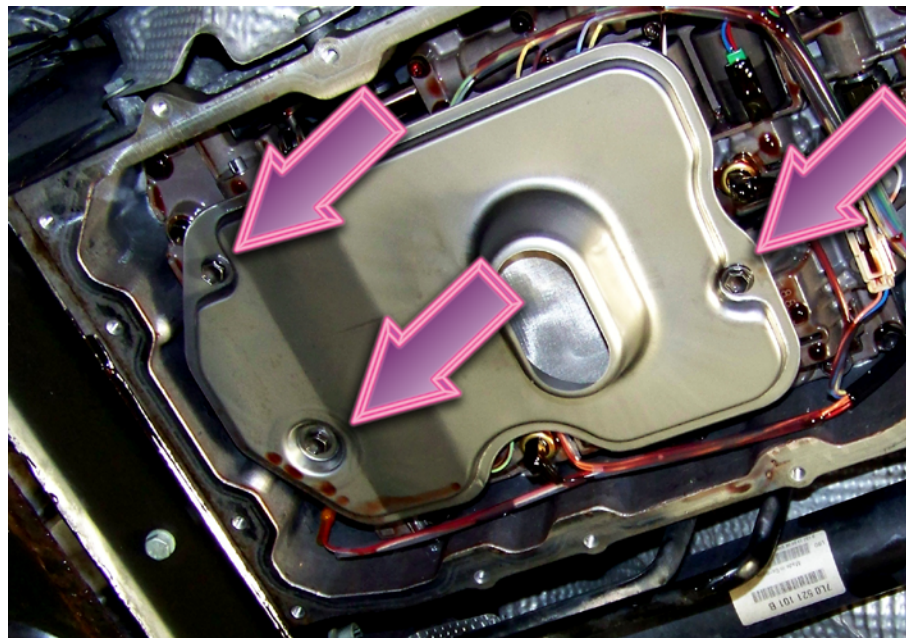
Insert the filter neck into the valve body fluid inlet.



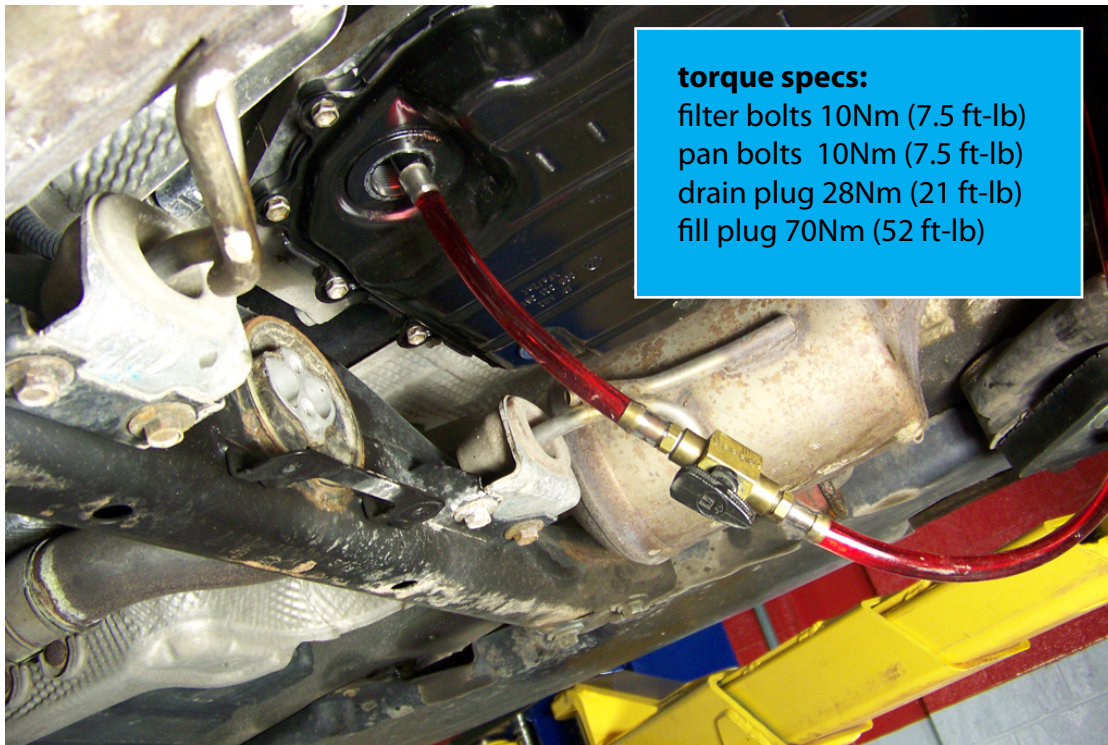
### Step 7.

Reinstall the three filter attachment bolts (arrows) and tighten them to 10Nm (7.5 ft-lb).

Here's our new filter installed.



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### Step 8.

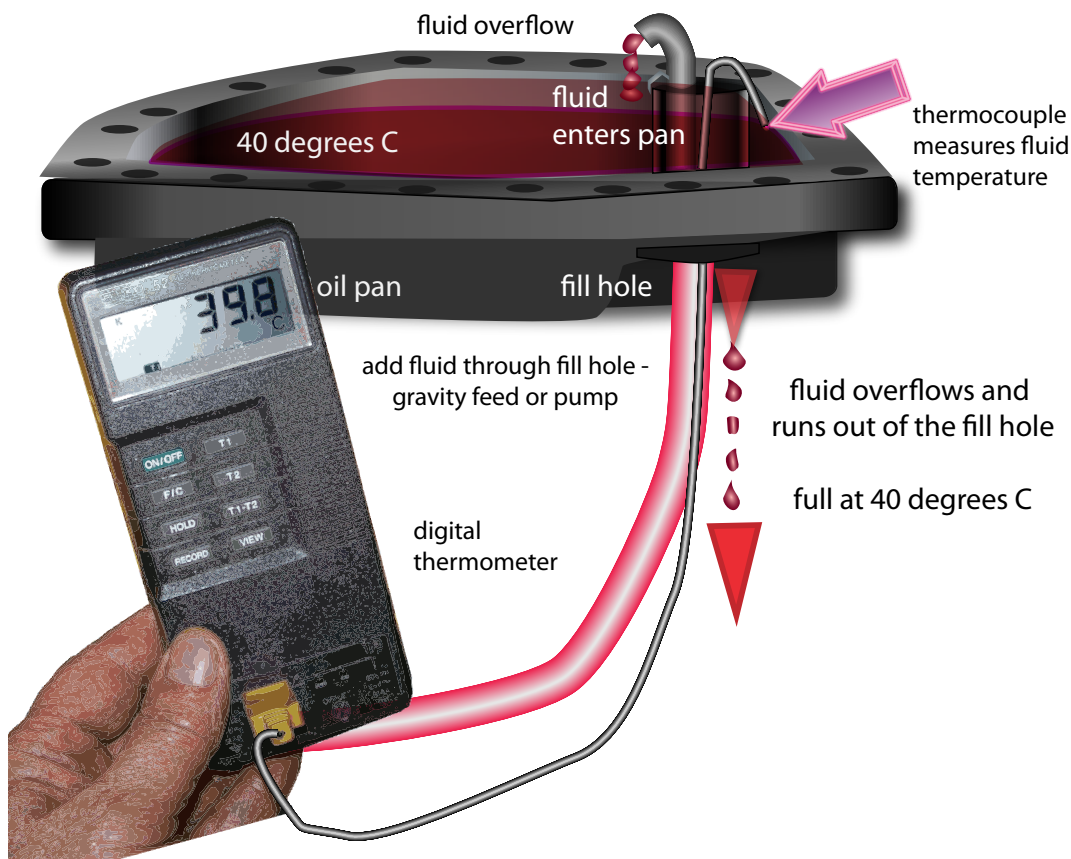
- Reinstall the oil pan. If you are reusing the pan bolts, we recommend applying a drop or two of blue (medium strength) thread locker to the threads on each bolt. Torque the pan bolts to 10Nm (7.5 ft-lb).
- Install the new drain plug (with new sealing washer) in the pan and torque it to 28Nm (21 ft-lb). Do not reinstall the fill hole plug yet.
- Insert the fill hose into the fill hole. Add fluid until it just starts dripping from the hole.
- Start the engine; continue adding fluid.
- Move the gear selector lever from Park to D, pausing for 3-5 seconds. Then move it to R, pausing again for 3-5 seconds; allow the engine to idle during this process.
- Monitor the transmission fluid temperature. If you do not have the Porsche scan tool interface, you can insert a bead thermocouple into the fill hole and monitor fluid temperature on a digital thermometer or digital multimeter with temperature display.
- See the next page for more.



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The fill hose should be routed up through the fill hole, and then bent over inside the overflow tube so it can dump fluid into the pan. (A small hook on the end of the tube will hold it in place for you.)

If you have access to Porsche scan tool software, monitor transmission fluid temperature using scan data. If you are using a thermocouple, hook the tip of the sensing wire slightly so it is immersed in fluid. The transmission is considered full when fluid drips from the fill hole at a fluid temperature of 40°C (104°F). That's warm, but cooler by 20-40 degrees F than normal hot tap water.



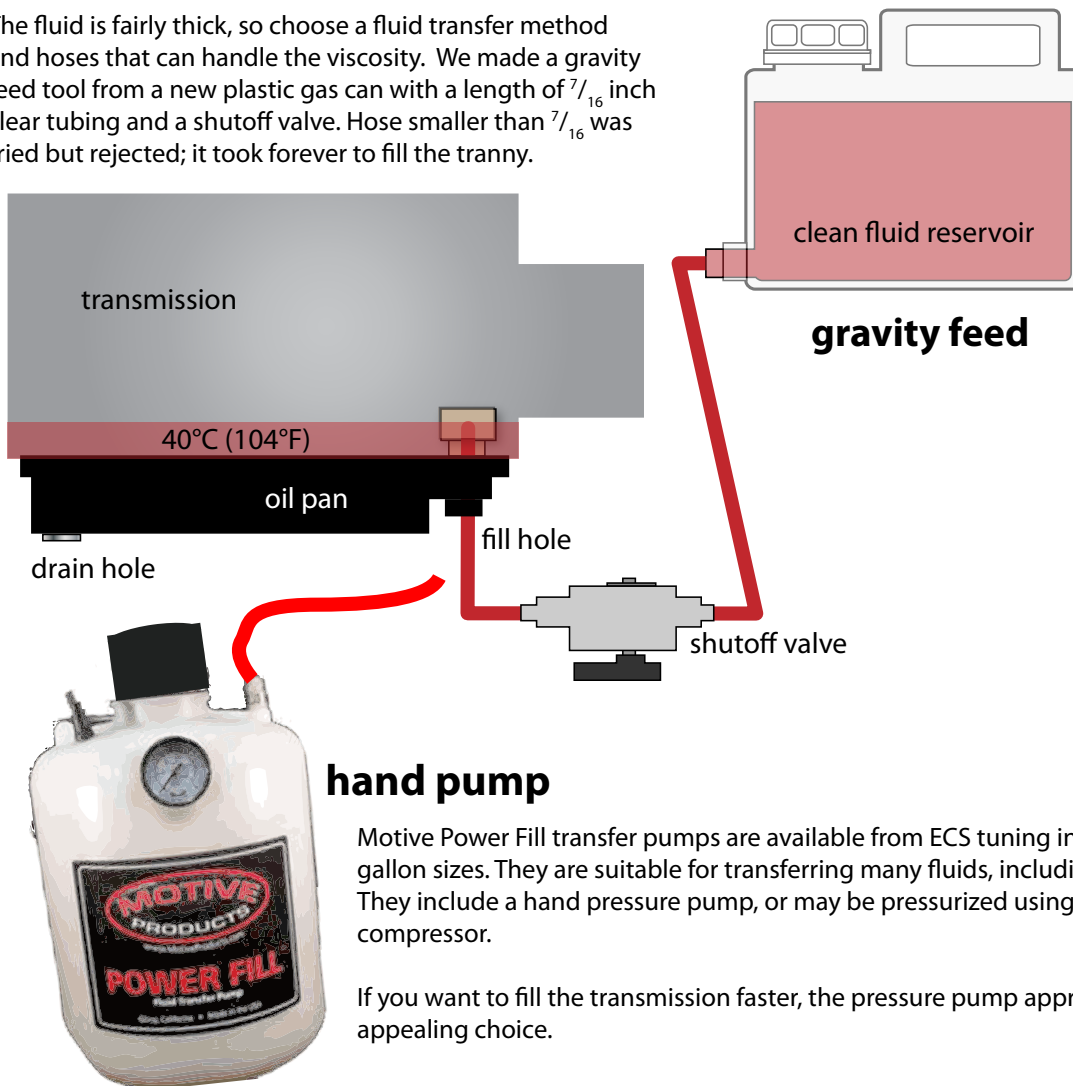
### Additional Notes:

- **Do not turn the engine off during the refill until the fill plug is installed.** Let the engine continue to idle. (If you shut the engine off, warm fluid will gush out of the fill hole.)
- If the fluid gets hotter than 40°C before the fluid runs from the fill hole; replace the fill hole plug and stop the engine until the fluid cools before continuing.
- Our transmission sucks up 8-9 quarts. Normal for this application.

# Transmission Fluid/Filter Change Porsche Cayenne

Gravity feed or fluid pump, take your choice.

The fluid is fairly thick, so choose a fluid transfer method and hoses that can handle the viscosity. We made a gravity feed tool from a new plastic gas can with a length of  $\frac{7}{16}$  inch clear tubing and a shutoff valve. Hose smaller than  $\frac{7}{16}$  was tried but rejected; it took forever to fill the tranny.



## hand pump

Motive Power Fill transfer pumps are available from ECS tuning in 1.0 and 2.5 gallon sizes. They are suitable for transferring many fluids, including gear oil. They include a hand pressure pump, or may be pressurized using your air compressor.

If you want to fill the transmission faster, the pressure pump approach is an appealing choice.

## Wrapping Up

This concludes our transmission service. We feel that periodic fluid and filter changes at 60,000 to 65,000 miles are essential if your Tiptronic is to live long and prosper.