

# Clutch, Gearbox, AWD Controller, and Final Drive fluid change DIY

## You will need your usual mechanic tools such as:

- 1/4 and 3/8 ratchets
- Torx and hex bits
- Torque wrenches (in and lb)
- Rubber gloves
- Low profile jack
- Jack stands
- Wheel chocks
- Oil drain pan
- Funnel
- Small bucket or pan to collect the plastic covering nuts and screws
- Device to measure transmission oil temperature. I used the Cobb device but others work like the iCarSoft, etc.

## Parts and fluids needed:

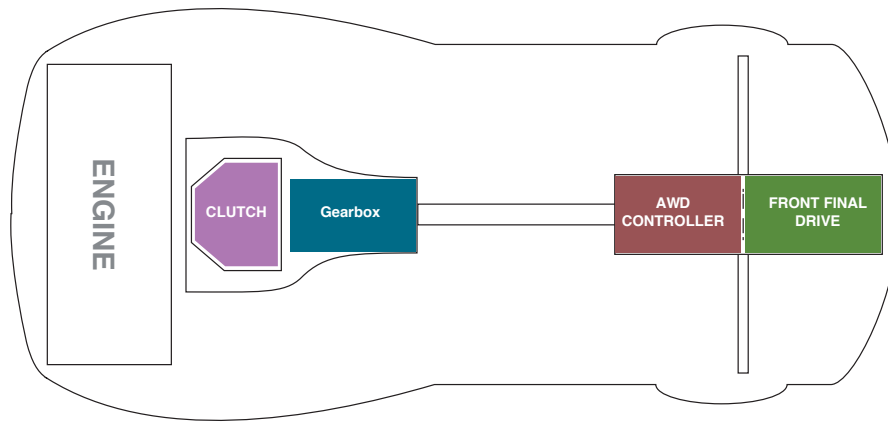
Quantity	Description	Notes
3	Fluid Pumps	The standard fluid pumps will do
4 Liters	Mobil1 PTX 75W90	I found that Rennpart sells it in clear 1 liter jugs which is easier to measure the amount of liquid filling
4 Liters	Pentosin FFL3 fluid	I used part number (000-043-305-13) from Porsche but can also be Pentosin brand FFL3
1 Liter	Transmission Fluid	This fluid is extremely hard to find and most dealers will not ship it. Porsche Of Larchmont were the only ones who shipped it to me. The fluid is made by BorgWarner Part number (000-043-209-33)
1	PDK clutch fluid pan	Part number (9G1-321-025-01)
13	Pan screws	Part number (9G1-321-801-00)

## Preparation and notes:

The car's gearing system is divided into four sections – the Final Drive, AWD Controller, clutch, and gearbox. Each section has their own fill and drain holes. Prior to beginning any work I prepared a few empty jugs of juice with measurements in order to measure the amount of fluid I was draining so I could refill with the same amount of fresh fluid. I took a measuring cup and filled the jugs 250ml at a time and marked as I went along. After draining each section, I poured the fluid into the jugs to measure and then proceeded to refill with the same amount. According to other tutorials, more fluid was drain from theirs. I believe this is because they used PIWIS to set the car in fill mode etc.

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## Step 1:

Lift the car on four jack stands. In the interest of saving time I will not go through this process as there are several of tutorials on this already. Be sure that the car is level as if it was in driving position.

Here is a tutorial on how to lift the car on jack stands:

[https://youtu.be/HFAqJ\\_3fwYg](https://youtu.be/HFAqJ_3fwYg)

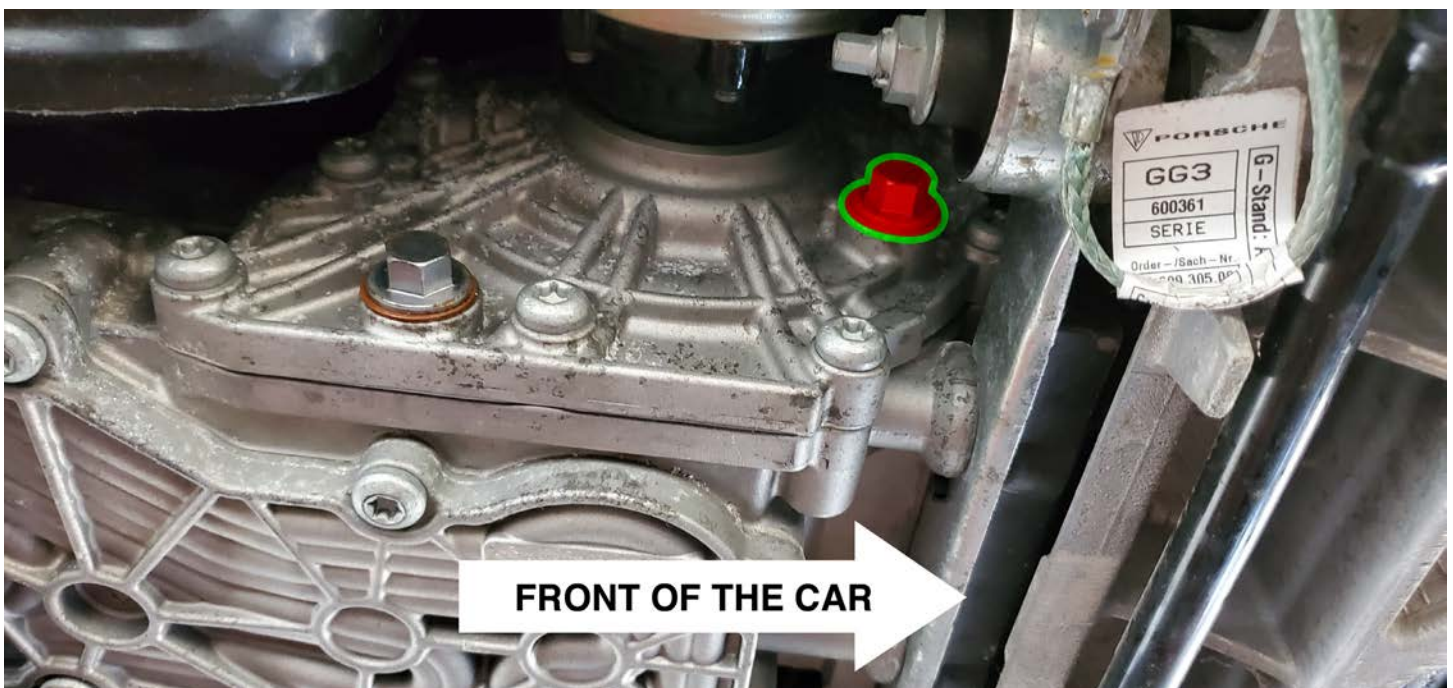
## Step 2:

Remove the front and rear plastic covers from underneath the car. There is a middle area cover which I did not remove because there is no work to done there. Make sure you collect and store all of the screws and plastic nuts, there's a lot of them.

## FINAL DRIVE

### Step 1:

Locate the fill plug and loosen. Do not loosen all the way as some fluid could drip out. Place the oil drain pan under and continue to loosen all the way.

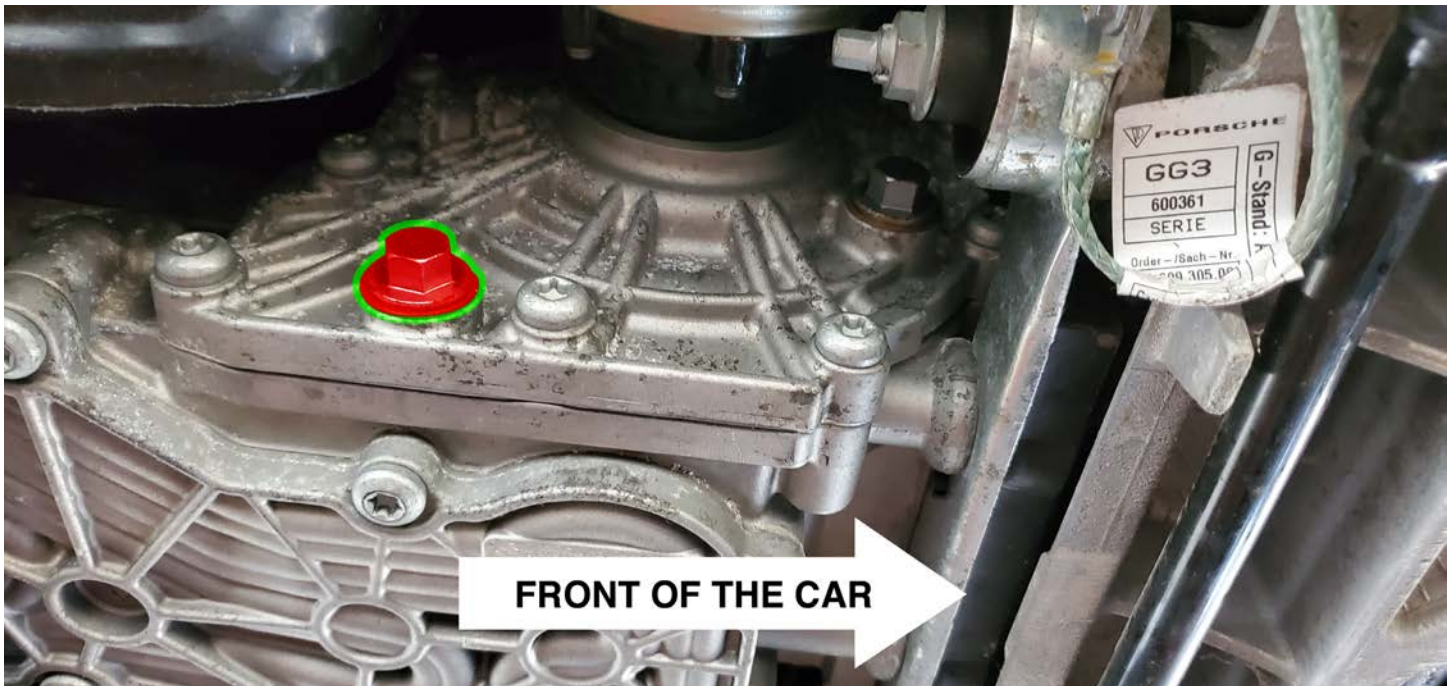


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## Step 2:

Locate the drain plug. Place the oil drain pan underneath and begin to loosen the plug all the way. Maintain pressure on the drain plug so you don't drop the plug into the drain pan. Be sure to be wearing protective gear. Let the fluid drain until it stops.



## Step 3:

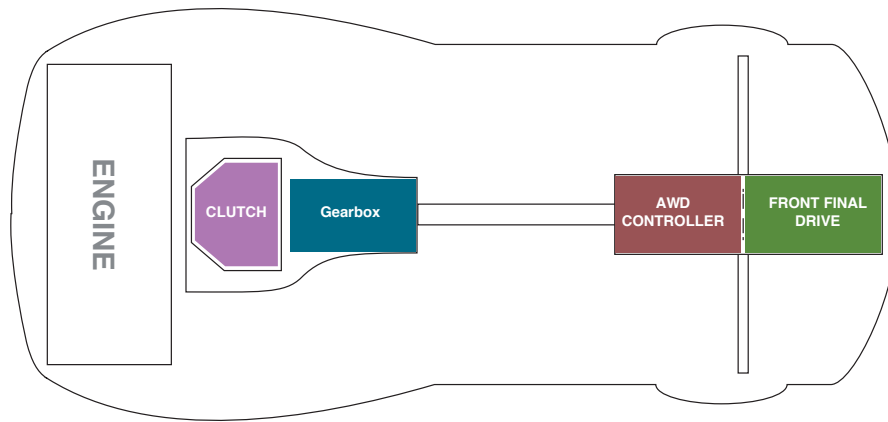
While the fluid drains, clean the magnetic plug.



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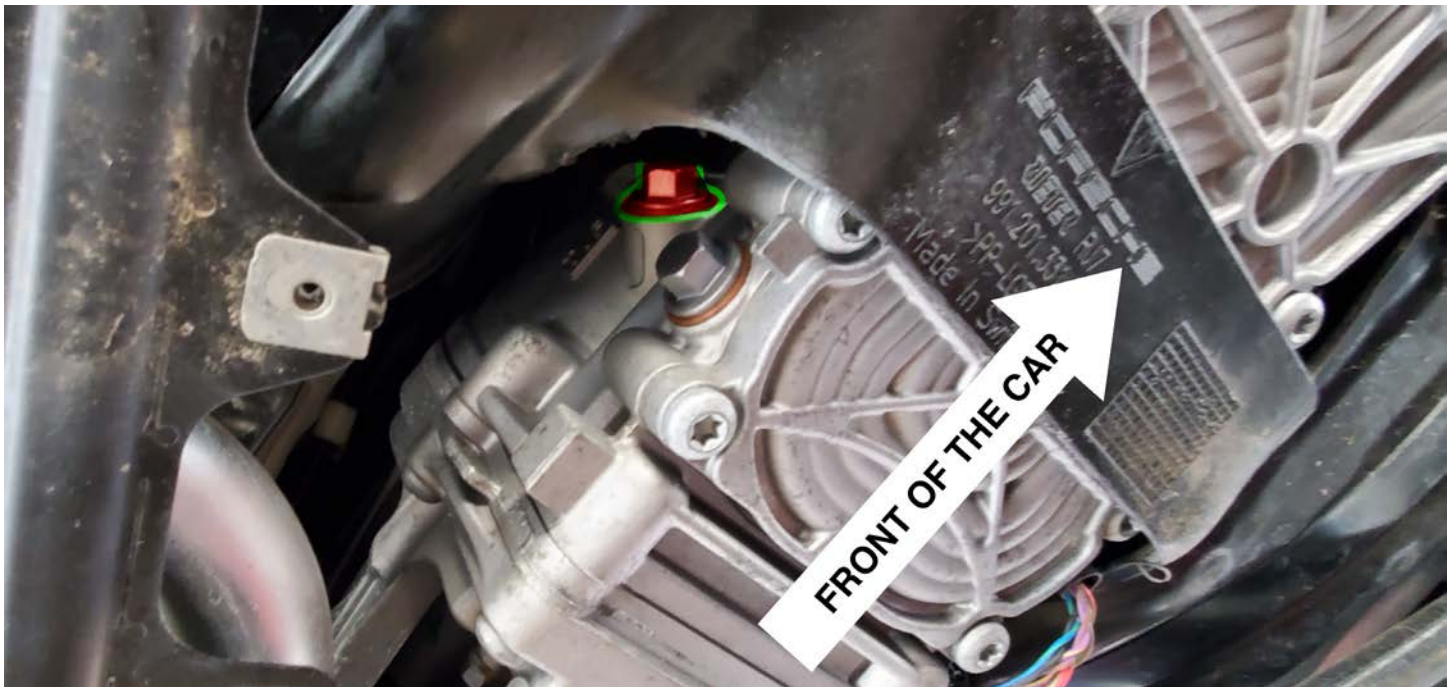


## AWD Controller

### Step 1:

Similar procedure to the final drive.

Locate the fill plug and loosen. Do not loosen all the way as some fluid could drip out. Place the oil drain pan under and continue to loosen all the way.

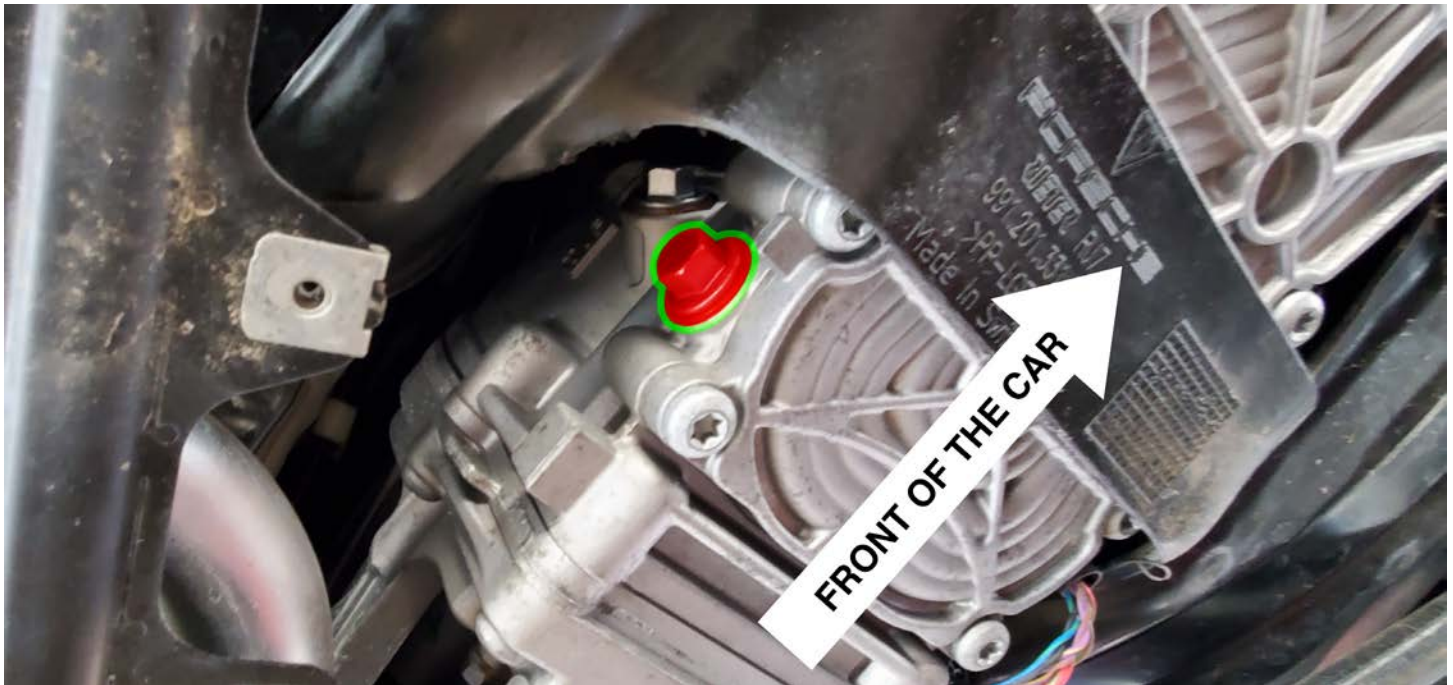


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## Step 2:

Locate the drain plug. Place the oil drain pan underneath and begin to loosen the plug all the way. Maintain pressure on the drain plug so you don't drop the plug into the drain pan. Be sure to be wearing protective gear. Let the fluid drain until it stops.



## Step 3:

While the fluid drains, clean the magnetic plug.

## Step 4:

Once it has finished draining, replace the drain plug and tighten to 24ftlb. Do not over tighten.

## Step 5:

Grab a funnel and pour the drained fluid from the oil drain pan into the measuring jugs.

## Step 6:

Grab one liter of BorgWarner transmission fluid (000-043-209-33) and attach a pump to it. Be sure that the pump is free of any debris and also keep the fill tube clean as well. Attach the fill tube to the fill hole on the final drive. With one hand hold the tube to the fill hole and with the other hand pump until you reach the same amount you've drained or until the fluid trickles out. For me it was about the same amount.

## Step 7:

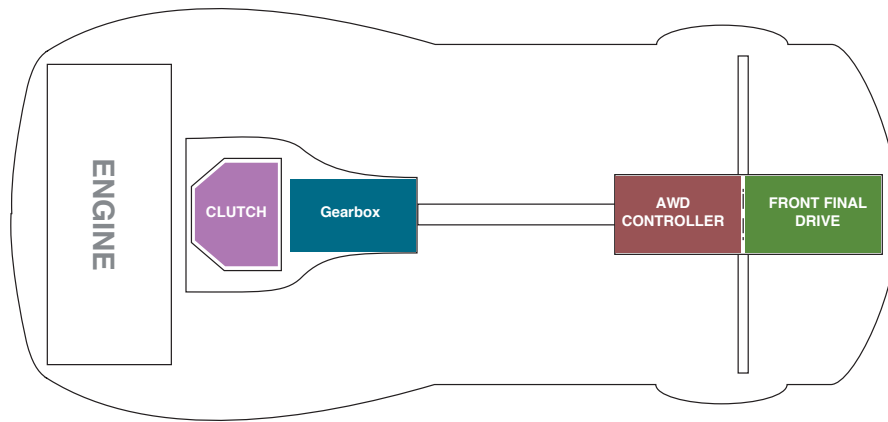
Replace the filler screw and hand tighten. After the final check torque to 24ftlb. Do not over tighten.

## Step 8:

Clean the area thoroughly.

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## Gearbox

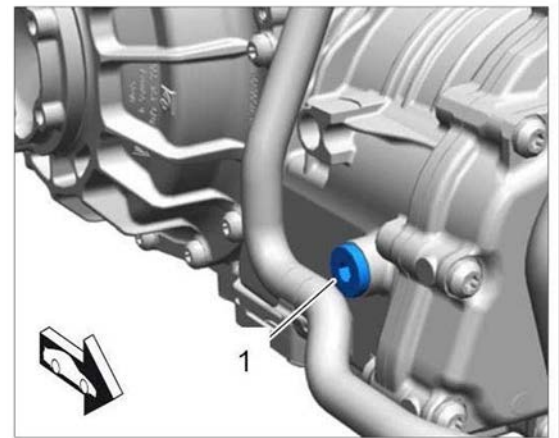
### Step 1:

Unclip this hose in order to gain space to wrench the fill plug



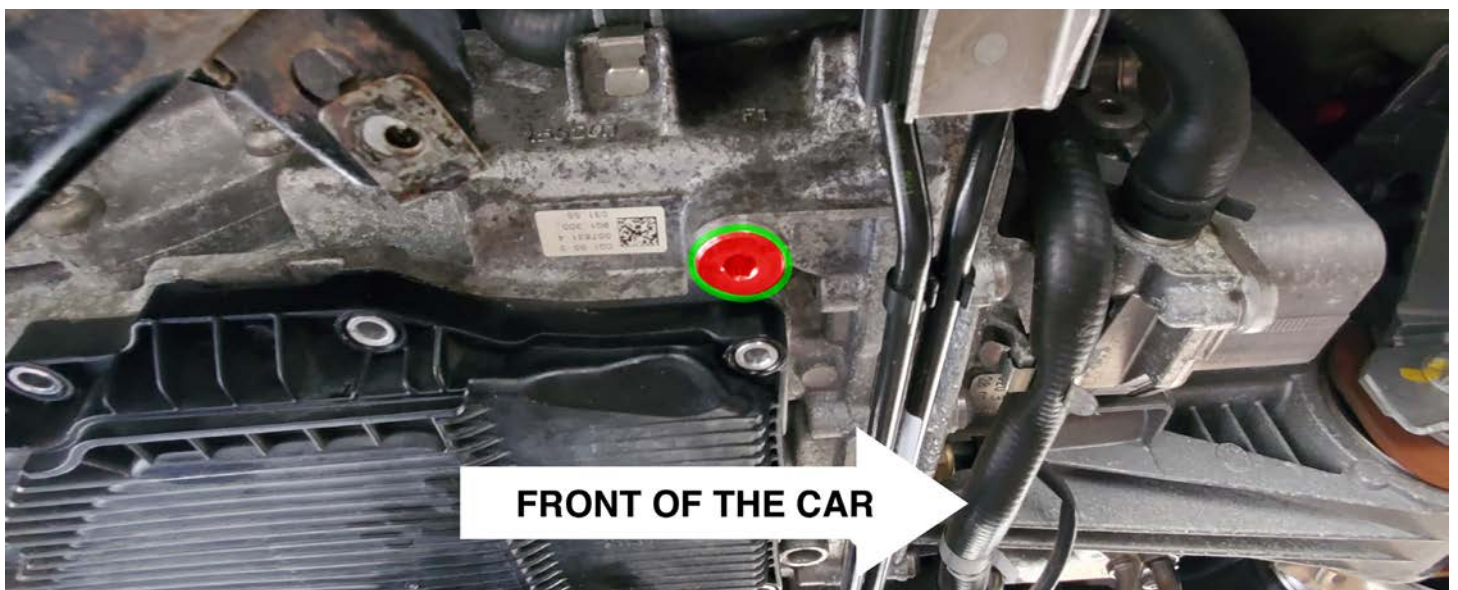
### Step 2:

Locate and loosen the fill plug



### Step 3:

Locate the drain plug. Place the oil drain pan underneath and begin to loosen the plug all the way. Maintain pressure on the drain plug so you don't drop the plug into the drain pan. Be sure to be wearing protective gear. Let the fluid drain until it stops



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*There is another drain underneath the brace which I did not drain. According to posts and articles only a small amount drained from there. In order to remove that plug you must get the car aligned and I didn't think it was worth it.*

## **Step 4:**

Measure the amount collected and replace the drain plug with a new drain plug. It should be tightened to 20ftlb.

## **Step 5:**

Grab Mobil1 PTX 75W90 and attach the pump used for the front final drive. Be sure that the pump is free of any debris and also keep the fill tube clean as well. Attach the fill tube to the fill hole on the final drive. With one hand hold the tube to the fill hole and with the other hand pump until you reach the same amount you've drained or until the fluid trickles out. For me it was about the same amount.

## **Step 6:**

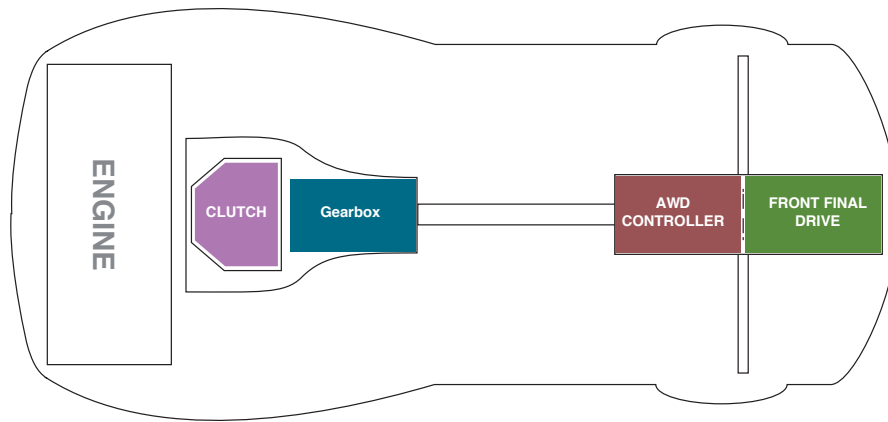
Replace the fill plug and hand tighten. After the final check torque to 20ftlb as well.

## **Step 7:**

Clean the area thoroughly.



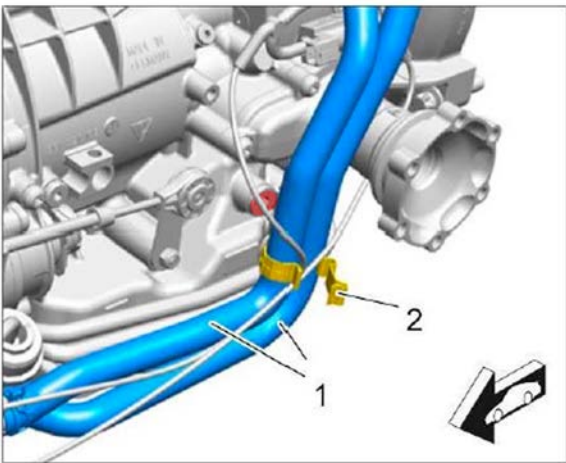
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## Clutch

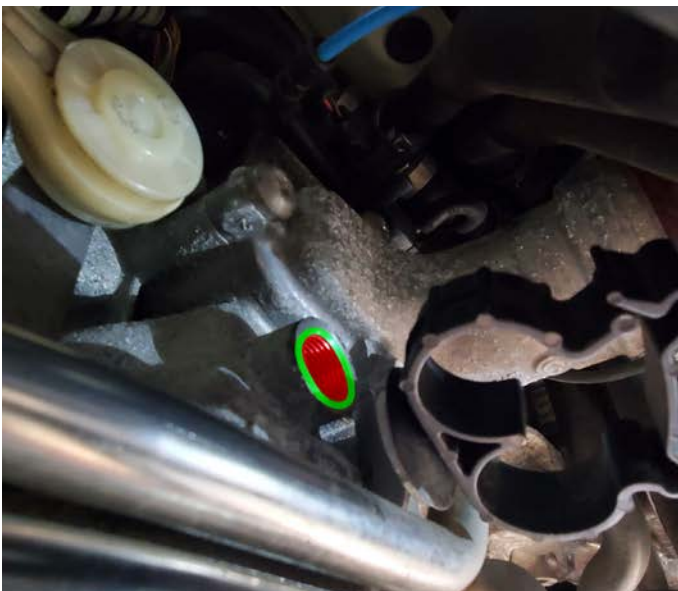
### Step 1:

Unclip coolant hoses to reach the fill plug



### Step 2:

Locate the fill plug and loosen. Do not loosen all the way as some fluid could drip out. Place the oil drain pan under and continue to loosen all the way.

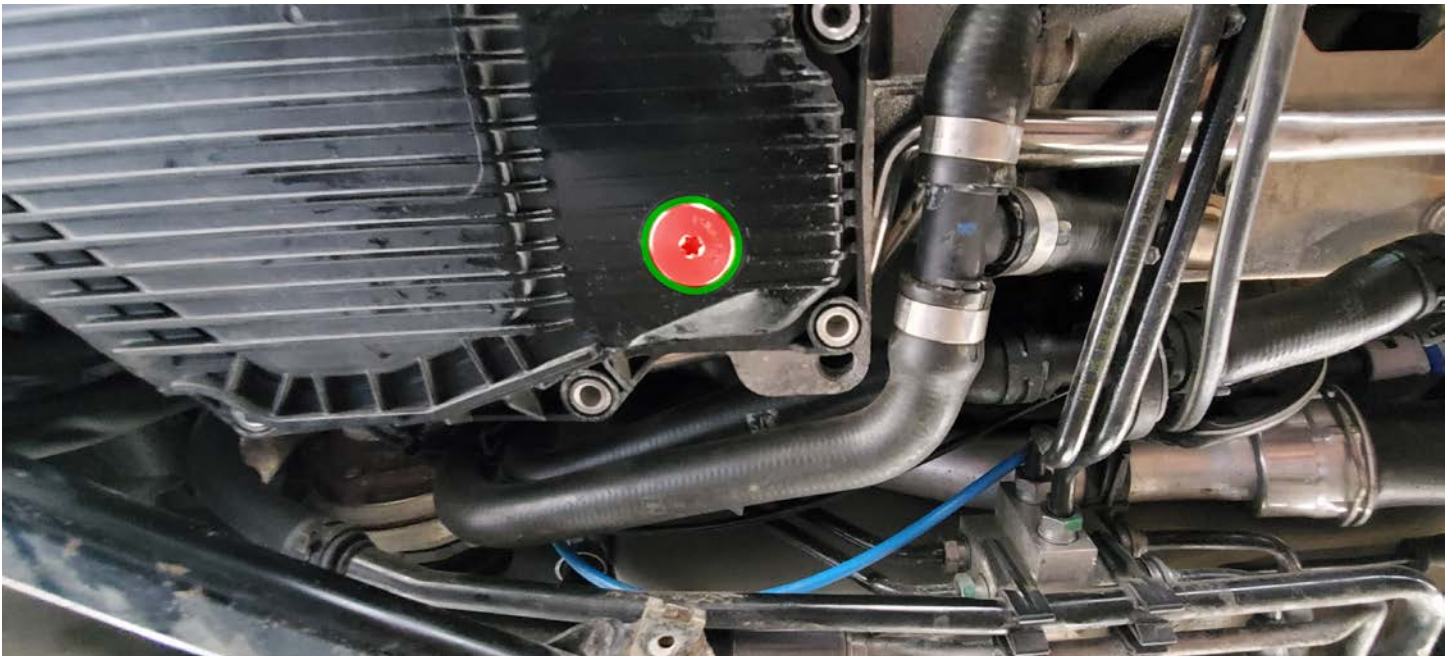


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## Step 3:

Locate the drain plug. Place the oil drain pan underneath and begin to loosen the plug all the way. Maintain pressure on the drain plug so you don't drop the plug into the drain pan. Be sure to be wearing protective gear. Let the fluid drain until it stops.



*If you are not replacing the pan you can skip steps 4-10.*

## Step 4:

After letting the fluid drain place a support underneath the pan. If you are using a jack, raise the jack just enough to barely touch the pan. You can also have buddy hold it for you. This is just as precaution as there is an intake connection that holds the pan in place.



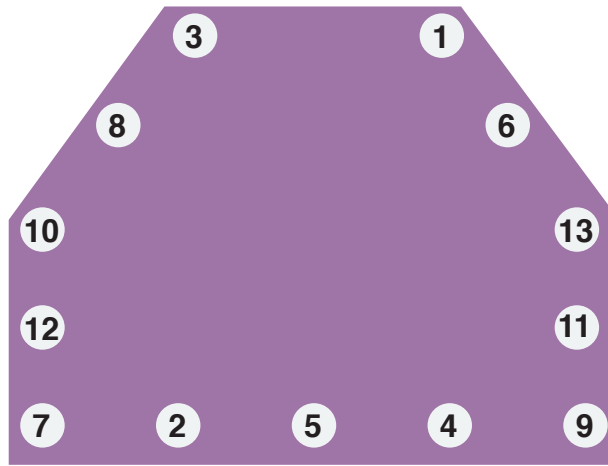
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## Step 5:

Begin to unscrew the pan bolts in the sequence below beginning with #13 working down to #1.

**BE EXTREMELY CAREFUL WHEN UNSCREWING AND SCREWING THESE BOLTS AS THEY ARE ALUMINUM AND LOW TORQUE. THEY WILL SNAP VERY EASILY AND ARE A PAIN TO RETRIEVE.**

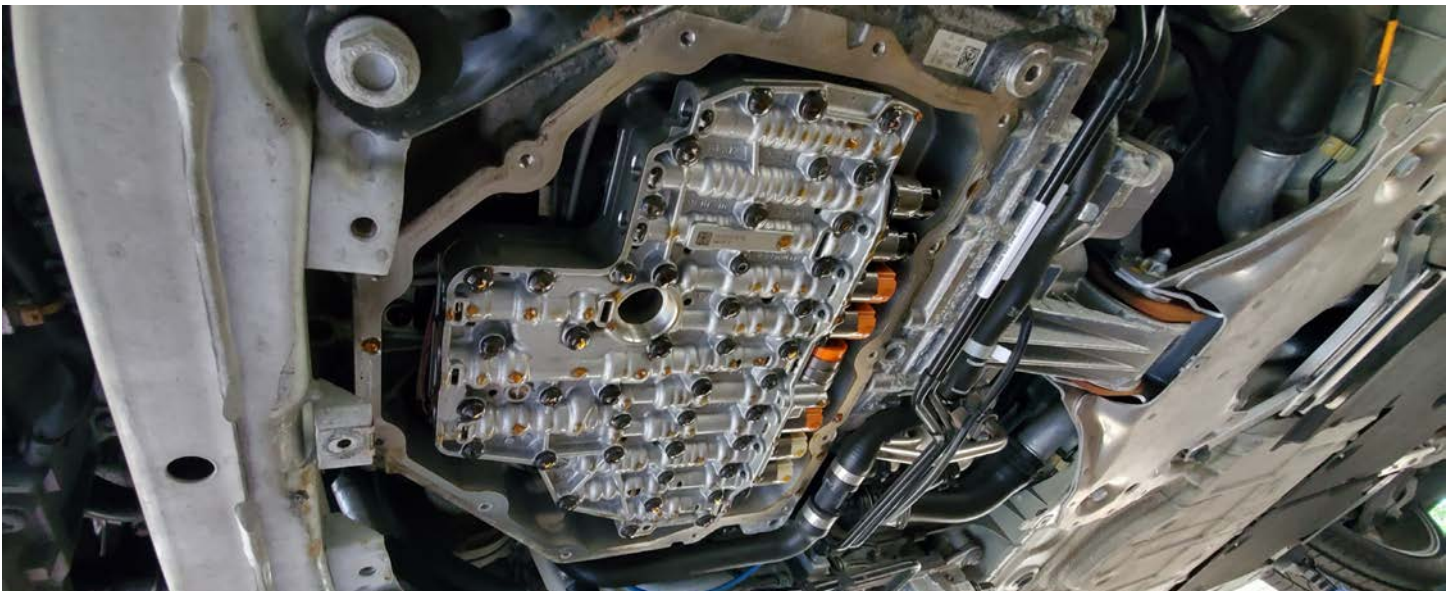


## Step 6:

This next step will most likely get messy so make sure you have a cardboard protecting your driveway/garage and protective gear on you. Remove the jack support while holding the pan with the other hand. Begin to pull the pan down carefully. Keep it level as there is still fluid inside the pan. The pan itself needs to be pulled down because of the intake connection where the pan inserts. This is where fluid is sucked up into the solenoids after it goes through the filter.

## Step 7:

Once the pan is removed, dump the fluid into the drain pan and measure the amount.



## Step 8:

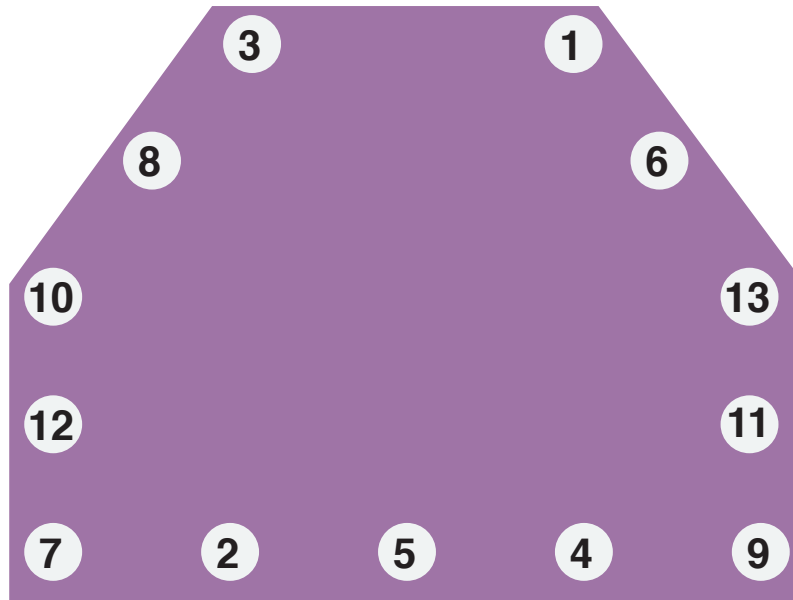
Replace the pan with a new pan. Make sure the new pan has a clean filter, new clean seal in place, and everything is free of any debris. Also, make sure the ring in the intake area is in place and clean. The pan should have a new drain bolt tightened to 11ftlb. Place the jack again to support the pan.

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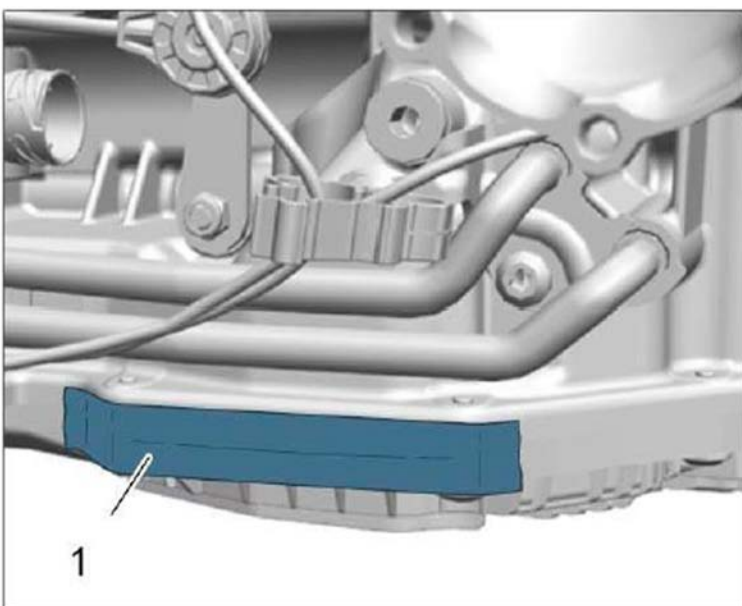
## Step 9:

Begin to screw the pan bolts in the sequence below beginning with #1 working up to #13. These should be tightened to 2ftlb. or 24inlb. Very little torque. **BE EXTREMELY CAREFUL WHEN SCREWING THESE BOLTS AS THEY ARE ALUMINUM AND LOW TORQUE. THEY WILL SNAP VERY EASILY AND ARE A PAIN TO RETRIEVE IF THEY SNAP.**



## Step 10:

Place a piece of tape along the edge of the pan and tranny block to protect the seal.

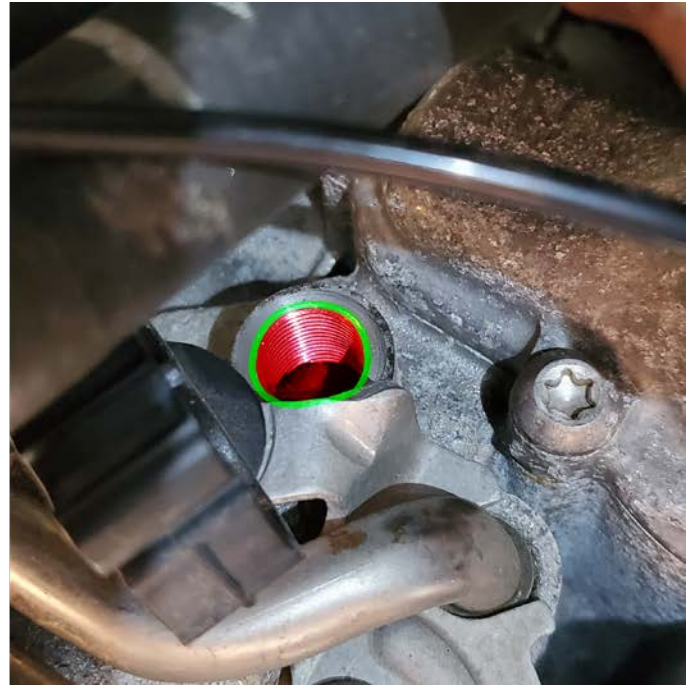


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## Step 11:

Grab Pentosin FFL3 liquid and begin to pump through the fill hole. Fill until with the same amount that you drained or until it trickles from the fill hole. Same procedure as the other pumping methods.



## Step 12:

Hand tighten the fill plug. After the final check torque to 20ftlb.

## Step 13:

Clean the area thoroughly and then replace the coolant hoses.

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## Final Check

After finishing this last procedure, start the car and connect the Cobb device (or OBD device of your choice that measures transmission oil temperature). Navigate to the transmission oil temperature monitor and keep the car running until the temperature reaches 68°F (20°C). Once temperature is reached, shift from P - R - N - D - then back to P pausing a few seconds on each. Turn off engine. Now go through each fill plug and unscrew and the fluid should trickle out. If it does not, you must fill until it trickles.

After checking the fill levels and cleaning everything, replace the covers from underneath.

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## Sources:

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