

DIY #6 – E36 Transmission and Differential Fluid Change

Posted By *Baden* On February 15, 2010 @ 12:01 PM In E36 | [2 Comments](#)

BADEN'S BMW DIY #6 – E36 Transmission and Differential Fluid
Change

Repair Job Summary

Difficulty	3 (out of 5)	Always remove the fill plug before removing the drain plug Don't raise the car up on 4 jack stands on a sloped surface
Time to Complete (estimate)	4 hours	

IMPORTANT SAFETY INFORMATION

Working on and under your car has inherent dangers. If you perform the work described here, be prepared to deal with problems which may arise that are not documented in these steps. Some of these problems may require tools which are not listed here or be beyond your skill level and almost always take longer to resolve than expected. Plan for the possibility that your car may need additional time to restore to working condition. Caution must be taken to properly secure your car when working underneath it to avoid injury (or death).

The transmission and differential fluids are extremely important and if the wrong fluids or procedures are used to replace these fluids it can potentially cause significant (and expensive) damage.

Before starting, you will need to assemble some tools and supplies:



A) Oil drain pan

B) 1.4 litres of Redline 75W90 Synthetic High Performance Gear Oil (for the differential)

C) 1.2 litres of Redline MTL Manual Transmission Lubricant

D) Hand pump (should be compatible with lubricants). I purchased mine from Canadian Tire for about \$11 and is called a "U-Lube-It Bottle Pump". It has a screw-on fitting that will allow it to attach to a 4 litre jug.

E) Socket wrench

F) 14mm hex socket (for both differential plugs)

G) 17mm socket (for both transmission plugs)

H) 2 new washers for the plugs on the differential

I) Long breaker bar with $\frac{1}{2}$ " socket end (to remove plugs on the transmission)

J) Torque wrench (with capability for 50-70 Nm)

K) 4 jack stands

L) Floor jack

M) Level (optional: to check the level of your car when on jack stands)

Section 1: Transmission Fluid Change

The transmission (and differential) fluid should be warmed up before changing it. Depending on the outside temperature, this may take up to 30 minutes of driving the car to achieve this temperature. If you do not drive the car (ie: just idle it), the fluid will not heat up.

Note: On my M Roadster (and other models), changing the transmission fluid involves working close to the exhaust system. To avoid burns, let the car cool down for about 30 minutes before starting this job or wear gloves to protect your hands.

If possible, find a perfectly level spot to do this maintenance. If your garage or driveway is slightly sloped, you will need to compensate for this slope with the jack stands.

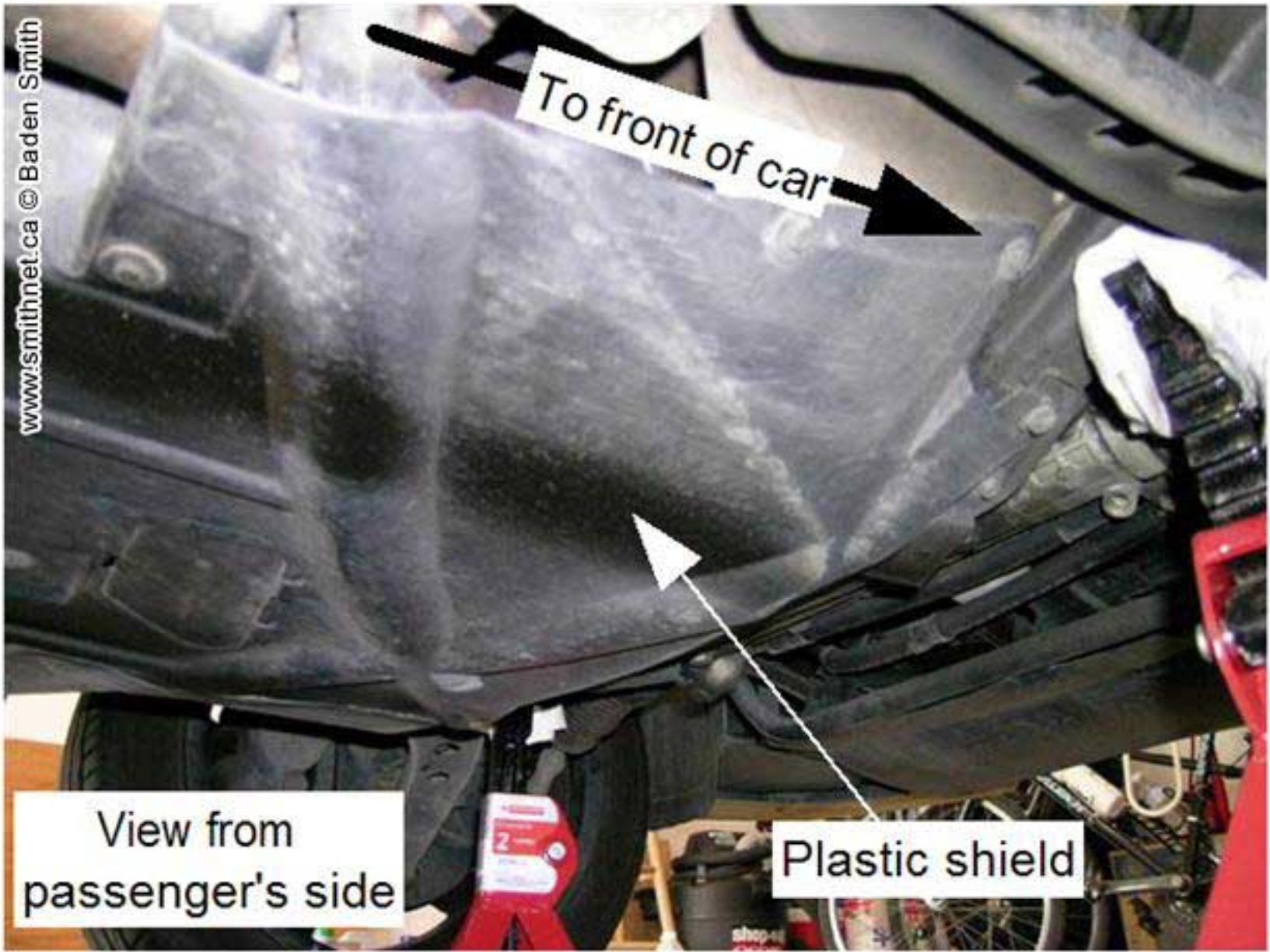
Note: Do not put your car up on jack stands if there is more than a slight slope as the car may tip over.

Jack up the front of the car and put it on jack stands on each side. Do the same for the rear with two more jack stands. Due to the slight slope in my garage, I had to adjust my jack stands to level the car. This process took some trial and error.



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Underneath the M Roadster is a large, plastic shield that covers the oil pan and transmission. This needs to be removed to get access to the transmission



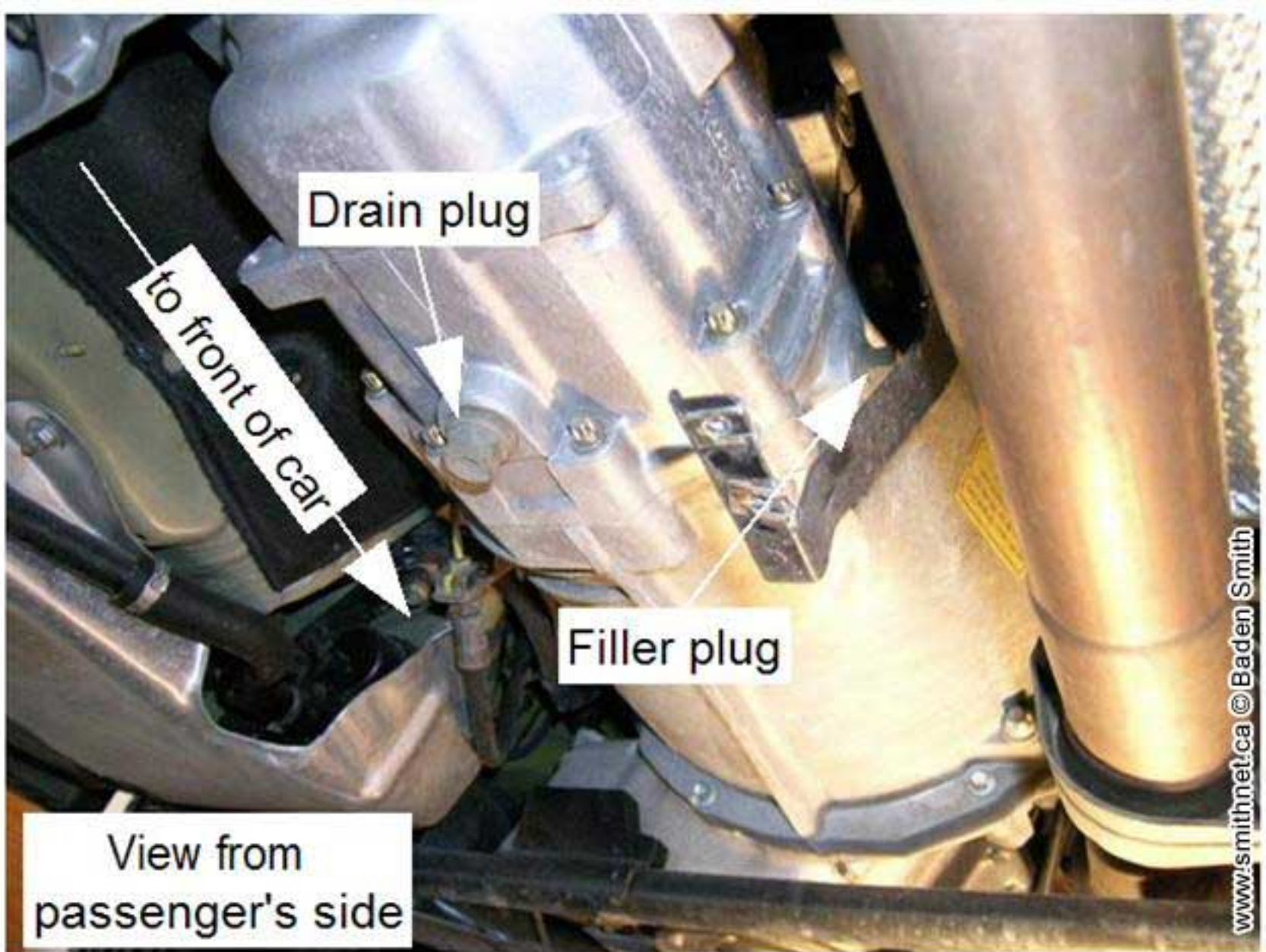
There are 3 x 10mm screws and 12 x 8mm screws (and one bolt) which will need to be removed for the shield to be taken out. Once taken out, the plastic shield looks like this:

This side goes towards
the front of the car

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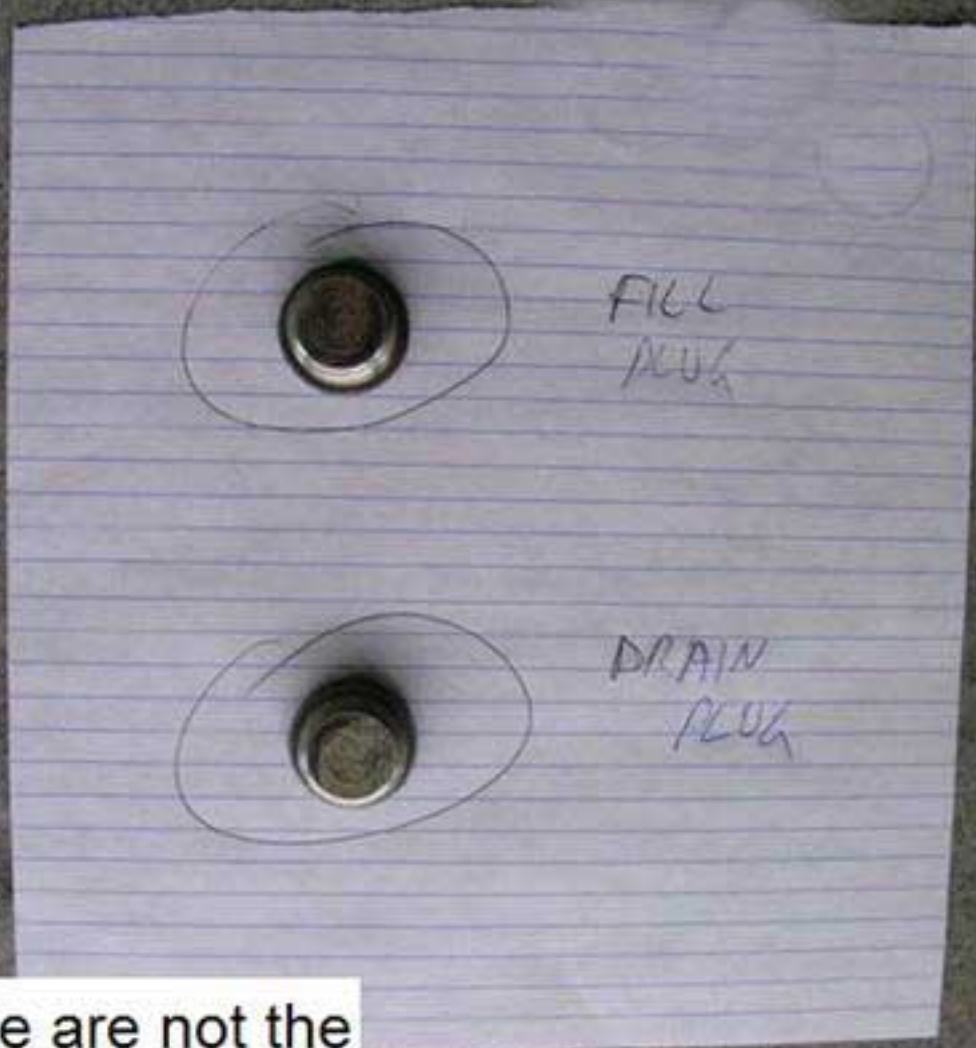


The transmission drain plug and filler plug can both be removed with a 17mm socket on the M Roadster. Other E36 cars may use a 17mm hex socket for these plugs. Both plugs will likely be on quite tight and you will probably need to use a breaker bar on your socket to loosen the plugs.



Move the oil drain pan underneath the transmission.

Remove the filler plug first and clean it off. Place the filler plug somewhere or identify it so that it will not be confused with the drain plug. I put it on a piece of paper like this (put the paper in a spot where you will not accidentally bump it):



Note: these are not the transmission plugs

Remove the drain plug and let the transmission fluid drain into the oil drain pan. Clean off the drain plug and place it on your paper in the appropriate spot. After the transmission fluid has finished draining, put the drain plug back on and hand tighten. Note: the transmission filler and drain plugs on my M Roadster do not have a washer. If your transmission plugs have washers, they will have to be replaced with new ones before the plugs are reinstalled. Do not reuse these washers.

Torque the drain plug to 50 Nm.

With the fluid pump that I used, it was difficult to get the pump underneath my car with the pump inside the new fluid container without tipping the bottle over.



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My workaround for this issue was to put the new transmission fluid into a smaller container. In order to protect debris from falling into this container, I put the lid on it and just cut a small hole for the plastic tube.



Insert the plastic output tube from the top of the pump into the transmission filler hole. Start pumping the new fluid into the transmission. Refill the container with the new fluid as needed.



When the transmission fluid starts to flow steadily out of the filler hole, the transmission is full. Remove the pump and fluid container and set them aside.



Insert the filler plug into the filler hole and hand tighten it.

Using a clean rag, clean as much of the transmission fluid from the transmission and surrounding areas.

Torque the filler plug to 50 Nm.

Take the car for a short test drive (leaving the shield off).

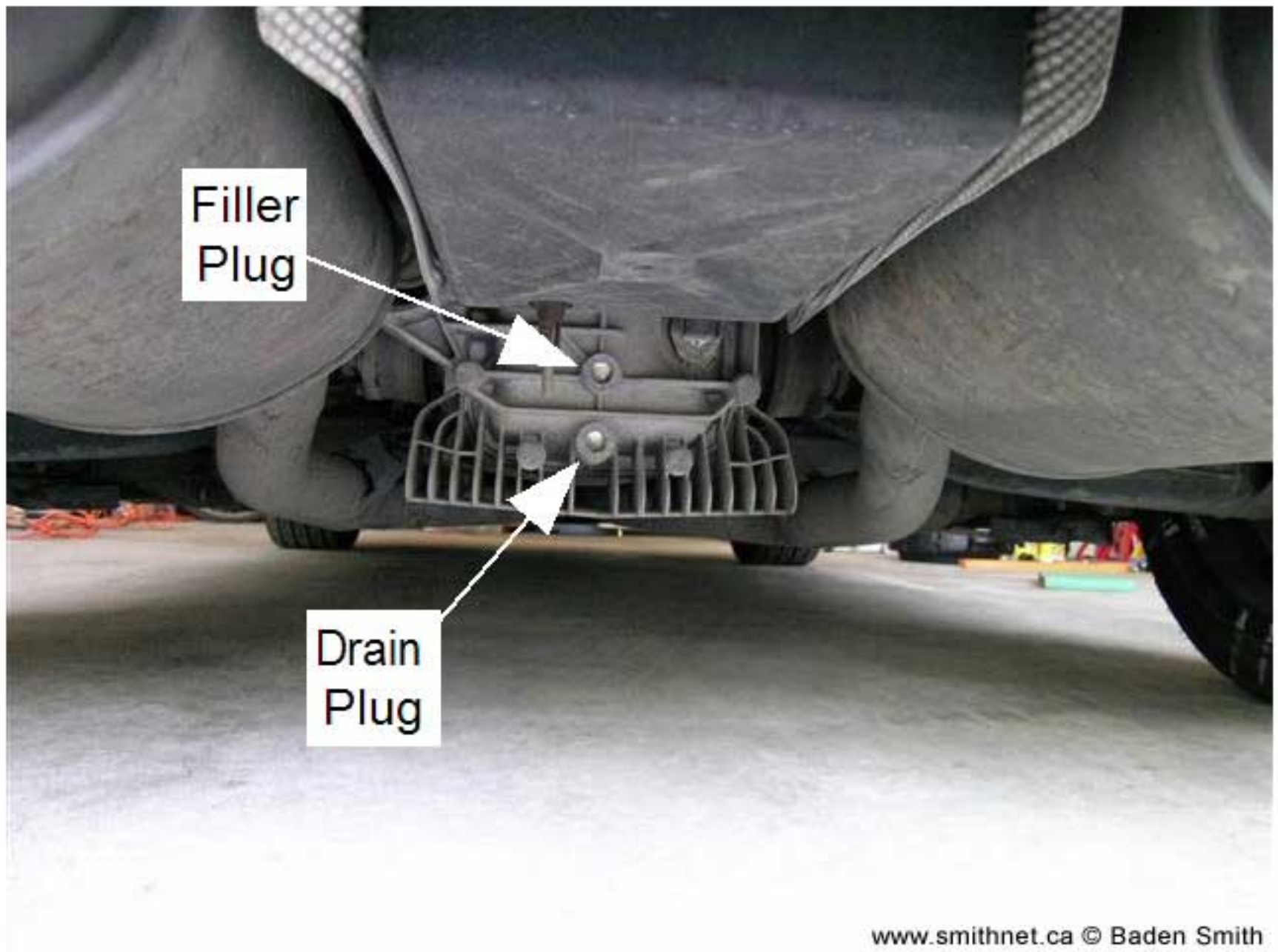
Note: If you have spilled some oil onto the exhaust system and it wasn't cleaned up, you may get some smoke on your test drive until the oil is burned off. This is fairly common.

Check for leaks.

If everything is ok, re-install the shield.

Section 2: Differential Fluid Change

Place an oil drain pan underneath the differential.



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My M Roadster requires a 14mm hex socket for both the differential drain plug and filler plug. Using a breaker bar, remove the filler plug.



Discard the old washer from the filler plug and set aside the plug. Make sure that you don't mix up the filler and drain plugs. I put them on a piece of paper that have been identified as such this (put the paper in a spot where you will not accidentally bump it). See step 8 above. Use a breaker bar to remove the drain plug and let the differential fluid drain into the drain pan.



Discard the old drain plug washer and set aside the drain plug.

Once the differential fluid has stopped draining out of the differential, put the drain plug back in with a new washer and hand tighten it.

Using a rag, clean up as much of the oil residue from the exterior of the differential.

Torque the differential drain plug to 70 Nm.

If you have used the hand pump to previously fill the transmission fluid, the pump must be thoroughly cleaned and dry before using it to fill the differential fluid.

Note: You do not want to get any water mixed in with your differential or transmission fluids.

Insert the pump input tube into the bottle of new differential fluid and insert the output tube into the differential filler hole.

Note: If you have not put your car up on jack stands for this part of the job, you may have to tip the bottle of new fluid over quite far to reach under the back of the car.



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Fill the differential with the new fluid until a steady stream starts coming out of the filler hole indicating that the differential is full.



When fluid starts flowing out of the fill hole, the differential is full

Put a new washer on the filler plug and hand tighten it.

Using a rag, clean up as much of the oil residue from the exterior of the differential.

Torque the filler plug to 70 Nm.

In necessary, remove the jack stands from the car.

Take the car for a short test drive.

Check for leaks.

As I don't like to see any oil residue on the differential, I used a diluted degreasing product (Simple Green) and a small brush to remove the remaining oil. This process is not purely cosmetic as it will allow me to more easily notice a differential leak in the future if the residue from this job has been removed.



Hose off any of the Simple Green from the differential.

Clean up your tools.

After a few days, continue to check the floor of your parking spot for new leaks from your transmission and differential. Deal with these leaks immediately.

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