

Transmission Fluid Change in a 2004 Jaguar XK8

Changing the lifetime fluid at 50k miles is recommended. So at 51,000 I did this and post some pictures here of the adventure. This fluid change is an easy 2 hour process. Contrary to most other vehicles that have an easily accessed transmission fluid dipstick and no tranny drain plug, the 6ZF6HP26 transmission has no dipstick and an easily opened drain plug. This may make sense as the proper fluid level is set by temperature not by dipstick. What does not make sense is Jaguar hides the fill plug behind an exhaust pipe heat shield requiring the plug re-insertion on a hot running engine. So heat resistance and patience is all you need for this job.



1. First purchase all the stuff.

Six quarts of fluid if just changing the oil.

Twelve quart case if doing a drain, refill, drain again, replace the filter, refill again. I used Mercon SP that now sells for \$85 a case on Amazon.

Pan with integrated filter and gasket.

I got this one from RockAuto for under \$100. Be sure to get the pan with the integrated filter; I doubt if the filter-only option will work on the 6ZF6HP26 transmission and plastic pan.

A pack of M6 x 1mm thread 30mm long fully threaded Torx T30 screws and 17mm flat washers. I prefer McMaster Carr as they ship in a day. My tranny takes 21 screws but a pack of 25 is \$7.00. Many use expensive Torx T40 heads to replace the wimpy OEM screws but the 17mm washers do a fine job of securing this pan with the T30 screw.

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McMASTER-CARR.


t40 torx

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Purchase Order (optional)

Delivers tomorrow 9-11 am

1  Zinc-Plated Alloy Steel Button Head Torx Screws \$6.92 \$6.92
Zinc-Plated, M6 x 1 mm Thread, 30 mm Long Pack of 25 each

Metric Oversized Washers



Steel



Zinc-Plated Steel



Stainless Steel

Compared to our general purpose washers, these have exaggerated diameters and/or thickness. Use them to cover oversized holes, hold heavy fastening loads, or as spacers and levelers.

These washers meet various DIN and ISO specifications, which are international standards for washer dimensions. ISO 8738 is formerly DIN 1440. ISO 7093 is formerly DIN 9021.

Plain steel washers are stronger, more wear resistant, and less costly than zinc-plated steel washers. They should not be used in wet or corrosive environments because they rust. Zinc-plated steel washers have an outer layer of zinc that prevents the steel from rusting in areas. Compared to stainless steel, they're stronger, more wear resistant, and less costly, but not corrosion resistant. Avoid exposing them to salt water and chemicals. Stainless steel washers are more corrosion resistant than steel washers, and almost as strong. Use them in damp and wash applications without worrying about rust. 18-8 stainless steel and 17-7 PH stainless steel washers are stronger.

For technical drawings and 3-D models, click on a part number.

For Screw Size	ID, mm	OD, mm	Thick., mm	Hardness	Specifications Met	Pkg. Qty.	Pkg.
Steel							
M6	6.4	17.0	2.7-3.3	Rockwell C35	DIN 6340	50	94630A111 \$11.43
Zinc-Plated Steel							
M6	6.4	17.0	2.7-3.3	Rockwell B76	DIN 7349	100	97310A114 10.86
18-8 Stainless Steel							
M6	6.4	17.0	2.7-3.3	Not Rated	DIN 7349	50	97310A131 10.86

Standard metric tools are assumed. You need male Torx drives, 8mm wrench, 10mm and 8mm allen keys, an oil collection pan, **infrared thermometer**, white paper or cardboard, 3+ feet of clean tubing and a clean funnel. I have a four post lift but doing this on a two post, on four level jack-stands or four ramps is easy. Do not work under a car supported by jacks or cinderblocks.

2. Remove stainless steel right side **heat shield**. On my car it was held by three 8mm hex head screws as shown. An 8mm flat ratchet makes it an easy task.

A second view of the heat shield hanging down from the last of three 8mm hex screws where the filler cap is located. Once the shield is off you can see the filler cap at the rear of the tranny. All of this is on a cold engine.

3. **Remove the filler cap** with an 8mm hex and short extension set so your hand need not touch the exhaust pipe. Although you can touch it now, reinstallation of this cap will be with the car running hot. Align your oil collection pan as some fluid may flow out. The cap is above the right rear corner of the pan.

Open the plastic drain plug in the plastic pan with a 10mm allen wrench. Put your oil collection pan underneath. I collected about 5 quarts of dirty fluid at this point. Shown here is the color of the old tranny fluid. This is only a useful comparison if you are refilling with OEM yellow Lifeguard6 fluid. I am refilling with red Mercon so this picture is for dramatic visual impact only.

4. **Do not remove pan** if you intend to flush the torque converter of old fluid. Instead, thread your ~3 foot long fill hose with funnel attached from the top of the engine bay aft of the right front shock. Put



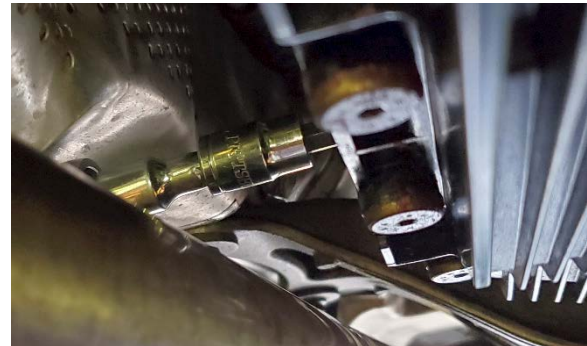
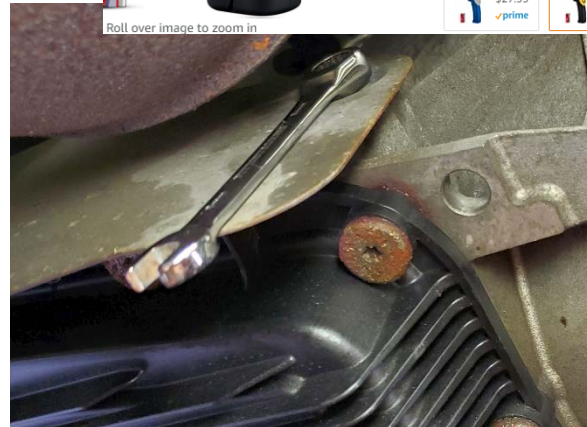
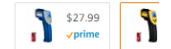
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Business Prime Card. Ter

Color: Yellow & Black



the lower end of the hose into the open fill hole. I prefer this to trying to fill against gravity from below. If everything is perfectly clean great. If there is any doubt, pour some of the old fluid into the funnel to flush out any possible debris as pictured here. You should see this old fluid quickly flow out of the open plastic drain pan hole.



- 5. Refit the plastic drain plug hand tight.** Place white cardboard or paper directly under the tranny so you can see (and hear) any evidence of dripping fluid. Fill tranny from above with clean Mercon SP. My car took about 2.5 quarts before I saw drips on the white cardboard, that is easily seen and heard from above. You will have a direct line of sight from the engine bay to the floor.
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- 6.** The correct level of fluid is to the top of the open filler hole at **40 degrees C**. So start the engine and continue to fill with fresh fluid until drips again appear on the fresh white cardboard. When drips appear, step on the brake and put the car in drive for 5 seconds, in reverse for 5 seconds, in each gear, and repeat this a few times. After doing this on my car it accepted another three quarts of fresh Mercon.



- 7. Measure the temperature of the pan.** Most threads indicate the pan temperature is only a few degrees less than the actual fluid temperature. So I lucked out and measured 39.8 degrees C on the pan when the cardboard drips appeared for this final fill. If lower than that, just wait until it heats up and pour in

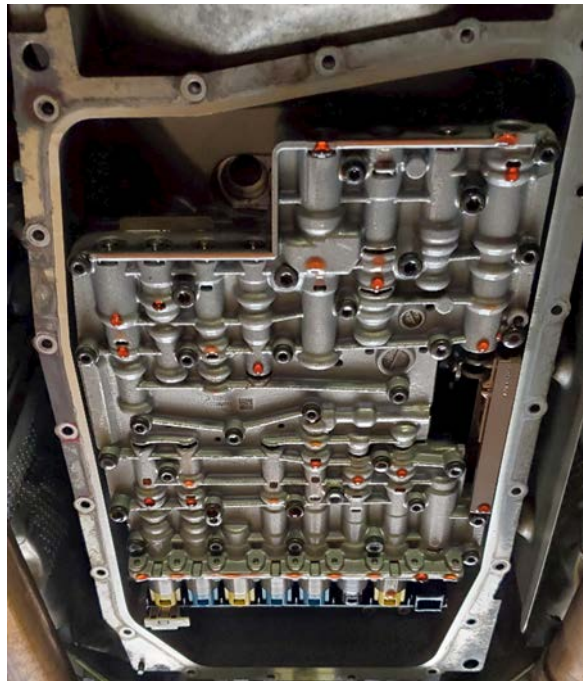


the last bit of fluid if needed. If higher than that, you must cool the car as the fluid has expanded beyond the fill point.

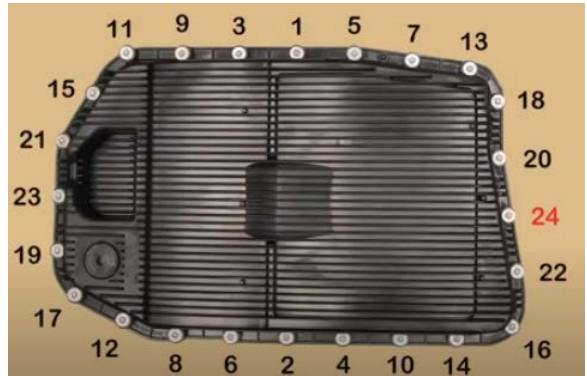
- 8. Reinsert the filler plug** using the extended socket with 8mm hex (the engine is still running). Might be a good idea to wear gloves as that exhaust pipe is toasty. If you are stopping here (no filter change) then torque the fill plug to 35 newton-meters. Several quarts of old fluid have mixed with the new, so you can go back to step 3 and repeat to step 8 dilute the old fluid that remained inside the torque converter. Do this as many times as your stockpile of fresh transmission fluid allows. If you want to replace the integrated pan filter, proceed with step nine.

- 9. Remove and replace the pan with filter.**

The OEM screws may be seized by aluminum oxide corrosion so I hit each several times with a mallet, and soaked each with Kroil. Notice some screws on the left and right are not captive with the screw hole drilled clear through to the top. So you can flow some Kroil or blaster on the top threads of these screws. I have 21 T27 screws. The ZF video shows 24 screws. I used brake parts cleaner instead of wiping off the mating surface to avoid contaminating particles in the tranny. If any of your screws are impossible to remove, consider a test drive at this point to see if your problem is solved and know the old filter is happy to continue work. Ensure the o-ring is not trapped inside the transmission tube connector. Your new pan contains the new o-ring and the new rubber gasket. The pan bolts are tightened to 10 newton meters.



10. Inspect the pan magnets for extensive metal slurry. Mine was light so no further investigation is needed. Avoid the temptation to wipe the fluid dripping from the transmission with a linty rag as you might put fibers inside your transmission. Fasten the pan with your new T30 screws with a dab of copper anti-seize on each M6 thread and torque each one in an opposing zig-zag pattern starting in the middle to 10 newton-meters. A 24 screw sequence is shown by ZF here. You can now fill the tranny to the proper level starting at step five (5) and ending at step 8.



11. You can use your code reader to find the fluid temperature but I found the hand laser to be accurate and convenient. I put in a total of 7 quarts and there was still room for more in the tranny, but much to my relief, when the pan temperature hit 40 degrees C fluid started to flow out of the fill hole, indicating the top fill was reached. While at 40 degrees **install the fill plug and torque to 35 n-m** with engine running. Reinstall the heat shield after the engine cools off then take your car for a very gratifying, happy shifting test drive.



Here is the ZF transmission video <https://youtu.be/ZRrgmfM8VIQ> The ZF mother ship recommends 8 years or 50,000 miles to change the fluid, an interesting definition of "Sealed for life." They recommend Lifeguard Fluid 6 which is expensive. My car shifts like a dream on Mercon SP. Attached to this post are these instructions in a printable PDF format.

