

Replacement of stock clutch with SPEC twin disc non-self-adjusting clutch (and non-dual mass flywheel).

Installing a self-adjusting clutch requires a special tool that holds the pressure plate in the released position before bolting onto the flywheel. Canadian source of special equipment indicated with "CT" (Canadian Tire), "PA" (Princess Auto) or "MS" (Metal Supermarkets).

What you will need:

- 1) vehicle hoist (ideal) – this job will be a serious pain if you have to crawl around under the car on jack stands
- 2) transmission jack<sup>CT or PA</sup> – don't try without this, ~ \$200
- 3) ½" drive impact gun – highly recommended
- 4) long ½ " impact extensions<sup>PA</sup> (I used 24" and 36"), various 3/8" extensions, incl. wobble extensions
- 5) cordless impact wrench (nice but not essential) with ¼" and 3/8" drive adapters
- 6) impact flex joints (1/2" and 3/8")
- 7) impact adapters as needed (1/2" – 3/8")
- 8) external Torx sockets<sup>CT or PA</sup> – E10, E12 (3/8" drive preferred due to more compact size)
- 9) Torx bit (long) size T55 for flywheel bolts<sup>CT</sup>
- 10) metric hex sockets – 8mm, 10mm, 13mm, 16mm, 18mm  
metric socket 19mm (for SPEC flywheel bolts)
- 11) metric combination wrenches – 13mm, 18mm
- 12) socket ratchet handles – ¼", 3/8" and ½" drive
- 13) curved awl or similar tool (for taking apart shift linkage)
- 14) pry bar or large flat blade screwdriver (for pulling off transmission)
- 15) small straight blade screwdriver (for disassembling shift linkage)
- 16) head light (useful for seeing and removing top bolts of transmission)
- 17) 6mm Allen head socket (for clutch pressure plate bolts)
- 18) 8mm Allen head socket (for transmission oil drain bolt)
- 19) work gloves
- 20) magnetic parts trays or small bottles for keeping fasteners organized
- 21) block of steel or aluminum<sup>MS</sup> to make an engine tilting tool - 4.5" x ½ " x 1.5" with 2 holes drilled 60mm apart, one ½" dia, the other drilled and tapped for a ½" x 6" bolt (do not attempt the job without this tool or something equivalent)
- 22) torque wrenches, 1/2" drive, 3/8" drive
- 23) clutch alignment tool (included with SPEC clutch kit)
- 24) pilot bearing puller<sup>PA</sup>, ~\$40
- 25) shop light
- 26) a helper to remove the exhaust system
- 27) bottle of brake cleaner spray, paper towels, clean rags
- 28) Loctite blue
- 29) grease for clutch and transmission input shaft splines (I used extreme pressure moly grease)
- 30) new parts: clutch and flywheel, throwout bearing, pilot bearing, pivot pin, clutch fork retaining spring, new bolts and lock nuts for flex disk, exhaust manifold to cat gaskets and lock nuts
- 31) copper anti-seize for exhaust system fasteners
- 32) pump to refill transmission fluid

Hopefully I got everything listed.

I also want to thank everyone who posted DIYs on M3Post. I have used several and found them to be extremely helpful. So I decided to give back to the M3 community by creating this document, which took many hours to prepare. It's a long one!

Here is the BMW shop manual online: [http://workshop-manuals.com/bmw/3\\_series\\_e92/m3\\_s65\\_coupe/2\\_repair\\_instructions/21\\_clutch/0\\_maintenance\\_and\\_inspections/1\\_ra\\_bleeding\\_clutch\\_hydraulic\\_system/](http://workshop-manuals.com/bmw/3_series_e92/m3_s65_coupe/2_repair_instructions/21_clutch/0_maintenance_and_inspections/1_ra_bleeding_clutch_hydraulic_system/) Worth reading as it is very useful, just not nearly enough detail. Two great videos also should be reviewed (not M3 but still helpful): <https://www.youtube.com/watch?v=8qZskpXW9t4>  
<https://www.youtube.com/watch?v=IHWTT04gRG8>

Here are some great tips to read from Sachs:

[http://www.zf.com/brands/en\\_de/sachs/technology\\_sx/workshop\\_tips\\_sx/workshop\\_tips\\_sachs.html](http://www.zf.com/brands/en_de/sachs/technology_sx/workshop_tips_sx/workshop_tips_sachs.html)

Open the hood. I suggest this to ensure the air intake does not contact the hood when the engine is tilted later.

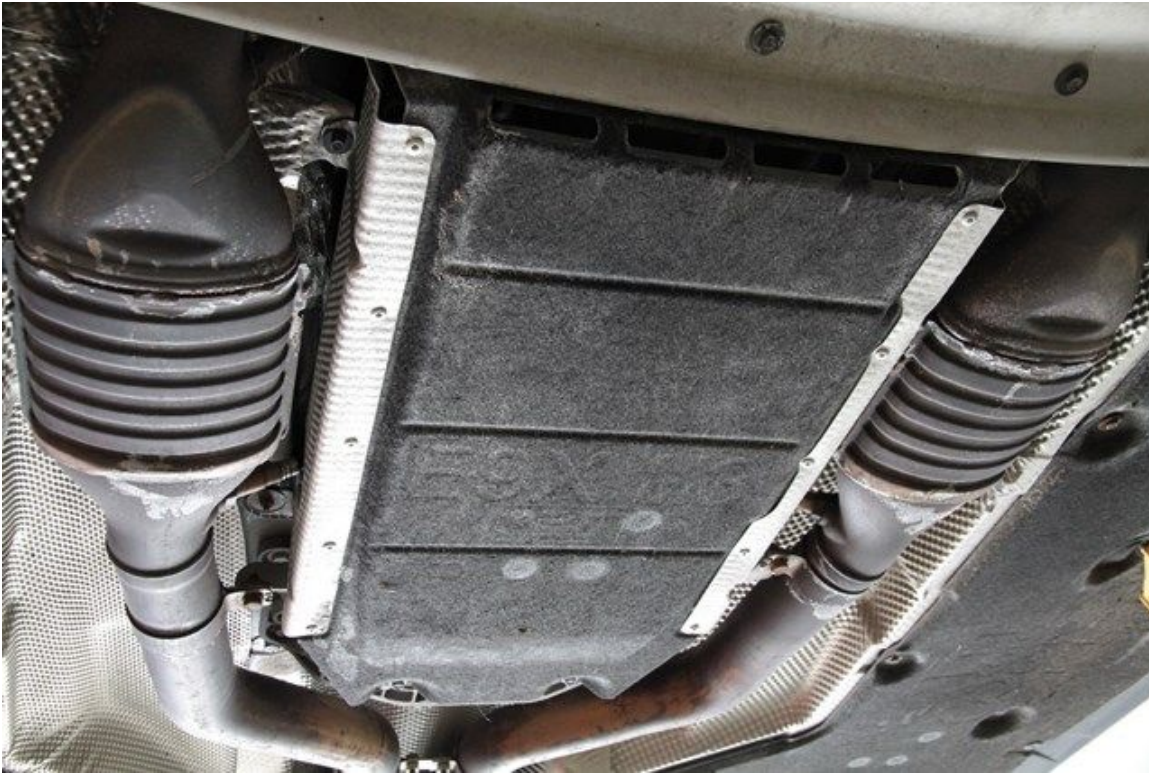


Lift the car. A proper hoist is going to be very helpful. I'm sure this job can be done with the car on jack stands using a transmission adapter for a floor jack. The car will have to be lifted high enough to allow the transmission to be moved out of the way. It will be a huge pain though. You have been advised! Put trans in neutral and disengage parking brake.

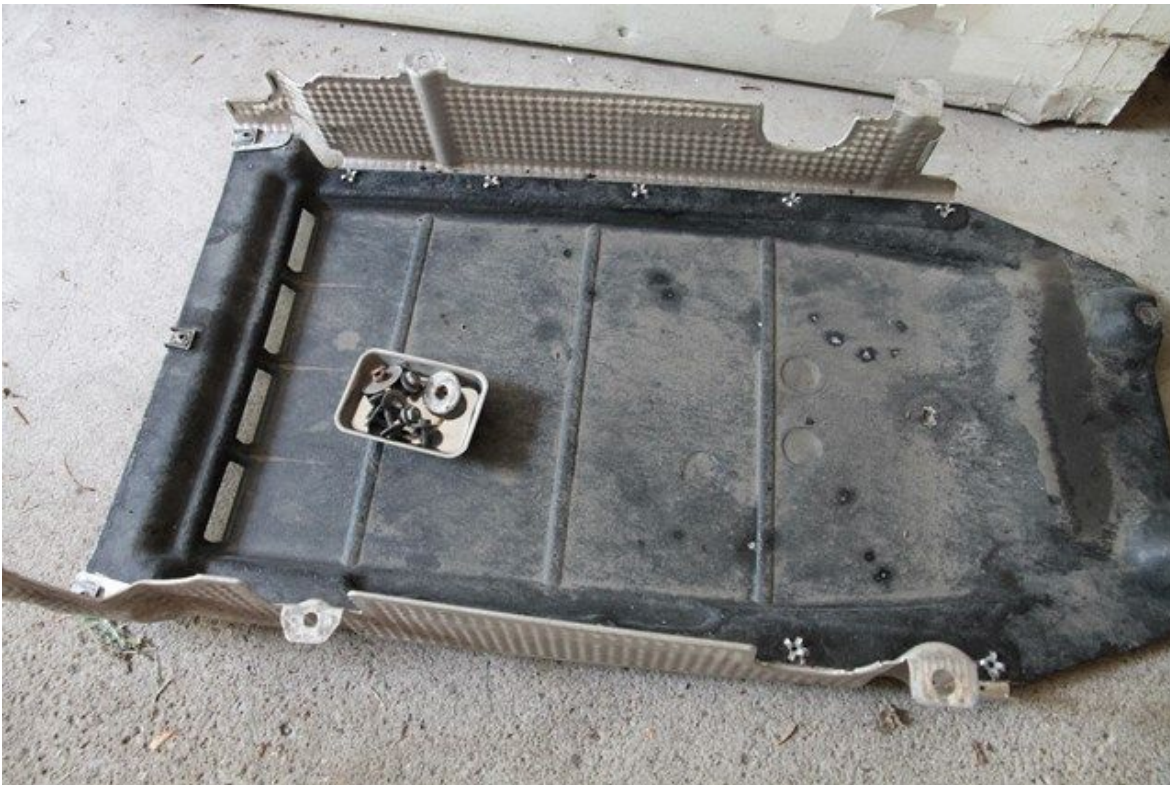




Remove the transmission cover. There are 8mm and 10mm standard hex head bolts and nuts to be removed. A small impact driver with some 1/4" socket extensions will help to get this done quickly.



Ensure that all fasteners are kept organized. I used small magnetic parts trays as shown here, and grouped the fasteners with the parts as they came off. Staying organized is critical and will aid in accurate and fast reassembly later.





Here is the view of the transmission with the cover removed.



The aluminum thrust plate has to come off. Use the ½" impact wrench and a 16mm socket to get these bolts off quickly. There is 1 bolt in the center of the plate (inside the circular black rubber piece).

Before the 2 bolts at the front can be removed, the front plastic tray will have to come off.



The tray is held on with 8mm hex sheet metal screws, and 10mm nuts. Use the electric impact driver. Turn the tires out of the way, full right then full left to make it easier to access the screws that are in the wheel wells. Take off all the 8mm screws first.



Remove the right and left corner pieces (the part circled below).





From the sides of the center tray, you will see 2 cables on each side. A pair of pliers can be used to hold the cables that are connected to the 10mm nuts from above. Hold the cables as shown and remove the lower nuts with the electric impact driver.



Initially I took off the thrust plate only. Later I realized the plastic tray had to come off in order to tilt the engine. So it makes sense to take off the tray at the beginning, as indicated above. You can see that I have cut 2 round holes in the plastic tray to allow removal of the front bolts of the thrust plate without removal of the tray. Those are unnecessary for this job.





Support the exhaust system. I used the transmission jack, which also has a chain that can be used to loop around and secure the exhaust, preventing it from falling off.



Disconnect the oxygen sensor wires. First pull the connectors from their holders. The connectors shown below have a locking tab. I inserted a small flat screwdriver to unlock the tab, then pulled apart the plugs.





Remove heat shields from these wires (10mm socket), then disconnect. Electrical connectors that have a locking wire on the side can be separated by depressing the wire and holding it down, then pulling apart.

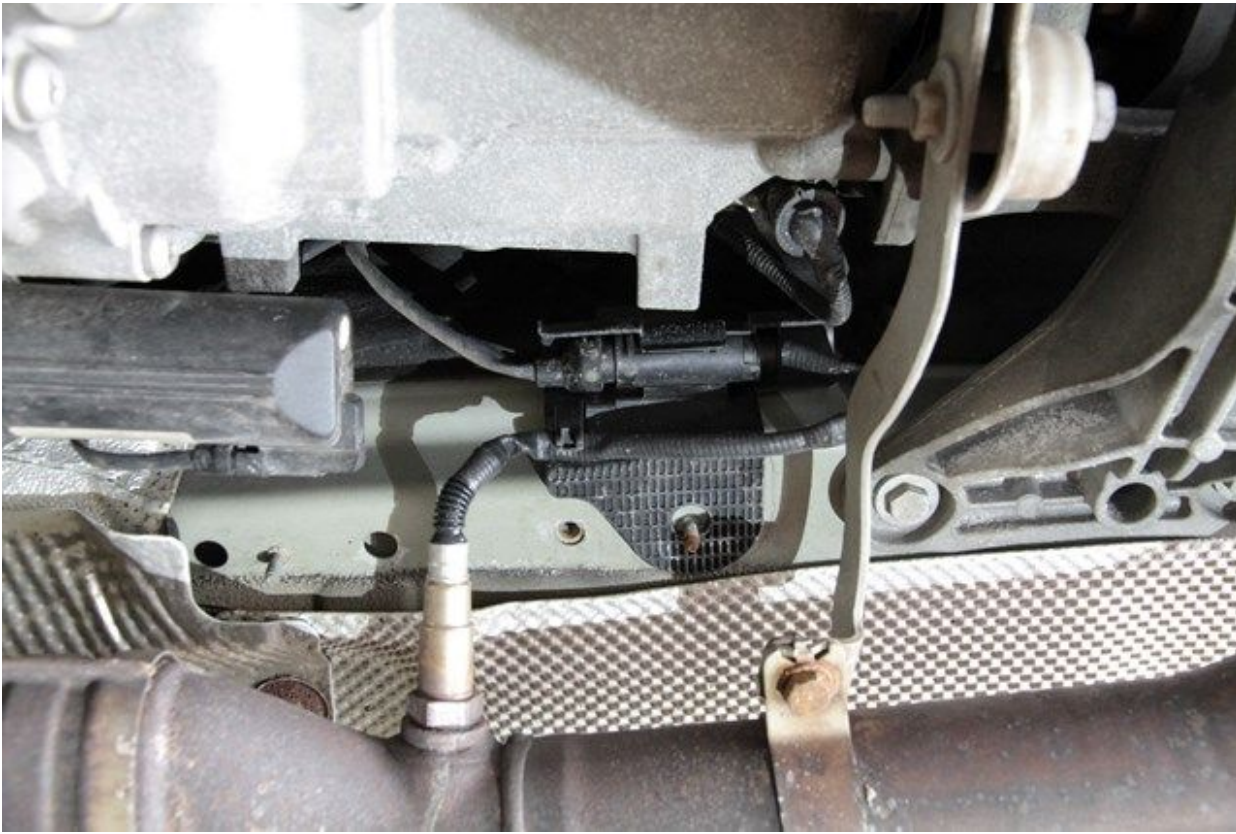


Pull these connectors from their plastic holders. These oxygen sensor connectors have small locking tabs that don't need to be pried, just pull the connectors apart with a firm grip.

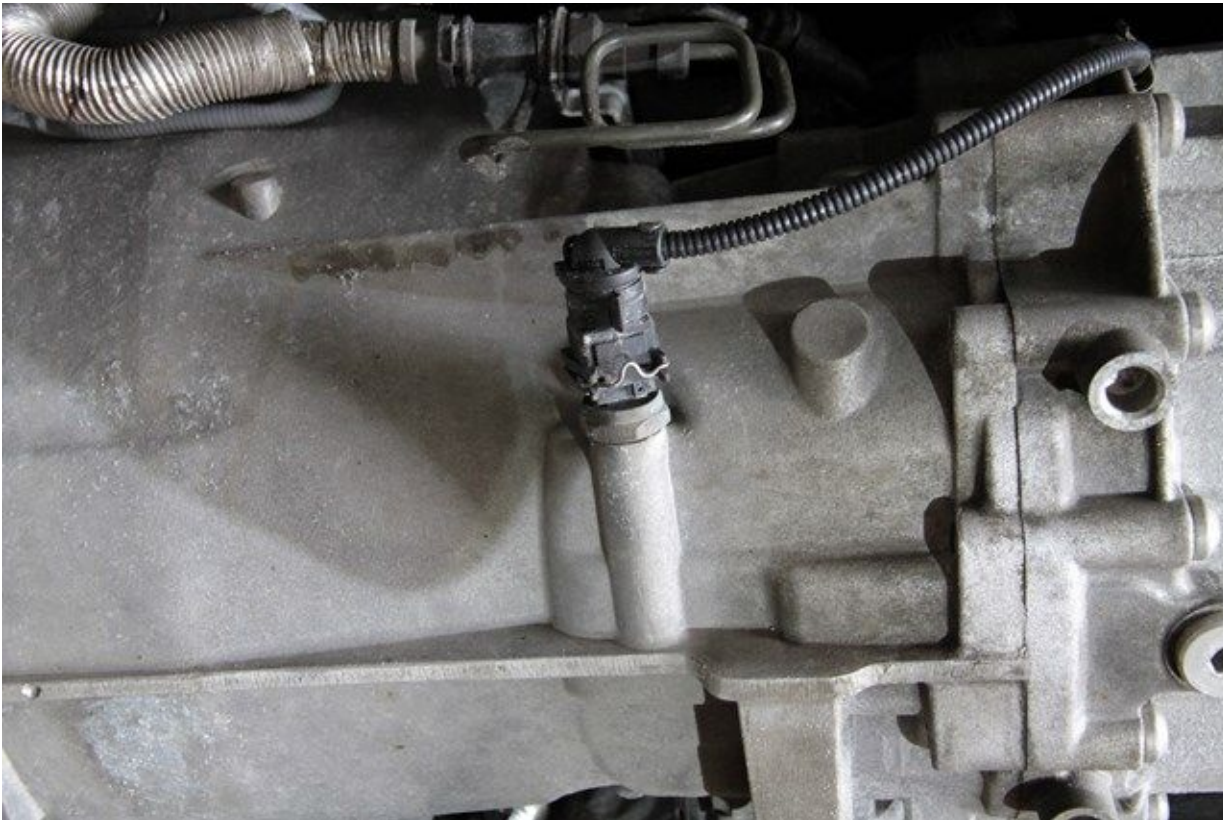




Same for the other side. Also while you are working in this area, disconnect the exhaust bracket shown below. If bolts are rusted as shown here, apply heat with a small torch before attempting to loosen, otherwise the rusted bolts may break.

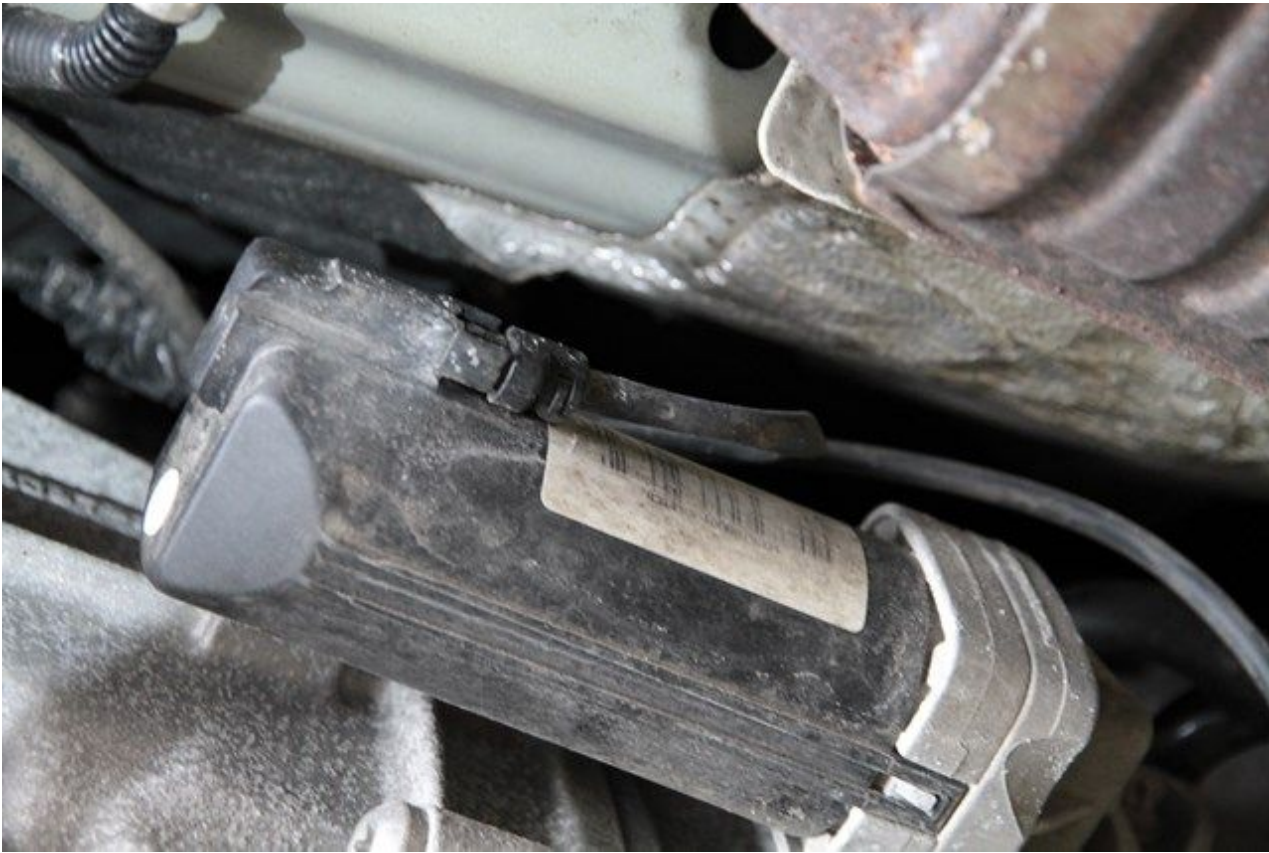


Disconnect sensor: press and hold locking wire, while pulling the connector off the sensor.





Disconnect trans fluid pump wire. There is a small locking tab that has to be gently pried with a tiny flat blade screwdriver before pulling the connector off.



Disconnect electrical connector on oil sump. Squeeze tabs on side of connector before pulling off.





Disconnect rear apron support bracket (13mm nuts and 8mm screws). Use a long socket extension to get the 13mm nuts.



Disconnect exhaust hanger (18mm nut). Use a socket if it fits, otherwise a combination wrench.



Same on the other side.



Remove fasteners connecting cats to exhaust manifolds: hold nut from the back using a combination wrench (forgot to note the size, either 13mm or 14mm) and use the impact wrench and an E12 torx socket to undo the bolts quickly and easily. An impact flex joint makes it easier to work in this tight space.



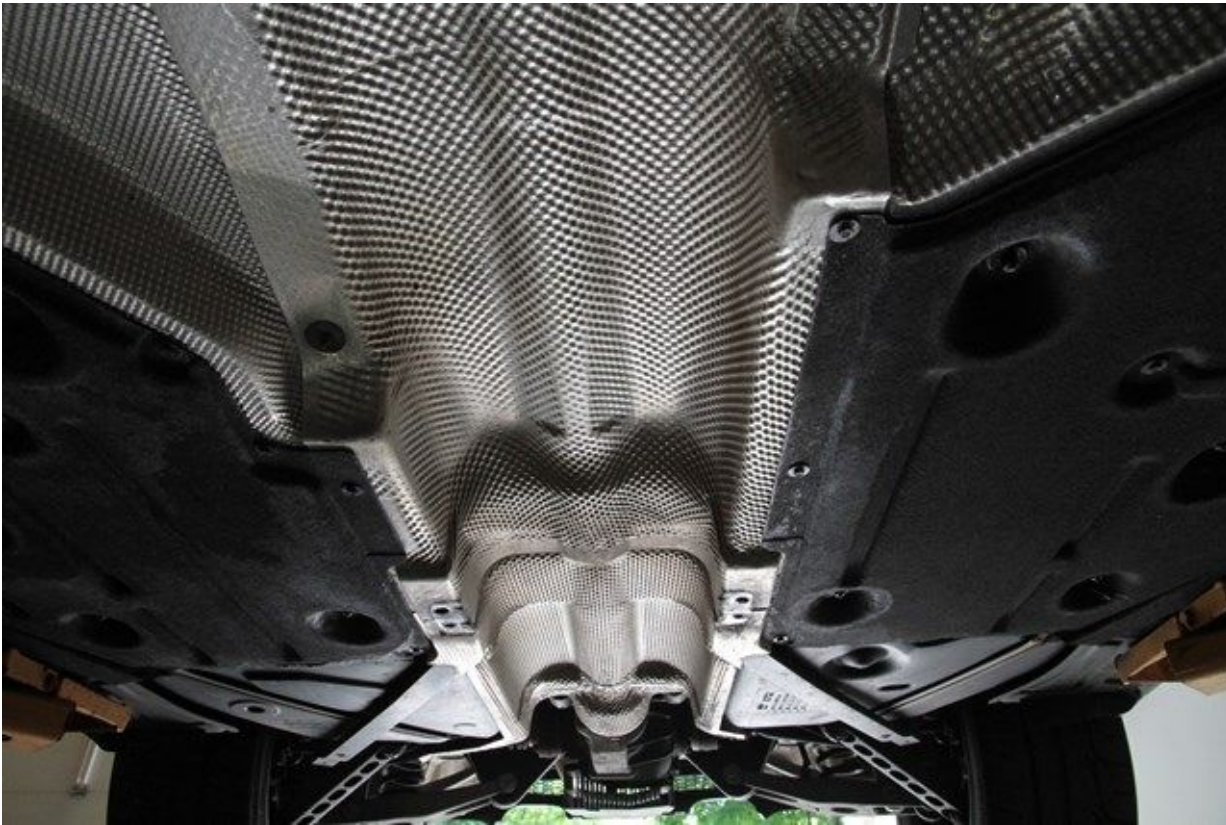


Unbolt the center supporting member of the exhaust system using the impact wrench, then lower the exhaust. It weighs about 80lbs and is awkward, so it requires 2 people to lower it. I used the transmission jack to slowly lower it down, then got a helper to take it down off the jack. Here are some photos after exhaust removal:

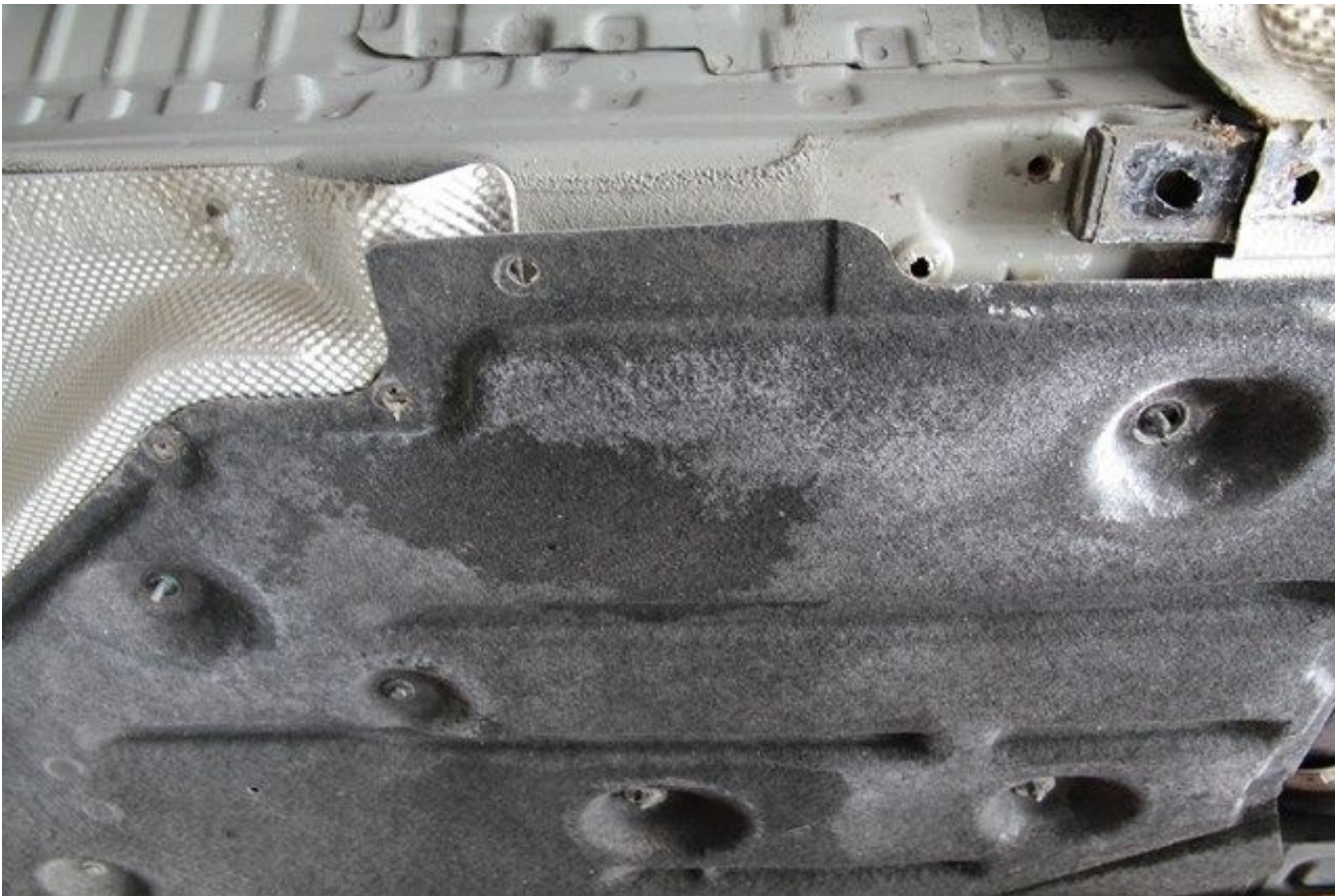




Now remove the heat shields using 8mm and 10mm sockets and the electric impact driver. Be gentle with any plastic nuts (better not to use an impact driver on those).



You will have to loosen some of the fasteners holding the black plastic side panels since the heat shields tuck under them.





Driveshaft is now visible.



Remove the flex disk bolts. Hold the lock nuts from behind with an 18mm combination wrench and use the impact wrench and 18mm socket with impact flex joint. Remove the bottom bolt then rotate the driveshaft, and continue like that.



Driveshaft is shown here completely unbolted from the flex disk.





Not sure if this is necessary, but I marked the driveshaft center support with some paint to ensure it was installed in the right position later. You will see that the bolt holes are oval to allow some adjustment back to front.

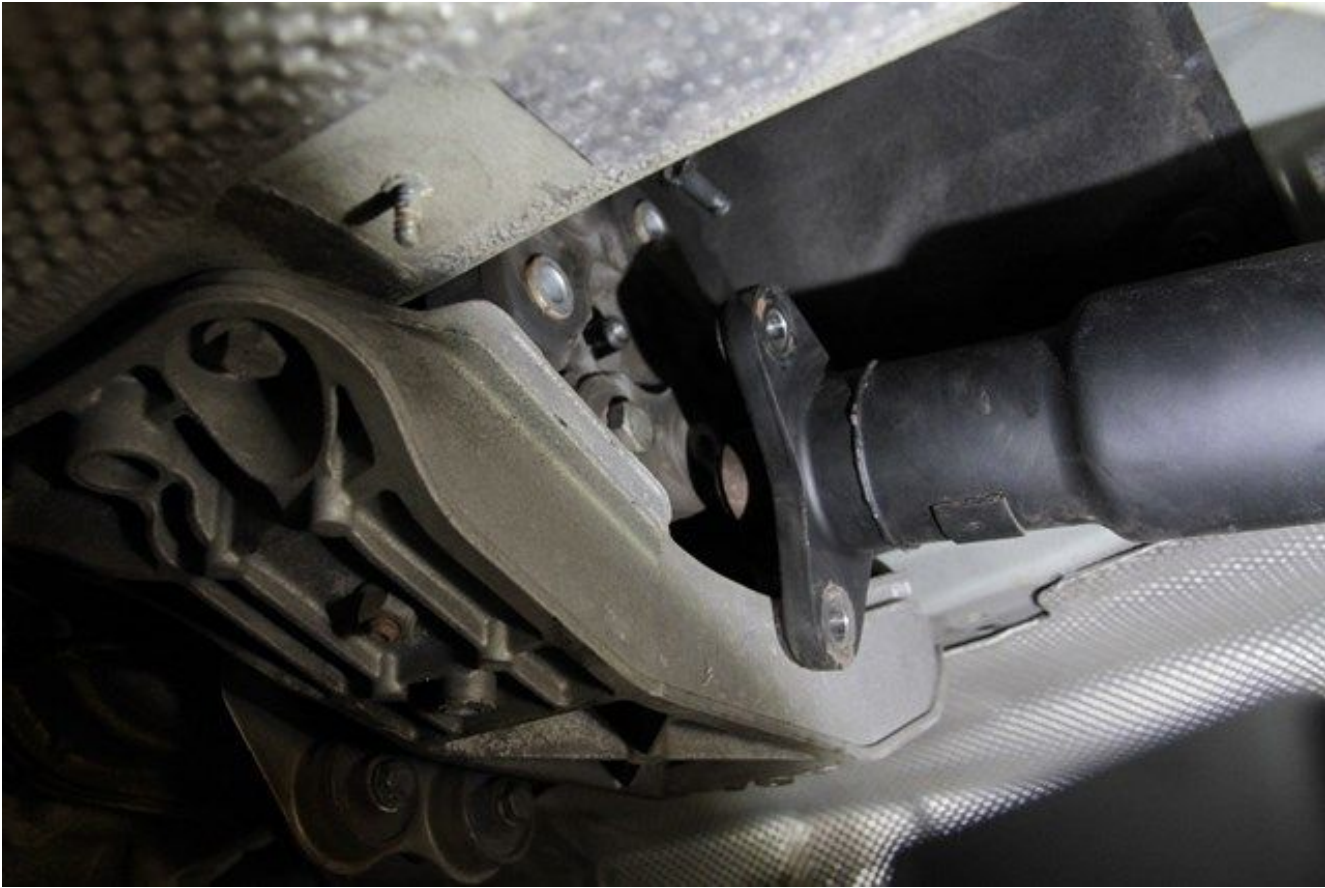


Unbolt the center support and pull it straight down while supporting the driveshaft.





It should come out of the flex disk, but will not fall since it hangs up on the transmission crossmember:



I used the transmission jack to support the trans as I removed the transmission crossmember. Unbolt the transmission crossmember carefully supporting it and the driveshaft.





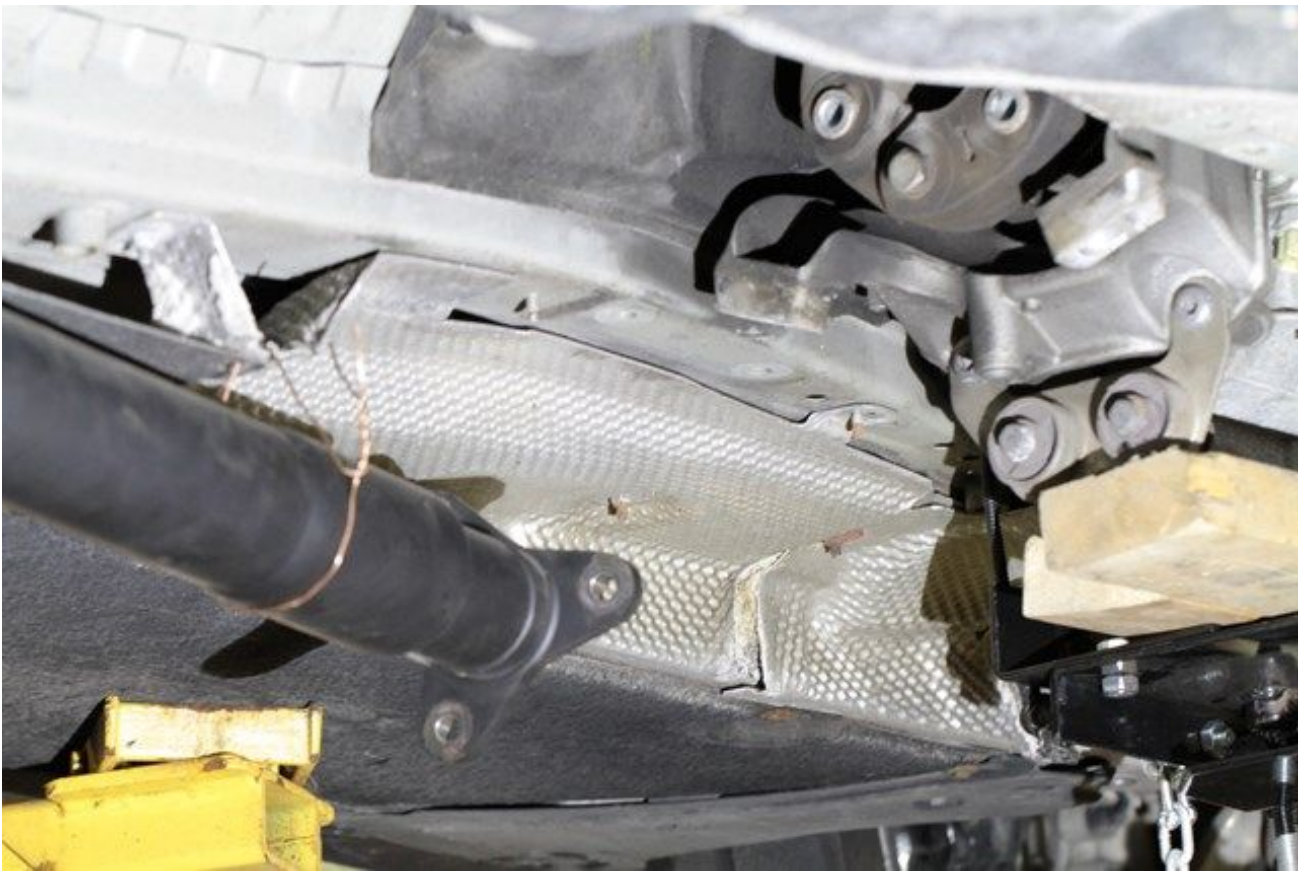




Hold the driveshaft as the crossmember is removed, or it will drop, possibly on you. Then hold it out of the way with a wire etc. The transmission and engine will tilt as the crossmember is removed. This is ok, and will give you easier access to the shift linkage.

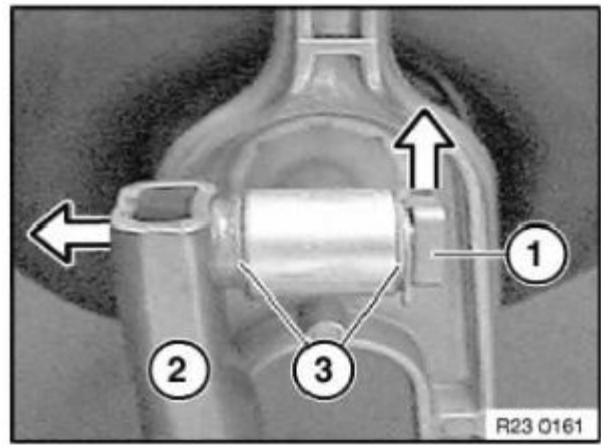






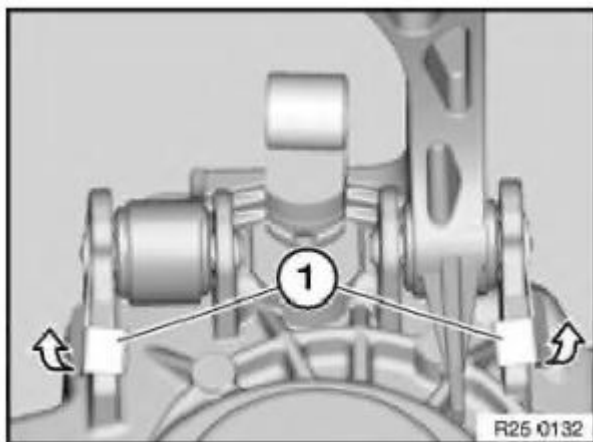
The shift linkage will now be accessible above the transmission. Initially I left the flex disk connected to the transmission output flange, but it's much easier to work above the transmission if the flex disk is removed. So that's what I did.

Shift linkage: First remove the retaining clip (1). Then pull out the shift rod (2) as indicated by the arrow. See close-up of retaining clip below. It has little locking tab. Spin the clip around so you can wedge small flat screwdriver under the locking tab. Then pull the clip straight out.



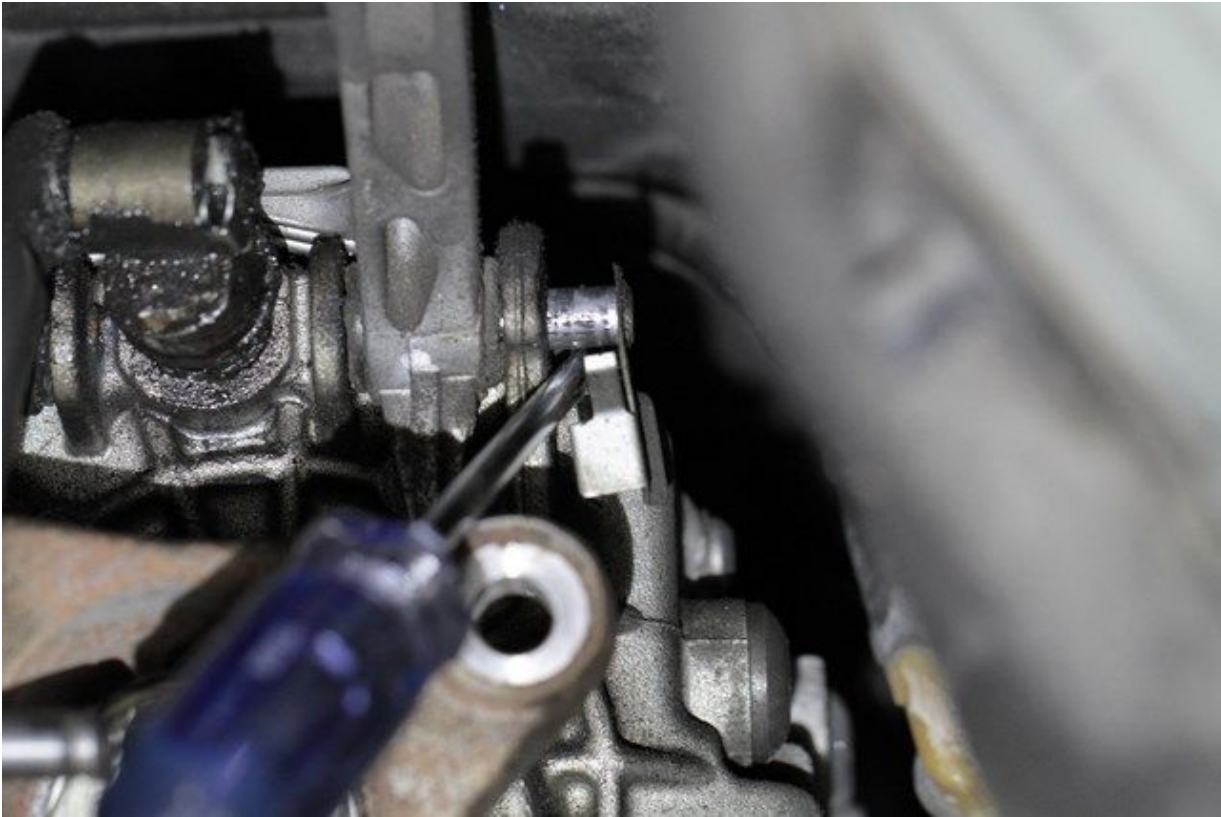


Once that is done, there are two retaining pins holding the shifter carrier to the transmission that need to be removed. The pins have clips on the end which need to be rotated back and up to disengage the clips from the transmission. The shop manual doesn't show it, but these clips have locking tabs. In order to disengage the locking tab, insert a small thin flat blade screwdriver under the outside part of the clip before attempting to rotate it.





After the clip has been disengaged and rotated back, insert a screwdriver under the clip as shown, and pry the pin out sideways. It should come out easily.



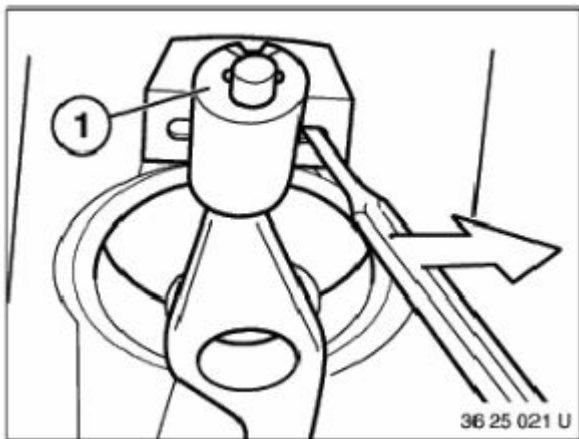
Here's a close-up of the pin.



Here you can see the locking tab clearly.



Now the shifter carrier is to be detached from the car body. The shop manual shows it being wedged out with a long screwdriver. However I found there was not enough space in the driveshaft tunnel to push the screwdriver sideways to wedge this out.





Instead of a screwdriver, I used a curved awl as shown below. When you pry, it will just pop out.



Here's a wide-angle view after removal:



Now the whole shift linkage is loose, and it can be moved out of the way when you pull the transmission off. The linkage does not have to be completely removed. If you're looking to install a short shift kit, this is a great time to do it.

Drain the transmission fluid into a clean container by opening the drain screw (8 mm hex). If fluid is fresh, it can be reused. Otherwise, this is a great time to replace the fluid. I recommend replacing the fluid every 2 to 3 years, maybe more often with heavy use. This is definitely not a "lifetime fill" as BMW claims. My shifting started getting notchy after about four years, and when I replaced the OEM MTF-LT2 fluid with Redline D4 ATF, there was an immediate improvement. Original shifting feel was restored.



I spilled some fluid, and also some fluid remains in the transmission oil cooler lines and cooler, so you can see here the volume is less than 2 L. Good to have an extra bottle on hand when it comes time to refill.

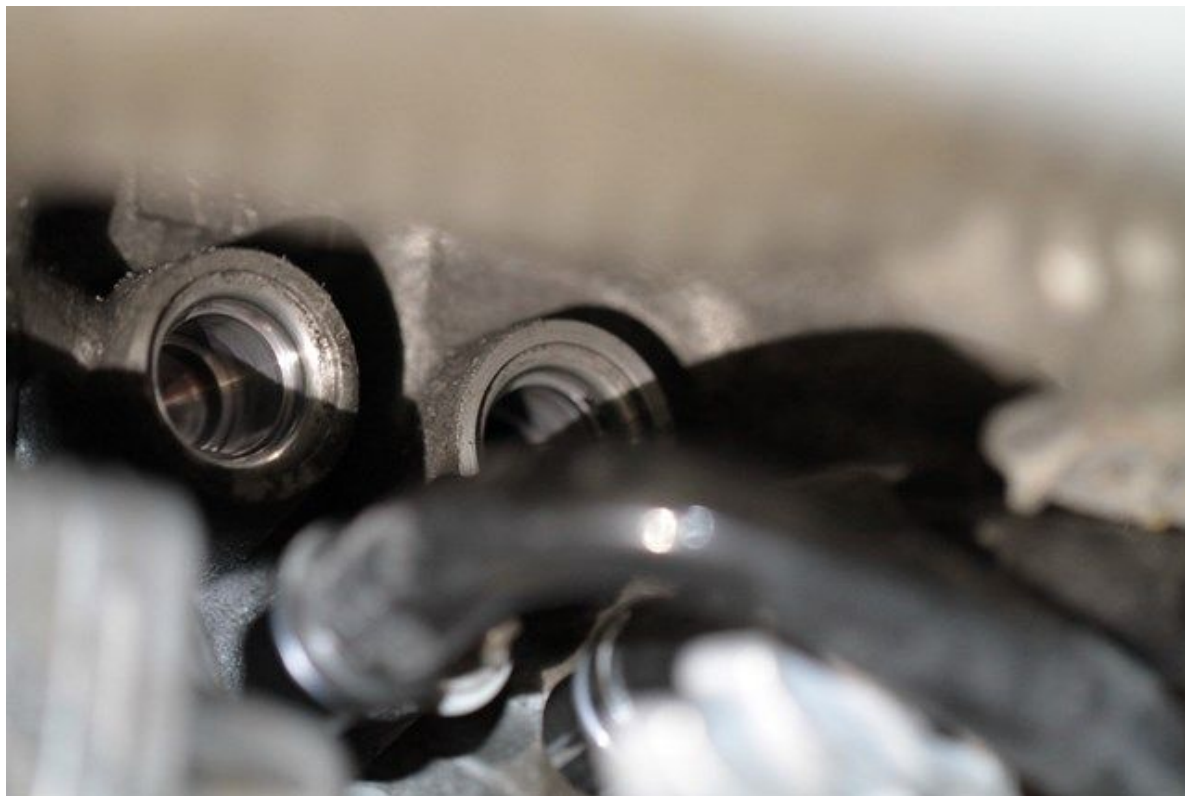




Unbolt the clamp that holds the transmission oil cooler lines in place. It is held with a Torx bolt. I believe this is E10. There is another clamp with a 10mm bolt that also has to be removed.



Pull the oil cooler lines straight out. They are sealed by an O-ring on each tube.



You will lose a little bit of transmission fluid here. If you let the lines hang down low, you will lose more fluid. So try to keep them up. And place a rag or piece of cardboard underneath to catch spills.

Protect the oil cooler lines from contamination and damage. I used a plastic bag and elastic band.



Now that almost everything is disconnected from the transmission, we need to tilt the engine up at the front. BMW has a special tool to do this, which can be easily made. The measurements of the tool are described on page 1. I just used whatever materials I had lying around, which included a block of aluminum and a 3/8 inch bolt. This was a little flimsy, so I recommend a half inch bolt. Better to have a proper hex head bolt, not the type that is shown. Use one of the 16mm thrust plate bolts to attach the lifting tool to the frame as shown.





Here is where the tool should be attached:



Here's a close-up view. I put a small piece of aluminum on top of the bolt, so it doesn't damage the engine as the bolt turns and pushes up. Again, I just used what I had lying around. I recommend either aluminum or plastic like UHMW polyethylene.



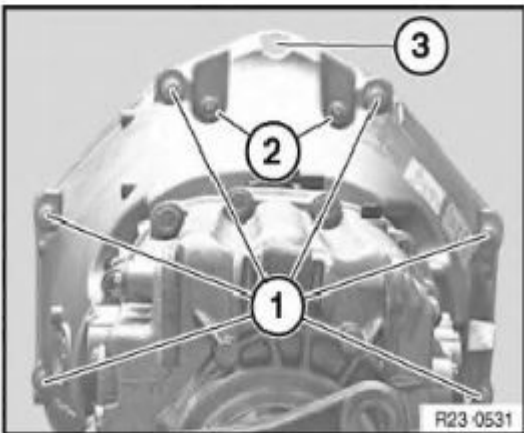
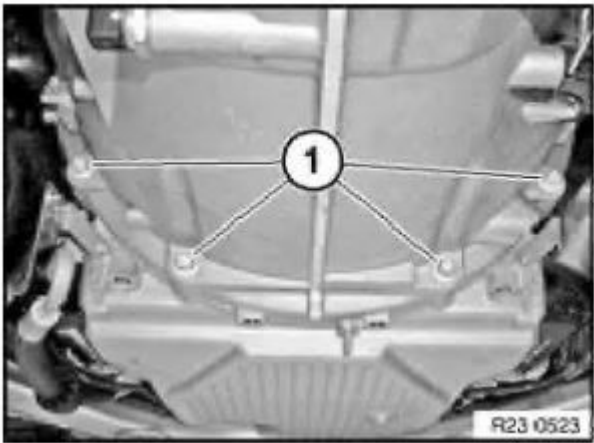


The BMW shop manual explains how much to lift the engine with a measurement. No need to do that, the easiest thing is to tighten the bolt until you feel it becomes harder to turn. Then look at the oil sump and see that it is pressing against the rubber bumper shown in this photo:



Support transmission with the transmission hoist by adjusting the tilt on the hoist to match the angle of the transmission, then jacking it up to make contact with the transmission, but not lift it. Make sure the transmission is secured to the hoist with a strap or chain. Be careful not to damage any sensors. Start unbolting the bell housing from the engine block. Use the E12 impact Torx socket (preferably 3/8" drive as it is smaller). It may be helpful to use either a wobble extension, or impact flex joint depending on which bolt you are accessing. Bottom bolts are shown here (1). These are easy to get at. Remove them first.

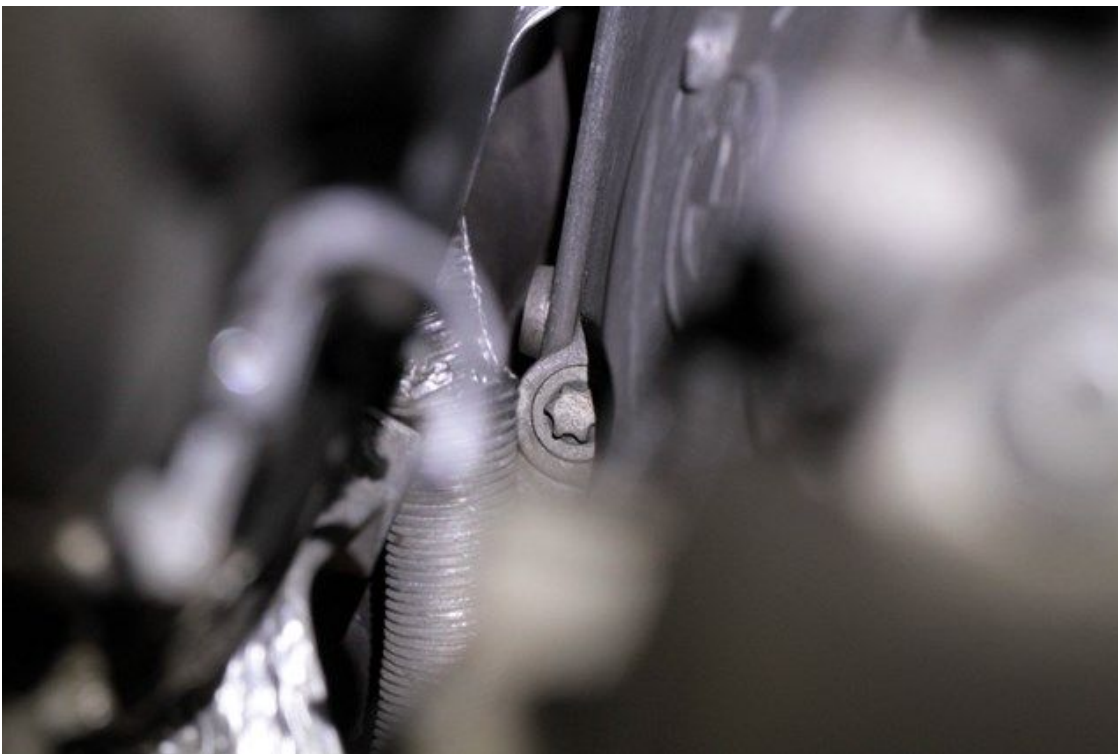
Top bolts are little more difficult, however with the engine tilted, you can easily get to them from above the transmission (2). Do not remove bolt #3 as it holds the starter motor in place. Also it is a hex head and your Torx socket won't fit it. Also note that bolts (2) are longer than bolts (1). Keep that in mind when you reinstall the transmission. Bolts (2) hold the starter motor in place as well as the transmission.



Here is a close-up view of the top bolts on the left side of the transmission. I used an LED headlight to make it easier to see these bolts and get the socket onto them. Use the Torx E10 socket with a 3 foot long impact extension, and a half inch drive impact wrench. These bolts should come off very easily using this method. For the top four bolts I found that a flex joint was not even needed, as I could line up the socket straight onto the bolts.



Here is a close-up of the side bolt near the clutch slave cylinder. There is not much space here. A wobble extension or flex joint will come in handy.



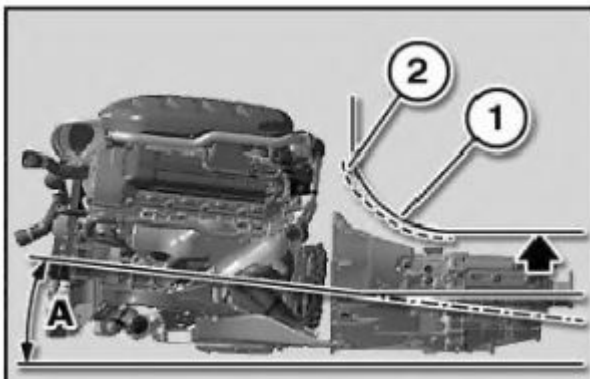


Also, there is a wire clip that gets in the way of removing this bolt. Loosen the clip and rotate out of the way (10mm bolt) or take it right off.



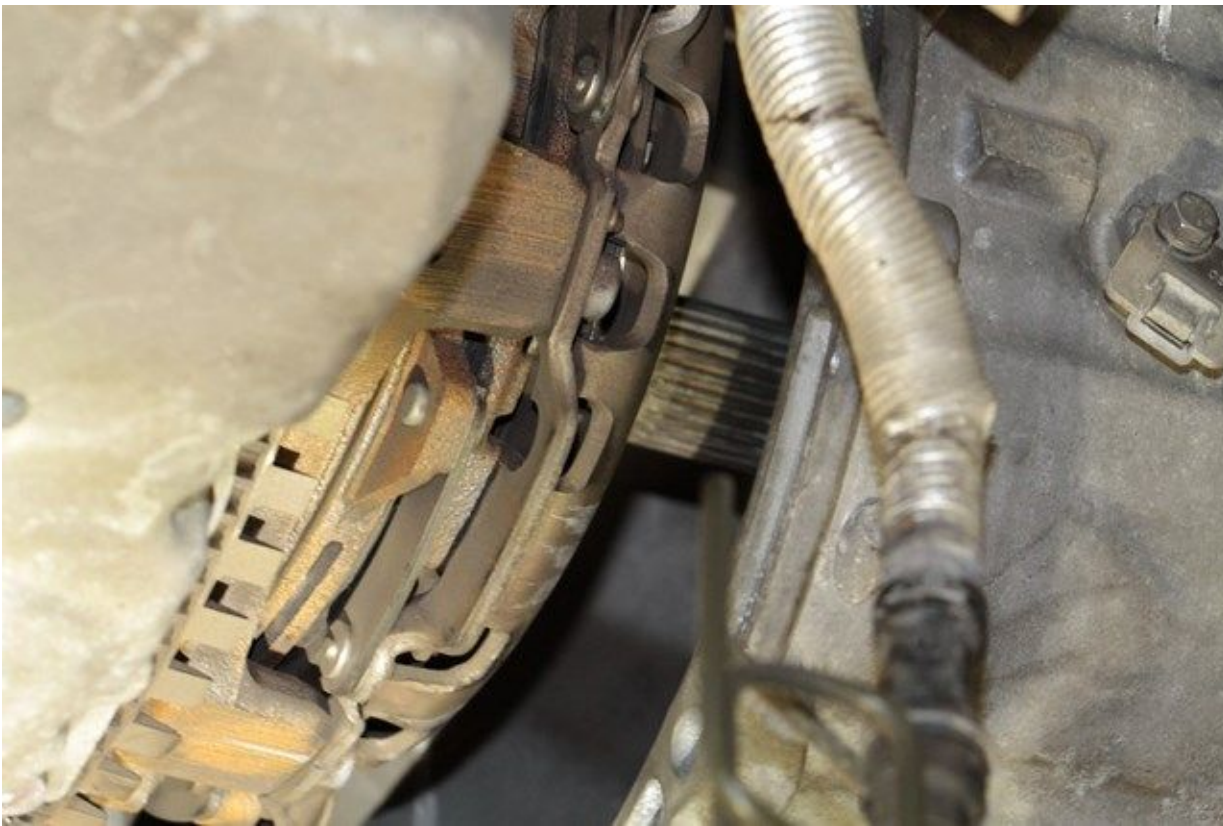
With all the bell housing bolts removed, you are now nearly ready to pull off the transmission. There are some cables attached to the transmission with clips on the right side. Release these wires from the clips. Unbolt the clutch slave cylinder now. Release the slave cylinder slowly to avoid sucking air into the hydraulic system. It is spring loaded so hang onto it. Long wobble extensions come in handy for the slave cylinder bolts (13mm).





This is how the transmission is to be removed. First the transmission is pulled straight back away from the engine block. In order to do this, the transmission will have to slide back on the transmission hoist. Rolling the entire hoist backwards will not pull the transmission at the correct angle. The transmission will not slide back far enough to allow the input shaft to completely clear the clutch. The top of the transmission will contact the firewall (1) because the clearance is too tight. That means you will not be able to drop the transmission at this point. Now the transmission has to be tilted level as shown by the large arrow in the diagram above. This will require a combination of tilting the transmission using the adjustments on the hoist and jacking it up.





What I did was reach up inside the bell housing and feel the transmission input shaft where it goes through the clutch release fingers. I adjusted the transmission tilt to get the input shaft as low as possible, just in contact with the lower clutch fingers. Of course, don't leave your hand in there while lowering the transmission! Then I was able to pull the transmission straight back to the point that the input shaft cleared the clutch fingers. Only at that point could the transmission be lowered out of the way.

Once you've done that, lower the transmission slowly as there is one more sensor to disconnect on the top (see photo below). Squeeze the sides of the connector to the sensor to release the clips. Then pull the connector off. Now everything should be clear and the transmission can be lowered out of the way. Be careful not to damage the slave cylinder hydraulic lines or the transmission oil cooler lines, or the heat shields.





Transmission has been lowered.



Here is a view of the clutch and flywheel after removal of the transmission.





The clutch can be unbolted using a 6 mm Allen socket and an impact wrench. My pressure plate bolts clearly had thread locking compound on them, as they were a bit slow to come off with the impact wrench.



Hold on to the pressure plate as you remove the last bolt (note that the pressure plate will not just drop off because it is also held in place with small dowels). Pull off the pressure plate and take care not to let the clutch disc fall. Loosen the flywheel bolts using an impact wrench and a long T55 Torx driver (shown below).



The flywheel is attached the crankshaft with a dowel also. Once all the bolts are loosened, you have to pry it a bit or wiggle it to get it off. Be careful, it's heavy. Having a flywheel fall on you is no fun.



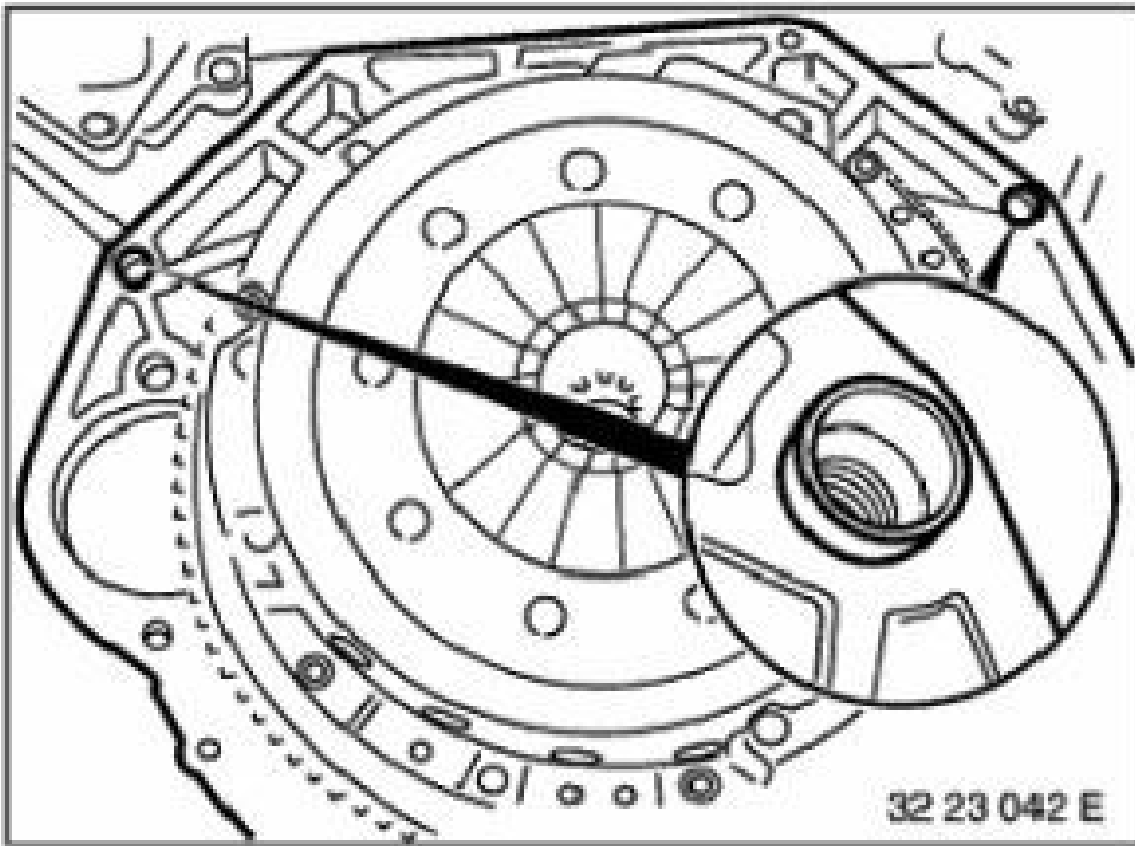
Here is a view of the engine side of the flywheel. The bolts do not come out. This is a “dual mass” flywheel.



Here is a view of the crankshaft flange and pilot bearing. Starter motor gear is visible above. You can also see the two dowels in the engine block that help align the bell housing with the engine (diagram below). Make sure they were not damaged during disassembly, or they will have to be replaced.







A pilot bearing puller is required to remove the pilot bearing. Be careful not to rest the puller onto the crankshaft dowel. There is a single dowel which is used to line up the flywheel with the crankshaft.



Here is the old pilot bearing after removal.



Here is the view inside the bell housing. Clutch release bearing simply slides off the fork. The fork is attached to the pivot pin using a spring clip seen on the left. Spread the clip to set the fork free.





The pivot pin can now be seen with the spring clip attached to the left of the input shaft.



To remove the pivot pin, use a pin punch of the appropriate size, and hammer out the pivot pin from the outside of the bell housing. It may be tight, so give it a few good blows with a big hammer.



Here is the new SPEC clutch/flywheel compared to the factory assembly.



What came with the SPEC kit: throwout bearing, flywheel bolts/washers, pilot bearing, plastic alignment tool and pressure plate bolts and washers (not shown in this photo). Other parts should be purchased separately: new pivot pin, spring clip, fork (optional), new bolts and lock nuts for flex disk, and new exhaust seals (header to catalytic converter).





View of separated components.



Another view:



Disassembled SPEC double disc non self-adjusting clutch:



One thing I noted right away was the SPEC assembly seemed heavy, so I checked the weights:

Original BMW clutch / flywheel assembly = 45lbs (Apr 2008 build date)

SPEC clutch / steel flywheel assembly = 51lbs

SPEC states their flywheel is a bit lighter than stock. Maybe from 2009 onward when BMW changed the flywheel to a heavier one. If you are not happy with this weight, then consider the aluminum flywheel option. It will allow more gear rattle but will increase the responsiveness of the engine (the rattle doesn't bother me but some will not be happy about the noise).

Before reassembly, this is the time to replace the crankshaft rear seal and the transmission input shaft seal if needed. Sometimes these are recommended as preventive maintenance since you already have everything opened up.

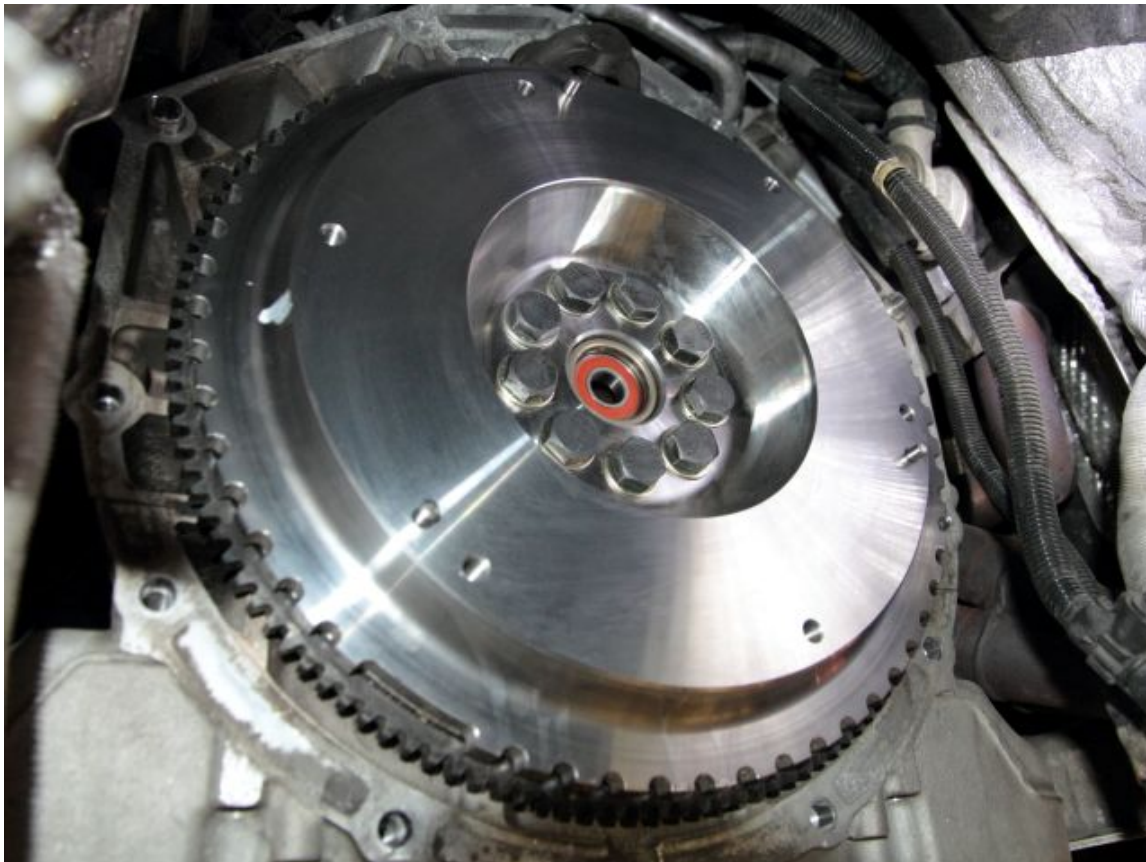
Clean the crankshaft. If there is any rust or dirt it must be removed so the flywheel sits perfectly flat. Ensure the dowel is not damaged, otherwise replace it.



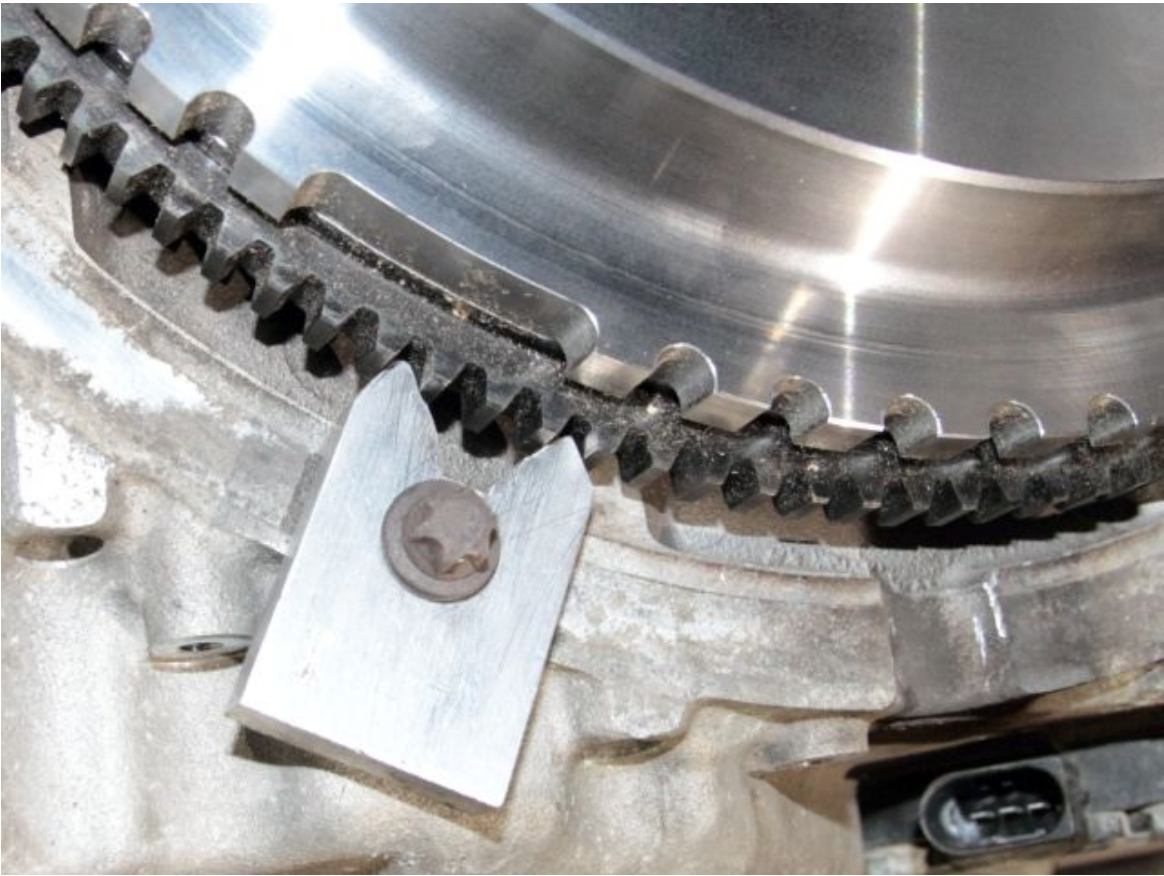
I put a tiny film of oil on the outer surface of the pilot bearing then put it in place. A large socket can be used to tap it in gently using a hammer. Tap it in until it stops. It will be recessed when fully inserted, not flush.



The new flywheel can now be fitted. One bolt hole is larger (on the engine side of the flywheel). That one goes over the crankshaft dowel. Insert and hand tighten all the flywheel bolts with washers.



The flywheel must be locked in place before tightening the flywheel bolts. I had a ¼” thick piece of aluminum lying around that I cut as shown below. To cut the right pattern to fit the flywheel teeth, make a template. I used a piece of heavy paper cut about 3” square, laid it over the bolt hole shown below, and pressed on the hole to make an impression in the paper, then traced a line around a couple of flywheel teeth using a marker. The template can then be taped onto the aluminum and cut + drilled. The bolts which hold the cats to the exhaust manifold fit perfectly here (correct diameter and thread pitch, and are not too long unlike the bell housing bolts). Clean the flywheel surface with solvent and a clean cloth or paper towel.



SPEC flywheel bolt torque (M12 x 10.9) = 70 lb-ft (I used Loctite blue on the bolts). M12 is 12mm diameter bolt (shaft) and 10.9 is the strength. This torque table may come in handy for assembly:

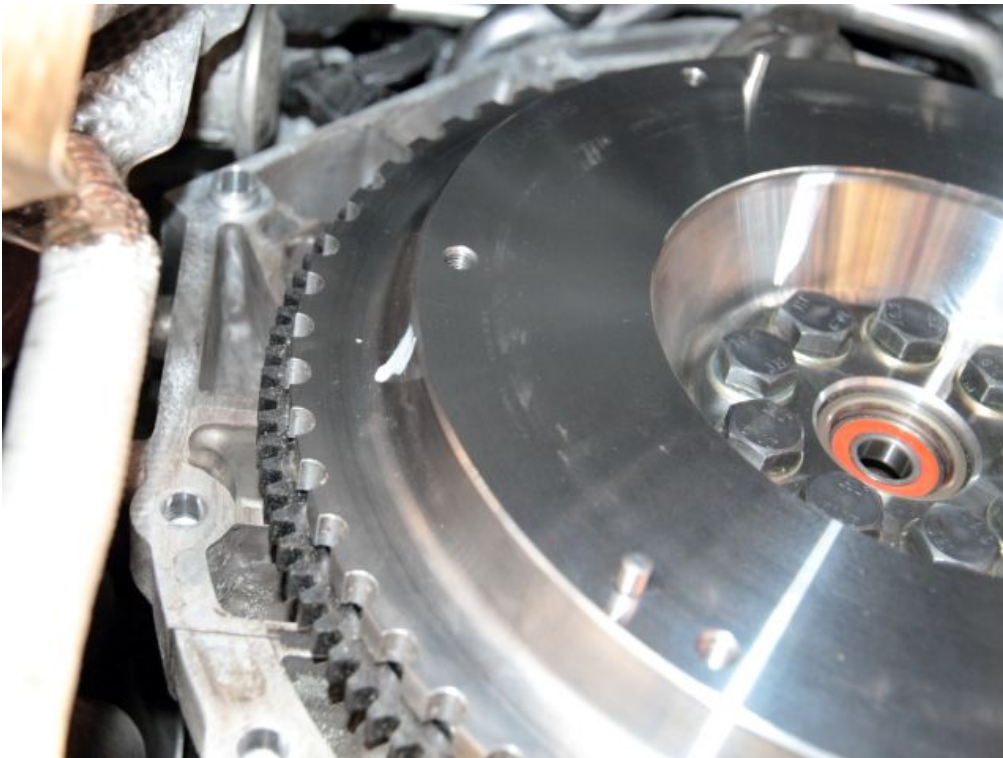
Metric Steel Bolts Torque Specifications					
Bolt Size Millimeters	Coarse Thread Pitch	Standard Dry Torque in Foot-Pounds			
		Standard 5D 71,160 psi Med. Carbon Steel	Standard 8G 113,800 psi Med. Carbon Steel	Standard 10K 142,000 psi Med. Carbon Steel	Standard 12K 170,674 psi Med. Carbon Steel
6mm	1.00	5	6	8	10
8mm	1.00	10	16	22	27
10mm	1.25	31	40	45	49
12mm	1.25	34	54	70	86
14mm	1.25	55	89	117	137
16mm	2.00	83	132	175	208
18mm	2.00	111	182	236	283



Pressure plate and clutch discs have to be correctly assembled. The 2 clutch discs are labelled with “flywheel side” or “transmission side” so you know what goes where. Steel plate goes between the discs. There is a painted line on the flywheel, pressure plate and inner steel plate. These must remain aligned for proper balance of the assembly. Clean all the steel friction surfaces thoroughly using clean rags/paper towels and solvent like acetone or brake cleaner. Don’t wipe away the paint marks that are used for alignment of the assembly!



Painted white mark on flywheel:



LIGHTLY lubricate the splines on the clutch discs using an old toothbrush. Apply too much grease and it will fly off at high RPM, possibly contaminating the surface of the clutch disks. There is such a thing as clutch spline grease. I used extreme pressure moly grease.

[http://www.zf.com/brands/en\\_de/sachs/technology\\_sx/workshop\\_tips\\_sx/greasing\\_the\\_hub\\_spline/Greasing\\_the\\_Hub\\_Spline.html](http://www.zf.com/brands/en_de/sachs/technology_sx/workshop_tips_sx/greasing_the_hub_spline/Greasing_the_Hub_Spline.html)



Place the clutch assembly onto the flywheel dowels, while aligning the painted marks of the flywheel and pressure plate.

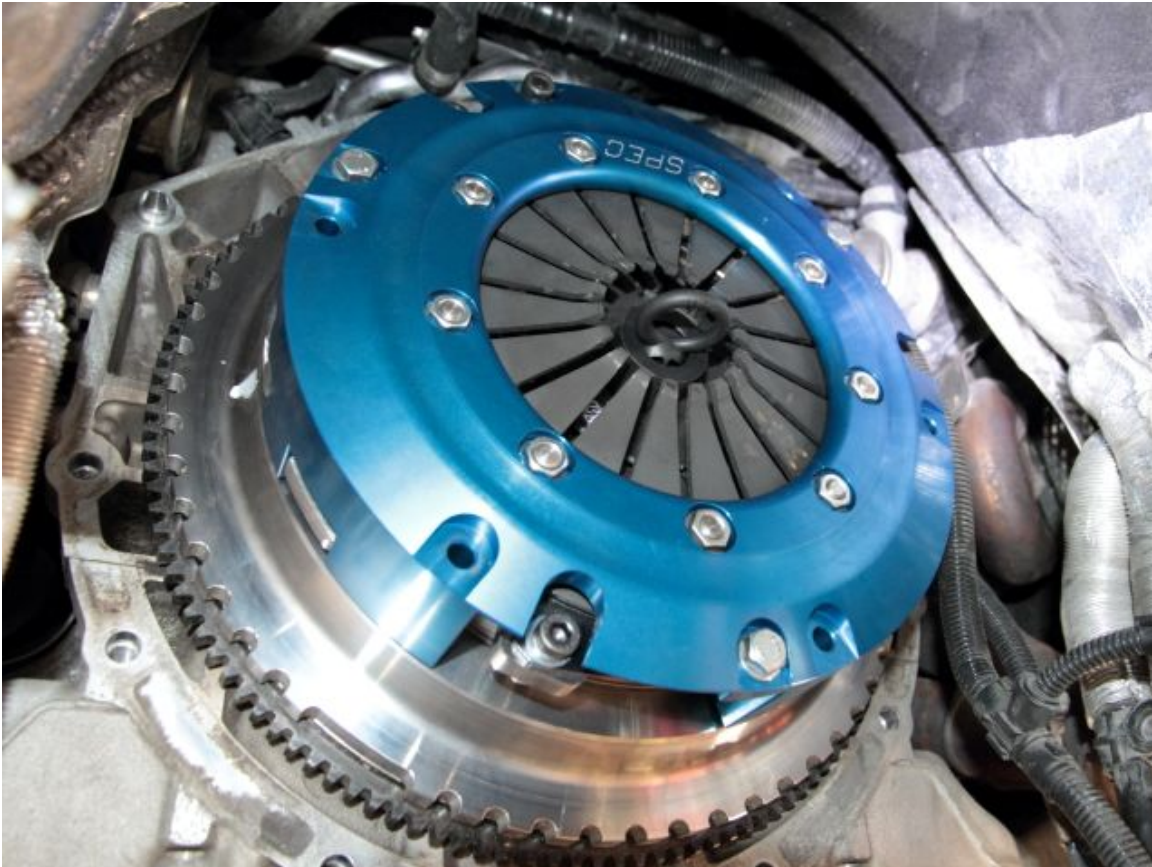




Pressure plate should not be tightly pressed to the flywheel yet. Now insert the alignment tool. You may have to twist and wiggle it a bit as it lines up the splines on the 2 clutch disks.



Push the alignment tool in as far as it will go.





Insert the pressure plate bolts and begin to lightly tighten them. I found that the alignment tool was a bit loose and the weight of the 2 clutch disks caused it to sag a little, so alignment was slightly off. I had to hold the alignment tool up to keep it straight while tightening the bolts. Once the bolts are tightened partially, let go of the alignment tool. It should not rotate now and also it should not sag. However, it should slide in and out easily confirming everything is lined up correctly. Flywheel locking tool is still in place at this point. Use a sharp tool (as shown) to confirm no gap between the pressure plate and flywheel all the way around.



Torque the pressure plate bolts in a star pattern, then remove the flywheel locking tool.



Clutch pressure plate bolt torque (M8 x 12.9) = 27 lb-ft (use Loctite blue)



Install new pivot pin. Ensure it is hammered all the way in, and apply a light coating of extreme pressure grease. Install new spring clip and fork. Install new throwout bearing, with a light coating of extreme pressure grease on the points of contact with the fork. There seems to be conflicting advice about whether to lubricate the sliding surface of the throwout bearing, or leave it dry. Lightly lubricate the spines on the transmission input shaft with extreme pressure grease.



Now you are ready to re-assemble everything, which is basically the reverse of disassembly.

Tips:

Don't forget to re-connect the electrical connector on the top of the transmission.

Use the engine tilting diagram above and reverse the process to align the trans with the engine.

When re-installing the driveshaft center support, position is the same as before removal (I marked it with some spray paint)

Flex disk bolt torque is critical and those fasteners are single-use.

Note the SPEC clutch is a little rough at first, but with proper break-in, it will become smooth. Pedal effort is heavier than stock clutch and there is a little more gear rattle and vibration. However it is very well-built and should really last even when driven hard.

### 3 Series E92 M3 (S65) COUPE

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	E60 / E61 / E63 / E64 / E85 / E86 / E87 / E90 / E91 / E92 / E93 / E81 / E82 / E83 / E88	M10 - 10.9	Jointing torque	20 Nm
			Torque angle	90 °
	<a href="#">E46</a> / E53 / E60 / E61 / E63 / E64 / E65 / E85 / E86 / E87 / E90 / E91 / E92 / E93 / E70 / E81 / E82 / E83 / E88	M12-10.9	Jointing torque	55 Nm
			Torque angle	90 °
	E60 / E61 / E63 / E64 / E65	M12-8.8	Jointing torque	30 Nm
			Torque angle	90 °
	E83	M12-10.9	Jointing torque	30 Nm
			Torque angle	90 °
			Screw with ribbed teeth + <a href="#">double</a> stage flexible disc	
2AZ Coupling propeller shaft to transmission	E36 / E38 / E39 / E46 / E52 / E53 / E60 / E61 / E63 / E64 / E65 / E66 / E83 / E85 / E87 / E90 / E91	M10		60 Nm
	E32 / E31	M12		95 Nm

3AZ Clamping ring for slide after  
[installation](#) in the car

AZD Propeller Shaft [complete](#)

Issue status (12/2007) Valid only until next [DVD](#) is issued

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