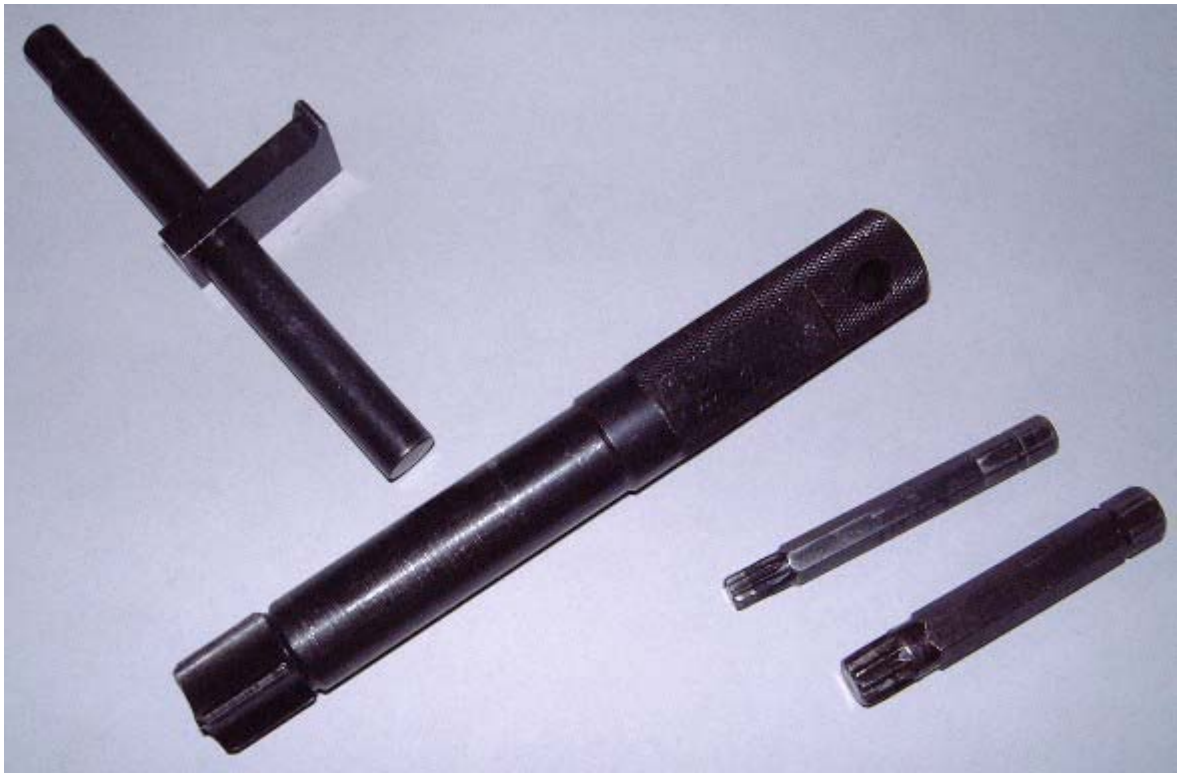
A few DMF/G60 Clutch suppliers:

-G60 Flywheel upgrades:
www.dieselgeek.com
www.vwparts.com

-DMF Clutch Upgrades:
www.specclutch.com

This is the installation procedure of the G60 flywheel and the SACHS VR6 clutch. These same steps will work on a DMF Clutch including the LUK so everything below should apply with the exception of various torque settings as always check the Bentley manual for all torque specifications that pertain to your car and clutch manufacturer. When installing the G60 Flywheel use the torque specs for the A3 Crank to flywheel bolts.



These are the special tools you need to have for this job:
From left to right:
VW 3067 (Mantra) Flywheel holding tool
VW 3190A Clutch disk centering tool
8mm Triple Square
12mm Triple Square
www.zelenda.com

I also strongly suggest:
Engine support from Harbor Freight
Transmission jack from Harbor Freight

The flywheel holding tool holds the flywheel while you torque down the crank bolts, trust me its worth EVERY penny when you torque then add the additional turn to these things. The Disk centering tool makes the installation of the tranny much easier, if the disk is not centered your gonna have hell to pay trying to support a tranny and wondering why it won't engage the clutch splines...not fun when your man handling 100#'s of transmission.

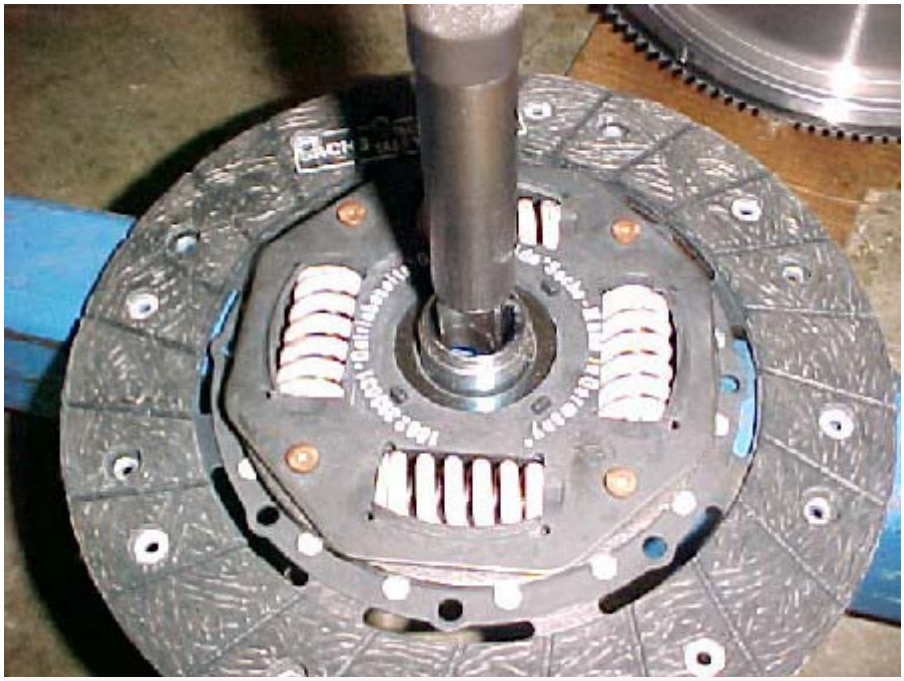
The 4mm triple square is to remove the drive shaft bolts. The 12mm is to remove the OEM crank bolts ONLY if you are installing a G60, if your sticking with the OEM flywheel and upgrading to the higher clamp force pressure plate and disk then it's not needed.

Press the new flywheel over the crank centering hub. This is a tight fit so you may want to have a rubber mallet for this step. Note that the bolts are machined off set so there is only one possible hole pattern.

Lightened Flywheel installation notes:
Verify that there is in fact a TDC mark stamped in your flywheel. If not you will have to use a chisel and stamp one yourself. As you may already realize this will take a bit of careful planning and EXACT alignment of the new mark, any error setting a TDC mark WILL RESULT IN A CATASTROPHIC FAILURE WHEN INSTALLING A NEW TIMING BELT.

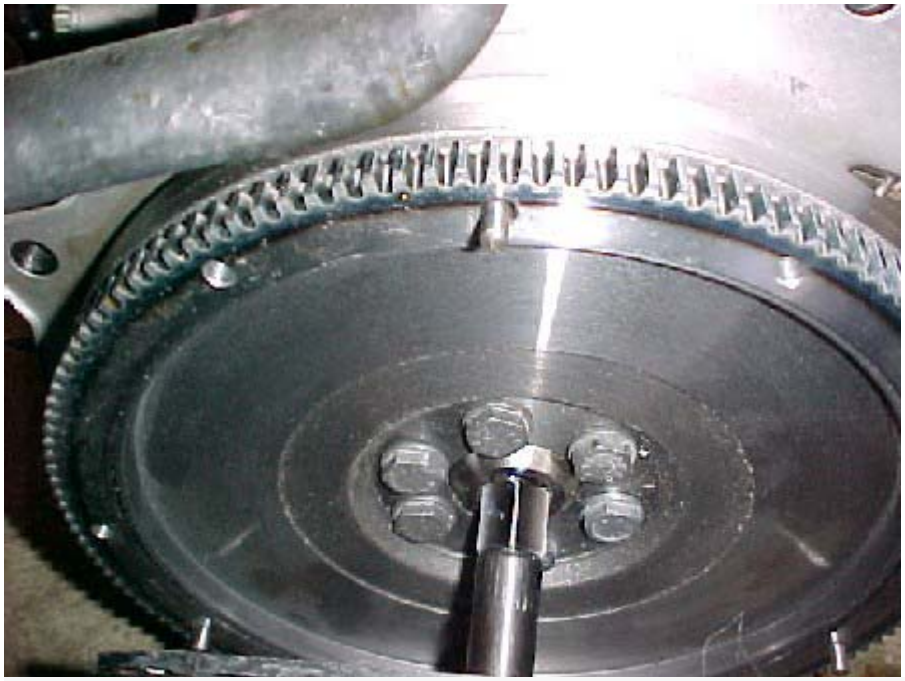
Install the crank holding tool. This tool counters the torque that you are going to apply when torqueing the crank bolts down. Considering the torque setting this tool is invaluable!!! Tip: After torqueing each bolt mark it with a marker or crayon so that you do not apply an additional 90 degrees of rotation to the bolts.

Verify that all the bolts have been torqued. And make sure that the flywheel rotates and does not rub on anything.

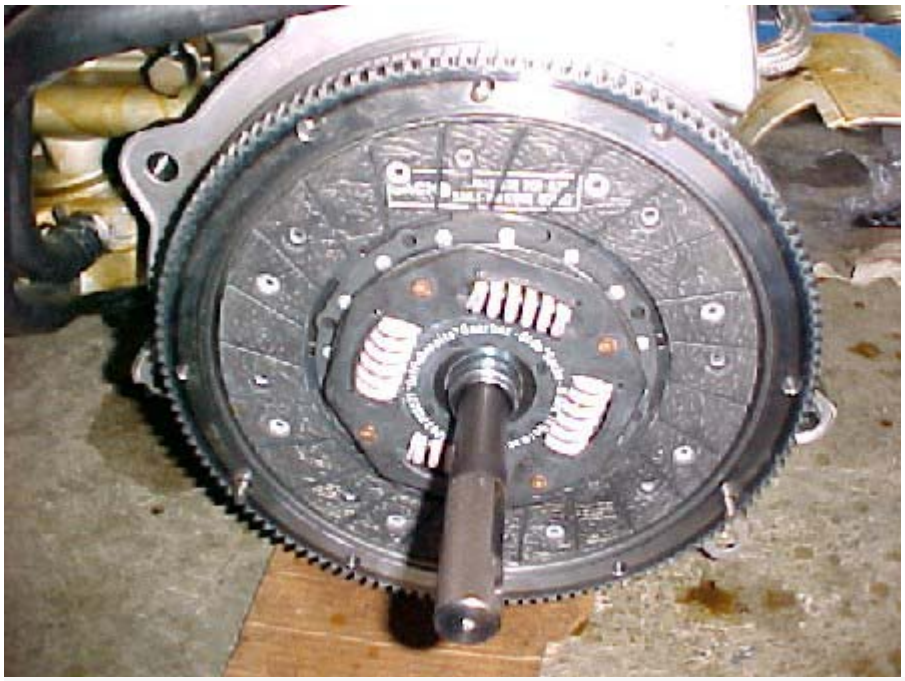


Apply some grease to the splines as well as the centering tool. If the tool is new you may have to file the sharp edges OF THE TOOL down slightly or just gently tap it through the clutch plate with a hammer, I SAID GENTLY!!! Once you use it a few times it will slide right through.

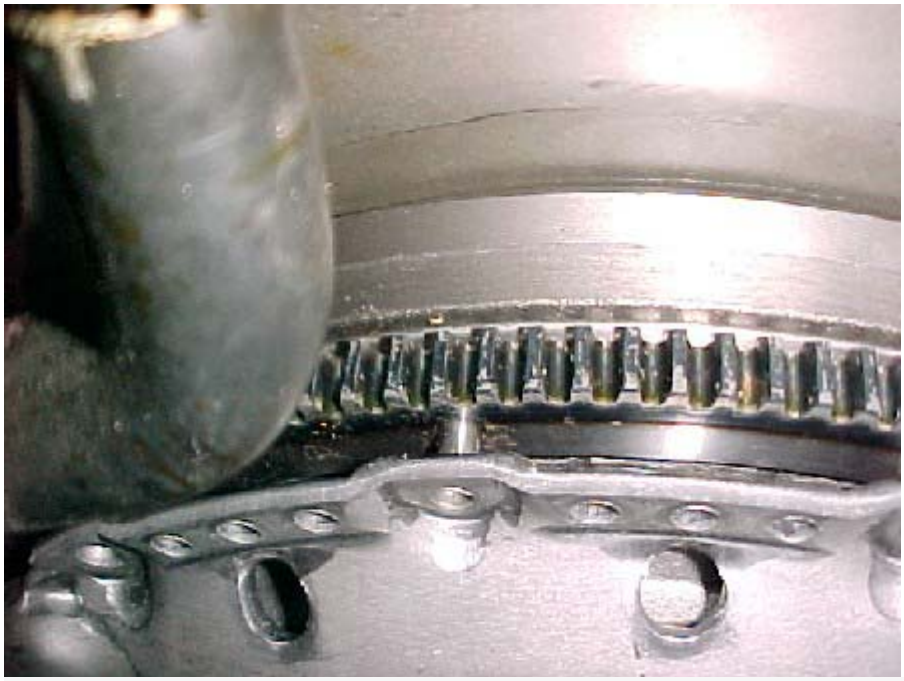
Push the tool all the way through the clutch plate then….



Insert the tool with the clutch plate on it into the centering hole in the crankshaft.

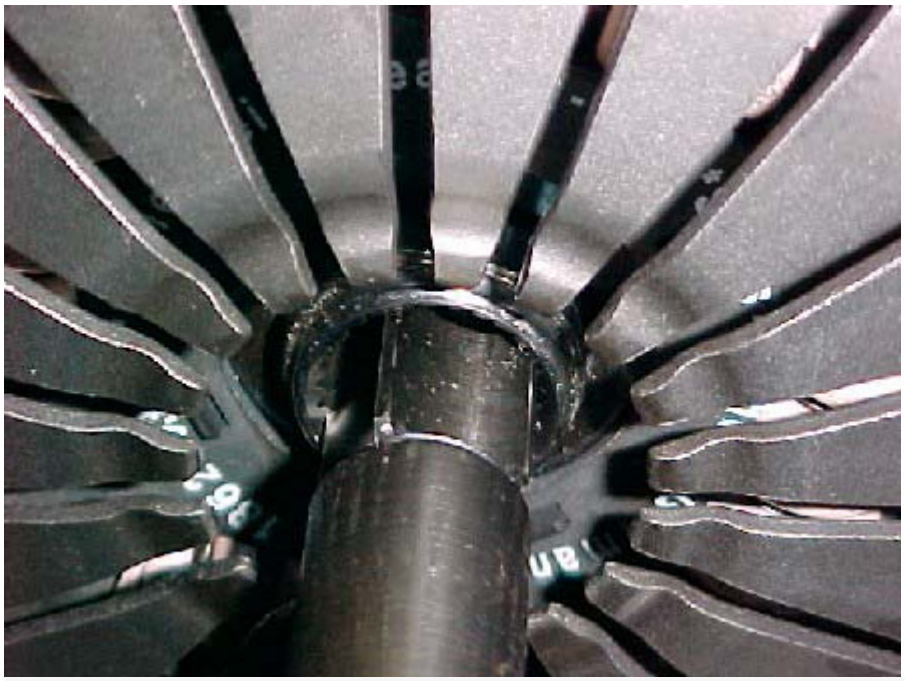


Once the tool is inserted into the centering hole slide the clutch all the way flush and into the flywheel.

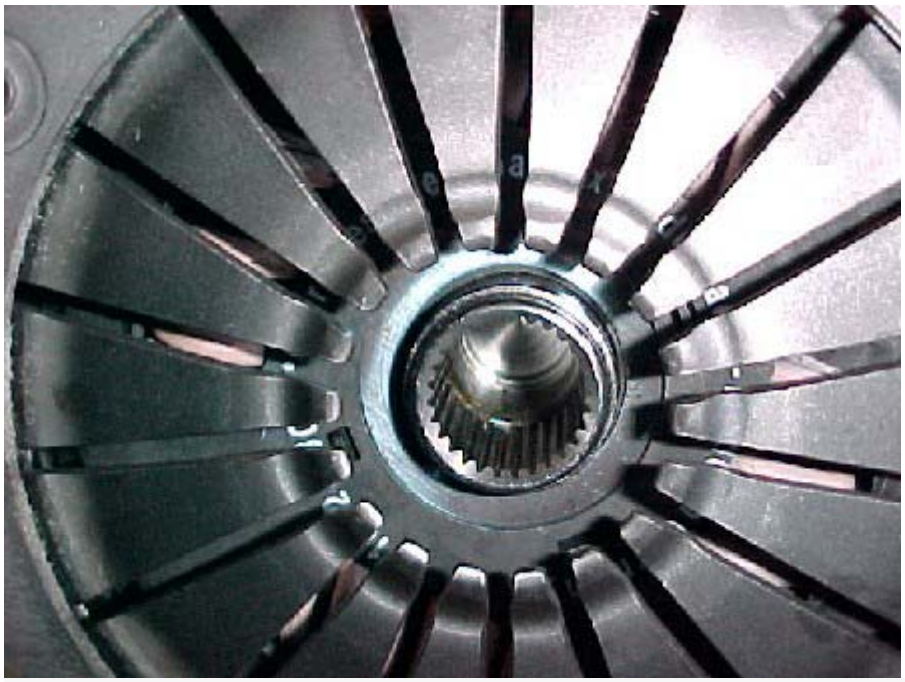


The holes for the pressure plate are machined offset like the crank bolts so there is only one way to install it. The pressure plate will just barely engage the alignment pins so once the pins are aligned with the holes…

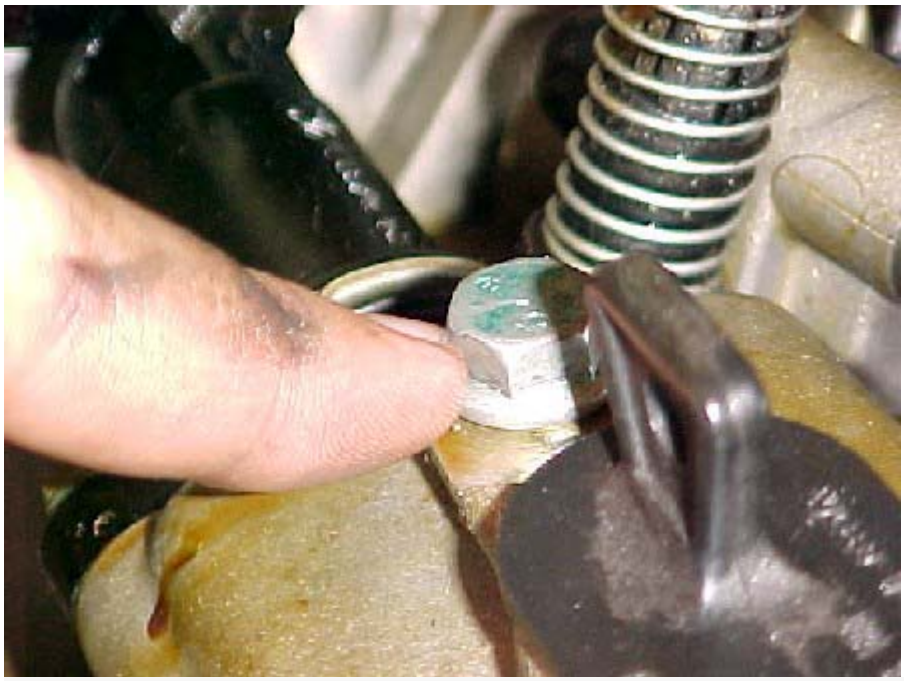
Insert the NEW bolts that came with your clutch kit. Finger tight is all we are looking for. Once they are all started give each bolt 3 turns then go to the next one until all the bolts are good and snug AND the pressure plate has pulled itself flush up against the flywheel. Once all the bolts are tight NOW you can torque them down per the specification for you clutch manufacturer OR VW.



Once the pressure plate is torqued down, remove your clutch centering tool. This may take a bit of force due to the new splines and tight fit of the clutch disk. Also the disk may settle in one direction or the other when torqueing the pressure plate down. Bobble and wriggle it loose then remove it.



Inspect the centering hole now apply the rest of the spline grease that came with your clutch to them. A little goes a long way so DO NOT over apply this stuff, the last thing you want is melting grease getting on your new disc if it gets hot…



The manual says to use a holding pin…Well here is my trick. Get one of the bolts that holds the shift linkage to the transmission housing. These are blue bolts that are 8mmx32mm long. Insert one of these bolts into the hole just above the TDC cap. Once its started…

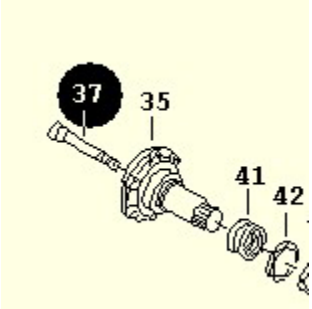
Push the throw out bearing arm in and turn the bolt the rest of the way in. This prevents the throw out bearing from getting out of alignment when jostling the tranny back into position.

Here is a break down for removal of the transmission:

-Remove the Air Box
-Remove the battery and battery tray
-Remove the starter, PITA!@!!#$%^ These bolts have some SERIOUS corrosion due to the difference in metals. They are always coroded so be ready with a major breaker bar and the fact you can only get very small turns on these bolts. I suggest eyeballing this before you begin to make sure you know what to expect.
-Remove the two cables to the shift linkage on the shifter mount
-Remove the shift linkage plate on the transmission
-Disconnect the Clutch hydraulic line and hang it from the brake master cylinder so it does not leak, cap this off otherwise this fluid WILL remove the paint!
-Remove Drivers side wheel
-This is a Mother #%@#%, Remove the bolts holding that power steering line to the transmission on the front and side. You and this line are going to become ENEMIES! This thing will get in the way the entire time. You will see later on.
-Hold the brakes and break loose the triple square bolts on the Half shafts, (I found using a VERY long 1/4", drive and socket that fits the end of the TS tool will allow you to crank on this from out from under the car) you may also remove the bolts(6 on each side) and plates(3 on each side) for each of the shafts
-Lift the drivers side drive shaft and support it with some tie-wraps from the sway bar on the drivers side.

Note-for cars made before 2000.5:
Due to the turbo oil return design you will have to remove the 3 lower ball joint bolts on the passenger side of the car and then pull the ball joints base plate out of the lower control arm socket groove. This allows the drive shaft to be moved out enough to get access to the allen bolt holding the half shaft in the transmission/differential.

-with the drive shafts out of the way, insert one of the drive shaft bolts into one of the holes the bolts came out of. Using a VERY long screwdriver or 3/8 extension counter the torque when removing the center allen that holds the 1/2 shaft in the transmission. The half shafts are spring loaded and each of the 1/2 shafts has one of these allens to keep the 1/2 haft engaged with the differential, so remove them and then pull the 1/2 shaft out of the tranny. Get some paper towels and stuff a plastic baggy so that you can plug the 1/2 shaft holes. The reason is when you go to remove the transmission Tranny oil is going to go EVERYWHERE without those holes plugged. now that I think about it you probably noticed oil coming out with the car on level ground...



1/2 shaft retaining bolt location

-Remove the Dog bone and the 13mm bolts that hold it to the sub frame
-Remove remove the exhaust down pipe from the turbo
-On the back of the motor near the down pipe you will see a thin metal shim like plate between the transmission and the engine. On that plate there is a small removable panel...remove it using a small flat head. Where is it you ask?...If you are looking from the back of the motor up around the 11:00 postion between the turbo and the block you will see it. This will hang up when removing the transmission if not removed now.

Boy if you think its bad already your just getting started!!!

-Get your Harbor Freight engine support and chains(I guess you figured out those are sold seperatly by now...

http://www.harborfreight.com/cpi/ctaf/Displayitem.taf?itemnumber=36092

-Hook the chains to the Head near the vacuum pump and the other with the most slack on the other support near the injection pump. You want all the weight to be on the one near the vacuum pump when supporting the engine. If you can bias the support so that the engine wants to come forward when you remove the engine mount. The idea is angle the engine toward the front drivers side and down slightly to slide the tranny out.
-With the weight off the tranny mount remove the two transmission bolts and transmission mount from the car.
-Lower the transmission until the deck of the transmission mounting plate just clears the underside lip below the battery....When you slide the transmission off it will bump the lower sub pillar under the battery, this is as far as you need to go. DO NOT go to low or else the tranny will hang up on the aft sub frame where the Dog-Bone bolts onto.
-WIHTOUT REMOVING THE TOP TWO TRANSMISSION MOUNT BOLTS Remove the rest of the bellhousing bolts top, bottom all around....
-Get a tranny jack or something you can slide the transmission onto.
-NOW remove the two Stainless colored bolts that go onto the block.
-Slide the transmission onto the flat surface and lower it to the floor...Your gonna laugh because I am making this all sound so easy...

-Review the procedure for installing the new clutch.

Tips for re-installing:
-Once you get the transmission back on the shaft, get one of those stainless colored bolts started THEN raise the engine and tranny so that it does not slide off the shaft. You may have to rock the transmission slightly to get the splines to engage the clutch disk. DO NOT let all the weight be supported by the shaft, this will trash the clutch disk!!!
-Get a long lever to compress the 1/2 shaft into the transmission. The allens are not long enough to engage the center holes without first pressing them in. All you need to do is get the allen started the rest is easy.
-When reinstalling the clutch hydraulic line install the line first THEN remove the bolt that is holding the throw out bearing arm. This will reduce the amount of bleeding you have to do.
-Use a pressure bleeder to bleed the hydraulic line. You can use the pedal but its pretty awkward since you have to pull the clutch out...best thing to do is use a good quality pressure bleeder.