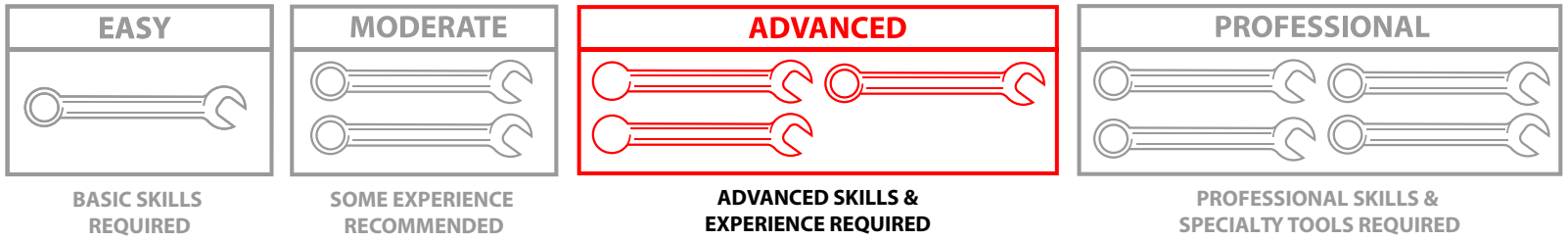
Volkswagen MKIV 6 Speed 02M 1.8T
ECS Lightweight Flywheel
Installation Instructions

INTRODUCTION

Volkswagen MKIV 6 Speed 02M 1.8T ECS Lightweight Flywheel ES#2917690 Kit ES#2917696

ECS Tuning Volkswagen lightweight flywheels and kits offer these impressive technical features and performance benefits:

- Heat treated Billet Chromoly 4140 Steel
- Zinc plated for corrosion resistance
- Precision Balanced
- SFI 1.1 Tested
- In-house designed by ECS Tuning engineers
- Experience faster revs, improved throttle response, and improved acceleration
- Kits include new a Pressure Plate, Clutch Disc, Throwout Bearing/Slave Cylinder, Brake Fluid, Alignment Tool, Flywheel bolts, Pressure Plate bolts, and Slave Cylinder bolts



Installing an ECS Tuning Lightweight Flywheel is a weekend project that will reward you with the superior performance and durability of the finest products available. Plan two full days to complete this installation. If you do not have previous experience it may take longer, but following these instructions closely will help you achieve a smooth, trouble free installation. Plan your time accordingly based on your experience level. Before you begin, read and familiarize yourself with these instructions and make sure you have all the required tools on hand. Thank you for purchasing our ECS Tuning Lightweight Flywheel. We appreciate your business!

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LIGHTWEIGHT FLYWHEEL KIT CONTENTS

ECS Tuning Lightweight Flywheel

Clutch Disc and Pressure Plate

Brake Fluid

Flywheel Bolts

Throwout Bearing/Slave Cylinder

Throwout Bearing/Slave Cylinder Mounting Bolts

Pressure Plate Bolts

Clutch Disc Alignment Tool

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REQUIRED TOOLS

Note: The tools required for each step will be listed by the step number throughout these instructions.

We recommend that you have a complete selection of tools and equipment necessary for automotive repair. Below is a list of the tools we used to install the Volkswagen MKIV 02M 1.8T Lightweight Flywheel. Additional tools may be required for any issues that arise during installation such as rust, corrosion, or broken and stripped fasteners.

- 3/8" Drive Sockets: 10mm, 13mm, 16mm ..... Available at ecstuning.com ..... ES#2763772
- 3/8" Drive Torque Wrench ..... Available at ecstuning.com ..... ES#2221245
- 1/2" Drive Torque Wrench ..... Available at ecstuning.com ..... ES#2221244
- Flat Blade Screwdriver(s) ..... Available at ecstuning.com ..... ES#2225921
- 3/8" Drive Ratchet, Extensions ..... Available at ecstuning.com ..... ES#2765902
- Schwaben Connector Release Tool ..... Available at ecstuning.com ..... ES#2628676
- Engine Support Bar ..... Available at ecstuning.com ..... ES#2804773
- Torx Drivers: T25 ..... Available at ecstuning.com ..... ES#11417
- Brake Fluid Catch Bottle ..... Available at ecstuning.com ..... ES#4557
- Locking Hose Pinch Pliers ..... Available at ecstuning.com ..... ES#2804761
- Triple Square Sockets: M10, M12 ..... Available at ecstuning.com ..... ES#9011
- 1/4" Drive Sockets: 10mm
- 1/4" Drive Ratchet, Extensions
- 3/8" Drive Deep Sockets: 9mm, 13mm, 16mm, 18mm
- 1/2" Drive Ratchet
- 3/8" Drive 12 Point Sockets: 9mm, 17mm
- Transmission Jack

SHOP SUPPLIES AND MATERIALS

- Hand Cleaner/Degreaser ..... Available at ecstuning.com ..... ES#2167336
- Aerosol Brake/Parts Cleaner ..... Available at your local auto parts store
- Shop Rags ..... Available at your local auto parts store
- Mechanics Wire ..... Available at your local auto parts store
- Aerosol Spray Lubricant/Penetrating Oil ..... Available at your local auto parts store
- Paint Marker ..... Available at your local auto parts store

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INSTALLATION NOTES

- **RH** refers to the ***passenger side*** of the vehicle.
- **LH** refers to the ***driver side*** of the vehicle.
- Always use the proper torque specifications.
- If applicable to this installation, torque specifications will be listed throughout the document and at the end as well.
- Please read all of these instructions and familiarize yourself with the complete process **BEFORE** you begin.

GENERAL PREPARATION AND SAFETY INFORMATION

ECS Tuning cares about your health and safety. Please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

- Park your car in a safe, well lit, level area.
- Shut the engine off and remove the key from the ignition switch.
- Make sure any remote start devices are properly disabled.
- **ALWAYS** wear safety glasses.
- Make sure the parking brake is applied until the vehicle is safely lifted and supported.
- If using an automotive lift, be sure and utilize the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear.
- When lifting a vehicle using a jack, always utilize the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear. **ALWAYS** support the vehicle with jack stands.
- **ALWAYS** read and follow all safety information and warnings for the equipment you are using.

Never get underneath a vehicle that is supported only by a jack. Always make sure that the vehicle is securely supported on jack stands.

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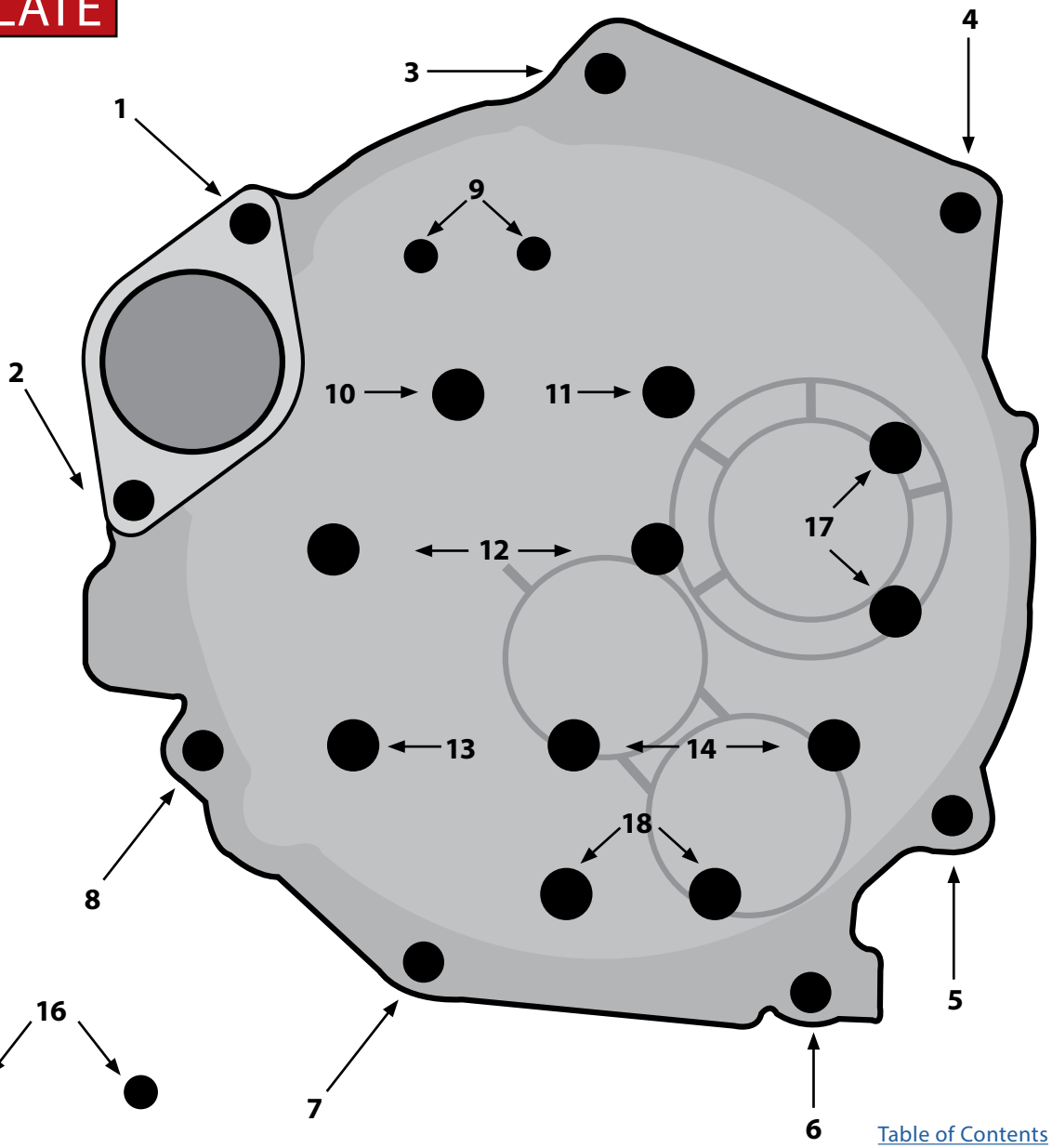
TRANSMISSION BOLT TEMPLATE

Print this page and tape it to a cardboard box. Punch holes at each bolt location and use it to store the bolts as you remove them. This will keep them perfectly organized for reassembly.

1. M12 x 165 Upper starter bolt w/end stud
2. M12 x 165 Lower starter bolt w/end stud
3. M12 x 55 Upper Bell Housing Bolt w/short stud for negative battery cable
4. M12 x 55 Upper Bell Housing bolt w/long stud for shifter cable bracket
5. M12 x 70 Rear Bell Housing bolt
6. M10 x 50 Lower Bell Housing bolt
7. M10 x 50 Lower Bell Housing bolt
8. M10 x 105 Forward Bell Housing bolt
9. Pendulum Support at Subframe
10. Pendulum Support Long
11. Pendulum Support Short
12. Upper Transmission Mount
13. Transmission Mount Bracket w/ end stud for power steering line
14. Transmission Mount Bracket
15. Shifter Cable Bracket Bolts and Nut
16. Pendulum Support M8
17. Pendulum Support M10
18. CV Heat Shield bolts



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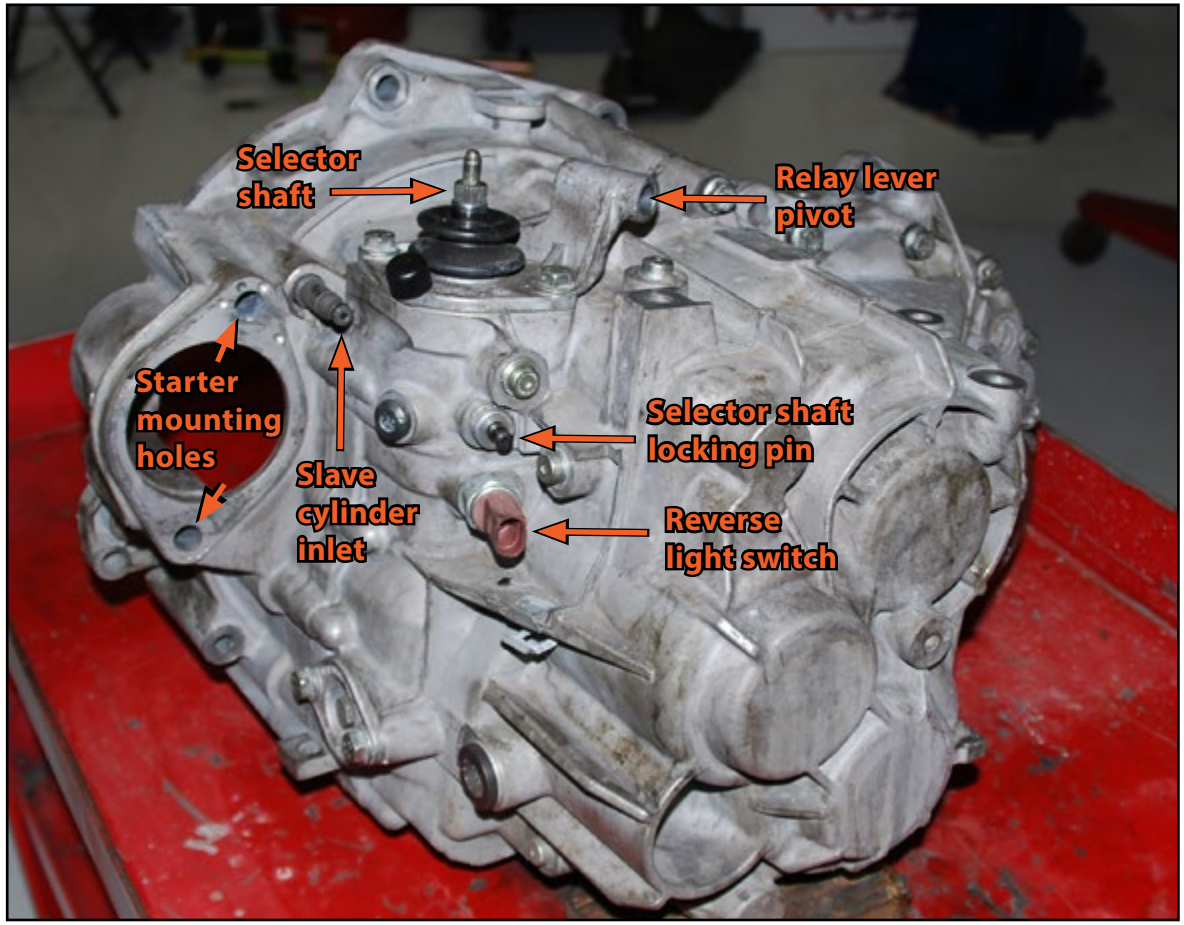
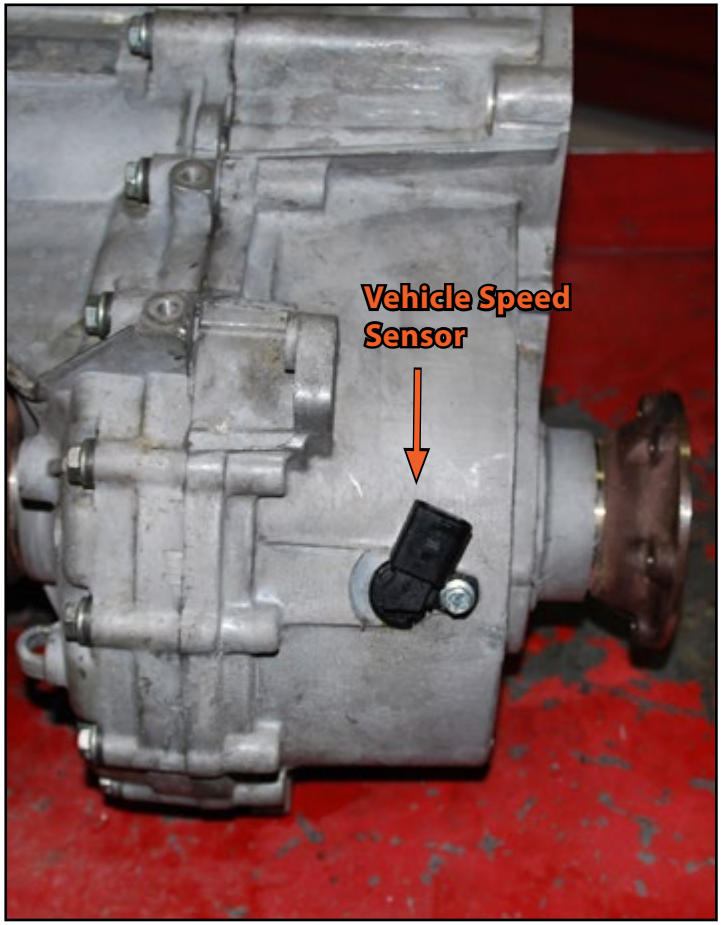
TRANSMISSION COMPONENT LOCATIONS





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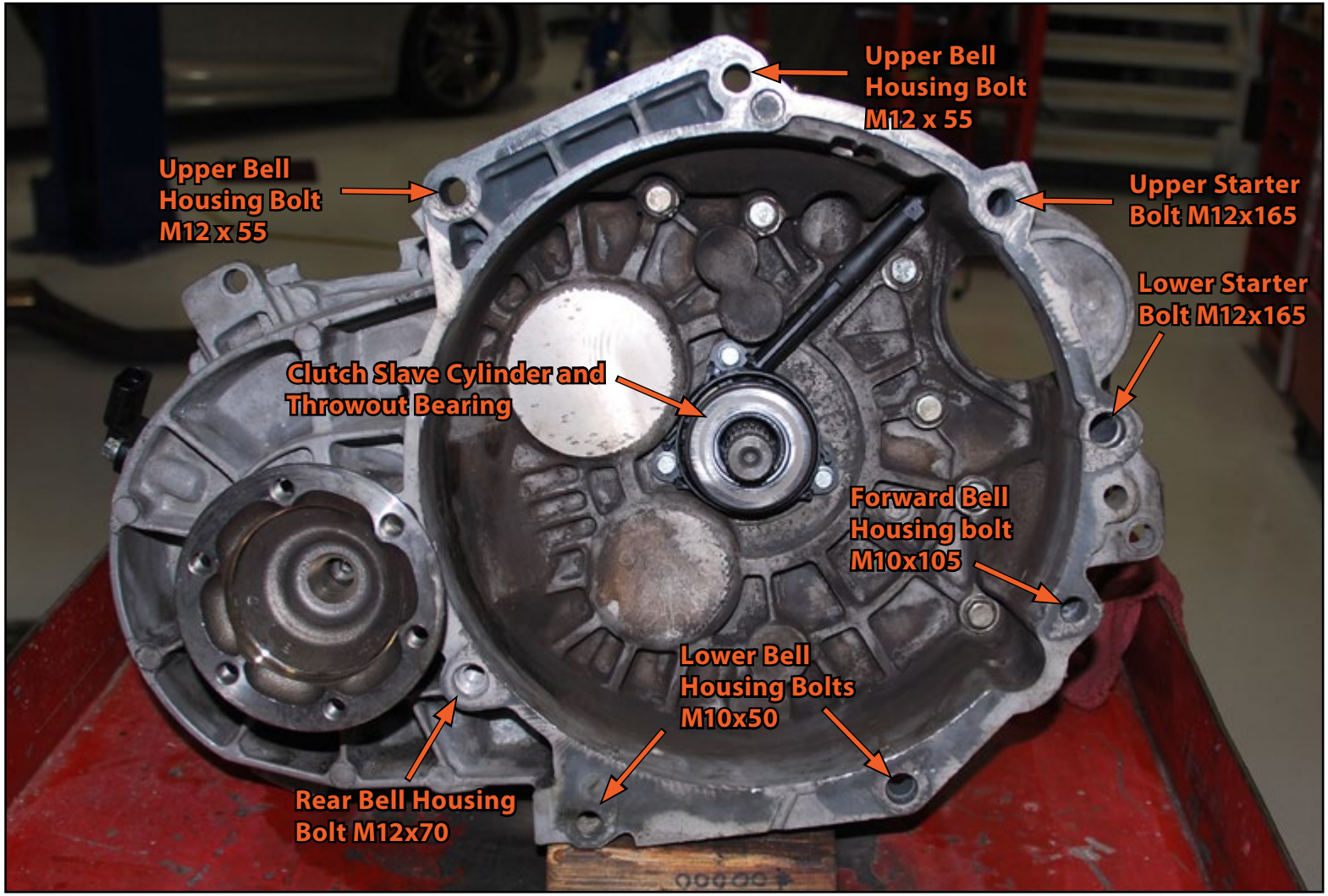

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REMOVING THE TRANSMISSION

Step 1:

If you have the original air box installed on your car, remove it at this time is order to gain enough room to access the necessary components for removal. If you have an aftermarket intake installed, you may have enough room to work around it, or you may just have to remove part of it. Once you have removed your air box or intake system as necessary, continue with the next step.

Step 2:

Remove the battery cover by pushing in on the release tabs on each side then pulling the cover straight up and off.

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REMOVING THE TRANSMISSION

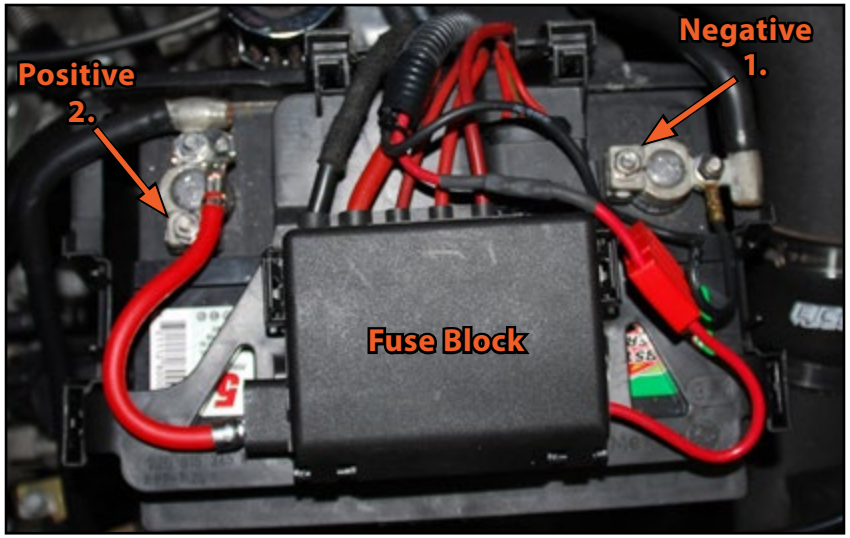
Step 3: 10mm Socket, Ratchet

First disconnect the negative battery terminal (1) by loosening the retainer nut then pulling it off the battery post.

Next disconnect the positive battery terminal (2).

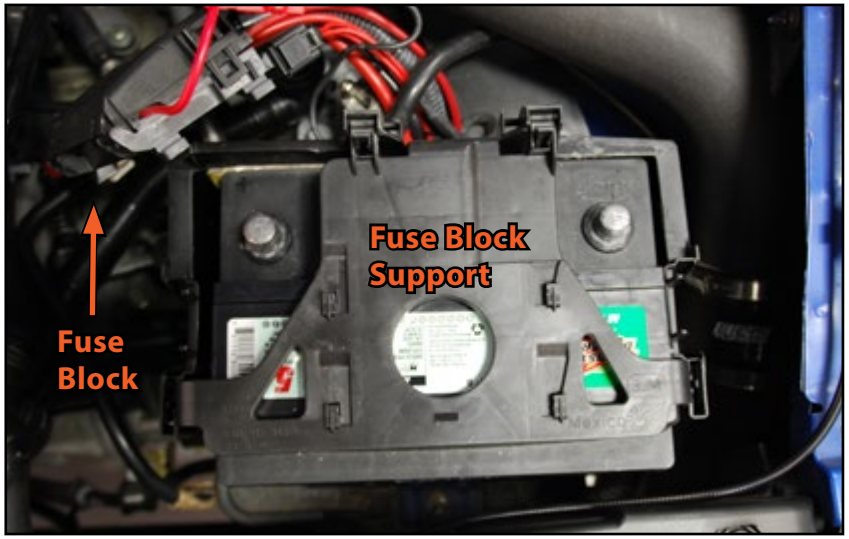
CAUTION

To reduce the risk of fire, explosion, or personal injury, ALWAYS disconnect the battery by removing the negative battery terminal first.



Step 4:

Slide the fuse block rearward, then lift it up and swing it backwards along with the battery cables to expose the fuse block support on top of the battery.



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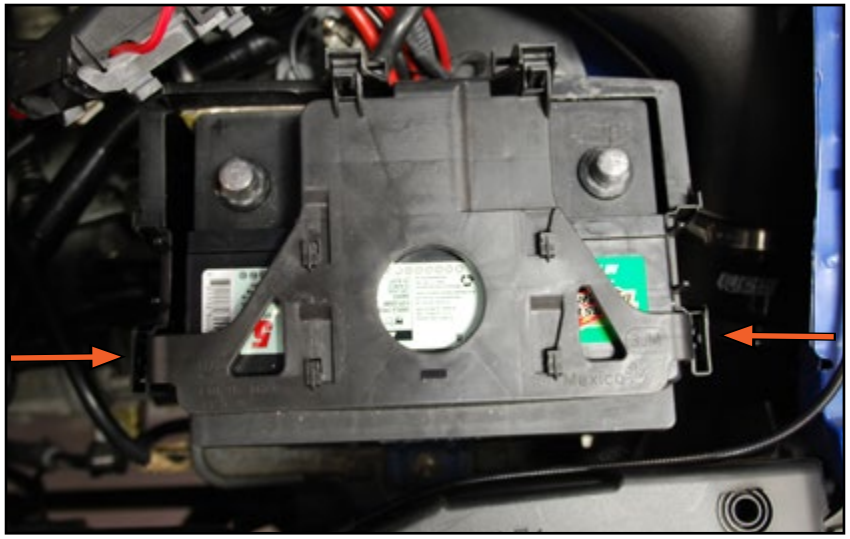
REMOVING THE TRANSMISSION

Step 5:

Release the retainers on the side of the fuse block support (arrows), then pivot the support upwards and unhook it from the battery heat shield.



Step 6: 13mm Socket, Ratchet, Extensions

Remove the hold down located in front of the battery, then lift the battery out of the car.

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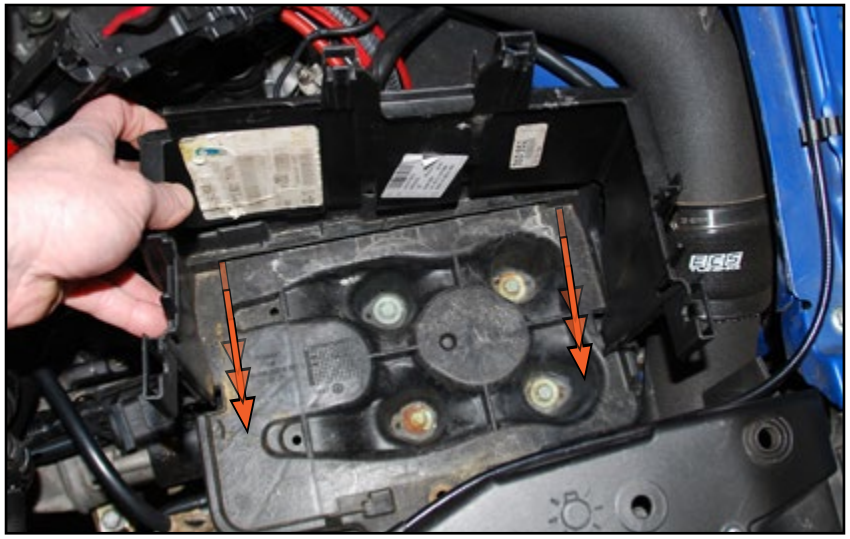
REMOVING THE TRANSMISSION

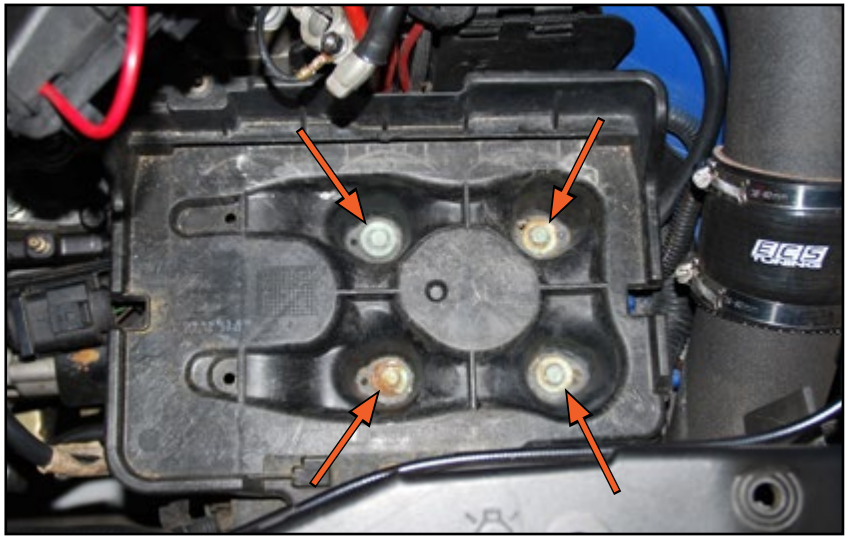
Step 7:

Pull the heat shield forward slightly to release the side hooks, then lift it up and remove it from the car.



Step 8: 10mm Socket, Ratchet, Extensions

Remove the four bolts (arrows) and remove the battery tray from the car.



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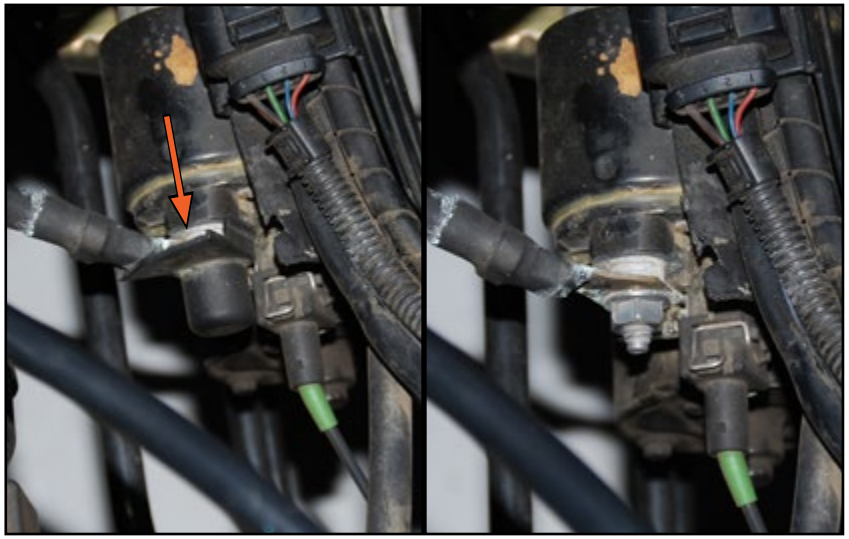
REMOVING THE TRANSMISSION

Step 9: 13mm Socket, Ratchet, Extension

Remove the nut for the power steering line clamp, then pivot the clamp up off of the mounting stud.

Step 10: Flat Blade Screwdriver

Pry the cap off of the battery cable where it connects to the starter to expose the cable securing nut.



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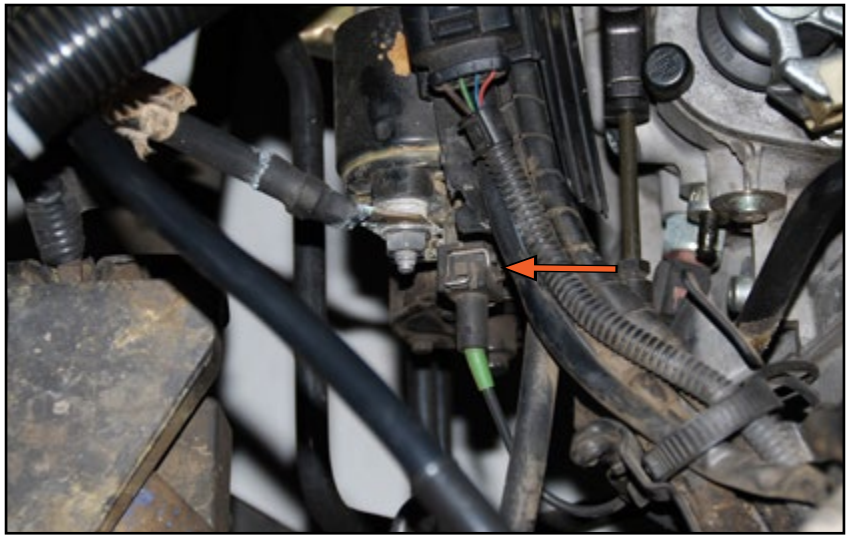
REMOVING THE TRANSMISSION

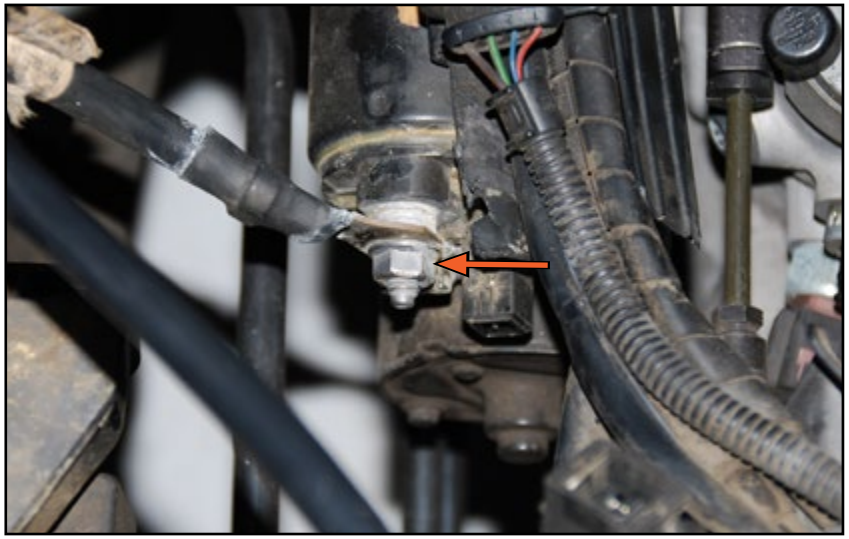
Step 11:

Disconnect the solenoid wire connector by squeezing the metal tabs together and pulling it off.



Step 12: 13mm Socket, Ratchet

Remove the battery cable securing nut and remove the cable from the starter.



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REMOVING THE TRANSMISSION

Step 13:

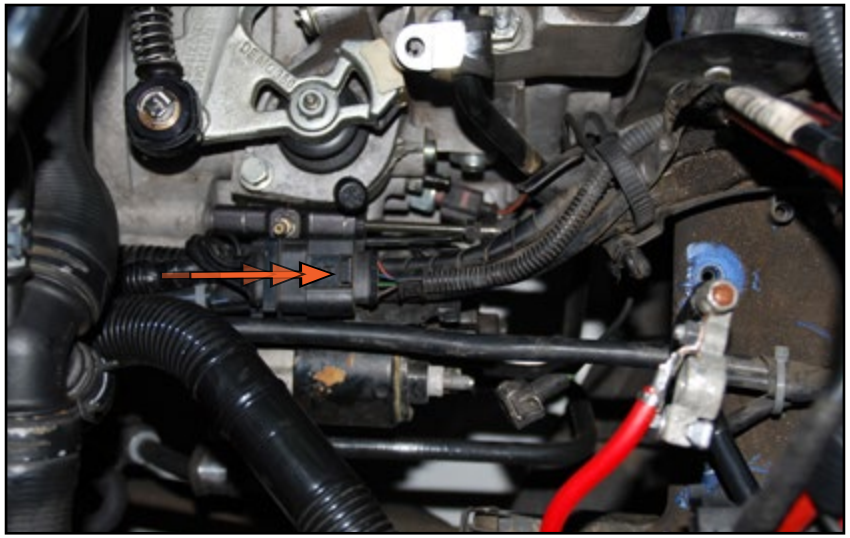
Slide the wiring harness retainer off of its mounting bracket.

NOTE

If you cannot slide the harness retainer off of its bracket, you can remove the bracket from the upper starter bolt (see step 14) and leave it on the harness retainer.

TECH TIP

Steps 13 through 15 can be performed in any order. It may be easier to perform them differently depending on the routing of your wiring and negative cable.



Step 14: 13mm Deep Socket, Ratchet

Remove the nut on the upper starter bolt end stud and remove the wiring harness retainer bracket.

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REMOVING THE TRANSMISSION

Step 15: 13mm Socket, Ratchet

Remove the nut on the upper bell housing bolt end stud and remove the negative battery cable (#3 on the bolt template on page 7).

Step 16: 18mm Socket, Ratchet

Remove the upper starter bolt (#1 on the bolt template on page 7).

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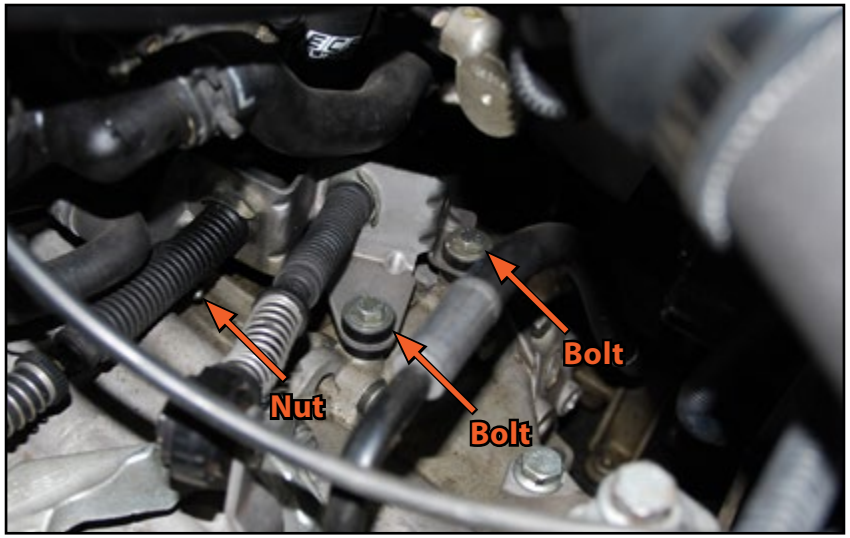
REMOVING THE TRANSMISSION

Step 17: 13mm Socket, Ratchet

Remove the two shifter cable bracket bolts and the shifter cable bracket nut (located on the upper bell housing bolt end stud - #4 on the bolt template on page 7). Pull the shifter cable bracket off the bell housing bolt end stud.

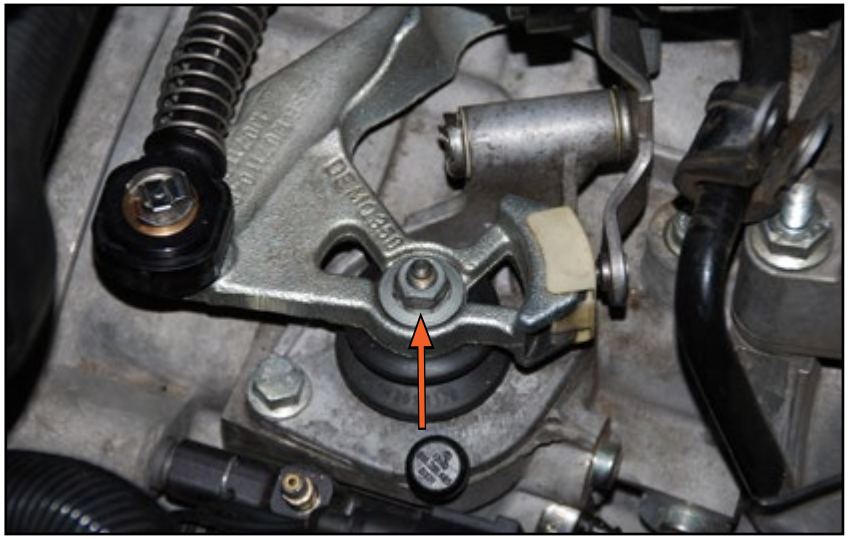


TECH TIP

To keep track of the nut, thread it onto one of the bolts, then place the bolt in the transmission bolt template (page 7).

Step 18: 13mm Socket, Ratchet

Remove the selector shaft nut.



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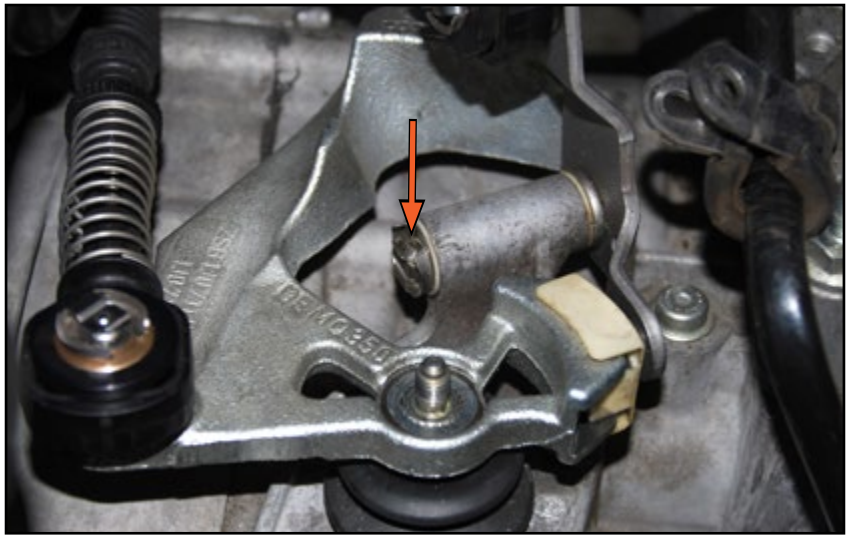
REMOVING THE TRANSMISSION

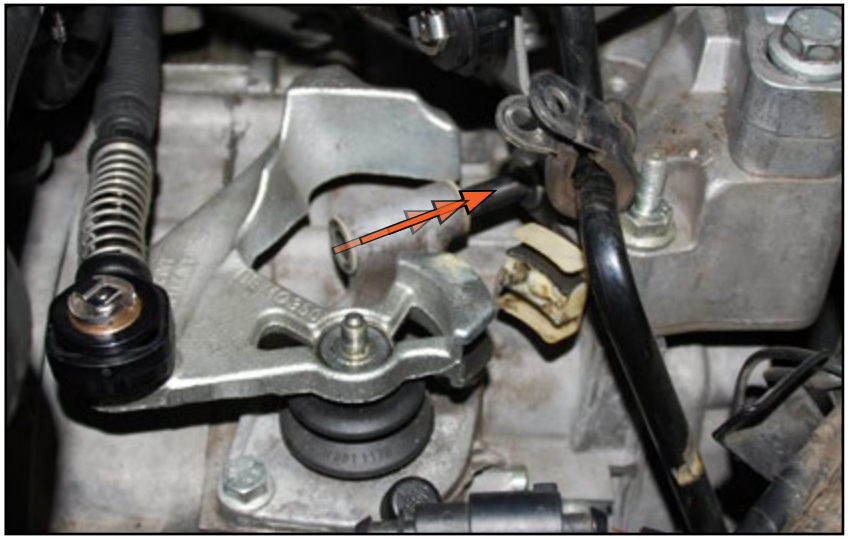
Step 19:

Remove the relay lever clip (arrow). Pull out gently on the clip tab with your thumb or finger and the clip will slide off easily.



Step 20:

Slide the relay lever back so it is disengaged from the selector lever.



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REMOVING THE TRANSMISSION

Step 21:

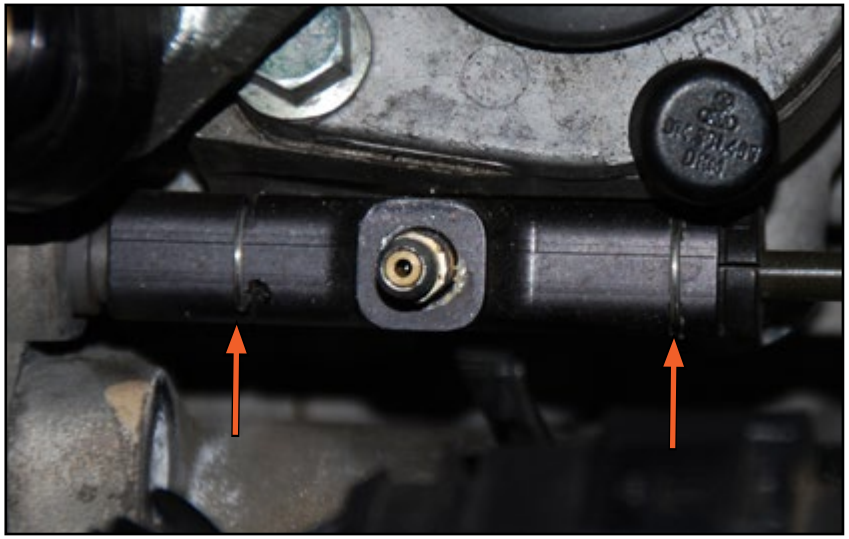
Pull the selector lever off of the selector shaft. You may have to gently wiggle it side to side until it releases. Be patient and work the lever gently until it is free. You can use a puller if you have one, but it can normally be removed without.

CAUTION

Do not hammer the end of the selector shaft or pry on the selector lever or the selector shaft can be damaged.

Step 22: Hose Pinch Pliers, Small Angled Pick

Pinch off the hydraulic hose leading to the clutch slave cylinder, then pull out the two clips holding the clutch bleeder block in place, and finally remove the bleeder block from both the line and the end of the slave cylinder.



CAUTION

The clutch hydraulic fluid is brake fluid fed from the master cylinder reservoir. Brake fluid is very corrosive and will damage any painted surface immediately with contact. Be sure to clean any spills as quickly as possible.

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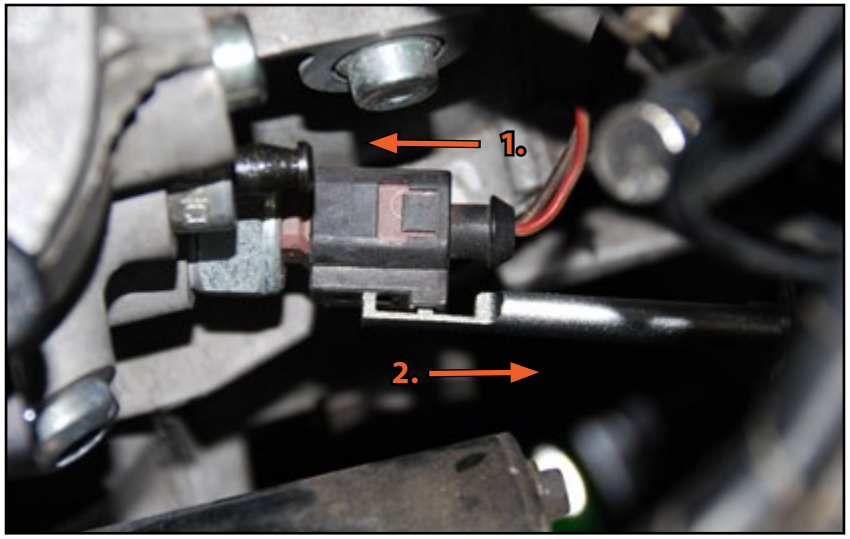
REMOVING THE TRANSMISSION

Step 23: Schwaben Connector Release Tool

Disconnect the reverse light switch (reference page 8 for location). This type of connector is referred to as a "push and pull" connector in reference to the removal method. First *push* the connector towards the switch and hold gentle pressure on it. Next hook the release tool into it as shown and *pull* back on the tool. The connector will easily slide off.



Step 24: Engine bar

Securely locate an engine bar into place and connect it to the engine lifting bracket near the end of the cylinder head. Tighten the engine bar screw until all slack is removed from the chains, then rotate the handle one additional turn to be sure all weight is supported by the engine bar.

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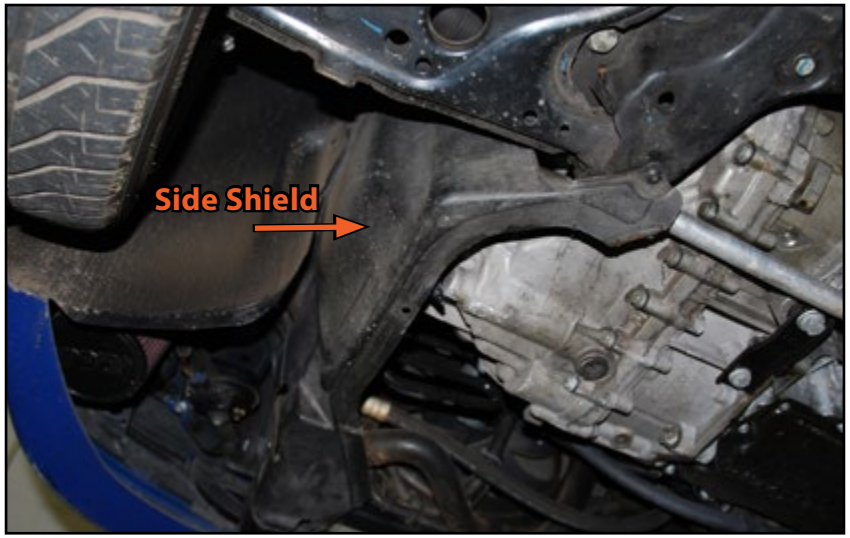
REMOVING THE TRANSMISSION

Step 25: Tools vary depending on application

Safely raise and support the vehicle, then remove the lower insulation panel or skid plate, depending on how your vehicle is equipped. In addition, remove the side shield on the LH (Driver's) side of the car.



Step 26: 13mm Socket, Ratchet

Remove the power steering line bracket on the lower starter bolt end stud.

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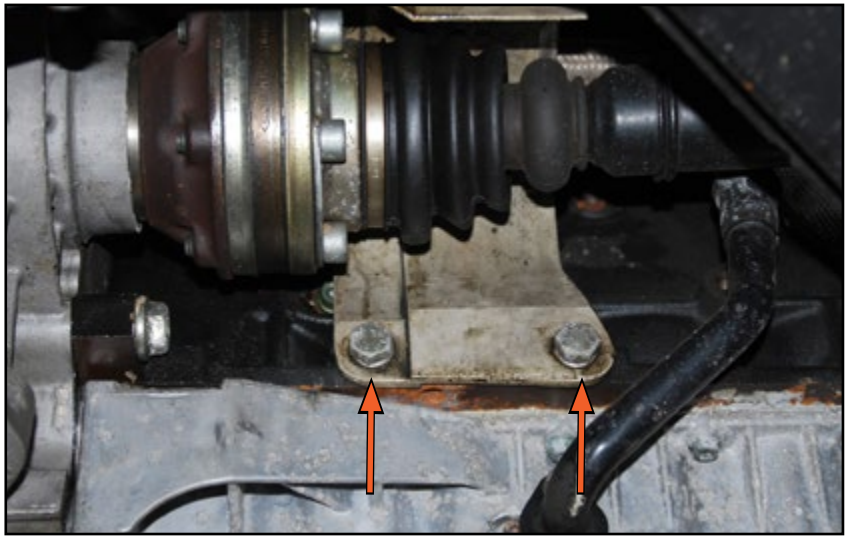
REMOVING THE TRANSMISSION

Step 27: 18mm Socket, Ratchet

Loosen the lower starter bolt, (#2 on the bolt template on page 7), then while holding the starter, completely remove the bolt and remove the starter from the bell housing.

Step 28: 16mm Socket, Ratchet

Remove the heat shield for the RH (Passenger) side inner CV joint (two bolts).



NOTE

If you have a front suspension lower tie bar installed, remove it at this time.

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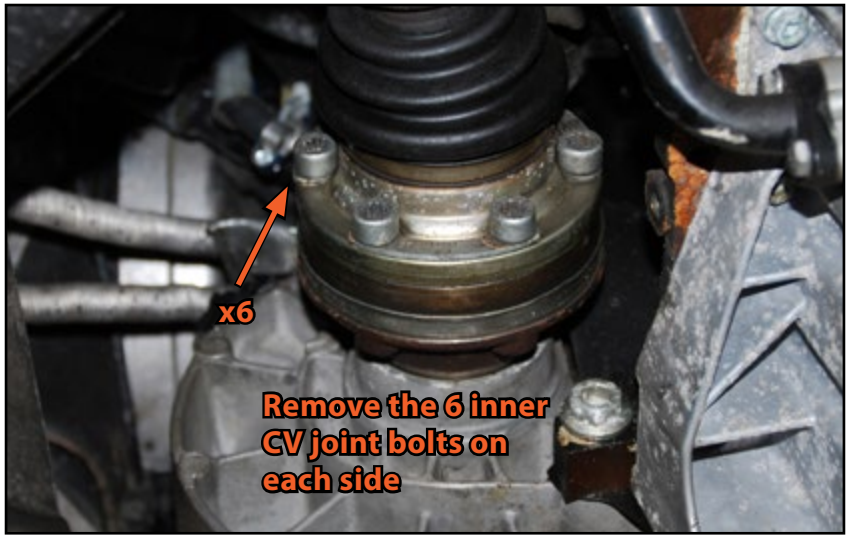
REMOVING THE TRANSMISSION

Step 29: M10 Triple Square Socket, Ratchet

Hold the wheels firmly to keep them from turning, then loosen and remove the inner CV joint bolts (6 on each side). Tie the RH (Passenger) side CV shaft up out of the way using mechanics wire.



NOTE

The CV joint bolts can remain in the joint after unbolting them from the CV flange. It is not necessary to completely remove them.

Step 30: 13mm Socket, Ratchet

In order to obtain enough clearance to remove the transmission, remove the three lower ball joint bolts on the LH (Driver's) side, slide the ball joint out of the control arm and swing the CV shaft out of the way as shown. Be sure to secure the axle shaft with mechanics wire so the outboard CV joint is not damaged.

NOTE

This vehicle has air ride suspension and does not have a front sway bar. If equipped, you may have to remove the front sway bar links to be able to swing the CV shaft out of the way.

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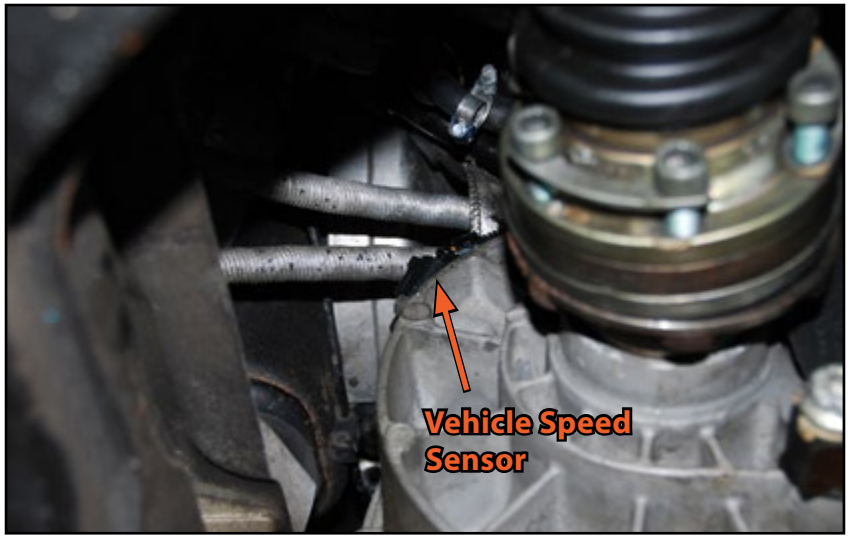
REMOVING THE TRANSMISSION

Step 31: 13mm Socket, Ratchet

Disconnect the vehicle speed sensor. It is located on the differential housing (see transmission component locations on page 8). You can access it from the RH side, just above the RH inner CV joint.

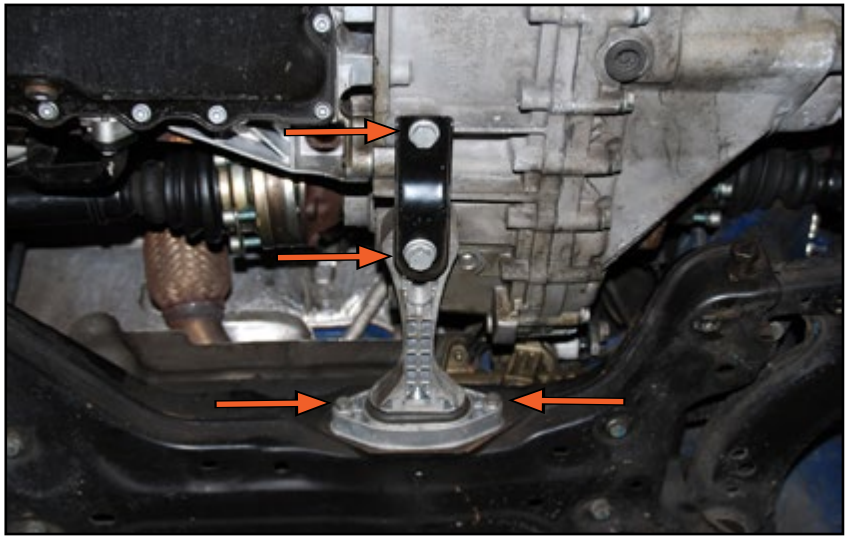


NOTE

Some vehicles have the exhaust down pipe secured to a hanger on the rear of the subframe. If your vehicle is equipped in this manner, remove the hanger bolts at this time.

Step 32: 13mm, 16mm Socket, Ratchet

Remove the pendulum support by removing the two bolts securing it to the subframe and the two bolts securing it to the transmission housing.



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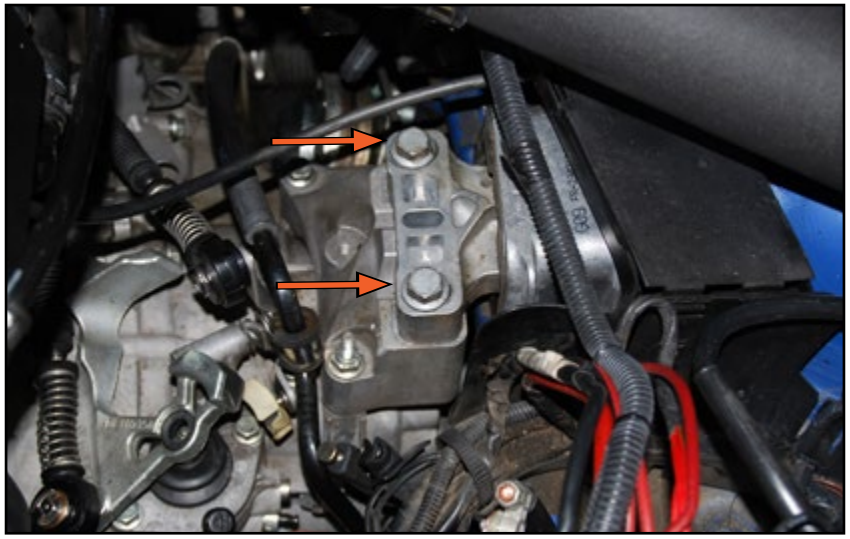
REMOVING THE TRANSMISSION

Step 33: 18mm Socket, Ratchet

Moving back to the topside, remove the two upper transmission mount bolts.

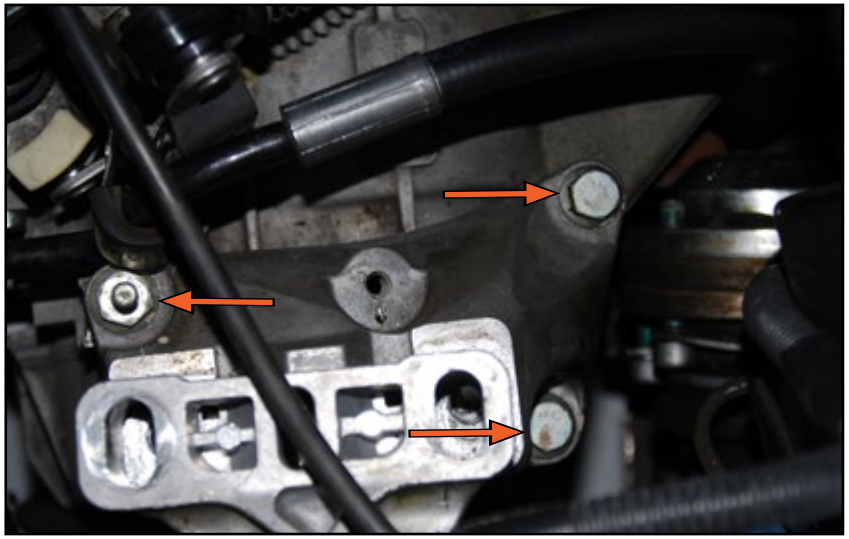


NOTE

Add additional tension to the support bar as necessary to keep the drivetrain from dropping when you remove these bolts.

Step 34: 16mm Socket, Ratchet

Remove the three transmission mount bracket bolts and remove the bracket.



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REMOVING THE TRANSMISSION

Step 35:

Slide the relay lever completely out.

Step 36: 13mm Socket, Ratchet

Use cable ties to secure the shifter cables, power steering line, and wiring harnesses as far up and out of the way as possible for transmission removal. Also, it is also a good idea to remove the relay lever bushings and place them to the side. They tend to fall out easily and you may lose them if you leave them installed.

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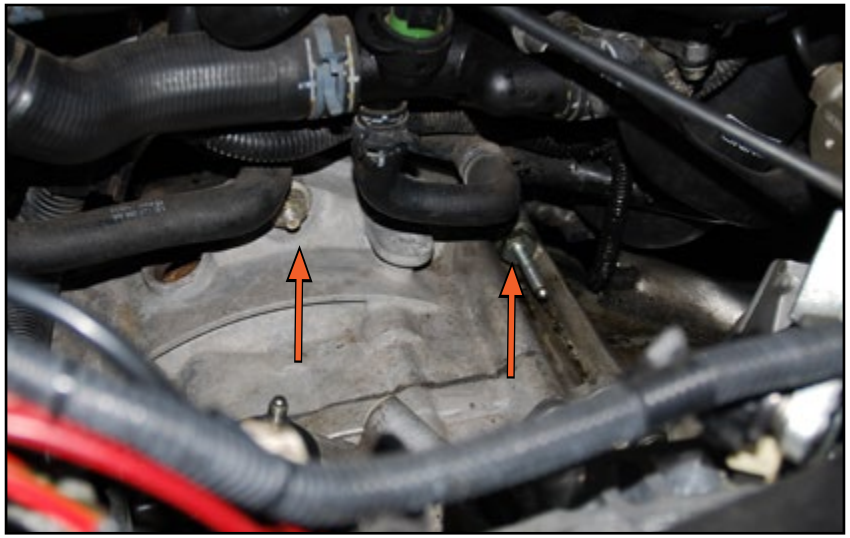
REMOVING THE TRANSMISSION

Step 37: 18mm Socket, Ratchet

Remove the two upper bell housing bolts (#3 and #4 on the bolt template on page 7).



Step 38: Transmission Jack

Lower the engine with the engine bar so the transmission drops about one inch, then place a transmission jack underneath.

CAUTION

The transmission is very heavy and difficult to remove. There is minimal clearance for removal and it takes a lot of patience and repositioning of the transmission to clear the body. We strongly recommend the help of a friend before proceeding.

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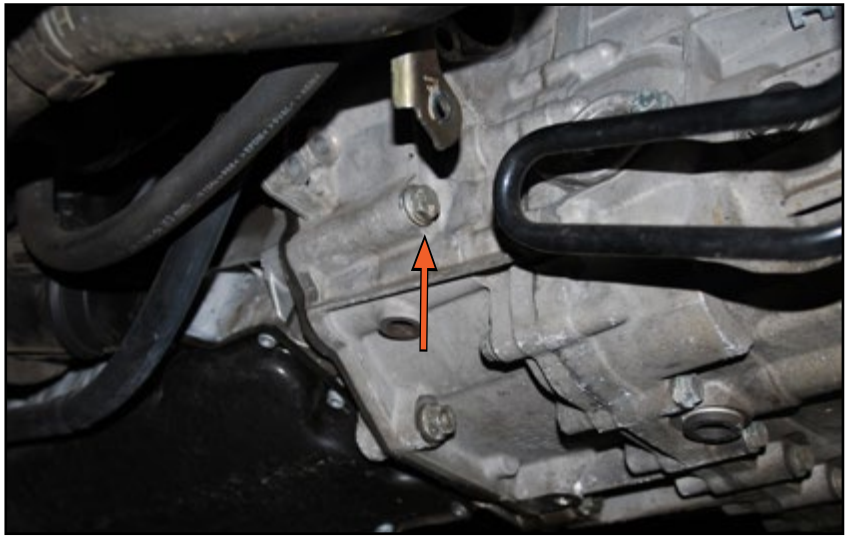
REMOVING THE TRANSMISSION

Step 39: 16mm Socket, Ratchet

Remove the forward bell housing bolt just below the starter (#8 on the bolt template on page 7).

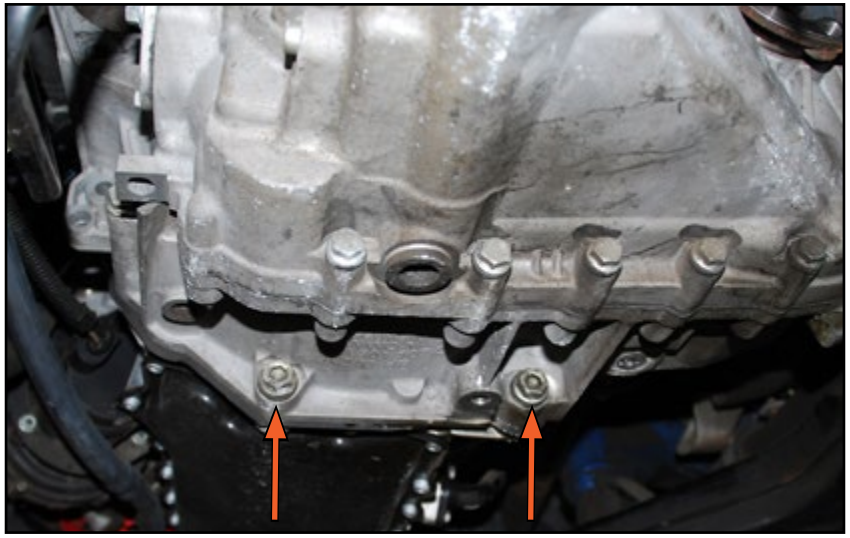


Step 40: 16mm Socket, Ratchet

Remove the two lower transmission bell housing bolts (#6 and #7 on the bolt template on page 7).

NOTE

The bell housing bolts are shown here without the transmission jack in place for clarity.



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18mm Socket, Ratchet

Remove the rear bell housing bolt (#5 on the bolt template on page 7) which in installed in the opposite direction of all the rest and is accessible just below the RH inner CV joint.

STOP

Double check the engine support bar to make sure it is secure and the engine is properly supported. Be sure to have a friend to help you remove the transmission.

Remember to work slowly and cautiously during removal and follow these general steps and tips:

- [ ] Separate the transmission from the engine by pulling it back from the engine block.
- [ ] Rotate the differential upwards, then angle the transmission toward the front and work the inner CV flange around the flywheel
- [ ] Pull the transmission back until it completely clears the flywheel and clutch
- [ ] Slowly lower and adjust the engine bar and transmission jack as necessary to gain the required clearance for removal.
- [ ] Once the transmission is clear, lower it completely and transfer it to a work surface

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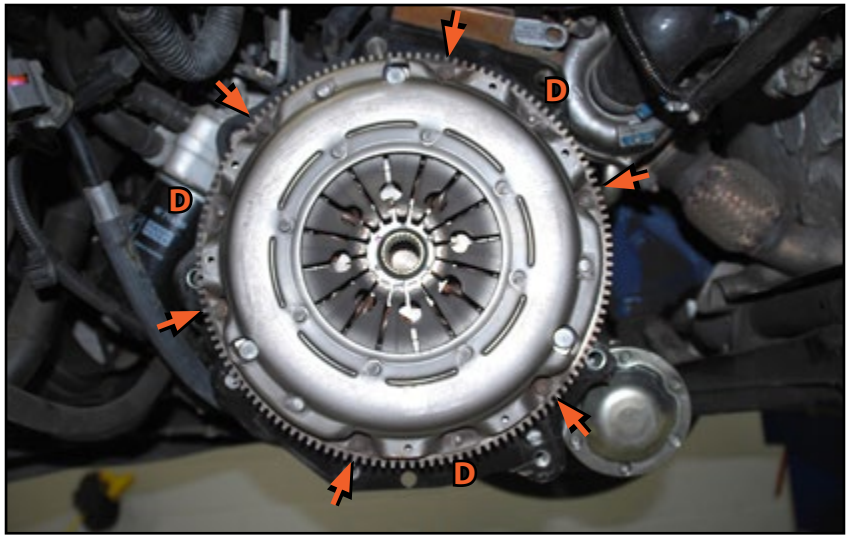
REMOVING THE ORIGINAL FLYWHEEL AND CLUTCH

Step 1: 9 or 10mm Socket, Ratchet, Flat Blade Screwdriver

READ ENTIRE STEP FIRST

Loosen, but do not remove all six pressure plate bolts (arrows). Next, keep a flat blade screwdriver within reach, then place one hand on the pressure plate to keep it in place, and remove all six bolts in an alternating pattern. Now using both hands, slowly pull the pressure plate off of the flywheel dowel pins (D). As you pull it off, make sure that you grab the clutch disc so it does not fall and remove it along with the pressure plate. You may have to pry the pressure plate off the dowel pins (D) using a flat blade screwdriver.

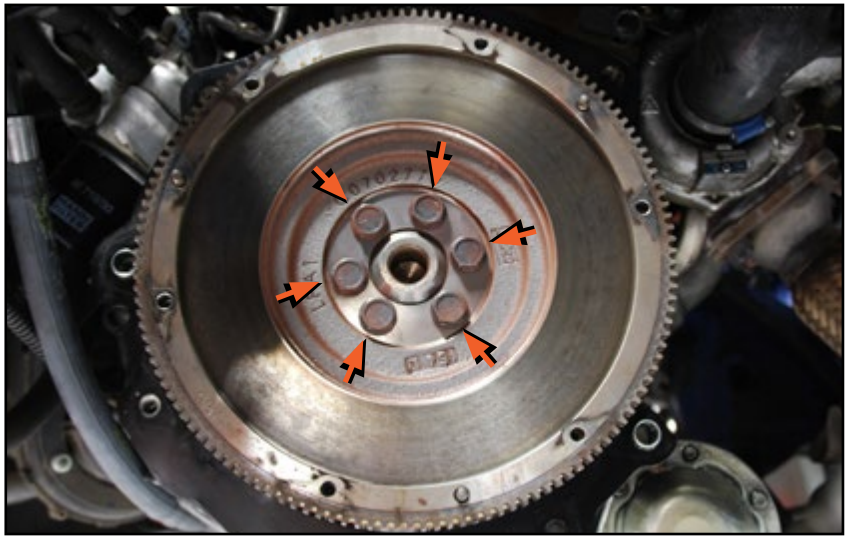


NOTE

Depending on whether the pressure plate bolts are original or not, you will have to use either a 9mm or 10mm socket.

Step 2: 17mm Socket, Ratchet

Loosen all six flywheel bolts, then remove five of them. Firmly grip the flywheel and remove the last bolt, then pull the flywheel off the end of the crankshaft. Some flywheel bolts may require a 17mm 12 point socket, some a 17mm 6 point socket, and some an M12 triple square socket.



TECH TIP

An impact can be used to easily remove the flywheel bolts. If you do not have an impact, thread two of the old pressure plate bolts back into place and lever a pry bar between them to keep the engine from turning while you break the flywheel bolts loose.

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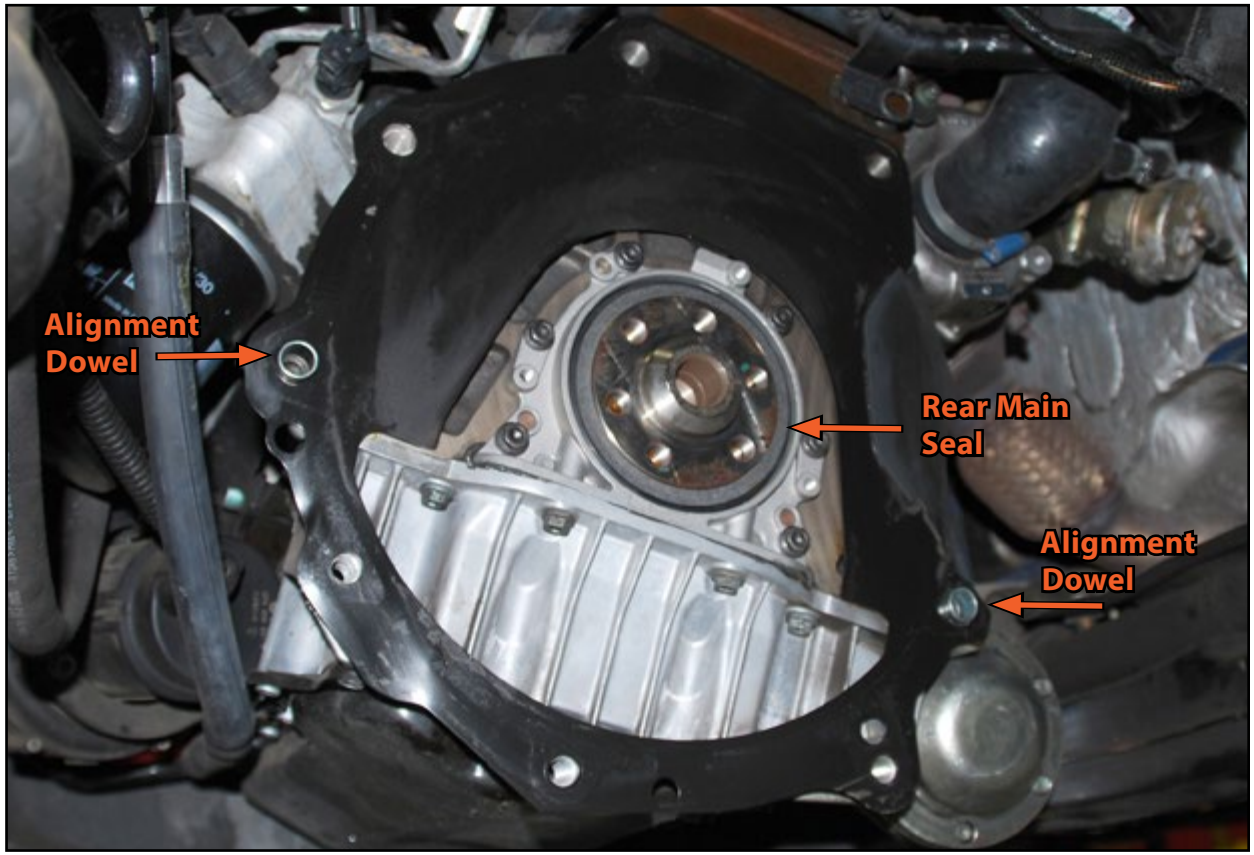
CLEANING THE ENGINE BLOCK

Thoroughly clean the end of the crankshaft, engine block, and separator plate. Closely inspect the rear main seal for any signs of leakage, replace it if necessary. Make sure that both alignment dowels are located in the block in the locations shown. If not, remove them from the transmission bell housing and reinstall them in the block.



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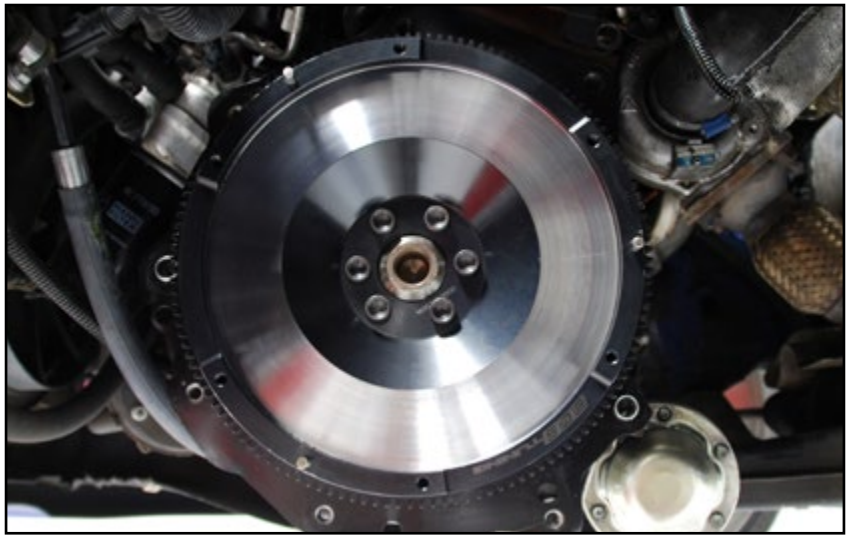
INSTALLING THE NEW FLYWHEEL AND CLUTCH

Step 1: M12 Triple Square Socket, Ratchet

Install the flywheel into place on the end of the crankshaft, then install all six bolts and thread them in just until they are fully seated. The new bolts have loctite pre-applied on the threads so you may have to use a ratchet to thread them in.

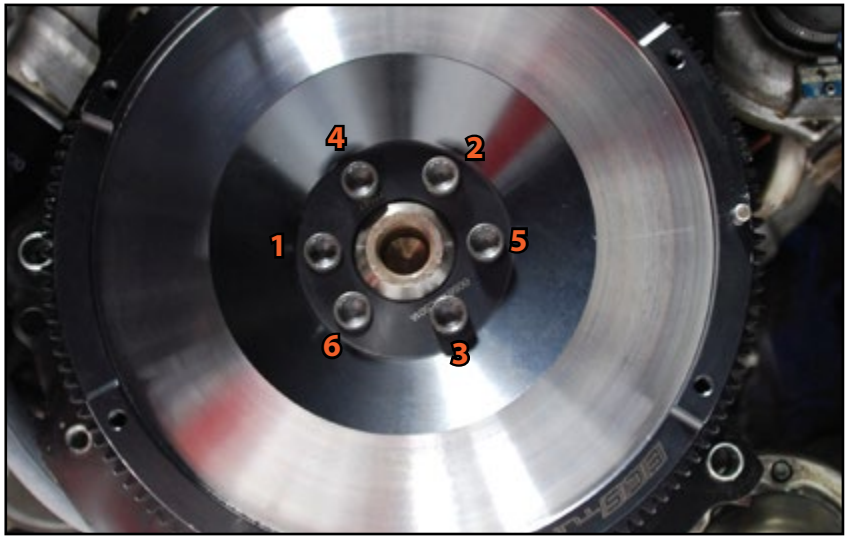


Step 2: M12 Triple Square, Torque Wrench, Breaker Bar, Paint Pen

Torque the flywheel bolts in a diagonal sequence as shown on the right in the three different stages listed below.

1: 30 Nm (22 Ft-lbs)
2: 60 Nm (44 Ft-lbs)
3: Additional 90 degrees

When you begin stage 3, mark each bolt with paint after you tighten it the additional 90 degrees so you do not lose track of which ones have been tightened.



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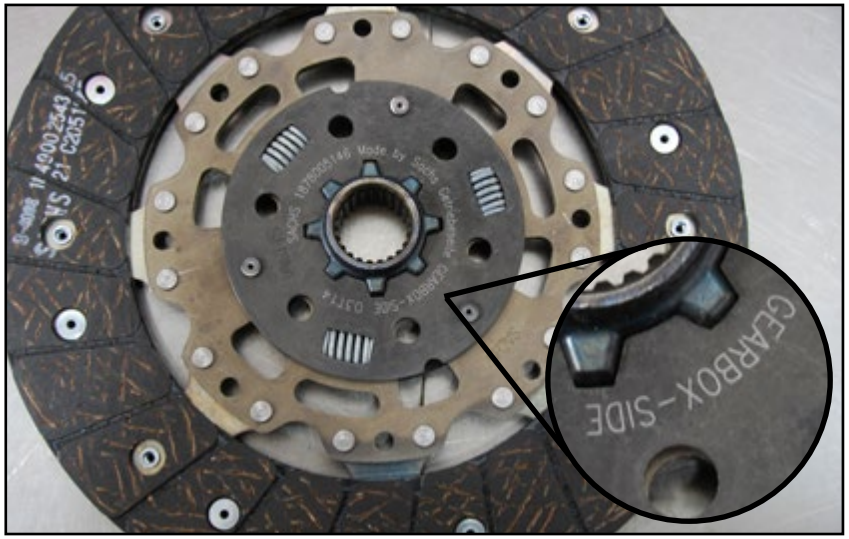
INSTALLING THE NEW FLYWHEEL AND CLUTCH

Step 3:

Wipe the surface of the new flywheel using brake cleaner and a rag to remove any dirt, oil, or contaminants.

Step 4:

Inspect the new clutch disc. It will have a marking that indicates which side faces the transmission when installed.



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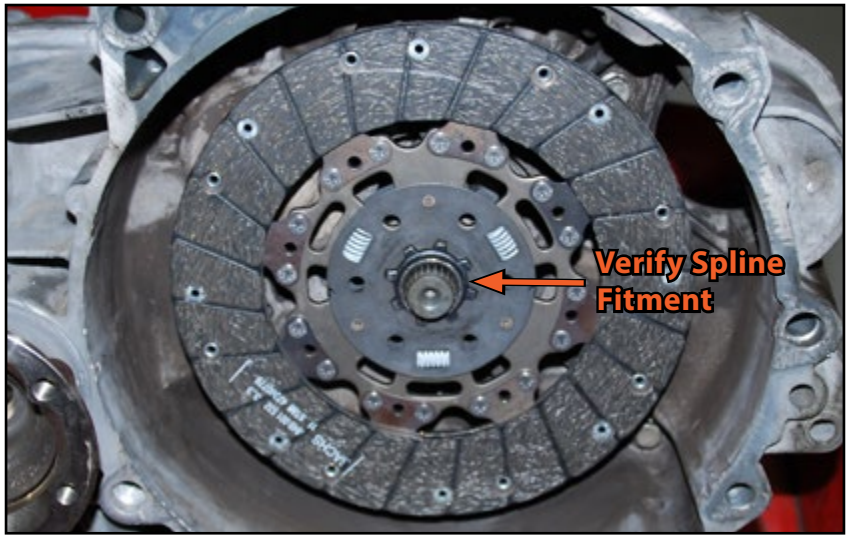
INSTALLING THE NEW FLYWHEEL AND CLUTCH

Step 5:

Slide the clutch disc onto the splines of the transmission input shaft to make sure it fits correctly and slides on easily.



NOTE

This is a general precaution that should be taken with every clutch installation. It is very uncommon that you would encounter a problem such as a clutch disc that was packaged wrong or manufactured incorrectly, but it is always better to check.

Step 6: Clutch Alignment Tool

Hold the clutch disc onto the surface of the flywheel with the "transmission side" facing you, then insert the alignment tool through the disc and into the end of the crankshaft.

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INSTALLING THE NEW FLYWHEEL AND CLUTCH

Step 7:

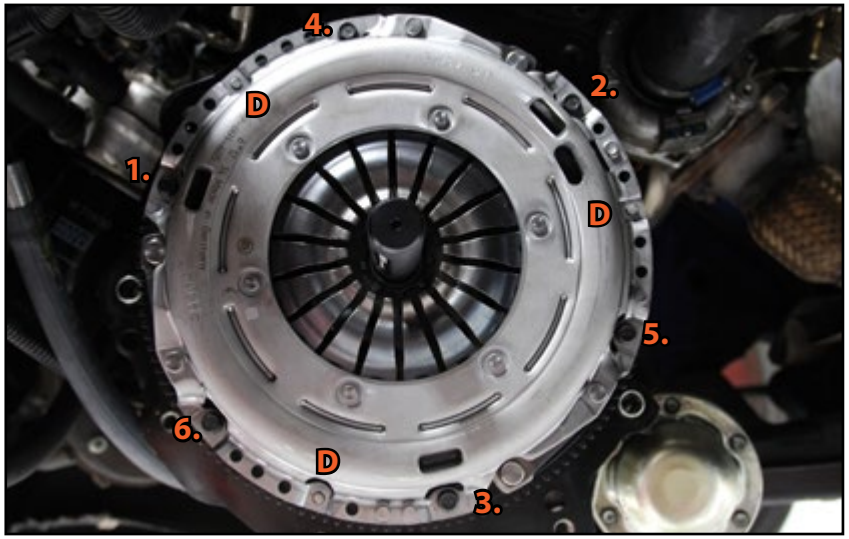
Wipe the surface of the new pressure plate using brake cleaner and a rag to remove any dirt, oil, or contaminants.

Step 8: 9mm 12 Point Socket, Torque Wrench

Install the pressure plate over the alignment tool and disc, onto the flywheel. Make sure all three dowel pins are lined up (D), then push the pressure plate into place.

Start all six pressure plate bolts, then tighten them evenly and alternately in the sequence shown on the right until they are fully seated.

Torque the pressure plate bolts to 20 Nm (15 Ft-lbs) using the same sequence shown on the right. Remove the alignment tool after the bolts are torqued.



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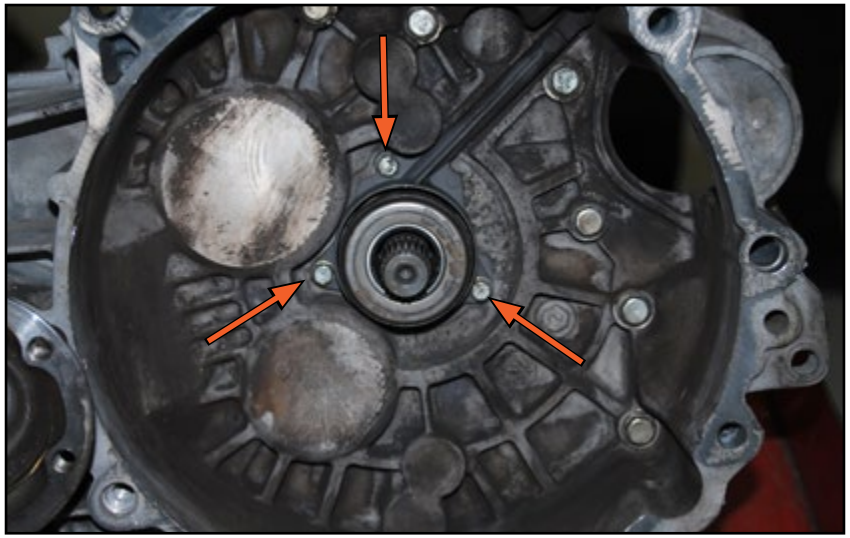
PREPARING THE TRANSMISSION FOR INSTALLATION

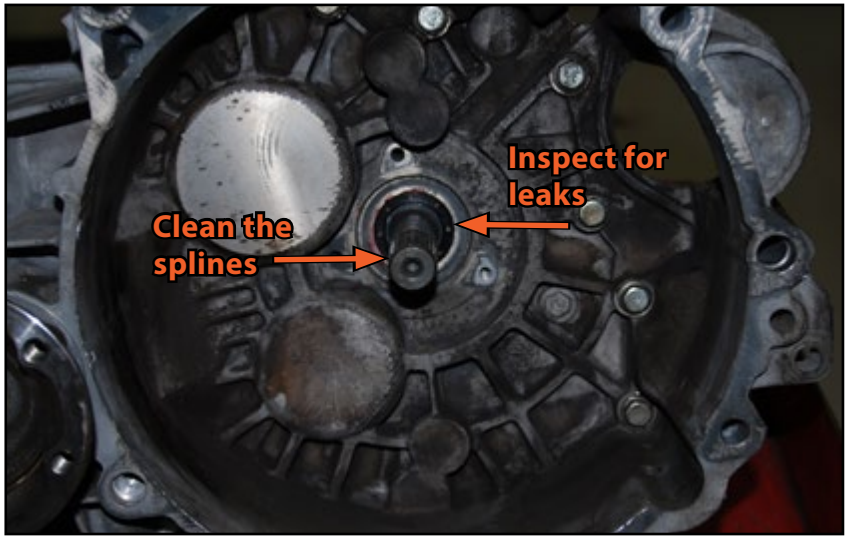
Step 1: 9mm Deep Socket, Ratchet

Remove the three retaining bolts and pull the throwout bearing/slave cylinder off of the bell housing.



Step 2:

Thoroughly clean the bell housing and the splines on the input shaft. Inspect the input shaft seal for any signs of leakage, replace if necessary.



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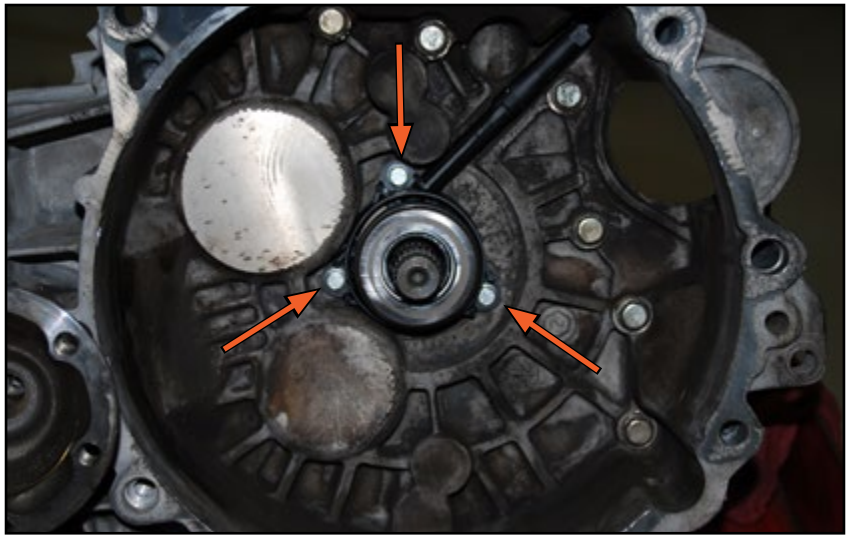
PREPARING THE TRANSMISSION FOR INSTALLATION

Step 3: 9mm Deep Socket, Torque Wrench

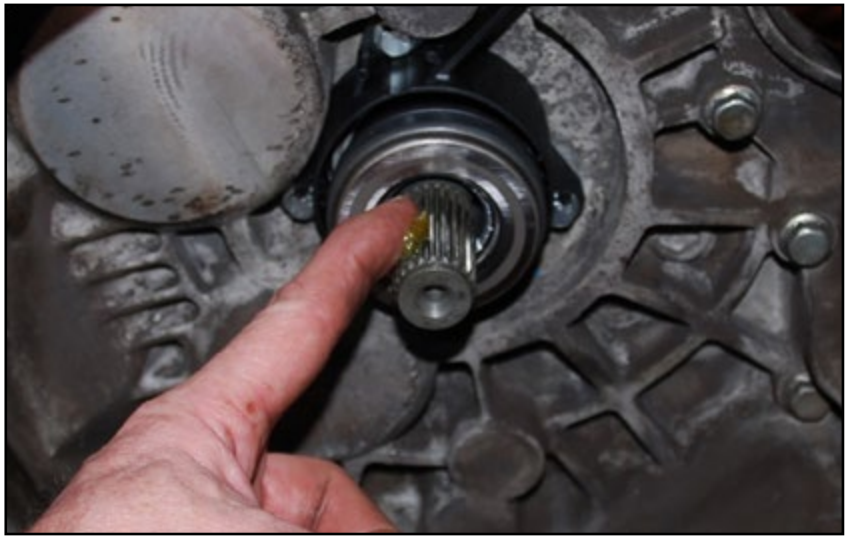
Install the new throwout bearing/slave cylinder into place using the new bolts included with the kit and torque them to 12 Nm (9 Ft-lbs).



Step 4:

Evenly apply clutch spline lubricant (included in a small pack with the clutch) onto the input shaft splines.

You are now ready to install the transmission!



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Reinstalling the transmission is basically the reverse of removal, however for convenience and accuracy, we have provided this checklist along with tips and important information.

- [ ] Secure the transmission on the transmission jack, then raise it up and guide it into place until it is fully seated against the engine block. Be patient and adjust the angles of the engine and transmission until they easily slide together.
- [ ] Install the rear bell housing bolt just until it is fully seated but do not tighten it at this time.
- [ ] Install the two lower bell housing bolts just until it is fully seated but do not tighten them at this time.
- [ ] Install the forward bell housing bolt just until it is fully seated but do not tighten it at this time.
- [ ] Lower the transmission jack and remove it.
- [ ] Install the two upper bell housing bolts but do not tighten them at this time.
- [ ] Raise the engine and transmission using the engine bar until they are at approximately their normal installation position.
- [ ] Check to make sure that no wires or cables are pinched between the bell housing and engine block.
- [ ] Torque the two upper bell housing bolts to 80 Nm (59 Ft-lbs).
- [ ] Torque the two lower bell housing bolts to 40 Nm (30 Ft-lbs).
- [ ] Torque the forward bell housing bolt to 60 Nm (43 Ft-lbs).
- [ ] Torque the rear bell housing bolt to 80 Nm (59 Ft-lbs).

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- [ ] Cut the cable ties holding the shifter cables and wiring harnesses out of the way.
- [ ] Reinstall the relay lever bushings.
- [ ] Slide the relay lever into place.
- [ ] Install the transmission mount bracket and torque the bolts to 50 Nm+90 degrees (37 Ft-lbs+90 degrees).
- [ ] Raise the transmission as necessary to install the transmission mount bolts and torque them to 100 Nm (74 Ft-lbs).
- [ ] Install the pendulum support into place.
- [ ] Torque the pendulum support to subframe bolts to 20 Nm+90 degrees (15 Ft-lbs+90 degrees).
- [ ] Torque the pendulum support to transmission bolts to 40 Nm+90 degrees (30 Ft-lbs+90 degrees).
- [ ] Connect the vehicle speed sensor.
- [ ] Swing the LH CV shaft into place, thread in the inner CV joint bolts and re install the lower ball joint.
- [ ] Torque the ball joint bolts to 20 Nm+90 degrees (15 Ft-lbs+90 degrees).
- [ ] Install the RH inner CV Joint and torque the inner CV joint bolts on both sides to 70 Nm (52 Ft-lbs).
- [ ] Install the heat shield for the RH inner CV joint.
- [ ] Install the starter and torque both starter bolts to 80 Nm (59 Ft-lbs).

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- [ ] Remove the engine bar.
- [ ] Install the power steering line bracket onto the end stud of the lower starter bolt.
- [ ] Connect the reverse light switch.
- [ ] Install the bleeder block and remove the pinch off pliers from the slave cylinder hose.
- [ ] Install the selector lever onto the selector shaft. It will only install in one position, there is one wide tooth that you will need to align before you can slide the selector lever onto the shaft.
- [ ] Install the selector lever nut and torque it to 20 Nm (15 Ft-lbs).
- [ ] Engage the relay lever into the selector lever and install the relay lever clip.
- [ ] Install the shifter cable bracket.
- [ ] Install the negative cable onto the end stud of the upper bell housing bolt.
- [ ] Install the wiring harness retainer bracket.
- [ ] Slide the wiring harness retainer into place.
- [ ] Connect the positive cable to the starter.
- [ ] Connect the starter solenoid wire.

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- [ ] Install the cap for the battery cable.
- [ ] Install the power steering line clamp onto the end stud of the transmission mount bracket.
- [ ] Install the battery tray and heat shield.
- [ ] Install the battery, fuse block support, and fuse block. Connect the battery terminals, positive first, then reinstall the battery cover.
- [ ] Reinstall your air box or intake system.
- [ ] Bleed the clutch system, top off the brake fluid as necessary.
- [ ] Clean any spilled brake fluid from the bleeder block and transmission.
- [ ] Reinstall the lower engine covers.

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TORQUE SPECIFICATIONS

Ball Joint Bolts	20 Nm+90 degrees (15 Ft-lbs+90 degrees)	(Page 40)
Bell Housing Bolt Forward M10 x 105	60 Nm (43 Ft-lbs)	(Page 39)
Bell Housing Bolts Lower M10 x 50	40 Nm (30 Ft-lbs)	(Page 39)
Bell Housing Bolt Rear M12 x 70	80 Nm (59 Ft-lbs)	(Page 39)
Bell Housing Bolts Upper M12 x 55	80 Nm (59 Ft-lbs)	(Page 39)
CV Joint to Transmission Flange M10	70 Nm (52 Ft-lbs)	(Page 40)
Flywheel Bolts	*Stage One:* 30 Nm (22 Ft-lbs) *Stage Two:* 60 Nm (44 Ft-lbs) *Stage Three:* Tighten an additional 90 degrees	(Page 33)
Pendulum Support at Subframe	20 Nm+90 degrees (15 Ft-lbs+90 degrees)	(Page 40)
Pendulum Support at Transmission	40 Nm+90 degrees (30 Ft-lbs+90 degrees)	(Page 40)
Pressure Plate Bolts	20 Nm (15 Ft-lbs)	(Page 36)
Selector Shaft Nut	20 Nm (15 Ft-lbs)	(Page 41)
Slave Cylinder Bolts	12 Nm (9 Ft-lbs)	(Page 38)
Starter Bolts M12 x 165	80 Nm (59 Ft-lbs)	(Page 40)
Transmission Mount Bracket Bolts	50 Nm+90 degrees (37 Ft-lbs+90 degrees)	(Page 40)
Transmission Mount Bolts Upper	100 Nm (74 Ft-lbs)	(Page 40)

• A note about torque to yield or "stretch" bolts: Many bolts will have a torque specification listed in the format - xx Nm+xx degrees (xx Ft-lbs+xx degrees). These bolts are torque to yield bolts, commonly referred to as "stretch" bolts. The correct procedure for torquing these bolts is: *Stage One* - torque them to the Nm or Ft-lb specification. *Stage Two* - tighten each one the additional specified number of degrees. To prevent over torquing it is important to mark each fastener with paint *immediately* after performing the second stage or "stretching" of the bolts. Note that some bolts may have two stages of torquing before the final stage of "stretching" the bolts.

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Your MKIV 02M 1.8T Lightweight Flywheel installation is complete!

These instructions are provided as a courtesy by ECS Tuning.

Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.