



Evolution X Clutch Replacement

Tools

2 - people (Mostly for pulling the actual tranny)
4 - or more sturdy jack stands
2 -very bright small LED flashlights you can hold with your teeth
1 -drop light
1 - low profile floor jack
1 - tranny jack (optional really)
1 - Phillips head screw driver
2 - Flat head 12" long screw drivers with 1/4" wide head (for TOB removal)
10mm – Socket and box end wrench.
12mm – Socket and box end wrench.
14mm – Socket and box end wrench.
17mm – Socket and box end wrench.
32mm – Socket (On 2' long breaker bar or impact)
Needle nose pliers
Hose clamp pliers
Various extensions and wobbles for ratchet
Slide hammer or 2 1/4" cup with all thread (Axel stub removal)
Low impact mallet
Good 2' long pry bar

Materials

3ea quarts transmission fluid
1ea quart transfer case fluid
1ea box standard sandwich baggies
1ea marker
1ea white paint stick
8-10" of all thread the same thread pattern as 12mm bolt from car.
Wood blocks for cribbing (A few pieces 6" long of a cut up 2"x4" work good)

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Walkthrough

Since the vast majority of people reading this won't be working off a lift I have geared it toward working off jack stands. The first thing you will want to do is get the car in a nice level spot while leaving yourself lots of room around the front of the car. Take the time to move things if you need to you do not want to be fighting your surrounding environment while dropping the transmission out. Also when setting the car up on jacks give yourself enough room under the car you can work comfortably underneath but still be able to reach the transmission from the top. There are some points where you will have to raise or lower the car so set it up to do so. Also read through this entire write up at least once before starting so you have an idea of what you're getting into and have everything prepared.

Next get yourself some sandwich baggies and a marker. Whenever you pull something off for a specific part put it in the baggie and label it so you'll know where to put it back. You can never be detailed when doing a big job.



First things first once the car is in the position your going to do the entire job in remove the positive battery cable from the battery and your ready to get started.

Before you go jacking anything up yet go ahead and pull the front strut bar.

It's held on by two 14mm bolts and six 14mm nuts. Once you have it off put the nuts back on the strut towers and just finger tighten them. (This way when you jack the car up they don't pull out)

Next step remove the air intake all the way back to the turbo inlet.

Next remove the positive battery cable from where ECU is sitting. Pull the two harnesses off the ECU. There is one 12mm nut, two 12mm bolts, and one 10mm bolt to remove ECU and get wiring out of the way.

Remove the 5 plastic clips holding wiring down to enable moving over to open engine bay up. Remove the two 10mm bolts holding the solenoid bracket down. Now remove the entire ECU/Solenoid large bracket it is secured by one 12mm nut and two 12mm bolts. By doing this you give yourself more access to reach the top

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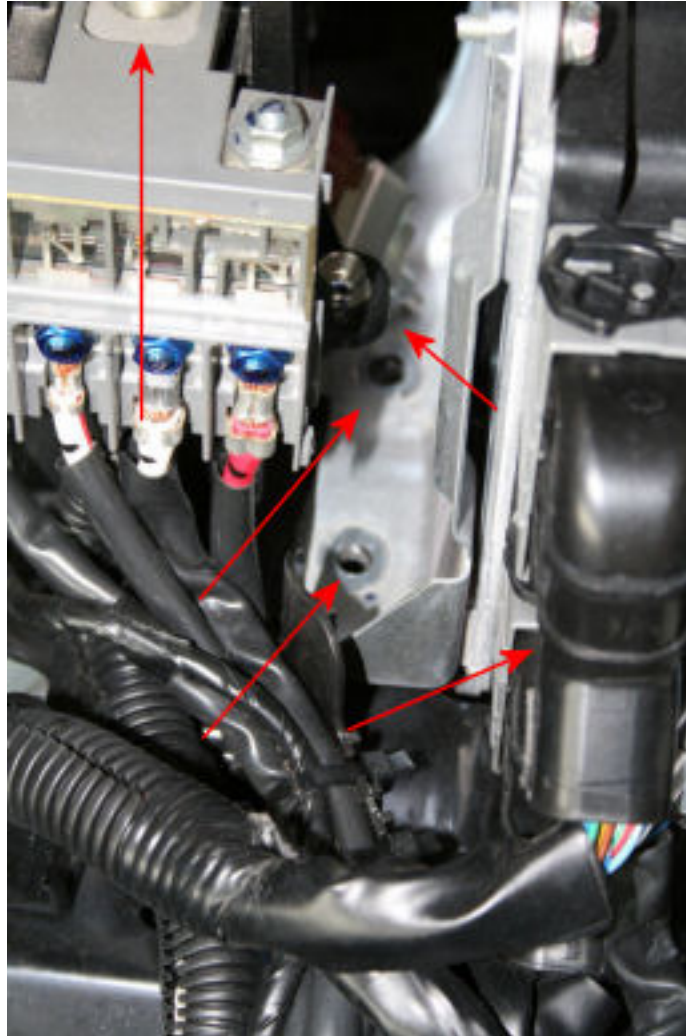
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of the tranny and when you go to pull it out one person is under the car and the other is on top this makes things much easier.



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Note; When removing the lines from whatever boost control system you are running be sure to note the configuration on the hoses. On the stock system that still has (Both) boost pills intact this is very important because if you don't you will be running stock wastegate pressure.

You're good to jack the car up now and remember to give yourself room to work underneath but still reach through the top. Once you have the car in the air and good for where you want it remove the front two tires. Now you are ready to remove the underbody skid plate, front bumper, and piping.

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Since these already have how to's and are pretty easy to do I won't go any further on them except bolt count and tool list.

Remove underbody plastic cover (6ea 10 mm cap screws and multiple plastic pop rivets)

Remove front bumper assembly (7ea 10mm screws and 3 Phillips head plastic keepers)

Remove 2ea 10mm band couplers and 1ea 12mm bolt from LICP and remove piping.

Remove UICP (2ea 10mm band couplers, and 1ea 12mm cap screw)

Remove plastic shielding from inside driver side tire well that butts against the tranny (4ea plastic POPs)



Remove cross bracing from beneath transmission and engine. (3ea 17mm, 2ea 14mm, 2ea 12mm cap screws)

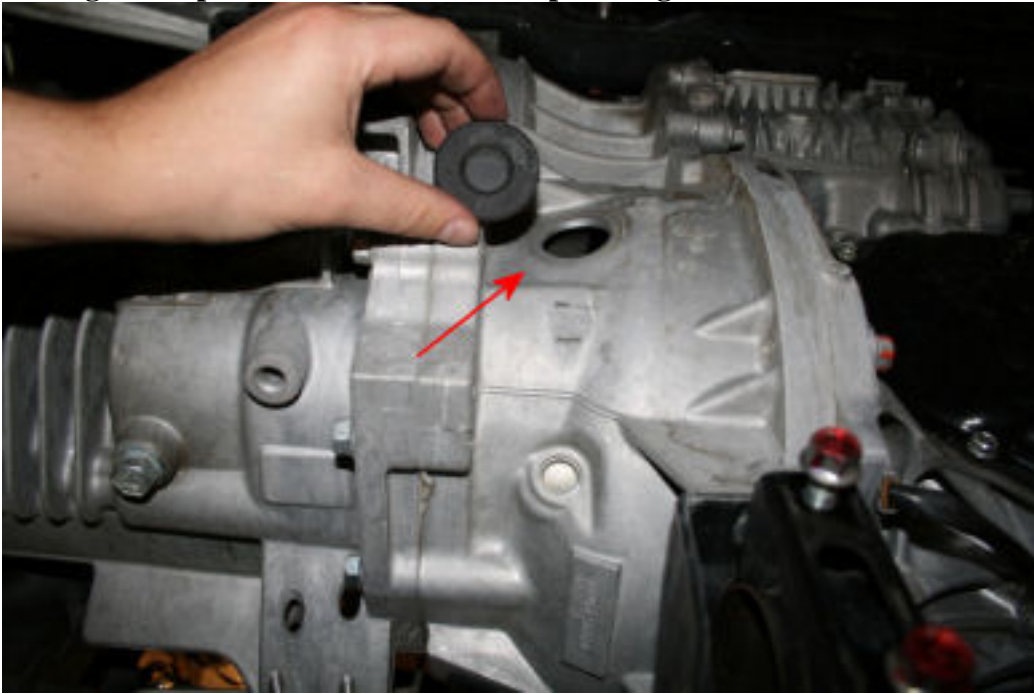
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Use kung fu grip strength and pull off rubber service inspection grommet from transmission.



Before performing next step insure car is in neutral (If you don't you won't be able to spin the driveline by hand which is needed for removing it later)

Remove shift select cables from top of transmission using a flat head screw driver and brute force on the clip claw.

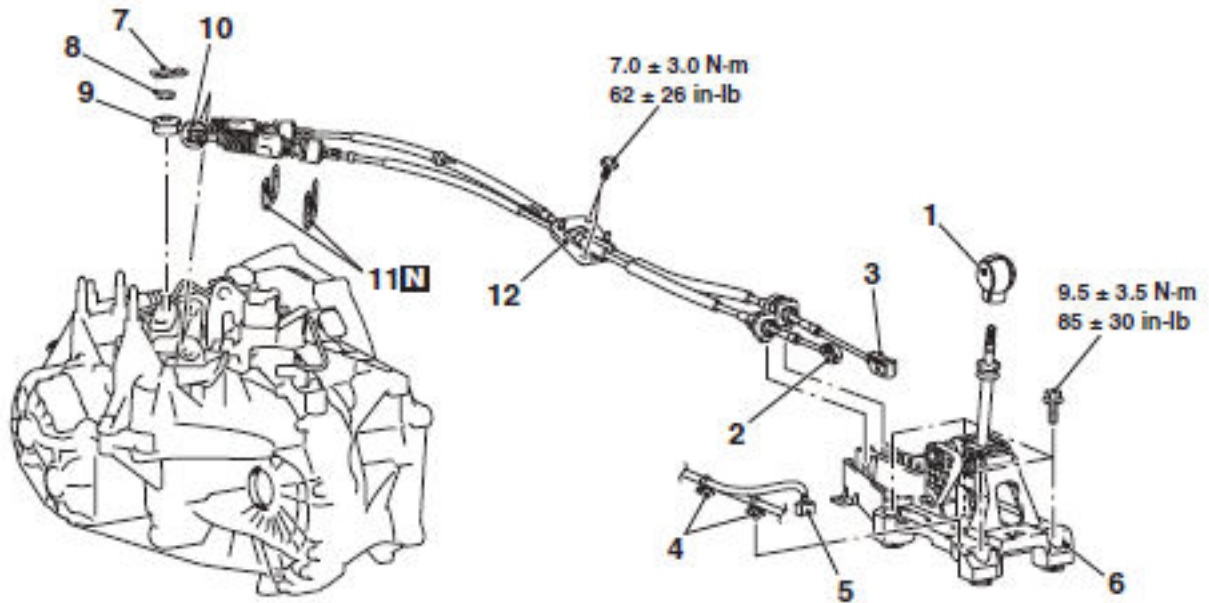


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TRANSAXLE CONTROL REMOVAL AND INSTALLATION

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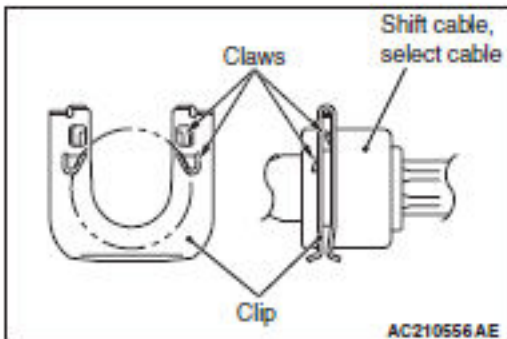
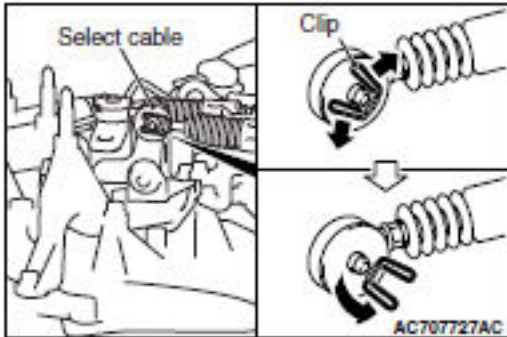
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REMOVAL SERVICE POINT

<<A>> SELECT CABLE CONNECTION (TRAN-SAXLE SIDE) / CLIP REMOVAL



1. Set the select cable clips to a status shown in the figure, then disconnect the cable.
2. Push down the clip claw using a screwdriver or others. Then, remove the clip together with the cable from the bracket.

Place cables against fire wall and clear your working area.
Remove 2ea sensor connections from top of transmission.



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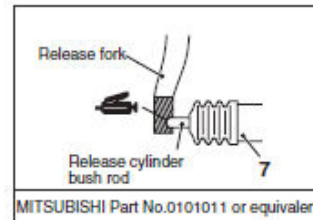
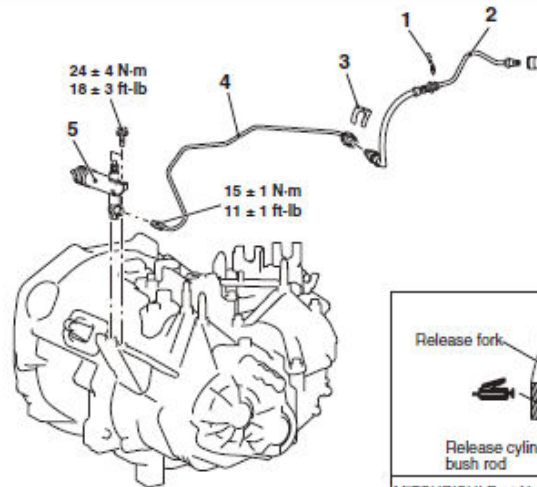
Now remove the clutch slave cylinder its bracket is held on by 2ea 14mm bolts.

CLUTCH CONTROL

REMOVAL AND INSTALLATION

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Pre-removal Operation <ul style="list-style-type: none"> • Strut Tower Bar Removal (Refer to GROUP 42, Strut Tower Bar P.42A-15). • Air Cleaner Assembly Removal (Refer to GROUP 15, Air Cleaner P.15-10). • Engine Control Harness Connector Bracket Removal (Refer to GROUP 54A, Battery P.54A-10.) • Clutch Fluid Draining 	Post-installation Operation <ul style="list-style-type: none"> • Engine Control Harness Connector Bracket Installation (Refer to GROUP 54A, Battery P.54A-10.) • Air Cleaner Assembly Installation (Refer to GROUP 15, Air Cleaner P.15-10). • Strut Tower Bar Installation (Refer to GROUP 42, Strut Tower Bar P.42A-15). • Clutch Fluid Supplying • Clutch Line Bleeding (Refer to P.21A-3). • Clutch Pedal Check (Refer to P.21A-2).
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MITSUBISHI Part No.0101011 or equivalent

AC709624AB

- | | | |
|-------|---|--|
| | Clutch line removal steps <ul style="list-style-type: none"> • Air cleaner assembly (Refer to GROUP 15, Air Cleaner P.15-10.) | Clutch release cylinder removal steps <ul style="list-style-type: none"> • Air cleaner element, air cleaner intake duct, air cleaner body, air cleaner bracket (Refer to GROUP 15, Air Cleaner P.15-10.) |
| <<A>> | >>A<< | |
| | 1. Hose clip B | |
| | 2. Clutch tube assembly A | |
| | 3. Hose clip A | |
| <<A>> | >>A<< | 5. Clutch release cylinder |
| | 4. Clutch tube assembly B | |

Just move the slave cylinder line over to the driver side firewall out of the way, secure if needed.

Now for the tricky part;

This is a very critical part most have trouble with so be sure to do it correctly without damaging the throw out bearing (TOB). For this part you will need some patience, a good flashlight, and the two 12" long screw drivers.

From under the car where you removed the rubber service grommet on the tranny your going to put one screw driver in and release the TOB. From under the car you can reach the release fork, your going to pull it to the passenger side then inset your screw driver between the release bearing and wedge collar. **DO NOT** insert it between the wave spring and wedge collar this will make your life much more difficult. If it doesn't pop easy on the first attempt remove the screwdriver and pull the release fork toward the passenger side 3 times firmly and try again. Watch the TOB as you do this to get an idea on where it may be hung up, you may have to work both sides of the TOB before it will release properly. If you struggle with this remove the rubber grommet from the release fork and have your partner shine an additional light in from up top to see

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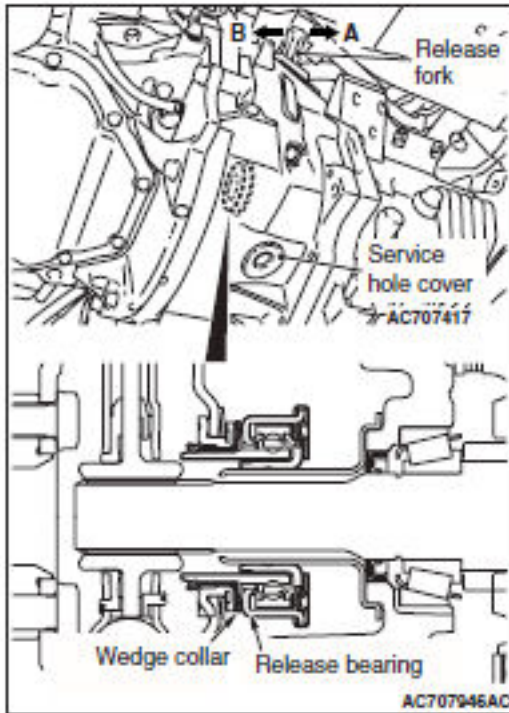
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better. **DO NOT** proceed any further until you release this bearing it is a very critical part in getting this job done easily.



<<D>> CLUTCH RELEASE BEARING DISCONNECTION

1. Remove the service hole cover of the clutch housing part.

⚠ CAUTION

- Do not insert the flat-tipped screwdriver before moving the release fork toward direction A.
 - Do not mistakenly insert a flat-tipped screwdriver between the wedge collar and the wave spring.
2. Move the release fork slightly toward direction A with hand, and while holding the release fork, insert a flat-tipped screwdriver between the release bearing and the wedge collar.

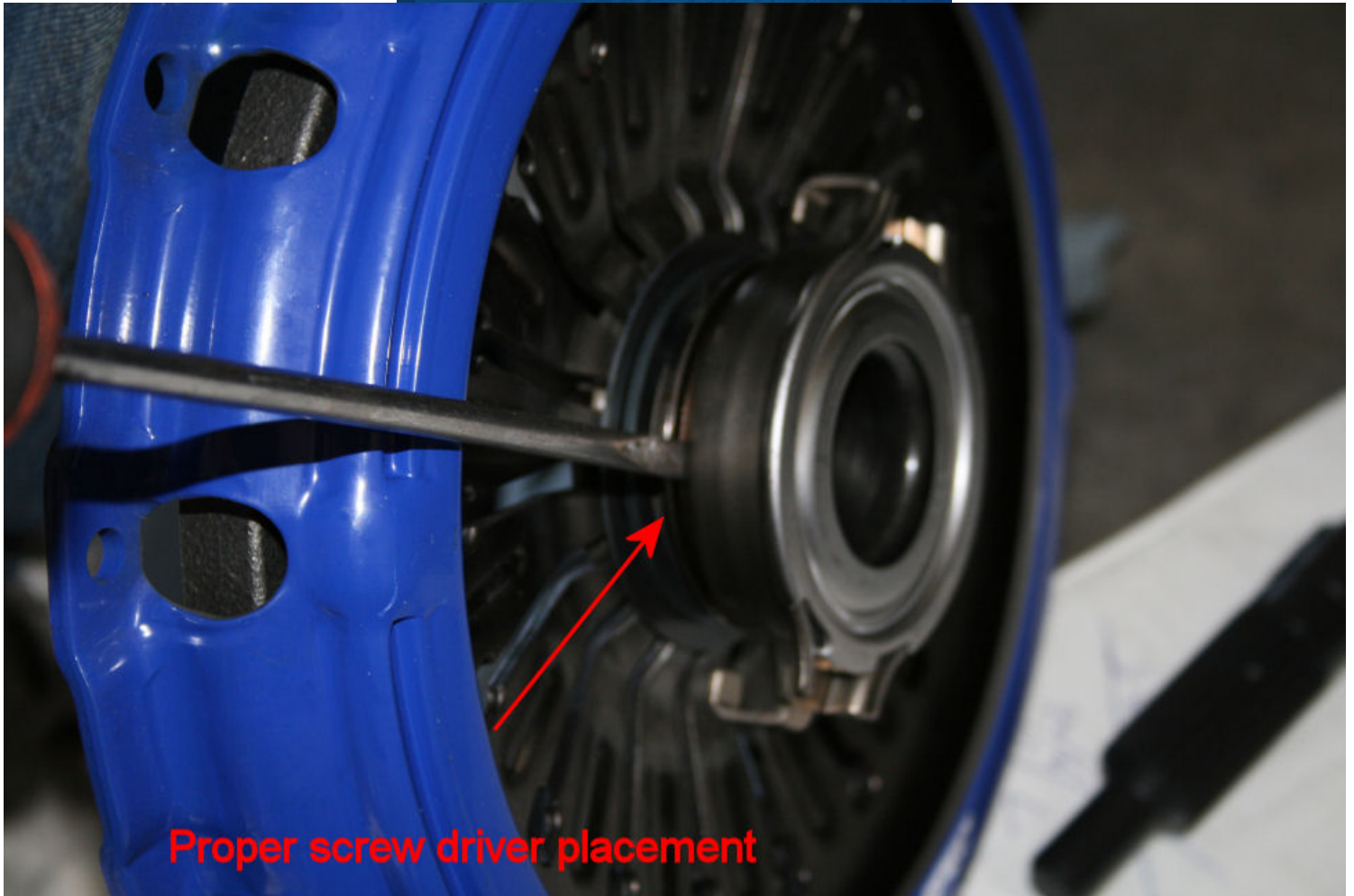
⚠ CAUTION

If the flat-tipped screwdriver cannot be turned easily (release bearing cannot be disengaged), remove the screwdriver, and move the release fork toward direction A for two or three times. Then, repeat the procedure. If the screwdriver is turned forcibly, the release bearing may be damaged.

3. (Disconnect the release bearing from the wedge collar by twisting the flat-tipped screw driver slightly (twist the handle 90°).

NOTE: When the release bearing is disconnected, the release fork moves to the direction B by the return spring.

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This is what's happening on the back side and what you are releasing when you move the release fork to the passenger side.

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When the release fork is moved to the passenger side of the car it is allowing the retaining collar to come out and giving the TOB the fraction of an inch it needs to move back and release when you twist the screw driver. (This view is from the back of the pressure plate).

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**This is what the shift fork will look like when you get it popped correctly.
You will no its released because from the inside it will also be a big difference so don't assume its released, if
you have any doubts you haven't got it.**

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Great! You got it done, time to get down to business now.

You can't get anything done sitting there crying about being tired.

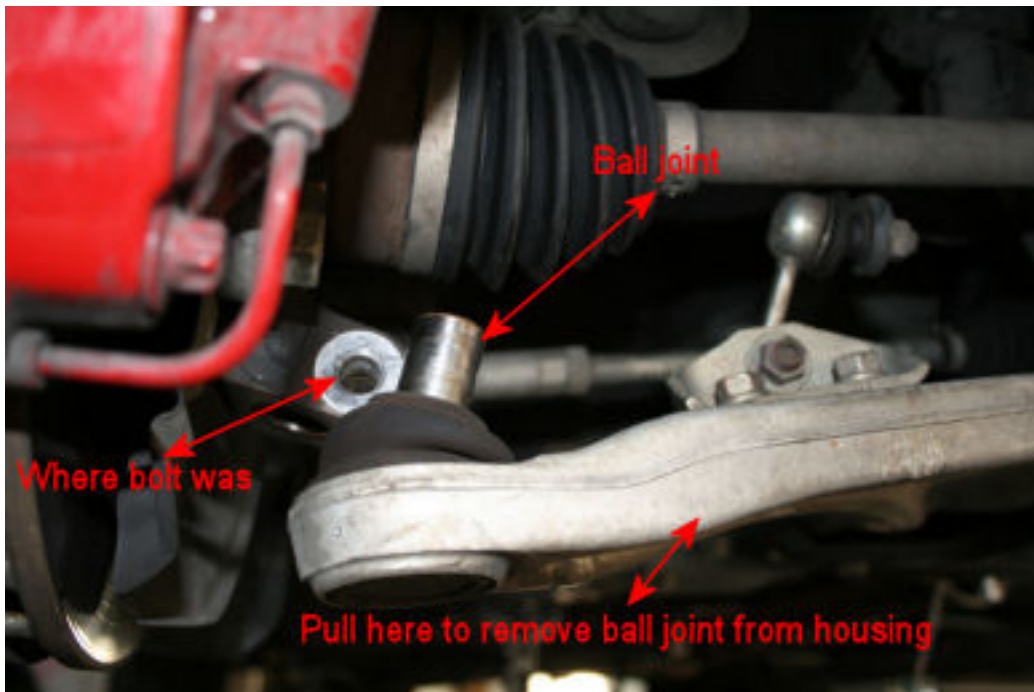
Go to the passenger side wheel well and remove the inner plastic piece that exposes the engine bay. It's held on by 3 more plastic pop rivets.

This is going to allow room for removing the axel shaft from the transfer case.

Now see that fancy crown nut with the carter pin in the middle of you wheel hub. Get a pair of needle nose pliers and remove the pin then have a friend push down on the brakes while you take a 32mm socket and long ratchet or breaker bar (If you don't have air tools) and bust it off.

My on hand Mitsu tech had a short cut here that worked slick. Remove the 17mm nut from the ball joint housing and slide the bolt out.

Then your going to grab a hold of the lower control arm and pull down hard to pull the joint out (You may need your buddy to help) this will allow the wheel hub and rotor assembly to swing freely out of the way so you can get the axel out. You will have to do a little pulling and wiggling to get the end of the axle out of the wheel hub.



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Now you can use a rubber mallet to tap the axle out just avoid hitting the silver piece on the end. Don't pull on the axle it will tear the boot apart and you'll end up with a greasy mess and have to spend twenty minutes undoing the band and putting it back together. In the photo below note the black section with the dimpled sides. If the axle is stubborn and won't come out you can have your buddy hold it up even taking the weight off while you use an extension of a 3/8" ratchet (Or other blunt object) and tap on the black section to push it out.



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Awesome! Now you have room to get that pesky downpipe out and I bet you're excited!

Where you just pulled the axle from there is a little heat shield with 2ea 10mm bolts holding it on that is there to protect that rubber boot on the axle, go ahead and remove it while your there.

So your downpipe is attached to the turbine housing of the turbo by 6ea 14mm bolts. Some of these can be reached from the top pretty easy the others from the wheel well and under the car. Work your way around getting those out (a little PB blaster will help a bunch) just make sure you apply firm even force when removing these, when they strip or brake your job becomes much more difficult. Once you have those off remove the 2ea 17mm bolts from your cat and pull the down pipe out.



Remember don't damage your downpipe gasket when pulling it out. Hopefully you have been also putting all bolts in separate baggies for the parts they go to or you're going to have one confusing pile.

Now its time to move over to the driver side of the car and pull the axle from there but this time unlike the passenger side we are going to take it one step further and pull the axle stub from the transfer case also. With this one you can do the axle just the same or you can give yourself a little more room to get the transmission out (Since this is the side it comes out from) by removing the brake and rotor assembly also. If you decide to make room follow the next set of steps to get it a little more open.

Moving on now to pulling the front driver side drive axel.

You need to pull your driver side brakes off the rotor so you make room and disassemble the drive axel. First pull two of the 12mm bolts that are keeping the bracket on the strut one is on the back side of the strut the other is in the front. Just remove the top one on the front. Next take a flat head screw driver and spread the clip on the bottom hose runner apart so you can lift the hose out and away from the assembly. Now have a 1 foot long piece of wire ready and take a 19mm box end wrench (And small rubber mallet to tap it) and remove the 2 bolts holding the caliper to the hub. Once free wire the caliper high up on the strut out of your way. Now tap the rotor with the rubber mallet and remove.

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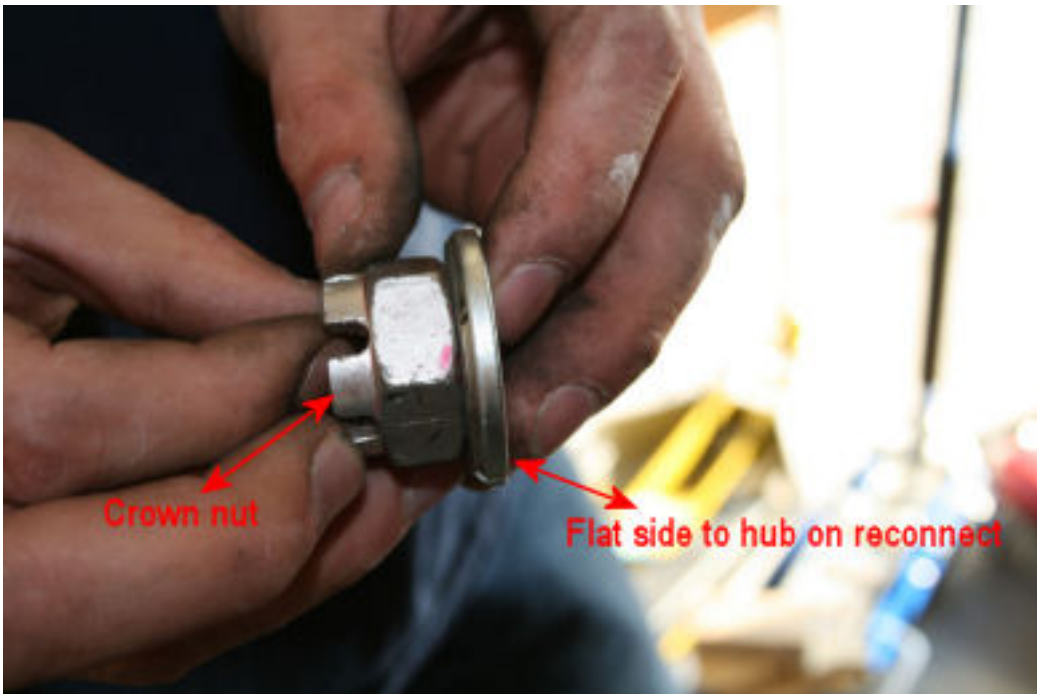
Next you will need a large punch (3/16") and some kind of flat bar or strong piece of metal. Put two lug nuts back on and run a punch through the bottom brake caliber hole. Put the flat bar between the two lug nuts and use a 32mm socket and 2' long breaker bar to remove the crown nut from the axel. (Pull the carter pin first)

Next remove the two 19mm bolts from the strut and roll the hub forward while rocking the axel a little bit to wiggle it out. It should come free pretty easy.





Note on install of the axle for the hubs reference the picture below for proper placement of the washer for the crown nut.



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Now you just have the transfer case there with the stub still in place. For removal there are a couple of ways to do this. Both ways require a piece of all thread about 8-10" long that is the same thread pattern as you would find on one of the 12mm bolts you removed from the car. So you have to decide whether to use a slide hammer (Or homemade slide hammer with vise grips), or you can go the route of making your own puller using a 2 1/4 diameter spindle puller. I suggest slide hammer just be sure to get the right metric thread to fit.



At this point you're committed so its time to drain the fluids from the tranny and transfer case unless you want to wear them. Before draining the transfer case though you will want to use a set of non destructive hose clamp pliers to pinch off the AWC line coming from the transfer case to the rear of the car. By doing this you won't lose more than a quart of fluid for the transfer case and will not need to bleed the system.



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Now clean up your mess a bit and get ready to start into the meat and potato's part of this. Get your floor jack under the oil pan just under the flat spot where the engine and transmission meet. Use as many of the wood blocks as needed to dampen and spread the load. You will be adjusting height quite a bit over the next few steps so get set up good now. Just jack the engine up a bit to take some of the pressure off. Now go to the motor mount at the front of the car just behind the intercooler and pull the long 14mm bolt out of the poly mount. Do the same on the motor mount on the driver side of the car also.

Once you're set there let's get under the car and get to work on pulling the transfer case. This isn't as hard as it may look now that you have got a lot of the items out of the way. The first thing to do is locate the vibration dampener and get it pulled and out of the way. It's secured by 2ea long 14mm bolts;

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Once this is off remove the long 14mm bolt that goes through the poly motor mount on the rear. This gives you the ability to rock the transfer case back and forth as needed to remove it. Have your buddy hand you the white paint marker (Or use a flat head screw driver) make a mark on the carrier bearing and drive shaft so you can put it in the same way it came out, this is mostly for balancing purposes. Once you got your mark on its time to remove the drive shaft. It's held on by 4ea bolts with 12mm heads and 14mm nuts. Get that drive line out and you can start working on the transfer case bolts. There are 6ea 14mm bolts that need to be removed, look at the picture below to get an idea where they are at. Keep these separate from the transmission bolts because they are a wider diameter.



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Note; the 2 bolts directly under the turbo are easiest to get to with a long extension you can fish under the turbo following the water line, this is much easier than trying to get a box end wrench on it.



To remove the transfer case you'll have to man up a bit and rock it up and down while moving it to the passenger side of the car to get it off the shaft. Once off the shaft you'll need your buddy to take the pry bar and get under the car with you to pry against the sub frame and transmission pushing it toward the front of the car giving you enough room to drop out.



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That freed up quite a bit of room up for getting to everything else easily accessible. It's a good thing to since now you have to remove what's left of all the motor mounts on the front, rear, and driver side. Take them all out so you have room to get the transmission out, if you don't you will end up doing it while the tranny is hanging and that's not a good thing.



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Transmission bolt removal;

Keep an eye on what bolts your pulling so you don't get them mixed up for the reconnect process. They are all 14mm and the transfer case ones are the wider bolt diameter. On the tranny there are two different lengths of bolts (Also 14mm heads) everything below the front engine mount is the short bolts. From just behind the front mount up to the 10 o'clock position they are long 14mm bolts. From 11 o'clock to 1 o'clock are short 14mm bolts. Remember the 2 long bolts are for where the starter is placed on install.

When you get them all out its go time! This is where you will need one guy up top and the other on the bottom. You're going to have to wiggle and dance your way off and once you do it's just a matter of getting the right angle to get the tranny out.



It's hard to get a good picture of the angle you'll need but with all the motor mounts out basically lower the jack down all the way then just jack up about two inches. Don't just let the engine hang because your front pulleys will be pressing against the passenger side frame. When pulling the tranny out try lifting the rear enough to clear the sub frame (The guy on top will do this) while the guy below slides the tranny off. Once it's out it really don't weigh much it's just awkward to get a hold of. Use gloves at this point also if you haven't been already the edges of the aluminum are very sharp and will cut you easily.

Now wasn't that fun, and just think in just a few minutes you'll be putting it back.

Below is a picture of your fly wheel, you will either be installing a new one or having your stock one turned. Its held on by 7ea 17mm bolts and can only go on one way so make sure its correct and tightened evenly. Depending on what clutch you have it will come with an alignment tool and new pressure plate, follow those manufacture recommendations for install. The alignment tool will hold the clutch pack in place (the clutch will have a note saying which side faces the fly wheel) make sure it also is installed properly and evenly tightened.

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At this point its time to install the new TOB, or as I call it the SOB.



Get a good look how the release forks springs are on before you remove them so you get them back on the right way. It would be a shame to do this all again if they come off.



Once those are out pull the release fork shaft out through the knock out port on the side of the tranny. Also note where the little rubber grommets are to ensure they are also put back correctly.

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Now reverse this process for installing your new throw out bearing.

Now it's just a matter of reversing the process to put everything back in. Just be sure to take your time and get it all right so you won't have to do it again anytime soon.

Here is one last photo for reference; this is the angle you will want to start at for putting the tranny back in place. Remember DO NOT let it hang on the newly installed pressure plate and TOB you don't want to damage any of that on the install. In addition once you got the tranny up and you're sliding it on be sure to have the dowel pins lined up and put the bolts closest to them in.



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