

5R55S Partial Tranny Removal

NOTE: One thing that is required is to do a band adjustment on your vehicle to make sure you do not have a broken or excessively-worn band. Also if you can do the adjustment and have similar adjustment left on the OD as is left on the IM the bands most likely are not worn bad-enough that they need to be replaced. Once the band adjustment is done, before removal loosen each band 2 full turns prior to removal of the old servos.

Instructions

Warning: This should not be attempted by anyone without reasonable experience working on vehicles or reasonable mechanical ability. This work can be done by who we would classify as a very handy person. People who do general work on their vehicles will have no problem doing this work. We are not responsible for any undesirable outcome on your vehicle. All We can tell you is with some general planning it will take you about 2-4 hours and it is performing to about a 99.5% success rate with our customers.

Partial Tranny Removal

Note: This 1st step has not been performed by us but has been derived from feedback from several of our customers

Option 1

1. Remove the drive shaft
2. Support the tail end of the transmission with a jack.
3. Unbolt and Remove the transmission cross member.
4. Slowly lower the tail of the transmission that is on the jack. There should be enough play in the motor mounts to get just enough access to the servos.
5. Optional remove the exhaust also.

Option 2

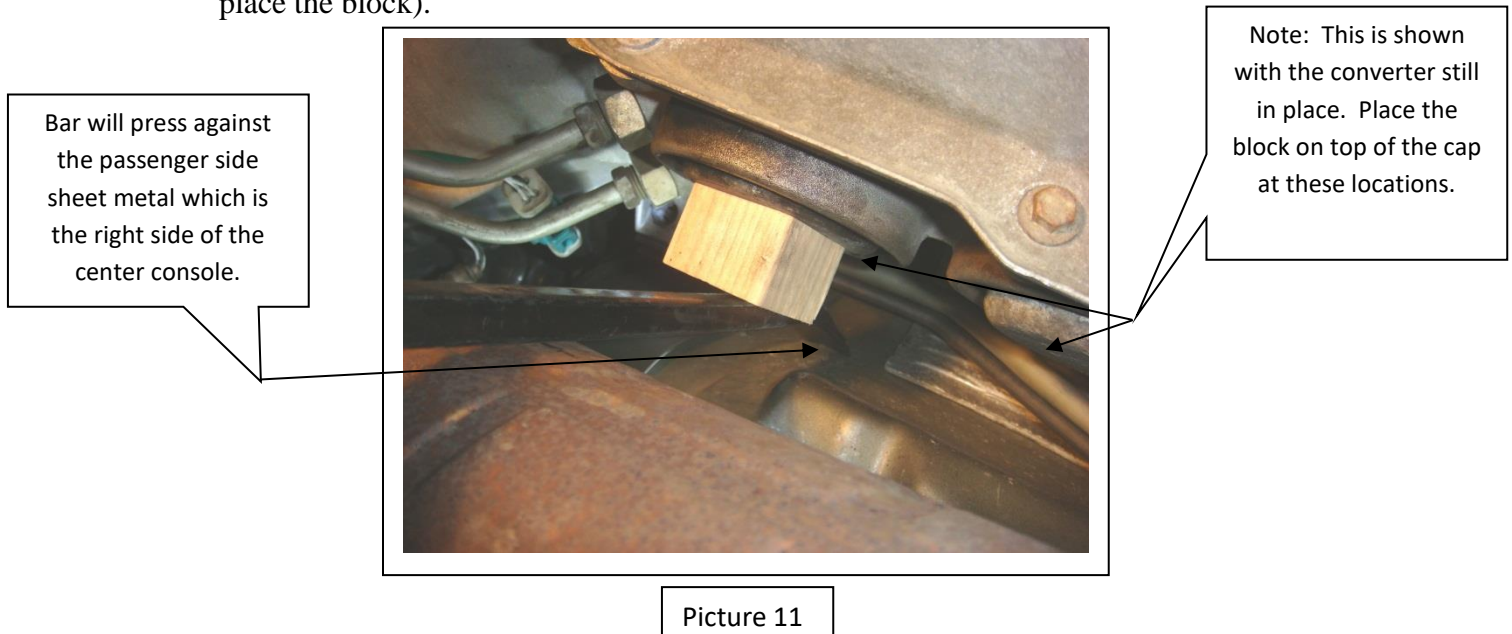
1. Remove the drive shaft
2. Remove the exhaust
3. Unbolt the transmission from the cross member and the engine while supporting the front on a jack.
4. Push the transmission off to the driver's side then rotate back a bit to gain access.

Note: All the steps following are shown and written for the explorer family. Please note most of the steps are similar but for obvious reasons will for sure be different.

Servo Removal and Installation

Note: This first step and putting the covers back on are where the extra set of hands are useful. If you do not have a set of hands, take a bungee cord wrapped around the pry-bar and around the opposite side frame and tie it off to hold pressure. You have to treat it gingerly to keep from knocking it off the cap. You can also tape the block of wood to the bar so it does not slide or fall off. If you are not removing the pipe and only the upper heat shield, you can take a pry bar and a block of wood and push it between the fire wall and the converter it will hold pressure nicely. Make sure you back the adjusters two full turns out prior to removal of the servos. This will give you the best shot at lining up the struts during installation.

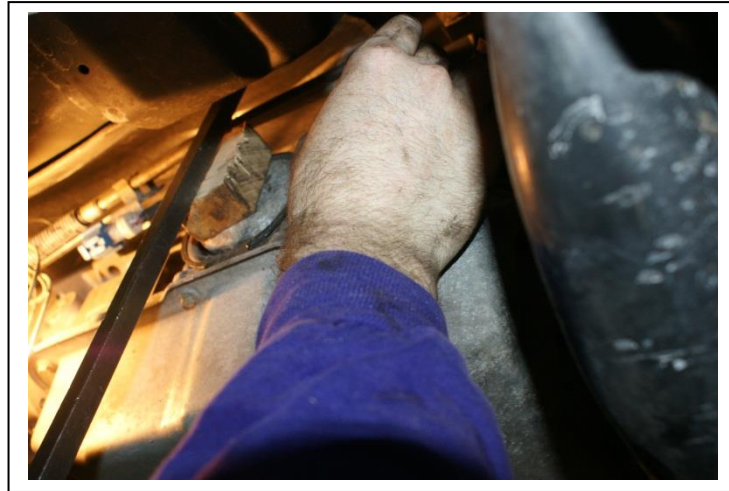
5. Place the 1” block of wood on one of the servo caps and then insert a pry-bar between the wood and the sheet metal side of the passenger compartment. The cap and servo will compress together to relieve pressure on the snap wring (See Picture 11 for location to place the block).



6. With a good needle nose, compress the snap wring. **Note:** If the position of the notches is in a poor location, rotate them into a better position while pressure is off of it. You can do this by using the tip of the pliers to find the notch and pulling on the snap ring. **Note:** You may have to put some side pressure towards the wall of the bore to keep a good grip on the snap-ring.
7. When you compress the ring, the opposite side should lift out. Then while holding the pressure on the snap-ring, slowly remove the pressure on the cap by releasing the pry bar. The pressure from the cap should push the top part of the snap-ring out and hold it out. Then with a small screw driver or pick you should be able to pop the snap-ring out from

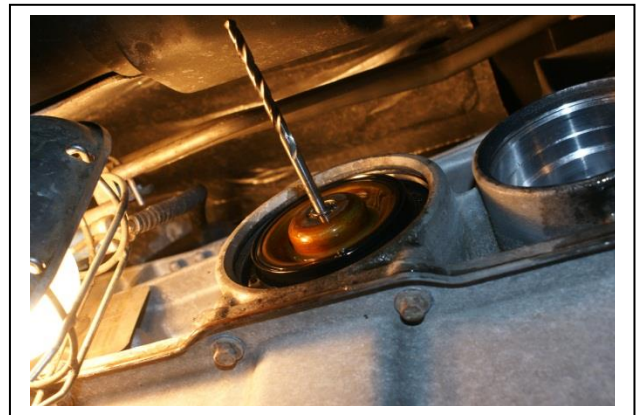
the side opposite the grooves. If this does not work, you can try prying snap-ring out while keeping pressure on the cap and on the snap-ring with a small screw driver or pick.

8. An alternate method is to drill a 1/8" hole through the side of the case. To do this, refer to the video on our site and perform the following:
 - a. Clean the area to be drilled with carb cleaner or equivalent.
 - b. Align the line on the supplied center mark template on along the outer edge of the case and press in place.
 - c. Mark the center location with a snap center punch or other punch.
 - d. Remove the template and save for use on the 2nd servo if required.
 - e. Make sure the snap ring is rotated so when you drill the hole the drill will hit the edge of the snap ring near the gap in the ring. You want the drill to hit the snap ring edge.
 - f. Gently drill the hole. This is aluminum and it will drill easily. Be careful to go slowly so when you drill through the drill does not catch and snap off.
 - g. You can then push the edge of the snap ring out with a small punch and once the edge is out, you can catch it and pry it out with a small screw driver. To free up hands you can also put a small screw or pin in the hole and compress the ring with a clamp then pry it out with a screw driver.



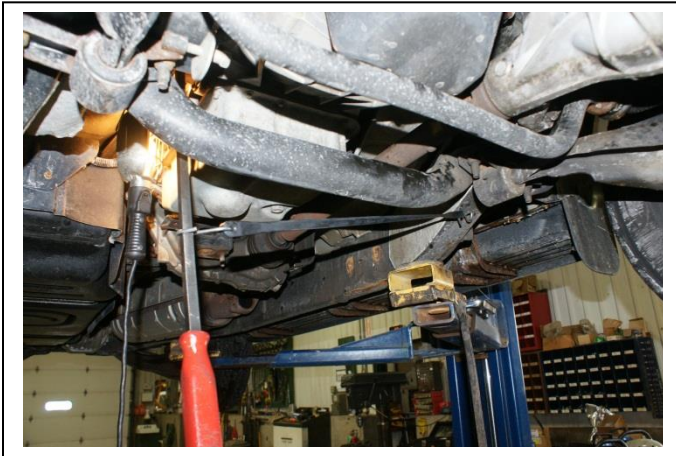
9. Place a drain pan under the area of the cover.
10. Once the snap-ring is out, you can remove the cover by rocking it back and forth and applying outward pressure. You can also use a flat bladed screwdriver to dig into the side of the cap and pry it out going from one side to the other in doing so. **Note:** You will get some fluid running out at this point but not more than a ¼ cup.
11. The servo may slide out easily at this point but if not, if you take a #10 or 13/64th drill bit. The #10 is the best. Or you can try the short side of an allen wrench. Insert the smooth end or the drill into the bore, by putting a little side pressure on it, and slight prying pressure with a channel lock pliers, you can pull the servo out. Or you can wiggle it up

and down and pull on it by hand. There is a point in the bore that is worn and has a lip on it. The best way is to wiggle it in an up and down motion with outward pressure. You can also carefully grab the IM servo with a channel lock pliers and the same will apply for a single lip OD but not the one show in this picture. **Note:** Any drill bit, or pin slightly smaller than the ID of the bore will work for this step. Do not pry with anything to try and get it out. The servo is pretty weak at the cross bore and you can break them off. Keep the return spring for reuse. Channel locks by themselves can also work if you can grab the cap.



12. Making sure the servo cap is clean; apply a liberal amount of transmission gel or Sil-Glyde to the seal on the cap, and onto the side of the servo seal. Also apply some to the shaft of the servo and to the ID of the bore. Pre-Assemble the servo into the cap. This is important to assure proper alignment when you are pushing it in and to avoid breaking the rod on the servo.
13. Inspect the bore and take some emery paper and smooth out the rough areas by wrapping it around a drill or dowel and sanding the bore. Mainly the bottom is where the roughness will be. Clean out the bore as best as you can before installation.
14. **NOTE: THE PLASTIC ASSEMBLY SLEEVE STAYS ON DURING INSTALLATION. DO NOT REMOVE.**
15. **Make sure to re-install the return spring on the new servo shaft at this point. If the spring will not fit over the sleeve do one of the two following. Hold the sleeve in place with a needle nose pliers and work the spring over the sleeve while keeping the sleeve in place. If it is too tight for that, remove the sleeve, put the spring on then press the sleeve back in place.**
16. Insert the assembly into the bore in the case until the plastic assembly sleeve contacts the bore.
17. Put the snap ring over the cap, and place the pry-bar with or without the block of wood into the same location as in step 1, and press the servo into the bore until you can see the full snap-ring groove. **NOTE: Make sure when you apply pressure that you push**

directly in line with the bore and use one full motion until it is all the way in. Not doing so may put enough force on the piston to break it loose from the press fit onto the shaft or break the servo. If that happens, you can press the parts back together and peen the edges of the rod to hold it on. This will not affect the performance of the part once it is installed. Continue to hold pressure on the assembly until you get the snap ring in. Don't hesitate to push really hard at the end to expose the snap ring groove.



18. NOTE: Do not pull the servo back out at this point to check anything. It will catch on the worn lip in the bore and the cross port on the way out and split the o-ring.

19. **Note:** This is where the extra set of hands comes in handy again as mentioned in the beginning of this section. Using the same procedure as step 1, compress the servo and cap until you can see the full groove for the snap-ring. A 15" rubber bungee cord works well here also if you have just one set of hands. Put the bungee around the pry bar and hook it into a hole on the opposite side frame. Or if you only removed the upper heat shield, pry the bar and block between the sheet metal and the converter. If you only removed the heat shields, you can wedge the bar and block between the converter and it will hold in place.

20. Place one end of the snap ring around the cap and into the groove. Hold the closed end with one hand and insert the split side 1st. Collapse the ring with a needle nose, and push down the opposite side with a screw driver until it seats. You may have to work it in more with a screw driver, and or pry it out into the groove by placing the screw driver between the cap and ring. **Warning: Make sure to check that the ring is fully seated if you want to avoid the obvious.** **Note:** This step takes a little bit of finagling. It is strongly suggested that you steepen the angle on the grooves of the snap ring with a file or a Dremel Tool. See the picture below. Test with the needle nose or snap ring tool you are using. You should be able to easily hold the snap ring compressed if done correctly. If you increase the angle on each side towards the cut in the snap ring it greatly improves the ability to hold the pressure on the snap ring. This also will aid in removal in the

future if needed. See the picture below. If you don't have the snap ring groove completely exposed at this point it may be because you forgot to loosen the band up two turns or the edge of the cap is locking up on the edge of the case. The caps have chamfers on them to help guild it in place. The OD cap has two chamfers and two diameters that can lock up against a chamfer that is in the case.

21. To get past this you can try turning the caps 90 degrees and pushing on it again. If that does not work repeat that a few times. You can also put pressure on it and hit the cap up with the end of a hammer and see if it jumps over the edge of the chamfer that way. If none of that works, you will probably have to remove the servo and try again. This will damage the orings which will have to be replaced. Put the old servo in without the cap to align the strut again, then with new orings and the sleeve put back on, give it another go and usually it will go right in. If not repeat the process at the beginning of this step.

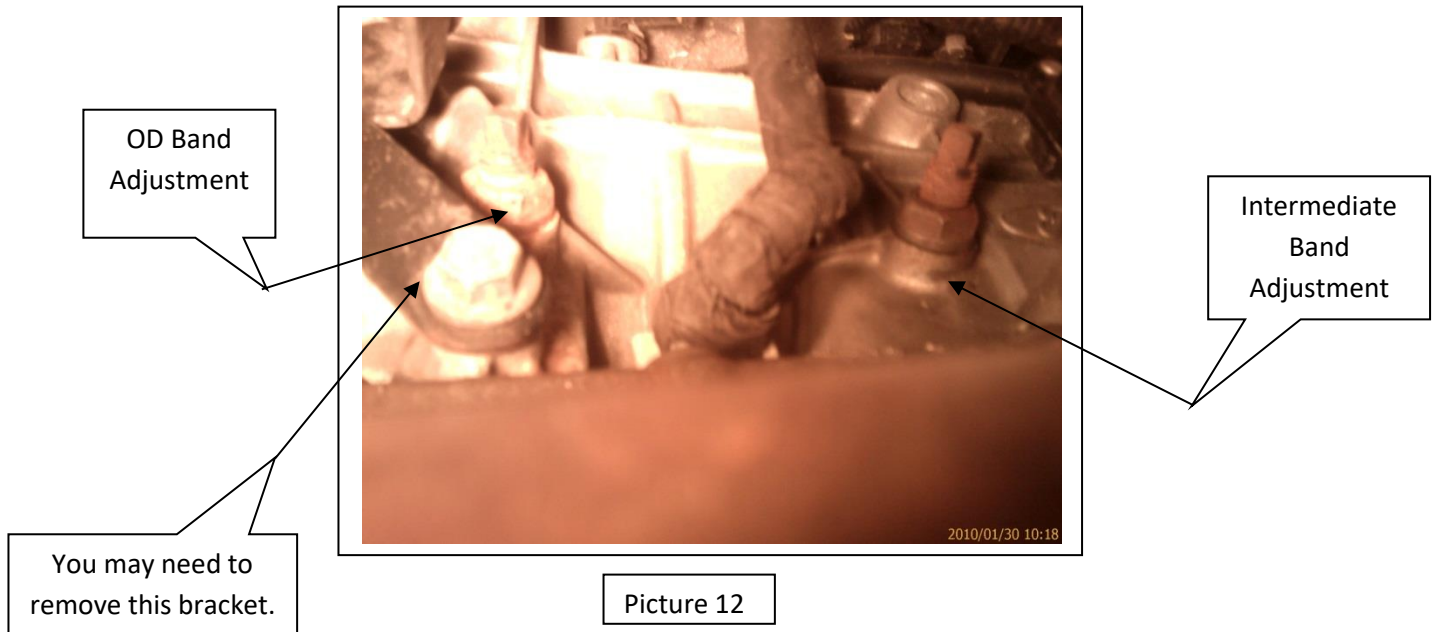


Modified to 90° from 45° needle nose, modified snap ring, and Dremel tool.

Band Adjustment

It is highly recommend that you do a band adjustment at this point. Given that the bands have been slipping a lot because of the servo issue, they are probably worn and will need adjustment.

Spray the adjustment bolts with WD40 or other to help loosen them up. Wire-brush the threads if you can (See Picture 12).



1. With a 19mm wrench or other appropriate tools, loosen the lock nut on the band.
2. Then with the 5/16" square drive or adjustable wrench, turn the lock not out enough so you can turn the bolt in until you feel slight resistance on the band.
3. Attach the torque wrench and turn in to 120 in-lbs. Going in a little further is better than going in not enough. Next mark a spot on the bolt or nut with a Sharpie. Then turn the adjustment bolt out 1-1/2 turns and with the same wrench, hold the adjustment bolt and turn the lock nut in until tight. Recommended tightness for the nut is 40 Ft-lbs.
4. Repeat this procedure for the other band.

Re-Installing the Converter

1. Apply anti-seize to all the bolts (Recommended Step as you may have to take them out again in a few years.)
2. Install the upper heat shield.
3. Install the rear heat shield.
4. Install the hanger onto the post on the tube.
5. Position and install the converter on the right side, then the left making sure the hanger bracket is positioned over the cross member.
6. Install hardware and tight the connection from the converter to the muffler/exhaust.
7. Reconnect all the sensor connectors.

That is it! You are ready for a test drive. Note: A short break in period may be necessary, so don't be discouraged if 100% of the problem doesn't disappear immediately. Most if not all of the symptoms should go away right away but it may take 50-100 miles depending on how much shifting is taking place.

Note: We highly recommend that you wait for 100 miles or so and then replace the transmission filter and fluid. That will give any particles that may have dislodged a chance to get caught in the old filter. Also with all the slipping on the bands we would expect the fluid will be ready for changing. But as long as the vehicle is up in the air feel free to change the fluid and filter right away. You will need 4-5 quarts of the proper transmission fluid to complete that job and we recommend a new filter. The pan has a fill level pipe at the bottom that when it is open, fluid will overflow into it when it is at the proper level. Make sure that the vehicle is level during filling, and you will need a fill pump to do the job. The proper instructions for doing this are on our site.

Disclaimer: This is not an OEM designed fix. This fix will alleviate or eliminate the symptoms listed above. There may be more underlying issues with your vehicle which will cause similar or different symptoms, so this fix is not a guarantee that your particular symptoms will be resolved with this fix. We are not liable for anything working as described and each individual's circumstances and or abilities may give different results both positive and or negative.