

5/6 Speed Conversions for Subaru SVX

using custom parts available from TomsSVX

4/19/06

Parts list for 5/6mt swap

- ___ 5/6mt assembly
- ___ 5/6mt shift linkage(be sure to get all the pieces)
- ___ 5/6mt starter(both are the same at least for wrx5mt and sti6mt)
- ___ Helicoil kit for starter stud(late model transmissions)
- ___ 5/6mt slave cylinder(hydro only)
- ___ 5/6mt Master cylinder(hydro only)
- ___ Hydro clutch line (both hard line and soft line)
- ___ Neutral Safety Switch(for pedal box)
- ___ Brake/Clutch Pedal assembly
- ___ Clutch Kit(disk, pressure plate, throw out bearing, pilot bearing)
- ___ Flywheel (transmission specific)
- ___ Flywheel bolts(longer than flex plate bolts)
- ___ Pressure plate bolts
- ___ Transmission mount
- ___ Rear shift linkage mount(stock or homemade)
- ___ Matching rear differential(n/a for wrx transmissions)
- *If using the 3.90 R180 be sure to obtain a set of rear axles as well
- ___ 2" extended driveshaft(for all 5mt transmissions)(95-99 Legacy 5mt shafts are known to work with minor modification)
- *N/A if using 6mt
- ___ 5/6 quarts of gear oil
- ___ 4 quarts of brake fluid(bleeding brakes and clutch)

5/6mt swap

1. Disconnect Negative (-) Battery terminal.
2. Drain transmission oil and front differential oil
3. Remove Intake Snorkel
4. Remove throttle body (You can disconnect cables or simply move it out of the way)



5. Pop off TC bolt cover (small black plastic cover on pass side rear of engine)
6. Remove TC bolts
 - Using a large ratchet with (24mm or 7/8" socket) turn the crank pulley until TC bolts are visible.
 - Remove all 4 bolts by holding larger ratchet/breaker bar on crank pulley while loosening TC bolts.
7. Remove starter
8. Remove exhaust system
9. Remove front axles from transmission
 - Remove roll pin from axles at the joint to transmission
 - Remove lower ball joint bolt from bottom of hub
 - Pull lower control arm down away from hub
 - Pull hub assembly away from car while pulling axle from the transmission
10. Disconnect 2 transmission cooler lines (on driver's side)
11. Disconnect 2 large electrical connectors on the top of transmission
12. Disconnect shift cable from lever (pass. side of transmission)
13. Remove drive shaft
 - Remove 4 bolts on the rear differential flange
 - Remove 2 carrier bearing bolts

- Slide shaft out of rear of transmission

14. Place transmission jack under trans and lightly support it's weight.

15. Remove transmission X-member from body and then from transmission

16. Remove bell housing bolts

17. Support the front of the engine with a jack to be sure it doesn't fall forward

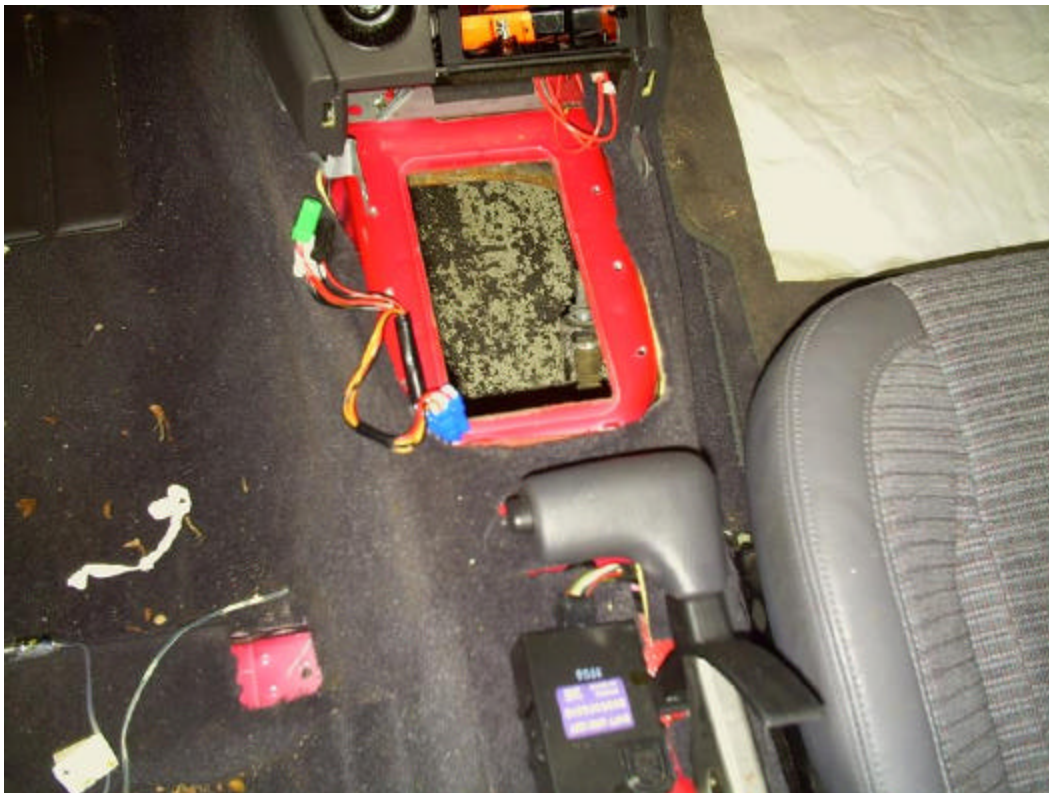
18. Slide transmission away from engine (this is not as easy as it sounds. This may take a good deal of shaking and prying to break it loose be careful not to harm yourself doing this)

19. Remove flex plate

Hey Look!!! The trans is out!

20. Remove center console

21. Remove auto shifter assembly



22. Remove TCU

23. Remove SVX brake pedal assembly
24. Remove SVX gas pedal assembly (best off disconnecting cable from throttle body and pulling it through the firewall)
25. Remove brake master cylinder
26. Remove Brake booster (pain in the butt but it will come out)
27. Install modified/WRX brake booster
28. Pull transmission wiring harness through firewall
- Split the harness apart and feed needed connectors back into the car through the large hole.
29. Test fit pedal box and mark where the clutch master mounting bolt hole need to be
30. Install brake/clutch pedal assembly (top mounting bolts on brake booster will not thread all the way down but be sure they are tight)
31. Reinstall brake master cylinder
32. Cut a piece of sheet plastic to make a plate to cover excess hole from tcu wiring harness behind clutch master cylinder
33. Install clutch master cylinder(may need to trim at the firwall for it to fit)



34. Install modified gas pedal

You should now have 3 pedals to brag about.



35. Use helicoil kit to tap a proper sized hole for the starter stud to be removed from the auto and installed into the manual

36. If transmission did not come with electronic speed sensor, swap out the one from the auto.

37. Install flywheel and clutch (you remembered to have the flywheel cut right?? And I am sure you also remembered to buy flywheel bolts)

38. Install 5/6mt (Mostly the same as auto removal)

- If using WRX trans disregard the following
- If using a 5mt outside of a WRX trans be sure to follow instructions for swapping the SVX carrier into any 5 bolt side plate r160(found at end of my instructions)
- If using a 6mt with a R160 follow instruction mentioned above
- If using a 6mt with the Sti R180 follow instructions below
- Mark the pinion flange nut with a paint pen
- Count the amount of threads visible on top of the nut
- Remove Pinion nut
- Using a steering wheel puller or harmonic balancer puller, pull the pinion flange off of pinion shaft

- Install R160 flange onto R180 pinion
- Tighten pinion nut back to original mark and thread count
- Remove long mounting studs from R160 and install them onto the R180
- Test fit the R180, and mark where it needs to be notched to clear the exhaust hanger
- Cut the notch and be sure it clears the hanger
- Cut lower strap so that it secures the rear without interference (pic below)
- Install Rear axles into hubs
- Install R180

39. Install 2" lengthened SVX drive shaft or modified 95-99 Legacy 5mt shaft
 - For 6mt's install stock SVX drive shaft

40. If using a WRX5mt or Sti 6mt- Run the two light green wires into the cabin though the hole from the clutch master cylinder. These are to be used for the reverse lights later on. If using Legacy/Impreza transmission, use an ohmmeter to find which wires control reverse lighting by putting the car into reverse and into any forward gear. Find the pair of wires that have continuity while in reverse ONLY.

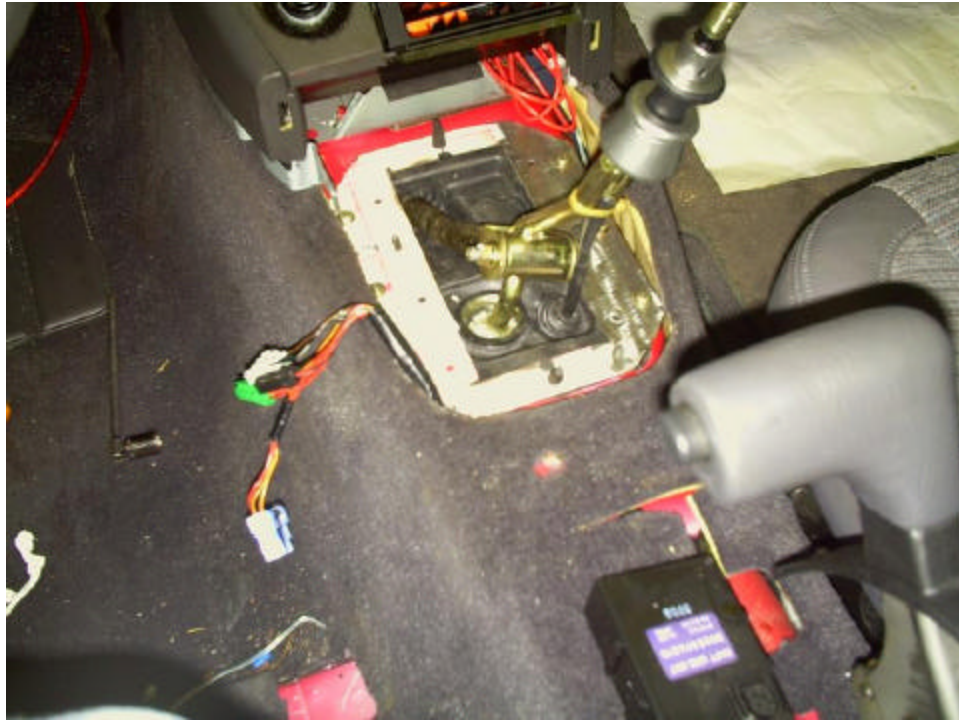
41. Install front axles and reassemble lower ball joints

42. Install lengthened shift linkage

- You must make your own rear mount for the linkage. Pictured below is a good example of possible methods



43. Attach rubber boot to body in order to keep road noise to a minimum.



44. Install Custom X-member (may require some grinding to open up bolt holes for proper alignment)



45. Connect clutch lines
46. Bleed brakes
47. Bleed clutch
48. Install starter
49. Lengthen speed sensor wiring using heat shrink butt connectors and 3 lengths of wire.
- for 5mt transmissions only
50. Reinstall exhaust system.
51. Reinstall throttle body and accelerator cable
52. Splice 2 reverse light wires from trans to.... 2 wires in line with the neutral wires
53. Place 2 female connectors on the ends of 2 lengths of wire. Plug them into the upper neutral safety switch on the brake/clutch pedal assembly. Route the wires over to the auto wiring harness where they will be spliced into the Blue/White and Black/Yellow wires (right next to each other) This will allow for you to start the car when the clutch pedal is depressed.
54. tuck the auto wiring harness out of the way and be sure it will not fall down
55. Reconnect the negative battery terminal
56. Fill trans and rear with preferred gear oil
57. Start her up and be sure the clutch has full engagement and make adjustments where necessary. Be sure the shifter shifts smoothly into all gears .

Well that's about it. Good luck and always remember that www.Subaru-svx.net is an excellent resource so if you run into and problems, the people on this forum will be more than helpful in assisting you.

Tom Johnson

svxfile's rear diff swap writeup for 3.90, 4.11 and 4.44 applications

Quote:

If you get a limited slip rear differential that has both the correct ratio, and five bolts on each side holding the side plates on, go ahead and install it. This however has not happened to anyone I have heard of.

If you get an "open" rear differential, with no limited slip, then you have to convert your new open differential to a limited slip for two reasons. The first is so that your svx axles fit, and the second is so that your power doesn't go up in wheel spin.

What I do is to use the replacement rear end housing, so that I would not have to mess with the pinion gear, or it's preload.

Use the ring gear from the new rear end, but use the side plates, and carrier from the svx. You will have to do a little grinding on the left side of the housing opening, where the two humps are, so that the ring gear from the new rear end, and now mounted on the SVX carrier will clear.

You MUST use the longer bolts from the limited slip SVX rear end to mount the 4.44/4.11 ring gear to the LSD carrier.

I use the shims from the SVX housing but you have to check the backlash, and pattern before you install them into the car.
