

4.7L Grand Cherokee Install

Preinstall

1. Fuel
 - 1.1. Be sure to run highest octane available at the pump! This is critical for a forced-induction vehicle. If most of the tank is full of lower octane fuel, postpone install until filled up with high octane fuel.
2. Tools needed
 - 2.1. Normal hand tools: Flat head screwdriver, 10, 12, 13, and 15mm sockets to remove the throttle body and power steering bolts.
 - 2.2. Fuel line disconnect tool (5/16") to remove the connector on fuel line
 - 2.3. All the Boosted Technologies parts use stainless allen head socket capscrews. You will need 4mm, 5mm, 6mm and 8mm sockets.
 - 2.4. Rags to clean gasket surfaces, duct tape to cover intake manifold inlet from dropped parts.
 - 2.5. Safety glasses to keep fuel out of your eyes when you disconnect the fuel line. It is under 50 PSI!

Stock Removal

- | | |
|--|--|
| <ol style="list-style-type: none">1. Disconnect positive (red) terminal on battery<ol style="list-style-type: none">1.1. Place non-conductive material over terminal | |
|--|--|

2. Remove filter housing and intake tube (
3. Figure 1)
 - 3.1. Loosen hose clamp on driver side of intake tube (8mm nut driver)
 - 3.2. Loosen clamp on fresh air vent hose at connection to plastic line (beneath intake tube) (8mm nut driver)
 - 3.3. Lift filter housing straight up to remove

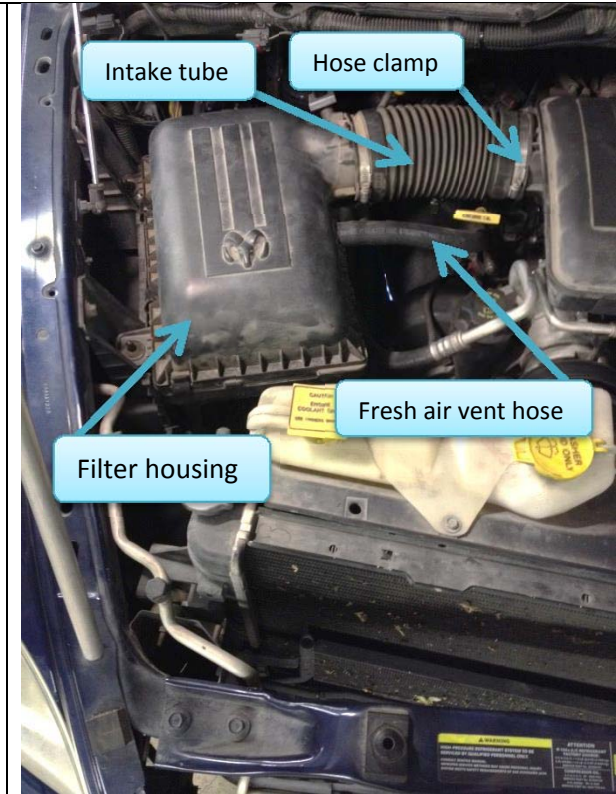


Figure 1: Filter housing and intake tube.

- 3.4. After removal (Figure 2)



Figure 2: Filter housing and intake tube removed.

- 4. Remove upper intake
 - 4.1. Disconnect IAT (Inlet Air Temperature) sensor
 - 4.2. Remove two bolts holding down upper intake
 - 4.2.1. One on passenger side (Figure 3)

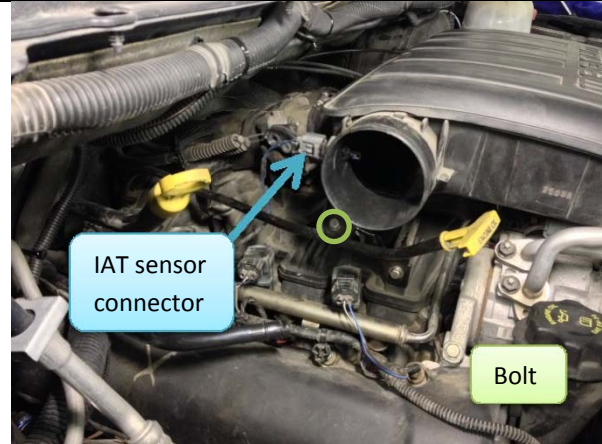


Figure 3: Passenger side upper intake.

- 4.2.2. One Driver side (Figure 4)

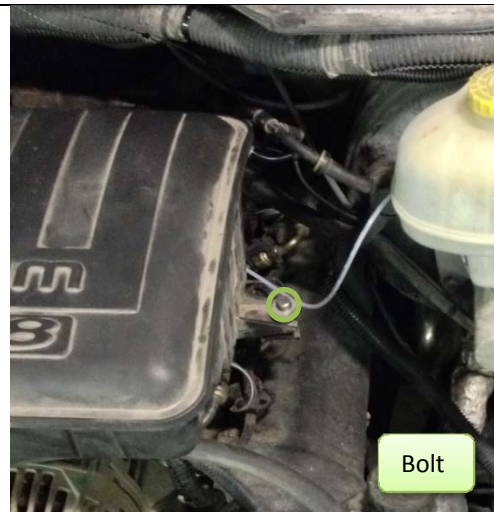


Figure 4: Driver side upper intake.

- 4.3. Loosen hose clamp on rear of intake box near throttle body (Figure 5)
 - 4.4. Slide upper intake forward and up to remove



Figure 5: Upper intake after removal.

- 5. Remove intake box support bracket
 - 5.1. Remove two 10 mm bolts (Figure 6)
 - 5.2. Lift support bracket up to remove

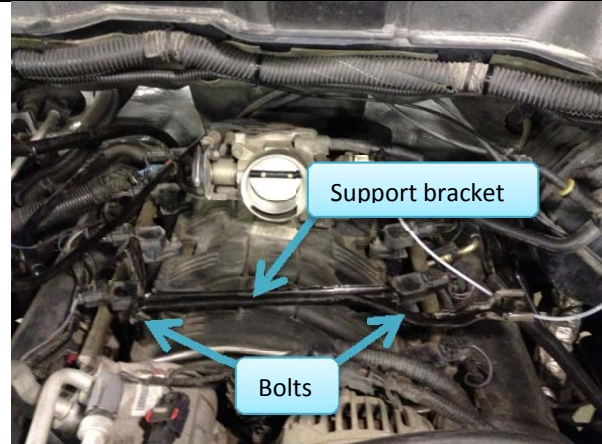


Figure 6: Upper intake support bracket.

- 6. Remove throttle body
 - 6.1. Disconnect throttle body wire connectors
 - 6.1.1. Slide red tab up then press black tab (black connector)
 - 6.1.2. Press tab and pull off (white connector)

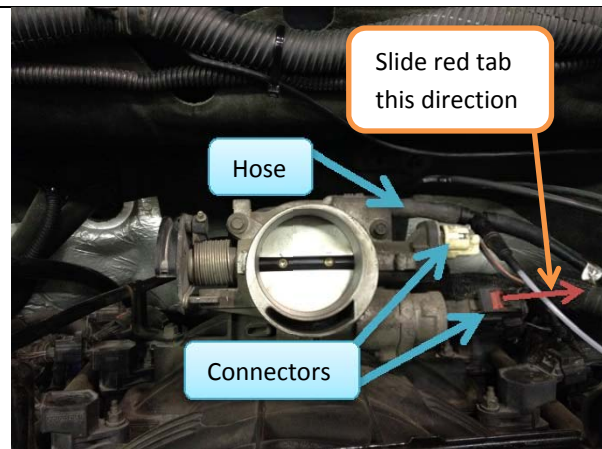


Figure 7: Throttle body hose and connectors.

- 7. Release throttle cables (Figure 8)
 - 7.1. Release throttle cable
 - 7.1.1. Rotate throttle counter clockwise to release cable tension

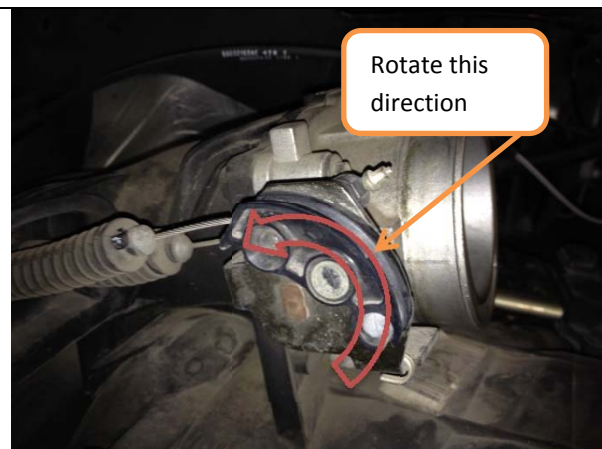


Figure 8: Throttle cables on side of throttle body.

- 7.1.2. Lift cable out of channel and place as shown in Figure 9 with cable in notch
- 7.1.3. Slide cable barrel end out through hole



Figure 9: Throttle cable out of channel.

- 7.2. Disconnect cruise control wire
 - 7.2.1. Again, rotate throttle to allow cable removal
 - 7.2.2. Slide connector off
 - 7.2.2.1. Slide parallel to cable



Figure 10: Cruise control connector after disconnecting.

- 7.3. Disconnect vacuum hose
- 7.4. Remove three 8mm bolts (Figure 11)
- 7.5. Pull throttle body forward to remove

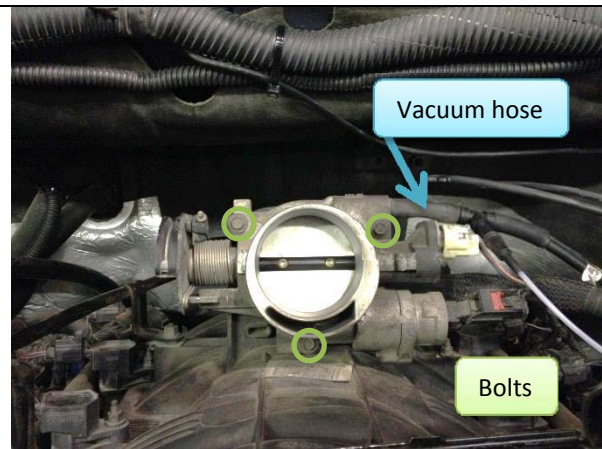


Figure 11: Throttle body bolts.

8. Disconnect vacuum hoses at locations shown in Figure 12
 - 8.1. Hoses may differ from photo

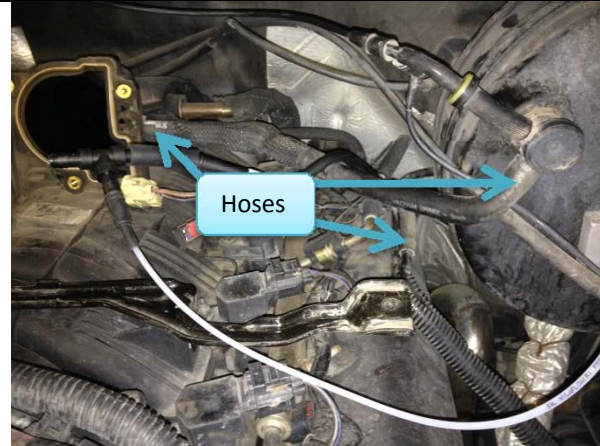


Figure 12: Vacuum hoses to disconnect.

9. Remove dip stick hold down nut and coil pack bolts
 - 9.1. Remove oil dip stick nut (10mm)
 - 9.2. Remove eight bolts holding down coil packs (10mm)
 - 9.2.1. Four on each side of engine
 - 9.3. Disconnect coil pack wire connectors
 - 9.3.1. Press tab and pull off
 - 9.4. Lift coil packs up to remove

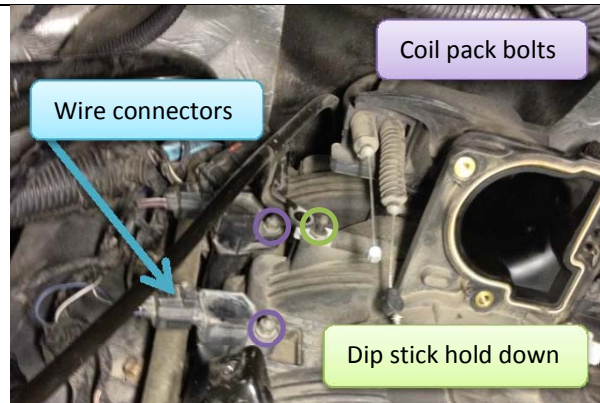


Figure 13: Coil pack bolts, wire connectors and oil dip stick nut.

10. Disconnect fuel line and remove fuel rail
 - 10.1. Remove fuel line safety clip
 - 10.1.1. Place a flathead screwdriver under clip at location as shown in Figure 14 and rotate and lift clip up

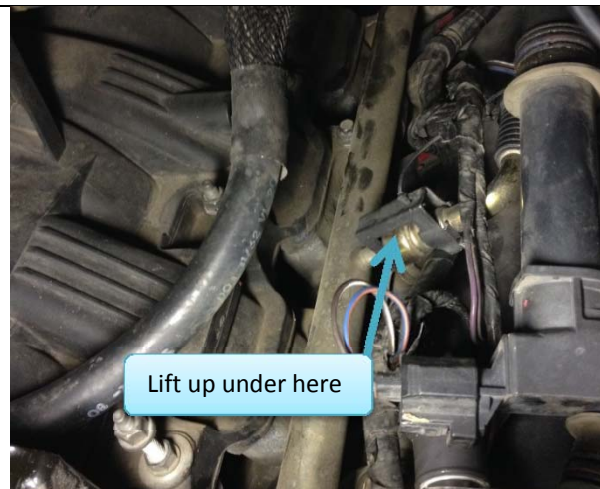


Figure 14: Fuel line safety clip.

10.1.2. Safety clip removed (Figure 15)



Figure 15: Fuel line safety clip after removal.

10.2. Disconnect fuel line

10.2.1. Use 5/16" fuel line disconnect tool to release

10.3. Disconnect fuel injector connectors

10.3.1. Slide red tab up (Figure 16) and press black tab while pulling off



Figure 16: Fuel injector wire connectors.

10.4. Remove four fuel rail bolts (Figure 17)

10.5. Lift fuel rail up with injectors vertically to remove

10.5.1. Lift rail evenly straight up to keep injectors from tweaking sideways while removing

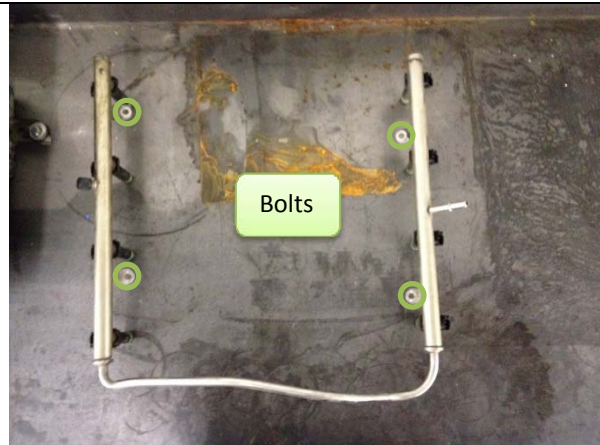


Figure 17: Fuel rail bolt hold down locations.

11. Disconnect MAP sensor connector and remove from intake manifold

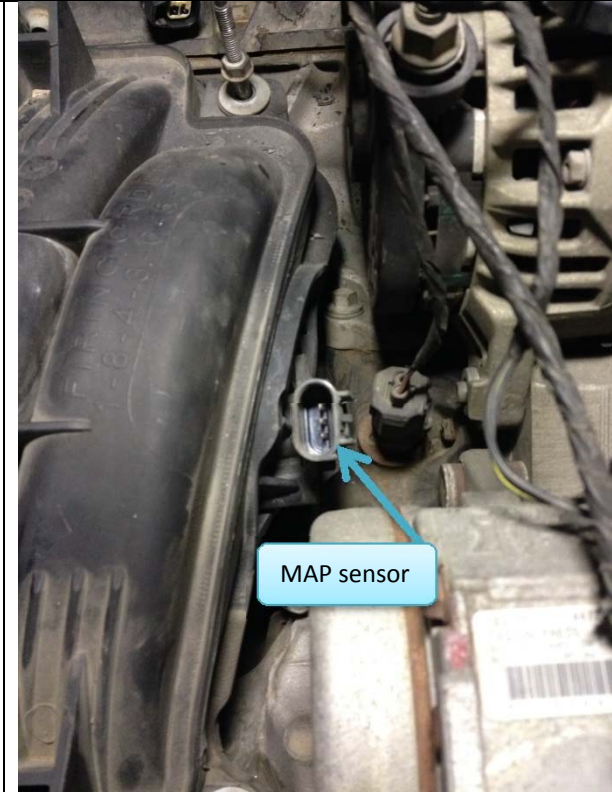


Figure 18: MAP sensor connector on intake manifold.

12. Remove serpentine belt
 - 12.1. Loosen bolt on ribbed belt tensioner pulley
 - 12.1.1. ????
 - 12.2. Slide belt off a pulley to remove



- 13. Remove alternator
 - 13.1. Disconnect alternator charging wire nut (Figure 19)
 - 13.2. Disconnect alternator wire connector (Figure 19)

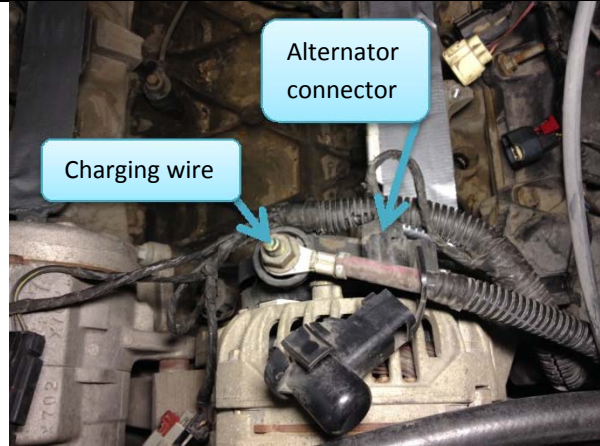


Figure 19: Alternator wire connector and charging wire.

- 13.3. Remove alternator bolts and stud (Figure 20)
 - 13.3.1. Remove two bolts on front
 - 13.3.2. Remove stud facing driver side

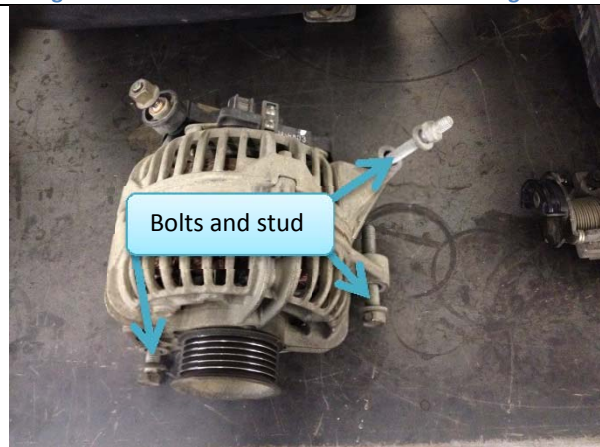


Figure 20: Alternator bolt locations.

- 14. Remove intake manifold
 - 14.1. Slide throttle cables out from slot on intake manifold
 - 14.2. Place throttle cables out of the way over to driver side
 - 14.3. Disconnect any hoses on intake manifold
 - 14.4. Lift out intake manifold
 - 14.4.1. Raise up front first to clear AC compressor
 - 14.4.2. Slide out keeping rear down
 - 14.4.3. Slide under wire loom on firewall (Figure 21)

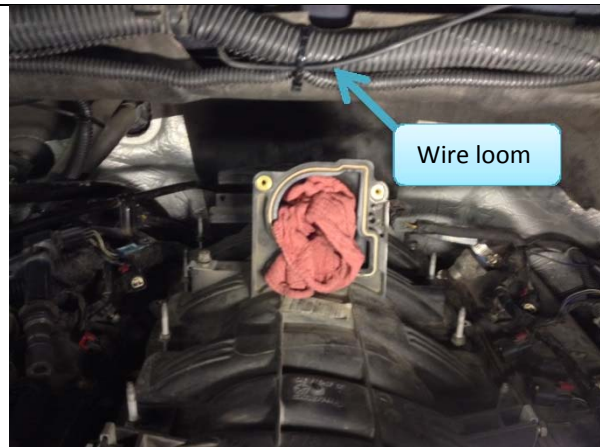


Figure 21: Intake manifold with wire loom above.

- 15. Clean intake ports
 - 15.1. Place lint free cloths into each port
 - 15.2. Clean top area of ports with brake cleaner
 - 15.2.1. Ensure debris does not fall into ports

16. Cover intake ports with tape



Figure 22: Intake ports covered.

17. Check spark plugs and gaps
- 17.1. Check spark plugs condition and replace if needed
 - 17.2. Spark plugs should be gapped to 0.030"

18. Remove rear Crank Case Vent Valve hose assembly (Only if hose looks like Figure 23)
- 18.1. Pop off two hoses from rear of engine
 - 18.2. Pull Teed section out of hose on driver side of assembly
 - 18.3. Carefully cut off outer plastic hose from breather
 - 18.3.1. Damage to breather may prevent proper seal with new hose. Replace if damaged.

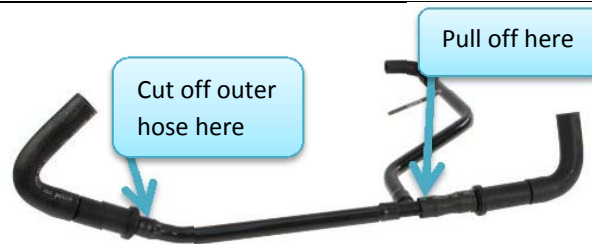
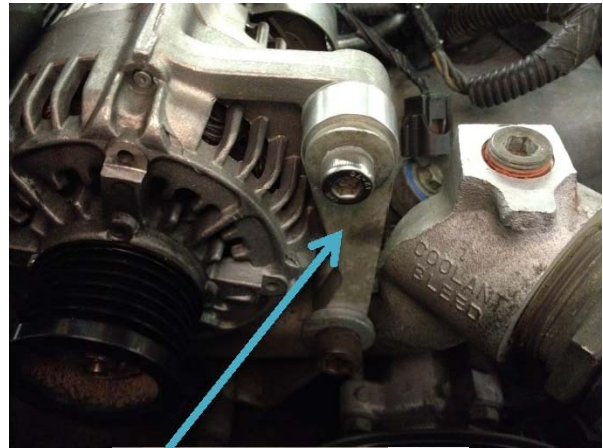


Figure 23: Late model CVV hose assembly.

19. Install included CVV teed section of hose in place of plastic section that was removed in step 18
- 19.1. Secure new hose out of the way, up on windshield

Supercharger installation

20. Install included alternator and brackets
 - 20.1. The brackets come assembled with the parts in the correct locations
 - 20.2. Ensure they are not mixed up during installation
 - 20.3. There is one bracket for each side of the alternator
 - 20.4. Install brackets onto engine as shown in the figures to the right
 - 20.5. Install alternator and secure with included bolts, washers and nuts
 - 20.6. Reattach alternator charge wire
 - 20.7. Place alternator wire connector out of the way since it is not attached to new alternator





21. Prepare fuel line

- 21.1. Cut and remove section of hard tube between rails
 - 21.1.1. Leave at least 3" of tube on each side
 - 21.1.2. Deburr inner and outer edges of tube after cutting
 - 21.1.3. Remove debris from tube
 - 21.1.4. Ensure cut is as square as possible to ensure a good seal and prevent a fuel leak
 - 21.1.4.1. Recommended cut to within $\pm 1^\circ$ of square

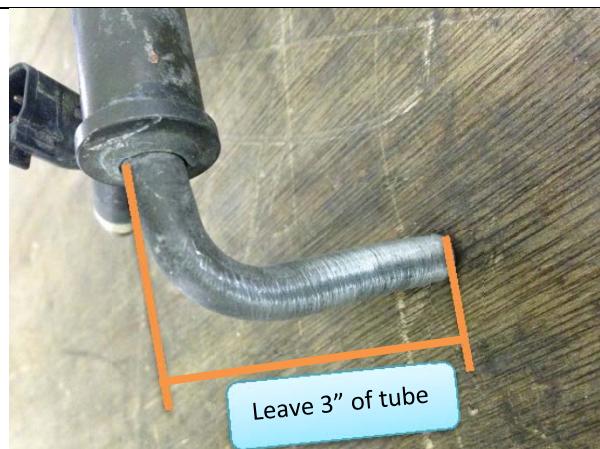


Figure 24: Fuel crossover after cutting.

22. Add AN-06 adapters to rails

- 22.1. Watching an instructional video of this process is recommended. Instructions and videos can be found by searching the internet for "Assembly Instructions for Versil-Flare Tube Fitting".
- 22.2. Hose and fittings should arrive assembled. Take note of how the parts are ordered and their orientation.
- 22.3. Remove the hose and two black fittings as one piece from between the two adapters
- 22.4. Slide the nut then the ferrule over the tube where the cut was made in step 21
 - 22.4.1. The ferrule's tapered edge must face the nut
- 22.5. Hold tube against adapter and finger tighten nut
- 22.6. Mark a straight line across both the nut and adapter

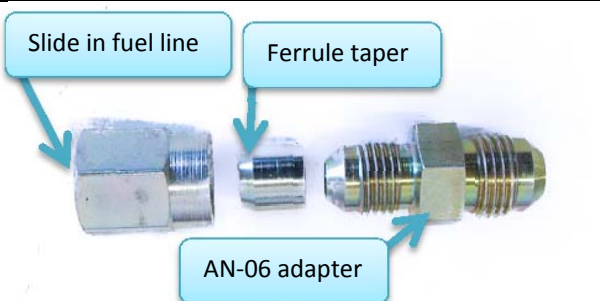


Figure 25: Correct orientation of ferrule with tapered edge towards nut.

- 22.7. While holding tube against adapter, tighten nut 1 1/4 turns total
- 22.8. Hose clamps are not required
- 22.9. The Versil-Flare fitting is designed for a maximum of 10 reassemblies.
- 22.10. Fuel hose will be added in step 25.4

23. Prepare intake ports

- 23.1. Remove lint free cloths from ports
- 23.2. Apply RTV to top surface of ports

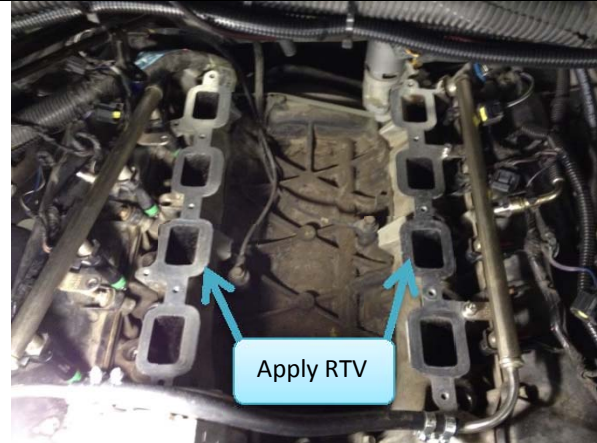


Figure 26: Clean intake ports, ready for RTV.

24. Install intake tub assembly

- 24.1. Once the assembly is in contact with RTV any shifting or sliding will likely cause a vacuum leak
- 24.2. Thread the two included studs into the front passenger side and rear driver side holes on intake ports
- 24.3. Carefully lower the intake assembly over the ports
- 24.4. Remove one stud at a time and replace with included bolt and washer
- 24.4.1. Do not over tighten these bolts, they only need to be snug



Figure 27: Intake tub assembly installed.

- 25. Install fuel injectors and rail
 - 25.1. Lubricate fuel injector top and bottom O-rings and install
 - 25.2. Install each separated fuel rail over injectors
 - 25.3. Use included four bolts and washers to secure fuel rail
 - 25.4. Install crossover hose between fuel rails
 - 25.4.1. Form an S-bend with the passenger side up and driver side straight (Figure 28)
 - 25.4.2. This will allow the fuel hose to pass under the supercharger nose



Figure 28: New fuel crossover hose in an "S" bend under supercharger nose.

- 26. Install coil packs
 - 26.1. Thick washers act as a spacer and go under coil support, while thin washers go above support (Figure 29)
 - 26.2. Install coil packs over sparkplugs and tighten bolts
 - 26.2.1. Torque to ??ft-lbs
 - 26.2.2. On either rear passenger side coil pack place braided ground wire ring terminal under thin washer to secure it (Figure 30)
 - 26.3. Connect wire connectors to coil packs

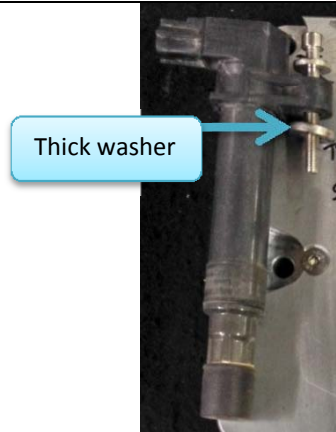
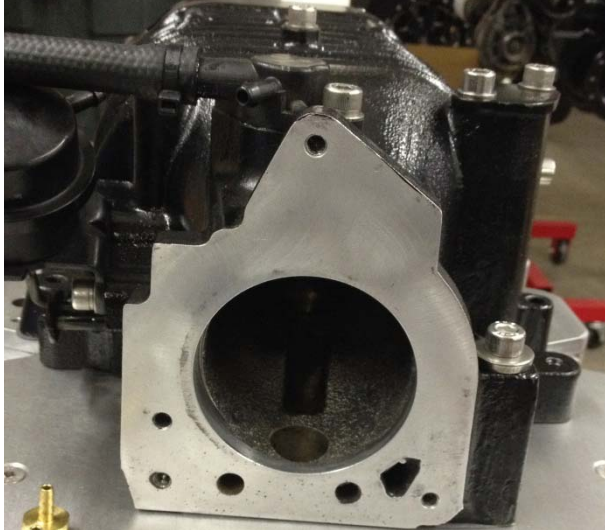
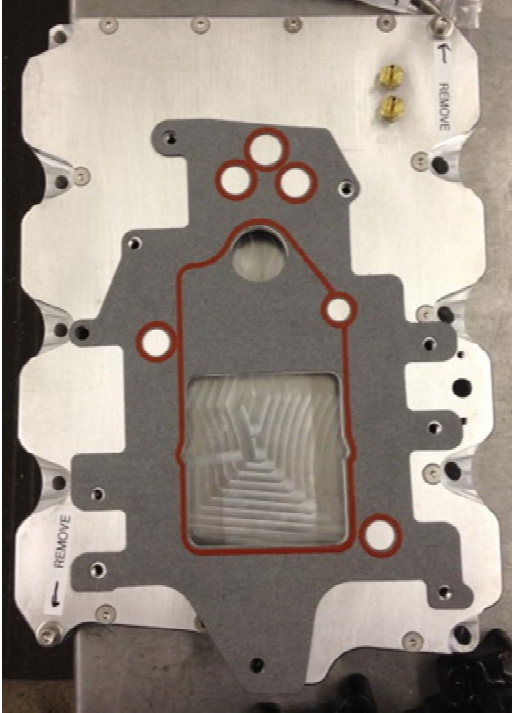


Figure 29: Coil pack with washers installed correctly.



Figure 30: Ground wire terminal secured to coil pack.

- 27. Bend oil dip stick tube out of the way
 - 27.1. Bend dip stick towards passenger side of engine bay and inch or two
 - 27.2. If it is in the way during the

<p>supercharger install bend it till it clears</p>	
<p>28. Route throttle cable around back side intake plate and lay out of the way on the driver side 28.1. These should sit between intake plate and rear intake tube once it is installed</p>	
<p>29. Attach intake tube to supercharger 29.1. Apply RTV liberally to rear supercharger flange 29.2. Insert rear tube bolts through tube flange 29.3. Ensure flanges do not touch before two or three of the bolts are threaded into supercharger flange 29.3.1. Movement can disturb the RTV layer and lead to a vacuum leak 29.4. Thread bolts into rear supercharger flange 29.5. Torque to ??ft-lbs</p>	 <p>Figure 31: Rear supercharger flange.</p>
<p>30. Install supercharger 30.1. Place supercharger assembly on intake plate 30.2. Carefully slide supercharger gasket under elevated supercharger with red rings facing up (Figure 32) 30.2.1. This is easier if a second person elevates the supercharger 30.2.2. The gasket is delicate and can tear 30.3. Align gasket under supercharger 30.4. Use the front and back bolts + washers (8x70mm & 8x65mm) to align the supercharger and gasket to the bolt holes 30.4.1. Hand thread these two bolts, while leaving them loose</p>	 <p>Figure 32: Supercharger gasket aligned and red rings facing up.</p>

30.5. Install MAP sensor

30.5.1. Place over hole on driver side of intake plate

30.6. Attach two knock sensors to bolts on supercharger feet

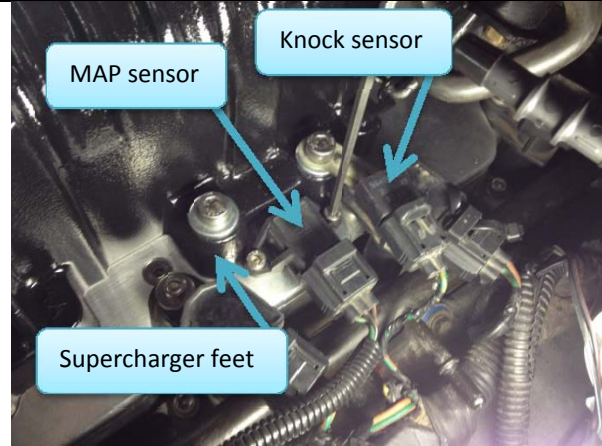


Figure 33: MAP and knock sensors on driver side.

30.7. Loosely thread remaining bolts in starting from the back and working forward

30.7.1. Shifting the supercharger and gasket may be required to align all bolts and holes

30.8. Once all bolts are threaded in, tighten all bolts

30.8.1. Torque to ??ft-lbs

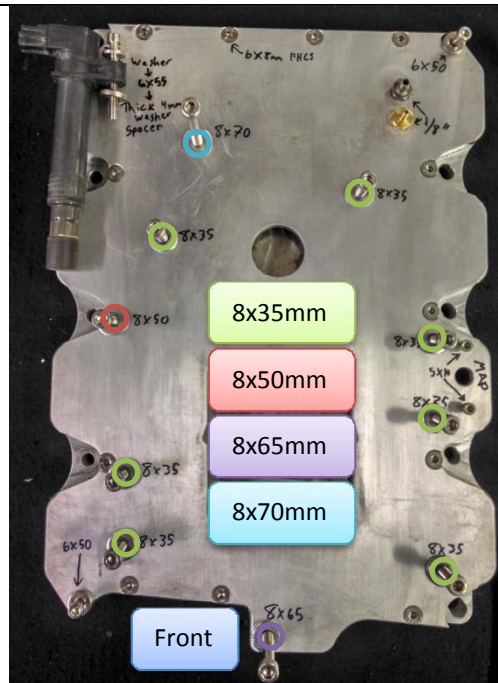


Figure 34: Bolt locations and sizes for supercharger hold downs.

31. Install included fuel line extension

31.1. 90° push connect slides over fuel rail connection and other side slides into existing fuel line (Figure 35 & Figure 36)

31.2. Ensure all connectors click and are secured

31.3. Test connections by pulling on them to ensure they do not pull out



Figure 35: Fuel line extension 90° fitting on fuel rail.



Figure 36: Fuel line extension attached to existing fuel line connection.

32. Install 9th fuel injector

- 32.1. Fuel injector and stand come pre-assembled
 - 32.1.1. Remove rubber piece on bottom of bolt
- 32.2. Lubricate O-rings on fuel injector with Vaseline or similar lubricant
- 32.3. Slide fuel injector into port on passenger side of intake tube
- 32.4. Slide fuel line adapter over fuel injector
- 32.5. Rotate fuel injector electrical connection to rear towards firewall
- 32.6. Slide bracket and standoff with bolt over adapter
- 32.7. Thread bolt into threads on side of intake tube
 - 32.7.1. Make sure the bolt is not cross threaded before tightening this down
- 32.8. Tighten the bolt down till snug and fuel injector starts to rotate while tightening bolt
 - 32.8.1. Over tightening this may damage the threads

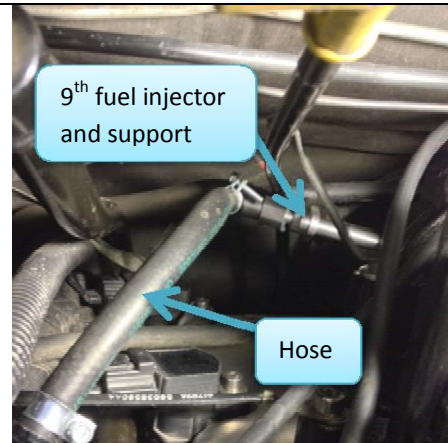


Figure 37: Properly installed 9th fuel injector and hose.

33. Install 9th fuel injector fuel hose
- 33.1. Remove cap over port from side of fuel rail on passenger side
 - 33.2. Remove valve with Schrader valve removal tool (Figure 38)
 - 33.2.1. This is very important, if this step is missed fuel will not reach 9th fuel injector
 - 33.3. Attach 90° screw on fitting of fuel hose to port on fuel rail
 - 33.4. Slide 90° push connect fitting over fuel line adapter on 9th fuel injector
 - 33.4.1. Ensure both clips snap on
 - 33.4.2. Test that connector is on all the way
 - 33.5. Tighten screw on fitting to fuel rail till tight

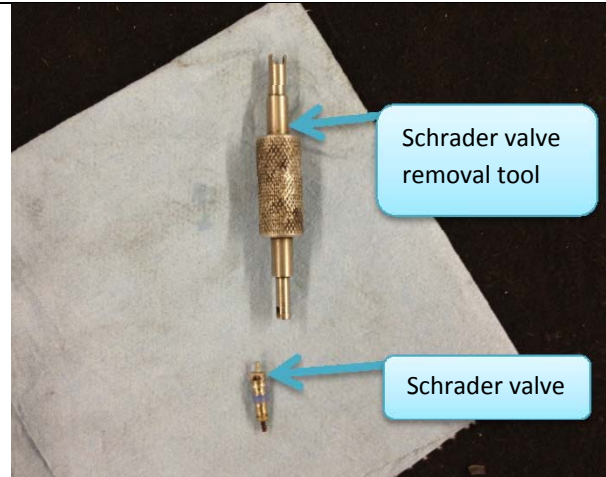


Figure 38: Schrader valve and removal tool.

34. Test fuel system for leaks
- 34.1. Clean battery terminals, reconnect positive terminal and tighten nut
 - 34.2. Switching key to on for several seconds to pressurize fuel system
 - 34.2.1. Do this several times
 - 34.2.2. Do not start engine
 - 34.3. Check for fuel smell or liquid at all fuel injectors and fuel line connections
 - 34.4. Disconnect battery cable again

35. Attach throttle cables to slot on intake tube
- 35.1. Slide cable with no boot in first
 - 35.2. Slide booted cable in slot till it stops
 - 35.3. Ensure cables do not have tension on them which could pull them out of slot
 - 35.3.1. Routing cables as straight as possible behind bracket like in (Figure 39) is best
 - 35.3.2. A zip-tie all the way around cables and intake tube, on rear of bracket can be used to secure cables well



Figure 39: Throttle cables attached to bracket on intake tube.

36. Install throttle body
- 36.1. Apply RTV liberally to rear intake tube throttle body flange
 - 36.2. Using the same process as in step 29 thread bolts & washers through throttle body into flange before mating surfaces

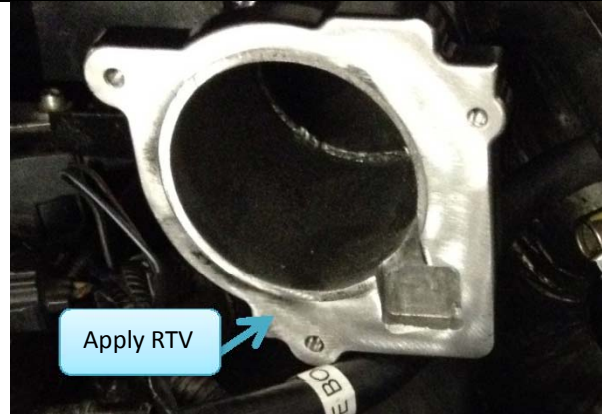


Figure 40: Rear intake tube throttle body flange.

37. Thread IAT sensor into hole on air filter

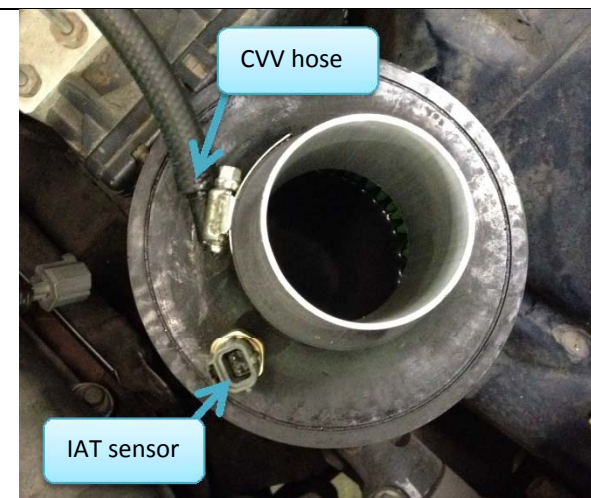


Figure 41: IAT sensor and CVV hose threaded into hole on air filter.

38. Attach air filter assembly to throttle body
- 38.1. Install assembly as shown in Figure 42
 - 38.2. Rotate air filter to allow IAT sensor wire to reach connection
 - 38.3. Tighten all clamps on hoses and filter well



Figure 42: Air filter assembly attached to throttle body in correct orientation.

39. Reattach TPS and IAC connectors to throttle body

40. Reattach coolant temperature sensor connector and AC connector

41. Install provided belt

42. Install Split Second box

42.1. Connect Split Second loom to stock ECU

42.1.1. Disconnect two connectors on ECU (black, orange)

42.1.2. Match colors on Split Second connector to attach to stock ECU and stock connectors to female side of Split Second loom

42.1.3. Connect Fuel injector wire to 9th fuel injector

42.1.3.1. Ensure it is all the way on and the metal clip snaps into place

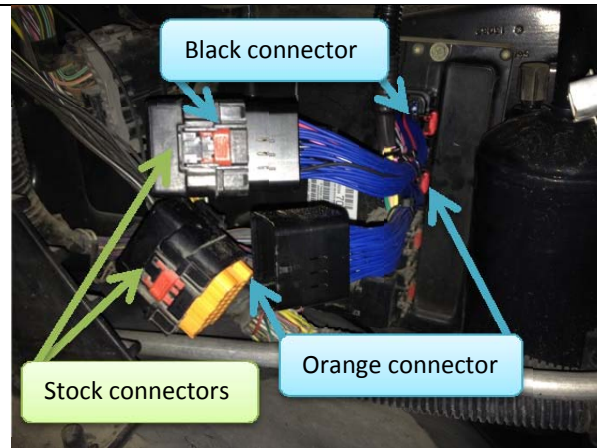


Figure 43: Split Second ECU connections with new loom.

43. Attach vacuum and boost lines (Figure 44)

43.1. Split Second box

43.1.1. Lower port on box uses hose end with a 90° boot which goes over vacuum port on top rear of supercharger

43.1.2. Upper hose goes to a boost port on rear driver side intake plate

43.2. Bypass valve hose on front port goes to a boost port on rear driver side intake plate

43.3. Heater AC hose with one way valve still attached goes to vacuum port on top rear of supercharger on driver side

43.4. Brake booster hose is already attached to supercharger and it is attached to the port on the brake booster

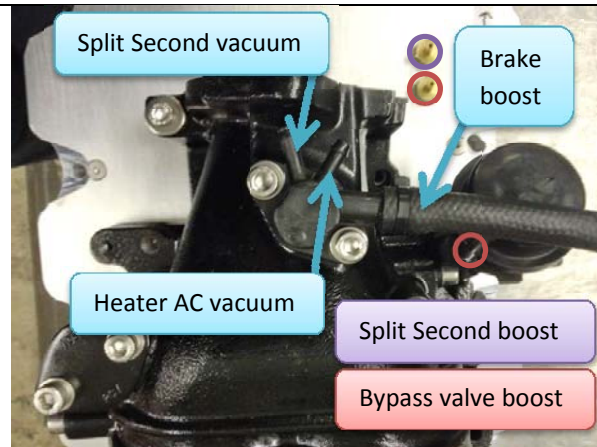


Figure 44: Vacuum ports on supercharger.

- 43.5. The large vacuum hose assembly has labels for each hose end (Figure 45)
- 43.5.1. Attach the hose labeled vacuum to side of throttle body
- 43.5.2. The EVAP adapter goes into the lower port on the canister
 - 43.5.2.1. Remove stock hose and insert new adapter
- 43.5.3. Attach PCV hose end to port on side of oil filler
- 43.5.4. Leak detection pump (LDP) stock line needs to be cut
 - 43.5.4.1. When all other hoses are attached determine where to cut line to fit inside provided LDP hose at least 6"
- 43.6. Ensure all lines are routed out of the way of moving parts and areas that get hot
- 43.7. Use zip-ties to secure hoses



Figure 45: Vacuum hose assembly.

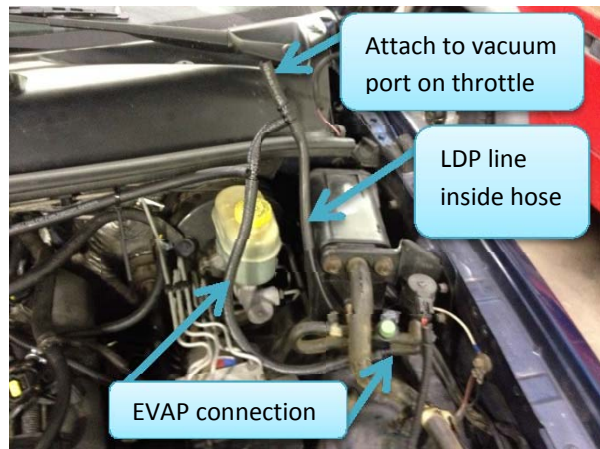


Figure 46: Vacuum hose assembly.

- 44. Ensure all bolts, connectors, hoses, and parts are tight and properly installed
- 45. Reconnect battery
- 46. Test fuel system again for leaks