



**Installation Manual v1.1:
202-972-2326
Aurora 7500 Plus Compound Turbo Kit
2007.5-2009 Dodge Ram 2500 and 3500 with 6.7L Cummins**

Please read all instructions before installation.

Note: This turbocharger system requires the installation of head studs.



Figure 1 - Large Parts Kit Photo



Figure 2 - Small Parts Kit Photo

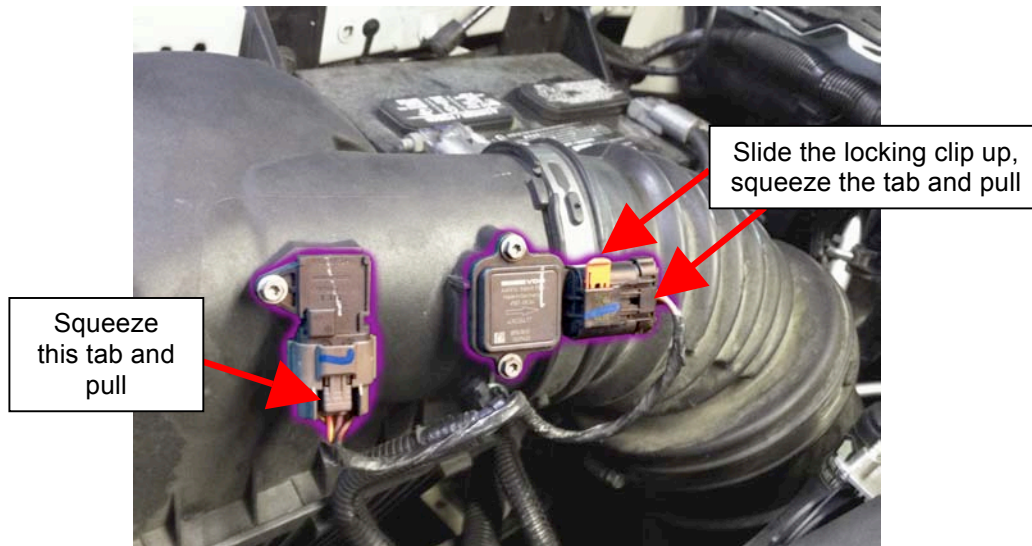


Figure 3 - Hardware Kit

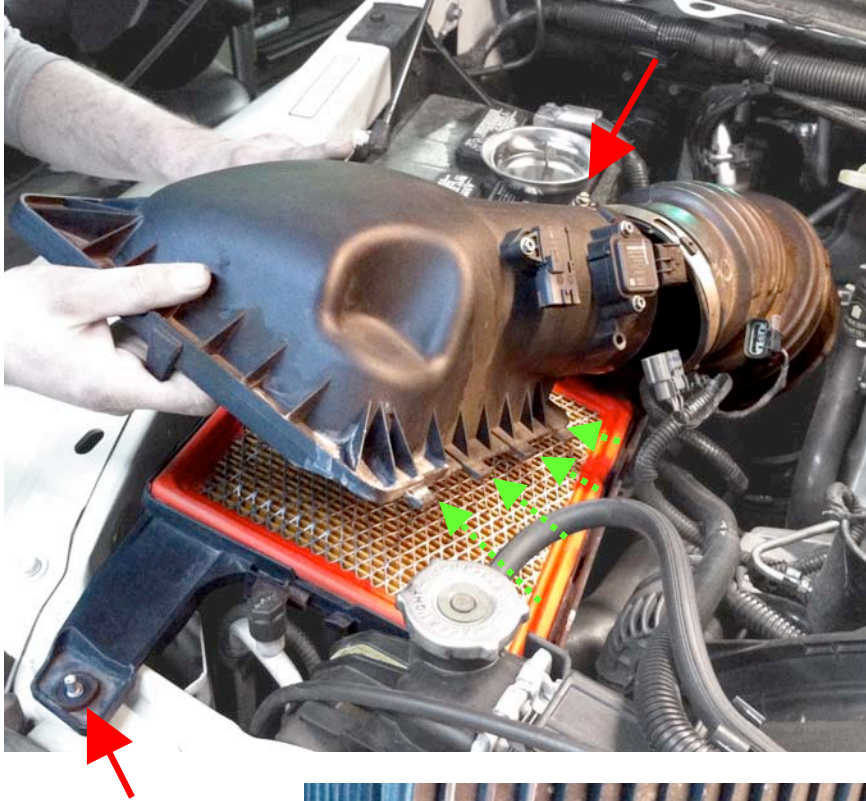


Figure 4 - AFE Kit Hardware

1. Park the vehicle on level ground and apply the parking brake.
2. Disconnect the negative (-) battery terminals and secure them away from the battery.
3. Disconnect the intake air temperature (IAT) sensor and mass air flow (MAF) from the engine harness.



4. Remove the factory intake air box and intake elbow down to the turbo.



Loosen the hose clamp on the backside of the cover, unsnap the 2 clips retaining the top of the air box and slide it out toward the passenger side of the engine bay. Set it aside.

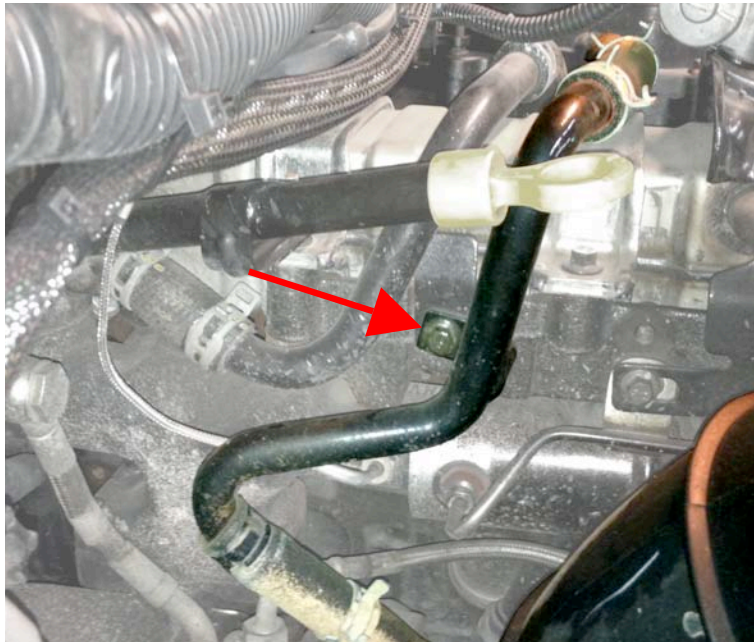
Unbolt the front of the factory air box using a 10mm socket or wrench and lift it out of the engine compartment. The factory air box has 2 tapered pins that plug into the two grommets shown.





Disconnect the crankcase vent tube from the valve cover by moving the spring clamp show off the barb on the valve cover.

Remove the bolt holding the crankcase breather tube to the block.



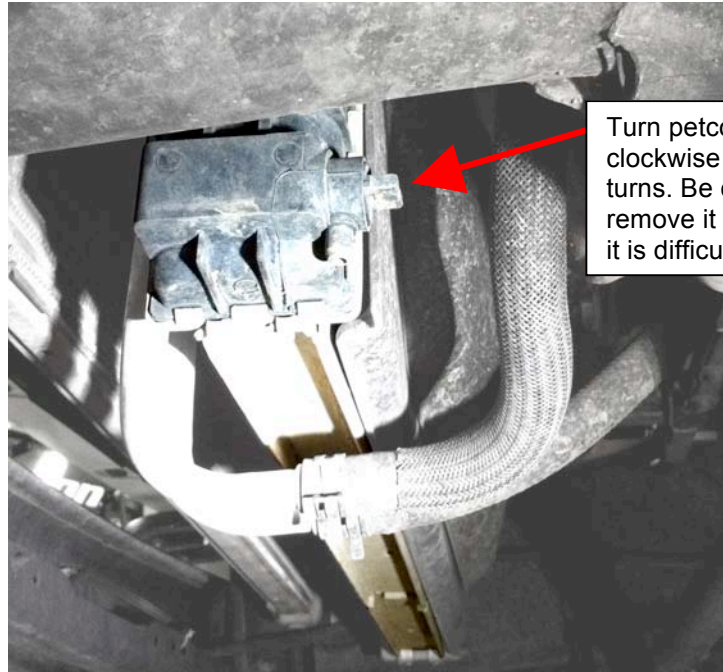


Loosen the hose clamp holding the intake tube to the factory turbocharger. Remove the crankcase breather tube and intake tube as shown

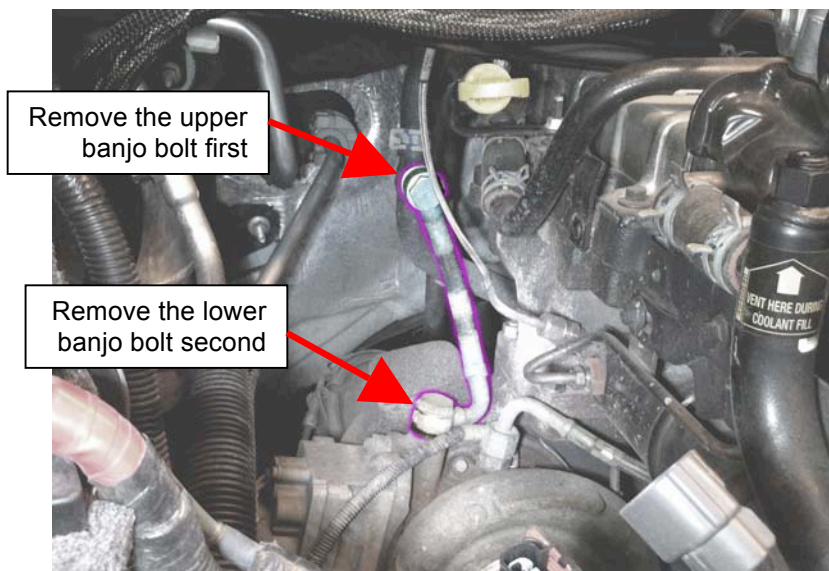
5. Remove the passenger side battery. This will make it much easier to install the new Aurora turbo and will be replaced later in the installation. The battery tray will also serve as a handy tool tray.



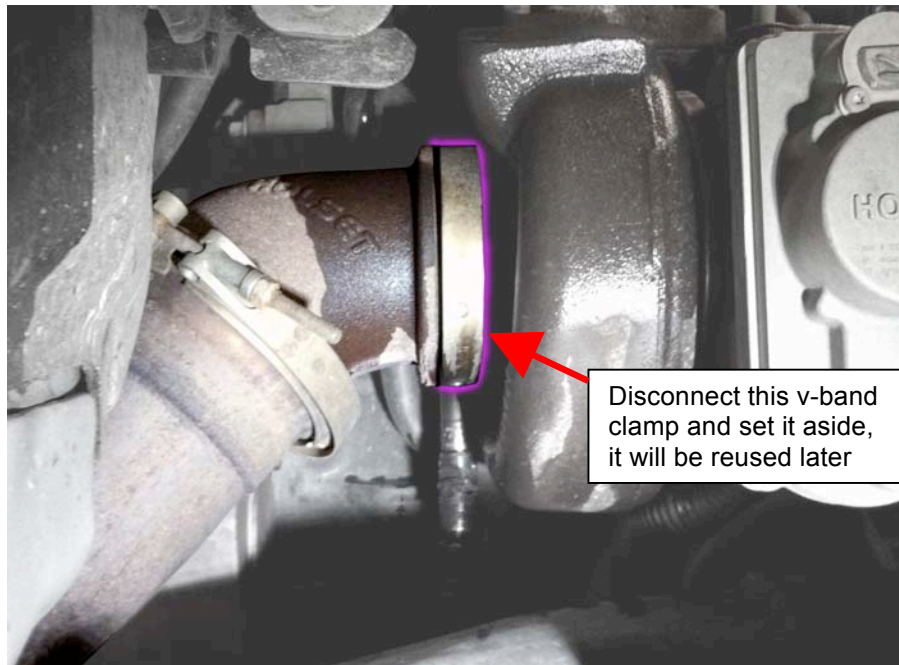
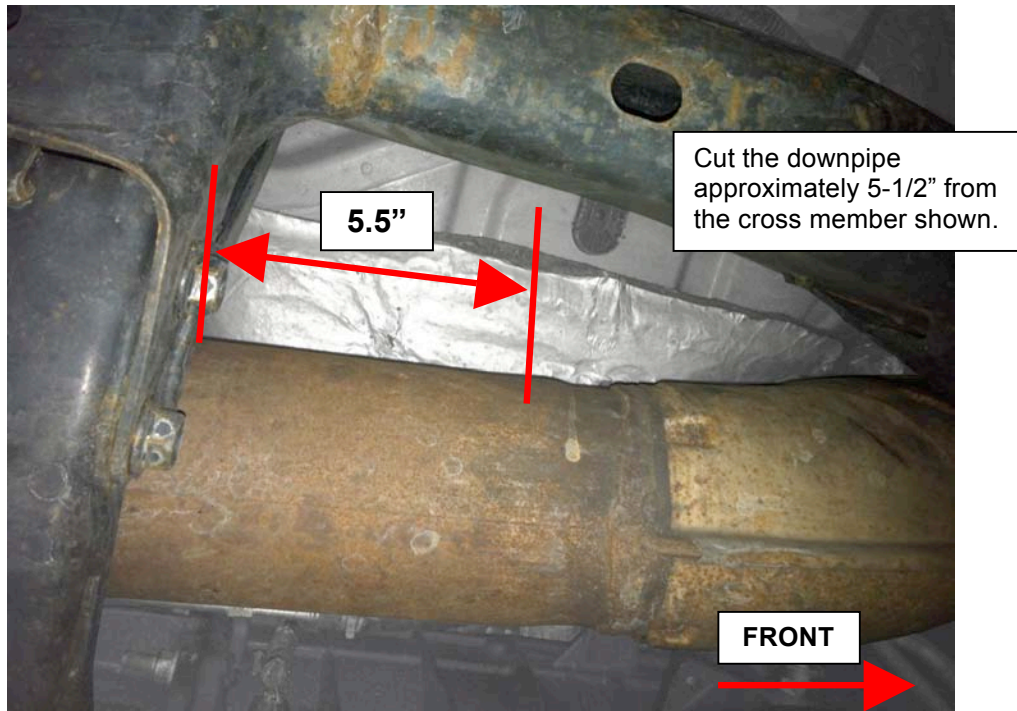
6. Drain approximately 3 gallons of coolant from the radiator using the petcock located on the driver side bottom of the radiator.



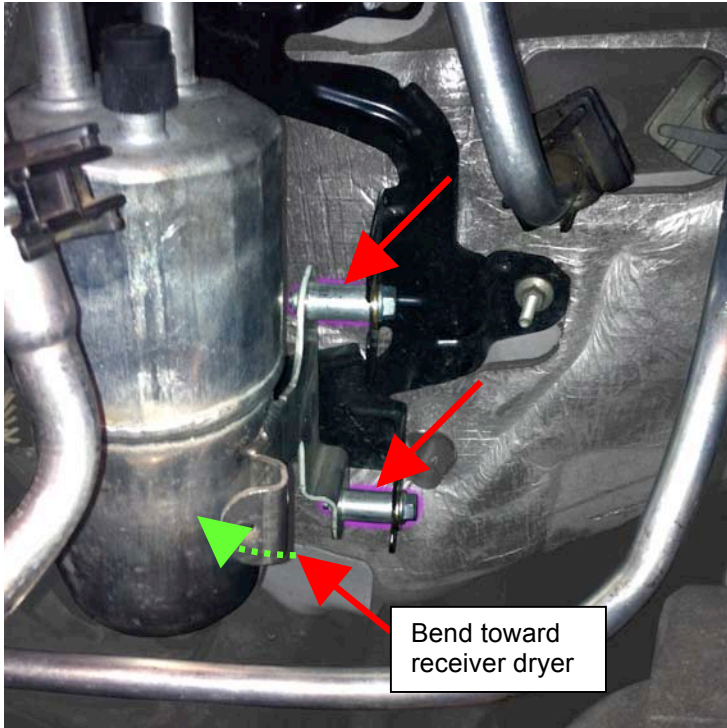
7. Remove the passenger side inner fender. There are 8 hex head screws holding the inner fender in place. Remove these using an 8mm socket. There is also a connector attached to the fender using a plastic push pin. Remove this connector, remove the inner fender and set it aside. This will allow easy access to many components later in the installation.
8. Remove the coolant supply line to the factory turbocharger. Some coolant will inevitably drain out. Having a couple of rags below the line will help soak up any extra coolant. Keep the banjo fitting and washers that bolt into the turbo, these will be reused.



9. Remove the factory downpipe. There is a mount for the downpipe attached to bell housing of the transmission. Instead of fighting with the grommet, just remove the bolts holding the bracket in place and replace the bolts without the bracket.



10. The AC receiver dryer and lines will require minor bending to clear the new turbocharger and plumbing. Install the spacers (#32, Figure 2), between the receiver dryer and the mounting bracket.



Remove the two bolts holding the receiver dryer to the sheet metal bracket.

Carefully bend the lines to make enough room for the aluminum spacers.

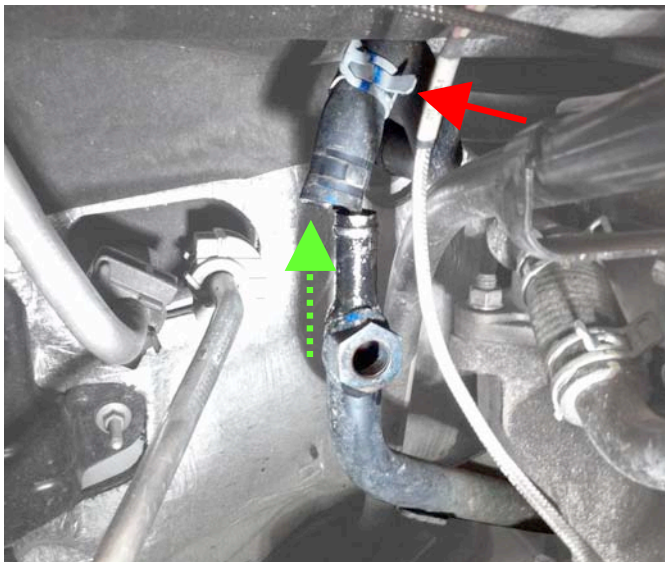
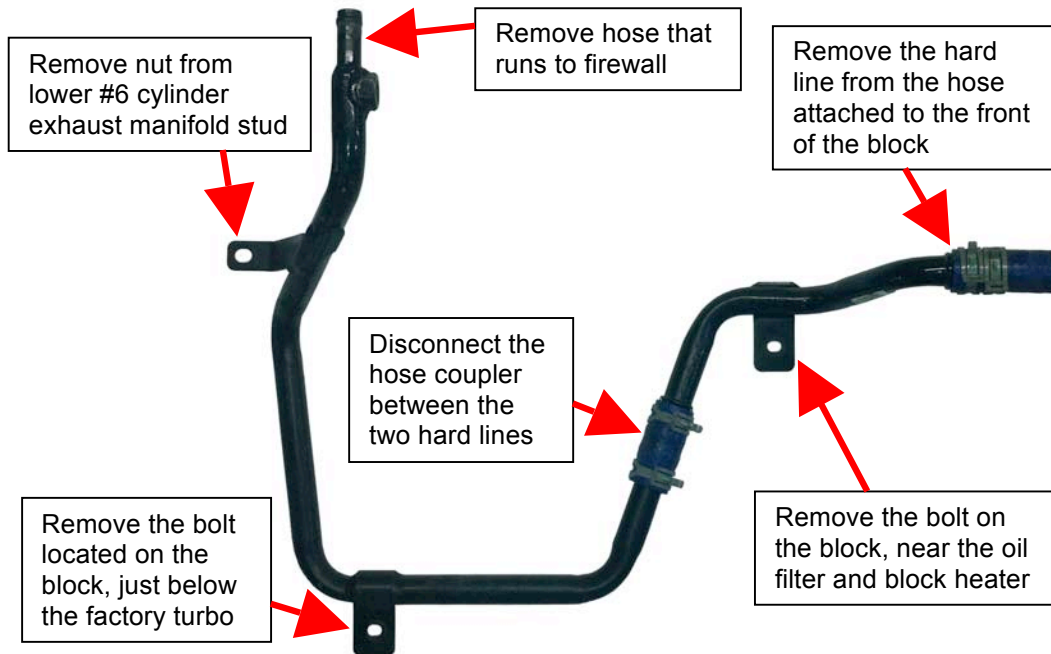
Bolt the receiver dryer to the bracket with the spacers in place M8-1.25x40mm bolts and M8 flat washers.

Bend the front receiver dryer mount toward the receiver dryer to avoid interference with the downpipe.

11. 2007.5-2009 Vehicles are equipped with two different EGR systems. If equipped with the early style EGR system, continue at Step 12. If equipped with the late style EGR system, skip to Step 15.

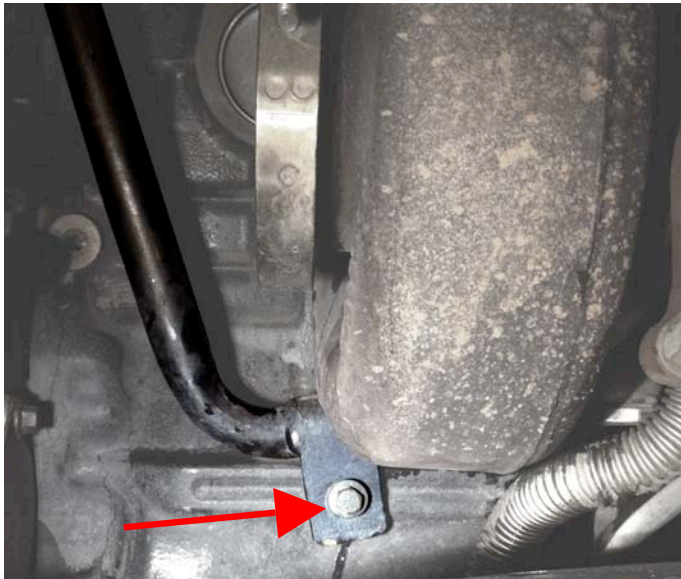
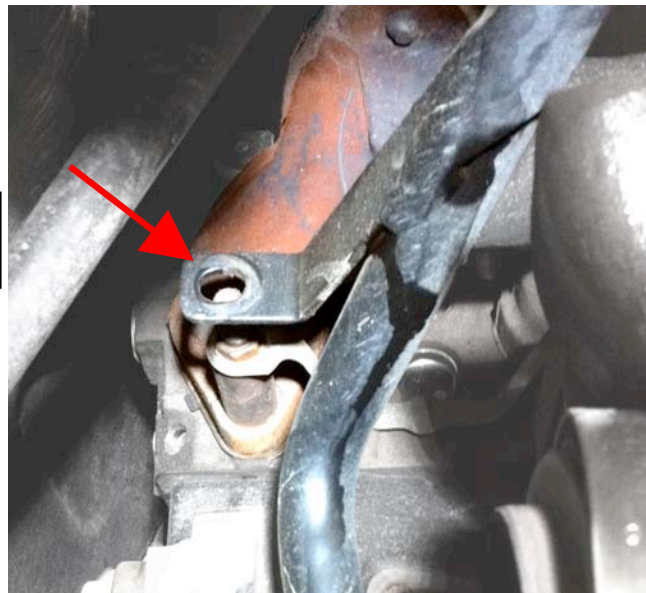


12. Early EGR systems (2007.5-2008) require remove of solid coolant supply line running from the front of the engine, below the factory turbo and to the firewall. This will be replaced the coolant line supplied in the kit.



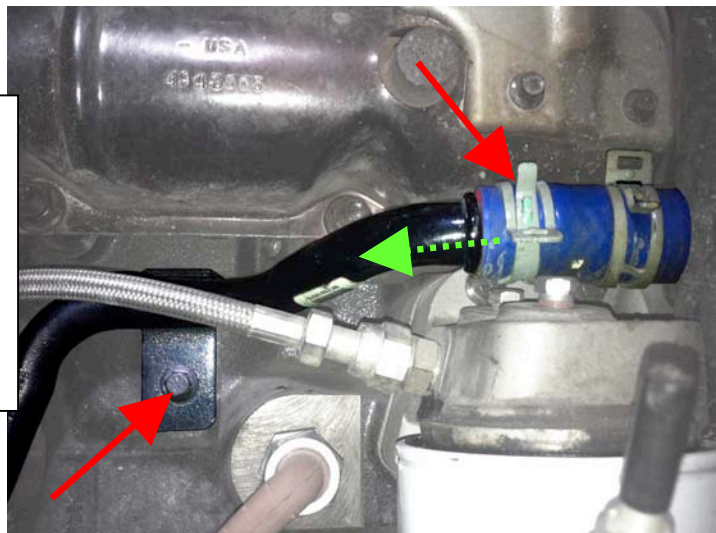
Using a pair of pliers, squeeze the clamp and slide the clamp above the barb. Remove the hose from the hard line.

Remove the lower nut on the #6 exhaust manifold stud.

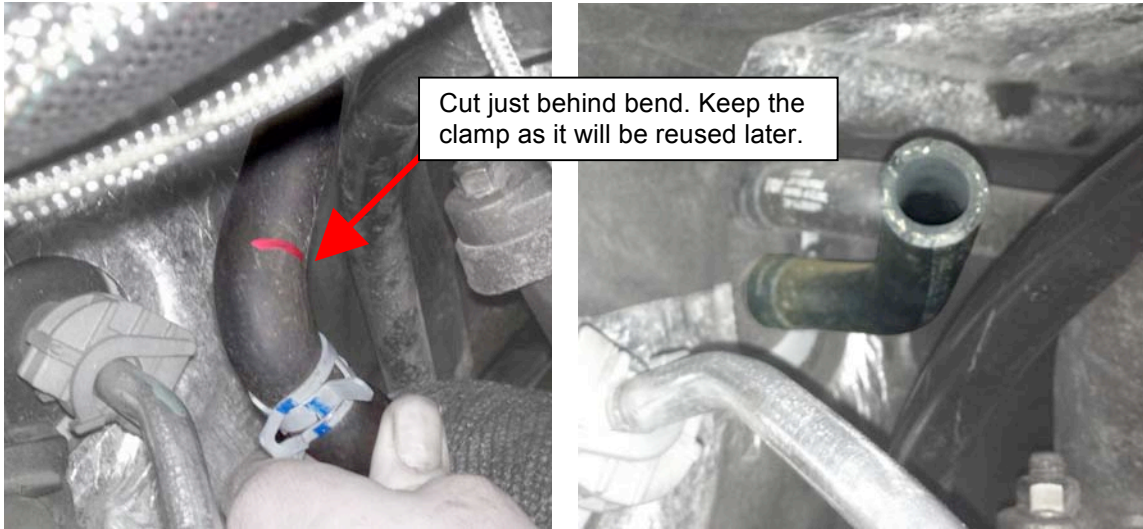


Remove the bolt securing the lower portion of the coolant line. It is located on the passenger side of the engine block, just below the factory turbocharger

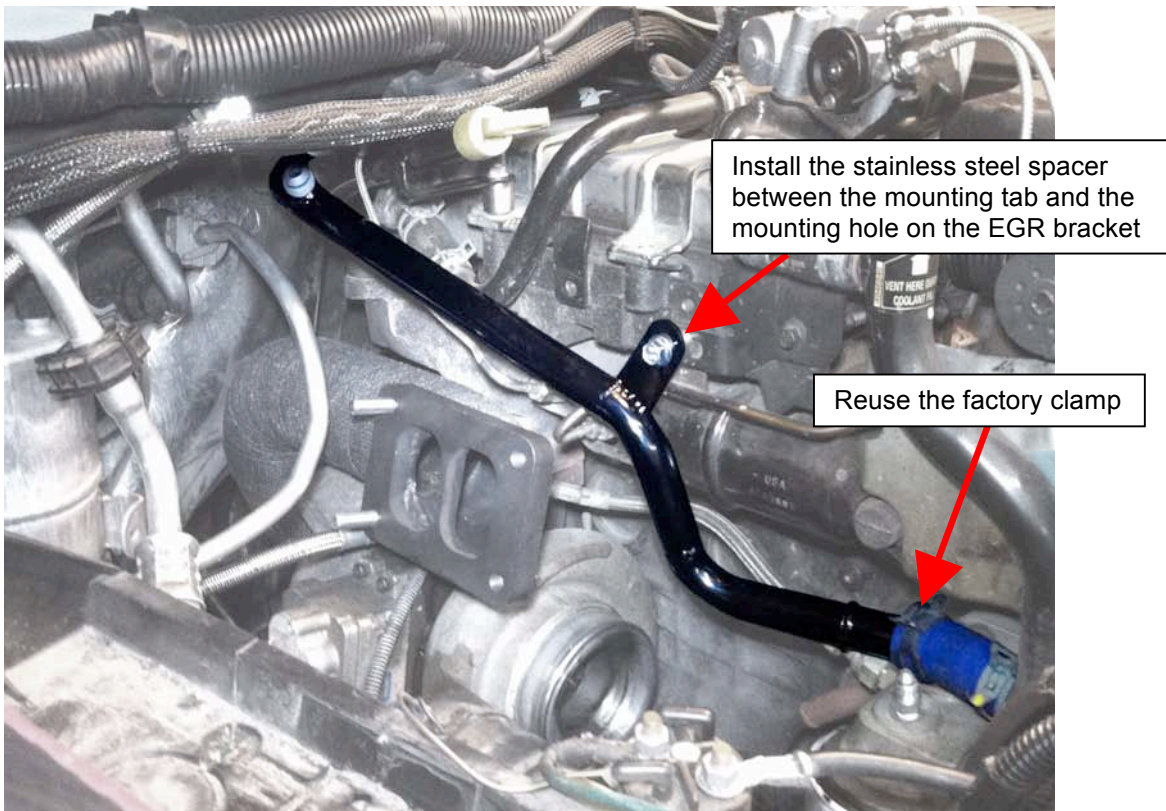
The front portion of the coolant line is located above and behind the oil filter. To remove this piece, remove the clamp shown and the bolt securing it to the engine block.

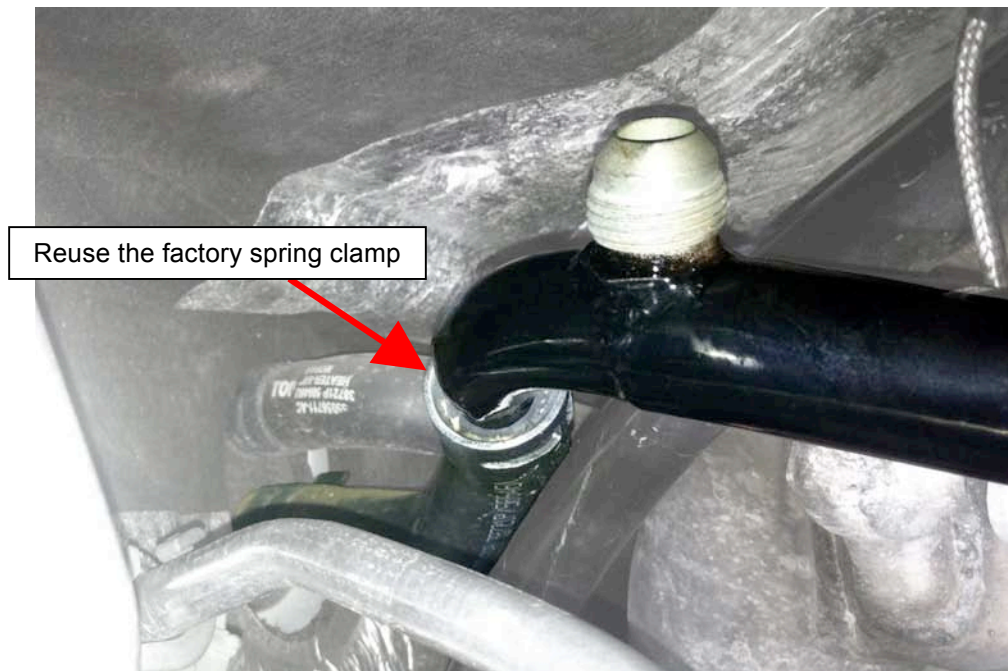


13. Cut the coolant line coming off the firewall, just above the bend.

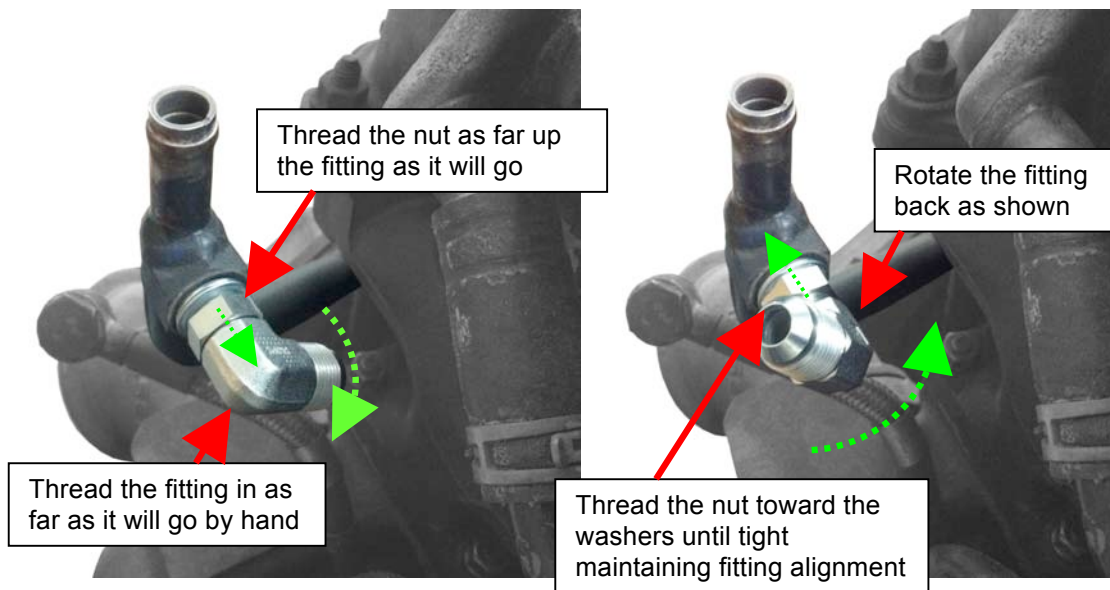


14. Install the new coolant transfer line (#6, Figure 1) using the stainless steel spacer (#28, Figure 2) and the M8-1.25 x 30mm flange head bolt included in the kit. When complete, skip to Step 17.

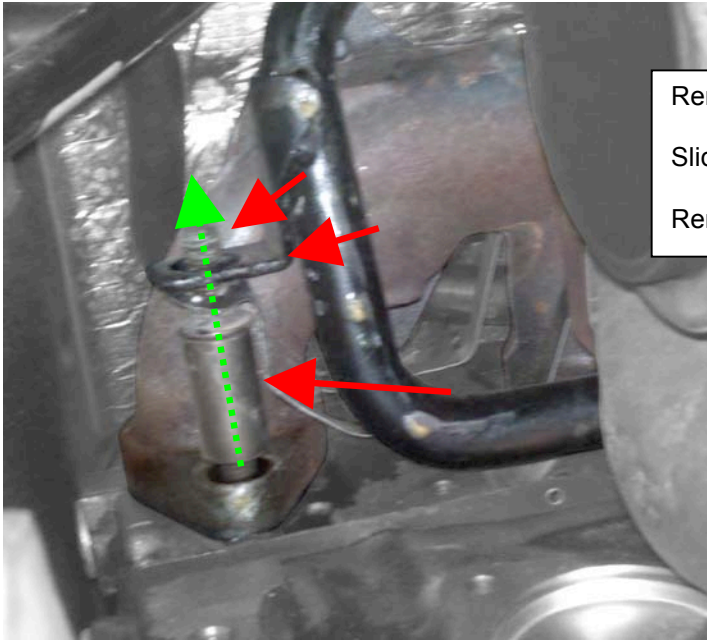




15. For trucks equipped with the late EGR system, install the 90° M16-JIC-8 Fitting (#35, Figure 2) in place of the banjo bolt on the factory coolant transfer line.



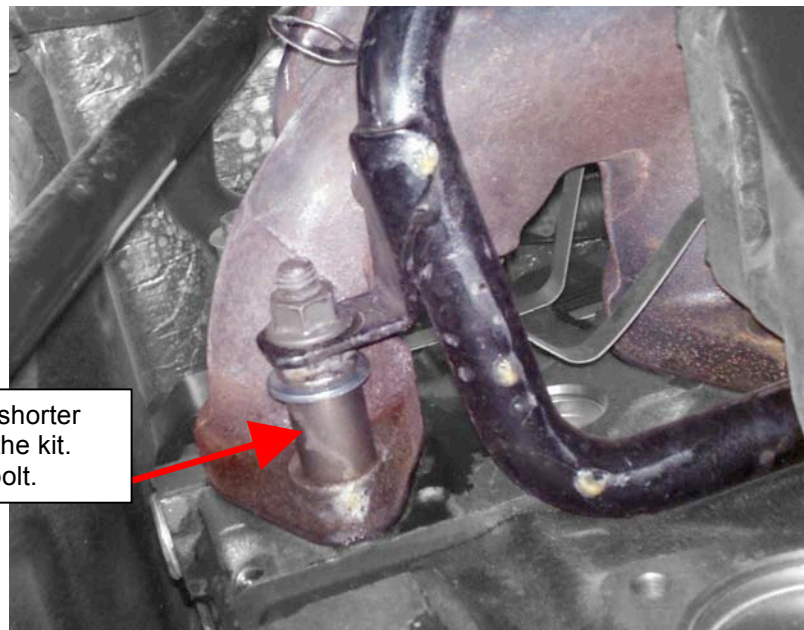
16. Remove the factory spacer on the lower #6 exhaust manifold stud.
Replace it with the shorter spacer (#34, Figure 2) supplied in the kit.



Remove the nut.

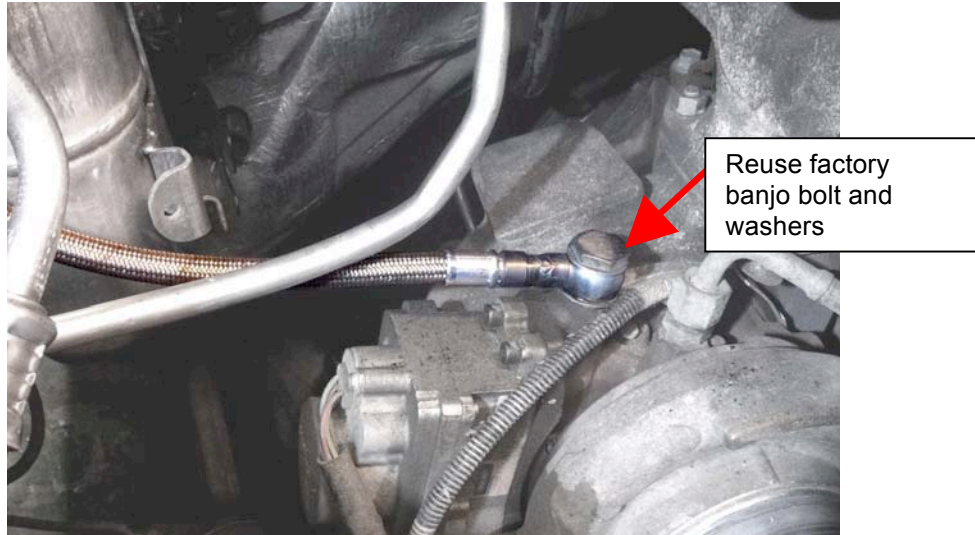
Slide the coolant line off the bolt.

Remove the bolt and spacer.

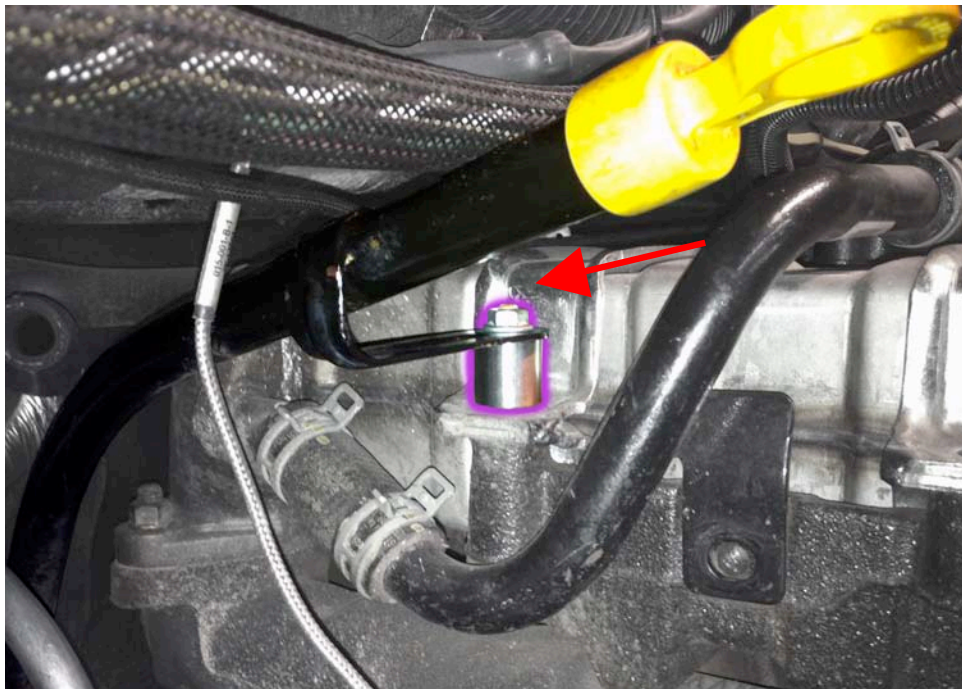


Reassemble using shorter
spacer supplied in the kit.
Reuse the factory bolt.

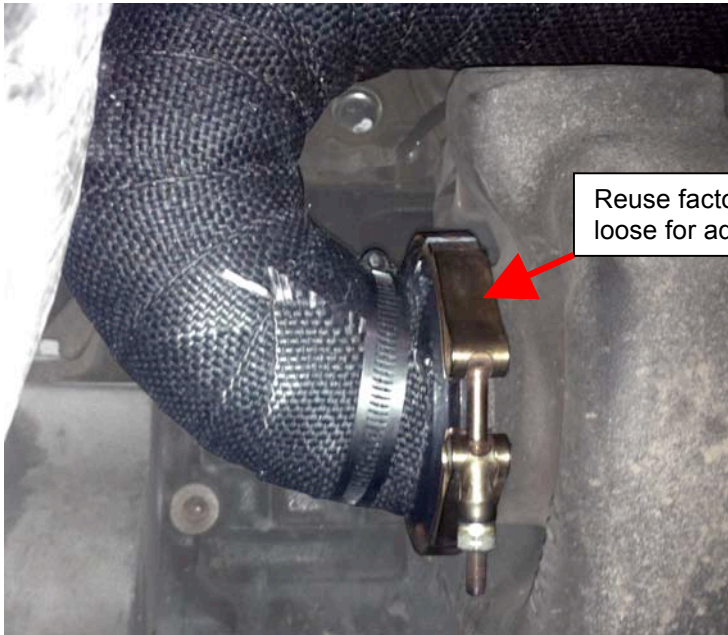
17. Install the new turbo coolant supply line (#7, Figure 1) to the factory turbo oriented as shown.



18. Install the dipstick spacer (#29, Figure 2) between the stud and mounting bracket for the dipstick tube.

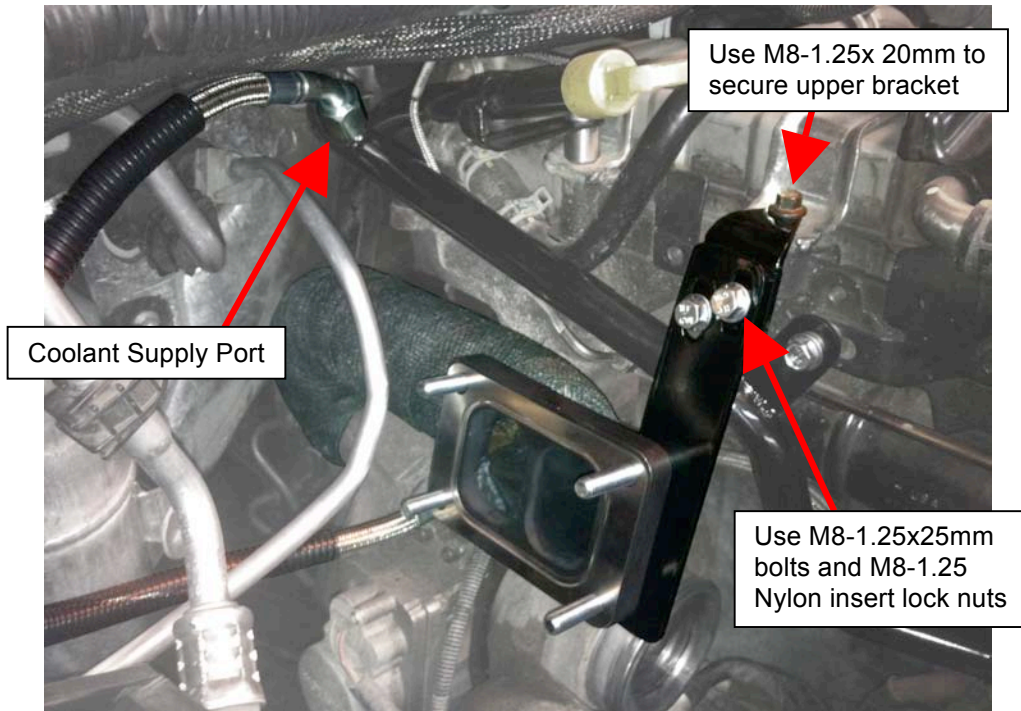


19. Loosely, install the wrapped hot pipe (#2, Figure 1) to the discharge of the factory turbocharger using the factory clamp.

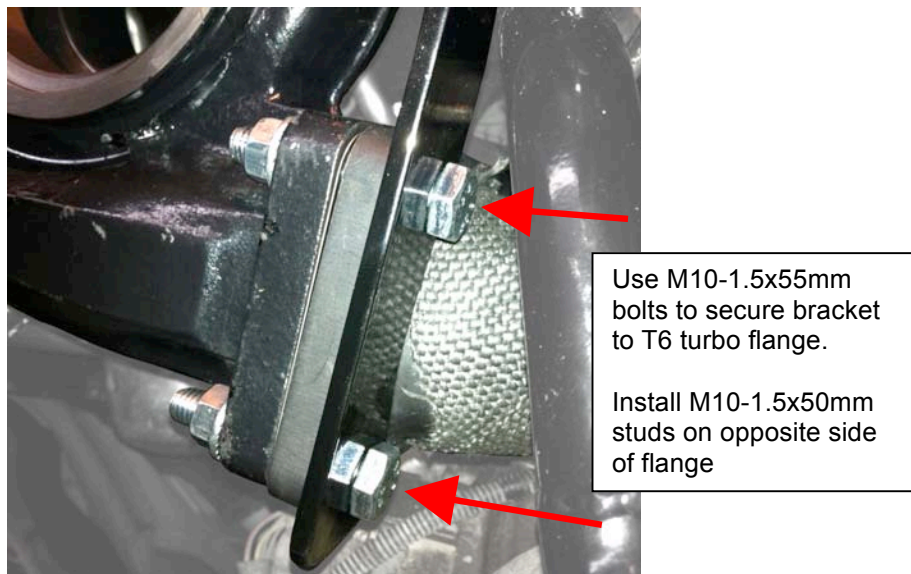


Reuse factory clamp. Leave loose for adjustment.

20. Install the loose end of the turbo coolant supply line to the new coolant transfer line or new fitting depending on the truck.



21. Loosely install the turbo support mount (#10, Figure 1) and turbo mounting hardware as shown.



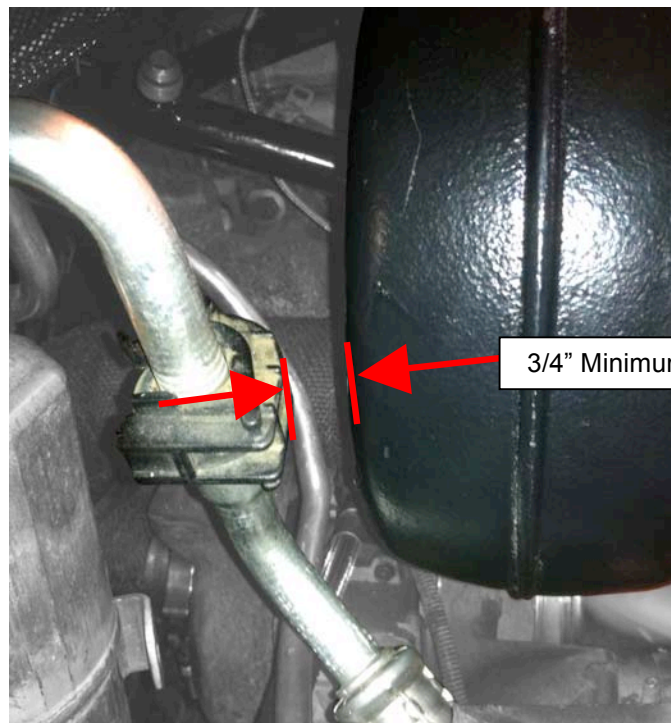
22. Rotate the hot pipe as close to the engine block as the turbo support mount will allow. Tighten the clamp on the stock turbine discharge.
23. Separate the turbine housing from the turbocharger assembly by removing the v-band clamp securing the bearing housing to the turbine. Be careful not to damage the turbine wheel when separating the pieces.

24. Install the turbine housing on the hot pipe, securing the hardware hand tight.



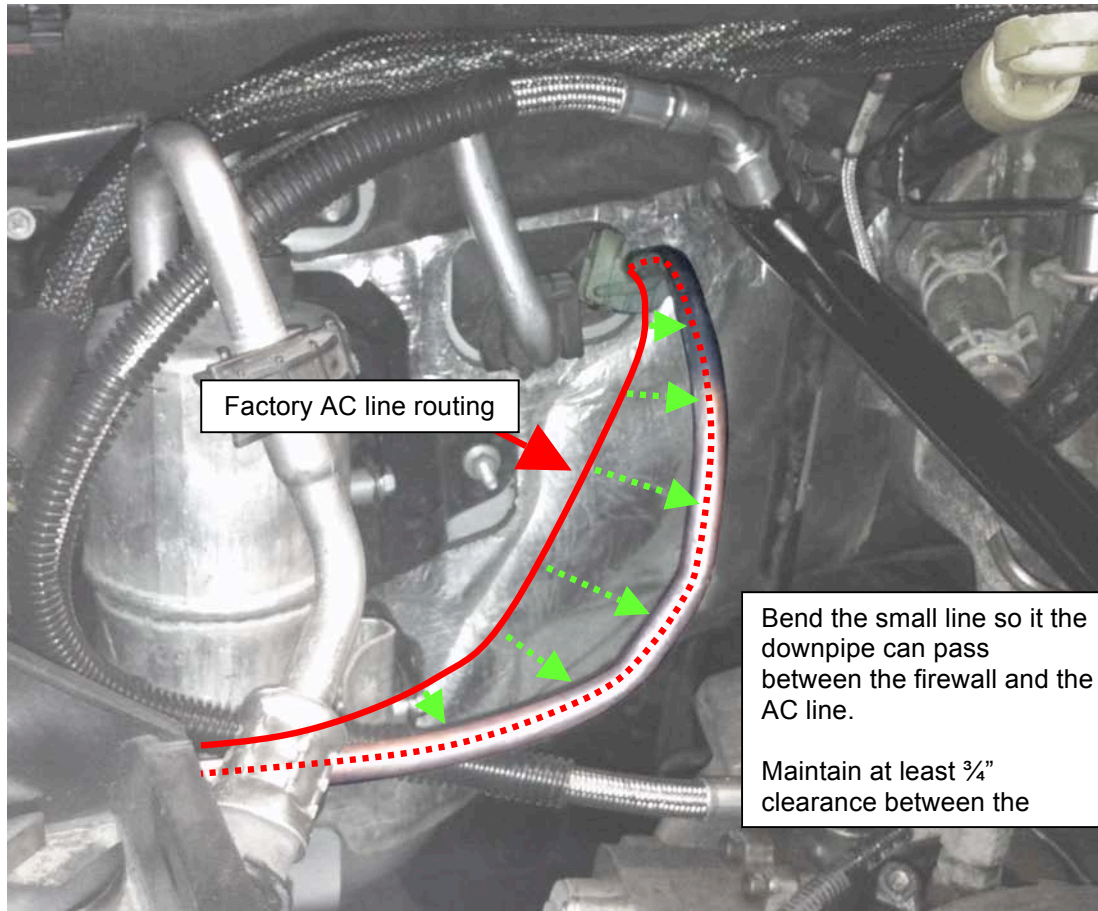
Slide turbine housing over bolts and studs. Install M10-1.5 flange nuts hand tight to secure turbine housing location

25. Install the upper portion of the downpipe (#3, Figure 1) using the clamp one of the v-band clamps (#16, Figure 1) included in the kit. This will be used to check clearance of the AC lines around the downpipe and turbine housing.
26. The large AC line running under the battery tray requires a minimum of 3/4 inch of clearance between the plastic clamp and the turbine housing. This will prevent damage to the air conditioning system.



3/4" Minimum Gap

27. The smaller of the AC lines must be bent to run between the turbine housing and downpipe. Bending the AC lines will likely require removing and reinstalling the downpipe and turbine housing several times.



28. When the AC lines are properly adjusted, install the turbine on the hot pipe and torque the nuts to **32 ft-lbs**.
29. Remove the oil filter. This will allow much easier access to the oil drain freeze plug.

30. Remove the freeze plug as shown. Removing the oil filter will greatly improve accessibility to the freeze plug.

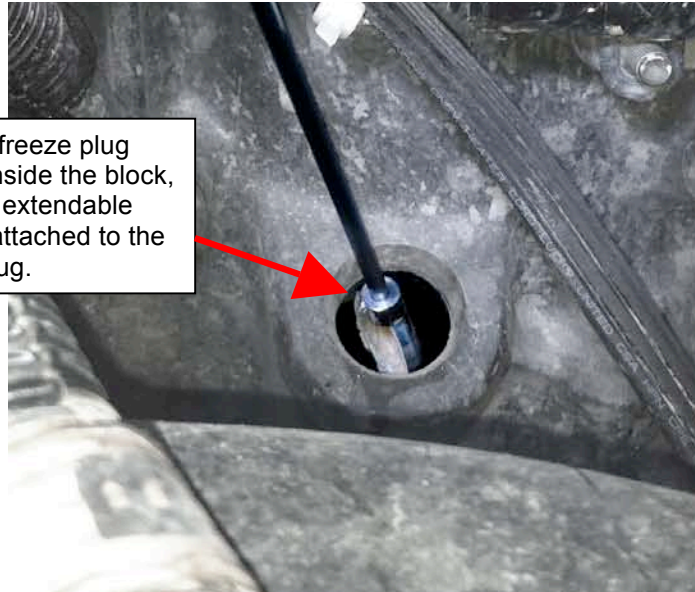
NOTE: Be sure to clean around the freeze plug and remove all debris from the cup of the freeze plug to ensure nothing drops into the oil pan.

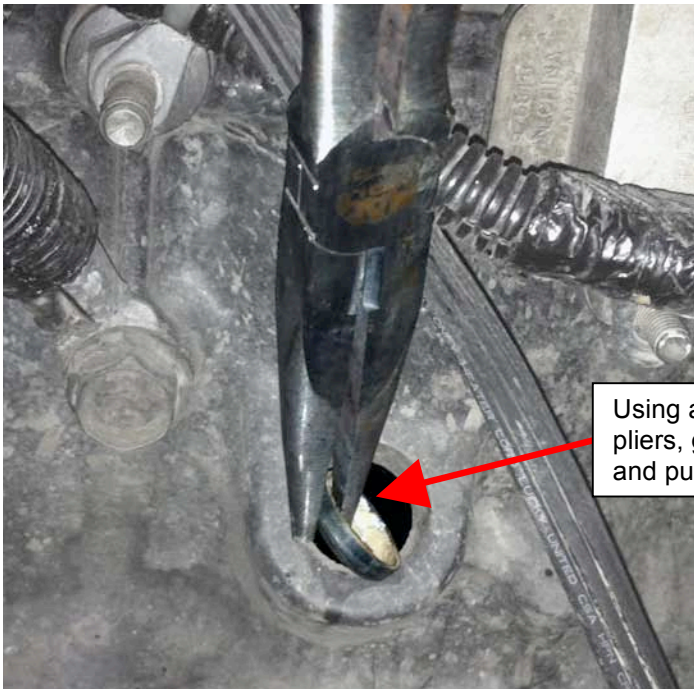


Using a flat blade screwdriver or punch, gently tap on the outer rim of the freeze plug to rotate it in the block.

Place an extendable magnet on the freeze plug. This will ensure that if the plug is accidentally hit into the block, it can be caught with the magnet so it doesn't drop into the oil pan.

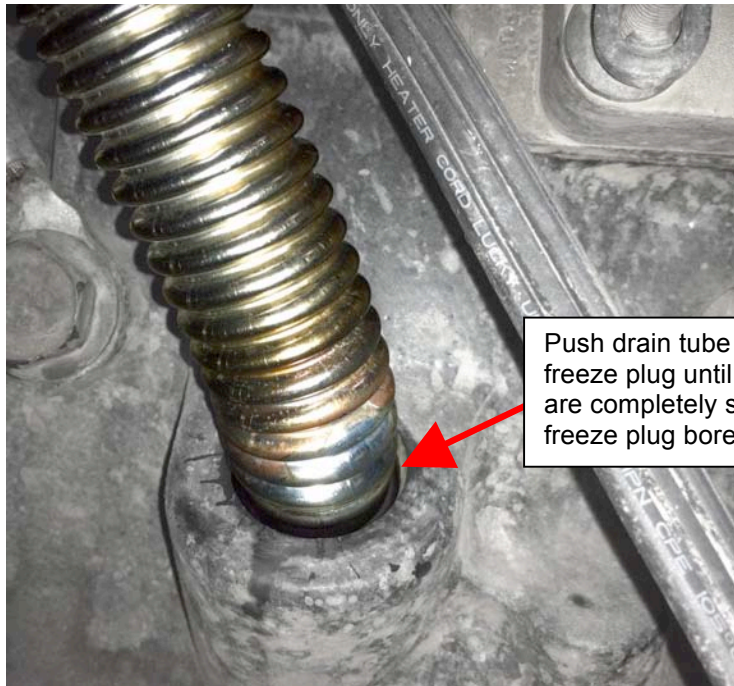
With the freeze plug rotated inside the block, keep the extendable magnet attached to the freeze plug.



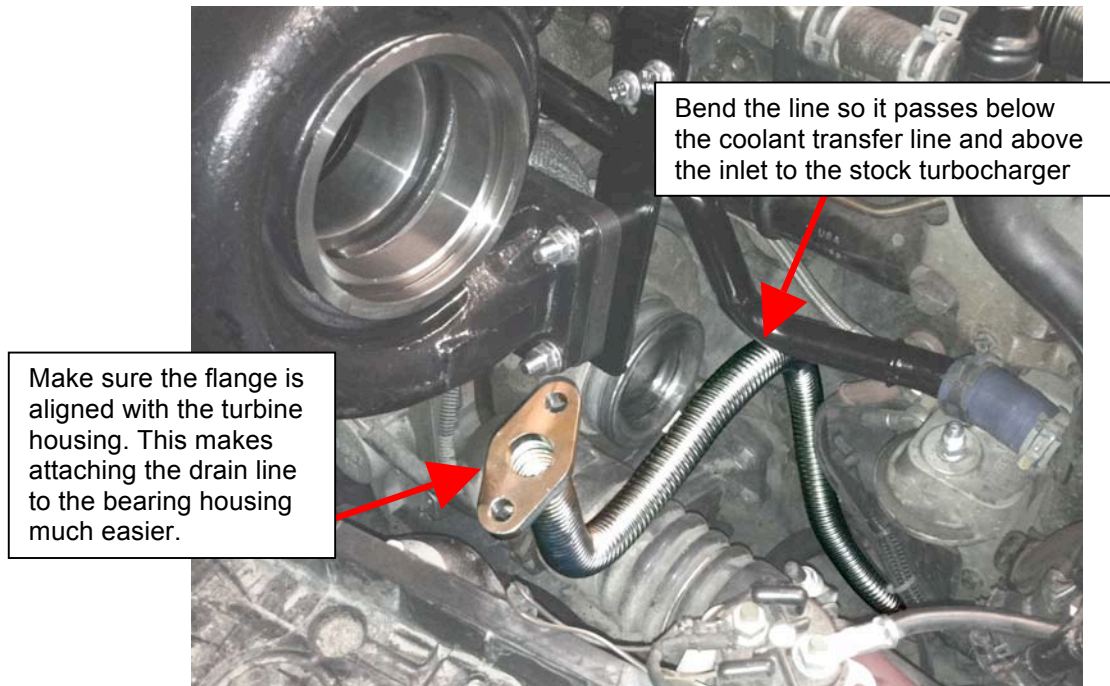


Using a pair of needle nose pliers, grab the freeze plug and pull it out of the block.

31. Insert the new turbo oil drain tube (#8, Figure 1) into the block.

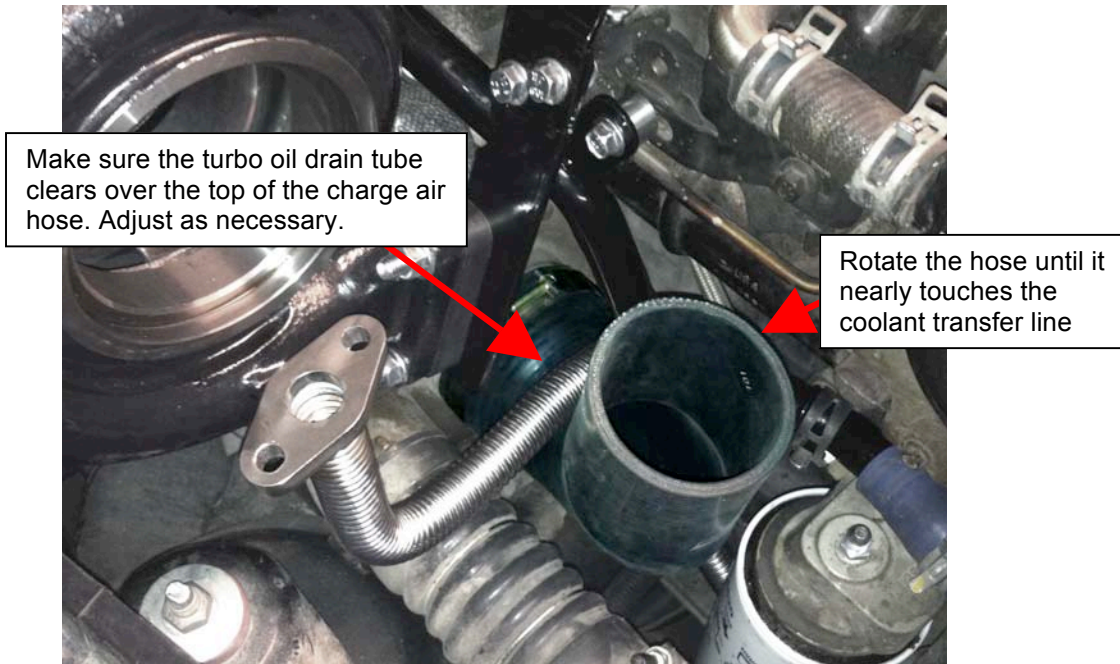


Push drain tube into freeze plug until o-rings are completely seated in freeze plug bore.

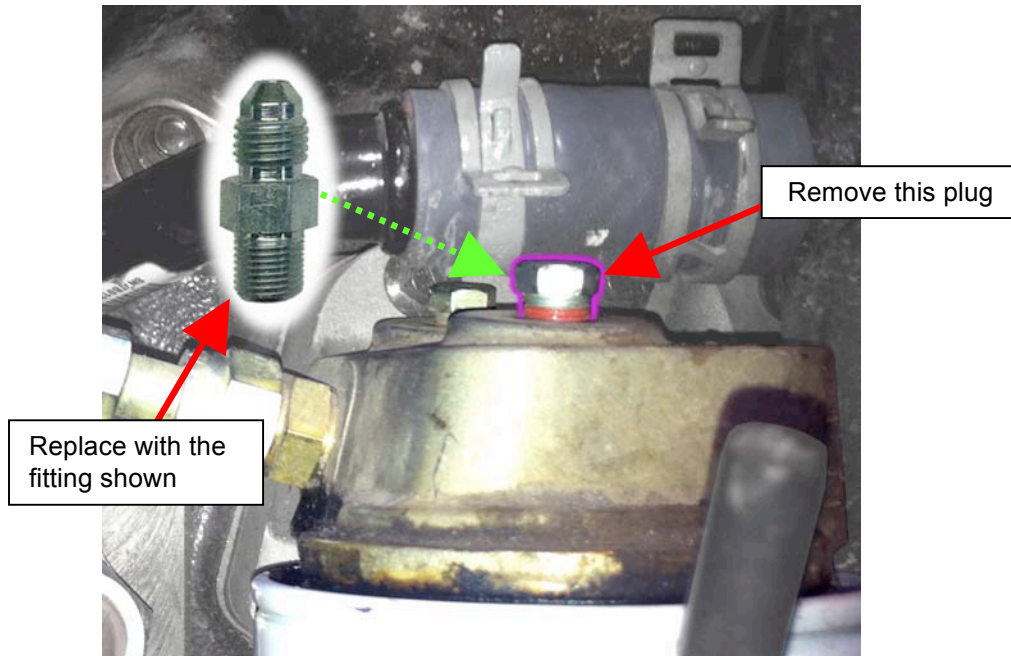


32. Reinstall the oil filter.

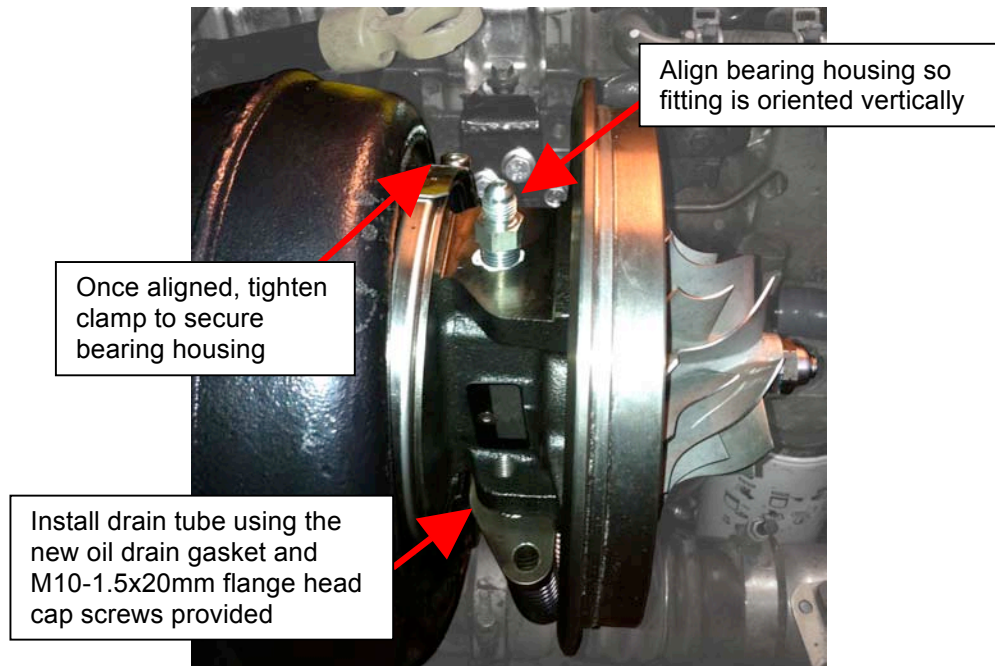
33. Install the charge air hose (#11, Figure 1) on the factory compressor housing. Leave the 4.5" clamp (#17, Figure 1) loose.



34. Remove the plug from the oil filter housing. Replace this plug with the oil supply line fitting (#27, Figure 2) included in the kit.

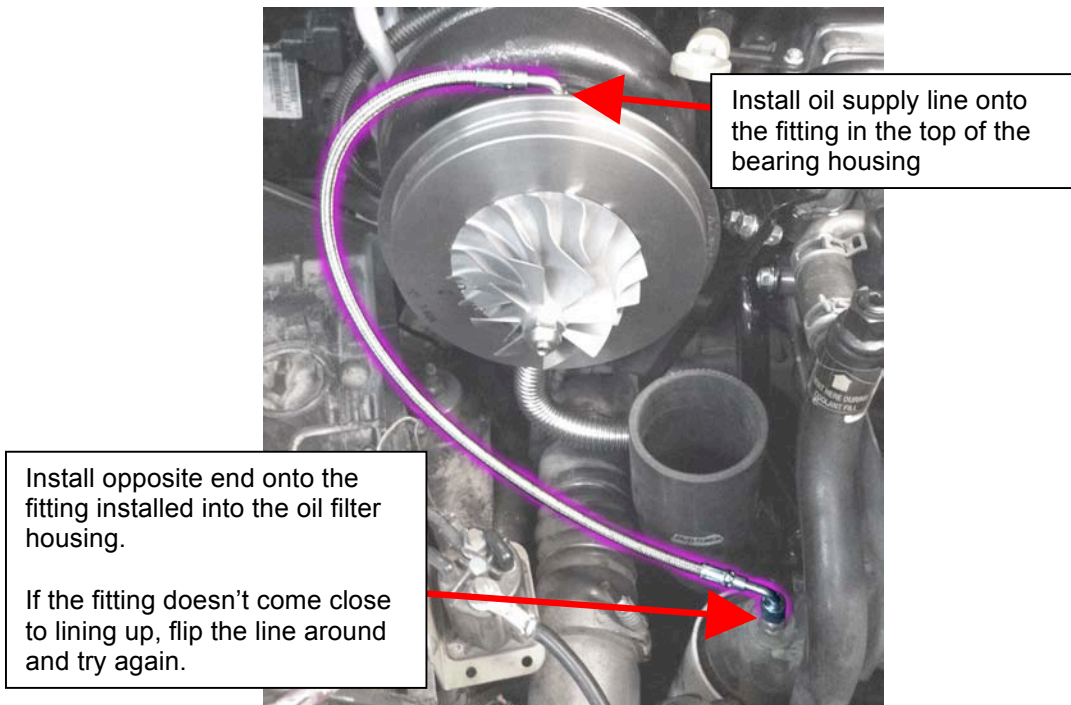


35. Disconnect the bearing housing from the compressor housing by removing the clamp.
36. Reinstall the bearing housing into the turbine housing in the truck. Orient the bearing housing so the supply and return ports are vertical.

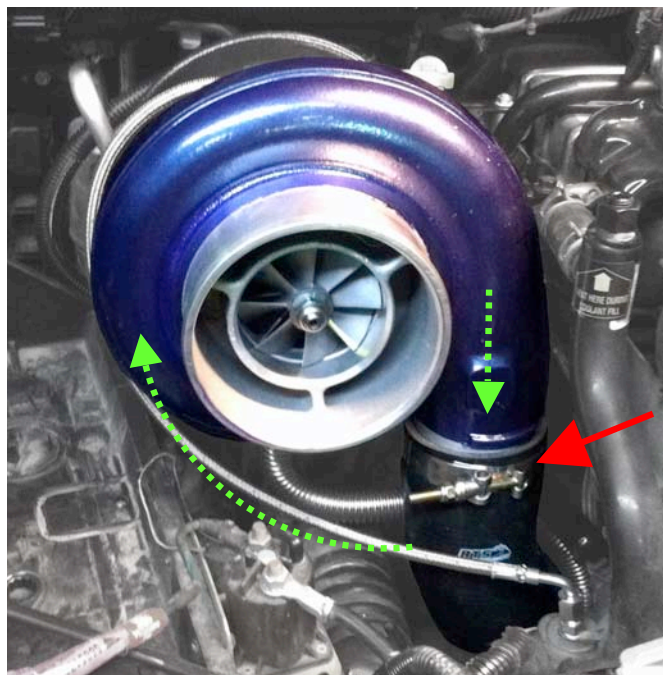


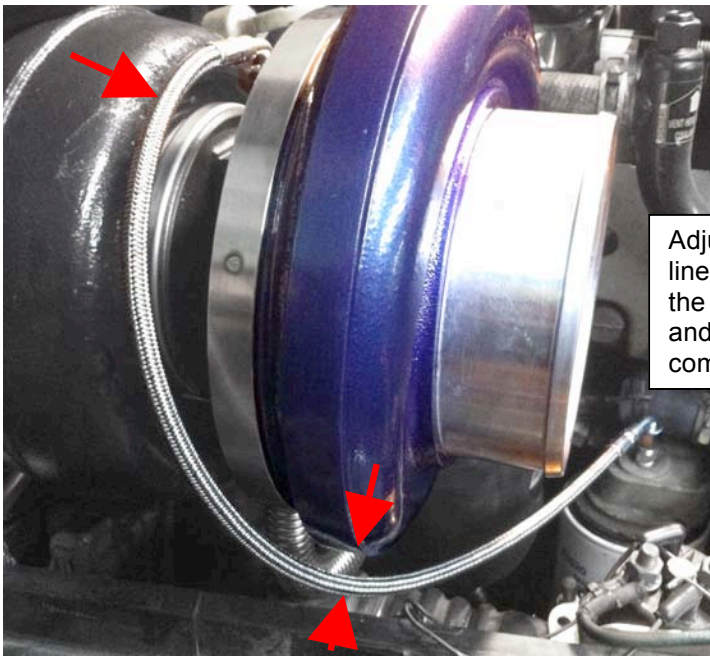
37. Connect the drain tube to the bearing housing using the oil drain gasket (#24, Figure 1) and M10-1.5x20mm hardware provided.

38. Connect the oil supply line (#19, Figure 1) to the oil filter housing and bearing housing as shown.



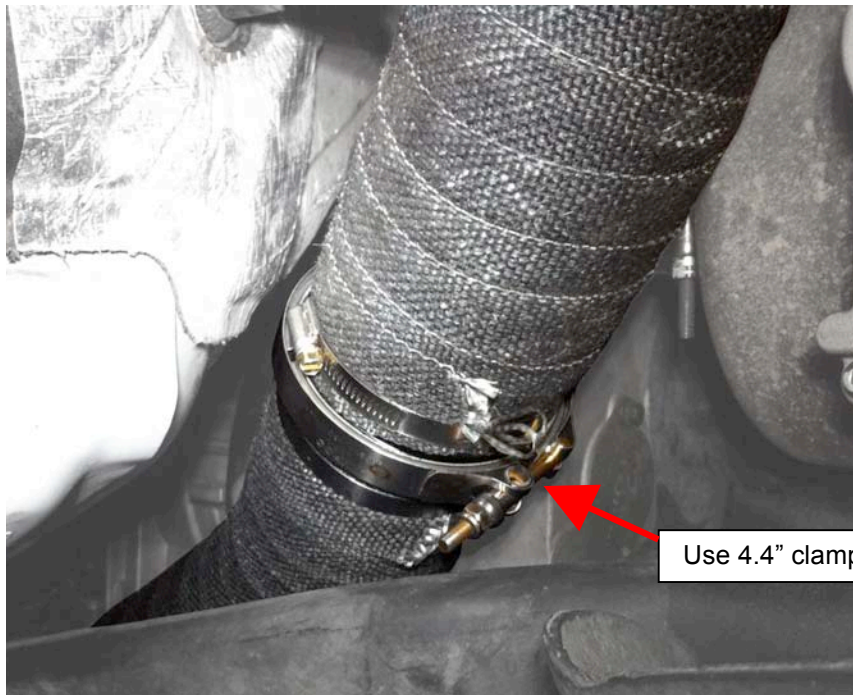
39. Insert the outlet of the compressor housing into the charge air hose and carefully reinstall on the bearing housing. Lightly tighten the clamp between the compressor housing and bearing housing so the housing can spin but not rattle. Adjust the clocking of the compressor until the charge air hose is properly aligned on the outlet of the compressor. Tighten the charge air hose clamps and bearing housing-compressor clamp when done.





Adjust the oil supply line so it is away from the turbine housing and will not touch the compressor housing

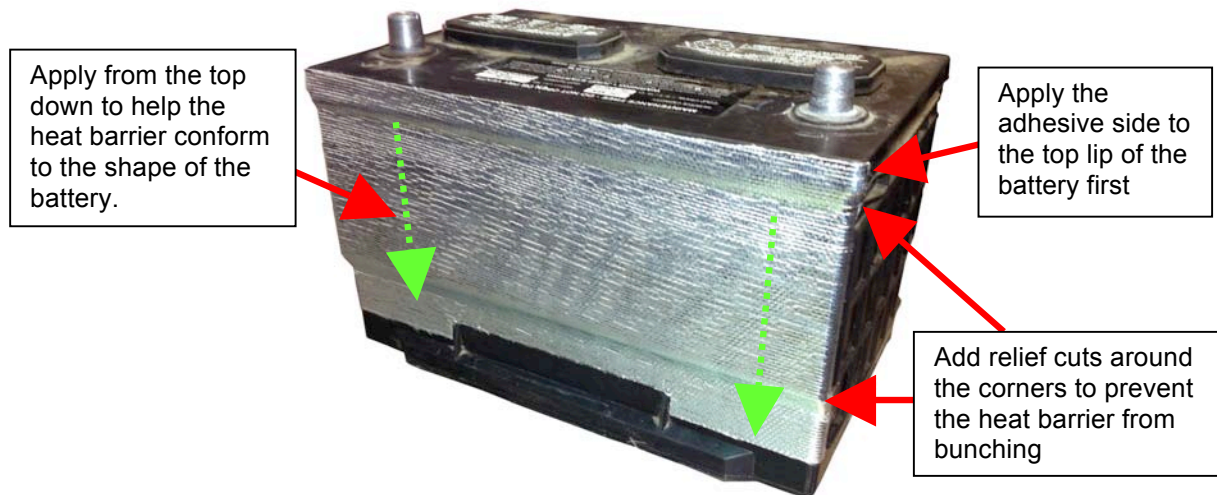
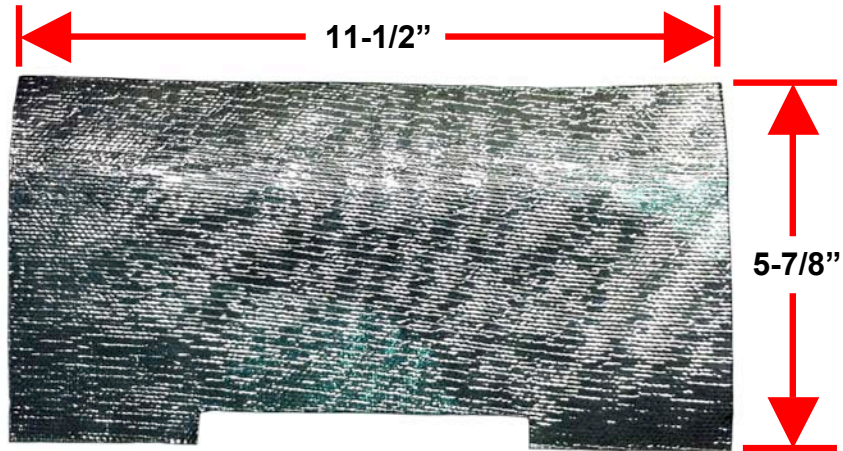
40. Reinstall the upper portion of the new downpipe. Leave the upper clamp slightly loose to allow for adjustment.
41. Install the lower portion of the new downpipe (#4, Figure 1) between upper portion of the downpipe and the factory exhaust. Adjust as necessary to ensure the downpipe has clearance around the frame rail. After adjustment is complete, tighten all the clamps.



Use 4.4" clamp

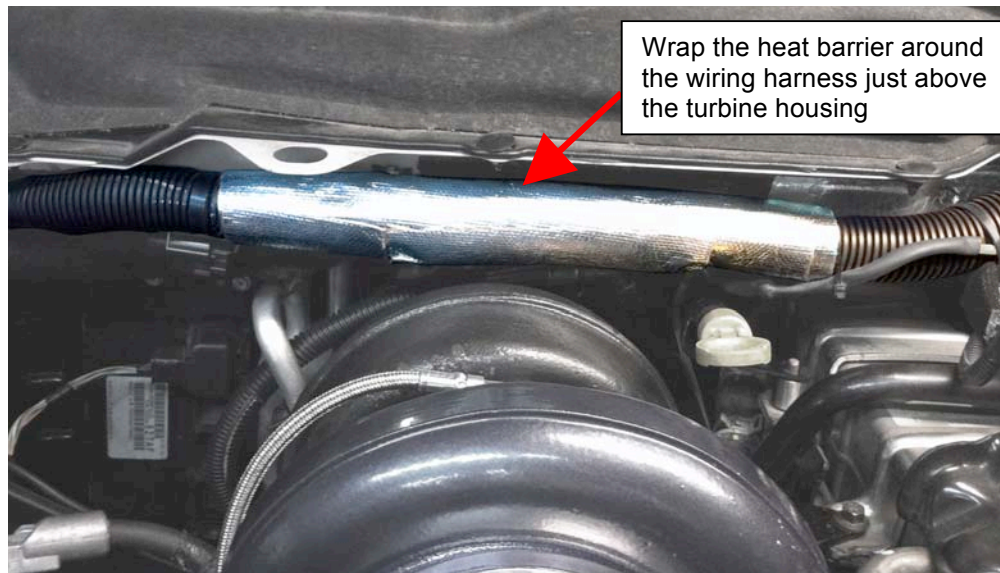
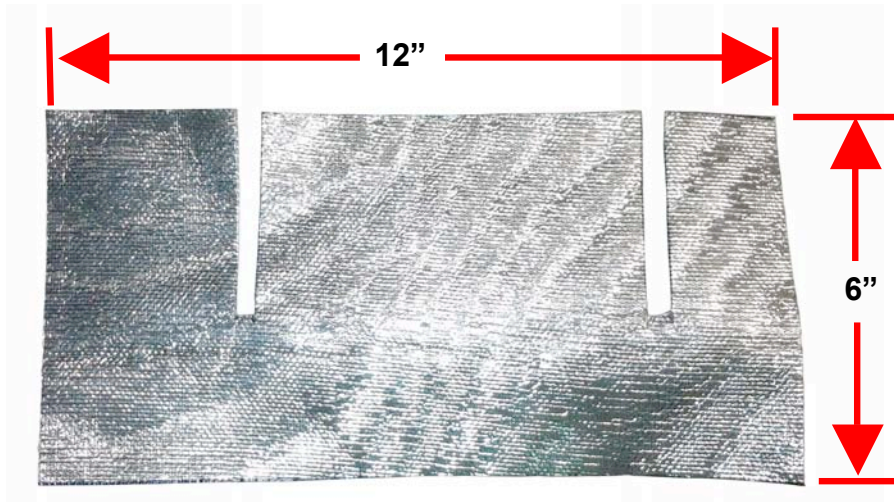
42. Using the exhaust coupler (#19, Figure 1) and exhaust clamps (#20, 21, Figure 1) provided, connect the lower portion of the downpipe to the stock exhaust.

43. Remove the factory wrap from around the battery.
44. Locate the adhesive backed heat barrier (#22, Figure 1) included in the kit. This will be used to protect various parts of the truck from the added heat of the new turbocharger. Measure the front of the battery and cut a piece that will fit. For a stock sized battery, approximately 11-1/2" x 5-7/8" will fit and give a bit extra to wrap around the corners. For other batteries, they will require measurement.



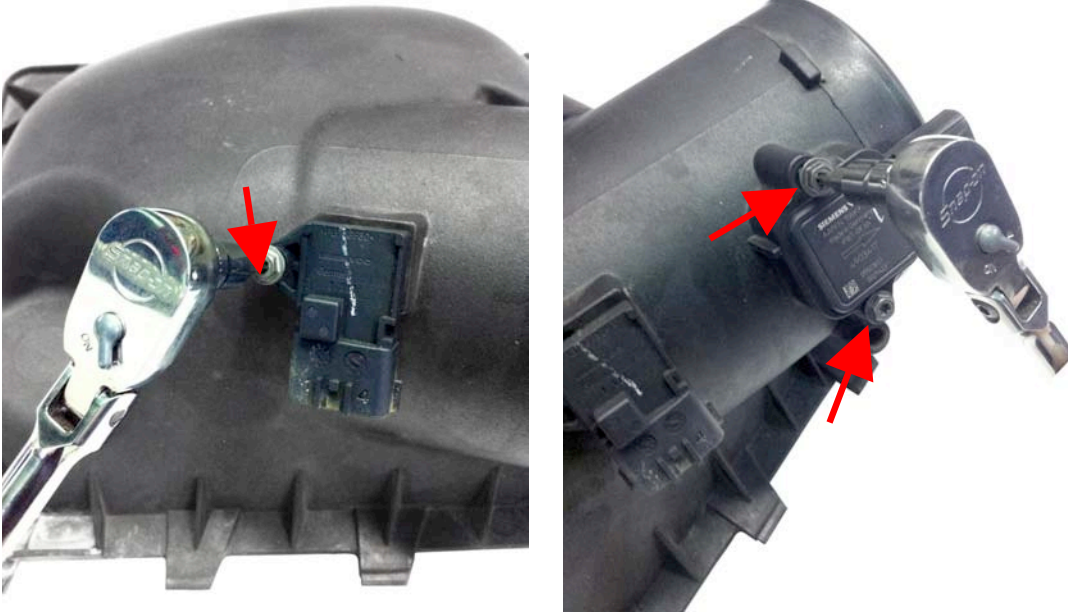
45. Measure and cut another section to fit the side of the battery closest to the firewall. For a stock battery, this will be approximately 8" x 6-1/2" to provide overlap for the corners.

46. To protect the wiring running along the top of the cowl, cut a section approximately 12" x 6". There are harness attachment points which require cutouts as show.



47. Cut a section approximately 7" x 4". Wrap this around the negative battery cable about 2" away from the terminal clamp. Orient the long side of the heat barrier along the length of the cable.
48. Reinstall the battery in the battery tray but do not connect the terminals.

49. Remove the intake air temperature (IAT) sensor and mass air flow (MAF) sensor from the factory intake using a T20 torx bit or 7mm socket.

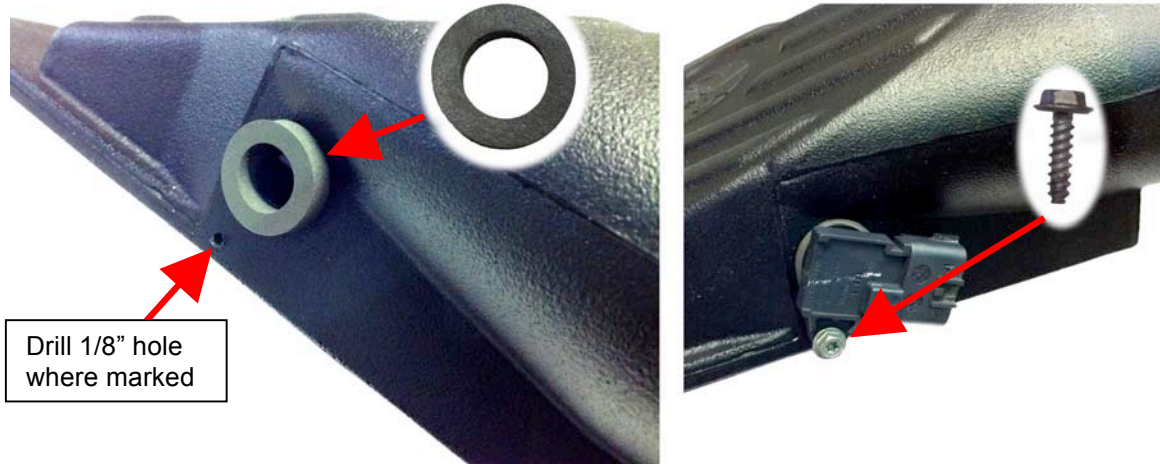


50. Install the MAF sensor in the aluminum inlet elbow (#5, Figure 1) using the #10-24x5/8" hardware provided.



51. Install adhesive backed foam washer around the large hole on the side of the air box lid. Install the IAT sensor in the AFE air box lid reusing the factory self tapping screw.

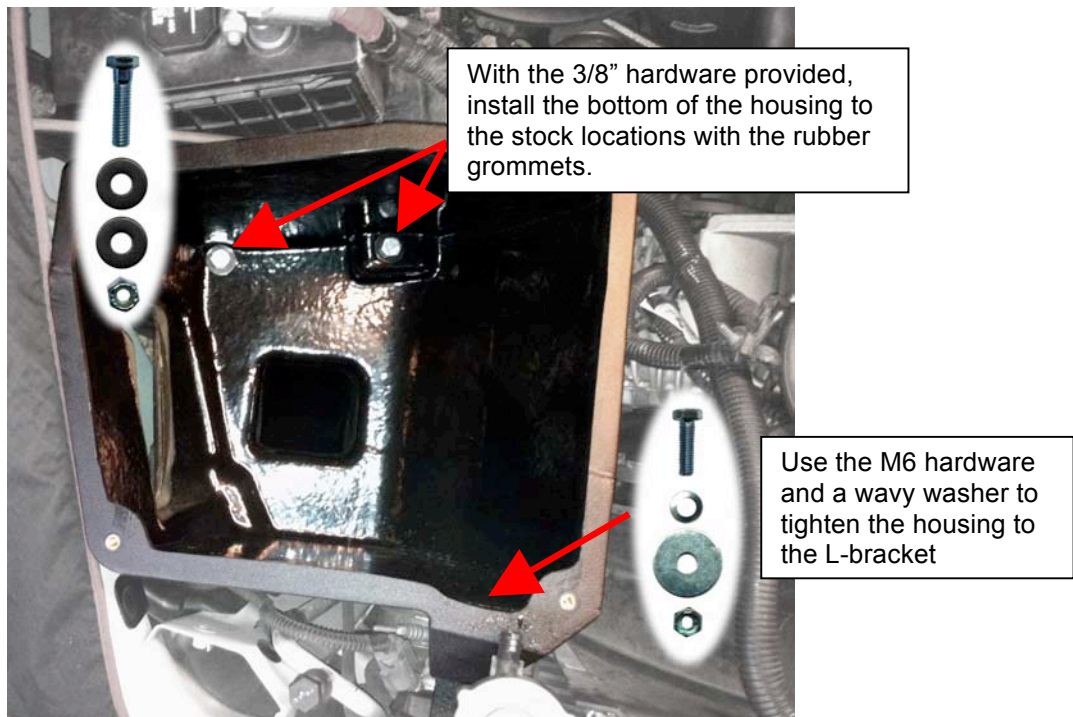
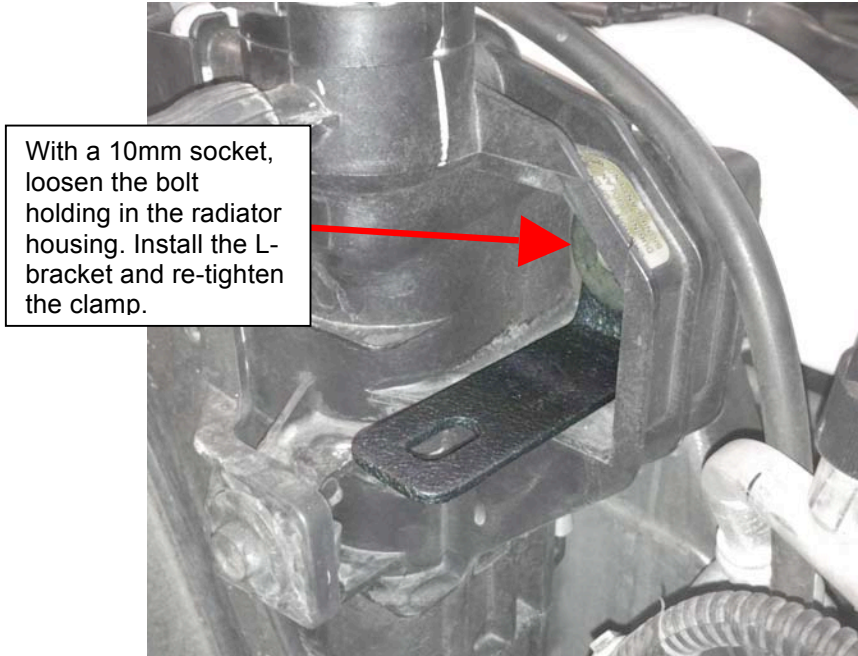
Note: Depending on the year of the truck, there are 2 different IAT sensors that were used. They look very similar but the location of the screw is slightly different. Using the sensor, set it in the hole and mark the location as illustrated below. Drill a 1/8" hole as shown.



52. Install the new air filter (#X, Figure 1) over the round connection on the lid.



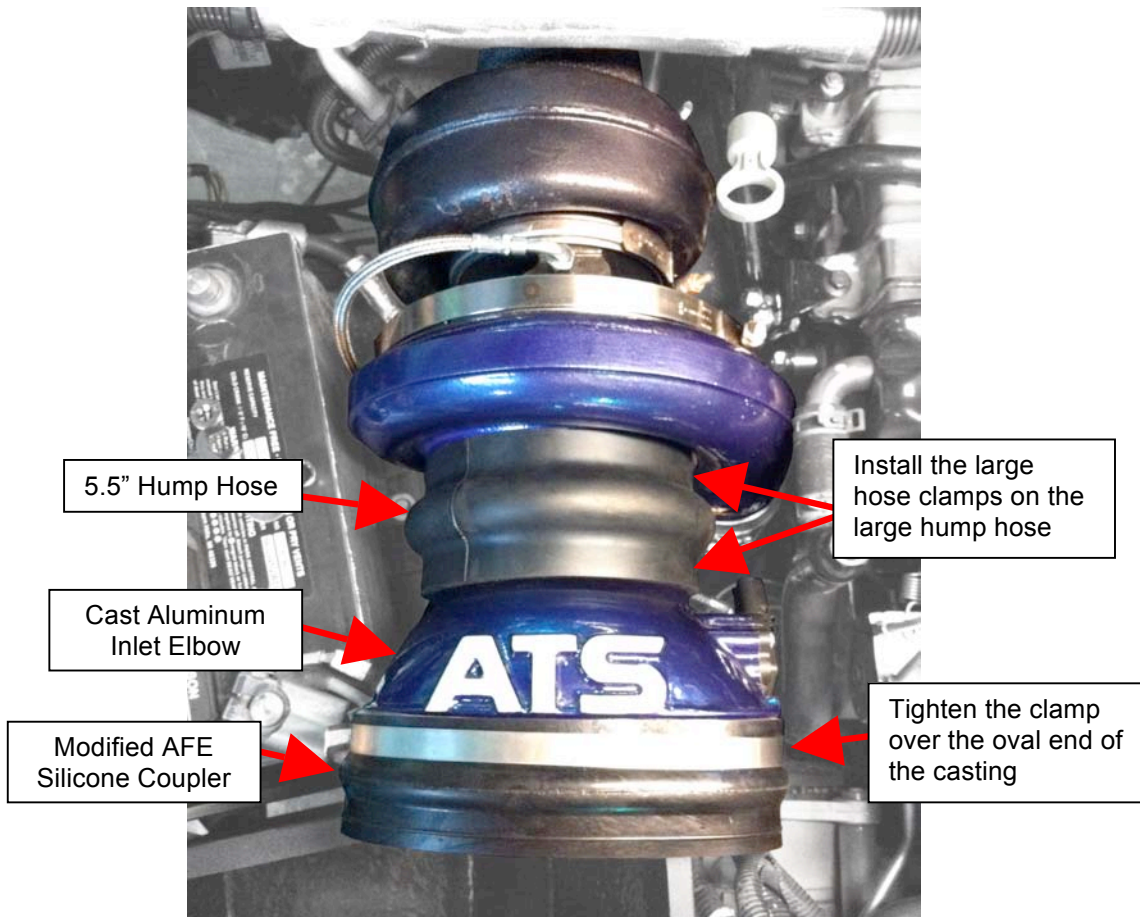
53. Install the lower portion of the AFE air box. Be sure to adjust the location of the air box until it touches the radiator. It must be as far forward as the brackets will allow.



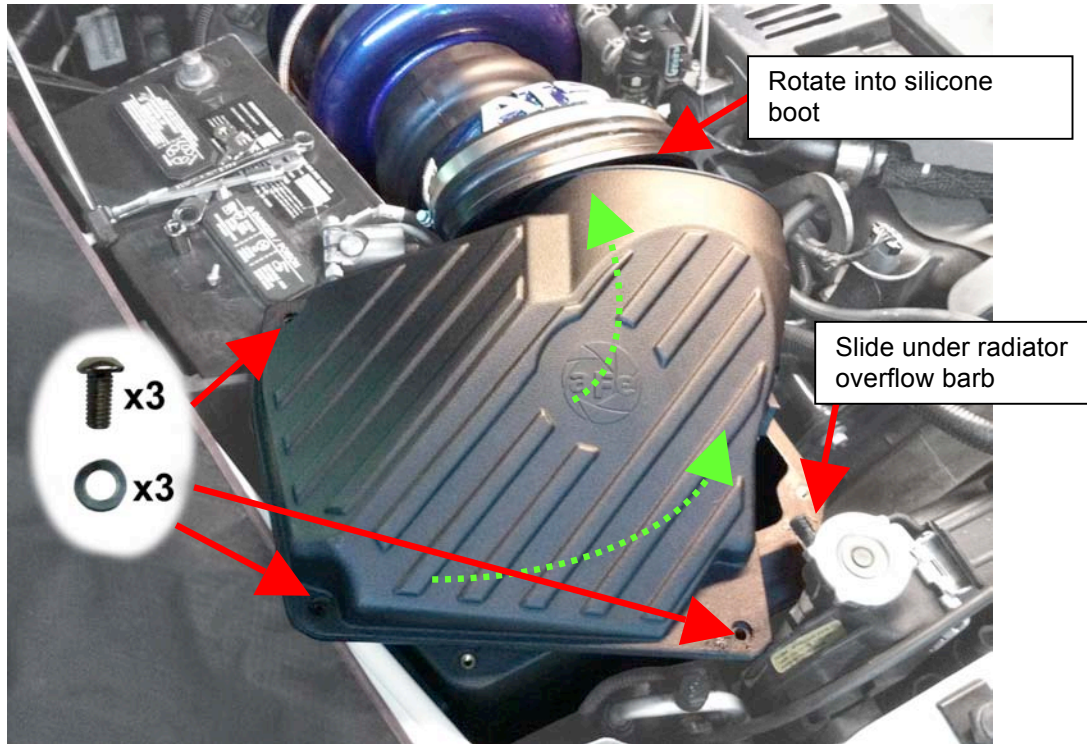
54. Install the larger hump hose (#13, Figure 1) over the inlet of the turbocharger using one of the hose clamps (#15, Figure 1).



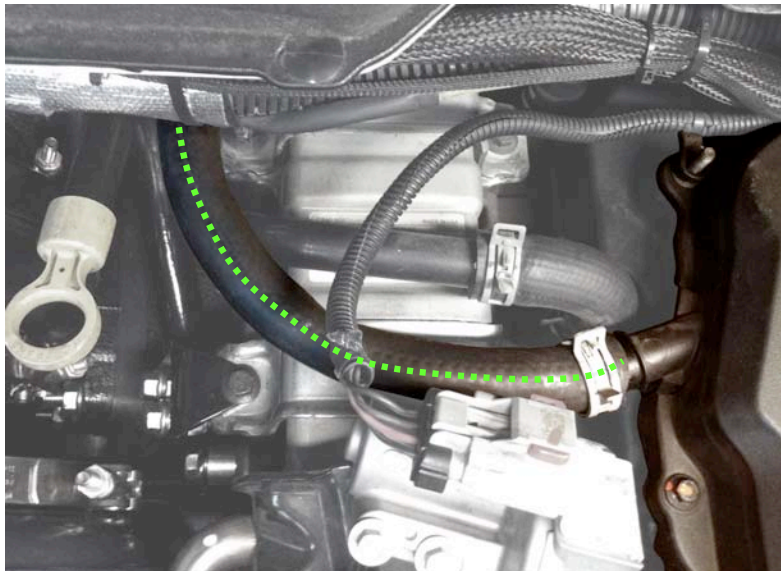
55. Install the round end of aluminum inlet elbow into the hump hose but do not tighten the clamp.



56. Install the soft silicone coupler hose (included in the AFE kit) on the oval end of the aluminum intake elbow.
57. Carefully insert the air filter into the lower part of the air box at an angle. Rotate the lid into the silicone coupler and under the barb for the radiator overflow tube. Bolt down the lid using the hardware provided and tighten the clamps.



58. Reinstall the overflow tube on the barb of the radiator.
59. Using the factory clamp, attach the $\frac{3}{4}$ " hose to the breather barb on the valve cover. Route the hose along the transmission dipstick tube using the zip ties provided.



60. Refill the cooling system with approved coolant.
61. Reconnect the positive battery terminal. To clear the new intake system, rotate the terminal toward the front of the truck.
62. Reconnect the negative battery cables.
63. Start the truck and check for coolant/oil leaks or vibrations. Allow it to idle for 2-3 minutes without revving the engine. This will allow the oil to reach the bearings of the new turbo. If leaks are found, make sure clamps/bolts/fittings are tight.
64. If no leaks are present, reinstall the passenger side inner fender.
65. Drive conservatively for about 100 miles to allow some break-in time on the turbocharger. After the 100 miles, let her rip.

Have Any Questions?

Thank you for purchasing the Aurora 7500 Plus Turbo Kit. Please check our website at <http://www.atsdiesel.com> for technical support and other performance products such as the 5-Star™ torque converter, Co-Pilot Transmission Controller and our High Performance 68RFE Transmission along with our full line of power enhancers. Please call or e-mail our Technical Service Department, 8:00am to 5:30pm Mountain Standard Time, Monday through Friday.

Contact Information

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We strive to make our instructions as clear and complete as possible. To achieve this, our instructions are under constant construction. We encourage you to visit our website to check for the most up-to-date manuals and diagrams as well as other information. If you have any suggestions as to how we can improve this installation manual, let us know at <mailto:Suggestions@ATSDiesel.com>.

Bill of Materials

1. Aurora 7500 Turbo 202-701-1000
2. Exhaust Transfer Pipe 202-041-2326
3. Downpipe, Upper Section 205-025-2326
4. Downpipe, Lower Section 205-026-2326
5. Air Inlet Elbow 206-016-2326
6. Coolant Transfer Line 105-023-2326
7. Turbo Coolant Supply Line 202-090-2326
8. Turbo Oil Drain Tube 202-048-2362
9. Turbo Oil Supply Line 202-028-2326
10. Turbo Support Mount (2-piece) 202-053-2326
11. Intermediate Charge Tube, Silicone 202-040-2326
12. AFE Stage 2 Sealed Intake System 54-81342
 - Air Box Base
 - Air Box Lid
 - Air Filter
 - Silicone Hose Coupler
 - (3) Worm Drive Hose Clamps
 - "L" Mounting Bracket
 - AFE Hardware Kit (see Figure 4)
13. 5.5" Silicone Hump Hose
14. EGR Deleted Turbo Support Bracket 202-084-2326
15. (2) 5.5" Worm Drive Hose Clamp
16. (2) 4.4" V-Band Clamp
17. 4.5" T-Bolt Clamp 94100-0450
18. 3.5" T-Bolt Clamp 94100-0350
19. 4" to 4.5" ID Exhaust Reducer
20. 4.5" Exhaust Clamp
21. 4" Exhaust Clamp
22. Adhesive Backed Heat Barrier 12" x 24" 13575
23. (4ft) 3/4" Rubber Hose
24. T6 Gasket
25. Oil Drain Gasket

26. Dipstick Tube Mount (non-EGR) 202-076-2326
27. 1/8NPT to JIC-4 Fitting
28. Standoff, Coolant Transfer Line 202-074-2326
29. Dipstick Tube Spacer 202-075-2326
30. Coolant Line Blockoff (2007.5-08, non-EGR) 105-005-2326
31. Coolant Line Blockoff (2009, non-EGR) 105-005-2344
32. (2) AC Receiver Dryer Spacer 202-073-2326
33. (2) EGR Deleted Support Bracket Standoff 202-072-2326
34. Factory Coolant Line Spacer (2009 Vehicles)
35. 90° M16-JIC-8 Fitting 8M16F8OMXS
36. (10) 7" Zip Ties
37. Hardware Kit 202-001-2326
 - (2) M10-1.5x50mm Stud
 - (4) M10-1.5 Flange Nut
 - (2) M10-1.5x55mm Full Thread Cap Screw
 - (4) M10-1.5x20mm Flange Head Cap Screw
 - (5) M8-1.25x20mm Serrated Flange Bolt
 - (5) M8-1.25 Nut
 - (5) M8 Lock Washer
 - (2) M8-1.25x25mm Flange Head Cap Screw
 - (2) M8-1.25 Nylock Flange Nut
 - (1) M8-1.25x45mm Cap Screw
 - (2) M8-1.25x40mm Cap Screw
 - (2) M8 Flat Washer
 - (1) M6-1.0x16mm Flange Head Cap Screw
 - (2) M6-1.0 Nut
 - (2) #10-24x5/8" Stainless Steel Button Head Cap Screw