DC1012_HM

INSTALLATION INSTRUCTIONS

PUSHER COMPOUND TURBO SYSTEM

2010 - 2012 Dodge Cummins

Tools Required: Basic Hand Tools
Average Install Time: 4-8 Hours
Skill Level: Intermediate

AIR IS EVERYTHING.

TUNING ADVICE

To take maximum advantage of this turbo system, ***your truck must be custom tuned after the installation***. Without a proper tuning, the truck will be sluggish on the bottom end among other things, due to the calibration of the stock Mass Airflow Sensor (MAF) for the factory sized cold air intake.

There are a few major factors to take into consideration with this turbo system, in addition to other parts like injectors, fuel pumps, larger tires, etc when tuning the truck. Below is a list of things for you and your mechanic / tuner to consider:

- This system is equipped with a 5" OD (4.87" ID) cold air intake which is substantially larger than the factory intake. Thus your tune will need to take this into consideration and fuel much "harder" on the low end.

- The truck can now make considerably more boost than the factory MAP sensor can read, investing in an after-market digital boost gauge for both the intermediate charge pressure and final charge pressure is highly recommended. Also the ability to data log these pressures are key in fine tuning the truck.

- The vanes on the factory turbo need to open early in the RPM's on acceleration, don't be afraid to have them open much sooner than you would expect and see how the truck and boost numbers react.

RC1012_HM

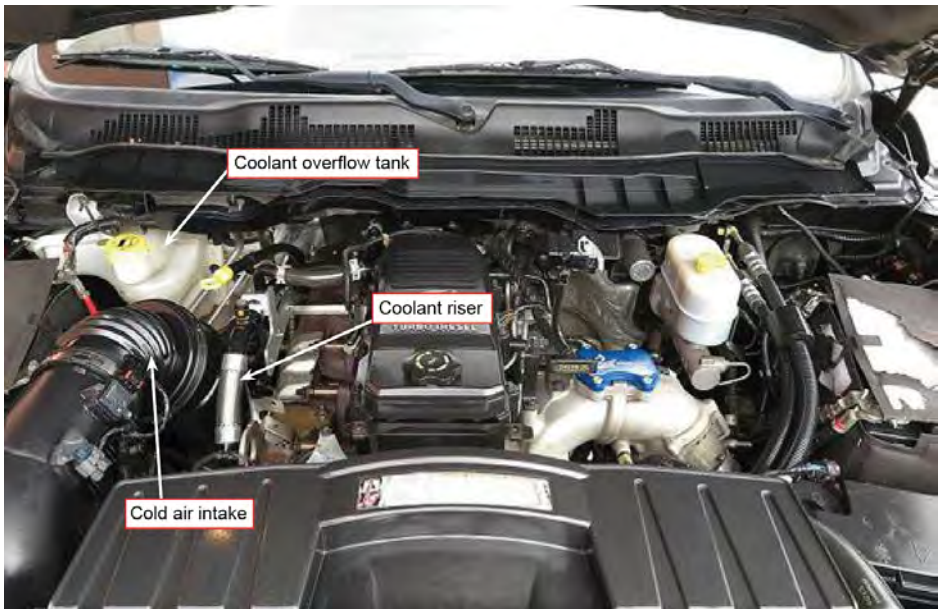
Pusher High Mount Compound Turbo System for 2010-2012 Dodge Cummins Installation Instructions

If at any time you have questions or concerns during the installation process, please feel free to contact us!

installs@pusherintakes.com | 866.900.6363 (M-F, 8am – 5pm)

Installation Process:

1. Remove the cold air intake system, coolant overflow tank, drain the engine coolant and remove the coolant riser.



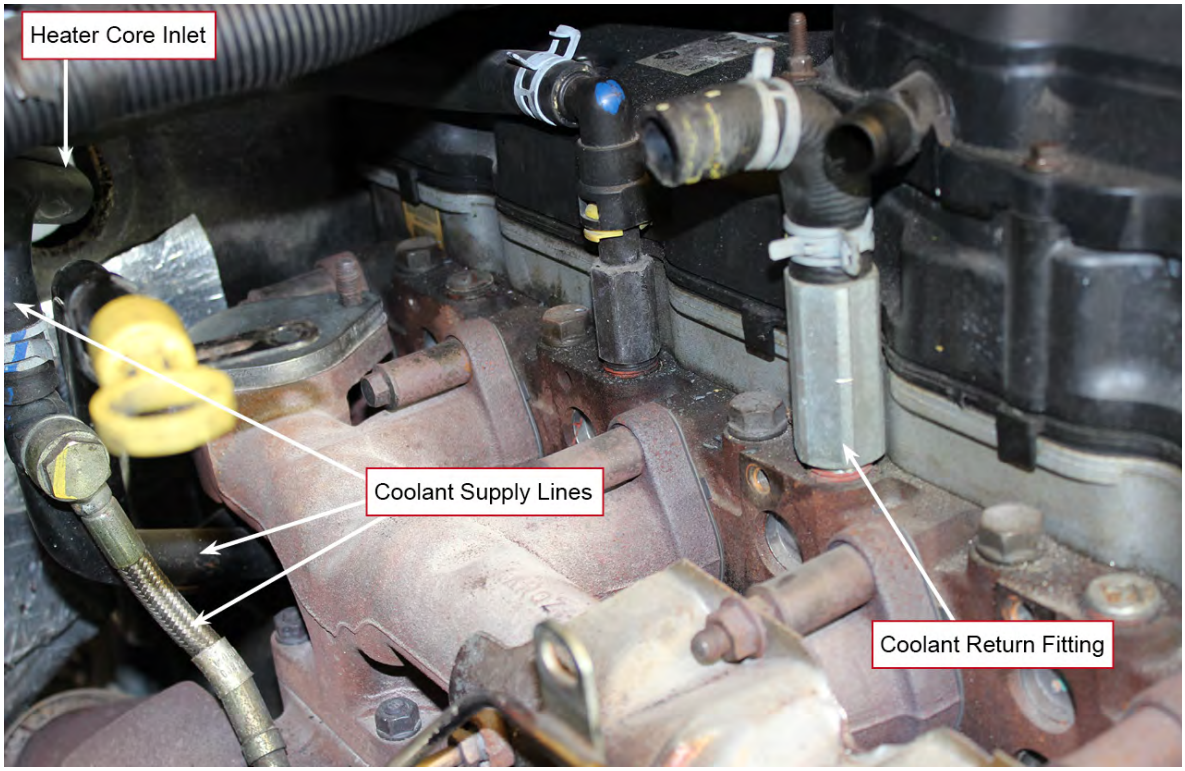
2. As shown below, cut the coolant riser tube just below the first outlet.

3. Drill a 3/16” hole, ¼” on center below the cut you just made on the coolant riser. The 3/16” hole should be on the rear facing side of the tube. Make sure the cut and drilled hole are free of burrs or sharp edges. Heavily deburring the cut edge on the tube will help the o-ring slide inside the coolant riser.

4. As shown below, insert the coolant adapter into the cut end of the coolant riser, use a silicone based lubricant on the o-ring to help it fit into the coolant riser. Make sure the tube is heavily deburred on the inside and does not cut or nick the o-ring. Also make sure the o-ring does not squeeze out of the hole on the way by and get cut. Align the threaded hole in the coolant adapter with the drilled hole then install the supplied M4 button head bolt. It is recommended to use Loctite on the M4 bolt. Install the supplied ¼” NPT x 6AN adapter in the large threaded hole on the coolant riser adapter, use Teflon paste on the threads.

5. Reinstall the coolant riser.

6. Replace the factory coolant return fitting with the supplied ½” NPT plug. Also remove the entire heater core and turbo coolant supply lines.



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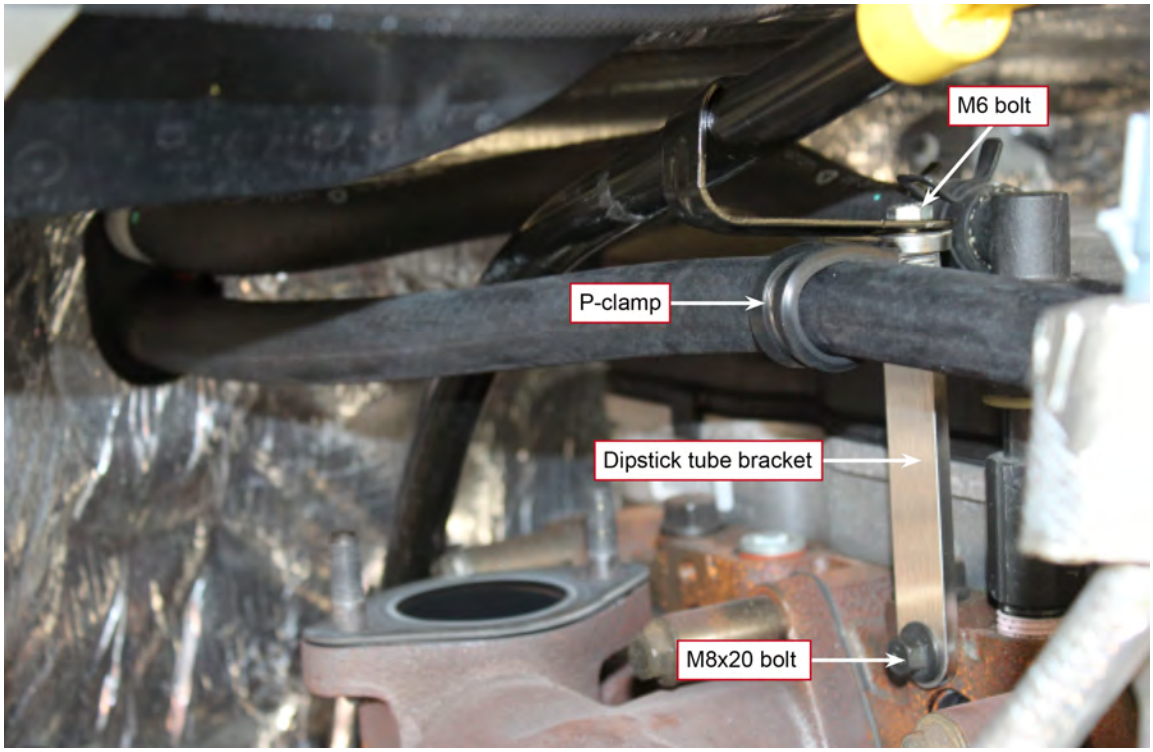
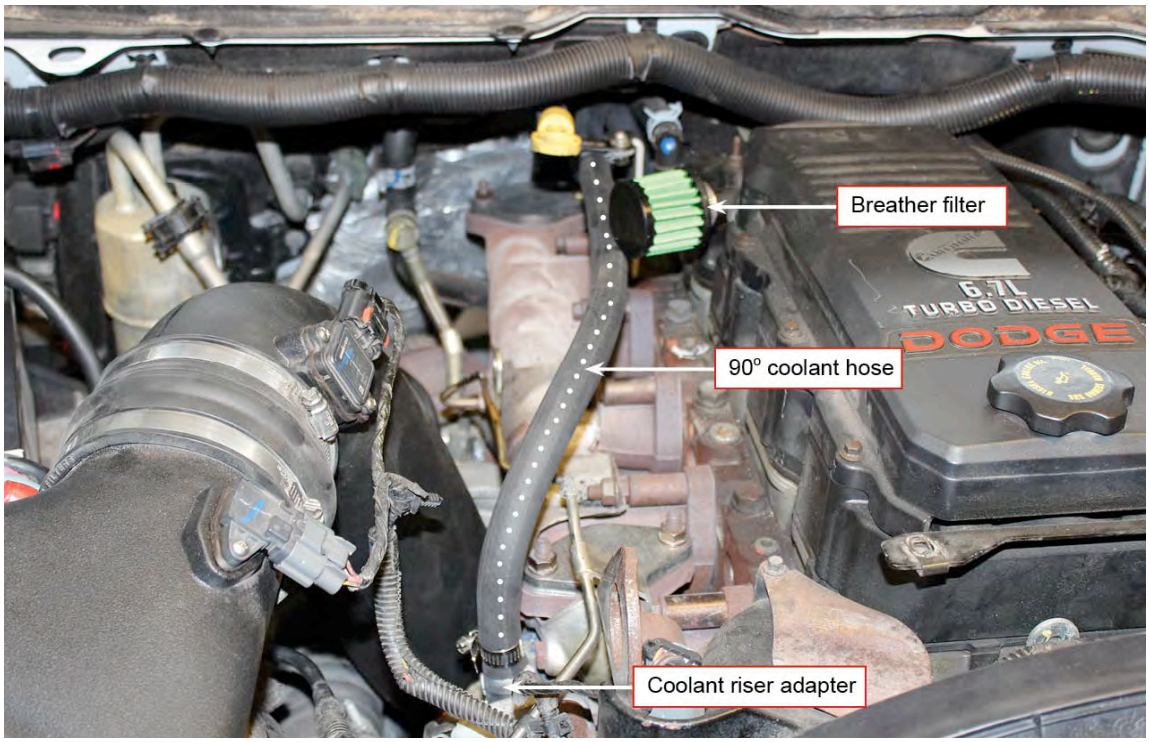
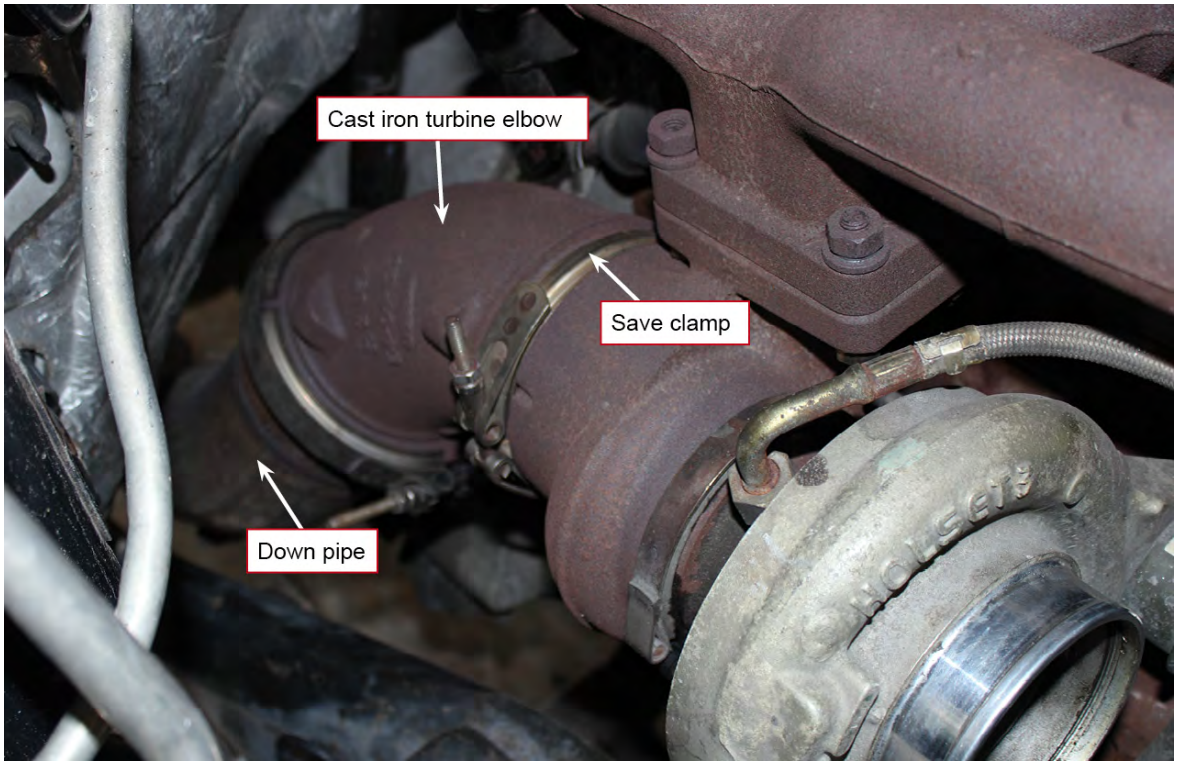
7. Use the supplied M8x20mm bolt to secure the dipstick tube bracket to the block. Use the supplied M6 bolt and washer to secure the dipstick tube and supplied P clamp to the dipstick tube bracket. Make sure to route the molded 90˚ coolant hose through the P clamp. Also install the supplied breather filter as shown below.



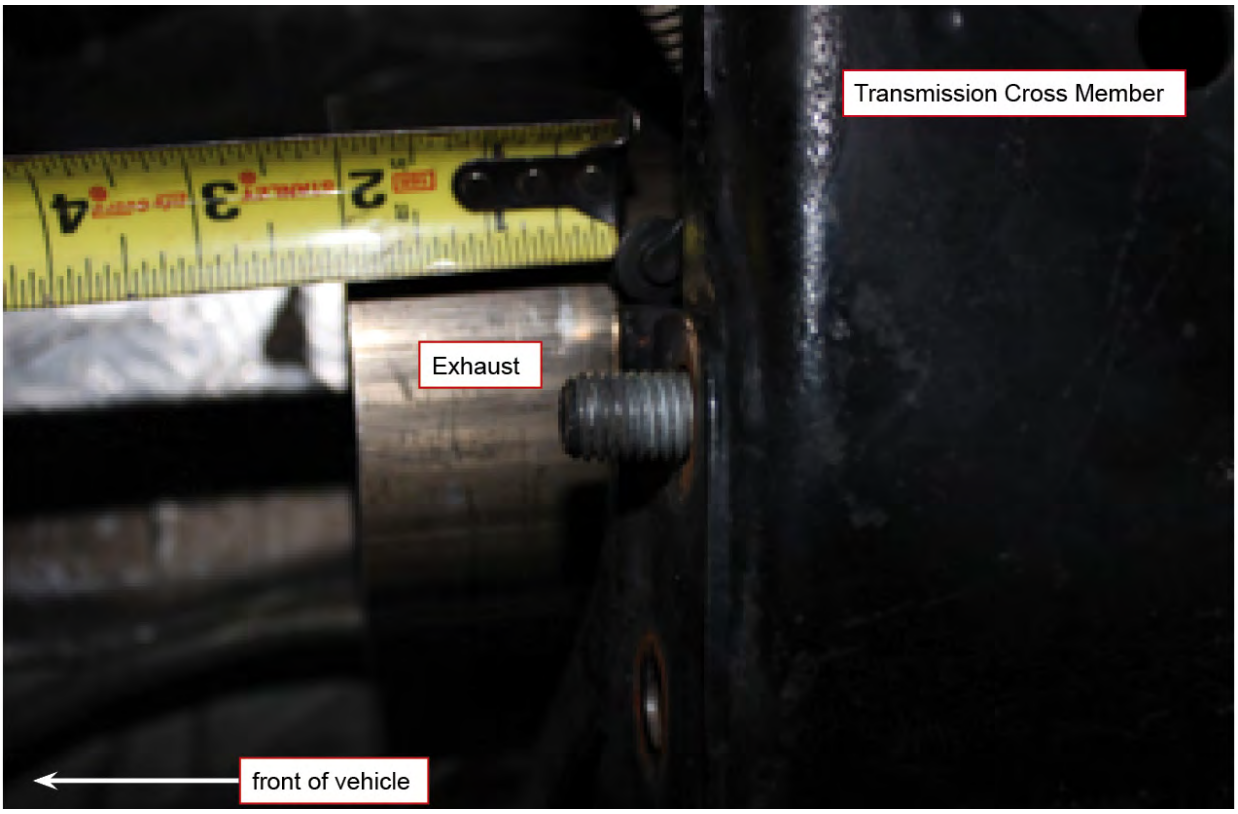


8. Install the 16mm X 6AN adapter with the supplied crush washer in the coolant supply port of the factory turbo. Connect it to the ¼” X 6AN adapter previously installed in the coolant riser adapter via the supplied 6AN braided line as shown below.

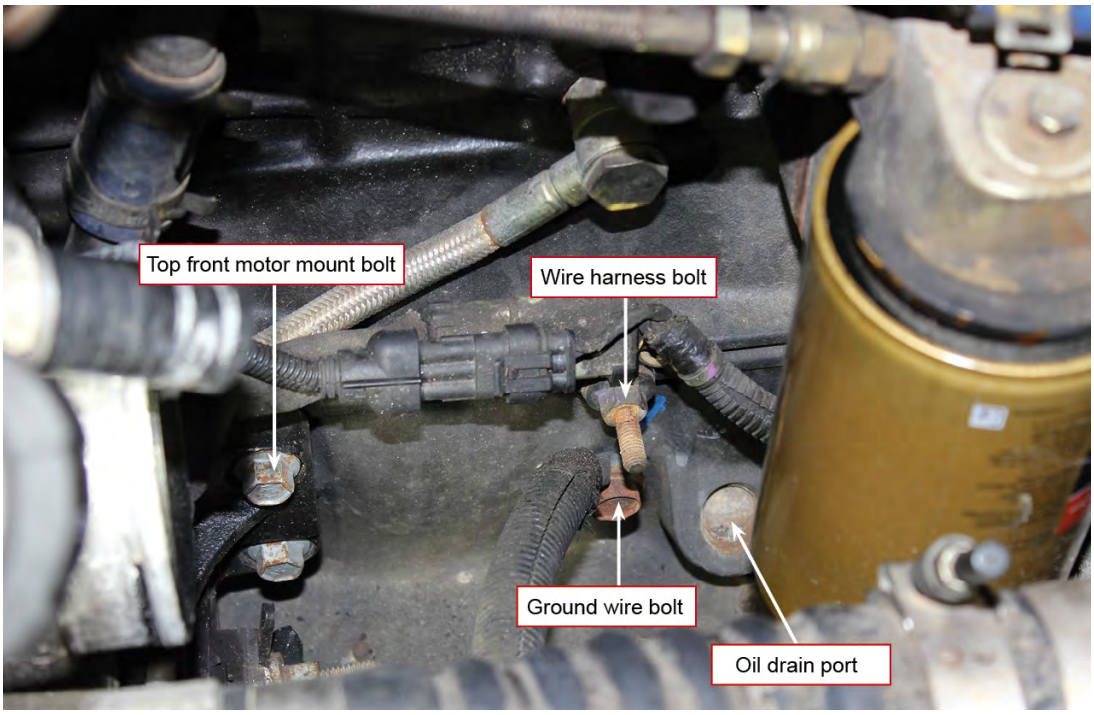
9. Remove down pipe and cast iron turbine elbow. Set aside the small v-band clamp, you will use it later.



10. Trim factory exhaust 2” in front of the transmission cross member.

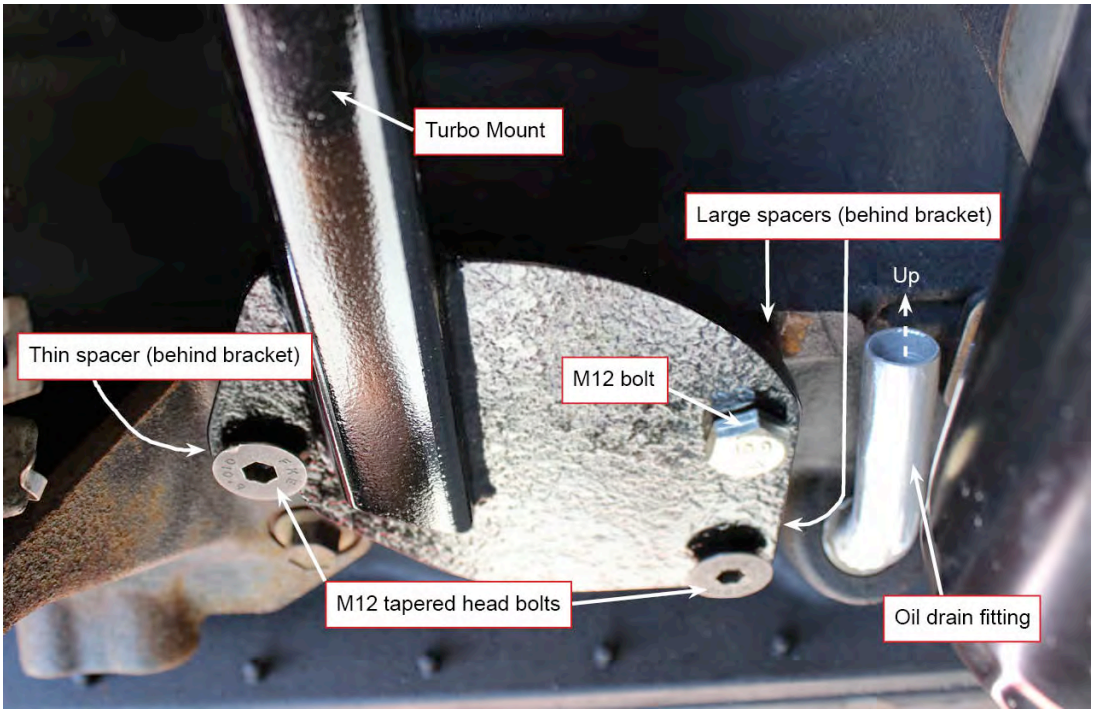


11. Remove the top front bolt on passenger side motor mount as well as the wire harness bolt and ground wire bolt. Remove the freeze plug from forward oil drain port. Use a flat screwdriver and hammer to tap the edge of the freeze plug. This will spin the plug in the hole and allow you to grab and pull it out with a pair of pliers. Make sure any previously unused threaded bosses are clean and free of debris as well as the oil drain port.

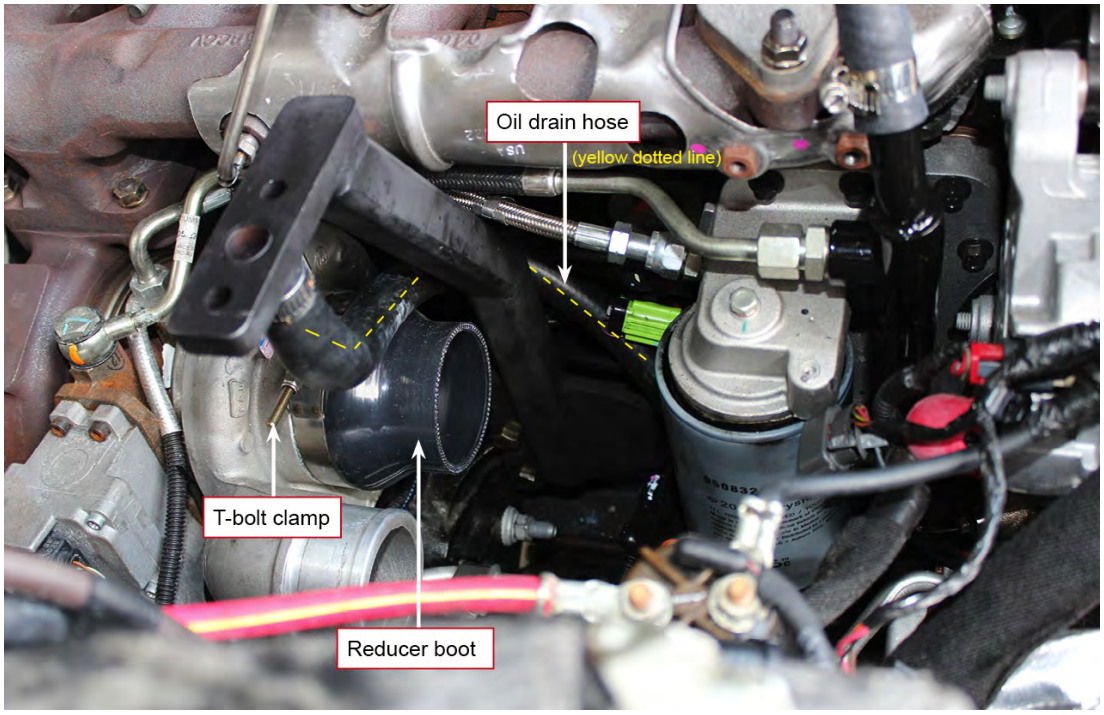


12. **This is the most <u>critical</u> step in the installation process, getting the turbo mount in the right place will make everything bolt together very easily.** Install the turbo mount using the supplied spacers, the two supplied tapered head bolts, and one of the three supplied M12x55mm bolts as shown below. Place the thin spacer over the motor mount bolt hole and use the two thick spacers over the threaded bosses in the block. Move the turbo mount back and forth as you tighten the tapered head bolts, then snug the one M12x55mm bolt. Doing so will center the turbo mount in its “adjustable zone” on the side of the block.

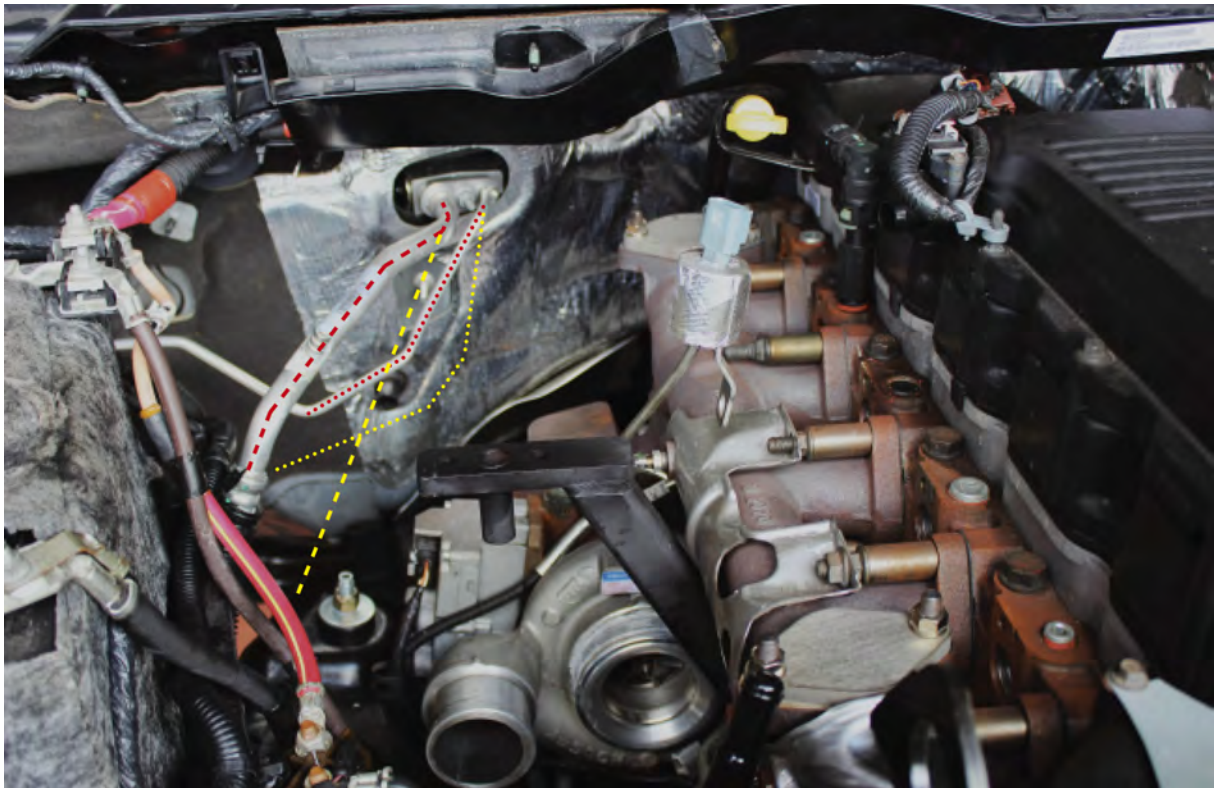
    Also install the supplied oil drain fitting with the inlet end facing up.



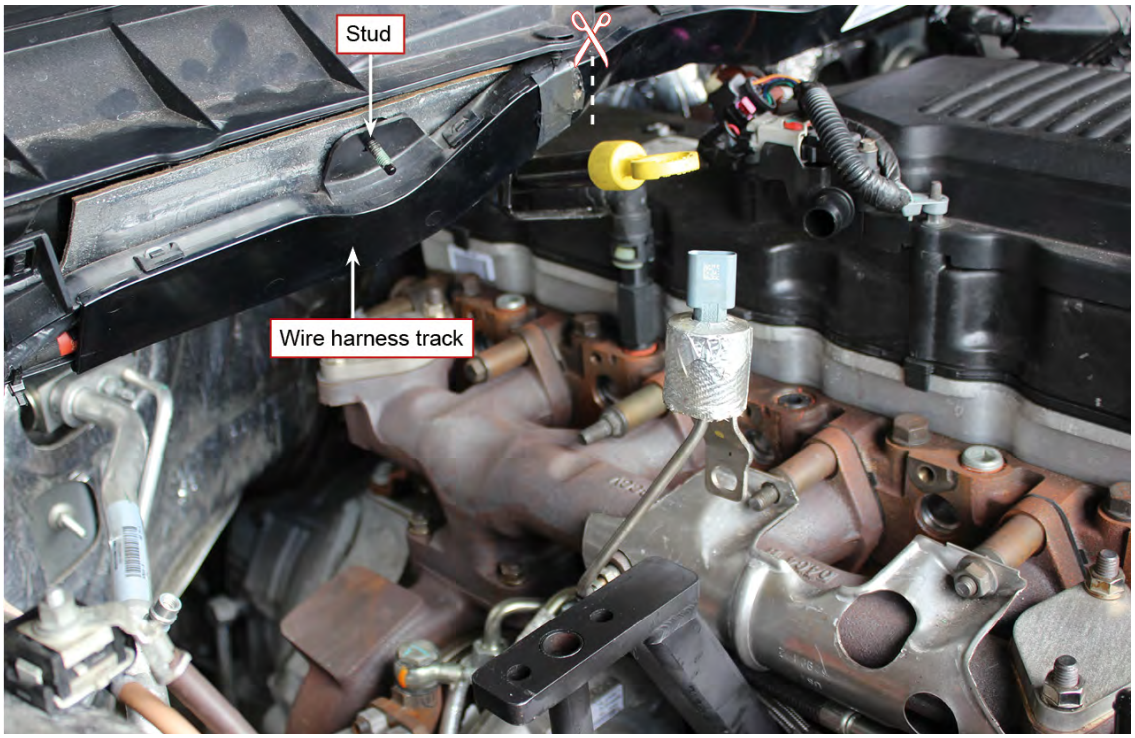
13. As shown below, connect the turbo mount oil drain and the oil drain fitting with the supplied 3/4” ID hose and two 1” hose clamps. Install the supplied silicone reducer boot on the inlet of the factory turbo with the supplied 3” and 4” t-bolt clamps. Position the threaded section of the clamps so they point towards the passenger-side inner fender then tighten only the 4” t-bolt clamp at this time.

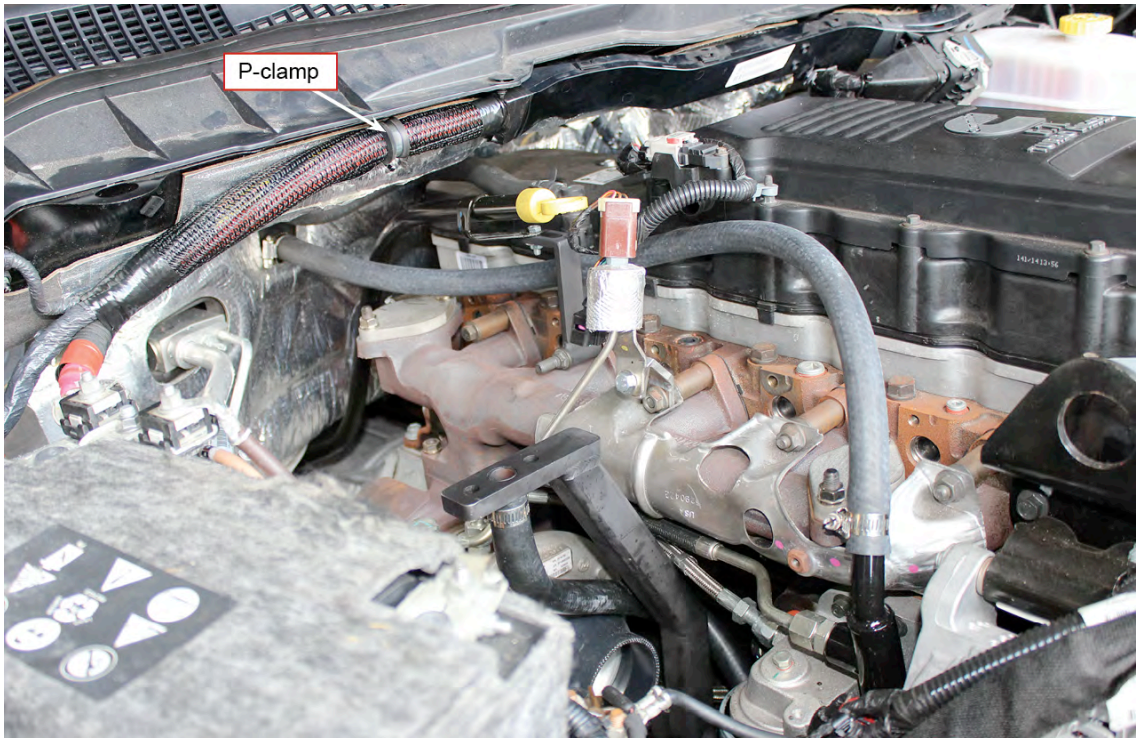


14. As shown below, move the A/C lines closer to the passenger-side of the truck. When moving the lines, be sure to provide support at the fire wall so you do not put unnecessary stress on the flange connection to the evaporator in the cab. The red dotted lines and current line position represent where you’re lines should be relocated to. The yellow dotted lines are the factory position.



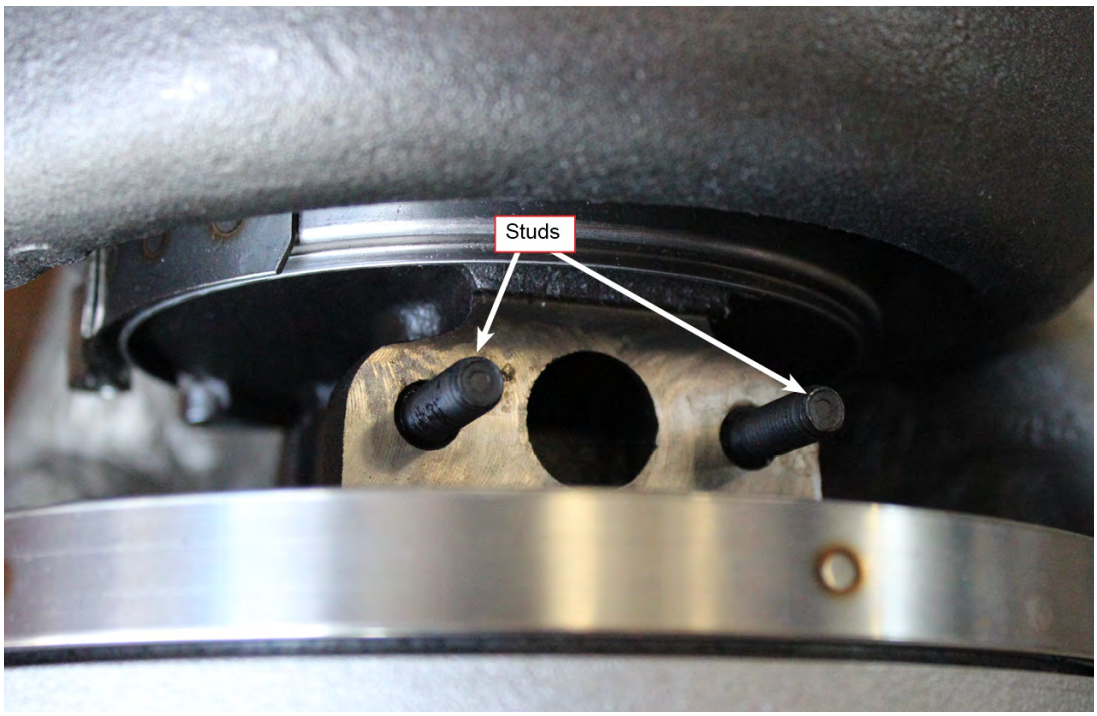
15. Trim the far passenger side end of the plastic wire harness track that runs above the engine roughly 5” on the driver side of the stud. Protect the now exposed wires with the supplied wire loom and move the wire harness to up against the bottom of the cowl lip as shown below. Place the supplied P clamp over the harness and thread its bolt hole over the now exposed wire harness stud, use the nut to hold the P clamp in place so it is oriented above the stud. Also install the drive pressure sensor bracket behind the rear upper exhaust manifold heat shield nut. Use the supplied M8 flange nut and driver pressure sensor bolt to secure the drive pressure sensor to the bracket. You will have to bend the sensor tube to make it touch the bracket, this is done purposely to make more room for the S400.





16. If you purchased a Pusher 3.5” Mega Passenger-Side intercooler tube, remove the factory intercooler tube and install the Pusher intercooler tube and supplied boots and clamps now.

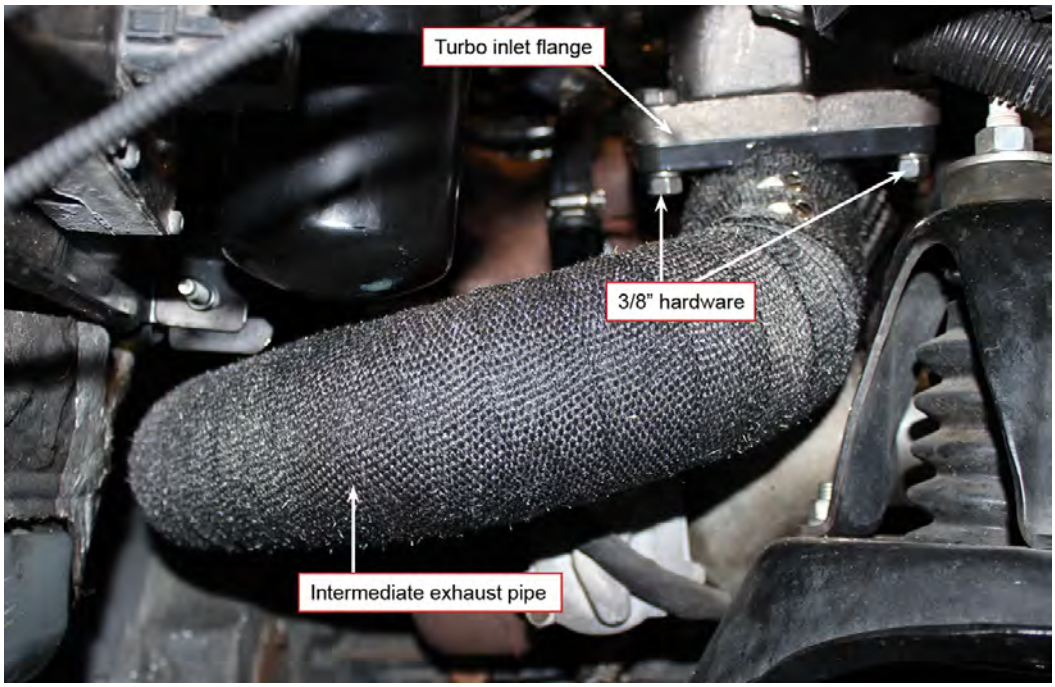
17. Remove your supplied atmospheric turbo charger from the box. Clean any residual oil from the threaded bolt holes in the bottom of the turbo charger’s center section and the threaded oil supply port on the top of the center section. Use Teflon paste on the threads of the supplied 1/4” NPT-4AN oil supply fitting and tighten it into the oil supply port. Use Loctite and thread in the shorter threaded sections of the supplied M8 positioning studs into the bolt holes. **Spin the turbine and compressor housing so both point in the same relative direction as the oil drain flange (down).** Also use a very thin film of RTV sealant to set the oil drain gasket in place.



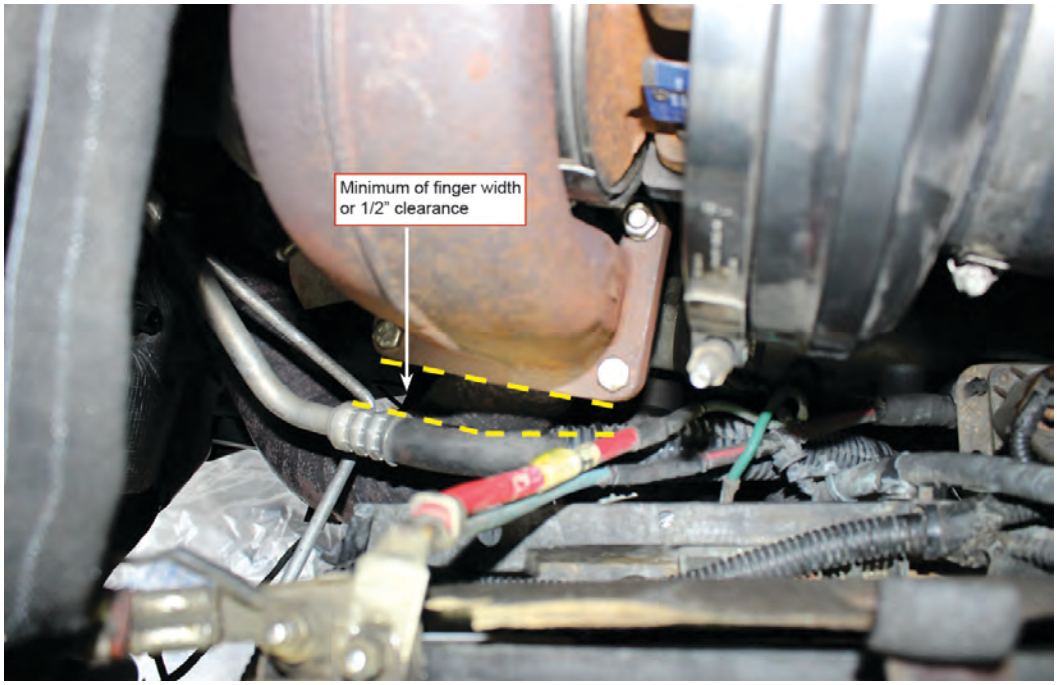
18. Set the charger in place on the turbo mount as shown below. Loosely install the supplied serrated M8 nuts on the studs installed in Step 11. Leave the nuts just loose enough so the turbo can be slide around on the turbo mount but not rocked back and forth.

19. Using the supplied 5” v-band clamp, loosely install the upper portion of the down pipe from the under-side of the truck.

20. As shown below, install the intermediate exhaust pipe onto the back of the factory turbine housing using the factory v-band style exhaust clamp saved from step 13. Use the supplied stainless T6 turbo gasket, and 3/8” stainless bolts, nuts and lock washers to fasten the outlet flange of the intermediate exhaust housing to the turbine inlet flange. If the outlet flange on the intermediate exhaust pipe and the inlet flange of the turbine housing do not align perfectly by rotating the each one inside their respective v-band clamps, loosen one of the tapered head bolts in the turbo mount in order to let the turbo mount move slightly. This will help everything line up perfectly. Take extra care to make sure the v-band clamp on the factory turbine housing is properly seated around the turbine v-band flange and the intermediate exhaust pipe v-band flange.



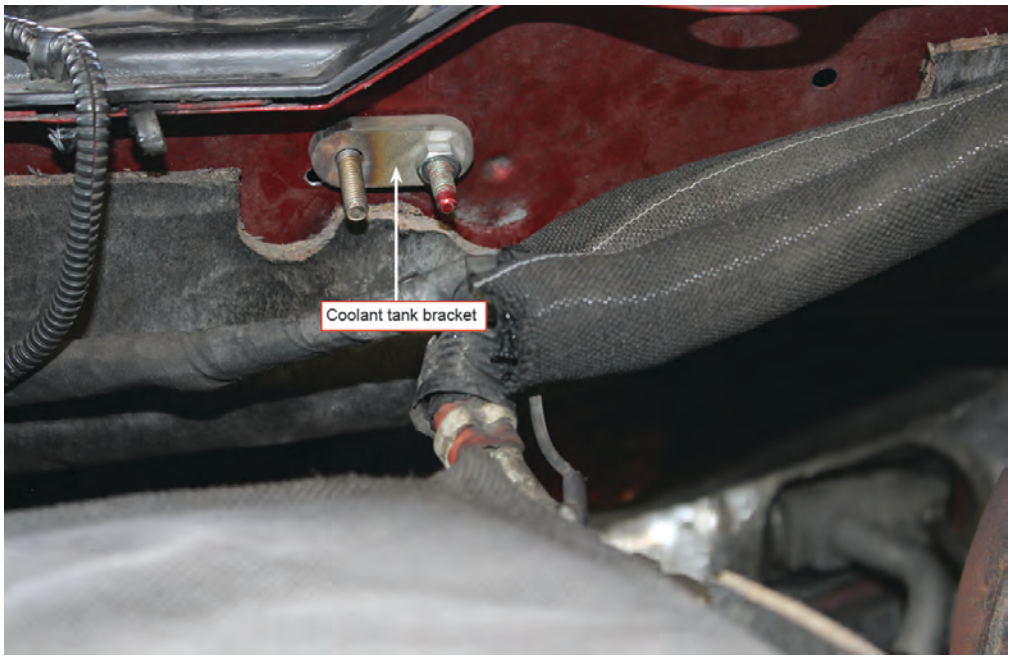
21. As shown below, ensure there is at least a “finger width” clearance between the A/C lines and turbo, intermediate exhaust pipe, and down pipe.



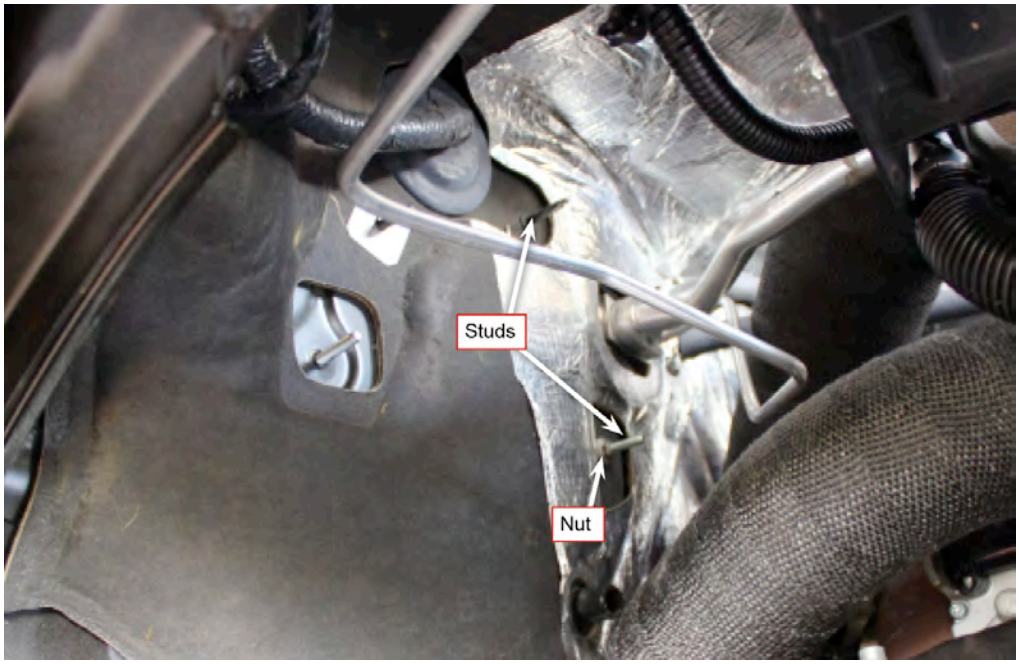
22. Snug the hardware listed below in the following order then go back and re-torque in the same order.

    - Factory turbo v-band exhaust clamp
    - S400 Turbine housing center section v-band clamp
    - S400 exhaust flange bolts
    - S400 turbo center section bolts
    - Turbo mount block bolts (remove the tapered head bolts one at a time and replace with the remaining M12x55mm bolts). Make sure to reinstall the ground wire behind the lower M12x55mm bolt head.

23. Install the supplied coolant tank bracket over the stud on the upper passenger side of the firewall using the supplied M6 nut.

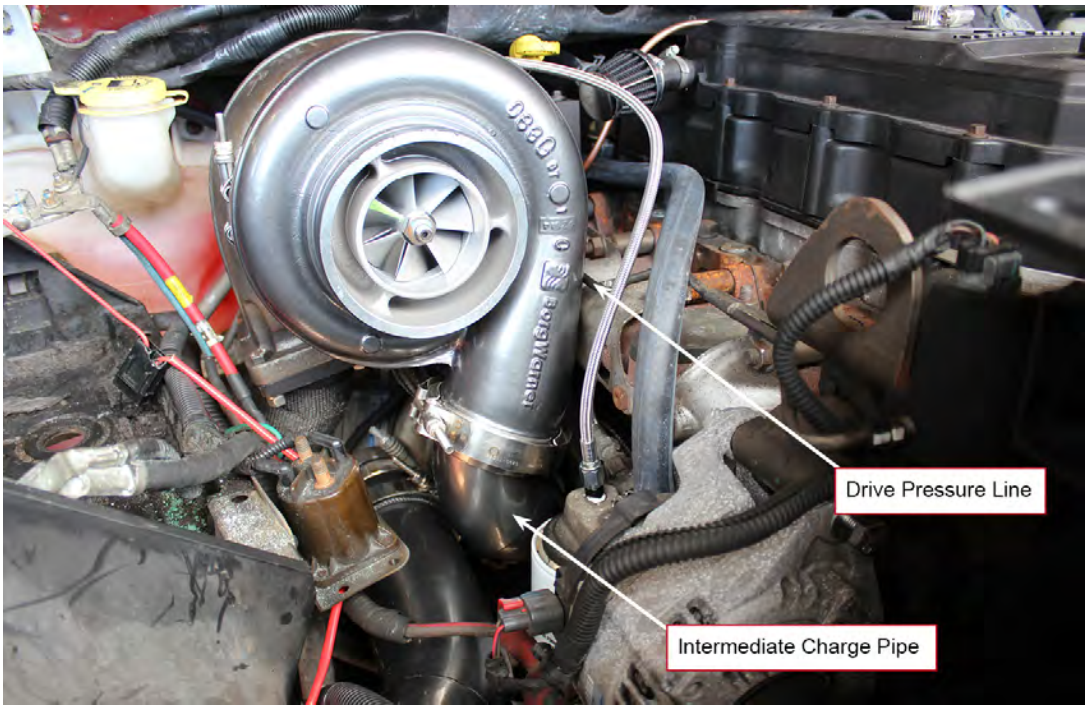


24. Remove the nut and slide the supplied aluminum spacers over the two studs shown below and reinstall the coolant overflow tank. Make sure the upper coolant tank bolt hole is positioned over the coolant tank bracket's threaded stud. Use the factory nuts to secure the tank.

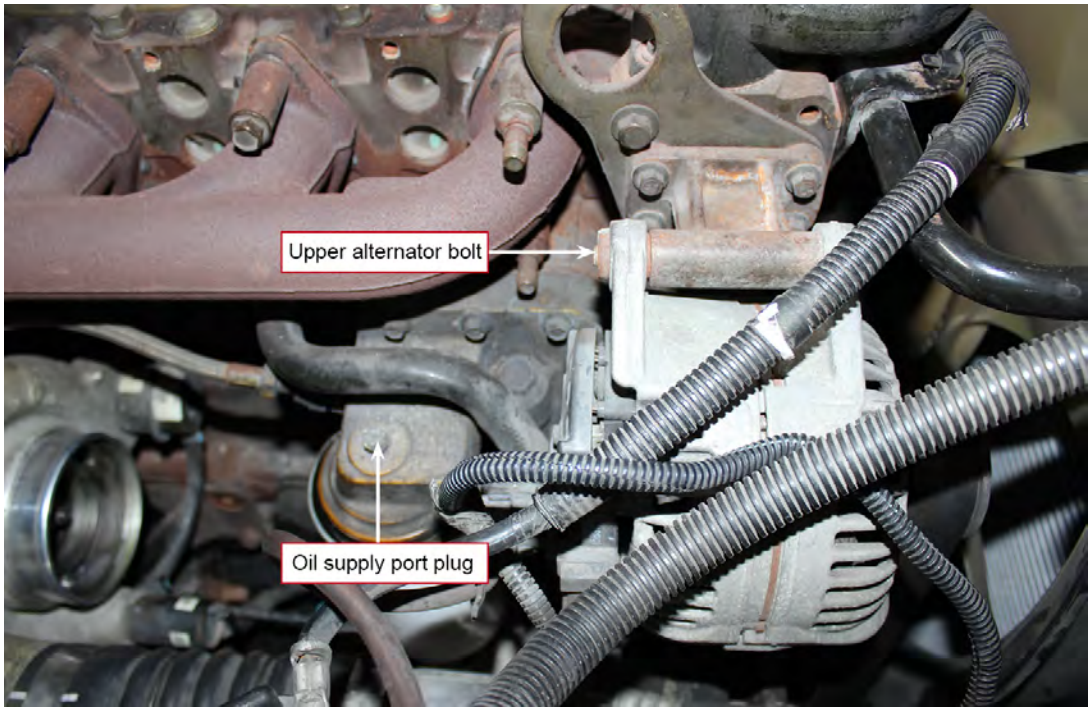


25. Insert the lower down pipe section into the upper section and loosely connect it to your existing exhaust using the supplied clamps. Make sure the down pipe is clear of the transmission dipstick tube, A/C lines, and water lines then tighten all clamps.

26. Install intermediate charge pipe with the supplied o-ring and v-band clamp. You may need to move the drive pressure sensor line towards the valve cover in order to clear the S400 compressor housing. Make sure to plug the 1/8” NPT boost gauge port with the supplied brass plug or install your boost gauge fitting. Tighten the v-band clamp and 3” t-bolt clamp that was set in place with the inlet boot on the factory turbo. Also tighten the compressor housing center section v-band clamp on the S400 as well.



27. Remove one of the plugs on the top of the oil filter housing and the upper alternator bolt (the alternator should not move). Install the 1/8” NPT – 4AN fitting in the oil filter housing port, use Teflon paste on the threads going into the filter housing. Connect this fitting to the fitting previously installed in the S400 with the supplied stainless braided 4AN line, use the 90 degree end at the turbo.



28. Install the supplied M10x120mm bolt so three threads are showing behind the alternator. Install the factory cold air intake temperature sensor and MAF sensor in the sensor ports with the supplied M4x12mm bolts in the new 5” cold air intake. Install the 5” cold air intake tube as shown below using the 5” silicone coupler, and 5” clamps. Position the bracket on the 5” cold air intake tube over the exposed threads of the new alternator bolt.

29. Thread the M10 alternator bolt the rest of the way through the alternator and cold air intake bracket and tighten the bolt. Thread the supplied M10 nut and washer on exposed threads behind the cold air intake bracket, adjust the position of the cold air intake and air filter to your preference then tighten the M10 nut and all the clamps on the cold air intake. Make sure to plug in the temperature and MAF sensors.

30. Start the engine and check for leaks, loose hardware, etc.

31. Take the truck for a light test drive and get the motor to operating temp. If the roads are dry, leave the inner fender off the truck.

32. Check for leaks, loose hardware, etc periodically during your first couple drives.

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33. Hold the passenger-side inner fender in place and mark the section that touches the intermediate exhaust pipe. Use a heat gun to heat up the inner fender around the marked area then form the marked area away from the intermediate exhaust pipe. There should be minimum 1” of clearance between the inner fender and the intermediate exhaust pipe when finished. Using a large curved object like a tube or ball to form the inner fender once hot works best.

34. Allow 200 miles of light driving to break in your new turbo charger(s). Recheck all hardware and clamps after the first few weeks of hard driving.

35. Make sure to show your diesel buddies your sweet new compound turbo system, and please give us feedback on whatever you did or did not like about our product / services.

Thank you for your business!