

INDUSTRIAL INJECTION



3rd Gen 5.9L Quick Spool Compound Turbo Kit

INSTALLATION INSTRUCTIONS

2003-2007 5.9L DODGE CUMMINS

NO WARRANTY STATEMENT

High performance parts & products no warranty policy: The purchaser understands and recognizes that high performance diesel products and services sold by INDUSTRIAL INJECTION SERVICE. INC. are exposed to many and varied conditions due to the manner in which they are installed and used. INDUSTRIAL INJECTION SERVICE. INC., makes no warranties either expressed or implied including any warranty of merchantability or fitness for a particular purpose.

No salesman, officer, agent or representative of INDUSTRIAL INJECTION SERVICE. INC., is authorized to waive or modify this warranty disclaimer and limitation of damages. Further, no representation, promise, description of goods or affirmation of fact made by any salesman, officer, agent or representative of INDUSTRIAL INJECTION SERVICE. INC., shall be effective to any extent whatsoever to waive or modify this warranty disclaimer and limitation of damages.

All cores due 30 days after invoice date - no credit after 60 days.

Purchasers of our product(s) agree to accept full responsibility for any loss of factory warranty and or loss of product life cycle attributable to the installation and use of said product(s).

Note: If you have a factory exhaust manifold now would be a good time to upgrade to a two-piece exhaust manifold. If you would like to purchase a new exhaust manifold, please call one of our sales representatives at 800-955-0476.

If you have any questions about installing our kit, please contact our tech department at 800-955-0476.

This kit only works with a Factory, BD, ATS, and PDI exhaust manifold. Before you get started if you do not have access to a A/C recovery machine you will need to take your truck to a qualified shop/person to have the refrigerant evacuated from the a/c system. It is against the law to discharge refrigerant into the atmosphere.

Specialty tools you will need:

- A/C Recovery Machine
- A/C line disconnect tools
- Small Pipe cutter
- Reciprocating Saw

STEP 1

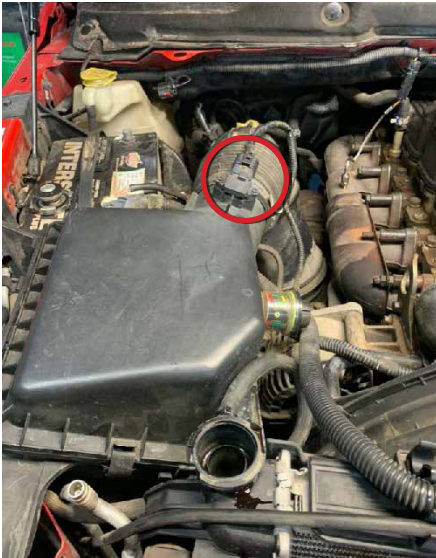


Begin by disconnecting both negative battery cables.

STEP 2



Disconnect the IAT sensor wiring and remove the air box and intake tube.



STEP 3



If you didn't take your truck to someone and have the refrigerant discharged from the A/C system, then using an A/C recovery machine - discharge the A/C system. While the A/C machine is discharging the system, start draining the coolant from the petcock on the lower driver side of the radiator. When the A/C recovery machine has completed, remove the right A/C line from the firewall. Remove heater hoses and discard.

Note: It may be necessary to use a razor knife to cut the heater hoses from the heater core to avoid damage to heater core.



STEP 4



Remove the exhaust housing to exhaust elbow v-band and the exhaust elbow to downpipe v-band. You may need to use some lubricant to prevent the threads from galling. Using a Reciprocating Saw cut the downpipe six inches in front of the transmission cross-member.



STEP 5



Note: If you already have a PhatShaft turbocharger please move to Step 6, if not continue with Step 5.

Remove the factory turbocharger along with the oil drain tube, and oil feed line.



STEP 6



Remove the oil filter and properly discard

STEP 7



Clean front oil drain port located under oil filter housing. Make sure it doesn't have any debris in it. Carefully use a hammer and punch to turn the freeze plug in the hole sideways. Using a pair of needle nose pliers remove the freeze plug.



STEP 8



Make sure front drain port is free of debris. Install Cummins O-ring onto Cummins oil drain adapter. Lube O-ring and with a socket and a hammer install the drain adapter into the port that you removed the freeze plug from. Make sure that the ridge sits flush with the block.



STEP 9



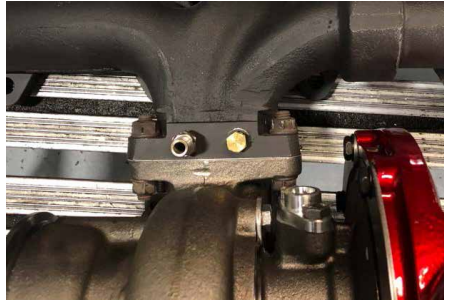
Install a new oil filter. Make sure to lube the oil filter O-ring.

STEP 10



If you're not changing the exhaust manifold you may have to move your pyrometer probe to a different location that doesn't interfere with the hot pipe. If you are installing a new exhaust manifold, install pyrometer fitting into the back port on the exhaust manifold. Your new manifold should've come with a 1/8" brass pipe plug. Install brass pipe plug into the front port. Next install the two studs that came with your PhatShaft turbocharger into the threaded holes on the exhaust manifold, and the supplied T-3 gasket. Remove two studs and four nuts from the factory turbocharger and use them in the remaining two open holes and install the PhatShaft turbocharger onto the new exhaust manifold. Remove oil feed fitting from factory turbocharger and install in PhatShaft turbocharger. Lastly remove and clean oil drain tube from factory turbocharger and use the factory bolts and supplied oil drain gasket that comes with the new PhatShaft turbocharger.

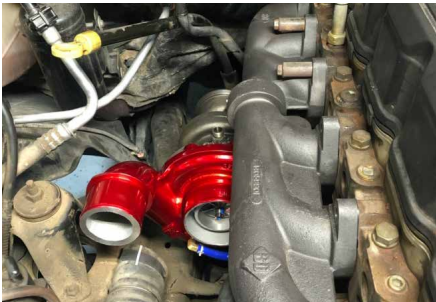
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STEP 11



Install new exhaust manifold and turbocharger as one assembly on engine with new exhaust manifold gaskets. Torque to 35 Ft. Lbs. After you've torqued all twelve exhaust manifold bolts remove the top bolts and spacers from cylinders two and three. Set aside for later use. From underneath the truck lube the PhatShaft turbocharger oil drain O-rings and install in the block. Make sure to not cut an O-ring. Make sure to pre-lube PhatShaft turbocharger by pouring 2 to 3 ounces of clean engine oil in the oil feed fitting.



STEP 12



Take the previously removed oil feed line, brake clean and blow out with shop air. Once clean install back on engine be careful not to over tighten and strip out the oil filter housing. Install pyrometer probe.



STEP 13



Install the hot side charge air pipe on the Phatshaft turbocharger outlet and tighten clamp.



STEP 14



Set the hot pipe in place but do not install any clamps yet. Take supplied silver thermo sleeve and cut a 10.5" piece. Slip it over the supplied heater hose and install onto engine using factory clamps. Top heater core port goes to the fitting in the cylinder head. Take the other supplied heater hose and measure 8" from the 90-degree bend and cut. Take the remaining thermo sleeve and cut a 9" strip and slip the hose into it. Install onto engine with factory clamps.



STEP 15



Using the factory exhaust housing to exhaust elbow V-band clamp attach hot pipe but leave it a little bit loose so you can still move it. Take the two exhaust manifold bolts that you removed earlier and start through the hot pipe mount. Tighten the V-band clamp, then torque the two exhaust manifold bolts to 35 Ft-Lb.



STEP 16



Remove passenger side fender well, battery and battery tray. Mark the A/C line just to the left of the center of the coolant bottle and A/C accumulator, cut with a pipe cutter as shown. Make sure the end of the pipe is free of burrs.

NOTE: Some A/C lines have numbers or letters stamped into the line in this area. If you cut on these stamp marks the new line will not seal.



STEP 17



Install the new A/C line. Make sure the three green o rings have a little bit of R-134A refrigerant oil on them. Insert into the firewall port and install factory line lock. Route the A/C line behind the accumulator and then out between the coolant bottle and accumulator. Insert the A/C line that you cut with the pipe cutter into the 90° compression fitting and tighten. Reinstall the battery tray, battery, and fender well.



STEP 18



Before you remove dipstick tube, place oil drain pan under transmission to catch the oil when you remove the dipstick tube. Install new supplied automatic transmission dipstick tube. Then install the heat shield with the two supplied M6 bolts and flat washers.



STEP 19



Install the downpipe from the top. It will hold itself loosely, don't tighten any clamps at this time. Take the four supplied studs that came with your s400 turbocharger and thread them into the four threaded holes in the T-6 flange, then install the T-6 gasket. Next remove the S400 exhaust housing and install onto the hot pipe. Once you have the exhaust housing tight put on the down pipe clamp and have a friend hold the down pipe in place while you tighten the clamp. Make sure it lined up with your exhaust. Next connect the downpipe to your exhaust.



STEP 20



Install supplied 3"x 4" boot onto the Phatshaft inlet with both T-bolt clamps and tighten the Phatshaft side clamp. You can position the first clamp either way.



STEP 21



Install brown Viton O-ring into flange groove on the intermediate charge pipe, and then install intermediate charge pipe into boot at Phatshaft inlet. Leave clamp loose.



STEP 22



Install oil drain and oil drain gasket onto S400 using two M8x1.25x25 bolts, lock washers, and flat washers. Install the oil drain facing towards the passenger fender.



STEP 23



Put turbine housing to center section V-band on turbine housing. Remove compressor housing, install S400 center section into the turbine housing and tighten clamp to 130 IN-LB. With a rubber mallet tap on the V-band, loosen V-band and repeat two more times. After tapping on the V-band a final time double check the clamp torque. Spin turbocharger shaft while pushing up, down, and side to side to ensure turbine wheel doesn't contact turbine housing.



STEP 23



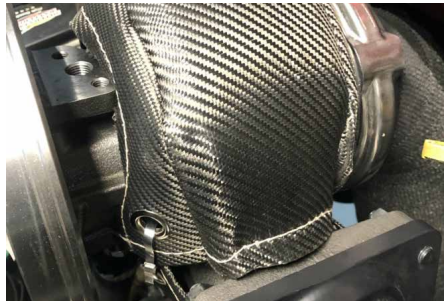
Put turbine housing to center section V-band on turbine housing. Remove compressor housing, install S400 center section into the turbine housing and tighten clamp to 130 IN-LB. With a rubber mallet tap on the V-band, loosen V-band and repeat two more times. After tapping on the V-band a final time double check the clamp torque. Spin turbocharger shaft while pushing up, down, and side to side to ensure turbine wheel doesn't contact turbine housing.



STEP 24



Install oil drain hose with two 1.25" T-bolt clamps. Wrap the supplied S400 heat blanket around the exhaust housing and secure with two metal zip ties. Once pulled tight leave about 1 inch extra and cut. Bend back over itself.



STEP 25



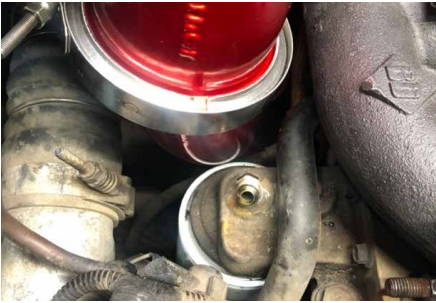
Put S400 compressor housing v-band onto center section, also put the intermediate charge pipe V-band on the pipe and install compressor housing. Be careful not to bend or hit the compressor wheel with the housing. Once you have it orientated correctly snug up the V-band but leave it loose enough so you can still turn the housing. Next tighten the intermediate charge pipe to compressor housing V-band hand tight. Tighten the compressor housing to center section V-band to 120 IN-LB and gently tap with a rubber mallet to seat clamp. Loosen clamp and repeat two more times. After tapping on clamp for the final time double check torque. Tighten intermediate charge pipe to compressor housing V-band. Spin turbocharger shaft while pushing up, down, and side to side to ensure compressor wheel doesn't contact the compressor housing. While spinning the turbocharger shaft pre lube S400 turbocharger with 2-3 ounces of clean engine oil.



STEP 26



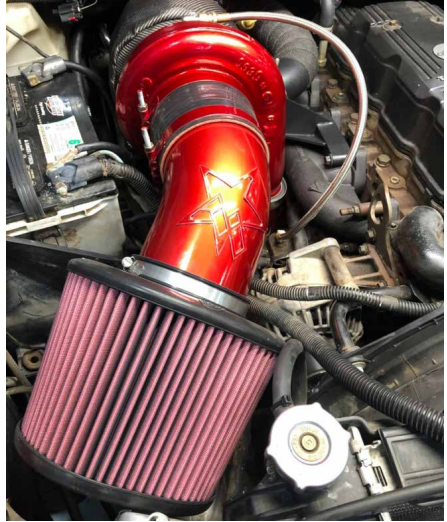
Remove 1/8" NPT plug from oil filter housing and discard. Install 1/8" NPT x -6AN x 45° fitting with some thread sealant on the pipe threads. Make sure not to over tighten and strip out oil filter housing. Install the 1/4" NPT x -6AN straight fitting into the S400 with thread sealant on the pipe threads and the 90° -6AN Female to -6AN Male adapter. Install oil line.



STEP 27



Remove IAT sensor from factory air box, lube O-ring and install into new intake pipe with two supplied machine screws. Install 5"x 4" boot and two 5" T-bolt clamps. Plug in the IAT sensor, install intake pipe into boot and tighten clamps. Install air filter.



STEP 28



Reconnect negative battery cables. Change engine oil, and refill engine coolant. While refilling engine coolant remove $\frac{1}{4}$ " Allen plug in cylinder head to bleed the coolant system until coolant comes out, then reinstall plug. Start engine and check for leaks. Check and top off transmission fluid. Recharge the A/C system. Test drive and double check for leaks. Now go enjoy your new Phatshaft Compound turbocharger kit!

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