



2003-2007 Cummins 5.9 Twin Kit Install

Covers installation of PN's: WCF100567

1. Drain Engine coolant. Remove turbo intake pipe and air box assembly.
2. Remove the first section in your exhaust system, this will be measured and cut to length later to meet the new turbo down pipe. Remove factory turbo downpipe cast elbow. Set aside the v-band clamp that connected the cast elbow to the turbo exhaust housing for later use.
3. In front of the passenger side engine mount, you will see a freeze plug in the block, about $\frac{3}{4}$ " in diameter. With a long punch and hammer; tap with generous force, on the edge of the freeze plug. It will pop up and break loose after a few hits. Remove freeze plug with pliers.
4. You will find supplied in the oil line kit a black aluminum machined fitting with JIC threads in one end, and two O-Ring grooves on the other end. Insert the fitting into engine block where freeze plug was removed from.

5. Below the exhaust manifold you will see a steel hardline coolant pipe. The steel line runs the length of the engine block; it has a Y pipe near cylinder #6. This splits off and leads back to the firewall. This steel pipe needs to be cut off approximately 2" from the Y. Install the supplied 5/8" heater hose onto this fitting with a hose clamp. Do not connect to firewall yet, as it needs to be routed around the hop pipe.
6. Remove the top manifold mounting bolt and spacer on the #2 and #3 cylinders.
7. Soak the supplied heat wrap in a bucket of water. With rubber gloves wrap the hot pipe, holding the wrap in place with supplied 3" worm gear clamps. Install the hot pipe to the back of factory turbo with the factory clamp that was removed in step 1. Do not tighten down completely, only snug. Install the OEM manifold bolts thru the new hot pipe into the head, then tighten the v-band clamp at the turbo housing and then the manifold bolts.
8. With the remaining heat wrap, wrap the 4" turbo down pipe starting at the flanged end and secure with supplied 4" hose clamps. You should have enough wrap to complete about 2/3 of the down pipe.
9. Now that the hot pipe is in place, you can route and connect the 5/8" coolant line to the firewall. (After removing the factory line and clamp)
10. Remove the 1/8" plug on the center of the oil filter housing. Apply Teflon Paste to the NPT threads of the supplied 1/8" NPT x 90-degree fitting. Install it into the port on the filter housing and point it towards the passenger side fender well. (The rest of the oil feed line install will happen later)
11. Install the 4"x 3.5" reducing silicone boot onto the inlet of the factory turbo. Leave the T-bolt clamps loose for now.
12. Slide the new powder coated 3" cold charge pipe into the silicone boot at the factory turbo. It is easiest to install an 1/8" NPT plug, or boost line fitting, into the cold pipe port before installing it on the truck. Install the O-ring into the groove on the flange of the cold pipe. A little bit of grease helps keep the O-ring in place.
13. Remove the exhaust housing from the S400 turbo. Locate T6 exhaust gasket and M10 exhaust housing mounting bolts.
14. Mount the exhaust housing on to the hot pipe with gasket and hardware from step 12.
15. Now install the center section and compressor of the S400 turbo into the exhaust housing you just mounted to the hot pipe and tighten the V band clamp to the exhaust housing with the oil feed port of the turbo center section pointing straight up.

16. Loosen the turbo compressor cover V-band clamp and rotate the compressor cover until it lines up with the cold pipe that was previously installed into the silicone boot in step 11. It will require a twisting motion of the cold pipe and rotating of the compressor cover to align the cover and pipe properly. Be sure the O-ring stays in place in the groove on the cold pipe. Install v-band clamp only snug. Tighten t-bolt clamps at the silicone boot connection of the factory turbo, then tighten the compressor cover v-band, and finally the v-band connecting the cover to the cold pipe.
17. Next, the 4" turbo downpipe needs to be installed. This is done from underneath the truck and is best completed with two people. It will require a full 180-degree twisting motion while moving up from the bottom all the way up to get the pipe routed to the S400 turbo outlet.
18. Once in place, install and tighten the V-band clamp at the turbo. Be sure the down pipe is not resting on the frame or any other components.
19. While under the truck, measure from the new down pipe to your exhaust system where you removed the first section from in step 2. Cut the section of pipe that you removed to the new proper length. Install the pipe and connect to the new turbo down pipe with the supplied seal tight clamp. Installing a self-tap screw on either side of the seal tight clamp is a good idea if you have tension on your exhaust system, to keep the connection together. (If you have a 5" exhaust system you will need to purchase a 4-5" reducer pipe)
20. Next install the aluminum turbo drain flange to the bottom of the turbo with the drain gasket and supplied studs. With Teflon paste install the ½ NPT X 10JIC Fitting into the drain flange.
21. Install the supplied stainless oil drain line from the fitting in the block to the turbo drain.

NEXT STEP VERY IMPORTANT TO PREVENT DAMAGE TO TURBO!

22. With a small plunger, pre-lube the oil feed hole of your turbo with engine oil while spinning the compressor wheel. This prevents any bearing damage on startup. Then apply Teflon paste to the supplied ¼" NPT X 4 JIC fitting and install fitting into the turbo.
23. You can now connect the stainless oil feed line from the filter housing fitting installed earlier, to the new fitting on the s400 turbo.
24. Install the sensor from your OEM intake on to the new 5" powder coated intake with the supplied M4 screws.
25. Install the 5" silicone boot and clamp onto the inlet of the s400 turbo. Slip the 5" intake pipe with T-bolt clamp into the boot but do not tighten yet.
26. Install the air filter onto the end of the intake pipe and rotate the intake pipe and air filter until the filter clears any obstructions. Tighten t-bolt clamps and air filter.

27. You can now fill up with Coolant and start up, check for any oil leaks and ENJOY! It is a good idea to retighten all T-bolt and V-band clamps after a few heat cycles.

Any Questions, Comments, or Feedback?

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