2017 - 2019 5p Duramax 3.5" DownPipe & cooler upgrade Kit

USER MANUAL

Warning Regarding Emission Laws

Not legal for sale or use on pollution-controlled motor vehicles anywhere in the United States. Legal ONLY for off-road competition racing vehicles and cannot be used on vehicles that are operated on public streets, roads, or highways.

Disclaimer

- By installing this product onto your vehicle, you assume all risk and liability associated with its use.

- It is your responsibility to make sure your vehicle complies with all federal, state, and local emissions laws. Federal and many state and local laws prohibit the removal, modication or rendering inoperative of any part of the design affecting emissions or safety on motor vehicles used on a public street or highway. Violation may result in a fine of up to $32,500 per vehicle (or possibly higher depending on changes in the law). All civil penalties and fines for removing your vehicle's emissions equipment are the sole responsibility of the end user.

- Due to its high performance nature, this product may void vehicle manufacturer's warranty.

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Caution

Never work on a hot vehicle. Serious injury in the form of burns can result if the vehicle has been in use. Allow vehicle to cool prior to installation. Always wear eye protection when working on or under any vehicle.

2017-2019 5p Duramax 3.5" DownPipe& cooler upgrade kit

GDP421024

A. Coated Intake Elbow
B. Blocker Plate Gasket
C. Exhaust Blocker Plate
D. M10-1.25x40manifold bolts (x4)
E. Coolant Plug with O-Ring (x2)
F. M10-1.125x20plate bolts (x2)
G. M6-1.25x25intake elbow bolts (x4)
H. Hose Routing Clips (x2)
I. Plug Bolts (x2)
J. Intake Elbow O-Ring
K. Stud Spacer
L. Barbed Hose Connection

Step 1

Disconnect the negative battery cables from both batteries.

Step 2

Remove the passenger side inner fender liner.

Step 3

Drain the Engine coolant from the passenger side lower corner of the radiator by removing the plastic threaded plug. {NOTE:The coolant tank cap is reverse thread, BUT we recommend not removing the cap right away otherwise coolant will blast out from the drain plug all over the front suspension. Leave the tank cap on, and let the coolant drain out slowly into the bucket, much less mess this way.)

Step 4

Remove the intake pipe & Intake air box.

Step 5

If you are having trouble at this point during the disassembly process without pictures in the instructions, we strongly recommend that you do not continue, and you contact a certified Diesel Performance shop to install these components.

Step 6

Next remove the heat shield on the EGRhot side pipe circled below that connects the EGRvalve to the Cooler and to the Y-bridge. Then remove the six 13mm head bolts holding the pipe on.

Step 7

Next remove the turbo intake horn and PCVhose. The PCVHose has a non-removable metal band on it, loosen/spin clamp with a hood tool or flat blade screw driver first and then with pulling force and a flat blade screw driver or pry bar pushing on the bottom of the hose, the hose will disconnect from the horn with the metal band remaining in place. Leave the PCVhose connected to the PCVbox on the driver side upper valve cover.

Step 8

Two bolts connect the horn to the turbocharger; you will need to use a 13mm SWIVEL SOCKET ¼" drive and long extension to remove these bolts. If you drop them not a big deal they will be easy to access soon.

Step 9

Remove the small diameter aluminum coolant line assembly that is bolted to the top of the Y bridge. Leave all connecting hoses in place, just remove the aluminum hard line assembly only at this point.

Step 10

Next, remove the 13mmhead bolt on the plastic cold side pipe support bracket and then disconnect the plastic intercooler pipe from the cast aluminum Y-bridge/throttle blade connection. This is a twist style connection and will need a slight clockwise rotation and pulling down motion on the pipe to become disconnected. Once disconnected, cover the intercooler pipe with a plastic bag or shop rag to keep anything from falling in during the rest of the project.

Step 11

Now disconnect the wire harness that sits on top of the y-bridge. There are several Christmas tree style clips all along the harness and smaller connectors, remove all that are associated with the harness on top of the y-bridge so that the bridge can be removed. Disconnect the connectors on the throttle blade as well.

Step 12

Before the Y-bridge can be removed the AC Compressor needs to be unbolted. With a½" Ratchet on the belt tensioner, release tension and remove the serpentine belt from the upper pulleys. (You do not need to remove the belt completely)

Step 13

Remove the bale connector bracket on top of the AC Compressor and set it aside.

Step 14

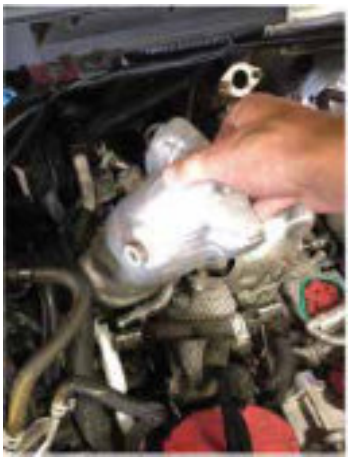
Remove the four 15mm head bolts holding the AC Compressor down and slide the Compressor forward towards the fan shroud so that you have better access to the Y-bridge bolts.

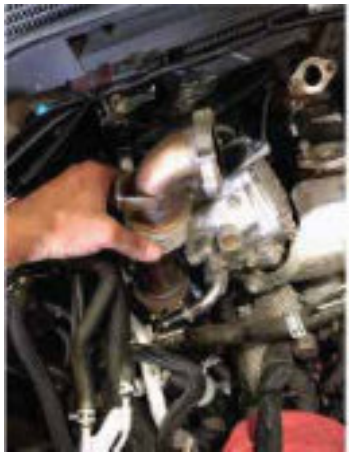
Step 15

With a ¼" drive 10mm socket and long ¼" extension, remove all eight bolts (4 on each runner) that hold the Y-bridge to the intake runners. Once removed, the Y-bridge will come forward slightly and then up and out. The 10mm head bolts will stay in the holes of the y-bridge by way of the OEM rubber inserts, but still be very cautious of any hardware or parts falling while removing the bridge as both intake runners are open. Once Bridge is removed, stuff rags into the intake runner ports. Set bridge aside for reinstall later.

Step 16

Now remove the heat shield on the shorter EGRhot side pipe connecting the Lower EGRvalve to the Upper EGRvalve, and then remove the four 13mm hex head bolts holding the pipe on and remove the pipe.





Step 17

Disconnect all the coolant hoses at the upper EGRvalve, and then you can remove the four 13mm hex bolts/nuts that hold the lower EGRvalve to the exhaust manifold and then remove the lower EGRvalve.

Step 18

Once the Lower EGR Valve is removed, you can install the supplied Steel Manifold block off plate with new gasket and hardware onto the exhaust manifold reusing two of the original studs and nuts and torque to 25 ft lbs.

Step 19

Next, the two large diameter steel coolant pipes from the thermostat cross over housing feeding the EGR cooler can be removed. Total of one large spring clamp just next to the turbo (leave spring clamp on this hose, it will be reused) four 10mm hex head bolts, and one 13mm hex head bolt will be removed. All circled below;

Step 20

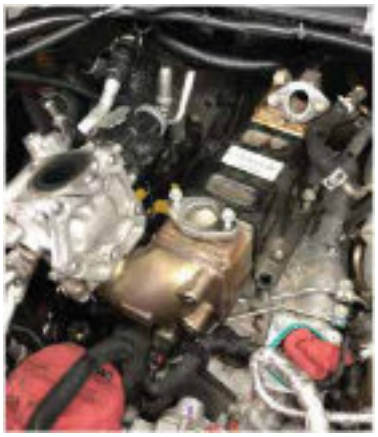
In the supplied parts bag of the Cooler Upgrade Kit locate the Billet Plug with 0-ring and apply grease to the 0-ring, then install the plug into the coolant port on the thermostat housing just in front of the passenger side intake port. Fasten with the OEM bolt that was removed in the previous step.

Step 21

On the top of the EGR cooler disconnect the small coolant line from turbo to EGR;

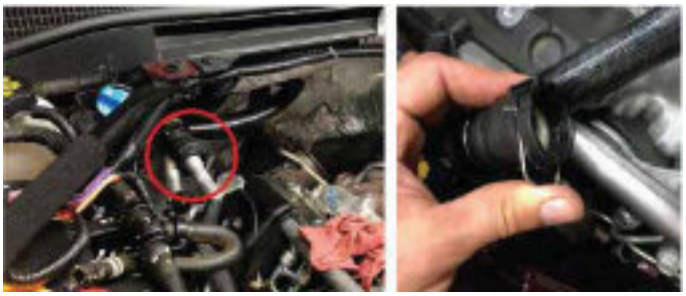
Step 22

Then remove the five 13mm hex head bolts that hold the EGR cooler to the engine and remove the cooler assembly.



Step 23

Next remove the aluminum coolant hardline on the passenger side that connects the firewall heater core hose to the lower radiator hose. At the heater core hose end, circled below, you will use a flat blade screw driver to release the clip upwards that holds the quick connect fitting to the hard line. Once disconnected, push the small clip back down into place.



At the bottom of the hard line just in front of the upper control arm, remove the hose from the hard line and leave the spring clamp on the HOSEit will be reused. Remove the bolt connecting the hardline to the engine also.

This hardline also has a smaller diameter line welded to it that feeds coolant to the urea Injector, these small rubber lines also need to be disconnected from the line so that it can be removed completely. Here is the assembly removed;

Step 24

Now install the 20" Long, 5/8" Hose Assembly in place of the hardline that was removed above. The brass barb fitting will install to the OEM hose at the bottom with the OEM spring clamp, shown below.

Step 25

The upper end of the new hose assembly will quick connect to the heater core hose fitting just like the OEM hardline did, simply push together until it clips into place.

Step 27

Disconnect the small rubber hoses at the Urea Injector located in the front elbow of the exhaust system just below the down pipe and remove the hose/hardline assembly from the side of the engine block that connected to the line you just removed above, and to the lower radiator hose.

Step 28

Locate the 5/16" Barbed Plug and clamp and insert the plug into the rubber hose that was just disconnected from the assembly in step #27. (This hose is connected to the main, large, lower radiator hose) Fasten clamp and zip tie the line up so that it is secure.

Step 29

Turbo Charger & SCR removal; first remove the t-bolt clamp that holds the hot side intercooler boot to the compressor outlet. On the back side of the turbo compressor cover remove the two 10mm hex head bolts that hold the PCV hardline and swing the hard line assembly out of the way. This gasket is a non-serviceable item GM does not sell only the gasket, so be fragile and set aside the hardware and gasket for reassembly.

Step 30

Next remove the two bolts on the driver side of the turbo that hold the Oil feed line to the center section. This gasket can be discarded.

Step 31

Remove the six bolts that hold the SCR heat shields in place, four on pass side and two on driver side. Once removed, break loose the NOX sensor on the driver side of the SCR and remove it from the SCR.

Step 32

Loosen the v-band clamp that connects the down pipe to the SCR and the SCR to the turbo housing.

Step 33

Once the above clamps are loosened you can break the SCR free from the turbo. This may take some prying between the SCR and turbo/SCR and down pipe.

Step 34

Next remove the two bolts on the driver side of the turbo that hold the Oil feed line to the center section. This gasket can be discarded.

Step 35

Next remove the two bolts that connect the upper section of the turbo oil drain line to the lower section. This gasket is fastened to the upper section of the drain line, so it will not fall off and it is not replaceable.

Step 36

Now on the passenger side of the turbo, remove the four bolts that hold the coolant feed and return hardlines to the center section. These gaskets can be discarded. The feed line (lower) will stay in place, with a zip tie you can pull/tie the line forward, so it is not in the way when removing and re installing the turbo. The upper line can be set aside for install later.

Step 37

The four 15mm Hex head bolts that hold the turbo to the pedestal can be removed and then the turbo is ready to come off.

Step 38

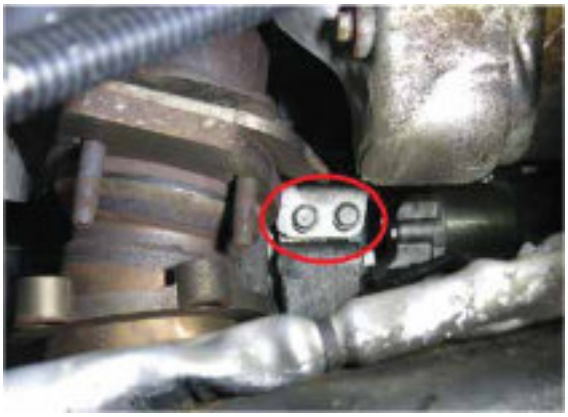
Remove turbo, and then remove SCR.

Notice:

If you do not currently have an aftermarket 3.5"-4" downpipe, then you can skip Steps 38-42. Those steps can still be used for reference if needed during turbo re-install.

Step 39

From the passenger fender well and from underneath the truck, disconnect the two nuts and two bolts that hold the down pipe to the exhaust front pipe. Also remove the two 13mm Hex head bolts that hold the down pipe support tab to the side of the engine.



Step 40

Remove the mount bracket on the top of the down pipe, and the bracket that attaches to the cylinder head.

Step 41

Remove the exhaust system front pipe and then the down pipe can be removed. It comes out easiest going down, it will require some rotation and pulling. Once out, remove the lower metal sealing ring and install this ring onto the new down pipe. If it slips off to easily from the new down pipe, the tabs on the edge of the sealing ring can be bent out slightly to help hold it in place.

Step 42

The new 3 ½" down pipe can now be installed from the top side of the engine. This will also take some rotating and slight pushing but once it's in the correct spot it will drop right into place.

Step 43

The lower down pipe support tab can now be reconnected to the engine to help support the down pipe, but do not tighten these bolts yet. There is a substantial amount of slop in these holes to allow for proper alignment once the down pipe is connected to the turbo charger. The plate with two studs can also be installed on the down pipe lower flange.

Step 44

Set new Turbo Pedestal Gasket onto the pedestal, the locating studs will hold it in place. Then reinstall turbo charger and tighten the four mounting bolts to 43 ft lbs. Also install and tighten the turbo oil drain line bolts and tighten to 89 Inch lbs.

Step 45

With the OEM Turbo outlet v-band clamp, connect the down pipe to the turbo, only snug the clamp for now.

Step 46

Moving back to the passenger fender well, tighten the two 13mm Hex head bolts that hold the down pipe support bracket to the engine once the down pipe is situated correctly and the mount plate is even with the down pipe lower flange. This may require movement of the down pipe.

Step 47

Now you can tighten the v-band clamp at the turbo exhaust outlet.

Step 48

On the driver side of the turbo, the oil feed line can be reinstalled using the new GM gasket (Torque to 89 Inch lbs.) and reinstall the PCV Line fitting (using existing gasket that you saved earlier) and torque to 89 Inch lbs.

Step 49

On the passenger side of the turbo reinstall the turbo coolant feed and return lines with the new supplied GM gaskets. When re installing the return line (upper hardline) flip it upside down from its originally position so that the pipe faces down. This routes the supplied coolant line (which is installed in a later step) much better.

Step 50

The above picture also shows the location of where to install the supplied ¼" Silicone cap and hose clamp to block off the no-longer-needed coolant port on the coolant supply line (lower) to the turbo center section.

Step 51

Locate the heater hose line assembly which has quick-connect fitting on one end and a 1.3"diameter aluminum barb on the opposite end. Install this hose from the heater core fitting on the firewall, which simply clips into place, and the barb end into the hose from the thermostat housing just next to the turbo using the OEMspring clamp that remains in place from earlier.

Step 52

The supplied 15"long, 3/8" diameter coolant line can be installed to the upper turbo coolant line using the OEMspring clamp. The brass barb end will connect to the OEM coolant line that tees into the coolant tank hose near the battery.

Step 53

Locate the Bridge Block Off Plate Supplied 8mm flange head bolts, and gasket. Install block off plate on to Y-Bridge and torque flange bolts to 25 ft lbs.

Step 54

The intake Y-bridge can now be reinstalled onto the intake runners; be sure to remove your shop rags from the intake runner ports first! Torque the eight 10mm hex head bolts to 89 Inch lbs.

Step 55

The AC Compressor can be bolted back down into place next and reinstall the serpentine belt.

Step 56

Reattach the bale connector bracket to the top of the AC Compressor and route the electrical harness back across the intake runner reusing the christmas tree style clips where applicable.

Step 57

The turbo Intake horn can now be reinstalled.

Step 58

The hot side intercooler pipe can be reconnected and tightened to the compressor outlet of the turbocharger.

Step 59

Installation of 9th Injector Block off Plug. First locate the billet plug from your hardware bag.

Step 60

Underneath the truck on the passenger side inner frame rail you will see the 9th injector mounted to the frame and the hardline running across the cross member to its quick connect fitting on the driver side frame rail just in front of the fuel cooler. Remove the injector mount bracket and the clips holding the hard line to the passenger side of the chassis. Slide the yellow clip on the connector at the end of the hard line by the fuel cooler sideways, then press either side of the connector to release the hard line from the connector. You can now install the supplied billet plug and slide the yellow clip back over to secure the plug in place. Below is a picture of the complete assembly removed, and the block off plug installed.

Step 61

Reinstall the radiator coolant drain plug and refill the coolant. (NOTE:Thecoolant tank cap is reverse thread)

Step 62

Reinstall Intake assembly.

Step 63

Reinstall Fender Liner.

Step 64

Start truck and check for any leaks after some idle time. It may take a few heat cycles before the coolant system burps all the air, so you may need to top off coolant once or twice.