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# Iron Horn

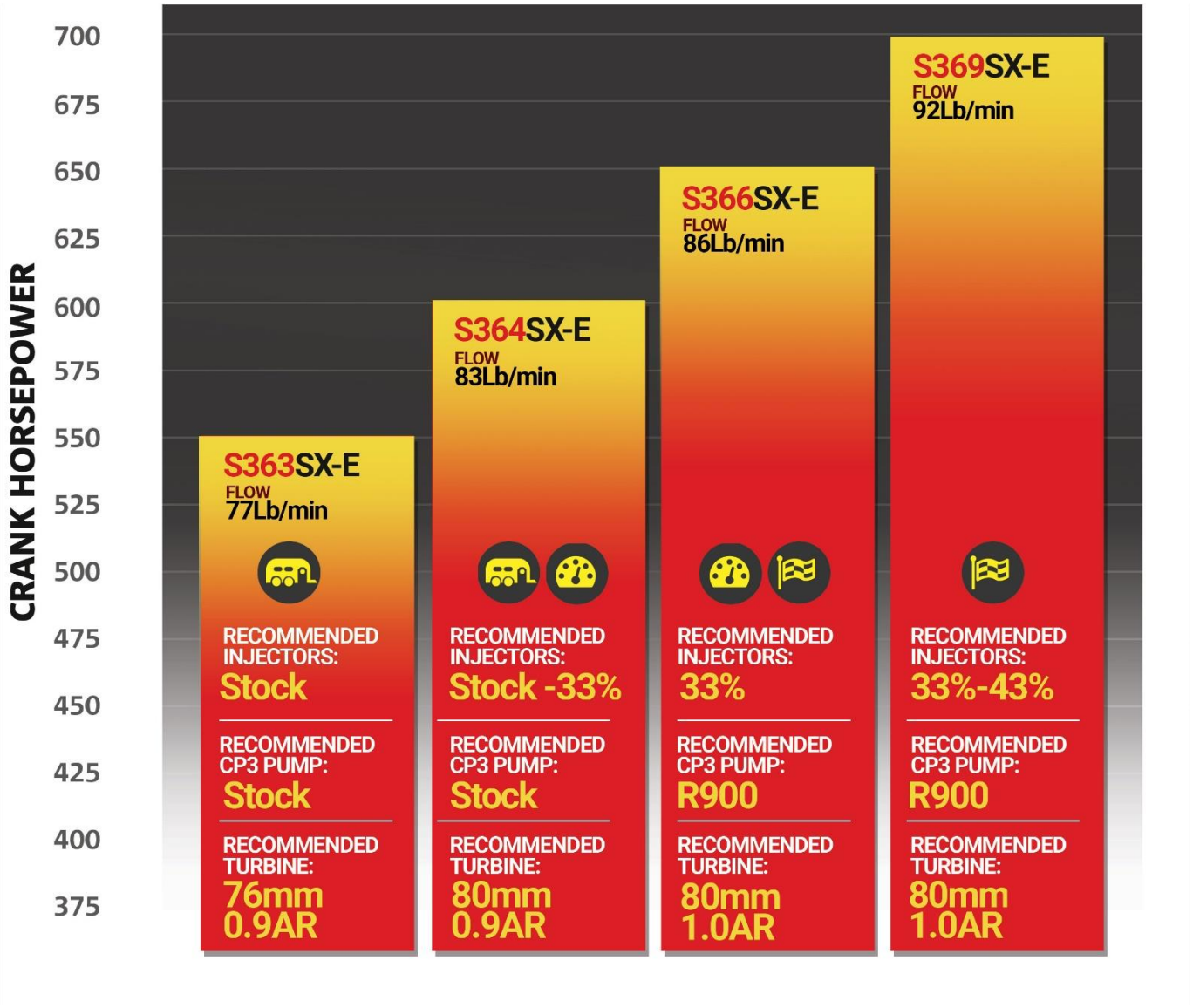
## Dodge 6.7L T4 Turbo Kit

| 104529X | Dodge 2007.5-2018 |
|---|---|

******Tuning Required******

**PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION**

# 6.7L IRON HORN SERIES




| BD Part Number | Compressor Wheel Inducer Size | Turbine Wheel/ Housing AR Ratio |
|---|---|---|
| **1045292*** | **63mm** | **76mm - .91AR** |
| 1045293 | 63mm | 80mm – .91AR |
| **1045294*** | **64.5mm** | **80mm – .91AR** |
| 1045295 | 64.5mm | 80mm – 1.0AR |
| 1045296 | 66mm | 80mm – .91AR |
| **1045297*** | **66mm** | **80mm – 1.0AR** |
| 1045298 | 69mm | 80mm – .91AR |
| **1045299*** | **69mm** | **80mm – 1.0AR** |

* BD's recommended turbine sizes

Please be aware that non-wastegated turbochargers are extremely sensitive to overspeed failures. Turbocharger must be sized correctly to match our horsepower and boost goals. Do not exceed the recommended turbo wheel speed. Compressor outlet pressure can be used to estimate turbo wheel speed. A boost leak will cause higher wheel speeds at a given boost pressure. The below table is rated at a maximum rpm of 3000.

Whether you are towing, at high altitude, or at WOT, high Exhaust Gas Temperature (EGT) is a sign you are operating outside the intended purpose of the turbocharger.

| **Engine:** | **Dodge Cummins 6.7L ISB** | | |
|---|---|---|---|
| **Turbocharger** | **Max Compressor Outlet Pressure** | **Max Shaft Speed** | **Max Crank Horsepower** |
| S363/80 | 36 psi | 126,000 RPM | 550 |
| S364.5/80 | 40 psi | 126,000 RPM | 600 |
| S366/80 | 42 psi | 126,000 RPM | 650 |
| S369/80 | 46 psi | 126,000 RPM | 700 |

Overspeed can results in turbine wheel separation, worn/damaged journal bearings, thrust damage, and split compressor wheels. Using a correctly sized turbocharger will reduce the chances of failure.

- Note you can always overspeed a turbocharger. Play it safe, there are no warranties for overspeed.
- Factory intercooler can have a 5psi pressure drop, i.e. 45psi manifold pressure = 50 psi compressor outlet pressure.
- All our testing is done at the standard RPM range of the engine. If you exceed this RPM, your turbo speed will also increase.
- Extended injector duration will contribute to turbo over speed.

# Kit Contents:

Please check to make sure that you have all the parts listed in this kit ***before*** you start the disassembly of your truck.

| Turbo Kit | | |
|---|---|---|
| **Turbo** | **1401589** | **1453105** |
|  |  |  |
| *Turbo* | *Plug; ORB M16x1.5* | *Drain; Oil* |
| **Qty: 1** | **Qty: 2** | **Qty: 1** |

| 148062 | 1453152 | FT-110120342 |
|---|---|---|
|  |  |  |
| *Gasket; Oil Drain* | *Fitting; 1/4MNPTxORFS (-6)* | *Bolt; Hex 3/8”-16x3/4* |
| **Qty: 1** | **Qty: 1** | **Qty: 2** |

| 1045965-T4 | 1045992-T4 |
|---|---|
|  |  |
| *T4 Manifold Kit* | *T4 Gasket Kit* |
| **Qty: 1** | **Qty: 1** |

## Introduction

The BD Turbo kit is an economical solution to have a S300 kit on your Cummins. This kit includes a non-wastegated T4 Turbocharger, high performance EGR compatible manifold. The kit retains stock downpipe and intake. This is great for those looking to upgrade their VGT without breaking the bank.

## Pre-Installation Inspection

When replacing a turbocharger BD recommends the following precautions are taken:

- Replace or clean the air filter.
- Change the engine oil and filter.
- Inspect Intake and CAC passages for debris, and clean if necessary.

In the case of a previous failure also include the following steps:

- Inspect CAC for debris and cleanout if necessary.
- Inspect engine oil for debris. Flush system if debris was present.

Ensuring that these steps are followed will prolong the life of your new turbocharger.

## Required Tools

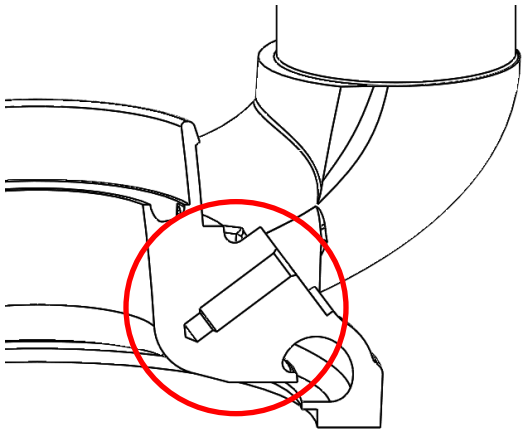
- 8mm-22mm Metric Socket and Wrench Set
- Hose Clamp Plier
- Torque Wrench
- 8mm Allen Socket

## Optional Accessories

| | |
|---|---|
| • BD Flow-Max fuel lift pump | 1050312D |
| • Throttle Sensitivity Booster | 1057712 |
| • X-Intake Elbow | 1041566 |

## ATTENTION

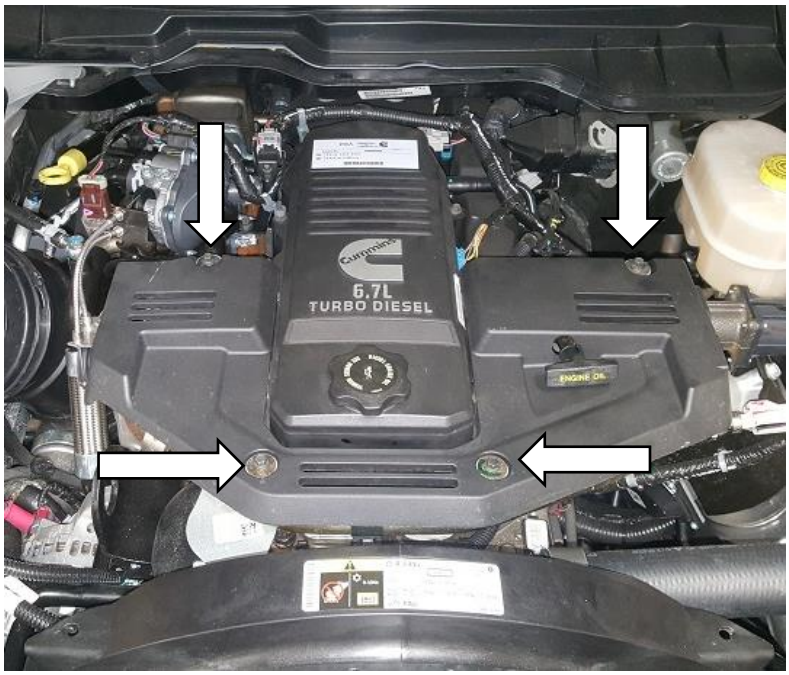
Please note that speed sensor port on the compressor cover is **NOT** drilled through.

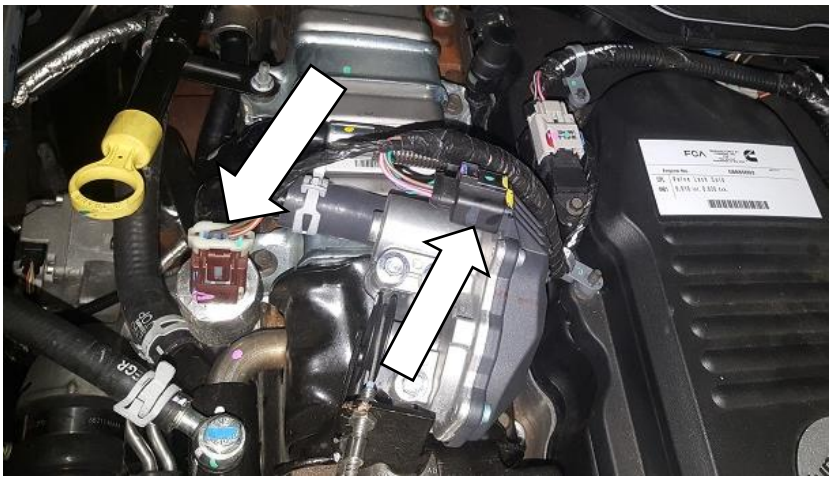


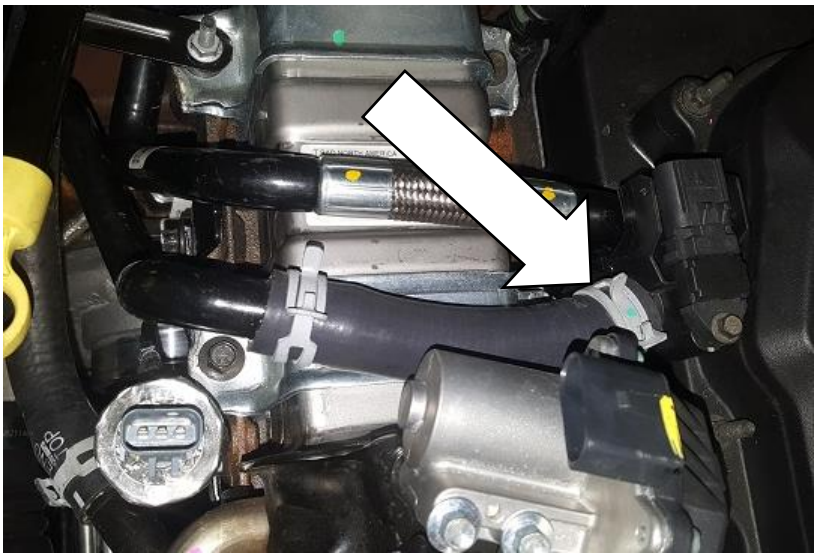
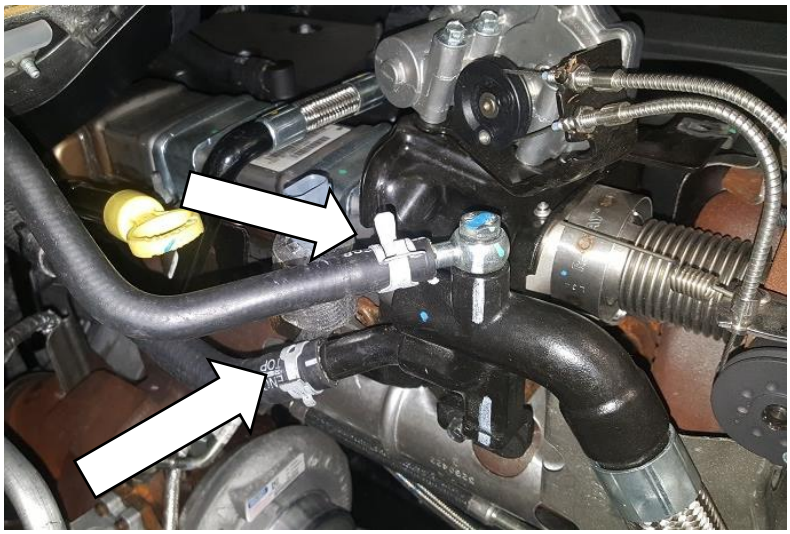
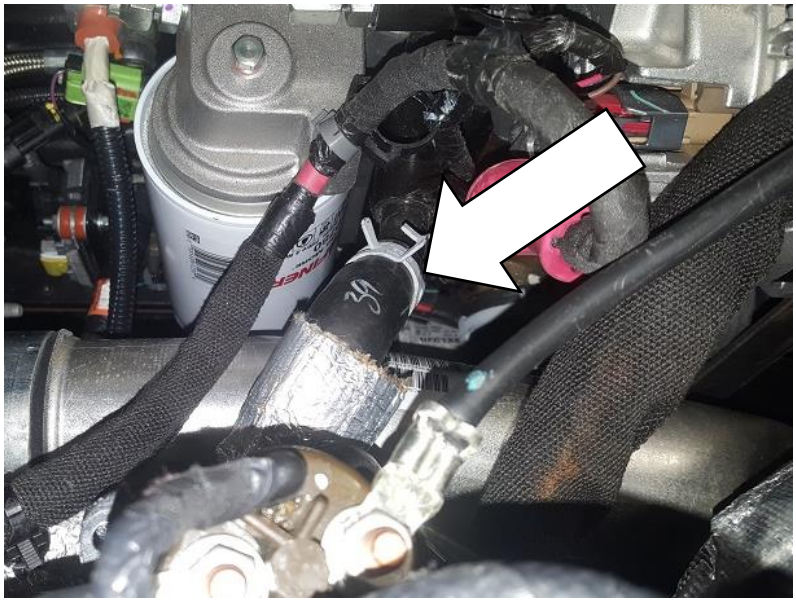
## Removal

**VEHICLE SHOULD BE SAFELY SECURED BEFORE INSTALLATION.**

1. Drain Coolant. Disconnect batteries and raise vehicle.
2. Remove passenger side front fender and wheel.
3. Remove engine cover (4 bolts).

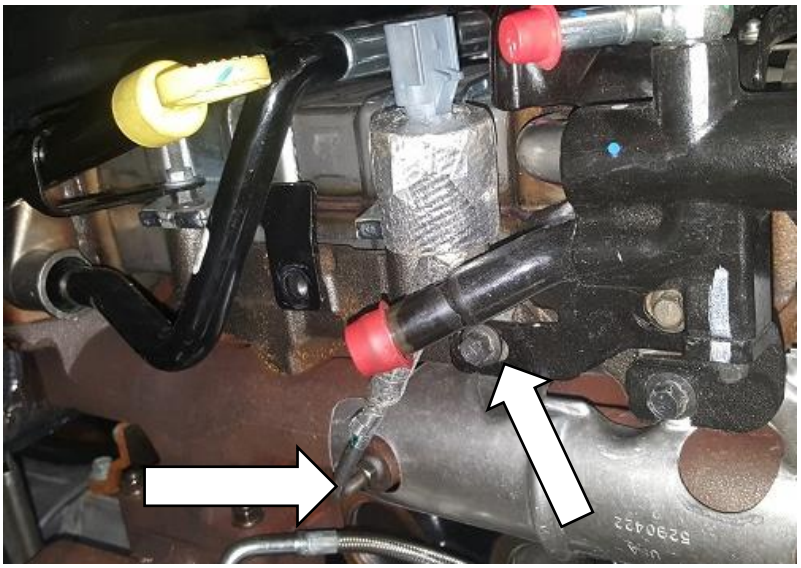


| | |
|---|---|
| 4. Disconnect sensors and remove the air box and intake hose. Remove the air filter inlet hose from the turbo inlet. |  |
| 5. Remove the EGR cross over tube by removing the two clamps. |  |
| 6. Disconnect the two sensors. Note: 2013+ Truck shown. |  |

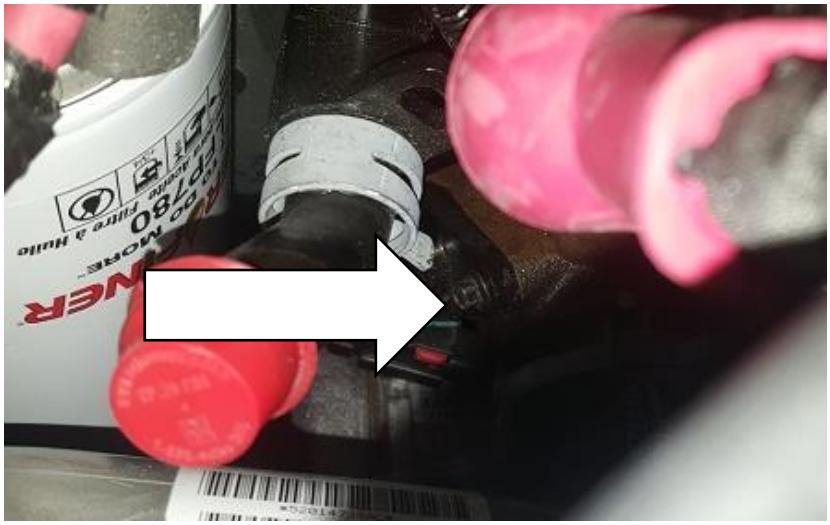
| | |
|---|---|
| 7. Disconnect the hose clamp and remove PCV hose assembly. |  |
| 8. Disconnect the two coolant lines at the coolant stand pipe. |  |
| 9. Remove the bottom degas bottle hose from bottom of coolant stand tube. |  |

10. Remove the upper turbo coolant line from turbo and engine.

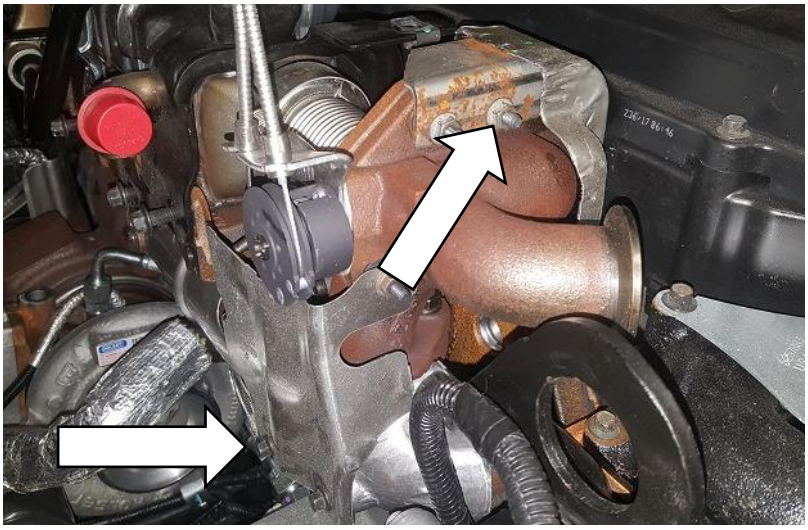
11. Remove the EBP sensor.
Note: 2013+ truck shown.



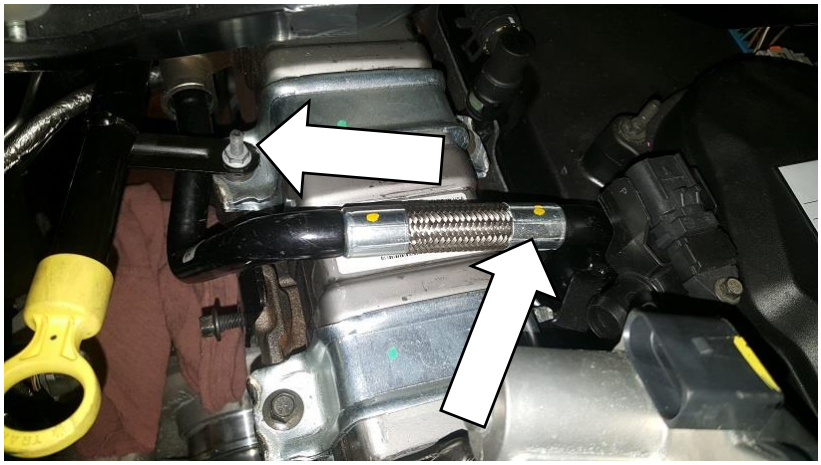
12. Remove the two remaining bolts on the coolant stand at the top and one bolt at the bottom and remove the coolant stand tube.



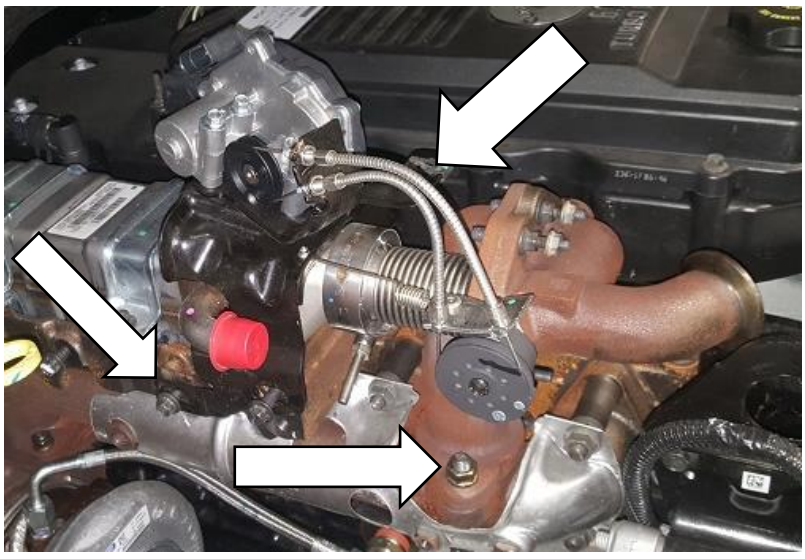
13. Remove the upper and lower EGR heat shields by removing the two nuts on the upper heat shield and 3 bolts on the lower heat shield.



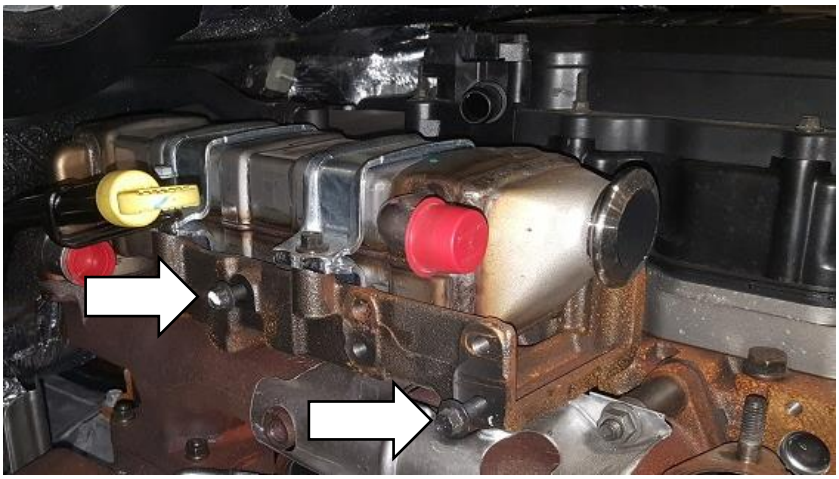
14. Remove the trans tube bracket and the coolant hose.



15. Remove the EGR valve assembly by removing the two bolts on side of EGR cooler, two on top and two nuts on the manifold flange.

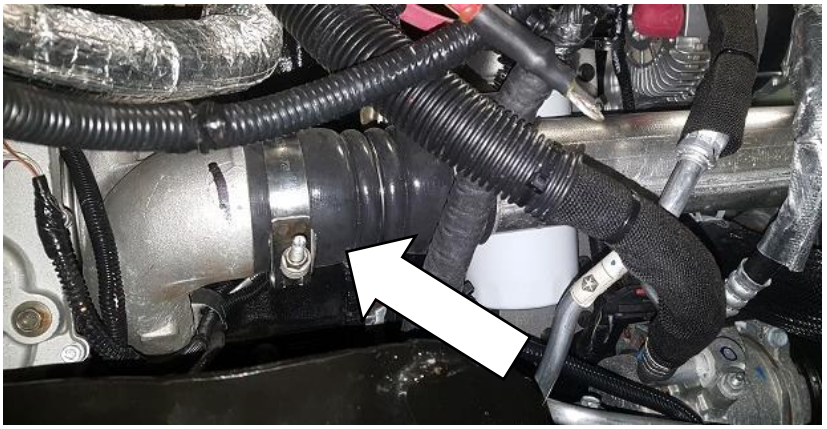


16. Remove the EGR cooler.by removing 2 bolts shown and 2 nuts at the rear securing the cooler to the manifold.



17. Remove the battery box and grid heater relay.

18. Remove the CAC pipe from turbo outlet.



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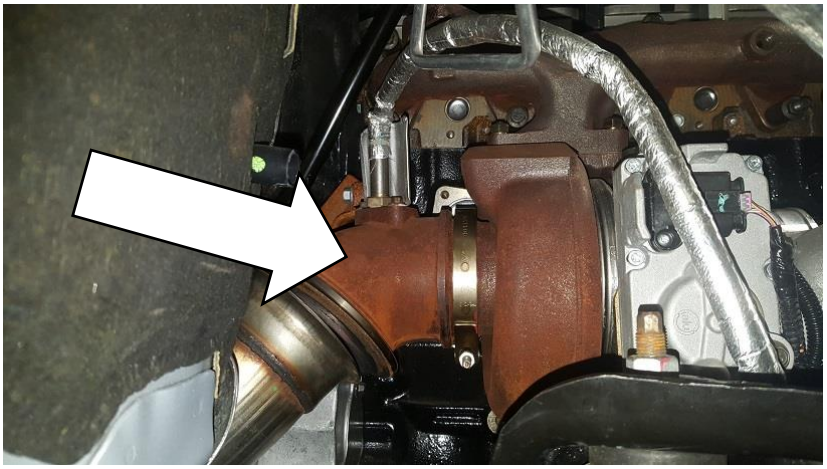
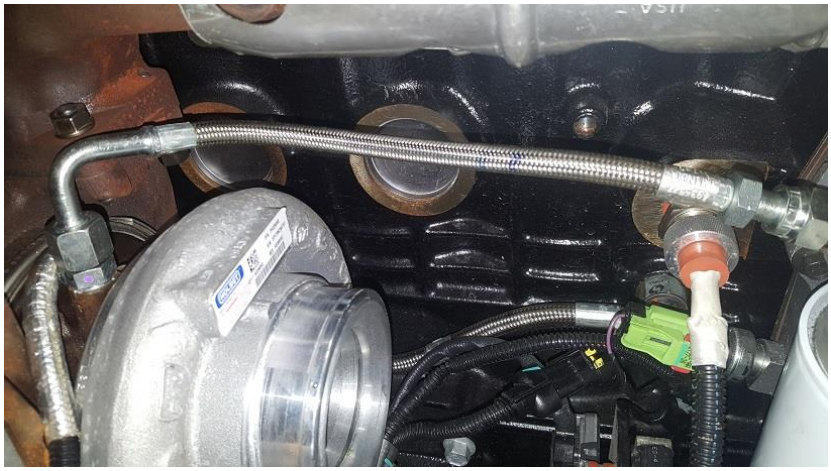
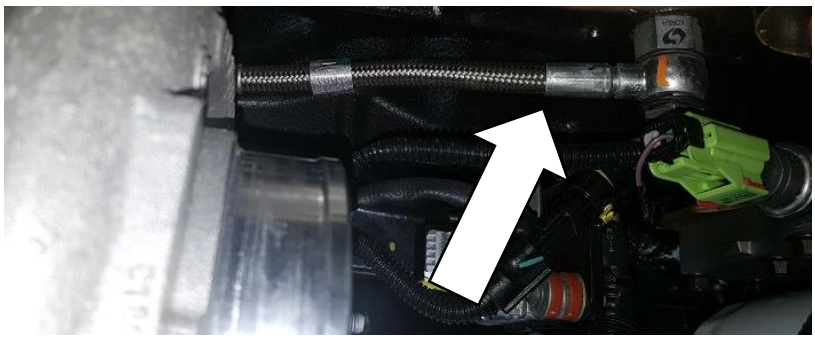
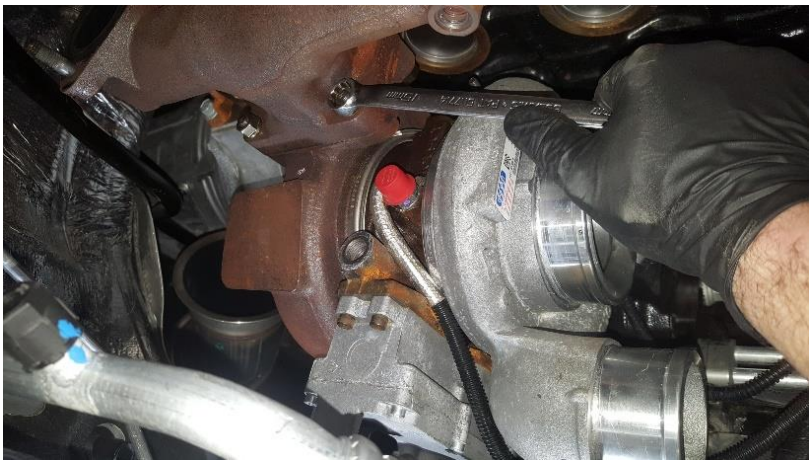
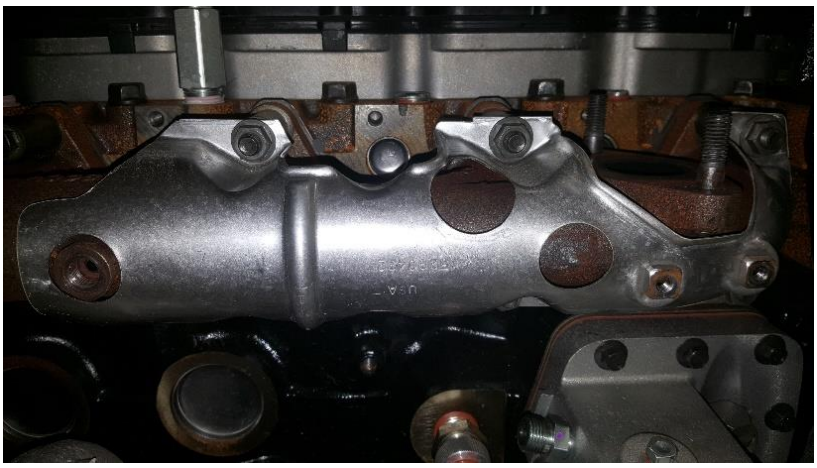
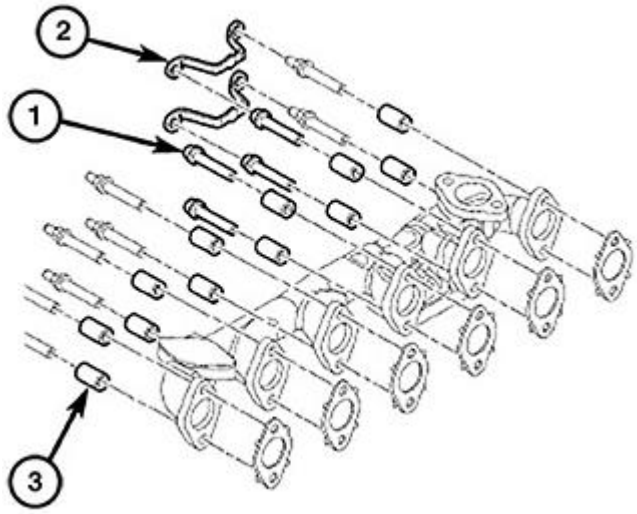
| 19. Remove downpipe and exhaust outlet casting. |  |
| 20. Remove the oil drain line. |  |
| 21. Remove the oil feed line |  |

| | |
|---|---|
| 22. Remove the lower turbo coolant return hose assembly. |  |
| 23. Remove the four nuts securing the turbocharger to the manifold and remove the turbocharger. |  |
| 24. Remove the heat shield from the exhaust manifold. |  |

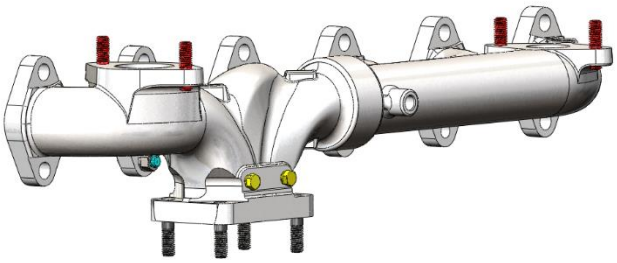
25. Remove the rear two exhaust manifold bolt lock plates (2). Remove bolts and spacer to remove exhaust manifold.



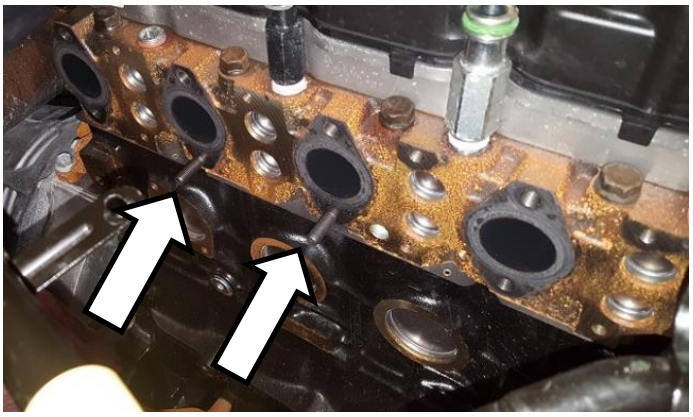
## Installation

**VEHICLE SHOULD BE SAFELY SECURED BEFORE INSTALLATION.**

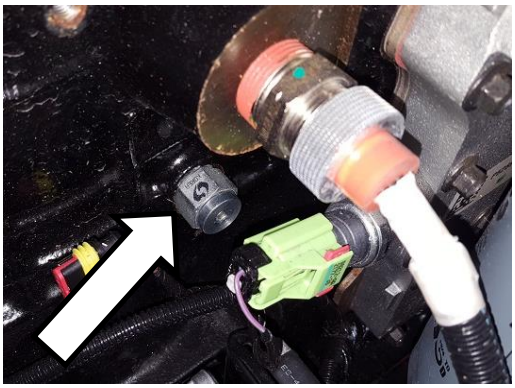
1. Install the 25mm M10 studs onto the EGR Ports and T4 flange. Use the 1/8NPT plugs to block the ports on the manifold.

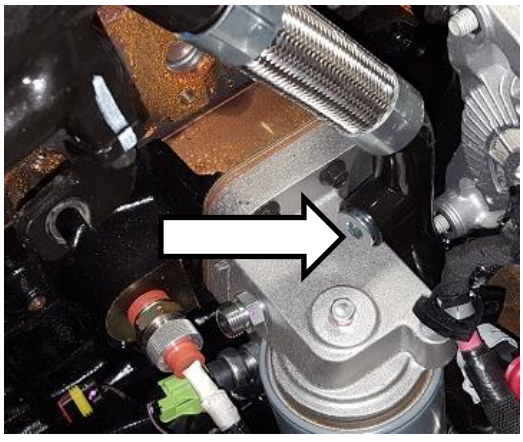


2. Install 2 30mm M10 studs in the lower position of Cylinder 4 and 5 exhaust ports. Make sure the mating surface between the manifold and cylinder heads is clean.

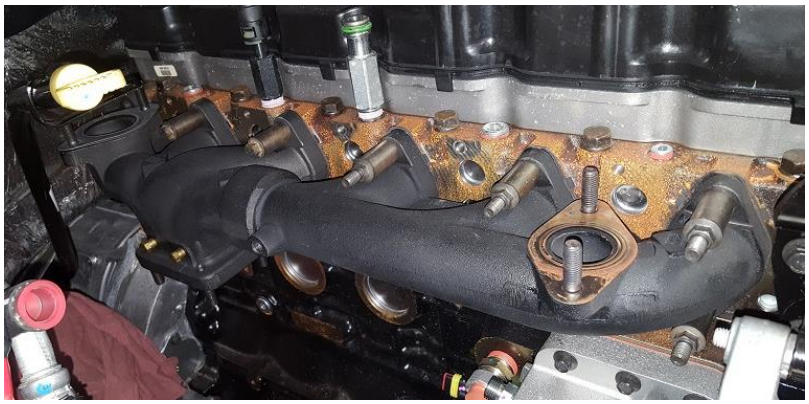


3. Install the 2 coolant plugs. One on the block. Second on the EGR Coolant line.

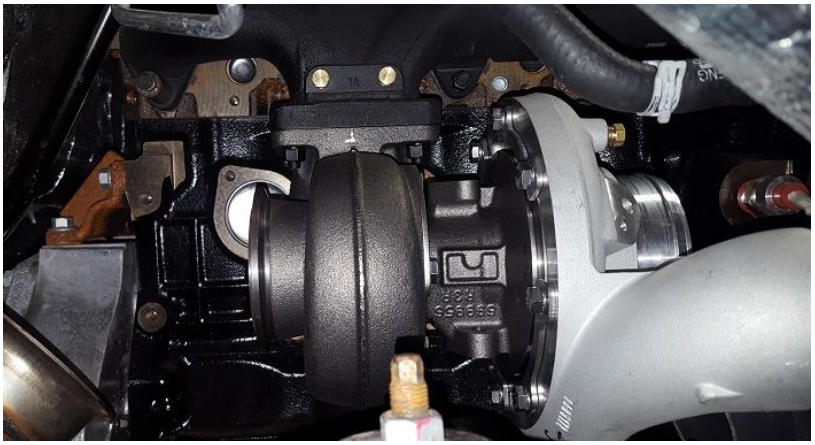




4. Install the Manifold using the supplied gaskets. Starting from the center and moving in an outwards pattern, tighten the manifold nuts and bolt to 53Nm (39ftlbs).



5. Install the turbo onto the manifold. Use the supplied gaskets and nuts.



6. Oil drain installation: Remove the O-rings from the drain tube and save. Bend the new drain to approximately match the shape of the original. Test fit the drain and adjust shape as needed. Continue to test fit until the bottom seats in the block and top sits correctly on the turbo outlet. Once tube is shaped, reinstall O-ring and install the drain tube with supplied 3/8” bolts and gasket.

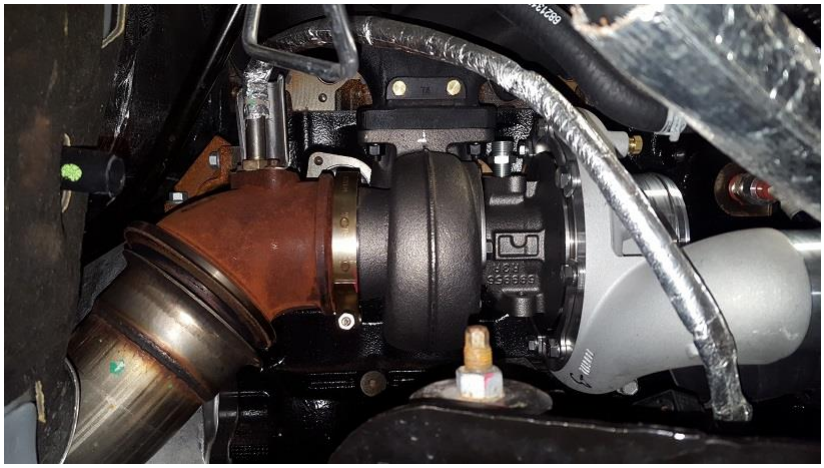
   *Tech Tip – The gasket can be secured to the drain tube with a couple of spots of RTV to aid in installation.

7. Install the oil feed fitting (1453152) into the turbocharger with a light amount of thread sealant.

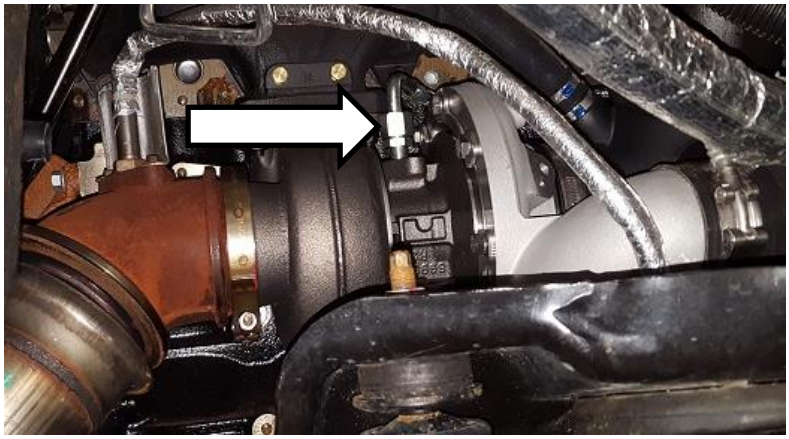
   **Prior to installing the fitting, pre-oil the turbo by adding a small amount of oil to the oil feed port**

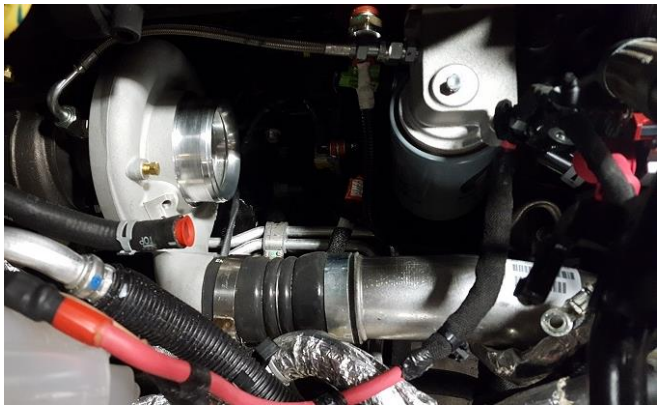
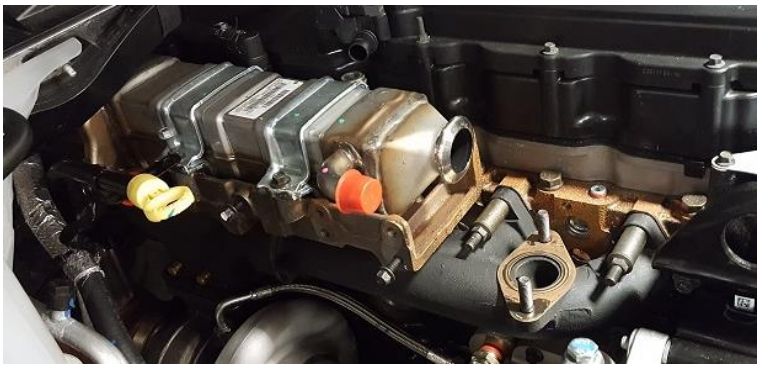
   ****NOTE:** This is a tapered fitting, do not overtighten fitting, it will lead to cracked CHRA.

8. Remove dowel from OE exhaust casting and install onto turbo.
9. Secure the exhaust elbow using OE clamp and hardware. Do not tighten completely until assembly is complete.
10. Connect the downpipe to exhaust elbow. Tighten Clamps.

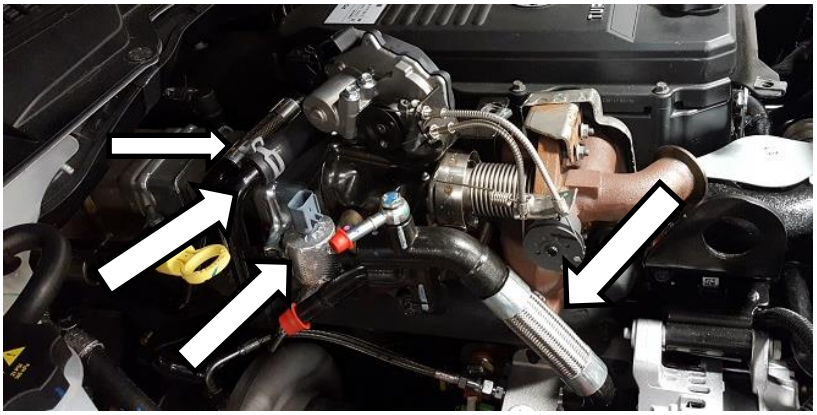


11. Connect the oil feed to turbo (pre-lube turbo prior to connecting feed line).



| | |
|---|---|
| 12. Connect the CAC to the turbo. Tighten clamp. |  |
| 13. Reinstall battery tray and battery. Connect the grid relay. |  |
| 14. Reinstall EGR Cooler. |  |
| 15. Reinstall the EGR Cooler Mixer Valve. |  |

16. Reinstall Coolant stand tube, EGR coolant lines, CCV and EBP sensor.



17. Plug in all EGR electrical components.
18. Install EGR crossover pipe.


19. Connect remaining coolant lines.
20. Install engine cover.
21. Install airbox/intake.
22. Connect batteries and refill coolant following factory instructions.