



INSTALLATION GUIDE

MK6 2.0TSI BorgWarner KO4 Turbo Upgrade
CTS-MK6-2.0TSI-K04KIT

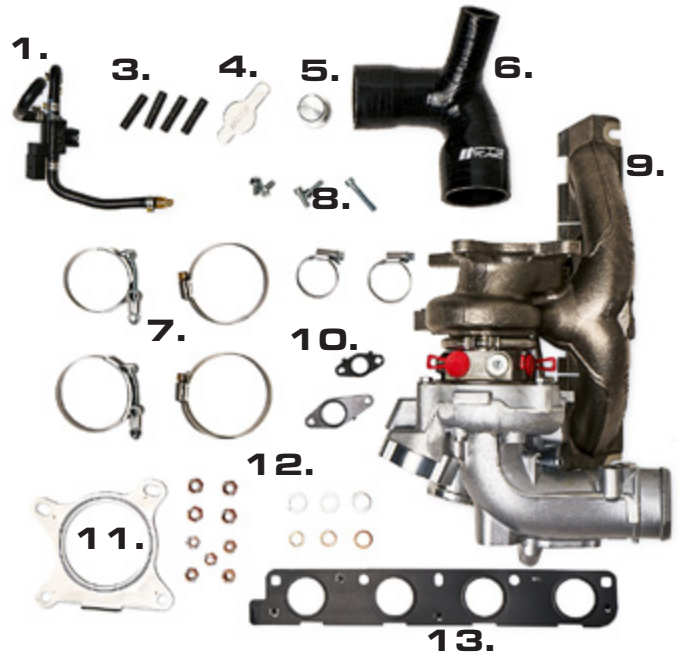


20630 Mufford Crescent, Unit #309
Langley, British Columbia V2Y 2V9

www.CTSTURBO.com

WHAT IS INCLUDED

1. N75 Valve
2. Downpipe flange studs
3. Downpipe flange studs
4. PCV Block off plate
5. Billet plug
6. Turbo outlet silicone
7. Hose clamps
8. Bolts for block off
9. K04 Turbo Assembly
10. Oil drain & PCV block off gaskets.
11. Downpipe flange
12. Bolts and washers
13. Exhaust manifold gasket

**TOOLS REQUIRED**

1. Lift or jack and jack stands
2. Drain pan for oil and coolant
3. 8mm, 10mm, 11mm, 12mm, 16mm sockets
4. O2 sensor removal tool
5. T25, T27, T30 torx bits
6. 5mm and 6mm hex wrenches
7. M8, M10, and M12 triple square bits
8. Phillips and flathead screwdrivers
9. 13mm and 16mm open end wrenches

NOTES

Vehicle used in this guide is a 2011 VW Golf GTI. Other cars will follow the same steps. We highly recommend installation using a hoist. Professional installation recommended. Always make sure the car is safe to work on. Do not work on a hot motor.

STEP 1

Prepare the car for installation by parking your car on a level surface. Apply the ebrake and lift the car to drain the coolant and oil.

Begin by removing the air intake from the car.

**STEP 2**

Remove the right side front wheel as well as the seven T25 screws holding the fender liner to the vehicle.

Remove the lower fender liner.



STEP 3

Remove the turbo inlet pipe and the aluminum heat shield above the turbo by unfastening the 6mm hex bolt and two M10 bolts.

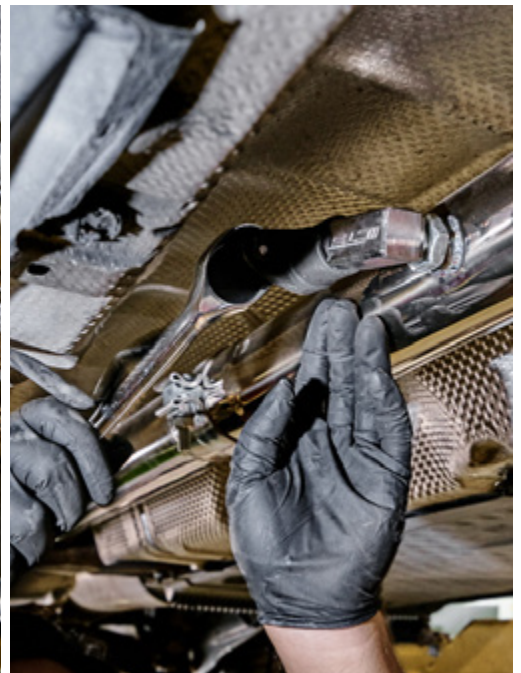


Remove the O2 sensor from the top of the downpipe using an O2 sensor removal tool.

**STEP 4**

Remove the T25 fasteners holding the underbody tray.

Remove the O2 sensor from the downpipe and tuck it to one side.



STEP 5

Remove the 13mm bolts holding the downpipe bracket to the subframe.

**STEP 6**

Remove the over-axle heat shield by removing the two 16mm bolts.



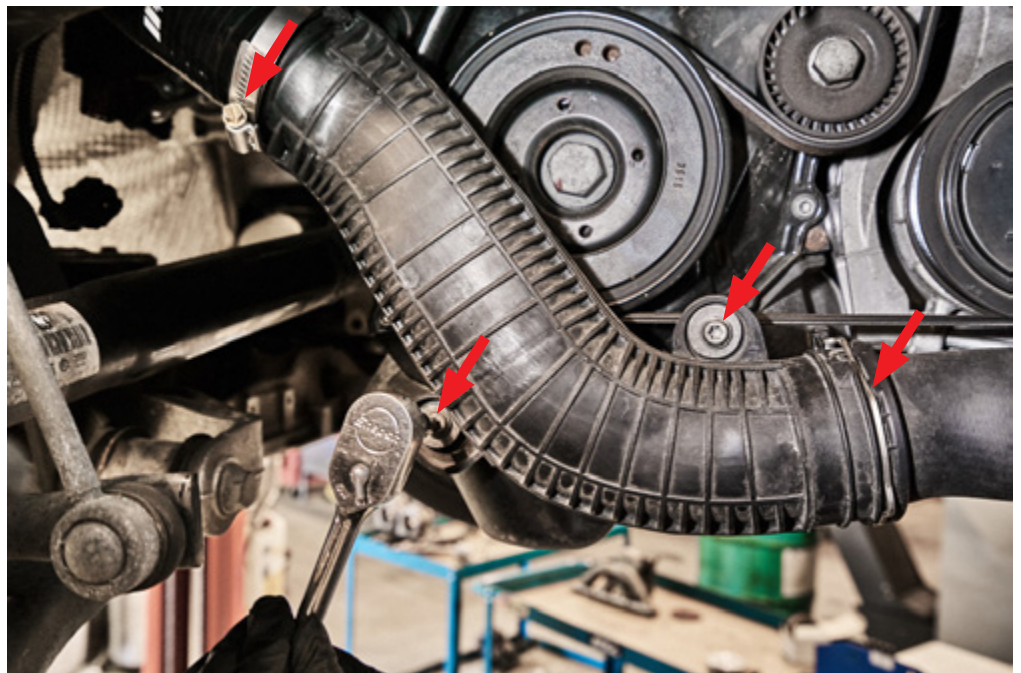
STEP 7

Remove the 16mm downpipe flange bolts. Heat and penetrant might be helpful during removal.

Remove the downpipe by snaking it out of the bottom of the engine bay.

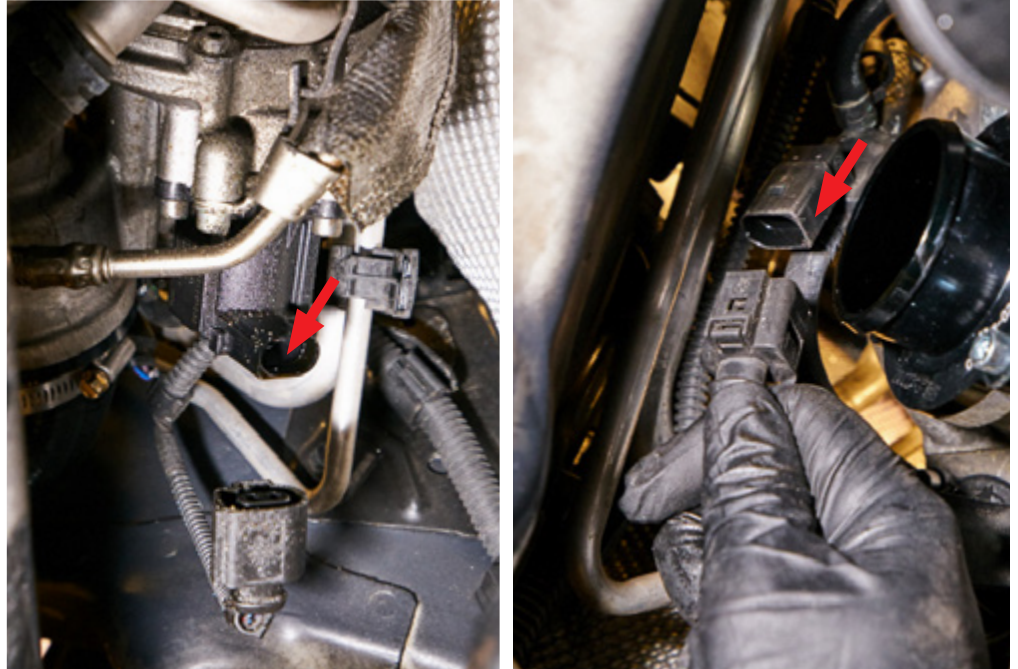
**STEP 8**

Remove the pancake pipe by removing the two T30 bolts and by releasing the two hose clamps.



STEP 9

Disconnect the diverter valve and N75 connectors.

**STEP 10**

Unclip the coilpacks and move the harness to one side.

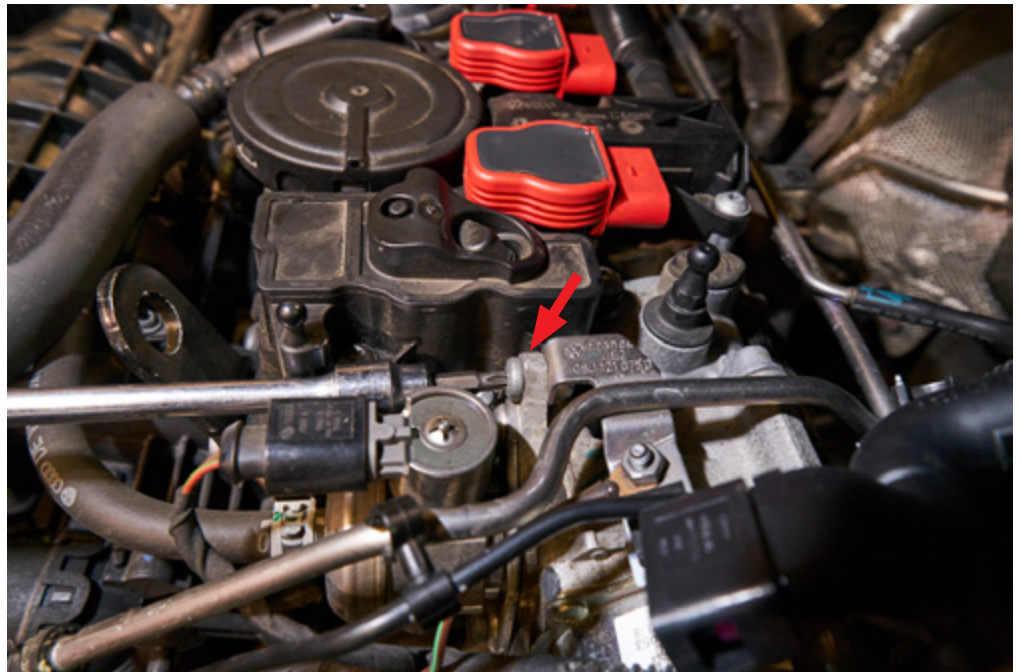


STEP 11

Disconnect the check valve at the rear of the cylinder head.

**STEP 12**

Remove the two T30 bolts holding the metal lines to the cylinder head and swing the lines to one side.



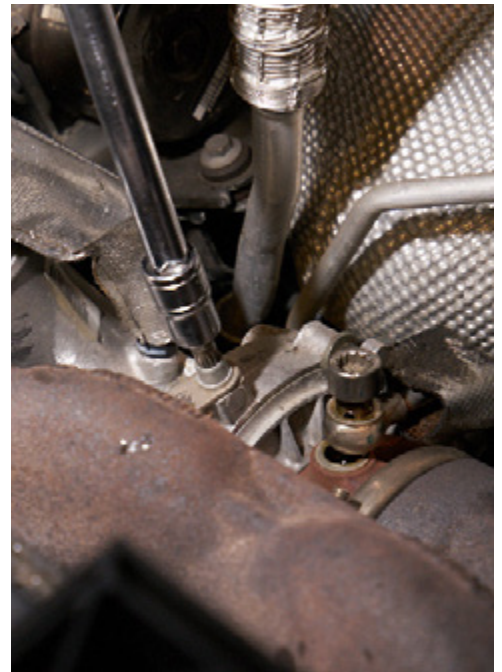
STEP 13

Remove the turbo support bracket by unfastening the two M10 bolts on the bottom and one 6mm hex bolt on top.

**STEP 14**

At the top of the turbo, remove the turbo oil supply line with a 12mm triple square tool.

Remove the adjacent 8mm triple square.



STEP 15

Accessing from the bottom side, remove the oil supply line bracket near the diverter valve with an 8mm triple square.

**STEP 16**

Remove the coolant return line with a 12mm triple square.



STEP 17

Remove the turbo oil return line at the engine block with an 8mm triple square too.

**STEP 18**

Remove the coolant supply hose from the plastic line near the oil filter by loosening the two hose clamps. Tuck them out of the way.



STEP 19

Remove the five 13mm nuts on the exhaust manifold and wiggle the turbo assembly free from the head.

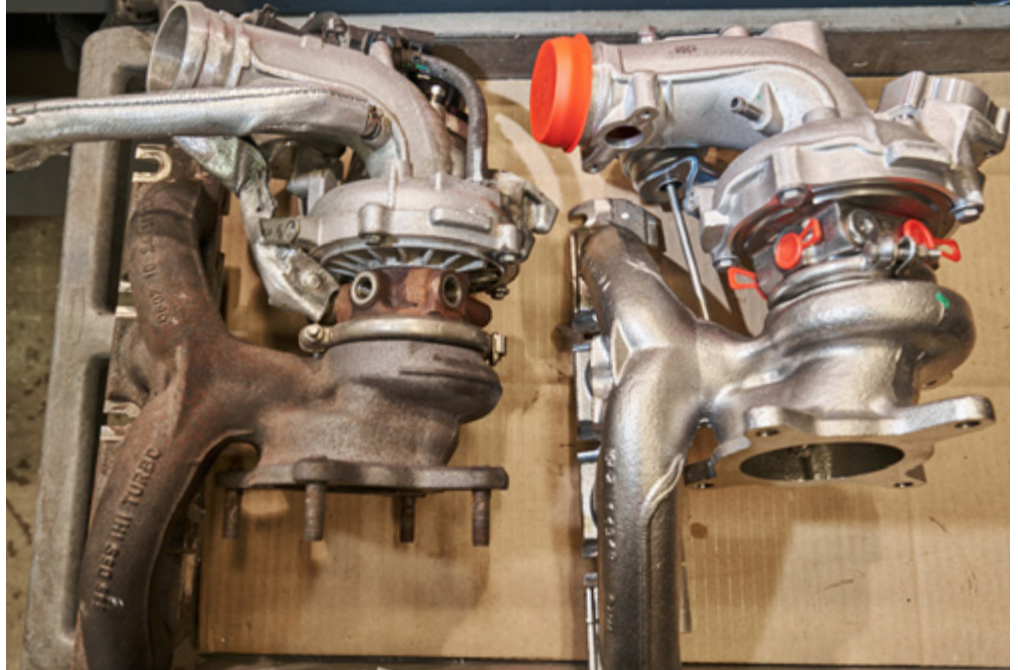
**STEP 20**

Remove the turbocharger assembly from the engine bay by lifting it up and out with the turbine side up.



STEP 21

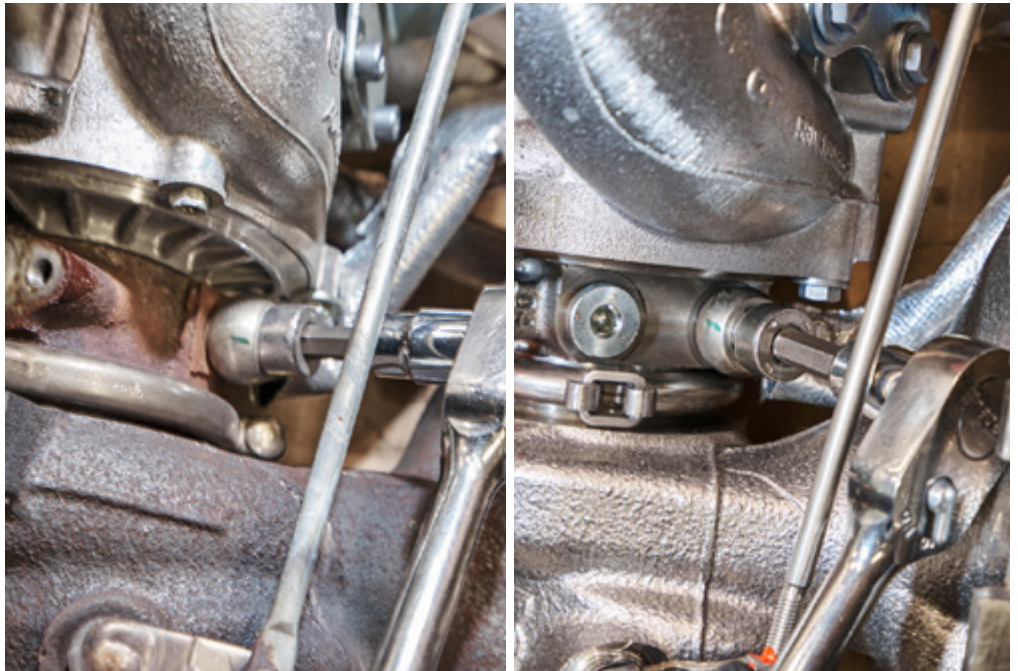
Take note of the orientation and routing of all lines on the used turbo before transferring the lines so you can duplicate on the new turbocharger.

**STEP 22**

Swap all coolant and oil lines onto the new turbocharger.

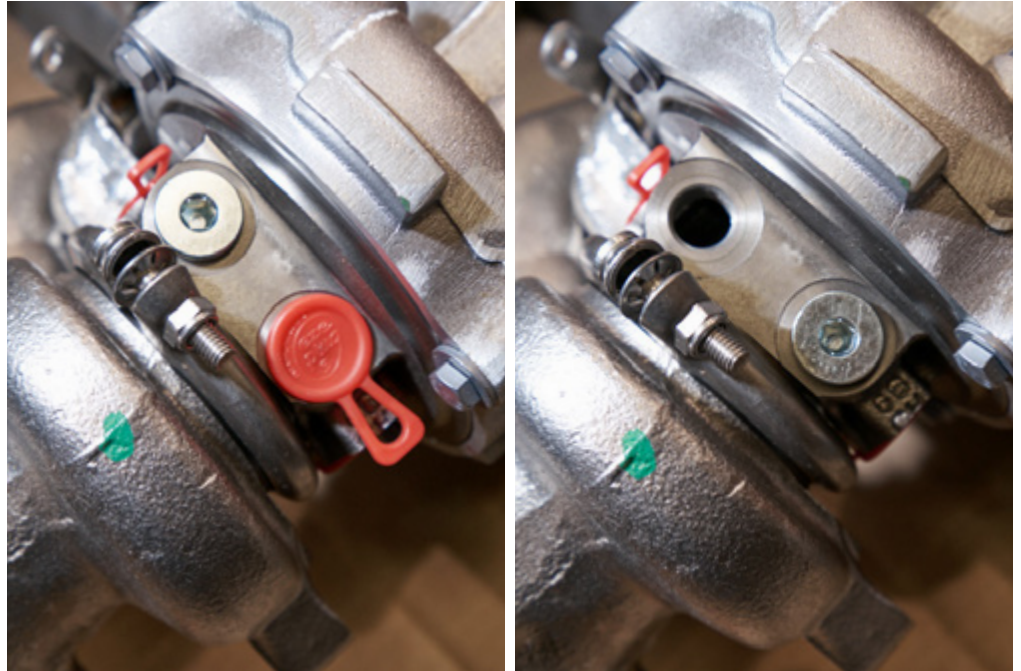
Ensure new crush washers are inserted on either end of each banjo bolt.

Torque bolts with crush washers to 18 lb-ft plus 45 degrees.

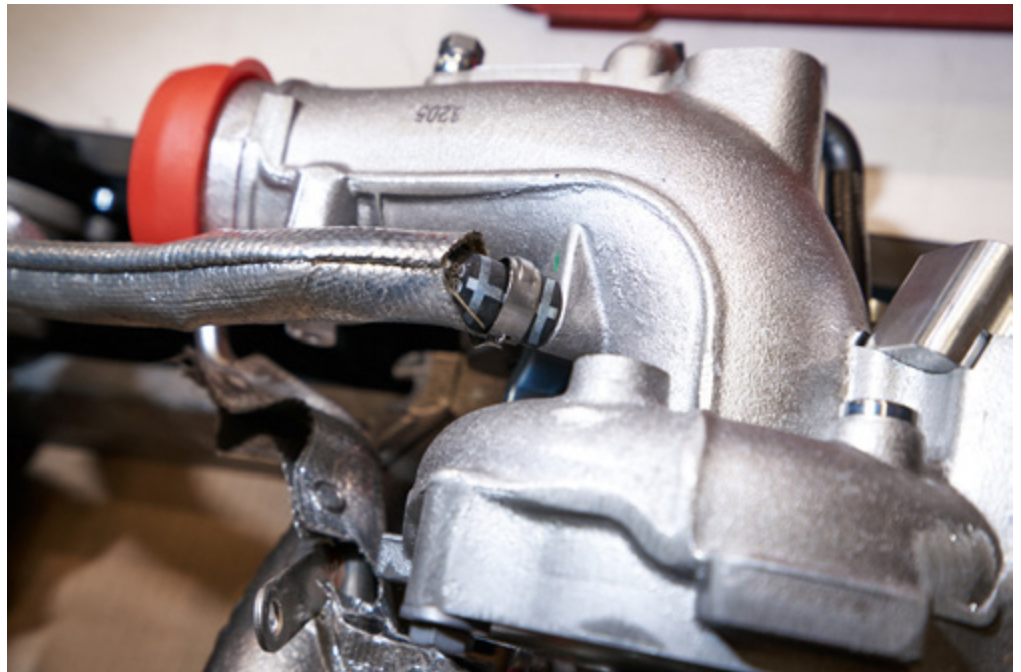


STEP 23

Insert the 6-mm hex coolant plug into the lower hole of the new turbocharger assembly, near the oil return hole. Torque the plug to 40 lb-ft.

**STEP 24**

Install the provided N75 Valve and transfer the evap line from the stock turbo to the K04.

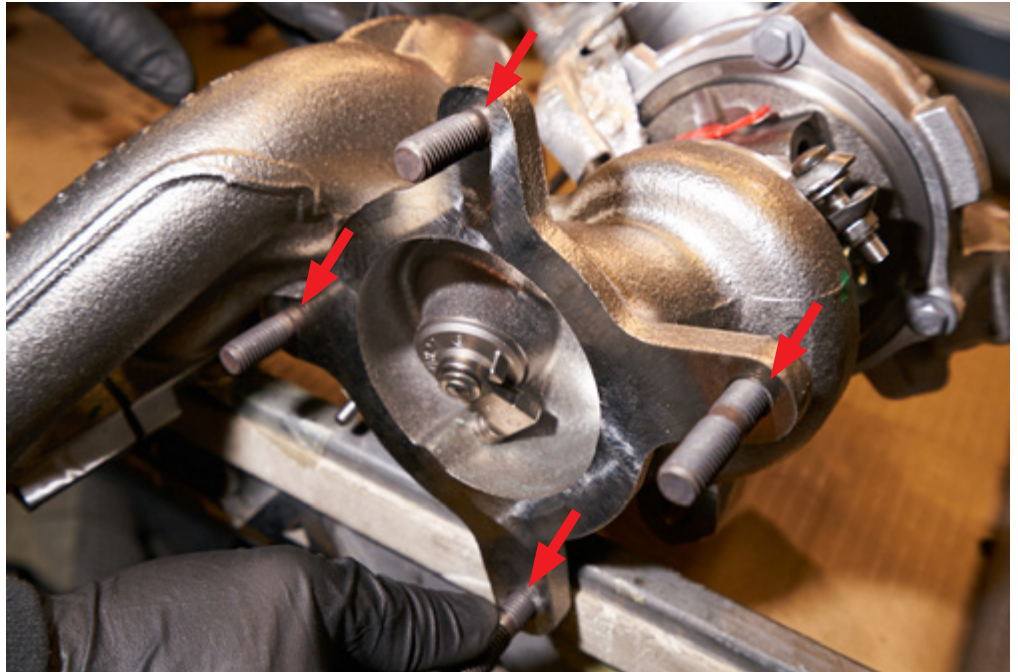


STEP 25

Attach the supplied block off plate to the K04.

**STEP 26**

Install the studs onto the K04 using red locktite.



STEP 27

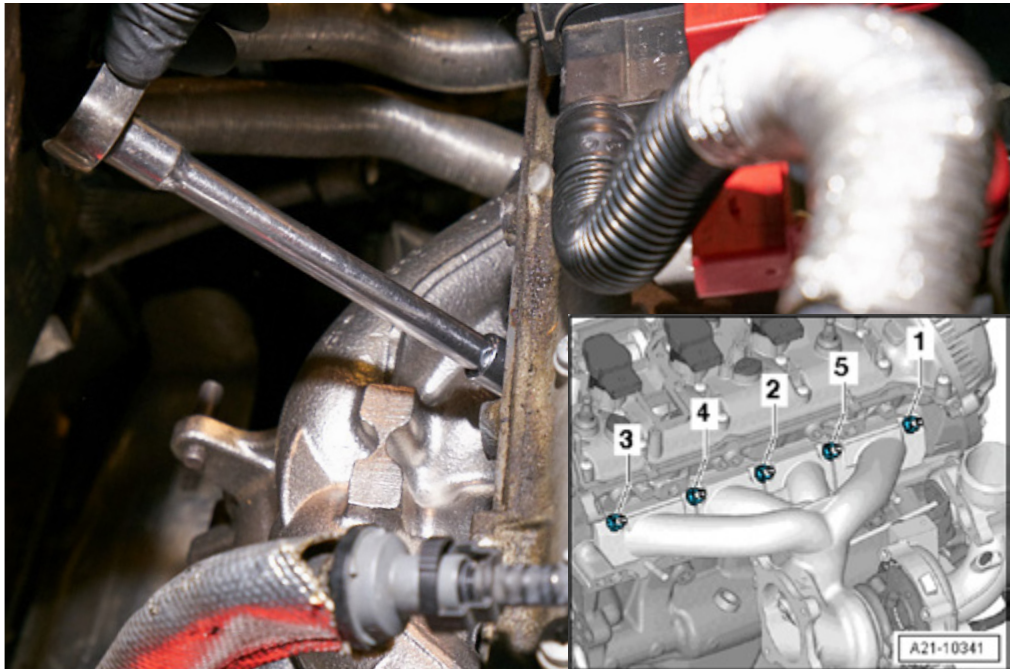
Replace the manifold gasket on the block and install the new K04 assembly into the engine bay and onto the cylinder head studs.

Ensure that the channels on the bottom of the manifold are seated onto the locating blocks on the cylinder head.

**STEP 28**

Hand-thread the five supplied 13-mm manifold nuts onto the studs snugly.

Tighten the manifold nuts in the order specified by this figure. Starting at 10 lb-ft, complete the sequence. Then repeat the sequence, tightening all nuts to 20 lb-ft.



STEP 29

Reconnect the coolant feed lines.

**STEP 30**

Reconnect the oil drain line with the supplied gasket.



STEP 31

Reconnect the coolant return line line.

**STEP 32**

Reconnect the coolant feed line at the top side of the turbo.



STEP 33

Reinstall the turbo support bracket.

**STEP 34**

Install the DV on to the new turbocharger assembly and reconnect the DV and N75 valve connectors.

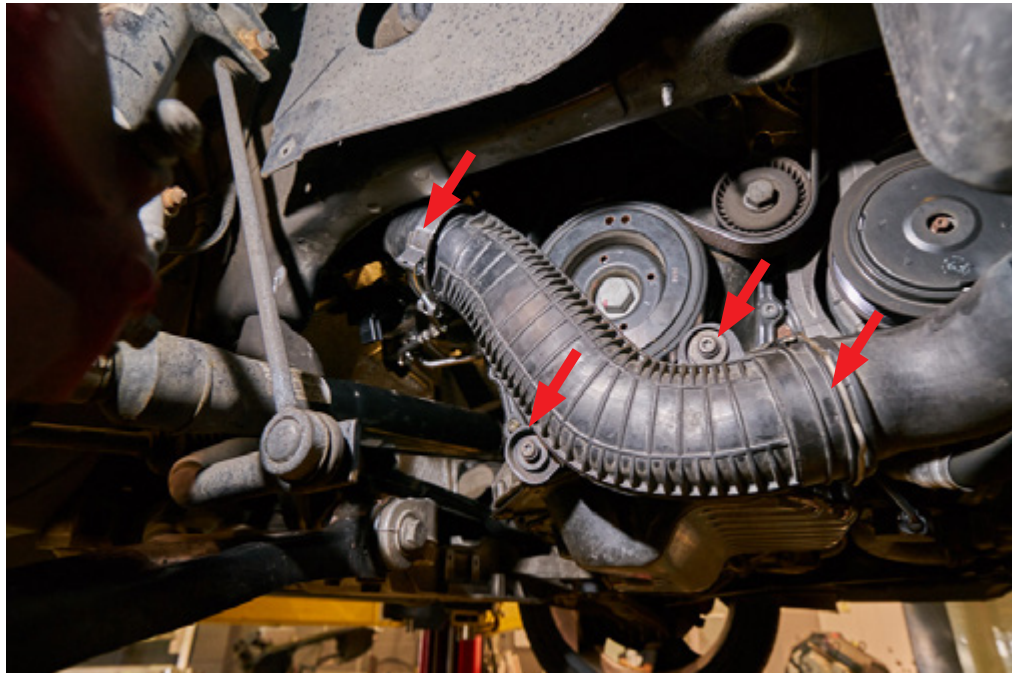


STEP 35

Install the supplied billet plug into the silicone turbo outlet pipe and secure with a hose clamp.

**STEP 36**

Install the turbo outlet pipe and pancake pipe to the turbo assembly. Install loosely to ensure the proper orientation and then tighten clamps and reattach with the two T30 bolts.



STEP 37

On the top side of the engine, reattach the metal lines and secure with the two T30 bolts

**STEP 38**

Click in the coilpacks.



STEP 39

Reinstall the check valve.

**STEP 40**

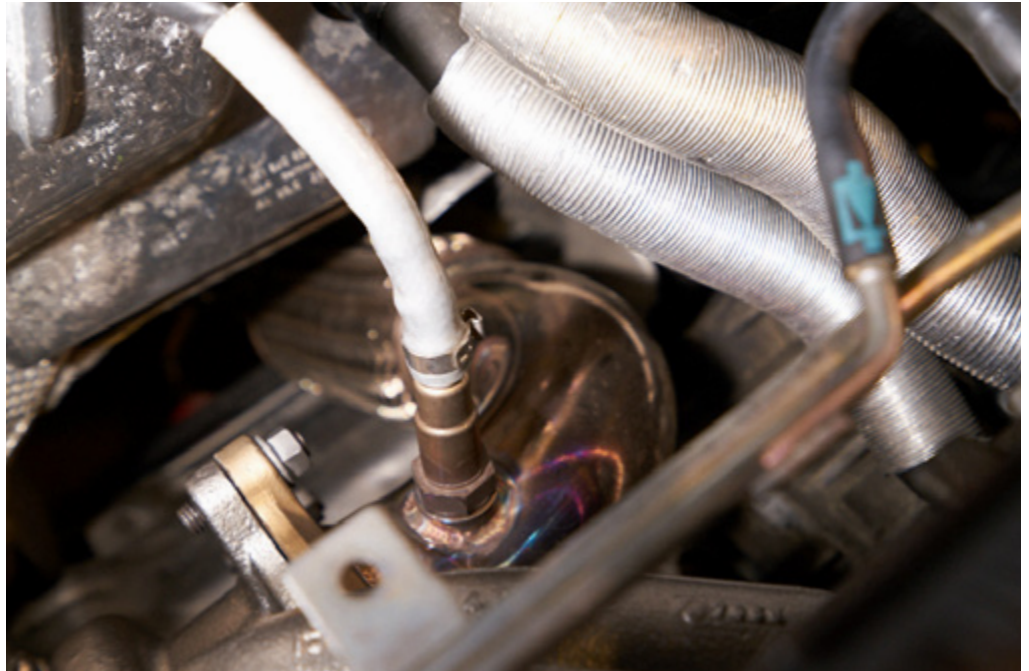
Reinstall the axle heat shield with the one 6mm hex and two M10 bolts.

Reinstall the downpipe and O2 sensor using the new downpipe gasket supplied.



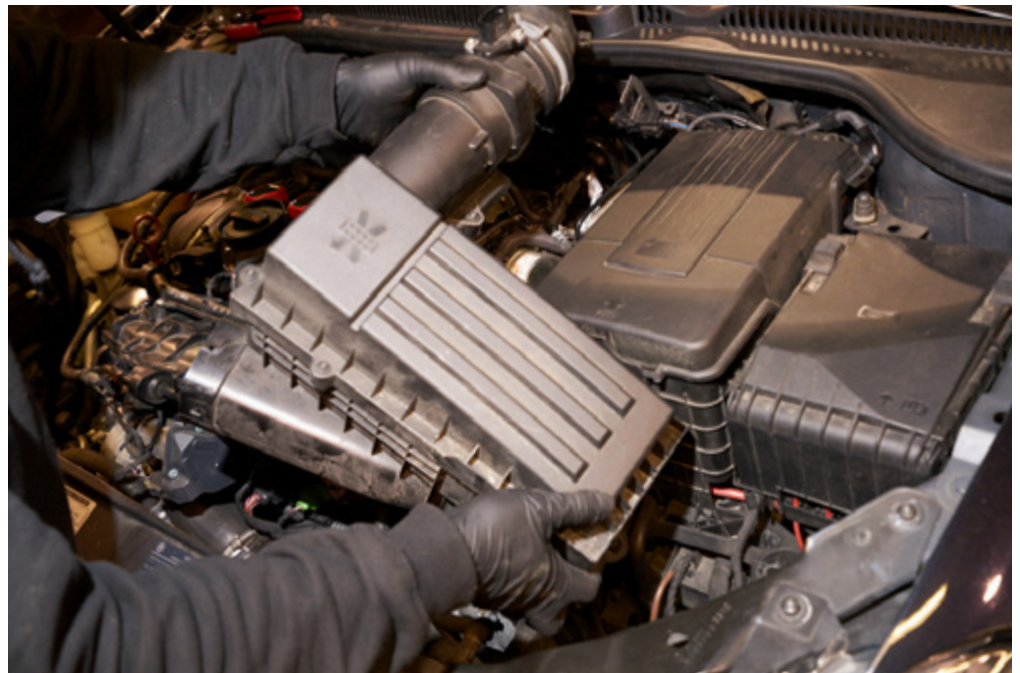
STEP 41

Install the O2 sensor on the top side of the downpipe.

**STEP 42**

Reinstall the heatshield and intake assembly.

Reinstall fender liner and RF wheel.



STEP 43

Fill the car with oil and replace and coolant lost during the installation process.

STEP 44

WHILE THE COILPACKS ARE STILL UNHOOKED, crank the motor for 10 to 15 seconds to allow oil pressure to build within the turbocharger.

STEP 45

Reconnect the coil packs and fire the motor with the splashpan removed. Allow the engine to idle for a few minutes and inspect all connects and lines for any fluid leaks or interference problems. NOTE: Some smoke is normal at this point while any fluids burn off the turbocharger.

STEP 46

Top off the oil and coolant and reinstall the splash pan/engine cover.

STEP 47

Take a short test drive to ensure that all boost hoses are secure and everything is performing normally.

STEP 48

You are done!