



TURBOCHARGER UPGRADE; N55 INSTALLATION INSTRUCTIONS

PART NUMBER D310-0110, D310-0110A, or D310-0115

APPLICATION: 2014-16 F22 M235i & xDrive coupe
2015-16 F23 M235i & xDrive convertible
2012-15 F30 335i & xDrive sedan
2014-15 F34 335i xDrive Gran Turismo
2014-16 F32 435i & xDrive coupe
2015-16 F36 435i & xDrive Gran Coupe

Congratulations for being selective enough to use a Dinan Turbocharger Upgrade. We have spent many hours developing this kit to assure that you will receive maximum performance and durability with minimum difficulty in installation. Please take the time to read these instructions and call us if you have any difficulties during the installation.

PARTS LIST

Qty	Part #	Description
1	D313-0110(A)	Dinan Turbocharger; N55 Elec, or
1	D313-0115	Dinan Turbocharger; N55 Vac
1	D313-0116	N55 Turbo Hardware Kit

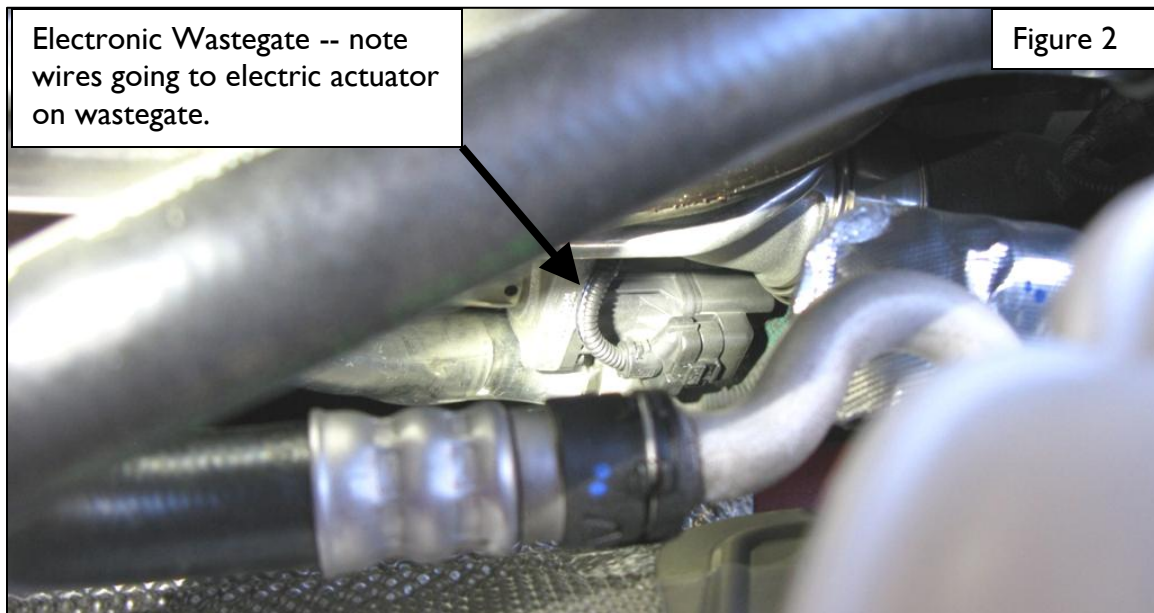
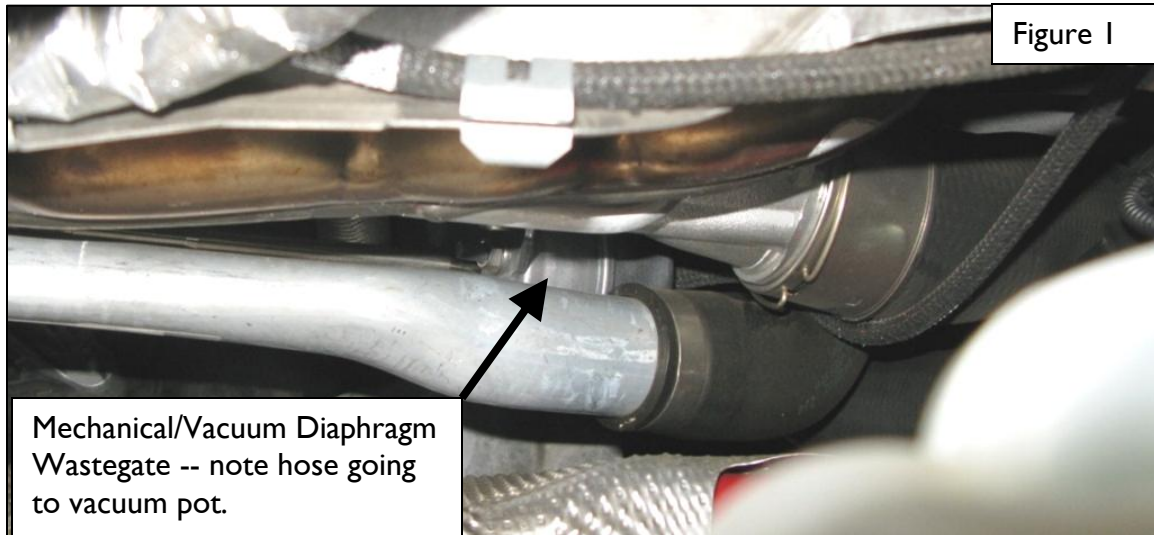
IMPORTANT NOTES:

- Turbocharger replacement requires a high level of automotive mechanical skill, experience and tools. There is a risk of damage to both the turbocharger being removed, as well as the new turbocharger, if adequate care is not taken. Installation of the Dinan turbocharger assumes the user has a sufficient level of skill, experience, and tools, to complete this task successfully.
- For rear wheel drive vehicles: These instructions discuss turbocharger replacement on an N55 engine without removal of the exhaust manifold. This is a much quicker process than the standard BMW turbocharger replacement procedure. The hardware included in this kit is designed for Dinan's shorter procedure.
- For xDrive vehicles: Due to limited access, turbocharger replacement on xDrive vehicles must follow recommended BMW procedure. Because the exhaust manifold is removed to access the turbocharger, additional hardware will be required for installation. Please have these components on hand before beginning installation, or contact your sales representative for Dinan hardware kit D313-0117.
- For xDrive vehicles with vacuum-controlled wastegate turbochargers: The wastegate linkage must be adjusted for proper operation. This adjustment is not documented in the standard BMW turbocharger replacement procedure. The best opportunity to perform the adjustment is when the Dinan turbocharger has been installed onto the manifold, but before this assembly is reinstalled in the car. While the assembly is on the workbench, follow the wastegate adjustment procedure at the end of these instructions.
- For all vehicles with electronic wastegates: The wastegate must be adjusted per BMW procedure for proper operation. Wastegate adjustment requires factory-level tools such as BMW ISTA (or equivalent). Please ensure that these tools are available prior to beginning installation.

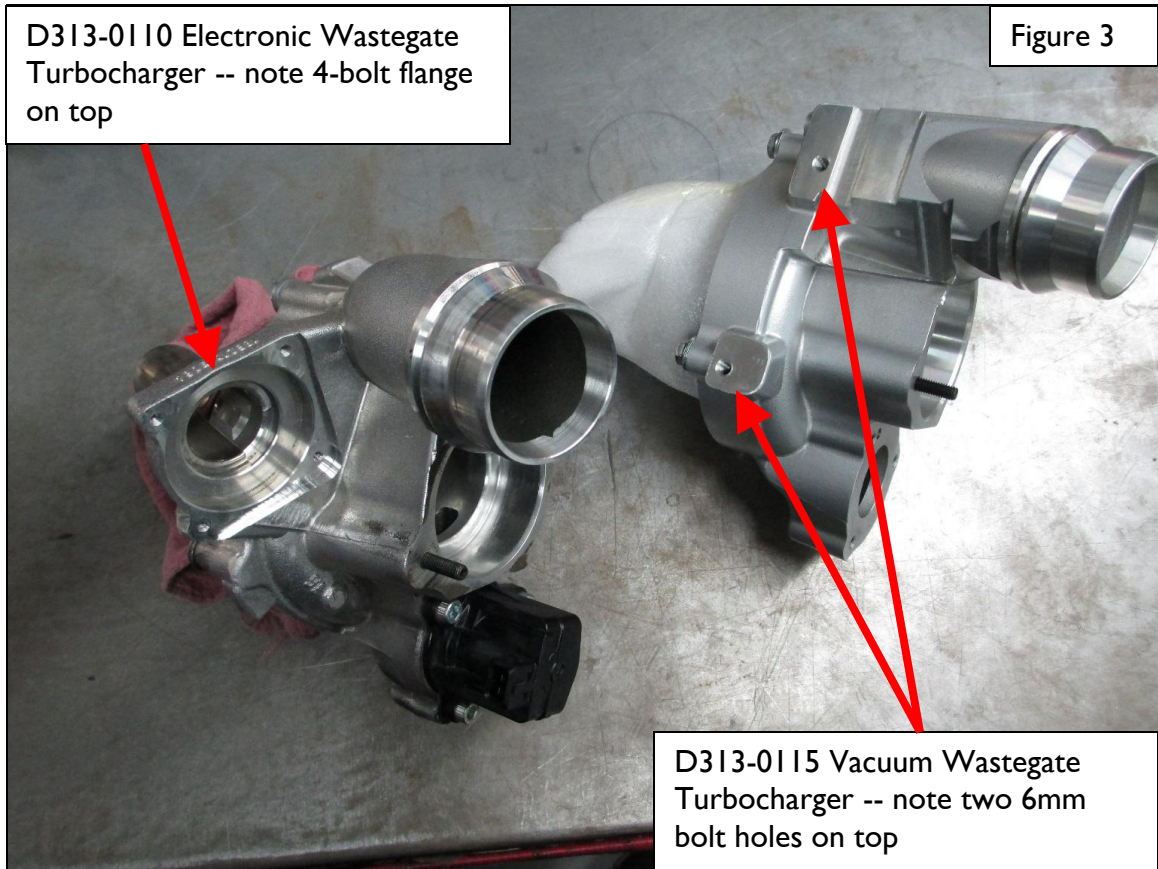
DO NOT WORK ON VEHICLES SUPPORTED BY A JACK ONLY. USE SECURE JACK STANDS!

INSTALLATION:

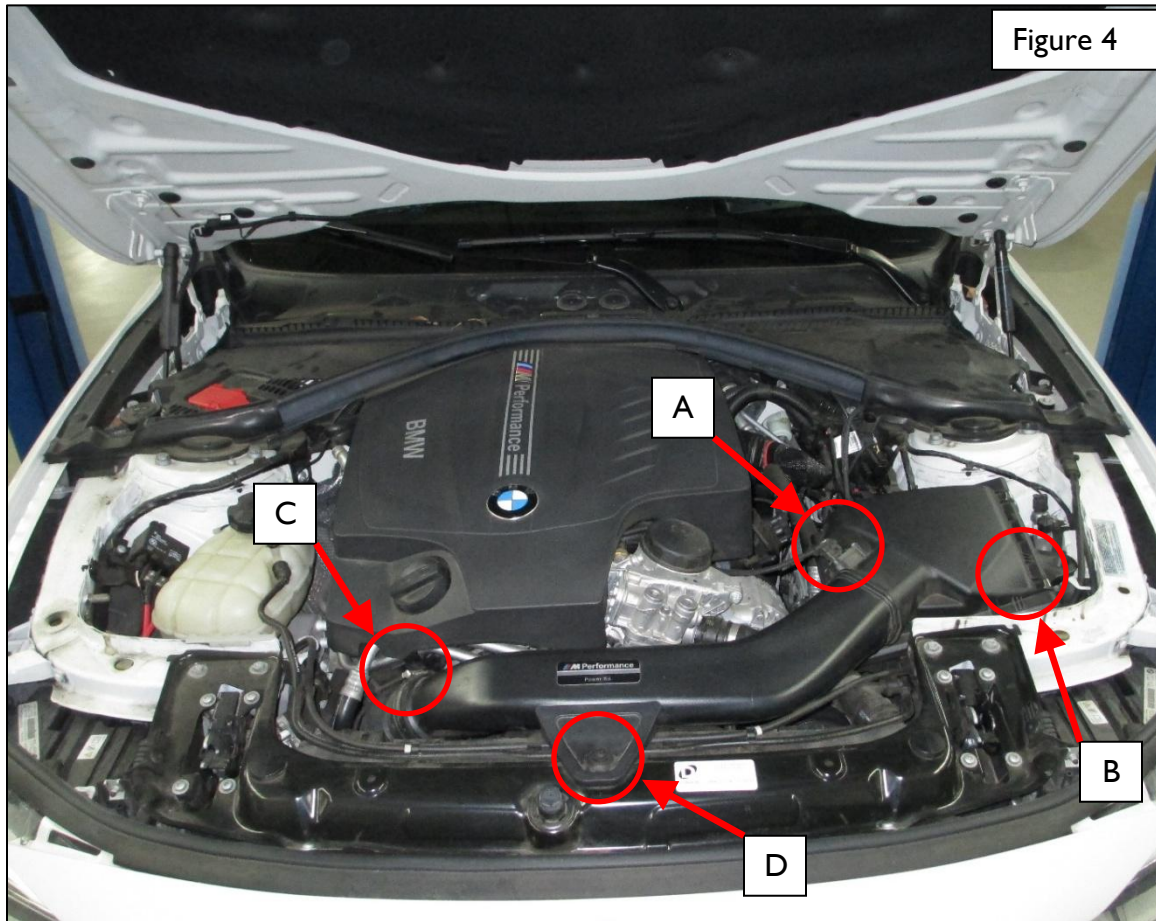
1. There are two types of turbochargers fitted to the N55. Before you begin installation, please refer to the steps below to identify the wastegate in your car, and verify that you received the correct Dinan turbo.



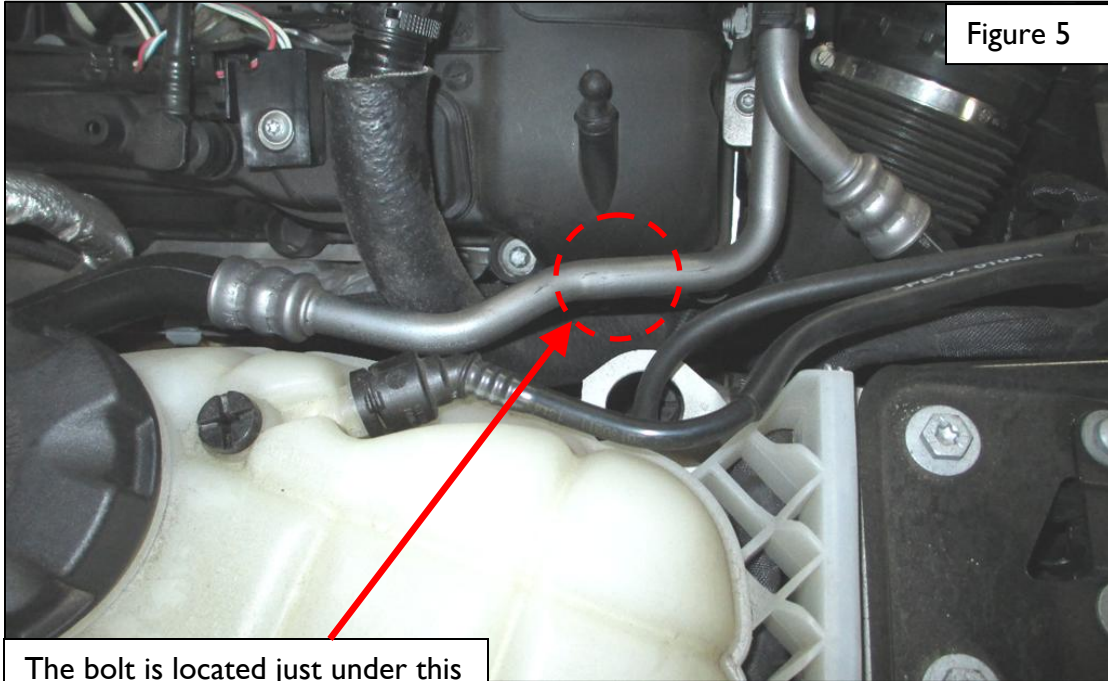
- Examine the Dinan turbocharger and verify that it is the correct type for your car (see Figure 3).



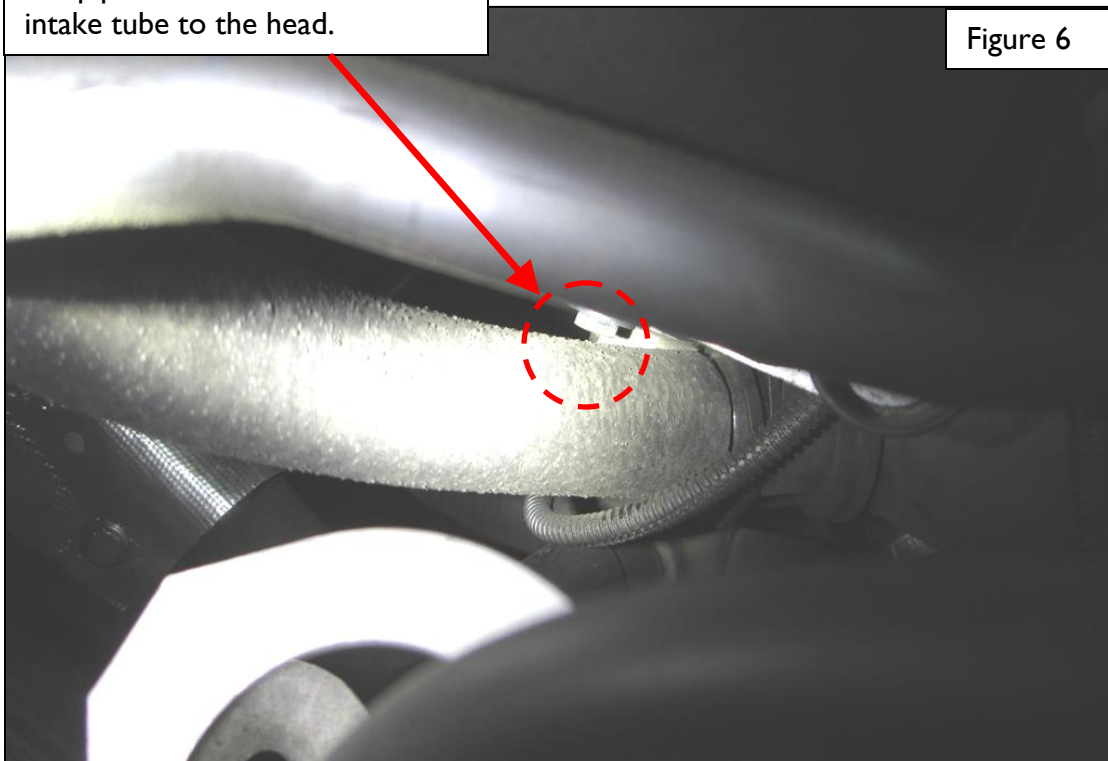
2. Remove the upper intake air tube and airbox top (see Figure 4).
 - Disconnect the airflow meter (A).
 - Unsnap the clips around the top of the airbox (B).
 - Loosen the hose clamp between the upper and lower intake tubes (C).
 - Pull the tube off of the front rubber mount and remove from car (D).



- Remove the 6mm bolt holding the lower air intake tube to the head (see Figures 5 & 6).

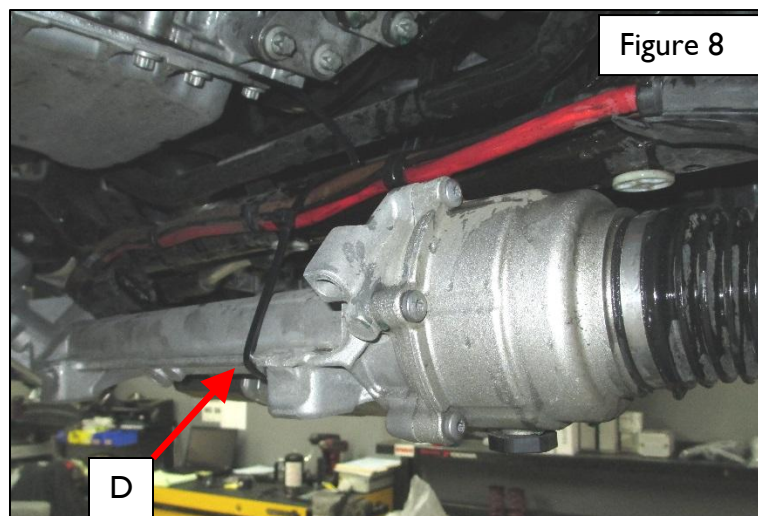
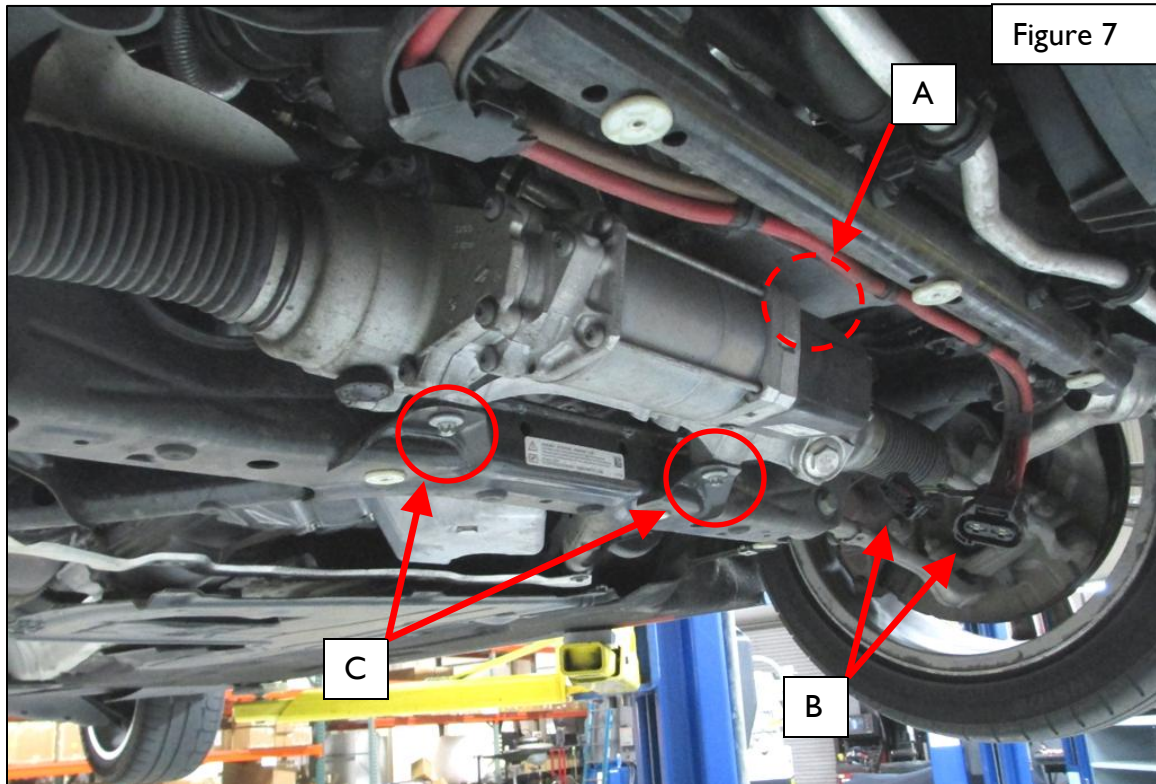


The bolt is located just under this AC pipe and holds the lower air intake tube to the head.



3. Remove steering rack (Figures 7 thru 9) & water pump (Figure 10).

- Raise car and remove the splash guards from under the engine.
- Remove the bolt that clamps the steering column to the steering rack (A); not visible in this photo.
- Disconnect the two electrical plugs from the rack (B); shown already unplugged.
- Remove the two bolts and nuts on top that attach the rack to the subframe (C).
- Pull the rack forward and off of the subframe. At the same time, the steering column should pull off of the splines.
- Hold the rack up and forward, and zip-tie or otherwise strap it to the front subframe cross tube (D).



- Remove the small heat shield that was over the right-front steering rack boot.

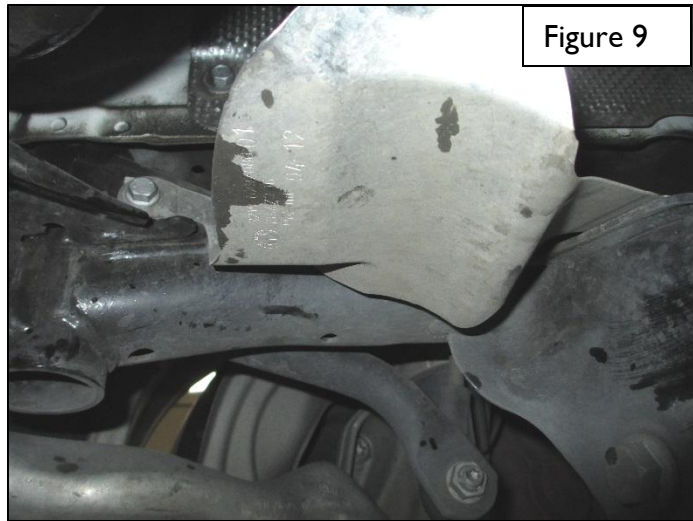


Figure 9

- Detach the lower hose from the electric water pump and drain the coolant.
- Unplug the wiring from the front of the water pump.
- Remove the three bolts holding the pump to the mount (the one on top is some tricky).
- Remove the pump from the car (see Figure 10).

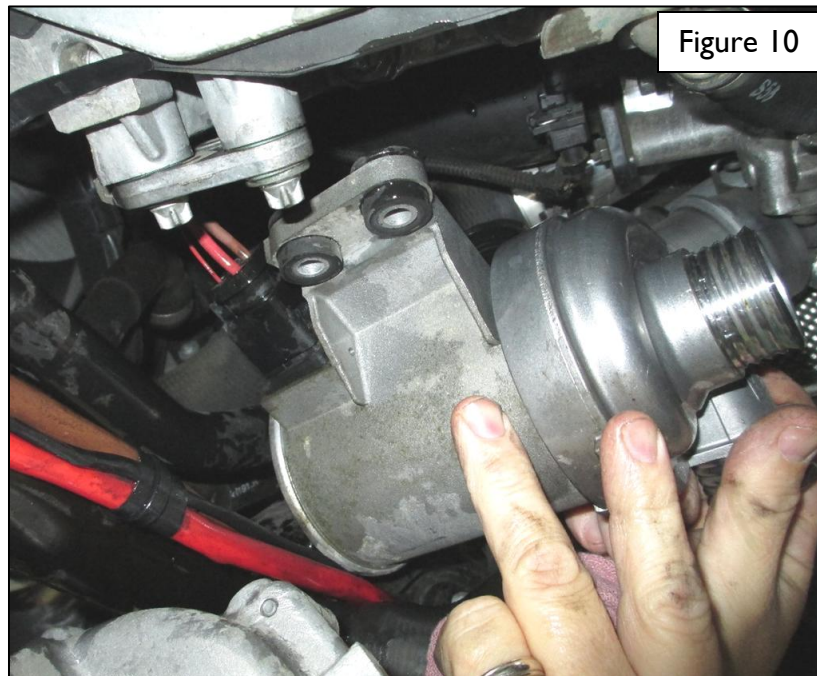
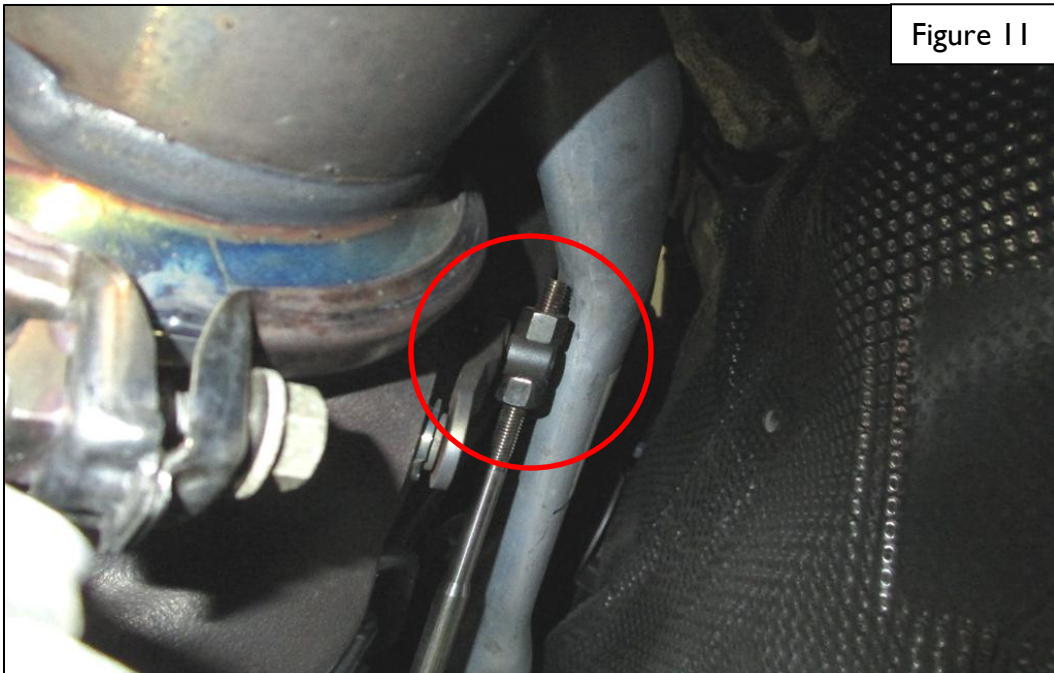


Figure 10

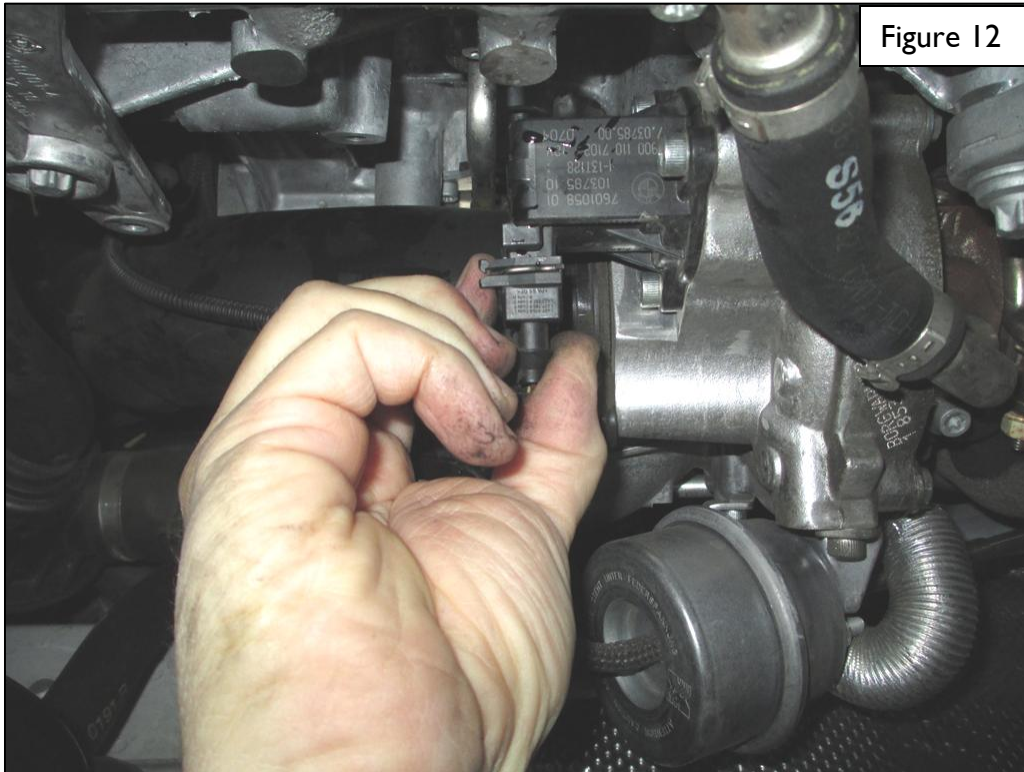
4. Disconnect turbocharger.

- Unclip the rubber pressure hose from the intercooler inlet tube and pull the hose back off the intercooler.
- Twist the hose so you can undo the clip holding the other end to the turbo.
- Carefully flex the hose as needed and remove it from the car.
- For vacuum-controlled wastegate turbochargers: Remove the nut on the end of the rod going to the wastegate. The rod will pull free and out when the turbo is removed in a subsequent step (see Figure 11).

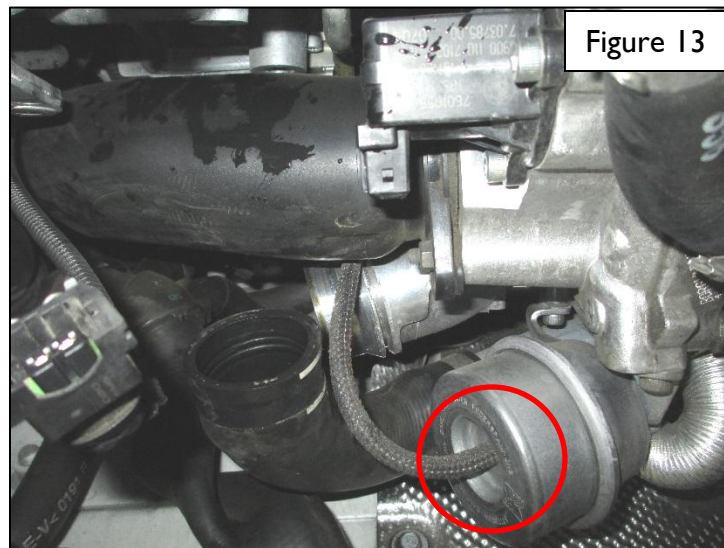


- For electronic wastegate turbochargers: Remove the "e"-clip holding the flat rod going to the wastegate. The rod may not pull free of the wastegate arm until the turbo is removed in a subsequent step.

- Disconnect the compressor bypass wiring (see Figure 12).

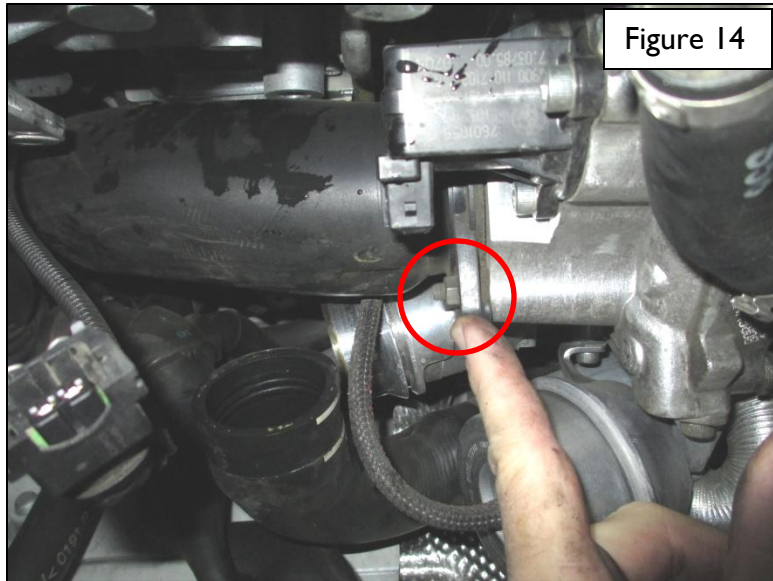


- For vacuum-controlled wastegate turbochargers: Unplug the vacuum line going to the dash pot (see Figure 13).

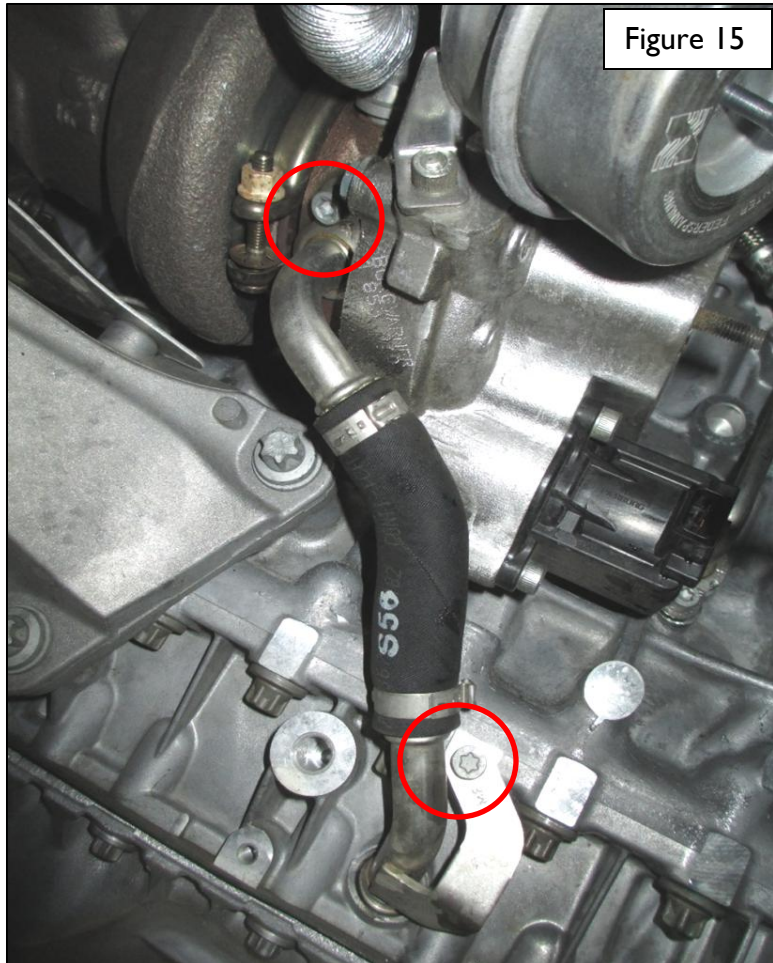


- For electronic wastegate turbochargers: Disconnect the wiring from the servo.

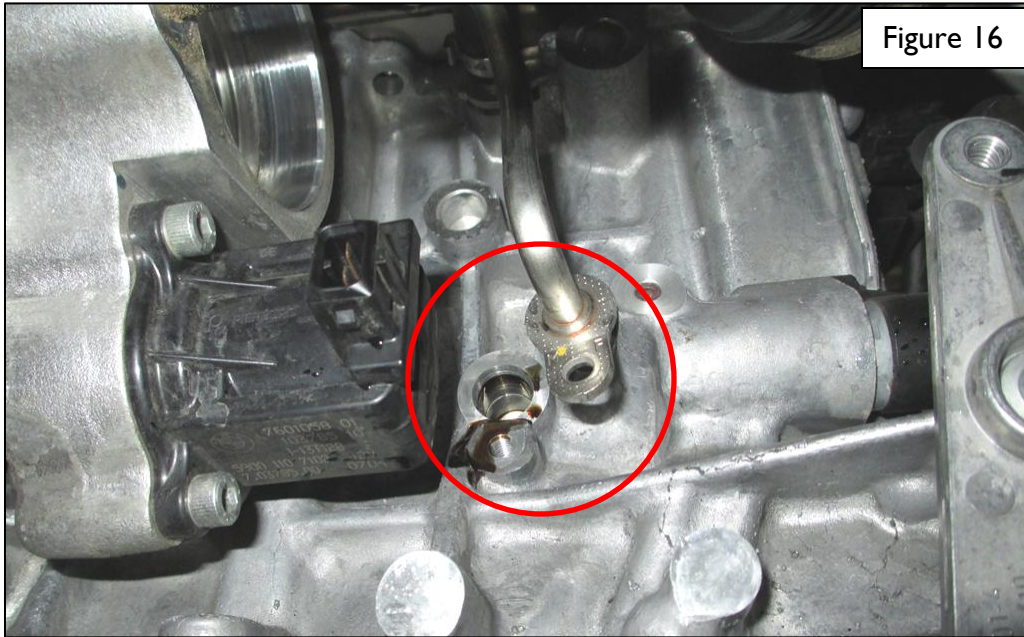
- Remove the nut holding the plastic air intake tube to the turbocharger (do not lose the small steel spacer under the nut!).
- Slide the intake tube off of the turbo. Push tube forward and upward to gain clearance (see Figure 14).



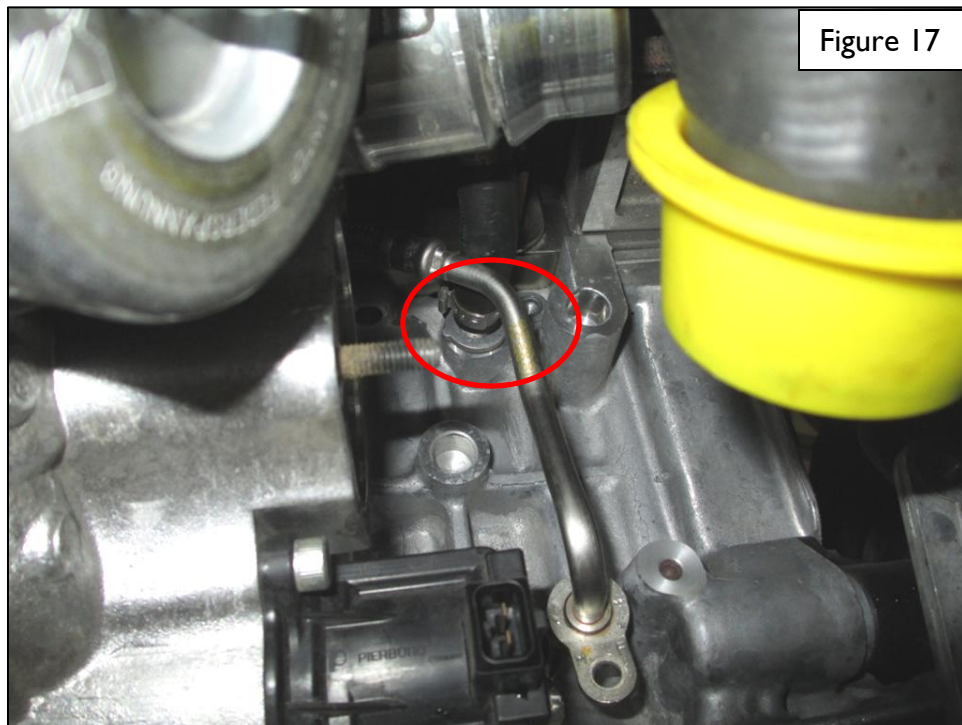
- Remove the two bolts holding the oil drain line between the turbo and the engine.
- Remove the line (see Figure 15).



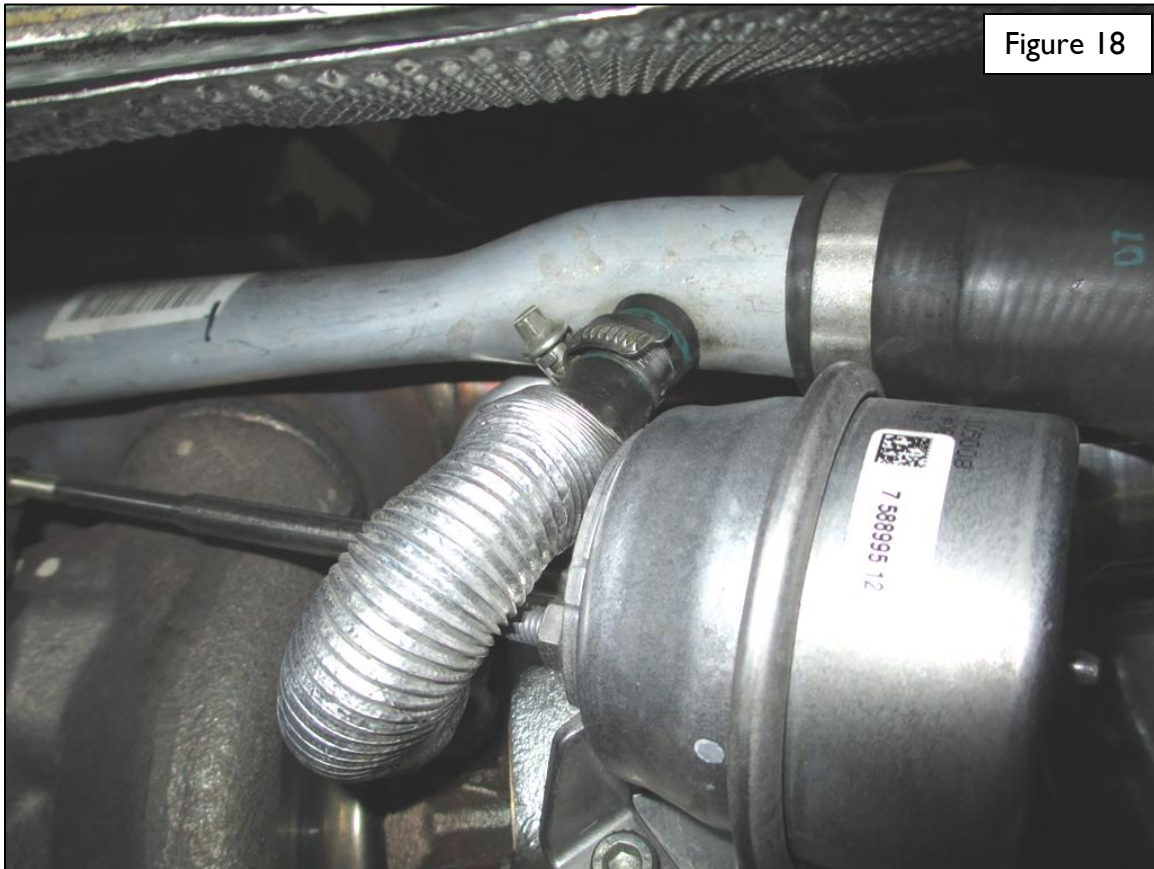
- See Figure 16. Remove the bolt that holds the oil feed line bolted to the block just behind the compressor bypass valve. Remove the line.
- The other end of this line is attached to the turbo and will come out with the turbo.



- Above the oil line is the water feed line to the turbocharger.
- Remove the single bolt and remove this line from the block (see Figure 17).
- The other end of this line is attached to the turbo and will be removed along with the turbo.

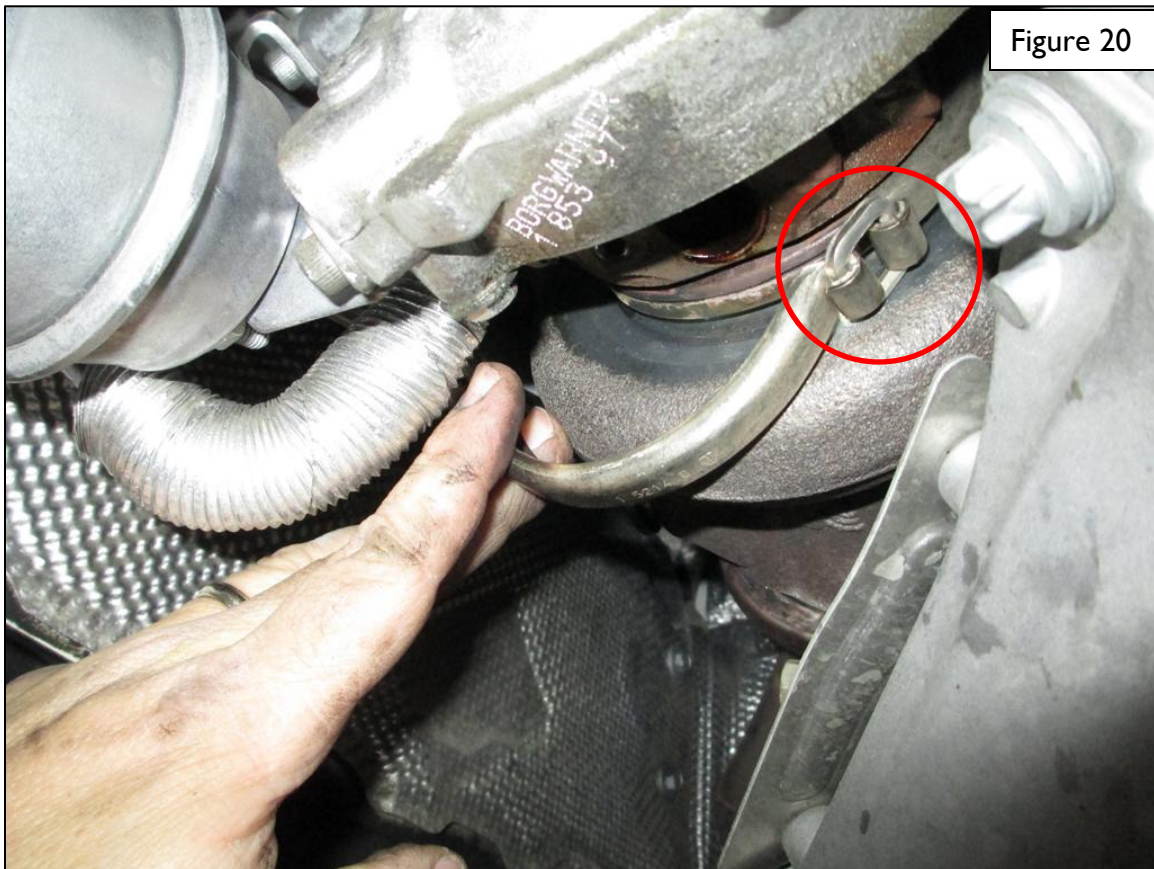
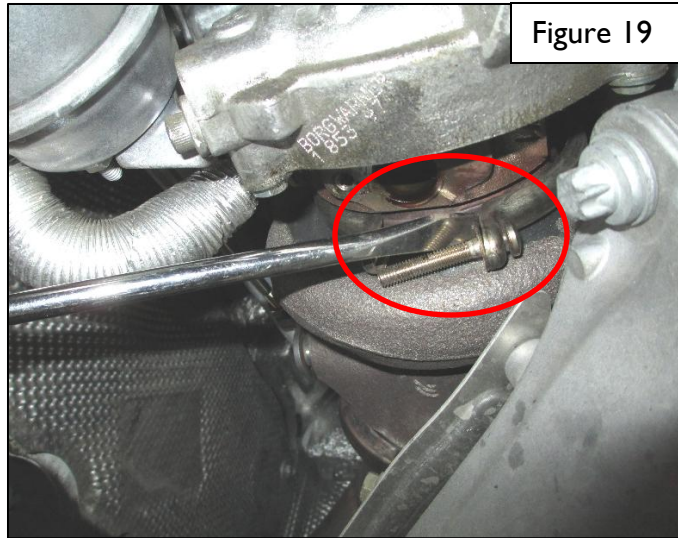


- Loosen the hose clamp and remove the water return line from the water manifold that is just above the turbo and on the outside of the exhaust manifold (see Figure 18).
- The other end of this line is attached to the turbo and will come out with the turbo.

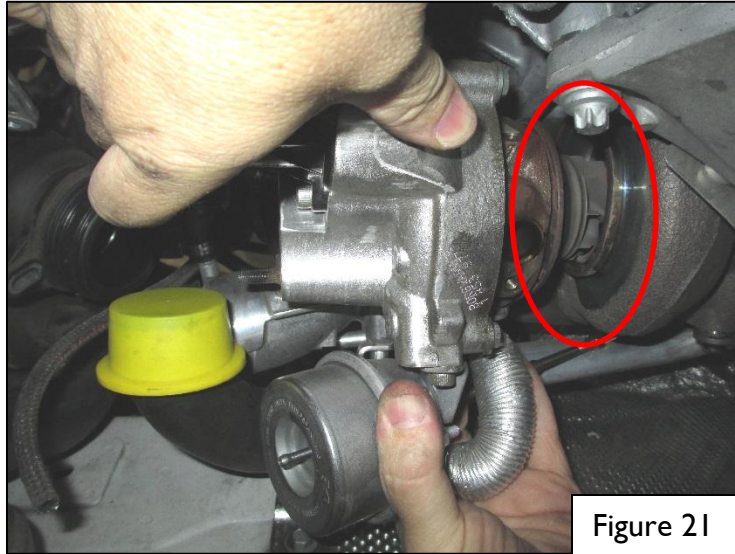


5. Remove turbocharger. Please read thru this entire step before proceeding.

- See Figure 19. Remove the nut holding the “V” band clamp that secures the turbo to the manifold.
 - Tap the clamp with a small punch or the end of a screwdriver to break it loose from the turbo and manifold (see Figure 19).
 - See Figure 20. Rotate the clamp around the turbo and out the bottom.
- Getting the clamp out can be some tricky.



- See Figure 21. With the clamp removed, gently pull the turbo forward and off of the manifold. Take care to prevent damage to the turbine wheel!



- The wastegate rod should easily detach from the arm as you pull the turbo forward (see Figure 22).



- See Figure 23. Carefully pull the turbo forward, down, and out the front of the car between the subframe and the steering rack that you moved aside.
- Take care to prevent damage to the turbine wheel!

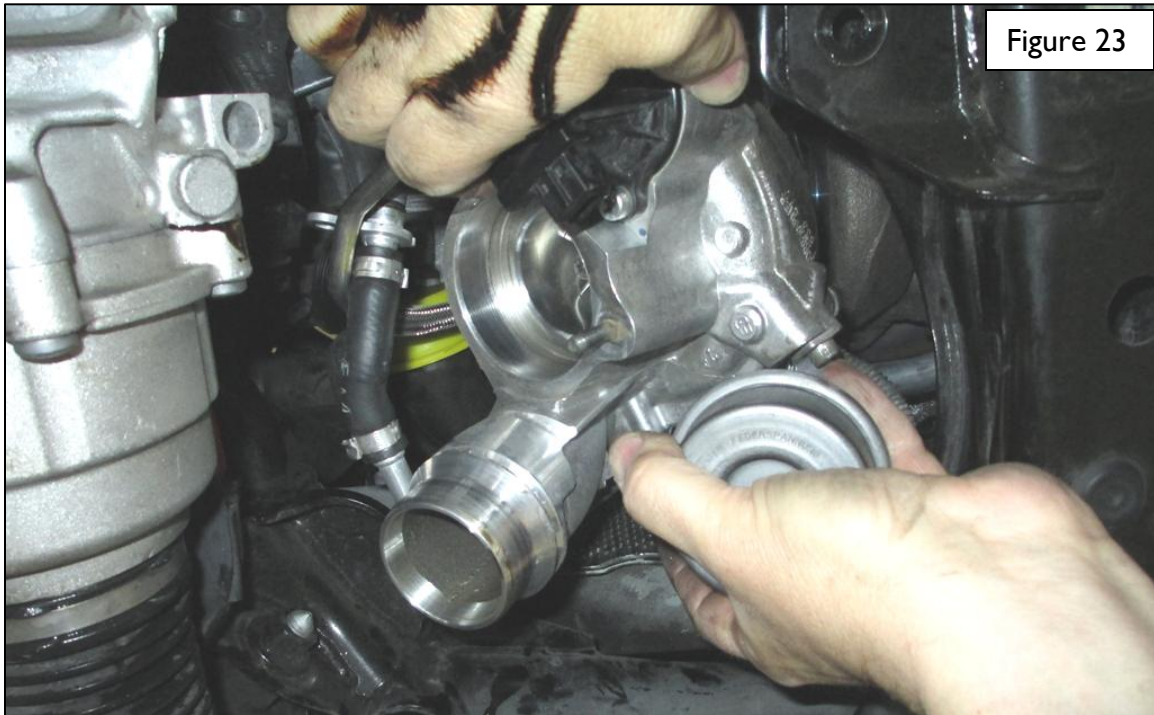


Figure 23

- With the turbo removed, transfer the water and oil lines from the old turbo to the new Dinan turbo.
- Note how the center lines overlap each other (see Figure 24).
- Be sure you replace each of the O-rings on the ends of each line.
- Transfer over the vacuum pot or the electric servo (depending on which version you have).

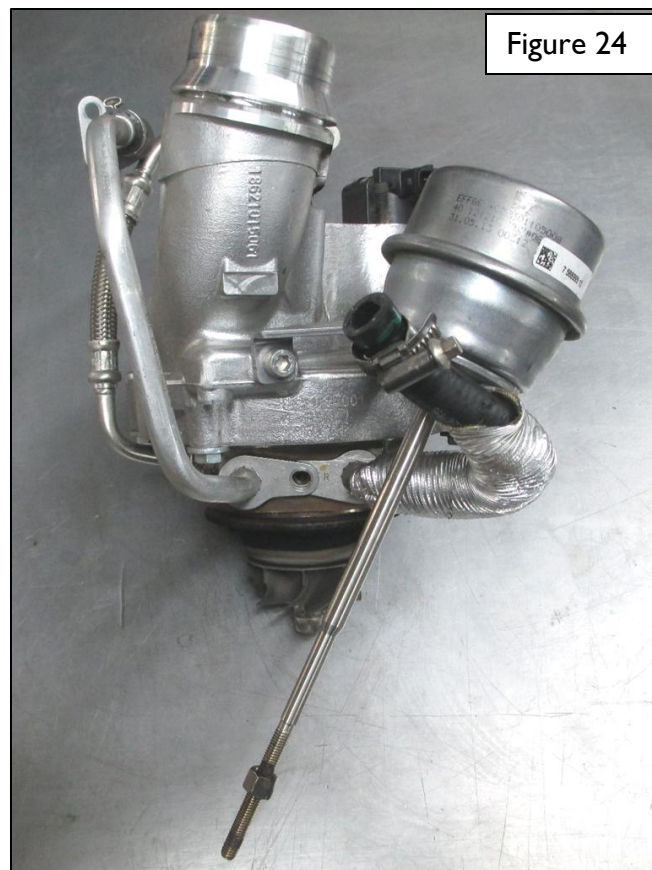
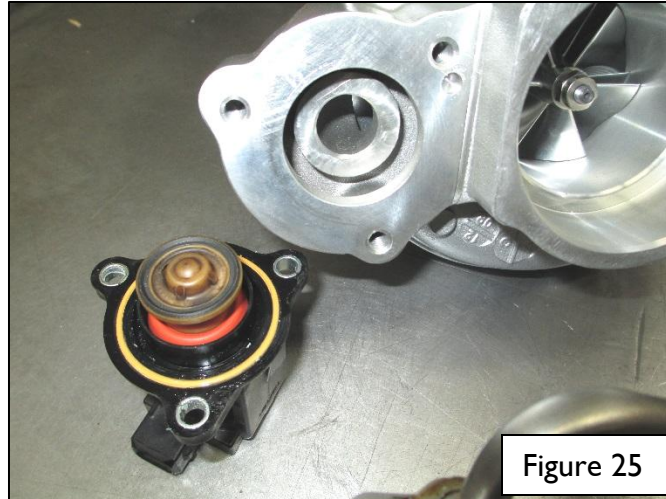


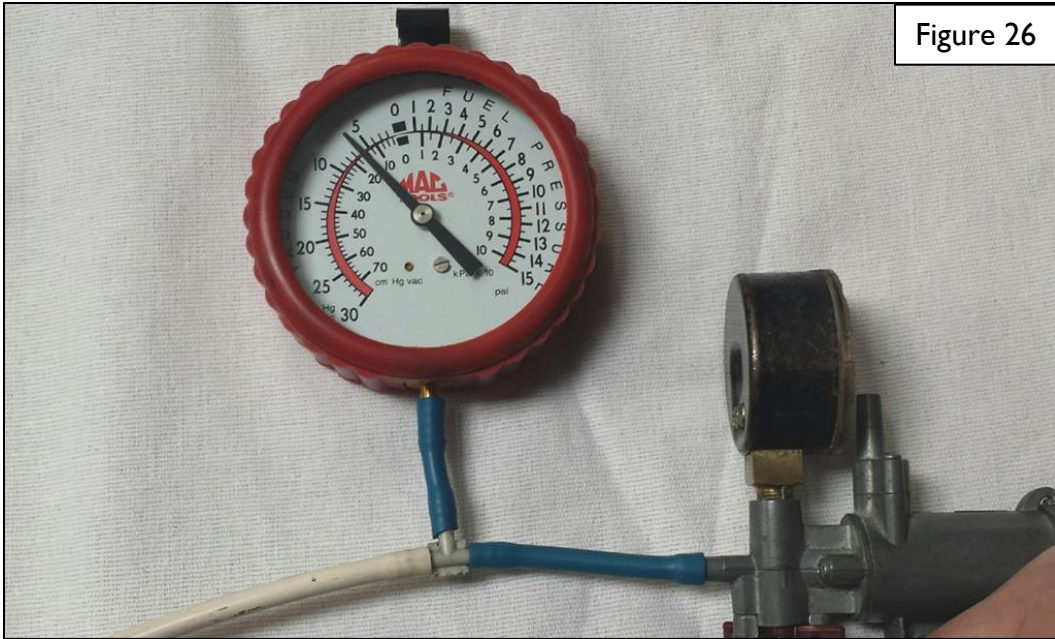
Figure 24

- Install the compressor bypass control (see Figure 25).



6. Installing the new turbo is basically a reverse of these instructions.
 - When installing the turbocharger onto the manifold be very careful not to damage the turbine wheel.
 - After you slide the turbo all the way onto the manifold, and before you tighten the clamp, be sure the small alignment pin is engaged between the manifold and the turbo -- this sets the correct clocking of the turbo in the car. If this pin is not aligned, the turbo will not seal to the manifold.
7. For vacuum-controlled wastegate turbochargers: The wastegate must be adjusted before the car is fully reassembled. The adjustment procedure is similar to SI B I I 04 10.
 - If you were able to replace the turbocharger without removing the manifold:
 - a. Install Dinan turbocharger to the manifold in the car and secure in place.
 - b. Reattach the wastegate linkage.
 - c. Attach an accurate vacuum gauge and pump to the wastegate actuator.
 - d. Apply **5.9 in-Hg (15 cm Hg)** to the actuator (see Figure 26).
 - e. Adjust linkage so that the wastegate is just closed with this vacuum setting.
 - If you removed the manifold to install the Dinan turbocharger:
 - a. Install Dinan turbocharger onto the manifold and secure in place.
 - b. Reattach the wastegate linkage.
 - c. While assembly is on the workbench, you will have access to the inside of the turbine.
 - d. Attach an accurate vacuum gauge and pump to the wastegate actuator.
 - e. Apply **5.9 in-Hg (15 cm Hg)** to the actuator (see Figure 26).
 - f. Adjust linkage so that the wastegate is just closed, and as you rotate the wastegate sealing disc, there should be light drag between the disc and the sealing surface.

Figure 26



8. For electronic wastegate turbochargers: Use BMW ISTA (or equivalent) to perform the wastegate adjustment procedure after the car has been reassembled.
9. For best performance, please also install the appropriate DINANTronics ECU with Stage 4 software. Note that Stage 4 also requires the installation of the Dinan Intercooler.
10. Using a scan tool or equivalent, clear fault memory after installation is complete.
11. Happy Motoring!