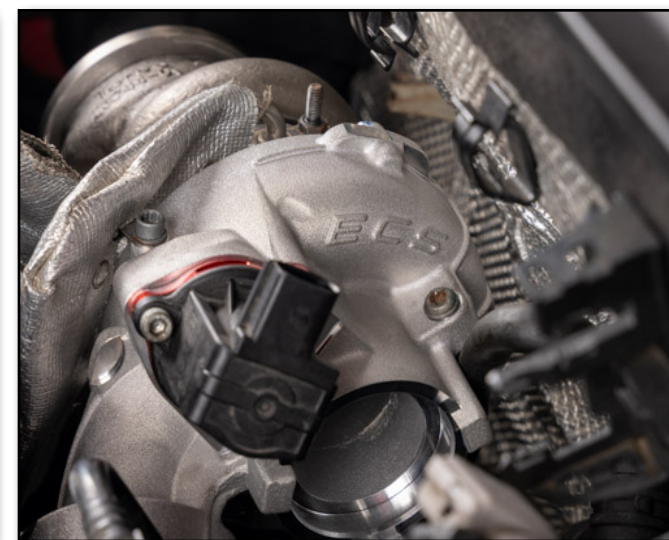
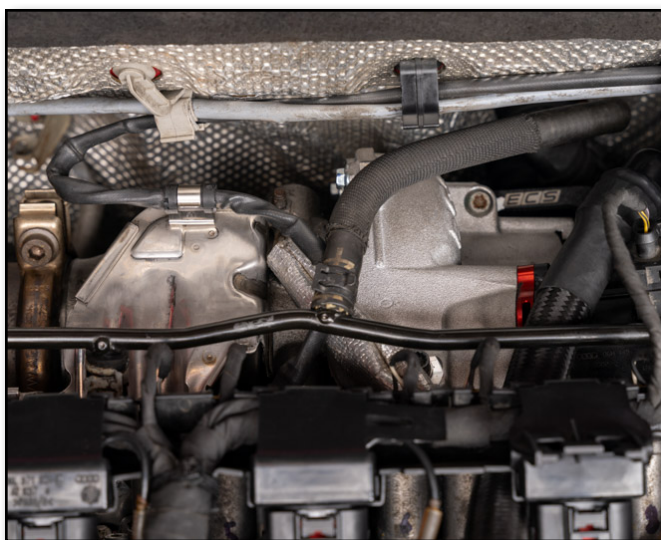
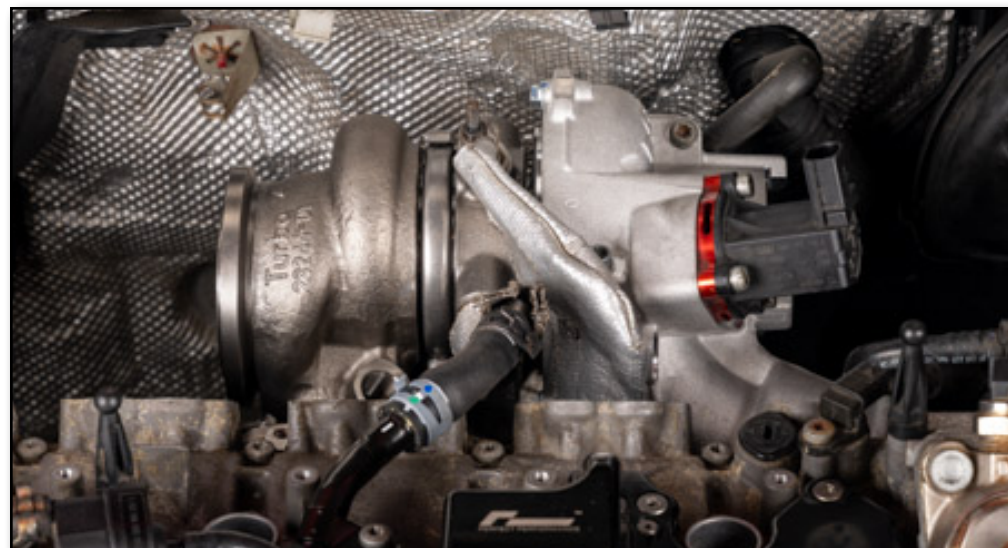




VW/Audi TSI Gen3 IS38 Turbocharger Installation Instructions - [Click HERE to Shop](#)



Skill Level
2 - Moderate
Some Experience
Recommended



Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

TABLE OF CONTENTS

Required Tools and Equipment.....	pg.3
Installation and Safety Information	pg.4
Removing the Stock Turbocharger	pg.5
Installing the New Turbocharger	pg.16
Wastegate adaptation - VCDS.....	pg.21
Wastegate adaptation - OBDeleven	pg.24

REQUIRED TOOLS

Note: The tools required for each step will be listed by the step number throughout these instructions.

Standard Automotive Tools

- Protecta-Sockets (for lug nuts).....[ES#2221243](#)
- **3/8" Drive Ratchet**.....[ES#2765902](#)
- **3/8" Drive Torque Wrench**.....[ES#2221245](#)
- **3/8" Drive Deep and Shallow Sockets**.....[ES#2763772](#)
- **3/8" Drive Extensions**.....[ES#2804822](#)
- **Hydraulic Floor Jack**.....[ES#2834951](#)
- **Torx Drivers and Sockets**.....[ES#11417/8](#)
- 1/2" Drive Deep and Shallow Sockets.....[ES#2839106](#)
- 1/2" Drive Ratchet
- 1/2" Drive Extensions
- 1/2" Drive Torque Wrench.....[ES#2221244](#)
- 1/2" Drive Breaker Bar.....[ES#2776653](#)
- Bench Mounted Vise
- Crows Foot Wrenches
- **Hook and Pick Tool Set**.....[ES#2778980](#)

Required For This Install

Available On Our Website

- **1/4" Drive Ratchet**.....[ES#2823235](#)
- **1/4" Drive Deep and Shallow Sockets**.....[ES#2823235](#)
- **1/4" Drive Extensions**.....[ES#2823235](#)
- Plier and Cutter Set.....[ES#2804496](#)
- **Flat and Phillips Screwdrivers**.....[ES#2225921](#)
- **Jack Stands**.....[ES#2763355](#)
- Ball Pein Hammers
- Pry Bar Set.....[ES#1899378](#)
- Electric/Cordless Drill
- Wire Strippers/Crimpers
- Drill Bits
- Punch and Chisel Set
- **Hex Bit (Allen) Wrenches and Sockets**.....[ES#11420](#)
- Thread Repair Tools.....[ES#1306824](#)
- **Open/Boxed End Wrench Set**.....[ES#2765907](#)

Specialty Tools

- **Hose Clamp Pliers**.....[ES#3557362](#)
- **Stubby Socket Driver Set**.....[ES#3103367](#)
- **Oxygen Sensor Wrench**.....[ES#240942](#)
- **OBDeleven**.....[Click HERE to shop](#)

- OR -

- **VCDS / VW/Audi Professional Diagnostic Tool**

INSTALLATION NOTES

- **RH** refers to the *passenger side* of the vehicle.
- **LH** refers to the *driver side* of the vehicle.
- Always use the proper torque specifications.
- If applicable to this installation, torque specifications will be listed throughout the document and at the end as well.
- Please read all of these instructions and familiarize yourself with the complete process **BEFORE** you begin.

GENERAL PREPARATION AND SAFETY INFORMATION

ECS Tuning cares about your health and safety, please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

- Park your car in a safe, well lit, level area.
- Shut the engine off and remove the key from the ignition switch.
- Make sure any remote start devices are properly disabled.
- **ALWAYS** wear safety glasses.
- Make sure the parking brake is applied until the vehicle is safely lifted and supported.
- Whether lifting a vehicle using an automotive lift or a hydraulic jack, be sure and utilize the factory specified lift points.
- Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear.
- **ALWAYS** support the vehicle with jack stands.
- **ALWAYS** read and follow all safety information and warnings for the equipment you are using.

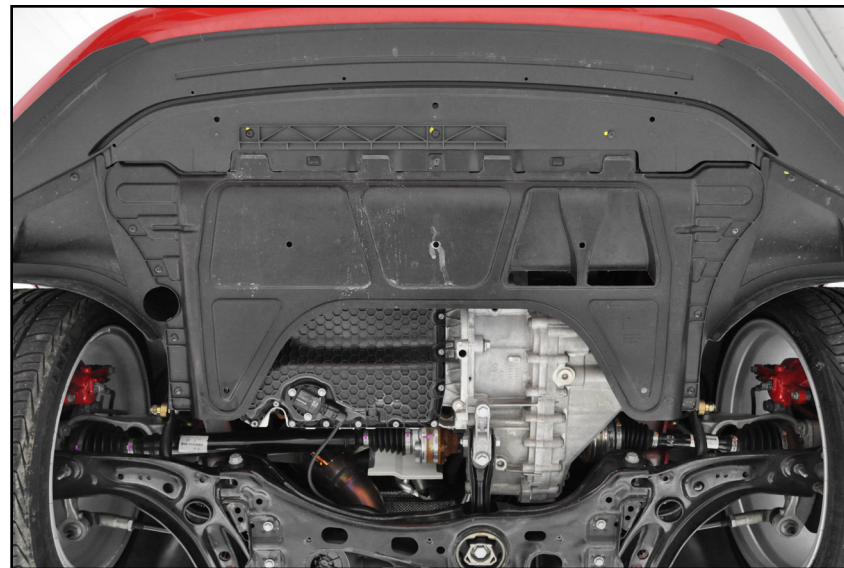


NEVER get underneath a vehicle that is supported only by a jack, and **ALWAYS** make sure that the vehicle is securely supported on jack stands.

REMOVING THE STOCK TURBOCHARGER

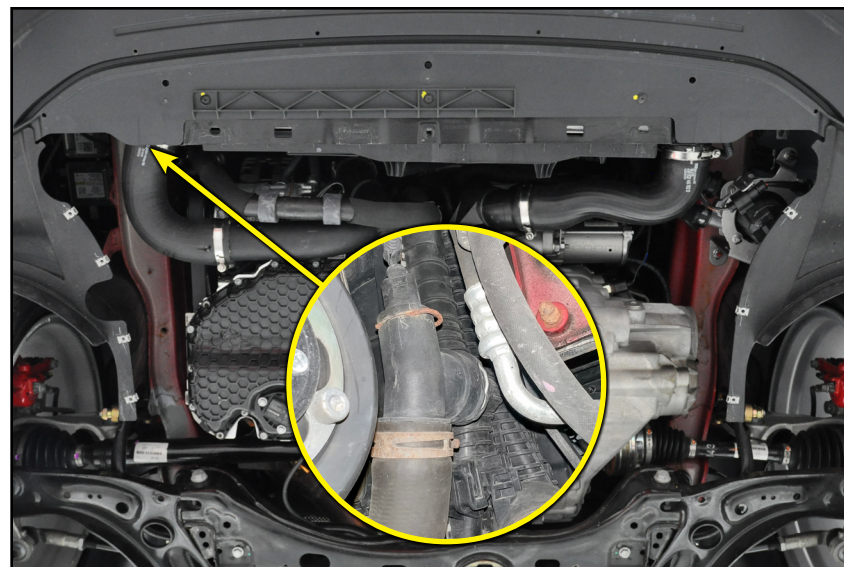
Step 1: T25 Torx Socket & Ratchet

Safely lift and support the vehicle, then remove the lower engine insulation panel.



Step 2: Angled Pick Tool

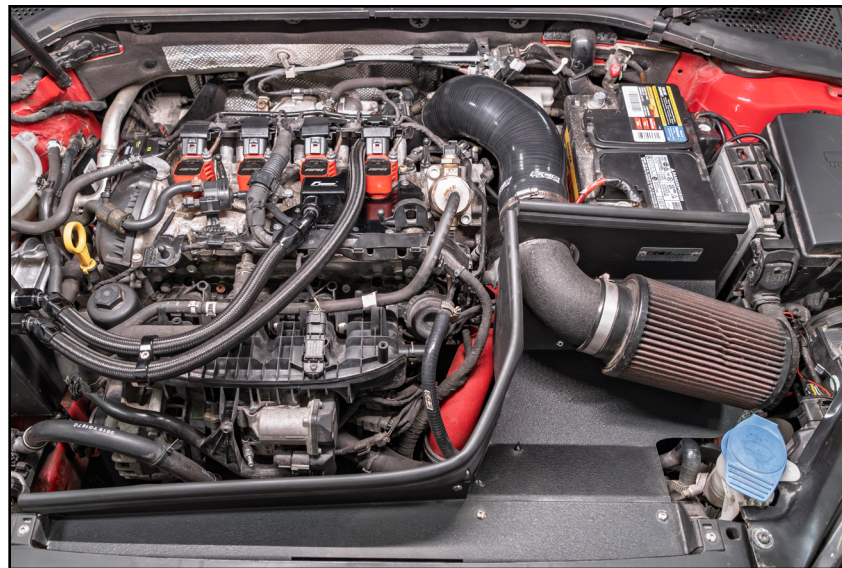
Disconnect the lower radiator hose, drain the coolant, then reconnect the lower radiator hose (as shown in inset photo).



REMOVING THE STOCK TURBOCHARGER

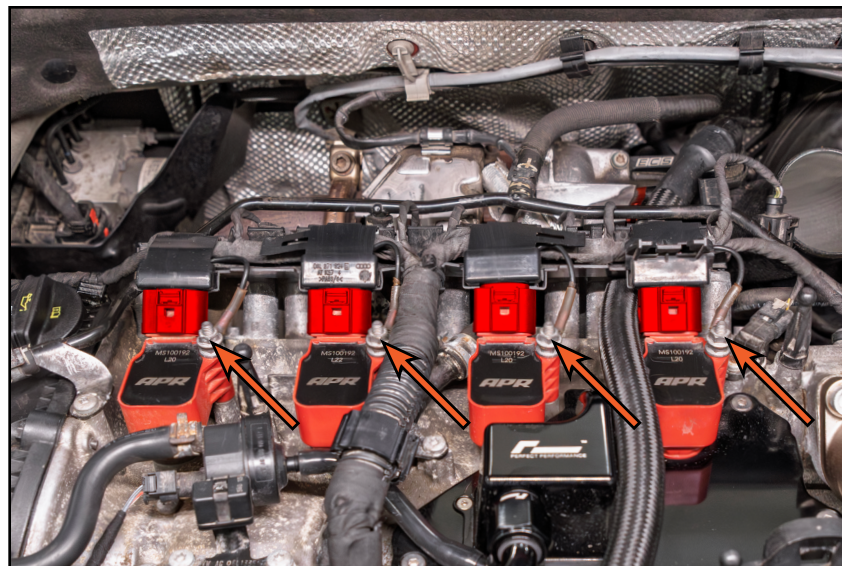
Step 3:

Remove the intake system from the vehicle.



Step 4: 10mm Socket & Ratchet

Remove the nuts (arrows) and slide the ground terminals off of the ignition coil studs, then disconnect the ignition coil connectors (highlighted in **RED**).



REMOVING THE STOCK TURBOCHARGER

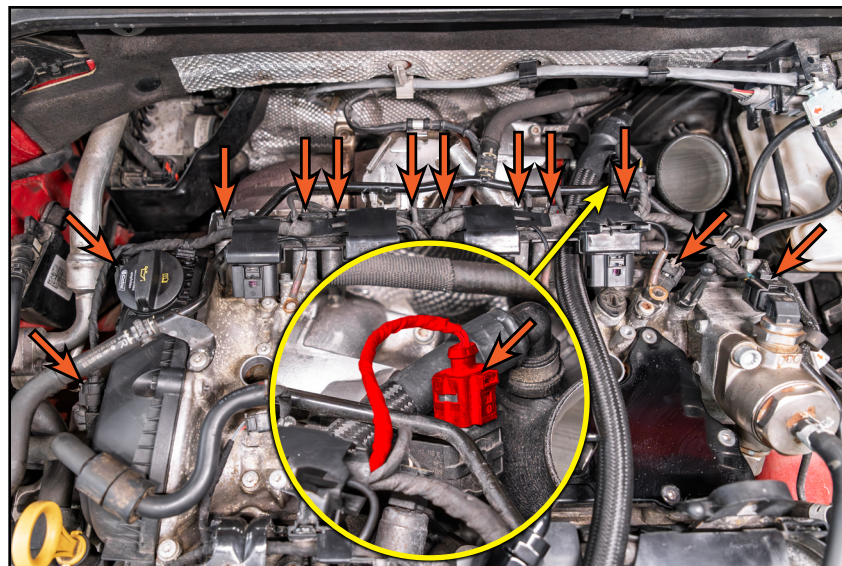
Step 5:

Remove the screws (arrows), then remove the ignition coils.



Step 6:

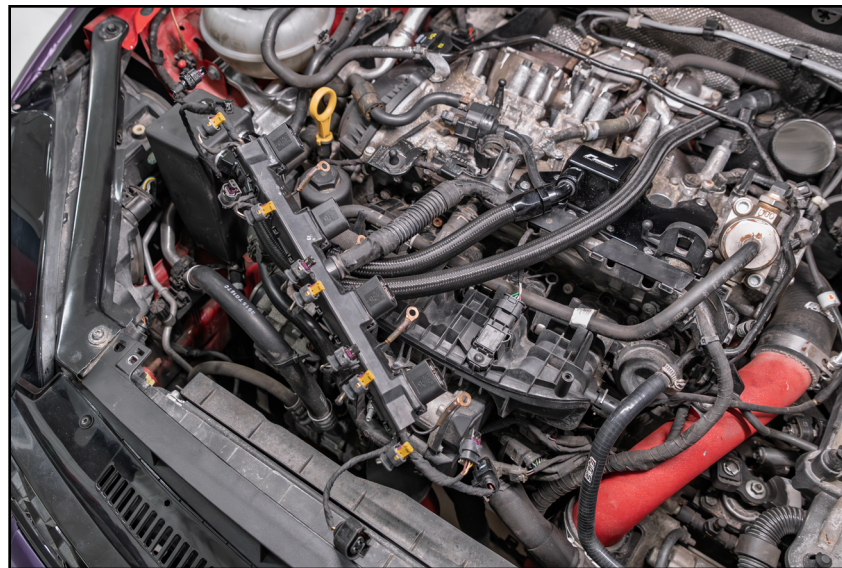
Disconnect the camshaft adjusters, camshaft solenoids, diverter valve (highlighted in **RED** in inset photo), camshaft position sensor, and high pressure fuel pump connectors (arrows).



REMOVING THE STOCK TURBOCHARGER

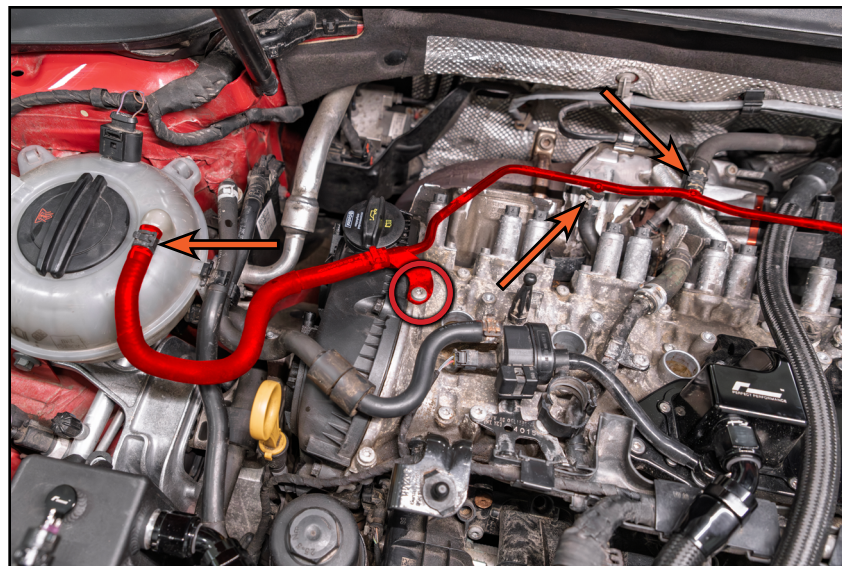
Step 7:

Carefully pivot the ignition wiring harness out of the way as shown.



Step 8: Hose Clamp Pliers, T30 Torx Socket & Ratchet

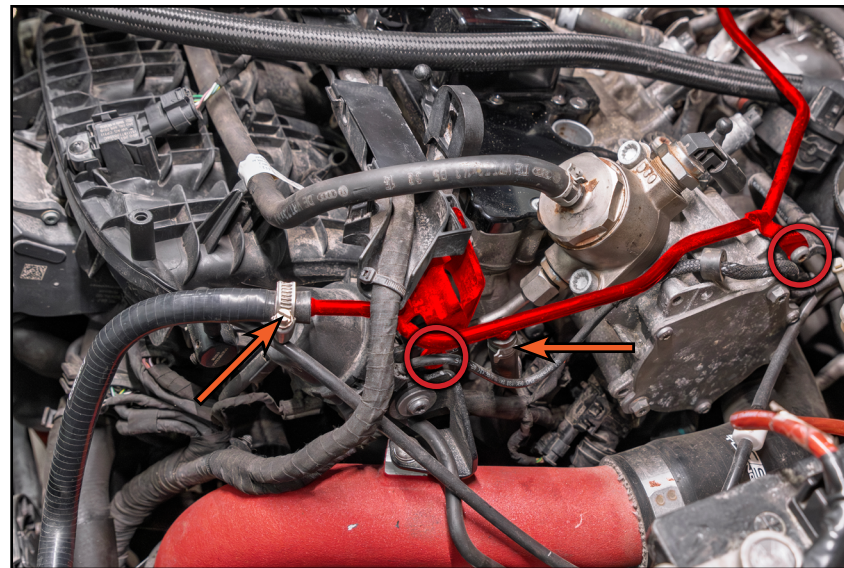
Remove the screw (circled in **RED**), then compress the clamps (arrows) and disconnect the coolant hard line (highlighted in **RED**) from the expansion tank and coolant hoses.



REMOVING THE STOCK TURBOCHARGER

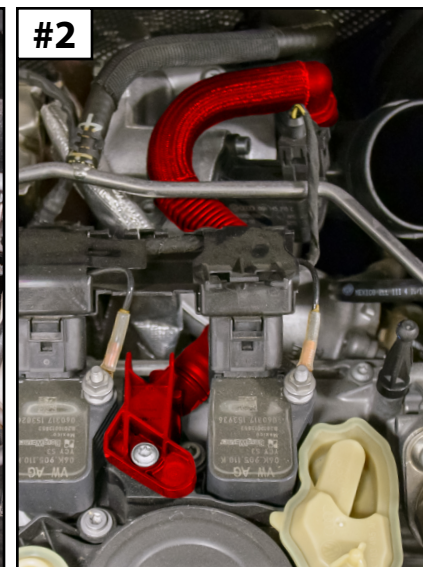
Step 9: Hose Clamp Pliers, T30 Torx Socket & Ratchet

Remove the screws (circled in **RED**), then compress the clamps (arrows) and disconnect the coolant hard line (highlighted in **RED**) from the coolant hoses and remove it from the vehicle.



Step 10: T30 Torx Socket & Ratchet

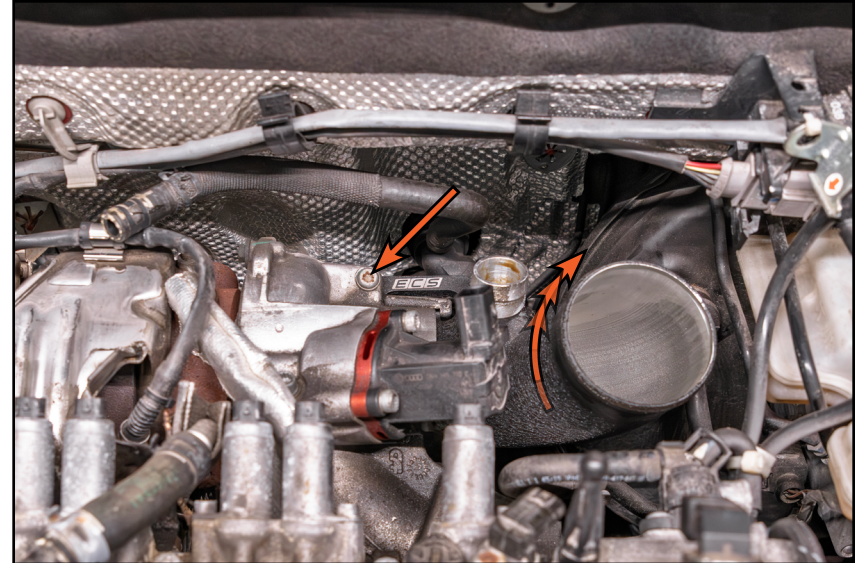
Disconnect the PCV vent hose (highlighted in **RED**) from the turbo inlet pipe (as shown in **Photo #1**), or remove the screw (arrow in **Photo #2**) disconnect it from the PCV valve on the valve cover.



REMOVING THE STOCK TURBOCHARGER

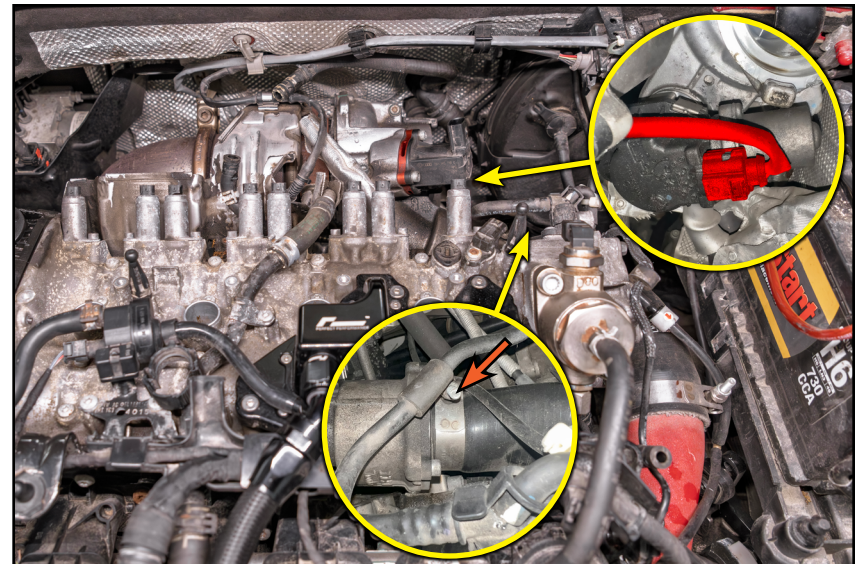
Step 11: T30 Torx Socket & Ratchet

Loosen the screw (arrow), then rotate the turbo inlet pipe rearward and remove it from the turbo.



Step 12: 7mm Socket & Ratchet

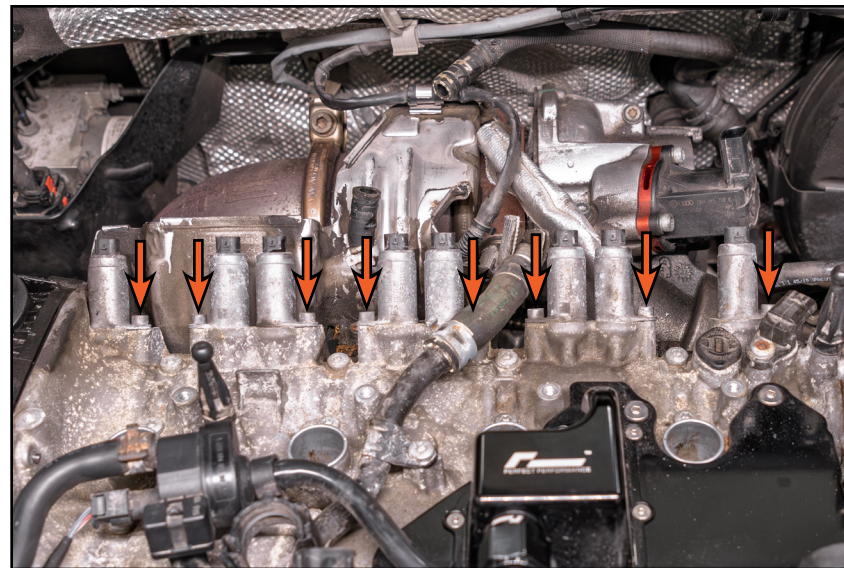
Disconnect the wastegate connector (highlighted in **RED** in upper inset photo), just below the turbo inlet. Loosen the screw that secure the turbo outlet pipe to the engine, then loosen the clamp (arrow in lower inset photo) and pull the turbo outlet pipe free from the turbo.



REMOVING THE STOCK TURBOCHARGER

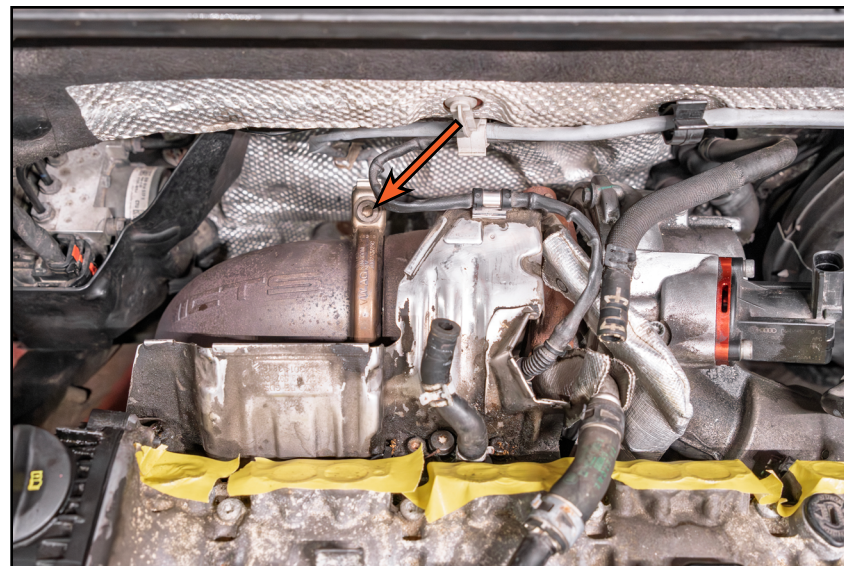
Step 13: T25 Torx Socket & Ratchet

Remove the screws (arrows) and carefully remove the camshaft solenoids from the engine.



Step 14: 6mm Hex (Allen), 13mm Socket & Ratchet

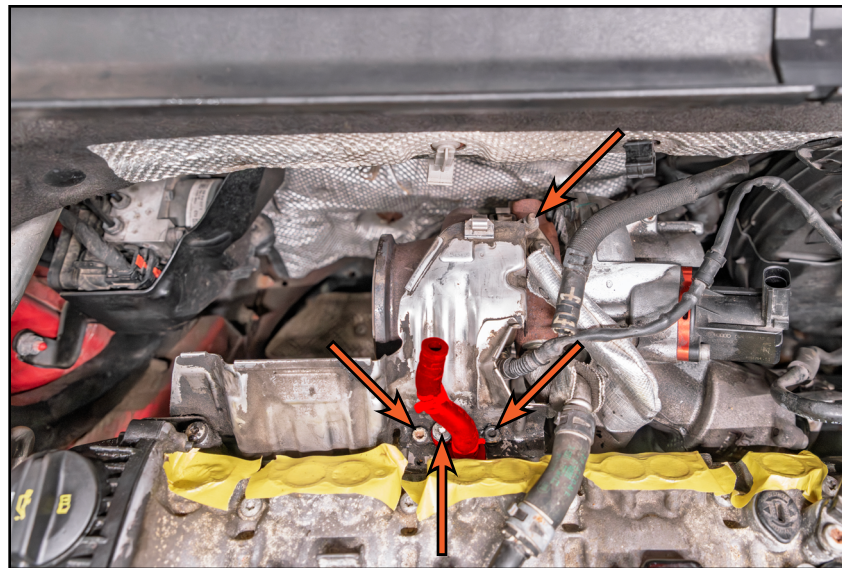
Loosen the clamp (arrow) and pull the downpipe free from the turbo, disconnect the oxygen sensor, then disconnect the downpipe and remove it from below.



REMOVING THE STOCK TURBOCHARGER

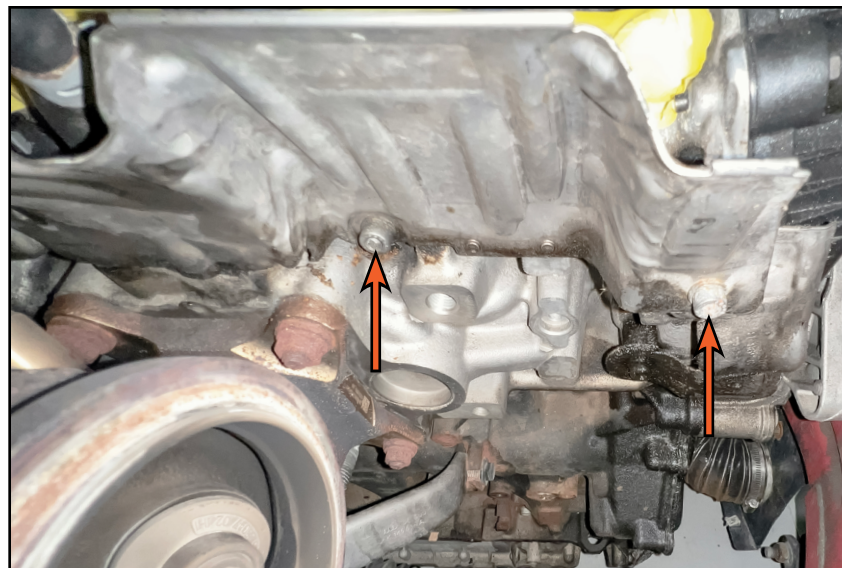
Step 15: T30 Torx, 5mm Hex (Allen), 10mm Socket & Ratchet

Remove the screws and nut (arrows) that secure the turbo heat shield and coolant breather hose (highlighted in **RED**), then carefully remove the breather hose from the cylinder head.



Step 16: 5mm Hex (Allen) Socket & Ratchet

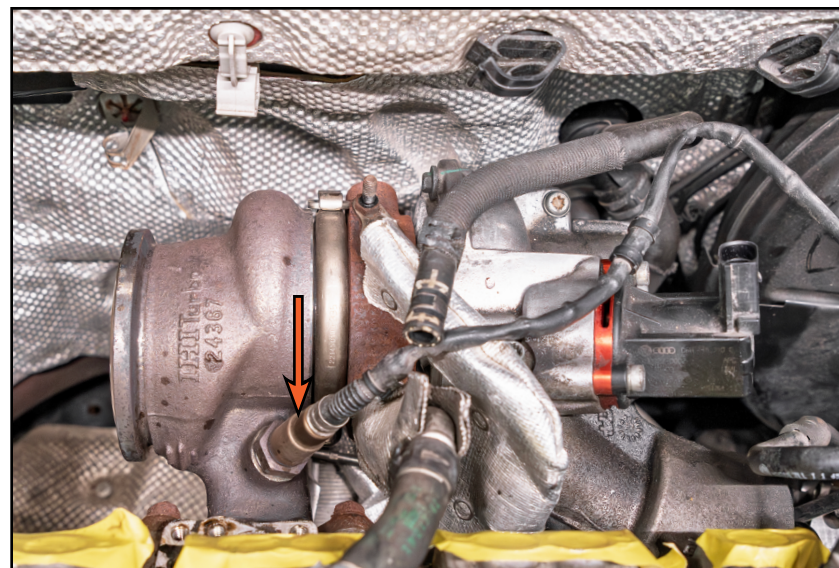
Remove the two screws (arrows) that secure the back of the turbo heat shield, then remove the heat shield from the vehicle.



REMOVING THE STOCK TURBOCHARGER

Step 17: Oxygen Sensor Wrench

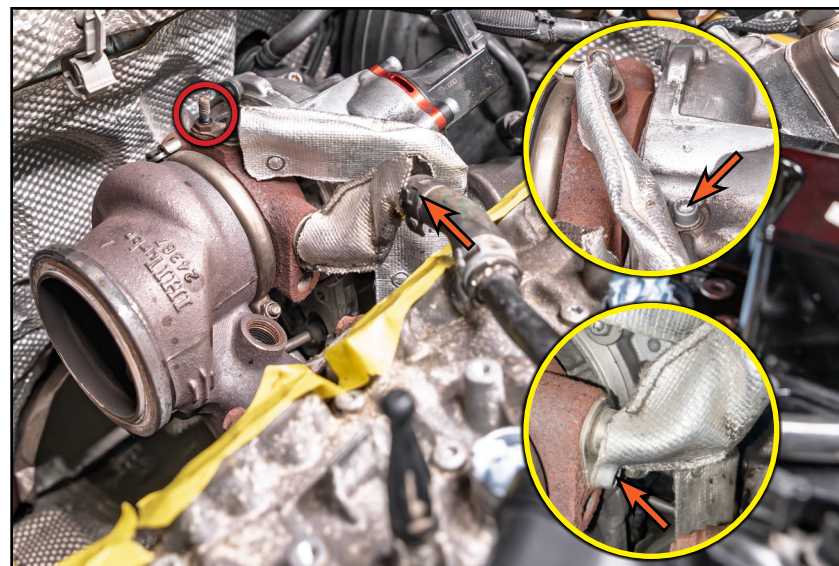
Remove the oxygen sensor (arrow) from the turbo, then disconnect it and remove it from the vehicle.



Step 18: M8 Triple Square, 10mm Socket & Ratchet

Remove the oil feed line bracket screw (arrow in upper inset photo), then remove the oil feed line screw (circled in **RED**) and pull the oil feed line free from the turbo.

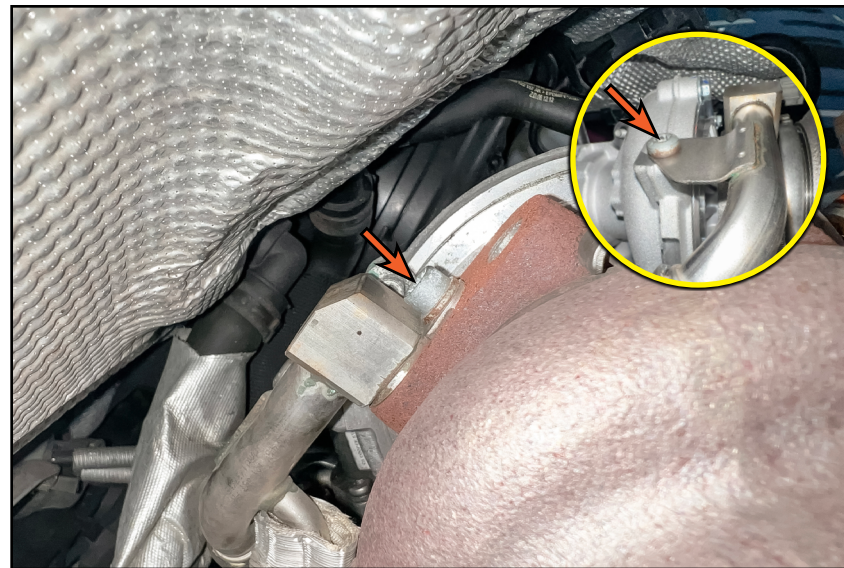
Remove the screw (arrow in lower inset photo) and pull the coolant drain line free from the turbo. Compress the clamp (arrow) and remove the coolant drain line from the vehicle.



REMOVING THE STOCK TURBOCHARGER

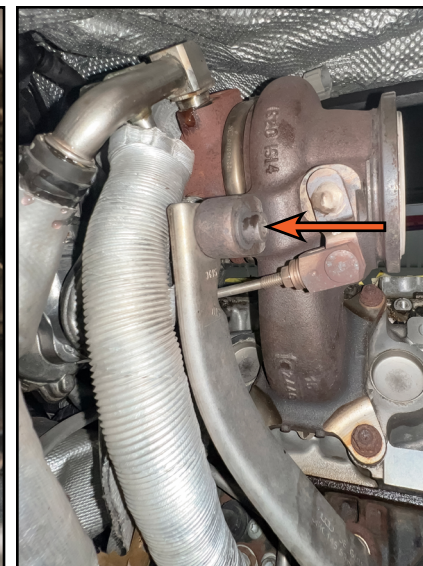
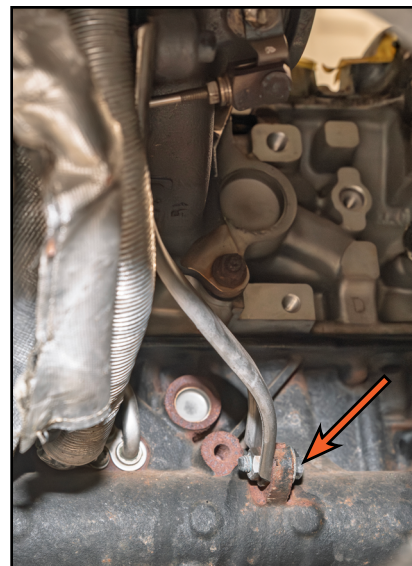
Step 19: M8 Triple Square, T30 Torx Socket & Ratchet

Remove the coolant feed line bracket screw (arrow in upper inset photo), then remove the coolant feed line screw (arrow) and pull the coolant feed line free from the turbo.



Step 20: 6mm Hex (Allen), 13mm Socket & Ratchet

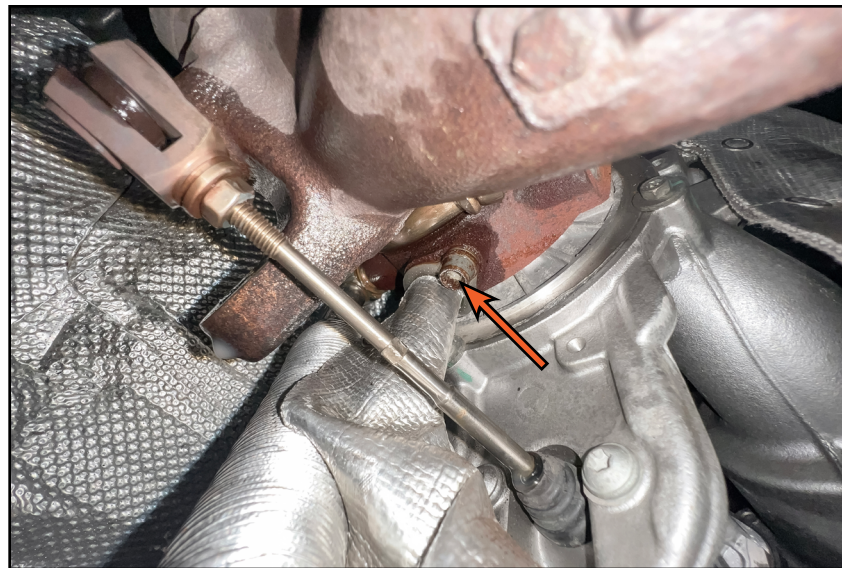
Remove the screws (arrows in **Photos #1 & #2**) and remove the turbo support bracket from the engine.



REMOVING THE STOCK TURBOCHARGER

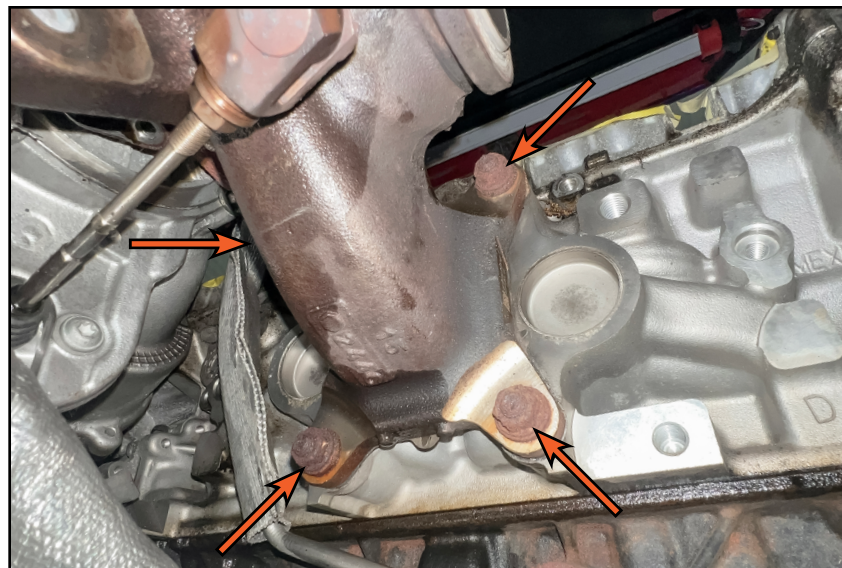
Step 21: M8 Triple Square Socket & Ratchet

Remove the screw (arrow) and pull the oil drain line free from the turbo.



Step 22: 12mm Socket & Ratchet

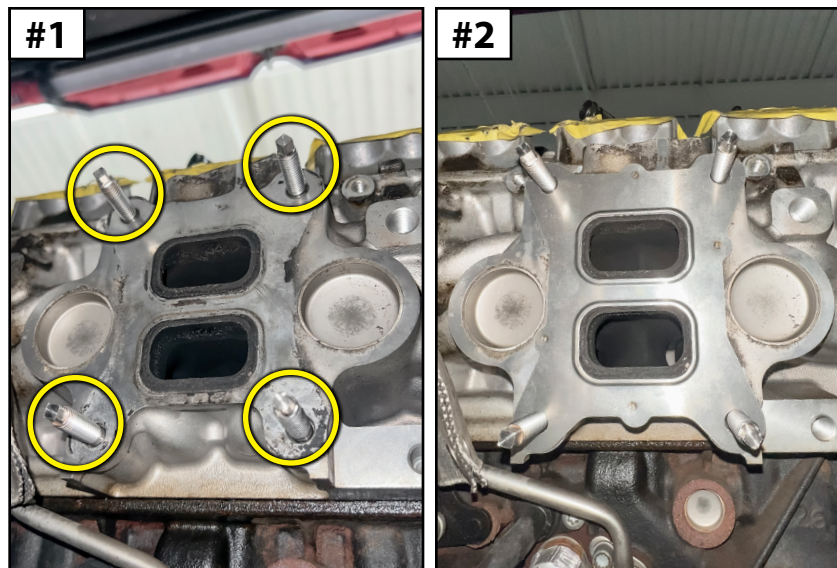
Remove the screws (arrows) and pull the turbo off of the studs, then carefully remove it from above and set it aside.



INSTALLING THE NEW TURBOCHARGER

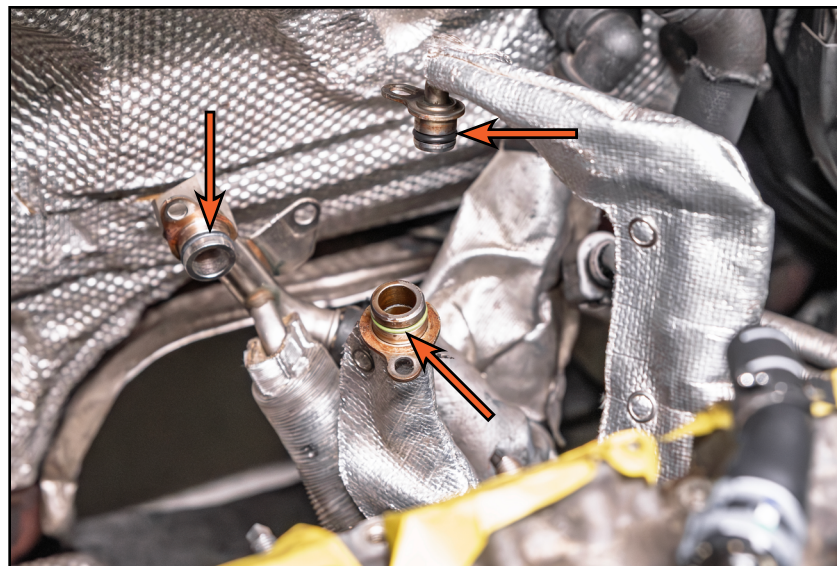
Step 1:

Replace the studs (circled in **YELLOW** in **Photo #1**) with the ones provided in the kit, then clean the mounting flange and install the provided gasket (as shown in **Photo #2**).



Step 2: Angled Pick Tool

Replace the O-rings (arrows) on each turbo line and carefully clean each line to remove any corrosion or debris.

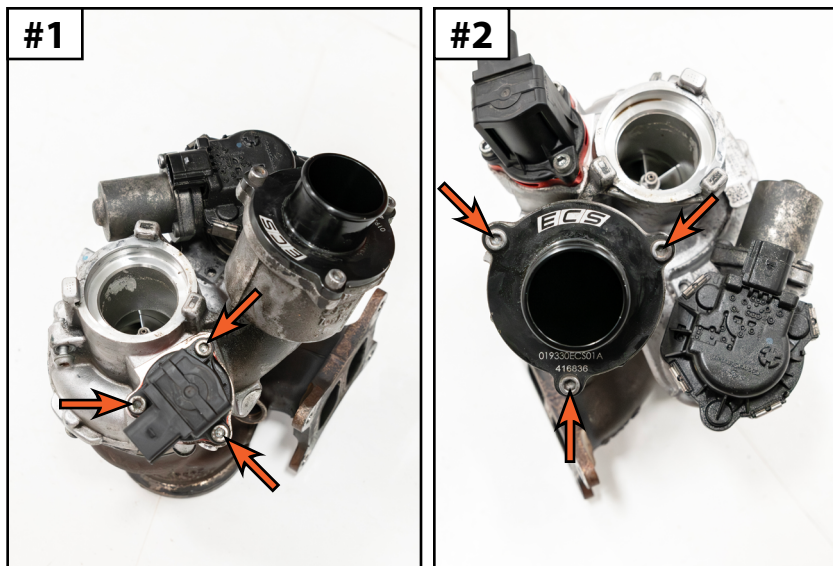


INSTALLING THE NEW TURBOCHARGER

Step 3: 5mm Hex (Allen) Socket & Ratchet

Remove the screws (arrows in **Photo #1**) and remove the diverter valve from the stock turbo and set it aside.

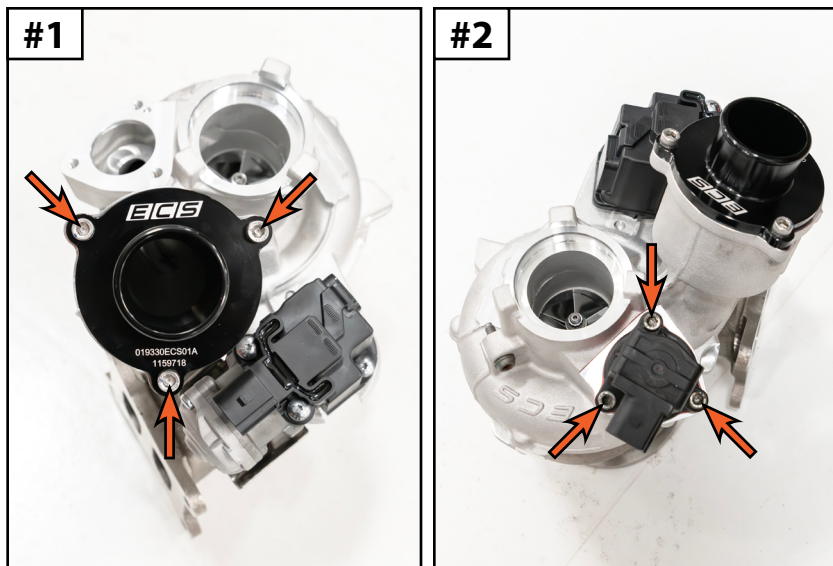
If equipped: Remove the screws (arrows in **Photo #2**) and remove the turbo muffler delete from the stock turbo and set it aside.



Step 4: 5mm Hex (Allen) Socket & Torque Wrench

If equipped: Transfer the turbo muffler delete to the new turbo, torquing the screws (arrows in **Photo #1**) to 9 Nm (80 In-lbs).

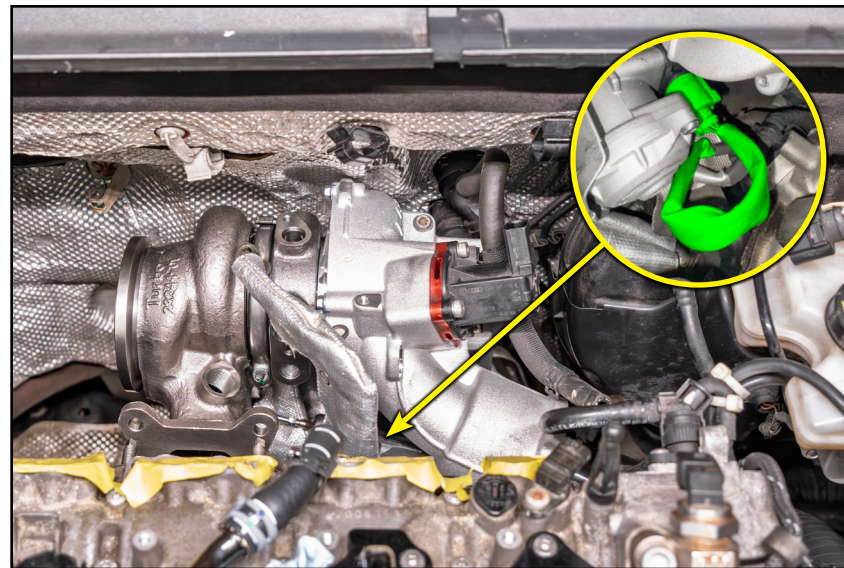
Transfer the diverter valve to the new turbo and torque the screws (arrows in **Photo #2**) to 9 Nm (80 In-lbs).



INSTALLING THE NEW TURBOCHARGER

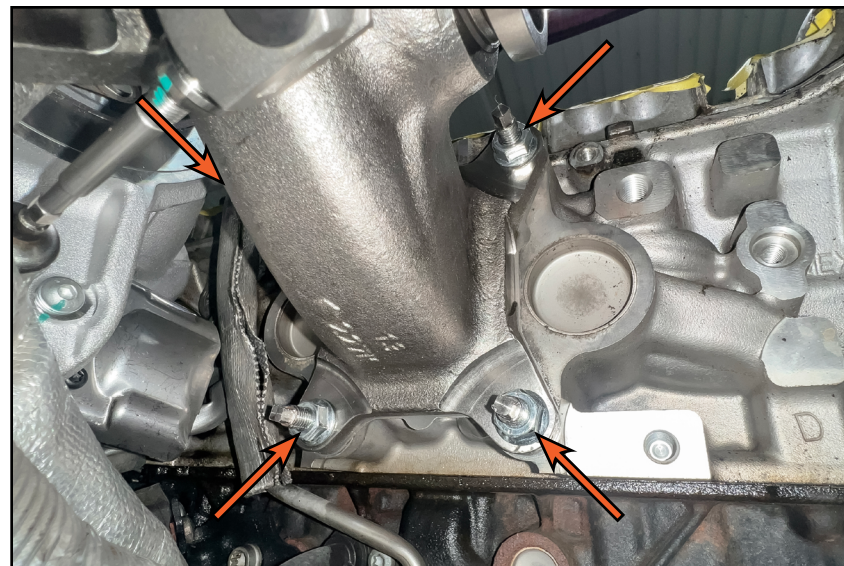
Step 5:

Carefully guide the new turbo into place and connect the wastegate connector (highlighted in **GREEN** in inset photo).



Step 6: 13mm Socket & Torque Wrench

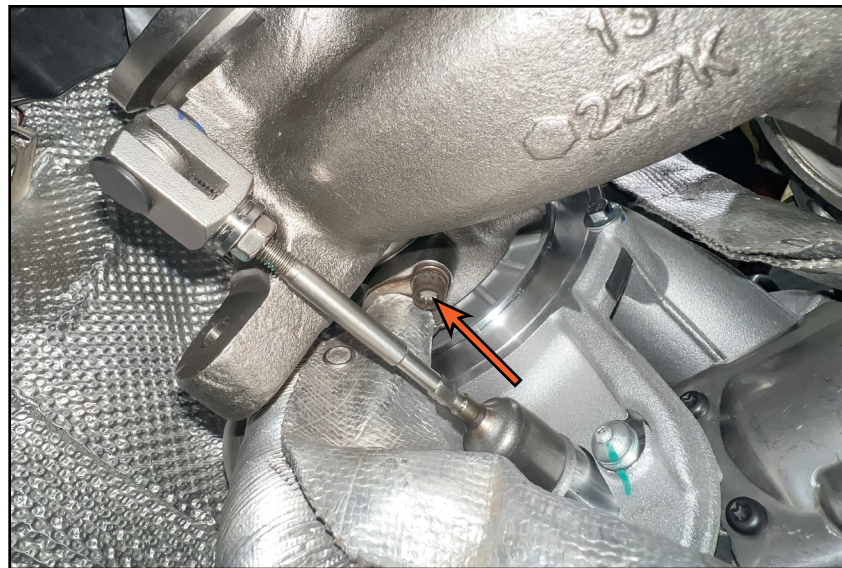
Slide the new turbo onto the studs, then install the provided nuts (arrows) and torque them to 25 Nm (18 Ft-lbs).



INSTALLING THE NEW TURBOCHARGER

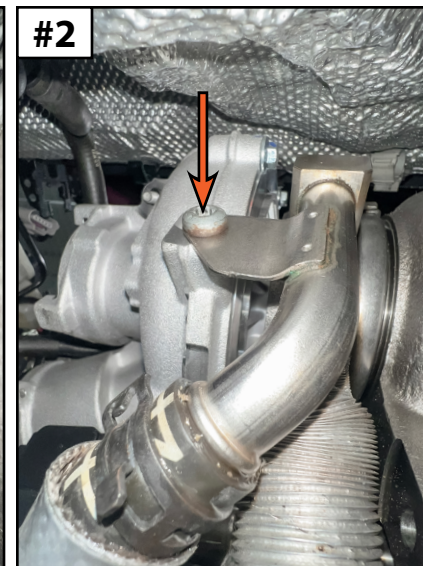
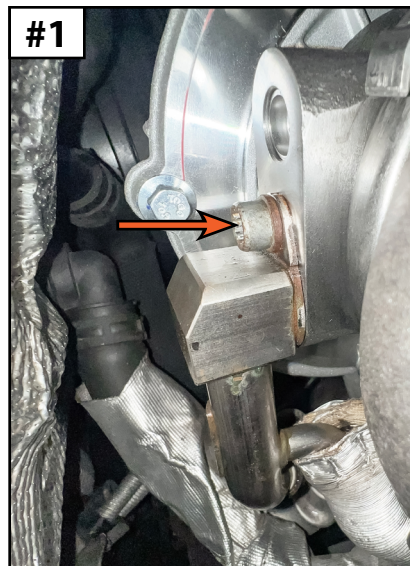
Step 7: M8 Triple Square Socket & Torque Wrench

Install the oil drain line into the new turbo and replace the screw (arrow), torquing it to 9 Nm (80 In-lbs).



Step 8: T30 Torx, M8 Triple Square Socket & Torque Wrench

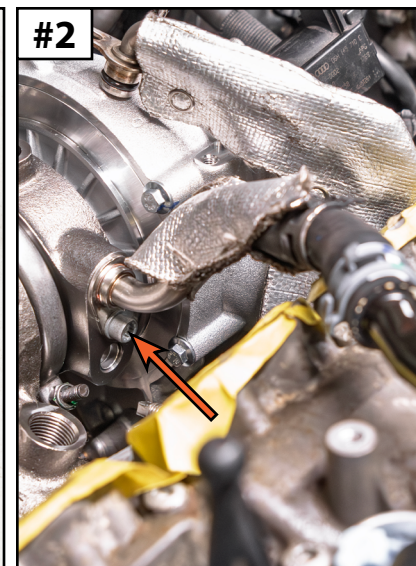
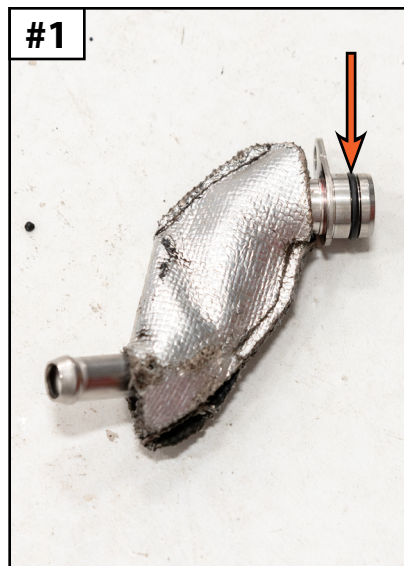
Install the coolant feed line into the new turbo and replace the screws (arrows) torquing them to 9 Nm (80 In-lbs).



INSTALLING THE NEW TURBOCHARGER

Step 9: Angled Pick, M8 Triple Square Socket & Torque Wrench

Replace the O-ring (arrow in **Photo #1**) on the coolant drain line and carefully clean the line to remove any corrosion or debris. Install the coolant drain line into the new turbo and replace the screw (arrow) and torque it to 9 Nm (80 In-lbs).



Step 10: M8 Triple Square, 10mm Socket & Torque Wrench

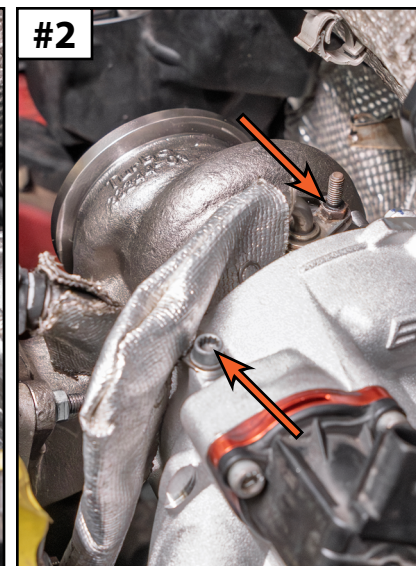
Fill the turbo oil feed port with turbo additive or fresh engine oil (as shown in **Photo #1**), rotating the turbine wheel to help lubricate the new turbo. Install the oil feed line into the new turbo and replace the screws (arrows in **Photo #2**) torquing them to 9 Nm (80 In-lbs).



Before reassembling the vehicle, the electronic wastegate actuator must be adjusted and basic settings must be set.

For the VCDS procedure, proceed to the next page.

For the OBDeleven procedure, skip ahead to [Page 24](#).



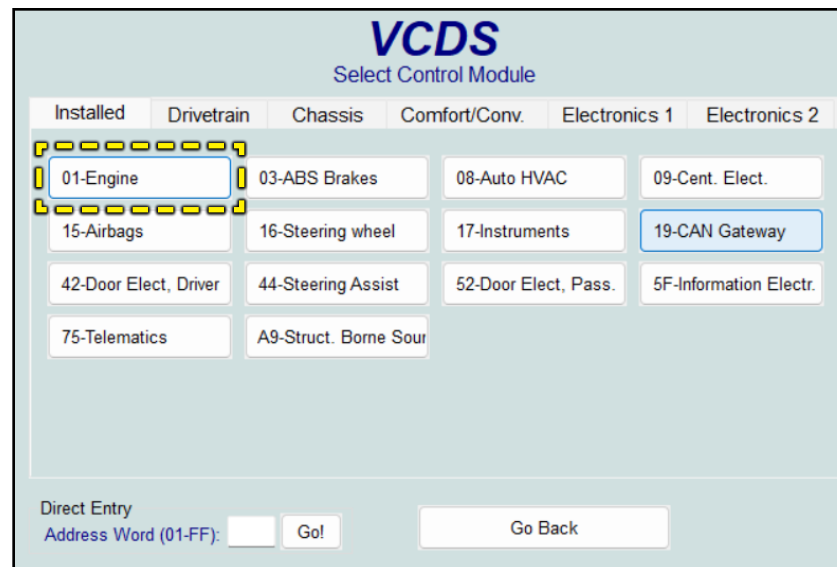
WASTEGATE ADAPTATION - VCDS

Step 1:



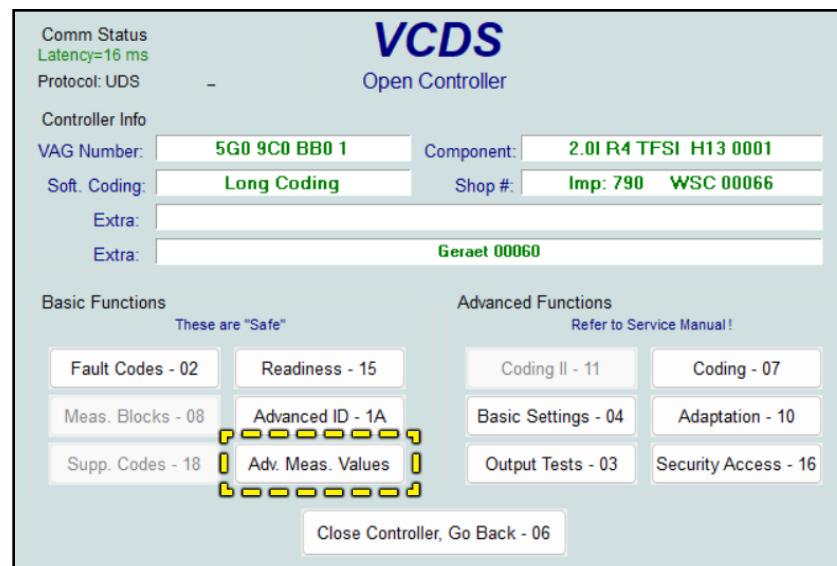
To properly complete the wastegate adaptations for the new turbo, the battery must be reconnected and put on a battery tender, then the ignition must be switched on. **DO NOT** start the engine at this point.

Connect VCDS to your vehicle and navigate to the "01-engine" control module.



Step 2:

Navigate to the "**Adv. Meas. Values**" tab within the engine control module.



WASTEGATE ADAPTATION - VCDS

Step 3:

Search for the measured value “**Charge air pressure actuator: acknowledgment**” (IDE00396) and select it. The wastegate voltage reading will populate in the second window.

Description	Loc.
<input type="checkbox"/> Charge air pressure: specified value	IDE00190
<input type="checkbox"/> Charge air pressure: actual value	IDE00191
<input checked="" type="checkbox"/> Charge air pressure actuator: acknowledgment	IDE00396
<input type="checkbox"/> Charge air pressure sensor: unconditioned voltage	IDE03276
<input type="checkbox"/> Charge air pressure actuator: adaptation for upper stop	IDE03935
<input type="checkbox"/> Charge air pressure control	IDE04002

Sample Rate:

VCDS

Advanced Measuring Values

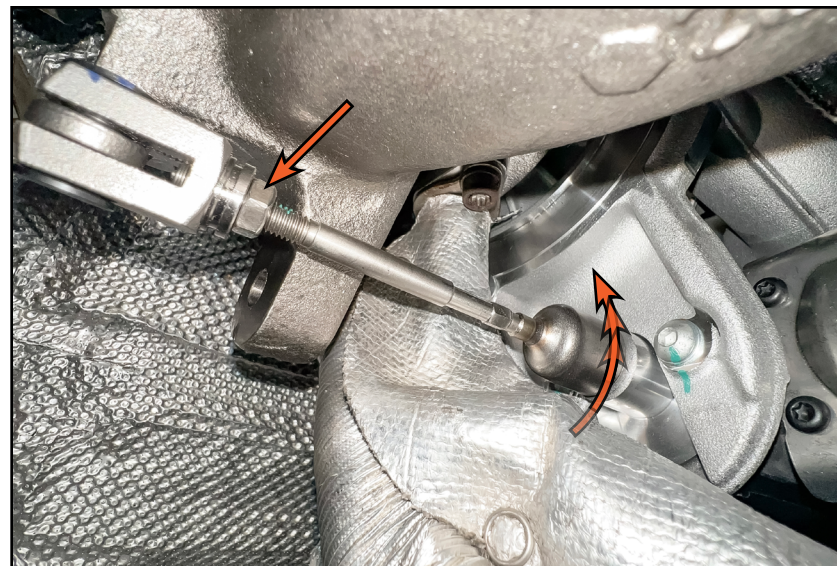
☐ Bypass Windows Timers
☐ Group UDS requests

L...	Description	Actual
IDE0...	Charge air pressure actuator: acknowledg...	3.691 V

Step 4:

5mm Wrench, 10mm Wrench

Working from below, loosen the jam nut (arrow) on the wastegate actuator rod, then rotate the rod clockwise or counter-clockwise to raise or lower the voltage. Voltage should be set between **3.5-3.9V**. Once properly adjusted, counterhold the rod and tighten the jam nut back down, then click “Done, Go Back” to return to the engine control module.



WASTEGATE ADAPTATION - VCDS

Step 5:

Navigate to the **"Basic Settings"** tab within the engine control module.

Step 6:

From the engine control module, navigate to the **"Basic Settings - 04"** tab, then select **"IDE04304-Initial adaptation of charge-air pressure actuator"** from the drop-down and click **"Go!"**. Assuming the voltage is within the specified range, the basic setting status should change to **"Finished correctly"**.



Skip ahead to [Page 26](#) to return to the instructions for reassembly.

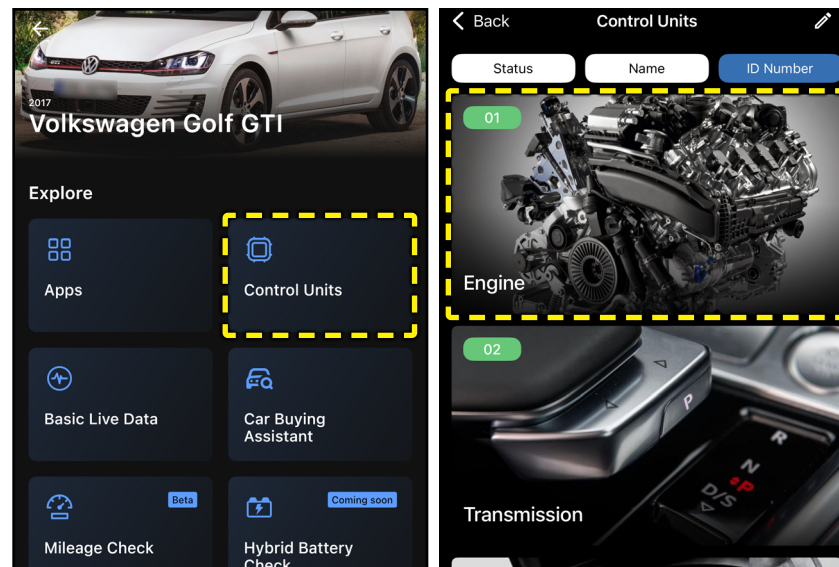
WASTEGATE ADAPTATION - OBDELEVEN

Step 1:



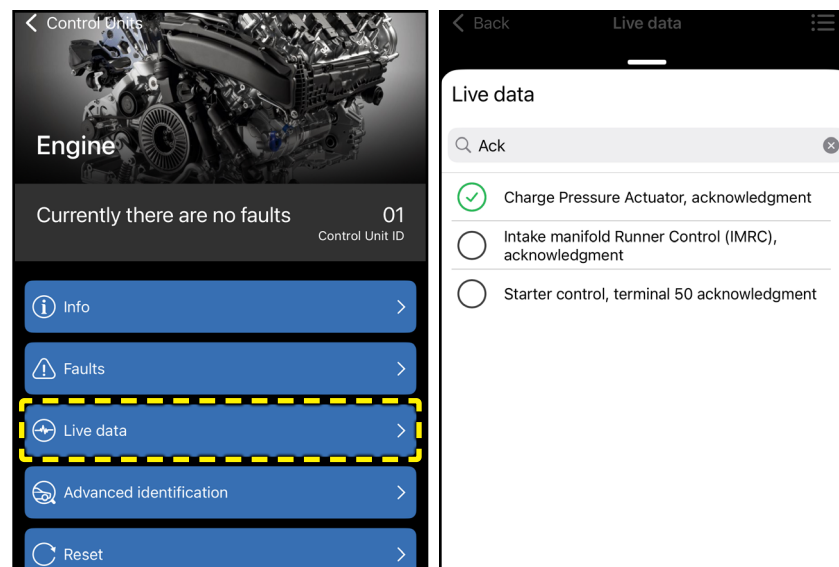
To properly complete the wastegate adaptations for the new turbo, the battery must be reconnected and put on a battery tender, then the ignition must be switched on. **DO NOT** start the engine at this point.

Open the “**OBDevelen VAG Car diagnostics**” app, connect the OBDeleven device to your vehicle, navigate to the “**Control Units**” tab, then navigate to the “**Engine**” control unit.



Step 2:

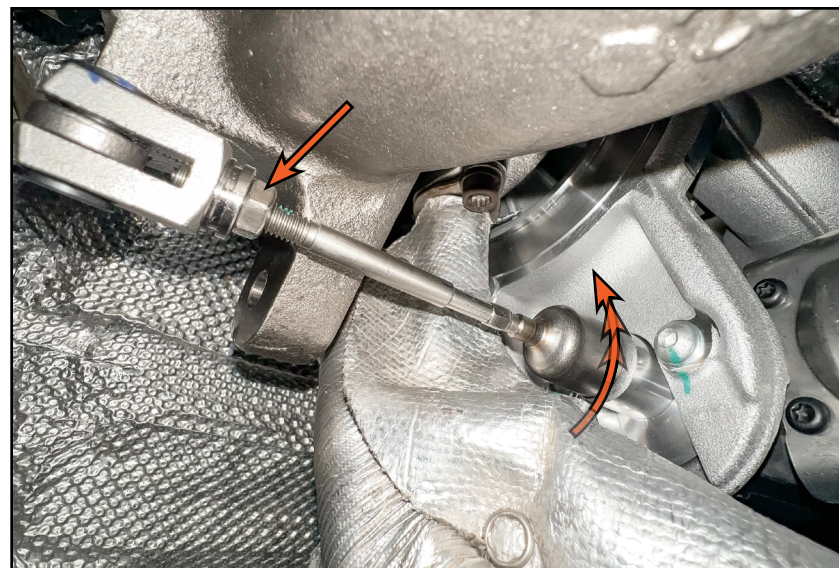
Navigate to the “**Live Data**” tab within the engine control unit, search for “**Charge Pressure Actuator: acknowledgment**” and select it. The wastegate voltage reading will populate on the screen.



WASTEGATE ADAPTATION - OBDELEVEN

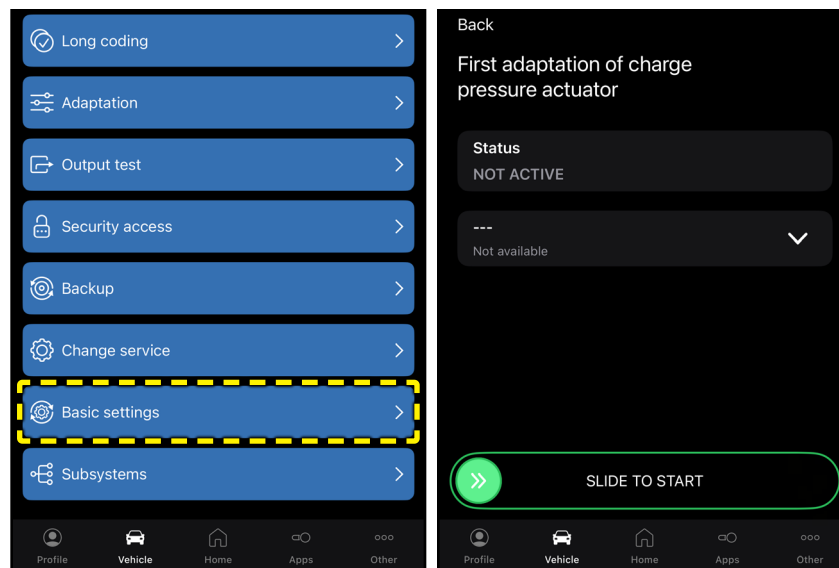
Step 3: 5mm Wrench, 10mm Wrench

Working from below, loosen the jam nut (arrow) on the wastegate actuator rod, then rotate the rod clockwise or counter-clockwise to raise or lower the voltage. Voltage should be set between **3.5-3.9V**. Once properly adjusted, counterhold the rod and tighten the jam nut back down, then click "Done, Go Back" to return to the engine control module.



Step 4:

From the engine control unit, navigate to the "**Basic settings**" tab, then select "**First adaptation of charge pressure actuator**" from the drop-down and slide the green arrow to the right to initiate the basic setting. Assuming the voltage is within the specified range, the basic setting should complete successfully.



INSTALLING THE NEW TURBOCHARGER - CONT.

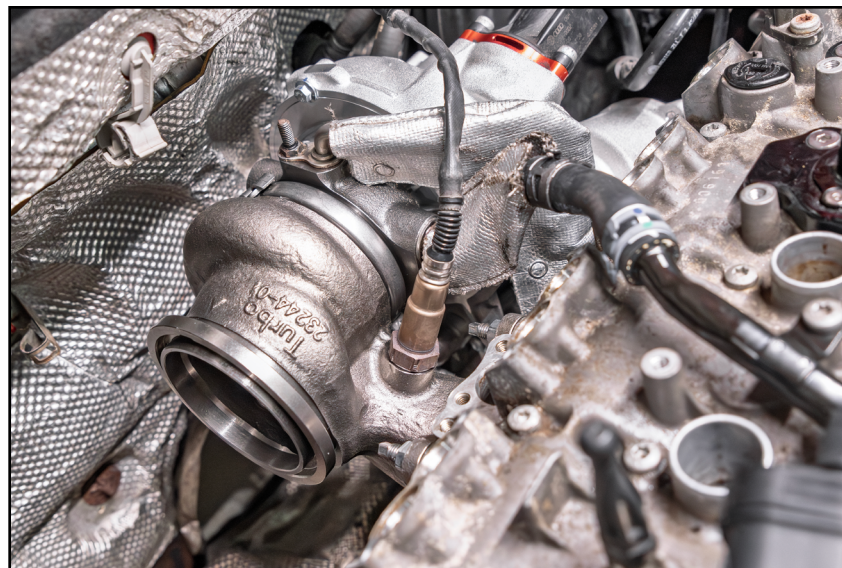
Step 1: 6mm Hex (Allen), 13mm Socket & Torque Wrench

Reinstall the turbo support bracket, then reinstall the screws (arrows) and torque them to 30 Nm (22 Ft-lbs).



Step 2: Oxygen Sensor Socket & Torque Wrench

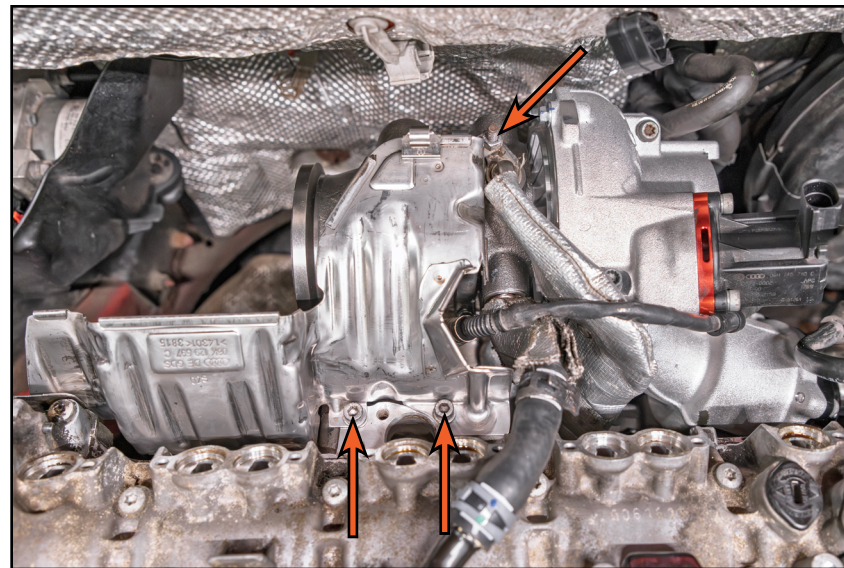
Reinstall the oxygen sensor into the new turbo and torque it to 55 Nm (41 Ft-lbs).



INSTALLING THE NEW TURBOCHARGER - CONT.

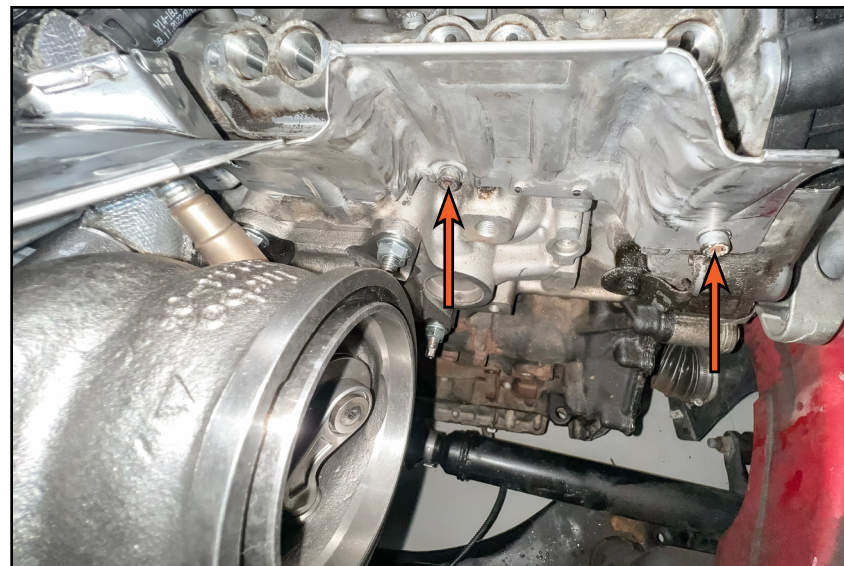
Step 3: 5mm Hex (Allen) Socket & Torque Wrench

Reinstall the screws (arrows) that secures the turbo heat shield and torque the screws to 9 Nm (80 In-lbs).



Step 4: 5mm Hex (Allen) Socket & Torque Wrench

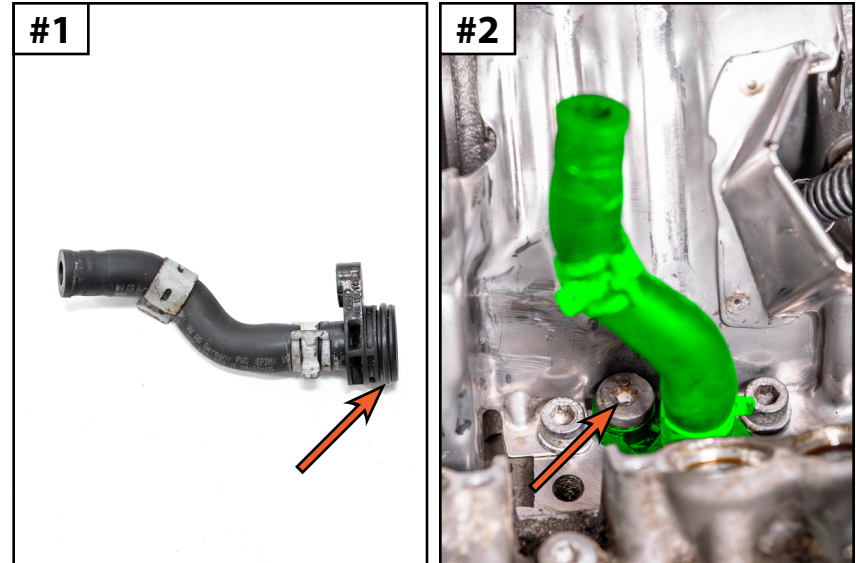
Reinstall the screws (arrows) that secures the back of the turbo heat shield and torque the screws to 9 Nm (80 In-lbs).



INSTALLING THE NEW TURBOCHARGER - CONT.

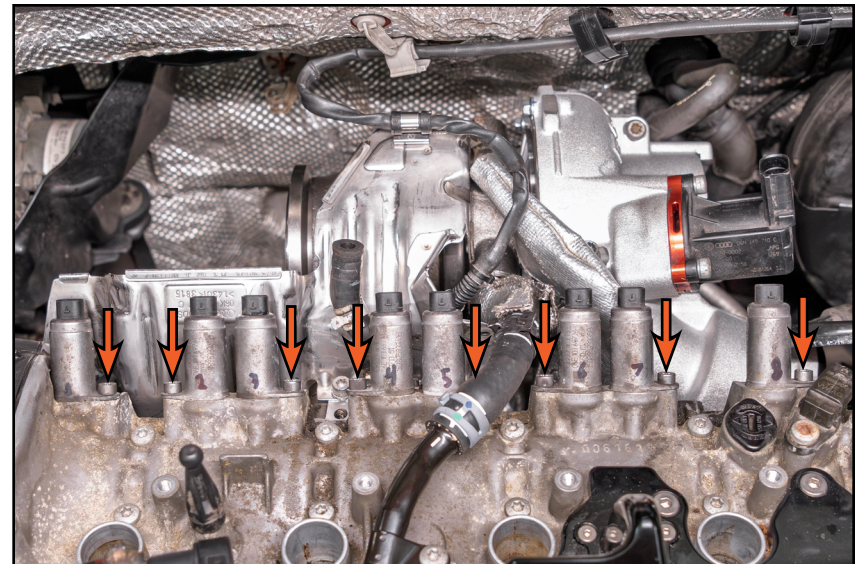
Step 5: T30 Torx Socket & Torque Wrench

Replace the O-ring (arrow in **Photo #1**) on the coolant breather hose hitting and carefully it to remove any corrosion or debris. Reinstall the breather hose (highlighted in **GREEN**) into the cylinder head and torque the screw (arrow in **Photo #2**) to 9 Nm (80 In-lbs).



Step 6: T25 Torx Socket & Torque Wrench

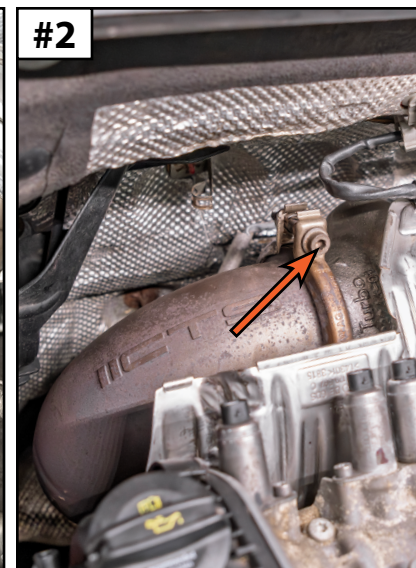
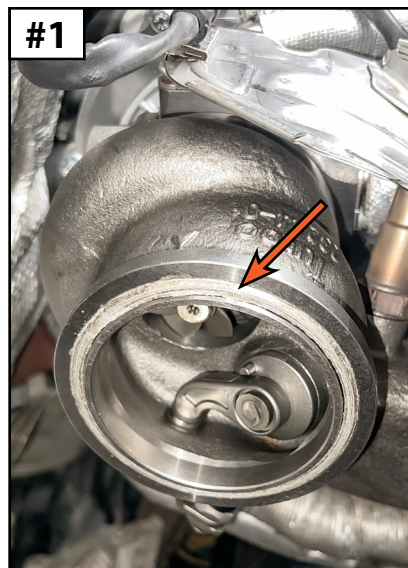
Reinstall the camshaft solenoids, then reinstall the screws (arrows) and torque them to 5 Nm (44 In-lbs).



INSTALLING THE NEW TURBOCHARGER - CONT.

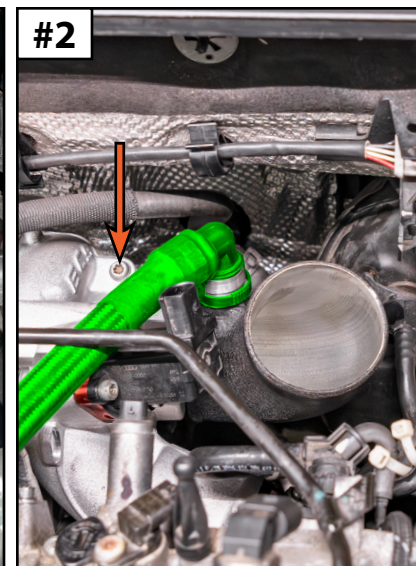
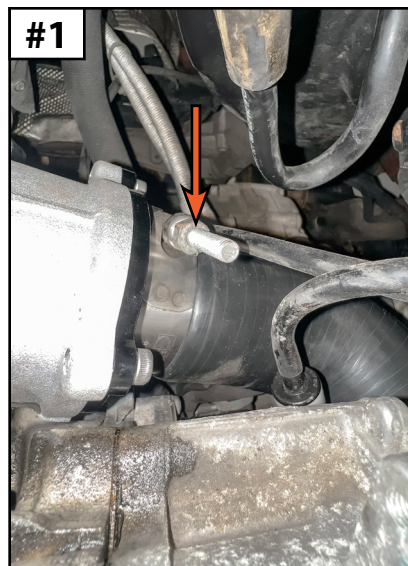
Step 7: 6mm Hex (Allen) Socket & Torque Wrench

Replace the downpipe gasket (arrow in **Photo #1**), then reinstall the downpipe in reverse order of removal, torquing the clamp (arrow in **Photo #2**) to 15 Nm (11 Ft-lbs).



Step 8: T30 Torx, 7mm Socket & Torque Wrench

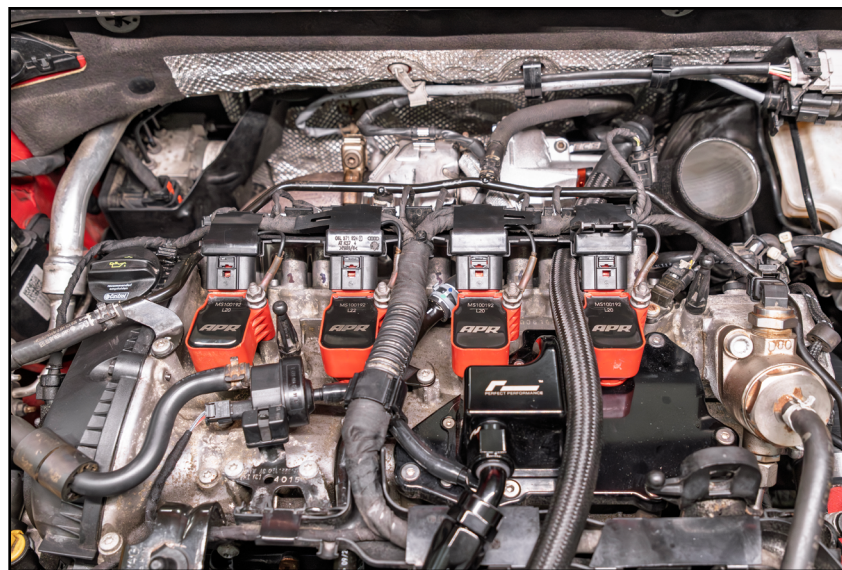
Slide the turbo outlet pipe onto the new turbo and tighten the clamp (arrow in **Photo #1**) until snug. Install the turbo inlet pipe into the new turbo and tighten the screw (arrow in **Photo #2**) to 9 Nm (80 In-lbs), then reconnect the PCV vent hose (highlighted in **GREEN**).



INSTALLING THE NEW TURBOCHARGER - CONT.

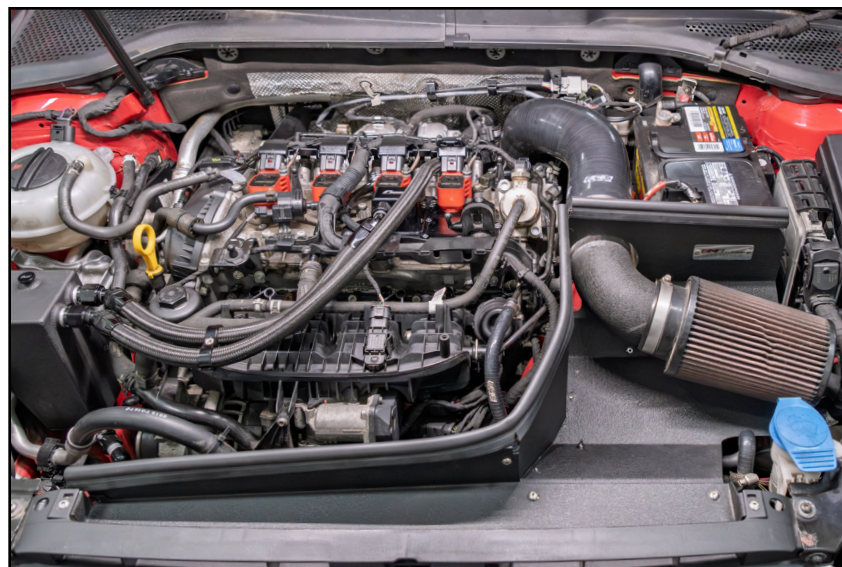
Step 9:

Reinstall the coolant hard line, reconnect the engine wiring harness, and reinstall the ignition coils, torquing the screws to 10 Nm (7 ft-lbs) and the ground terminal nuts to 9 Nm (80 In-lbs).



Step 10:

- Reinstall the intake system
- Fill and bleed the coolant system
- Change the engine oil and filter
- Reinstall the lower engine insulation panel
- Start the engine and check for leaks



Congratulations, Your installation is complete!

Your IS38 Turbocharger installation is complete!



These instructions are provided as a courtesy by ECS Tuning

Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

Although this material has been prepared with the intent to provide reliable information, no warranty (express or implied) is made as to its accuracy or completeness. Neither is any liability assumed for loss or damage resulting from reliance on this material. SPECIFICALLY, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY IS MADE OR TO BE IMPLIED WITH RESPECT TO THIS MATERIAL. In no event will ECS Tuning, Incorporated or its affiliates be liable for any damages, direct or indirect, consequential or compensatory, arising out of the use of this material.