Emissions Recall (Gen 3 - Phase 2)
Code: 23Y9

REVISION

Subject	**2.0L TDI Engine (GEN 3) Phase 2 A & B Emissions Recall – USA ONLY**
Release Date	June 22, 2018
Revision Summary	**Updated work instructions:** • Various updates in Section E (Kit 2B installation) including but not limited to: o Updated EGT Sensor removal and reinstallation information. o Revised torque specs for Oxygen Sensor and NOx Sensor.
Affected Vehicles	***U.S.A.:*** **2015 MY Audi A3 2.0L TDI** *Check Campaigns/Actions screen in Elsa on the day of repair to verify that a VIN qualifies for repair under this action. Elsa is the only valid campaign inquiry & verification source.* ✓ *Campaign status must show "open."* ✓ *If Elsa shows other open action(s), inform your customer so that the work can also be completed at the same time the vehicle is in the workshop for this campaign.*
Problem Description	The Environmental Protection Agency and California Air Resources Board have determined that Audi A3 vehicles equipped with a 2.0L 4-cylinder TDI engine do not comply with applicable emissions regulations. The emissions control systems on the vehicles will not control emissions under off-cycle conditions as effectively as during the federal test procedure. The extent of the emissions increase under off-cycle conditions depends upon how the vehicles are driven.
Corrective Action	Install updated emissions control system hardware and software, install a TDI Emissions Modification – Proof of Partial Completion or Proof of Completion Label and install a Supplemental Vehicle Emissions Control Information Label (if required). If the vehicle has been modified by the customer prior to receiving the emissions modification in a manner that may yield a non-compliant emissions system (for example, removal of a catalyst, installation of parts that impact emissions or emissions- related parts, or modifications to the ECU or computer software of the vehicle), Audi may not be able to perform the emissions modification until the customer corrects such modification.
Code Visibility	On or about April 24, 2018, this campaign code showed open on affected vehicles in Elsa. On or about April 24, 2018, affected vehicles were identified with this campaign code in the VIN Lookup tool at www.audiusa.com.
Owner Notification	Owner notification will take place in April, 2018.
Additional Information	**Please alert everyone in your dealership about this action, including Sales, Service, Parts and Accounting personnel. Contact Warranty if you have any questions.** Fill out and affix the appropriate TDI Emissions Modification – Proof of Partial Completion or Proof of Completion Label and if required, the appropriate Supplemental Vehicle Emissions Control Information Label after work is complete. ***Additional shipments will be released based on the volume of completed repairs claimed through SAGA. The parts will not be available for order through the website at this time.***

Claim Entry Instructions

After campaign has been completed, enter claim as soon as possible to help prevent work from being duplicated elsewhere. Attach the Elsa screen print showing action *open on the day of repair* to the repair order.

If customer refused campaign work:

- ✓ U.S. dealers: Submit the request through Audi Warranty Online under the Campaigns/Update option.

Service Number	23Y9
Damage Code	0099
Parts Vendor Code	002
Claim Type	Sold vehicle: 7 10 Unsold vehicle: 7 90
Causal Indicator	Mark 2.0L Gen 3 Phase 2A Kit as causal part*
Vehicle Wash/Loaner	Refer to Warranty Communication AWC 17-01 for details.
Criteria I.D.	**8V (Kit 2A installed)**

Install 2.0L Gen 3 Phase II A Kit, install or inspect for a supplemental Vehicle Emissions Control Information label and install a TDI Emissions Modification Proof of Partial Completion Label.

Labor operation: 2381 25 99 190 T.U.

Quantity	Part number	Description
1.00	8P0298101D	2.0L Gen 3 Phase 2A Kit*
1.00	5Q0253301H	Exhaust pipe

--AND--

Connect battery charger, connect vehicle diagnostic tester, perform software update for ECM and TCM.

Labor operation: 2360 22 99 55 T.U.

--OR--

Connect battery charger, connect vehicle diagnostic tester, perform software update for ECM only.

Labor operation: 2360 23 99 40 T.U.

--AND--

Follow IN-FORM tool app.

Labor operation: 0183 00 99 20 T.U.

Labels are sent free of charge. They cannot be charged to this campaign.

Continued on next page.

<table>
<tr><th colspan="2">AND IF REQUIRED – Kit 2B installed</th></tr>
<tr><td></td><td>
Install 2.0L Gen 3 Phase II B Kit, install or inspect for a supplemental Vehicle Emissions Control Information label and install TDI Emissions Modification Proof of Completion Label.

Labor operation: 2674 25 99 560 T.U.

<table>
<tr><th>Quantity</th><th>Part number</th><th>Description</th></tr>
<tr><td>1.00</td><td>8P0298101GX</td><td>2.0L Gen 3 Phase 2B Kit</td></tr>
<tr><td>1.00</td><td>8P0298201</td><td>2.0L Gen 3 Phase 2B Sub Kit</td></tr>
<tr><td>Up to 80.0</td><td>G 013A8JS0</td><td>Coolant</td></tr>
</table>

--AND--

Connect vehicle diagnostic tester, perform cooling system fill test plan and perform function (ash load reset) test plan.

Labor operation: 2360 26 99 60 T.U.

*Labels are sent free of charge. They cannot be charged to this campaign.
</td></tr>
<tr><th colspan="2">FOR NEW VEHICLE INVENTORY VEHICLES ONLY – MUST BE CLAIMED ON A SEPARATE LINE –
<u>DO NOT PUT ON CAMPAIGN CLAIM</u></th></tr>
<tr><td>Monroney Process Claim Coding

(Work steps from Appendix A)</td><td>
Claim Type: 9SP

Service #: 0183 – Campaign Related Inspection

Damage Code: 0010

Damage Location: N/A

Labor operation: 01830199 20 T.U.

Causal Indicator: 01830199

<u>DO NOT PUT MONRONEY PROCESS CLAIM CODING ON CAMPAIGN CLAIM</u>
</td></tr>
</table>

NOTE

Damages resulting from improper repair or failure to follow these work instructions are the dealer's responsibility and are not eligible for reimbursement under this action.

Required Parts

Quantity	Part Number	Part Description
1	8P0298101D	Gen 3 Phase 2 Kit A
1 (if required)	03L 010 005 J	Vehicle Emissions Control Information Label
1 (if required)	CAMP TDI 2016_3C	TDI Emissions Modification – Proof Partial of Completion Label

-AND IF REQUIRED-

Quantity	Part Number	Part Description
1	8P0298101GX	Gen 3 Phase 2 Kit B
1	8P0298201	A3 Sub-kit
SEE ETKA/ELSA		Coolant
1 (if required)	03L 010 005 J	Vehicle Emissions Control Information Label
1 (if required)	CAMP TDI 2016_3B	TDI Emissions Modification – Proof of Completion Label

IMPORTANT!
Maintaining Your TDI Campaign Label Supply

- **SAGA claims count! Warranty Administrators should enter TDI claims promptly to ensure labels can be allocated to support future repairs.**
- **TDI Labels are allocated daily, free of charge, based on the count of TDI claims entered in SAGA.**
- **TDI labels cannot be ordered through the Compliance Label Ordering Portal. If you have questions, please email labelrequest@audi.com.**

Required Tools

VAS6150X – Diagnostic Tester (or equivalent)

VAS5054A – Remote Diagnosis Head (or equivalent)

GRX3000VAS – Battery Tester/Charger (or equivalent)

- Service Modification Validation Web App
- tdi-inform.track360.com

TIP

This web application is compatible with desktops, laptops, Apple and Android mobile devices running the most current versions of FireFox, Chrome, Safari, or Explorer as well as iOS 9+ on iPads and iPhones.

NOTE

RISK of Non-payment!

Not using the IN-FORM tool to document and validate the modification will stop the processing of payment for your dealership even if the modification has been completed.

Socket 22mm -T10491- (or equivalent)

Torque wrench -VAG 1331- (or equivalent)

Torque wrench -VAG 1332- (or equivalent)

Tool set -T10395A- (or equivalent)

VAS6254 –
Chain Pipe Cutter
(or equivalent)

Assembly Aid
-T10511-

Hex Ball Socket
-3247-
(or equivalent)

Socket Bit XZN 10
-T10501-
(or equivalent)

Shop Crane - Drip Tray
-VAS6208-
(or equivalent)

Hose Clip Pliers
-VAS6340-
(or equivalent)

Hose Clip Pliers
-VAS6362-
(or equivalent)

Puller - Ball Joint
-T10187-
(or equivalent)

Engine and Gearbox Jack
-VAS6931-
(or equivalent)

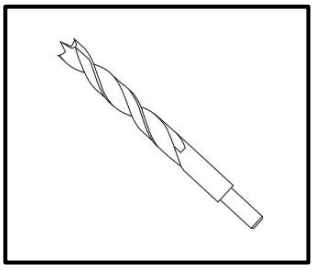
Locating Pins
-T10096-

-T10486A-

Subframe Locking Pin
(2 pc.)
-T10452-

Cooling System
Charge Kit
-VAS 6096-
-V.A.G. 1274/8-

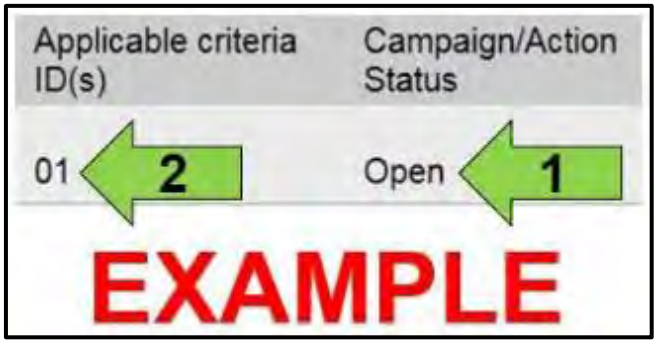
Hook Tool
- T40207-
(or equivalent)



10 mm drill bit
(or equivalent)

Emissions Modification Instruction

Section A - Check for Previous Emissions Modification



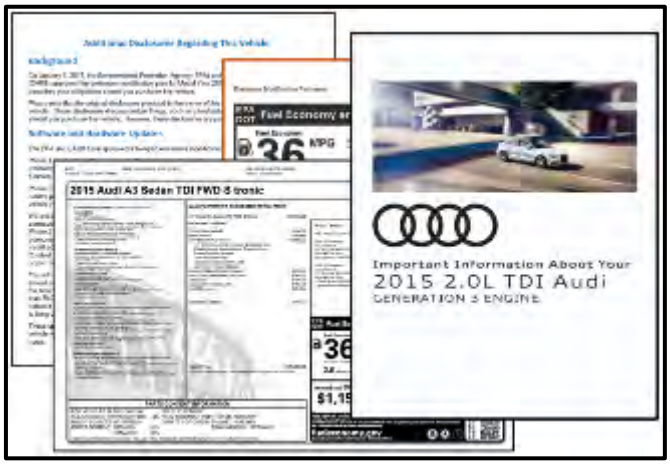
- Enter the VIN in Elsa and proceed to the "Campaign/Action" screen.

TIP

On the date of modification, print this screen and keep a copy with the repair order.

- Confirm the Campaign/Action is open <arrow 1>. If the status is closed, no further work is required.
- Note the Applicable Criteria ID <arrow 2> for use in determining the correct work to be done and corresponding parts associated.

- Check for other Open campaign actions <red arrow above>.
- Other Open campaign actions must be completed prior to releasing the vehicle to the customer.



NOTE

Vehicle Sales REQUIREMENTS!

Additional ***REQUIRED*** steps are necessary for NEW vehicles.

- For **NEW** vehicles, obtain VIN-specific and other necessary items according to Appendix A. Complete Appendix A in addition to this repair.

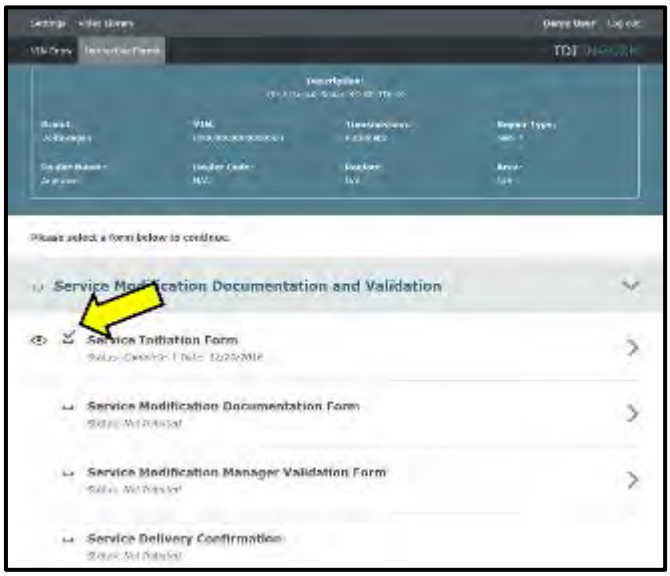
Proceed to Section B

Section B – Check for Service Initiation

NOTE

RISK of Non-payment!

Not using the IN-FORM tool to document and validate the modification will stop the processing of payment for your dealership even if the modification has been completed. Look for the image below to indicate labor operations, parts, or labeling that requires IN-FORM tool image documentation.



NOTE

RISK of Non-payment!

Ensure that the “check mark” <arrow> is present prior to beginning any work.

- Ensure the Service Initiation Form has a “check mark” <arrow>.
  - If the Service Initiation Form does not have a “check mark” <arrow>, immediately contact your Service Consultant to complete the initiation.
  - If “check mark” <arrow> is present, initiate Service Modification Documentation Form and continue work.

DO NOT proceed with any work unless you can initiate the Service Modification Documentation Form.

Proceed to Section C

Section C – Check for Pre-existing conditions, Vehicle Modifications, and MIL light on

- Perform a visual inspection of the intake, exhaust, and emissions systems and document findings on the repair order.
  - If the visual inspection of the intake, exhaust, or emissions equipment reveals no damage or concerns, continue the work procedure.

- Check for vehicle modifications from original equipment and document findings on the repair order.
  - If vehicle modifications from original equipment related to emissions components do not impose a concern, continue the work procedure.

NOTE

If there are pre-existing conditions such as damage to the intake, exhaust and emissions systems or modifications from original equipment or MIL is illuminated, address these issues prior to this repair. This work is NOT covered by this campaign. ***Please check whether or not this repair could be covered by the warranty extension.***

- Check for illumination of the MIL <arrow>.
  - o If MIL is not illuminated, continue the work procedure.

NOTE

RISK of Non-payment!

The purpose for this step is to document vehicle condition prior to initiation of this action and does not authorize the repair of any pre-existing conditions. *Please check whether or not this repair could be covered by the warranty extension.*

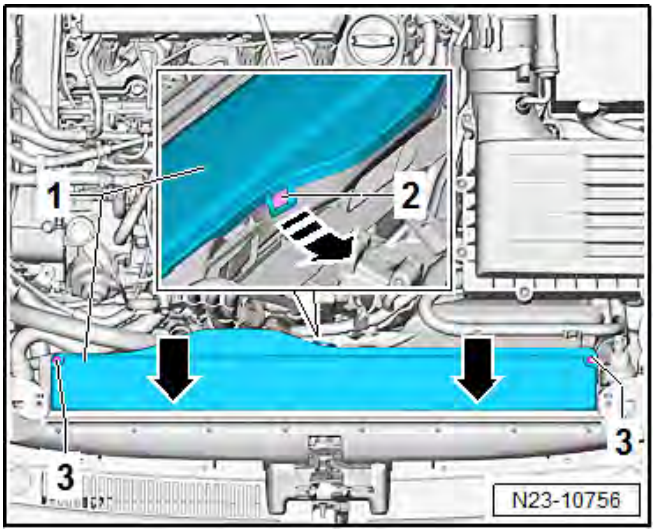
Proceed to Section D

Section D – A3 - Install 2.0L Gen 3 Phase 2A Kit (NOx Sensor 2 w/ Exhaust Pipe)

NOTE

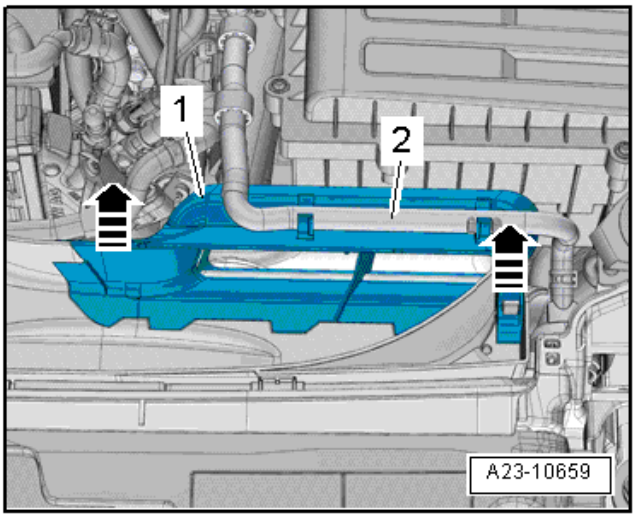
RISK of Non-payment!

Determining whether or not to install 2.0L Generation 3 Phase II A and/or B is dependent on the specific history and current mileage of the vehicle. **You MUST refer to the IN-FORM tool to identify if one (Kit 2A only) or both (Kit 2A+2B) Kits are needed!** Installing Kit B when only Kit A is needed will result in claim cancellation. Dealers WILL NOT BE COMPENSATED for this error.

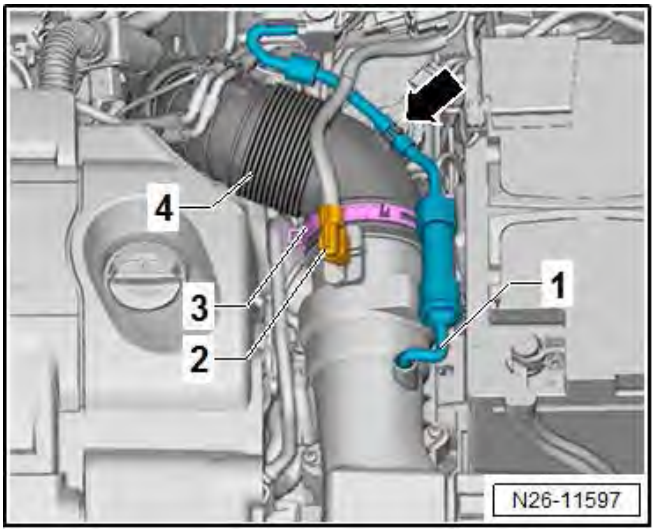


Removing air filter housing:

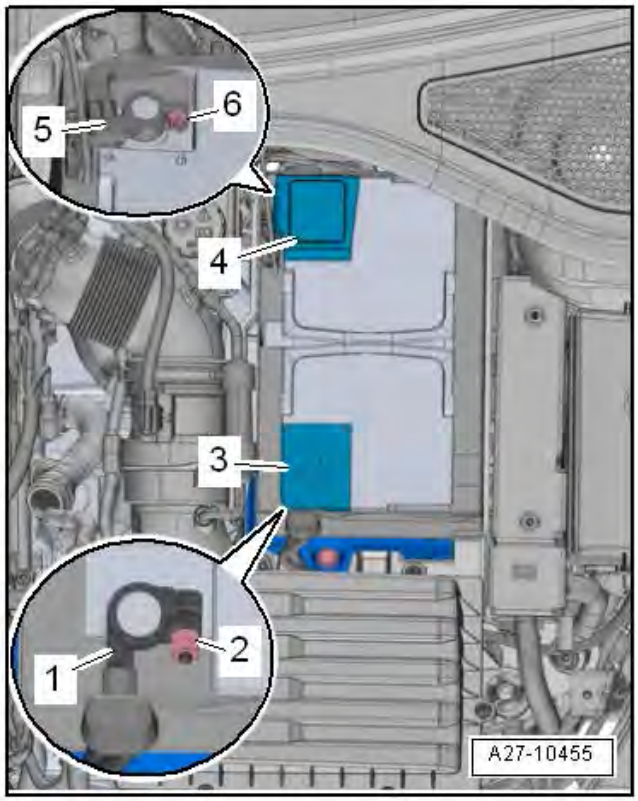
- Unscrew bolts <3>.
- Release catch <2> and remove cover <2>.
- Push cover <1> towards front out of retainers <arrows>.
- Remove cover <1>.



- Lay coolant hose <2> to one side.
- Release fasteners <arrows> and remove upper part of air duct <1>.

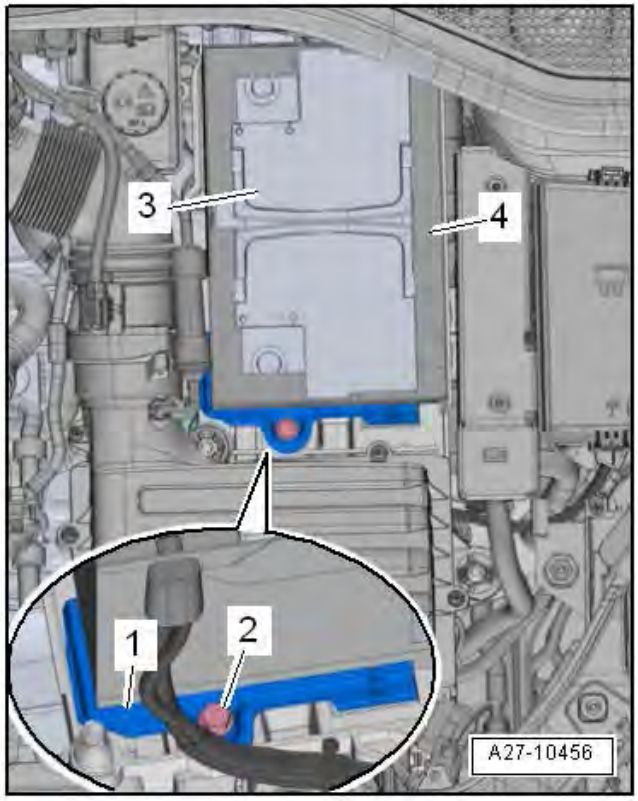


- Release and disconnect connector <2>. Pull off vacuum hose <1> and unclip from intake hose <arrow>.
- Loosen spring-type clip <3> using spring-type clip pliers -VAS 6362-.
- Pull intake hose off air mass meter.
- Pull hose for warm air intake off air filter housing.
- Pull air filter housing upwards out of fasteners and remove.

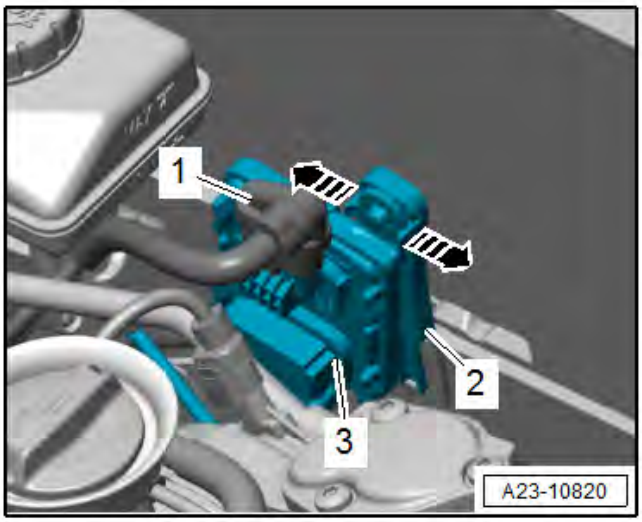


Removing battery:

- Turn the steering wheel to the straight ahead position and remove the ignition key so that the steering wheel lock engages.
- Open cover in heat insulation sleeve.
- Open cover <4> on battery negative terminal.
- Loosen nut <6> several turns, and disconnect battery clamp <5> of earth cable from negative battery terminal.
- Open cover <3> for positive battery terminal.
- Loosen nut <2> several turns, and disconnect battery clamp <1> of positive cable from positive battery terminal.

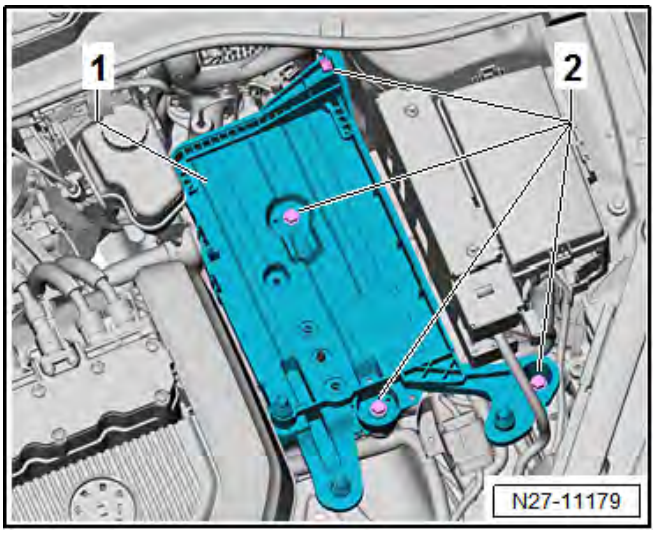


- Pull heat insulation sleeve <4> upwards slightly.
- Unscrew bolt <2> on securing bracket <1>.
- Remove securing bracket <1>.
- Pull battery <3> in direction of travel out of battery tray and lift out of engine compartment.

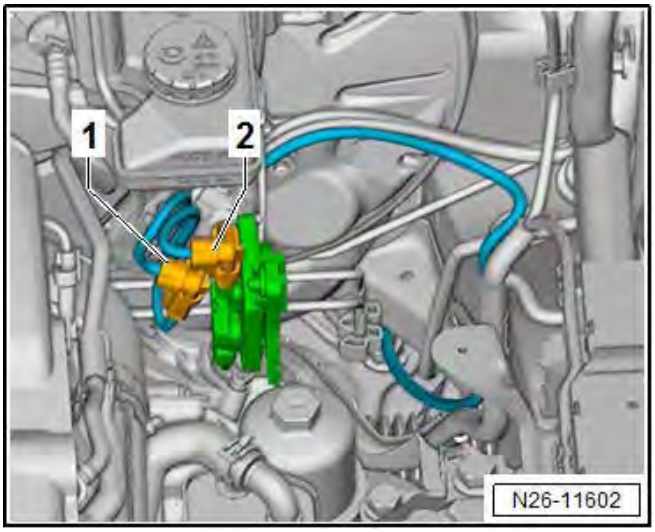


Removing battery tray:

- Lay aside wiring harness on battery tray.
- Separate electrical connector <1>.
- Release catches <arrow>, remove control unit for NOx sender 1 <3> from bracket, and place it on the engine.



- Unscrew bolts <2>.
- Remove battery tray <1>.

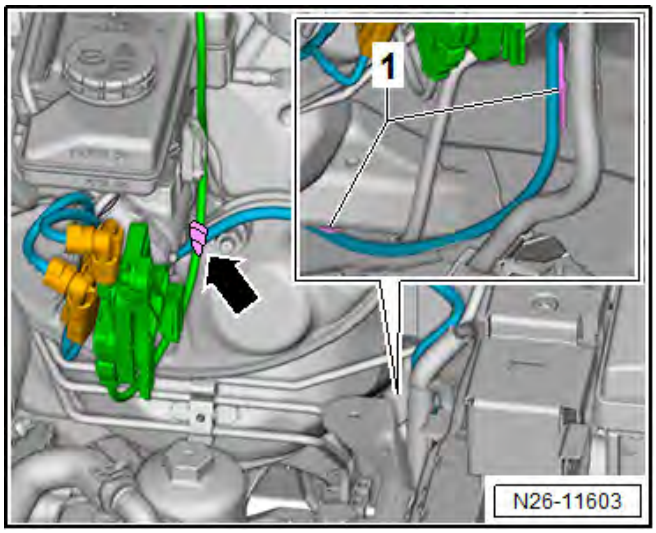


Routing adapter wiring harness:

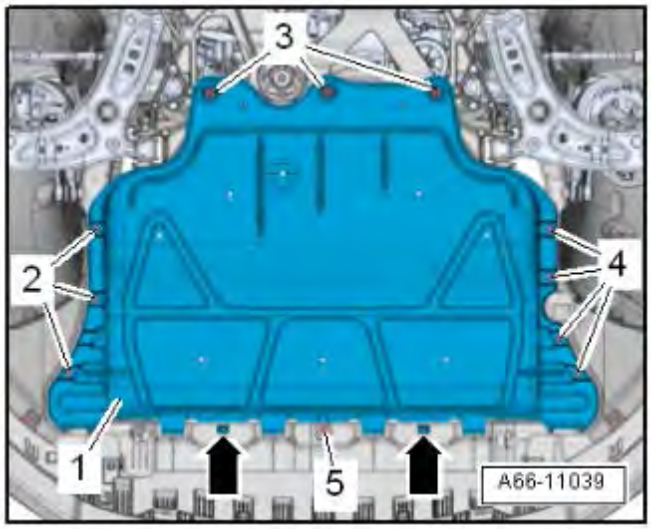
NOTE

The lower end of the new wiring harness is enclosed in a plastic bag to protect it from soiling. Do not remove this protection until immediately before fitting.

- Check that all connectors are clean and blow out with compressed air as needed.
- In the engine compartment, disconnect original connector <1> on control unit for NOx sender and connect to adapter wiring harness.
- Connect connector <2> of adapter wiring harness to control unit for NOx sender.

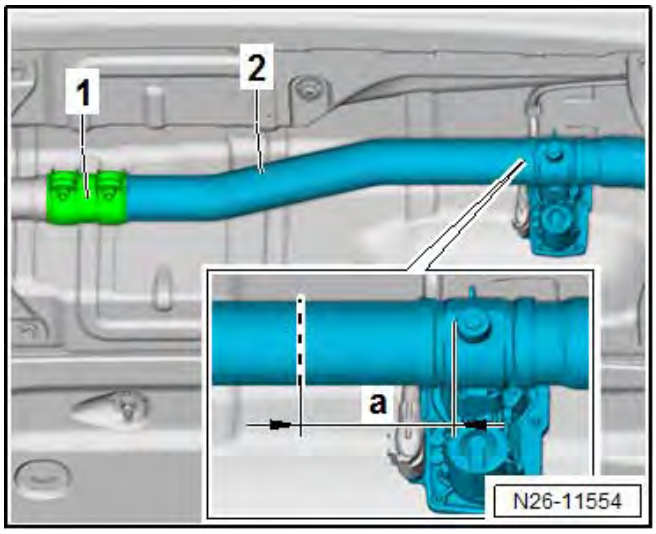


- Route adapter wiring harness from left suspension turret to underbody. Clip it in at indicated places <1> on longitudinal member and secure using cable ties <arrow>.



Removing noise insulation:

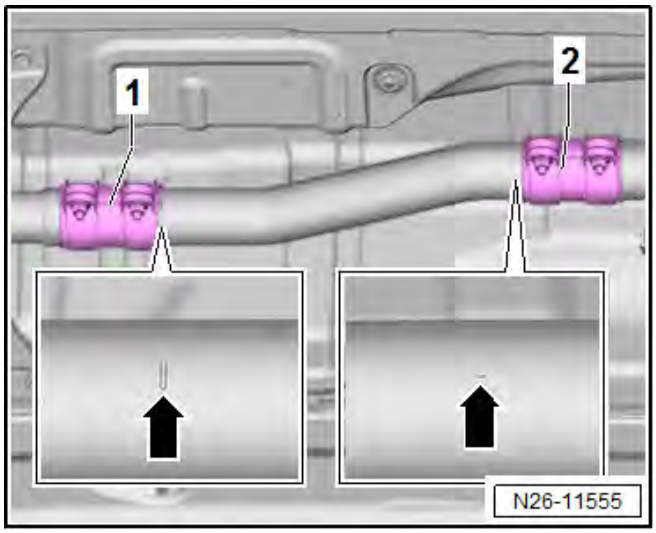
- Unscrew bolts <2, 3, 4 and 5>.
- Pull noise insulation towards the rear and out of front bumper cover in <direction of arrows>.



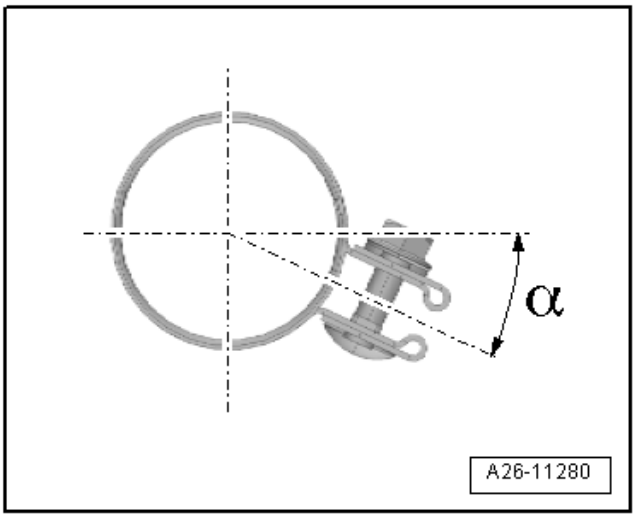
⚠ CAUTION

Do not use a grinder or similar swarf-producing tool to cut exhaust pipe.

- Cut exhaust pipe <2> using chain pipe cutter -VAS 6254- along dashed line.
  - Dimension <a> = 100mm.
- Loosen clamp <1> and push to rear. Remove exhaust pipe <2>.
- Install new Exhaust Pipe with NOx Sensor bung.
- Install new clamps.

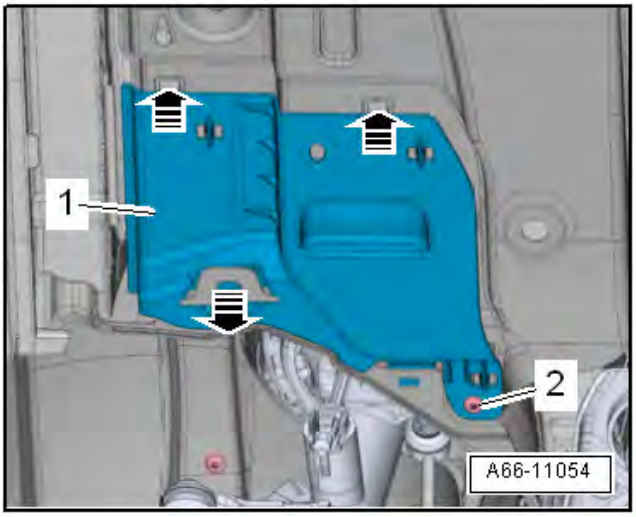


- Slide new clamps 1K0.253.141.S onto exhaust pipe.
- Position exhaust pipe so that attached arrow marking points in direction of travel and perpendicularly downwards to ground.
- Position clamps <1 and 2> longitudinally on exhaust pipe.
- When doing this, observe indented markings <arrows> on exhaust pipe.



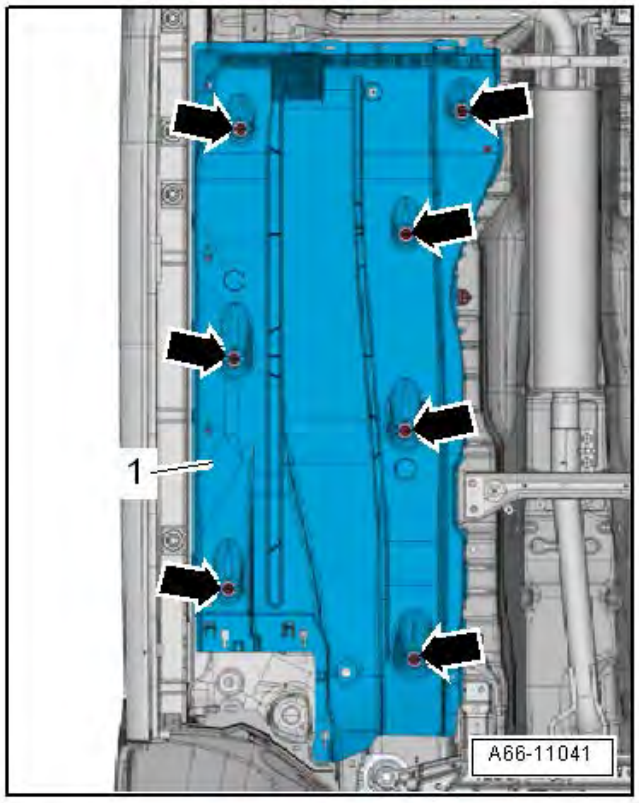
Installation position of clamp:

- Install clamp at angle shown in illustration.
  - Angle <α> = approx. 45°
  - Bolted connection facing towards right
  - Nuts may also face downwards.
- Tighten clamp nuts to 30 Nm.

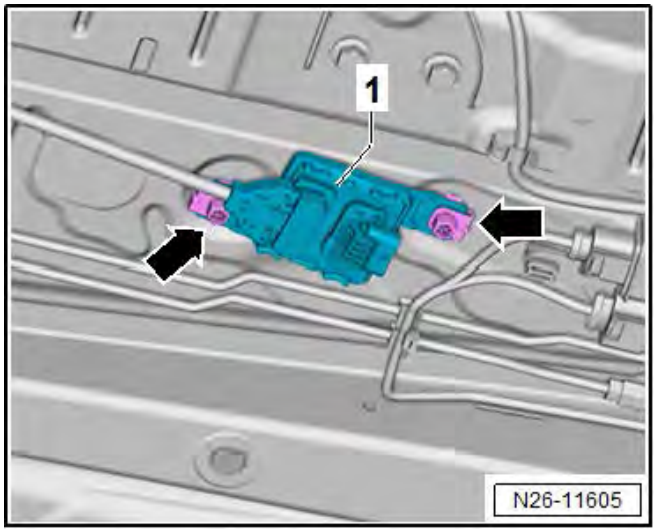


Installing NOx control unit:

- Unscrew bolt <2>.
- Release retainers <arrows>.
- Pull front underbody cladding <1> backwards to direction of travel out of fasteners.



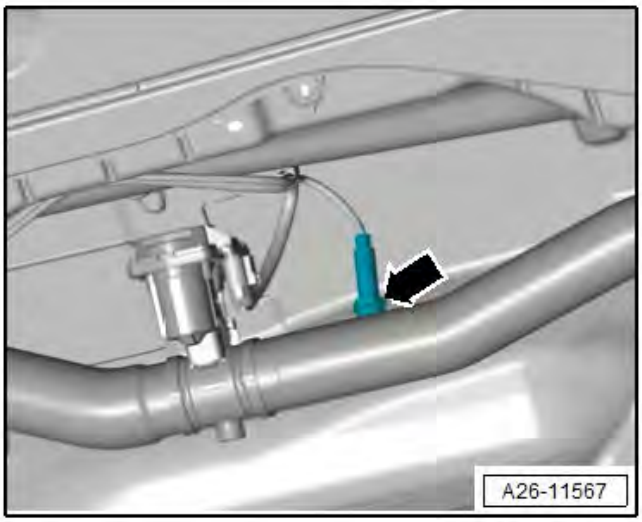
- Unscrew nuts <arrows> and remove left middle underbody cladding.



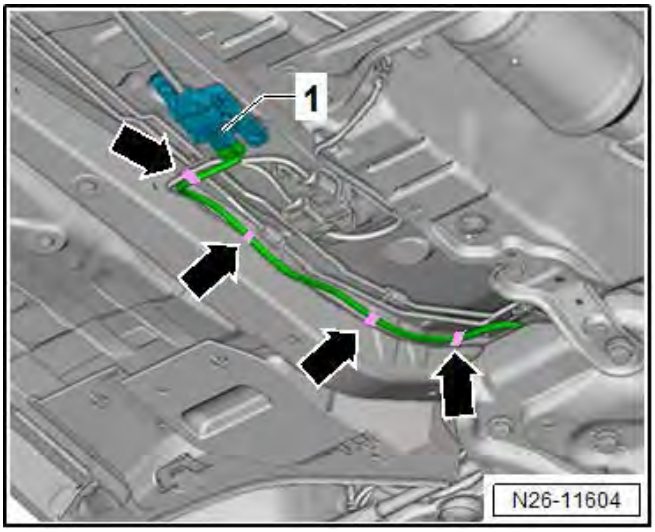
⚠ CAUTION

Cover exposed connectors and spray entire surface of control unit with wax spray D 322 100 M2 (shop supply) or equivalent. Under no circumstance may the wax spray moisten the contacts of the control unit.

- Set control unit for NOx sender 2 on welded bolts to left on underbody.
- Push on nuts <arrows> to stop.



- Screw in NOx sender 2 <arrow> and tighten to 52 Nm.
- Secure wiring in retainer clips for exhaust flap line.



- Check that all connectors are clean and blow out with compressed air as needed.
- Connect adapter wiring harness on underbody to control unit for NOx sender 2 <1>.
- Place cable ties at the points marked in color <arrows>.

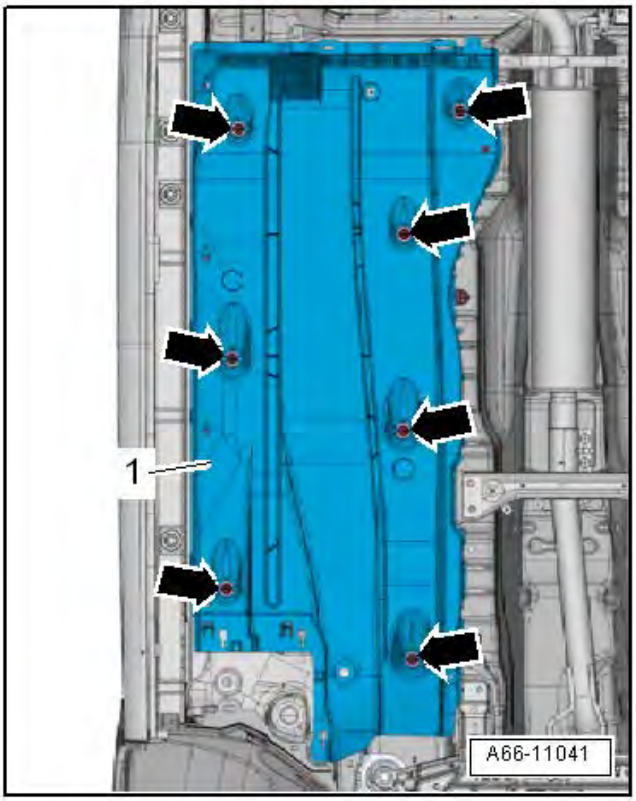
NOTE

Do not drill into the underbody cover while it is installed on the vehicle. Doing so may damage the vehicle and/or its components, which is not covered under this action.

- Prior to reinstalling the underbody panel, drill a 10 mm hole at the panel's lowest point <arrow> when oriented as shown using a 10 mm drill bit <or equivalent>.

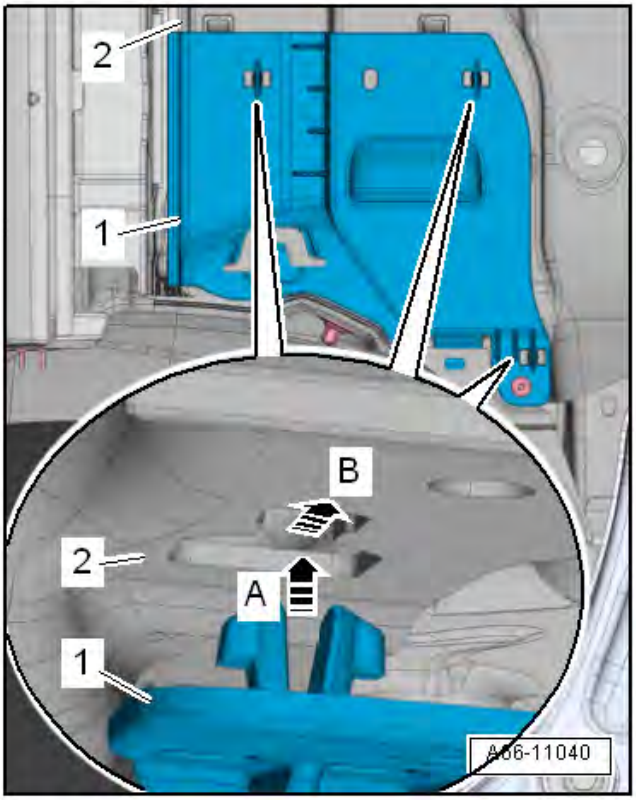
If <u>Kit 2B</u> is required by the IN-FORM tool, proceed to Section E.

If <u>Kit 2A ONLY</u> is required by the IN-FORM tool, continue work procedure.

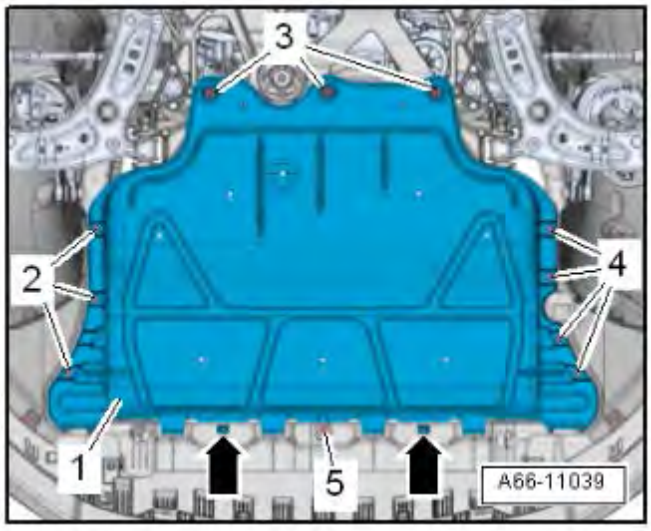


Installing underbody cladding:

- Install left middle underbody cladding and tighten nuts <arrows> to 2 Nm.

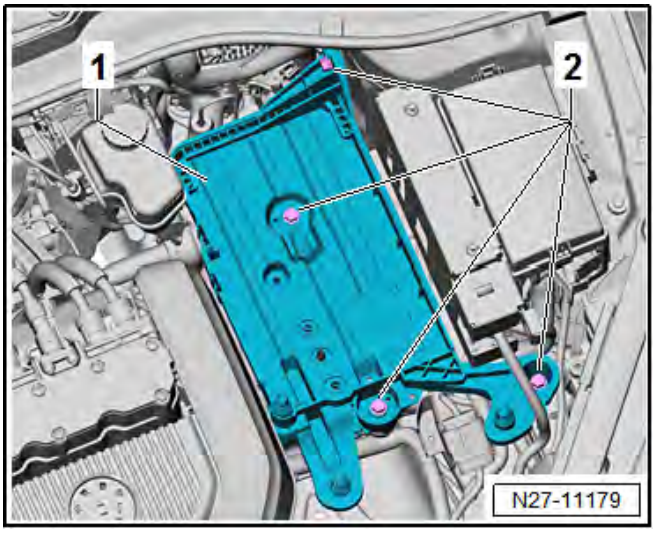


- Insert mounting for front underbody cladding <1> in opening in middle underbody cladding <2> <arrow A>.
- Push front underbody cladding forwards in direction of travel until it engages audibly <arrow B>.



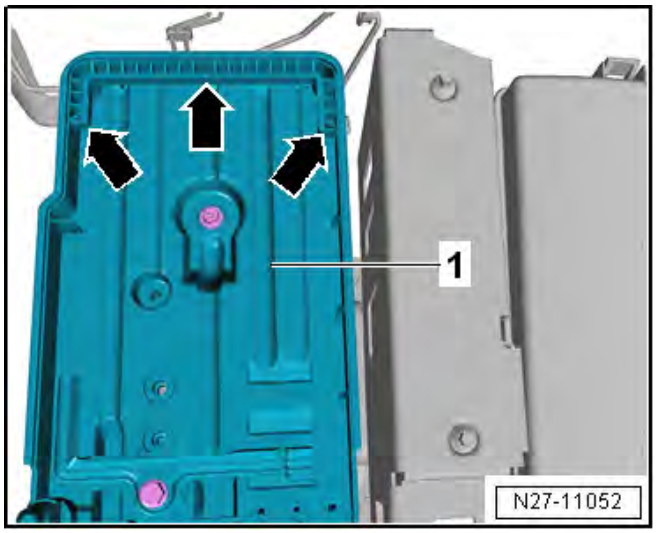
Installing noise insulation:

- Push noise insulation forward into front bumper cover at <arrows>.
- 1 - Noise insulation panel
- 2 and 4 – Bolt
  - Qty. 3 left
  - Qty. 4 right
  - 2.0 Nm
- 3 – Bolt
  - Micro-encapsulated; renew after each removal
  - Qty. 3
  - 6.0 Nm
- 5 – Bolt
  - Qty. 1 on lock carrier
  - 1 Nm

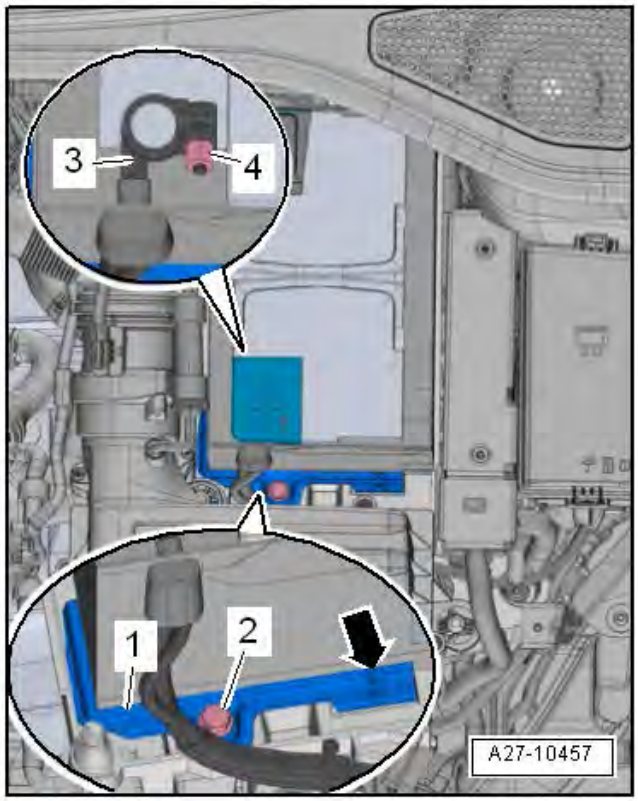


Installing battery tray:

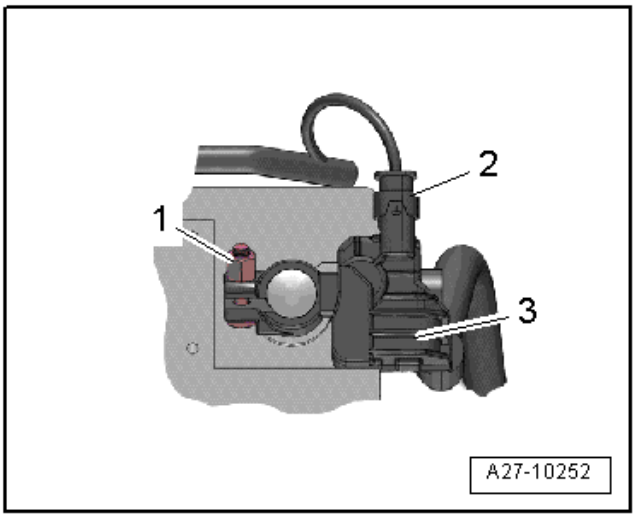
- Set battery tray <1> in place.
- Screw in bolts <2> and tighten to 9 Nm.
- Secure wiring harness on battery tray again.
- Install control unit for NOx sender in bracket on battery tray and secure with cable ties, as needed.



- Insert battery into battery tray <1> so that battery base strip lies against stop at bottom and sides <arrows>.
    - It should no longer be possible to move battery towards rear or sides.

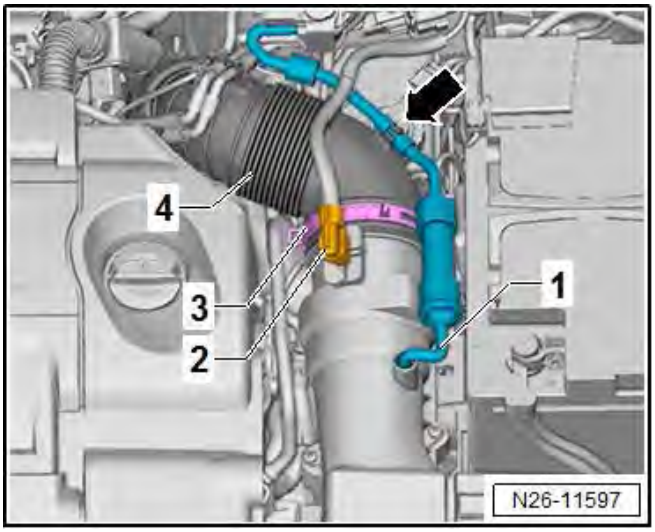


- Fit securing bracket <1>.
    - Make sure that lug <arrow> on securing bracket <1> engages into recess in battery base strip.
- Tighten bolt <2> for securing bracket <1> to 15 Nm.
- Ensure that battery is seated securely.
- With ignition and electrical equipment switched off, connect battery in the following sequence:
- Fit battery clamp <3> of positive cable to positive battery terminal “+”.
- Tighten nut <4> to 6 Nm.



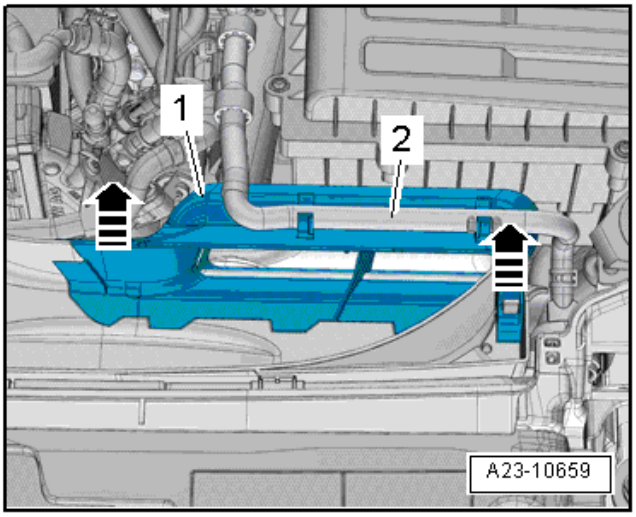
Observe the following when connecting the battery:

- If fitted, disconnect electrical connector <2> on control unit for battery monitoring -J367- <3>.
- Fit battery terminal clamp of earth cable to negative battery terminal “-” by hand.
- Tighten nut <1> to 6 Nm.
- If previously fitted, reconnect electrical connector <2> on control unit for battery monitoring -J367-.

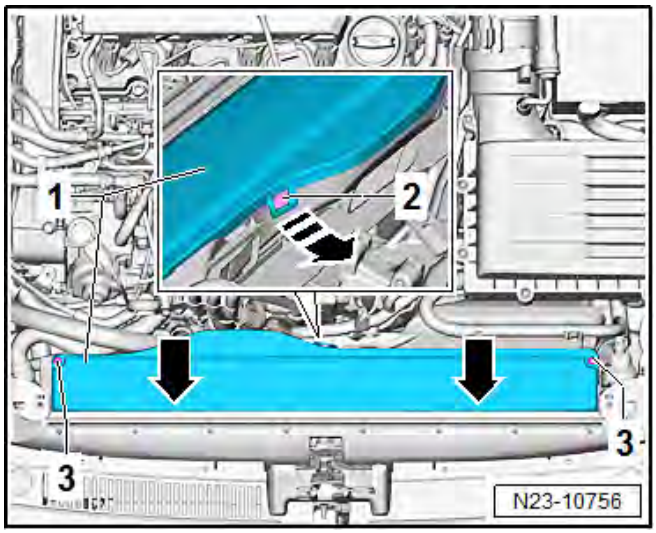


Installing air filter housing:

- Insert air filter housing and press on fasteners.
- Connect hose for warm air intake to air filter housing.
- Connect air intake hose <4> to air mas meter and secure with spring-type clip <3>.
- Connect connector <2> and secure it. Push on vacuum hose <1> and clip onto intake hose <arrow>.



- Insert upper part of air duct <1> and push opposite <direction of arrow> into fasteners.



- Set cover <1> in place and push opposite <direction of arrow> into fasteners <2>.
- Tighten bolts <3> to 2 Nm.

- Switch on ignition.
- Check time and adjust, if necessary.
- Completely open windows, and then completely close them.
- Then, with windows closed, pull window regulator switches until relay can be heard to switch.
- Check convenience mode of the window regulators.
    - With convenience closing activated, windows must close fully without the need for holding the window regulator switch.

NOTE

After the voltage supply has been switched back on, the vehicle must travel several meters before the ESP warning lamp goes out.

If vehicle REQUIRES installing Emissions Control Module (Kit 2B):

- **Proceed to Section E**

If vehicle DOES NOT REQUIRE replacement of Emissions Control Module (Kit 2B) at this time:

- **Proceed to Section F for Software Flash**

Section E – A3 - Install 2.0L Gen 3 Phase 2B Kit (Emissions Control Module)

NOTE

RISK of Non-payment!

Determining whether or not to install 2.0L Generation 3 Phase II A and/or B is dependent on the specific history and current mileage of the vehicle. **You MUST refer to the IN-FORM tool to identify if one (Kit 2A only) or both (Kit 2A+2B) Kits are needed!** Installing Kit B when only Kit A is needed will result in claim cancellation. Dealers WILL NOT BE COMPENSATED for this error.

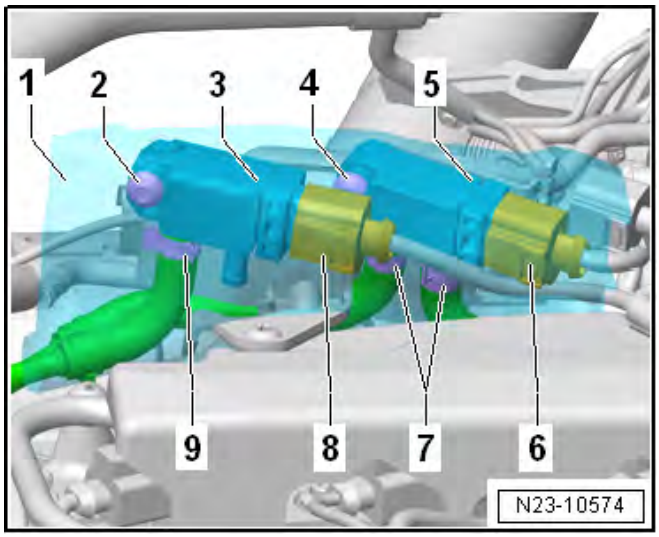
NOTE

STOP!

IMPORTANT!

The following labor operations **MUST be followed IN THE ORDER WRITTEN** using care during removal/reinstallation, handling, and storage of various components to avoid potential damage. The **Exhaust Pressure Sensors, Reducing Agent Injector, Exhaust Temperature Sensors**, etc. **ARE FRAGILE** and can be damaged if proper order of procedures are not followed, excessive or unnecessary force is used, or improper handling or storage techniques are utilized.

- If not already removed at this time, remove the airbox, battery, battery tray, and lower noise insulation.

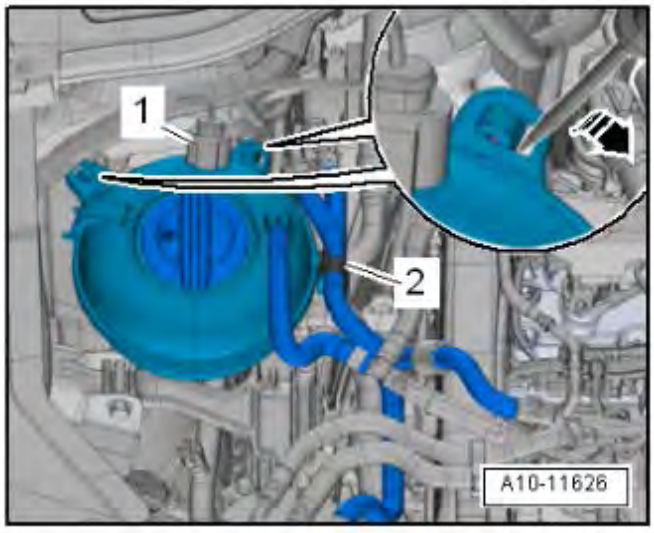


NOTE

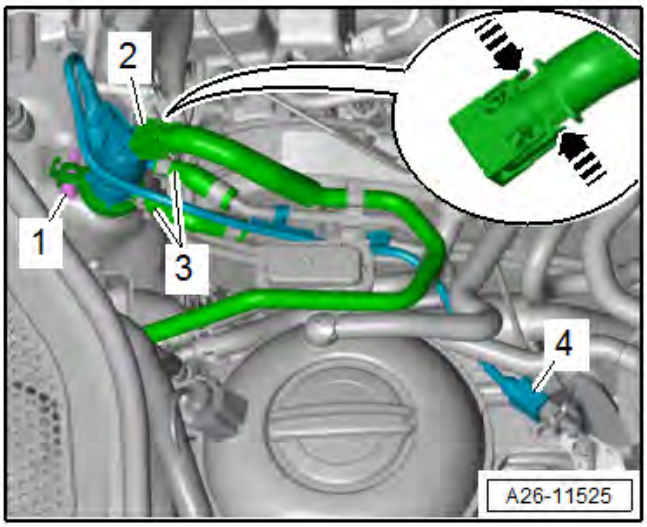
STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

- Open the heat shield boot <1>.
- Disconnect the connector <8>.
- Remove the bolt <2> and gently detach the Differential Pressure Sensor -G505- <3> from the mounting bracket. Let the sensor hang freely.
- Disconnect the connector <6>.
- Remove the bolt <4> and gently detach the Exhaust Pressure Sensor 1 -G450- <5> from the mounting bracket. Let the sensor hang freely.
- Remove the mounting bracket fastener/s.
- **DO NOT remove** the pressure sensors from the tubes or remove the clamps <7 and 9>.
- You will be instructed to remove the sensors, mounting bracket, and pipes as an assembly later in this work procedure.



- Release the retainers with a screwdriver in direction of <arrow> and move the coolant expansion tank to the side.



NOTE

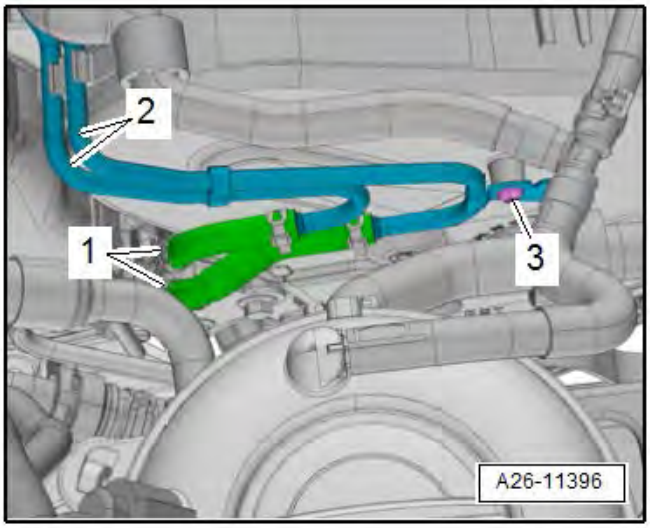
STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

- Loosen the hose clamp <1>.
- Free up the coolant line <3> and the selective catalytic reduction lines <2>.
- Remove the Reducing Agent Injector -N474- and secure it safely out of the way with a tie strap (or equivalent).

NOTE

It is not necessary to disconnect the Reducing Agent Injector lines, coolant lines, or unplug the electrical connector. Remove the Reducing Agent Injector from the Emissions Control Module with all lines and connections attached, and secure it out of the way.



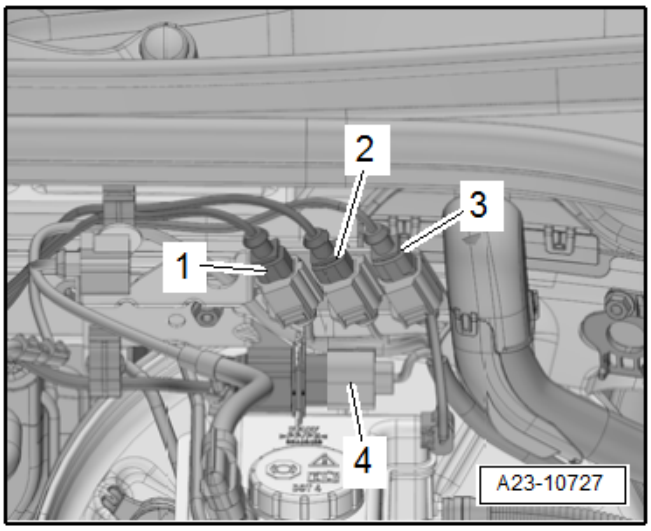
NOTE

STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

The Differential/Exhaust Pressure Sensor fasteners and mounting bracket fastener/s must be removed before removing the pressure sensor pipes.

- Remove the bolt <3>.
- Loosen the clamps <1> and remove the hoses from the pipes.
- Unclip the pipes <2> and remove the Differential Pressure Sensor -G505-, Exhaust Pressure Sensor 1 -G450-, mounting bracket, and pipes as an assembly.
- Set the assembly aside in a clean, safe place.



EGT and O2 Connector Locations:

- Remove the connectors <1, 2, 3, and 4> and free up the wires from the retaining brackets and clips for:
  - **Exhaust Gas Temperature Sensor 4 -G648-. (Tan connector, sensor has no bend)**
  - **Exhaust Gas Temperature Sensor 3 -G495-. (Brown connector, sensor has 90 deg. bend)**
  - **Exhaust Gas Temperature Sensor 2 -G448-. (Black connector, sensor has 120 deg. bend)**
  - Oxygen Sensor 1 before Catalytic Converter -GX10- <4>.

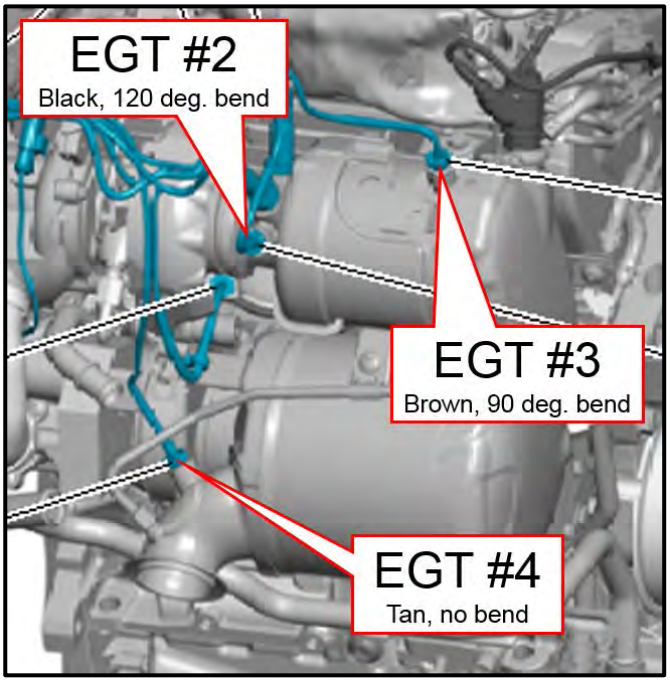
NOTE

EGT #4 -G648-, EGT #3 -G495-, and EGT #2 -G448- may be located in any of the three available locations shown, <1, 2, or 3>. Mark the locations at this time.

EGT #4: Tan connector, no bend in sensor

EGT #3: Brown connector, 90 deg. bend in sensor

EGT #2: Black connector, 120 deg. bend in sensor

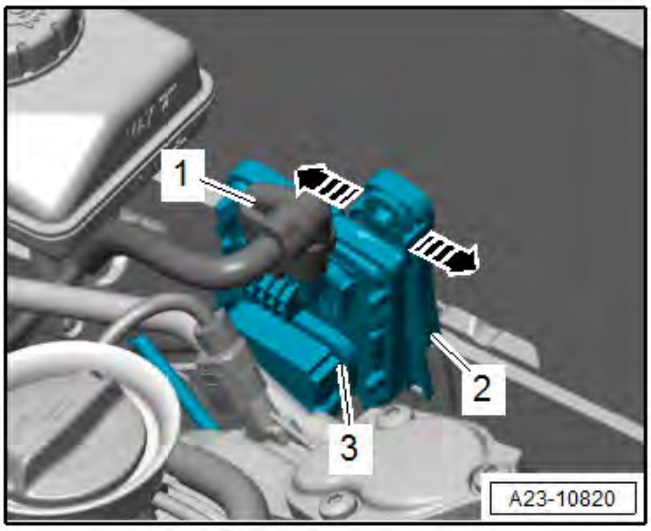


EGT Orifice Locations on Emissions Control Module:

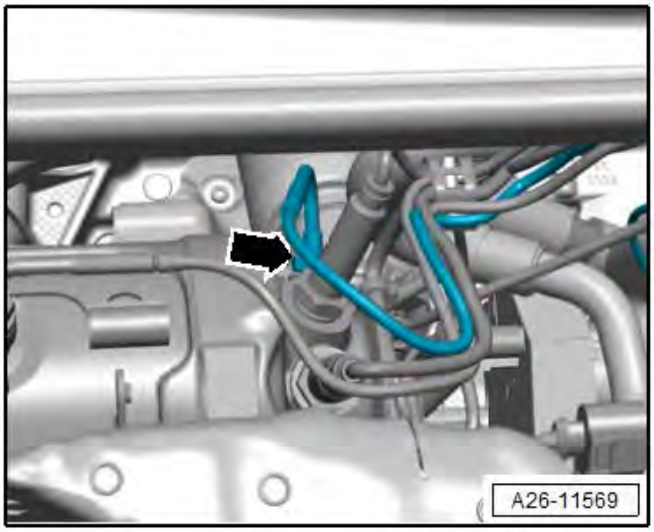
- EGT #4: **Tan connector, no bend in sensor**
- EGT #3: **Brown connector, 90 deg. bend in sensor**
- EGT #2: **Black connector, 120 deg. bend in sensor**

NOTE

EGT #4 -G648-, EGT #3 -G495-, and EGT #2 -G448- must be returned to their correct, corresponding threaded orifice locations in the Emissions Control Module as shown, or DTC's regarding catalyst efficiency and/or EGT Sensors will be set.



- Release the retainers in direction of <arrow>, remove the NOx Sensor Control Module -J583- <3> from the bracket and place on the engine.



NOTE

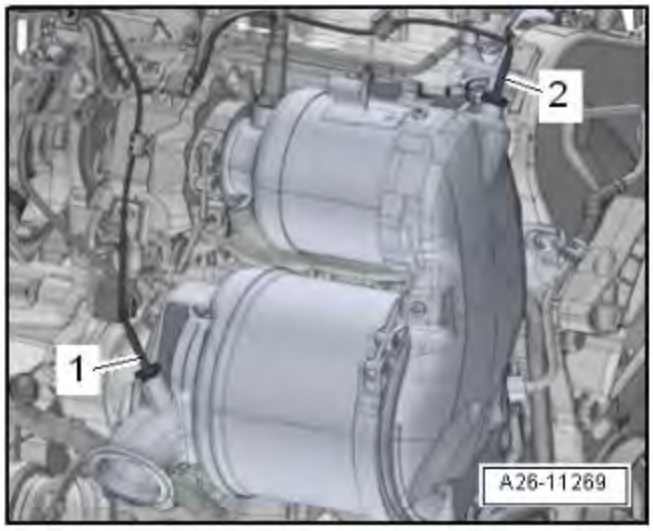
STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

- Remove the following sensors from the Emissions Control Module with a tool from the -T10395A- and set the sensors aside in a clean, safe place:
  - Oxygen Sensor 1 before Catalytic Converter -GX10-
  - NOx Sensor -G295-
  - Exhaust Gas Temperature Sensor 2 -G448- <arrow>. **(Black connector, sensor has 120 deg. bend**

NOTE

It may difficult to remove the Exhaust Gas Temperature Sensor 2 -G448- <arrow> with the turbocharger to Emissions Control Module clamp in place. If necessary, remove the clamp at this time, or the Exhaust Gas Temperature Sensor 2 -G448- may also be removed just prior to Emissions Control Module removal later in this procedure.

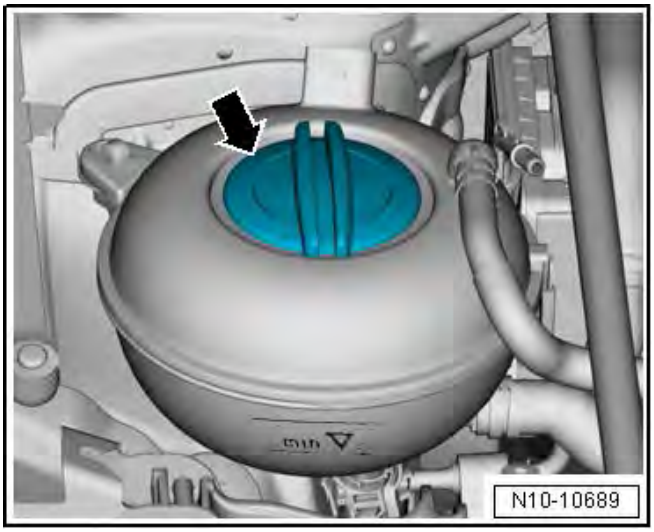


NOTE

STOP! STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

- Remove the Exhaust Gas Temperature Sensor 3 -G495- <2> **(Brown connector, sensor has a 90 degree bend)** with a tool from the -T10395A- and set the sensor aside in a clean, safe place.



- Open the coolant reservoir cap <arrow>.

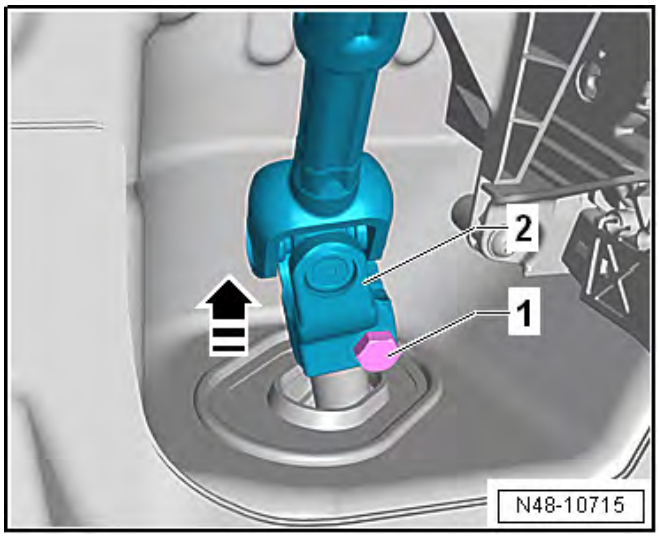
- Turn the steering wheel to the straight ahead position and remove the ignition key so that the steering wheel lock engages.

Vehicles with "Keyless Access" Keyless Locking and Starting System:

- Switch the ignition off and open the driver door so the steering wheel lock engages.

Continuation for all Vehicles:

- Remove the bolts <arrows> and remove the footwell trim panel.



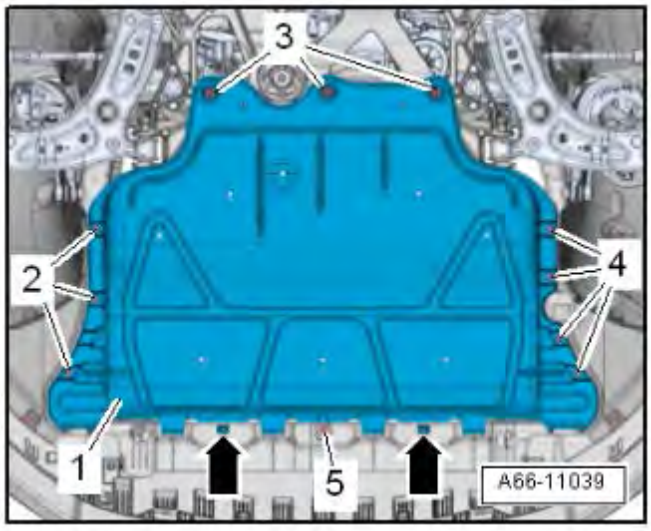
- Remove the bolt <1> from the universal joint <2>. Then remove the universal joint in direction of <arrow>.

⚠ CAUTION

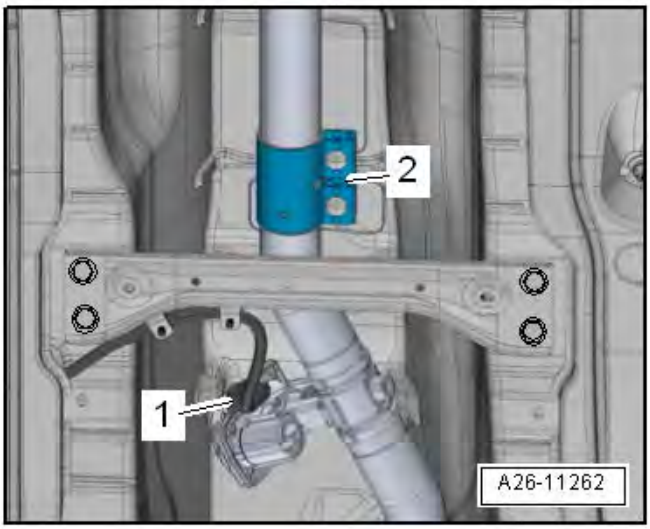
If the universal joint is separated from the electromechanical steering gear, the following work cannot be performed:

- Ignition switched on.
- Turning the steering gear.
- Turning the steering column.

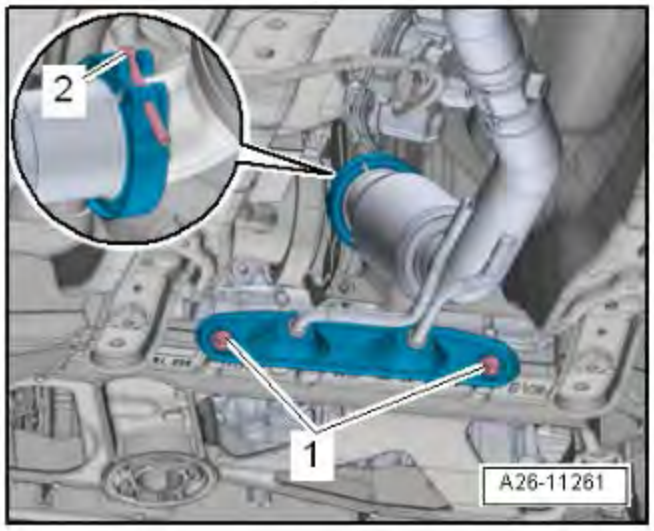
These points must be observed, because otherwise it can cause irreparable damage.



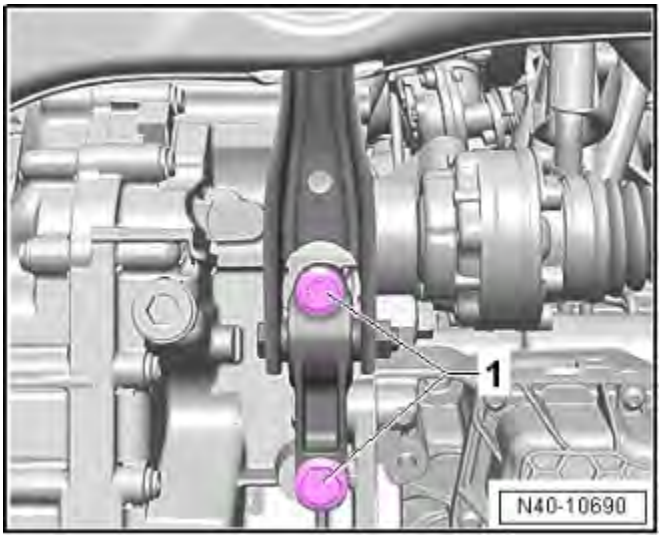
- Raise the vehicle on hoist.
- Remove the front wheels.
- Remove the noise damping panel <1> by removing screws <2, 3, 4 and 5>.
- Pull noise insulation towards the rear and out of front bumper cover in <direction of arrows>.



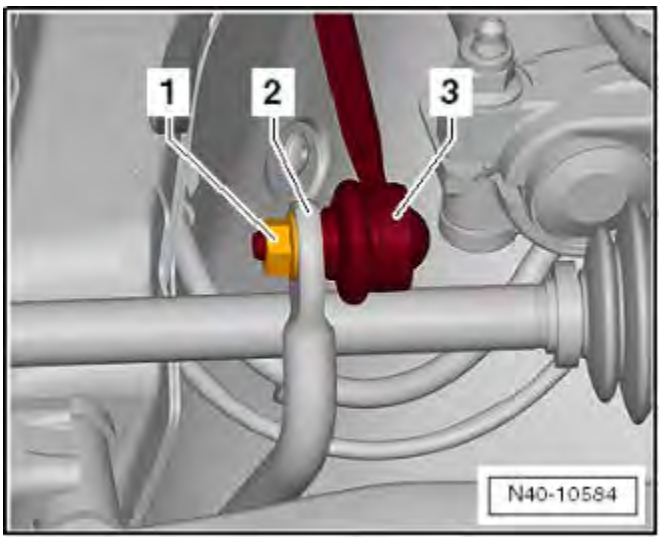
- Disconnect the connector for the exhaust flap <1>.



- Remove the front exhaust pipe bolts <1>.
- Loosen the bolt <2> and remove the clamp.
- Remove the front exhaust pipe.



- Remove the pendulum support bolts <1>.

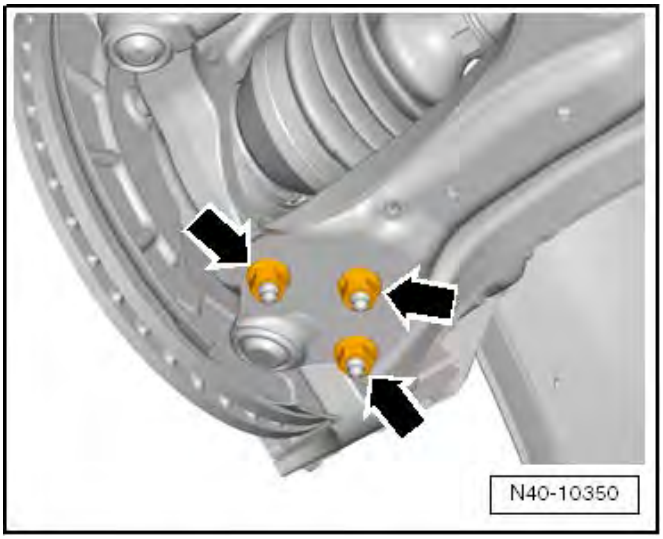


- Remove the hex nut <1> from the right and left coupling rod <3>.
- Remove the coupling rod <3> from the stabilizer bar <2> on the left and right sides.

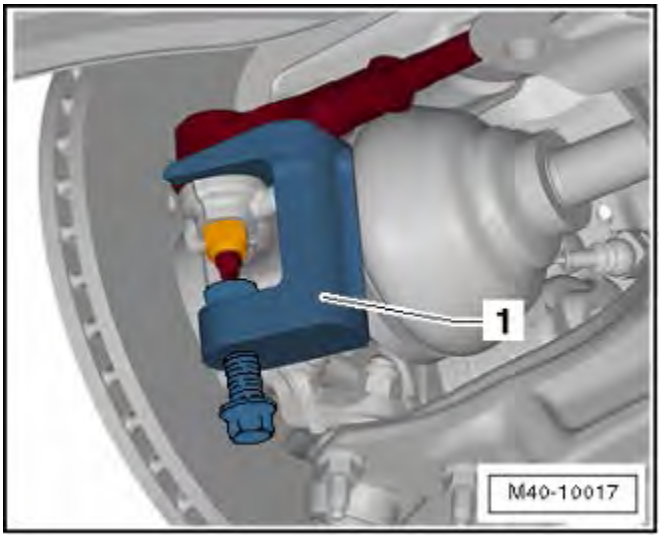
- Mark the nuts for the ball joint to lower control arms with a paint pin to reference the existing alignment condition.

TIP

The current alignment condition can be documented by marking the location of the nuts <arrows> on the control arm. By doing this and using the subframe locating pins, it is not necessary to align the vehicle as a condition of this repair. Vehicle alignments are not covered under this action.



- Remove the nuts <arrows> on the left and right side of the vehicle.
- Remove the control arm from the ball joint.

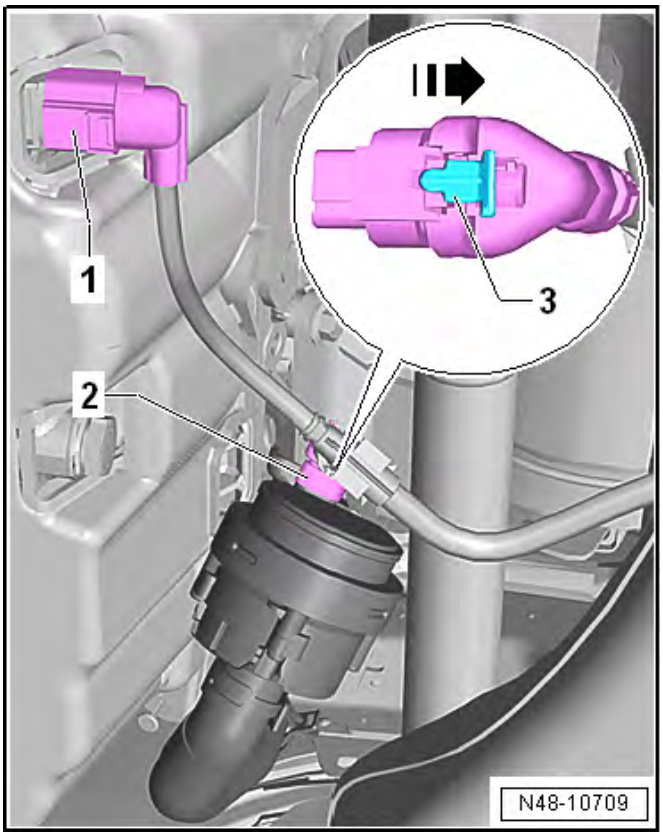


- Loosen the nut from the tie rod end, but do not unscrew yet.

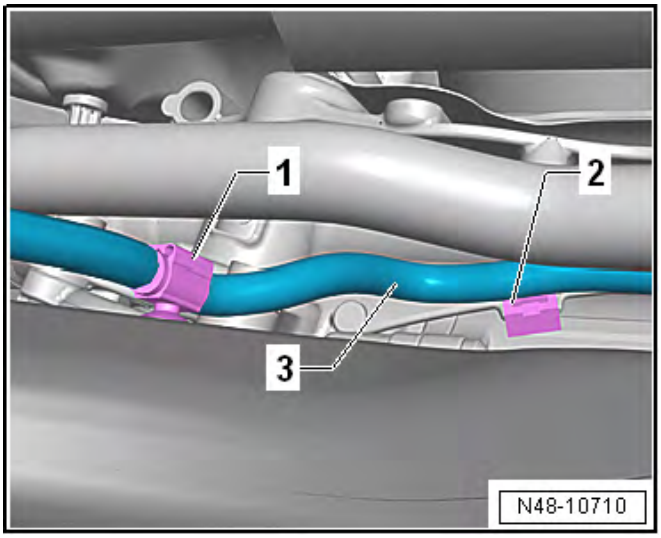
CAUTION

To protect the thread, screw the nut onto the pin a few turns.

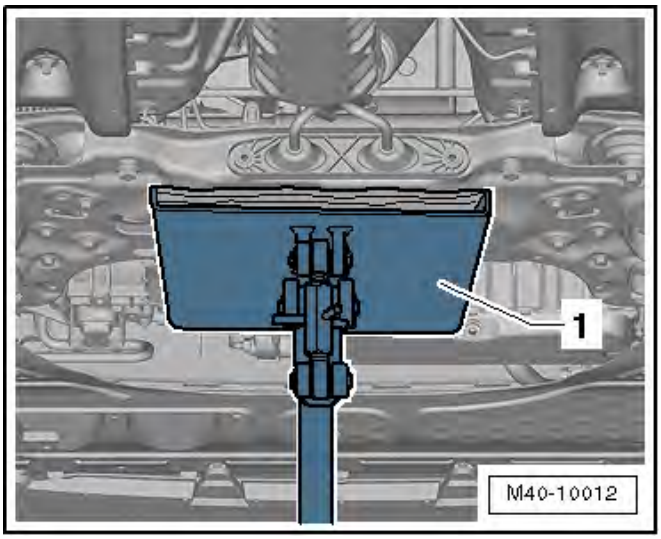
- Remove the tie rod end from the wheel bearing housing using the -T10187- <1> and remove the nut.



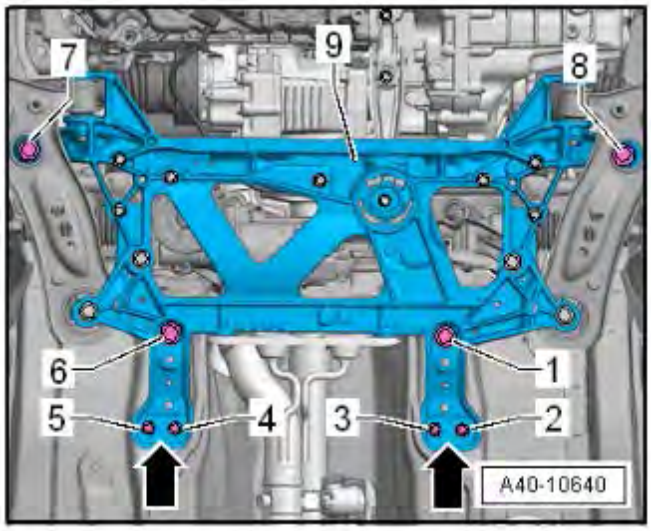
- Disconnect the connector <1> for the Oil Level Thermal Sensor -G266-.
- If equipped, disconnect the connector <2> from the After-Run Coolant Pump -V51-. To do so, open the catch <3> in the direction of the <arrow> and release the connector.



- Remove the clips <1 and 2> for the wiring harness <3> from the subframe and the steering gear.



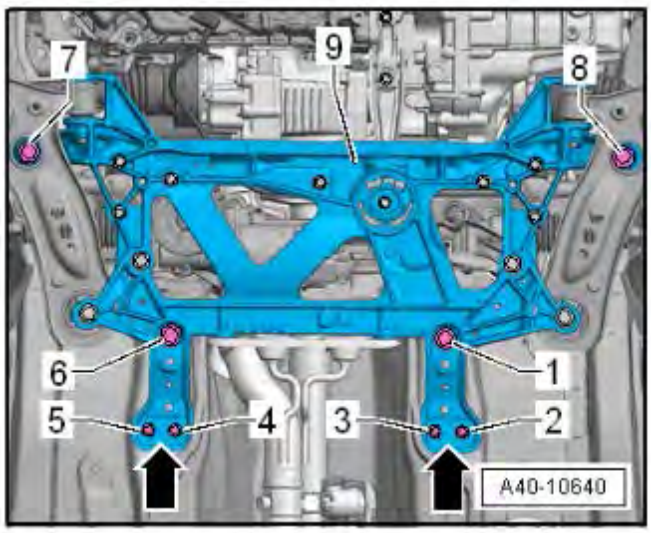
- Place the Engine and Gearbox Jack -VAS6931- <1> under the subframe.



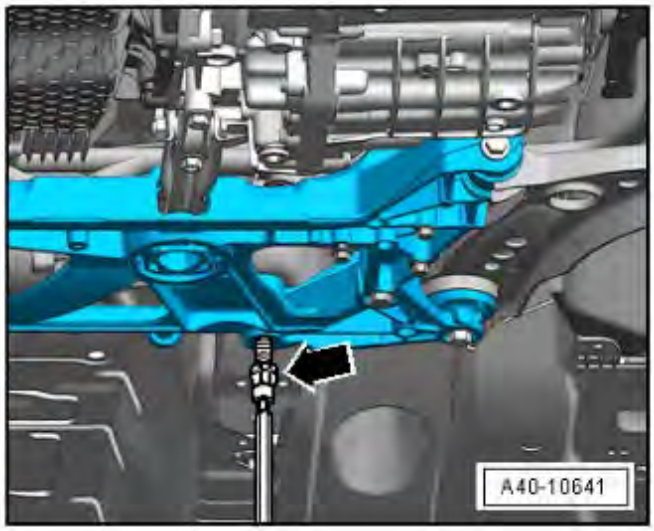
- To secure the subframe, the Locating Pins -T10486/1- must be installed at the positions <1, 6, 7 and 8> one after the other.

NOTE

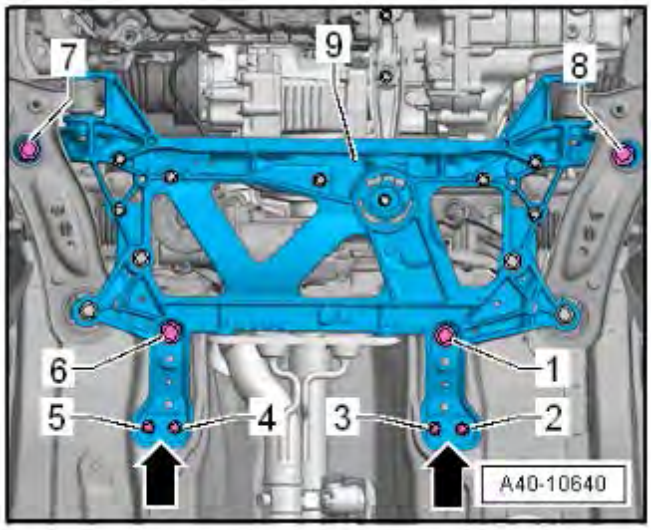
The Locating Pins -T10486/1- may only be tightened to a maximum of 20 Nm, since otherwise the locating pin threads will be damaged.



- Remove the bolts <2 and 3>.
- Remove the bolt <1> and the support <arrow>.

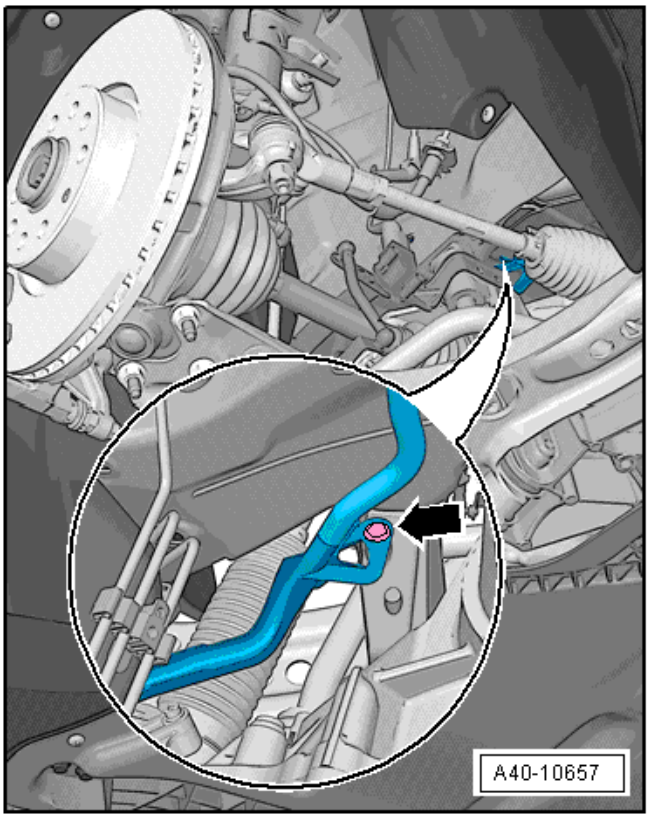


- Insert the Locating Pin -T10486/1- <arrow> and tighten to 20 Nm.

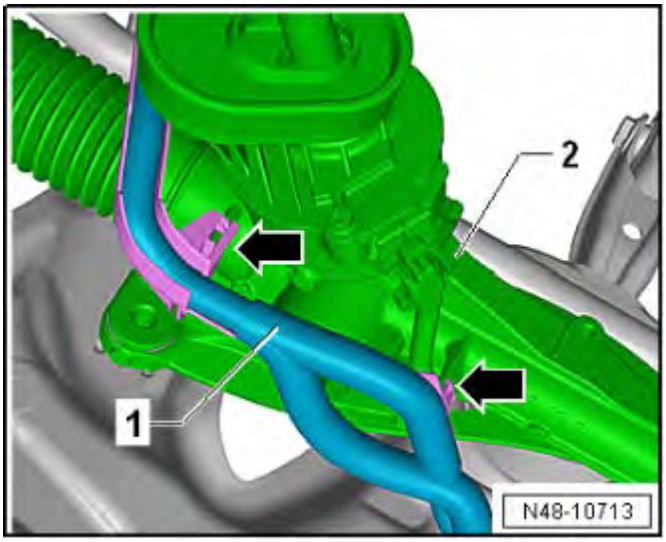


- Remove the bolts <4 and 5>.
- Remove the bolt <6> and the support <arrow>.
- Insert the Locating Pin -T10486/1- into bolt location <6> and tighten to 20 Nm.
- Remove the bolt <8>.
- Insert the Locating Pin -T10486/1- into bolt location <8> and tighten to 20 Nm.
- Remove the bolt <7>.
- Insert the Locating Pin -T10486/1- into bolt location <7> and tighten to 20 Nm.

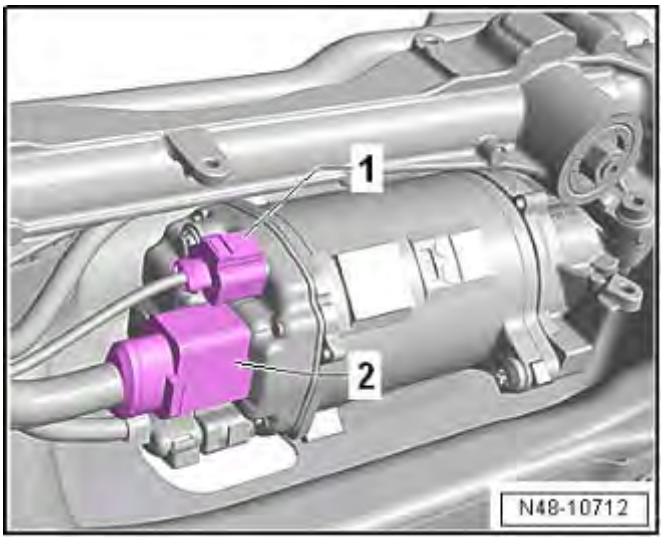
The subframe position is now secured.



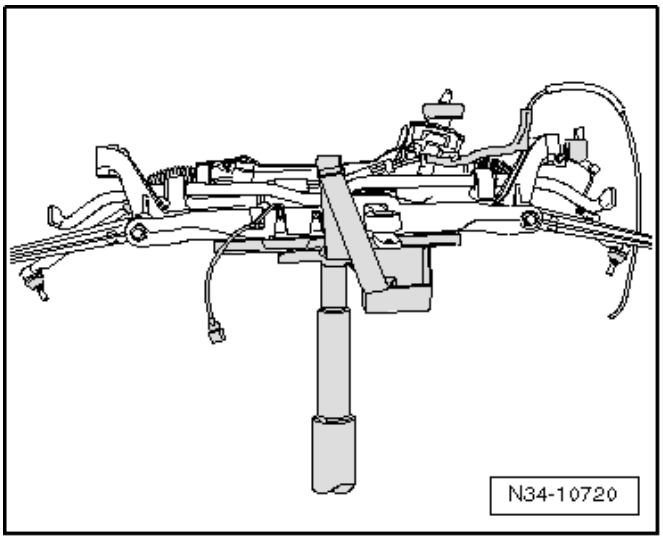
- Remove the expanding clip <arrow>.
- Lower the subframe using the Engine and Gearbox Jack -VAS6931-.



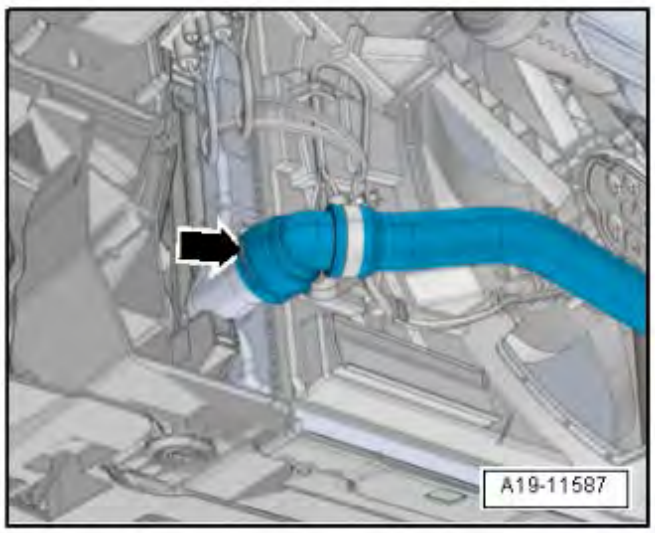
- Unclip the wiring harness <1> from the steering gear <2> at the locations shown <arrows>.



- Disconnect the connectors <1 and 2> from the steering gear from underneath.



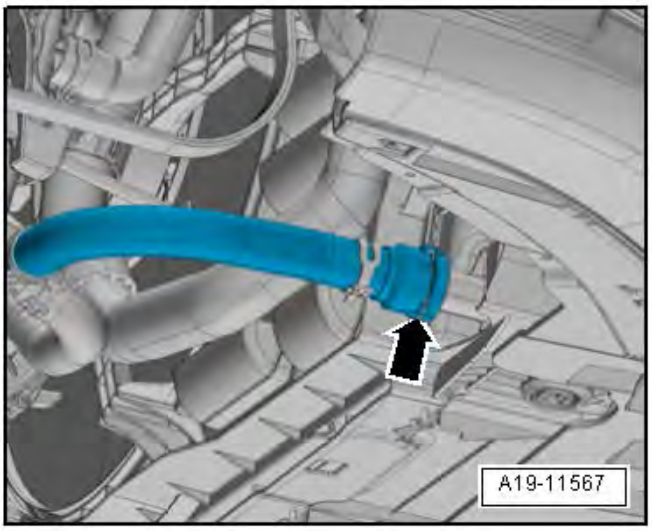
- Secure the subframe to the Engine and Gearbox Jack -VAS6931- with the accompanying strap.



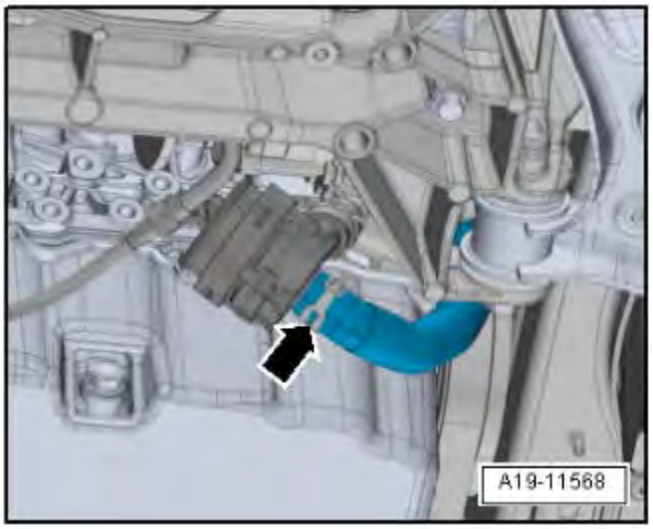
- Lift the clamp <arrow> and remove the lower left coolant hose from the radiator.
- Allow the coolant to drain.

NOTE

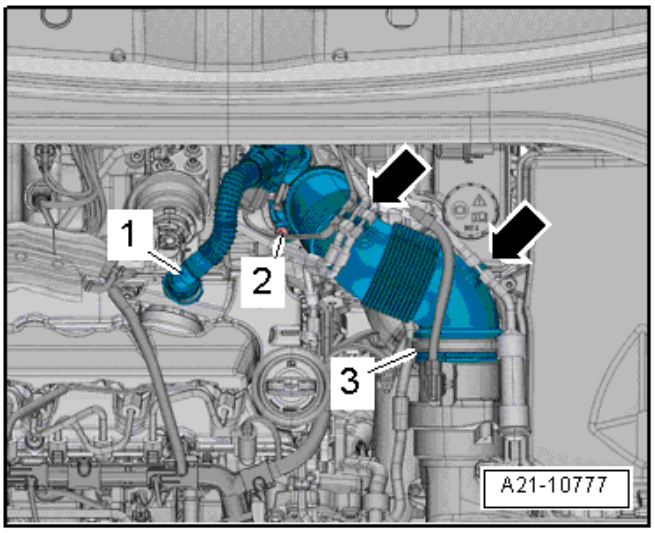
The work instruction step for removal of the coolant reservoir cap occurred earlier in this work instruction. If it was not removed at that time, remove the coolant reservoir cap before opening the clamp and removing the hose.



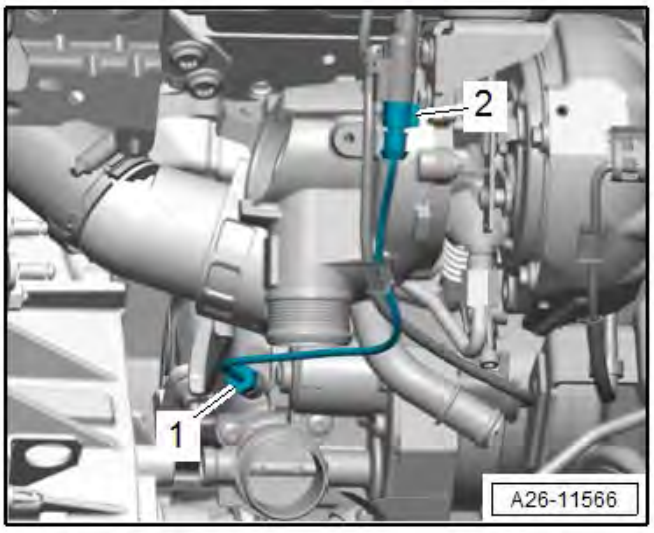
- Lift the clamp <arrow> and remove the lower right coolant hose from the charge air cooling circuit radiator.
- Allow the coolant to drain.



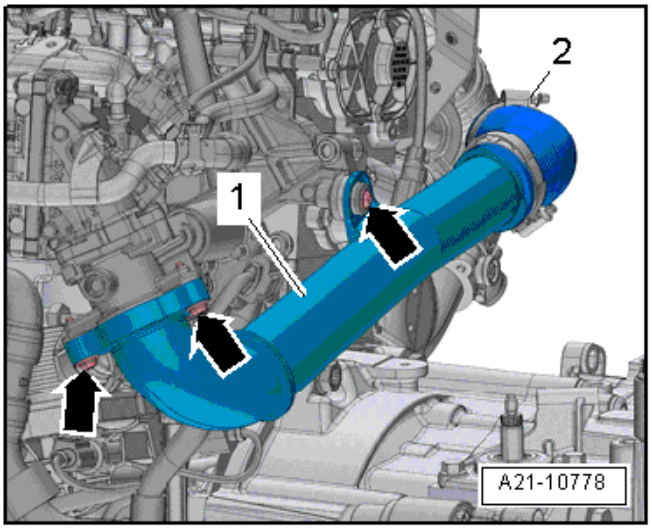
- Loosen the hose clamp <arrow> and remove the lower coolant hose to the Heater Support Pump -V488-.
- Allow the coolant to drain.



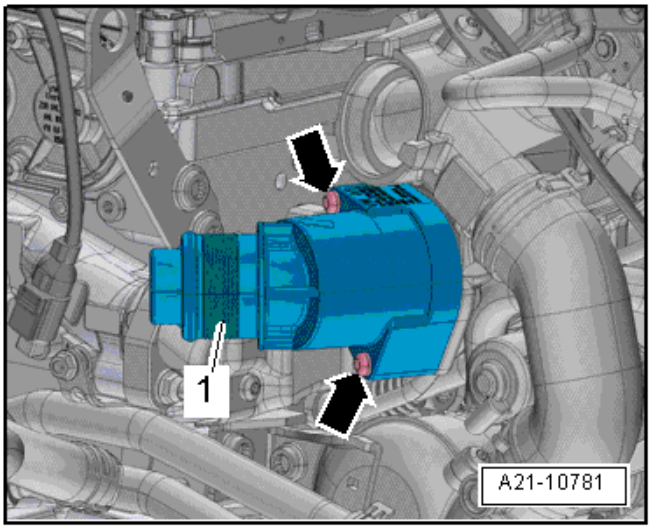
- Do not open the crankcase ventilation hose connection <1>. Only the other side of the hose connection may be opened.
- Free up the vacuum hose on the air guide pipe <arrows>.
- Remove bolt <2> and tilt the air guide pipe with the intake tube backward and remove from the turbocharger.



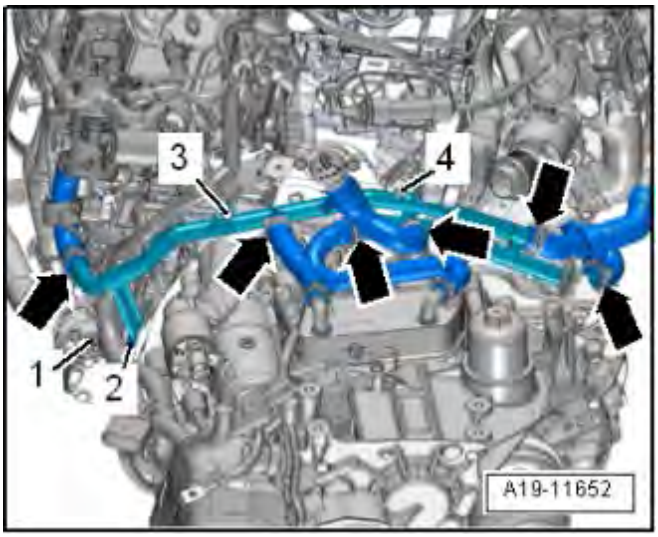
- Remove the <brown> connector <2> for the EGR Temperature Sensor from the bracket, disconnect it and free up the wire. It is not necessary to remove the sensor from the EGR cooler.



- Remove the bolts <arrows>.
- Loosen the clamp <2> and remove the air duct pipe <1>.



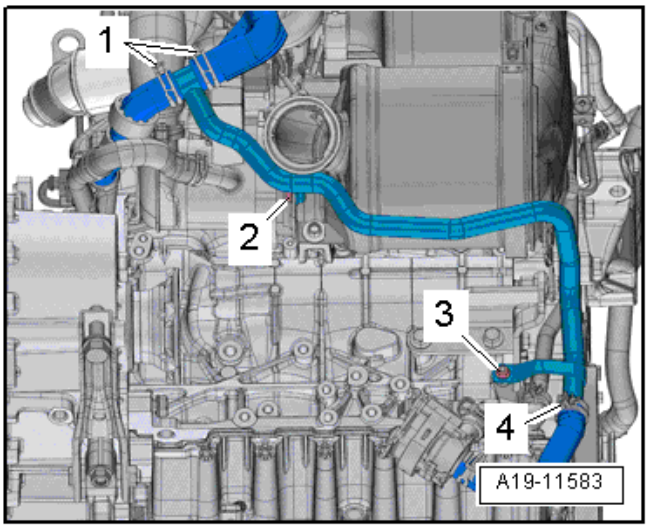
- Remove the bolts <arrows> and the resonator <1>.



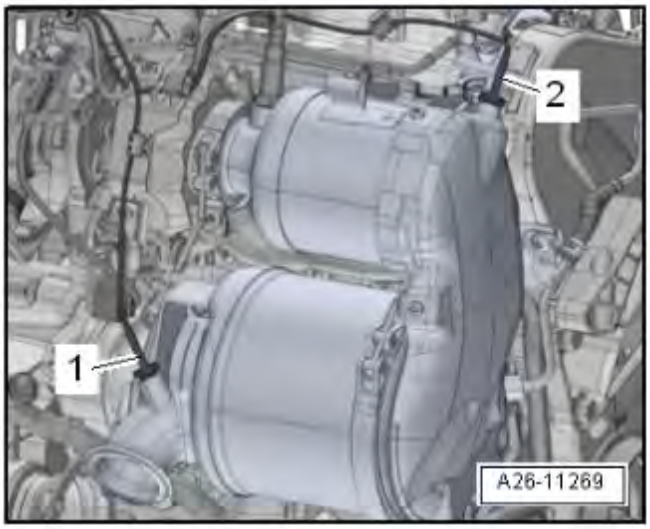
- Free up the wiring harness <1>.
- Remove the nut <4> and bolts <2 and 3>.
- Loosen the hose clamps <arrows> and remove the coolant hoses.
- Remove the left coolant pipes.

NOTE

Disconnect the coolant hoses at the cooler. It is not necessary to remove each clamp, as the coolant tubes can be removed as an assembly.



- Loosen the clamp <4>, remove the coolant hose and drain the coolant.
- Loosen the hose clamps <1> and remove the coolant hoses.
- Remove the nut <3> and bolt <2> and remove the rear coolant pipe.

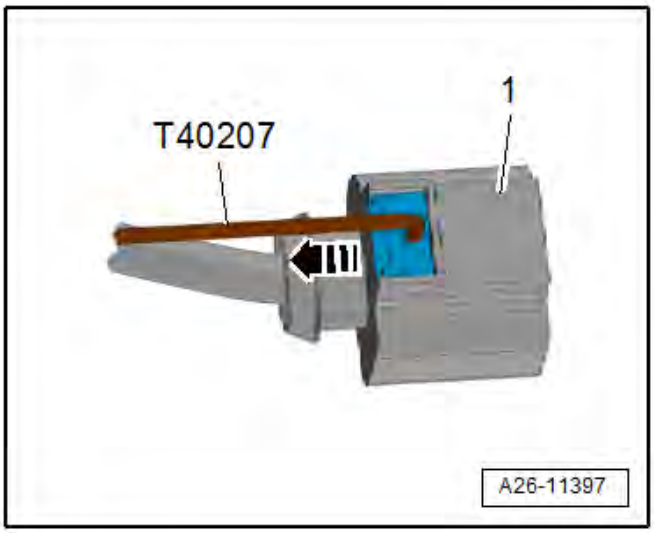


NOTE

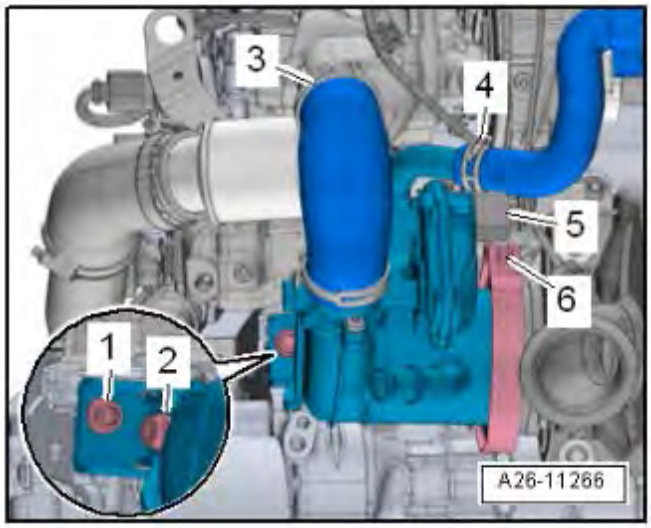
STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

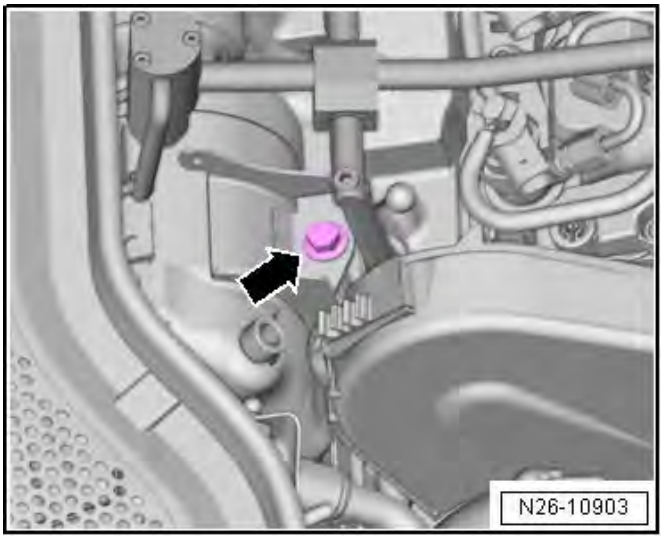
- Remove the Exhaust Gas Temperature Sensor 4 -G648- <1> **(Tan connector, sensor has no bend)** with a tool from the -T10395A- and set the sensor aside in a clean, safe place.



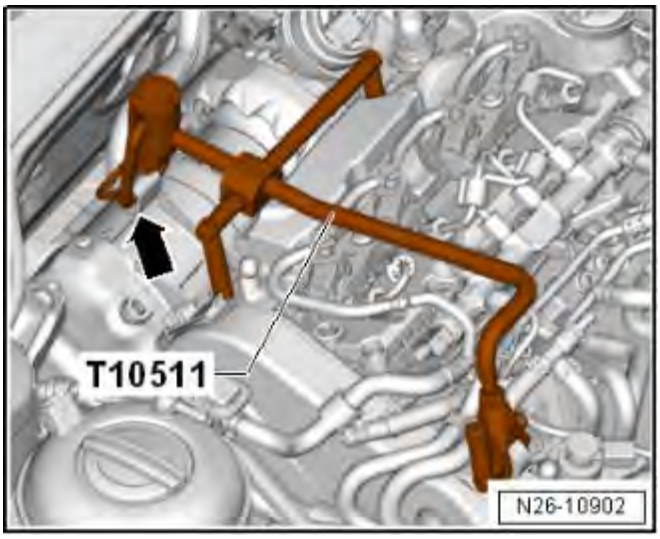
- Use the -T40207- to disconnect the connector <5> in illustration “A26-11266” (see next step). Disconnect the securing pin on the connector housing <1> in direction of <arrow>.



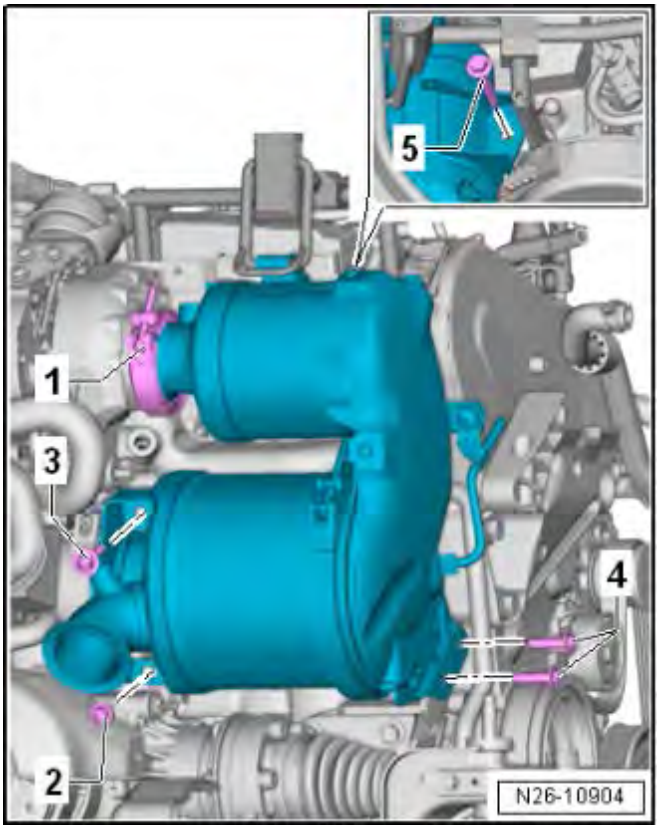
- Push the heat shield boot aside, and disconnect the connector <5> using the -T40207-.
- Loosen the clamp <3> and remove the air guide hose.
- Loosen the clamp <4> and remove the coolant hose.
- Loosen the bolt <6>, remove the screw clamp, and push the screw clamp towards the particulate filter.
- Remove the bolt <1> using the -T10501-, and loosen bolt <2>.
- Remove the EGR cooler.



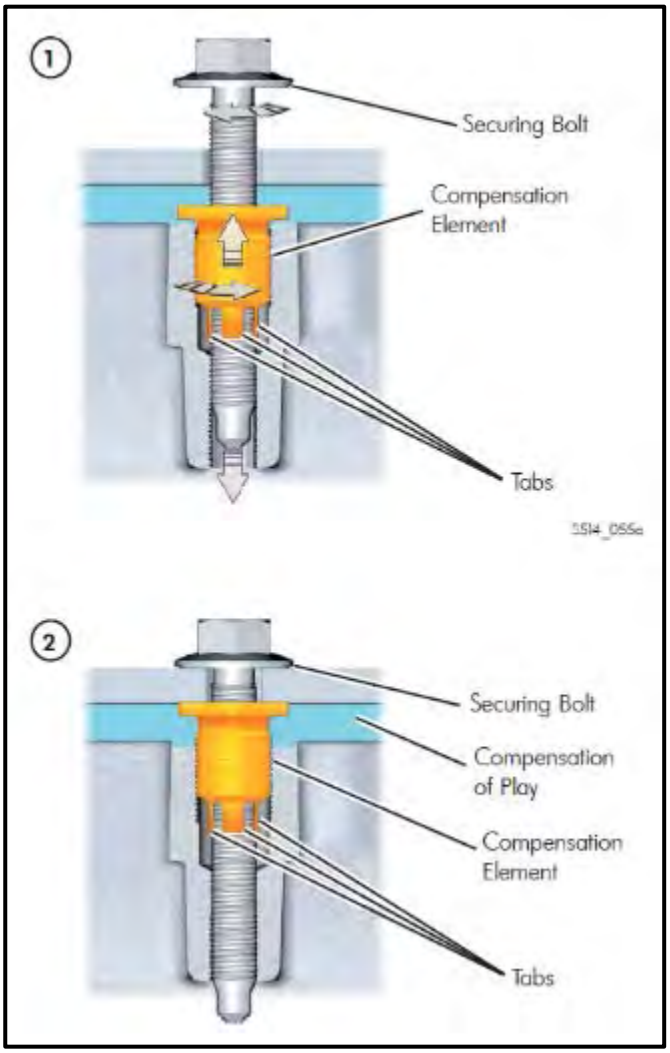
- Remove the bolt <arrow>.



- Place the -T10511- on the cylinder head cover bolt heads and engage the retaining bracket <arrow> in the emissions control module mounting strap.



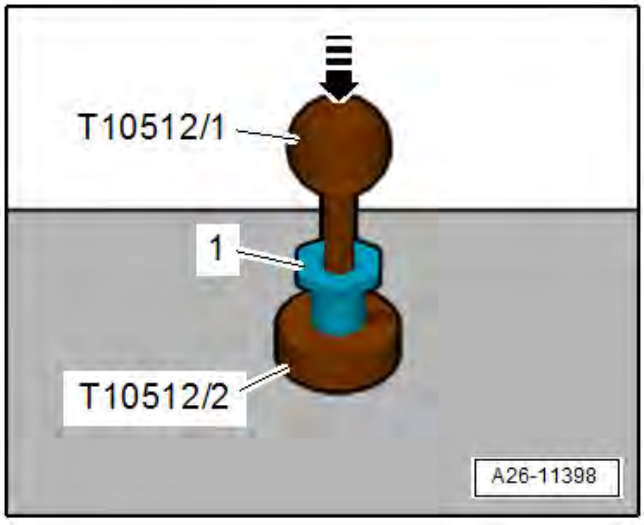
- If not previously removed, open the clamp <1> and position on the emissions control module entrance funnel.
- If not previously removed, remove the Exhaust Gas Temperature Sensor 2 -G448- **(Black connector, sensor has 120 deg. bend)** with a tool from the -T10395A- and set the sensor aside in a clean, safe place.
- Remove the rest of the bolts in the order <4, 3 and 2>.
- Pivot the lower emissions control module away from the engine and push upward.
- Pull the retainer out of the emission control module bracket and remove emission control module downward.



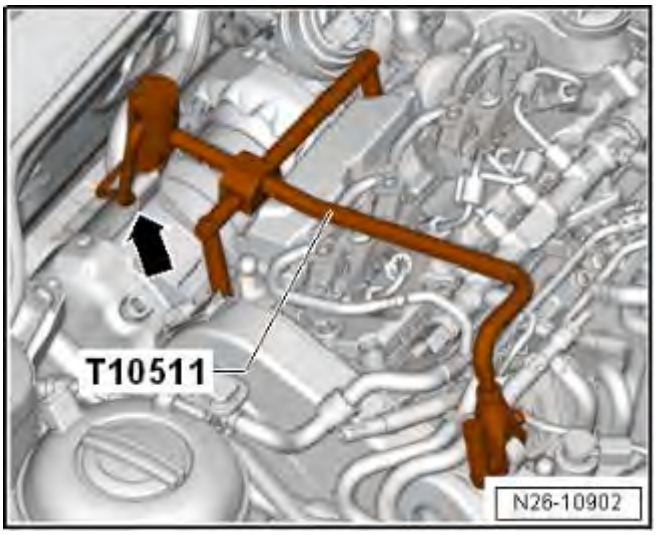
NOTE

The compensation element has an internal and external thread. The external thread is a left-hand thread. The internal thread is a right hand thread.

- First, the compensation element is screwed into place.
- When the securing bolt is screwed into compensation element, the compensation element turns due to the friction on the tabs.
- Because of the external left-hand thread, the compensation element turns in the opposite direction when the securing bolt is tightened.
- This moves the compensating element up, removing the play between exhaust purification module and the engine.



- Bring the retaining tabs as follows with the -T10512/1-2- to the functional dimension.
  - Slide the compensation element <1> onto the -T10512/1-.
  - Insert the compensation element <1> into the -T10512/2-.
  - Bend back the retaining tabs by lightly hitting <arrow> the ball head with the heel of the hand.

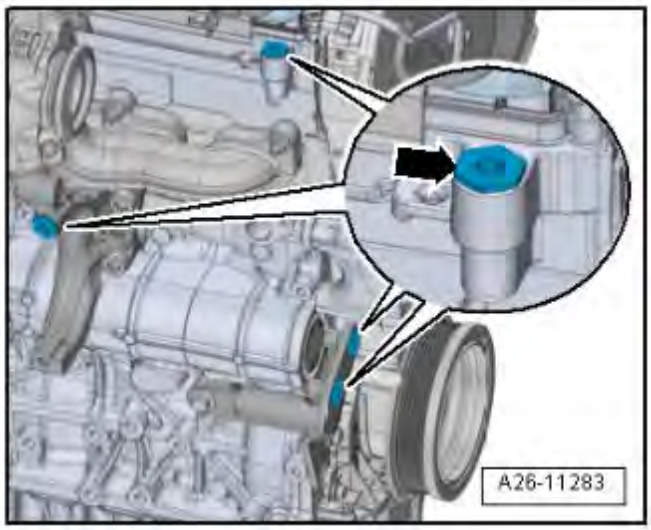


Installing:

- Place the -T10511- on the engine.

NOTE

- Pay attention that the -T10511- retaining bracket is pivoted in the bulkhead direction »open«.
- Replace the seals, self -locking nuts, and clamps when installing the new emissions control module.
- During installation, all cable ties for the heat shields must be installed at the same location.



CAUTION

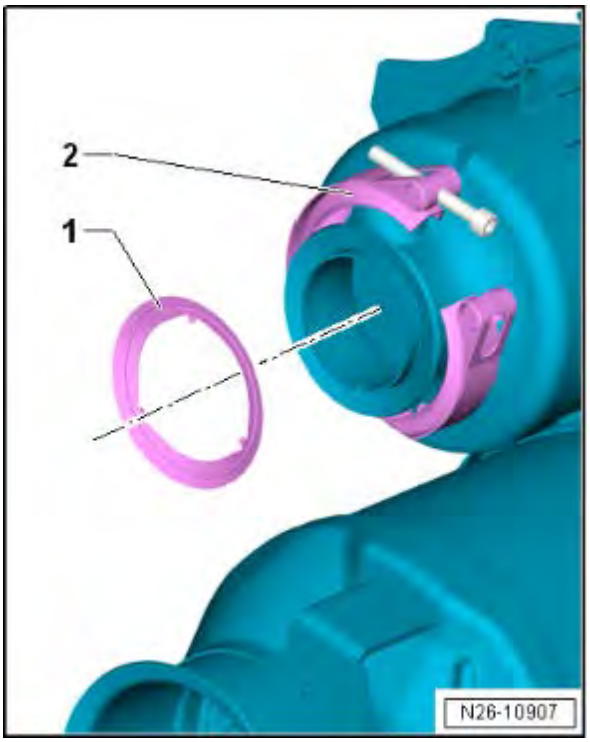
There is a risk of stress fractures and engine damage due to the emissions control module being installed under stress.

- Before installing make sure that this compensation element is not difficult to move or fixed.
- The compensation element must be easy to turn on the threads.
- Lubricant can only be applied on the threads. The retainers must remain »clean«.
- The bolt retaining tabs must be bent together so far that the compensation element is taken with when the bolt is turned.

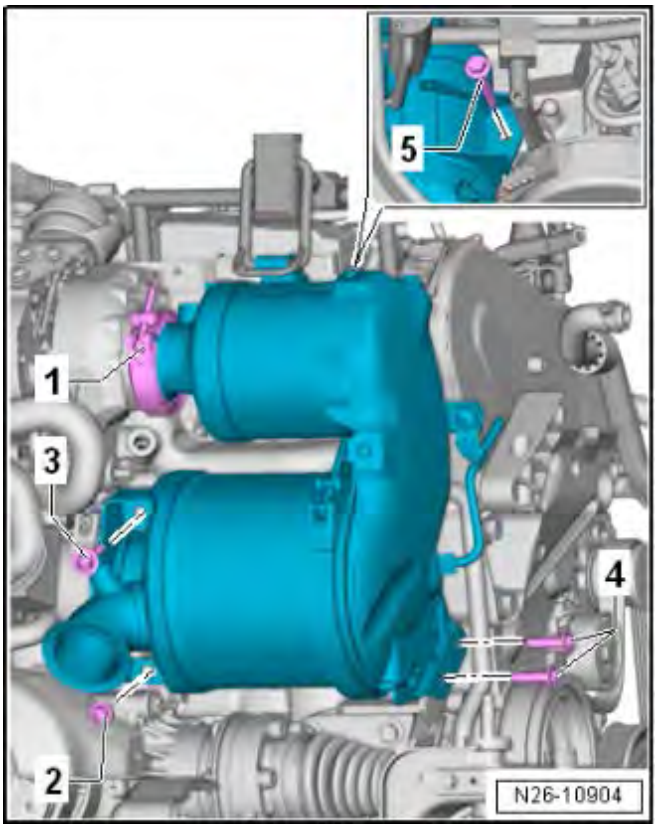
- Check the compensation elements <arrow> for ease of movement.
- Remove the compensation element completely clockwise (left threads).
- Clean difficult to move threads and if necessary coat with rust remover.

CAUTION

Compensation element connections cannot be coated with every type of lubricant. Reducing the friction will impair the function of the compensation element.



- Install the new seal <1> on the emissions control module.
- Remove the bolt for the clamp <2> and lay the clamp completely on the emissions control module entrance funnel.
- Do not bend the clamp.



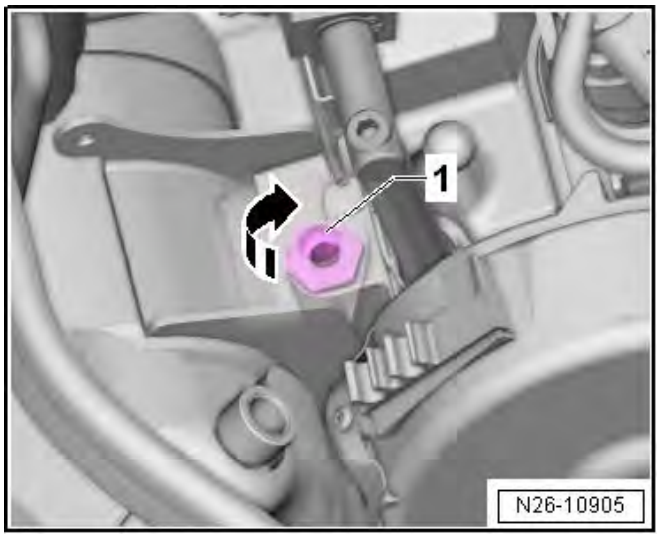
- Guide the emissions control module from below in the installed position, push upward and engage the bracket in the emissions control module mounting strap.
- The emissions control module now hangs balanced in the approximate installation position.

NOTE

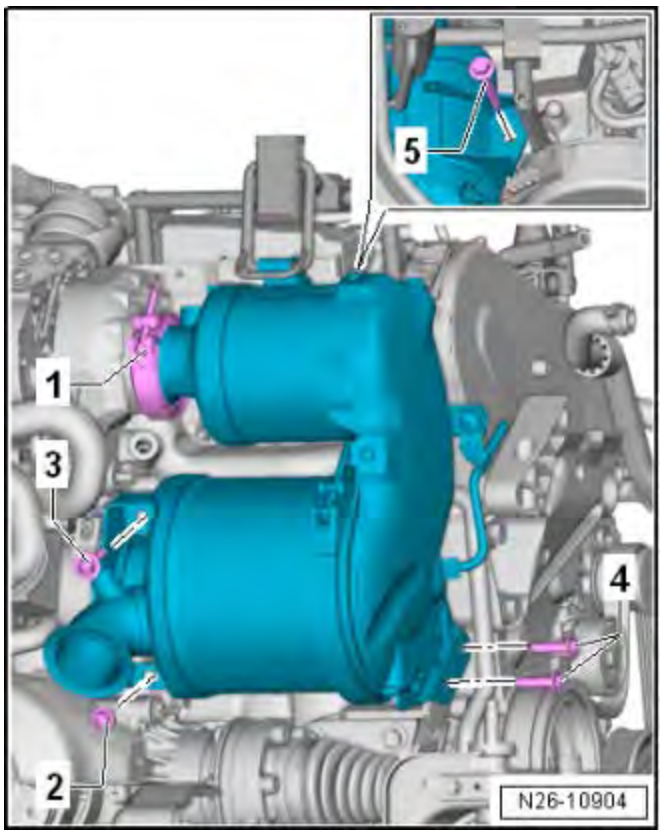
Replace all emissions control module bolts.

Emissions Control Module Tightening Sequence:

Step	Screw	Steps
1.	Screw-type clamp <1>	Position above the sealing flange and install the bolt.
2.	Bolt <2>	Install hand tight and immediately loosen 90°
3.	Screw-type clamp <1>	Tighten to 8 Nm
4.	Bolt <2>	Tighten to 20 Nm
5.	Bolt <3>	Install and turn until compensation element contacts. Do not tighten or turn the bolt.
6.	Bolts <4>	Install and turn until compensation element contacts. Tighten the bolts to 20 Nm.
7.	Bolt <3>	Tighten to 20 Nm

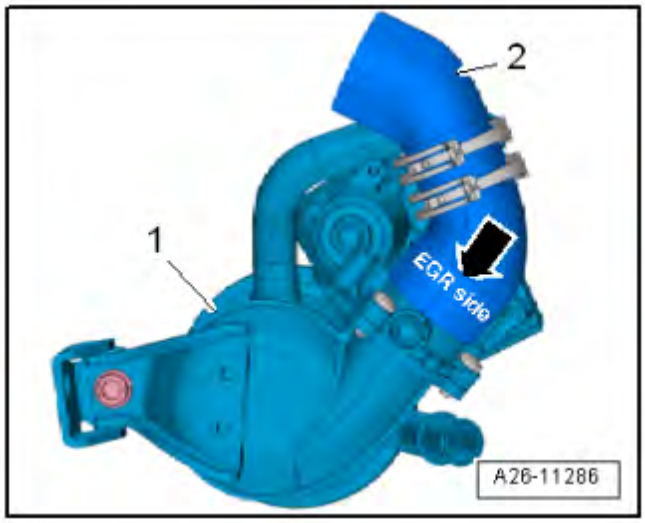


- Turn the compensation element (left-hand thread) <1> on the cylinder head using the -3247- in the direction of <arrow> until it contacts the Emissions Control Module, then tighten an additional 90°.

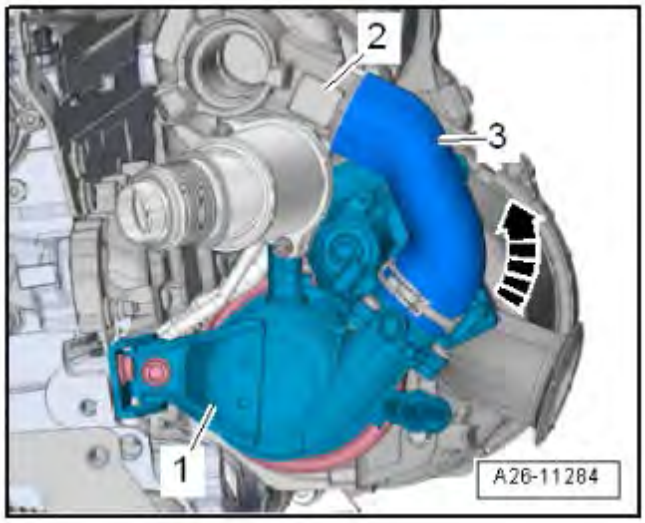


Tightening Sequence Continuation:

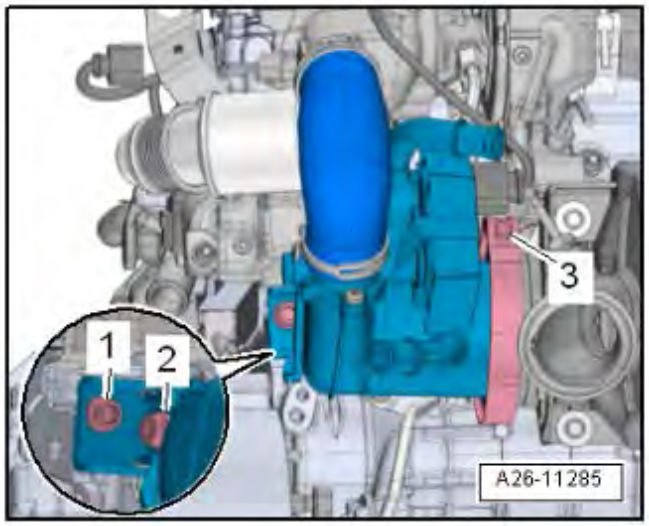
Step	Screw	Steps
8.	Bolt <5>	Turn until compensation element contacts.
9.	Bolt <5>	Tighten to 20 Nm
10.	Bolt <5>	Additional 90° turn.
11.	Bolt <5>	An additional 45° turn



- Install the hose <2> on the EGR cooler <1>.
- Installed position: The marking “EGR side” <arrow> points to the EGR cooler.
- Pay attention that the air duct hose sits free of tension.

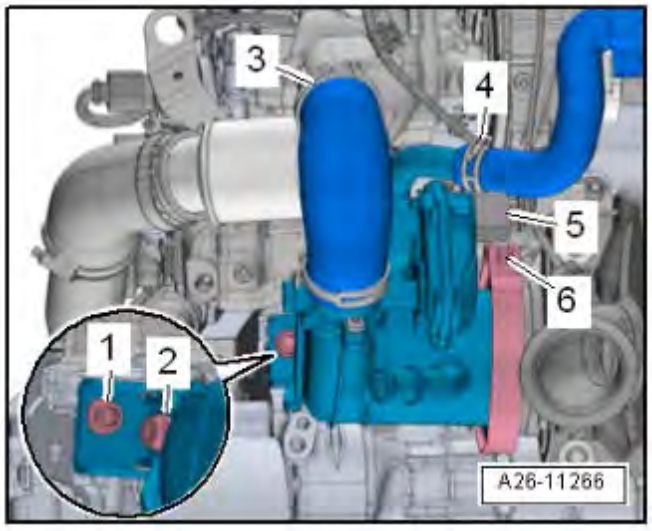


- Install the EGR cooler <1> with the seal and clamp on the emissions control module.
- Turn the EGR cooler counterclockwise <arrow> and at the same time insert the hose <3> for the turbocharger <2>.

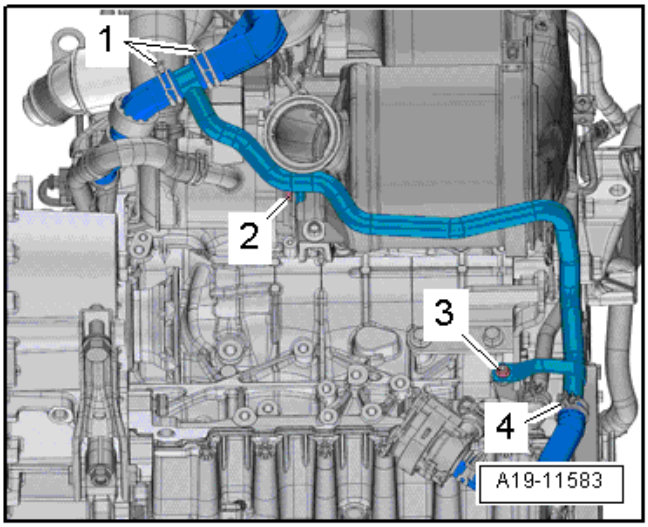


- Move the screw-type clamp <3> in its installation position.
- Follow the tightening sequence:

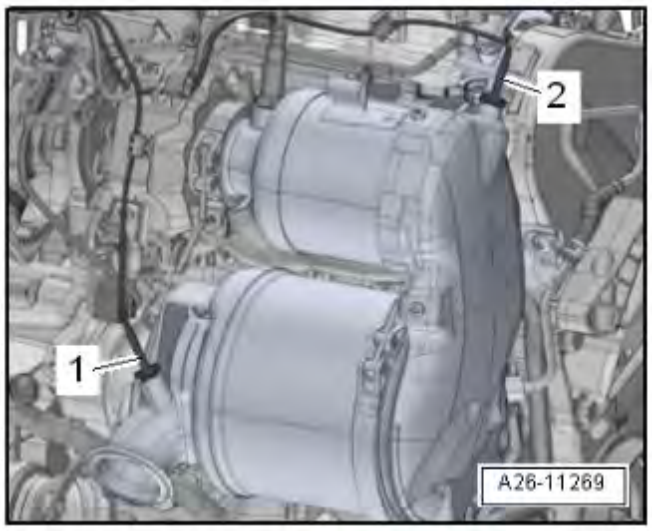
Step	Bolts	Tightening Specification
1.	<1 and 2>	Position the bolts.
2.	Screw-type clamp <3>	7 Nm
3.	<1 and 2>	Install by hand all the way
4.	<1 and 2>	20 Nm



- Reconnect the connector <5>.
- Reinstall the heat shield boot.
- Reinstall the clamp <3> on the air guide hose.
- Reinstall the clamp <4> on the coolant hose.



- Reinstall coolant hose and install the clamps <1 and 4>.
- Install the nut <3> and bolt <2> and tighten to 10 Nm.

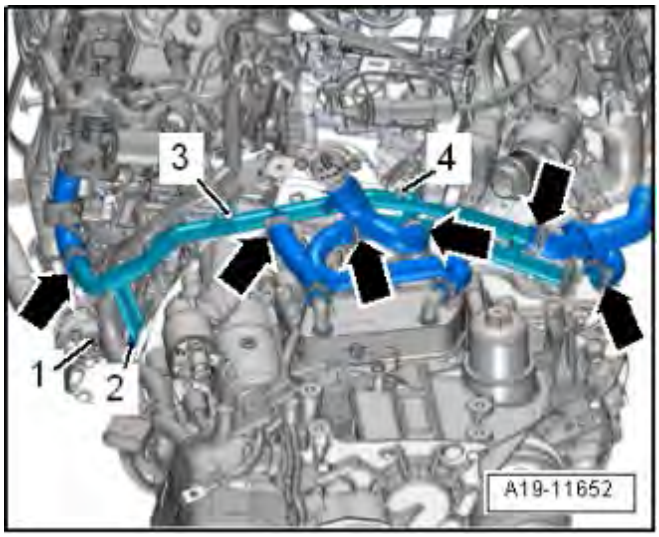


NOTE

STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

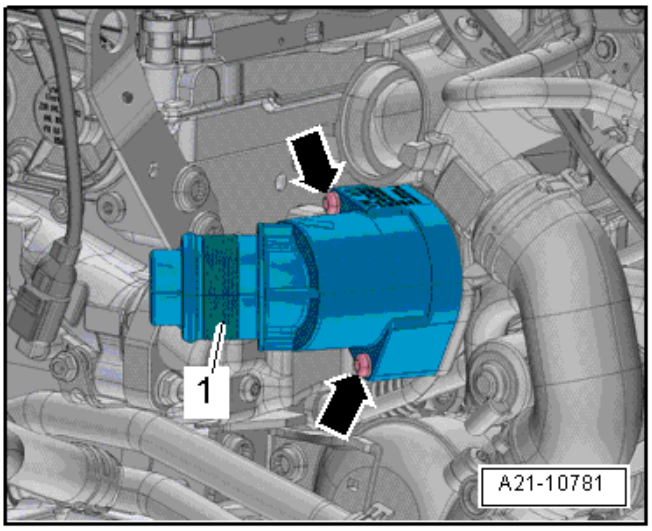
- Reinstall the Exhaust Gas Temperature Sensor 4 -G648- <1> **(Tan connector, sensor has no bend)** with a tool from the -T10395A- and tighten to 60 Nm.



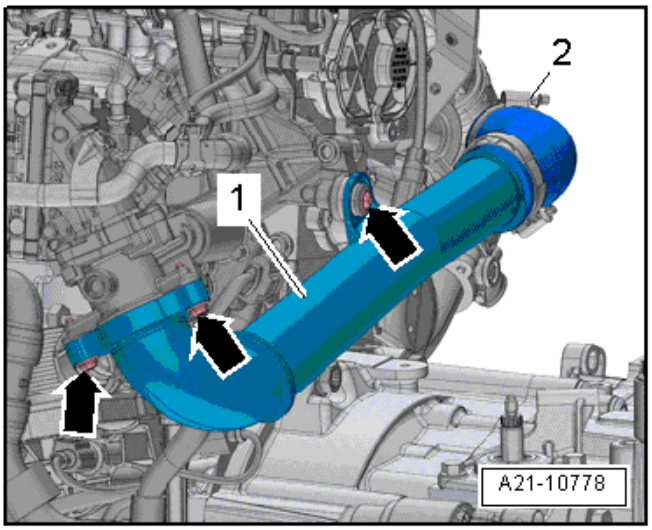
- Reinstall the left coolant pipes.
- Reinstall and secure the wiring harness <1>.
- Reinstall the nut <4> and tighten to 10 Nm.
- Reinstall the bolts <2 and 3> and tighten to 8 Nm.
- Reinstall the hose clamps <arrows>.

TIP

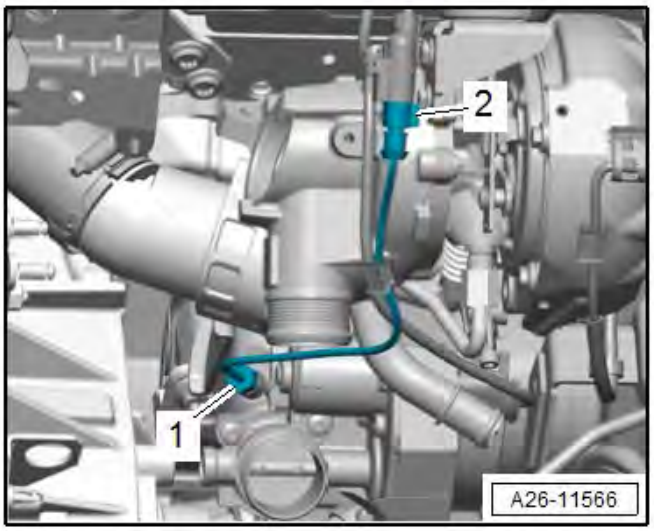
Disconnecting upper radiator hose from the engine will allow greater access for removal of the left side coolant pipe.



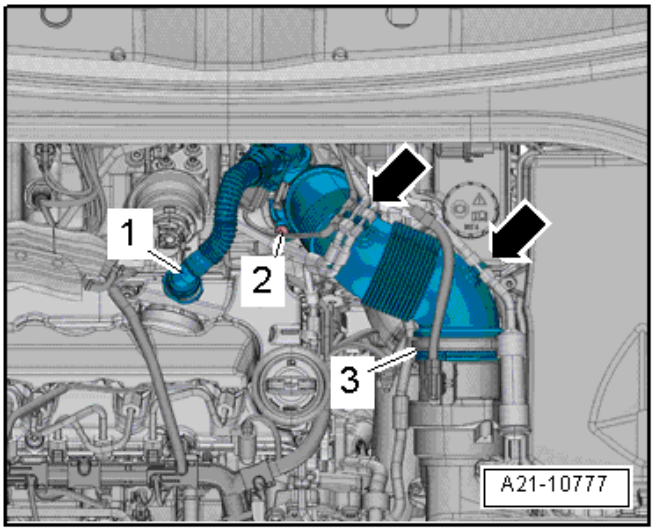
- Reinstall the resonator <1> with new seal and tighten the bolts <arrows> to 8 Nm.



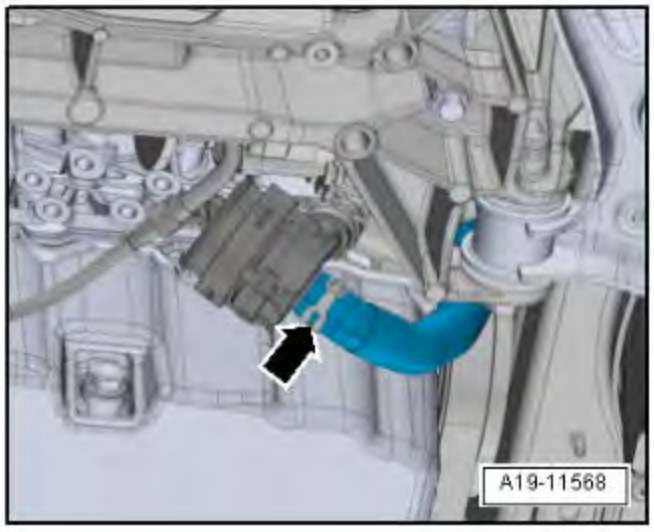
- Reinstall the air duct pipe <1> with new seal.
- Reinstall the bolts <arrows> and tighten to 8 Nm.



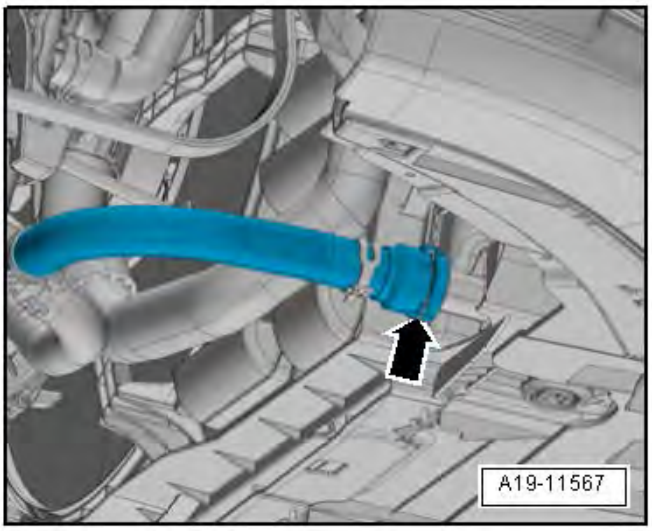
- Reconnect the <brown> connector <2> for the EGR Temperature Sensor -G98- and secure the wire to the retaining bracket.



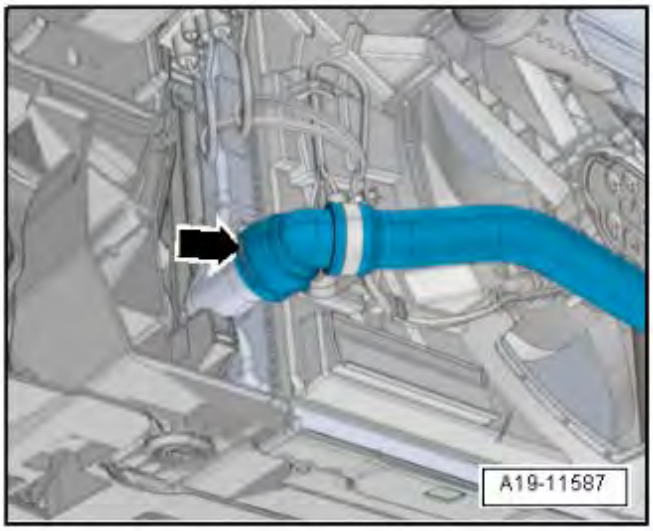
- Reinstall the crankcase ventilation hose <1>. Only the other side of the hose connection may be opened.
- Reinstall the vacuum hose onto the air guide pipe <arrows>.
- Reinstall the air guide pipe and tighten screw to 8 Nm.



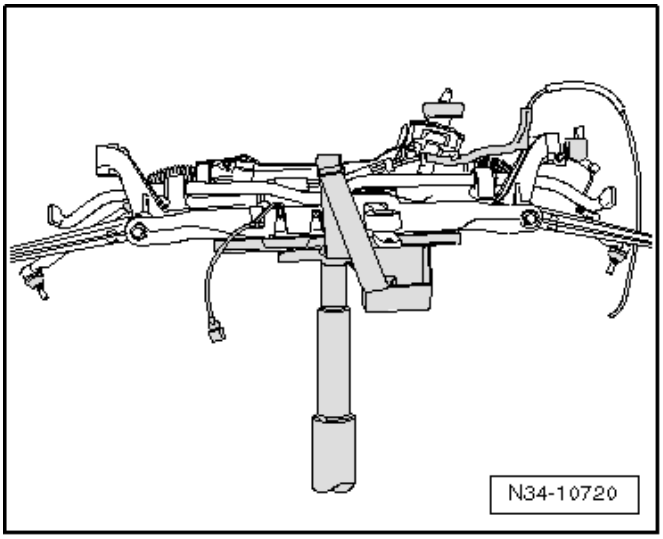
- Reconnect the lower coolant hose to the Heater Support Pump -V488- and install the hose clamp <arrow>.



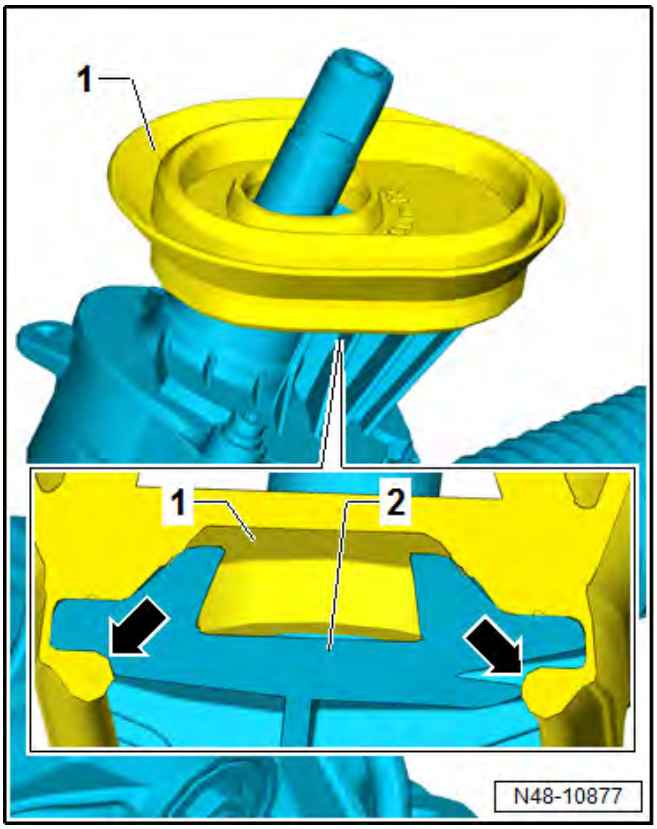
- Reconnect the right coolant hose onto the charge air cooling circuit radiator.



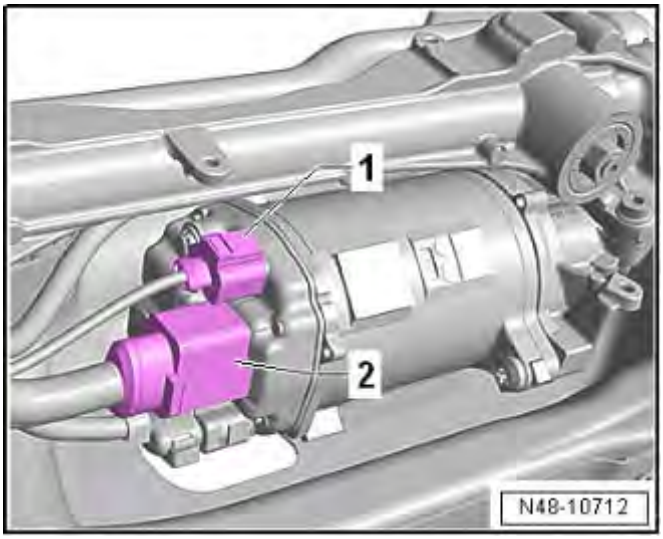
- Reconnect the clamp <arrow> onto the lower left radiator coolant hose.



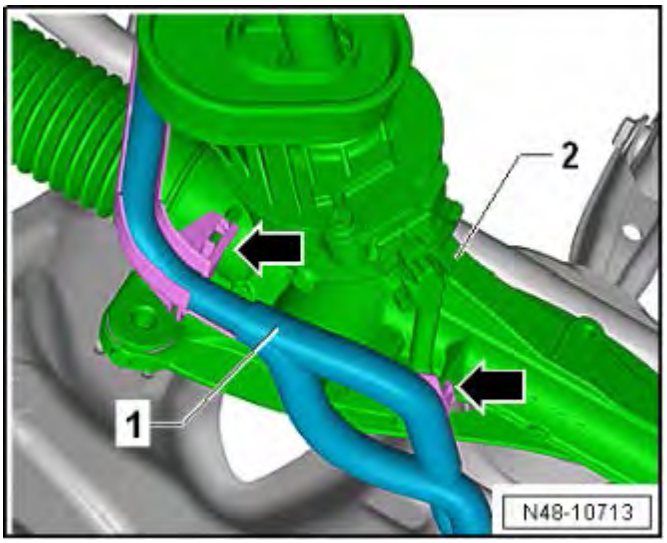
- Move the subframe attached to the Engine and Gearbox Jack -VAS6931- into installation position under the vehicle.



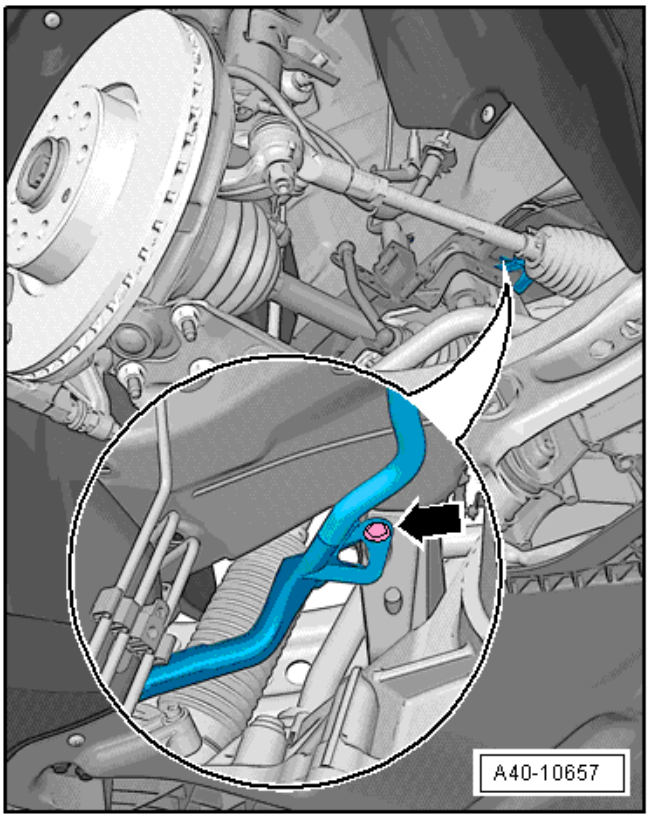
- Replace the steering shaft seal <1>.
- Fold the seal <1> over the collar of the steering gear <2> so that the rubber lip is seated properly into the collar <arrows>.
- Check the seal <1> for a secure fit.
- Coat the seal from above with lubricant, for example, soft soap.



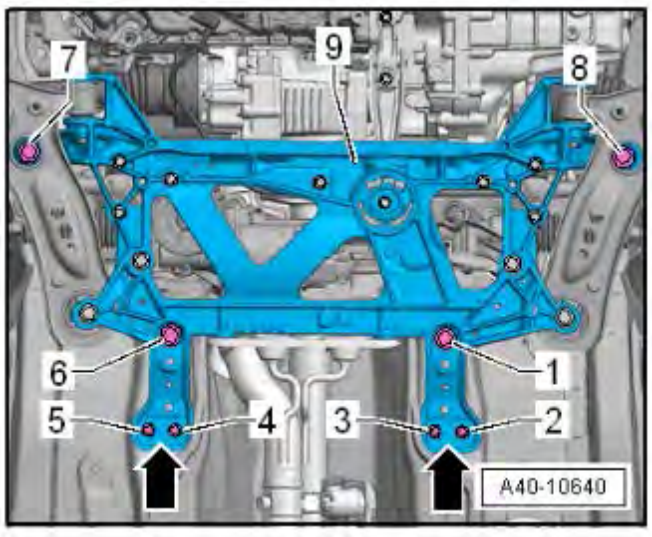
- Reconnect the electrical connectors <1 and 2> onto the steering gear.



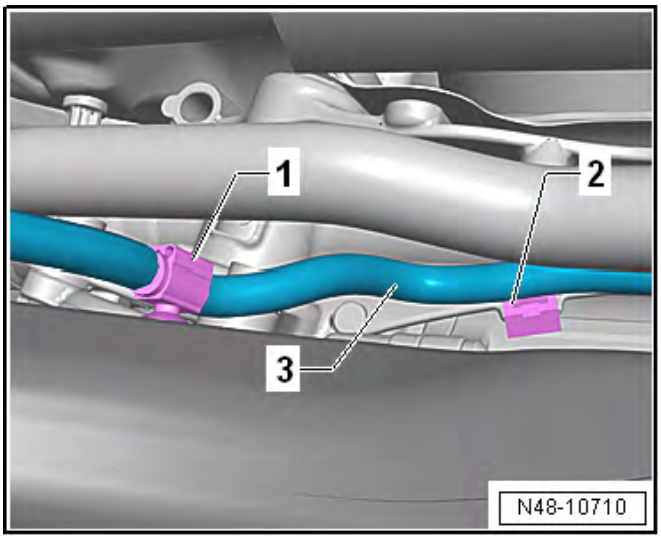
- Secure the wiring harness <1> from the steering gear <2> at the locations shown <arrows>.



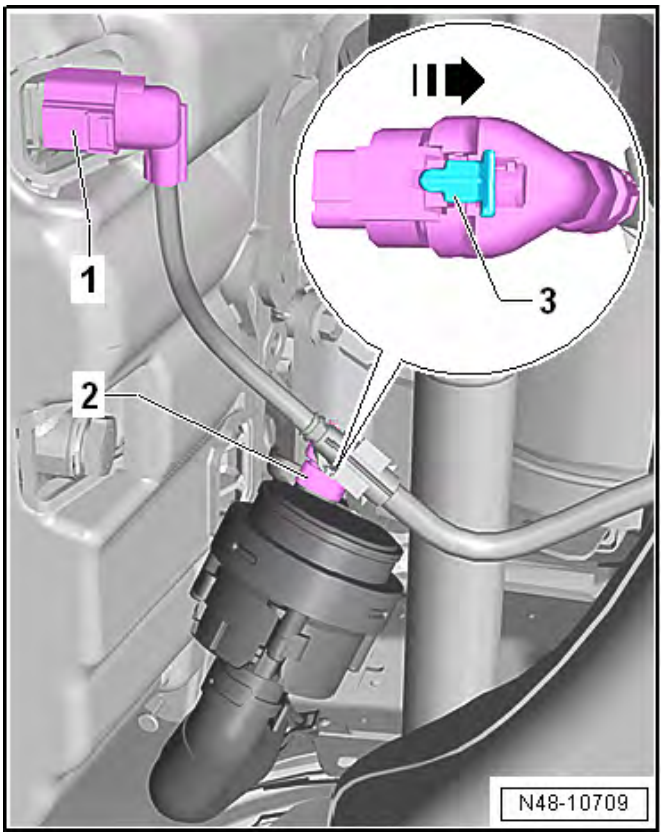
- Lift the subframe using the Engine and Gearbox Jack -VAS6931- and route the electrical harness into position.
- Reattach the bolt <arrow>.



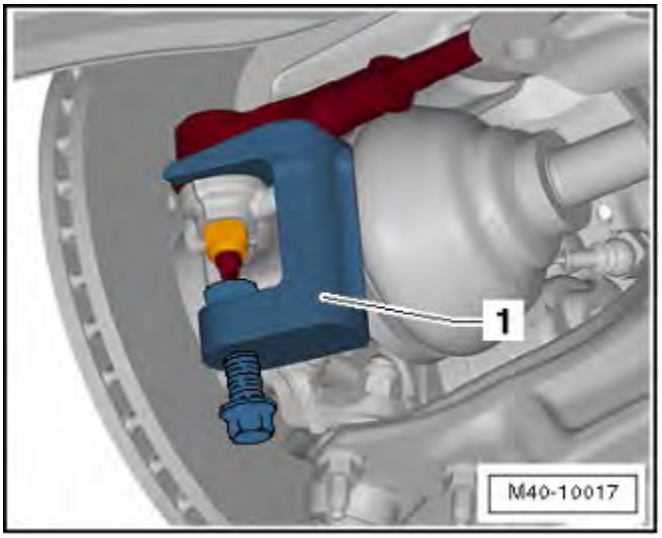
- Remove the Locating Pins -T10486/1- one at a time and install a new subframe bolt one after the other.
- Install the support bracket before installing subframe bolts <1 and 6>. Install new bolts in location 2, 3, 4, and 5> and tighten to 20 Nm + 180 degrees.
- Install and tighten the subframe bolts <1, 6, 7, and 8> to 70 Nm + 180 degrees.
- Remove the Engine and Gearbox Jack -VAS6931- <1> from under the subframe.



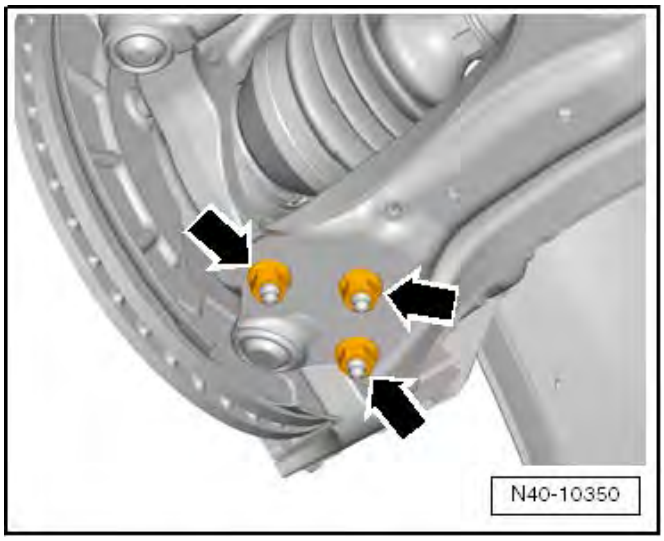
- Reinstall the clips <1 and 2> for the wiring harness <3> onto the subframe and the steering gear.



- Reconnect the connector <1> for the Oil Level Thermal Sensor -G266-.
- Reconnect the connector <2> from the After-Run Coolant Pump -V51- and secure the catch <3>.



- Reinstall the tie rod ends on both side of the vehicle and install new nuts. Tighten the nuts to 20 Nm + 90 degrees.

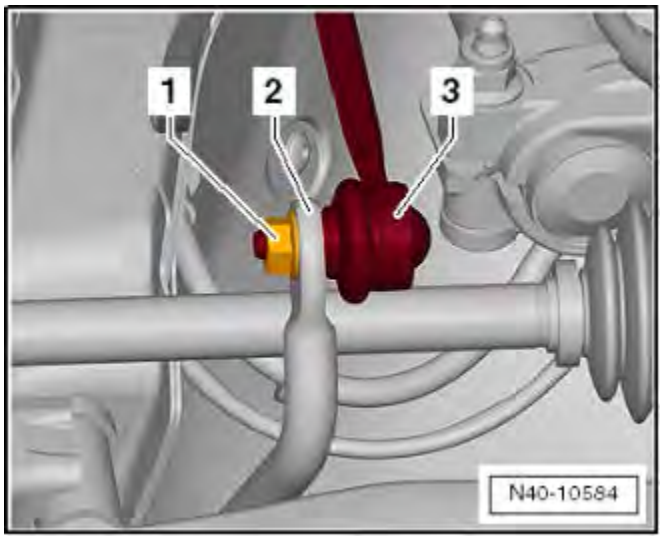


- Install the ball joints into the control arms with new nuts <arrows> on the left and right side of the vehicle.

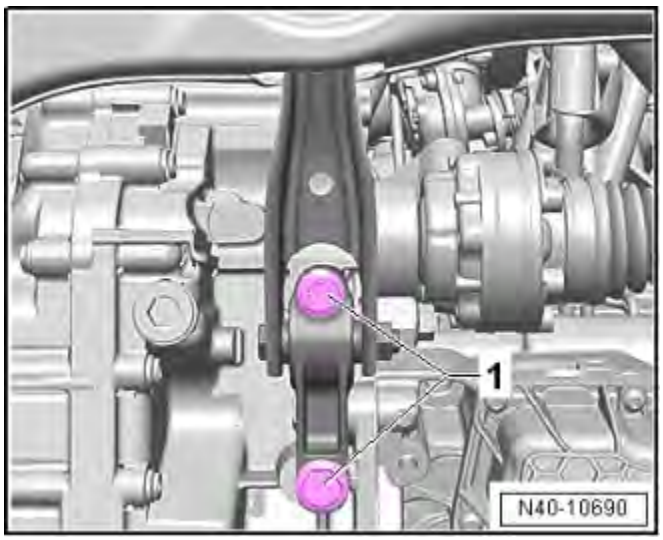
TIP

To maintain original alignment, use the previously marked location of the nuts <arrows> to determine the nut location settling point for the ball joint in the control arms. Vehicle alignments are not covered under this action.

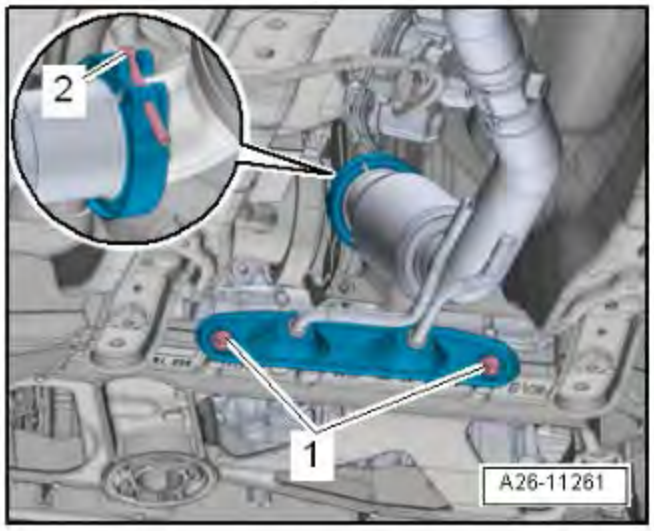
- Tighten the ball joint nuts to 40 Nm + 45 degrees.



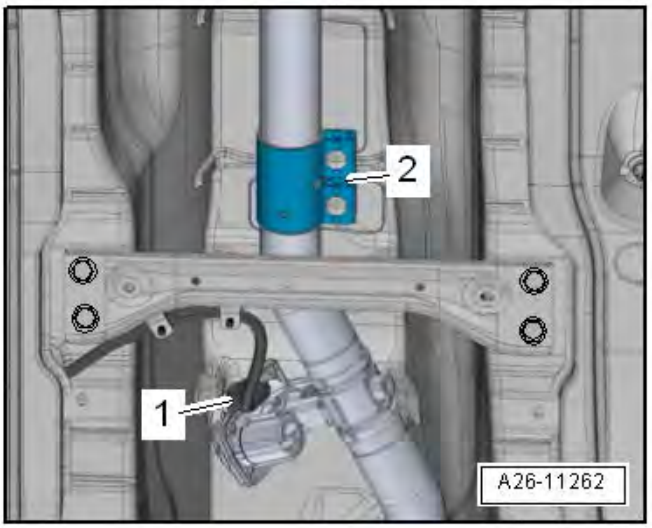
- Reinstall the front wheels. Check ELSA for VIN specific wheel bolt tightening specification.
- Install the coupling rods <3> onto the stabilizer bar <2> on the left and right sides.
- Install new nuts and tighten to 65 Nm.



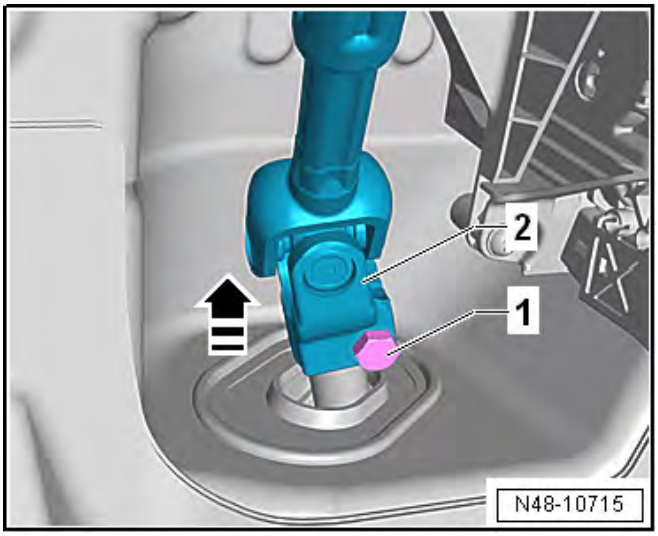
- Install new pendulum support bolts <1> and tighten to 50 Nm + 90 degrees.



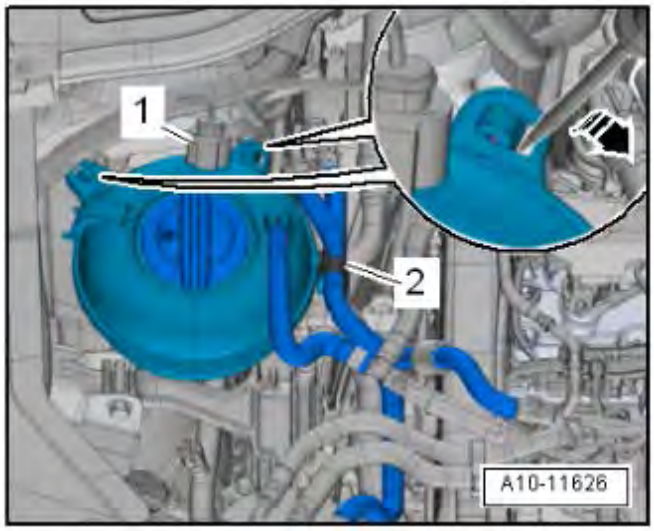
- Install the front exhaust pipe with a new seal and clamp <2>.
- Tighten the front exhaust pipe bolts <1> to 23 Nm.
- Tighten the clamp <2> to 7 Nm.



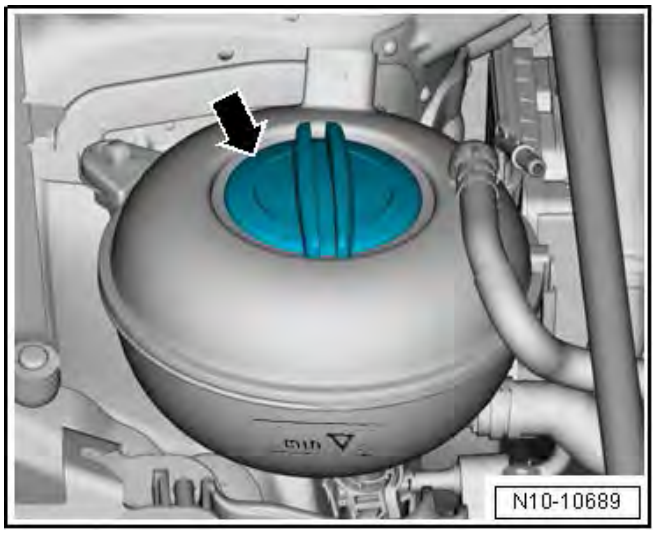
- Reconnect the connector for the exhaust flap <1>.
- Install clamping sleeve <2> and tighten the clamp to 30 Nm.



- Install the universal joint <2> onto the steering shaft. Install a new bolt <1> into the universal joint <2>.
- Tighten the bolt <1> to 20 Nm + 90 degrees.
- Install the lower footwell trim panel.



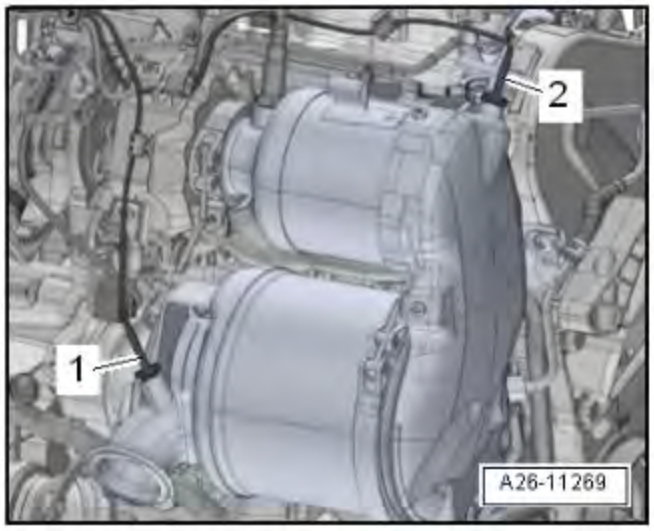
- Reinstall the coolant expansion tank and secure the lines into the retaining clips.



- Open the coolant reservoir cap <arrow>.
- Fill the cooling system using the Cooling System Charge Kit -VAS6096/2-. Refer to ELSA for details.

TIP

Filling the cooling system now will allow time to check for and address any potential coolant leaks while you install the remaining components onto the vehicle.

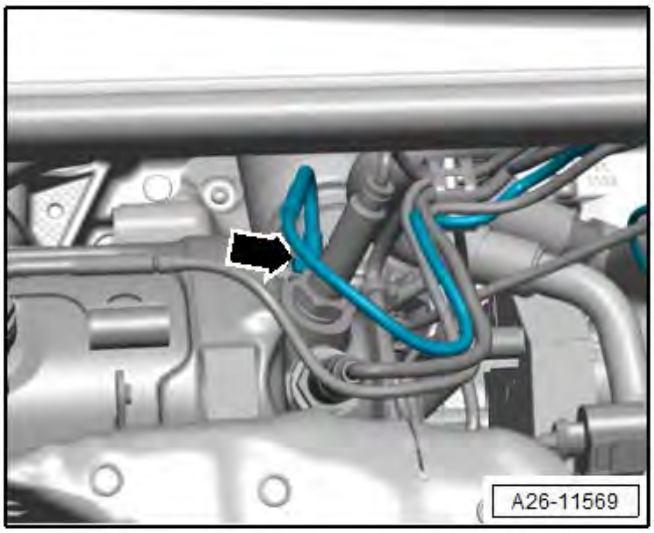


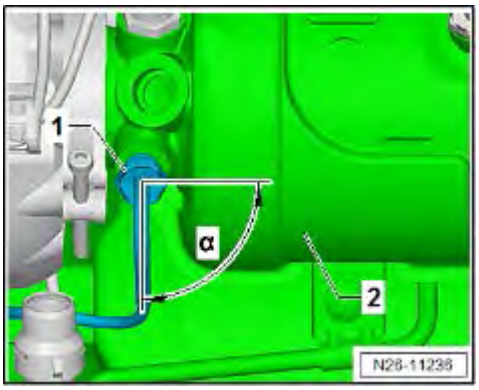
NOTE

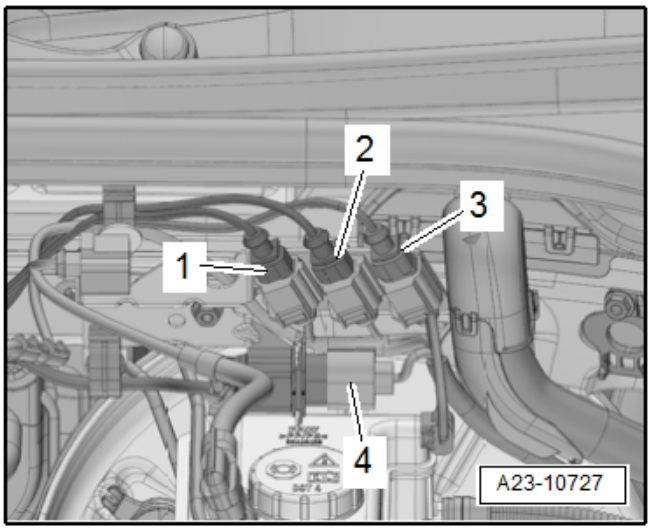
STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

- Install the Exhaust Gas Temperature Sensor 3 -G495- <2> **(Brown connector, sensor has 90 deg. bend)** using a tool from the -T10395A- and tighten to 45 Nm.







NOTE

STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

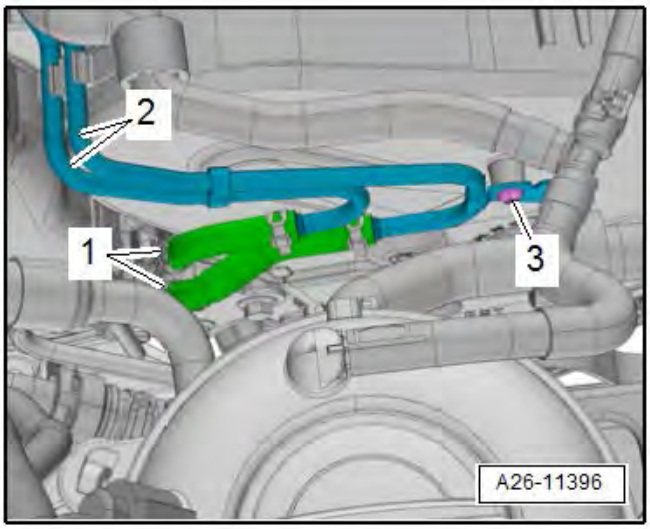
NOTE! Torque specifications have changed!

- Install the Exhaust Gas Temperature Sensor 2 -G448- **(Black connector, sensor has 120 deg. bend)**, facing downward, dimension <a> = 90 degrees and tighten to 60 Nm.
- Install Oxygen Sensor 1 before Catalytic Converter -GX10-, and NOx Sensor -G295- using a tool from the -T10395A-. Tighten both sensors to 52 Nm.

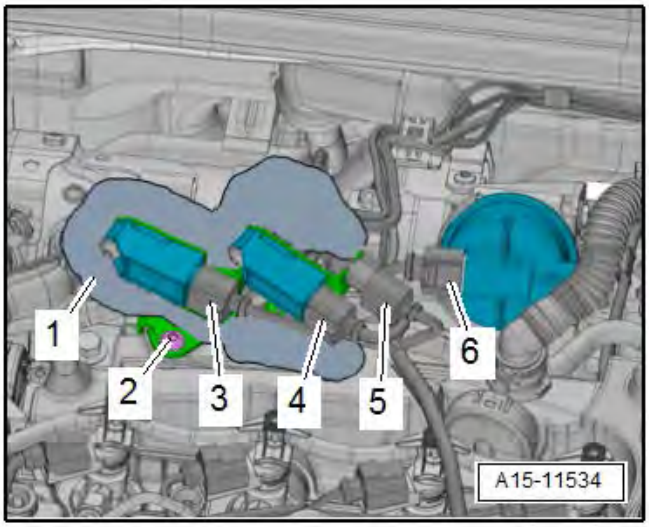
NOTE

It may difficult to install the Exhaust Gas Temperature Sensor 2 -G448- <arrow> with the turbocharger to Emissions Control Module clamp in place. If the clamp was not tightened in the previous steps, move the clamp at this time. The Exhaust Gas Temperature Sensor 2 -G448- may also have already been installed prior to or after Emissions Control Module installation earlier in this procedure. Tighten the clamp to 8 Nm.

- Reconnect the connectors and secure the wires into the retaining brackets and clips as previously marked during removal for:
  - Oxygen Sensor 1 before Catalytic Converter -GX10- <4>.
  - **Exhaust Gas Temperature Sensor 2 -G448-. (Black connector, sensor has 120 deg. bend)**
  - **Exhaust Gas Temperature Sensor 3 -G495-. (Brown connector, sensor has 90 deg. bend)**
  - **Exhaust Gas Temperature Sensor 4 -G648-. (Tan connector, sensor has no bend)**



- Insert the hoses into the Differential Pressure Sensor Pipes and install new clamps <1> onto the hoses.
- Install the bolt <3> for the Differential Pressure Sensor pipes and tighten to 8 Nm.



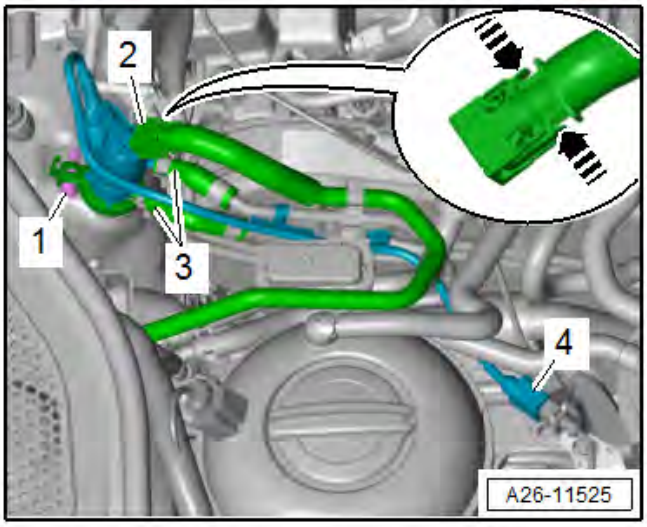
NOTE

STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

NOTE: *Check the Exhaust Pressure Sensors and Hoses for leaks before installing the heat shield boot.*

- Reinstall the Exhaust Pressure Sensor -G450- and Differential Pressure Sensor -G505- in order and tighten the bolts to 8 Nm.
- Reconnect the connectors <3, 4 and 5>.
- Reinstall and secure the heat shield boot <1>.



NOTE

STOP!

Fragile Components. Follow these procedure steps in the order written. Use care during removal, reinstallation, and handling.

- Reinstall the Reducing Agent Injector -N474- with a new seal and a new clamp <1>.
- Secure the coolant line <3> and the selective catalytic reduction lines <2> into the retaining clips.
- Reconnect the electrical connector <4>.
- Tighten the clamp <1> to 5 Nm.
- Reinstall the airbox, battery, battery tray, and lower noise insulation. See **Section D** for details.

- Connect the VAS6150X Diagnostic Tester (or equivalent) to the vehicle.
    - Start the ODIS program.
    - Perform the Guided Functions test plan for **"Filling Cooling System"** to remove any air bubbles trapped in the cooling system.
    - Perform the Guided Functions test plan **"Replacing ECM or DPF"** to reset the DPF ash load levels (do not follow instructions for replacing the ECM).

⚠ CAUTION

- Failure to perform the "Filling Cooling System" test plan may result in air bubbles trapped in the cooling system. This condition may result in a customer comeback or engine damage.
- Failure to perform the "Replacing ECM or DPF" test plan could result in pre-mature DPF/DOC replacement.

Proceed to Section F to perform software update, if required.

Section F – Software Update Procedure

NOTE

Prior to launching the VAS Diagnostic Tester and starting an update, ensure the following conditions are met;

- ✓ **The ODIS software is completely up to date.**
  - Refer to the "Alerts" section on ServiceNet home page for the current ODIS version.
- ✓ **The battery charger is connected to the vehicle battery and remains connected for the duration of the software update.**
  - Battery voltage must remain above 12.5 volts for the duration of the software update. Failure to do so may cause the update to fail, which could result in damage to the control module. Control modules damaged by insufficient voltage will not be covered.
- ✓ **The screen saver and power saving settings are off.**
  - Failure to do so may result in the tester entering power save mode during the software update, which could result in damage to the control module.
- ✓ **The VAS Diagnostic Tester is plugged in using the supplied power adapters.**
  - Under no circumstances should the tester be used on battery power alone during the software update. Failure to do so may result in the tester powering off during the update, which could result in damage to the control module.
- ✓ **If using the Bluetooth VAS 5054A transmitter head, it is connected to the tester with a USB cable.**

NOTE

Using Bluetooth for this action is PROHIBITED!

Damage caused to electronic components (e.g. ECM, TCM, etc.) during the SVM flash process is not covered.

- Performing a software update using a Bluetooth connection increases the risk of losing connection during the update, which could result in damage to the control module.
  It also greatly increases the time required to perform the update. Requests for additional time or parts will be denied if the GFF log shows the update was performed using Bluetooth.

- ✓ **The Bluetooth function of the scan tool is physically switched off <see pictures below>.**

VAS 6150 & VAS 6150A
(Front panel behind handle)

VAS 6150B
(Right side behind WIRELESS door)

VAS 6150C
(Left side behind SC/EX door)

⚠ WARNING

Radiator Fan(s) may cycle ON high speed during the Update Process! There is a serious risk that personal injury may result if contact is made with spinning fan blades. Keep hands and all objects away from Radiator Fan(s) during Update Process!

TIP

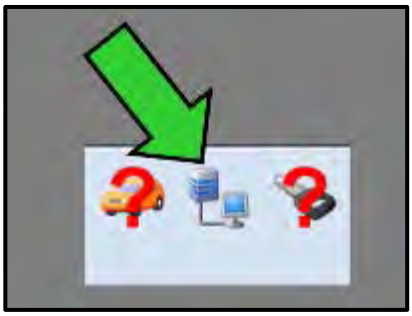
To Update-Programming using SVM, review and follow instructions in Technical Bulletin 2014603: *Software Version Management (SVM) Operating Instructions.*

The SVM Process must be completed in its entirety so the database receives the update confirmation response. A warranty claim may not be reimbursed if there is no confirmation response to support the claim.

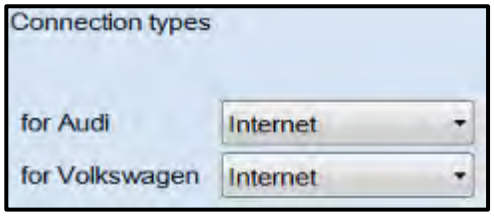
Things to check before starting Software Version Management (SVM):

✓ **Verify your network connection through LAN by checking the connection icon (lower right of the home screen).**

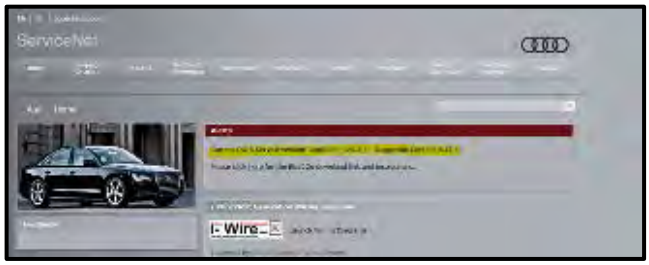
✓ **Check the icon <arrow> within the ODIS software that you have a connection.**



✓ **Within the Connection Tab, verify that the Connection type(s) display "Internet" <as shown>.**



✓ **Start a connections test <arrow> and verify that all connections pass.**



- At this time, refer to the “Alerts” section of ServiceNet to verify that the most recent version of ODIS Software is loaded to the VAS6150X Diagnostic Tester (or equivalent). Failure to flash the vehicle using the most recent version of ODIS Diagnostic Software will cause faults in certain features of the flash operation.
- Failure to validate the ODIS Diagnostic version before flashing the vehicle may result in flash failure, and may delay if not negate the payment of the emissions modification.

- Switch the ignition on.
- Apply the parking brake.
- Switch the headlights off.
- Connect the VAS6150X Diagnostic Tester (or equivalent) to the vehicle.
- Start the ODIS program.
- Open the hood.
- Open the battery cover.
- Attach the GRX3000VAS Tester/Charger to the vehicle battery.

TIP

Time to connect battery charger is included in the GFF diagnostic protocol time units.

NOTE

STOP!

All TDI flashes **MUST** be completed during a single, standalone ODIS Diagnostic Session. You **MUST** fully complete this campaign and send all GFF Paperless logs before beginning any other campaigns or operations. You **MUST** also conclude any other campaigns or operations that have been started and end the corresponding diagnostic session and send all GFF Paperless logs before beginning this operation. Failure to independently separate the ODIS diagnostic session for this campaign will cause problems updating the FAZIT server in Germany and will delay if not negate the payment of the emissions modification.

IMPORTANT!

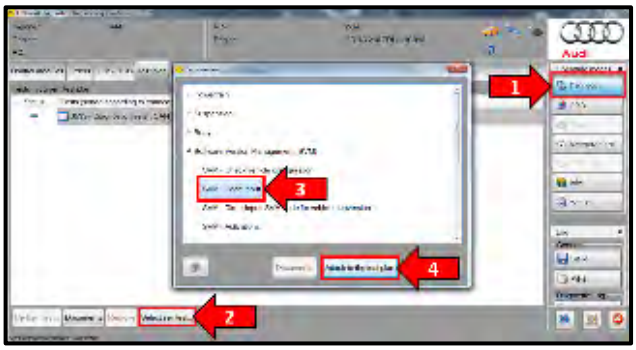
If there are any ODIS “Hot-Fix” patches installed, they **MUST** be removed from the scan tool before beginning this operation. ODIS “Hot-Fix” patches may affect the flash process.

- Confirm that scan tool is communicating with the diagnostic head by USB <Green Arrow>.
    - If the Bluetooth symbol is shown <Red Arrow> then disconnect the diagnostic head from the vehicle and reconnect the USB cable to the diagnostic head and then reattach to the vehicle.

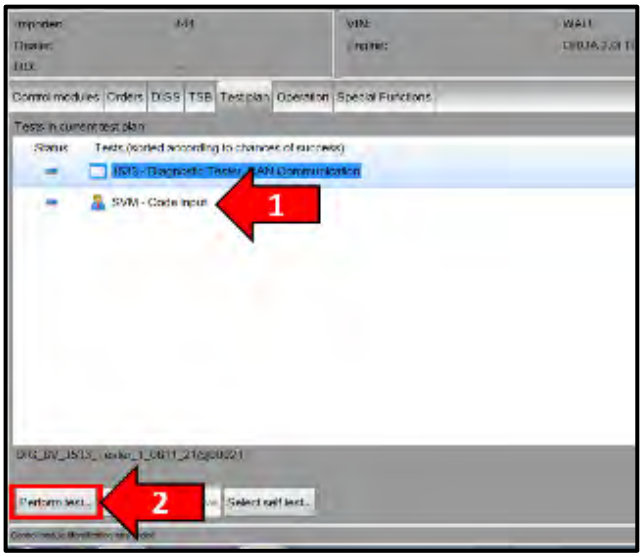
NOTE

KESSY Vehicles!

- If loss of communication between the reader coil and the key occurs during the flash, it may damage a control module.
- If equipped with a removable reader coil cap, it is **REQUIRED** to remove the reader coil cap and insert the key into the reader coil, or secure the key in close proximity to the reader coil throughout the flash process.
- If the reader coil cap is not removable, it is **REQUIRED** to secure the key to the steering column in close proximity to the reader coil using a residue-free adhesive or tape, an elastic cloth or stretch bandage, or other improvised retaining device.



- Upon ODIS startup, select “Diagnosis” <arrow 1>.
- Select “Self Test” <arrow 2>.
- Select “Software Version Management”, then select “SVM Code input” <arrow 3>.
- Select “Attach to the test plan” <arrow 4>.

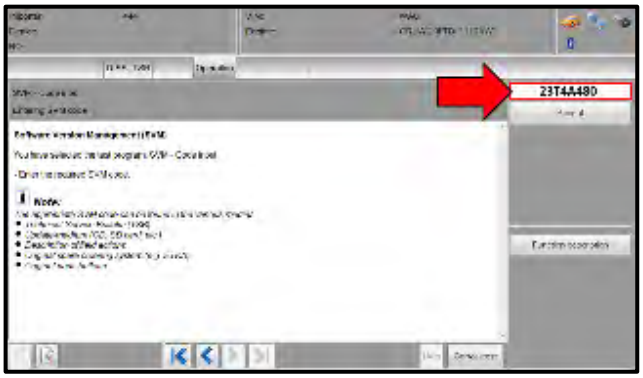


NOTE

RISK of Scan Tool Damage!

Do not leave the scan tool on the windshield during the flash process, as it is possible that the windshield wipers may cycle.

- From the Test plan screen, Select “SVM Code input” test plan <arrow 1>, then select “Perform test” <arrow 2>.
- Follow the on-screen prompts.



NOTE

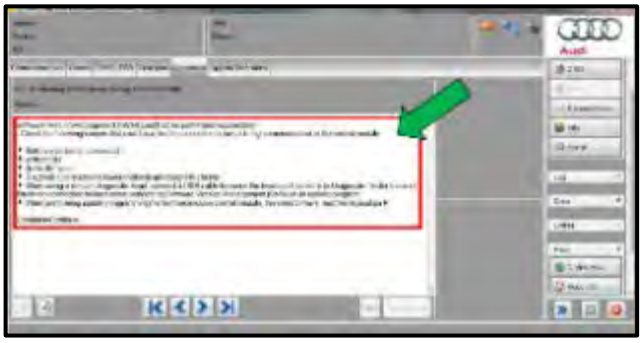
Using <u>Bluetooth</u> for this action is <u>PROHIBITED</u>!

Damage caused to electronic components (e.g. ECM, TCM, etc.) during the SVM flash process is not covered.

- Enter the corrective action code (SVM code) as listed below.

SVM code
23Y9A350

- Follow the on-screen prompts until completion of the flash operation.

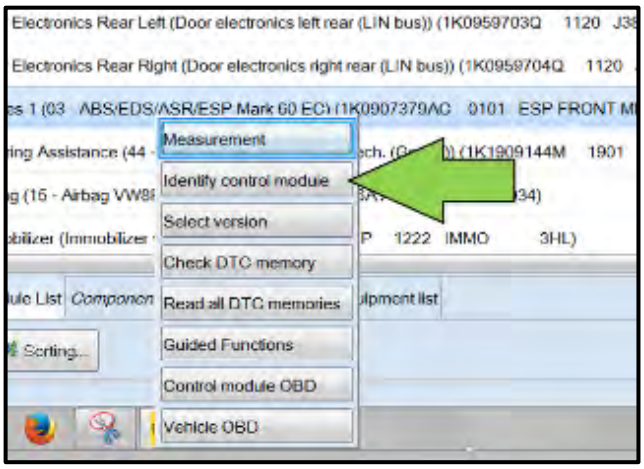


NOTE

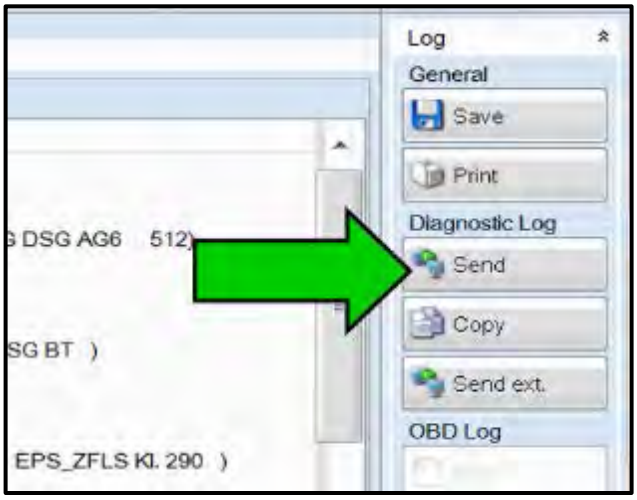
In the event of a Flash Malfunction!

In the event of a flash error or malfunction, **STOP**. **DO NOT** exit the ODIS session, disconnect the scan tool, attempt the flash again, or continue further in the test plan.

Create an ATA ticket and allow the Audi Technicians Helpline to provide direction with flash failures.



- After the software update is completed and before sending the GFF Log Online:
  - Select the “Control Module” tab.
  - Scroll down and right click on Address Word 0001/ Engine Control Module.
  - Select “Identify Control Module” <arrow>.



- At the end of the diagnostic session, Select “Send” <arrow> and follow the prompt for sending the log on-line.

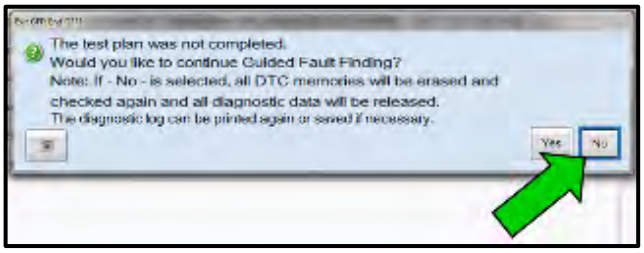
NOTE

RISK of Non-payment!

- Diagnosis logs must be sent on-line after the flash process to be considered for reimbursement.
- Verify that no other Campaigns or operations are performed during this ODIS diagnostic session before sending the log, and verify that the Engine Control Module has been re-identified.

TIP

Technicians may find it helpful to also store the log on a USB stick for back-up.



TIP

When exiting GFF, it is important to select “No” <arrow>.

- Disconnect the VAS tester.
- Switch off and disconnect the battery charger.
- Reinstall the battery cover.
- Release the parking brake.
- Perform road test.

Proceed to Section E

Section E – Install/Inspect for Supplemental Vehicle Emissions Control Information Label

Note: Check the label part number before installing! Match the label part number to your vehicle!

Install/Inspect for Supplemental Vehicle Emissions Control Information Label

TIP

- Label must be installed on a painted surface on the underside of the vehicle hood.
- The surface where the label is to be installed must be clean, dry, and free from oil residue prior to installing the label.
- Label must NOT cover any existing label(s).
- Photo documentation of label installed is required.

- Open the hood and inspect for an existing supplemental Vehicle Emissions Control Information Label.
- If no supplemental Vehicle Emissions Control Information Label is installed, choose **a painted surface on the underside of the hood** to place both the supplemental Vehicle Emissions Control Information Label and the TDI Recall Proof of Partial Completion Label or TDI Recall Proof of Completion Label. Place the labels as close to each other as possible, and as close to the original Vehicle Emissions Control Information Label as possible.
- Clean the painted surface on the underside of the hood where the labels are to be installed. The surface should be oil free.
- Install the supplemental Vehicle Emissions Control Information Label part #: **03L 010 005 J** onto the chosen painted surface on the underside of the hood near the original VECI Label. Label must **NOT** cover any existing label(s).
- Take a close up photograph of the label and upload it to the TDI INFORM Tool. **NOTE: The photograph should be taken at a close enough distance, at high enough resolution, and with enough visual clarity to easily read the Part Number listed on bottom right hand corner of the label. The part number listed on the Label MUST be legible to be considered for Warranty Reimbursement.**
- **Proceed to Section F**

NOTE

RISK of Non-payment!

The **Part Number** listed on the bottom right hand corner of the label **MUST** be legible in the photograph uploaded to the TDI INFORM Tool for the claim to be considered for Warranty Reimbursement.

If the **Part Number** listed on the bottom right hand corner on each label is **NOT** legible in the photograph uploaded to the TDI INFORM Tool, the Warranty Claim will be denied.

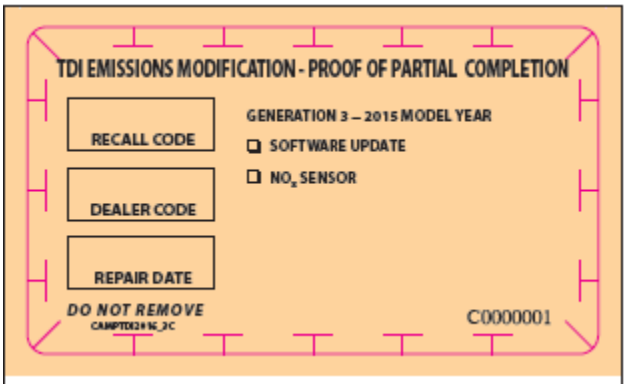
Section F – TDI Emissions Modification – Install Proof of Partial Completion Label or Proof of Completion Label

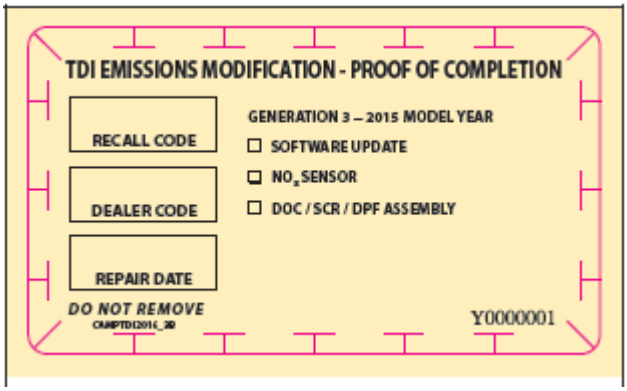
Part Number in lower Left corner must be legible.

Install TDI Recall Proof of Partial Completion Label or Proof of Completion Label

TIP

- Label must be installed on a painted surface on the underside of the vehicle hood.
- The surface where the label is to be installed must be clean, dry, and free from oil residue prior to installing the label.
- Label must NOT cover any existing label(s).
- Photo documentation of label installed is required.





- Clean the surface next to the existing or newly installed supplemental Vehicle Emission Control Information Label where the correct label is to be installed on a painted surface on the underside of the hood.
- Choose the correct part number based on the chart below. **DO NOT INSTALL THE INCORRECT LABEL.**

Repair Performed	Description	Label part number
2A only	Proof of Partial Completion Label	**CAMPTDI2016_3C**
2A and 2B	Proof of Completion Label	**CAMPTDI2016_3B**

- Fill out completely the Recall Code, Dealer Code, and Repair Date and affix the correct label onto a painted surface on the underside of the hood next to the newly installed Vehicle Emission Control Information Label. Label must **NOT** cover any existing label(s).
- Apply clear overlay (provided on bottom of the label backer).
- Take a close up photograph of the label and upload it to the TDI INFORM Tool. **NOTE: The photograph should be taken at a close enough distance, at high enough resolution, and with enough visual clarity to easily read the Part Number listed on the bottom left hand corner label. The part number listed on the Label MUST be legible to be considered for Warranty Reimbursement.**
- Close the hood.
- **Proceed to Section G**

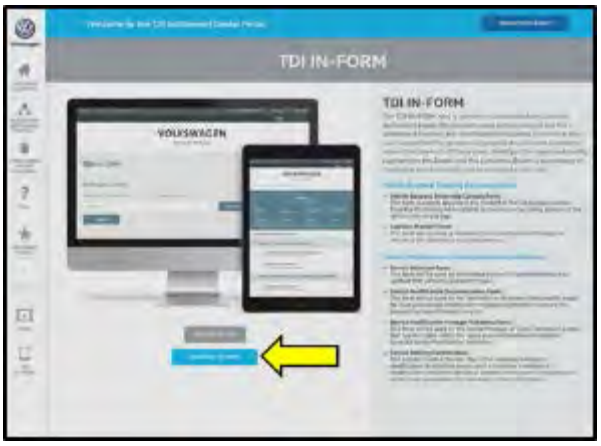
NOTE

RISK of Non-payment!

The **Part Number** listed on the bottom left hand corner label **MUST** be legible in the in the photograph uploaded to the TDI INFORM Tool for the claim to be considered for Warranty Reimbursement.

If the **Part Number** listed on the bottom left hand corner on the label is **NOT** legible in the photograph uploaded to the TDI INFORM Tool, the Warranty Claim will be denied.

Section G – Service Modification Documentation Requirements



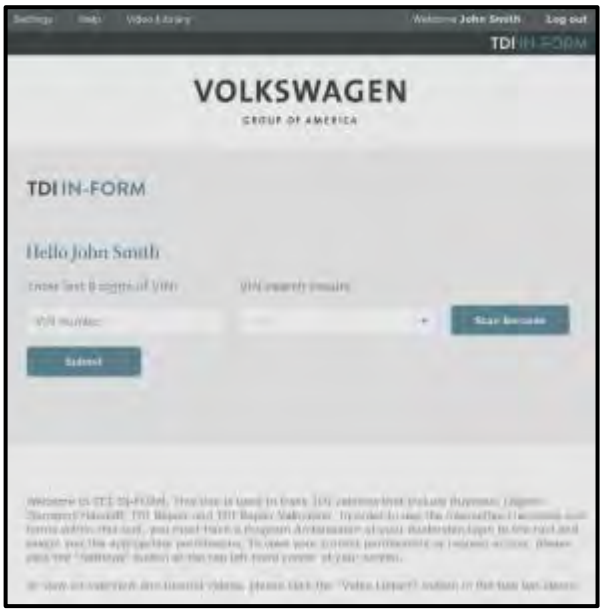
Job Roles Summary:

- *Service Consultant – Initiates validation tool.*
- *Service Technician – Completes service modification requirements.*
- *Manager – Validates the modification was properly completed.*
- *Dealer Representative/Cashier – Prints receipt, fuel economy label and delivers to customer.*
- *Warranty Administrator – Enters claim into the SAGA system.*

TIP

To access the interactive forms go to the TDI Settlement Program microsite on vwhub.com. Then Select the "TDI IN-FORM" Button from the lower left side of the microsite navigation.

- Enter the "TDI IN-FORM" tool <arrow>.



- Enter the VIN for the vehicle that requires documentation.

TIP

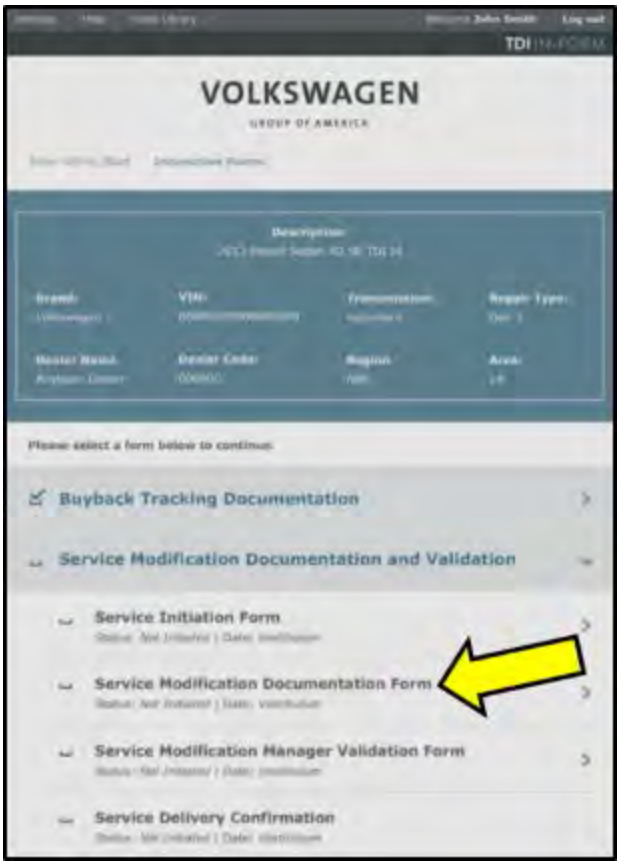
The VIN can be manually typed in or using an iPad or iPhone running i0S 9+, the camera can be used to scan the VIN Barcode.

Please note ambient lighting, camera quality, etc. may impact the effectiveness of the VIN scanning feature.

TIP

After the VIN has been entered, the system will automatically validate that it is a TDI VIN. This will be indicated by a green check mark that will appear next to the VIN.

- Validate the VIN is correct for the vehicle, then click the “Submit” button <arrow>.



- Select “Service Modification Documentation Form” <arrow>.
- Follow the on-screen prompts completely.

NOTE

RISK of Non-payment!

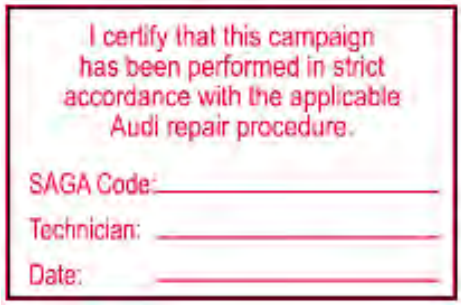
Not using the IN-FORM tool to document and validate the modification will stop the processing of payment for your dealership even if the modification has been completed.

TIP

Upon completion of the Service Modification Documentation Form, the Manager must validate the repair in the IN-FORM tool.

Proceed to Section H

Section H – Campaign Stamp



Item#: AUD4927ENG

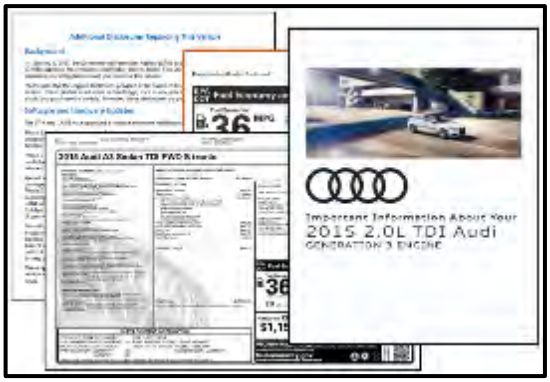
- Once the campaign has been completed, the technician should stamp the repair order.
- Stamps are available for ordering through the Compliance Label Ordering Portal (item# AUD4927ENG).

ALL WORK IS COMPLETE for Repair, continue to Appendix A if vehicle is within New vehicle inventory.

NOTE

At this time, refer to the ELSA and address any additional open campaigns/recalls.

Appendix A – Requirements for Vehicles within "New" Vehicle Inventory

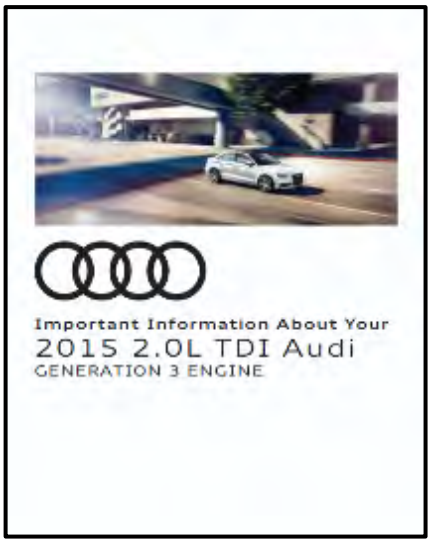


NOTE

Vehicle Sales REQUIREMENTS!

Additional ***REQUIRED*** steps are necessary for NEW vehicles prior to sale.

- For **NEW** vehicles, obtain VIN-specific and other necessary items according to Appendix A. Complete Appendix A in addition to this repair.



- Open glove box and insert the 2015 2.0L TDI (Generation 3) Information Packet <pictured left>.

- Insert the Owner's Manual Supplement into the Owner's Manual.

- Remove original Monroney Label and discard.
- Install new Monroney Label <example pictured left> on the rear passenger side window <example pictured below>.

TIP

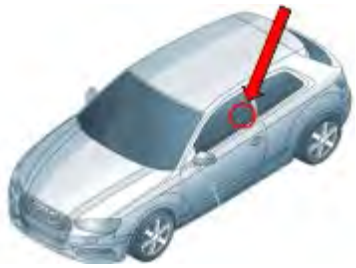
Monroney Labels are VIN-specific. Obtain new label as required from Sales department, Service Manager, General Manager, or other authorized dealer personnel.

- Install new Fuel Economy Label <example pictured left> to the right of the new Monroney Label. If necessary, use the passenger front window <example pictured below>.

TIP

Fuel Economy Labels are VIN-specific. Obtain new label as required from Sales department, Service Manager, General Manager, or other authorized dealer personnel.

- Example of properly Installed Monroney and Fuel Economy Labels <pictured left>.



- Place the “more information” permanent window sticker <pictured left> on the front driver-side window in the lower right corner of the window <arrow>. Install the sticker from the inside of the window.
    - Affix the “more information” sticker to the front driver-side window as necessary either above, beside, or under any other required State and/or Local Labels (example, California Prop 65).

TIP

“More information” permanent window stickers can be obtained from the Sales department, Service Manager, General Manager, or other authorized dealer personnel.

Appendix B - Phase 2B Required Parts

Position	QTY	Part Number	Description	Parts Kit
1	1	04L 131 670 GX	Emissions Control Module (DPF/SCR/DOC)	X
2	1	N 10604403	Top bolt for DPF	X
3	1	N 10646901	Lower bolt for DPF (top position)	X
4	1	N 91108301	Lower bolt for DPF (bottom position)	X
5	1	1K0 253 115 AE	Gasket -DPF to Exhaust Pipe	X
6	1	1K0 253 725	Clamp - DPF to Exhaust Pipe	X
7	1	04L 253 725 B	Clamp - DPF to Turbo	X
8	1	04L 253 115 A	Gasket -DPF to Turbo	X
9	1	04L 131 547	Gasket - EGR cooler to DPF	X
10	1	04L 131 455 A	Gasket - EGR cooler to DPF	X
11	2	N 91012502	Side bolt for DPF	X
12	1	04L 253 725 D	Clamp - Adblue Injector to DPF	X
13	1	04L 253 115	Gasket - Adblue injector to DPF	X
14	1	5Q0 129 646	Turbocharger fresh air inlet pipe O-ring	O
15	1	04L 145 117	Turbocharger inlet muffler O-ring	O
16	1	04L 145 119 A	Turbocharger charge air tube O-ring	O
17	2	N 10769401	Spring clips for differential pressure sensor lines	O
21	6	N 10785401	Bolt - Subframe (M12 x 95)	X
22	4	N 91231201	Bolt - Subframe Bracket (M10 x 30)	O
23	1	N 91167101	Bolt - Pendulum Support (M12 x 75)	X
24	1	N 10699401	Bolt - Pendulum Support (M12 x 50)	X
25	1	N 01033513	Bolt - Steering shaft to steering gear	X
26	2	N 0150816	Nut - Stablizer Link	X
27	2	N 90942902	Nut - Tie Rod End	X
28	6	N 10332002	Nut - Ball Joint	X
30	1	1K0 423 187 F	Steering Gear Grommet	O
35	1	1K0 253 141 S	Exhaust Clamp**	Used in 2A, but also needed in 2B
29	3	WHT 000 729 A	Noise Insulation Bolts**	

X	Included in Phase 2B parts kit
O	Included in Phase 2B sub-kit part # 8P0298201
**	Parts are also included in 2A kit

Phase 2B Required Parts Location