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Repair Manual Audi A4 2015 > Audi A4 China 2016 > Audi A5 2016 >

4-Cylinder Direct Injection 2.0L 4V TFSI Engine (EA 888 Generation III)

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Edition 11.2019

Service

List of Workshop Manual Repair Groups

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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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00 – General, Technical Data

Identification

(Edition 11.2019)

Refer to \Rightarrow Rep. Gr. 00; Identification.





2 Safety Precautions

Refer to ⇒ Rep. Gr. 00 ; Safety Precautions .





Repair Information 3

Refer to ⇒ Rep. Gr. 00; Repair Information.





10 – Engine Assembly

1 Engine, Removing and Installing

⇒ "1.1 Engine, Removing", page 4

⇒ "1.2 Engine, Securing to Engine and Transmission Holder", page 31

⇒ "1.3 Engine, Installing", page 31

1.1 Engine, Removing

⇒ "1.1.1 Engine, Removing, Vehicle with Generator", page 4

⇒ "1.1.2 Engine, Removing, Vehicle with Starter Generator", page 16

1.1.1 Engine, Removing, Vehicle with Generator

Special tools and workshop equipment required

- ◆ Engine Support Bridge 10-222A-
- ♦ Engine Support Bridge Spindle 10-222A/11-
- ♦ Engine Sling 2024A-
- ♦ Shop Crane VAS6100-
- ◆ Engine Support Bridge Adapter 3147-
- Ring Wrench 7-Piece Set 3337-
- Torque Wrench 1332 Insert Ring Wrench 16mm -VAG1332/14-
- ♦ Shop Crane VAS6100-
- ◆ Engine Bung Set VAS6122-
- Coolant Collection System VAS5014- or Shop Crane Drip Tray - VAS6208-
- ♦ Hose Clip Pliers VAS6362-
- Torque Wrench Adapter VAS6948-
- ♦ Locking Pin T10060A-
- Engine Support Supplement Kit Adapter T40093/6- from the Engine Support - Supplement Kit - T40093B-
- Wrench 21mm T40263-
- ♦ Adapter T40314-
- Protective Eyewear
- ♦ Safety Gloves

Procedure

- Remove the engine upward without the transmission.
- During installation, all cable ties must be installed at the same location.
- Observe the guidelines for clean working conditions. Refer to
 ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr.
 00; Repair Information; Guidelines for Clean Working Conditions.

- Disconnect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting
- Engage the 4th gear on versions with a manual transmission.
- Carefully pull the engine cover off the retaining pins one after the other in direction of -arrows-. Do not remove the engine cover on one side or in a jerking manner.

WARNING

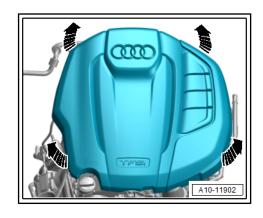
The Cooling System Is Under Pressure When the Engine Is Warm. There is a Risk of Scalding Due to Hot Steam and Hot Coolant.

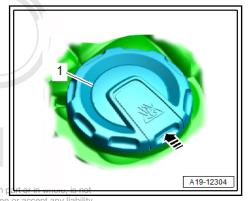
Scalding the Skin and Other Parts of the Body Is Possible.

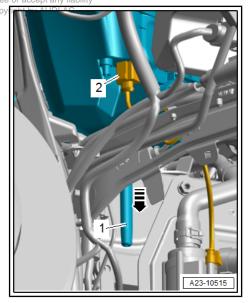
- Wear safety gloves.
- Wear protective eyewear.
- Reduce the pressure by covering the coolant expansion tank cap with a cloth and carefully opening it.
- Open the coolant expansion tank cap -1- by releasing the catch in direction of -arrow- if necessary.
- Remove the front wheels. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44; Wheels, Tires.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing.
- Remove the left and right wheel spoiler as well as the right front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Front Wheel Housing Liner, Removing and Installing.

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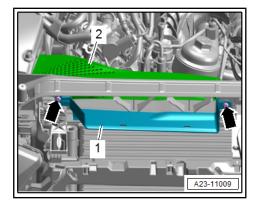
Equipment version: disconnect the connector 22 for the Intakent. Cop Air Switch-Over Valve - N335- and remove the water drain -1- downward in direction of -arrow-.



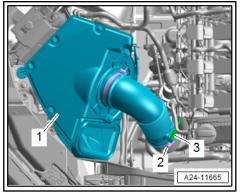




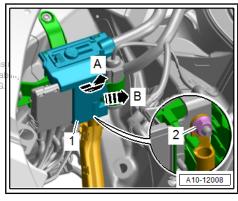
- Remove the lock carrier cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper.
- Remove the bolts -arrows- and the air guide -2-.



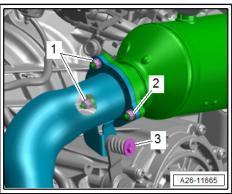
- Remove the vacuum hose -3-.
- Loosen the hose clamp -2- and remove the air duct hose.
- Pull the air filter housing -1- upward.



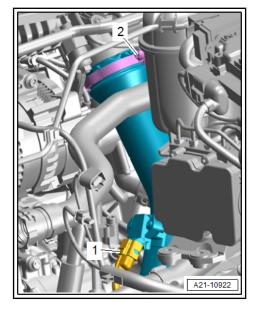
- Release the latch in direction of -arrow B- and open the E-box -1- in direction of -arrow A-.
- Remove the nut -2- and free up the B+ wire.
- Free up philicted by copyright Copyring for private or commercial purposes, in part or in whole, is philipped up and a graph of the private or accept any lia with respect to the correctness of information in this document. Copyright by AUDI AG



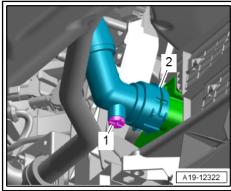
Remove the nuts -1- from the front muffler accessible from the top. (Nut -2- and bolt -3- are removed later.)



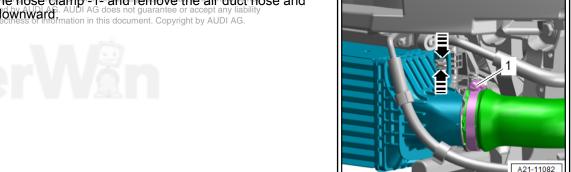
- Disconnect the connector -1- for the Charge Air Pressure Sensor - G31- .
- Loosen the screw-type clamp -2- and remove the air duct pipe from the Throttle Valve Control Module - GX3- .



- Place the container of the -VAS5014- or the -VAS6208- underneath.
- Lift the clamp -2- and remove the coolant hose from the lower right of the radiator and drain the coolant.
- Loosen the left front wheel housing liner in the front area and push slightly toward the rear. Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Overview Front Wheel Housing Liner.



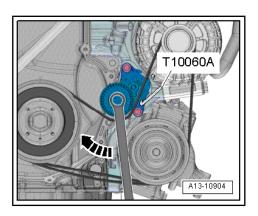
Protected by Coosen the hose clamp of erand remove the air duct hose and permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



CAUTION

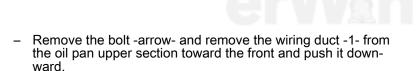
Risk of Destroying a Used Ribbed Belt by Reversing the Running Direction

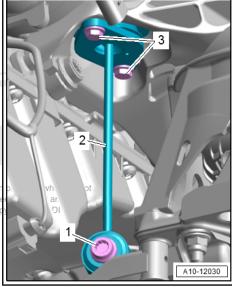
- Mark the running direction before removal.
- Pay attention to the running direction when reinstalling.
- Pivot the tensioner counter-clockwise in direction of -arrowand remove the ribbed belt from the A/C compressor ribbed belt pulley.
- Secure the tensioner using the -T10060A-.
- Remove the A/C compressor from the bracket. Refer to \Rightarrow Heating, Ventilation and Air Conditioning; Rep. Gr. 87; A/C Compressor, A/C Compressor, Removing and Installing at Bracket.
- Remove the left and right bolt -1- for the support bearing -2-.

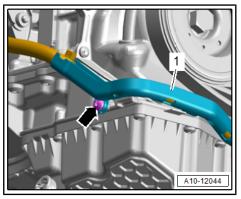




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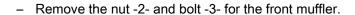
Loosen the hose clamp -arrow- and remove the air duct hose at the right from the turbocharger.

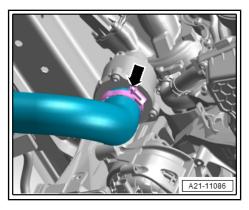


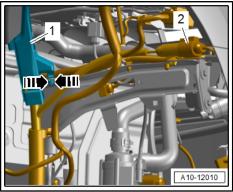
- Remove the connector -2- from the bracket and disconnect it.
- Release the retainers in direction of -arrows- and free up the wiring duct -1-.
- Free up the wiring harness to the engine poses, in part or in whole, is not with respect to the correctness of information in this document. Copyright by AUDI AG.

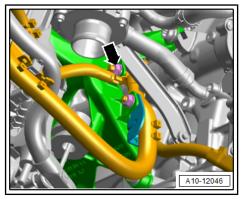


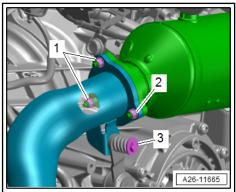
- Remove the nut -arrow- and free up the ground wire.
- Remove the right drive axle heat shield. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40; Drive Axle; Drive Axle Heat Shield, Removing and Installing.
- Remove the left and right drive axles from the transmission. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40; Drive Axle; Drive Axle, Removing and Installing.









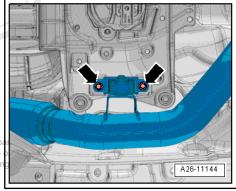


CAUTION

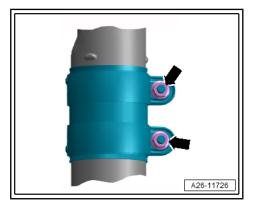
Risk of Damaging the Coupling Due to Improper Handling

- Coupling must not be bent more than 10°.
- Do not load the coupling on the cable.
- Remove the bolts -arrows-.

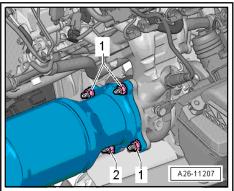
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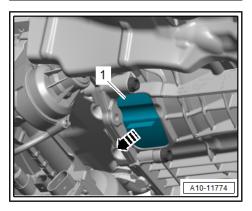
- Loosen the threaded connections -arrows- and slide the clamping sleeves toward the rear.
- Remove the front muffler.



Remove the nut -2- from below. (The nuts -1- will be removed later.)



Remove the lower cover -1- from the transmission in direction of -arrow-.



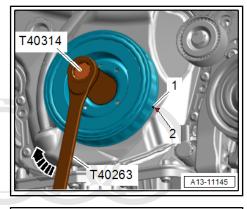
To loosen the bolts for the flywheel, counterhold the crankshaft using the -T40263- and -T40314- .

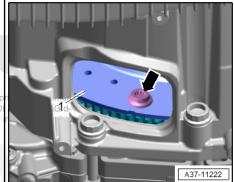


CAUTION

Risk of Damaging the Engine by the Timing Mechanism Skip-

- Only let the engine turn in the direction of engine rotation.
- Turn the crankshaft an additional 120° respectively in the direction of engine rotation -arrow-.
- Remove the three bolts -arrow- for the flywheel -1-.





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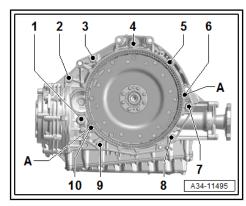
Vehicle with Manual Transmission:

- Loosen the bolt -1- using the VAG1332/14- and -VAS6948- .
- Remove the bolts -6 through 10- that attach the engine to the transmission.

5 A34-10493

Vehicle with Dual-Clutch Transmission:

- Loosen the bolt -1- using the VAG1332/14- and -VAS6948- .
- Remove the bolts -6 through 10- that attach the engine to the transmission.



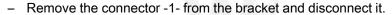
Continuation for All Vehicles:

- Remove the left and right bolt -2- from the engine mount.

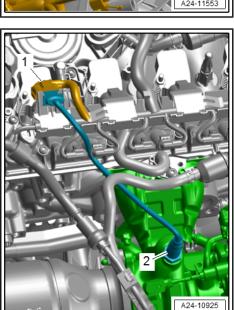


are different installation positions.)

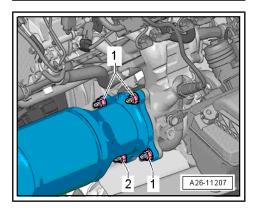
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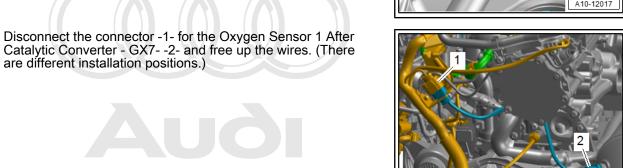


Remove the Oxygen Sensor 1 Before Catalytic Converter -GX10- -2- using a tool from the -3337- .

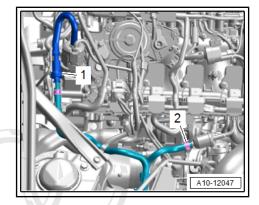


Remove the nuts -1- and the catalytic converter upward.

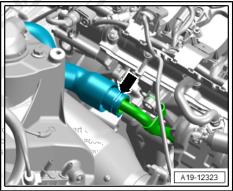




- Disconnect the fuel hose -1-. Refer to ⇒ Fuel Supply System; Rep. Gr. 20; Connector Couplings; Connector Couplings, Disconnecting.
- Loosen the hose clamp -2- and disconnect the hose for the EVAP system.

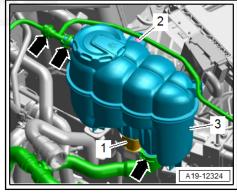


- Pull back the heat shield slightly.
- Lift the clamp -arrow- and remove the coolant hose.



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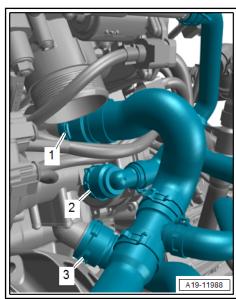
- Lift the clamps -arrows-, remove and free up the coolant ho-
- Disconnect the connector -1- for the Engine Coolant Level Sensor - G32- .
- Remove the bolt -2- and remove the coolant expansion tank -3-.



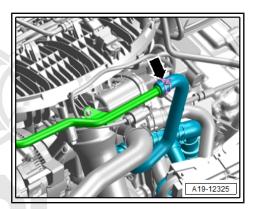
- Lift the clamp -1 and 3-, and remove the coolant hoses.

Vehicle with Dual-Clutch Transmission:

- Lift the clamp -2- and remove the coolant hose.



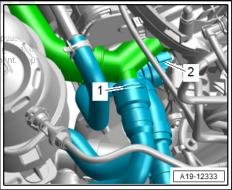
Loosen the hose clamp -arrow- on the left coolant pipe and remove the coolant hose.



Vehicle with Manual Transmission:

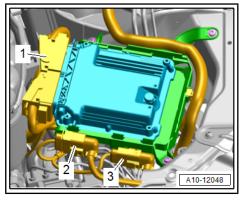
Lift the clamp -1- and remove the coolant hose.
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with respect to the correctness of information in this docu

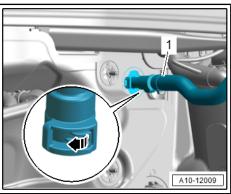


Continuation for All Vehicles:

- Remove the connector -2- from the bracket and disconnect it.
- Disconnect the connector -1- from the engine control module.
- Free up the wiring harness and place on the engine.

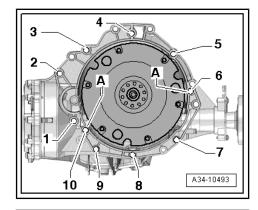


Release the retainer in direction of -arrow- and remove the vacuum hose -1-.



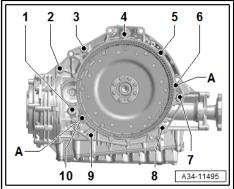
Vehicle with Manual Transmission:

- Remove -2 to 5- that are accessible from above that connect the engine to the transmission.
- Remove the starter slightly from the transmission and leave it in the installation position.



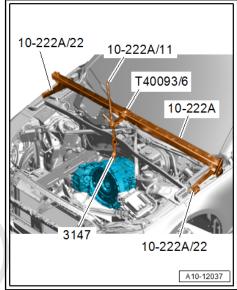
Vehicle with Dual-Clutch Transmission:

Remove the bolts -2 to 5- that are accessible from above that connect the engine to the transmission.



Continuation for All Vehicles:

- Position the -10-222A- with the -10-222A/22- on the left and right fender bolting edges as shown.
- Connect the transmission and -10-222A/11- with the -3147- . (Shown with the engine removed.)
- Slightly pre-tension the transmission using the spindle.









Engage the -2024A- on the engine and on the -VAS6100- as



There Is a Risk of Injury from the Lifted Engine Falling. Parts of the Body Could Be Crushed.

- Secure the mounting hooks and pins on the lifting tackle with a securing pin.
- Secure the mounting hooks and pins on the engine support bridge using securing pins -arrows-.
- Lift the engine until the engine mount is free.
- Turn the -10-222A/11-.

CAUTION

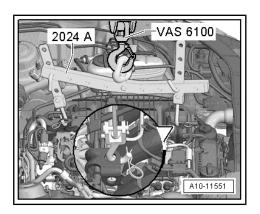
Risk of Damaging the Lines and Hoses and the Engine Compartment When Removing the Engine

- Make sure all connections between the engine, transmission, subframe and body have been disconnected.
- Remove the engine from the transmission and lift it upward out of the engine compartment.

1.1.2 Engine, Removing, Vehicle with Starter Generator

Special tools and workshop equipment required

- Engine Support Bridge 10-222A-
- Engine Support Bridge Spindle 10-222A/11-
- Engine Sling 2024A-
- Shop Craned VAS61000 pying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- Engine Support Bridge Adapter 3747-in this document. Copyright by AUDI AG.
- Ring Wrench 7-Piece Set 3337-
- Torque Wrench 1332 Insert Ring Wrench 16mm -VAĠ1332/14-
- Shop Crane VAS6100-
- Engine Bung Set VAS6122-
- Coolant Collection System VAS5014- or Shop Crane Drip Tray - VAS6208-
- Hose Clip Pliers VAS6362-
- Torque Wrench Adapter VAS6948-
- Locking Pin T10060A-
- Engine Support Supplement Kit Adapter T40093/6- from the Engine Support - Supplement Kit - T40093B-
- Wrench 21mm T40263-
- Adapter T40314-
- Protective Eyewear
- Safety Gloves





Procedure

- Remove the engine upward without the transmission.
- During installation, all cable ties must be installed at the same location.
- Observe the guidelines for clean working conditions. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 00; Repair Information; Guidelines for Clean Working Conditions.
- Disconnect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting.
- Engage the 4th gear on versions with a manual transmission.
- Carefully pull the engine cover off the retaining pins one after the other in direction of -arrows-. Do not remove the engine permittecovers on one side or in a jerking manner or accept any liability

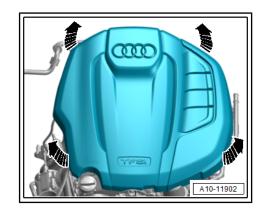


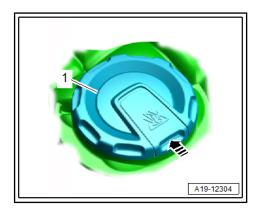
WARNING

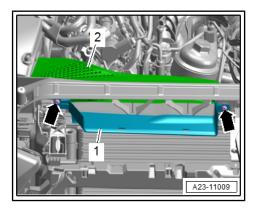
The Cooling System Is Under Pressure When the Engine Is Warm. There is a Risk of Scalding Due to Hot Steam and Hot Coolant.

Scalding the Skin and Other Parts of the Body Is Possible.

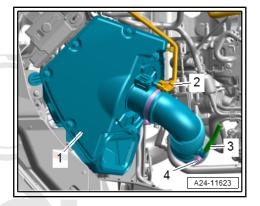
- Wear safety gloves.
- Wear protective eyewear.
- Reduce the pressure by covering the coolant expansion tank cap with a cloth and carefully opening it.
- Open the cover -1- for the coolant expansion tank by releasing the catch -arrow-.
- Remove the front wheels. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44; Wheels, Tires.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing.
- Remove the left and right wheel spoiler and loosen the right front wheel housing liners. Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Overview - Front Wheel Housing Liner.
- Remove the plenum chamber bulkhead. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; Plenum Chamber Bulkhead, Removing and Installing.
- Remove the lock carrier cover, right and left air intake grille as well as the bumper cover end plate. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper; Overview - Front Bumper.
- Remove the bolts -arrows- and then remove the air guides -1 and 2-.



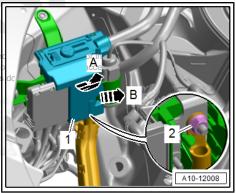




- Disconnect the connector -2- for the Mass Airflow Sensor -G70- .
- Remove the vacuum hose -3-.
- Loosen the hose clamp -4- and remove the air duct hose.
- Pull the air filter housing -1- upward.



- Release the latch in direction of -arrow B- and open the E-box -1- in direction of -arrow A-.
- Remove the nut -2- and free up the B+ wire.
- Protected by copyright. Copying for private or comme
 Free up the upper wiring duct. permitted unless authorised by AUDI AG. AUDI AG. with respect to the correctness of information in th

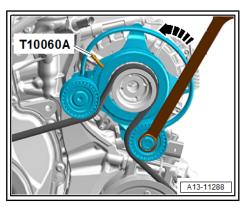


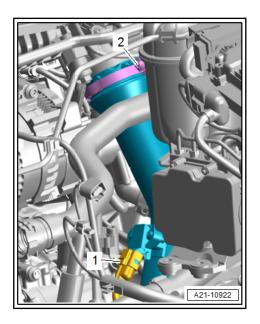


CAUTION

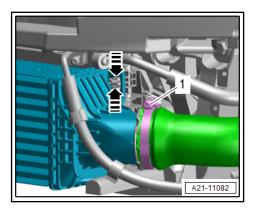
Risk of Destroying a Used Ribbed Belt by Reversing the Running Direction

- Mark the running direction before removal.
- Pay attention to the running direction when reinstalling.
- Turn the tensioner in direction of -arrow- to release the tension on the ribbed belt.
- Secure the tensioner using the -T10060A-.
- Remove the ribbed belt.
- Disconnect the connector -1- for the Charge Air Pressure Sensor - G31-.
- Loosen the screw-type clamp -2- and remove the air duct pipe from the Throttle Valve Control Module - GX3-.
- Loosen the left front wheel housing liner in the front area and push slightly toward the rear. Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Overview - Front Wheel Housing Liner.

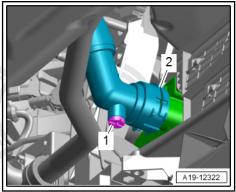




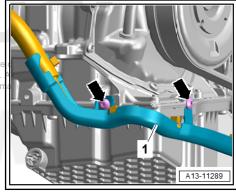
Loosen the hose clamp -1- and remove the air duct hose and remove downward.



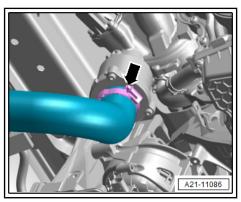
- Place the container of the -VAS5014- or the -VAS6208- underneath.
- Lift the clamp -2- and remove the coolant hose from the lower right of the radiator and drain the coolant.



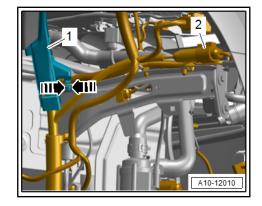
- Remove the bolts -arrows- and push the wiring duct downward -1-. There are different versions.
- Remove the A/C compressor from the bracket. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87; A/C Compressor; A/C Compressor, Removing and Installing at AUDI AG. Bracket.



Loosen the hose clamp -arrow- and remove the air duct hose at the right from the turbocharger.



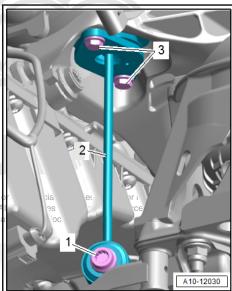
- Remove the connector -2- from the bracket and disconnect it.
- Release the catches in direction of -arrows- and free up the wiring duct -1-.
- Free up the wiring harness to the engine.



- Remove the nut -arrow- and free up the ground wire.

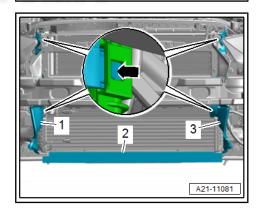


Remove the left and right bolts -1-.

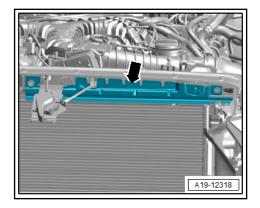


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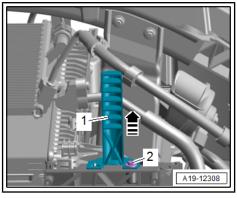
- Release the catches -arrow- and remove the air ducts
 -1 and 3-.
- Unclip the air duct -2-.



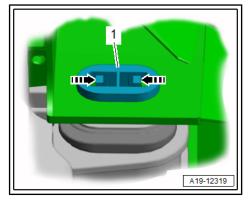
Remove the upper air duct -arrow-.



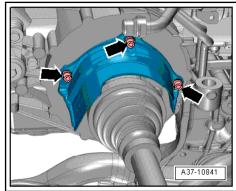
Remove the left and right bolt -2- and push the radiator bracket -1- with the bolt toward the front in direction of -arrow-.



- Release the left and right catches in direction of -arrows- and remove the retaining pin -1- for the radiator upward.
- Push the radiator slightly forward.

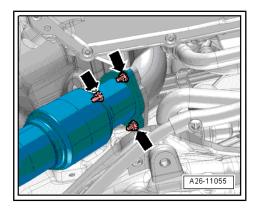


- Remove the bolts -arrows- and remove the right drive axle heat shield.
- Remove the left and right drive axles from the transmission. Refer to \Rightarrow Suspension, Wheels, Steering; Rep. Gr. 40; Drive Axle; Drive Axle, Removing and Installing.
- Remove the steering intermediate shaft from the steering gear and push together. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Steering Column; Steering Intermediate Shaft, Removing and Installing.





Remove the nuts -arrows- from the front muffler.

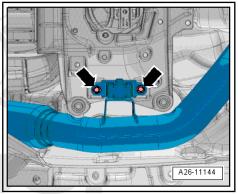




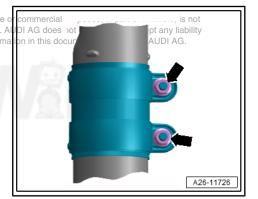
CAUTION

Risk of Damaging the Coupling Due to Improper Handling

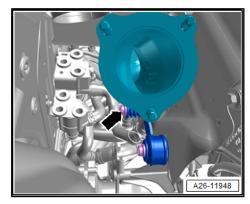
- Coupling must not be bent more than 10°.
- Do not load the coupling on the cable.
- Remove the bolts -arrows-. (Shown on the right)



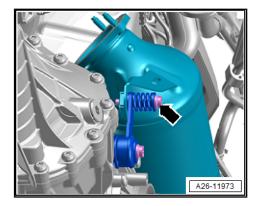
- Loosen the clamping sleeve -arrows-pand push toward the for private of rear. permitted unless authorised by AUDI AG. A with respect to the correctness of information
- Remove the front muffler.



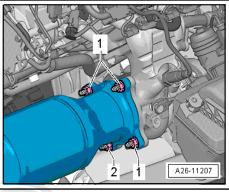
Remove the bolt -arrow- from the particulate filter bracket.



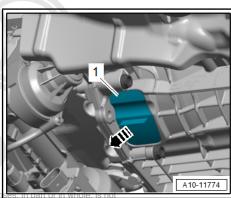
Remove the bolt -arrow- from the catalytic converter bracket.



Remove the catalytic converter nut -2-. (The nuts -1- will be removed later.)



Remove the lower cover -1- from the transmission in direction of -arrow-.



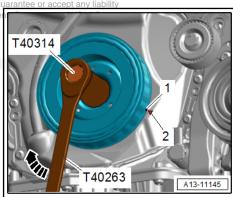
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To loosen the bolts for the flywheel; counterhold the crankshaft using the -T40263- and -T40314- .

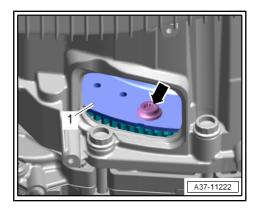
CAUTION

Risk of Damaging the Engine by the Timing Mechanism Skip-

- Only let the engine turn in the direction of engine rotation.
- Turn the crankshaft an additional 120° respectively in the direction of engine rotation -arrow-.

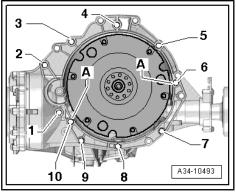


- Remove the three bolts -arrow- for the flywheel -1-.



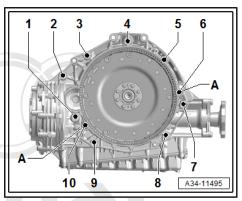
Vehicle with Manual Transmission:

- Loosen the bolt -1- using the VAG1332/14- and -VAS6948- .
- Remove the bolts -6 through 10- that attach the engine to the transmission.



Vehicle with Dual-Clutch Transmission:

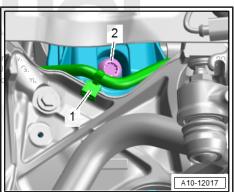
- Loosen the bolt -1- using the VAG1332/14- and -VAS6948- .
- Remove the bolts -6 through 10- that attach the engine to the transmission.



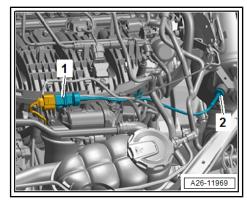
Continuation for All Vehicles:

- Remove the left and right bolt -2- from the engine mount.

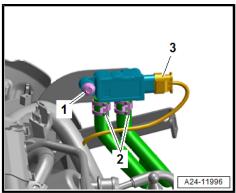
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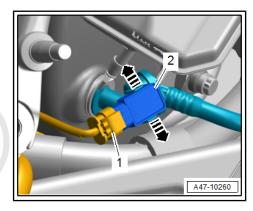
Free up and disconnect the connector -1- for the Exhaust Gas Temperature Sensor 4 - G648- .



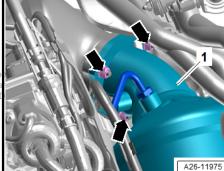
- Disconnect the connector -3-.
- Remove the bolt -1-, and free up the Differential Pressure Sensor - G505- .



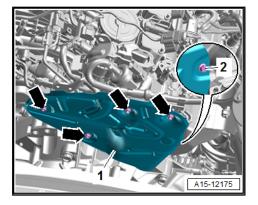
Disconnect the connector -1- from the Vacuum Sensor - G608-



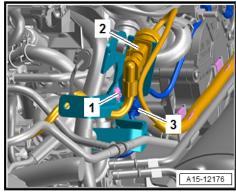
Remove the nuts -arrows- and push the particulate filter -1- to the rear.



- Free up the wires on the heat shield -1-.
- Remove the nuts -arrows- and bolts -2- and remove the heat shield. (Shown with the particulate filter removed).



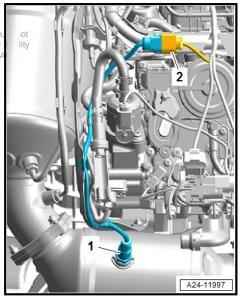
- Remove the connector -2- for the Exhaust Gas Temperature Sensor 3 G495- from the bracket and disconnect.
- Open the clip -3- and free up the vacuum hose.
- Remove the bolt -1-, and push aside the bracket. There are different versions.
- Remove the particulate filter.



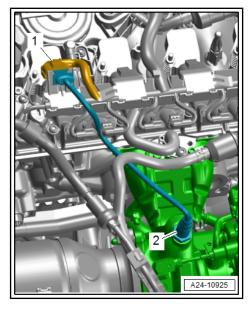
Disconnect the connector -2- for the Oxygen Sensor 1 After Catalytic Converter - GX7- -1- and free up the wires.

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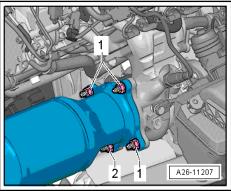
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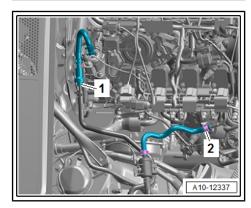
- Disconnect the connector -1- for the Oxygen Sensor 1 Before Catalytic Converter GX10- -2-. (There are different installation positions.)
- Free up the wiring harness on the engine and move to the side.



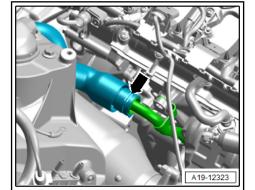
Remove the nuts -1- and the catalytic converter toward the rear upward.



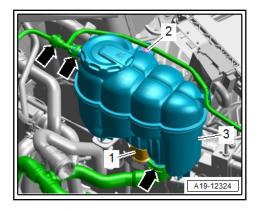
- Disconnect the fuel hose -1-. Refer to ⇒ Fuel Supply System; Rep. Gr. 20; Connector Couplings; Connector Couplings, Disconnecting.
- Loosen the hose clamps to disconnect the hose for the EVAP system -2-.



Lift the clamp -arrow- and remove the coolant hose.



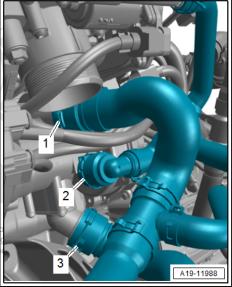
- Lift up the clamps -arrows- and remove and free up the coolant
- Disconnect the connector -1- for the Engine Coolant Level Sensor - G32- .
- Remove the bolt -2- and remove the coolant expansion tank



- Lift the clamp -1 and 3-, and remove the coolant hoses.

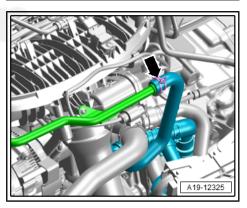
Vehicle with Dual-Clutch Transmission:

- Lift the clamp -2- and remove the coolant hose.



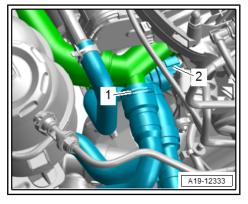
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Loosen the hose clamp -arrow- on the left coolant pipe and remove the coolant hose.



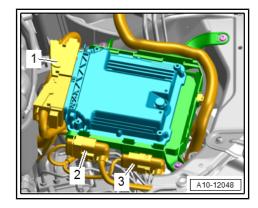
Vehicle with Manual Transmission:

- Lift the clamp -1- and remove the coolant hose.

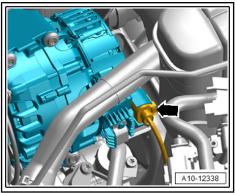


Continuation for All Vehicles:

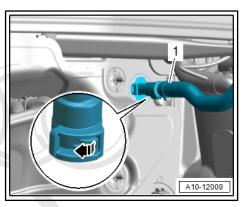
- Remove the connector -2- from the bracket and disconnect it.
- Disconnect the connector -1- from the engine control module.
- Free up the wiring harness and place it on the engine.



- Disconnect the connector -arrow- for the starter generator.

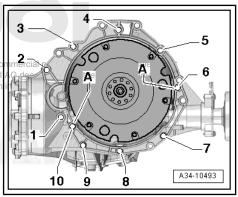


Release the retainer in direction of -arrow- and remove the vacuum hose -1-.



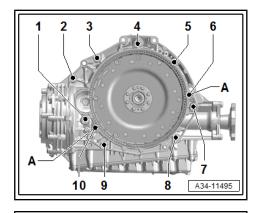
Vehicle with Manual Transmission:

- Remove -2 to 5- that are accessible from above that connect the engine to the transmission.
- Remove the starter slightly from the transmission and leave its. AUDI in the installation position. with respect to the correctness of informatio



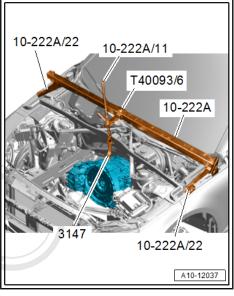
Vehicle with Dual-Clutch Transmission:

 Remove the bolts -2 to 5- that are accessible from above that connect the engine to the transmission.



Continuation for All Vehicles:

- Position the -10-222A- with -10-222A/22- on the left and right fender bolting edges as shown. (Shown with the engine removed.)
- Connect the transmission and -10-222A/11- with the -3147- .
- Slightly pre-tension the transmission using the spindle.



 Engage the -2024A- on the engine and on the -VAS6100- as shown.

A

WARNING

There is a Risk of Injury from the Eifted Engine Falling roommercial purpos permitted unless authorised by AUDI AG. AUDI AG does not guar Parts of the Body Could Be Crushed the correctness of information in this dopument

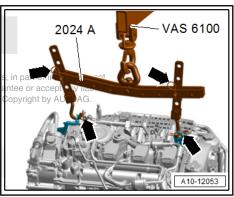
- Secure the mounting hooks and pins on the lifting tackle with a securing pin.
- Secure the mounting hooks and pins on the engine support bridge using securing pins -arrows-.
- Lift the engine until the engine mount is free.
- Turn the -10-222A/11- .



CAUTION

Risk of Damaging the Lines and Hoses and the Engine Compartment When Removing the Engine

- Make sure all connections between the engine, transmission, subframe and body have been disconnected.
- Remove the engine from the transmission and lift it upward out of the engine compartment.



1.2 Engine, Securing to Engine and Transmission Holder

Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine, Removing and Installing; Engine, Securing to Engine and Transmission Holder.

1.3 Engine, Installing

Special tools and workshop equipment required

All special tools listed within Engine, Removing. Refer to <u>"1.1 Engine, Removing", page 4</u> .

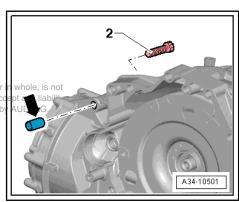
Procedure

- Replace the bolts that were tightened with an additional turn after removing them.
- Replace the self-locking nuts and bolts, gaskets, seals and Orings after removing.
- A needle bearing must be installed in the drive plate on vehicles with a manual transmission. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 13; Cylinder Block, Transmission Side; Needle Bearing in Drive Plate, Replacing.
- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- During installation, all cable ties must be installed at the same location.
- Used coolant cannot be used again.
- Install the engine on the transmission but do not tighten the bolts that connect the transmission to the engine yet. Refer to ⇒ Manual Transmission; Rep. Gr. 34; Transmission, Removing and Installing; Transmission, Installing.

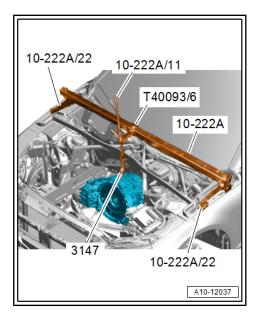
TIP:

The bolt -2- attaches the starter to the transmission and has an additional spacer sleeve -arrow-.

- The spacer sleeve must be inserted between the starter and the transmission of otested by copyright. Copying for private or commercial purposes, in part of permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accommendation of the commendation of t
- Install the starter. Refer to be Electrical Equipment, Reper Gr. opyright b 27; Starter; Starter, Removing and Installing.



- Release the tension on the -10-222A/11-.
- Lower the workshop crane and mount the engine and transmission onto the engine mount.



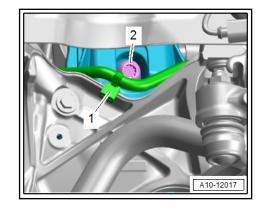




- Remove the left and right bolts -2- from the engine mount.
- Remove the -VAS6100- and -2024A-.
- Tighten the bolts that connect the transmission to the engine. Refer to ⇒ Manual Transmission; Rep. Gr. 34; Transmission, Removing and Installing; Transmission Tightening Specifications.

Further installation is performed in reverse order of removal, while noting the following:

- Connect the fuel hose. Refer to ⇒ Fuel Supply System; Rep. Gr. 20; Connector Couplings; Connector Couplings, Discon-
- Install the Oxygen Sensor 1 Before Catalytic Converter -GX10- . Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Heated Oxygen Sensor; Heated Oxygen Sensor, Removing and Installing .
- Tighten the drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40; Drive Axle; Drive Axle, Removing and Installing .
- Install the drive axle heat shield. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40; Drive Axle; Drive Axle Heat Shield, Removing and Installing.
- Install the A/C compressor. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87; A/C Compressor; A/C Compressor, Removing and Installing from Bracket .
- Install the ribbed belt. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI; Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.
- Install the air filter housing. Refer to ⇒ "2.2 Air Filter Housing, Removing and Installing", page 150.
- For the electrical connections and routing, refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Install the catalytic converter. Refer to ⇒ "2.2 Catalytic Converter, Removing and Installing", <u>page 179</u> .
- Install the exhaust system without tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension",
- Install the bracket and the heat shield on the cylinder head. Refer to
 - ⇒ Fig. ' "Heat Shield Bracket - Tightening Specification", page
 - ⇒ Fig. ""Heat Shield Tightening Specification"", page 62
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Add engine oil. Refer to ⇒ Maintenance; Booklet 830; Maintenance Work; Engine Oil, Filling and check the oil level. Refer to ⇒ Maintenance ; Booklet 830 ; Maintenance Work; Engine Oil, Checking and Correcting if Necessary .
- Follow all steps after connecting the battery. Refer to AUDI AG does not guarantee or accept any liability trical Equipment; Rep. Gr. 27; Battery: Battery: Disconnectingation in this document. Copyright by AUDI AG. and Connecting.





CAUTION

There Is a Risk of Destroying the Control Modules Due to Excessive Voltage

Do not use a battery charger to jump start!

After Replacing the Engine, Adaptations Need to be Made. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 00; Repair Information; Perform Adaptations after Replacing Components.

- Connect the coolant hose to the connector coupling. Refer to
 ⇒ Fig. ""Connect the Coolant Hose to the Connector Coupling"", page 119.
- Fill with coolant. Refer to
 ⇒ Fig. ""Coolant, Filling"", page 97.
- Install the wheel housing liners and wheel spoilers. Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Overview
 Front Wheel Housing Liner .
- Install the front wheels. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44; Wheels, Tires.
- Install the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr.
 66; Noise Insulation; Overview Noise Insulation .

Tightening Specifications

- The tightening specifications only apply to lightly greased, oiled, phosphated or blackened nuts and bolts.
- Additional lubricants, such as engine or transmission oil are permissible, although lubricants containing graphite are not.
- Do not use any ungreased parts.
- ◆ Tightening specification tolerance: ±15%.

Component		Tightening Specifications
Bolts and nuts	M6	9 Nm
	M7	15 Nm
	M8	20 Nm
	M10	40 Nm
	M12	65 Nm

- Refer to ⇒ "2.1 Overview Subframe Mount", page 35
- ◆ Engine to transmission. Refer to ⇒ Transmission; Rep. Gr. 34; Transmission, Removing and Installing; Transmission Tightening Specifications.



2 Subframe Mount

- ⇒ "2.1 Overview Subframe Mount", page 35
- ⇒ "2.2 Engine, Supporting in Installation Position", page 38
- ⇒ "2.3 Engine Mount, Removing and Installing", page 38
- ⇒ "2.4 Transmission Mount, Removing and Installing", page 41

2.1 Overview - Subframe Mount

- Overview Engine Mount. Refer to ⇒ page 35.
- Overview Manual Transmission Mount. Refer to <u>⇒ page 36</u> .
- ♦ Overview Dual Clutch Transmission Mount. Refer to ⇒ page 37 .

Overview - Engine Mount

1 - Subframe

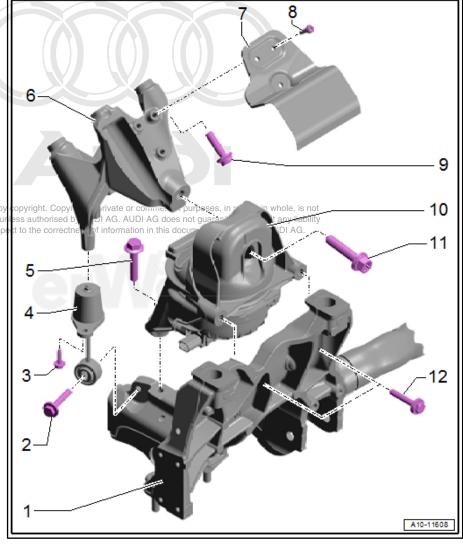
- 2 Bolt
 - □ 20 Nm
- 3 Bolt
 - □ 10 Nm

4 - Support Bearing

- ☐ Installation position. Refer to
 - ⇒ Fig. ""Support Bearing, Installation Position"", page 36
- Removing and installing. Refer to 2.3.2 Support Bearing, Removing and Installing", page 40.
- 5 Bolt
 - □ 55 Nm

6 - Engine Support

- Removing and installing. Refer to ⇒ "1.6 Engine Support, Removing and Installing", page 49
- 7 Heat Shield
- 8 Bolt
 - □ 10 Nm
- 9 Bolt
 - □ 55 Nm
- 10 Engine Mount
 - ☐ With
- ◆ Left Electrohydraulic Engine Mount Solenoid Valve N144-
- ♦ Right Electrohydraulic Engine Mount Solenoid Valve N145-
 - □ Removing and installing. Refer to ⇒ "2.3.1 Engine Mount, Removing and Installing", page 38.



11 - Bolt

- □ 90 Nm + 90°
- Always replace after removing.

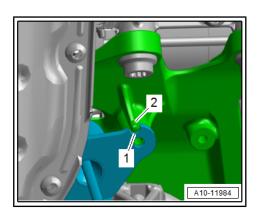
12 - Bolt

□ 30 Nm

Support Bearing, Installation Position

♦ The raised section -2- of the engine support must engage into the opening -1- on the support bearing.

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Overview - Manual Transmission Mount

1 - Nut

- ☐ Tightening specifications. Refer to ⇒ Rep. Gr. 34; Subframe Mount; Overview Subframe Mount.
- Only remove when the transmission mount must be separated from the transmission support

2 - Bolt

☐ Tightening specifications. Refer to ⇒ Rep. Gr. 34; Subframe Mount; Overview - Subframe Mount.

3 - Tunnel Crossmember

□ Removing and installing. Refer to ⇒ Manual Transmission; Rep. Gr. 34; Subframe Mount; Overview - Subframe Mount.

4 - Stop

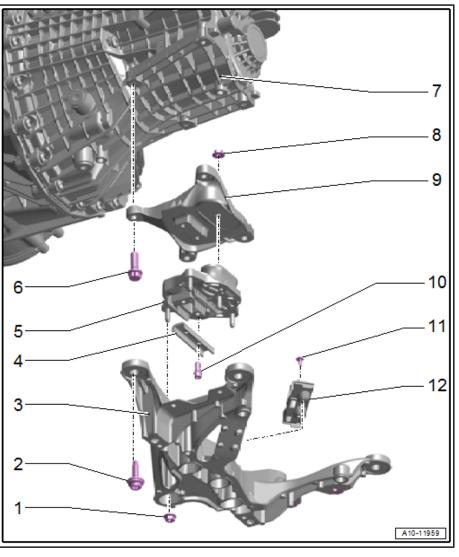
☐ For the transmission mount

5 - Transmission Mount

□ Removing and installing. Refer to
 ⇒ "2.4 Transmission Mount, Removing and Installing", page 41

6 - Bolt

□ Tightening specifications. Refer to ⇒ Rep. Gr. 34; Subframe Mount; Overview - Subframe Mount .



7 - Transmission

8 - Nut

- ☐ Tightening specifications. Refer to ⇒ Rep. Gr. 34; Subframe Mount; Overview Subframe Mount.
- Only remove when the transmission mount must be separated from the transmission support

9 - Transmission Support

□ Removing and installing. Refer to ⇒ "2.4 Transmission Mount, Removing and Installing", page 41.

10 - Bolt

☐ Tightening specifications. Refer to ⇒ Rep. Gr. 34; Subframe Mount; Overview - Subframe Mount.

11 - Bolt

□ 9 Nm

12 - Bracket

For the connector

Overview - Dual Clutch Transmission Mount

1 - Bolt

□ Tightening specifications. Refer to ⇒ 7-Speed Dual Clutch Transmission; Rep. Gr. 34; Subframe Mount; Overview - Subframe Mount.

2 - Tunnel Crossmember

Removing and installing. Refer to ⇒ 7-Speed Dual Clutch Transmission; Rep. Gr. 34; Subframe Mount; Overview - Subframe Mount .

3 - Stop

□ For the transmission mount

4 - Transmission Mount

Removing and installing. Refer to <u>2.4 Transmission</u> Mount, Removing and Installing", page 41

5 - Transmission

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- with respect to the correctness of information tions. Refer to ⇒ 7-Speed Dual Clutch Transmission; Rep. Gr. 34; Subframe Mount; Overview - Subframe Mount.
- Only remove when the transmission mount must be separated from the transmission support

8 mercial purposes, in pa DI AG does not guarar 10 A10-11614

7 - Transmission Support

□ Removing and installing. Refer to ⇒ "2.4 Transmission Mount, Removing and Installing", page 41.

8 - Bolt

□ Tightening specifications. Refer to ⇒ 7-Speed Dual Clutch Transmission; Rep. Gr. 34 ; Subframe Mount; Overview - Subframe Mount .

9 - Bolt

- □ Tightening specifications. Refer to ⇒ 7-Speed Dual Clutch Transmission; Rep. Gr. 34; Subframe Mount; Overview Subframe Mount .
- Only remove when the transmission mount must be separated from the transmission support

10 - Nut

- □ Tightening specifications. Refer to ⇒ 7-Speed Dual Clutch Transmission; Rep. Gr. 34; Subframe Mount; Overview Subframe Mount .
- Only remove when the transmission mount must be separated from the transmission support

2.2 Engine, Supporting in Installation Position

Special tools and workshop equipment required

◆ Engine Support Bridge - 10-222A-

Procedure

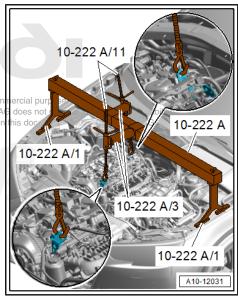
- Remove the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Position the -10-222A- as shown on the left and right fender bolting edges.

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- Engage the -10-222A/11- on the engine litting eye ectness of information in
- Pretension the engine with the spindle, do not lift.

Assembling

Assemble in the reverse order of removal. Note the following:

Install the engine cover. Refer to ⇒ Servicing – 4-Cylinder
 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.



2.3 Engine Mount, Removing and Installing

⇒ "2.3.1 Engine Mount, Removing and Installing", page 38

⇒ "2.3.2 Support Bearing, Removing and Installing", page 40

2.3.1 Engine Mount, Removing and Installing

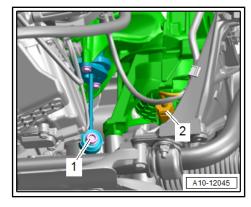
Removing

- Remove the front noise insulation. Refer to ⇒ Body Exterior;
 Rep. Gr. 66; Noise Insulation; Overview Noise Insulation.
- Remove the front wheel spoiler. Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Overview - Front Wheel Housing Liner.

Disconnect the connector -2- for the electro-hydraulic engine mount solenoid valves.

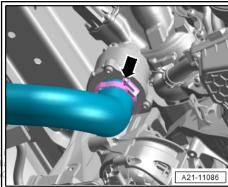
Left Engine Mount:

Remove the bolt -1- for the support bearing.



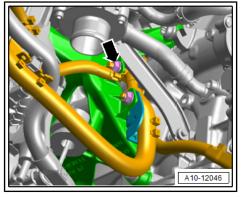
Right Engine Mount:

- Remove the right support bearing. Refer to ⇒ "2.3.2 Support Bearing, Removing and Installing", <u>page 40</u>.
- Loosen the hose clamp -arrow- and remove the air duct hose.

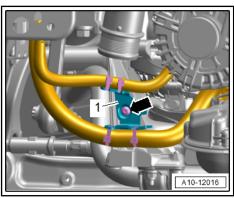


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- Remove the nut -arrow- and free up the ground wire.



Remove the bolt -arrow- and free up the bracket -1- with the wiring harness.



Continuation for Both Sides:

TIP:

Risk of damaging the drive axle: when lifting the engine the drive axles must not come into contact with the suspension struts.

- Support the engine in the installation position (refer to ⇒ "2.2 Engine, Supporting in Installation Position", page 38) and tension with the -10-22A/11- until the engine mount is engaged.
- Remove the bolts -arrows- and engine mount -1-.

Installing

Install in reverse order of removal and note the following:

 Replace the bolts that were tightened with an additional turn after removing them.

Tightening Specifications

- Refer to ⇒ "2.1 Overview Subframe Mount", page 35
- Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview - Charge Air Hose Connections.
- ♦ Ground Wire. Refer to ⇒ Wiring diagrams by Troubleshooting & purposes, in part or in whole, is not Component locations

 PWiring diagrams by Troubleshooting & purposes, in part or in whole, is not Component locations

 Wiring diagrams by Troubleshooting & purposes, in part or in whole, is not Component locations
- ◆ Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Overview - Front Wheel Housing Liner.
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation.

2.3.2 Support Bearing, Removing and Installing

Removing

- Remove the front noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing.
- Remove the bolts -1 and 3- and remove the support bearing -2-.

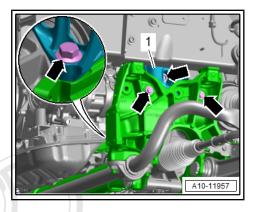
Installing

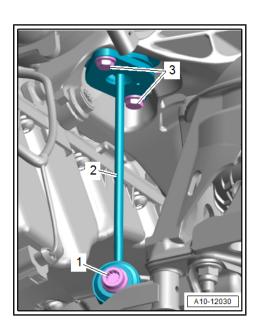
Install in reverse order of removal and note the following:

- Replace the bolts that were tightened with an additional turn after removing them.
- Note the installation position. Refer to
 ⇒ Fig. ""Support Bearing, Installation Position"", page 36.

Tightening Specifications

- ◆ Refer to ⇒ "2.1 Overview Subframe Mount", page 35
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation.



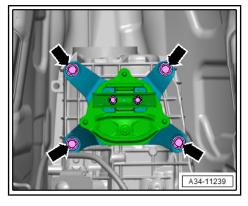




2.4 Transmission Mount, Removing and Installing

Transmission Support, Removing with Transmission Mount

- Remove the tunnel crossmember. Refer to ⇒ Transmission; Rep. Gr. 34; Subframe Mount; Overview - Subframe Mount.
- Remove the bolts -arrows- and remove the transmission support with the transmission mount from the transmission.



Transmission Mount, Removing

- Remove the bolts -1- and remove the stop -2- for the transmission mount.
- Remove the nut -5- and remove the transmission mount -3from the transmission support -4-.

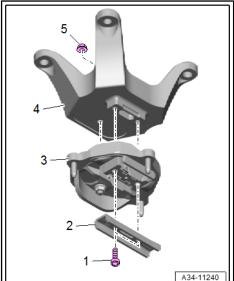
Installing

- Tighten the nut -5- hand-tight.
- Tighten the bolts -1- and then the nut -5-.

Further installation is the reverse order of removal.

Tightening Specifications

Refer to ⇒ Manual Transmission; Rep. Gr. 34; Subframe Mount; Overview - Subframe Mount.





3 **Engine Cover**

Refer to \Rightarrow Rep. Gr. 10; Engine Cover.



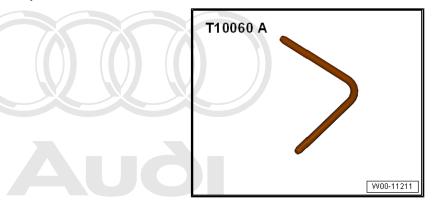




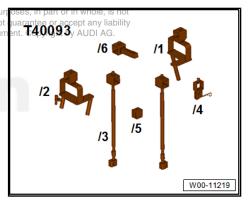
Special Tools 4

Special tools and workshop equipment required

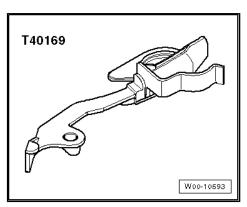
♦ Locking Pin - T10060A-



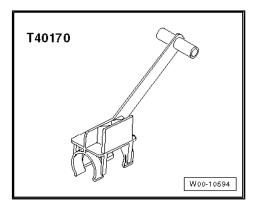
Engine Support - Supplement Kit - Adapter 140093/6- from rolal put the Engine Support - Supplement Kit The 40093A-of information in this document



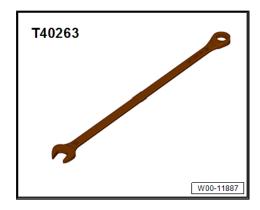
♦ Clutch Module Assembly Aid - T40169-



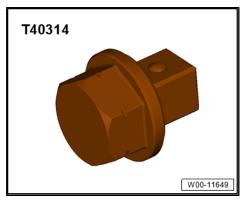
♦ Clutch Module Transportation Lock - T40170-



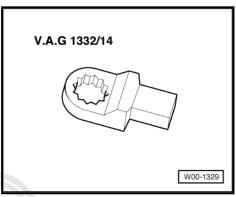
♦ Wrench - 21mm - T40263-



♦ Adapter - T40314-



◆ Torque Wrench 1332 Insert - Ring Wrench - 16mm - VAG1332/14-



Engine and Gearbox Bracket VAS6095A - VAS6095A-



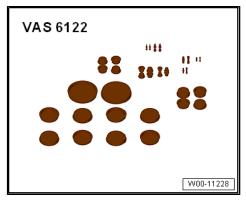




♦ Shop Crane - VAS6100-



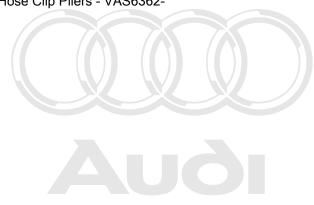
♦ Engine Bung Set - VAS6122-



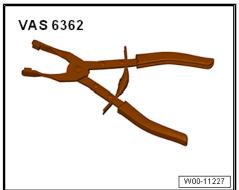
Coolant Collection System - VAS5014- or Shop Crane - Drip Tray - VAS6208-



♦ Hose Clip Pliers - VAS6362-

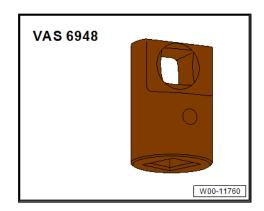


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◆ Torque Wrench Adapter - VAS6948-



Holding Fixture - VW540-



♦ Engine Support Bridge - 10-222A-



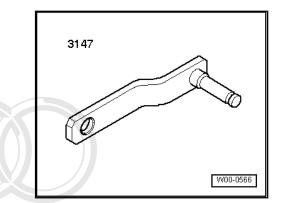
♦ Engine Sling - 2024A-





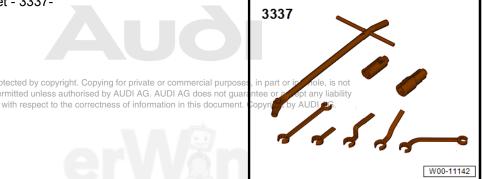


♦ Engine Support Bridge Adapter - 3147-



♦ Ring Wrench 7-Piece Set - 3337-





13 – Crankshaft, Cylinder Block

1 Cylinder Block, Belt Pulley Side

- ⇒ "1.1 Overview Cylinder Block, Belt Pulley Side", page 48
- ⇒ "1.2 Ribbed Belt, Removing and Installing", page 48
- ⇒ "1.3 Ribbed Belt Tensioner, Removing and Installing", page 48
- ⇒ "1.4 Vibration Damper, Removing and Installing", page 48
- ⇒ "1.5 Sub-Assembly Bracket, Removing and Installing", page 49
- ⇒ "1.6 Engine Support, Removing and Installing", page 49
- 1.1 Overview Cylinder Block, Belt Pulley Side

Refer to \$\Rightarrow\$ Servicing - 4-Cylinder 1.8L; 2.0L 4V TFSI Engine du by copyright. Copyright Copyright or commercial purposes, in part or in whole, is not Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Overview - Cylinder block authorised by AUDI AG. AUDI AG does not guarantee or accept any liability Block, Belt Pulley Side .

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1.2 Ribbed Belt, Removing and Installing

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

1.3 Ribbed Belt Tensioner, Removing and Installing

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt Tensioner, Removing and Installing.

1.4 Vibration Damper, Removing and Installing

Removing

Remove the fan shroud. Refer to
 ⇒ "4.3 Fan Shroud, Removing and Installing", page 124 .

Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Vibration Damper, Removing and Installing .

Installing

Additional procedures:

Install the fan shroud. Refer to
 ⇒ "4.3 Fan Shroud, Removing and Installing", page 124.





1.5 Sub-Assembly Bracket, Removing and Installing

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Sub-Assembly Bracket, Removing and Installing.

1.6 Engine Support, Removing and Installing

⇒ "1.6.1 Left Engine Support, Removing and Installing", <u>page 49</u>

⇒ "1.6.2 Right Engine Support, Removing and Installing", page 50

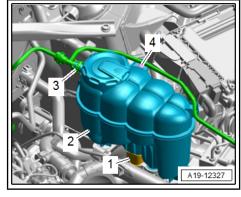
1.6.1 Left Engine Support, Removing and Installing

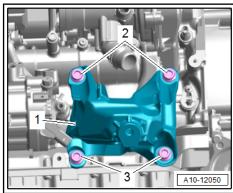
Removing

- Remove the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Lift the clamp -3-, remove and free up the coolant hose.
- Disconnect the connector -1- for the Engine Coolant Level Sensor - G32- .
- Remove the bolt -4-, and push the coolant expansion tank -2- to the side.



- Remove the upper bolts -2- for the engine support -1-. (Shown with the engine removed.)
- Remove the left support bearing. Refer to ⇒ "2.3.2 Support Bearing, Removing and Installing", page 40
- Remove the left engine mount. Refer to ⇒ "2.3.1 Engine Mount, Removing and Installing", page 38





Disconnect the connector -arrow- for the A/C compressor.



Remove the lower bolts -3- and the left engine support -1-.

Installing

Install in reverse order of removal and note the following:

- Replace the bolts that were tightened with an additional turn after removing them.
- Connect the coolant hose to the connector coupling. Refer to
 ⇒ Fig. ""Connect the Coolant Hose to the Connector Coupling"", page 119.
- Install the support bearing. Refer to
 ⇒ "2.3.2 Support Bearing, Removing and Installing",
 page 40.
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder
 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

Tightening Specifications

◆ Refer to ⇒ "2.1 Overview - Subframe Mount", page 35

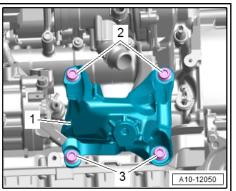
1.6.2 Right Engine Support, Removing and Installing

Removing

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 Disconnect the batterys Refere to → Letertrical Equipment; Rep. accept any liability

 Gr. 27; Batterys Batterys Disconnecting and Connecting opyright by AUDI AG.
- Remove the right engine mount. Refer to
 ⇒ "2.3 Engine Mount, Removing and Installing", page 38



- Remove the nut -2- and free up the bracket with the wire.
- Remove the bolts -arrows- and remove the right engine support -1-. (Shown with the engine removed.)

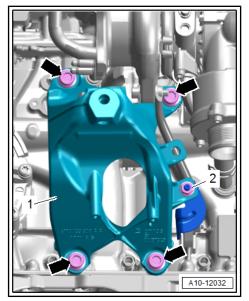
Installing

Install in reverse order of removal and note the following:

- Replace the bolts that were tightened with an additional turn after removing them.
- Follow all steps after connecting the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting.

Tightening Specifications

◆ Refer to ⇒ "2.1 Overview - Subframe Mount", page 35







2 Cylinder Block, Transmission Side

Refer to ⇒ Rep. Gr. 13; Cylinder Block, Transmission Side.







3 Crankshaft

Refer to ⇒ Rep. Gr. 13; Crankshaft.





4 Balance Shaft

Refer to ⇒ Rep. Gr. 13; Balance Shaft.







5 Pistons and Connecting Rod

Refer to ⇒ Rep. Gr. 13; Pistons and Connecting Rod.

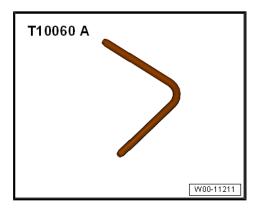




6 Special Tools

Special tools and workshop equipment required

♦ Locking Pin - T10060A-



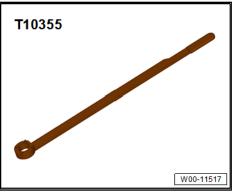
◆ Counterhold - Vibration Damper - T10355-

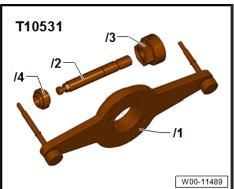


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♦ Vibration Dampen Assembly Toolatio 10531 cument. Copyright by AUDI AG.

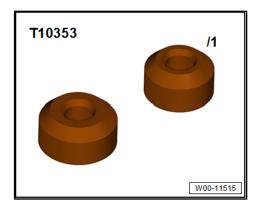






- Individual components:
- Vibration Damper Assembly Tool Counterhold Tool -T10531/1-
- Vibration Damper Assembly Tool Tensioning Pins -T10531/2-
- Vibration Damper Assembly Tool Turning Over Tool -T10531/3-
- ♦ Vibration Damper Assembly Tool Knurled Nut T10531/4-

◆ Seal Installer, Intermediate Shaft - T10353/1-



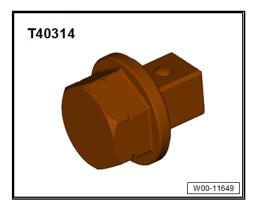
♦ Seal Installer - Sealing Flange Guide Sleeve - T20097-



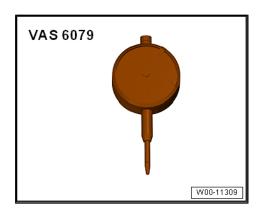
♦ Wrench - 21mm - T40263-



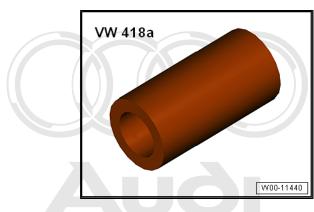
♦ Adapter - T40314-



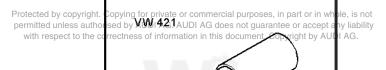
Dial Gauge - 0-10mm - VAS6079-



Press Piece - 31.5mm - VW418A-



Press Piece - 28x100mm - VW421-



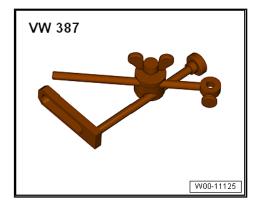
♦ Pilot Drift - VW222A-



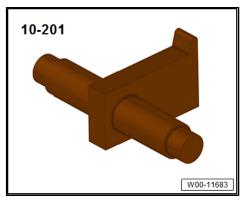
W00-0039

4-Cylinder Direct Injection 2.0L 4V TFSI Engine (EA 888 Generation III) - Edition 11.2019

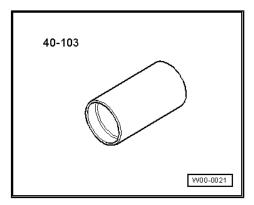
◆ Dial Gauge Holder - VW387-



◆ Counterhold - Flywheel - 10-201-



♦ Bearing Installer - Multiple Use - 40-103-





- Not illustrated:
- ♦ Cylinder Dial Bore Gauge VAS6078-

Cylinder Head, Valvetrain

Timing Chain Cover

⇒ "1.1 Overview - Timing Chain Cover", page 60

⇒ "1.2 Timing Chain Cover, Removing and Installing", <u>page 60</u>

1.1 Overview - Timing Chain Cover

Refer to ⇒ Servicing - 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep.

Gr. 15; Timing Chain Cover; Overview - Timing Chain Cover Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not ess authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

1.2 Timing Chain Cover, Removing and In Fect to the correctness of information in this document. Copyright by AUDI AG. stalling

⇒ "1.2.1 Upper Timing Chain Cover, Removing and Installing", page 60

⇒ "1.2.2 Lower Timing Chain Cover, Replacing", page 60

Upper Timing Chain Cover, Removing 1.2.1 and Installing

Removing

- Remove the lock carrier cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper; Overview - Bumper Cover.
- Remove the bolts -arrows- and the air guide -2-.

All additional procedures are described. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Timing Chain Cover; Timing Chain Cover, Removing and Installing.

Installing

Additional procedures:

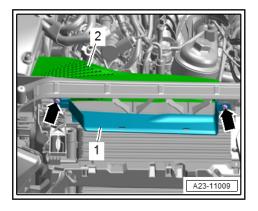
Install the lock carrier cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper; Overview - Bumper Cover.

Tightening Specifications

Refer to ⇒ "2.1 Overview - Air Filter Housing", page 149

1.2.2 Lower Timing Chain Cover, Replacing

Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Timing Chain Cover; Timing Chain Cover, Removing and Installing .





2 **Chain Drive**

Refer to ⇒ Rep. Gr. 15; Chain Drive.





3 Cylinder Head

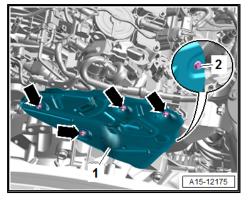
- ⇒ "3.1 Overview Cylinder Head", page 62
- ⇒ "3.2 Cylinder Head, Removing and Installing", page 62
- ⇒ "3.3 Compression, Checking", page 68

3.1 Overview - Cylinder Head

Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Cylinder Head; Overview - Cylinder Head.

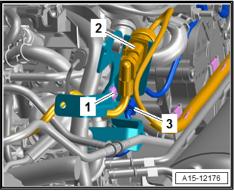
Heat Shield - Tightening Specification

- Tighten the nuts -arrows- and bolt -2- to 9 Nm.



Heat Shield Bracket - Tightening Specification

- Tighten the bolt -1- to 9 Nm.



3.2 Cylinder Head, Removing and Installing

⇒ "3.2.1 Cylinder Head, Removing and Installing, Vehicles without Particulate Filter", page 62

⇒ "3.2.2 Cylinder Head, Removing and Installing, Vehicles with Particulate Filter", page 65

3.2.1 Cylinder Head, Removing and Installing, Vehicles without Particulate Filter

Removing

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Remove the camphafts. Refer to information in this document. Convigint by AUDI AG. t. Copyright by AUDI AG. "4.2 Camshaft, Removing and Installing", page 69.

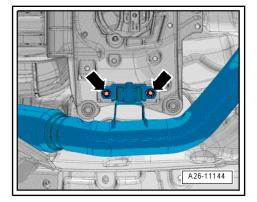


CAUTION

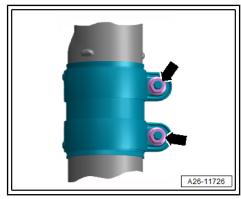
Risk of Destroying the Engine by Adjusting the Valve Timing

- Do not turn the crankshaft after removing the camshafts.
- Remove the Throttle Valve Control Module GX3- . Refer to ⇒ "3.3 Throttle Valve Control Module GX3, Removing and Installing", page 158

Remove the front muffler bolts -arrows-.



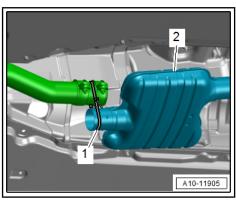
Loosen the threaded connections -arrows- and slide the clamping sleeves toward the rear.

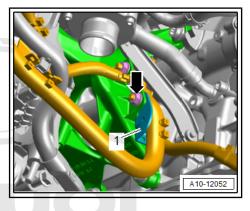


CAUTION

Risk of Damaging the Coupling Due to Improper Handling

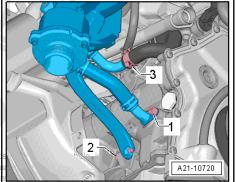
- Coupling must not be bent more than 10°.
- Do not load the coupling on the cable.
- Slightly lower the front muffler -2- and secure as shown with a cable tie -1-.
- Drain the coolant. Refer to ⇒ "1.3 Coolant, Draining and Filling", page 96 .
- Remove the nut -arrow- and move the bracket -1- and wiring harness to the side.





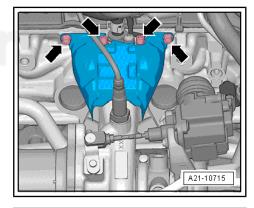


- Remove the screw -2-.
- Place a cloth underneath to catch escaping engine oil.
- Remove the bolt -1- and then remove the oil return hose.

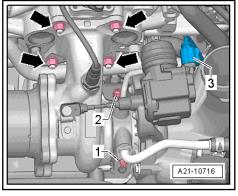


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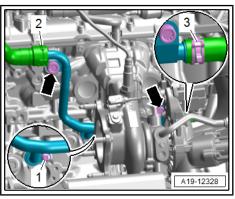
Remove the heat shield -arrows-.



- Remove the bolt -2- and the oil supply line.
- Remove the nuts -arrows-, and remove the turbocharger from the stud bolts.

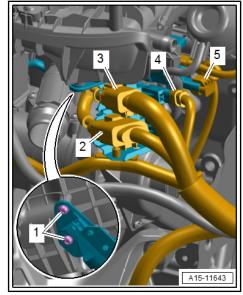


Remove the right coolant pipe bolts -arrows-.





- Remove the connectors -2 and 3- from the bracket and disconnect.
- Disconnect the connectors -4 and 5-.
- Remove the bolts -1- from the bracket.



- Disconnect the connector -3-.
- Version with MPI system: disconnect the connectors -1 and 2-.

All additional procedures are described under: ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Cylinder Head; Cylinder Head, Removing and Installing.

Tightening Specifications

- Refer ⇒ "1.1 Overview Muffler", page 169
- Bracket for wiring harness. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Cylinder Head, Removing and Installing, 3.2.2 Vehicles with Particulate Filter

- Gasket Cylinder Head to Engine
- Gasket Turbocharger to Engine
- Gasket Catalytic Converter to Cylinder Head
- ♦ Bolt Cylinder Head to Engine
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 O-ring Connection for Coolant, Hose, to, Cylinder, Head, G. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- ♦ O-ring Oil Supply Line
- ♦ Bolt Engine Lifting Eye to Cylinder Head
- ♦ Bolts Turbocharger to Engine
- ♦ Nuts Catalytic Converter to Cylinder Head

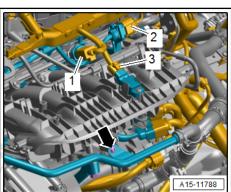
Removing

Remove the camshafts. Refer to ⇒ "4.2 Camshaft, Removing and Installing", page 69.

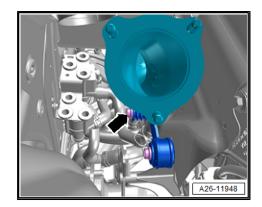


CAUTION

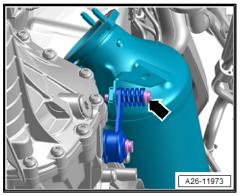
Risk of Destroying the Engine by Adjusting the Valve Timing Do not turn the crankshaft after removing the camshafts.



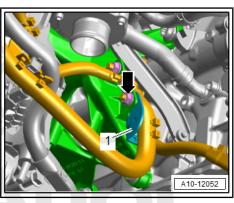
- Remove the Throttle Valve Control Module GX3- . Refer to ⇒ "3.3 Throttle Valve Control Module GX3, Removing and Installing", page 158.
- Remove the front muffler. Refer to ⇒ "1.3 Front Muffler, Removing and Installing", page 174.
- Remove the bolt -arrow- from the particulate filter bracket.



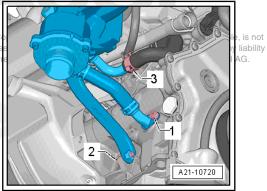
- Remove the bolt -arrow- from the catalytic converter bracket.
- Drain the coolant. Refer to ⇒ "1.3 Coolant, Draining and Filling", page 96.



Remove the nut -arrow- and move the bracket -1- and wiring harness to the side.



- Remove the screw -2-.
- Place a cloth underneath to catch escaping engine oil protected by copyright.
- Remove the bolt -1- and then remove the oil return nose spect to the co



Remove the heat shield -arrows-.

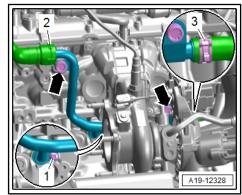
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- Remove the bolt -2- and the oil supply line.
- Remove the nuts -arrows-, and remove the turbocharger from the stud bolts.

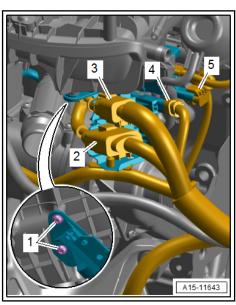


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- Remove the connectors -2 and 3- from the bracket and disconnect.
- Disconnect the connectors -4 and 5-.
- Remove bolt -1- from the bracket.

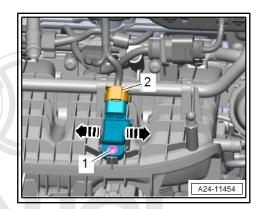


 Disconnect the connector -2- on the Intake Air Temperature Sensor - G42- / Manifold Absolute Pressure Sensor - G71- .

All additional procedures are described. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Cylinder Head; Cylinder Head, Removing and Installing.

Tightening Specifications

- ◆ Refer to ⇒ "1.1 Overview Muffler", page 169
- ◆ Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 26; Emissions Control System; Overview - Emissions Control System.



3.3 Compression, Checking

Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine:
Rep. Gr. 15; Cylinder Head; Compression, Checking authorised by Copyright. Copying for private or commercial purposes, in part or in whole, is not perfund unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



4 Valvetrain

- ⇒ "4.1 Overview Valvetrain", page 69
- ⇒ "4.2 Camshaft, Removing and Installing", page 69
- ⇒ "4.3 Sliding Bar Ball, Installing", page 75
- ⇒ "4.4 Cam Adjustment Actuator, Removing and Installing", page 75
- ⇒ "4.5 Camshaft Adjustment Valve 1 N205, Removing and Installing" page: 75 Copying for private or commercial purposes, in part or in whole, is not
- ⇒ "4.6 Valve Stem Seals, Removing and Installing in page 7.5

4.1 Overview - Valvetrain

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Overview - Valvetrain.

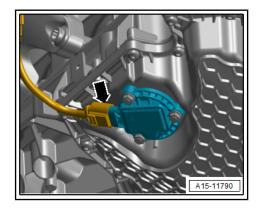
4.2 Camshaft, Removing and Installing

- ⇒ "4.2.1 Camshaft, Removing and Installing, Vehicle without Particulate Filter", page 69
- ⇒ "4.2.2 Camshaft, Removing and Installing, Vehicle with Particulate Filter", page 72

4.2.1 Camshaft, Removing and Installing, Vehicle without Particulate Filter

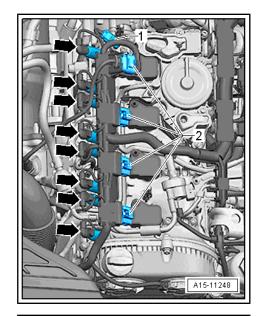
Removing

- Remove the front noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing.
- Disconnect the connector -arrow- for the Oil Level Thermal Sensor - G266-.
- Remove the air filter housing. Refer to ⇒ "2.2 Air Filter Housing, Removing and Installing",
- Remove the upper timing chain cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Timing Chain Cover; Timing Chain Cover, Removing and Installing.



Disconnect the connectors -arrows- for the cam adjustment

actuators.

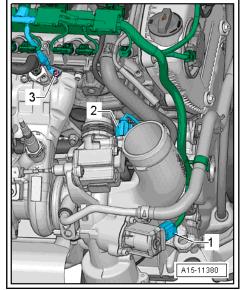


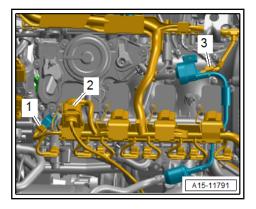
- Disconnect the connector -1- for the Charge Air Pressure Actuator V465- .
- Disconnect the connector -2- for the Turbocharger Recirculation Valve N249- .



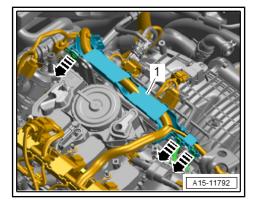


- Disconnect the connectors and free up the wires:
- 1 For the Camshaft Position Sensor 3 G300-
- For the Oxygen Sensor 1 Before Catalytic Converter -GX10- (remove from the bracket to do so)
- 3 For the EVAP Canister Purge Regulator Valve 1 N80-
- Remove the ignition coils. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 28; Ignition System; Ignition Coils, Removing and Installing.

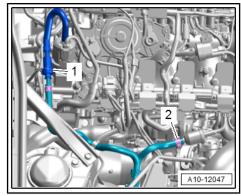




- Free up the wires.



Loosen the hose clamp -2- and remove the hose for the EVAP system.



- Lift the clip -3-, disconnect the coolant line -2- and free up from the cylinder head and push it toward the right side.
- Remove the vacuum hose -4-, disconnect the vacuum line -1- for the Intake Manifold Runner Control Valve - N316- and free it up at the cylinder head.

All additional procedures are described under: ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Camshaft, Removing and Installing.

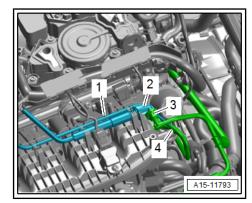
Installing

Additional procedures:

- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the ⇒ Electronic Parts Catalog (ETKA) .
- Install the ignition coils. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 28; Ignition System; Ignition Coils, Removing and Installing.
- Install the upper timing chain cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Timing Chain Cover; Timing Chain Cover, Removing and Installing.
- Install the air filter housing. Refer to ⇒ "2.2 Air Filter Housing, Removing and Installing", page 150



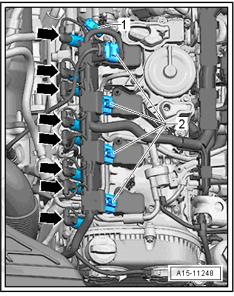
Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation .



4.2.2 Camshaft, Removing and Installing, Vehicle with Particulate Filter

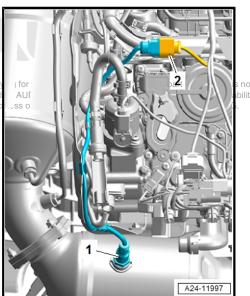
Removing

- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing.
- Remove the air filter housing. Refer to
 ⇒ "2.2 Air Filter Housing, Removing and Installing",
 page 150.
- Remove the upper timing chain cover. Refer to ⇒ Servicing –
 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Timing Chain Cover; Timing Chain Cover, Removing and Installing.
- Disconnect the connectors -arrows- for the cam adjustment actuators.

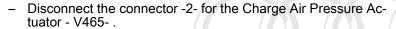


 Disconnect the connector -1- for the Oxygen Sensor 1 After Catalytic Converter - GX7- -2- and free up the wires.

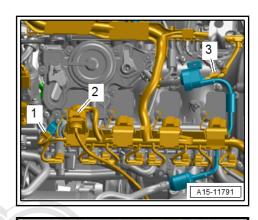


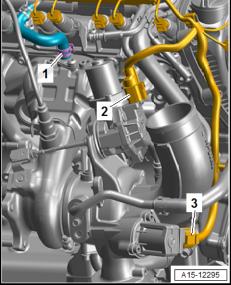


- Disconnect the connectors and free up the wires:
- 1 -For the Camshaft Position Sensor 3 - G300-
- 2 -For the Oxygen Sensor 1 Before Catalytic Converter -GX10- (remove from the bracket to do so)
- For the EVAP Canister Purge Regulator Valve 1 N80-
- Remove the ignition coils. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 28; Ignition System; Ignition Coils, Removing and Installing .

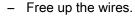


- Disconnect the connector -3- for the Turbocharger Recirculation Valve - N249-.
- Loosen the hose clamp -1-, remove the coolant hose and free

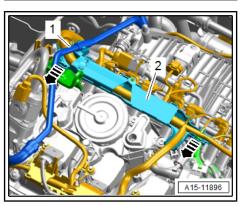




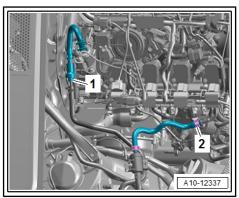
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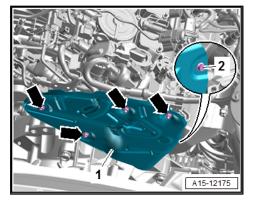
Release the catches in direction of -arrows-, remove the wiring duct -1- with the wiring harness and set aside.



Loosen the hose clamp -2- and remove the hose for the EVAP system.



- Free up the wires on the heat shield -1-.
- Remove the nuts -arrows- and bolts -2- and remove the heat shield. (Shown with the particulate filter removed).



- Remove the connector -2- for the Exhaust Gas Temperature Sensor 3 - G495- from the bracket and disconnect.
- Open the clip -3- and free up the vacuum hose.
- Remove the bolt -1-, and push aside the bracket. There are different versions.

All additional procedures are described. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Camshaft, Removing and Installing.

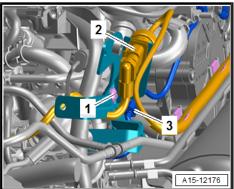
Installing

Additional procedures:

- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Install the ignition coils. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 28; Ignition System; Ignition Coils, Removing and Installing.
- Install the upper timing chain cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Timing Chain Cover; Timing Chain Cover, Removing and Installing.
- Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not **Install the air filter housing.** Refer to permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability ⇒ "2.2 Air Filter Housing, Removing and The stallfing correctness of information in this document. Copyright by AUDI AG. page 150



- Refer to ⇒ Fig. ""Heat Shield - Tightening Specification"", page 62
- Refer to ⇒ Fig. ""Heat Shield Bracket - Tightening Specification"", page
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation .





4.3 Sliding Bar Ball, Installing

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Sliding Bar Ball, Installing.

4.4 Cam Adjustment Actuator, Removing and Installing

Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain;

4.5 Camshaft Adjustment Valve 1 - N205-, Removing and Installing

The procedure description applies to the Camshaft Adjustment Valve 1 - N205- and the Exhaust Camshaft Adjustment Valve 1 -N318-.

Removing

Exhaust Camshaft Adjustment Valve 1 - N318-:

- Remove the lock carrier cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper.
- Remove the boltsenarrows and the alaquide A201 AG does not guarantee or

ument. Copyria Refer to ⇒ Rep. Gr. 15; Valvetrain; Cam Adjustment Valve 1 -N205- / Exhaust Cam Adjustment Valve 1 - N318- , Removing and Installing.

Installing

Additional procedures:

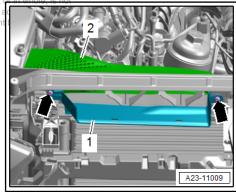
Install the lock carrier cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper.

Tightening Specifications

Refer to ⇒ "2.1 Overview - Air Filter Housing", page 149

4.6 Valve Stem Seals, Removing and Installing

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Valve Stem Seals, Removing and Installing.



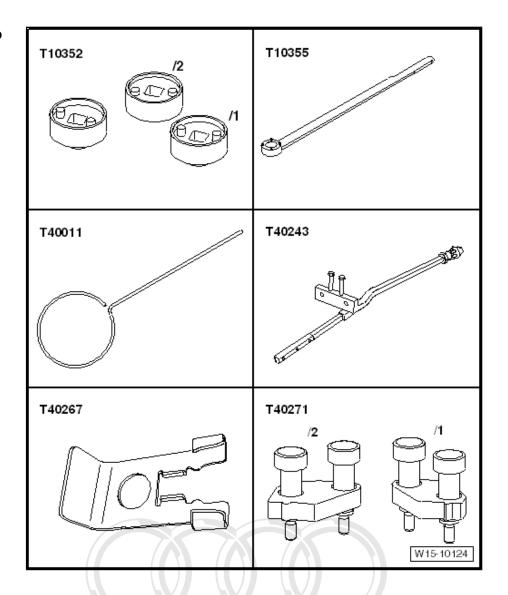
5 Intake and Exhaust Valves

Refer to ⇒ Rep. Gr. 15; Intake and Exhaust Valves.





Special tools and workshop equipment required



- Central Valve Assembly Tool T10352-
- Counterhold Vibration Damper T10355- , alternatively Wrench 21mm T40263- , Adapter T40314- and 24 mm socket.
- ♦ Locking Pin (3 pc.) T40011-
- Chain Tensioner Lever T40243-
- Camshaft Locks T40271-



Polydrive Bit Drive Socket - T10070-



Dial Gauge Adapter - T10170A-



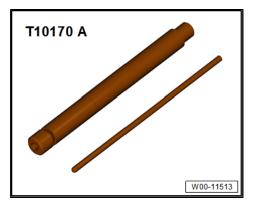
Seal Installer - Crankshaft - T10354-



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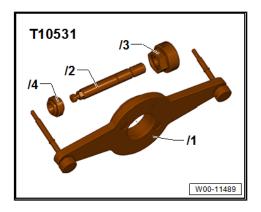
Press Piece - Gearbox - T10375-



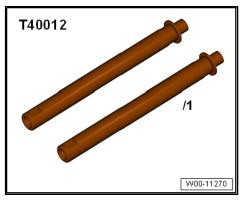




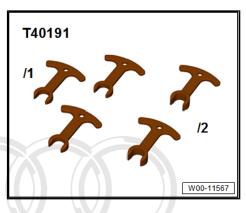
Vibration Damper Assembly Tool - Knurled Nut - T10531/4-from the Vibration Damper Assembly Tool - T10531-



♦ Valve Cotter Tool Kit - Adapter - T40012-



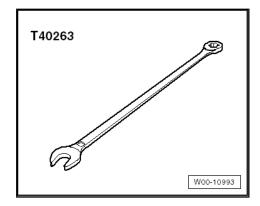
◆ Camshaft Spacer - T40191-



♦ Chain Tensioner Lever - T40243-



♦ Wrench - 21mm - T40263-



♦ Adapter - T40266-

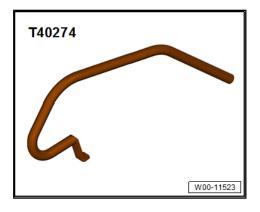


◆ Tensioner Locking Tool - T40267-

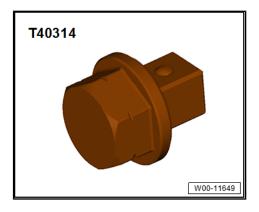


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♦ Seal Installer - Crankshaft - T40274-



♦ Adapter - T40314-



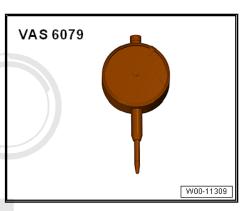
◆ Compression Tester Kit - VAG1763-



♦ Valve Keeper Tool Kit - VAS5161A-



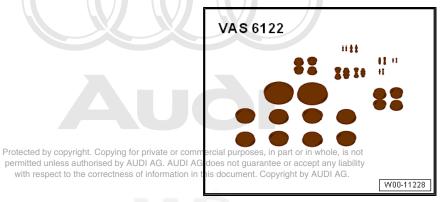
♦ Dial Gauge - 0-10mm - VAS6079-



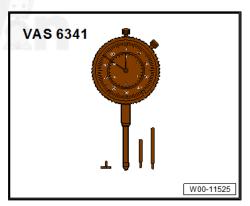
Engine and Gearbox Bracket VAS6095A - VAS6095A-



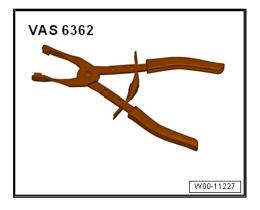
◆ Engine Bung Set - VAS6122-



♦ Dial Gauge Set - VAS6341-



♦ Hose Clip Pliers - VAS6362-



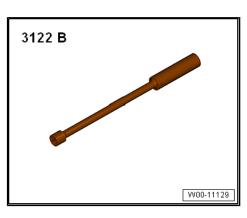
◆ Cylinder Head Tensioning Device - VAS6419-



♦ Dial Gauge Holder - VW387-



♦ Spark Plug Removal Tool - 3122B-

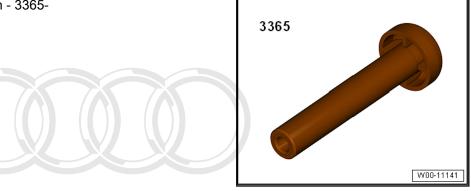


◆ Puller - Valve Seal - 3364-



3364 W00-11151

♦ Seal Installer - Valve Stem - 3365-



- ♦ Not illustrated:
- ♦ Valve Cotter Tool Kit Guide Plate 19c VAS5161/19C-



Lubrication

Oil Pan/Oil Pump

- ⇒ "1.1 Overview Oil Pan/Oil Pump", page 85
- ⇒ "1.2 Engine Oil", page 85
- ⇒ "1.3 Oil Pan Lower Section, Removing and Installing", page 85
- ⇒ "1.4 Oil Pump, Removing and Installing", page 87
- ⇒ "1.5 Oil Pan Upper Section, Removing and Installing", page 87
- ⇒ "1.6 Oil Level Thermal Sensor G266, Removing and Installing", page 87

Overview - Oil Pan/Oil Pump

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 17; Oil Pan/Oil Pump; Overview - Oil Pan/Oil Pump .

1.2 **Engine Oil**

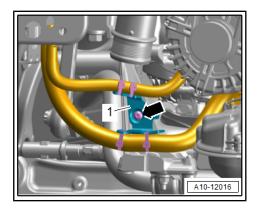
- ◆ Engine Oil, Draining. Refer to ⇒ Maintenance; Booklet 830; Maintenance Work; Engine Oil, Draining.
- Engine Oil, Extracting. Refer to ⇒ Maintenance; Booklet 830; Maintenance Work; Engine Oil, Extracting.
- Engine Oil, Filling. Refer to ⇒ Maintenance; Booklet 830; Maintenance Work; Engine Oil, Filling.
- Oil Filter Insert, Removing and Installing. Refer to ⇒ Maintenance; Booklet 830; Maintenance Work; Engine Oil; Oil Filter, Replacing.
- Oil Level, Checking. Refer to ⇒ Maintenance ; Booklet 830 ; Maintenance Work; Engine Oil; Oil Level, Checking and Correcting if Necessary
- Oil capacities, oil specifications and viscosity classes. Refer to the ⇒ Fluid Capacity Tables; Rep. Gr. 03.

1.3 Oil Pan Lower Section, Removing and Installing

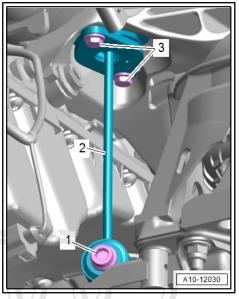
Removing

- Remove the front left and right wheel spoilers. Refer to ⇒ Body Exterior: Rep. Gr. 66: Wheel Housing Liner: Overview - Front permitted the earliest and Liner of the whole, is not permitted the earliest and Liner of the whole, is not permitted the earliest and Liner of the whole, is not permitted the earliest and Liner of the whole of the wh
 - with respect to the correctness of information in this document, Copyright by AUDI AG. Remove the rear noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing .

Remove the bolt -arrow- and free up the bracket -1- with the wiring harness.



Remove the left and right lower bolt -1- for the support bearing -2-.



- Remove the left and right bolt -2- from the engine mount.
- Support the engine in the installation position. Refer to ⇒ "2.2 Engine, Supporting in Installation Position", page 38.

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TIP:

Risk of damaging the drive axle: when lifting the engine the drive axles must not come into contact with the suspension struts.

- Lift the engine using the -10-222A/11- -1- to dimension -a-.
- Dimension -a- = approximately 20 mm.

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 17; Oil Pan/Oil Pump; Oil Pan Lower Section, Removing and Installing.

Tightening Specifications

- Refer to > "2.1 Overview Subframe Mount", page 35
- Wiring harness bracket. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Overview - Front Wheel Housing Liner .
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation .

1.4 Oil Pump, Removing and Installing

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 17; Oil Pan/Oil Pump; Oil Pump, Removing and Installing.

1.5 Oil Pan Upper Section, Removing and Installing

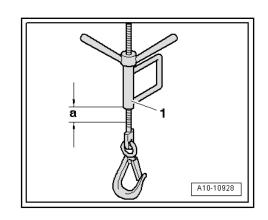
Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 17; Oil Pan/Oil Pump; Oil Pan Upper Section, Removing and Installing .

Oil Level Thermal Sensor - G266-, Re-1.6 moving and Installing

Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 17; Oil Pan/Oil Pump; Oil Level Thermal Sensor - G266-, Removing and Installing.







2 Engine Oil Cooler

Refer to ⇒ Rep. Gr. 17; Engine Oil Cooler.







3 **Crankcase Ventilation**

Refer to ⇒ Rep. Gr. 17 ; Crankcase Ventilation .





4 Oil Filter/Oil Pressure Switch

Refer to \Rightarrow Rep. Gr. 17; Oil Filter/Oil Pressure Switch.



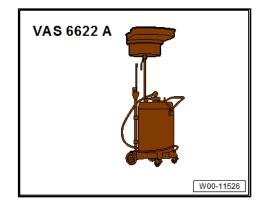




Special Tools 5

Special tools and workshop equipment required

♦ Used Oil Collection and Extraction Unit - SMN372500-



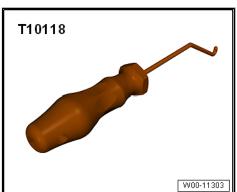
♦ Elbow Assembly Tool - T10118-



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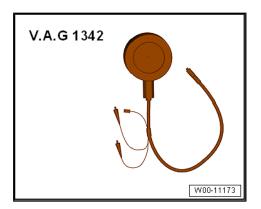
♦ Chain Tensioner Locking Tool - T40265-



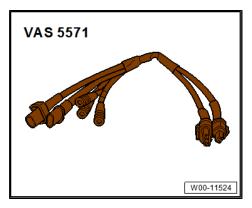




Oil Pressure Gauge Kit - VAG1342-



♦ Vehicle Diagnostic Tester - Test Adapter - 2+3 Pin - VAS5571-







Cooling System 19 –

Coolant System/Coolant

- ⇒ "1.1 Connection Diagram Coolant Hoses", page 93
- ⇒ "1.2 Cooling System, Checking for Leaks", page 96
- ⇒ "1.3 Coolant, Draining and Filling", page 96

1.1 Connection Diagram - Coolant Hoses

⇒ "1.1.1 Connection Diagram - Coolant Hoses, Versions without Parking Heater", page 93

⇒ "1.1.2 Connection Diagram - Coolant Hoses, Versions with Parking Heater", page 94

1.1.1 Connection Diagram - Coolant Hoses, Versions without Parking Heater

- ◆ Blue = large coolant circuit.
- ◆ Red = small coolant circuit.
- ◆ Brown = heating circuit.
- ♦ Green = coolant circuit for the transmission.
- Arrows = coolant flow direction.



- 1 Radiator
- 2 Cylinder Block
- 3 Check Valve
- 4 Turbocharger
- 5 Check Valve
- 6 Exhaust Manifold
- 7 Cylinder Head
- 8 Engine Coolant Temperature Sensor G62-
- 9 Restrictors
- 10 Check Valves
- 11 Coolant Shut-Off Valve N82-
- 12 Heater Core for the Heater
- 13 Coolant Recirculation Pump V50-
- 14 Coolant Pump

15 - Coolant Thermostat

- for transmission coolant circuit
- for versions with dualclutch transmission

16 - ATF Cooler

☐ for versions with dualclutch transmission

17 - After-Run Coolant Pump - V51-

 for versions with dualclutch transmission

18 - Restrictor

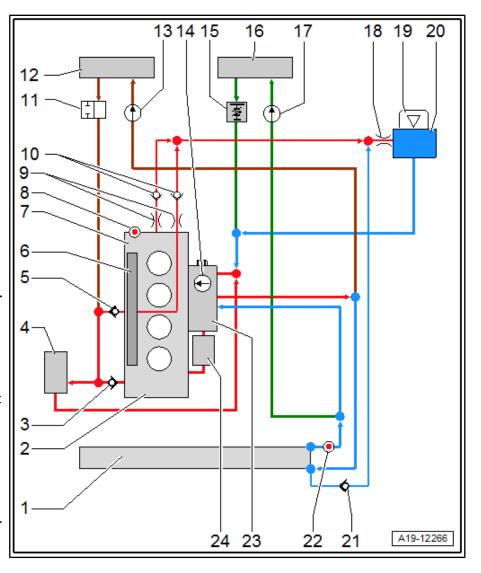
19 - Cap

- □ Pressure Relief Valve, Checking. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 19; Cooling System/Coolant; Cooling System, Checking For Leaks .
- 20 Coolant Expansion Tank
- 21 Check Valve
- 22 Engine Coolant Temperature Sensor on Radiator Outlet G83-
- 23 Engine Temperature Control Adjusting Element N493-
- 24 Engine Oil Cooler

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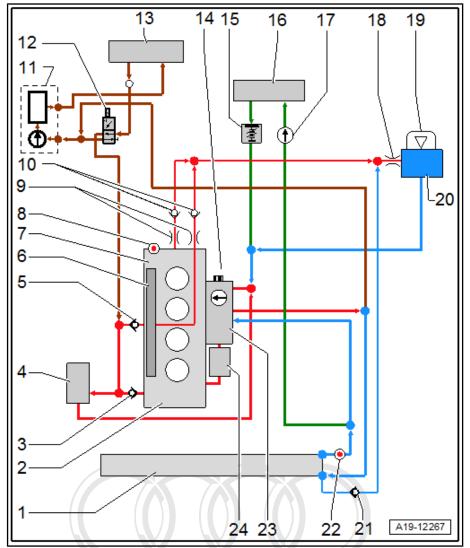
1.1.2 Connection Diagram Coolant Hoses, in this document. Copyright by AUDI AG. Versions with Parking Heater

- ♦ Blue = large coolant circuit.
- ♦ Red = small coolant circuit.
- Brown = heating circuit.
- Green = coolant circuit for the transmission.



- Arrows = coolant flow direction.
- 1 Radiator
- 2 Cylinder Block
- 3 Check Valve
- 4 Turbocharger
- 5 Check Valve
- 6 Exhaust Manifold
- 7 Cylinder Head
- 8 Engine Coolant Temperature Sensor - G62-
- 9 Restrictors
- 10 Check Valves
- 11 Parking Heater
 - □ With Recirculation Pump - V55-
- 12 Heater Coolant Shut-Off Valve - N279-:
- 13 Heater Core for the Heater
- 14 Coolant Pump
- 15 Coolant Thermostat
 - for transmission coolant circuit
 - for versions with dualclutch transmission
- 16 ATF Cooler
 - for versions with dualclutch transmission
- 17 After-Run Coolant Pump -V51
 - for versions with dual-clutch transmission
- 18 Restrictor
- 19 Cap
 - ☐ Pressure Relief Valve, Checking. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 19; Cooling System/Coolant; Cooling System, Checking For Leaks.
- 20 Coolant Expansion Tank
- 21 Check Valve

- 22 Engine Coolant Temperature Sensor on Radiator Outlet G83-
- 23 Engine Temperature Control Adjusting Element N493-
- 24 Engine Oil Cooler



1.2 Cooling System, Checking for Leaks

Refer to ⇒ Rep. Gr. 19 ; Coolant System/Coolant; Cooling System, Checking for Leaks .

1.3 Coolant, Draining and Filling

Special tools and workshop equipment required

- ◆ Cooling System Tester Adapter VAG1274/8-
- ◆ Cooling System Charge Kit VAS6096-
- Coolant Collection System VAS5014- or Shop Crane Drip Tray - VAS6208-
- ♦ Hose Clip Pliers VAS6362-
- ♦ Refractometer T10007A-
- ♦ Protective Eyewear
- Safety Gloves

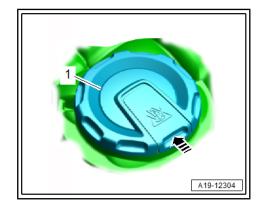
Draining

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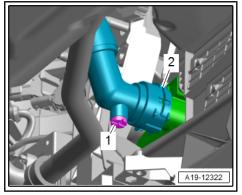
WARNING

The Cooling System Is Under Pressure When the Engine Is Warm. Risk of Scalding Due to Hot Steam and Hot Coolant. Scalding the skin and other parts of the body is possible.

- Wear safety gloves.
- Wear protective eyewear.
- Reduce the pressure by covering the coolant expansion tank cap with a cloth and carefully opening it.
- Open the coolant expansion tank cap -1- by releasing the catch in direction of -arrow- if necessary.
- Remove the front noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing.



- Place the container of the -VAS5014- or the -VAS6208- underneath.
- Lift the clamp -2- and remove the coolant hose from the lower right of the radiator and drain the coolant.



- Equipped on some models: loosen the hose clamps -arrowsand remove the coolant hoses from the ATF cooler and let the coolant run out.
- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Tighten the drain plug and close the coolant hoses again.

Coolant Specification

Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 19; Coolant System/Coolant; Coolant, Draining and Filling.

Coolant Mixture Ratio

CAUTION

There is a risk of corrosion damage from an unsuitable mixture of water and coolant additive.

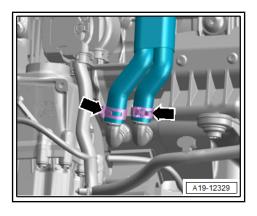
- Only use distilled water for optimal corrosion protection
- Coolant (40%) and distilled water (60%) for freeze protection down to -25 °C (-13 °F)
- Coolant (50%) and distilled water (50%) for freeze protection down to -36 °C (-32.8 °F)
- Coolant. Refer to the Parts Catalog.

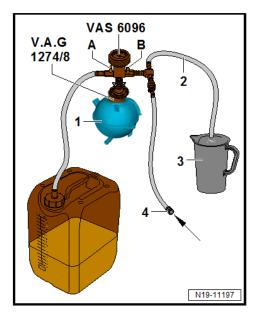
Coolant, Filling

- Used coolant cannot be used again.
- Fill the coolant reservoir from the -VAS6096- with 10 liters of coolant with the correct mixture ratio. Refer to <u>⇒ page 97</u> for the mixture ratio.
- To make the filling procedure easier, position the coolant reservoir as high up as possible, for example on a workshop cart or the engine and gearbox jack.
- Install the -VAG1274/8- on the coolant expansion tank -1-.
- Attach the -VAS6096- on the -VAG1274/8-.
- Place the drain hose -2- in a small container -3-.

A small amount of coolant which should be collected is drawn off with the discharged air.

- Close the valves -A and B- by turning lever at a right angle to the flow direction.
- Connect the hose -4- to compressed air.
- Pressure: 7 to 10 bar (101.52 psi to 145.03 psi) positive pres-
- Open the coolant circuit valves and select 01 coolant circuit bleeding in Guided Functions using the Vehicle





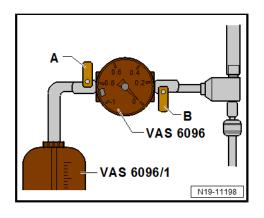
- Open the valve -B- by turning the lever in the flow direction.
- The suction jet pump generates pressure in the coolant system; indicator on display instrument must move into green area.
- Briefly open the valve -A- by turning the lever in the flow direction so that the hose on the -VAS6096- coolant reservoir fills with coolant.
- Close the valve -A- again.
- Leave the valve -B- open another two minutes.
- More pressure is generated in the coolant system by the suction jet pump; indicator on display instrument must stay in the green area.
- Close the valve -B-.
- Needle in the display instrument must remain in the green region, then the sufficient vacuum in the cooling system is obtained for the upcoming filling.
- Repeat the procedure if the needle goes below the green range.
- Check the cooling system for leaks if the pressure drops.
- Remove the pressure hose.
- Open the valve -A-.
- Coolant is extracted from the -VAS6096- coolant reservoir by pressure in the coolant system and the system is filled.
- Remove the -VAS6096- from the -VAG1274/8- on coolant expansion tank.

Bleed Cooling System

- Close the coolant expansion tank cap until it locks into place.
- Start the engine.

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Duration	Engine Speed	Conditions	'	authorised by AUDI AG. AUDI AG does not guarantee or accept any liability the correctness of information in this document. Copyright by AUDI AG.
Three mi- nutes	2000 RPM	A/C system "OF in the AC button turn on	F", the LED	and conceaness of information in this document. Supplied by Abbi Ad.
		Heater on "HI", I speed as low as 0)		
Until both	Idle	A/C system "OF	F"	
large coolant hoses on the radiator are warm		Heater "HI"		
Two minutes	2000 RPM	 A/C system "OF 	F"	
		Heater "HI"		

Turn off engine and allow it to cool off.



Coolant Level, Checking



WARNING

The cooling system is under pressure when the engine is warm. Risk of scalding due to hot steam and hot coolant.

Scalding the skin and other parts of the body is possible.

- Wear safety gloves.
- Wear protective eyewear.
- Reduce the pressure by covering the coolant expansion tank cap with a cloth and carefully opening it.

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- Coolant level must be at "MAX" mark when the engine is cold.
- Coolant level may be above "MAX" mark with engine at operating temperature.
- If necessary, fill the coolant again.

Tightening Specifications

- Refer to ⇒ "4.1 Overview - Radiator/Radiator Fan", page 118
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation .



2 Coolant Pump/Coolant Thermostat

- ⇒ "2.1 Overview Coolant Pump/Coolant Thermostat", page 100
- ⇒ "2.2 Overview Electric Coolant Pump", page 100
- ⇒ "2.3 Overview Engine Coolant Temperature Sensor", page 102
- ⇒ "2.4 Overview Coolant Valves", page 103
- ⇒ "2.5 Electric Coolant Pump, Removing and Installing", page 103
- ⇒ "2.6 Coolant Pump, Removing and Installing", page 105
- ⇒ "2.7 Coolant Pump Toothed Belt, Removing and Installing", page 106
- ⇒ "2.8 Engine Temperature Control Actuator N493 , Removing and Installing", page 107
- ⇒ "2.9 Engine Coolant Temperature Sensor G62 , Removing and Installing", page 107
- ⇒ "2.10 Engine Coolant Temperature Sensor on Radiator Outlet G83, Removing and Installing", page 108
- ⇒ "2.11 Coolant Valves, Removing and Installing", page 109
- 2.1 Overview Coolant Pump/Coolant Thermostat

Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 19; Coolant Pump/Coolant Thermostat; Overview - Coolant Pump/Coolant Thermostat .

2.2 Overview - Electric Coolant Pump

- 1 Bolt
 - □ 9 Nm

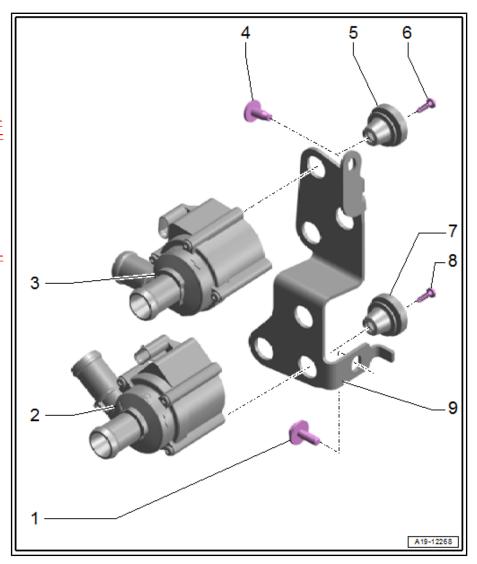
2 - Coolant Recirculation Pump - V50-

Removing and installing. Refer to
⇒ "2.5.1 Coolant Recirculation Pump V50 , Removing and Installing", page 103.

3 - After-Run Coolant Pump -V51-

- ☐ Removing and installing. Refer to

 ⇒ "2.5.2 After-Run Coolant Pump V51, Removing and Installing", page 104
- 4 Bolt
 - □ 9 Nm
- 5 Rubber Grommet
- 6 Bolt
 - □ 2.7 Nm
- 7 Rubber Grommet
- 8 Bolt
 - □ 2.7 Nm
- 9 Bracket
 - ☐ For the electric coolant pump







2.3 Overview - Engine Coolant Temperature Sensor

1 - Clip

Check for secure fit

2 - O-Ring

- ☐ Always replace after removing.
- Coat with coolant

3 and 4 - O-Rings

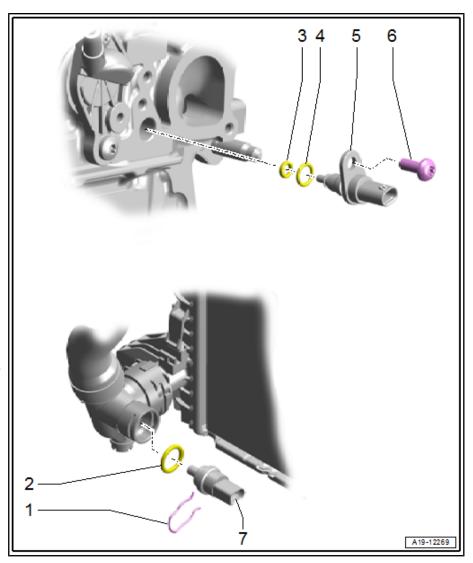
Installation instructions. Refer to ⇒ Servicing -4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 19; Coolant Pump/Coolant Thermostat; Överview -**Engine Coolant Tem**perature Sensor.

5 - Engine Coolant Temperature Sensor - G62-

- On transmission side of the cylinder head
- Removing and installing. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 19; Coolant Pump/ Coolant Thermostat; Engine Coolant Temperature Sensor - G62-, Removing and Installing.

6 - Bolt

☐ Tightening specifications. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888



Generation III); Rep. Gr. 19; Coolant Pump/Coolant Thermostat; Overview - Engine Coolant Temperature Sensor

7 - Engine Coolant Temperature Sensor on Radiator Outlet - G83-

☐ Removing and installing. Refer to ⇒ "2.10 Engine Coolant Temperature Sensor on Radiator Outlet G83, Removing and Installing", page 108.





Overview - Coolant Valves

1 - Transmission Coolant Valve - N488-

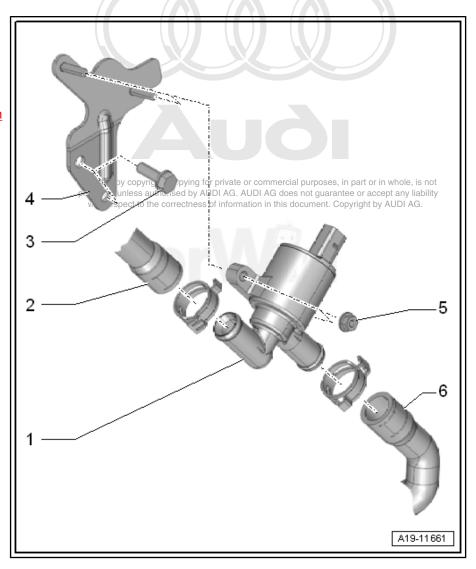
- Equipped on some models
- □ Removing and Installing. Refer to
 ⇒ "2.11.1 Transmission Coolant Valve N488, Removing and Instal-<u>ling", page 109</u> .

2 - Coolant Hose

3 - Bolt

2.4

- □ 23 Nm
- 4 Bracket
 - ☐ For the Transmission Coolant Valve - N488-
- 5 Nut
 - □ 9 Nm
- 6 Coolant Hose



2.5 Electric Coolant Pump, Removing and Installing

⇒ "2.5.1 Coolant Recirculation Pump V50 , Removing and Installing", page 103

⇒ "2.5.2 After-Run Coolant Pump V51, Removing and Installing", page 104

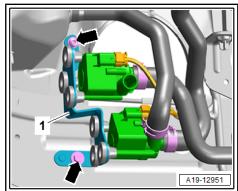
Coolant Recirculation Pump - V50-, Re-2.5.1 moving and Installing

Special tools and workshop equipment required

- ♦ Hose Clamps Up To 25 mm 3094-
- ♦ Hose Clip Pliers VAS6340-

Removing

Remove the engine cover. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.



- Disconnect the connector -1-.
- Place a cloth underneath to catch any escaping coolant.
- Loosen the hose clamps -2- to clamp off the coolant hoses with the -3094- and remove them.
- Remove the bolts -arrow- and the Coolant Recirculation Pump - V50- .

Install in reverse order of removal and note the following:

- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Fill with coolant. Refer to ⇒ Fig. "Coolant, Filling", page 97.
- Install the engine cover. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing .

Tightening Specifications

◆ Refer to ⇒ "2.2 Overview - Electric Coolant Pump", page 100

After-Run Coolant Pump - V51-, Re-2.5.2 moving and Installing

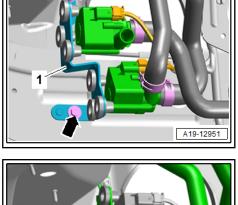
Special tools and workshop equipment required

- Hose Clamps Up To 25 mm 3094-
- ♦ Hose Clip Pliers VAS6340-

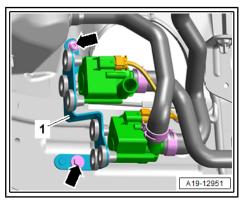
Removing

- Remove the engine cover. Refer to > Servicing 4-Cylinder

 1.8L, 2.01e4V-TFSI Engine or Riege. Gram 10cta Engine Cover in Engle, is not guarantee or accept any liability gine Cover. Removing and Installing in this document. Copyright by AUDI AG.
- Vehicle with particulate filter: remove the bolts -arrows- for the bracket -1-.



A19-12332



- Disconnect the connector -1-.
- Place a cloth underneath to catch any escaping coolant.
- Loosen the hose clamps -2- to clamp off the coolant hoses with the -3094- and remove them.
- Remove the bolts -arrow- and the After-Run Coolant Pump -V51- .

Install in reverse order of removal and note the following:

- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Fill with coolant. Refer to <u>⇒ Fig. ""Coolant, Filling"", page 97</u>.
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing .

Tightening Specifications

◆ Refer to ⇒ "2.2 Overview - Electric Coolant Pump", page 100

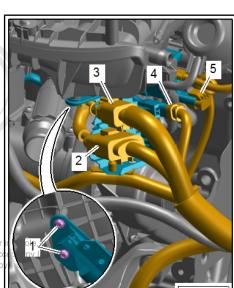
2.6 Coolant Pump, Removing and Installing

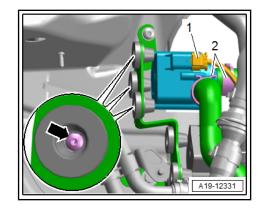
Removing

- Remove the engine cover. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Drain the coolant. Refer to ⇒ "1.3 Coolant, Draining and Filling", page 96.
- Disconnect the connectors -2 to 5-.



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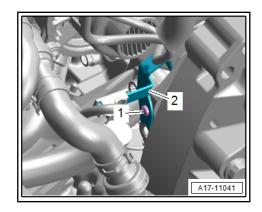
Remove the bolt -1- and move the bracket -2- with the engine wiring harness to the side.

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 19; Coolant Pump/Coolant Thermostat; Coolant Pump, Removing and Installing .

Installing

Additional procedures:

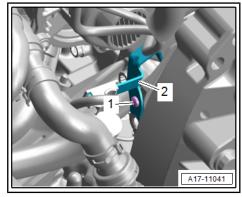
Install the engine cover. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.



2.7 Coolant Pump Toothed Belt, Removing and Installing

Removing

- Remove the engine cover. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing .
- Remove the bolt -1- and move the bracket -2- with the engine wiring harness to the side.
- Drain the coolant. Refer to ⇒ "1.3 Coolant, Draining and Filling", page 96.



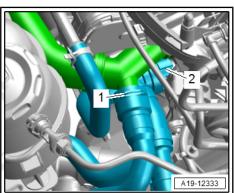
Lift the clamps -1 and 2- and remove the coolant hoses and push them to the side.

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 19; Coolant Pump/Coolant Thermostat; Coolant Pump Toothed Belt, Removing and Installing

Installing

Additional procedures:

- Connect the coolant hose to the connector coupling. Refer to ⇒ Fig. ""Connect the Coolant Hose to the Connector Coupling", page 119
- Fill with coolant. Refer to ⇒ Fig. "Coolant, Filling", page 97.
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.



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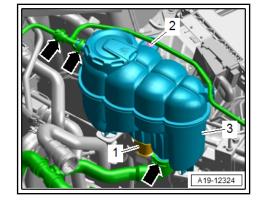
2.8 Engine Temperature Control Actuator -N493-, Removing and Installing

Removing

- Drain the coolant. Refer to ⇒ "1.3 Coolant, Draining and Filling", page 96.
- Lift the clamps -arrows-, remove and free up the coolant ho-
- Disconnect the connector -1- for the Engine Coolant Level Sensor - G32- .

PretectiRemove the bolt @2+i and remove the coolant expansion tank ess authorised by AUDI AG. AUDI AG does not guarantee or accept any lia at to the correctness of information in this document. Copyright by AUDI AG

All additional procedures are described. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 19; Coolant Pump/Coolant Regulation; Engine Temperature Control Actuator N493- , Removing and Installing.



Installing

Additional procedures:

- Connect the coolant hose to the connector coupling. Refer to ⇒ Fig. ""Connect the Coolant Hose to the Connector Coupling"", page 119
- 2.9 **Engine Coolant Temperature Sensor -**G62-, Removing and Installing
- ⇒ "2.9.1 Engine Coolant Temperature Sensor G62, Removing and Installing, Vehicles without Particulate Filter", page 107
- ⇒ "2.9.2 Engine Coolant Temperature Sensor G62, Removing and Installing, Vehicles with Particulate Filter", page 107
- 2.9.1 **Engine Coolant Temperature Sensor -**G62-, Removing and Installing, Vehicles without Particulate Filter

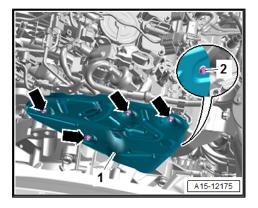
Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 19; Coolant Pump/Coolant Regulation; Engine Coolant Temperature Sensor - G62-, Removing and Installing.

2.9.2 **Engine Coolant Temperature Sensor -**G62-, Removing and Installing, Vehicles with Particulate Filter

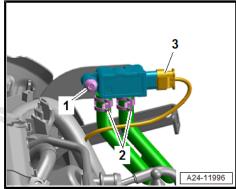
Removing

Remove the engine cover. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

- Free up the wires on the heat shield -1-.
- Remove the nuts -arrows- and bolts -2- and remove the heat shield. (Shown with the particulate filter removed).



- Disconnect the connector -3-.
- Remove the bolt -1- and push the Differential Pressure Sensor - G505- to the side.



- Remove the connector -2- for the Exhaust Gas Temperature Sensor 3 - G495- from the bracket and disconnect.
- Open the clip -3- and free up the vacuum hose.
- Remove the bolt -1- and the bracket. There are different versions.

All additional procedures are described. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine, Rep. Grate 19 Coolant poses, in p Pump/Coolant Regulation, Engine Coolant Temperature Sensor Copyr - G62-, Removing and Installing.

Installing

Additional procedures:

Install the engine cover. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

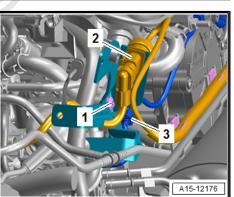
Tightening Specifications

- Refer to ⇒ Fig. ""Heat Shield - Tightening Specification" , page 62
- Refer to "Heat Shield Bracket - Tightening Specification", page
- Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Cylinder Head; Overview - Cylinder Head.

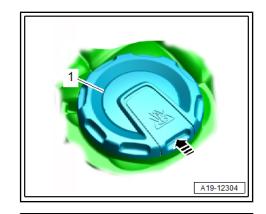
2.10 **Engine Coolant Temperature Sensor on** Radiator Outlet - G83-, Removing and Installing

Removing

The engine is cold.



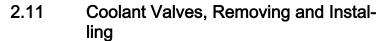
- To reduce the residual pressure in the cooling system, briefly open the coolant expansion tank cap -1- by releasing the retainer in direction of -arrow- if necessary.
- Remove the front noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing .



- Disconnect the connector -2-.
- Place a cloth underneath to catch any escaping coolant.
- Remove the clip -1- and remove the Engine Coolant Temperature Sensor on Radiator Outlet - G83- .
- Replace the O-rings after removing them.
- To prevent coolant loss, install the new coolant temperature sensor immediately.
- Check the coolant level. Refer to ⇒ page 99.

Tightening Specifications

◆ Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation .



 \Rightarrow "2.11.1 Transmission Coolant Valve N488 , Removing and Installing", page 109

Transmission Coolant Valve - N488-, 2.11.1 Removing and Installing

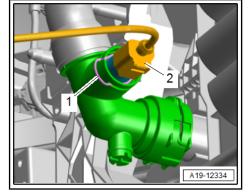
Special tools and workshop equipment required

- ♦ Hose Clamps Up To 25 mm 3094-
- ♦ Hose Clip Pliers VAS6362-

Depending on the vehicle version the Transmission Coolant Valve - N488- can be installed.

Removing

Remove the rear noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation.



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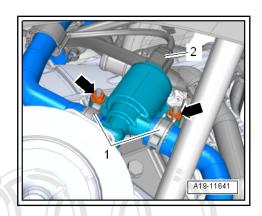
- Disconnect the connector -2-.
- Loosen the hose clamps -1-, then clamp off the coolant hoses with the -3094- and then remove them.
- Remove the nuts -arrows- and then remove the Transmission Coolant Valve - N488- .

Install in reverse order of removal and note the following:

- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Check the coolant level. Refer to <u>⇒ page 99</u>.

Tightening Specifications

- Refer to ⇒ "2.4 Overview Coolant Valves", page 103
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation .





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3 Coolant Pipes

- ⇒ "3.1 Overview Coolant Pipes", page 111
- ⇒ "3.2 Coolant Pipes, Removing and Installing", page 112
- ⇒ "3.3 Transmission Coolant Pipes, Removing and Installing", page 116

3.1 Overview - Coolant Pipes

- ◆ Overview Coolant Pipes on Engine. Refer to ⇒ page 111.
- Overview Transmission Coolant Pipes. Refer to ⇒ page 112 .

Arrows on coolant pipes and coolant hoses must align.

Overview - Coolant Pipes on Engine

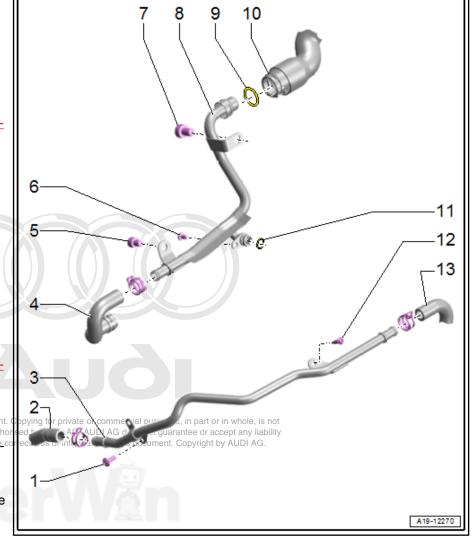
- 1 Bolt
 - □ 9 Nm
- 2 Coolant Hose
- 3 Left Coolant Pipe
 - □ Removing and installing. Refer to 3.2.1 Left Coolant Pipe, Removing and Installing", page 112
- 4 Coolant Hose
- 5 Bolt
 - □ 20 Nm
- 6 Bolt
 - □ 9 Nm
- 7 Bolt
 - □ 20 Nm
- 8 Right Coolant Pipe
 - Removing and installing. Refer to 3.2.2 Right Coolant Pipe, Removing and Installing, Vehicles without Particulate Filter", page 113
- 9 O-Ring

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- □ Always replace after removing.
- 10 Coolant Hose
 - ☐ Fold back and pry up the clip to remove the heat shield boot
 - ☐ Connecting. Refer to ⇒ Fig. ""Connect the Coolant Hose to the Connector Coupling", page 119.

11 - O-Ring

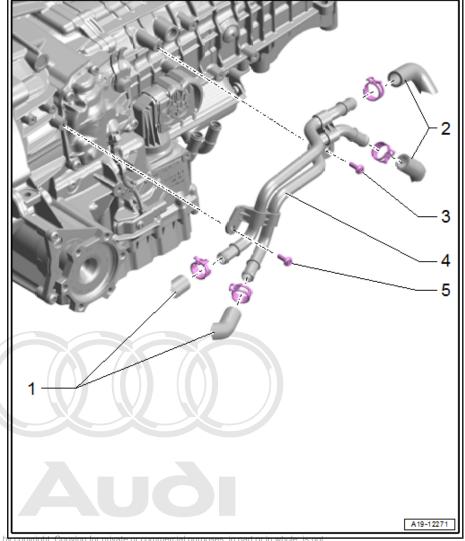
- □ Always replace after removing.
- 12 Bolt
 - □ 6 Nm



13 - Coolant Hose

Overview - Transmission Coolant Pipes

- 1 Coolant Hoses
- 2 Coolant Hoses
- 3 Bolt
 - □ 9 Nm
- 4 Transmission Coolant **Pipes**
 - □ Removing and installing. Refer to .3 Transmission Coolant Pipes, Removing and Installing", page <u>116</u> .
- 5 Bolt
 - □ 9 Nm



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3.2 Coolant Pipes, Removing and Installing

- ⇒ "3.2.1 Left Coolant Pipe, Removing and Installing", page 112
- ⇒ "3.2.2 Right Coolant Pipe, Removing and Installing, Vehicles without Particulate Filter", page 113
- ⇒ "3.2.3 Right Coolant Pipe, Removing and Installing, Vehicles with Particulate Filter", page 115

3.2.1 Left Coolant Pipe, Removing and Installing

Special tools and workshop equipment required

- Hose Clamps Up To 25 mm 3094-
- Hose Clip Pliers VAS6340-



Removing

WARNING

The cooling system is under pressure when the engine is warm. Risk of scalding due to hot steam and hot coolant.

Scalding the skin and other parts of the body is possible.

- Wear safety gloves.
- Wear protective eyewear.
- Reduce the pressure by covering the coolant expansion tank cap with a cloth and carefully opening it.
- Open the coolant expansion tank cap -1- briefly by releasing the catch in direction of -arrow- if necessary.
- Remove the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing .



- Free up the electrical wire.
- Remove the bolts -1 and 2-.
- Place a cloth underneath to catch any escaping coolant.
- Loosen the hose clamps -arrows-, then clamp off the coolant hoses with the -3094- and remove the hoses.
- Remove the coolant pipe.

Installing

Install in reverse order of removal and note the following:

- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Install the engine cover. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Check the coolant level. Refer to ⇒ page 99.

Tightening Specifications

Refer to ⇒ "3.1 Overview - Coolant Pipes", page 111

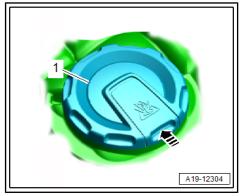
3.2.2 Right Coolant Pipe, Removing and Installing, Vehicles without Particulate Fil-

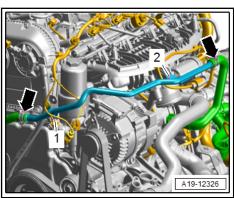
Special tools and workshop equipment required

- Hose Clip Pliers VAS6362-
- Socket T30 T10405-

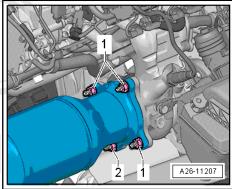
Removing

During installation, all heat shield boots must be installed at the same location.

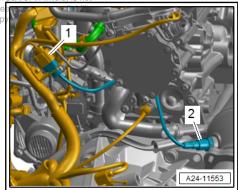




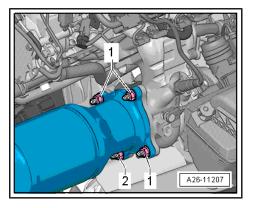
- Drain the coolant. Refer to ⇒ "1.3 Coolant, Draining and Filling", page 96.
- Remove the front muffler. Refer to ⇒ "1.3 Front Muffler, Removing and Installing", page 174.
- Remove the nut -2- from below. (The nuts -1- will be removed
- Remove the air filter housing. Refer to ⇒ "2.2 Air Filter Housing, Removing and Installing", page 150



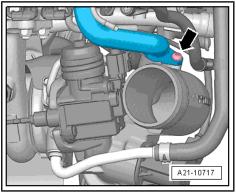
Protected by copyright. Copying for private or commercial purposes, ir Disconnect the connector of the Oxygen Sensor After guarante Catalytic Converter - GX7-2-1 and free up the wires.



Remove the nuts -1- from above and move the catalytic converter toward the rear.



Remove the bolt -arrow- and remove the crankcase ventilation hose from the turbocharger.



- Fold back the heat shield boot and pry up the clamp -2- and remove the coolant hose.
- Loosen the hose clamp -3- and remove the coolant hose.
- Remove the bolts -arrows and 1-, disconnect the right coolant pipe from the cylinder block and remove it.

Install in reverse order of removal and note the following:

- Replace the O-ring after removing.
- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Used coolant cannot be used again.
- Install the catalytic converter. Refer to ⇒ "2.2 Catalytic Converter, Removing and Installing", page 179.
- Install the air filter housing. Refer to ⇒ "2.2 Air Filter Housing, Removing and Installing",
- Connect the coolant hose to the connector coupling. Refer to ⇒ Fig. ""Connect the Coolant Hose to the Connector Cou-, page 119 ./
- Fill with coolant. Refer to ⇒ Fig. ""Coolant, Filling"", page 97.
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Tightening Specifications withorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Refer to ⇒ "3.1 Overview - Coolant Pipes", page 111

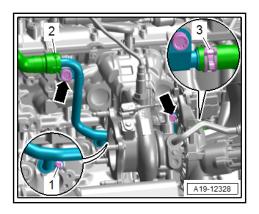
3.2.3 Right Coolant Pipe, Removing and Installing, Vehicles with Particulate Filter

Special tools and workshop equipment required

- ♦ Hose Clip Pliers VAS6362-
- Socket T30 T10405-

Removing

- During installation, all heat shield boots must be installed at the same location.
- Remove the catalytic converter. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 26; Emissions Control System; Catalytic Converter, Removing and Installing .
- Drain the coolant. Refer to ⇒ "1.3 Coolant, Draining and Filling", page 96.



- Fold back the heat shield boot and pry up the clamp -2- and remove the coolant hose.
- Loosen the hose clamp -3- and remove the coolant hose.
- Remove the bolts -arrows and 1-, disconnect the right coolant pipe from the cylinder block and remove it.

Install in reverse order of removal and note the following:

- Replace the O-ring after removing.
- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Used coolant cannot be used again.
- Install the catalytic converter. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 26; Emissions Control System; Catalytic Converter, Removing and Instal-
- Fill with coolant. Refer to ⇒ Fig. "Coolant, Filling", page 97.

Tightening Specifications

Refer to ⇒ "3.1 Overview - Coolant Pipes", page 111

3.3 Transmission Coolant Pipes, Removing and Installing

Special tools and workshop equipment required

- Hose Clamps Up To 25 mm 3094-
- Coolant Collection System VAS5014- or Shop Crane Drip Tray - VAS6208-
- Hose Clip Pliers VAS6362-

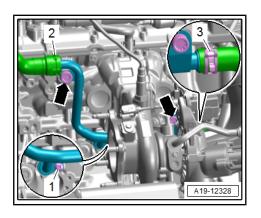
Removing

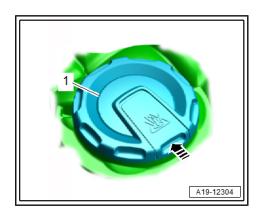
WARNING

The cooling system is under pressure when the engine is warm. AUDI AG. Risk of scalding due to hot steam and hot coolant.

Scalding the skin and other parts of the body is possible.

- Wear safety gloves.
- Wear protective eyewear.
- Reduce the pressure by covering the coolant expansion tank cap with a cloth and carefully opening it.
- Briefly open the coolant expansion tank cap -1- by releasing the catch in direction of -arrow-.
- Remove the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Remove the rear noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing
- Place the container of the -VAS5014- or the -VAS6208- underneath.





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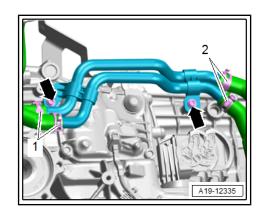
- Remove the bolts -arrows-.
- Loosen the hose clamps -1-, then clamp off the coolant hoses with the -3094- and then remove them.
- Loosen the hose clamps -2- and remove the coolant pipes.

Install in reverse order of removal and note the following:

- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Used coolant cannot be used again.
- Fill with coolant. Refer to ⇒ Fig. "Coolant, Filling", page 97.
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

Tightening Specifications

- ◆ Refer to ⇒ "3.1 Overview Coolant Pipes", page 111
- Refer to \Rightarrow Body Exterior; Rep. Gr. 66; Noise Insulation; Overview Noise Insulation .





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4 Radiator/Radiator Fan

- ⇒ "4.1 Overview Radiator/Radiator Fan", page 118
- ⇒ "4.2 Radiator, Removing and Installing", page 120
- ⇒ "4.3 Fan Shroud, Removing and Installing", page 124
- ⇒ "4.4 Radiator Fan V7, Removing and Installing", page 125

4.1 Overview - Radiator/Radiator Fan

- Overview Radiator. Refer to ⇒ page 118.
- Overview Fan Shroud and Radiator Fan. Refer to ⇒ page 119.

Overview - Radiator

1 - Radiator

- ☐ After replacing, replace entire amount of coolant
- Removing and installing. Refer to
 ⇒ "4.2 Radiator, Removing and Installing", page 120.
- ☐ If there are small impressions on the slats.
 Refer to ⇒ Rep. Gr. 00;
 Repair Information; Radiator and Condenser
 Assembly.

2 - Plug

- Do not open
- Not available separately.

3 - O-Ring

□ Not available separately.

4 - Coolant Hose

- ☐ Lift the clamp to remove
- □ Connecting. Refer to ⇒ Fig. ""Connect the Coolant Hose to the Connector Coupling"", page 119.

5 - O-Rings

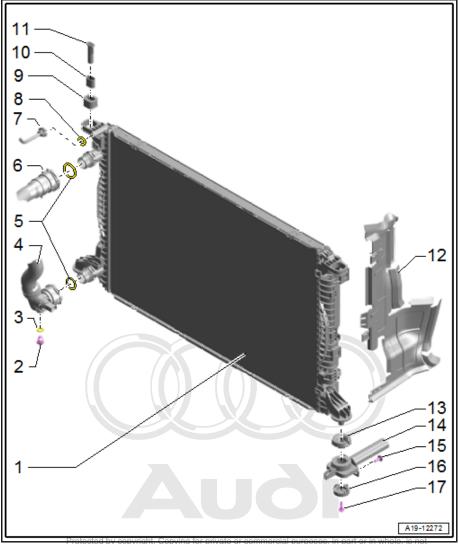
- ☐ Not available separately; replace if leaking -item 4-
 - ⇒ Item 4 (page 118) or -item 6-
 - ⇒ Item 6 (page 118) damaged

6 - Coolant Hose

- ☐ Lift the clamp to remove
- ☐ Connecting. Refer to ⇒ Fig. ""Connect the Coolant Hose to the Connector Coupling", page 119.

7 - Coolant Ventilation Line

☐ To the coolant expansion tank

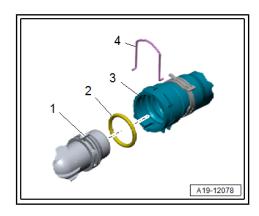


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- ☐ Lift the clamp to remove
- ☐ Connecting. Refer to ⇒ Fig. ""Connect the Coolant Hose to the Connector Coupling"", page 119.
- 8 O-Ring
 - □ Not available separately; replace if leaking -item 7- ⇒ Item 7 (page 118) or damaged
- 9 Rubber Bushing
 - For the radiator
- 10 Sleeve
- 11 Retaining Pin
 - Disengage and remove using the screwdriver
- 12 Air Duct
- 13 Rubber Bushing
 - For the radiator
- 14 Radiator Bracket
- 15 Bolt
 - □ 5 Nm
- 16 Backing Plate
- 17 Bolt
 - □ 4.5 Nm

Connect the Coolant Hose to the Connector Coupling

- Replacing the damaged clip -4-.
- Check the O-ring -2- for damage. The O-ring is not available individually, if necessary, replace the concerning component.
- Coat the O-ring with coolant on the new component.
- Press the coolant hose onto the connection -1- until it engages audibly.
- Press the coolant hose on again and pull to make sure the connector coupling is engaged correctly.



Overview - Fan Shroud and Radiator Fan



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1 - Fan Shroud

Removing and installing. Refer to ⇒ "4.3 Fan Shroud, Removing and Installing", page 124 .

2 - Bolt

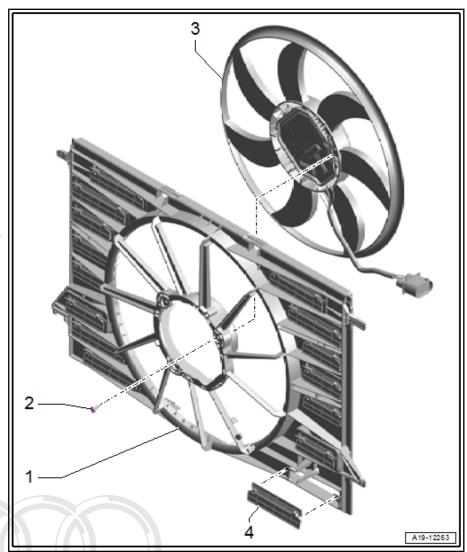
□ 5 Nm

3 - Radiator Fan - V7-

- ☐ With Radiator Fan Control Module - J293-
- Removing and installing. Refer to ⇒ "4.4 Radiator Fan V7, Removing and Instal-<u>ling", page 125</u> .

4 - Back Pressure Door

- ☐ Equipped on some models
- There are different versions. Refer to the Parts Catalog.



4.2 Radiator, Removing and Installing

Special tools and workshop equipment required

- Coolant Collection System VAS5014- or Shop Crane Drip Tray - VAS6208-
- Elbow Assembly Tool T10118-

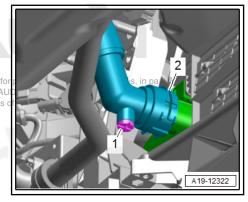
The radiator is removed and installed together with the fan shroud itted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
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- Remove the front noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing.
- Remove the bumper cover bracket together with the impact member. Refer to ⇒ Body Exterior; Rep. Gr. 50; Lock Carrier; Overview - Lock Carrier .

⚠ WARNING

The cooling system is under pressure when the engine is warm. There is a risk of scalding due to hot steam and hot coolant. Scalding the skin and other parts of the body is possible.

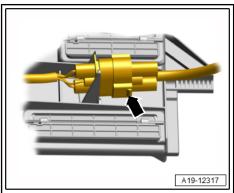
- Wear safety gloves.
- Wear protective eyewear.
- Reduce the pressure by covering the coolant expansion tank cap with a cloth and carefully opening it.
- Place the container of the -VAS5014- or the -VAS6208- underneath.
- A4: remove the left headlamp. Refer to ⇒ Electrical Equipment; Rep. Gr. 94; Headlamps; Headlamp, Removing and Installing.
- Lift the clamp -2- and remove the coolant hose from the lower cross sight of the radiator and days the coolant hose from the lower cross sight of the radiator and days the coolant hose from the lower cross sight of the radiator and days the coolant hose from the lower cross sight of the radiator and days the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the coolant hose from the lower cross sight of the radiator and the lower cross sight of the radiator and the lower cross sight of the radiator and the lower cross sight of the lower cro right of the radiator and drain the coolant.

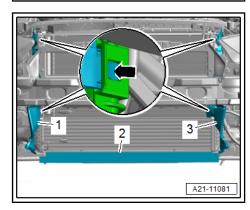


WARNING

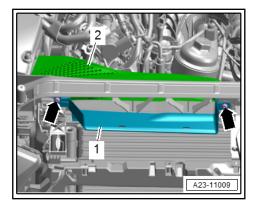
There Is a Risk of Injury If the Radiator Fan Turns on by Itself

- When performing procedures near the radiator maintain a distance to the radiator.
- Disconnect the radiator fan connector -arrow-.
- Release the catches -arrow- and remove the air ducts -1 and 3-.
- Unclip the air duct -2-.

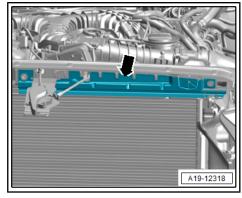




Remove the bolts -arrows- and air duct -1-.



- Remove the upper air duct -arrow-.
- Remove the charge air cooler. Refer to ⇒ "2.3 Charge Air Cooler, Removing and Installing", page 134



Disconnect the connector -2- for the High Pressure Sensor -G65- .



CAUTION

Risk of damaging the retainers due to improper handling.

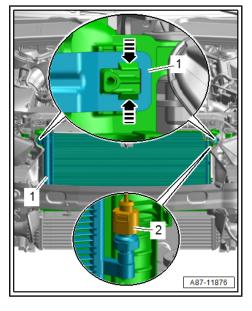
- Carefully release the retainers.
- Carefully release the left and right catches in direction of
- If the catches are damaged replace the radiator.

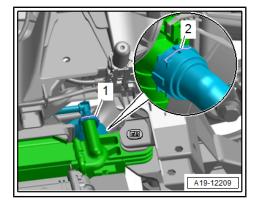


CAUTION

Risk of Destroying the Refrigerant Lines by Tearing the Inner Film

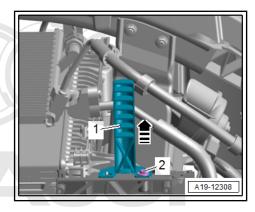
- Never bend the refrigerant lines to a radius smaller than r = 100 mm.
- Disengage the condenser -1- on the radiator and tie it up to the side by copyright. Copyring for private of confinercial purposes, in part of its whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- Lift the clamps -1 and 2-, remove and free up the coolant connection from the radiator.



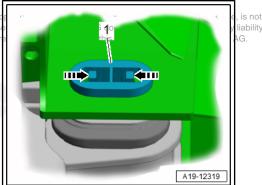


with respect to the cor

Remove the left and right bolt -2- and push the radiator bracket -1- with the bolt toward the front in direction of -arrow-.



- Release the left and right catches in direction of -arrows- and remove the retaining pin -1- for the radiator upward permitted unless authorise
- Remove the radiator.



Press the fan shroud left and right locking tabs at the same time in direction of -arrow- and remove the fan shroud upward from the radiator.

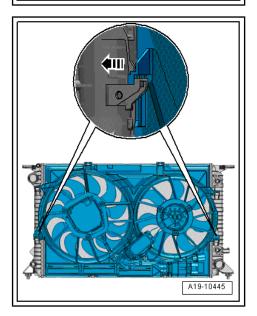
Installing

Install in reverse order of removal and note the following:

- If there are small impressions on the slats. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 00; Repair Information; Radiator and Condenser Assembly.
- Change all of the coolant after replacing the radiator.
- Install the charge air cooler. Refer to ⇒ "2.3 Charge Air Cooler, Removing and Installing", page 134.
- Install the headlamps. Refer to ⇒ Electrical Equipment; Rep. Gr. 94; Headlamps; Headlamp, Removing and Installing.
- Connect the coolant hose to the connector coupling. Refer to ⇒ Fig. ""Connect the Coolant Hose to the Connector Coupling"", page 119
- Fill with coolant. Refer to ⇒ Fig. ""Coolant, Filling"", page 97.

Tightening Specifications

- Refer to ⇒ "4.1 Overview Radiator/Radiator Fan", page 118
- Refer to ⇒ "2.1 Overview Air Filter Housing", page 149
- Refer to ⇒ Body Exterior; Rep. Gr. 50; Lock Carrier; Overview - Lock Carrier .
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation .



4.3 Fan Shroud, Removing and Installing

Removing

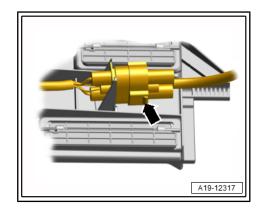
- Remove the front noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing.
- Remove the charge air cooler. Refer to ⇒ "2.3 Charge Air Cooler, Removing and Installing", page 134

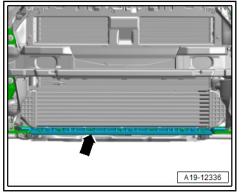


There is a risk of injury if the radiator fan turns on by itself.

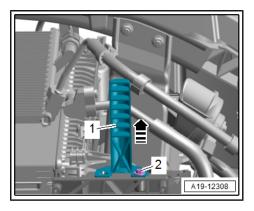
- When performing procedures near the radiator maintain a distance to the radiator.
- Disconnect the radiator fan connector -arrow-.

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 Unclip the lower air duct -arrow-.





Remove the left and right bolt -2- for the radiator bracket -1-.



- Remove the left and right bolt -2- for the radiator bracket -1with the corresponding tool -3-.
- Remove the left and right radiator bracket -1- in the direction of -arrow-.

TIP:

For reinstallation, mark the installation position of the radiator bracket to the rubber bushing.

- A19-12868
- Press the fan shroud left and right locking tabs at the same time in direction of -arrow- and lift the fan shroud upward from the radiator.
- Remove the fan shroud downward between the radiator and the lock carrier at the same time push the radiator pack in the lower area at the same time as far forward as possible.

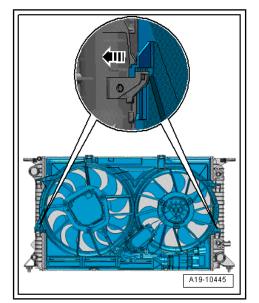
Installing

Install in reverse order of removal and note the following:

Install the charge air cooler. Refer to ⇒ "2.3 Charge Air Cooler, Removing and Installing", page 134

Tightening Specifications

- Refer to ⇒ "4.1 Overview Radiator/Radiator Fan", page 118
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation .



4.4 Radiator Fan - V7-, Removing and Installing

Removing

- Remove the fan shroud. Refer to ⇒ "4.3 Fan Shroud, Removing and Installing", page 124.
- Free up the wiring harness.
- Remove the bolts -arrows- and then remove the radiator fan.

TIP:

If the counter-balancing clamps are missing from the fan wheel, the imbalance may produce noise.

Installing

Install in reverse order of removal and note the following:

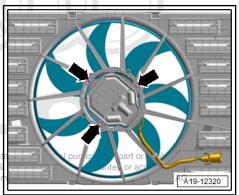
Install the fan shroud. Refer to ⇒ "4.3 Fan Shroud, Removing and Installing" page: 124 copying for prive

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Tightening Specifications

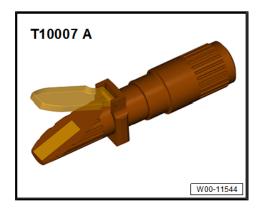
Refer to ⇒ "4.1 Overview - Radiator/Radiator Fan", page 118



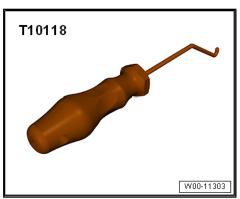
Special Tools 5

Special tools and workshop equipment required

♦ Refractometer - T10007A-



Elbow Assembly Tool - T10118-



Torque Wrench 1331 Insert - Ring Wrench - 12mm - T10360-



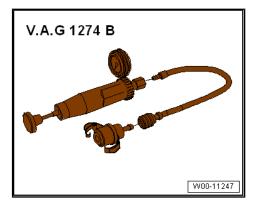
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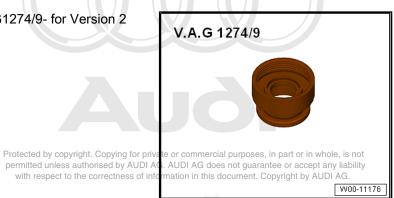
◆ Cooling System Tester - VAG1274B-



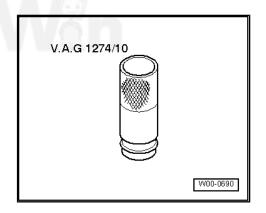
♦ Cooling System Tester - Adapter - VAG1274/8-



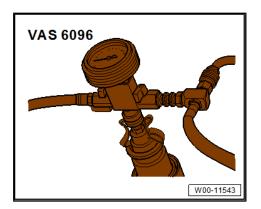
Cooling System Tester - Adapter - VAG1274/9- for Version 2 cap



♦ Cooling System Tester - Adapter - VAG1274/10-



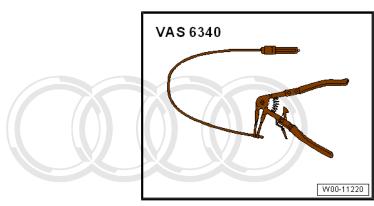
Cooling System Charge Kit - VAS6096-



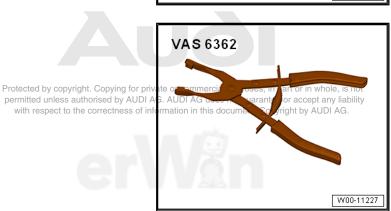
Coolant Collection System - VAS5014- or Shop Crane - Drip Tray - VAS6208-



Hose Clip Pliers - VAS6340-

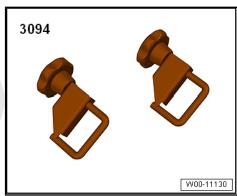


Hose Clip Pliers - VAS6362-



♦ Hose Clamps - Up To 25mm - 3094-





- ♦ Not illustrated:
- ♦ Adapter VAG1274B/15- for version 1 cap

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21 – Turbocharger, Supercharger

1 Turbocharger

- ⇒ "1.1 Overview Turbocharger", page 130
- ⇒ "1.2 Turbocharger, Removing and Installing", page 130
- \Rightarrow "1.2.3 Turbocharger Recirculating Valve N249 , Removing and Installing", page 132

1.1 Overview - Turbocharger

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Turbocharger; Overview - Turbocharger.

1.2 Turbocharger, Removing and Installing

⇒ "1.2.1 Turbocharger, Removing and Installing, Vehicles without Particulate Filter", page 130

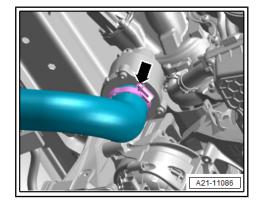
⇒ "1.2.2 Turbocharger, Removing and Installing, Vehicles with Particulate Filter", page 131

1.2.1 Turbocharger, Removing and Installing, Vehicles without Particulate Filter. Copying for private or commercial purposes, in part or in whole, is not

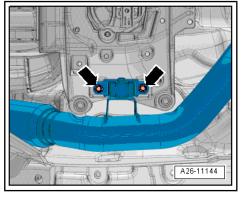
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Removing

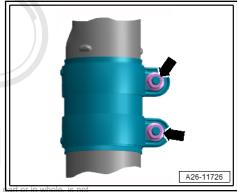
- Remove the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Drain the coolant. Refer to
 ⇒ "1.3 Coolant, Draining and Filling", page 96
- Loosen the hose clamp -arrow-, remove the air duct hose and pivot it to the side.



Remove the front muffler bolts -arrows-.



Loosen the threaded connections -arrows- and slide the clamping sleeves toward the rear.



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CAUTION

Risk of Damaging the Coupling Due to Improper Handling

- Coupling must not be bent more than 10°.
- Do not load the coupling on the cable.
- Slightly lower the front muffler -2- and secure as shown with a cable tie -1-.
- Remove the nut -arrow- and move the bracket -1- and wiring harness to the side.
- Remove the air filter housing. Refer to ⇒ "2.2 Air Filter Housing, Removing and Installing",

All additional procedures are described. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Turbocharger; Turbocharger, Removing and Installing.

Installing

Additional procedures:

- Install the air filter housing. Refer to ⇒ "2.2 Air Filter Housing, Removing and Installing", page 150 .
- Fill with coolant. Refer to ⇒ Fig. "Coolant, Filling", page 97.
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

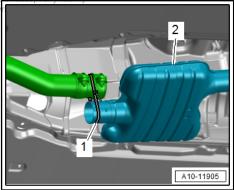
Tightening Specifications

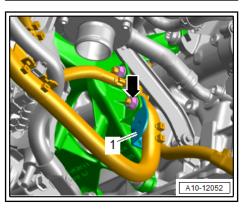
- Refer to ⇒ "1.1 Overview Muffler", page 169
- Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview - Charge Air Hose Connections .

1.2.2 Turbocharger, Removing and Installing, Vehicles with Particulate Filter

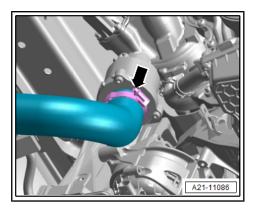
Removing

Remove the engine cover. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.





- Drain the coolant. Refer to ⇒ "1.3 Coolant, Draining and Filling", page 96.
- Remove the catalytic converter. Refer to ⇒ "2.2.2 Catalytic Converter, Removing and Installing, Vehicle with Particulate Filter", page 180.
- Loosen the hose clamp -arrow-, remove the air duct hose and pivot it to the side.



Remove the nut -arrow- and move the bracket -1- and wiring harness to the side.

All additional procedures are described. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Turbocharger; Turbocharger, Removing and Installing.

Installing

Additional procedures:

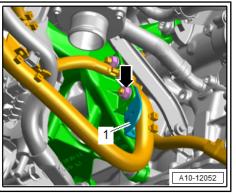
- Fill with coolant. Refer to ⇒ Fig. ""Coolant, Filling", page 97.
- Install the catalytic converter. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 26; Emissions Control System; Catalytic Converter, Removing and Instal-
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

Tightening Specifications

- Refer to > "1.1 Overview Muffler", page 169
- Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview - Charge Air Hose Connections.

1.2.3 Turbocharger Recirculating Valve -N249-, Removing and Installing

Refer to \Rightarrow Servicing - 4-Cylinders 1.8L; 2.0L.4M IFSI Engine (EAurantee or accept any liability 888 Gen III); Rep. Gr. 21th, Turbochargen Turbocharger Recirent. Copyright by AUDI AG. culation Valve - N249- .



2 Charge Air System

- ⇒ "2.1 Overview Charge Air System", page 133
- ⇒ "2.2 Overview Charge Air Hose Connections", page 134
- ⇒ "2.3 Charge Air Cooler, Removing and Installing", page 134
- *2.4 Charge Air Pressure Sensor G31, Removing and Installing", page 135
- ⇒ "2.5 Charge Air System, Checking for Leaks", page 135

2.1 Overview - Charge Air System

1 - Charge Air Cooler

Removing and installing. Refer to ⇒ "2.3 Charge Air Cool-Protecier Removing and In-rate of permitted the permitted of the p

☐ If there are small impressions on the slats. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFŚI Engine; Rep. Gr. 00; Repair Information; Radiator and Condenser Assembly .

2 - Air Duct Hose

Must be free of oil and grease before installing

3 - From the Turbocharger

4 - Bolt

- □ 7 Nm
- ☐ Repair solution for broken catch
- Thread cutting
- Position the bolt by hand and tighten it until it finds the old threads. Then tighten the bolt to the specification.

5 - Charge Air Pressure Sensor - G31-

Removing and installing. Refer to ⇒ "2.4 Charge Air Pressure Sensor G31, Removing and Installing", page 135.

6 - O-Ring

Replace after removing.

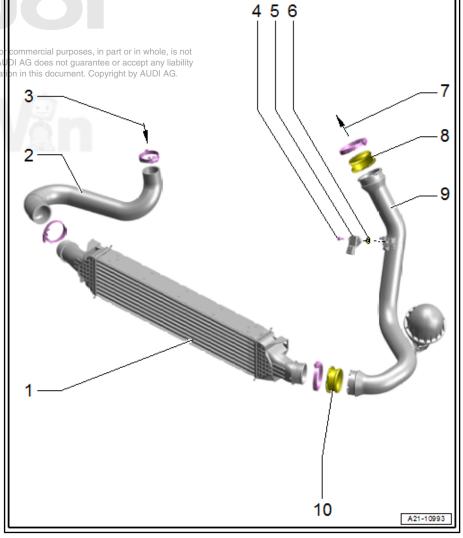
7 - To Intake Manifold

8 - Seal

□ Replace if damaged

9 - Air Duct Pipe

■ Must be free of oil and grease before installing



10 - Seal

Replace if damaged

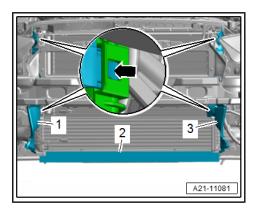
2.2 Overview - Charge Air Hose Connections

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview - Charge Air Hose Connections .

2.3 Charge Air Cooler, Removing and Installing

Removing

- Pay attention to the guidelines for clean working conditions.
 Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine;
 Rep. Gr. 00; Repair Information; Guidelines for Clean Working Conditions.
- Remove the lock carrier cover, right and left air intake grille as well as the bumper cover end plate. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper .
- Release the catches -arrow- and remove the air ducts
 -1 and 3-.





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Loosen the left and right hose clamp -1- and remove the air duct pipe from the charge air cooler.

CAUTION

Risk of damaging the retainers due to improper handling.

- Carefully release the retainers.
- Release the retainers in direction of -arrows- on the left and right sides and carefully disengage the charge air cooler from the radiator.
- If the catches are destroyed, replace the charge air cooler.
- Remove the charge air cooler downward.

Installing

Install in reverse order of removal and note the following:

- If there are small impressions on the slats. Refer to ⇒ Servicing - 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 00; Repair Information: Radiator and Condenser Assembly
- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Install the lock carrier cover, right and left air intake grille as well as the bumper cover end plate. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper.

Tightening Specifications

Refer to ⇒ Servicing - 4-Cylinder 1.8; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview - Charge Air Hose Connections .

2.4 Charge Air Pressure Sensor - G31-, Removing and Installing

Removing

- Disconnect the connector -1-.
- Turn the Charge Air Pressure Sensor G31- -2- counterclockwise and remove from the air duct pipe.

Installing

Install in reverse order of removal and note the following:

- Replace the O-ring after removing.
- Repair solution for broken retainer on air duct pipe: secure the Charge Air Pressure Sensor - G31- with two screws. Refer to the Parts Catalog.
- Bring the Charge Air Pressure Sensor G31- into the installation of the installation lation position and turn clockwise until it engages, respect to the correctness of information in this document. Copyright by AUDI AG.

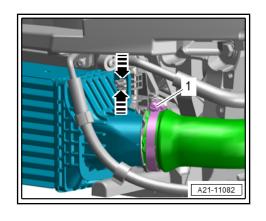
Tightening Specifications

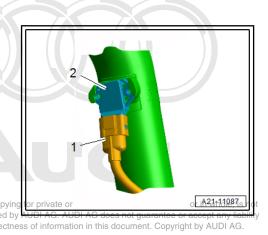
Refer to ⇒ "2.1 Overview - Charge Air System", page 133

2.5 Charge Air System, Checking for Leaks

Special tools and workshop equipment required

Turbo System Tester Kit - VAG1687- with Turbo System Tester Kit - Ádapter 6 - VAG1687/6- and Adapter - VAG1687/3-, Turbo System Tester Kit - Adapter - VAG1687/13-2- , Turbo System Tester Kit - Adapter - VAG1687/15- .

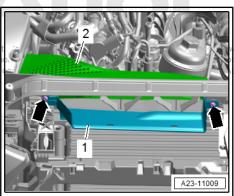




Procedure

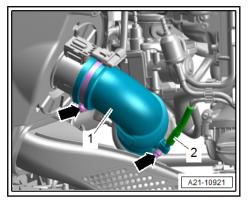
- Remove the engine cover. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing .
- Remove the lock carrier cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper.
- Remove the bolts -arrows- and the air guide -2-.

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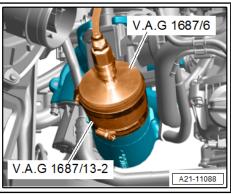


any liability

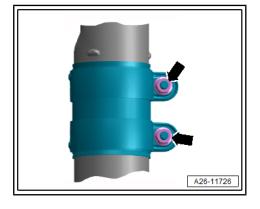
- Loosen the hose clamps -arrows-.
- Remove the vacuum hose -2- and air duct pipe -1-.



Install the -VAG1687/6- and -VAG1687/13-2- on the turbocharger.



Loosen the threaded connections -arrows- and slide the clamping sleeves toward the rear.

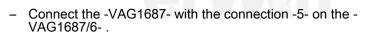


CAUTION

Risk of damaging the coupling due to improper handling.

- Coupling must not be bent more than 10°.
- Do not load the coupling on the cable.
- Slightly lower the front muffler -2- and secure as shown with a cable tie -1-.
- Seal the front muffler with the -VAG1687/3- and -VAG1687/15-.





Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Charge Air System, Checking For Leaks.

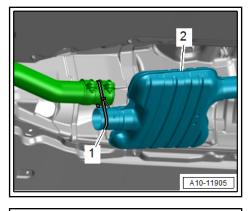
Assembling

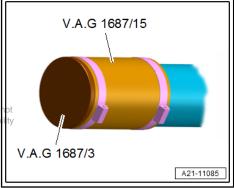
Assemble in the reverse order of removal. Note the following:

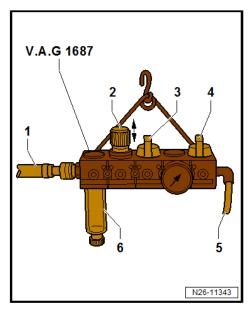
- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Install the lock carrier cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper.
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

Tightening Specifications

- Refer to ⇒ "2.1 Overview Air Filter Housing", page 149
- Refer to ⇒ "1.1 Overview Muffler", page 169
- Refer to ⇒ Servicing 4-Cylinder 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview - Charge Air System.







3 Special Tools

Special tools and workshop equipment required

- ◆ Turbo System Tester Kit VAG1687-
- ◆ -VAG1687/3-
- ◆ -VAG1687/6-

- ◆ -VAG1687/13-2-
- ◆ -VAG1687/15-





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Multiport Fuel Injection

Injection System

⇒ "1.1 Component Location Overview - Injection System", page 139

1.1 Component Location Overview - Injection System

- Component Location Overview Engine Compartment. Refer to \Rightarrow page 139.
- Component Location Overview Top of Engine. Refer to ⇒ page 143
- ♦ Component Location Overview Engine Intake Side. Refer to
- ◆ Component Location Overview Engine Exhaust Side. Refer to <u>⇒ page 146</u>.
- Component Location Overview Engine Front without Particulate Filter. Refer to <u>⇒ page 147</u>.
- Component Location Overview Engine Front with Particulate Filter. Refer to ⇒ page 148.

Component Location Overview - Engine Compartment



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1 - Oxygen Sensor 1 after Catalytic Converter - GX7-

- Consists of
- Oxygen Sensor after Catalytic Converter - G130-
- Heater for Oxygen Sensor 1 after Catalytic Converter -Z30-
 - Component location. Refer to Oxygen Sensor ⇒ Fig. ' 1 after Catalytic Converter -GX7- Component Location",

2 - Coolant Shut-Off Valve -N82-

page 142

Equipment version with parking heater Heater Coolant Shut-Off Valve -N279-

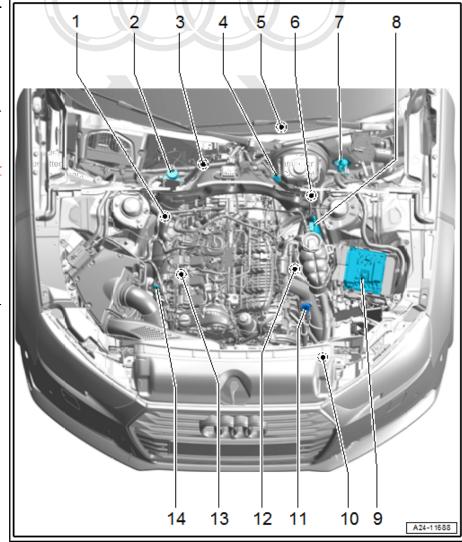
3 - Gear Recognition Sensor -G604-

- Equipment version with manual transmission
- Component location. Refer to ⇒ Fig. "" Gear Recognition Sensor -G604-Component Location' page 142

4 - Brake Booster Pressure Sensor - G294-

5 - Accelerator Pedal Position Sensor - G79- / Accelerator

Pedal Position Sensor 2 - G185-



- Component location. Refer to ⇒ Fig. "" Accelerator Pedal Position Sensor -G79- / Accelerator Pedal Position Sensor 2 -G185- Component Location", page 141
- 6 Brake Lamp Switch F-
 - ☐ Component location. Refer to ⇒ Fig. "" Brake Lamp Switch -F- Component Location", page 141.
- 7 Clutch Position Sensor G476-
 - ☐ With Clutch Pedal Switch F36- / Clutch Pedal Starter Interlock Switch F194-
 - ☐ Equipment version with manual transmission
 - Component location. Refer to ""Component Location - Clutch Position Sensor -G476- "", page 142.
- 8 Coolant Recirculation Pump V50-, After-Run Coolant Pump V51-
 - Overview. Refer to ⇒ "2.2 Overview Electric Coolant Pump", page 100.
- 9 Engine Control Module J623-
 - Overview. Refer to ⇒ "8.1 Overview Engine Control Module", page 165.
- 10 Engine Coolant Temperature Sensor on Radiator Outlet G83-
 - Component location. Refer to ⇒ Fig. ""Component Location - Engine Coolant Temperature Sensor on Radiator Outlet -G83- "", page 142



11 - Charge Air Pressure Sensor - G31-

Overview. Refer to ⇒ "2.1 Overview - Charge Air System", page 133.

12 - Right Electrohydraulic Engine Mount Solenoid Valve - N145-

☐ Component location. Refer to ⇒ Fig. "" Left Electrohydraulic Engine Mount Solenoid Valve -N144- / Right Electrohydraulic Engine Mount Solenoid Valve -N145- Component Location", page 143.

13 - Left Electrohydraulic Engine Mount Solenoid Valve - N144-

Component location. Refer to ⇒ Fig. "" Left Electrohydraulic Engine Mount Solenoid Valve -N144- / Right Electrohydraulic Engine Mount Solenoid Valve -N145- Component Location", page 143.

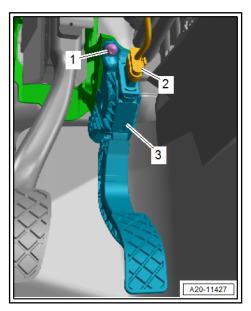
14 - Oxygen Sensor 1 Before Catalytic Converter - GX10-

- Consists of
- Heated Oxygen Sensor G39-
- Oxygen Sensor Heater Z19-
 - □ Overview. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Heated Oxygen Sensor; Overview - Heated Oxygen Sensor.

Accelerator Pedal Position Sensor - G79- / Accelerator Pedal Position Sensor 2 - G185- Component Location

Integrated in the accelerator pedal module -3-. Faulty accelerator pedal position sensors cannot be replaced separately.

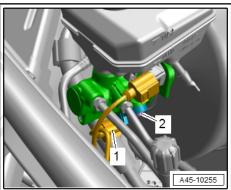
Overview. Refer to ⇒ Fuel Supply System; Rep. Gr. 20; Accelerator Mechanism: Overview - Accelerator Pedal Module .



Brake Lamp Switch - F- Component Location

- In the engine compartment on the brake master cylinder.
- Brake Lamp Switch F- Connector

Overview. Refer to ⇒ Brake System; Rep. Gr. 47; Brake Booster/ Brake Master Cylinder; Overview - Brake Booster/Brake Master Cylinder .

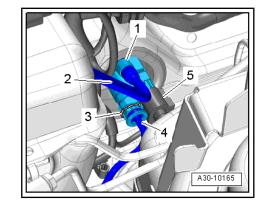


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Component Location - Clutch Position Sensor - G476-

- Integrated in the clutch master cylinder in the driver side plenum chamber. Cannot be replaced separately if faulty.
- 5 Clutch Position Sensor G476- Connector

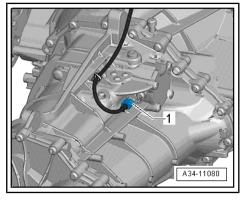
Overview. Refer to ⇒ Rep. Gr. 30; Clutch Mechanism; Overview - Pedal Assembly .



Gear Recognition Sensor - G604- Component Location

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- Gear Recognition Sensor G604-

Removing and Installing. Refer to ⇒ 6-Speed Manual Transmission; Rep. Gr. 34; Selector Mechanism; Gear Recognition Sensor - G604-, Removing and Installing.

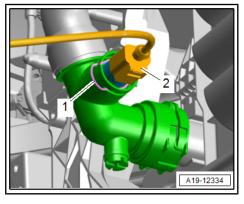


Component Location - Engine Coolant Temperature Sensor on Radiator Outlet - G83-

- In the coolant connection on the lower left of the radiator
- 2 Engine Coolant Temperature Sensor on Radiator Outlet G83-Connector

Overview. Refer to

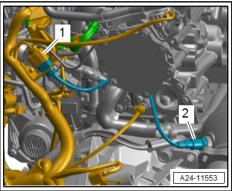
⇒ "2.3 Overview - Engine Coolant Temperature Sensor", page 102.



Oxygen Sensor 1 after Catalytic Converter - GX7- Component Location

- In the catalytic converter.
- Oxygen Sensor 1 after Catalytic Converter GX7- Connec-
- Oxygen Sensor 1 after Catalytic Converter GX7-

Overview. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Heated Oxygen Sensor; Overview - Heated Oxygen Sensor.



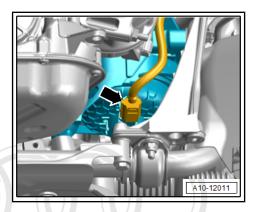
Left Electrohydraulic Engine Mount Solenoid Valve - N144-/ Right Electrohydraulic Engine Mount Solenoid Valve - N145- Component Location

 Integrated in the engine mount. Cannot be replaced separately if faulty.

Arrow - Left Electrohydraulic Engine Mount Solenoid Valve -N144- Connector

Removing and Installing. Refer to

⇒ "2.3.1 Engine Mount, Removing and Installing", page 38.



Component Location Overview - Top of Engine

1 - Ignition Coil 1 with Power Output Stage - N70-

Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 28; Ignition System; Overview - Ignition System .

2 - Ignition Coil 2 with Power Output Stage - N127-

Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 28; Ignition System; Overview - Ignition System .

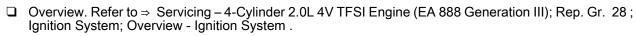
3 - Ignition Coil 3 with Power Output Stage - N291-

Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 28; Ignition System; Overview - Ignition System .

4 - Ignition Coil 4 with Power Output Stage - N292-

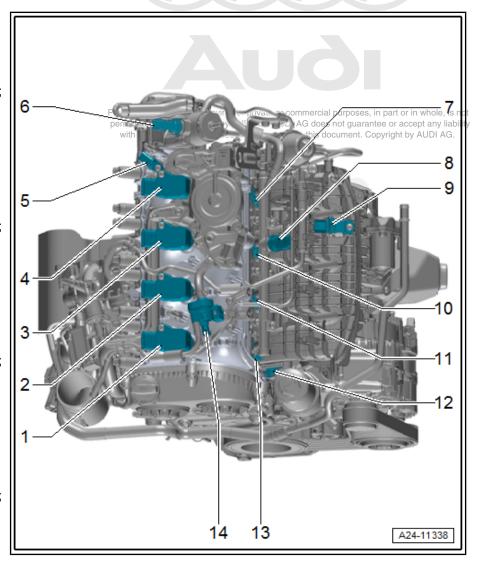
Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 28; Ignition System; Overview - Ignition System .

5 - Camshaft Position Sensor 3 - G300-



6 - Fuel Pressure Regulator Valve or Fuel Metering Valve

- ☐ Depending on the manufacture of the high pressure pump:
- Fuel Pressure Regulator Valve N276- or
- Fuel Metering Valve N290-



☐ Integrated in the high pressure pump, cannot be replaced separately

7 - Cylinder 4 Fuel Injector 2 - N535- MPI

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview - Fuel Rail with Fuel Injectors .

8 - Low Fuel Pressure Sensor - G410- MPI

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview - Fuel Rail with Fuel Injectors .

9 - Intake Air Temperature Sensor - G42- / Manifold Absolute Pressure Sensor - G71-

☐ Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 24; Intake Manifold; Overview - Intake Manifold.

10 - Cylinder 3 Fuel Injector 2 - N534- MPI

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview - Fuel Rail with Fuel Injectors .

11 - Cylinder 2 Fuel Injector 2 - N533- MPI

Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview - Fuel Rail with Fuel Injectors .

12 - Intake Manifold Runner Position Sensor - G336-

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview - Fuel Rail with Fuel Injectors .

13 - Cylinder 1 Fuel Injector 2 - N532- MPI

Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview - Fuel Rail with Fuel Injectors .

14 - EVAP Canister Purge Regulator Valve 1 - N80-

Component Location Overview - Engine Intake Side



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1 - Engine Temperature Control Actuator - N493-

Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 19; Coolant Pump/Coolant Regulation; Overview -Coolant Pump/Coolant Thermostat.

2 - Cylinder 2 Fuel Injector -N31- FSI

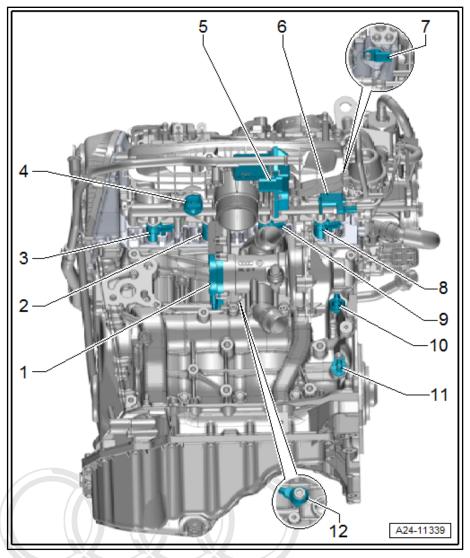
□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview -Fuel Rail with Fuel Injectors .

3 - Cylinder 1 Fuel Injector -N30- FSI

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview -Fuel Rail with Fuel Iniectors .

4 - Fuel Pressure Sensor -G247-

■ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview -Fuel Rail with Fuel Injectors .



5 - Throttle Valve Control Module - GX3-

- With
- Throttle Valve Control Module J338-.
- EPC Throttle Drive G186-
- ◆ EPC Throttle Drive Angle Sensor 1 G187-
- ♦ EPC Throttle Drive Angle Sensor 2y4 (G1884ng for private or commercial purposes, in part or in whole, is not
 - Overview. Refer to ⇒ Servicing #4-Cylinder 1.8L, 2.0L, 4V J.FSI Engine, Rep. Gr. 24; Intake Manifold; Overview - Intake Manifold .

6 - Intake Manifold Runner Control Valve - N316-

Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 24; Intake Manifold; Overview - Intake Manifold.

7 - Camshaft Position Sensor - G40-

Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 28; Ignition System; Overview - Ignition System.

8 - Cylinder 4 Fuel Injector - N33- FSI

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview - Fuel Rail with Fuel Injectors .

9 - Cylinder 3 Fuel Injector - N32- FSI

☐ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview - Fuel Rail with Fuel Injectors .

10 - Oil Pressure Switch, Level 3 - F447-

Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 17; Oil Filter/Oil Pressure Switch; Overview - Oil Pressure Switch/Oil Pressure Regulation Valve .

11 - Engine Speed Sensor - G28-

Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 28; Ignition System; Overview - Ignition System.

12 - Knock Sensor 1 - G61-

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 28; Ignition System; Overview - Ignition System.

Component Location Overview - Engine Exhaust Side

1 - Engine Coolant Temperature Sensor - G62-

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 19; Coolant Pump/Coolant Thermostat; Overview - Engine Coolant Temperature Sensor.

2 - Cam Adjustment Actuator 8 - F373- (for Cylinder 4)

Overview. Refer to ⇒ Servicing – 4-Cylinder Protected 8L 62/01 40 TFS FENSE permitted in Protected 9 20 10 40 AF STEP 12 AG A witt Protected in the contents of information of the contents of t Valvetrain .

3 - Cam Adjustment Actuator 7 - F372- (for Cylinder 4)

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Overview -Valvetrain.

4 - Cam Adjustment Actuator 6 F371- (for Cylinder 3)

■ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Overview -Valvetrain .

5 - Cam Adjustment Actuator 5 - F370- (for Cylinder 3)

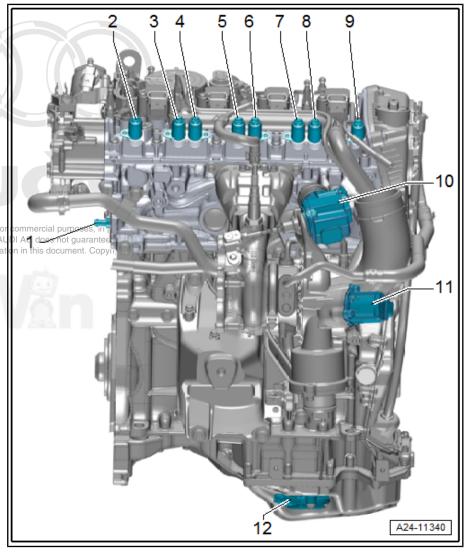
□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Overview - Valvetrain .

6 - Cam Adjustment Actuator 4 - F369- (for Cylinder 2)

Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Overview - Valvetrain .

7 - Cam Adjustment Actuator 3 - F368- (for Cylinder 2)

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Overview - Valvetrain .





8 - Cam Adjustment Actuator 2 - F367- (for Cylinder 1)

Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Overview - Valvetrain .

9 - Cam Adjustment Actuator 1 - F366- (for Cylinder 1)

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Valvetrain; Overview - Valvetrain .

10 - Charge Air Pressure Actuator - V465- with Charge Air Pressure Actuator Position Sensor - G581-

11 - Turbocharger Recirculation Valve - N249-

Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Turbocharger; Overview - Turbocharger .

12 - Oil Level Thermal Sensor - G266-

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 17; Oil Pan/Oil Pump; Overview - Oil Pan/Oil Pump.

Component Location Overview - Engine Front without Particulate Filter

1 - Exhaust Camshaft Adjustment Valve 1 - N318-

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Timing Chain Cover; Overview - Timing Chain Cover.

2 - Camshaft Adjustment Valve 1 - N205-

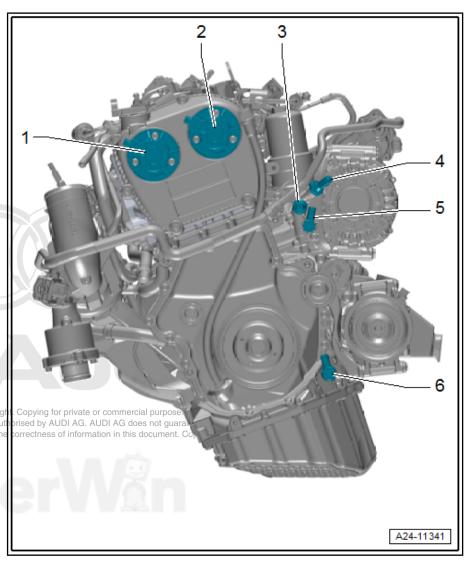
Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Timing Chain Cover; Overview - Timing Chain Cover.

3 - Oil Pressure Switch - F22-

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 17; Oil Filter/ Oil Pressure Switch; Overview - Oil Pressure Switch/Oil Pressure Regulation Valved by copyrig

4 - Reduced Oil Pressure ect to th Switch - F378-

■ Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 17; Oil Filter/ Oil Pressure Switch; Overview - Oil Pressure Switch/Oil Pressure Regulation Valve.



5 - Piston Cooling Nozzle Control Valve - N522-

Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 17; Oil Filter/Oil Pressure Switch; Overview - Oil Pressure Switch/Oil Pressure Regulation Valve .

6 - Oil Pressure Regulation Valve - N428-

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine (EA 888 Generation III); Rep. Gr. 17; Oil Filter/Oil Pressure Switch; Overview - Oil Pressure Switch/Oil Pressure Regulation Valve.

Component Location Overview - Engine Front with Particulate

1 - Oil Pressure Switch - F22-

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. Protecte Oil c Filter/Oil Pressure respec Switch: Overview - Oil Pressure Switch/Oil Pressure Regulation .

2 - Exhaust Camshaft Adjustment Valve 1 - N318-

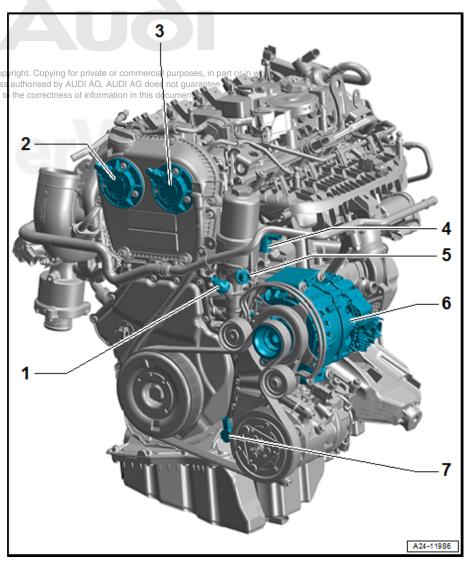
□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Timing Chain Cover; Overview - Timing Chain Cover .

3 - Camshaft Adjustment Valve 1 - N205-

□ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 15; Timing Chain Cover; Overview - Timing Chain Cover .

4 - Piston Cooling Nozzle Control Valve - N522-

■ Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 17; Oil Filter/Oil Pressure Switch; Overview - Oil Pressure Switch/Oil Pressure Regulation .



5 - Reduced Oil Pressure Switch - F378-

Overview. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 17; Oil Filter/Oil Pressure Switch; Overview - Oil Pressure Switch/Oil Pressure Regulation .

6 - Starter Generator - C29-

☐ Overview. Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Generator; Overview - Generator.

7 - Oil Pressure Regulation Valve - N428-

Overview. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 17; Oil Filter/Oil Pressure Switch; Overview - Oil Pressure Switch/Oil Pressure Regulation .

2 Air Filter

- ⇒ "2.1 Overview Air Filter Housing", page 149
- ⇒ "2.2 Air Filter Housing, Removing and Installing", page 150

2.1 Overview - Air Filter Housing

1 - Snow Screen

■ Market-Specific Version

2 - Air Duct

- On the lock carrier
- Clean off any salt and

3 - Sealing Piece

4 - Water Drain

□ Clean

5 - Mount

For the air filter housing

6 - Air Duct

- □ For market-specific versions with Intake Air Switch-Over Valve -N335-
- ☐ Not included when replacing the air filter lower section. Refer to <u>⇒ page 151</u> .

7 - Air Filter Lower Section

- Clean off any salt and
- Market-specific versions: when replacing the air filter lower section, the Intake Air Switch-Over Valve -N335- is omitted. Refer to <u>⇒ page 151</u>.
- Removing and installing. Refer to 2.2 Air Filter Housing,

Removing and Installing", page 150.

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8 - Air Filter Element

- ☐ Use an original air filter element. Refer to the Parts Catalog.
- □ Replacement intervals. Refer to the ⇒ Maintenance Intervals; Rep. Gr. 03
- Removing and Installing. Refer to ⇒ Maintenance; Booklet 830; Maintenance Work; Air Filter; Filter Element, Replacing; Housing, Cleaning

9 - Bolt

- □ 3.5 Nm
- Thread cutting
- Position the bolt by hand and tighten it until it finds the old threads. Then tighten the bolt to the specification.

10 - Air Filter Upper Section

Clean off any salt and dirt

□ Removing and Installing. Refer to ⇒ Maintenance; Booklet 830; Maintenance Work; Air Filter; Filter Element, Replacing; Housing, Cleaning

11 - Air Duct Pipe

- Pay attention to the marks for installing
- □ Screw-type clamp tightening specification. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview Charge Air Hose Connections.

12 - Bolt

- □ 1.5 Nm
- Thread cuttingected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- Position the bolt by hand and tighten it until it finds the old threads. Then tighten the bolt to the specification.

13 - Heat Shield

14 - Air Duct

- On the lock carrier
- Clean off any salt and dirt

15 - Bolt

- □ 2.5 Nm
- □ Thread cutting
- Position the bolt by hand and tighten it until it finds the old threads. Then tighten the bolt to the specification.

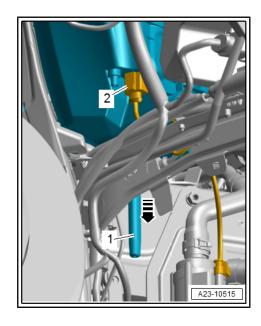
2.2 Air Filter Housing, Removing and Installing

Special tools and workshop equipment required

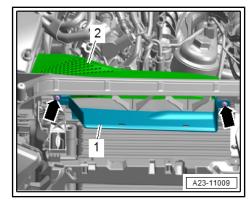
♦ Engine Bung Set - VAS6122-

Removing

- Remove the lock carrier cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper.
- Versions with Air Filter Bypass Door Valve N275- : disconnect the connector -2-.
- Remove the water drain -1- downward in direction of -arrow-.



Remove the bolts -arrows- and the air guide -2-.



- Remove the vacuum hose -3-.
- Loosen the clamp -2- and remove the air duct hose.
- Pull the air filter housing -1- upward and remove it.
- Seal the turbocharger with thoroughly cleaned plugs from the -VAS6122- .

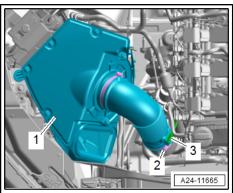
Installing

Install in reverse order of removal and note the following:

- The air filter housing must always be clean.
- Use lubricant (silicone-free) for assembling the air duct hoses.
- Replace the O-ring after removing commercial purposes, in part or in whole, is not
- Secure all hose connections with hose clamps that match the ones used in series production. Refer to the Parts Catalog.
- Market-specific versions: the Intake Air Switch-Over Valve - N335- is not included in the replacement; attach a matching connector to the connector in the wiring harness. Refer to Parts Catalog.
- Check the water drain in the air filter lower section for dirt and adhesive and clean if necessary.
- Check the air duct from the lock carrier to the air filter housing for dirt.
- Install the lock carrier cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper.

Tightening Specifications

- Refer to ⇒ "2.1 Overview Air Filter Housing", page 149
- Refer to ⇒ Servicing 4-Cylinder 1.8; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview - Charge Air Hose Connections .



3 Intake Manifold

- ⇒ "3.1 Overview Intake Manifold", page 152
- ⇒ "3.2 Intake Manifold, Removing and Installing", page 152
- ⇒ "3.3 Throttle Valve Control Module GX3, Removing and Installing", page 158
- ⇒ "3.4 Throttle Valve Control Module GX3, Cleaning", page 158
- ⇒ "3.5 Intake Manifold Change-Over, Checking", page 158

3.1 Overview - Intake Manifold

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Intake Manifold; Overview - Intake Manifold

3.2 Intake Manifold, Removing and Instal-

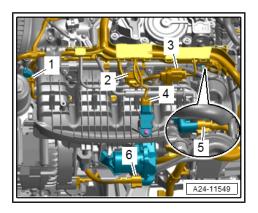
⇒ "3.2.1 Intake Manifold, Removing and Installing, Vehicle without mercial purposes, in part or in whole, is not AG does not guarantee or accept any liability Particulate Filter", page 152 with respect to the correctness of information in this document. Copyright by AUDI AG.

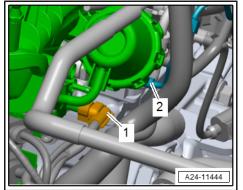
⇒ "3.2.2 Intake Manifold, Removing and Installing, Vehicle with Particulate Filter", page 154

3.2.1 Intake Manifold, Removing and Installing, Vehicle without Particulate Filter

Removing

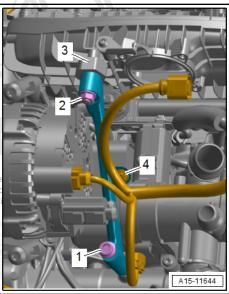
- Remove the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- If there is no B+ cover on the generator, disconnect the battery to prevent short circuits. Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting.
- Disconnect the connectors and free up the wires.
- For the Intake Manifold Runner Position Sensor G336-
- For Low Fuel Pressure Sensor G410- (Version with MPI 2 -System)
- Central Connector for Fuel Injectors (Version with MPI Sys-3 -
- For the Intake Air Temperature Sensor G42-
- 5 -For the Camshaft Position Sensor - G40-
- For the Throttle Valve Control Module GX3-
- Disconnect the connector -1- for the Intake Manifold Runner Control Valve - N316- .
- Disconnect the vacuum hose -2-.





Remove the nut -2- and bolt -1- and remove the intake manifold support.





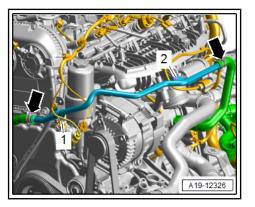
- Free up the wires.
- Remove the bolts -1 and 2- and move the left coolant pipe to the side.

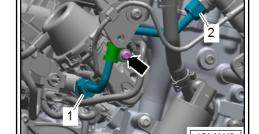


WARNING

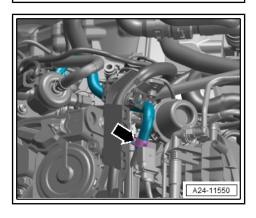
The Fuel System is Under Pressure. Risk of Injury from Fuel Spraying Out.

- Wear protective eyewear.
- Wear safety gloves.
- Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.
- Remove the bolt -arrow- and the union nuts -1, and 2-.
- Remove the high pressure pipe.
- Seal off any open lines and connections with plugs that are thoroughly cleaned from the -VAS6122- .

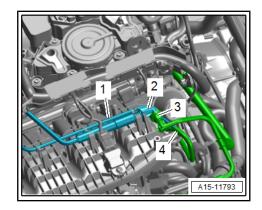




Version with MPI system: loosen the hose clamp -arrow- and disconnect the fuel hose.



- Free up the coolant line -2- from the intake manifold and push to the side.
- Disconnect the vacuum hose -4-.
- Free up the vacuum line -1- for the Intake Manifold Runner Control Valve - N316- on the intake manifold.



- Disconnect the connector -1- for the Charge Air Pressure Sensor - G31- .
- Loosen the screw-type clamp -2- and remove the air duct pipe from the Throttle Valve Control Module - GX3-.

All additional procedures are described. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Intake Manifold; Intake Manifold, Removing and Installing.

Installing

Additional procedures:

- Follow all steps after connecting the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting .
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.



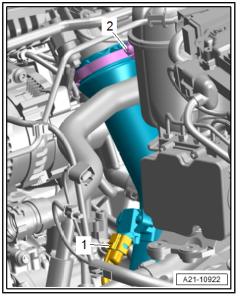
- Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview - Charge Air Hose Connections.
- Refer to ⇒ "3.1 Overview Coolant Pipes", page 111

3.2.2 Intake Manifold, Removing and Installing, Vehicle with Particulate Filter

Removing

- Remove the engine cover. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- If there is no B+ cover on the generator, disconnect the battery to prevent short circuits. Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting.

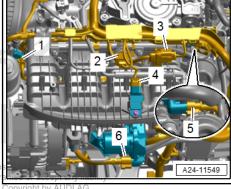
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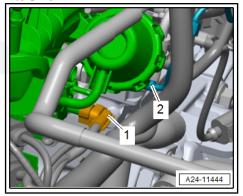


- Disconnect the connectors and free up the wires.
- 1 -For the Intake Manifold Runner Position Sensor - G336-
- For Low Fuel Pressure Sensor G410- (Version with MPI 2 -System)
- Central Connector for Fuel Injectors (Version with MPI Sys-3 -
- For the Intake Air Temperature Sensor G42-4 -
- For the Camshaft Position Sensor G40-
- For the Throttle Valve Control Module pyl GX3 private or commercial purpos

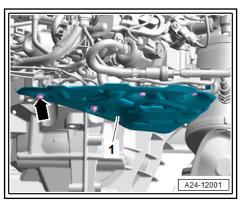
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- Disconnect the connector -1- for the Intake Manifold Runner Control Valve - N316-.
- Disconnect the vacuum hose -2-.

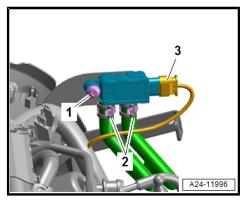




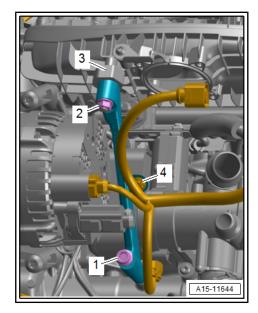
Remove the nut -arrow- on the heat shield. (Shown with the particulate filter removed).



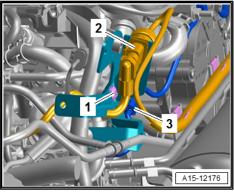
- Disconnect the connector -3-.
- Remove the bolt -1- and push the Differential Pressure Sensor - G505- to the side.



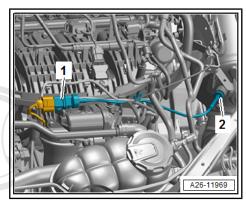
Remove the nut -2- and bolt -1- and remove the intake manifold support.



- Remove the connector -2- for the Exhaust Gas Temperature Sensor 3 - G495- from the bracket and disconnect.
- Open the clip -3- and free up the vacuum hose.
- Remove the bolt -1- and the bracket. There are different versions.



Free up and disconnect the connector -1- for the Exhaust Gas Temperature Sensor 4 - G648-.



- Free up the wires.
- Remove the bolts -1 and 2- and move the left coolant pipe to the side.

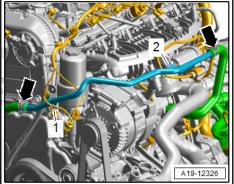
WARNING

The fuel system is under pressure. Risk of injury from fuel spraying out.

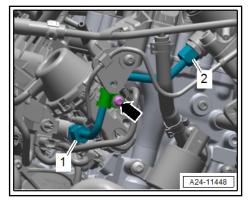
- Wear protective eyewear.

- Wear safety gloves.
- Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.

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- Remove the bolt -arrow- and the union nuts -1, and 2-.
- Remove the high pressure pipe.
- Seal off any open lines and connections with plugs that are thoroughly cleaned from the Engine Bung Set - VAS6122-.



- Free up the coolant line -2- from the intake manifold and push to the side.
- Disconnect the vacuum hose -4-.
- Free up the vacuum line -1- for the Intake Manifold Runner Control Valve - N316- on the intake manifold.
- A15-11793
- Disconnect the connector -1- for the Charge Air Pressure Sensor - G31- .
- Loosen the screw-type clamp 2e and remove the air ductivible, is not from the Throttle Walve Control Module is 6X3en. Copyright by AUDI AG.

All additional procedures are described under: ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Intake Manifold; Intake Manifold, Removing and Installing.

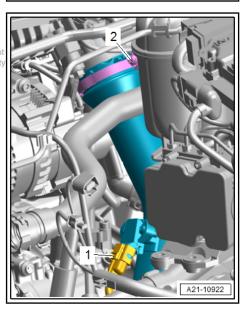
Installing

Additional procedures:

- Follow all steps after connecting the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting.
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

Tightening Specifications

- Refer to ⇒ Fig. ""Heat Shield - Tightening Specification", page 62
- Refer to "Heat Shield Bracket - Tightening Specification", page
- Refer to ⇒ "3.1 Overview Coolant Pipes", page 111
- Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview - Charge Air Hose Connections .



3.3 Throttle Valve Control Module - GX3-, Removing and Installing

Removing

- Remove the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Disconnect the connector -1- for the Charge Air Pressure Sensor - G31-.
- Loosen the screw-type clamp -2- and remove the air duct pipe downward from the Throttle Valve Control Module - GX3- and tie up to the side.

All additional procedures are described. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Intake Manifold, Throttle Valve Control Module - GX3-, Removing and Installing.

Installing

Additional procedures:

Install the engine cover. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

Tightening Specifications

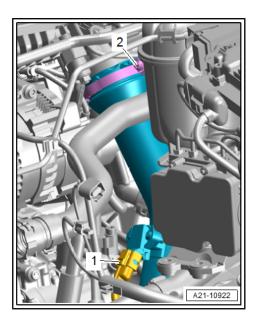
Refer to ⇒ Servicing - 4-Cylinder 1.8; 2.0L 4V TFSI Engine; Rep. Gr. 21; Charge Air System; Overview - Charge Air Hose Connections.

3.4 Throttle Valve Control Module - GX3-, Cleaning

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Intake Manifold Throttle Valve Control Module -GX3-, Cleaning.

Intake Manifold Change-Over, Check-3.5 ing

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. Pr24 and Intake Manifold Intake Manifold Change Over whole, is not Rep. Gr. Pr24 and Intake Manifold Intake Manifold Change Over whole, is not guarantee or accept any liability Checking with respect to the correctness of information in this document. Copyright by AUDI AG.



4 Fuel Injectors

- ⇒ "4.1 Overview Fuel Rail with Fuel Injectors", page 159
- ⇒ "4.2 Fuel Rail, Removing and Installing", page 159
- ⇒ "4.3 Fuel Injectors, Removing and Installing", page 159
- ⇒ "4.4 Fuel Injectors, Cleaning", page 159

4.1 Overview - Fuel Rail with Fuel Injectors

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Overview - Fuel Rail with Fuel Iniectors.

4.2 Fuel Rail, Removing and Installing

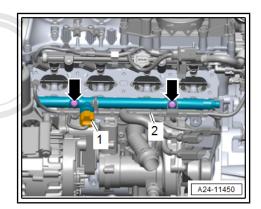
Removing

- Observe the guidelines for clean working conditions. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 00; Repair Information; Guidelines for Clean Working Conditions.
- Remove the intake manifold. Refer to ⇒ "3.2 Intake Manifold, Removing and Installing", page 152.
- Disconnect the connector -1- for the Fuel Pressure Sensor -G247-.
- Remove the bolts -arrows-.
- Free up the wiring duct -2- from the fuel rail and remove the fuel rail from the fuel injectors.

TIP:

If the fuel injectors stick in the fuel rail disconnect the connectors.

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Fuel Rail, Removing and Installing.



otected by copyright. Copying for private or c Fuel Injectors: Removing and Installing antee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG. 4.3

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Fuel Injectors, Removing and Installing.

4.4 Fuel Injectors, Cleaning

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Fuel Injectors; Fuel Injectors, Cleaning.

5 Sensors

- ⇒ "5.1 Intake Air Temperature Sensor G42 / Manifold Absolute Pressure Sensor G71 , Removing and Installing", page 160
- ⇒ "5.2 Fuel Pressure Sensor G247 , Removing and Installing", page 160
- ⇒ "5.3 Fuel Pressure Sensor G247, Checking", page 161
- ⇒ "5.4 Low Fuel Pressure Sensor G410 , Removing and Installing", page 161
- 5.1 Intake Air Temperature Sensor G42- /
 Manifold Absolute Pressure Sensor G71- , Removing and Installing

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Sensors; Intake Air Temperature Sensor - G42- / Manifold Absolute Pressure Sensor - G71-, Removing and Installing.

5.2 Fuel Pressure Sensor - G247-, Removing and Installing

Removing

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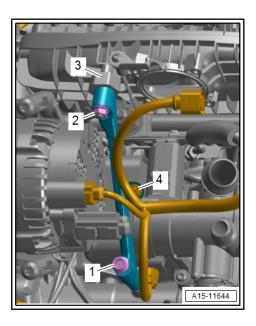
- Remove the engine cover. Refer to ⇒ Servicing per Cylinderness of information in this document. Copyright by AUDI AG.
 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- If not B+ cover is present on the generator. disconnect the battery to prevent short circuit. Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting.
- Remove the nut -2- and bolt -1- and remove the intake manifold support.
- Remove the bonded rubber bushing -3-.

Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Sensors; Fuel Pressure Sensor - G247-, Removing and Installing.

Installing

Additional procedures:

- Follow all steps after connecting the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting.
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.





5.3 Fuel Pressure Sensor - G247-, Check-

Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Sensors; Fuel Pressure Sensor - G247- , Checking .

Low Fuel Pressure Sensor - G410-, Re-5.4 moving and Installing

Refer to \Rightarrow Servicing - 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Sensors; Low Fuel Pressure Sensor - G410-, Removing and Installing.



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6 **High Pressure Pump**

⇒ "6.1 Overview - High Pressure Pump", page 162

⇒ "6.2 High Pressure Pump, Removing and Installing", page 162

6.1 Overview - High Pressure Pump

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; High Pressure Pump; Overview - High Pressure Pump .

6.2 High Pressure Pump, Removing and Installing

⇒ "6.2.1 High Pressure Pump, Removing and Installing, Vehicles without Particulate Filter", page 162

⇒ "6.2.2 High Pressure Pump, Removing and Installing, Vehicle with Particulate Filter Proace 162 yright. Copying for private or commercial purposes, in part of an unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

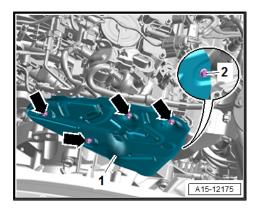
High Pressure Pump, Removing and In-6.2.1 stalling, Vehicles without Particulate Filter

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; High Pressure Pump; High Pressure Pump, Removing and Installing.

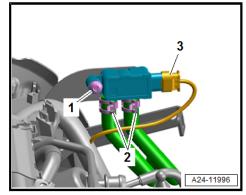
6.2.2 High Pressure Pump, Removing and Installing, Vehicle with Particulate Filter

Removing

- Remove the engine cover. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Free up the wires on the heat shield -1-.
- Remove the nuts -arrows- and bolt -2-, push the heat shield upward slightly. (Shown with the particulate filter removed).



- Disconnect the connector -3-.
- Remove the bolt -1- and push the Differential Pressure Sensor - G505- to the side.



- Remove the connector -2- for the Exhaust Gas Temperature Sensor 3 - G495- from the bracket and disconnect.
- Open the clip -3- and free up the vacuum hose.
- Remove the bolt -1-, and push aside the bracket. There are different versions.

All additional procedures described. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; High Pressure Pump; High Pressure Pump, Removing and Installing .

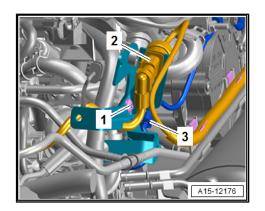
Installing

Additional procedures:

Install the engine cover. Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

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- ♦ Refer to ⇒ Fig. ""Heat Shield - Tightening Specification"", page 62
- Refer to ⇒ Fig. ""Heat Shield Bracket - Tightening Specification"", page



7 Heated Oxygen Sensor

Refer to ⇒ Rep. Gr. 24; Heated Oxygen Sensor.



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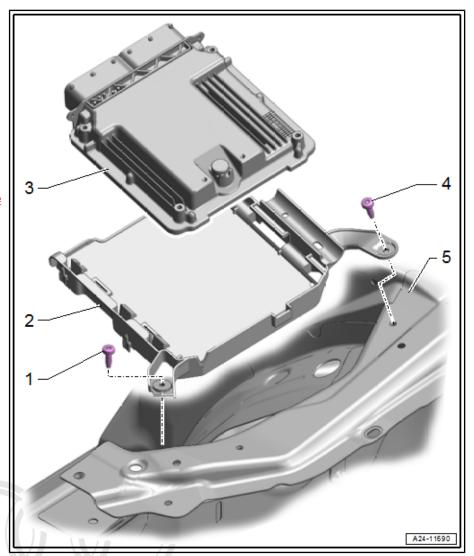
8 **Engine Control Module**

⇒ "8.1 Overview - Engine Control Module", page 165

⇒ "8.2 Engine Control Module J623, Removing and Installing", page 165

8.1 **Overview - Engine Control Module**

- 1 Bolt
 - □ 9 Nm
- 2 Mount
 - □ For the Engine Control Module - J623-
- 3 Engine Control Module -J623-
 - □ Removing and installing. Refer to ⇒ "8.2 Engine Control Module J623, Removing and Installing", page <u> 165</u> .
- 4 Bolt
 - □ 9 Nm
- 5 Suspension Strut Tower



Engine Control Module - J623-, Remov-8.2 ing and Installing

Removing

If the engine control module is replaced, select Guided Functions, 01 - Replace control module on the Vehicle Diagnostic Tester th. Copying for private or commercial purposes, in part or in whole, is not authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

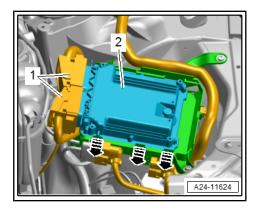


- Open the retainers in direction of -arrows- and remove the Engine Control Module - J623- -2-.
- Disconnect the connectors -1-.

Installing

After installing a new engine control module:

Activate the engine control module using the Vehicle Diagnostic Tester, in Guided Functions under Replace Engine Control Module (ECM).





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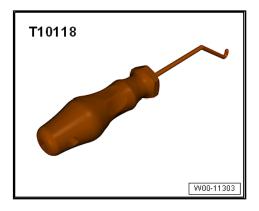




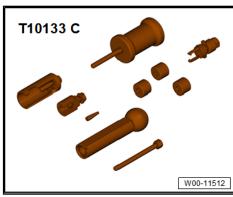
9 **Special Tools**

Special tools and workshop equipment required

♦ Elbow Assembly Tool - T10118-



◆ Injector/Combustion Chamber Seal Tool Set - T10133C-



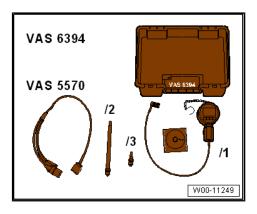
♦ Socket - 27mm - T40218-



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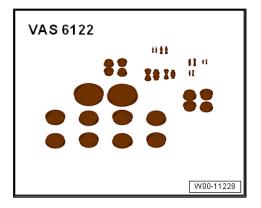


♦ Vehicle Diagnostic Tester - Test Adapter - 3 Pin - VAS5570-

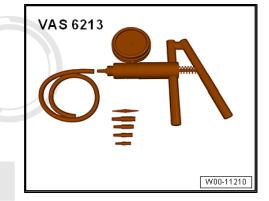


Pressure Sensor Tester - VAS6394-

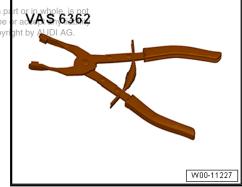
Engine Bung Set - VAS6122-



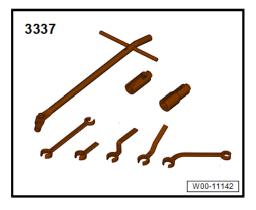
Hand Vacuum Pump - VAS6213-



Hose Clip Pliers - VAS6362permitted unless authorised by AUDI AG. AUDI AG does not guarantee with respect to the correctness of information in this document. Copy



Ring Wrench 7-Piece Set - 3337-





Exhaust System, Emission Controls 26 –

Exhaust Pipes/Mufflers

- ⇒ "1.1 Overview Muffler", page 169
- ⇒ "1.2 Exhaust Pipes/Mufflers, Disconnecting", page 173
- ⇒ "1.3 Front Muffler, Removing and Installing", page 174
- ⇒ "1.4 Muffler, Removing and Installing", page 176
- ⇒ "1.5 Exhaust System, Installing without Tension", page 177
- ⇒ "1.6 Exhaust System, Checking for Leaks", page 178

1.1 Overview - Muffler

- ⇒ "1.1.1 Overview Muffler, FWD Vehicle", page 169
- ⇒ "1.1.2 Overview Muffler, AWD Vehicles", page 171

1.1.1 Overview - Muffler, FWD Vehicle

1 - Retaining Loop

- □ Always replace if damaged
- Exhaust System, Installing without Tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177

2 - Bolt

- □ 23 Nm
- 3 Bracket

4 - Center Muffler

- Original equipment as one unit with the rear muffler. If a repair is required replace each separately
- Separating point. Refer ⇒ "1.2 Exhaust Pipes/ Mufflers, Disconnecting", page 173
- ☐ Exhaust System, Installing without Tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177

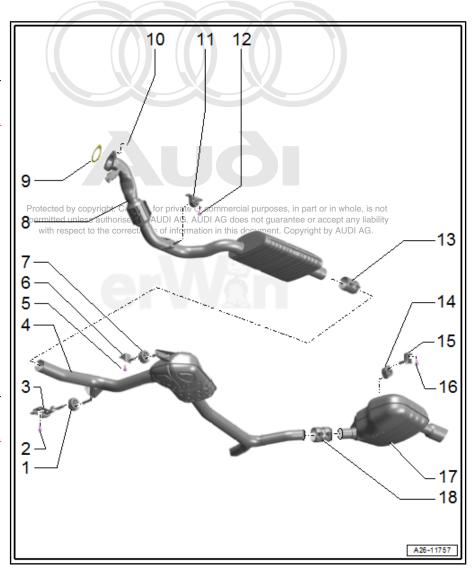
5 - Bolt

□ 23 Nm

6 - Bracket

7 - Retaining Loop

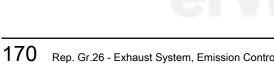
Always replace if damaged



Mudi A4 2015 ➤ , Audi A4 China 2016 ➤ , Audi A5 2016 ➤ 4-Cylinder Direct Injection 2.0L 4V TFSI Engine (EA 888 Generation III) - Edition 11.2019

	Exhaust System, Installing without Tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177.
B - Front Muffler	
	With coupling:
♦ Do	o not bend more than 10°
Do not load on cable	
♦ Do	o not damage wire mesh at decoupling element
	Removing and installing. Refer to ⇒ "1.3 Front Muffler, Removing and Installing", page 174.
	Exhaust System, Installing without Tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177.
9 - Gasket	
	Always replace after removing.
10 - Nut	
	23 Nm
11 - N	Mount (
	Always replace if damaged
	Check the pretension. Refer to <u>⇒ "1.5 Exhaust System, Installing without Tension", page 177</u> .
	Equipped on some models
12 - Bolt	
	23 Nm
_	Front Clamping Sleeve
	Before tightening, align the exhaust system without tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177.
	Tighten the threaded connections equally to 23 Nm.
	Installation position. Refer to \Rightarrow Fig. ""Front Clamping Sleeve - Installation Position" , page 171 .
14 - Retaining Loop	
	Always replace if damaged
	Exhaust System, Installing without Tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177.
15 - Bracket	
16 - Bolt	
	23 Nm
17 - F	Rear Muffler
	Original equipment one unit with the center muffler. If a repair is required replace each separately
	Separating point. Refer to <u>⇒ "1.2 Exhaust Pipes/Mufflers, Disconnecting", page 173</u> .
	Exhaust System, Installing without Tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177.
18 - Rear Clamping Sleeve	
	Before tightening, align the exhaust system without tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177.
	Tighten the threaded connections equally to 23 Nm.
	Installation position. Refer to ⇒ Fig. "'Rear Clamping Sleeve - Installation Position"", page 171.
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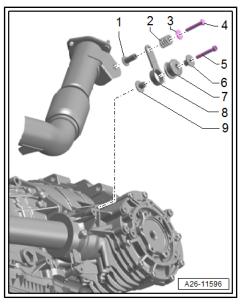
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Rep. Gr.26 - Exhaust System, Emission Controls

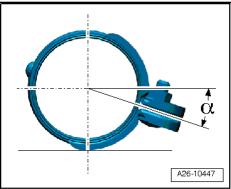
Individual Mounting Components for Front Muffler

- 1 -Spacer Sleeve
- 2 -**Pressure Spring**
- 3 -Washer
- Bolt 23 Nm 4 -
- 5 -Bolt - 23 Nm
- 6 -Spacer Sleeve
- 7 -Buffer
- 8 -Tab
- 9 -Spacer Sleeve



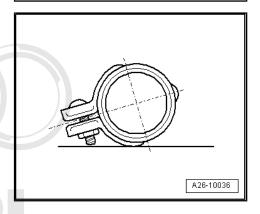
Front Clamping Sleeve - Installation Position

- Install the clamping sleeve in the position shown.
- Angle $-\alpha$ = approximately 20°.
- The threaded connections are to the right.
- Nuts downward.



Rear Clamping Sleeve - Installation Position

- Install the clamping sleeve in the position shown.
- Threaded connections are to the left.
- Nuts downward.
- Bolt ends must not protrude over the lower edge of the clamping sleeve.



1.1.2 Overview - Muffler, AWD Vehicles

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1 - Center Muffler

- Original equipment as one unit with rear mufflers. If a repair is required replace each separately
- Separating point. Refer
 - ⇒ "1.2 Exhaust Pipes/ Mufflers, Disconnecting", page 173.
- ☐ Exhaust System, Installing without Tension. Refer to
 - ⇒ "1.5 Exhaust System, Installing without Tension", page 177

2 - Retaining Loop

- Always replace if damaged
- Exhaust System, Installing without Tension. Refer to
 - ⇒ "1.5 Exhaust System, Installing without Tension", page 177.

3 - Bolt

□ 23 Nm

4 - Bracket

5 - Front Muffler

- With coupling:
- Do not bend more than 10°
- Do not load on cable
- Do not damage wire mesh at decoupling element
 - □ Removing and installing. Refer to ⇒ "1.3 Front Muffler, Removing and Installing", page 174.
 - ☐ Exhaust System, Installing without Tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177

6 - Gasket

□ Always replace after removing.

7 - Nut

□ 23 Nm

8 - Bolt

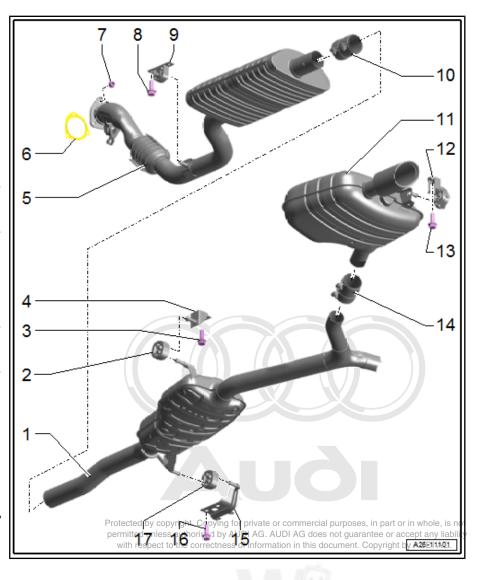
□ 23 Nm

9 - Mount

- Always replace if damaged
- ☐ Check the pretension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177.

10 - Front Clamping Sleeve

- ☐ Before tightening, align the exhaust system without tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177.
- ☐ Tighten the threaded connections equally to 23 Nm.
- ☐ Installation position. Refer to ⇒ Fig. ""Front Clamping Sleeve Installation Position"", page 171.



11 - Rear Muffler

- Original equipment one unit with the center muffler. If a repair is required replace each separately
- ☐ Separating point. Refer to ⇒ "1.2 Exhaust Pipes/Mufflers, Disconnecting", page 173.
- ☐ Exhaust System, Installing without Tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177

12 - Mount

- Always replace if damaged
- ☐ Check the pretension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177.

13 - Bolt

□ 23 Nm

14 - Rear Clamping Sleeve

- ☐ Before tightening, align the exhaust system without tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177
- ☐ Tighten the threaded connections equally to 23 Nm.
- ☐ Installation position. Refer to <u>⇒ Fig. ""Rear Clamping Sleeve Installation Position"</u>, page 171.

15 - Bracket

16 - Bolt

□ 23 Nm

17 - Retaining Loop

- Always replace if damaged
- ☐ Exhaust System, Installing without Tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177

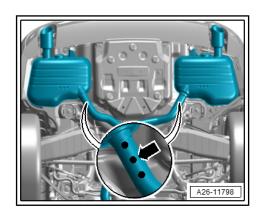
1.2 Exhaust Pipes/Mufflers, Disconnecting

Special tools and workshop equipment required

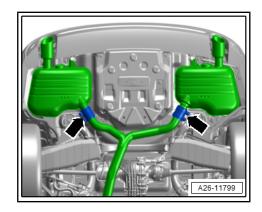
- Chain Pipe Cutter VAS6254-
- A separating point has been provided in the connecting pipe for individual replacement of the center or rear muffler in whole, is not
- The separating point is marked by an indentation around the circumference of the exhaust pipe.

Procedure

Separate the exhaust pipes at a right angle at the notch -arrow- using a -VAS6254- .



- When installing, position the clamping sleeves -arrows- on the center of the separation cut.
- Install the clamping sleeves. Refer to
 ⇒ Fig. ""Rear Clamping Sleeve Installation Position" ,
 page 171 .
- Install the exhaust system without tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", page 177 .



1.3 Front Muffler, Removing and Installing

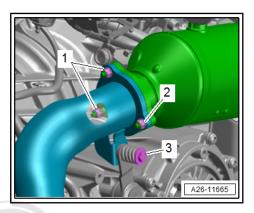
⇒ "1.3.1 Front Muffler, Removing and Installing, Vehicle without Particulate Filter", page 174

⇒ "1.3.2 Front Muffler, Removing and Installing, Vehicle with Particulate Filter", page 175

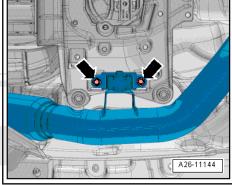
1.3.1 Front Muffler, Removing and Installing, Vehicle without Particulate Filter

Removing

- Remove the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Remove the nuts -1- from the front muffler accessible from the top.
- Remove the rear noise insulation. Refer to ⇒ Body Exterior;
 Rep. Gr. 66; Noise Insulation; Overview Noise Insulation.
- Remove the nut -2- and bolt -3- for the front muffler.



Remove the front muffler bolts -arrows-.



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Loosen the clamping sleeve -arrows- and push toward the



CAUTION

Risk of Damaging the Coupling Due to Improper Handling

- Coupling must not be bent more than 10°.
- Do not load the coupling on the cable.
- Remove the front muffler.

Installing

Install in reverse order of removal and note the following:

- Replace seal after disassembly.
- Install the exhaust system without tension. Refer to ⇒ "1.5 Exhaust System, Installing without Tension", <u>page 177</u>.
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

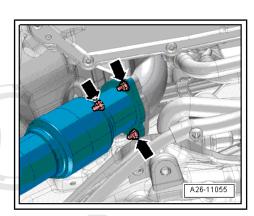
Tightening Specifications

- Refer to ⇒ "1.1 Overview Muffler", page 169
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Overview - Noise Insulation .

1.3.2 Front Muffler, Removing and Installing, Vehicle with Particulate Filter

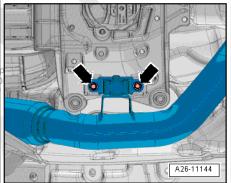
Removing

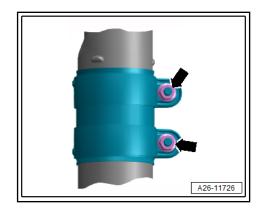
Remove the nuts -arrows- from the front muffler.



Remove the front muffler bolts -arrows-. (Shown on the right)







Loosen the clamping sleeve -arrows- and push toward the



CAUTION

Risk of Damaging the Coupling Due to Improper Handling

- Coupling must not be bent more than 10°.
- Do not load the coupling on the cable.
- Remove the front muffler.

Installing

Install in reverse order of removal and note the following:

- Replace seals and self-locking nuts after disassembly.
- Install the exhaust system without tension. Refer to "1.5 Exhaust System, Installing without Tension", <u>page 177</u>

Tightening Specifications

Refer to ⇒ "1.1 Overview - Muffler", page 169

1.4 Muffler, Removing and Installing

Removing

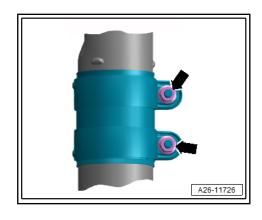
- Equipped on some models: remove the left and right diagonal brace. Refer to ⇒ Body Exterior; Rep. Gr. 66; Underbody Trim Panel; Overview - Underbody Bracing.
- Loosen the clamping sleeve -arrows- and push toward the rear.



CAUTION

Risk of damaging the coupling due to improper handling formation

- Coupling must not be bent more than 10°.
- Do not load the coupling on the cable.
- Slightly lower the front muffler and remove the clamping sleeve.
- Tie up the front muffler.





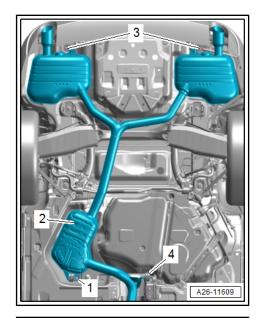
FWD Vehicle:



CAUTION

Risk of accident due to the heavy weight of the muffler.

- A second technician is required for the following work steps.
- Disengage the mounting -4- from the exhaust system.
- Remove the bolts -1 and 3- and remove the muffler -2-.



AWD Vehicle:



WARNING

Risk of accident due to the heavy weight of the muffler.

- A second technician is required for the following work steps.
- Disengage the mounting -2 and 4- from the exhaust system.
- Remove the bolts -3- and remove the muffler -1-.

Installing

Install in reverse order of removal and note the following:

Install the exhaust system without tension. Refer to ⇒ "1.5 Exhaust:Systemigilnstalling: without:Tensionugoses, in part or in wh page 177 permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept a with respect to the correctness of information in this document. Copyright by AUI

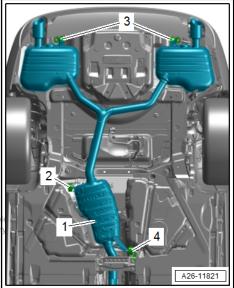
Tightening Specifications

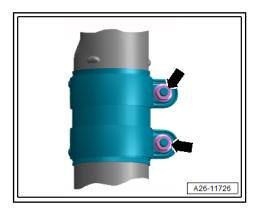
- Refer to ⇒ "1.1 Overview Muffler", page 169
- Refer to ⇒ Body Exterior; Rep. Gr. 66; Underbody Trim Panel; Overview - Underbody Bracing .

1.5 Exhaust System, Installing without Tension

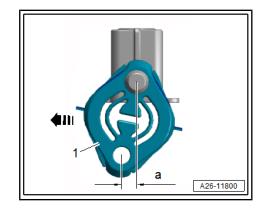
Procedure

- Align the exhaust system when cold.
- Loosen the front clamping sleeve -arrows-.





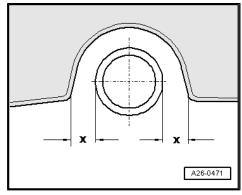
- Push the exhaust system far enough forward in direction of -arrow- until the pretension on the retaining loop -1- at the exhaust pipe is -a = 6 to 10 mm.
- Position the front clamping sleeve (refer to ⇒ Fig. ""Front Clamping Sleeve Installation Position"", page 171) and tighten the threaded connections evenly.



- Check the distance of left and right tail pipes to bumper:
- Dimension -x- left = dimension -x- right.

Tightening Specifications

Refer to ⇒ "1.1 Overview - Muffler", page 169



Exhaust System, Checking for Leaks 1.6

Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 26; Exhaust Pipes/Mufflers; Exhaust System, Checking for Leaks .



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2 **Emissions Control System**

- ⇒ "2.1 Overview Emissions Control System", page 179
- ⇒ "2.2 Catalytic Converter, Removing and Installing", page 179
- ⇒ "2.3 Particulate Filter, Removing and Installing", page 181

2.1 Overview - Emissions Control System

Refer to ⇒ Servicing – 4-Cylinder 2.0L 4V TFSI Engine; Rep. Gr. 26; Emissions Control System; Overview - Emissions Control System .

2.2 Catalytic Converter, Removing and Installing

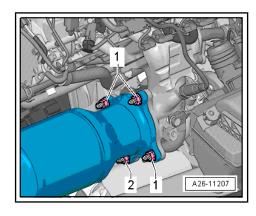
⇒ "2.2.1 Catalytic Converter, Removing and Installing, Vehicle without Particulate Filter", page 179

⇒ "2.2.2 Catalytic Converter, Removing and Installing, Vehicle with Particulate Filter", page 180

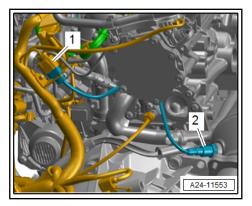
2.2.1 Catalytic Converter, Removing and Installing, Vehicle without Particulate Filivate or commercial purposes, in part or in whole, is not stalling, Vehicle without Particulate Filivate or commercial purposes, in part or in whole, is not AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Removing

- During installation, all cable ties must be installed at the same location.
- Remove the front muffler. Refer to ⇒ "1.3.1 Front Muffler, Removing and Installing, Vehicle without Particulate Filter", page 174
- Remove the air filter housing. Refer to ⇒ "2.2 Air Filter Housing, Removing and Installing", page 150.
- Remove the Oxygen Sensor 1 Before Catalytic Converter GX10- . Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Heated Oxygen Sensor; Heated Oxygen Sensor, Removing and Installing.
- Remove the nut -2- from below. (The nuts -1- will be removed later.)



Remove the connector -1- for the Oxygen Sensor 1 After Catalytic Converter - GX7- -2- from the bracket and disconnect it.



Remove the nut -1- from above and remove the catalytic converter upward.

Installing

Install in reverse order of removal and note the following:

- · Replace gasket after disassembly.
- Install the Oxygen Sensor 1 Before Catalytic Converter -GX10- . Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Heated Oxygen Sensor; Heated Oxygen Sensor, Removing and Installing .
- Install the air filter housing. Refer to
 ⇒ "2.2 Air Filter Housing, Removing and Installing",
 page 150
- Install the front muffler. Refer to
 ⇒ "1.3.1 Front Muffler, Removing and Installing, Vehicle without Particulate Filter", page 174.

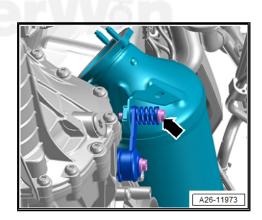


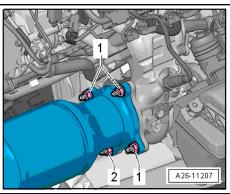
- Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 26; Emissions Control System; Overview - Emissions Control System.
- ◆ Refer to ⇒ "1.1 Overview Muffler", page 169

2.2.2 Catalytic Converter, Removing and Installing, Vehicle with Particulate Filter

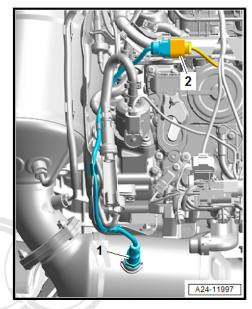
Removing

- Remove the air filter housing. Refer to
 ⇒ "2.2 Air Filter Housing, Removing and Installing emitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability page 150.
- Remove the particulate filter. Refer to
 ⇒ "2.3 Particulate Filter, Removing and Installing",
 page 181 .
- Remove the bolt -arrow- from the catalytic converter bracket.





Remove the connector -2- for the Oxygen Sensor 1 After Catalytic Converter - GX7- -1- from the bracket and disconnect it.



Remove the nuts -1 and 2- and remove the catalytic converter toward the rear and upward.

Installing

Install in reverse order of removal and note the following:

- Replace gaskets and self-locking nuts after disassembly.
- Install the air filter housing. Refereto by copyright. Copying for private or commercial ⇒ "2.2 Air Filter Housing, Removing and anstalling" AUDI AG. AUDI AG doe page 150
- Install the particulate filter. Refer to ⇒ "2.3 Particulate Filter, Removing and Installing", <u>page 181</u> .

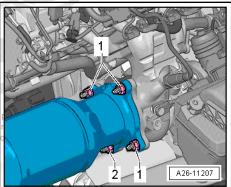


 Refer to ⇒ Servicing - 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 26; Emissions Control System; Overview - Emissions Control System .

2.3 Particulate Filter, Removing and Installing

Removing

- Remove the front muffler. Refer to ⇒ "1.3.2 Front Muffler, Removing and Installing, Vehicle with Particulate Filter", page 175.
- Remove the plenum chamber bulkhead. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; Plenum Chamber Bulkhead, Removing and Installing.
- Remove the steering intermediate shaft from the steering gear and push together. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Steering Column; Steering Intermediate Shaft, Removing and Installing.

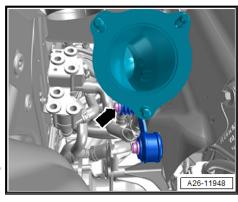


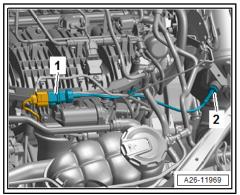
Remove the bolt -arrow- from the particulate filter bracket.



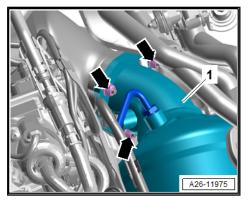
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Disconnect the connector -1- for the Exhaust Gas Temperature Sensor 4 - G648- and free up the wire.

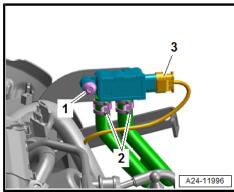




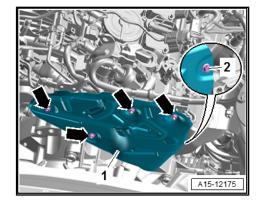
Remove the nuts -arrows-, and move the particulate filter -1slightly toward the rear.



- Disconnect the connector -3-.
- Remove the bolt -1- and push the Differential Pressure Sensor - G505- to the side.



- Free up the wires on the heat shield -1-.
- Remove the nuts -arrows- and bolts -2- and remove the heat shield. (Shown with the particulate filter removed).



- Remove the connector -2- for the Exhaust Gas Temperature Sensor 3 - G495- from the bracket and disconnect.
- Open the clip -3- and free up the vacuum hose.
- Remove the bolt -1- and the bracket. There are different ver-
- Remove the particulate filter.

Installing

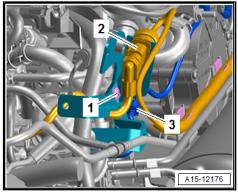
Installation in reverse order of removal and note the following:

- Install the steering intermediate shaft. Refer to ⇒ Suspension, Wheels Steering; Rep. Gr. 48; Steering Column; Steering Intermediate Shaft, Removing and Installing.
- Install the plenum chamber bulkhead. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; Plenum Chamber Bulkhead, Removing and Installing .
- Install the front muffler. Refer to ⇒ "1.3.2 Front Muffler, Removing and Installing, Vehicle with Particulate Filter", page 175.

After replacing the particulate filter, adaptations need to be made. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 00; Repair Information; perform adaptations after replacing components.

Tightening Specifications

- Refer to ⇒ Fig. ""Heat Shield - Tightening Specification" , page 62
- Refer to ⇒ Fig. ""Heat Shield Bracket - Tightening Specification"", page
- Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 26; Emissions Control System; Overview - Emissions Control System.





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3 Exhaust Temperature Regulation

- ⇒ "3.1 Overview Exhaust Temperature Regulation", page 184
- ⇒ "3.2 Exhaust Gas Temperature Sensor 3 G495 , Removing and Installing", page 184
- ⇒ "3.3 Exhaust Gas Temperature Sensor 4 G648, Removing and Installing", page 185

3.1 Overview - Exhaust Temperature Regulation

1 - Differential Pressure Sensor - G505-

□ Refer to ⇒ Servicing –
 4-Cylinder 1.8L; 2.0L 4V
 TFSI Engine; Rep. Gr.
 24; Heated Oxygen
 Sensor; Overview Heated Oxygen Sensor

2 - Oxygen Sensor 1 Before Catalytic Converter - GX10-

□ Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 24; Heated Oxygen Sensor; Overview -Heated Oxygen Sensor.

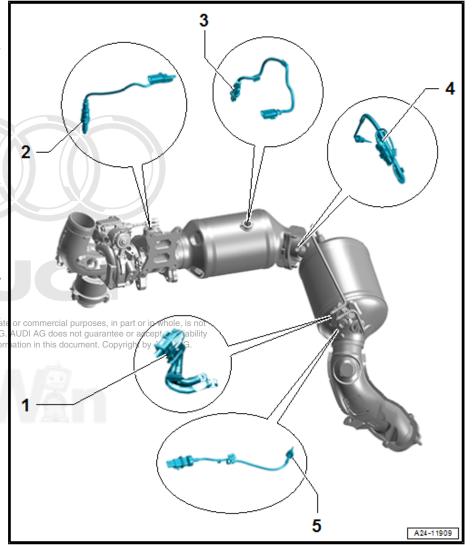
3 - Oxygen Sensor 1 after Catalytic Converter - GX7-

□ Refer to ⇒ Servicing –
Pro4-Cylinder 1.8L; 2.0L 4V
ProTFSI Engine Rep. Gri AG
24; Heated Oxygen
Sensor; Overview Heated Oxygen Sensor.

4 - Exhaust Gas Temperature Sensor 3 - G495-

- □ 45 Nm
- Removing and Installing. Refer to

 ⇒ "3.2 Exhaust Gas
 Temperature Sensor 3
 G495, Removing and
 Installing", page 184.



5 - Exhaust Gas Temperature Sensor 4 - G648-

- □ 45 Nm
- Removing and Installing. Refer to
 ⇒ "3.3 Exhaust Gas Temperature Sensor 4 G648, Removing and Installing", page 185.

3.2 Exhaust Gas Temperature Sensor 3 - G495- , Removing and Installing

Special tools and workshop equipment required



Diesel Engine Tool Set - T10395B- with a suitable socket wrench

Removing

- Remove the plenum chamber bulkhead. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; Plenum Chamber Bulkhead, Removing and Installing .
- Remove the engine cover. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Disconnect the connector -2- and free up the wire.
- Remove the Exhaust Gas Temperature Sensor 3 G495-

Installing

Install in reverse order of removal and note the following:

- Protect the exhaust gas temperature sensor against knocks and impacts. A dropped exhaust gas temperature sensor may not be used again.
- Make sure there is enough clearance during installation.
- Install the engine cover. Refer to ⇒ Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.
- Install the plenum chamber bulkhead. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; Plenum Chamber Bulkhead, Removing and Installing .

Tightening Specifications

⇒ "3.1 Overview - Exhaust Temperature Regulation", <u>page 184</u>

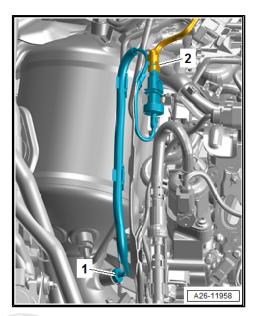
3.3 Exhaust Gas Temperature Sensor 4 -G648-, Removing and Installing

Special tools and workshop equipment required

Diesel Engine Tool Set - T10395B- with a suitable socket wrench

Removing

Remove the engine cover. Refer to ⇒ Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine:「Reportion to the Covern Find purposes, in part or in whole, is not give Cover Removing and mistallimid horised by ADDI AG. AUDI AG does not guarantee or accept any liability gine Cover, Removing and the stalling thorised by AUDI AG. AUDI AG does not guarantee or accept any list gine Cover, Removing and the stalling with respect to the correctness of information in this document. Copyright by AUDI AG.

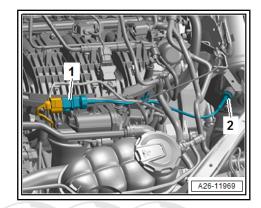


- Disconnect the connector -1- and free up the wire.
- Remove the Exhaust Gas Temperature Sensor 4 G648--2-.

Installing

Install in reverse order of removal and note the following:

- Protect the exhaust gas temperature sensor against knocks and impacts. A dropped exhaust gas temperature sensor may not be used again.
- Install the engine cover. Refer to \Rightarrow Servicing 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing .



Tightening Specifications

Refer to ⇒ "3.1 Overview - Exhaust Temperature Regulation",



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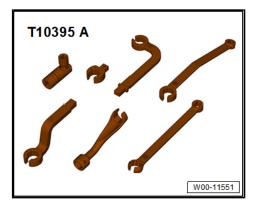




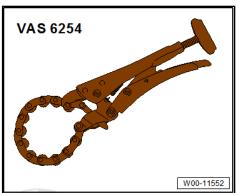
Special Tools 4

Special tools and workshop equipment required

Diesel Engine Tool Set - T10395B- with a suitable socket wrench



◆ Chain Pipe Cutter - VAS6254-





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28 – Ignition/Glow Plug System

1 Ignition System

Refer to \Rightarrow Servicing – 4-Cylinder 1.8L; 2.0L 4V TFSI Engine; Rep. Gr. 28; Ignition System .



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2 **Revision History**

DRUCK NUMBER: A005A013921

Fac- tory Edi-	Edit Edi- tion	Job Type	Fee dba ck	Notes	Quality Checke d By
tion					-
11.2 019	04/2 7/20 20	Fac- tory Up- date	N/A		Eric P.
02.2 019	12/2 0/20 19	Feed back	147 831 0		Joe Y
02.2 019	02/1 3/20 19	Fac- tory Up- date	N/A		Eric P.
12.2 018	01/0 3/20 19	Cor- rec- tion	N/A	MRP's removal process.	Eric P.
12.2 018	12/1 9/20 18	Fac- tory Up- date	140 127 3	Updated the Fan Shroud, R&I procedure. Now the fan shroud states to move from the top of vehicle instead of bottom of vehicle.	Eric P.
08.2 018	07/1 7/20 18	Fac- tory Up- date	135 316 9	Performed Factory update.	Juan S.
10.2 017	09/1 8/20 17	Fac- tory Up- date	N/A	Performed Factory update.	Juan S.
08.2 017	08/2 1/20 17	Link Chec king	N/A	Link checking for F5	Eric P.
08.2 017	08/1 1/20 17	Fac- tory Up- date	N/A	·	Eric P by copyright. C unless author spect to the co
03.2 017	03/2 7/20 17	Fac- tory Up- date	N/A	Performed Factory update.	Juan S.
11.2 016	02/0 8/20 17	Feed back	123 364 3	Corrected link from German to English.	Juan S.
11.2 016	01/3 0/20 17	Fac- tory Up- date	N/A	Performed Factory update.	Juan S.
10.2 016	11/0 1/20 16	Cor- rec- tion	120 449 4	Read through for corrections.	Juan S.
10.2 016	10/2 0/20 16	Cor- rec- tion	120 449 4	Incorrect link to servicing manual for Balance shaft overview	Juan S.

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Fac- tory Edi- tion	Edit Edi- tion	Job Type	Fee dba ck	Notes	Quality Checke d By
10.2 016	09/1 8/20 16	Fac- tory Up- date			Joe Y
05.2 016	6/2/2 016	Fac- tory Up- date			Jim H
02.2 016	04/2 5/20 16	Quali ty Chec k			Joe Y
02.2 016	03/2 5/20 16	Link Chec king			Tom P
02.2 016	02/2 6/20 16	Fac- tory Up- date			Eric P.
08.2 015	11/1 3/20 15	Fac- tory New		Added MRP to repair manual	Jim H



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Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described
 in this manual, we suggest you leave such repairs to an authorized Audi retailer or other
 qualified shop. We especially urge you to consult an authorized Audi retailer before beginning
 repairs on any vehicle that may still be covered wholly or in part by any of the extensive
 warranties issued by Audi.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system
 or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an
 approved fire extinguisher handy.
- Audi is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Audi retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the Audi Factory Approved Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the
 purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may
 crumble under continuous load. Never work under a vehicle that is supported solely by a jack.
 Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of
 injury to yourself and others if you are tired, upset or have taken medicine or any other
 substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.

Cautions & Warnings

- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are
 designed to be used only once and are unreliable and may fail if used a second time. This
 includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the
 recommendations in this manual replace these fasteners with new parts where indicated,
 and any other time it is deemed necessary by inspection.
- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand.
 Read all the instructions thoroughly, do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Audi specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these
 tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten
 fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping
 hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The
 A/C system should be serviced only by trained automotive service technicians using approved
 refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar
 with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame.
 Excessive heat will increase system pressure and may cause the system to burst.

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Cautions & Warnings

- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Audi Service technicians should test, disassemble or service the airbag system.
- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not
 exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute
 before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only
 be tested by trained Audi Service technicians using the Audi Factory Approved Scan Tool (ST)
 or an approved equivalent. The airbag unit must never be electrically tested while it is not
 installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire
 that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other
 sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times
 before breaking the bead from the rim. Completely remove the tire from the rim before
 attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

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