

Repair Manual Audi Q5 2008 >

Fuel Supply - Diesel Engines									
Engine ID	CPN B								

Edition 11.2015



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List of Workshop Manual Repair Groups

Repair Group

00 - General, Technical Data

20 - Fuel Supply



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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

1 General Information

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⇒ [“1.1 Determining Engine Generation”, page 1](#)

1.1 Determining Engine Generation

Engine	Engine Codes		
	Generation I	Generation II	EA 288 Gen I
4-Cylinder 2.0L TDI engine	CAHA, CAHB, CAGA, CAGB	CGLA, CGLB, CGLC, CGLD, CJCA, CJCB, CMGA, CMGB, CJCD	CNHA, CNHC, CSUA, CSUB
6-Cylinder 3.0L TDI engine	CCWA, CCWB	CDUD, CGQB, CPNB, CTBC, CVUB, CVUC, DEHA, CTBA	



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2 Safety Precautions

⇒ [“2.1 Fuel System Safety Precautions”, page 2](#)

⇒ [“2.2.1 Full or Partially Full Fuel Tanks, Safety Precautions when Removing and Installing”, page 3](#)

⇒ [“2.2.2 Fuel Tank, Safety Precautions when Removing and Installing”, page 3](#)

⇒ [“2.3 Start/Stop System Safety Precautions”, page 3](#)

⇒ [“2.4 Road Test with Testing Equipment Safety Precautions”, page 4](#)

⇒ [“2.5 Subframe Safety Precautions”, page 4](#)

2.1 Fuel System Safety Precautions

Note the following when working on the fuel system:



WARNING

There is a risk of injury because the fuel is under pressure.

- ◆ *Place rags around the connection before opening the system. Then release pressure by carefully loosening the connection.*

Very hot fuel can burn your skin.

- ◆ *The temperature of the fuel lines or fuel may reach 100 °C (212 °F) after stopping the engine. Let the fuel cool down before opening any line connections otherwise there is a danger of scalding.*
- ◆ *Wear safety gloves.*
- ◆ *Wear protective eyewear.*

To prevent personal injury and damage to the injection and preglow system, observe the following:

- ◆ The ignition must be switched off before connecting or disconnecting injection and preglow system wiring or tester cables.
- ◆ Wash the engine only when the ignition is turned off.
- ◆ There will be entries stored in the DTC memory for the engine control module(s) if the engine was started and the connectors were disconnected: [Check DTC memory](#) in [Guided Functions](#) see Vehicle Diagnostic Tester .



Caution

Risk of damaging electronic components when disconnecting the battery.

- ◆ *Observe the steps for disconnecting the battery.*
- ◆ *Always turn off the ignition before disconnecting the battery.*

Disconnect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .

2.2 Fuel Supply System Safety Precautions

⇒ [“2.2.1 Full or Partially Full Fuel Tanks, Safety Precautions when Removing and Installing”, page 3](#)

⇒ [“2.2.2 Fuel Tank, Safety Precautions when Removing and Installing”, page 3](#)

2.2.1 Full or Partially Full Fuel Tanks, Safety Precautions when Removing and Installing

Note the following when removing and installing fuel tank components which are completely or partially filled:


- ◆ The fuel tank may only be partially full. How much fuel can remain in the fuel tank may be read in the respective work description. Drain the fuel tank, if necessary. Refer to ⇒ [“1.2 Fuel Tank, Draining”, page 9](#).
- ◆ Before starting work, switch the exhaust extraction system on and place an extraction hose close to the fuel tank installation opening to extract fuel fumes. If no exhaust extraction system is available, a radial fan (as long as motor is not in air flow) with a displacement greater than 15 m³/h can be used.
- ◆ Do not let fuel come in contact with bare skin. Wear fuel-resistant gloves.

2.2.2 Fuel Tank, Safety Precautions when Removing and Installing

- ◆ Fuel tank must be empty. Drain the fuel tank, if necessary. Refer to ⇒ [“1.2 Fuel Tank, Draining”, page 9](#).

2.3 Start/Stop System Safety Precautions

Pay attention to the following when working on a vehicle with stop/start system:

 **WARNING**

There is a risk of injury if the engine starts automatically in vehicles with the Start/Stop System.

- ◆ *For vehicles with an activated start/stop system (recognizable from a notification in the instrument cluster), the motor can be started automatically if needed.*
- ◆ *Make sure that the start/stop system is deactivated when working on the vehicle (turn off the ignition, turn on the ignition when necessary).*

2.4 Road Test with Testing Equipment Safety Precautions

If testing equipment must be used during a road test, observe the following:



WARNING

Distraction and testing equipment that is not secured properly can cause accidents.

The passenger airbag could pose a risk if it deploys in a collision.

- *Operating testing equipment while driving is a distraction.*
- *Testing equipment that is not secured probably increases the risk of injury.*
- ◆ *Always secure testing equipment on the rear seat with a strap and have a second person on the rear seat operate them.*

2.5 Subframe Safety Precautions

Note the following whenever working on the subframe:



Caution

The suspension components could be damaged.

- ◆ *Do not rest the vehicle on its wheels if the subframe mount, the steering gear or the subframe crossbrace are not installed correctly.*
- ◆ *Do not support the vehicle on the subframe or the subframe crossbrace, for example, by a floor jack or similar device.*



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3 Repair Information

⇒ [“3.1 Clean Working Conditions”, page 5](#)

⇒ [“3.2 Test Conditions”, page 5](#)

⇒ [“3.3 Contact Corrosion”, page 5](#)

3.1 Clean Working Conditions

Even very small particles of dirt can cause a fault. When working on the fuel supply and on the fuel injection system, observe the following guidelines for a clean working environment:

- ◆ Before loosening, the connection points and surrounding areas must be cleaned thoroughly with engine or brake cleaner, and then cleaned area must be dried completely.
- ◆ Seal off any open lines and connections immediately with clean plugs, for example, taken from Engine Bung Set - VAS6122- .
- ◆ Place removed parts on a clean surface and cover them with lint-free cloths.
- ◆ Carefully cover or seal opened components if repairs are not performed immediately.
- ◆ Install only clean parts: remove the replacement parts from their packaging just before installing them. Do not use parts that have been stored out of their original packaging (for example, in tool boxes etc.).
- ◆ If system is open, do not work with compressed air and do not move the vehicle.
- ◆ Protect any disconnected connectors from dirt and moisture and connect them only when they are completely dry.

3.2 Test Conditions

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- Battery voltage minimum 12.5V.
- Fuse for fuel pump OK. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Fuel Pump Relay - J17- or Fuel Pump Control Module - J538- is OK. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Fuel tank minimum $\frac{1}{3}$ full.
- Fuel filter OK (not dirty)
- Fuel lines are OK (not plugged, not kinked).

3.3 Contact Corrosion

Contact corrosion can occur if incorrect fasteners (bolts, nuts, washers, etc.) are used.

For this reason, only fasteners with a special surface coating are installed.

In addition, rubber or plastic parts and adhesive are made of materials that do not conduct electricity.

If there are doubts about whether the parts are suitable, then use new parts. Refer to the Parts Catalog.



Note

- ◆ *Only original replacement parts are recommended, they are checked and compatible with aluminum.*
- ◆ *The use of Audi accessories is recommended.*
- ◆ *Damage resulting from contact corrosion is not covered by the warranty.*



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20 – Fuel Supply

1 Fuel Tank

⇒ [“1.1 Overview - Fuel Tank”, page 7](#)

⇒ [“1.2 Fuel Tank, Draining”, page 9](#)

⇒ [“1.3 Fuel Tank, Removing and Installing”, page 14](#)

⇒ [“1.4 Misfueling Guard, Removing and Installing”, page 20](#)

⇒ [“1.5 Misfueling Guard, Deactivating”, page 23](#)

1.1 Overview - Fuel Tank

1 - Fuel Line

- To the metering pump on vehicles with an auxiliary heater
- Do not kink
- Clipped to the fuel tank
- To disconnect, press release button on the connection piece.

2 - Nut

- 20 Nm

3 - Fuel Supply Line

- To the check valve or fuel filter
- Do not kink
- Clipped to the fuel tank

4 - Fuel Return Line

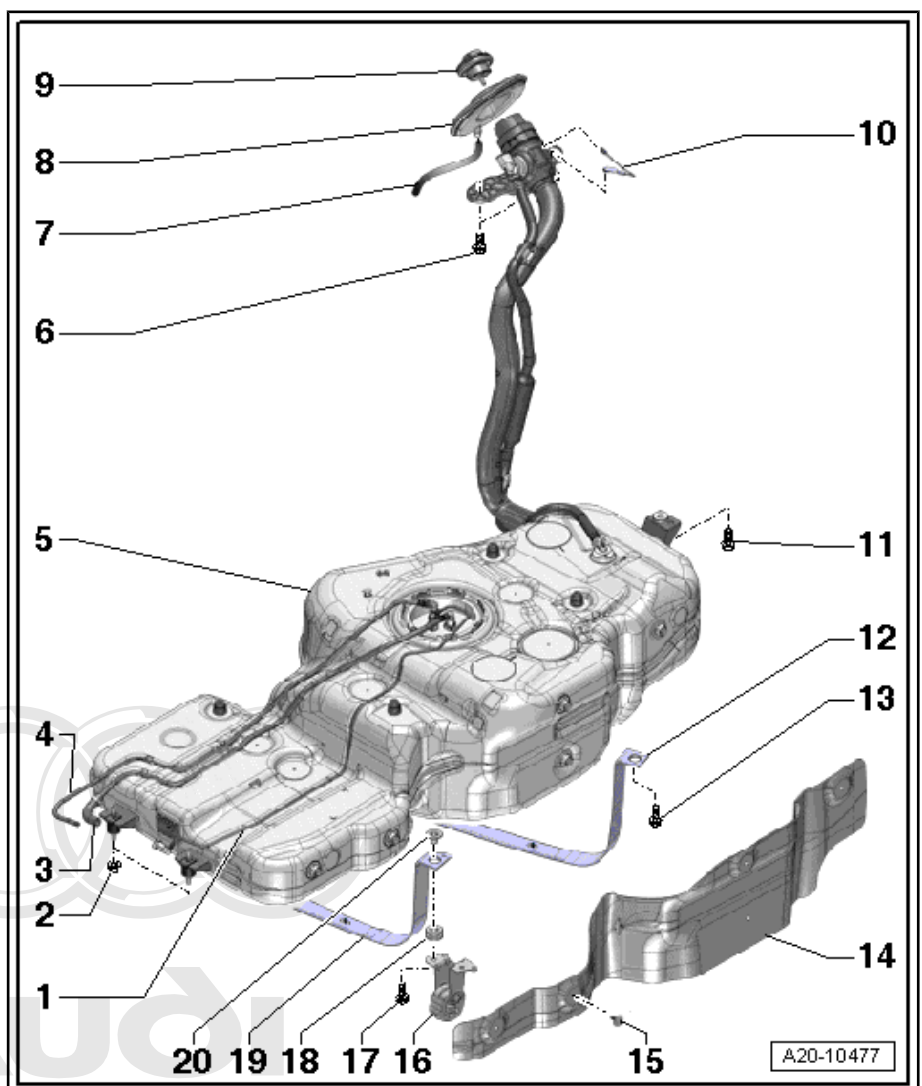
- From the check valve or engine
- Do not kink
- Clipped to the fuel tank

5 - Fuel Tank

- Refer to ⇒ [“1.3 Fuel Tank, Removing and Installing”, page 14](#).

6 - Bolt

- 20 Nm
- For securing the fuel filler tube and the ground connection -10-



7 - Overflow Hose

- Turn until it clicks and locks.

8 - Rubber Gasket

9 - Cap

- Turn until it clicks and locks.

10 - Ground Connection

- For discharging electrostatic charge



- Installation position, check electrical connection. Refer to [⇒ Fig. "Fuel Filler Tube Ground Connection", page 9](#)
- Make sure the connector is securely seated and wiring is secured by the fuel filler tube bolt -6-

11 - Bolt

- 20 Nm

12 - Mounting Strap

- Rear

13 - Bolt

- 20 Nm

14 - Fuel Tank Heat Shield

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15 - Bolt

- 4 Nm

16 - Exhaust System Suspended Mount

17 - Bolt

- Tightening specification. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/Mufflers; Overview - Muffler .

18 - Adjusting Buffer

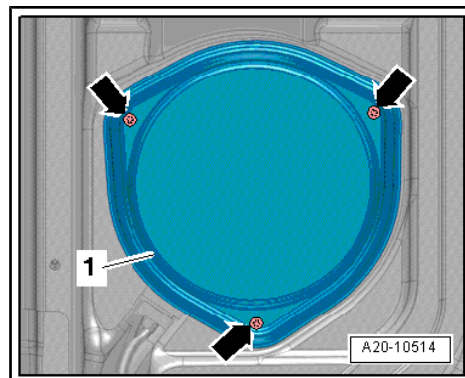
19 - Mounting Strap

- Front

20 - Spacer Sleeve

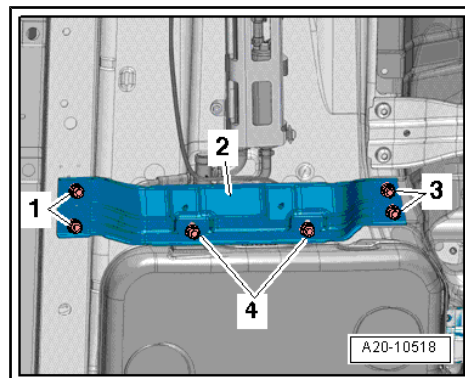
Sealing Flange Cover - Tightening Specifications

- Tighten the bolts -arrows- on the cover -1- to 1.5 Nm.



Bracket - Tightening Specification

- Tighten bolts -1 and 3- and nuts -4- for bracket -2- to 20 Nm.



Fuel Filler Tube Ground Connection

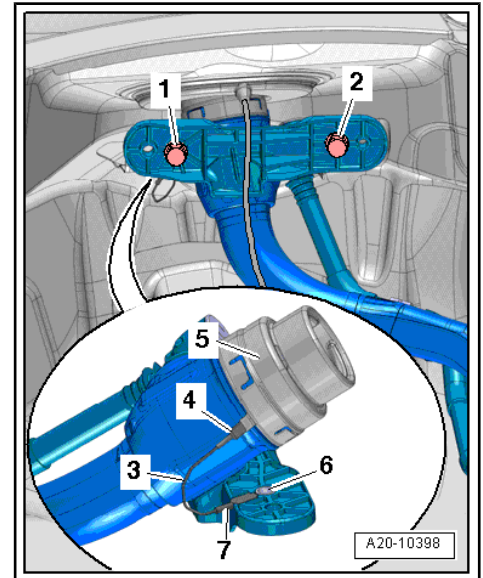


WARNING

Danger due to electrostatic charge.

- ◆ *After installing, check electrical connection on fuel filler neck metal ring to an empty spot on the body using an Ohm meter.*
- *Specified value: approximately 0 Ω.*

- Make sure the filler tube threaded connections -1 and 2- are free of corrosion so the ground connection to the body is not affected.
- Route the ground connection -3- as illustrated.
- Engage the ground connection contact -7- into the opening in fuel tank and then install the spacer bushing -6-.
- Make sure the ground connector -4- fits securely on the metal ring -5- of the fuel filler tube.



1.2 Fuel Tank, Draining

A - Emptying a Fuel Tank More Than $\frac{3}{4}$ Full. Refer to [page 10](#).

B - Emptying a Fuel Tank Less Than $\frac{3}{4}$ Filled. Refer to [page 12](#).

Special tools and workshop equipment required

- ◆ Elbow Assembly Tool - T10118-
- ◆ Wrench - Fuel Sending Unit - T10202-
- ◆ Fuel Extracting Device - VAS5190A-
- ◆ Fuel Extraction - Adapter 2 - VAS5190/2- from Fuel Extraction - Adapter Set - VAS5190/10-

Procedure

- Follow all safety precautions. Refer to ["2.1 Fuel System Safety Precautions", page 2](#).
- Follow the rules for clean working conditions. Refer to ["3.1 Clean Working Conditions", page 5](#).

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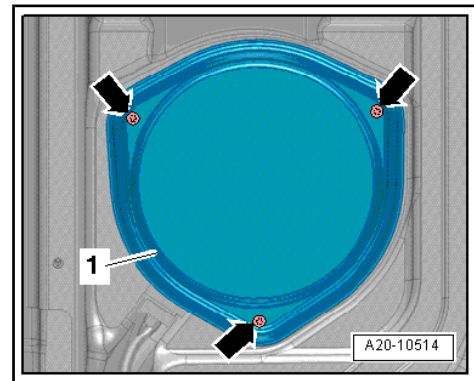
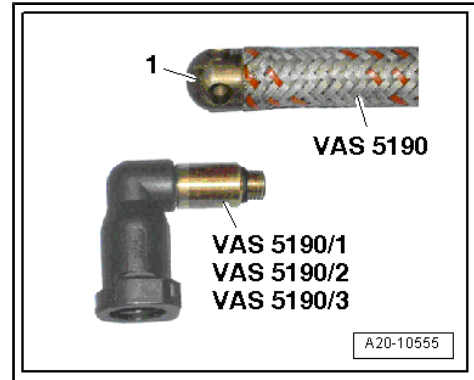
A - Emptying a Fuel Tank More Than $\frac{3}{4}$ Full



Note

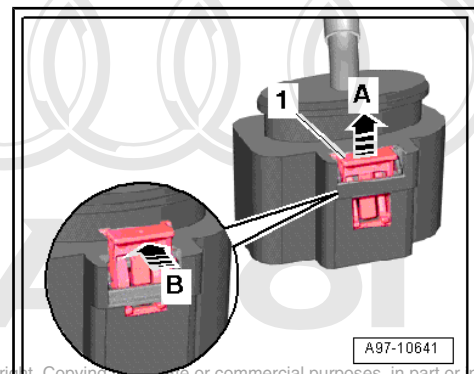
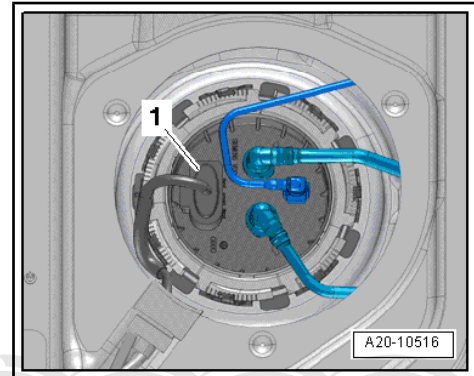
If the Fuel Extraction Unit - VAS5190A- has a suction hose with a mounted tip, then replace that with one that has a tip that screws on.

- Remove the tip -1- from the fuel extraction hose for the Fuel Extraction Unit - VAS5190A- .
- Install the Fuel Extraction - Adapter 2 - VAS5190/2- from the Fuel Extraction - Adapter Set - VAS5190/10- on the suction hose.
- Remove 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Remove the bolts -arrows- and remove the sealing flange cover -1-.



4-Cylinder and 6-Cylinder Generation I Engine:

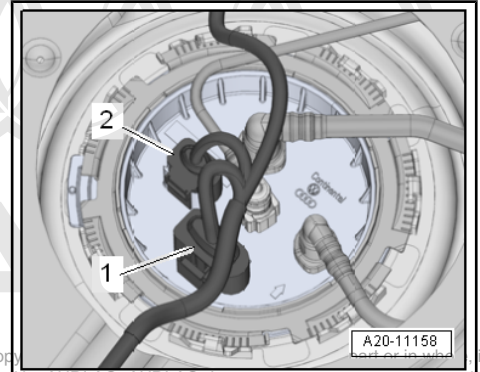
- Disconnect the connector -1- on the sealing flange.
- Push the circlip -1- upward in direction of -arrow A- and squeeze the release in direction of -arrow B-.



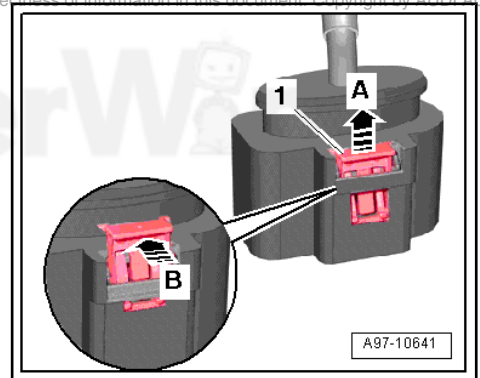
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4-Cylinder and 6-Cylinder Generation II Engine:


- Open the connector locking mechanism with the Elbow Assembly Tool - T10118- and disconnect the connector -1- on the sealing flange.
- Disconnect the connector -2- on the sealing flange.



- Push the circlip -1- upward in direction of -arrow A- and squeeze the release in direction of -arrow B-.



Continuation for All Vehicles

 **WARNING**

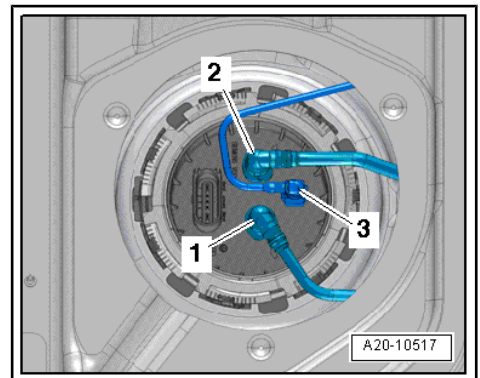
Very hot fuel can burn your skin.

- ◆ *In extreme cases the temperature of the fuel lines and/or the fuel can go up to 100 °C (212 °F). Let the fuel cool down before opening any line connections otherwise there is a danger of scalding.*
- ◆ *Wear safety gloves.*
- ◆ *Wear protective eyewear.*

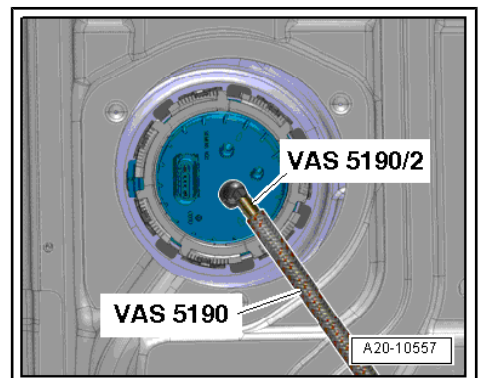
There is a risk of injury because the fuel is under high pressure.

- ◆ *To reduce pressure in fuel system, lay a clean cloth around the connector and carefully loosen connector.*

- Press the release button and disconnect the fuel lines -1 and 2- from the locking flange.
- Press the release button and disconnect the metering pump fuel line -3- on the sealing flange for vehicles with an auxiliary heater.

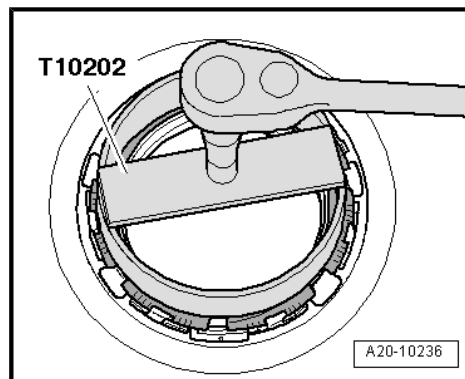


- Connect the suction hose to the Fuel Extraction - Adapter 2 - VAS5190/2- on the sealing flange supply connection.
- Extract approximately 10 liters (2.9 gallons) of fuel.
- Disconnect the Fuel Extraction - Adapter 2 - VAS5190/2- on the sealing flange by pressing the release button.
- Remove the Fuel Extraction - Adapter 2 - VAS5190/2- on the suction hose and re-install the tip.

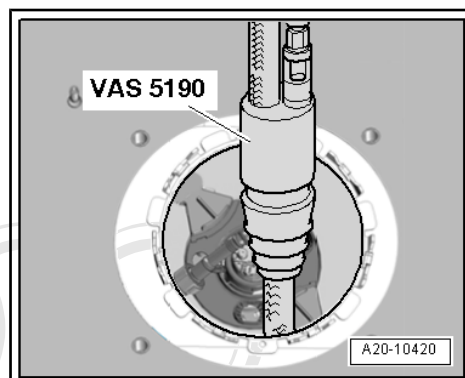




- Remove locking ring using the Wrench - Fuel Sending Unit - T10202- .

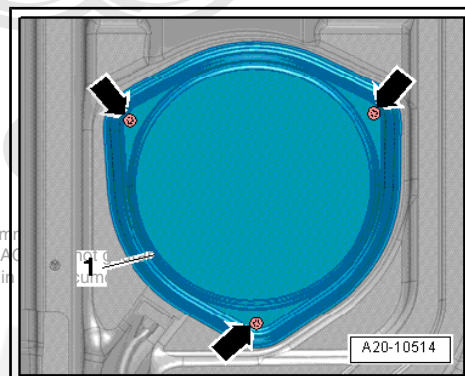


- Pull the sealing flange a little bit out of the fuel tank and slide the suction hose Fuel Extraction Unit - VAS5190A- into the fuel tank through the gap between the sealing flange and the installation opening.
- Extract any remaining fuel through the opening for the fuel delivery unit.
- Install the sealing flange for the fuel delivery unit. Refer to [⇒ page 29](#) .



B - Emptying a Fuel Tank Less Than 3/4 Fuel

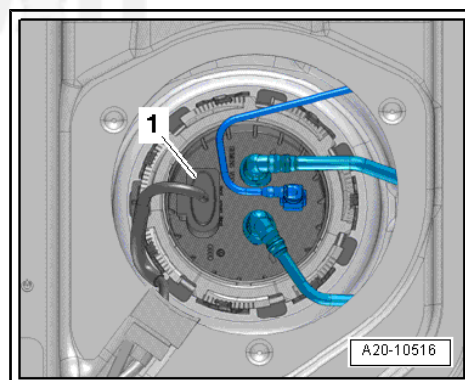
- Remove 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Remove the bolts -arrows- and remove the sealing flange cover -1-.



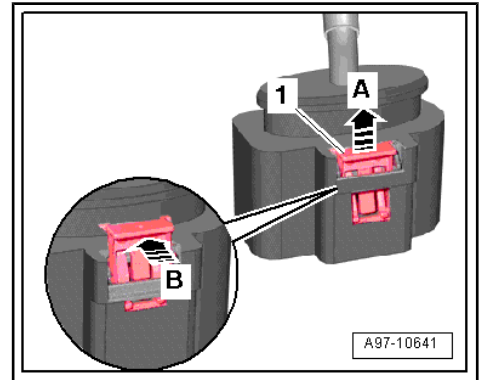
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4-Cylinder and 6-Cylinder Generation I Engine:

- Disconnect the connector -1- on the sealing flange.

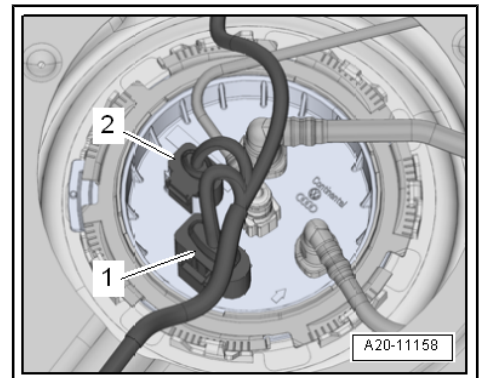


- Push the circlip -1- upward in direction of -arrow A- and squeeze the release in direction of -arrow B-.



4-Cylinder and 6-Cylinder Generation II Engine:

- Open the connector locking mechanism with the Elbow Assembly Tool - T10118, and disconnect the connector -1- on the sealing flange.
- Disconnect the connector -2- on the sealing flange.



- Push the circlip -1- upward in direction of -arrow A- and squeeze the release in direction of -arrow B-.

Continuation for All Vehicles:

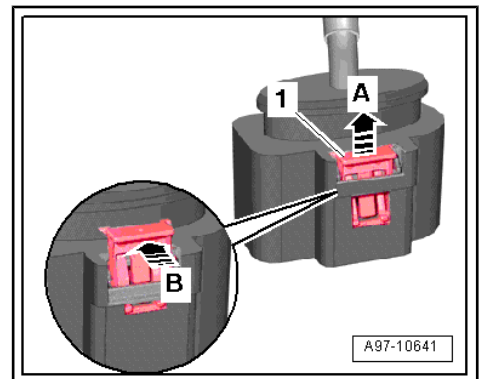
⚠ WARNING

Very hot fuel can burn your skin.

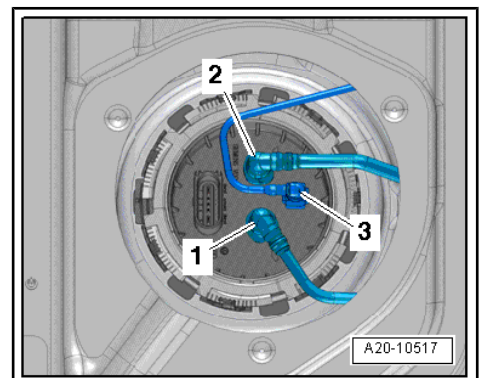
- ◆ *In extreme cases the temperature of the fuel lines and/or the fuel can go up to 100 °C (212 °F). Let the fuel cool down before opening any line connections otherwise there is a danger of scalding.*
- ◆ *Wear safety gloves.*
- ◆ *Wear protective eyewear.*

There is a risk of injury because the fuel is under high pressure.

- ◆ *To reduce pressure in fuel system, lay a clean cloth around the connector and carefully loosen connector.*

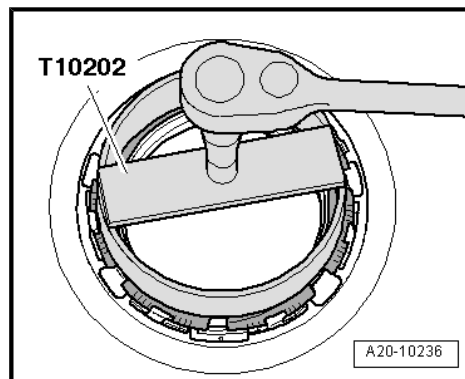


- Press the release button and disconnect the fuel lines -1- and -2- from the locking flange.
- Press the release button and disconnect the metering pump fuel line -3- on the sealing flange for vehicles with an auxiliary heater.

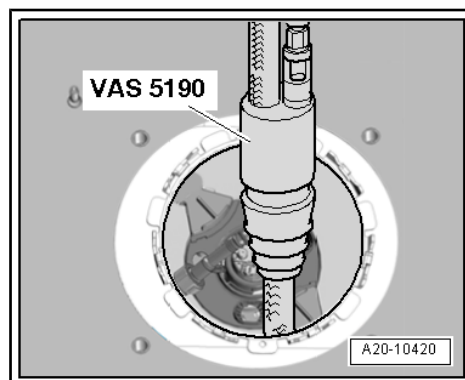




- Remove locking ring using the Wrench - Fuel Sending Unit - T10202- .



- Pull the sealing flange a little bit out of the fuel tank and slide the suction hose Fuel Extraction Unit - VAS5190A- into the fuel tank through the gap between the sealing flange and the installation opening.
- Extract any remaining fuel through the opening for the fuel delivery unit.
- Install the sealing flange for the fuel delivery unit. Refer to ⇒ [page 29](#) .



1.3 Fuel Tank, Removing and Installing

Special tools and workshop equipment required

- ◆ Engine and Gearbox Jack - VAS6931-
- ◆ Elbow Assembly Tool - T10118-

Removing

- Follow all safety precautions. Refer to ⇒ [“2.1 Fuel System Safety Precautions”, page 2](#) .
- Follow the rules for clean working conditions. Refer to ⇒ [“3.1 Clean Working Conditions”, page 5](#) .



WARNING

Risk of accident due to the weight of the fuel tank.

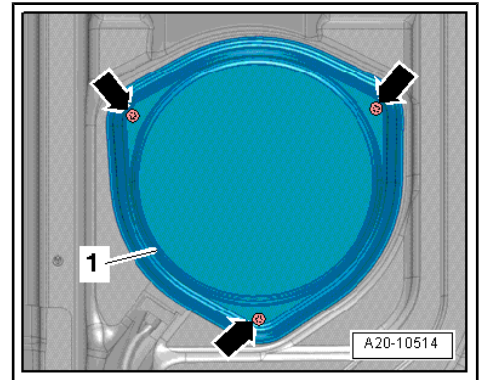
- ◆ *The fuel tank must be empty when removing it. Empty fuel tank if necessary. Refer to ⇒ [“1.2 Fuel Tank, Draining”, page 9](#) .*

- Remove 1/3 of the rear seat. Refer to ⇒ [Body Interior; Rep. Gr. 72; Rear Seats; Seat Bench/Single Seat, Removing and Installing](#).

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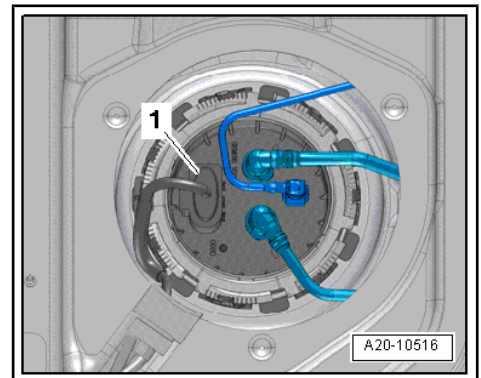


- Remove the bolts -arrows- and remove the sealing flange cover -1-.

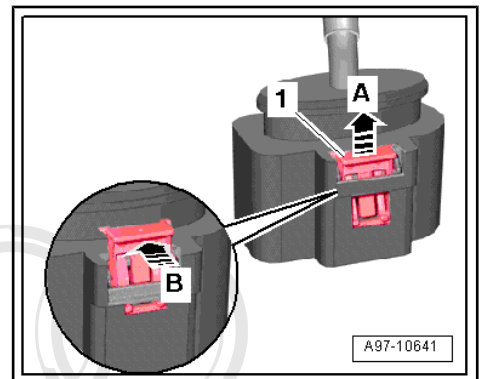


4-Cylinder and 6-Cylinder Generation I Engine

- Disconnect the connector -1- on the sealing flange.

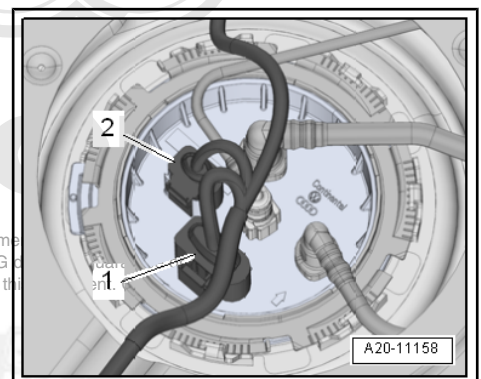


- Push the circlip -1- upward in direction of -arrow A- and squeeze the release in direction of -arrow B-.



4-Cylinder and 6-Cylinder Generation II Engine:

- Open the connector locking mechanism with the Elbow Assembly Tool - T10118- and disconnect the connector -1- on the sealing flange.
- Disconnect the connector -2- on the sealing flange.



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- Push the circlip -1- upward -arrow A- and squeeze the release -arrow B-.

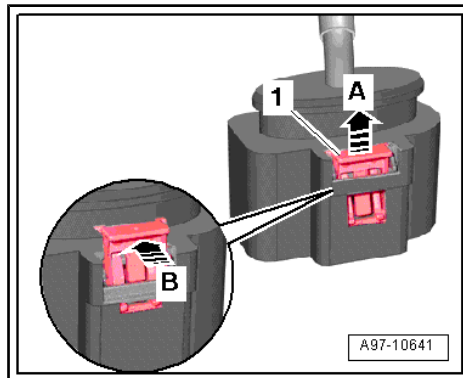
Continuation for All Vehicles

- Open the fuel filler door.
- Clean the area around the fuel filler tube.



Note

Seal the opening with a clean piece of foam to prevent dirt from getting into the fuel tank.

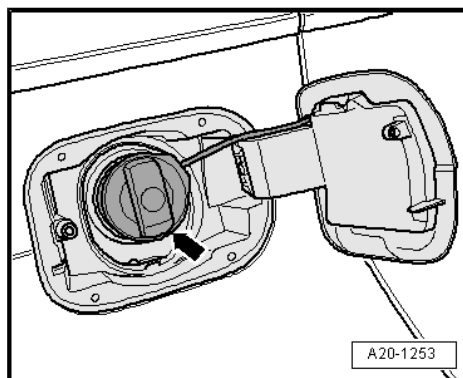


- Remove the locking cap -arrow- from the fuel filler tube.
- Remove the right rear wheel.
- Remove the right rear wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Rear Wheel Housing Liner .



Note

Ignore items -3 to 7-.



- Remove fuel filler tube bolts -1 and 2-.



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- Remove the rear section from the exhaust system. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/Mufflers; Overview - Muffler .



WARNING

Risk of vehicle tipping on hoist with rear axle removed.

- ◆ *Secure the vehicle on a hoist before loosening the sub-frame bolts (for example, load the luggage compartment with about 50 kg (110 lb)).*

- Remove the rear axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Rear Axle; Rear Axle, Removing and Installing .
- Remove the right underbody panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .



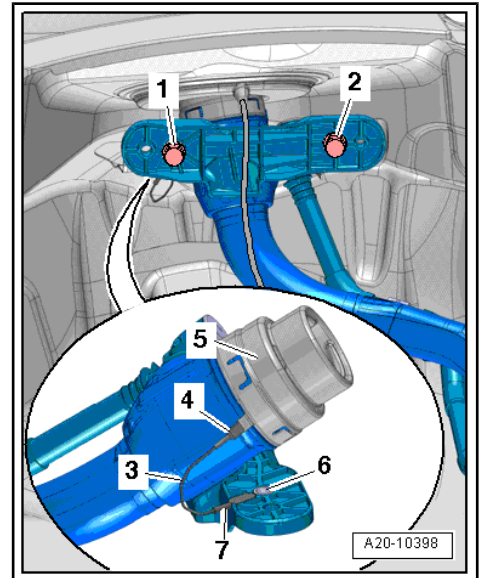
WARNING

Very hot fuel can burn your skin.

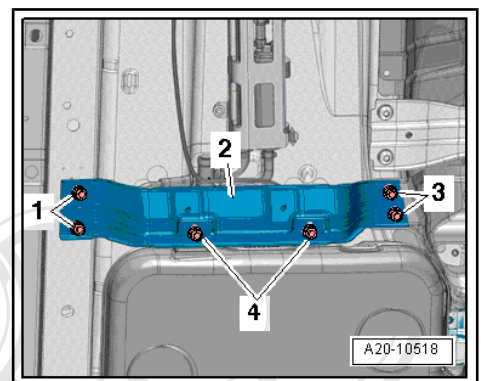
- ◆ *In extreme cases the temperature of the fuel lines and/or the fuel can go up to 100 °C (212 °F). Let the fuel cool down before opening any line connections otherwise there is a danger of scalding.*
- ◆ *Wear safety gloves.*
- ◆ *Wear protective eyewear.*

There is a risk of injury because the fuel is under high pressure.

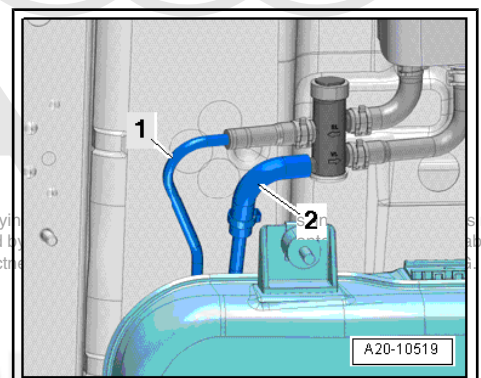
- ◆ *To reduce pressure in fuel system, lay a clean cloth around the connector and carefully loosen connector.*



- Remove the bolts -1 and 3-, nuts -4- and bracket -2-.



- Disconnect the fuel return line -1- and fuel supply line -2-.
- Press the release and disconnect the fuel line -1- on the metering pump on vehicles with an auxiliary heater.

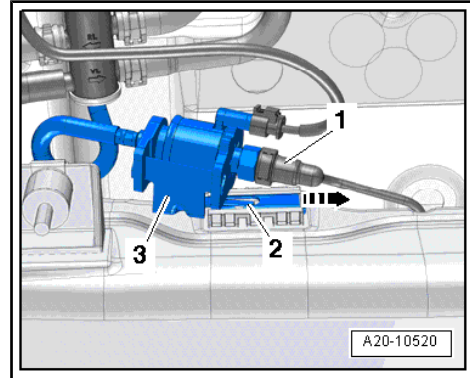


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- Open the latch -2- with a screwdriver and disengage the bracket -3- with the metering pump for the auxiliary heater on the fuel tank in direction of -arrow-.



- Place the Engine and Gearbox Jack - VAS6931- under the fuel tank for support.
- Support the fuel tank using the Engine and Gearbox Jack - VAS6931- .



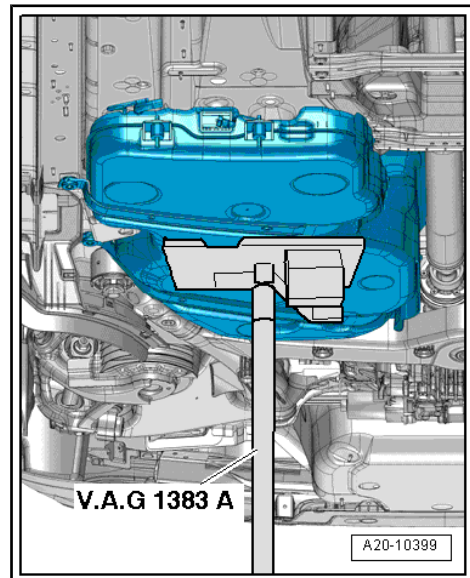
WARNING

Risk of accident due to the weight of the fuel tank.

◆ *The fuel tank must be empty when removing it.*

- Remove the bolts -1- and remove the exhaust system bracket -2-.
- Remove the bolts -3 to 6-.

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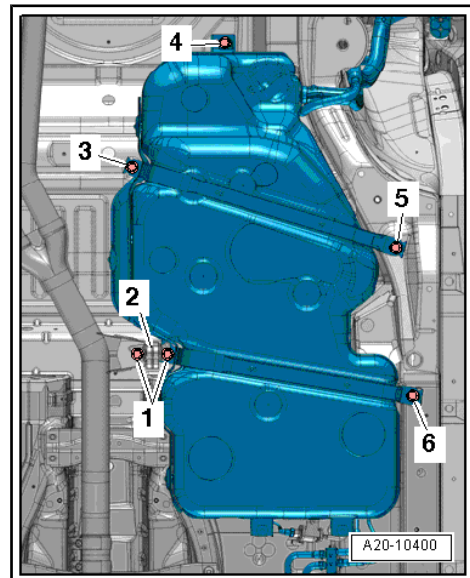


- Lower the fuel tank using the Engine and Gearbox Jack - VAS6931- while guiding the fuel tank with one hand.

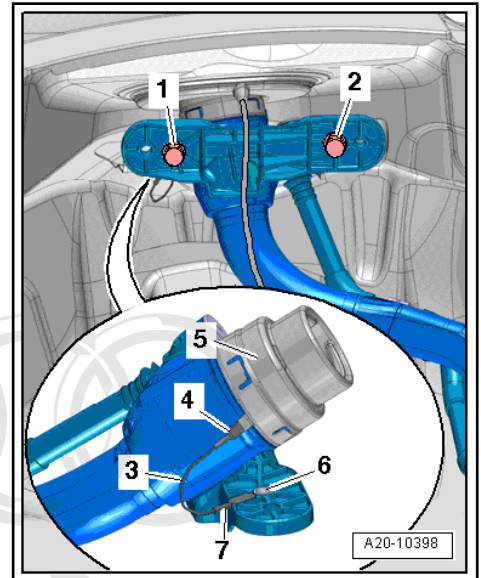
Installing

Install in reverse order of removal. Note the following:

- Tightening specifications. Refer to [=> "1.1 Overview - Fuel Tank", page 7 .](#)
- Make sure the fuel and vent lines are clipped to the fuel tank properly.
- Check if the ground (GND) wiring on both connections show signs of oxidation. If necessary, remove.

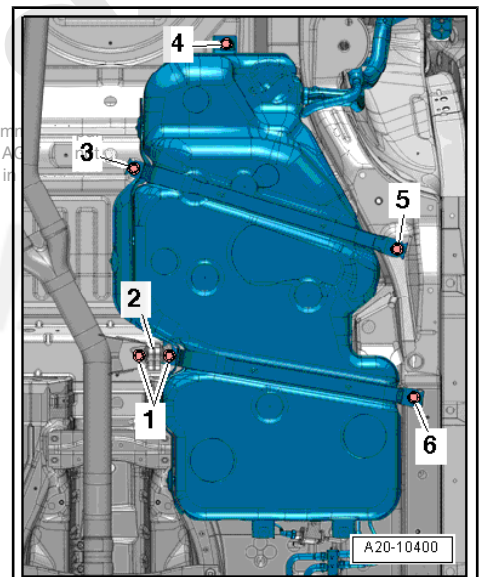


- Make sure the filler tube threaded connections -1 and 2- are free of corrosion so the ground connection to the body is not affected.
- Route the ground connection -3- as illustrated.
- Engage the ground connection contact -7- into the opening in fuel tank and then install the spacer bushing -6-.
- Make sure the ground connector -4- fits securely on the metal ring -5- of the fuel filler tube.
- Position the fuel tank with mounting straps on the underbody using the Engine and Gearbox Jack - VAS6931- .
- Make sure the fuel tank is positioned so that the filler tube can be guided into the opening of the body correctly.



- Install the exhaust system bracket -2- and tighten the bolts -1 through 6-.

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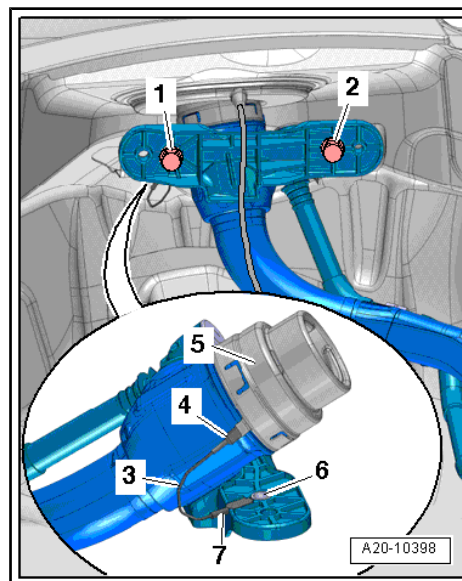
- Tighten the fuel filler tube bolts -1 and 2-

**WARNING**

Danger due to electrostatic charge.

- ◆ *After installing, check electrical connection on fuel filler neck metal ring to an empty spot on the body using an Ohm meter.*
- *Specified value: approximately 0 Ω.*

- Install the bracket. Refer to ⇒ [Fig. "Bracket - Tightening Specification", page 8](#) .
- Install the right underbody trim panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .
- Install the rear axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Rear Axle; Rear Axle, Removing and Installing .
- Install the rear section from the exhaust system. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/Mufflers; Overview - Muffler .
- Install the right rear wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Rear Wheel Housing Liner .
- Install the right rear wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheels and Tires; Wheel Bolt Tightening Specifications .
- Install the sealing flange cover. Refer to ⇒ [Fig. "Sealing Flange Cover - Tightening Specifications", page 8](#) .
- Install 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Bleed the fuel supply line for the metering pump on vehicle with an auxiliary heater. Refer to ⇒ ["6.2 Fuel Supply Line to Metering Pump, Bleeding, Vehicles with Parking Heater", page 58](#) .



1.4 Misfueling Guard, Removing and Installing

Special tools and workshop equipment required

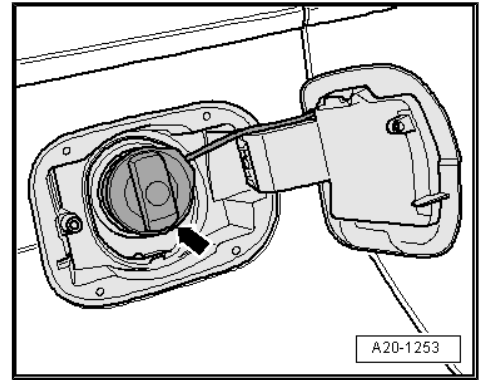
- ◆ Locking Ring Pliers

Removing

- Follow all safety precautions. Refer to ⇒ ["2.1 Fuel System Safety Precautions", page 2](#) .
- Follow the rules for clean working conditions. Refer to ⇒ ["3.1 Clean Working Conditions", page 5](#) .
- Open the fuel filler door.
- Clean the area around the fuel filler tube.

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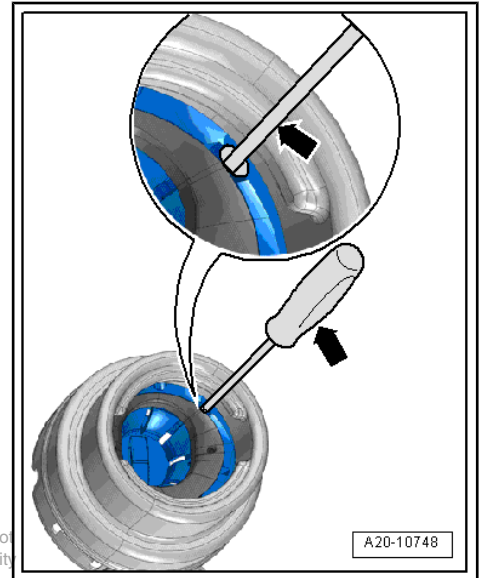
- Remove the fuel filler cap -arrow-.



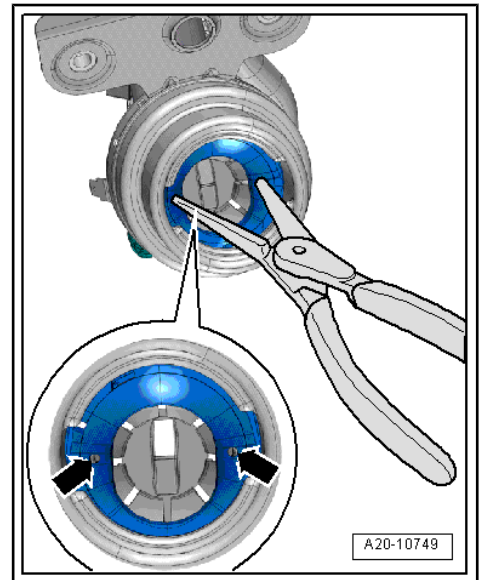
- Release the tab for the locking ring using the TORX® screwdriver -arrow-.



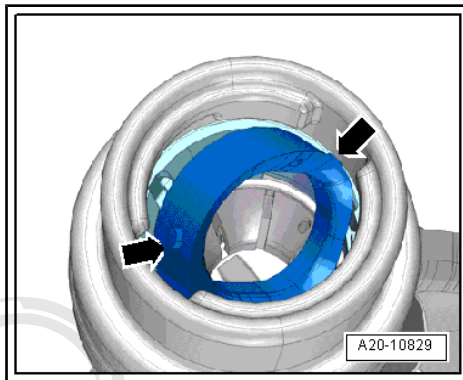
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- Insert the locking ring pliers into both holes -arrows-.
- Turn the locking ring counter-clockwise 25°.



- Tilt the locking ring inside the fuel filler tube and remove it through the fuel cap opening -arrows-.

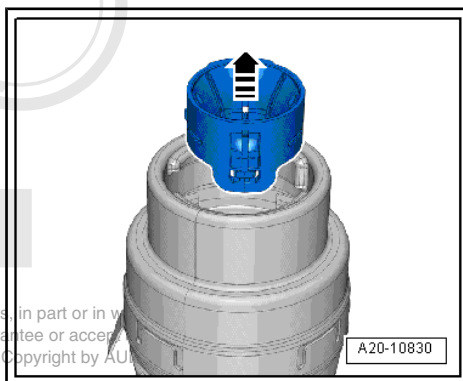


- Remove the misfueling guard from the fuel filler tube in the direction of -arrow-. Use locking ring pliers if necessary.

Installing

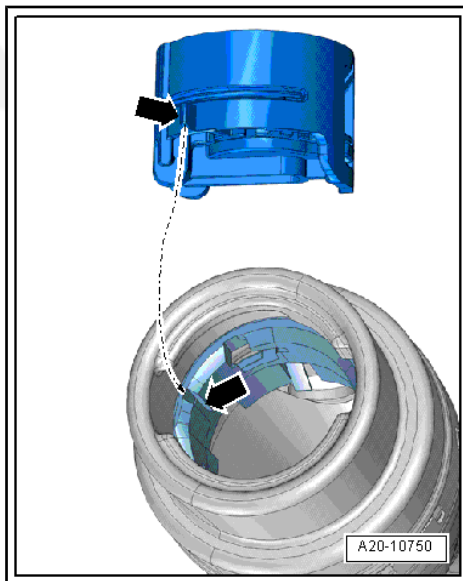
Install in reverse order of removal. Note the following:

- Insert the misfueling guard into the fuel filler tube.

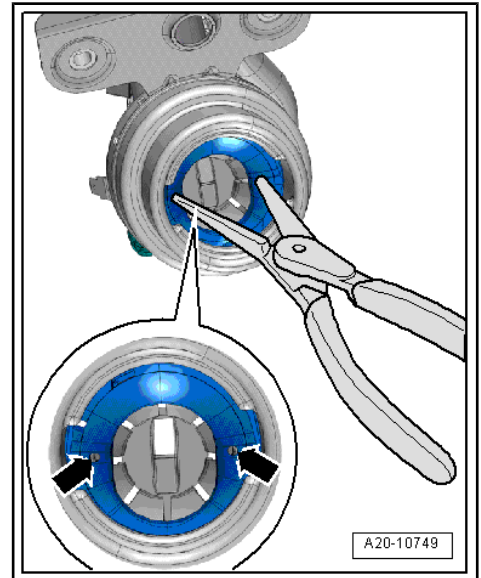


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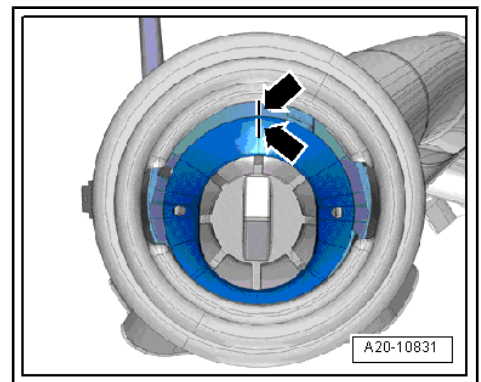
- The tab on the incorrect fuel protection must fit into the groove in the fuel filler tube -arrows-.



- Turn the locking ring 25° clockwise and install it using locking ring pliers.



- If installed correctly, the markings on the locking ring and on the fuel filler tube will be opposite each other -arrows-.



1.5 Misfueling Guard, Deactivating

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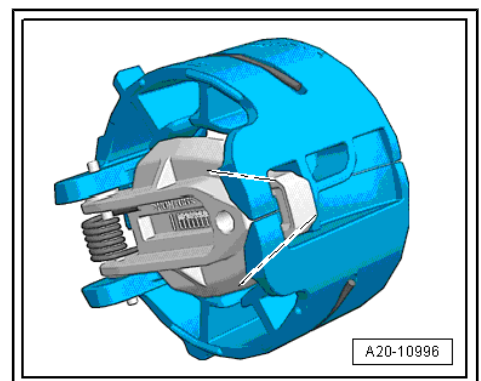
Work Procedure

- Remove the misfueling guard. Refer to ["1.4 Misfueling Guard, Removing and Installing", page 20](#).
- Disconnect the tabs at the marks, as illustrated.

i Note

The closure cap for the incorrect fuel protection must be able to be opened without catching.

- Install the misfueling guard. Refer to ["1.4 Misfueling Guard, Removing and Installing", page 20](#).





2 Fuel Delivery Unit/Fuel Level Sensor

⇒ [“2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor”, page 24](#)

⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 27](#)

⇒ [“2.3 Fuel Level Sensor G , Checking”, page 31](#)

⇒ [“2.4 Fuel Level Sensor G , Removing and Installing”, page 35](#)

2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor

⇒ [“2.1.2 Overview - Fuel Delivery Unit/Fuel Level Sensor, 4- and 6-Cylinder Generation II Engines and 4-Cylinder EA 288 Gen I”, page 26](#)

2.1.1 Fuel Delivery Unit/Fuel Level Sensor Assembly Overview, 4-Cylinder and 6-Cylinder Generation I Engines



Note

To allocate the engine version. Refer to ⇒ [“1.1 Determining Engine Generation”, page 1](#) .



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erWin

1 - Fuel Delivery Unit

- Checking Transfer Fuel Pump - G6- . Refer to ⇒ [“5.1 Transfer Fuel Pump G6 , Checking”](#), page 43 .
- Refer to ⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”](#), page 27 .
- Fill the fuel tank with at least 5 liters (1.32 gallons) of fuel after installing

2 - Seal

- Replace
- Install dry

3 - Locking Ring

- Tighten to 120 Nm
- Remove and install with the Wrench - Fuel Sending Unit - T10202-

4 - Fuel Line

- To the metering pump on vehicles with an auxiliary heater
- Do not kink
- Press the release button to remove from the sealing flange
- Clipped to the fuel tank

5 - Fuel Supply Line

- To the regulator valve
- Do not kink
- Press the release button to remove from the sealing flange
- Note direction of arrow (fuel supply or return) on locking flange when installing
- Clipped to the fuel tank

6 - Fuel Return Line

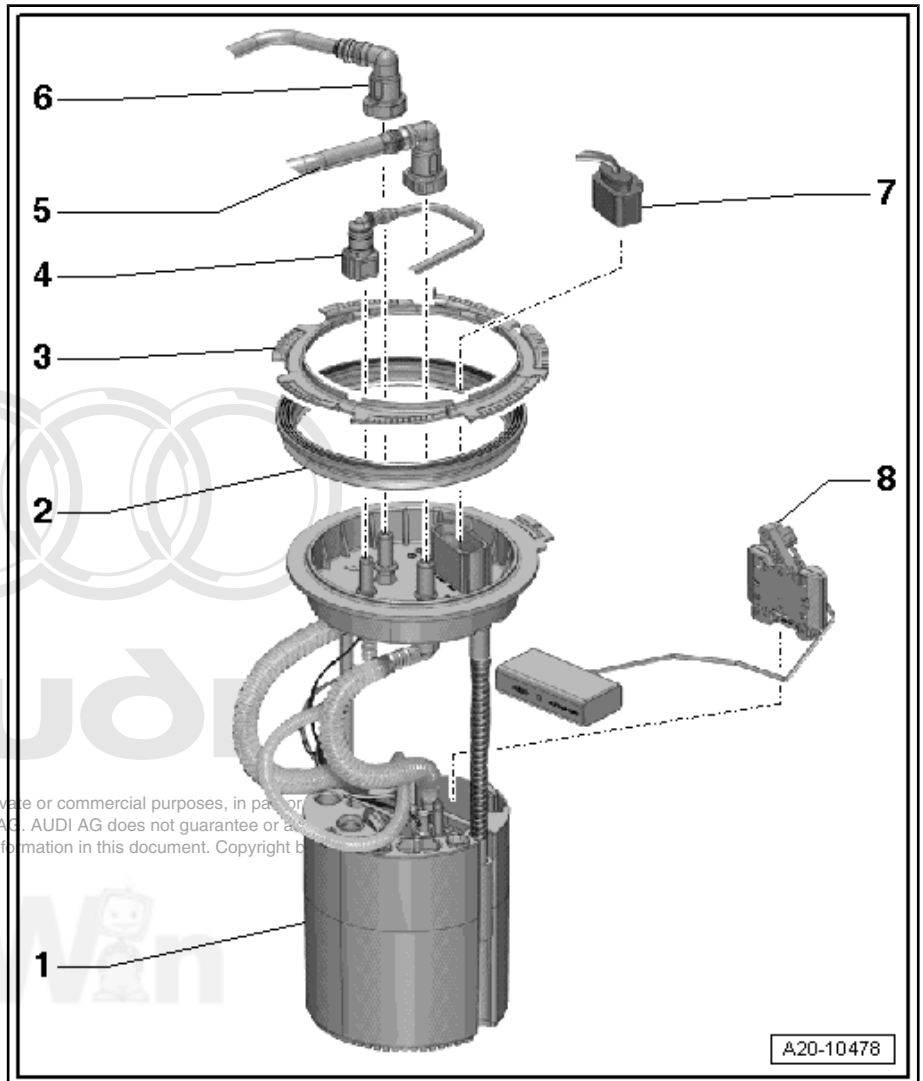
- From the regulator valve
- Do not kink
- Press the release button to remove from the sealing flange
- Note direction of arrow (fuel supply or return) on locking flange when installing
- Clipped to the fuel tank

7 - Connector

- For the Transfer Fuel Pump - G6- and the Fuel Level Sensor - G-

8 - Fuel Level Sensor - G-

- For checking the resistance values. Refer to ⇒ [“2.3 Fuel Level Sensor G , Checking”](#), page 31 .
- Refer to ⇒ [“2.4 Fuel Level Sensor G , Removing and Installing”](#), page 35 .



2.1.2 Overview - Fuel Delivery Unit/Fuel Level Sensor, 4- and 6-Cylinder Generation II Engines and 4-Cylinder EA 288 Gen I



Note

To allocate the engine version. Refer to ⇒ ["1.1 Determining Engine Generation", page 1](#).

1 - Fuel Delivery Unit

- Transfer Fuel Pump - G6- electrical testing with [Guided Fault Finding](#) see Vehicle Diagnostic Tester
- Fuel delivery quantity and fuel pressure checking. Refer to ⇒ ["5.1 Transfer Fuel Pump G6, Checking", page 43](#).
- Refer to ⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 27](#).
- Fill the fuel tank with at least 5 liters (1.32 gallons) of fuel after installing

2 - Seal

- Replace
- Install dry

3 - Locking Ring

- Tighten to 120 Nm
- Remove and install with the Wrench - Fuel Sending Unit - T10202-

4 - Fuel Return Line

- From engine
- Do not kink
- Press the release button to remove from the sealing flange

- Note direction of arrow (fuel supply or return) on locking flange when installing
- Clipped to the fuel tank

5 - Fuel Line

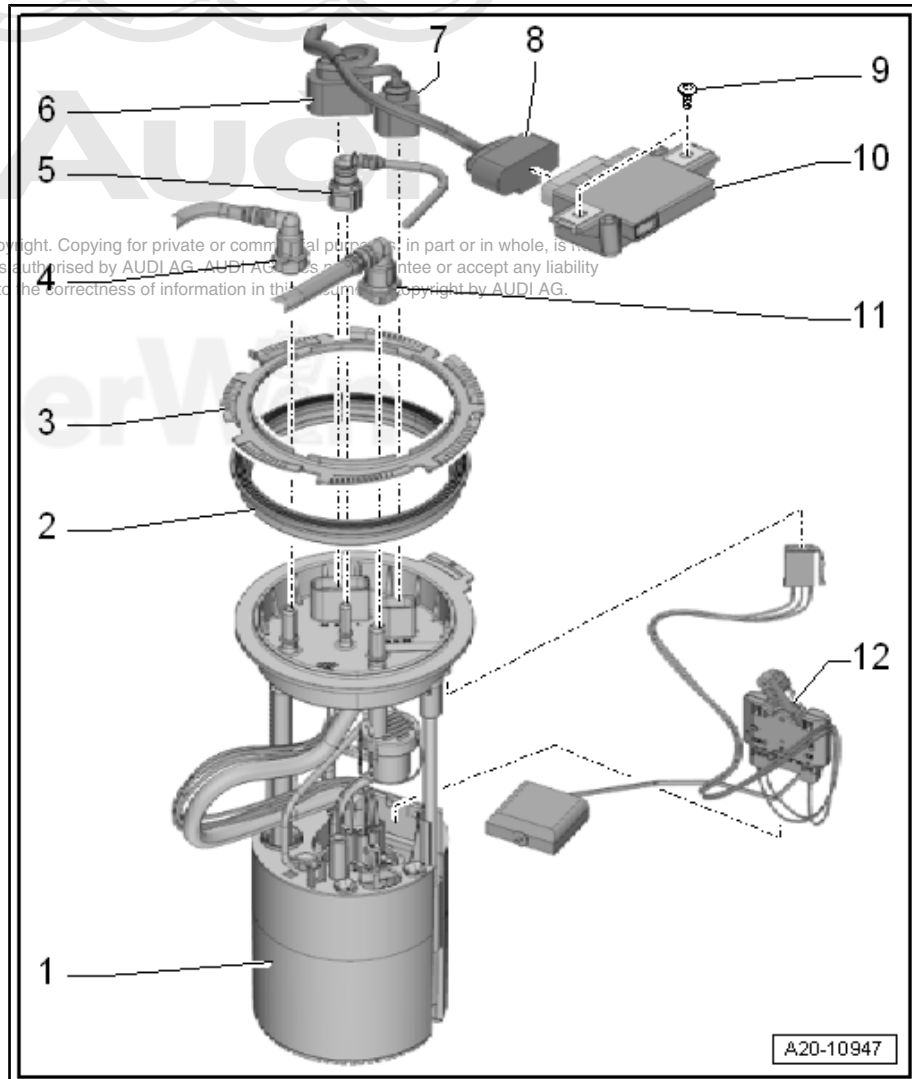
- To the metering pump on vehicles with an auxiliary heater
- Do not kink
- Press the release button to remove from the sealing flange
- Clipped to the fuel tank

6 - Connector

- For Transfer Fuel Pump - G6-

7 - Connector

- For Fuel Level Sensor - G-



8 - Connector

- ❑ For the Fuel Pump Control Module - J538-

9 - Bolt

- ❑ 2.5 Nm

10 - Fuel Pump Control Module - J538-

- ❑ Checking see Vehicle Diagnostic Tester [Guided Fault Finding](#)
- ❑ Refer to ⇒ [“5.2 Fuel Pump Control Module J538 , Removing and Installing”, page 54](#) .

11 - Fuel Supply Line

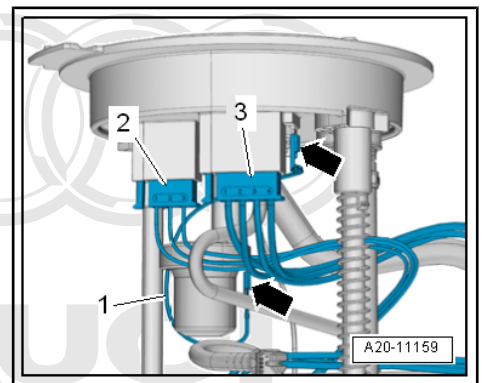
- ❑ To fuel filter
- ❑ Do not kink
- ❑ Press the release button to remove from the sealing flange
- ❑ Note direction of arrow (fuel supply or return) on locking flange when installing
- ❑ Clipped to the fuel tank

12 - Fuel Level Sensor - G-

- ❑ For checking the resistance values. Refer to ⇒ [“2.3 Fuel Level Sensor G , Checking”, page 31](#) .
- ❑ Refer to ⇒ [“2.4 Fuel Level Sensor G , Removing and Installing”, page 35](#) .

Fuel Delivery Unit Connectors

- Route the ground connection -1- as shown in the illustration.
- Make sure the following connectors are secure:
 - ◆ Ground connection connector -arrows- on the fuel pressure regulator and sealing flange.
 - ◆ Connector -2- for Fuel Level Sensor - G- on the sealing flange.
 - ◆ Connector -3- for Transfer Fuel Pump - G6- on the sealing flange.
- Pull on the connector to make sure it is locked secure.



2.2 Fuel Delivery Unit/Fuel Level Sensor Removing and Installing

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Special tools and workshop equipment required

- ◆ Wrench - Fuel Sending Unit - T10202-
- ◆ Elbow Assembly Tool - T10118-

Removing

- Follow all safety precautions. Refer to ⇒ [“2.1 Fuel System Safety Precautions”, page 2](#) .
- Follow the rules for clean working conditions. Refer to ⇒ [“3.1 Clean Working Conditions”, page 5](#) .



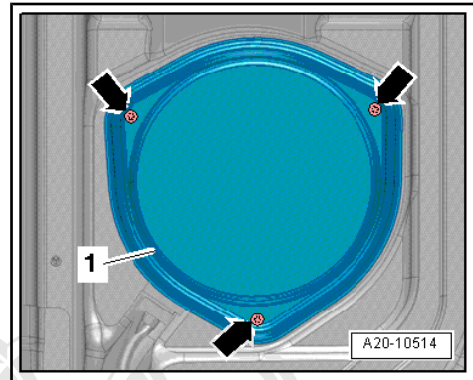
WARNING

Danger due to escaping fuel.

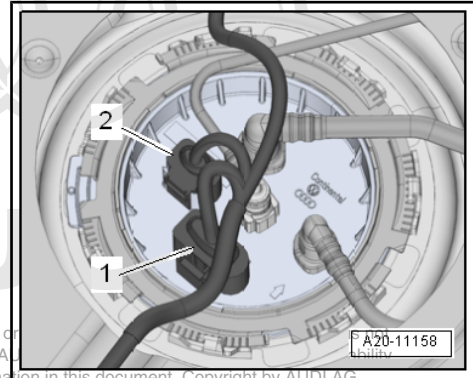
- ◆ *To prevent large quantities of fuel from leaking from the fuel delivery unit when removing, the fuel tank may only be a maximum of $\frac{3}{4}$ full.*

- If required, empty the fuel tank. Refer to ⇒ [“1.2 Fuel Tank, Draining”, page 9](#) .

- Move the passenger seat all the way forward if necessary.
- Remove 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .

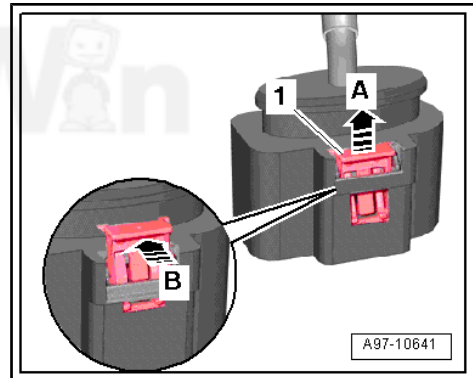


- Remove the bolts -arrows- and remove the sealing flange cover -1-.
- Open the connector locking mechanism with the Elbow Assembly Tool - T10118- and disconnect the connector -1- on the sealing flange.
- Disconnect the connector -2- on the sealing flange.



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- Push the circlip -1- upward in the direction of -arrow A- and squeeze the release in the direction of -arrow B-.



WARNING

Very hot fuel can burn your skin.

◆ *In extreme cases the temperature of the fuel lines and/or the fuel can go up to 100 °C (212 °F). Let the fuel cool down before opening any line connections otherwise there is a danger of scalding.*

◆ *Wear safety gloves.*

◆ *Wear protective eyewear.*

There is a risk of injury because the fuel is under high pressure.

◆ *To reduce pressure in fuel system, lay a clean cloth around the connector and carefully loosen connector.*

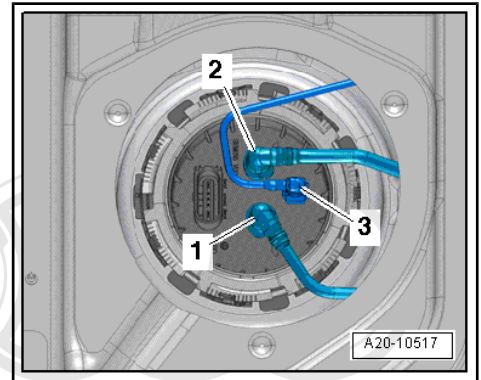
- Press the release button and disconnect the fuel lines -1- and -2- from the locking flange.

- Press the release button and disconnect the metering pump fuel line -3- on the sealing flange for vehicles with an auxiliary heater.

WARNING

Danger due to escaping fuel.

- ◆ *To prevent large quantities of fuel from leaking from the fuel delivery unit when removing, the fuel tank may only be a maximum of $\frac{3}{4}$ full.*

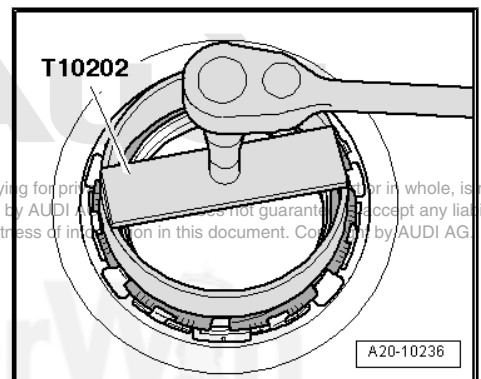


- Remove locking ring using the Wrench - Fuel Sending Unit - T10202- .
- Remove the locking flange -3- from the fuel tank and remove the seal -1-.

WARNING

There is a risk of fuel leaking out from the filled fuel delivery unit.

- ◆ *Lay cloths below to catch the leaking fuel.*



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Note

Be careful not to bend the floater arm on the Fuel Level Sensor - G- when removing the fuel delivery unit.

- Pull the fuel delivery unit -2- out of the fuel tank slightly, tilt it toward the right side of the vehicle arrow and remove it.

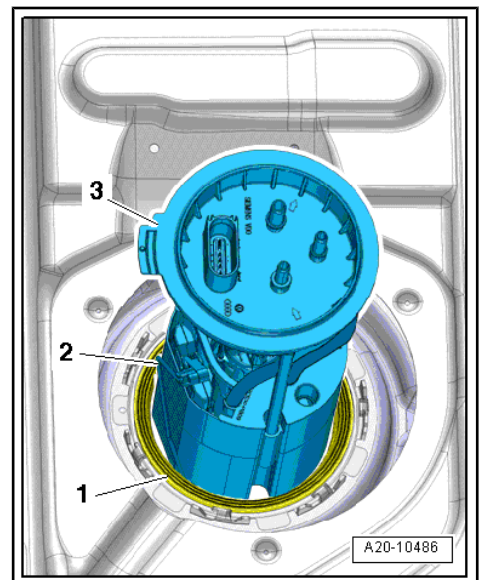
Installing

Install in reverse order of removal. Note the following:

- Tightening specification: Refer to ["2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor", page 24](#) .

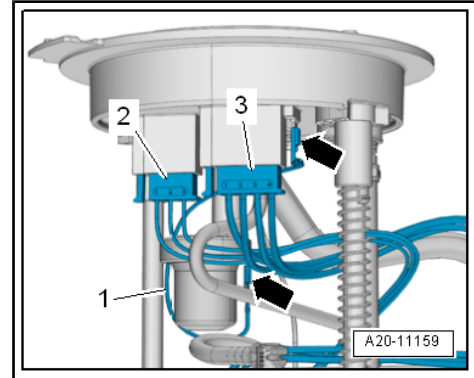
Note

- ◆ *Replace the seal.*
- ◆ *Be careful not to bend the floater arm on the Fuel Level Sensor - G- when installing the fuel delivery unit.*
- ◆ *Make sure the fuel hoses are secure.*

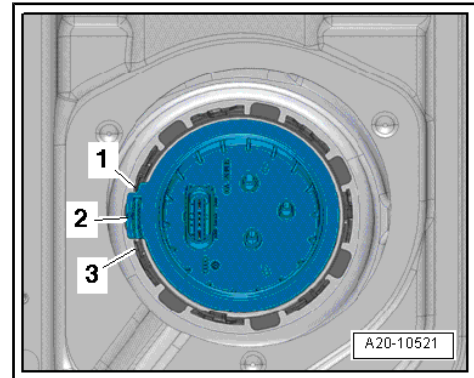




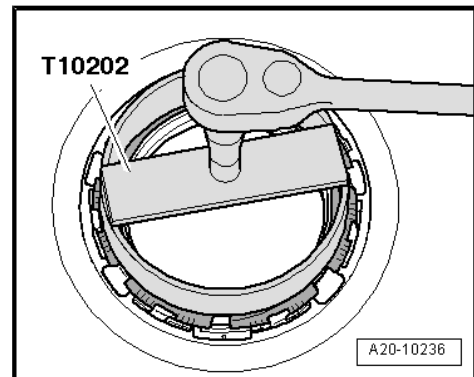
- Make sure the ground wire -1- on the fuel pressure regulator and the sealing flange is securely attached -arrows-.
- Make sure the following connectors are secure:
 - The connectors -2 and 3- must be connected securely to the locking flange.
- Pull on the connector to make sure it is locked secure.
- Insert the Fuel Level Sensor - G- into the fuel tank.
- Install the fuel delivery unit in the fuel tank.



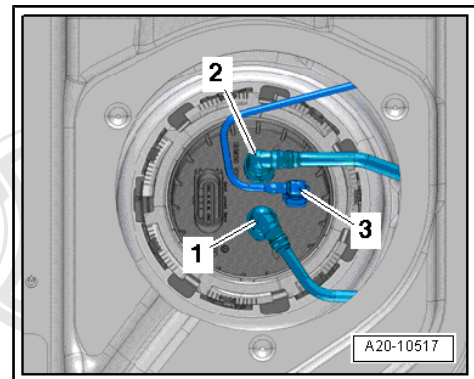
- Install the new locking flange seal over the locking flange stretched and dry.
- Move the sealing flange into the installation position.
 - The tab -2- on the locking flange points toward the back opposite the direction of travel and must lie between the tongues -1- and -3- on the fuel tank.



- Tighten the locking ring using the Wrench - Fuel Sending Unit - T10202- .



- Connect the fuel lines -1, 2 and 3-.
- Connect the connectors.
- Install the sealing flange cover. Refer to [⇒ Fig. "Sealing Flange Cover - Tightening Specifications", page 8](#) .
- Install 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- After installing fuel delivery unit, fill vehicle with at least 5 liters (1.32 gallons) of fuel.
- Bleed the fuel supply line for the metering pump on vehicle with an auxiliary heater. Refer to [⇒ "6.2 Fuel Supply Line to Metering Pump, Bleeding, Vehicles with Parking Heater", page 58](#) .



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2.3 Fuel Level Sensor - G- , Checking

⇒ [“2.3.2 Fuel Level Sensor G , Checking, 4- and 6-Cylinder Generation II Engines and 4-Cylinder EA 288 Gen I”, page 33](#)

2.3.1 Fuel Level Sensor - G- , Checking, 4-Cylinder and 6-Cylinder Generation I Engines



Note

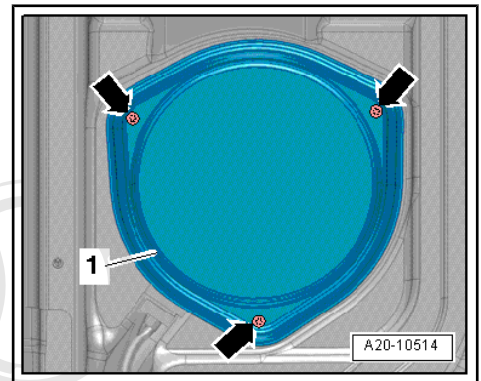
To allocate the engine version. Refer to
 ⇒ [“1.1 Determining Engine Generation”, page 1](#) .

Special tools and workshop equipment required

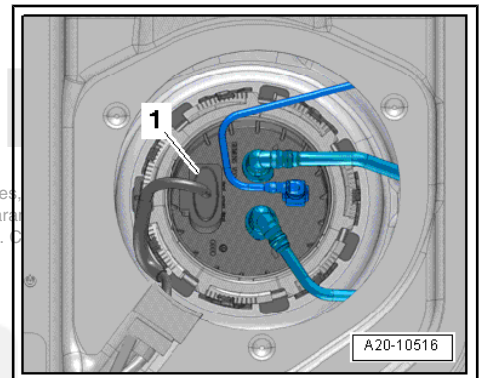
- ◆ Analog/Digital Multimeter - FLU83III-
- ◆ Connector Test Set - VAG1594D-

Procedure

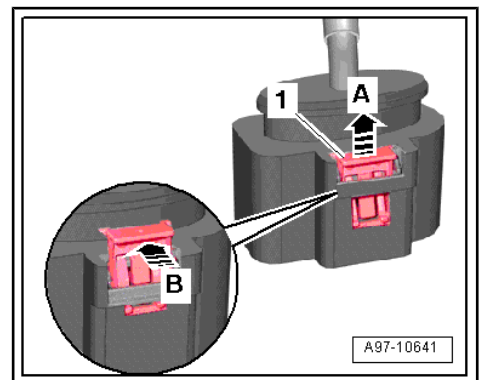
- Remove 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Remove the bolts -arrows- and remove the sealing flange cover -1-.



- Disconnect the connector -1- on the sealing flange.



- Push the circlip -1- upward in the direction of -arrow A- and squeeze the release in the direction of -arrow B-.



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**The Fuel Level Sensor - G- is Installed:****Note**

The fuel tank must be filled completely in order to have an exact reading of the resistance on the "Fuel tank full" when it is installed. Drive at least 500 meters (0.3 mile) after filling the fuel tank full to get rid of any bubbles in the fuel tank. Then fill the fuel tank again.

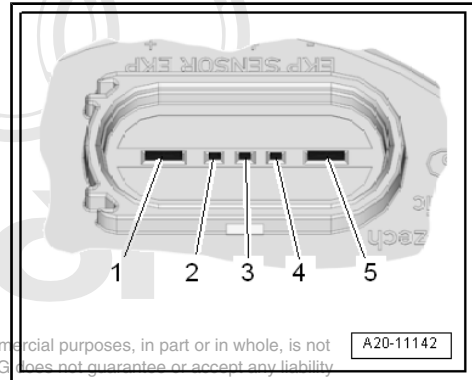
– Connect the analog/digital multimeter to measure the resistance between contacts -2- and -3-.

• Fuel tank empty: approximately 285 Ω.

• Fuel tank full: approximately 60 Ω.

– Connect the multimeter to measure the resistance between contacts -3- and -4-.

• Arbitrary sensor position: about 340 Ω.



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The Fuel Level Sensor - G- is Removed:**Note**

◆ *To check resistance values "Tank full" or "Tank empty", the Fuel Level Sensor - G- must be removed and the floater on the sensor must be placed in the upper or lower end position. Refer to .*

◆ *The following values are obtained when the fuel level sensor is removed because of the greater movement of the floater arm:*

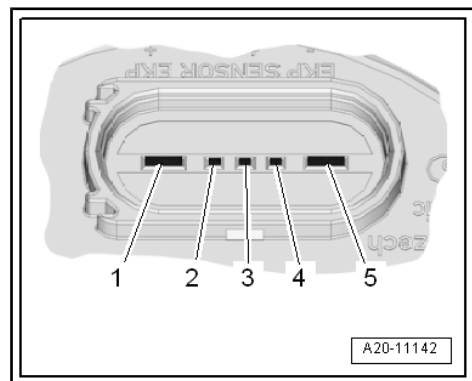
– Connect the analog/digital multimeter to measure the resistance between contacts -2- and -3-.

• Fuel tank empty: approximately 285 Ω.

• Fuel tank full: approximately 53 Ω.

– Connect the multimeter to measure the resistance between contacts -3- and -4-.

• Arbitrary sensor position: about 340 Ω.



The Fuel Level Sensor - G- is faulty when the following is detected:

◆ Large deviations in measured values

◆ Measured value 0 Ω (short circuit).

◆ Measured value ∞ Ω (open circuit).

◆ No fault in the electric wires.

– Install the fuel delivery unit/ Fuel Level Sensor - G- . Refer to ⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 27](#) .

– Install the sealing flange cover. Refer to ⇒ [Fig. "Sealing Flange Cover - Tightening Specifications", page 8](#) .

– Install 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .

2.3.2 Fuel Level Sensor - G- , Checking, 4- and 6-Cylinder Generation II Engines and 4-Cylinder EA 288 Gen I

Note

To allocate the engine version. Refer to ⇒ ["1.1 Determining Engine Generation", page 1](#) .

Special tools and workshop equipment required

- ◆ Analog/Digital Multimeter - FLU83III-
- ◆ Connector Test Set - VAG1594D-

Procedure

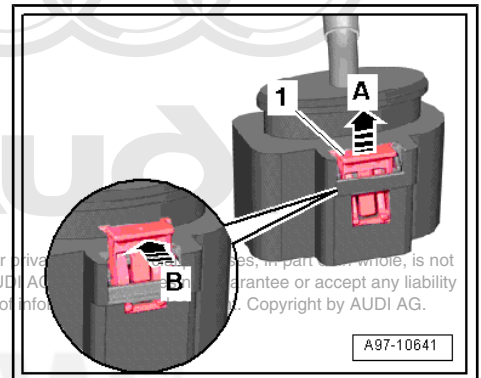
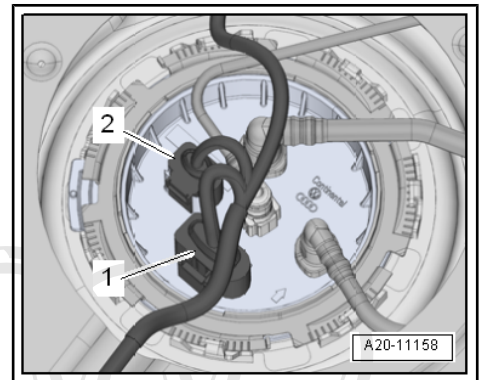
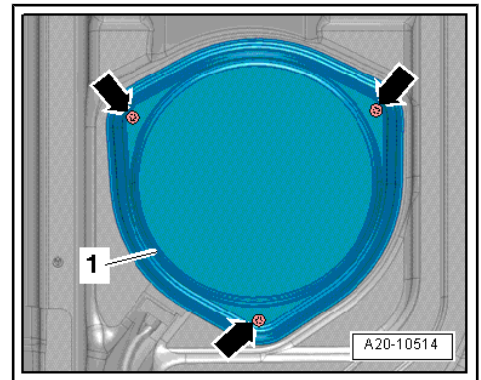
- Remove 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Remove the bolts -arrows- and remove the sealing flange cover -1-.

Note

Ignore item -1-.

- Disconnect the connector -2- on the sealing flange.

- Push the circlip -1- upward in the direction of -arrow A- and squeeze the release in the direction of -arrow B-.

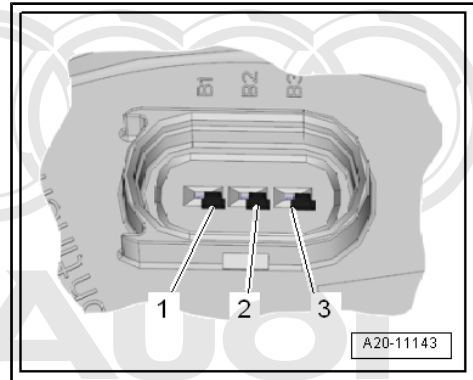


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The Fuel Level Sensor - G- is Installed:**Note**

The fuel tank must be filled completely in order to have an exact reading of the resistance on the "Fuel tank full" when it is installed. Drive at least 500 meters (0.3 mile) after filling the fuel tank full to get rid of any bubbles in the fuel tank. Then fill the fuel tank again.

- Connect the multimeter between terminals -1 and 2- to measure the resistance.
- Fuel tank empty: approximately 285 Ω .
- Fuel tank full: approximately 60 Ω .
- Connect the analog/digital multimeter to measure the resistance between contacts -1 and 3-.
- Fuel tank empty: approximately 60 Ω .
- Fuel tank full: approximately 285 Ω .
- Connect the analog/digital multimeter to measure the resistance between contacts -2 and 3-.
- Arbitrary sensor position: about 340 Ω .



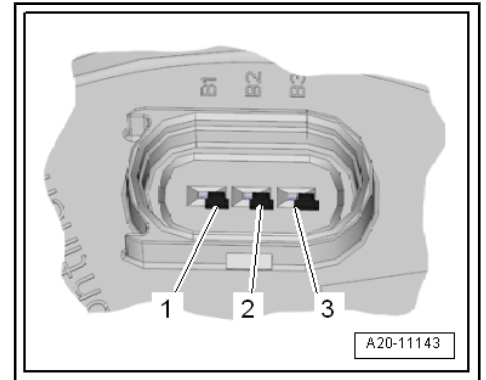
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The Fuel Level Sensor - G- is Removed

Note

- ◆ *To check resistance values "Tank full" or "Tank empty", the Fuel Level Sensor - G- must be removed and the floater on the sensor must be placed in the upper or lower end position. Refer to .*
- ◆ *The following values are obtained when the fuel level sensor is removed because of the greater movement of the floater arm:*
 - Connect the multimeter between terminals -1 and 2- to measure the resistance.
 - Fuel tank empty: approximately 285 Ω.
 - Fuel tank full: approximately 53 Ω.
 - Connect the analog/digital multimeter to measure the resistance between contacts -1- and -3-.
 - Fuel tank empty: approximately 53 Ω.
 - Fuel tank full: approximately 285 Ω.
 - Connect the analog/digital multimeter to measure the resistance between contacts -2- and -3-.
 - Arbitrary sensor position: about 340 Ω.



The Fuel Level Sensor - G- is faulty when the following is detected:

- ◆ Large deviations in measured values
- ◆ Measured value 0 Ω (short circuit).
- ◆ Measured value ∞ Ω (open circuit).
- ◆ No fault in the electric wires.
- Install the fuel delivery unit/ Fuel Level Sensor - G- . Refer to ⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 27](#) .
- Install the sealing flange cover. Refer to ⇒ ["Fig. "Sealing Flange Cover - Tightening Specifications", page 8](#) .
- Install 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .

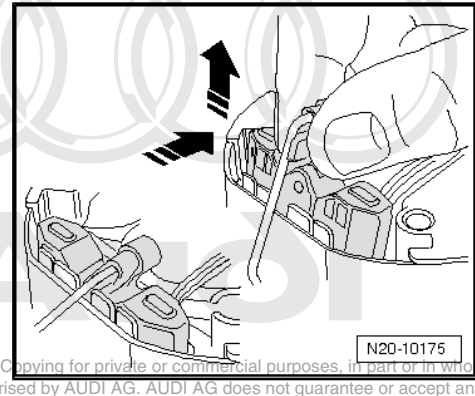
2.4 Fuel Level Sensor - G-, Removing and Installing

Removing

- Follow all safety precautions. Refer to ⇒ ["2.1 Fuel System Safety Precautions", page 2](#) .
- Follow the rules for clean working conditions. Refer to ⇒ ["3.1 Clean Working Conditions", page 5](#) .
- Remove the fuel delivery unit. Refer to ⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 27](#) .

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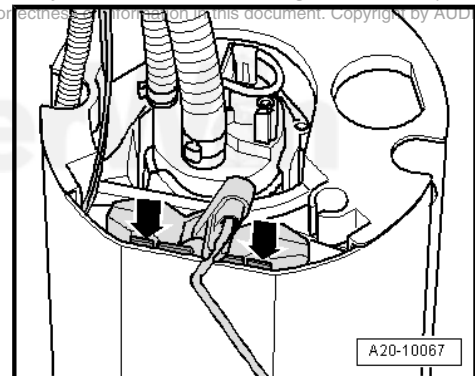
- Pull the Fuel Level Sensor - G- first slightly toward the inside and then upward and remove it in the direction of -arrows-.



- Release the retaining tabs -arrows- with a screwdriver, if necessary.

**Caution****Risk of damage.**

- ◆ **Before disconnecting connectors to the Fuel Level Sensor - G- , first release connector contact retaining tab.**

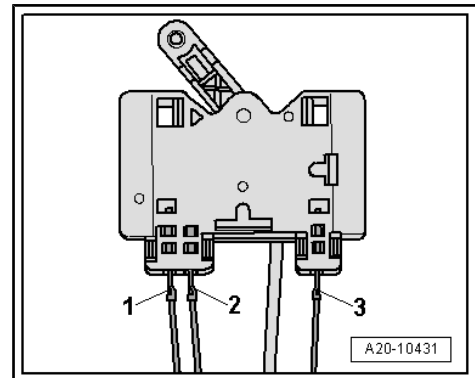


- Unlock and disconnect the connectors -1 through 3-.
- Disconnect the connector from the sealing flange.

Installing

Install in reverse order of removal. Note the following:

- Connect the electrical connections -1 through 3- and make sure they are securely engaged.
- Insert the Fuel Level Sensor - G- in the guides on the fuel delivery unit and push down until it engages.
- Install the fuel delivery unit. Refer to ⇒ [page 29](#) .



3 Fuel Filter

⇒ [“3.1 Overview - Fuel Filter”, page 37](#)

⇒ [“3.2 Fuel Filter, Removing and Installing”, page 38](#)

⇒ [“3.3 Regulator Valve, Removing and Installing”, page 39](#)

3.1 Overview - Fuel Filter



Note

The Auxiliary Fuel Pump - V393- is only installed with 4-cylinder and 6-cylinder generation I engines. Refer to ⇒ [“1.1 Determining Engine Generation”, page 1](#).

1 - Bracket

- For the fuel filter and Auxiliary Fuel Pump - V393-

2 - Rubber Grommet

- Inserted into the body

3 - Rubber Bushing

- For the Auxiliary Fuel Pump - V393-

4 - Auxiliary Fuel Pump - V393-

- The flow direction is identified with arrows.
- Do not switch the connections.
- Fuel delivery, checking. Refer to ⇒ [“5.3 Auxiliary Fuel Pump V393 , Checking Delivery Rate”, page 55](#).
- Refer to ⇒ [“5.4 Auxiliary Fuel Pump V393 , Removing and Installing”, page 56](#).

5 - Fuel Hose

6 - Regulator Valve

- Present depending on version
- Flow direction identified with “VL” or “RL” and arrows
- Do not switch the connections.
- Refer to ⇒ [“3.3 Regulator Valve, Removing and Installing”, page 39](#).

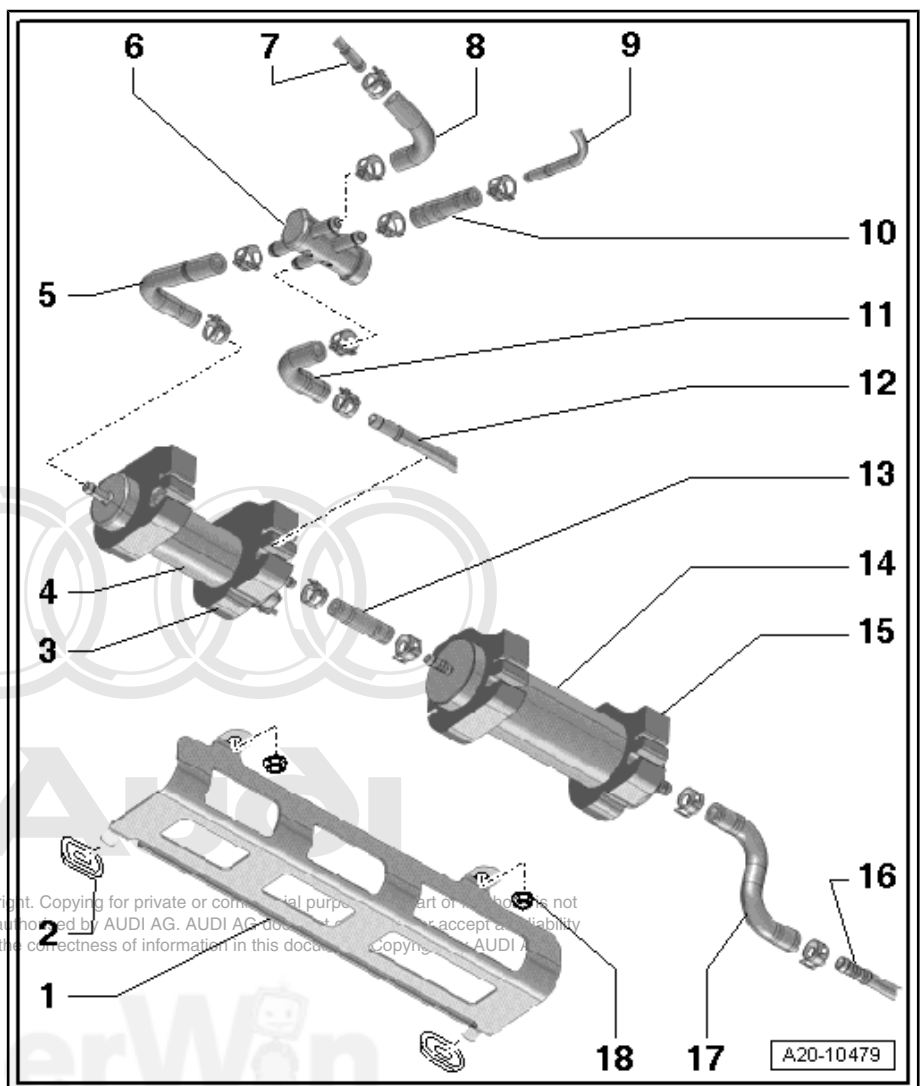
7 - Fuel Supply Line

- From the fuel delivery unit

8 - Fuel Hose

9 - Fuel Return Line

- To the fuel delivery unit





10 - Fuel Hose

11 - Fuel Hose

12 - Fuel Return Line

- From engine

13 - Fuel Hose

14 - Fuel Filter

- The flow direction is identified with arrows.
- Do not switch the connections.
- Refer to ⇒ [“3.2 Fuel Filter, Removing and Installing”, page 38](#) .

15 - Rubber Bushing

- For fuel filter

16 - Fuel Supply Line

- To the engine

17 - Fuel Hose

18 - Nut

- 8 Nm

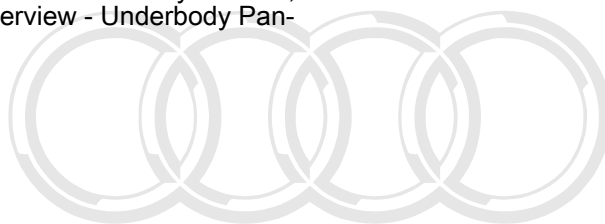
3.2 Fuel Filter, Removing and Installing

Special tools and workshop equipment required

- ◆ Drip tray

Removing

- Follow all safety precautions. Refer to ⇒ [“2.1 Fuel System Safety Precautions”, page 2](#) .
- Follow the rules for clean working conditions. Refer to ⇒ [“3.1 Clean Working Conditions”, page 5](#) .
- Remove the right underbody panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .
- Remove the nuts -1 and 2-.



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- Tilt the bracket -3- downward, disengage it from the body -arrows- and remove it.

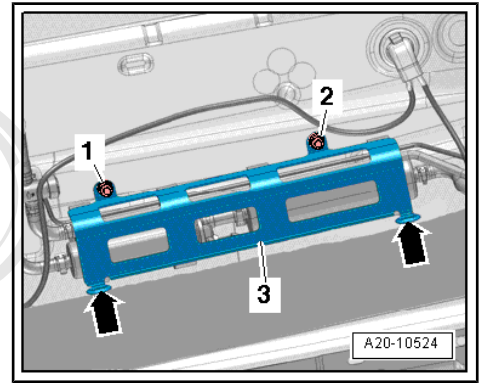
! WARNING

Very hot fuel can burn your skin.

- ◆ *In extreme cases the temperature of the fuel lines and/or the fuel can go up to 100 °C (212 °F). Let the fuel cool down before opening any line connections otherwise there is a danger of scalding.*
- ◆ *Wear safety gloves.*
- ◆ *Wear protective eyewear.*

There is a risk of injury because the fuel is under high pressure.

- ◆ *To reduce pressure in fuel system, lay a clean cloth around the connector and carefully loosen connector.*

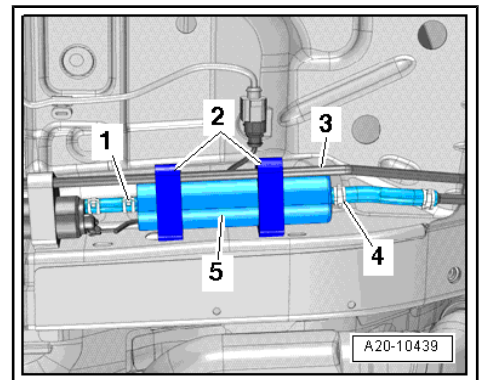


- Place the drip tray under the fuel filter.
- Remove the fuel hoses -1 and 4-.
- Detach the fuel return line -3- at the rubber bushing -2-.
- Remove the fuel filter -5- with the rubber bushings.

Installing

Install in reverse order of removal. Note the following:

- Tightening specification: Refer to ⇒ ["3.1 Overview - Fuel Filter", page 37](#) .
- The direction of flow is marked on filter housing with arrows.
- Install the right underbody trim panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .



! Caution

Letting the high pressure pump run dry will damage it.

- ◆ *If the fuel filter, fuel lines or the Auxiliary Fuel Pump - V393- are being replaced, bleed the fuel system before starting the engine for the first time.*

- Bleed the fuel system. Refer to ⇒ ["6.1 Fuel System, Bleeding", page 58](#) .

3.3 Regulator Valve, Removing and Installing

Special tools and workshop equipment required

- ◆ Drip tray

Removing

- Follow all safety precautions. Refer to ⇒ ["2.1 Fuel System Safety Precautions", page 2](#) .
- Follow the rules for clean working conditions. Refer to ⇒ ["3.1 Clean Working Conditions", page 5](#) .

- Remove the right underbody panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .
- Remove the bolts -1 and 3-, nuts -4- and bracket -2-.

**WARNING**

Very hot fuel can burn your skin.

- ◆ *In extreme cases the temperature of the fuel lines and/or the fuel can go up to 100 °C (212 °F). Let the fuel cool down before opening any line connections otherwise there is a danger of scalding.*

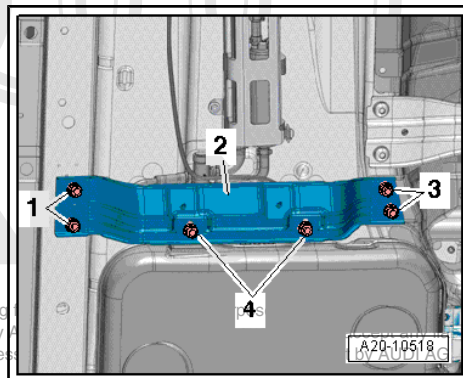
- ◆ *Wear safety gloves.*

- ◆ *Wear protective eyewear.*

There is a risk of injury because the fuel is under high pressure.

- ◆ *To reduce pressure in fuel system, lay a clean cloth around the connector and carefully loosen connector.*

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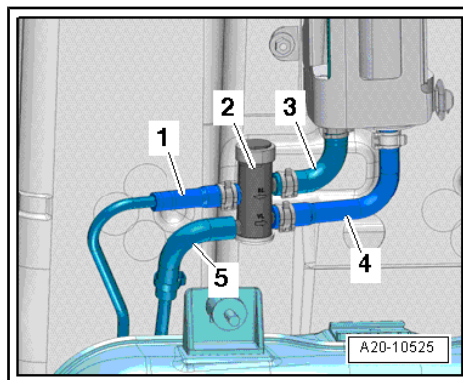


- Place the drip tray under the regulator valve.
- Remove the fuel hoses -1, 3, 4 and 5- and remove the regulator valve -2-.

Installing

Install in reverse order of removal. Note the following:

- The location of the fuel hoses and the flow direction are marked on the regulator valve with "VL" or "RL".
- Install the bracket. Refer to ⇒ [Fig. "Bracket - Tightening Specification"](#) , page 8 .
- Install the right underbody trim panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .



4 Accelerator Pedal Mechanism

⇒ [“4.1 Overview - Accelerator Pedal Mechanism”, page 41](#)

⇒ [“4.2 Accelerator Pedal Position Sensors G79 / G185 , Removing and Installing”, page 41](#)

4.1 Overview - Accelerator Pedal Mechanism

1 - Accelerator Pedal Module

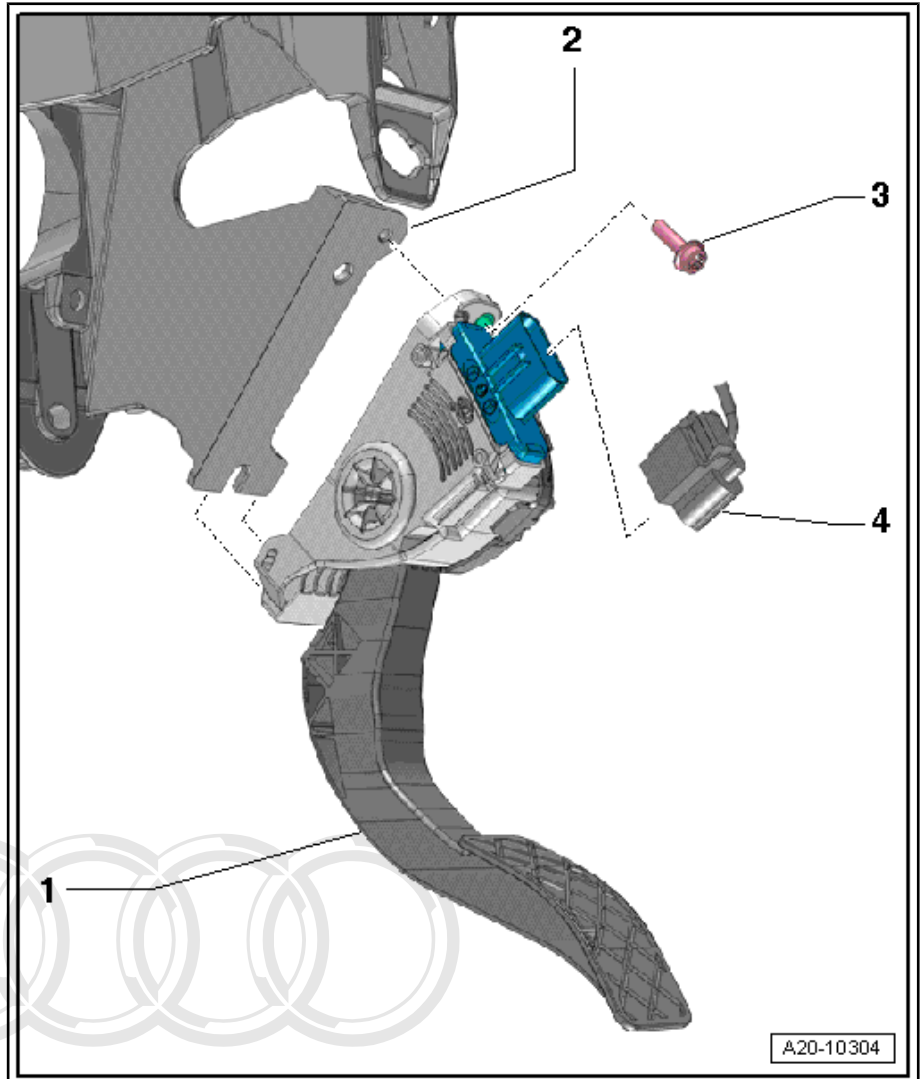
- ❑ With Accelerator Pedal Position Sensor - G79- and Accelerator Pedal Position Sensor 2 - G185-
- ❑ Depending on the engine/transmission version, adaptation in the “Guided Functions” operating mode is necessary after replacing it. Perform the adaptation, if a menu item is available in the “Guided Function”. Refer to Vehicle Diagnostic Tester .
- ❑ Refer to
 ⇒ [“4.2 Accelerator Pedal Position Sensors G79 / G185 , Removing and Installing”, page 41](#) .

2 - Pedal Bracket

3 - Bolt

- ❑ 8 Nm

4 - Connector



A20-10304

4.2 Accelerator Pedal Position Sensors - G79- / -G185- , Removing and Installing

Removing

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- Remove the lower instrument panel cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Overview - Driver Side Instrument Panel Cover .

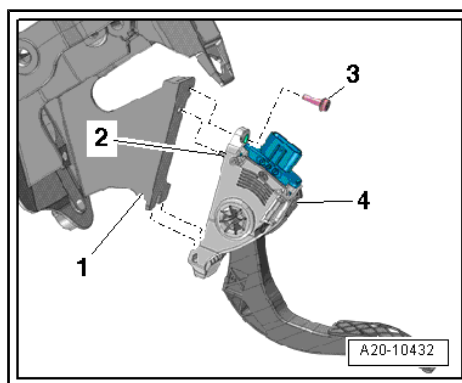
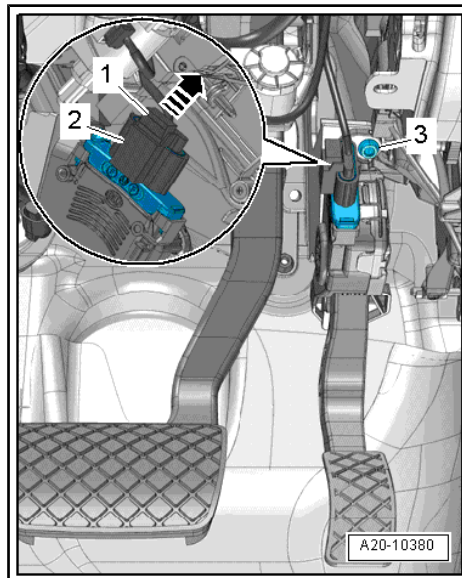


- Disconnect the connector -2- by pressing the release -1- up in the direction of -arrow-.
- Remove the bolt -3- and remove the accelerator pedal module downward.

Installing

Install in reverse order of removal. Note the following:

- Tightening specification: Refer to [⇒ "4.1 Overview - Accelerator Pedal Mechanism", page 41](#).
- Engage the accelerator pedal module -4- on the bottom of the pedal bracket -1-, insert the centering pin -2- and tighten the bolt -3-.
- Install the lower instrument panel cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Overview - Driver Side Instrument Panel Cover .
- Depending on the engine/transmission version, adaptation in the "Guided Functions" operating mode is necessary after replacing it. Perform the adaptation, if a menu item is available in the "Guided Function". Refer to Vehicle Diagnostic Tester .



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5 Fuel Pump

⇒ [“5.1 Transfer Fuel Pump G6 , Checking”, page 43](#)

⇒ [“5.2 Fuel Pump Control Module J538 , Removing and Installing”, page 54](#)

⇒ [“5.3 Auxiliary Fuel Pump V393 , Checking Delivery Rate”, page 55](#)

⇒ [“5.4 Auxiliary Fuel Pump V393 , Removing and Installing”, page 56](#)

5.1 Transfer Fuel Pump - G6- , Checking

⇒ [“5.1.1 Transfer Fuel Pump G6 , Electrical Testing, 4-Cylinder and 6-Cylinder Generation I Engines”, page 43](#)

⇒ [“5.1.3 Transfer Fuel Pump G6 , Checking Delivery Rate, 4- and 6-Cylinder Generation II Engines and 4-Cylinder EA 288 Gen I”, page 48](#)

⇒ [“5.1.4 Fuel Pump, Checking Fuel Pressure”, page 51](#)

5.1.1 Transfer Fuel Pump - G6- , Electrical Testing, 4-Cylinder and 6-Cylinder Generation I Engines



Note

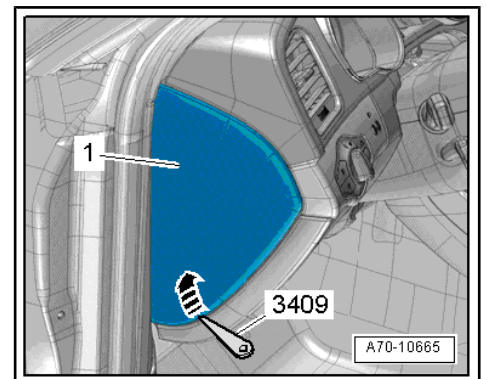
*To allocate the engine version. Refer to
 ⇒ [“1.1 Determining Engine Generation”, page 1](#) .*

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-
- ◆ Injection Rate Comparison Meter Kit - Remote Cable - VAG1348/3A- with Injection Rate Comparison Meter Kit - Adapter - VAG1348/3-2-
- ◆ Analog/Digital Multimeter - FLU83III-
- ◆ Connector Test Set - VAG1594D-

Procedure

- Follow all test requirements. Refer to
 ⇒ [“3.2 Test Conditions”, page 5](#) .
- Pry the driver side instrument panel side cover -1- off using the Trim Removal Wedge - 3409- -arrow- and remove it.

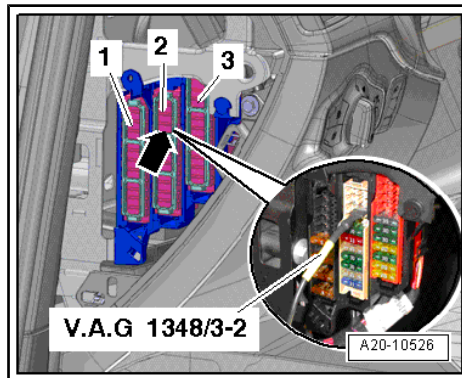


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- Remove Fuse 3 (On Fuse Panel C) - SC3- (ST2 -2- brown, 3rd large fuse from above -arrow-).
- Connect the Injection Rate Comparison Meter Kit - Remote Cable - VAG1348/3A- with the Injection Rate Comparison Meter Kit - Adapter - VAG1348/3-2- on the right terminal on the socket for Fuse 3 (On Fuse Panel C) - SC3- .
- Place the remote control switch in the front of the engine compartment.
- Press on the marked location in direction of -arrow A- and remove the cover -2-.

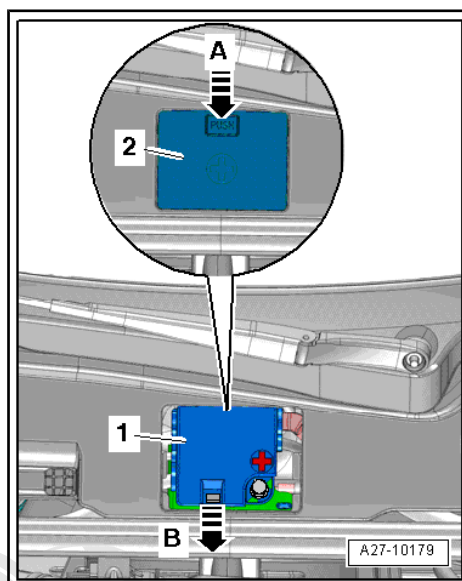


- Release the latch in direction of -arrow B- and open the cover -1-.



Note

Ignore item -2-.



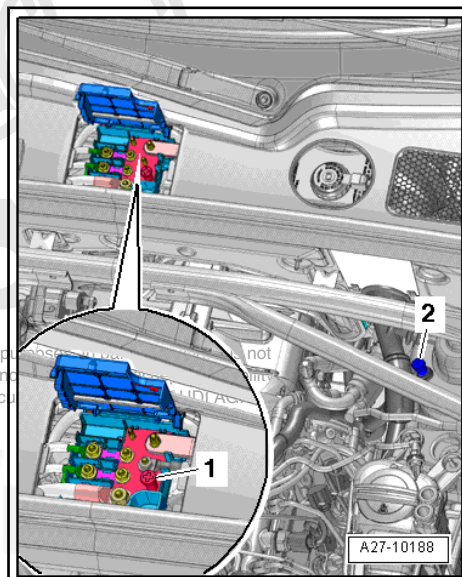
- Connect the alligator clip to the Battery Jump Start Terminal - U6- item -1- in the Terminal 30 Wire Junction 2 - TV22- in the plenum chamber.
- Press the button of the remote control.
- Running noise of pump must be audible.



Note

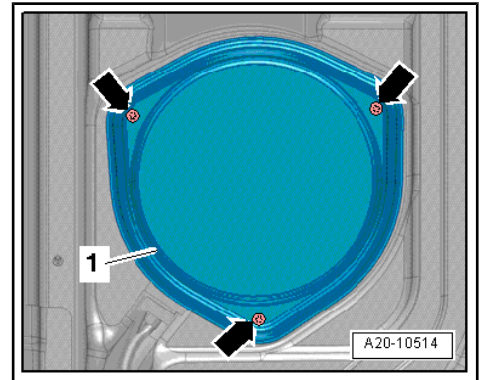
The fuel pump runs very quietly. Avoid surrounding noises while testing the fuel pump.

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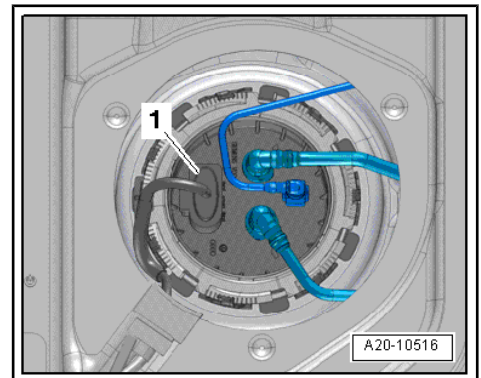


If no operating noise can be heard:

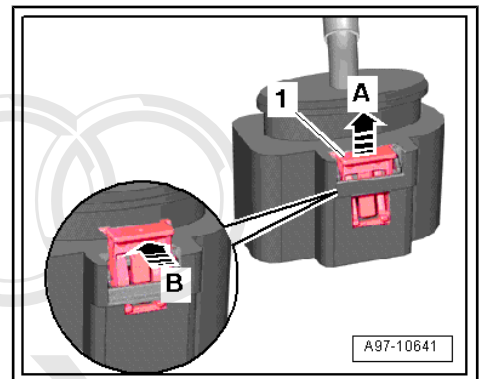
- Remove 1/3 of the rear seat. Refer to => Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Remove the bolts -arrows- and remove the sealing flange cover -1-.



- Disconnect the connector -1- on the sealing flange.



- Push the circlip -1- upward in direction of -arrow A- and squeeze the release in direction of -arrow B-.

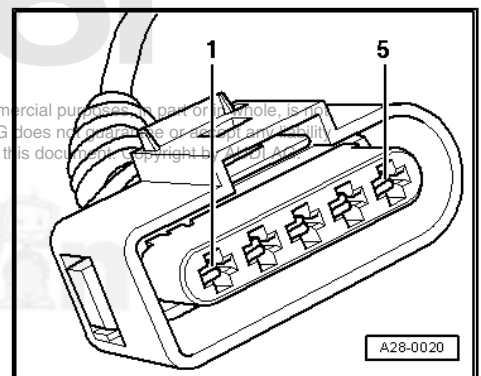


- Contact the multimeter to the voltage measurement between the connector contacts -1 and 5-.

- Press the button of the remote control.
- Specified value: approximate battery voltage.

If the specification is not obtained:

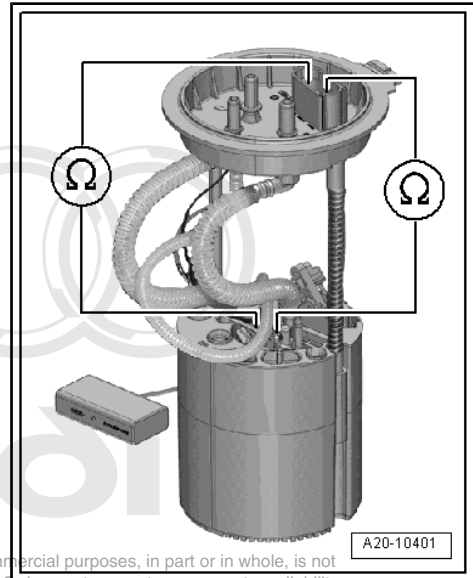
- Remove the wiring diagram according to the wiring diagram.





If the specified value is reached although no running noise can be heard from the pump:

- Remove the fuel delivery unit. Refer to [⇒ "2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 27](#) .
- Check the electrical wires between the locking flange and fuel pump to make sure they are connected and routed correctly.
- If no fault is detected in the electrical wires, replace the fuel delivery unit.
- Install the fuel delivery unit. Refer to [⇒ page 29](#) .



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5.1.2 Transfer Fuel Pump - G6- , Checking, 4- and 6-Cylinder Generation I Engine



Note

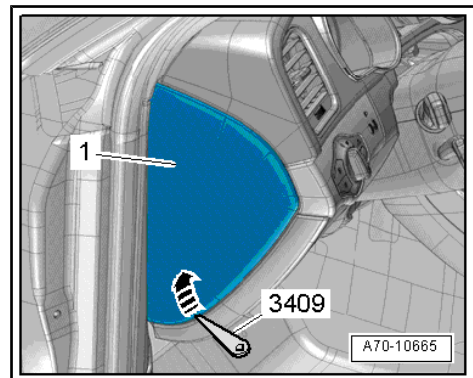
To allocate the engine version. Refer to [⇒ "1.1 Determining Engine Generation", page 1](#) .

Special tools and workshop equipment required

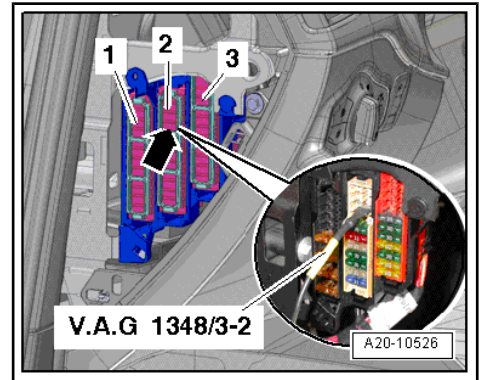
- ◆ Trim Removal Wedge - 3409-
- ◆ Injection Rate Comparison Meter Kit - Remote Cable - VAG1348/3A- with Injection Rate Comparison Meter Kit - Adapter - VAG1348/3-2-
- ◆ Hose with inner-diameter 8 mm, fuel resistant
- ◆ Measuring container, fuel-resistant

Procedure

- Follow all test requirements. Refer to [⇒ "3.2 Test Conditions", page 5](#) .
- Pry the driver side instrument panel side cover -1- off using the Trim Removal Wedge - 3409- in direction of -arrow- and remove it.



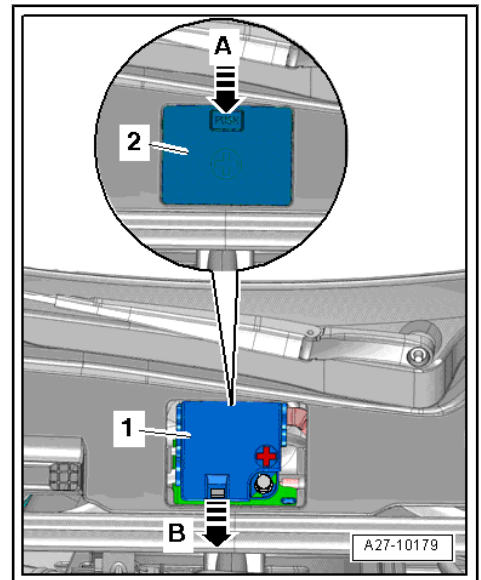
- Remove Fuse 3 (On Fuse Panel C) - SC3- (ST2 -2- brown, 3rd large fuse from above -arrow-).
- Connect the Injection Rate Comparison Meter Kit - Remote Cable - VAG 1348/3A- with the Injection Rate Comparison Meter Kit - Adapter - VAG1348/3-2- on the right terminal on the socket for Fuse 3 (On Fuse Panel C) - SC3- .
- Place the remote control switch in the front of the engine compartment.
- Press on the marked location in direction of -arrow A- and remove the cover -2-.



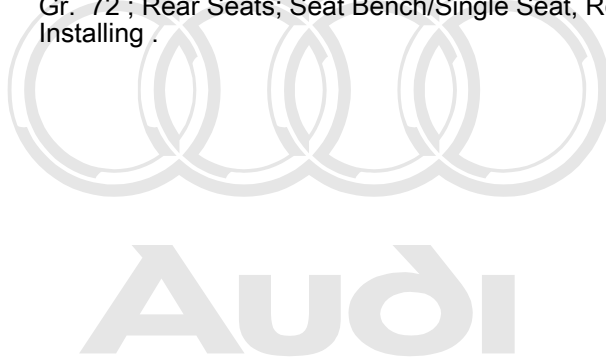
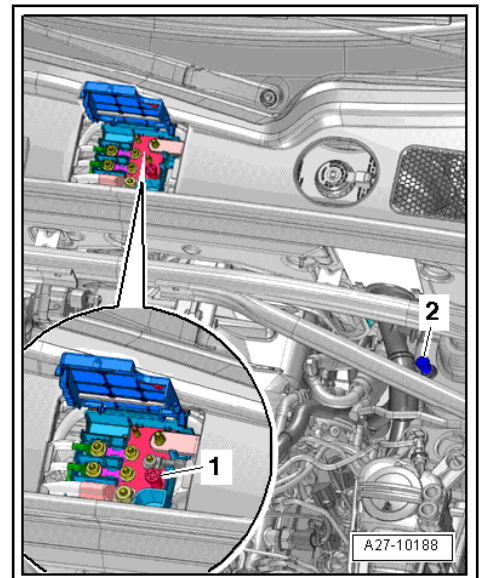
- Release the latch in direction of -arrow B- and open the cover -1-.

i Note

Ignore item -2-.




- Connect the alligator clip to the Battery Jump Start Terminal - U6- item -1- in the Terminal 30 Wire Junction 2 - TV22- in the plenum chamber.
- Remove the cover from the fuel filler tube.
- Remove 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .



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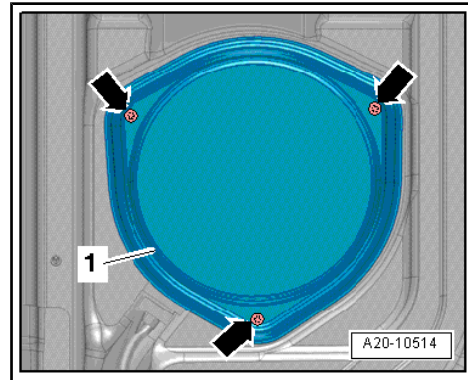


- Remove the bolts -arrows- and remove the sealing flange cover -1-.

 **WARNING**

There is a risk of injury because the fuel is under high pressure.

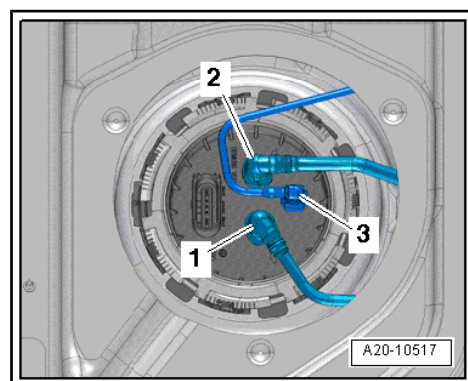
- ◆ *To reduce pressure in fuel system, lay a clean cloth around the connector and carefully loosen connector.*



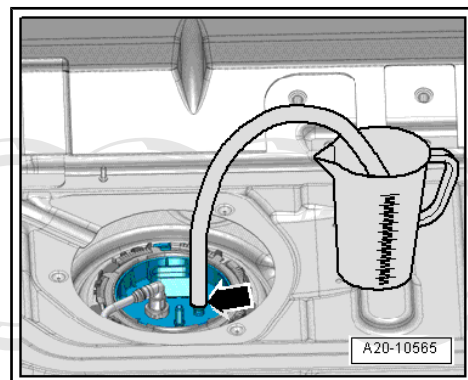
 **Note**

Ignore items -1 and 3-.

- Press the release button and disconnect the fuel line -2- from the sealing flange.



- Connect a fuel-resistant hose with an 8 mm internal diameter to the free connection on the sealing flange -arrow- and hold it in a fuel-resistant measuring container.
- Press the remote control switch for 15 seconds.



- Compare quantity of fuel delivered with minimum delivery rate in diagram (cm³/15s).

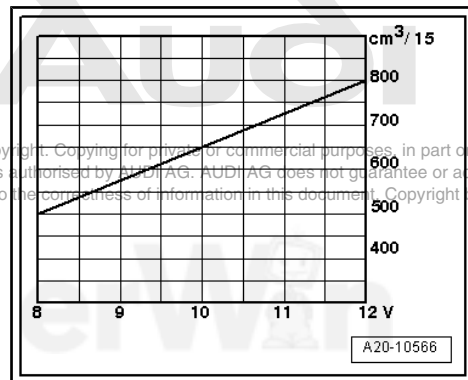
 **Note**

Voltage at fuel pump with engine stopped and fuel pump running is approximate. 2 volts less than battery voltage.

If minimum delivery quantity is not obtained, the following malfunctions may be present:

- ◆ The fuel tank does not have enough fuel in it.
- ◆ Transfer Fuel Pump - G6- is faulty.

Assembly is performed in reverse order.



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5.1.3 Transfer Fuel Pump - G6- , Checking Delivery Rate, 4- and 6-Cylinder Gener-

ation II Engines and 4-Cylinder EA 288 Gen I

 Note

To allocate the engine version. Refer to
 ⇒ ["1.1 Determining Engine Generation", page 1](#) .


Special tools and workshop equipment required

- ◆ Diesel Pressure Tester Kit - VAS6551-
- ◆ Diesel Pressure Tester Kit - Adapter Set - VAS6551/5-
- ◆ Vehicle Diagnostic Tester
- ◆ Measuring container, fuel-resistant

Procedure

Follow all test requirements. Refer to
 ⇒ ["3.2 Test Conditions", page 5](#) .

- Remove the cap from the fuel filler tube.


 **WARNING**

Very hot fuel can burn your skin.

- ◆ *In extreme cases the temperature of the fuel lines and/or the fuel can go up to 100 °C (212 °F). Let the fuel cool down before opening any line connections otherwise there is a danger of scalding.*
- ◆ *Wear safety gloves.*
- ◆ *Wear protective eyewear.*

There is a risk of injury because the fuel is under high pressure.

- ◆ *To reduce pressure in fuel system, lay a clean cloth around the connector and carefully loosen connector.*

 **Caution**

Always observe the rules for cleanliness when working on the injection system. Refer to
 ⇒ ["3.1 Clean Working Conditions", page 5](#) .

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Version 1

 **Note**

Ignore item -2-.

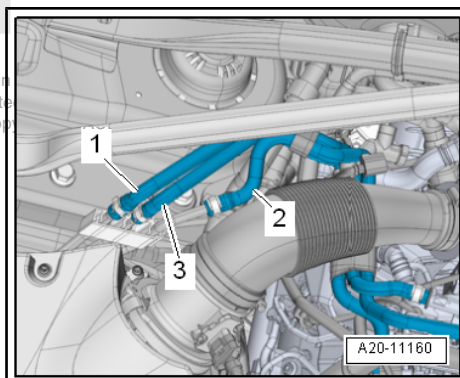
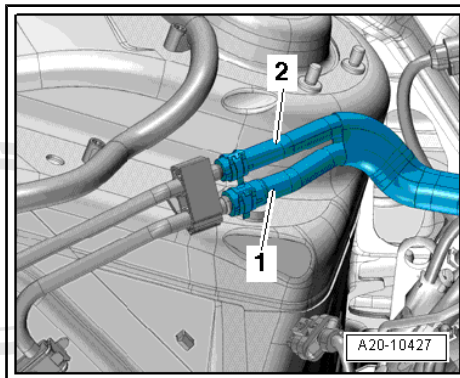
- Disconnect the fuel line -1-.

Version 2

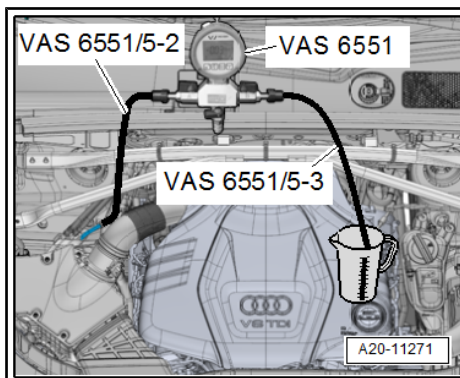
 **Note**

Ignore items -1 and 3-.

- Disconnect the fuel supply hose -2-.
- Connect the Diesel Pressure Tester Kit - VAS6551- to the fuel supply line using the Diesel Pressure Tester Kit - Adapter Set - Connection Hose 2 - VAS6551/5-2- and secure with a hose clamp.



- Connect the Diesel Pressure Tester Kit - Adapter Set - Connection Hose 3 - VAS6551/5-3- and hold the hose in a fuel-resistant measuring container.



 **Caution**

Risk of fuel leak.

- ◆ Make sure that the drain -C- is closed.
- ◆ The lever is perpendicular to the direction of flow.

 **Note**

To measure the fuel delivery rate, there must be an initial pressure inside the fuel supply line against which the fuel pump must work during the measuring. Adjust the initial pressure using the Diesel Pressure Tester Kit - VAS6551- as follows:

- Open the shut-off valves -A and B-.
- The levers point in the direction of flow.
- Connect the Vehicle Diagnostic Tester .

– Turn on the ignition and select the following menu items on the Vehicle Diagnostic Tester :

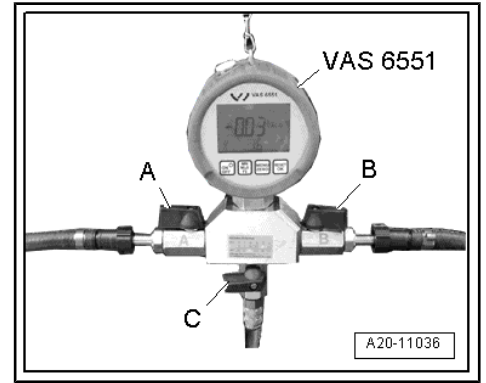
- ◆ OBD
- ◆ Engine electronics
- ◆ Basic setting
- ◆ Transfer fuel pump test

- Push Start: the fuel pump starts.
- To create an initial pressure within the fuel system, slowly close the shut-off valve -B- on the pressure gauge until the correct initial pressure value is reached.
 - Specified value: 4.8 bar (69.61 psi) pressure
- From this point on do not move position of shut-off valve -B-.
- Press the Stop button.
- Empty measuring container.
- To measure, press the Start button again and let the fuel pump run for 15 seconds.
- After 15 seconds, press the Stop button.
- Check the amount of fuel in the measuring container.
 - Specified value: minimum delivery rate 750 cm³/15 s.

If minimum delivery quantity is not obtained, the following malfunctions may be present:

- ◆ The fuel lines are pinched.
- ◆ The fuel filter is clogged.
- ◆ The fuel pump is faulty.

Assembly is performed in reverse order.



5.1.4 Fuel Pump, Checking Fuel Pressure

Note

- ◆ For 4-cylinder and 6-cylinder generation I engines (refer to ⇒ ["1.1 Determining Engine Generation", page 1](#)), the Transfer Fuel Pump - G6- is checked under the underbody in the fuel tank together with the Auxiliary Fuel Pump - V393-.
- ◆ For 4-cylinder and 6-cylinder generation II engines (refer to ⇒ ["1.1 Determining Engine Generation", page 1](#)) the Auxiliary Fuel Pump - V393- is no longer installed, so only the Transfer Fuel Pump - G6- is checked.

Special tools and workshop equipment required

- ◆ Diesel Pressure Tester Kit - VAS6551-
- ◆ Diesel Pressure Tester Kit - Adapter Set - VAS6551/5-

Procedure

Follow all test requirements. Refer to ⇒ ["3.2 Test Conditions", page 5](#).

**WARNING**

Very hot fuel can burn your skin.

- ◆ *In extreme cases the temperature of the fuel lines and/or the fuel can go up to 100 °C (212 °F). Let the fuel cool down before opening any line connections otherwise there is a danger of scalding.*
- ◆ *Wear safety gloves.*
- ◆ *Wear protective eyewear.*

There is a risk of injury because the fuel is under high pressure.

- ◆ *To reduce pressure in fuel system, lay a clean cloth around the connector and carefully loosen connector.*

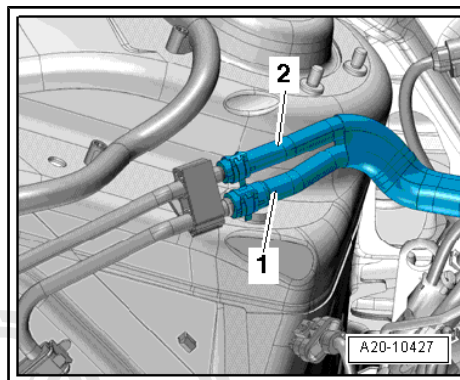
**Caution**

Always observe the rules for cleanliness when working on the injection system. Refer to ⇒ "3.1 Clean Working Conditions", page 5.

Version 1**Note**

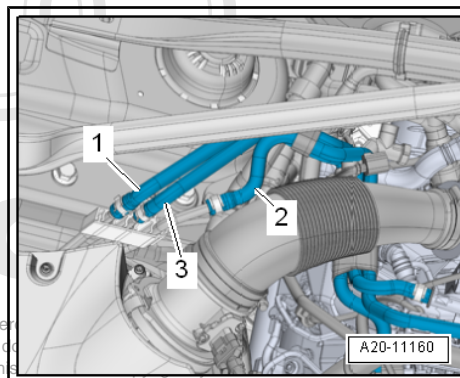
Ignore item -2-.

- Disconnect the fuel line -1-.

**Version 2****Note**

Ignore items -1 and 3-.

- Disconnect the fuel supply hose -2-.



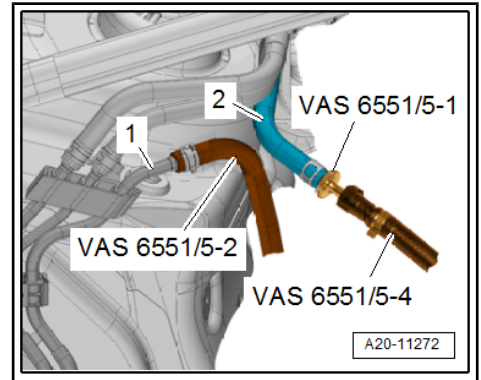
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Continuation for All Vehicles

- Connect the Diesel Pressure Tester Kit - Adapter Set - Connection Hose 2 - VAS6551/5-2- on the fuel supply line -1- and secure with hose clamp.
- Connect the Diesel Pressure Tester Kit - Adapter Set - Adapter 1 - VAS6551/5-1- to the fuel supply hose -2- secure it with a hose clamp and install the Diesel Pressure Tester Kit - Adapter Set - Connection Hose 4 - VAS6551/5-4- .


 **Note**

The Diesel Pressure Tester Kit - VAS6551- is switched in the fuel supply line.



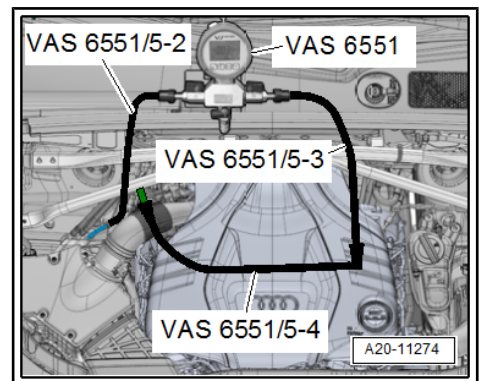
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Connect the Diesel Pressure Tester Kit - VAS6551 with the Diesel Pressure Tester Kit - Adapter Set - Connection Hose 2 - VAS6551/5-2- , Diesel Pressure Tester Kit - Adapter Set - Connection Hose 3 - VAS6551/5-3- and Diesel Pressure Tester Kit - Adapter Set - Connection Hose 4 - VAS6551/5-4- on the fuel supply hose.

 **Caution**

Risk of fuel leak.

- ◆ *Make sure that the drain -C- is closed.*
- ◆ *The lever is perpendicular to the direction of flow.*



- Open the shut-off valves -A and B- .
- The levers point in the direction of flow.
- Connect the Vehicle Diagnostic Tester .



- Turn on the ignition and select the following menu items on the Vehicle Diagnostic Tester :

- ◆ **OBD**
- ◆ **Engine electronics**
- ◆ **Basic setting**
- ◆ **Transfer fuel pump test**

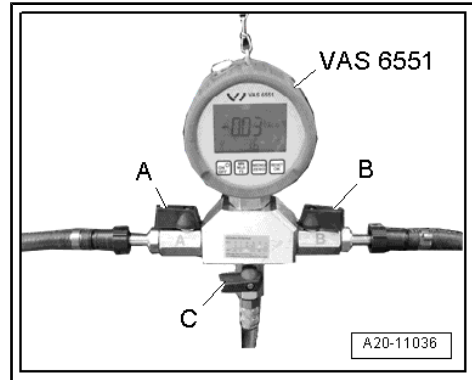
- Push **Start**: the fuel pump starts.
- Let the fuel pump run until the highest fuel pressure is reached.

Specified values:

- 4-cylinder and 6-cylinder generation II engines: at least 3.5 bar (50.76 psi)

If the specification is not obtained:

- ◆ Check the connection between the Diesel Pressure Tester Kit - VAS6551- and the fuel supply line for leaks.
- ◆ Checking the Diesel Pressure Tester Kit - VAS6551- for leaks.
- ◆ Check fuel lines and their connections for leaks.
- ◆ The fuel filter is clogged.
- Check the Transfer Fuel Pump - G6- fuel delivery rate. Refer to
⇒ ["5.1.3 Transfer Fuel Pump G6 , Checking Delivery Rate, 4- and 6-Cylinder Generation II Engines and 4-Cylinder EA 288 Gen I", page 48 .](#)



Note

Check fuel system for leaks.

5.2 Fuel Pump Control Module - J538- , Removing and Installing



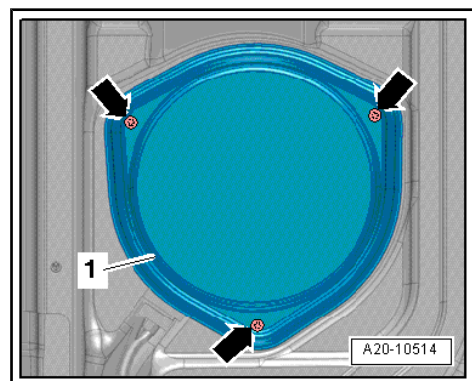
Note

The Fuel Pump Control Module - J538- on vehicles with 4-cylinder and 6-cylinder generation II engines (refer to ⇒ ["1.1 Determining Engine Generation", page 1](#)) is located under the right 1/3 section of the rear bench seat, under the cover -1-

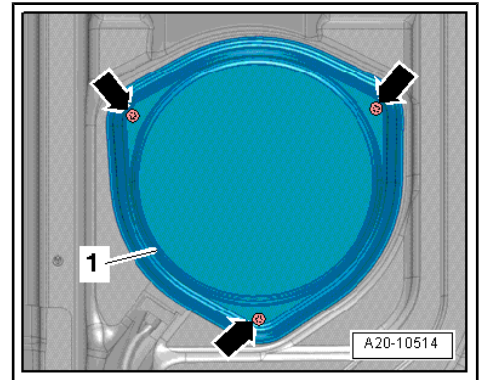
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Removing

- Turn off the ignition and remove the key.
- Remove 1/3 of the rear seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .



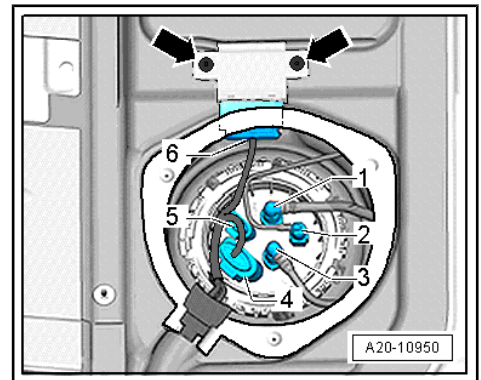
- Remove the bolts -arrows- and remove the sealing flange cover -1-.
- Remove the bolts -arrows- and remove the Fuel Pump Control Module - J538- .
- Press the locking ring at the installation opening for the fuel tank down slightly if necessary to do this.



- Disconnect the connector -6-.

Installing

Install in reverse order of removal.



5.3 Auxiliary Fuel Pump - V393- , Checking Delivery Rate

Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester
- ◆ Hose with inner-diameter 8 mm, fuel resistant
- ◆ Measuring container, fuel-resistant

Procedure

- The Transfer Fuel Pump - G6- fuel delivery rate is OK. Refer to ["5.1.2 Transfer Fuel Pump G6 , Checking, 4- and 6-Cylinder Generation I Engine", page 46](#) .
- Follow all test requirements. Refer to ["3.2 Test Conditions", page 5](#) .
- Follow the rules for clean working conditions. Refer to ["3.1 Clean Working Conditions", page 5](#) .



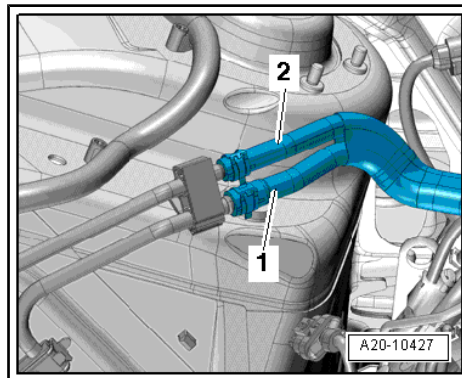
Ignore item -2-.

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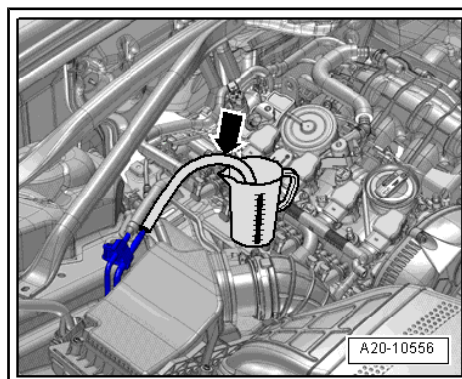
erWin

- Disconnect the fuel line -1-.



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- Connect the fuel resistant hose to the fuel supply line -arrow- and hold it inside a fuel resistant container.
- Connect the Vehicle Diagnostic Tester .
- Turn on the ignition and select the following menu items on the Vehicle Diagnostic Tester :
 - ◆ **OBD**
 - ◆ **Engine electronics**
 - ◆ **Basic setting**
 - ◆ **Transfer fuel pump test**
- Press **Parameters**.
- To measure, press the **Start** button again and let the fuel pump run for 15 seconds.
- After 15 seconds, press the **Stop** button.
- Check the amount of fuel in the measuring container.
 - Specified value: approximately 1 liter (1.05 quart)



If minimum delivery quantity is not obtained, the following malfunctions may be present:

- ◆ The fuel lines are pinched.
- ◆ The fuel filter is clogged.
- ◆ The fuel pump is faulty.

Assemble in reverse order of disassembling. Note the following:

 **Note**

Secure all hose connections with hose clamps of the same type as those equipped by the factory. Refer to the Parts Catalog.

5.4 Auxiliary Fuel Pump - V393- , Removing and Installing


Special tools and workshop equipment required

- ◆ Drip tray

Removing

- Follow all safety precautions. Refer to [⇒ "2.1 Fuel System Safety Precautions", page 2](#) .

- Follow the rules for clean working conditions. Refer to ⇒ [“3.1 Clean Working Conditions”, page 5](#) .
- Remove the right underbody panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .
- Remove the nuts -1 and 2-.
- Tilt the bracket -3- downward, disengage it from the body -arrows- and remove it.

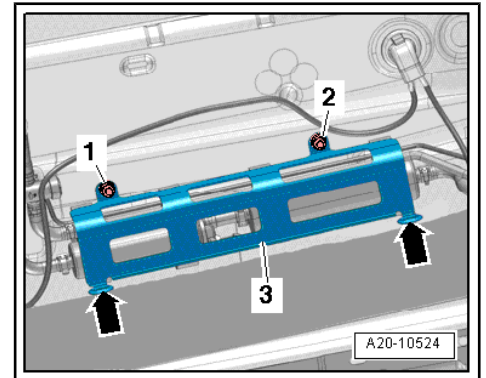
 **WARNING**

Very hot fuel can burn your skin.

- ◆ *In extreme cases the temperature of the fuel lines and/or the fuel can go up to 100 °C (212 °F). Let the fuel cool down before opening any line connections otherwise there is a danger of scalding.*
- ◆ *Wear safety gloves.*
- ◆ *Wear protective eyewear.*

There is a risk of injury because the fuel is under high pressure.

- ◆ *To reduce pressure in fuel system, lay a clean cloth around the connector and carefully loosen connector.*

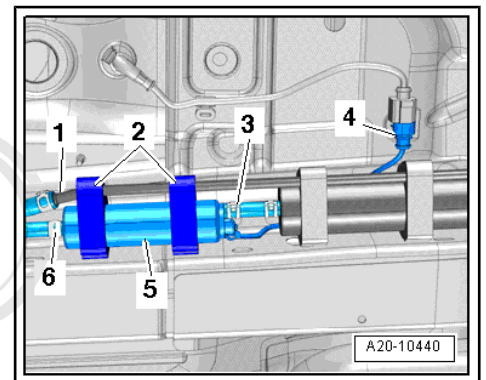



- Place the drip tray under the Auxiliary Fuel Pump - V393- .
- Disconnect the connector -4-.
- Detach the fuel return line -1- at the rubber bushing -2-.
- Remove the fuel hoses -3 and 6-.
- Remove the Auxiliary Fuel Pump - V393- item -5- with the rubber bushing.

Installing

Install in reverse order of removal. Note the following:

- Tightening specification: Refer to ⇒ [“3.1 Overview - Fuel Filter”, page 37](#) .
- The direction of flow is marked on the fuel pump housing with arrows.
- Install the right underbody trim panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .



 **Caution**

Letting the high pressure pump run dry will damage it.

- ◆ *If the fuel filter, fuel lines or the Auxiliary Fuel Pump V393- are being replaced, bleed the fuel system before starting the engine for the first time.*

- Bleed the fuel system. Refer to ⇒ [“6.1 Fuel System, Bleeding”, page 58](#) .



6 Fuel System, Filling/Bleeding

⇒ "6.1 Fuel System, Bleeding", page 58

⇒ "6.2 Fuel Supply Line to Metering Pump, Bleeding, Vehicles with Parking Heater", page 58

6.1 Fuel System, Bleeding



Caution

Letting the high pressure pump run dry will damage it.

- ◆ *If the fuel filter, fuel lines or the Auxiliary Fuel Pump - V393- are being replaced, bleed the fuel system before starting the engine for the first time.*

- Bleed the fuel system. Refer to ⇒ 6-Cylinder TDI Common Rail 3.0L 4V Engine (Generation II); Rep. Gr. 23 ; High Pressure Pump; High Pressure Pump, Removing and Installing .

6.2 Fuel Supply Line to Metering Pump, Bleeding, Vehicles with Parking Heater



Note

After working on the fuel delivery unit, bleed the fuel supply line for the metering pump on vehicles with a parking heater.

Special tools and workshop equipment required

- ◆ Suction Pump - VAS5226-
- ◆ Hand Vacuum Pump - VAS6213-

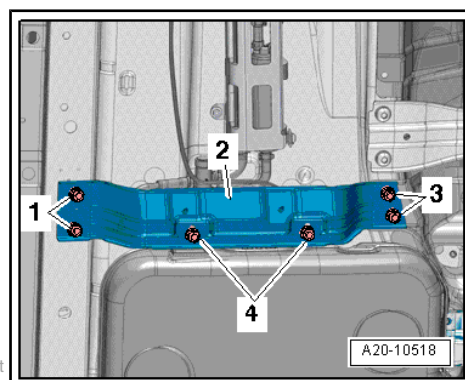
Procedure

- Parking heater switched off.
- Remove the right center underbody panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .
- Remove the bolts -1 and 3-, nuts -4- and bracket -2-.



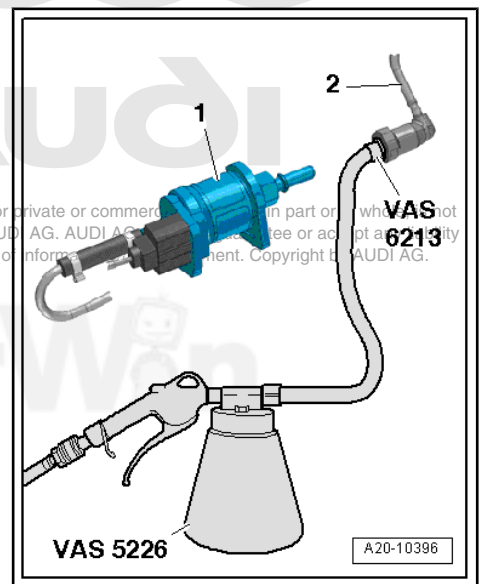
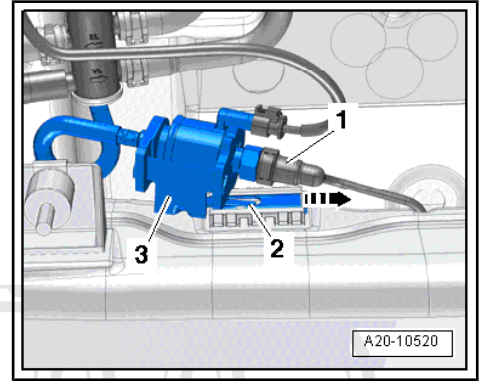
Note

Ignore -2 and 3- and -arrow-.



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- Press the release and disconnect the fuel line -1- to the auxiliary heater metering pump.
- Connect the Suction Pump - VAS5226- to the compressed air.
- Remove the fuel supply line -2- from the fuel tank at the metering pump -1-.
- Connect the Suction Pump - VAS5226- with the adapter from the Hand Vacuum Pump - VAS6213- to the fuel supply line and bleed it by extracting briefly.
- Install the fuel supply line to the metering pump.
- Switch the parking heater on and let it run approximately 10 minutes at full throttle.
- Install the bracket. Refer to [⇒ Fig. "Bracket - Tightening Specification" , page 8 .](#)
- Install the right center underbody panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .



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7 Fuel System, Checking for Leaks

Follow the rules for clean working conditions. Refer to
⇒ ["3.1 Clean Working Conditions", page 5](#) .

The following can occur if there are leaks in the fuel system:

- ◆ Foam or air bubbles can form in the supply line.
- ◆ Lack of performance, misfire.
- ◆ Starting difficulties.

Check the Fuel System and Fuel Lines for Leaks.

- Check if the seal under the locking flange is OK or if the locking flange seal on the fuel tank is tightened correctly.
- Visually inspect all fuel lines, components and hose connections in the fuel system:
 - ◆ Fuel lines to engine.
 - ◆ Fuel lines to the fuel tank.
 - ◆ Fuel Filter
 - ◆ Fuel Tank



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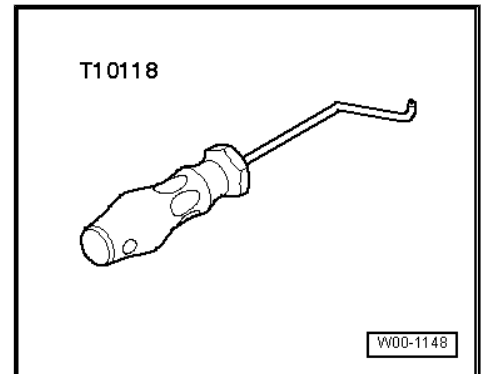
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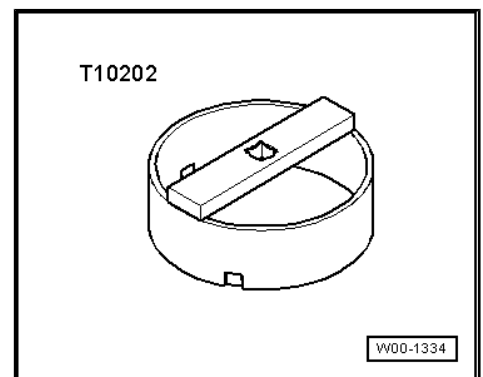
8 Special Tools

Special tools and workshop equipment required

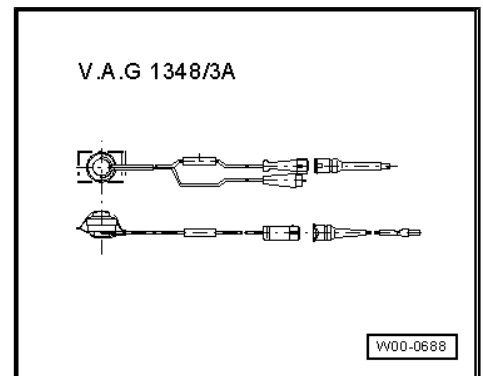
- ◆ Elbow Assembly Tool - T10118-



- ◆ Wrench - Fuel Sending Unit - T10202-

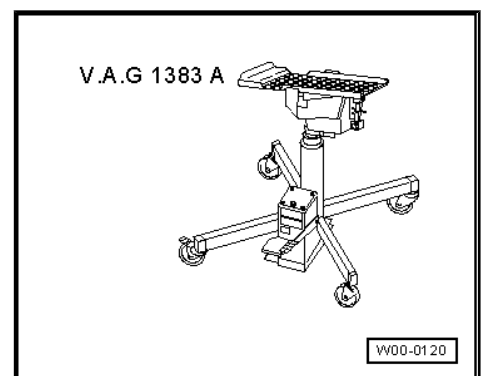


- ◆ Injection Rate Comparison Meter Kit - Remote Cable - VAG1348/3A- with Injection Rate Comparison Meter Kit - Adapter - VAG1348/3-2-



- ◆ Engine and Gearbox Jack - VAS6931-

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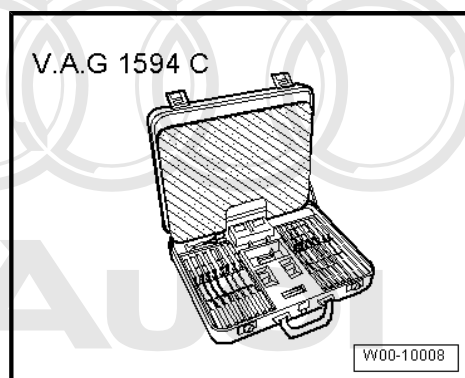




- ◆ Analog/Digital Multimeter - FLU83III-



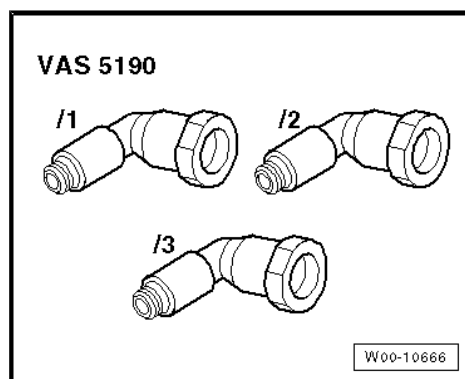
- ◆ Connector Test Set - VAG1594D-



- ◆ Fuel Extracting Device - VAS5190A-

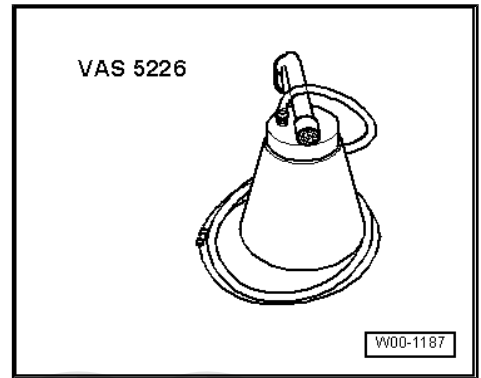


- ◆ Fuel Extraction - Adapter 2 - VAS5190/2- from Fuel Extraction
- Adapter Set - VAS5190/10-

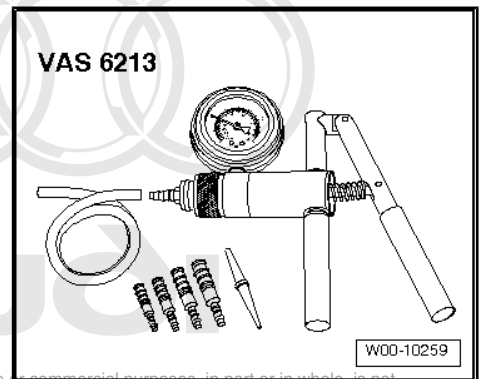


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◆ Suction Pump - VAS5226-

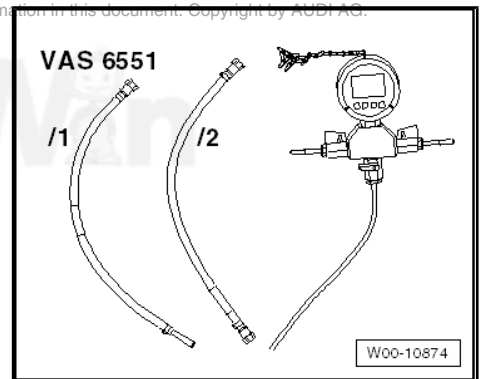


◆ Hand Vacuum Pump - VAS6213-

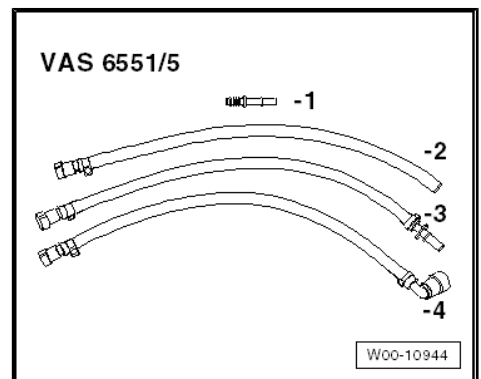


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◆ Diesel Pressure Tester Kit - VAS6551-

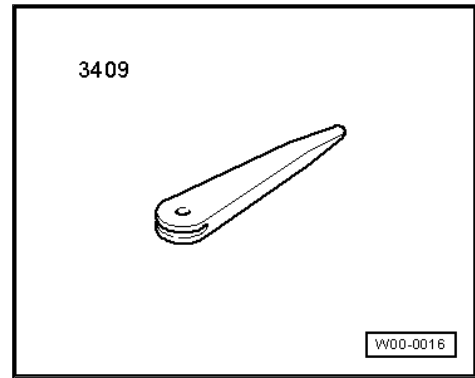


◆ Diesel Pressure Tester Kit - Adapter Set - VAS6551/5-





◆ Trim Removal Wedge - 3409-



◆ Drip tray



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9 Revision History

DRUCK NUMBER: A005Q502221

Factory Edition	Edit Edition	Job Type	Feedback	Notes	Quality Checked By
11.2015	11/11/2015			Correct edition date	Jim H
11.2015	11/5/2015			Only change were engine codes that do not apply to NAR market	Jim H
04.2015	05/12/2015	Correction		Hide Revision History Table	Eric P
04.2015	05/07/2015	Link Checking			Eric P
	3/26/2015	Factory Update			Jim H
	09/30/2014	Factory Update		Launch CO	Eric P



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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 VAG 1551 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.

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 VAG 1551 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.

I have read and I understand these Cautions and Warnings.