

Workshop Manual Audi A8 2010 ➤

Fuel supply system, petrol engines									
Engine ID	CDR A	CGW A	CGX C	CMD A	CEJA	CEU A	CGT A	CHJA	CGW D
	CTU B	CPA A	CEU E	CTG A	CTG D	CTFA	CRE A	CTN A	CRE C
	CRE G	CTD A							

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Audi

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List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

20 - Fuel supply system



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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 – Technical data

1 Safety precautions

(ARL004011; Edition 09.2014)

⇒ [“1.1 Safety precautions when working on high-voltage vehicles”, page 1](#)

⇒ [“1.2 Safety precautions when working on the fuel system”, page 3](#)

⇒ [“1.3 Safety precautions when working on vehicles with start/stop system”, page 4](#)

⇒ [“1.4 Safety precautions when using testers and measuring instruments during a road test”, page 5](#)

1.1 Safety precautions when working on high-voltage vehicles



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



DANGER!

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition.*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system.*
- ◆ *Switch on ignition*

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**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ ***It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.***
- ◆ ***Before starting work, visually inspect the high-voltage components in the areas involved.***
- ◆ ***Before working in the engine compartment, visually inspect the power and control electronics for electric drive JX1-, electric drive motor - V141-, air conditioner compressor - V470- and high-voltage wiring.***
- ◆ ***Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.***
- ◆ ***Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW -.***
- ◆ ***Visually inspect all potential equalisation lines.***

Check the following when making the visual inspection:

- ◆ ***There must be no external damage on any component.***
- ◆ ***The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.***
- ◆ ***There must be no unusual deformation of the high-voltage wiring.***
- ◆ ***All high-voltage components must be identified by a red warning sticker.***

1.2 Safety precautions when working on the fuel system

When working on the fuel system note the following warnings:

 **WARNING**

The fuel system operates at extremely high pressure. This can cause injury.

- ◆ *Fuel pressure in high-pressure pipe can be up to 120 bar! Observe safety precautions for reducing pressure in high-pressure section of injection system.*
- ◆ *Reducing pressure in high-pressure section of injection system ⇒ Rep. gr. 24 ; Injection system*
- ◆ *Fuel supply line is pressurised. Wear safety goggles and protective clothing to avoid any contact with skin and risk of injury. Before opening hose connections wrap a clean cloth around the connection. Then release pressure by carefully pulling hose off connection.*

Health risk: avoid skin contact with fuel.

- ◆ *Avoid skin contact with fuel. Wear fuel-resistant gloves.*

Escaping fuel can cause a risk.

- ◆ *For safety reasons, the power supply to the fuel pump must be disconnected before opening the fuel system. Otherwise the fuel pump will be activated when the driver's door is opened.*
- ◆ *Disconnect power supply by removing fuse for fuel pump control unit - J538- /fuel delivery unit ⇒ Current flow diagrams, Electrical fault finding and Fitting locations, or disconnect battery.*

Mobile phones can cause an explosion risk.

- ◆ *Ensure that any mobile phones are well clear of the work-bay.*

Perform the following steps before starting work on the fuel system:

- ◆ Fuel tank must not be full. The amount of fuel which can be left in the fuel tank is indicated in the corresponding procedure description. Drain fuel tank if necessary ⇒ [page 10](#) .
- ◆ Before commencing work, switch on exhaust extraction system and place an extraction hose close to the opening in the fuel tank to extract escaping petrol fumes.
- ◆ If no exhaust extraction system is available, a radial fan with a displacement of at least 15 m³/h can be used (the fan motor must be clear of the air stream).

Fuel tank must be empty when installing and removing to reduce weight. Drain fuel tank if necessary ⇒ [page 10](#) .

Observe the following to prevent injuries to persons and damage to the injection and ignition system:

- ◆ Persons wearing a cardiac pacemaker must at all times maintain a safe distance from high-voltage components such as the ignition system and xenon headlights.
- ◆ Do not touch or disconnect ignition coils with output stages when the engine is running or being turned at cranking speed.



- ◆ Always switch off the ignition before connecting or disconnecting electrical wiring for the injection or ignition system or tester cables.
 - ◆ Always switch off ignition before washing engine.
 - ◆ When installing, note colour coding of plug-in connectors.
 - ◆ Plug-in connectors should engage audibly when connecting.
 - ◆ Pull plug-in connectors to check that they are correctly engaged.
 - ◆ Erase any entries in event memory resulting from testing or installation ⇒ Vehicle diagnostic tester, Guided Functions, Interrogate event memory, then Generate readiness code.
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Caution

To prevent irreparable damage to the electronic components when disconnecting the battery:

- ◆ *Observe notes on procedure for disconnecting the battery.*
- ◆ *Always switch off the ignition before disconnecting the battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .*

1.3 Safety precautions when working on vehicles with start/stop system

When performing repairs on vehicles with start/stop system, note the following:



WARNING

Risk of injury due to automatic engine start on vehicles with start/stop system.

- ◆ *On vehicles with activated start/stop system (this is indicated by a message in the instrument cluster display), the engine may start automatically on demand.*
- ◆ *Therefore it is important to ensure that the start/stop system is deactivated when performing repairs (switch off ignition, if required switch on ignition again).*

1.4 Safety precautions when using testers and measuring instruments during a road test

Note the following if testers and measuring instruments have to be used during a road test:



WARNING

Accidents can be caused if the driver is distracted by test equipment while road-testing, or if test equipment is not properly secured.

Persons sitting in the front passenger's seat could be injured if the airbag is triggered in an accident.

- *The use of test equipment while driving causes distraction.*
- *There is an increased risk of injury if test equipment is not secured.*
- ◆ *Test equipment must always be secured on the rear seat with a strap and operated from the rear seat by a second person.*



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2 Repair instructions

⇒ [“2.1 Rules for cleanliness”, page 6](#)

⇒ [“2.2 Test conditions”, page 6](#)

⇒ [“2.3 Contact corrosion”, page 6](#)

⇒ [“2.4 Routing and attachment of pipes, hoses and wiring”, page 7](#)

2.1 Rules for cleanliness

Even small amounts of dirt can cause malfunctions. When working on the fuel supply system and injection system, pay careful attention to the following basic rules:

- ◆ Carefully clean connection points and the surrounding area with engine cleaner or brake cleaner and dry thoroughly before opening.
- ◆ Immediately seal open lines and connections with clean plugs, for example from engine bung set - VAS 6122- .
- ◆ Place parts that have been removed on a clean surface and cover them over. Use only lint-free cloths.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components; replacement parts should only be unpacked immediately prior to installation. Do not use parts that have not been stored in their packing (e.g. in tool boxes etc.).
- ◆ When the system is open, do not work with compressed air and do not move the vehicle.
- ◆ Protect unplugged electrical connectors against dirt and moisture and make sure connections are dry when attaching.

2.2 Test conditions

- Battery voltage at least 12.5 V.
- Fuel pump fuse OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel pump relay - J17- OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel pump control unit - J538- OK; checking in [Guided Fault Finding](#) ⇒ Vehicle diagnostic tester.
- Fuel tank at least $\frac{1}{4}$ full.
- Fuel filter OK.
- Fuel lines OK (not obstructed or crushed).
- Ignition off.

2.3 Contact corrosion

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

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

Additionally, all rubber and plastic parts and all adhesives are made of non-conductive materials.

Always install new parts if you are not sure whether used parts can be re-fitted ⇒ Electronic parts catalogue .

Note the following:

- ◆ We recommend using only genuine replacement parts; these have been tested and are compatible with aluminium.
- ◆ We recommend the use of Audi accessories.
- ◆ Damage caused by contact corrosion is not covered under warranty.

2.4 Routing and attachment of pipes, hoses and wiring



Caution

Risk of damage to pipes/hoses/wiring.

- ◆ *The original routing must be restored when installing any kind of pipes/hoses/wiring.*
- ◆ *Due to the restricted space in the engine compartment, it is important to ensure sufficient clearance from all moving or hot components.*

20 – Fuel supply system

1 Fuel tank

⇒ [“1.1 Exploded view - fuel tank”, page 8](#)

⇒ [“1.2 Draining fuel tank”, page 10](#)

⇒ [“1.3 Removing and installing fuel tank”, page 12](#)

1.1 Exploded view - fuel tank



Note

Illustration shows the fuel tank for vehicles up to model year 2013.

1 - Bolt

- 23 Nm

2 - Locking washer

- For heat shield

3 - Fuel line

- Only on vehicles with auxiliary heater: from metering pump for auxiliary heater
- Do not kink

4 - Fuel line

- From fuel pressure regulator to engine
- Do not kink
- Clipped onto fuel tank
- Press release tab on connection piece to disconnect

5 - Bolt

- 23 Nm

6 - Bracket

- Bolted to fuel tank

7 - Securing strap

- Mounting components
⇒ [page 10](#)

8 - Protective sleeve

9 - Nut

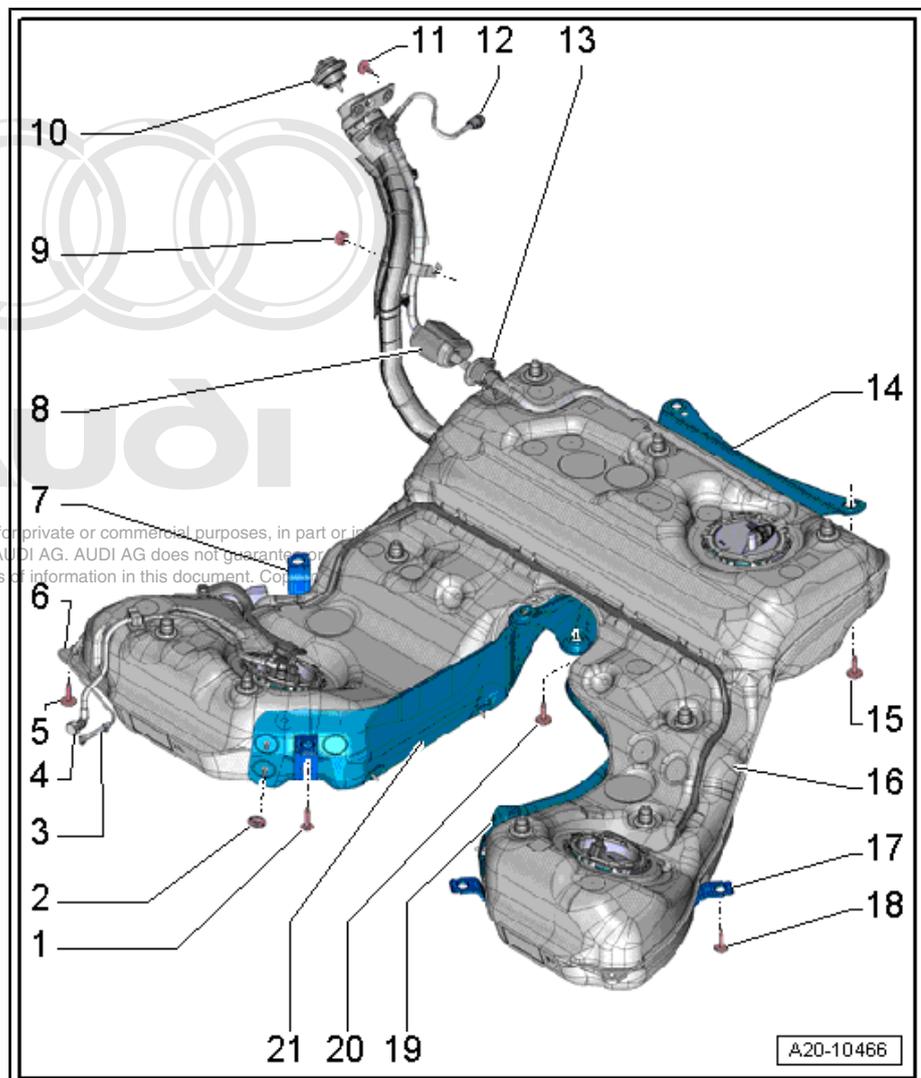
- 2.5 Nm

10 - Filler cap

- Screw down until it clicks audibly
- Secured to tank flap unit

11 - Bolt

- To secure fuel filler neck
- To eliminate electrostatic charge ⇒ [page 9](#)



- 23 Nm

12 - Breather line

- To activated charcoal filter
- Do not kink
- Press release tab on connection piece to disconnect

13 - Connection point

- For breather line

14 - Support bracket

15 - Bolt

- 23 Nm

16 - Fuel tank

- Different versions available; for allocation refer to ⇒ Electronic parts catalogue
- Removing and installing ⇒ [page 12](#)

17 - Securing strap

- Mounting components ⇒ [page 10](#)

18 - Bolt

- 23 Nm

19 - Heat shield for fuel tank

20 - Bolt

- 23 Nm

21 - Heat shield for fuel tank

Earth connection for fuel filler neck

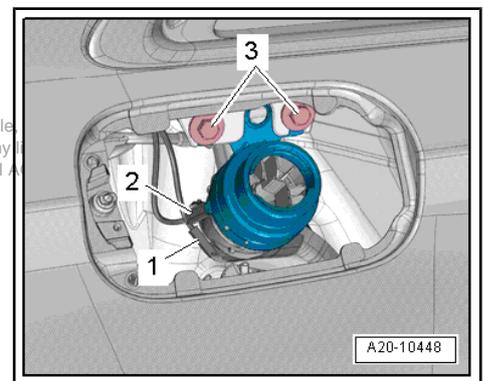
- Route earth wires -1 and 2- as shown in illustration.
- Ensure that connector of earth wires is properly seated on guard plate and metal ring at fuel filler neck.



WARNING

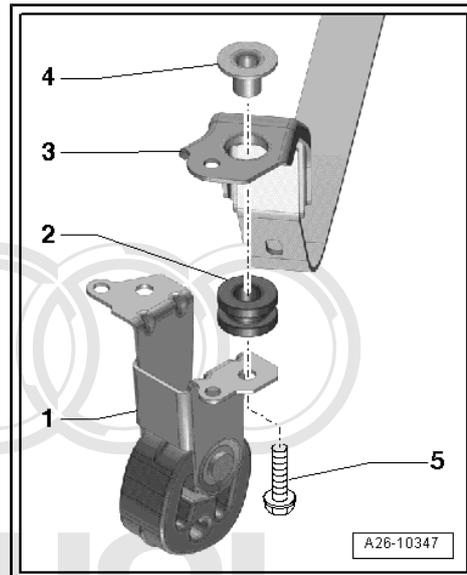
Risk of explosion caused by electrostatic discharge.

- ◆ **After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body:**
 - **Specification: approx. 0 Ω**



Mounting components for securing strap

- 1 - Mounting for exhaust system (front left inner only)
- 2 - Grommet
- 3 - Securing strap
- 4 - Spacer sleeve
- 5 - Bolt

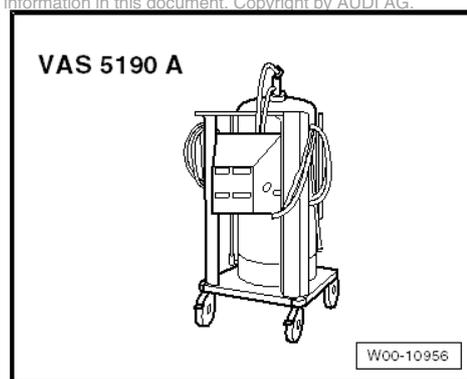


1.2 Draining fuel tank

Special tools and workshop equipment required

- ◆ Fuel extractor - VAS 5190A-

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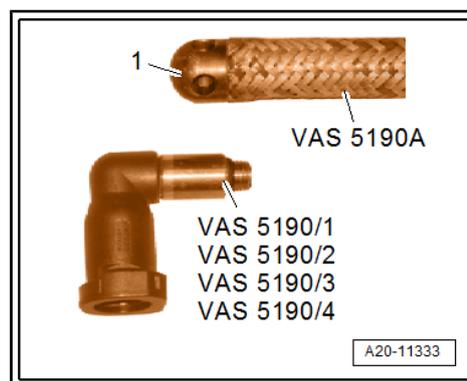
- ◆ Adapter for fuel extraction - VAS 5190 /4-
- ◆ Scissors



Note

If fuel extractor - VAS 5190A- is still fitted with extraction hose with fixed tip, replace with version with screw-on tip.

- Unscrew tip -1- of extraction hose of fuel extractor -VAS 5190A- .
- Screw adapter for fuel extraction - VAS 5190 /4- from adapter set for fuel extraction - VAS 5190 /10- onto extraction hose.



Procedure

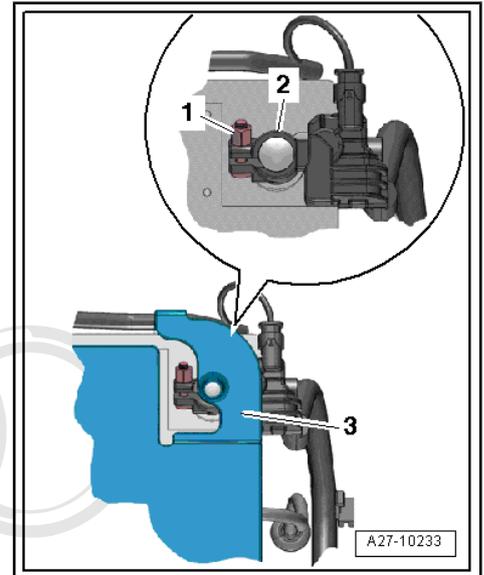
- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .
- Move front right seat all the way forwards.

 **Caution**

To prevent irreparable damage to the electronic components when disconnecting the battery:

- ◆ *Observe notes on procedure for disconnecting the battery.*

- Remove rear seat bench or individual seat (right-side) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery, Disconnecting and connecting battery .

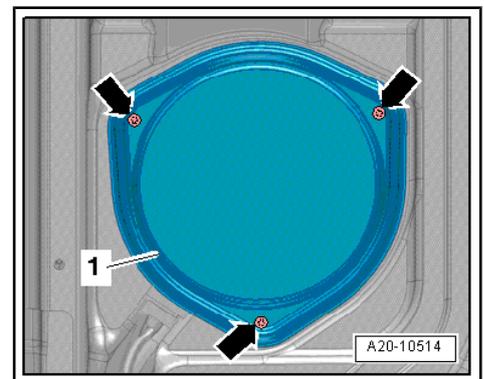


 **WARNING**

Risk of explosion caused by electrostatic discharge.

- ◆ *Secure earth wire of fuel extractor -VAS 5190A- to a bare metal part on the body.*

- Cut insulating mat along perforation in area of cover for flange (underneath rear seat on right, as seen in direction of travel) with a pair of scissors and fold mat to the side.
- Remove bolts -arrows- and detach cover -1- for flange.

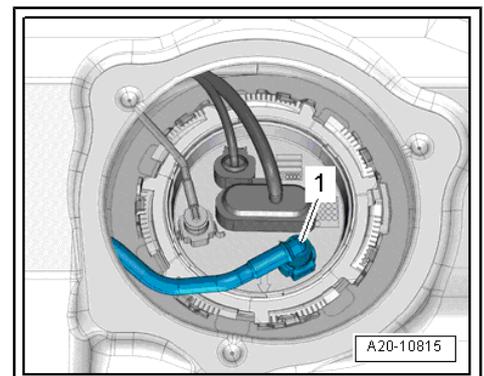


 **WARNING**

Risk of injury - fuel system operates under high pressure.

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

- Press release tab and disconnect fuel line -1- at flange.

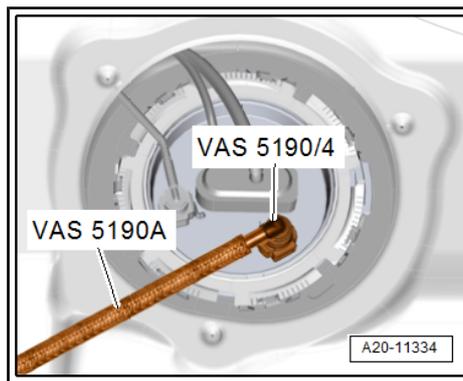


- Connect extraction hose to supply connection on flange with adapter for fuel extraction - VAS 5190 /4- .

 **Note**

If adapter for fuel extraction - VAS 5190 /4- cannot be connected (e.g. on an older model version), choose a suitable adapter from adapter set for fuel extraction - VAS 5190 /10- .

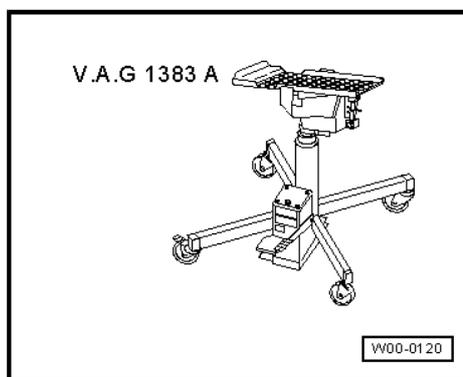
- Extract fuel from fuel tank with fuel extractor - VAS 5190A- (via supply connection on flange).
- Install cover for flange ⇒ [page 20](#) .



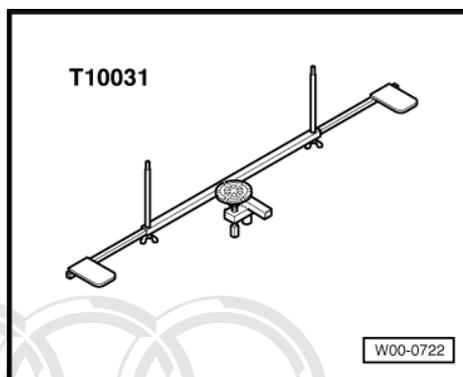
1.3 Removing and installing fuel tank

Special tools and workshop equipment required

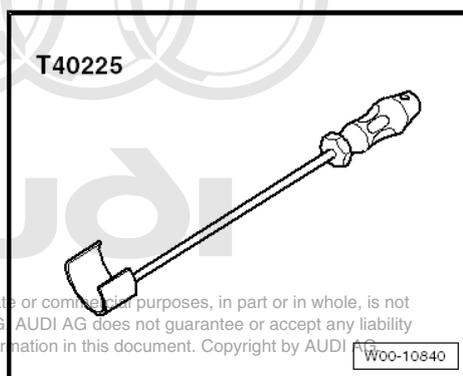
- ◆ Engine and gearbox jack - V.A.G 1383 A-



- ◆ Support - T10031-



- ◆ Removal tool - T40225-



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Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .



Caution

To prevent irreparable damage to the electronic components when disconnecting the battery:

- ◆ *Observe notes on procedure for disconnecting the battery.*

- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery, Disconnecting and connecting battery .

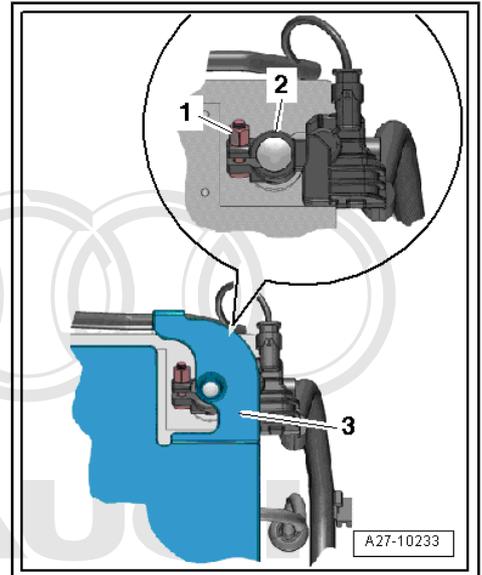


WARNING

Risk of accident caused by weight of fuel tank

- ◆ *Fuel tank must be empty when it is removed.*

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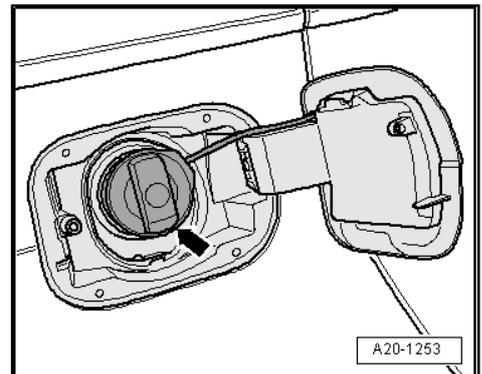


- Drain fuel tank ⇒ [page 10](#) .
- Open tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- for fuel filler neck.

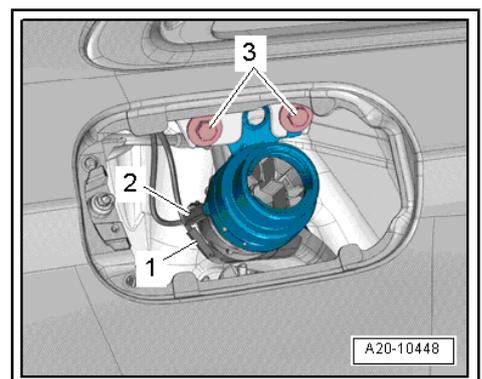


Note

Seal off opening of fuel filler neck with a clean plug to prevent dirt from entering.

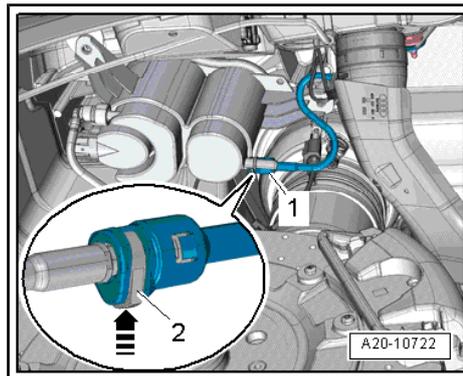


- Remove tank flap unit ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Exploded view - tank flap unit .
- Disconnect earth wires -1 and 2- from guard plate and metal ring on fuel filler neck.
- Remove bolts -3- for fuel filler neck.
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .



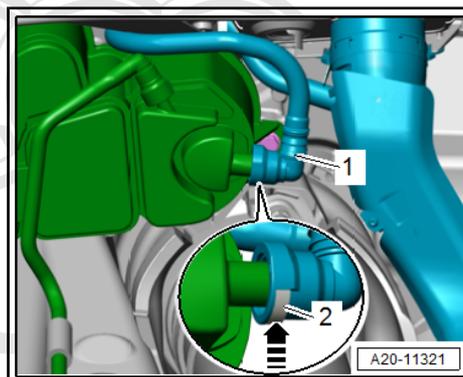
Vehicles without high-voltage system:

- Press release tab -2- -arrow- and disconnect breather line -1- at activated charcoal filter.



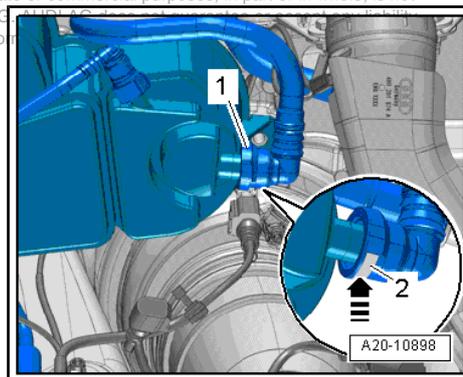
Vehicles with high-voltage system:

- Press release tab -2- and disconnect breather line -1- at activated charcoal filter.



USA vehicles:

- Press release tab -2- and disconnect breather line -1- at activated charcoal filter.



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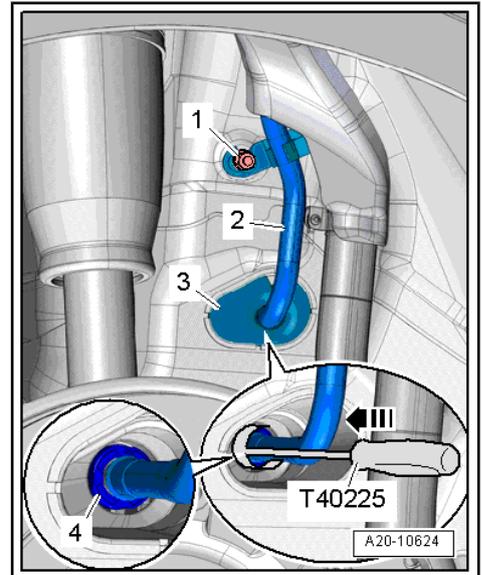
All vehicles (continued):

- Remove nut -1-.
- Detach protective sleeve -3-.
- Detach breather line -2- from connection; to do so, apply removal tool - T40225- to release ring -4- and press it in -arrow-.
- Remove rear section of exhaust system => Rep. gr. 26 ; Exhaust pipes/silencer; Exploded view - silencer .

 **WARNING**

The vehicle can tip over on the lifting platform when the rear axle is removed.

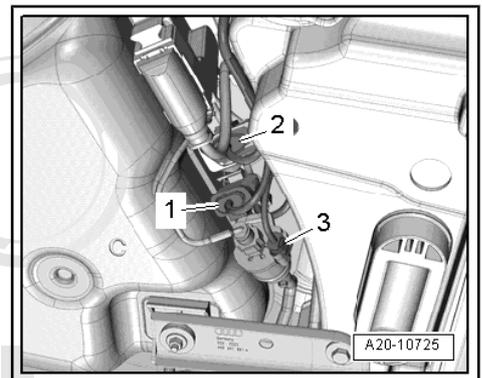
◆ *BEFORE loosening the subframe bolts, take steps to ensure that the vehicle does not tip forwards on the lifting platform => Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .*



- Remove subframe => Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .

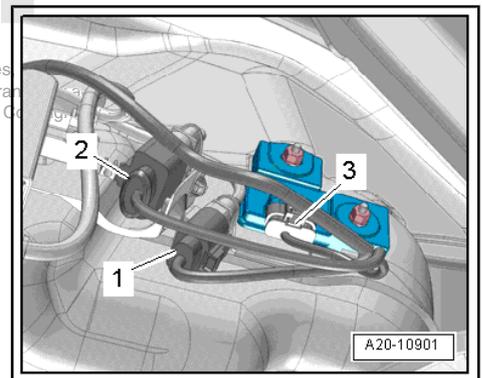
Rest-of-world vehicles:

- Release retainer catches and unplug electrical connectors -1 and 2- on right side of fuel tank.
- If fitted, unplug electrical connector -3- at metering pump.



USA vehicles:

- Release retainer catches and unplug electrical connectors -1, 2 and 3- on right side of fuel tank.



All vehicles (continued):

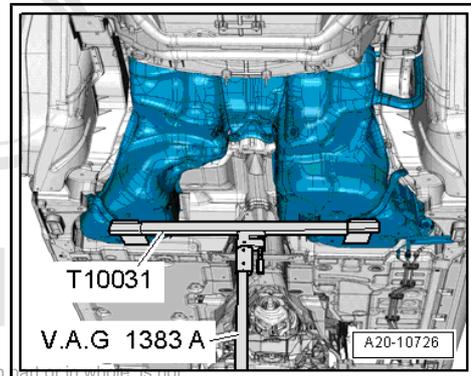
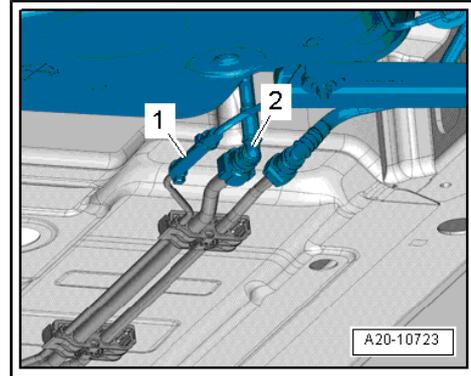


WARNING

Risk of injury - fuel system operates under high pressure.

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

- Press release tab and disconnect fuel line -2- at front of fuel tank (right-side).
- Vehicles with auxiliary heater: Disconnect fuel line -1- to auxiliary heater.
- Position engine and gearbox jack - V.A.G 1383 A- with support - T10031- under vehicle to support tank, as shown in illustration (do not use threaded rods of support).
- In addition, a 2nd mechanic will be required to support the fuel tank at the rear by hand.



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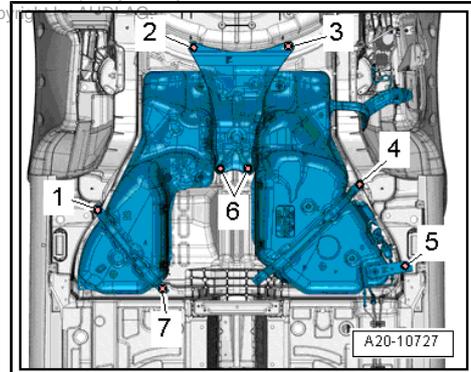


WARNING

Risk of accident caused by weight of fuel tank

- ◆ **Fuel tank must be empty when it is removed.**

- Remove bolts -1 ... 7-.
- Then lower fuel tank using engine and gearbox jack - V.A.G 1383 A- , simultaneously guiding fuel tank down by hand.



Note

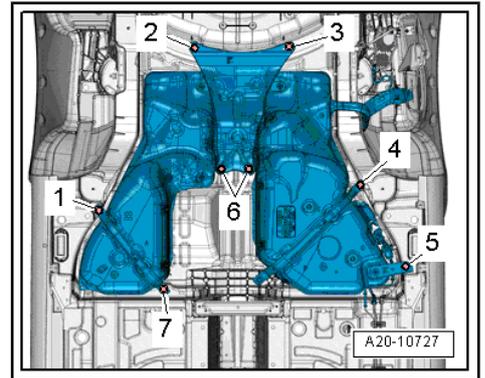
For illustration purposes the fuel tank is shown without engine and gearbox jack.

Installing

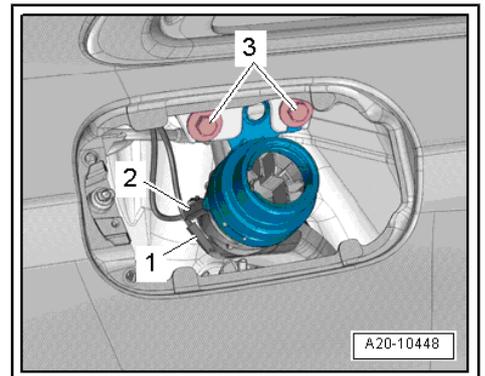
Installation is carried out in the reverse order; note the following:

- Check that fuel and breather lines as well as wiring harness for fuel pump and fuel gauge senders are clipped onto fuel tank.
- Check that electrical connectors are attached at flanges and are properly secured.

- Position fuel tank with securing straps and support bracket on underbody using engine and gearbox jack - V.A.G 1383 A- and support - T10031- .
- When installing fuel tank, make sure that fuel filler neck is correctly inserted into opening on body.
- Tighten bolts -1 ... 7- for securing straps and support bracket.



- Tighten bolts -3- for fuel filler neck.
- Check earth wires -1 and 2- for traces of oxidation at connectors; remove any oxidation.
- Connect earth wires at guard plate and on metal ring at fuel filler neck, ensuring that connector is securely fitted.



 **WARNING**

Risk of explosion caused by electrostatic discharge.

- ◆ *After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body:*
 - *Specification: approx. 0 Ω*

- Observe steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Vehicles with auxiliary heater: Bleed fuel supply line leading to metering pump ⇒ Rep. gr. 24 ; Injection system; Filling and bleeding fuel system .

Tightening torques

- ◆ ⇒ ["1.1 Exploded view - fuel tank", page 8](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Exploded view - tank flap unit
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers

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2 Fuel delivery unit/fuel gauge senders

⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 18](#)

⇒ [“2.2 Removing and installing fuel delivery unit/fuel gauge senders”, page 21](#)

⇒ [“2.3 Removing and installing fuel pressure regulator”, page 26](#)

⇒ [“2.4 Checking fuel gauge sender G”, page 30](#)

⇒ [“2.5 Removing and installing fuel gauge sender G”, page 32](#)

⇒ [“2.6 Checking fuel gauge sender 2 G169”, page 37](#)

⇒ [“2.7 Removing and installing fuel gauge sender 2 G169”, page 40](#)

⇒ [“2.8 Checking fuel gauge sender 3 G237”, page 45](#)

⇒ [“2.9 Removing and installing fuel gauge sender 3 G237”, page 47](#)

2.1 Exploded view - fuel delivery unit/fuel gauge senders

Fuel delivery unit

1 - Suction-jet pump

- Clipped onto baffle housing
- Do not kink
- Press release tab on connection piece to disconnect

2 - Fuel delivery unit

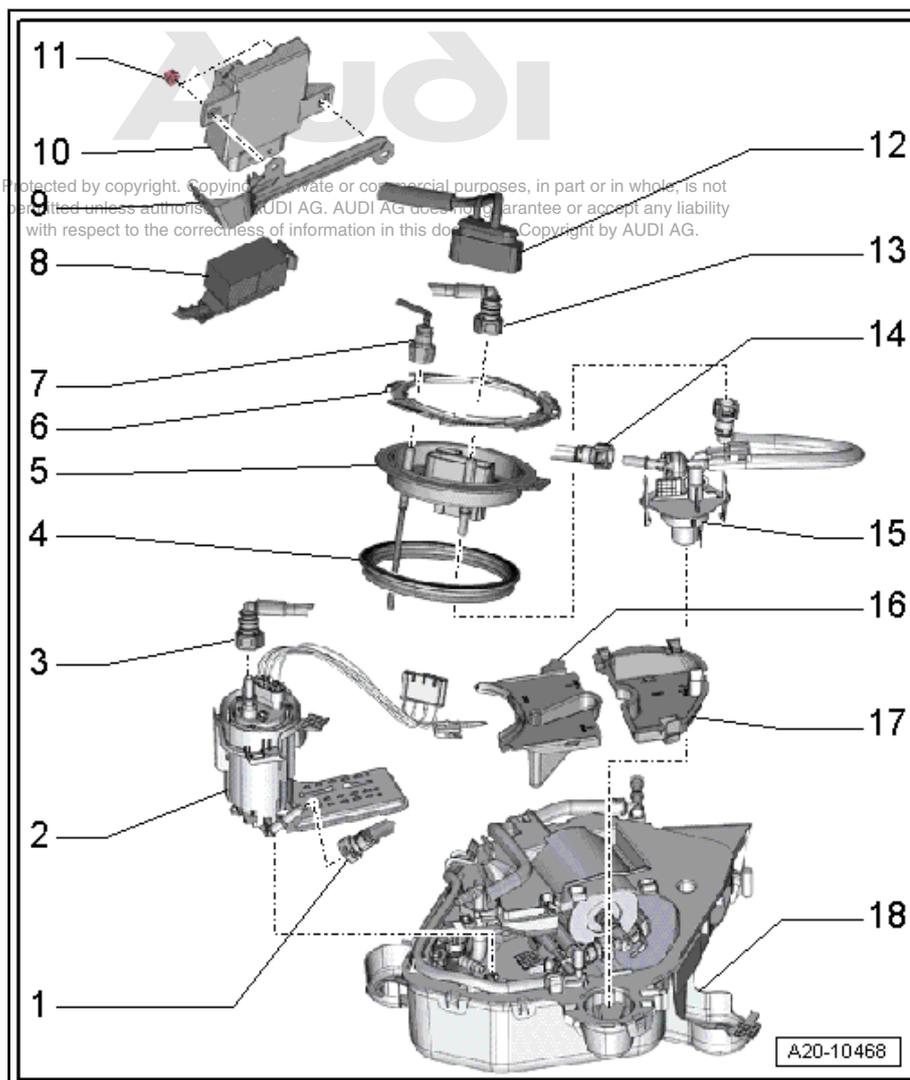
- With fuel system pressurisation pump - G6-
- Checking fuel pump (electrical test) in [\[Guided Fault Finding\]](#) ⇒ vehicle diagnostic tester
- Removing and installing ⇒ [page 21](#)
- Put at least 5 litres of fuel into tank after installing
- Checking residual pressure ⇒ [page 72](#)

3 - Fuel line

- To fuel filter
- Do not kink
- Press release tab on connection piece to disconnect
- Clipped onto baffle housing

4 - Seal

- Renew
- Install dry



5 - Flange

- Removing and installing ⇒ [page 21](#)

6 - Locking ring

- 120 Nm
- Loosen and tighten with wrench - T10202-

7 - Fuel line

- Only on vehicles with auxiliary heater: leading to metering pump for auxiliary heater
- Do not kink
- Clipped into bracket -item 9-
- To disconnect from flange, press release tab on connection piece

8 - Electrical connector

- For fuel pump control unit - J538-

9 - Bracket

- For electrical connectors

10 - Fuel pump control unit - J538-

- Removing and installing ⇒ [page 78](#)

11 - Nut

- 1.6 Nm

12 - Electrical connectors

- For fuel system pressurisation pump - G6- and fuel gauge sender - G-

13 - Fuel line

- To engine
- Do not kink
- To disconnect from flange, press release tab on connection piece
- Clipped onto fuel tank

14 - Fuel line

- To T-piece on baffle housing
- Do not kink
- Press release tab on connection piece to disconnect

15 - Fuel pressure regulator

- Clipped onto baffle housing
- Removing and installing ⇒ [page 26](#)

16 - Cover (right-side)

- For baffle housing
- Clipped onto baffle housing
- Removing and installing ⇒ [page 21](#)

17 - Cover (left-side)

- For baffle housing
- Clipped onto baffle housing
- Removing and installing ⇒ [page 21](#)

18 - Baffle housing

- Welded to fuel tank

**Cover for flange on fuel tank - tightening torque**

- Tighten bolts -arrows- for cover -1- to 1.5 Nm.

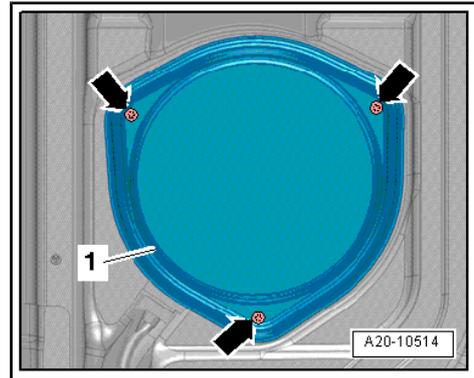
**Fuel gauge senders****Note**

Illustration shows the fuel gauge sender for vehicles up to model year 2013.

1 - Baffle housing

- Welded to fuel tank

2 - Fuel gauge sender - G-

- Clipped onto baffle housing
- Checking resistance values ⇒ [page 30](#)
- Removing and installing ⇒ [page 32](#)

3 - Seal

- Renew
- Install dry

4 - Flange**5 - Locking ring**

- 120 Nm
- Loosen and tighten with wrench - T10202-

6 - Electrical connector

- For fuel gauge sender - G-

7 - Electrical connector

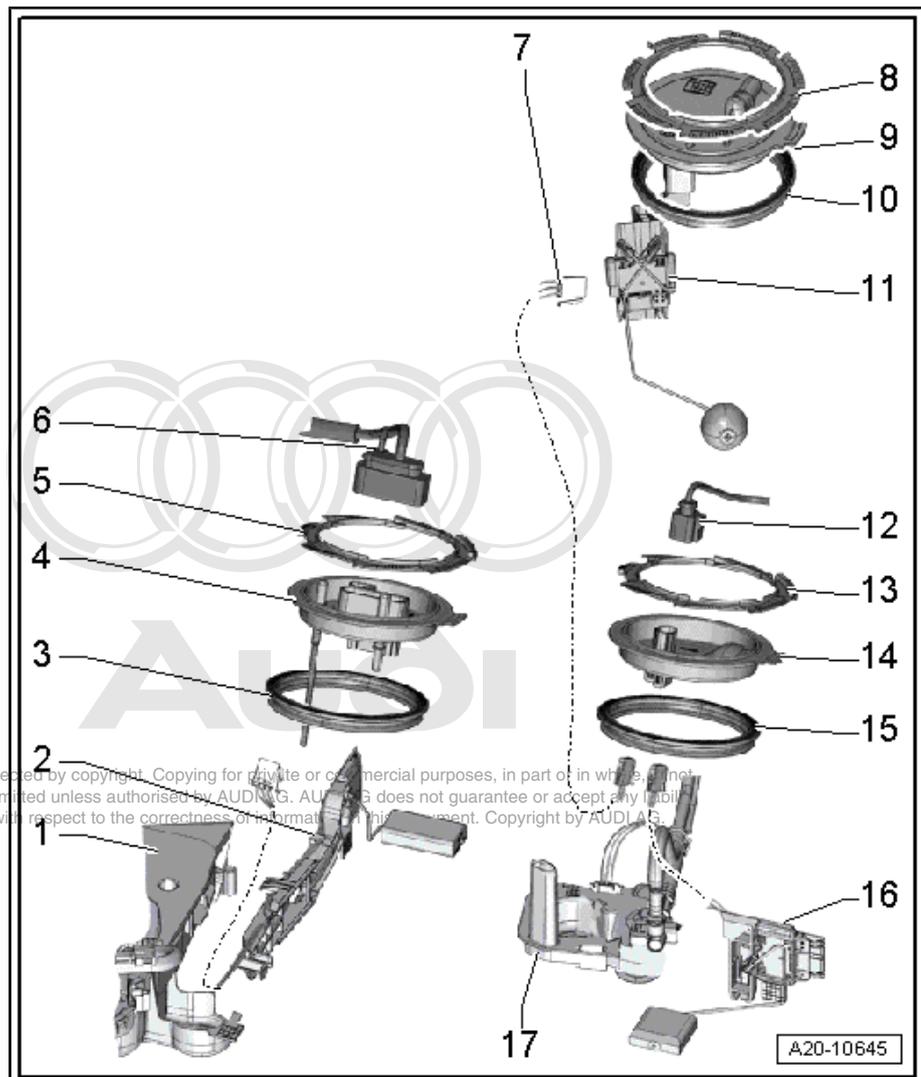
- For fuel gauge sender 3 - G237-
- Located in fuel tank
- Secured to suction pipe with cable ties

8 - Locking ring

- 120 Nm
- Loosen and tighten with wrench - T10202-

9 - Flange

- Different versions available; for allocation refer to ⇒ Electronic parts catalogue
- With fuel gauge sender 3 - G237- -item 11-



10 - Seal

- Renew
- Install dry

11 - Fuel gauge sender 3 - G237-

- Checking resistance values ⇒ [page 45](#)
- Removing and installing ⇒ [page 47](#)

12 - Electrical connector

- For fuel gauge sender 2 - G169- and fuel gauge sender 3 - G237-

13 - Locking ring

- 120 Nm
- Loosen and tighten with wrench - T10202-

14 - Flange

15 - Seal

- Renew
- Install dry

16 - Fuel gauge sender 2 - G169-

- Checking resistance values ⇒ [page 37](#)
- Removing and installing ⇒ [page 40](#)

17 - Mounting

- Welded to fuel tank

2.2 Removing and installing fuel delivery unit/fuel gauge senders

Special tools and workshop equipment required

- ◆ Wrench - T10202-



- ◆ Scissors

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .

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WARNING

Danger! Fuel may escape.

- ◆ ***The fuel tank must not be more than 1/4 full when removing the fuel delivery unit, otherwise a large amount of fuel will escape.***



- Drain fuel tank if necessary => [page 10](#) .
- Move front right seat all the way forwards.
- Remove rear seat bench or individual seat (right-side) => General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .

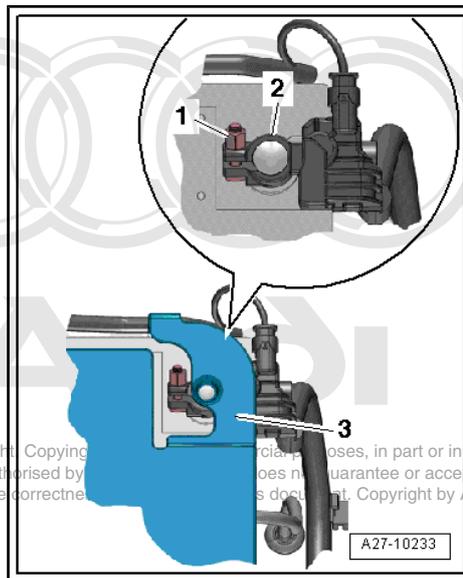


Caution

To prevent irreparable damage to the electronic components when disconnecting the battery:

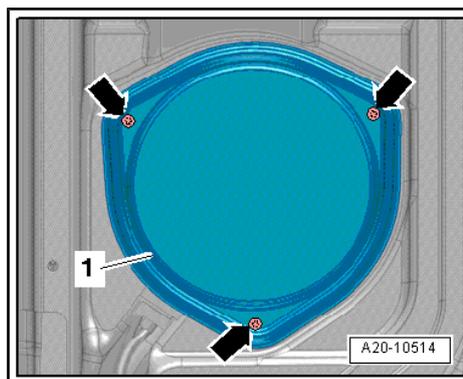
- ◆ *Observe notes on procedure for disconnecting the battery.*

- Disconnect earth wire -2- from battery terminal => Electrical system; Rep. gr. 27 ; Battery, Disconnecting and connecting battery .

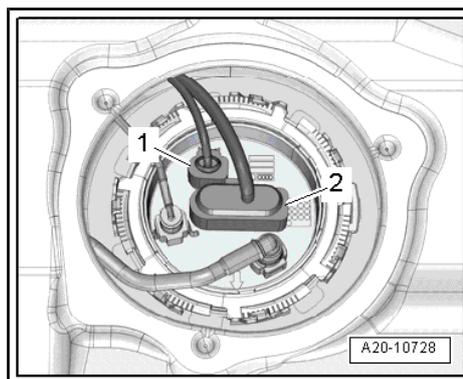


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- Cut insulating mat along perforation in area of cover for flange (underneath rear seat on right, as seen in direction of travel) with a pair of scissors and fold mat to the side.
- Remove bolts -arrows- and detach cover -1- for flange.



- Release retainer catches and unplug electrical connectors -1 and 2- on flange.

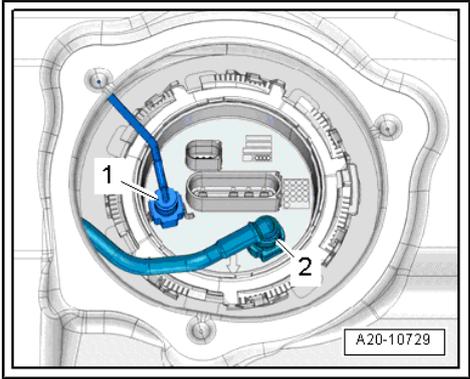


 **WARNING**

Risk of injury - fuel system operates under high pressure.

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

- Press release tab and disconnect fuel line -2- at flange.
- Vehicles with auxiliary heater: Press release tab and disconnect fuel line -1- leading to metering pump for auxiliary heater at flange.

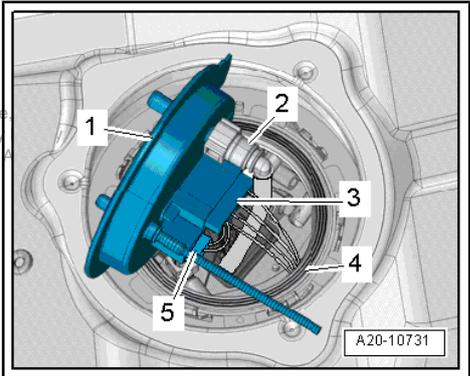
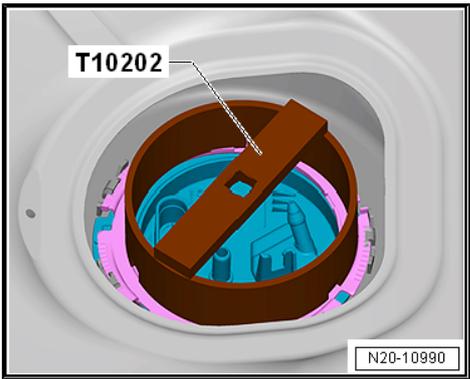


 **WARNING**

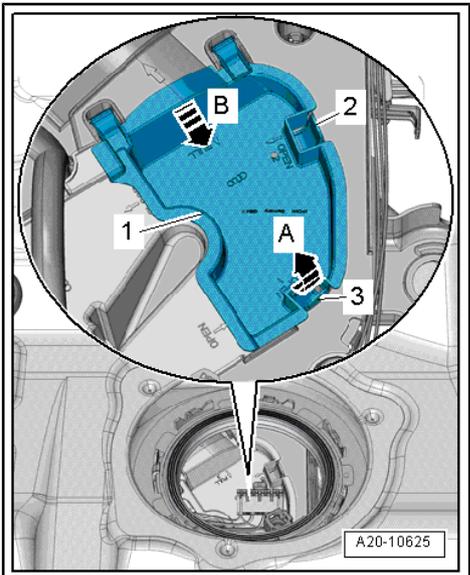
Danger! Fuel may escape.

◆ *The fuel tank must not be more than 1/4 full when removing the fuel delivery unit, otherwise a large amount of fuel will escape.*

- Remove locking ring using wrench - T10202- .
- Pull flange -1- out of opening in fuel tank.
- Take seal -4- out of opening in fuel tank.
- Press release tab and disconnect fuel line -2- at flange.
- Release retainer catches and unplug electrical connectors -3 and 5-.

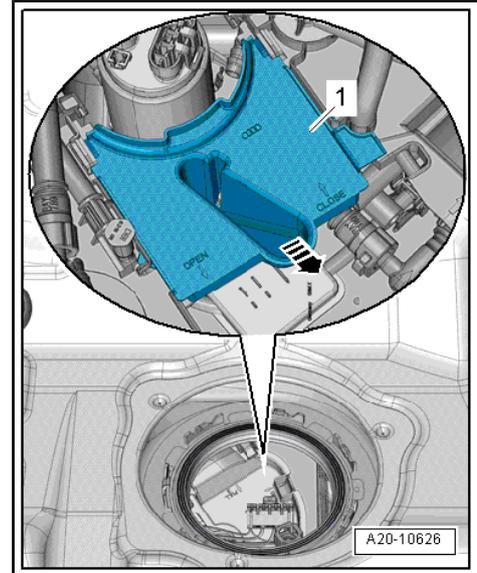


- Reach into fuel tank and release catches -2 and 3- for cover -1-.
- Swivel cover upwards -arrow A-, unclip it from baffle housing -arrow B- and take it out of fuel tank.

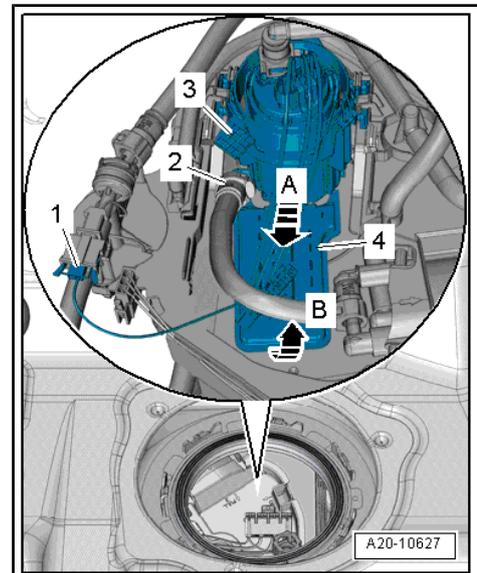




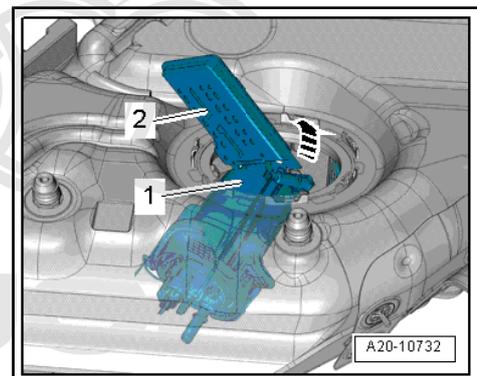
- Reach into fuel tank and pull cover -1- off catches on baffle housing in direction of -arrow- («open»).
- Take cover out of fuel tank.



- Reach into fuel tank, release retainer catch and unplug electrical connector -1-.
- Reach into fuel tank, take hold of lug -3- and pull fuel delivery unit off catches on baffle housing in direction of -arrow A-.
- Pull fuel filter screen -4- for fuel delivery unit upwards towards opening in fuel tank (in direction of -arrow B-).
- Pull fuel delivery unit towards opening in fuel tank, press release catch and disconnect fuel line -2-.



- Pull fuel filter screen -2- for fuel delivery unit out of opening in fuel tank.
- Reach into fuel tank, carefully turn fuel delivery unit -1- -arrow- and guide it out of fuel tank.



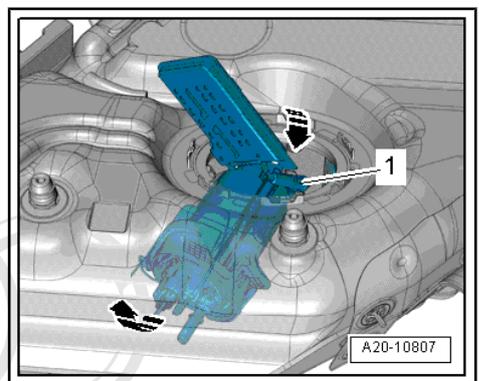
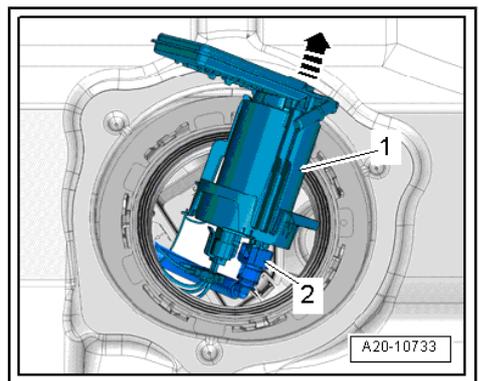
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WARNING
Safety risk from escaping fuel: the fuel delivery unit is still filled.
 ♦ *Use a cloth to catch escaping fuel.*

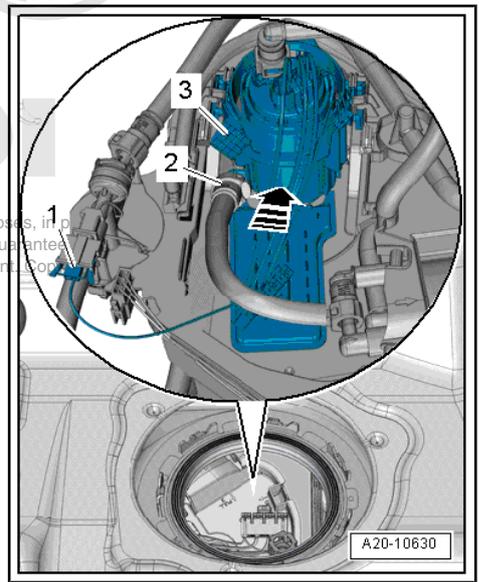
- Carefully pull fuel delivery unit -1- with fuel filter screen and electrical wiring completely out of fuel tank -arrow-.
- Press release catch and disconnect fuel line -2-.

Installing

- Guide fuel line -2- out of fuel tank and attach it to fuel delivery unit so it engages audibly.
- Carefully guide fuel delivery unit -1- with fuel filter screen and electrical wiring into fuel tank.
- Reach into fuel tank and carefully turn fuel delivery unit -1- with filter screen into installation position -arrows-.



- Reach into fuel tank and connect fuel line -2- onto fuel delivery unit so it engages audibly.
- Press fuel delivery unit -3- into catches on baffle housing in direction of -arrow-.
- Plug in electrical connector -1- and make sure it is correctly engaged.



Remaining installation steps are carried out in reverse sequence, note the following:

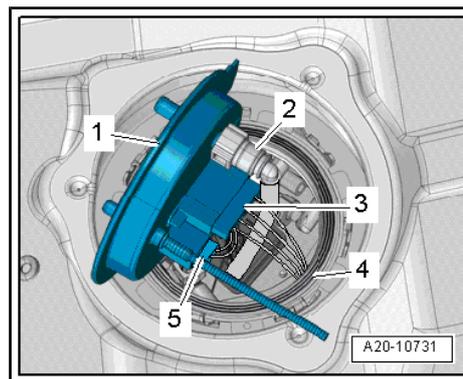
Note

- ♦ *Renew seal.*
- ♦ *Ensure that fuel hoses are securely seated.*

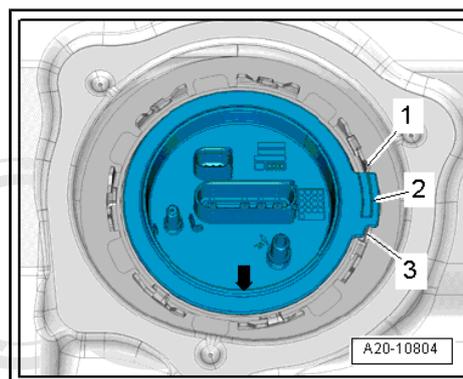
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- Plug in electrical connectors -3, 5- and make sure they are securely engaged.
- Attach fuel line -2- to flange so it engages audibly.
- Install new seal -4- for flange (seal must be installed dry).
- Fit flange -1- into fuel tank.

**Caution****Leakage risk**

- ◆ *The seal must not be pinched or damaged when installing the flange.*



- Fit flange in correct installation position.
- Lug -2- on flange (right-side) must be between tabs -1- and -3- on fuel tank.
- Arrow on flange points in direction of travel.
- Connect fuel lines so they engage audibly.
- Plug in electrical connectors and make sure they are securely engaged.
- Install cover for flange ⇒ [page 20](#) .
- Install rear seat bench or individual seat ⇒ [General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats](#) .
- Observe steps required after re-connecting battery ⇒ [Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery](#) .
- Put at least 5 litres of fuel into tank after installing fuel delivery unit.
- Vehicles with auxiliary heater: Let auxiliary heater run with full load for 10 minutes to bleed fuel line leading to metering pump.

Tightening torques

- ◆ ⇒ ["2.1 Exploded view - fuel delivery unit/fuel gauge senders", page 18](#)

2.3 Removing and installing fuel pressure regulator

Special tools and workshop equipment required

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◆ Wrench - T10202-



◆ Scissors

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .

WARNING

Danger! Fuel may escape.

◆ ***The fuel tank must not be more than 1/4 full when removing the fuel pressure regulator; otherwise a large amount of fuel will escape.***

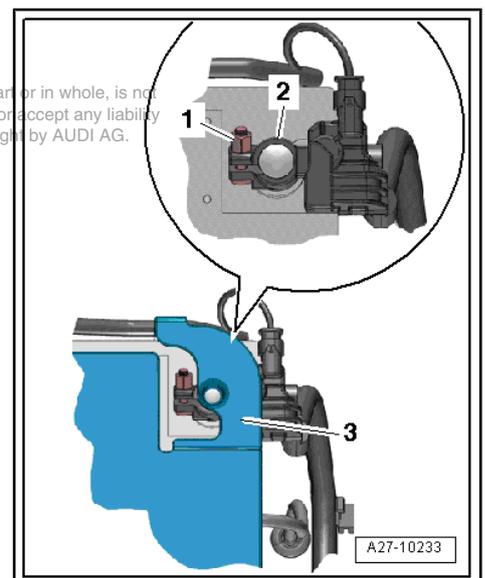
- Drain fuel tank if necessary ⇒ [page 10](#) .
- Move front right seat all the way forwards.
- Remove rear seat bench or individual seat (right-side) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .

Caution

To prevent irreparable damage to the electronic components when disconnecting the battery:

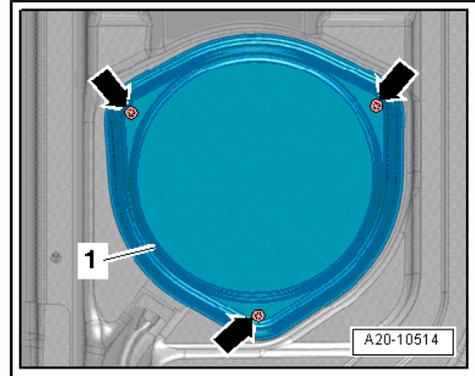
◆ ***Observe notes on procedure for disconnecting the battery.***

- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery, Disconnecting and connecting battery .

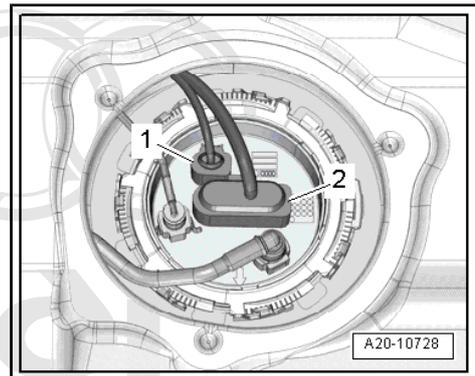




- Cut insulating mat along perforation in area of cover for flange (underneath rear seat on right, as seen in direction of travel) with a pair of scissors and fold mat to the side.
- Remove bolts -arrows- and detach cover -1- for flange.



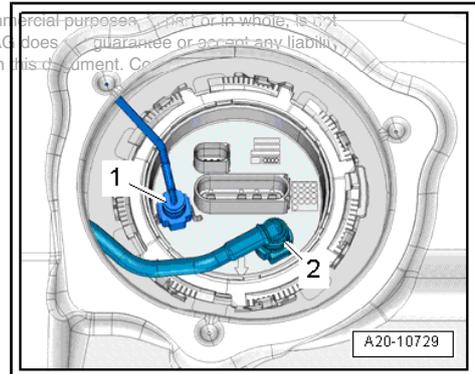
- Release retainer catches and unplug electrical connectors -1 and 2- on flange.



WARNING

Risk of injury - fuel system operates under high pressure.

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



- Press release tab and disconnect fuel line -2- at flange.
- Vehicles with auxiliary heater: Press release tab and disconnect fuel line -1- leading to metering pump for auxiliary heater at flange.

WARNING

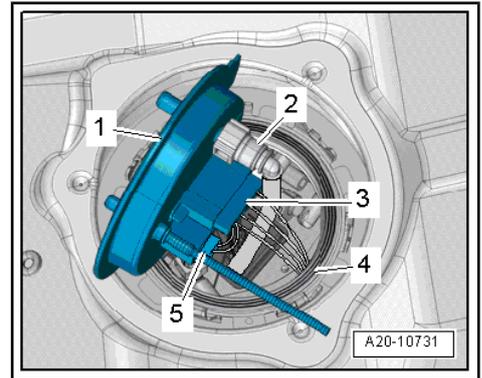
Danger! Fuel may escape.

- ◆ *The fuel tank must not be more than 1/4 full when removing the fuel pressure regulator; otherwise a large amount of fuel will escape.*

- Remove locking ring using wrench - T10202- .



- Pull flange -1- out of opening in fuel tank.
- Take seal -4- out of opening in fuel tank.
- Press release tab and disconnect fuel line -2- at flange.
- Release retainer catches and unplug electrical connectors -3 and 5-.

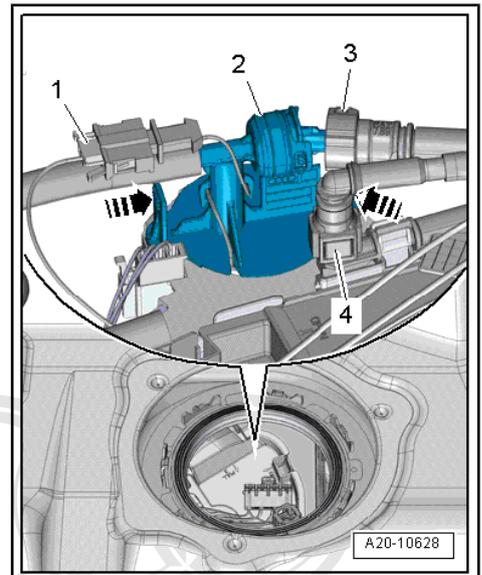


- Reach into fuel tank, release retainer catch and unplug electrical connector -1-.
- Press release tab, disconnect fuel line -4- at connection and move it clear to one side.
- Reach into fuel tank, release fuel pressure regulator -2- -arrows- and carefully pull fuel pressure regulator upwards (with fuel line still attached).
- Press release tab and disconnect fuel line -3-.

 **WARNING**

Safety risk from escaping fuel: the fuel pressure regulator is still filled.

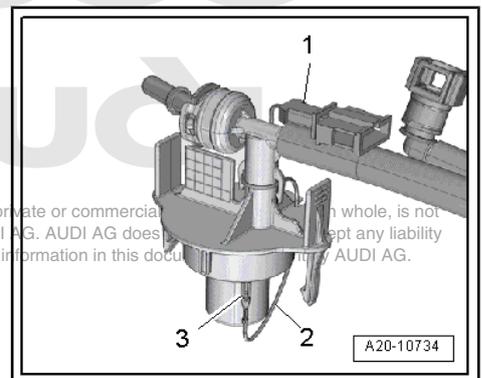
◆ *Use a cloth to catch escaping fuel.*



- Carefully take fuel pressure regulator out of fuel tank.

Installing

- Route earth wire -2- as shown in illustration.
- Make sure that earth wire on fuel pressure regulator -3- and electrical connector -1- are securely connected.



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- Carefully insert fuel pressure regulator -2- in fuel tank.
- Reach into fuel tank and connect fuel line -3- so it engages audibly.
- Press fuel pressure regulator into baffle housing so that it clicks into place.
- Plug in electrical connector -1- and make sure it is correctly engaged.
- Connect fuel line -4- so it engages audibly.

Remaining installation steps are carried out in reverse sequence; note the following:

**Note**

- ◆ *Renew seal.*
- ◆ *Ensure that fuel hoses are securely seated.*

- Install new seal for flange (seal must be installed dry).

**Caution****Leakage risk**

- ◆ *The seal must not be pinched or damaged when installing the flange.*

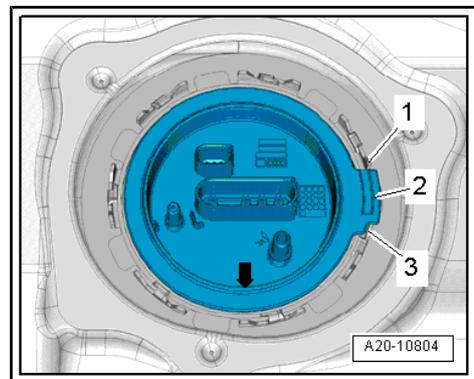
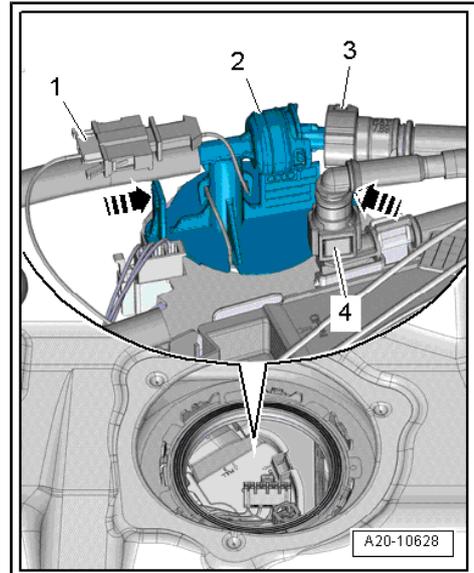
- Fit flange in correct installation position.
- Lug -2- on flange (right-side) must be between tabs -1- and -3- on fuel tank.
- Arrow on flange points in direction of travel.
- Connect fuel lines so they engage audibly.
- Plug in electrical connectors and make sure they are securely engaged.
- Install cover for flange ⇒ [page 20](#) .
- Install rear seat bench or individual seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Connect battery and perform steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Vehicles with auxiliary heater: Let auxiliary heater run with full load for 10 minutes to bleed fuel line leading to metering pump.

Tightening torques

- ◆ ⇒ ["2.1 Exploded view - fuel delivery unit/fuel gauge senders", page 18](#)

2.4 Checking fuel gauge sender - G-

Special tools and workshop equipment required



◆ Hand-held multimeter - V.A.G 1526E-



◆ Auxiliary measuring set - V.A.G 1594C-



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◆ Scissors

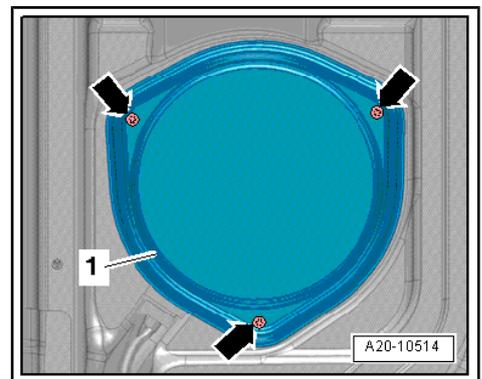
Procedure



Note

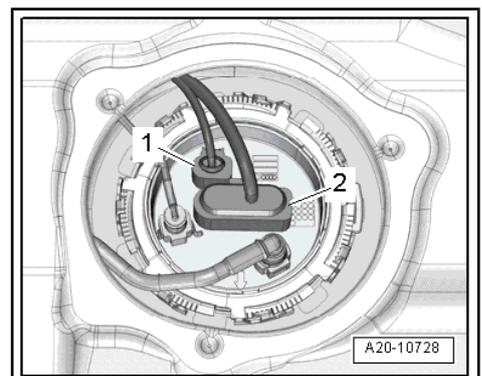
To obtain an exact measurement of the resistance value with "sender at upper stop" (installed), the fuel tank must be completely full. For this, drive for at least 500 metres after filling the tank to let air bubbles escape from the fuel tank; then add fuel again.

- Move front right seat all the way forwards.
- Remove rear seat bench or individual seat (right-side) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Cut insulating mat along perforation in area of cover for flange (underneath rear seat on right, as seen in direction of travel) with a pair of scissors and fold mat to the side.
- Remove bolts -arrows- and detach cover -1- for flange.
- Release retainer catch and unplug electrical connector -1- on flange.



Note

Disregard -item 2-.

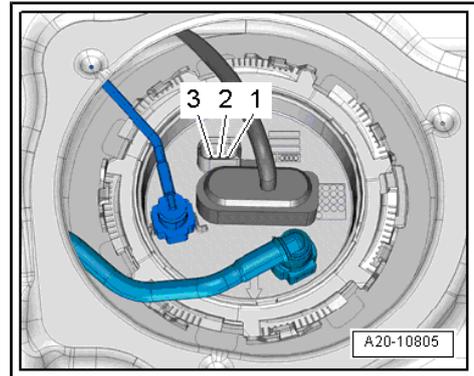


**Checking fuel gauge sender - G- in vehicle**

- Connect multimeter (resistance test) as shown in table.

Measure at contacts	Tank empty	Tank full
1 + 2	255 ... 281 Ω	max. 70 Ω
1 + 3	59 ... 85 Ω	at least 270 Ω
2 + 3 ¹⁾	335 ... 345 Ω	335 ... 345 Ω

¹⁾ Sender in any position

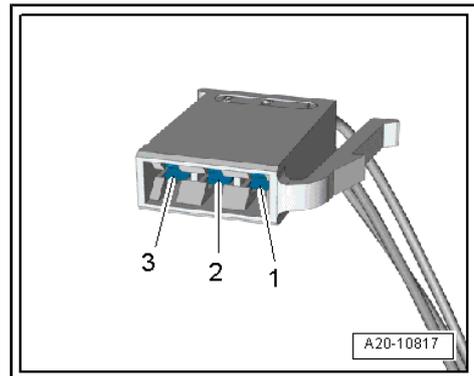
**Checking fuel gauge sender - G- with sender removed****Note**

- ◆ To test the maximum and minimum resistance values for “tank full” and “tank empty”, remove the fuel gauge sender → [page 32](#) and move the sender float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender removed, due to the greater travel of the float arm:

- Connect multimeter (resistance test) as shown in table.

Measure at contacts	Tank empty	Tank full
1 + 2	approx. 278 Ω	approx. 65.5 Ω
1 + 3	approx. 62 Ω	approx. 274.5 Ω
2 + 3 ¹⁾	335 ... 345 Ω	335 ... 345 Ω

¹⁾ Sender in any position



Fuel gauge sender - G- is defective in the following cases:

- ◆ Large differences in test readings
- ◆ Reading: 0 Ω (short circuit)
- ◆ Reading ∞ Ω (open circuit)
- ◆ No fault in electrical wiring

- Install fuel gauge sender - G- → [page 32](#) .

2.5 Removing and installing fuel gauge sender - G-

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Special tools and workshop equipment required

◆ Wrench - T10202-



◆ Scissors

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .

! WARNING

Danger! Fuel may escape.

◆ ***The fuel tank must not be more than 1/4 full when removing the fuel gauge sender, otherwise a large amount of fuel will escape.***

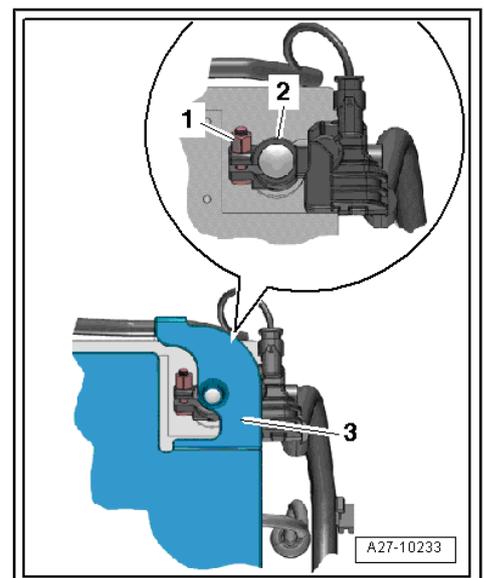
- Drain fuel tank if necessary ⇒ [page 10](#) .
- Move front right seat all the way forwards.
- Remove rear seat bench or individual seat (right-side) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .

! Caution

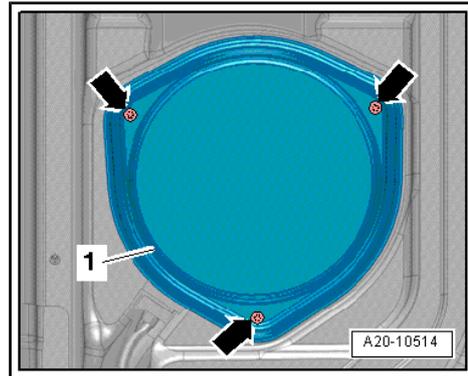
To prevent irreparable damage to the electronic components when disconnecting the battery:

◆ ***Observe notes on procedure for disconnecting the battery.***

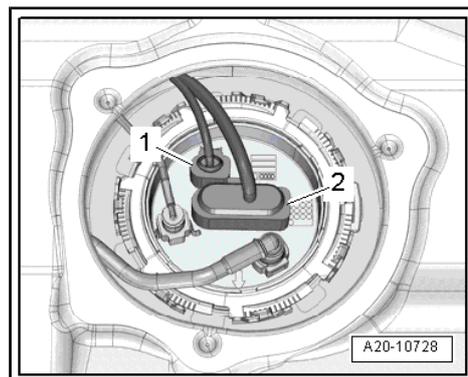
- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery, Disconnecting and connecting battery .



- Cut insulating mat along perforation in area of cover for flange (underneath rear seat on right, as seen in direction of travel) with a pair of scissors and fold mat to the side.
- Remove bolts -arrows- and detach cover -1- for flange.



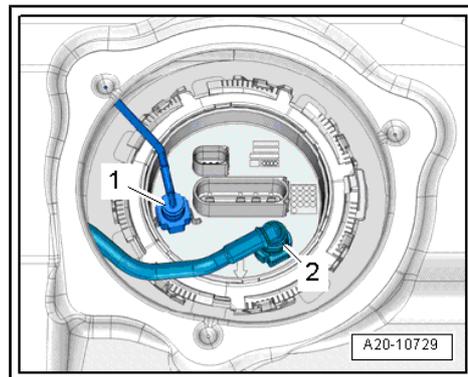
- Release retainer catches and unplug electrical connectors -1 and 2- on flange.



 **WARNING**

Risk of injury - fuel system operates under high pressure.

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



- Press release tab and disconnect fuel line -2- at flange.
- Vehicles with auxiliary heater: Press release tab and disconnect fuel line -1- leading to metering pump for auxiliary heater at flange.

 **WARNING**

Danger! Fuel may escape.

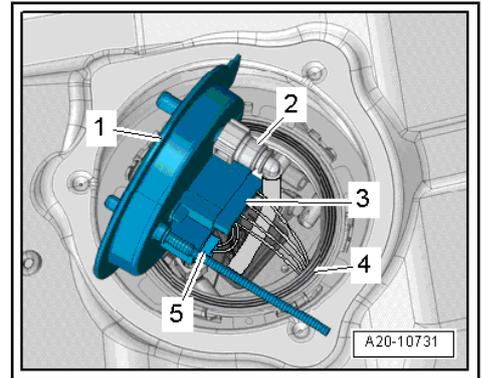
- ◆ *The fuel tank must not be more than 1/4 full when removing the fuel gauge sender; otherwise a large amount of fuel will escape.*

- Remove locking ring using wrench - T10202- .

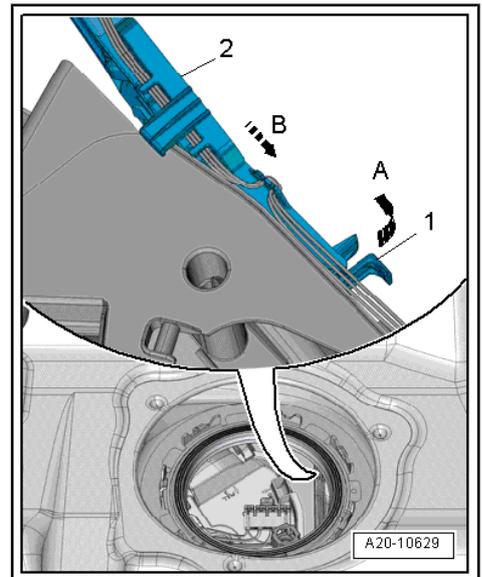


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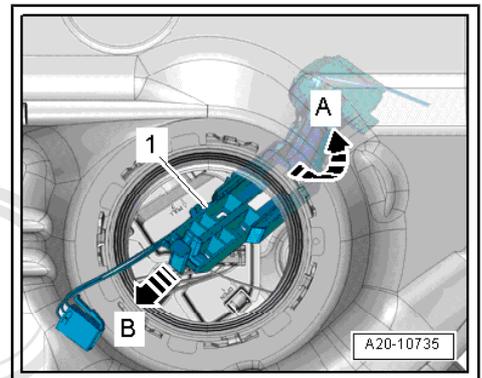
- Pull flange -1- out of opening in fuel tank.
- Take seal -4- out of opening in fuel tank.
- Press release tab and disconnect fuel line -2- at flange.
- Release retainer catches and unplug electrical connectors -3 and 5-.



- Reach into fuel tank and release fuel gauge sender - G- by pressing catch -1- in direction of -arrow A-.
- Pull fuel gauge sender - G- -item 2- off mounting on baffle housing -arrow B-.



- Swivel fuel gauge sender - G- -item 1- to one side and rotate it approx. 90° upwards -arrow A-.
- Carefully guide fuel gauge sender - G- with electrical wiring out of fuel tank -arrow B-.



i Note

When removing, make sure you do not bend float arm of fuel gauge sender.

Installing

Installation is carried out in the reverse order; note the following:

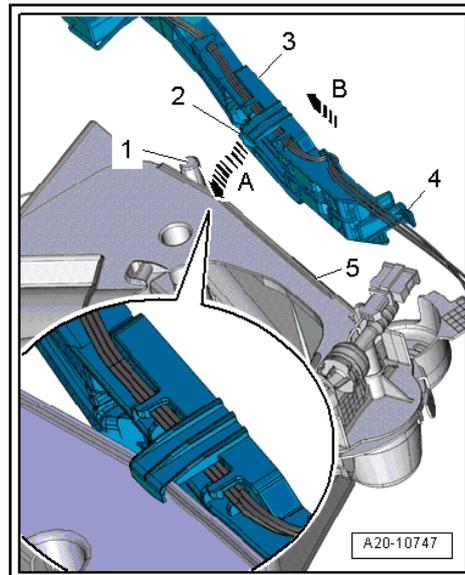
i Note

- ◆ *Renew seal.*
- ◆ *Ensure that fuel hoses are securely seated.*
- ◆ *When inserting, make sure you do not bend float arm of fuel gauge sender.*

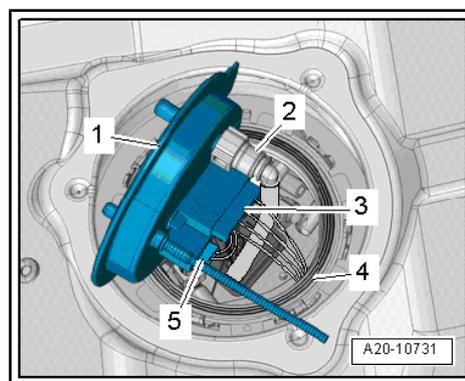
- Carefully insert fuel gauge sender - G- -item 1- in fuel tank.



- Locate guide -2- on fuel gauge sender - G- at edge -5- of baffle housing -arrow A-.
- Slide fuel gauge sender - G- -item 3- into mounting -1- on baffle housing as far as stop -arrow B-.
- Press catch -4- for fuel gauge sender - G- onto baffle housing so that it engages audibly.



- Plug in electrical connectors -3, 5- and make sure they are securely engaged.
- Attach fuel line -2- to flange so it engages audibly.
- Install new seal -4- for flange (seal must be installed dry).
- Fit flange -1- into fuel tank.



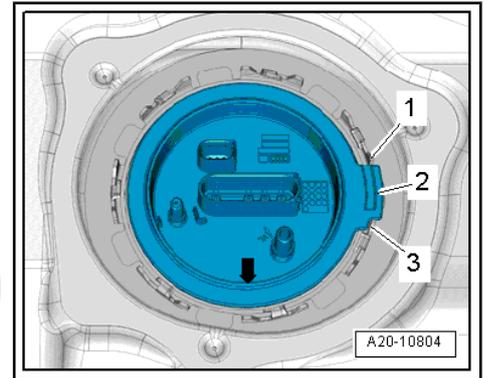
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- Fit flange in correct installation position.

 **Caution**

Leakage risk

◆ *The seal must not be pinched or damaged when installing the flange.*



- Lug -2- on flange (right-side) must be between tabs -1- and -3- on fuel tank.
- Arrow on flange points in direction of travel.
- Connect fuel lines so they engage audibly.
- Plug in electrical connectors and make sure they are securely engaged.
- Install cover for flange ⇒ [page 20](#) .
- Install rear seat bench or individual seat ⇒ [General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats](#) .
- Observe steps required after re-connecting battery ⇒ [Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery](#) .

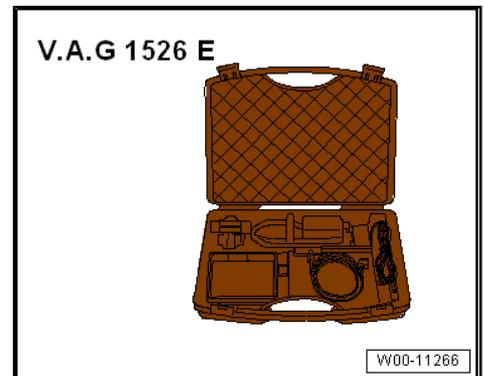
Tightening torques

- ◆ ⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 18](#)

2.6 Checking fuel gauge sender 2 - G169-

Special tools and workshop equipment required

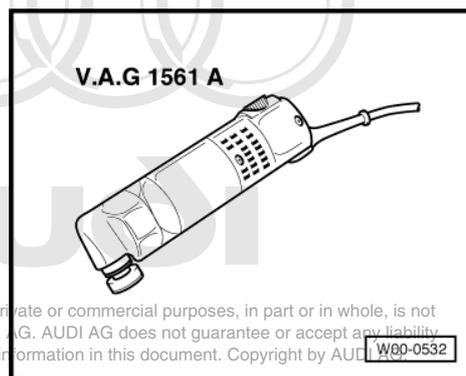
- ◆ Hand-held multimeter - V.A.G 1526E-



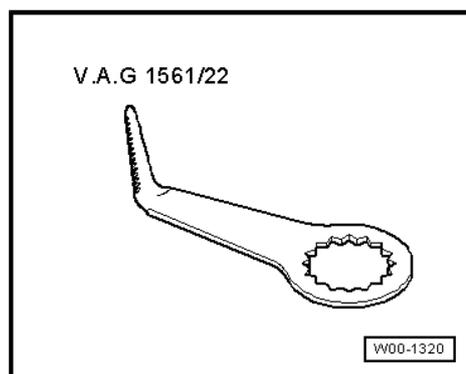
- ◆ Auxiliary measuring set - V.A.G 1594C-



◆ Electric cutter - V.A.G 1561A-



◆ Blade (L-shaped, 25.4 mm) - V.A.G 1561/22-



◆ Scissors

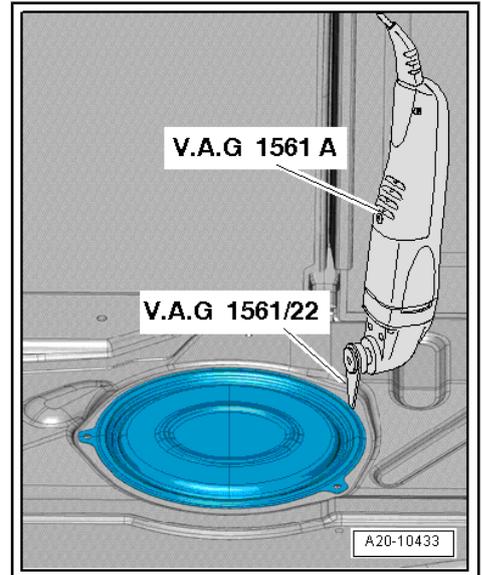
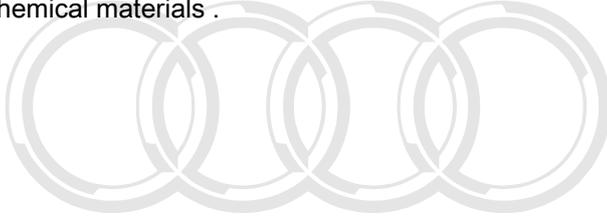
Procedure

 **Note**

To obtain an exact measurement of the resistance value for the specification "Tank full", the fuel tank must be completely full. For this, drive for at least 500 metres after filling the tank to let air bubbles escape from the fuel tank; then add fuel again.

- Move front left seat all the way forwards.
- Remove rear seat bench or individual seat (left-side) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .

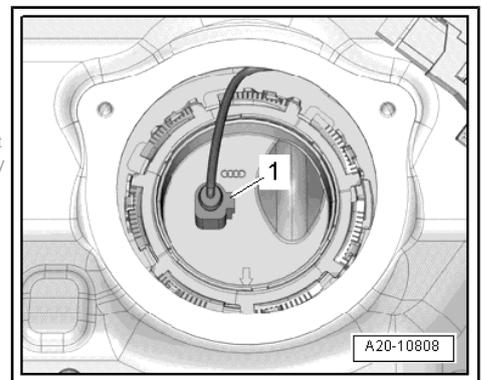
- Cut insulating mat along perforation in area of cover for flange (underneath rear seat on left, as seen in direction of travel) with a pair of scissors and fold mat to the side.
- Use electric cutter - V.A.G 1561A- and blade (L-shaped, 25.4 mm) - V.A.G 1561/22- to cut through adhesive sealant around cover for flange.
- Detach cover for flange.
- Repair painted surfaces => Paintwork manual .
- Apply anti-corrosion coating as necessary => Surface treatment/chemical materials .



- Release retainer catch and unplug electrical connector -1- on flange.



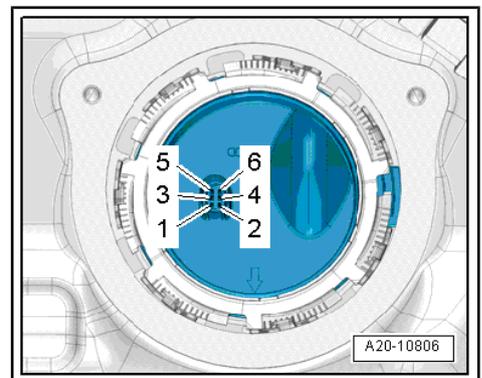
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Checking fuel gauge sender 2 - G169- in vehicle

- Connect multimeter (resistance test) as shown in table.

Measure at contacts	Tank empty	Tank full
2 + 4	273 ... 277 Ω	max. 67 Ω
2 + 6	63 ... 67 Ω	at least 273 Ω
4 + 6 ¹⁾	335 ... 345 Ω	335 ... 345 Ω
¹⁾ Sender in any position		



**Checking fuel gauge sender 2 - G169- with sender removed****Note**

- ◆ To test the maximum and minimum resistance values for “tank full” and “tank empty”, remove the fuel gauge sender ⇒ [page 40](#) and move the sender float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender removed, due to the greater travel of the float arm:

– Connect multimeter (resistance test) as shown in table.

Measure at contacts	Tank empty	Tank full
1 + 2	approx. 289 Ω	approx. 50 Ω
1 + 3	approx. 51.1 Ω	approx. 292 Ω
2 + 3 ¹⁾	335 ... 345 Ω	335 ... 345 Ω
1) Sender in any position		

Fuel gauge sender 2 - G169- is defective in the following cases:

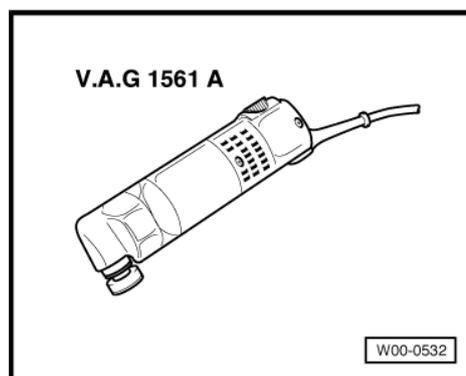
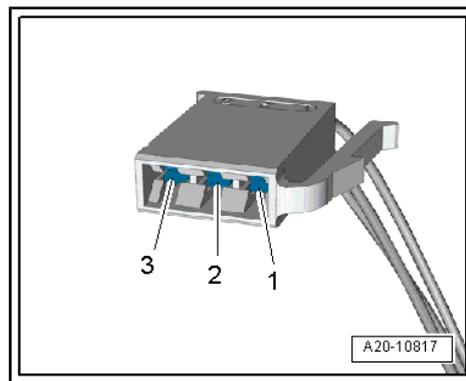
- ◆ Large differences in test readings
- ◆ Reading: 0 Ω (short circuit)
- ◆ Reading ∞ Ω (open circuit)
- ◆ No fault in electrical wiring

– Install fuel gauge sender 2 - G169- ⇒ [page 40](#)

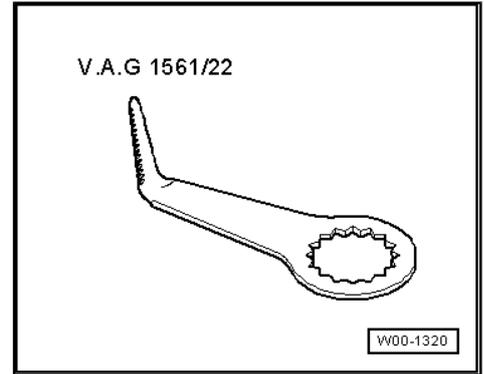
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2.7 Removing and installing fuel gauge sender 2 - G169-**Special tools and workshop equipment required**

- ◆ Electric cutter - V.A.G 1561A-



- ◆ Blade (L-shaped, 25.4 mm) - V.A.G 1561/22-



- ◆ Wrench - T10202-



- ◆ Scissors
- ◆ Adhesive sealant → Electronic parts catalogue

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .

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<p><i>Danger! Fuel may escape.</i></p>		
<ul style="list-style-type: none"> ◆ <i>The fuel tank must not be more than 1/4 full when removing the fuel gauge sender, otherwise a large amount of fuel will escape.</i> 		

- Drain fuel tank if necessary ⇒ [page 10](#) .
- Move front left seat all the way forwards.
- Remove rear seat bench or individual seat (left-side) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .

**Caution**

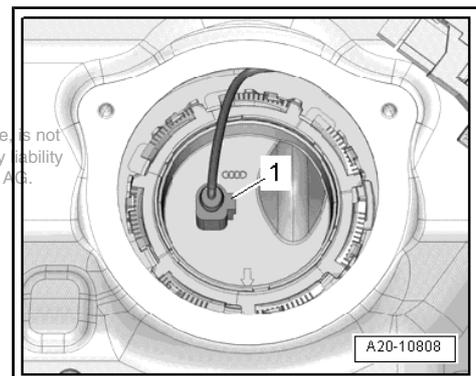
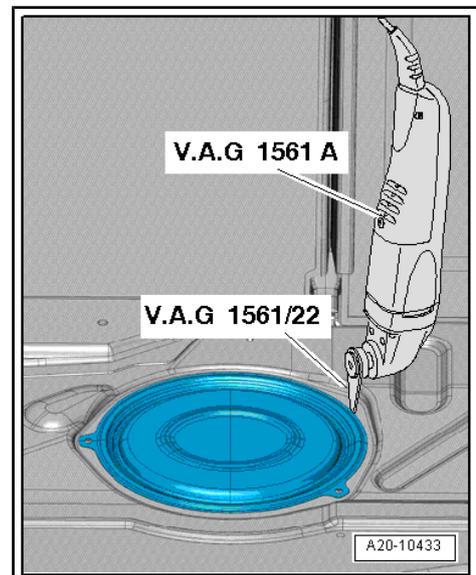
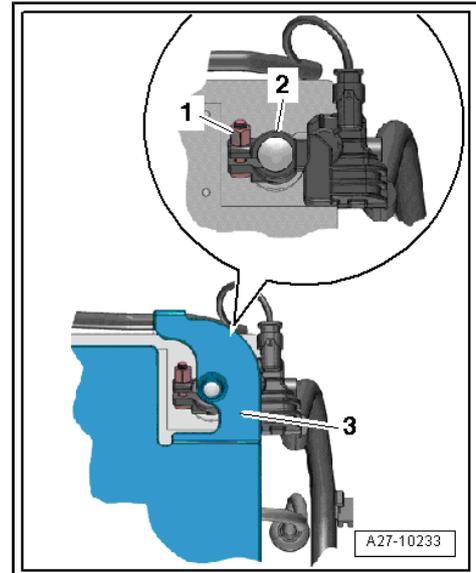
To prevent irreparable damage to the electronic components when disconnecting the battery:

◆ *Observe notes on procedure for disconnecting the battery.*

- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery, Disconnecting and connecting battery .

- Cut insulating mat along perforation in area of cover for flange (underneath rear seat on left, as seen in direction of travel) with a pair of scissors and fold mat to the side.
- Use electric cutter - V.A.G 1561A- and blade (L-shaped, 25.4 mm) - V.A.G 1561/22- to cut through adhesive sealant around cover for flange.
- Detach cover for flange.
- Repair painted surfaces ⇒ Paintwork manual .
- Apply anti-corrosion coating as necessary ⇒ Surface treatment/chemical materials .

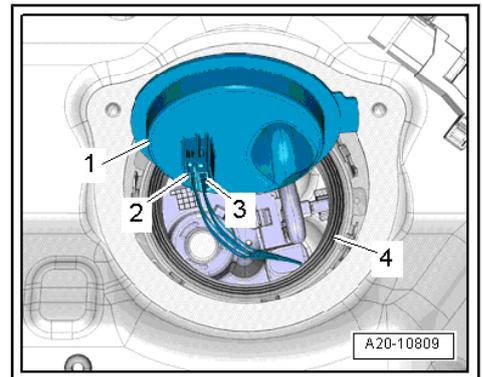
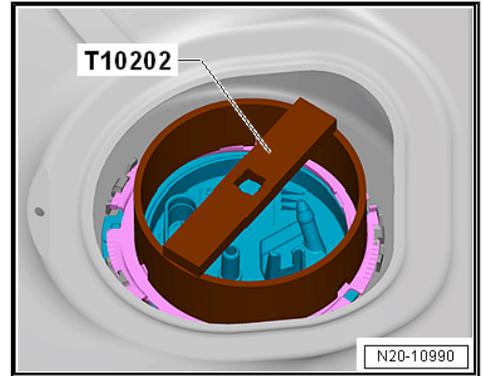
- Release retainer catch and unplug electrical connector -1- on flange.



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⚠ WARNING
Danger! Fuel may escape.
 ♦ *The fuel tank must not be more than 1/4 full when removing the fuel gauge sender, otherwise a large amount of fuel will escape.*

- Remove locking ring using wrench - T10202- .
- Pull flange -1- out of opening in fuel tank.
- Take seal -4- out of opening in fuel tank.
- Release retainer catches and unplug electrical connectors -2 and 3-.



- Reach into fuel tank and release fuel gauge sender 2 - G169- by pressing catch -2- -arrow-.
- Pull fuel gauge sender 2 - G169- -item 1- upwards off mounting on baffle housing.
- Carefully take fuel gauge sender 2 - G169- with electrical wiring out of fuel tank.

i Note

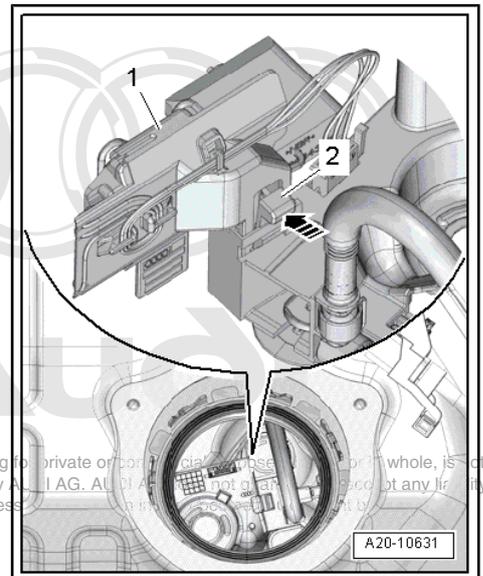
When removing, make sure you do not bend float arm of fuel gauge sender.

Installing

Installation is carried out in the reverse order; note the following:

i Note

- ♦ *Renew seal.*
- ♦ *When inserting, make sure you do not bend float arm of fuel gauge sender.*
- Carefully insert fuel gauge sender 2 - G169- in fuel tank.
- Insert fuel gauge sender 2 - G169- into mounting and press down until it clicks into place.
- Plug in electrical connectors and make sure they are securely engaged.

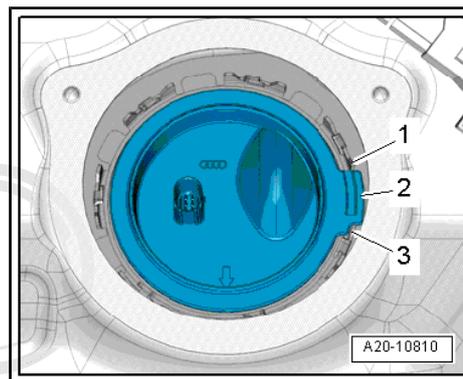




- Install new seal for flange (seal must be installed dry).

**Caution****Leakage risk**

- ◆ *The seal must not be pinched or damaged when installing the flange.*



- Fit flange in correct installation position.
- Lug -2- on flange (left-side) must be between tabs -1- and -3- on fuel tank.
- Arrow on flange points in direction of travel.
- Plug in electrical connector and make sure it is correctly engaged.
- Just before re-installing cover for flange, trim down remaining adhesive sealing material on cover for flange and on body with carpet knife to give a smooth surface; do NOT remove sealant completely.

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**Note**

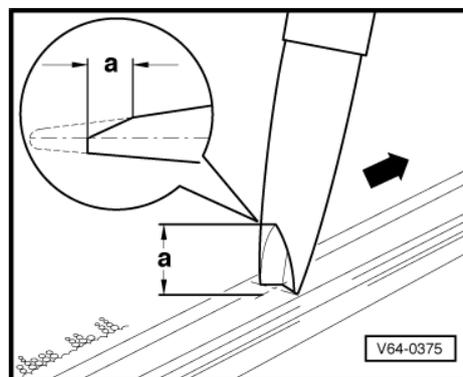
The remaining material serves as a bonding surface when applying the new adhesive sealing material.

**Caution**

Apply adhesive thoroughly to ensure safe bonding.

- ◆ *Keep bonding surface clean and free from grease.*
- ◆ *Do not trim bonding surface until shortly before installation.*
- ◆ *Do not prime bonding surface and do not treat with cleaning fluid.*
- ◆ *Application of primer is only required when fitting a new cover for flange.*

- Cut off tip of nozzle of adhesive sealant cartridge as shown in illustration.
- Dimension -a- = 7 mm
- Apply new sealant bead onto trimmed-down adhesive sealant on cover for flange and fit cover.
- Two holes on cover face towards rear of vehicle.
- Install rear seat bench or individual seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Observe steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

**Tightening torques**

- ◆ ⇒ ["2.1 Exploded view - fuel delivery unit/fuel gauge senders", page 18](#)

2.8 Checking fuel gauge sender 3 - G237-

Special tools and workshop equipment required

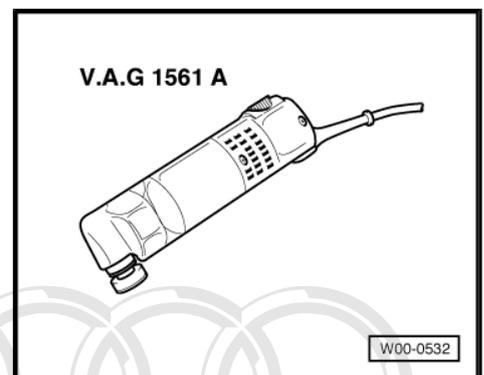
- ◆ Hand-held multimeter - V.A.G 1526E-



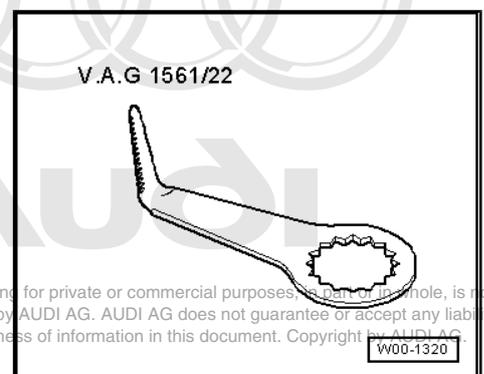
- ◆ Auxiliary measuring set - V.A.G 1594C-



- ◆ Electric cutter - V.A.G 1561A-



- ◆ Blade (L-shaped, 25.4 mm) - V.A.G 1561/22-



- ◆ Scissors

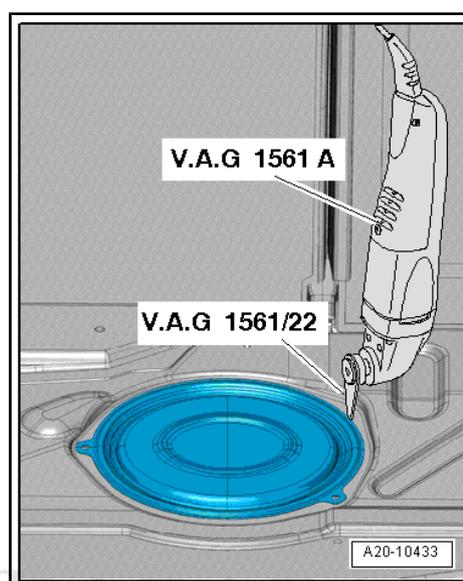
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Checking fuel gauge sender 3 - G237- in vehicle

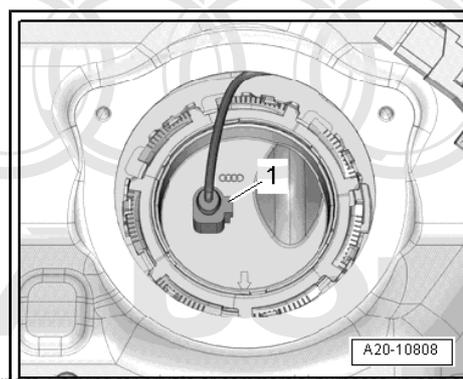
Note

- ◆ *To obtain an exact measurement of the resistance value for the specification "Tank full", the fuel tank must be completely full. For this, drive for at least 500 metres after filling the tank to let air bubbles escape from the fuel tank; then add fuel again.*
- ◆ *Fuel gauge sender 3 - G237- is checked at flange above fuel gauge sender 2 -G169- .*

- Move front left seat all the way forwards.
- Remove rear seat bench or individual seat (left-side) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Cut insulating mat along perforation in area of cover for flange (underneath rear seat on left, as seen in direction of travel) with a pair of scissors and fold mat to the side.
- Use electric cutter - V.A.G 1561A- and blade (L-shaped, 25.4 mm) - V.A.G 1561/22- to cut through adhesive sealant around cover for flange.
- Detach cover for flange.
- Repair painted surfaces ⇒ Paintwork manual .
- Apply anti-corrosion coating as necessary ⇒ Surface treatment/chemical materials .



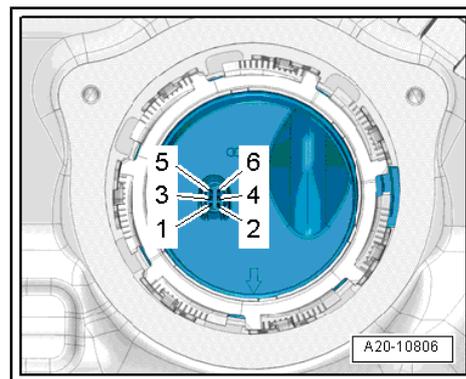
- Release retainer catch and unplug electrical connector -1- on flange.



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– Connect multimeter (resistance test) as shown in table.

Measure at contacts	Tank empty	Tank full
1 + 3	approx. 273.8 Ω	approx. 63.9 Ω
1 + 5	approx. 63.9 Ω	approx. 273.8 Ω
3 + 5 ¹⁾	approx. 337 Ω	approx. 337 Ω
¹⁾ Sender in any position		



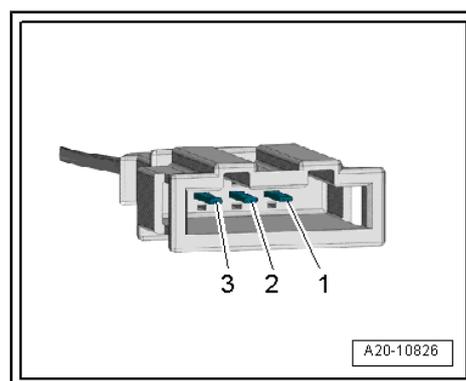
Checking fuel gauge sender 3 - G237- with sender removed

 **Note**

- ◆ To test the maximum and minimum resistance values for “tank full” and “tank empty”, remove the fuel gauge sender ⇒ [page 47](#) and move the sender float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender removed, due to the greater travel of the float arm:

– Connect multimeter (resistance test) as shown in table.

Measure at contacts	Tank empty	Tank full
1 + 2	approx. 289 Ω	approx. 50.1 Ω
1 + 3	approx. 51.6 Ω	approx. 289 Ω
2 + 3 ¹⁾	approx. 337 Ω	approx. 337 Ω
¹⁾ Sender in any position		



Fuel gauge sender 3 - G237- is defective in the following cases:

- ◆ Large differences in test readings
 - ◆ Reading: 0 Ω (short circuit)
 - ◆ Reading ∞ Ω (open circuit)
 - ◆ No fault in electrical wiring
- Install fuel gauge sender 3 - G237- ⇒ [page 47](#)

2.9 Removing and installing fuel gauge sender 3 - G237-

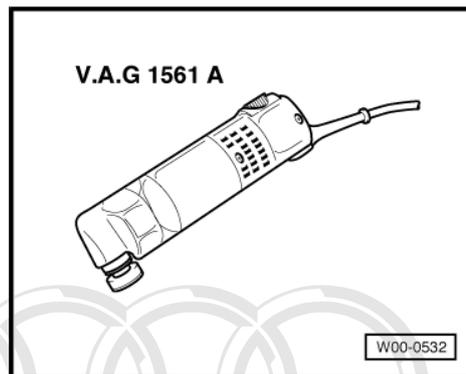
⇒ [“2.9.1 Removing and installing fuel gauge sender 3 G237 \(up to model year 2013\)”, page 47](#)

⇒ [“2.9.2 Removing and installing fuel gauge sender 3 G237 \(from model year 2014 onwards\)”, page 54](#)

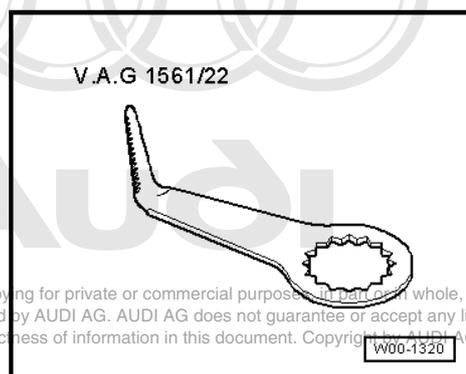
2.9.1 Removing and installing fuel gauge sender 3 - G237- (up to model year 2013)

Special tools and workshop equipment required

- ◆ Electric cutter - V.A.G 1561A-



- ◆ Blade (L-shaped, 25.4 mm) - V.A.G 1561/22-



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- ◆ Wrench - T10202-



- ◆ Adhesive sealant ⇒ Electronic parts catalogue

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .

 **WARNING**

Danger! Fuel may escape.

- ◆ ***The fuel tank must not be more than $\frac{3}{4}$ full when removing the fuel gauge sender, otherwise a large amount of fuel will escape.***

- Drain fuel tank if necessary ⇒ [page 10](#) .



Caution

To prevent irreparable damage to the electronic components when disconnecting the battery:

◆ *Observe notes on procedure for disconnecting the battery.*

- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery, Disconnecting and connecting battery .
- Remove luggage compartment back panel trim ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Overview of fitting locations - luggage compartment trim panels .

Vehicles with high-voltage system:



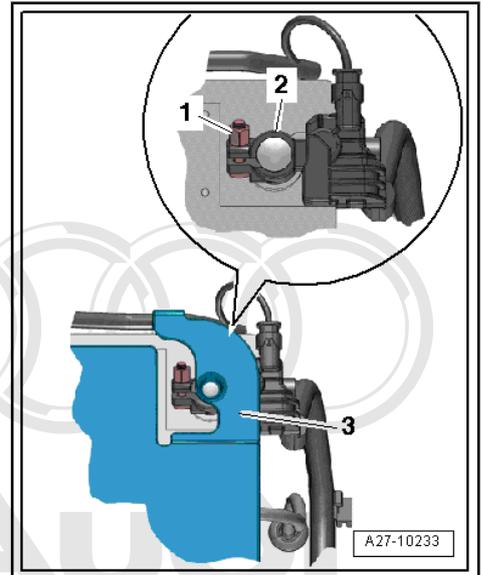
DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) confirms that the system is de-energised and uses the locking cap - T40262- to ensure that the system cannot be re-energised. The ignition key and the maintenance connector for high-voltage system - TW - are then stored in a safe place by the qualified person.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

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Note

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go To button, select the following menu options in succession:*
- ◆ Selecting function/component
- ◆ Body
- ◆ Electrical system
- ◆ Self-diagnosis compatible systems
- ◆ 8C - Hybrid battery management -J840
- ◆ 8C - Hybrid battery management, functions
- ◆ 51 - De-energise high-voltage system (Rep. gr. 93)



- ◆ The system must first be de-energised by an Audi high-voltage technician before any work is performed on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .
- ◆ The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

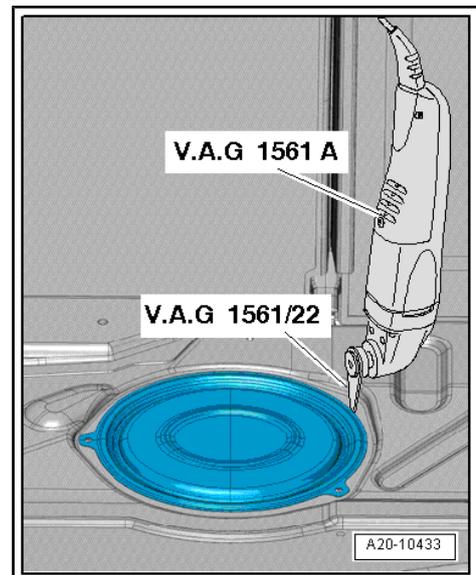


Note

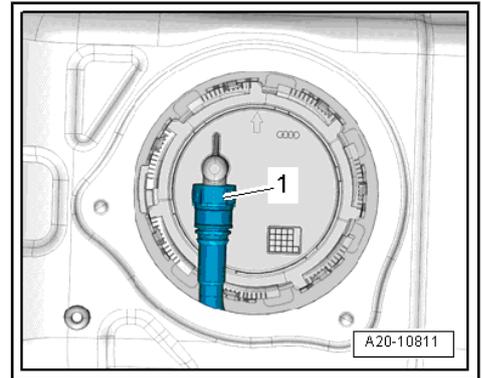
- ◆ *The high-voltage system must be de-energised before beginning any work on components of hybrid vehicles that are connected to the high-voltage system (e.g. electrically driven air conditioner compressor).*
- ◆ *For certain work on hybrid vehicle components that are installed near high-voltage system components, the high-voltage system must be de-energised prior to beginning work ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .*
- Remove drive battery - A2- ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .

All vehicles (continued):

- If fitted, remove infotainment control units and brackets (left-side) ⇒ Communication; Rep. gr. 91 ; Infotainment system; Overview of fitting locations - infotainment system .
- Remove storage compartment (rear) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Exploded view rear seat backrest .
- Fold insulating mat to one side in vicinity of cover for flange (at front of luggage compartment).
- Use electric cutter - V.A.G 1561A- and blade (L-shaped, 25.4 mm) - V.A.G 1561/22- to cut through adhesive sealant around cover for flange.
- Detach cover for flange.
- Repair painted surfaces ⇒ Paintwork manual .
- Apply anti-corrosion coating as necessary ⇒ Surface treatment/chemical materials .



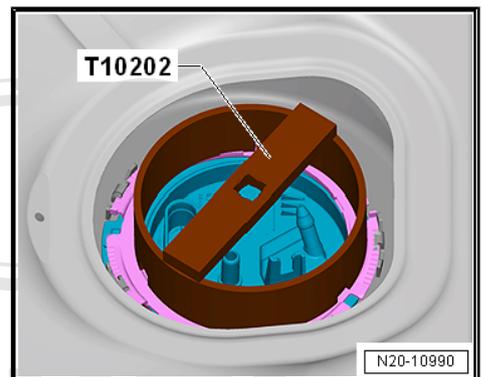
- Press release tab and disconnect breather line -1-.



WARNING

Danger! Fuel may escape.

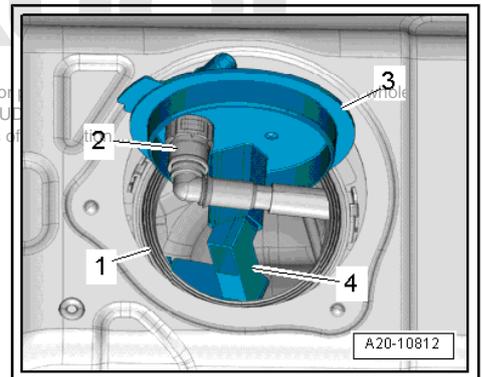
- ◆ *The fuel tank must not be more than 3/4 full when removing the fuel gauge sender, otherwise a large amount of fuel will escape.*



- Remove locking ring using wrench - T10202- .

- Pull flange -3- out of opening in fuel tank.
- Press release tab and disconnect breather line -2-.
- Take seal -1- out of opening in fuel tank.
- Release retainer catch and unplug electrical connector on fuel gauge sender 3 - G237- .
- Carefully take flange with fuel gauge sender 3 - G237- -item 4- out of opening in fuel tank.

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Note

When removing, make sure you do not bend float arm of fuel gauge sender.

Installing

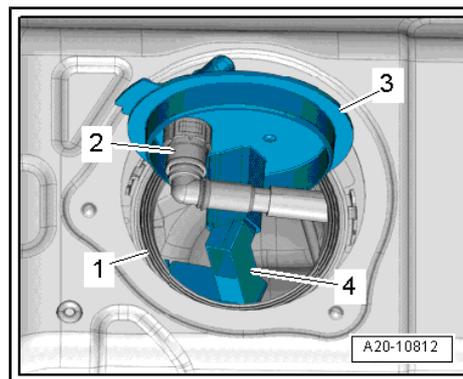
Installation is carried out in the reverse order; note the following:

Note

- ◆ *Renew seal.*
- ◆ *When inserting, make sure you do not bend float arm of fuel gauge sender.*



- Carefully insert flange with fuel gauge sender 3 - G237-
-item 4- into fuel tank.
- Plug in electrical connector and make sure it is correctly en-
gaged.
- Connect breather line -2- so it engages audibly.
- Install new seal -1- for flange (seal must be installed dry).
- Fit flange -3- into fuel tank.



- Fit flange in correct installation position.

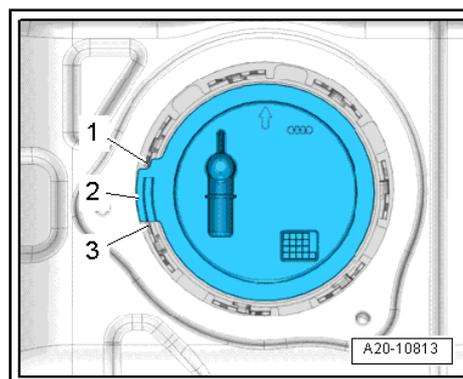


Caution

Leakage risk

- ◆ **The seal must not be pinched or damaged when installing the flange.**

- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.
- Arrow on flange points in direction of travel.
- Connect breather line so it engages audibly.
- Just before re-installing cover for flange, trim down remaining adhesive sealing material on cover for flange and on body with carpet knife to give a smooth surface; do NOT remove sealant completely.



Note

The remaining material serves as a bonding surface when applying the new adhesive sealing material.



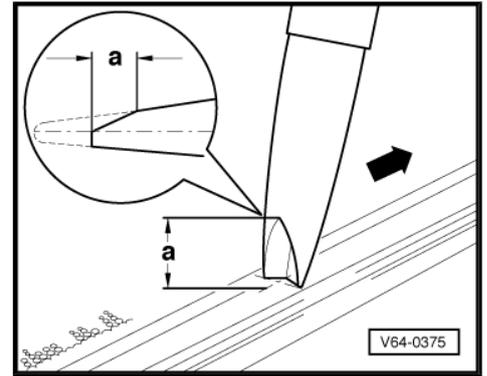
Caution

Apply adhesive thoroughly to ensure safe bonding.

- ◆ **Keep bonding surface clean and free from grease.**
- ◆ **Do not trim bonding surface until shortly before installation.**
- ◆ **Do not prime bonding surface and do not treat with cleaning fluid.**
- ◆ **Application of primer is only required when fitting a new cover for flange.**

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- Cut off tip of nozzle of adhesive sealant cartridge as shown in illustration.
- Dimension -a- = 7 mm
- Apply new sealant bead onto trimmed-down adhesive sealant on cover for flange and fit cover.
- Two holes on cover face towards rear of vehicle.
- Install storage compartment (rear) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Exploded view - rear seat backrest .
- Install brackets and control units for infotainment system ⇒ Communication; Rep. gr. 91 ; Infotainment system; Overview of fitting locations - infotainment system .
- Install luggage compartment back panel trim ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Overview of fitting locations - luggage compartment trim panels .
- Observe steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



Vehicles with high-voltage system:

- Install drive battery - A2- ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .

 **DANGER!**

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

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Note

- ◆ *Re-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select **Guided Fault Finding** mode*
- ◆ *Using the **Go To** button, select the following menu options in succession:*
- ◆ **Selecting function/component**
- ◆ **Body**
- ◆ **Electrical system**
- ◆ **Self-diagnosis compatible systems**
- ◆ **8C - Hybrid battery management -J840**
- ◆ **8C - Hybrid battery management, functions**
- ◆ **51 - Re-energise high-voltage system (Rep. gr. 93)**

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 18](#)

2.9.2 Removing and installing fuel gauge sender 3 - G237- (from model year 2014 onwards)

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Special tools and workshop equipment required

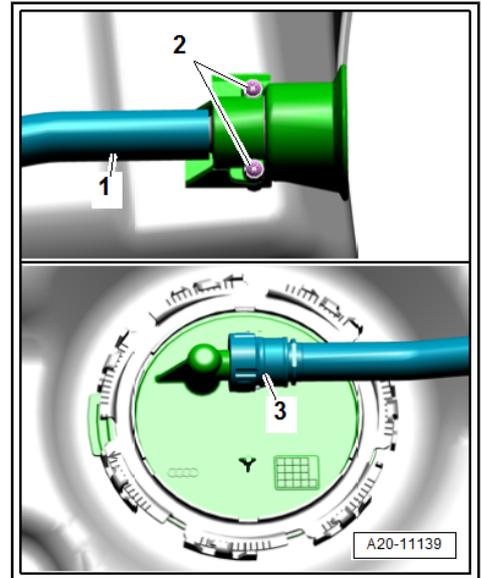
- ◆ Wrench - T10202-



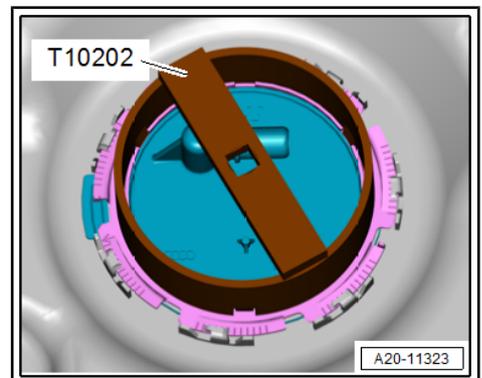
Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .
- Remove fuel tank ⇒ [page 12](#) .

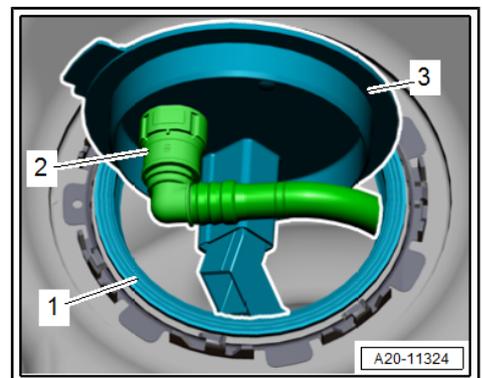
- Remove bolts -2-, open retainer and take out breather line -1-.
- Press release tab and detach connection piece -3- from flange.



- Remove locking ring using wrench - T10202- .



- Pull flange -3- out of opening in fuel tank.
- Take seal -1- out of opening in fuel tank.
- Press release tab and disconnect breather line -2-.
- Release retainer catch and unplug electrical connector on fuel gauge sender 3 - G237- .
- Carefully remove flange with fuel gauge sender 3 - G237- through opening in fuel tank.



i Note

When removing, make sure you do not bend float arm of fuel gauge sender.

Installing

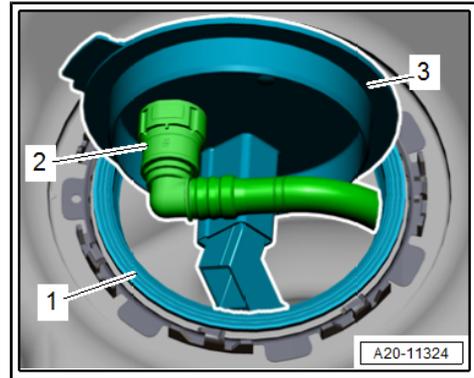
Installation is carried out in the reverse order; note the following:

i Note

- ◆ *Renew seal.*
- ◆ *When installing, make sure you do not bend float arm of fuel gauge sender.*



- Carefully insert flange with fuel gauge sender 3 - G237- into fuel tank.
- Plug in electrical connector and make sure it is correctly engaged.
- Connect breather line -2- so it engages audibly.
- Install new seal -1- for flange (seal must be installed dry).
- Fit flange -3- into fuel tank.



- Fit flange in correct installation position.

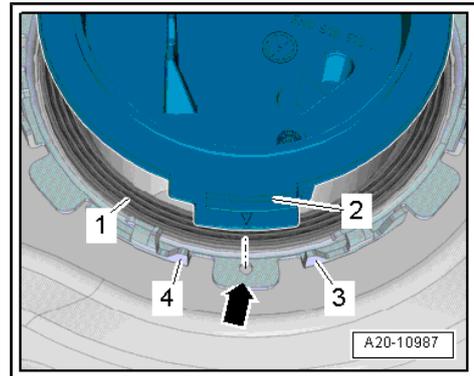


Caution

Leakage risk

- ◆ *The seal must not be pinched or damaged when installing the flange.*

- Lug -2- on flange must point towards hole -arrow- on locking ring and must be between tabs -3 and 4- on fuel tank.
- Arrow on flange points in direction of travel.
- Connect breather line so it engages audibly.
- Install fuel tank => [page 12](#) .



Tightening torques

- ◆ => ["2.1 Exploded view - fuel delivery unit/fuel gauge senders", page 18](#)



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3 Fuel filter

⇒ ["3.1 Exploded view - fuel filter", page 57](#)

⇒ ["3.2 Removing and installing fuel filter", page 58](#)

3.1 Exploded view - fuel filter

1 - Fuel filter

- ❑ Removing and installing
⇒ [page 58](#)

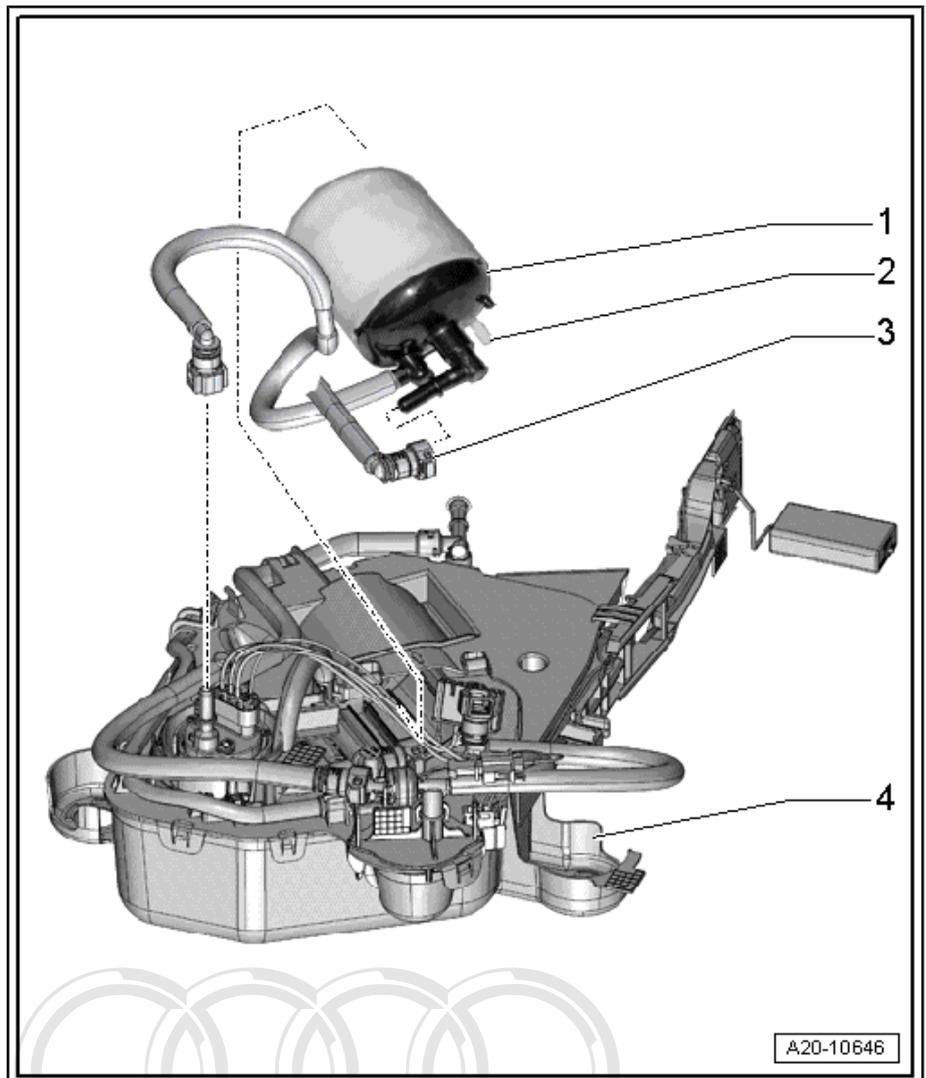
2 - Retainer

3 - Fuel line

- ❑ To T-piece on baffle housing
- ❑ Press release tab on connection piece to disconnect

4 - Baffle housing

- ❑ Welded to fuel tank



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3.2 Removing and installing fuel filter

Removing

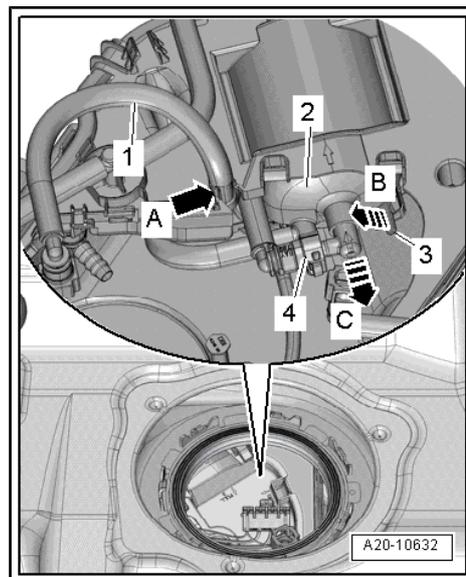
- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .
- Remove fuel delivery unit ⇒ [page 21](#) .
- Reach into opening in fuel tank and unclip fuel line -1- from baffle housing -arrow A-.
- Press release tab and disconnect fuel line -4-.
- Release retainer -3- -arrow B- and pull fuel filter -2- out of baffle housing -arrow C-.



WARNING

Safety risk from escaping fuel: the fuel filter is still filled.

- ◆ **Use a cloth to catch escaping fuel.**



- Carefully take fuel filter with fuel line out of fuel tank.

Installing

Installation is carried out in the reverse order; note the following:



Note

Make sure that fuel hoses are securely fitted.

- Press fuel filter into baffle housing, making sure it clicks into place.



Note

The fuel filter can only be inserted in one position.

- Connect fuel line, making sure it engages audibly.
- Install fuel delivery unit ⇒ [page 25](#) .
- Vehicles with auxiliary heater: Let auxiliary heater run with full load for 10 minutes to bleed fuel line leading to metering pump.

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4 Activated charcoal filter system

⇒ [“4.1 Connection diagram - activated charcoal filter system”, page 59](#)

⇒ [“4.2 Exploded view - activated charcoal filter system”, page 61](#)

⇒ [“4.3 Removing and installing activated charcoal filter”, page 65](#)

⇒ [“4.4 Removing and installing honeycomb filter”, page 67](#)

⇒ [“4.5 Fuel tank leak detection”, page 69](#)

⇒ [“4.6 Removing and installing control unit for fuel tank leak detection J909”, page 69](#)

⇒ [“4.7 Removing and installing tank pressure sensor G400”, page 70](#)

⇒ [“4.8 Removing and installing air filter for tank pressure sensor G400”, page 70](#)

4.1 Connection diagram - activated charcoal filter system



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Illustration shows connection diagram for USA vehicles with 4.2 ltr. FSI engine as an example.



1 - Activated charcoal filter solenoid valve 1 - N80-

2 - Vacuum line

- From engine to activated charcoal filter
- Clipped onto retainers on underbody

3 - Fuel filler neck

4 - Breather line

- From fuel filler neck to activated charcoal filter

5 - Activated charcoal filter

- Fitting location: in wheel housing (rear right) behind wheel housing liner
- Removing and installing ⇒ [page 66](#)

6 - Air filter

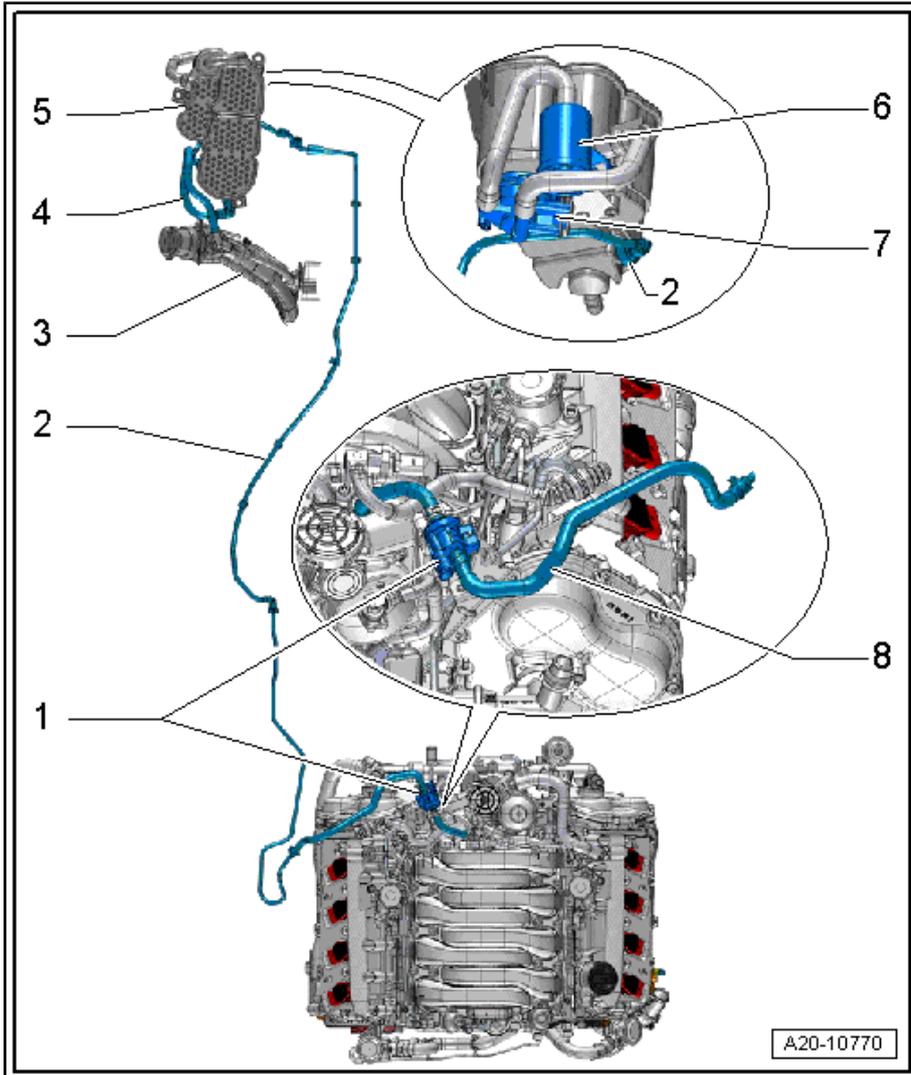
- For tank pressure sensor - G400-

7 - Tank pressure sensor - G400-

- Fitting location: in wheel housing (rear right) behind wheel housing liner
- Checking in [Guided Fault Finding](#) ⇒ vehicle diagnostic tester
- Removing and installing ⇒ [page 70](#)

8 - Breather line

- From activated charcoal filter to activated charcoal filter solenoid valve 1 - N80-



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4.2 Exploded view - activated charcoal filter system

⇒ [“4.2.1 Exploded view - activated charcoal filter system \(vehicles without high-voltage system\)”](#), page 61

⇒ [“4.2.2 Exploded view - activated charcoal filter system \(vehicles with high-voltage system\)”](#), page 62

⇒ [“4.2.3 Exploded view - activated charcoal filter system \(USA vehicles without recuperation\)”](#), page 63

⇒ [“4.2.4 Exploded view - activated charcoal filter system \(USA vehicles with recuperation\)”](#), page 64

4.2.1 Exploded view - activated charcoal filter system (vehicles without high-voltage system)

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1 - Breather line

- To activated charcoal filter solenoid valve 1 - N80-
- Press release tab on connection piece to disconnect
- Clipped into bracket

2 - O-ring

3 - Valve

4 - Breather line

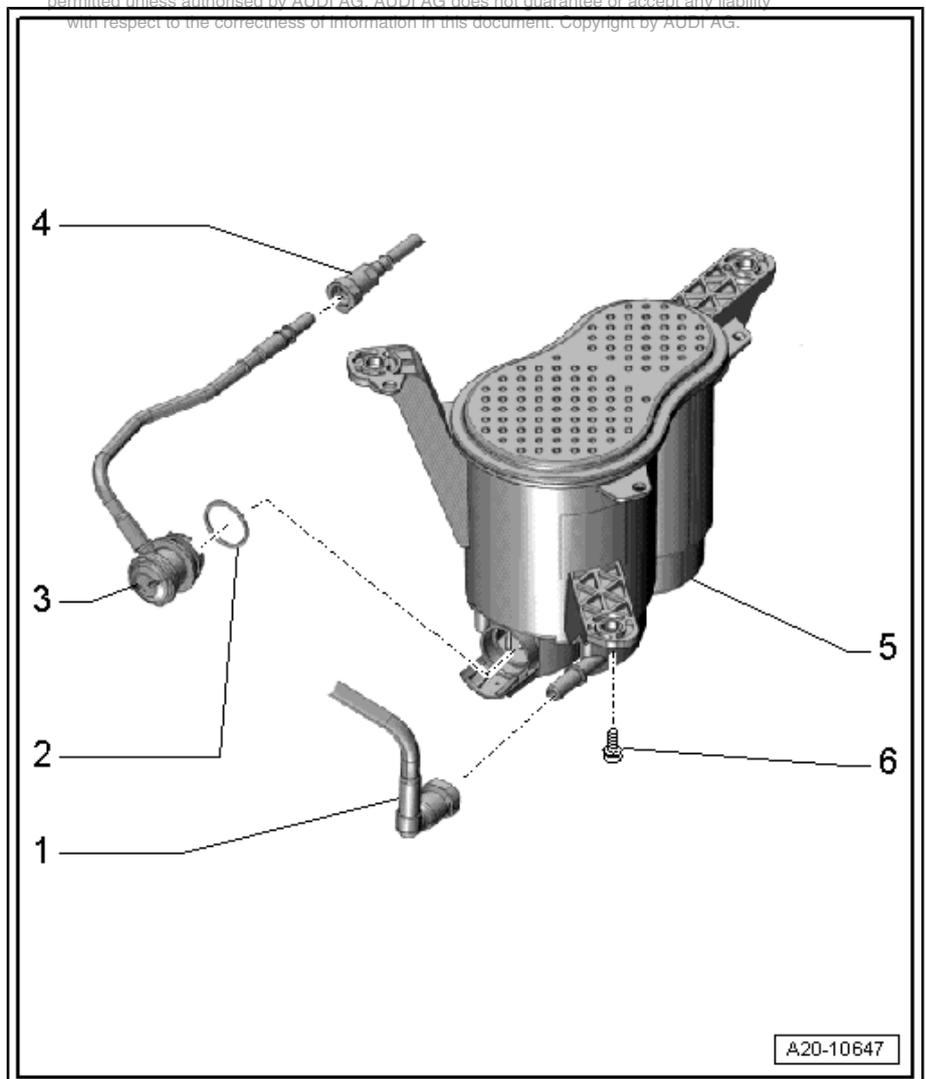
- From fuel tank
- Press release tab on connection piece to disconnect

5 - Activated charcoal filter

- Fitting location: in wheel housing (rear right) behind wheel housing liner
- Removing and installing ⇒ [page 65](#)

6 - Bolt

- 3x
- 20 Nm



4.2.2 Exploded view - activated charcoal filter system (vehicles with high-voltage system)

1 - Bolt

- 2x
- 2.2 Nm

2 - Hose clip

- Use correct type of clip (as original equipment) ⇒ Electronic parts catalogue

3 - Vent hose

- Use correct part (as original equipment) ⇒ Electronic parts catalogue

4 - Honeycomb filter 2

- Removing and installing ⇒ [page 67](#)

5 - Hose clip

- Use correct type of clip (as original equipment) ⇒ Electronic parts catalogue

6 - Honeycomb filter 1

- Removing and installing ⇒ [page 67](#)

7 - Hose clip

- Use correct type of clip (as original equipment) ⇒ Electronic parts catalogue

8 - Vent hose

- Use correct part (as original equipment) ⇒ Electronic parts catalogue

9 - Hose clip

- Use correct type of clip (as original equipment) ⇒ Electronic parts catalogue

10 - Activated charcoal filter

- Fitting location: in wheel housing (rear right) behind wheel housing liner
- Removing and installing ⇒ [page 65](#)

11 - Bolt

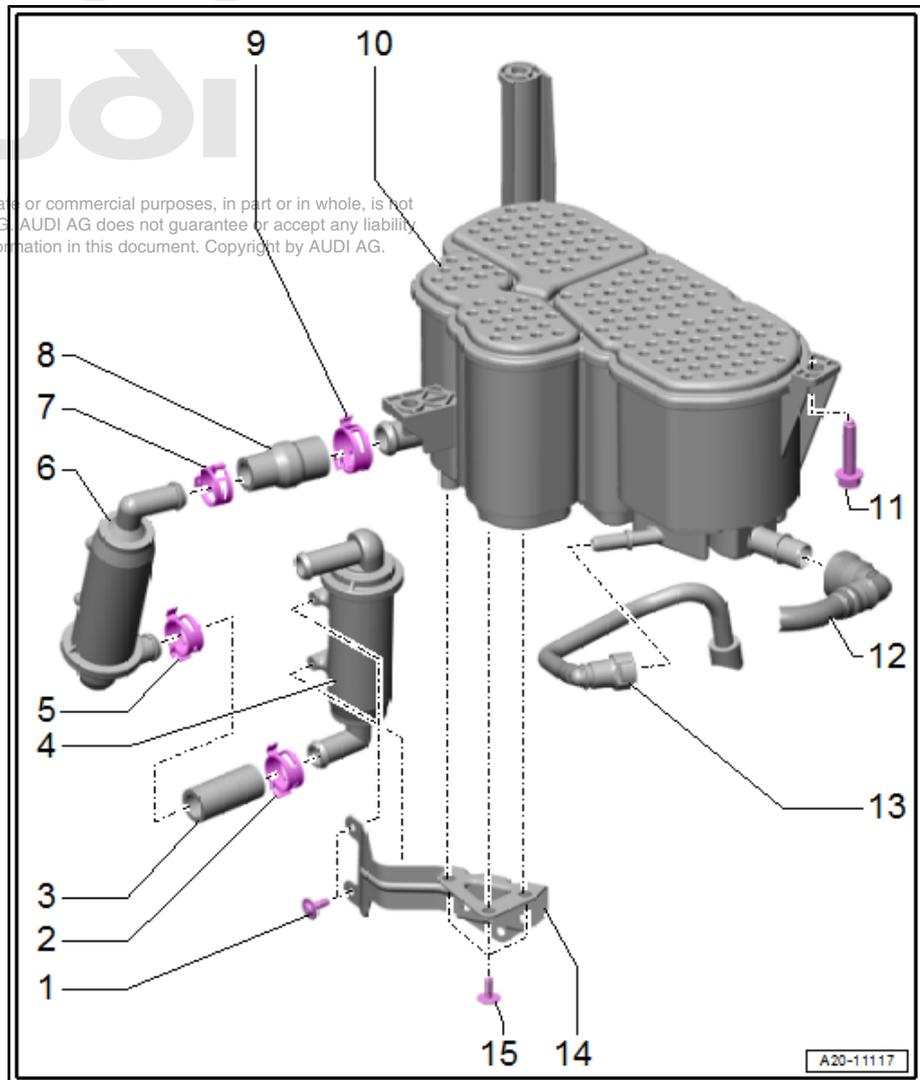
- 3x
- 20 Nm

12 - Breather line

- From fuel tank
- Press release tab on connection piece to disconnect

13 - Breather line

- To activated charcoal filter solenoid valve 1 - N80-
- Press release tab on connection piece to disconnect



- Clipped into bracket

14 - Bracket

- For honeycomb filter
- Removing and installing
 => "4.4.1 Removing and installing honeycomb filter (vehicles with high-voltage system)", page 67

15 - Bolt

- 3x
- 2.2 Nm

4.2.3 Exploded view - activated charcoal filter system (USA vehicles without recuperation)

1 - Air filter

- For tank pressure sensor - G400-
- Fitting location: in wheel housing (rear right) behind wheel housing liner
- Removing and installing
 => page 70

2 - Hose clip

3 - Vent hose

4 - Tank pressure sensor G400-

- Fitting location: in wheel housing (rear right) behind wheel housing liner
- Checking in Guided Fault Finding => vehicle diagnostic tester
- Removing and installing
 => page 70

5 - Activated charcoal filter

- Fitting location: in wheel housing (rear right) behind wheel housing liner
- Removing and installing
 => page 66

6 - Bolt

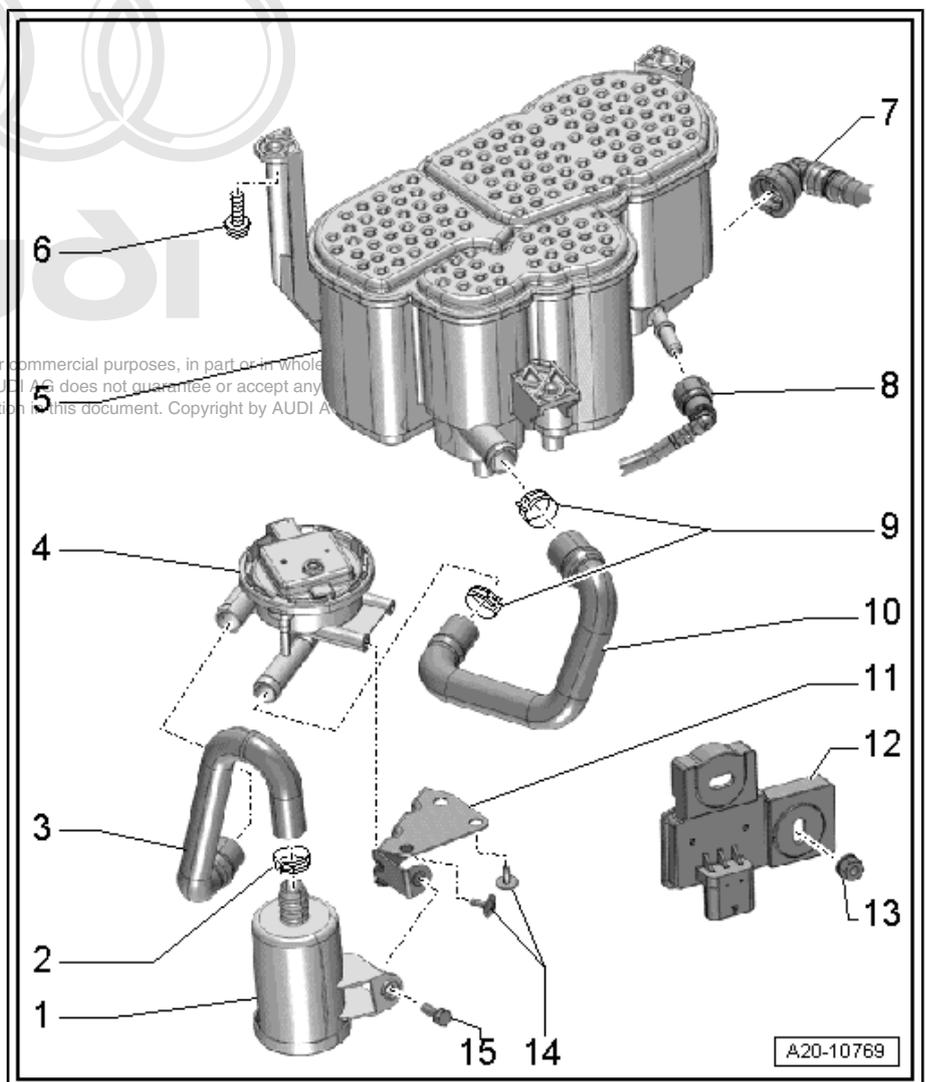
- 3x
- 20 Nm

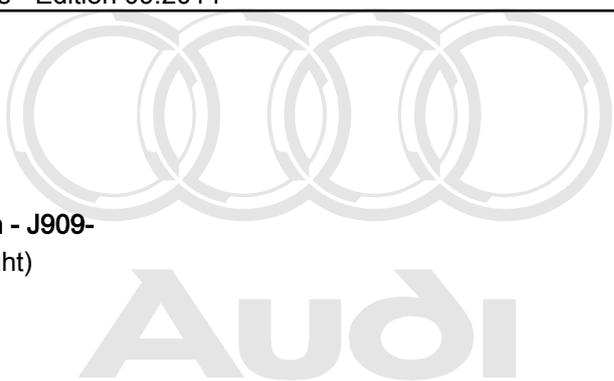
7 - Breather line

- From fuel tank
- Press release tab on connection piece to disconnect

8 - Breather line

- To activated charcoal filter solenoid valve 1 - N80-
- Press release tab on connection piece to disconnect
- Clipped into bracket



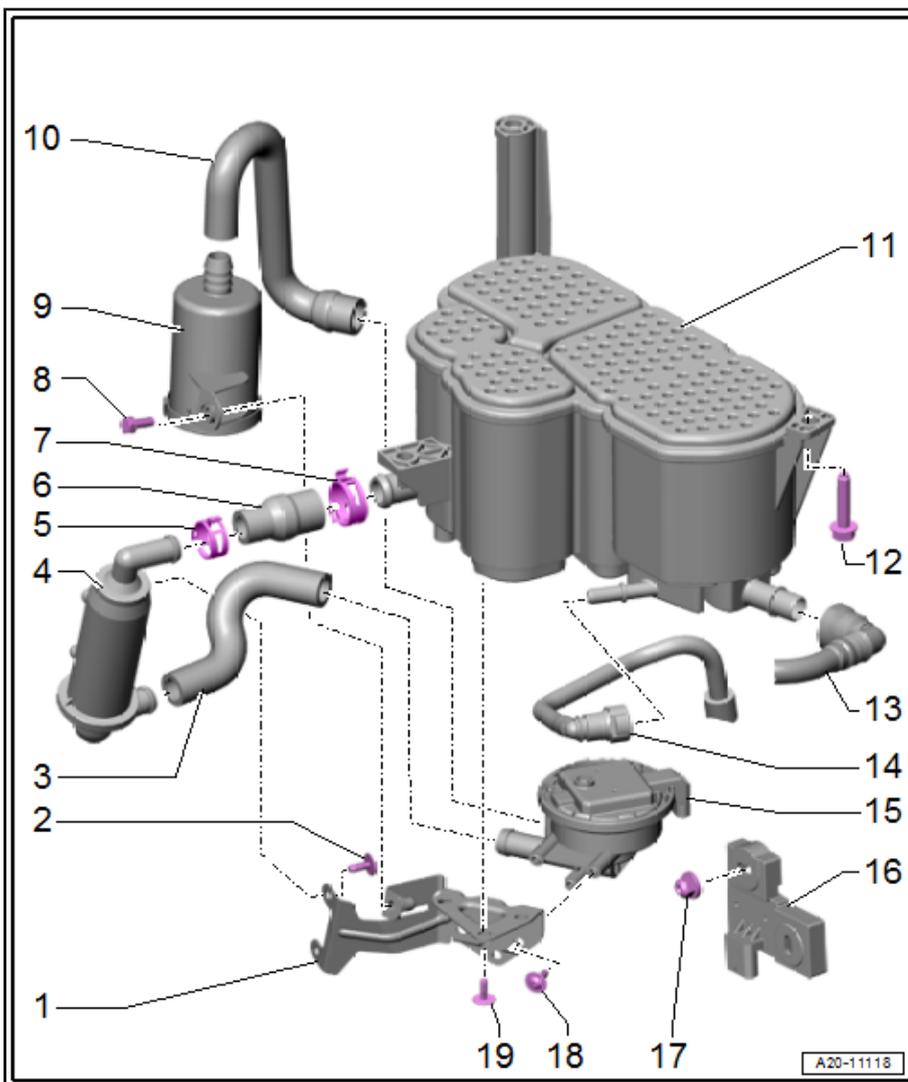


- 9 - Hose clip
- 10 - Vent hose
- 11 - Bracket
- 12 - Control unit for fuel tank leak detection - J909-
 - Fitting location: on fuel tank (front right)
 - Removing and installing => [page 69](#)
- 13 - Nut
 - 2x
 - 1.6 Nm
- 14 - Bolt
 - 6x
 - 2.2 Nm
- 15 - Bolt
 - 5 Nm

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4.2.4 Exploded view - activated charcoal filter system (USA vehicles with recuperation)

- 1 - Bracket
 - Removing and installing => [“4.4.2 Removing and installing honeycomb filter \(USA vehicles with recuperation\)”](#), [page 68](#)
- 2 - Bolt
 - 2x
 - 2.2 Nm
- 3 - Vent hose
- 4 - Honeycomb filter
 - Removing and installing => [page 68](#)
- 5 - Hose clip
 - Use correct type of clip (as original equipment) => Electronic parts catalogue
- 6 - Vent hose
- 7 - Hose clip
 - Use correct type of clip (as original equipment) => Electronic parts catalogue
- 8 - Bolt
 - 5 Nm
- 9 - Air filter
 - For tank pressure sensor - G400-
 - Fitting location: in wheel



housing (rear right) behind wheel housing liner

- Removing and installing ⇒ [page 70](#)

10 - Vent hose

11 - Activated charcoal filter

- Fitting location: in wheel housing (rear right) behind wheel housing liner
- Removing and installing ⇒ [page 66](#)

12 - Bolt

- 3x
- 20 Nm

13 - Breather line

- From fuel tank
- Press release tab on connection piece to disconnect

14 - Breather line

- To activated charcoal filter solenoid valve 1 - N80-
- Press release tab on connection piece to disconnect
- Clipped into bracket

15 - Tank pressure sensor - G400-

- Fitting location: in wheel housing (rear right) behind wheel housing liner
- Checking in [Guided Fault Finding](#) ⇒ vehicle diagnostic tester
- Removing and installing ⇒ [page 70](#)

16 - Control unit for fuel tank leak detection - J909-

- Fitting location: on fuel tank (front right)
- Removing and installing ⇒ [page 69](#)

17 - Nut

- 2x
- 1.6 Nm

18 - Bolt

- 3x
- 2.2 Nm

19 - Bolt

- 3x
- 2.2 Nm

4.3 Removing and installing activated charcoal filter

⇒ [“4.3.1 Removing and installing activated charcoal filter \(rest-of-world vehicles\)”, page 65](#)

⇒ [“4.3.2 Removing and installing activated charcoal filter \(USA vehicles\)”, page 66](#)

4.3.1 Removing and installing activated charcoal filter (rest-of-world vehicles)

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .

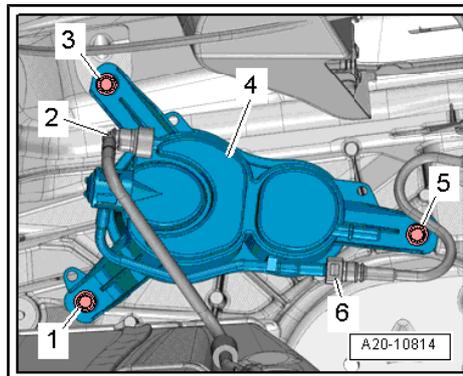
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- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .

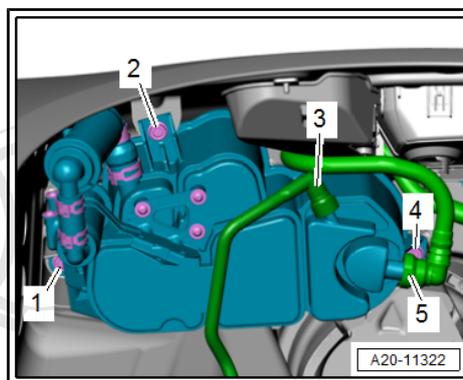
Vehicles without high-voltage system:

- Press release tab and disconnect breather line -2- leading to activated charcoal filter solenoid valve 1 - N80- .
- Press release tab and disconnect breather line -6- leading to fuel tank.
- Unscrew bolts -1, 3, 5- and remove activated charcoal filter -4-.



Vehicles with high-voltage system:

- Press release tab and disconnect breather line -3- leading to activated charcoal filter solenoid valve 1 - N80- .
- Press release tab and disconnect breather line -5- leading to fuel tank.
- Unscrew bolts -1, 2 and 4- and remove activated charcoal filter.



Installing

Installation is carried out in the reverse order; note the following:

- Connect breather lines, making sure they engage audibly.

Tightening torques

- ◆ ⇒ ["4.2 Exploded view - activated charcoal filter system", page 61](#)
- ◆ ⇒ General body repairs, exterior; Rep gr. 66; Wheel housing liners; Exploded view - wheel housing liner (rear)

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4.3.2 Removing and installing activated charcoal filter (USA vehicles)

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .

- Press release tab and disconnect breather line -3- leading to activated charcoal filter solenoid valve 1 - N80- .
- Press release tab and disconnect breather line -5- leading to fuel tank.
- Unplug electrical connector -6-.
- Unscrew bolts -1, 2 and 4- and remove activated charcoal filter.

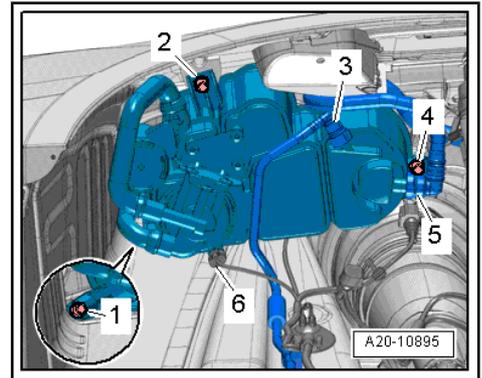
Installing

Installation is carried out in the reverse order; note the following:

- Connect breather lines, making sure they engage audibly.

Tightening torques

- ◆ ⇒ ["4.2 Exploded view - activated charcoal filter system", page 61](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



4.4 Removing and installing honeycomb filter

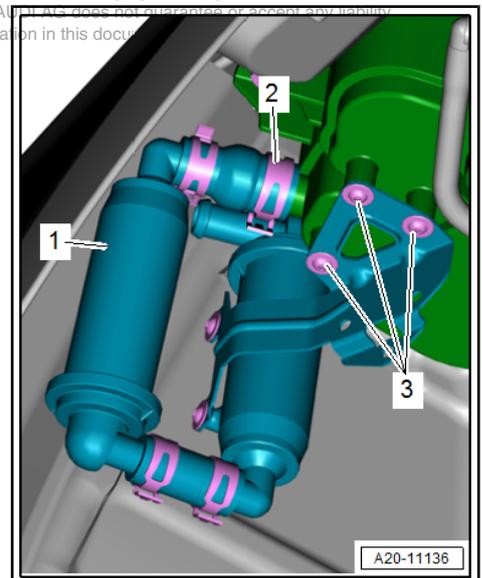
⇒ ["4.4.1 Removing and installing honeycomb filter \(vehicles with high-voltage system\)", page 67](#)

⇒ ["4.4.2 Removing and installing honeycomb filter \(USA vehicles with recuperation\)", page 68](#)

4.4.1 Removing and installing honeycomb filter (vehicles with high-voltage system)

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Remove bolts -3-.
- Slacken hose clip -2- and detach vent hose from activated charcoal filter.
- Detach honeycomb filter -1- with bracket.



- Remove bolts -3- and remove bracket.
- Release hose clip and disconnect vent hose -1- for honeycomb filters -2, 4-.

Installing

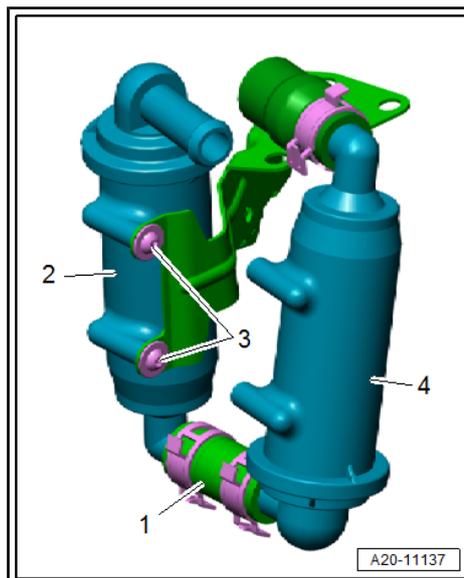
Installation is carried out in the reverse order; note the following:

Note

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue* .

Tightening torques

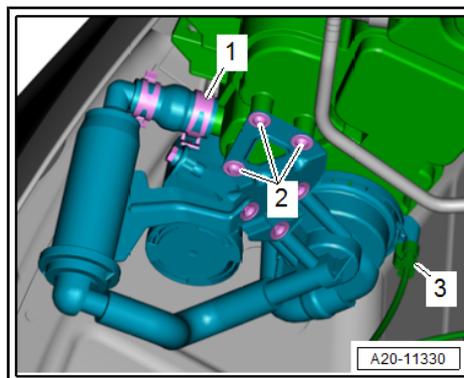
- ◆ ⇒ [“4.2 Exploded view - activated charcoal filter system”, page 61](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



4.4.2 Removing and installing honeycomb filter (USA vehicles with recuperation)

Removing

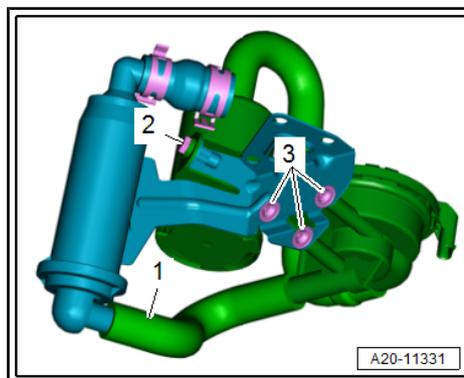
- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Unplug electrical connector -3-.
- Remove bolts -2-.
- Slacken hose clip -1- and detach vent hose from activated charcoal filter.
- Detach bracket with honeycomb filter, air filter and tank pressure sensor - G400- .



- Disconnect vent hose -1- from honeycomb filter.

- Remove bolts -2 and 3-.

- Detach honeycomb filter with bracket.
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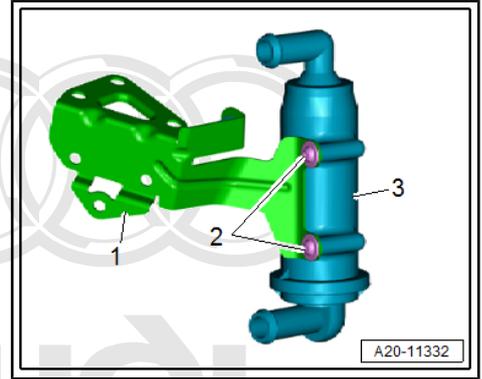
- Remove bolts -2-.
- Detach honeycomb filter -3- from bracket -1-.

Installing

Install in reverse order.

Tightening torques

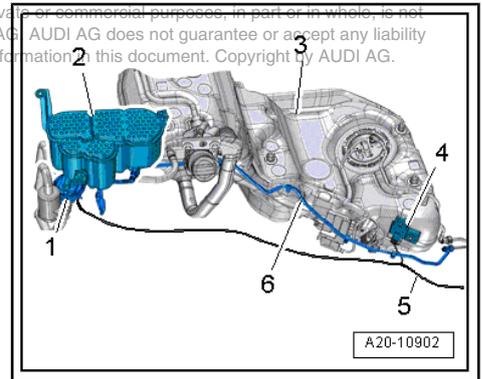
- ◆ => "4.2 Exploded view - activated charcoal filter system", page 61
- ◆ => General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



4.5 Fuel tank leak detection

- ◆ The fuel tank leak detection system makes use of the fact that a partial vacuum is formed inside the fuel system when fuel in the tank cools down.
- ◆ The tank pressure sensor - G400- -item 1- registers the degree of vacuum in the breather line near the activated charcoal filter -2-. The control unit for fuel tank leak detection - J909- -item 4- is located directly on the wall of the fuel tank -3- and is thus able to register the temperature in the tank. The system is judged to be leak-tight when a vacuum of 2.5 mbar is measured.
- ◆ If no vacuum is formed, there is a leak in the fuel system. In this case a fault will be stored in the event memory of the engine control unit.

- 5 - Signal wire to engine control unit - J623-
- 6 - Breather line to engine



4.6 Removing and installing control unit for fuel tank leak detection - J909-

Removing

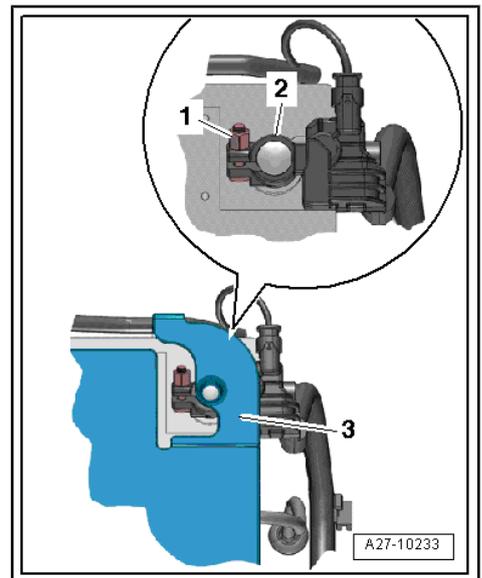
- Observe safety precautions => page 1 .
- Observe rules for cleanliness => page 6 .

Caution

To prevent irreparable damage to the electronic components when disconnecting the battery:

- ◆ *Observe notes on procedure for disconnecting the battery.*

- Disconnect earth wire -2- from battery terminal => Electrical system; Rep. gr. 27 ; Battery, Disconnecting and connecting battery .
- Remove underbody trim panels (rear right) => General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .





- Release retainer catch and unplug electrical connector -1-.
- Remove nuts -2- and detach control unit for fuel tank leak detection - J909- -item 3- from below.

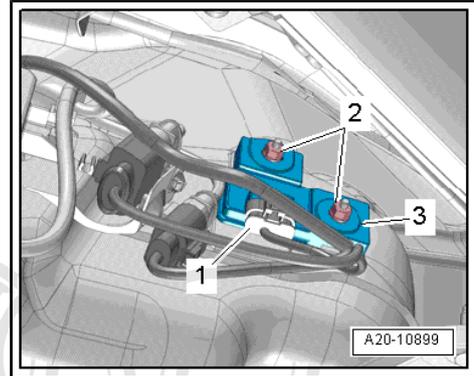
Installing

Installation is carried out in the reverse order; note the following:

- Observe steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

Tightening torques

- ◆ ⇒ ["4.2 Exploded view - activated charcoal filter system", page 61](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim



4.7 Removing and installing tank pressure sensor - G400-

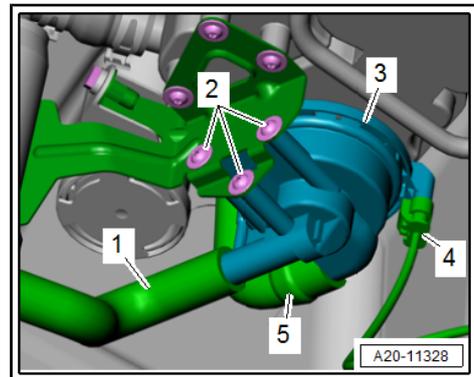
Removing

- Observe safety precautions ⇒ [page 1](#) . Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- Observe rules for cleanliness ⇒ [page 6](#) .
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Unplug electrical connector -4-.
- Disconnect vent hoses -1, 5- from tank pressure sensor - G400- .
- Remove bolts -2-.
- Take out tank pressure sensor - G400- -item 3-.



Note

The activated charcoal filter system for vehicles with recuperation is shown as an example.



Installing

Install in reverse order.

Tightening torques

- ◆ ⇒ ["4.2 Exploded view - activated charcoal filter system", page 61](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)

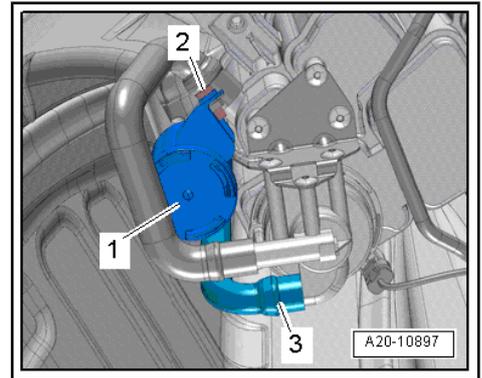
4.8 Removing and installing air filter for tank pressure sensor - G400-

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .

Vehicles without recuperation:

- Disconnect vent hose -3- from tank pressure sensor - G400- .
- Remove bolt -2- and detach air filter -1- for tank pressure sensor - G400- .



Vehicles with recuperation:

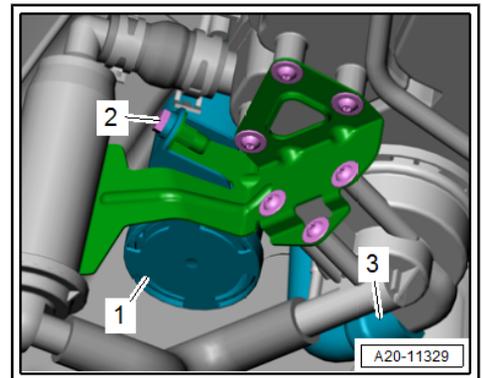
- Disconnect vent hose -3- from tank pressure sensor - G400- .
- Unscrew bolt -2- and remove air filter -1-.

Installing

Install in reverse order.

Tightening torques

- ◆ ⇒ ["4.2 Exploded view - activated charcoal filter system", page 61](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



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5 Fuel pump

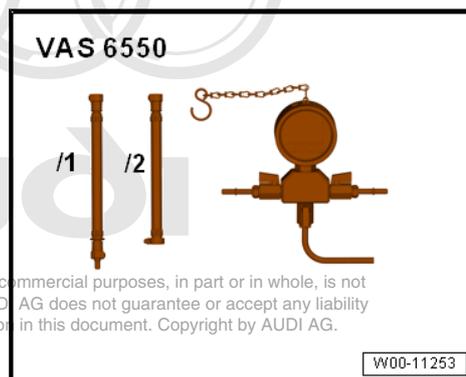
⇒ ["5.1 Checking fuel system pressurisation pump G6", page 72](#)

⇒ ["5.2 Removing and installing fuel pump control unit J538", page 78](#)

5.1 Checking fuel system pressurisation pump - G6-

Special tools and workshop equipment required

- ◆ Pressure tester - VAS 6550- with hoses - VAS 6550/2-

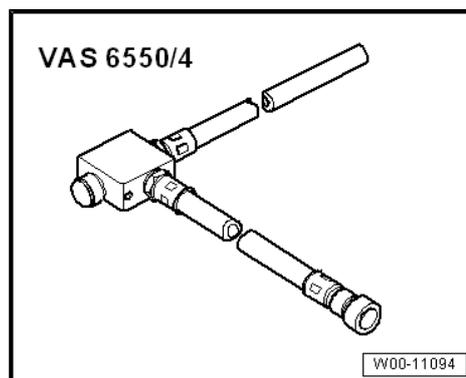


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- ◆ Adapter set - VAS 6550/3- for vehicles with fuel supply line with hose clip



- ◆ Pressure control valve - VAS 6550/4-



- ◆ Vehicle diagnostic tester
- ◆ Fuel-resistant measuring container

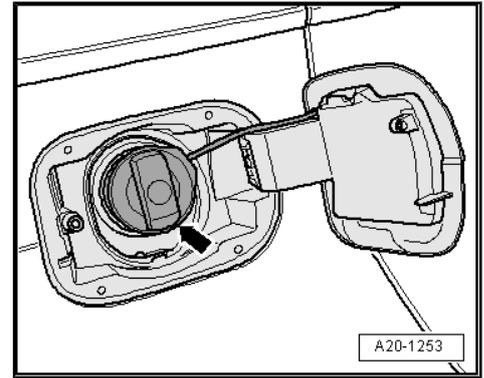
A - Checking fuel delivery rate

- Observe test conditions ⇒ [page 6](#) .
- Open tank flap.
- Remove filler cap -arrow- for fuel filler neck.

⚠ WARNING

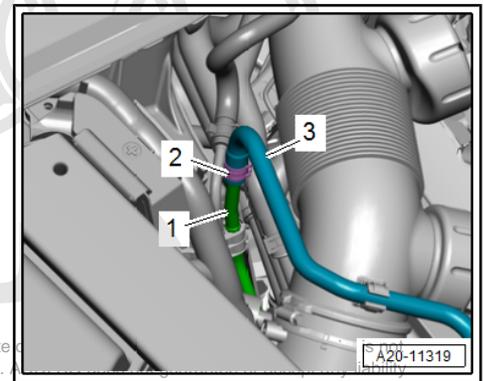
Risk of injury - fuel system operates under high pressure.

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



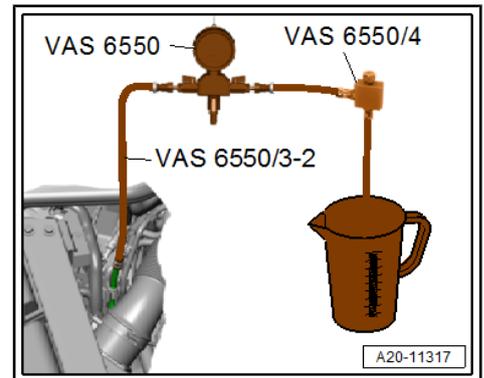
Vehicles with 3.0 ltr. TFSI engine and fuel supply line with hose clip:

- Release hose clip -2- and detach fuel hose -3- from fuel line -1-.



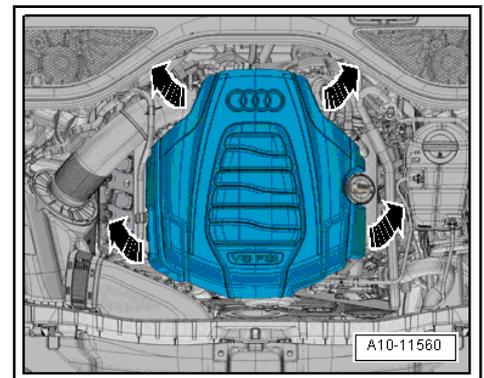
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- Connect pressure tester - VAS 6550- to fuel supply line with connection lead - VAS 6550/3-2- and secure with hose clip.
- Attach pressure control valve - VAS 6550/4- and hold end of hose into fuel-resistant measuring container.



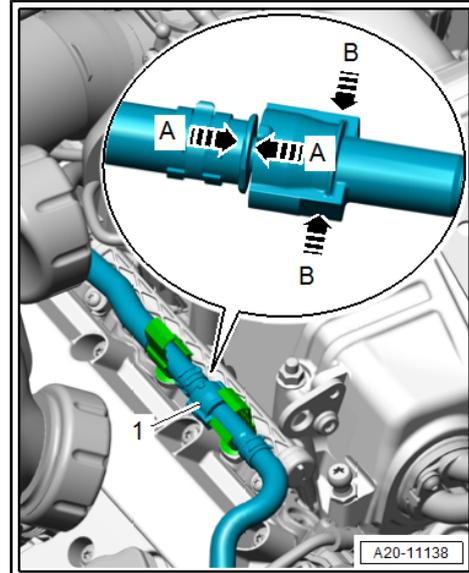
Vehicles with 3.0 ltr. TFSI engine and fuel supply line with plug-in connector:

- Remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

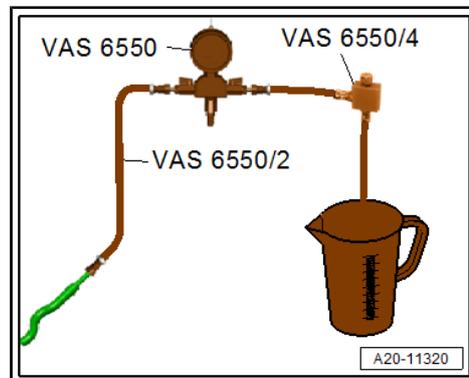




- Open retaining clips and move fuel hose -1- clear.
- First compress hose connector -arrows A-, then press in release tabs -arrows B- and disconnect fuel hose.
- Keep release tabs depressed and detach hose connector.

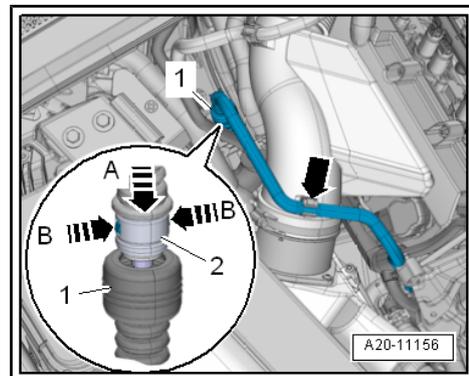


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- Connect pressure tester -VAS 6550- to fuel supply hose using hose -VAS 6550/2- .
 - Attach pressure control valve -VAS 6550/4- and hold end of hose into fuel-resistant measuring container.

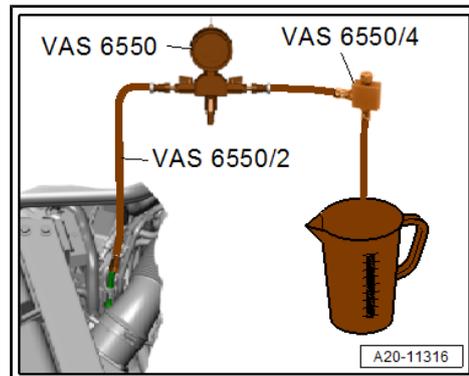


All other vehicles with fuel supply line with plug-in connector:

- Push back protective sleeve -1- and disconnect fuel line.
- First press hose connector -2- downwards -arrow A-, then press release tabs -arrows B-.
- Pull off hose connector, keeping release tabs depressed.



- Connect pressure tester -VAS 6550- to fuel supply line with hose -VAS 6550/2- .
- Attach pressure control valve -VAS 6550/4- and hold end of hose into fuel-resistant measuring container.



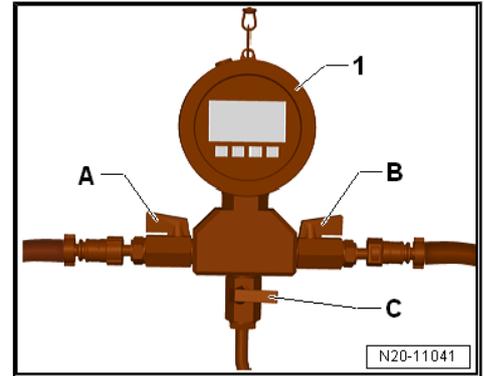
All vehicles (continued):

- Switch on pressure tester - VAS 6550- -item 1- by pressing **On/Off** button.

Note

To measure the fuel delivery rate, pressure must first be built up in the fuel line; the fuel pump must then operate against this pressure during the measurement. This pressure can be built up using the pressure control valve - VAS 6550/4- as follows:

- Open cut-off valves -A and B-.
- Levers must point in direction of flow.



Caution

Risk of fuel escaping.

- ◆ **Cut-off valve -C- must be closed.**
- ◆ **The lever should point perpendicular to direction of flow.**

- Connect vehicle diagnostic tester .
- Switch on the ignition and select the following menu options on the vehicle diagnostic tester :
 - ◆ **Vehicle self-diagnosis**
 - ◆ **Engine electronics**
 - ◆ **Basic setting**
 - ◆ **Empty fuel tank**
- Press **Start**: The fuel pump will start running.



- Build up pressure in fuel system by turning adjuster screw -1- on pressure control valve - VAS 6550/4- until correct pressure is reached.
- Specification: 4.3 bar
- From this point on, do not turn adjuster screw -1-.
- Press **Stop**.
- Drain measuring container.
- For measurement, press **Start** again and let fuel pump run for 15 seconds.
- Press **Stop** after 15 seconds.
- Check amount of fuel delivered in measuring container.
- Specification: minimum delivery rate 800 cm³/15 sec.

If the minimum delivery rate is attained:

- ◆ Fuel supply line and fuel pump are OK

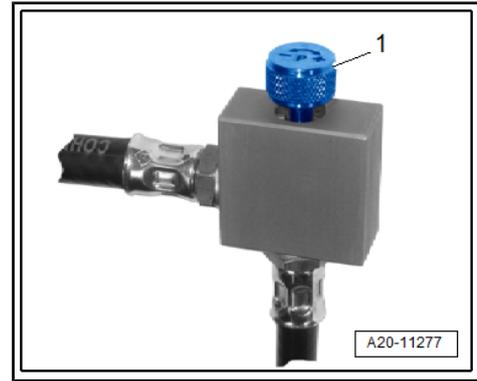
If minimum delivery rate is not achieved, check for the following causes:

- ◆ Fuel pump or fuel pressure regulator in fuel tank faulty.
- ◆ Blocked fuel filter or crushed fuel line.



Note

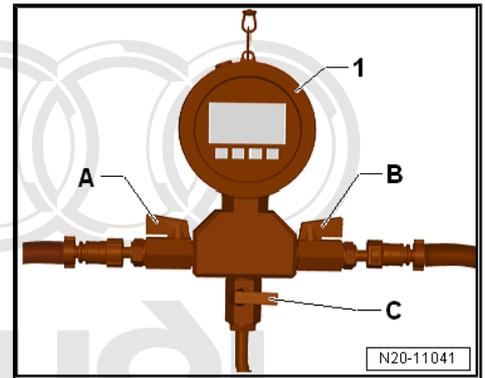
To find the precise cause of the fault, a pressure test must be performed on the fuel supply line as described below.



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B - Pressure test on fuel supply line

- Leave measuring equipment connected in the same way as for measuring the fuel delivery rate.
- Vehicle diagnostic tester still connected.
- Switch on pressure tester - VAS 6550- -item 1- by pressing **[On/Off]** button.
- Open cut-off valves -A and B-.
- Levers must point in direction of flow.



Caution

Risk of fuel escaping.

- ◆ **Cut-off valve -C- must be closed.**
- ◆ **The lever should point perpendicular to direction of flow.**

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- Press **[Start]** on vehicle diagnostic tester display to start the fuel pump.
- When fuel emerging is free of bubbles, close cut-off valve -B- to allow fuel pressure to build up.
- The lever should point perpendicular to direction of flow.
- Read fuel pressure off pressure tester - VAS 6550- :
- Specification: 5.0 ... 8.0 bar
- Press **[Stop]**.

If specification is attained although fuel delivery rate was not OK:

- ◆ Blocked fuel filter or crushed fuel supply line.

If specification is not attained:

- ◆ Fuel pump or fuel pressure regulator in fuel tank faulty.

C - Checking residual pressure

- Check system for leaks and check residual pressure by watching drop in pressure on pressure tester - VAS 6550- :
- After 10 minutes pressure should still be at least 3 bar.

If the residual pressure drops below 3 bar:

- ◆ Check fuel lines and their connections for leaks.
- ◆ Non-return valve in fuel pump is leaking, renew fuel delivery unit ⇒ [page 21](#) .

Assembling

Installation is carried out in the reverse order; note the following:

- The ignition must be switched off.

 **Note**

Before removing the pressure tester -1-, release the fuel pressure by opening the cut-off valves -B, C- and allowing fuel to drain off into a measuring container.

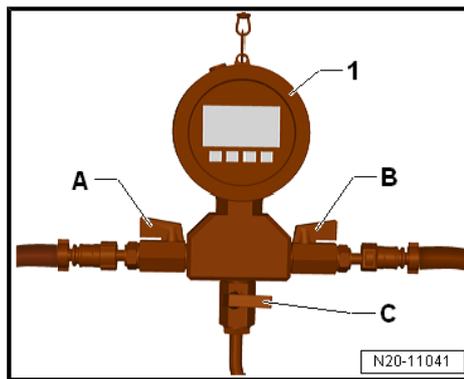
- Detach pressure tester - VAS 6550- together with connection leads.

Vehicles with fuel supply line with plug-in connector:

- Connect fuel supply line, making sure it engages audibly.
- Press fuel supply line in again and then pull to check that plug-in connector is correctly engaged.

Vehicles with fuel supply line with hose clip:

- Secure fuel supply line with hose clip and then pull to check that fuel supply line is properly secured.



5.2 Removing and installing fuel pump control unit - J538-

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 6](#) .



Caution

To prevent irreparable damage to the electronic components when disconnecting the battery:

- ◆ Observe notes on procedure for disconnecting the battery.

- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery, Disconnecting and connecting battery .
- Remove underbody trim panels (rear right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Release retainer catch and unplug electrical connector -2-.
- Remove nuts -arrows- and detach fuel pump control unit -1-.

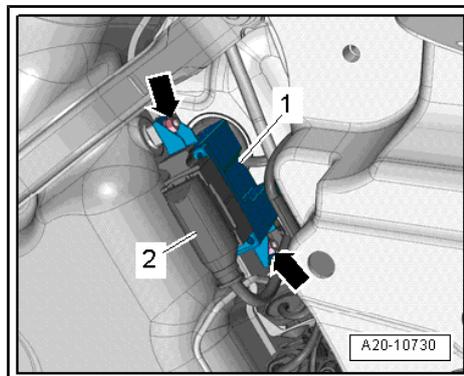
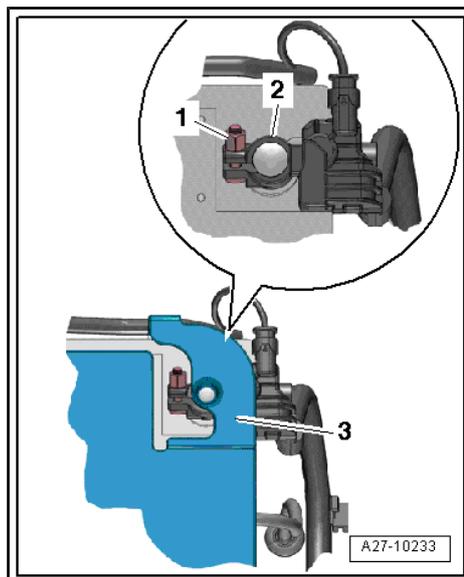
Installing

Installation is carried out in the reverse order; note the following:

- Observe steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 18](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim



6 Accelerator mechanism

⇒ “6.1 Exploded view - accelerator pedal module”, page 79

⇒ “6.2 Removing and installing accelerator pedal module with accelerator position sender G79 / G185”, page 80

6.1 Exploded view - accelerator pedal module

1 - Accelerator pedal module

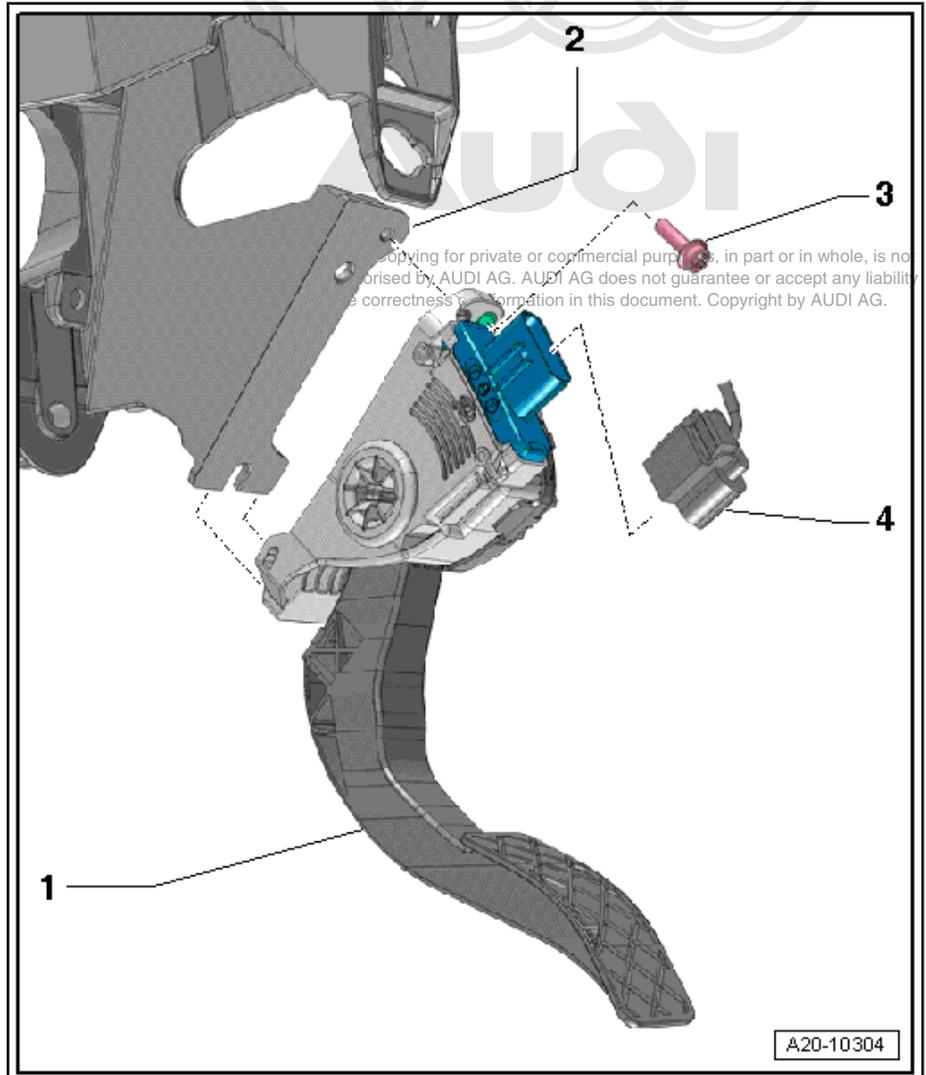
- With accelerator position sender - G79- and accelerator position sender 2 - G185-
- Removing and installing ⇒ [page 80](#)
- Adaption may be required after renewing, depending on engine/ gearbox combination
- If this menu item is available in “Guided Functions”, perform adaption ⇒ Vehicle diagnostic tester

2 - Pedal bracket

3 - Bolt

- 8 Nm

4 - Electrical connector

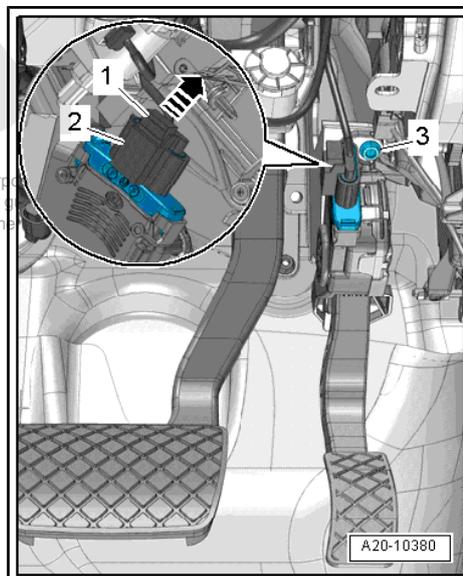




6.2 Removing and installing accelerator pedal module with accelerator position sender -G79- / -G185-

Removing

- Remove dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves / trim panels; Removing and installing dash panel cover (driver side) .
- Push release tab -1- upwards -arrow- and unplug electrical connector -2-.
- Remove bolt -3- and take out accelerator pedal module downwards.



Installing

Installation is carried out in the reverse order; note the following:

- Attach accelerator pedal module -4- to bottom of pedal bracket -1-, insert centring pin -2- and tighten bolt -3-.
- Install dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves / trim panels; Removing and installing dash panel cover (driver side) .



Note

- ◆ *Adaption must be carried out after renewing, depending on engine/gearbox combination.*
- ◆ *If this menu item is available in "Guided Functions", perform adaption ⇒ Vehicle diagnostic tester.*

Tightening torques

- ◆ ⇒ ["6.1 Exploded view - accelerator pedal module", page 79](#)

