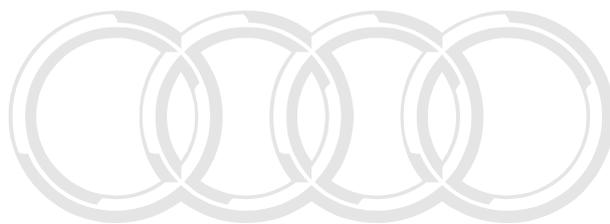


Workshop Manual Audi A8 2010 ➤

Fuel supply system, diesel engines									
Engine ID	CDS B	CDT A	CDT B	CLAB	CMH A	CPN A	CTE C	CTB A	CTB B
	CDT C	CPN B							

Edition 04.2014



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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

(ARL003721; Edition 04.2014)

⇒ [“1.1 Safety precautions when working on the fuel system”, page 1](#)

⇒ [“1.2 Safety precautions when working on vehicles with start/stop system”, page 3](#)

⇒ [“1.3 Safety precautions when using testers and measuring instruments during a road test”, page 3](#)

⇒ [“1.4 Safety precautions when working on the SCR system”, page 4](#)

1.1 Safety precautions when working on the fuel system

When working on the fuel system note the following warnings:

 **WARNING**

Risk of injury - fuel system operates under pressure.

- ◆ *Wrap a cloth around the connection before opening the fuel system. Then release pressure by carefully loosening the connection.*
- ◆ *Wear protective gloves.*
- ◆ *Wear safety goggles.*

The fuel can become extremely hot. This can cause injuries.

- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Wear protective gloves.*
- ◆ *Wear safety goggles.*

Health risk: avoid skin contact with fuel.

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

Escaping fuel can cause a risk.

- ◆ *The power supply for the fuel system pressurisation pump - G6- must be disconnected before opening the fuel system, since -G6- will be activated briefly when the driver's door is opened with the battery still connected.*
- ◆ *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.*

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 on vehicles up to model year 2013 ⇒ [page 10](#) .
- ◆ On vehicles from model year 2014 onwards, the fuel tank cannot be drained without removing it first, because the flange used to extract the fuel is not accessible when the fuel tank is installed. Remove fuel tank ⇒ [page 15](#) . 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).

**WARNING*****Risk of accident caused by weight of fuel tank***

- ◆ ***Fuel tank must be empty when installing and removing to reduce weight.***
- ◆ ***Drain fuel tank if necessary on vehicles up to model year 2013 ⇒ [page 10](#) .***
- ◆ ***On vehicles from model year 2014 onwards, the fuel tank must be removed in order to drain it ⇒ [page 15](#) . Drain fuel tank if necessary ⇒ [page 10](#) .***
- ◆ ***Scissor-type assembly platform - VAS 6131 B- must be used in order to remove a fuel tank containing fuel because of the heavy weight.***

Observe the following points to prevent personal injuries and damage to the injection and glow plug system:

- ◆ Persons wearing a cardiac pacemaker must at all times maintain a safe distance from high-voltage components such as injectors and gas-discharge headlights.
- ◆ Always switch off the ignition before connecting or disconnecting tester cables or electrical wiring for the injection or glow plug system.
- ◆ Do not open any fuel line connections while the engine is running.
- ◆ 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](#), then [Interrogate event memory](#).

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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 .*

1.2 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).*

1.3 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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1.4 Safety precautions when working on the SCR system

When working on the SCR system, note the following warnings:



WARNING

Reducing agent can cause skin irritation.

- ◆ *Avoid contact with the skin and eyes. Wear protective gloves.*
- ◆ *If your skin has come into contact with reducing agent, rinse it off with soap and water.*
- ◆ *If reducing agent gets into your eyes, rinse them out with water for several minutes.*
- ◆ *Do not breathe in or swallow reducing agent.*
- ◆ *If you have swallowed reducing agent, rinse your mouth, drink lots of water and consult a paramedic or doctor immediately.*

Automatic drawing back of reducing agent

- After the ignition is switched off, the reducing agent is automatically drawn back into the reducing agent tank from the metering line leading to the injector for reducing agent - N474- .
- Before performing work in this area, you must therefore wait until the reducing agent has been drawn back; this can take up to 10 minutes after the ignition has been switched off.
- It is also important to wait until the reducing agent has been drawn back (i.e. 10 minutes after the ignition is switched off) before disconnecting the battery => Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



WARNING

Safety risk due to escaping reducing agent.

- ◆ *To prevent large amounts of reducing agent from escaping when the metering line is opened, wait until the reducing agent has been drawn back automatically => [page 4](#) .*

2 Repair instructions

⇒ [“2.1 Rules for cleanliness”, page 5](#)

⇒ [“2.2 Test conditions”, page 5](#)

⇒ [“2.3 Contact corrosion”, page 5](#)

⇒ [“2.4 Routing and attachment of pipes, hoses and wiring”, page 6](#)

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.
- ◆ Make sure that no diesel fuel comes into contact with other components in the engine compartment. If necessary, clean immediately.

2.2 Test conditions

- Battery in standby mode ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery .
- Fuses for fuel pump/ fuel pump relay - J17- / fuel pump control unit - J538- 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.

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2.3 Contact corrosion

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



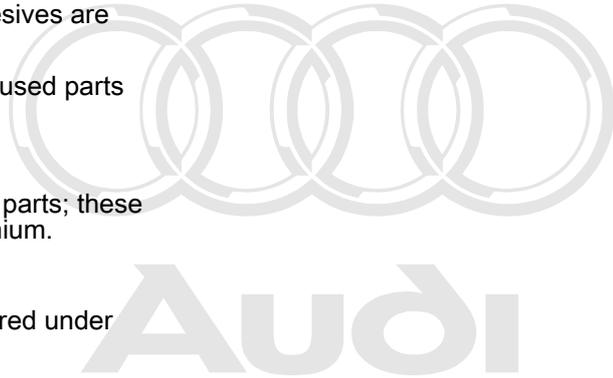
For this reason, only fasteners with a special surface coating are used.

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

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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 7

⇒ “1.2 Draining fuel tank”, page 10

⇒ “1.3 Removing and installing fuel tank”, page 11

⇒ “1.4 Removing and installing misfuelling prevention device”, page 22

⇒ “1.5 Deactivating misfuelling prevention device”, page 25

1.1 Exploded view - fuel tank



Note

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

1 - Bolt

- 23 Nm

2 - Washer

- Only fitted at this location ⇒ page 9
- Only on vehicles with diesel engine

3 - Locking washer

- For heat shield

4 - Fuel supply line

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

5 - Fuel return line

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

6 - Fuel line

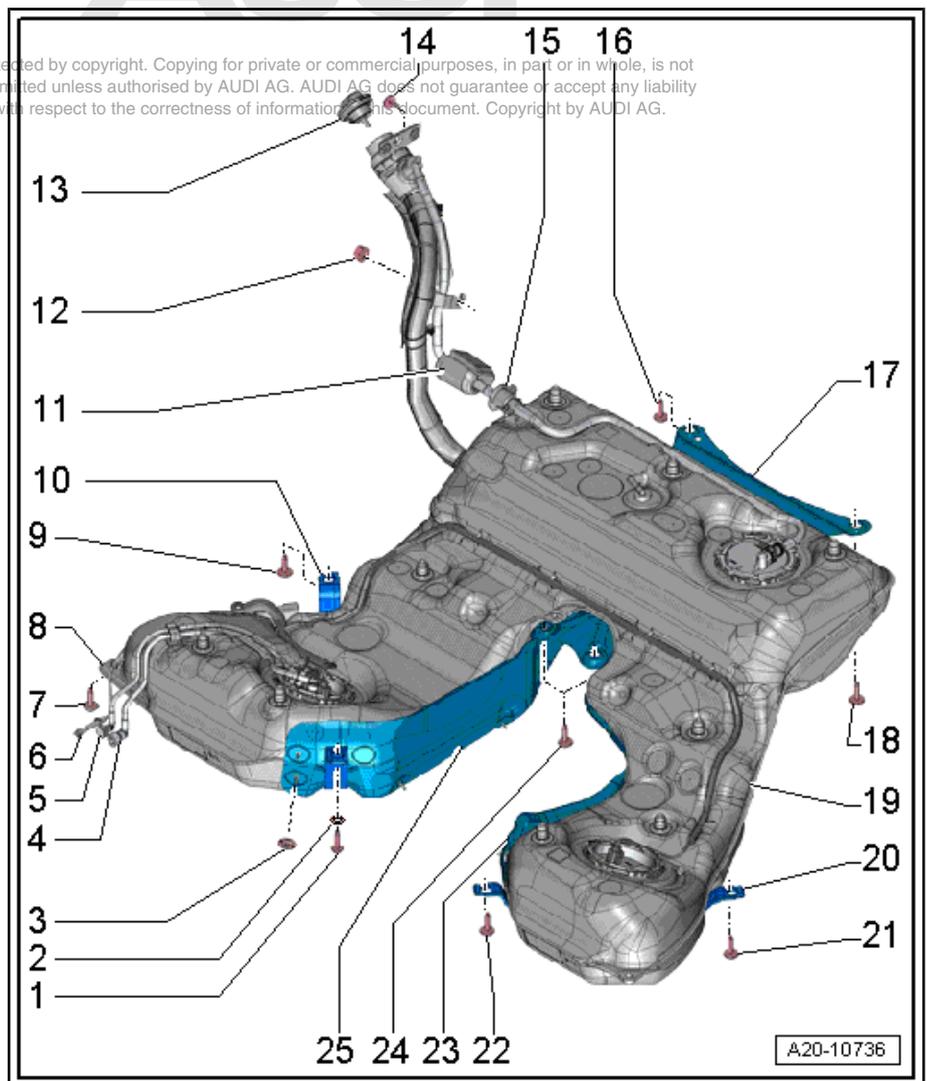
- Only on vehicles with auxiliary heater: from metering pump for auxiliary heater
- Do not kink

7 - Bolt

- 23 Nm

8 - Retainer

- Bolted to fuel tank





9 - Bolt

- 23 Nm

10 - Securing strap

- Mounting components ⇒ [page 9](#)

11 - Protective sleeve

12 - Nut

- 2.5 Nm

13 - Filler cap

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

14 - Bolt

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

15 - Connection point

- For breather line

16 - Bolt

- 23 Nm

17 - Support bracket

18 - Bolt

- 23 Nm

19 - Fuel tank

- Different versions available; for allocation refer to ⇒ Electronic parts catalogue
- Removing and installing ⇒ [page 11](#)

20 - Securing strap

- Mounting components ⇒ [page 9](#)

21 - Bolt

- 23 Nm

22 - Bolt

- 23 Nm

23 - Heat shield for fuel tank

24 - Bolt

- 23 Nm

25 - Heat shield for fuel tank



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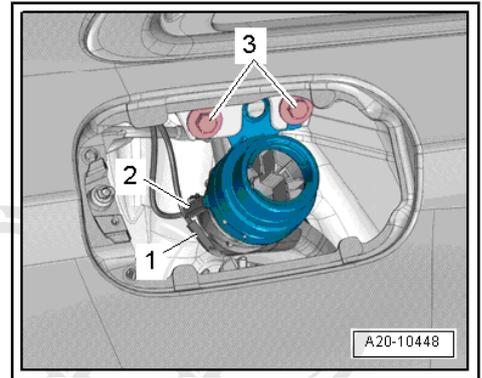
Earth connection for fuel filler neck

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

 **WARNING**

Safety risk due to 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*

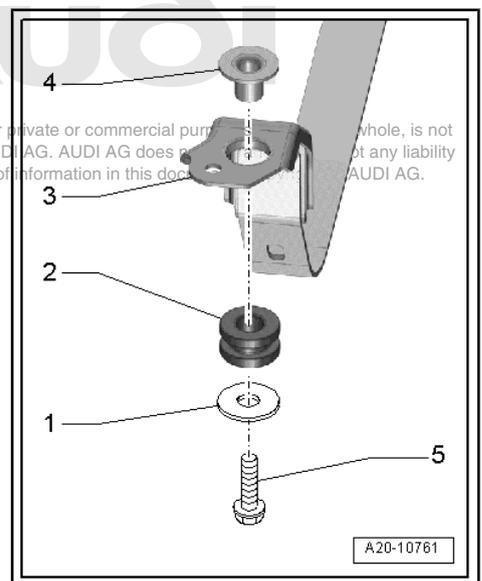


Mounting components for securing strap

Version 1

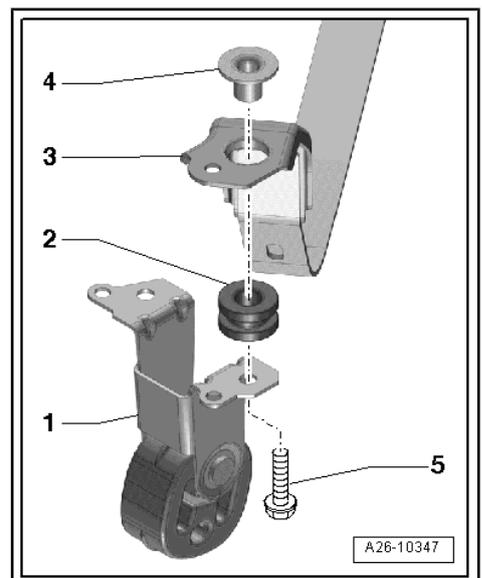
- 1 - Washer (front left inside only)
- 2 - Grommet
- 3 - Securing strap
- 4 - Spacer sleeve
- 5 - Bolt

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Version 2

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



1.2 Draining fuel tank

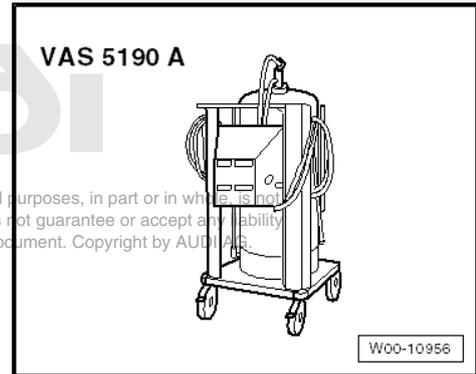
⇒ [“1.2.1 Draining fuel tank \(vehicles up to model year 2013\)”, page 10](#)

⇒ [“1.2.2 Draining fuel tank \(vehicles from model year 2014 onwards\)”, page 10](#)

1.2.1 Draining fuel tank (vehicles up to model year 2013)

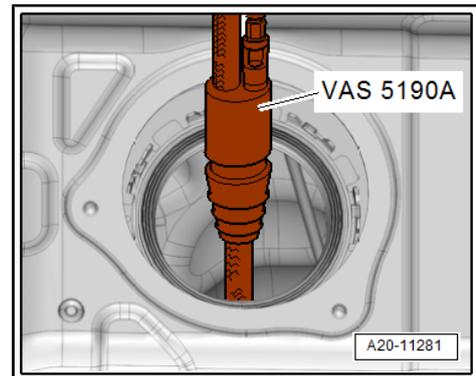
Special tools and workshop equipment required

- ◆ Fuel extractor - VAS 5190A-



Procedure

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .
- Remove fuel gauge sender 3 - G237- ⇒ [page 53](#) .
- Extract fuel from both fuel tank chambers through opening for fuel gauge sender 3 using fuel extractor - VAS 5190A- .
- Install fuel gauge sender 3 - G237- ⇒ [page 53](#) .



1.2.2 Draining fuel tank (vehicles from model year 2014 onwards)

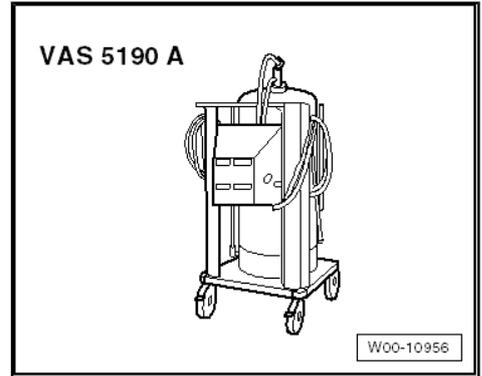
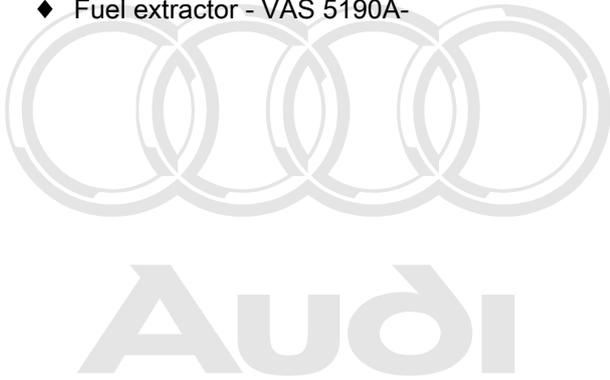


Note

On vehicles from model year 2014 onwards, the fuel tank must be removed in order to drain it, because the flange used to extract the fuel is not accessible when the fuel tank is installed.

Special tools and workshop equipment required

◆ Fuel extractor - VAS 5190A-



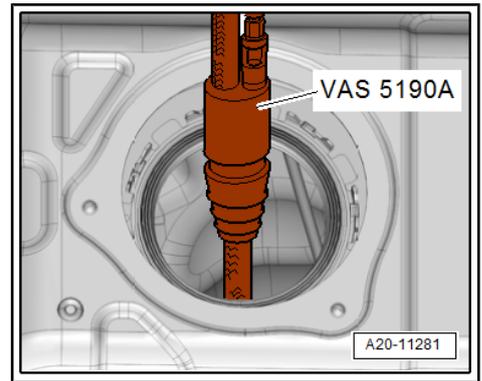
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- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .

⚠ WARNING

Risk of accident caused by weight of fuel tank

- ◆ *On vehicles from model year 2014 onwards, the fuel tank must be removed in order to drain it.*
- ◆ *Scissor-type assembly platform - VAS 6131 B- must be used in order to remove a fuel tank containing fuel because of the heavy weight.*



- Remove fuel tank ⇒ [page 15](#) .
- Remove fuel gauge sender 3 - G237- ⇒ [page 58](#) .
- Extract fuel from both fuel tank chambers through opening for fuel gauge sender 3 using fuel extractor - VAS 5190A- .
- Install fuel gauge sender 3 - G237- ⇒ [page 58](#) .

1.3 Removing and installing fuel tank

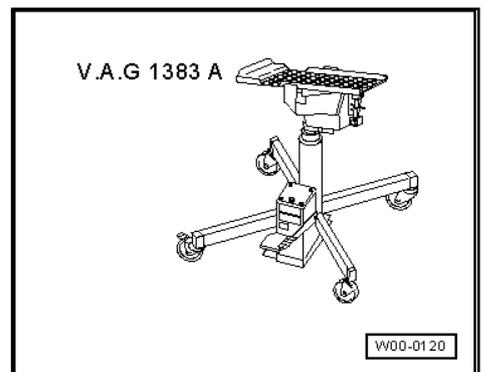
⇒ [“1.3.1 Removing and installing fuel tank - vehicles up to model year 2013”, page 11](#)

⇒ [“1.3.2 Removing and installing fuel tank - vehicles from model year 2014 onwards”, page 15](#)

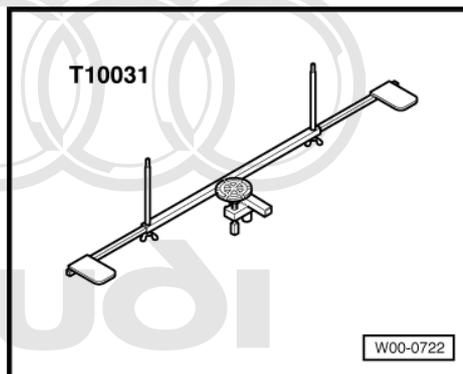
1.3.1 Removing and installing fuel tank - vehicles up to model year 2013

Special tools and workshop equipment required

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



◆ Support - T10031-



◆ Removal tool - T40225-



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- ◆ Protective gloves
- ◆ Safety goggles

Removing

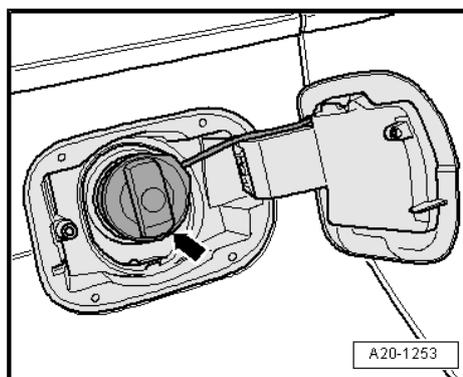
- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .

 **WARNING**
Risk of accident caused by weight of fuel tank
◆ *Fuel tank must be empty when it is removed.*

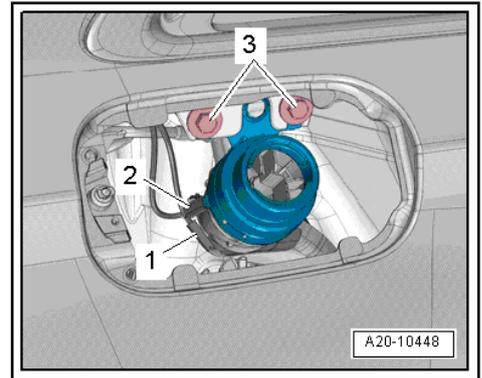
- Drain fuel tank ⇒ [page 10](#) .
- Open tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- for fuel filler neck.

 **Note**

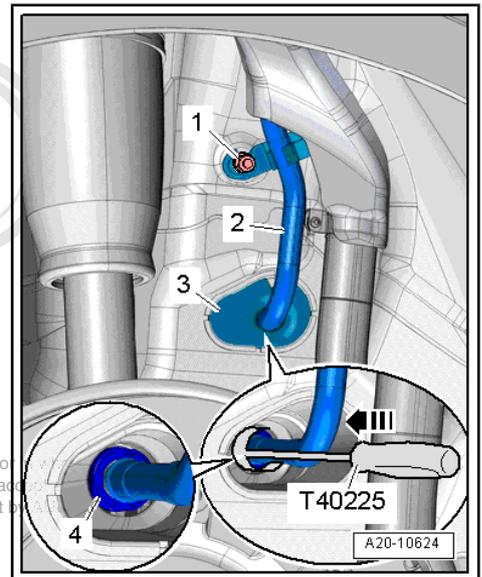
Seal off opening of fuel filler neck with a clean plug to prevent dirt from entering.



- 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 liner; Removing and installing wheel housing liner (rear) .
- 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 .

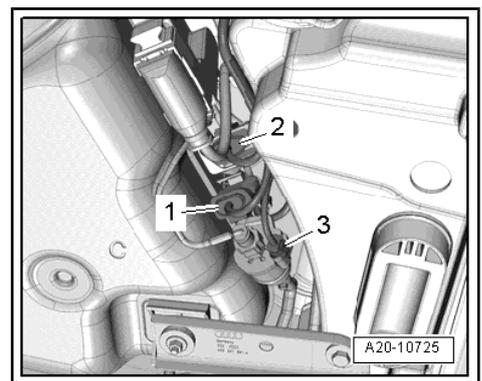


⚠ WARNING

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 .
- 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.



⚠ WARNING

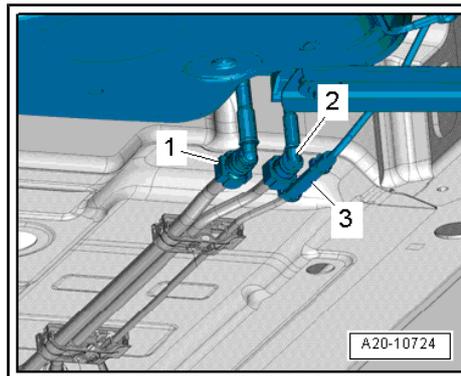
The fuel can become extremely hot. This can cause injuries.

- ◆ **In extreme cases the fuel lines and the fuel can reach a temperature of 100 °C. Allow the fuel to cool down before disconnecting the lines - danger of scalding.**
- ◆ **Wear protective gloves.**
- ◆ **Wear safety goggles.**

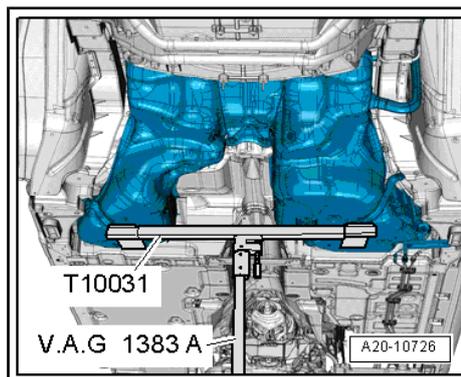
Risk of injury - fuel system operates under high pressure.

- ◆ **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 return line -2-.
- Press release tab and disconnect fuel supply line -1-.
- If fitted, disconnect fuel supply line -3- for 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.

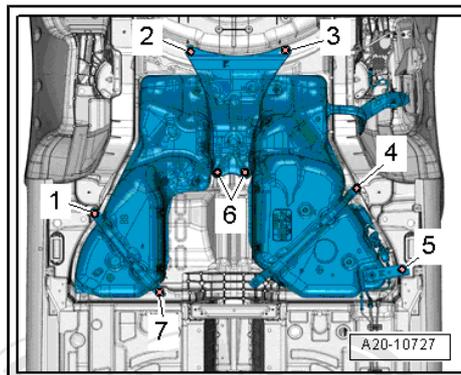


 **WARNING**

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.

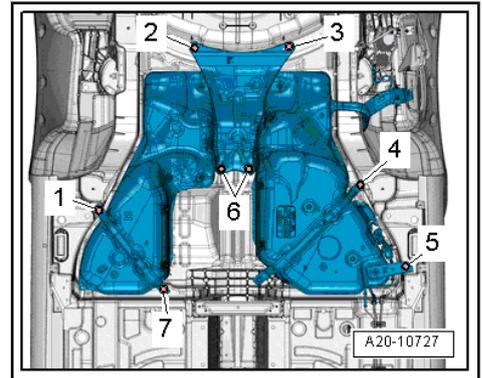
Installing

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

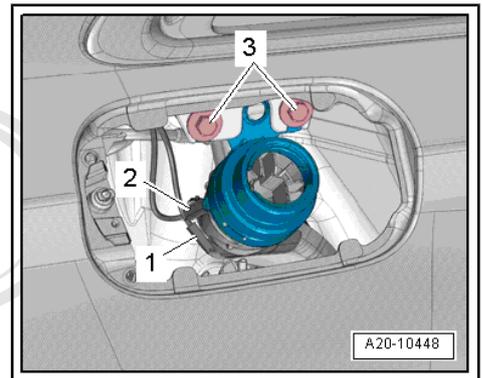
- Check that fuel and breather lines as well as wiring harness for fuel pump and fuel gauge senders are clipped onto fuel tank.
- Check that electrical connectors are attached at flanges and are properly secured.

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- 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**

Safety risk due to 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**

- Vehicles with auxiliary heater: Bleed fuel supply line leading to metering pump → Rep. gr. 23: Injection system; Filling and bleeding fuel system .

Tightening torques

- ◆ ⇒ ["1.1 Exploded view - fuel tank", page 7](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Exploded view - tank flap unit
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Exploded view - wheel housing liner (rear)

1.3.2 Removing and installing fuel tank - vehicles from model year 2014 onwards

Note

On vehicles from model year 2014 onwards, the fuel tank cannot be drained without removing it first, because the flange used to extract the fuel is not accessible when the fuel tank is installed.

**WARNING**

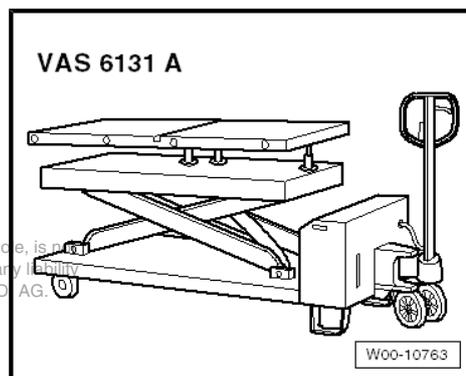
Risk of accident caused by weight of fuel tank

- ◆ *Scissor-type assembly platform - VAS 6131 B- must be used in order to remove a fuel tank containing fuel because of the heavy weight.*

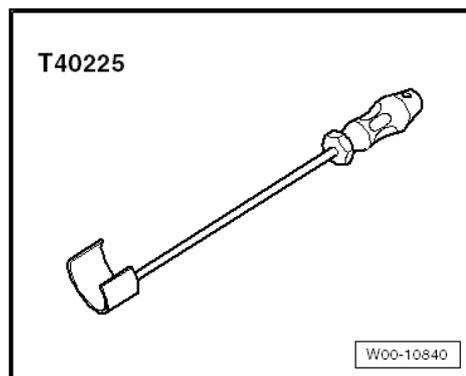
Special tools and workshop equipment required

- ◆ Scissor-type assembly platform - VAS 6131 B- with support set, Audi - VAS 6131/10- , tapered mounting pins - VAS 6131/12-2- and supplementary set, Audi Q7 > 2005 - VAS 6131/13-

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- ◆ Removal tool - T40225-



- ◆ Protective gloves
- ◆ Safety goggles

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .

**WARNING**

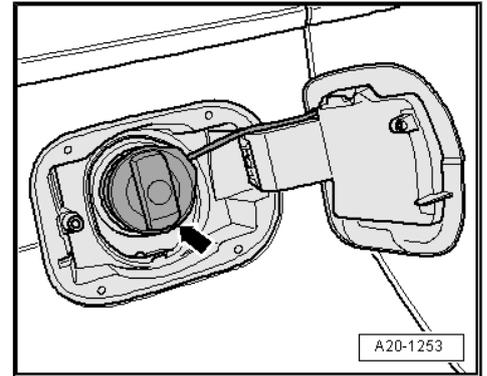
Risk of accident caused by weight of fuel tank

- ◆ *Position scissor-type assembly platform with support elements under vehicle to support fuel tank.*

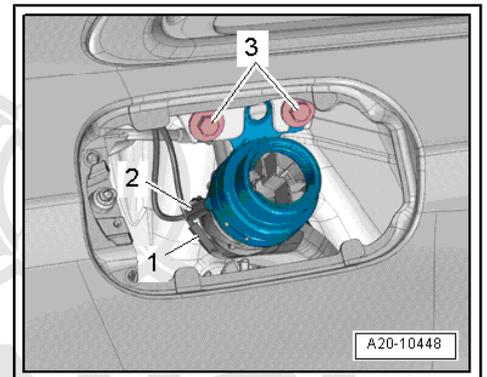
- Open tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- for fuel filler neck.

i Note

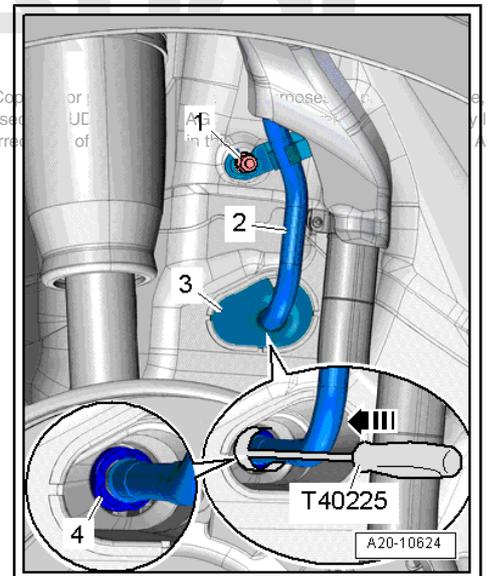
Seal off opening of fuel filler neck with a clean plug to prevent dirt from entering.



- 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 liner; Removing and installing wheel housing liner (rear) .
- 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

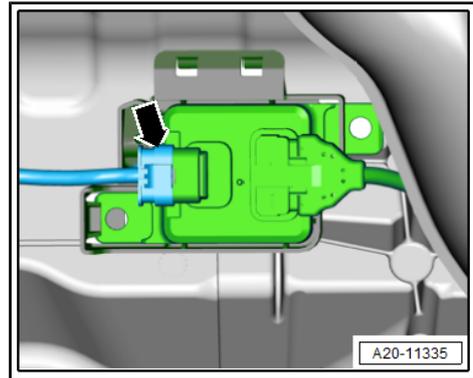
The vehicle can tip over on the lifting platform when the rear axle is removed.

- ◆ **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 .**

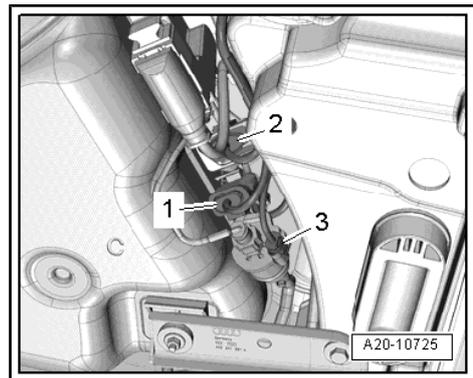
- Remove subframe ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .



- Vehicles with 4.2 ltr. TDI engine and SCR system: Remove nut for heat shield, push heat shield upwards and unplug electrical connector -arrow- at control unit for NOx sender 2 - J881- .



- 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.



WARNING

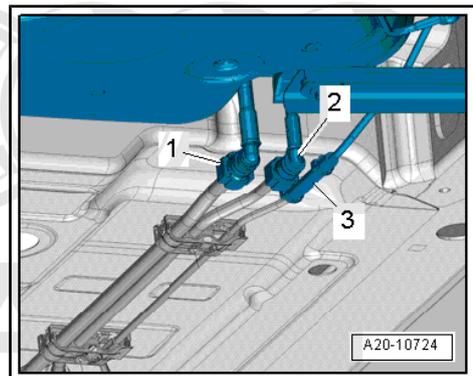
The fuel can become extremely hot. This can cause injuries.

- ◆ ***In extreme cases the fuel lines and the fuel can reach a temperature of 100 °C. Allow the fuel to cool down before disconnecting the lines - danger of scalding.***
- ◆ ***Wear protective gloves.***
- ◆ ***Wear safety goggles.***

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 return line -2-.
- Press release tab and disconnect fuel supply line -1-.
- If fitted, disconnect fuel supply line -3- for auxiliary heater.



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Set up the scissor-type assembly platform as follows:

- Set up scissor-type assembly platform - VAS 6131 B- with support set, Audi - VAS 6131/10- and supplementary set, Audi Q7 >2005 - VAS 6131/13- as follows:

Platform coordinates	Parts from support set, Audi - VAS 6131/10- , tapered mounting pins - VAS 6131/12-2- and supplementary set, Audi Q7 > 2005 - VAS 6131/13-			
A16	/10-1	/10-2	/10-5	/13-2
H16	/10-1	/10-2	/10-5	/13-2
D11	/10-1	/12-2	Spindle from /13	/13-2

- Initially hand-tighten the support elements on the scissor-type assembly platform.

- Position scissor-type assembly platform - VAS 6131 B- horizontally.

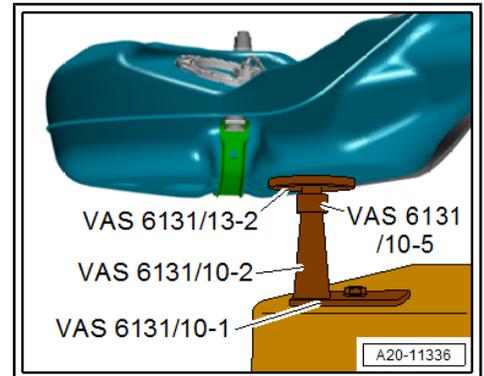
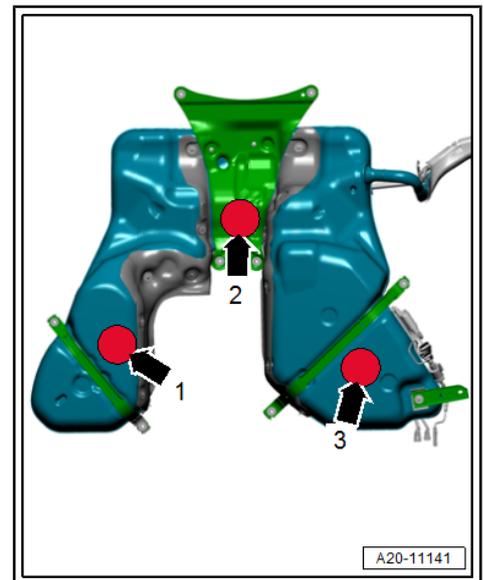
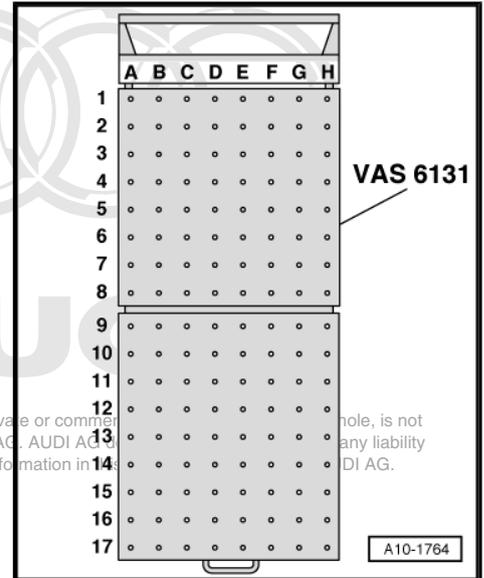
- Take note of spirit level (bubble gauge).

- Move scissor-type assembly platform - VAS 6131 B- under fuel tank and align support elements with mounting points on fuel tank.

- ◆ -Arrow 1- front left
- ◆ -Arrow 2- rear
- ◆ -Arrow 3- front right

- Position support elements (front left) underneath fuel tank, as shown in illustration.

- Make sure that threaded spindle is screwed in completely.

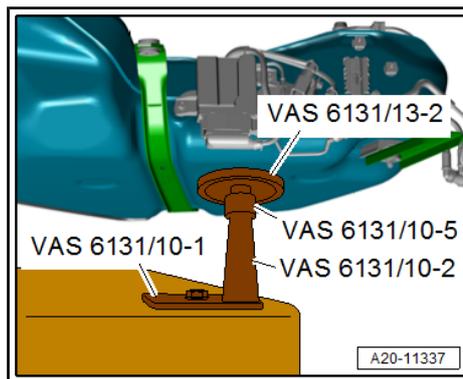




- Position support elements (front right) underneath fuel tank, as shown in illustration.
- Make sure that threaded spindle is screwed in completely.
- Raise scissor-type assembly platform - VAS 6131 B- under fuel tank until rubber base makes contact with fuel tank.

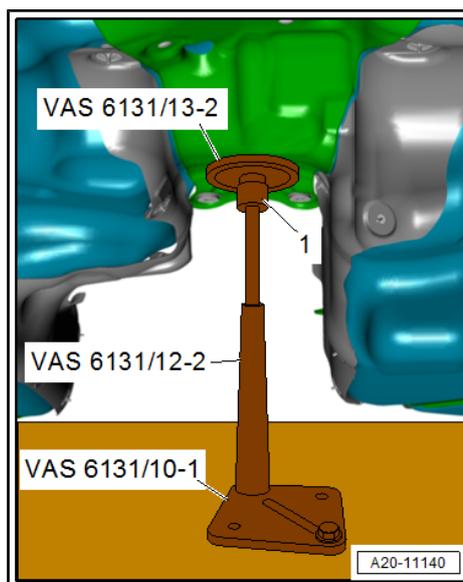


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- Position support elements (rear) -1- underneath fuel tank carrier plate, as shown in illustration.

- 1 - Spindle from -VAS 6131/13-
- Rotate spindle upwards until rubber base makes contact with carrier plate.
 - Tighten base plates -VAS 6131/10-1- for support elements to 20 Nm on scissor-type assembly platform - VAS 6131 B- .



 **WARNING**

Risk of accident caused by weight of fuel tank

◆ *Position scissor-type assembly platform with support elements under vehicle to support fuel tank.*

- Remove bolts -1 ... 7-.

 **Note**

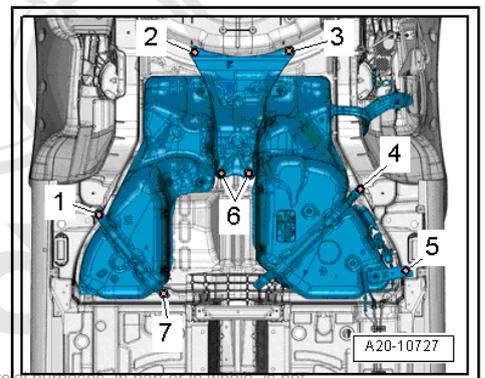
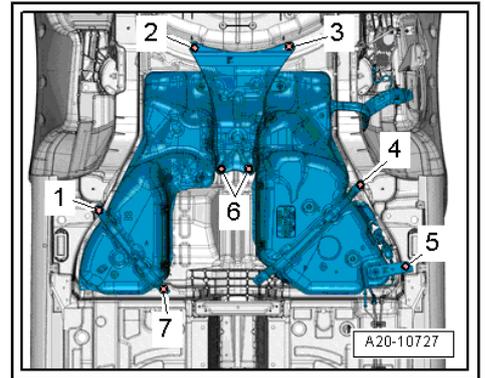
The fuel tank is shown without the scissor-type assembly platform for illustration purposes.

- Lower fuel tank using scissor-type assembly platform - VAS 6131 B- .
- Pull scissor-type assembly platform - VAS 6131 B- with fuel tank out from underneath vehicle.
- Drain fuel tank ⇒ [page 10](#) .

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 carrier plate on underside of vehicle using scissor-type assembly platform - VAS 6131 B- .
- Raise fuel tank using scissor-type assembly platform - VAS 6131 B- .
- 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.



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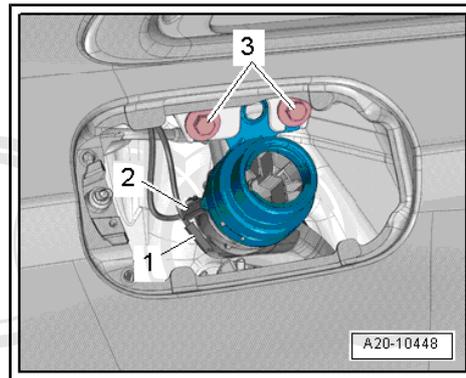


- Tighten bolts -3- for fuel filler neck.
- Check earth wires -1 and 2- for traces of oxidation at connectors; remove any oxidation.
- Connect earth wires at guard plate and on metal ring at fuel filler neck, ensuring that connector is securely fitted.

**WARNING**

Safety risk due to 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*



- Vehicles with auxiliary heater: Bleed fuel supply line leading to metering pump ⇒ Rep. gr. 23 ; Injection system; Filling and bleeding fuel system .

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Tightening torques

- ◆ ⇒ ["1.1 Exploded view - fuel tank", page 7](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Exploded view - tank flap unit
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Exploded view - wheel housing liner (rear)

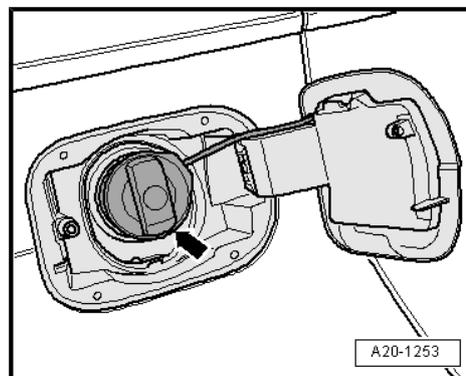
1.4 Removing and installing misfuelling prevention device

Special tools and workshop equipment required

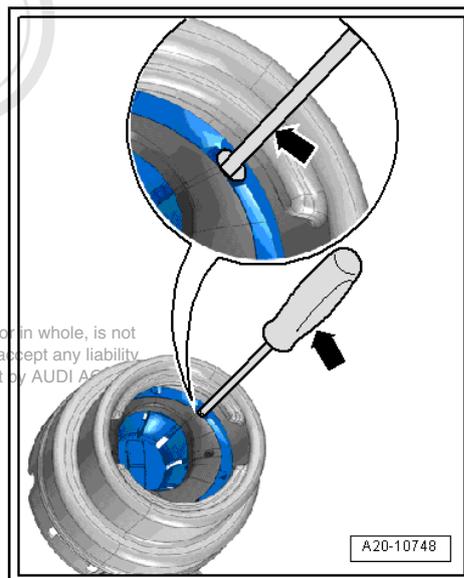
- ◆ Circlip pliers

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .
- Open tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- for fuel filler neck.

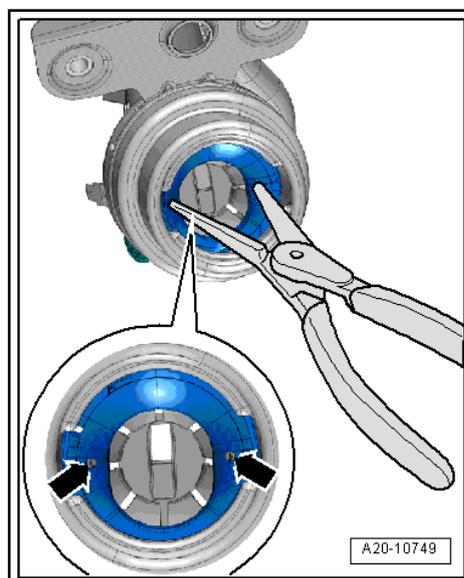


- Release retaining tab for locking ring using Torx screwdriver -arrow-.

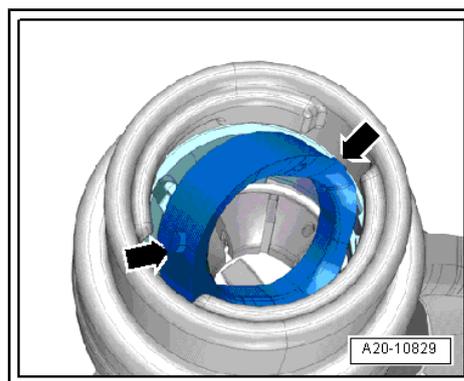


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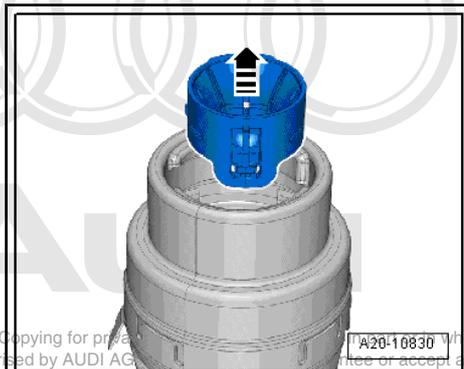
- Insert circlip pliers in both holes -arrows- in locking ring.
- Turn locking ring approx. 25° anti-clockwise.



- Tilt locking ring inside fuel filler neck and take it out through slots -arrows- for filler cap.



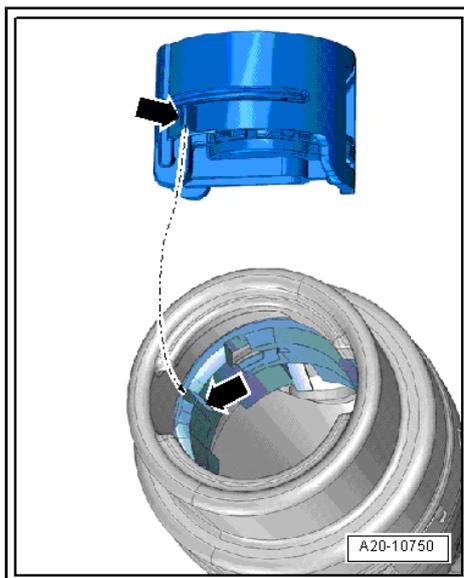
- Pull misfuelling prevention device out of fuel filler neck -arrow- (use circlip pliers if necessary).



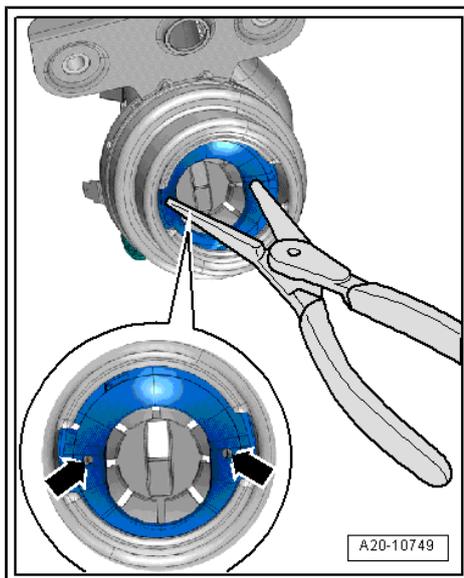
Installing

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

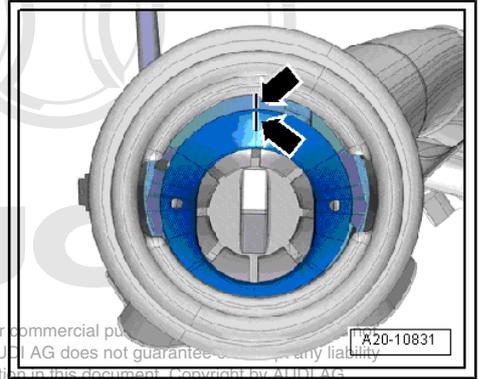
- Insert misfuelling prevention device in fuel filler neck.
- The lug on the misfuelling prevention device must engage in the groove on the filler neck -arrows-.



- Fit locking ring using circlip pliers (turn 25° clockwise).



- If parts have been assembled correctly, markings on locking ring and fuel filler neck should now be aligned -arrows-.



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1.5 Deactivating misfuelling prevention device

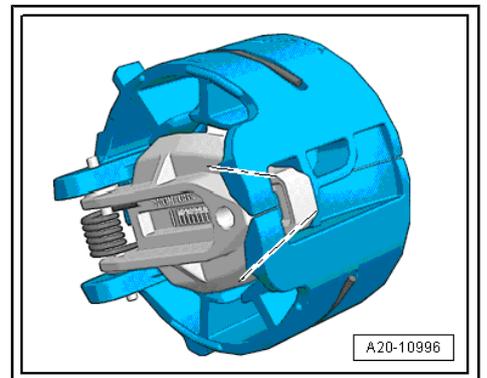
Procedure:

- Remove misfuelling prevention device ⇒ [page 22](#) .
- Cut off retaining tabs at markings, as shown in illustration.

 **Note**

It must be possible to open cover flap of misfuelling prevention device smoothly.

- Install misfuelling prevention device ⇒ [page 22](#) .



2 Fuel delivery unit/fuel gauge senders

⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 26](#)

⇒ [“2.2 Removing and installing fuel delivery unit/fuel gauge senders”, page 29](#)

⇒ [“2.3 Removing and installing fuel pressure regulator”, page 34](#)

⇒ [“2.4 Checking fuel gauge sender G”, page 35](#)

⇒ [“2.5 Removing and installing fuel gauge sender G”, page 37](#)

⇒ [“2.6 Checking fuel gauge sender 2 G169”, page 42](#)

⇒ [“2.7 Removing and installing fuel gauge sender 2 G169”, page 44](#)

⇒ [“2.8 Checking fuel gauge sender 3 G237”, page 50](#)

⇒ [“2.9 Removing and installing fuel gauge sender 3 G237”, page 53](#)

2.1 Exploded view - fuel delivery unit/fuel gauge senders

Fuel delivery unit

1 - Fuel return line

- Do not kink
- To disconnect from flange, press release tab on connection piece
- Clipped onto baffle housing

2 - Fuel delivery unit

- With fuel system pressurisation pump - G6-
- Checking fuel pump (electrical test) in [\[Guided Fault Finding\]](#) ⇒ vehicle diagnostic tester
- Checking fuel delivery rate and residual pressure ⇒ [page 67](#)

- [Removing and installing](#) ⇒ [page 29](#)

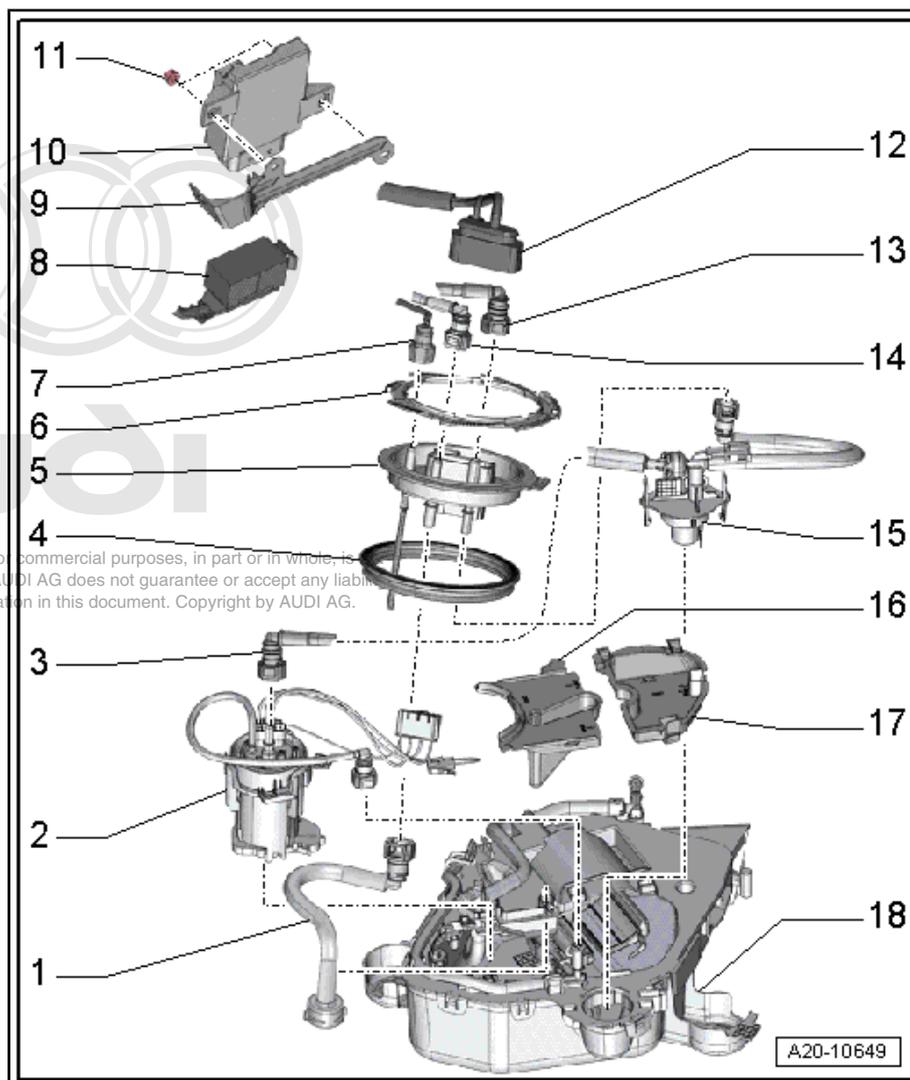
- Put at least 5 litres of fuel into tank after installing

3 - Fuel line

- To fuel pressure regulator
- Do not kink
- Press release tab on connection piece to disconnect

4 - Seal

- Renew
- Install dry



5 - Flange

- Removing and installing ⇒ [page 29](#)

6 - Locking ring

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

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-

- Checking in Guided Fault Finding ⇒ vehicle diagnostic tester
- Removing and installing ⇒ [page 73](#)

11 - Nut

- 1.6 Nm

12 - Electrical connectors

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

13 - Fuel supply line

- To fuel filter
- Do not kink
- To disconnect from flange, press release tab on connection piece
- Note direction of arrow (fuel supply or fuel return system) on flange when installing
- Clipped onto fuel tank

14 - Fuel return line

- From fuel cooler
- Do not kink
- To disconnect from flange, press release tab on connection piece
- Note direction of arrow (fuel supply or fuel return system) on flange when installing
- Clipped onto fuel tank

15 - Fuel pressure regulator

- Clipped onto baffle housing
- Removing and installing ⇒ [page 34](#)

16 - Cover (right-side)

- For baffle housing
- Clipped onto baffle housing
- Removing and installing ⇒ [page 29](#)

17 - Cover (left-side)

- For baffle housing
- Clipped onto baffle housing
- Removing and installing ⇒ [page 29](#)

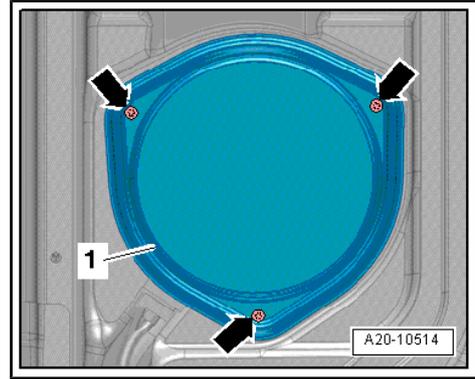
18 - Baffle housing

- 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 senders 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 35](#)
- Removing and installing => [page 37](#)

3 - Seal

- Renew
- Install dry

4 - Flange

5 - Locking ring

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

6 - Electrical connector

- For fuel gauge sender - G-

7 - Electrical connector

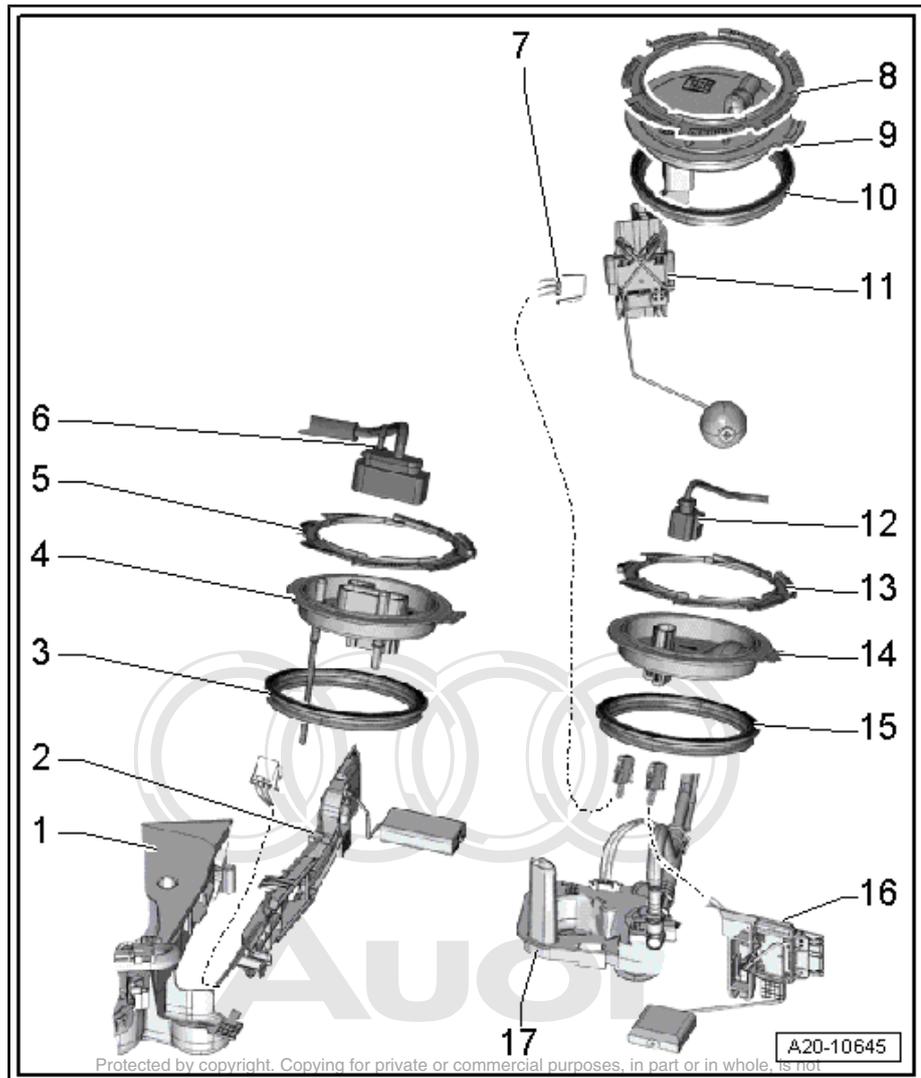
- For fuel gauge sender 3 - G237-
- Located in fuel tank
- Secured to suction line with cable ties

8 - Locking ring

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

9 - Flange

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



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10 - Seal

- Renew
- Install dry

11 - Fuel gauge sender 3 - G237-

- Checking resistance values ⇒ [page 50](#)
- Removing and installing ⇒ [page 53](#)

12 - Electrical connector

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

13 - Locking ring

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

14 - Flange

15 - Seal

- Renew
- Install dry

16 - Fuel gauge sender 2 - G169-

- Checking resistance values ⇒ [page 42](#)
- Removing and installing ⇒ [page 44](#)

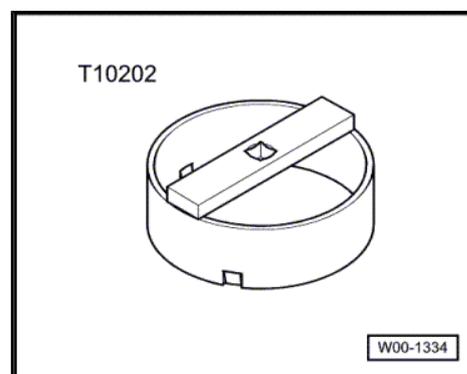
17 - Mounting

- Welded to fuel tank

2.2 Removing and installing fuel delivery unit/fuel gauge senders

Special tools and workshop equipment required

- ◆ Wrench - T10202-



- ◆ Scissors
- ◆ Protective gloves
- ◆ Safety goggles

Removing

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Note

The procedure describes removal on vehicles up to model year 2013.

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .

**WARNING**

Danger! Fuel may escape.

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

Vehicles up to model year 2013:

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

Vehicles from model year 2014 onwards:

**Note**

On vehicles from model year 2014 onwards, the fuel tank cannot be drained without removing it first, because the flange used to extract the fuel is not accessible when the fuel tank is installed.

**WARNING**

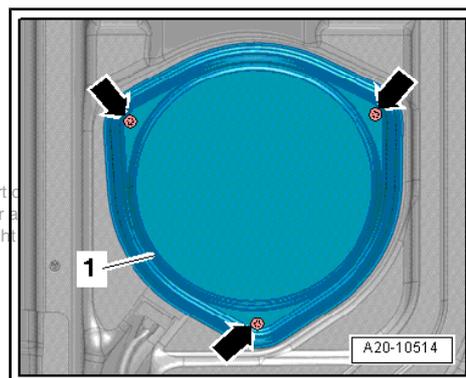
Risk of accident caused by weight of fuel tank

- ◆ **On vehicles from model year 2014 onwards, the fuel tank must be removed in order to drain it.**
- ◆ **Scissor-type assembly platform - VAS 6131 B- must be used in order to remove a fuel tank containing fuel because of the heavy weight.**

- Remove fuel tank ⇒ [page 15](#) .
- Drain fuel tank if necessary ⇒ [page 10](#) .

All vehicles (continued):

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

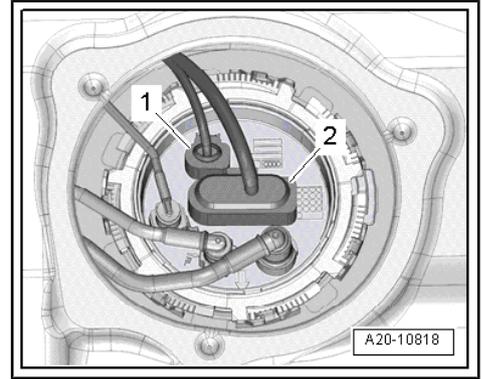
 **WARNING**

The fuel can become extremely hot. This can cause injuries.

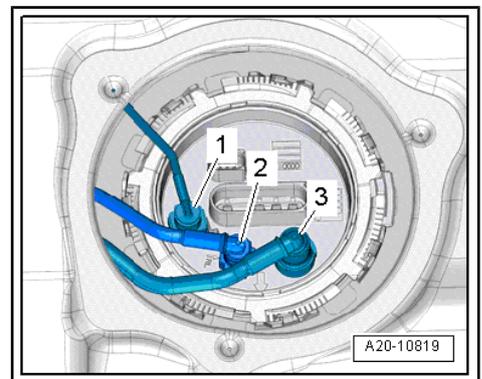
- ◆ *In extreme cases the fuel lines and the fuel can reach a temperature of 100 °C. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Wear protective gloves.*
- ◆ *Wear safety goggles.*

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.*



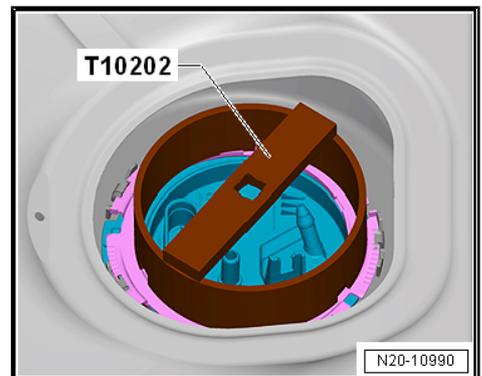
- Disconnect fuel lines -2- and -3- on flange (press release tab).
- Press release tab and disconnect fuel line -1- (if fitted) leading to metering pump for auxiliary heater at flange.



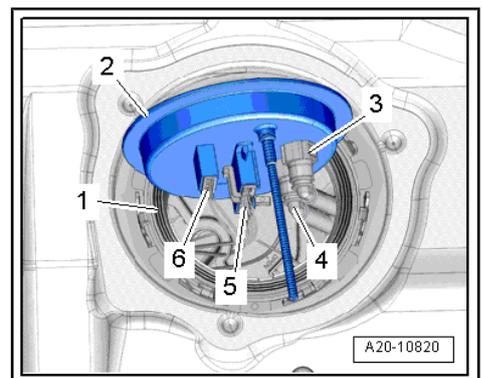
 **WARNING**

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.*



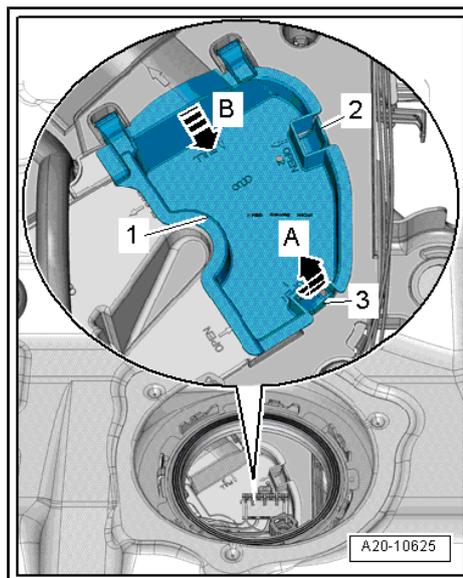
- Remove locking ring using wrench - T10202- .
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- Pull flange -2- out of opening in fuel tank.
- Take seal -1- out of opening in fuel tank.
- Press release tab and disconnect fuel lines -3, 4- at flange.
- Release retainer catches and unplug electrical connectors -5 and 6-.



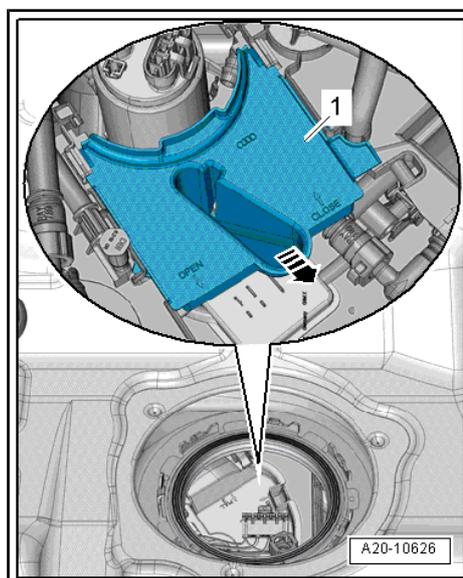
- Reach through opening in fuel tank and release catches -2 and 3- for cover -1-.
- Swivel cover upwards -arrow A-, unclip it from baffle housing -arrow B- and take it out of fuel tank.



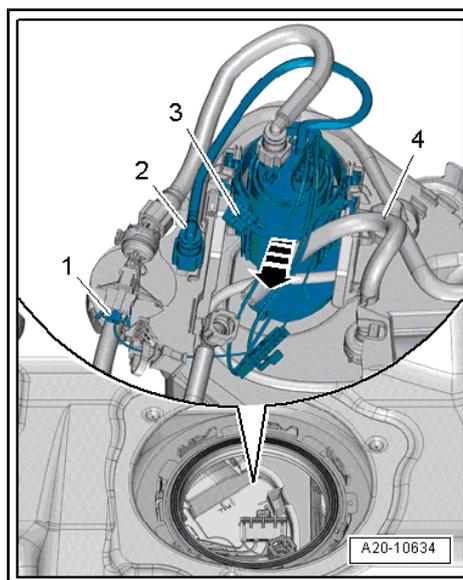
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- Reach through opening in fuel tank and pull cover -1- off catch on baffle housing in direction of -arrow- («open»).
- Take cover out of fuel tank.



- Reach through opening in fuel tank, unclip fuel line -4- from baffle housing and take fuel line out of fuel tank.
- Release retainer catch and unplug electrical connector -1-.
- Press release catch and disconnect fuel line -2-.
- Reach through opening in fuel tank, take hold of lug -3- and pull fuel delivery unit off catches on baffle housing in direction of -arrow-.



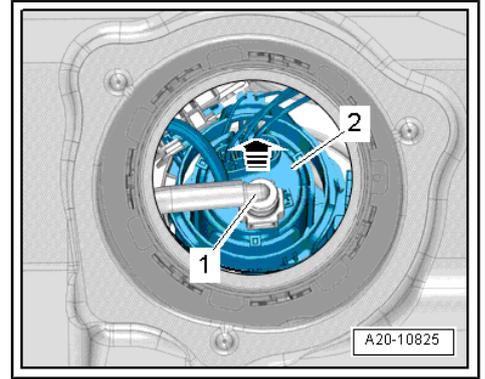
- Pull fuel delivery unit -2- towards opening in fuel tank, press release catch and disconnect fuel line -1-.



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 with fuel line and electrical wiring out through opening in fuel tank -arrow-.

Installing

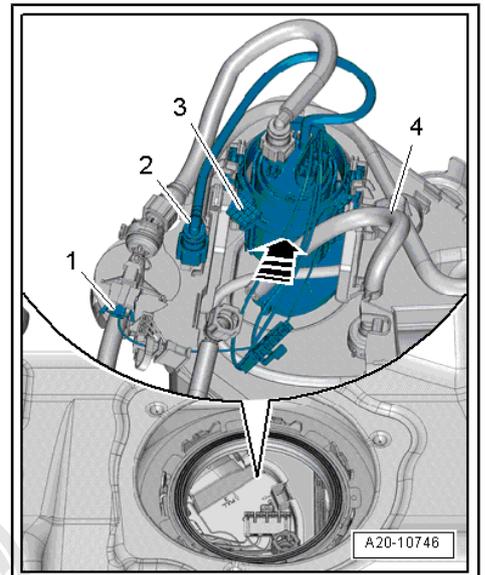
- Carefully guide fuel delivery unit -2- through opening and into fuel tank.
- Connect fuel line -1- to fuel delivery unit so that it engages audibly.
- Carefully guide fuel line and electrical wiring through opening and into fuel tank.
- Reach through opening in fuel tank and bring fuel delivery unit -3- into installation position.
- Press fuel delivery unit into catches on baffle housing in direction of -arrow-.
- Reach through opening in fuel tank and connect fuel line -2- onto fuel delivery unit so it engages audibly.
- Plug in electrical connector -1- and make sure it is correctly engaged.
- Install fuel line -4-.

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

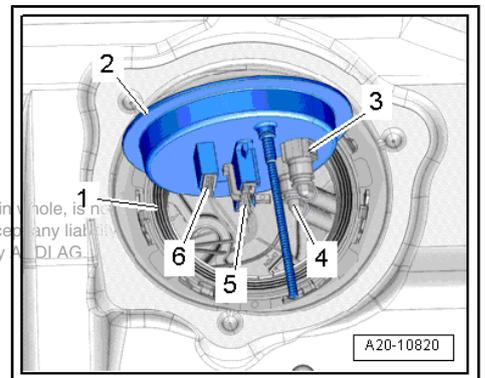


Note

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



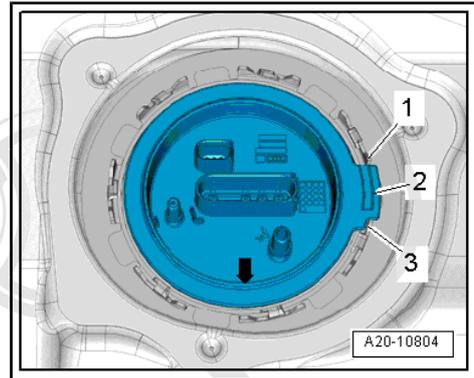
- Plug in electrical connectors -5, 6- and make sure they are securely engaged.
- Connect fuel lines -3, 4- onto flange so they engage audibly.
- Install new seal -1- for flange (seal must be installed dry).
- Fit flange -2- into fuel tank.



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**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 28](#) .
- Install rear seat bench or individual seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- 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.

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Tightening torques

- ◆ ⇒ ["2.1 Exploded view - fuel delivery unit/fuel gauge senders"](#), [page 26](#)

2.3 Removing and installing fuel pressure regulator

**Note**

The procedure describes removal on vehicles up to model year 2013.

Removing

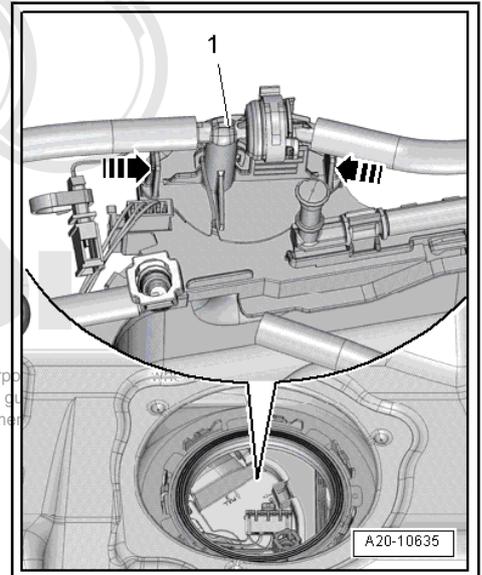
- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .

- Remove fuel delivery unit ⇒ [page 29](#) .
- Reach through opening in fuel tank, release fuel pressure regulator -1- -arrows- and carefully pull fuel pressure regulator upwards together with fuel lines.

 **WARNING**

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

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



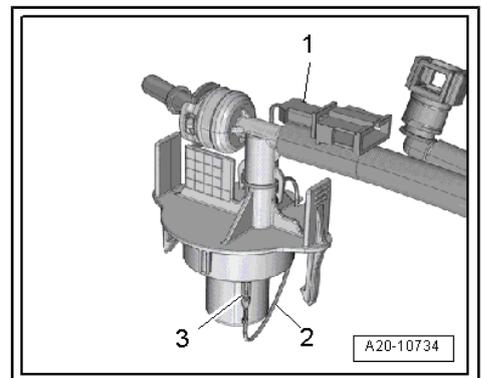
- Carefully take out fuel pressure regulator with fuel lines through opening in fuel tank.

Installing

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

 **Note**

- ◆ *Renew seal.*
- ◆ *Ensure that fuel hoses are securely seated.*
- Route earth wire -2- as shown in illustration.
- Make sure that earth wire on fuel pressure regulator -3- and connector -1- are securely connected.
- Carefully guide fuel pressure regulator through opening and into fuel tank.
- Press fuel pressure regulator into baffle housing so that it clicks into place.
- Connect fuel lines so they engage audibly.
- Plug in electrical connectors and make sure they are securely engaged.
- Install fuel delivery unit ⇒ [page 33](#) .



2.4 Checking fuel gauge sender - G-

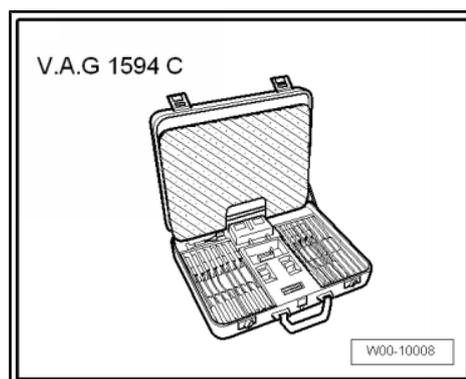
Special tools and workshop equipment required



◆ Hand-held multimeter - V.A.G 1526E-



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



◆ Scissors

Procedure



Note

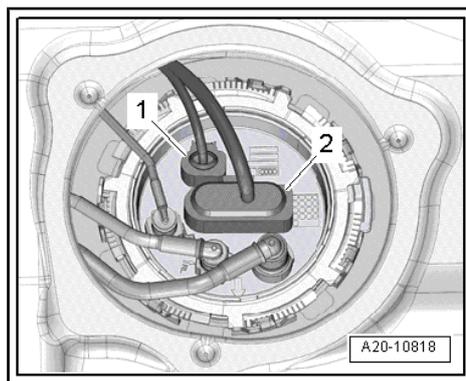
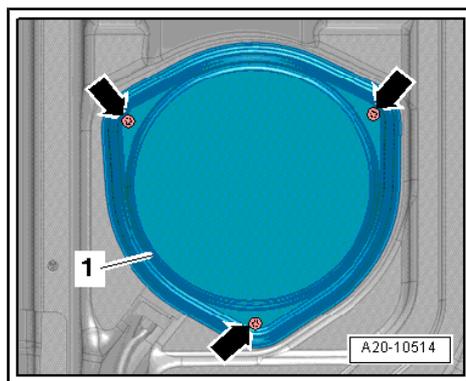
To obtain an exact measurement of the resistance value with "sender at upper stop" (installed), the fuel tank must be completely full. For this, drive for at least 500 metres after filling the tank to let air bubbles escape from the fuel tank; then add fuel again.

- 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-.

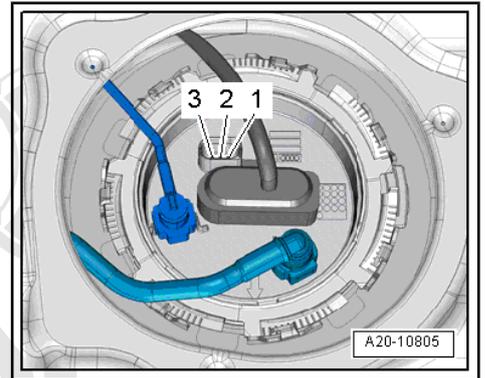


Checking fuel gauge sender - G- in vehicle

– 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



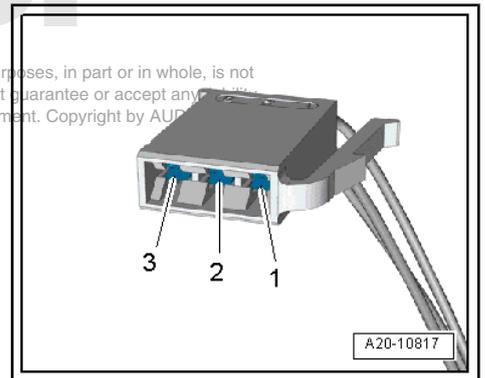
Checking fuel gauge sender - G- with sender removed



Note

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- ◆ In order to test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel gauge sender - G- → [page 37](#) and move the 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 37](#) .

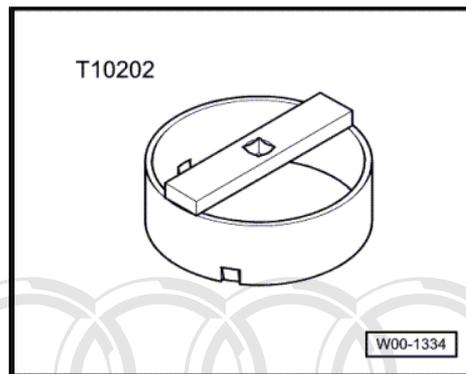
2.5 Removing and installing fuel gauge sender - G-

Removing

Special tools and workshop equipment required



- ◆ Wrench - T10202-



- ◆ Scissors
- ◆ Protective gloves
- ◆ Safety goggles

Removing



Note

The procedure describes removal on vehicles up to model year 2013.

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- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .



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.***

Vehicles up to model year 2013:

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

Vehicles from model year 2014 onwards:



Note

On vehicles from model year 2014 onwards, the fuel tank cannot be drained without removing it first, because the flange used to extract the fuel is not accessible when the fuel tank is installed.



WARNING

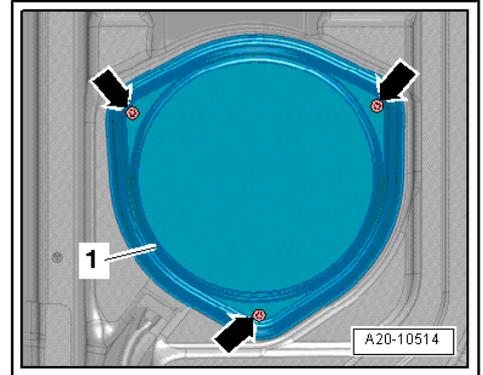
Risk of accident caused by weight of fuel tank

- ◆ ***On vehicles from model year 2014 onwards, the fuel tank must be removed in order to drain it.***
- ◆ ***Scissor-type assembly platform - VAS 6131 B- must be used in order to remove a fuel tank containing fuel because of the heavy weight.***

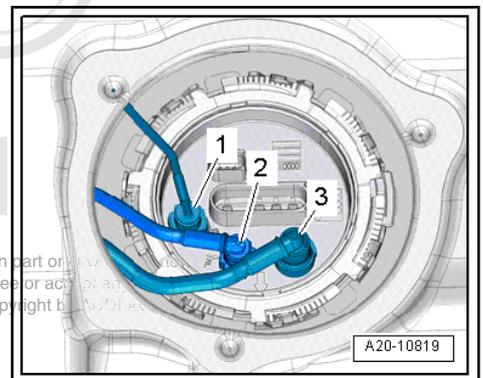
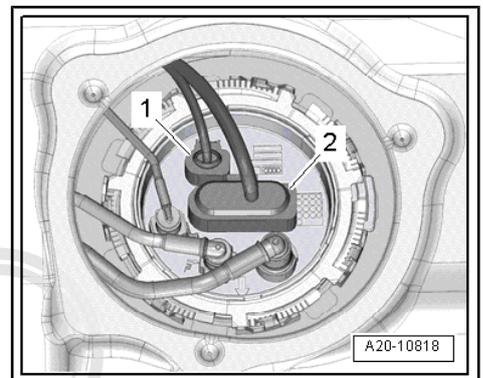
- Remove fuel tank ⇒ [page 15](#) .
- Drain fuel tank if necessary ⇒ [page 10](#) .

All vehicles (continued):

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



⚠ WARNING

The fuel can become extremely hot. This can cause injuries.

- ◆ *In extreme cases the fuel lines and the fuel can reach a temperature of 100 °C. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Wear protective gloves.*
- ◆ *Wear safety goggles.*

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.*

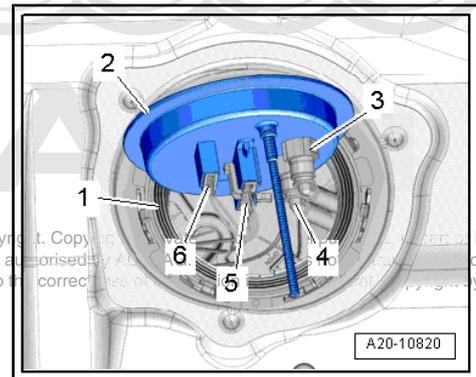
- Disconnect fuel lines -2- and -3- on flange (press release tab).
- Press release tab and disconnect fuel line -1- (if fitted) leading to metering pump for auxiliary heater at flange.

**WARNING**

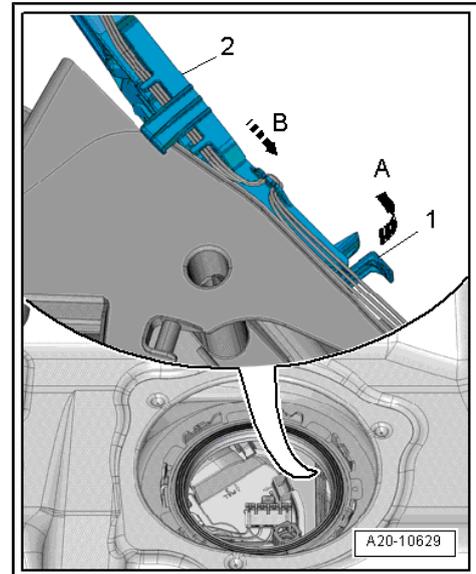
Danger! Fuel may escape.

- ◆ *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- .
- Pull flange -2- out of opening in fuel tank.
- Take seal -1- out of opening in fuel tank.
- Press release tab and disconnect fuel lines -3, 4- at flange.
- Release retainer catches and unplug electrical connectors -5 and 6-.
- Reach into opening in 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-.



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

 **Note**

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

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Installing

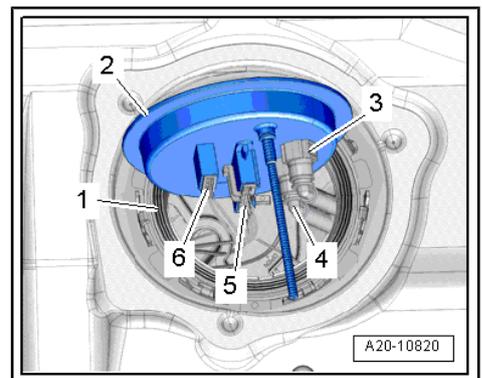
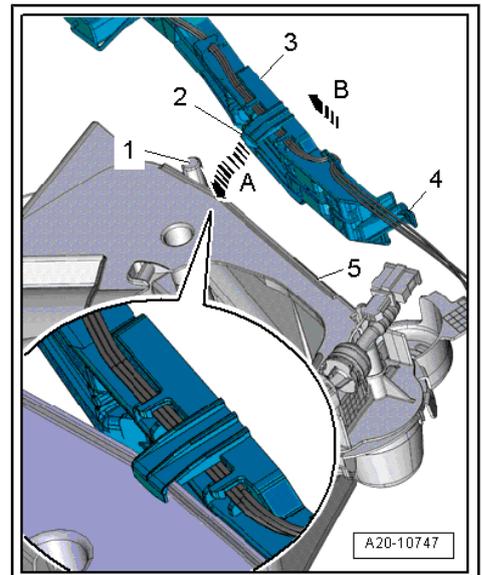
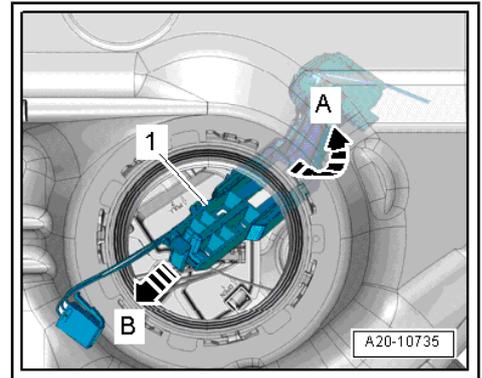
Installation is carried out in the reverse order; note the following:

 **Note**

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

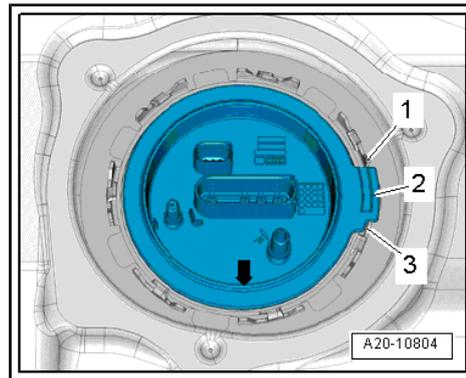
- Carefully guide in fuel gauge sender - G- -item 1- through opening and into fuel tank.
- Locate guide -2- on fuel gauge sender - G- at edge -5- of baffle housing -arrow A-.
- Slide fuel gauge sender - G- -item 3- into mounting -1- on baffle housing as far as stop -arrow B-.
- Press catch -4- for fuel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

- Plug in electrical connectors -5, 6- and make sure they are securely engaged.
- Connect fuel lines -3, 4- onto flange so they engage audibly.
- Install new seal -1- for flange (seal must be installed dry).
- Fit flange -2- 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 (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 28](#)
- Install rear seat bench or individual seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”](#), [page 26](#)

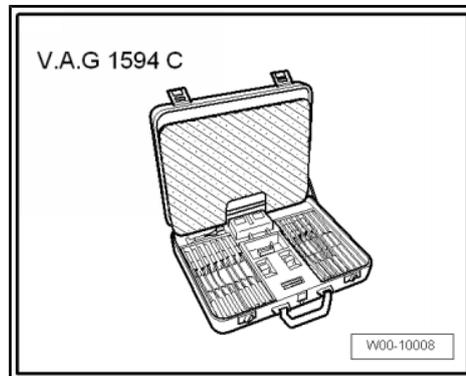
2.6 Checking fuel gauge sender 2 - G169-

Special tools and workshop equipment required

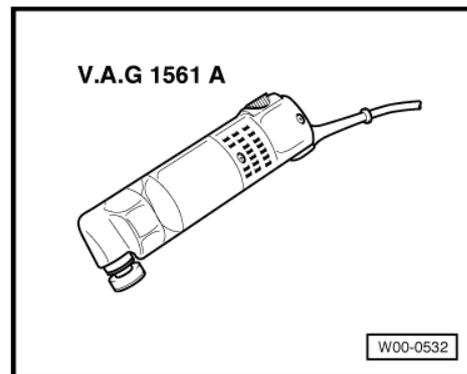
- ◆ Hand-held multimeter - V.A.G 1526E-



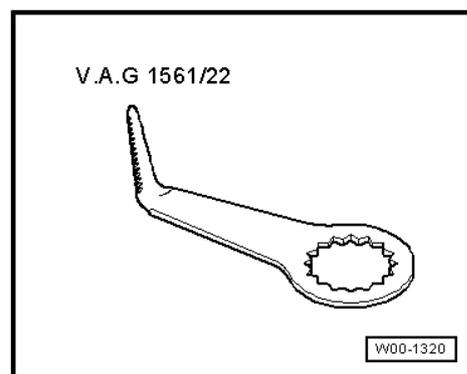
- ◆ Auxiliary measuring set - V.A.G 1594C-



- ◆ Electric cutter - V.A.G 1561A-



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



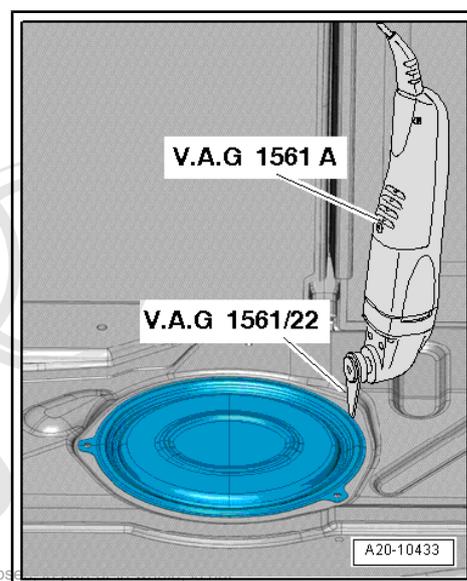
- ◆ Scissors

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.

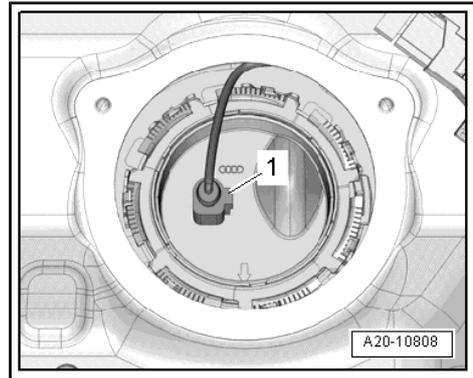
- Move front left seat all the way forwards.
- Remove rear seat bench or individual seat (left-side) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Cut insulating mat along perforation in area of cover for flange (underneath rear seat 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 .



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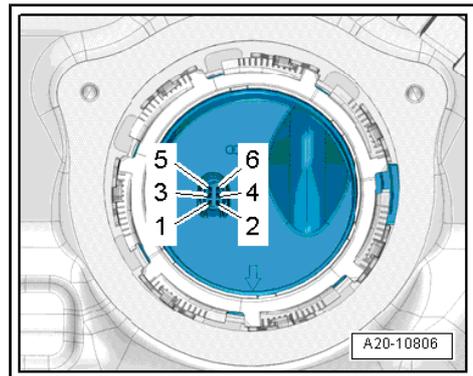
- Release retainer catch and unplug electrical connector -1- on flange.



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

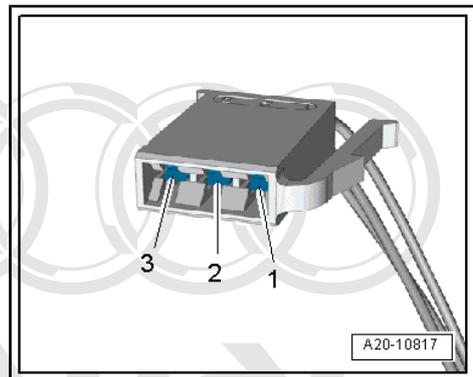


Note

- ◆ To test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel gauge sender [⇒ page 44](#) 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		



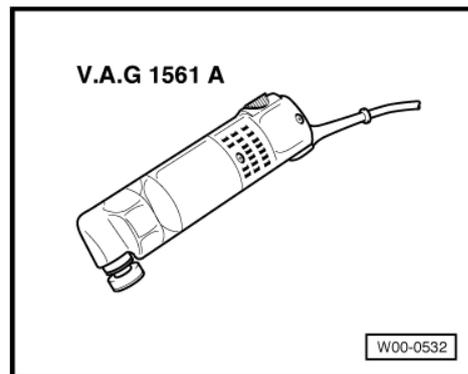
Fuel gauge sender 2 - G169- is defective in the following cases:

- ◆ 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 44](#) .

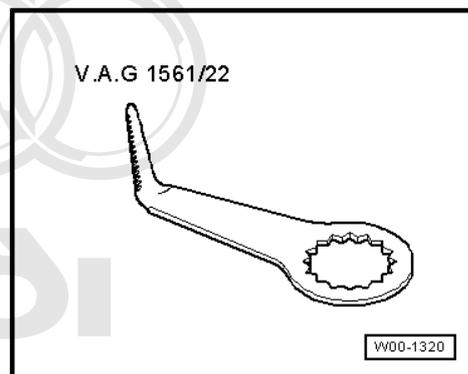
2.7 Removing and installing fuel gauge sender 2 - G169-

Special tools and workshop equipment required

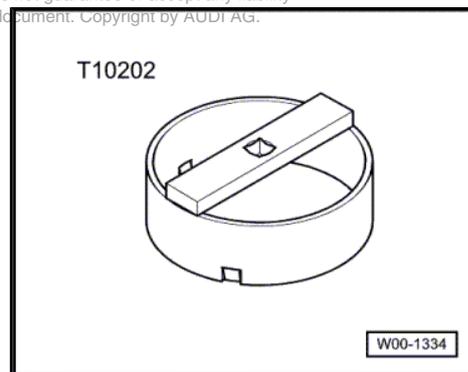
- ◆ Electric cutter - V.A.G 1561A-



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



- ◆ Wrench - T10202-



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- ◆ Scissors
- ◆ Adhesive sealant ⇒ Electronic parts catalogue

Removing



Note

The procedure describes removal on vehicles up to model year 2013.

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .

**WARNING**

Danger! Fuel may escape.

- ◆ *The fuel tank must not be more than $\frac{1}{4}$ full when removing the fuel gauge sender, otherwise a large amount of fuel will escape.*

Vehicles up to model year 2013:

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

Vehicles from model year 2014 onwards:

**Note**

On vehicles from model year 2014 onwards, the fuel tank cannot be drained without removing it first, because the flange used to extract the fuel is not accessible when the fuel tank is installed.

**WARNING**

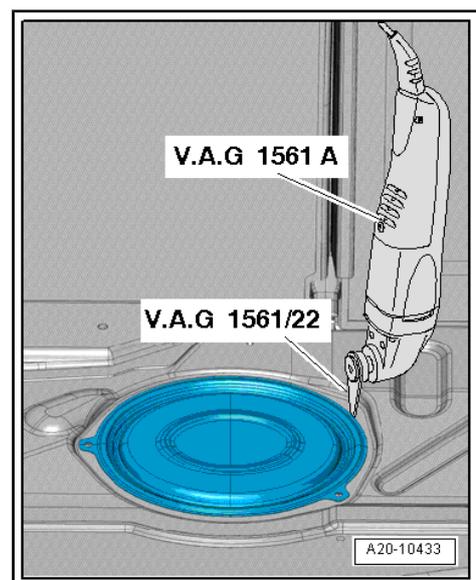
Risk of accident caused by weight of fuel tank

- ◆ *On vehicles from model year 2014 onwards, the fuel tank must be removed in order to drain it.*
- ◆ *Scissor-type assembly platform - VAS 6131 B- must be used in order to remove a fuel tank containing fuel because of the heavy weight.*

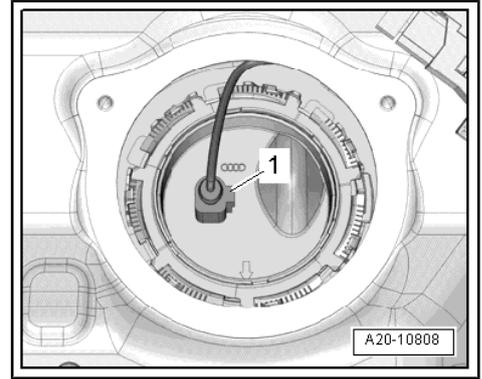
- Remove fuel tank ⇒ [page 15](#) .
- Drain fuel tank if necessary ⇒ [page 10](#) .

All vehicles (continued):

- 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.



WARNING

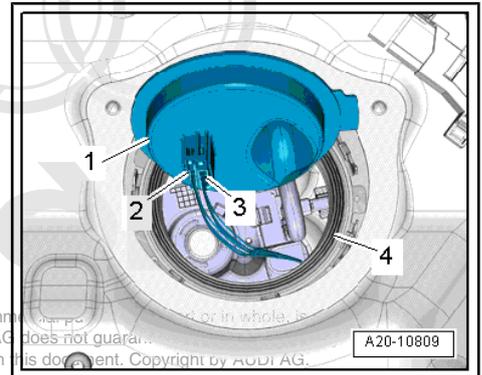
Danger! Fuel may escape.

- ◆ *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-.



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



Note

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

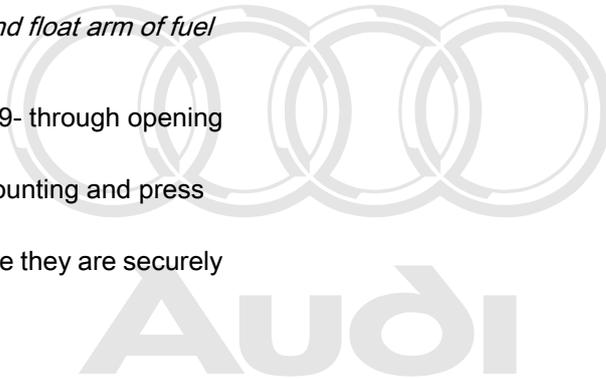
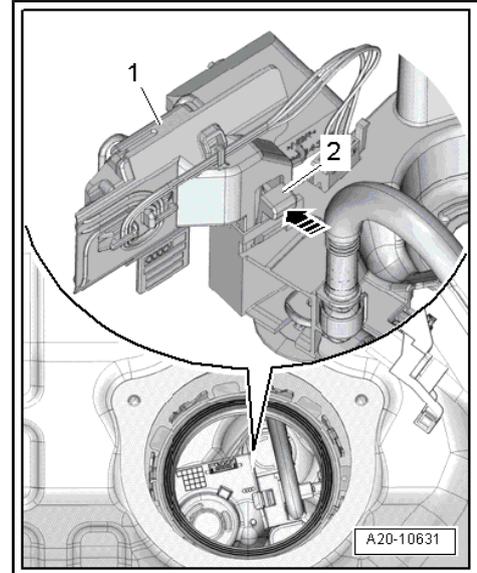
Installing

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 guide fuel gauge sender 2 - G169- through opening and into 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.



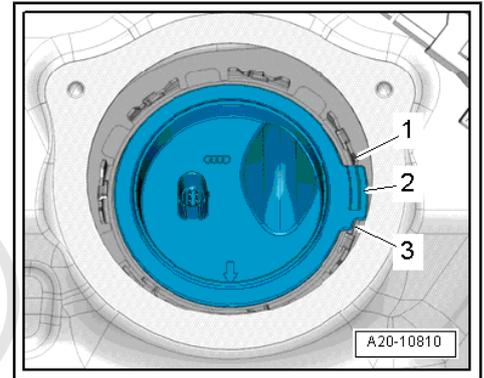
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- Install new seal for flange (seal must be installed dry).

 **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**

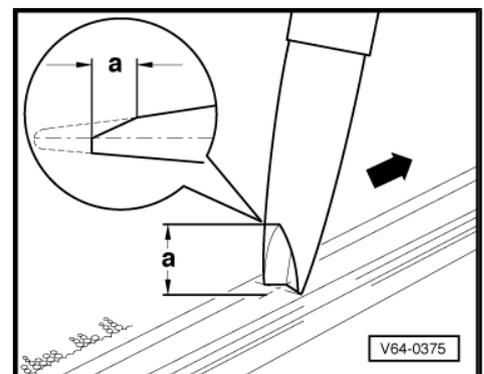
The remaining material serves as a bonding surface when applying the new adhesive sealing material.

 **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 .



Tightening torques

- ◆ ⇒ ["2.1 Exploded view - fuel delivery unit/fuel gauge senders", page 26](#)

2.8 Checking fuel gauge sender 3 - G237-

Checking fuel gauge sender 3 - G237- in vehicle ⇒ [page 51](#)

Checking fuel gauge sender 3 - G237- after removal
⇒ [page 53](#)

Special tools and workshop equipment required

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

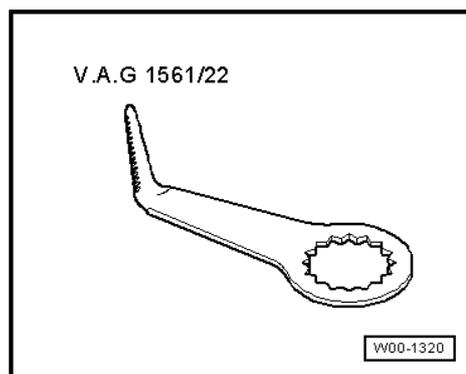
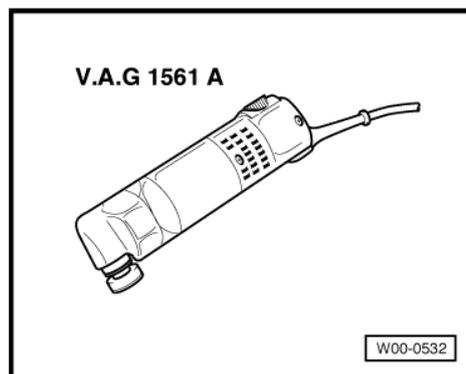
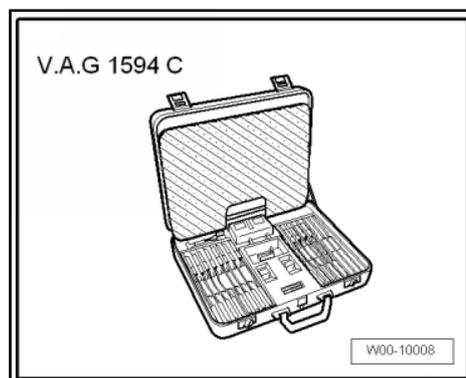


- ◆ Auxiliary measuring set - V.A.G 1594C-

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- ◆ Electric cutter - V.A.G 1561A-

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



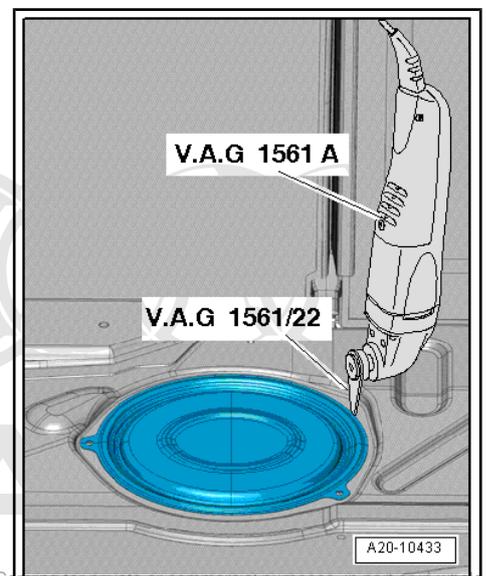
◆ Scissors

Checking fuel gauge sender 3 - G237- in vehicle



Note

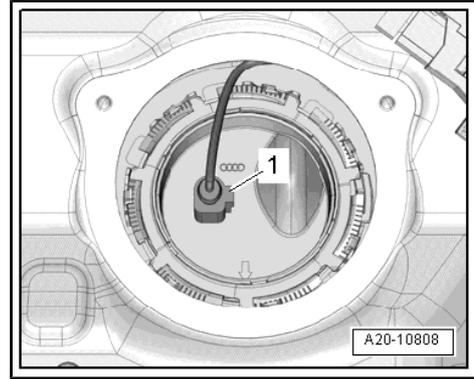
- ◆ *To obtain an exact measurement of the resistance value with “sender at upper stop” (installed), the fuel tank must be completely full. For this, drive for at least 500 metres after filling the tank to let air bubbles escape from the fuel tank; then add fuel again.*
 - ◆ *When installed in the vehicle, fuel gauge sender 3 - G237- can only be checked via the electrical connector on fuel gauge sender 2 - G169- .*
 - ◆ *For this reason, the cover for the fuel tank flange above fuel gauge sender 2 - G169- must be removed when testing the sender in the vehicle.*
- Observe safety precautions ⇒ [page 1](#) .
 - Observe rules for cleanliness ⇒ [page 5](#) .
 - 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 for fuel gauge sender 2 - G169- (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 .



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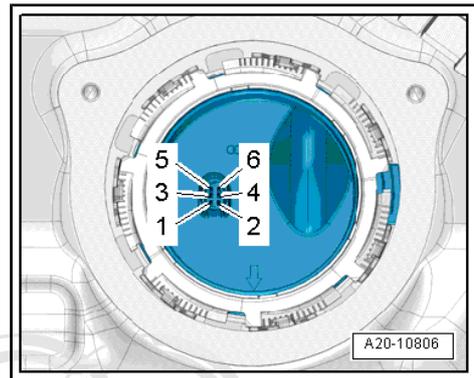


- Release retainer catch and unplug electrical connector -1- on flange.



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

Measure at contacts	Tank empty	Tank full
1 + 3	approx. 270 Ω	max. 70 Ω
1 + 5	approx. 70 Ω	at least 270 Ω
3 + 5 ¹⁾	335 ... 345 Ω	335 ... 345 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
- Renew fuel gauge sender 3 - G237- \Rightarrow [page 53](#).
- Install cover for flange.
- 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**

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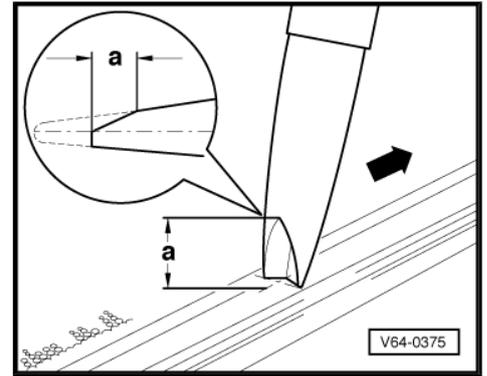
The remaining material serves as a bonding surface when applying the new adhesive sealing material.

**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.
- Remove rear seat bench or individual seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .



Checking fuel gauge sender 3 - G237- with sender removed

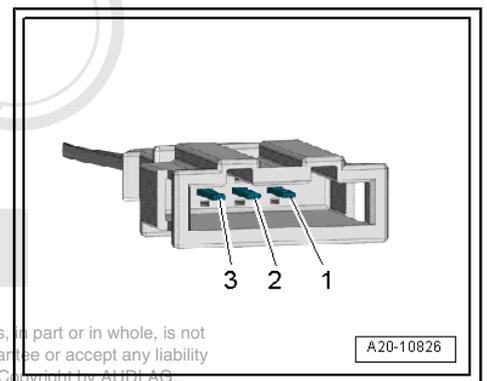
Note

- ◆ To test the maximum and minimum resistance values for “tank full” and “tank empty”, remove the fuel gauge sender ⇒ [page 53](#) 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. 273.8 Ω	approx. 63.9 Ω
1 + 3	approx. 66.2 Ω	approx. 276.1 Ω
2 + 3 ¹⁾	335 ... 345 Ω	335 ... 345 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 53](#) .

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 53](#)

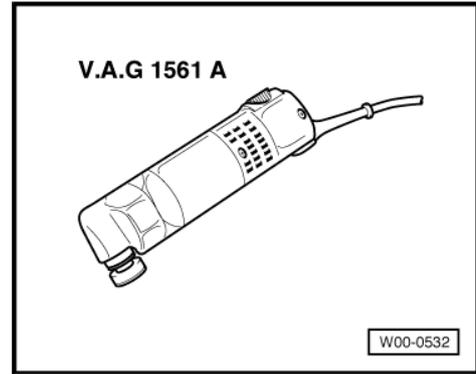
⇒ [“2.9.2 Removing and installing fuel gauge sender 3 G237 \(from model year 2014 onwards\)”, page 58](#)

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

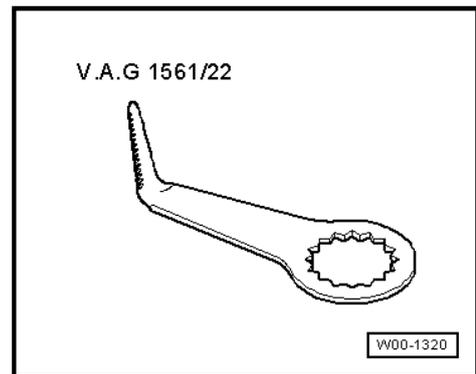
Special tools and workshop equipment required



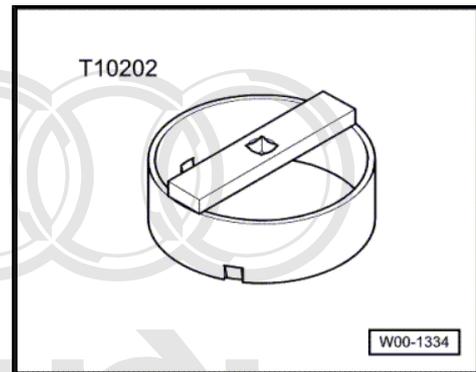
- ◆ Electric cutter - V.A.G 1561A-



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



- ◆ Wrench - T10202-



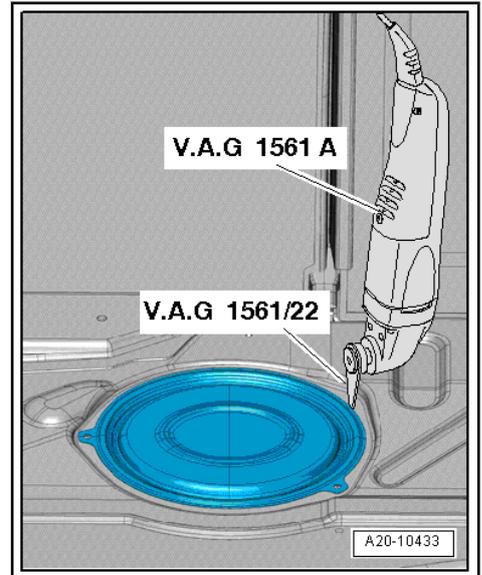
- ◆ Adhesive sealant ⇒ Electronic parts catalogue

Removing

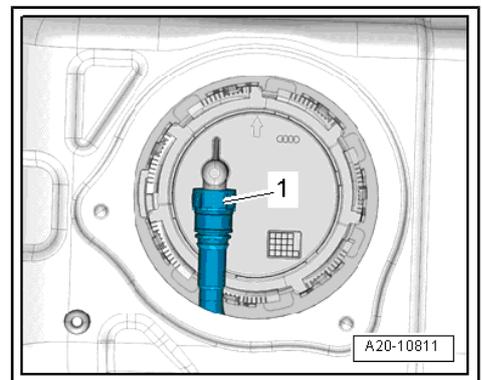
- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .
- If fitted, detach coolbox ⇒ General body repairs, interior; Rep. gr. 76 ; Coolbox; Removing and installing coolbox .
- Remove luggage compartment back panel trim ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Overview of fitting locations - luggage compartment trim panels .
- 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 .

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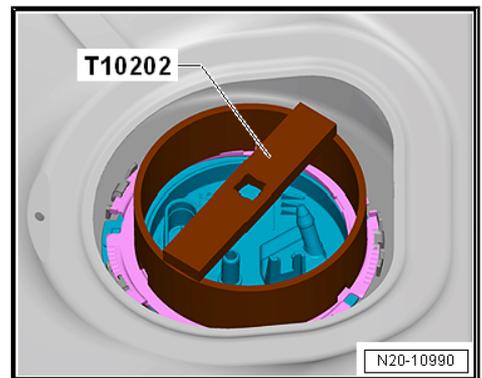
- Fold insulating mat to one side in vicinity of cover for flange (at front of luggage compartment).
- Use electric cutter - V.A.G 1561A- and blade (L-shaped, 25.4 mm) - V.A.G 1561/22- to cut through adhesive sealant around cover for flange in luggage compartment.
- Detach cover for flange.
- Repair painted surfaces => Paintwork manual .
- Apply anti-corrosion coating as necessary => Surface treatment/chemical materials .



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



- Remove locking ring using wrench - T10202- .



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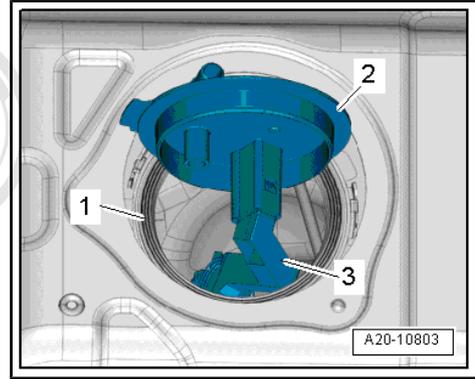


- Pull flange -2- out of opening in fuel tank.
- Take seal -1- out of opening in fuel tank.
- Release retainer catch and unplug electrical connector on fuel gauge sender 3 - G237- .
- Carefully take flange with fuel gauge sender 3 - G237- -item 3- out of opening in fuel tank.



Note

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



Installing

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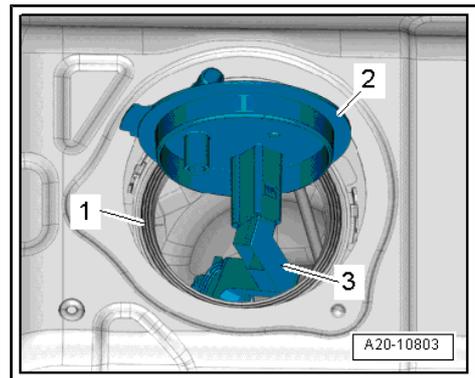
Installation is carried out in the reverse order, note the following:



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 3- into fuel tank.
- Plug in electrical connector and make sure it is correctly engaged.
- Install new seal -1- for flange (seal must be installed dry).
- Fit flange -2- into fuel tank.

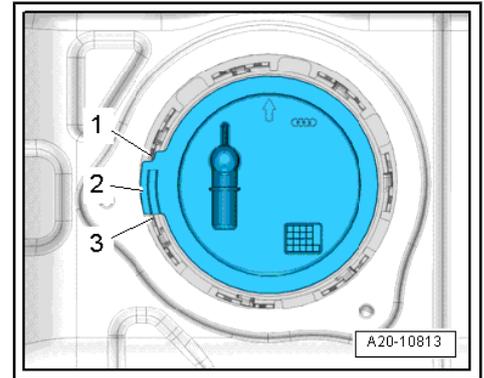


- Fit flange in correct installation position.

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.

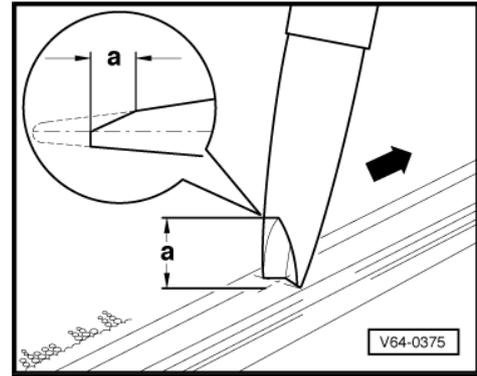
Caution

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 .



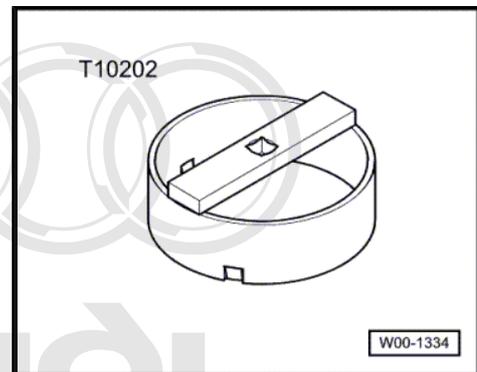
Tightening torques

- ◆ ⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 26](#)

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

Special tools and workshop equipment required

- ◆ Wrench - T10202-



Removing

- Observe safety precautions ⇒ [page 1](#)
- Observe rules for cleanliness ⇒ [page 5](#) .



Note

On vehicles from model year 2014 onwards, the fuel tank cannot be drained without removing it first, because the flange used to extract the fuel is not accessible when the fuel tank is installed.

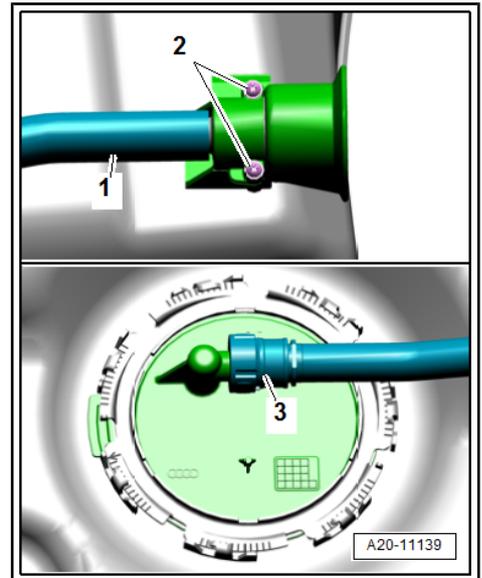


WARNING

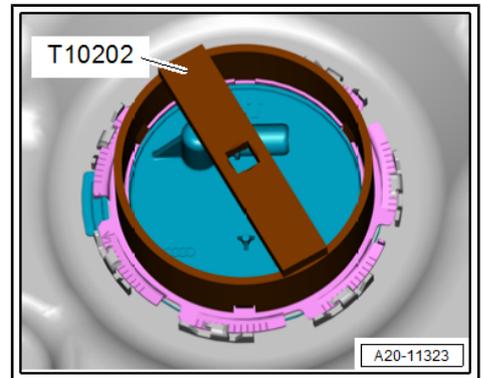
Risk of accident caused by weight of fuel tank

- ◆ *On vehicles from model year 2014 onwards, the fuel tank must be removed in order to drain it.*
- ◆ *Scissor-type assembly platform - VAS 6131 B- must be used in order to remove a fuel tank containing fuel because of the heavy weight.*

- Remove fuel tank => [page 15](#) .
- 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- .

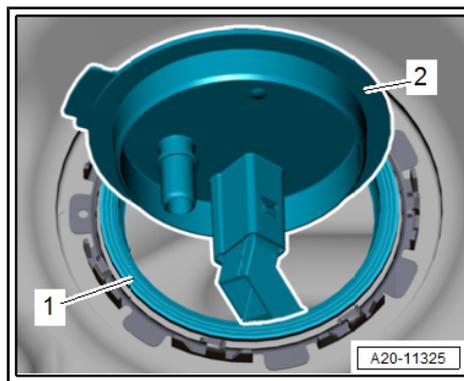


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- Pull flange -2- out of opening in fuel tank.
- Take seal -1- out of opening in fuel tank.
- Release retainer catch and unplug electrical connector on fuel gauge sender 3 - G237- .
- Carefully remove flange with fuel gauge sender 3 - G237- through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

 **Note**

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



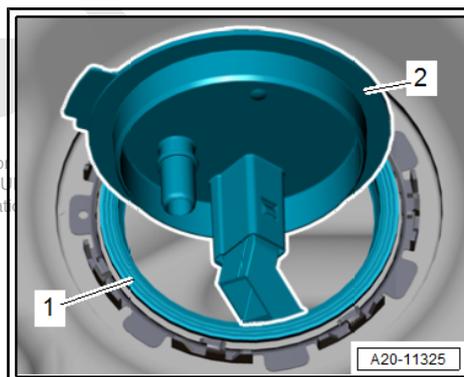
Installing

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

 **Note**

- ◆ *Renew seal.*
- ◆ *When 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.
- Install new seal -1- for flange (seal must be installed dry).
- Fit flange -2- into fuel tank.



- Fit flange in correct installation position.

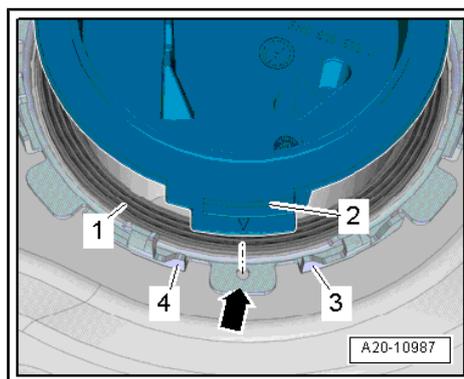


Caution

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 11](#) .



Tightening torques

- ◆ ⇒ ["2.1 Exploded view - fuel delivery unit/fuel gauge senders", page 26](#)

3 Fuel cooler

⇒ "3.1 Exploded view - fuel cooler", page 61

⇒ "3.2 Removing and installing fuel cooler", page 62

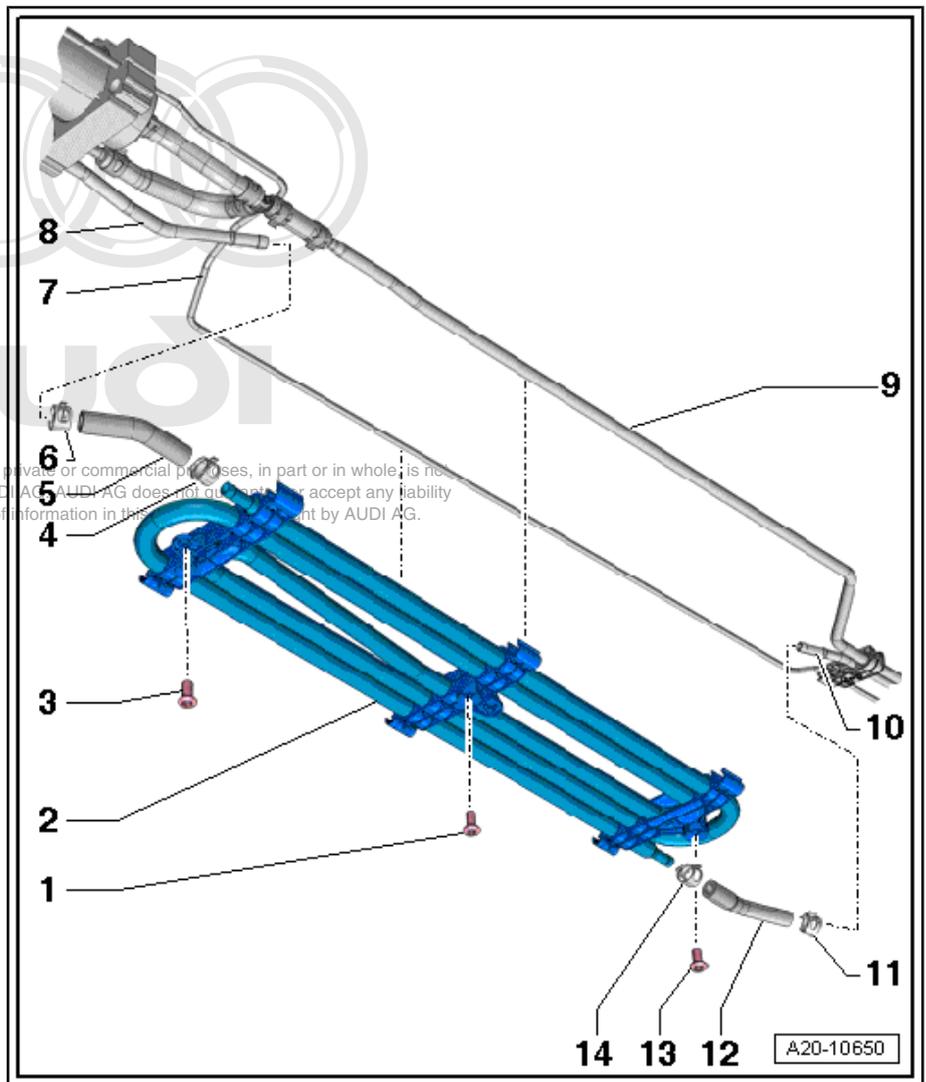
3.1 Exploded view - fuel cooler



Note

The fuel cooler is located on the underbody (right-side).

- 1 - Bolt
 - 1.5 Nm
- 2 - Fuel cooler
 - Removing and installing
⇒ [page 62](#)
- 3 - Bolt
 - 1.5 Nm
- 4 - Hose clip
- 5 - Fuel hose
- 6 - Hose clip
- 7 - Fuel line
 - Only on vehicles with auxiliary heater leading to metering pump for auxiliary heater
 - Clipped onto underbody and fuel cooler
- 8 - Fuel return line
 - From engine
- 9 - Fuel supply line
 - To fuel filter
 - Clipped onto underbody and fuel cooler
- 10 - Fuel return line
 - To fuel tank
 - Clipped onto underbody
- 11 - Hose clip
- 12 - Fuel hose
- 13 - Bolt
 - 1.5 Nm
- 14 - Hose clip



3.2 Removing and installing fuel cooler

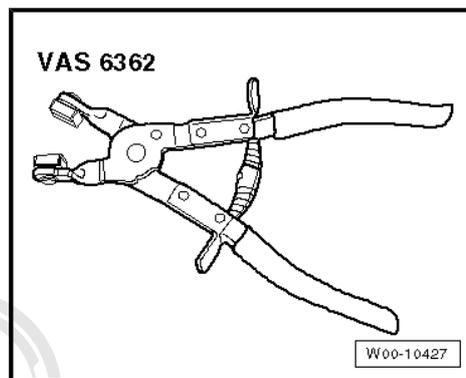


Note

The fuel cooler is located on the underbody (right-side).

Special tools and workshop equipment required

- ◆ Hose clip pliers - VAS 6362-



- ◆ Drip tray
- ◆ Protective gloves
- ◆ Safety goggles

Removing

- Observe rules for cleanliness ⇒ [page 5](#).
- Remove centre cover (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .

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WARNING

The fuel can become extremely hot. This can cause injuries.

- ◆ ***In extreme cases the fuel lines and the fuel can reach a temperature of 100 °C. Allow the fuel to cool down before disconnecting the lines - danger of scalding.***
- ◆ ***Wear protective gloves.***
- ◆ ***Wear safety goggles.***

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.***

- Place drip tray under fuel cooler.
- Detach fuel hoses -1, 5- at fuel cooler.
- Remove bolts -2, 3, 4-.
- Unclip fuel lines from fuel cooler -arrows- and detach fuel cooler.

Installing

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

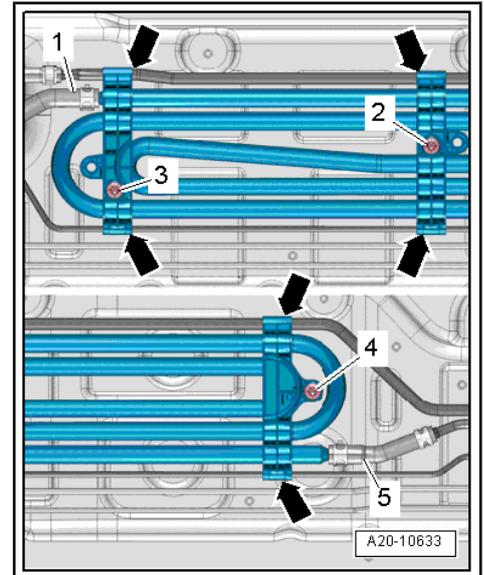
 **Note**

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

- Install centre cover (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .

Tightening torques

- ◆ ⇒ [“3.1 Exploded view - fuel cooler”, page 61](#)



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4 Fuel filter

⇒ "4.1 Exploded view - fuel filter", page 64

⇒ "4.2 Removing and installing fuel filter", page 65

4.1 Exploded view - fuel filter

1 - Nut

- 2.1 Nm

2 - Bracket

- For fuel filter

3 - Bolt

- 5.5 Nm

4 - Rubber mounting

- For fuel filter

5 - Fuel filter

- Flow direction is marked by arrows
- Do not interchange connections
- Removing and installing ⇒ page 65

6 - Rubber mounting

- For fuel filter

7 - Hose clip

8 - Fuel hose

9 - Hose clip

10 - Fuel return line

- To engine
- Clipped onto underbody and rubber mounting

11 - Fuel supply line

- To engine
- Clipped onto underbody

12 - Fuel line

- Only on vehicles with auxiliary heater: leading to metering pump for auxiliary heater
- Clipped onto underbody and rubber mounting

13 - Fuel supply line

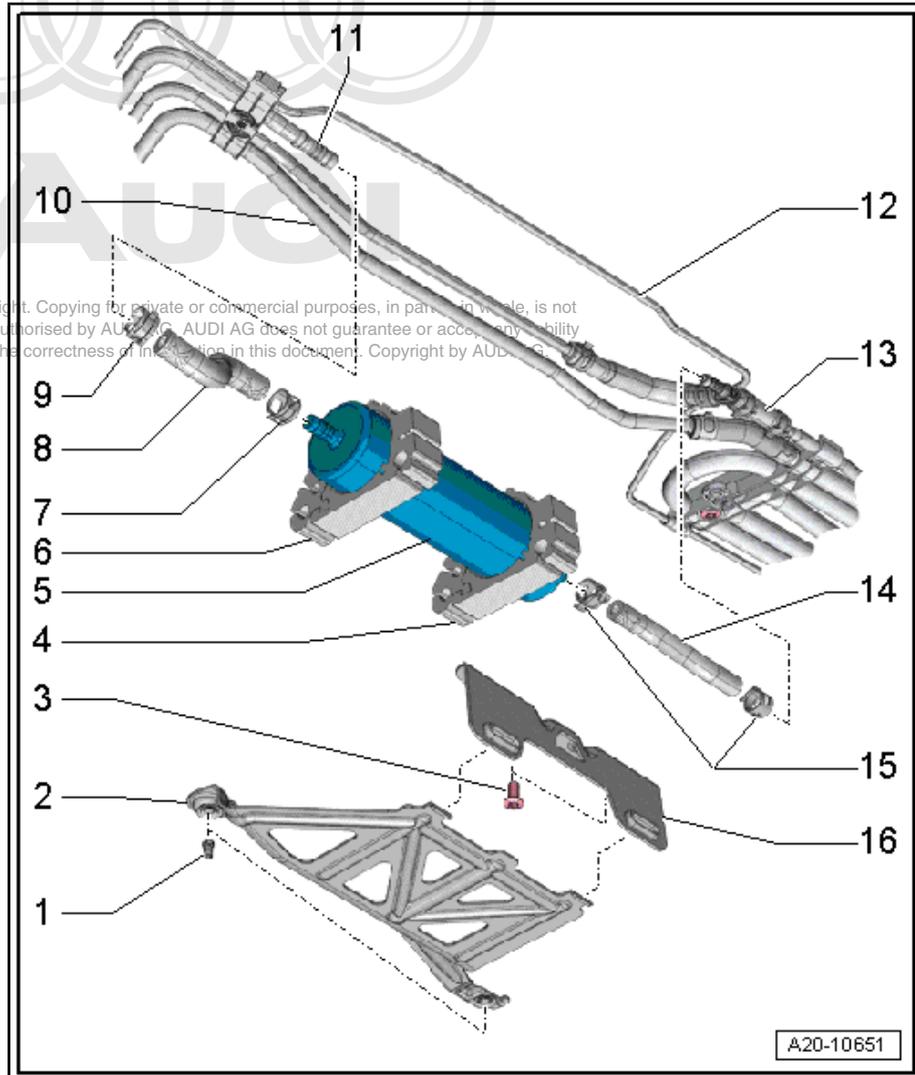
- From fuel tank
- Clipped onto underbody

14 - Fuel hose

15 - Hose clips

16 - Bracket

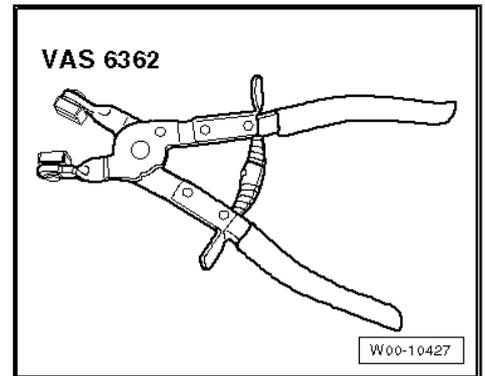
- For fuel filter



4.2 Removing and installing fuel filter

Special tools and workshop equipment required

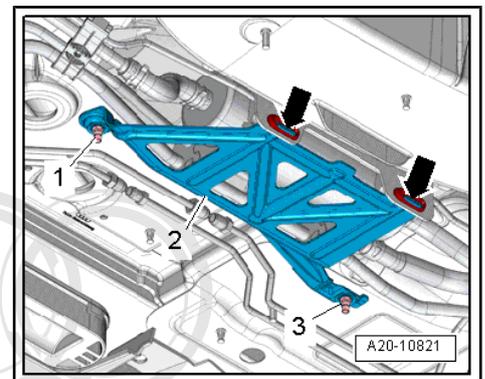
- ◆ Hose clip pliers - VAS 6362-



- ◆ Drip tray
- ◆ Protective gloves
- ◆ Safety goggles

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .
- Remove underbody trim (centre right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Remove nuts -1- and -3-.
- Pivot bracket -2- downwards, disengage from retainers -arrows- and detach.



WARNING

The fuel can become extremely hot. This can cause injuries.

- ◆ *In extreme cases the fuel lines and the fuel can reach a temperature of 100 °C. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Wear protective gloves.*
- ◆ *Wear safety goggles.*

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.*

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- Place drip tray under fuel filter.
- Open rubber mounting -4- and take out fuel filter -2-.
- Remove fuel supply hoses -1- and -3- and detach fuel filter.

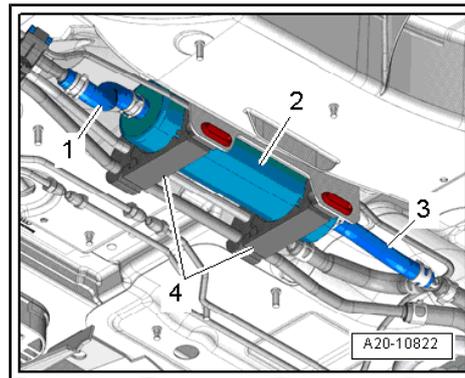
Installing

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

- Flow direction is marked with arrows on filter housing.
- Bleed fuel system ⇒ Rep. gr. 23 ; Injection system; Filling and bleeding fuel system .

Tightening torques

- ◆ ⇒ ["4.1 Exploded view - fuel filter", page 64](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim



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5 Fuel pump

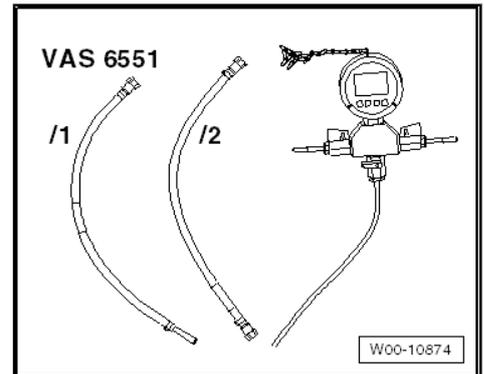
⇒ ["5.1 Checking fuel system pressurisation pump G6", page 67](#)

⇒ ["5.2 Removing and installing fuel pump control unit J538", page 73](#)

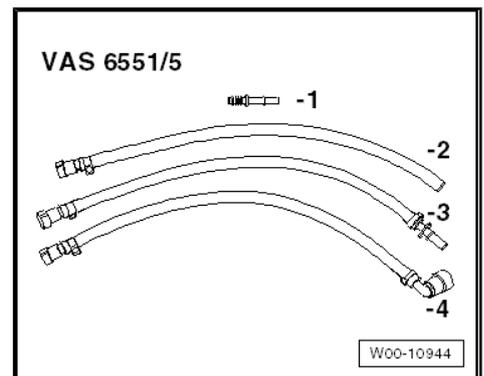
5.1 Checking fuel system pressurisation pump - G6-

Special tools and workshop equipment required

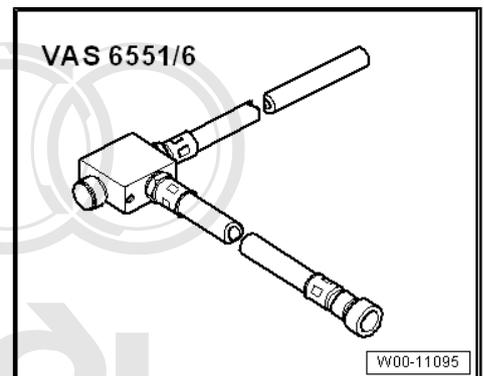
- ◆ Pressure tester (diesel) - VAS 6551-



- ◆ Adapter set - VAS 6551/5-



- ◆ Pressure control valve - VAS 6551/6-



- ◆ Vehicle diagnostic tester

- ◆ Fuel-resistant measuring container

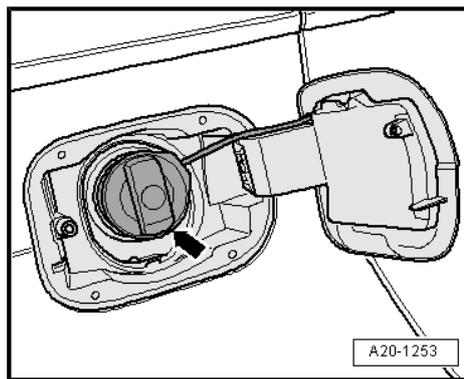
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A - Checking fuel delivery rate

Note

The test procedure for the 3.0 ltr. TDI engine is shown as an example.

- Observe test conditions ⇒ [page 5](#) .
- Open tank flap.
- Remove filler cap -arrow- for fuel filler neck.



WARNING

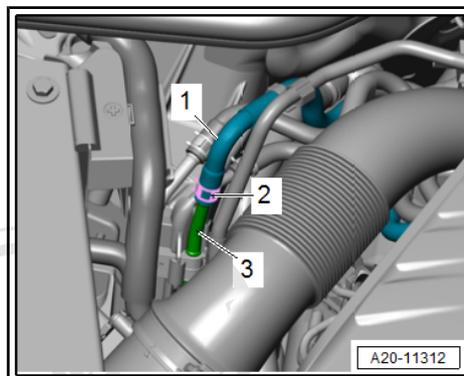
The fuel can become extremely hot. This can cause injuries.

- ◆ *In extreme cases the fuel lines and the fuel can reach a temperature of 100 °C. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Wear protective gloves.*
- ◆ *Wear safety goggles.*

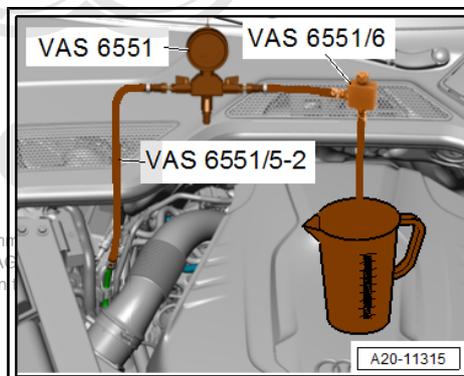
Risk of injury - fuel system operates under high pressure.

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

- Release hose clip -2- and detach fuel supply hose -1- leading to high-pressure pump from fuel supply line -3-.



- Connect pressure tester (diesel) - VAS 6551- to fuel supply line with connection lead - VAS 6551/5-2- and secure with hose clip.
- Attach pressure control valve - VAS 6551/6- and hold end of hose into fuel-resistant measuring container.



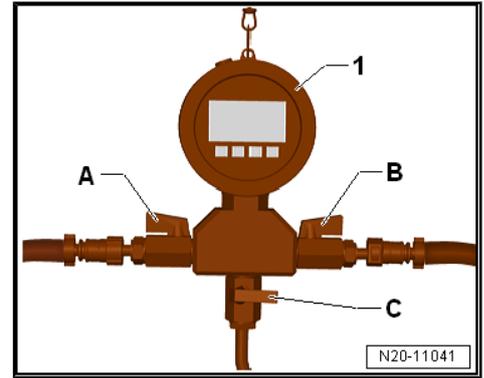
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- Switch on pressure tester (diesel) - VAS 6551- -item 1- by pressing **On/Off** button.

i Note

To measure the fuel delivery rate, pressure must first be built up in the fuel supply 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 6551/6- as follows:

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



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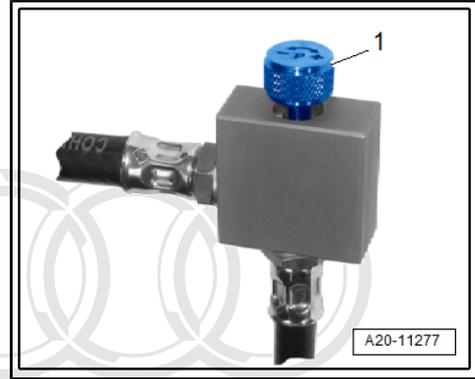
Risk of fuel escaping.

- ◆ **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**
 - ◆ **Checking fuel system pressurisation pump**
- Press **Start**: The fuel pump will start running.



- Build up pressure in fuel system by turning adjuster screw -1- on pressure control valve - VAS 6551/6- until correct pressure is reached.
- Specification: 4 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 750 cm³/15 sec.



If the minimum delivery rate is attained:

- ◆ Fuel supply line and fuel pump are OK
- ◆ However, there may be a fault in the fuel return line; to check for faults, perform pressure test on entire system
[=> page 72](#).

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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.

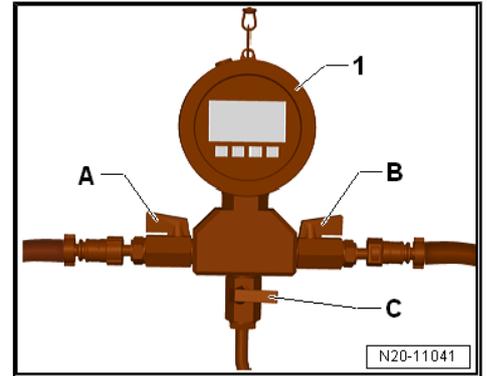


Note

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

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 (diesel) - VAS 6551- -item 1- by pressing **On/Off** button.
- Open cut-off valve -A-.
- Lever must point in direction of flow.



 **Caution**

Risk of fuel escaping.

- ◆ *Cut-off valves -B and C- must be closed.*
- ◆ *The levers should point perpendicular to direction of flow.*

- Press **Start** on vehicle diagnostic tester display to start the fuel pump.
- Press **Stop** after 15 seconds.
- Read fuel pressure off pressure tester (diesel) - VAS 6551- .
- **Specification: at least 6.0 bar**

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

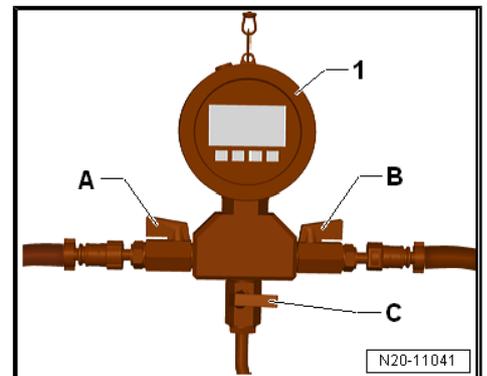
- ◆ Blocked fuel filter or crushed fuel supply line.

If specification is not attained:

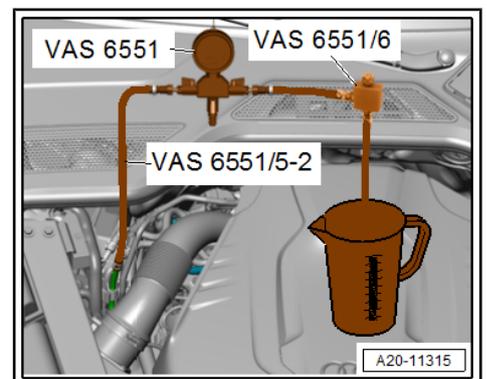
- ◆ Fuel pump or fuel pressure regulator in fuel tank faulty.

 **Note**

- ◆ *To detect any faults in the fuel return line or in the relief valve of the high-pressure pump, a pressure test must be performed on the entire system as described below.*
- ◆ *Before disconnecting the measuring equipment, release the fuel pressure by opening the cut-off valves -B and C- and allowing fuel to drain off into a measuring container.*



- Detach pressure control valve - VAS 6551/6- and remove together with measuring container.



**C - Pressure test for entire system**

- Fuel delivery rate and pressure test on fuel supply line OK
- Connection lead - VAS 6551/5-2- connected to fuel supply line -1- and to pressure tester (diesel) - VAS 6551- .
- Vehicle diagnostic tester connected.
- Attach connection fitting - VAS 6551/5-1- to fuel hose -2- leading to high-pressure pump, secure with hose clip and attach connection lead - VAS 6551/5-4- .
- Attach connection lead - VAS 6551/5-3- and -VAS 6551/5-4- to pressure tester (diesel) - VAS 6551- .

**Note**

In this way the pressure tester (diesel) - VAS 6551- is connected into the fuel supply line.

- Switch on pressure tester (diesel) - VAS 6551- -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.*

- Switch on the ignition and select the following menu options on the vehicle diagnostic tester :

- ◆ **[Vehicle self-diagnosis]**
- ◆ **[Engine electronics]**
- ◆ **[Basic setting]**
- ◆ **[Checking fuel system pressurisation pump]**

- Press **[Start]**: The fuel pump will start running.
- Read fuel pressure off pressure tester (diesel) - VAS 6551- .
- Specification: at least 3.8 bar

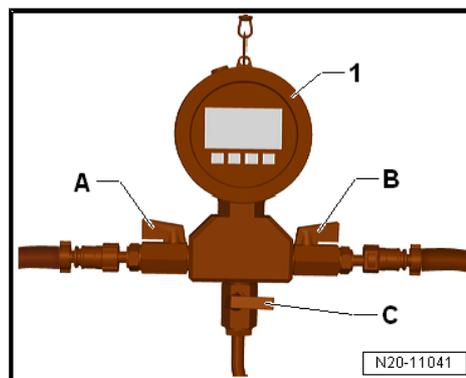
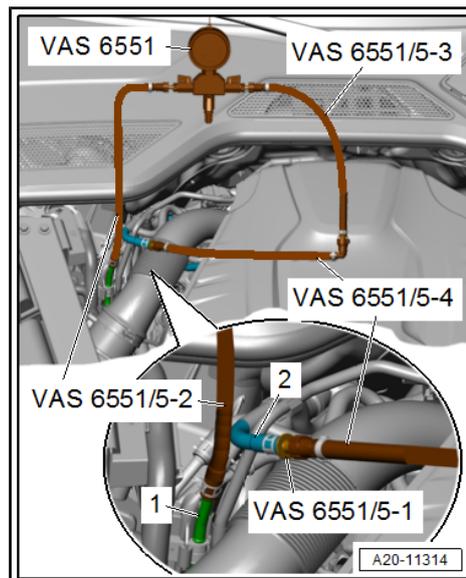
If specification is not attained although fuel delivery rate was OK:

- ◆ Relief valve in high-pressure pump not OK

Assembling

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

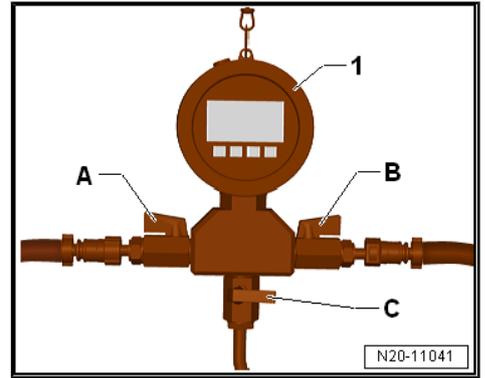
- The ignition must be switched off.



i 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 (diesel) - VAS 6551- together with connection leads.
- 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

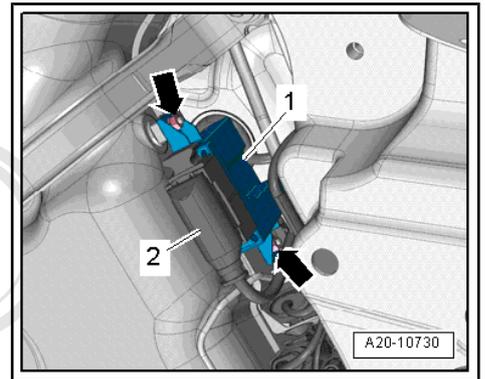
- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .
- Remove underbody trim panels (rear right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim panels; Removing and installing underbody trim .
- Release retainer catch and unplug electrical connector -2-.
- Remove nuts -arrows- and detach fuel pump control unit -1-.

Installing

Install in reverse order.

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 26](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim



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6 Accelerator mechanism

⇒ "6.1 Exploded view - accelerator pedal module", page 74

⇒ "6.2 Removing and installing accelerator pedal module with accelerator position sender G79 / G185", page 75

6.1 Exploded view - accelerator pedal module

1 - Accelerator pedal module

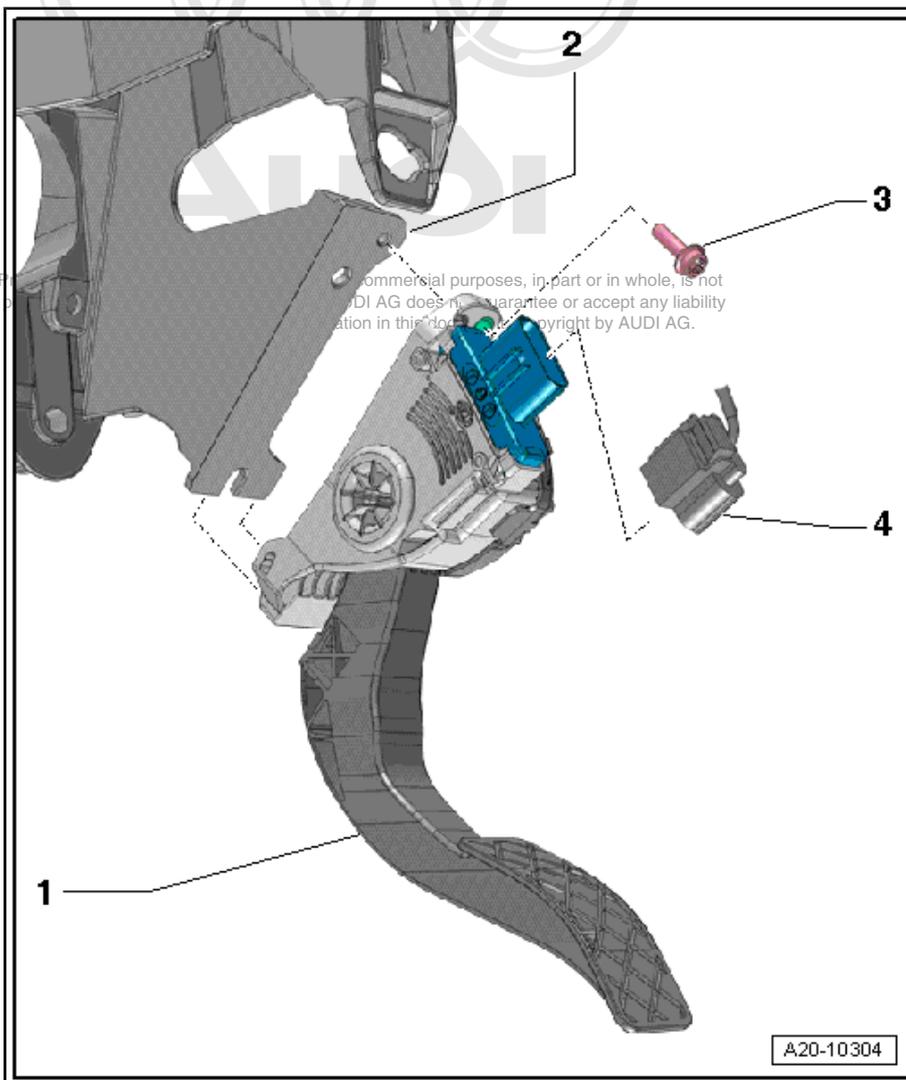
- With accelerator position sender - G79- and accelerator position sender 2 - G185-
- Removing and installing ⇒ [page 75](#)
- Adaption may be required after renewing, depending on engine/ gearbox combination
- If this menu item is available in "Guided Functions", perform adaption ⇒ Vehicle diagnostic tester

2 - Pedal bracket

3 - Bolt

- 8 Nm

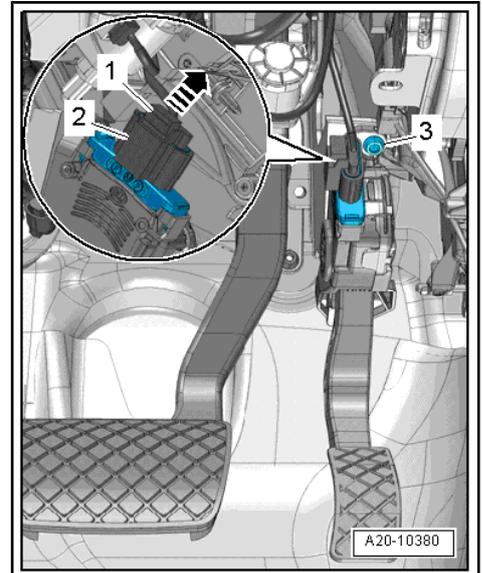
4 - Electrical connector



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

Removing

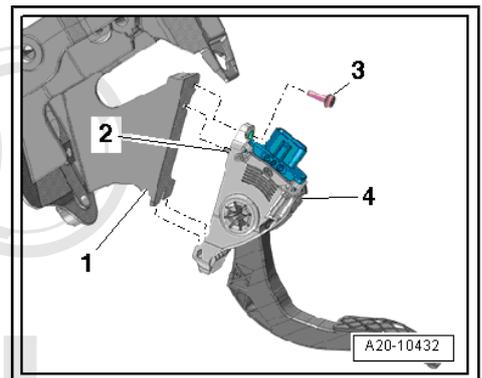
- Remove dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves / trim panels; Removing and installing dash panel cover (driver side) .
- Push release tab -1- upwards -arrow- and unplug electrical connector -2-.
- Remove bolt -3- and take out accelerator pedal module downwards.



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.*
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Tightening torques

- ◆ ⇒ ["6.1 Exploded view - accelerator pedal module", page 74](#)