



Workshop Manual

Audi A6 2011 ➤

Audi A6 China 2012 ➤

Audi A7 Sportback 2011 ➤

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Fuel supply system, petrol engines									
Engine ID	CGW B	CHV A	CNY A	CGX B	CAE B	CDN B	CEU C	CGW D	CHJA
	CHM A	CLXA	CNY B	CLXB	CDZ A	CRD B	CEU D	CAE D	CTTA
	CTU A	CVP A	CRE C	CTD A	CTD B	CTG E	CWU B	CYG A	CYN B
	CYP A	CWU A	CYP B	CYY A	CWU C	CRE H	CUH A		

Edition 08.2017

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

(ARL005388; Edition 08.2017)

⇒ [“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 2](#)

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

1.1 Safety precautions when working on the fuel system

When working on the fuel system note the following warnings:



WARNING

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

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

Health risk: avoid skin contact with fuel.

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

Risk of fire due to escaping fuel.

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

Mobile phones can cause an explosion risk.

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

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

- ◆ Fuel tank must not be full. The amount of fuel which can be left in the fuel tank is indicated in the corresponding procedure description. Drain fuel tank if necessary ⇒ [page 10](#) .

- ◆ Before commencing work, switch on exhaust extraction system and place an extraction hose close to the opening in the fuel tank to extract escaping petrol fumes.
- ◆ If no exhaust extraction system is available, a radial fan with a displacement of at least 15 m³/h can be used (the fan motor must be clear of the air stream).

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

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

- ◆ Persons wearing a cardiac pacemaker must at all times maintain a safe distance from high-voltage components such as the ignition system and xenon headlights.
- ◆ Do not touch or disconnect ignition coils with output stages when the engine is running or being turned at cranking speed.
- ◆ Always switch off the ignition before connecting or disconnecting electrical wiring for the injection or ignition system or tester cables.
- ◆ Always switch off ignition before washing engine.
- ◆ When installing, note colour coding of plug-in connectors.
- ◆ Plug-in connectors should engage audibly when connecting.
- ◆ Pull plug-in connectors to check that they are correctly engaged.
- ◆ Erase any entries in event memory resulting from testing or installation ➔ Vehicle diagnostic tester, Guided Functions, Interrogate event memory, then Generate readiness code.



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:

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WARNING

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

- ◆ *On vehicles with activated start/stop system (indicated by a message in the instrument cluster), the engine may start automatically if it needs to.*
- ◆ *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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2 Repair instructions

⇒ [“2.1 Rules for cleanliness”, page 4](#)

⇒ [“2.2 Test conditions”, page 4](#)

⇒ [“2.3 Contact corrosion”, page 4](#)

⇒ [“2.4 Routing and attachment of pipes, hoses and wiring”, page 5](#)

2.1 Rules for cleanliness

Even small quantities of dirt can lead to defects. For this reason, please observe the following rules when working on the fuel supply system and injection system:

- ◆ 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 removed parts on a clean surface and cover them. Use only lint-free cloths.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components; replacement parts should only be unpacked immediately prior to installation. Do not use parts that have not been stored in their packing (e.g. in tool boxes etc.).
- ◆ When the system is open, do not work with compressed air and do not move the vehicle.
- ◆ Protect unplugged electrical connectors against dirt and moisture and make sure connections are dry when attaching.

2.2 Test conditions

- Battery voltage at least 12.5 V
- Fuel pump fuse OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel pump relay - J17- OK; checking in Guided Fault Finding ⇒ Vehicle diagnostic tester.
- 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 switched off.

2.3 Contact corrosion

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

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

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 .

Please note:

- ◆ 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 by warranty.

2.4 Routing and attachment of pipes, hoses and wiring



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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 6](#)

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

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

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1.1 Exploded view - fuel tank

⇒ [“1.1.1 Exploded view - fuel tank”, page 6](#)

⇒ [“1.1.2 Exploded view - fuel tank, NAR vehicles”, page 8](#)

1.1.1 Exploded view - fuel tank

1 - Bolt

- ☐ 20 Nm

2 - Mounting

- ☐ For exhaust system
- ☐ Mounting components
⇒ [page 8](#)

3 - Securing strap

- ☐ Mounting components
⇒ [page 8](#)

4 - Buffer

- ☐ Mounting components
⇒ [page 8](#)

5 - Spacer sleeve

- ☐ Mounting components
⇒ [page 8](#)

6 - Fuel line

- ☐ From fuel pressure regulator to engine
- ☐ Do not kink
- ☐ Clipped onto fuel tank
- ☐ Disconnecting and connecting plug-in connectors
⇒ [page 42](#)

7 - Bolt

- ☐ 20 Nm

8 - Overflow hose

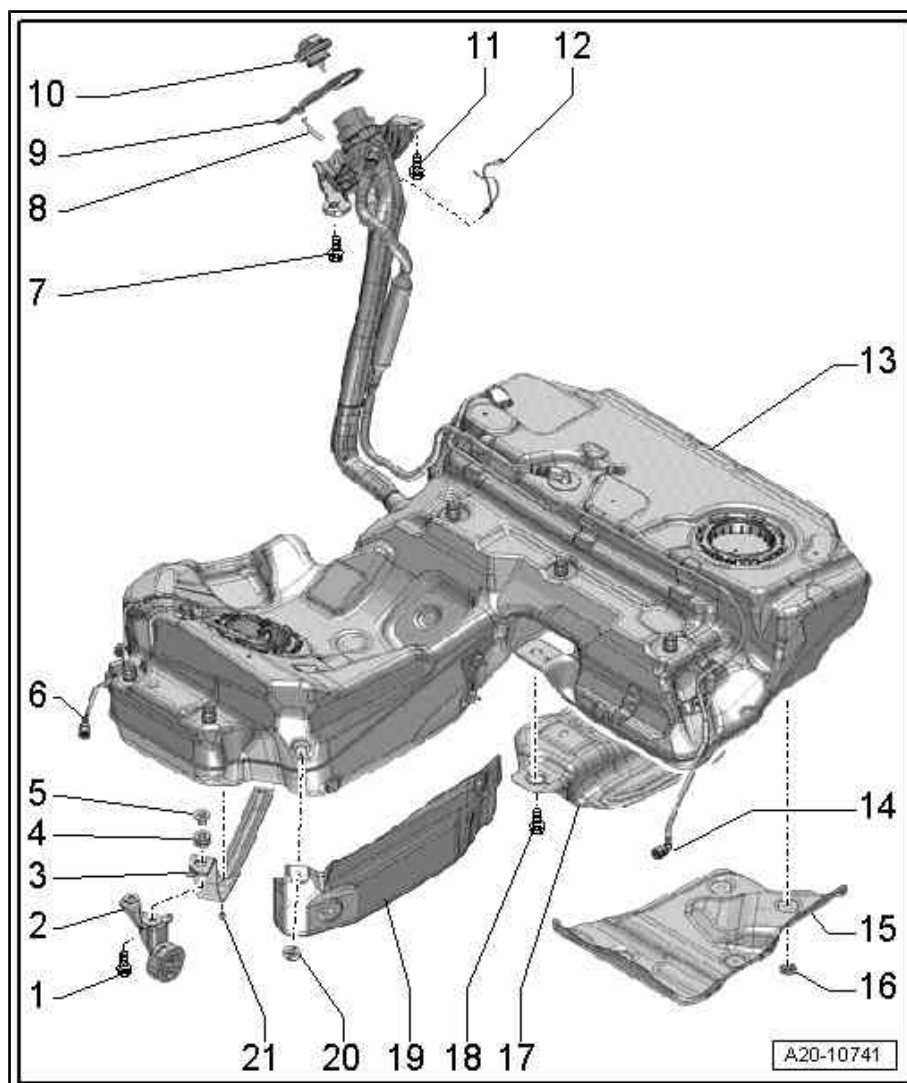
9 - Tank flap unit

10 - Filler cap

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

11 - Bolt

- ☐ To secure fuel filler neck
- ☐ 20 Nm



12 - Earth connection

- ☐ For fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 7](#)

13 - Fuel tank

- ☐ Removing and installing ⇒ [page 12](#)

14 - Breather line

- ☐ To activated charcoal filter
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)

15 - Heat shield

- ☐ For fuel tank

16 - Clamping washer

- ☐ For heat shield
- ☐ 2 Nm

17 - Support bracket

18 - Bolt

- ☐ 20 Nm

19 - Heat shield

- ☐ For fuel tank

20 - Clamping washer

- ☐ For heat shield
- ☐ 2 Nm

21 - Fastener

Earth connection for fuel filler neck

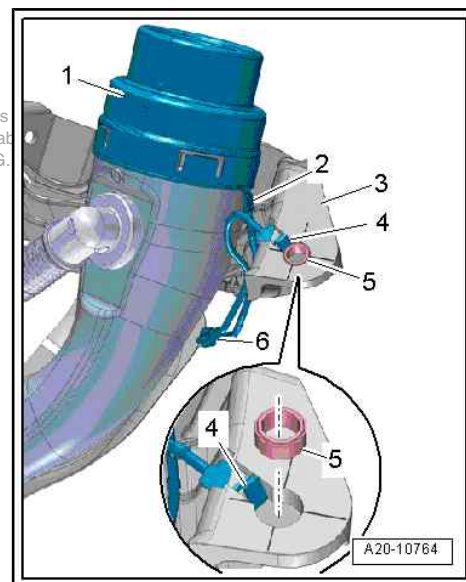
- Route earth connection as shown in illustration.
- Make sure that the following connectors are securely seated:
- ◆ Connector -2- for earth connection on threaded ring -1- of fuel filler neck
- ◆ Connector -6- for earth connection on protective cover for fuel filler neck.
- Engage contact tab -4- of earth connection in mounting hole on fuel tank -3- and press in spacer bush -5-.



WARNING

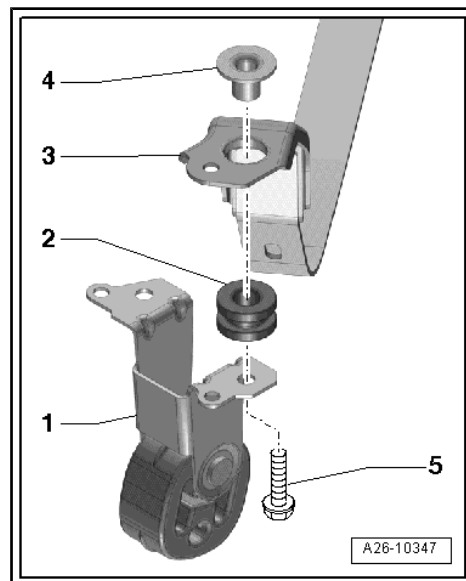
Risk of explosion caused by electrostatic discharge.

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



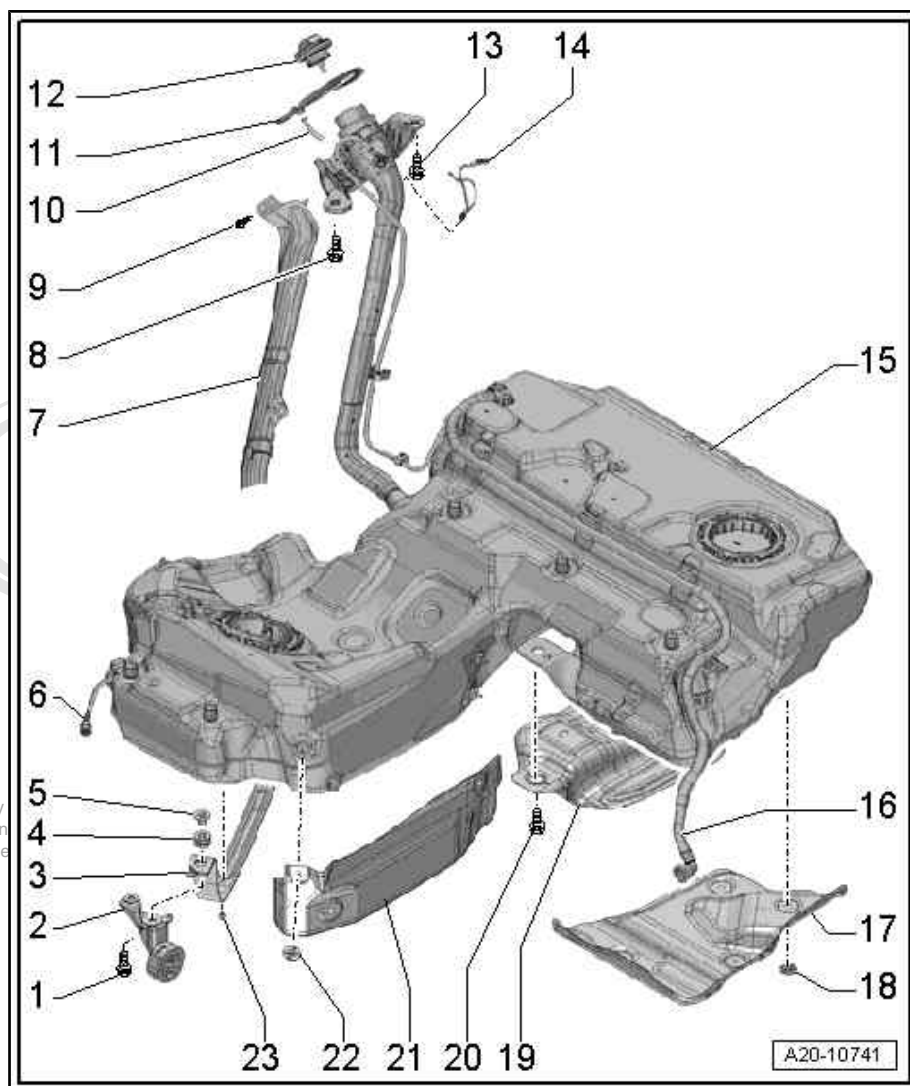
Mounting components for securing strap

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



1.1.2 Exploded view - fuel tank, NAR vehicles

- 1 - Bolt
 - 20 Nm
- 2 - Mounting
 - For exhaust system
 - Mounting components
⇒ [page 10](#)
- 3 - Securing strap
 - Mounting components
⇒ [page 10](#)
- 4 - Buffer
 - Mounting components
⇒ [page 10](#)
- 5 - Spacer sleeve
 - Mounting components
⇒ [page 10](#)
- 6 - Fuel line
 - From fuel pressure regulator to engine
 - Do not kink
 - Clipped onto fuel tank
 - Disconnecting and connecting plug-in connectors ⇒ [page 42](#)
- 7 - Protective plate
 - For fuel filler neck
- 8 - Bolt
 - 20 Nm
- 9 - Bolt
 - 3.5 Nm



10 - Overflow hose

11 - Tank flap unit

12 - Filler cap

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

13 - Bolt

- ☐ To secure fuel filler neck
- ☐ 20 Nm

14 - Earth connection

- ☐ For fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 10](#)

15 - Fuel tank

- ☐ Removing and installing ⇒ [page 12](#)
- ☐ Note SVM code (refer to ETKA)

16 - Breather line

- ☐ To activated charcoal filter
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)

17 - Heat shield

- ☐ For fuel tank

18 - Clamping washer

- ☐ For heat shield
- ☐ 2 Nm

19 - Support bracket

20 - Bolt

- ☐ 20 Nm

21 - Heat shield

- ☐ For fuel tank

22 - Clamping washer

- ☐ For heat shield
- ☐ 2 Nm

23 - Fastener

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Earth connection for fuel filler neck

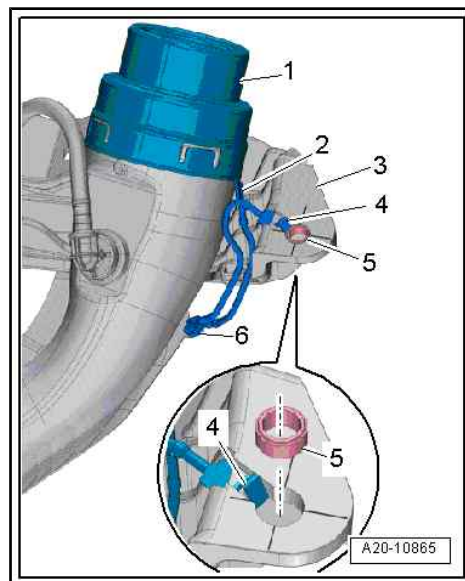
- Route earth connection as shown in illustration.
- Make sure that the following connectors are securely seated:
 - ◆ Connector -2- for earth connection on threaded ring -1- of fuel filler neck
 - ◆ Connector -6- for earth connection on protective cover for fuel filler neck.
- Engage contact tab -4- of earth connection in mounting hole on fuel tank -3- and press in spacer bush -5-.



WARNING

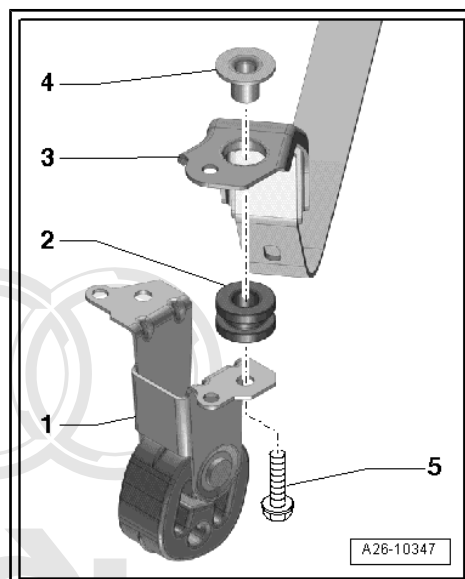
Risk of explosion caused by electrostatic discharge.

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



Mounting components for securing strap

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



1.2 Draining fuel tank

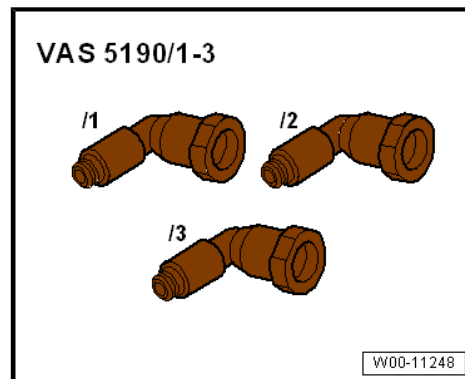
Special tools and workshop equipment required

- ◆ Fuel extractor - VAS 5190A-

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◆ Adapter for fuel extraction - VAS 5190 /1-



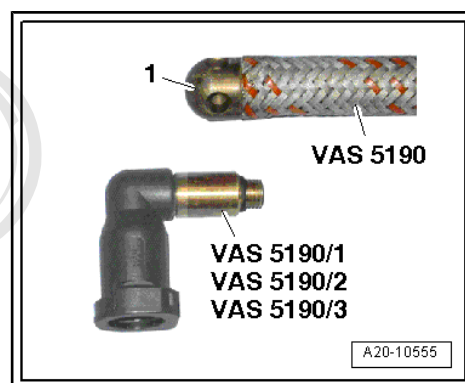
Note

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

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

Procedure

- Observe safety precautions ➤ [page 1](#) .
- Observe rules for cleanliness ➤ [page 4](#) .
- Move front right seat all the way forwards.



Caution

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

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

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

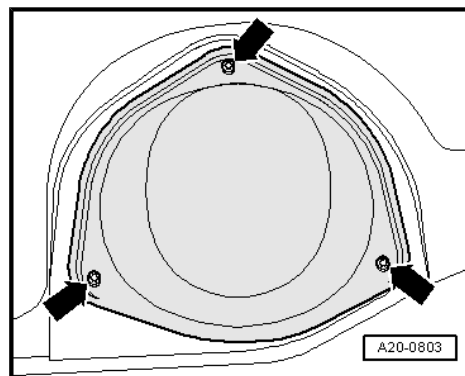


WARNING

Risk of explosion caused by electrostatic discharge.

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

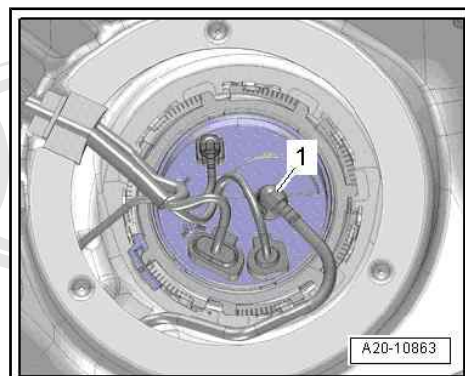
- Remove rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Fold insulating mat to one side in vicinity of cover for fuel tank flange.
- Unscrew bolts -arrows- and remove cover for flange.



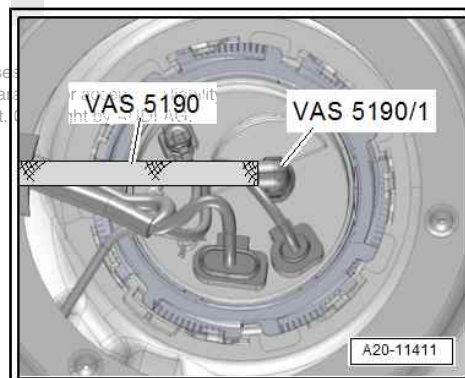
WARNING

The fuel system operates at high pressure - risk of injuries!

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



- Disconnect fuel line -1- from flange. Disconnecting plug-in connectors ⇒ [page 42](#)
- Connect extraction hose to supply connection on flange with adapter for fuel extraction - VAS 5190 /1- .
- Extract fuel from fuel tank with fuel extractor VAS 5190A- (via supply connection on flange).
- Install cover for flange ⇒ [page 21](#) .
- Install rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .



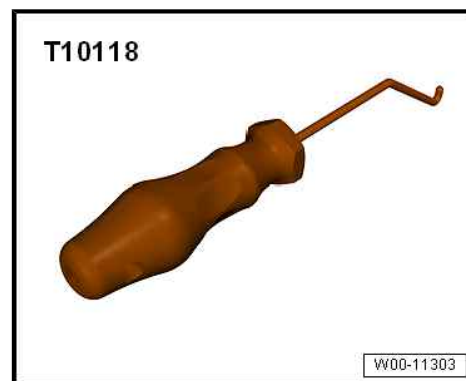
1.3 Removing and installing fuel tank

Special tools and workshop equipment required

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



◆ Assembly tool - T10118-



Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .



Caution

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

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

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

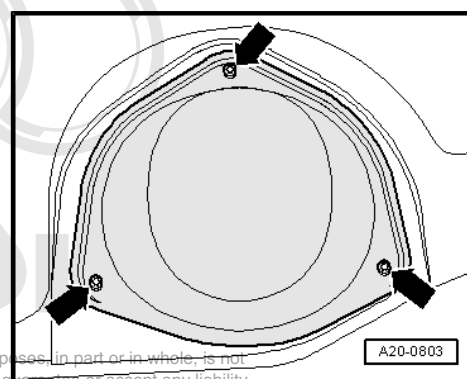


WARNING

Risk of accident caused by weight of fuel tank

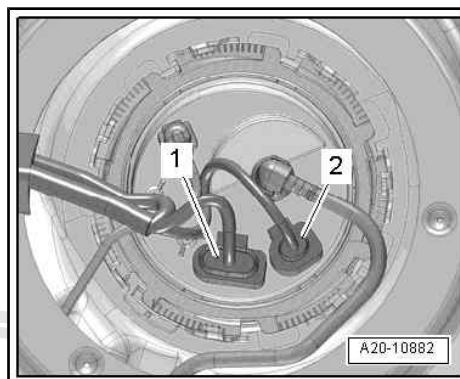
- ◆ *Fuel tank must be empty when it is removed.*

- Drain fuel tank ⇒ [page 10](#) .
- Remove rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/ individual seats .
- Fold insulating mat to one side in vicinity of cover for fuel tank flange.
- Unscrew bolts -arrows- and remove cover for flange.



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- Release retainer catches with assembly tool - T10118- and unplug electrical connectors -1 and 2- on flange.

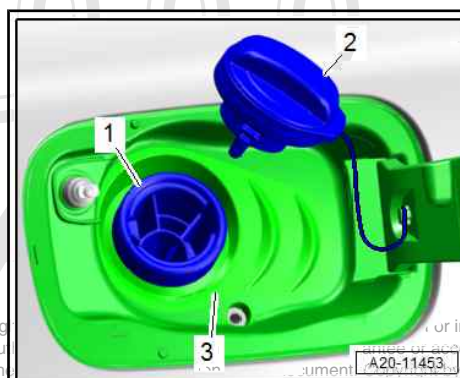


- Open tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -2- for fuel filler neck.
- Disengage rubber sleeve -3- from fuel filler neck -1-.

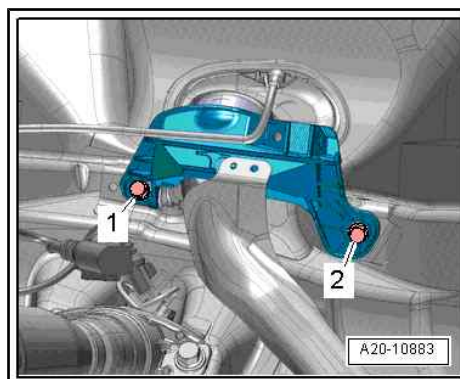


Note

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



- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Remove bolts -1- and -2- for fuel filler neck.
- Remove rear section of exhaust system ⇒ Rep. gr. 26 ; Exhaust pipes/silencer; Exploded view - silencer .



WARNING

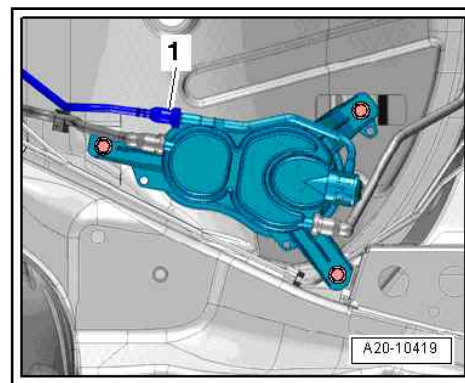
The vehicle can tip over on the lifting platform when the rear axle is removed.

- ◆ **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 together with attached components ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .
- Remove heat shield for exhaust system (centre) ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Removing and installing heat shield for floor .

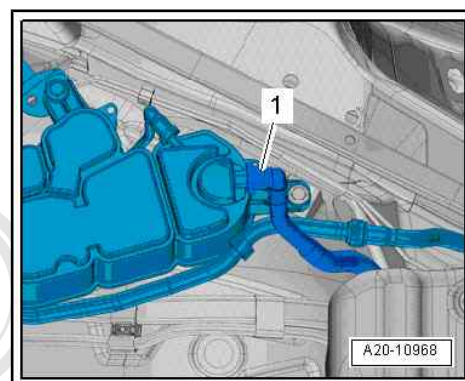
Rest-of-world vehicles:

- Disconnect breather line -1- at activated charcoal filter. Disconnecting plug-in connectors ➔ [page 42](#)



Vehicles with hybrid drive and NAR vehicles:

- Disconnect breather line -1- at activated charcoal filter. Disconnecting plug-in connectors ➔ [page 42](#)



Continued for all vehicles:

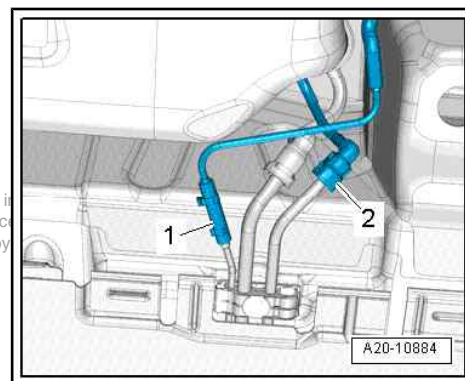


WARNING

The fuel system operates at high pressure - risk of injuries!

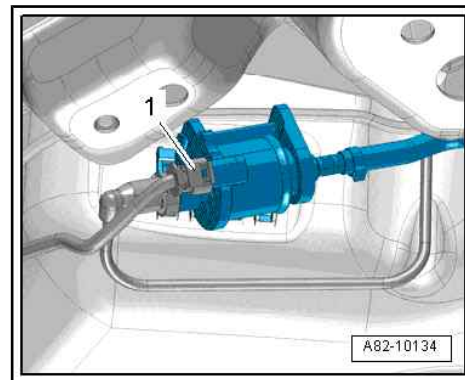
- ◆ ***To reduce the pressure in the fuel system, wrap a clean cloth around the connection and loosen the connection carefully.***

- Vehicles with auxiliary heater: Disconnect fuel line -1- to auxiliary heater.
- Disconnect fuel line -2- at front right of fuel tank. Disconnecting plug-in connectors ➔ [page 42](#)



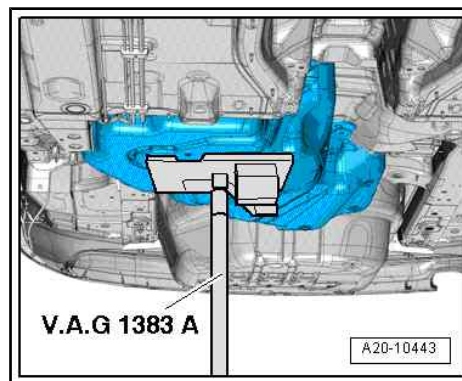
Rest-of-world vehicles:

- Vehicles with auxiliary heater: Unplug electrical connector -1- at metering pump.



Continued for all vehicles:

- Position engine and gearbox jack - V.A.G 1383 A- under vehicle to support tank, as shown in illustration.
- In addition, a 2nd mechanic will be required to support the fuel tank at the rear by hand.



- Unclip breather line from bracket -arrow-.



WARNING

Risk of accident caused by weight of fuel tank

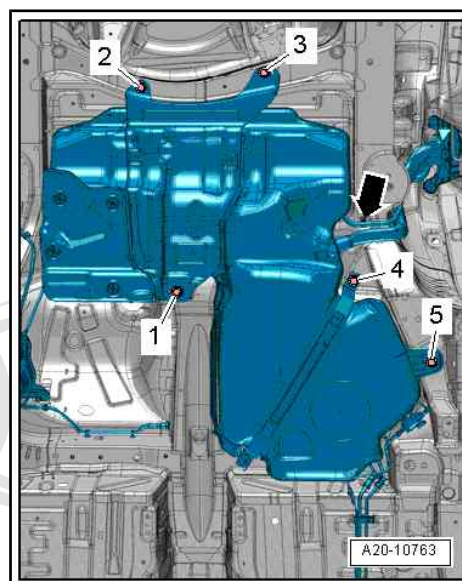
- ◆ *Fuel tank must be empty when it is removed.*

- Remove bolts -1 ... 5-.
- 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 earth wire for traces of oxidation at connectors; remove any oxidation if necessary.

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Rest-of-world vehicles:

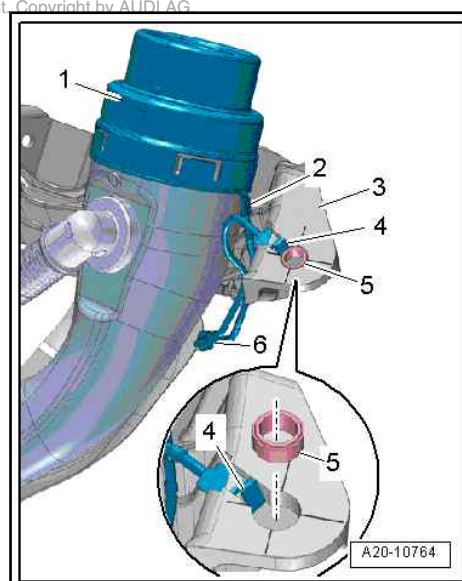
- Check that the following connectors are securely seated:
 - ◆ Connector -2- for earth connection on threaded ring -1- of fuel filler neck
 - ◆ Connector -6- for earth connection on protective cover for fuel filler neck.
- Engage contact tab -4- of earth connection in mounting hole on fuel tank -3- and press in spacer bush -5-.



WARNING

Risk of explosion caused by electrostatic discharge.

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



NAR vehicles:

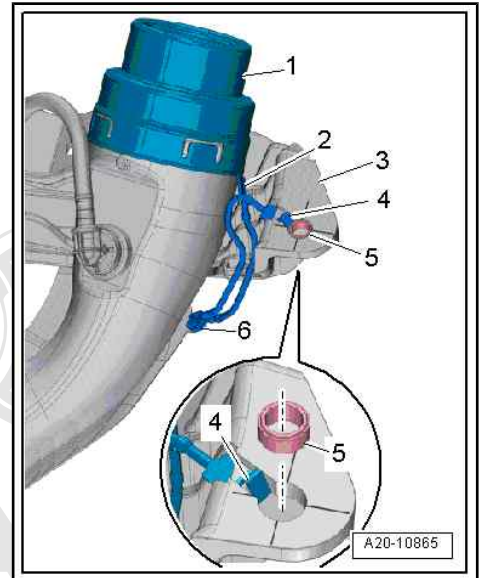
- Check that the following connectors are securely seated:
 - ◆ Connector -2- for earth connection on threaded ring -1- of fuel filler neck
 - ◆ Connector -6- for earth connection on protective cover for fuel filler neck.
- Engage contact tab -4- of earth connection in mounting hole on fuel tank -3- and press in spacer bush -5-.



WARNING

Risk of explosion caused by electrostatic discharge.

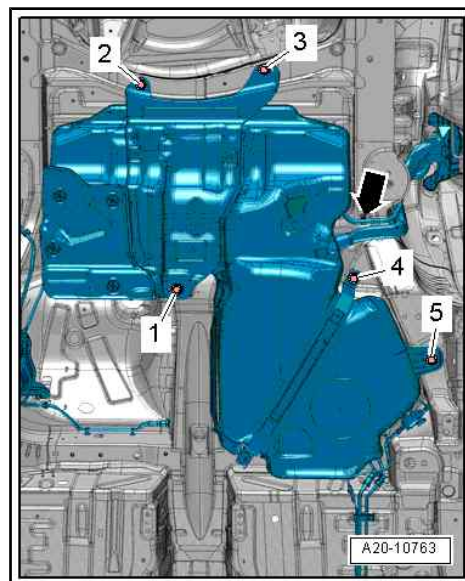
- ◆ *After installation, use an ohmmeter to check the electrical connection between the threaded ring on the fuel filler neck and a bare metal part on the body.*
 - *Specification: approx. 0 Ω*



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Continued for all vehicles:

- Check that fuel line and breather line are clipped onto fuel tank.
- Position fuel tank with securing strap and support bracket on underbody using engine and gearbox jack - V.A.G 1383 A- .
- When installing fuel tank, make sure that fuel filler neck is correctly inserted into opening on body.
- Tighten bolts -1 ... 5- for securing strap and support bracket.
- Clip breather line into bracket -arrow-.
- Install cover for flange ➔ [page 21](#) .
- Install rear seat bench ➔ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Connect battery and perform steps required after re-connecting battery ➔ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- After installing a new or completely drained fuel tank, the tank must be filled with at least 5 litres of fuel before starting the engine.



Note

The fuel pump must not be allowed to run in an empty fuel tank.

- Vehicles with auxiliary heater: Bleed fuel line leading to metering pump
➔ [“2.3 Filling and bleeding fuel system”, page 29](#) .

Tightening torques

- ◆ ➔ [“1.1.1 Exploded view - fuel tank”, page 6](#)
- ◆ ➔ [“1.1.2 Exploded view - fuel tank, NAR vehicles”, page 8](#)
- ◆ ➔ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe
- ◆ ➔ Rep. gr. 26 ; Exhaust pipes/silencer; Exploded view - silencer
- ◆ ➔ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)
- ◆ ➔ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres

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2 Fuel delivery unit/fuel gauge senders

⇒ "2.1 Exploded view - fuel delivery unit/fuel gauge senders", page 19

⇒ "2.2 Removing and installing fuel delivery unit/fuel gauge senders", page 23

⇒ "2.3 Filling and bleeding fuel system", page 29

⇒ "2.4 Checking fuel gauge sender G ", page 30

⇒ "2.5 Removing and installing fuel gauge sender G ", page 33

⇒ "2.6 Checking fuel gauge sender 2 G169 ", page 34

⇒ "2.7 Removing and installing fuel gauge sender 2 G169 ", page 36

2.1 Exploded view - fuel delivery unit/fuel gauge senders

⇒ "2.1.1 Exploded view - fuel delivery unit/fuel gauge senders, all vehicles except Audi RS 6/RS 7", page 19

⇒ "2.1.2 Exploded view - fuel delivery unit/fuel gauge senders, Audi RS 6/RS 7", page 22

2.1.1 Exploded view - fuel delivery unit/fuel gauge senders, all vehicles except Audi RS 6/RS 7



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1 - Fuel gauge sender - G-

- ☐ Checking resistance values ⇒ [page 30](#)
- ☐ Removing and installing ⇒ [page 33](#)

2 - Flange

- ☐ With fuel filter
- ☐ Removing and installing ⇒ [page 23](#)

3 - Seal

- ☐ Renew
- ☐ Install dry

4 - Locking ring

- ☐ Loosen and tighten with key - T10202-
- ☐ 110 Nm

5 - Electrical connector

- ☐ For fuel gauge sender - G- and fuel gauge sender 2 - G169-

6 - Electrical connector

- ☐ For fuel system pressurisation pump - G6-

7 - Electrical connector

- ☐ For fuel pump control unit - J538-

8 - Fuel pump control unit - J538-

- ☐ Checking in Guided Fault Finding ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 66](#)

9 - Bolt

- ☐ 1.6 Nm

10 - Fuel line to metering pump for auxiliary heater

- ☐ Depending on vehicle equipment
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)
- ☐ Clipped onto fuel tank

11 - Fuel line

- ☐ To engine
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)
- ☐ Clipped onto fuel tank

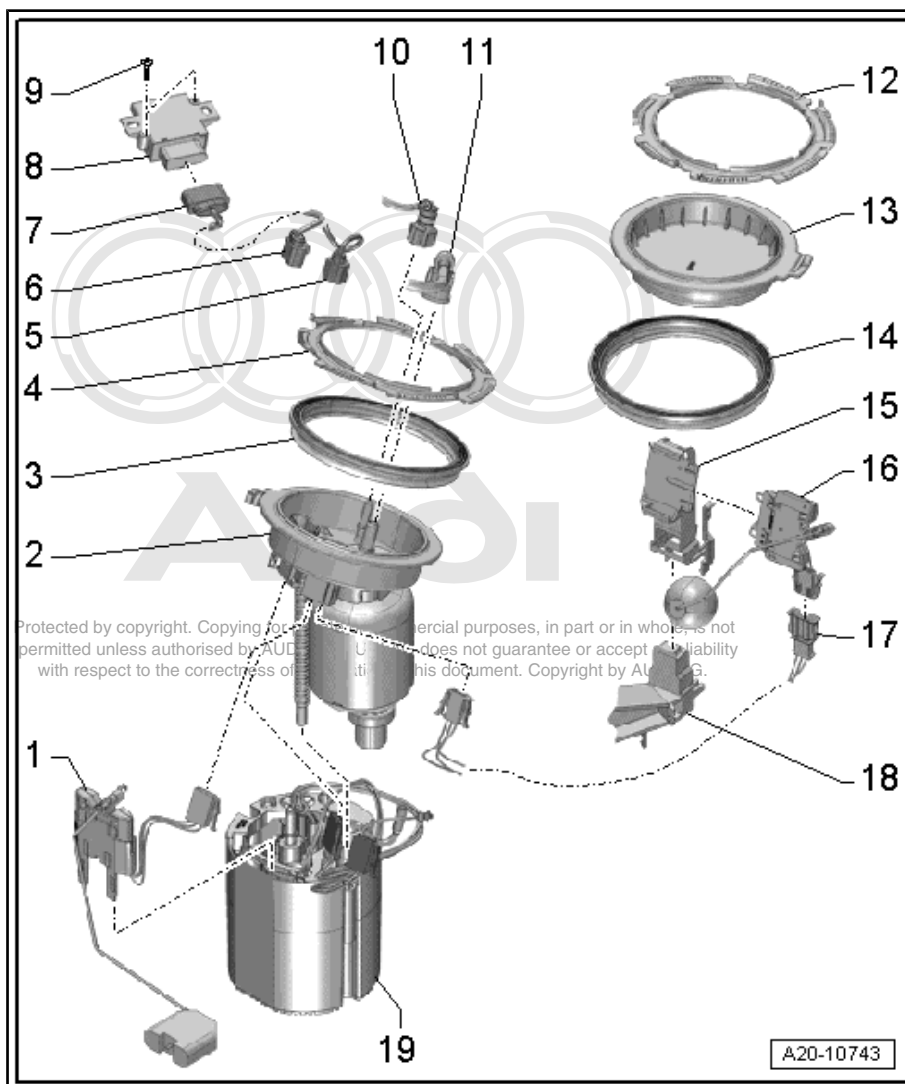
12 - Locking ring

- ☐ Loosen and tighten with key - T10202-
- ☐ 110 Nm

13 - Flange

14 - Seal

- ☐ Renew



- ☐ Install dry

15 - Bracket

- ☐ For fuel gauge sender 2 - G169-

16 - Fuel gauge sender 2 - G169-

- ☐ Checking resistance values ⇒ [page 34](#)
- ☐ Removing and installing ⇒ [page 36](#)

17 - Electrical wire

- ☐ For fuel gauge sender 2 - G169-
- ☐ Located in fuel tank
- ☐ To renew electrical wire, cut off both ends with connectors as close as possible to last attachment points.
Route new wire parallel to old wiring (old wire remains in fuel tank)

18 - Mounting

- ☐ Welded to fuel tank

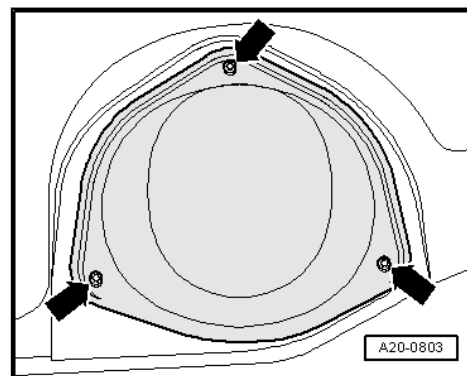
19 - Fuel delivery unit

- ☐ With fuel system pressurisation pump - G6-
- ☐ Checking fuel pump (electrical test) in Guided Fault Finding ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 23](#)
- ☐ Put at least 5 litres of fuel into tank after installing

Cover for flange on fuel tank - tightening torque

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

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2.1.2 Exploded view - fuel delivery unit/fuel gauge senders, Audi RS 6/RS 7

1 - Fuel gauge sender - G-

- ☐ Checking resistance values ⇒ [page 30](#)
- ☐ Removing and installing ⇒ [page 33](#)

2 - Suction-jet pump

- ☐ Clipped onto baffle housing
- ☐ Press release tabs to remove

3 - Flange

- ☐ With fuel filter
- ☐ Removing and installing ⇒ [page 23](#)

4 - Seal

- ☐ Renew
- ☐ Install dry

5 - Locking ring

- ☐ Loosen and tighten with key - T10202-
- ☐ 110 Nm

6 - Electrical connector

- ☐ For fuel gauge sender - G- and fuel gauge sender 2 - G169-

7 - Electrical connector

- ☐ For fuel system pressurisation pump - G6-

8 - Electrical connector

- ☐ For fuel pump control unit - J538-

9 - Fuel pump control unit - J538-

- ☐ Checking in [Guided Fault Finding](#) ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 66](#)

10 - Bolt

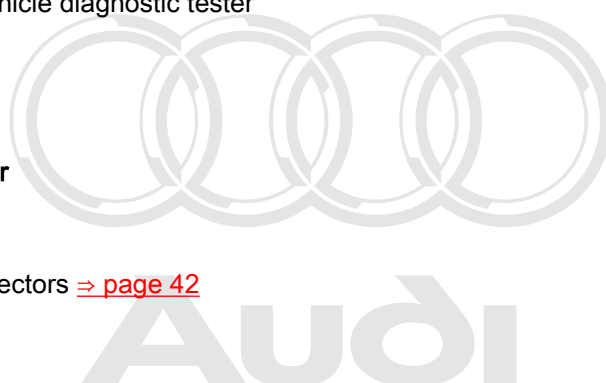
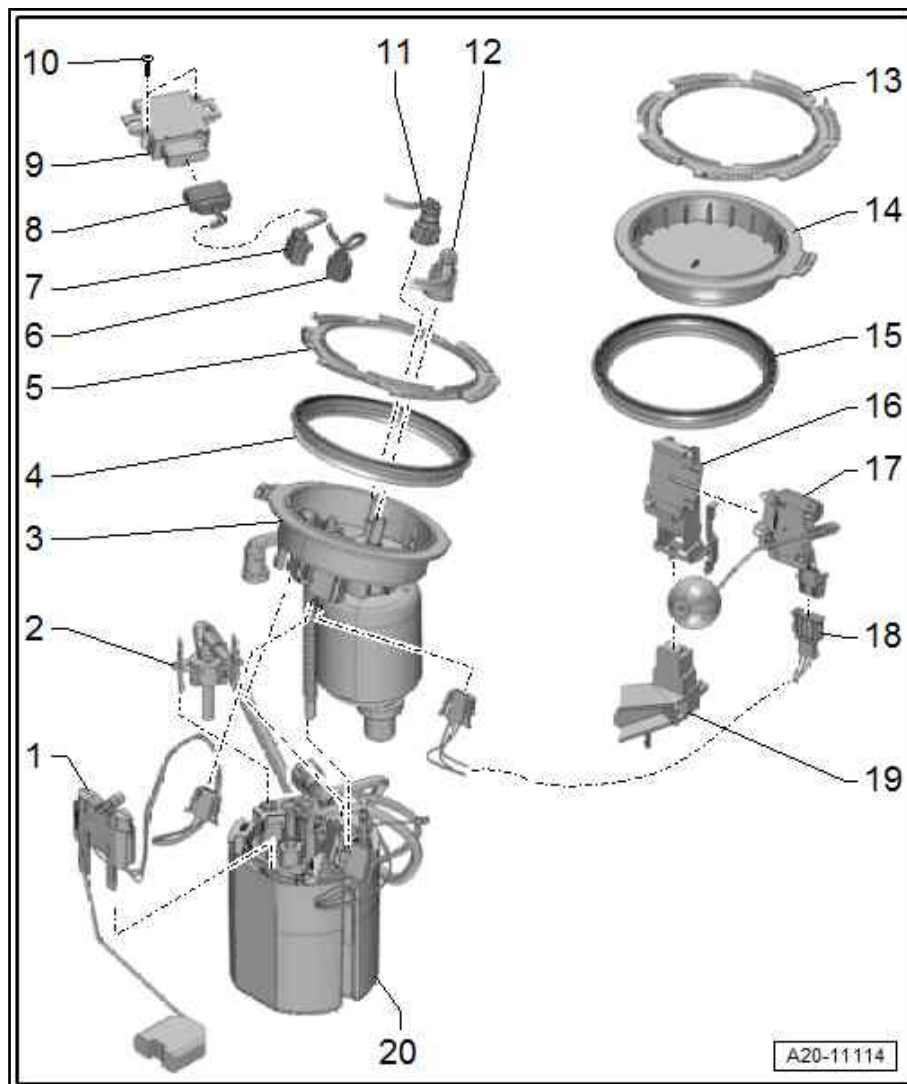
- ☐ 1.6 Nm

11 - Fuel line to metering pump for auxiliary heater

- ☐ Depending on vehicle equipment
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)
- ☐ Clipped onto fuel tank

12 - Fuel line

- ☐ To engine
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)
- ☐ Clipped onto fuel tank



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13 - Locking ring

- ☐ Loosen and tighten with key - T10202-
- ☐ 110 Nm

14 - Flange

15 - Seal

- ☐ Renew
- ☐ Install dry

16 - Bracket

- ☐ For fuel gauge sender 2 - G169-

17 - Fuel gauge sender 2 - G169-

- ☐ Checking resistance values ⇒ [page 34](#)
- ☐ Removing and installing ⇒ [page 36](#)

18 - Electrical wire

- ☐ For fuel gauge sender 2 - G169-
- ☐ Located in fuel tank
- ☐ To renew electrical wire, cut off both ends with connectors as close as possible to last attachment points. Route new wire parallel to old wiring (old wire remains in fuel tank)

19 - Mounting

- ☐ Welded to fuel tank

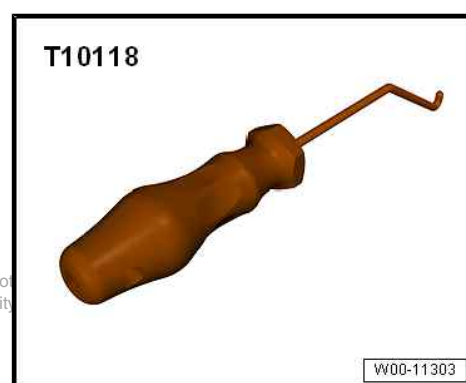
20 - Fuel delivery unit

- ☐ With fuel system pressurisation pump - G6-
- ☐ Checking fuel pump (electrical test) in **Guided Fault Finding** ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 23](#)
- ☐ Put at least 5 litres of fuel into tank after installing

2.2 Removing and installing fuel delivery unit/fuel gauge senders

Special tools and workshop equipment required

- ◆ Assembly tool - T10118-



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◆ Key - T10202-



Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .



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.***

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- Drain fuel tank if necessary ⇒ [page 10](#) .
- Move front right seat all the way forwards.

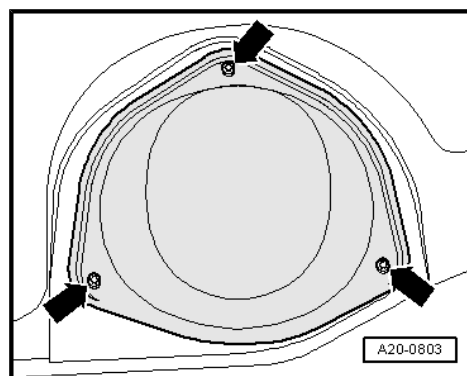


Caution

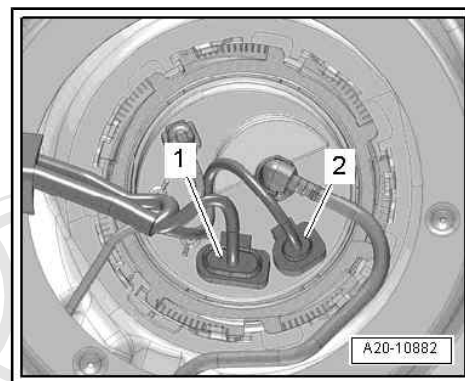
To prevent irreparable damage to the electronic components when disconnecting the battery:

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

- Disconnect earth wire from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Fold insulating mat to one side in vicinity of cover for fuel tank flange.
- Unscrew bolts -arrows- and remove cover for flange.



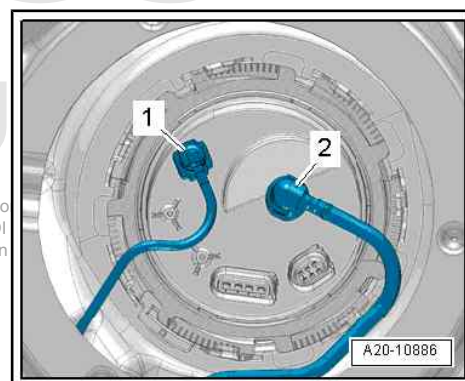
- Release retainer catches with assembly tool - T10118- and unplug electrical connectors -1 and 2- on flange.



WARNING

The fuel system operates at high pressure - risk of injuries!

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



- Vehicles with auxiliary heater: Disconnect fuel line -1- leading to metering pump for auxiliary heater at flange. Disconnecting plug-in connectors ➔ [page 42](#)
- Disconnect fuel line -2- from flange. Disconnecting plug-in connectors ➔ [page 42](#)



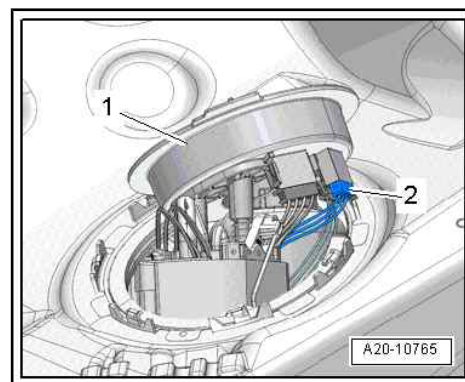
WARNING

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.**

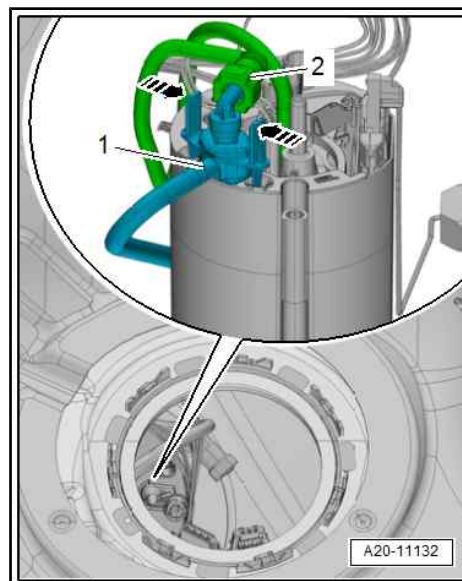


- Remove locking ring using key - T10202- .
- Pull flange -1- slightly out of opening in fuel tank and detach seal.
- Release retainer catch and unplug electrical connector -2-.
- Carefully pull flange with fuel filter and fuel lines out of opening in fuel tank.



Audi RS 6/RS 7:

- Reach through opening in fuel tank, release suction-jet pump -1- at retainers -arrows- and disconnect from fuel delivery unit.
- Press catch and disconnect supply line -2- for suction-jet pump.
- Carefully take suction-jet pump out of opening in fuel tank.



Continued for all vehicles:



WARNING

Safety risk from escaping fuel: the fuel delivery unit is still filled.

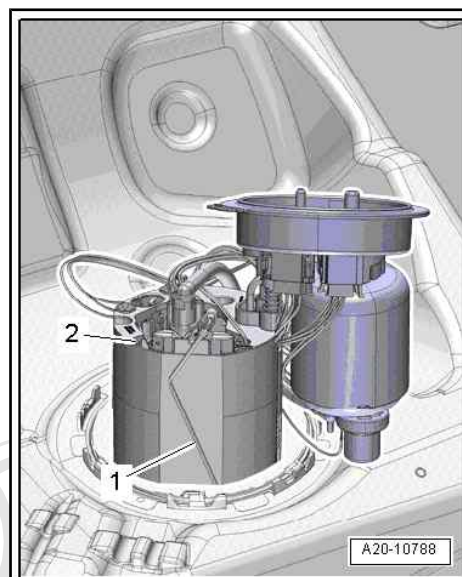
- ◆ Use a cloth to catch escaping fuel.

- Carefully pull fuel delivery unit -2- with fuel gauge sender -1- out through opening in fuel tank.



Note

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



Separating fuel delivery unit and flange:

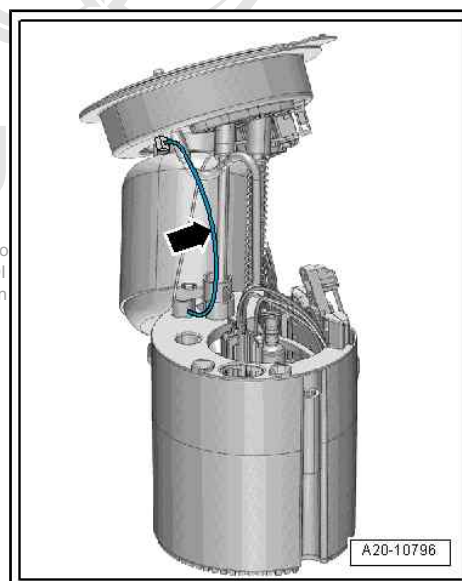
- Cut through plastic connection cord -arrow-.



Note

The connection cord is only an assembly aid and does not have to be re-installed.

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- Unplug electrical connectors -2, 3-.
- Disconnect fuel supply line -1- from fuel pressure regulator.
 Disconnecting plug-in connectors ➔ [page 42](#)
- Detach flange from fuel delivery unit.

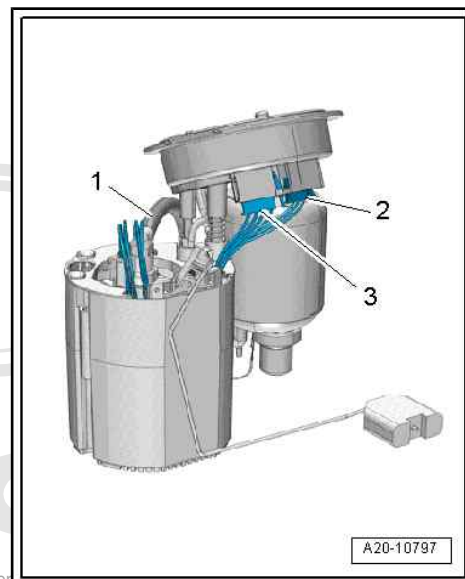
Installing

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



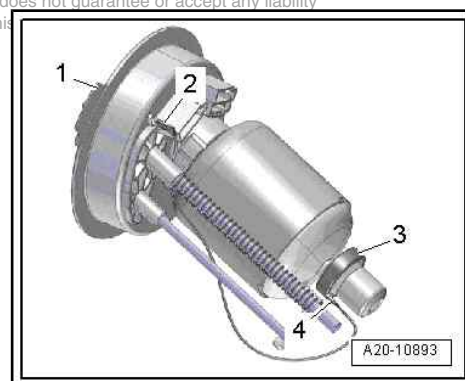
Note

- ◆ *Renew seal.*
- ◆ *Make sure that fuel hoses are securely fitted.*
- ◆ *When inserting fuel delivery unit, make sure you do not bend float arm of fuel gauge sender -G- .*



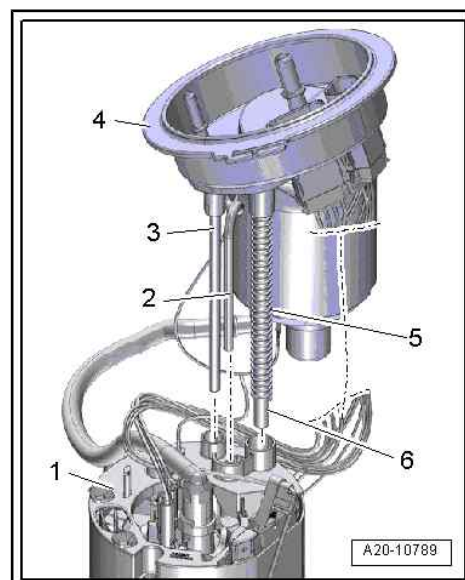
- Route earth wire as shown in illustration.

- 1 - Flange
- 2 - Earth wire to flange
- 3 - Fuel pressure regulator
- 4 - Earth wire to fuel pressure regulator



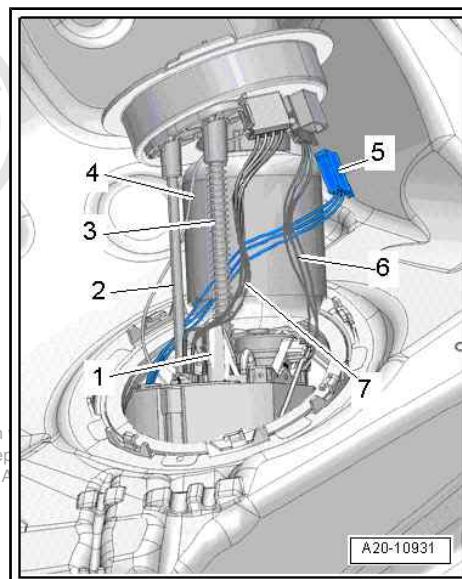
Make sure fuel supply hose is properly routed:

- Fuel supply hose must be routed on outside around guide tubes.
- Fit guide tubes -3 and 6- with spring -5- of flange -4- in guides on fuel delivery unit -1-.
- Vehicles with auxiliary heater: Make sure that suction pipe -2- leading to metering pump is correctly inserted in guide on fuel delivery unit.



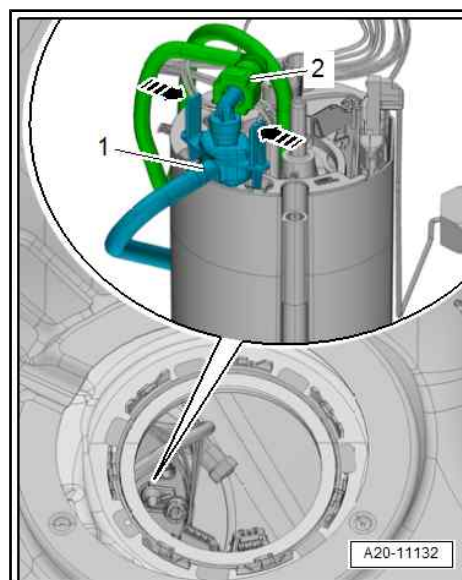
- Guide electrical wiring for fuel gauge sender 2 - G169- out of fuel tank.
- Carefully insert fuel delivery unit with fuel gauge sender - G- in fuel tank.
- Make sure electrical wiring for fuel gauge sender 2 - G169- is properly routed:
- Guide electrical wiring -5- for fuel gauge sender 2 - G169- through between guide tubes -2- and -3- and fuel pressure regulator -4-.
- Guide electrical wiring -5- over supply hose -1- and behind electrical wiring -6- for fuel gauge sender - G- and -7- for fuel system pressurisation pump - G6- .

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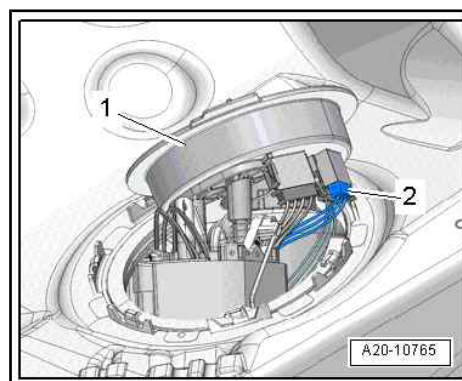
Audi RS 6/RS 7:

- Carefully insert suction-jet pump in fuel tank.
- Reach through opening in fuel tank and clip suction-jet pump -1- onto fuel delivery unit so it engages audibly.
- Connect supply line for suction-jet pump -2- so it engages audibly.



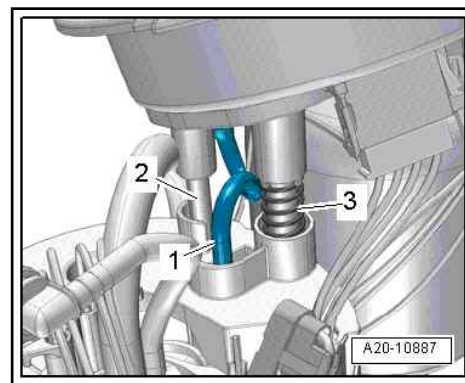
Continued for all vehicles:

- Plug in electrical connector -2- for fuel gauge sender 2 - G169- at flange -1- and make sure it is correctly engaged.
- Carefully insert fuel supply line from fuel system pressurisation pump - G6- to fuel pressure regulator in fuel tank.



Check:

- Guide tubes -2- and -3- of flange must be inserted in guides on fuel delivery unit.
- Vehicles with auxiliary heater: Suction pipe -1- leading to metering pump must be inserted in guide on fuel delivery unit.



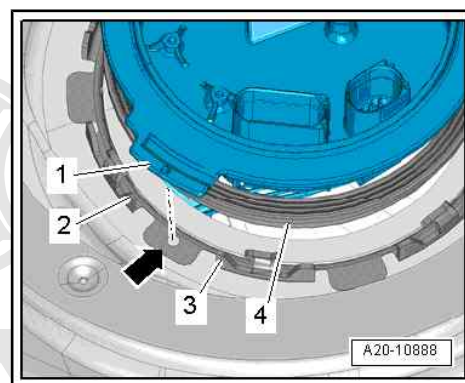
- Install new seal -4- for flange (seal must be installed dry).



Caution

Leakage risk

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



- Press flange down against spring pressure and turn flange to installation position.
- Lug -1- on flange must point towards hole -arrow- on locking ring and must be between tabs -2 and 3- on fuel tank.
- Connect fuel lines, making sure they engage audibly.
- Plug in electrical connectors and make sure they are **securely** engaged.
- Install cover for flange ⇒ [page 21](#) .
- Install rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Connect battery and perform steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- After installing the fuel delivery unit, the fuel tank must be filled with at least 5 litres of fuel before starting the engine.

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Note

The fuel pump must not be allowed to run in an empty fuel tank.

- Vehicles with auxiliary heater: Bleed fuel line leading to metering pump
 ⇒ [“2.3 Filling and bleeding fuel system”, page 29](#) .

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 19](#)

2.3 Filling and bleeding fuel system

- ◆ Due to the design of the engine, with a fuel system pressurisation pump located in the fuel tank, it is not necessary to bleed the fuel system.
- ◆ The fuel system bleeds itself when the starter is operated.

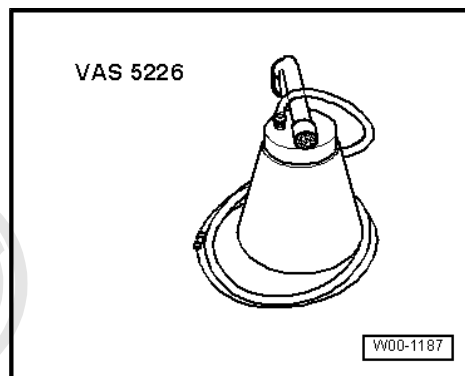


Note

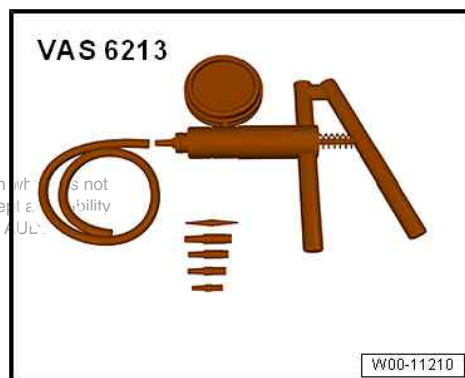
On vehicles with auxiliary heater, it is important to bleed the fuel supply line leading to the metering pump after working on the fuel delivery unit.

Special tools and workshop equipment required

- ◆ Diesel extractor - VAS 5226-

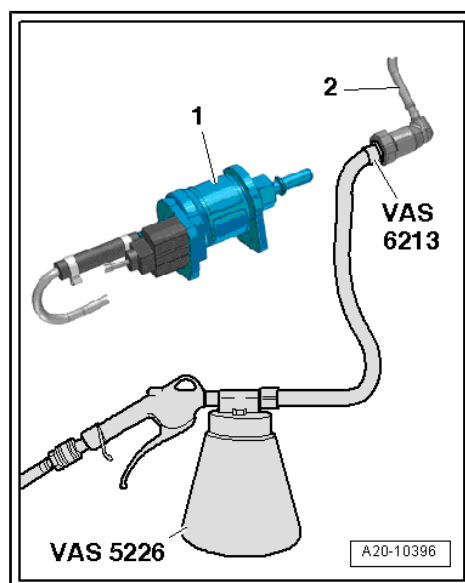


- ◆ Hand vacuum pump - VAS 6213-



Procedure

- Auxiliary heater switched off.
- Connect diesel extractor - VAS 5226- to compressed air supply.
- Remove fuel supply line -2- from fuel tank at metering pump -1-.
- Connect diesel extractor - VAS 5226- to fuel supply line with adapter from hand vacuum pump - VAS 6213- and bleed fuel supply line by operating extractor briefly.
- Re-attach fuel supply line to metering pump.
- Switch auxiliary heating on and run at full load for approx. 10 minutes.



2.4 Checking fuel gauge sender - G-

Special tools and workshop equipment required

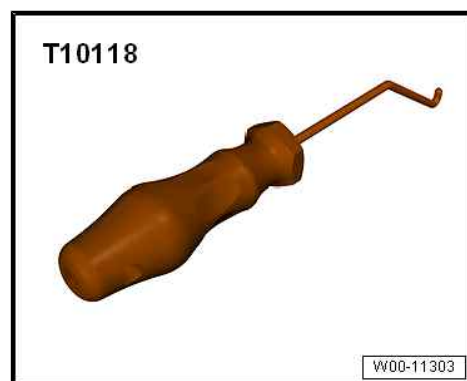
◆ Hand-held multimeter - V.A.G 1526 E-



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

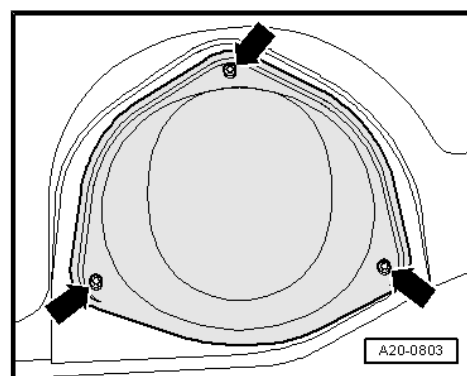


◆ Assembly tool - T10118-



Procedure

- Move front right seat all the way forwards.
- Remove rear seat bench ⇒ General body repairs, interior;
Rep. gr. 72 ; Rear seats; Removing and installing seat bench/
individual seats .
- Fold insulating mat to one side in vicinity of cover for fuel tank
flange.
- Unscrew bolts -arrows- and remove cover for flange.

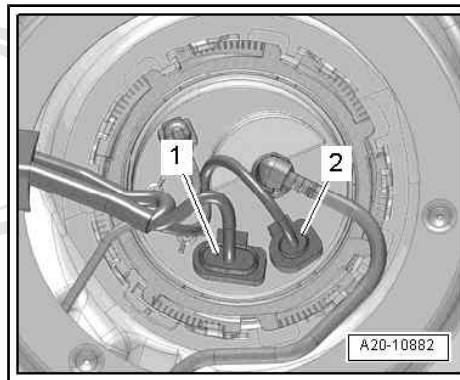


- Release retainer catch with assembly tool - T10118- and unplug electrical connector -2- on flange.



Note

Disregard -item 1-.



Fuel gauge sender - G- installed:

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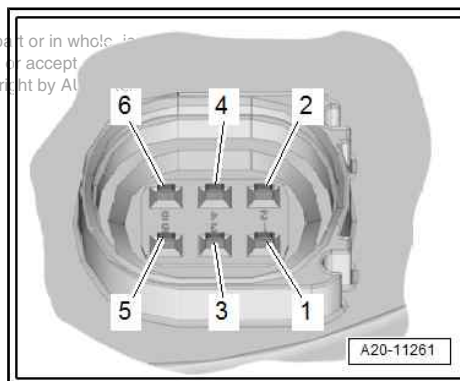


Note

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.

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

Measure at contacts	Tank empty	Tank full
2 + 4	254 ...276 Ω	53 ...71 Ω
2 + 6	86 ...64 Ω	287 ...269 Ω
4 + 6 ¹⁾	approx. 340 Ω	approx. 340 Ω
¹⁾ Sender in any position		



Fuel gauge sender - G- removed:



Note

- ◆ To test the maximum and minimum resistance values for “tank full” and “tank empty”, remove the fuel delivery unit and move the sender float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel delivery unit 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 + 3	max. 53.4 Ω	at least 272.7 Ω
2 + 3	at least 272.7 Ω	max. 53.4 Ω
1 + 2 ¹⁾	approx. 340 Ω	approx. 340 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

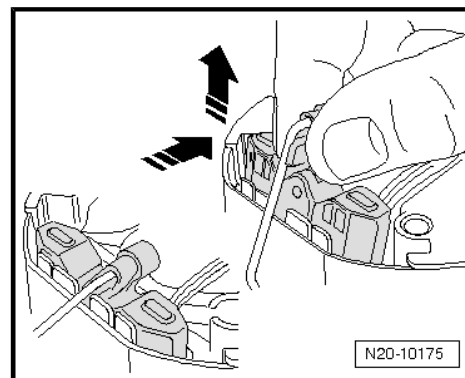
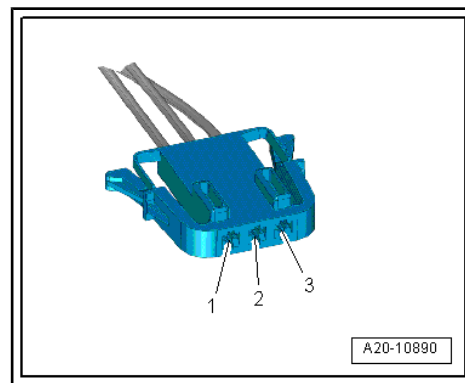
- Removing and installing fuel delivery unit/fuel gauge senders
 ⇒ [page 23](#)

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2.5 Removing and installing fuel gauge sender - G-

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .
- Remove fuel delivery unit ⇒ [page 23](#) .
- Pull fuel gauge sender - G- inwards slightly and then lift it out -arrows-.

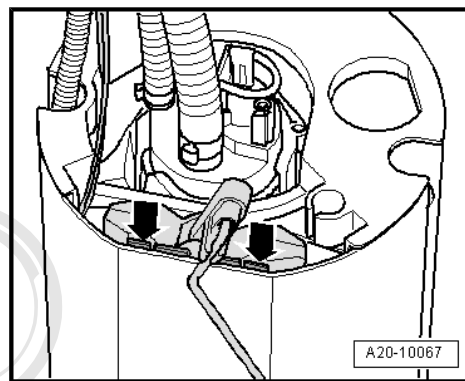


- If necessary, release retaining tabs -arrows- using a screw-driver.
- Release retainer catch and unplug electrical connector on flange.

Installing

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

- Insert fuel gauge sender - G- into guides on fuel delivery unit and press downwards until it clicks into place.
- Plug in electrical connector and make sure it is correctly engaged.
- Install fuel delivery unit ➔ [page 23](#) .
- Connect battery and perform steps required after re-connecting battery ➔ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



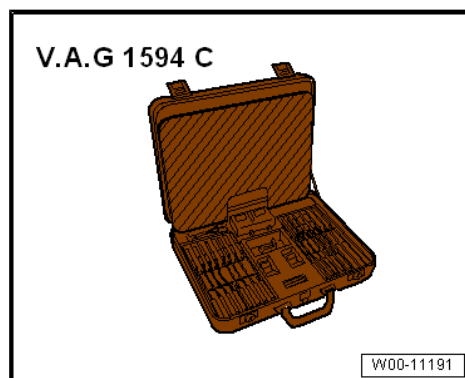
2.6 Checking fuel gauge sender 2 - G169-

Special tools and workshop equipment required

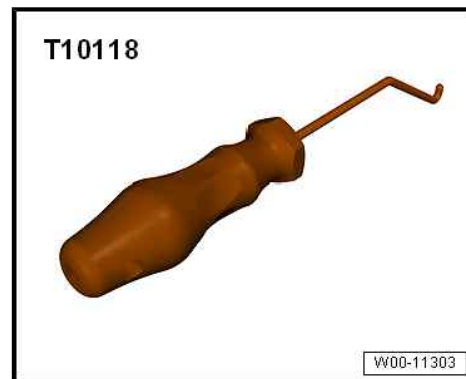
- ◆ Hand-held multimeter - V.A.G 1526 E-



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

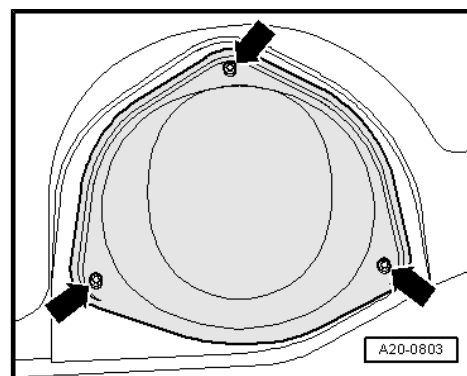


◆ Assembly tool - T10118-



Procedure

- Move front right seat all the way forwards.
- Remove rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/ individual seats .
- Fold insulating mat to one side in vicinity of cover for fuel tank flange.
- Unscrew bolts -arrows- and remove cover for flange.

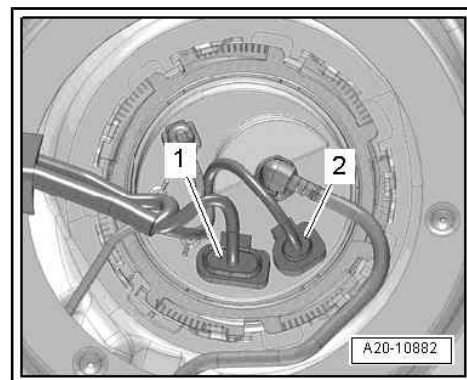


- Release retainer catch with assembly tool - T10118- and unplug electrical connector -2- on flange.



Note

Disregard -item 1-.



Caution

Risk of incorrect measurements.

- ◆ **When measuring the resistance values when the tank is "empty", the results may be incorrect because there could be some fuel left in the side chamber of the fuel tank. To attain the measured values specified below the remaining fuel must be drawn out of the tank after opening the flange ⇒ page 36 .**

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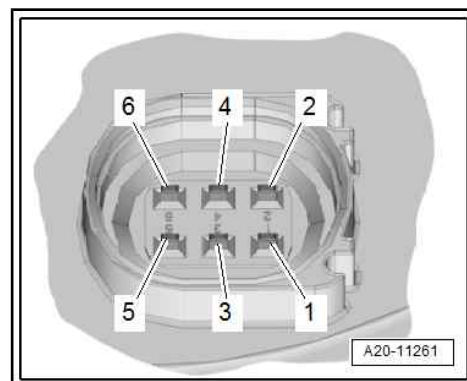
With fuel gauge sender 2 - G169- installed:



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.

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



Measure at contacts	65 ltr. tank:		75 ltr. tank:	
	Tank empty	Tank full	Tank empty	Tank full
1 + 3	249 ... 286 Ω	51 ... 146 Ω	249 ... 286 Ω	51 ... 90 Ω
1 + 5	54 ... 91 Ω	289 ... 194 Ω	54 ... 91 Ω	289 ... 250 Ω
3 + 5 ¹⁾	approx. 340 Ω	approx. 340 Ω	approx. 340 Ω	approx. 340 Ω
¹⁾ Sender in any position				

With fuel gauge sender 2 - G169- removed:

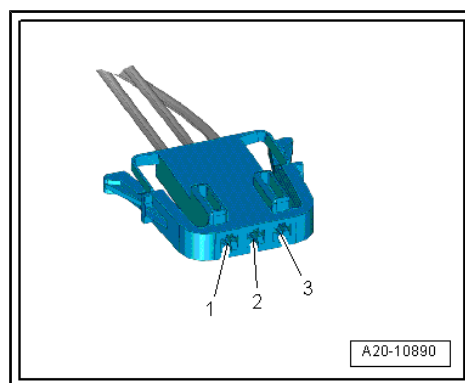


Note

- ◆ To test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel gauge sender 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 + 3	max. 55 Ω	at least 281.8 Ω
2 + 3	at least 281.8 Ω	max. 55 Ω
1 + 2 ¹⁾	approx. 340 Ω	approx. 340 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 36](#) .

2.7 Removing and installing fuel gauge sender 2 - G169-

Special tools and workshop equipment required

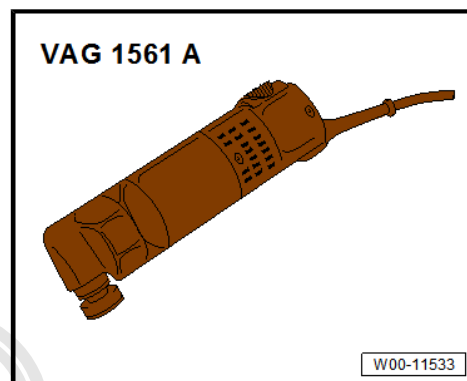
- ◆ Removal wedge - 3409-



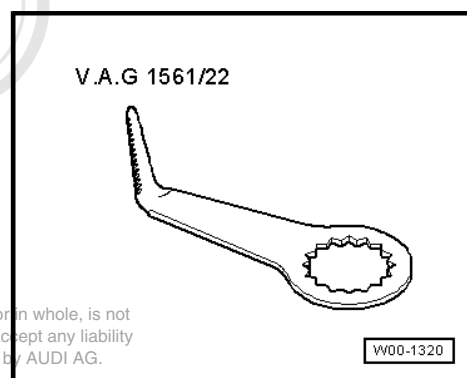
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W00-11118

◆ Electric cutter - V.A.G 1561A-



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



◆ Key - T10202-



◆ Adhesive sealant ⇒ Electronic parts catalogue

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .

Audi A6 with hybrid drive:

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

Audi A7 Sportback:

- Remove front section of rear shelf ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing rear shelf .

Audi A6/A7 without hybrid drive:

- Equipment version with folding rear seat backrests: Fold down rear seat backrests.

- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing luggage compartment floor .

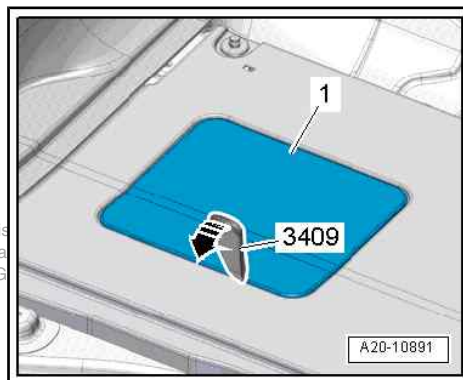


Caution

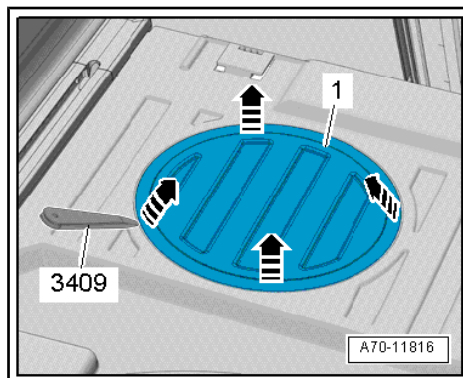
To prevent irreparable damage to the electronic components when disconnecting the battery:

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

- Disconnect earth wire from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Version 1 of cover: Unclip cover -1- with removal wedge - 3409- -arrow- and detach.

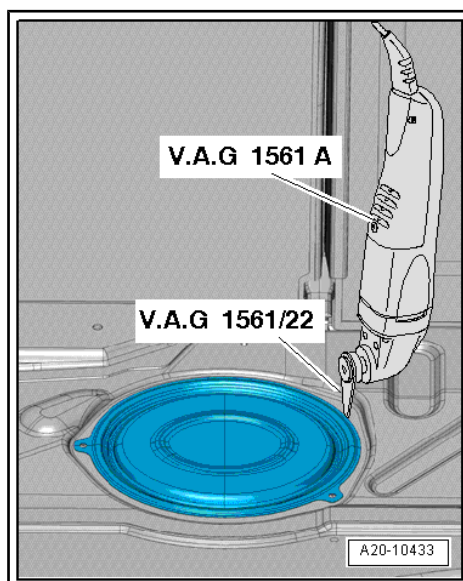


- Version 2 of cover: Unclip cover -1- for flange at retainers -arrows- using removal wedge - 3409- and detach.

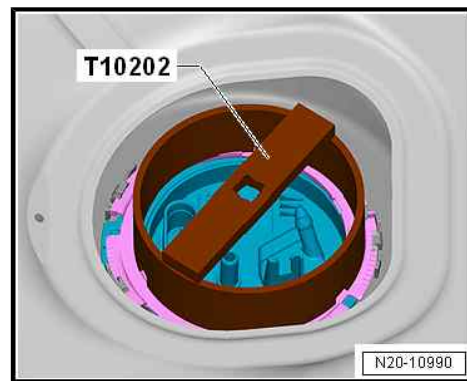


Continued for all vehicles:

- Use electric cutter - V.A.G 1561A- and blade (L-shaped, 25.4 mm) - V.A.G 1561/22- to cut through adhesive sealant all around cover for flange.
- Detach cover for flange.
- Repair painted surfaces ⇒ Paintwork manual .
- Apply anti-corrosion coating as necessary ⇒ Surface treatment/chemical materials .



- Remove locking ring using key - T10202- .
- Pull flange out of opening in fuel tank.
- Take seal out of opening in fuel tank.



- Reach into opening in fuel tank and release fuel gauge sender 2 - G169- by pressing catches -arrows-.
- Pull fuel gauge sender 2 - G169- -item 1- upwards off mounting and carefully take it out of opening in fuel tank.



Note

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

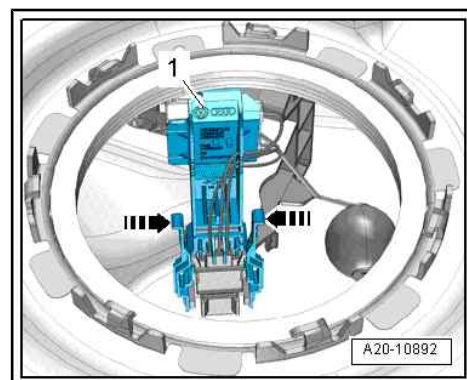
Installing

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 insert fuel gauge sender 2 - G169- in fuel tank.
- Insert fuel gauge sender 2 - G169- into mounting and press down until it clicks into place.



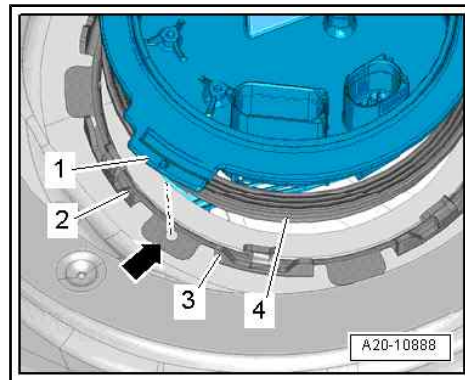
- Install new seal -4- for flange (seal must be installed dry).



Caution

Leakage risk

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



- Fit flange in correct installation position.
- Lug -1- on flange must point towards hole -arrow- on locking ring and must be between tabs -2 and 3- on fuel tank.
- Just before re-installing cover for flange, trim down remaining adhesive sealing material on cover for flange and on floor panel 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.*

Audi

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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.

Audi A6/A7 without hybrid drive:

- Connect battery and perform steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Install luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing luggage compartment floor .

Audi A7 Sportback:

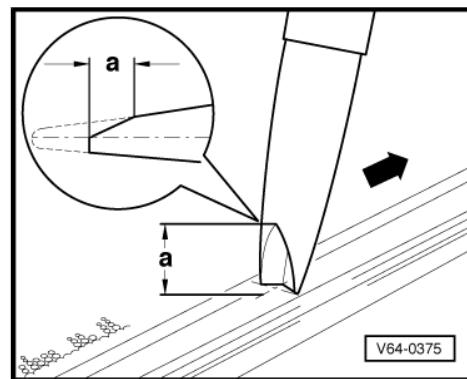
- Install front section of rear shelf ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing rear shelf .

Audi A6 with hybrid drive:

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

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 19](#)



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3 Plug-in connectors

⇒ "3.1 Disconnecting plug-in connectors", page 42

3.1 Disconnecting plug-in connectors

Allocation of plug-in connectors



Note

The plug-in connectors for the fuel lines, vacuum lines, and breather lines are colour coded. There is either a coloured marking on the plug-in connector, or the release tab is the corresponding colour ⇒ page 42.

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Colour coding

Plug-in connector	Colour coding on plug-in connector
Fuel supply line	Black
Fuel return line	Blue
Breather	White-beige
Vacuum	Green



WARNING

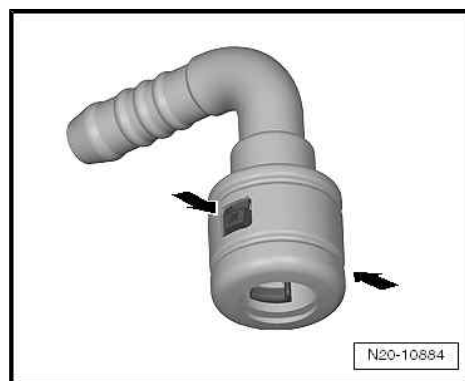
Fuel line is pressurised.

Risk of injury to eyes and skin caused by fuel.

Wear safety goggles and protective clothing to avoid possible injury and skin contact. Before opening hose connections wrap a cloth around the connection. Then relieve pressure by carefully opening the connection.

Version 1

Plug-in connector with release tabs -arrows- on both sides



Disconnecting

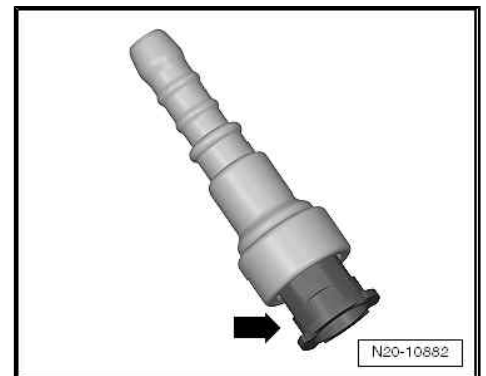
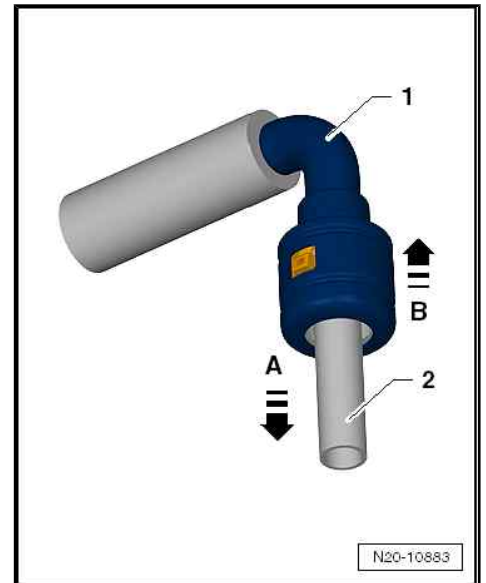
- Press plug-in connector -1- in direction of -arrow A-.
- Press in and hold release tabs.
- Unplug plug-in connector -1- from fuel line -2- in direction of -arrow B-.
- When installing observe colour coding ⇒ [page 42](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.



Version 2

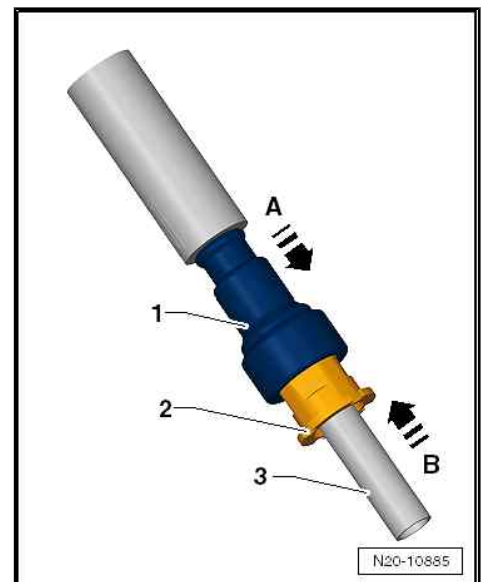
Plug-in connector with pull release -arrow-:

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Disconnecting

- Press plug-in connector -1- in direction of -arrow A-.
- Pull the pull release catch -2- in direction of -arrow B-.
- Unplug plug-in connector -1- from fuel line -3- in direction of -arrow B-.
- When installing observe colour coding ⇒ [page 42](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

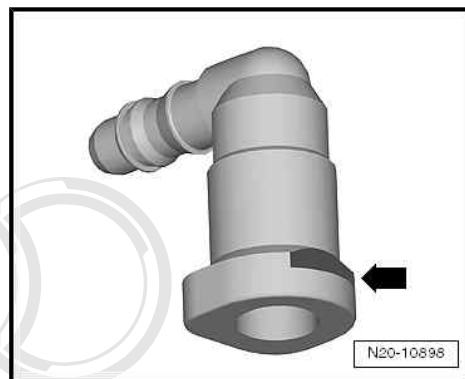


Version 3

Plug-in connector with release tab at front -arrow-:

Disconnecting

- Press release tab -arrow- and disconnect plug-in connectors.
- When installing observe colour coding ➤ [page 42](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

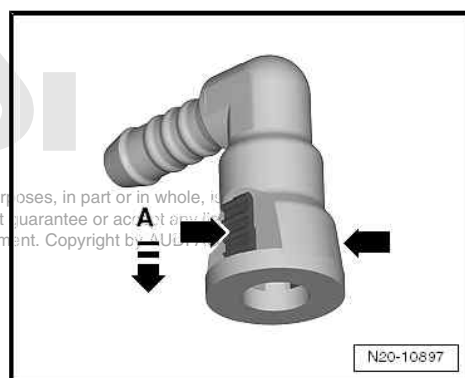


Version 4

Plug-in connector with release tab -arrows- on both sides:

Disconnecting

- Press plug-in connector in direction of -arrow A-.
- Press release tabs -arrows- and disconnect plug-in connector.
- When installing observe colour coding ➤ [page 42](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

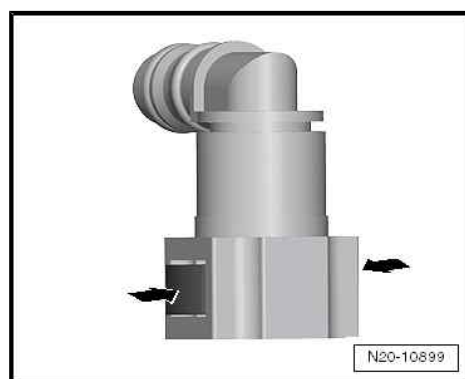


Version 5

Plug-in connector with release tabs -arrows- on both sides:

Disconnecting

- Press release tabs -arrows- and disconnect plug-in connector.
- When installing observe colour coding ➤ [page 42](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

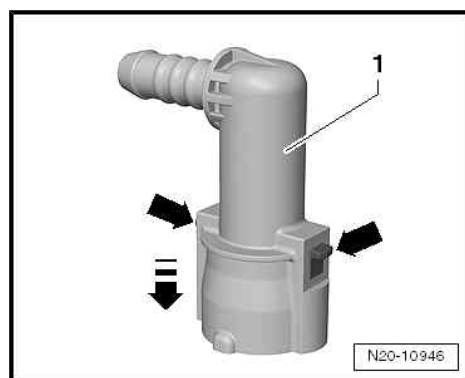


Version 6

Plug-in connector with release tabs -arrows- on both sides:

Disconnecting

- Press and hold plug-in connector -1- in direction of -arrow -.
- Press release tabs -arrows- and disconnect plug-in connector.
- When installing observe colour coding ➤ [page 42](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

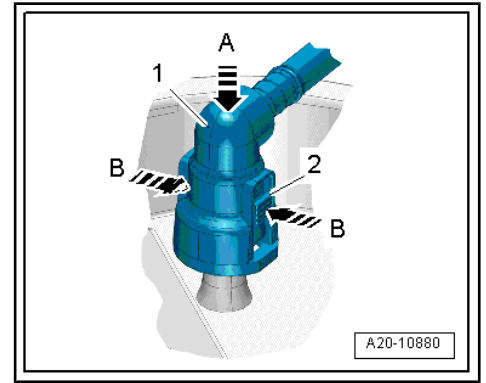


Version 7

Plug-in connector -1- with release tabs -2- on both sides:

Disconnecting

- Press and hold plug-in connector -1- in direction of -arrow A-.
- Press release tabs -2- in direction of -arrow B- and unplug plug-in connector -1-.
- When installing observe colour coding ⇒ [page 42](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.



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4 Fuel filter

⇒ "4.1 Exploded view - fuel filter", page 46

⇒ "4.2 Removing and installing fuel filter", page 47

4.1 Exploded view - fuel filter

1 - Fuel delivery unit

2 - Fuel line

- ❑ Disconnecting and connecting plug-in connectors ⇒ page 42

3 - Earth wire

- ❑ Connecting ⇒ page 46

4 - Flange

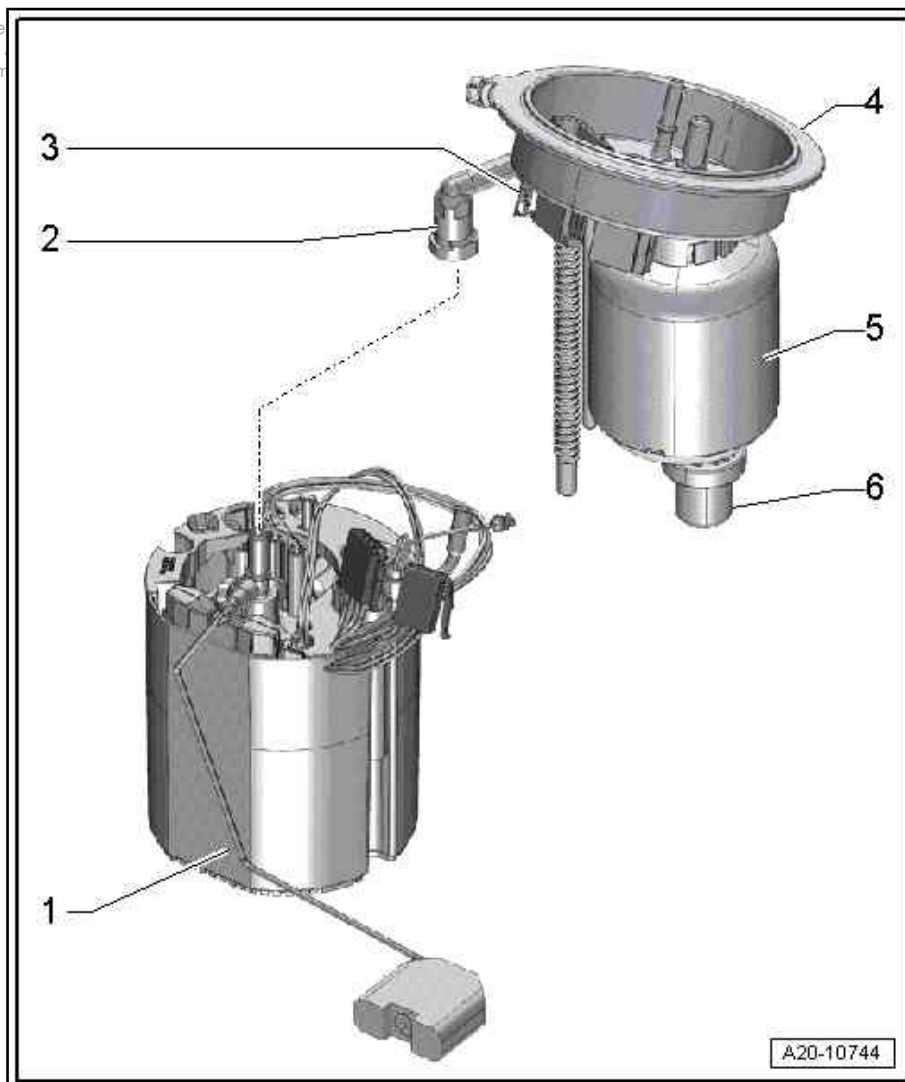
- ❑ Combined with fuel filter

5 - Fuel filter

- ❑ Combined with flange
- ❑ Removing and installing ⇒ page 47

6 - Fuel pressure regulator

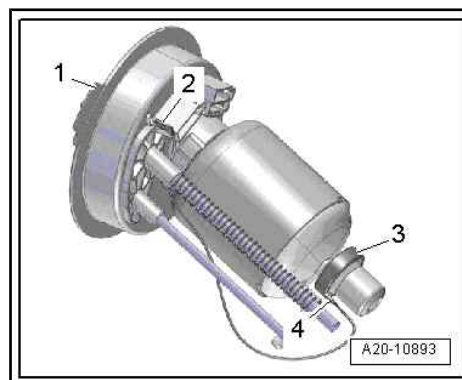
- ❑ Integrated in fuel filter



Connecting earth wire to flange and fuel pressure regulator

– Route earth wire as shown in illustration.

- 1 - Flange
- 2 - Earth wire to flange
- 3 - Fuel pressure regulator
- 4 - Earth wire to fuel pressure regulator



4.2 Removing and installing fuel filter



Note

The fuel filter and flange are one unit and can only be renewed together.

Removing

- Observe safety precautions ➔ [page 1](#) .
- Observe rules for cleanliness ➔ [page 4](#) .
- Remove fuel delivery unit ➔ [page 23](#) .
- Separate flange and fuel delivery unit ➔ [page 26](#) .



WARNING

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

◆ *Use a cloth to catch escaping fuel.*

Installing

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

- Install fuel delivery unit ➔ [page 27](#) .
- Vehicles with auxiliary heater: Bleed fuel line leading to metering pump

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5 Activated charcoal filter system

⇒ ["5.1 Connection diagram - activated charcoal filter system", page 48](#)

⇒ ["5.2 Exploded view - activated charcoal filter system", page 49](#)

⇒ ["5.3 Removing and installing activated charcoal filter", page 53](#)

⇒ ["5.4 Checking fuel system for leaks", page 57](#)

⇒ ["5.5 Removing and installing fuel system diagnostic pump", page 58](#)

5.1 Connection diagram - activated charcoal filter system

1 - Breather line

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

2 - Fuel tank

3 - Vent line

- ☐ From fuel tank to activated charcoal filter

4 - Air filter

- ☐ For tank leak diagnostic system
- ☐ Country-specific version

5 - Activated charcoal filter

- ☐ Fitting location: rear left on underbody behind cover
- ☐ Removing and installing ⇒ [page 54](#)

6 - Vent line

- ☐ To air filter

7 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-

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

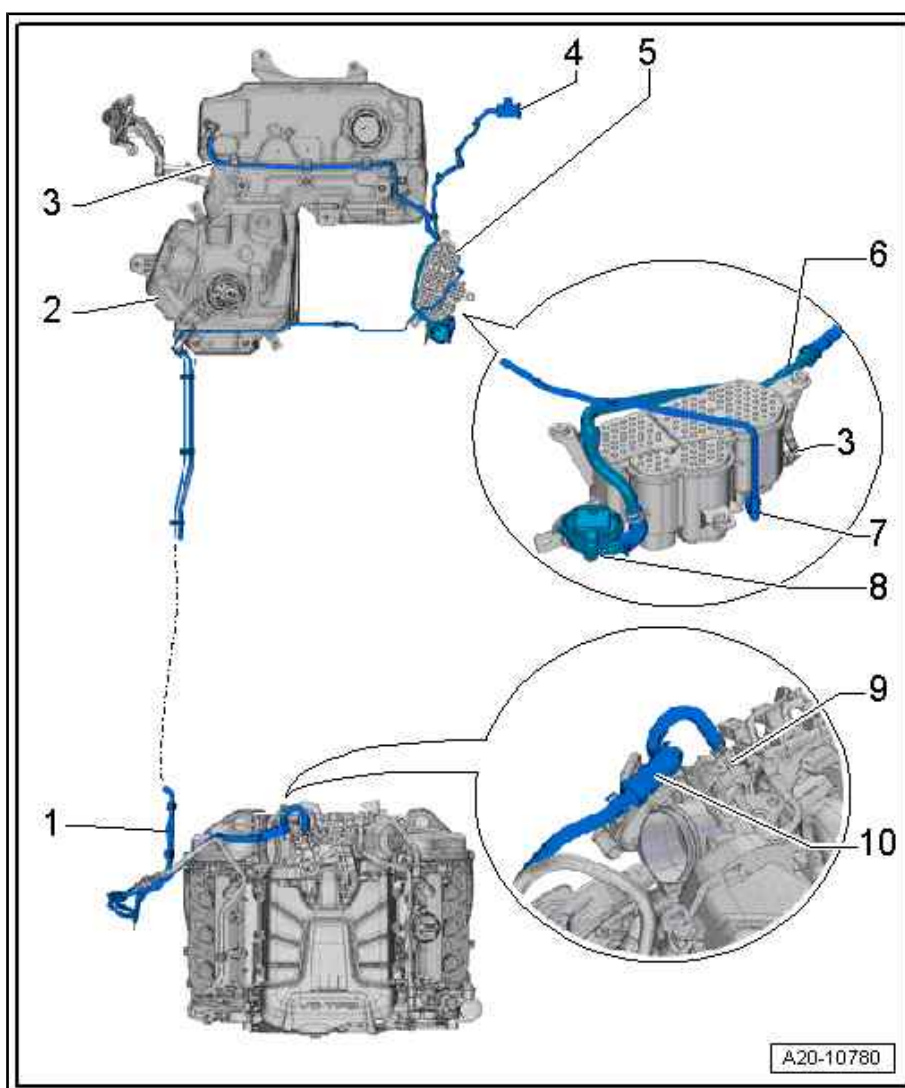
- ☐ With integrated tank pressure sensor - G400-
- ☐ NAR vehicles
- ☐ Fitting location: rear left on underbody behind cover

- ☐ Checking in [Guided Fault Finding](#) ⇒ Vehicle diagnostic tester

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

9 - Activated charcoal filter solenoid valve 1 - N80-

10 - Non-return valve



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5.2 Exploded view - activated charcoal filter system

⇒ ["5.2.1 Exploded view - activated charcoal filter system, all vehicles except Audi A6 hybrid", page 49](#)

⇒ ["5.2.2 Exploded view - activated charcoal filter system, Audi A6 hybrid", page 50](#)

⇒ ["5.2.3 Exploded view - activated charcoal filter system, NAR vehicles", page 52](#)

5.2.1 Exploded view - activated charcoal filter system, all vehicles except Audi A6 hybrid

1 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)
- ☐ Clipped into bracket

2 - Bolt

- ☐ 20 Nm

3 - O-ring

4 - Valve

5 - Breather line

- ☐ From fuel tank
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)

6 - Activated charcoal filter

- ☐ Fitting location: rear left on underbody behind cover
- ☐ Removing and installing ⇒ [page 53](#)

7 - Bolt

- ☐ 20 Nm

8 - Vent line

- ☐ Open to atmosphere at rear left of vehicle below wheel housing liner
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)

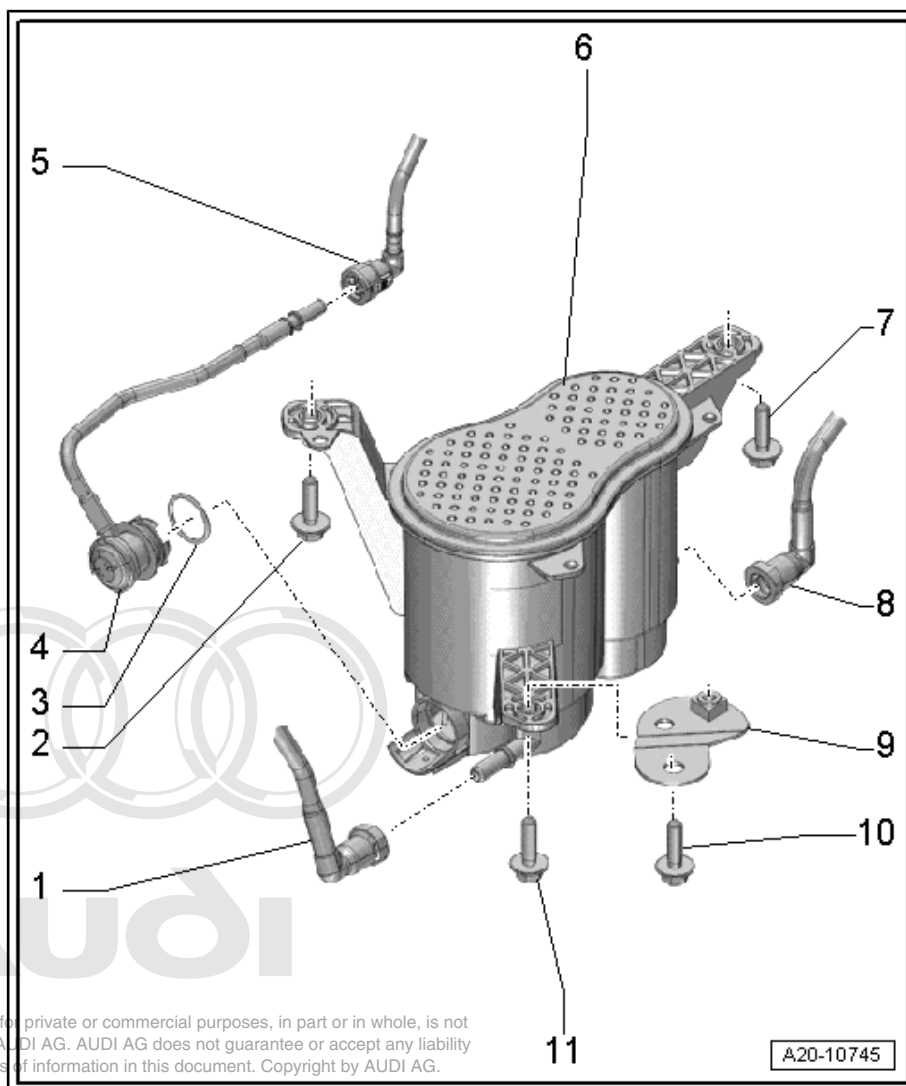
9 - Bracket

10 - Bolt

- ☐ 20 Nm

11 - Bolt

- ☐ 20 Nm



5.2.2 Exploded view - activated charcoal filter system, Audi A6 hybrid

1 - Honeycomb filter 1

- ☐ Removing and installing
⇒ [page 55](#)

2 - Retainer

- ☐ For honeycomb filter

3 - Bolt

- ☐ 2x
- ☐ 1.25 Nm

4 - Bolt

- ☐ 3x
- ☐ 20 Nm

5 - Hose clip

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

6 - Hose

7 - Rubber grommet

- ☐ 3x
- ☐ Insert into activated charcoal filter

8 - Bush

- ☐ 3x
- ☐ Insert in rubber grommet

9 - Bracket

- ☐ For activated charcoal filter

10 - Bolt

- ☐ 2x
- ☐ 1.25 Nm

11 - Hose clip

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

12 - Honeycomb filter 2

- ☐ Removing and installing ⇒ [page 55](#)

13 - Vent line

- ☐ To air filter for activated charcoal filter

14 - Vent line

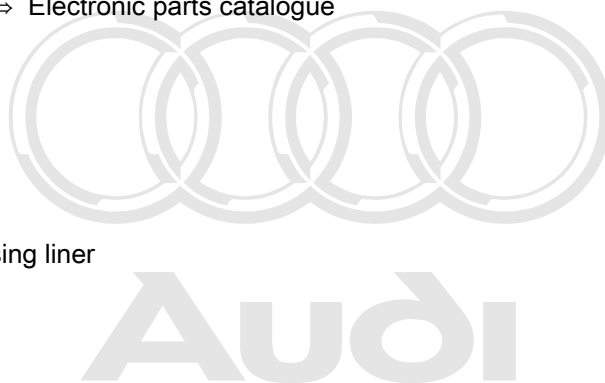
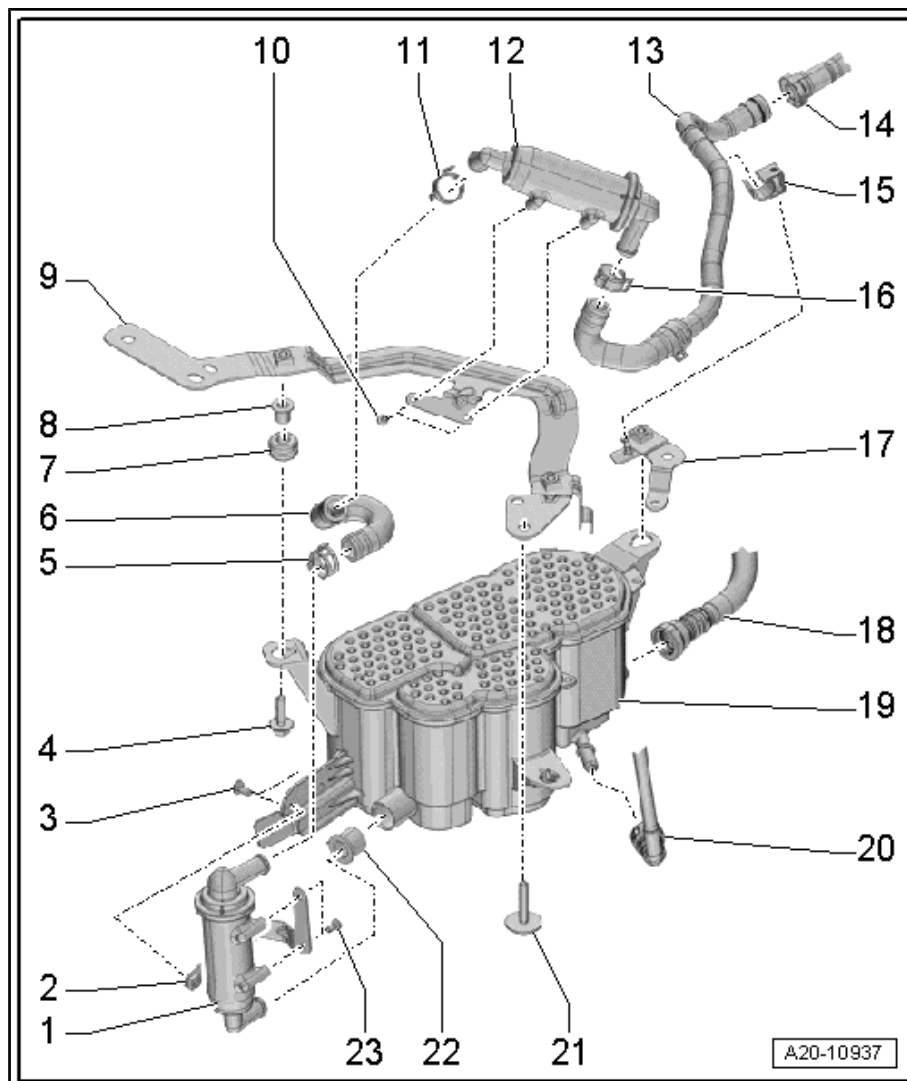
- ☐ To air filter (rear left) beneath wheel housing liner
- ☐ Removing and installing ⇒ [page 57](#)

15 - Retainer

- ☐ 5x
- ☐ For vent line

16 - Hose clip

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



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17 - Bracket

- ☐ For activated charcoal filter

18 - Breather line

- ☐ From fuel tank
- ☐ Disconnecting and connecting plug-in connectors ➔ [page 42](#)

19 - Activated charcoal filter

- ☐ Fitting location: rear left on underbody behind cover
- ☐ Removing and installing ➔ [page 54](#)

20 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Disconnecting and connecting plug-in connectors ➔ [page 42](#)
- ☐ Clipped into bracket

21 - Bolt

- ☐ 3x
- ☐ 20 Nm

22 - Seal

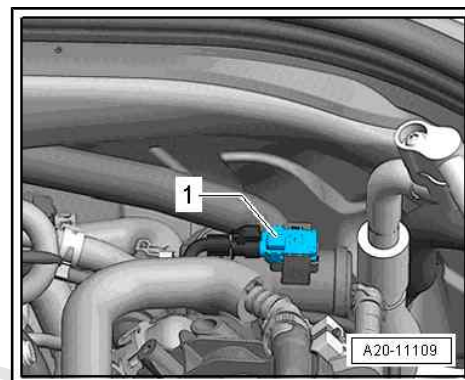
- ☐ Insert into activated charcoal filter

23 - Bolt

- ☐ 2x
- ☐ 1.25 Nm

Pressure sensor for activated charcoal filter system - G804-

- 1 - Pressure sensor for activated charcoal filter system - G804-



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5.2.3 Exploded view - activated charcoal filter system, NAR vehicles

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

- ☐ With integrated tank pressure sensor - G400-
- ☐ Fitting location: rear left on underbody behind cover
- ☐ Removing and installing ⇒ [page 58](#)

2 - Bolt

- ☐ 3x
- ☐ 1.5 Nm

3 - Bolt

- ☐ 3x
- ☐ 20 Nm

4 - Rubber grommet

- ☐ 3x

5 - Bush

- ☐ 3x

6 - Bracket

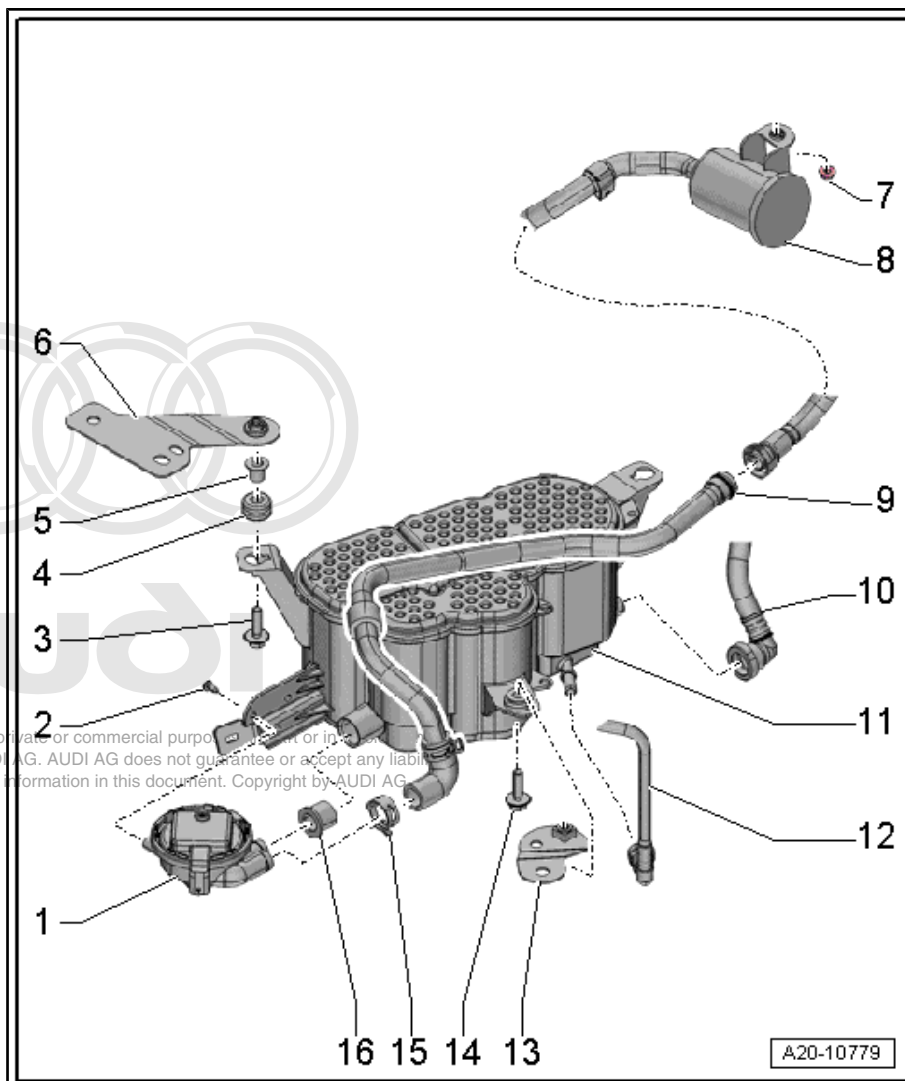
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7 - Nut

- ☐ 8 Nm

8 - Air filter

- ☐ For tank leak diagnostic system
- ☐ Fitting location: in rear left wheel housing beneath liner
- ☐ Removing and installing ⇒ [page 57](#)



9 - Vent line

- ☐ To air filter for tank leak diagnostic system

10 - Vent line

- ☐ From fuel tank
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)

11 - Activated charcoal filter

- ☐ Fitting location: rear left on underbody behind cover
- ☐ Removing and installing ⇒ [page 54](#)

12 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 42](#)
- ☐ Clipped into bracket

13 - Bracket

14 - Bolt

- ☐ 20 Nm

15 - Hose clip

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

16 - Seal

5.3 Removing and installing activated charcoal filter

⇒ [“5.3.1 Removing and installing activated charcoal filter - all vehicles except Audi A6 hybrid”, page 53](#)

⇒ [“5.3.2 Removing and installing activated charcoal filter - Audi A6 hybrid”, page 54](#)

⇒ [“5.3.3 Removing and installing activated charcoal filter - NAR vehicles”, page 54](#)

⇒ [“5.3.4 Removing and installing honeycomb filter”, page 55](#)

⇒ [“5.3.5 Removing and installing bracket for activated charcoal filter”, page 56](#)

⇒ [“5.3.6 Removing and installing air filter for tank leak diagnostic system”, page 57](#)

5.3.1 Removing and installing activated charcoal filter - all vehicles except Audi A6 hybrid

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .
- Remove underbody trim (rear left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Detach vent line -1-. Disconnecting plug-in connectors ⇒ [page 42](#)
- Detach breather line -3- leading to fuel tank. Disconnecting plug-in connectors ⇒ [page 42](#)
- Detach breather line -5- to activated charcoal filter solenoid valve 1 - N80- . Disconnecting plug-in connectors ⇒ [page 42](#)
- Unscrew bolts -2, 4 and 6- and remove activated charcoal filter.

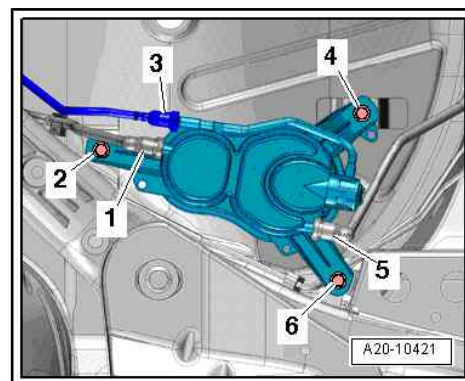
Installing

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

- Connect vent and breather lines so they engage audibly.

Tightening torques

- ◆ ⇒ [“5.2.1 Exploded view - activated charcoal filter system, all vehicles except Audi A6 hybrid”, page 49](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim



5.3.2 Removing and installing activated charcoal filter - Audi A6 hybrid

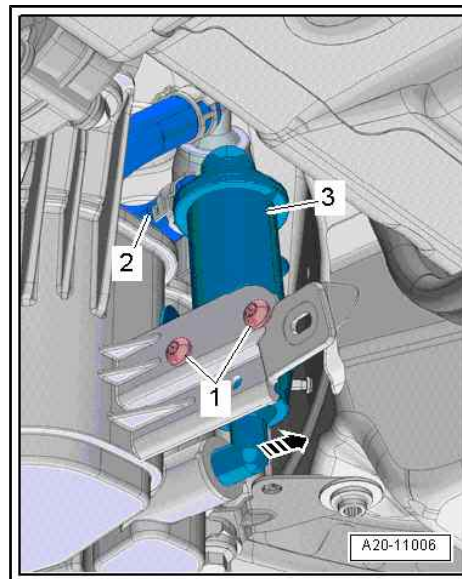
Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .
- Remove underbody trim (rear left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Remove heat shield for exhaust system (centre) ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Removing and installing heat shield for floor .
- Remove bolts -1-.
- Pull honeycomb filter -3- with retainer off activated charcoal filter -arrow-.

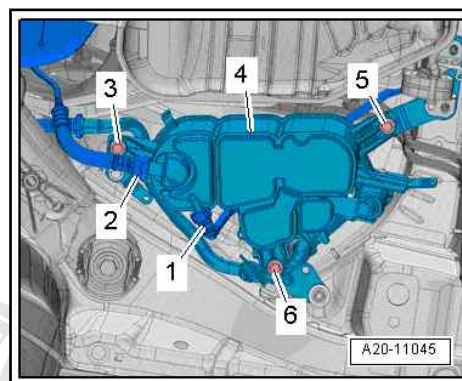


Note

Disregard -item 2-.



- Detach breather line -1- to activated charcoal filter solenoid valve 1 - N80- . Disconnecting plug-in connectors ⇒ [page 42](#)
- Detach breather line -2- leading to fuel tank. Disconnecting plug-in connectors ⇒ [page 42](#)
- Unscrew bolts -3, 5, 6- and remove activated charcoal filter -4-.



Installing

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

- Connect vent and breather lines so they engage audibly.

Tightening torques

- ♦ ⇒ [“5.2.2 Exploded view - activated charcoal filter system, Audi A6 hybrid”, page 50](#)
- ♦ ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Exploded view - heat shield
- ♦ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim

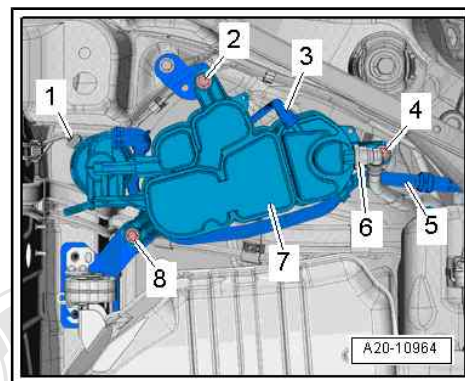
5.3.3 Removing and installing activated charcoal filter - NAR vehicles

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .
- Remove underbody trim (rear left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .

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- Unplug electrical connector -1-.
- Detach breather line -3- to activated charcoal filter solenoid valve 1 - N80- . Disconnecting plug-in connectors ➔ [page 42](#)
- Detach vent line -6- leading to fuel tank. Disconnecting plug-in connectors ➔ [page 42](#)
- Detach vent line -5- to air filter for tank leak diagnostic system. Disconnecting plug-in connectors ➔ [page 42](#)
- Unscrew bolts -2, 4, 8- and remove activated charcoal filter -7-.



Installing

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

- Connect vent and breather lines so they engage audibly.

Tightening torques

- ◆ ➔ ["5.2.3 Exploded view - activated charcoal filter system, NAR vehicles", page 52](#)
- ◆ ➔ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim

5.3.4 Removing and installing honeycomb filter

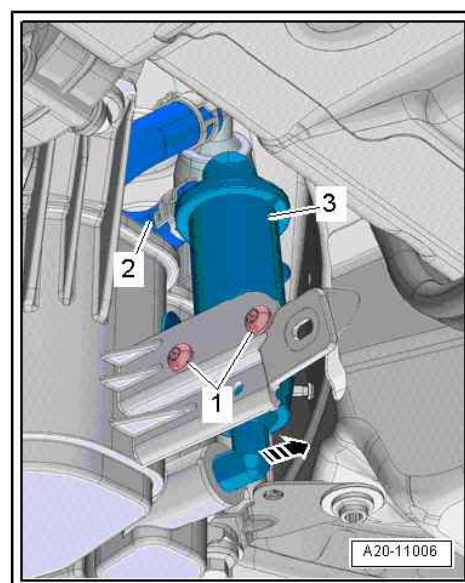
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Removing

- Observe safety precautions ➔ [page 1](#) .
- Observe rules for cleanliness ➔ [page 4](#) .
- Remove underbody trim (rear left) ➔ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Remove heat shield for exhaust system (centre) ➔ General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Removing and installing heat shield for floor .

Honeycomb filter 1:

- Remove bolts -1-.
- Pull honeycomb filter -3- with retainer off activated charcoal filter -arrow-.
- Release hose clip and detach hose -2-.
- Detach honeycomb filter.



Honeycomb filter 2:

- Remove activated charcoal filter ⇒ [page 54](#) .
- Remove bolts -3-.
- Release hose clip and disconnect breather hose -1- to air filter.
- Detach honeycomb filter -2- and retainer.

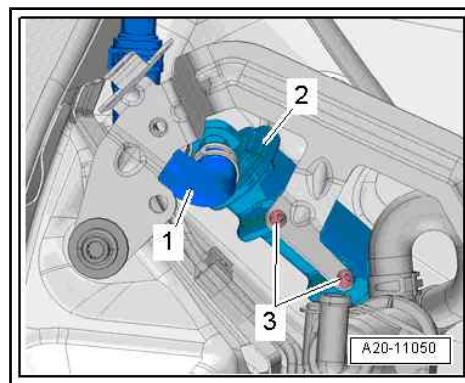
Installing

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

- Install activated charcoal filter ⇒ [page 54](#) .

Tightening torques

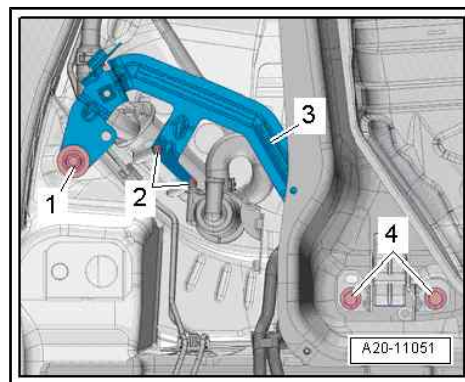
- ◆ ⇒ ["5.2.2 Exploded view - activated charcoal filter system, Audi A6 hybrid", page 50](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Exploded view - heat shield
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim



5.3.5 Removing and installing bracket for activated charcoal filter

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .
- Remove underbody trim (rear left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Remove bolts -4- for exhaust system.
- Remove heat shield for exhaust system (centre) ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Removing and installing heat shield for floor .
- Remove activated charcoal filter ⇒ [page 54](#) .
- Remove bolts -2-.
- Unscrew bolt -1- and detach bracket -3- for activated charcoal filter.



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

- Install activated charcoal filter ⇒ [page 54](#) .

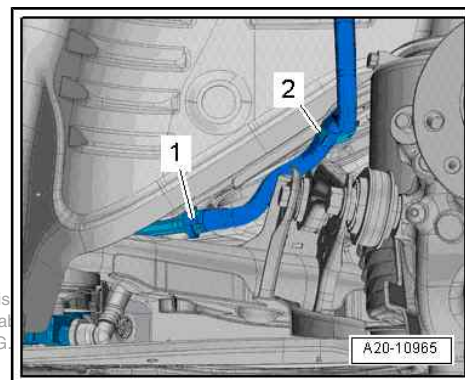
Tightening torques

- ◆ ⇒ ["5.2.2 Exploded view - activated charcoal filter system, Audi A6 hybrid", page 50](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Exploded view - heat shield
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim

5.3.6 Removing and installing air filter for tank leak diagnostic system

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .
- Remove wheel housing liner (rear left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Press release tab and disconnect vent line -1-.
- Unclip vent line leading to air filter from retainer -2-.



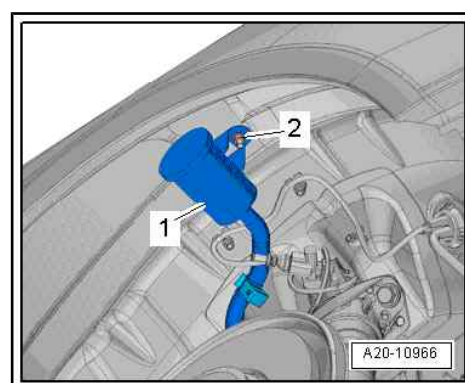
- Remove nut -2- and detach air filter -1- for tank leak diagnostic system.

Installing

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

Tightening torques

- ◆ ⇒ ["5.2.3 Exploded view - activated charcoal filter system, NAR vehicles", page 52](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



5.4 Checking fuel system for leaks

Tank leak diagnostic system

- ◆ The tank leak diagnostic system makes use of the fact that a partial vacuum is formed inside the fuel system when fuel in the tank cools down.
- ◆ The measured values for temperature and pressure are required for the tank leak diagnosis. These values are supplied by the control unit for fuel tank leak detection - J909- -item 2- with integrated tank pressure sensor - G400- (attached to activated charcoal filter -7-).
- ◆ The system is judged to be leak-tight when a vacuum of 2.5 mbar is measured while the temperature in the tank is decreasing.
- ◆ If no vacuum is formed, there is a leak in the fuel system. In this case a fault will be stored in the event memory of the engine control unit.

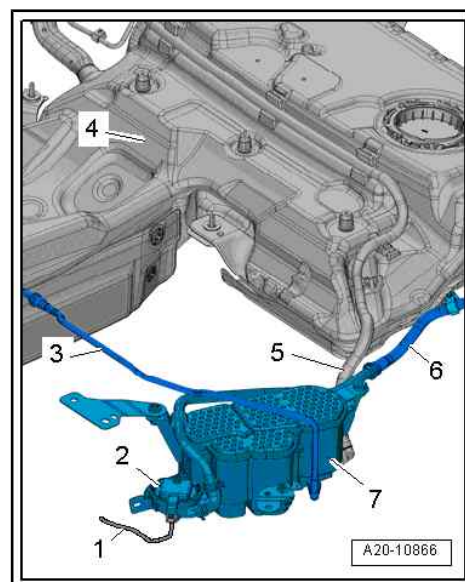
1 - Signal wire to engine control unit - J623-

3 - Breather line to engine

4 - Fuel tank

5 - Vent line to fuel tank

6 - Vent line to air filter



5.5 Removing and installing fuel system diagnostic pump

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .
- Remove underbody trim (rear left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Remove activated charcoal filter ⇒ [page 54](#) .
- Release hose clip and detach vent line -2-.
- Remove bolts -1-.
- Detach control unit for fuel tank leak detection - J909-item 3- from activated charcoal filter -arrow-.

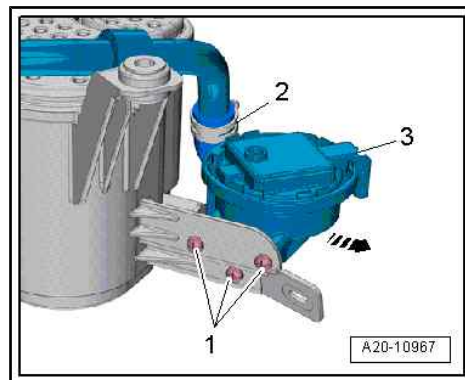
Installing

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

- Install activated charcoal filter ⇒ [page 54](#) .

Tightening torques

- ♦ ⇒ ["5.2.3 Exploded view - activated charcoal filter system, NAR vehicles", page 52](#)
- ♦ ⇒ 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 59](#)

⇒ [“6.2 Removing and installing accelerator pedal module with accelerator position sender G79 / G185”, page 60](#)

6.1 Exploded view - accelerator pedal module

1 - Accelerator pedal module

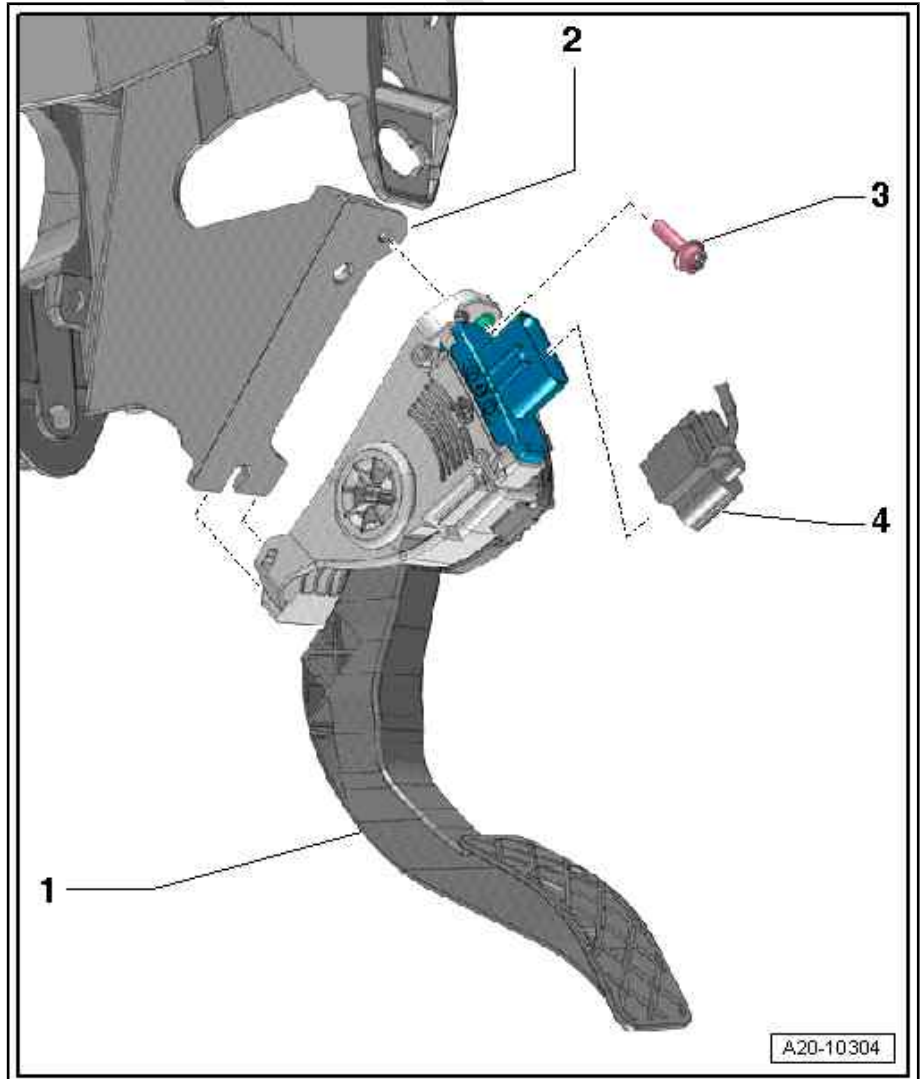
- ☐ With accelerator position sender - G79- and accelerator position sender 2 - G185-
- ☐ Checking in [Guided Fault Finding](#) ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 60](#)
- ☐ Adaption may be required after renewing, depending on engine/ gearbox combination
- ☐ If this menu item is available in “Guided Functions”, perform adaption ⇒ Vehicle diagnostic tester

2 - Pedal bracket

3 - Bolt

- ☐ 8 Nm

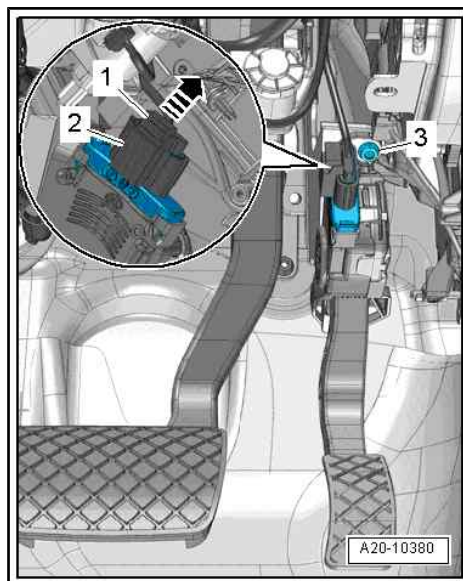
4 - Electrical connector



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

Removing

- Remove dash panel cover (bottom, 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

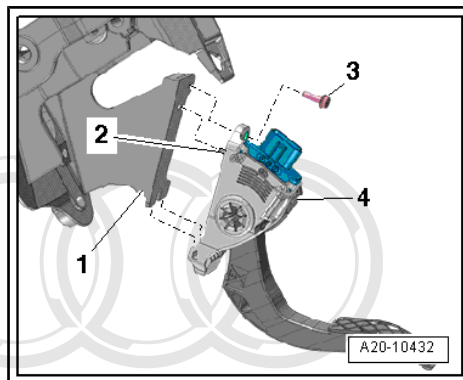
Installation is carried out in the reverse order; note the following:

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



Note

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



Tightening torques

- ◆ ⇒ ["6.1 Exploded view - accelerator pedal module", page 59](#)

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7 Fuel pump

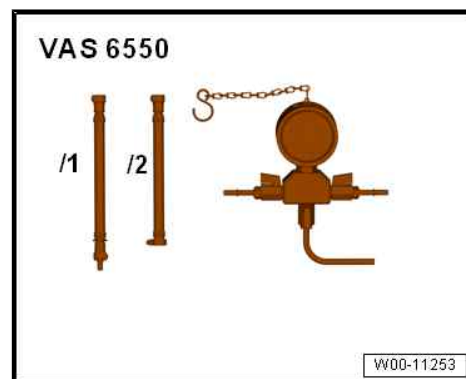
⇒ [“7.1 Checking fuel system pressurisation pump G6 ”, page 61](#)

⇒ [“7.2 Removing and installing fuel pump control unit J538 ”, page 66](#)

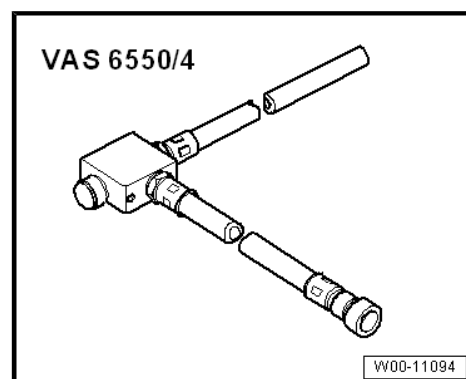
7.1 Checking fuel system pressurisation pump - G6-

Special tools and workshop equipment required

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



◆ Pressure control valve - VAS 6550/4-



◆ Vehicle diagnostic tester

◆ Fuel-resistant measuring container

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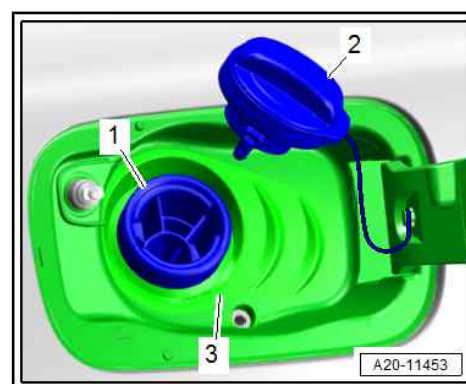
A - Checking fuel delivery rate



Note

The test procedure for the 2.0 ltr. TFSI engine is shown as an example.

- Observe test conditions ⇒ [page 4](#) .
- Release and open tank flap.
- Remove filler cap -2- for fuel filler neck -1-.



Note

Disregard -item 3-.

Version 1:

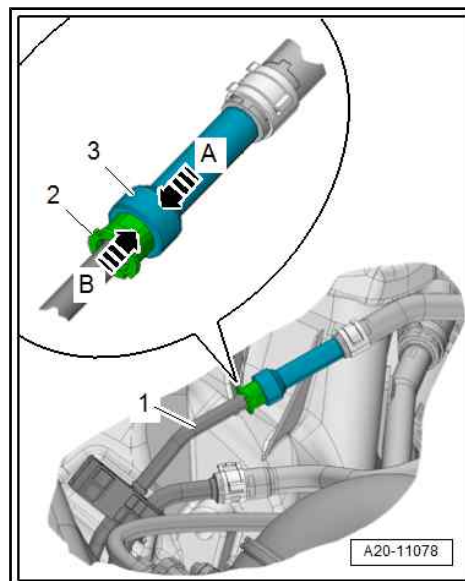


WARNING

The fuel system operates at high pressure - risk of injuries!

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

- Disconnect fuel line -1-. Disconnecting plug-in connectors
⇒ [page 42](#)



Version 2:

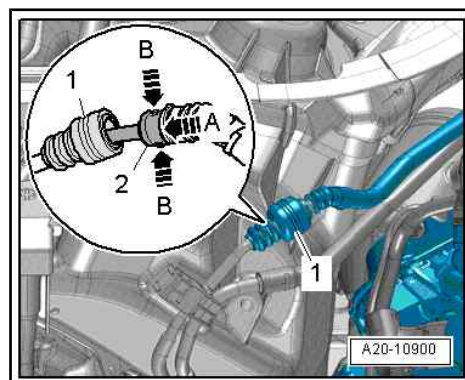


WARNING

The fuel system operates at high pressure - risk of injuries!

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

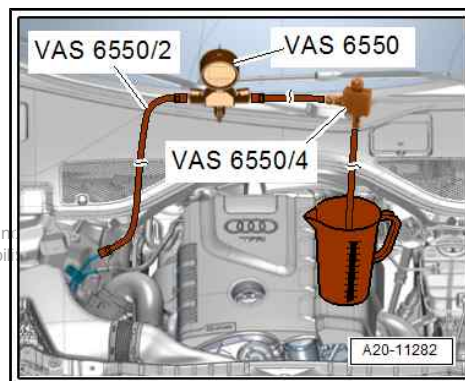
- Disconnect fuel line. Disconnecting plug-in connectors
⇒ [page 42](#)



Continued for all vehicles:

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

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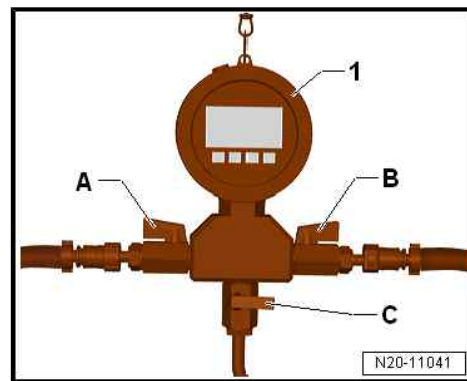


- Switch on pressure tester - VAS 6550- -item 1- by pressing **On/Off** button.

 Note

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

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



Caution

Risk of fuel escaping.

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

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

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◆ **Vehicle self-diagnosis**

◆ **Engine electronics**

◆ **Basic setting**

◆ **Empty fuel tank**

- Press **Start**: The fuel pump will start running.

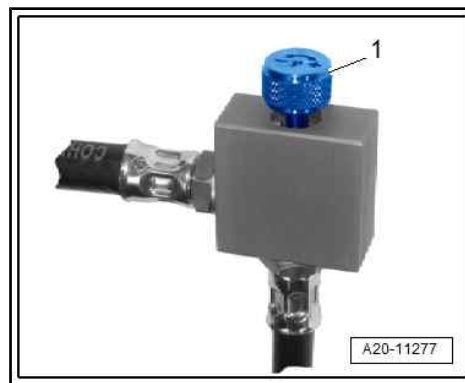
- Build up pressure in fuel system by turning adjuster screw -1- on pressure control valve - VAS 6550/4- until correct pressure is reached.
- Specification: 4.3 bar
- From this point on, do not turn adjuster screw -1-.
- Press **Stop**.
- Drain measuring container.
- For measurement, press **Start**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

If the minimum delivery rate is attained:

- ◆ Fuel delivery unit with fuel filter, fuel pressure regulator and fuel supply line OK.

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

- ◆ Fuel delivery unit is defective.
- ◆ Fuel filter integrated in flange and fuel pressure regulator blocked or defective.
- ◆ Fuel supply line crushed.



Note

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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

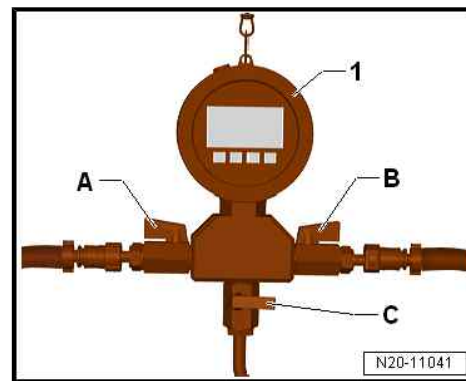
- Leave measuring equipment connected in the same way as for measuring the fuel delivery rate.
- Vehicle diagnostic tester still connected.
- Switch on pressure tester - VAS 6550- -item 1- by pressing **On/Off** button.
- Open cut-off valves -A and B-.
- Levers must point in direction of flow.



Caution

Risk of fuel escaping.

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



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

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

- ◆ Fuel filter integrated in flange blocked or fuel supply line crushed.

If specification is not attained:

- ◆ Fuel delivery unit or fuel pressure regulator integrated in flange defective.

C - Checking residual pressure

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

If the residual pressure drops below 3 bar:

- ◆ Check fuel lines and their connections for leaks.
- ◆ Non-return valve in fuel pump is leaking, renew fuel delivery unit ⇒ [page 23](#) .

Attaching

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

- The ignition must be switched off.

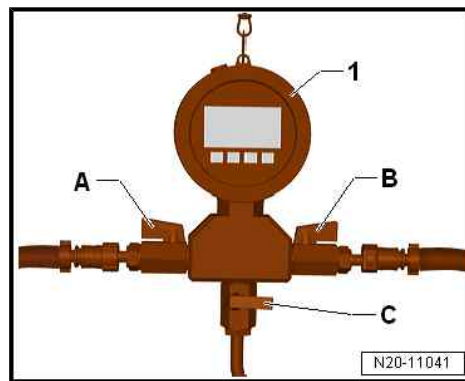
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Note

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

- Detach pressure tester - VAS 6550- together with connection leads.
- Connect fuel supply line, making sure it engages audibly.
- Press fuel supply line in again and then pull to check that plug-in connector is correctly engaged.



7.2 Removing and installing fuel pump control unit - J538-

Removing

- Observe safety precautions ➔ [page 1](#) .
- Observe rules for cleanliness ➔ [page 4](#) .



Caution

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

- ◆ Observe notes on procedure for disconnecting the battery.

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

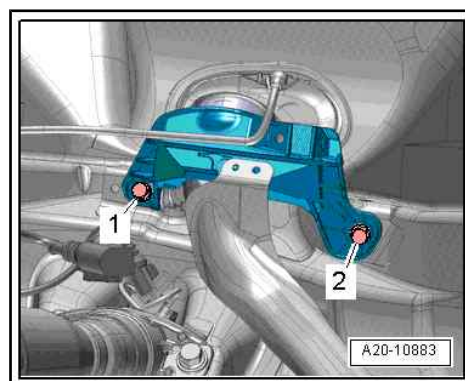


WARNING

Risk of accident caused by weight of fuel tank

- ◆ Fuel tank must be empty when lowering it.

- Drain fuel tank ➔ [page 10](#) .
- Remove rear wheel housing liner (right-side) ➔ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Remove bolts -1- and -2- for fuel filler neck.





WARNING

Risk of accident caused by weight of fuel tank

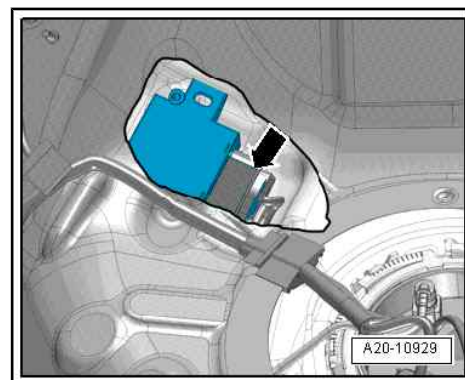
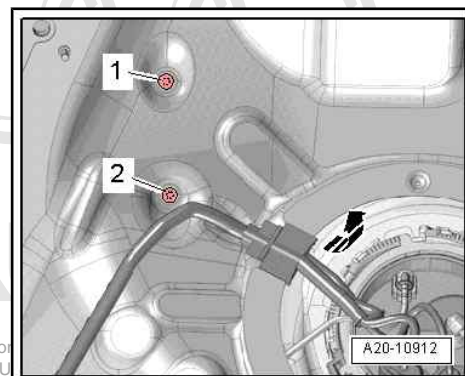
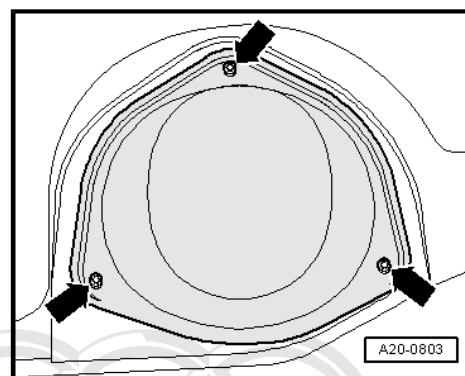
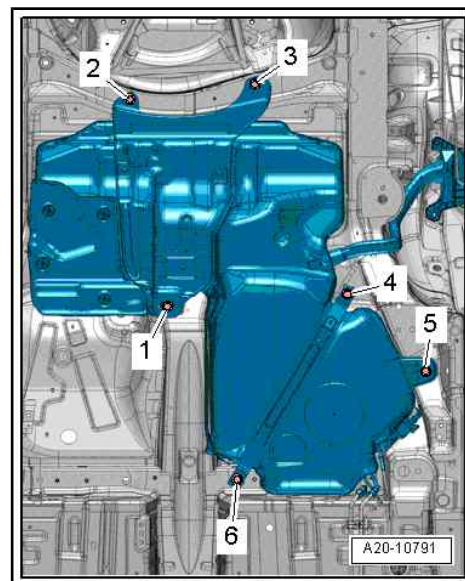
◆ *Fuel tank must be empty when lowering it.*

- Remove bolts -1 ... 6-.



Note

- ◆ *The fuel tank is lowered onto the subframe.*
- ◆ *The fuel tank is shown without the subframe for illustration purposes.*
- Remove rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/ individual seats .
- Fold insulating mat to one side in vicinity of cover for fuel tank flange.
- Unscrew bolts -arrows- and remove cover for flange.
- Remove bolts -1- and -2-.
- Guide fuel pump control unit - J538- out towards interior between fuel tank and underbody -arrow-.



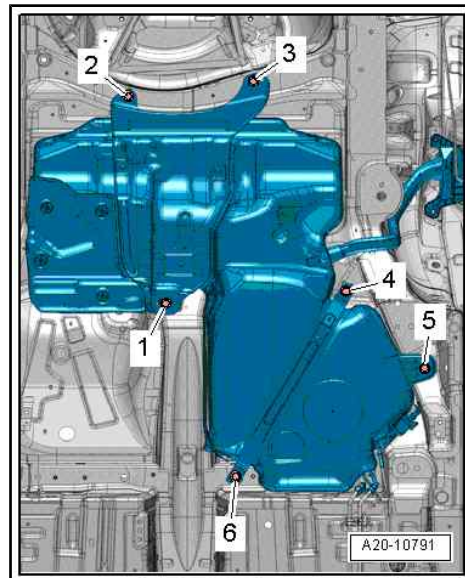
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- Unplug electrical connector -arrow- and detach fuel pump control unit - J538- .

Installing

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

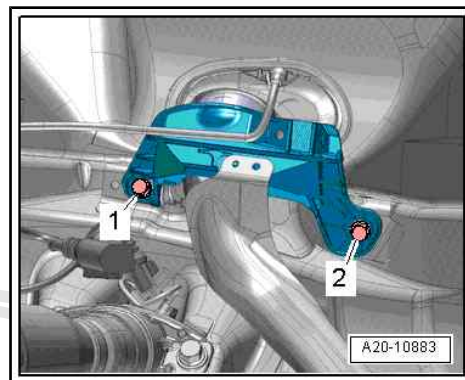
- Tighten bolts -1 ... 6- for securing strap and support bracket.



- Tighten bolts -1- and -2- for fuel filler neck.
- Install cover for flange ⇒ [page 21](#) .
- Install rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Connect battery and perform steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

Tightening torques

- ◆ ⇒ [“1.1.1 Exploded view - fuel tank”, page 6](#)
- ◆ ⇒ [“1.1.2 Exploded view - fuel tank, NAR vehicles”, page 8](#)
- ◆ ⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 19](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



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