



Workshop Manual

Audi A3 2013 ➤

Audi A3 Limousine China 2014 ➤

Audi A3 Sportback China 2014 ➤

Fuel supply system, petrol engines									
Engine ID	CJSA	CJSB	CMB A	CJXB	CJZA	CPT A	CXS A	CXS B	CJXC
	CNS B	CNT C	CSS A	CYV B	CZC A	CZE A	CHH P	CJXF	CYF B
	CUK B	CXU A	CUF A	CZG B	CHH B	CWL A	DBW A	CZC C	CZP B
	CHZ D	CJXD	CJX G	CZR A	CJHA	CJHB	DBF B	DAZ A	DJHA
	DAD A	DJJA	DJHB	DHH A	DJSA	DKR A	DKR F	DKV A	DKZ A
	DLR A	DNU E	DNW A	DGE A	DPC A	DHF A			

Edition 08.2019



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List of Workshop Manual Repair Groups

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Repair Group

00 - Technical data

20 - Fuel supply system

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

(ARL006554; Edition 08.2019)

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

⇒ [“1.2 Safety precautions when working in the vicinity of high-voltage components”, page 2](#)

⇒ [“1.3 Safety precautions when working on the fuel system”, page 2](#)

⇒ [“1.4 Safety precautions when working on vehicles with start/stop system”, page 3](#)

⇒ [“1.5 Safety precautions when using testers and measuring instruments during a road test”, page 3](#)

1.1 Safety precautions when working on the high-voltage system

High voltage can cause fatal injury.

The voltage levels in the high-voltage system constitute a safety hazard. Danger of severe or fatal injuries from electric shock.

- Persons with life-sustaining or other electronic medical devices in or on their body must not perform any work on the high-voltage system. Such medical devices include internal analgesic pumps, implanted defibrillators, pacemakers, insulin pumps and hearing aids.
- The high-voltage system must be de-energised by a suitably qualified person.

Risk of injury - engine may start unexpectedly

It is difficult to determine whether the drive system of an electric vehicle or hybrid vehicle is active. Moving parts can trap or draw in parts of the body.

- Switch off ignition.
- Deposit the ignition key outside of the vehicle.

Risk of damage to high-voltage wiring

Incorrect handling may result in damage to the insulation of high-voltage wires or high-voltage connectors.

- Never use high-voltage wiring or high-voltage connectors as a support.
- Never support tools or equipment on high-voltage wires and high-voltage connectors.
- High-voltage cables must not be excessively bent or kinked.
- Pay attention to coding when connecting high-voltage connections.



1.2 Safety precautions when working in the vicinity of high-voltage components

High voltage can cause fatal injury.

The voltage levels in the high-voltage system constitute a safety hazard. Danger of severe or fatal injuries from electric shock if high-voltage components or high-voltage wiring are damaged.

- Carry out a visual check of high-voltage components and high-voltage wiring.
- Never use cutting/forming tools or other sharp-edged implements.
- Never perform work using welding, brazing, thermal bonding or hot air.

1.3 Safety precautions when working on the fuel system

Risk of injury - fuel system operates under high pressure

The fuel system is pressurised. There is a risk of injury as fuel may spray out.

Before opening the fuel system:

- Put on safety goggles.
- Put on protective gloves.
- Release pressure (wrap a clean cloth around connection and open connection carefully).

Risk of fire due to escaping fuel

If the battery is connected, the door contact switch activates the fuel pump when the driver's door is opened. Escaping fuel may ignite, causing a fire.

- Before opening the fuel system, disconnect power supply to fuel pump.

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

- ◆ Fuel tank must be completely drained or only partially 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 22](#) .
- ◆ 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).



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

Risk of injury - engine may start unexpectedly

The engine can start unexpectedly if the vehicle's start/stop system is activated. A message in the instrument cluster indicates whether the start/stop system is activated.

- To deactivate the start/stop system, switch off the ignition.

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

Risk of injury if test equipment is not secured

If an accident occurs and the front passenger's airbag is triggered, test equipment which is not secured adequately may be catapulted through the vehicle with potentially serious consequences.

- Secure test equipment on the rear seat with a strap.

Or:

- Have a second mechanic operate test equipment on the rear seat.



2 Repair instructions

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

⇒ [“2.2 Test conditions”, page 4](#)

⇒ [“2.3 Bleeding fuel system”, page 4](#)

⇒ [“2.4 Contact corrosion”, page 5](#)

⇒ [“2.5 Routing and attachment of pipes, hoses and wiring”, page 5](#)

⇒ [“2.6 Nuts, bolts”, page 5](#)

⇒ [“2.7 Identification plates”, page 5](#)

⇒ [“2.8 Use of impact wrenches”, page 6](#)

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 ⇒ Vehicle diagnostic tester
- Fuel pump control unit - J538- OK; checking ⇒ 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 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.

2.4 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 using Audi Genuine Accessories.
- ◆ Damage caused by contact corrosion is not covered by warranty.

2.5 Routing and attachment of pipes, hoses and wiring



Caution

Risk of damage to pipes/hoses/wiring.

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

2.6 Nuts, bolts

- ◆ Loosen bolts in reverse sequence to specified tightening sequence.
- ◆ Bolts and nuts used to secure covers and housings must be tightened in steps according to the specified tightening sequence and method.
- ◆ Bolts and nuts which secure covers and housings should be loosened and tightened in diagonal sequence and in stages if no tightening sequence is specified.
- ◆ Always renew self-locking bolts and nuts.
- ◆ Unless otherwise specified, use a wire brush to clean the threads of bolts which are secured with locking fluid. Then install bolts with locking fluid; for locking fluid refer to ⇒ Electronic parts catalogue .
- ◆ Threaded holes which take self-locking bolts or bolts coated with locking fluid must be cleaned using a thread tap or similar. Otherwise there is a danger of the bolts shearing off the next time they are removed.
- ◆ The tightening torques stated apply to non-oiled nuts and bolts.

2.7 Identification plates

When renewing vehicle components, the identification plates on the old parts that have a replacement part number (see ⇒ Elec-



tronic parts catalogue) must be attached to the new parts due to approval regulations.



2.8 Use of impact wrenches

In general, it is permitted to use an impact wrench to unscrew bolts and nuts. An exception to this is when work is performed inside an open high-voltage battery. For this work, it is not permitted to use an impact wrench.

An impact wrench may be used to screw in bolts and nuts when performing repair work if the following requirements are observed. In general, electric and compressed-air impact wrenches should be used.

Requirements:

- Only screw in bolts with locking fluid or self-locking nuts at low speed.
- Use a suitable impact wrench with variable speed and adjustable torque range.
- Use suitable bits when working in the vicinity of sensitive surfaces, e.g. plastic-coated bits for aluminium rims.
- When working in the vicinity of natural gas systems, observe the information in the Workshop Manual "Natural gas engines - General information".

Use:

- Fit bolts/nuts by hand.
- Only use an impact wrench to screw in bolts/nuts until the head of the bolt/nut makes contact and then continue tightening with a torque wrench.
- Clean threaded pins before unscrewing the bolt/nut.



20 – Fuel supply system

1 Fuel tank

⇒ [“1.1 Exploded view - fuel tank”, page 7](#)

⇒ [“1.2 Draining fuel tank”, page 22](#)

⇒ [“1.3 Removing and installing fuel tank”, page 26](#)

1.1 Exploded view - fuel tank

⇒ [“1.1.1 Exploded view - fuel tank, A3/A3 Sportback/A3 Saloon with front-wheel drive and torsion beam axle”, page 7](#)

⇒ [“1.1.2 Exploded view - fuel tank, A3/A3 Sportback/A3 Saloon with front-wheel drive and multi-link suspension”, page 10](#)

⇒ [“1.1.3 Exploded view - fuel tank, A3 Cabriolet with front-wheel drive”, page 12](#)

⇒ [“1.1.4 Exploded view - fuel tank, NAR vehicles with front-wheel drive”, page 14](#)

⇒ [“1.1.5 Exploded view - fuel tank, vehicles with high-voltage system”, page 16](#)

⇒ [“1.1.6 Exploded view - fuel tank, vehicles with four-wheel drive”, page 18](#)

⇒ [“1.1.7 Exploded view - fuel tank, NAR vehicles with four-wheel drive”, page 20](#)

⇒ [“1.1.8 Routing and attachment of earth connection for electrostatic discharge”, page 21](#)

1.1.1 Exploded view - fuel tank, A3/A3 Sportback/A3 Saloon with front-wheel drive and torsion beam axle



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1 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

2 - Tensioning strap

3 - Nut

- ☐ For heat shield
- ☐ 2 Nm

4 - Heat shield

- ☐ For fuel tank

5 - Bolts

- ☐ Renew after removing
- ☐ 20 Nm +90°

6 - Fuel line to auxiliary heater

- ☐ Depending on vehicle equipment
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

7 - Fuel supply line

- ☐ To engine
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

8 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

9 - Bracket

- ☐ For fuel pump control unit - J538-

10 - Bolt

- ☐ Tightening torque ⇒ Maintenance ; Booklet 821 ; Maintenance; Fuel filter: renewing

11 - Fuel filter

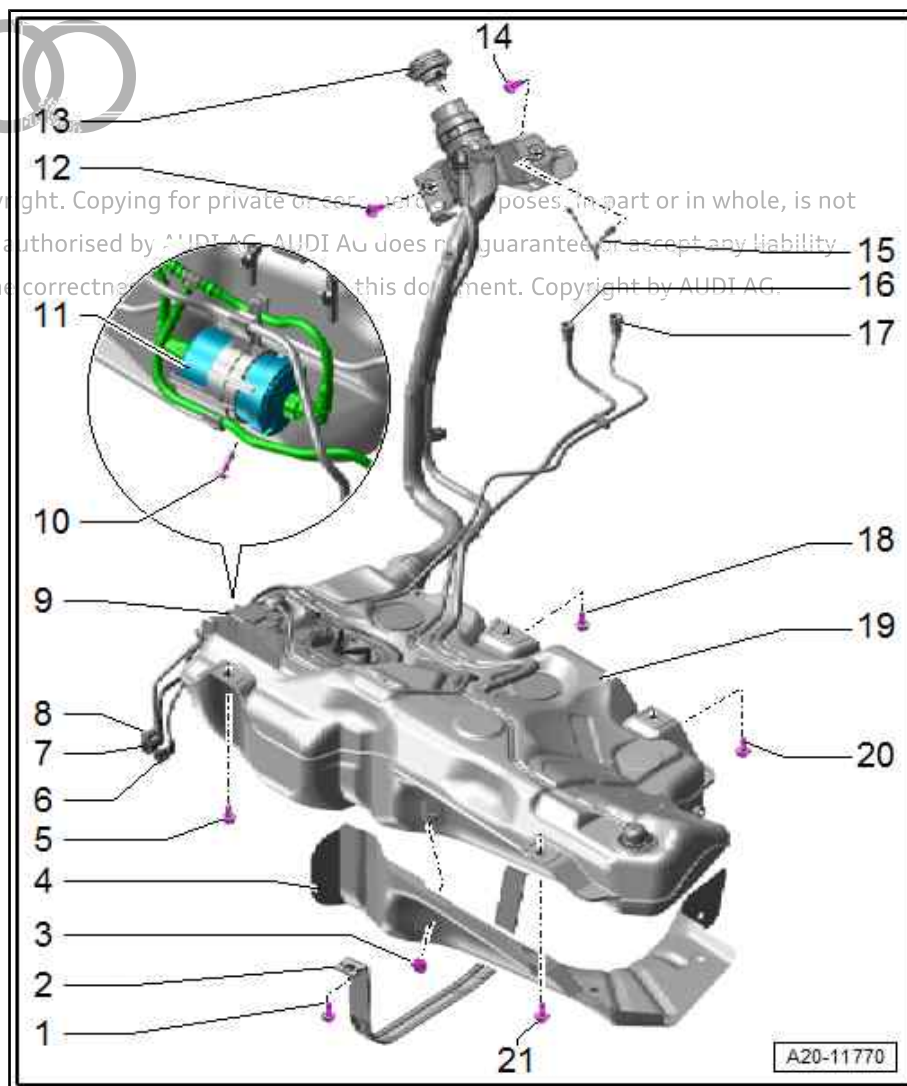
- ☐ Removing and installing ⇒ Maintenance ; Booklet 821 ; Maintenance; Fuel filter: renewing

12 - Bolt

- ☐ Renew after removing
- ☐ 8 Nm +90°

13 - Filler cap

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





14 - Bolt

- ☐ To secure fuel filler neck
- ☐ To eliminate electrostatic charge
⇒ Fig. “Earth connection for fuel filler neck - A3/A3 Sportback/A3 Saloon”, page 21
- ☐ Renew after removing
- ☐ 8 Nm +90°

15 - Earth connection

- ☐ For fuel filler neck
- ☐ To eliminate electrostatic charge
⇒ Fig. “Earth connection for fuel filler neck - A3/A3 Sportback/A3 Saloon”, page 21

16 - Breather line

- ☐ To activated charcoal filter
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ “4.1 Disconnecting plug-in connectors”, page 91

17 - Breather line

- ☐ To activated charcoal filter
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ “4.1 Disconnecting plug-in connectors”, page 91

18 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°



19 - Fuel tank

- ☐ Removing and installing
⇒ “1.3.1 Removing and installing fuel tank - vehicles with front-wheel drive and torsion beam axle”, page 26

20 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

21 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

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1.1.2 Exploded view - fuel tank, A3/A3 Sportback/A3 Saloon with front-wheel drive and multi-link suspension

1 - Fuel line to auxiliary heater

- ☐ Depending on vehicle equipment
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

2 - Fuel supply line

- ☐ To engine
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

3 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

4 - Bracket

- ☐ For fuel pump control unit - J538-

5 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

6 - Bolt

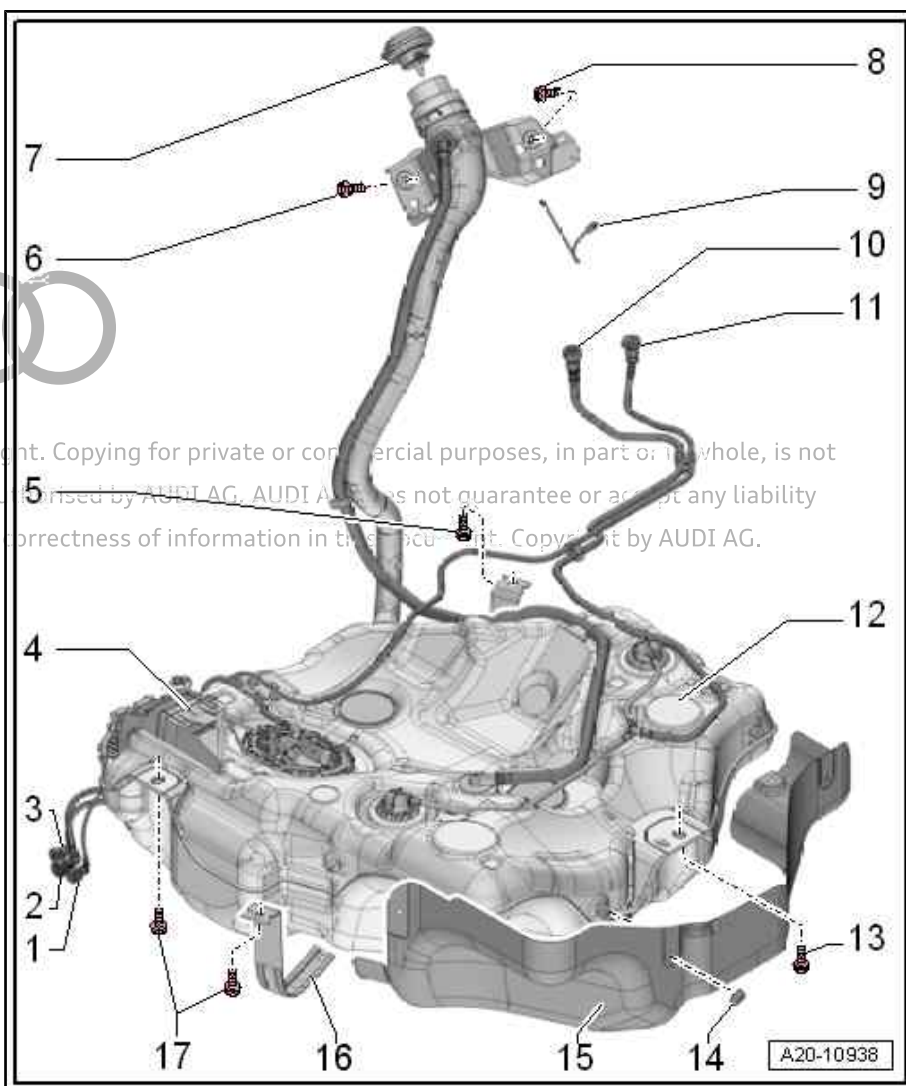
- ☐ Renew after removing
- ☐ 8 Nm +90°

7 - Filler cap

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

8 - Bolt

- ☐ To secure fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 21](#)
- ☐ Renew after removing
- ☐ 8 Nm +90°





9 - Earth connection

- ☐ For fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 21](#)

10 - Breather line

- ☐ To activated charcoal filter
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

11 - Breather line

- ☐ To activated charcoal filter
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

12 - Fuel tank

- ☐ Removing and installing
⇒ [“1.3.2 Removing and installing fuel tank - vehicles with front-wheel drive and multi-link suspension”, page 30](#)

13 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

14 - Nut

- ☐ For heat shield
- ☐ 2 Nm

15 - Heat shield

- ☐ For fuel tank

16 - Tensioning strap

17 - Bolts

- ☐ Renew after removing
- ☐ 20 Nm +90°



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1.1.3 Exploded view - fuel tank, A3 Cabriolet with front-wheel drive

1 - Bolts

- ☐ Renew after removing
- ☐ 20 Nm +90°

2 - Fuel supply line

- ☐ To engine
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

3 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

4 - Bolt

- ☐ To secure fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 22](#)
- ☐ Renew after removing
- ☐ 8 Nm +90°

5 - Earth connection

- ☐ For fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 22](#)

6 - Filler cap

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

7 - Bolt

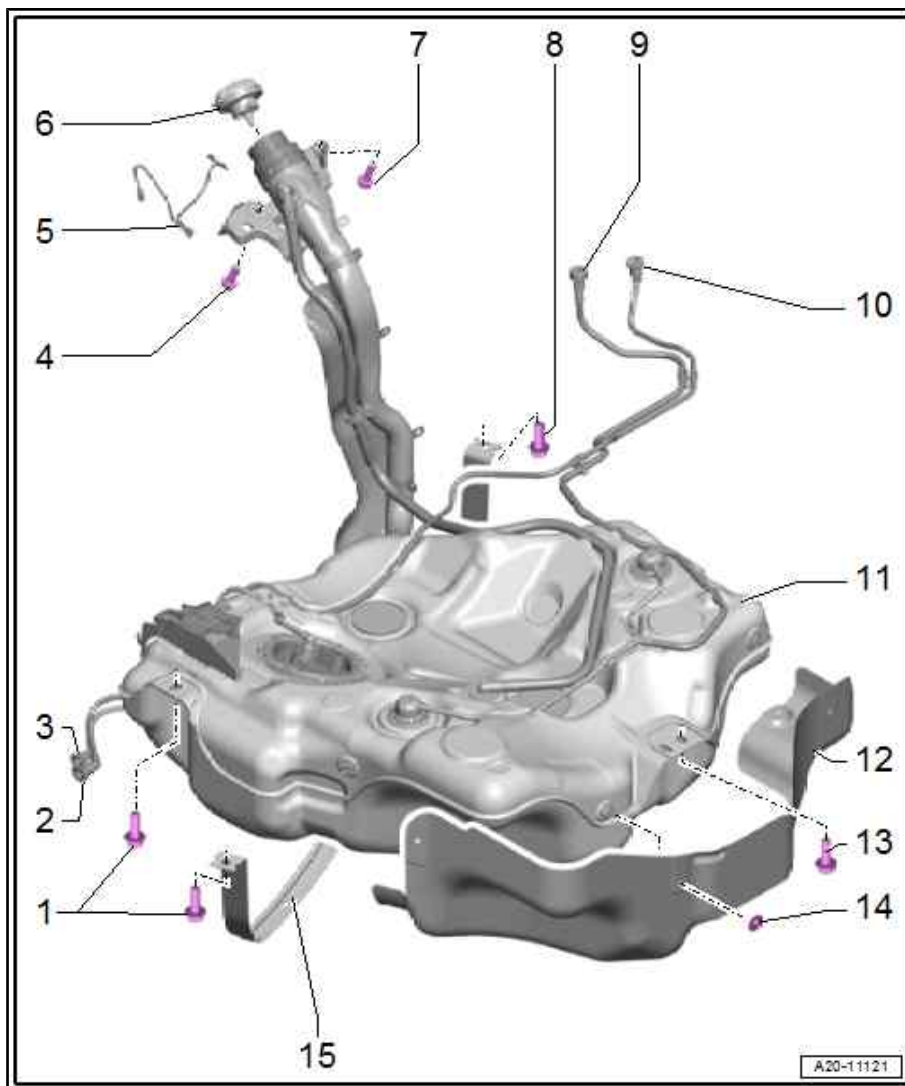
- ☐ Renew after removing
- ☐ 8 Nm +90°

8 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

9 - Breather line

- ☐ To activated charcoal filter
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)



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10 - Breather line

- ☐ To activated charcoal filter
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

11 - Fuel tank

- ☐ Removing and installing
⇒ [“1.3.2 Removing and installing fuel tank - vehicles with front-wheel drive and multi-link suspension”, page 30](#)

12 - Heat shield

- ☐ For fuel tank

13 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

14 - Nut

- ☐ For heat shield
- ☐ 2 Nm

15 - Tensioning strap

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1.1.4 Exploded view - fuel tank, NAR vehicles with front-wheel drive

1 - Bolts

- ☐ Renew after removing
- ☐ 20 Nm +90°

2 - Fuel supply line

- ☐ To engine
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors

⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

3 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors

⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

4 - Bolt

- ☐ To secure fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 22](#)
- ☐ Renew after removing
- ☐ 8 Nm +90°

5 - Earth connection

- ☐ For fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 22](#)

6 - Filler cap

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

7 - Breather line

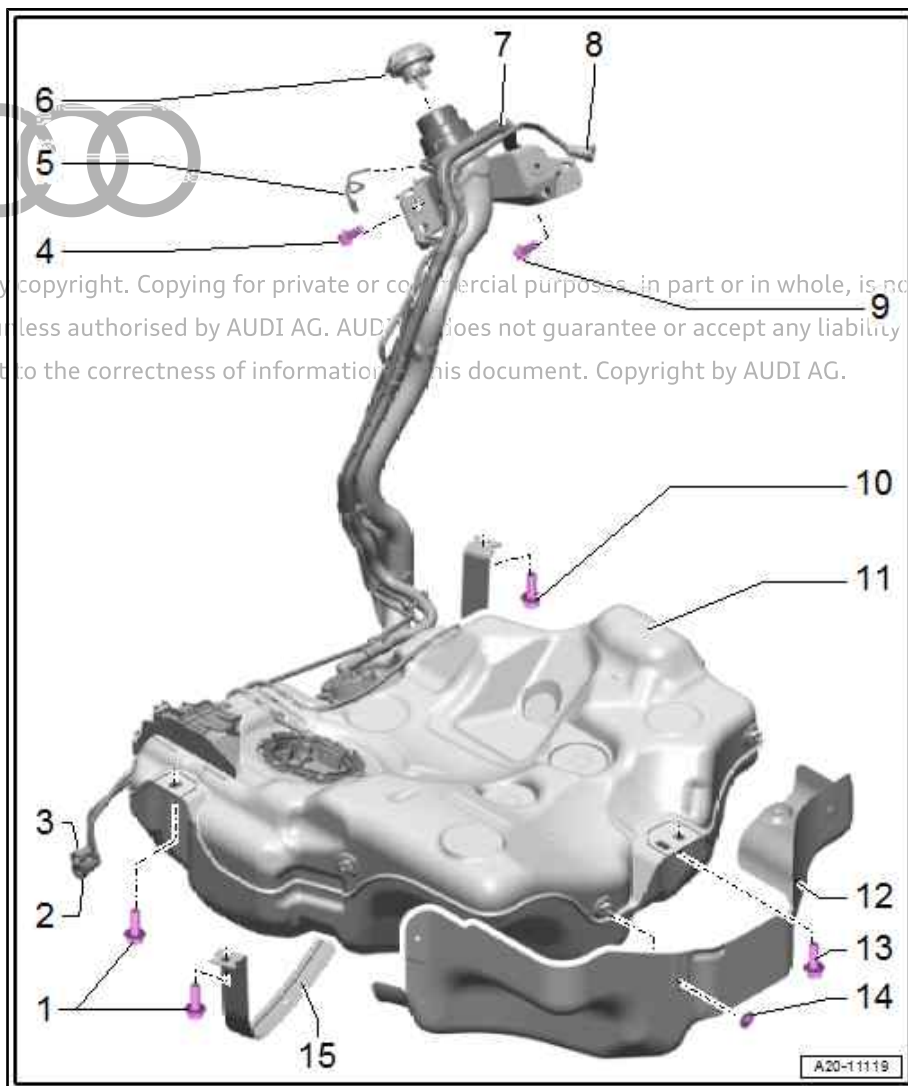
- ☐ To activated charcoal filter
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

8 - Breather line

- ☐ To activated charcoal filter
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

9 - Bolt

- ☐ Renew after removing





- ☐ 8 Nm +90°

10 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

11 - Fuel tank

- ☐ Removing and installing
⇒ [“1.3.2 Removing and installing fuel tank - vehicles with front-wheel drive and multi-link suspension”, page 30](#)

12 - Heat shield

- ☐ For fuel tank

13 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

14 - Nut

- ☐ For heat shield
- ☐ 2 Nm

15 - Tensioning strap



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1.1.5 Exploded view - fuel tank, vehicles with high-voltage system

1 - Cover for flange

2 - Nut

- ☐ 5x
- ☐ Tightening torque
⇒ [Item 2 \(page 52\)](#)

3 - Metering pump for auxiliary heater

- ☐ Depending on vehicle equipment
- ☐ Do not kink
- ☐ Clipped onto fuel tank

4 - Wiring harness

- ☐ To engine
- ☐ Clipped onto hybrid battery unit - AX1-
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

5 - Fuel supply line

- ☐ To engine
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

6 - Fuel line to auxiliary heater

- ☐ Depending on vehicle equipment
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

7 - Fuel tank shut-off valve - N288-

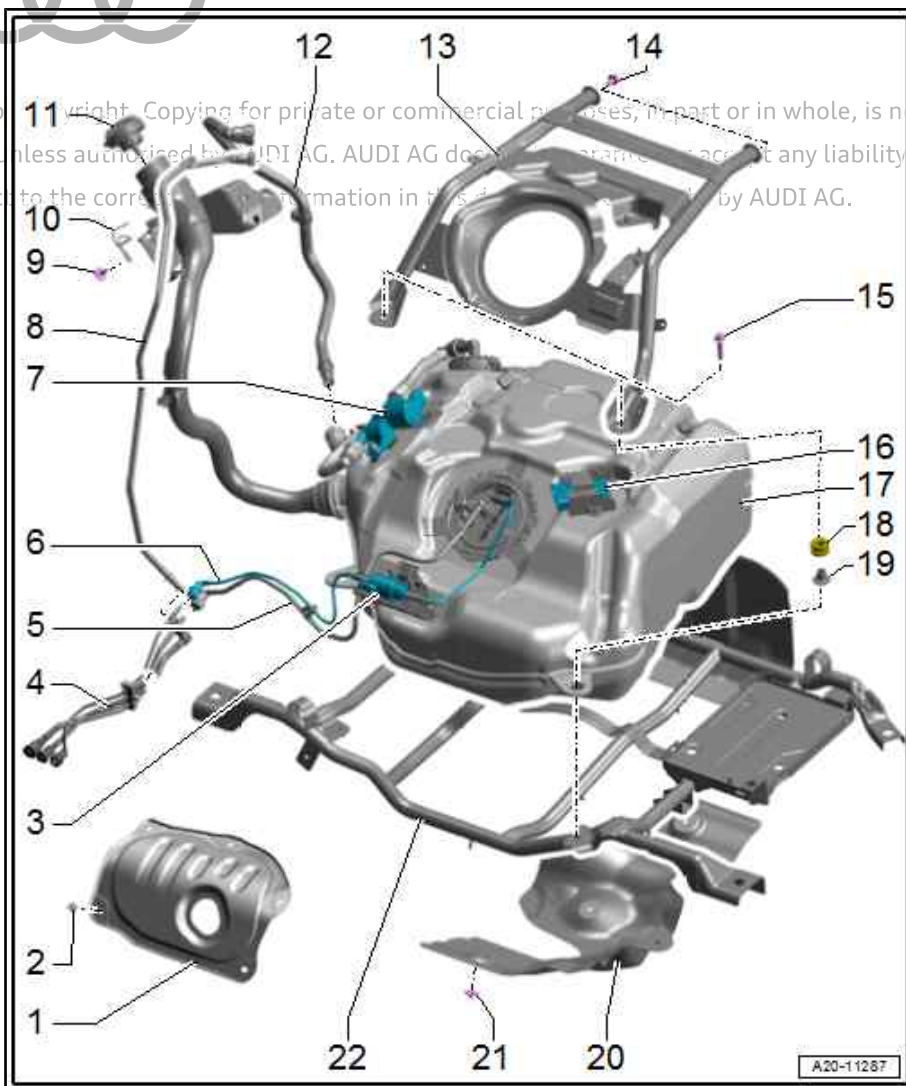
- ☐ Removing and installing ⇒ ["5.3.5 Removing and installing fuel tank shut-off valve N288", page 106](#)

8 - Breather line

- ☐ To activated charcoal filter
- ☐ Clipped onto fuel tank
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

9 - Bolt

- ☐ To secure fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 22](#)
- ☐ 2x
- ☐ Renew after removing
- ☐ 8 Nm +90°





10 - Earth connection

- ☐ For fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 22](#)

11 - Filler cap

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

12 - Breather line

- ☐ To activated charcoal filter
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

13 - Crash protection frame

- ☐ Removing and installing
⇒ [“1.3.3 Removing and installing fuel tank - vehicles with high-voltage system”, page 36](#)

14 - Bolt

- ☐ 2x
- ☐ 30 Nm

15 - Bolt

- ☐ 2x
- ☐ 30 Nm

16 - Fuel pump control unit - J538-

- ☐ Removing and installing
⇒ [“7.2.2 Removing and installing fuel pump control unit J538 - vehicles with high-voltage system”, page 130](#)

17 - Fuel tank

- ☐ Removing and installing
⇒ [“1.3.3 Removing and installing fuel tank - vehicles with high-voltage system”, page 36](#)

18 - Rubber mounting

- ☐ 2x
- ☐ Insert into fuel tank

19 - Spacer sleeve

- ☐ 2x

20 - Heat shield

- ☐ For fuel tank

21 - Nut

- ☐ For heat shield
- ☐ 5x
- ☐ 1.5 Nm

22 - Crash protection frame

- ☐ Removing and installing
⇒ [“1.3.3 Removing and installing fuel tank - vehicles with high-voltage system”, page 36](#)



1.1.6 Exploded view - fuel tank, vehicles with four-wheel drive

1 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

2 - Fuel line to auxiliary heater

- ☐ Depending on vehicle equipment
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

3 - Fuel line

- ☐ To engine
- ☐ Do not kink
- ☐ Clipped onto fuel tank
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

4 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Do not kink
- ☐ Clipped onto fuel tank
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

5 - Fuel pump control unit - J538-

- ☐ Removing and installing
⇒ ["7.2.1 Removing and installing fuel pump control unit J538 - vehicles without high-voltage system", page 129](#)

6 - Bolt

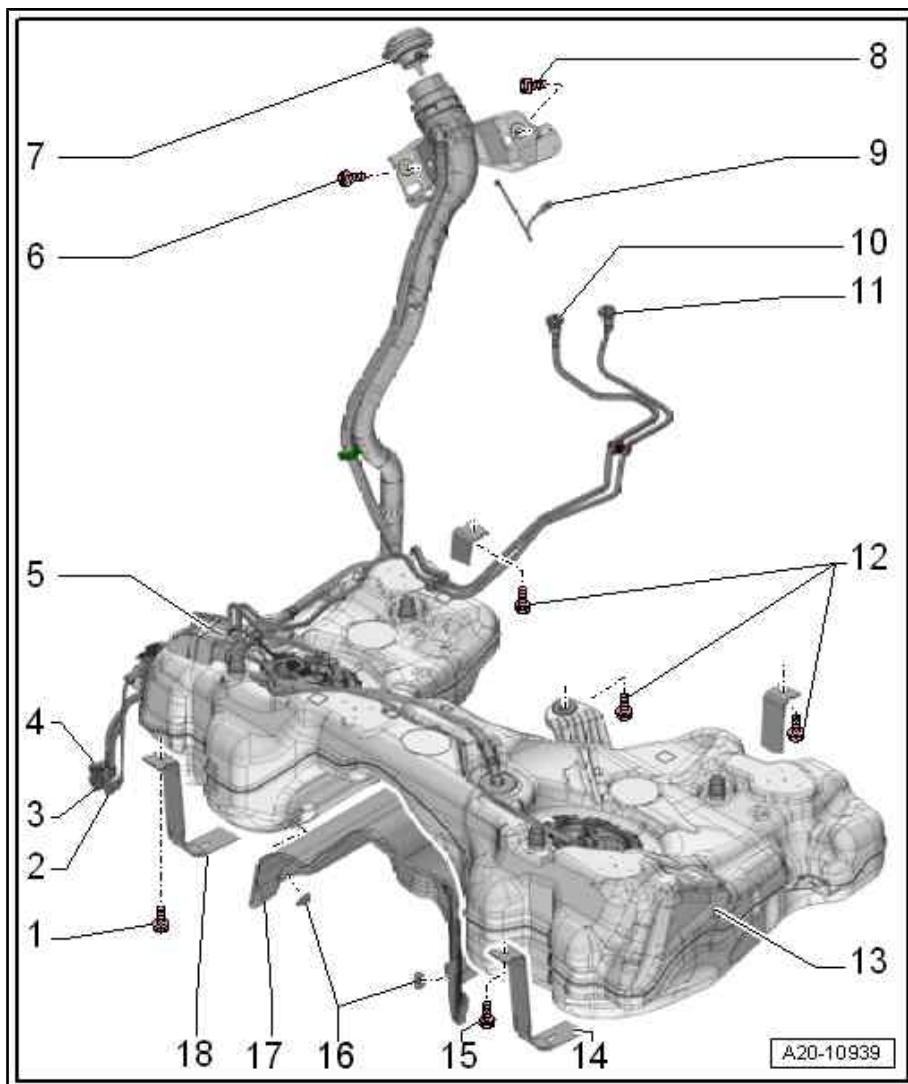
- ☐ Renew after removing
- ☐ 8 Nm +90°

7 - Filler cap

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

8 - Bolt

- ☐ To secure fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 21](#)
- ☐ Renew after removing
- ☐ 8 Nm +90°





9 - Earth connection

- ☐ For fuel filler neck
- ☐ To eliminate electrostatic charge ⇒ [page 21](#)

10 - Breather line

- ☐ To activated charcoal filter
- ☐ Do not kink
- ☐ Clipped onto fuel tank
- ☐ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

11 - Breather line

- ☐ To activated charcoal filter
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

12 - Bolts

- ☐ Renew after removing
- ☐ 20 Nm +90°

13 - Fuel tank

- ☐ Different versions available; for allocation refer to ⇒ Electronic parts catalogue
- ☐ Removing and installing
⇒ [“1.3.4 Removing and installing fuel tank - vehicles with four-wheel drive”, page 42](#)

14 - Securing strap (left-side)

15 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

16 - Nut

- ☐ For heat shield
- ☐ 2 Nm

17 - Heat shield

- ☐ For fuel tank

18 - Securing strap (right-side)



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1.1.7 Exploded view - fuel tank, NAR vehicles with four-wheel drive

1 - Heat shield

- ❑ For fuel tank

2 - Securing strap (right-side)

3 - Bolt

- ❑ Renew after removing
- ❑ 20 Nm +90°

4 - Fuel line

- ❑ To engine
- ❑ Do not kink
- ❑ Clipped onto fuel tank
- ❑ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

5 - Breather line

- ❑ To activated charcoal filter solenoid valve 1 - N80-
- ❑ Do not kink
- ❑ Clipped onto fuel tank
- ❑ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

6 - Bolt

- ❑ To secure fuel filler neck
- ❑ To eliminate electrostatic charge ⇒ [page 22](#)
- ❑ Renew after removing
- ❑ 8 Nm +90°

7 - Earth connection

- ❑ For fuel filler neck
- ❑ To eliminate electrostatic charge ⇒ [page 22](#)

8 - Filler cap

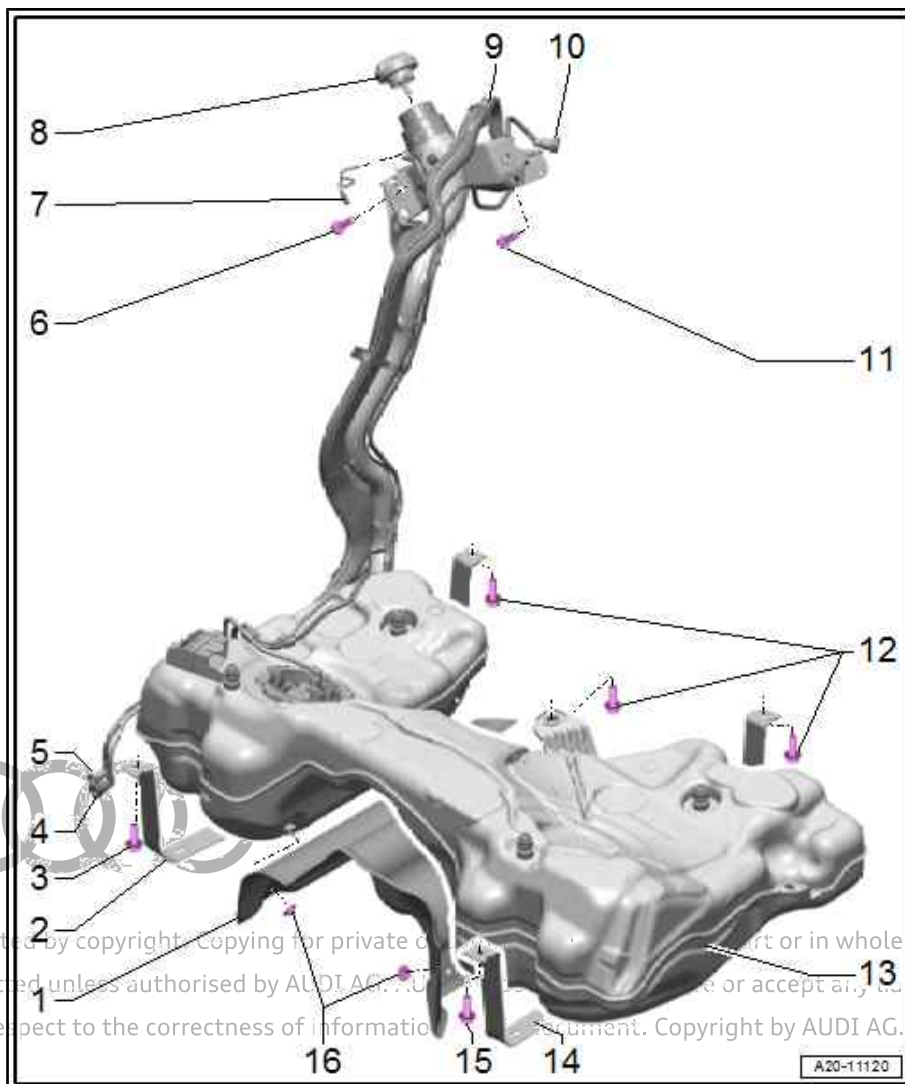
- ❑ Screw down until it engages audibly
- ❑ Secured to tank flap unit

9 - Breather line

- ❑ To activated charcoal filter
- ❑ Do not kink
- ❑ Clipped onto fuel tank
- ❑ Disconnecting and connecting plug-in connectors ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

10 - Breather line

- ❑ To activated charcoal filter
- ❑ Do not kink
- ❑ Disconnecting and connecting plug-in connectors ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)





11 - Bolt

- ☐ Renew after removing
- ☐ 8 Nm +90°

12 - Bolts

- ☐ Renew after removing
- ☐ 20 Nm +90°

13 - Fuel tank

- ☐ Removing and installing
⇒ ["1.3.4 Removing and installing fuel tank - vehicles with four-wheel drive", page 42](#)

14 - Securing strap (left-side)

15 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

16 - Nut

- ☐ For heat shield
- ☐ 2 Nm



1.1.8 Routing and attachment of earth connection for electrostatic discharge



WARNING

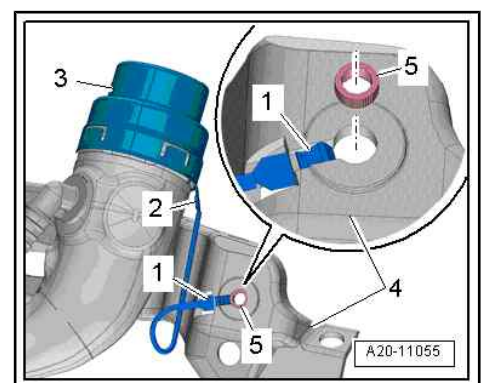
Risk of explosion caused by electrostatic discharge.

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

- Route earth connection as shown in illustration.
- Make sure that the following connectors are securely seated:

Earth connection for fuel filler neck - A3/A3 Sportback/A3 Saloon

- ◆ Connector -2- for earth connection on threaded ring -3- of fuel filler neck
- Engage contact tab -1- of earth connection in mounting hole on fuel tank -4- and press in spacer bush -5-.



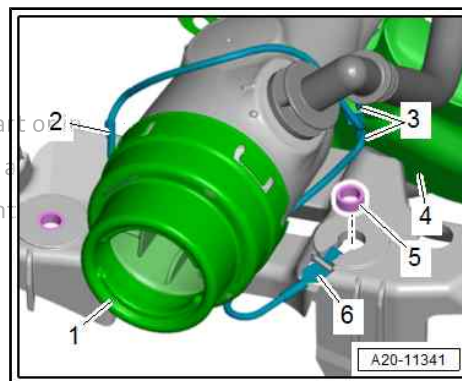


Earth connection for fuel filler neck - A3 Cabriolet

- ◆ Connector -2- for earth connection on threaded ring -1- of fuel filler neck

- ◆ Connectors -3- for earth connections on guard plate -4- of fuel filler neck

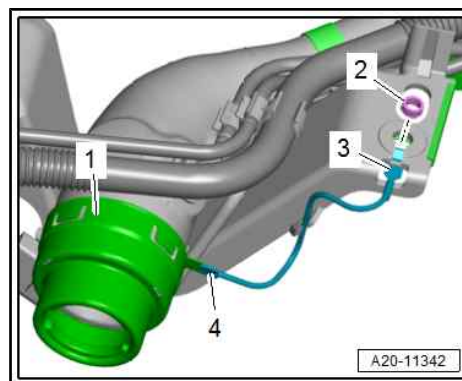
- ◆ Engage contact tab -6- of earth connection in mounting hole on fuel tank and press in spacer bush -5-.



Earth connection for fuel filler neck, country-specific version/vehicles with high-voltage system

- ◆ Connector -4- for earth connection on threaded ring -1- of fuel filler neck

- Engage contact tab -3- of earth connection in mounting hole on fuel tank and press in spacer bush -2-.



1.2 Draining fuel tank

A - Procedure if fuel tank is more than $\frac{3}{4}$ full ⇒ [page 23](#) .

B - Procedure if fuel tank is less than $\frac{3}{4}$ full ⇒ [page 25](#) .

Special tools and workshop equipment required

- ◆ Fuel extractor - VAS 5190A-



Procedure

- Observe safety precautions
⇒ [“1 Safety precautions”, page 1](#) .
- Observe rules for cleanliness
⇒ [“2.1 Rules for cleanliness”, page 4](#) .
- Move front seats all the way forwards.



- Release and open tank flap.
- Remove filler cap -2- for fuel filler neck -1-.



Note

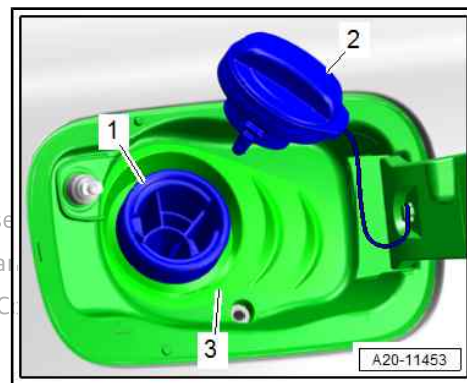
Disregard item 3.



Caution

When disconnecting the battery there is a risk of irreparable damage to electronic components.

◆ **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.

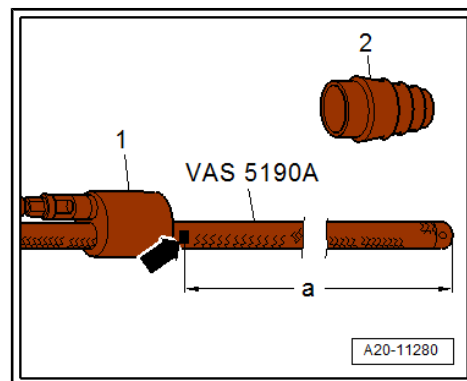
◆ **Secure earth wire of fuel extractor -VAS 5190A- to a bare metal part on the body.**

A - Procedure if fuel tank is more than $\frac{3}{4}$ full



Note

- ◆ **Shaft end -1- and tapered adapter -2- of fuel extractor -VAS 5190A- are not used.**
- ◆ **Slide shaft end -1- slightly towards rear on hoses.**
- Use insulating tape to mark the extraction hose -arrow- at a distance of -a- from the end of the hose.
- A3/A3 Sportback with front-wheel drive and torsion beam axle: -a- = 1010 mm.
- A3/A3 Sportback/A3 Saloon with front-wheel drive and multi-link suspension: -a- = 960 mm.
- Vehicles with high-voltage system: -a- = 900 mm.
- A3 Cabriolet with front-wheel drive/four-wheel drive: -a- = 765 mm.
- A3/A3 Sportback/A3 Saloon with four-wheel drive: -a- = 960 mm.





Note

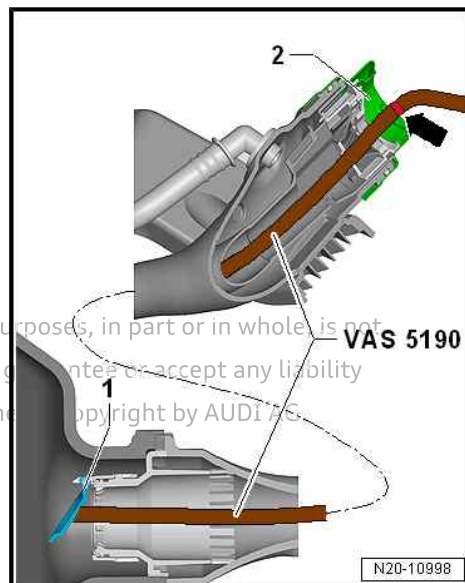
A flap -1- is located at the bottom of the filler neck -2- in the fuel tank; it must not be damaged by the extraction hose from -VAS 5190A-. Therefore, only push the hose in as far as the tape marking -arrow-.

- Push extraction hose from -VAS 5190A- into fuel tank until marking on hose -arrow- is level with edge of filler neck.
- Extract fuel from tank via fuel filler neck.
- Pull out extraction hose carefully.



Note

When no more fuel is extracted, the fuel tank has been drained enough for the flange to be opened safely.



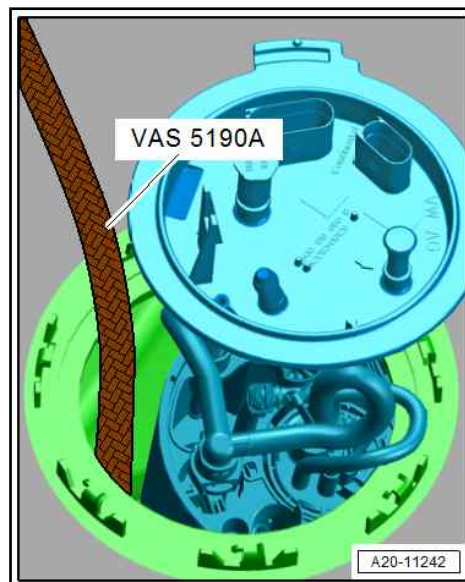
Vehicles with front-wheel drive and NAR vehicles with four-wheel drive:

- Open flange
⇒ [“2.2 Removing and installing fuel delivery unit/fuel gauge senders”, page 57](#) .
- Pull flange slightly out of opening in fuel tank.
- Detach seal from opening in fuel tank.
- Insert extraction hose of -VAS 5190A- into fuel tank between flange and fuel delivery unit.
- Using fuel extractor - VAS 5190A- , extract fuel through opening.



Note

On NAR vehicles with four-wheel drive there is no flange on the left side of the fuel tank. After extracting all the fuel in the right fuel chamber, the extraction hose of -VAS 5190A- must be inserted into the flange on the right side and as far as possible into the left fuel chamber to extract more fuel.



WARNING

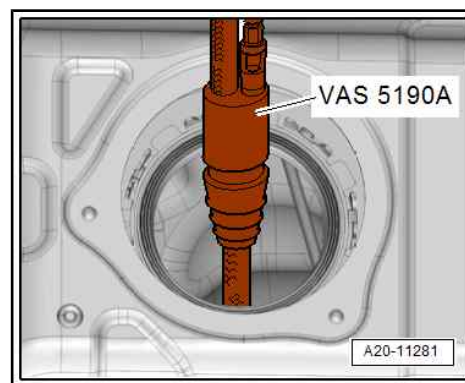
Danger! Fuel may escape.

- ◆ **Proceed particularly carefully when removing and installing the fuel tank on NAR vehicles as there may still be some fuel in the tank after fuel has been extracted.**



Vehicles with four-wheel drive (except NAR vehicles):

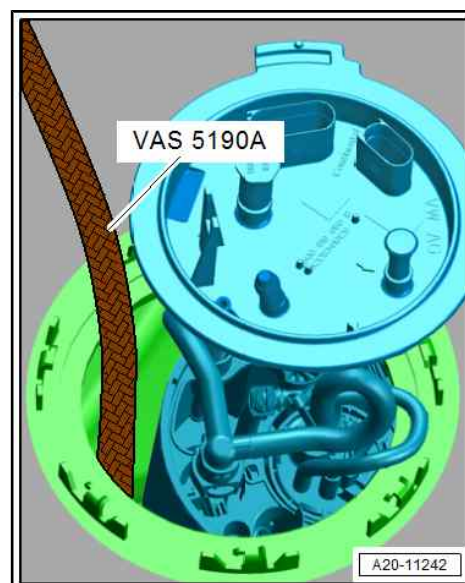
- Remove flange for fuel gauge sender 2 - G169-
⇒ [“3.4 Removing and installing fuel gauge sender 2 G169”](#),
[page 86](#) .
- Extract fuel from both fuel tank chambers through opening for
fuel gauge sender 2 - G169- using fuel extractor - VAS
5190A- .



B - Procedure if fuel tank is less than $\frac{3}{4}$ full

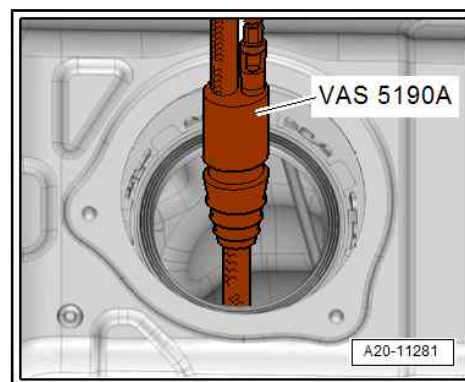
**Vehicles with front-wheel drive and NAR vehicles with four-wheel
drive:**

- Open flange
⇒ [“2.2 Removing and installing fuel delivery unit/fuel gauge
senders”](#), [page 57](#) .
- Pull flange slightly out of opening in fuel tank.
- Detach seal from opening in fuel tank.
- Insert extraction hose of -VAS 5190A- into fuel tank between
flange and fuel delivery unit.
- Using fuel extractor - VAS 5190A- , extract fuel through open-
ing.



Vehicles with four-wheel drive (except NAR vehicles):

- Remove flange for fuel gauge sender 2 - G169-
⇒ [“3.4 Removing and installing fuel gauge sender 2 G169”](#),
[page 86](#) .
- Extract fuel from both fuel tank chambers through opening for
fuel gauge sender 2 - G169- using fuel extractor - VAS
5190A- .



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1.3 Removing and installing fuel tank

⇒ [“1.3.1 Removing and installing fuel tank - vehicles with front-wheel drive and torsion beam axle”, page 26](#)

⇒ [“1.3.2 Removing and installing fuel tank - vehicles with front-wheel drive and multi-link suspension”, page 30](#)

⇒ [“1.3.3 Removing and installing fuel tank - vehicles with high-voltage system”, page 36](#)

⇒ [“1.3.4 Removing and installing fuel tank - vehicles with four-wheel drive”, page 42](#)

1.3.1 Removing and installing fuel tank - vehicles with front-wheel drive and torsion beam axle

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



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- ◆ Engine and gearbox jack - VAS 6931-



Removing

- Observe safety precautions
⇒ [“1 Safety precautions”, page 1](#) .
- Observe rules for cleanliness
⇒ [“2.1 Rules for cleanliness”, page 4](#) .
- Move front seats all the way forwards.



Caution

When disconnecting the battery there is a risk of irreparable damage to electronic components.

- ◆ *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 .

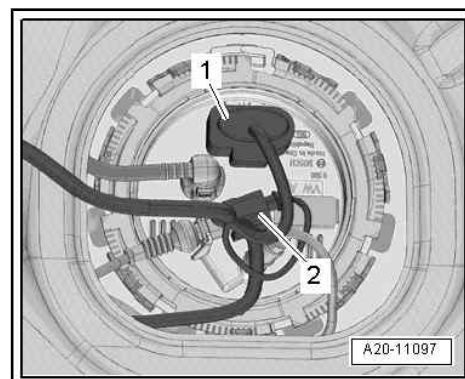
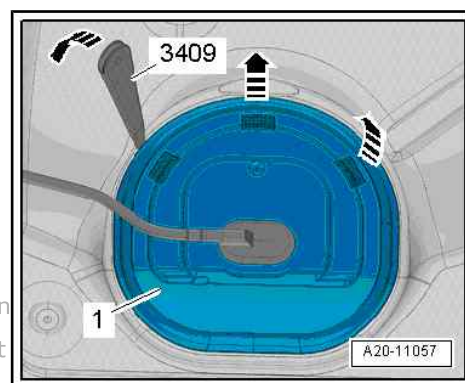


WARNING

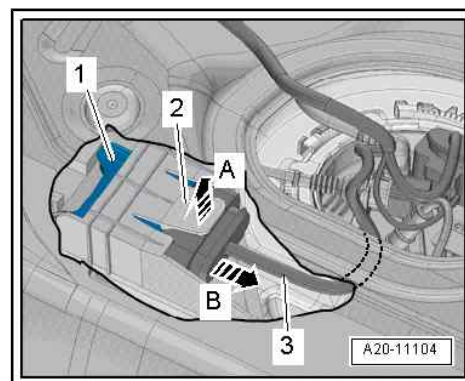
Risk of accident caused by weight of fuel tank

♦ *Fuel tank must be empty when it is removed.*

- Drain fuel tank ⇒ [“1.2 Draining fuel tank”, page 22](#) .
- Unclip cover -1- for fuel tank flange at retainers -arrows- using removal wedge - 3409- .



- Release retainer catch and unplug electrical connector -1- on flange.
- Vehicles with auxiliary heater: Release retainer catch and unplug electrical connector -2- for metering pump for auxiliary heater.



- Press tab -2- upwards -arrow A-; to do so, reach between floor panel and fuel tank with your finger.
- At the same time, carefully pull fuel pump control unit - J538- -item 1- out of mounting -arrow B-.
- Guide fuel pump control unit - J538- out towards interior between fuel tank and floor panel.



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- 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-.



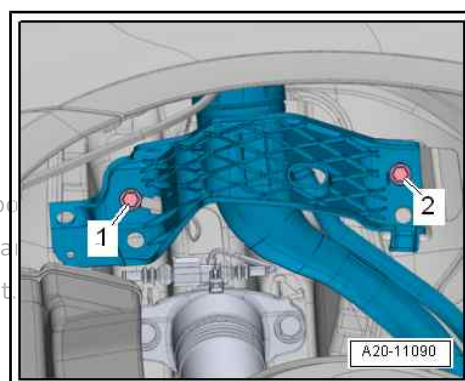
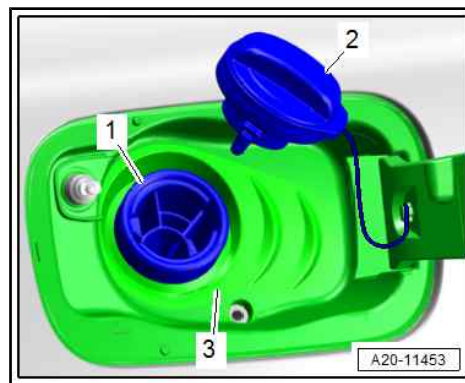
Note

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

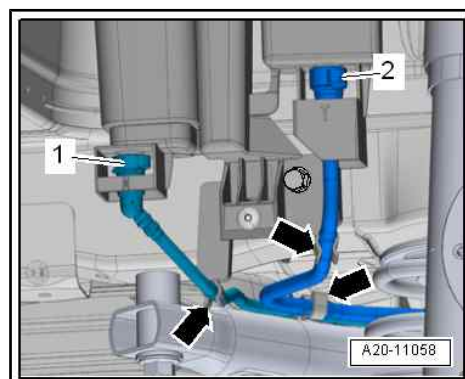
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Remove bolts -1 and 2- for fuel filler neck.



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- Disconnect breather lines -1 and 2- at activated charcoal filter. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Unclip breather lines from bracket -arrows-.
- If fitted, remove underbody trim (rear left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Remove rear section of exhaust system ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing silencers .

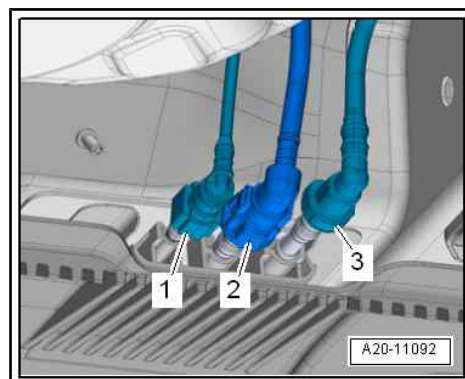


WARNING

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

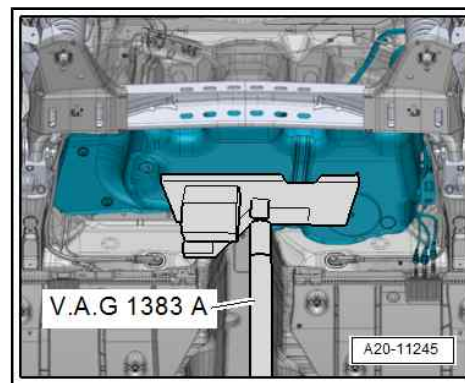
- ◆ ***To reduce the pressure in the fuel system, wrap a clean cloth around the connection and loosen the connection carefully.***

- Disconnect breather line -3- and fuel line -2-. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Vehicles with auxiliary heater: Disconnect fuel line -1- to auxiliary heater. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)





- Position engine and gearbox jack under vehicle to support tank, as shown in illustration.



WARNING

Risk of accident caused by weight of fuel tank

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

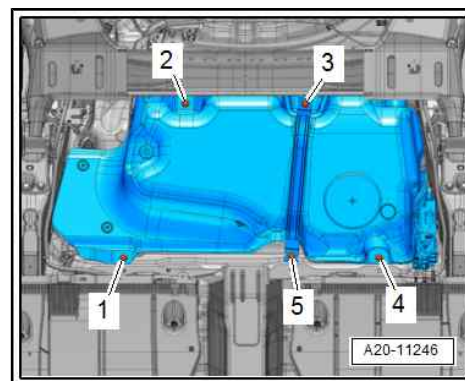
- Remove bolts -1 ... 5-.



Note

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

- Remove fuel tank downwards (turning it sideways as required).
- In addition, a second mechanic will be required to guide fuel filler neck out past trailing arm by hand.



Installing



Note

- ◆ *Press fuel lines in again and then pull to check that plug-in connectors are correctly engaged.*
- ◆ *Make sure electrical connectors are attached properly; pull to check that they are correctly engaged.*

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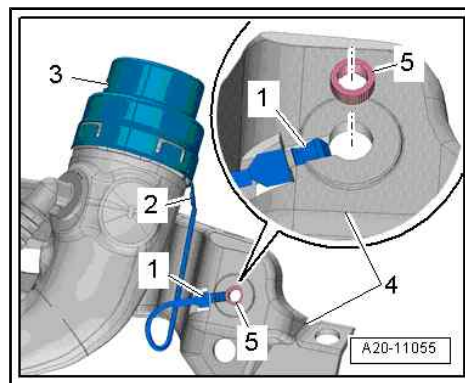
- Check earth wire for traces of oxidation at connectors; remove any oxidation if necessary.
- Make sure that the following connectors are securely seated:
 - Connector -2- must be seated securely on metal ring -3-.
 - Contact tab -1- must be attached to fuel tank -4- and secured with spacer bush -5-.



WARNING

Risk of explosion caused by electrostatic discharge.

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



- Check that fuel line and breather line are clipped onto fuel tank.
- Position fuel tank with securing straps on underside of vehicle using engine and gearbox jack .
- When installing fuel tank, make sure that fuel filler neck is correctly inserted into opening on body.

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

- 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, A3/A3 Sportback/A3 Saloon with front-wheel drive and torsion beam axle", page 7](#)
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)

1.3.2 Removing and installing fuel tank - vehicles with front-wheel drive and multi-link suspension

Special tools and workshop equipment required



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◆ Removal wedge - 3409-



◆ Engine and gearbox jack - VAS 6931-

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Removing

- Observe safety precautions
⇒ [“1 Safety precautions”, page 1](#) .
- Observe rules for cleanliness
⇒ [“2.1 Rules for cleanliness”, page 4](#) .
- Move front seats all the way forwards.



Caution

When disconnecting the battery there is a risk of irreparable damage to electronic components.

- ◆ *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 .



WARNING

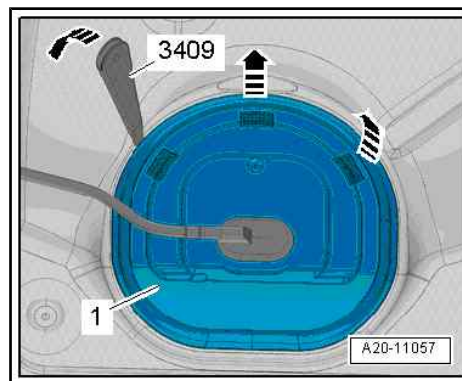
Risk of accident caused by weight of fuel tank

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

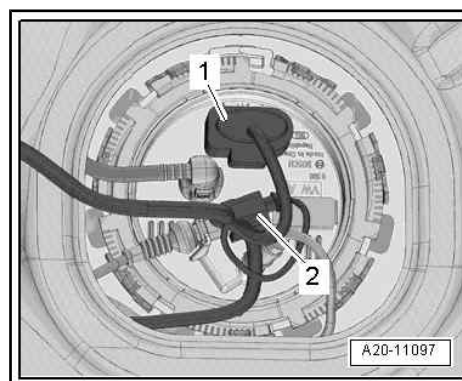
- Drain fuel tank ⇒ [“1.2 Draining fuel tank”, page 22](#) .



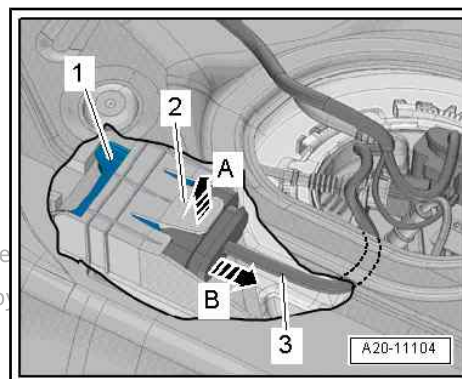
- Unclip cover -1- for fuel tank flange at retainers -arrows- using removal wedge - 3409- .



- Release retainer catch and unplug electrical connector -1- on flange.
- Vehicles with auxiliary heater: Release retainer catch and unplug electrical connector -2- for metering pump for auxiliary heater.



- Press tab -2- upwards -arrow A-; to do so, reach between floor panel and fuel tank with your finger.
- At the same time, carefully pull fuel pump control unit - J538- item 1- out of mounting -arrow B-.
- Guide fuel pump control unit - J538- out towards interior between fuel tank and floor panel.



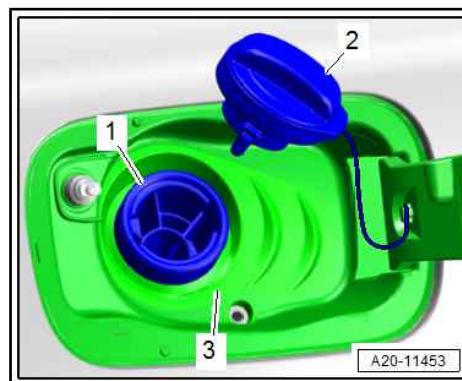
- Open tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -2- for fuel filler neck.
- Disengage rubber sleeve -3- from fuel filler neck -1-.



Note

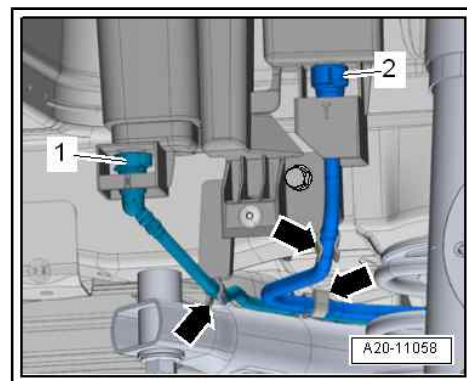
Seal off opening of fuel filler neck with a clean plug to prevent dirt from entering.

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

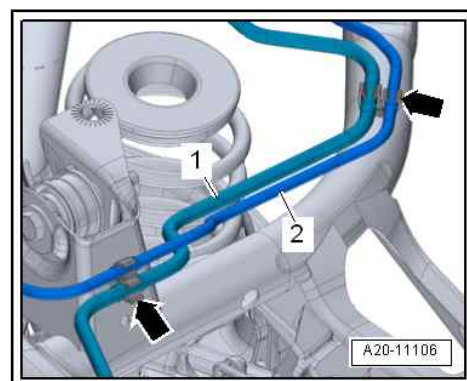




- Disconnect breather lines -1 and 2- at activated charcoal filter.
 Disconnecting plug-in connectors
 ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Unclip breather lines from bracket -arrows-.



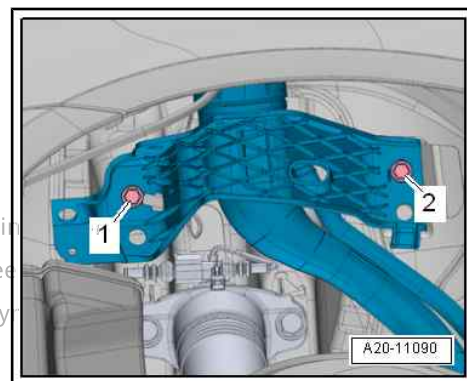
- Unclip breather lines -1 and 2- -arrows-.



- Remove bolts -1 and 2- for fuel filler neck.

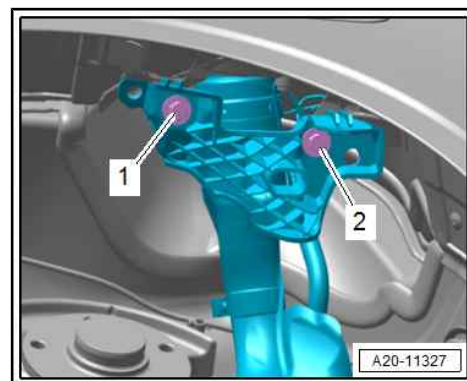


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A3 Cabriolet:

- Remove bolts -1 and 2- for fuel filler neck.
- Remove diagonal struts ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .





NAR vehicles:

- Disconnect breather lines -1- at activated charcoal filter. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Release retainer catch and unplug electrical connector -2-.
- Remove bolts -3- for fuel filler neck.

All vehicles (continued):

- Remove rear section of exhaust system ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing silencers .

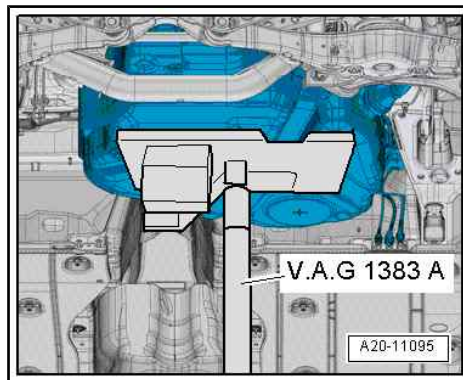
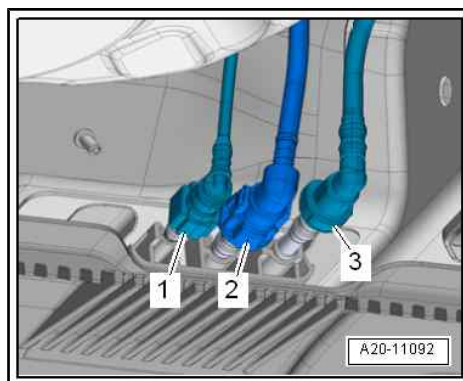
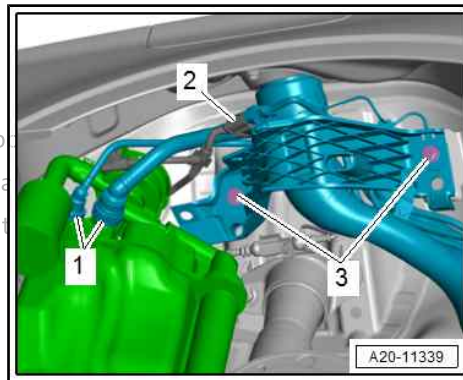


WARNING

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 breather line -3- and fuel line -2-. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Vehicles with auxiliary heater: Disconnect fuel line -1- to auxiliary heater. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Position engine and gearbox jack under vehicle to support tank, as shown in illustration.





WARNING

Risk of accident caused by weight of fuel tank

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

- Remove bolts -1 ... 4-.



Note

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

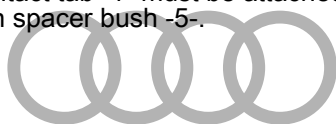
- Remove fuel tank downwards (turning it sideways as required).
- In addition, a second mechanic will be required to guide fuel filler neck out past trailing arm by hand.

Installing



Note

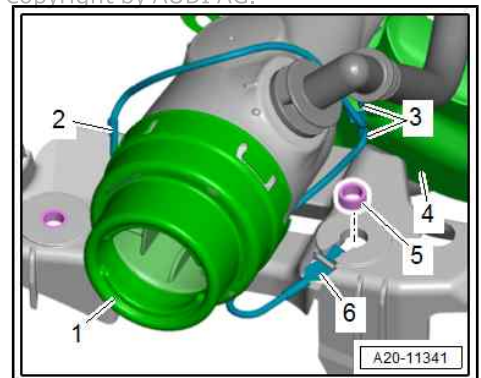
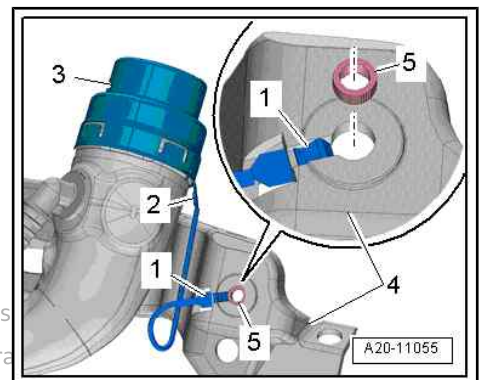
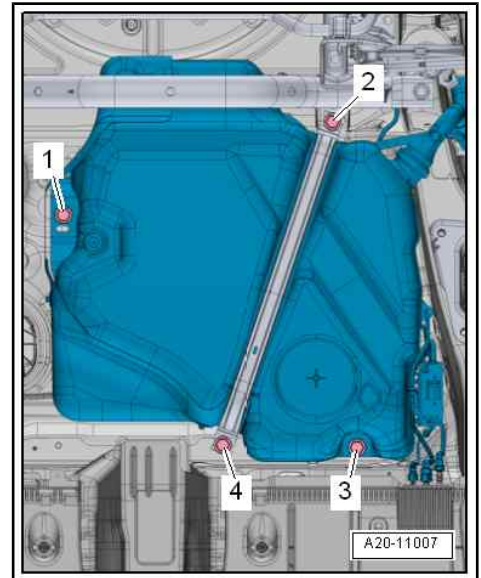
- ◆ *Press fuel lines in again and then pull to check that plug-in connectors are correctly engaged.*
- ◆ *Make sure electrical connectors are attached properly; pull to check that they are correctly engaged.*
- Check earth wire for traces of oxidation at connectors; remove any oxidation if necessary.
- Check that the following connectors are securely seated:
 - Connector -2- must be seated securely on metal ring -3-.
 - Contact tab -1- must be attached to fuel tank -4- and secured with spacer bush -5-.



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A3 Cabriolet:

- Connector -2- must be seated securely on metal ring -1-.
- Connectors -3- must be seated securely on guard plate -4-.
- Contact tab -6- must be attached to fuel tank and secured with spacer bush -5-.





Country-specific version:

- Connector -4- must be seated securely on metal ring -1-.
- Contact tab -3- must be attached to fuel tank and secured with spacer bush -2-.

All vehicles (continued):

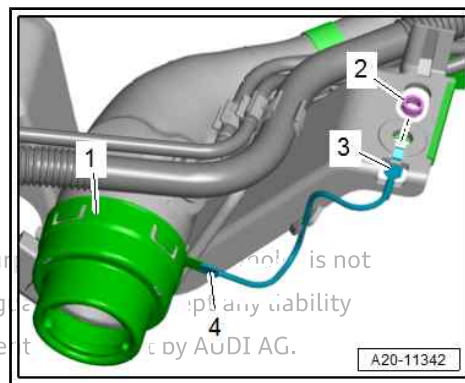


WARNING

Risk of explosion caused by electrostatic discharge.

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

- ***Specification: approx. 0 Ω***



- Check that fuel line and breather line are clipped onto fuel tank.
- Position fuel tank with securing straps on underside of vehicle using engine and gearbox jack .
- When installing fuel tank, make sure that fuel filler neck is correctly inserted into opening on body.

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

- 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 Exploded view - fuel tank”, page 7](#)
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ Diagonal struts ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)

1.3.3 Removing and installing fuel tank - vehicles with high-voltage system

Special tools and workshop equipment required

- ◆ Engine and gearbox jack - VAS 6931-





Removing

- Observe safety precautions
⇒ [“1 Safety precautions”, page 1](#) .
- Observe rules for cleanliness
⇒ [“2.1 Rules for cleanliness”, page 4](#) .



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system must be de-energised by a “high-voltage technician”.*
- ◆ *Work on the de-energised high-voltage system may only be performed by an “electrically instructed person”.*

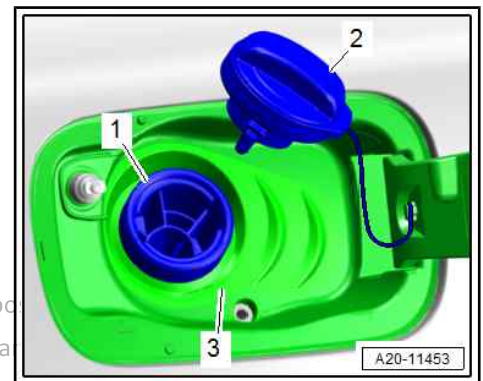
- Move front seats all the way forwards.
- Release and open tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -2- for fuel filler neck.
- Disengage rubber sleeve -3- from fuel filler neck -1-.



Note

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

- Remove rear shelf ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing rear shelf .
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing luggage compartment floor .
- Fold down rear seat backrests.



Caution

When disconnecting the battery there is a risk of irreparable damage to electronic components.

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

- Remove battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove subwoofer ⇒ Communication; Rep. gr. 91 ; Sound system; Removing and installing subwoofer - R211- .



WARNING

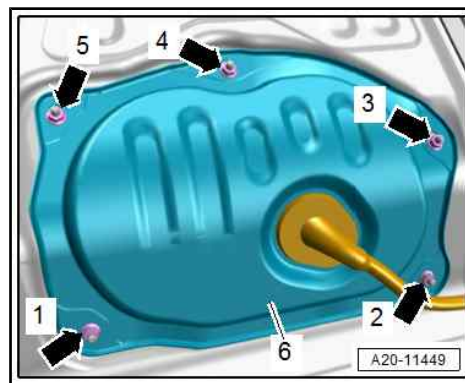
Risk of accident caused by weight of fuel tank

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

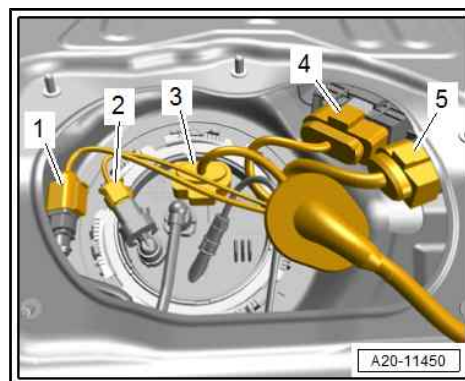
- Drain fuel tank ⇒ [“1.2 Draining fuel tank”, page 22](#) .



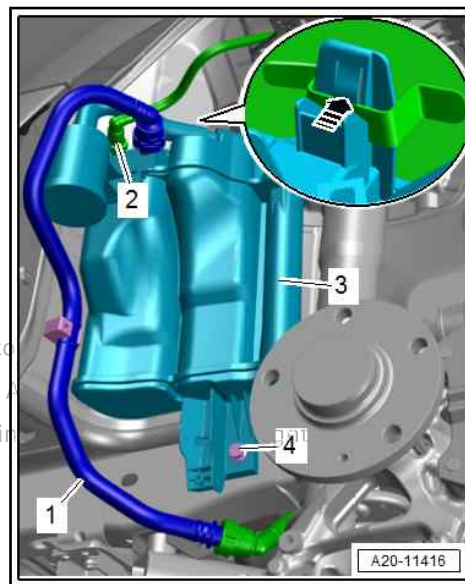
- Remove nuts -arrows 1 ... 5- and detach flange cover -6-.



- Release retainer catches and unplug electrical connectors -1 ... 5-.



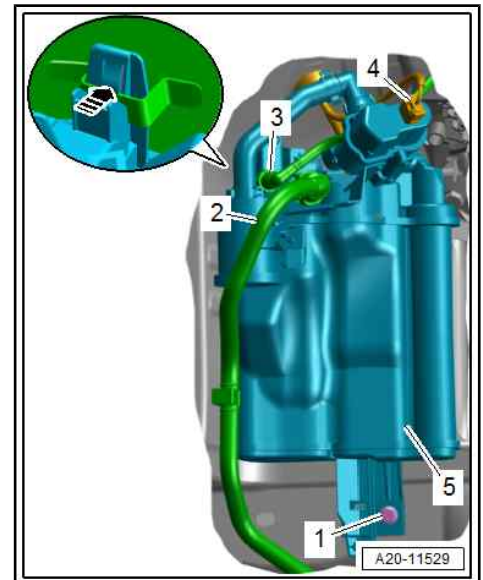
- Remove rear wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Remove breather line -1-. Disconnecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Disconnect breather line -2- at activated charcoal filter. Disconnecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Remove bolt -4-.
- Press in retaining hook -arrow- with a screwdriver and pull activated charcoal filter -3- downwards out of retainer.





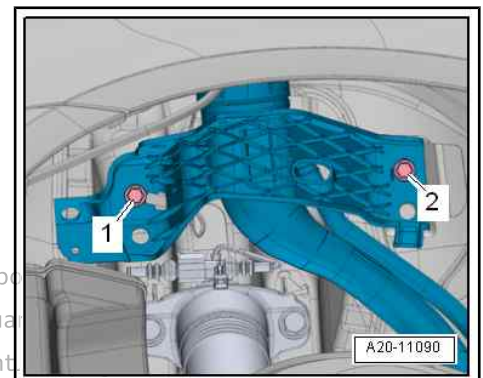
NAR vehicles:

- Remove breather line -2-. Disconnecting plug-in connectors
 ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Disconnect breather line -3- at activated charcoal filter. Disconnecting plug-in connectors
 ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Release retainer catch and unplug electrical connector -4-.
- Remove bolt -1-.
- Press in retaining hook -arrow- with a screwdriver and pull activated charcoal filter -5- downwards out of retainer.



All vehicles (continued):

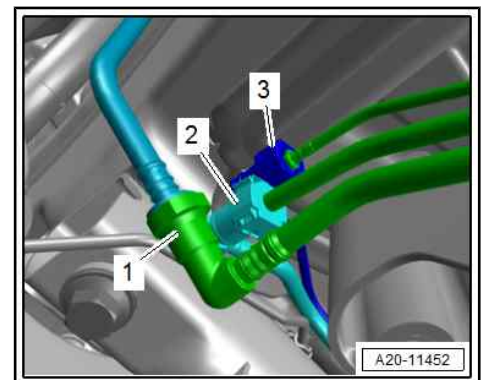
- Remove bolts -1 and 2- for fuel filler neck.
- Remove rear section of exhaust system ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing silencers .
- Remove heat shield for rear silencer ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Removing and installing heat shield for floor .
- Remove underbody trim panels (rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Disconnect breather line -1-. Disconnecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)



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 -2-. Disconnecting plug-in connectors
 ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Vehicles with auxiliary heater: Disconnect fuel line -3- to auxiliary heater. Disconnecting plug-in connectors
 ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

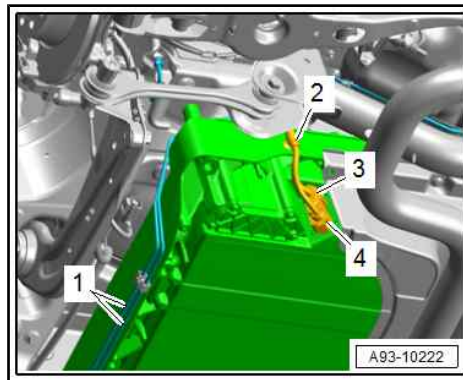


- Unplug electrical connectors -3, 4- and move clear.
- Move wiring harness -2- clear.



Note

Disregard -item 1-.

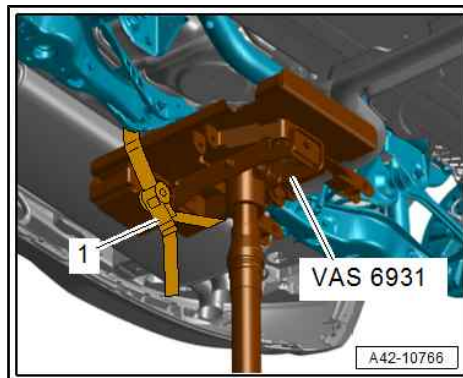


- Position engine and gearbox jack - VAS 6931- under subframe and secure with tensioning strap -1-.



Note

The fuel tank is removed together with the subframe and attachments.



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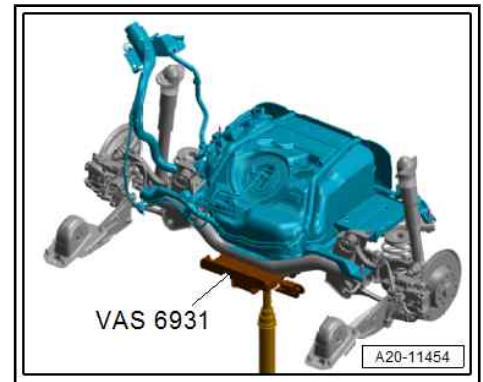


- Remove subframe together with fuel tank ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .
- Lower subframe with fuel tank carefully by max. 30 mm.
- Unclip brake lines from subframe.
- Vehicles with auxiliary heater: Release retainer catch and unplug electrical connector for metering pump for auxiliary heater.



Note

When lowering, make sure there is sufficient clearance for brake lines and electrical wiring.



WARNING

Risk of accident caused by weight of fuel tank

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

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- Carefully lower subframe with fuel tank; to do so, guide brake lines out from under fuel tank.
- In addition, have a second mechanic guide fuel filler neck out by hand.

Installing



Note

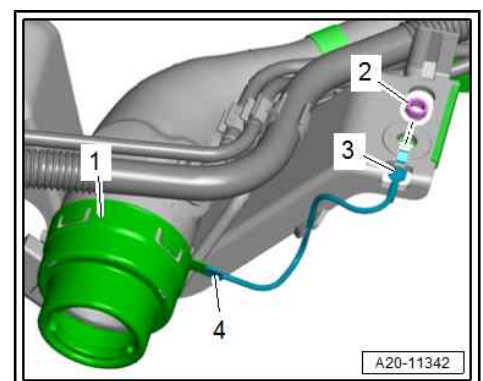
- ◆ *Press fuel lines in again and then pull to check that plug-in connectors are correctly engaged.*
- ◆ *Make sure electrical connectors are attached properly; pull to check that they are correctly engaged.*
- Check earth wire for traces of oxidation at connectors; remove any oxidation if necessary.
- Check that the following connectors are securely seated:
 - Connector -4- must be seated securely on metal ring -1-.
 - Contact tab -3- must be attached to fuel tank and secured with spacer bush -2-.



WARNING

Risk of explosion caused by electrostatic discharge.

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



- Check that fuel line and breather line are clipped onto fuel tank.



- Position subframe with fuel tank on engine and gearbox jack - VAS 6931- .
- Lift subframe with fuel tank so it is close to installation position on underbody.



Note

Make sure there is sufficient clearance for brake lines and electrical wiring.

- When lifting subframe with fuel tank, guide brake lines under fuel tank.
- In addition, make sure that fuel filler neck is correctly inserted into opening on body.
- Install subframe with fuel tank ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .

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

- Install heat shield for rear silencer ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Removing and installing heat shield for floor .
- Install luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing luggage compartment floor .
- Install rear shelf ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing rear shelf .

Tightening torques

- ♦ ⇒ [“1.1.5 Exploded view - fuel tank, vehicles with high-voltage system”, page 16](#)
- ♦ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ♦ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim
- ♦ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)
- ♦ ⇒ Communication; Rep. gr. 91 ; Sound system; Overview of fitting locations - sound system
- ♦ ⇒ Electrical system; Rep. gr. 27 ; Battery; Exploded view - battery

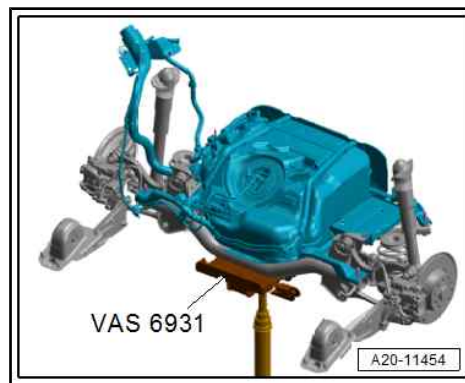
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1.3.4 Removing and installing fuel tank - vehicles with four-wheel drive



Note

On NAR vehicles with four-wheel drive there is no flange on the left side of the fuel tank. After extracting all the fuel in the right fuel chamber, the extraction hose of -VAS 5190A- must be inserted into the flange on the right side and as far as possible into the left fuel chamber to extract more fuel.





WARNING

Danger! Fuel may escape.

- ◆ ***Proceed particularly carefully when removing and installing the fuel tank on NAR vehicles as there may still be some fuel in the tank after fuel has been extracted.***

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



3409



W00-11118

- ◆ Engine and gearbox jack - VAS 6931-

VAS 6931



W00-11607

Removing

- Observe safety precautions
⇒ [“1 Safety precautions”, page 1](#) .
- Observe rules for cleanliness
⇒ [“2.1 Rules for cleanliness”, page 4](#) .
- Move front seats all the way forwards.



Caution

When disconnecting the battery there is a risk of irreparable damage to electronic components.

- ◆ ***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 .

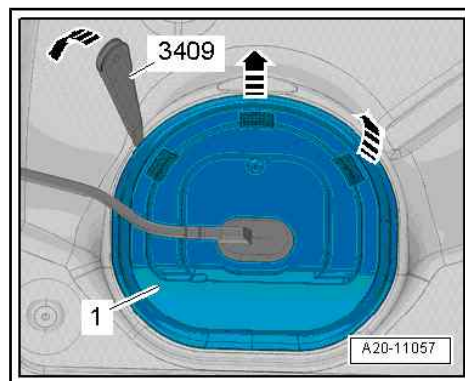


WARNING

Risk of accident caused by weight of fuel tank

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

- Drain fuel tank ➔ [page 22](#) .
- Unclip cover -1- for flange (right-side) at retainers -arrows- using removal wedge - 3409- .



Version 1:

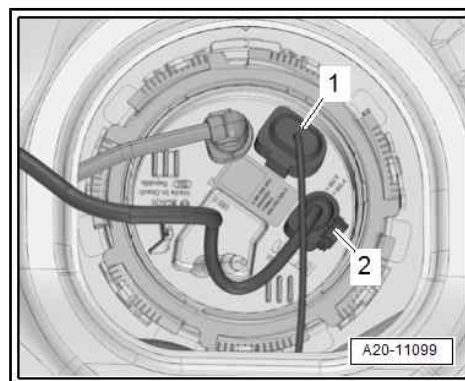
- Release retainer catch and unplug electrical connector -2- on flange.



Note

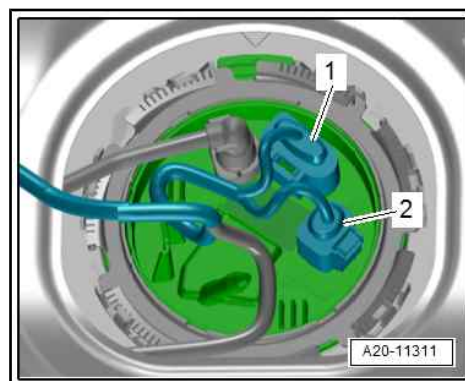
Disregard -item 1-.

- Vehicles with auxiliary heater: Release retainer catch and unplug electrical connector for metering pump for auxiliary heater.

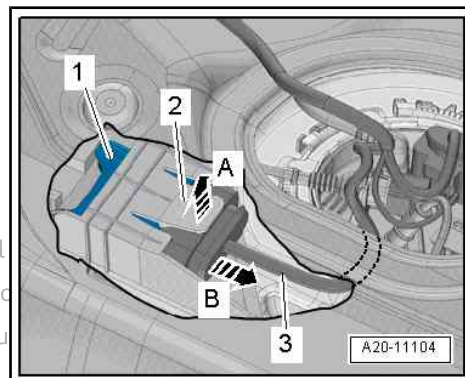


Version 2:

- Release retainer catches and unplug electrical connectors -1 and 2- on flange.
- Vehicles with auxiliary heater: Release retainer catch and unplug electrical connector for metering pump for auxiliary heater.



- Press tab -2- upwards -arrow A-; to do so, reach between floor panel and fuel tank with your finger.
- At the same time, carefully pull fuel pump control unit - J538- -item 1- out of mounting -arrow B-.



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Version 3:

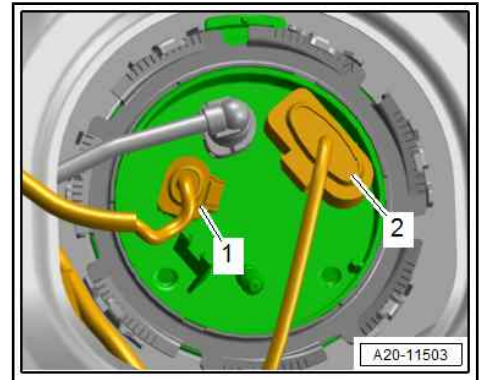
- Release retainer catch and unplug electrical connector -1- on flange.



Note

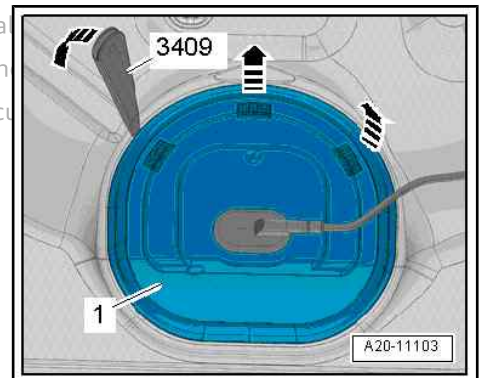
Disregard -item 2-.

- Vehicles with auxiliary heater: Release retainer catch and unplug electrical connector for metering pump for auxiliary heater.

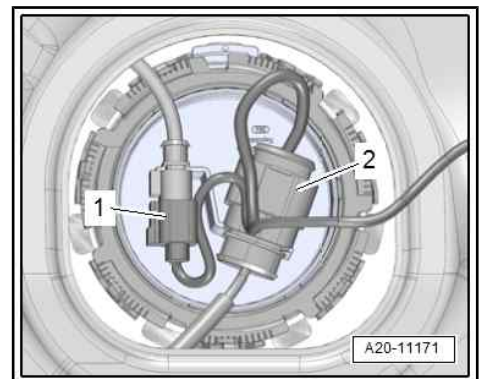


All vehicles (continued):

- Unclip cover -1- for flange (left-side) at retainers -arrows- using removal wedge - 3409- .



- Release retainer catch and unplug electrical connector -1- for Haldex coupling.
- Release retainer catch and unplug electrical connector -2- on flange (depending on version).



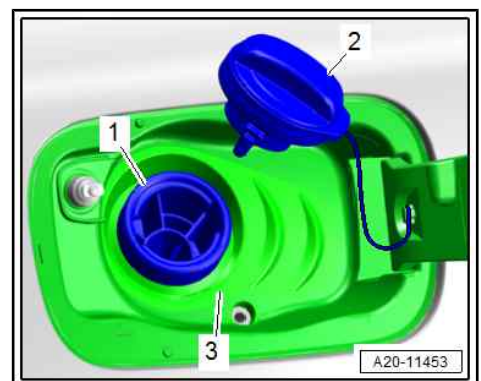
- Open tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -2- for fuel filler neck.
- Disengage rubber sleeve -3- from fuel filler neck -1-.



Note

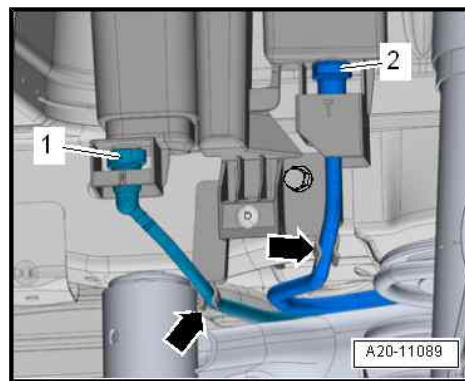
Seal off opening of fuel filler neck with a clean plug to prevent dirt from entering.

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

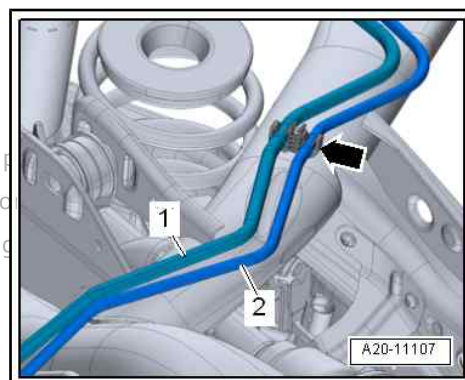




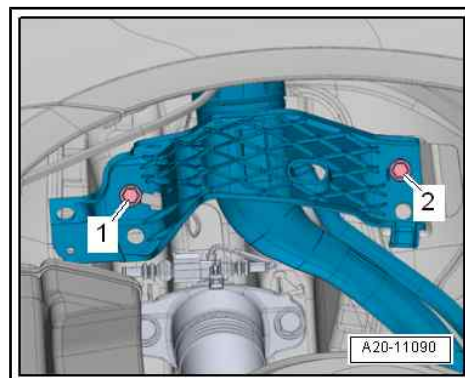
- Disconnect breather lines -1 and 2- at activated charcoal filter.
Disconnecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)
- Unclip breather lines from bracket -arrows-.



- Unclip breather lines -1 and 2- from bracket -arrow- at sub-frame.

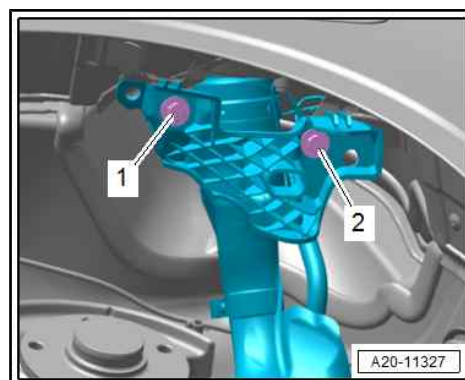


- Remove bolts -1 and 2- for fuel filler neck.



A3 Cabriolet:

- Remove bolts -1 and 2- for fuel filler neck.
- Remove diagonal struts ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .



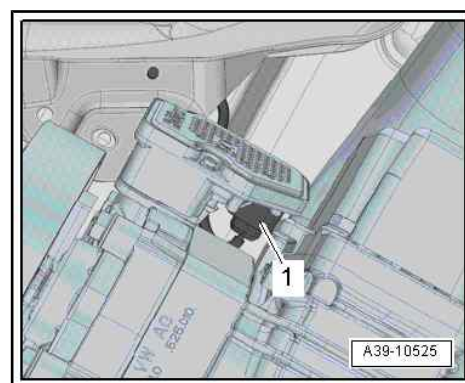
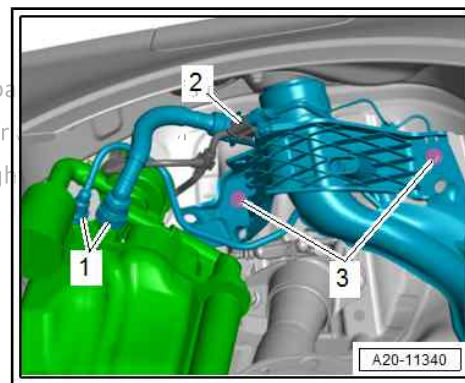


NAR vehicles:

- Disconnect breather lines -1- at activated charcoal filter. Disconnecting plug-in connectors
 ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)
- Release retainer catch and unplug electrical connector -2-.
- Remove bolts -3- for fuel filler neck.

All vehicles (continued):

- Remove rear section of exhaust system ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing silencers .
- Remove propshaft ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .
- Release retainer catch and unplug electrical connector -1- for Haldex coupling.



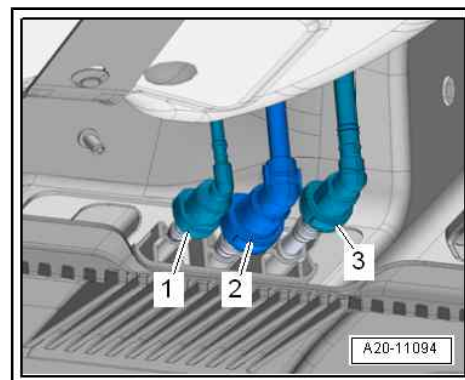
- Disconnect breather line -3- and fuel line -2-. Disconnecting plug-in connectors
 ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)



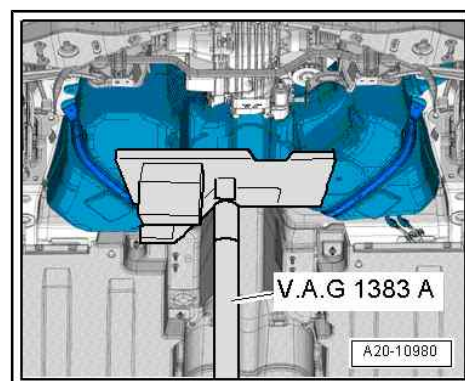
WARNING

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. Disconnecting plug-in connectors
 ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)
- Position engine and gearbox jack under vehicle to support tank, as shown in illustration.
- In addition, a second mechanic will be required to support the fuel tank at the rear by hand.





WARNING

Risk of accident caused by weight of fuel tank

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

- Remove bolts -1 ... 5-.



Note

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

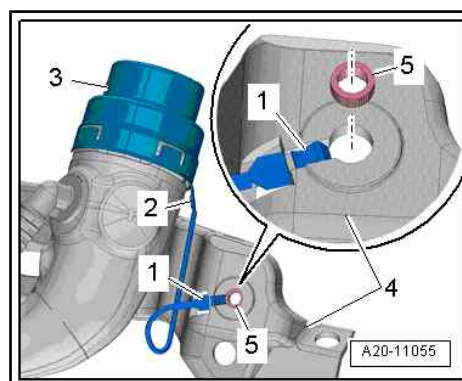
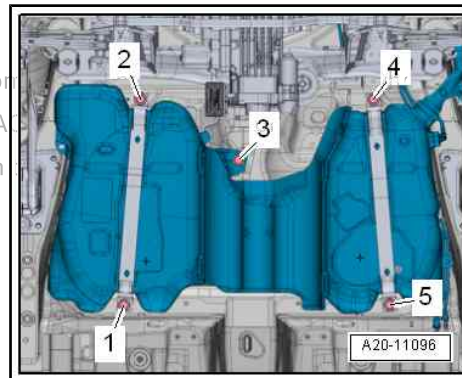
- Lower fuel tank with engine and gearbox jack .
- Remove fuel tank downwards (turning it sideways as required).
- In addition, a second mechanic will be required to guide fuel filler neck out past trailing arm by hand.

Installing



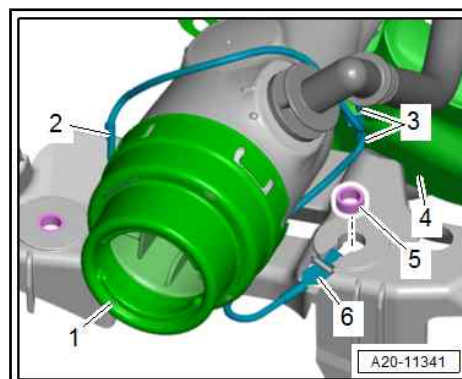
Note

- ◆ *Press fuel lines in again and then pull to check that plug-in connectors are correctly engaged.*
- ◆ *Make sure electrical connectors are attached properly; pull to check that they are correctly engaged.*
- Check earth wire for traces of oxidation at connectors; remove any oxidation if necessary.
- Check that the following connectors are securely seated:
 - Connector -2- must be seated securely on metal ring -3-.
 - Contact tab -1- must be attached to fuel tank -4- and secured with spacer bush -5-.



A3 Cabriolet:

- Connector -2- must be seated securely on metal ring -1-.
- Connectors -3- must be seated securely on guard plate -4-.
- Contact tab -6- must be attached to fuel tank and secured with spacer bush -5-.





Country-specific version:

- Connector -4- must be seated securely on metal ring -1-.
- Contact tab -3- must be attached to fuel tank and secured with spacer bush -2-.

All vehicles (continued):

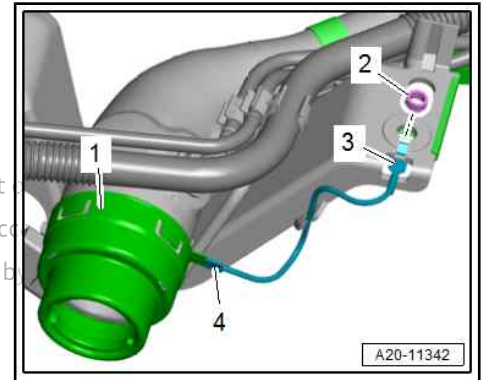


WARNING

Risk of explosion caused by electrostatic discharge.

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

- ***Specification: approx. 0 Ω***



- Check that fuel line and breather line are clipped onto fuel tank.
- Position fuel tank with securing straps on underside of vehicle using engine and gearbox jack .
- When installing fuel tank, make sure that fuel filler neck is correctly inserted into opening on body.

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

- Install propshaft ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .
- 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 Exploded view - fuel tank”, page 7**
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ Diagonal struts ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



2 Fuel delivery unit/fuel gauge senders

⇒ [“2.1 Exploded view - fuel delivery unit/fuel gauge senders”, page 50](#)

⇒ [“2.2 Removing and installing fuel delivery unit/fuel gauge senders”, page 57](#)

2.1 Exploded view - fuel delivery unit/fuel gauge senders

⇒ [“2.1.1 Exploded view - fuel delivery unit/fuel gauge sender, vehicles with front-wheel drive without high-voltage system”, page 50](#)

⇒ [“2.1.2 Exploded view - fuel delivery unit/fuel gauge sender, vehicles with high-voltage system”, page 52](#)

⇒ [“2.1.3 Exploded view - fuel delivery unit/fuel gauge senders, vehicles with 4-cyl. engine and four-wheel drive”, page 54](#)

⇒ [“2.1.4 Exploded view - fuel delivery unit/fuel gauge senders, vehicles with 5-cyl. engine”, page 56](#)

2.1.1 Exploded view - fuel delivery unit/fuel gauge sender, vehicles with front-wheel drive without high-voltage system

1 - Fuel delivery unit

- ☐ With fuel system pressurisation pump - G6-
- ☐ With integrated fuel filter; fuel filter cannot be renewed separately
- ☐ Checking fuel pump (electrical test) ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [“2.2.1 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with front-wheel drive without high-voltage system”, page 57](#)
- ☐ After installing fuel delivery unit, make sure that fuel tank contains at least 5 litres of fuel

2 - Seal

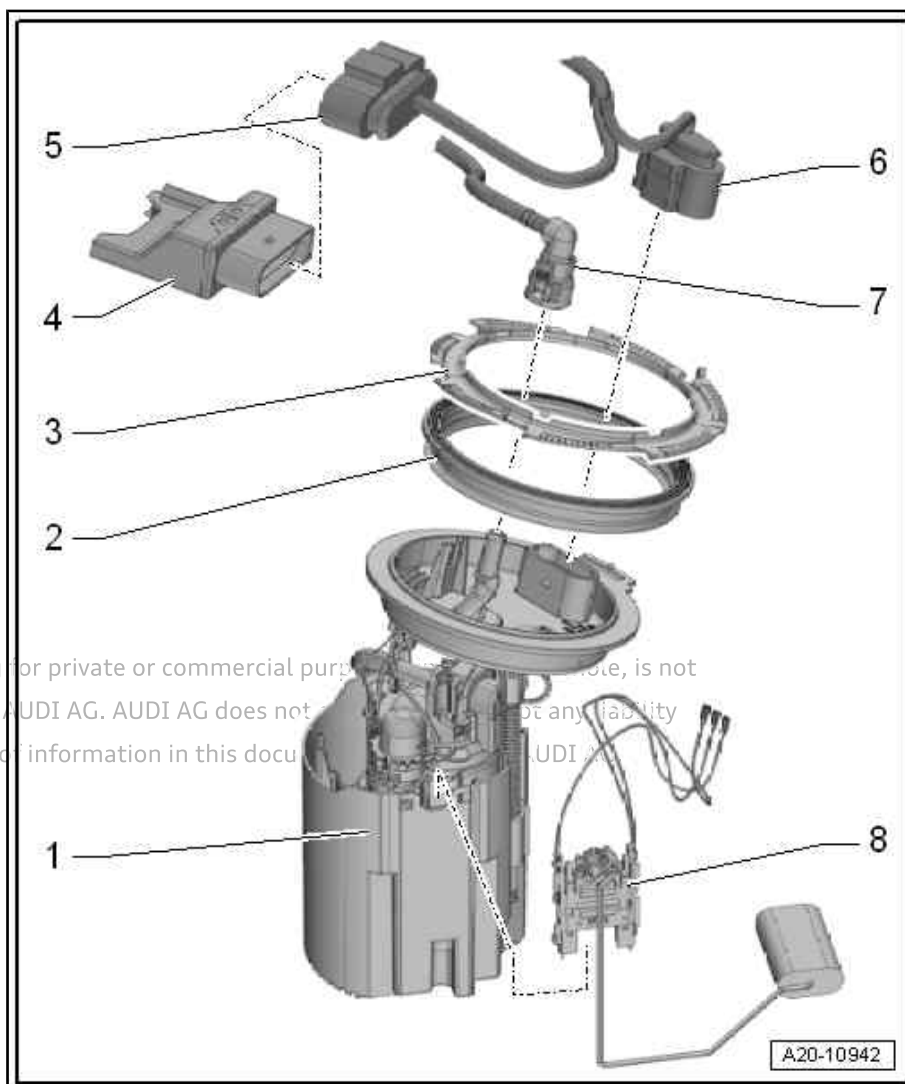
- ☐ Renew after removing
- ☐ Install dry

3 - Locking ring

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

4 - Fuel pump control unit - J538-

- ☐ Checking ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [“7.2.1 Removing and](#)





[installing fuel pump control unit J538 - vehicles without high-voltage system", page 129](#)

5 - Electrical connector

- ☐ For fuel pump control unit - J538-
- ☐ Make sure it is engaged properly; pull to check that plug-in connector is correctly engaged

6 - Electrical connector

- ☐ For fuel system pressurisation pump - G6- and fuel gauge sender - G-
- ☐ Make sure it is engaged properly; pull to check that plug-in connector is correctly engaged

7 - Fuel line

- ☐ To engine
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

8 - Fuel gauge sender - G-

- ☐ Checking resistance values
⇒ ["3.1.1 Checking fuel gauge sender G - vehicles with front-wheel drive without high-voltage system", page 74](#)
- ☐ Removing and installing ⇒ ["3.2 Removing and installing fuel gauge sender G", page 81](#)



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2.1.2 Exploded view - fuel delivery unit/fuel gauge sender, vehicles with high-voltage system

1 - Cover for flange

2 - Nut

- ☐ 5x
- ☐ Tightening torque and sequence
⇒ [Fig. "Cover - tightening torque and sequence", page 53](#)

3 - Fuel gauge sender - G-

- ☐ Checking resistance values
⇒ ["3.1.2 Checking fuel gauge sender G - vehicles with high-voltage system", page 76](#)
- ☐ Removing and installing
⇒ ["3.2 Removing and installing fuel gauge sender G", page 81](#)

4 - Fuel line

- ☐ To engine
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

5 - Tank pressure sensor - G400-

- ☐ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

6 - Fuel pump control unit - J538-

- ☐ Checking ⇒ Vehicle diagnostic tester
- ☐ Removing and installing
⇒ ["7.2.2 Removing and installing fuel pump control unit J538 - vehicles with high-voltage system", page 130](#)

7 - Electrical wiring harness

- ☐ Make sure plug is engaged properly; pull to check that plug-in connector is correctly engaged

8 - Locking ring

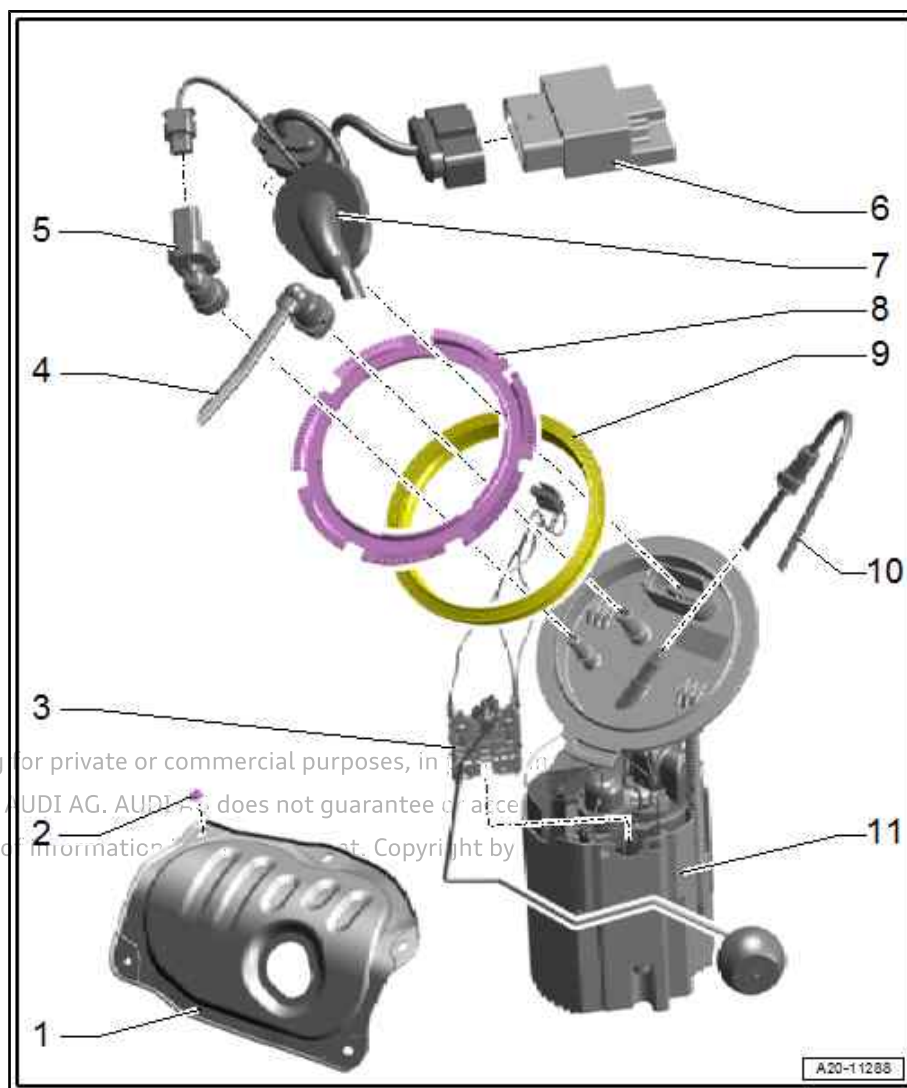
- ☐ Loosen and tighten with key - T10202-
- ☐ 110 Nm

9 - Seal

- ☐ Renew after removing
- ☐ Install dry

10 - Fuel line to metering pump for auxiliary heater

- ☐ Depending on vehicle equipment





- ❑ Removing and installing ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Fuel supply system

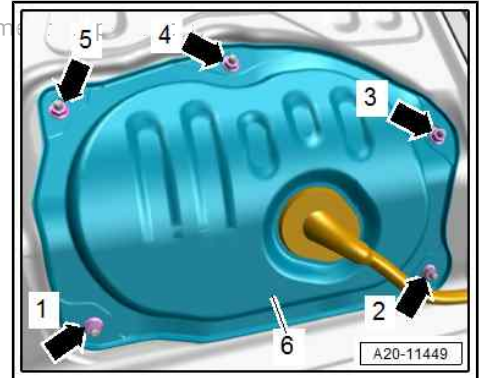
11 - Fuel delivery unit

- ❑ With fuel system pressurisation pump - G6-
- ❑ With integrated fuel filter; fuel filter cannot be renewed separately
- ❑ Checking fuel pump (electrical test) ⇒ Vehicle diagnostic tester
- ❑ Removing and installing
⇒ ["2.2.2 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with high-voltage system". page 61](#)
- ❑ After installing fuel delivery unit, make sure that fuel tank contains at least 5 litres of fuel

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Cover - tightening torque and sequence

- Tighten nuts in the sequence -arrows 1 ... 5- to 8 Nm.



2.1.3 Exploded view - fuel delivery unit/fuel gauge senders, vehicles with 4-cyl. engine and four-wheel drive

1 - Fuel gauge sender - G-

- ❑ Checking resistance values

⇒ “3.1.3 Checking fuel gauge sender G - vehicles with four-wheel drive”, page 79

- ❑ **Removing and installing**
⇒ **“3.2 Removing and installing fuel gauge sender G”**, page 81

2 - Fuel delivery unit

- ❑ With fuel system pressurisation pump - G6-
- ❑ With integrated fuel filter; fuel filter cannot be renewed separately
- ❑ Checking fuel pump (electrical test) ⇒ Vehicle diagnostic tester
- ❑ Removing and installing
⇒ "2.2.3 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with four-wheel drive", page 66
- ❑ After installing fuel delivery unit, make sure that fuel tank contains at least 5 litres of fuel

3 - Seal

- ☐ Renew after removing
- ☐ Install dry

**4 - Fuel line to metering pump
for auxiliary heater**

- ☐ NAR vehicles: without auxiliary heater
- ☐ Removing and installing ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Fuel supply system

5 - Fuel line

- ☐ To engine
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ “4.1 Disconnecting plug-in connectors”, page 91

6 - Electrical connector

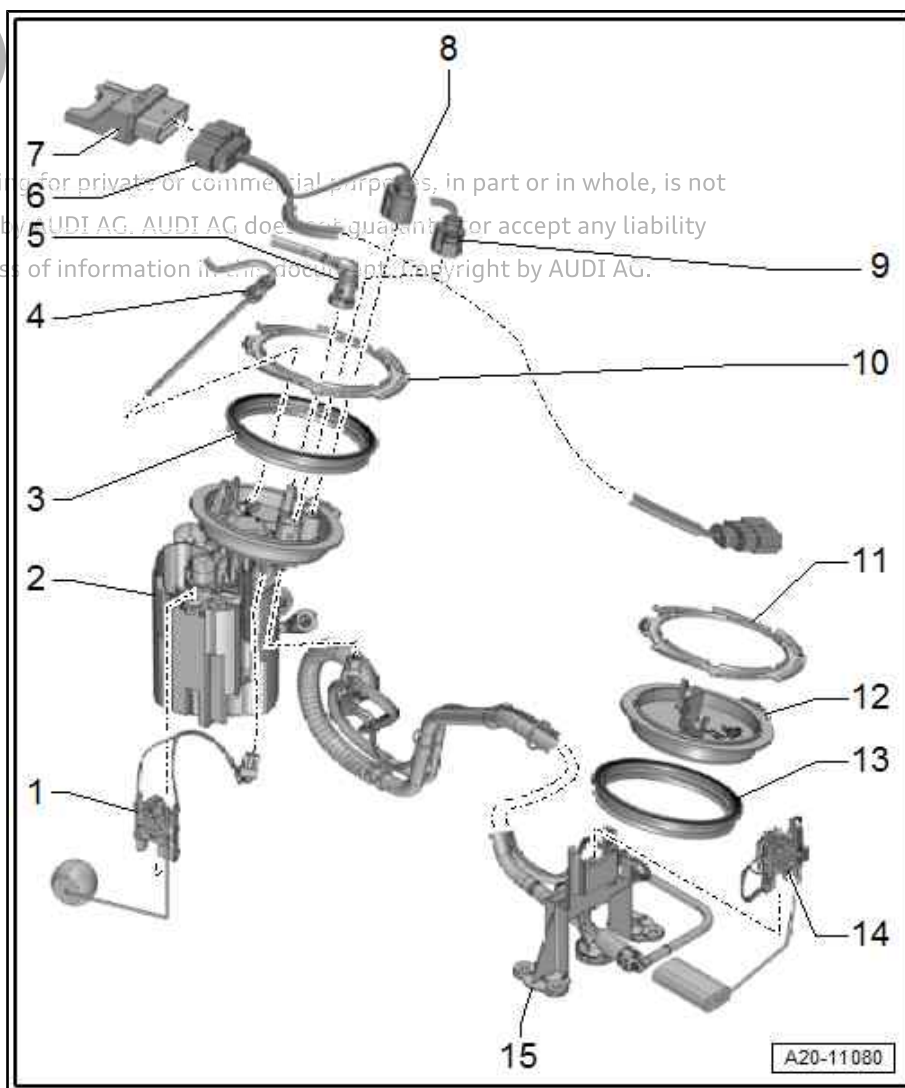
- ☐ For fuel pump control unit - J538-
- ☐ Make sure it is engaged properly; pull to check that plug-in connector is correctly engaged

7 - Fuel pump control unit - J538-

- ❑ Checking ⇒ Vehicle diagnostic tester
- ❑ Removing and installing
⇒ "7.2.1 Removing and installing fuel pump control unit J538 - vehicles without high-voltage system", page 129

8 - Electrical connector

- ☐ For fuel system pressurisation pump - G6-
- ☐ Make sure it is engaged properly; pull to check that plug-in connector is correctly engaged





9 - Electrical connector

- ☐ For fuel gauge sender - G- and fuel gauge sender 2 - G169-
- ☐ Make sure it is engaged properly; pull to check that plug-in connector is correctly engaged

10 - Locking ring

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

11 - Locking ring

- ☐ NAR vehicles: not installed
- ☐ Loosen and tighten with key - T10202-
- ☐ 110 Nm

12 - Flange

- ☐ NAR vehicles: not installed
- ☐ Removing and installing ⇒ ["3.4 Removing and installing fuel gauge sender 2 G169", page 86](#)

13 - Seal

- ☐ NAR vehicles: not installed
- ☐ Renew after removing
- ☐ Install dry

14 - Fuel gauge sender 2 - G169-

- ☐ NAR vehicles: Fuel gauge sender 2 cannot be removed (no opening on left side of fuel tank)
- ☐ Checking resistance values ⇒ ["3.3 Checking fuel gauge sender 2 G169", page 83](#)
- ☐ Removing and installing ⇒ ["3.4 Removing and installing fuel gauge sender 2 G169", page 86](#)

15 - Retainer with suction-jet pump

- ☐ Not available as replacement part
- ☐ Welded to fuel tank
- ☐ Suction-jet pump: operation ⇒ ["7.3 Removing and installing suction-jet pump", page 133](#)



2.1.4 Exploded view - fuel delivery unit/fuel gauge senders, vehicles with 5-cyl. engine

1 - Fuel delivery unit

- ☐ With fuel system pressurisation pump - G6-
- ☐ With integrated fuel filter; fuel filter cannot be renewed separately
- ☐ Checking fuel pump (electrical test) ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [“2.2.3 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with four-wheel drive”, page 66](#)
- ☐ After installing fuel delivery unit, make sure that fuel tank contains at least 5 litres of fuel

2 - Fuel gauge sender - G-

- ☐ Checking resistance values
⇒ [“3.2.3 Checking fuel gauge sender G - vehicles with four-wheel drive”, page 79](#)
- ☐ Removing and installing
⇒ [“3.2 Removing and installing fuel gauge sender G”, page 81](#)

3 - Seal

- ☐ Renew after removing
- ☐ Install dry

4 - Fuel line to metering pump for auxiliary heater

- ☐ Removing and installing ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Fuel supply system

5 - Electrical connector

- ☐ For fuel gauge sender - G- and fuel gauge sender 2 - G169-
- ☐ Make sure it is engaged properly; pull to check that plug-in connector is correctly engaged

6 - Fuel pump control unit - J538-

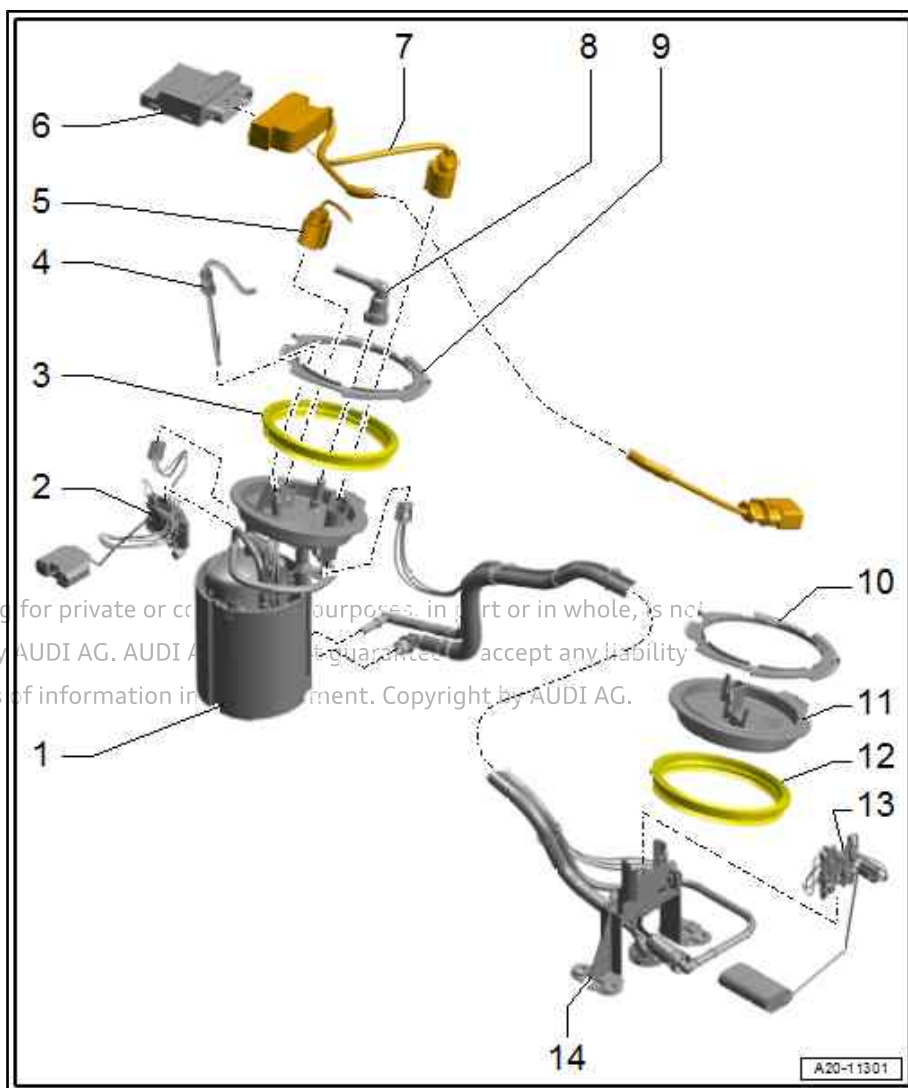
- ☐ Checking ⇒ Vehicle diagnostic tester
- ☐ Removing and installing
⇒ [“7.2.1 Removing and installing fuel pump control unit J538 - vehicles without high-voltage system”, page 129](#)

7 - Electrical wiring harness

- ☐ For fuel system pressurisation pump - G6-
- ☐ Make sure it is engaged properly; pull to check that plug-in connector is correctly engaged

8 - Fuel line

- ☐ To engine
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)





9 - Locking ring

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

10 - Locking ring

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

11 - Flange

- ☐ Removing and installing ⇒ [“3.4 Removing and installing fuel gauge sender 2 G169”, page 86](#)

12 - Seal

- ☐ Renew after removing
- ☐ Install dry

13 - Fuel gauge sender 2 - G169-

- ☐ Checking resistance values ⇒ [“3.3 Checking fuel gauge sender 2 G169”, page 83](#)
- ☐ Removing and installing ⇒ [“3.4 Removing and installing fuel gauge sender 2 G169”, page 86](#)

14 - Retainer with suction-jet pump

- ☐ Not available as replacement part
- ☐ Welded to fuel tank
- ☐ Suction-jet pump: operation ⇒ [“7.3 Removing and installing suction-jet pump”, page 133](#)

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2.2 Removing and installing fuel delivery unit/fuel gauge senders

⇒ [“2.2.1 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with front-wheel drive without high-voltage system”, page 57](#)

⇒ [“2.2.2 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with high-voltage system”, page 61](#)

⇒ [“2.2.3 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with four-wheel drive”, page 66](#)

2.2.1 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with front-wheel drive without high-voltage system

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-





◆ Key - T10202-



Removing

- Observe safety precautions
⇒ [“1 Safety precautions”, page 1](#) .
- Observe rules for cleanliness
⇒ [“2.1 Rules for cleanliness”, page 4](#) .
- Move front seats all the way forwards.



Caution

When disconnecting the battery there is a risk of irreparable damage to electronic components.

- ◆ 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 .

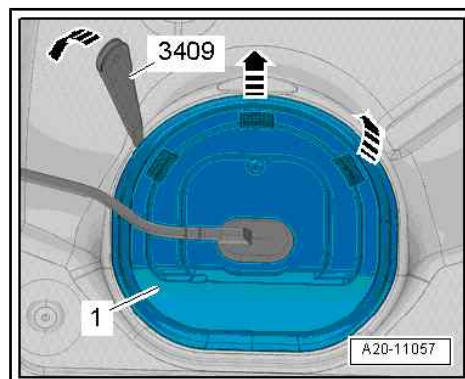


WARNING

Danger! Fuel may escape.

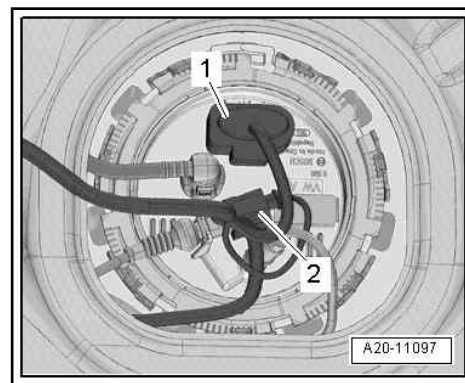
- ◆ The fuel tank must not be more than $\frac{1}{4}$ full when removing the fuel delivery unit, otherwise a large amount of fuel will escape.

- Drain fuel tank if necessary
⇒ [“1.2 Draining fuel tank”, page 22](#) .
- Unclip cover -1- for fuel tank flange at retainers -arrows- using removal wedge - 3409- .





- Release retainer catch and unplug electrical connector -1- on flange.
- Vehicles with auxiliary heater: Disengage electrical connector -2- for metering pump for auxiliary heater on flange and move clear.

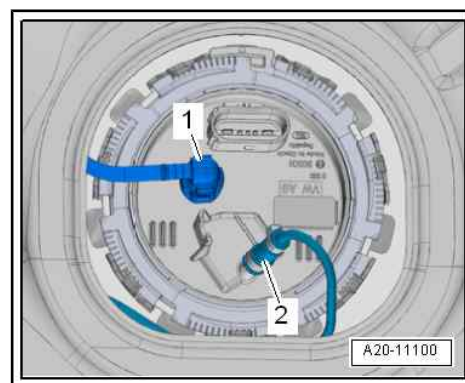


WARNING

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: Release hose clip and detach fuel line -2- to metering pump for auxiliary heater from flange.
- Disconnect fuel line -1- from flange. Disconnecting plug-in connectors
 ⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)



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 -2- slightly out of opening in fuel tank.
- Remove seal -1- from opening in fuel tank.



WARNING

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

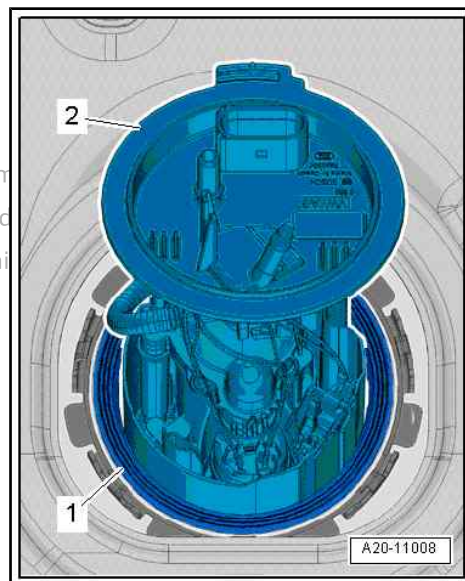
- ◆ **Use a cloth to catch escaping fuel.**

- Carefully pull fuel delivery unit with fuel gauge sender out through opening in fuel tank by turning and tilting it as required.
- If fitted, disconnect additional wire from fuel delivery unit.



Note

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



Installing



Note

- ◆ *Renew seal after removing.*
- ◆ *When inserting the fuel delivery unit, make sure you do not bend the float arm of the fuel gauge sender.*
- Carefully guide fuel delivery unit with fuel gauge sender in through opening in fuel tank.
- Install new seal -1- for flange (seal must be installed dry).

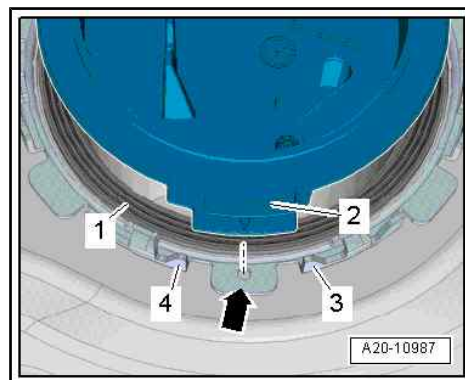


Caution

Risk of leaks

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

- With fuel delivery unit raised, fit flange in correct installation position.
- Lug -2- on flange must point towards hole -arrow- on locking ring and must be between tabs -3 and 4- on fuel tank.
- Press flange down against spring pressure.





- Fit locking ring and secure using key - T10202- .
- Connect fuel line, making sure it engages audibly.
- Press fuel line in again and then pull to check that plug-in connector is correctly engaged.
- Vehicles with auxiliary heater: Install fuel line to metering pump for auxiliary heater at flange ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Fuel supply system .

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

- 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 fuel delivery unit, make sure that fuel tank contains at least 5 litres of fuel.

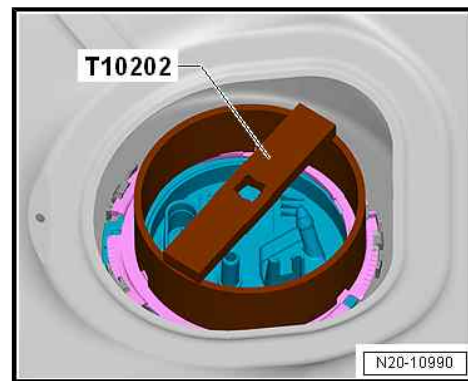
Tightening torques

- ◆ ⇒ [“2.1.1 Exploded view - fuel delivery unit/fuel gauge sender, vehicles with front-wheel drive without high-voltage system”, page 50](#)

2.2.2 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with high-voltage system

Special tools and workshop equipment required

- ◆ Key - T10202-



Removing

- Observe safety precautions
⇒ [“1 Safety precautions”, page 1](#) .
- Observe rules for cleanliness
⇒ [“2.1 Rules for cleanliness”, page 4](#) .
- Move front seats all the way forwards.
- Remove rear shelf ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing rear shelf .
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing luggage compartment floor .

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Caution

When disconnecting the battery there is a risk of irreparable damage to electronic components.

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

- Disconnect earth wire from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Fold down rear seat backrests.
- Remove subwoofer ⇒ Communication; Rep. gr. 91 ; Sound system; Removing and installing subwoofer - R211- .



WARNING

Danger! Fuel may escape.

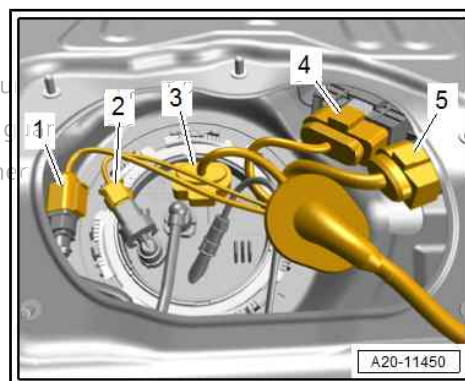
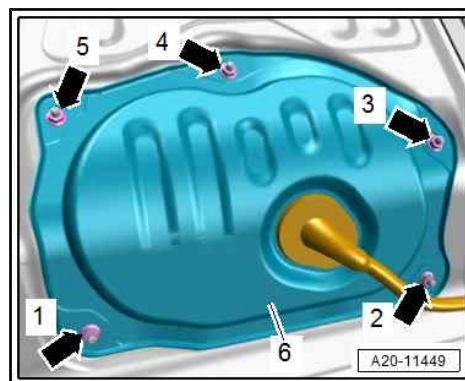
- ◆ *The fuel tank must not be more than $\frac{1}{4}$ full when removing the fuel delivery unit, otherwise a large amount of fuel will escape.*

- Drain fuel tank if necessary
⇒ ["1.2 Draining fuel tank", page 22](#) .
- Remove nuts -arrows 1 ... 5- and detach flange cover -6-.



- Release retainer catches and unplug electrical connectors -1 ... 5-.

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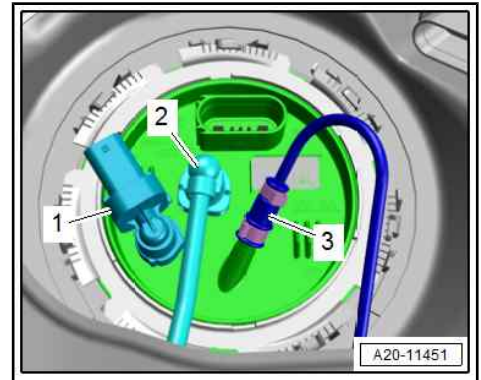
- Remove tank pressure sensor - G400- -item 1-. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)



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.*



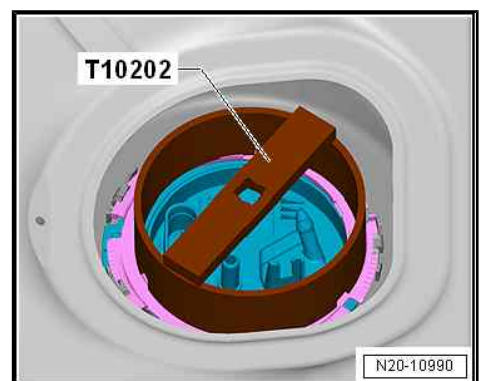
- Disconnect fuel line -2-. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Vehicles with auxiliary heater: Release hose clip and detach fuel line -3- to metering pump for auxiliary heater from flange.



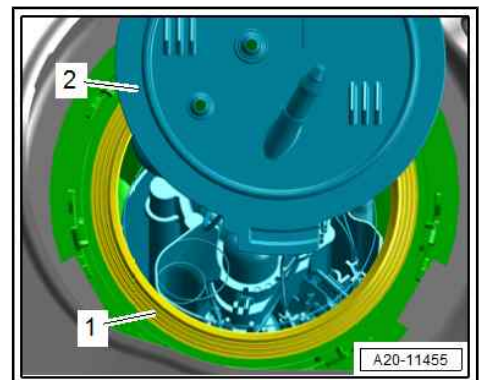
WARNING

Danger! Fuel may escape.

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



- Remove locking ring using key - T10202- .
- Pull flange -2- slightly out of opening in fuel tank.
- Remove seal -1- from opening in fuel tank.



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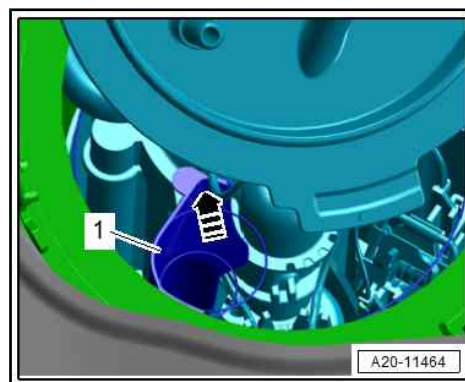
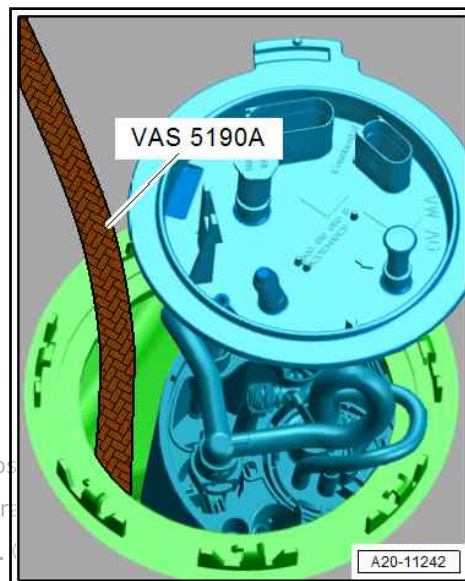


- Insert extraction hose of -VAS 5190A- into fuel tank between flange and fuel delivery unit.
- Use fuel extractor - VAS 5190A- to extract remaining fuel from tank and delivery unit.



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- Carefully pull fuel delivery unit as far as possible out of opening in fuel tank.
- Push against fuel take-off pipe -1- for auxiliary heater -arrow- and at the same time, pull fuel delivery unit carefully over edge and out of opening in fuel tank.





- Carefully pull fuel delivery unit -1- as far as possible out of opening in fuel tank.



WARNING

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

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

- Carefully pull fuel delivery unit with fuel gauge sender -2- out through opening in fuel tank by turning and tilting it as required.



Note

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

Installing



Note

- ◆ *Renew seal after removing.*
- ◆ *When inserting the fuel delivery unit, make sure you do not bend the float arm of the fuel gauge sender.*
- Carefully guide fuel delivery unit with fuel gauge sender in through opening in fuel tank.
- Install new seal -1- for flange (seal must be installed dry).

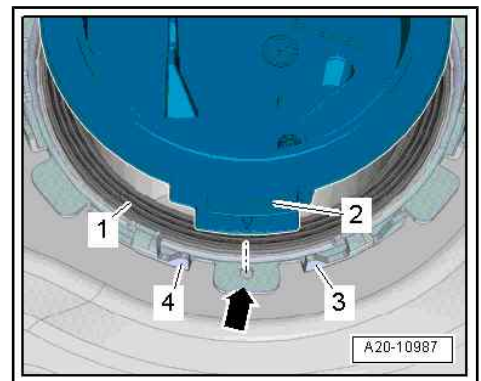
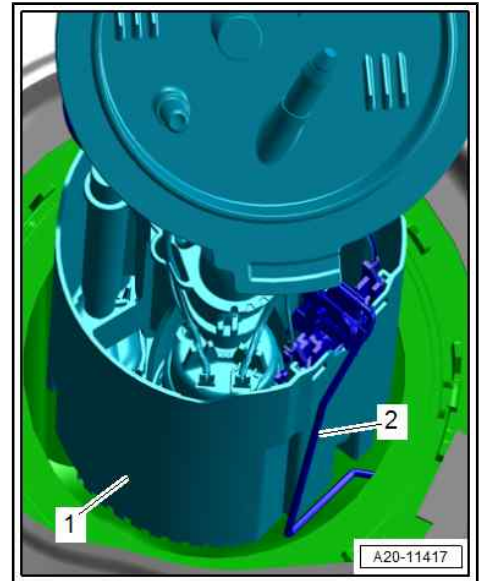


Caution

Risk of leaks

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

- Fit flange in correct installation position.
- Lug -2- on flange must point towards hole -arrow- on locking ring and must be between tabs -3 and 4- on fuel tank.
- Press flange down against spring pressure.



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- Fit locking ring and secure using key - T10202- .
- Connect fuel line, making sure it engages audibly.
- Press fuel line in again and then pull to check that plug-in connector is correctly engaged.
- Vehicles with auxiliary heater: Install fuel line to metering pump for auxiliary heater at flange ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Fuel supply system .

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

- 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 .
- Install rear shelf ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing rear shelf .
- After installing fuel delivery unit, make sure that fuel tank contains at least 5 litres of fuel.

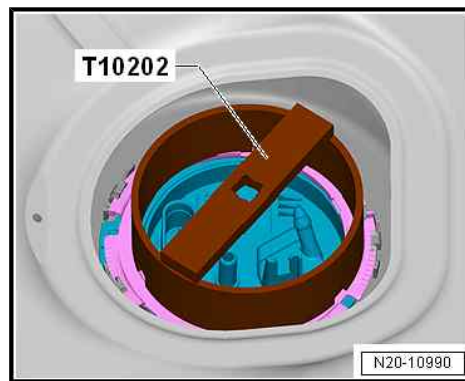
Tightening torques

- ♦ ⇒ ["2.1.2 Exploded view - fuel delivery unit/fuel gauge sender, vehicles with high-voltage system", page 52](#)
- ♦ ⇒ Communication; Rep. gr. 91 ; Sound system; Overview of fitting locations - sound system

2.2.3 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with four-wheel drive

Special tools and workshop equipment required

- ♦ Removal wedge - 3409-



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◆ Key - T10202-



Removing

- Observe safety precautions
⇒ [“1 Safety precautions”, page 1](#) .
- Observe rules for cleanliness
⇒ [“2.1 Rules for cleanliness”, page 4](#) .
- Move front seats all the way forwards.



Caution

When disconnecting the battery there is a risk of irreparable damage to electronic components.

- ◆ *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 .



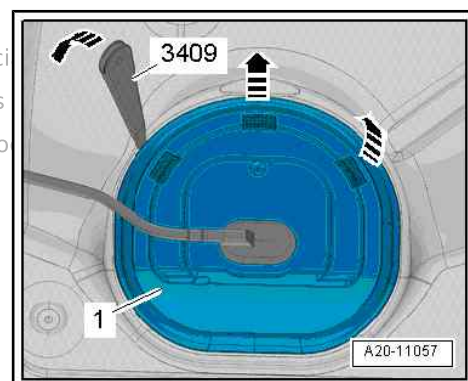
WARNING

Danger! Fuel may escape.

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

- Drain fuel tank if necessary
⇒ [“1.2 Draining fuel tank”, page 22](#) .
- Unclip cover -1- for flange (right-side) at retainers -arrows- using removal wedge -3409-

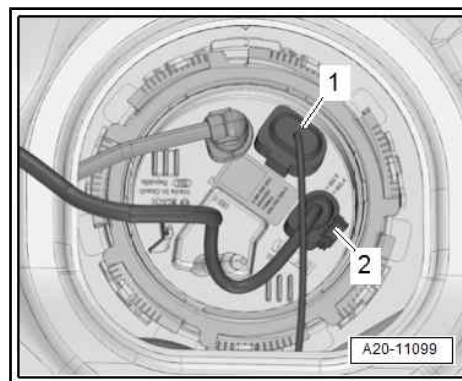
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Version 1:

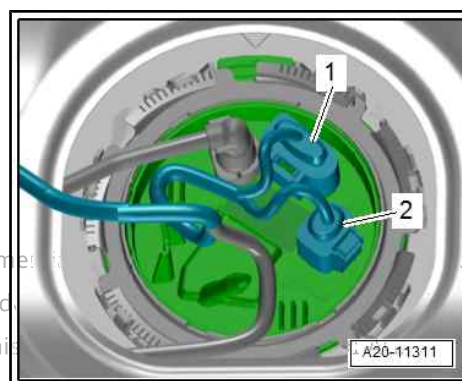
- Release retainer catches and unplug electrical connectors -1 and 2- at flange (right-side).
- Vehicles with auxiliary heater: Disengage electrical connector for metering pump for auxiliary heater on flange and move clear.



Version 2:

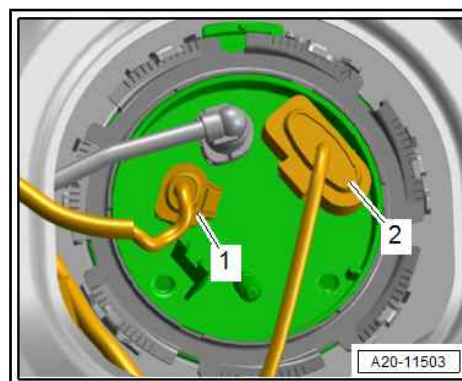
- Release retainer catches and unplug electrical connectors -1 and 2- at flange (right-side).
- Vehicles with auxiliary heater: Release retainer catch and unplug electrical connector for metering pump for auxiliary heater.

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Version 3:

- Release retainer catches and unplug electrical connectors -1 and 2- at flange (right-side).
- Vehicles with auxiliary heater: Disengage electrical connector for metering pump for auxiliary heater on flange and move clear.



All vehicles (continued):

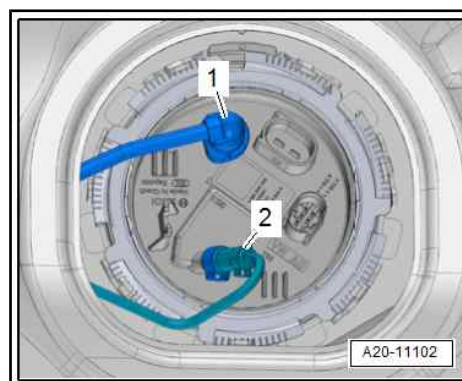


WARNING

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
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Vehicles with auxiliary heater: Release hose clip -2- and detach fuel line to metering pump for auxiliary heater from flange.





WARNING

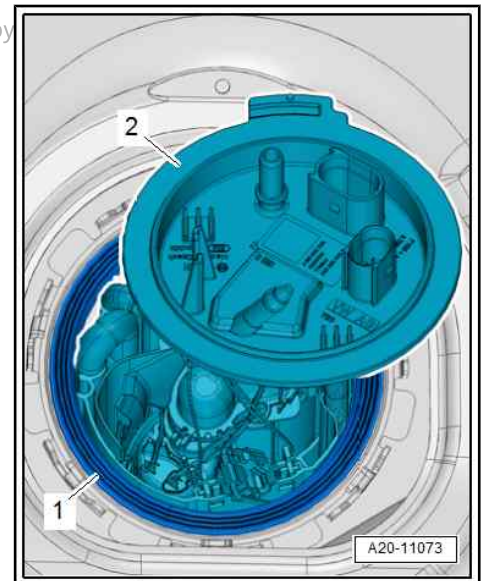
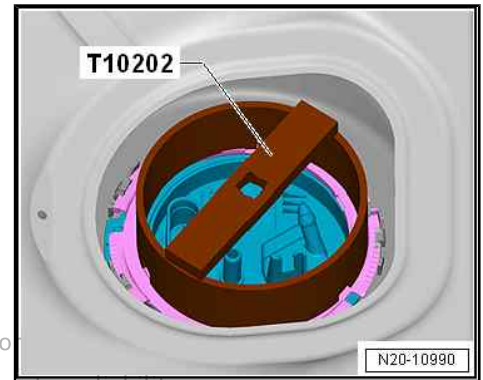
Danger! Fuel may escape.

- ◆ *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.*

- Remove locking ring using key - T10202- .

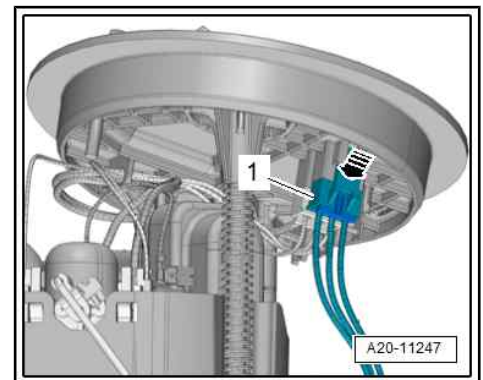
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- Pull flange -2- slightly out of opening in fuel tank.
- Remove seal -1- from opening in fuel tank.



Vehicles with 4-cyl. engine:

- Release retainer catch -arrow- and unplug electrical connector -1- for fuel gauge sender 2 - G169- at flange.





WARNING

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

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

- Carefully pull fuel delivery unit -1- with fuel gauge sender -2- out through opening in fuel tank by turning and tilting it as required.



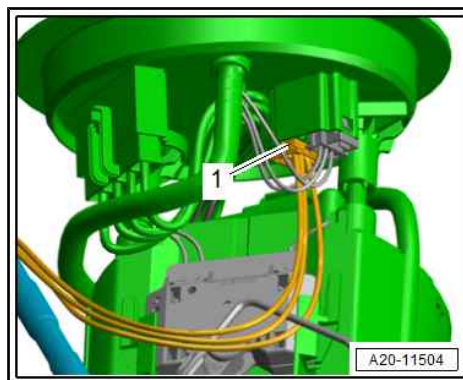
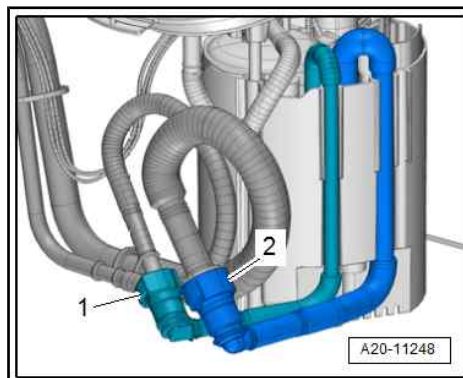
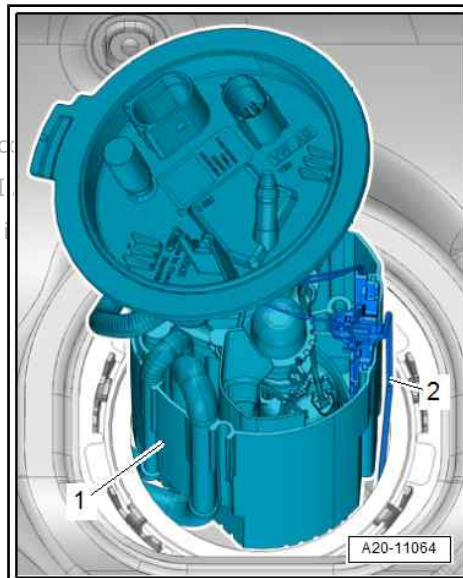
Note

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

- Carefully pull fuel lines out of opening in fuel tank.
- Disconnect supply line -1- for suction-jet pump and fuel supply line -2-. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

Vehicles with 5-cyl. engine:

- Release retainer catch and unplug electrical connector -1- for fuel gauge sender 2 - G169- on flange.





WARNING

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

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

- Carefully pull fuel delivery unit -1- with fuel gauge sender out through opening in fuel tank by turning and tilting it as required.



Note

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

- Carefully pull fuel delivery unit with fuel lines out of opening in fuel tank.
- Disconnect supply line -3- for suction-jet pump. Disconnecting plug-in connectors
 ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Release retaining clip -2- (press retaining tab -4- in direction of -arrow A- to do so) and slide retaining clip upwards -arrow B-.
- Disconnect fuel supply line -1-.

Installing

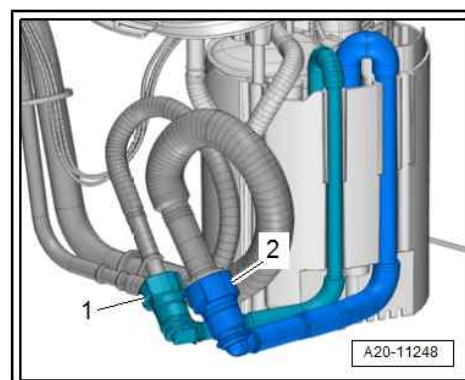
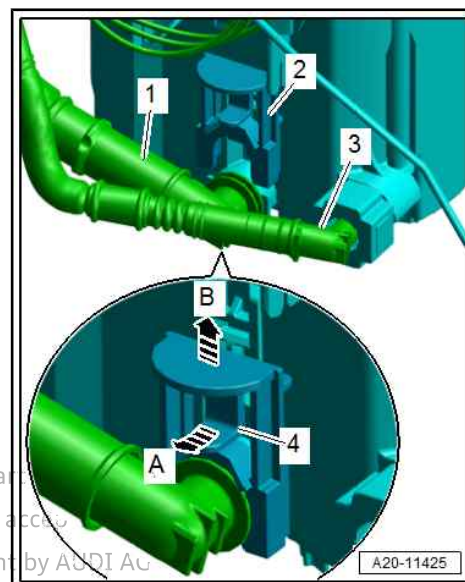
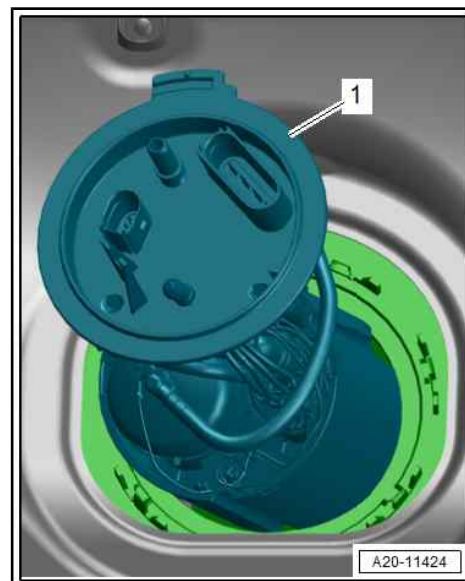


Note

- ◆ **Renew seal after removing.**
- ◆ **Make sure that fuel hoses are securely fitted.**
- ◆ **Make sure electrical connectors are attached properly; pull to check that they are correctly engaged.**
- ◆ **When inserting the fuel delivery unit, make sure you do not bend the float arm of the fuel gauge sender.**

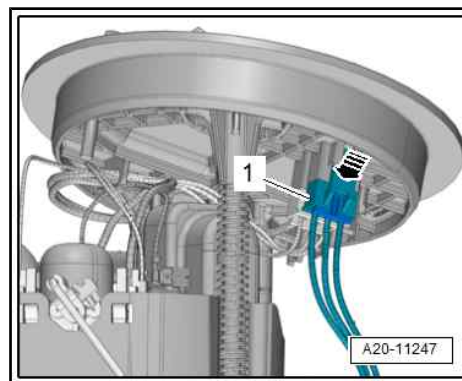
Vehicles with 4-cyl. engine:

- Connect supply line -1- for suction-jet pump and fuel supply line -2- so they engage audibly.





- Carefully guide fuel delivery unit with fuel gauge sender in through opening in fuel tank.
- Plug in electrical connector -1- for fuel gauge sender 2 - G169- at flange.

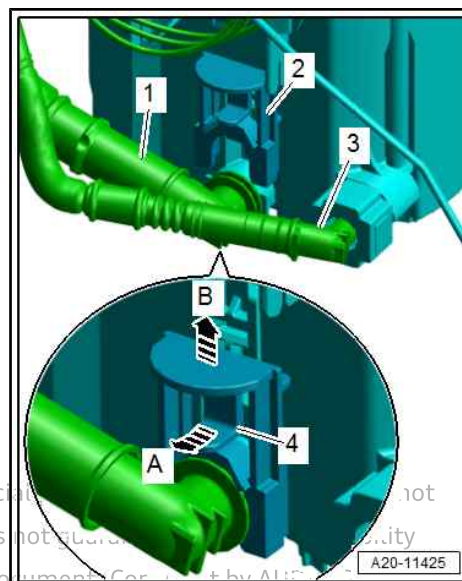


Vehicles with 5-cyl. engine:

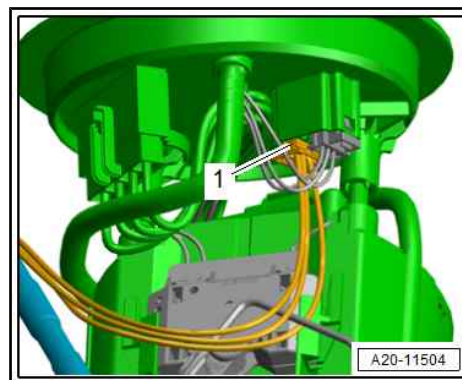
- Attach fuel supply line -1- as far as stop and secure with retaining clip -2-.
- Connect supply line for suction-jet pump -3- so it engages audibly.



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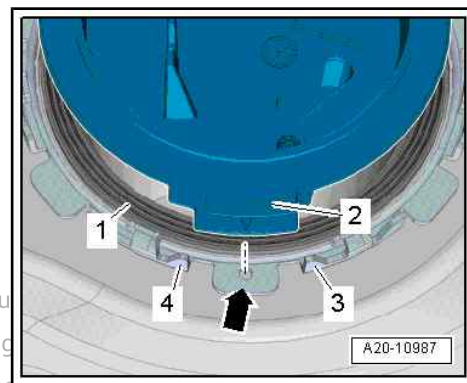
- Carefully guide fuel delivery unit with fuel gauge sender in through opening in fuel tank.
- Plug in electrical connector -1- for fuel gauge sender 2 - G169- at flange.





All vehicles (continued):

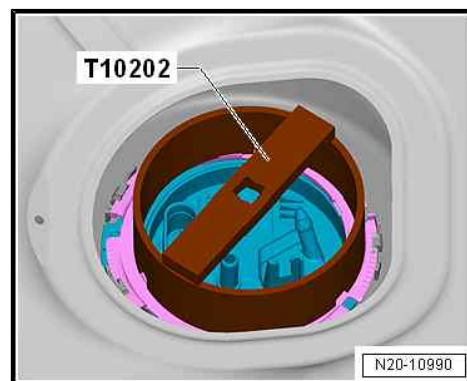
- Install new seal -1- for flange (seal must be installed dry).



- With fuel delivery unit raised, fit flange in correct installation position.
- Lug -2- on flange must point towards hole -arrow- on locking ring and must be between tabs -3 and 4- on fuel tank.
- Press flange down against spring pressure.
- Fit locking ring and secure using key - T10202- .
- Connect fuel lines, making sure they engage audibly.
- Press fuel line in again and then pull to check that plug-in connector is correctly engaged.
- Vehicles with auxiliary heater: Install fuel line to metering pump for auxiliary heater at flange ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Fuel supply system .

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

- 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 fuel delivery unit, make sure that fuel tank contains at least 5 litres of fuel.



Tightening torques

- ♦ ⇒ [“2.1.3 Exploded view - fuel delivery unit/fuel gauge senders, vehicles with 4-cyl. engine and four-wheel drive”, page 54](#)
- ♦ ⇒ [“2.1.4 Exploded view - fuel delivery unit/fuel gauge senders, vehicles with 5-cyl. engine”, page 56](#)



3 Senders and sensors

⇒ ["3.1 Checking fuel gauge sender G ", page 74](#)

⇒ ["3.2 Removing and installing fuel gauge sender G ", page 81](#)

⇒ ["3.3 Checking fuel gauge sender 2 G169 ", page 83](#)

⇒ ["3.4 Removing and installing fuel gauge sender 2 G169 ", page 86](#)

⇒ ["3.5 Exploded view - fuel quality sender G446 ", page 88](#)

⇒ ["3.6 Removing and installing fuel quality sender G446 ", page 89](#)

⇒ ["3.7 Removing and installing tank pressure sensor G400 ", page 90](#)

3.1 Checking fuel gauge sender - G-

⇒ ["3.1.1 Checking fuel gauge sender G - vehicles with front-wheel drive without high-voltage system", page 74](#)

⇒ ["3.1.2 Checking fuel gauge sender G - vehicles with high-voltage system", page 76](#)

⇒ ["3.1.3 Checking fuel gauge sender G - vehicles with four-wheel drive", page 79](#)

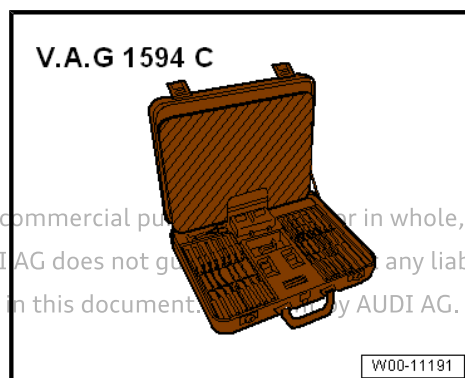
3.1.1 Checking fuel gauge sender - G- - vehicles with front-wheel drive without high-voltage system

Special tools and workshop equipment required

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



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



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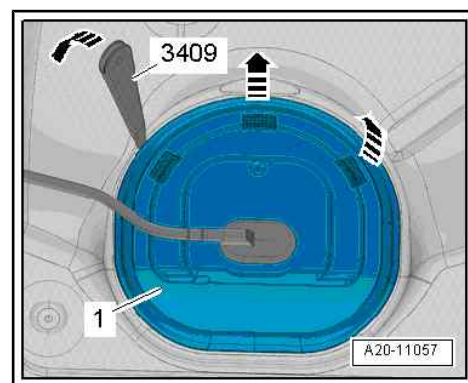


◆ Removal wedge - 3409-



Procedure

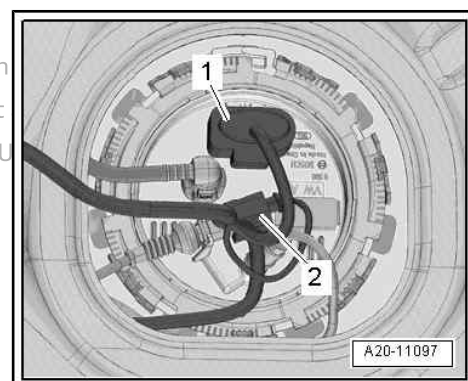
- Move front seats all the way forwards.
- Switch off ignition.
- Remove rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/ individual seats .
- Unclip cover -1- for fuel tank flange at retainers -arrows- using removal wedge - 3409- .



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

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Note
 Disregard -item 2-.

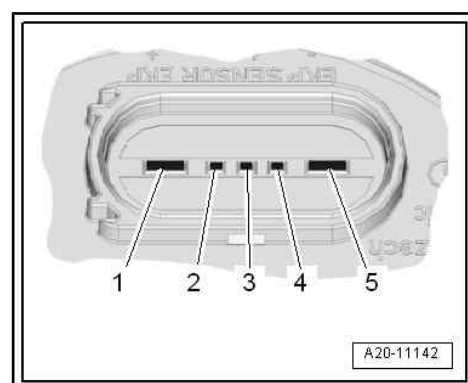


Fuel gauge sender - G- installed:

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.





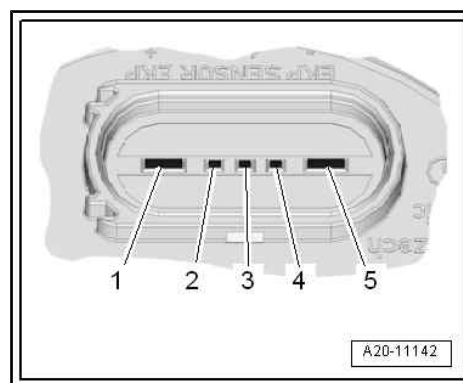
Measure at contacts	Torsion beam rear axle		Multi-link rear axle	
	Tank empty	Tank full	Tank empty	Tank full
2 + 3	265 ...303 Ω	51 ...63 Ω	265 ...303 Ω	51 ...70 Ω
2 + 4	37 ...75 Ω	277 ...289 Ω	37 ...75 Ω	270 ...289 Ω
3 + 4 ¹⁾	335 ...345 Ω	335 ...345 Ω	335 ...345 Ω	335 ...345 Ω
¹⁾ Sender in any position				

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	Torsion beam rear axle		Multi-link rear axle	
	Tank empty	Tank full	Tank empty	Tank full
2 + 3	297 ...303 Ω	51 ...53 Ω	297 ...303 Ω	51 ...53 Ω
2 + 4	37 ...43 Ω	287 ...289 Ω	37 ...43 Ω	287 ...289 Ω
3 + 4 ¹⁾	335 ...345 Ω	335 ...345 Ω	335 ...345 Ω	335 ...345 Ω
¹⁾ Sender in any position				

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

- ◆ Large differences in test readings
 - ◆ Reading: 0 Ω (short circuit)
 - ◆ Reading ∞ Ω (open circuit)
 - ◆ No fault in electrical wiring
- Install fuel delivery unit/ fuel gauge sender - G-
⇒ **“2.2.1 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with front-wheel drive without high-voltage system”, page 57.**

3.1.2 Checking fuel gauge sender - G- - vehicles with high-voltage system

Special tools and workshop equipment required



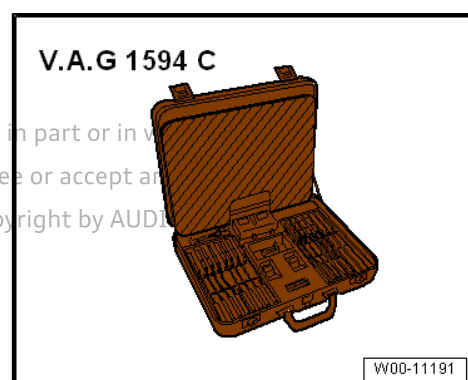
◆ Hand-held multimeter - V.A.G 1526 E-



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

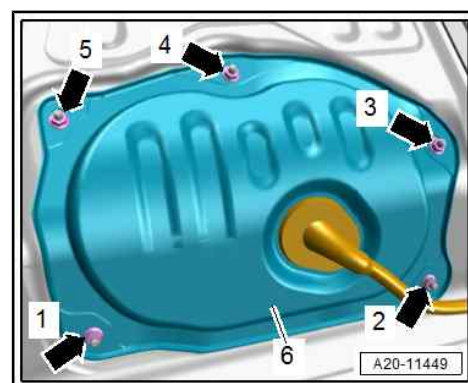


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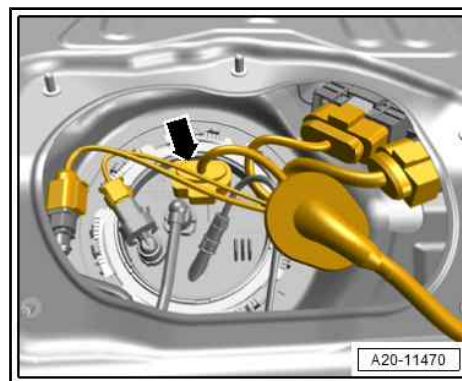
Procedure

- Move front seats all the way forwards.
- Switch off ignition.
- Remove rear shelf ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing rear shelf .
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing luggage compartment floor .
- Fold down rear seat backrests.
- Remove subwoofer ⇒ Communication; Rep. gr. 91 ; Sound system; Removing and installing subwoofer - R211- .
- Remove nuts -arrows 1 ... 5- and detach flange cover -6-.





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



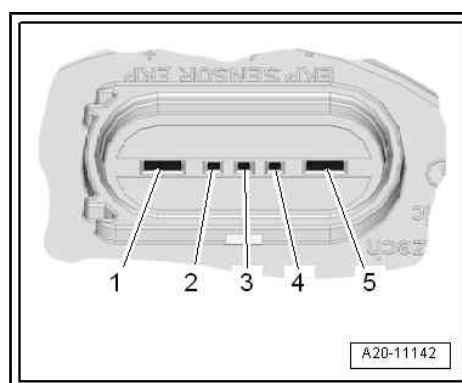
Fuel gauge sender - G- installed:



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	Tank empty	Tank full
2 + 3	265 ...303 Ω	51 ...70 Ω
2 + 4	37 ...75 Ω	270 ...289 Ω
3 + 4 ¹⁾	335 ...345 Ω	335 ...345 Ω
¹⁾ Sender in any position		

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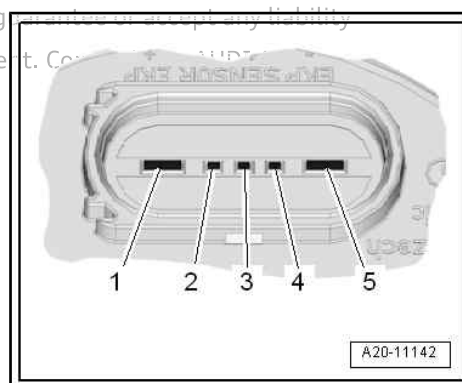
Fuel gauge sender - G- removed:



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
2 + 3	297 ...303 Ω	51 ...53 Ω
2 + 4	37 ...43 Ω	287 ...289 Ω
3 + 4 ¹⁾	335 ...345 Ω	335 ...345 Ω
¹⁾ Sender in any position		

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

- ◆ Large differences in test readings



- ◆ Reading: 0 Ω (short circuit)
- ◆ Reading ∞ Ω (open circuit)
- ◆ No fault in electrical wiring
- Install fuel delivery unit/ fuel gauge sender - G-
⇒ [“2.2.2 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with high-voltage system”, page 61](#) .

3.1.3 Checking fuel gauge sender - G- - vehicles with four-wheel drive

Special tools and workshop equipment required

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

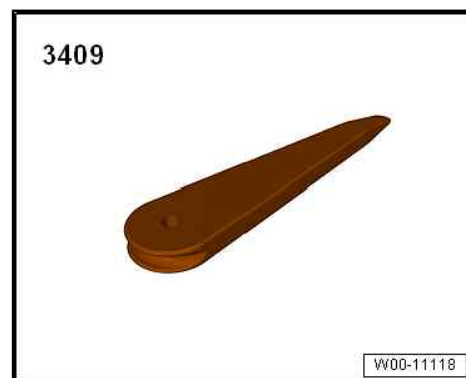


- ◆ Auxiliary measuring set - V.A.G 1594C-



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- ◆ Removal wedge - 3409-

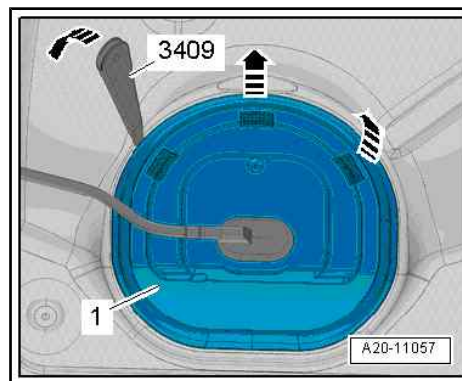


Procedure

- Move front seats all the way forwards.
- Switch off ignition.
- Remove rear seat bench ⇒ General body repairs, interior;
Rep. gr. 72 ; Rear seats; Removing and installing seat bench/
individual seats .



- Unclip cover -1- for fuel tank flange at retainers -arrows- using removal wedge - 3409- .



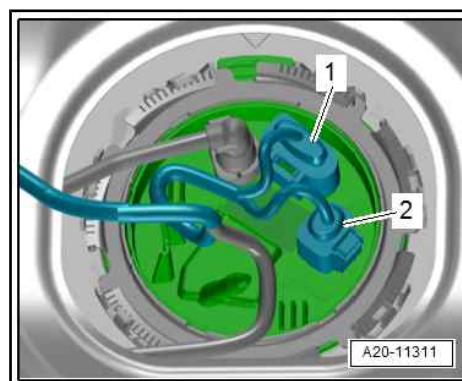
Version 1:

- Release retainer catch and unplug electrical connector -2- on flange (right-side).



Note

Disregard -item 1-.



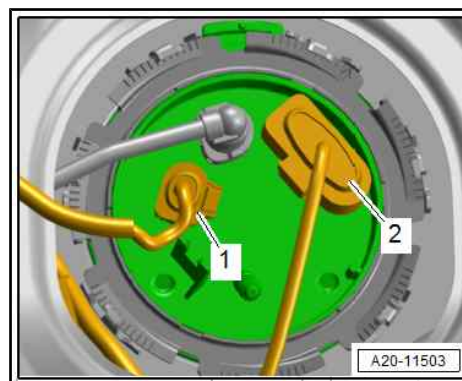
Version 2:

- Release retainer catch and unplug electrical connector -1- on flange (right-side).



Note

Disregard -item 2-.



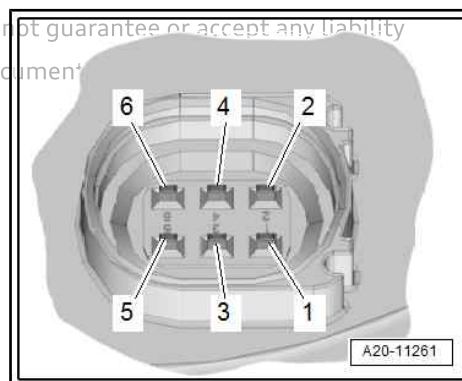
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Fuel gauge sender - G- installed:



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.
- ♦ The assignment of contact -2- on the connector depends on the model.



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

Measure at contacts	Tank empty	Tank full
1 + 3	297 ...303 Ω	78 ...80 Ω
1 + 5	37 ...45 Ω	254 ...262 Ω
3 + 5 1)	335 ...345 Ω	335 ...345 Ω



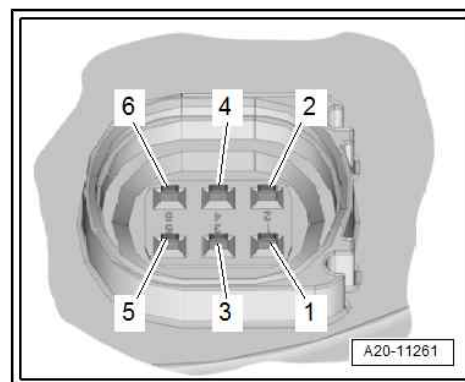
Measure at contacts	Tank empty	Tank full
1) Sender in any position		

Fuel gauge sender - G- removed:



Note

- ◆ In order to test the maximum and minimum resistance values for "tank full" and "tank empty", remove fuel gauge sender - G- and move the float all the way to its top or bottom position.
- ◆ The assignment of contact -2- on the connector depends on the model.
- ◆ 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	297 ... 303 Ω	78 ... 80 Ω
1 + 5	37 ... 45 Ω	254 ... 262 Ω
3 + 5 1)	335 ... 345 Ω	335 ... 345 Ω
1) Sender in any position		

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

- ◆ Large differences in test readings
- ◆ Reading: 0 Ω (short circuit)
- ◆ Reading ∞ Ω (open circuit)
- ◆ No fault in electrical wiring
- Install fuel delivery unit/ fuel gauge sender - G-
 ⇒ ["2.2.3 Removing and installing fuel delivery unit/fuel gauge sender - vehicles with four-wheel drive", page 66](#) .

3.2 Removing and installing fuel gauge sender - G-

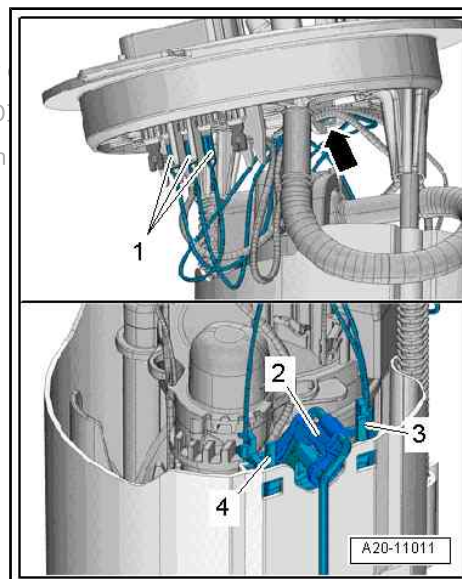
Removing

- Observe safety precautions
 ⇒ ["1 Safety precautions", page 1](#) .
- Observe rules for cleanliness
 ⇒ ["2.1 Rules for cleanliness", page 4](#) .
- Remove fuel delivery unit
 ⇒ ["2.2 Removing and installing fuel delivery unit/fuel gauge senders", page 57](#) .



Front-wheel drive vehicles without high-voltage system:

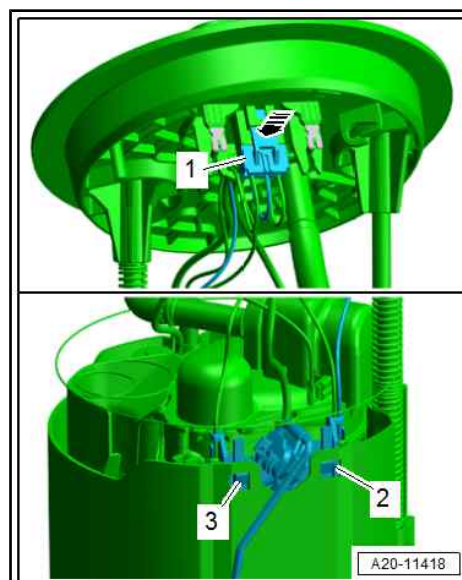
- Release retainer catches and unplug electrical connectors -1- on flange.
- Disengage and move clear electrical wiring at retainer -arrow-.
- Release retaining tabs at lugs -3, 4- and at the same time lift out fuel gauge sender - G- -item 2-.



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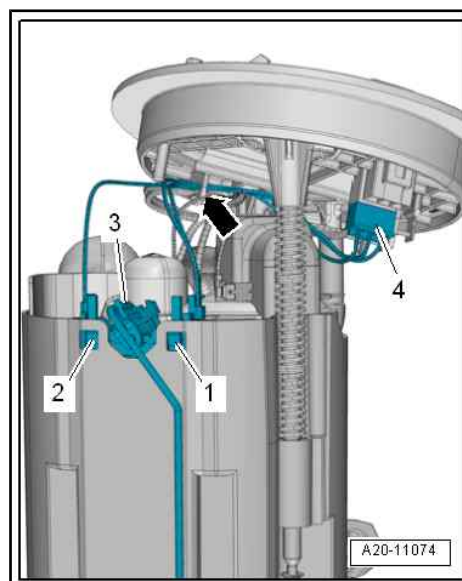
Front-wheel drive vehicles with high-voltage system:

- Release retainer catch -arrow- and unplug electrical connector -1- at flange.
- Disengage and move clear electrical wiring at retainer.
- Release retaining tabs -2 and 3- at lugs and at the same time lift out fuel gauge sender - G- .



Vehicles with 4-cyl. engine and four-wheel drive:

- Release retainer catch and unplug electrical connector -4- at flange.
- Disengage and move clear electrical wiring at retainer -arrow-.
- Release retaining tabs at lugs -1, 2- and at the same time lift out fuel gauge sender - G- -item 3-.





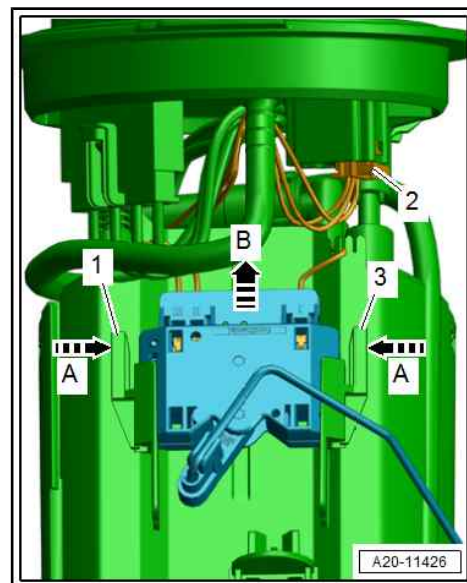
Vehicles with 5-cyl. engine:

- Release retainer catch and unplug electrical connector -2- on flange.
- Disengage and move clear electrical wiring at retainer.
- Release catches -1 and 3- -arrows A- and press out fuel gauge sender - G- upwards -arrow B-.

Installing

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

- Insert fuel gauge sender - G- into guides on fuel delivery unit and press downwards until it clicks into place.
- Route electrical wiring at fuel delivery unit and clip in.
- Install fuel delivery unit
⇒ [“2.2 Removing and installing fuel delivery unit/fuel gauge senders”, page 57](#) .



3.3 Checking fuel gauge sender 2 - G169-



Note

On NAR vehicles there is no flange on the left side of the fuel tank. Therefore fuel gauge sender 2 - G169- can only be checked when it is installed ⇒ [page 85](#) .

Special tools and workshop equipment required

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



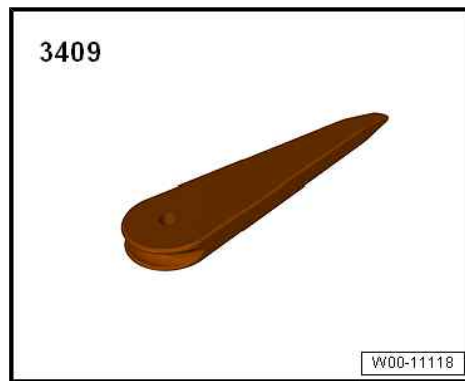
- ◆ Auxiliary measuring set - V.A.G 1594C-



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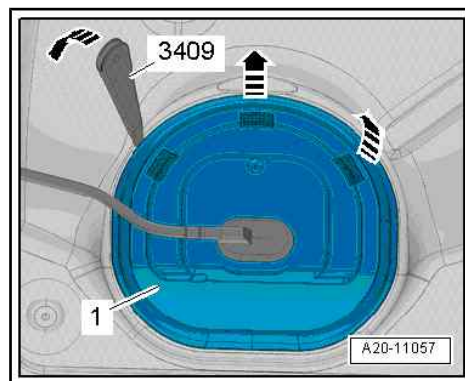


◆ Removal wedge - 3409-



Procedure

- Move front seats all the way forwards.
- Switch off ignition.
- Remove rear seat bench ⇒ General body repairs, interior;
Rep. gr. 72 ; Rear seats; Removing and installing seat bench/
individual seats .
- Unclip cover -1- for flange (right-side) at retainers -arrows- us-
ing removal wedge - 3409- .



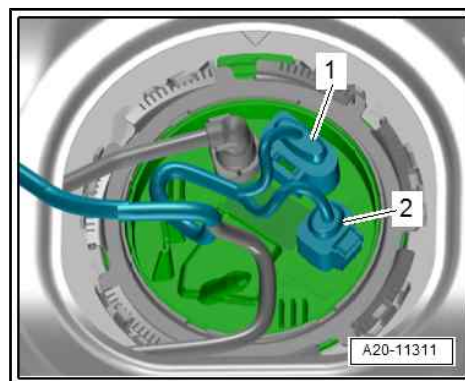
Version 1:

- Release retainer catch and unplug electrical connector -2- on
flange (right-side).



Note

Disregard -item 1-.



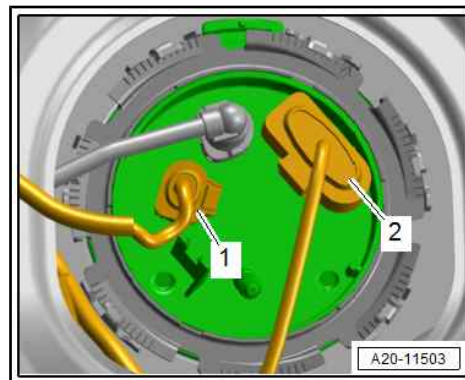
Version 2:

- Release retainer catch and unplug electrical connector -1- on
flange (right-side).



Note

Disregard -item 2-.



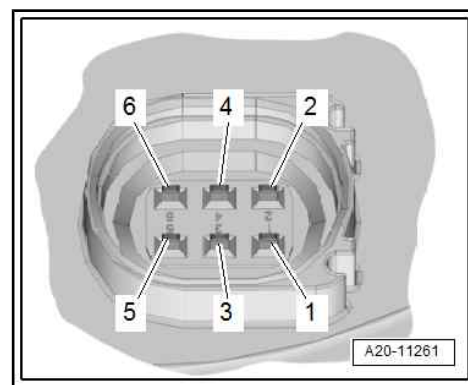


With fuel gauge sender 2 - G169- installed:



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.
- ◆ The assignment of contact -2- on the connector depends on the model.



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

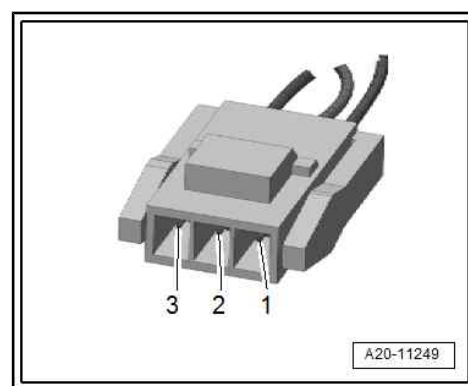
Measure at contacts	Tank empty	Tank full
Vehicles with 4-cyl. engine: 1 + 4	275 ...303 Ω	51 ...71 Ω
Vehicles with 5-cyl. engine: 2 + 4		
Vehicles with 4-cyl. engine: 1 + 6	44 ...70 Ω	269 ...289 Ω
Vehicles with 5-cyl. engine: 2 + 6		
4 + 6 ¹⁾	335 ...345 Ω	335 ...345 Ω
¹⁾ Sender in any position		

With fuel gauge sender 2 - G169- removed (except NAR vehicles):



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
2 + 3	297 ...303 Ω	51 ...53 Ω
1 + 3	37 ...43 Ω	281 ...289 Ω
1 + 2 ¹⁾	335 ...345 Ω	335 ...345 Ω
¹⁾ Sender in any position		

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

- ◆ Large differences in test readings
- ◆ Reading: 0 Ω (short circuit)
- ◆ Reading ∞ Ω (open circuit)
- ◆ No fault in electrical wiring
- Install fuel gauge sender 2 - G169-
 ⇒ "3.4 Removing and installing fuel gauge sender 2 G169 ",
page 86 .



3.4 Removing and installing fuel gauge sender 2 - G169-



Note

*On NAR vehicles there is no flange on the left side of the fuel tank.
It is not possible to remove and install fuel gauge sender 2 - G169- .*

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



- ◆ Key - T10202-



Removing

- Observe safety precautions
⇒ ["1 Safety precautions", page 1](#) .
- Observe rules for cleanliness
⇒ ["2.1 Rules for cleanliness", page 4](#) .
- Move front seats all the way forwards.
- Switch off ignition.
- Remove rear seat bench ⇒ General body repairs, interior;
Rep. gr. 72 ; Rear seats; Removing and installing seat bench/
individual seats .



WARNING

Danger! Fuel may escape.

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

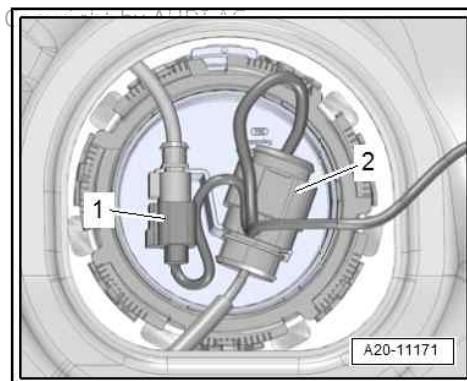
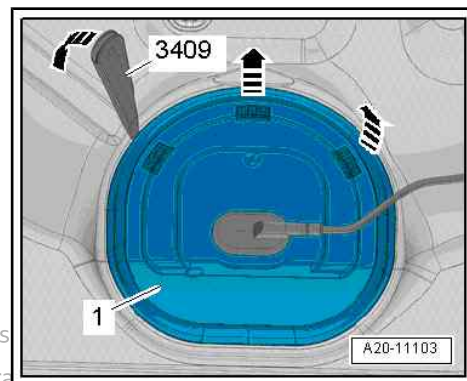


- Drain fuel tank if necessary
 ⇒ "1.2 Draining fuel tank", page 22 .
- Unclip cover -1- for flange (left-side) at retainers -arrows- using removal wedge - 3409- .



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- Release retainer catch and unplug electrical connector -1- for Haldex coupling.
- Release retainer catch and unplug electrical connector -2- on flange (depending on version).

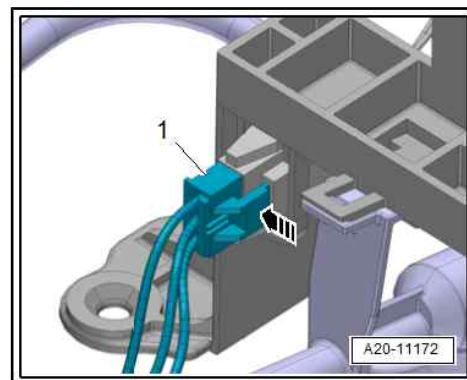
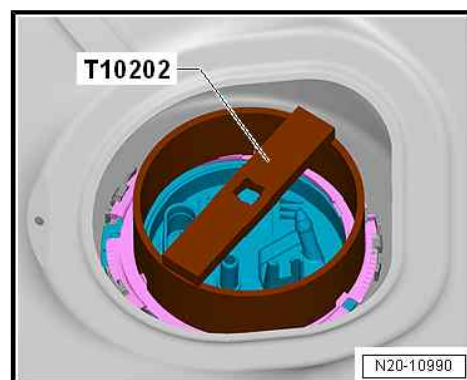


WARNING

Danger! Fuel may escape.

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

- Remove locking ring using key - T10202- .
- Remove flange and seal at opening in fuel tank.
- Reach through opening in fuel tank, release retainer catch -arrow- and unplug electrical connector -1-.





- Reach through opening in fuel tank, release retainer catches -arrows A- and press electrical connector -1- out of retainer -arrow B-.
- Reach through opening in fuel tank, release retaining tabs -2- at lugs and at the same time lift out fuel gauge sender 2 - G169- -arrow C-.

Installing



Note

- ♦ *Renew seal after removing.*
- ♦ *Make sure electrical connectors are attached properly; pull to check that they are correctly engaged.*
- Insert fuel gauge sender 2 - G169- into guides on retainer and press down until it engages.

- Install new seal -1- for flange (seal must be installed dry).



Caution

Risk of leaks

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

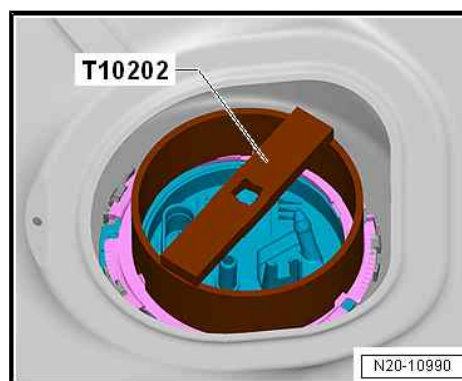
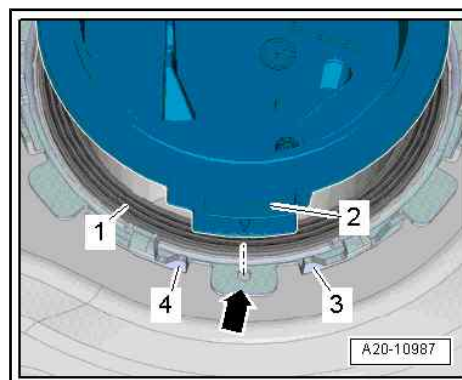
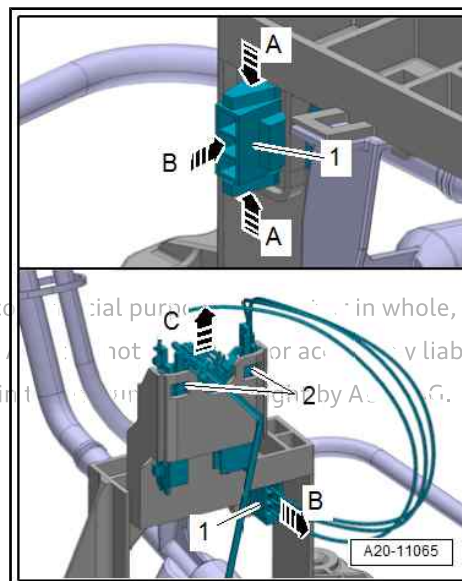
- Fit flange in correct installation position.
- Lug -2- on flange must point towards hole -arrow- on locking ring and must be between tabs -3 and 4- on fuel tank.
- Fit locking ring and tighten using key - T10202- .

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

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

Tightening torques

- ♦ ⇒ [“2.1.3 Exploded view - fuel delivery unit/fuel gauge senders, vehicles with 4-cyl. engine and four-wheel drive”, page 54](#)
- ♦ ⇒ [“2.1.4 Exploded view - fuel delivery unit/fuel gauge senders, vehicles with 5-cyl. engine”, page 56](#)



3.5 Exploded view - fuel quality sender - G446-



1 - Bracket

2 - Bolt

- 2x
- 8 Nm

3 - Fuel line

- From fuel tank

4 - Nut

- 2x
- 10 Nm

5 - Fuel quality sender - G446-

- Removing and installing
 ⇒ ["3.6 Removing and installing fuel quality sender G446"](#),
[page 89](#)

6 - Connector

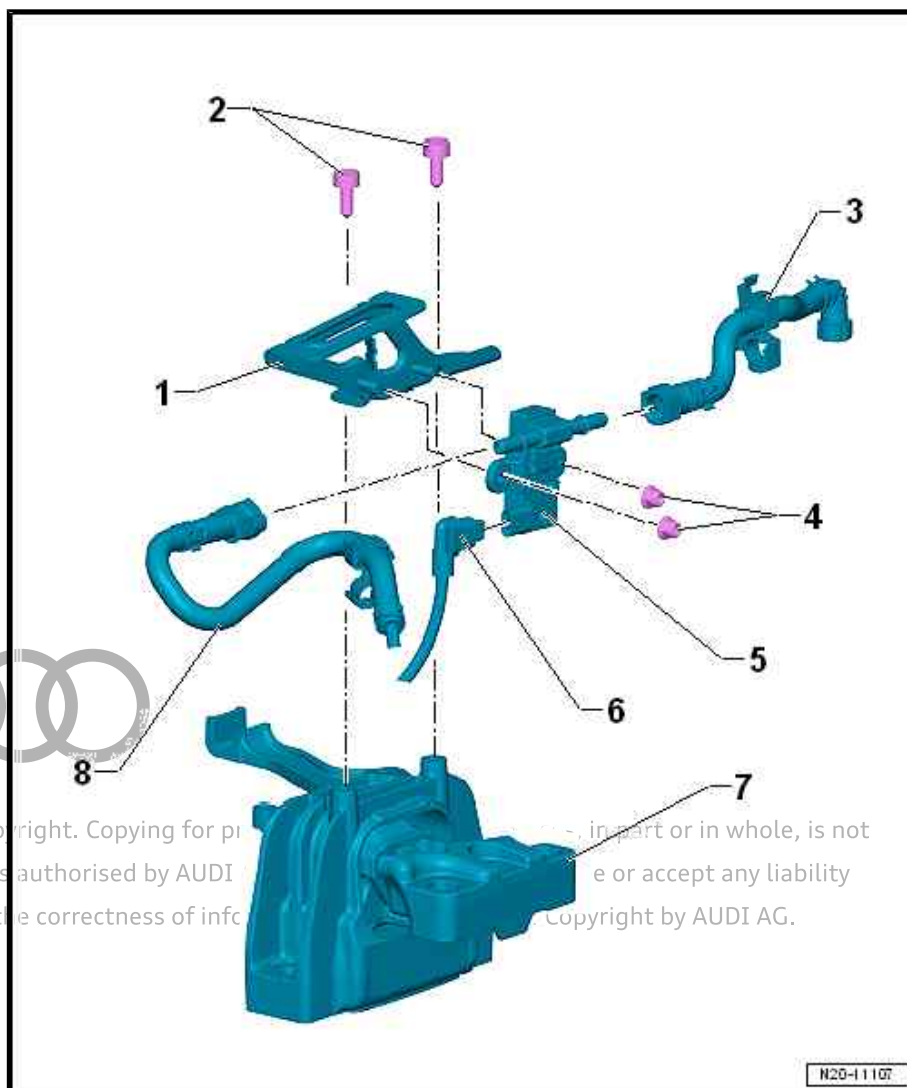
- For fuel quality sender - G446-

7 - Engine mounting

- ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings

8 - Fuel line

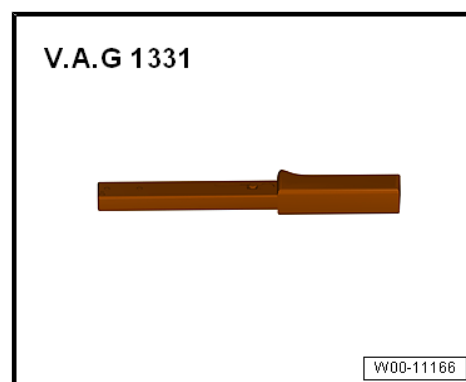
- To engine



3.6 Removing and installing fuel quality sender - G446-

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



Removing

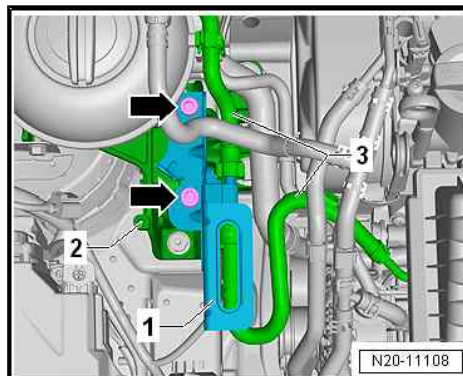
- Observe safety precautions
 ⇒ ["1 Safety precautions"](#), [page 1](#) .



- Observe rules for cleanliness
⇒ [“2.1 Rules for cleanliness”, page 4](#) .

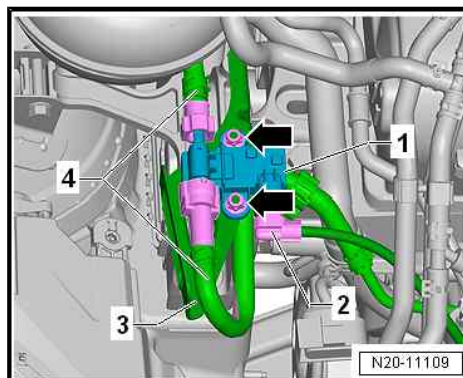
If fuel quality sender - G446- is only being unscrewed from engine mounting:

- Remove bolts -arrows-.
- Place bracket -1- with fuel quality sender - G446- to one side (pipes/hoses -3- remain connected).



If removing fuel quality sender - G446- together with bracket:

- Unbolt bracket -3- ⇒ [page 90](#) and turn it around.
- Release connector -2- for fuel quality sender - G446- -1- and unplug.
- Detach fuel lines -4- from fuel quality sender - G446- -1-. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)



If detaching fuel quality sender - G446- from bracket:

- Remove nuts -arrows- at bracket -3-.
- Detach fuel quality sender - G446- -1- from bracket -3-.

Installing

Installation is carried out in reverse sequence. Note the following:

Tightening torques

- ♦ ⇒ [“3.5 Exploded view - fuel quality sender G446”, page 88](#)

3.7 Removing and installing tank pressure sensor - G400-

Removing

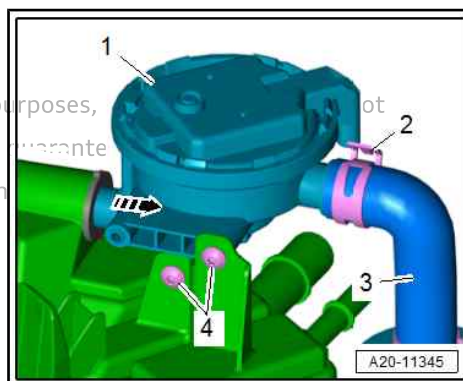
- Remove activated charcoal filter
⇒ [“5.3.3 Removing and installing activated charcoal filter - vehicles with tank pressure sensor G400 /with fuel tank leak detection module GX36”, page 103](#) .
- Release hose clip -2- and detach hose -3-.
- Remove bolts -4-.
- Remove tank pressure sensor - G400- item 1- from activated charcoal filter in direction of -arrow-.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ♦ ⇒ [“5.2.3 Exploded view - activated charcoal filter system, vehicles with tank pressure sensor G400”, page 99](#)





4 Plug-in connectors

⇒ ["4.1 Disconnecting plug-in connectors", page 91](#)

4.1 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 91](#).

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

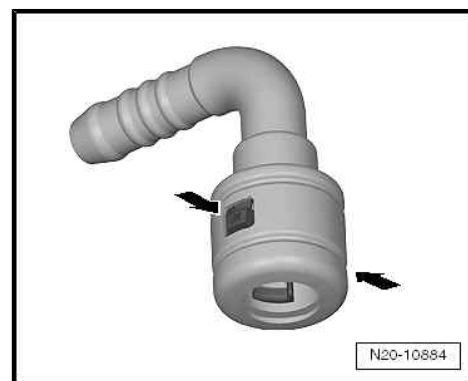
Fuel line is pressurised.

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

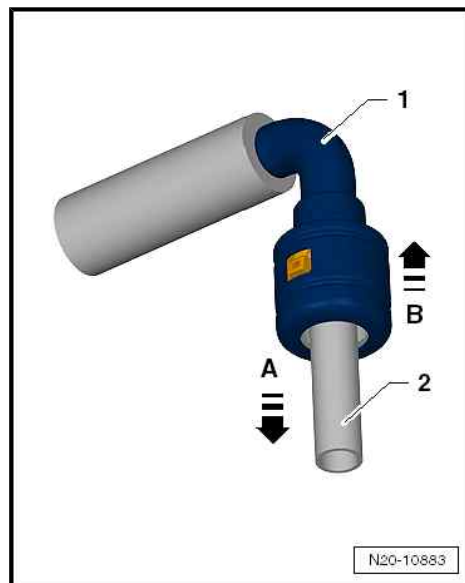
- ◆ Plug-in connector with release tabs -arrows- on both sides





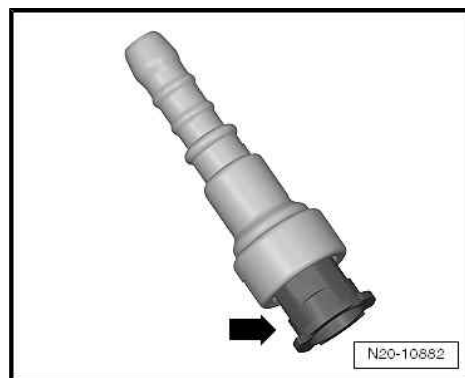
Disconnecting

- 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 91](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.



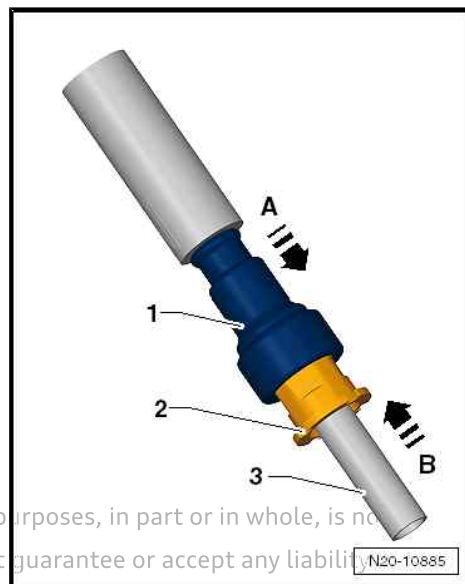
Version 2

- ◆ Plug-in connector with pull release -arrow-



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 91](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.



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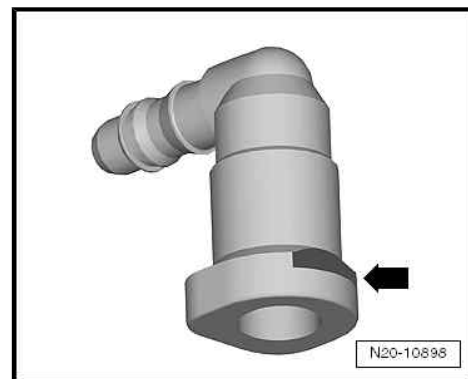


Version 3

- ◆ 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 91](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

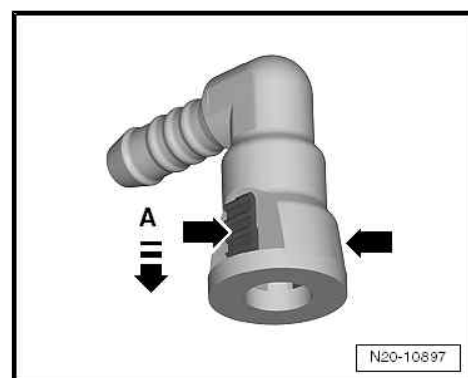


Version 4

- ◆ 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 91](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

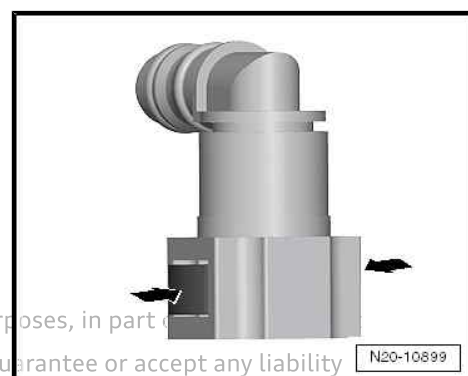


Version 5

- ◆ 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 91](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

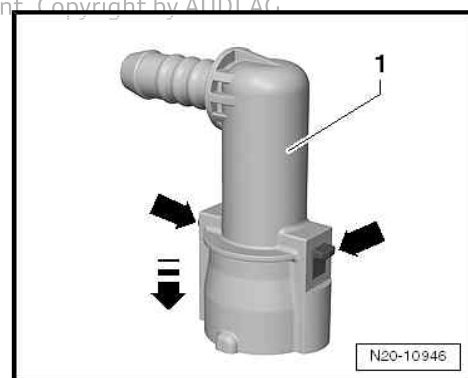


Version 6

- ◆ 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 91](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.



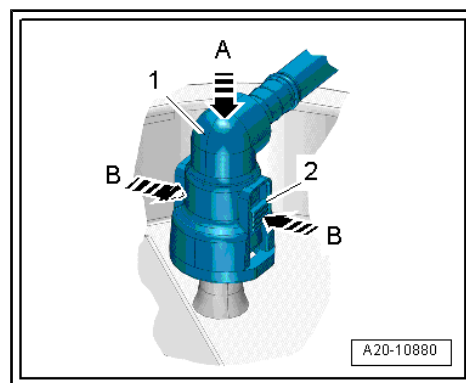


Version 7

- ◆ 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 91](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.



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5 Activated charcoal filter system

⇒ [“5.1 Connection diagram - activated charcoal filter system”, page 95](#)

⇒ [“5.2 Exploded view - activated charcoal filter system”, page 97](#)

⇒ [“5.3 Removing and installing activated charcoal filter”, page 102](#)

⇒ [“5.4 Fuel tank - leak detection”, page 107](#)

⇒ [“5.5 Operation of activated charcoal filter system”, page 108](#)

5.1 Connection diagram - activated charcoal filter system

⇒ [“5.1.1 Connection diagram - activated charcoal filter system, vehicles without high-voltage system”, page 95](#)

⇒ [“5.1.2 Connection diagram - activated charcoal filter system, vehicles with high-voltage system”, page 96](#)

5.1.1 Connection diagram - activated charcoal filter system, vehicles without high-voltage system

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

- ☐ NAR vehicles

2 - Air cleaner

- ☐ For tank leak detection system
- ☐ NAR vehicles

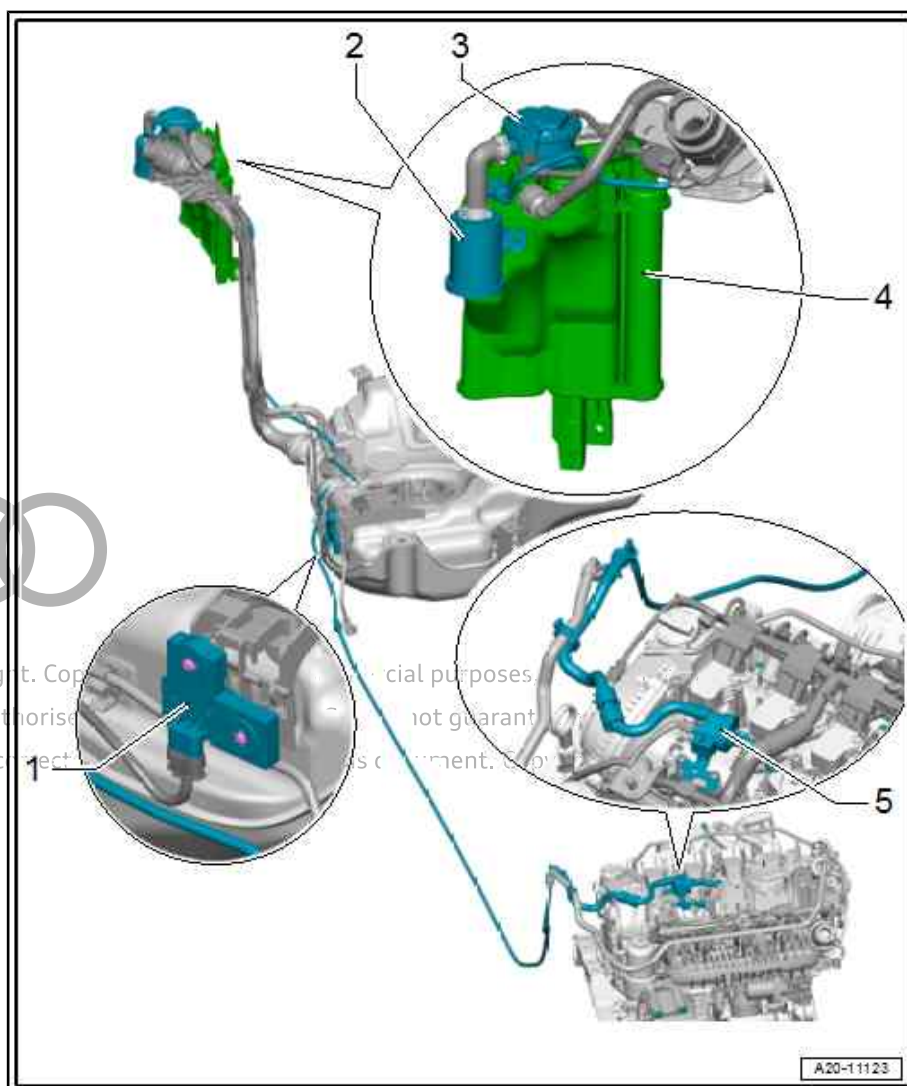
3 - Tank pressure sensor - G400-

- ☐ NAR vehicles

4 - Activated charcoal filter

- ☐ Allocation ⇒ Electronic parts catalogue

5 - Activated charcoal filter solenoid valve 1 - N80-





5.1.2 Connection diagram - activated charcoal filter system, vehicles with high-voltage system

1 - Activated charcoal filter solenoid valve 1 - N80-

2 - Activated charcoal filter

- ❑ Allocation ⇒ Electronic parts catalogue

3 - Air cleaner

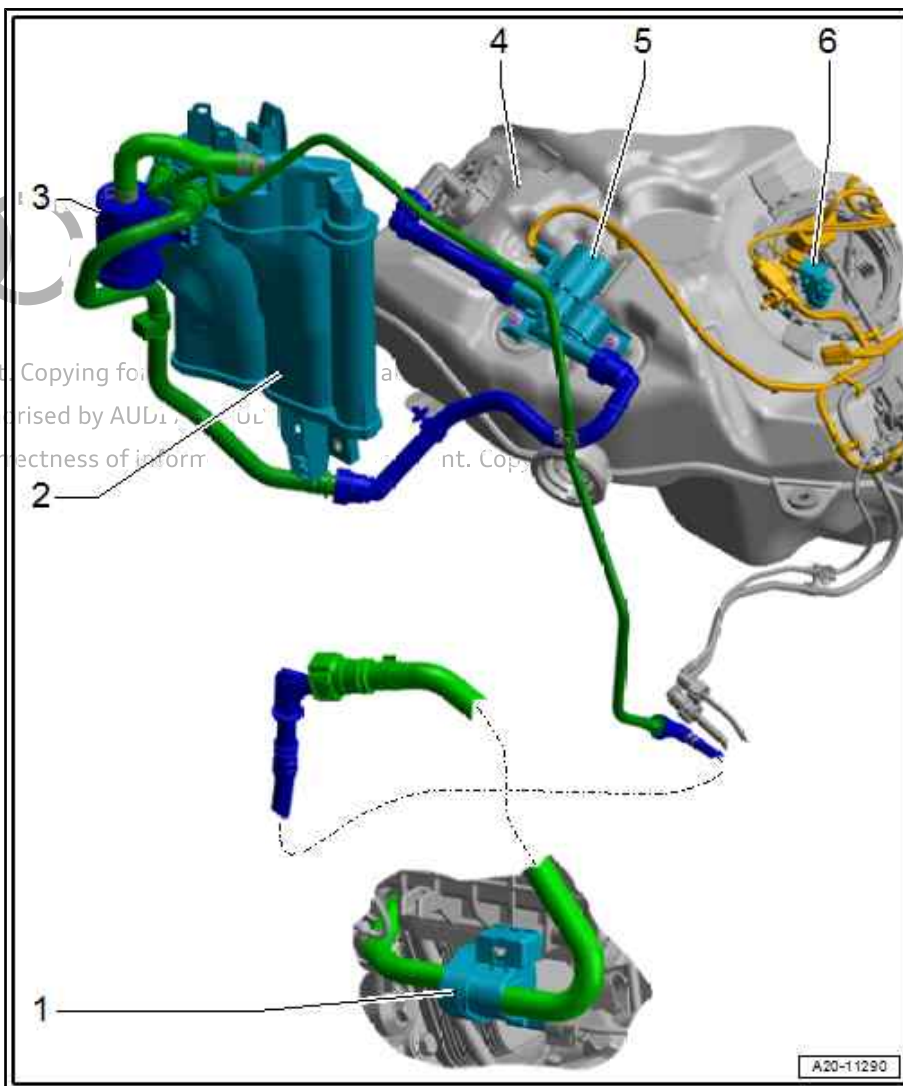
4 - Fuel tank

5 - Fuel tank shut-off valve - N288-

- ❑ Removing and installing
⇒ ["5.3.5 Removing and installing fuel tank shut-off valve N288"](#),
[page 106](#)

6 - Tank pressure sensor - G400-

- ❑ Disconnecting and connecting plug-in connectors
⇒ ["4.1 Disconnecting plug-in connectors"](#),
[page 91](#)





5.2 Exploded view - activated charcoal filter system

⇒ [“5.2.1 Exploded view - activated charcoal filter system, vehicles without tank leak detection”, page 97](#)

⇒ [“5.2.2 Exploded view - activated charcoal filter system, vehicles with high-voltage system \(rest-of-world vehicles\)”, page 98](#)

⇒ [“5.2.3 Exploded view - activated charcoal filter system, vehicles with tank pressure sensor G400”, page 99](#)

⇒ [“5.2.4 Exploded view - activated charcoal filter system, vehicles with fuel tank leak detection module GX36”, page 101](#)

5.2.1 Exploded view - activated charcoal filter system, vehicles without tank leak detection

1 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Clipped onto fuel tank
- ☐ Disconnecting and connecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

2 - Bolt

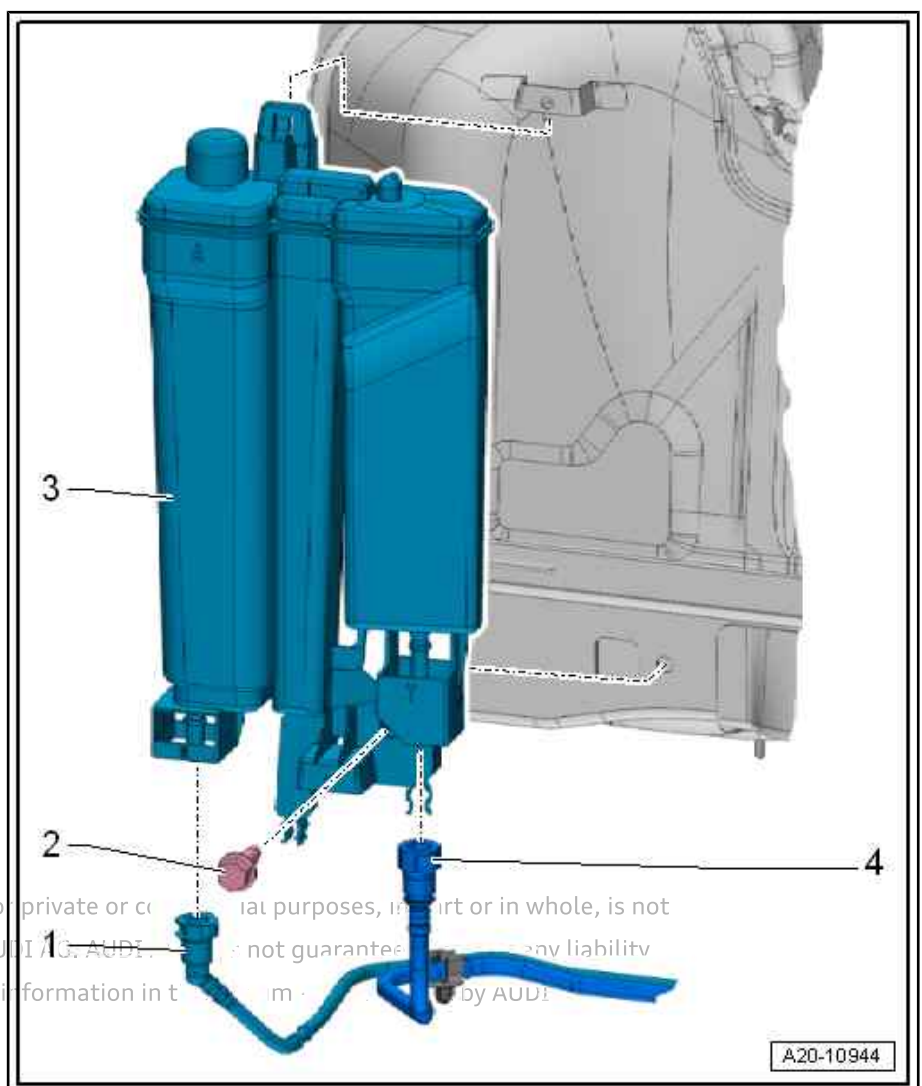
- ☐ 20 Nm

3 - Activated charcoal filter

- ☐ Fitting location: in wheel housing (rear right) behind wheel housing liner
- ☐ Removing and installing
⇒ [“5.3.1 Removing and installing activated charcoal filter - vehicles without tank leak detection”, page 102](#)
- ☐ Different versions available; for allocation refer to ⇒ Electronic parts catalogue

4 - Breather line

- ☐ To fuel tank
- ☐ Disconnecting and connecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)





5.2.2 Exploded view - activated charcoal filter system, vehicles with high-voltage system (rest-of-world vehicles)

1 - Breather line

- ❑ Disconnecting and connecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

2 - Breather line

- ❑ To fuel tank
- ❑ Disconnecting and connecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

3 - Bolt

- ❑ 20 Nm

4 - Air cleaner

- ❑ Fitting location: in wheel housing (rear right) behind wheel housing liner
- ❑ Clipped onto activated charcoal filter -item 7-
- ❑ Removing and installing
⇒ [“5.3.4 Removing and installing air filter for activated charcoal filter system”, page 105](#)

5 - Hose clip

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

6 - Hose

7 - Activated charcoal filter

- ❑ Fitting location: in wheel housing (rear right) behind wheel housing liner
- ❑ Removing and installing
⇒ [“5.3.2 Removing and installing activated charcoal filter - vehicles with high-voltage system \(rest-of-world vehicles\)”, page 103](#)

8 - Breather line

- ❑ To activated charcoal filter solenoid valve 1 - N80-
- ❑ Clipped onto fuel tank
- ❑ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

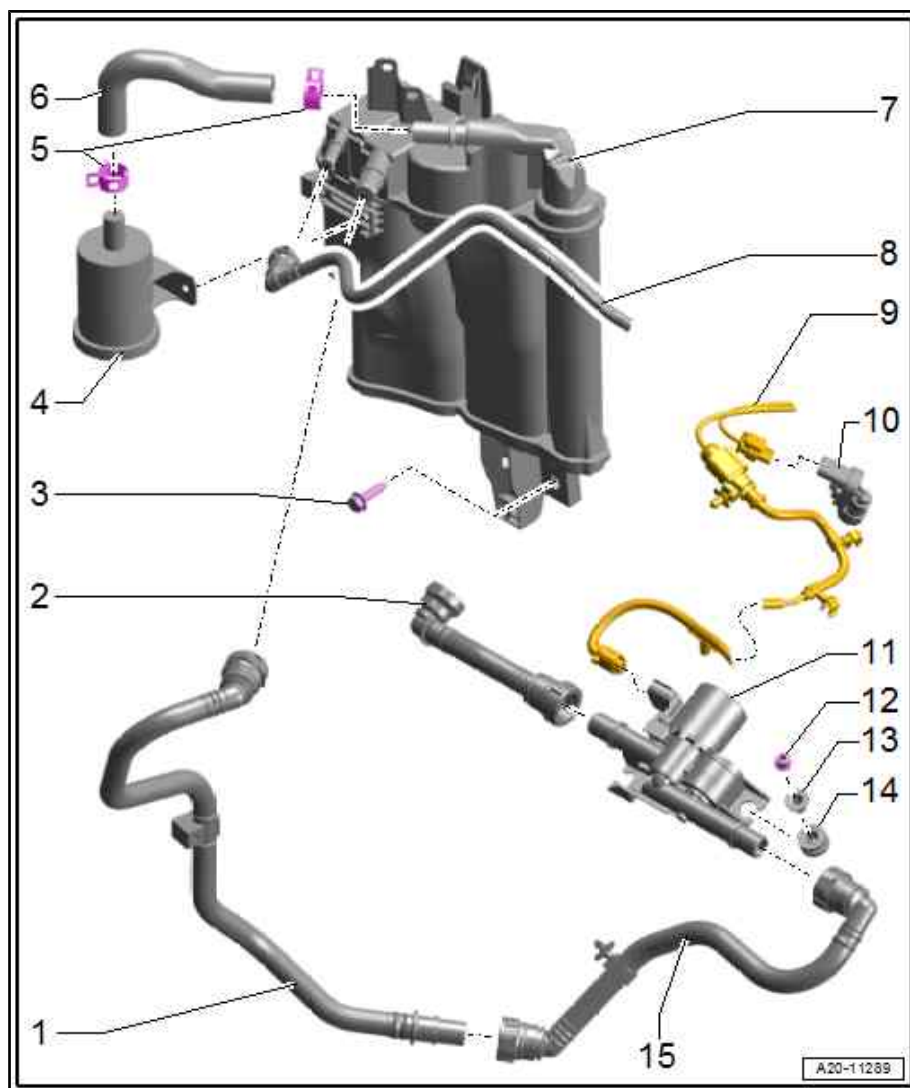
9 - Electrical wiring harness

10 - Tank pressure sensor - G400-

- ❑ Fitting location: on flange for fuel delivery unit
- ❑ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

11 - Fuel tank shut-off valve - N288-

- ❑ Removing and installing ⇒ [“5.3.5 Removing and installing fuel tank shut-off valve N288”, page 106](#)





12 - Nut

- ☐ 2x
- ☐ 8 Nm

13 - Spacer sleeve

- ☐ 2x

14 - Rubber mounting

- ☐ 2x
- ☐ Fit in fuel tank shut-off valve - N288-

15 - Breather line

- ☐ Disconnecting and connecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

5.2.3 Exploded view - activated charcoal filter system, vehicles with tank pressure sensor - G400-

1 - Breather line

- ☐ To fuel tank
- ☐ Disconnecting and connecting plug-in connectors
 ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

2 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Clipped onto fuel tank
- ☐ Disconnecting and connecting plug-in connectors
 ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)

3 - Air cleaner

- ☐ For tank leak detection system
- ☐ Fitting location: in wheel housing (rear right) behind wheel housing liner
- ☐ Clipped onto activated charcoal filter -item 13-
- ☐ Removing and installing
 ⇒ [“5.3.4 Removing and installing air filter for activated charcoal filter system”, page 105](#)

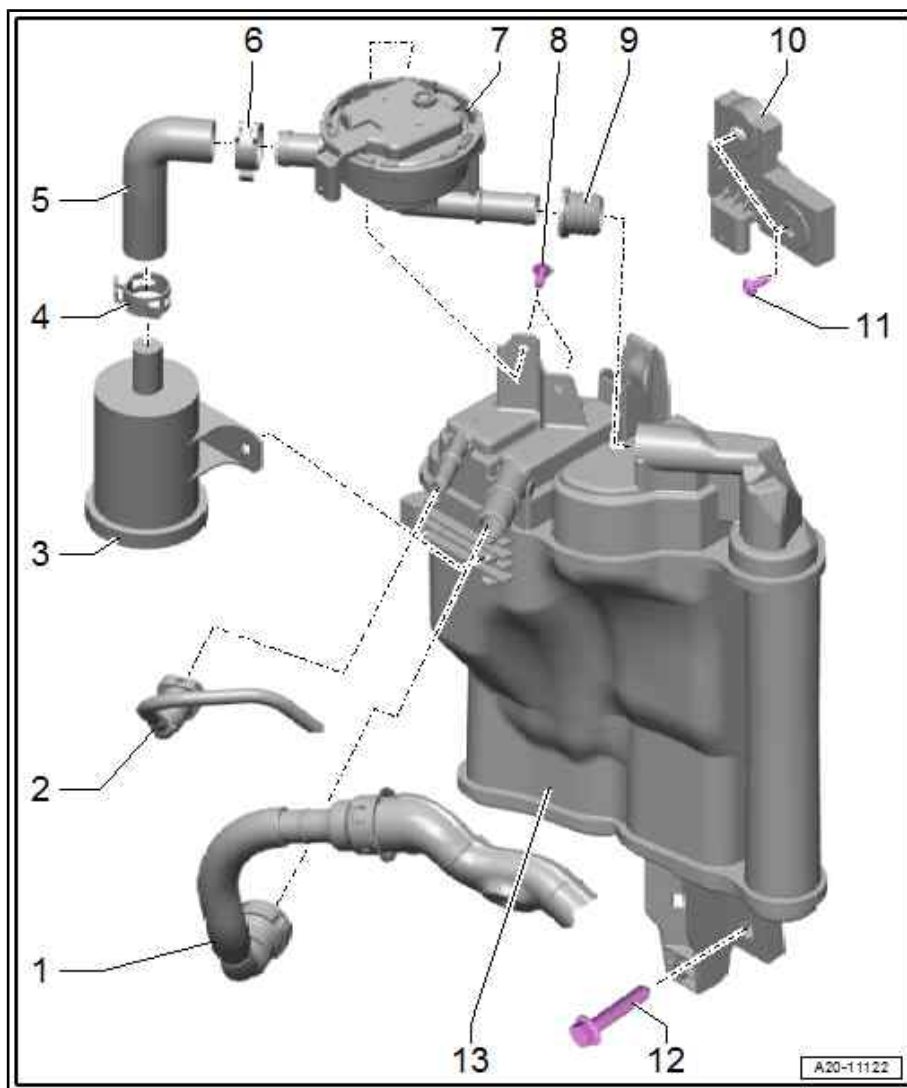
4 - Hose clip

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

5 - Hose

6 - Hose clip

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





7 - Tank pressure sensor - G400-

- ☐ Fitting location: in wheel housing (rear right) behind wheel housing liner
- ☐ Removing and installing ⇒ [“3.7 Removing and installing tank pressure sensor G400 ”, page 90](#)

8 - Bolt

- ☐ 2x
- ☐ 1.8 Nm

9 - Seal

- ☐ Insert into activated charcoal filter

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

- ☐ Fitting location: on right side of fuel tank
- ☐ Removing and installing
⇒ [“5.3.7 Removing and installing control unit for fuel tank leak detection J909 ”, page 107](#)

11 - Bolt

- ☐ 2x
- ☐ 3 Nm

12 - Bolt

- ☐ 20 Nm

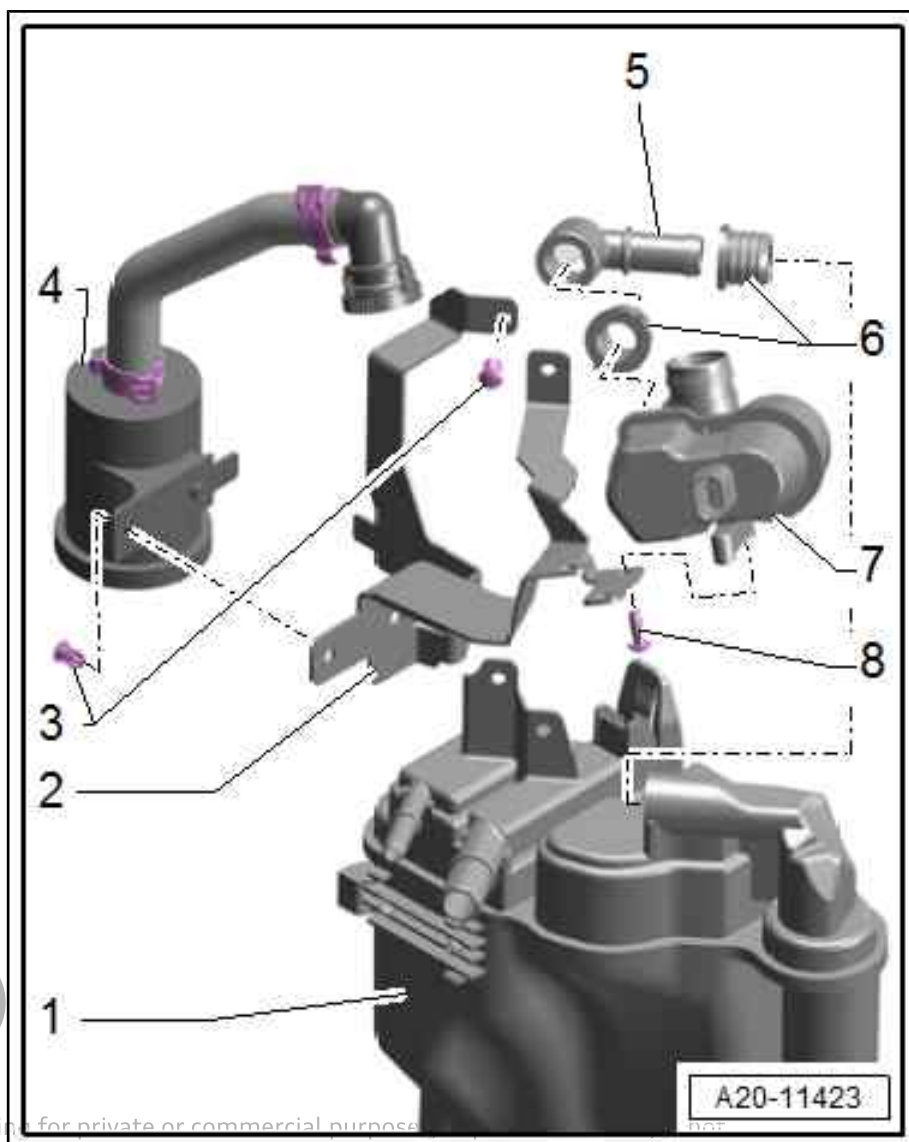
13 - Activated charcoal filter

- ☐ Fitting location: in wheel housing (rear right) behind wheel housing liner
- ☐ Removing and installing
⇒ [“5.3.3 Removing and installing activated charcoal filter - vehicles with tank pressure sensor G400 /with fuel tank leak detection module GX36 ”, page 103](#)



5.2.4 Exploded view - activated charcoal filter system, vehicles with fuel tank leak detection module - GX36-

- 1 - Activated charcoal filter
- 2 - Bracket
- 3 - Fastener
- 4 - Air cleaner
- 5 - Connecting piece
- 6 - Seal
- 7 - Fuel tank leak detection module - GX36-
 - ❑ With fuel system diagnostic pump - V144-
- 8 - Bolt
 - ❑ 1.8 Nm



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5.3 Removing and installing activated charcoal filter

⇒ [“5.3.1 Removing and installing activated charcoal filter - vehicles without tank leak detection”, page 102](#)

⇒ [“5.3.2 Removing and installing activated charcoal filter - vehicles with high-voltage system \(rest-of-world vehicles\)”, page 103](#)

⇒ [“5.3.3 Removing and installing activated charcoal filter - vehicles with tank pressure sensor G400 /with fuel tank leak detection module GX36”, page 103](#)

⇒ [“5.3.4 Removing and installing air filter for activated charcoal filter system”, page 105](#)

⇒ [“5.3.5 Removing and installing fuel tank shut-off valve N288”, page 106](#)

⇒ [“5.3.6 Removing and installing fuel tank leak detection module GX36”, page 106](#)

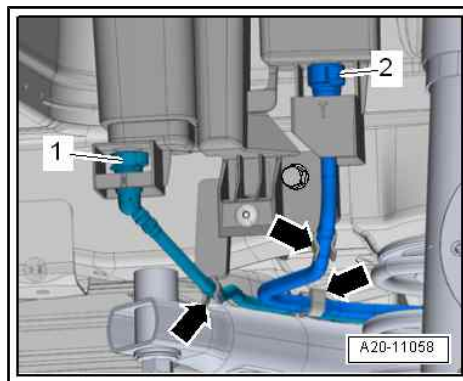
⇒ [“5.3.7 Removing and installing control unit for fuel tank leak detection J909”, page 107](#)

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5.3.1 Removing and installing activated charcoal filter - vehicles without tank leak detection

Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Disconnect breather lines -1 and 2- at activated charcoal filter. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Unclip breather lines from bracket -arrows-.





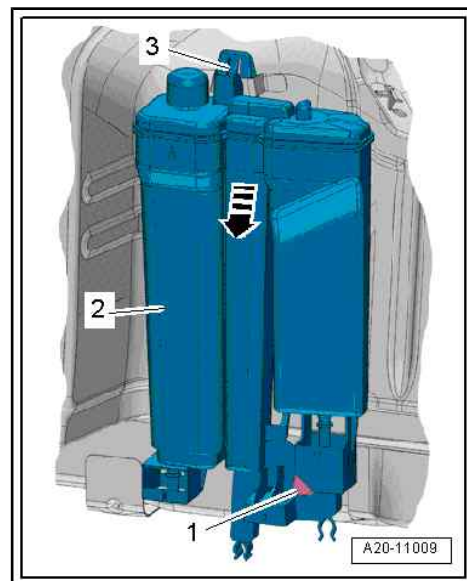
- Remove bolt -1-.
- Press in retaining hook -3- with a screwdriver and pull activated charcoal filter -2- downwards out of retainer -arrow-.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ [“5.2.1 Exploded view - activated charcoal filter system, vehicles without tank leak detection”, page 97](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



5.3.2 Removing and installing activated charcoal filter - vehicles with high-voltage system (rest-of-world vehicles)

Removing

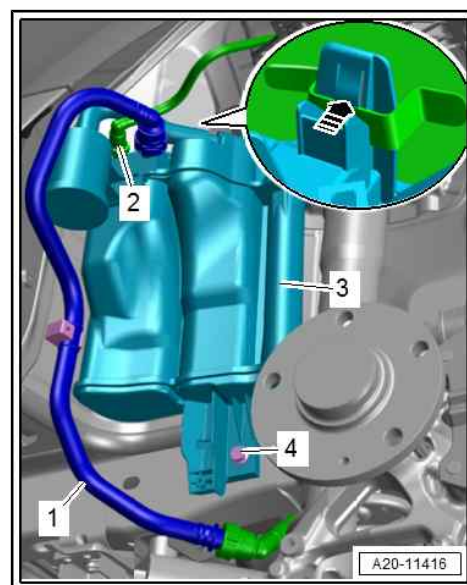
- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 4](#) .
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Remove breather line -1-. Disconnecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Disconnect breather line -2- at activated charcoal filter. Disconnecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Remove bolt -4-.
- Press in retaining hook -arrow- with a screwdriver and pull activated charcoal filter -3- downwards out of retainer.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ [“5.2.2 Exploded view - activated charcoal filter system, vehicles with high-voltage system \(rest-of-world vehicles\)”, page 98](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



5.3.3 Removing and installing activated charcoal filter - vehicles with tank pressure sensor - G400- /with fuel tank leak detection module - GX36-

Removing

- Observe safety precautions ⇒ [page 1](#) .

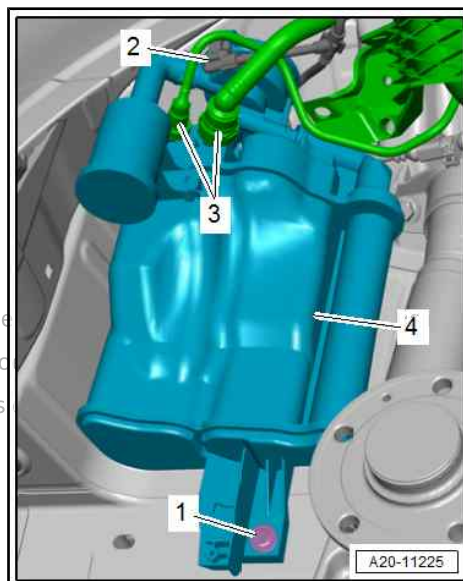


- Observe rules for cleanliness ⇒ [page 4](#) .
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .

Vehicles with tank pressure sensor - G400- :

- Disconnect breather lines -3- at activated charcoal filter. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Release retainer catch and unplug electrical connector -2-.
- Remove bolt -1-.
- Pull activated charcoal filter -4- downwards out of mounting and detach.
- To do so, press in retaining hook with a screwdriver.

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Vehicles with fuel tank leak detection module - GX36- :

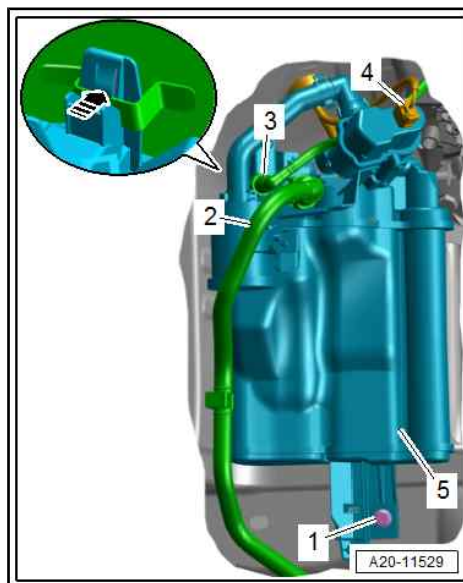
- Remove breather line -2-. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Disconnect breather line -3- at activated charcoal filter. Disconnecting plug-in connectors
⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Release retainer catch and unplug electrical connector -4-.
- Remove bolt -1-.
- Press in retaining hook -arrow- with a screwdriver and pull activated charcoal filter -5- downwards out of retainer.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ♦ ⇒ [“5.2.3 Exploded view - activated charcoal filter system, vehicles with tank pressure sensor G400”, page 99](#)
- ♦ ⇒ [“5.2.4 Exploded view - activated charcoal filter system, vehicles with fuel tank leak detection module GX36”, page 101](#)
- ♦ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)

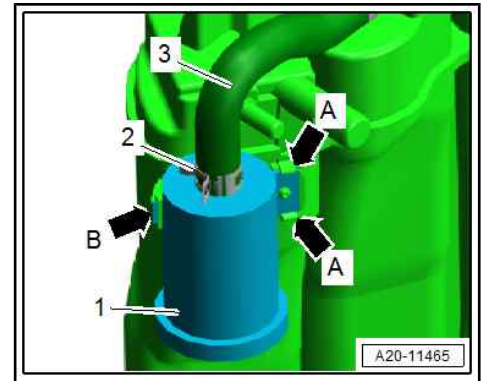




5.3.4 Removing and installing air filter for activated charcoal filter system

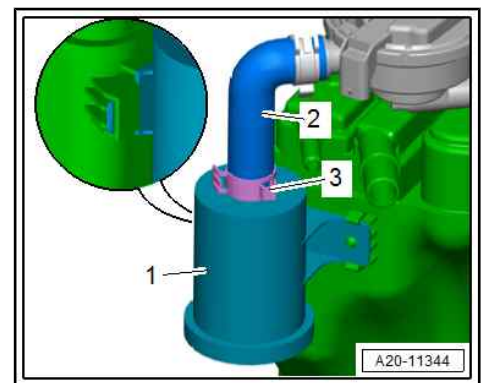
Removing - vehicles with high-voltage system (rest-of-world vehicles)

- Remove activated charcoal filter
 ⇒ [“5.3.2 Removing and installing activated charcoal filter - vehicles with high-voltage system \(rest-of-world vehicles\)”, page 103](#) .
- Unclip air filter -1- from activated charcoal filter (disengage retainers -arrows A-).
- Disengage air filter from activated charcoal filter -arrow B-.
- Release hose clip -2- and detach hose -3-.



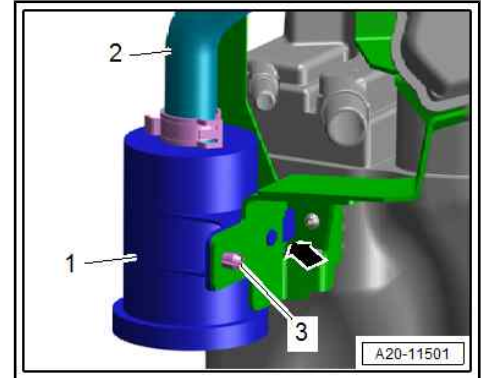
Removing - vehicles with tank pressure sensor - G400-

- Remove activated charcoal filter
 ⇒ [“5.3.3 Removing and installing activated charcoal filter - vehicles with tank pressure sensor G400 /with fuel tank leak detection module GX36”, page 103](#) .
- Unclip air filter -1- from activated charcoal filter (disengage retainers).
- Disengage air filter from activated charcoal filter.
- Release hose clip -3- and detach hose -2-.



Removing - vehicles with fuel tank leak detection module - GX36-

- Remove activated charcoal filter
 ⇒ [“5.3.2 Removing and installing activated charcoal filter - vehicles with high-voltage system \(rest-of-world vehicles\)”, page 103](#) .
- Release hose clip and detach vent hose -2-.
- Remove fastener -3-.
- Disengage air filter -1- from bracket -arrow-.



Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ [“5.2 Exploded view - activated charcoal filter system”, page 97](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)



5.3.5 Removing and installing fuel tank shut-off valve - N288-

Removing

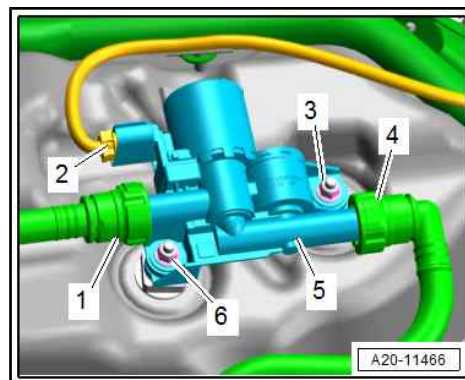
- Remove fuel tank
⇒ [“1.3.3 Removing and installing fuel tank - vehicles with high-voltage system”, page 36](#) .
- Release retainer catch and unplug electrical connector -2-.
- Disconnect breather lines -1, 4-. Disconnecting plug-in connectors ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- Remove nuts -3, 6- and detach fuel tank shut-off valve - N288- -item 5- for fuel system.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ♦ ⇒ [“5.2.2 Exploded view - activated charcoal filter system, vehicles with high-voltage system \(rest-of-world vehicles\)”, page 98](#)
- ♦ ⇒ [“1.1.5 Exploded view - fuel tank, vehicles with high-voltage system”, page 16](#)



5.3.6 Removing and installing fuel tank leak detection module - GX36-

- The fuel tank leak detection module - GX36- contains the fuel system diagnostic pump - V144- .

Removing

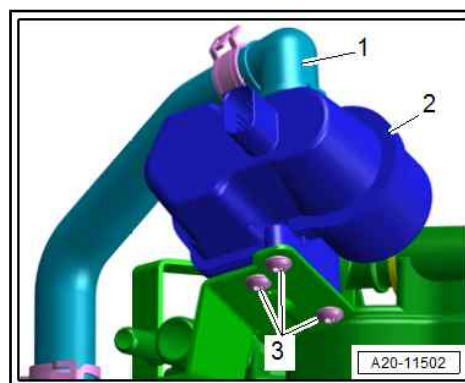
- Remove activated charcoal filter
⇒ [“5.3.3 Removing and installing activated charcoal filter - vehicles with tank pressure sensor G400 /with fuel tank leak detection module GX36”, page 103](#) .
- Press release tabs and detach vent hose -1-.
- Remove bolts -3-.
- Pull fuel tank leak detection module - GX36- -item 2- off activated charcoal filter and remove.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ♦ ⇒ [“5.2.4 Exploded view - activated charcoal filter system, vehicles with fuel tank leak detection module GX36”, page 101](#)



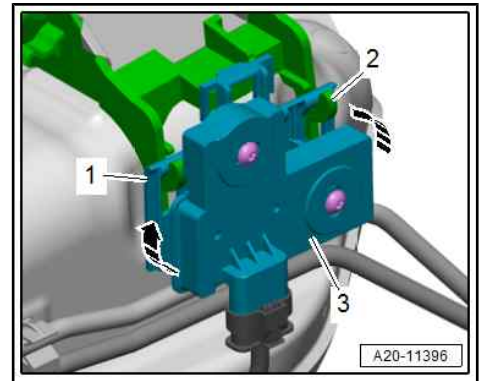
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5.3.7 Removing and installing control unit for fuel tank leak detection - J909-

Removing

- Disengage bracket -1- for control unit from mounting -2- on fuel tank.
- To do so, take hold of control unit -3- with your hand and turn it upwards carefully on each side -arrows- until control unit is released from retaining hooks.



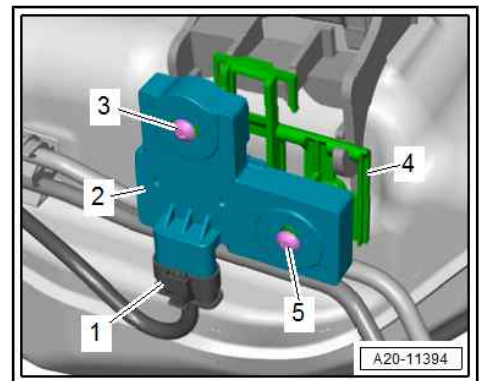
- Disengage control unit -2- with bracket -4- from retaining hooks and take out downwards.
- Release retainer catch and unplug electrical connector -1-.
- Unscrew bolts -3 and 5- and detach control unit from bracket.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ [“5.2.3 Exploded view - activated charcoal filter system, vehicles with tank pressure sensor G400”, page 99](#)



5.4 Fuel tank - leak detection

⇒ [“5.4.1 Fuel tank - leak detection, vehicles with tank pressure sensor G400”, page 107](#)

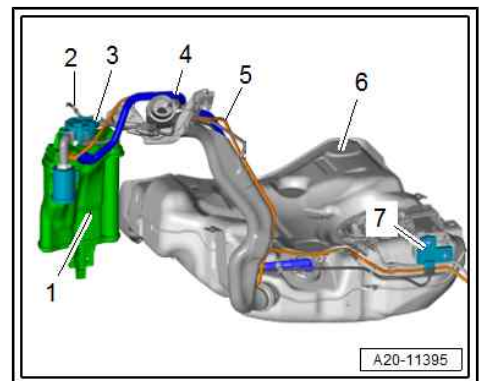
⇒ [“5.4.2 Fuel tank - leak detection, vehicles with fuel tank leak detection module GX36”, page 108](#)

5.4.1 Fuel tank - leak detection, vehicles with tank pressure sensor - G400-

- ◆ 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 tank pressure sensor - G400- -item 3- registers the degree of vacuum in the breather line -4- near the activated charcoal filter -1-. The control unit for fuel tank leak detection - J909- -item 7- is located directly on the wall of the fuel tank -6- and is thus able to register the temperature in the tank. The system is judged to be leak-tight when a vacuum of 2.5 mbar is measured. If no vacuum is formed, there is a leak in the fuel system. In this case a fault will be stored in the event memory of the engine control unit.

2 - Signal wire to engine control unit - J623-

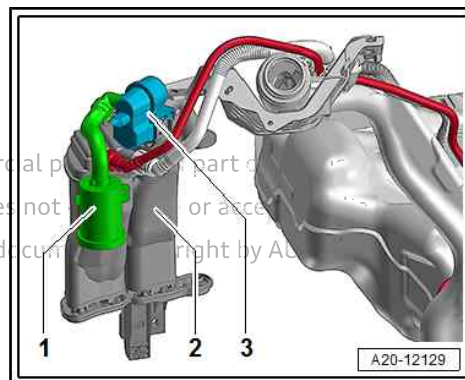
5 - Breather line to engine





5.4.2 Fuel tank - leak detection, vehicles with fuel tank leak detection module - GX36-

- ◆ The fuel tank leak detection module - GX36- -item 2- is used to monitor the tank breather system -2- for very fine leaks (diameter smaller than 0.508 mm) and fine leaks (diameter smaller than 1.016 mm). It consists of an electrically driven air pump (fuel system diagnostic pump - V144-), a change-over valve (fuel tank leak detection valve - N732-) and a reference leak with a diameter of 0.508 mm (used for reference measurement).
- ◆ The fuel system is checked for leaks by comparing the actual power consumption of the air pump with the power consumption during the operation of the system with a normed reference leak.
- ◆ For a reference measurement, the air pump is activated briefly with the change-over valve closed, and the power consumption of the air pump motor is measured while fresh air is pumped from the air filter -1- through the reference leak.
- ◆ Before the diagnosis begins, the fuel tank leak detection module - GX36- is heated via the fuel tank leak detection heater - Z186- for a specified period to prevent condensation.

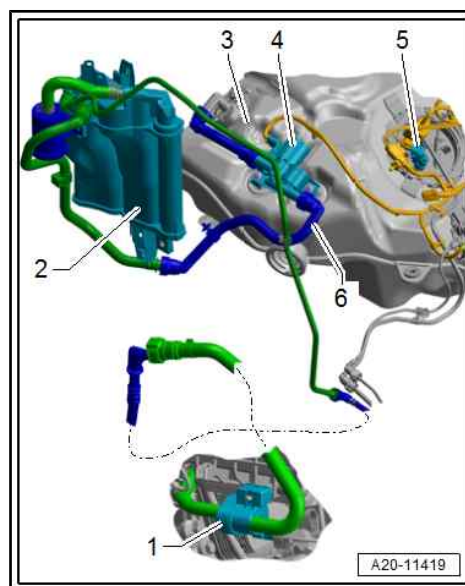


5.5 Operation of activated charcoal filter system

Vehicles with high-voltage system

- ◆ When the vehicle is operated using electric power only, the fuel tank shut-off valve - N288- -item 4- closes the breather line -6- to the activated charcoal filter -2- so that the filter does not become saturated with fuel vapours if, for example, the vehicle is driven electrically for several days.
- ◆ The pressure in the fuel tank -3- rises with the temperature when the breather line is closed; the tank pressure sensor - G400- -item 5- therefore monitors the pressure inside the tank and sends a signal via the engine control unit to open the fuel tank shut-off valve - N288- if a relative pressure of 0.3 bar is reached. In addition, the valve opens when the release button for the tank filler flap is pressed so that fuel cannot spray out of the filler neck when the filler cap is opened for refuelling.

1 - Activated charcoal filter solenoid valve 1 - N80- to engine



5.6 Checking fuel system for leaks using smoke tester - VAS 523 005-

Special tools and workshop equipment required



- ◆ Smoke tester - VAS 523 005-



- ◆ Connection piece - VAS 523 005/4-



- ◆ Connecting line set - VAS 523 005/5- , -VAS 523 005/6- or - VAS 523 005/7- (depending on diameter of breather line)



- ◆ Sealing plug - VAS 523 005/8-



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- ◆ Safety goggles (yellow)
- ◆ Operating instructions for smoke tester - VAS 523 005-

Test conditions:

- Guided Fault Finding was performed using the vehicle diagnostic tester .



- The fuel system diagnostic pump - V144- detected a leak.

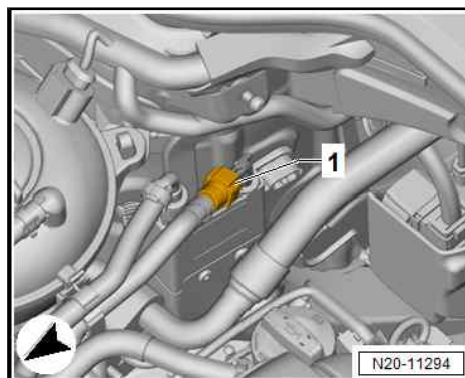
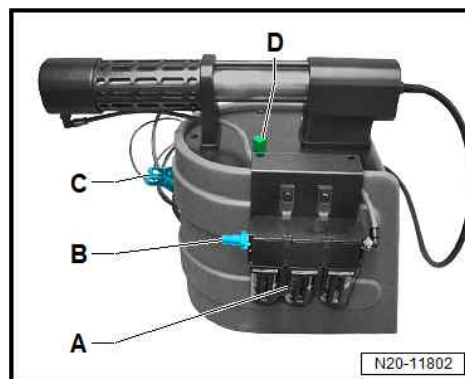


Note

The entry "Fine leak" in the event memory means that the sum of all leaks is equivalent to a leak with a diameter larger than 0.5 mm.

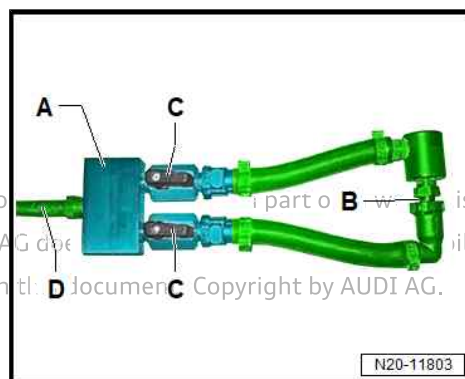
Preparing smoke tester - VAS 523 005- :

- Check water separator -A- on smoke tester. Empty water separator if necessary.
 - Connect compressed air hose to connection -B-.
 - Check whether there is enough liquid in smoke tester using dipstick -D-.
 - Connect power supply of smoke tester -C- to vehicle jump-start connections.
-
- Disconnect breather line -1- in engine compartment and check which connecting line set should be used.



Checking smoke tester and connecting line set for leaks:

- Attach connecting line set -B- to connection piece -A- as shown.
- Open cut-off valves -C-.
- Connect test hose of smoke tester to hose -D-.

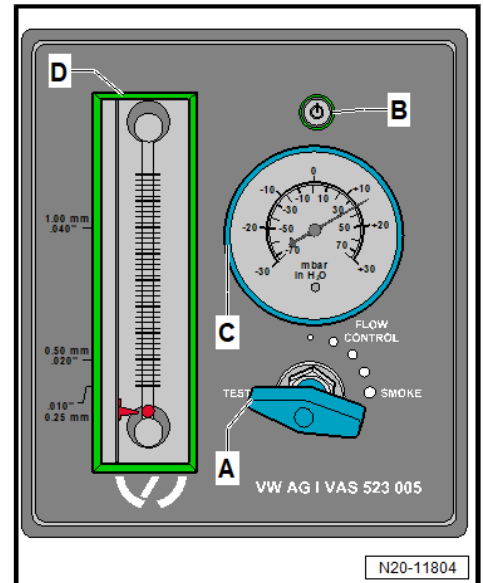




- Set valve -A- to “TEST”.
- Turn smoke tester on -B-. Connecting line set will now be filled with test gas.
- Observe pressure gauge -C- and flow meter -D-.

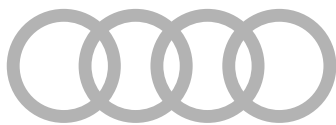
If the pressure increases to 35 mbar and the ball of the flow meter sinks to zero, the smoke tester and the connecting line set are leak-tight and can be used.

- Turn smoke tester off.

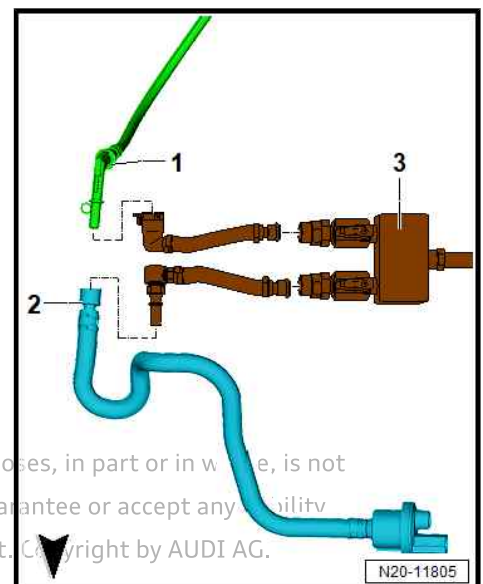


Checking activated charcoal filter solenoid valve 1 - N80- for leaks:

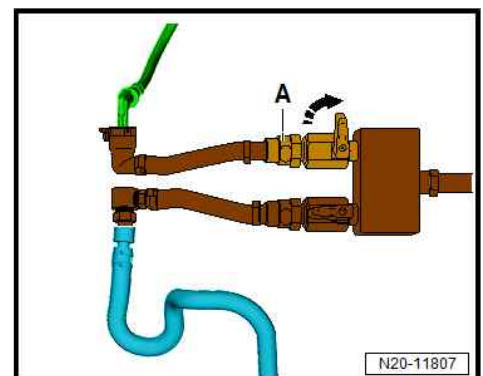
- Connect connecting line set to breather lines -1- and -2- of vehicle as shown.
- Connect test hose of smoke tester to connection piece -3-.



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- Close cut-off valve -A- (line going to activated charcoal filter).





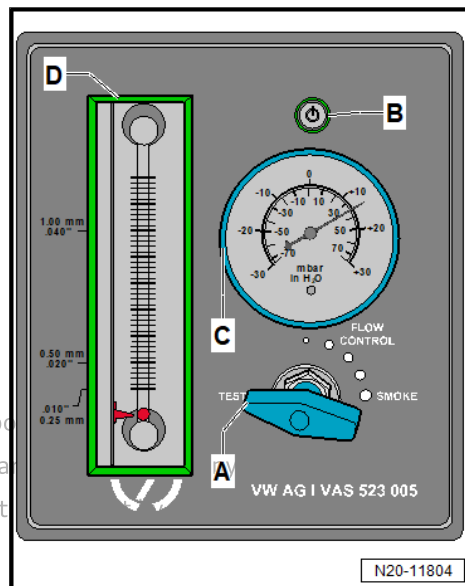
- Set valve -A- to “TEST”.
- Turn smoke tester on. Hose going to solenoid valve will now be filled with test gas.

If the pressure increases to 35 mbar and the ball of the flow meter sinks to zero, the activated charcoal filter solenoid valve 1 - N80- is leak-tight and therefore OK.

- Turn smoke tester off.

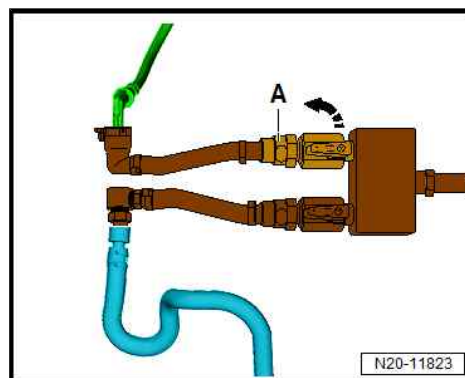


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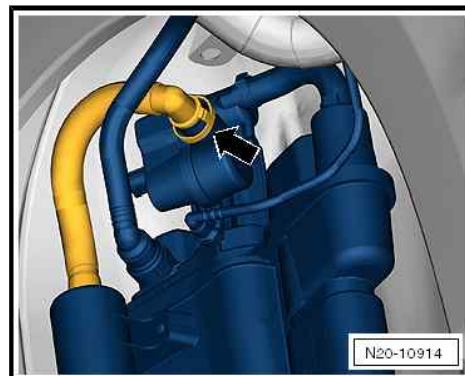


Checking activated charcoal filter, fuel tank and lines for leaks:

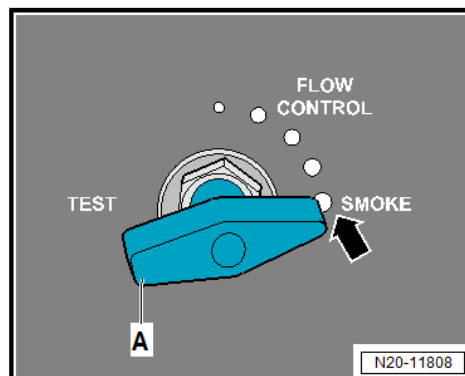
- Open cut-off valve -A- (line going to activated charcoal filter) again.



- Remove rear right wheel housing liner.
- Disconnect hose -arrow- going to air filter from fuel system diagnostic pump - V144- .

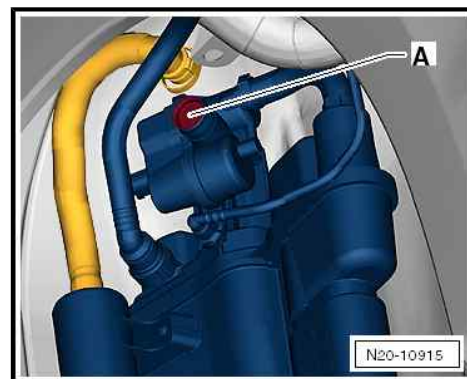


- Set valve -A- to “SMOKE” and turn smoke tester on to fill fuel system with smoke.

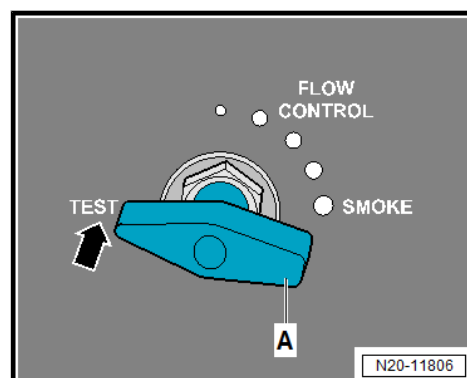




- Fill fuel system with smoke until smoke escapes from connection -A- on diagnostic pump .
- When smoke escapes, close off connection with sealing plug - VAS 523 005/8- .



- Set valve -A- to “TEST” and continue filling fuel system.



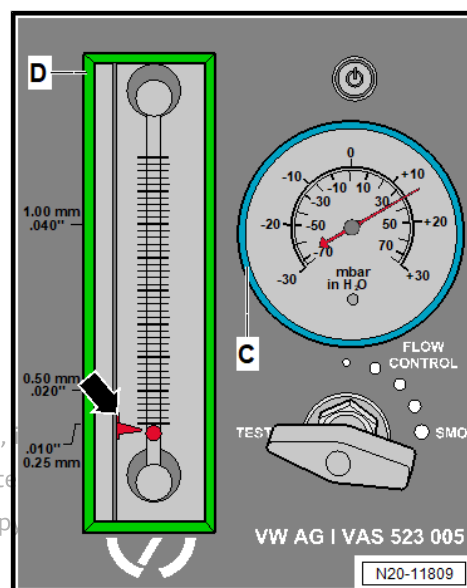
- Observe pressure gauge -C- and flow meter -D-.

If the pressure increases to 35 mbar and the ball of the flow meter sinks below the 0.25 mm mark -arrow-, the fuel system has been filled.



Note

- ♦ If you suspect a sporadic error, move lines, hoses and filler cap. If the flow meter fluctuates when a component is moved, check the component.
 - ♦ Depending on the level of fuel in the fuel tank, it may take up to 5 minutes to fill the tank with test gas.
 - ♦ The smoke tester has an automatic switch-off function. It may be necessary to turn the smoke tester back on during the procedure.
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- Once flow meter has stabilised, turn smoke tester off and observe pressure gauge.
 - After 5 minutes pressure should not drop below 30 mbar.

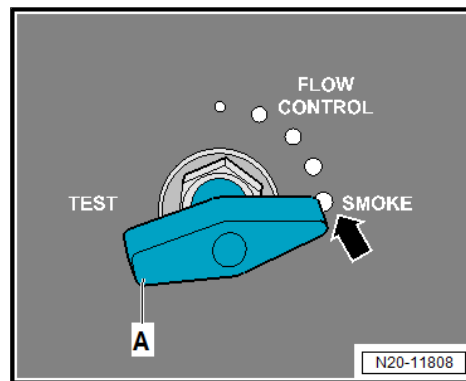




If the pressure drops or no pressure is built up, the leak must be localised as follows:

- Set valve -A- to “SMOKE” to fill fuel system with smoke.
- Check all lines and hoses and the filler cap of the fuel system for escaping smoke.
- Shine a torch on all components and hoses (smoke is easier to see in white light).
- Use laser to isolate leak. Laser beam breaks in smoke and is visible.
- Smoke contains a contrast medium. Contrast medium becomes visible at location of leak under ultraviolet light.
- Assembly opening in vehicle interior must be opened in order to check fuel pump flange and fuel filter.
- Renew any hoses or components with leaks.

After completing the procedure, perform Guided Function Check tank bleed system for leaks using vehicle diagnostic tester .



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6 Accelerator mechanism

⇒ [“6.1 Exploded view - accelerator pedal module”, page 115](#)

⇒ [“6.2 Removing and installing accelerator pedal module with accelerator position sender G79 / G185”, page 115](#)

6.1 Exploded view - accelerator pedal module

1 - Bolt

- ❑ 6 Nm

2 - Electrical connector

- ❑ Make sure it is engaged properly; pull to check that plug-in connector is correctly engaged

3 - Accelerator pedal module

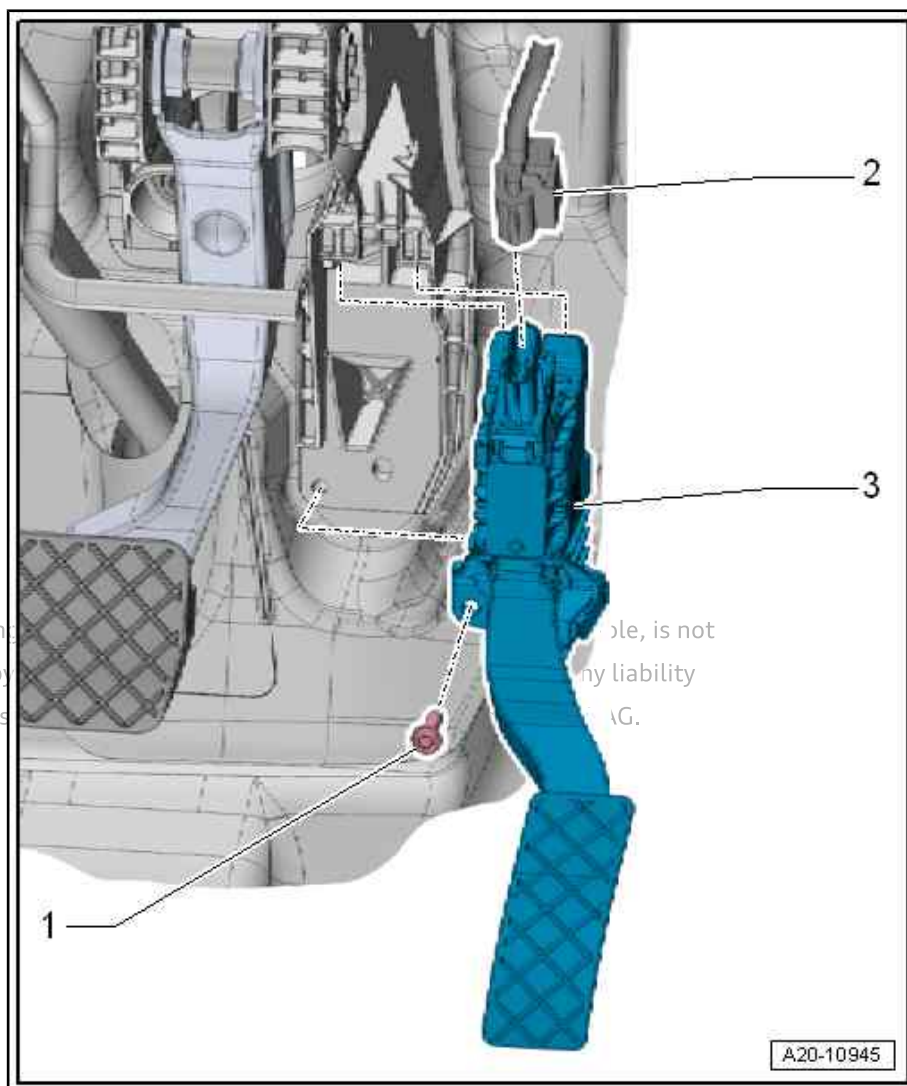
- ❑ With accelerator position sender - G79- and accelerator position sender 2 - G185-

- ❑ Checking ⇒ Vehicle diagnostic tester

- ❑ Removing and installing
⇒ [“6.2 Removing and installing accelerator pedal module with accelerator position sender G79 / G185”, page 115](#)

- ❑ Adaption may be required after renewing, depending on engine/gearbox combination

- ❑ Perform adaption if this menu item is shown under “Functions” in the engine electronics tree
⇒ Vehicle diagnostic tester



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

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester



Removing

- Remove steering column cover ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Exploded view - foot rest and floor covering .
- Push release tab upwards and unplug electrical connector -2- at accelerator pedal module.
- Remove bolt -1-.
- Detach accelerator pedal module -3- from mounting.

Installing

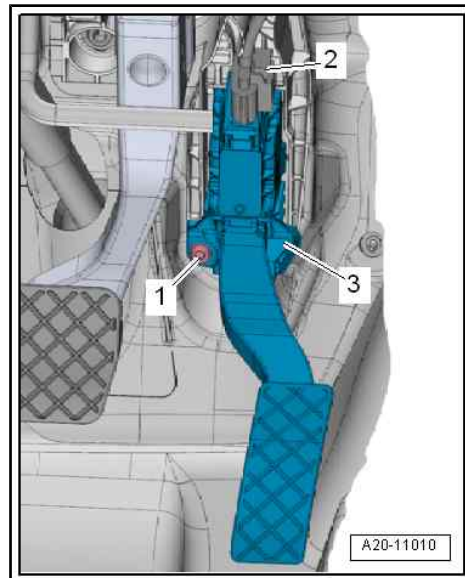
Installation is carried out in reverse order; note the following:



Caution

Risk of damage to the surface of the knee airbag due to mechanical stress.

- ◆ **After completing the repair, inspect the surface of the knee airbag for visible damage.**



- Install steering column cover ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Exploded view - foot rest and floor covering .



Note

- ◆ *Adaption must be carried out after renewing, depending on engine/gearbox combination.*
- ◆ *Perform adaption if this menu item is shown under "Functions" in the engine electronics tree ⇒ Vehicle diagnostic tester.*

Tightening torques

- ◆ ⇒ ["6.1 Exploded view - accelerator pedal module", page 115](#)



7 Fuel pump

⇒ [“7.1 Checking fuel system pressurisation pump G6 ”, page 117](#)

⇒ [“7.2 Removing and installing fuel pump control unit J538 ”, page 129](#)

⇒ [“7.3 Removing and installing suction-jet pump”, page 133](#)

7.1 Checking fuel system pressurisation pump - G6-

⇒ [“7.1.1 Checking fuel system pressurisation pump G6 - vehicles with 3-cyl./4-cyl. engine”, page 117](#)

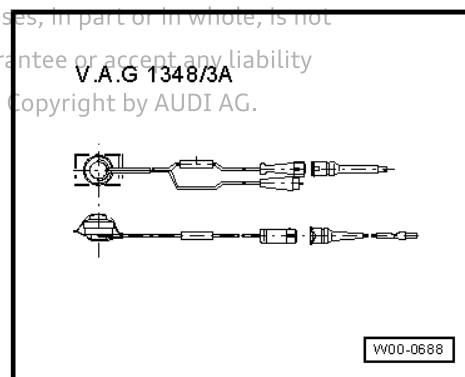
⇒ [“7.1.2 Checking fuel system pressurisation pump G6 - vehicles with 5-cyl. engine”, page 124](#)

7.1.1 Checking fuel system pressurisation pump - G6- - vehicles with 3-cyl./4-cyl. engine

Special tools and workshop equipment required

- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-3-

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



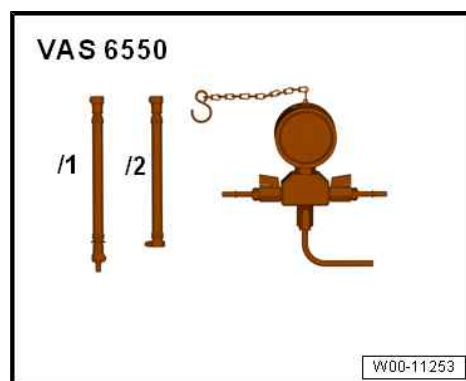


◆ Auxiliary measuring set - V.A.G 1594C-

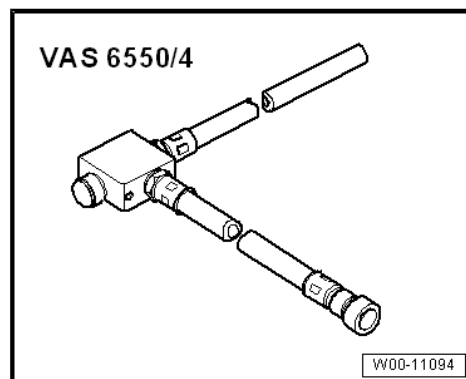
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◆ Pressure tester - VAS 6550- with hoses - VAS 6550/1- and - VAS 6550/2-



◆ Pressure control valve - VAS 6550/4-



◆ Fuel-resistant measuring container

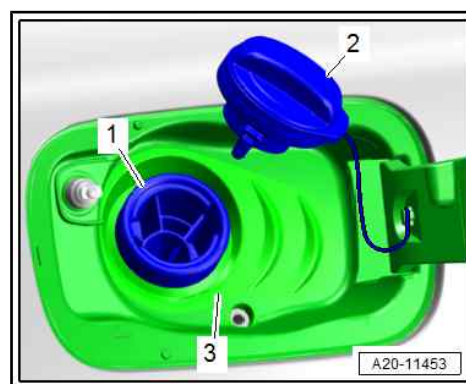
A - Checking fuel delivery rate

- Observe test conditions ⇒ [“2.2 Test conditions”, page 4](#) .
- Move front seats all the way forwards.
- Release and open tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -2- for fuel filler neck -1-.



Note

Disregard -item 3-.





Front-wheel drive vehicles without high-voltage system:

- Remove rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/ individual seats .
- Unclip cover -1- for fuel tank flange at retainers -arrows- using removal wedge - 3409- .



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



Note

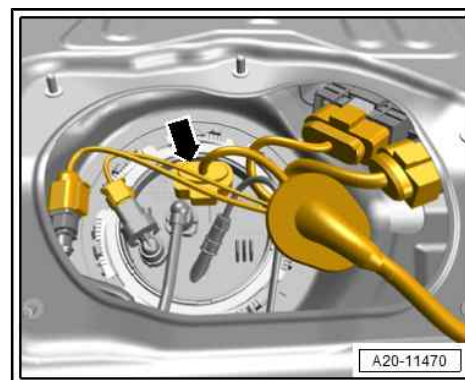
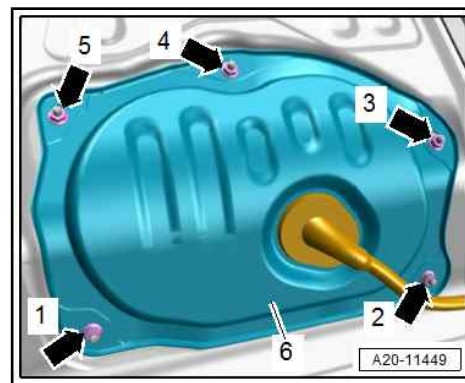
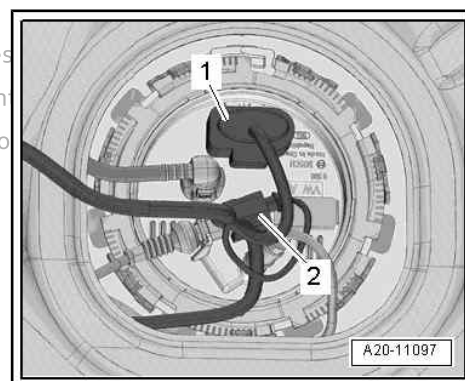
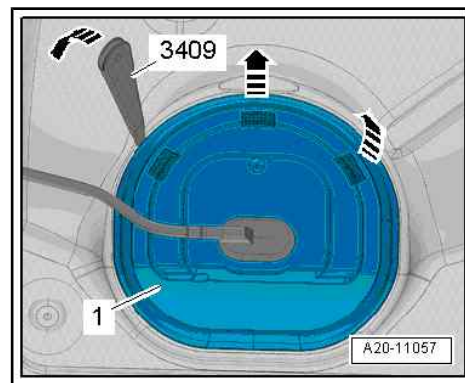
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Disregard -item 2-.

Vehicles with high-voltage system:

- Remove rear shelf ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing rear shelf .
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing luggage compartment floor .
- Fold down rear seat backrests.
- Remove subwoofer ⇒ Communication; Rep. gr. 91 ; Sound system; Removing and installing subwoofer - R211- .
- Remove nuts -arrows 1 ... 5- and detach flange cover -6-.

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



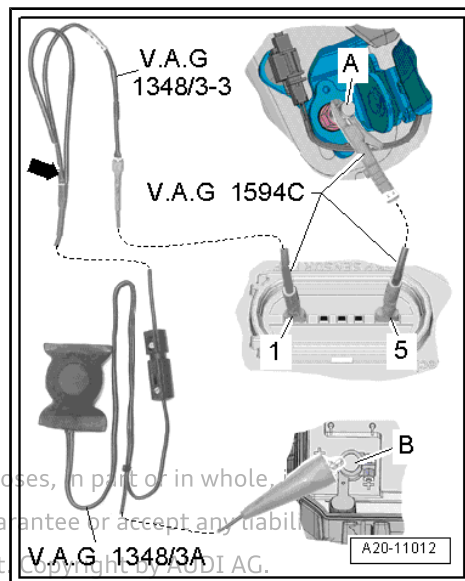


All vehicles with front-wheel drive (continued):

- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 to contact -1- using adapter cable -V.A.G 1348/3-3- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Tape off 2nd connector contact of adapter cable -V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Connect contact -5- to vehicle body (earth) -A- using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Connect crocodile clip to positive battery terminal “+” -item B-.

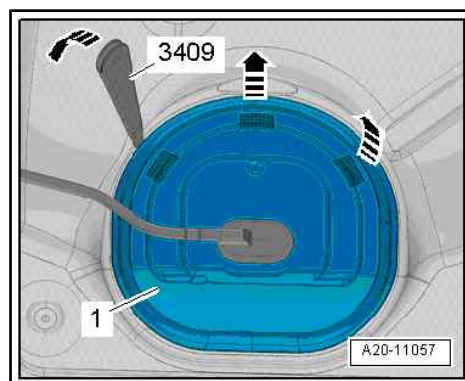


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Vehicles with four-wheel drive:

- Remove rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/ individual seats .
- Unclip cover -1- for fuel tank flange at retainers -arrows- using removal wedge - 3409- .

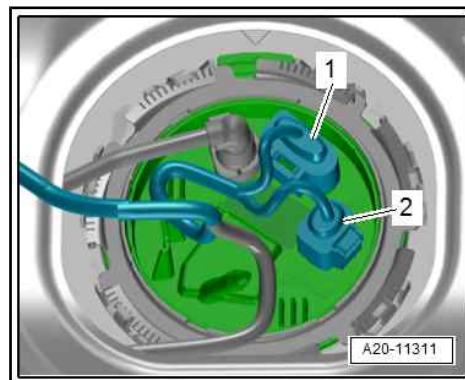


- Release retainer catch and unplug electrical connector -1- on flange (right-side).



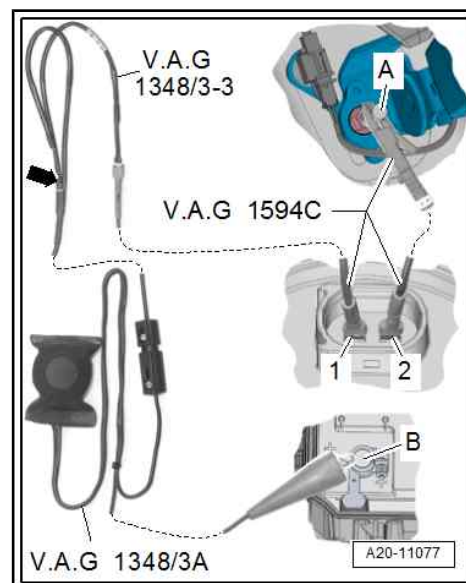
Note

Disregard -item 2-.





- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 to contact -1- using adapter cable -V.A.G 1348/3-3- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Tape off 2nd connector contact of adapter cable -V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Connect contact -2- to vehicle body (earth) -A- using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Connect crocodile clip to positive battery terminal “+” -item B-.



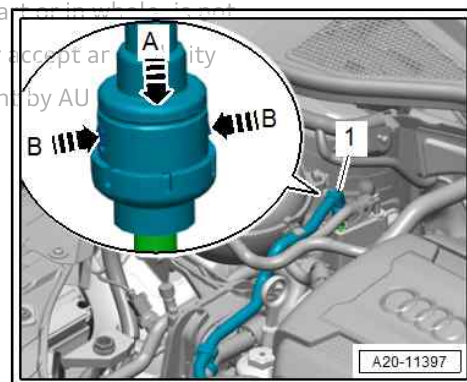
All vehicles (continued):



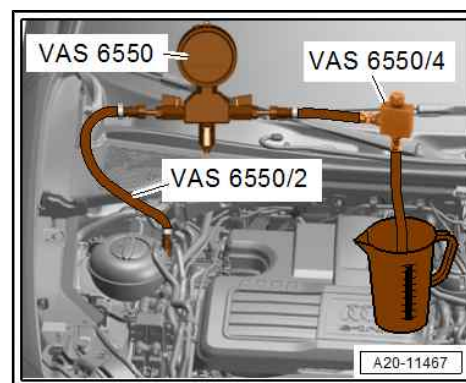
WARNING

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 ⇒ [“4.1 Disconnecting plug-in connectors”, page 91](#)
- 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.





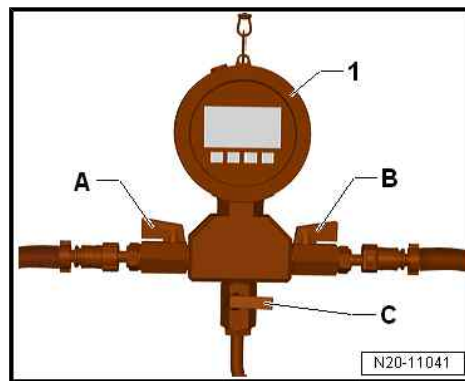
- Switch on pressure tester - VAS 6550- -item 1- by pressing **On/Off** button.



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.



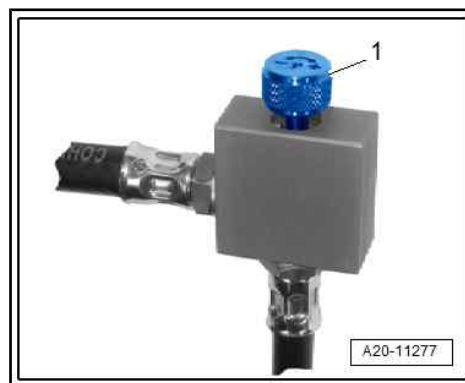
Caution

Risk of fuel escaping.

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

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- Press remote control switch.
- Build up pressure in fuel system by turning adjuster screw -1- on pressure control valve - VAS 6550/4- until correct pressure is reached.
- Specification: 4.0 bar
- From this point on, do not turn adjuster screw -1-.
- Drain measuring container.
- Press remote control switch for 15 seconds.



- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).



Note

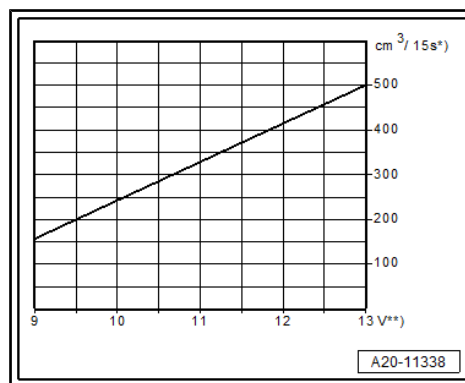
Voltage at fuel pump with engine stationary and pump running is approx. 2 volts less than battery voltage.

If the minimum delivery rate is attained:

- ◆ Fuel delivery unit with fuel supply line is OK.

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

- ◆ Fuel delivery unit is defective.
- ◆ Fuel supply line crushed.



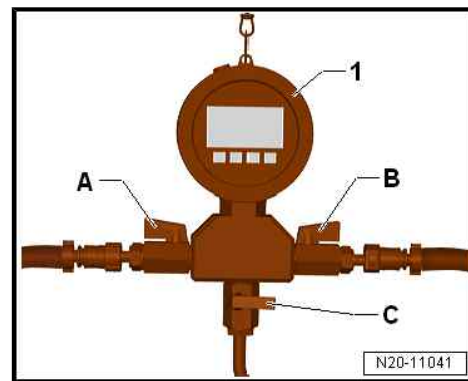
Note

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



B - Pressure test on fuel supply line

- Leave measuring equipment connected in the same way as for measuring the fuel delivery rate.
- Leave remote control - V.A.G 1348/3A- for V.A.G 1348 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 remote control switch.
- 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: at least 6.0 bar

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

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

If specification is not attained:

- ◆ Fuel delivery unit is 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
 ⇒ ["2.2 Removing and installing fuel delivery unit/fuel gauge senders", page 57](#) .

Attaching

Assembly is performed in reverse sequence; note the following:

- The ignition must be switched off.



Note

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

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

Vehicles without high-voltage system:

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

Vehicles with high-voltage system:

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

Tightening torques

- ♦ ⇒ [“2.1.2 Exploded view - fuel delivery unit/fuel gauge sender, vehicles with high-voltage system”, page 52](#)
- ♦ ⇒ Communication; Rep. gr. 91 ; Sound system; Overview of fitting locations - sound system

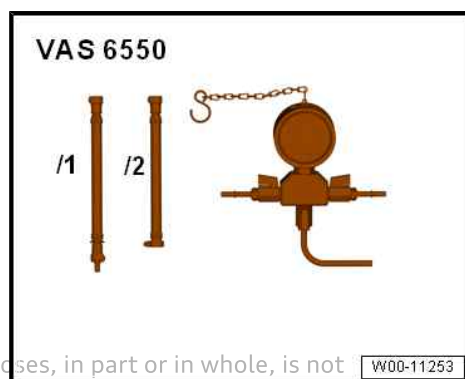
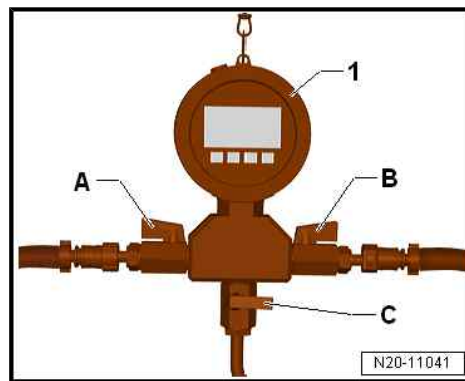
7.1.2 Checking fuel system pressurisation pump - G6- - vehicles with 5-cyl. engine

Special tools and workshop equipment required

- ♦ Pressure tester - VAS 6550- with hoses - VAS 6550/1- and - VAS 6550/2-

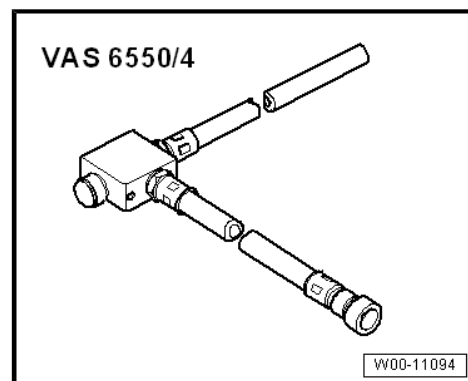


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◆ Pressure control valve - VAS 6550/4-



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

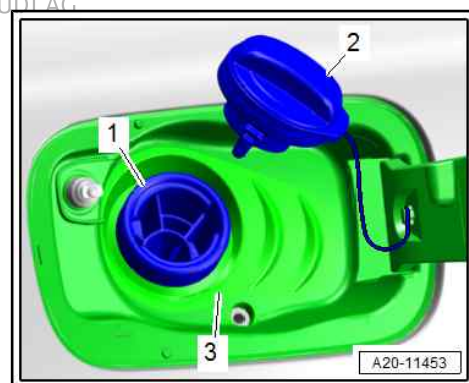
A - Checking fuel delivery rate

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



Note

Disregard -item 3-.



WARNING

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

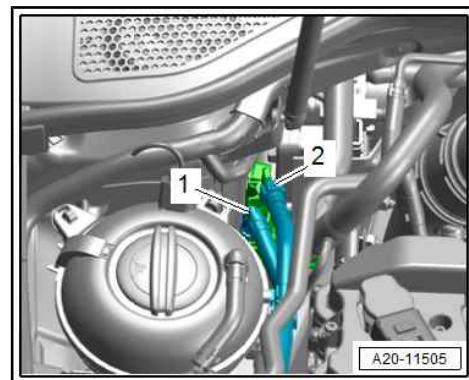
- ◆ *To reduce the pressure in the fuel system, wrap a clean cloth around the connection and loosen the connection carefully.*

- Disconnect fuel line -1-. Disconnecting plug-in connectors ➔ ["4.1 Disconnecting plug-in connectors", page 91](#)

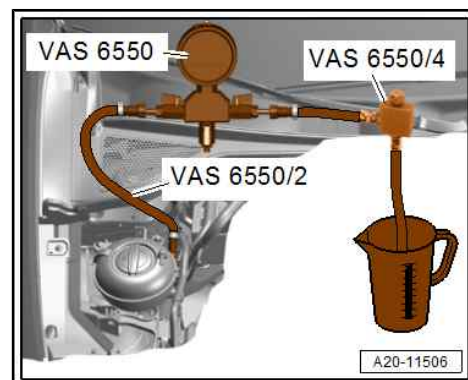


Note

Disregard -item 2-.



- 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.





- 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:

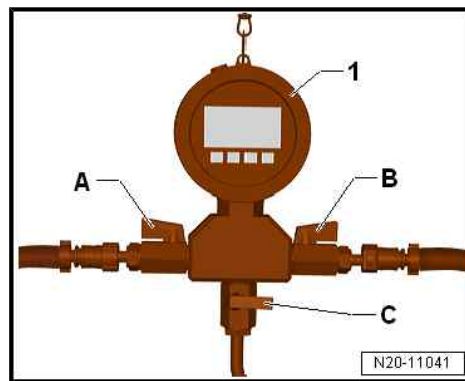
- Open cut-off valves -A and B-.
- Levers must point in direction of flow.



Caution

Risk of fuel escaping.

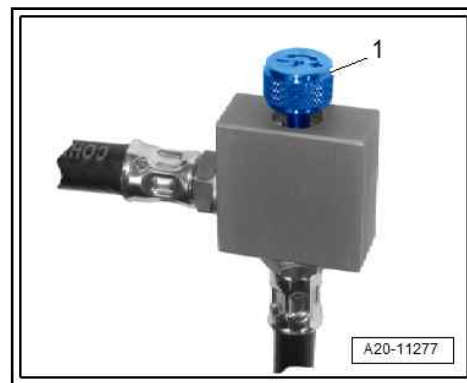
- ◆ **Cut-off valve -C- must be closed.**
- ◆ **The lever should point perpendicular to direction of flow.**



- Connect vehicle diagnostic tester .
- Switch on the ignition and select the following menu options on the vehicle diagnostic tester:
 - ◆ **01 - Engine electronics**
 - ◆ **Final control diagnosis**
 - ◆ **Fuel pump electronics**
- 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: 4.5 bar
- From this point on, do not turn adjuster screw -1-.
- Press **Stop**.
- Drain measuring container.
- For measurement, press **Start** again and let final control diagnosis run for at least 30 seconds.
- Then press **Stop** key.
- Check amount of fuel delivered in measuring container.
- Specification: minimum delivery rate 1300 cm³/30 sec.



Note

*The final control diagnosis activates the fuel pump for 30 seconds.
The fuel pump is then deactivated.*

If the minimum delivery rate is attained:

- ◆ Fuel delivery unit with fuel supply line is OK.

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

- ◆ Fuel delivery unit is defective.
- ◆ Fuel supply line crushed.



Note

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

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B - Pressure test on fuel supply line

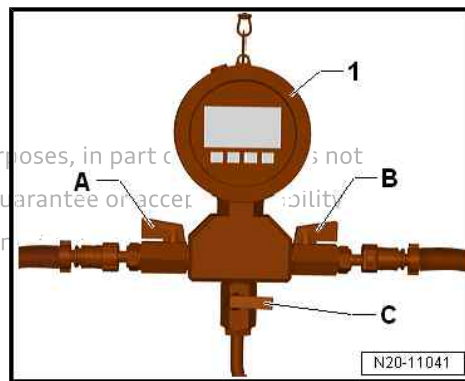
- Leave measuring equipment connected in the same way as for measuring the fuel delivery rate.
- Vehicle diagnostic tester still connected.
- Switch on pressure tester - VAS 6550- -item 1- by pressing **On/Off** button.
- Open cut-off valves -A and B-.
- Levers must point in direction of flow.



Caution

Risk of fuel escaping.

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



- 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: at least 6.0 bar

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

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

If specification is not attained:

- ◆ Fuel delivery unit is 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
⇒ [“2.2 Removing and installing fuel delivery unit/fuel gauge senders”, page 57](#) .

Attaching

Assembly is performed in reverse sequence; note the following:

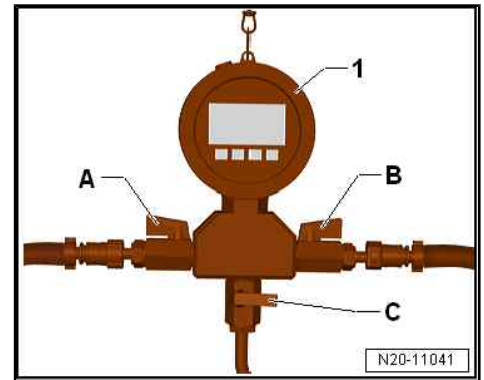
- The ignition must be switched off.



Note

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

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

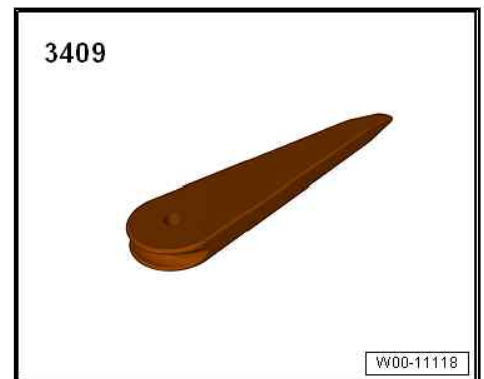
⇒ [“7.2.1 Removing and installing fuel pump control unit J538 - vehicles without high-voltage system”, page 129](#)

⇒ [“7.2.2 Removing and installing fuel pump control unit J538 - vehicles with high-voltage system”, page 130](#)

7.2.1 Removing and installing fuel pump control unit - J538- - vehicles without high-voltage system

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



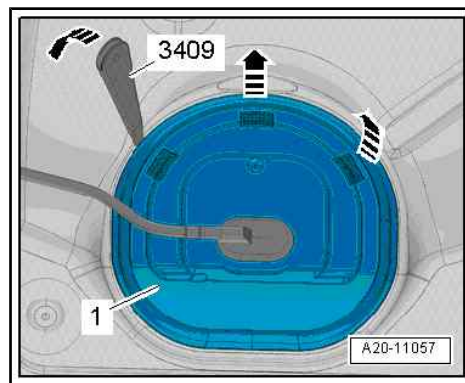
Removing

- Move front seats all the way forwards.
- Switch off ignition.
- Remove rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/ individual seats .

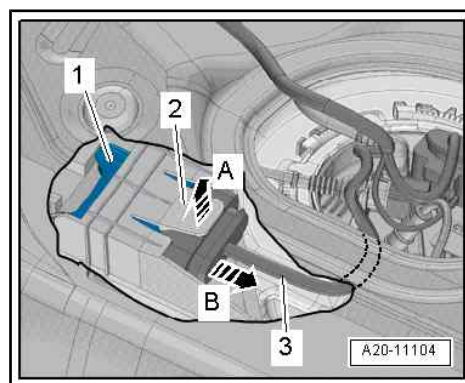
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- Unclip cover -1- for flange (right-side) at retainers -arrows- using removal wedge - 3409- .



- Press tab -2- upwards -arrow A-; to do so, reach between floor panel and fuel tank with your finger.
- At the same time, carefully pull fuel pump control unit - J538- -item 1- out of mounting -arrow B-.
- Guide fuel pump control unit - J538- out towards interior between fuel tank and floor panel.
- Unplug electrical connector and remove fuel pump control unit - J538- .



Installing



Note

Make sure electrical connector is attached properly; pull to check that it is correctly engaged.

- Insert fuel pump control unit - J538- into mounting and press down until it clicks into place.

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

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

7.2.2 Removing and installing fuel pump control unit - J538- - vehicles with high-voltage system

Removing

- Move front seats all the way forwards.
- Switch off ignition.
- Remove rear shelf ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing rear shelf
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing luggage compartment floor

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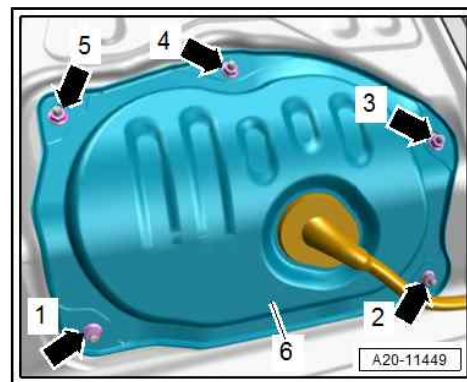


Caution

When disconnecting the battery there is a risk of irreparable damage to electronic components.

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

- Disconnect earth wire from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Fold down rear seat backrests.
- Remove subwoofer ⇒ Communication; Rep. gr. 91 ; Sound system; Removing and installing subwoofer - R211- .
- Remove nuts -arrows 1 ... 5- and detach flange cover -6-.



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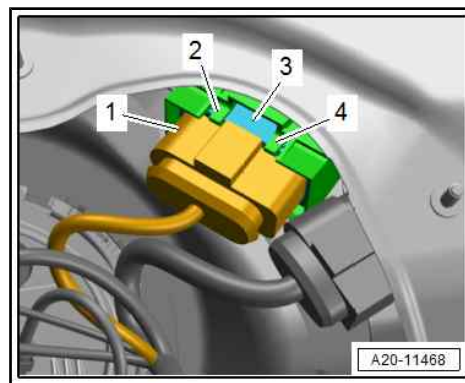
- Carefully release retaining hooks -2, 4- with a screwdriver.
- At the same time, carefully pull fuel pump control unit -3- out of mounting.
- Release retainer catch and unplug electrical connector -1-.

Installing



Note

Make sure electrical connector is attached properly; pull to check that it is correctly engaged.



- Insert fuel pump control unit - J538- into mounting and press down until it clicks into place.

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

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

Tightening torques

- ◆ ⇒ [“2.1.2 Exploded view - fuel delivery unit/fuel gauge sender, vehicles with high-voltage system”, page 52](#)
- ◆ ⇒ Communication; Rep. gr. 91 ; Sound system; Overview of fitting locations - sound system



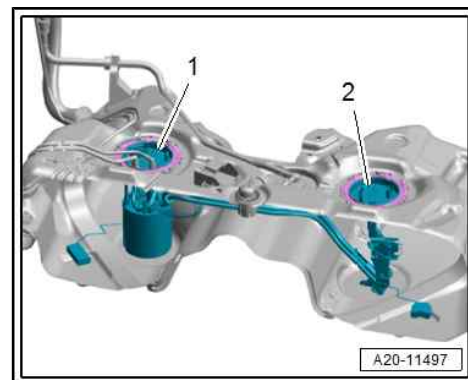
7.3 Removing and installing suction-jet pump

On vehicles with four-wheel drive the fuel tank is divided into a left and a right chamber. A so-called suction-jet pump -2- is used for delivering the fuel from the left fuel tank chamber to the baffle housing of the fuel delivery unit -1- on the right.

Suction-jet pump: operation

The suction-jet pump operates according to the principle of fluid entrainment: The stream of fuel from the electric fuel pump is passed through a nozzle in the suction-jet pump, and is thus accelerated. The accelerated stream of fuel draws off the surrounding fuel and delivers it to the baffle housing of the fuel delivery unit.

Faults caused by defective suction-jet pump



Caution

The engine can stop due to fuel starvation if the suction-jet pump is defective.

◆ *If the suction-jet pump is defective, the engine can stop due to fuel starvation when the tank is still $\frac{1}{4}$ full.*

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If the suction-jet pump is not working, up to 15 litres of fuel (up to approx. $\frac{1}{4}$ of tank capacity) may remain in the left chamber of the tank where it cannot be drawn into the fuel delivery unit.

If the engine stops due to fuel starvation with the tank up to about $\frac{1}{4}$ full, proceed as follows:

- Check fuel pump ⇒ Vehicle diagnostic tester.
- Follow instructions shown on display of vehicle diagnostic tester.
- After reading out data from control unit, press **[Go to]** key and select function/component.
- Function/component selection:
 - + Power unit (Rep. Gr. 01; 10 - 39)
 - + ... engine (Rep. Gr. 01, 10 - 28)
 - + 20 Fuel supply system
 - + Electrical components
 - G6 - Fuel pump (Rep. Gr. 20)
- Continue to follow instructions shown on display of vehicle diagnostic tester.

If fuel pump is OK, but no fuel is delivered:

- Add approx. 5 litres of fuel.
- Start engine.

If engine now starts:

- Suction-jet pump cannot be renewed separately; renew fuel tank
 ⇒ ["1.3.4 Removing and installing fuel tank - vehicles with four-wheel drive", page 42](#) .