



Workshop Manual Audi A6 2005 ➤

Fuel supply system, petrol engines									
Engine ID	AUK	BAT	BBJ	BDW	BKH	BPJ	BNK	BVJ	BXA
	BDX	BYU	BUH	BYK	CAJA	CCA A	CCD A	CCE A	CALA

Edition 04.2019



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List of Workshop Manual Repair Groups

Repair Group

20 - Fuel supply system



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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.



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20 – Fuel supply system

1 General repair instructions

(ARL006400; Edition 04.2019)

1.1 Safety precautions



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 carefully loosen the connection.*
- ◆ *Vehicles with FSI and TFSI engine: fuel system components on the engine that are fed from the high-pressure pump operate under very high pressure. When working on the engine or injection system, the pressure in the high-pressure section of the system must be reduced to a residual pressure prior to opening ⇒ Rep. gr. 24 .*

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



WARNING

Mobile phones can cause an explosion risk.

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



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery.*
- ◆ *Always switch off the ignition before disconnecting the battery.*

- ◆ Disconnect battery ⇒ Rep. gr. 27 .
- ◆ Briefly open filler cap for fuel tank and close again.



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

**WARNING**

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

Injuries can also be caused if the passenger's airbag is triggered in a collision.

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

When removing and installing components from a full or partly full fuel tank, note the following:

- ◆ Fuel tank must not be full. The amount of fuel which can be left in the fuel tank is indicated in the corresponding procedure description. Drain the tank if necessary. Procedure on front-wheel drive vehicles in rest-of-world ⇒ [page 5](#), on four-wheel drive vehicles in rest-of-world ⇒ [page 47](#), USA vehicles ⇒ [page 131](#).
- ◆ 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).
- ◆ Avoid skin contact with fuel. Wear fuel-resistant gloves.

When removing and installing the fuel tank, note the following:

- ◆ Fuel tank must be empty to reduce weight. Drain the tank if necessary. Procedure on front-wheel drive vehicles in rest-of-world ⇒ [page 5](#), on four-wheel drive vehicles in rest-of-world ⇒ [page 47](#), USA vehicles ⇒ [page 131](#).

1.2 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:

- ◆ Clean connections and surrounding area thoroughly with engine cleaner or brake cleaner and dry cleaned area before loosening.
- ◆ Plug open lines and connections with suitable protective caps immediately.
- ◆ After removal, place parts on a clean surface and cover them. Only use 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 any parts that have been unpacked previously and stored away loosely (e.g. in a tool box).



- ◆ Do not work with compressed air when the system is open. If possible, do not move vehicle.
- ◆ Protect unplugged electrical connectors against dirt and moisture and make sure connections are dry when attaching.

1.3 Test conditions

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

1.4 Contact corrosion

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

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.



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2 Fuel tank with attached components - rest-of-world vehicles with front-wheel drive

2.1 Exploded view - fuel tank with attached components

1 - Mounting

- ☐ For exhaust system

2 - Fuel line

- ☐ From fuel filter to engine
- ☐ Do not kink
- ☐ Press release tab on connection piece to disconnect

3 - Breather line

- ☐ From fuel filler neck to activated charcoal filter
- ☐ Clip onto fuel tank
- ☐ Press release tab on connection piece to disconnect

4 - Bolt

- ☐ Secures fuel filler neck and earth connection -item 9-
- ☐ 23 Nm

5 - Overflow hose

- ☐ Attached at wheel housing liner

6 - Rubber cup

7 - Seal

- ☐ Renew if damaged

8 - Filler cap

- ☐ Secured to tank flap unit

9 - Earth connection

- ☐ To eliminate electrostatic charge
- ☐ Installation position ⇒ [page 5](#)
- ☐ Ensure that connector is seated properly and secure wire with securing bolt for fuel filler neck -item 4-
- ☐ 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

10 - Breather line

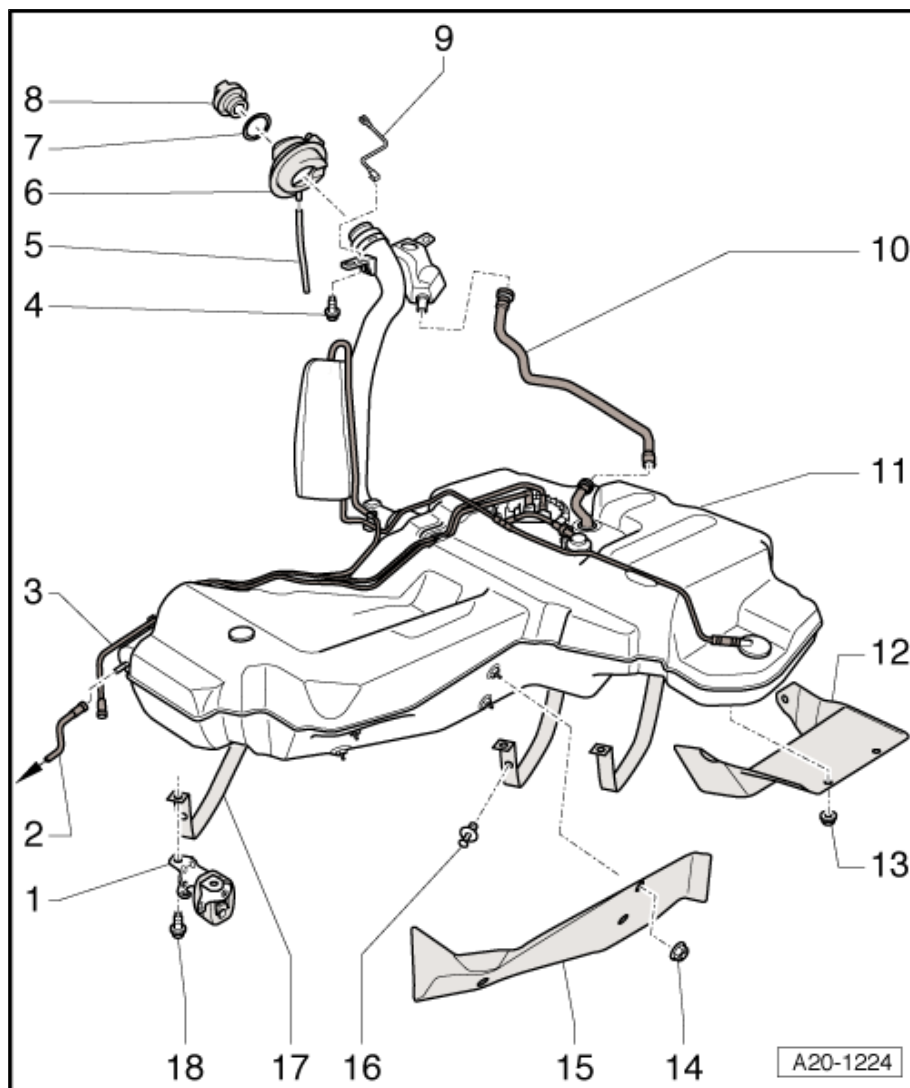
11 - Fuel tank

- ☐ Removing and installing ⇒ [page 7](#)

12 - Heat shield for fuel tank

13 - Nut

- ☐ 2 Nm





14 - Nut

- ☐ 2 Nm

15 - Heat shield for fuel tank

16 - Fastener

17 - Securing strap

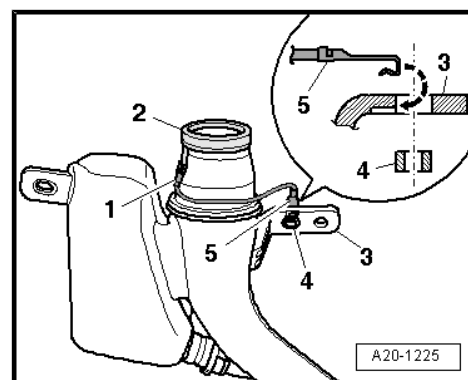
- ☐ Note different lengths

18 - Bolt

- ☐ 23 Nm

Installation position of earth connection

- Route earth connection as shown in illustration.
- First engage contact tab -5- of earth connection in mounting hole on fuel tank -3- and then press in spacer bush -4-.
- Ensure that connector -1- for earth connection is firmly seated on metal ring -2- on fuel filler neck.



WARNING

Risk of explosion caused by electrostatic discharge.

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

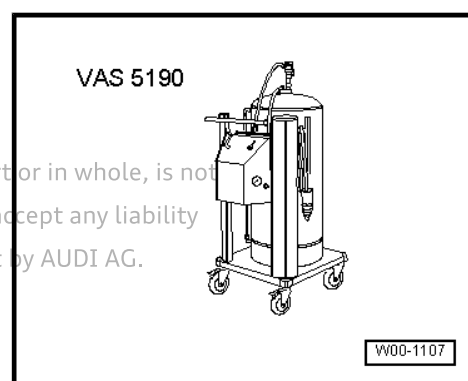
2.2 Draining fuel tank

A - Procedure if fuel tank is more than $\frac{3}{4}$ full ⇒ [page 7](#) .

B - Procedure if fuel tank is less than $\frac{3}{4}$ full ⇒ [page 7](#) .

Special tools and workshop equipment required

- ◆ Fuel extractor - VAS 5190-



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Procedure

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

Observe rules for cleanliness ⇒ [page 2](#) .



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27.*

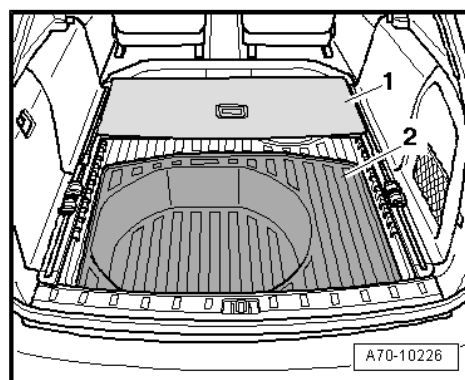
- Switch off ignition.

Saloon:

- Fold up luggage compartment floor lining.

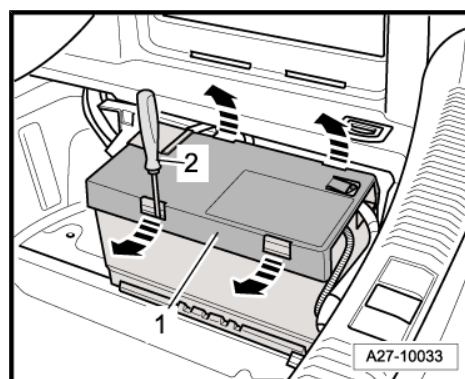
Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.

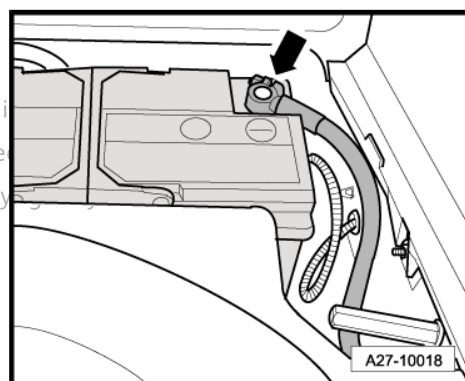


All vehicles:

- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.



- Disconnect earth cable at negative terminal of battery -arrow-.



WARNING

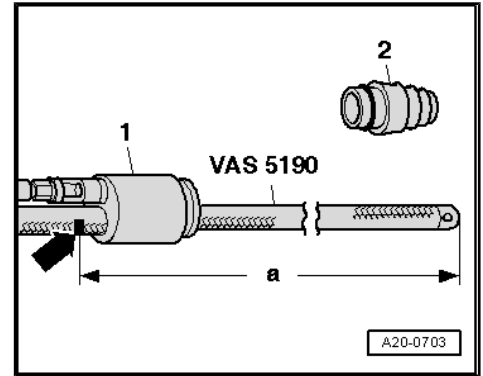
Risk of explosion caused by electrostatic discharge.

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

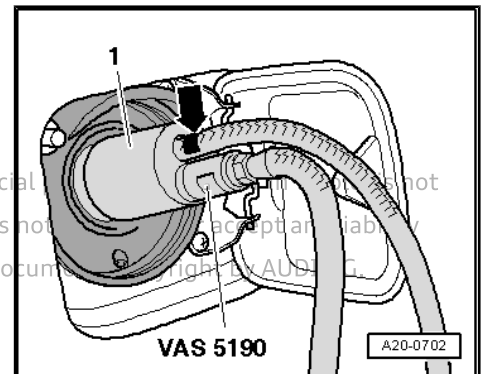


A - Procedure if fuel tank is more than $\frac{3}{4}$ full

- Detach tapered adapter -2- from shaft end -1- of fuel extractor -VAS 5190- .
- Use insulating tape to mark extraction hose -arrow- at a distance of -a- = 1295 mm from end of hose.



- Remove filler cap from fuel filler neck.
- Screw shaft end -1- of fuel extractor -VAS 5190- onto fuel filler neck.
- Push extraction hose into fuel tank until marking on hose -arrow- coincides with shaft end.
- Drain fuel tank as much as possible through fuel filler neck.
- Carefully remove extraction hose.
- Remove fuel delivery unit [⇒ page 34](#) .
- Extract remaining fuel through opening for fuel delivery unit.

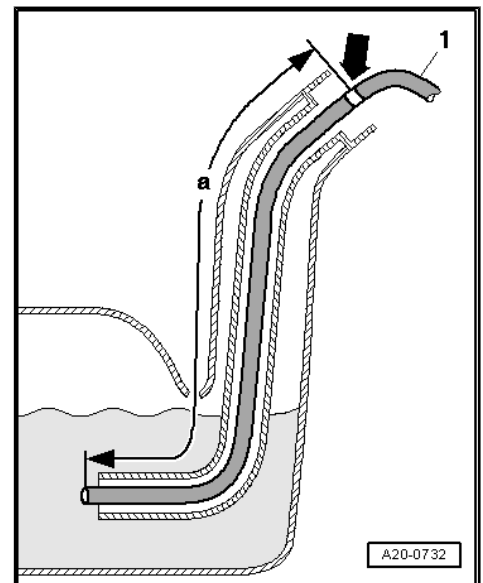


Note

- ◆ The procedure when using a fuel extractor without shaft end is basically the same.
- ◆ In this case, make a mark -arrow- on the hose at distance -a- = 1230 mm from end of extraction hose -1- using insulating tape. The extraction hose has been properly inserted when the affixed mark is level with the edge of the filler neck.
- ◆ If hose is difficult to insert, apply a thin coat of engine oil. DO NOT use silicone-based lubricant.

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

- Remove fuel delivery unit [⇒ page 34](#) .
- Extract fuel through opening for fuel delivery unit.

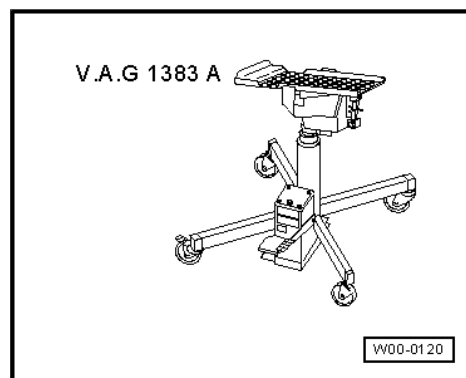


2.3 Removing and installing fuel tank with attached components

Special tools and workshop equipment required



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



Removing

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

Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Risk of accident caused by weight of fuel tank

- ◆ *Fuel tank must be empty when it is removed. Drain the tank if necessary. Procedure ⇒ [page 5](#)*



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27 .*

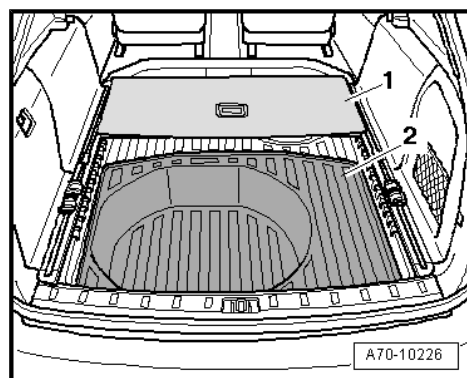
- Switch off ignition.
- If necessary, fold forward backrests of rear seat bench.

Saloon:

- Take out luggage compartment floor trim.

Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.

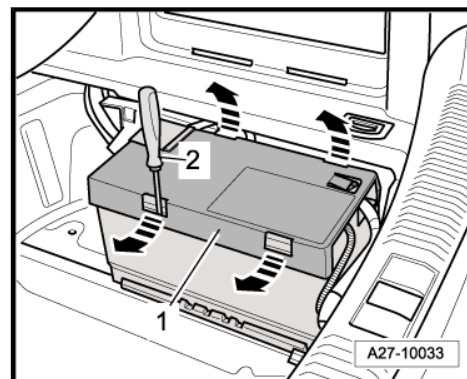


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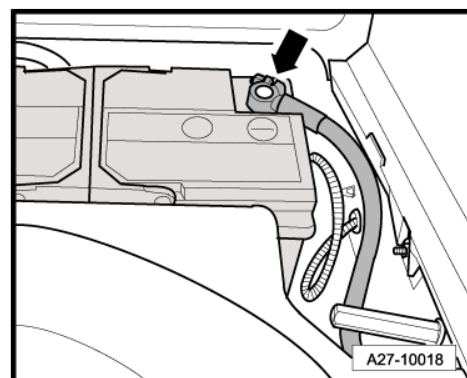


All vehicles:

- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.

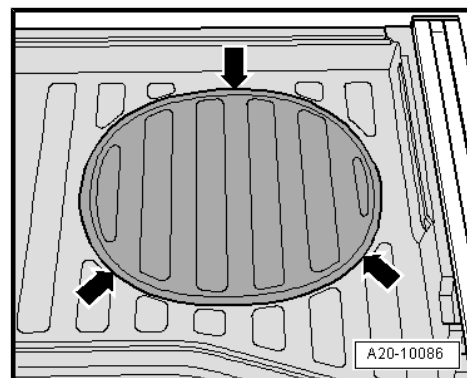


- Disconnect earth cable at negative terminal of battery -arrow-.

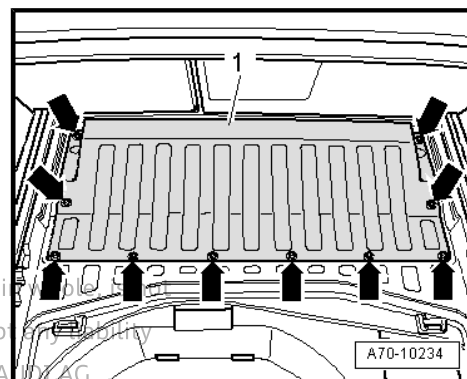


Avant:

- On vehicles without air suspension: unclip the retaining tabs -arrows- for the flange cover.



- On vehicles with air suspension: remove spreader pins -arrows- and take off cover -1-.



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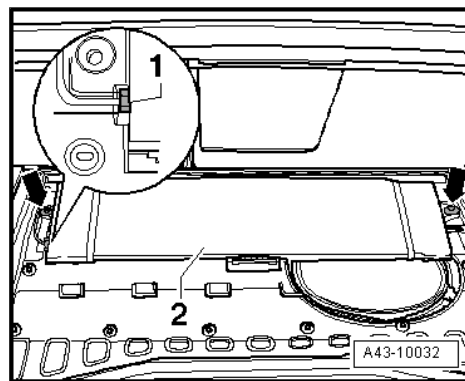
All vehicles:

- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



Note

Do not stretch or kink line.



Saloon:

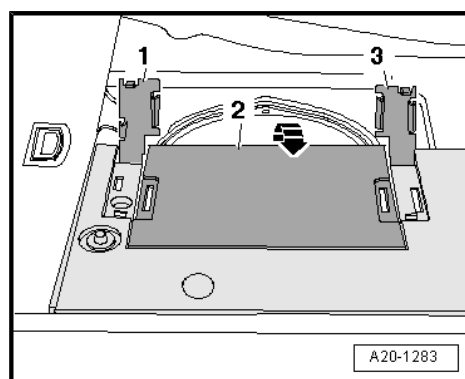
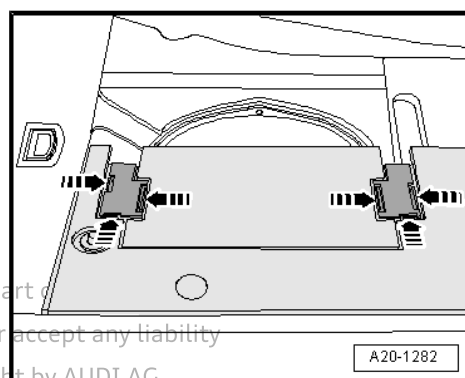


Note

It is advisable to carry out work on the flange from the vehicle interior with the rear seat backrest folded down, therefore the following illustrations are shown from this perspective.

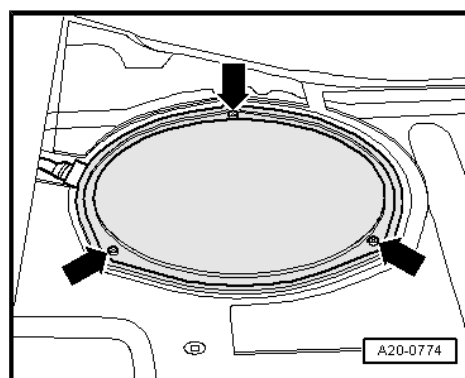
Release retaining lugs -arrows-

- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.



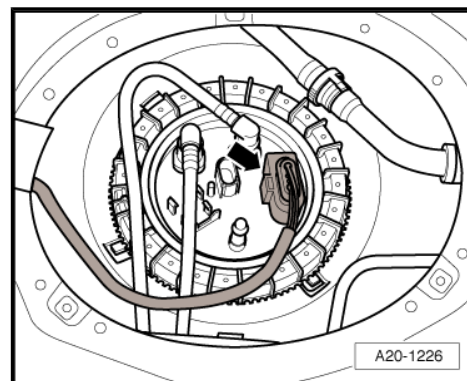
All vehicles:

- Unscrew cover for flange -arrows-.

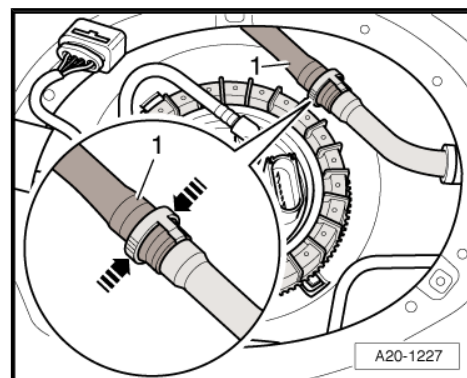




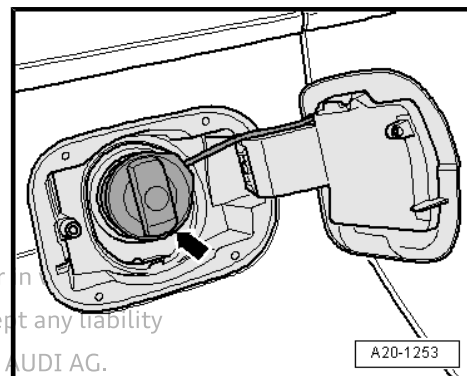
- Unplug electrical connector -arrow- at flange.



- Press release tabs -arrows- to disconnect breather pipe -1-.

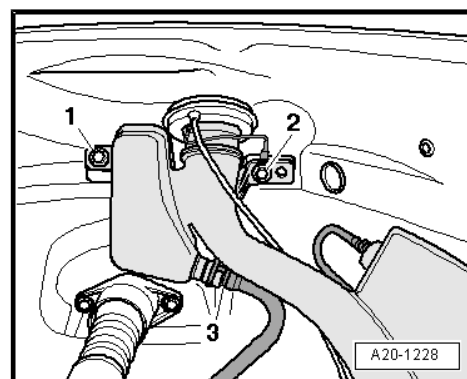


- Open the tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- from fuel filler neck.
- Seal opening of fuel filler neck with a piece of clean foam or similar to prevent dirt from dropping into the tank.



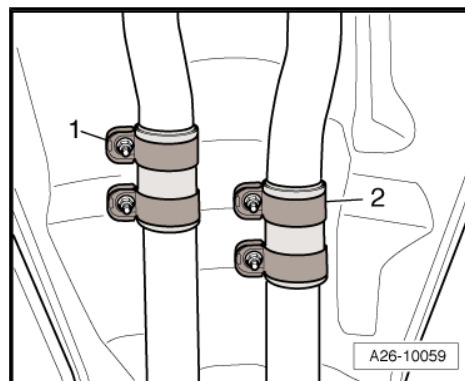
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- Remove rear wheel (right-side).
- Remove rear right wheel housing liner ⇒ Rep. gr. 66 .
- Disconnect breather pipe/hose -3- from fuel filler neck (press release tabs).
- Remove bolts -1- and -2- for fuel filler neck.





- Loosen clamps -1- and -2-.
- Push the clamps to rear in order to disconnect the exhaust system.



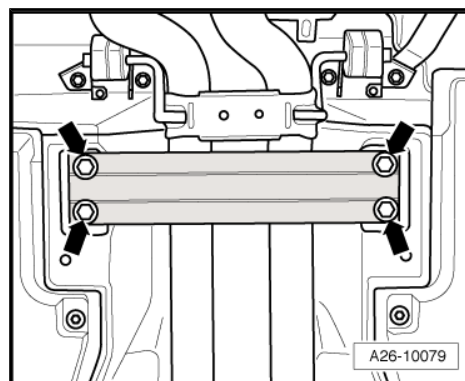
- Remove cross piece (rear) -arrows-.



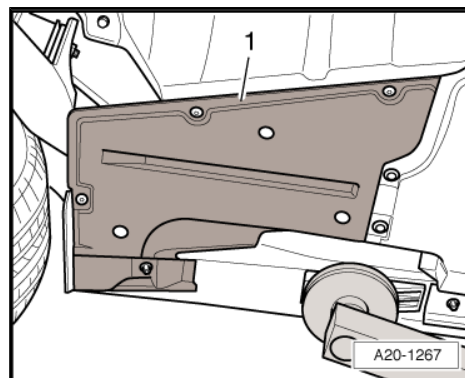
Note

A second person will be required for detaching rear section of exhaust system.

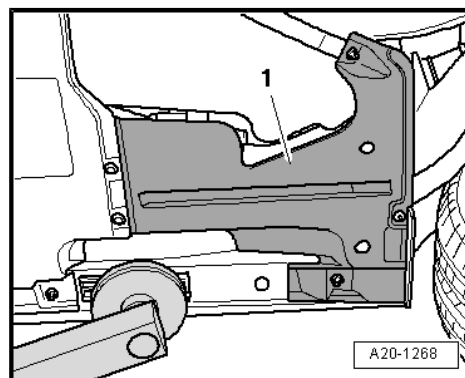
- Disengage exhaust system at the rubber mountings and remove rear section of exhaust system.



- Remove cover -1- from underside of vehicle (rear left).



- Remove cover -1- from underside of vehicle (rear right).



WARNING

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

- ◆ **BEFORE** loosening the subframe bolts, take steps to ensure that the vehicle does not tip forwards on the lifting platform (e.g. put a weight of about 50 kg in the luggage compartment).

- Remove rear axle ⇒ Rep. gr. 42 .



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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 -1- and fuel supply line -2- from front right of fuel tank by pressing release tabs.

Vehicles with auxiliary heater:

- In addition, disconnect fuel line leading to auxiliary heater at metering pump.
- Unplug electrical connector at metering pump.

All vehicles:



WARNING

Risk of accident caused by weight of fuel tank

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

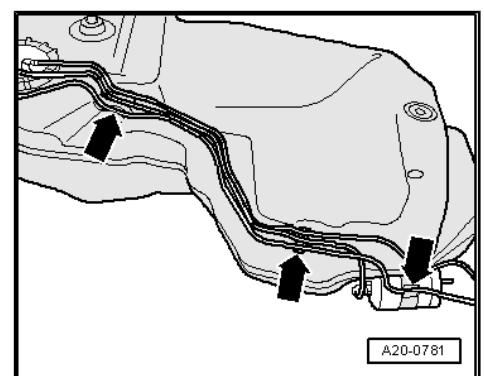
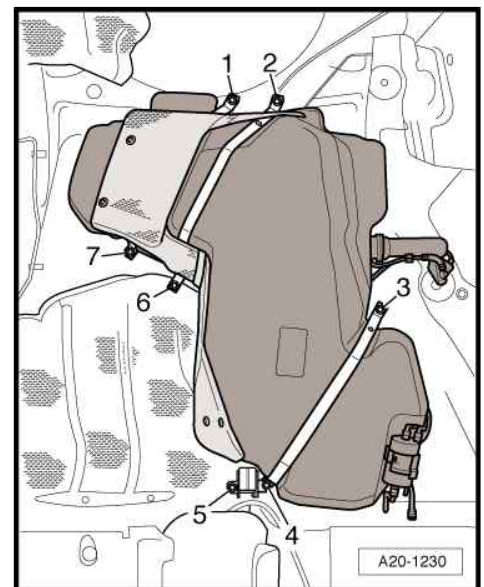
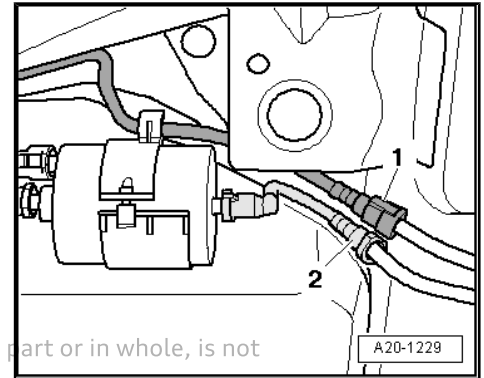
- Position engine and gearbox jack - V.A.G 1383 A- below vehicle to support tank.
- Remove bolts -1 ... 7-.
- Then lower fuel tank using engine and gearbox jack - V.A.G 1383 A- .

Installing

- Tightening torques ➔ [page 4](#)

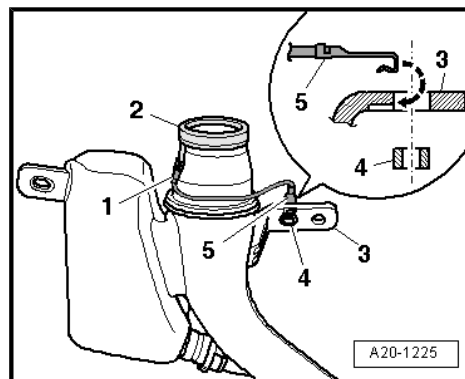
Installation is carried out in the reverse order; note the following:

- Check that fuel lines and breather lines are clipped onto brackets and fuel tank -arrows-.

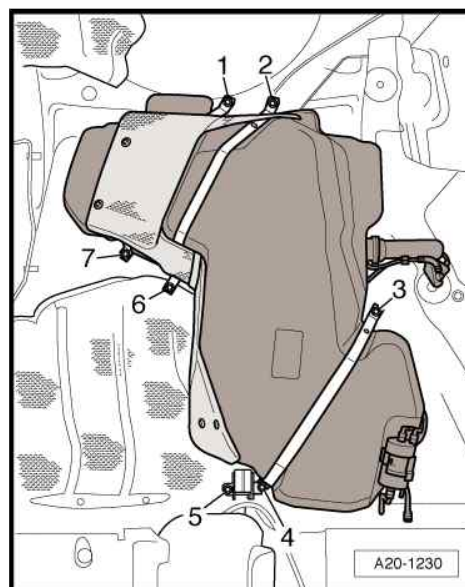




- Check the earth wiring at both ends for traces of oxidation. Remove any traces of oxidation if necessary.
- Check installation position of earth connection:
 - Connector -1- must be seated securely on metal ring -2-.
 - Contact tab -5- must be attached to fuel tank -3- and secured with spacer bush -4-.



- Position fuel tank with securing straps on underbody using engine and gearbox jack - V.A.G 1383 A- .
- When installing fuel tank, make sure that the fuel filler neck is correctly inserted into the opening on the body.
- Secure fuel tank by first tightening bolts at points -2, 6, 3, 4- and -5-, then at points -1- and -7-.



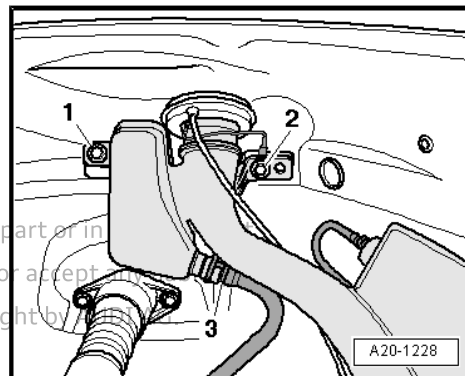
- Secure fuel filler neck with earth connection using bolts -1- and -2-.

**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**



- Secure breather line -3- to fuel filler neck.
- Install rear axle ⇒ Rep. gr. 42 .
- Install rear section of exhaust system ⇒ Rep. gr. 26 .
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .
- Install accumulator ⇒ Rep. gr. 43 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .

Vehicles with auxiliary heater:

- Let auxiliary heater run with full load for 10 minutes to bleed fuel line going to metering pump.



3 Fuel delivery unit and fuel gauge sender - rest-of-world vehicles with front-wheel drive

3.1 Exploded view - fuel delivery unit and fuel gauge sender

1 - Suction-jet pump

2 - Supply line for suction-jet pump

- ☐ Press release tab on connection piece to disconnect

3 - Fuel delivery unit

- ☐ Checking fuel pump (electrical test)
⇒ [page 16](#)
- ☐ Removing and installing
⇒ [page 34](#)
- ☐ Put at least 5 litres of fuel into tank after installing
- ☐ Checking residual pressure ⇒ Rep. gr. 24

4 - Threaded ring

5 - Seal

- ☐ Renew
- ☐ Install dry

6 - Union nut

- ☐ Remove and install with union nut tool - T40068 A-
- ☐ Renew
- ☐ 120 Nm

7 - Fuel return line

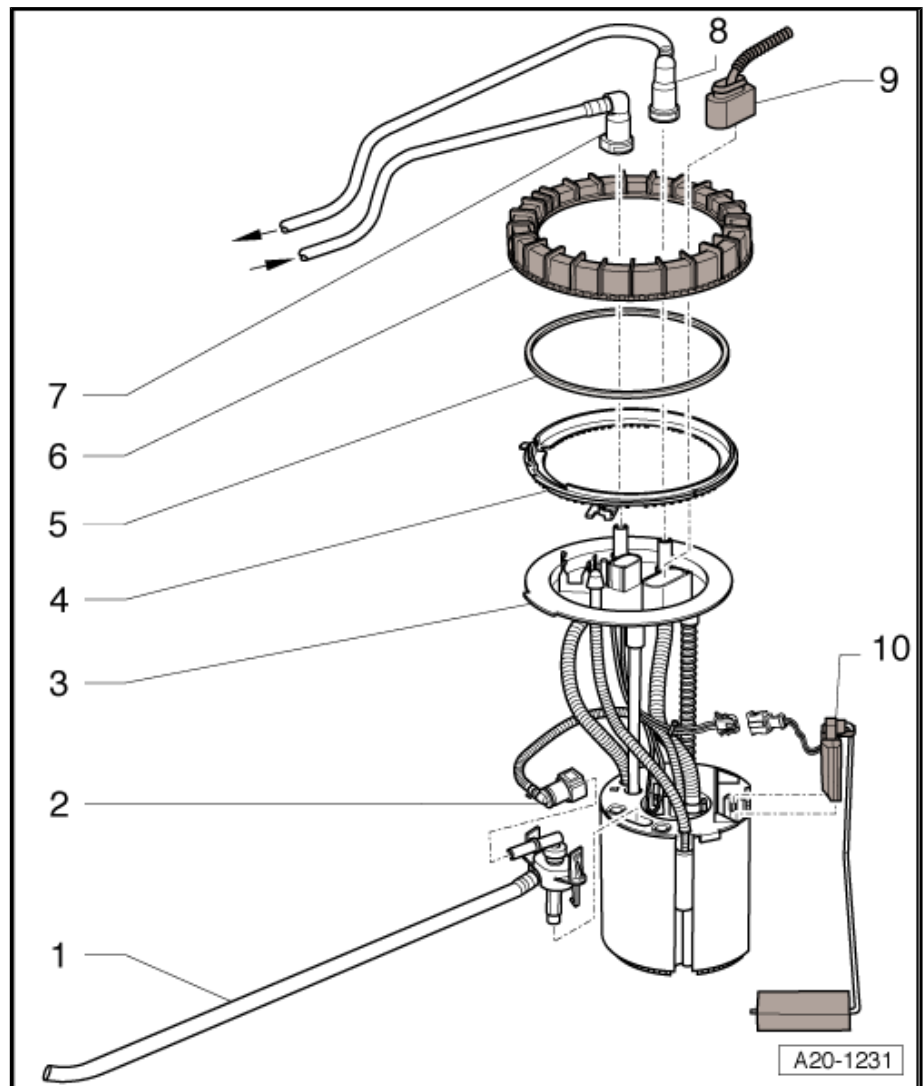
- ☐ From fuel filter
- ☐ Do not kink
- ☐ Mark before removing
- ☐ To disconnect from flange, press release tab on connection piece
- ☐ Note direction of arrow (fuel supply or fuel return system) on flange when installing
- ☐ Clip onto fuel tank

8 - Fuel supply line

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

9 - Electrical connector

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





10 - Fuel gauge sender - G-

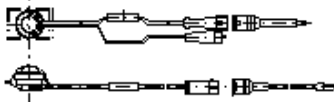
- ❑ Checking resistance values ⇒ [page 41](#)
- ❑ Removing and installing ⇒ [page 45](#)

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3.2 Checking fuel pump (electrical test)

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Special tools and workshop equipment required

V.A.G 1348/3A 	V.A.G 1526 B 
V.A.G 1594 C 	
	G20-0048

- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2-
- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Auxiliary measuring set - V.A.G 1594C-

Procedure

Observe test conditions ⇒ [page 3](#) .

- If necessary, fold forward backrests of rear seat bench.

Saloon:

- Take out luggage compartment floor trim.



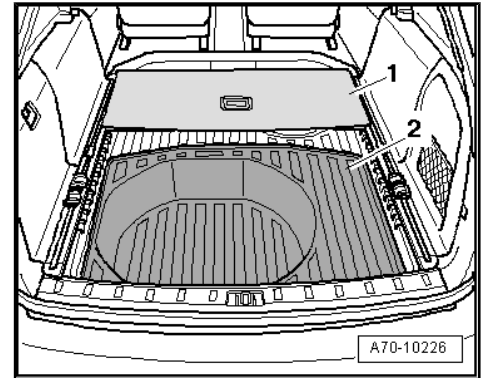
Avant:

- Remove luggage compartment load surface -1-.

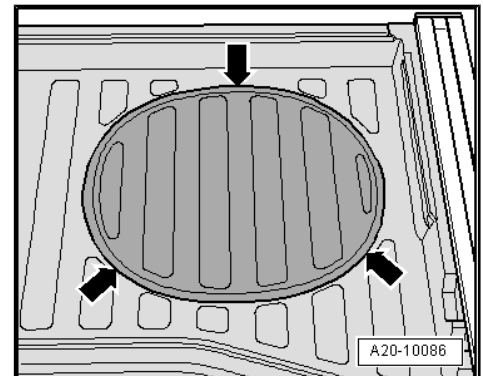


Note

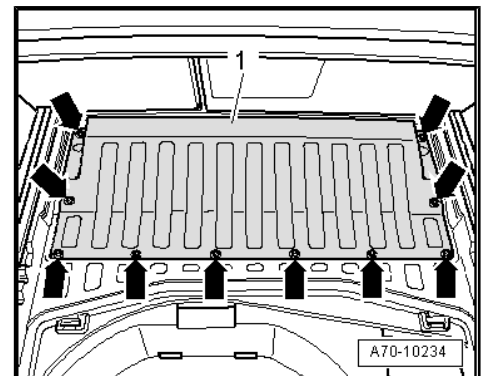
Disregard -item 2-.



- On vehicles without air suspension: unclip the retaining tabs -arrows- for the flange cover.



- On vehicles with air suspension: remove spreader pins -arrows- and take off cover -1-.



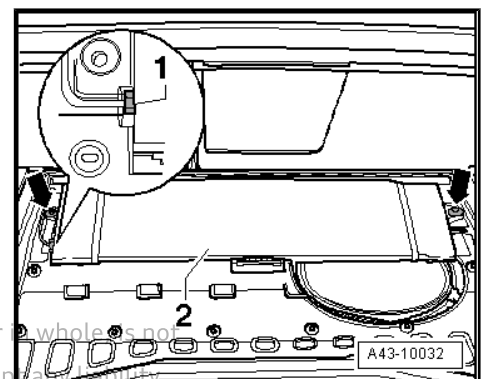
All vehicles:

- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



Note

Do not stretch or kink line.



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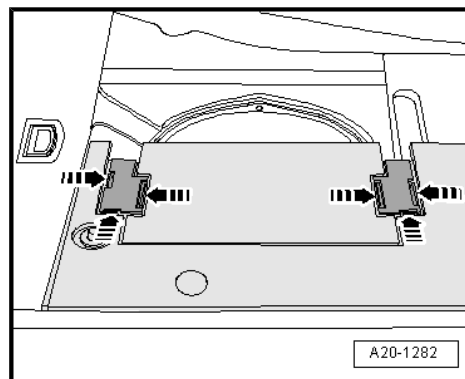
Saloon:



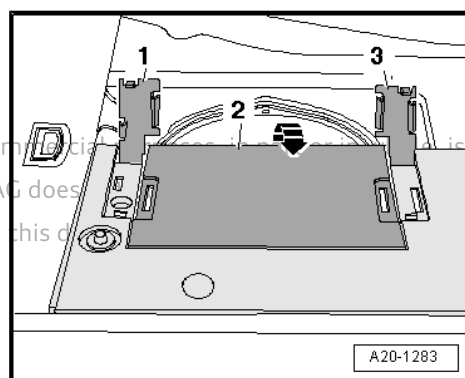
Note

It is advisable to carry out work on the flange from the vehicle interior with the rear seat backrest folded down, therefore the following illustrations are shown from this perspective.

- Release retaining lugs -arrows-.



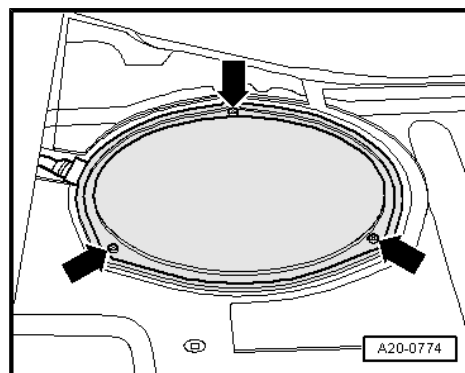
- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.



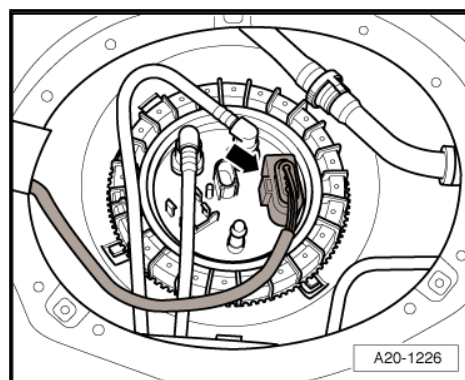
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All vehicles:

- Unscrew cover for flange -arrows-.



- Unplug electrical connector -arrow- at flange.

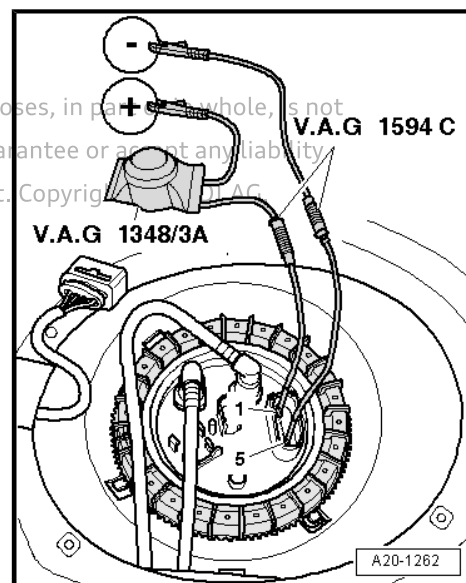




- Connect remote control for V.A.G 1348 - V.A.G 1348/3A- to contact -1- using adapter cable - V.A.G 1348/3-2- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Connect crocodile clip to battery "+".
- Press remote control button.
- Pump should start running audibly.

**Note**

The fuel pump runs very quietly. Where possible, avoid noisy surroundings for this test.

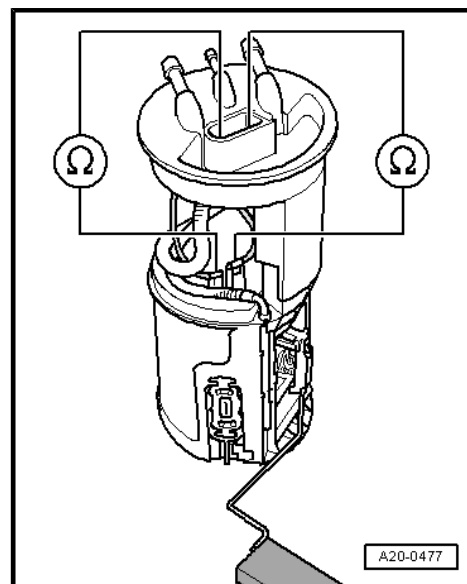


If no noise can be heard from pump:

- Remove fuel delivery unit ⇒ [page 34](#) .
- Check that the electrical wires between flange and fuel pump are connected and test for continuity.

If no fault is found in wiring, fuel pump is defective. Renew fuel delivery unit.

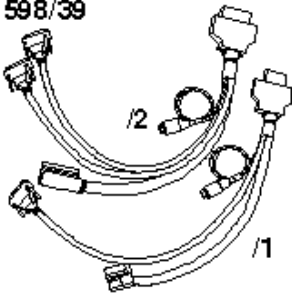
- Install fuel delivery unit ⇒ [page 39](#) .
- Install accumulator ⇒ Rep. gr. 43 .



3.3 Checking fuel pump control unit - J538- - vehicles with FSI engine



**Special tools and workshop
equipment required**

V.A.G 1526 B 	V.A.G 1594 C 
V.A.G 1598/39 	V.A.G 1598/42 
	G24-10001

- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Auxiliary measuring set - V.A.G 1594C-
- ◆ Adapter cable - V.A.G 1598/39-
- ◆ Test box - V.A.G 1598/42-

Procedure

Observe test conditions ⇒ [page 3](#) .

**Checking voltage supply for fuel pump (from fuel pump control
unit - J538-)**

- If necessary, fold forward backrests of rear seat bench.

Saloon:

- Take out luggage compartment floor trim.



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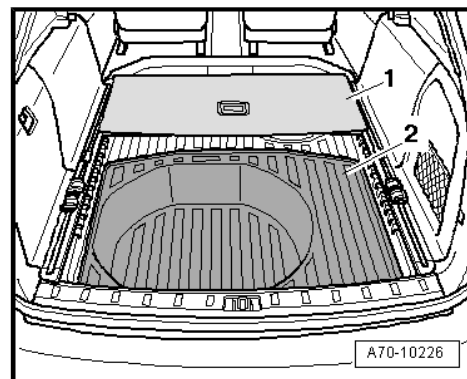
Avant:

- Remove luggage compartment load surface -1-.

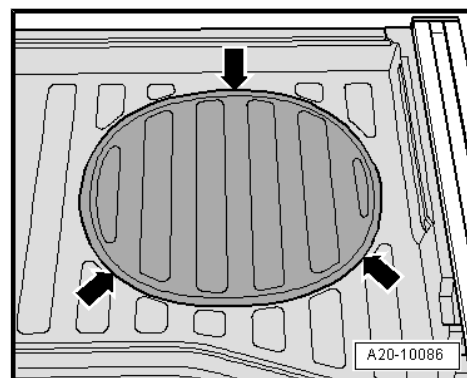


Note

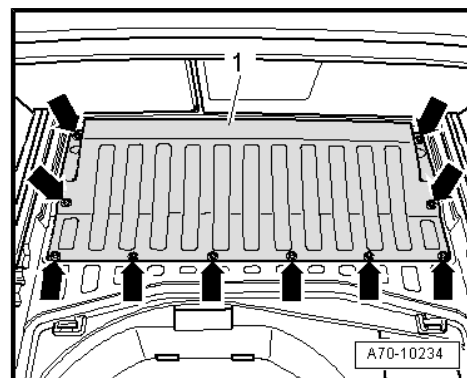
Disregard -item 2-.



- On vehicles without air suspension: unclip the retaining tabs -arrows- for the flange cover.



- On vehicles with air suspension: remove spreader pins -arrows- and take off cover -1-.



All vehicles:

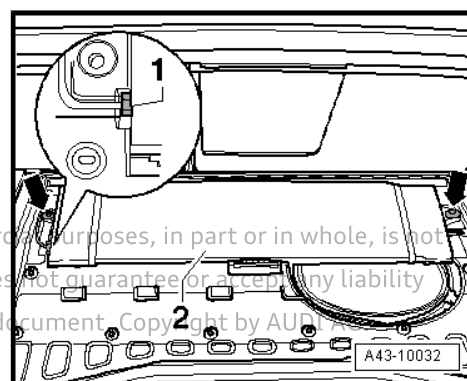
- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



Note

Do not stretch or kink line.

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Saloon:



Note

It is advisable to carry out work on the flange from the vehicle interior with the rear seat backrest folded down, therefore the following illustrations are shown from this perspective.

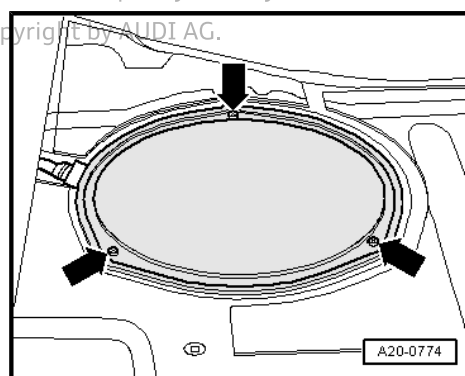
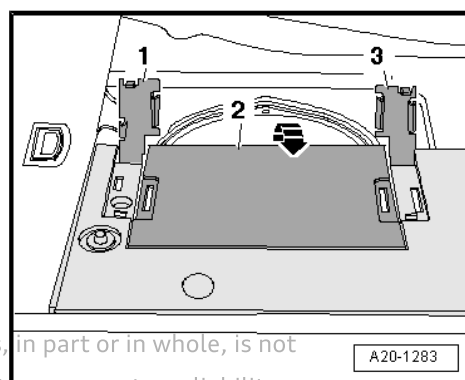
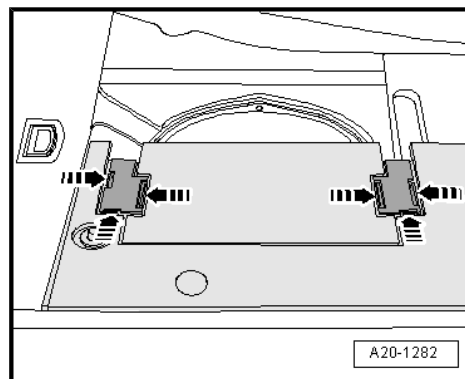
- Release retaining lugs -arrows-.
- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.



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All vehicles: respect to the correctness of information in this document. Copyright by AUDI AG.

- Unscrew cover for flange -arrows-.



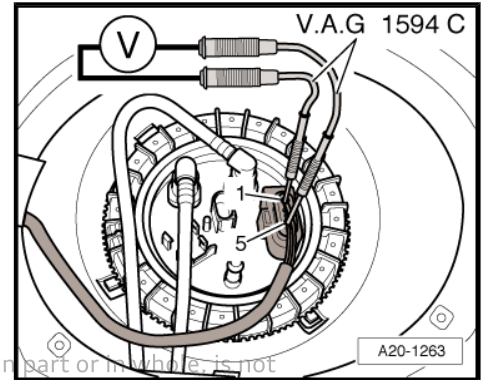


- Connect hand-held multimeter - V.A.G 1526C- (voltage test range) with probes and plug-in adapters from auxiliary measuring set - V.A.G 1594C- between contacts -1- and -5-, as shown in illustration. The electrical connector remains in place.



Note

The connector contacts are numbered accordingly on the back of the connector.



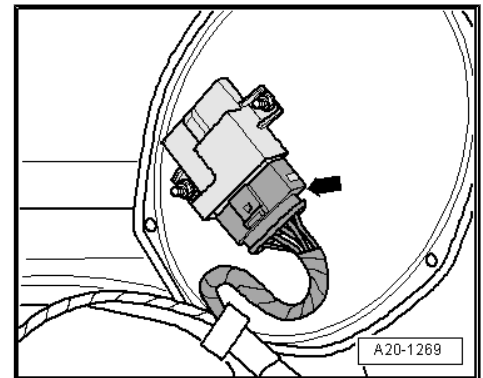
- **Start engine.**
- **Specification when starting and at idling speed: approx. 4–5 V.**
- Press accelerator pedal quickly to the floor and release again (short throttle burst).
- **Specification:** The voltage value should first increase slightly, then drop and eventually rise to the previous reading.

If display differs from specification described above:

- Check voltage supply and activation of fuel pump control unit -J538-.

Checking voltage supply for fuel pump control unit - J538-

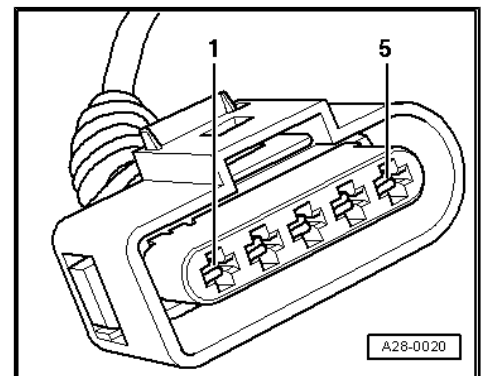
- Unplug electrical connector -arrow- on fuel pump control unit -J538-.



- Connect multimeter between contacts -3- and -4- of connector to measure voltage.
- Switch on ignition.
- **Specification:** approx. battery voltage

If specification is not obtained:

- Eliminate open circuit in wiring (refer to current flow diagram).





Checking activation of fuel pump control unit -J538-

- Connect multimeter (voltage test range) with probes and plug-in adapters from auxiliary measuring set - V.A.G 1594C- between contacts -4- and -5-, as shown in illustration. The electrical connector remains in place.



Note

The connector contacts are numbered accordingly on the back of the connector.

- Start engine.
- Specification when starting and at idling speed: approx. 5.0 V.
- Press accelerator pedal quickly to the floor and release again (short throttle burst).
- Specification: The voltage value should first increase slightly, then drop and eventually rise to the previous reading.

If display differs from specification described above:

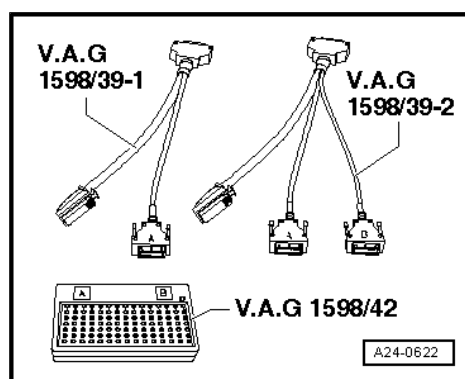
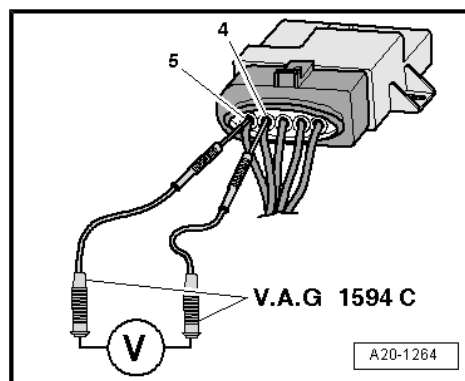
- Switch off ignition.
- Connect the test box - V.A.G 1598/42- to wiring harness with adapter lead -V.A.G 1598/39-1- or adapter lead -V.A.G 1598/39-2-. Do not connect engine control unit. Connect earth clip of test box to negative terminal of battery ⇒ Rep. gr. 24 .



Caution

Risk of irreparable damage to electronic components.

- ◆ ***Select the appropriate measuring range before connecting the test leads and observe test requirements.***



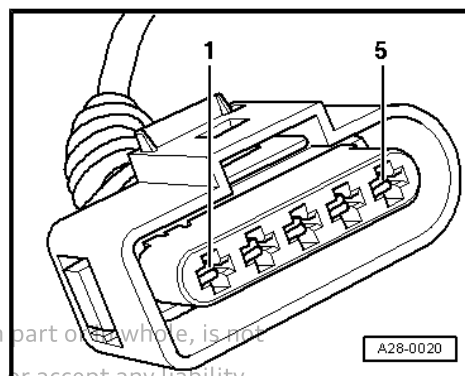
- Check for open circuit and short to positive or earth in the following wiring:

Connector Contact	-V.A.G 1598/42- Socket
-5-	4-cyl. TFSI: B 27
	6-cyl. FSI: B 35

- Repair open circuit or short circuit in wiring (refer to current flow diagram).

If no fault is found:

- Renew fuel pump control unit -J538-.
- Install accumulator ⇒ Rep. gr. 43 .

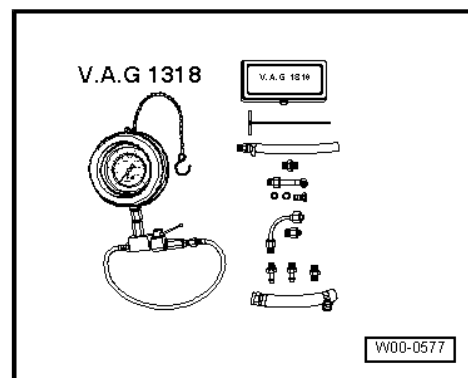


3.4 Checking fuel pump delivery rate - vehicles with 4-cylinder TFSI engine

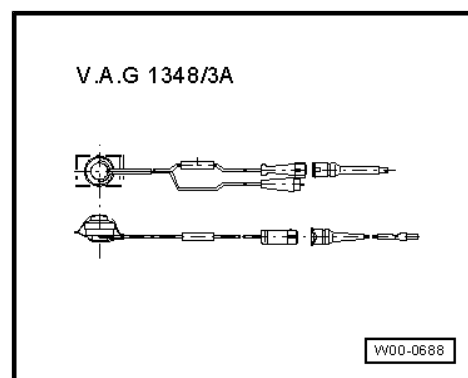
Special tools and workshop equipment required



- ◆ K-Jetronic pressure tester - V.A.G 1318-



- ◆ Adapter set - V.A.G 1318/10-12-
- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3-



- ◆ Fuel-resistant measuring container

Procedure

Observe test conditions ⇒ [page 3](#) .

Observe rules for cleanliness ⇒ [page 2](#) .

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- If necessary, fold forward backrests of rear seat bench.

Saloon:

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- Take out luggage compartment floor trim.

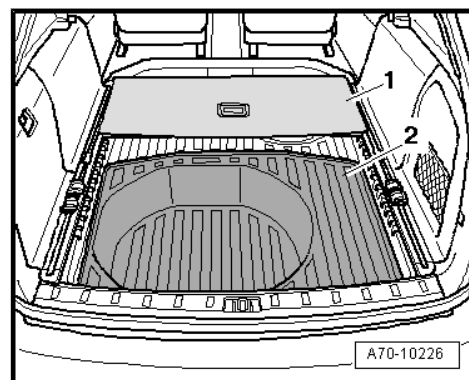
Avant:

- Remove luggage compartment load surface -1-.



Note

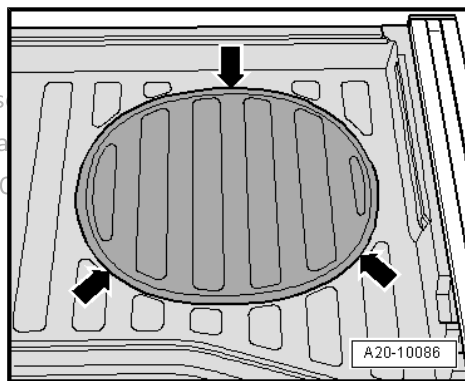
Disregard -item 2-.



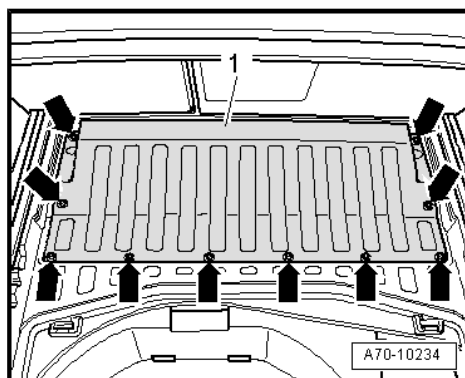


- On vehicles without air suspension: unclip the retaining tabs -arrows- for the flange cover.

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- On vehicles with air suspension: remove spreader pins -arrows- and take off cover -1-.



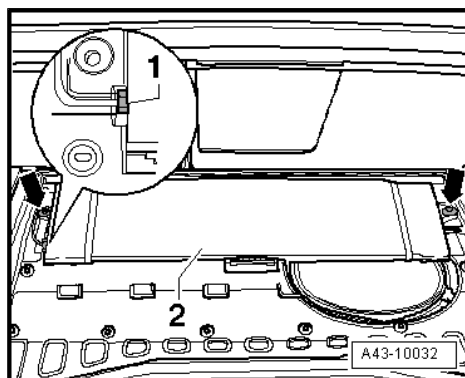
All vehicles:

- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



Note

Do not stretch or kink line.



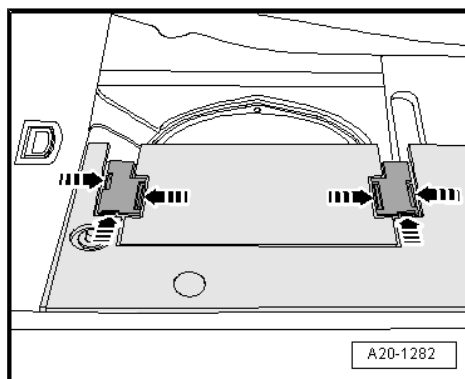
Saloon:



Note

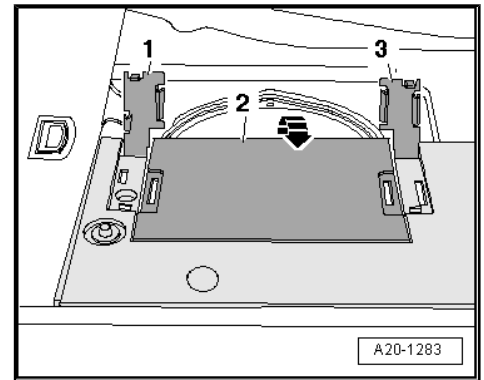
It is advisable to carry out work on the flange from the vehicle interior with the rear seat backrest folded down, therefore the following illustrations are shown from this perspective.

- Release retaining lugs -arrows-.



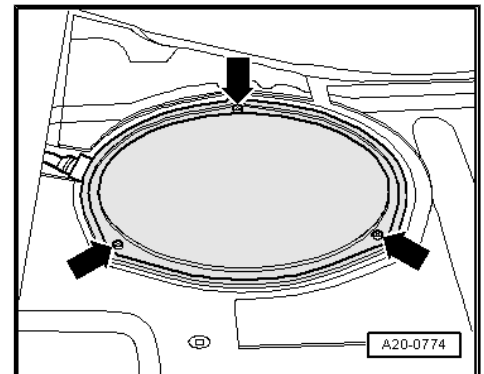


- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.



All vehicles:

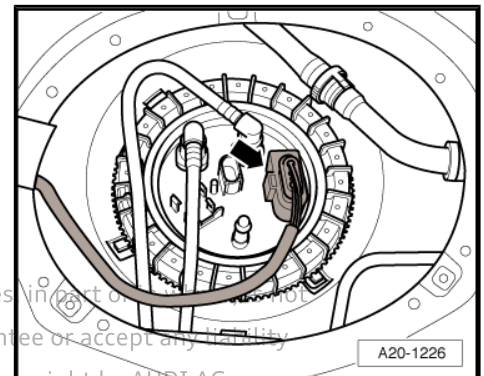
- Unscrew cover for flange -arrows-.



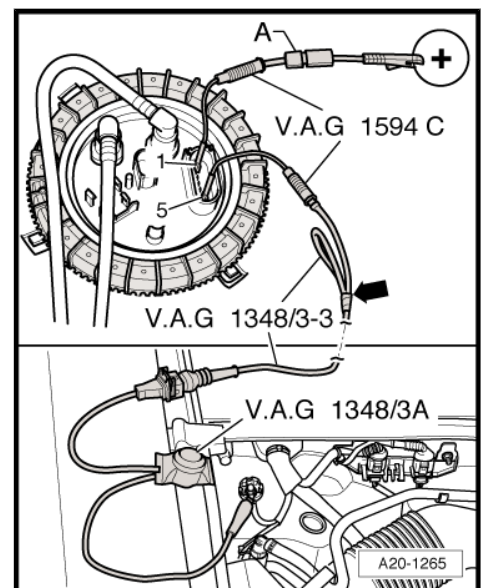
- Unplug electrical connector -arrow- at flange.



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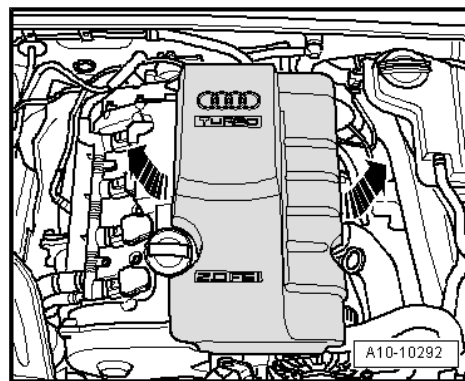


- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 to contact -5- using adapter cable -V.A.G 1348/3-3- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Tape off 2nd connector contact of adapter cable -V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- to battery “+” via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.





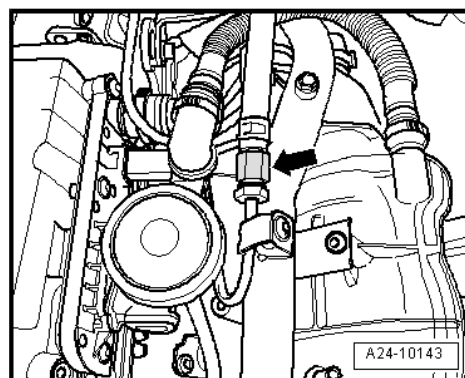
- Remove filler cap from fuel filler neck.
- Remove engine cover panel -arrows-.



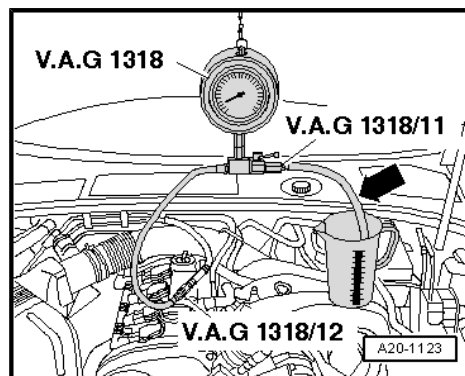
WARNING

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 -arrow- from pipe connection on engine.
- Connect K-Jetronic pressure tester - V.A.G 1318- with adapters - V.A.G 1318/11- and -V.A.G 1318/12- to fuel supply line.
- Fit auxiliary hose -arrow- onto pressure tester and hold end of hose in measuring container.
- Open cut-off valve on pressure tester. Lever must point in direction of flow.
- Build up pressure in fuel system by pressing remote control button and slowly closing cut-off valve on pressure tester.
- Specification: 4 bar
- From this point on do not move position of cut-off valve.
- Empty the measuring container.
- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).



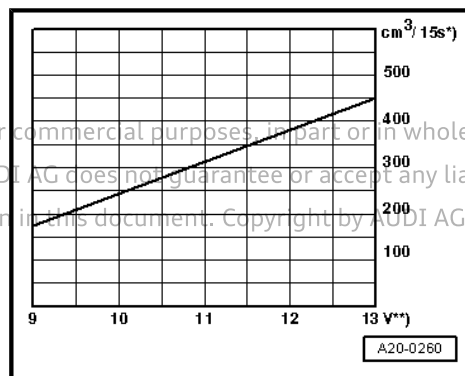
Note

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

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

- Secure fuel line to engine ⇒ Rep. gr. 24 .
- Install accumulator ⇒ Rep. gr. 43 .



3.5 Checking fuel pump delivery rate - vehicles with 6-cylinder engine

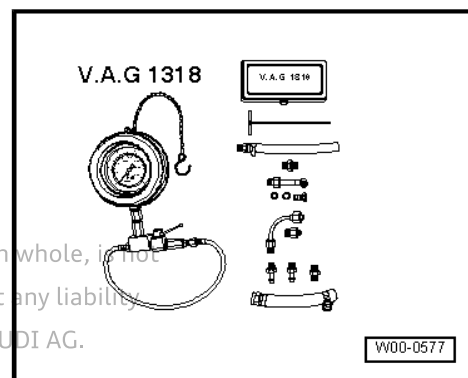
Special tools and workshop equipment required



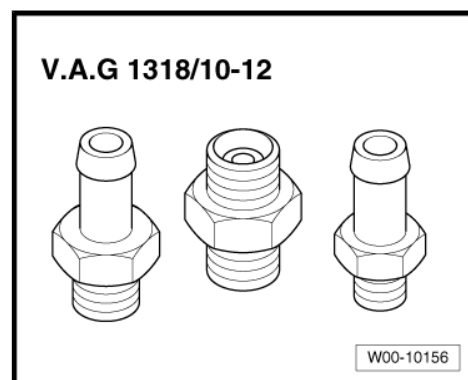
◆ K-Jetronic pressure tester - V.A.G 1318-



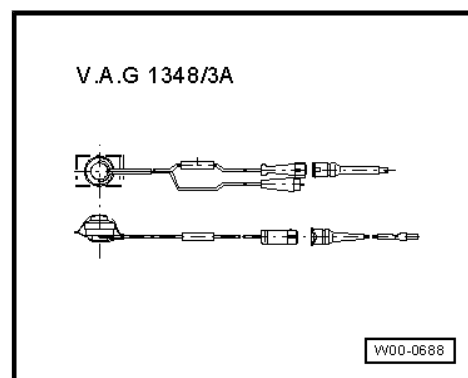
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◆ Adapter set - V.A.G 1318/10-12- and adapter - V.A.G 1318/15-



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



◆ Fuel-resistant measuring container

Procedure

Observe test conditions ⇒ [page 3](#) .

Observe rules for cleanliness ⇒ [page 2](#) .

- If necessary, fold forward backrests of rear seat bench.

Saloon:

- Take out luggage compartment floor trim.



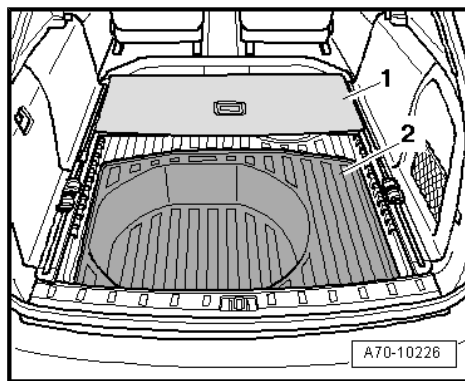
Avant:

- Remove luggage compartment load surface -1-.

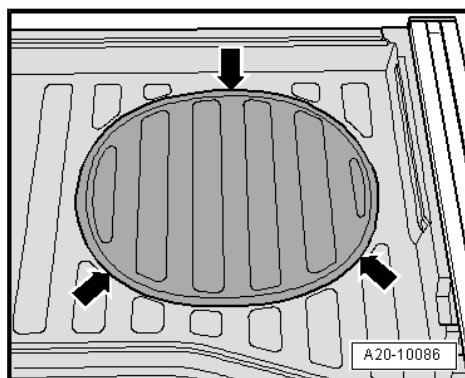


Note

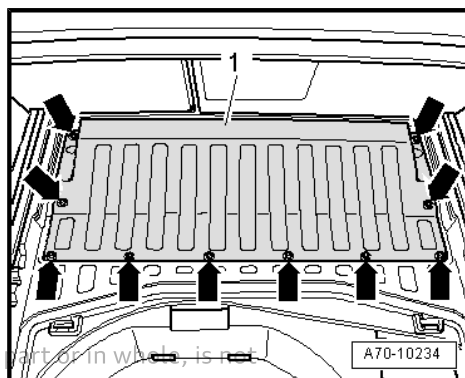
Disregard -item 2-.



- On vehicles without air suspension: unclip the retaining tabs -arrows- for the flange cover.



- On vehicles with air suspension: remove spreader pins -arrows- and take off cover -1-.



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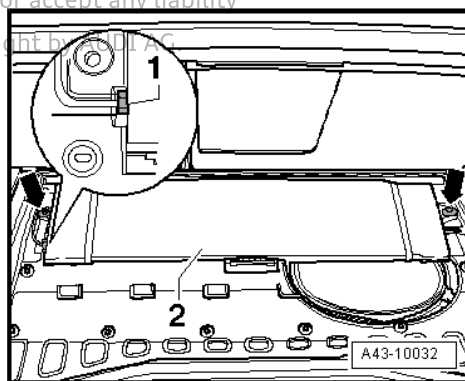
All vehicles:

- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



Note

Do not stretch or kink line.





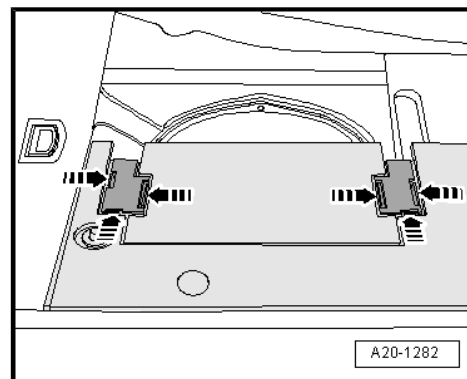
Saloon:



Note

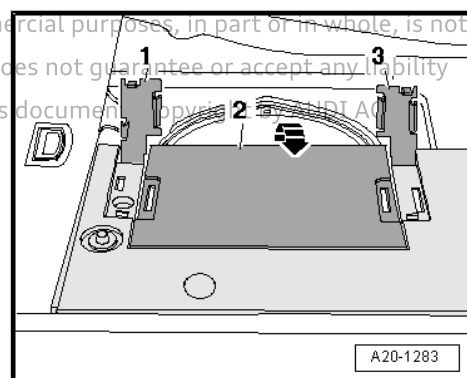
It is advisable to carry out work on the flange from the vehicle interior with the rear seat backrest folded down, therefore the following illustrations are shown from this perspective.

- Release retaining lugs -arrows-.



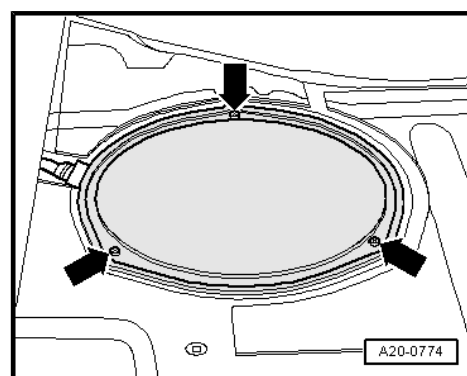
- Fold retaining lugs 1 and 3 open to rear.

- Fold cover 2 to front -arrow-.

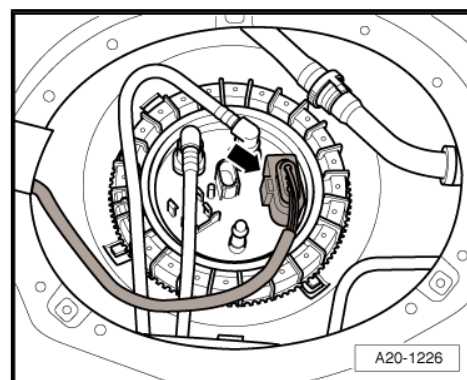


All vehicles:

- Unscrew cover for flange -arrows-.

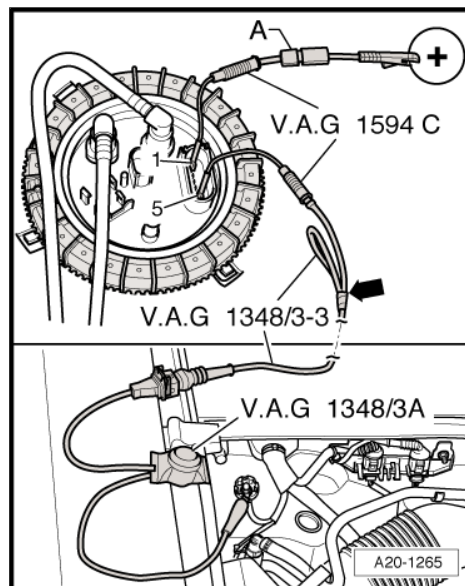


- Unplug electrical connector -arrow- at flange.





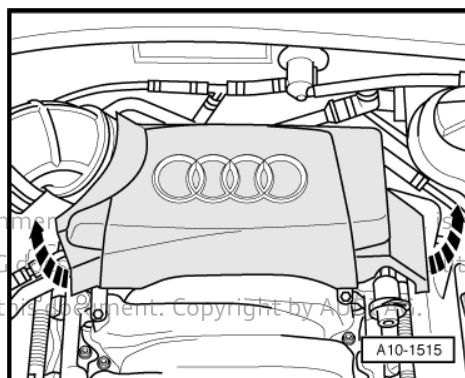
- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 to contact -5- using adapter cable -V.A.G 1348/3-3- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Tape off 2nd connector contact of adapter cable -V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- to battery “+” via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.



- Pull off engine cover panel (rear) -arrows-.



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Vehicles with 6-cylinder engine (2.4 ltr./3.0 ltr. and 3.2 ltr.):

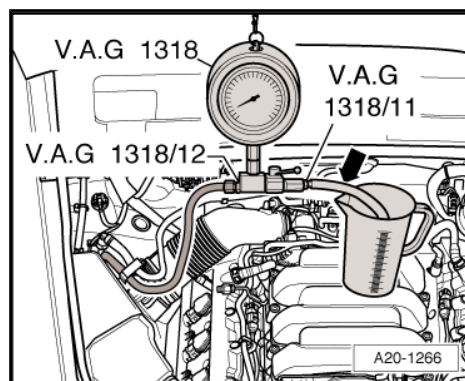
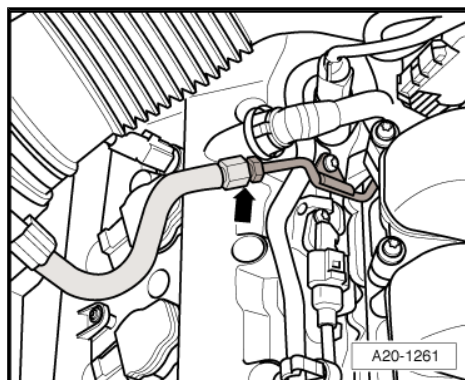


WARNING

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.***

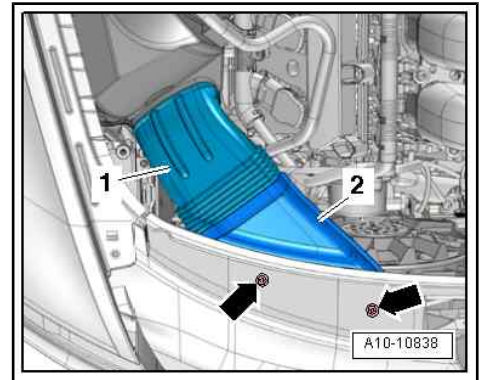
- Disconnect fuel line -arrow-.
- Connect K-Jetronic pressure tester - V.A.G 1318- with adapters - V.A.G 1318/11- and -V.A.G 1318/12- to fuel pipe.
- Attach test hose -arrow- and hold end of hose in measuring container.





Vehicles with 6-cylinder engine (2.8 ltr.):

- Remove bolts -arrows-.
- Remove air ducts -1- and -2-.

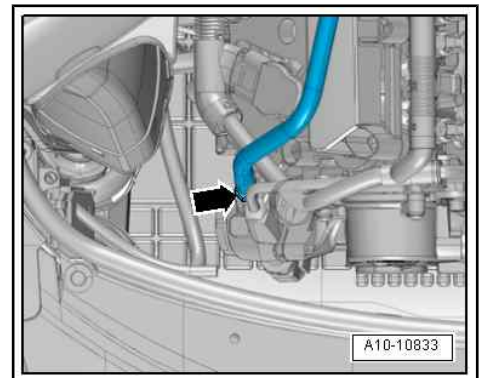


WARNING

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

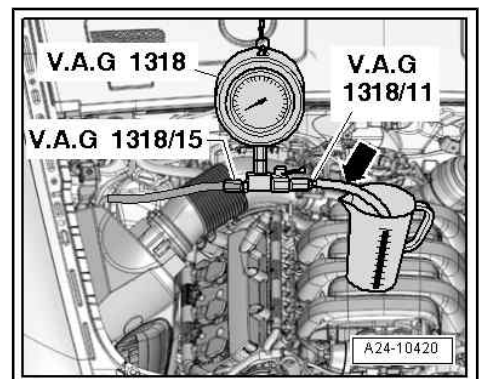
- ◆ *To reduce the pressure in the fuel system, wrap a clean cloth around the connection and loosen the connection carefully.*

- Disconnect fuel supply hose from high-pressure pump -arrow-.
- Connect K-Jetronic pressure tester - V.A.G 1318- with adapters -V.A.G 1318/11- and -V.A.G 1318/15- to fuel line.
- Attach test hose -arrow- and hold end of hose in measuring container.



All vehicles:

- Open cut-off valve on pressure tester.
- Lever must point in direction of flow.
- Build up pressure in fuel system by pressing remote control button and slowly closing cut-off valve on pressure tester.
- Specification: 4 bar
- From this point on do not move position of cut-off valve.
- Empty the measuring container.



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- Press remote control button 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 minimum delivery rate is not reached, check for the following causes:

- ◆ Fuel lines have been crushed.
- ◆ Fuel filter is blocked.
- ◆ Fuel pump is defective.

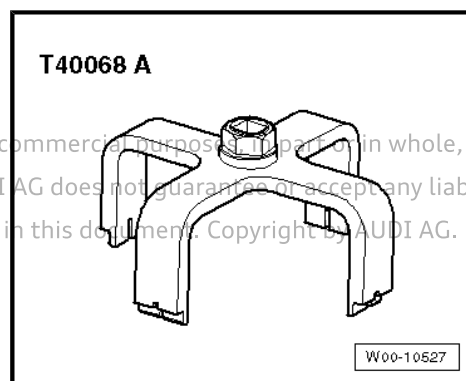
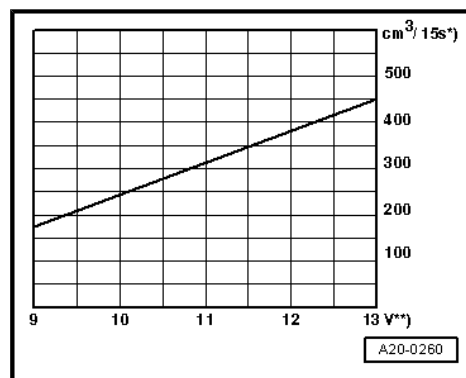
Installation is carried out in the reverse order; note the following:

- Secure fuel line to engine ⇒ Rep. gr. 24 .
- Install accumulator ⇒ Rep. gr. 43 .

3.6 Removing and installing fuel delivery unit

Special tools and workshop equipment required

- ◆ Union nut tool - T40068 A-



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Removing

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

Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Danger! Fuel may escape.

- ◆ ***The fuel tank must not be more than ³/₄ full when removing the fuel delivery unit, otherwise a large amount of fuel will escape. Drain the tank if necessary. Procedure ⇒ [page 5](#)***



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery
 ⇒ Rep. gr. 27.*

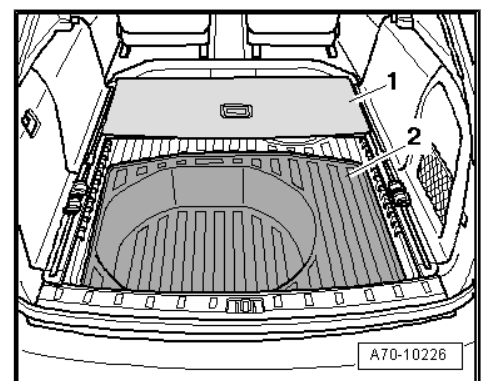
- Switch off ignition.
- Briefly open filler cap for fuel tank and close again.
- If necessary, fold forward backrests of rear seat bench.

Saloon:

- Take out luggage compartment floor trim.

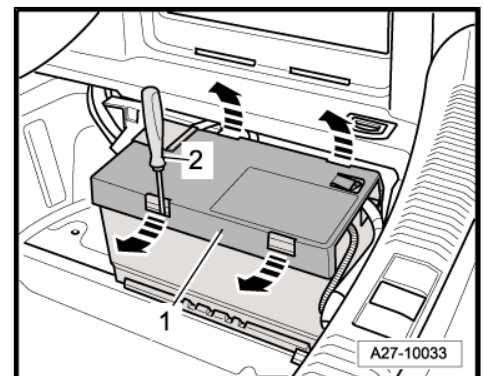
Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.

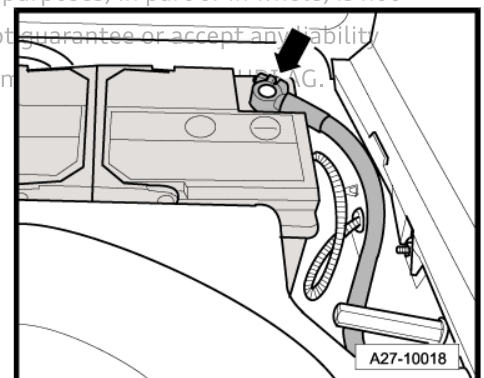


All vehicles:

- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.



- Disconnect earth cable at negative terminal of battery -arrow-.

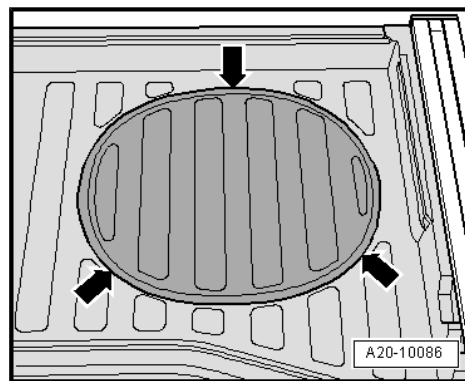


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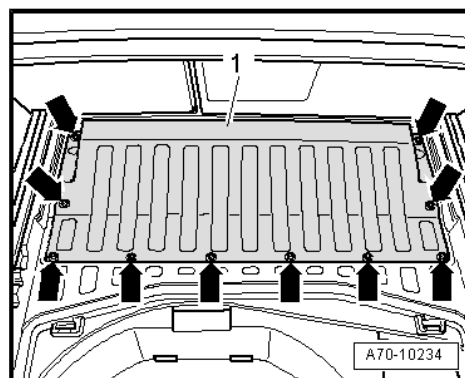


Avant:

- On vehicles without air suspension: unclip the retaining tabs -arrows- for the flange cover.



- On vehicles with air suspension: remove spreader pins -arrows- and take off cover -1-.



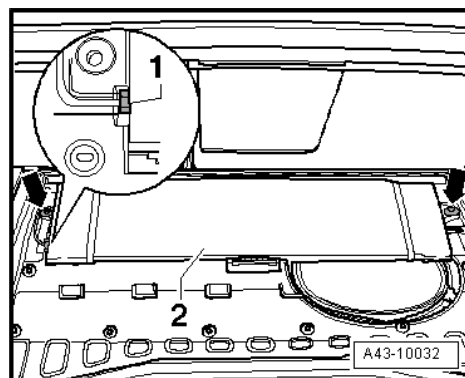
All vehicles:

- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



Note

Do not stretch or kink line.



Saloon:

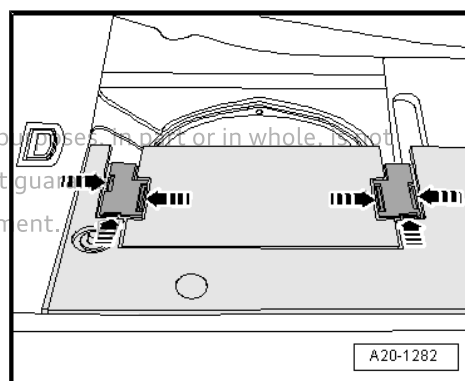


Note

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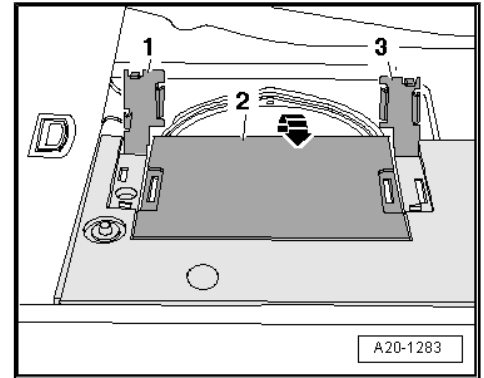
It is advisable to carry out work on the flange from the vehicle interior with the rear seat backrest folded down, therefore the following illustrations are shown from this perspective.

- Release retaining lugs -arrows-.





- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.

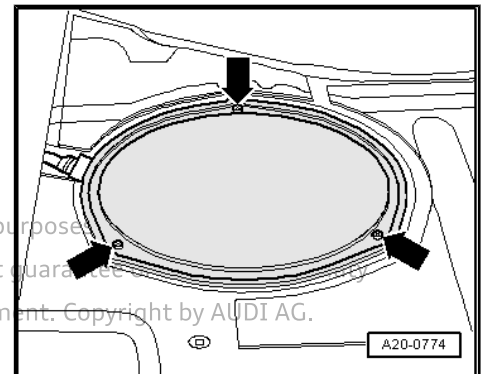


All vehicles:

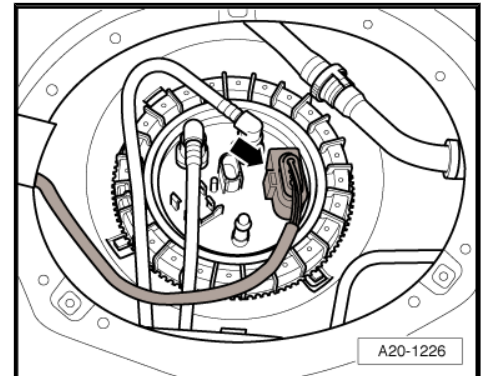
- Unscrew cover for flange -arrows-.



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- Unplug electrical connector -arrow- at flange.



- Mark fuel supply line -1- and fuel return line -2-.



WARNING

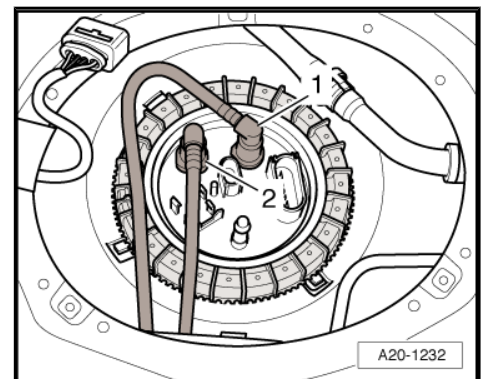
The fuel system operates at high pressure - risk of injuries!

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

- Detach both lines from flange (press release tabs).

Vehicles with auxiliary heater:

- In addition, disconnect fuel line leading to metering pump for auxiliary heater by pressing release tab.





All vehicles:



WARNING

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Danger! Fuel may escape.

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

- Use union nut tool - T40068 A- to unscrew union nut -arrow-.



Note

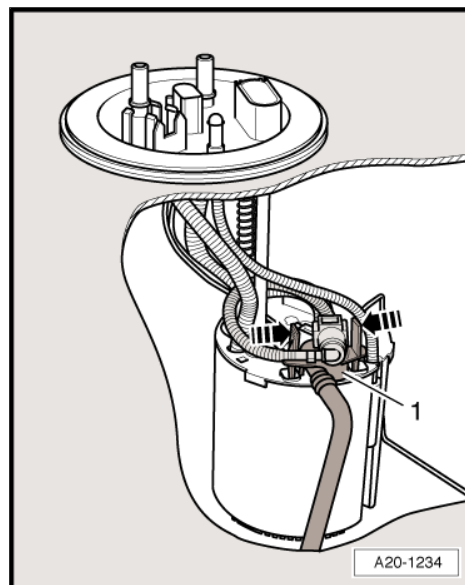
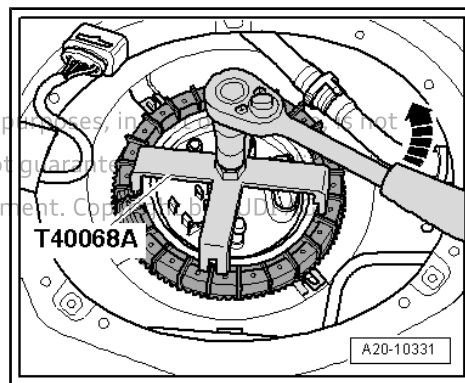
The plastic detent on the threaded ring will break off when the union nut is unscrewed - this can be disregarded.

- Move fuel delivery unit with flange slightly to one side with fuel delivery unit still located in fuel tank.
- Reach into fuel tank in the gap between flange and installation opening and release suction-jet pump -1-.



Note

Fuel tank is shown in a cut-away view for illustration purposes.

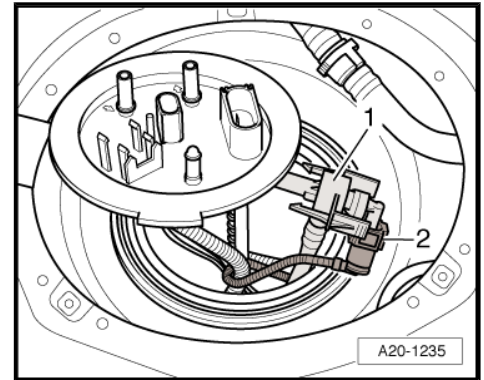




- Pull suction-jet pump -1- upwards with its supply line -2- connected.
- Disconnect supply line from suction-jet pump by pressing release tab. Then take out suction-jet pump.
- Remove fuel delivery unit.

i Note

- ◆ *When removing fuel delivery unit, make sure you do not bend float arm of fuel gauge sender -G-.*
- ◆ *Keep in mind that the fuel delivery unit still contains fuel.*



Installing

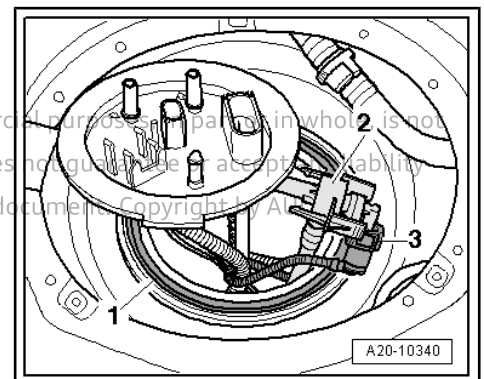
- Tightening torque ➔ [page 15](#)

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

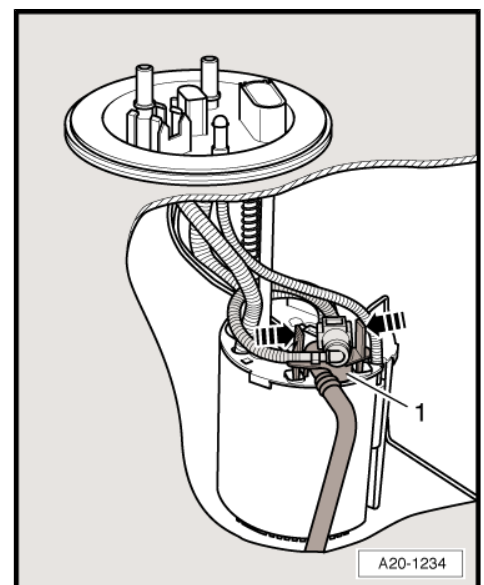
i Note

- ◆ *Renew seal and union nut.*
- ◆ *Take care not to bend float arm of fuel gauge sender -G- when fitting fuel delivery unit.*
- ◆ *Ensure that fuel hoses are securely seated.*

- Insert fuel delivery unit in fuel tank.
- Fit suction-jet pump -2- into fuel tank and connect supply line -3- for suction-jet pump.
- Slip new seal -1- over flange and insert it in groove on fuel tank.



- Clip suction-jet pump -1- onto fuel delivery unit. To do so, reach into gap between flange and opening in fuel tank.
- The suction-jet pump should click into place.
- Check that suction-jet pump has engaged properly.

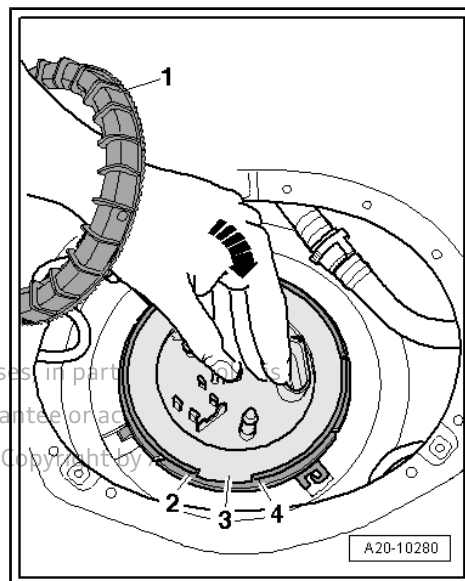


**Note**

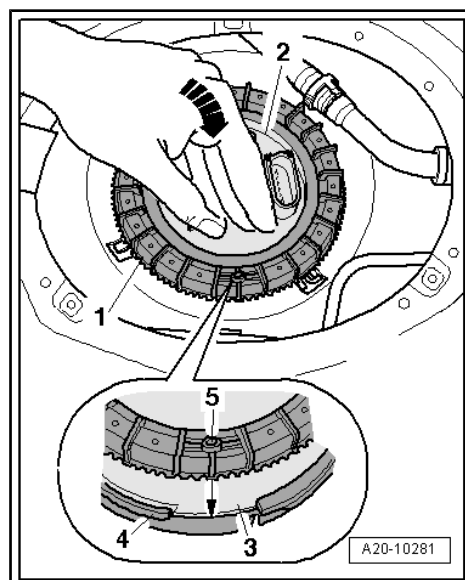
It is advisable to carry out work on the flange from the vehicle interior with the rear seat backrest folded down, therefore the following illustrations are shown from this perspective.

- Slip union nut -1- over your left arm and press flange firmly into installation position -arrow- with your left hand.
- Lug -3- on flange must be between tabs -2- and -4- on threaded ring.

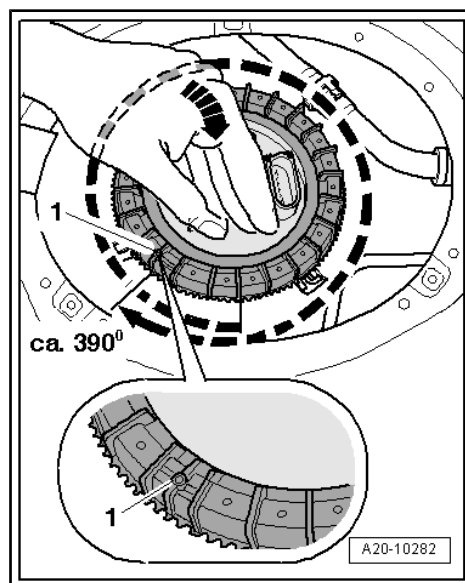
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- Take union nut -1- off your left arm with your right hand and at the same time keep pressing down flange -2- firmly with your left hand -arrow-.
- Position union nut -1- with your right hand in such a way that double ridge -5- on ribs aligns with lug -3- of flange (approx. six o'clock position). This will make union nut engage immediately with beginning of thread -4- when tightening.



- Keep pressing flange downwards firmly.
- Turn locking ring approx. 390° with your right hand until double ridge -1- is in approx. eight o'clock position and at the same time keep pressing flange downwards firmly with your left hand.



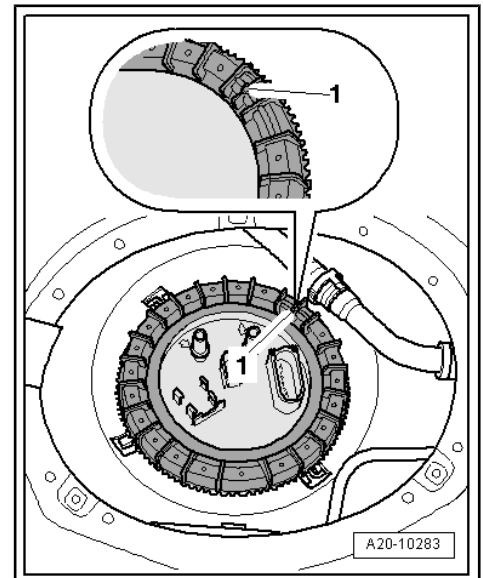
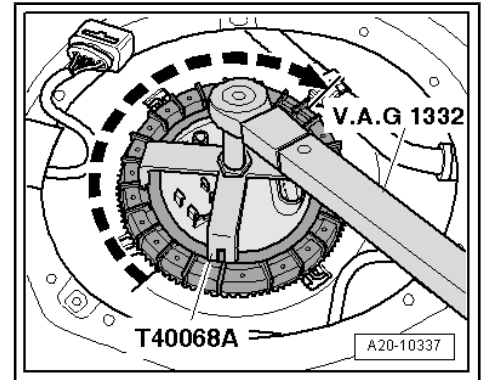


Caution

Take care to avoid leakage at flange.

- ◆ *Press flange downwards firmly when tightening union nut to make sure flange does not also turn.*

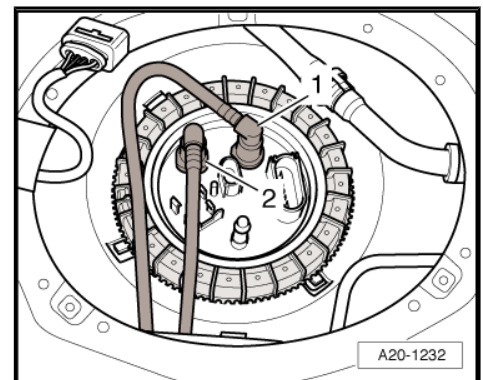
- Use union nut tool - T40068 A- to tighten union nut for flange.
- Tightening torque: 120 Nm
- Checking: Double ridge -1- must now be aligned between one o'clock and two o'clock position.



- Install fuel supply line -1- and fuel return line -2- (as marked).
- Plug in electrical connector.
- Install accumulator ⇒ Rep. gr. 43 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing fuel delivery unit.

Vehicles with auxiliary heater:

- Let auxiliary heater run with full load for 10 minutes to bleed fuel line going to metering pump.



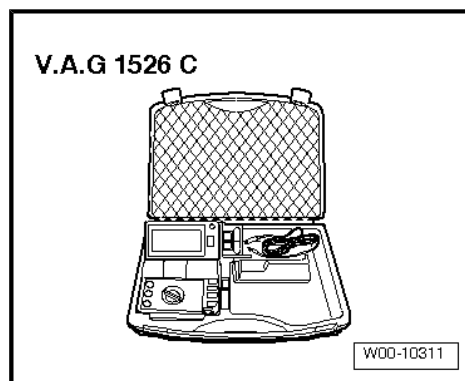
3.7 Checking fuel gauge sender - G-

Special tools and workshop equipment required

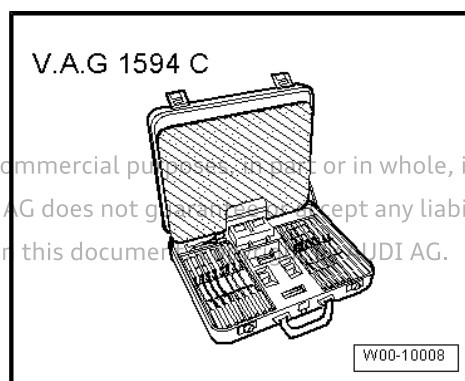
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◆ Hand-held multimeter - V.A.G 1526C-



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



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Procedure

- If necessary, fold forward backrests of rear seat bench.

Saloon:

- Take out luggage compartment floor trim.

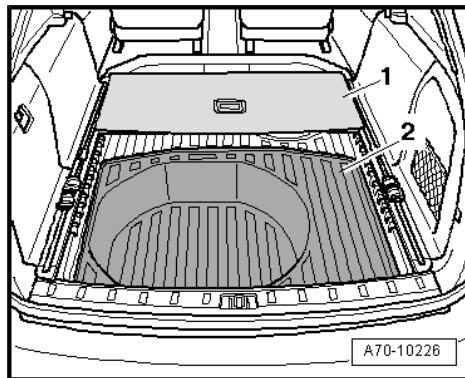
Avant:

- Remove luggage compartment load surface -1-.

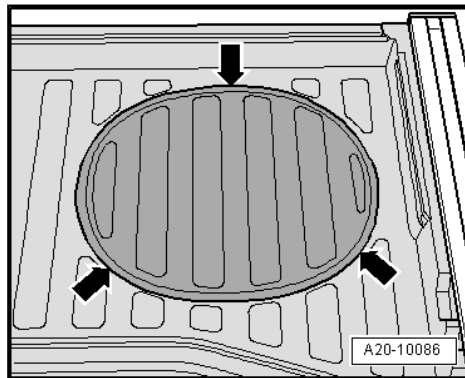


Note

Disregard -item 2-.

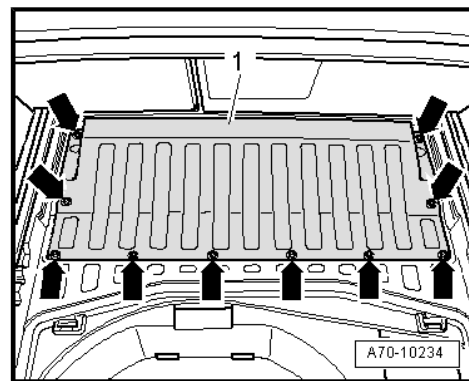


- On vehicles without air suspension: unclip the retaining tabs -arrows- for the flange cover.





- On vehicles with air suspension: remove spreader pins -arrows- and take off cover -1-.



All vehicles:

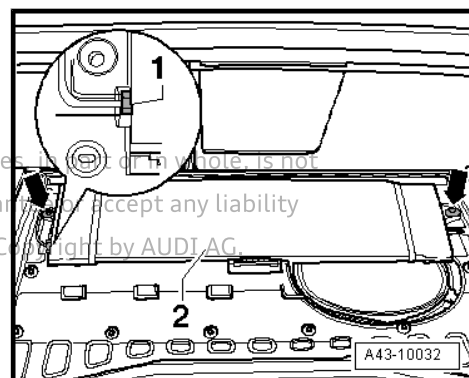
- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



Note

Do not stretch or kink line.

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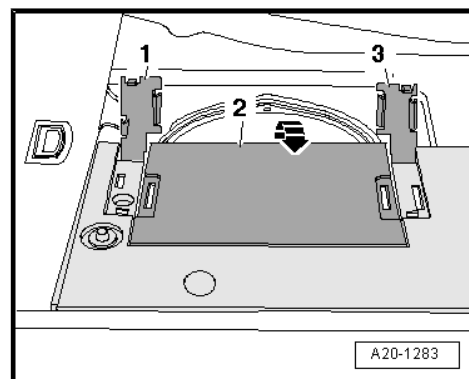
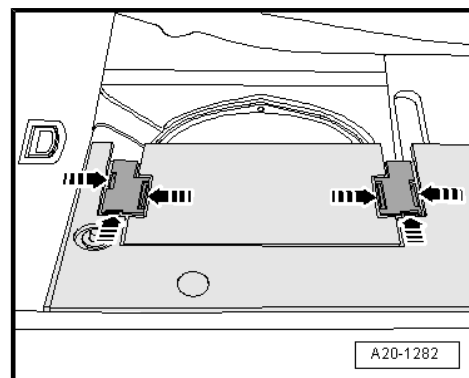
Saloon:



Note

It is advisable to carry out work on the flange from the vehicle interior with the rear seat backrest folded down, therefore the following illustrations are shown from this perspective.

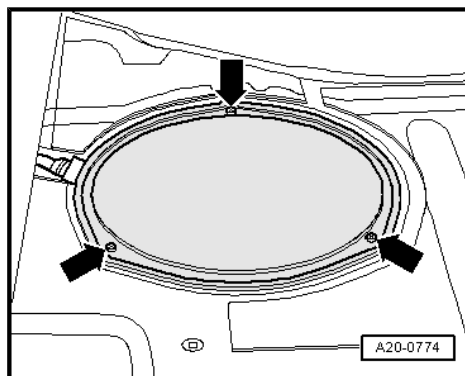
- Release retaining lugs -arrows-.
- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.



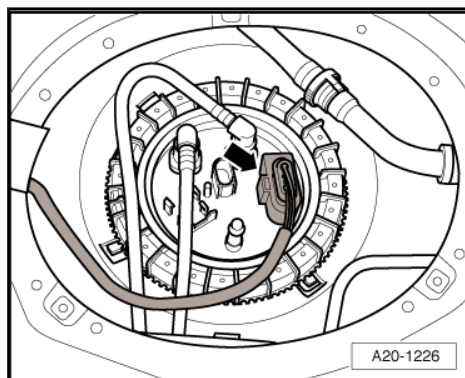


All vehicles:

- Unscrew cover for flange -arrows-.



- Unplug electrical connector -arrow- at flange.



- Connect multimeter (resistance test) between contacts -2- and -3-.

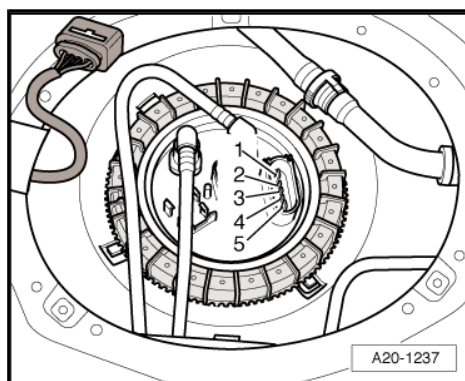
Fuel gauge sender - G- installed:

- Sender at lower stop: approx. 900 ... 975 Ω
- Sender at upper stop: approx. 50 ... 104 Ω



Note

- ◆ If the resistance is 0 Ω , there is a short circuit. If the resistance is $\infty \Omega$, there is an open circuit in the wiring.
- ◆ To test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel delivery unit [⇒ page 34](#) and move the sender float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender - G- removed, due to the greater travel of the float arm:



Fuel gauge sender - G- removed:

- Sender at lower stop: approx. 1004 Ω .
- Sender at upper stop: approx. 50 Ω .

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

- Install accumulator [⇒ Rep. gr. 43](#).

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3.8 Removing and installing fuel gauge sender - G-

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Note

All cable ties which are released or cut open when removing must be refitted in the same position when installing.

Observe safety precautions ➔ [page 1](#) .

Observe rules for cleanliness ➔ [page 2](#) .

- Remove fuel delivery unit ➔ [page 34](#) .
- Cut open cable tie -2- and detach electrical connector -1-.
- Use screwdriver to release retaining tabs -arrows- and lift out fuel gauge sender - G- .

Installing

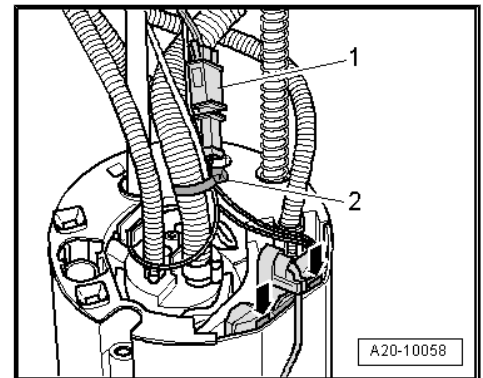
Installation is carried out in the reverse order; note the following:



Note

Fit cable tie in the original position when installing.

- Insert fuel gauge sender - G- into guides on fuel delivery unit and press downwards until it clicks into place.
- Plug in electrical connector and check that it has engaged properly.
- Install fuel delivery unit ➔ [page 39](#) , observing the instructions for connecting the battery.





4 Fuel tank with attached components - rest-of-world vehicles with four-wheel drive

4.1 Exploded view - fuel tank with attached components

1 - Bolt

- 23 Nm

2 - Mounting

- For exhaust system

3 - Support bracket

4 - Fuel line

- From fuel filter to engine
- Do not kink
- Press release tab on connection piece to disconnect

5 - Breather line

- To activated charcoal filter in front right wheel housing
- Do not kink
- Press release tab on connection piece to disconnect
- Clip onto fuel tank

6 - Bolt

- Secures fuel filler neck and earth connection - item 11 -

- 23 Nm

7 - Overflow hose

- Attached at wheel housing liner

8 - Rubber cup

9 - Seal

- Renew if damaged

10 - Filler cap

- Secured to tank flap unit

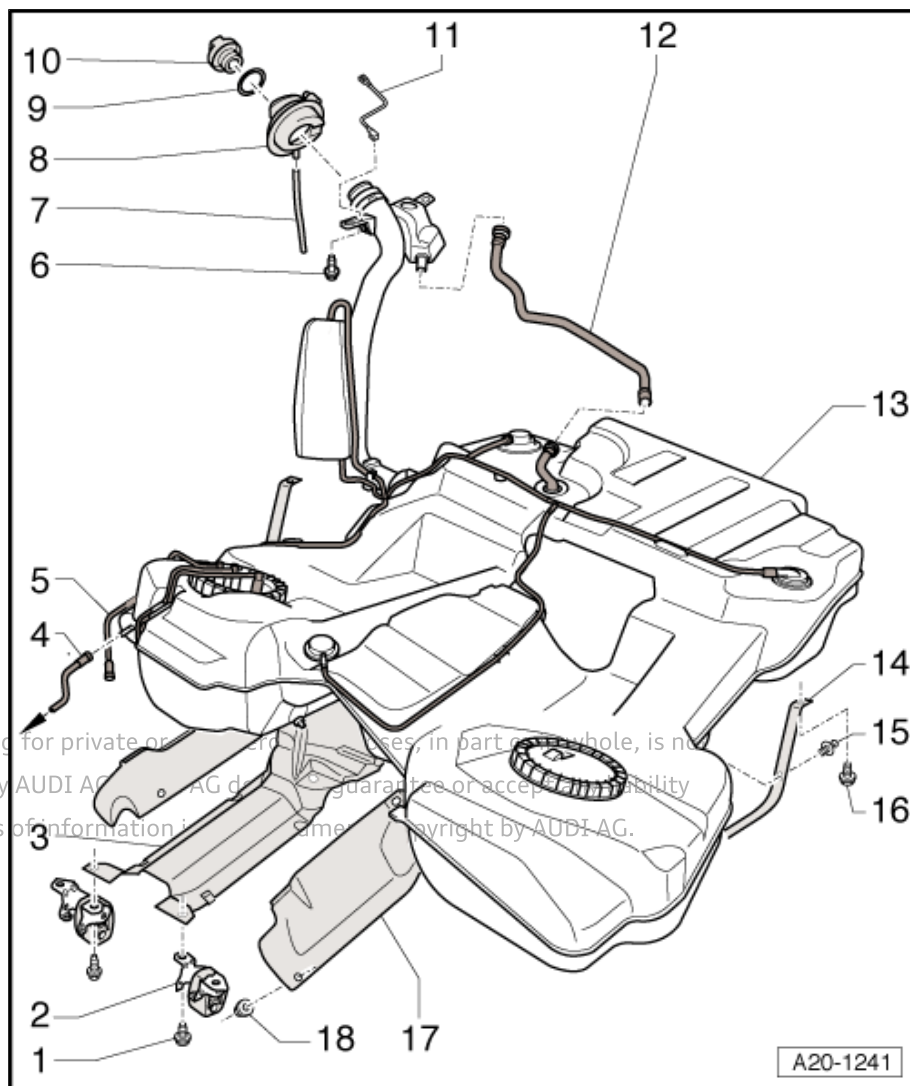
11 - Earth connection

- To eliminate electrostatic charge
- Installation position ⇒ [page 47](#)
- Make sure connector is correctly seated and secure wire with bolt for fuel filler neck - item 6 -
- 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

12 - Breather line

13 - Fuel tank

- Removing and installing ⇒ [page 50](#)





14 - Securing strap

15 - Fastener

16 - Bolt

□ 23 Nm

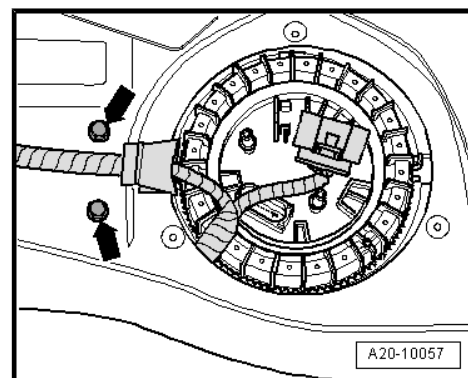
17 - Heat shield for fuel tank

18 - Nut

□ 2 Nm

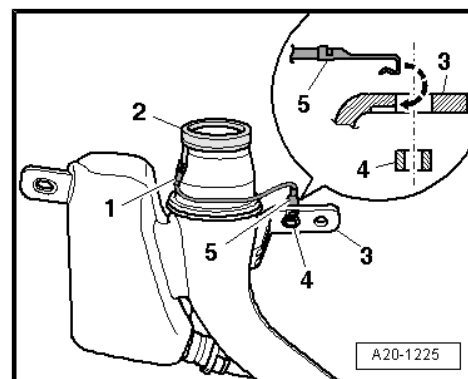
Tightening torque for bracket for fuel pump control unit to body

- Tighten bolts -arrows- to 4 Nm.



Installation position of earth connection

- Route earth connection as shown in illustration.
- First engage contact tab -5- of earth connection in mounting hole on fuel tank -3- and then press in spacer bush -4-.
- Ensure that connector -1- for earth connection is firmly seated on metal ring -2- on fuel filler neck.



WARNING

Risk of explosion caused by electrostatic discharge.

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

4.2 Draining fuel tank

A - Procedure if fuel tank is more than $\frac{1}{4}$ full ⇒ [page 49](#) .

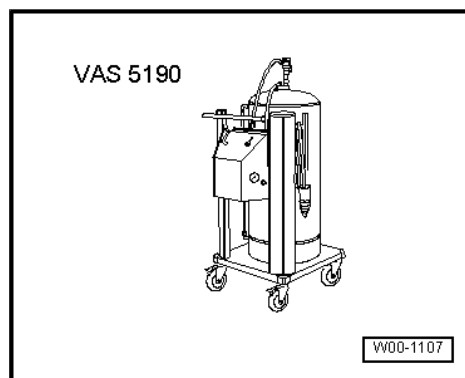
B - Procedure if fuel tank is less than $\frac{1}{4}$ full ⇒ [page 50](#) .

Special tools and workshop equipment required

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◆ Fuel extractor - VAS 5190-



Procedure

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

Observe rules for cleanliness ⇒ [page 2](#) .



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27 .*

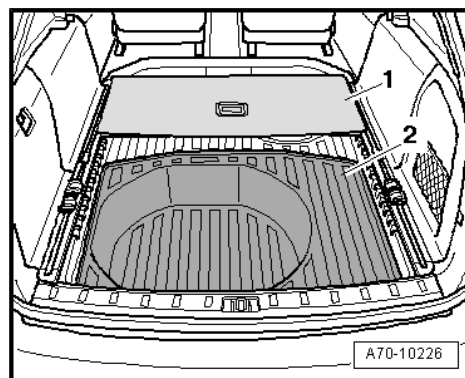
- Switch off ignition.

Saloon:

- Fold up luggage compartment floor lining.

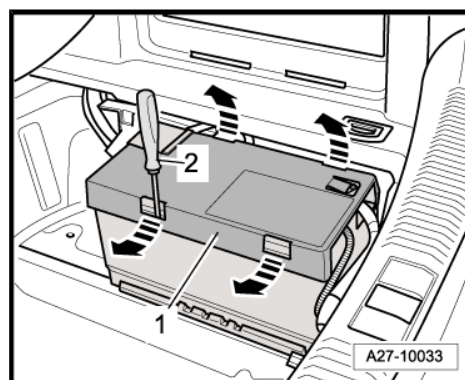
Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.



All vehicles:

- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.





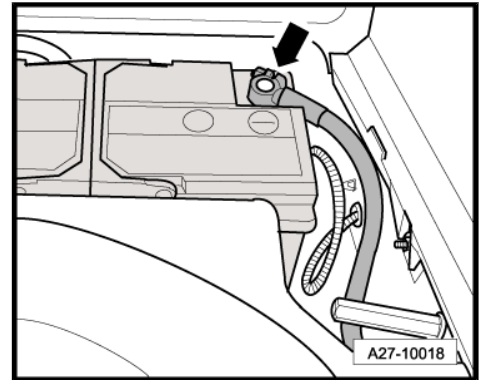
- Disconnect earth cable at negative terminal of battery -arrow-.



WARNING

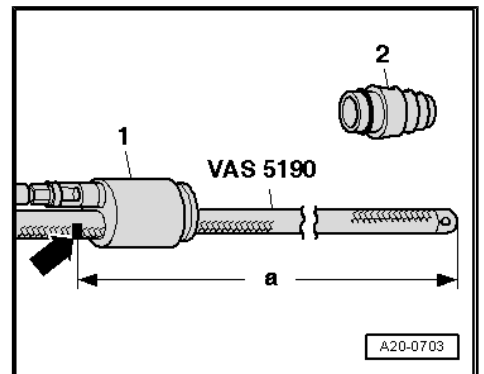
Risk of explosion caused by electrostatic discharge.

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

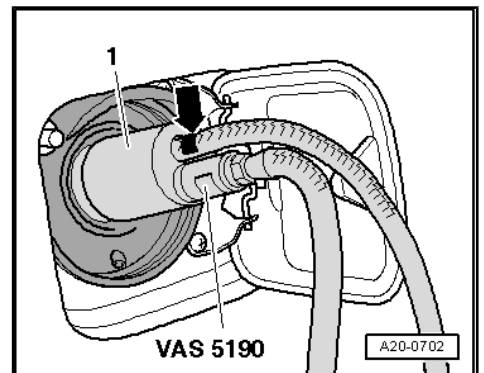


A - Procedure if fuel tank is more than 1/4 full

- Detach tapered adapter -2- from shaft end -1- of fuel extractor -VAS 5190- .
- Use insulating tape to mark extraction hose -arrow- at a distance of -a- = 1365 mm from end of hose.



- Remove filler cap from fuel filler neck.
- Screw shaft end -1- of fuel extractor -VAS 5190- onto fuel filler neck.
- Push extraction hose into fuel tank until marking on hose -arrow- coincides with shaft end.
- Drain fuel tank as much as possible through fuel filler neck.
- Carefully remove extraction hose.
- Remove fuel delivery unit ➔ [page 103](#) .
- Extract remaining fuel from right chamber of fuel tank through opening for fuel delivery unit.
- Push hose into left chamber of fuel tank and extract remaining fuel.



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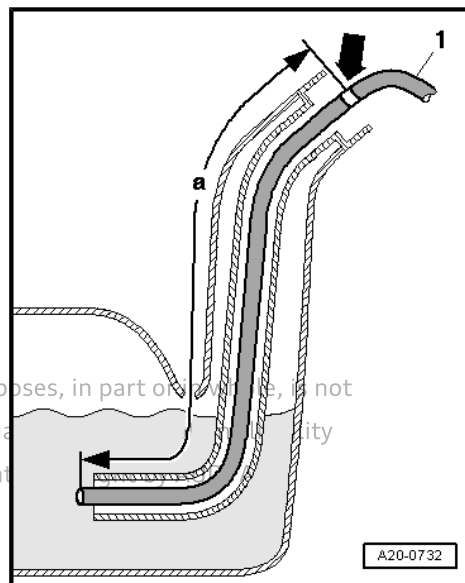


Note

- ◆ The procedure when using a fuel extractor without shaft end is basically the same.
- ◆ In this case, make a mark -arrow- on the hose at distance -a- = 1300 mm from end of extraction hose -1- using insulating tape. The extraction hose has been properly inserted when the affixed mark is level with the edge of the filler neck.
- ◆ If hose is difficult to insert, apply a thin coat of engine oil. DO NOT use silicone-based lubricant.

B - Procedure if fuel tank is less than 1/4 full

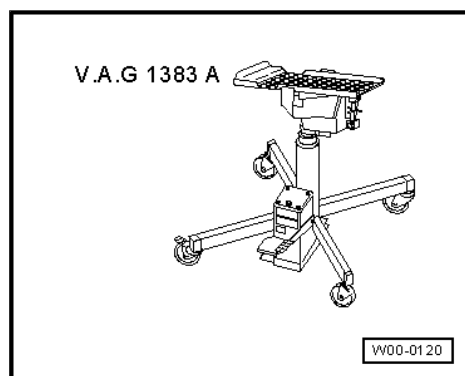
- Remove fuel delivery unit ⇒ [page 103](#).
- Extract remaining fuel from right chamber of fuel tank through opening for fuel delivery unit.
- Push hose into left chamber of fuel tank and extract remaining fuel.



4.3 Removing and installing fuel tank with attached components

Special tools and workshop equipment required

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



Removing

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

Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Risk of accident caused by weight of fuel tank

- ◆ Fuel tank must be empty when it is removed. Drain the tank if necessary. Procedure ⇒ [page 47](#)



Caution

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

- ◆ Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27 .



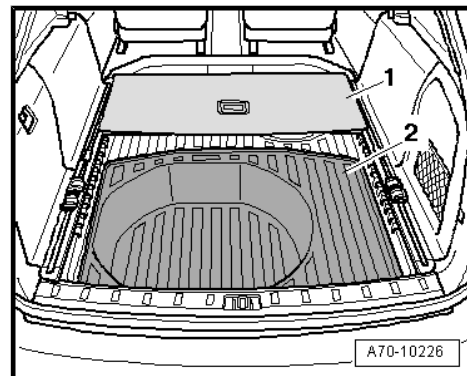
- Switch off ignition.
- If necessary, fold forward backrests of rear seat bench.

Saloon:

- Take out luggage compartment floor trim.

Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.

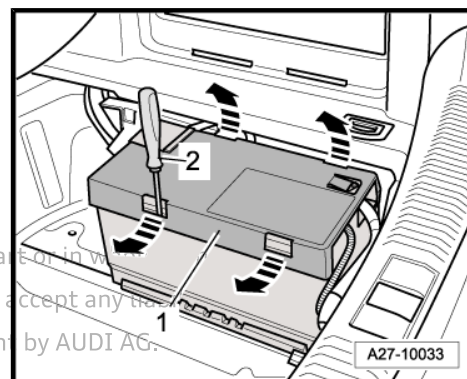


All vehicles:

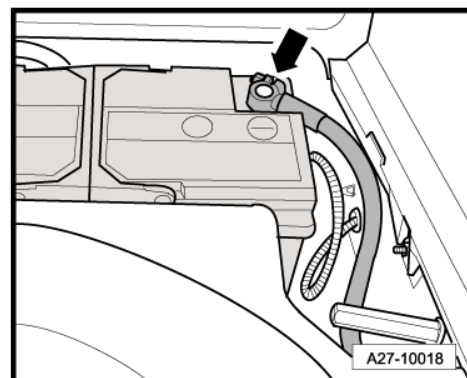
- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.



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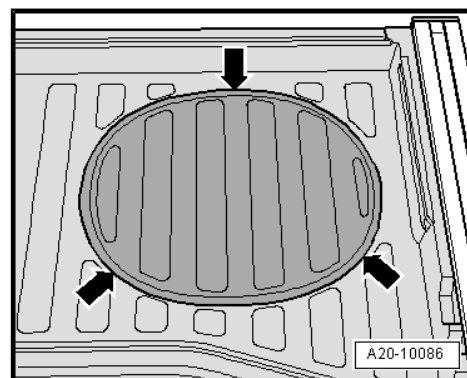


- Disconnect earth cable at negative terminal of battery -arrow-.



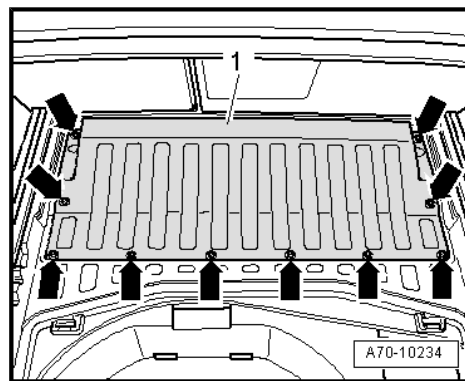
Avant:

- On vehicles without air suspension: unclip the retaining tabs -arrows- for the flange cover.





- On vehicles with air suspension: remove spreader pins -arrows- and take off cover -1-.



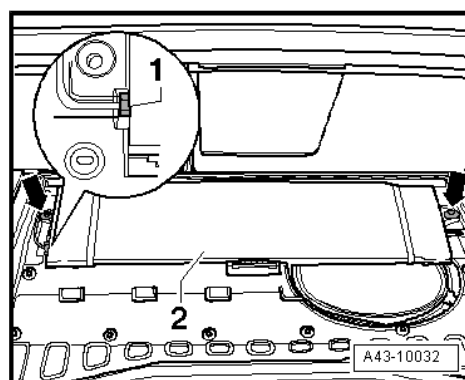
All vehicles:

- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



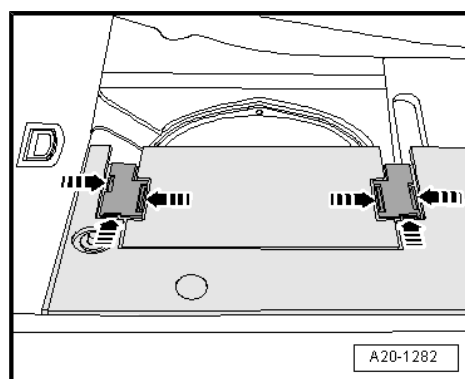
Note

Do not stretch or kink line.

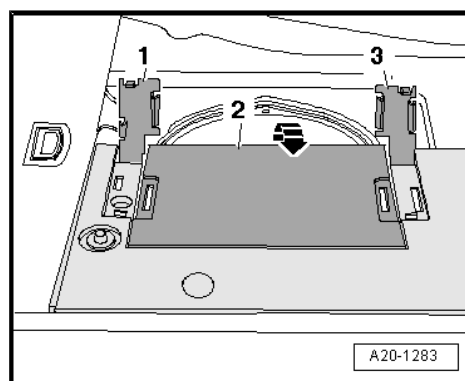


Saloon:

- Release retaining lugs -arrows-.



- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.

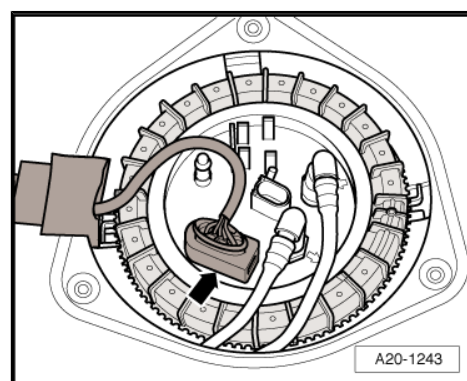
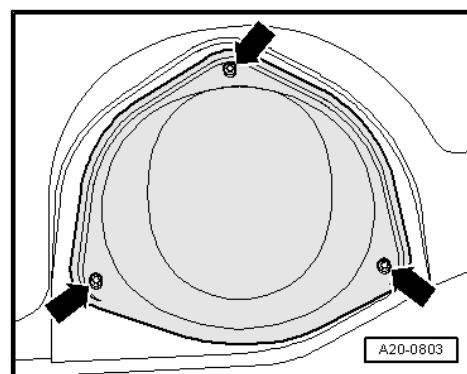
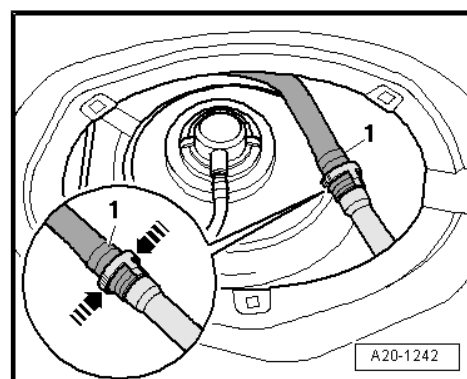
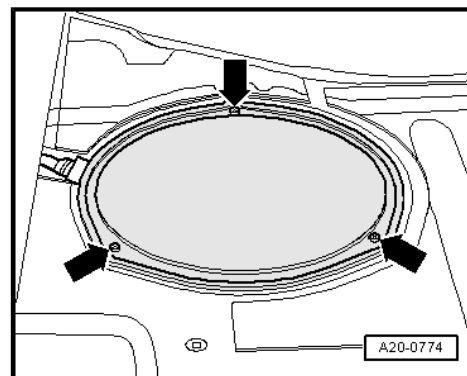


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All vehicles:

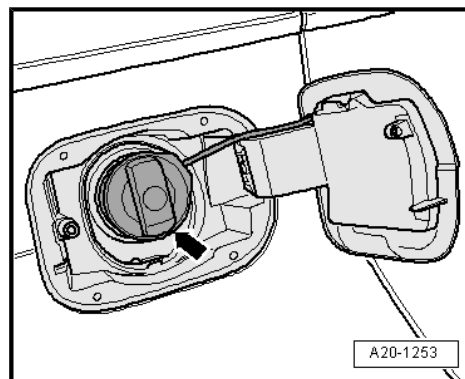
- Unbolt cover -arrows-.
- Press release tabs -arrows- to disconnect breather pipe -1-.
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.
- Unplug electrical connector -arrow- at flange.



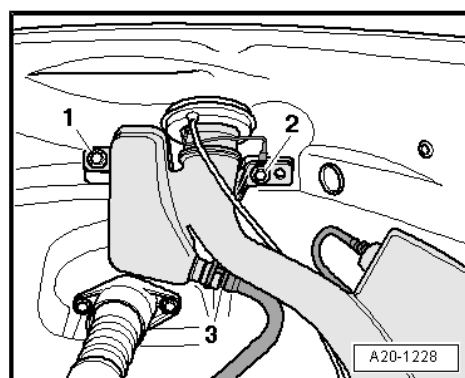
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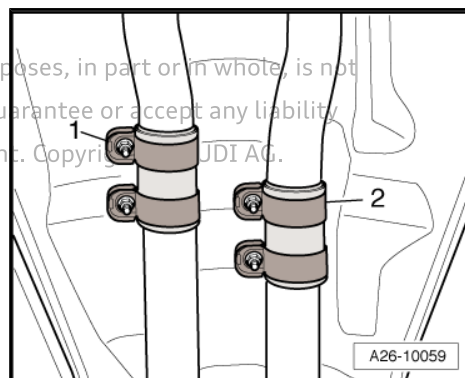
- Open the tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- from fuel filler neck.
- Seal opening of fuel filler neck with a piece of clean foam or similar to prevent dirt from dropping into the tank.



- Remove rear wheel (right-side).
- Remove rear right wheel housing liner ⇒ Rep. gr. 66 .
- Disconnect breather pipe/hose -3- from fuel filler neck (press release tabs).
- Remove bolts -1- and -2- for fuel filler neck.



- Loosen clamps -1- and -2-.
- Push the clamps to rear in order to disconnect the exhaust system.



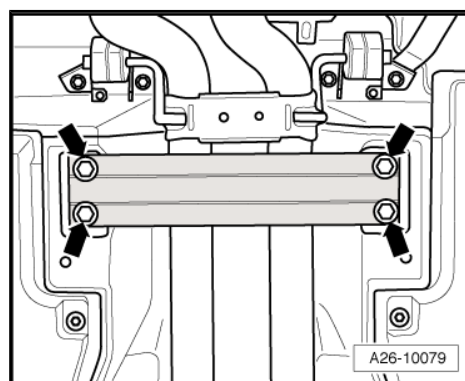
- Remove cross piece (rear) -arrows-.



Note

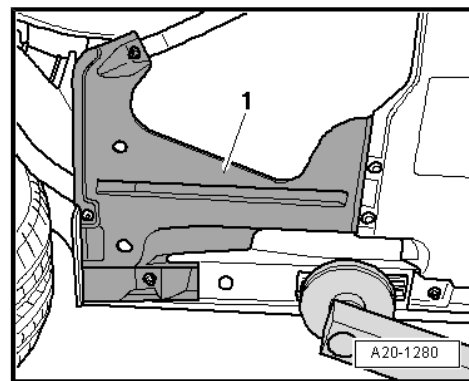
A second person will be required for detaching rear section of exhaust system.

- Disengage exhaust system at the rubber mountings and remove rear section of exhaust system.

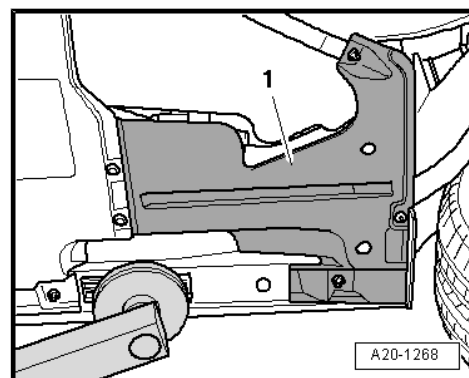




- Remove cover -1- from underside of vehicle (rear left).



- Remove cover -1- from underside of vehicle (rear right).
- Remove propshaft ⇒ Rep. gr. 39 .



WARNING

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

- ◆ *BEFORE loosening the subframe bolts, take steps to ensure that the vehicle does not tip forwards on the lifting platform (e.g. put a weight of about 50 kg in the luggage compartment).*

- Remove rear axle ⇒ Rep. gr. 42 .



WARNING

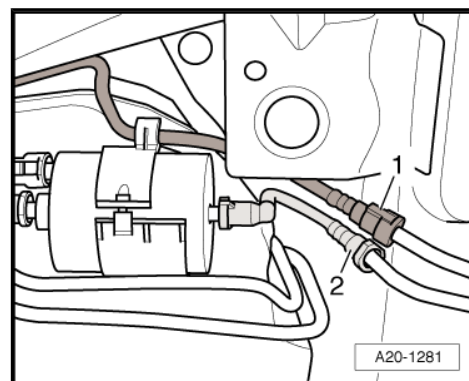
The fuel system operates at high pressure - risk of injuries!

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

- Disconnect fuel line -2- and breather line -1- from front right of fuel tank by pressing release tabs.

Vehicles with auxiliary heater:

- In addition, disconnect fuel line leading to auxiliary heater at metering pump.
- Unplug electrical connector at metering pump.



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All vehicles:

- Position engine and gearbox jack - V.A.G 1383 A- below vehicle to support tank.



WARNING

Risk of accident caused by weight of fuel tank

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

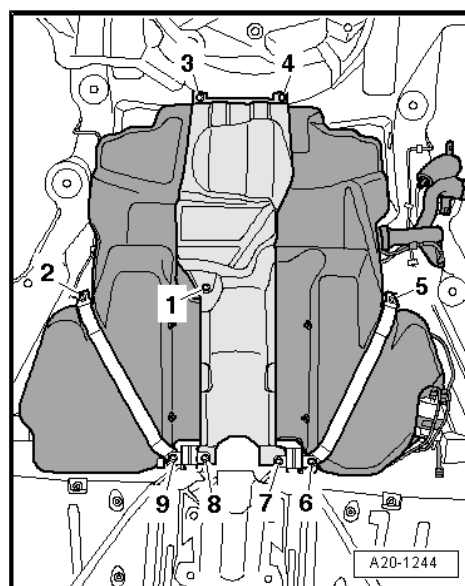
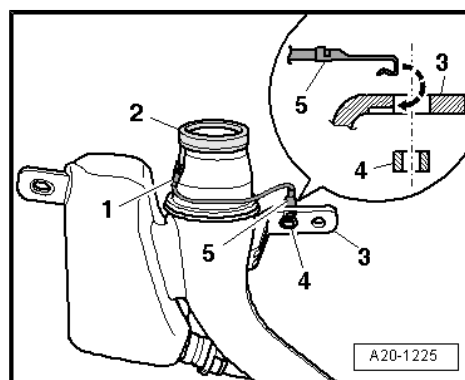
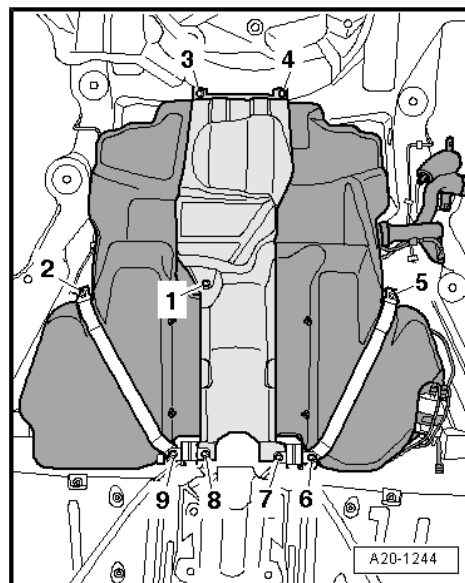
- Remove bolts -1 ... 9-.
- Then lower fuel tank using engine and gearbox jack - V.A.G 1383 A- , simultaneously guiding fuel tank down by hand.

Installing

- Tightening torques ➔ [page 46](#)

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

- Check that fuel lines and breather lines are clipped onto fuel tank.
- Check the earth wiring at both ends for traces of oxidation. Remove any traces of oxidation if necessary.
- Check installation position of earth connection:
 - Connector -1- must be seated securely on metal ring -2-.
 - Contact tab -5- must be attached to fuel tank -3- and secured with spacer bush -4-.
- Position fuel tank with securing straps and support bracket on underbody using engine and gearbox jack - V.A.G 1383 A- .
- When installing fuel tank, make sure that the fuel filler neck is correctly inserted into the opening on the body.
- Tighten bolts for securing straps and support bracket -1 ... 9-.



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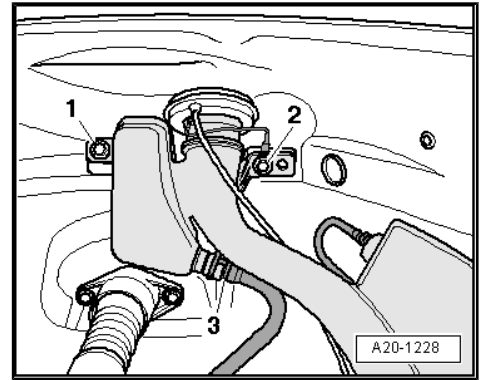
- Secure fuel filler neck with earth connection using bolts -1- and -2-.



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*



- Secure breather line -3- to fuel filler neck.
- Install rear axle ⇒ Rep. gr. 42 .
- Install propshaft ⇒ Rep. gr. 39 .
- Install rear section of exhaust system ⇒ Rep. gr. 26 .
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .
- Install rear seat bench ⇒ Rep. gr. 72 .
- Install accumulator ⇒ Rep. gr. 43 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .

Vehicles with auxiliary heater:

- Let auxiliary heater run with full load for 10 minutes to bleed fuel line going to metering pump.

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5 Fuel tank with attached components - special vehicles

5.1 Exploded view - fuel tank with attached components

1 - Reinforcement (left-side)

- ☐ For fuel tank

2 - Bolt

- ☐ 8 Nm

3 - Reinforcement (right-side)

- ☐ For fuel tank

4 - Bolt

- ☐ 23 Nm

5 - Mounting

- ☐ For exhaust system

6 - Support bracket

7 - Fuel line

- ☐ From fuel filter to engine
- ☐ Do not kink
- ☐ Press release tab on connection piece to disconnect

8 - Breather line

- ☐ Leading to activated charcoal filter in wheel housing (front right)
- ☐ Do not kink
- ☐ Press release tab on connection piece to disconnect
- ☐ Clip onto fuel tank

9 - Bolt

- ☐ Apply locking fluid when installing; refer to ⇒ Electronic parts catalogue
- ☐ 5 Nm

10 - Reinforcement for fuel filler pipe

11 - Bolt

- ☐ 8 Nm

12 - Bolt

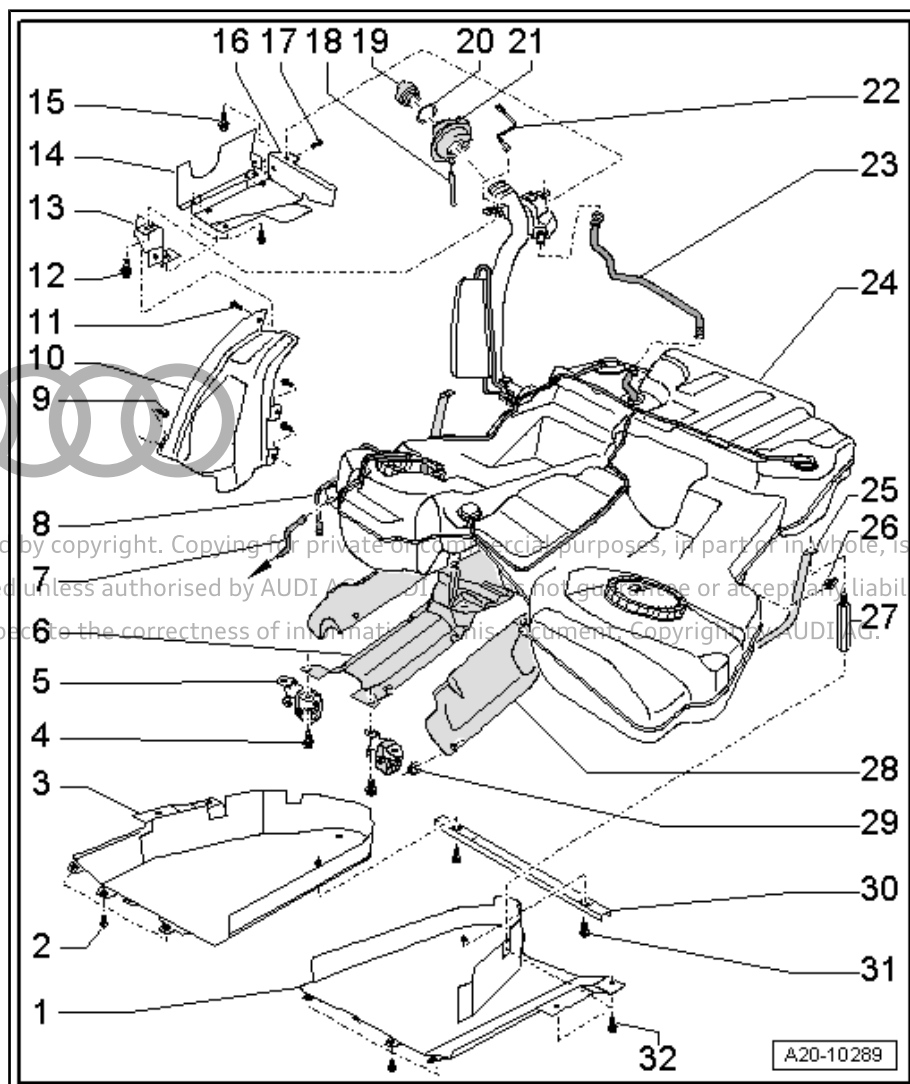
- ☐ Secures fuel filler neck and earth connection -item 22-
- ☐ 20 Nm

13 - Reinforcement for fuel filler neck

14 - Reinforcement for fuel filler neck

15 - Bolt

- ☐ Secures fuel filler neck





- ☐ 20 Nm

16 - Reinforcement for fuel filler neck

17 - Bolt

- ☐ 5 Nm

18 - Overflow hose

- ☐ Attached at wheel housing liner

19 - Filler cap

- ☐ Secured to tank flap unit

20 - Seal

- ☐ Renew if damaged

21 - Rubber cup

22 - Earth connection

- ☐ To eliminate electrostatic charge
- ☐ Installation position ⇒ [page 60](#)
- ☐ Make sure connector is correctly seated and secure wire with bolt for fuel filler neck -item 12-
- ☐ 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

23 - Breather line

24 - Fuel tank

- ☐ Removing and installing ⇒ [page 60](#)

25 - Securing strap

26 - Fastener

27 - Bolt

- ☐ 23 Nm

28 - Heat shield for fuel tank

29 - Nut

- ☐ 2 Nm

30 - Cross piece for reinforcement (rear)

31 - Bolt

- ☐ 8 Nm

32 - Bolt

- ☐ 8 Nm



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Installation position of earth connection

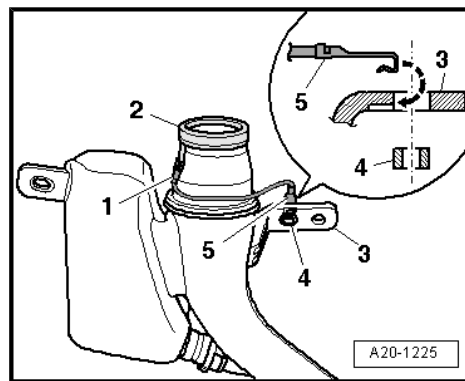
- Route earth connection as shown in illustration.
- First engage contact tab -5- of earth connection in mounting hole on fuel tank -3- and then press in spacer bush -4-.
- Ensure that connector -1- for earth connection is firmly seated on metal ring -2- on fuel filler neck.



WARNING

Risk of explosion caused by electrostatic discharge.

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



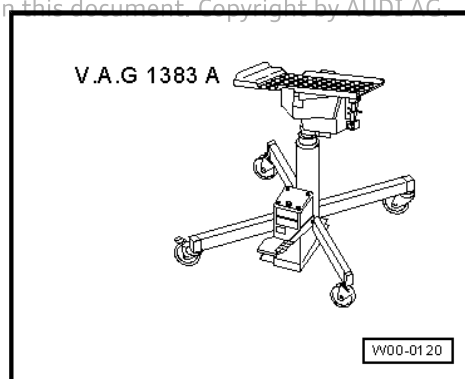
5.2 Draining fuel tank

The procedure is the same as for rest-of-world vehicles with four-wheel drive ⇒ [page 47](#) .

5.3 Removing and installing fuel tank with attached components

Special tools and workshop equipment required

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



Removing

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

Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Risk of accident caused by weight of fuel tank

- ◆ ***Fuel tank must be empty when it is removed. Drain the tank if necessary. Procedure ⇒ [page 47](#)***

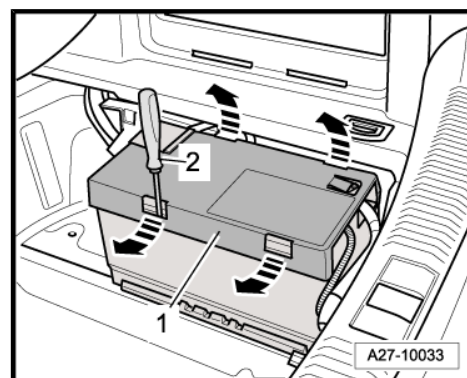


Caution

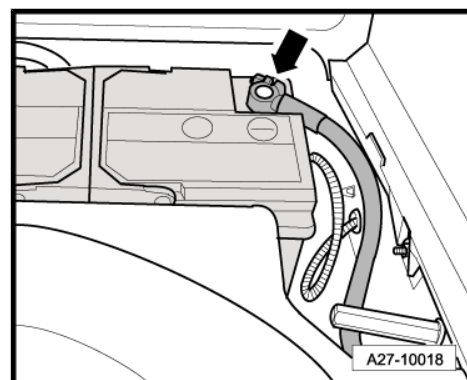
When disconnecting the battery there is a risk of irreparable damage to electronic components.

- ◆ *Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27.*

- Switch off ignition.
- If necessary, fold forward backrests of rear seat bench.
- Take out luggage compartment floor trim.
- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.



- Disconnect earth cable at negative terminal of battery -arrow-.

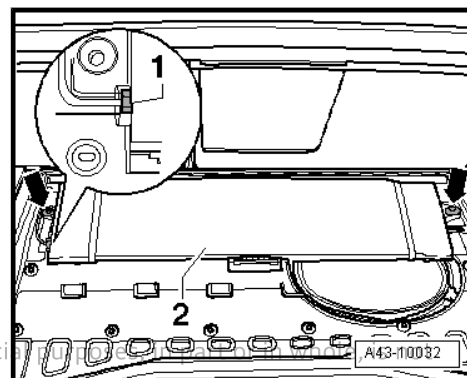


- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



Note

Do not stretch or kink line.

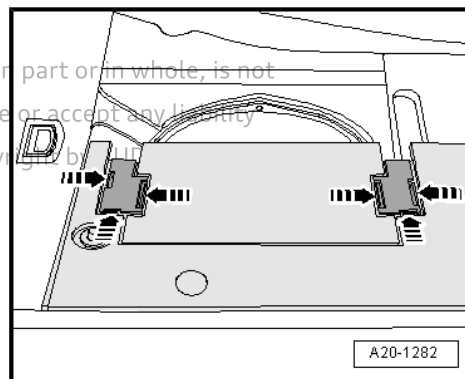


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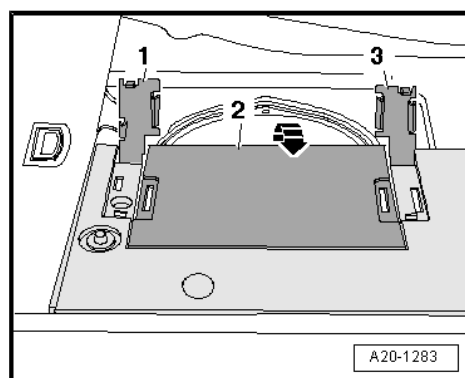


- Release retaining lugs -arrows-.

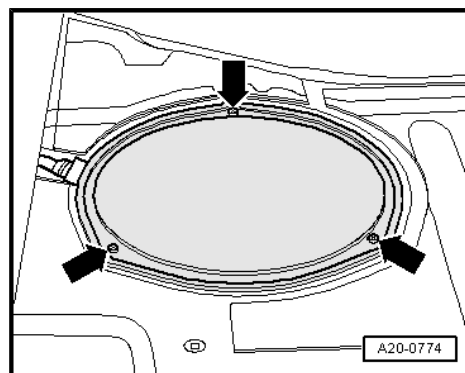
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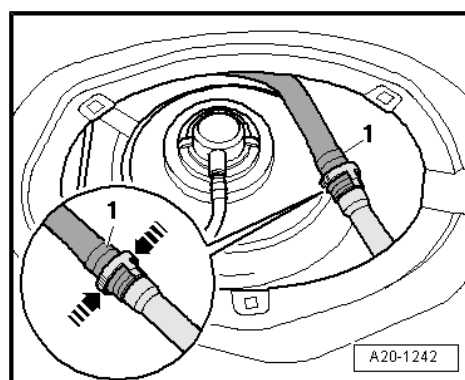
- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.

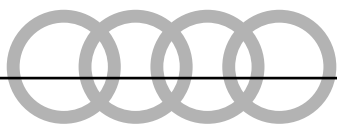


- Unbolt cover -arrows-.



- Press release tabs -arrows- to disconnect breather pipe -1-.

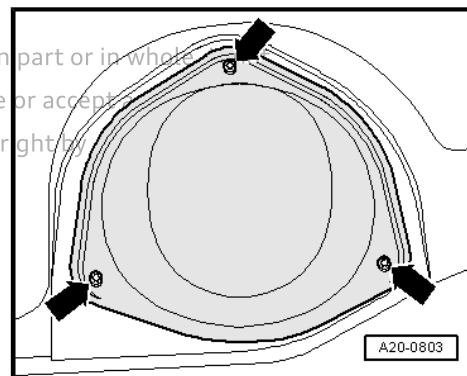




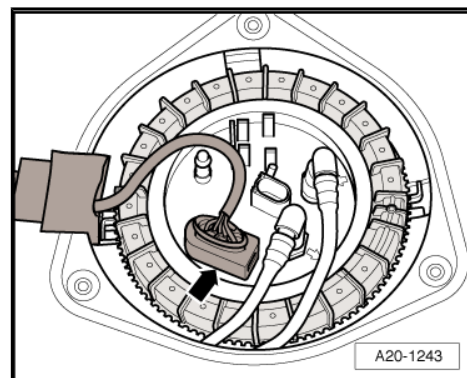
- Remove rear seat bench ⇒ Rep. gr. 72 .

- Unscrew cover for flange (right-side) -arrows-.

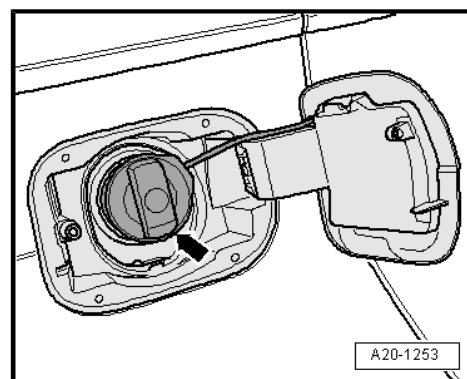
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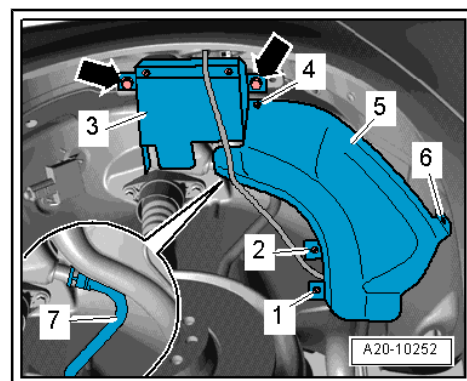
- Unplug electrical connector -arrow- at flange.



- Open the tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- from fuel filler neck.
- Seal opening of fuel filler neck with a piece of clean foam or similar to prevent dirt from dropping into the tank.
- Remove rear wheel (right-side).

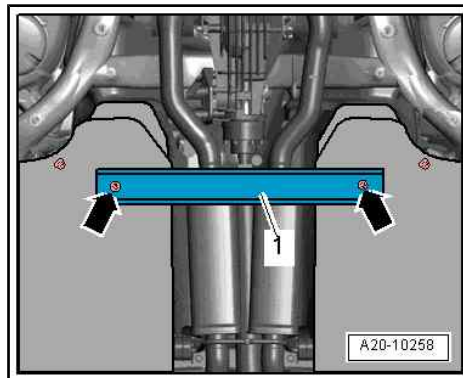


- Remove rear right wheel housing liner ⇒ Rep. gr. 66 .
- Remove bolts -1, 2, 4- and -6- and detach reinforcement for fuel filler pipe -5-.
- Remove bolts -arrows- for fuel filler neck and detach reinforcement -3-.
- Disconnect breather pipe/hose -7- from fuel filler neck (press release tabs).

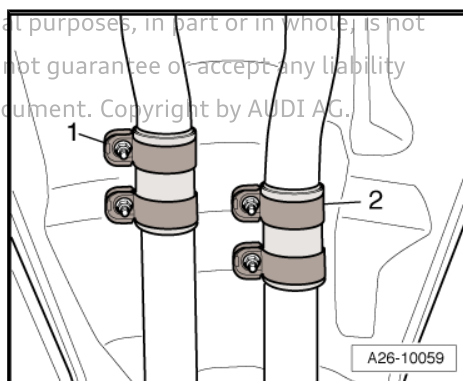




- Remove cross piece -1- for reinforcement (rear) -arrows-.



- Loosen clamps 1 and 2.
- Push the clamps to rear in order to disconnect the exhaust system.



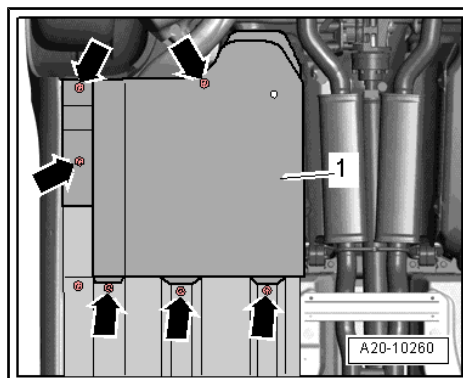
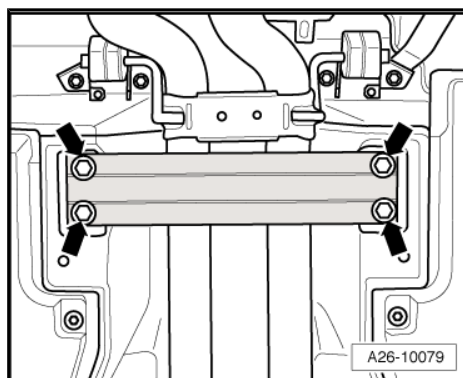
- Remove cross piece -arrows-.



Note

A second person will be required for detaching rear section of exhaust system.

- Disengage exhaust system at the rubber mountings and remove rear section of exhaust system.
- Remove reinforcement -1- for fuel tank (bottom left) from underside of vehicle -arrows-.





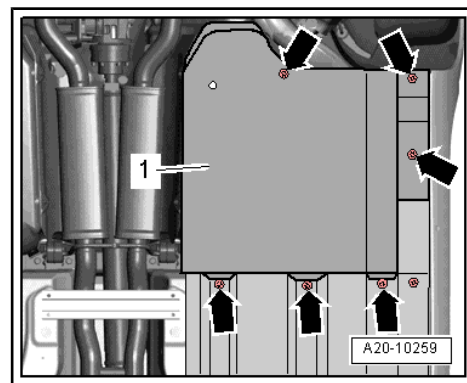
- Remove reinforcement -1- for fuel tank (bottom right) from underside of vehicle -arrows-.
- Remove propshaft ⇒ Rep. gr. 39 .



WARNING

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

- ◆ **BEFORE loosening the subframe bolts, take steps to ensure that the vehicle does not tip forwards on the lifting platform (e.g. put a weight of about 50 kg in the luggage compartment).**



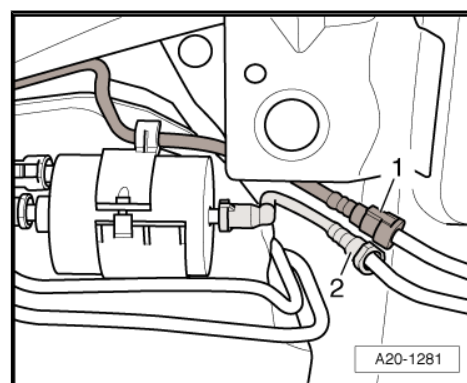
- Remove rear axle ⇒ Rep. gr. 42 .



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- and breather line -1- from front right of fuel tank by pressing release tabs.

Vehicles with auxiliary heater:

- In addition, disconnect fuel line leading to auxiliary heater at metering pump.
- Unplug electrical connector at metering pump.

All vehicles:

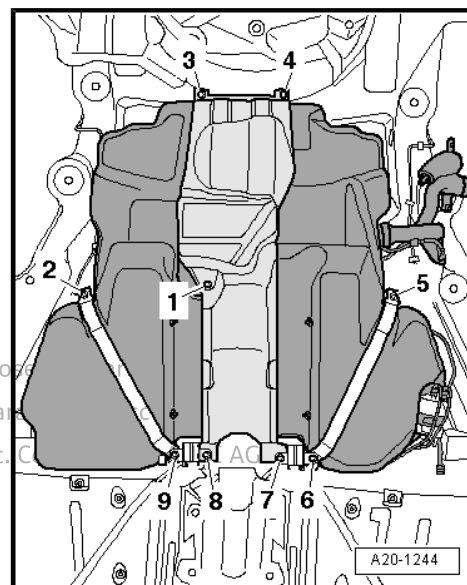
- Position engine and gearbox jack - V.A.G 1383 A- below vehicle to support tank.



WARNING

Risk of accident caused by weight of fuel tank

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



- Remove bolts -1...9-
- Then lower fuel tank using engine and gearbox jack - V.A.G 1383 A- , simultaneously guiding fuel tank down by hand.

Installing

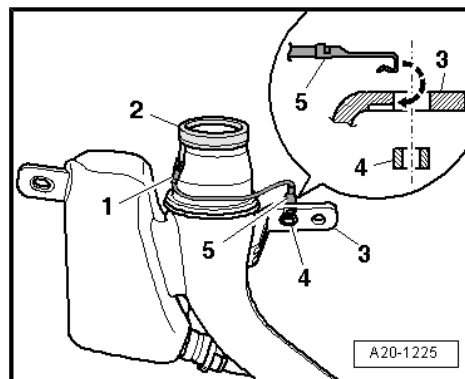
- Tightening torques ⇒ [page 58](#)

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

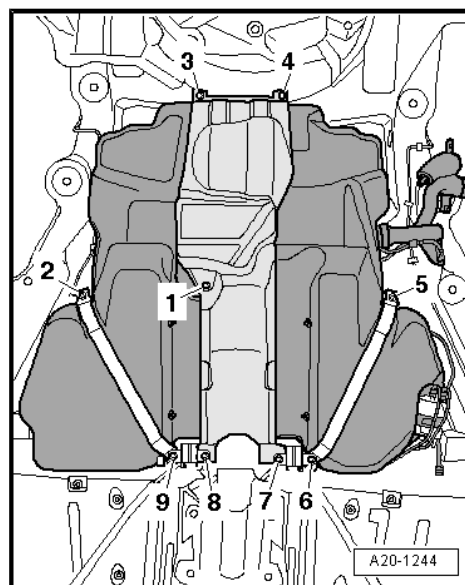
- Check that fuel lines and breather lines are clipped onto fuel tank.



- Check the earth wiring at both ends for traces of oxidation. Remove any traces of oxidation if necessary.
- Check installation position of earth connection:
 - Connector -1- must be seated securely on metal ring -2-.
 - Contact tab -5- must be attached to fuel tank -3- and secured with spacer bush -4-.



- Position fuel tank with securing straps and support bracket on underbody using engine and gearbox jack - V.A.G 1383 A- .
- When installing fuel tank, make sure that the fuel filler neck is correctly inserted into the opening on the body.
- Tighten bolts for securing straps and support bracket -1 ... 9-.



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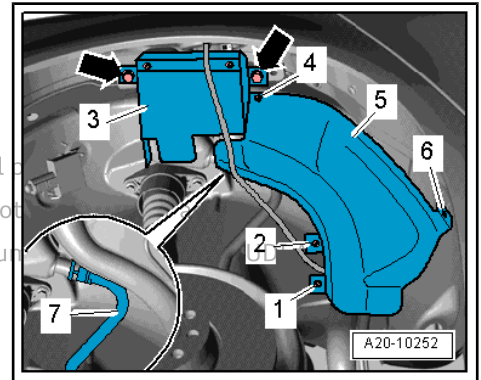
- Secure breather line -7- to fuel filler neck.
- Secure fuel filler neck with earth connection and reinforcement -3- using bolts -arrows-.
- Secure reinforcement -5- for fuel filler pipe using bolts -1, 2, 4- and -6-.



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*



- Install rear axle ⇒ Rep. gr. 42 .
- Install propshaft ⇒ Rep. gr. 39 .
- Install rear section of exhaust system ⇒ Rep. gr. 26 .
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .
- Install rear seat bench ⇒ Rep. gr. 72 .
- Install accumulator ⇒ Rep. gr. 43 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .

Vehicles with auxiliary heater:

- Let auxiliary heater run with full load for 10 minutes to bleed fuel line going to metering pump.



6 Fuel tank with attached components - Audi RS 6

6.1 Exploded view - fuel tank with attached components

1 - Bolt

- ☐ 23 Nm

2 - Mounting

- ☐ For exhaust system

3 - Support bracket

4 - Fuel line

- ☐ From fuel filter to engine
- ☐ Do not kink
- ☐ Press release tab on connection piece to disconnect

5 - Breather line

- ☐ From activated charcoal filter to activated charcoal filter solenoid valve 1 - N80-
- ☐ Do not kink
- ☐ Press release tab on connection piece to disconnect
- ☐ Clip onto fuel tank

6 - Bolt

- ☐ Secures fuel filler neck and earth connection -item 11-
- ☐ 23 Nm

7 - Overflow hose

- ☐ Attached at wheel housing liner

8 - Rubber cup

9 - Seal

- ☐ Renew if damaged

10 - Filler cap

- ☐ Secured to tank flap unit

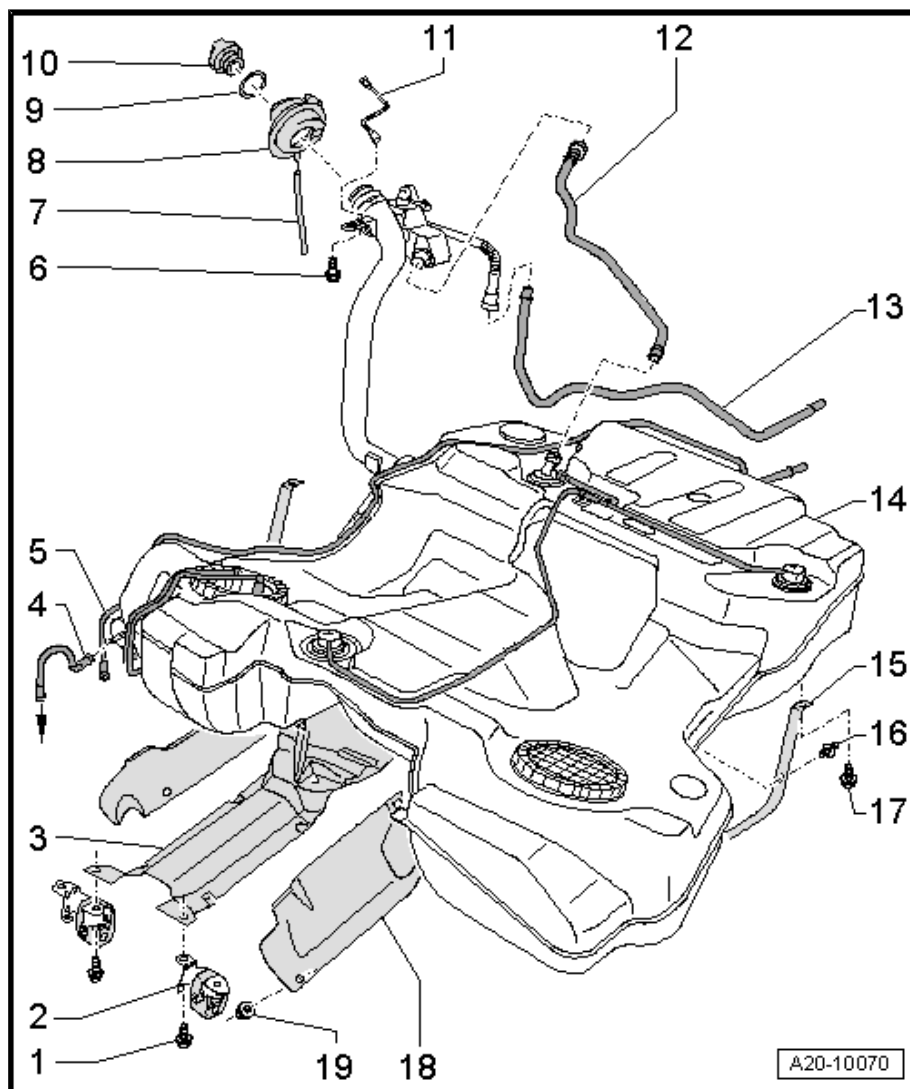
11 - Earth connection

- ☐ To eliminate electrostatic charge
- ☐ Installation position ⇒ [page 69](#)
- ☐ Make sure connector is correctly seated and secure wire with bolt for fuel filler neck -item 6-
- ☐ 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

12 - Breather line

13 - Breather line

- ☐ To activated charcoal filter





14 - Fuel tank

- Removing and installing ⇒ [page 69](#)

15 - Securing strap

16 - Fastener

17 - Bolt

- 23 Nm

18 - Heat shield for fuel tank

19 - Nut

- 2 Nm

Installation position of earth connection

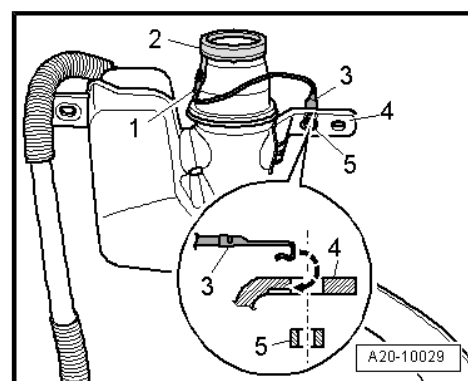
- Route earth connection as shown in illustration.
- First engage contact tab -3- of earth connection in mounting hole on fuel tank -4- and then press in spacer bush -5-.
- Ensure that connector -1- for earth connection is firmly seated on metal ring -2- on fuel filler neck.



WARNING

Risk of explosion caused by electrostatic discharge.

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



6.2 Draining fuel tank

The procedure is the same as for rest-of-world vehicles with four-wheel drive ⇒ [page 47](#).

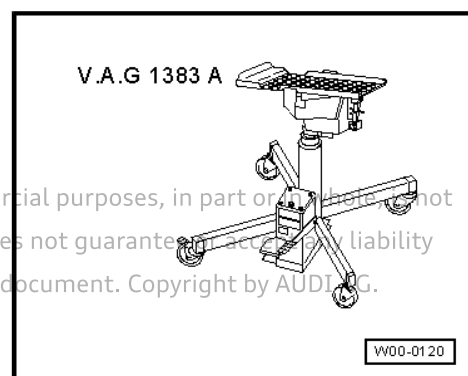
6.3 Removing and installing fuel tank with attached components

Special tools and workshop equipment required

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



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Removing

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

Observe rules for cleanliness ⇒ [page 2](#).



WARNING

Risk of accident caused by weight of fuel tank

- ◆ *Fuel tank must be empty when it is removed. Drain the tank if necessary. Procedure ⇒ [page 47](#)*



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27.*

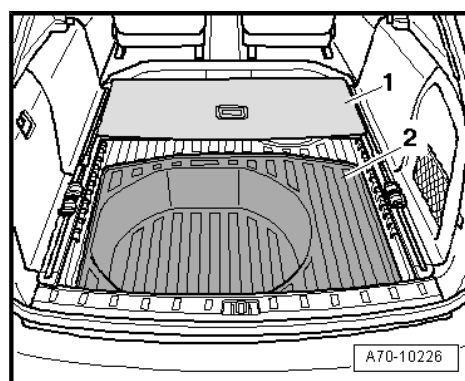
- Switch off ignition.
- If necessary, fold forward backrests of rear seat bench.

Saloon:

- Take out luggage compartment floor trim.

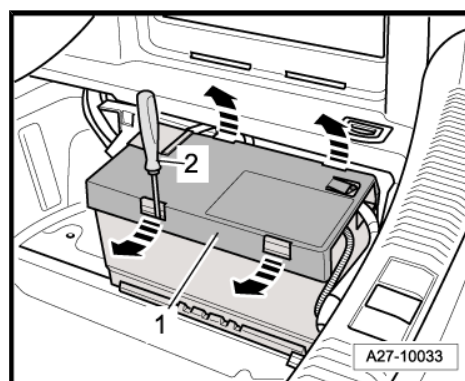
Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.



All vehicles:

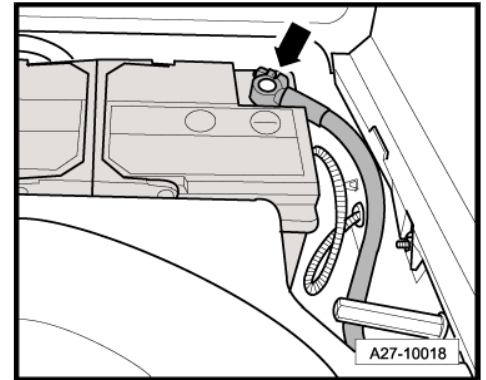
- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.



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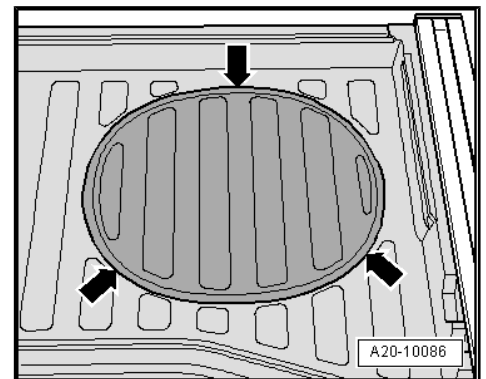


- Disconnect earth cable at negative terminal of battery
 -arrow-.

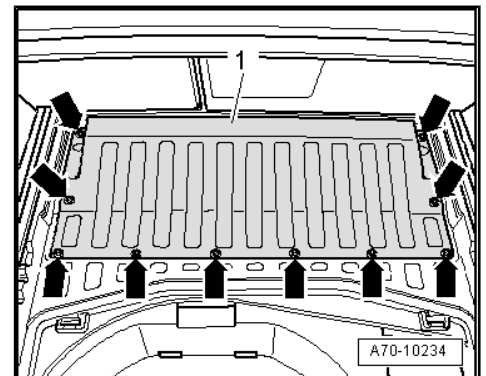


Avant:

- On vehicles without air suspension: unclip the retaining tabs
 -arrows- for the flange cover.



- On vehicles with air suspension: remove spreader pins
 -arrows- and take off cover -1-.



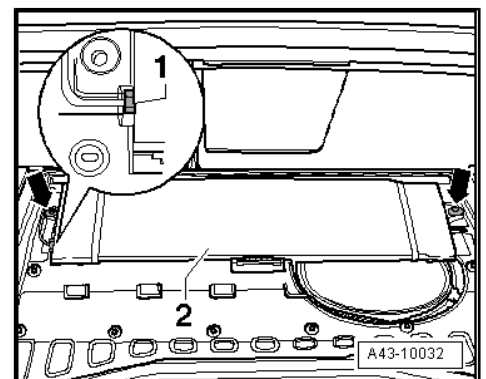
All vehicles:

- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



Note

Do not stretch or kink line.

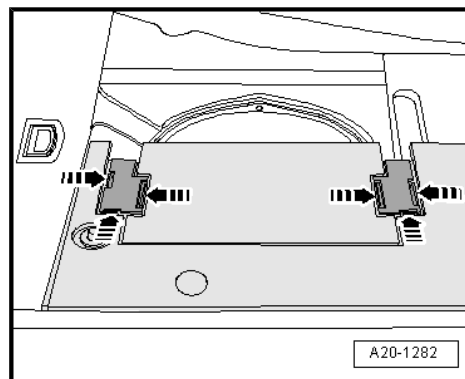


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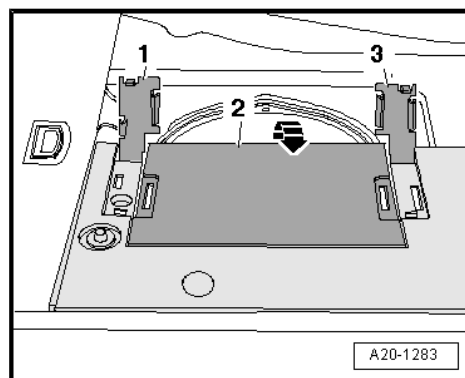


Saloon:

- Release retaining lugs -arrows-.

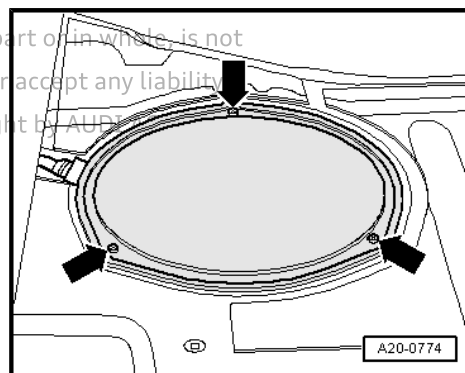


- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.

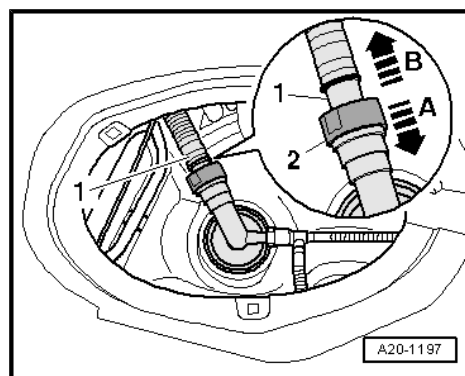


All vehicles:

- Unbolt cover -arrows-.

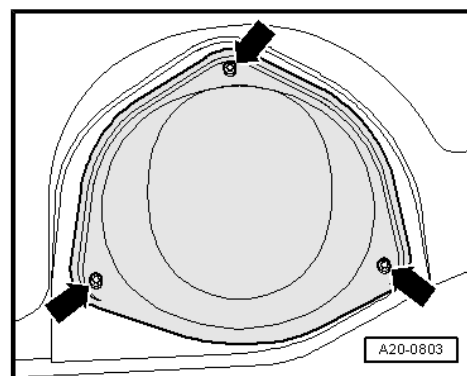


- Disconnect breather pipe -1-. To do so, press release ring -2- approx. 2 mm in direction indicated -arrow A- and at the same time detach breather pipe -arrow B-.

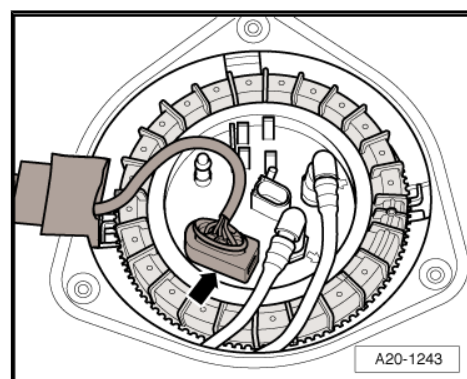




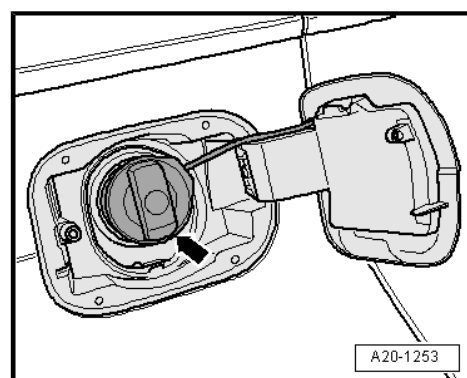
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



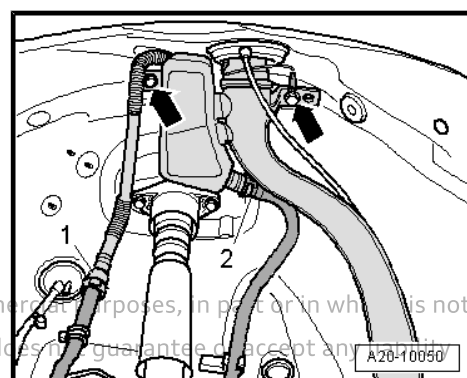
- Unplug electrical connector -arrow- at flange.



- Open the tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- from fuel filler neck.
- Seal opening of fuel filler neck with a piece of clean foam or similar to prevent dirt from dropping into the tank.



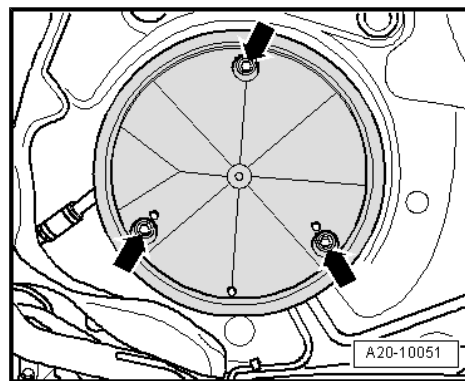
- Remove rear wheel (right-side).
- Remove rear right wheel housing liner ⇒ Rep. gr. 66 .
- Disconnect breather pipes -1- and -2- from fuel filler neck (press release tabs).
- Unscrew bolts -arrows- for fuel filler neck.



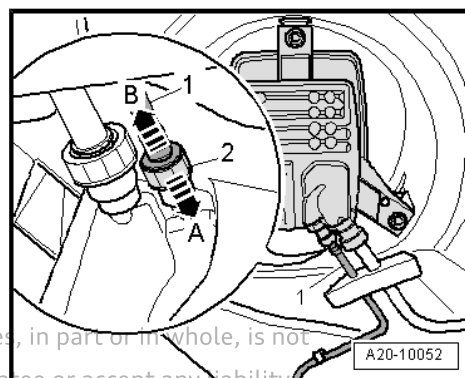
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- Unscrew bolts -arrows- and detach cover for activated charcoal filter.
- Fit the same bolts to secure activated charcoal filter and tighten by hand.

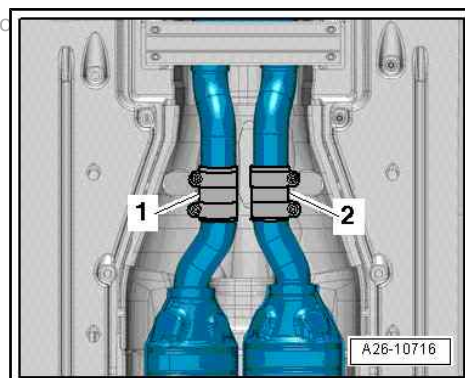


- Detach breather line -1-. To do so, press release ring -2- approx. 2 mm in direction indicated -arrow A- and at the same time detach breather pipe -arrow B-.
- Unclip breather pipe from retainer.



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- Loosen clamps 1 and 2.
- Push the clamps to rear in order to disconnect the exhaust system.



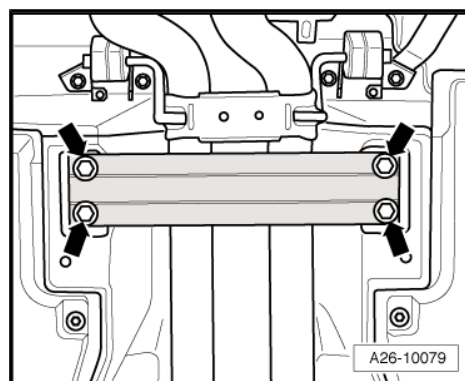
- Remove cross piece (rear) -arrows-.



Note

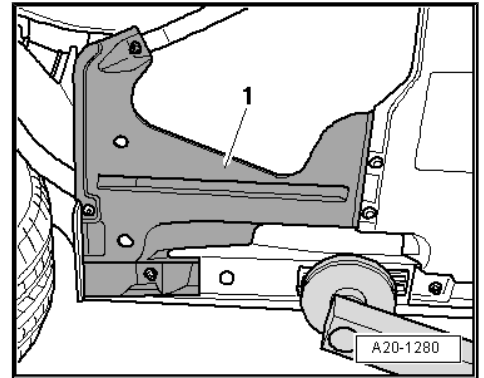
A second person will be required for detaching rear section of exhaust system.

- Disengage exhaust system at the rubber mountings and remove rear section of exhaust system.





- Remove cover -1- from underside of vehicle (rear left).



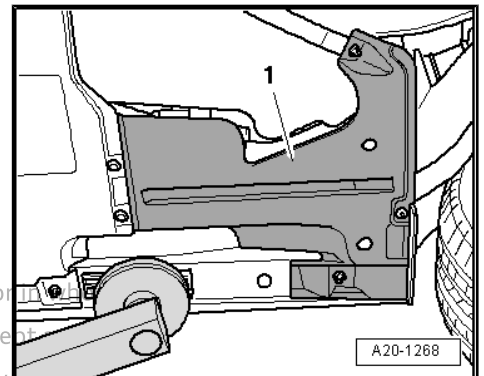
- Remove cover -1- from underside of vehicle (rear right).
- Remove propshaft ⇒ Rep. gr. 39 .



WARNING

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

- ◆ *BEFORE loosening the subframe bolts, take steps to ensure that the vehicle does not tip forwards on the lifting platform (e.g. put a weight of about 50 kg in the luggage compartment).*



- Remove rear axle ⇒ Rep. gr. 42 .



WARNING

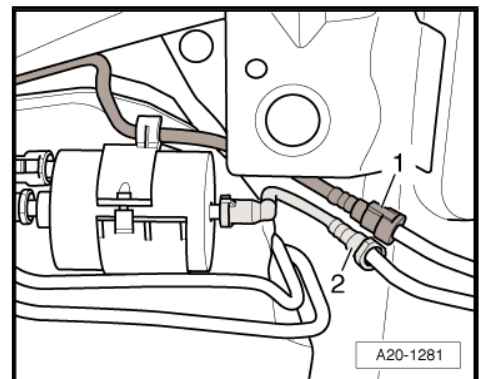
The fuel system operates at high pressure - risk of injuries!

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

- Disconnect fuel line -2- and breather line -1- from front right of fuel tank by pressing release tabs.

Vehicles with auxiliary heater:

- In addition, disconnect fuel line leading to auxiliary heater at metering pump.
- Unplug electrical connector at metering pump.



**All vehicles:**

- Position engine and gearbox jack - V.A.G 1383 A- below vehicle to support tank.

**WARNING**

Risk of accident caused by weight of fuel tank

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

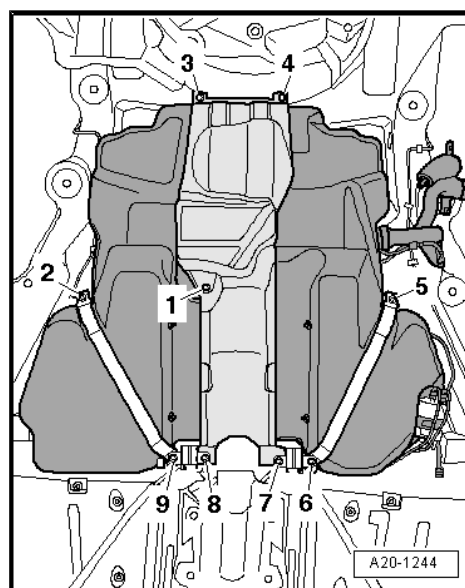
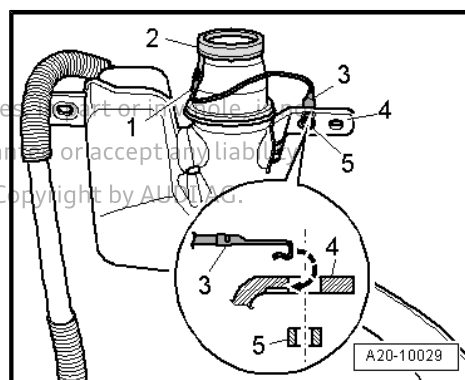
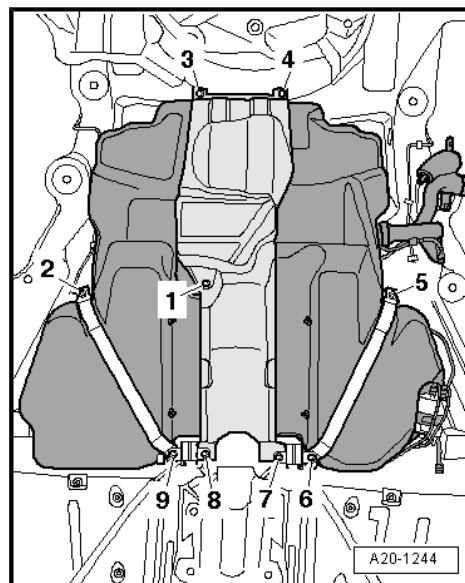
- Remove bolts -1 ... 9-.
- Then lower fuel tank using engine and gearbox jack - V.A.G 1383 A- , simultaneously guiding fuel tank down by hand.

Installing

- Tightening torques ⇒ [page 68](#)

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

- Check that fuel lines and breather lines are clipped onto fuel tank.
- Check the earth wiring at both ends for traces of oxidation. Remove any traces of oxidation if necessary.
- Check installation position of earth connection:
- Connector -1- must be seated securely on metal ring -2-.
- Contact tab -3- must be attached to fuel tank -4- and secured with spacer bush -5-.
- Position fuel tank with securing straps and support bracket on underbody using engine and gearbox jack - V.A.G 1383 A- .
- When installing fuel tank, make sure that the fuel filler neck is correctly inserted into the opening on the body.
- Tighten bolts for securing straps and support bracket -1 ... 9-.





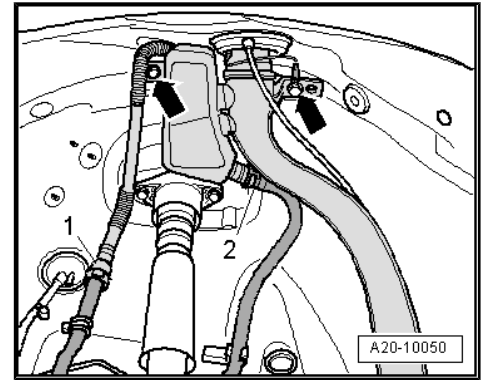
- Secure fuel filler neck with earth connection -arrows-.



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*



- Secure breather pipes -1- and -2- to fuel filler neck.
- Install rear axle ⇒ Rep. gr. 42 .
- Install propshaft ⇒ Rep. gr. 39 .
- Install rear section of exhaust system ⇒ Rep. gr. 26 .
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .
- Install cover for activated charcoal filter ⇒ [page 193](#) .
- Install rear seat bench ⇒ Rep. gr. 72 .
- Install accumulator ⇒ Rep. gr. 43 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .

Vehicles with auxiliary heater:

- Let auxiliary heater run with full load for 10 minutes to bleed fuel line going to metering pump.



7 Fuel delivery unit and fuel gauge senders - rest-of-world vehicles with four-wheel drive

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7.1 Exploded view - fuel delivery unit and fuel gauge sender

1 - Fuel delivery unit

- ☐ Checking fuel pump (electrical test)
⇒ [page 80](#)
- ☐ Removing and installing
⇒ [page 103](#)
- ☐ Put at least 5 litres of fuel into tank after installing
- ☐ Checking residual pressure ⇒ Rep. gr. 24

2 - Fuel gauge sender - G-

- ☐ Checking resistance values ⇒ [page 110](#)
- ☐ Removing and installing
⇒ [page 112](#)

3 - Threaded ring

4 - Seal

- ☐ Renew
- ☐ Install dry

5 - Union nut

- ☐ Remove and install with union nut tool - T40068 A-
- ☐ Renew
- ☐ 120 Nm

6 - Fuel return line

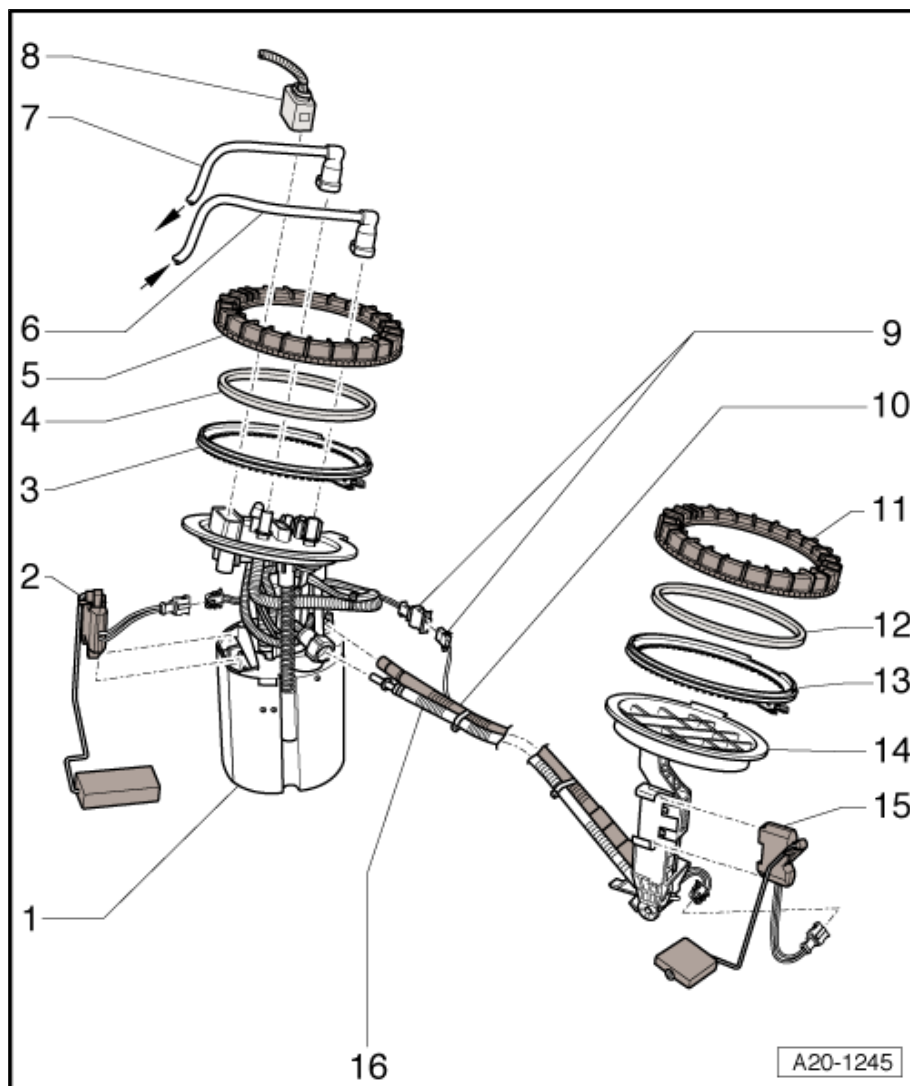
- ☐ From fuel filter
- ☐ Do not kink
- ☐ Mark before removing
- ☐ To disconnect from flange, press release tab on connection piece
- ☐ Note direction of arrow (fuel supply or fuel return system) on flange when installing
- ☐ Clip onto fuel tank

7 - Fuel supply line

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

8 - Electrical connector

- ☐ For fuel system pressurisation pump - G6-





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

9 - Electrical connector

- ☐ For fuel gauge sender 2 - G169-

10 - Fuel supply line

- ☐ From suction-jet pump to fuel delivery unit
- ☐ Clipped onto fuel delivery unit
- ☐ Secure to supply line for suction-jet pump using a total of 3 cable ties
- ☐ Observe fitting instructions ⇒ [page 124](#)

11 - Union nut

- ☐ Remove and install with union nut tool - T40068 A-
- ☐ Renew
- ☐ 120 Nm

12 - Seal

- ☐ Renew
- ☐ Install dry

13 - Threaded ring

14 - Suction-jet pump

- ☐ Checking suction-jet pump ⇒ [page 120](#)
- ☐ Removing and installing ⇒ [page 120](#)
- ☐ Put at least 5 litres of fuel into tank after installing

15 - Fuel gauge sender 2 - G169-

- ☐ Checking resistance values ⇒ [page 113](#)
- ☐ Removing and installing ⇒ [page 114](#)

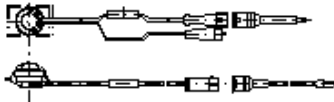
16 - Supply line for suction-jet pump

- ☐ From fuel pump to suction-jet pump
- ☐ Press release tab on connection piece to disconnect
- ☐ Secure to fuel supply line using a total of 3 cable ties
- ☐ Observe fitting instructions ⇒ [page 124](#)



7.2 Checking fuel pump (electrical test)

Special tools and workshop equipment required

V.A.G 1348/3A 	V.A.G 1526 B 
V.A.G 1594 C 	



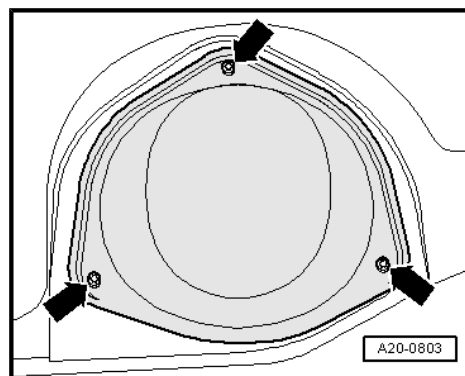
G20-0048

- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2-
- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Auxiliary measuring set - V.A.G 1594C-

Procedure

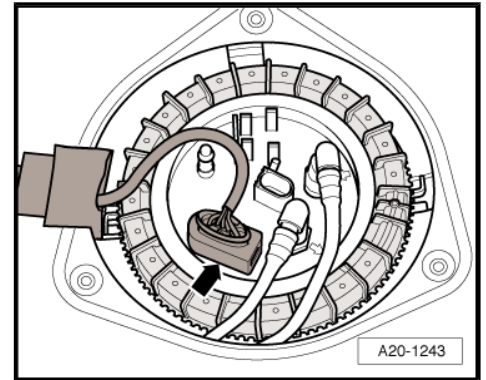
Observe test conditions ⇒ [page 3](#) .

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.





- Unplug electrical connector -arrow- at flange.

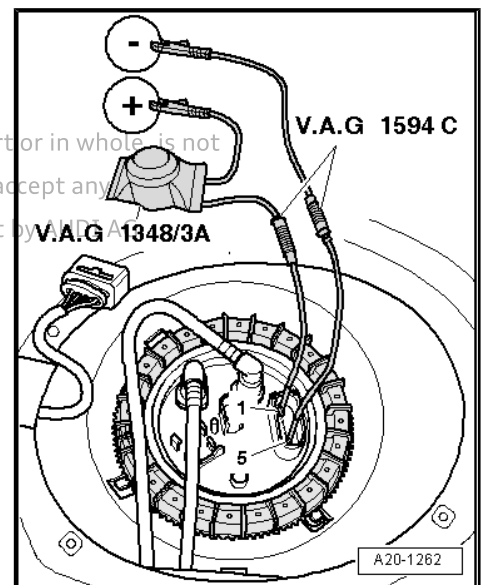


- Connect remote control for V.A.G 1348 - V.A.G 1348/3A- to contact -1- using adapter cable - V.A.G 1348/3-2- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Connect crocodile clip to battery +.
- Press remote control button.
- Pump should start running audibly.



Note

The fuel pump runs very quietly. Where possible, avoid noisy surroundings for this test.

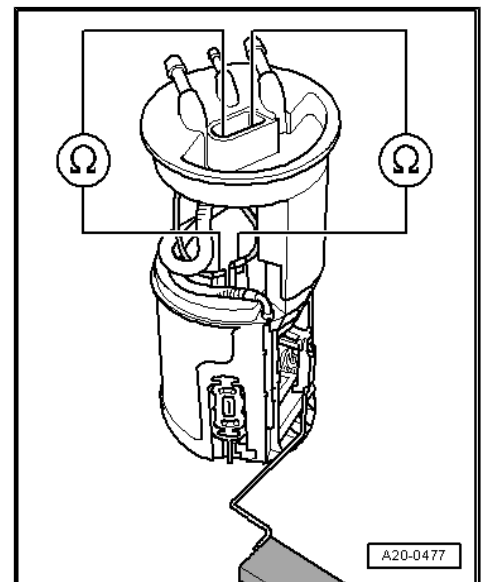


If no noise can be heard from pump:

- Remove fuel delivery unit ➔ [page 103](#) .
- Check that the electrical wires between flange and fuel pump are connected and test for continuity.

If no fault is found in wiring, fuel pump is defective. Renew fuel delivery unit.

- Install fuel delivery unit ➔ [page 107](#) .



7.3 Checking fuel pump control unit - J538- - vehicles with FSI engine

**Special tools and workshop equipment required**

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V.A.G 1526 B**V.A.G 1594 C****V.A.G 1598/39****V.A.G 1598/42**

G24-10001

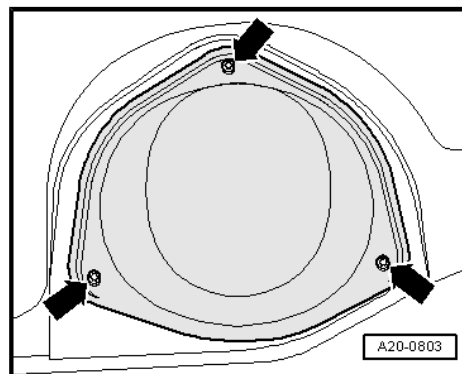
- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Auxiliary measuring set - V.A.G 1594C-
- ◆ Adapter cable - V.A.G 1598/39-
- ◆ Test box - V.A.G 1598/42-

Procedure

Observe test conditions ⇒ [page 3](#) .

Checking voltage supply for fuel pump (from fuel pump control unit - J538-)

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



A20-0803



- Connect hand-held multimeter - V.A.G 1526C- (voltage test range) with probes and plug-in adapters from auxiliary measuring set - V.A.G 1594C- between contacts -1- and -5-, as shown in illustration. The electrical connector remains in place.



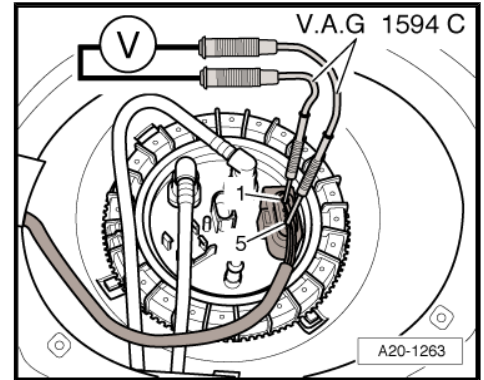
Note

The connector contacts are numbered accordingly on the back of the connector.

- Start engine.
- Specification when starting and at idling speed: approx. 4 ... 5 V.
- Press accelerator pedal quickly to the floor and release again (short throttle burst).
- Specification: The voltage value should first increase slightly, then drop and eventually rise to the previous reading.

If display differs from specification described above:

- Check voltage supply and activation of fuel pump control unit -J538- .



Checking voltage supply for fuel pump control unit - J538-



Note

The illustration shows a fuel pump control unit -J538- on vehicles from 06.2004 onwards.

Vehicles from 06.2004 onwards

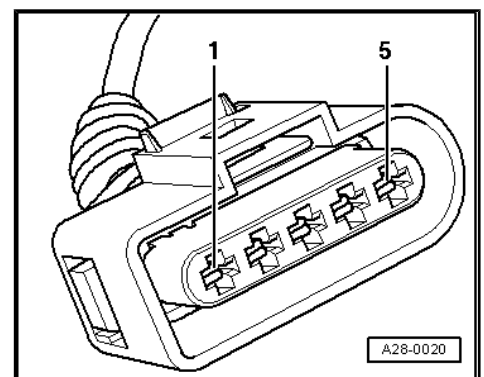
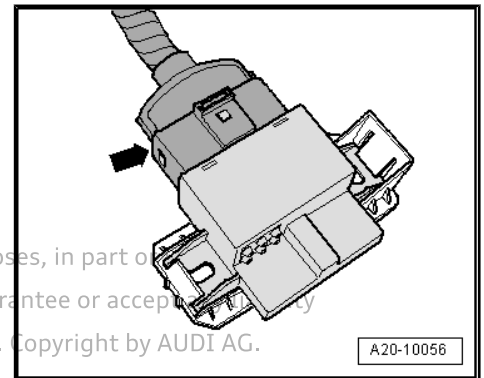
- Remove fuel pump control unit -J538- ➤ [page 84](#)

All vehicles:

- Unplug electrical connector -arrow- on fuel pump control unit -J538- .
- Connect multimeter between contacts -3- and -4- of connector to measure voltage.
- Switch on ignition.
- Specification: approx. battery voltage

If specification is not obtained:

- Eliminate open circuit in wiring (refer to current flow diagram).





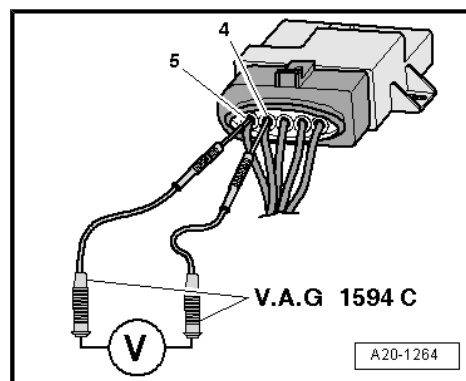
Checking activation of fuel pump control unit -J538-

- Remove protective cap fitted on vehicles from 06.2004 onwards.
- Connect multimeter (voltage test range) with probes and plug-in adapters from auxiliary measuring set - V.A.G 1594C- between contacts -4- and -5-, as shown in illustration. The electrical connector remains in place.



Note

The connector contacts are numbered accordingly on the back of the connector.



- Start engine.
- Specification when starting and at idling speed: approx. 5.0 V.
- Press accelerator pedal quickly to the floor and release again (short throttle burst).
- Specification: The voltage value should first increase slightly, then drop and eventually rise to the previous reading.

If display differs from specification described above:

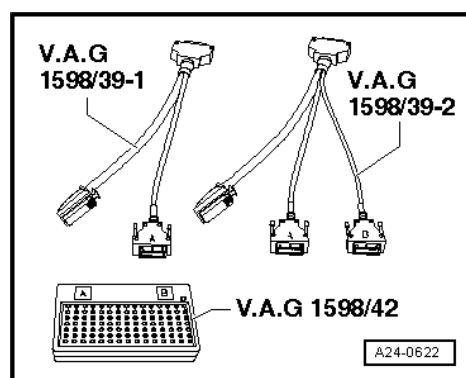
- Switch off ignition.
- Connect test box - V.A.G 1598/42- to wiring harness with adapter lead -V.A.G 1598/39-1- or -V.A.G 1598/39-2- . Do not connect engine control unit. Connect earth clip of test box to negative terminal of battery ⇒ Rep. gr. 24 .



Caution

Risk of irreparable damage to electronic components.

- ◆ *Select the appropriate measuring range before connecting the test leads and observe test requirements.*



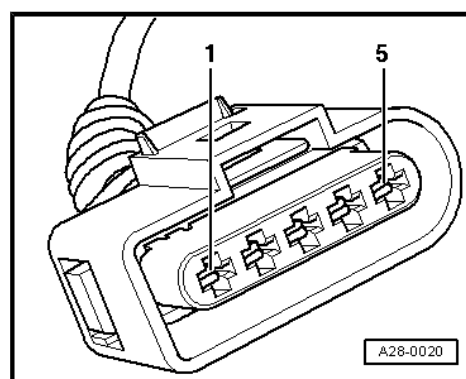
- Check for open circuit and short to positive or earth in the following wiring:

Connector Contact	-V.A.G 1598/42- Socket
-5-	6-cyl. FSI: B 35
	10-cyl. FSI - Audi S6: B 27
	10-cyl. TFSI - Audi RS6: B 70

- Repair open circuit or short circuit in wiring (refer to current flow diagram).

If no fault is found:

- Renew fuel pump control unit - J538- .



7.4 Removing and installing fuel pump control unit - J538- on vehicles with FSI engine from 06.2004 onwards

Removing

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



Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Risk of accident caused by weight of fuel tank

- ◆ *Fuel tank must be empty when lowering it. Drain the tank if necessary. Procedure ⇒ [page 47](#)*



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27 .*

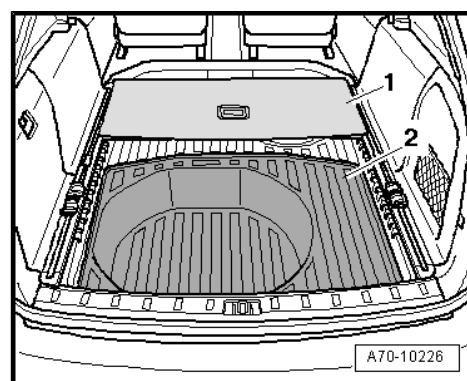
- Switch off ignition.

Saloon:

- Fold up luggage compartment floor lining.

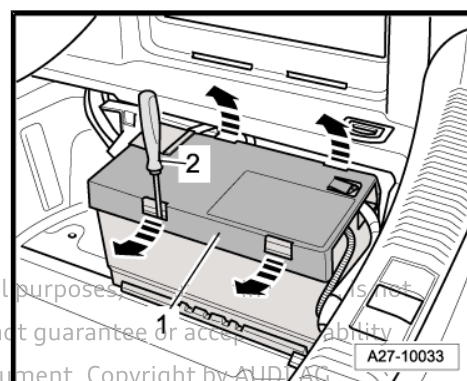
Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.



All vehicles:

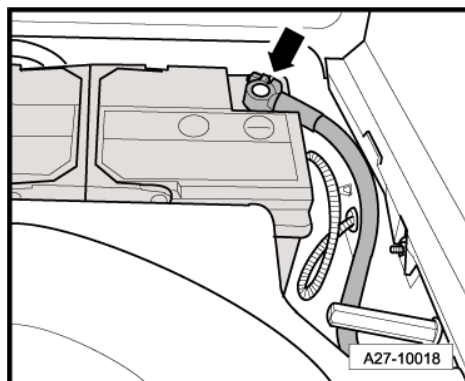
- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.



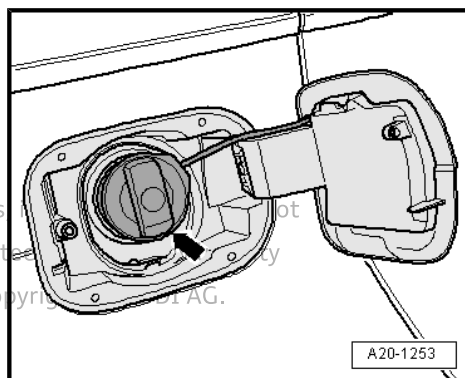
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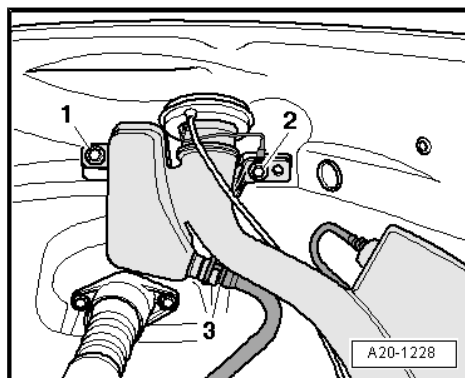
- Disconnect earth cable at negative terminal of battery -arrow-.



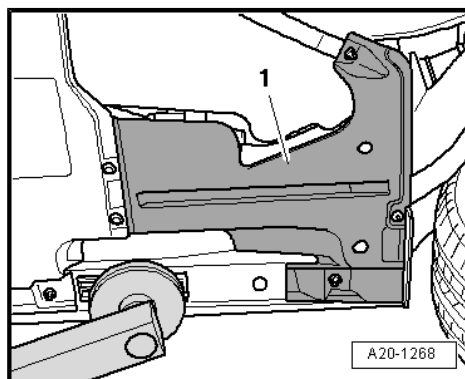
- Open the tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- from fuel filler neck.
- Seal opening of fuel filler neck with a piece of clean foam or similar to prevent dirt from dropping into the tank.



- Remove rear wheel (right-side).
- Remove rear right wheel housing liner ⇒ Rep. gr. 66 .
- Disconnect breather pipe/hose -3- from fuel filler neck (press release tabs).
- Remove bolts -1- and -2- for fuel filler neck.



- Remove cover -1- from underside of vehicle (rear right).



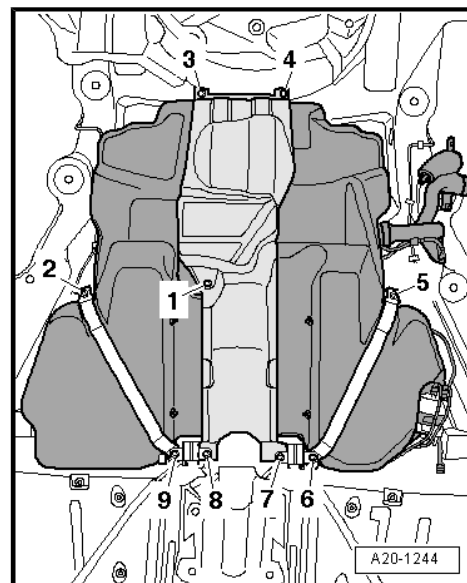


WARNING

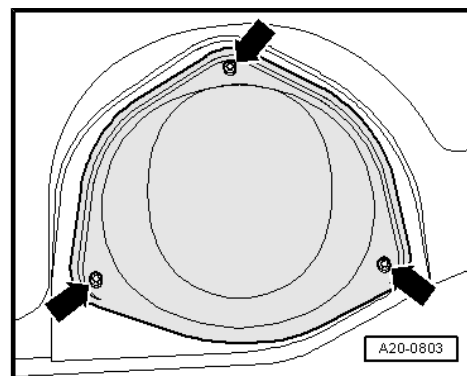
Risk of accident caused by weight of fuel tank

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

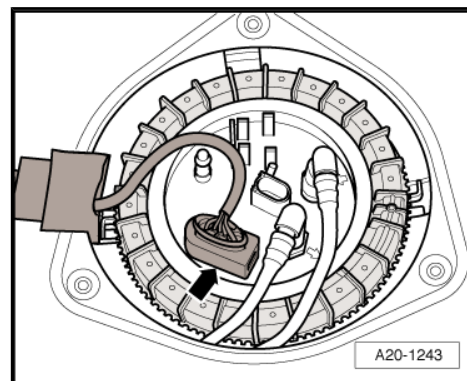
- Loosen bolts -1, 2, 3, 4, 8, 9- by turning not more than 8 turns.
- Unscrew bolts -5, 6, 7-.



- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange.



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- Mark fuel supply line -1- and fuel return line -2-.



WARNING

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

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

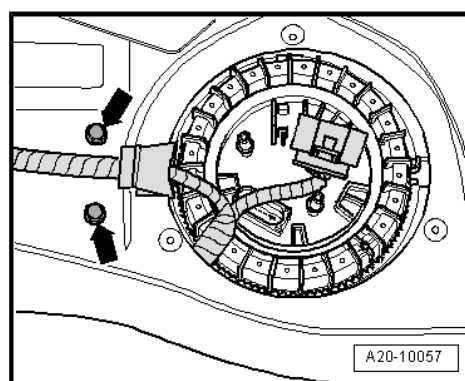
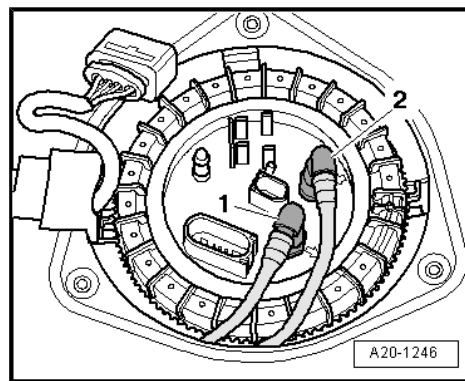
- Detach both lines from flange (press release tabs).

Vehicles with auxiliary heater:

- In addition, disconnect fuel line leading to metering pump for auxiliary heater by pressing release tab.

All vehicles:

- Remove bolts -arrows-.
- Pull fuel pump control unit - J538- together with bracket out between fuel tank and underbody towards inside.



Installing

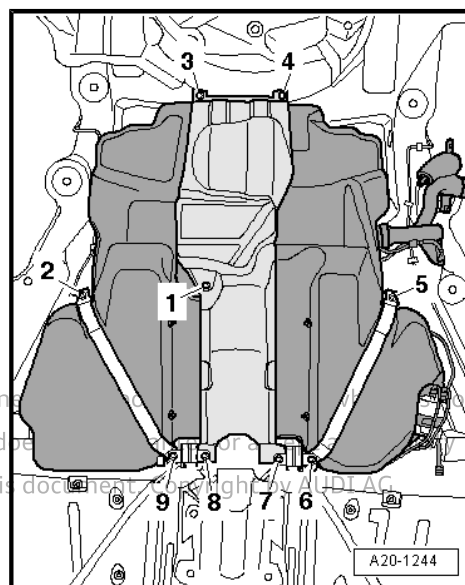
- Tightening torques ⇒ [page 46](#) and ⇒ [page 47](#)

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

- Tighten bolts for securing straps and support bracket -1 ... 9-.



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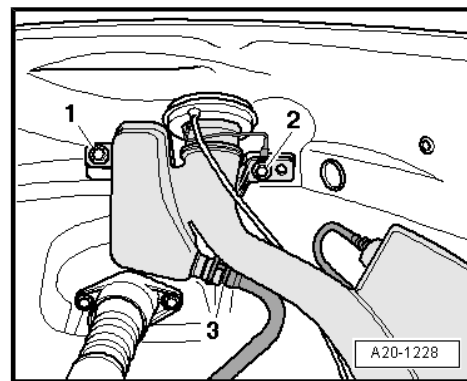
- Secure fuel filler neck with earth connection using bolts -1- and -2-.



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*



- Secure breather line -3- to fuel filler neck.
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .
- Install rear seat bench ⇒ Rep. gr. 72 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .

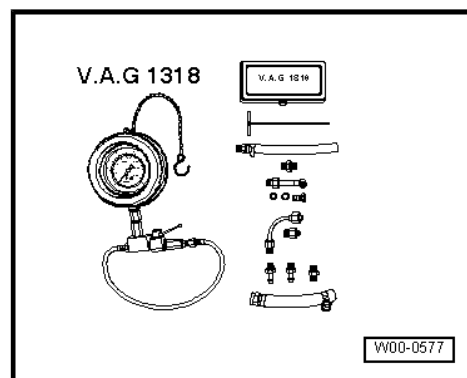
Vehicles with auxiliary heater:

- Let auxiliary heater run with full load for 10 minutes to bleed fuel line going to metering pump.

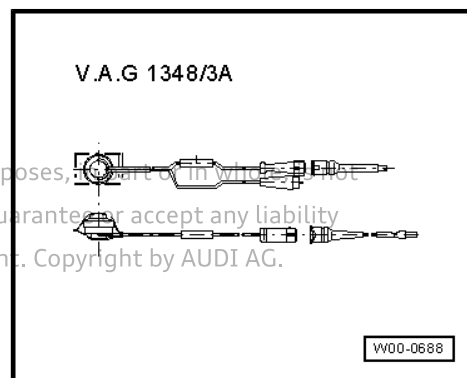
7.5 Checking fuel pump delivery rate - vehicles with 6-cylinder MPI / FSI engine and 8-cylinder MPI engine

Special tools and workshop equipment required

- ◆ K-Jetronic pressure tester - V.A.G 1318-



- ◆ Adapter set - V.A.G 1318/10-12-
- ◆ 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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- ◆ Fuel-resistant measuring container

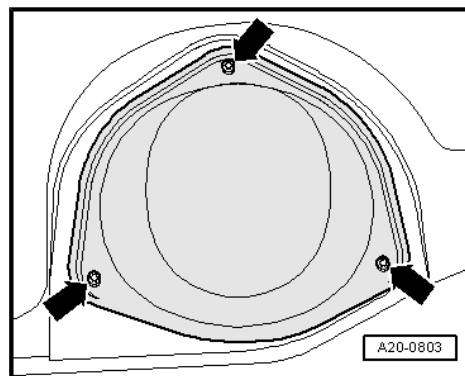


Procedure

Observe test conditions ⇒ [page 3](#) .

Observe rules for cleanliness ⇒ [page 2](#) .

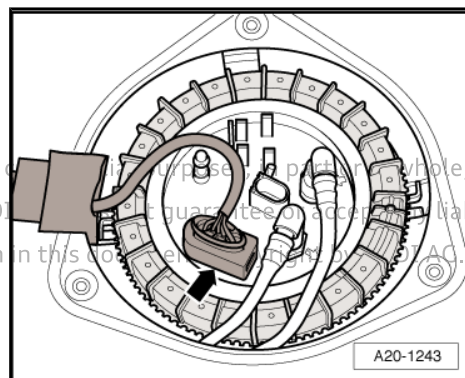
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



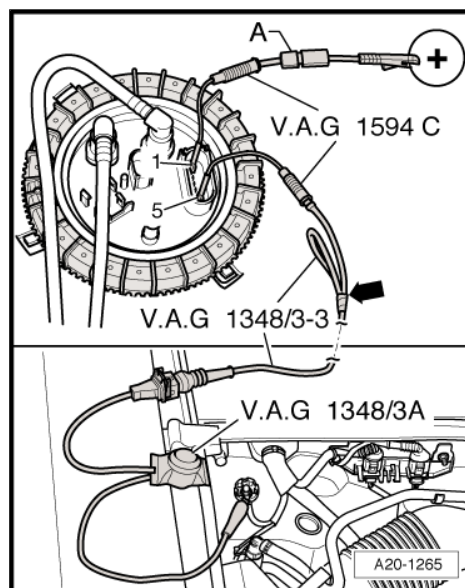
- Unplug electrical connector -arrow- at flange.



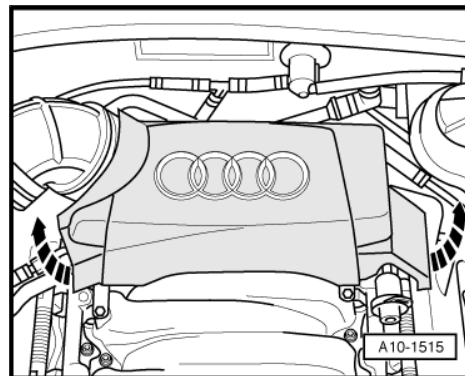
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- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 to contact -5- using adapter cable -V.A.G 1348/3-3- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Tape off 2nd connector contact of adapter cable -V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- to battery “+” via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.



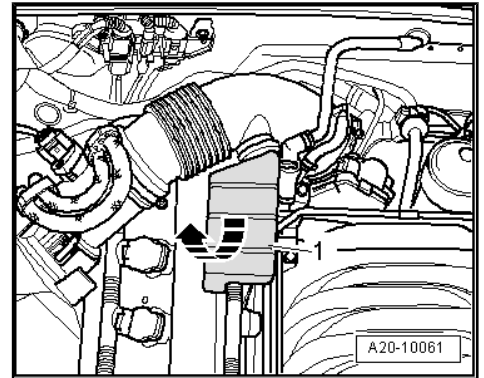
- Pull off engine cover panel (rear) -arrows-.





Vehicles with 8-cylinder MPI engine:

- Pull the resonator -1- upwards -arrow- and unclip.



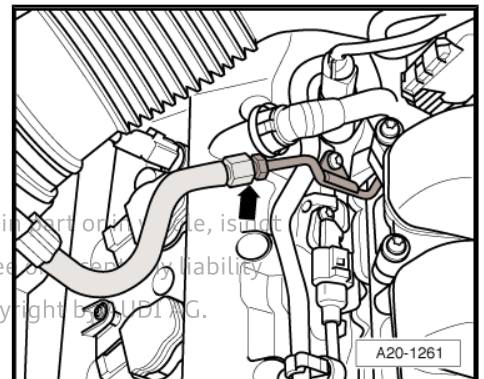
All vehicles:

⚠ WARNING

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

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

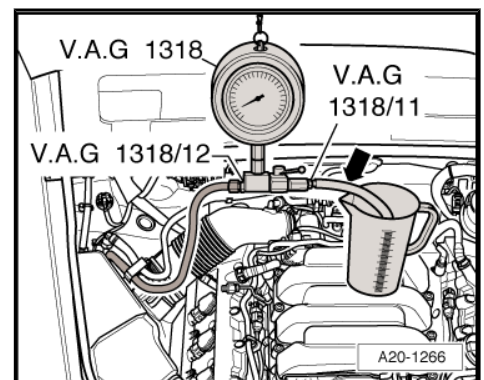
- Disconnect fuel line -arrow-.



Note

Illustration shows vehicle with 6-cylinder engine.

- Connect K-Jetronic pressure tester - V.A.G 1318- with adapters - V.A.G 1318/11- and -V.A.G 1318/12- to fuel pipe.
- Attach test hose -arrow- and hold end of hose in measuring container.
- Open cut-off valve on pressure tester.
 - Lever must point in direction of flow.
- Build up pressure in fuel system by pressing remote control button and slowly closing cut-off valve on pressure tester.
 - Specification: 4 bar
- From this point on do not move position of cut-off valve.
- Empty the measuring container.





- Press remote control button 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 minimum delivery rate is not reached, check for the following causes:

- ◆ Fuel lines have been crushed.
- ◆ Fuel filter is blocked.
- ◆ Fuel pump is defective.

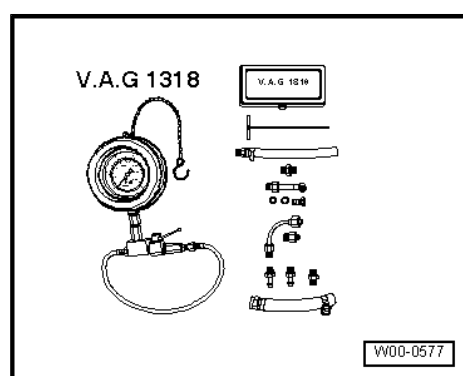
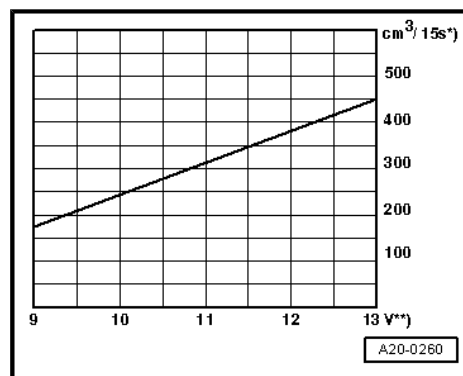
Installation is carried out in the reverse order; note the following:

- Secure fuel line to engine ⇒ Rep. gr. 24 .

7.6 Checking fuel pump delivery rate - vehicles with 6-cylinder TFSI engine

Special tools and workshop equipment required

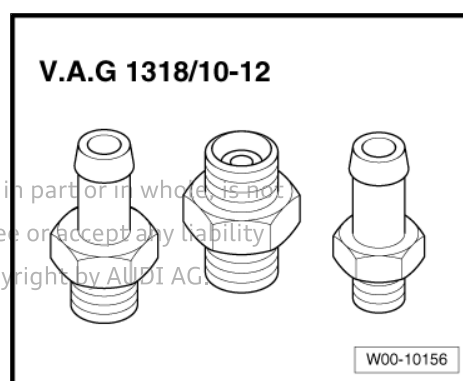
- ◆ K-Jetronic pressure tester - V.A.G 1318-



- ◆ Adapter set - V.A.G 1318/10-12- and adapter - V.A.G 1318/15-

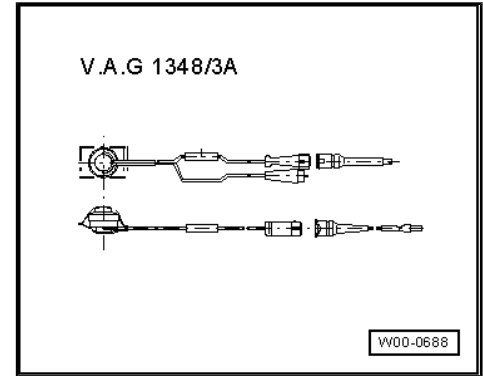


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- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3-



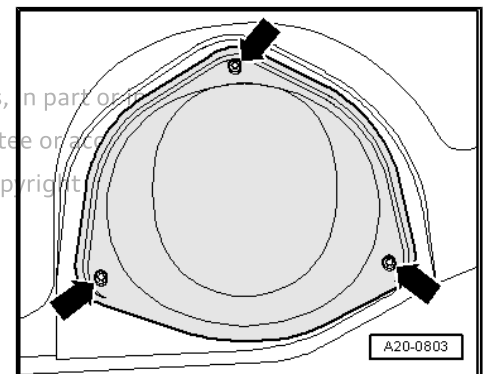
- ◆ Fuel-resistant measuring container

Procedure

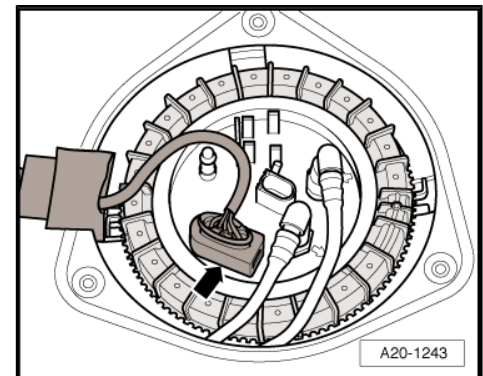
Observe test conditions ⇒ [page 3](#) .

Observe rules for cleanliness ⇒ [page 2](#) .

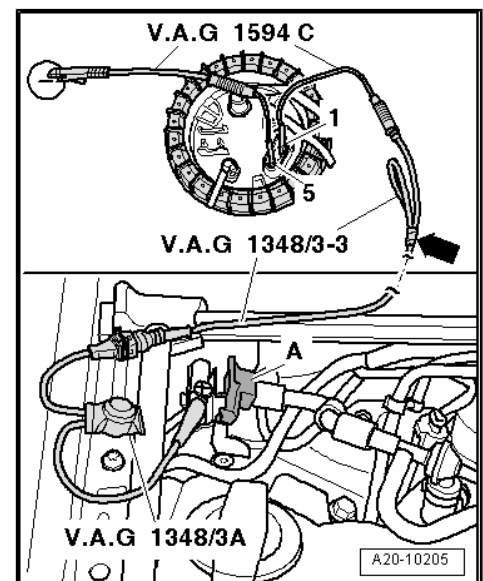
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange.

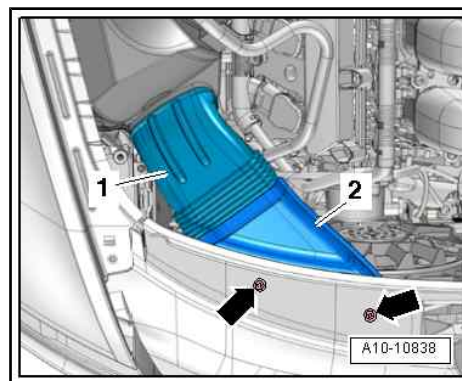


- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 to contact -1- using adapter cable -V.A.G 1348/3-3- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Tape off 2nd connector contact of adapter cable -V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Release retaining clip and open cover -A- above positive terminal.
- Connect crocodile clip to positive terminal.
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .





- Remove filler cap from fuel filler neck.
- Remove bolts -arrows-.
- Remove air ducts -1- and -2-.

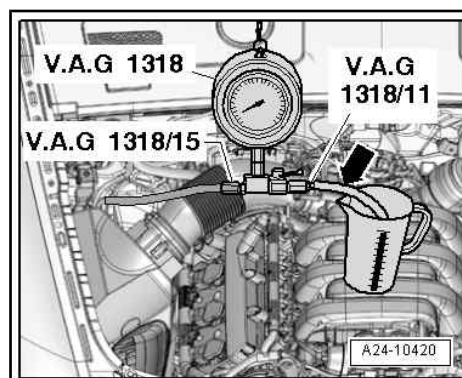
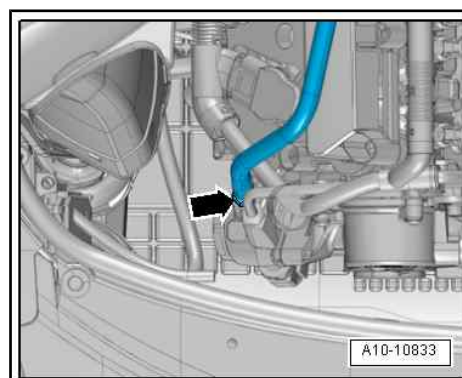


WARNING

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

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

- Disconnect fuel supply hose from high-pressure pump -arrow-.
- Connect K-Jetronic pressure tester - V.A.G 1318- with adapters -V.A.G 1318/11- and -V.A.G 1318/15- to fuel line.
- Attach test hose -arrow- and hold end of hose in measuring container.
- Open cut-off valve on pressure tester.
- Lever must point in direction of flow.
- Build up pressure in fuel system by pressing remote control button and slowly closing cut-off valve on pressure tester.
- Specification: 4 bar
- From this point on do not move position of cut-off valve.
- Empty the measuring container.



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- Press remote control button 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 minimum delivery rate is not reached, check for the following causes:

- ◆ Fuel lines have been crushed.
- ◆ Fuel filter is blocked.
- ◆ Fuel pump is defective.

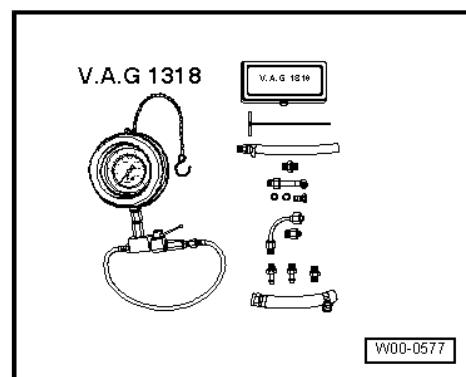
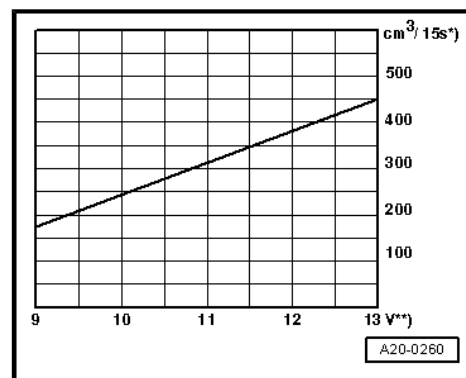
Installation is carried out in the reverse order; note the following:

- Secure fuel line to engine ⇒ Rep. gr. 24 .
- Install accumulator ⇒ Rep. gr. 43 .

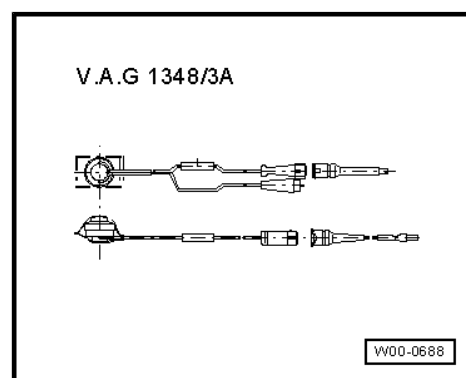
7.7 Checking fuel pump delivery rate - vehicles with 8-cylinder FSI engine

Special tools and workshop equipment required

- ◆ K-Jetronic pressure tester - V.A.G 1318-



- ◆ Adapter set - V.A.G 1318/10-12-
- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3-



- ◆ Fuel-resistant measuring container



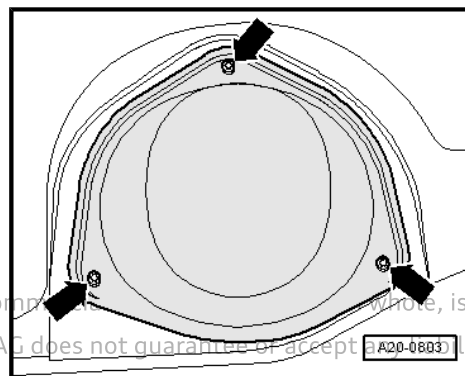


Procedure

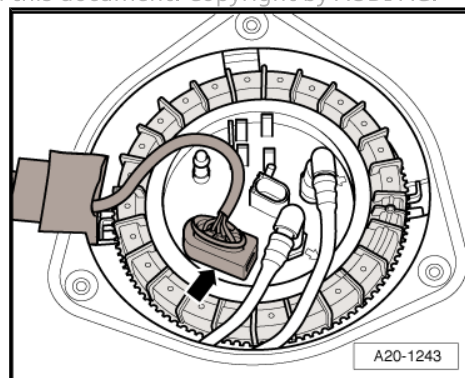
Observe test conditions ⇒ [page 3](#) .

Observe rules for cleanliness ⇒ [page 2](#) .

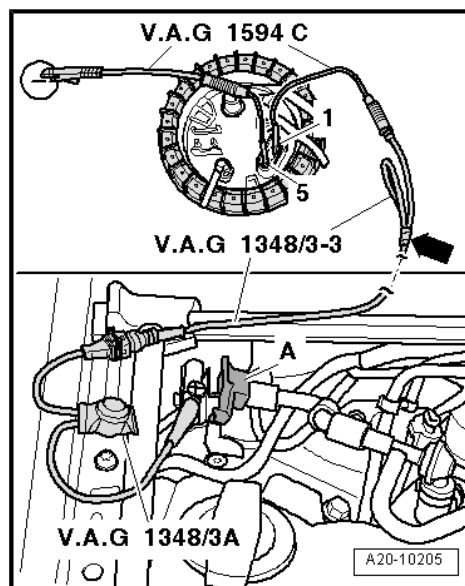
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



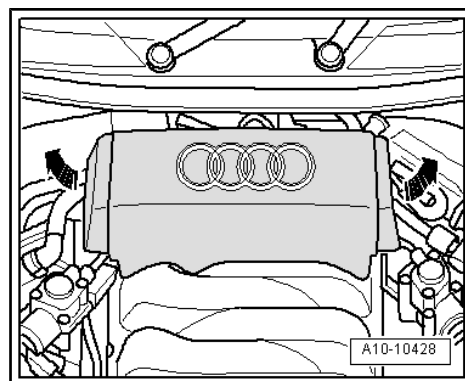
- Unplug electrical connector -arrow- at flange.



- 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.
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Release retaining clip and open cover -A- above positive terminal.
- Connect crocodile clip to positive terminal.
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Remove filler cap from fuel filler neck.



- Pull off engine cover panel (rear) -arrows-.



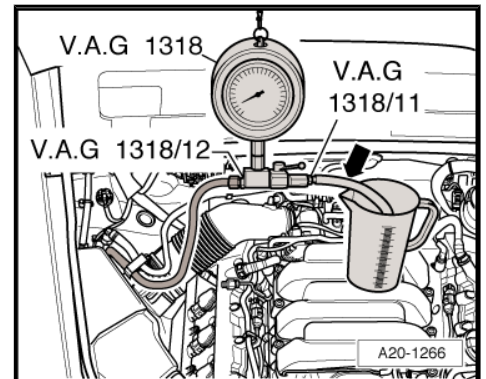
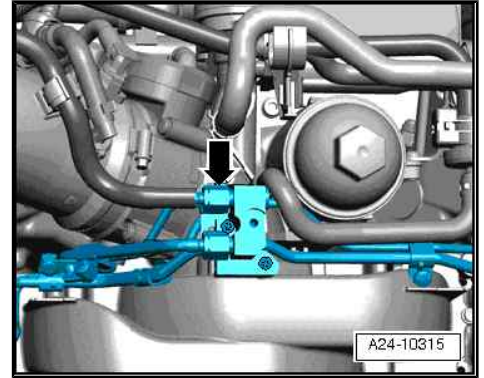


WARNING

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 -arrow-.
- Connect K-Jetronic pressure tester - V.A.G 1318- with adapters - V.A.G 1318/11- and -V.A.G 1318/12- to fuel pipe.
- Attach test hose -arrow- and hold end of hose in measuring container.
- Open cut-off valve on pressure tester.
 - Lever must point in direction of flow.
- Build up pressure in fuel system by pressing remote control button and slowly closing cut-off valve on pressure tester.
 - Specification: 4 bar
- From this point on do not move position of cut-off valve.
- Empty the measuring container.
- Press remote control button 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 minimum delivery rate is not reached, check for the following causes:

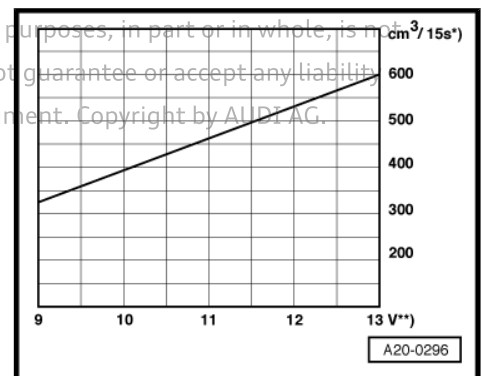
- ◆ Fuel lines have been crushed.
- ◆ Fuel filter is blocked.
- ◆ Fuel pump is defective.

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

- Secure fuel line to engine ⇒ Rep. gr. 24 .

7.8 Checking fuel pump delivery rate - vehicles with 10-cylinder FSI engine (Audi S6)

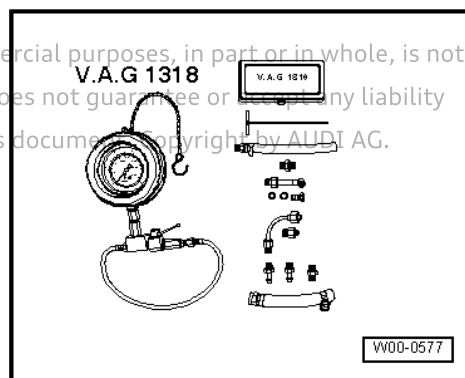
Special tools and workshop equipment required





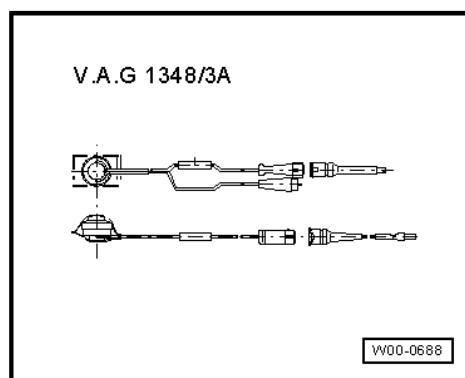
◆ K-Jetronic pressure tester - V.A.G 1318-

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◆ Adapter set - V.A.G 1318/10-12-

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



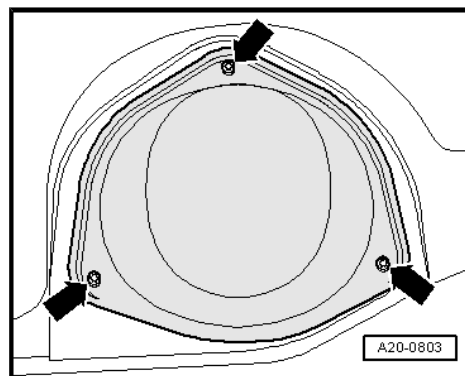
◆ Fuel-resistant measuring container

Procedure

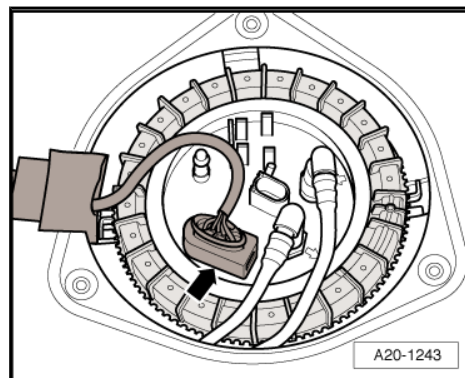
Observe test conditions ⇒ [page 3](#) .

Observe rules for cleanliness ⇒ [page 2](#) .

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.

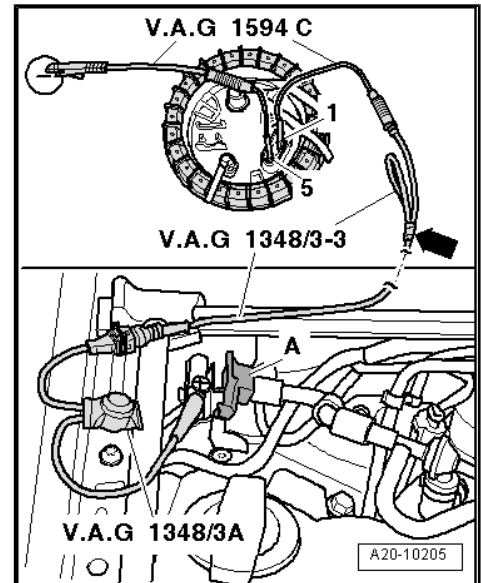


- Unplug electrical connector -arrow- at flange.





- 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.
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Release retaining clip and open cover -A- above positive terminal.
- Connect crocodile clip to positive terminal.
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Remove filler cap from fuel filler neck.

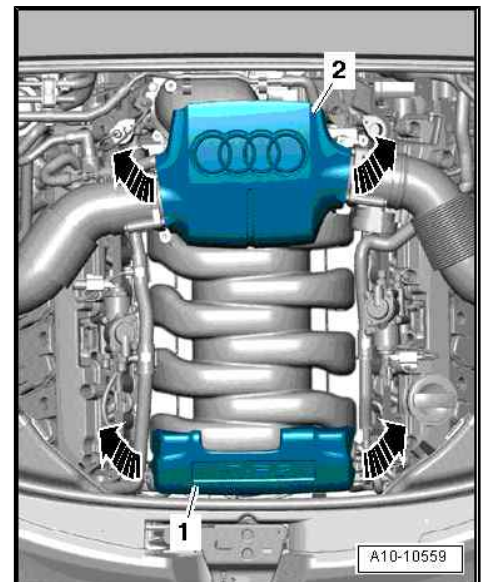


- Pull off rear engine cover panel -2- -arrows-.



Note

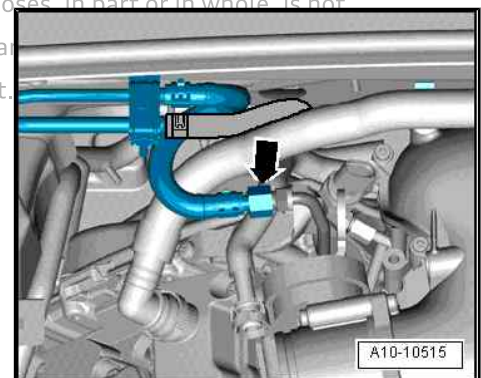
Disregard -item 1-.



WARNING

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

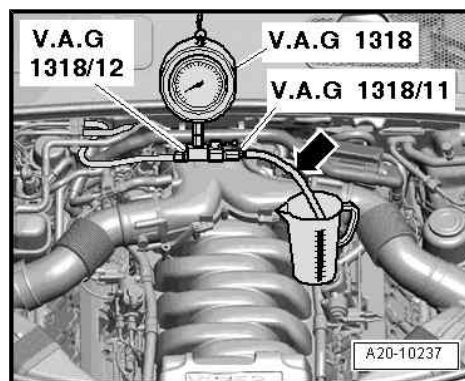
- ◆ To reduce the pressure in the fuel system, wrap a clean cloth around the connection and loosen the connection carefully.



- Disconnect fuel pipe -arrow- at fuel rail.



- Connect K-Jetronic pressure tester - V.A.G 1318- with adapters - V.A.G 1318/11- and -V.A.G 1318/12- to fuel pipe.
- Attach test hose -arrow- and hold end of hose in measuring container.
- Open cut-off valve on pressure tester.
- Lever must point in direction of flow.
- Build up pressure in fuel system by pressing remote control button and slowly closing cut-off valve on pressure tester.
- Specification: 4 bar
- From this point on do not move position of cut-off valve.
- Empty the measuring container.
- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).

**Note**

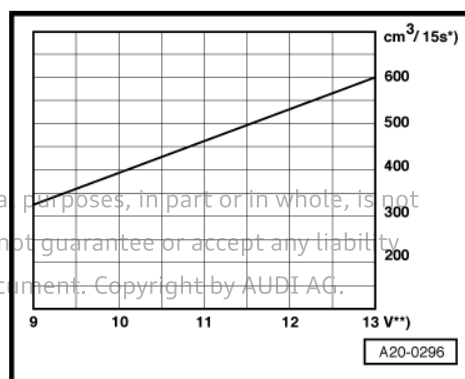
Voltage at fuel pump with engine stationary and pump running is approx. 2 volts less than battery voltage.

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

- ◆ Fuel lines have been crushed.
- ◆ Fuel filter is blocked.
- ◆ Fuel pump is defective.

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

- Secure fuel line to fuel rail ⇒ Rep. gr. 24 .



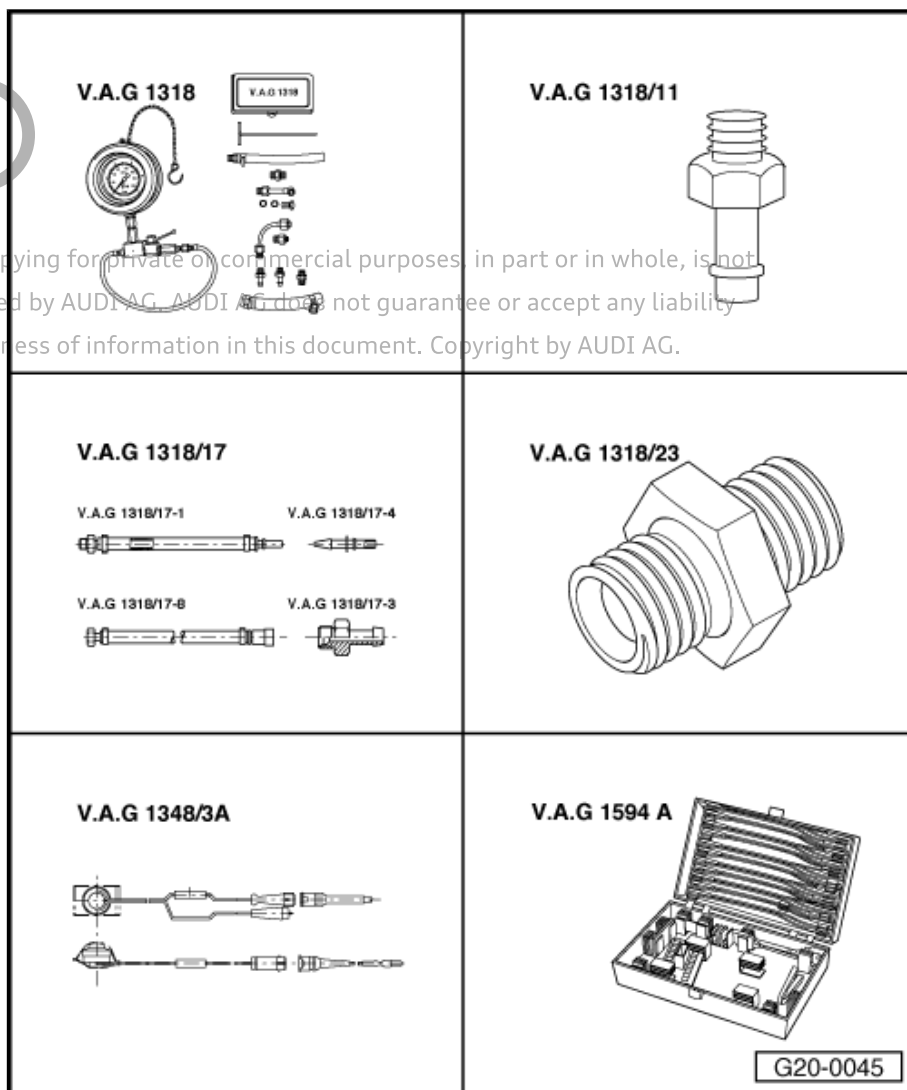
7.9 Checking fuel pump delivery rate - vehicles with 10-cylinder TFSI engine (Audi RS 6)



Special tools and workshop equipment required



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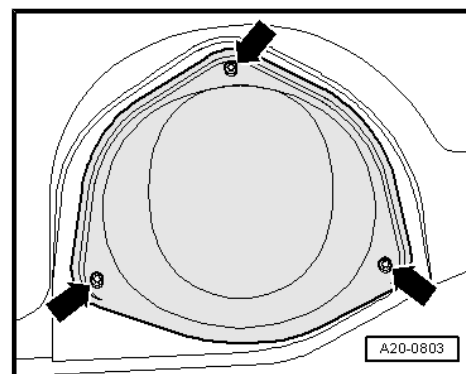
- ◆ K-Jetronic pressure tester - V.A.G 1318-
- ◆ Adapter - V.A.G 1318/11-
- ◆ Adapter -V.A.G 1318/17-1- from adapter set - V.A.G 1318/17-
- ◆ Connector - V.A.G 1318/23-
- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3-
- ◆ Auxiliary measuring set - V.A.G 1594C-
- ◆ Fuel-resistant measuring container

Procedure

Observe test conditions ⇒ [page 3](#) .

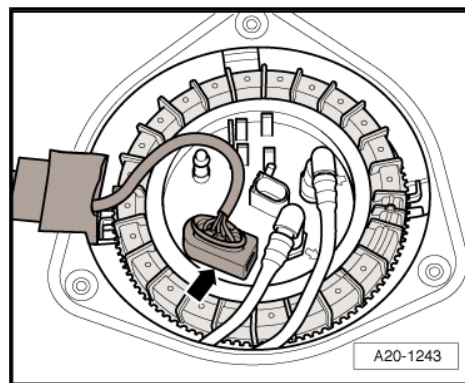
Observe rules for cleanliness ⇒ [page 2](#) .

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.

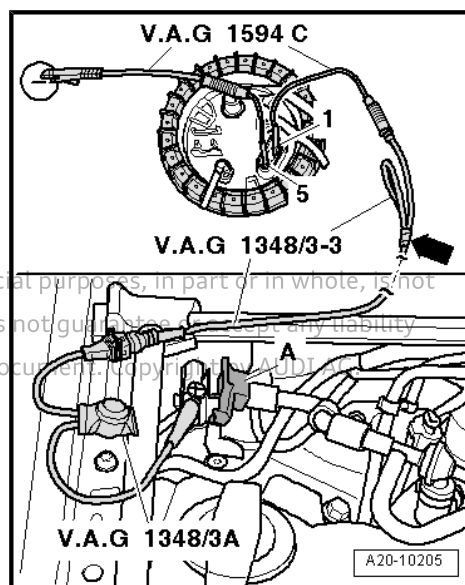




- Unplug electrical connector -arrow- at flange.



- 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.
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Open cover -A- above positive terminal.
- Connect crocodile clip to positive terminal.
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Remove filler cap from fuel filler neck.

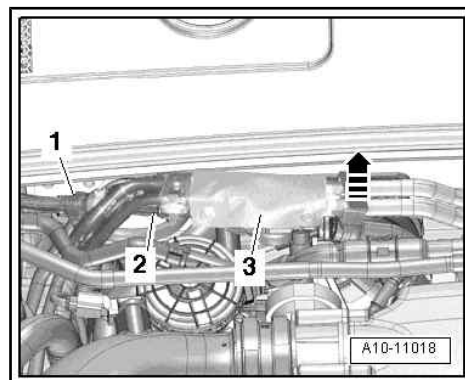


- Open retainer for hoses -arrow-.
- Detach protective sleeve -3-.



Note

Disregard items -1 and 2-.





- Screw connector - V.A.G 1318/23- and adapter -V.A.G 1318/17-1- onto K-Jetronic pressure tester - V.A.G 1318- .



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- (lift release tab).
- Fit adapter -V.A.G 1318/17-1- onto disconnected fuel line.
- Screw adapter - V.A.G 1318/11- onto K-Jetronic pressure tester - V.A.G 1318- . Attach test hose -arrow- and hold end of hose in measuring container.
- Open cut-off valve on pressure tester. Lever must point in direction of flow.
- Build up pressure in fuel system by pressing remote control button and slowly closing cut-off valve on pressure tester.
- Specification: 4 bar
- From this point on do not move position of cut-off valve.
- Empty the 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 minimum delivery rate is not reached, check for the following causes:

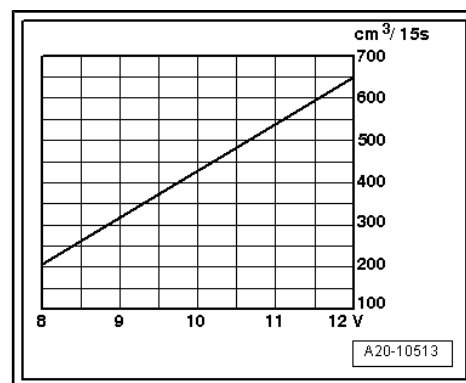
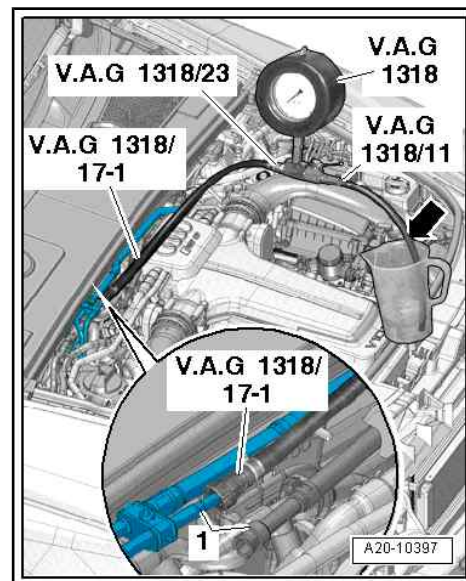
- ◆ Fuel lines have been crushed.
- ◆ Fuel filter is blocked.
- ◆ Fuel pump is defective.

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

- Install rear seat bench ⇒ Rep. gr. 72 .

7.10 Removing and installing fuel delivery unit

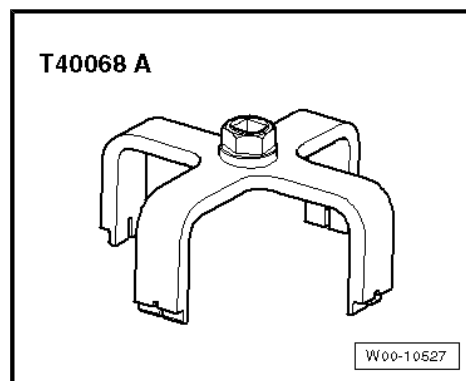
Special tools and workshop equipment required



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- ◆ Union nut tool - T40068 A-



Removing

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

Observe rules for cleanliness ⇒ [page 2](#) .



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 the tank if necessary. Procedure ⇒ [page 47](#)***

- Move front seats forwards, if necessary.



Caution

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

- ◆ ***Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27 .***

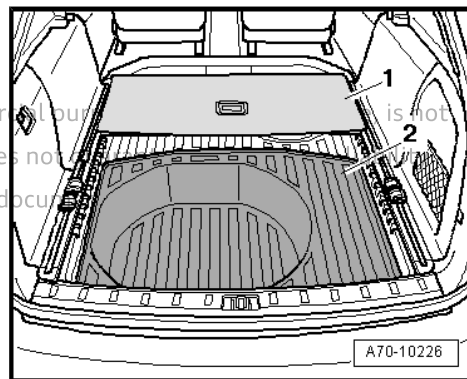
- Switch off ignition.

Saloon:

- Fold up luggage compartment floor lining.

Avant:

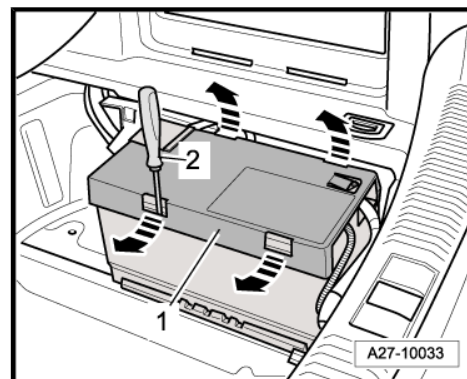
- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.



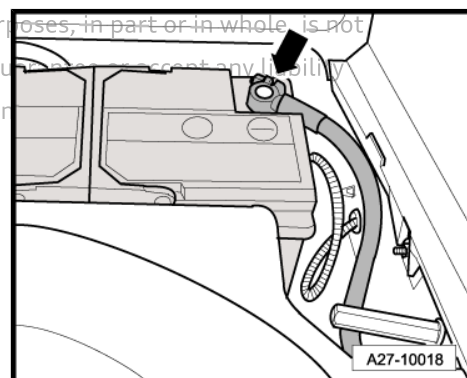


All vehicles:

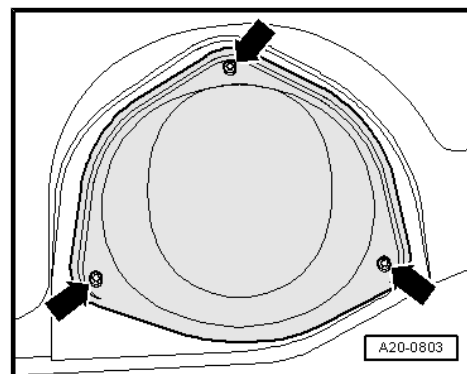
- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.



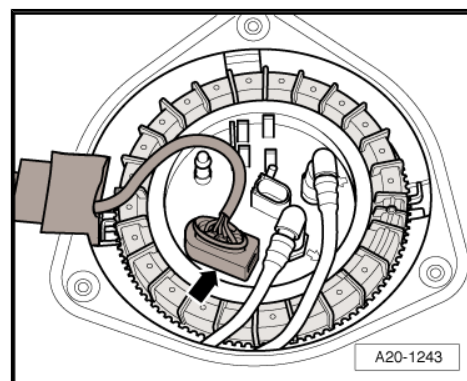
- Disconnect earth cable at negative terminal of battery -arrow-.



- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange (right-side).





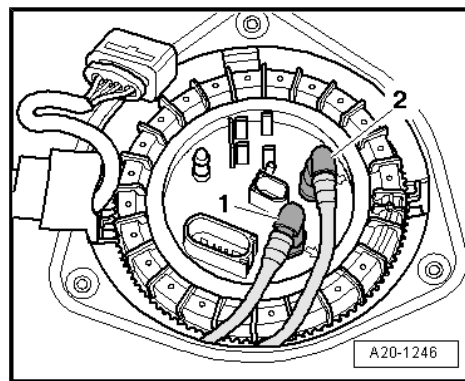
- Mark fuel supply line -1- and fuel return line -2-.



WARNING

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

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



- Detach both lines from flange (press release tabs).

Vehicles with auxiliary heater:

- In addition, disconnect fuel line leading to metering pump for auxiliary heater by pressing release tab.

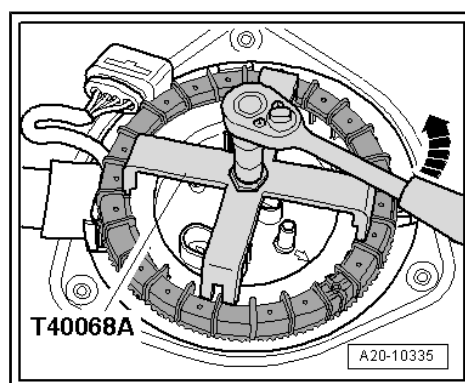
All vehicles:



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.*



- Use union nut tool - T40068 A- to unscrew union nut -arrow-.



Note

The plastic detent on the threaded ring will break off when the union nut is unscrewed - this can be disregarded.

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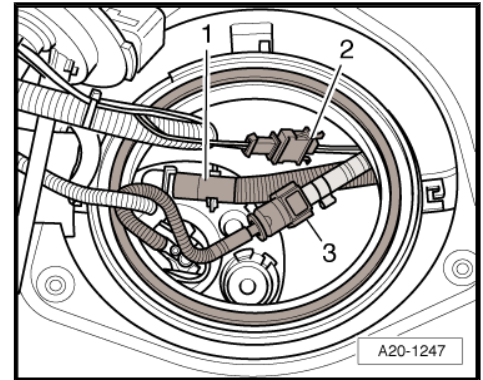


- Take flange (right-side) of fuel delivery unit out of opening in fuel tank and move flange clear, leaving pipes connected.
- Reach into opening in fuel tank to unplug electrical connector -2- for fuel gauge sender 2 - G169- .
- Disconnect supply line -3- for suction-jet pump by pressing release tab.
- Disengage fuel supply line -1-.
- Remove fuel delivery unit.



Note

- ◆ *When removing fuel delivery unit, make sure you do not bend float arm of fuel gauge sender -G- .*
- ◆ *Keep in mind that the fuel delivery unit still contains fuel.*



Installing

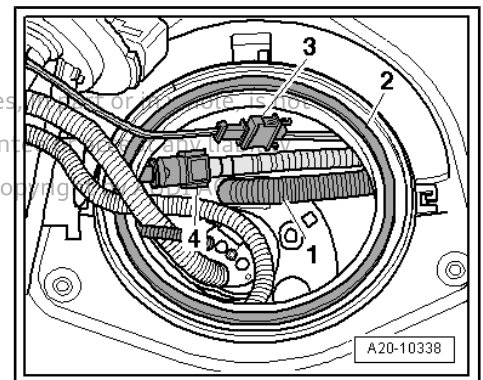
- Tightening torque ➔ [page 78](#)

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



Note

- ◆ *Renew seal and union nut.*
- ◆ *Take care not to bend float arm of fuel gauge sender -G- when fitting fuel delivery unit.*
- ◆ *Ensure that fuel hoses are securely seated.*
- Insert fuel delivery unit into fuel tank, with flange set aside.
- Engage fuel supply line -1-.
- Fit supply line -4- leading to suction-jet pump so that it engages audibly.
- Plug in electrical connector -3- for fuel gauge sender 2 - G169- .
- Slip new seal -2- over flange and insert it in groove on fuel tank.



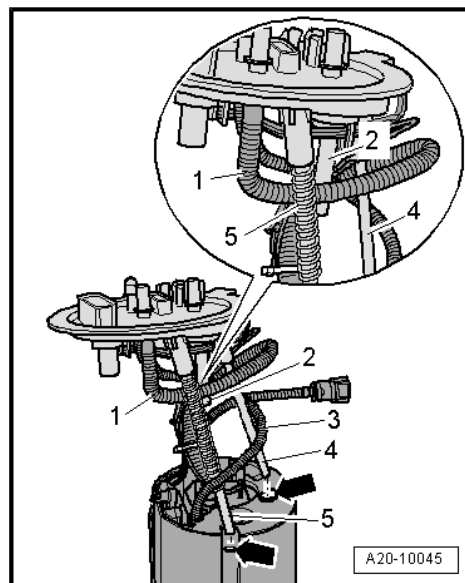


- Make sure wiring and fuel hoses are properly routed:
- The fuel supply line -1- must be routed between the guide tube -5- and the connecting piece -2- for fuel return line. Also make sure that it is routed around outside of guide tube -4-.
- Route supply line -3- for auxiliary heater around outside of guide tubes -4- and -5-.
- Insert guide tubes -4- and -5- on flange into corresponding holes -arrows- in fuel delivery unit.

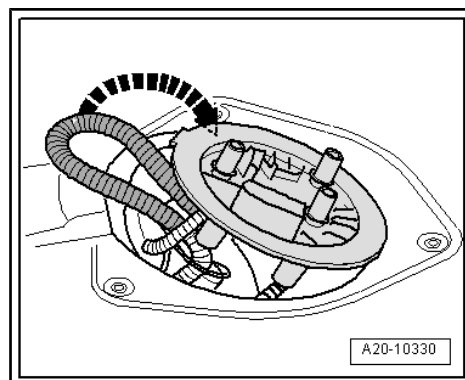


Note

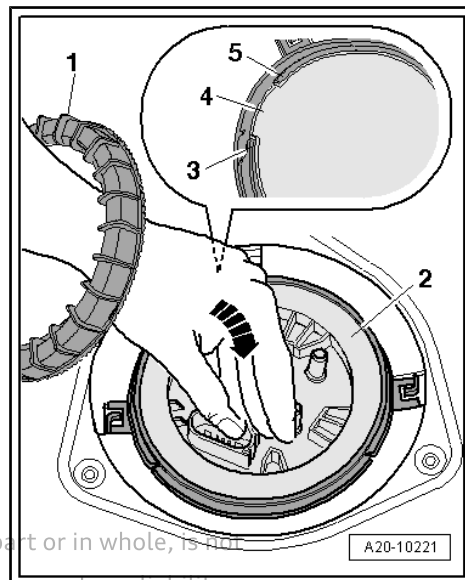
The fuel delivery unit is shown without the fuel tank for illustration purposes.



- Push fuel supply line in clockwise direction under flange to avoid obstructing movement of fuel gauge sender -G- .



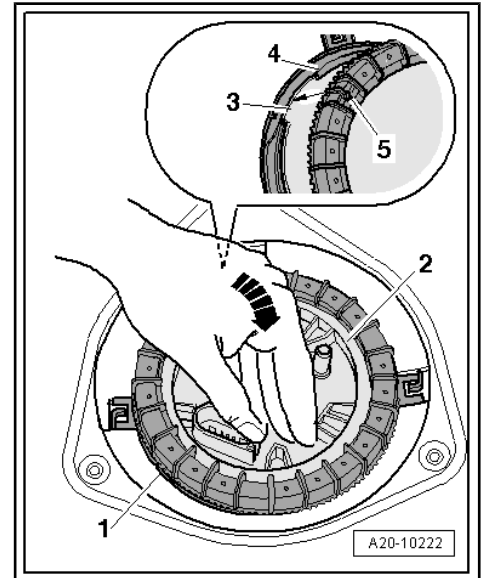
- Slip union nut -1- over your left arm and press flange -2- firmly into installation position -arrow- with your left hand.
- Lug -4- on flange must be between tabs -3- and -5- on threaded ring.



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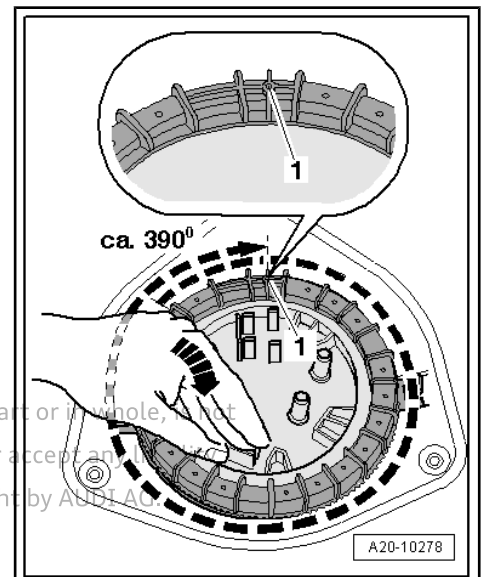
- Take union nut -1- off your left arm with your right hand and at the same time keep pressing down flange -2- firmly with your left hand -arrow-.
- Position union nut -1- with your right hand in such a way that double ridge -5- on ribs aligns with lug -3- of flange (approx. ten o'clock position). This will make union nut engage immediately with beginning of thread -4- when tightening.



- Keep pressing flange downwards firmly.
- Turn locking ring approx. 390° with your right hand until double ridge -1- is in approx. twelve o'clock position and at the same time keep on pressing flange downwards firmly with your left hand.



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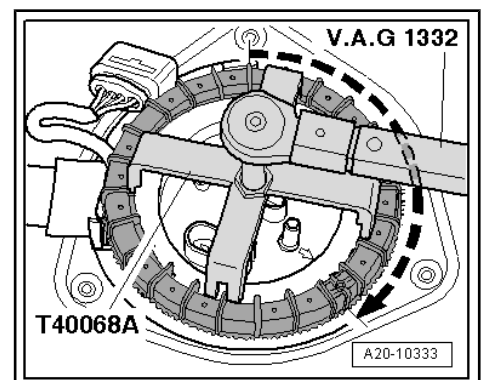


Caution

Take care to avoid leakage at flange.

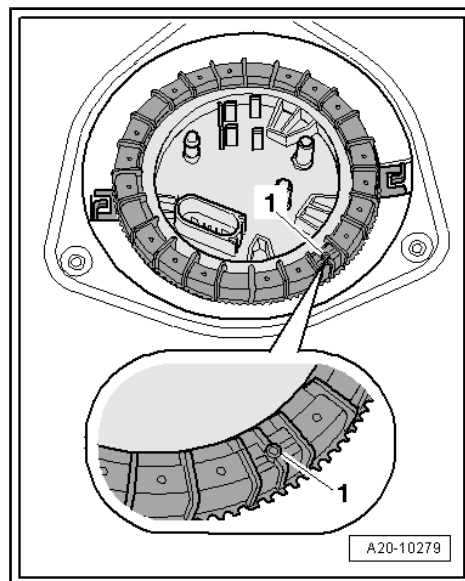
- ◆ **Press flange downwards firmly when tightening union nut to make sure flange does not also turn.**

- Use union nut tool - T40068 A- to tighten union nut for flange (right-side).
- Tightening torque: 120 Nm





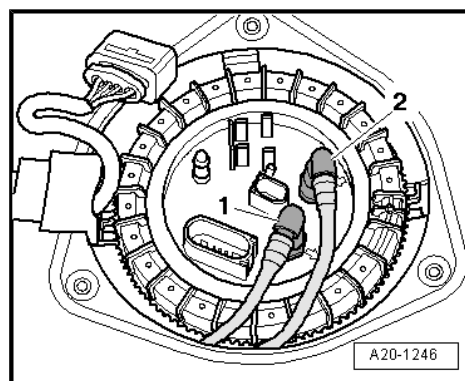
- Checking: Double ridge -1- must now be aligned between five o'clock and six o'clock position.



- Install fuel supply line -1- and fuel return line -2- (as marked).
- Plug in electrical connector.
- Install rear seat bench ⇒ Rep. gr. 72 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing fuel delivery unit.

Vehicles with auxiliary heater:

- Let auxiliary heater run with full load for 10 minutes to bleed fuel line going to metering pump.



7.11 Checking fuel gauge sender - G-

Special tools and workshop equipment required

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

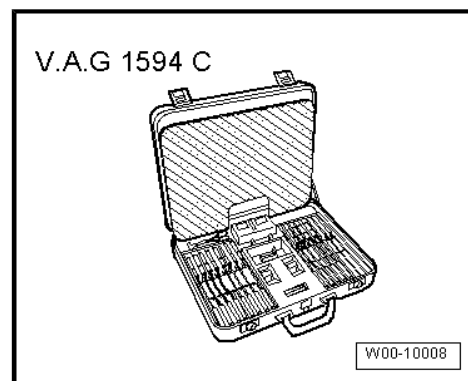


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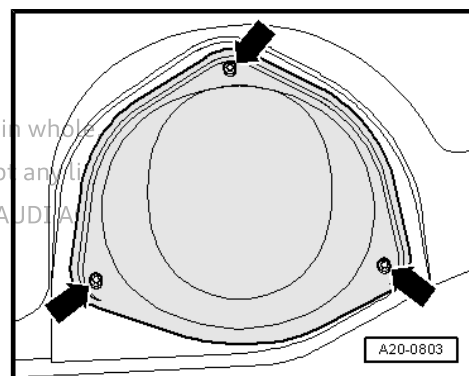


◆ Auxiliary measuring set - V.A.G 1594C-

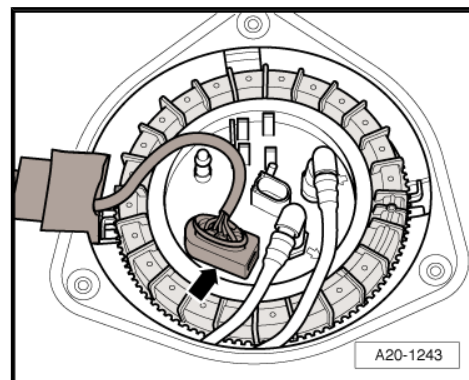


Procedure

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange.





- Connect multimeter (resistance test) between contacts -2- and -3-.

Fuel gauge sender - G- installed:

- Sender at lower stop: approx. 760 ... 1003 Ω
- Sender at upper stop: approx. 70 ... 105 Ω



Note

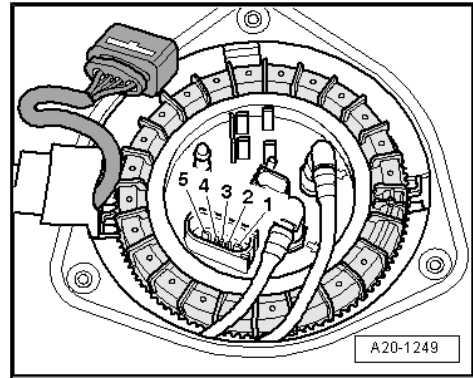
- ◆ If the resistance is 0 Ω , there is a short circuit. If the resistance is ∞ Ω , there is an open circuit in the wiring.
- ◆ To test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel delivery unit
 ⇒ [page 103](#) and move the sender float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender removed, due to the greater travel of the float arm:

Fuel gauge sender - G- removed:

- Sender at lower stop: approx. 1004 Ω .
- Sender at upper stop: approx. 50 Ω .

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

- Install rear seat bench ⇒ Rep. gr. 72 .



7.12 Removing and installing fuel gauge sender - G-

Removing



Note

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All cable ties which are released or cut open when removing must be refitted in the same position when installing.

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

Observe rules for cleanliness ⇒ [page 2](#) .



- Remove fuel delivery unit ⇒ [page 103](#) .
- Cut open cable tie -2- and detach electrical connector -1-.
- Use screwdriver to release retaining tabs -arrows- and lift out fuel gauge sender - G- .

Installing

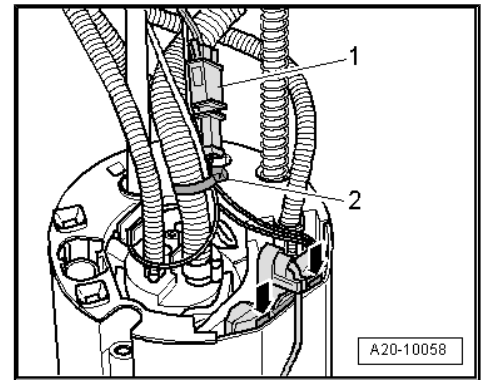
Installation is carried out in the reverse order; note the following:



Note

Fit cable tie in the original position when installing.

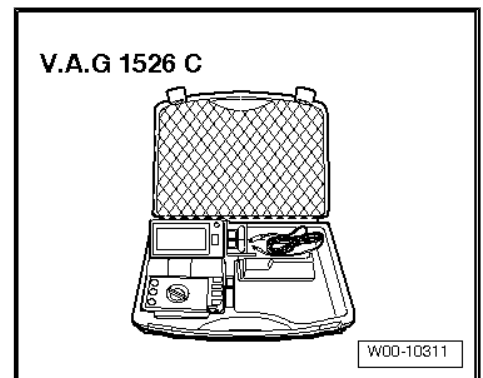
- Insert fuel gauge sender - G- into guides on fuel delivery unit and press downwards until it clicks into place.
- Plug in electrical connector and check that it has engaged properly.
- Install fuel delivery unit ⇒ [page 107](#) , observing the instructions for connecting the battery.



7.13 Checking fuel gauge sender 2 - G169-

Special tools and workshop equipment required

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



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

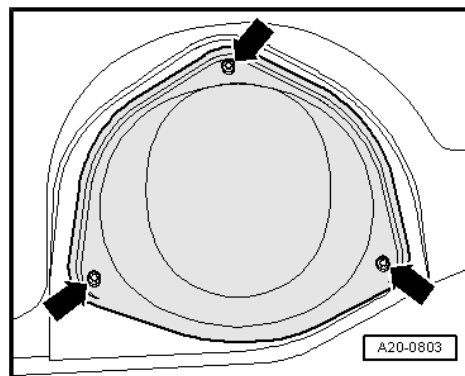


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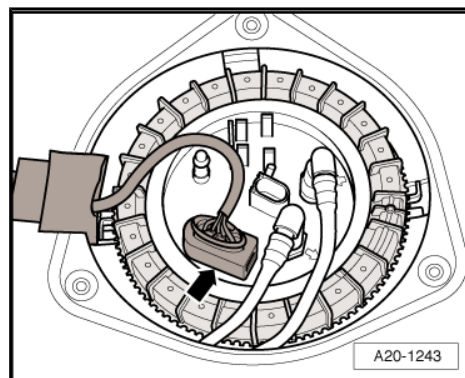


Procedure

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



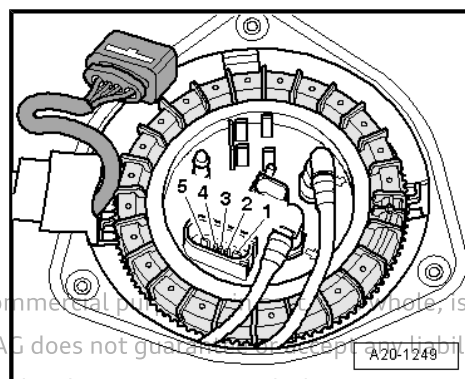
- Unplug electrical connector -arrow- at flange.



- Connect multimeter (resistance test) between contacts -3- and -4-.

With fuel gauge sender 2 - G169- installed:

- Sender at lower stop: approx. 790 ... 975 Ω
- Sender at upper stop: approx. 50 ... 86 Ω



Note

- ◆ If the resistance is 0 Ω , there is a short circuit. If the resistance is $\infty \Omega$, there is an open circuit in the wiring.
- ◆ In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 2 - G169- ⇒ [page 114](#) and move the float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender removed, due to the greater travel of the float arm:

With fuel gauge sender 2 - G169- removed:

- Sender at lower stop: approx. 1004 Ω .
- Sender at upper stop: approx. 50 Ω .

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

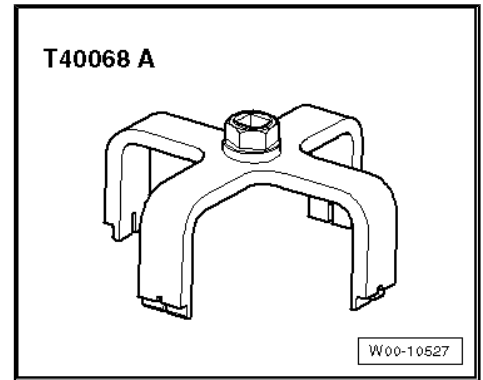
- Install rear seat bench ⇒ Rep. gr. 72 .

7.14 Removing and installing fuel gauge sender 2 - G169-

Special tools and workshop equipment required



- ◆ Union nut tool - T40068 A-



Removing

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

Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Large amounts of fuel can escape.

- ◆ *The fuel tank must not be more than $\frac{1}{4}$ full when removing the fuel gauge sender 2 -G169- ; otherwise a large amount of fuel will escape. Drain the tank if necessary. Procedure ⇒ [page 47](#)*



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27 .*

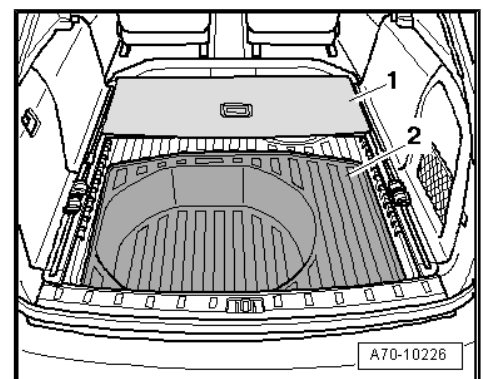
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Saloon:

- Fold up luggage compartment floor lining.

Avant:

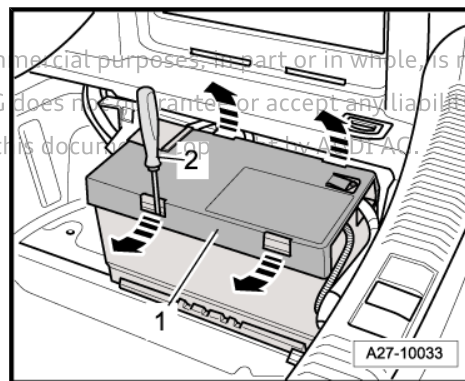
- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.



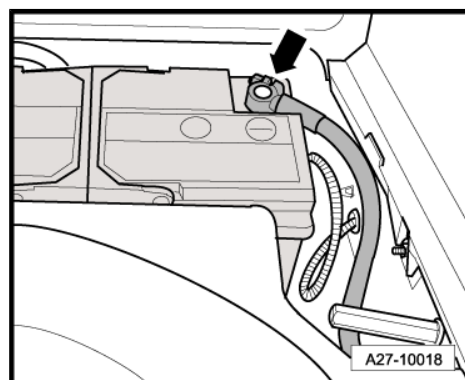


All vehicles:

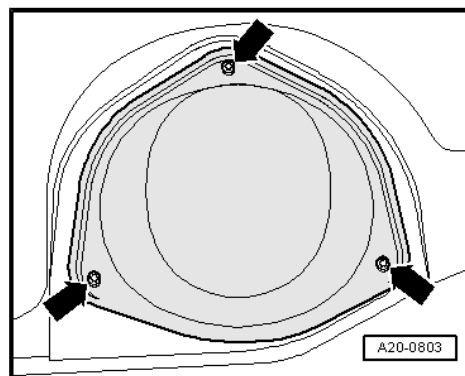
- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.



- Disconnect earth cable at negative terminal of battery -arrow-.



- Remove rear seat bench => Rep. gr. 72 .
- Detach cover for flange (left-side) -arrows-.

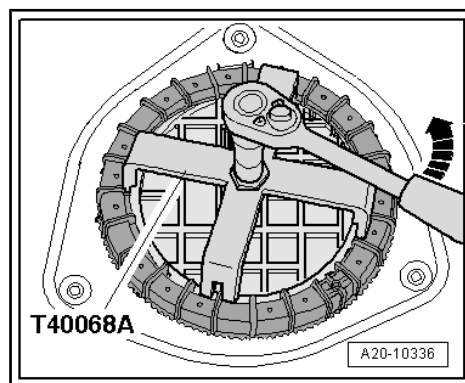


WARNING

Large amounts of fuel can escape.

- ♦ *The fuel tank must not be more than 1/4 full when removing the fuel gauge sender 2 -G169- ; otherwise a large amount of fuel will escape.*

- Use union nut tool - T40068 A- to unscrew union nut (left-side) -arrow-.



Note

The plastic detent on the threaded ring will break off when the union nut is unscrewed - this can be disregarded.

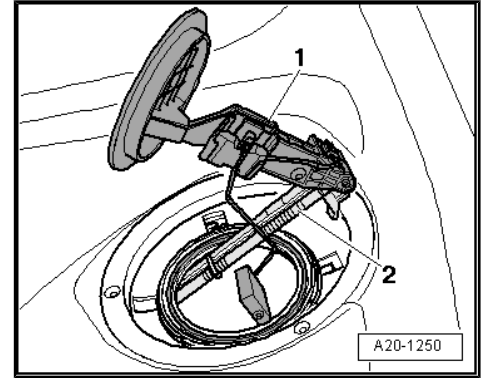


- Carefully pull fuel gauge sender 2 - G169- -item 1- together with suction-jet pump -2- just slightly out of opening in fuel tank.



Note

When removing, make sure you do not bend float arm of fuel gauge sender 2 -G169- .

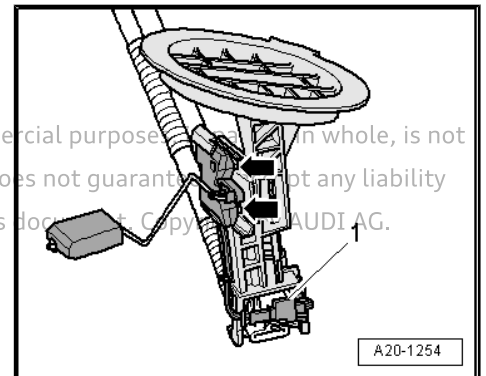


- Unclip suction-jet pump from flange.
- Unplug electrical connector -1-.
- Use screwdriver to release retaining tabs -arrows- and detach fuel gauge sender 2 -G169-.

Installing

- Tightening torque => [page 78](#)

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



Note

Renew seal and union nut.

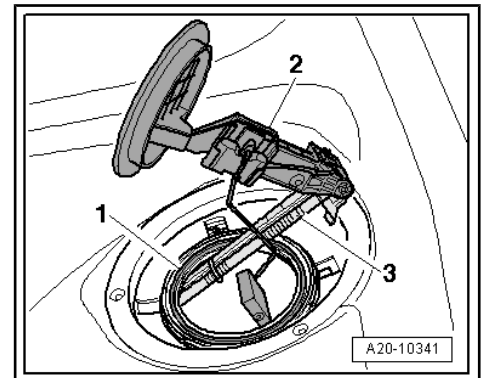
- Insert fuel gauge sender 2 - G169- into guides on flange and press in until it engages.
- Plug in electrical connector and check that it has engaged properly.
- Clip suction-jet pump -3- onto flange -2-, so that you hear it click into place.
- Make sure that fuel supply line is connected to supply line for suction-jet pump with at least 3 cable ties.



Note

When installing, make sure you do not bend float arm of fuel gauge sender 2 -G169- .

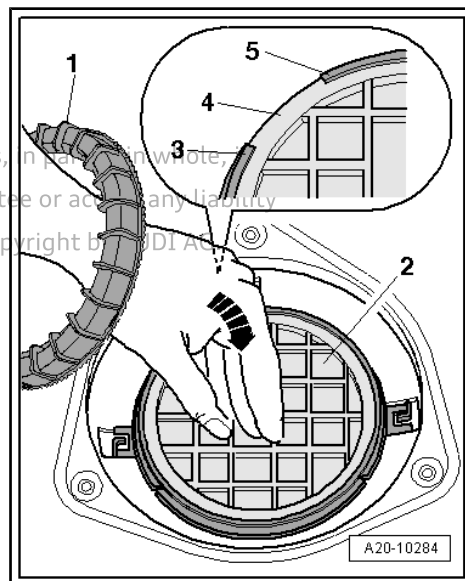
- Carefully insert fuel gauge sender 2 - G169- into opening in fuel tank.
- Slip new seal -1- over flange and insert it in groove on fuel tank.



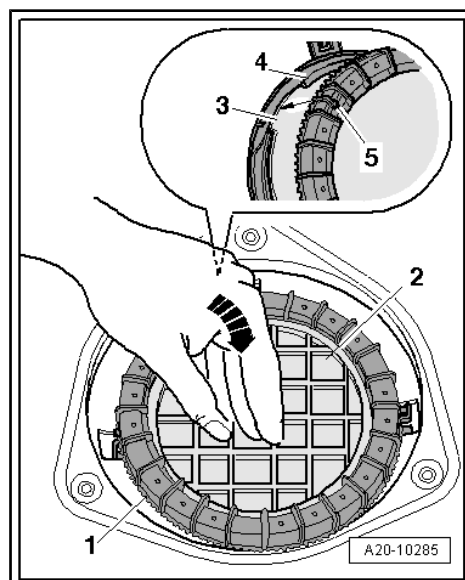


- Slip union nut -1- over your left arm and press flange -2- firmly into installation position -arrow- with your left hand.
- Lug -4- on flange must be between tabs -3- and -5- on threaded ring.

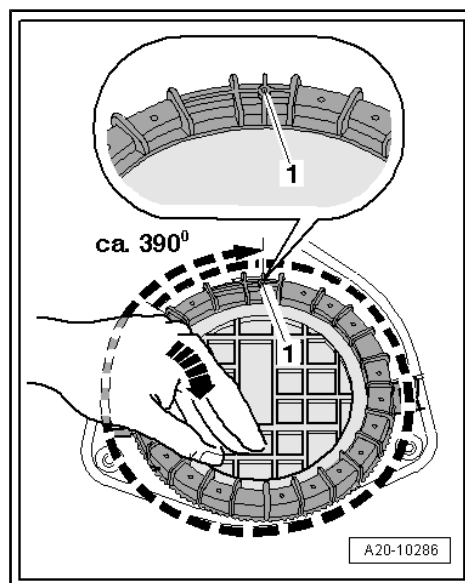
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- Take union nut -1- off your left arm with your right hand and at the same time keep pressing down flange -2- firmly with your left hand -arrow-.
- Position union nut -1- with your right hand in such a way that double ridge -5- on ribs aligns with lug -3- of flange (approx. ten o'clock position). This will make union nut engage immediately with beginning of thread -4- when tightening.



- Keep pressing flange downwards firmly.
- Turn locking ring approx. 390° with your right hand until double ridge -1- is in approx. twelve o'clock position and at the same time keep on pressing flange downwards firmly with your left hand.



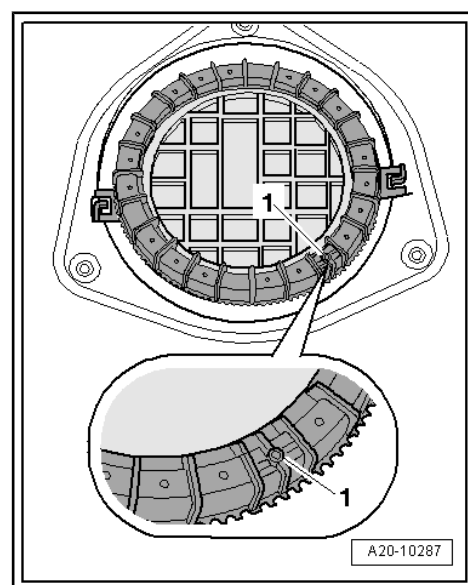
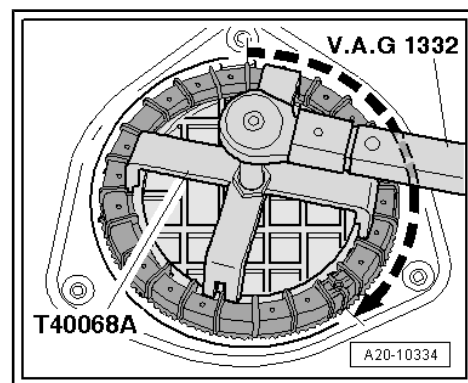


Caution

Take care to avoid leakage at flange.

- ◆ *Press flange downwards firmly when tightening union nut to make sure flange does not also turn.*

- Use union nut tool - T40068 A- to tighten union nut for flange (left-side).
- Tightening torque: 120 Nm
- Checking: Double ridge -1- must now be aligned between five o'clock and six o'clock position.
- Install rear seat bench ⇒ Rep. gr. 72 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing fuel gauge sender 2 - G169- .



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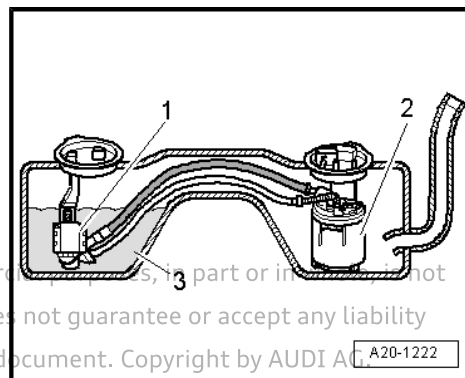


7.15 Suction-jet pump

On vehicles with four-wheel drive the fuel tank is divided into a left and a right chamber. A so-called suction-jet pump -1- is used for delivering the fuel from the left fuel tank chamber -3- to the baffle housing of the fuel delivery unit -2- 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 1/4 full.***

If suction-jet pump is not working, up to 20 litres of fuel (up to about 1/4 of tank capacity) may remain in the left chamber of the tank, where it cannot enter the fuel delivery unit.

If the engine stops due to fuel starvation with the tank up to about 1/4 full, proceed as follows:

- Check fuel pump ⇒ [page 80](#) .

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

- Put another 5 litres (approx.) of fuel into tank.
- Start engine.

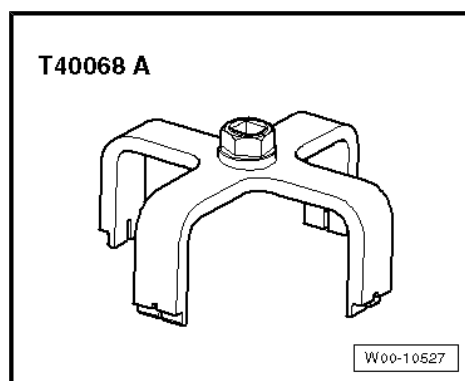
If engine now starts:

- Renew suction-jet pump ⇒ [page 120](#) .

7.16 Removing and installing suction-jet pump

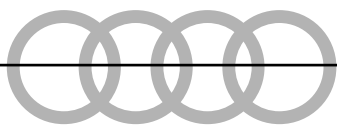
Special tools and workshop equipment required

- ◆ Union nut tool - T40068 A-



Removing

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



Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Danger! Fuel may escape.

- ◆ ***The fuel tank must not be more than 1/4 full when removing the suction-jet pump, otherwise a large amount of fuel will escape. Drain the tank if necessary. Procedure ⇒ [page 47](#)***

- Move front seats forwards, if necessary.



Caution

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

- ◆ ***Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27.***

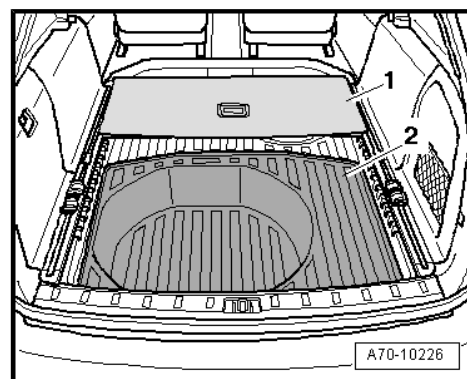
- Switch off ignition.

Saloon:

- Fold up luggage compartment floor lining.

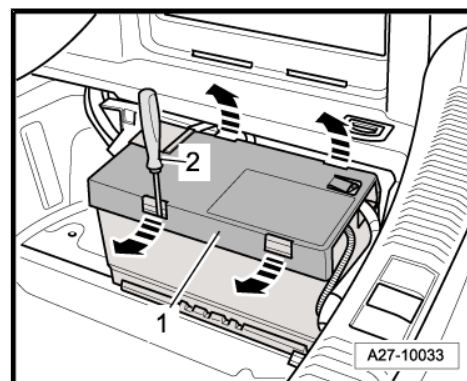
Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.



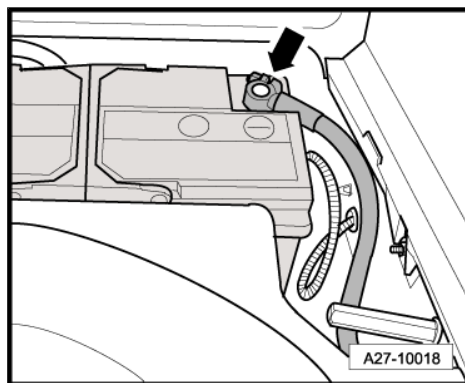
All vehicles:

- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.

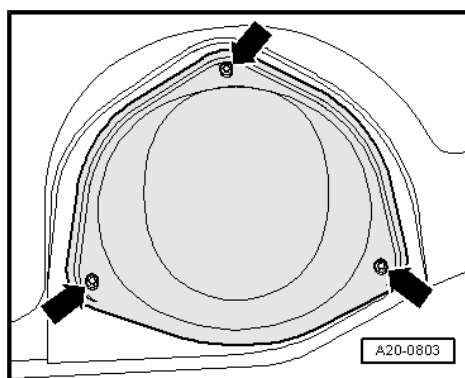




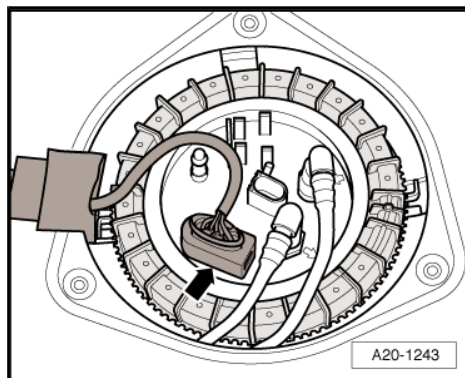
- Disconnect earth cable at negative terminal of battery -arrow-.



- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange.



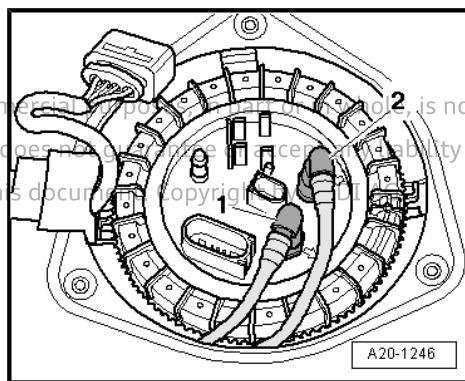
- Mark fuel supply line -1- and fuel return line -2-.



WARNING

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

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



- Detach both lines from flange (press release tabs).

Vehicles with auxiliary heater:

- In addition, disconnect fuel line leading to metering pump for auxiliary heater by pressing release tab.



All vehicles:

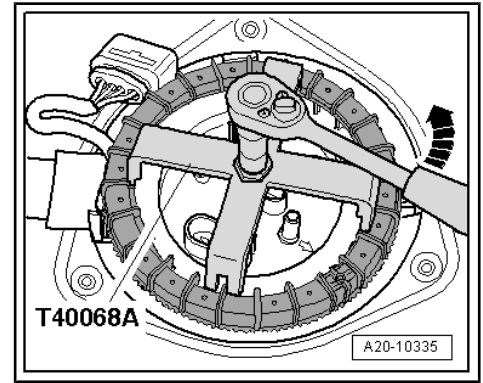


WARNING

Danger! Fuel may escape.

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

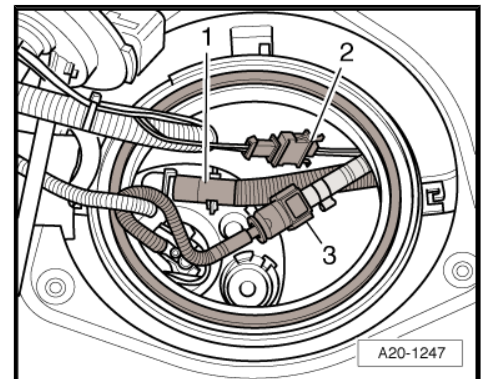
- Use union nut tool - T40068 A- to unscrew union nut (right-side) -arrow-.



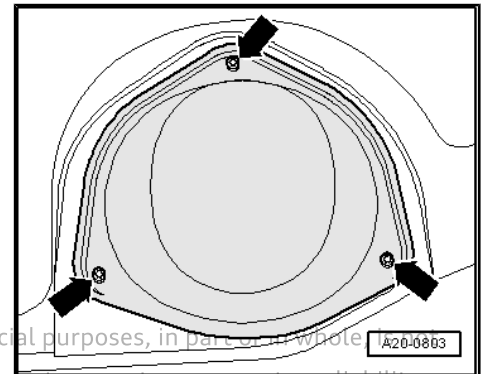
Note

The plastic detent on the threaded ring will break off when the union nut is unscrewed - this can be disregarded.

- Take flange (right-side) of fuel delivery unit out of opening in fuel tank and move flange clear, leaving pipes connected.
- Reach into opening in fuel tank to unplug electrical connector -2- for fuel gauge sender 2 - G169- .
- Disconnect supply line -3- for suction-jet pump by pressing release tab.
- Disengage fuel supply line -1-.



- Detach cover for flange (left-side) -arrows-.



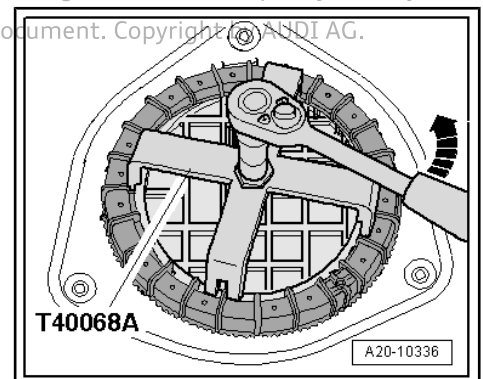
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- Use union nut tool - T40068 A- to unscrew union nut (left-side) -arrow-.



Note

The plastic detent on the threaded ring will break off when the union nut is unscrewed - this can be disregarded.





- Carefully pull fuel gauge sender 2 - G169- -item 1- and suction-jet pump -2- towards left, out of opening in fuel tank.

**Note**

When removing, make sure you do not bend float arm of fuel gauge sender 2 -G169- .

Installing

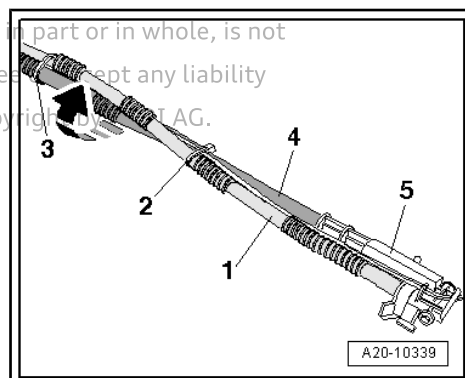
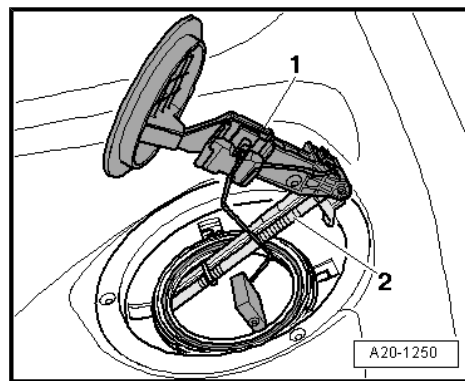
- Tightening torque ⇒ [page 78](#)

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

**Note**

Renew seals and union nuts.

- Prepare suction-jet pump -5- for installation:
- Guide supply line for suction-jet pump -1- over top of supply line -4- -arrow-, as shown in illustration.
- Secure supply line for suction-jet pump and fuel supply line with a total of 3 cable ties (two of them are visible in illustration -items 2 and 3-).

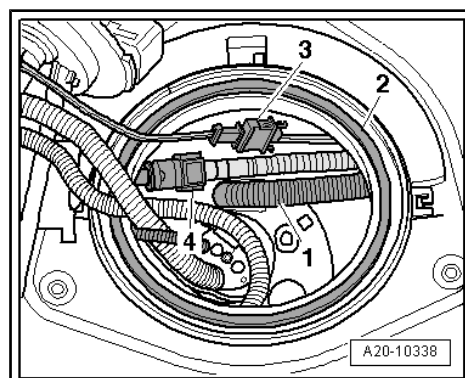
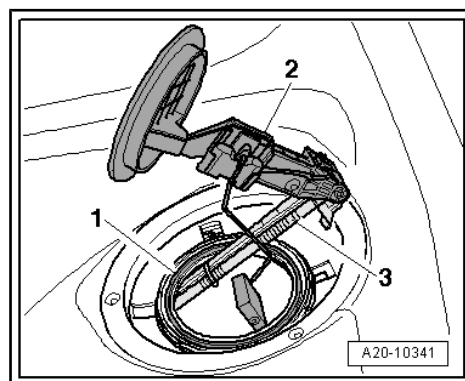


- Plug in electrical connector and check that it has engaged properly.
- Clip suction-jet pump -3- onto flange -2-, so that you hear it click into place.

**Note**

When installing, make sure you do not bend float arm of fuel gauge sender 2 -G169- .

- Push suction-jet pump (with pipes attached) into fuel tank opening on left side of vehicle.
- Slip new seal -1- over flange and insert it in groove on fuel tank.
- Reach into fuel tank opening on right side of vehicle and pull suction-jet pump with pipes into the installation position.
- Engage fuel supply line -1-.
- Fit supply line -4- leading to suction-jet pump so that it engages audibly.
- Plug in electrical connector -3- for fuel gauge sender 2 - G169- .
- Slip new seal -2- over flange and insert it in groove on fuel tank.



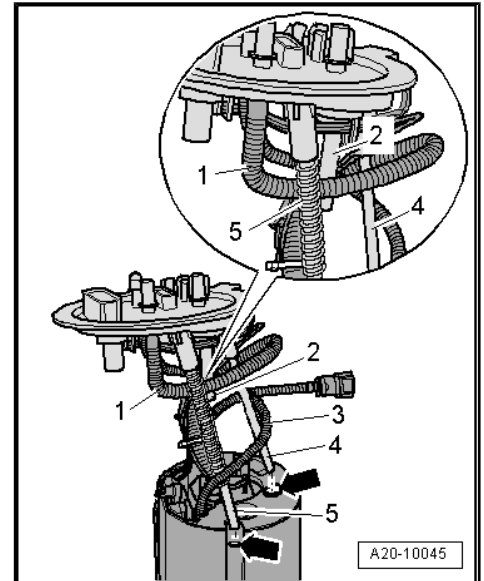


- Make sure wiring and fuel hoses are properly routed:
- The fuel supply line -1- must be routed between the guide tube -5- and the connecting piece -2- for fuel return line. Also make sure that it is routed around outside of guide tube -4-.
- Route supply line -3- for auxiliary heater around outside of guide tubes -4- and -5-.
- Insert guide tubes -4- and -5- on flange into corresponding holes -arrows- in fuel delivery unit.

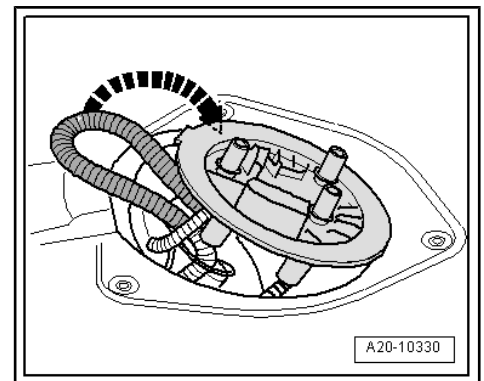


Note

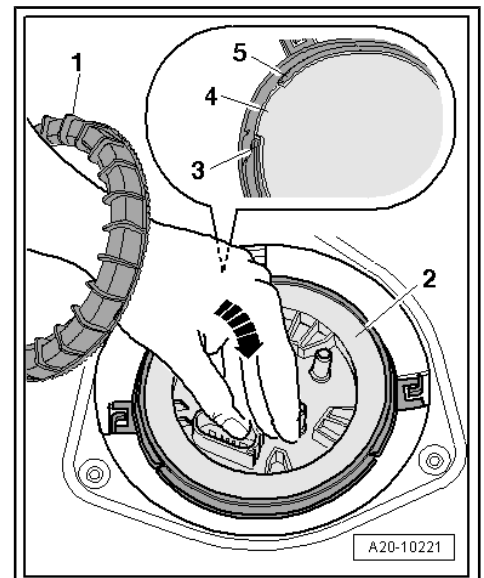
The fuel delivery unit is shown without the fuel tank for illustration purposes.



- Push fuel supply line in clockwise direction under flange to avoid obstructing movement of fuel gauge sender -G- .



- Slip union nut -1- over your left arm and press flange -2- firmly into installation position -arrow- with your left hand.
- Lug -4- on flange must be between tabs -3- and -5- on threaded ring.

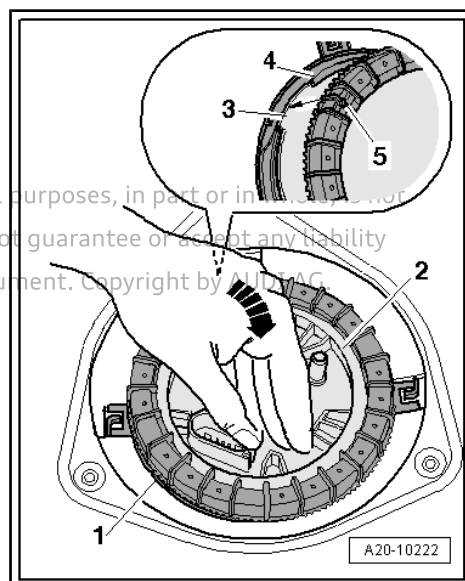


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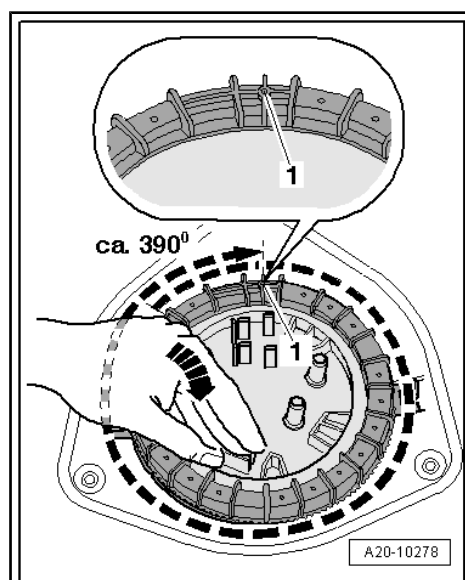


- Take union nut -1- off your left arm with your right hand and at the same time keep pressing down flange -2- firmly with your left hand -arrow-.
- Position union nut -1- with your right hand in such a way that double ridge -5- on ribs aligns with lug -3- of flange (approx. ten o'clock position). This will make union nut engage immediately with beginning of thread -4- when tightening.

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- Keep pressing flange downwards firmly.
- Turn locking ring approx. 390° with your right hand until double ridge -1- is in approx. twelve o'clock position and at the same time keep on pressing flange downwards firmly with your left hand.

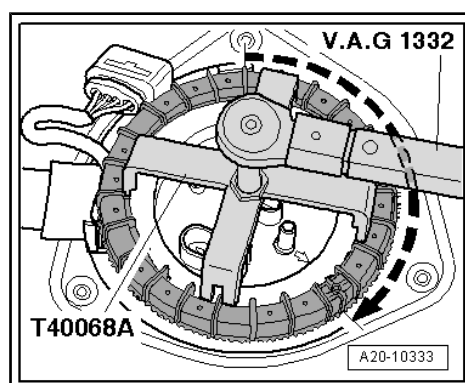


Caution

Take care to avoid leakage at flange.

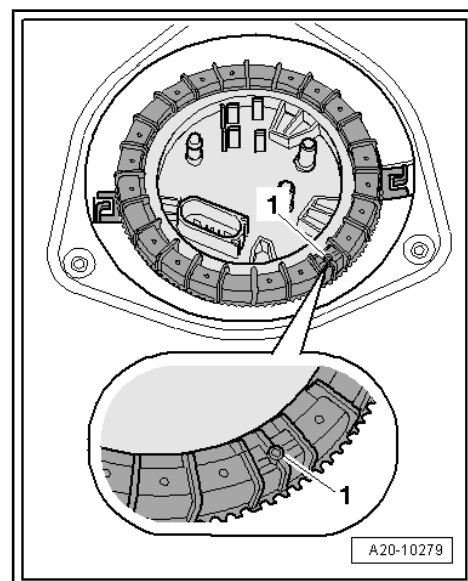
- ◆ *Press flange downwards firmly when tightening union nut to make sure flange does not also turn.*

- Use union nut tool - T40068 A- to tighten union nut for flange (right-side).
- Tightening torque: 120 Nm





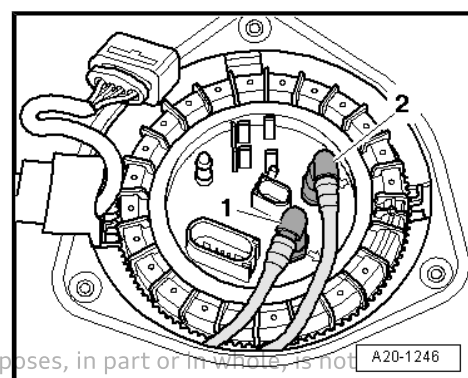
- Checking: Double ridge -1- must now be aligned between five o'clock and six o'clock position.



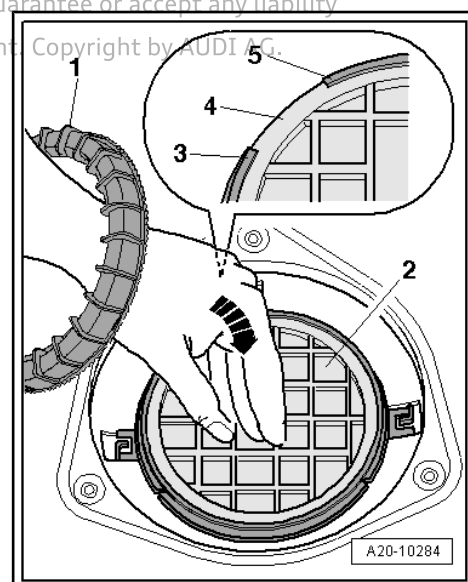
- Install fuel supply line -1- and fuel return line -2- (as marked).
- Plug in electrical connector.



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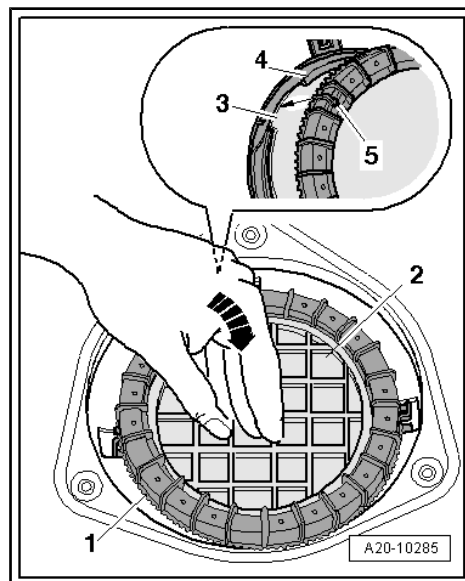


- Slip union nut -1- over your left arm and press flange -2- firmly into installation position -arrow- with your left hand.
- Lug -4- on flange must be between tabs -3- and -5- on threaded ring.

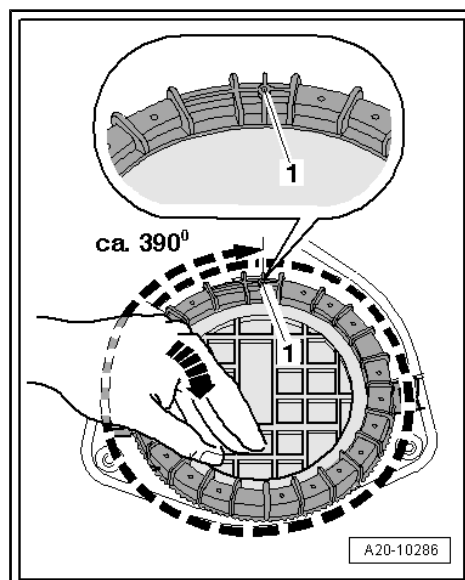




- Take union nut -1- off your left arm with your right hand and at the same time keep pressing down flange -2- firmly with your left hand -arrow-.
- Position union nut -1- with your right hand in such a way that double ridge -5- on ribs aligns with lug -3- of flange (approx. ten o'clock position). This will make union nut engage immediately with beginning of thread -4- when tightening.



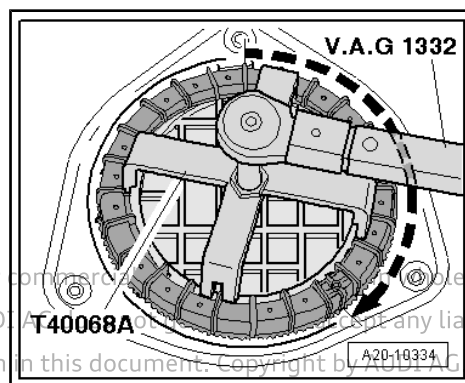
- Keep pressing flange downwards firmly.
- Turn locking ring approx. 390° with your right hand until double ridge -1- is in approx. twelve o'clock position and at the same time keep on pressing flange downwards firmly with your left hand.

**Caution**

Take care to avoid leakage at flange.

- ◆ *Press flange downwards firmly when tightening union nut to make sure flange does not also turn.*

- Use union nut tool - T40068 A- to tighten union nut for flange (left-side).
- Tightening torque: 120 Nm



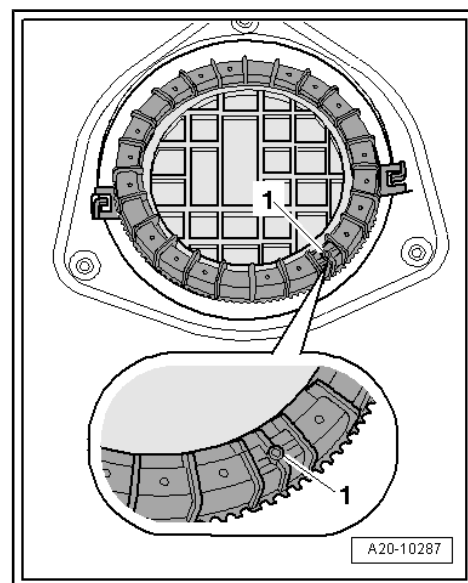


Checking: Double ridge -1- must now be aligned between five o'clock and six o'clock position.

- Install rear seat bench ⇒ Rep. gr. 72 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing suction-jet pump

Vehicles with auxiliary heater:

- Let auxiliary heater run with full load for 10 minutes to bleed fuel line going to metering pump.



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8 Fuel tank with attached components - USA vehicles with front-wheel drive/ four-wheel drive

8.1 Exploded view - fuel tank with attached components

1 - Bolt

- ☐ 23 Nm

2 - Mounting

- ☐ For exhaust system

3 - Support bracket

4 - Fuel line

- ☐ From fuel filter to engine
- ☐ Do not kink
- ☐ Press release tab on connection piece to disconnect

5 - Breather line

- ☐ From activated charcoal filter to activated charcoal filter solenoid valve 1 - N80-
- ☐ Do not kink
- ☐ Press release tab on connection piece to disconnect
- ☐ Clip onto fuel tank

6 - Bolt

- ☐ Secures fuel filler neck and earth connection -item 11-
- ☐ 23 Nm

7 - Overflow hose

- ☐ Attached at wheel housing liner

8 - Rubber cup

9 - Seal

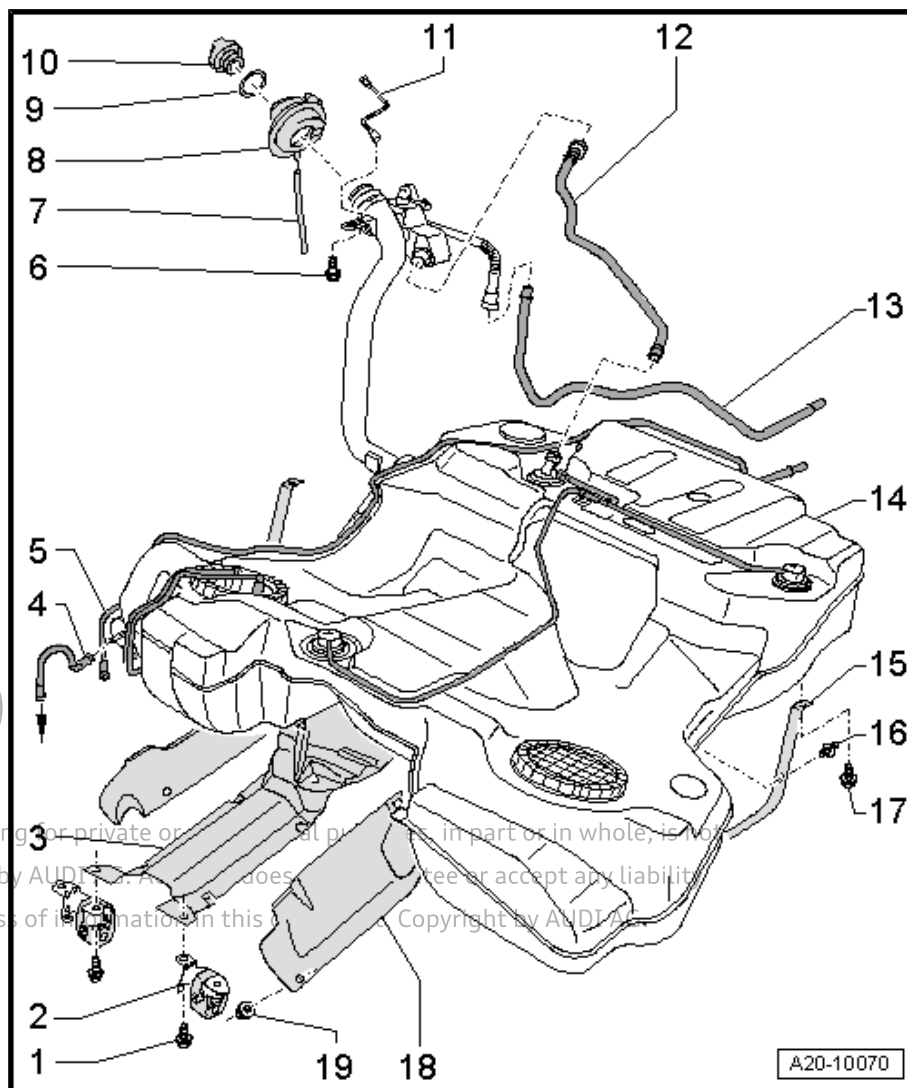
- ☐ Renew if damaged

10 - Filler cap

- ☐ Secured to tank flap unit

11 - Earth connection

- ☐ To eliminate electrostatic charge
- ☐ Installation position ⇒ [page 131](#)
- ☐ Make sure connector is correctly seated and secure wire with bolt for fuel filler neck -item 6-
- ☐ 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





12 - Breather line

13 - Breather line

- ☐ To activated charcoal filter

14 - Fuel tank

- ☐ Removing and installing ⇒ [page 134](#)

15 - Securing strap

16 - Fastener

17 - Bolt

- ☐ 23 Nm

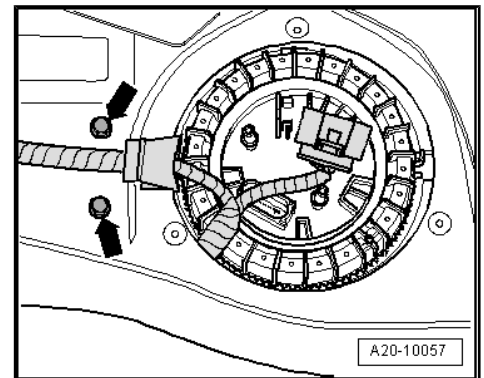
18 - Heat shield for fuel tank

19 - Nut

- ☐ 2 Nm

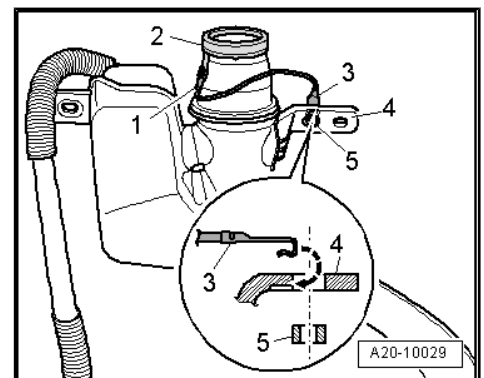
Tightening torque for bracket for fuel pump control unit to body

- Tighten bolts -arrows- to 4 Nm.



Installation position of earth connection

- Route earth connection as shown in illustration.
- First engage contact tab -3- of earth connection in mounting hole on fuel tank -4- and then press in spacer bush -5-.
- Ensure that connector -1- for earth connection is firmly seated on metal ring -2- on fuel filler neck.



WARNING

Risk of explosion caused by electrostatic discharge.

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

8.2 Draining fuel tank

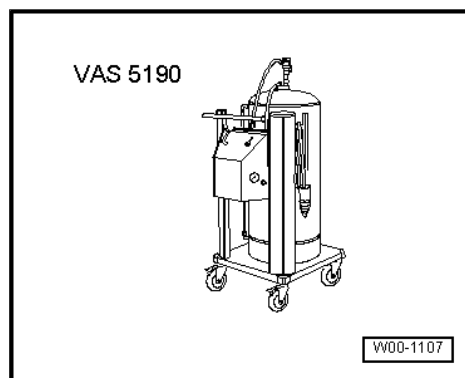
A - Procedure if fuel tank is more than $\frac{1}{4}$ full ⇒ [page 133](#) .

B - Procedure if fuel tank is less than $\frac{1}{4}$ full ⇒ [page 134](#) .

Special tools and workshop equipment required



◆ Fuel extractor - VAS 5190-



Procedure

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

Observe rules for cleanliness ⇒ [page 2](#) .



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27 .*

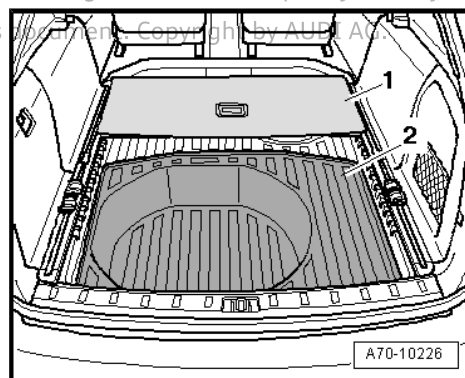
- Switch off ignition.
- Release the tank flap.

Saloon:

- Fold up luggage compartment floor lining.

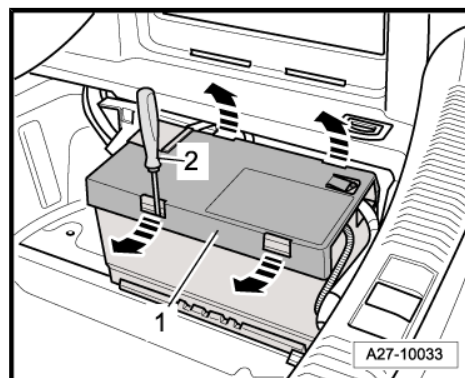
Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.



All vehicles:

- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.





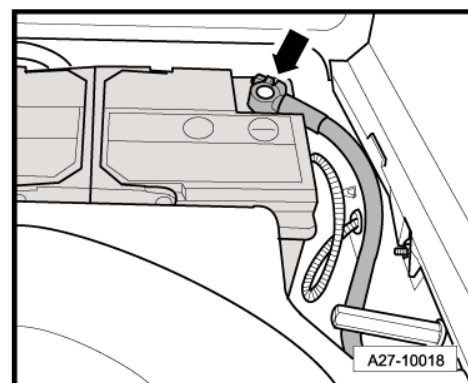
- Disconnect earth cable at negative terminal of battery -arrow-.



WARNING

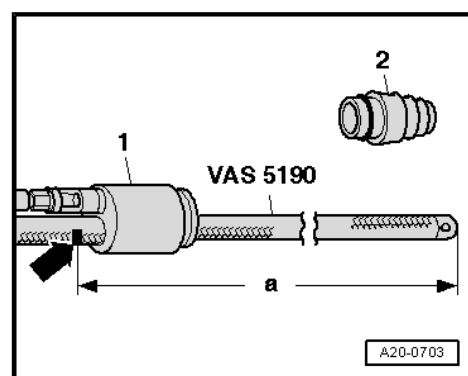
Risk of explosion caused by electrostatic discharge.

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

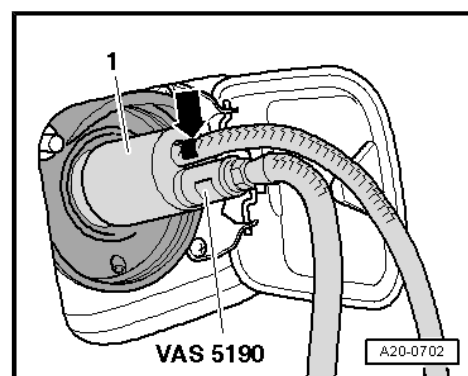


A - Procedure if fuel tank is more than 1/4 full

- Detach tapered adapter -2- from shaft end -1- of fuel extractor -VAS 5190- .
- Use insulating tape to mark extraction hose -arrow- at a distance of -a- = 1365 mm from end of hose.



- Remove filler cap from fuel filler neck.
- Screw shaft end -1- of fuel extractor -VAS 5190- onto fuel filler neck.
- Push extraction hose into fuel tank until marking on hose -arrow- coincides with shaft end.
- Drain fuel tank as much as possible through fuel filler neck.
- Carefully remove extraction hose.
- Remove fuel delivery unit → [page 161](#) .
- Extract remaining fuel from right chamber of fuel tank through opening for fuel delivery unit.
- Push hose into left chamber of fuel tank and extract remaining fuel.



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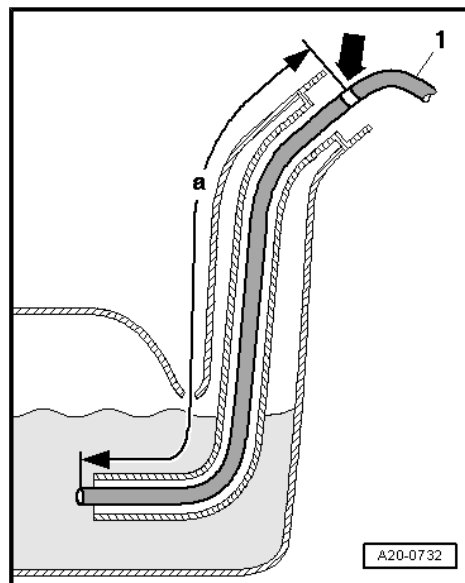


Note

- ◆ The procedure when using a fuel extractor without shaft end is basically the same.
- ◆ In this case, make a mark -arrow- on the hose at distance -a- = 1300 mm from end of extraction hose -1- using insulating tape. The extraction hose has been properly inserted when the affixed mark is level with the edge of the filler neck.
- ◆ If hose is difficult to insert, apply a thin coat of engine oil. DO NOT use silicone-based lubricant.

B - Procedure if fuel tank is less than $\frac{1}{4}$ full

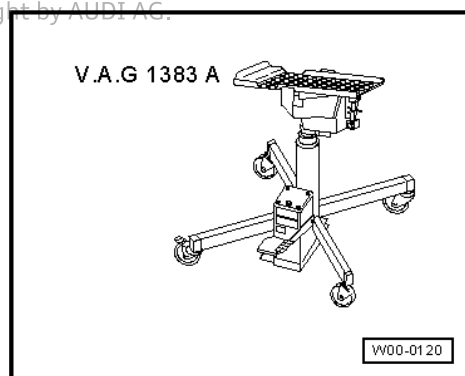
- Remove fuel delivery unit ⇒ [page 161](#) .
- Extract remaining fuel from right chamber of fuel tank through opening for fuel delivery unit.
- Push hose into left chamber of fuel tank and extract remaining fuel.



8.3 Removing and installing fuel tank with attached components

Special tools and workshop equipment required

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



Removing

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

Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Risk of accident caused by weight of fuel tank

- ◆ Fuel tank must be empty when it is removed. Drain the tank if necessary. Procedure ⇒ [page 131](#)



Caution

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

- ◆ Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27 .



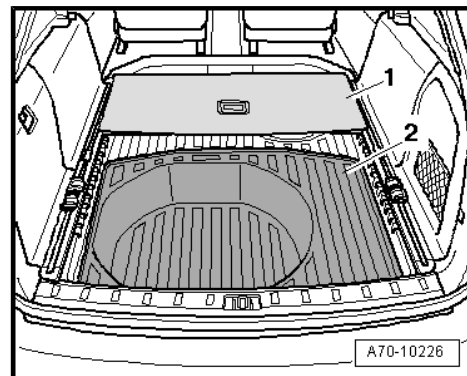
- Switch off ignition.
- Release the tank flap.
- If necessary, fold forward backrests of rear seat bench.

Saloon:

- Take out luggage compartment floor trim.

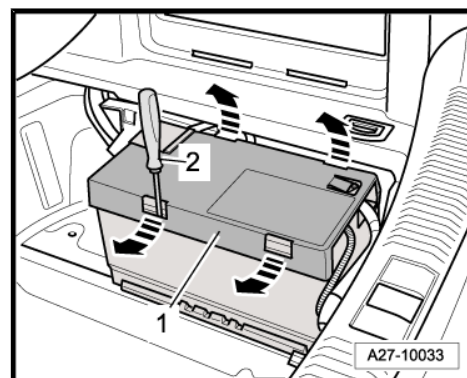
Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.

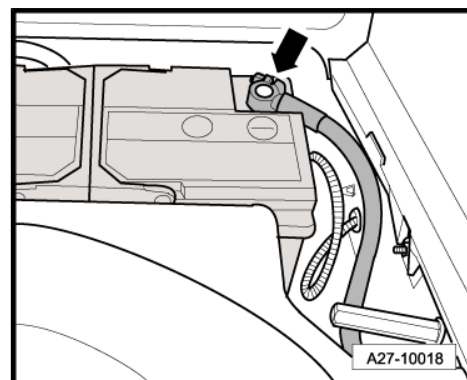


All vehicles:

- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.

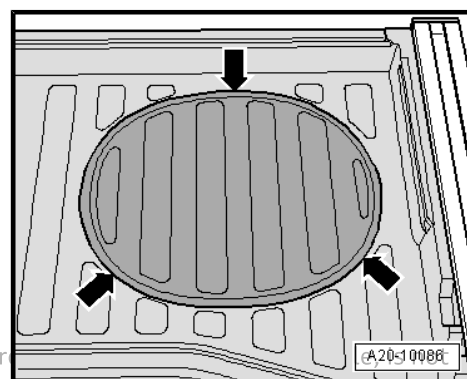


- Disconnect earth cable at negative terminal of battery -arrow-.



Avant:

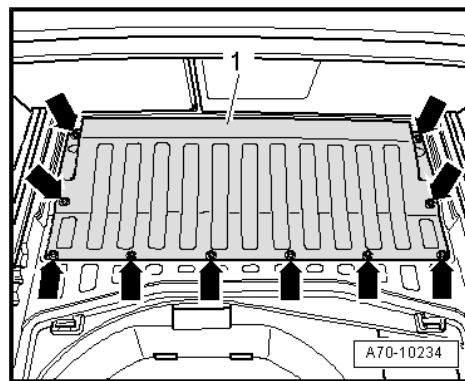
- On vehicles without air suspension: unclip the retaining tabs -arrows- for the flange cover.



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- On vehicles with air suspension: remove spreader pins -arrows- and take off cover -1-.



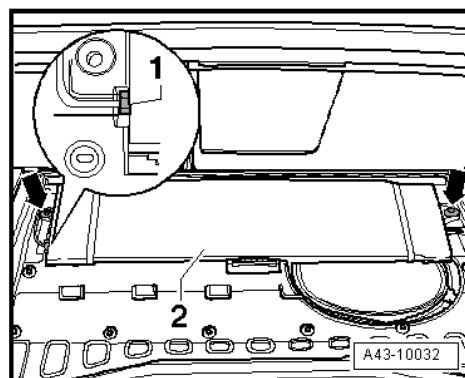
All vehicles:

- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



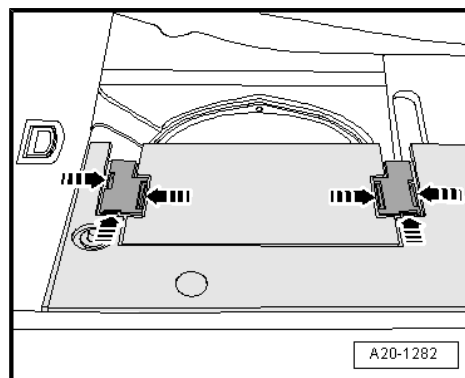
Note

Do not stretch or kink line.

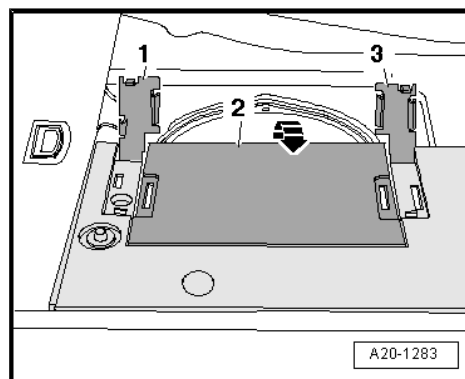


Saloon:

- Release retaining lugs -arrows-.



- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.



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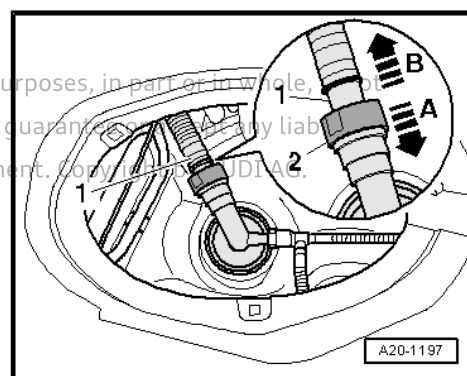
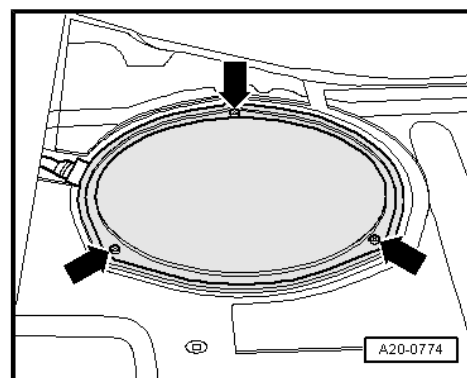
All vehicles:

- Unbolt cover -arrows-.

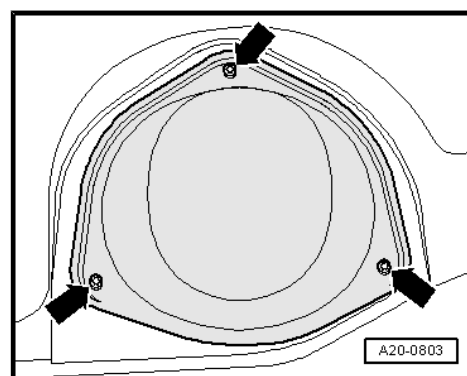


- Disconnect breather pipe -1-. To do so, press release ring -2- approx. 2 mm in direction indicated -arrow A- and at the same time detach breather pipe -arrow B-.

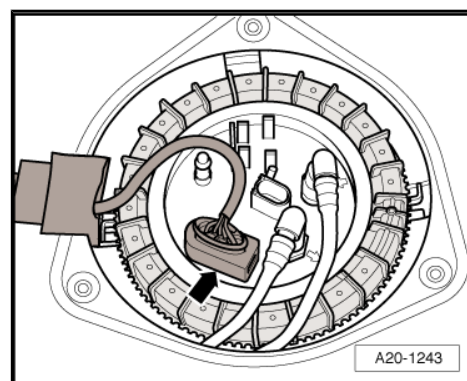
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- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.

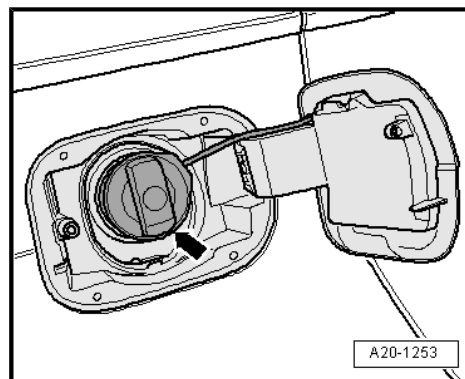


- Unplug electrical connector -arrow- at flange.

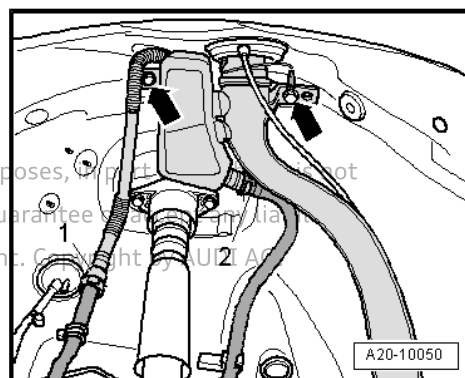




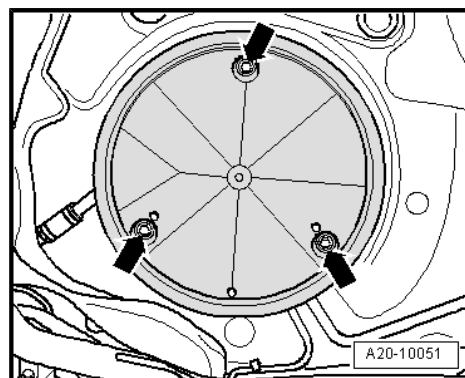
- Open the tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- from fuel filler neck.
- Seal opening of fuel filler neck with a piece of clean foam or similar to prevent dirt from dropping into the tank.



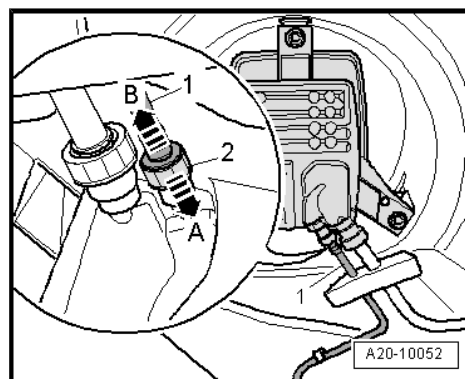
- Remove rear wheel (right-side).
- Remove rear right wheel housing liner ⇒ Rep. gr. 66 .
- Disconnect breather pipes -1- and -2- from fuel filler neck (press release tabs).
- Unscrew bolts -arrows- for fuel filler neck.



- Unscrew bolts -arrows- and detach cover for activated charcoal filter.
- Fit the same bolts to secure activated charcoal filter and tighten by hand.

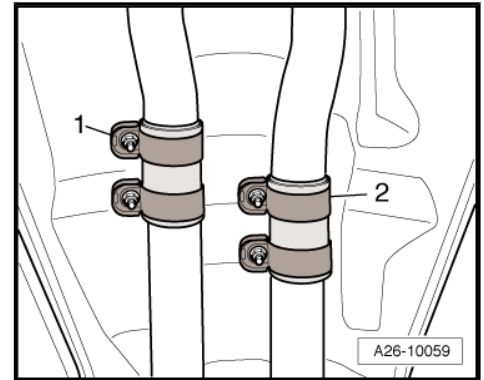


- Detach breather line -1-. To do so, press release ring -2- approx. 2 mm in direction indicated -arrow A- and at the same time detach breather pipe -arrow B-.
- Unclip breather pipe from retainer.





- Loosen clamps -1- and -2-.
- Push the clamps to rear in order to disconnect the exhaust system.



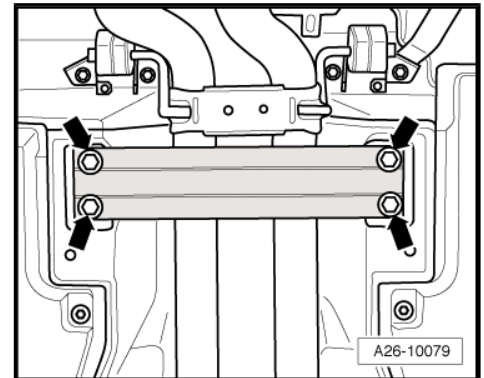
- Remove cross piece (rear) -arrows-.



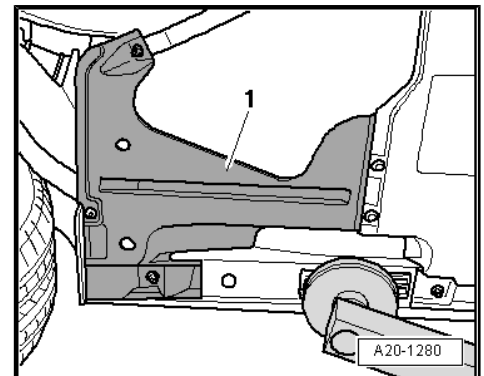
Note

A second person will be required for detaching rear section of exhaust system.

- Disengage exhaust system at the rubber mountings and remove rear section of exhaust system.



- Remove cover -1- from underside of vehicle (rear left).



- Remove cover -1- from underside of vehicle (rear right).

Vehicles with four-wheel drive:

- Remove propshaft ⇒ Rep. gr. 39 .

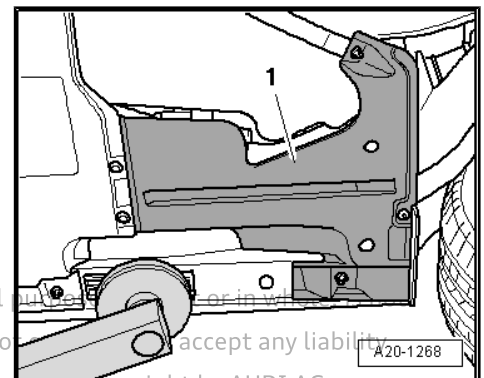
All vehicles:



WARNING

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

- ◆ **BEFORE loosening the subframe bolts, take steps to ensure that the vehicle does not tip forwards on the lifting platform (e.g. put a weight of about 50 kg in the luggage compartment).**



- Remove rear axle ⇒ Rep. gr. 42 .



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- and breather line -1- from front right of fuel tank by pressing release tabs.

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- Position engine and gearbox jack - V.A.G 1383 A- below vehicle to support tank.



WARNING

Risk of accident caused by weight of fuel tank

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

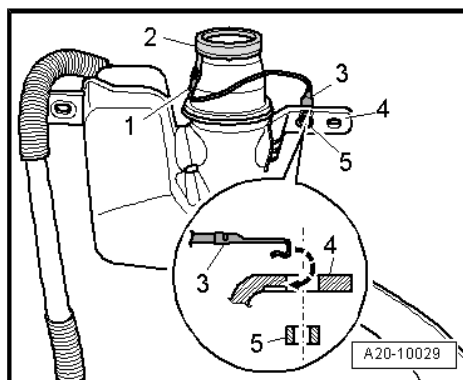
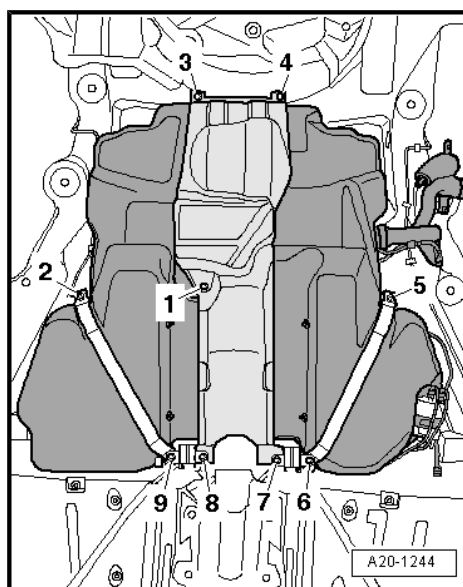
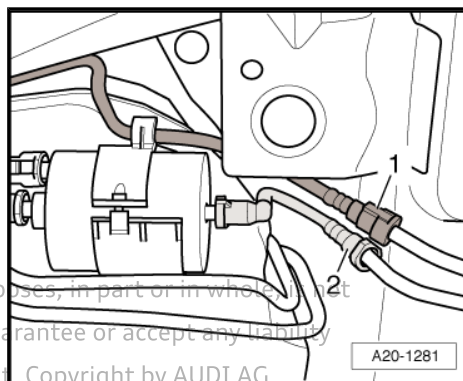
- Remove bolts -1 ... 9-.
- Then lower fuel tank using engine and gearbox jack - V.A.G 1383 A- , simultaneously guiding fuel tank down by hand.

Installing

- Tightening torques ⇒ [page 130](#)

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

- Check that fuel lines and breather lines are clipped onto fuel tank.
- Check the earth wiring at both ends for traces of oxidation. Remove any traces of oxidation if necessary.
- Check installation position of earth connection:
- Connector -1- must be seated securely on metal ring -2-.
- Contact tab -3- must be attached to fuel tank -4- and secured with spacer bush -5-.





- Position fuel tank with securing straps and support bracket on underbody using engine and gearbox jack - V.A.G 1383 A- .
- When installing fuel tank, make sure that the fuel filler neck is correctly inserted into the opening on the body.
- Tighten bolts for securing straps and support bracket -1 ... 9-.



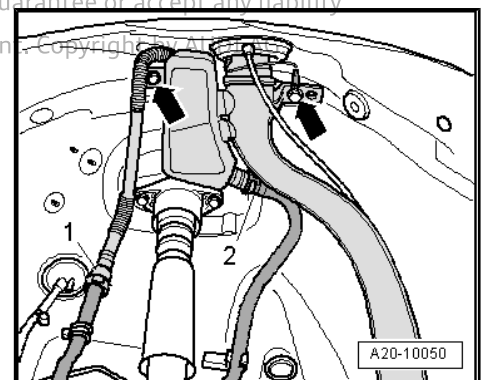
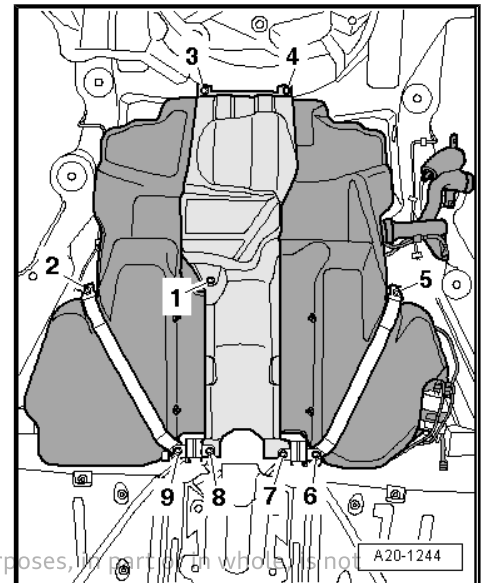
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- Secure fuel filler neck with earth connection -arrows-.

⚠ 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***



- Secure breather pipes -1- and -2- to fuel filler neck.
- Install rear axle ⇒ Rep. gr. 42 .

Vehicles with four-wheel drive:

- Install propshaft ⇒ Rep. gr. 39 .

All vehicles:

- Install rear section of exhaust system ⇒ Rep. gr. 26 .
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .
- Install cover for activated charcoal filter ⇒ [page 196](#) .
- Install rear seat bench ⇒ Rep. gr. 72 .
- Install accumulator ⇒ Rep. gr. 43 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .



9 Fuel delivery unit and fuel gauge senders - USA vehicles with front-wheel drive/four-wheel drive

9.1 Exploded view - fuel delivery unit and fuel gauge sender

1 - Fuel delivery unit

- ☐ Checking fuel pump (electrical test)
⇒ [page 144](#)
- ☐ Removing and installing
⇒ [page 161](#)
- ☐ Put at least 5 litres of fuel into tank after installing
- ☐ Checking residual pressure ⇒ Rep. gr. 24

2 - Fuel gauge sender - G-

- ☐ Checking resistance values ⇒ [page 167](#)
- ☐ Removing and installing
⇒ [page 169](#)

3 - Threaded ring

4 - Seal

- ☐ Renew
- ☐ Install dry

5 - Union nut

- ☐ Remove and install with union nut tool - T40068 A-
- ☐ Renew
- ☐ 120 Nm

6 - Fuel return line

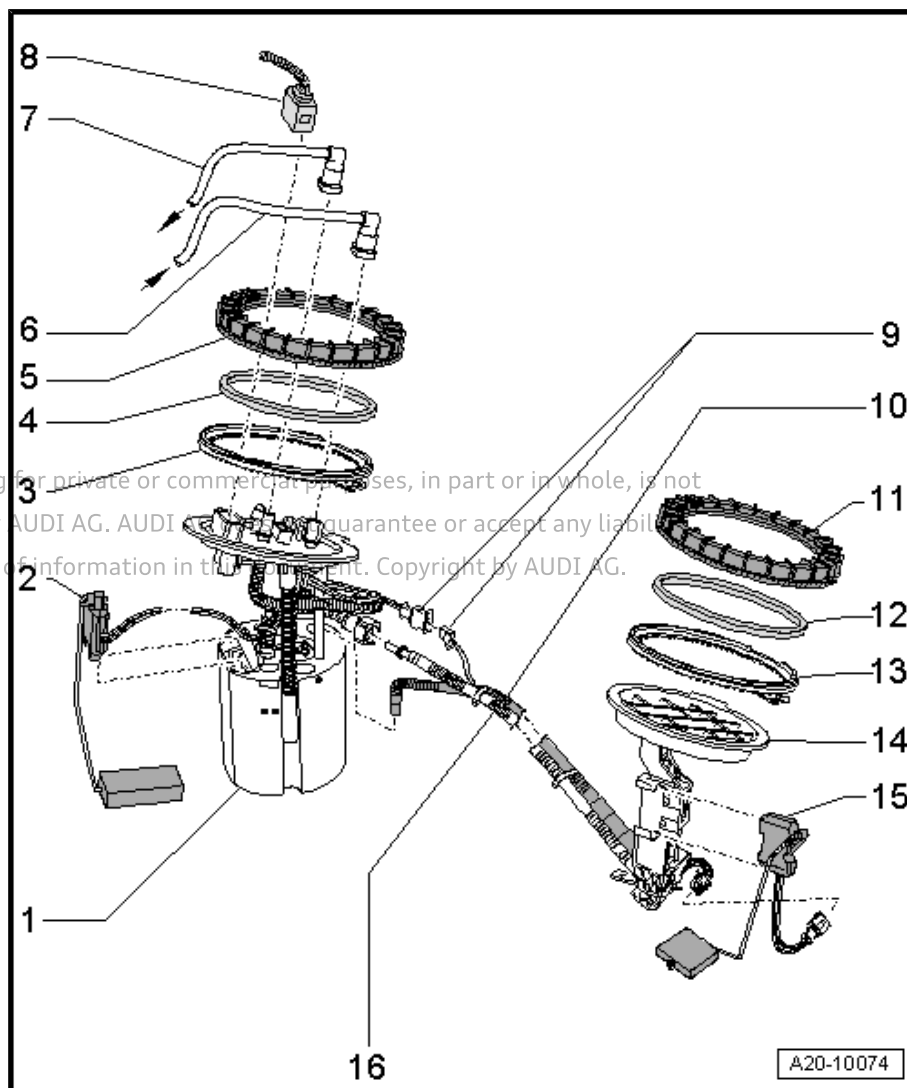
- ☐ From fuel filter
- ☐ Do not kink
- ☐ Mark before removing
- ☐ To disconnect from flange, press release tab on connection piece
- ☐ Note direction of arrow (fuel supply or fuel return system) on flange when installing
- ☐ Clip onto fuel tank

7 - Fuel supply line

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

8 - Electrical connector

- ☐ For fuel system pressurisation pump - G6-





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

9 - Electrical connector

- ☐ For fuel gauge sender 2 - G169-

10 - Fuel supply line

- ☐ From suction-jet pump to fuel delivery unit
- ☐ Clipped onto fuel delivery unit
- ☐ Secure to supply line for suction-jet pump using a total of 3 cable ties
- ☐ Observe fitting instructions ⇒ [page 181](#)

11 - Union nut

- ☐ Remove and install with union nut tool - T40068 A-
- ☐ Renew
- ☐ 120 Nm

12 - Seal

- ☐ Renew
- ☐ Install dry

13 - Threaded ring

14 - Suction-jet pump

- ☐ Checking suction-jet pump ⇒ [page 177](#)
- ☐ Removing and installing ⇒ [page 177](#)
- ☐ Put at least 5 litres of fuel into tank after installing

15 - Fuel gauge sender 2 - G169-

- ☐ Checking resistance values ⇒ [page 170](#)
- ☐ Removing and installing ⇒ [page 171](#)

16 - Supply line for suction-jet pump

- ☐ From fuel pump to suction-jet pump
- ☐ Press release tab on connection piece to disconnect
- ☐ Secure to fuel supply line using a total of 3 cable ties
- ☐ Observe fitting instructions ⇒ [page 181](#)

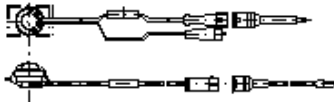


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9.2 Checking fuel pump (electrical test)

Special tools and workshop
equipment required

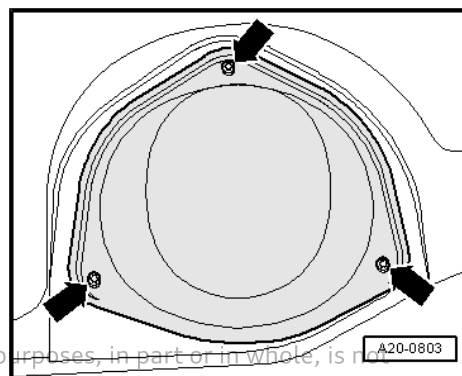
V.A.G 1348/3A 	V.A.G 1526 B 
V.A.G 1594 C 	
	G20-0048

- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2-
- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Auxiliary measuring set - V.A.G 1594C-

Procedure

Observe test conditions ⇒ [page 3](#) .

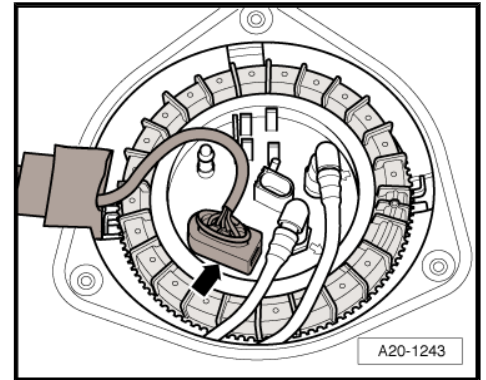
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



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- Unplug electrical connector -arrow- at flange.

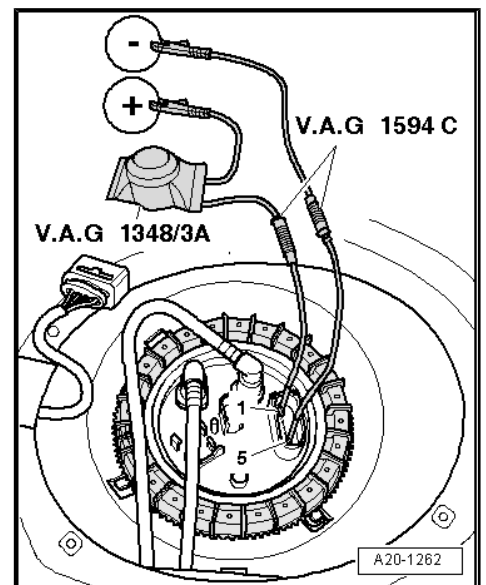


- Connect remote control for V.A.G 1348 - V.A.G 1348/3A- to contact -1- using adapter cable - V.A.G 1348/3-2- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Connect crocodile clip to battery “+”.
- Press remote control button.
- Pump should start running audibly.



Note

The fuel pump runs very quietly. Where possible, avoid noisy surroundings for this test.

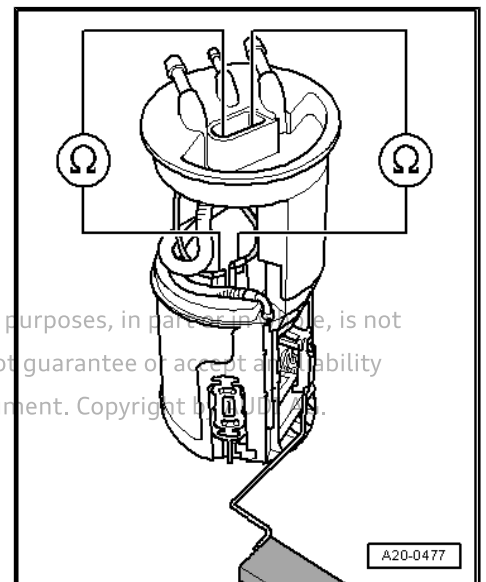


If no noise can be heard from pump:

- Remove fuel delivery unit ➔ [page 161](#) .
- Check that the electrical wires between flange and fuel pump are connected and test for continuity.

If no fault is found in wiring, fuel pump is defective. Renew fuel delivery unit.

- Install fuel delivery unit ➔ [page 164](#) .



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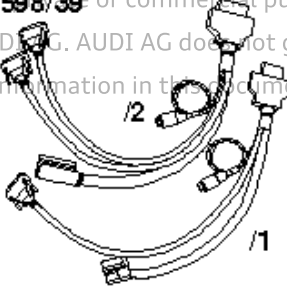
9.3 Checking fuel pump control unit - J538- - vehicles with FSI engine



Special tools and workshop equipment required



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V.A.G 1526 B 	V.A.G 1594 C 
V.A.G 1598/39 	V.A.G 1598/42 
	G24-10001

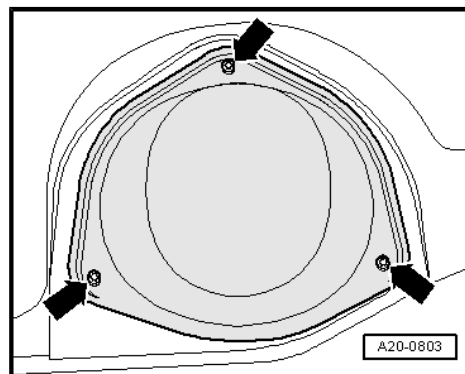
- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Auxiliary measuring set - V.A.G 1594C-
- ◆ Adapter cable - V.A.G 1598/39-
- ◆ Test box - V.A.G 1598/42-

Procedure

Observe test conditions ⇒ [page 3](#) .

Checking voltage supply for fuel pump (from fuel pump control unit - J538-)

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.





- Connect hand-held multimeter - V.A.G 1526C- (voltage test range) with probes and plug-in adapters from auxiliary measuring set - V.A.G 1594C- between contacts -1- and -5-, as shown in illustration. The electrical connector remains in place.



Note

The connector contacts are numbered accordingly on the back of the connector.

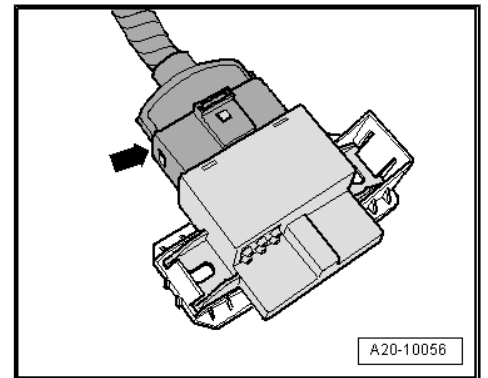
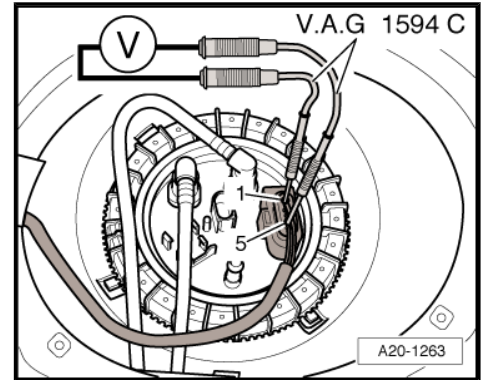
- Start engine.
- Specification when starting and at idling speed: approx. 4 ... 5 V.
- Press accelerator pedal quickly to the floor and release again (short throttle burst)
- Specification: The voltage value should first increase slightly, then drop and eventually rise to the previous reading.

If display differs from specification described above:

- Check voltage supply and activation of fuel pump control unit -J538- .

Checking voltage supply for fuel pump control unit - J538-

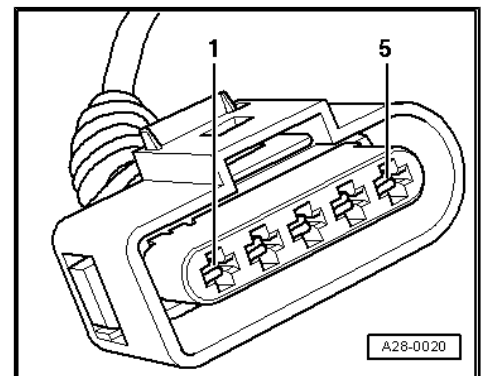
- Remove fuel pump control unit - J538- ➔ [page 148](#) .
- Unplug electrical connector -arrow- on fuel pump control unit - J538- .



- Connect multimeter between contacts -3- and -4- of connector to measure voltage.
- Switch on ignition.
- Specification: approx. battery voltage

If specification is not obtained:

- Eliminate open circuit in wiring (refer to current flow diagram).





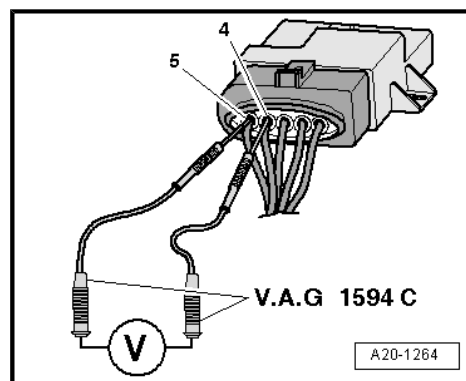
Checking activation of fuel pump control unit -J538-

- Remove protective cap.
- Connect multimeter (voltage test range) with probes and plug-in adapters from auxiliary measuring set - V.A.G 1594C- between contacts -4- and -5-, as shown in illustration. The electrical connector remains in place.



Note

The connector contacts are numbered accordingly on the back of the connector.



- Start engine.
- Specification when starting and at idling speed: approx. 5.0 V.
- Press accelerator pedal quickly to the floor and release again (short throttle burst).
- Specification: The voltage value should first increase slightly, then drop and eventually rise to the previous reading.

If display differs from specification described above:

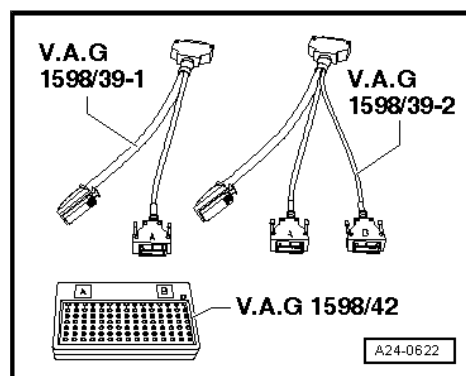
- Switch off ignition.
- Connect test box - V.A.G 1598/42- to wiring harness with adapter lead -V.A.G 1598/39-1- or -V.A.G 1598/39-2- . Do not connect engine control unit. Connect earth clip of test box to negative terminal of battery ⇒ Rep. gr. 24 .



Caution

Risk of irreparable damage to electronic components.

- ◆ **Select the appropriate measuring range before connecting the test leads and observe test requirements.**



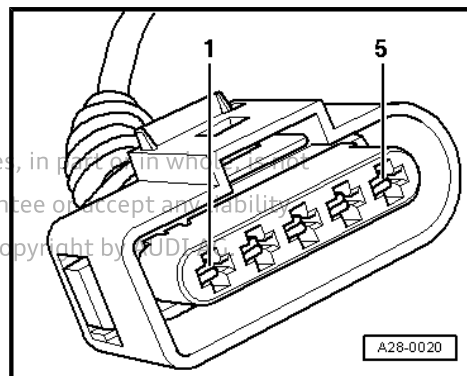
- Check for open circuit and short to positive or earth in the following wiring:

Connector Contact	-V.A.G 1598/42- Socket
5	B 35

- Repair open circuit or short circuit in wiring (refer to current flow diagram).

If no fault is found:

- Renew fuel pump control unit - J538- .



9.4 Removing and installing fuel pump control unit - J538- - vehicles with FSI engine

Removing

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

Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Risk of accident caused by weight of fuel tank

- ◆ *Fuel tank must be empty when lowering it. Drain the tank if necessary. Procedure ➔ [page 131](#)*



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery ➔ Rep. gr. 27.*

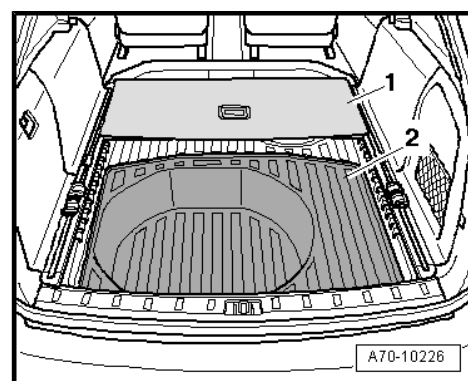
- Switch off ignition.
- Release the tank flap.

Saloon:

- Fold up luggage compartment floor lining.

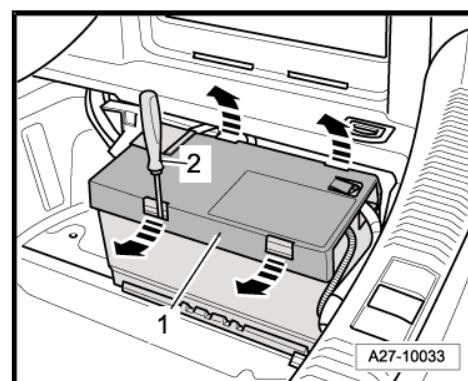
Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.



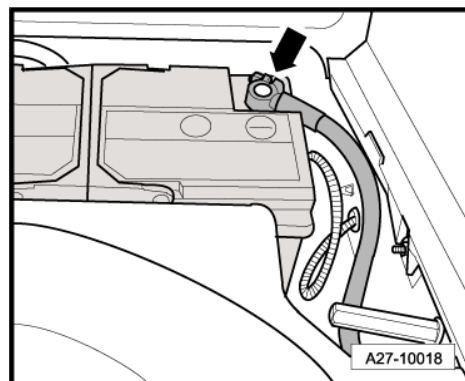
All vehicles:

- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.

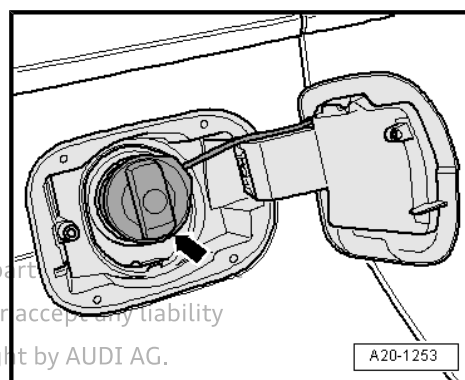




- Disconnect earth cable at negative terminal of battery -arrow-.



- Open the tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- from fuel filler neck.
- Seal opening of fuel filler neck with a piece of clean foam or similar to prevent dirt from dropping into the tank.



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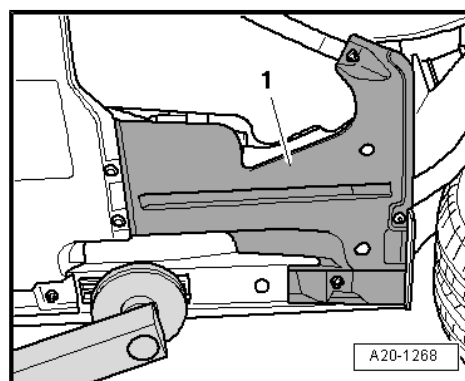
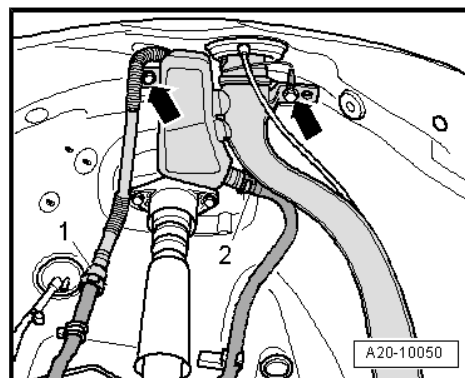
- Remove rear wheel (right-side).
- Remove rear right wheel housing liner ⇒ Rep. gr. 66 .
- Disconnect breather pipe/hose -2- from fuel filler neck (press release tabs).



Note

Disregard -item 1-.

- Unscrew bolts -arrows- for fuel filler neck.
- Remove cover -1- from underside of vehicle (rear right).



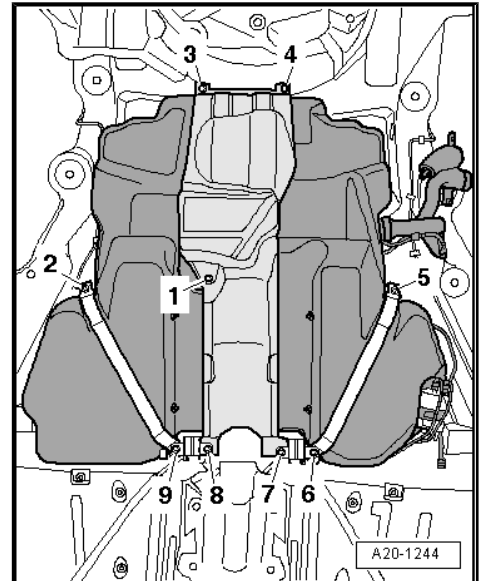


WARNING

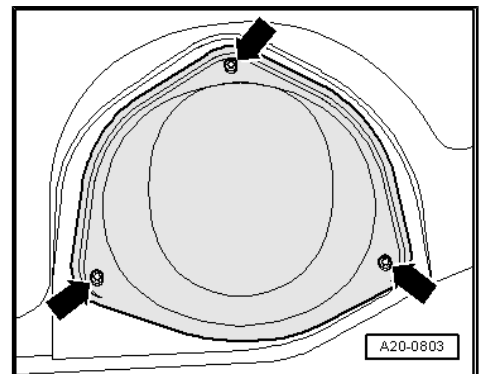
Risk of accident caused by weight of fuel tank

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

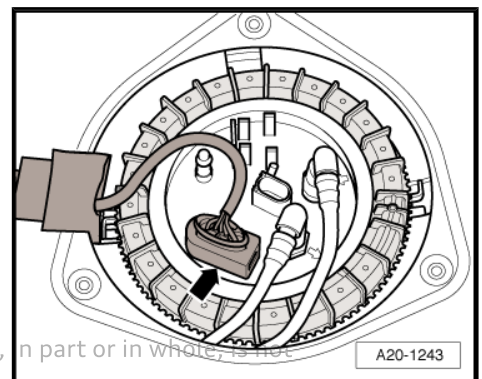
- Loosen bolts -1, 2, 3, 4, 8, 9- by turning not more than 8 turns.
- Unscrew bolts -5, 6, 7-.



- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange.



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- Mark fuel supply line -1- and fuel return line -2-.

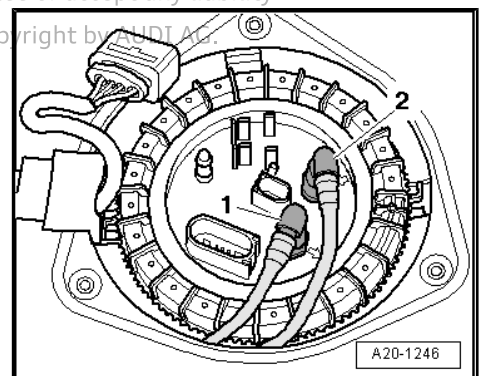


WARNING

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

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

- Detach both lines from flange (press release tabs).





- Remove bolts -arrows-.
- Pull fuel pump control unit - J538- together with bracket out between fuel tank and underbody towards inside.

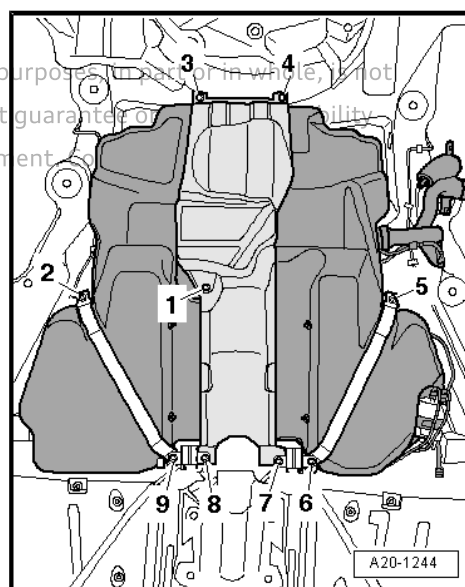
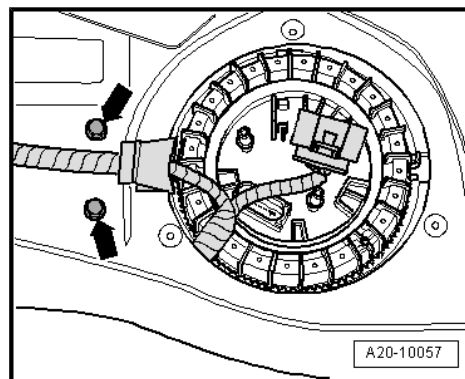


Installing

- Tightening torques ⇒ [page 130](#) and [page 131](#)

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

- Tighten bolts for securing straps and support bracket -1 ... 9-.



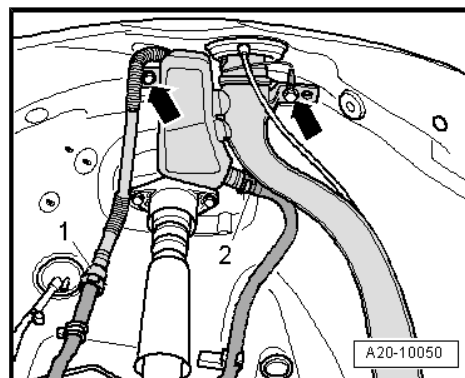
- Secure fuel filler neck with earth connection -arrows-.



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



- Secure breather line -2- to fuel filler neck.



Note

Disregard -item 1-.

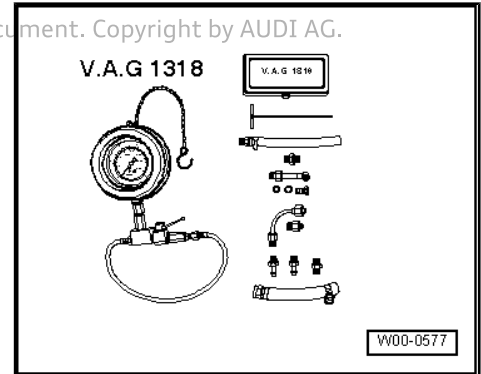
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .
- Install rear seat bench ⇒ Rep. gr. 72 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .



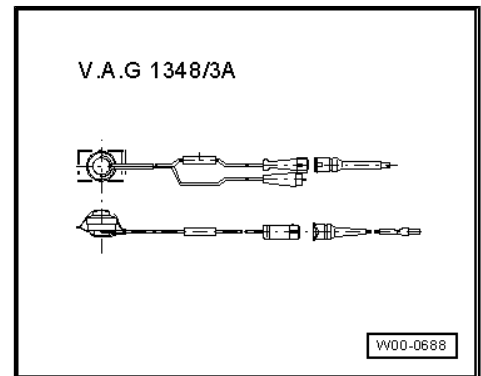
9.5 Checking fuel pump delivery rate - vehicles with 6-cylinder MPI / FSI engine and 8-cylinder MPI engine

Special tools and workshop equipment required

- ◆ K-Jetronic pressure tester - V.A.G 1318-



- ◆ Adapter set - V.A.G 1318/10-12-
- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3-



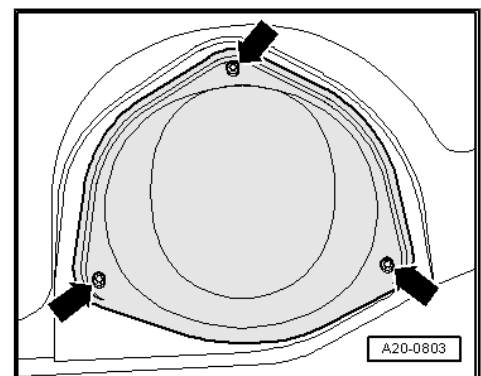
- ◆ Fuel-resistant measuring container

Procedure

Observe test conditions ⇒ [page 3](#) .

Observe rules for cleanliness ⇒ [page 2](#) .

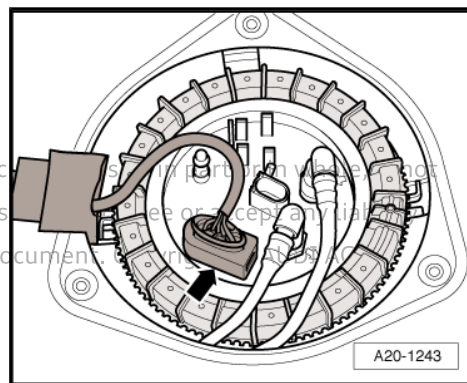
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



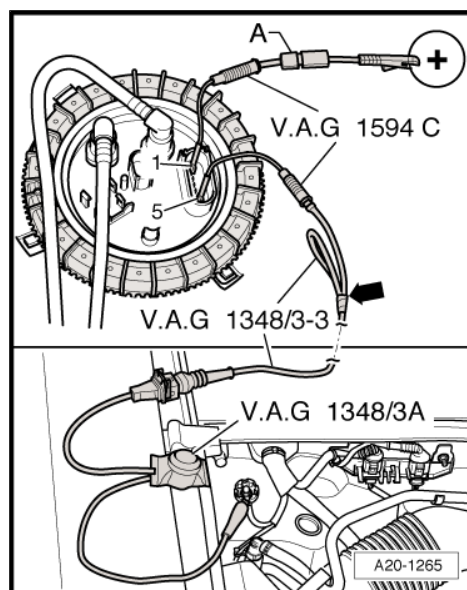


- Unplug electrical connector -arrow- at flange.

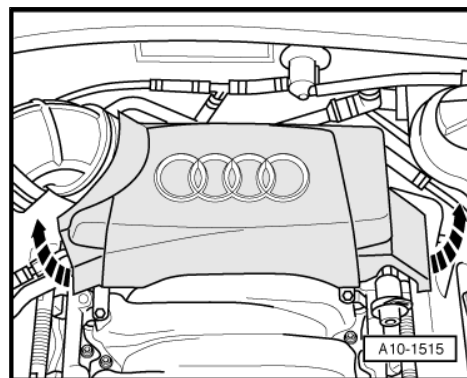
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- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 to contact -5- using adapter cable -V.A.G 1348/3-3- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Tape off 2nd connector contact of adapter cable -V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- to battery "+" via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.

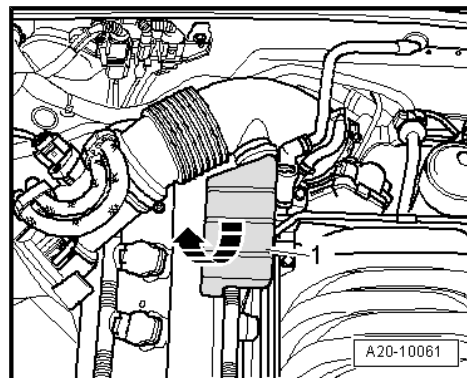


- Pull off engine cover panel (rear) -arrows-.



Vehicles with 8-cylinder MPI engine:

- Pull the resonator -1- upwards -arrow- and unclip.





All vehicles:



WARNING

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

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

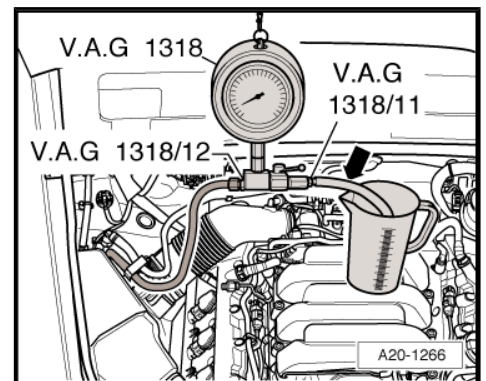
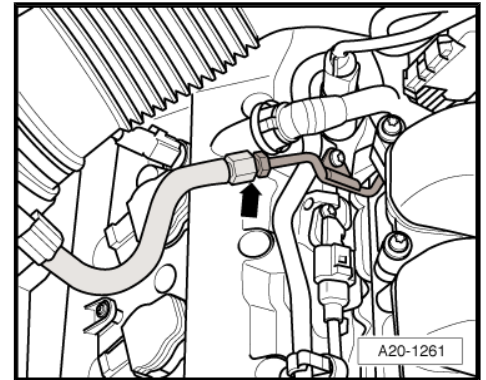
- Disconnect fuel line -arrow-.



Note

Illustration shows vehicle with 6-cylinder engine.

- Connect K-Jetronic pressure tester - V.A.G 1318- with adapt-
ers - V.A.G 1318/11- and -V.A.G 1318/12- to fuel pipe.
- Attach test hose -arrow- and hold end of hose in measuring
container.
- Open cut-off valve on pressure tester.
- Lever must point in direction of flow.
- Build up pressure in fuel system by pressing remote control
button and slowly closing cut-off valve on pressure tester.
- Specification: 4 bar
- From this point on do not move position of cut-off valve.
- Empty the measuring container.
- Press remote control button 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 minimum delivery rate is not reached, check for the following causes:

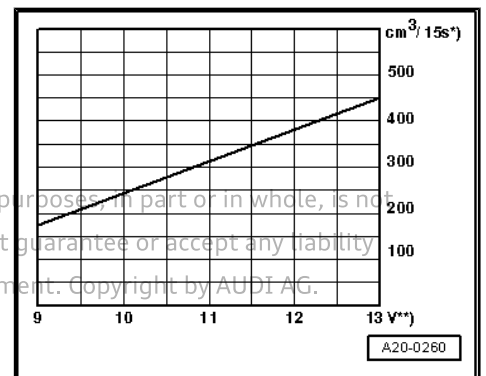
- ◆ Fuel lines have been crushed.
- ◆ Fuel filter is blocked.
- ◆ Fuel pump is defective.

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

- Secure fuel line to engine ⇒ Rep. gr. 24 .

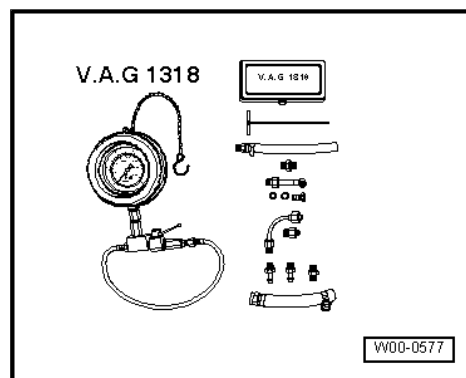
9.6 Checking fuel pump delivery rate - vehicles with 8-cylinder FSI engine

Special tools and workshop equipment required

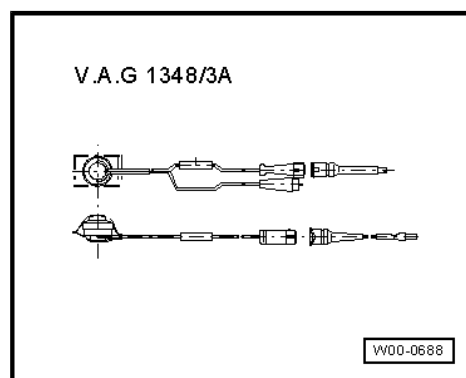




- ◆ K-Jetronic pressure tester - V.A.G 1318-



- ◆ Adapter set - V.A.G 1318/10-12-
- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3-



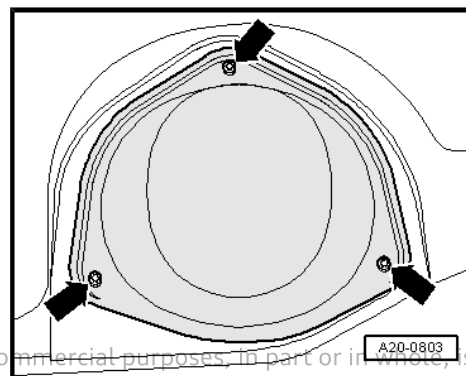
- ◆ Fuel-resistant measuring container

Procedure

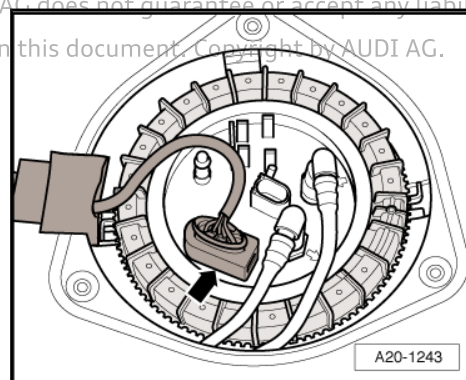
Observe test conditions ⇒ [page 3](#) .

Observe rules for cleanliness ⇒ [page 2](#) .

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.

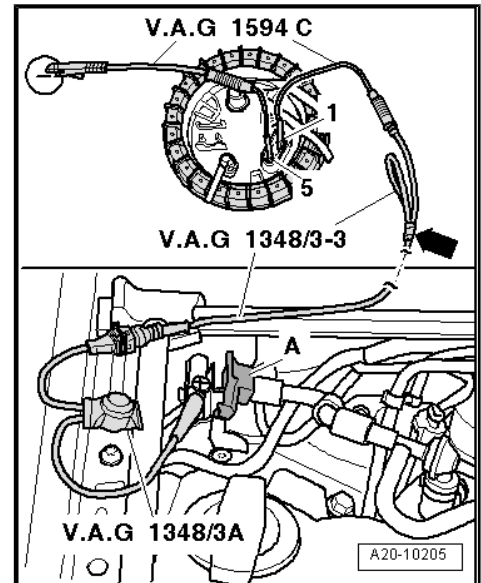


- Unplug electrical connector -arrow- at flange.





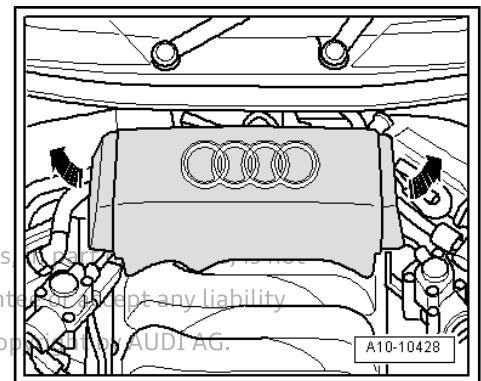
- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 to contact -1- using adapter cable -V.A.G 1348/3-3- and test lead from auxiliary measuring set - V.A.G 1594C- .
- Tape off 2nd connector contact of adapter cable -V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Release retaining clip and open cover -A- above positive terminal.
- Connect crocodile clip to positive terminal.
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Remove filler cap from fuel filler neck.



- Pull off engine cover panel (rear) -arrows-.



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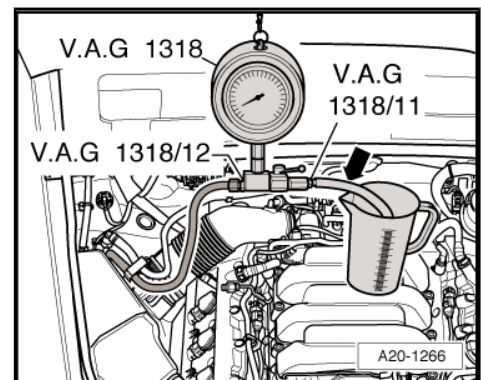
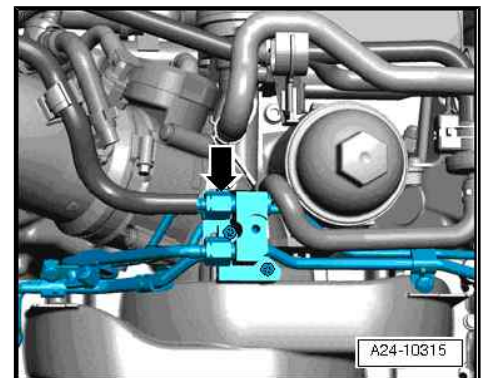


WARNING

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 -arrow-.
- Connect K-Jetronic pressure tester - V.A.G 1318- with adapters - V.A.G 1318/11- and -V.A.G 1318/12- to fuel pipe.
- Attach test hose -arrow- and hold end of hose in measuring container.
- Open cut-off valve on pressure tester.
 - Lever must point in direction of flow.
- Build up pressure in fuel system by pressing remote control button and slowly closing cut-off valve on pressure tester.
 - Specification: 4 bar
- From this point on do not move position of cut-off valve.
- Empty the measuring container.





- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).

**Note**

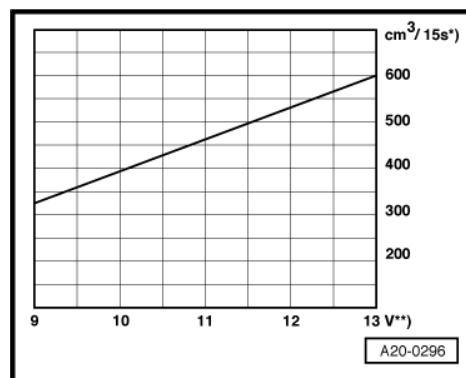
Voltage at fuel pump with engine stationary and pump running is approx. 2 volts less than battery voltage.

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

- ◆ Fuel lines have been crushed.
- ◆ Fuel filter is blocked.
- ◆ Fuel pump is defective.

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

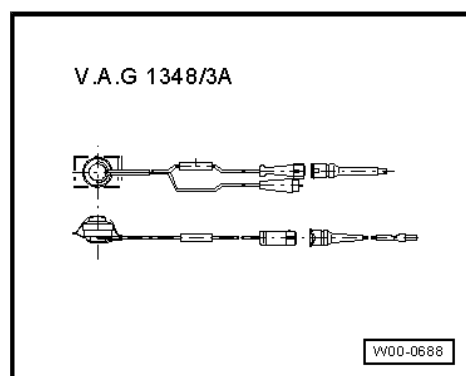
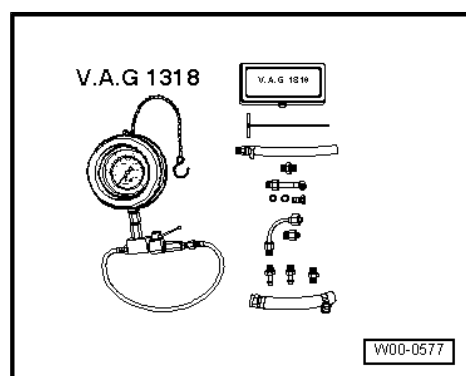
- Secure fuel line to engine ⇒ Rep. gr. 24 .



9.7 Checking fuel pump delivery rate - vehicles with 10-cylinder engine (Audi S6)

Special tools and workshop equipment required

- ◆ K-Jetronic pressure tester - V.A.G 1318-
- ◆ Adapter set - V.A.G 1318/10-12-
- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3-



- ◆ Fuel-resistant measuring container

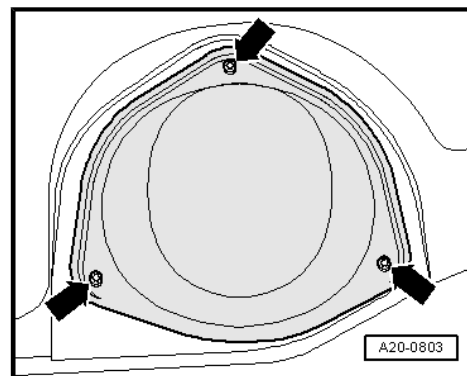


Procedure

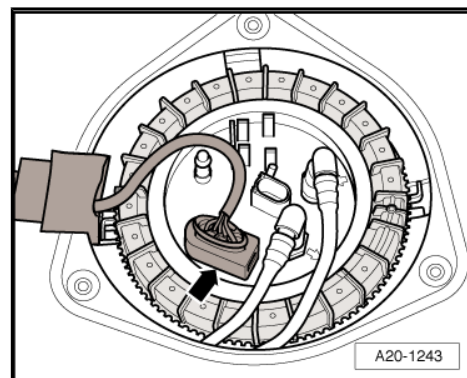
Observe test conditions ⇒ [page 3](#) .

Observe rules for cleanliness ⇒ [page 2](#) .

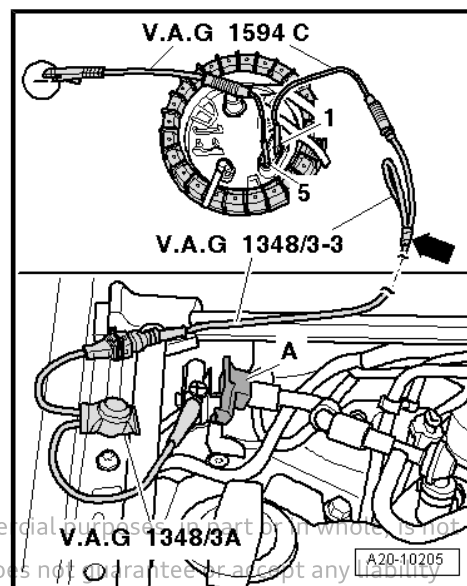
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange.



- 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.
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Release retaining clip and open cover -A- above positive terminal.
- Connect crocodile clip to positive terminal.
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Remove filler cap from fuel filler neck.



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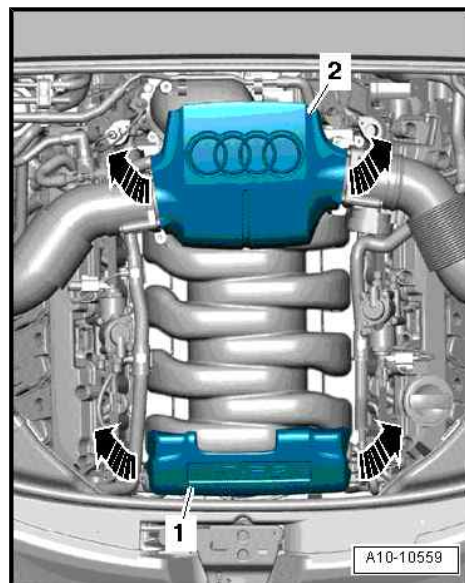


- Pull off rear engine cover panel -2- -arrows-.



Note

Disregard -item 1-.

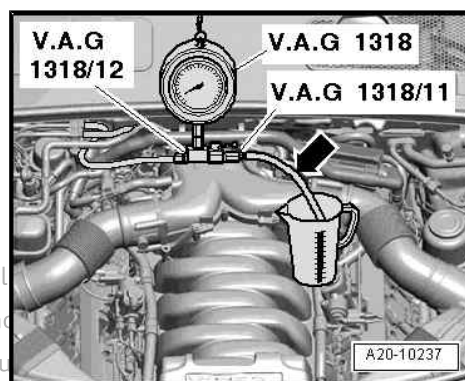
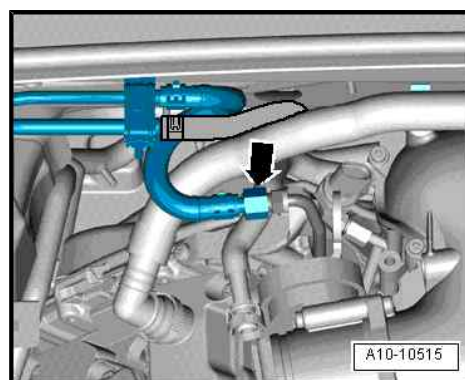


WARNING

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

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

- Disconnect fuel pipe -arrow- at fuel rail.
- Connect K-Jetronic pressure tester - V.A.G 1318- with adapters - V.A.G 1318/11- and -V.A.G 1318/12- to fuel pipe.
- Attach test hose -arrow- and hold end of hose in measuring container.
- Open cut-off valve on pressure tester.
- Lever must point in direction of flow.
- Build up pressure in fuel system by pressing remote control button and slowly closing cut-off valve on pressure tester.
- Specification: 4 bar
- From this point on do not move position of cut-off valve.
- Empty the measuring container.





- Press remote control button 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 minimum delivery rate is not reached, check for the following causes:

- ◆ Fuel lines have been crushed.
- ◆ Fuel filter is blocked.
- ◆ Fuel pump is defective.

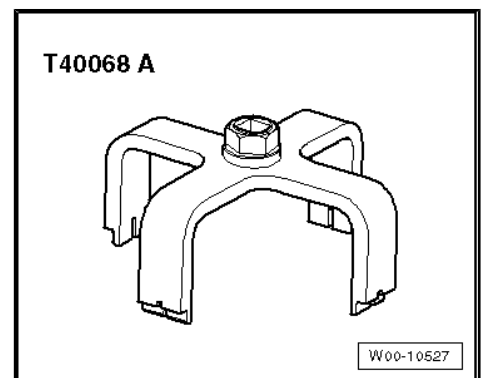
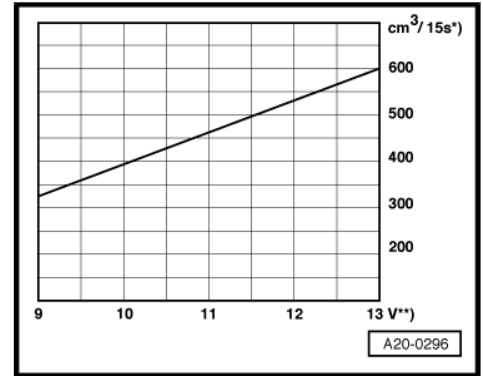
Installation is carried out in the reverse order; note the following:

- Secure fuel line to fuel rail → Rep. gr. 24 .

9.8 Removing and installing fuel delivery unit

Special tools and workshop equipment required

- ◆ Union nut tool - T40068 A-



Removing

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

Observe rules for cleanliness ⇒ [page 2](#) .



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 the tank if necessary. Procedure ⇒ [page 131](#)***

- Move front seats forwards, if necessary.



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27.*

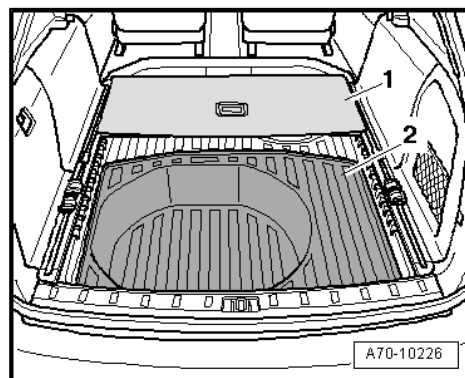
- Switch off ignition.

Saloon:

- Fold up luggage compartment floor lining.

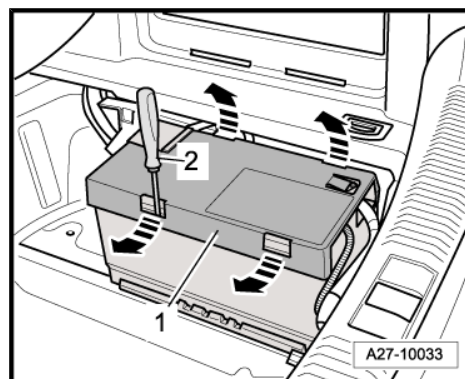
Avant:

- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.

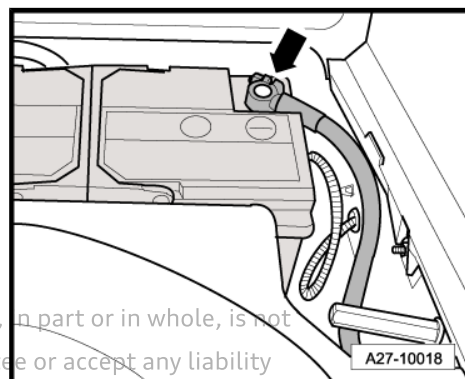


All vehicles:

- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.



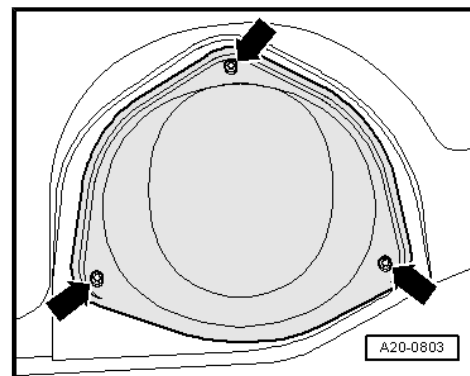
- Disconnect earth cable at negative terminal of battery -arrow-.



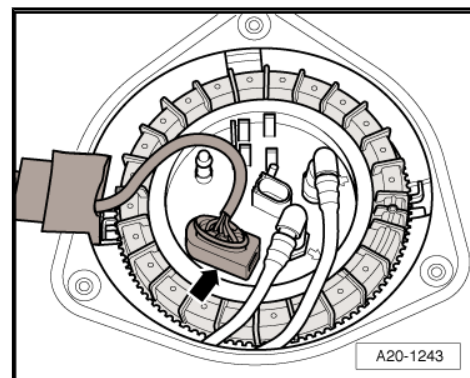
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- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange (right-side).



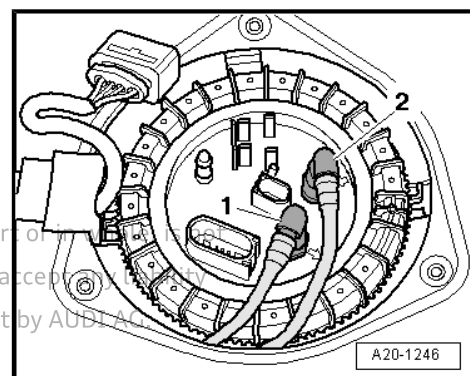
- Mark fuel supply line -1- and fuel return line -2-.

! WARNING

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

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

– Detach both lines from flange (press release tabs).



! WARNING

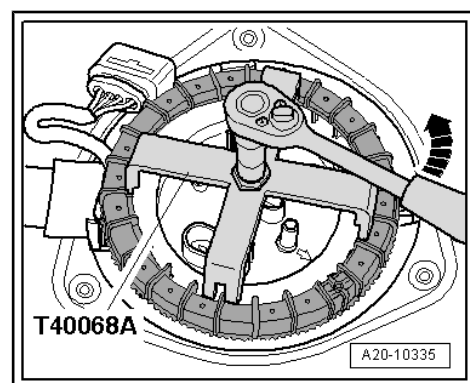
Danger! Fuel may escape.

◆ **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.**

- Use union nut tool - T40068 A- to unscrew union nut -arrow-.

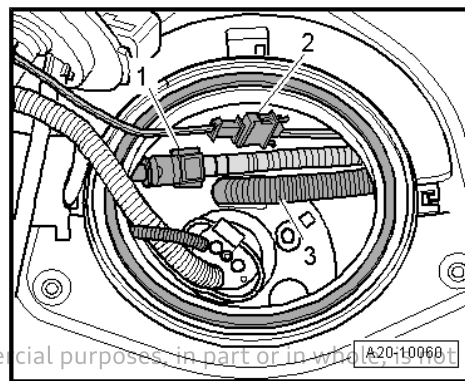
i Note

The plastic detent on the threaded ring will break off when the union nut is unscrewed - this can be disregarded.





- Take flange (right-side) of fuel delivery unit out of opening in fuel tank and move flange clear, leaving pipes connected.
- Reach into opening in fuel tank to unplug electrical connector -2- for fuel gauge sender 2 - G169- .
- Disconnect supply line -1- for suction-jet pump by pressing release tab.
- Disengage fuel supply line -3-.
- Remove fuel delivery unit.



Note

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- ◆ *When removing fuel delivery unit, make sure you do not bend float arm of fuel gauge sender -G- .*
- ◆ *Keep in mind that the fuel delivery unit still contains fuel.*

Installing

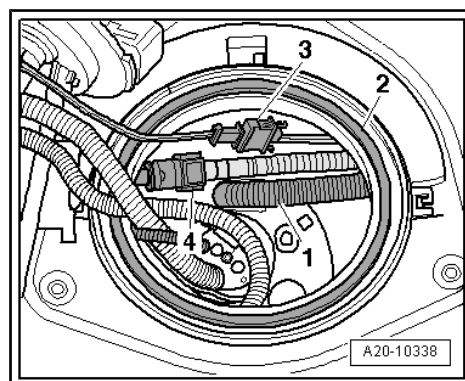
- Tightening torque ⇒ [page 142](#)

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



Note

- ◆ *Renew seal and union nut.*
- ◆ *Take care not to bend float arm of fuel gauge sender -G- when fitting fuel delivery unit.*
- ◆ *Ensure that fuel hoses are securely seated.*
- Insert fuel delivery unit into fuel tank, with flange set aside.
- Engage fuel supply line -1-.
- Fit supply line -4- leading to suction-jet pump so that it engages audibly.
- Plug in electrical connector -3- for fuel gauge sender 2 - G169- .
- Slip new seal -2- over flange and insert it in groove on fuel tank.



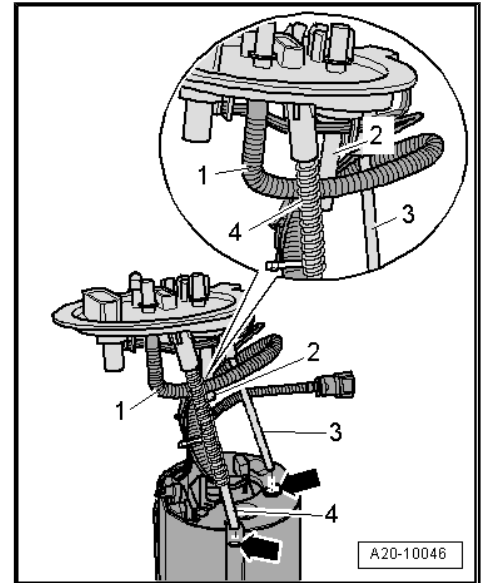


- Make sure wiring and fuel hoses are properly routed:
- The fuel supply line -1- must be routed between the guide tube -4- and the connecting piece -2- for fuel return line. Also make sure that it is routed around outside of guide tube -3-.
- Insert guide tubes -3- and -4- on flange into corresponding holes -arrows- in fuel delivery unit.



Note

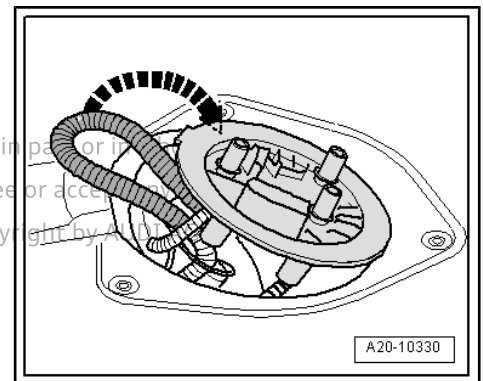
The fuel delivery unit is shown without the fuel tank for illustration purposes.



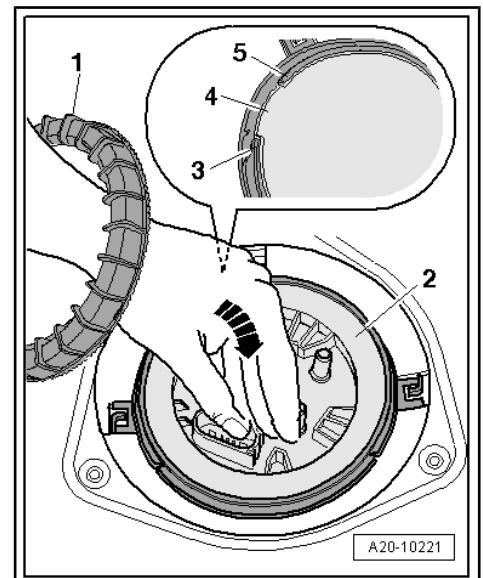
- Push fuel supply line in clockwise direction under flange to avoid obstructing movement of fuel gauge sender -G- .



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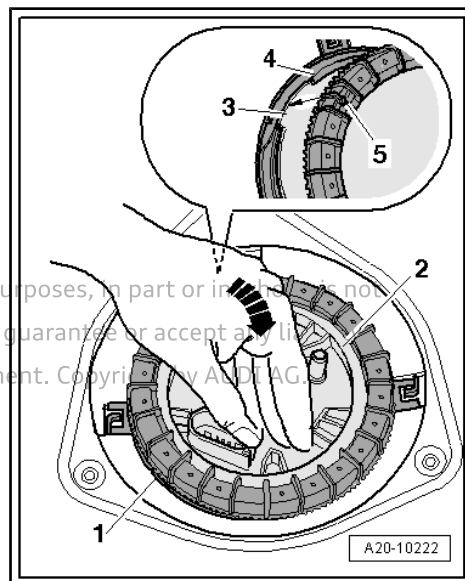
- Slip union nut -1- over your left arm and press flange -2- firmly into installation position -arrow- with your left hand.
- Lug -4- on flange must be between tabs -3- and -5- on threaded ring.



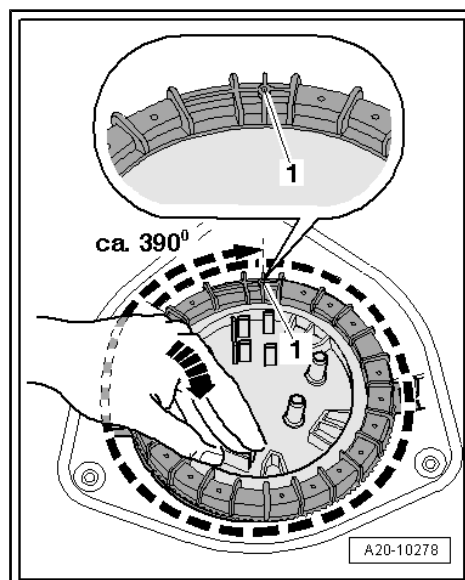


- Take union nut -1- off your left arm with your right hand and at the same time keep pressing down flange -2- firmly with your left hand -arrow-.
- Position union nut -1- with your right hand in such a way that double ridge -5- on ribs aligns with lug -3- of flange (approx. ten o'clock position). This will make union nut engage immediately with beginning of thread -4- when tightening.

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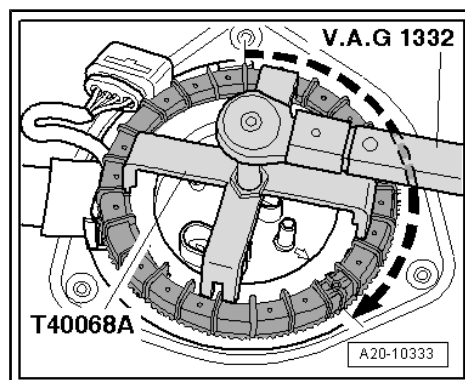
- Keep pressing flange downwards firmly.
- Turn locking ring approx. 390° with your right hand until double ridge -1- is in approx. twelve o'clock position and at the same time keep on pressing flange downwards firmly with your left hand.

**Caution**

Take care to avoid leakage at flange.

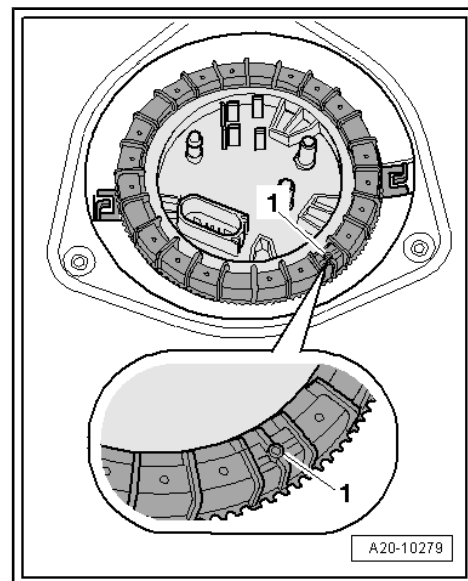
- ◆ *Press flange downwards firmly when tightening union nut to make sure flange does not also turn.*

- Use union nut tool - T40068 A- to tighten union nut for flange (right-side).
- Tightening torque: 120 Nm

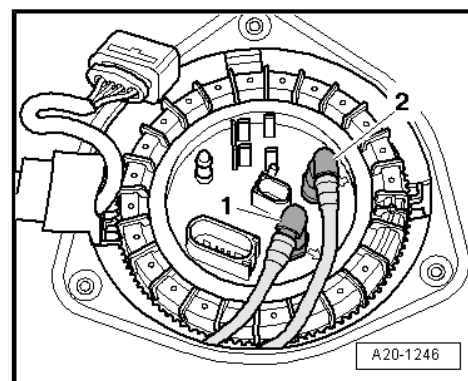




- Checking: Double ridge -1- must now be aligned between five o'clock and six o'clock position.



- Install fuel supply line -1- and fuel return line -2- (as marked).
- Plug in electrical connector.
- Install rear seat bench ⇒ Rep. gr. 72 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing fuel delivery unit.

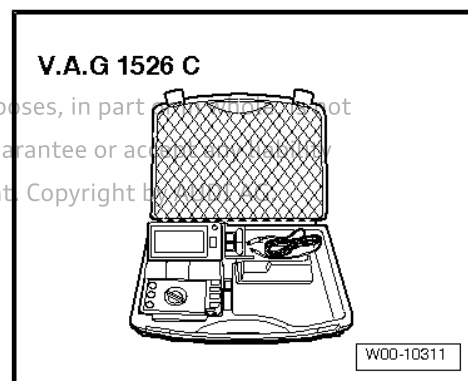


9.9 Checking fuel gauge sender - G-

Special tools and workshop equipment required

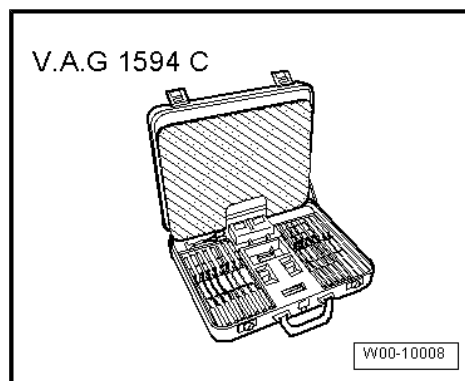
- ◆ Hand-held multimeter - V.A.G 1526C-

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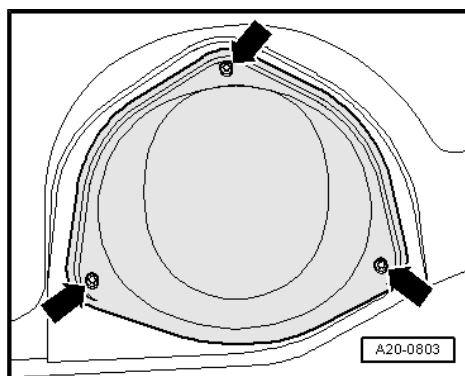


◆ Auxiliary measuring set - V.A.G 1594C-

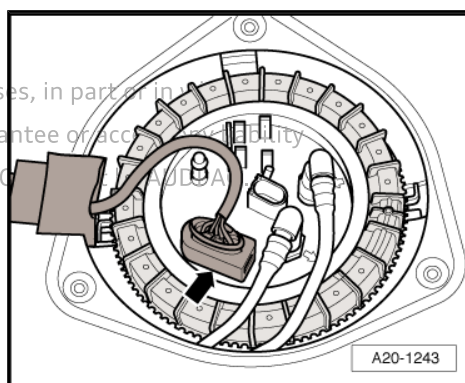


Procedure

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange.



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- Connect multimeter (resistance test) between contacts -2- and -3-.

Fuel gauge sender - G- installed:

- Sender at lower stop: approx. 760 ... 1003 Ω
- Sender at upper stop: approx. 70 ... 105 Ω



Note

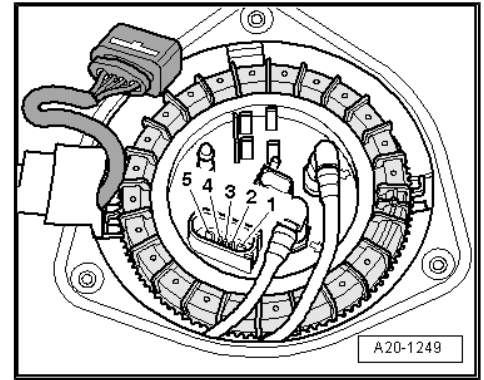
- ◆ *If the resistance is 0 Ω , there is a short circuit. If the resistance is ∞ Ω , there is an open circuit in the wiring.*
- ◆ *To test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel delivery unit ➔ [page 161](#) and move the sender float all the way to 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:*

Fuel gauge sender - G- removed:

- Sender at lower stop: approx. 1004 Ω .
- Sender at upper stop: approx. 50 Ω .

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

- Install rear seat bench ➔ Rep. gr. 72 .



9.10 Removing and installing fuel gauge sender - G-

Removing



Note

All cable ties which are released or cut open when removing must be refitted in the same position when installing.

Observe safety precautions ➔ [page 1](#) .

Observe rules for cleanliness ➔ [page 2](#) .

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- Remove fuel delivery unit ➔ [page 161](#) .
- Cut open cable tie -2- and detach electrical connector -1-.
- Use screwdriver to release retaining tabs -arrows- and lift out fuel gauge sender - G- .

Installing

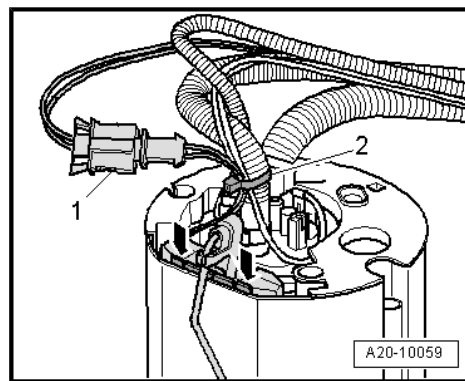
Installation is carried out in the reverse order; note the following:



Note

Fit cable tie in the original position when installing.

- Insert fuel gauge sender - G- into guides on fuel delivery unit and press downwards until it clicks into place.
- Plug in electrical connector and check that it has engaged properly.
- Install fuel delivery unit ➔ [page 164](#) , observing the instructions for connecting the battery.



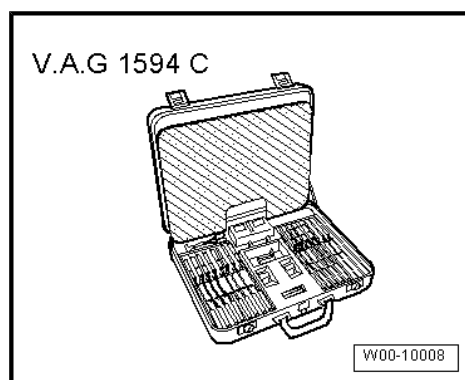
9.11 Checking fuel gauge sender 2 - G169-

Special tools and workshop equipment required

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



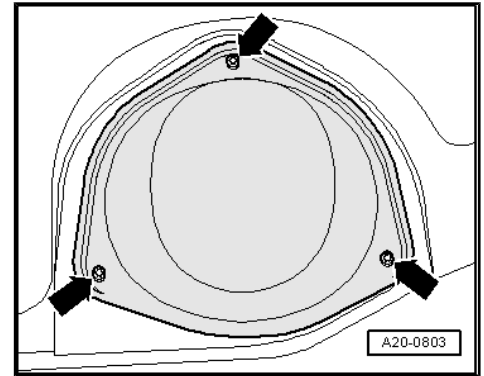
- ◆ Auxiliary measuring set - V.A.G 1594C-



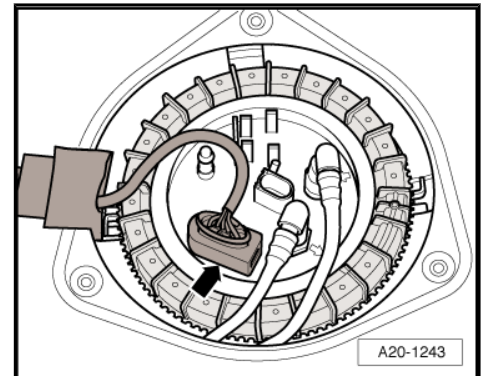


Procedure

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange.



- Connect multimeter (resistance test) between contacts -3- and -4-.

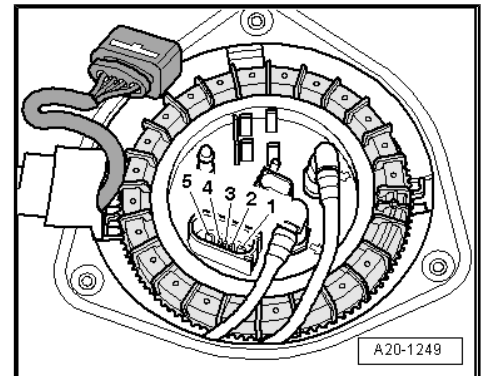
With fuel gauge sender 2 - G169- installed:

- Sender at lower stop: approx. 790 ... 975 Ω
- Sender at upper stop: approx. 50 ... 86 Ω



Note

- ◆ If the resistance is 0 Ω , there is a short circuit. If the resistance is ∞ Ω , there is an open circuit in the wiring.
- ◆ In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 2 - G169- ⇒ [page 171](#) and move the float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender removed, due to the greater travel of the float arm:



With fuel gauge sender 2 - G169- removed:

- Sender at lower stop: approx. 1004 Ω .
- Sender at upper stop: approx. 50 Ω .

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

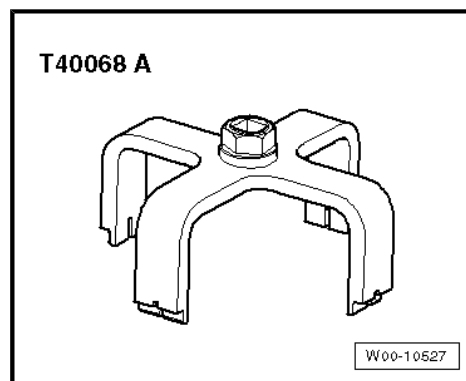
- Install rear seat bench ⇒ Rep. gr. 72 .

9.12 Removing and installing fuel gauge sender 2 - G169-

Special tools and workshop equipment required



- ◆ Union nut tool - T40068 A-



Removing

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

Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Large amounts of fuel can escape.

- ◆ *The fuel tank must not be more than $\frac{1}{4}$ full when removing the fuel gauge sender 2 -G169- ; otherwise a large amount of fuel will escape. Drain the tank if necessary. Procedure ⇒ [page 131](#)*



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27 .*

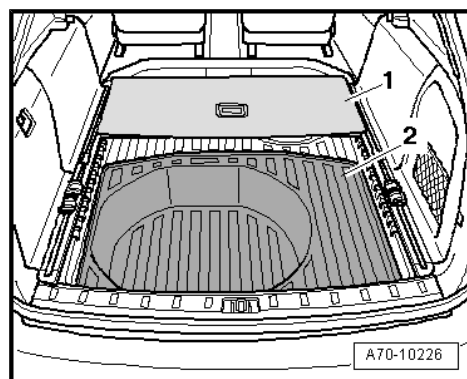
- Switch off ignition.

Saloon:

- Fold up luggage compartment floor lining.

Avant:

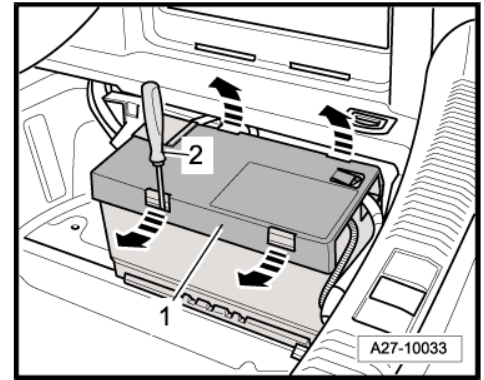
- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.



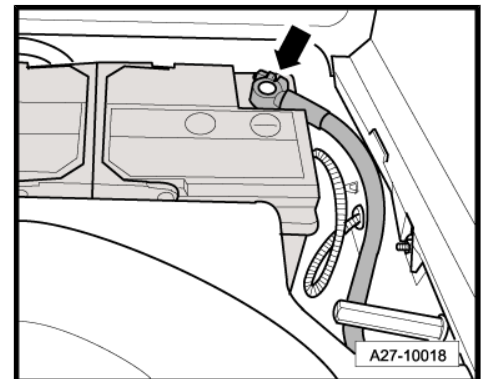


All vehicles:

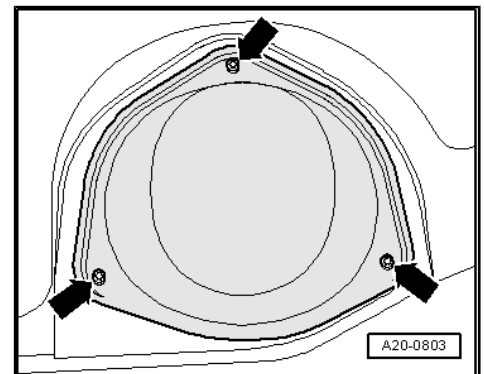
- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.



- Disconnect earth cable at negative terminal of battery -arrow-.



- Remove rear seat bench ⇒ Rep. gr. 72 .
- Detach cover for flange (left-side) -arrows-.

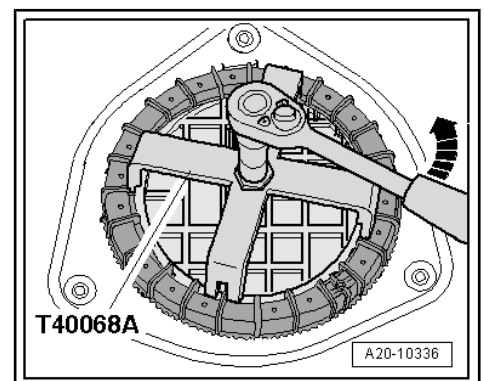


WARNING

Large amounts of fuel can escape.

- ♦ *The fuel tank must not be more than $\frac{1}{4}$ full when removing the fuel gauge sender 2 -G169- ; otherwise a large amount of fuel will escape.*

- Use union nut tool - T40068 A- to unscrew union nut (left-side) -arrow-.



Note

The plastic detent on the threaded ring will break off when the union nut is unscrewed - this can be disregarded.

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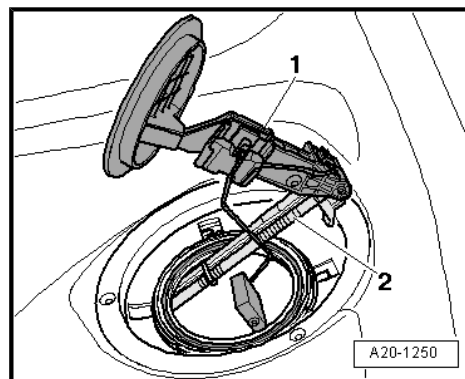


- Carefully pull fuel gauge sender 2 - G169- -item 1- together with suction-jet pump -2- just slightly out of opening in fuel tank.



Note

When removing, make sure you do not bend float arm of fuel gauge sender 2 -G169- .



- Unclip suction-jet pump from flange.
- Unplug electrical connector -1-.
- Use screwdriver to release retaining tabs -arrows- and detach fuel gauge sender 2 - G169- .

Installing

- Tightening torque ⇒ [page 142](#)

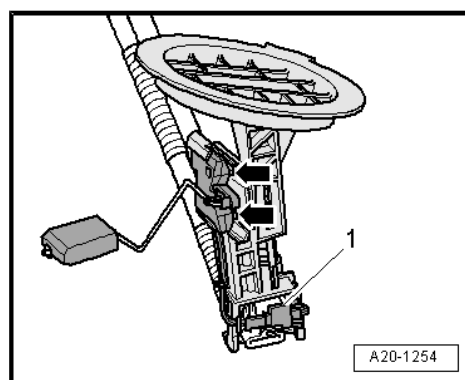
Installation is carried out in the reverse order; note the following:



Note

Renew seal and union nut.

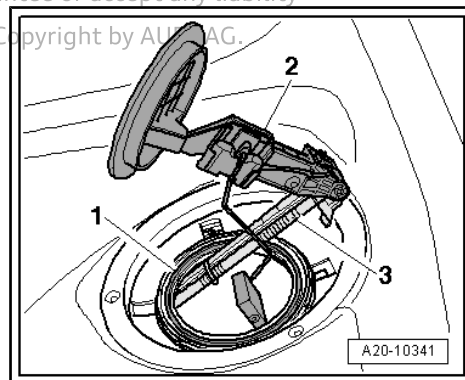
- Insert fuel gauge sender 2 - G169- into guides on flange and press in until it engages.
- Plug in electrical connector and check that it has engaged properly.
- Clip suction-jet pump -3- onto flange -2-, so that you hear it click into place.
- Make sure that fuel supply line is connected to supply line for suction-jet pump with at least 3 cable ties.



Note

When installing, make sure you do not bend float arm of fuel gauge sender 2 -G169- .

- Carefully insert fuel gauge sender 2 - G169- into opening in fuel tank.
- Slip new seal -1- over flange and insert it in groove on fuel tank.



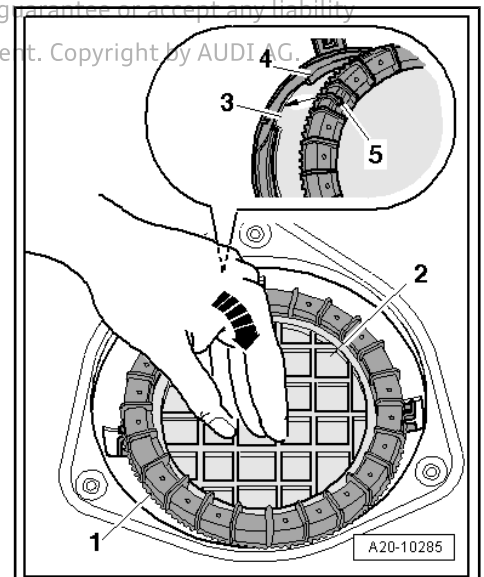
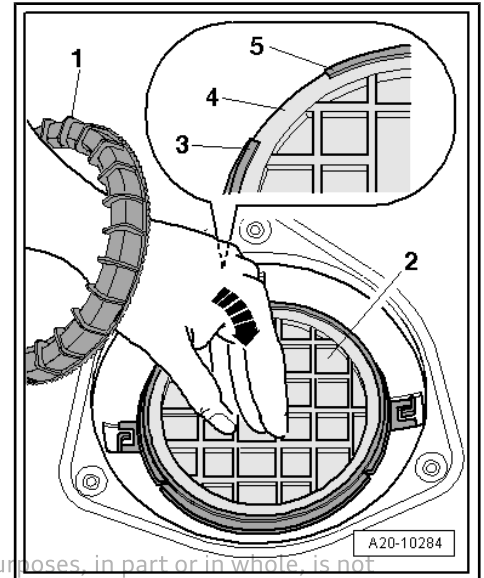


- Slip union nut -1- over your left arm and press flange -2- firmly into installation position -arrow- with your left hand.
- Lug -4- on flange must be between tabs -3- and -5- on threaded ring.

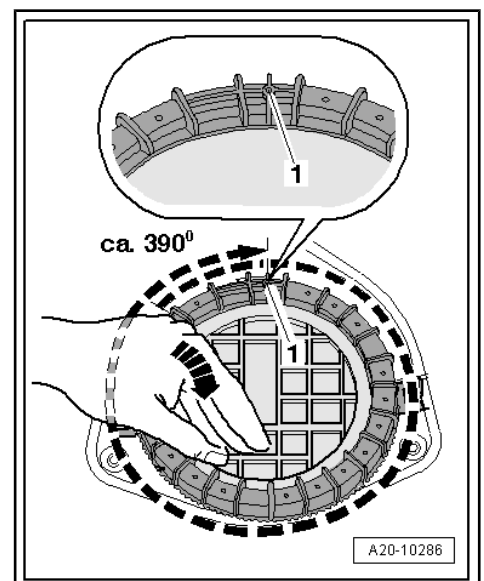


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- Take union nut -1- off your left arm with your right hand and at the same time keep pressing down flange -2- firmly with your left hand -arrow-.
- Position union nut -1- with your right hand in such a way that double ridge -5- on ribs aligns with lug -3- of flange (approx. ten o'clock position). This will make union nut engage immediately with beginning of thread -4- when tightening.



- Keep pressing flange downwards firmly.
- Turn locking ring approx. 390° with your right hand until double ridge -1- is in approx. twelve o'clock position and at the same time keep on pressing flange downwards firmly with your left hand.





Caution

Take care to avoid leakage at flange.

- ◆ *Press flange downwards firmly when tightening union nut to make sure flange does not also turn.*

– Use union nut tool - T40068 A- to tighten union nut for flange (left-side).

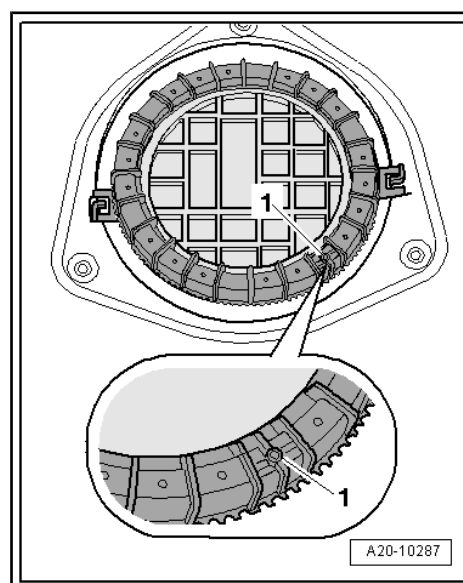
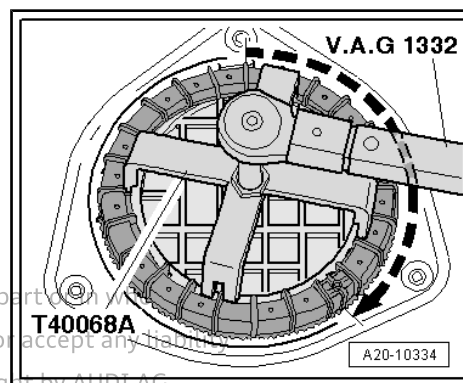
• Tightening torque: 120 Nm

• Checking: Double ridge -1- must now be aligned between five o'clock and six o'clock position.

– Install rear seat bench ⇒ Rep. gr. 72 .

– Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .

– Put at least 5 litres of fuel into tank after installing fuel gauge sender 2 - G169- .



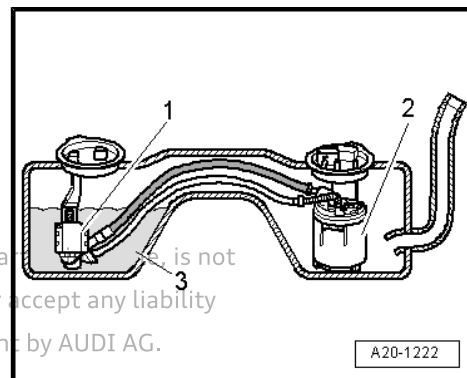


9.13 Suction-jet pump

On vehicles with four-wheel drive the fuel tank is divided into a left and a right chamber. A so-called suction-jet pump -1- is used for delivering the fuel from the left fuel tank chamber -3- to the baffle housing of the fuel delivery unit -2- 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.*

If suction-jet pump is not working, up to 20 litres of fuel (up to about $\frac{1}{4}$ of tank capacity) may remain in the left chamber of the tank, where it cannot enter 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 ⇒ [page 144](#) .

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

- Put another 5 litres (approx.) of fuel into tank.
- Start engine.

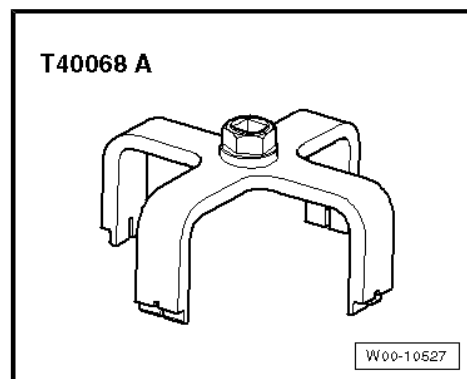
If engine now starts:

- Renew suction-jet pump ⇒ [page 177](#) .

9.14 Removing and installing suction-jet pump

Special tools and workshop equipment required

- ◆ Union nut tool - T40068 A-



Removing

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



Observe rules for cleanliness ⇒ [page 2](#) .



WARNING

Danger! Fuel may escape.

- ◆ ***The fuel tank must not be more than $\frac{1}{4}$ full when removing the suction-jet pump, otherwise a large amount of fuel will escape. Drain the tank if necessary. Procedure ⇒ [page 131](#)***

- Move front seats forwards, if necessary.



Caution

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

- ◆ ***Observe notes on procedure for disconnecting the battery ⇒ Rep. gr. 27 .***

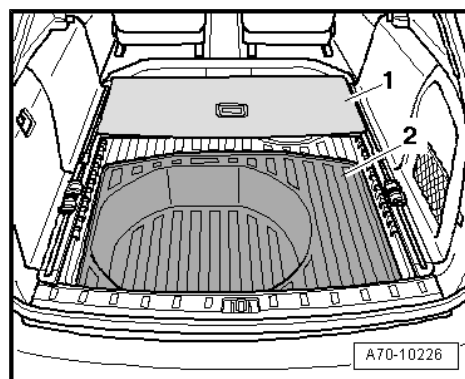
- Switch off ignition.

Saloon:

- Fold up luggage compartment floor lining.

Avant:

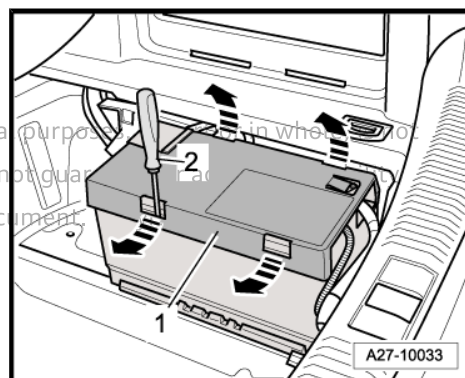
- Take out luggage compartment floor -1- and spare wheel cover (low version) -2-.



All vehicles:

- Use screwdriver -2- to release retaining clips -arrows- and detach cover -1-.

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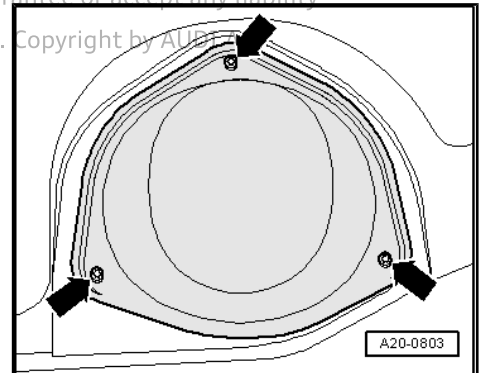
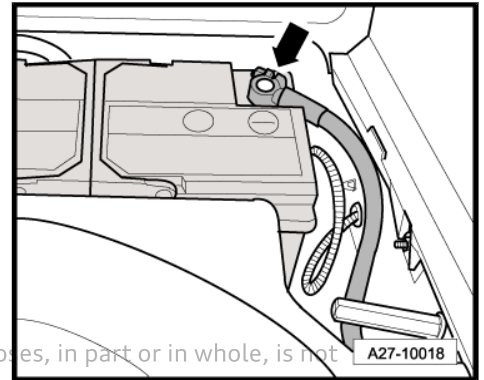


- Disconnect earth cable at negative terminal of battery -arrow-.

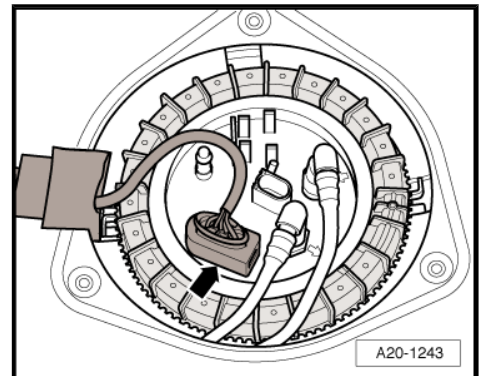


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- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -arrow- at flange.



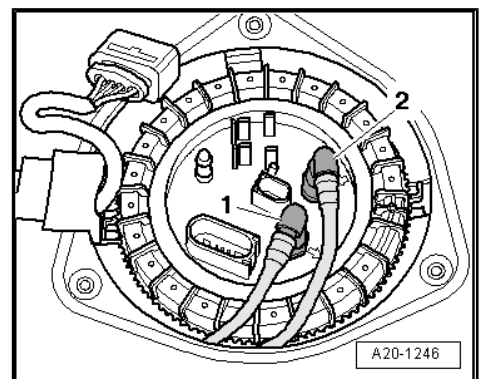
- Mark fuel supply line -1- and fuel return line -2-.



WARNING

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

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



- Detach both lines from flange (press release tabs).

**WARNING*****Danger! Fuel may escape.***

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

- Use union nut tool - T40068 A- to unscrew union nut (right-side) -arrow-.

**Note**

The plastic detent on the threaded ring will break off when the union nut is unscrewed - this can be disregarded.

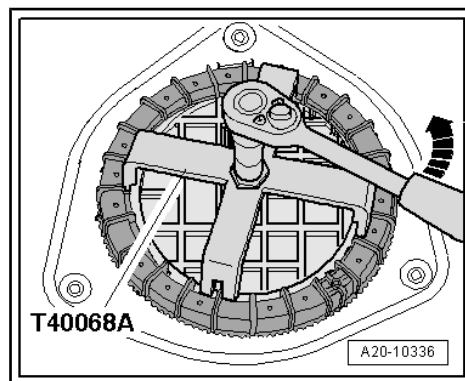
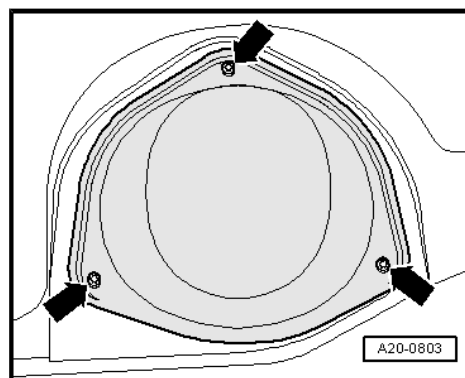
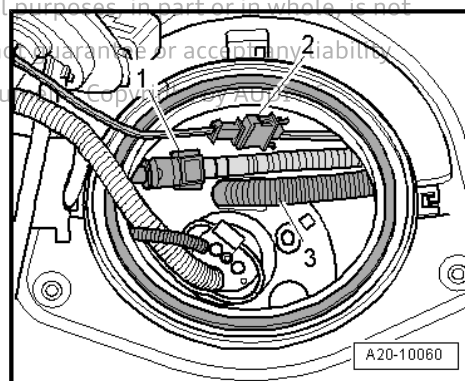
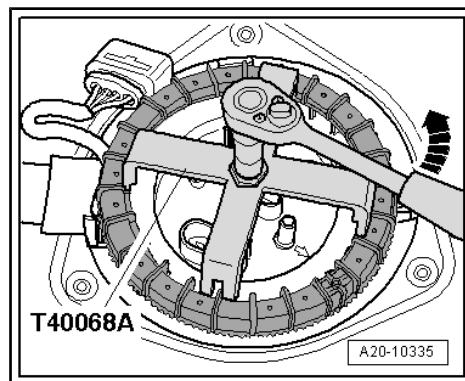
- Take flange (right-side) of fuel delivery unit out of opening in fuel tank and move flange clear, leaving pipes connected.
- Reach into opening in fuel tank to unplug electrical connector -2- for fuel gauge sender 2 - G169- .
- Disconnect supply line -1- for suction-jet pump by pressing release tab.
- Disengage fuel supply line -3-.

- Detach cover for flange (left-side) -arrows-.

- Use union nut tool - T40068 A- to unscrew union nut (left-side) -arrow-.

**Note**

The plastic detent on the threaded ring will break off when the union nut is unscrewed - this can be disregarded.





- Carefully pull fuel gauge sender 2 - G169- -item 1- and suction-jet pump -2- towards left, out of opening in fuel tank.

i Note

When removing, make sure you do not bend float arm of fuel gauge sender 2 -G169- .

Installing

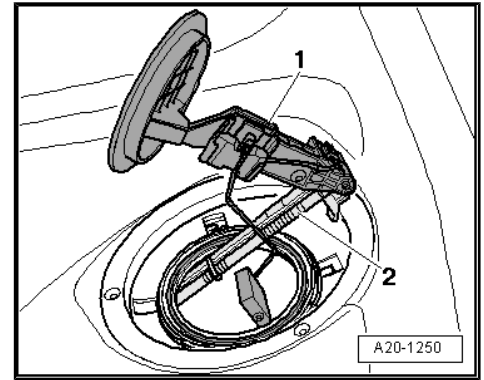
- Tightening torque ➔ [page 142](#)

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

i Note

Renew seals and union nuts.

- Prepare suction-jet pump -5- for installation:
- Guide supply line for suction-jet pump -1- over top of supply line -4- -arrow-, as shown in illustration.
- Secure supply line for suction-jet pump and fuel supply line with a total of 3 cable ties (two of them are visible in illustration -items 2 and 3-).

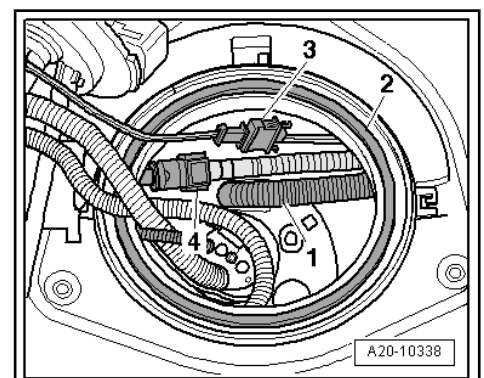
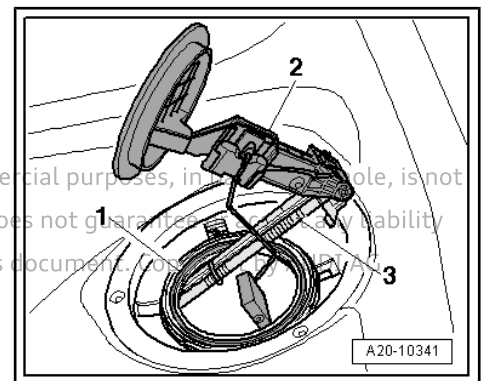
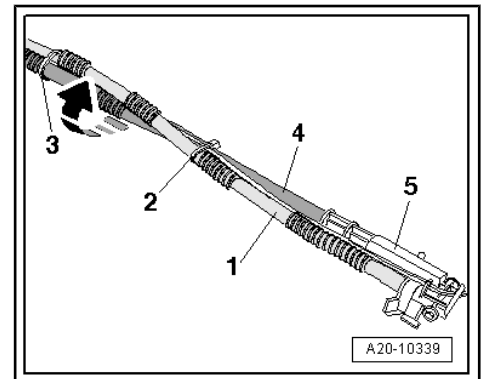


- Plug in electrical connector and check that it has engaged properly.
- Clip suction-jet pump -3- onto flange -2-, so that you hear it click into place.

i Note

When installing, make sure you do not bend float arm of fuel gauge sender 2 -G169- .

- Push suction-jet pump (with pipes attached) into fuel tank opening on left side of vehicle.
- Slip new seal -1- over flange and insert it in groove on fuel tank.
- Reach into fuel tank opening on right side of vehicle and pull suction-jet pump with pipes into the installation position.
- Engage fuel supply line -1-.
- Fit supply line -4- leading to suction-jet pump so that it engages audibly.
- Plug in electrical connector -3- for fuel gauge sender 2 - G169- .
- Slip new seal -2- over flange and insert it in groove on fuel tank.



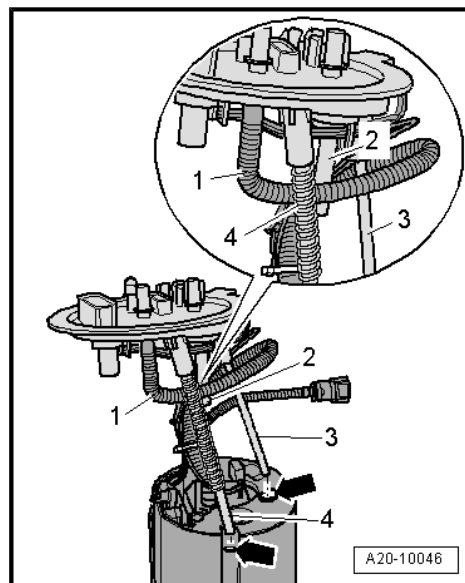


- Make sure wiring and fuel hoses are properly routed:
- The fuel supply line -1- must be routed between the guide tube -4- and the connecting piece -2- for fuel return line. Also make sure that it is routed around outside of guide tube -3-.
- Insert guide tubes -3- and -4- on flange into corresponding holes -arrows- in fuel delivery unit.

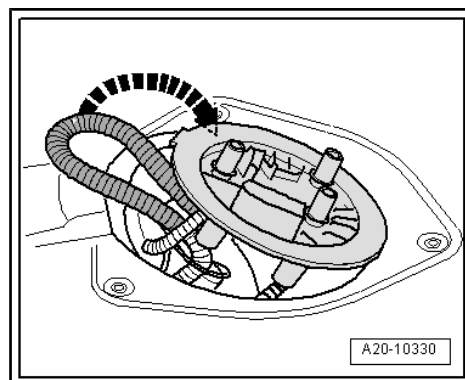


Note

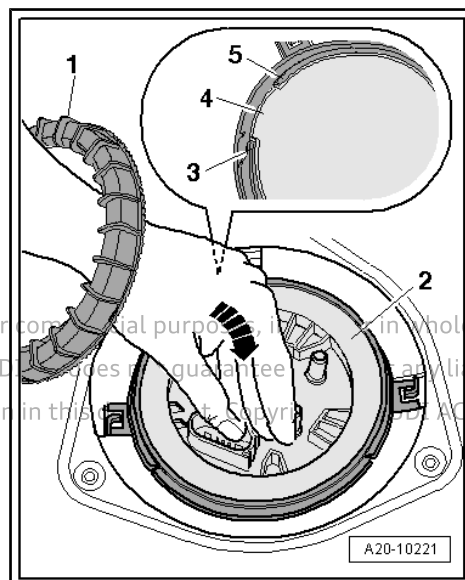
The fuel delivery unit is shown without the fuel tank for illustration purposes.



- Push fuel supply line in clockwise direction under flange to avoid obstructing movement of fuel gauge sender -G- .



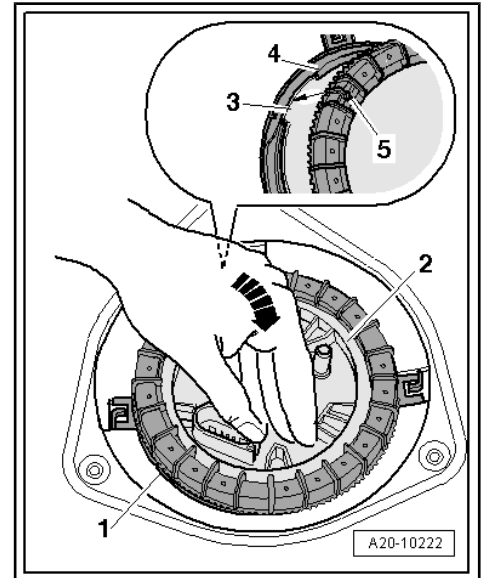
- Slip union nut -1- over your left arm and press flange -2- firmly into installation position -arrow- with your left hand.
- Lug -4- on flange must be between tabs -3- and -5- on threaded ring.



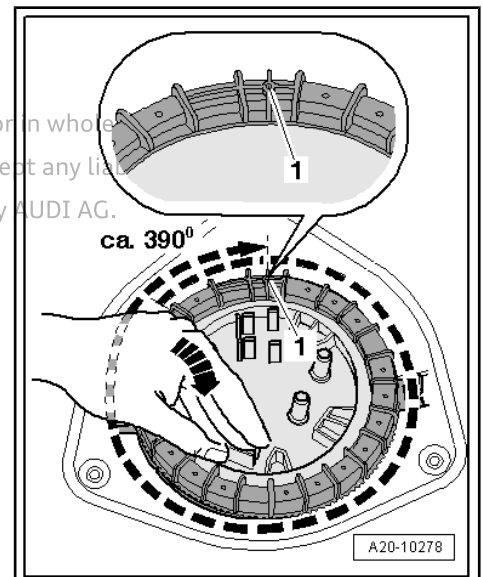
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- Take union nut -1- off your left arm with your right hand and at the same time keep pressing down flange -2- firmly with your left hand -arrow-.
- Position union nut -1- with your right hand in such a way that double ridge -5- on ribs aligns with lug -3- of flange (approx. ten o'clock position). This will make union nut engage immediately with beginning of thread -4- when tightening.



- Keep pressing flange downwards firmly.
- Turn locking ring approx. 390° with your right hand until double ridge -1- is in approx. twelve o'clock position and at the same time keep on pressing flange downwards firmly with your left hand.

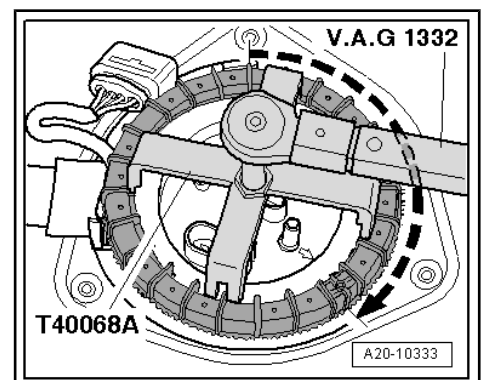


Caution

Take care to avoid leakage at flange.

- ◆ *Press flange downwards firmly when tightening union nut to make sure flange does not also turn.*

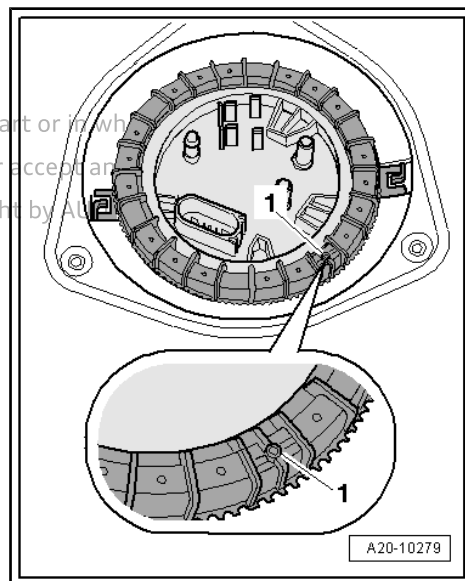
- Use union nut tool - T40068 A- to tighten union nut for flange (right-side).
- Tightening torque: 120 Nm



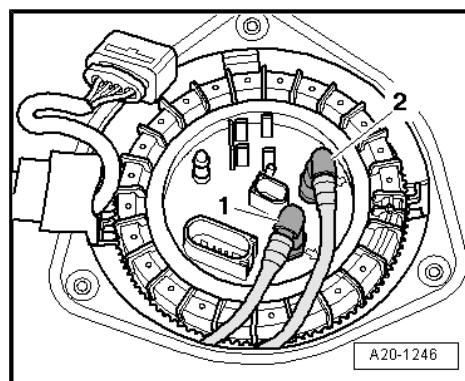


- Checking: Double ridge -1- must now be aligned between five o'clock and six o'clock position.

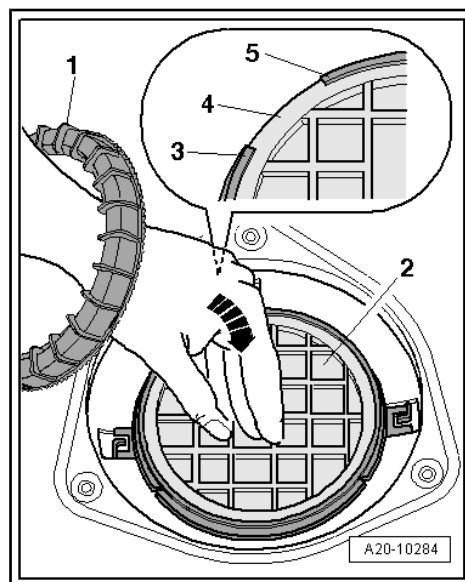
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- Install fuel supply line -1- and fuel return line -2- (as marked).
- Plug in electrical connector.

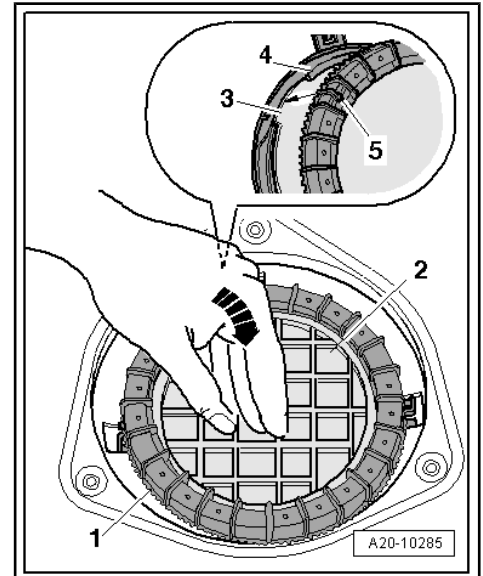


- Slip union nut -1- over your left arm and press flange -2- firmly into installation position -arrow- with your left hand.
- Lug -4- on flange must be between tabs -3- and -5- on threaded ring.





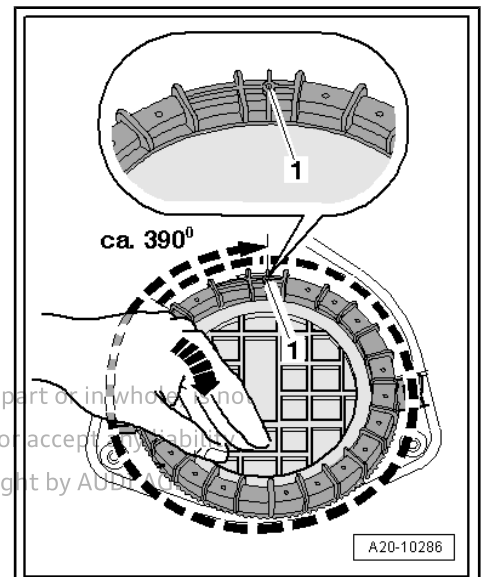
- Take union nut -1- off your left arm with your right hand and at the same time keep pressing down flange -2- firmly with your left hand -arrow-.
- Position union nut -1- with your right hand in such a way that double ridge -5- on ribs aligns with lug -3- of flange (approx. ten o'clock position). This will make union nut engage immediately with beginning of thread -4- when tightening.



- Keep pressing flange downwards firmly.
- Turn locking ring approx. 390° with your right hand until double ridge -1- is in approx. twelve o'clock position and at the same time keep on pressing flange downwards firmly with your left hand.



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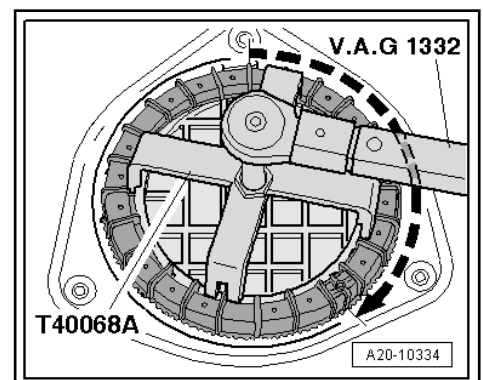


Caution

Take care to avoid leakage at flange.

- ◆ **Press flange downwards firmly when tightening union nut to make sure flange does not also turn.**

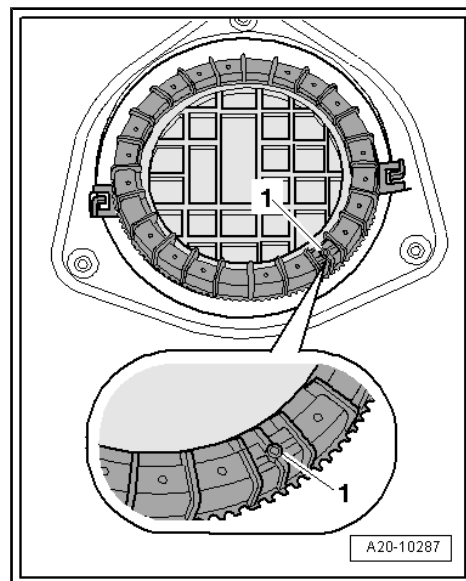
- Use union nut tool - T40068 A- to tighten union nut for flange (left-side).
- Tightening torque: 120 Nm





Checking: Double ridge -1- must now be aligned between five o'clock and six o'clock position.

- Install rear seat bench ⇒ Rep. gr. 72 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing suction-jet pump



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10 Fuel filter

10.1 Exploded view - fuel filter (rest-of-world vehicles with front-wheel drive)

1 - Bracket

- ☐ For fuel filter
- ☐ Attached to fuel tank

2 - Bolt

- ☐ 1.2 Nm

3 - Fuel supply line

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

4 - Fuel return line

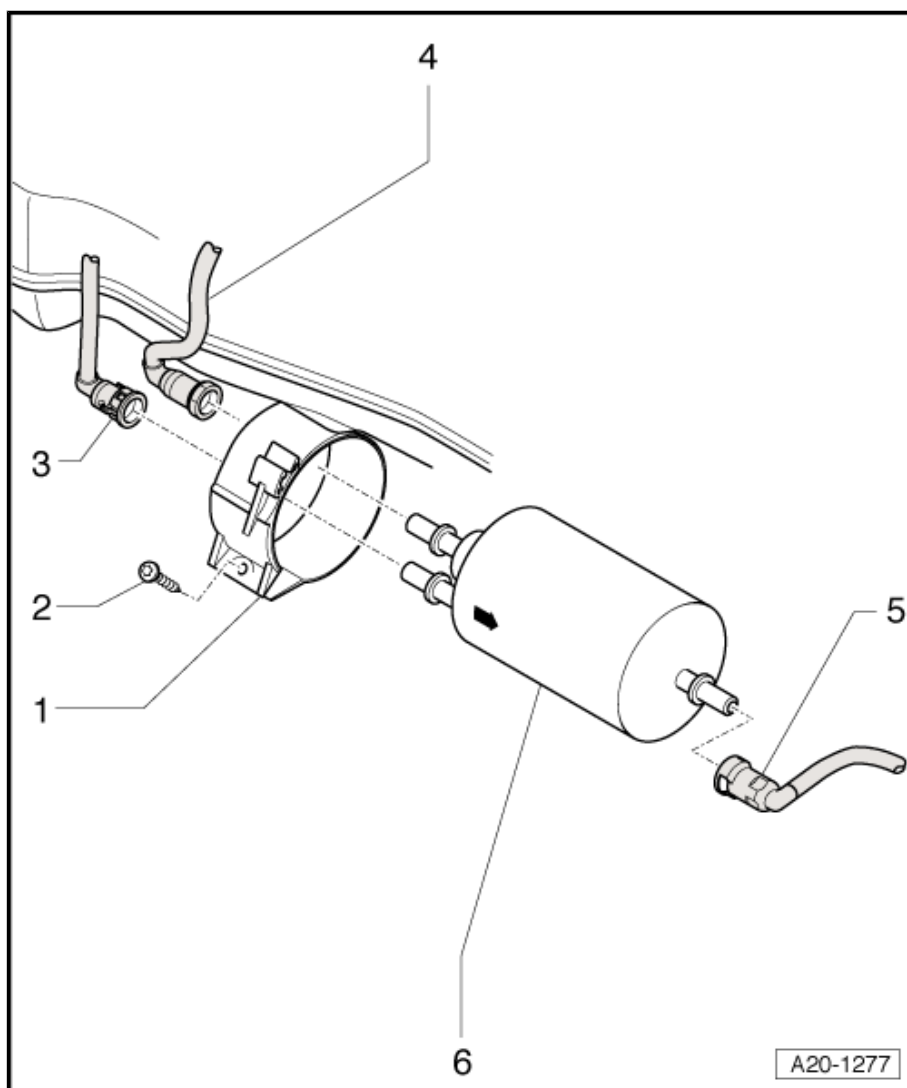
- ☐ To fuel tank
- ☐ Press release tab on connection piece to disconnect

5 - Fuel line

- ☐ To engine
- ☐ Press release tab on connection piece to disconnect

6 - Fuel filter with fuel pressure regulator

- ☐ FSI engines: 6 bar
- ☐ MPI engines: 4 bar
- ☐ Flow direction is marked by arrows
- ☐ Do not interchange connections
- ☐ Removing and installing
⇒ [page 188](#)
- ☐ Installation position
⇒ [page 189](#)



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10.2 Exploded view - fuel filter (rest-of-world vehicles with four-wheel drive and USA vehicles with front-wheel drive/four-wheel drive)

1 - Bolt

- 1.2 Nm

2 - Fuel tank with retainer

- For fuel filter

3 - Fuel filter with fuel pressure regulator

- FSI engines: 6 bar
- MPI engines: 4 bar
- Flow direction is marked by arrows
- Do not interchange connections
- Removing and installing
⇒ [page 188](#)
- Installation position
⇒ [page 189](#)

4 - Fuel line

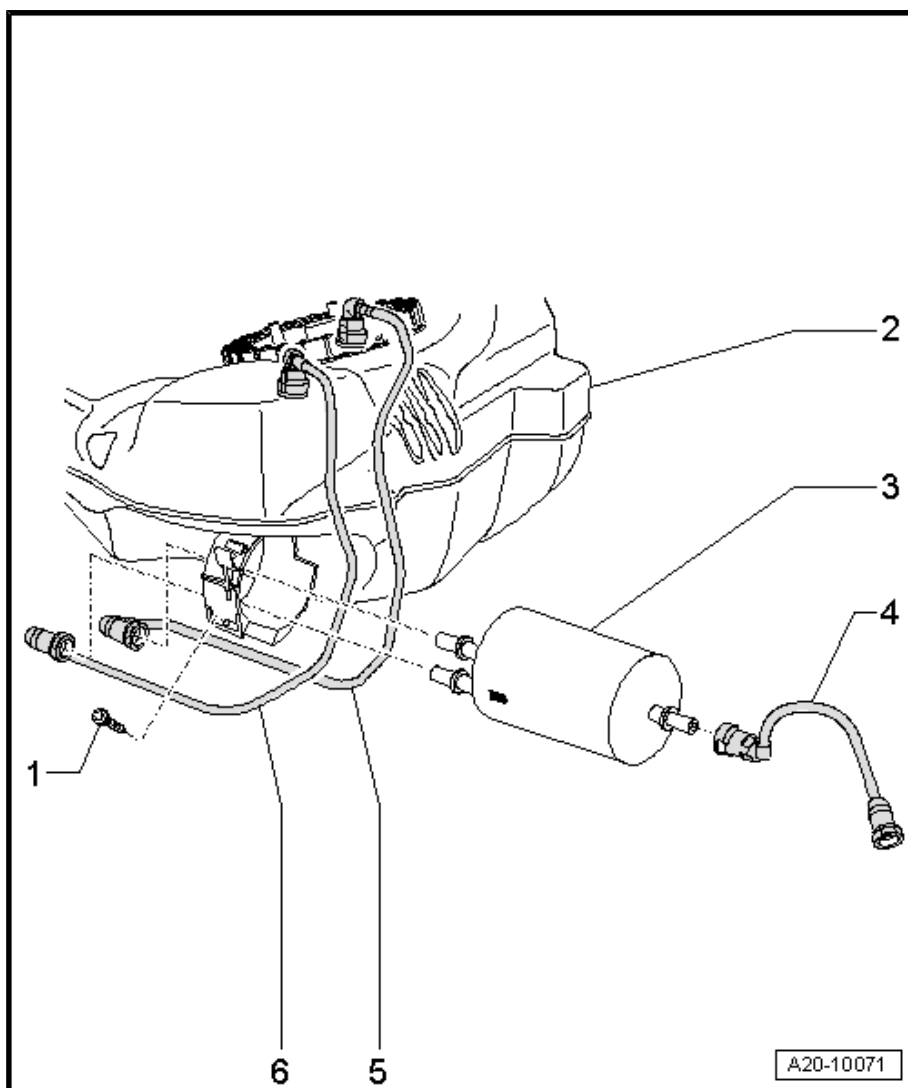
- To engine
- Press release tab on connection piece to disconnect

5 - Fuel return line

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

6 - Fuel supply line

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



10.3 Removing and installing fuel filter

Special tools and workshop equipment required

◆ Reservoir

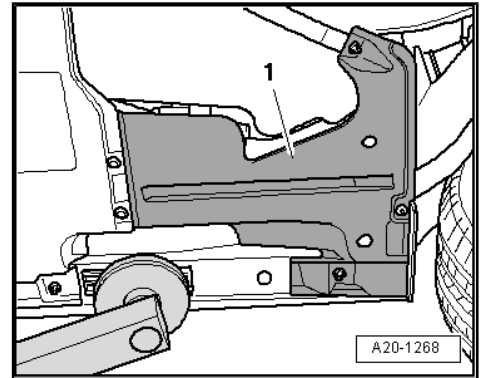
Removing

Observe safety precautions ⇒ [page 1](#)

Observe rules for cleanliness ⇒ [page 2](#)



- Remove cover -1- on rear right side of fuel tank.



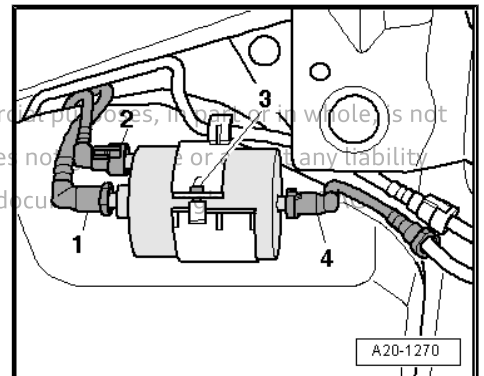
- Place drip tray below fuel filter.



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 lines -1-, -2- and -4- by pressing release tabs.
- Remove bolt -3-.
- Remove fuel filter.



Note

Illustration shows front-wheel drive vehicle.

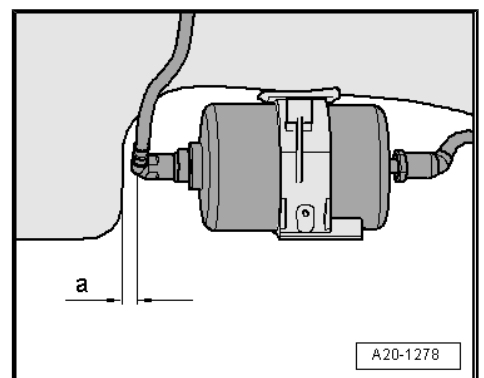
Installing

- Tightening torque ⇒ [page 187](#)

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

Installation position:

- Flow direction is indicated by arrows on filter housing.
- Distance -a- = 10 ... 14 mm between fuel return line at fuel filter and fuel tank.





11 Activated charcoal filter system - rest-of-world vehicles

11.1 Exploded view - activated charcoal filter system

1 - Breather line

- ☐ From fuel tank
- ☐ Press release tab on connection piece to disconnect
- ☐ Secured to underside of vehicle (right-side)

2 - Breather line

- ☐ To fuel tank
- ☐ Press release tab on connection piece to disconnect
- ☐ Disconnect at front below underbody cover (right-side)

3 - Bolt

- ☐ 1.5 Nm

4 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Press release tab on connection piece to disconnect
- ☐ Connection point below wheel housing liner (front right)

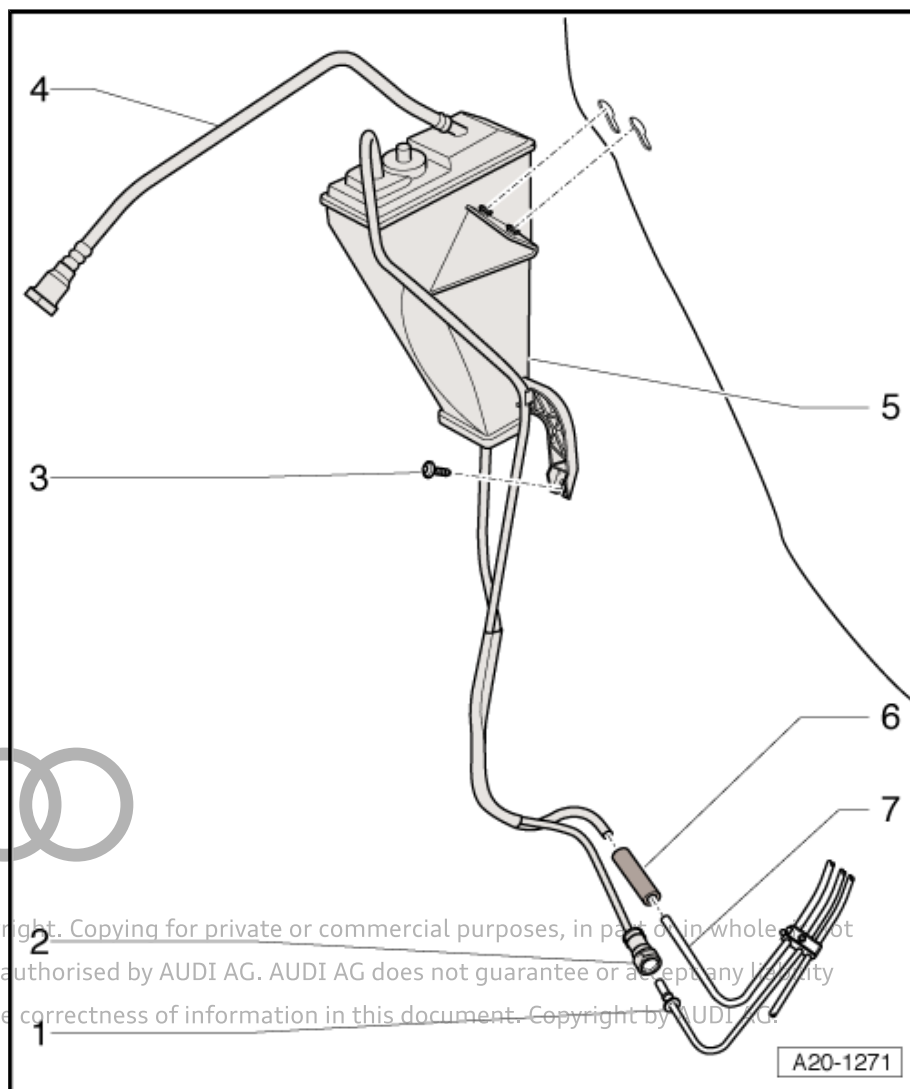
5 - Activated charcoal filter

- ☐ Beneath wheel housing liner (front right)
- ☐ Removing and installing
⇒ [page 190](#)

6 - Connecting hose

7 - Vent line

- ☐ Secured to underside of vehicle (right-side)
- ☐ Open to atmosphere at rear of vehicle



11.2 Removing and installing activated charcoal filter

Removing

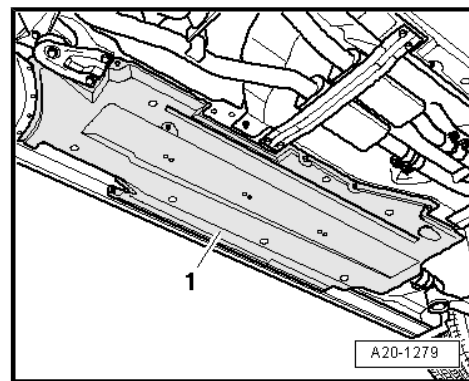
Observe safety precautions ⇒ [page 1](#) .

Observe rules for cleanliness ⇒ [page 2](#) .

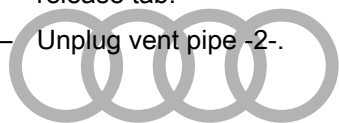
- Remove front wheel (right-side).
- Remove front right wheel housing liner ⇒ Rep. gr. 66 .



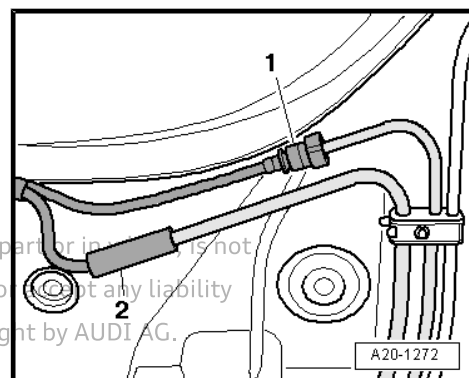
- Remove cover panel -1- from underbody (front right).



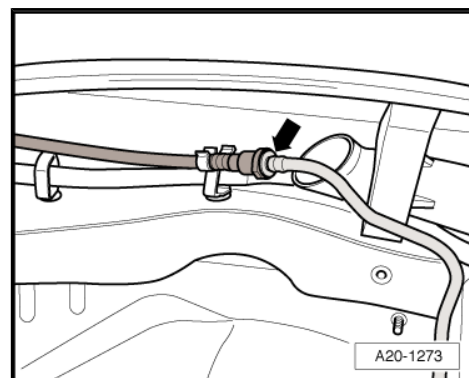
- Disconnect breather pipe -1- leading to fuel tank by pressing release tab.
- Unplug vent pipe -2-.



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- Disconnect breather pipe -arrow- leading to activated charcoal filter solenoid valve 1 - N80- by pressing release tab.



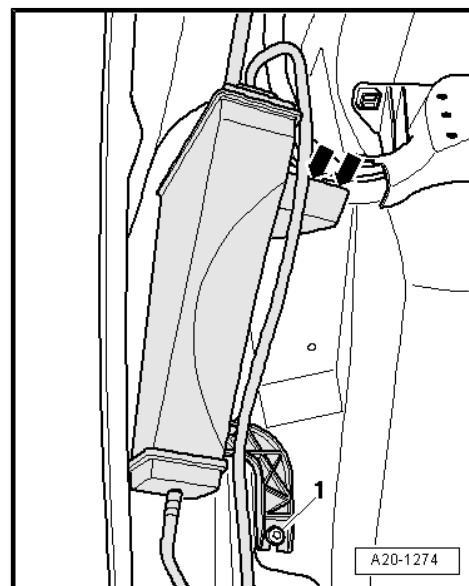
- Unscrew bolt -1- and detach activated charcoal filter at top -arrows-.
- Remove activated charcoal filter with breather lines.

Installing

- Tightening torque ⇒ [page 190](#)

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

- Install activated charcoal filter at top -arrows-.
- Secure activated charcoal filter to wheel housing.



11.3 Exploded view - activated charcoal filter system, Audi RS 6



1 - Bolt

- ☐ 19 Nm

2 - Cover

- ☐ For activated charcoal filter

3 - Sealing element

4 - Breather line

- ☐ From filler neck on fuel tank
- ☐ Press release ring on activated charcoal filter to disconnect

5 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Press release ring on activated charcoal filter to disconnect
- ☐ Clip onto fuel tank

6 - Connecting hose

- ☐ Activated charcoal filter/air cleaner

7 - Air cleaner

- ☐ For activated charcoal filter
- ☐ Maintenance-free
- ☐ Fitting location: in rear left wheel housing beneath liner
- ☐ Removing and installing ⇒ [page 194](#)

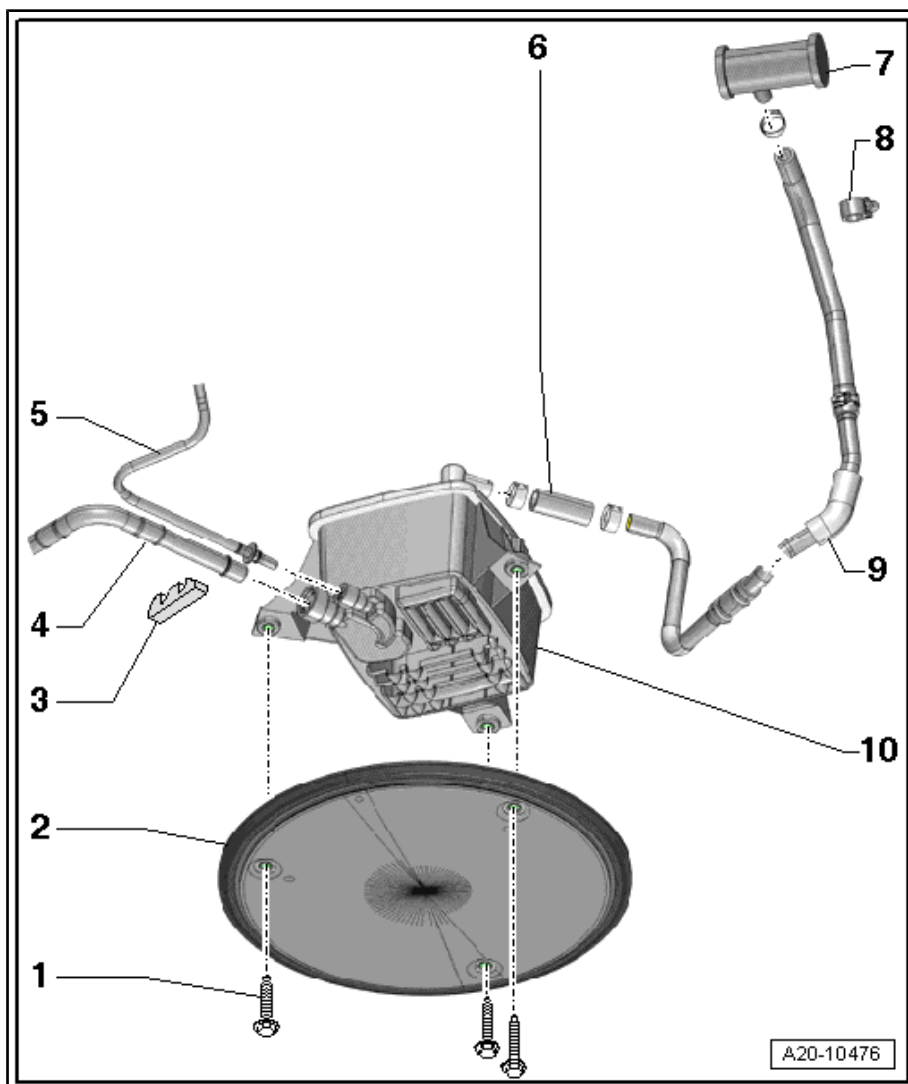
8 - Bracket

9 - Connecting line

- ☐ Activated charcoal filter/air cleaner

10 - Activated charcoal filter

- ☐ Fitting location: in spare wheel well on underside of underbody
- ☐ Removing and installing ⇒ [page 193](#)



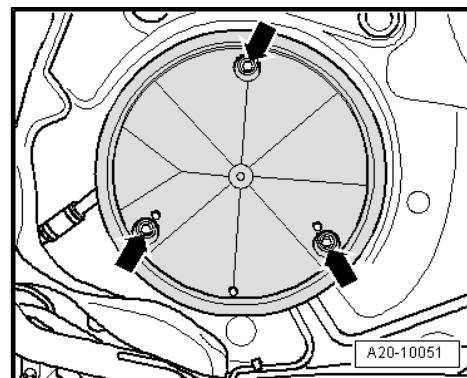
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11.4 Removing and installing activated charcoal filter - Audi RS 6

Removing

- Unscrew bolts -arrows- and detach cover for activated charcoal filter.
- Fit the same bolts to secure activated charcoal filter and tighten by hand.



- Remove sealing elements above breather pipes.
- Disconnect hose connection -1- at breather pipe.
- Detach breather pipes -2- and -3-. To do so, press release rings -4- approx. 2 mm in direction indicated -arrows A- and at the same time detach breather pipe -arrows B-.
- Unbolt activated charcoal filter and detach.

Installing

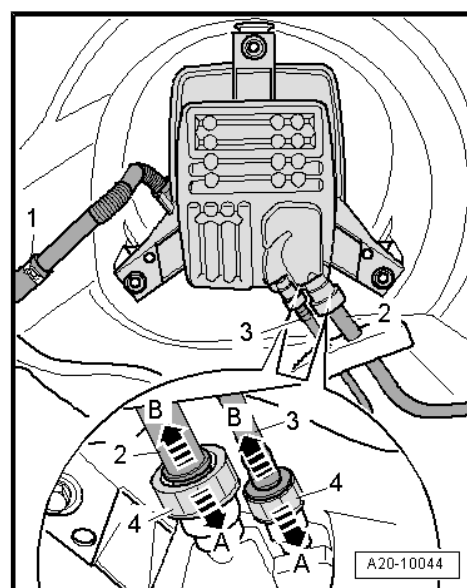
- Tightening torque ⇒ [page 191](#)

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



Note

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



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11.5 Removing and installing air cleaner for activated charcoal filter - Audi RS 6

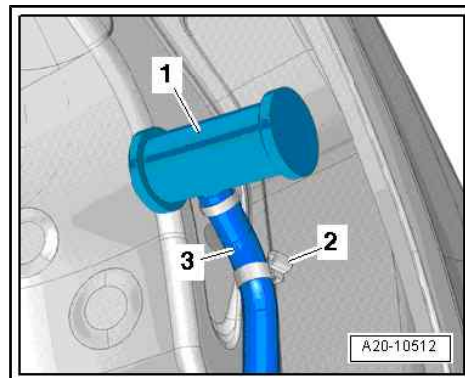
Removing



Note

All cable ties which are released or cut open when removing must be refitted in the same position when installing.

- Remove rear wheel (left-side).
- Remove rear left wheel housing liner ⇒ Rep. gr. 66 .
- Disengage air cleaner at bracket -2-.
- Remove breather hose -3- and detach air cleaner -1-.



Installing

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



Note

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

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12 Activated charcoal filter system/tank leak diagnostic system - USA vehicles

12.1 Exploded view - activated charcoal filter system/tank leak diagnostic system

1 - Bolt

- ☐ 19 Nm

2 - Cover

- ☐ For activated charcoal filter

3 - Sealing element

4 - Breather line

- ☐ From filler neck on fuel tank
- ☐ Press release ring on activated charcoal filter to disconnect

5 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-
- ☐ Press release ring on activated charcoal filter to disconnect
- ☐ Clip onto fuel tank

6 - Air cleaner

- ☐ For fuel system diagnostic pump - V144-
- ☐ Maintenance-free

7 - Nut

- ☐ 4 Nm

8 - Vacuum line

- ☐ Engine/ fuel system diagnostic pump - V144-

9 - Cable ties

- ☐ To secure vacuum line to diagnostic pump bracket

10 - Fuel system diagnostic pump - V144-

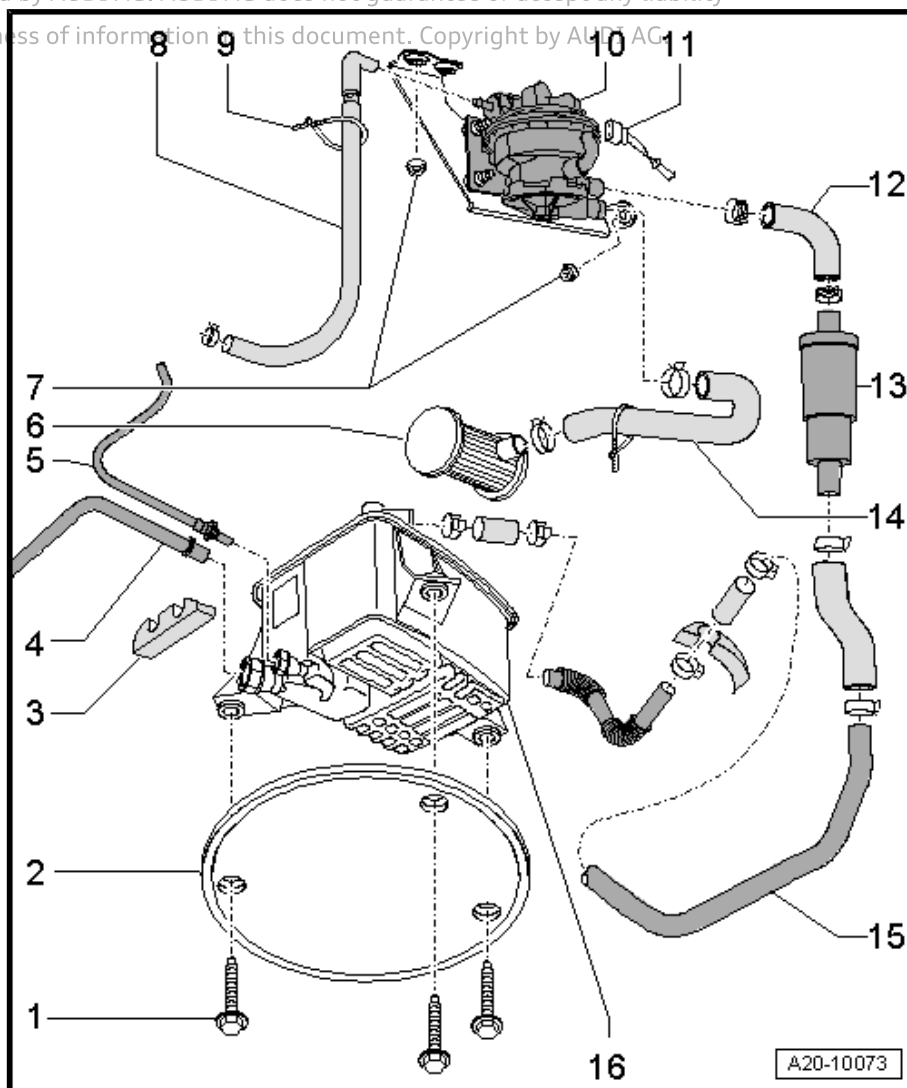
- ☐ Fitting location: in rear left wheel housing beneath liner
- ☐ Checking: vehicles with 8-cylinder MPI engine ⇒ [page 205](#) , vehicles with FSI engine ⇒ [page 210](#)
- ☐ Removing and installing ⇒ [page 216](#)

11 - Electrical connector

- ☐ Black

12 - Connecting hose

- ☐ Between diagnostic pump and activated charcoal filter
- ☐ Pressure side





13 - Activated charcoal filter

14 - Connecting hose

- ❑ Between diagnostic pump and air cleaner

15 - Connecting pipe

- ❑ Between activated charcoal filter element and activated charcoal filter (canister)

16 - Activated charcoal filter

- ❑ Fitting location: in spare wheel well on underside of underbody
- ❑ Removing and installing ⇒ [page 196](#)

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12.2 Removing and installing activated charcoal filter

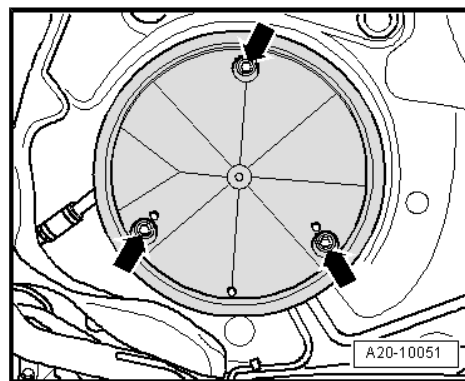


Note

Checking for leaks ⇒ [page 199](#).

Removing

- Unscrew bolts -arrows- and detach cover for activated charcoal filter.
- Fit the same bolts to secure activated charcoal filter and tighten by hand.



- Remove sealing elements above breather pipes.
- Disconnect hose connection -1- at breather pipe.
- Detach breather pipes -2- and -3-. To do so, press release rings -4- approx. 2 mm in direction indicated -arrows A- and at the same time detach breather pipe -arrows B-.
- Unbolt activated charcoal filter and detach.

Installing

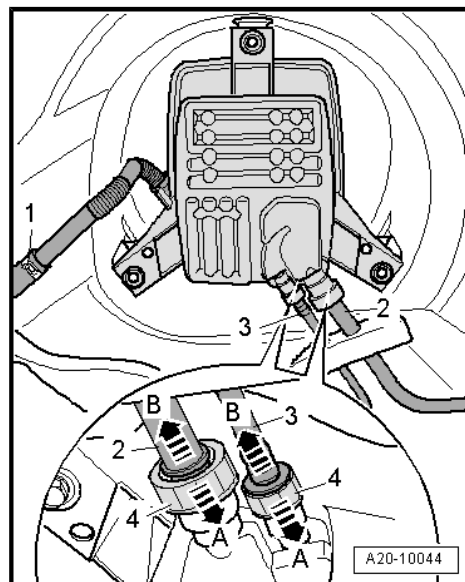
- Tightening torque ⇒ [page 195](#)

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



Note

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





12.3 Routing of pipes/hoses for activated charcoal filter system/tank leak diagnostic system



Note

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The diagram shows the routing of pipes/hoses on a 6-cylinder engine.

1 - To variable intake manifold change-over valve - N335-

2 - Vacuum pump

- ☐ For brake servo

3 - To brake servo

4 - Throttle valve module - J338-

5 - Activated charcoal filter solenoid valve 1 - N80-

- ☐ Fitting location: front right of engine compartment

6 - Breather line

- ☐ From activated charcoal filter to activated charcoal filter solenoid valve 1 - N80-
- ☐ Fitting location: at right on underside of vehicle
- ☐ Section running along fuel tank is secured to fuel tank

7 - Breather line

- ☐ To filler neck on fuel tank

8 - Activated charcoal filter

- ☐ Fitting location: in spare wheel well on underside of underbody
- ☐ Removing and installing ⇒ [page 196](#)

9 - Connecting hose

- ☐ Pressure side

10 - Activated charcoal filter

11 - Air cleaner

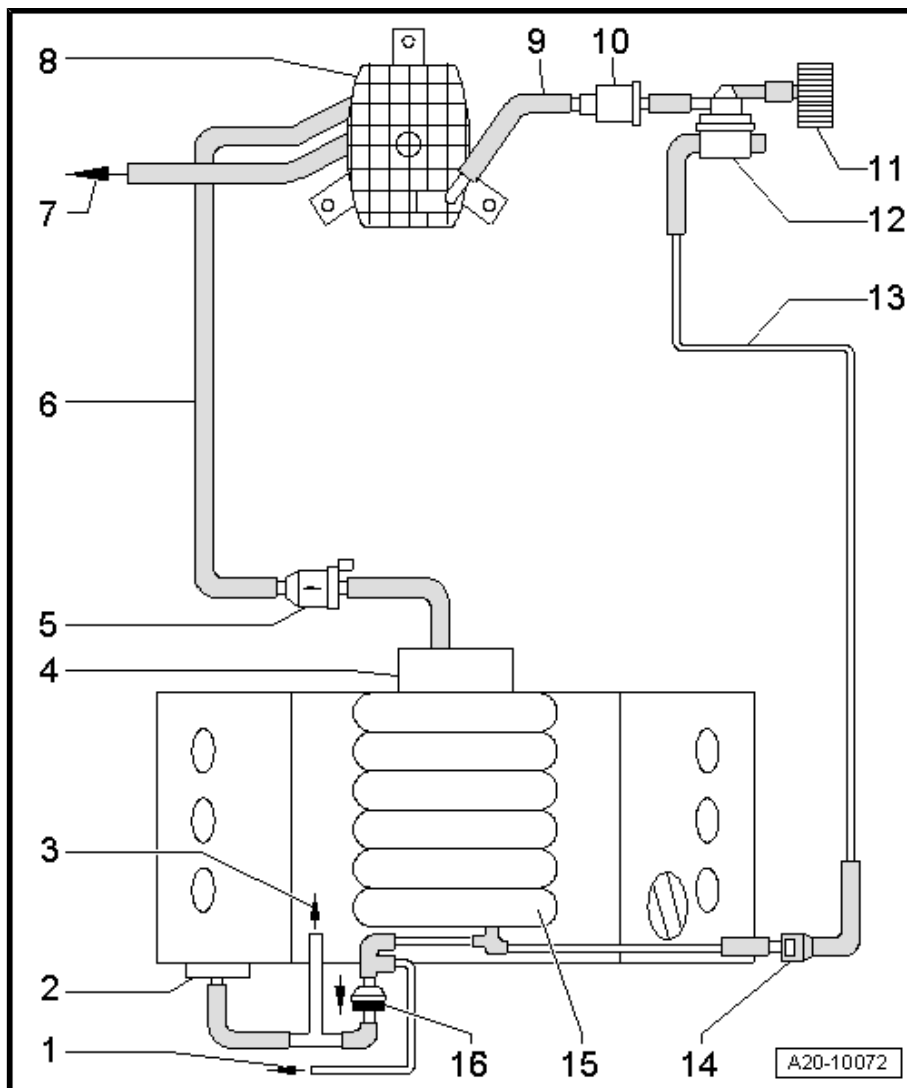
- ☐ For fuel system diagnostic pump - V144-

12 - Fuel system diagnostic pump - V144-

- ☐ Fitting location: in rear left wheel housing beneath liner
- ☐ Checking ⇒ [page 210](#)
- ☐ Removing and installing ⇒ [page 216](#)

13 - Vacuum line

- ☐ Engine/ fuel system diagnostic pump - V144-





14 - Connection point

- ❑ Fitting location ➔ [page 198](#)

15 - Intake manifold

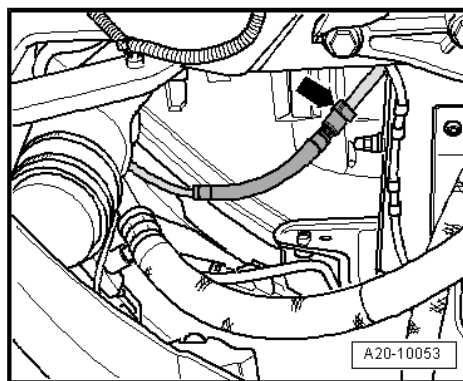
16 - Non-return valve

- ❑ Installation position: -arrow- points in through-flow direction

Location of connection point

The connection point -arrow- is located at bottom left of engine compartment.

- Press release tab on connector to disconnect.



12.4 Tank leak diagnostic system

Function

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The tank leak diagnostic system detects leaks in the complete fuel system, including fuel tank, activated charcoal filter and activated charcoal filter solenoid valve 1 - N80-.

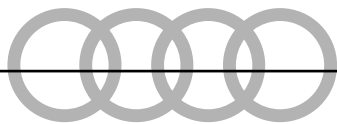
The mechanical components of the tank leak diagnostic system consist primarily of a vacuum-driven diaphragm pump, with a reed contact located on the operating rod of the pump diaphragm. The vacuum required is supplied to the pump from the mechanical vacuum pump.

- ◆ The diaphragm pump delivers a pressure of 20 ... 30 mbar to the fuel system when the tank leak diagnostic system starts up. In this condition the pump diaphragm is extended, so the reed contact located on the operating rod is in the "open" position.
- ◆ The diagnostic system detects whether the reed contact remains open for 15 seconds. In this case the fuel system is free of leaks.
- ◆ If the pressure drops (indicating a leak), the diaphragm returns and the reed contact closes.
- ◆ If the reed contact closes within 15 seconds, a further test is performed. The diaphragm pump is then activated for another 4 strokes. For each of these strokes the engine control unit measures the period of time it takes for the reed contact to close again after pressure delivery. In this way the control unit can distinguish between a "small leak" (smaller than 1 mm diameter) and a "large leak".

The automatic diagnosis function is activated shortly after every cold start (below 35°C) when the vehicle reaches a speed above 10 km/h. Any faults detected are stored in the fault memory. A fault message is displayed in the instrument cluster if the fault is detected during two consecutive road trips. The diagnosis function can also be activated with the vehicle diagnostic, testing and information system - VAS 5051B- ➔ [page 199](#).

12.5 Automatic tank leak diagnosis

The engine control unit performs a tank leak diagnosis at regular intervals when the engine is running.

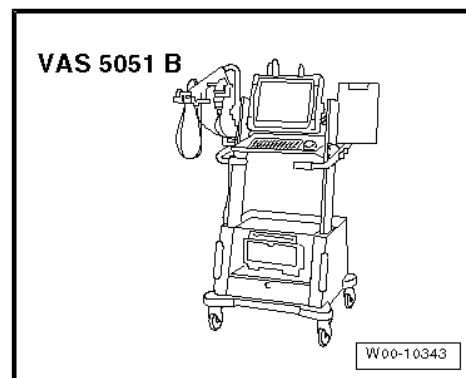


By selecting measured value block 071 with vehicle diagnostic, testing and information system - VAS 5051B- connected, you can see whether the automatic tank leak diagnosis is being performed
⇒ [page 199](#) .

12.6 Performing tank leak diagnosis

Special tools and workshop equipment required

- ◆ Vehicle diagnostic, testing and information system - VAS 5051B-

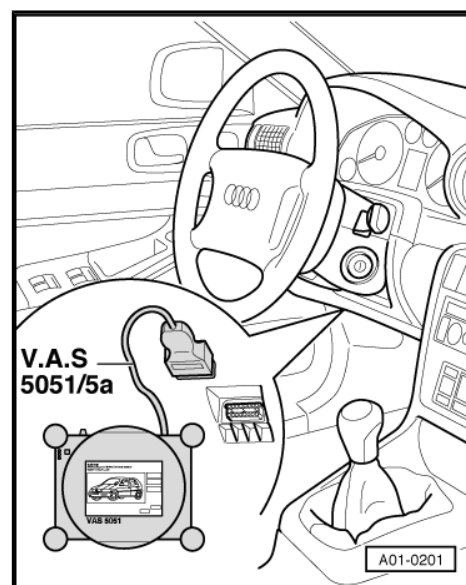


Note

- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- ◆ *Always renew seals and gaskets when assembling.*

Procedure

- Parking brake activated.
- Selector lever in position P or N.
- Engine running at idling speed, or at full throttle with brakes applied (increased engine speed).
- Electrical equipment switched off (radiator fan must not run during the test).
- Air conditioner switched off.
- Vehicle diagnostic, testing and information system - VAS 5051B- with diagnosis lead - VAS 5051/5A- is connected; Vehicle self-diagnosis is selected.
- No faults stored in fault memory.
- Intake air temperature below 90 °C ⇒ Display group 004, display zone 4.
- Coolant temperature below 95 °C ⇒ Display group 004, display zone 3.



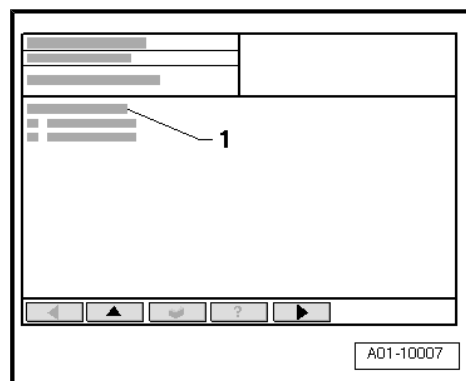
Observe safety precautions ⇒ [page 1](#) .

Observe rules for cleanliness ⇒ [page 2](#) .



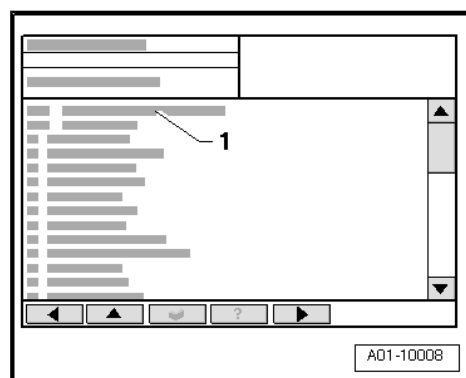
Display on -VAS 5051B- :

- From menu -1-, select “Self diagnosis” system and press  key to activate function.



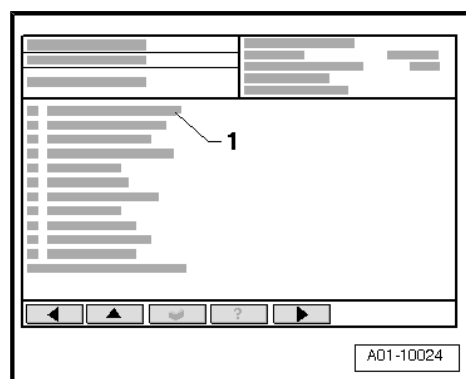
Display on -VAS 5051B- :

- From menu -1-, select vehicle system “01 - Engine electronics” and press  key to activate function.



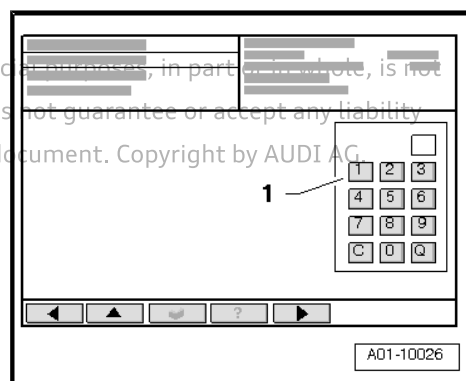
Display on -VAS 5051B- :

- From menu -1-, select function “006 - Basic setting” and press  key to activate function.



Display on -VAS 5051B- :

- Press buttons   on keypad -1- to select “Display group 071” and confirm entry by pressing  key.





Display on -VAS 5051B- :

– Check display in zone -1-.

• Specification: “Reed closed”:



Note

- ◆ *The display must indicate “Reed closed” before the test procedure can be continued.*
- ◆ *If the display indicates “Reed open”: Open fuel filler cap briefly to release the pressure in the fuel tank - the reed contact will then close.*

– Activate basic setting by touching **Activate** key -A-.

Display on -VAS 5051B- :

– Check display in zone -4-.

• Specification: “Test ON”

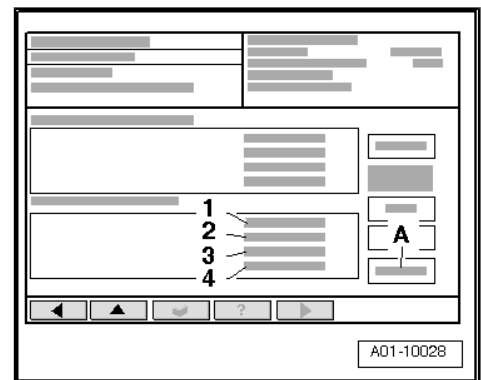
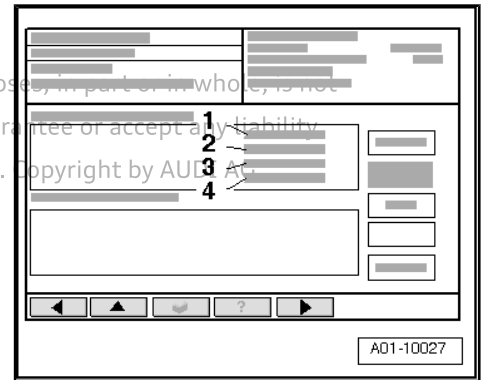
The system test is concluded after some minutes.

– Check display in zone -4-.

• Specification: “Syst. OK”

The system is free of leaks, the diagnosis is concluded.

– Exit function “006 - Basic setting” by pressing key.



**Procedure if a fault is detected**

If a fault is detected in the system test, the fault is evaluated.

Display on -VAS 5051B- in display zone -4-.

- If there is a fault: Syst. n. OK.
- Check evaluation of diagnosis in display zone -2-.
- “Small leak” or “large leak”.
- Exit function “006 - Basic setting” by pressing key.

If the system has detected a small leak/large leak:

- Check fuel tank system and tank breather system for leaks
⇒ [page 202](#) .
- Perform tank leak diagnosis again.

Checking fuel tank system and tank breather system for leaks**Note**

The following locations/components must be checked when checking the fuel tank system and tank breather system for leaks. Initiate a tank leak diagnosis after eliminating a suspected leak to make sure the diagnosed leak has been eliminated.

- Switch off ignition.
- Check whether the filler cap of the fuel tank was properly closed when performing the diagnosis.
- Check whether the seal of the filler cap is damaged or deformed. Renew if necessary.
- If necessary, fold forward backrests of rear seat bench.

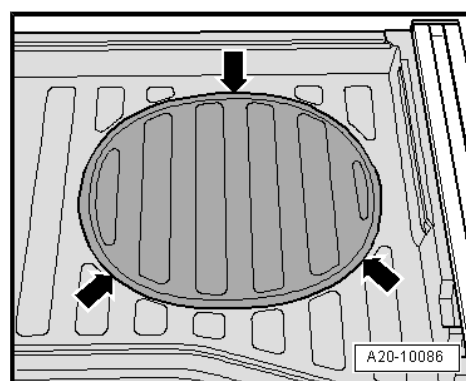
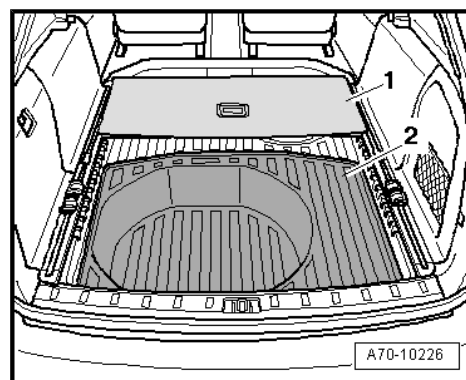
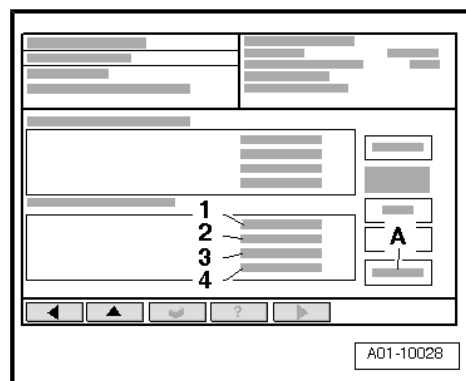
Avant:

- Remove luggage compartment load surface -1-.

**Note**

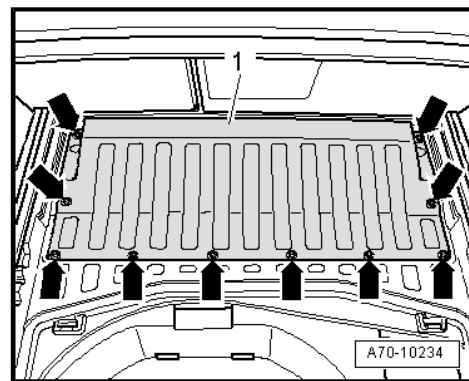
Disregard -item 2-.

- On vehicles without air suspension: unclip the retaining tabs -arrows- for the flange cover.





- On vehicles with air suspension: remove spreader pins -arrows- and take off cover -1-.



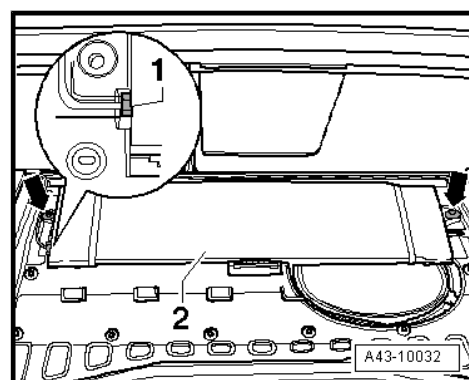
All vehicles:

- On vehicles with air suspension: unscrew bolts -arrows-.
- Detach accumulator -2- and lay it aside with line -1- connected.



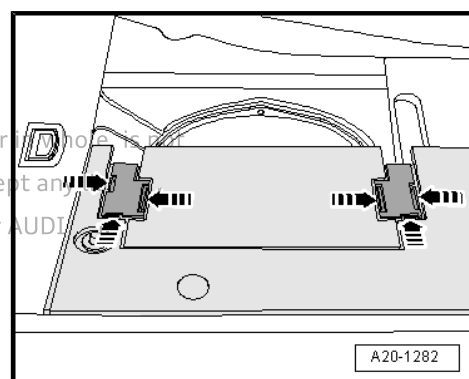
Note

Do not stretch or kink line.

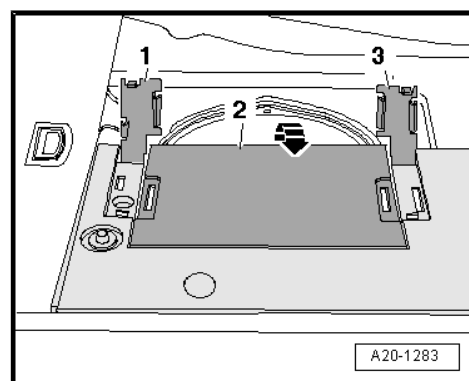


Saloon:

- Release retaining lugs -arrows-.



- Fold retaining lugs -1- and -3- open to rear.
- Fold cover -2- to front -arrow-.

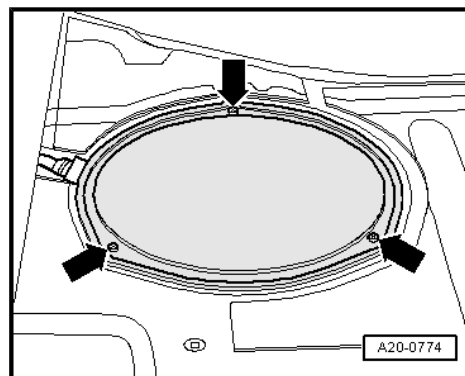


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All vehicles:

- Unbolt cover -arrows-.



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- Remove rear seat bench ⇒ Rep. gr. 72 .
- Detach cover for flange (left and right side) -arrows-.

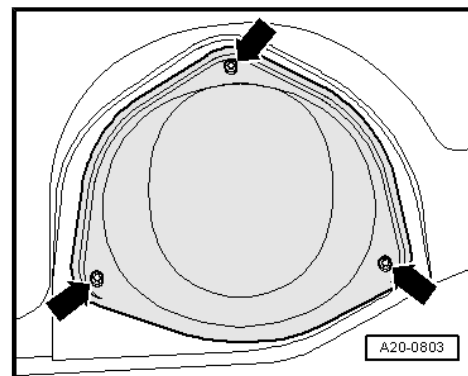


Note

Observe notes on installing flanges ⇒ [page 164](#) and [page 174](#) .

All vehicles:

- Check whether the seals on the flanges are damaged and whether the union nuts on the fuel tank flanges are properly tightened. Also check whether the fuel lines are connected properly.
- Perform a visual check on all pipe/hose connections of the fuel tank system and replace leaking pipes/hoses, e.g.:
 - ◆ Line between activated charcoal filter and activated charcoal filter solenoid valve 1 - N80-
 - ◆ Lines between activated charcoal filter and fuel system diagnostic pump - V144-
 - ◆ Pipe between fuel tank and activated charcoal filter (behind cover for activated charcoal filter).
 - ◆ Fuel tank breather lines behind wheel housing liner (rear right)
 - ◆ Fuel lines to engine



Note

Leaks in pipes and components of the fuel tank system can sometimes be detected by applying a non-flammable, environment-friendly leak detecting spray. Initiate a tank leak diagnosis repeatedly to build up pressure in the system. Bubbles will form at the leak.

- Perform a visual check on the components of the fuel tank system/fuel tank breather system:
 - ◆ Fuel tank
 - ◆ Activated charcoal filter
 - ◆ Fuel system diagnostic pump - V144-
 - ◆ Activated charcoal filter solenoid valve 1 - N80-



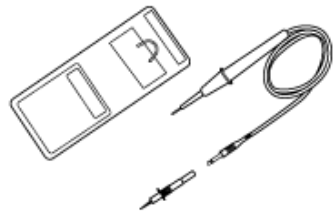
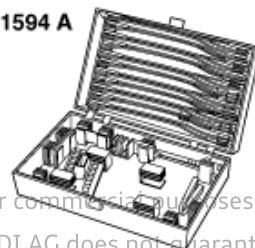
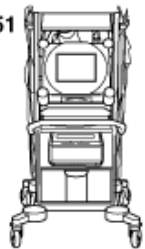
Note

Due to the shape or function of these components it is not always possible to detect leaks by applying leak detecting spray. If this is the case, clamp off hoses going to the respective component using hose clamps up to Ø 25 mm - 3094- and initiate tank leak diagnosis. If no leak is then found after clamping off the hoses, the corresponding component is defective. If the hoses are clamped off directly at the diagnostic pump and a leak is still indicated, there is a leak in the diagnostic pump itself.

12.7 Checking fuel system diagnostic pump - V144- - vehicles with 8-cylinder MPI engine

**Special tools and workshop equipment required**

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V.A.G 1526 A 	V.A.G 1527 B 
V.A.G 1594 A 	V.A.G 1598/31 
VAS 5051 	G24-0023

- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Voltage tester - V.A.G 1527B-
- ◆ Auxiliary measuring set - V.A.G 1594C-
- ◆ Adapter cable, 121-pin - V.A.G 1598/31-
- ◆ Vehicle diagnostic, testing and information system - VAS 5051B-

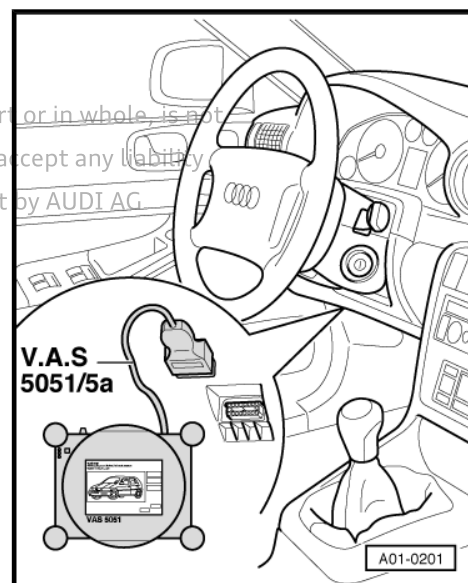


Procedure

- Ignition switched on.

Vehicle diagnostic, testing and information system VAS 5051B- with diagnosis lead - VAS 5051/5A- is connected; Vehicle self-diagnosis is selected.

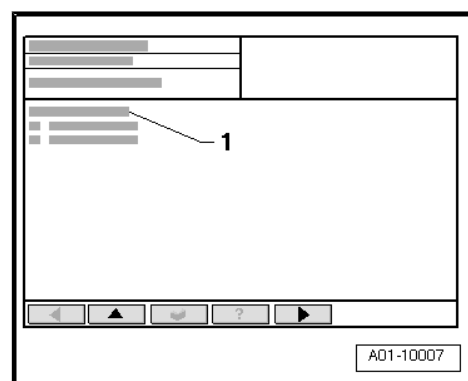
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Checking activation

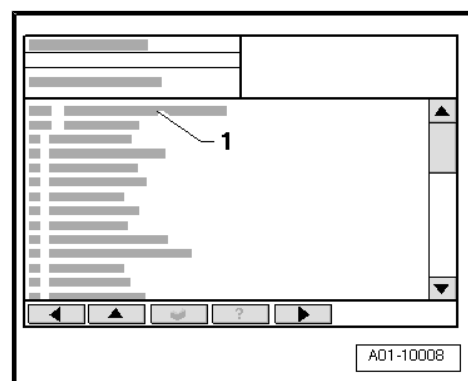
Display on -VAS 5051B- :

- From menu -1-, select “Self diagnosis” system and press key to activate function.



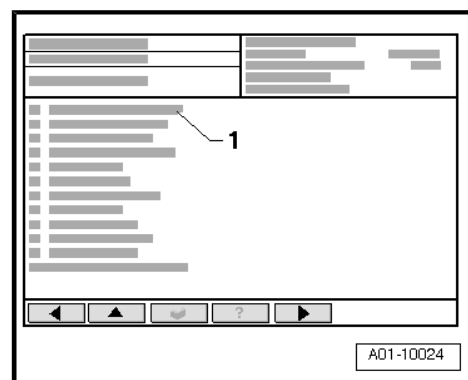
Display on -VAS 5051B- :

- From menu -1-, select vehicle system “01 - Engine electronics” and press key to activate function.



Display on -VAS 5051B- :

- From menu -1-, select function “005 - Final control diagnosis” and press key to activate function.





Display on -VAS 5051B- :

A - Actuator test is waiting Continued switching required

1 - Activated charcoal filter solenoid valve 1 - N80-

- Press key repeatedly until fuel system diagnostic pump - V144- is activated.



Note

The running sound of the diagnostic pump can be heard at the wheel housing (rear left).

- Press key to exit “005 - Final control diagnosis” function.
- Select function “022 - End output”.
- Switch off ignition.

If the fuel system diagnostic pump is not activated (no running noise can be heard):

- Remove fuel system diagnostic pump - V144- [⇒ page 216](#) and disconnect electrical connector.

Checking internal resistance

- Connect up hand-held multimeter - V.A.G 1526C- to measure resistance as follows:

Fuel system diagnostic pump Contact	Specified
-1- + -3-	640 ... 720 Ω
-2- + -3-	15 ... 17 Ω

If the specifications are not obtained:

- Renew fuel system diagnostic pump - V144- [⇒ page 216](#) .

If the specifications are obtained:

- Check voltage supply of diagnostic pump [⇒ page 208](#) .

Checking voltage supply



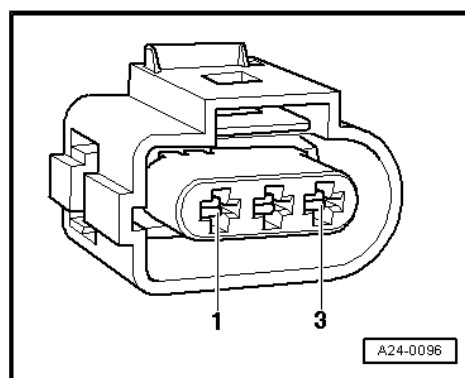
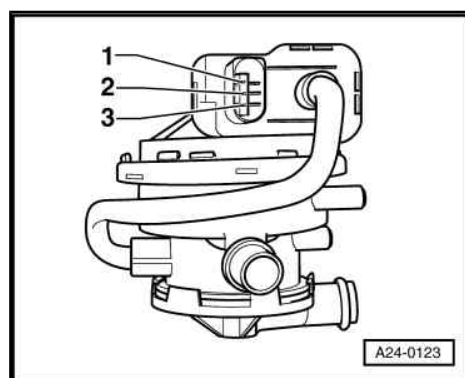
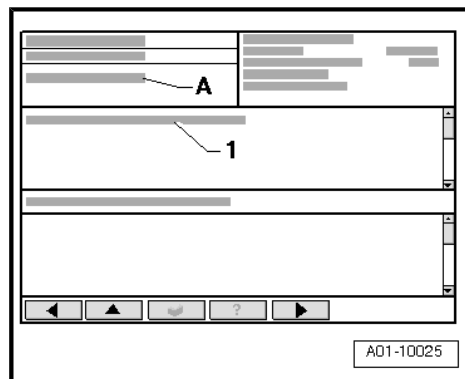
Note

The diagnostic pump is supplied with voltage via the Motronic current supply relay - J271- .

- Fuse for diagnostic pump OK
- Connect voltage tester - V.A.G 1527B- as follows:

Connector Contact	Measure against
-3-	Engine earth

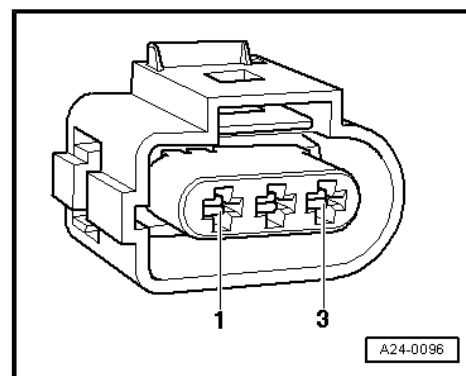
- Operate the starter briefly.
- The LED should light up.





If LED does not light up:

- Use current flow diagram to check for open circuit in wiring from contact -3- via fuse to Motronic current supply relay - J271- .
- Eliminate open circuit in wiring (refer to current flow diagram).

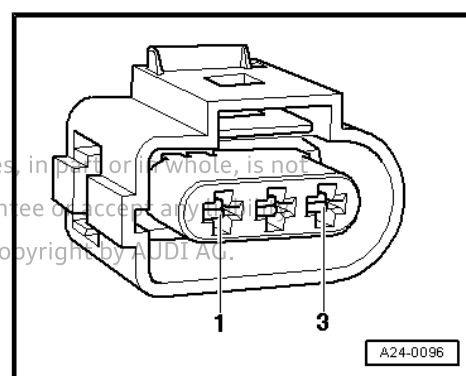


Checking output wire

- Connect voltage tester - V.A.G 1527B- as follows:

Connector Contact	Measure against
-2-	Battery positive

- Start final control diagnosis ⇒ [page 207](#)



Display on -VAS 5051B- :

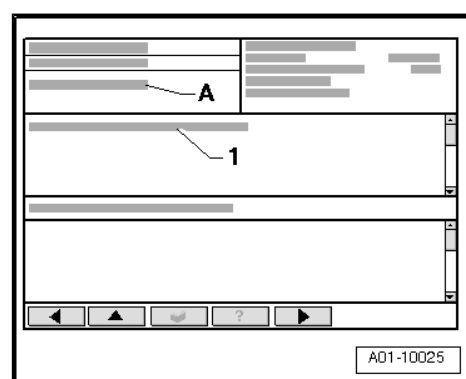
A - Actuator test is waiting Continued switching required

1 - Activated charcoal filter solenoid valve 1 - N80-

- Press key repeatedly until the fuel system diagnostic pump is activated.
- The LED should flash.

If the LED does not flash:

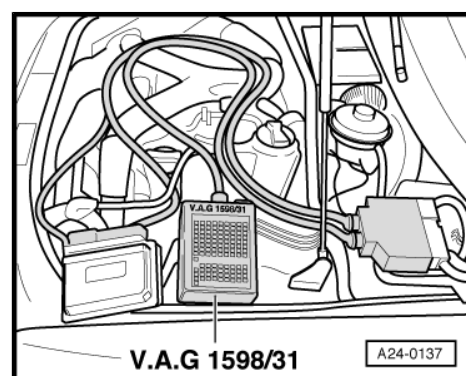
- Press key to exit “005 - Final control diagnosis” function.
- Select function “022 - End output”.
- Switch off ignition.
- Connect adapter cable, 121-pin - V.A.G 1598/31- to connectors of wiring harness; do not connect engine control unit. Connect earth clip of test box to earth (not shown in illustration) ⇒ Rep. gr. 24 .



Caution

Risk of irreparable damage to electronic components.

- ◆ **Select the appropriate measuring range before connecting the test leads and observe test requirements.**





- Check for open circuit and short to positive or earth in the following wiring:

Connector Contact	-V.A.G 1598/31- Socket
-2-	A 25

- Repair open circuit or short circuit in wiring (refer to current flow diagram).

If no fault is found but the diagnostic pump is not activated during the final control diagnosis:

- Renew fuel system diagnostic pump - V144- ⇒ [page 216](#) .
- Observe notes on procedures required after connecting engine control unit ⇒ Rep. gr. 24 .

Checking input wire

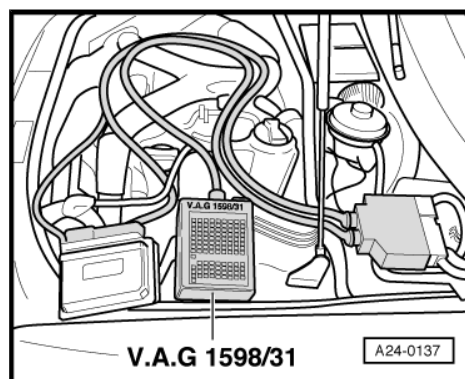
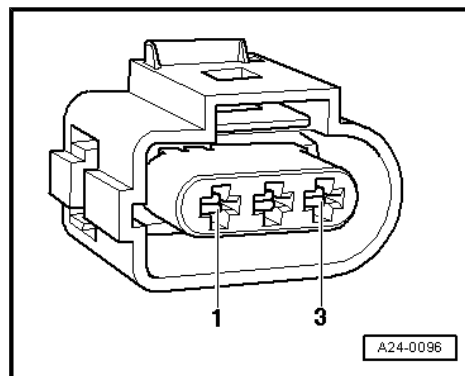
- Switch off ignition.
- Connect adapter cable, 121-pin - V.A.G 1598/31- to connectors of wiring harness; do not connect engine control unit. Connect earth clip of test box to earth (not shown in illustration) ⇒ Rep. gr. 24 .



Caution

Risk of irreparable damage to electronic components.

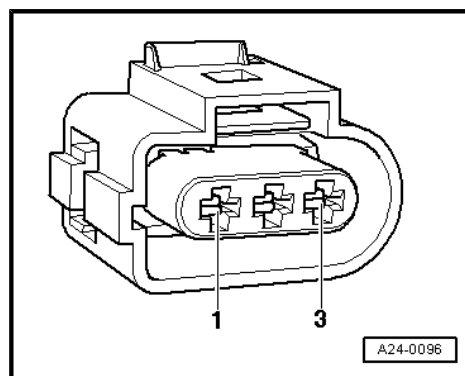
- ◆ *Select the appropriate measuring range before connecting the test leads and observe test requirements.*



- Check for open circuit and short to positive or earth in the following wiring:

Connector Contact	-V.A.G 1598/31- Socket
-1-	A 80

- Repair open circuit or short circuit in wiring (refer to current flow diagram).
- Observe notes on procedures required after connecting engine control unit ⇒ Rep. gr. 24 .



12.8 Checking fuel system diagnostic pump - V144- - vehicles with FSI engine



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Special tools and workshop equipment required



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V.A.G 1526 A	V.A.G 1527 B
V.A.G 1594 A	V.A.G 1598/39
V.A.G 1598/42	VAS 5051 G24-0030

- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Voltage tester - V.A.G 1527B-
- ◆ Auxiliary measuring set - V.A.G 1594C-
- ◆ Adapter cable - V.A.G 1598/39-
- ◆ Test box - V.A.G 1598/42-
- ◆ Vehicle diagnostic, testing and information system - VAS 5051B-

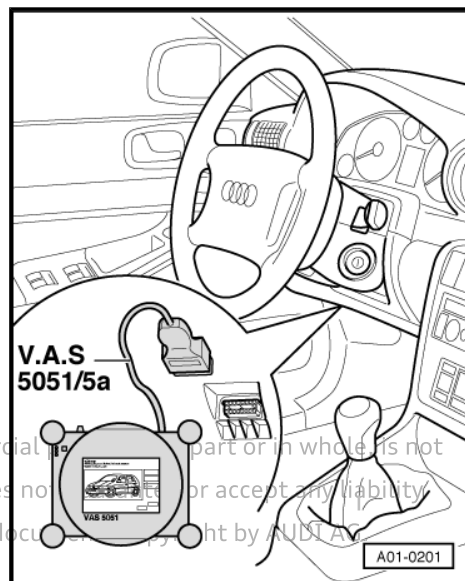


Procedure

- Ignition switched on.
- Vehicle diagnostic, testing and information system - VAS 5051B- with diagnosis lead - VAS 5051/5A- is connected; Vehicle self-diagnosis is selected.



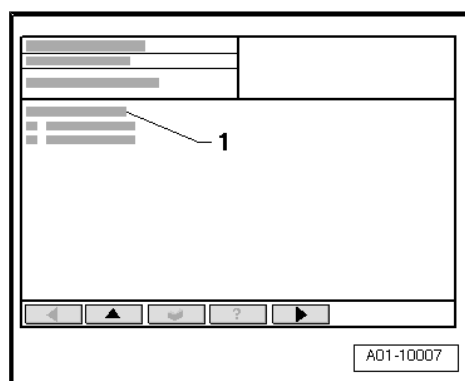
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Checking activation

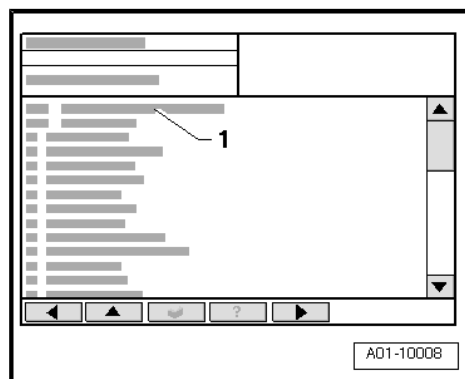
Display on -VAS 5051B- :

- From menu -1-, select “Self diagnosis” system and press key to activate function.



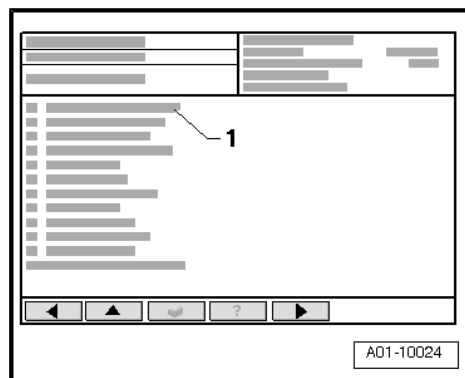
Display on -VAS 5051B- :

- From menu -1-, select vehicle system “01 - Engine electronics” and press key to activate function.



Display on -VAS 5051B- :

- From menu -1-, select function “005 - Final control diagnosis” and press key to activate function.





Display on -VAS 5051B- :

A - Actuator test is waiting Continued switching required

1 - Component designation of currently activated control element

- Press key repeatedly until fuel system diagnostic pump - V144- is activated.



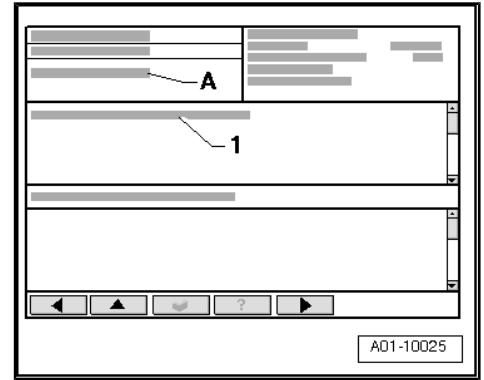
Note

The running sound of the diagnostic pump can be heard at the wheel housing (rear left).

- Press key to exit “005 - Final control diagnosis” function.
- Select function “022 - End output”.
- Switch off ignition.

If the fuel system diagnostic pump is not activated (no running noise can be heard):

- Remove fuel system diagnostic pump - V144- ➔ [page 216](#) and disconnect electrical connector.



Checking internal resistance

- Connect up hand-held multimeter - V.A.G 1526C- to measure resistance as follows:

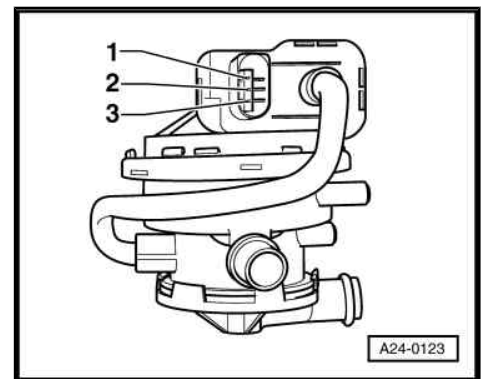
Fuel system diagnostic pump Contact	Specified
-1- + -3-	640 ... 720 Ω
-2- + -3-	15 ... 17 Ω

If the specifications are not obtained:

- Renew fuel system diagnostic pump - V144- ➔ [page 216](#) .

If the specifications are obtained:

- Check voltage supply of diagnostic pump ➔ [page 213](#) .



Checking voltage supply



Note

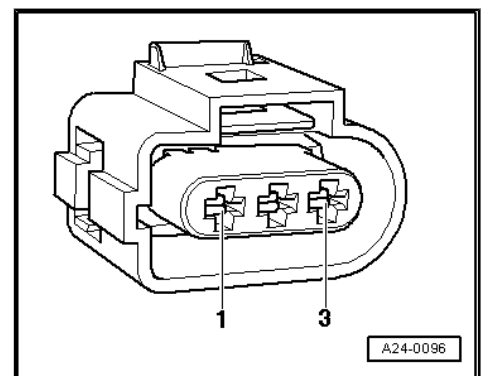
The diagnostic pump is supplied with voltage via the Motronic current supply relay - J271- .

- Fuse for diagnostic pump OK
- Connect voltage tester - V.A.G 1527B- as follows:

Connector Contact	Measure against
-3-	Engine earth

- Operate the starter briefly.

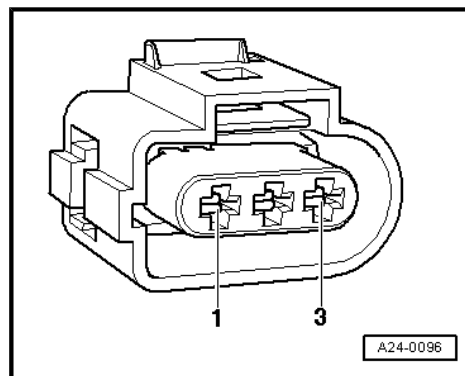
- The LED should light up.





If LED does not light up:

- Use current flow diagram to check for open circuit in wiring from contact -3- via fuse to Motronic current supply relay - J271- .
- Eliminate open circuit in wiring (refer to current flow diagram).

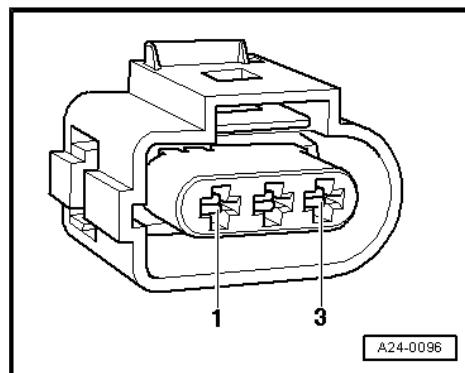


Checking output wire

- Connect voltage tester - V.A.G 1527B- as follows:

Connector Contact	Measure against
-2-	Battery positive

- Start final control diagnosis ⇒ [page 212](#) .



Display on -VAS 5051B- :

A - Actuator test is waiting Continued switching required

1 - Activated charcoal filter solenoid valve 1 - N80-

- Press key repeatedly until fuel system diagnostic pump - V144- is activated.

- The LED should flash.

If the LED does not flash:

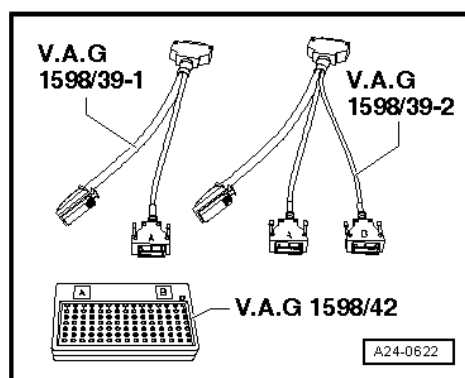
- Press key to exit “005 - Final control diagnosis” function.
- Select function “022 - End output”.
- Switch off ignition.
- Connect the test box - V.A.G 1598/42- to wiring harness with adapter lead -V.A.G 1598/39-1- or adapter lead -V.A.G 1598/39-2- . Connect earth clip of test box to negative terminal of battery. The instructions for performing the individual tests indicate whether or not the engine control unit itself also needs to be connected to the test box.



Caution

Risk of irreparable damage to electronic components.

- ◆ **Select the appropriate measuring range before connecting the test leads and observe test requirements.**





- Check for open circuit and short to positive or earth in the following wiring:

Engine	Connector Contact	-V.A.G 1598/42- Socket
6-cyl. 3.2 ltr. FSI	-2-	B 24
8-cyl. 4.2 ltr. FSI	-2-	B 10
10-cyl. 5.2 ltr. FSI	-2-	A 55

- Repair open circuit or short circuit in wiring (refer to current flow diagram).

If no fault is found but the diagnostic pump is not activated during the final control diagnosis:

- Renew fuel system diagnostic pump - V144- ➔ [page 216](#).

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Checking input wire

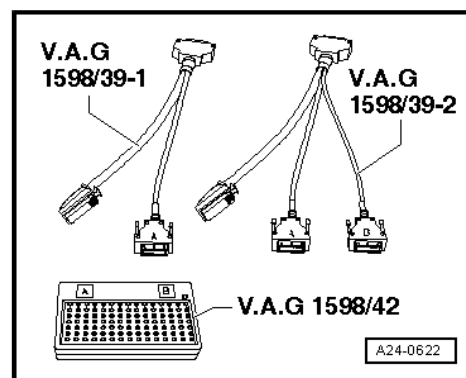
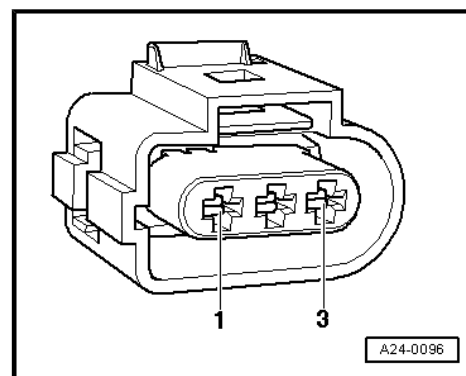
- Switch off ignition.
- Connect the test box - V.A.G 1598/42- to wiring harness with adapter lead -V.A.G 1598/39-1- or adapter lead -V.A.G 1598/39-2-. Connect earth clip of test box to negative terminal of battery. The instructions for performing the individual tests indicate whether or not the engine control unit itself also needs to be connected to the test box.



Caution

Risk of irreparable damage to electronic components.

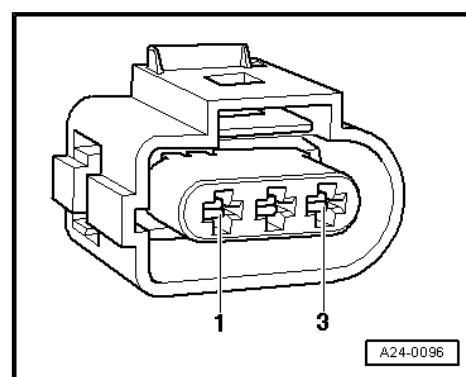
- ◆ *Select the appropriate measuring range before connecting the test leads and observe test requirements.*



- Check for open circuit and short to positive or earth in the following wiring:

Engine	Connector Contact	-V.A.G 1598/42- Socket
6-cyl. 3.2 ltr. FSI	-1-	B 20
8-cyl. 4.2 ltr. FSI	-1-	B 40
10-cyl. 5.2 ltr. FSI	-1-	B 40

- Repair open circuit or short circuit in wiring (refer to current flow diagram).
- Observe notes on procedures required after connecting engine control unit ➔ Rep. gr. 24 .





12.9 Removing and installing fuel system diagnostic pump - V144-

Removing



Note

All cable ties which are released or cut open when removing must be refitted in the same position when installing.

- Remove rear wheel (left-side).
- Remove rear left wheel housing liner ⇒ Rep. gr. 66 .
- Detach breather hose -1-.
- Unscrew nuts -arrows-.
- Detach diagnostic pump with bracket.
- With ignition off, unplug the electrical connector -3- and move wiring clear -arrow-.
- Cut open cable tie -1- and detach hose -2-.

Installing

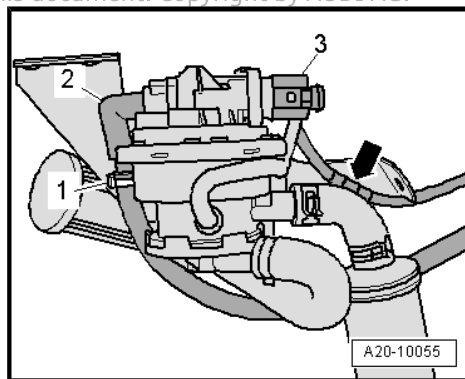
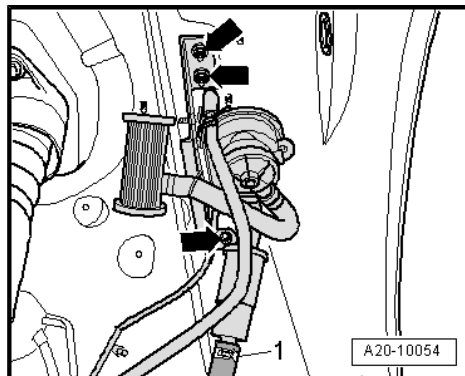
- Tightening torque ⇒ [page 195](#)

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



Note

- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- ◆ *Fit cable tie in the original position when installing.*
- Secure hose -2- with cable tie -1- to diagnostic pump bracket.





13 Accelerator mechanism

13.1 Exploded view - accelerator pedal module (version 1)

1 - Accelerator pedal module

- ☐ With accelerator position sender - G79- and accelerator position sender 2 - G185-
- ☐ Removing and installing
⇒ [page 218](#)

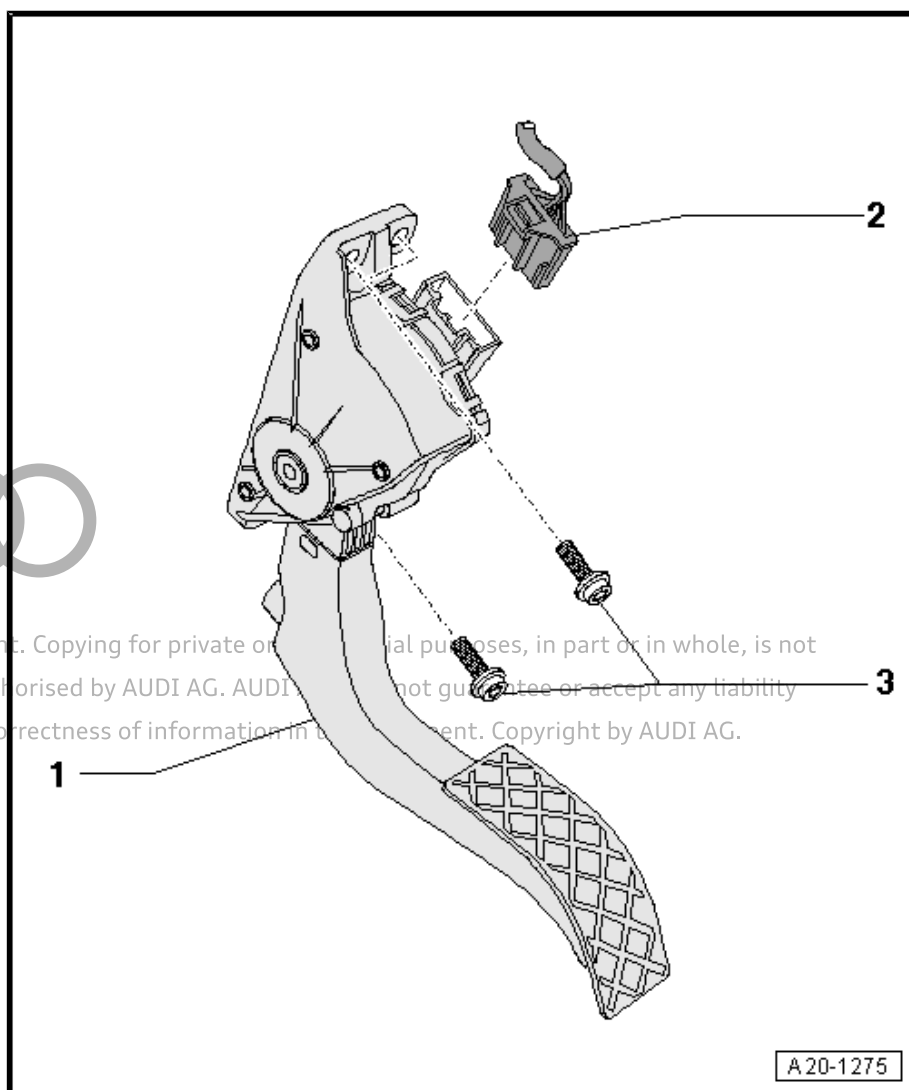
2 - Electrical connector

3 - Bolt

- ☐ 9 Nm



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13.2 Removing and installing accelerator pedal module (version 1)

Removing

- Remove dash panel cover (bottom) on driver's side ⇒ Rep. gr. 68 .
- Unplug electrical connector -2-.
- Remove bolts -1- and -3-.
- Remove accelerator pedal module.

Installing

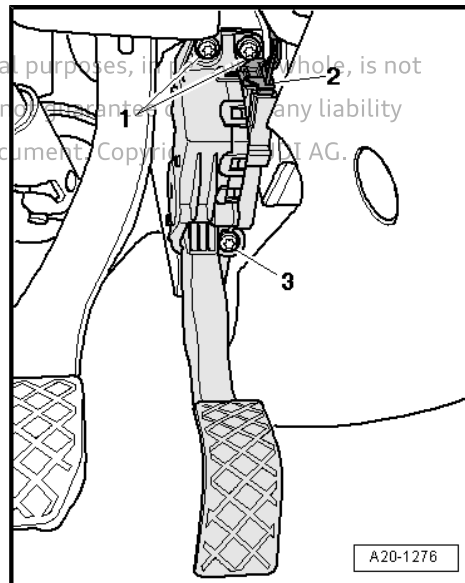
- Tightening torque ⇒ [page 217](#)

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

- Install dash panel cover (bottom) on driver's side ⇒ Rep. gr. 68 .

Vehicles with automatic gearbox:

- After renewing, perform kick-down adaption in “Guided Functions” mode ⇒ Vehicle diagnostic tester.



13.3 Exploded view - accelerator pedal module (version 2)

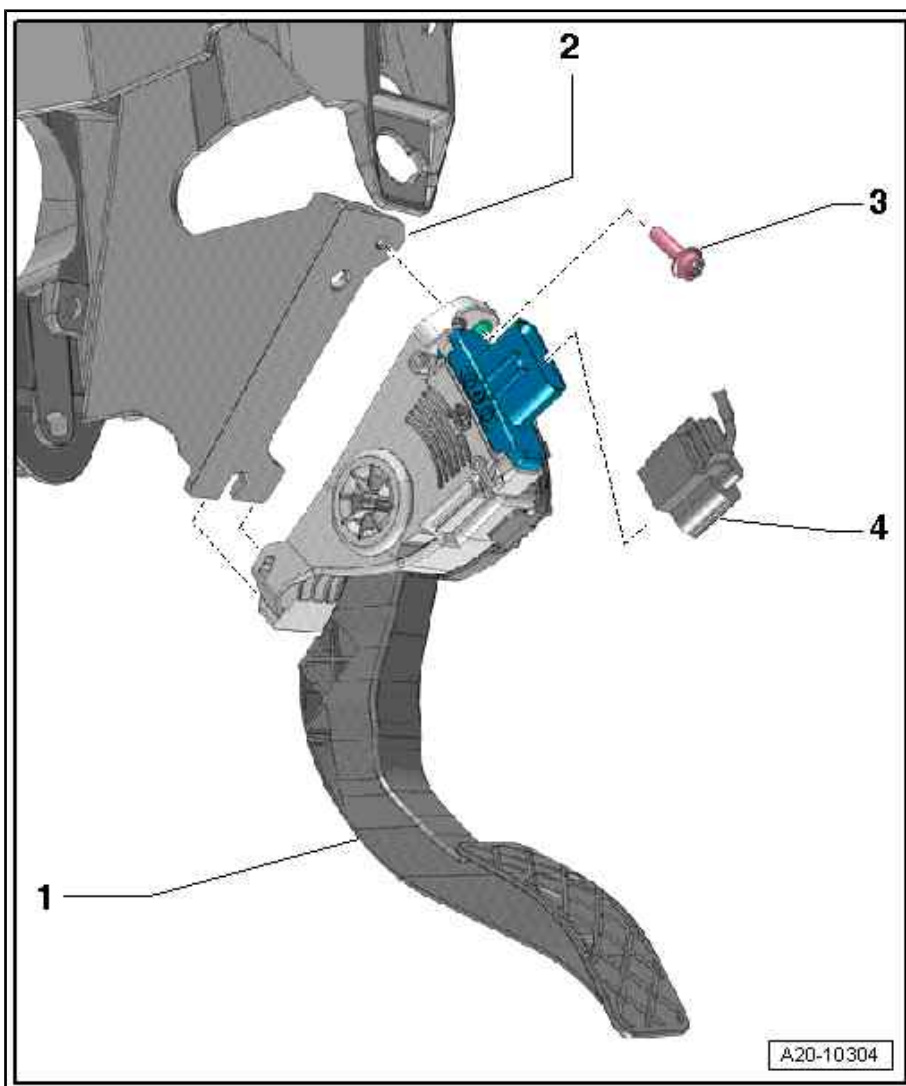
1 - Accelerator pedal module

- ❑ With accelerator position sender - G79- and accelerator position sender 2 - G185-
- ❑ Removing and installing ⇒ [page 219](#)

2 - Pedal bracket

3 - Bolt

- ❑ 8 Nm





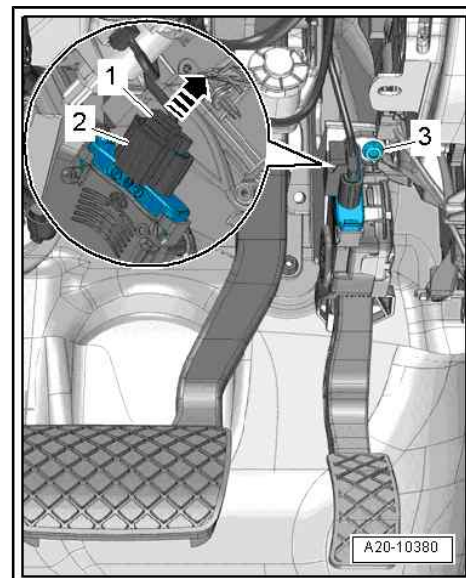
4 - Electrical connector

13.4 Removing and installing accelerator pedal module (version 2)

Removing

Proceed as follows:

- Remove dash panel trim (bottom) on driver's side ⇒ Rep. gr. 68 .
- Push release tab -1- upwards -arrow- and unplug electrical connector -2-.
- Remove bolt -3- and take out accelerator pedal module downwards.



Installing

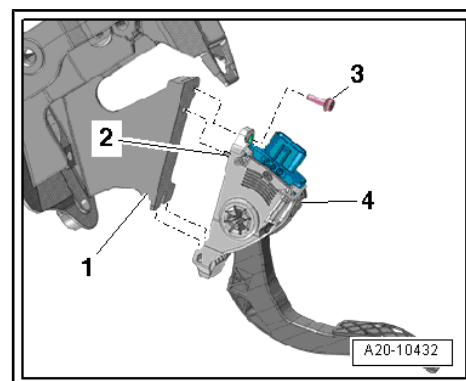
- Tightening torque ⇒ [page 218](#)

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

- Attach accelerator pedal module -4- to bottom of pedal bracket -1-, insert centring pin -2- and tighten bolt -3-.
- Install dash panel trim (bottom) on driver's side ⇒ Rep. gr. 68 .

Vehicles with automatic gearbox:

- After renewing, perform kick-down adaption in "Guided Functions" mode ⇒ Vehicle diagnostic tester.



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