

Workshop Manual Audi A3 2004 ➤

Fuel supply system, diesel engines									
Engine ID	AZV	BKC	BKD	BLS	BMM	BMN	BUY	BXE	CBA B
	CBA A	CBB B	CAY B	CAY C	CBE A	CFFA	CFFB	CFG B	CLJA

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List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

20 - Fuel supply system



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

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00 – Technical data

1 Safety precautions

(ARL004694; Edition 04.2016)

1.1 Working on the fuel system

When working on the fuel system note the following warnings:



WARNING

Risk of injury - fuel system operates under pressure.

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

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

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

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

- ◆ Always switch off the ignition before connecting or disconnecting tester cables or electrical wiring for the injection or glow plug system.
- ◆ Always switch off ignition before washing engine.
- ◆ Entries are stored in event memory of engine control unit(s) if electrical connectors were unplugged and engine was started: Interrogate event memory in Guided Functions ⇒ Vehicle diagnostic tester .



Caution

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

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

Disconnect battery ⇒ Electrical system; Rep. gr. 27 .

1.2 Using testers and measuring instruments during a road test

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



WARNING

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

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

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

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1.3 Removing and installing components from a full or partly full fuel tank

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 fuel tank if necessary ⇒ [page 6](#).
- ◆ 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.

1.4 Removing and installing fuel tank

- ◆ Fuel tank must be empty to reduce weight. Drain fuel tank if necessary ⇒ [page 6](#).

1.5 Working on vehicles with start/stop system

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



WARNING

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

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

2 General repair instructions

2.1 Rules for cleanliness when working on fuel supply system and injection system

Even small amounts of dirt can cause malfunctions. For this reason, please observe the following rules when working on the fuel supply system and injection system:

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

2.2 Test conditions

For checking fuel pump

- Battery voltage at least 12.5 V
- Fuel pump fuse OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel pump relay - J17- OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel tank at least $\frac{1}{4}$ full
- Fuel filter OK (not obstructed with dirt).
- Fuel lines OK (not obstructed or crushed).

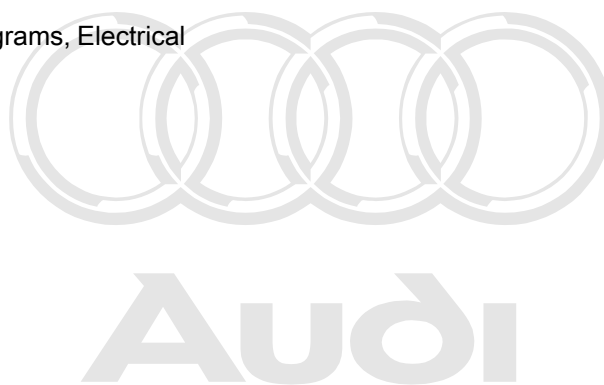
For checking tandem pump

- Fuel tank at least $\frac{1}{4}$ full
- Fuel filter OK (not obstructed with dirt).
- Fuel lines OK (not obstructed or crushed).
- Coolant temperature at least 85 °C.
- Unit injectors OK
- Electric fuel pump OK (pump runs)

2.3 Contact corrosion!

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

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



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

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

Note the following:

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



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20 – Fuel supply system

1 Fuel supply system - front-wheel drive

1.1 Fuel tank with attached components - exploded view

1 - 26 Nm

2 - Securing strap

- ☐ Installation position: Fixing point (hole) points in direction of travel

3 - Heat shield

- ☐ For fuel tank

4 - Fuel supply line

- ☐ Black
- ☐ To fuel filter
- ☐ Do not kink
- ☐ Clip onto fuel tank

5 - Fuel return line

- ☐ Blue
- ☐ From fuel cooler
- ☐ Do not kink
- ☐ Clip onto fuel tank

6 - Electrical connector

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

7 - Seal

- ☐ Renew if damaged

8 - Filler cap

- ☐ Secured to tank flap unit

9 - Earth connection

- ☐ To eliminate electrostatic charge
- ☐ Installation position
⇒ [page 6](#)

- ☐ Ensure that connector is seated properly and secure wire with flange bolt for fuel filler neck -item 10-

- ☐ 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 ohms

10 - Flange bolt, 11 Nm

- ☐ Secures fuel filler neck and earth connection item 9

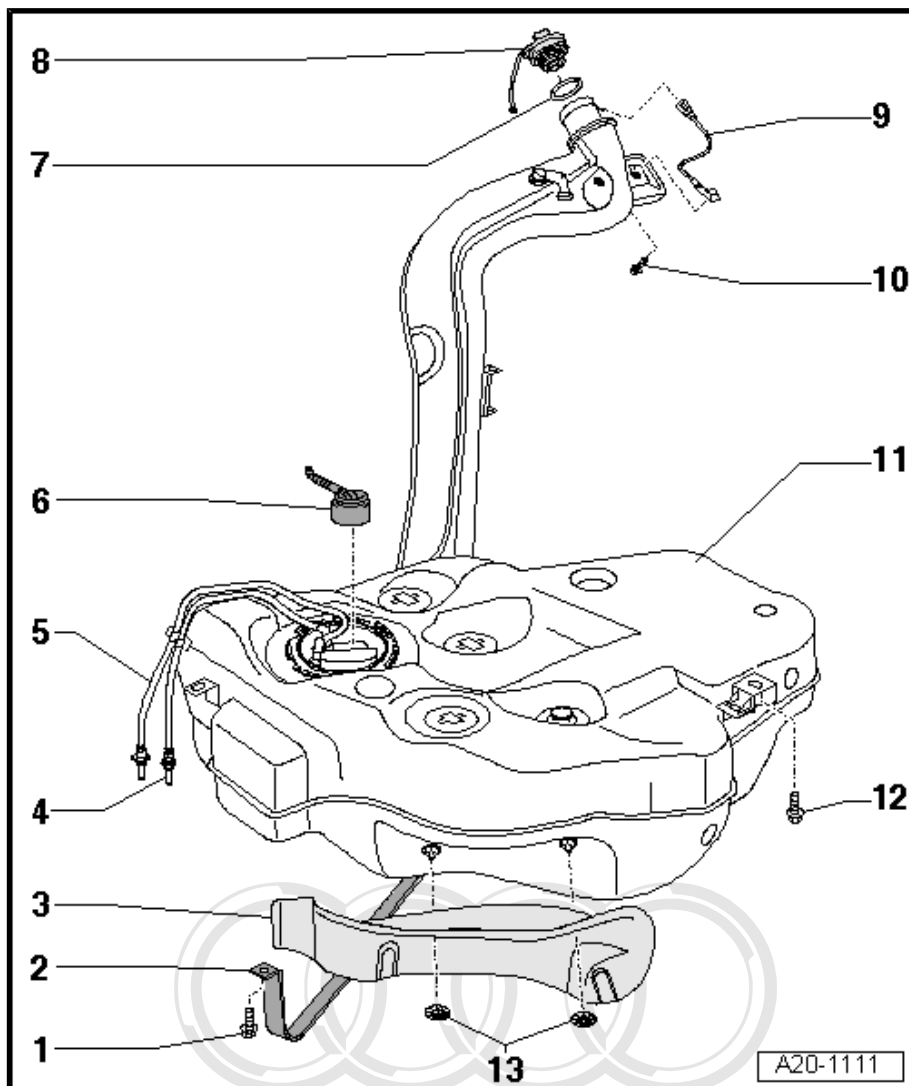
11 - Fuel tank

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

12 - 26 Nm

13 - Clamping washer

- ☐ Removing: turn anti-clockwise



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- ❑ Installing: tighten to 2 Nm

Installation position of earth connection

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

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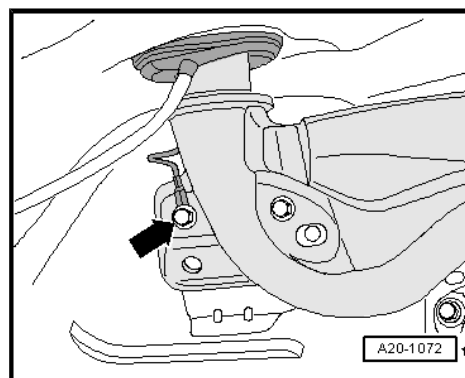
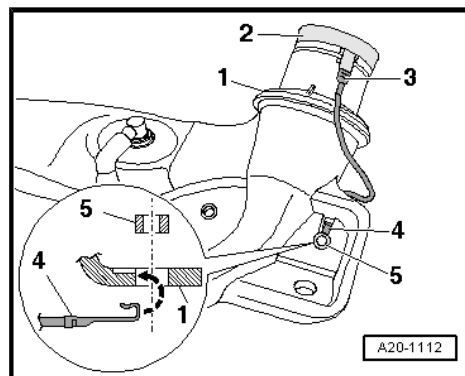
- Secure contact tab for earth connection with flange bolt -arrow- for fuel filler neck.



Caution

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:

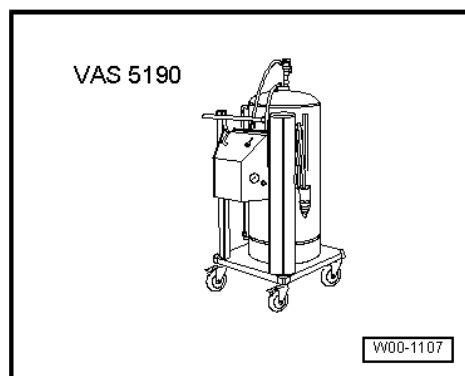
- *Specification: approx. 0 Ohm*



1.2 Draining fuel tank

Special tools and workshop equipment required

- ◆ Fuel extractor - VAS 5190-



Procedure

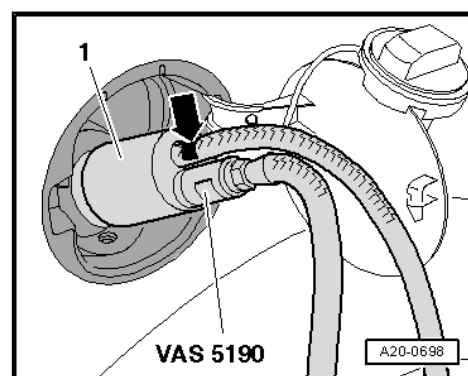
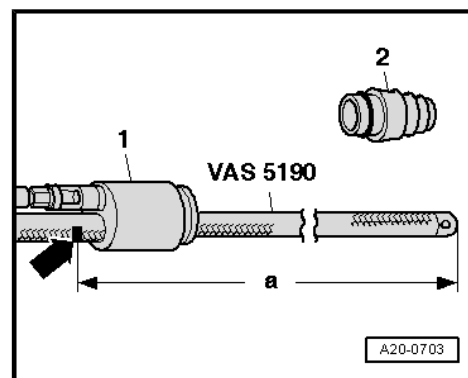
Observe safety precautions ⇒ [page 1](#) .

Observe rules for cleanliness ⇒ [page 3](#) .

Caution

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

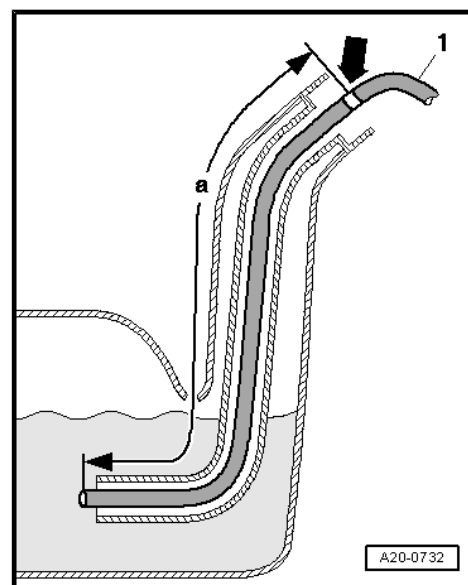
- Detach tapered adapter -2- from shaft end -1- of fuel extractor -VAS 5190- .
- Use insulating tape to mark the extraction hose -arrow- at a distance of -a- = 1,370 mm from the end of the hose.
- Remove filler cap from fuel filler neck.
- Screw shaft end -1- of fuel extractor -VAS 5190- onto fuel filler neck.
- Push extraction hose into fuel tank until marking on hose -arrow- coincides with shaft end.



Note

- ◆ The procedure when using a fuel extractor without a shaft end is fundamentally the same.
- ◆ In this case, make a mark -arrow- on the extraction hose at distance -a- = 1,305 mm from the end of the hose 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.

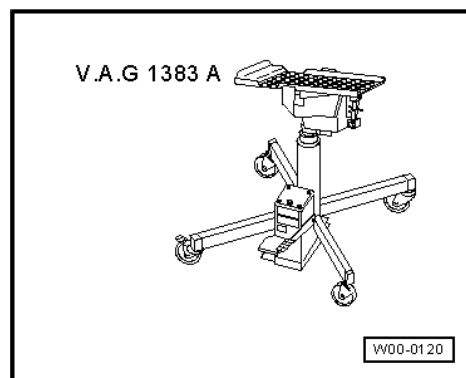
- Drain fuel tank via fuel filler neck.
- Carefully remove extraction hose.



1.3 Removing and installing fuel tank with attached components

Special tools and workshop equipment required

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



Removing

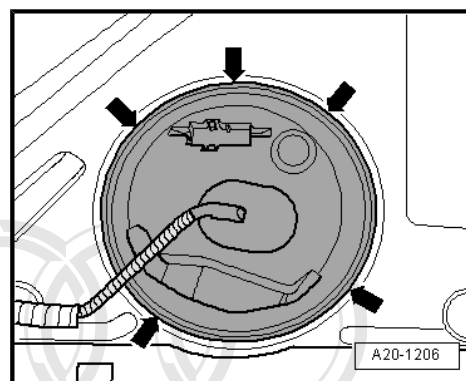
Observe safety precautions ⇒ [page 1](#) .

Observe rules for cleanliness ⇒ [page 3](#) .

- To reduce weight, the fuel tank must be empty when it is removed from the vehicle. Drain the tank if necessary. Procedure ⇒ [page 6](#)
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip retaining tabs -arrows- for flange cover.

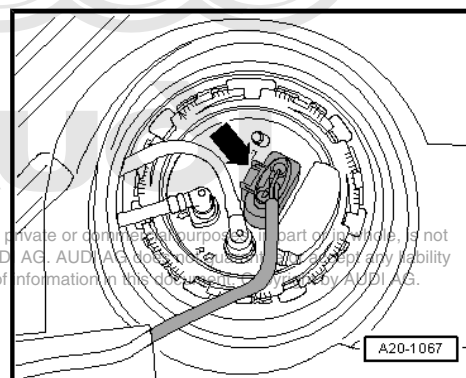
Vehicles with auxiliary heater:

- In addition, unplug electrical connector at metering pump for auxiliary heater.

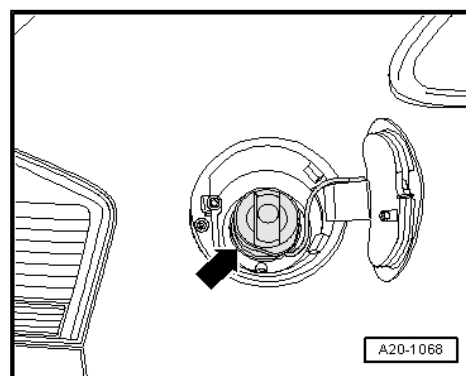


All vehicles (continued):

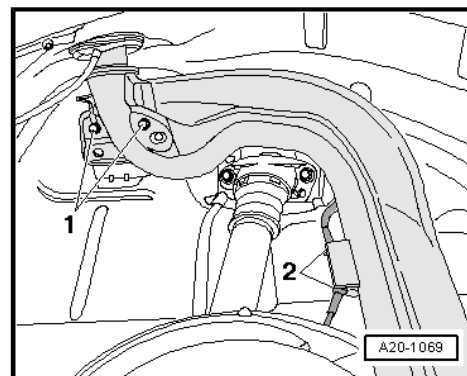
- Unplug electrical connector -arrow- at flange.



- 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.

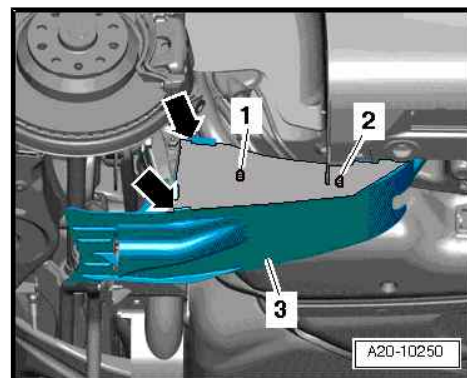


- Remove rear right wheel housing liner ⇒ Rep. gr. 66 .
- Unscrew bolts -1- for fuel filler neck.
- Detach electrical wire -2- of ABS speed sensor from bracket on fuel filler neck.

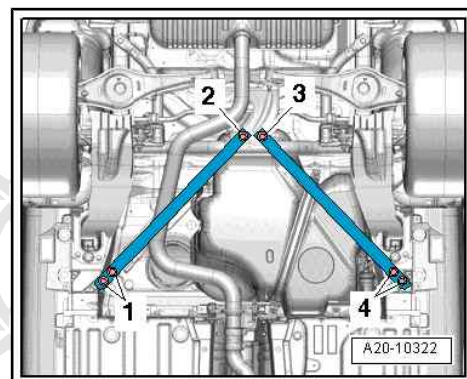


Audi A3 Cabriolet:

- Remove stone deflector strip -3- on trailing arm (right-side); to do so, press out spreader pins -1- and -2- and disengage stone deflector strip -arrows-.

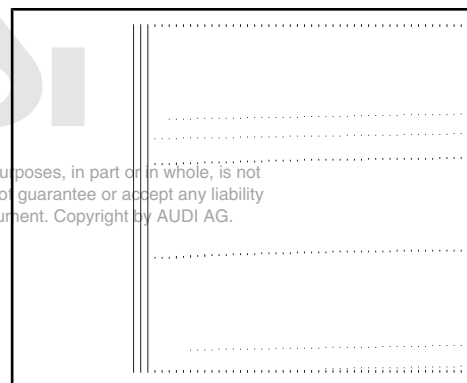


- Remove bolts -1 ... 4- and detach diagonal struts.



All vehicles (continued):

- Loosen nuts on clamp -arrows-.
- Push the clamp back in order to separate the exhaust system.



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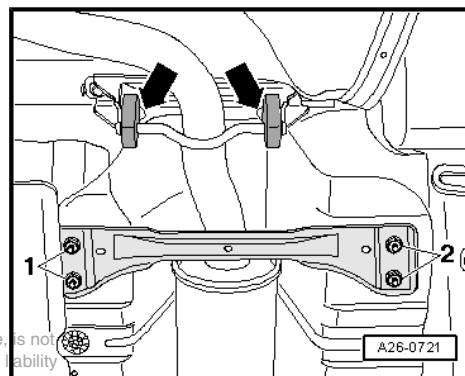
- Remove rear cross member for underbody; to do so, unscrew nuts -1- and -2-.



Note

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

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



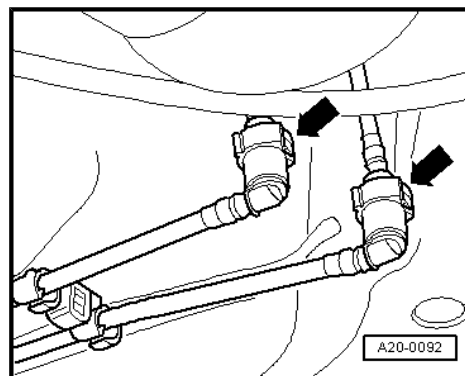
WARNING

- ◆ The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.
- ◆ In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.
- ◆ Put on protective gloves.
- ◆ Put on safety goggles.

- Detach fuel supply line (black) and fuel return line (blue) at front right of fuel tank by pressing release tabs -arrows-.

Vehicles with auxiliary heater:

- In addition, disconnect fuel supply line for auxiliary heater.



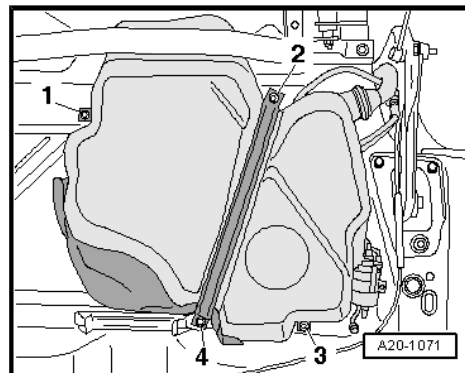
All vehicles (continued):



WARNING

To reduce weight, fuel tank must be empty upon removal.

- First unscrew bolts -1- and -3-.
- Position engine and gearbox jack - V.A.G 1383 A- below vehicle to support tank.
- Remove bolts -2- and -4-.
- Remove fuel tank downwards (turning it sideways as required).

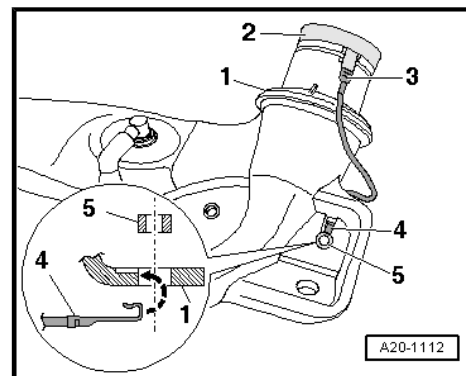


Installing

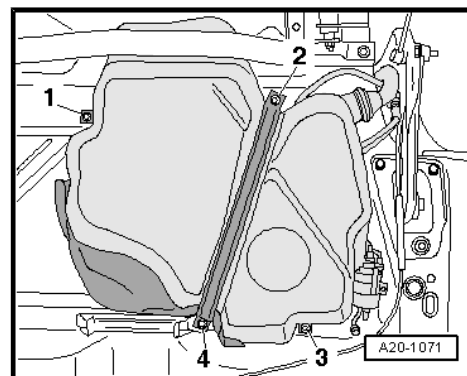
- Tightening torques ⇒ [page 5](#)

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

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



- Position fuel tank with securing strap 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- and -4-, then at points -1- and -3-.



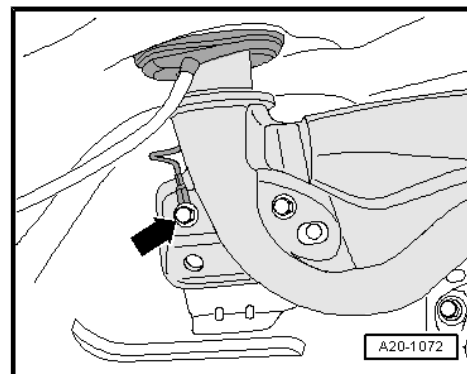
- Secure contact tab for earth connection with flange bolt -arrow- for fuel filler neck.



Caution

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 Ohm*



- Attach electrical wire for ABS speed sensor to bracket on fuel filler neck.
- Install rear section of exhaust system ⇒ Rep. gr. 26 .
- Install diagonal struts ⇒ Rep. gr. 42 .
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .

Vehicles with auxiliary heater:

- Bleed fuel supply line leading to metering pump
 ⇒ [page 98](#) .

2 Fuel delivery unit and fuel gauge sender - vehicles with front-wheel drive

2.1 Fuel delivery unit and fuel gauge sender - exploded view

1 - Fuel delivery unit

- ☐ Checking fuel system pressurisation pump - G6- (electrical test) ⇒ [page 13](#)
- ☐ Illustration shows version installed up to 10.2004.
- ☐ Removing and installing ⇒ [page 14](#)
- ☐ Put at least 5 litres of fuel into tank after installing

2 - Seal

- ☐ Renew
- ☐ Install dry

3 - Fuel supply line

- ☐ Black
- ☐ To fuel filter
- ☐ Do not kink
- ☐ Attached to connection marked "V" on flange
- ☐ To disconnect from flange, press release tab on connection piece
- ☐ Clip onto fuel tank

4 - Fuel return line

- ☐ Blue
- ☐ From fuel cooler
- ☐ Do not kink
- ☐ Attached to connection marked "R" on flange
- ☐ To disconnect from flange, press release tab on connection piece
- ☐ Clip onto fuel tank

5 - Electrical connector

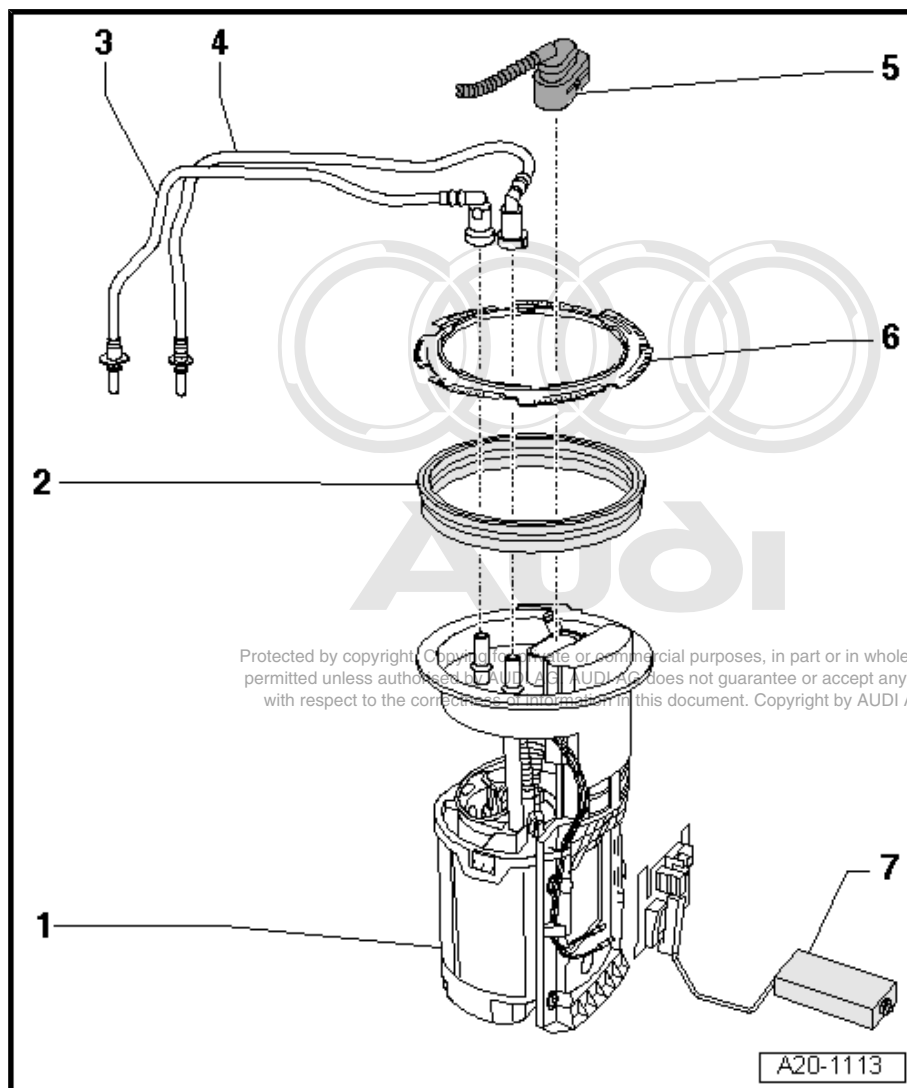
- ☐ For fuel system pressurisation pump - G6- and fuel gauge sender - G-

6 - Locking ring

- ☐ Remove and install using wrench - T10202-
- ☐ Tighten to 110 Nm

7 - Fuel gauge sender - G-

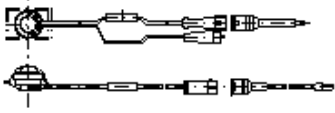
- ☐ Illustration shows version installed up to 10.2004.
- ☐ Checking resistance values ⇒ [page 17](#)
- ☐ Removing and installing: vehicles up to approx. 10.2004 ⇒ [page 20](#) , vehicles from approx. 10.2004 onwards ⇒ [page 20](#)



2.2 Fuel system pressurisation pump - G6- (electrical test)

Special tools and workshop equipment required

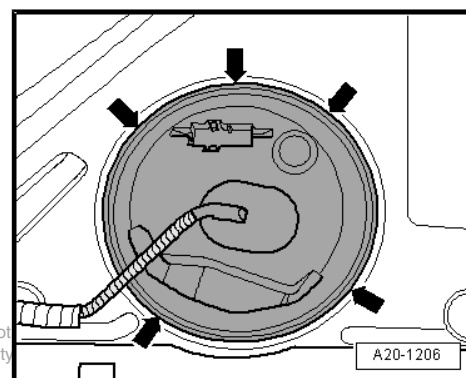
- ◆ Remote control - V.A.G 1348/3 A- with adapter cable - V.A.G 1348/3-3-
- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Auxiliary measuring set - V.A.G 1594C-

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

Procedure

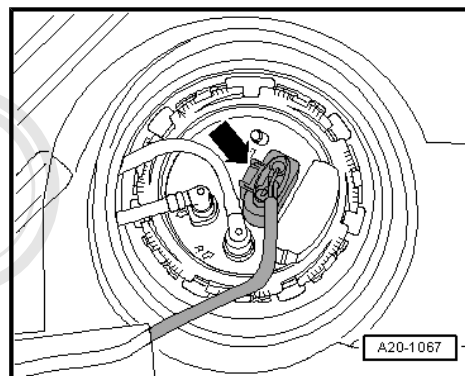
Observe test conditions ⇒ [page 3](#) .

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip retaining tabs -arrows- for flange cover.



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- Unplug electrical connector -arrow- at flange.



- Connect remote control - V.A.G 1348/3 A- with adapter cable - V.A.G 1348/3-3- to contact -1- using a test lead from auxiliary measuring set - V.A.G 1594C- .

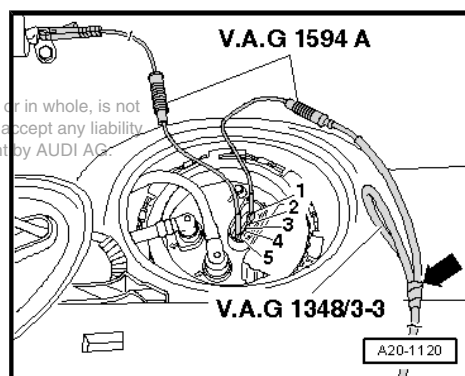
- Tape off 2nd connector contact of the adapter cable - V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.

- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .

- Connect crocodile clip to positive (“+”) battery terminal.

- Press remote control button.

- Pump should start running audibly.



Note

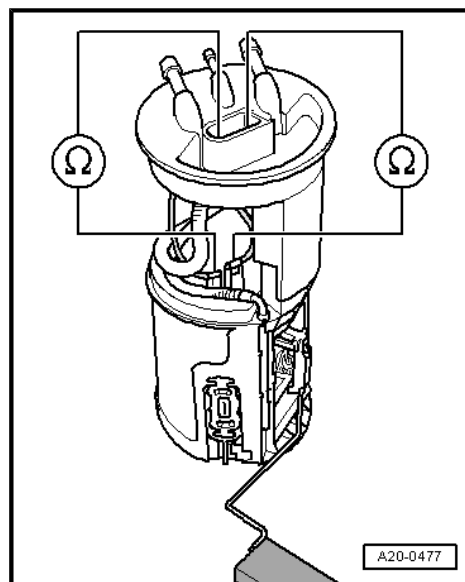
The fuel pump runs very quietly. Where possible, avoid noisy surroundings for this test.

If no noise can be heard from pump:

- Remove fuel delivery unit ⇒ [page 14](#) .
- 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.

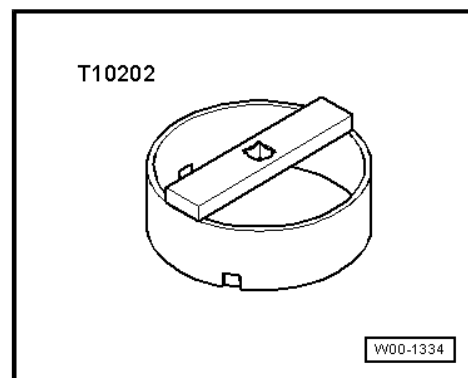
- Install fuel delivery unit ⇒ [page 16](#) .



2.3 Removing and installing fuel delivery unit

Special tools and workshop equipment required

◆ Wrench - T10202-

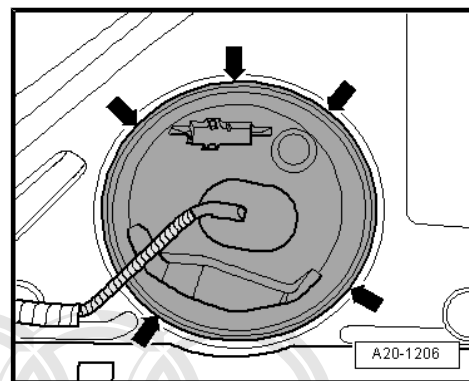


Removing

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

Observe rules for cleanliness ⇒ [page 3](#) .

- The fuel tank must not be more than $\frac{3}{4}$ full when removing the fuel delivery unit. Drain the tank if necessary. Procedure ⇒ [page 6](#)
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip retaining tabs -arrows- for flange cover.

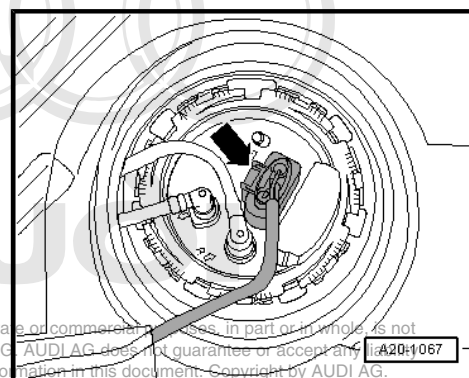


- Unplug electrical connector -arrow- at flange.



WARNING

- ◆ *The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.*
- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Put on protective gloves.*
- ◆ *Put on safety goggles.*

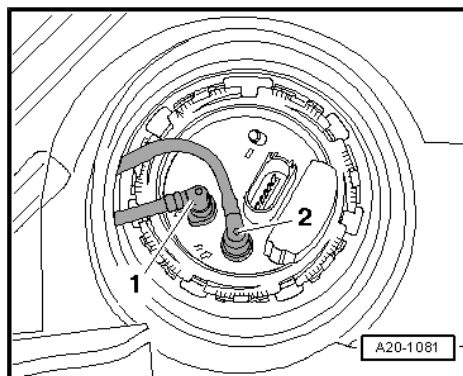


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- Disconnect fuel supply line -1- and fuel return line -2- by pressing release tabs.

Vehicles with auxiliary heater:

- In addition, disconnect fuel supply line for auxiliary heater.
Procedure ⇒ Rep. gr. 82



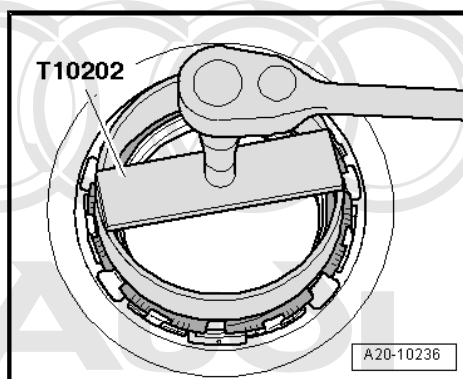
All vehicles (continued):



Caution

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.

- Unscrew locking ring using wrench - T10202- .
- Pull fuel delivery unit with seal out of opening in fuel tank.



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.*

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Installing

- Tightening torque ⇒ [page 12](#)

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



Note

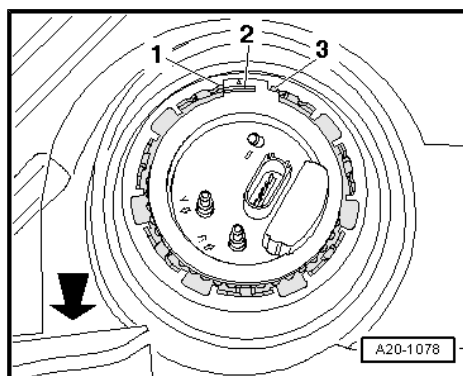
- ◆ *Take care not to bend the fuel gauge sender when fitting fuel delivery unit.*
- ◆ *Ensure that fuel hoses are securely seated.*

- Insert fuel delivery unit into fuel tank.
- Install new seal for flange (seal must be installed dry).
- Press flange down against spring pressure, and turn flange to installation position.
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



Note

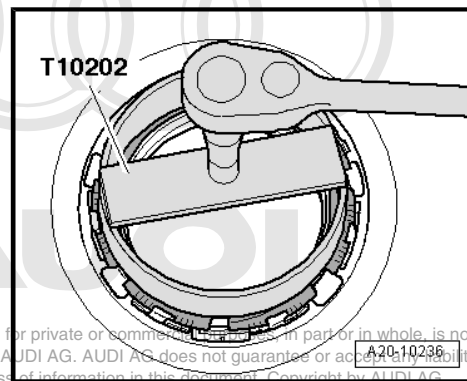
The -arrow- points in direction of travel.



- Tighten locking ring.
- Put at least 5 litres of fuel into tank after installing fuel delivery unit.

Vehicles with auxiliary heater:

- Bleed fuel supply line leading to metering pump
 ⇒ [page 98](#) .

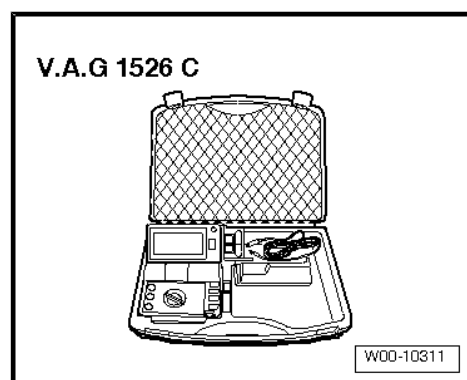


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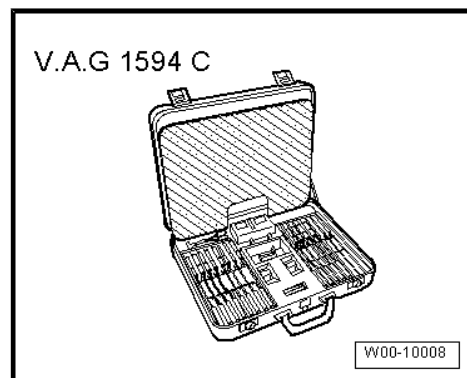
2.4 Checking fuel gauge sender - G-

Special tools and workshop equipment required

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

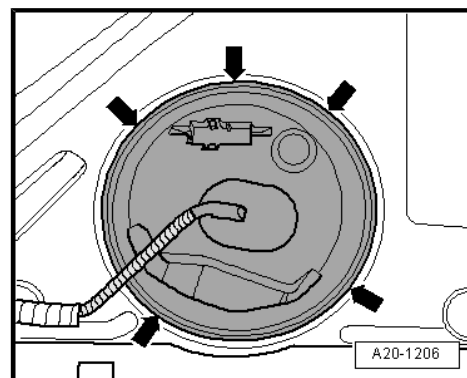


- ◆ Auxiliary measuring set - V.A.G 1594C-

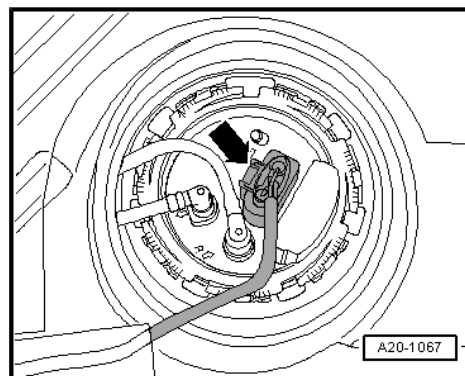


Procedure

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip retaining tabs -arrows- for flange cover.



- Unplug electrical connector -arrow- at flange.



Vehicles up to 10.2004:



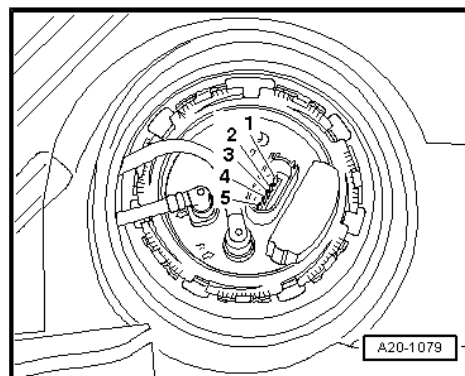
Note

In vehicles with two-wire sender, 4 contacts are connected in the electrical connector for fuel gauge sender - G- .

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

Fuel gauge sender - G- installed:

- Sender at lower stop: approx. 270 Ω .
- Sender at upper stop: approx. 70 Ω .



Note

- ◆ *To test the maximum and minimum resistance values for “tank full” and “tank empty”, remove the fuel delivery unit [⇒ page 14](#) and move the sender float all the way to its top or bottom position.*
- ◆ *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.*
- ◆ *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. 290 Ω .
- Sender at upper stop: approx. 54 Ω .

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

- Install rear seat bench $\Rightarrow$ Rep. gr. 72 .



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Vehicles from 10.2004 onwards:



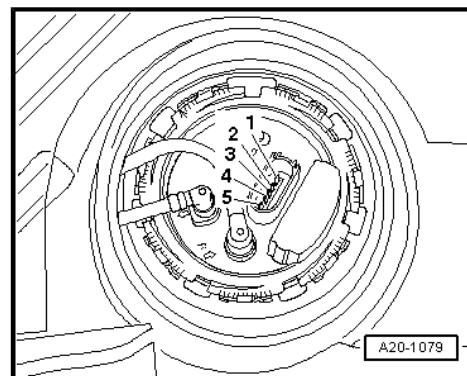
Note

In vehicles with three-wire sender, 5 contacts are connected in the electrical connector for fuel gauge sender - G- .

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

Fuel gauge sender - G- installed:

- Sender at lower stop: approx. 270 Ω .
- Sender at upper stop: approx. 70 Ω .



Note

- ◆ *To test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel delivery unit [⇒ page 14](#) and move the sender float all the way to its top or bottom position.*
- ◆ *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.*
- ◆ *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. 290 Ω .
- Sender at upper stop: approx. 50 Ω .
- Connect multimeter (resistance test) between contacts -3- and -4-.

Fuel gauge sender - G- installed or removed:

- Sender in any position: approx. 340 Ω .

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

- Install rear seat bench $\Rightarrow$ Rep. gr. 72 .



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2.5 Removing and installing fuel gauge sender - G- - vehicles up to approx. 10.2004

Removing

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

Observe rules for cleanliness ⇒ [page 3](#) .

- Remove fuel delivery unit ⇒ [page 14](#) .



Caution

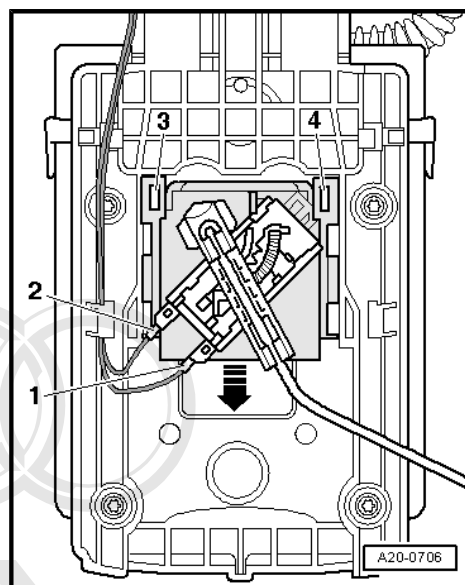
First release retainer tabs on connector contact before detaching electrical connectors on fuel gauge sender - G- .

- Release retainer tabs on electrical connectors -1- and -2- and then detach electrical connectors.
- Lift retaining tabs -3- and -4- with a screwdriver and pull fuel gauge sender - G- off downwards -arrow-.

Installing

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

- Insert fuel gauge sender - G- into guides on fuel delivery unit and press upwards until it clicks into place.
- Plug in electrical connectors and check that they have engaged properly.
- Install fuel delivery unit ⇒ [page 16](#) .



2.6 Removing and installing fuel gauge sender - G- - vehicles from approx. 10.2004 onwards

Removing

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

Observe rules for cleanliness ⇒ [page 3](#) .

- Remove fuel delivery unit ⇒ [page 14](#) .

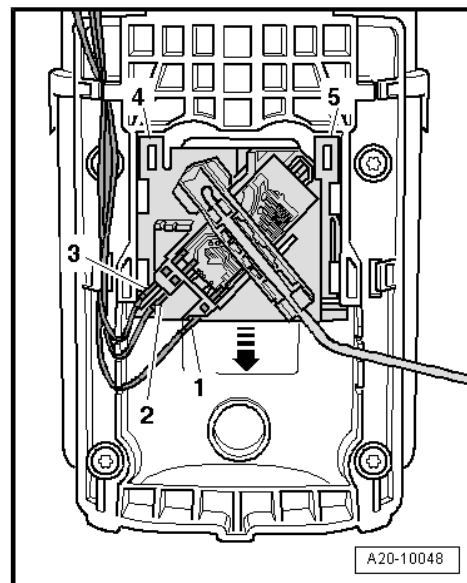
Version 1:



Caution

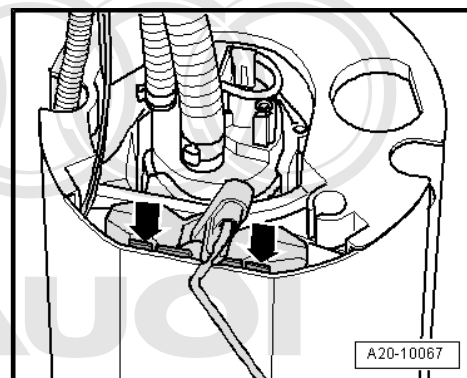
First release retainer tabs on connector contact before detaching electrical connectors on fuel gauge sender - G- .

- Release and detach electrical connectors -1 ... 3-.
- Lift retaining tabs -4- and -5- with a screwdriver and pull fuel gauge sender - G- off downwards -arrow-.



Version 2:

- Use screwdriver to release retaining tabs -arrows- and lift out fuel gauge sender - G- .



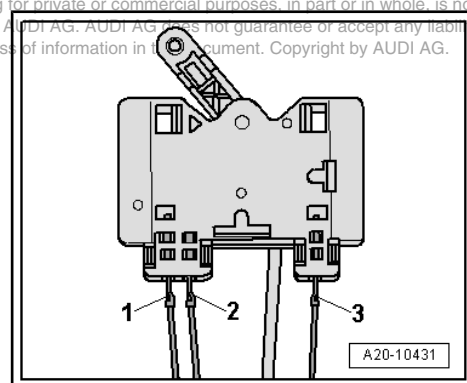
Caution

First release retainer tabs on connector contact before detaching electrical connectors on fuel gauge sender - G- .

- Release and detach electrical connectors -1 ... 3-.

Installing

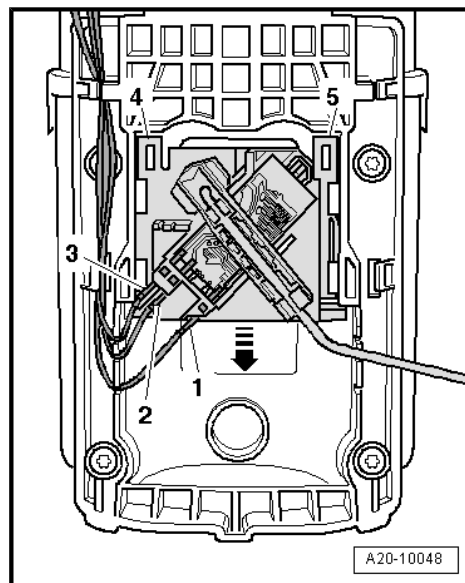
Installation is carried out in the reverse order; note the following:



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Version 1:

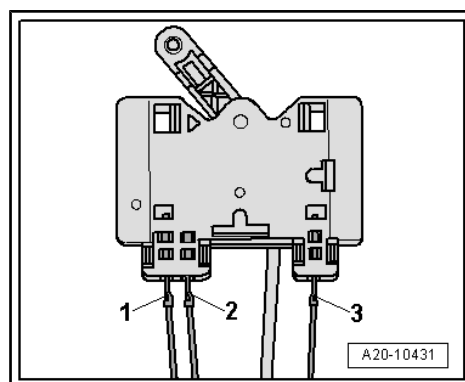
- Insert fuel gauge sender - G- into guides on fuel delivery unit and press upwards until it clicks into place.
- Plug in electrical connectors -1 ... 3- and check that they have engaged properly.


Version 2:

- Plug in electrical connectors -1 ... 3- and check that they have engaged properly.
- Insert fuel gauge sender - G- into guides on fuel delivery unit and press upwards until it clicks into place.

All versions (continued):

- Install fuel delivery unit ⇒ [page 16](#) .



3 Fuel tank - vehicles with four-wheel drive

3.1 Fuel tank with attached components - exploded view

1 - 26 Nm

2 - Heat shield for fuel tank

- ☐ With support bracket

3 - Fuel supply line

- ☐ Black
- ☐ To fuel filter
- ☐ Do not kink
- ☐ Clip onto fuel tank

4 - Fuel return line

- ☐ Blue
- ☐ From fuel cooler
- ☐ Do not kink
- ☐ Clip onto fuel tank

5 - Electrical connector

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

6 - Seal

- ☐ Renew if damaged

7 - Filler cap

- ☐ Secured to tank flap unit

8 - Earth connection

- ☐ To eliminate electrostatic charge
- ☐ Installation position
 ⇒ [page 24](#)
- ☐ Make sure connector is correctly seated and secure wire with flange bolt for fuel filler neck -item 9-.

- ☐ 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 ohms

9 - Flange bolt, 11 Nm

- ☐ Secures fuel filler neck and earth connection -item 8-

10 - Electrical connector

- ☐ For fuel gauge sender 2 - G169-

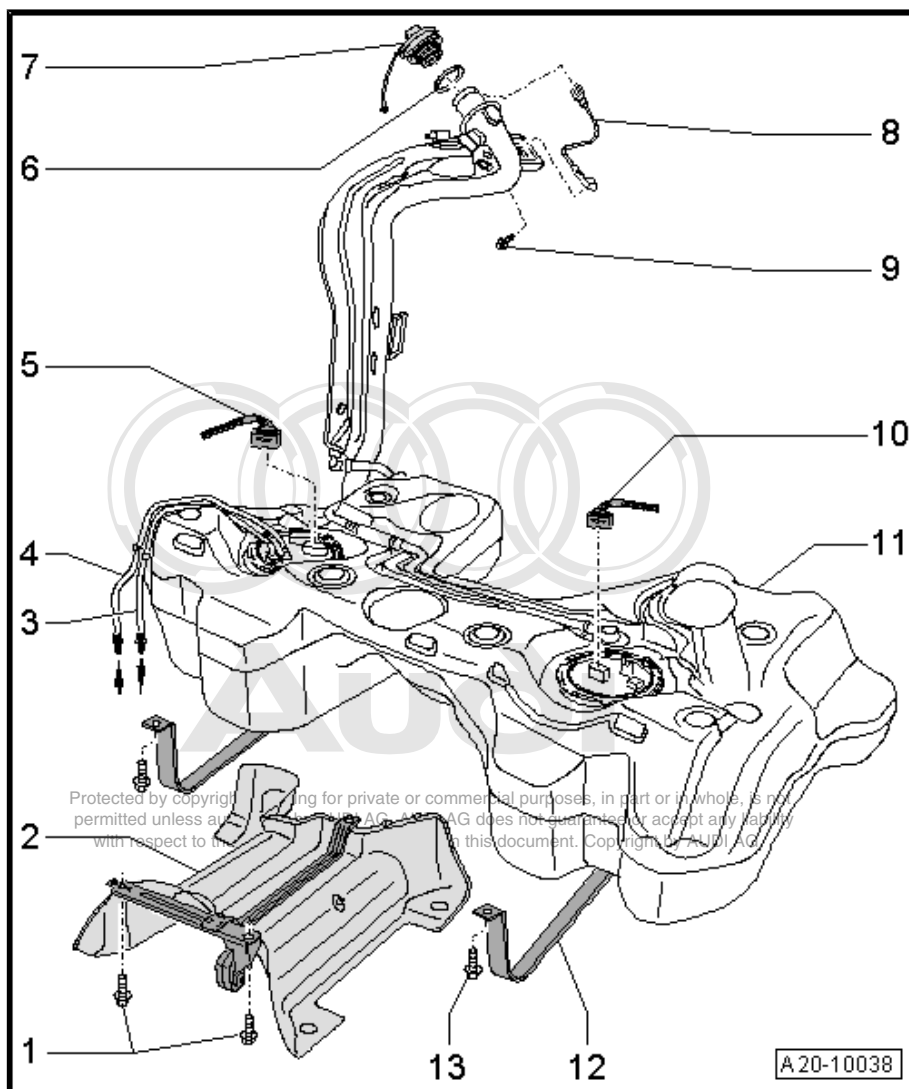
11 - Fuel tank

- ☐ Removing and installing ⇒ [page 25](#)

12 - Securing strap

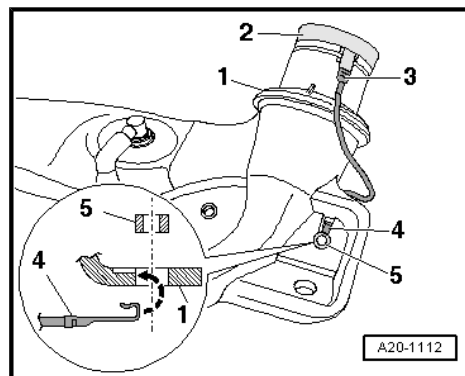
- ☐ Installation position: Fixing point (hole) points in direction of travel

13 - 26 Nm



Installation position of earth connection

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



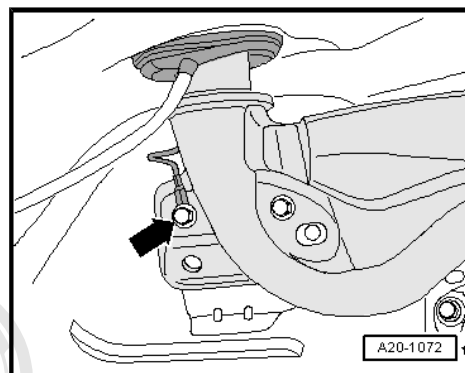
- Secure contact tab for earth connection with securing bolt -arrow- for fuel filler neck.



Caution

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:

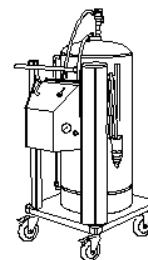
- *Specification: approx. 0 Ohm*



3.2 Draining fuel tank

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VAS 5190



W00-1107

Special tools and workshop equipment required

- ◆ Fuel extractor - VAS 5190-

Procedure

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

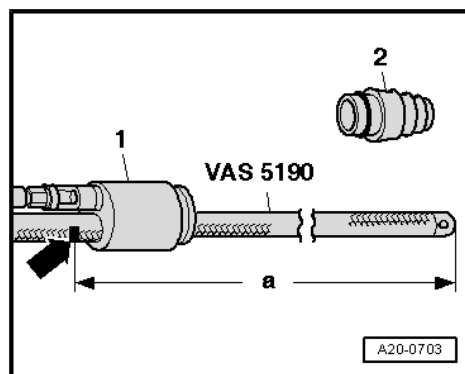
Observe rules for cleanliness ⇒ [page 3](#) .



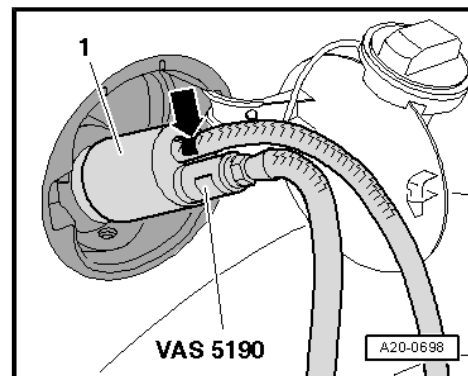
Caution

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

- Detach tapered adapter -2- from shaft end -1- of fuel extractor -VAS 5190- .
- Use insulating tape to mark the extraction hose -arrow- at a distance of -a- = 1,370 mm from the end of the 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.

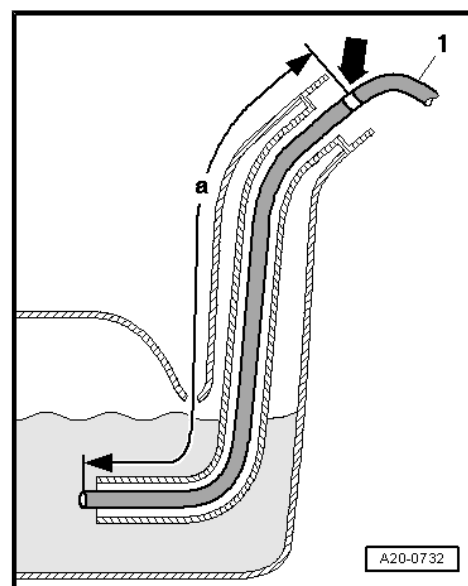


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Note

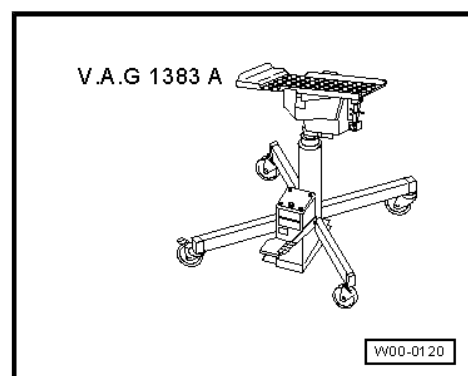
- ◆ *The procedure when using a fuel extractor without a shaft end is fundamentally the same.*
- ◆ *In this case, make a mark -arrow- on the extraction hose at distance -a- = 1,305 mm from the end of the hose using insulating tape. The extraction hose has been properly inserted when the affixed mark 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.*
- Drain fuel tank as much as possible through fuel filler neck.
- Carefully remove extraction hose.
- Remove fuel delivery unit ⇒ [page 34](#) .
- Extract 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.



3.3 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](#) .

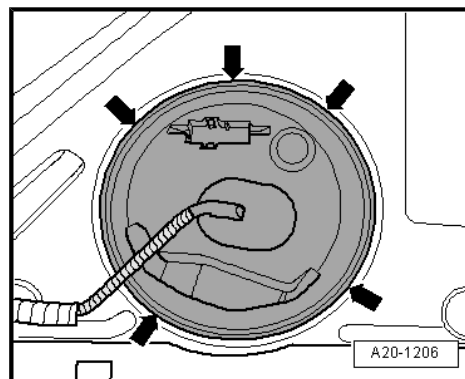
Observe rules for cleanliness ⇒ [page 3](#) .

- To reduce weight, the fuel tank must be empty when it is removed from the vehicle. Drain the tank if necessary. Procedure ⇒ [page 24](#)

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (right-side).

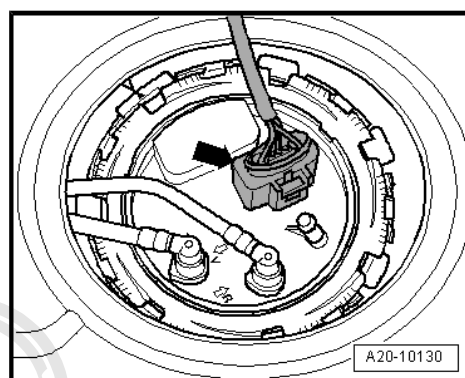
Vehicles with auxiliary heater:

- In addition, unplug electrical connector at metering pump for auxiliary heater.

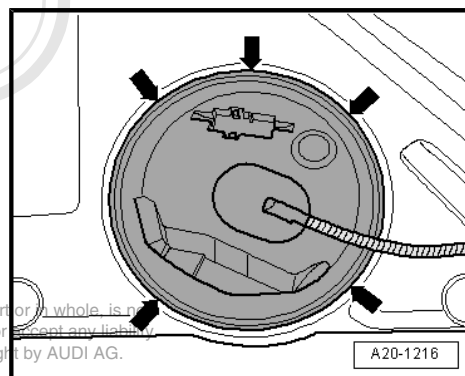


All vehicles (continued):

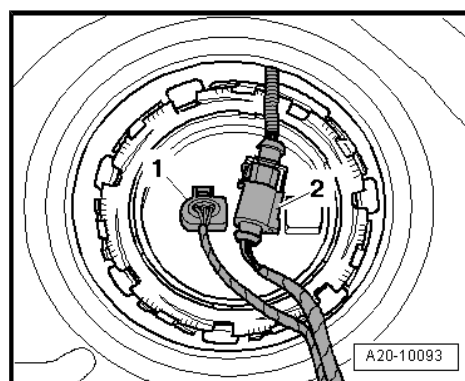
- Unplug electrical connector -arrow- at flange.



- Unclip the retaining tabs -arrows- for the flange cover (left-side).

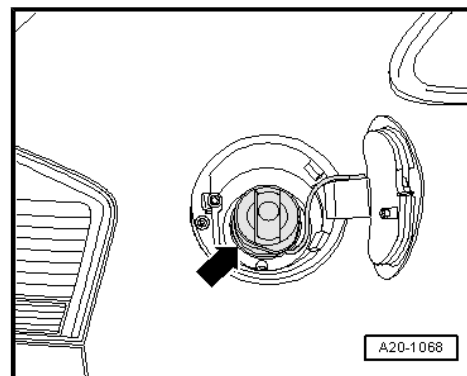


- Unplug electrical connector -1- at flange.
- Unplug electrical connector -2- for Haldex coupling.

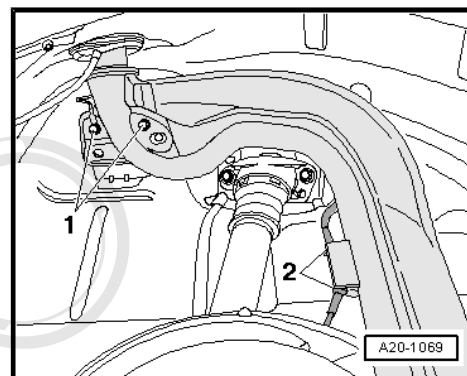


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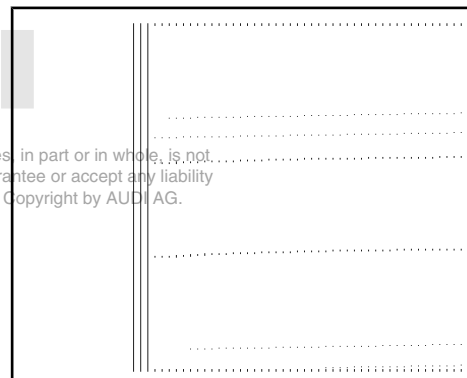
- Open the tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -arrow- from fuel filler neck.
- Seal opening of fuel filler neck with a piece of clean foam or similar to prevent dirt from dropping into the tank.



- Remove rear right wheel housing liner ⇒ Rep. gr. 66 .
- Unscrew bolts -1- for fuel filler neck.
- Detach electrical wire -2- for ABS speed sensor from bracket on fuel filler neck.



- Loosen nuts on clamp -arrows-.
- Push the clamp back in order to separate the exhaust system.



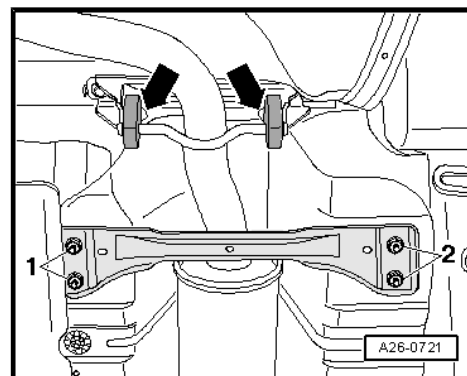
- Remove rear cross member for underbody; to do so, unscrew nuts -1- and -2-.



Note

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

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

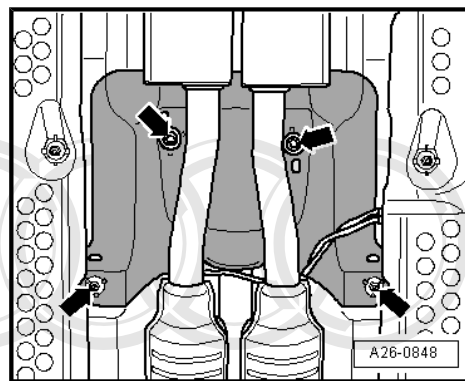


- Remove heat shield for propshaft -arrows-.
- Remove propshaft ⇒ Rep. gr. 39 .



WARNING

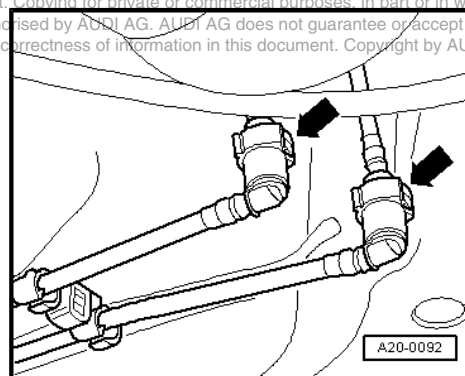
- ◆ *The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.*
- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Put on protective gloves.*
- ◆ *Put on safety goggles.*



- Detach fuel supply line (black) and fuel return line (blue) at front right of fuel tank by pressing release tabs -arrows-.

Vehicles with auxiliary heater:

- In addition, disconnect fuel supply line for auxiliary heater.



All vehicles (continued):



WARNING

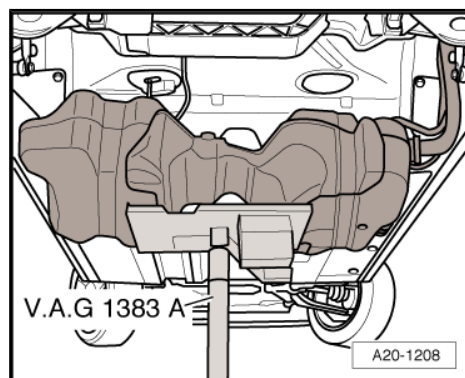
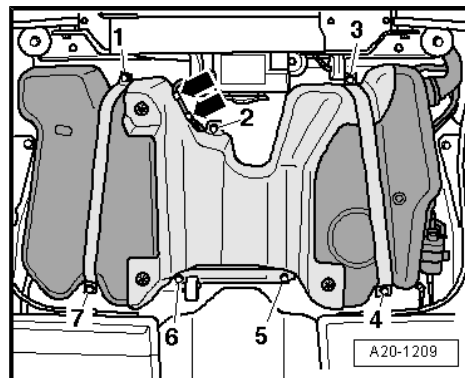
To reduce weight, fuel tank must be empty upon removal.

- First unscrew bolts -2-, -5- and -6-.
- Disengage wiring harness -arrows- and move clear.
- Position engine and gearbox jack - V.A.G 1383 A- below vehicle to support tank.
- Unscrew bolts -1-, -3-, -4- and -7-.
- Then lower fuel tank using engine and gearbox jack - V.A.G 1383 A- , simultaneously guiding fuel tank down by hand.
- Remove fuel tank downwards (turning it sideways as required).
- In addition, a 2nd mechanic will be required to guide the fuel filler neck on trailing arm out by hand.

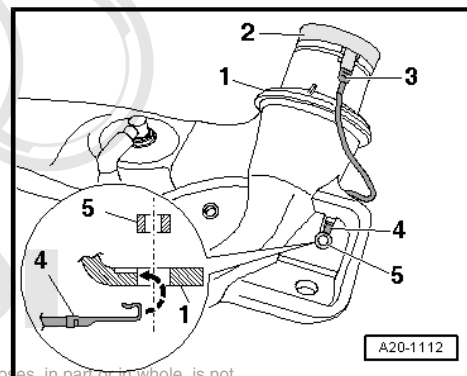
Installing

- Tightening torques ⇒ [page 23](#)

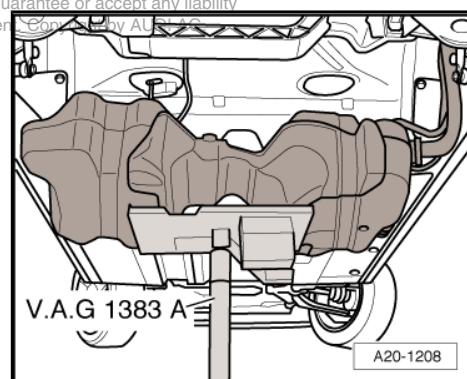
Installation is carried out in the reverse order; note the following:



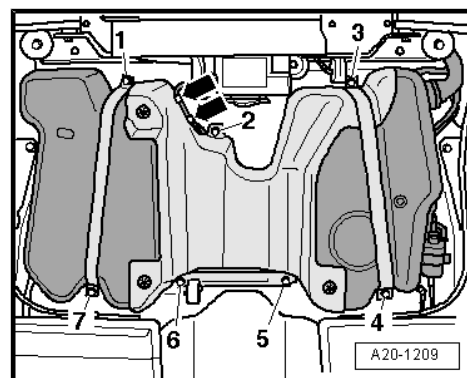
- Check the earth wiring at both ends for traces of oxidation and remove oxidation if necessary.
- Check installation position of earth connection:
 - Connector -3- must be seated securely on metal ring -2-.
 - Contact tab -4- must be attached to fuel tank -1- and secured with spacer bush -5-.



- Position fuel tank with securing straps on underbody, using engine and gearbox jack - V.A.G 1383 A- .
- Attach wiring harness at top of fuel tank.
- 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 -1, 3, 4, 7-, then at points -2, 5, 6-.

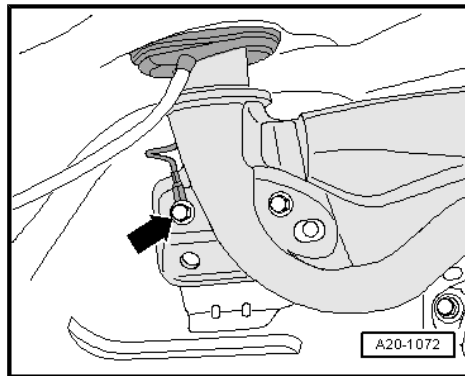


- Secure contact tab for earth connection with securing bolt -arrow- for fuel filler neck.

**Caution**

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 Ohm*



- Attach electrical wire for ABS speed sensor to bracket on fuel filler neck.
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .
- Install propshaft ⇒ Rep. gr. 39 .
- Install rear section of exhaust system ⇒ Rep. gr. 26 .
- Install rear seat bench ⇒ Rep. gr. 72 .

Vehicles with auxiliary heater:

- Bleed fuel supply line leading to metering pump
⇒ [page 98](#) .



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4 Fuel delivery unit and fuel gauge senders - version 1 for vehicles with four-wheel drive

4.1 Fuel delivery unit and fuel gauge senders - exploded view

1 - Fuel gauge sender - G-

- ☐ Checking resistance values ➔ [page 37](#)
- ☐ Removing and installing: vehicles up to approx. 10.2004 ➔ [page 41](#), vehicles from approx. 10.2004 onwards ➔ [page 42](#)

2 - Fuel delivery unit with flange

- ☐ Checking fuel system pressurisation pump - G6- (electrical test) ➔ [page 33](#)
- ☐ Removing and installing ➔ [page 34](#)
- ☐ Put at least 5 litres of fuel into tank after installing

3 - Seal

- ☐ Renew
- ☐ Install dry

4 - Fuel supply line

- ☐ Black
- ☐ To fuel filter
- ☐ Do not kink
- ☐ Attached to connection marked "V" on flange
- ☐ To disconnect from flange, press release tab on connection piece

5 - Fuel return line

- ☐ Blue
- ☐ Do not kink
- ☐ Attached to connection marked "R" on flange
- ☐ To disconnect from flange, press release tab on connection piece

6 - Electrical connector

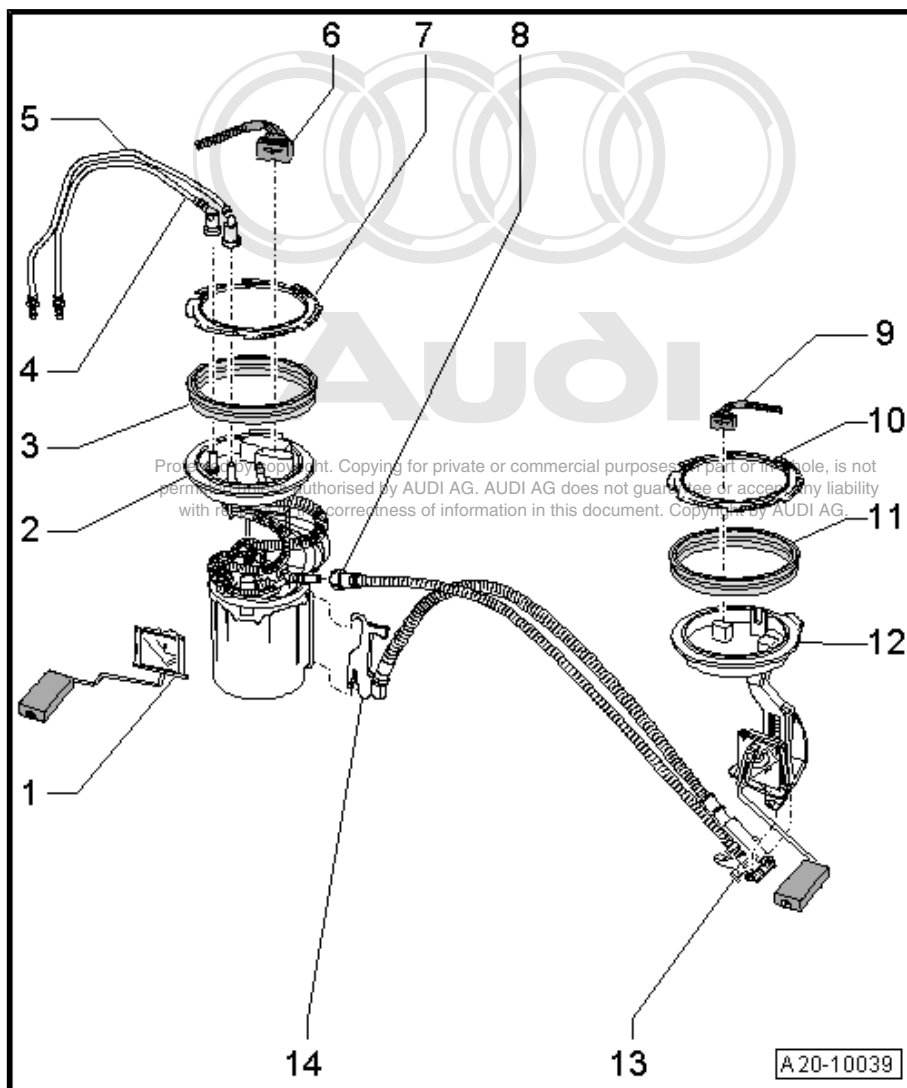
- ☐ For fuel system pressurisation pump - G6- and fuel gauge sender - G-

7 - Locking ring

- ☐ Remove and install using wrench - T10202-
- ☐ Tighten to 110 Nm

8 - Supply line for suction-jet pump

- ☐ From fuel pump to suction-jet pump
- ☐ Press release tab on connection piece to disconnect



9 - Electrical connector

- ☐ For fuel gauge sender 2 - G169-

10 - Locking ring

- ☐ Remove and install using wrench - T10202-
- ☐ Tighten to 110 Nm

11 - Seal

- ☐ Renew
- ☐ Install dry

12 - Fuel gauge sender 2 - G169-

- ☐ Only available together with -item 13-.
- ☐ Checking resistance values ⇒ [page 42](#)
- ☐ Removing and installing ⇒ [page 44](#)
- ☐ Installation position ⇒ [page 46](#)

13 - Suction-jet pump

- ☐ Only available together with -item 12-.
- ☐ Removing and installing ⇒ [page 47](#)
- ☐ Put at least 5 litres of fuel into tank after installing

14 - Fuel supply line

- ☐ From suction-jet pump to fuel delivery unit
- ☐ Secured to fuel delivery unit

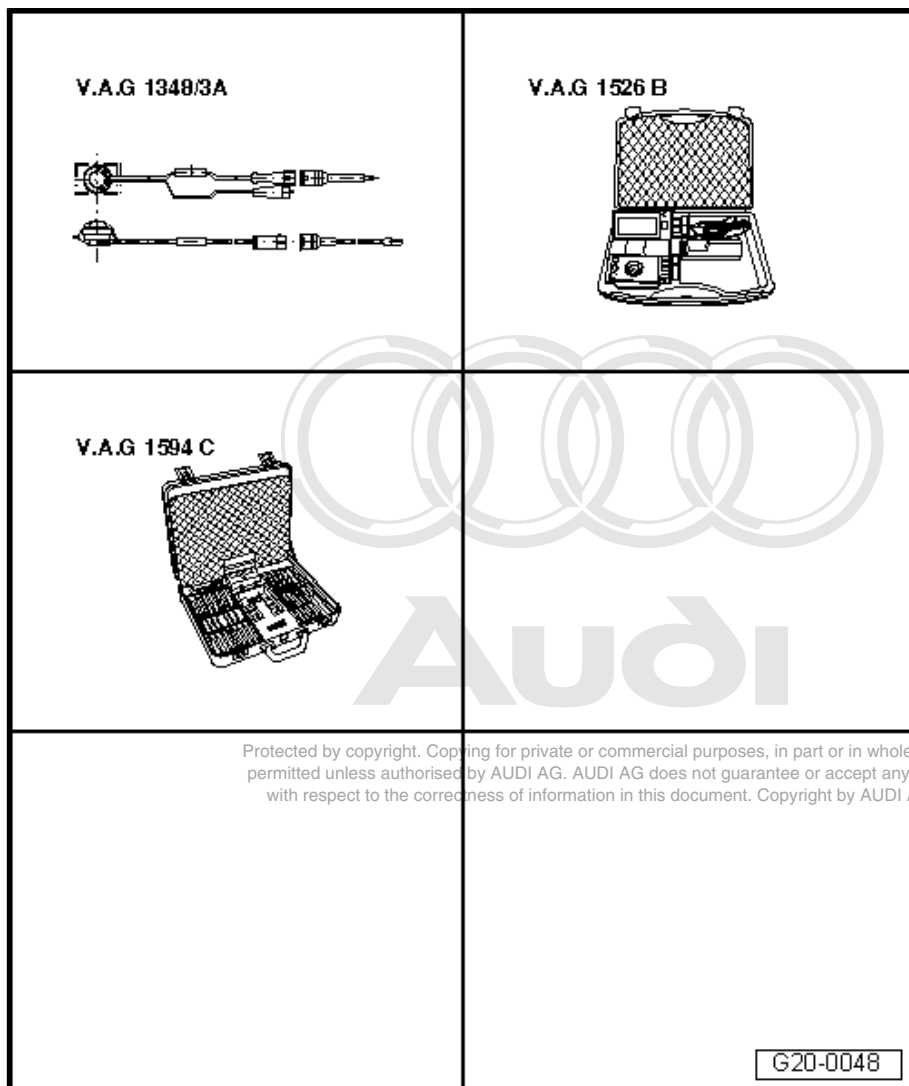


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4.2 Fuel system pressurisation pump - G6- (electrical test)

Special tools and workshop equipment required

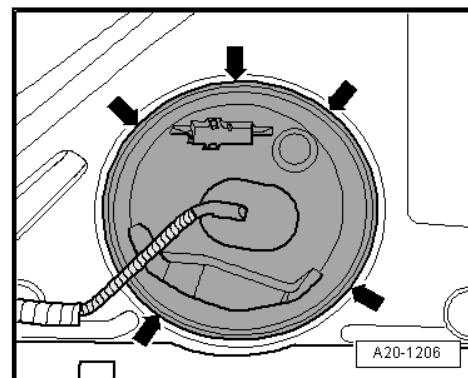
- ◆ Remote control - V.A.G 1348/3 A- with adapter cable - V.A.G 1348/3-3-
- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Auxiliary measuring set - V.A.G 1594C-



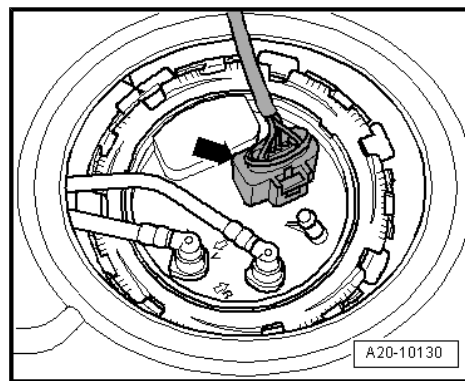
Procedure

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

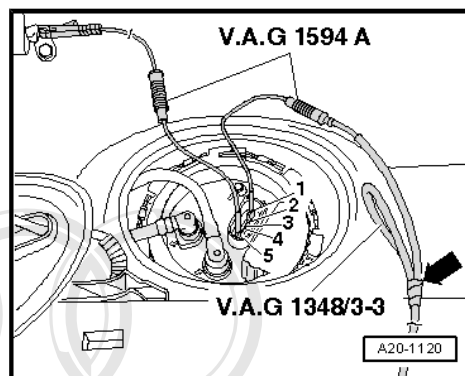
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip retaining tabs -arrows- for flange cover.



- Unplug electrical connector -arrow- at flange.



- Connect remote control - V.A.G 1348/3 A- with adapter cable - V.A.G 1348/3-3- to contact -1- using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Tape off 2nd connector contact of the adapter cable - V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Connect crocodile clip to positive (+) terminal of battery.
- Press remote control button.
- Pump should start running audibly.



Note

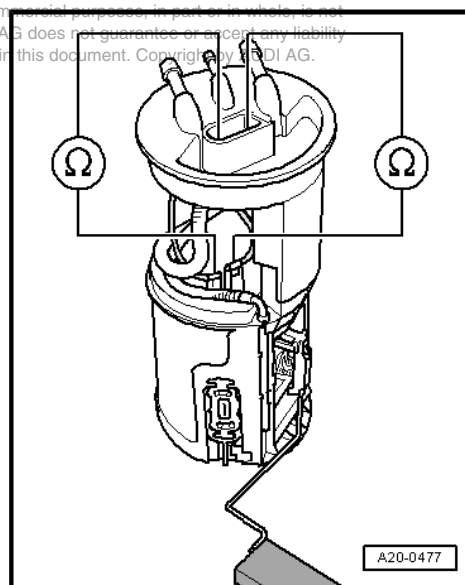
The fuel pump runs very quietly. Where possible, avoid noisy surroundings for this test.

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.

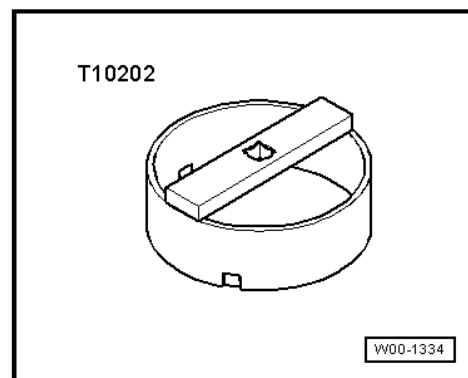
- Install fuel delivery unit ⇒ [page 36](#) .



4.3 Removing and installing fuel delivery unit

Special tools and workshop equipment required

◆ Wrench - T10202-

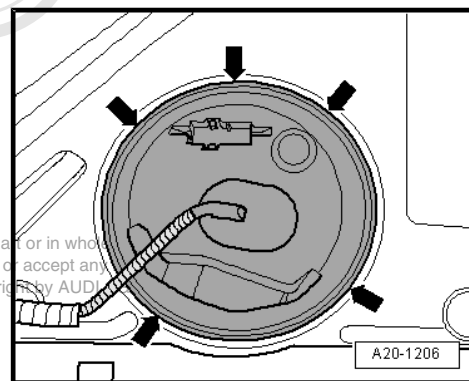


Removing

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

Observe rules for cleanliness ⇒ [page 3](#) .

- The fuel tank must not be more than $\frac{1}{3}$ full when removing the fuel delivery unit. Drain the tank if necessary. Procedure ⇒ [page 24](#)
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (right-side).

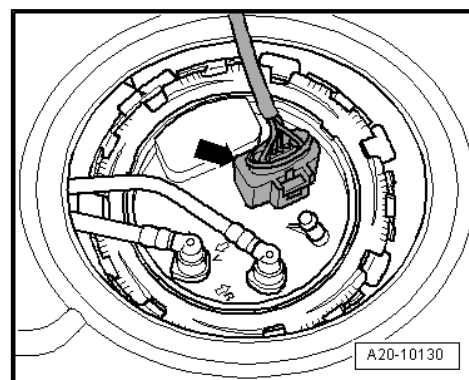


- Unplug electrical connector -arrow- at flange.



WARNING

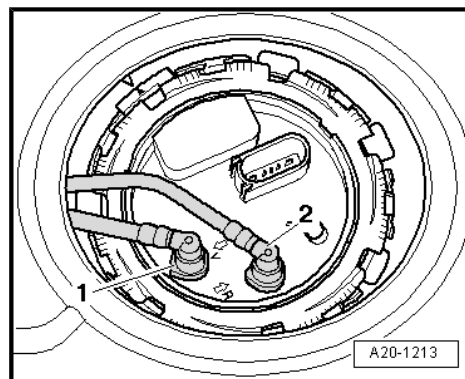
- ◆ *The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.*
- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Put on protective gloves.*
- ◆ *Put on safety goggles.*



- Disconnect fuel supply line -1- and fuel return line -2- by pressing release tabs.

Vehicles with auxiliary heater:

- In addition, disconnect fuel supply line for auxiliary heater.
Procedure ⇒ Rep. gr. 82



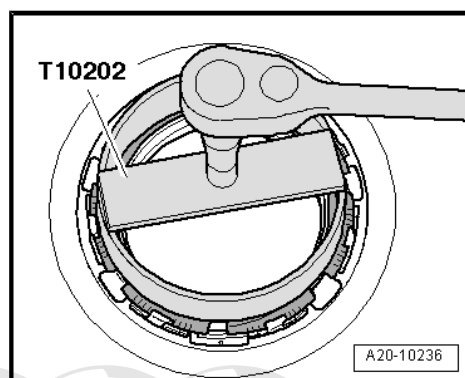
All vehicles (continued):



Caution

The fuel tank must not be more than 1/3 full when removing the fuel delivery unit. Otherwise a large amount of fuel will escape.

- Unscrew locking ring using wrench - T10202- .
- Take flange (right-side) and seal of fuel delivery unit out of opening in fuel tank and move clear, leaving pipes connected.
- In opening in fuel tank, press release tab to disconnect supply line -1- to suction-jet pump.
- Pull up retaining tab -arrow- and disengage fuel supply line -2- at fuel delivery unit.
- 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

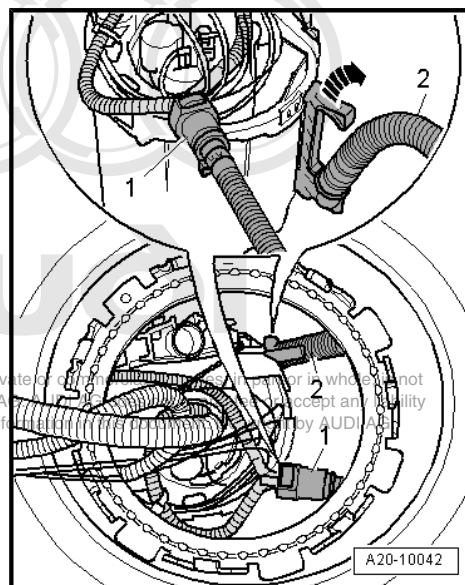
- Tightening torque ⇒ [page 31](#)

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



Note

- ♦ Take care not to bend the fuel gauge sender - G- when fitting the fuel delivery unit.
- ♦ Ensure that fuel hoses are securely seated.
- Insert fuel delivery unit into fuel tank, with flange set aside.
- Fit fuel supply line -2- onto fuel delivery unit so that it engages audibly.
- Fit supply line -1- leading to suction-jet pump so that it engages audibly.

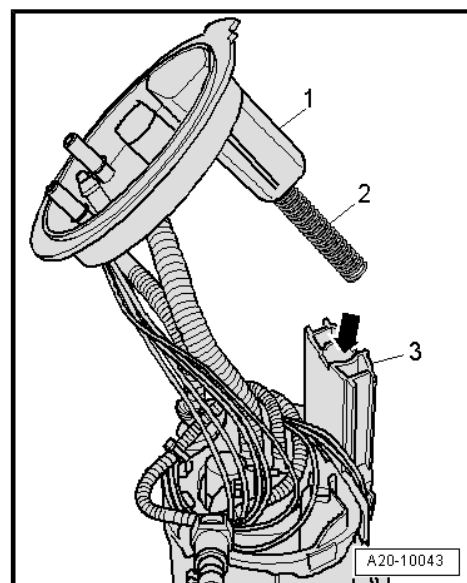


- Install new seal for flange (seal must be installed dry).
- Insert spring -2- into guide bore -arrow- and fit guide -1- (on flange) onto guide -3- on fuel delivery unit.



Note

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

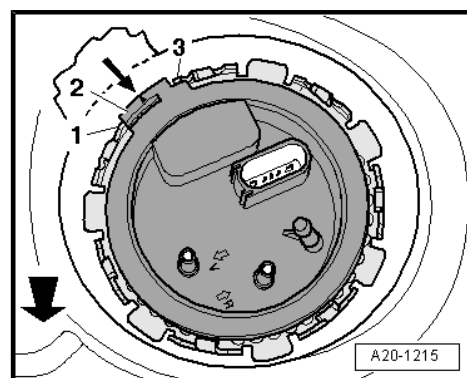


- Press flange down against spring pressure, and turn flange to installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.



Note

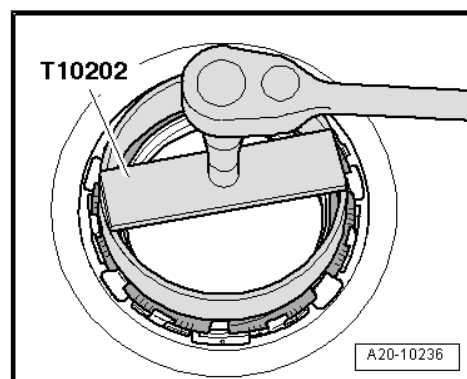
The -arrow- points in direction of travel.



- Tighten locking ring.
- Install rear seat bench ⇒ Rep. gr. 72 .
- Put at least 5 litres of fuel into tank after installing fuel delivery unit.

Vehicles with auxiliary heater:

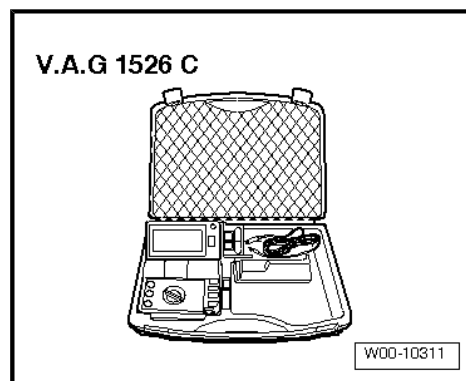
- Bleed fuel supply line leading to metering pump
⇒ [page 98](#) .



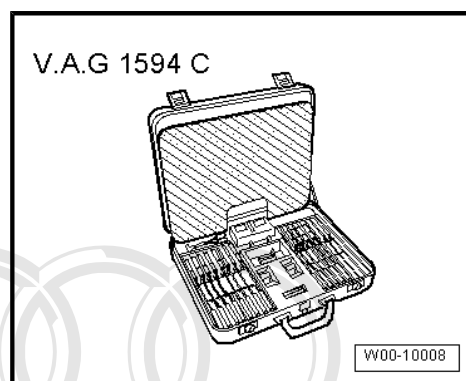
4.4 Checking fuel gauge sender - G-

Special tools and workshop equipment required

◆ Hand-held multimeter - V.A.G 1526C-

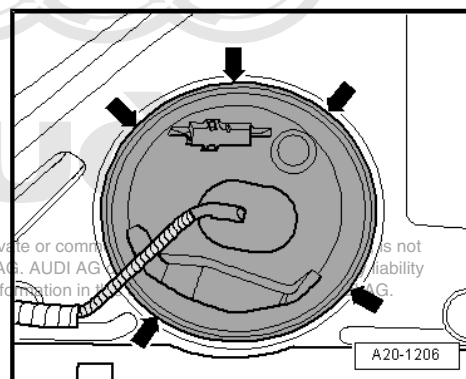


◆ Auxiliary measuring set - V.A.G 1594C-

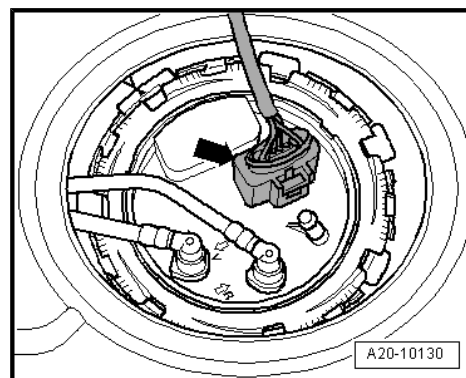


Procedure

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (right-side).



- Unplug electrical connector -arrow- at flange.



Vehicles up to 10.2004:

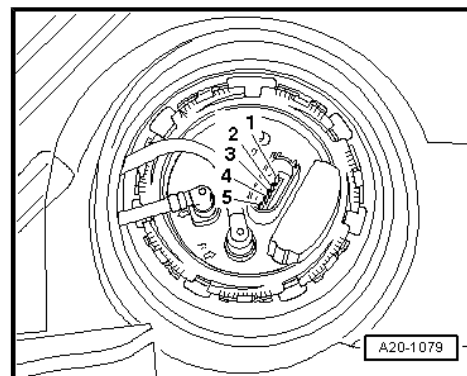
i Note

In vehicles with two-wire sender, 4 contacts are connected in the electrical connector for fuel gauge sender - G- .

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

Fuel gauge sender - G- installed:

- Sender at lower stop: 265 ... 295 Ω .
- Sender at upper stop: 57 ... 73 Ω .



i Note

- ◆ *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.*
- ◆ *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.*
- ◆ *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. 299 Ω .
- Sender at upper stop: approx. 86.4 Ω .

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

- Install rear seat bench $\Rightarrow$ Rep. gr. 72 .

Vehicles from 10.2004 onwards:



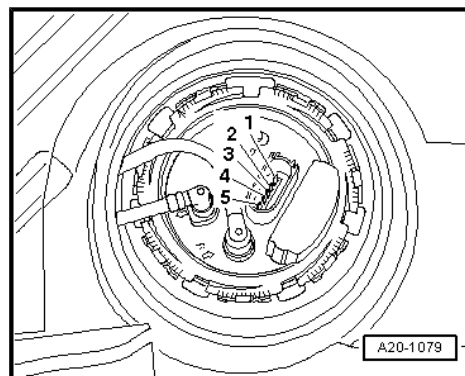
Note

In vehicles with three-wire sender, 5 contacts are connected in the electrical connector for fuel gauge sender - G- .

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

Fuel gauge sender - G- installed:

- Sender at lower stop: approx. 270 Ω .
- Sender at upper stop: approx. 70 Ω .



Note

- ◆ *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.*
- ◆ *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.*
- ◆ *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. 290 Ω .
- Sender at upper stop: approx. 60 Ω .
- Connect multimeter (resistance test) between contacts -3- and -4-.

Fuel gauge sender - G- installed or removed:

- Sender in any position: approx. 340 Ω .

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

- Install rear seat bench $\Rightarrow$ Rep. gr. 72 .



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4.5 Removing and installing fuel gauge sender - G- - vehicles up to approx. 10.2004

Removing

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

Observe rules for cleanliness ➤ [page 3](#) .

- Remove fuel delivery unit ➤ [page 34](#) .



Caution

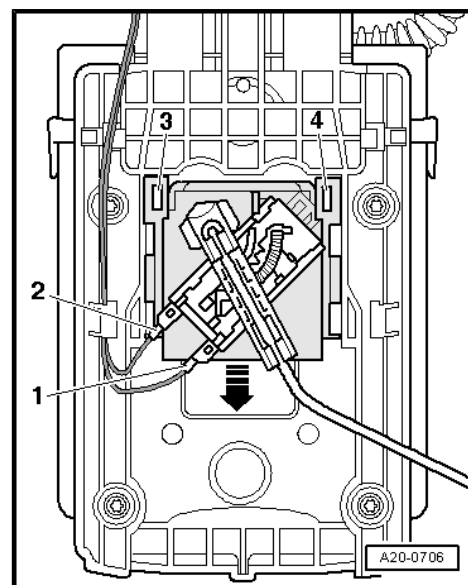
First release retainer tabs on connector contact before detaching electrical connectors on fuel gauge sender - G- .

- Release retainer tabs on electrical connectors -1- and -2- and then detach electrical connectors.
- Lift retaining tabs -3- and -4- with a screwdriver and pull fuel gauge sender - G- off downwards -arrow-.

Installing

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

- Insert fuel gauge sender - G- into guides on fuel delivery unit and press upwards until it clicks into place.
- Plug in electrical connectors and check that they have engaged properly.
- Install fuel delivery unit ➤ [page 36](#) .



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4.6 Removing and installing fuel gauge sender - G- - vehicles from approx. 10.2004 onwards

Removing

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

Observe rules for cleanliness ⇒ [page 3](#) .

– Remove fuel delivery unit ⇒ [page 34](#) .



Caution

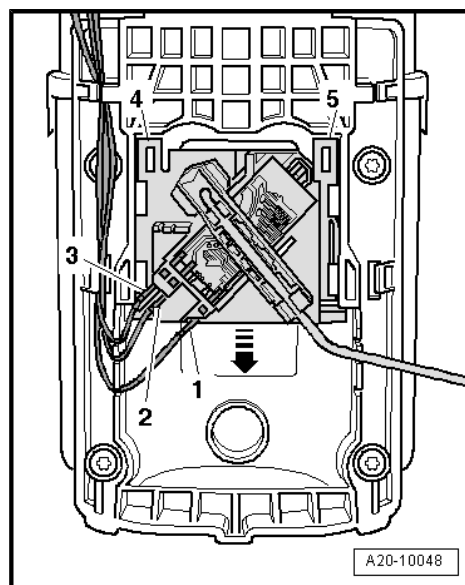
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the prior written permission of Audi AG.
First release retainer tabs on connector contact before detaching electrical connectors on fuel gauge sender - G- .

- Release and detach electrical connectors -1 ... 3-.
- Lift retaining tabs -4- and -5- with a screwdriver and pull fuel gauge sender - G- off downwards -arrow-.

Installing

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

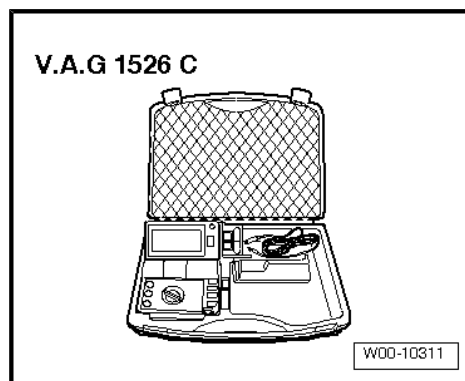
- Insert fuel gauge sender - G- into guides on fuel delivery unit and press upwards until it clicks into place.
- Plug in electrical connectors and check that they have engaged properly.
- Install fuel delivery unit ⇒ [page 36](#) .



4.7 Checking fuel gauge sender 2 - G169-

Special tools and workshop equipment required

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

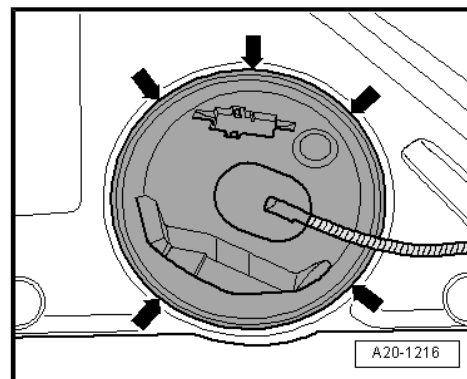


- ◆ Auxiliary measuring set - V.A.G 1594C-



Procedure

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (left-side).

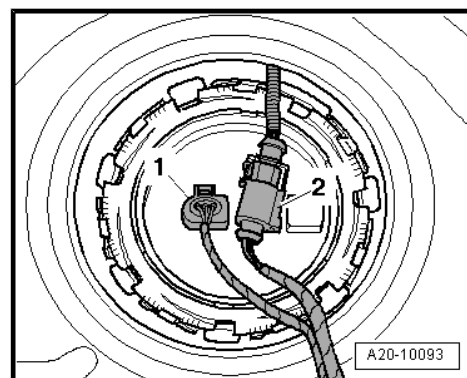


- Unplug electrical connector -1- at flange.



Note

Disregard -item 2-.



Vehicles up to 10.2004:



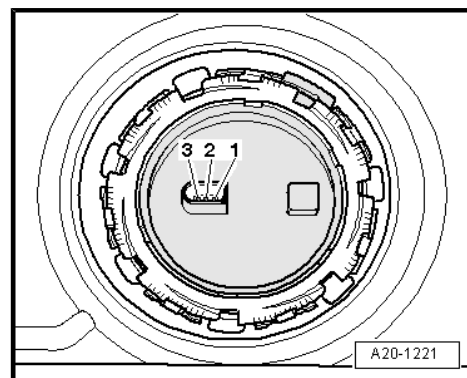
Note

In vehicles with two-wire sender, 2 contacts are connected in the electrical connector for fuel gauge sender 2 - G169- .

- Connect multimeter (resistance test) between contacts -1- and -2-.

With fuel gauge sender 2 - G169- installed:

- Sender at lower stop: 265 ... 291 Ω .
- Sender at upper stop: 47.5 ... 73 Ω .



Note

- ◆ In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 2 - G169- ⇒ [page 44](#) and move the float all the way to its top or bottom position.

- ◆ 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.

- ◆ The following values are obtained with the fuel gauge sender 2 - G169- removed, due to the greater travel of the float arm:

With fuel gauge sender 2 - G169- removed:

- Sender at lower stop: approx. 299 Ω .
- Sender at upper stop: approx. 36.6 Ω .

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

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

Vehicles from 10.2004 onwards:



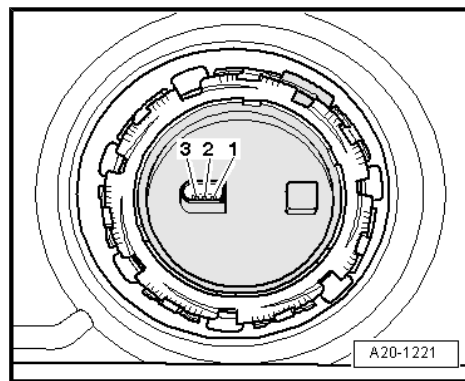
Note

In vehicles with three-wire sender, 3 contacts are connected in the electrical connector for fuel gauge sender 2 - G169-.

- Connect multimeter (resistance test) between contacts -1- and -2-.

With fuel gauge sender 2 - G169- installed:

- Sender at lower stop: approx. 270 Ω .
- Sender at upper stop: approx. 70 Ω .



Note

- ◆ *In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 2 - G169- [→ page 44](#) and move the float all the way to its top or bottom position.*
- ◆ *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.*
- ◆ *The following values are obtained with the fuel gauge sender 2 - G169- removed, due to the greater travel of the float arm:*

With fuel gauge sender 2 - G169- removed:

- Sender at lower stop: approx. 286 Ω .
- Sender at upper stop: approx. 50 Ω .
- Connect multimeter (resistance test) between contacts -2- and -3-.

With fuel gauge sender 2 - G169- installed or removed:

- Sender in any position: approx. 340 Ω .

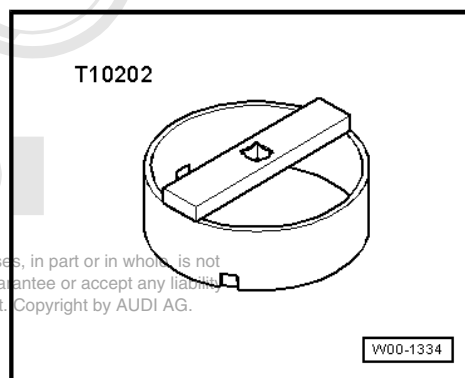
Assembly is carried out in the reverse order; note the following:

- Install rear seat bench $\Rightarrow$ Rep. gr. 72 .

4.8 Removing and installing fuel gauge sender 2 - G169-

Special tools and workshop equipment required

- ◆ Wrench - T10202-



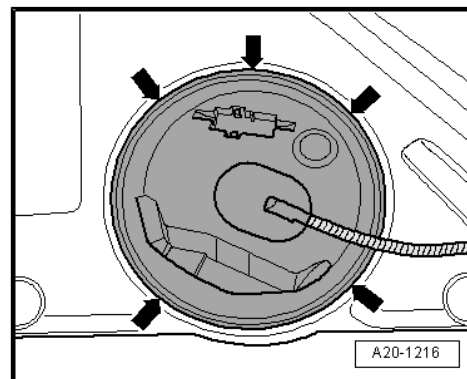
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Removing

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

Observe rules for cleanliness ➤ [page 3](#) .

- The fuel tank must not be more than $\frac{1}{3}$ full when removing fuel gauge sender 2 -G169- . Drain the tank if necessary. Procedure ➤ [page 24](#)
- Briefly open filler cap for fuel tank and close again.
- Remove rear seat bench ➤ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (left-side).

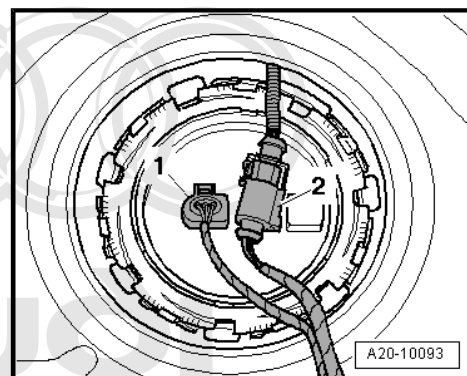


- Unplug electrical connector -1- at flange.
- Disengage electrical connector -2- and move it clear to the side.

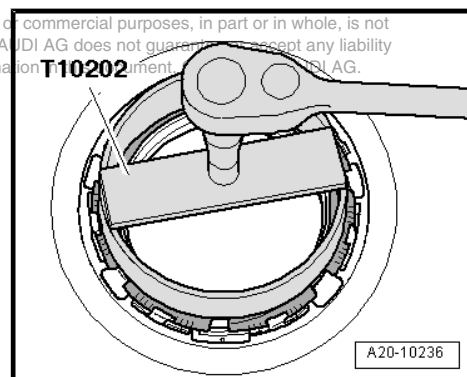


Caution

The fuel tank must not be more than $\frac{1}{3}$ full when removing the fuel gauge sender 2 - G169- . Otherwise a large amount of fuel will escape.



- Unscrew locking ring using wrench - **T10202** -



- Carefully pull fuel gauge sender 2 - G169- -item 2- together with suction-jet pump -1- just slightly out of opening in fuel tank.
- Detach seal.
- Unclip suction-jet pump from flange -arrows-.



Note

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

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- Tightening torque ⇒ [page 31](#)

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



Note

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

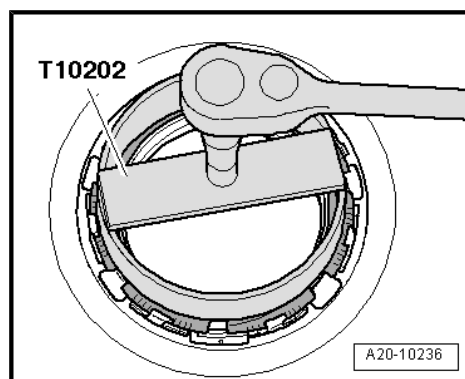
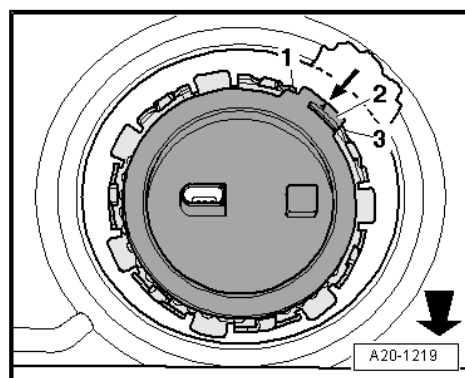
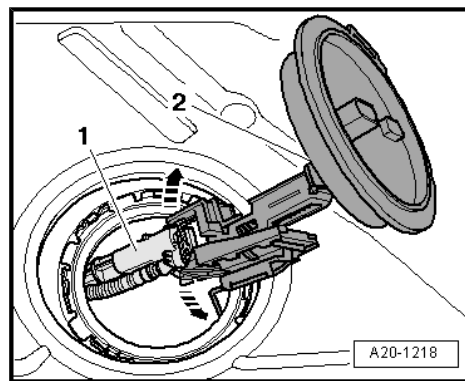
- Carefully insert fuel gauge sender 2 - G169- -item 2- into opening in fuel tank.
- Clip suction-jet pump -1- onto flange, so that you hear it click into place.
- Install new seal for flange (seal must be installed dry).
- Press flange down against spring pressure, and turn flange to installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.



Note

The -arrow- points in direction of travel.

- Tighten locking ring.
- Install rear seat bench ⇒ Rep. gr. 72 .

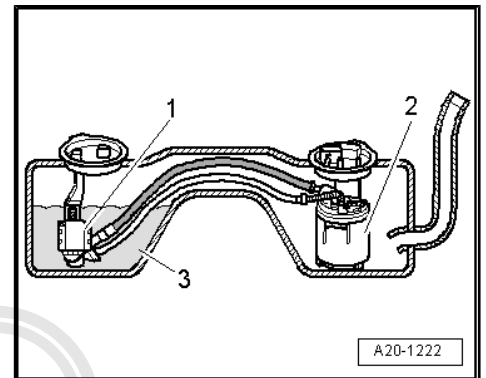


4.9 Suction-jet pump

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

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

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

- Check fuel pump [⇒ page 33](#).

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

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

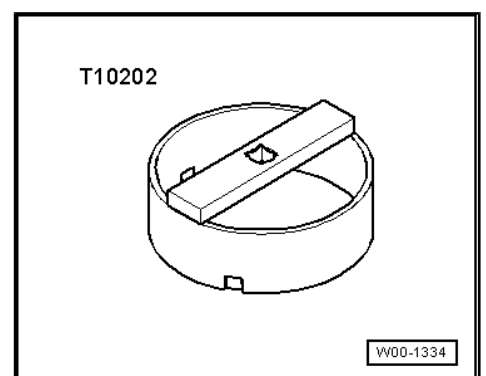
If engine now starts:

- Renew suction-jet pump [⇒ page 47](#).

4.10 Removing and installing suction-jet pump

Special tools and workshop equipment required

- ◆ Wrench - T10202-



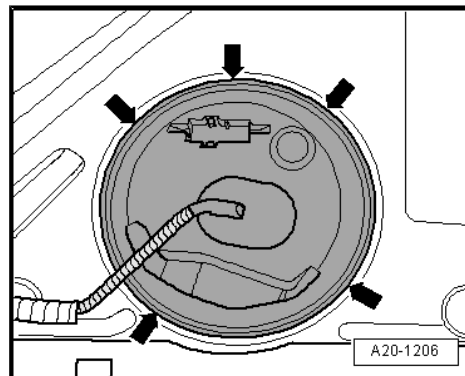
Removing

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

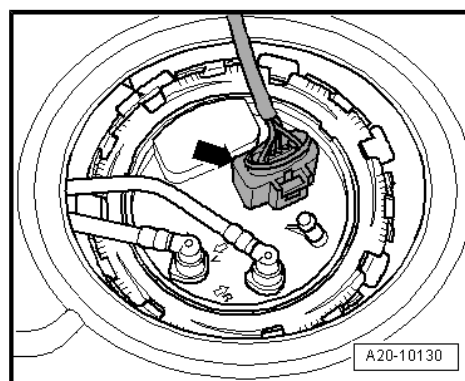
Observe rules for cleanliness [⇒ page 3](#).

- The fuel tank must not be more than $\frac{1}{3}$ full when removing the suction-jet pump. Drain the tank if necessary. Procedure ➔ [page 24](#)

- Remove rear seat bench ➔ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (right-side).



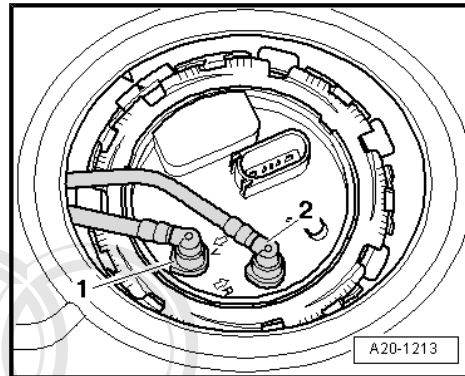
- Unplug electrical connector -arrow- at flange.



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


WARNING

- ◆ *The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.*
- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Put on protective gloves.*
- ◆ *Put on safety goggles.*



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

Vehicles with auxiliary heater:

- In addition, disconnect fuel supply line for auxiliary heater. Procedure ➔ Rep. gr. 82

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All vehicles (continued):

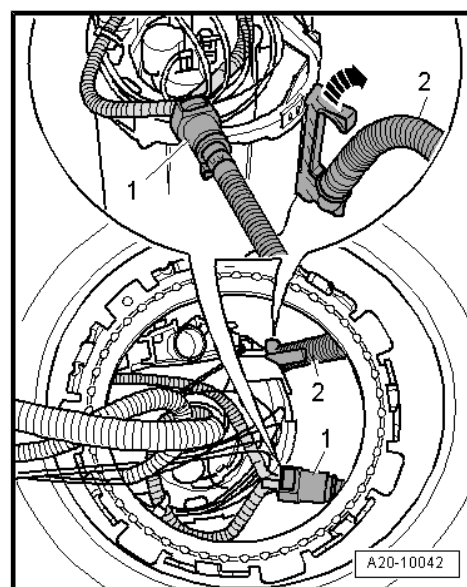
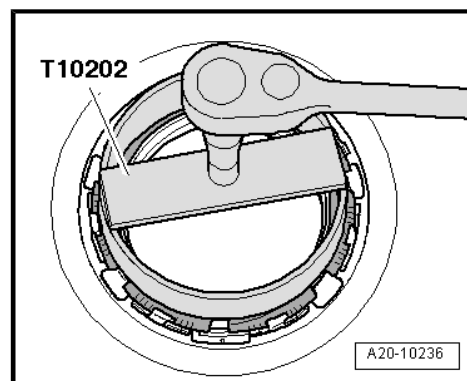


Caution

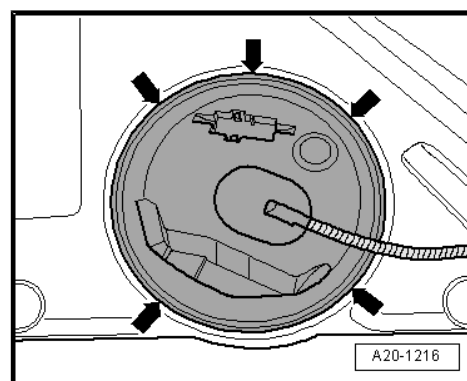
The fuel tank must not be more than $\frac{1}{3}$ full when opening the flange. Otherwise a large amount of fuel will escape.

- Unscrew locking ring using wrench - T10202- .
- Take flange (right-side) and seal of fuel delivery unit out of opening in fuel tank and move clear, leaving pipes connected.
- In opening in fuel tank, press release tab to disconnect supply line -1- to suction-jet pump.
- Pull up retaining tab -arrow- and disengage fuel supply line -2- at fuel delivery unit.

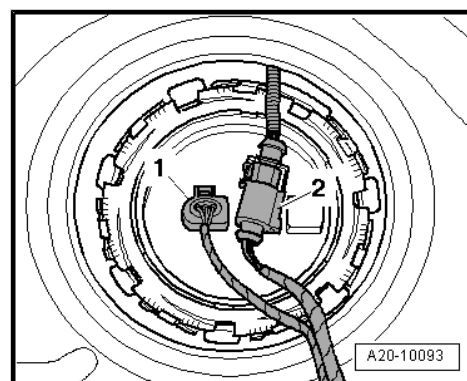
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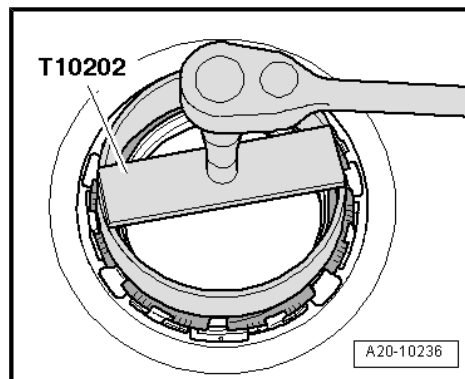
- Unclip the retaining tabs -arrows- for the flange cover (left-side).



- Unplug electrical connector -1- at flange.
- Disengage electrical connector -2- and move it clear to the side.



- Unscrew locking ring using wrench - T10202- .

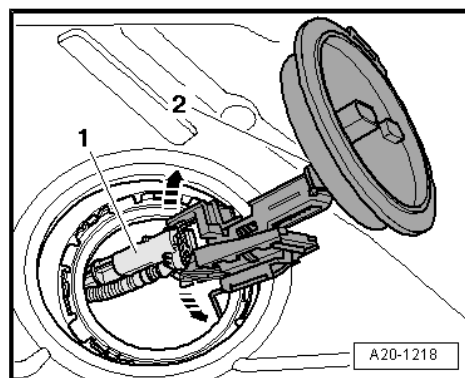


- Carefully pull fuel gauge sender 2 - G169- -item 2- together with suction-jet pump -1- just slightly out of opening in fuel tank.
- Detach seal.
- Unclip suction-jet pump from flange -arrows-.



Note

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



- Reach into fuel tank opening on left side of vehicle and pull out suction-jet pump, with pipes pointing towards the left.

Installing

- Tightening torque ⇒ [page 31](#)

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

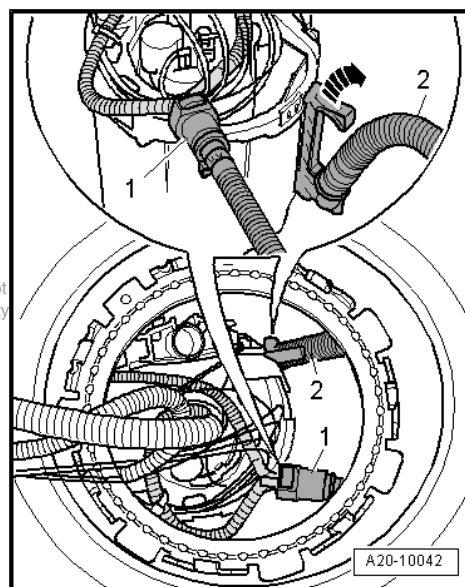


Note

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.
- Reach into fuel tank opening on right side of vehicle and pull suction-jet pump with pipes into the installation position.
- Fit fuel supply line -2- onto fuel delivery unit so that it engages audibly.
- Fit supply line -1- leading to suction-jet pump so that it engages audibly.

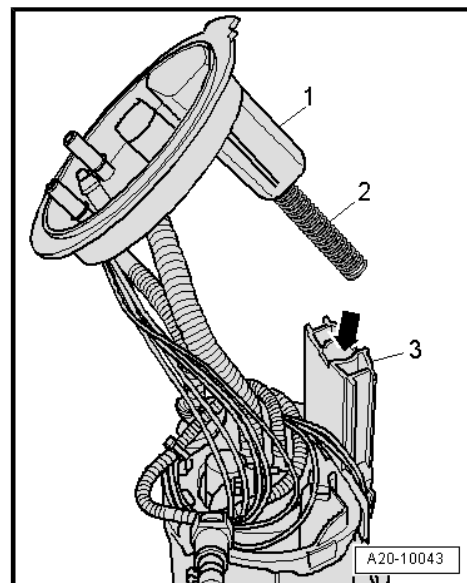
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- Install new seal for flange (seal must be installed dry).
- Insert spring -2- into guide bore -arrow- and fit guide -1- (on flange) onto guide -3- on fuel delivery unit.

i Note

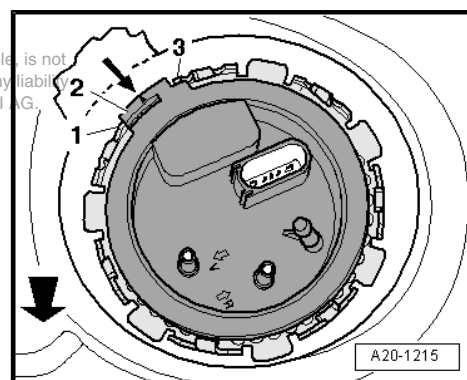
The fuel delivery unit is shown without fuel tank for illustration purposes.



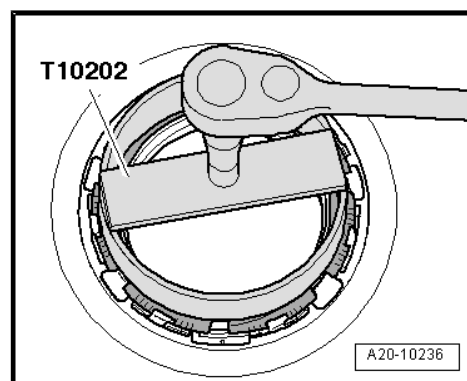
- Press flange down against spring pressure, and turn flange to installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.

i Note

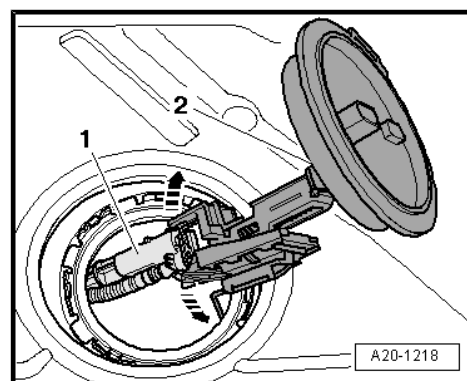
The -arrow- points in direction of travel.



- Tighten locking ring.



- Carefully insert fuel gauge sender 2 - G169- -item 2- into opening in fuel tank.
- Clip suction-jet pump -1- onto flange -2-, so that you hear it click into place.



- Install new seal for flange (seal must be installed dry).
- Press flange down against spring pressure, and turn flange to installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.

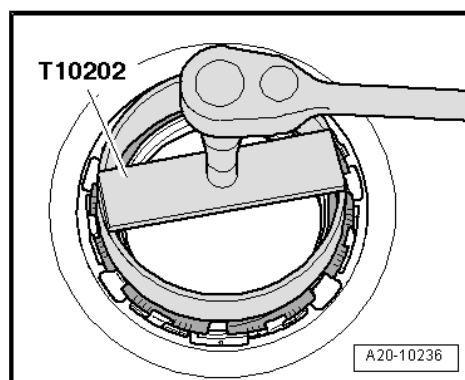
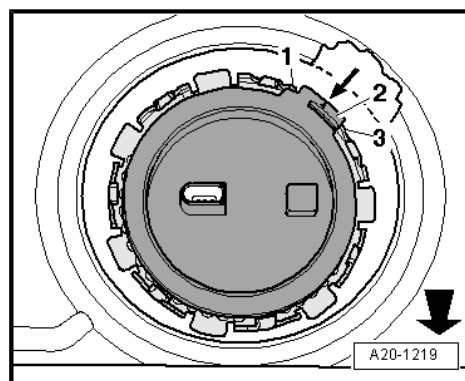

Note

The -arrow- points in direction of travel.

- Tighten locking ring.
- Install rear seat bench ⇒ Rep. gr. 72 .
- Put at least 5 litres of fuel into tank after installing fuel delivery unit.

Vehicles with auxiliary heater:

- Bleed fuel supply line leading to metering pump
⇒ [page 98](#) .



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5 Fuel delivery unit and fuel gauge senders - version 2 for vehicles with four-wheel drive



Introduced gradually.

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5.1 Fuel delivery unit and fuel gauge senders - exploded view

1 - Fuel gauge sender - G-

- ☐ Checking resistance values ⇒ [page 60](#)
- ☐ Removing and installing ⇒ [page 62](#)

2 - Fuel delivery unit with flange

- ☐ Checking fuel system pressurisation pump - G6- (electrical test) ⇒ [page 55](#)
- ☐ Removing and installing ⇒ [page 56](#)
- ☐ Put at least 5 litres of fuel into tank after installing

3 - Seal

- ☐ Renew
- ☐ Install dry

4 - Fuel supply line

- ☐ Black
- ☐ To fuel filter
- ☐ Do not kink
- ☐ Attached to connection marked "V" on flange
- ☐ To disconnect from flange, press release tab on connection piece

5 - Fuel return line

- ☐ Blue
- ☐ Do not kink
- ☐ Attached to connection marked "R" on flange
- ☐ To disconnect from flange, press release tab on connection piece

6 - Electrical connector

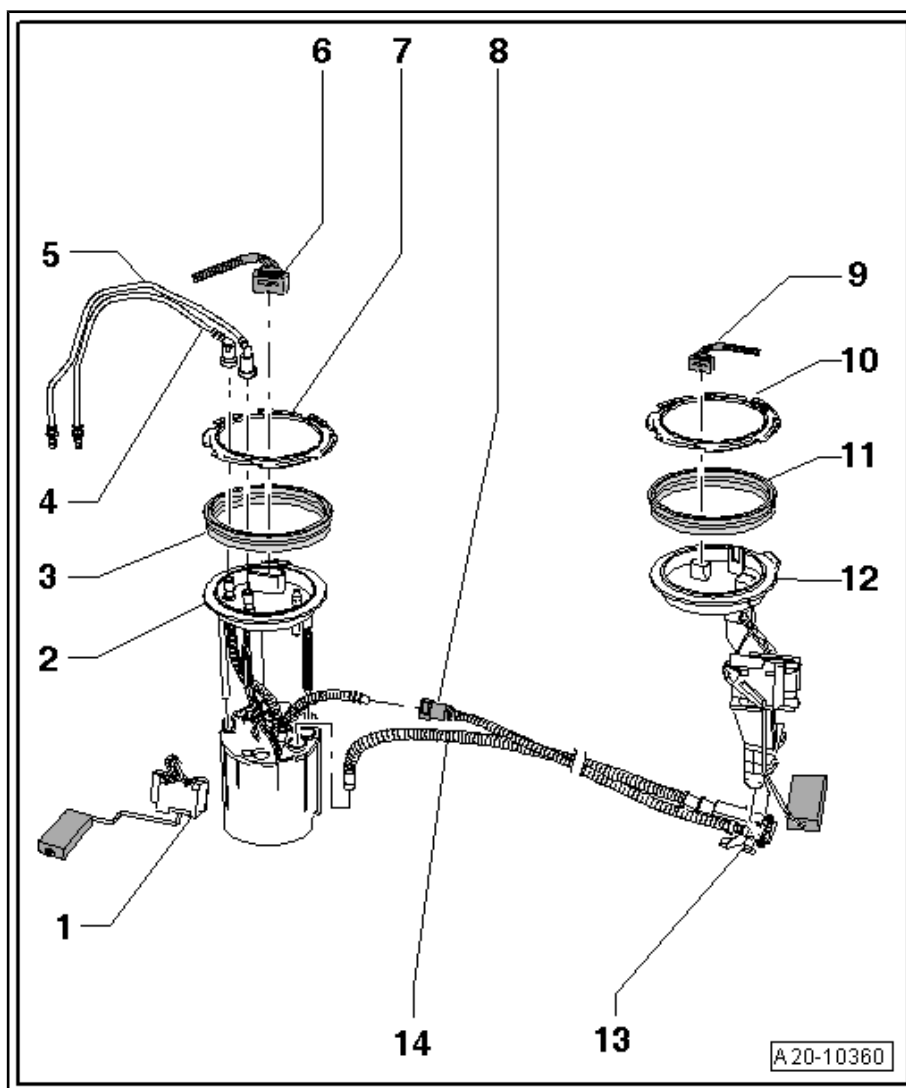
- ☐ For fuel system pressurisation pump - G6- and fuel gauge sender - G-

7 - Locking ring

- ☐ Remove and install using wrench - T10202-
- ☐ Tighten to 110 Nm

8 - Supply line for suction-jet pump

- ☐ From fuel pump to suction-jet pump



- ☐ Press release tab on connection piece to disconnect

9 - Electrical connector

- ☐ For fuel gauge sender 2 - G169-

10 - Locking ring

- ☐ Remove and install using wrench - T10202-
- ☐ Tighten to 110 Nm

11 - Seal

- ☐ Renew
- ☐ Install dry

12 - Fuel gauge sender 2 - G169-

- ☐ Only available together with -item 13-.
- ☐ Checking resistance values ⇒ [page 63](#)
- ☐ Removing and installing
- ☐ Installation position ⇒ [page 67](#)

13 - Suction-jet pump

- ☐ Only available together with -item 12-.
- ☐ Removing and installing ⇒ [page 47](#)
- ☐ Put at least 5 litres of fuel into tank after installing

14 - Fuel supply line

- ☐ From suction-jet pump to fuel delivery unit
- ☐ Attached to fuel delivery unit

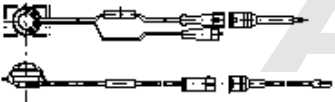


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5.2 Fuel system pressurisation pump - G6- (electrical test)

Special tools and workshop equipment required

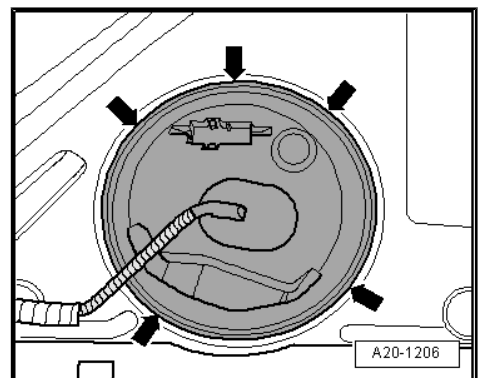
- ◆ Remote control - V.A.G 1348/3 A- with adapter cable - V.A.G 1348/3-3-
- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Auxiliary measuring set - V.A.G 1594C-

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

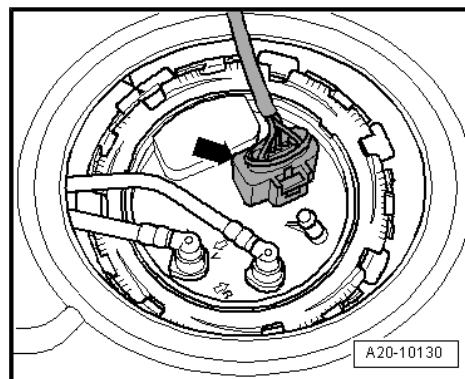
Procedure

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

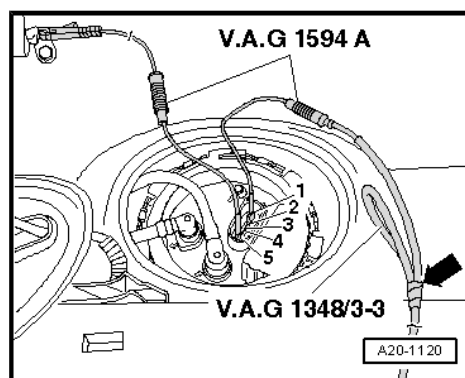
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip retaining tabs -arrows- for flange cover.



- Unplug electrical connector -arrow- at flange.



- Connect remote control - V.A.G 1348/3 A- with adapter cable - V.A.G 1348/3-3- to contact -1- using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Tape off 2nd connector contact of the adapter cable - V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Connect contact -5- to the body (earth) using a test lead from auxiliary measuring set - V.A.G 1594C- .
- Connect crocodile clip to positive (+) terminal of battery.
- Press remote control button.
- Pump should start running audibly.



Note

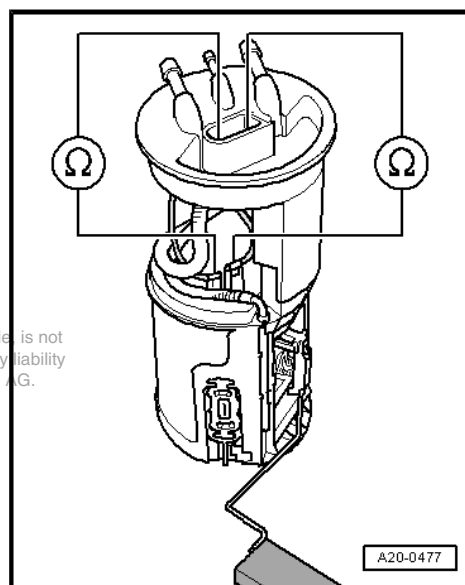
The fuel pump runs very quietly. Where possible, avoid noisy surroundings for this test.

If no noise can be heard from pump:

- Remove fuel delivery unit ⇒ [page 56](#) .
- 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 58](#) .

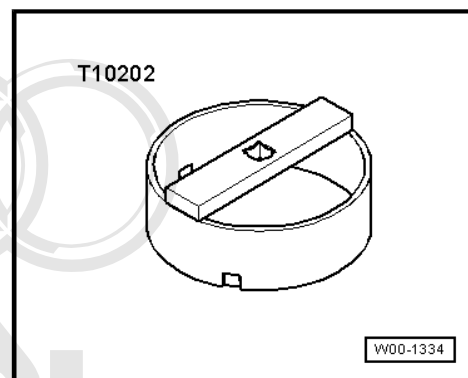


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5.3 Removing and installing fuel delivery unit

Special tools and workshop equipment required

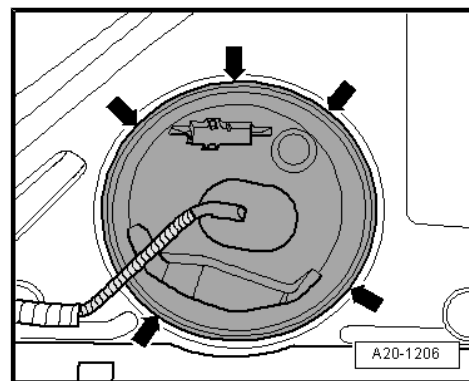
◆ Wrench - T10202-



Removing

Observe safety precautions ⇒ [page 1](#).
 Observe rules for cleanliness ⇒ [page 3](#).

- The fuel tank must not be more than $\frac{1}{3}$ full when removing the fuel delivery unit. Drain the tank if necessary. Procedure ⇒ [page 24](#)
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (right-side).

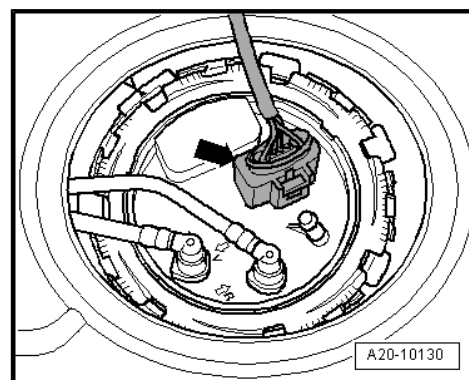


- Unplug electrical connector -arrow- at flange.



WARNING

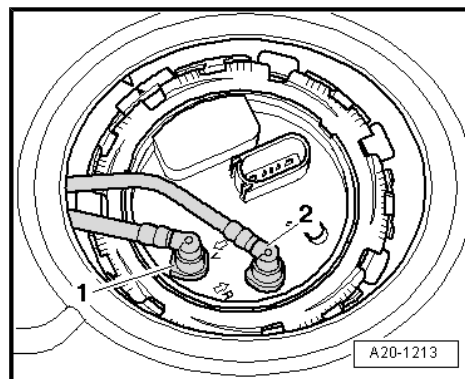
- ◆ *The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.*
- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Put on protective gloves.*
- ◆ *Put on safety goggles.*



- Disconnect fuel supply line -1- and fuel return line -2- by pressing release tabs.

Vehicles with auxiliary heater:

- In addition, disconnect fuel supply line for auxiliary heater.
Procedure ⇒ Rep. gr. 82



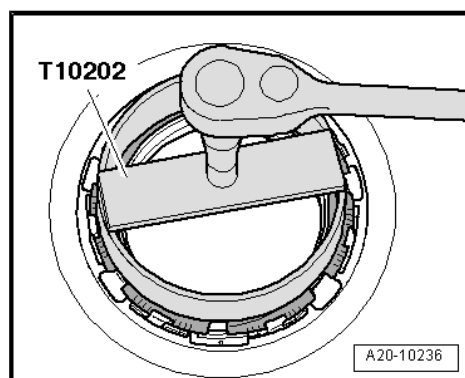
All vehicles (continued):



Caution

The fuel tank must not be more than 1/3 full when removing the fuel delivery unit. Otherwise a large amount of fuel will escape.

- Unscrew locking ring using wrench - T10202- .
- Take flange (right-side) and seal of fuel delivery unit out of opening in fuel tank and move clear, leaving pipes connected.
- In opening in fuel tank, press release tab to disconnect supply line -1- to suction-jet pump.
- Detach fuel supply line -2- from fuel delivery unit.
- 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

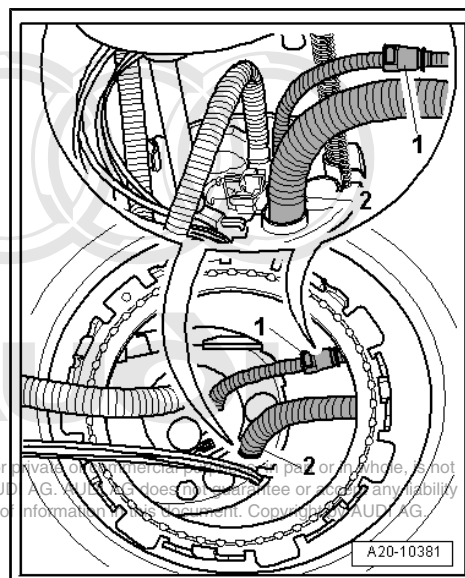
- Tightening torque ⇒ [page 53](#)

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

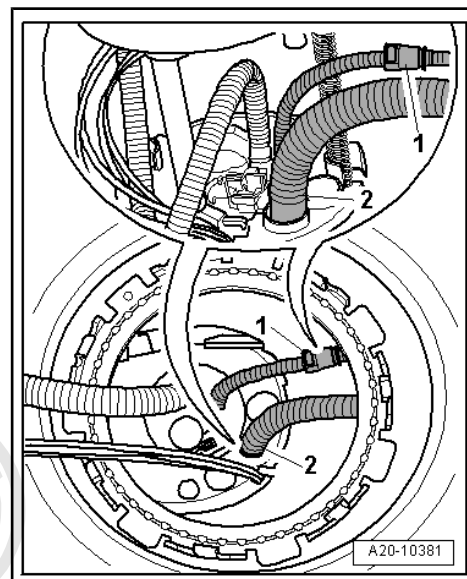


Note

- ◆ *Renew seal.*
- ◆ *Take care not to bend the fuel gauge sender - G- when fitting the fuel delivery unit.*
- ◆ *Ensure that fuel hoses are securely seated.*



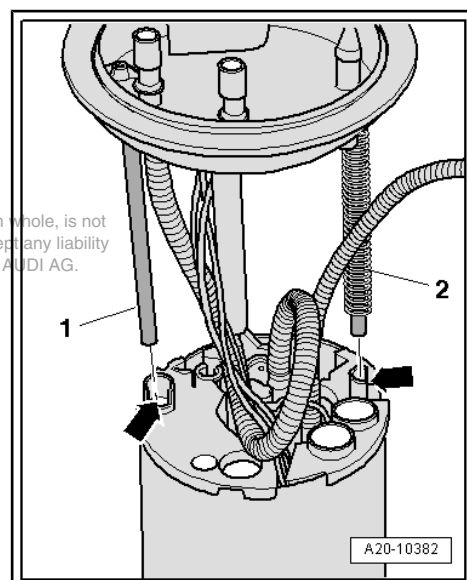
- Insert fuel delivery unit in fuel tank with flange still detached.
- Push fuel supply line -2- into hole in fuel delivery unit so that it engages audibly.
- Connect ends of supply line -1- leading to suction-jet pump together so that they engage audibly.



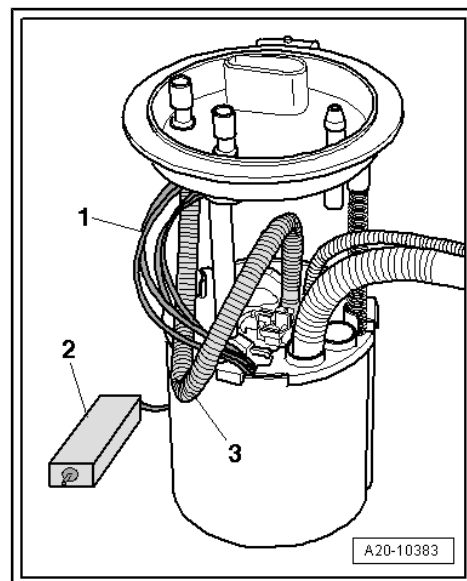
 Note

The fuel delivery unit is shown without the fuel tank in the next two illustrations.

- Install new seal for flange (seal must be installed dry).
- Insert guide tubes -1- and -2- on flange into corresponding holes -arrows- in fuel delivery unit.



- Make sure that electrical wiring -1- and fuel supply line -3- are positioned as shown so they do not obstruct lever -2- of fuel gauge sender.



- Press flange down against spring pressure, and turn flange to installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.

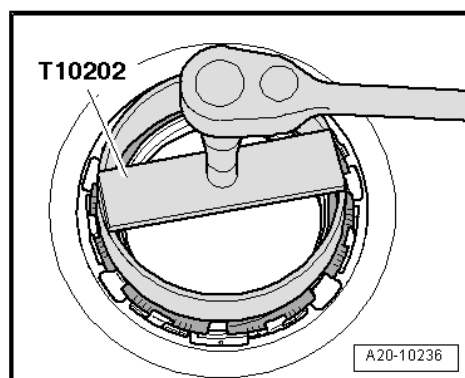
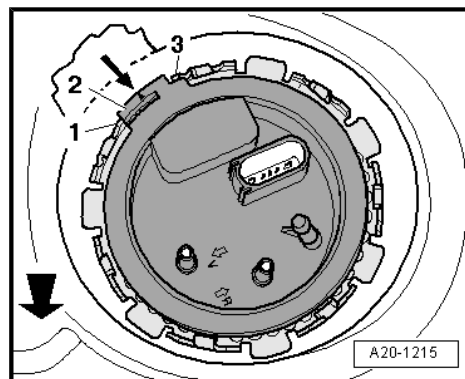

Note

The -arrow- points in direction of travel.

- Tighten locking ring.
- Install rear seat bench ⇒ Rep. gr. 72 .
- Put at least 5 litres of fuel into tank after installing fuel delivery unit.

Vehicles with auxiliary heater:

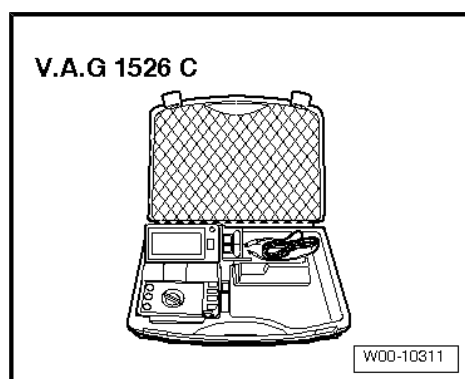
- Bleed fuel supply line leading to metering pump
⇒ [page 98](#) .



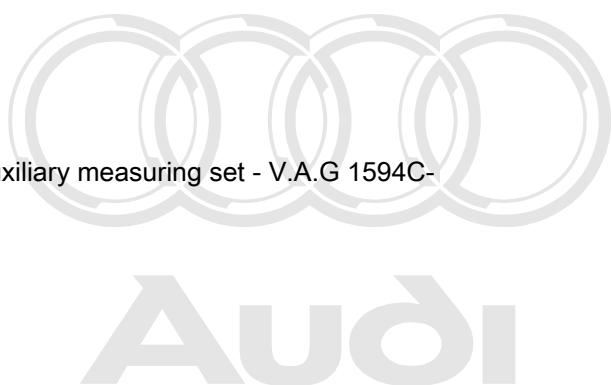
5.4 Checking fuel gauge sender - G-

Special tools and workshop equipment required

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



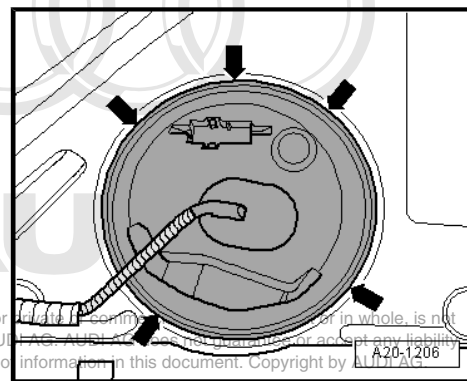
- ◆ Auxiliary measuring set - V.A.G 1594C-



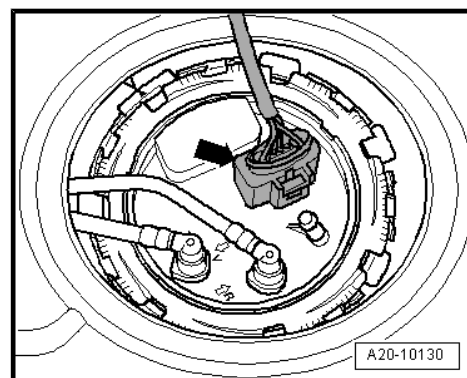
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Procedure

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (right-side).



- Unplug electrical connector -arrow- at flange.





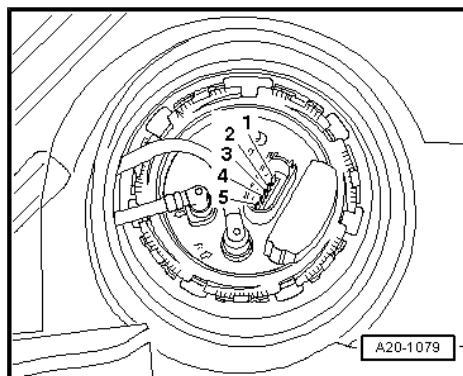
Note

In vehicles with three-wire sender, 5 contacts are connected in the electrical connector for fuel gauge sender - G- .

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

Fuel gauge sender - G- installed:

- Sender at lower stop: approx. 270 Ω .
- Sender at upper stop: approx. 70 Ω .



Note

- ◆ To test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel delivery unit [⇒ page 56](#) and move the sender float all the way to its top or bottom position.
- ◆ 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.
- ◆ 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. 290 Ω .
- Sender at upper stop: approx. 60 Ω .
- Connect multimeter (resistance test) between contacts -3- and -4-.

Fuel gauge sender - G- installed or removed:

- Sender in any position: approx. 340 Ω .

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

- Install rear seat bench [⇒ Rep. gr. 72](#).

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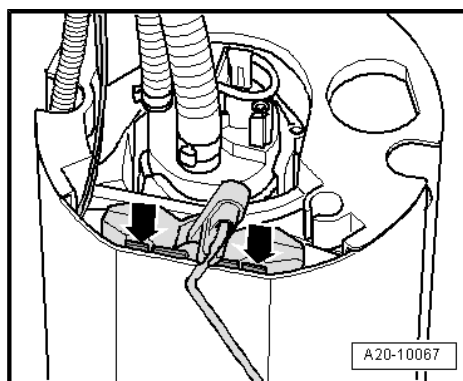
5.5 Removing and installing fuel gauge sender - G-

Removing

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

Observe rules for cleanliness [⇒ page 3](#) .

- Remove fuel delivery unit [⇒ page 56](#) .
- Use screwdriver to release retaining tabs -arrows- and lift out fuel gauge sender - G- .





Caution

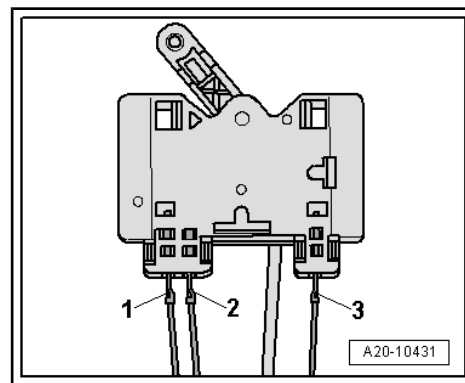
First release retainer tabs on connector contact before detaching electrical connectors on fuel gauge sender - G- .

- Release retainer tabs on electrical connectors -1 ... 3- and then detach electrical connectors.

Installing

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

- Insert fuel gauge sender - G- into guides on fuel delivery unit and press upwards until it clicks into place.
- Plug in electrical connectors and check that they have engaged properly.
- Install fuel delivery unit [⇒ page 58](#) .



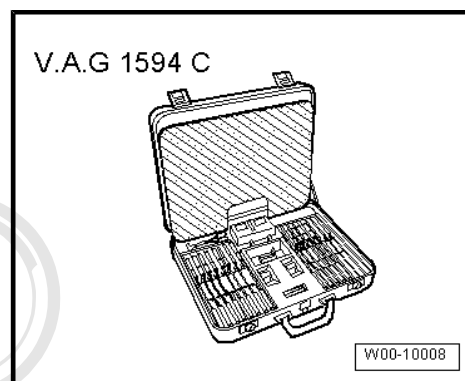
5.6 Checking fuel gauge sender 2 - G169-

Special tools and workshop equipment required

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

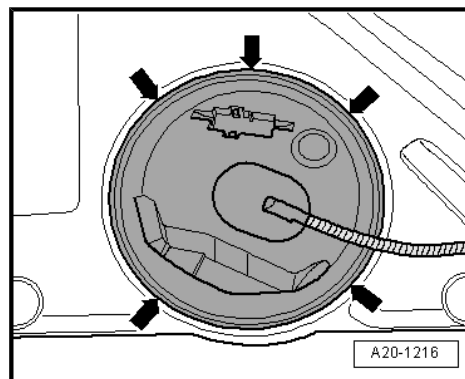


- ◆ Auxiliary measuring set - V.A.G 1594C-



Procedure

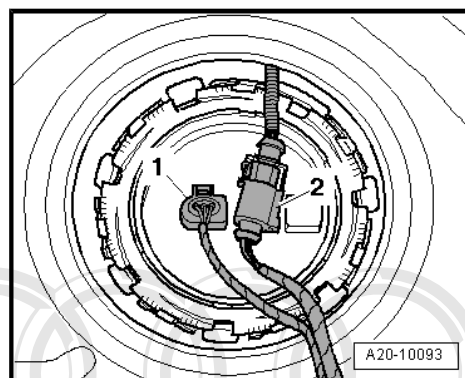
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (left-side).



- Unplug electrical connector -1- at flange.

**Note**

Disregard -item 2-.



Audi

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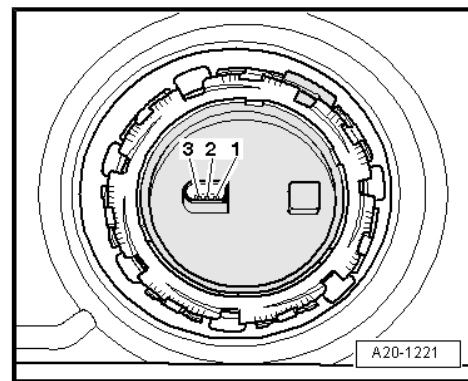
i Note

In vehicles with three-wire sender, 3 contacts are connected in the electrical connector for fuel gauge sender 2 - G169- .

- Connect multimeter (resistance test) between contacts -1- and -2-.

With fuel gauge sender 2 - G169- installed:

- Sender at lower stop: approx. 270 Ω .
- Sender at upper stop: approx. 70 Ω .



i Note

◆ *In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 2 - G169- [⇒ page 65](#) and move the float all the way to its top or bottom position.*

◆ *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.*

◆ *The following values are obtained with the fuel gauge sender 2 - G169- removed, due to the greater travel of the float arm:*

With fuel gauge sender 2 - G169- removed:

- Sender at lower stop: approx. 286 Ω .
- Sender at upper stop: approx. 50 Ω .
- Connect multimeter (resistance test) between contacts -2- and -3-.

With fuel gauge sender 2 - G169- installed or removed:

- Sender in any position: approx. 340 Ω .

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

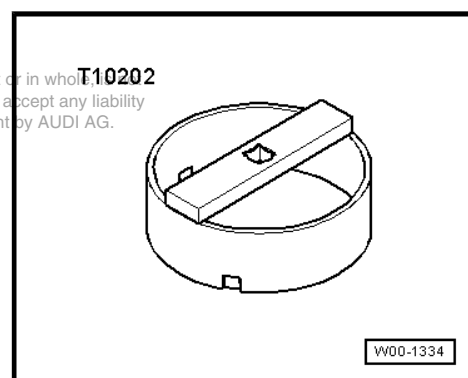
- Install rear seat bench $\Rightarrow$ Rep. gr. 72 .

5.7 Removing and installing fuel gauge sender 2 - G169-

Special tools and workshop equipment required

- ◆ Wrench - T10202-

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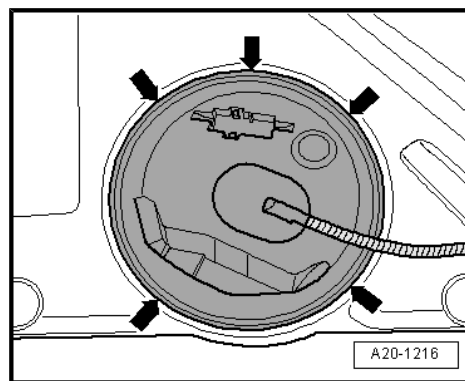


Removing

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

Observe rules for cleanliness ⇒ [page 3](#) .

- The fuel tank must not be more than $\frac{1}{3}$ full when removing fuel gauge sender 2 -G169- . Drain the tank if necessary. Procedure ⇒ [page 24](#)
- Briefly open filler cap for fuel tank and close again.
- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (left-side).

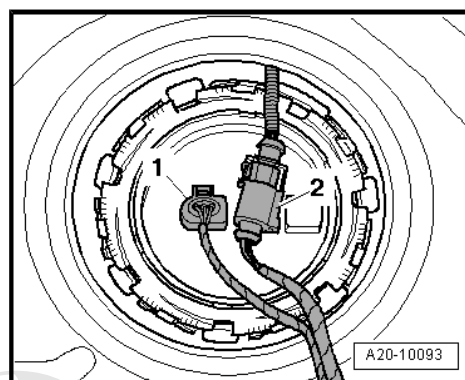


- Unplug electrical connector -1- at flange.
- Disengage electrical connector -2- and move it clear to the side.

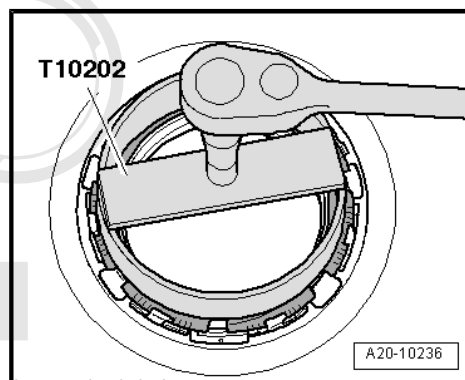


Caution

The fuel tank must not be more than $\frac{1}{3}$ full when removing the fuel gauge sender 2 - G169- . Otherwise a large amount of fuel will escape.



- Unscrew locking ring using wrench - T10202- .



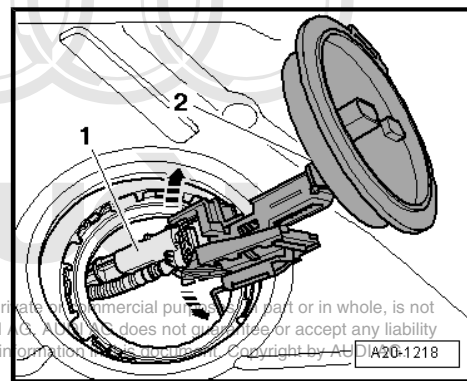
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- Carefully pull fuel gauge sender 2 - G169- -item 2- together with suction-jet pump -1- just slightly out of opening in fuel tank.
- Detach seal.
- Unclip suction-jet pump from flange -arrows-.

 Note

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

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Installing

- Tightening torque ⇒ [page 53](#)

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

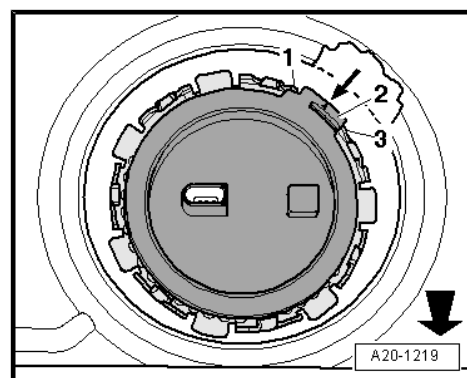
 Note

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

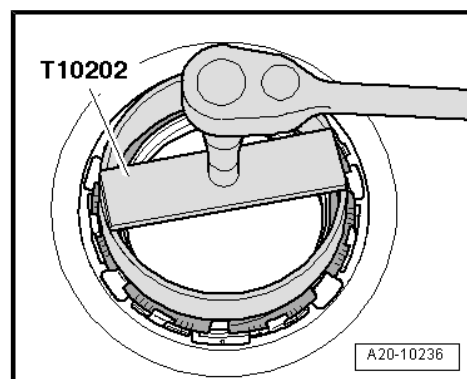
- Carefully insert fuel gauge sender 2 - G169- -item 2- into opening in fuel tank.
- Clip suction-jet pump -1- onto flange, so that you hear it click into place.
- Install new seal for flange (seal must be installed dry).
- Press flange down against spring pressure, and turn flange to installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.

 Note

The -arrow- points in direction of travel.



- Tighten locking ring.
- Install rear seat bench ⇒ Rep. gr. 72 .



5.8 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

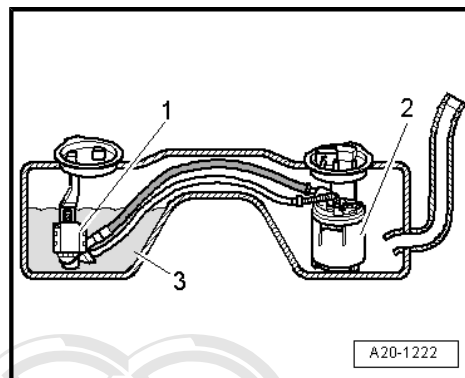
The suction-jet pump operates according to the principle of fluid entrainment: the stream of fuel from the electric fuel pump is passed through a nozzle in the suction-jet pump, and is thus accelerated. The accelerated stream of fuel draws off the surrounding fuel and delivers it to the baffle housing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

Faults caused by defective suction-jet pump



Caution

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



A20-1222

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

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

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- Check fuel pump ⇒ [page 33](#) .

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

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

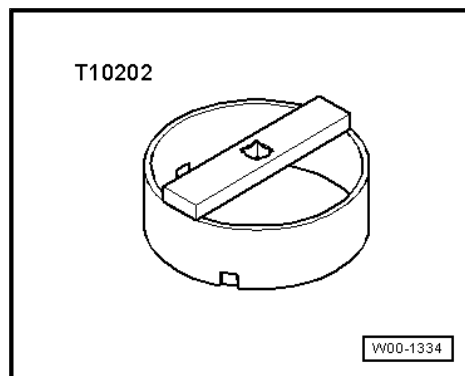
If engine now starts:

- Renew suction-jet pump ⇒ [page 68](#) .

5.9 Removing and installing suction-jet pump

Special tools and workshop equipment required

- ◆ Wrench - T10202-



T10202

VW00-1334

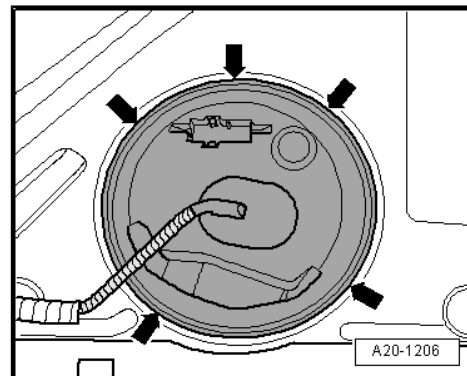
Removing

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

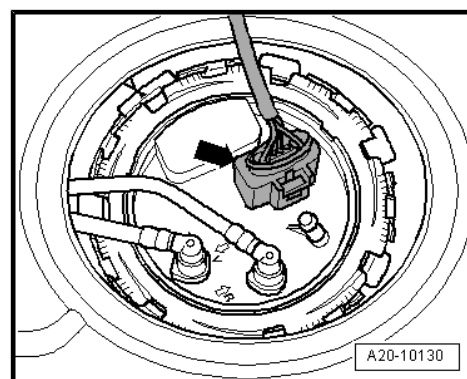
Observe rules for cleanliness ⇒ [page 3](#) .

- The fuel tank must not be more than $\frac{1}{3}$ full when removing the suction-jet pump. Drain the tank if necessary. Procedure [⇒ page 24](#)

- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip the retaining tabs -arrows- for the flange cover (right-side).



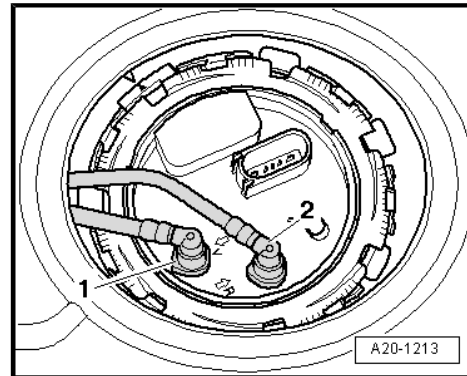
- Unplug electrical connector -arrow- at flange.



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

 **WARNING**

- ◆ *The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.*
- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Put on protective gloves.*
- ◆ *Put on safety goggles.*



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

Vehicles with auxiliary heater:

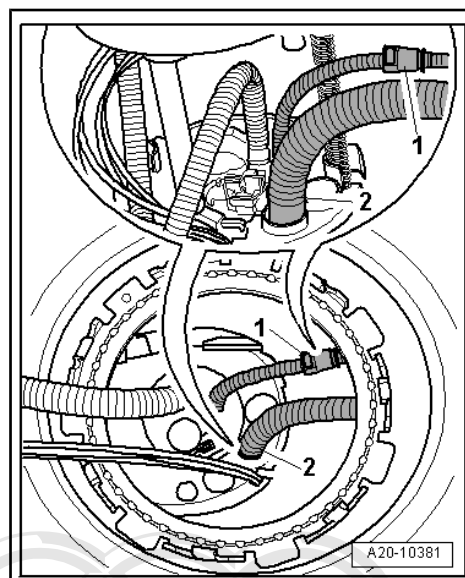
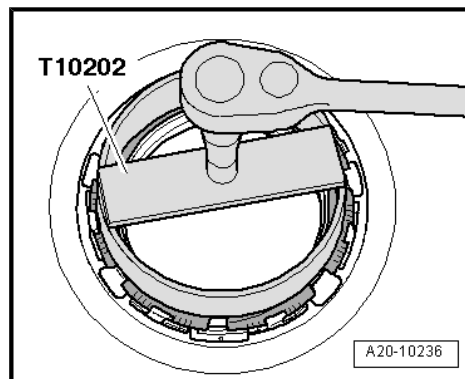
- In addition, disconnect fuel supply line for auxiliary heater. Procedure ⇒ Rep. gr. 82

All vehicles (continued):

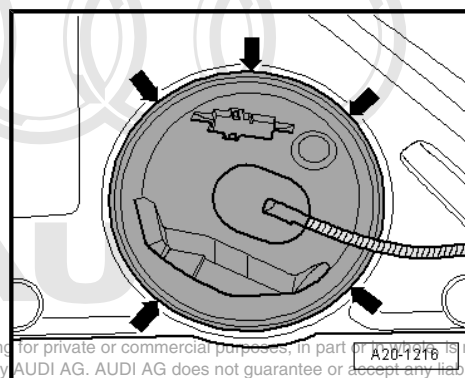

Caution

The fuel tank must not be more than $\frac{1}{3}$ full when opening the flange. Otherwise a large amount of fuel will escape.

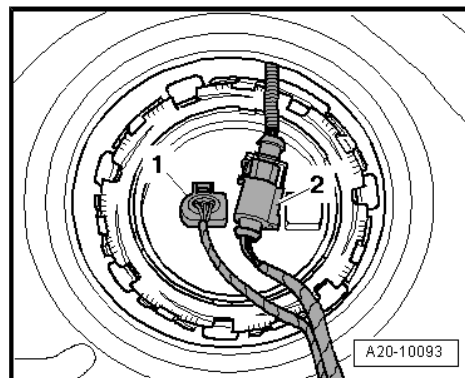
- Unscrew locking ring using wrench - T10202- .
- Take flange (right-side) and seal of fuel delivery unit out of opening in fuel tank and move clear, leaving pipes connected.
- In opening in fuel tank, press release tab to disconnect supply line -1- to suction-jet pump.
- Detach fuel supply line -2- from fuel delivery unit.



- Unclip the retaining tabs -arrows- for the flange cover (left-side).

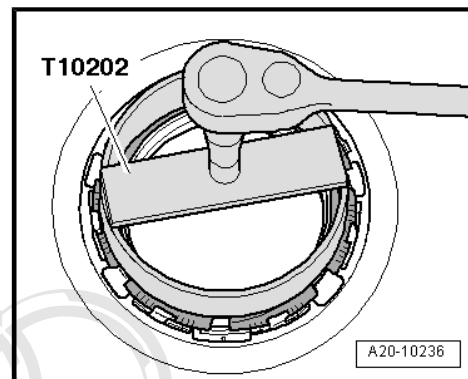


- Unplug electrical connector -1- at flange.
- Disengage electrical connector -2- and move it clear to the side.



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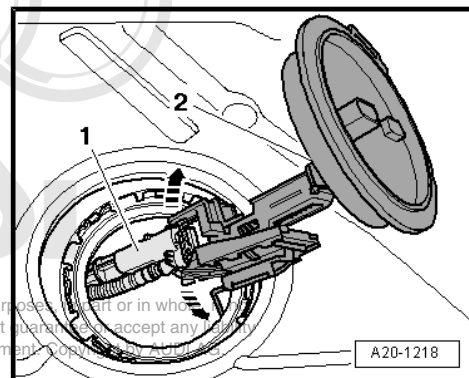
- Unscrew locking ring using wrench - T10202- .



- Carefully pull fuel gauge sender 2 - G169- -item 2- together with suction-jet pump -1- just slightly out of opening in fuel tank.
- Detach seal.
- Unclip suction-jet pump from flange -arrows-.

i Note

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



- Reach into fuel tank opening on left side of vehicle and pull out suction-jet pump, with pipes pointing towards the left.

Installing

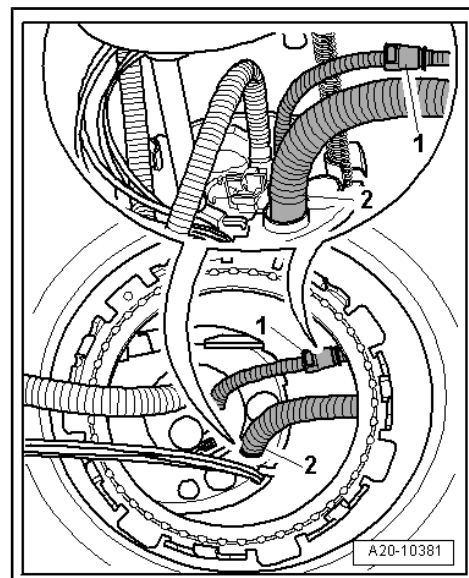
- Tightening torque ⇒ [page 53](#)

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

i Note

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

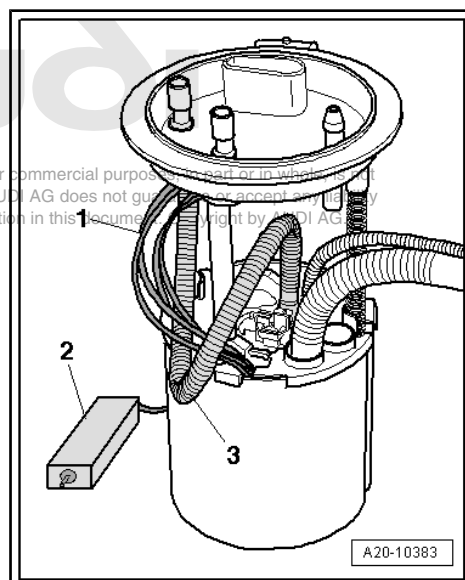
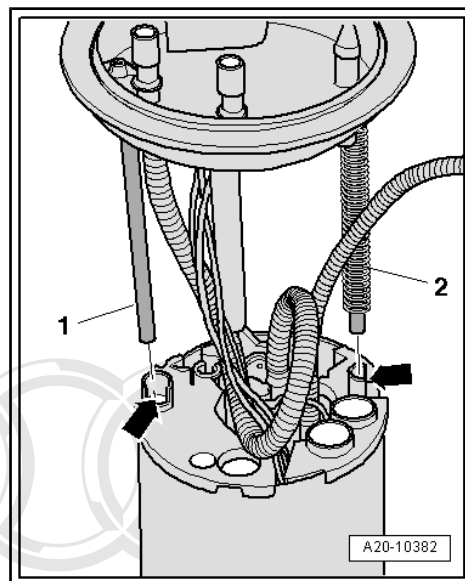
- Push suction-jet pump (with pipes attached) into fuel tank opening on left side of vehicle.
- Reach into fuel tank opening on right side of vehicle and pull suction-jet pump with pipes into the installation position.
- Push fuel supply line -2- into hole in fuel delivery unit so that it engages audibly.
- Connect ends of supply line -1- leading to suction-jet pump together so that they engage audibly.




Note

The fuel delivery unit is shown without the fuel tank in the next two illustrations.

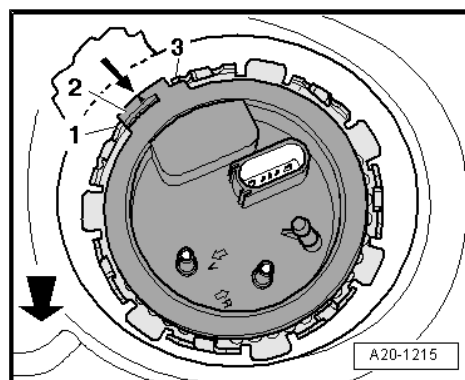
- Install new seal for flange (seal must be installed dry).
- Insert guide tubes -1- and -2- on flange into corresponding holes -arrows- in fuel delivery unit.
- Make sure that electrical wiring -1- and fuel supply line -3- are positioned as shown so they do not obstruct lever -2- of fuel gauge sender.



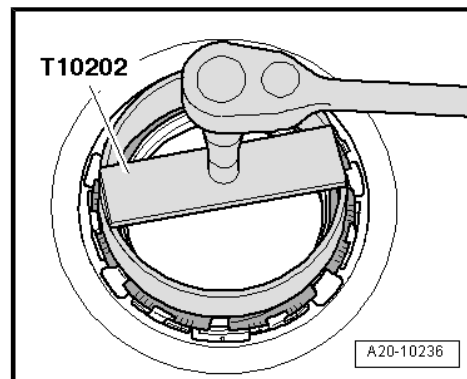
- Press flange down against spring pressure, and turn flange to installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.


Note

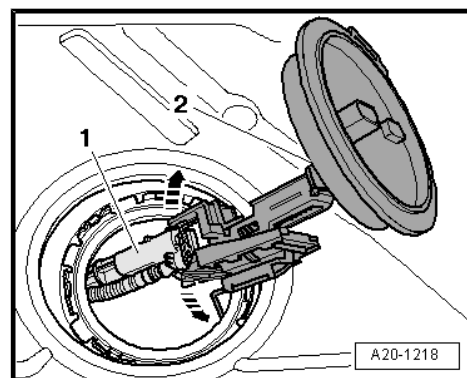
The -arrow- points in direction of travel.



- Tighten locking ring.



- Carefully insert fuel gauge sender 2 - G169- -item 2- into opening in fuel tank.
- Clip suction-jet pump -1- onto flange -2-, so that you hear it click into place.

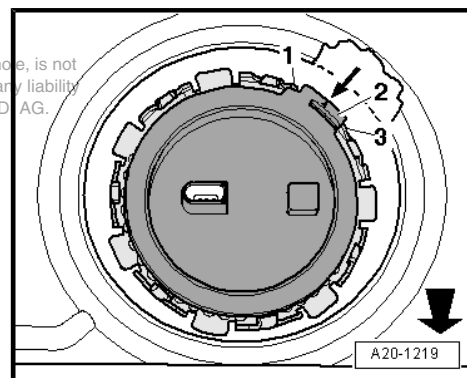


- Install new seal for flange (seal must be installed dry).
- Note installation position of flange.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.



Note

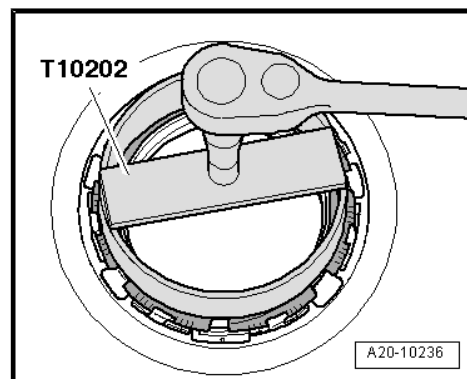
The -arrow- points in direction of travel.



- Tighten locking ring.
- Install rear seat bench ⇒ Rep. gr. 72 .
- Put at least 5 litres of fuel into tank after installing fuel delivery unit.

Vehicles with auxiliary heater:

- Bleed fuel supply line leading to metering pump
 ⇒ [page 98](#) .

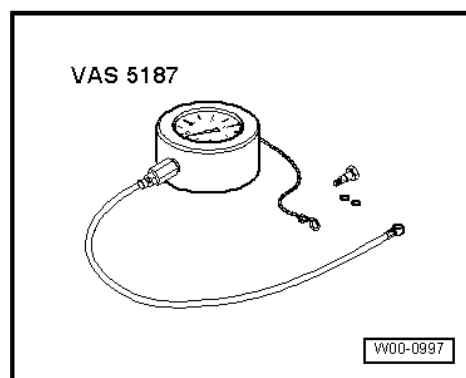


6 Tandem pump - vehicles with unit injector engine

6.1 Checking tandem pump - vehicles with 2-valve engine

Special tools and workshop equipment required

- ♦ Tandem pump tester - VAS 5187- with banjo bolt -VAS 5187/1A-



Procedure

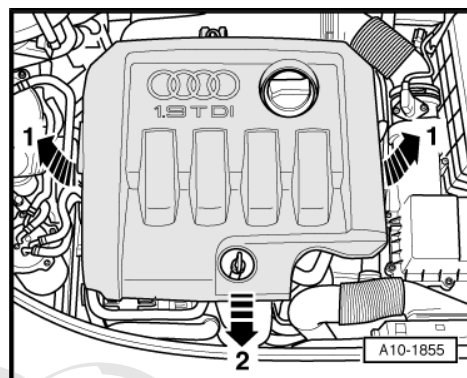
Observe test conditions ⇒ [page 3](#) .

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

Observe rules for cleanliness ⇒ [page 3](#) .

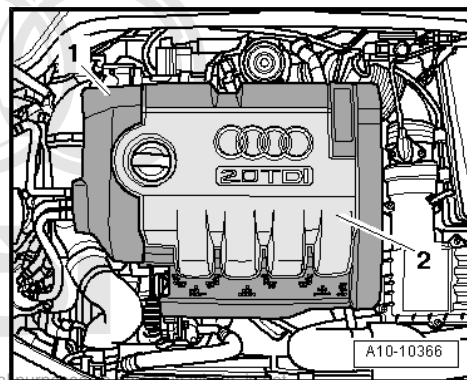
Engine cover panel (version 1):

- Lift engine cover panel at the sides -arrows 1- and pull off towards the front -arrow 2-.



Engine cover panel (version 2):

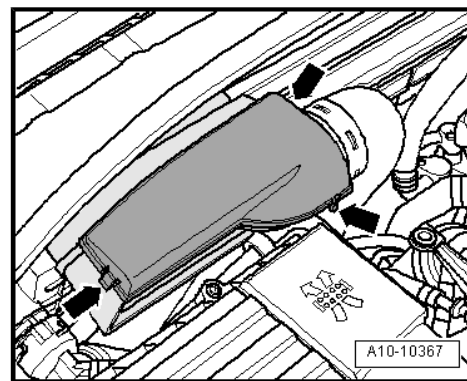
- Lift off engine cover panel (outside -1- and inside -2-) by pulling up evenly.



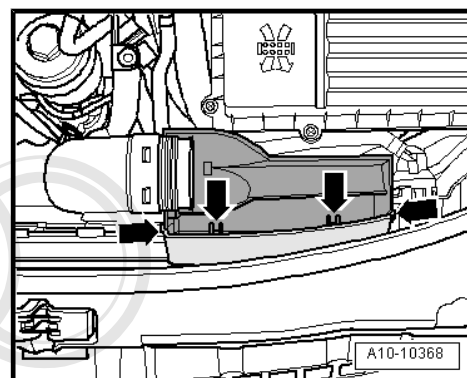
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All vehicles (continued):

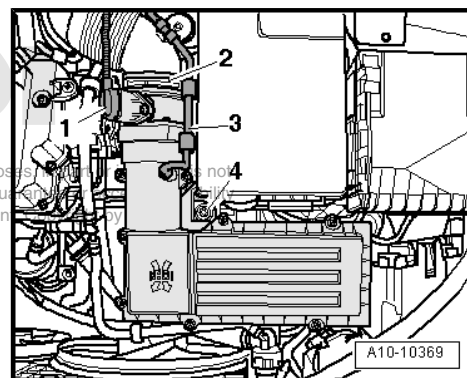
- Pull cover off air duct (release clips on sides) -arrows-.



- Unclip air duct at the bottom by releasing clips -arrows-.
- Detach air duct (bottom) together with air hose.



- Unplug electrical connector -1- at air mass meter - G70- .
- Detach vent hose -3- and air hose -2-.
- Unscrew bolt -4- and remove air cleaner housing.



WARNING

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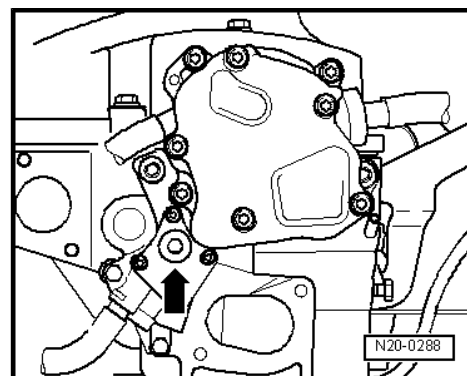
- ◆ **The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.**
- ◆ **In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.**
- ◆ **Put on protective gloves.**
- ◆ **Put on safety goggles.**

- Remove screw plug -arrow-.



Note

Tandem pump is shown with engine removed for illustration purposes.



- Connect tandem pump tester - VAS 5187- with banjo bolt -VAS 5187/1A- as shown in the illustration.
- Re-install air cleaner housing with air mass meter.
- Start engine.
- Increase engine speed to 4000 rpm.
- Read off pressure indicated on pressure gauge:
 - Specification: min. 7.5 bar

If specification is not obtained:

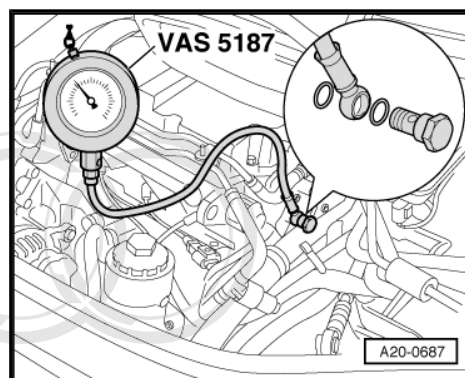
- Clamp off return hose between fuel filter and tandem pump using hose clamp.
- Increase engine speed to 4000 rpm.
- Read off pressure indicated on pressure gauge:
 - Specification: min. 7.5 bar

If specification is now obtained: pressure is being lost at unit injectors.

- Renew O-rings at unit injectors.

If specification is not obtained:

- Renew tandem pump ⇒ [page 79](#) .



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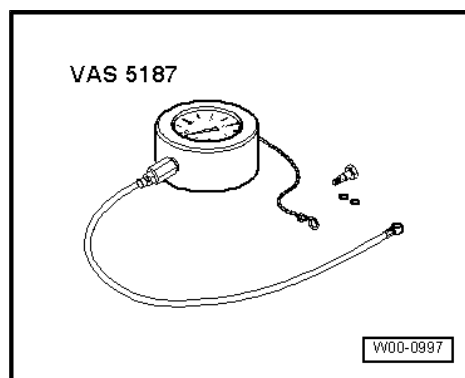
Note

After removing pressure tester, tighten screw plug to 25 Nm. Renew seal.

6.2 Checking tandem pump - vehicles with 4-valve engine

Special tools and workshop equipment required

- ◆ Tandem pump tester - VAS 5187- with banjo bolt -VAS 5187/1A-



Procedure

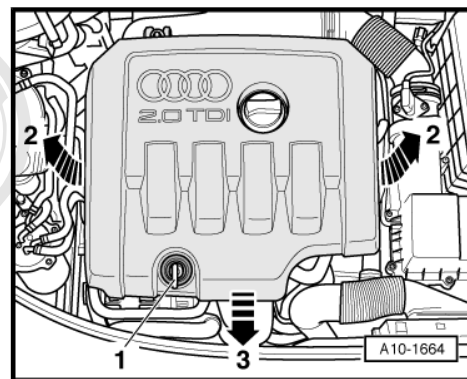
Observe test conditions ➤ [page 3](#) .

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

Observe rules for cleanliness ➤ [page 3](#) .

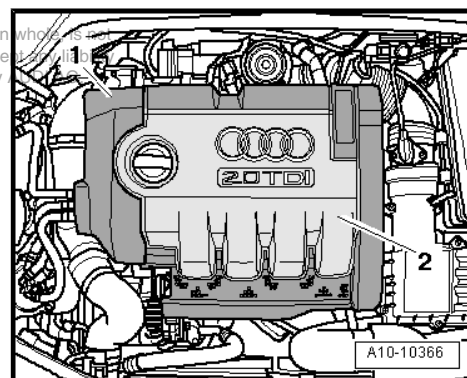
Engine cover panel (version 1):

- Pull dipstick -1- out of guide tube.
- Lift engine cover panel at the sides -arrows 2- and pull off towards the front -arrow 3-.
- Re-insert dipstick in guide tube.



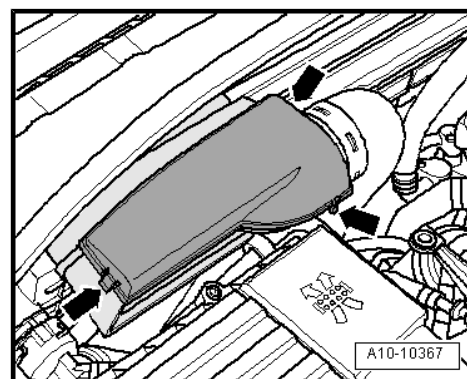
Engine cover panel (version 2):

- Lift off engine cover panel (outside -1- and inside -2-) by pulling up evenly.

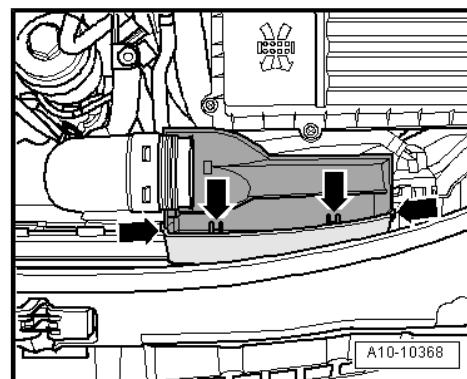


All vehicles (continued):

- Pull cover off air duct (release clips on sides) -arrows-.



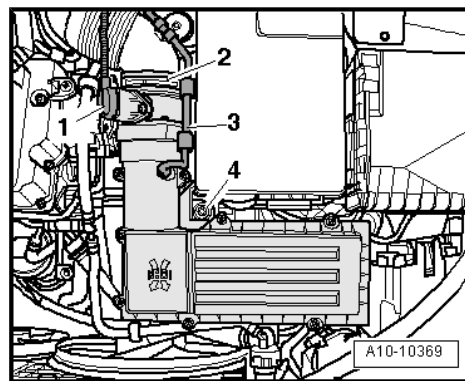
- Unclip air duct at the bottom by releasing clips -arrows-.
- Detach air duct (bottom) together with air hose.



- Unplug electrical connector -1- at air mass meter - G70- .
- Detach vent hose -3- and air hose -2-.
- Unscrew bolt -4- and remove air cleaner housing.

**WARNING**

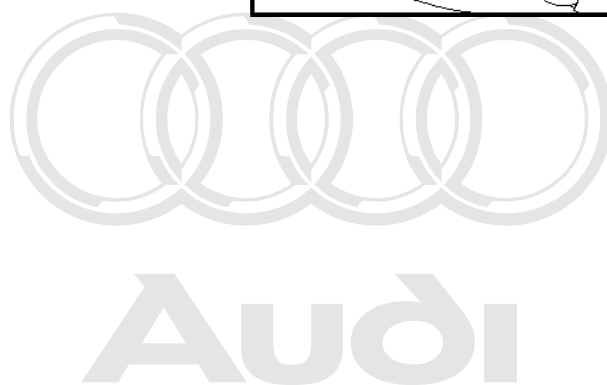
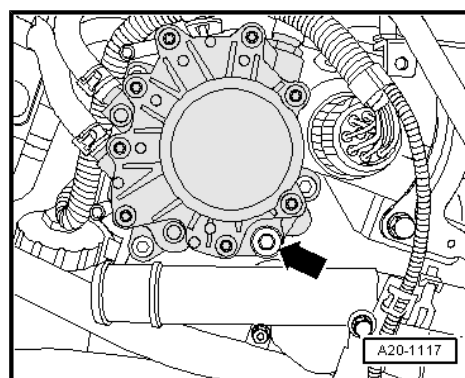
- ◆ *The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.*
- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Put on protective gloves.*
- ◆ *Put on safety goggles.*



- Remove screw plug -arrow-.

**Note**

Tandem pump is shown with engine removed for illustration purposes.



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- Connect tandem pump tester - VAS 5187- with banjo bolt -VAS 5187/1A- as shown in the illustration.
- Re-install air cleaner housing with air mass meter.
- Start engine.
- Increase engine speed to 4000 rpm.
- Read off pressure indicated on pressure gauge:
 - Specification: min. 10.5 bar

If specification is not obtained:

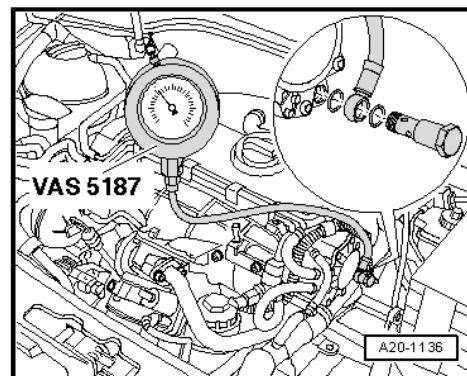
- Clamp off return hose between fuel filter and tandem pump using hose clamp.
- Increase engine speed to 4000 rpm.
- Read off pressure indicated on pressure gauge:
 - Specification: min. 10.5 bar

If specification is now obtained: pressure is being lost at unit injectors.

- Renew O-rings at unit injectors.

If specification is not obtained:

- Renew tandem pump ⇒ [page 82](#) .



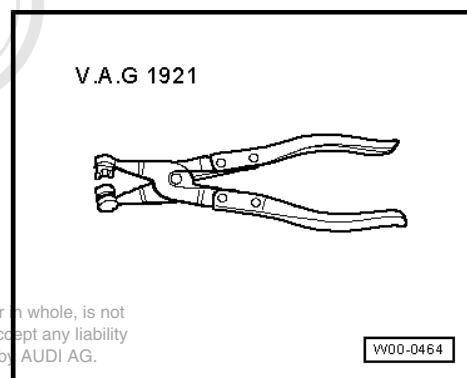
Note

After removing pressure tester, tighten screw plug to 25 Nm. Re-new seal.

6.3 Removing and installing tandem pump - vehicles with 2-valve engine

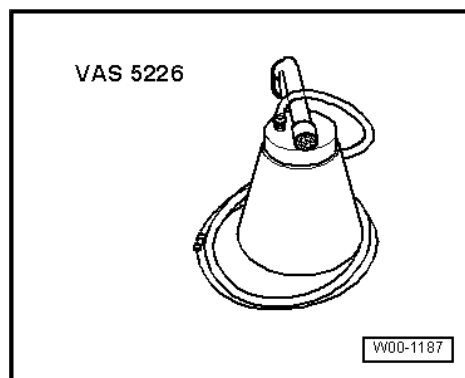
Special tools and workshop equipment required

- ◆ Hose clip pliers - V.A.G 1921-



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◆ Diesel extractor - VAS 5226-



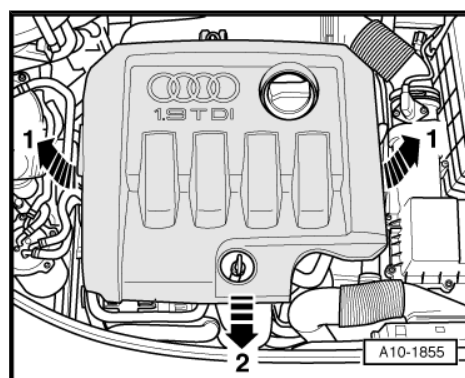
Removing

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

Observe rules for cleanliness ⇒ [page 3](#) .

Engine cover panel (version 1):

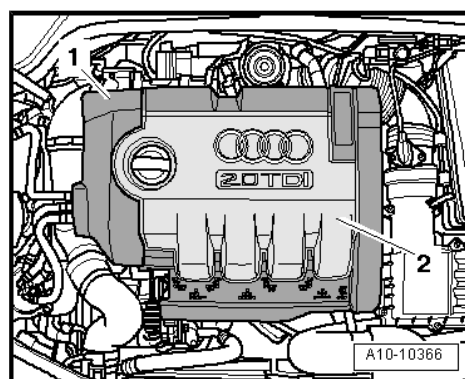
- Lift engine cover panel at the sides -arrows 1- and pull off towards the front -arrow 2-.



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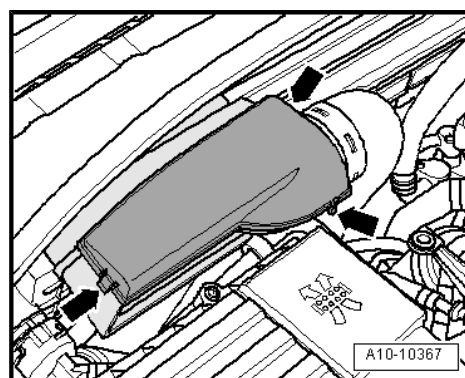
Engine cover panel (version 2):

- Lift off engine cover panel (outside -1- and inside -2-) by pulling up evenly.

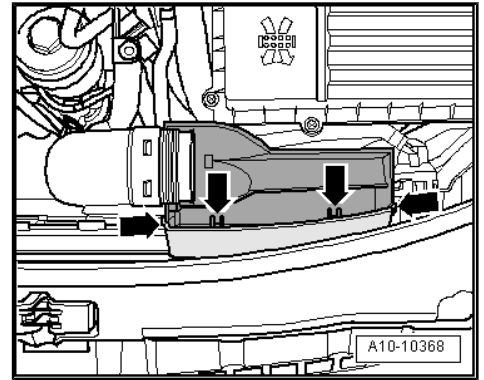


All vehicles (continued):

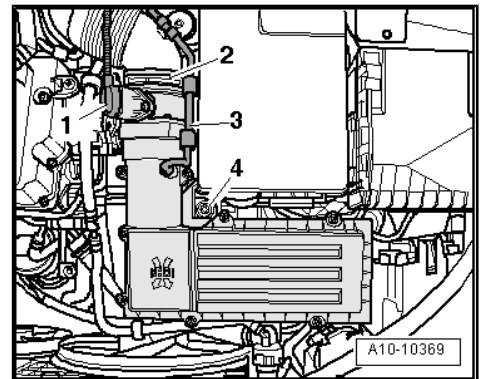
- Pull cover off air duct (release clips on sides) -arrows-.



- Unclip air duct at the bottom by releasing clips -arrows-.
- Detach air duct (bottom) together with air hose.



- Unplug electrical connector -1- at air mass meter - G70- .
- Detach vent hose -3- and air hose -2-.
- Unscrew bolt -4- and remove air cleaner housing.

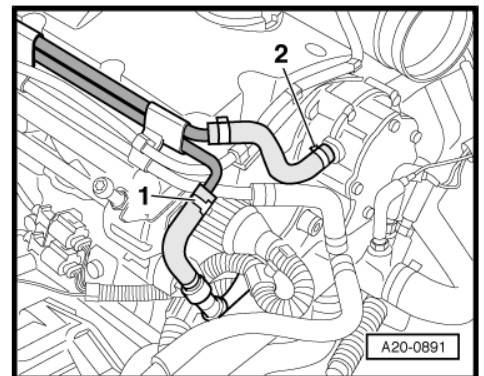


WARNING

- ◆ *The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.*
- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Put on protective gloves.*
- ◆ *Put on safety goggles.*

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- Disconnect fuel supply hose -2- from tandem pump.
- Disconnect fuel return hose -1- (blue marking) from fuel pipe.



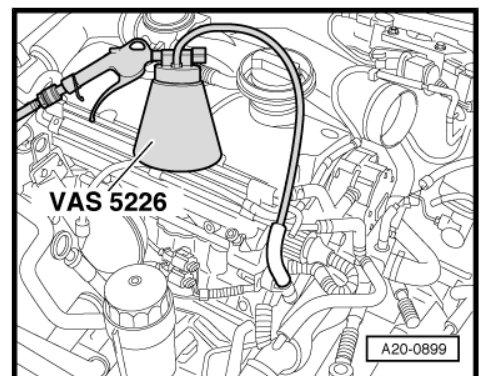
- Connect compressed air line to diesel extractor - VAS 5226- .
- Connect diesel extractor - VAS 5226- to fuel return hose.



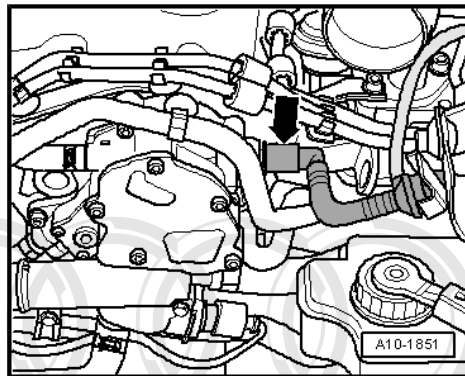
Note

Empty the bleeder container before it becomes full. Do not allow fuel to enter hand vacuum pump.

- Operate diesel extractor - VAS 5226- until no more fuel comes out of return hose.



- Detach vacuum hose -arrow- going to brake servo at tandem pump.



- Remove bolts -arrows-.
- Remove tandem pump from cylinder head.

Installing

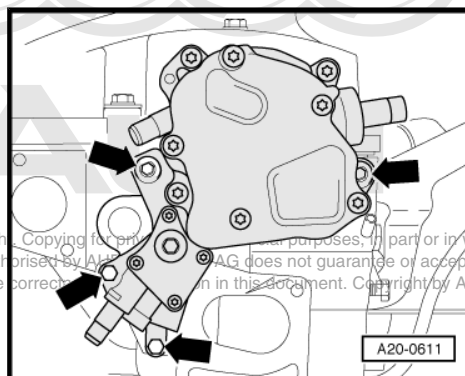
Installation is carried out in the reverse order; note the following:



Note

- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- ◆ *Renew tandem pump gaskets.*
- ◆ *Ensure proper seating of tandem pump actuator in camshaft.*

- Install tandem pump and tighten top securing bolts to 20 Nm.
- Tighten bottom securing bolts to 10 Nm.
- Connect all hoses to tandem pump.

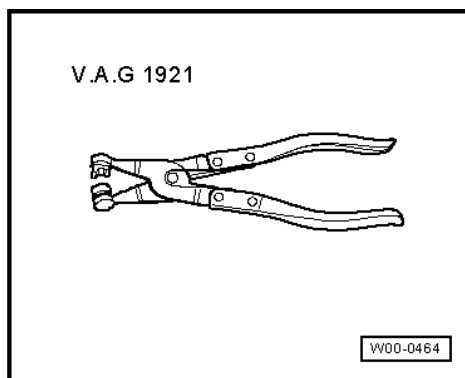


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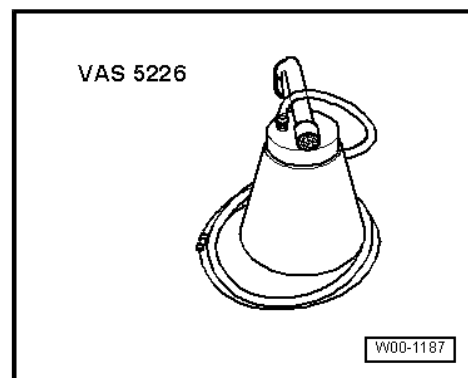
6.4 Removing and installing tandem pump - vehicles with 4-valve engine

Special tools and workshop equipment required

- ◆ Hose clip pliers - V.A.G 1921-



◆ Diesel extractor - VAS 5226-



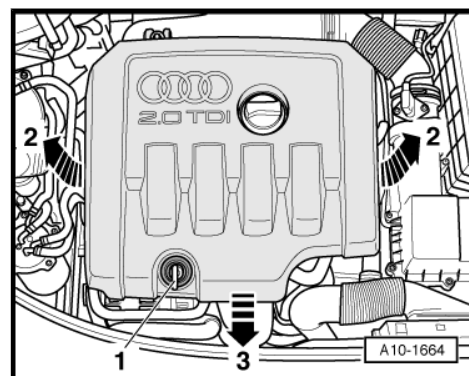
Removing

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

Observe rules for cleanliness ⇒ [page 3](#) .

Engine cover panel (version 1):

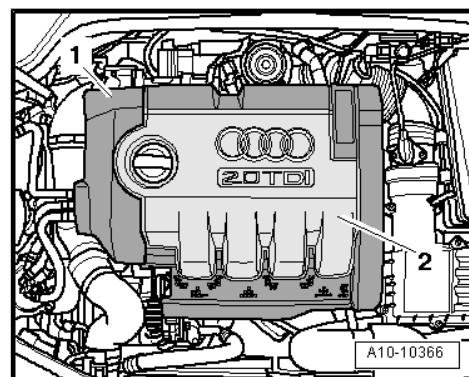
- Pull dipstick -1- out of guide tube.
- Lift engine cover panel at the sides -arrows 2- and pull off towards the front -arrow 3-.
- Re-insert dipstick in guide tube.



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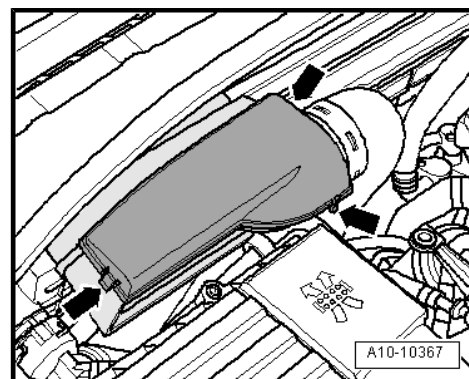
Engine cover panel (version 2):

- Lift off engine cover panel (outside -1- and inside -2-) by pulling up evenly.

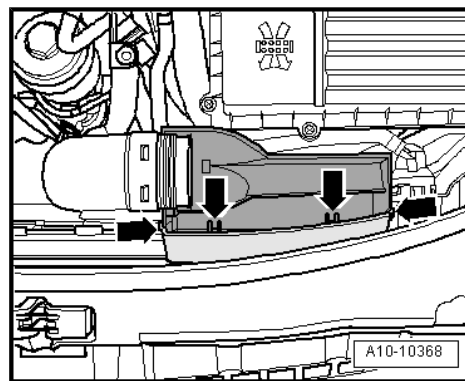


All vehicles (continued):

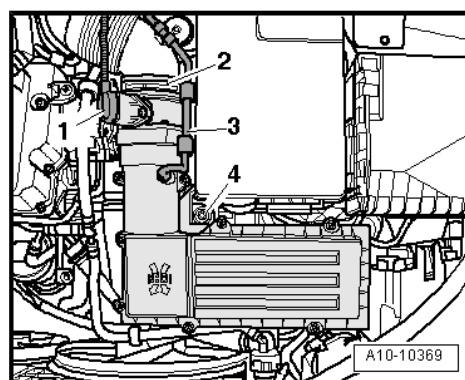
- Pull cover off air duct (release clips on sides) -arrows-.



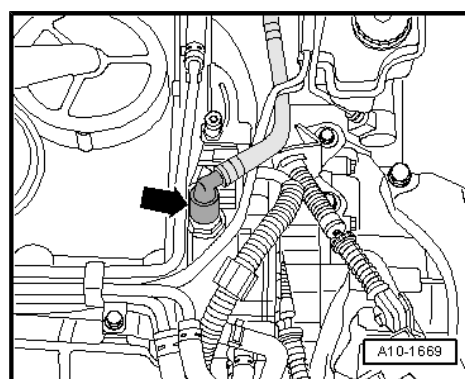
- Unclip air duct at the bottom by releasing clips -arrows-.
- Detach air duct (bottom) together with air hose.



- Unplug electrical connector -1- at air mass meter - G70- .
- Detach vent hose -3- and air hose -2-.
- Unscrew bolt -4- and remove air cleaner housing.



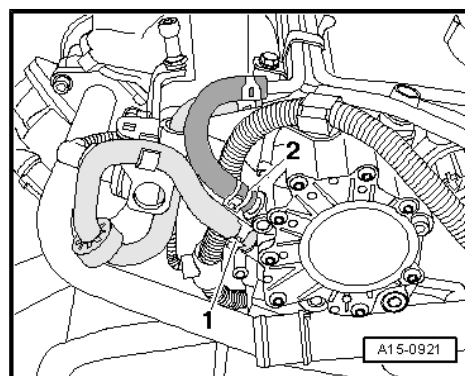
- Detach vacuum hose -arrow- going to brake servo from tandem pump.


WARNING

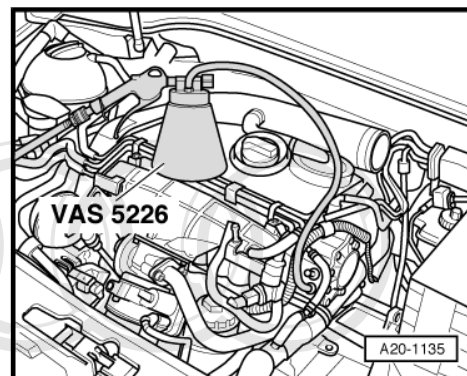
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- ◆ **The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.**
- ◆ **In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.**
- ◆ **Put on protective gloves.**
- ◆ **Put on safety goggles.**

- Pull off fuel supply hose -2- (white marking) and fuel return hose -1- (blue marking) from tandem pump.



- Connect compressed air line to diesel extractor - VAS 5226- .
- Connect diesel extractor - VAS 5226- to fuel return connection on tandem pump.
- Operate diesel extractor - VAS 5226- until no more fuel comes out of return connection.



- Remove bolts -arrows-.
- Remove tandem pump from cylinder head.

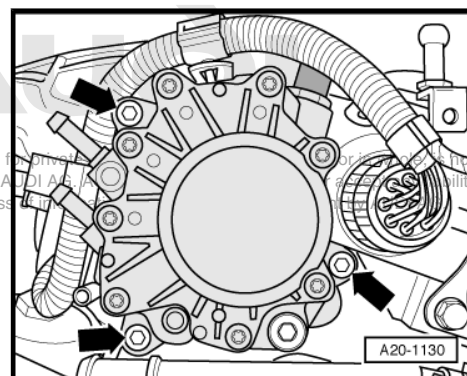
Installing

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



Note

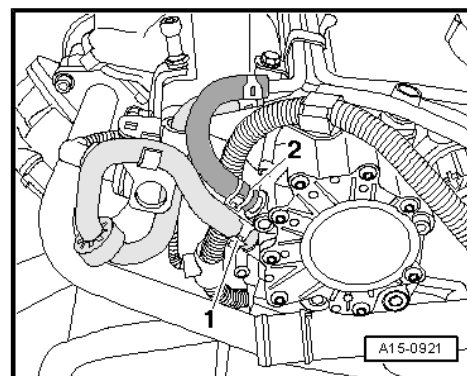
- ◆ Renew tandem pump gaskets.
- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .
- ◆ Ensure proper seating of tandem pump actuator in camshaft.



- Install tandem pump and tighten the flange bolts -arrows-.
- Connect fuel supply hose -2- (white marking) and fuel return hose -1- (blue marking) to tandem pump.

Tightening torque

Component	Nm
Tandem pump to cylinder head	20



7 Supplementary fuel pump - vehicles with common rail engine



Caution

Running when dry causes irreparable damage to high-pressure pump.

- ◆ *If the fuel filter, the fuel lines or the supplementary fuel pump - V393- are renewed on vehicles with common rail engine, it is important to bleed the fuel system before the engine is started for the first time.*

- Bleed fuel system ⇒ Rep. gr. 23 ; Performing first fuel filling after installing high-pressure pump .

7.1 Supplementary fuel pump - V393- - exploded view

1 - Electrical connector

2 - Bolt

- 9 Nm

3 - Bolt

- 20 Nm

4 - Bracket

5 - Rubber mounting

6 - Fuel supply hose

- From fuel filter
- White marking

7 - Spring-type clip

8 - Bolt

- 9 Nm

9 - Bracket

10 - Rubber mounting

11 - Fuel supply hose

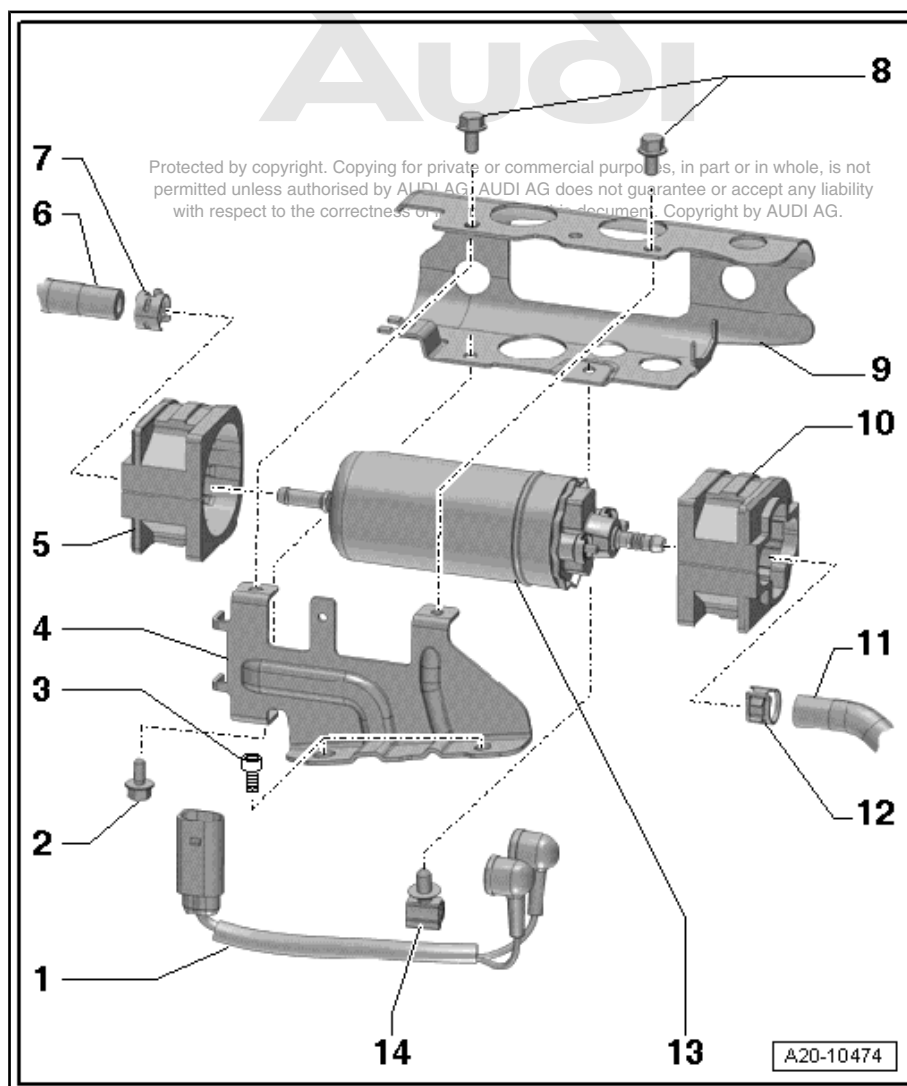
- To high-pressure pump
- White marking

12 - Spring-type clip

13 - Supplementary fuel pump - V393-

- Removing and installing ⇒ [page 87](#)

14 - Cable retainer



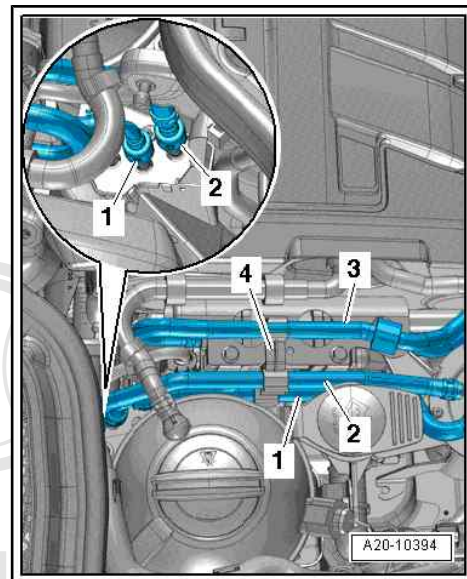
7.2 Removing and installing supplementary fuel pump - V393-

Removing

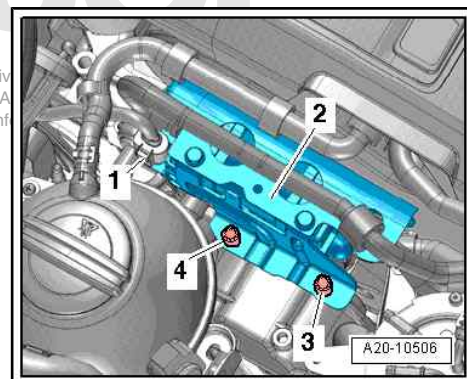
Observe safety precautions ⇒ [page 1](#) .

Observe rules for cleanliness ⇒ [page 3](#) .

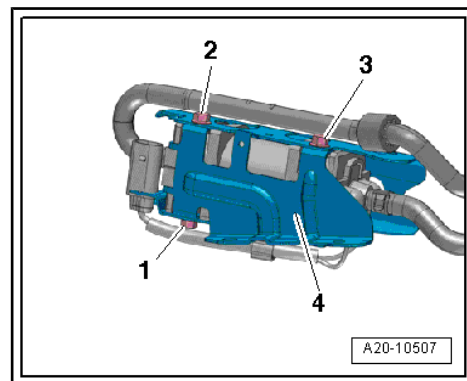
- Disconnect fuel return line -1- and fuel supply line -2- by pressing release tabs.
- Disengage fuel hoses -1, 2, 3- at bracket and remove bracket -4-.



- Press release tab and unplug electrical connector -1-.
- Remove bolts -3, 4- and detach bracket -2- with supplementary fuel pump.



- Unscrew bolts -1, 2, 3- and remove bracket -4-.



- Detach electrical connector -1- from bracket and move clear at cable retainer -arrow-.
- Take supplementary fuel pump -6- with rubber mountings -5, 7- out of bracket -3-.
- Detach fuel hoses -2- and -4-.

Installing

- Tightening torque ⇒ [page 86](#)

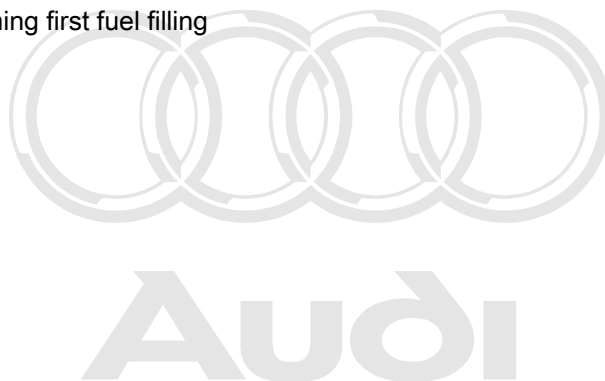
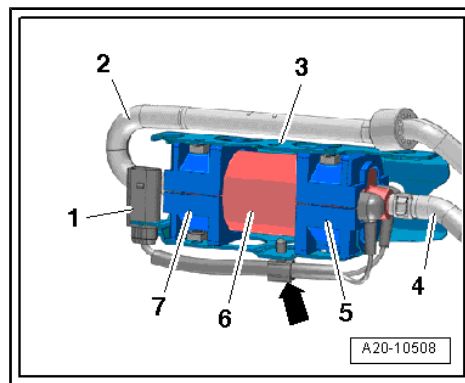
Installation is carried out in the reverse order; note the following:



Note

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

- Connect fuel hoses to fuel pipes and supplementary fuel pump according to markings.
- Engage fuel hoses carefully in mounting bracket.
- Bleed fuel system ⇒ Rep. gr. 23 ; Performing first fuel filling after installing high-pressure pump .



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8 Fuel cooler - vehicles with unit injector engine

8.1 Removing and installing fuel cooler

Note

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

Special tools and workshop equipment required

- ◆ Drip tray for workshop hoist - VAS 6208-

Removing

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

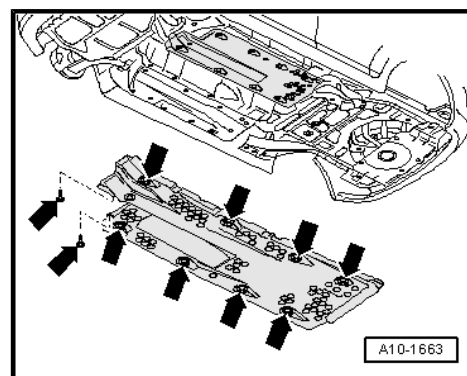
Observe rules for cleanliness ⇒ [page 3](#) .

- Remove underbody cover (right-side) -arrows-.
- Place drip tray for workshop hoist - VAS 6208- under underbody.



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- ◆ **The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.**
- ◆ **In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.**
- ◆ **Put on protective gloves.**
- ◆ **Put on safety goggles.**



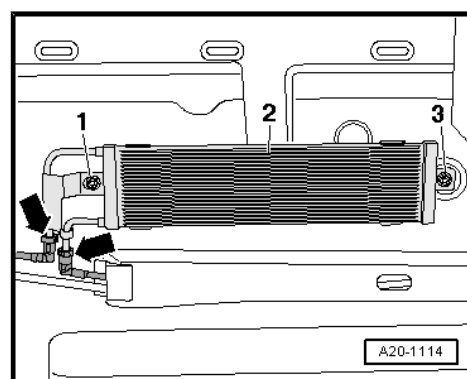
- Detach fuel pipes from fuel cooler -arrows-.
- Unbolt nuts -1- and -3- and remove fuel cooler -2-.

Installing

Install in reverse order.

Tightening torque

Component	Nm
Fuel cooler to underbody	20



9 Fuel filter



Note

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

9.1 Fuel filter - exploded view (vehicles with unit injector engine)

1 - Fuel line

- ☐ Check that it is securely seated
- ☐ Overview of connections: fuel filter (top section), version A ⇒ [page 91](#)
- ☐ Overview of connections: fuel filter (top section), version B ⇒ [page 91](#)

2 - Bolt

- ☐ Tightening torque: fuel filter (top section), version A ⇒ [page 91](#)
- ☐ Tightening torque: fuel filter (top section), version B ⇒ [page 91](#)

3 - Fuel line

- ☐ Check that it is securely seated
- ☐ Overview of connections: fuel filter (top section), version A ⇒ [page 91](#)
- ☐ Overview of connections: fuel filter (top section), version B ⇒ [page 91](#)

4 - Screw plug for fluid extraction

- ☐ Tightening torque: fuel filter (top section), version A ⇒ [page 91](#)

5 - Seal

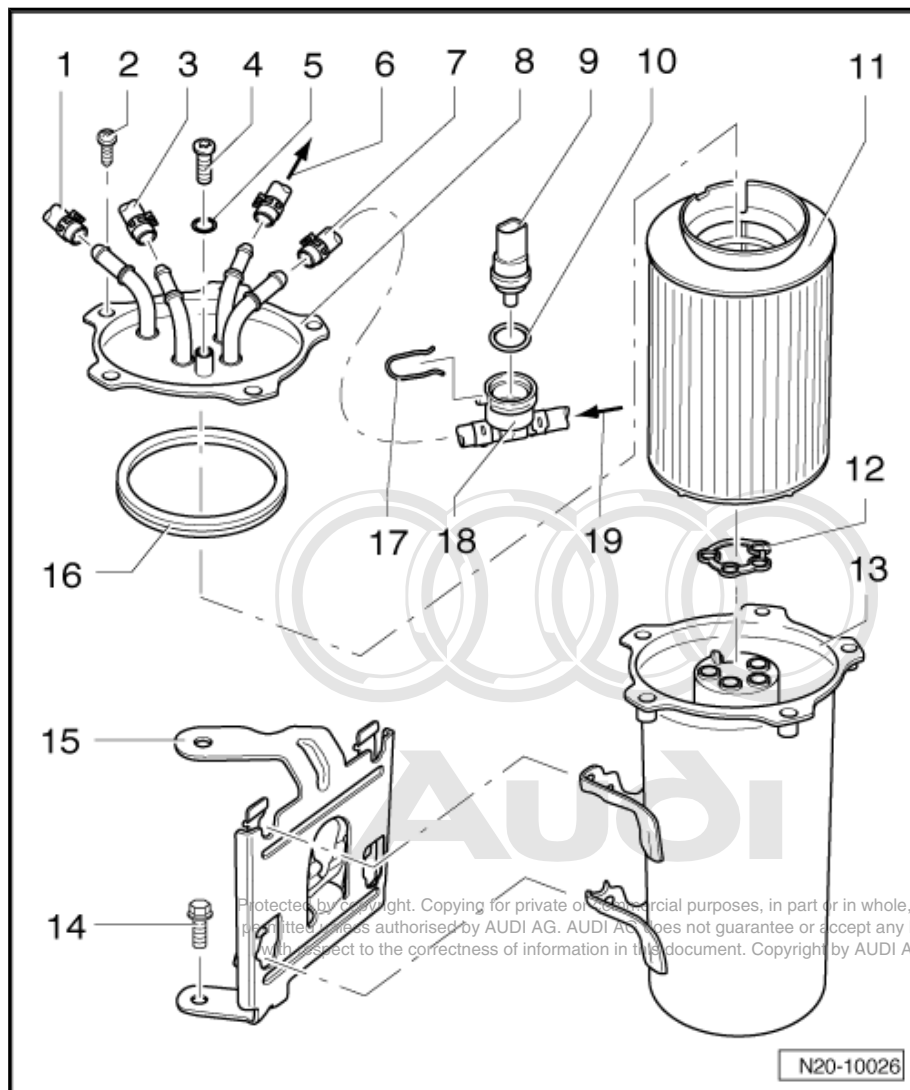
- ☐ Renew

6 - Fuel line

- ☐ Check that it is securely seated
- ☐ Overview of connections: fuel filter (top section), version A ⇒ [page 91](#)
- ☐ Overview of connections: fuel filter (top section), version B ⇒ [page 91](#)

7 - Fuel line

- ☐ Check that it is securely seated
- ☐ Overview of connections: fuel filter (top section), version A ⇒ [page 91](#)
- ☐ Overview of connections: fuel filter (top section), version B ⇒ [page 91](#)



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8 - Fuel filter (top section)

- ☐ Note different versions: fuel filter (top section), version A ➤ [page 91](#)
- ☐ Note different versions: fuel filter (top section), version B ➤ [page 91](#)

9 - Fuel temperature sender - G81-

10 - Seal

- ☐ Renew

11 - Filter element

- ☐ Renew filter at intervals specified in Service Schedule ➤ Maintenance ; Booklet 808

12 - Seal

- ☐ Renew

13 - Fuel filter housing

14 - 8 Nm

15 - Bracket

16 - Seal

- ☐ Renew

17 - Retaining clip

- ☐ Check for firm attachment

18 - Connecting piece for fuel temperature sender - G81-

19 - From tandem pump

Fuel filter (top section), version A

1 - 8 Nm

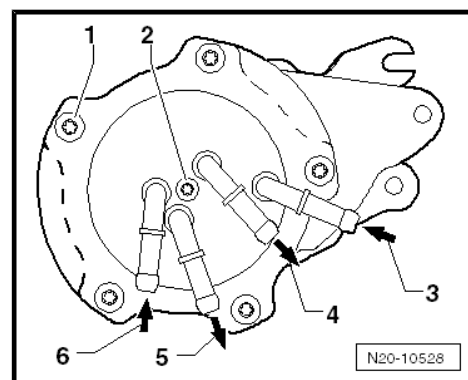
2 - 4 Nm - screw plug for fluid extraction (not always fitted; unscrew and extract approx. 100 cm³ of fluid using hand vacuum pump with accessories - V.A.G 1390- and bleeder container - V.A.G 1390/1- ; renew seal)

3 - Supply line from fuel tank (white or with white marking). Check for secure seating.

4 - Return line to fuel tank (blue or with blue marking). Check for secure seating.

5 - Supply line to engine (white or with white marking). Check for secure seating.

6 - Return line from engine (blue or with blue marking). Check for secure seating.



Fuel filter (top section), version B

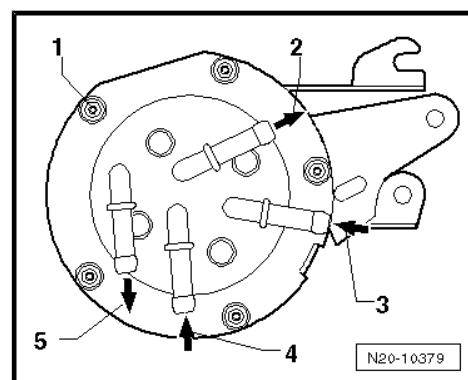
1 - 5 Nm

2 - Return line to fuel tank (blue or with blue marking). Check for secure seating.

3 - Supply line from fuel tank (white or with white marking). Check for secure seating.

4 - Return line from engine (blue or with blue marking). Check for secure seating.

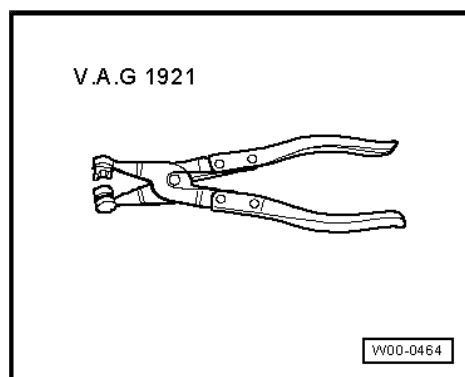
5 - Supply line to engine (white or with white marking). Check for secure seating.



9.2 Removing and installing fuel filter housing - vehicles with unit injector engine

Special tools and workshop equipment required

- ◆ Hose clip pliers - V.A.G 1921-



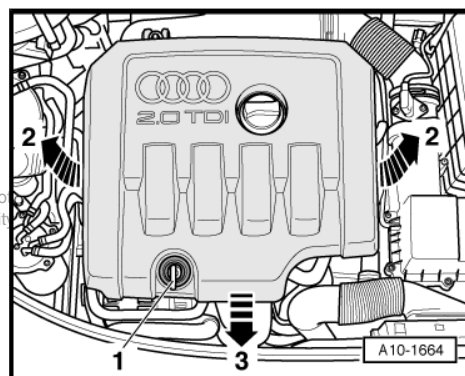
Removing

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

Observe rules for cleanliness ⇒ [page 3](#) .

Engine cover panel (version 1):

- Pull dipstick -1- out of guide tube.
- Lift engine cover panel at the sides -arrows 2- and pull off towards the front -arrow 3-.
- Re-insert dipstick in guide tube.



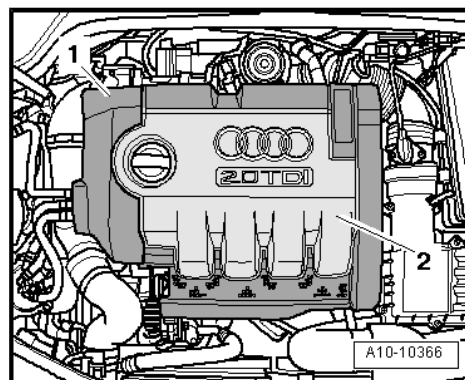
Engine cover panel (version 2):

- Lift off engine cover panel (outside -1- and inside -2-) by pulling up evenly.



Note

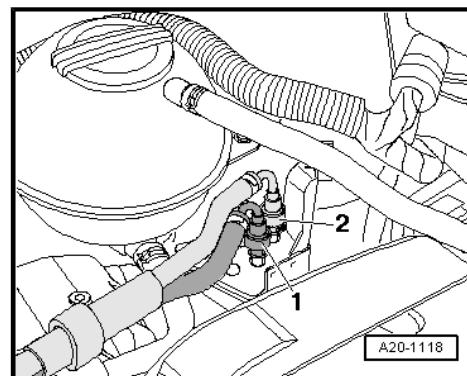
Illustration shows vehicle with 2.0 litre engine.



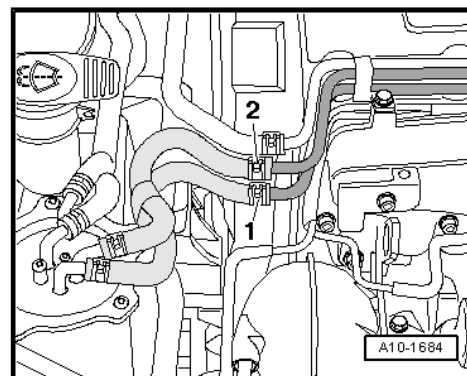
WARNING

- ◆ *The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.*
- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Put on protective gloves.*
- ◆ *Put on safety goggles.*

- Disconnect fuel supply line -2- and fuel return line -1- by pulling release tabs.

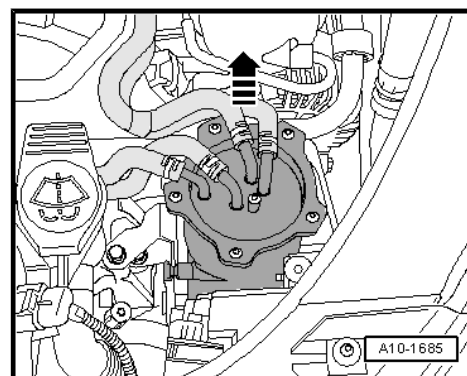


- Disconnect fuel hoses -1- and -2- from fuel lines.



Fuel filter - version 1:

- Pull fuel filter with hoses attached upwards out of the bracket -arrow-.



Fuel filter - version 2:

- Slacken bolt -1- one turn.
- Remove bolt -2- and nut -3-.
- Remove fuel filter with hoses attached.

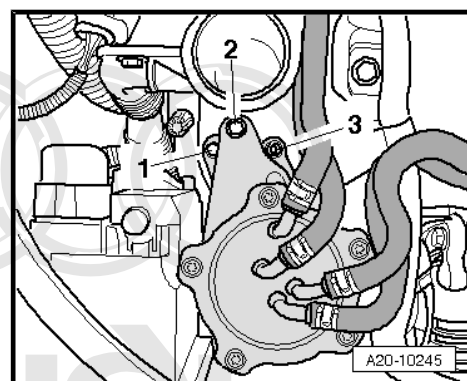
Installing

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.



- Engage fuel filter carefully on mounting bracket.
- Connect fuel hoses to fuel pipes according to markings.

9.3 Fuel filter - exploded view (vehicles with common rail engine)



Caution

Running when dry causes irreparable damage to high-pressure pump.

- ◆ *If the fuel filter, the fuel lines or the supplementary fuel pump - V393- are renewed on vehicles with common rail engine, it is important to bleed the fuel system before the engine is started for the first time.*

- Bleed fuel system ⇒ Rep. gr. 23 ; Performing first fuel filling after installing high-pressure pump .



Note

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

1 - Fuel line

- ☐ Check that it is securely seated
- ☐ Overview of connections: fuel filter (top section), version A ⇒ [page 95](#)
- ☐ Overview of connections: fuel filter (top section), version B ⇒ [page 95](#)

2 - Bolt

- ☐ Tightening torque: fuel filter (top section), version A ⇒ [page 95](#)
- ☐ Tightening torque: fuel filter (top section), version B ⇒ [page 95](#)

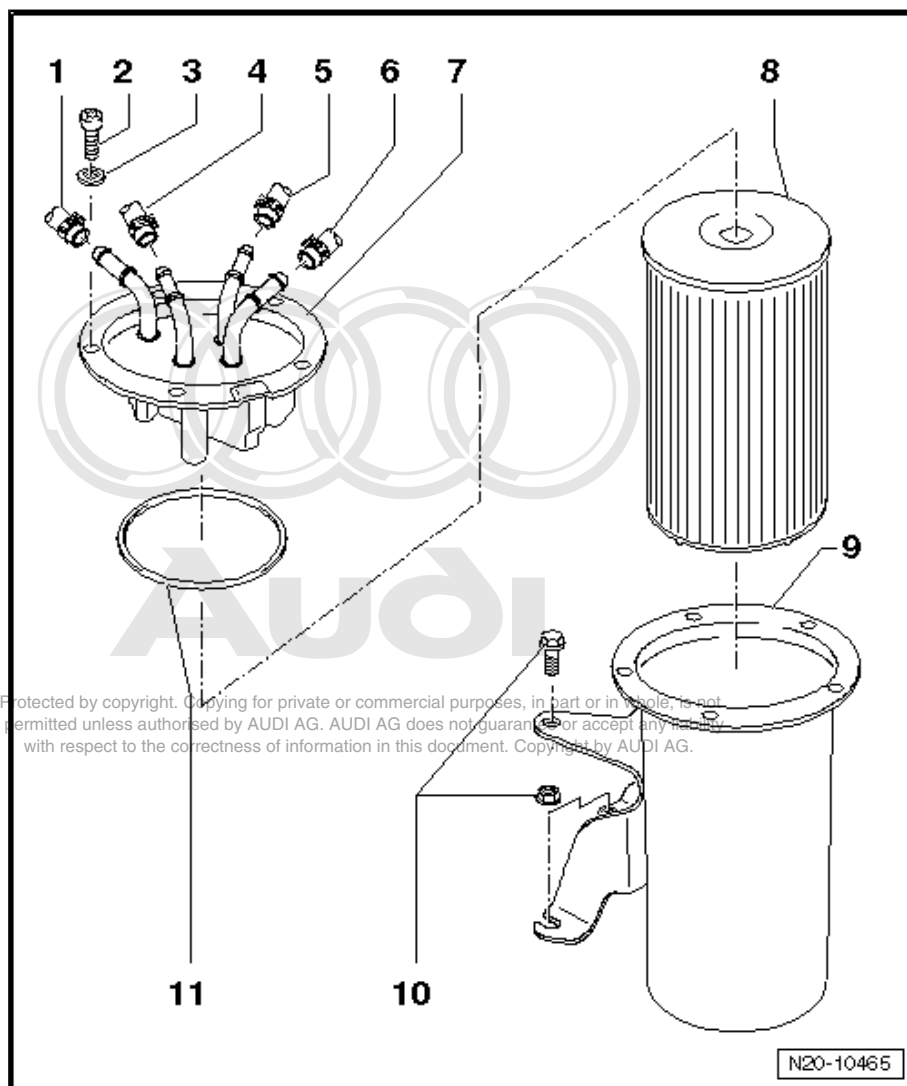
3 - Washer

4 - Fuel line

- ☐ Check that it is securely seated
- ☐ Overview of connections: fuel filter (top section), version A ⇒ [page 95](#)
- ☐ Overview of connections: fuel filter (top section), version B ⇒ [page 95](#)

5 - Fuel line

- ☐ Check that it is securely seated
- ☐ Overview of connections: fuel filter (top section), version A ⇒ [page 95](#)



- ☐ Overview of connections: fuel filter (top section), version B ⇒ [page 95](#)

6 - Fuel line

- ☐ Check that it is securely seated
- ☐ Overview of connections: fuel filter (top section), version A ⇒ [page 95](#)
- ☐ Overview of connections: fuel filter (top section), version B ⇒ [page 95](#)

7 - Fuel filter (top section)

- ☐ Note different versions: fuel filter (top section), version A ⇒ [page 95](#)
- ☐ Note different versions: fuel filter (top section), version B ⇒ [page 95](#)

8 - Filter element

- ☐ Renew filter at intervals specified in Service Schedule ⇒ Maintenance ; Booklet 808

9 - Fuel filter housing

- ☐ Removing and installing ⇒ [page 95](#)

10 - 10 Nm

11 - Seal

- ☐ Renew

Fuel filter (top section), version A

1 - 8 Nm

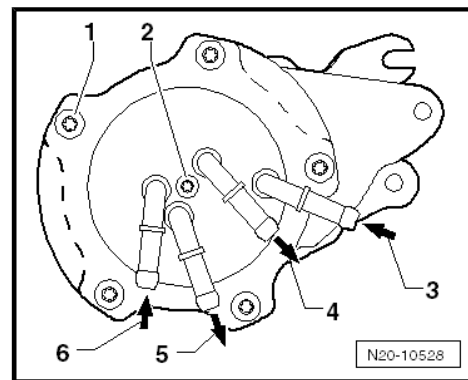
2 - 4 Nm - screw plug for fluid extraction (not always fitted; unscrew and extract approx. 100 cm³ of fluid using diesel extractor - VAS 5226- ; renew seal)

3 - Supply line from fuel tank (white or with white marking). Check for secure seating.

4 - Return line to fuel tank (blue or with blue marking). Check for secure seating.

5 - Supply line to engine (white or with white marking). Check for secure seating.

6 - Return line from engine (blue or with blue marking). Check for secure seating.



Fuel filter (top section), version B

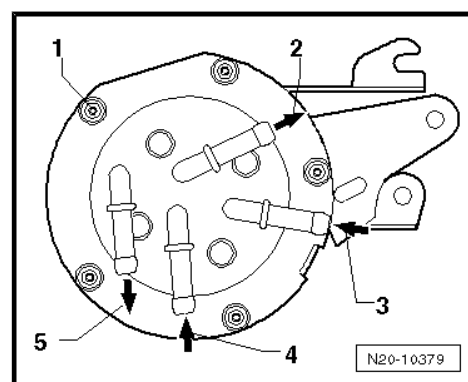
1 - 5 Nm

2 - Return line to fuel tank (blue or with blue marking). Check for secure seating.

3 - Supply line from fuel tank (white or with white marking). Check for secure seating.

4 - Return line from engine (blue or with blue marking). Check for secure seating.

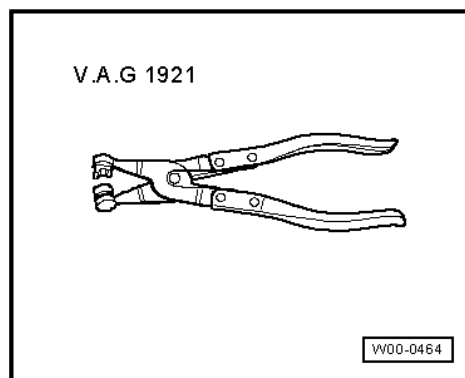
5 - Supply line to engine (white or with white marking). Check for secure seating.



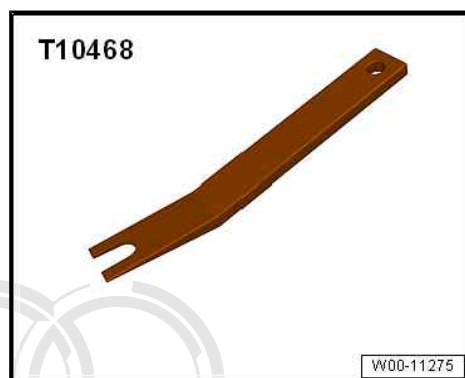
9.4 Removing and installing fuel filter housing - vehicles with common rail engine

Special tools and workshop equipment required

- ◆ Hose clip pliers - V.A.G 1921-



- ◆ Lever - T10468-



Removing

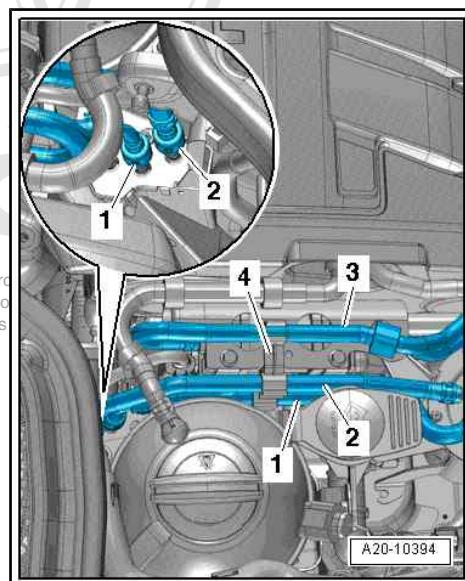
Observe safety precautions ⇒ [page 1](#) .

Observe rules for cleanliness ⇒ [page 3](#) .



WARNING

- ◆ *The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.*
- ◆ *In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Put on protective gloves.*
- ◆ *Put on safety goggles.*



- Disconnect fuel return line -1- and fuel supply line -2-. To do so, press release tabs and counterhold with lever - T10468- .
- Disengage fuel hoses -1, 2, 3- at bracket and remove bracket -4-.

- Remove fuel supply hose -6- (white marking) and fuel return hose -5- (blue marking) from fuel filter.
- Remove bracket -4- for coolant hose.
- Slacken bolt -1- a few turns.
- Remove bolt -2- and nut -3-.
- Detach fuel filter housing -7- with hoses.

Installing

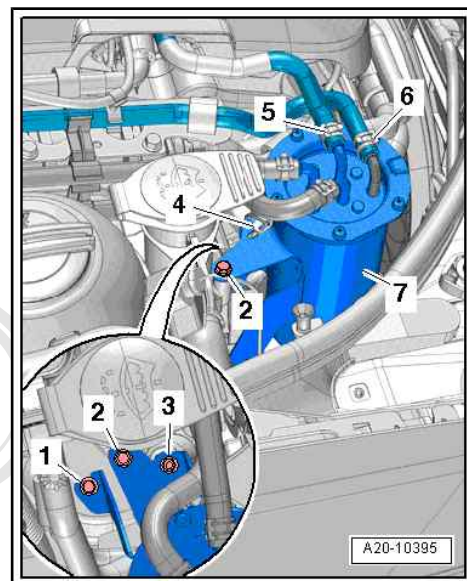
Installation is carried out in the reverse order; note the following:



Note

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

- Engage fuel filter carefully on mounting bracket.
- Connect fuel hoses to fuel pipes and fuel filter according to markings.
- Bleed fuel system ⇒ Rep. gr. 23 ; Performing first fuel filling after installing high-pressure pump.



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10 Bleeding fuel system

10.1 Bleeding fuel system

Vehicles with unit injector engine

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

Vehicles with common rail engine



Caution

If a fuel pump, fuel line (between fuel tank and high-pressure fuel pump) or fuel filter is removed or renewed, the fuel system must be bled before the engine is started for the first time.

After installation, the high-pressure pump must first be filled with fuel before the engine is started (the pump must NOT be allowed to run while still empty).

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- Bleed fuel system ⇒ Rep. gr. 23 ; Filling and bleeding fuel system .

10.2 Bleeding fuel supply line leading to metering pump - vehicles with auxiliary heater



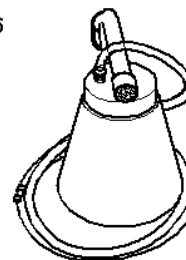
Note

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

Special tools and workshop equipment required

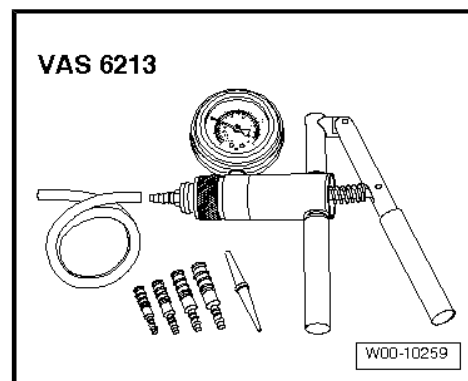
- ◆ Diesel extractor - VAS 5226-

VAS 5226



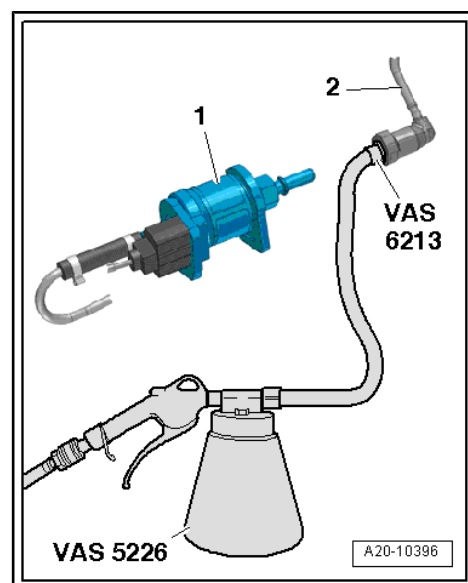
VW00-1187

◆ Hand vacuum pump - VAS 6213-



Procedure

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



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11 Checking fuel system for leaks - vehicles with unit injector engine

11.1 Checking for leaks

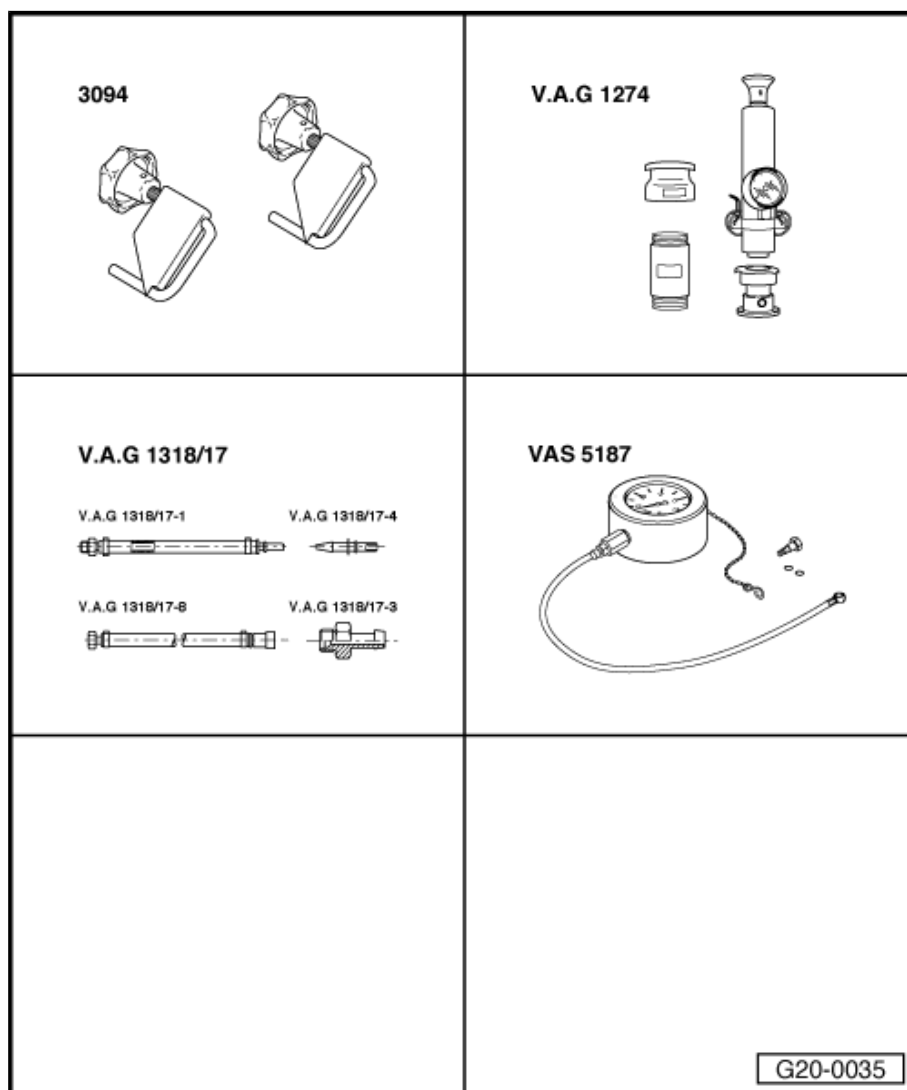
A leaking fuel system can cause:

- ◆ Foam build-up or air bubbles in the supply line
- ◆ Lack of power, misfiring
- ◆ Starting problems

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Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-
- ◆ Cooling system tester - V.A.G 1274- with adapter - V.A.G 1274/1A- and adapter for testing diesel fuel - V.A.G 1274/2-
- ◆ Adapter - V.A.G 1318/17-1- from adapter set - V.A.G 1318/17- (2 x)
- ◆ Banjo bolt -VAS 5187/1A- from tandem pump tester - VAS 5187-



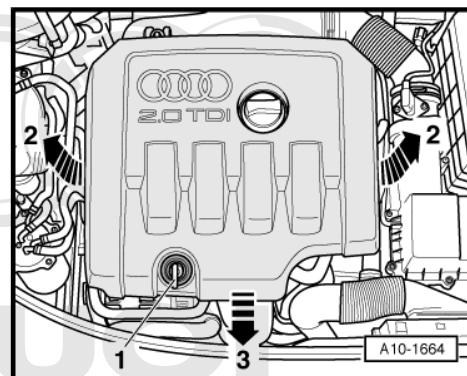
Procedure

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

Observe rules for cleanliness ⇒ [page 3](#) .

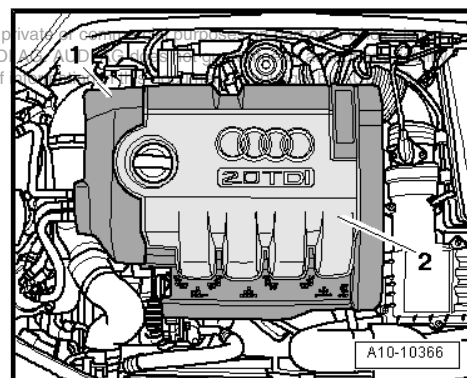
Engine cover panel (version 1):

- Pull dipstick -1- out of guide tube.
- Lift engine cover panel at the sides -arrows 2- and pull off towards the front -arrow 3-.
- Re-insert dipstick in guide tube.



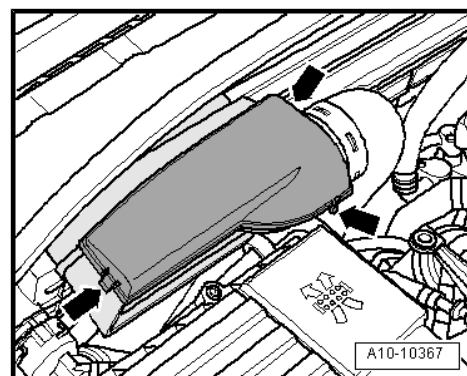
Engine cover panel (version 2):

- Lift off engine cover panel (outside -1- and inside -2-) by pulling up evenly.

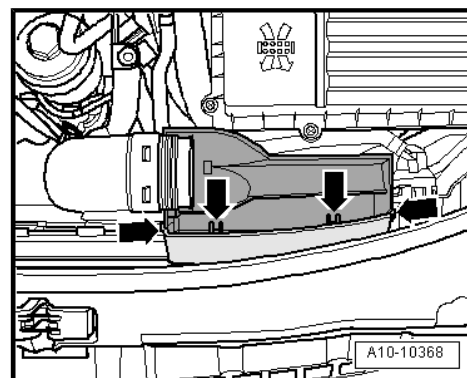


All vehicles (continued):

- Pull cover off air duct (release clips on sides) -arrows-.



- Unclip air duct at the bottom by releasing clips -arrows-.
- Detach air duct (bottom) together with air hose.

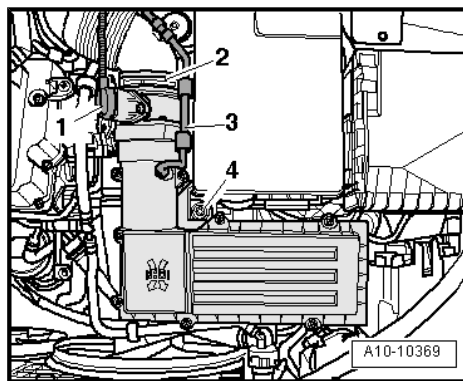


- Unplug electrical connector -1- at air mass meter - G70- .
- Detach vent hose -3- and air hose -2-.
- Unscrew bolt -4- and remove air cleaner housing.



Note

Illustration shows vehicle with 2.0 litre engine.



WARNING

- ◆ **The fuel system is pressurised. Wrap a cloth around the connection before opening the system. Then release pressure by carefully loosening the connection.**
- ◆ **In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.**
- ◆ **Put on protective gloves.**
- ◆ **Put on safety goggles.**

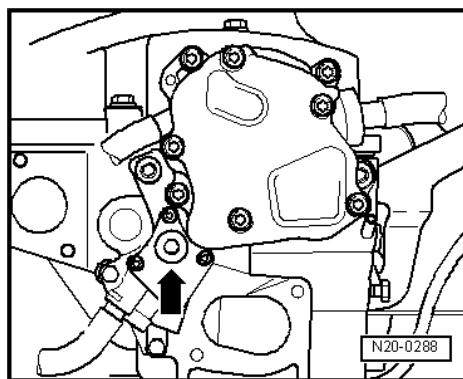
Vehicles with 2-valve engine:

- Remove screw plug -arrow-.



Note

Illustration shows tandem pump with engine removed from vehicle.



Vehicles with 4-valve engine:

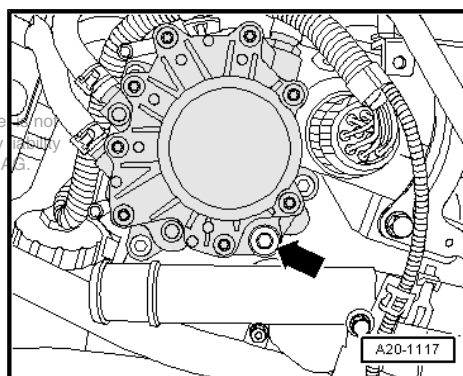
- Remove screw plug -arrow-.



Note

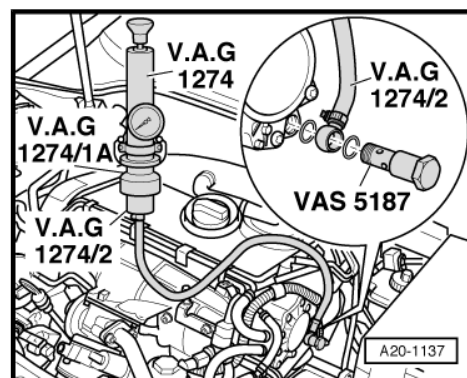
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Illustration shows tandem pump with engine removed from vehicle.

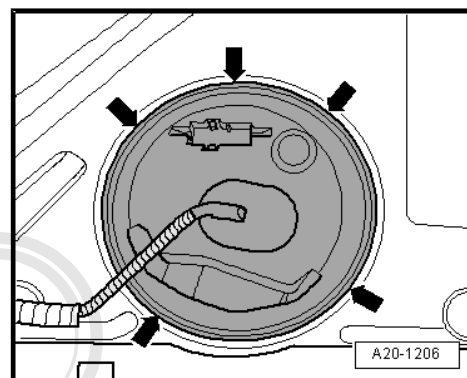


All vehicles (continued):

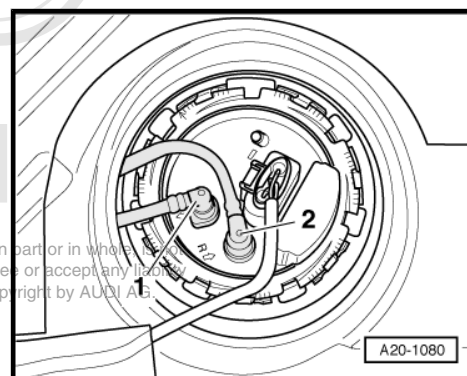
- Attach adapter - V.A.G 1274/2- with adapter - V.A.G 1274/1A- to coolant system tester - V.A.G 1274- .
- Connect adapter - V.A.G 1274/2- to tandem pump using banjo bolt -VAS 5187/1A- .



- Remove rear seat bench ⇒ Rep. gr. 72 .
- Unclip retaining tabs -arrows- for flange cover.



- Disconnect fuel supply line -1- and fuel return line -2- by pressing release tabs.

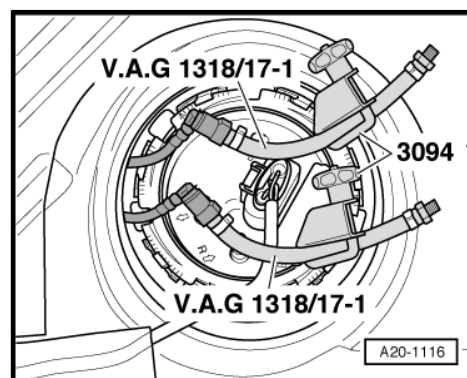


- Connect one adapter - V.A.G 1318/17-1- onto supply line and one onto return line.
- Clamp off adapters - V.A.G 1318/17-1- using hose clamps - 3094- .



Note

The hose clamps - 3094- must not be applied directly to the fuel lines themselves as this can cause damage.



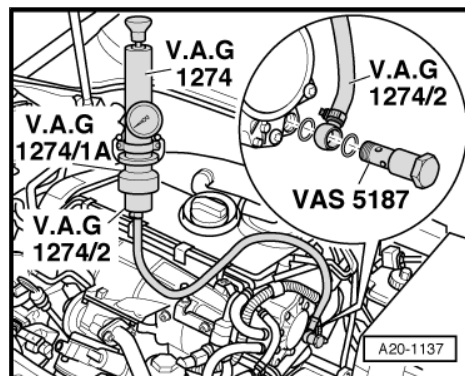


- Use cooling system tester - V.A.G 1274- to create a pressure of between 1.0 ... 1.5 bar.
- If pressure drops constantly, locate leak and eliminate fault.



Note

After removing pressure tester, tighten screw plug to 25 Nm. Renew seal.



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12 Accelerator mechanism

12.1 Accelerator mechanism - exploded view

1 - Cable guide

- ☐ Not fitted on all versions
- ☐ Depending on production period and version of vehicle
- ☐ Attached to accelerator pedal module

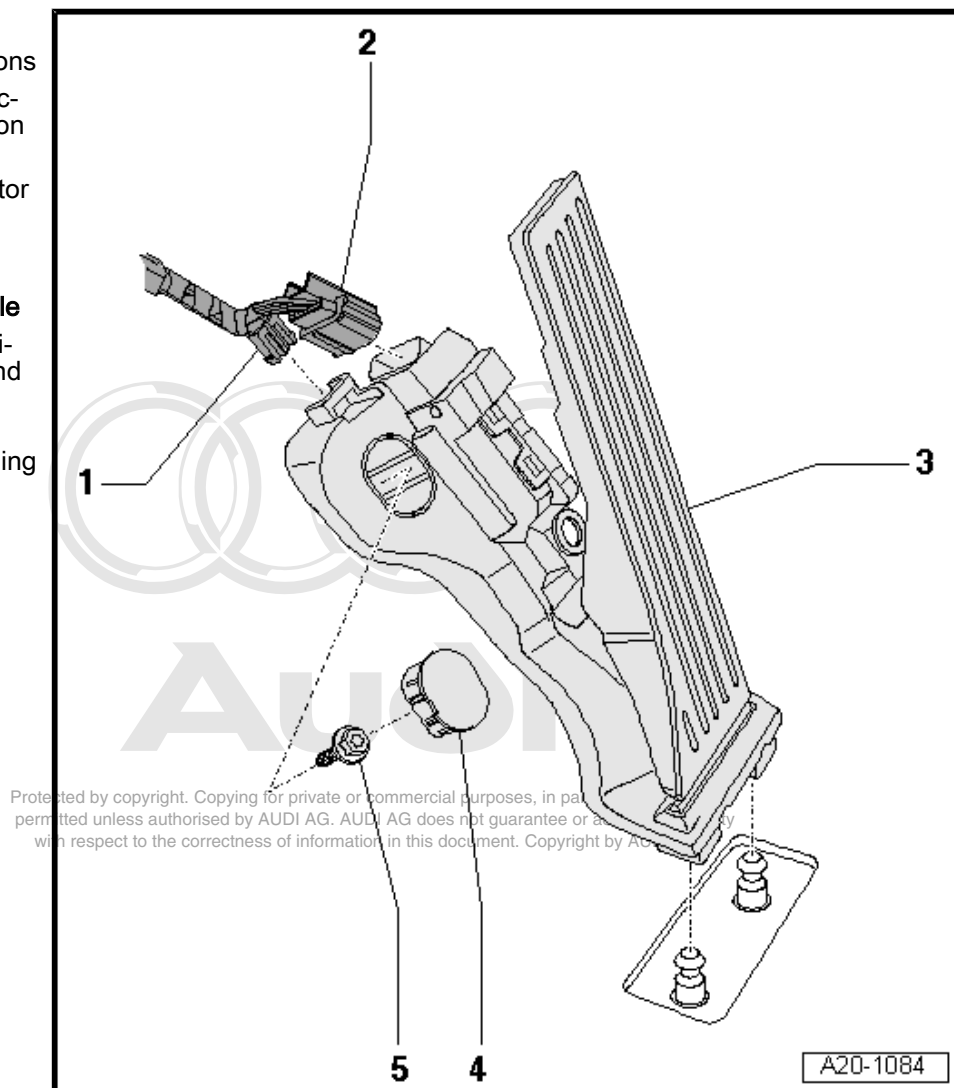
2 - Electrical connector

3 - Accelerator pedal module

- ☐ With accelerator position sender - G79- and accelerator position sender 2 - G185-
- ☐ Removing and installing
[⇒ page 105](#)

4 - Cover cap

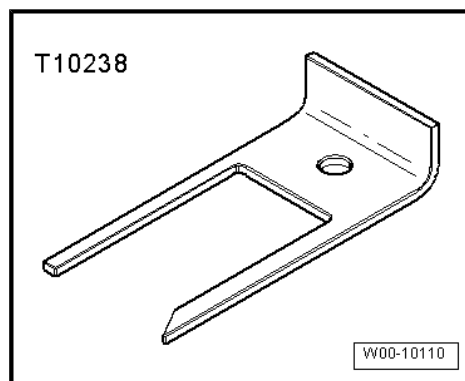
5 - 9 Nm



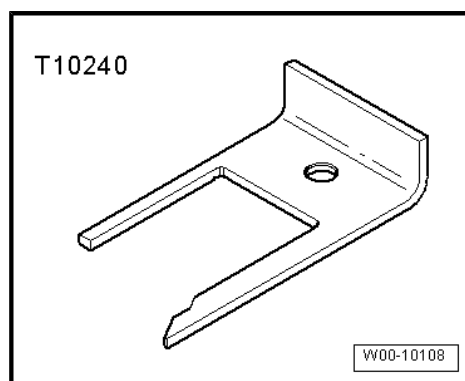
12.2 Removing and installing accelerator pedal module with accelerator position sender

Special tools and workshop equipment required

- ◆ For LHD vehicles: release tool - T10238-



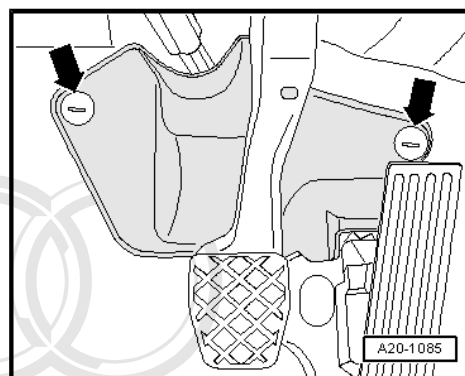
- ◆ For RHD vehicles: release tool - T10240-



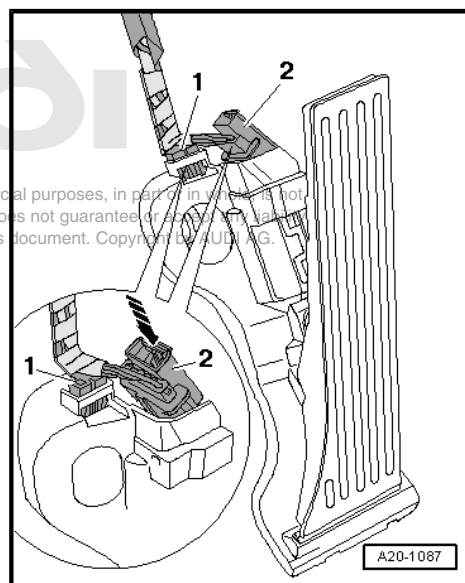
Removing

- Remove cover for steering column -arrows-.

Version 1



- Detach electrical connector -2- by pressing release tab as far the stop -arrow-.
- If fitted, detach cable guide clip -1- at accelerator pedal module.



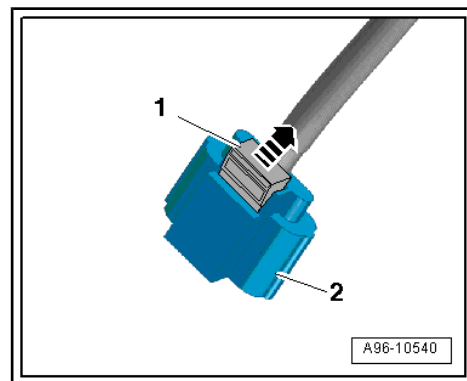
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Version 2

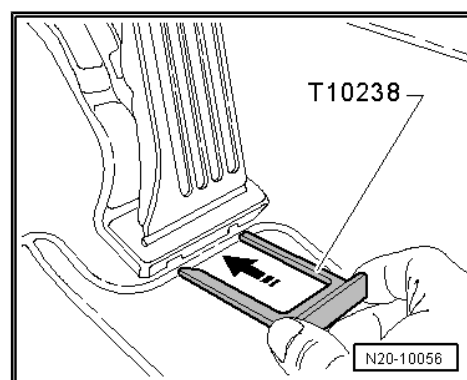
- Pull out release tab -1- as far as stop in direction of -arrow- and unplug electrical connector -2- at accelerator pedal module.

All vehicles (continued):

- Use screwdriver to prise off cover cap ⇒ [Item 4 \(page 105\)](#) .
- Unscrew bolt ⇒ [Item 5 \(page 105\)](#) .



- Push release tool - T10238- (or release tool - T10240- for RHD vehicles) fully into the slots provided, as illustrated -arrow-, and take off accelerator pedal module.

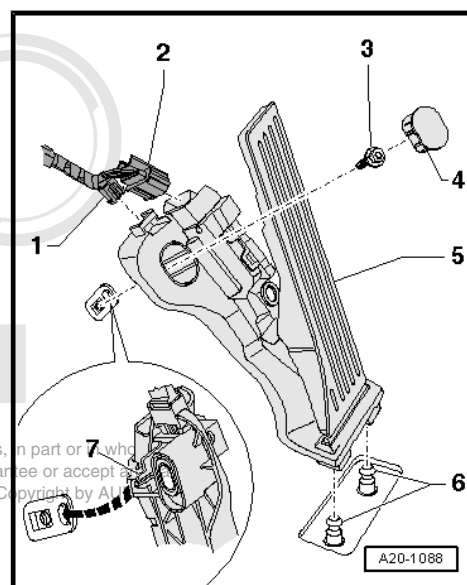


Installing

- Tightening torque ⇒ [page 105](#)

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

- Attach cable guide clip -1- and electrical connector -2- to accelerator pedal module -5-.
- The connector must audibly engage.
- Press accelerator pedal module onto retaining studs -6-.
- Insert centring pin -7- into hole in underbody.
- Secure accelerator pedal module with bolt -3- and press on cap -4-.



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12.3 Adapting kick-down function after renewing accelerator pedal module or engine control unit



Note

On vehicles with dual-clutch gearbox or automatic gearbox, the kick-down function must be adapted if the accelerator pedal module with accelerator position sender or the engine control unit is renewed.

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

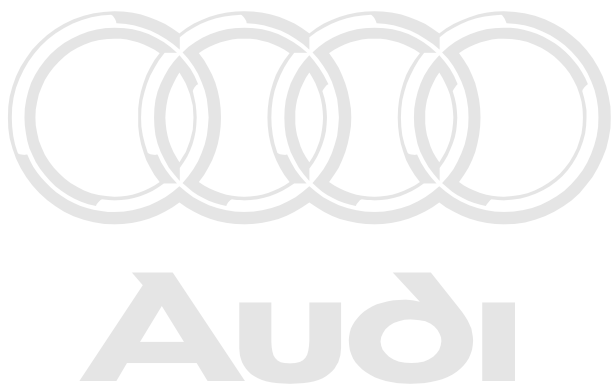


Procedure

- Connect a ⇒ Vehicle diagnostic tester.
- Switch on ignition.
- Select “Engine electronics” in vehicle self-diagnosis.
- Then select “Basic setting”.
- Select “Channel 63”.
- Press “activate” button.
- Fully depress accelerator pedal beyond kickdown point and keep it pressed.

Display shows: “Kickdown ADP runs”

The adaption is finished when “Kickdown ADP OK” is displayed.



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