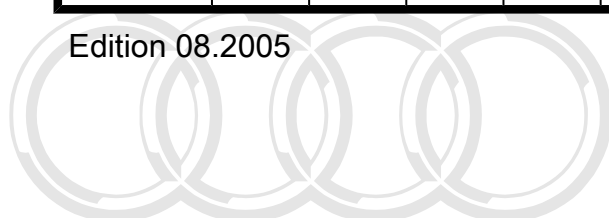


Workshop Manual Audi A2 2001 ➤

Fuel supply system, diesel engines

Engine ID	AMF	ANY	ATL	BHC					
Edition 08.2005									



Audi

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List of Workshop Manual Repair Groups

Repair Group

20 - Fuel supply system



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

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20 – Fuel supply system

1 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. These parts can be identified by their greenish colour.

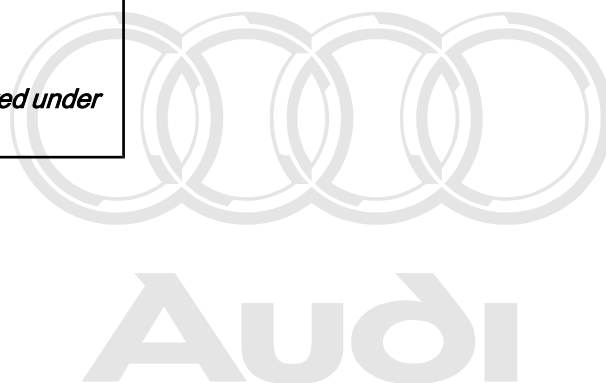
In addition, all rubber parts, plastic parts and adhesives are made of non-conductive materials.

Always fit new components when in doubt about the reusability of old components.



Caution

- ◆ *Only use genuine Audi parts.*
- ◆ *Accessories must be approved by AUDI AG.*
- ◆ *Damage caused by contact corrosion is not covered under warranty.*



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2 Notes for working on fuel supply system

2.1 Safety precautions when working on the fuel supply system



WARNING

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

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 tank is indicated in the corresponding procedure description. Drain the tank if necessary ⇒ [page 8](#).
 - ◆ Before commencing work, switch on exhaust extraction system and place an extraction hose close to the sender 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.**
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When removing and installing fuel tank, note the following:

- ◆ Fuel tank must be empty to reduce weight. Drain the tank if necessary ⇒ [page 8](#).

2.2 Rules for cleanliness

When working on the fuel supply/injection system, observe the following basic rules:

- ◆ Thoroughly clean all unions and surrounding areas before disconnecting.
- ◆ 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 been previously unpacked and stored away loose (e.g. in toolboxes, etc.).
- ◆ When the system is open: Do not work with compressed air. Do not move the vehicle unless absolutely necessary.
- ◆ Also ensure that no diesel fuel comes into contact with the coolant hoses. Should this occur, the hoses must be cleaned immediately. Damaged hoses must be renewed.

3 Fuel supply system

3.1 20 ltr. fuel tank with components - exploded view



Note

- ◆ The illustration shows a fuel system with a fuel change-over valve (no longer fitted from 10.2001 onwards).
- ◆ Removing, installing and checking gravity valve ⇒ [page 4](#).

1 - Fuel return pipe

- ☐ Different versions are available; allocation ⇒ Parts catalogue
- ☐ From fuel cooler
- ☐ Mark before removing
- ☐ Do not kink
- ☐ Press release tabs on connection piece to disconnect

2 - Electrical connector

- ☐ For fuel gauge sender - G-

3 - 21 Nm

- ☐ Secures fuel filler neck and earth connection
 ⇒ [Item 10 \(page 3\)](#)

4 - Spacer bush

- ☐ First engage earth connection
 ⇒ [Item 10 \(page 3\)](#) in mounting hole on fuel tank and then press in spacer bush.

5 - Overflow hose

6 - Tank flap unit with rubber cup

7 - Seal

- ☐ Renew if damaged

8 - Filler cap

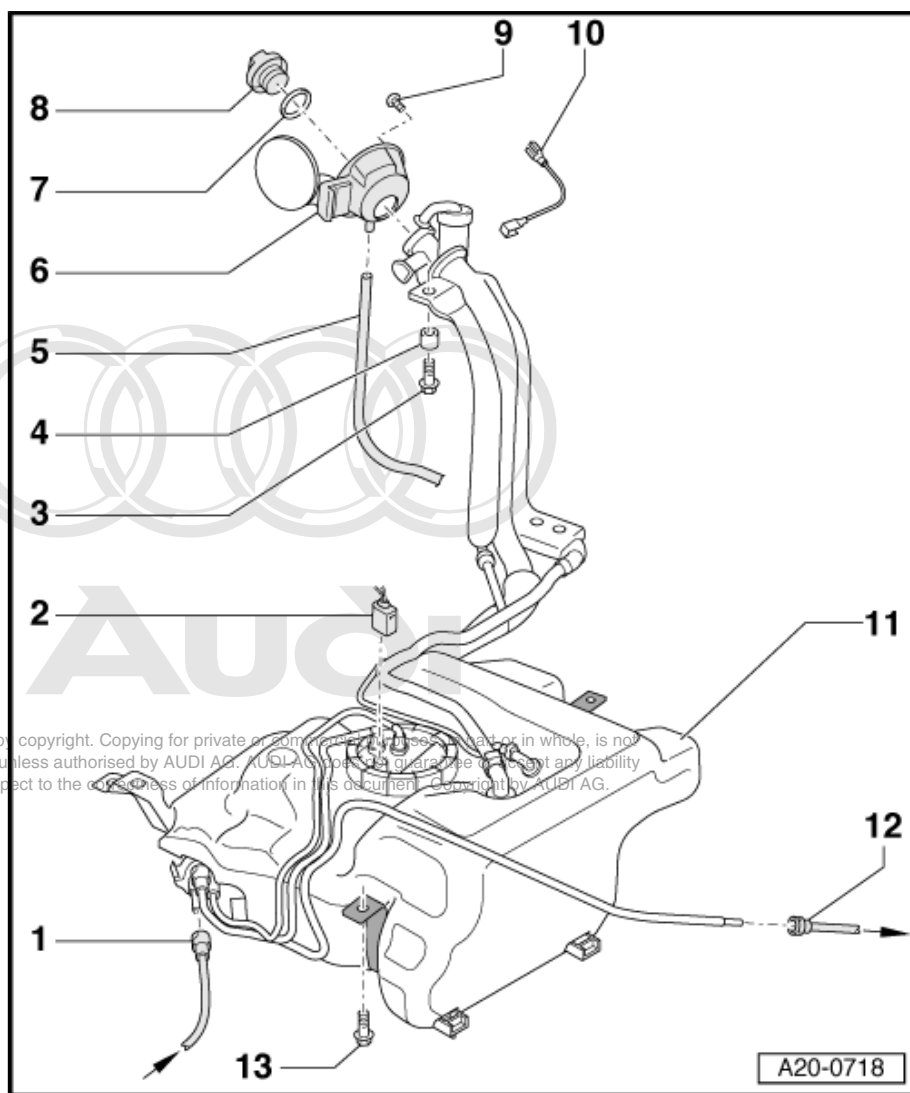
9 - 1.5 Nm

10 - Earth connection

- ☐ Installation position ⇒ [page 4](#)
- ☐ Ensure that connector is seated firmly on metal ring of fuel filler neck
- ☐ First engage earth connection in mounting hole on fuel tank and then press in spacer bush
 ⇒ [Item 4 \(page 3\)](#).
- ☐ After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body - Specification: approx. 0 Ω

11 - Fuel tank

- ☐ Removing and installing ⇒ [page 10](#)



12 - Fuel supply pipe

- ☐ Different versions are available; allocation ⇒ Parts catalogue
- ☐ To fuel filter
- ☐ Mark before removing
- ☐ Do not kink
- ☐ Press release tabs on connection piece to disconnect

13 - 21 Nm

Installation position of earth connection

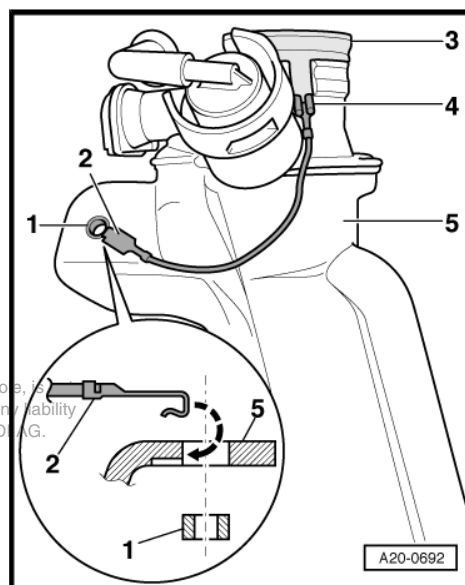
- Route earth connection as shown in illustration.
- First engage contact tab -2- of earth connection in mounting hole on fuel tank -5- and then press in spacer bush -1-.
- Ensure that connector -4- for earth connection is firmly seated on metal ring -3- on fuel filler neck.



Caution

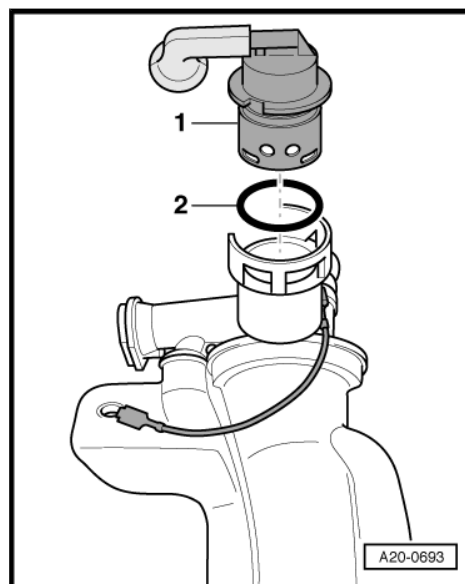
After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body.

- **Specification: approx. 0 Ω.**



Removing, installing and checking gravity valve

- To remove gravity valve -1-, unclip it from filler neck and lift it off.
- Checking gravity valve:
 - Hold valve in a vertical position: it should be possible to blow through valve.
 - Tilt valve to 45°; it should not be possible to blow through valve.
 - Make sure O-ring -2- is not damaged.



3.2 34 ltr. fuel tank with components - exploded view



Note

- ◆ The illustration shows a fuel system with a fuel change-over valve.
- ◆ Removing, installing and checking gravity valve ⇒ [page 6](#).

1 - Fuel return pipe

- ☐ Different versions are available; allocation ⇒ Parts catalogue
- ☐ From fuel cooler
- ☐ Mark before removing
- ☐ Do not kink
- ☐ Press release tabs on connection piece to disconnect

2 - Electrical connector

- ☐ For fuel gauge sender - G-

3 - 21 Nm

- ☐ Secures fuel filler neck and earth connection
 ⇒ [Item 10 \(page 5\)](#)

4 - Spacer bush

- ☐ First engage earth connection
 ⇒ [Item 10 \(page 5\)](#) in mounting hole on fuel tank and then press in spacer bush.

5 - Overflow hose

6 - Tank flap unit with rubber cup

7 - Seal

- ☐ Renew if damaged

8 - Filler cap

9 - 1.5 Nm

10 - Earth connection

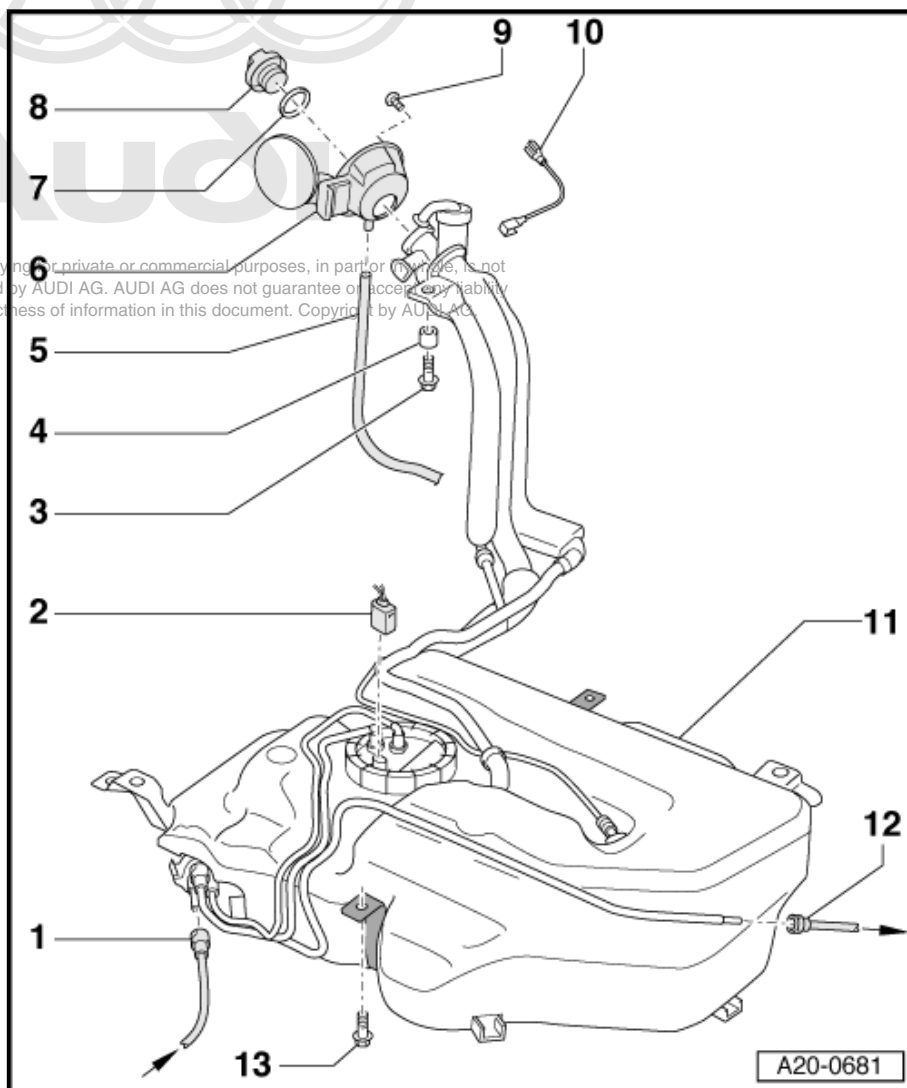
- ☐ Installation position ⇒ [page 6](#)
- ☐ Ensure that connector is seated firmly on metal ring of fuel filler neck
- ☐ First engage earth connection in mounting hole on fuel tank and then press in spacer bush
 ⇒ [Item 4 \(page 5\)](#).
- ☐ After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body - Specification: approx. 0 Ω

11 - Fuel tank

- ☐ Removing and installing ⇒ [page 10](#)

12 - Fuel supply pipe

- ☐ Different versions are available; allocation ⇒ Parts catalogue
- ☐ To fuel filter
- ☐ Mark before removing



- ☐ Do not kink
- ☐ Press release tabs on connection piece to disconnect

13 - 21 Nm

Installation position of earth connection

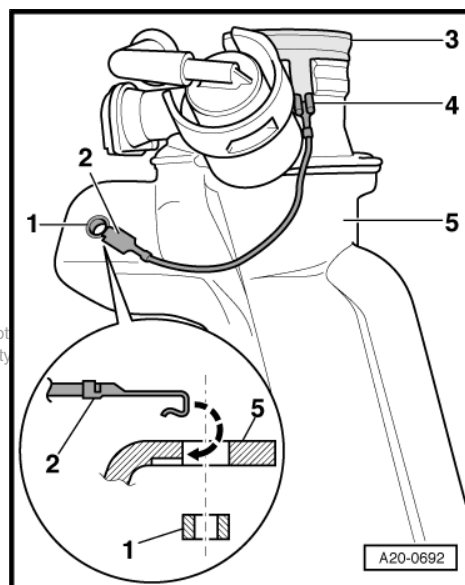
- Route earth connection as shown in illustration.
- First engage contact tab -2- of earth connection in mounting hole on fuel tank -5- and then press in spacer bush -1-.
- Ensure that connector -4- for earth connection is firmly seated on metal ring -3- on fuel filler neck.



Caution

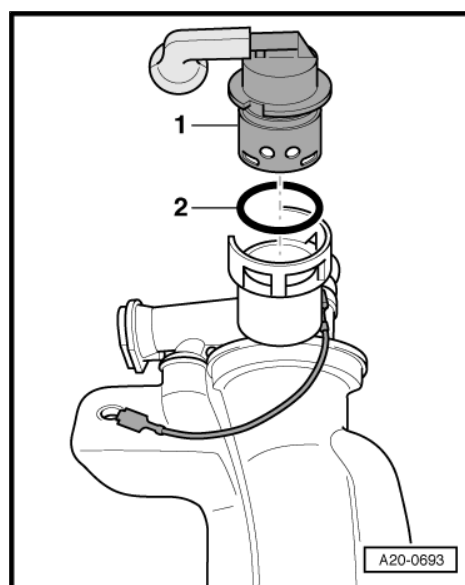
After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body:

- Specification: approx. 0 Ω .



Removing, installing and checking gravity valve

- To remove gravity valve -1-, unclip it from filler neck and lift it off.
- Checking gravity valve:
 - Hold valve in a vertical position: it should be possible to blow through valve.
 - Tilt valve to 45°; it should not be possible to blow through valve.
 - Make sure O-ring -2- is not damaged.



3.3 42 ltr. fuel tank with components - exploded view



Removing, installing and checking gravity valve ⇒ [page 8](#).

1 - Fuel return pipe

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

2 - Electrical connector

- ☐ For fuel gauge sender - G-

3 - 21 Nm

- ☐ Secures fuel filler neck and earth connection
 ⇒ [Item 10 \(page 7\)](#)

4 - Spacer bush

- ☐ First engage earth connection
 ⇒ [Item 10 \(page 7\)](#) in mounting hole on fuel tank and then press in spacer bush.

5 - Overflow hose

6 - Tank flap unit with rubber cup

7 - Seal

- ☐ Renew if damaged

8 - Filler cap

9 - 1.5 Nm

10 - Earth connection

- ☐ Installation position
 ⇒ [page 8](#)
- ☐ Ensure that connector is seated firmly on metal ring of fuel filler neck

- ☐ First engage earth connection in mounting hole on fuel tank and then press in spacer bush
 ⇒ [Item 4 \(page 7\)](#).

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

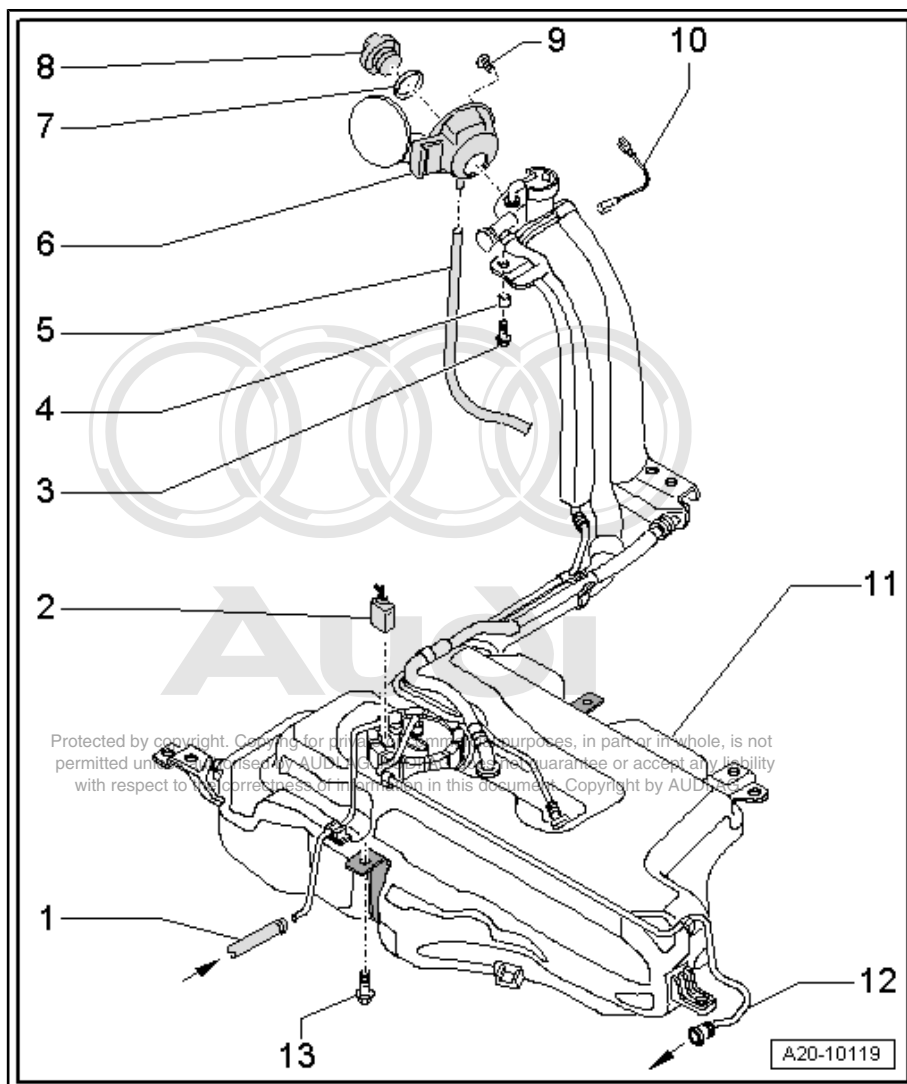
11 - Fuel tank

- ☐ Removing and installing ⇒ [page 10](#)

12 - Fuel supply pipe

- ☐ To fuel filter
- ☐ Mark before removing
- ☐ Do not kink
- ☐ Press release tabs on connection piece to disconnect

13 - 21 Nm



Installation position of earth connection

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

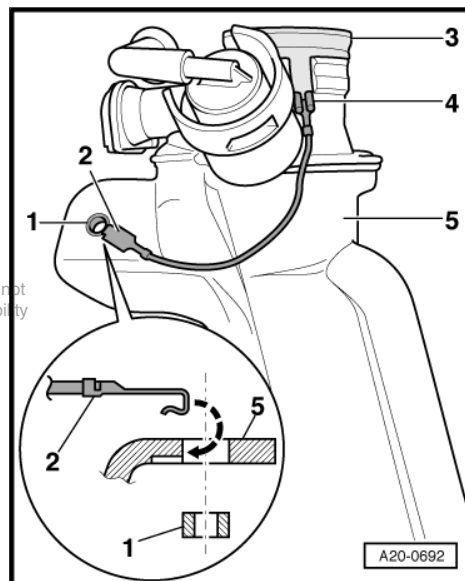


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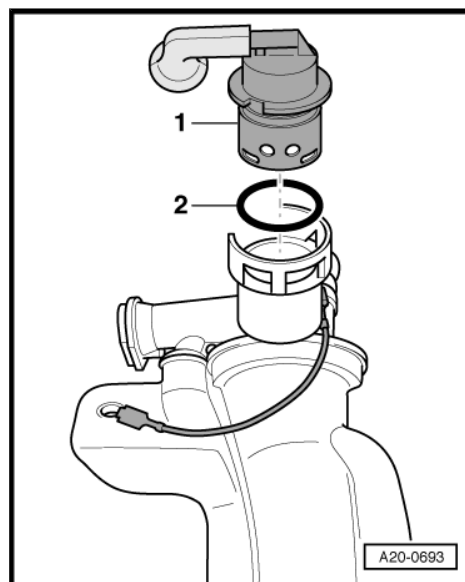
After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body:

- **Specification: approx. 0 Ω.**



Removing, installing and checking gravity valve

- To remove gravity valve -1-, unclip it from filler neck and lift it off.
- Checking gravity valve:
 - Hold valve in a vertical position: it should be possible to blow through valve.
 - Tilt valve to 45°; it should not be possible to blow through valve.
- Make sure O-ring -2- is not damaged.



3.4 Draining fuel tank

A - Procedure if fuel tank is more than $\frac{3}{4}$ full ⇒ [page 9](#) .

B - Procedure if fuel tank is less than $\frac{3}{4}$ full ⇒ [page 9](#) .



Special tools and workshop equipment required

- ♦ Fuel extractor unit -VAS 5190-

Procedure

Observe safety precautions ⇒ [page 2](#) .

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

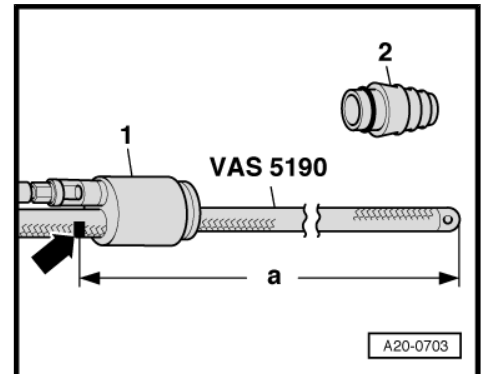


Caution

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

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

- Detach tapered adapter -2- from shaft end -1- of fuel extractor unit -VAS 5190- .
- Use insulating tape to mark the extraction hose -arrow- at a distance of -a- = 190 mm from the end of the hose.



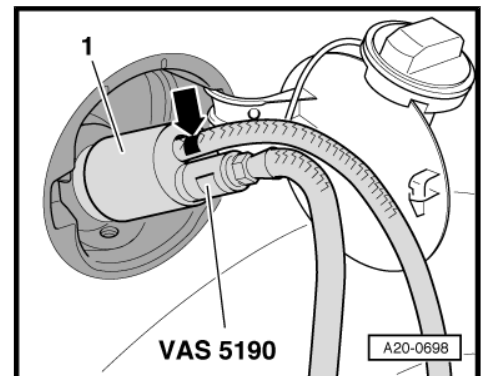
- Remove filler cap from fuel filler neck.



Note

Do not insert extraction hose into fuel tank further than marking on hose to avoid damaging the fuel gauge sender -G- .

- Fit shaft end -1- of fuel extractor unit -VAS 5190- onto fuel filler neck.
- Push extraction hose into fuel tank until marking on hose -arrow- coincides with shaft end.
- Drain fuel tank as much as possible through fuel filler neck.
- Carefully remove extraction hose.
- Remove fuel gauge sender ⇒ [page 18](#) .
- Extract remaining fuel through opening for fuel gauge sender.

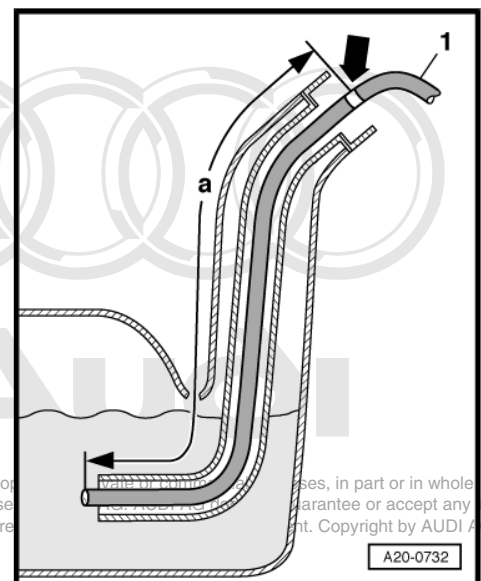


Note

- ♦ *The procedure when using a fuel extractor without shaft end is basically the same.*
- ♦ *In this case, make a mark -arrow- on the extraction hose at distance -a- = 125 mm from the end of the hose -1- using insulating tape. The extraction hose has been properly inserted when the affixed mark is level with the edge of the filler neck.*
- ♦ *If hose is difficult to insert, apply a thin coat of engine oil. DO NOT use silicone-based lubricant.*

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

- Remove fuel gauge sender ⇒ [page 18](#) .
- Extract remaining fuel through opening for fuel gauge sender.



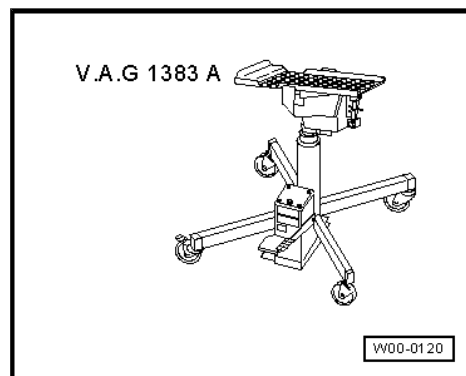
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3.5 Removing and installing fuel tank

Special tools and workshop equipment required

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



Removing

Observe safety precautions ⇒ [page 2](#) .

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

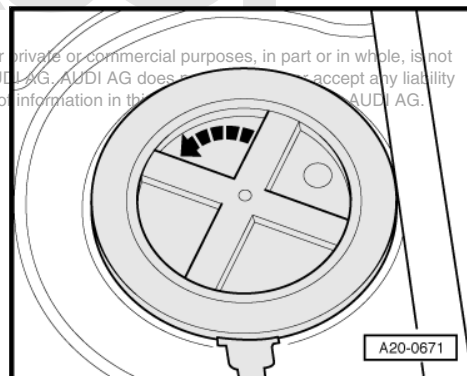


Note

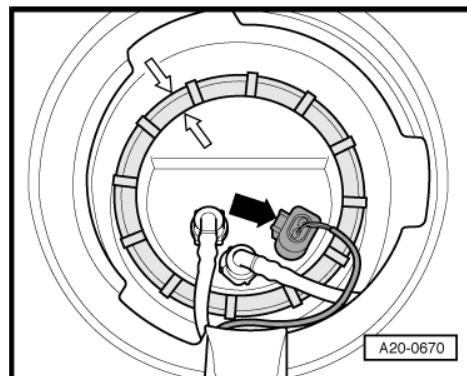
The illustrations show the removal of the 34 ltr. fuel tank.

- To reduce weight, the fuel tank must be empty when it is removed from the vehicle. Drain the tank if necessary. Procedure ⇒ [page 8](#) .
- Fold down the rear seat bench or remove the rear seat bench ⇒ Rep. Gr. 72 .
- Fold back lining under rear set.
- Turn cover for fuel gauge sender in -direction of arrow- and detach cover.

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- Unplug electrical connector -arrow- at flange.

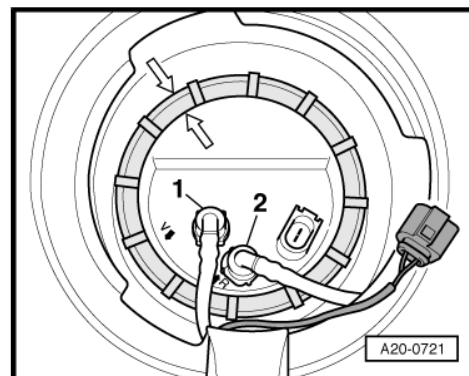


Vehicles from 05.2002:



WARNING

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



- Disconnect fuel supply pipe -1- from flange by pressing release tabs.



Note

Disregard -item 2-.

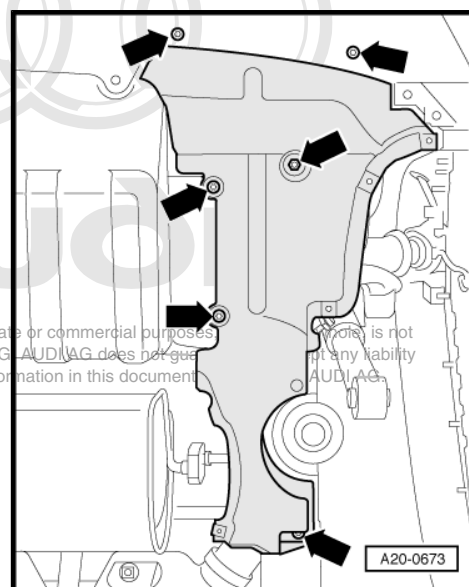
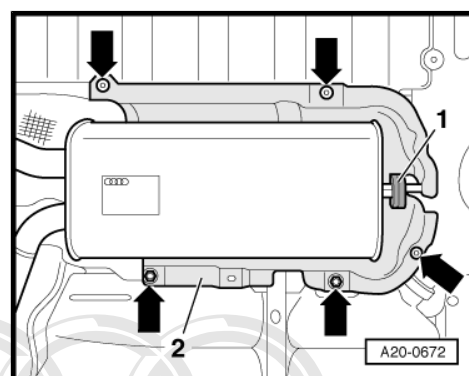
All models:

- Remove rear right wheel housing liner ⇒ Rep. Gr. 66 .
- Remove rear axle ⇒ Rep. Gr. 42 .
- Unscrew bolts and nuts -arrows-.
- Detach rear silencer from rubber mounting -1- (right-side).
- Remove heat shield -2-.
- Re-attach rear silencer.



Note

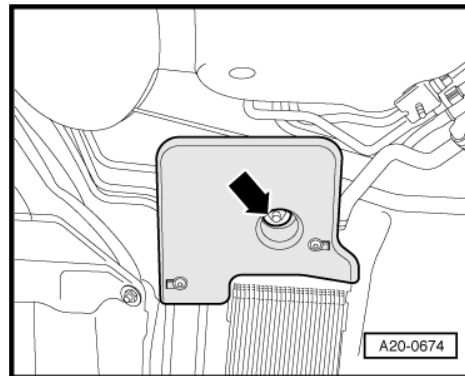
Re-attach silencer immediately to prevent damage to flexible joint.



- Unbolt cover -arrows-.

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- Unscrew cover for hose connection of fuel cooler -arrow-.



- Unscrew nuts -arrows- and remove heat shield -2-.
- Detach rear silencer from both rubber mountings (left-side).
- Remove heat shield -1-.
- Re-attach rear silencer.



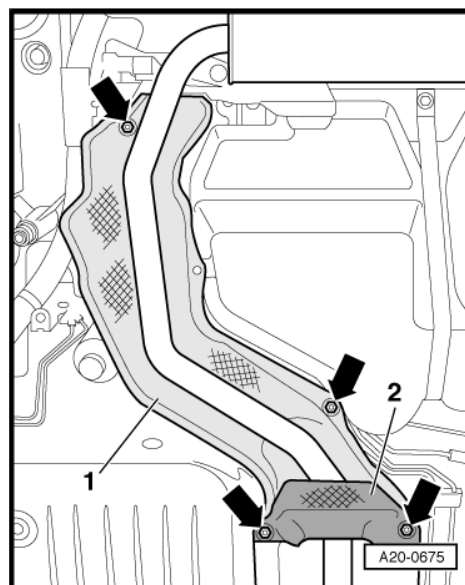
Note

Re-attach silencer immediately to prevent damage to flexible joint.

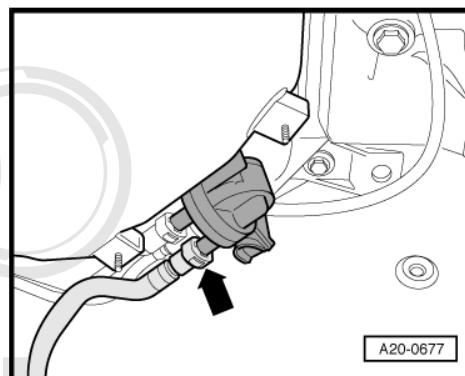


WARNING

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

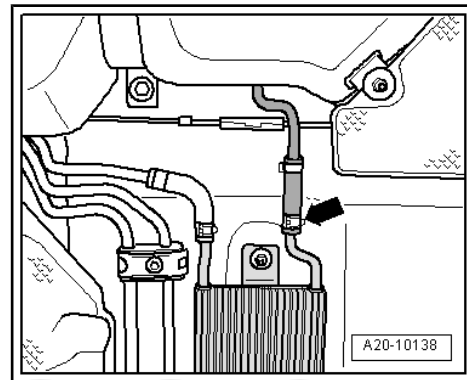


- If fitted, disconnect fuel return pipe -arrow- leading to fuel change-over valve on right side of fuel tank by pressing release tab.



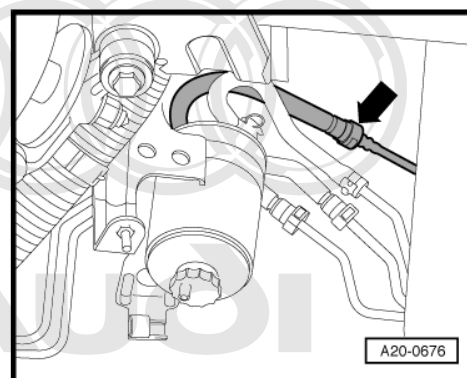
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- Disconnect fuel return pipe -arrow- on right side of fuel cooler.
- On vehicles with supplementary heater disconnect fuel pipe leading to metering pump for supplementary heater.



Vehicles to 04.2002:

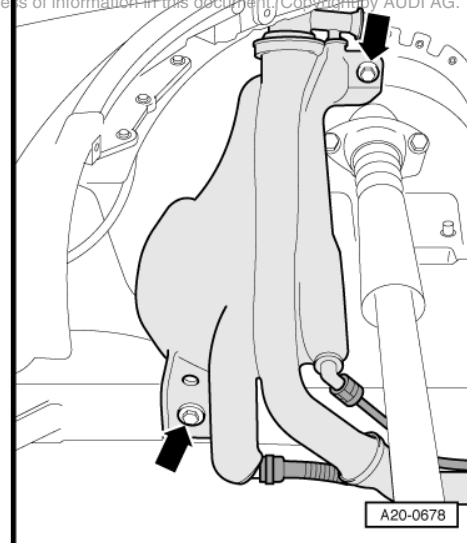
- Disconnect fuel supply pipe -arrow- leading to fuel filter by pressing release tab.



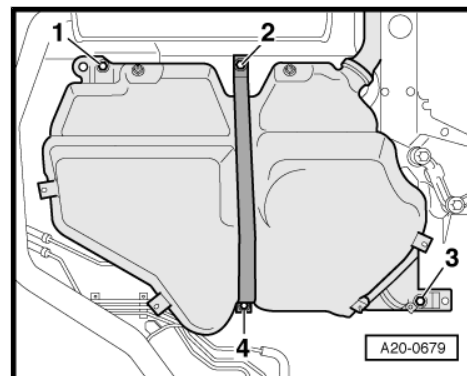
All models:

- Open the tank flap.
- Clean area around fuel filler neck.
- Remove filler cap from fuel filler neck.
- Unscrew bolts -arrows- for fuel filler neck.

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- First unscrew bolts -1- and -3-.
- Position engine and gearbox jack -V.A.G 1383 A- below vehicle to support tank.
- Unscrew bolts -2- and -4-.
- Then lower fuel tank using engine and gearbox jack - V.A.G 1383 A- .



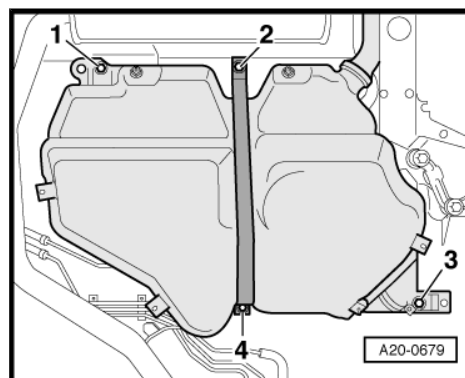
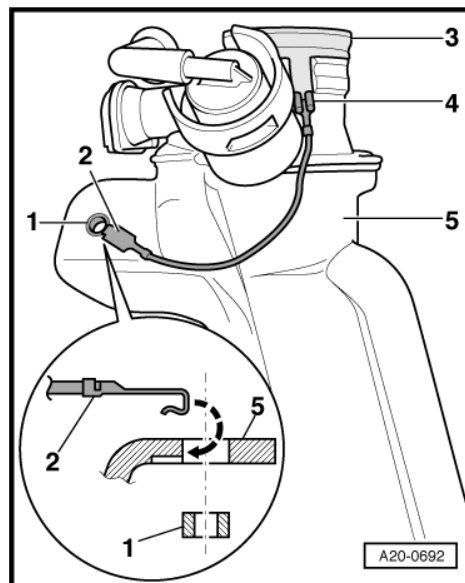
Installing

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) ⇒ Parts catalogue.*
- ◆ *Always renew seals and gaskets when assembling.*
- ◆ *The arrows marked on the hose and pipe connections should be aligned.*
- 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 -4- must be seated firmly on metal ring -3-.
 - Contact tab -2- must be attached on fuel tank -5- and secured with spacer bush -1-.
- Position the fuel tank with securing strap on underbody, using the engine and gearbox jack -V.A.G 1383 A-.
- Secure fuel tank by first tightening bolts at points -2- and -4-, then at points -1- and -3-.



- Secure fuel filler neck with earth connection in wheel housing -arrows-.



Caution

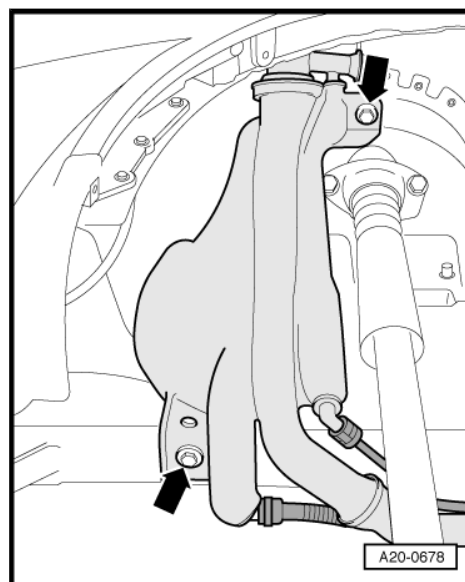
After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body:

- **Specification: approx. 0 Ω.**

- Install rear axle ⇒ Rep. Gr. 42 .
- Install rear right wheel housing liner ⇒ Rep. Gr. 66 .
- Install rear seat bench ⇒ Rep. Gr. 72 .

Tightening torques

Component	Nm
Securing strap to body	21
Fuel tank to body	21
Fuel filler neck to wheel housing	21



3.6 Fuel collector and fuel gauge sender - exploded view of components

1 - Fuel collector with flange

- ☐ Removing and installing
 ⇒ [page 18](#)

2 - Seal

- ☐ Renew
- ☐ Install dry

3 - Fuel supply pipe

- ☐ Different versions are available; allocation ⇒ Parts catalogue
- ☐ To fuel filter
- ☐ Mark before removing
- ☐ To disconnect from flange, press release tab on connection
- ☐ Do not kink
- ☐ Attached to connection marked "V" on flange
- ☐ Clip onto fuel tank

4 - Fuel return pipe

- ☐ Different versions are available; allocation ⇒ Parts catalogue
- ☐ Mark before removing
- ☐ To disconnect from flange, press release tab on connection
- ☐ Do not kink
- ☐ Attached to connection marked "R" on flange
- ☐ Clip onto fuel tank

5 - Electrical connector

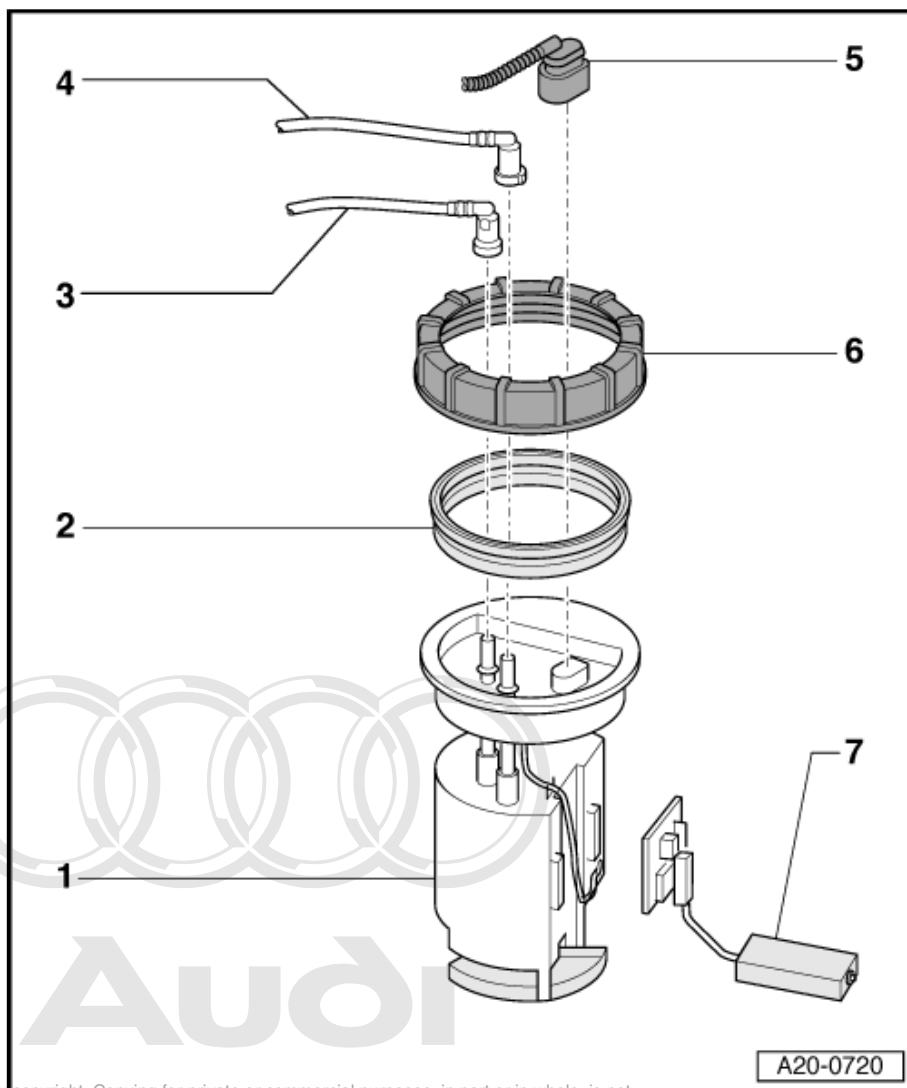
- ☐ For fuel gauge sender -G-

6 - Union nut, 80 Nm

- ☐ Remove and install with spanner for union nut -3217-

7 - Fuel gauge sender -G-

- ☐ Checking resistance values ⇒ [page 15](#)
- ☐ Removing and installing ⇒ [page 18](#)



3.7 Checking fuel gauge sender -G-

Special tools and workshop equipment required

◆ Hand-held multimeter -V.A.G 1526 B-

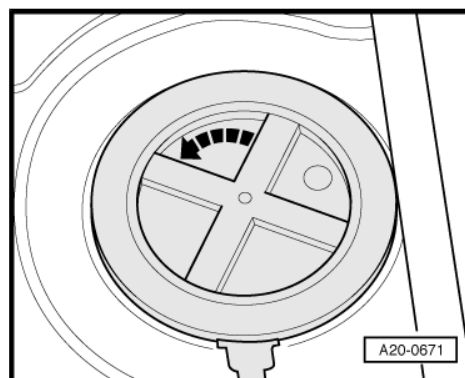


◆ Auxiliary measuring set -V.A.G 1594 C-

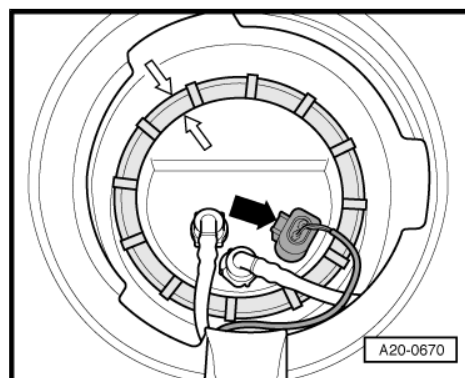


Test sequence

- Fold down the rear seat bench or remove the rear seat bench
⇒ Rep. Gr. 72.
- Fold back lining under rear set.
- Turn cover for fuel gauge sender in -direction of arrow- and detach cover.



- Unplug electrical connector -arrow- at flange.

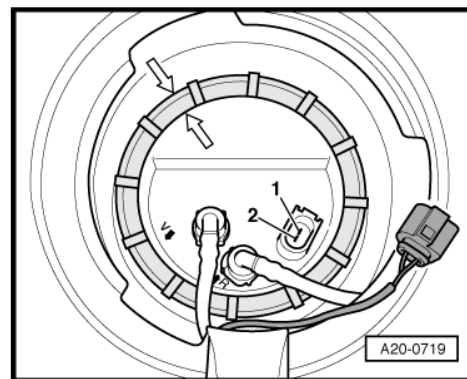


Vehicles to 04.2002:

- Connect multimeter (resistance measurement range) between contacts -1- and -2-.
- Check resistance in relation to fuel tank level.

20 ltr. fuel tank		34 ltr. fuel tank	
Resistance Ω ¹⁾	Content in ltr.	Resistance Ω ¹⁾	Content in ltr.
54 ²⁾	0	54 ²⁾	0
70	1	70	2
83	2	83	4
96.6	3.5	96.6	7
120	5	120	11
170	10	170	18
220	15	220	26
270	19	270	33
290 ²⁾	20	290 ²⁾	34

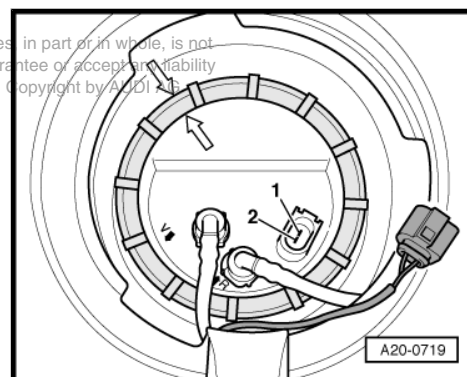
- ¹⁾ Tolerance $\pm 5 \Omega$
- ²⁾ The value is only attained with sender removed due to the increased travel of the float arm. Value with sender installed: approx. 58 Ω for "Tank empty" or approx. 287 Ω for "Tank full".



Vehicles from 05.2002:

- Connect multimeter (resistance measurement range) between contacts -1- and -2-.
- Check resistance in relation to fuel tank level.

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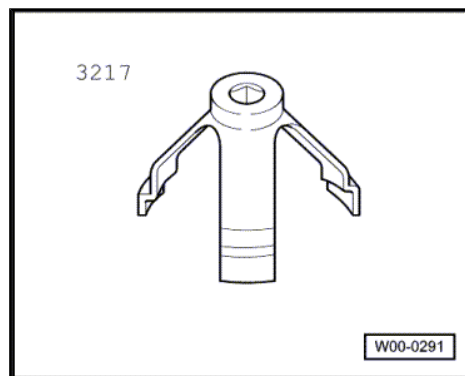
20 ltr. fuel tank		34 ltr. fuel tank		42 ltr. fuel tank	
Resistance Ω ¹⁾	Content in ltr.	Resistance Ω ¹⁾	Content in ltr.	Resistance Ω ¹⁾	Content in ltr.
284.1 ²⁾	0	284.1 ²⁾	0	284.1 ²⁾	0
261.7	2.0	273.0	2.0	278.5	2.0
243.8	3.0	250.4	4.0	261.7	4.0
230.5	4.5	223.9	7.0	237.2	7.0
208.5	6.0	193.0	11.0	208.5	12.0
157.8	11.0	140.3	18.0	146.2	22.0
110.2	16.0	100.1	25.5	100.1	32.0
84.3	20.0	68.5	32.5	72.5	40.0
68.5 ²⁾	21.0	68.5 ²⁾	34.0	68.5 ²⁾	42.0

- ¹⁾ Tolerance $\pm 5 \Omega$
- ²⁾ Value is only attained with sender removed due to the increased travel of the float arm.

3.8 Removing and installing fuel gauge sender -G-

Special tools and workshop equipment required

- ◆ Spanner for union nuts -3217-

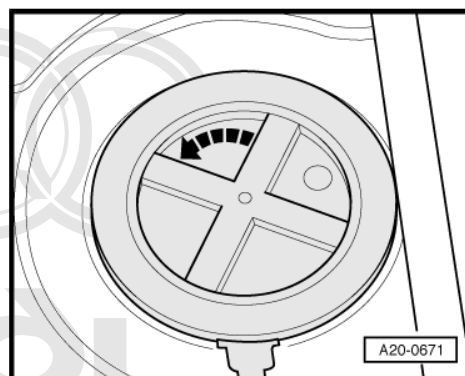


Removing

Observe safety precautions ⇒ [page 2](#) .

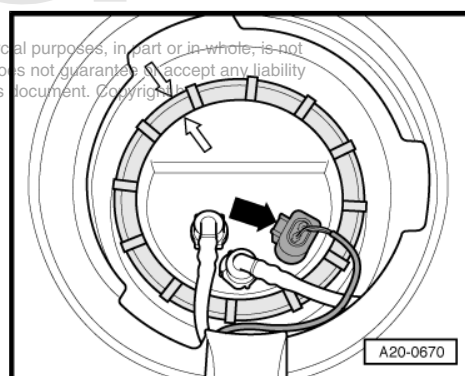
Observe rules for cleanliness ⇒ [page 2](#) .

- The fuel tank must not be more than $\frac{3}{4}$ full when removing the fuel gauge sender. Drain the tank if necessary. Procedure ⇒ [page 8](#) .
- Fold down the rear seat bench or remove the rear seat bench ⇒ Rep. Gr. 72 .
- Fold back lining under rear set.
- Turn cover for fuel gauge sender in -direction of arrow- and detach cover.



- Unplug electrical connector -arrow- at flange.

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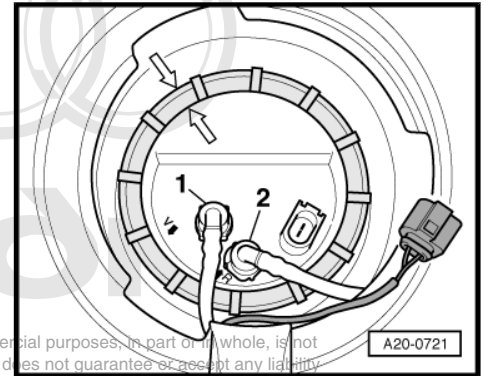
- Mark fuel supply pipe -1- and fuel return pipe -2-.



WARNING

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

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

Vehicles with supplementary heater:

- Disconnect fuel pipe leading to metering pump for supplementary heater.

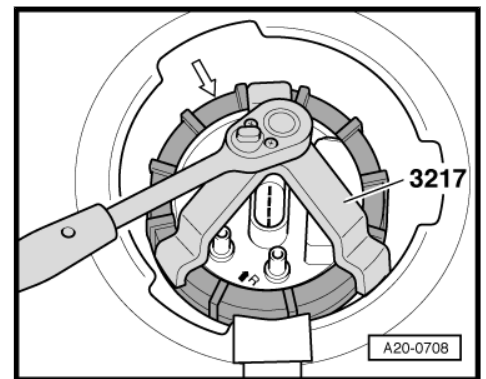
All models:

- Use spanner for union nut -3217- to unscrew union nut.
- Pull fuel gauge sender with fuel collector and seal out of opening in fuel tank.



Note

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



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-.

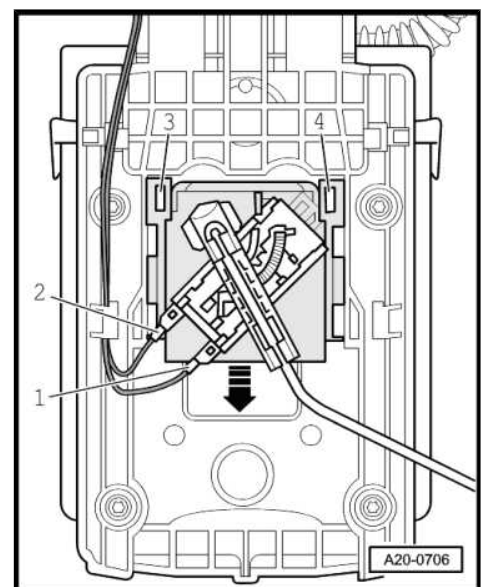
Installing

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

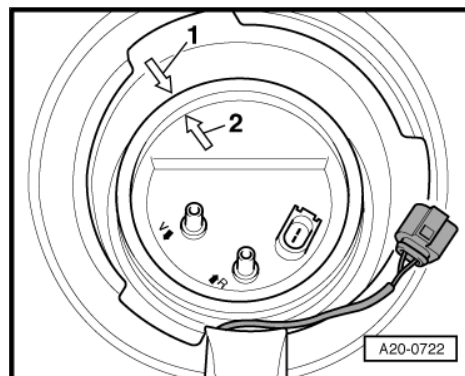


Note

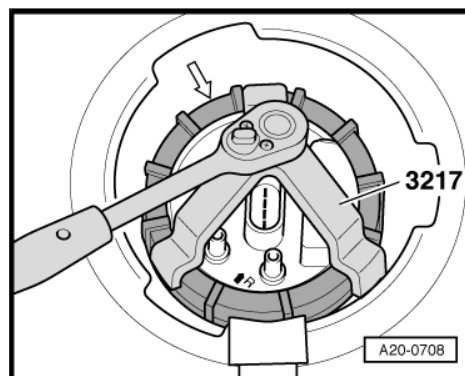
- ◆ *Renew seal.*
- ◆ *Take care not to bend the fuel gauge sender when fitting fuel collector.*
- Insert fuel gauge sender -G- into guides on fuel collector and press upwards until sender clicks into place.
- Plug in electrical connectors and check that they have engaged properly.



- Make sure new seal for flange is installed dry.
- Insert fuel collector in fuel tank.
- Press flange down against spring pressure, and turn flange to installation position.
- Arrow -2- on flange must align with arrow -1- on fuel tank.



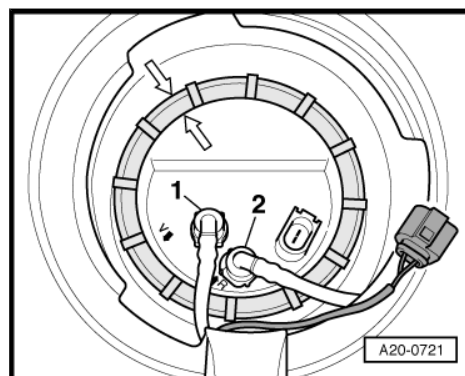
- Use union nut tool -3217- to tighten union nut.



- Connect fuel pipes.
- Fit blue return pipe -2- onto connection marked "R".
- Fit black supply pipe -1- onto connection marked "V".

Tightening torque

Component	Nm
Union nut for fuel collector	80



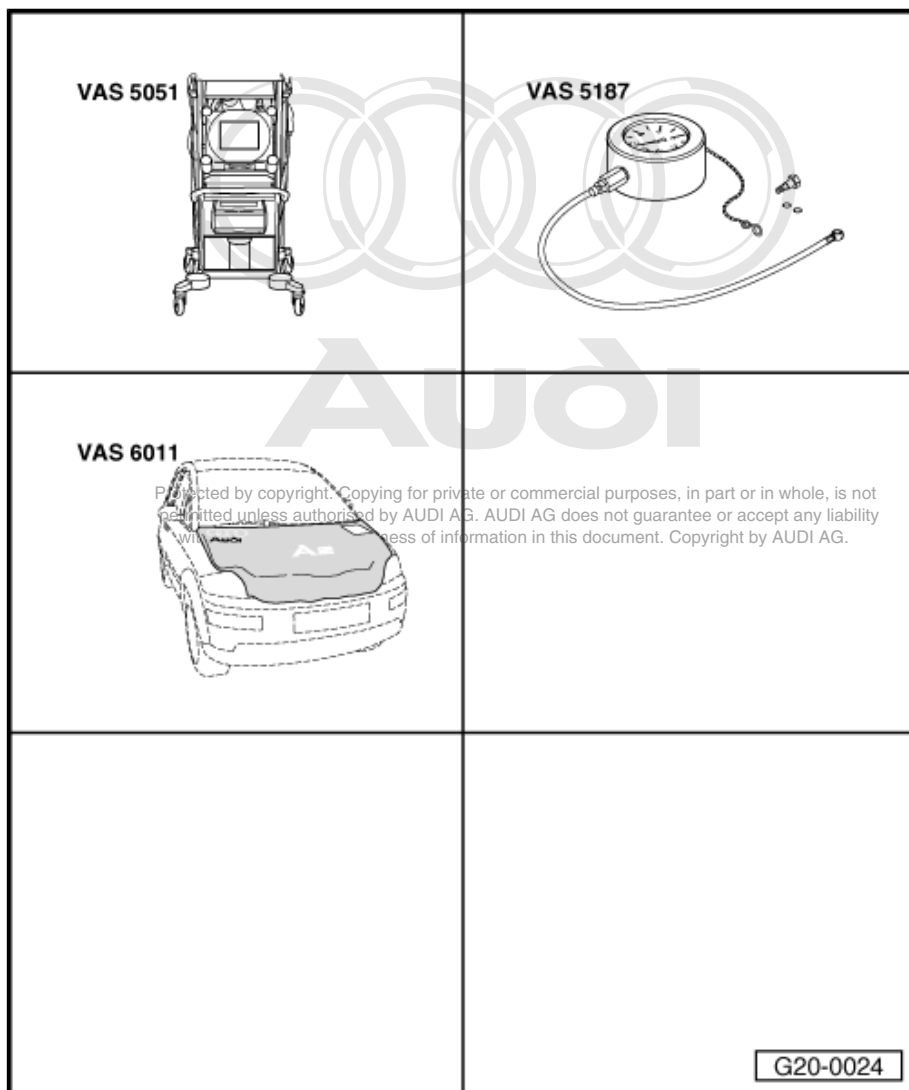
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4 Servicing tandem pump

4.1 Checking tandem pump

Special tools and workshop equipment required

- ◆ Vehicle diagnosis, testing and information system - VAS 5051-
- ◆ Tandem pump tester -VAS 5187-
- ◆ Audi A2 engine cover protector -VAS 6011-



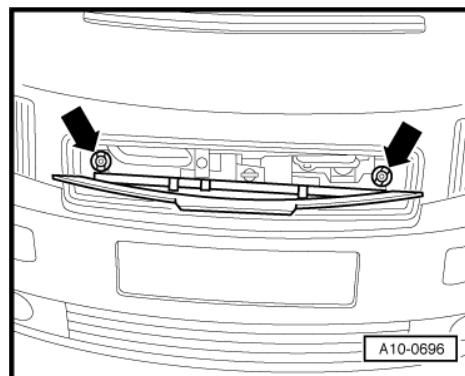
Procedure

- Coolant temperature at least 85 °C.
- Unit injectors OK

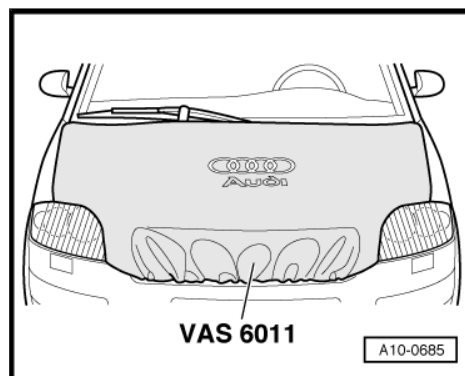
Observe rules for cleanliness ⇒ [page 2](#) .

- Wash outer side of bonnet and dry with chamois leather.
- Release service flap from inside the vehicle.

- Release bonnet -arrows- and pull it forwards slightly.



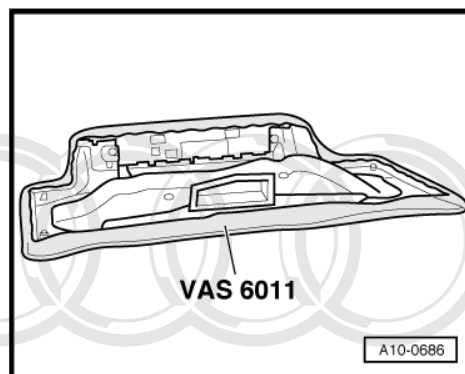
- Attach Audi A2 engine cover protector -VAS 6011- to bonnet.



Note

Do not store bonnet in upright position.

- Remove bonnet and put aside with the protective cover facing downwards.

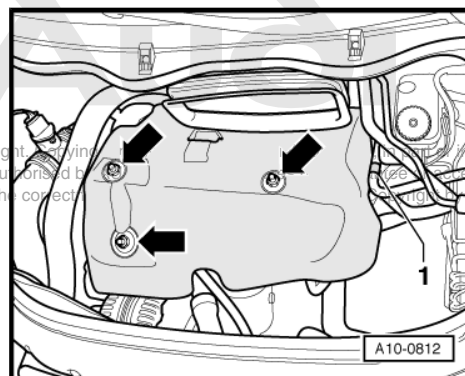


- Disengage hose -1- from retainer.
- Take off engine cover panel -arrows-.



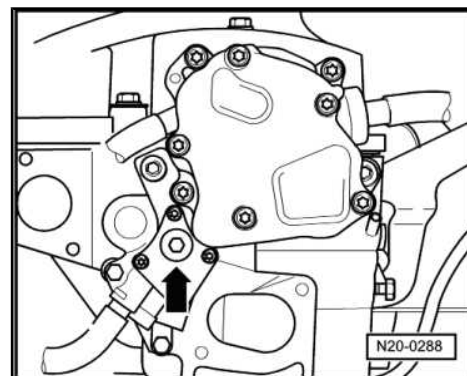
WARNING

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

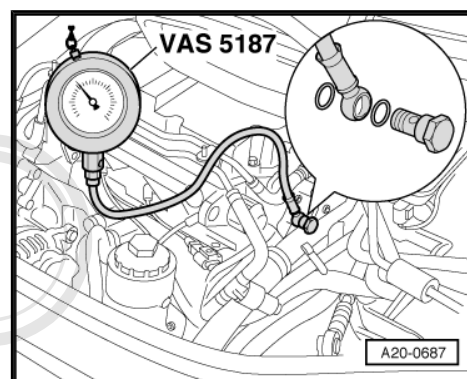


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- Remove screw plug -arrow-.



- Connect tandem pump tester -VAS 5187- as shown in illustration.
 - Connect up the vehicle diagnostic, testing and information system -VAS 5051- .
 - Start engine and increase engine speed to 1,500 rpm.
 - Observe pressure on pressure gauge.
 - Specification: at least 3.5 bar
- If specification is not obtained:
- Renew tandem pump ⇒ [page 23](#) .



Note

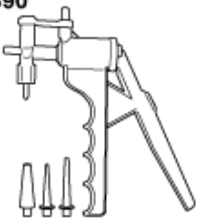
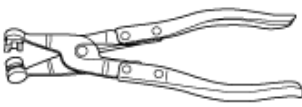
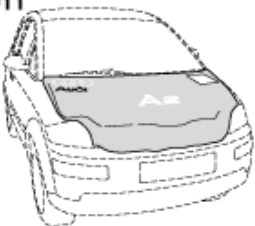
After removing pressure gauge, tighten plug to 25 Nm. Renew seal.

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4.2 Removing and installing tandem pump

Special tools and workshop equipment required

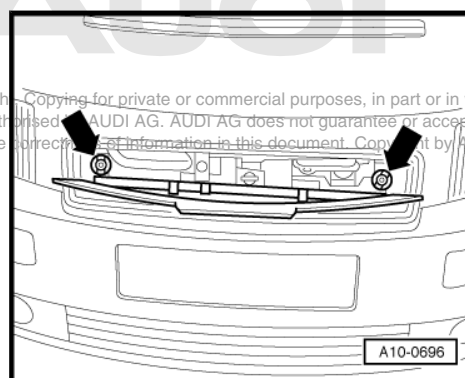
- ◆ Hand-operated vacuum pump with attachments - V.A.G 1390- or diesel extractor -VAS 5226-
- ◆ Bleeder container - V.A.G 1390/1-
- ◆ Hose clip pliers -V.A.G 1921-
- ◆ Audi A2 engine cover protector -VAS 6011-

V.A.G 1390 	V.A.G 1390/1 
V.A.G 1921 	VAS 6011 
	 G20-0027

Removing

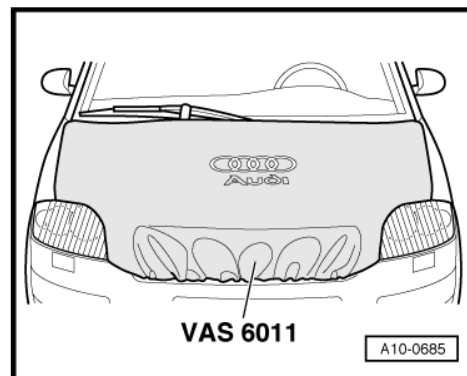
Observe rules for cleanliness ⇒ [page 2](#) .

- Wash outer side of bonnet and dry with chamois leather.
- Release service flap from inside the vehicle.
- Release bonnet -arrows- and pull it forwards slightly.



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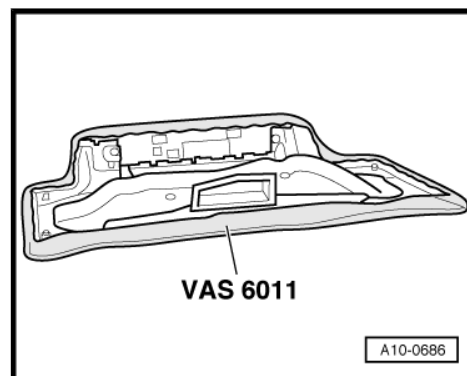
- Attach Audi A2 engine cover protector -VAS 6011- to bonnet.



Note

Do not store bonnet in upright position.

- Remove bonnet and put aside with the protective cover facing downwards.

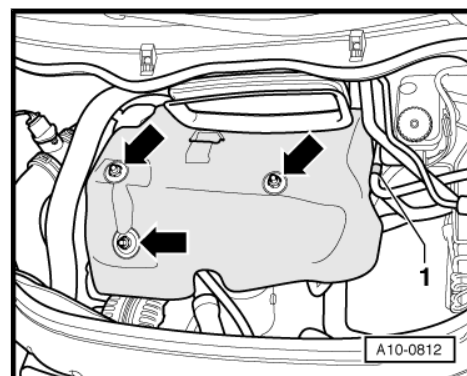


- Disengage hose -1- from retainer.
- Take off engine cover panel -arrows-.

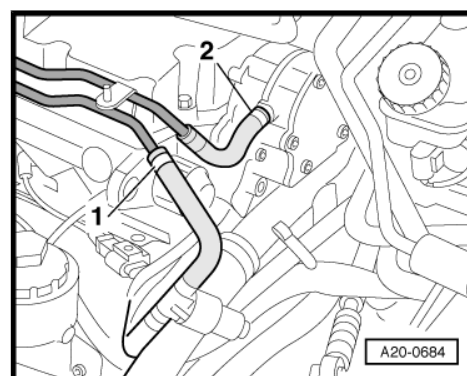


WARNING

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

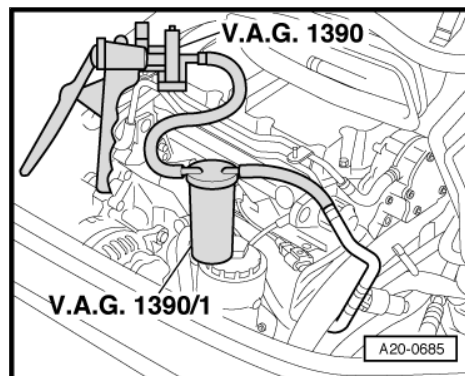


- Disconnect fuel supply hose -2- (white marking) from tandem pump.
- Disconnect fuel return hose -1- (blue marking) from fuel pipe.



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- Insert a suitable adapter from the hand-operated vacuum pump -V.A.G 1390- into the short length of hose on the return pipe.
- Connect adapter with short length of hose and bleeder container -V.A.G 1390/1- .
- Connect hand-operated vacuum pump -V.A.G 1390- with bleeder container -V.A.G 1390/1- to return hose.
- Operate hand-operated vacuum pump until no more fuel comes out of return hose. Make sure no fuel is sucked into hand-operated vacuum pump.



Note

Instead of hand-operated vacuum pump -V.A.G 1390- with bleeder container -V.A.G 1390/1- , you can also use diesel extractor -VAS 5226- .

- Disconnect fuel return hose -1- from tandem pump.
- Disconnect vacuum hose -2- from tandem pump.
- Unscrew bolts -arrows-.
- Detach tandem pump -3- from cylinder head.

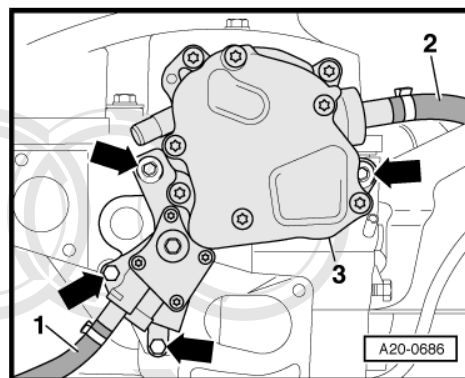
Installing

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

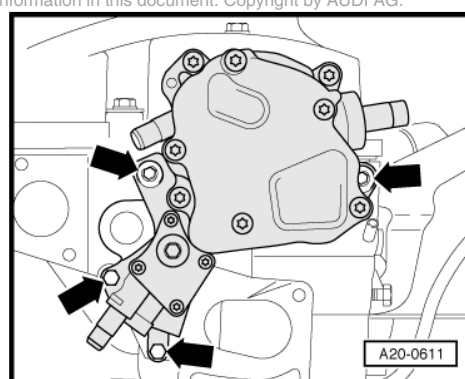


Note

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



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



5 Servicing fuel cooler

5.1 Removing and installing fuel cooler

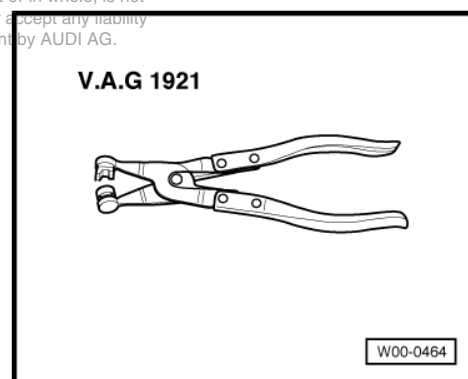


Note

Fitting location of fuel cooler: on underbody, in return pipe to fuel tank.

Special tools and workshop equipment required

- ◆ Hose clip pliers -V.A.G 1921-

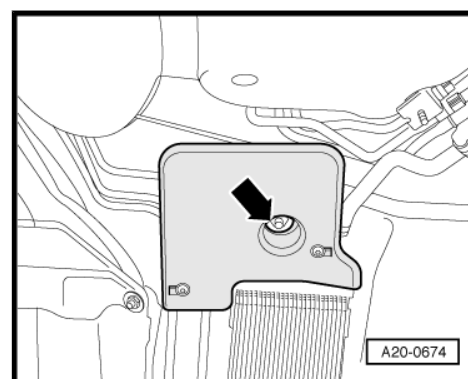


- ◆ Drip tray

Removing

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

- Unscrew cover for hose connection of fuel cooler -arrow-.
- Place drip tray below underbody.



WARNING

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

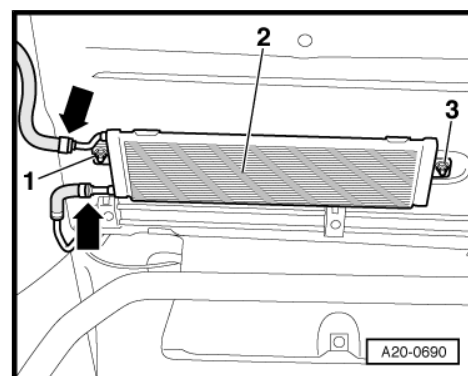
- Detach fuel pipes from fuel cooler -arrows-.
- Unbolt nuts -1- and -3- and remove fuel cooler -2-.

Installing

Install in reverse order.

Tightening torque

Component	Nm
Fuel cooler to underbody	8



6 Servicing fuel filter

6.1 Fuel filter on vehicles up to 04.2002 - exploded view of components



Note

Fitting location of fuel filter: on left side, in front of rear axle.

1 - 8 Nm

2 - Fuel filter

- ☐ With seal for regulating valve
- ☐ Flow direction is marked by arrows
- ☐ Do not interchange connections
- ☐ According to Service Schedule drain or renew
⇒ Maintenance ; Booklet 809

3 - Fuel supply pipe

- ☐ From fuel tank

4 - Fuel return pipe

- ☐ To fuel tank

5 - Regulating valve

- ☐ Installation position: arrow points towards fuel tank
- ☐ When changing filter, remove retaining clip and take off regulating valve with fuel hoses still attached.
- ☐ Make sure O-ring in filter housing is in correct position when fitting regulating valve
- ☐ Temperatures below +15 °C: Passage to filter open
- ☐ Temperatures over +46 °C: Passage to filter closed

6 - Fuel return pipe

- ☐ From engine

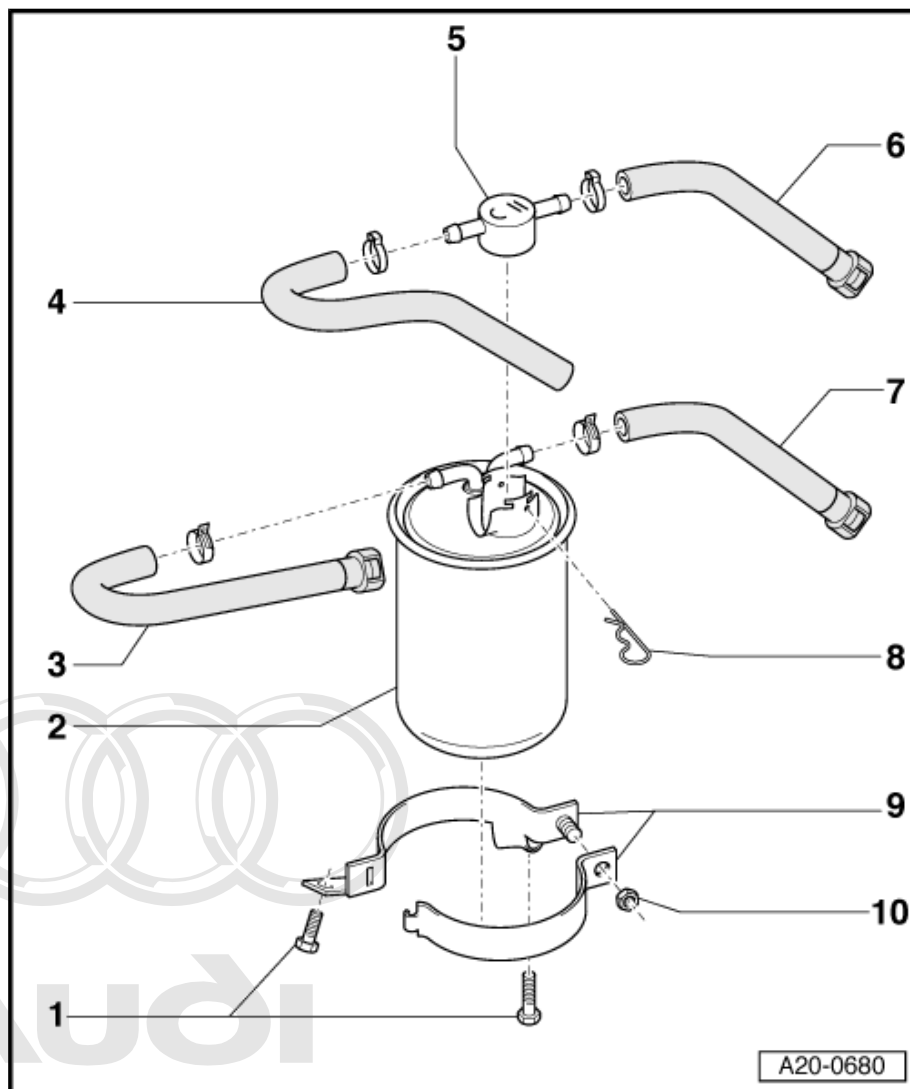
7 - Fuel supply pipe

- ☐ To engine

8 - Retaining clip

9 - Bracket for fuel filter

10 - 10 Nm

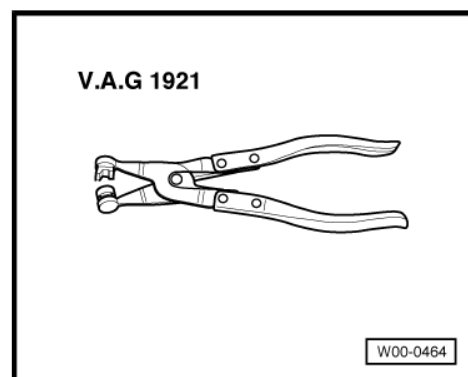


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6.2 Removing and installing fuel filter on vehicles up to 04.2002

Special tools and workshop equipment required

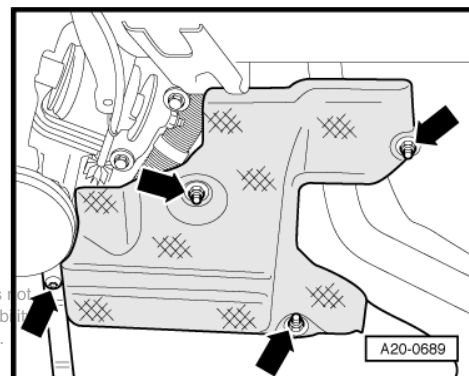
- ◆ Hose clip pliers -V.A.G 1921-



- ◆ Drip tray

Removing

- Remove heat shield on fuel tank (left-side) -arrows-.



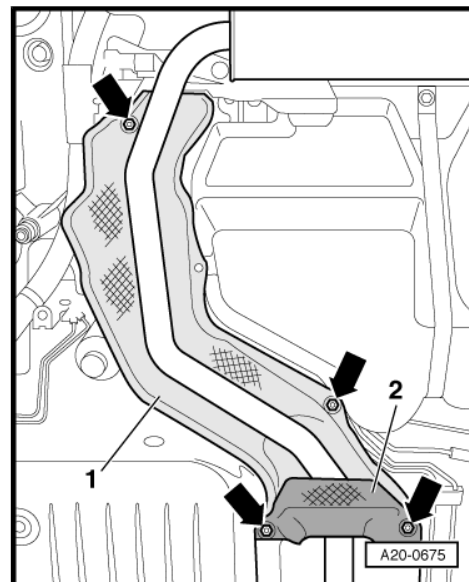
- Unscrew nuts -arrows- and remove heat shield -2-.
- Detach rear silencer from both rubber mountings (left-side).
- Remove heat shield -1-.
- Re-attach rear silencer.



Note

Re-attach silencer immediately to prevent damage to flexible joint.

- Place drip tray below underbody.



WARNING

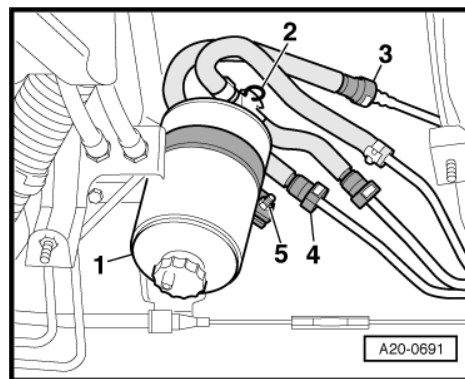
- ◆ *In extreme cases the fuel lines and the fuel can reach a temperature of 100 °C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the lines - danger of scalding.*
- ◆ *Wear protective gloves.*
- ◆ *Wear safety goggles.*

- Disconnect fuel hoses -3- and -4- by pressing release tabs.
- Unscrew nut -5- on bracket.
- Disengage bracket and lower filter -1- slightly.
- Detach retaining clip -2- and remove regulating valve with fuel pipes connected.
- Move fuel pipes from old to new fuel filter.



Note

Renew fuel pipes/hoses if they are porous.



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) ⇒ Parts catalogue.

- Fill new fuel filter with clean diesel fuel. This ensures that engine starts quickly.
- Pay attention to O-ring in filter housing when fitting regulating valve.
- Carefully engage retaining clip.



Note

Flow direction is marked by arrows (do not interchange connections).

- Start the engine and check fuel system for leaks (visual check).

Tightening torque

Component	Nm
Nut for filter bracket	8

6.3 Fuel filter on vehicles from 05.2002 onwards - exploded view of components



Note

Fitting location of fuel filter: on left side, in front of rear axle.

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1 - Drain plug, 2 Nm

- ☐ Only available as replacement part in conjunction with
 ⇒ [Item 7 \(page 31\)](#)

2 - O-rings

- ☐ Only available as replacement part in conjunction with
 ⇒ [Item 5 \(page 31\)](#)

3 - Cover for filter housing, 25 Nm

- ☐ Only available as replacement part in conjunction with
 ⇒ [Item 7 \(page 31\)](#)

4 - Seal

- ☐ Only available as replacement part in conjunction with
 ⇒ [Item 5 \(page 31\)](#)

5 - Filter element

- ☐ Renew filter at intervals specified in Service Schedule ⇒ Maintenance ; Booklet 809

6 - 8 Nm

7 - Fuel filter housing

- ☐ Only complete unit available as replacement part
- ☐ Do not interchange connections

8 - Bracket for fuel filter

9 - Fuel supply pipe

- ☐ To engine

10 - Fuel return pipe

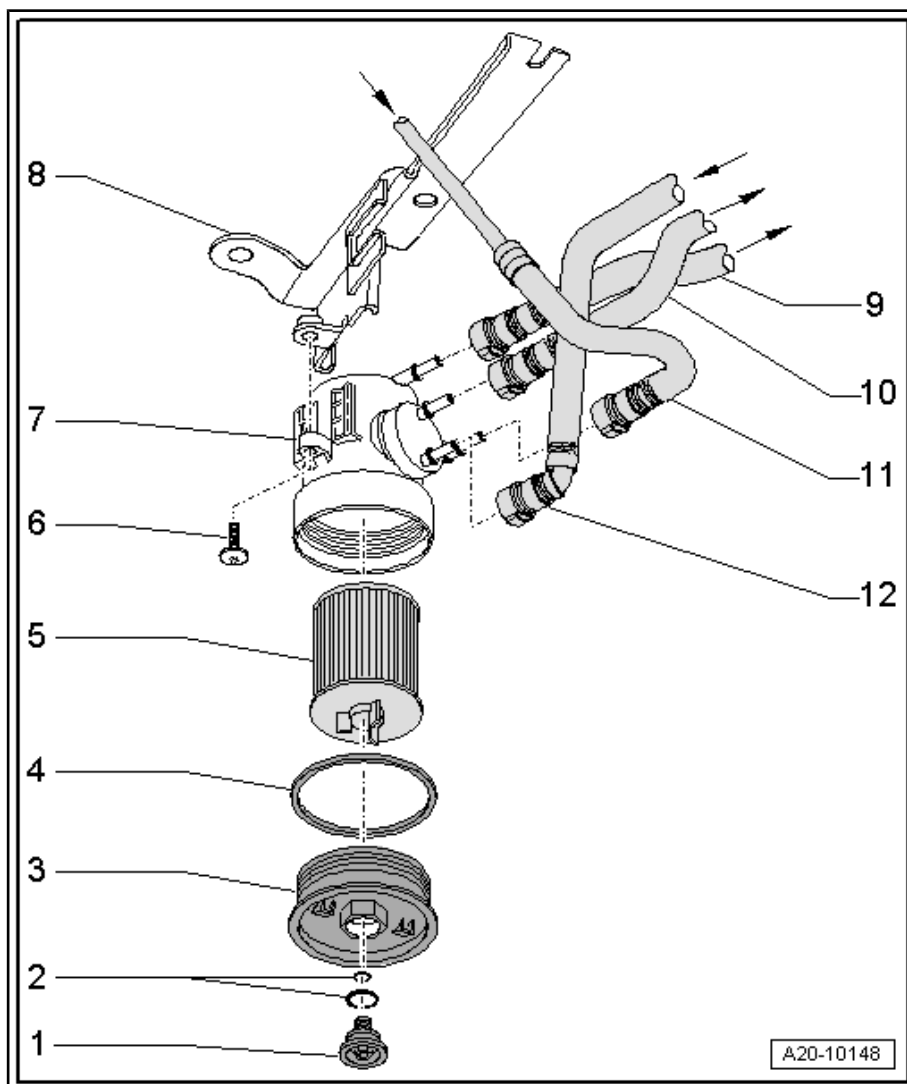
- ☐ To fuel cooler

11 - Fuel supply pipe

- ☐ From fuel tank

12 - Fuel return pipe

- ☐ From engine

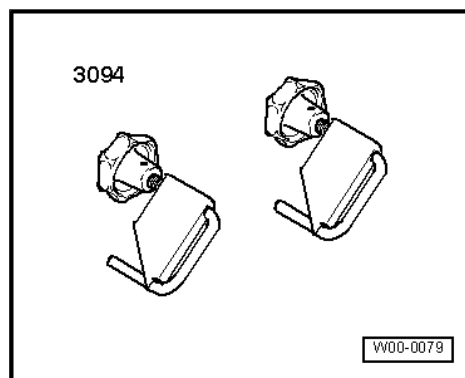


6.4 Removing and installing fuel filter on vehicles from 05.2002 onwards

Special tools and workshop equipment required

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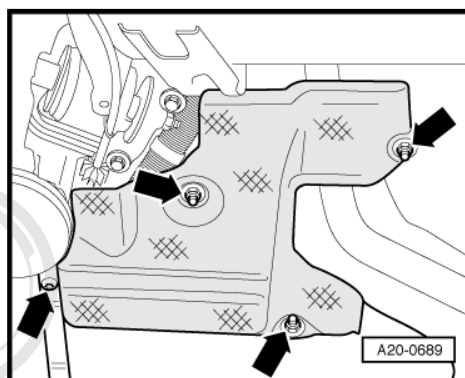
- ◆ Hose clamps for hoses up to 25 mm Ø -3094-



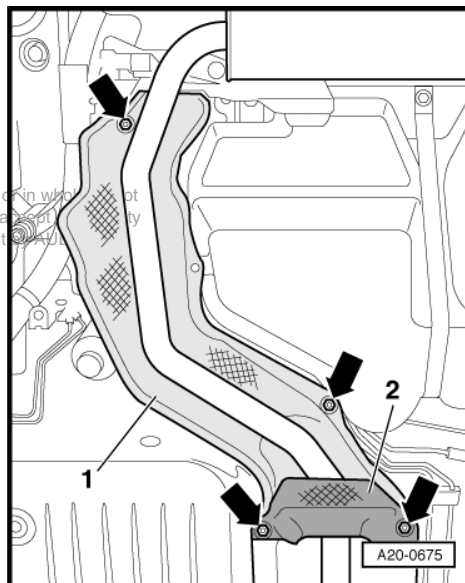
- ◆ Drip tray

Removing

- Remove heat shield on fuel tank (left-side) -arrows-.



- Unscrew nuts -arrows- and remove heat shield -2-.
- Detach rear silencer from both rubber mountings (left-side).
- Remove heat shield -1-.
- Re-attach rear silencer.



Note

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Re-attach silencer immediately to prevent damage to flexible joint.

- Place drip tray below underbody.



WARNING

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

- Clamp off fuel supply hose -4- using a hose clamp -3094- .
- Disconnect fuel hoses -2...5- by pressing release tabs.
- Unscrew bolt -1- and remove filter housing.

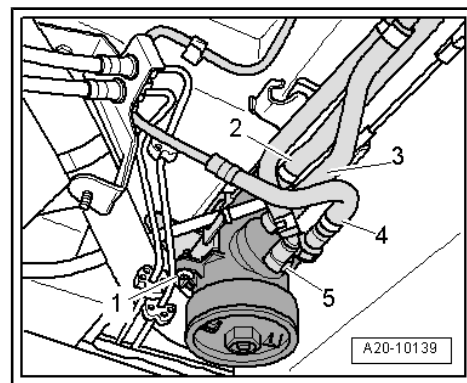
Installing

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) ⇒ Parts catalogue.



- Fill new filter with clean diesel fuel. This will enable the engine to start more quickly.
- Start the engine and check fuel system for leaks (visual check).

Tightening torque

Component	Nm
Bolt for filter housing to bracket	8

6.5 Removing and installing fuel change-over valve

Special tools and workshop equipment required

- ◆ Drip tray

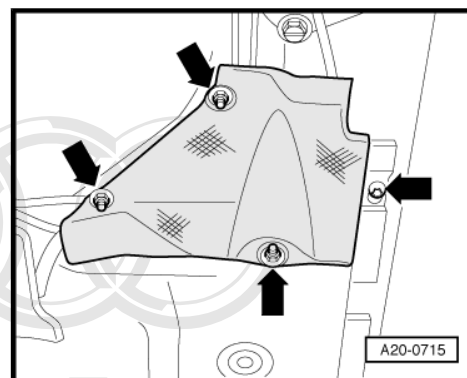


Note

The fuel change-over valve which was fitted on vehicles built up to 10.2001 prevents the fuel in the fuel return pipe from returning to the fuel tank if the fuel temperature reaches a temperature in excess of approx. 72 °C. This is to prevent it from damaging the fuel tank. The fuel return then flows directly to the fuel supply.

Removing

- Remove heat shield at front right of fuel tank-arrows-.

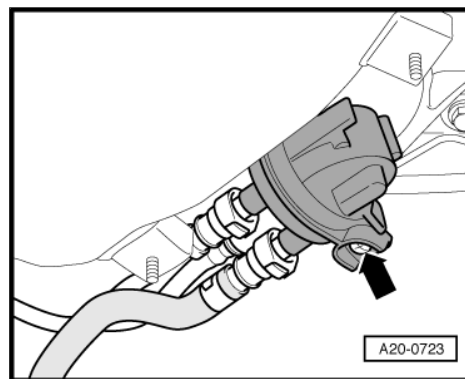


- Place drip tray below change-over valve.



WARNING

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

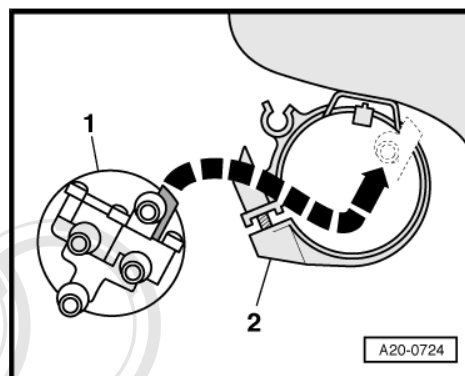


- Mark fuel pipes and then detach pipes by pressing release tabs.
- Remove bolt -arrow-.
- Detach change-over valve.

Installing

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

- Bolt change-over valve on in such a way that lug on valve -1- makes contact with retaining clip -2- as shown in illustration.

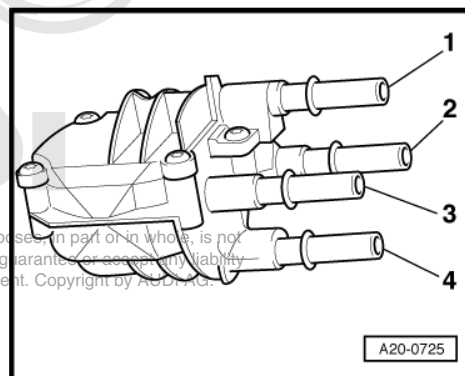


- Connect fuel pipes as follows:
 - 1 - Supply pipe going to engine
 - 2 - Fuel supply pipe from fuel tank
 - 3 - Fuel return pipe (blue) going to fuel tank
 - 4 - Fuel return line from fuel cooler

Tightening torque

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Component	Nm
Retaining clip for change-over valve	3

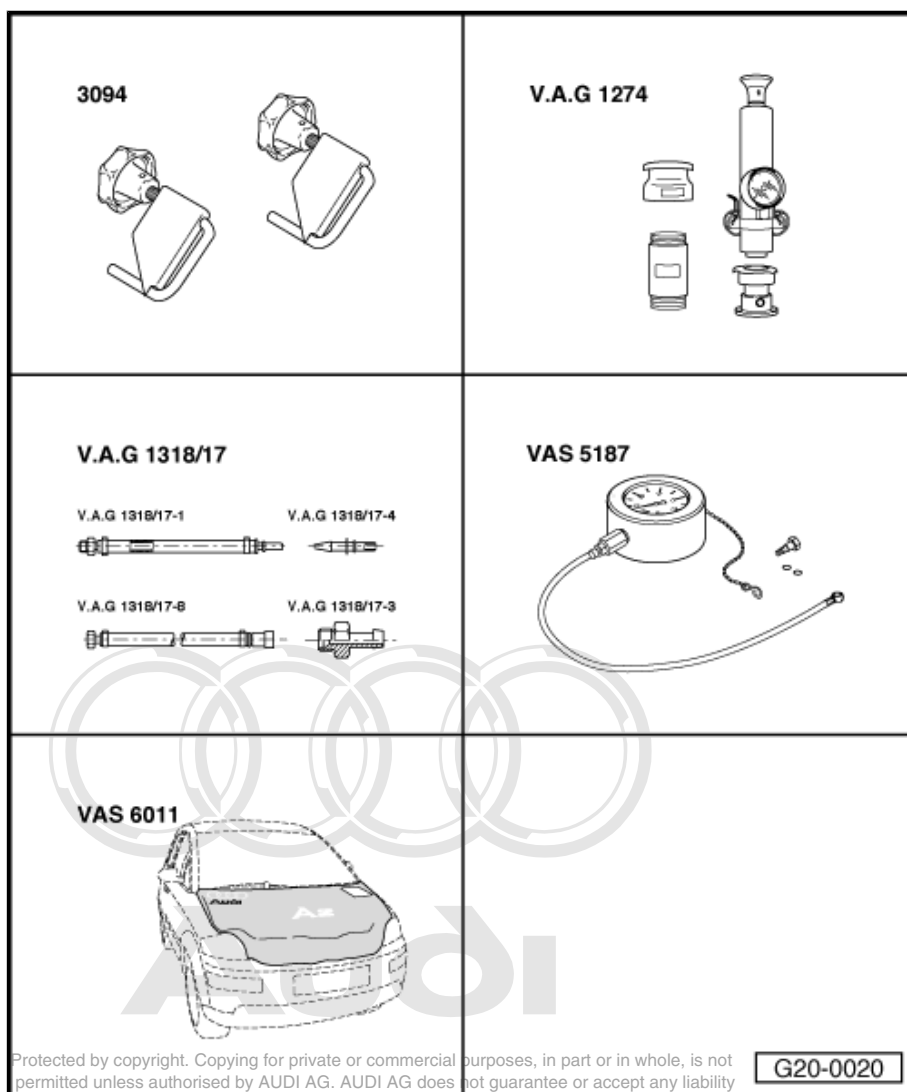


7 Checking fuel system for leaks

7.1 Checking for leaks

Special tools and workshop equipment required

- ◆ Hose clamps for hoses up to 25 mm Ø -3094-
- ◆ Cooling system tester - V.A.G 1274- with -V.A.G 1274/2 A-
- ◆ Adapter -V.A.G 1318/17-1- from adapter set -V.A.G 1318/17- (2 x)
- ◆ Tandem pump tester -VAS 5187-
- ◆ Audi A2 engine cover protector -VAS 6011-

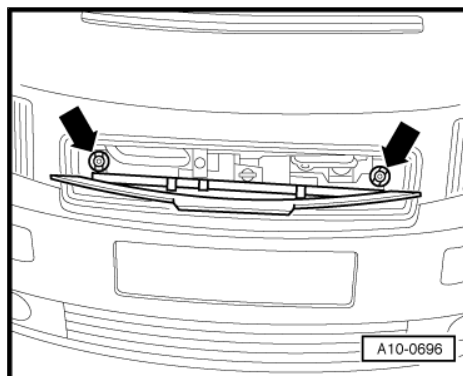


A leaking fuel system can cause:

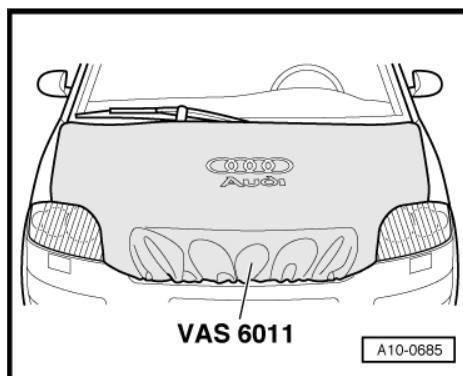
- ◆ Air bubbles in fuel supply pipe
- ◆ Lack of power, misfiring
- ◆ Starting problems

Test sequence

- Wash outer side of bonnet and dry with chamois leather.
- Release service flap from inside the vehicle.
- Release bonnet -arrows- and pull it forwards slightly.



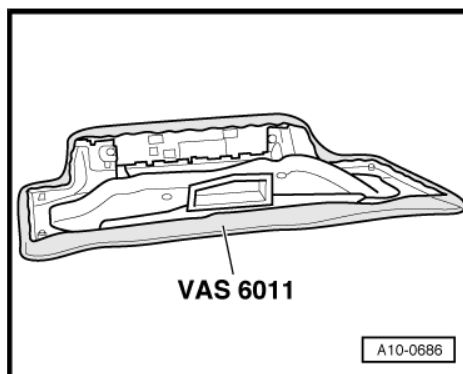
- Attach Audi A2 engine cover protector -VAS 6011- to bonnet.



Note

Do not store bonnet in upright position.

- Remove bonnet and put aside with the protective cover facing downwards.

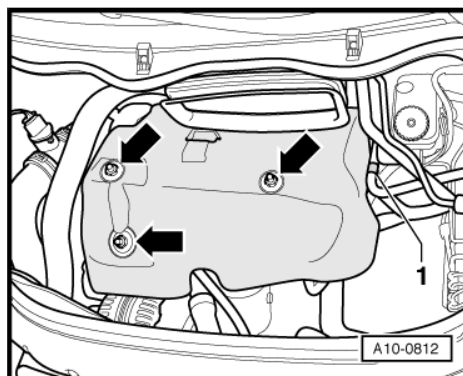


- Disengage hose -1- from retainer.
- Take off engine cover panel -arrows-.



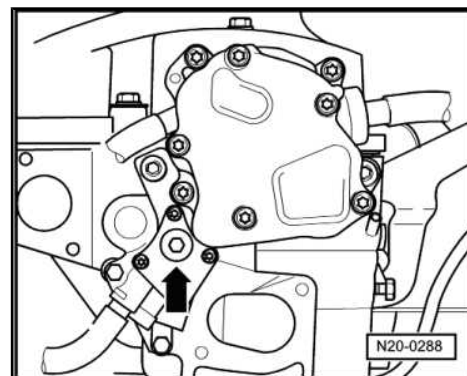
WARNING

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

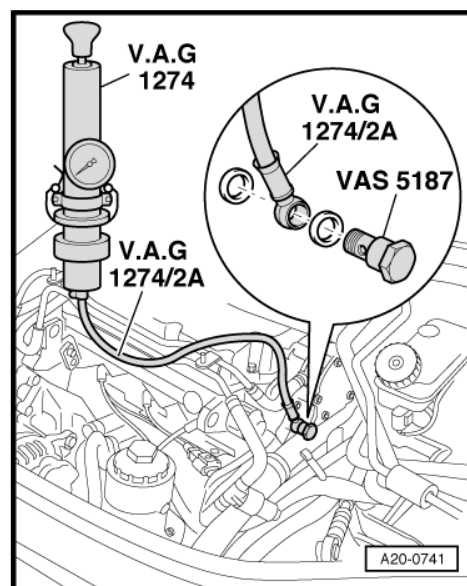


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- Remove screw plug -arrow-.



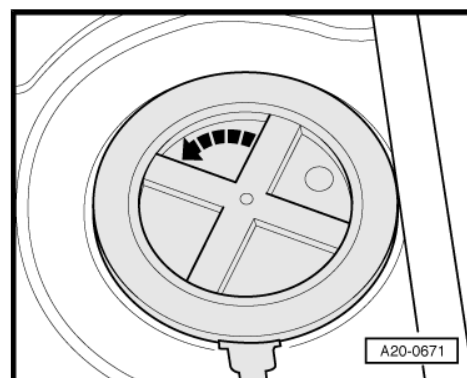
- Attach adapter -V.A.G 1274/2 A- to cooling system tester - V.A.G 1274- .
- Connect adapter -V.A.G 1274/2 A- to tandem pump using banjo bolt from -VAS 5187- .



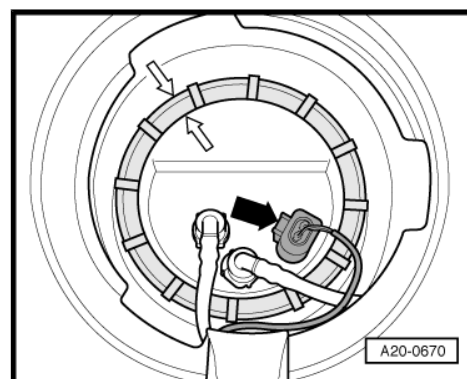
- Fold down the rear seat bench or remove the rear seat bench
 ⇒ Rep. Gr. 72

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- Fold back lining under rear set
- Turn cover for fuel gauge sender in -direction of arrow- and detach cover.



- Unplug electrical connector -arrow- at flange.

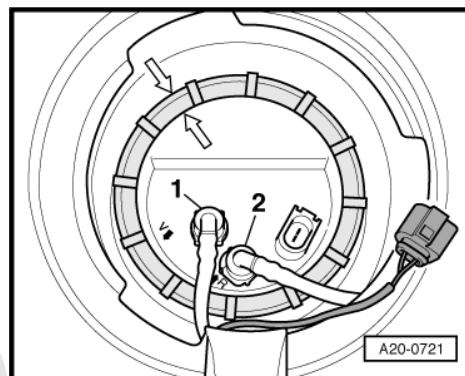


- Mark fuel supply pipe -1- and fuel return pipe -2-.



WARNING

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

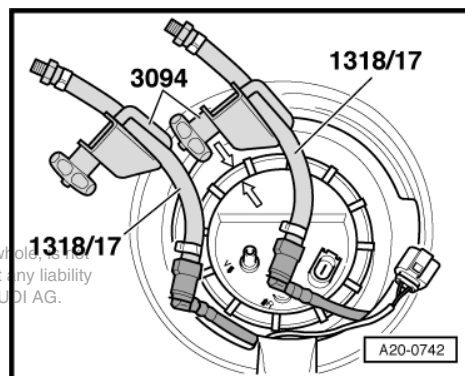


- Detach both pipes from flange (press release tabs).
- Connect one adapter -V.A.G 1318/17-1- onto supply pipe and one onto return pipe.
- Clamp off adapter hoses using hose clamps -3094- .



Note

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

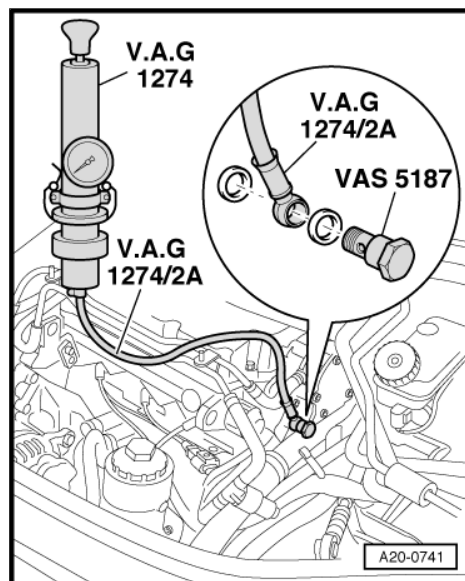


- Use cooling system tester -V.A.G 1274- to create a pressure of between 1.0 ... 1.5 bar.
- If pressure drops constantly, locate leak and eliminate fault.



Note

After removing pressure gauge, tighten plug to 25 Nm. Always renew seal.



8 Servicing accelerator mechanism

8.1 Overview: accelerator mechanism

1 - Accelerator pedal stop

- ☐ Vehicles with left-hand drive only
- ☐ Adjusting ⇒ [page 40](#)

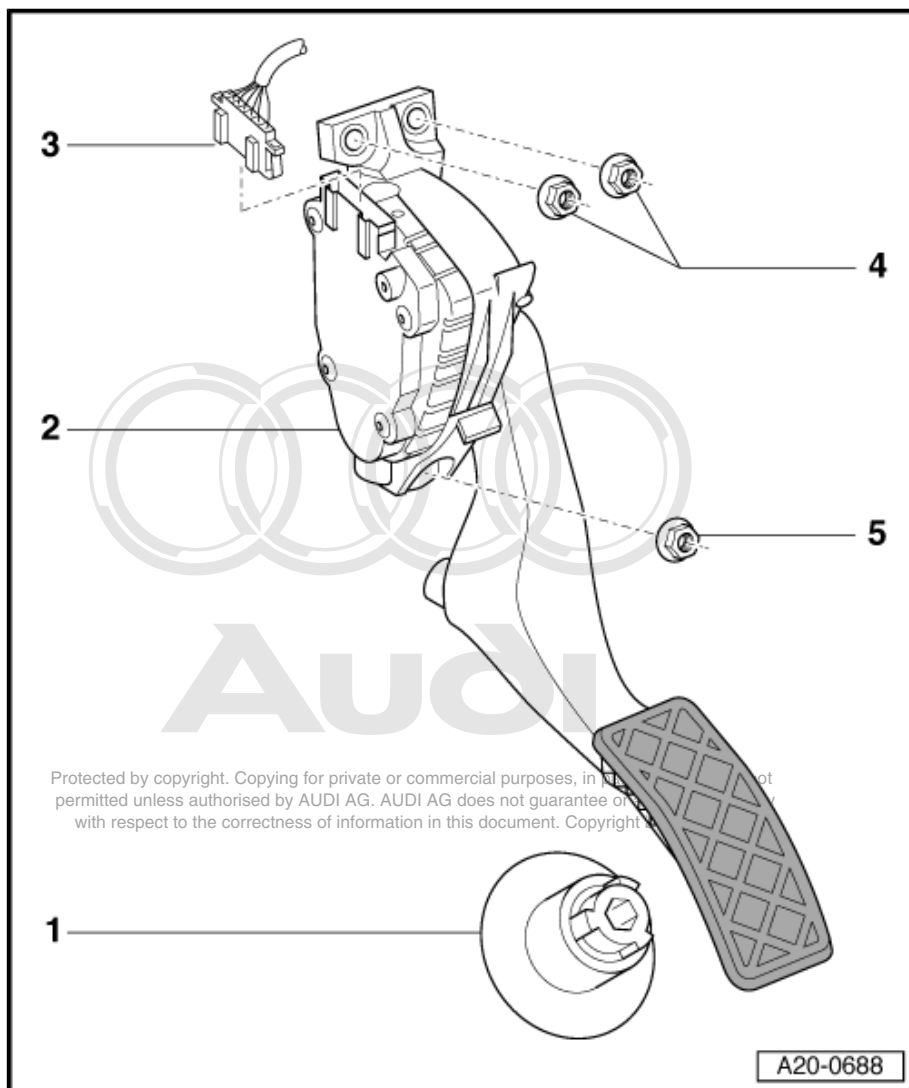
2 - Accelerator pedal module

- ☐ With accelerator position sender -G79- and accelerator position sender 2 -G185-
- ☐ Removing and installing ⇒ [page 40](#)

3 - Electrical connector

4 - 10 Nm

5 - 10 Nm



8.2 Removing and installing accelerator pedal module with accelerator position sender

Removing

- Remove storage compartment on driver's side ⇒ Rep. Gr. 68 .
- Unplug electrical connector -2-.
- Remove bolts -1- and -3-.
- Remove accelerator pedal module.

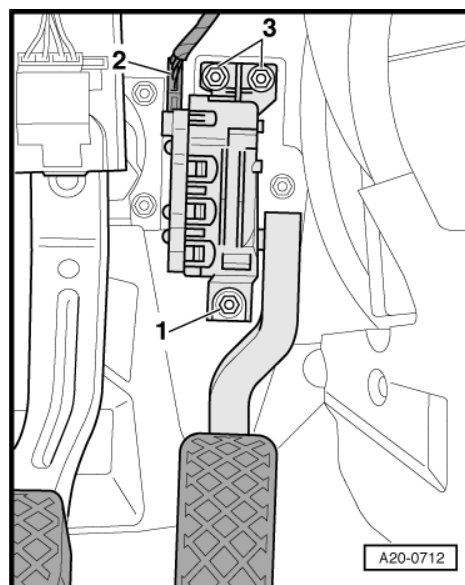
Installing

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

- Install storage compartment on driver's side ⇒ Rep. Gr. 68 .

Tightening torque

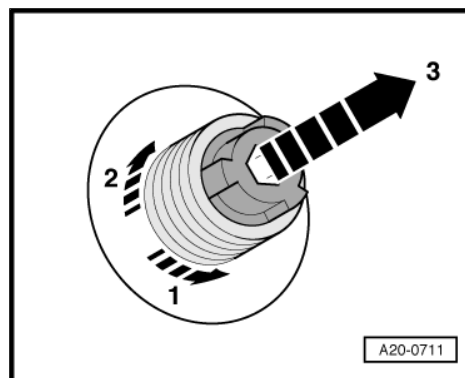
Component	Nm
Accelerator pedal module to pedal bracket	10



8.3 Adjusting accelerator pedal stop - vehicles with left-hand drive

Procedure

- Turn click stop ring anti-clockwise onto stop -arrow 1-.
- Pull out pedal stop all the way -arrow 3-.
- Depress accelerator pedal all the way by hand.
- As a result, the pedal stop is compressed to the correct length.
- Lock click stop ring into position by turning clockwise -arrow 2-.



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