

Audi A8 2003 ➤

Fuel supply system - petrol engines								
Engine ID	BFL	BFM						

Edition 08.2004



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List of Workshop Manual Repair GroupsList of Workshop Manual
Repair GroupsList of Workshop Manual Repair Groups

Audi A8 2003 ➤

Fuel supply system - petrol engines

Repair Group

20 - Fuel supply system



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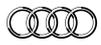
Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of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

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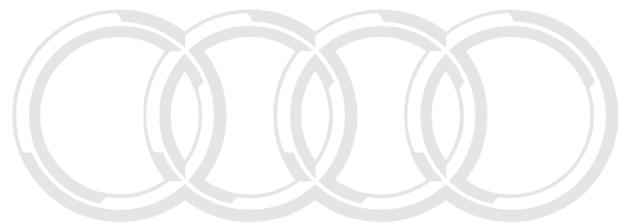
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Audi Fuel supply system - petrol engines - Edition 08.2004



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20 - Fuel supply system

1 - Notes on performing work on fuel supply system

1.1 - Notes on performing work on fuel supply system

1.2 - Contact corrosion

Contact corrosion can occur if use is made of unsuitable connecting elements (bolts, nuts, washers...).

For this reason, only connecting elements with a special surface coating are fitted. These elements can be recognised by their greenish colour.

Additionally, rubber components, plastic components and adhesives are made of non-conductive material.

Always fit new components in cases of doubt about re-use.

Attention:

- ◆ Always use genuine Audi parts.
- ◆ Damage caused by contact corrosion is not covered by warranty.

1.3 - General repair instructions

Heed safety precautions=> Page 1.

Observe rules for cleanliness => Page 2.

Checking fuel pump relay and actuation

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=> Motronic injection and ignition system; Repair Group 24

1.4 - Safety precautions when working on fuel supply system

Attention:

Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.

Take the following measures before starting work on fuel supply system:

Attention:

Heed appropriate instructions for battery disconnection. =>Electrical system; Repair Group 27

- ◆ Disconnect battery earth strap with ignition switched off.



- ◆ Briefly open fuel tank cap and close again.

Pay attention to the following when removing and installing components from inside full or partially filled fuel tank:

Note:

Fuel tank may only be partially filled. The amount of fuel which can be left in the tank is indicated at the appropriate location in the text. Drain fuel tank if necessary => Page 7.

- ◆ Before starting work, switch on exhaust extraction system and place extraction hose in the vicinity of the fuel tank assembly opening to draw off the fuel vapours escaping.
If no exhaust extraction system is available, use can be made of a radial fan with a displacement of more than 15 m³/h provided that motor is not in air flow.
- ◆ Do not allow fuel to come into contact with skin. Wear fuel-resistant gloves.

Pay attention to the following when removing and installing fuel tank:

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Note:

Fuel tank must be empty to reduce weight. Drain fuel tank if necessary =>Page 7.

1.5 - Rules for cleanliness

When working on fuel supply/injection system, pay careful attention to the following rules:

- ◆ Carefully clean all joints and adjacent areas before disconnecting.
- ◆ Place parts removed on a clean surface and cover them over. Do not use fluffy cloths.
- ◆ Carefully cover or seal opened components if repairs are not to be performed immediately.
- ◆ Only install clean components:
Do not remove replacement parts from wrapping until immediately prior to installation.
Do not use parts which have been stored loose (e.g. in tool boxes).
- ◆ When system is open:
Do not work with compressed air.
Do not move vehicle unless absolutely necessary.

2 - Fuel supply system

2.1 - Fuel supply system

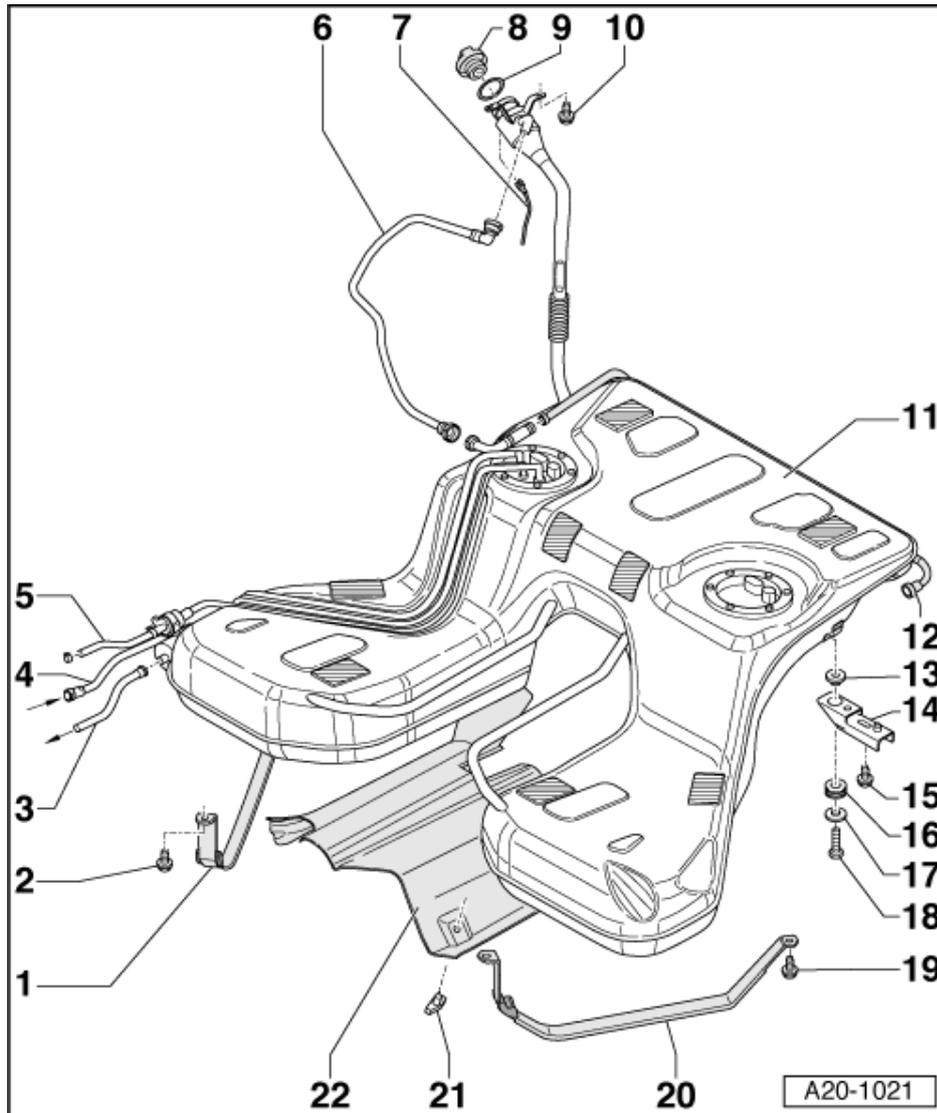
Notes:

- ◆ Secure all hose connections with standard hose clamps.

=> Parts List

- ◆ Always replace sealing rings and gaskets on assembly.

2.2 - Exploded view of components: Fuel tank with attachments



1 Securing strap

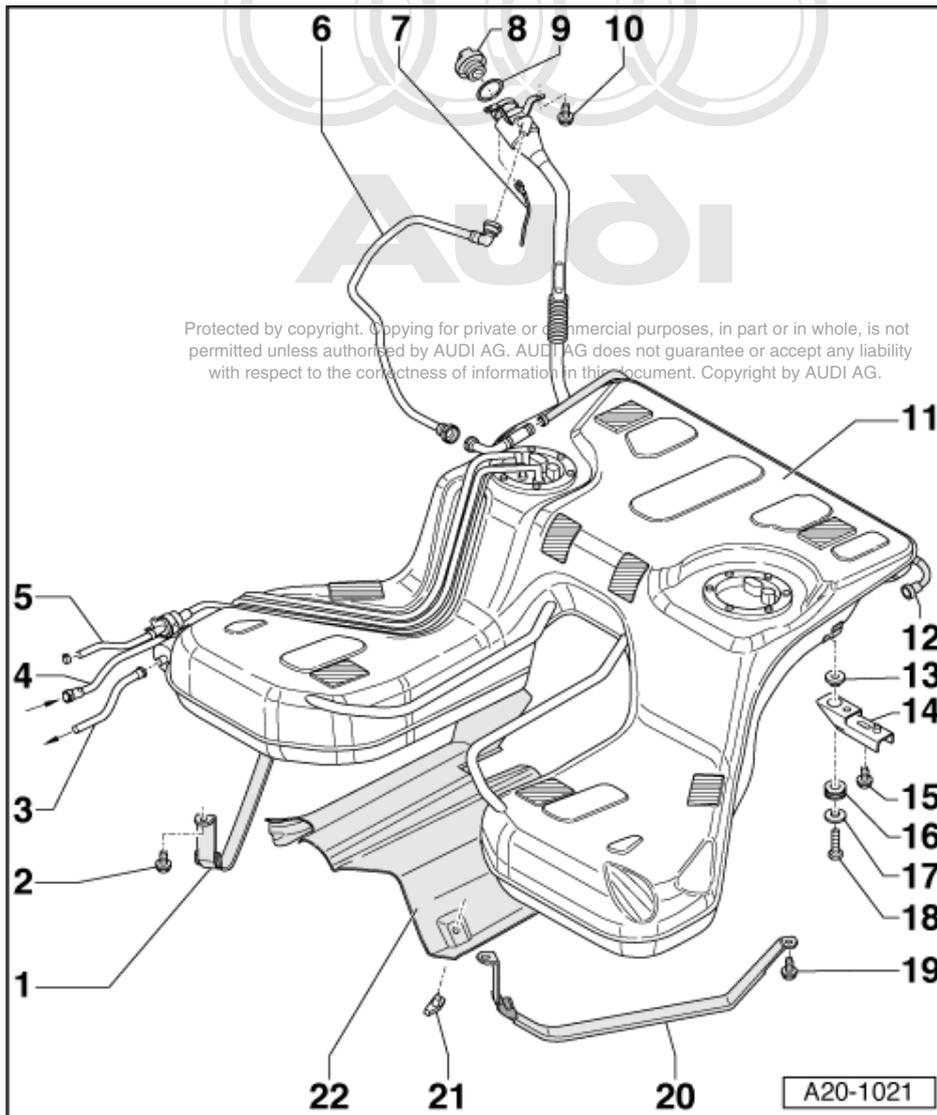
- ◆ With spacer, installation position => Fig. 2

2 22 Nm

3 Fuel supply pipe

- ◆ From fuel filter
- ◆ To fuel rail
- ◆ Mark before disconnecting
- ◆ Press release tab on connection to detach
- ◆ Clip in at fuel tank

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4 Fuel return pipe

- ◆ From engine
- ◆ Mark before disconnecting
- ◆ Press release tab on connection to detach
- ◆ Heed direction of arrow at sealing flange
- ◆ Clip in at fuel tank

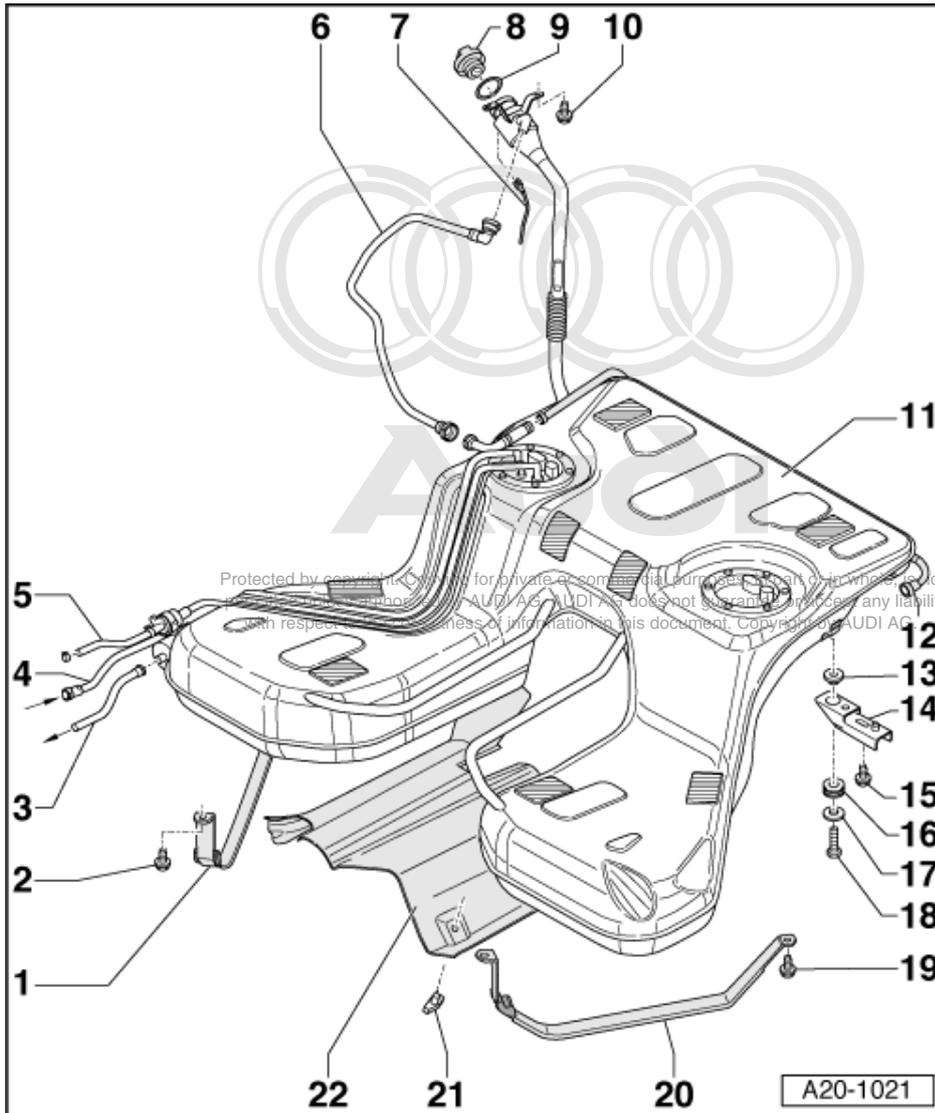
5 Supply pipe

- ◆ To auxiliary heater

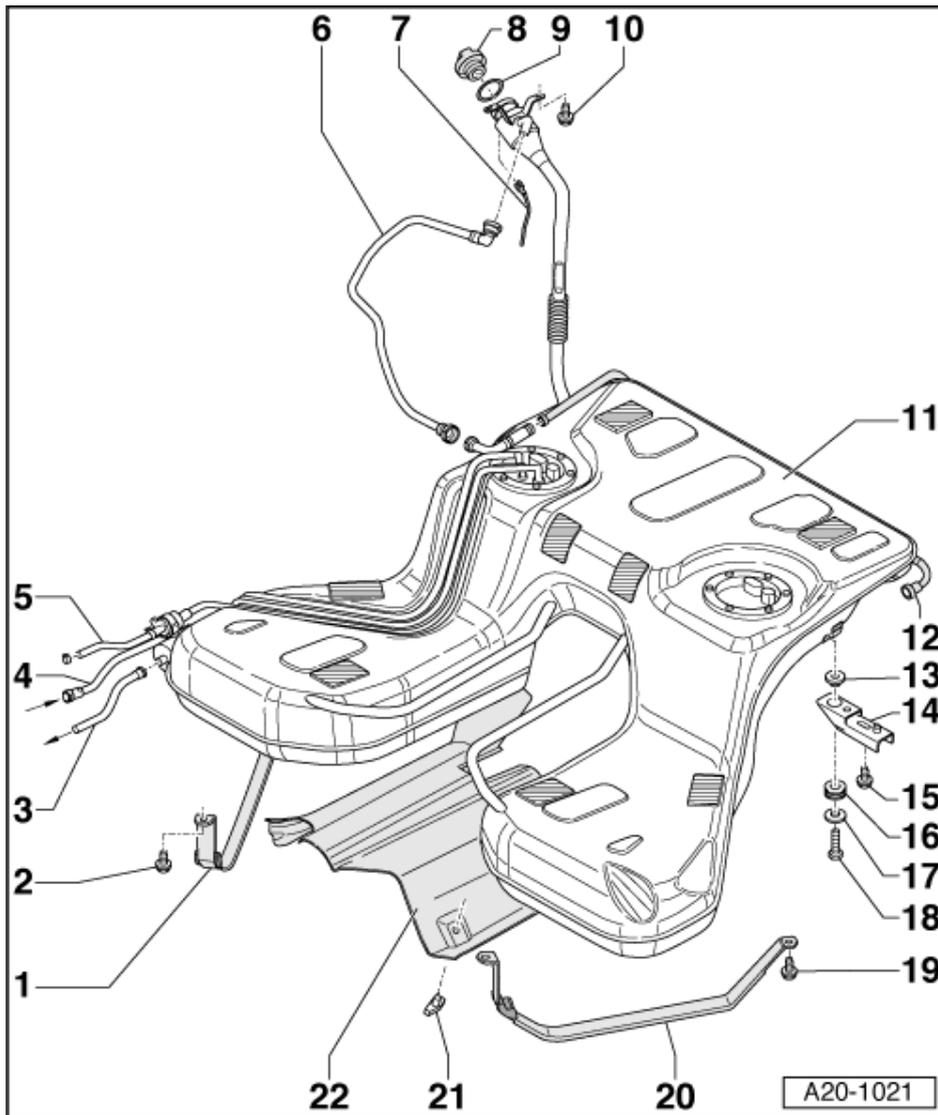
6 Breather pipe

7 Earth connection

- ◆ For discharging static
 - ◆ Installation position/test instructions => Fig. 7
 - ◆ Make sure connector is firmly attached
 - ◆ After installing, use ohmmeter to check electrical connection between fuel filler neck and bare metal part on body
- Specification: approx. 0 ω



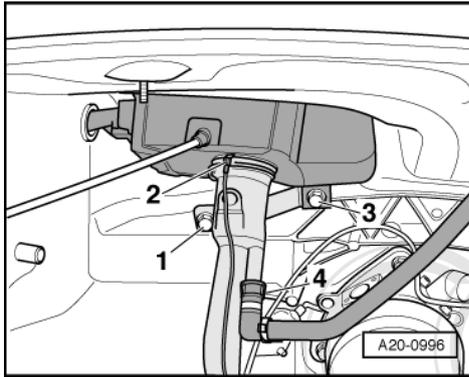
- 8 Cap
- 9 Sealing ring
 - ◆ Replace if damaged
- 10 22 Nm
- 11 Fuel tank
 - ◆ Removing and installing
=> Page 12
- 12 Breather pipe
 - ◆ To activated charcoal filter in rear left wheel housing
 - ◆ Clip in at fuel tank
 - ◆ Leave attached to fuel tank on removing tank
- 13 Bushing
- 14 Holder
 - ◆ For fuel tank



- 15 22 Nm
- 16 Rubber buffer
- 17 Washer
- 18 22 Nm
- 19 22 Nm
- 20 Securing strap
 - ◆ With spacer, installation position => Fig. 2
- 21 Retaining clip
 - ◆ For heat shield
- 22 Heat shield



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-> Fig.1 Installation position of earth connection

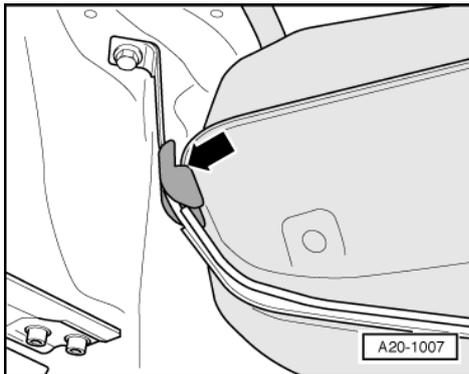
- Route earth connection -2- as shown.
- Make sure connector for earth connection is firmly attached at metal ring of fuel filler neck.

Attention:

After installing, use ohmmeter to check electrical connection between metal ring at fuel filler neck and bare metal part on body.

- ◆ **Specification: approx. 0 ohms**

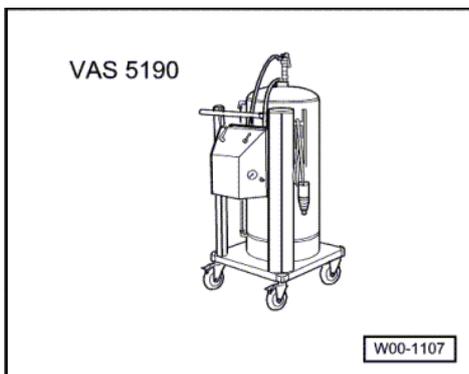
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-> Fig.2 Installation position of spacers

- Make sure spacers of securing straps are positioned directly beneath fuel tank seam -arrow-.

2.3 - Draining fuel tank



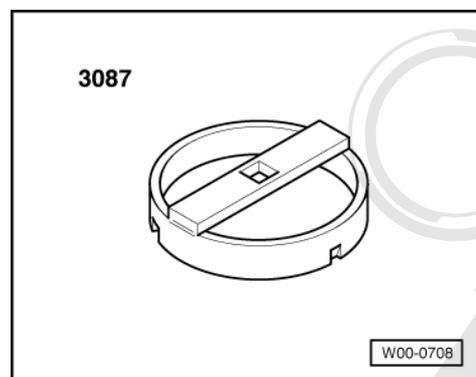


Special tools and workshop equipment required

- ◆ VAS 5190

or

- ◆ V.A.G 1433 A



Vehicles as of 10.02:

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- ◆ Fuel gauge sender wrench 3087

Sequence of operations

Heed safety precautions => Page 1 .

Observe rules for cleanliness => Page 2 .

Attention:

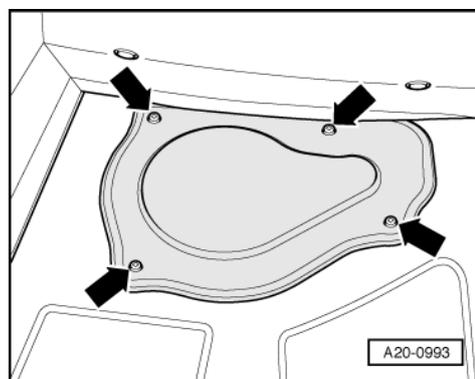
Switch off ignition and remove ignition key to stop ignition being switched on inadvertently whilst working.

- Briefly open fuel tank cap and close again.

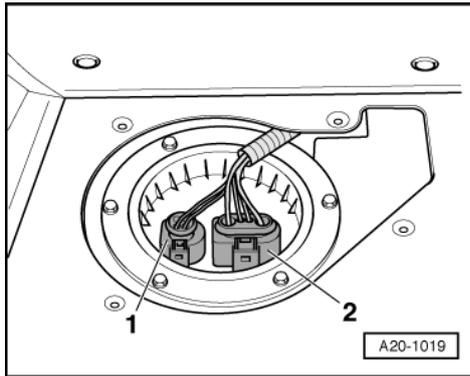
Attention:

Heed appropriate instructions for battery disconnection. =>Electrical system; Repair Group 27

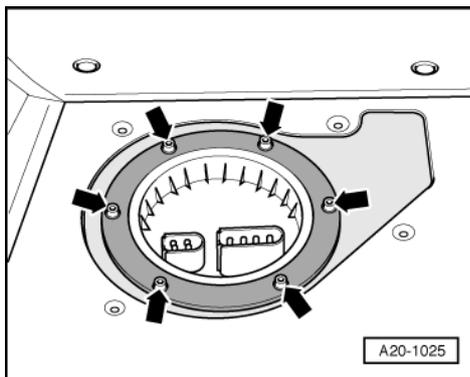
- Disconnect battery earth strap with ignition switched off.



- Remove luggage compartment floor lining.
- -> Unscrew cover for left sealing flange -arrows-.

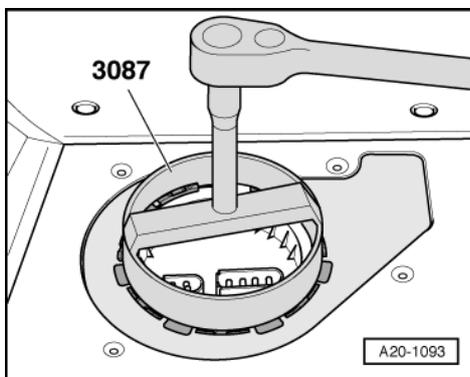


- -> Carefully release connectors -1- and -2- at left sealing flange and unplug.



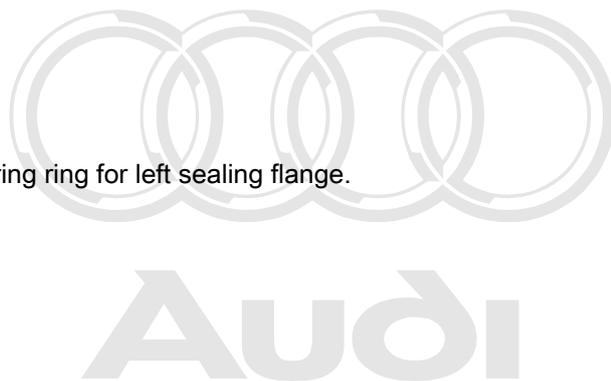
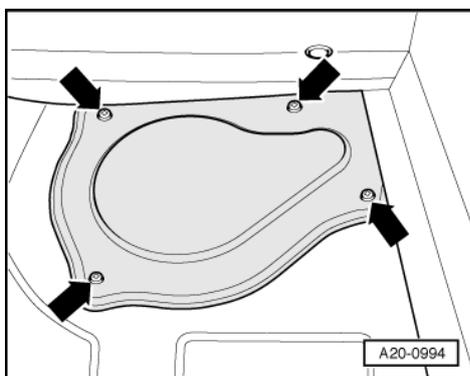
Vehicles up to 10.02:

- -> Screw out bolts -arrows- and detach securing ring for left sealing flange.



Vehicles as of 10.02:

- -> Use fuel gauge sender wrench 3087 to unscrew locking ring.

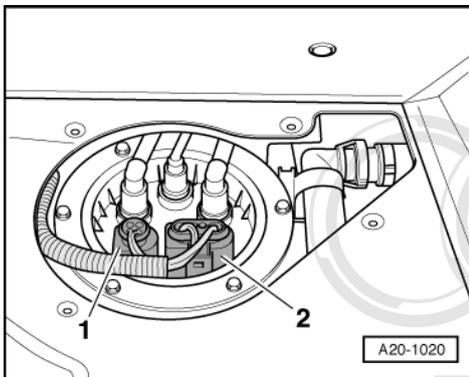


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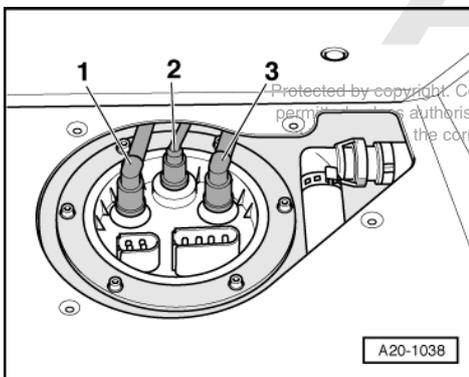


All models:

- -> Unscrew cover for right sealing flange -arrows-.



- -> Carefully release connectors -1- and -2- at right sealing flange and unplug.



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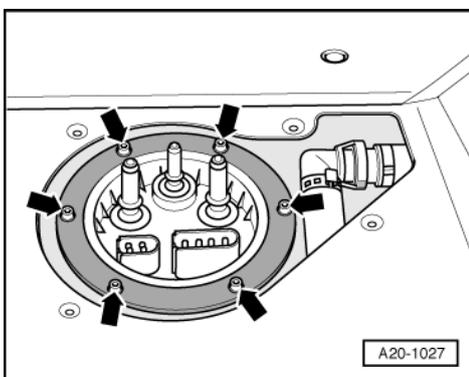
Attention:

Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.

- -> Mark and detach (press release tab) fuel supply pipe -1- and fuel return pipe -3-.

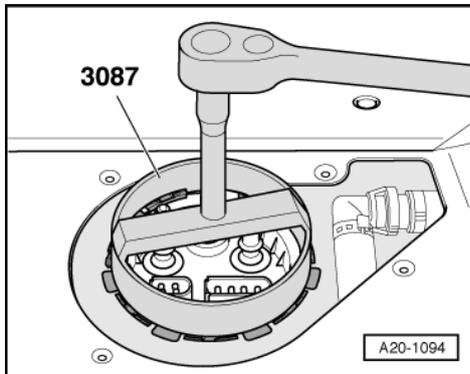
Vehicles with auxiliary heater:

- Additionally disconnect fuel supply pipe -2- to auxiliary heater.



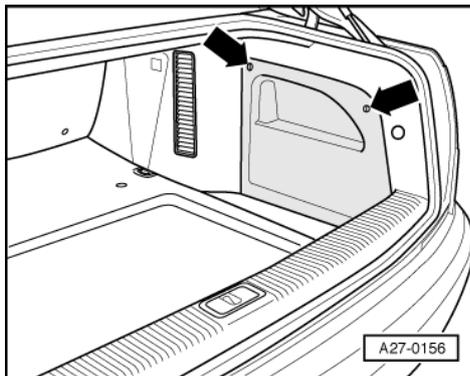
Vehicles up to 10.02:

- -> Screw out bolts -arrows- and detach securing ring for right sealing flange.



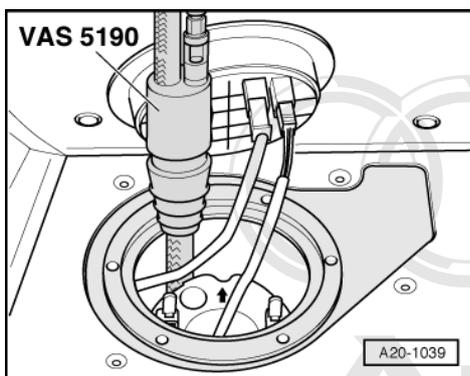
Vehicles as of 10.02:

- -> Use fuel gauge sender wrench 3087 to unscrew locking ring.



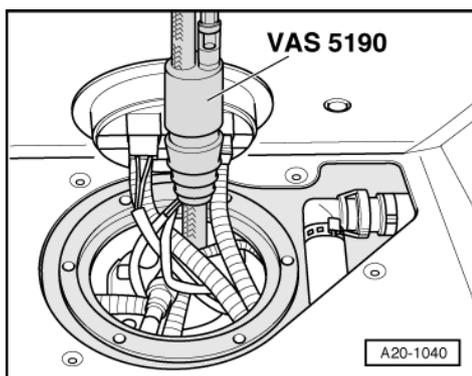
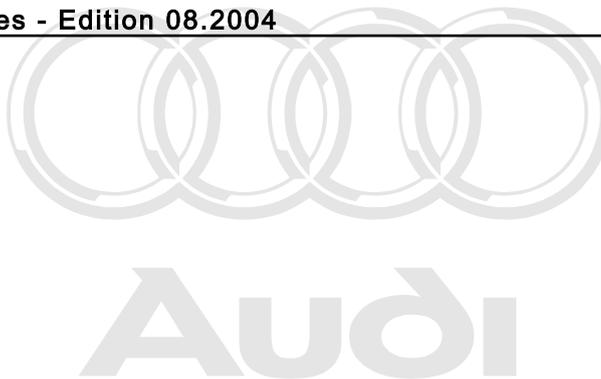
All models:

- -> Remove right luggage compartment side trim cover -arrows-.
- Connect earth wire of V.A.G 1433 A or VAS 5190 to earth stud of energy management control unit -J644.



- Detach left sealing flange and lay it aside with wires connected.
- Detach sealing ring/O-ring.
- -> Use V.A.G 1433 A or VAS 5190 to draw off fuel in left half of tank through opening in fuel tank.

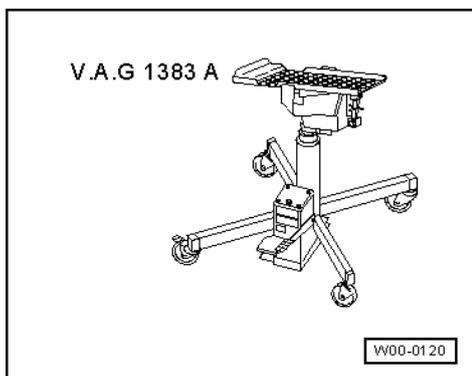
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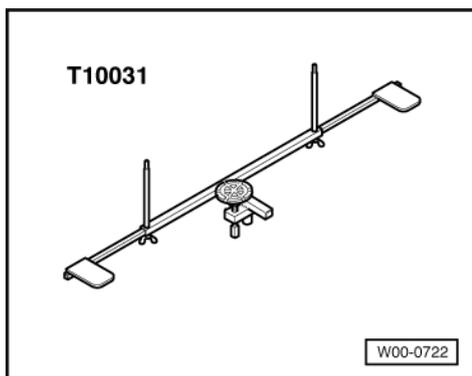
- Detach right sealing flange and lay it aside with wires and fuel pipes connected.
- Detach sealing ring/O-ring.
- -> Use V.A.G 1433 A or VAS 5190 to draw off fuel in right half of tank through opening in fuel tank.
- Re-install left and right sealing flange => Page 61 .

2.4 - Removing and installing fuel tank with attachments



Special tools and workshop equipment required

- ♦ Engine/gearbox lifter V.A.G 1383 A



- ♦ Mount T10031

Removing

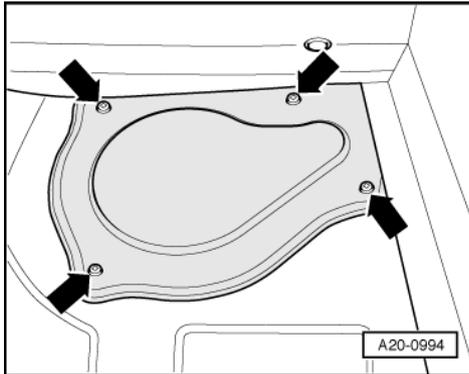
Heed safety precautions => Page 1 .

Observe rules for cleanliness => Page 2.

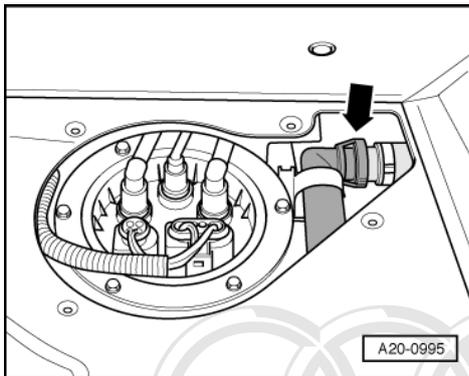
- Fuel tank must be empty when removing it from vehicle so as to reduce weight. Drain fuel tank if necessary. Procedure => Page 7.
- Release tank flap.

Attention:
 Heed appropriate instructions for battery disconnection. =>Electrical system; Repair Group 27

- Disconnect battery earth strap with ignition switched off.



- Remove luggage compartment floor lining.
- -> Unscrew cover for right sealing flange -arrows-.



- -> Press release tabs and disconnect breather pipe -arrow-.

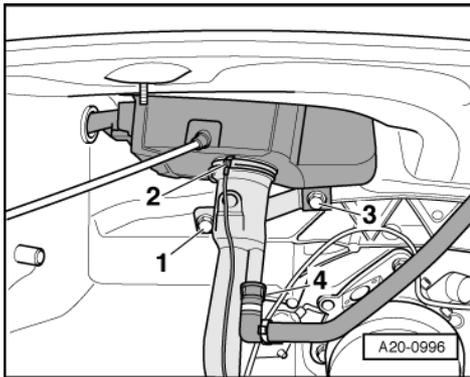
Attention:
 Before -SLACKENING OFF- subframe bolts, secure vehicle to stop it tipping over (e.g. by placing 50 kg load in luggage compartment).

- Remove rear axle.

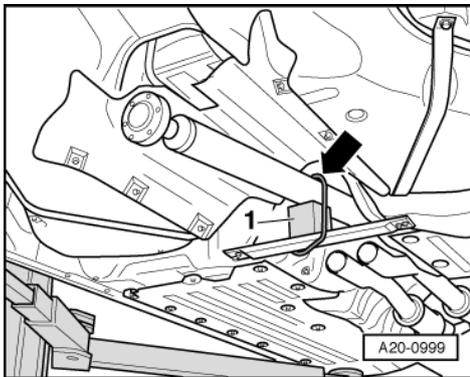
=> Running gear, Front-wheel drive and four-wheel drive; Repair Group 42

- Remove rear right wheel housing liner.

=> General body repairs, Exterior; Repair Group 66



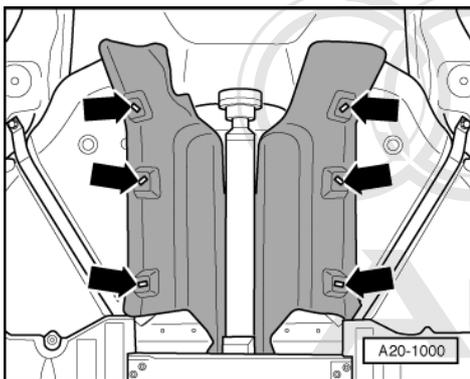
- -> Disconnect earth wire -2- at fuel filler neck.
- Disconnect breather pipe -4- at fuel filler neck.
- Screw out bolts -1- and -3- for fuel filler neck.



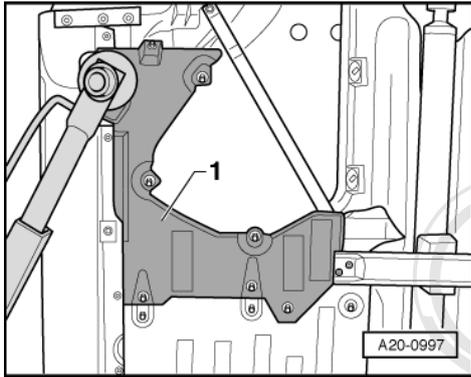
- -> Check whether propshaft has been secured in position.
- Propshaft must be resting on wooden block -1- and secured with wire or cable tie -arrow-
- Make sure propshaft is tilted downwards slightly to enable fuel tank to be subsequently lifted over it

Note:

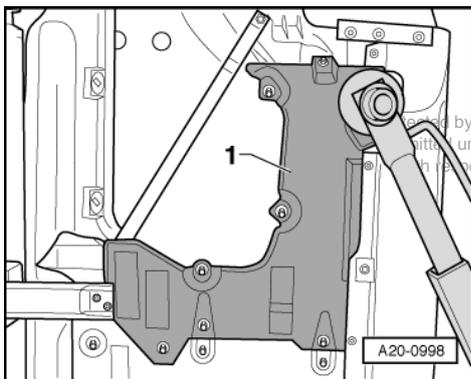
Max. perm. bending angle at propshaft = 8°.



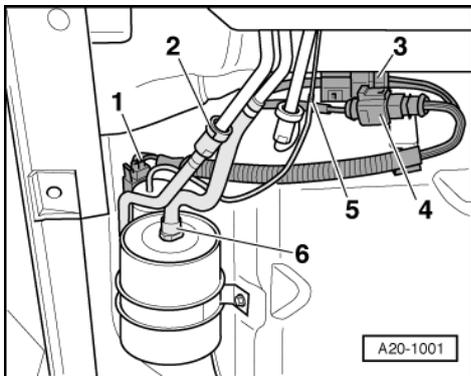
- -> Remove heat shield for propshaft -arrows-
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- -> Unscrew cover at bottom left on underside of vehicle -arrows-.



- -> Unscrew cover at bottom right on underside of vehicle -arrows-.

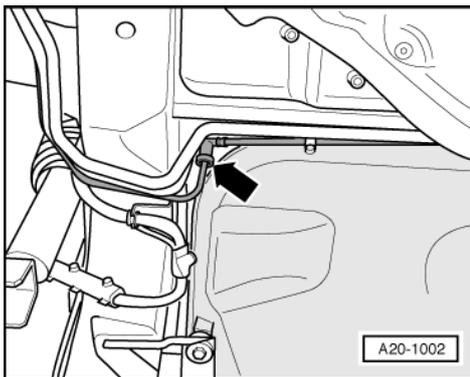


- -> Unplug connectors:

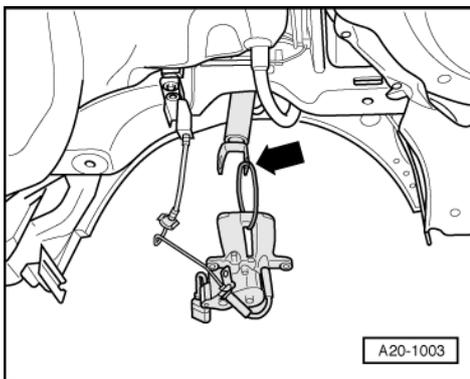
- 1 - To metering pump for auxiliary/additional heater
- 3 - To fuel pumps
- 4 - To fuel gauge senders

- Disconnect fuel pipes (press release tabs):

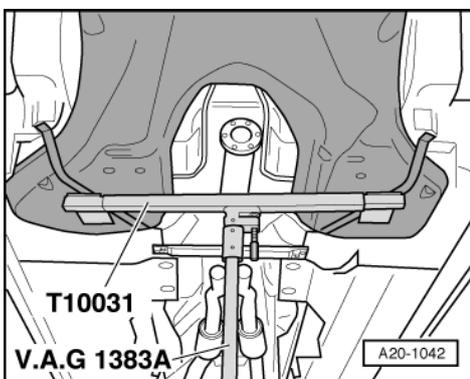
- 2 - Fuel return pipe
- 5 - Fuel pipe to metering pump for auxiliary/additional heater
- 6 - Fuel supply pipe



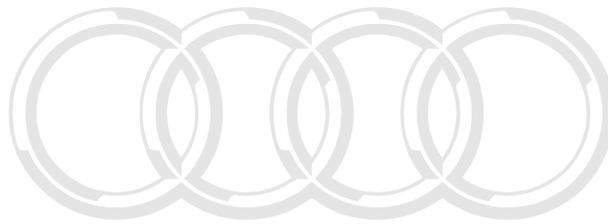
- -> Disconnect breather pipe -arrow- at rear left of fuel tank (press release tab).



- -> Use wire to tie up brake calipers of removed rear axle to suspension struts (previously suspended from fuel tank holders).

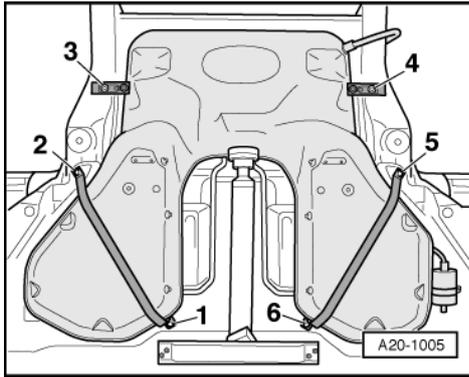


- -> Position engine/gearbox lifter V.A.G 1383 A with mount T10031 (without threaded rods) beneath fuel tank to provide support.
- Support fuel tank with V.A.G 1383 A and mount T10031.
- Second mechanic is additionally required to support rear edge of fuel tank by hand.



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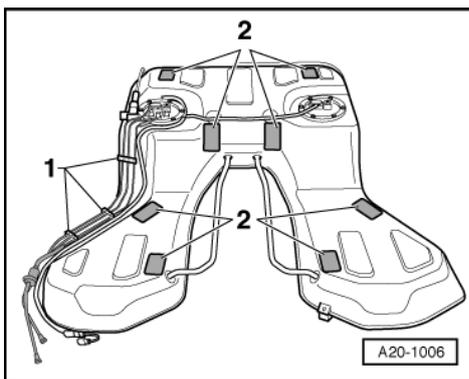


Attention:
 To reduce weight, fuel tank must be empty on removal.

- -> Screw out bolts -1 ... 6- and swivel fuel tank holders to front if necessary.
- Start by lowering rear of fuel tank slightly to enable filler neck to be guided out of body.
- Then lower fuel tank using engine/gearbox lifter V.A.G 1383 A.

Note:

Fig. shows fuel tank without engine/gearbox lifter V.A.G 1383 A.



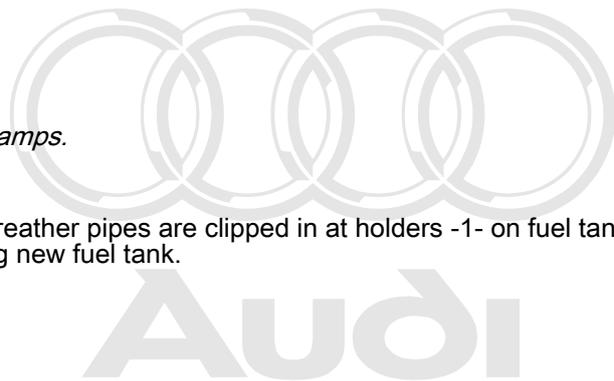
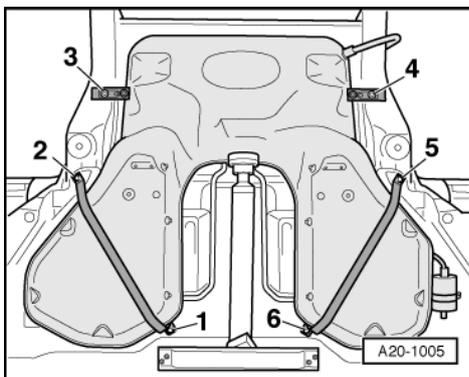
Installing

Note:

Secure all hose connections with standard hose clamps.

=> Parts List

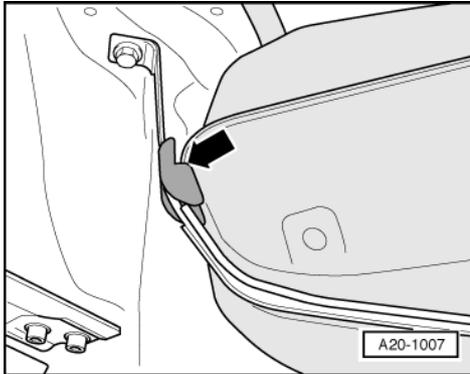
- -> Check whether fuel supply, fuel return and breather pipes are clipped in at holders -1- on fuel tank.
- Bond pads -2- to fuel tank as shown when fitting new fuel tank.



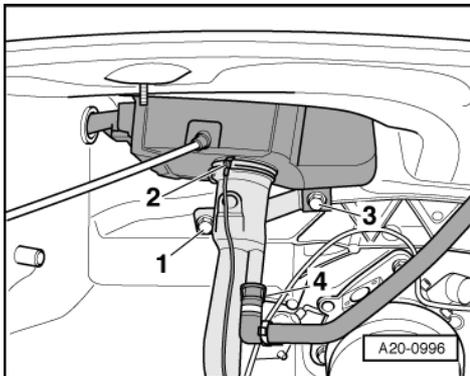
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- Position fuel tank with securing straps and holders on underside of vehicle using engine/gearbox lifter V.A.G 1383 A with mount T10031.
- When positioning fuel tank, make sure filler neck is correctly inserted in body opening.
- -> Screw on fuel tank at attachment points -1-, -2-, -5-, -6- and then at attachment points -3- and -4- (22 Nm).



- -> Make sure spacers of securing straps are positioned directly beneath fuel tank seam -arrow-.



- -> Screw on fuel filler neck with bolts -1- and -3- (23 Nm).
- Press on breather pipe -4- until it is heard to engage.
- Check earth wire -2- and connector tab for traces of oxidation and remove if necessary.

Attention:

After installing, use ohmmeter to check electrical connection between metal ring at fuel filler neck and bare metal part on body.

- ◆ **Specification: approx. 0 ohms**

Perform remaining installation operations in reverse order of removal.

- Install rear axle.

=> Running gear, Front-wheel drive and four-wheel drive; Repair Group 42

- Fit rear right wheel housing liner.

=> General body repairs, Exterior; Repair Group 66

- Install rear section of exhaust system.

=> Engine, Mechanics; Repair Group 26

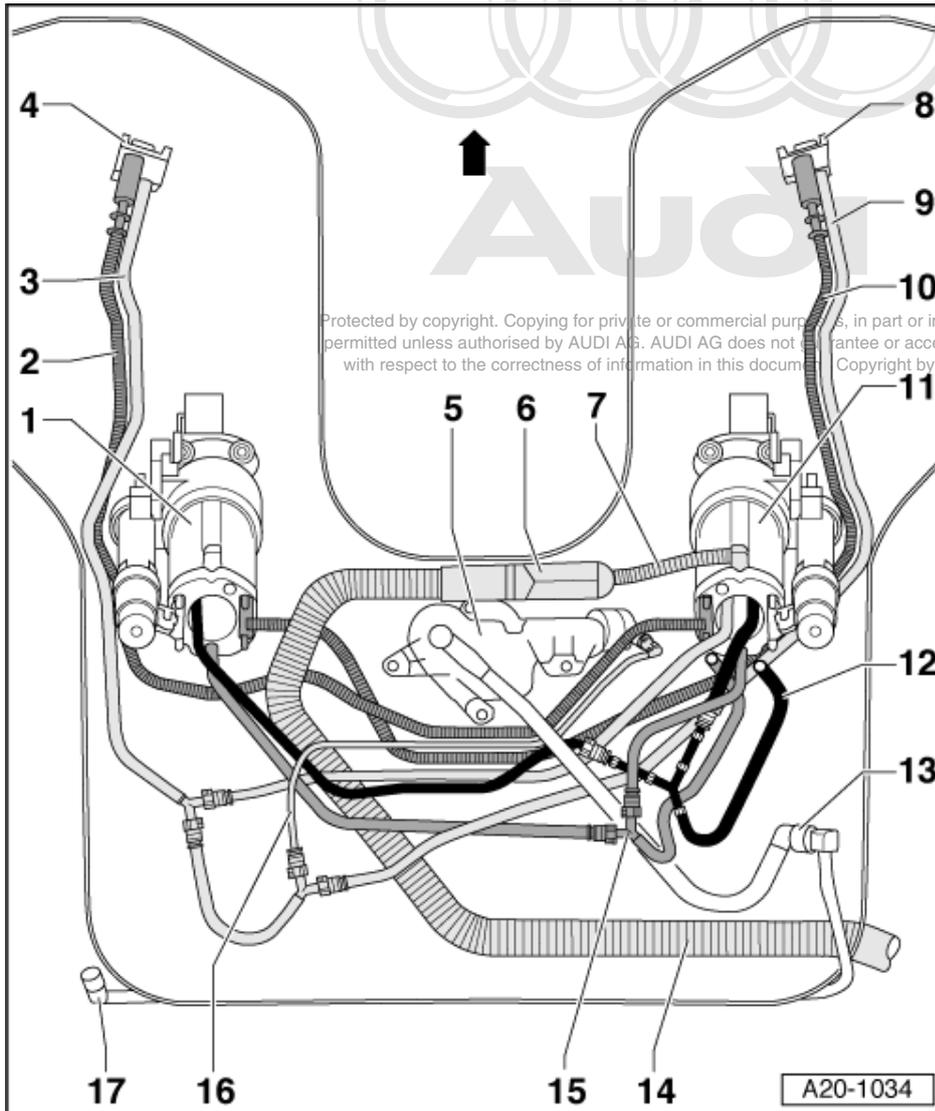
- Connect battery. Heed appropriate instructions for work to be performed following battery connection.

=> Electrical system; Repair Group 27

Tightening torques

Component	Nm
Securing straps/holders for fuel tank to body	22
Fuel filler neck to body	22

2.5 - Exploded view of in-tank pipe routing



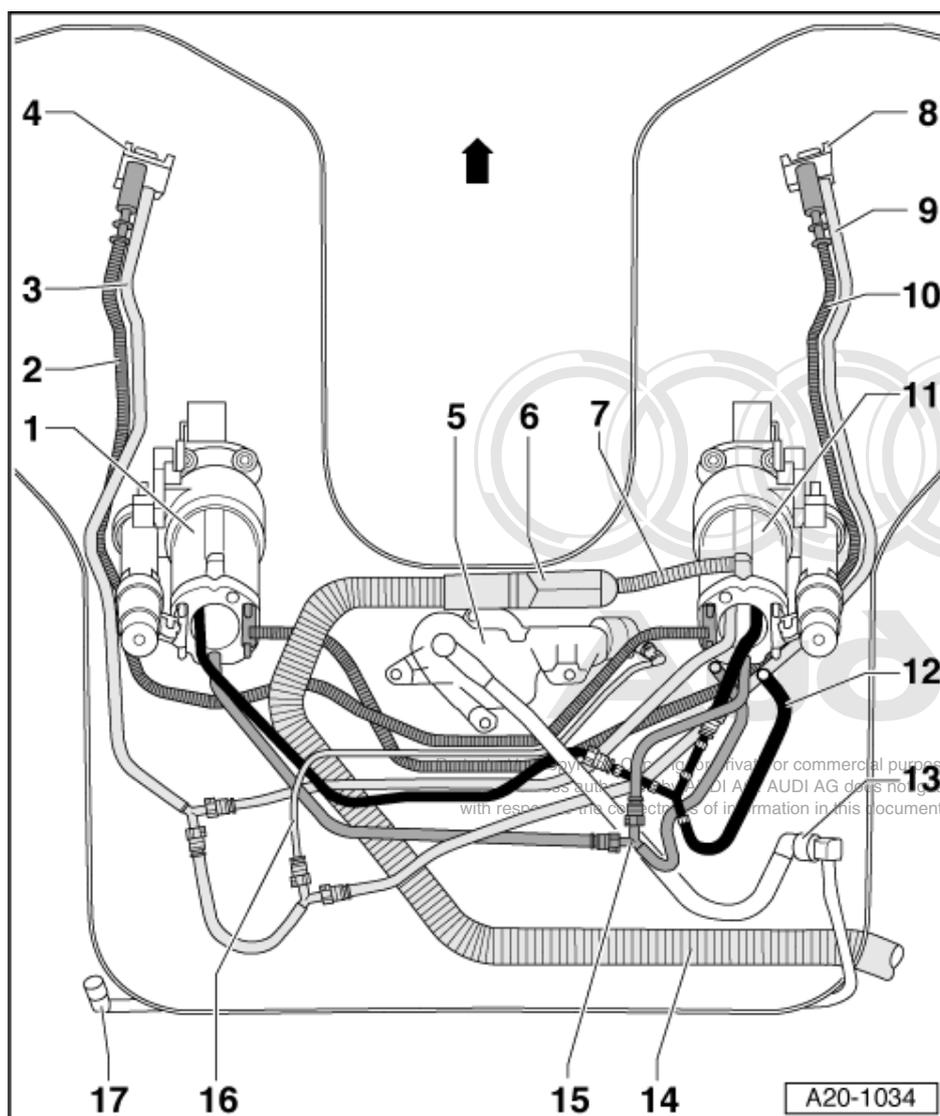
Notes:

- ◆ Fig. shows ideal pipe routing inside fuel tank.
- ◆ With the exception of pipe position shown in => Fig. 1, exact pipe routing is not necessary, but care must be taken to ensure clearance between components and to avoid rattling noise.
- ◆ Arrow faces in direction of travel.

- 1 Left fuel delivery unit with fuel pump -G6
- 2 Fuel delivery pipe



- ◆ From left suction jet pump to right fuel delivery unit



3 Propulsion jet pipe

- ◆ From right fuel pump to left suction jet pump

4 Left suction jet pump

5 Expansion tank

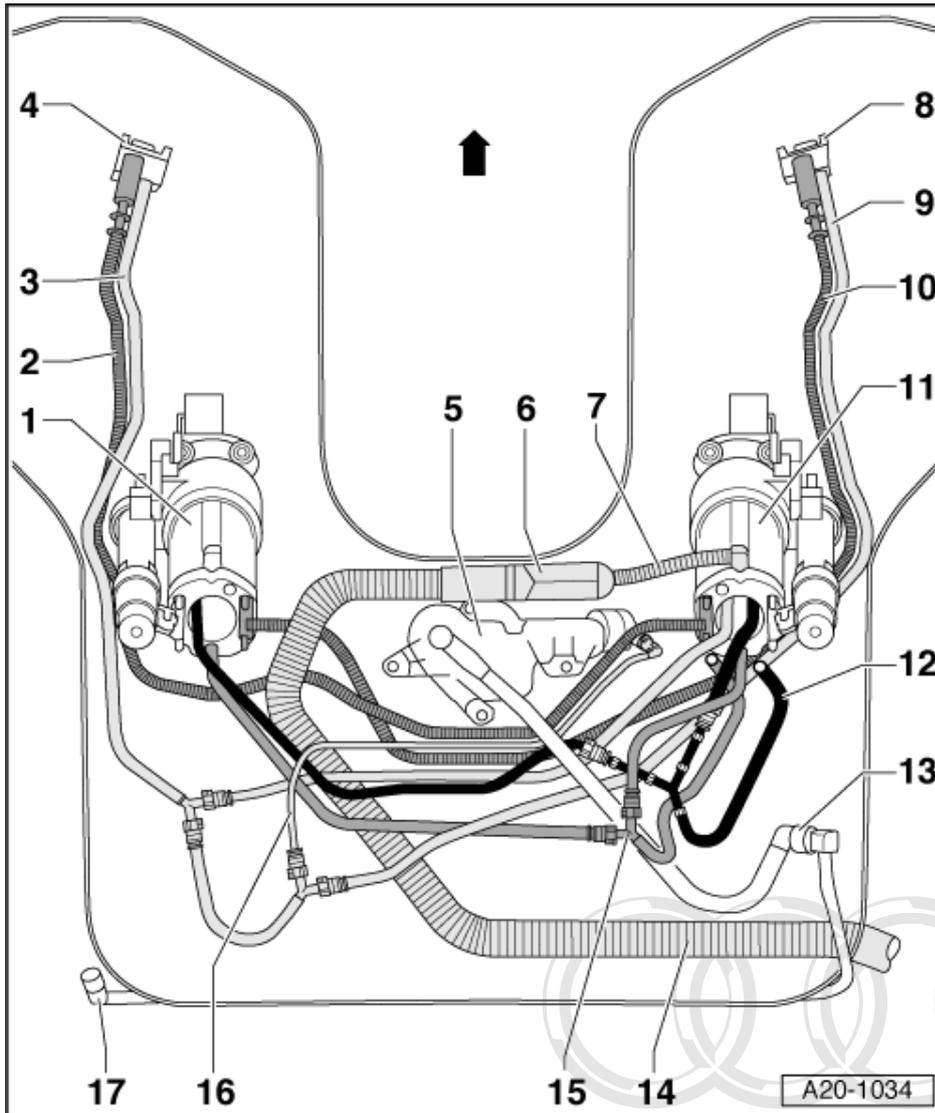
- ◆ With suction jet pump for pumping fuel out of expansion tank

6 Non-return valve

- ◆ For fuel filler pipe

7 Fuel first-fill pipe

- ◆ To right fuel delivery unit
- ◆ On initial filling, ensures that small quantity is immediately supplied to delivery unit



8 Right suction jet pump

9 Propulsion jet pipe

- ◆ From right fuel pump to right suction jet pump

10 Fuel delivery pipe

- ◆ From right suction jet pump to left fuel delivery unit

11 Right fuel delivery unit with fuel pump -G23

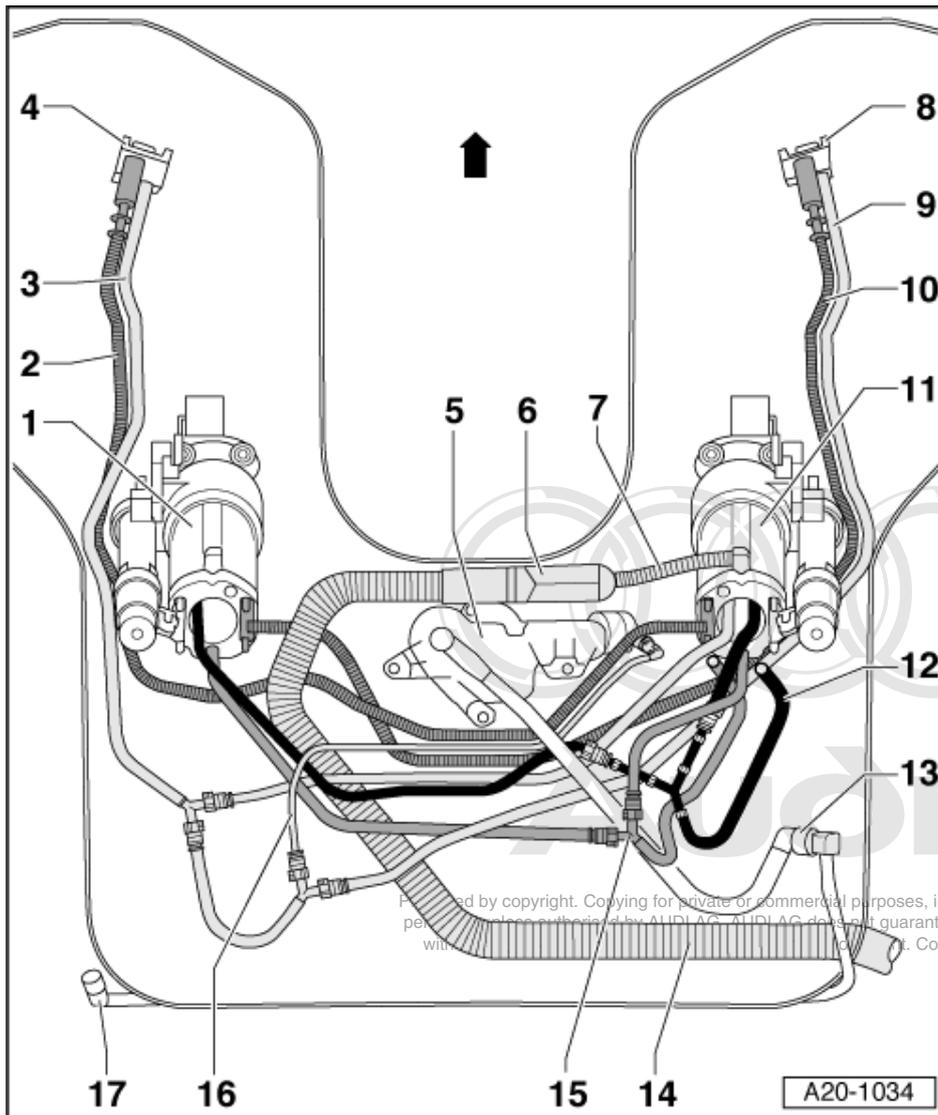
12 Fuel supply pipe

- ◆ From left and right fuel pumps to sealing flange

13 Breather pipe

- ◆ From expansion tank to breather connection on outside of fuel tank

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14 Fuel filler pipe

- ◆ From filler neck to non-return valve in fuel tank

15 Fuel return pipe

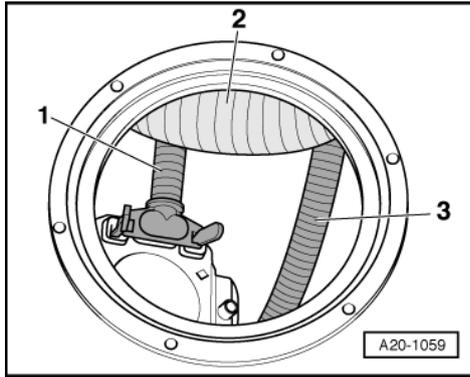
- ◆ From sealing flange to left and right fuel delivery units

16 Propulsion jet pipe

- ◆ To suction jet pump in expansion tank

17 Breather pipe

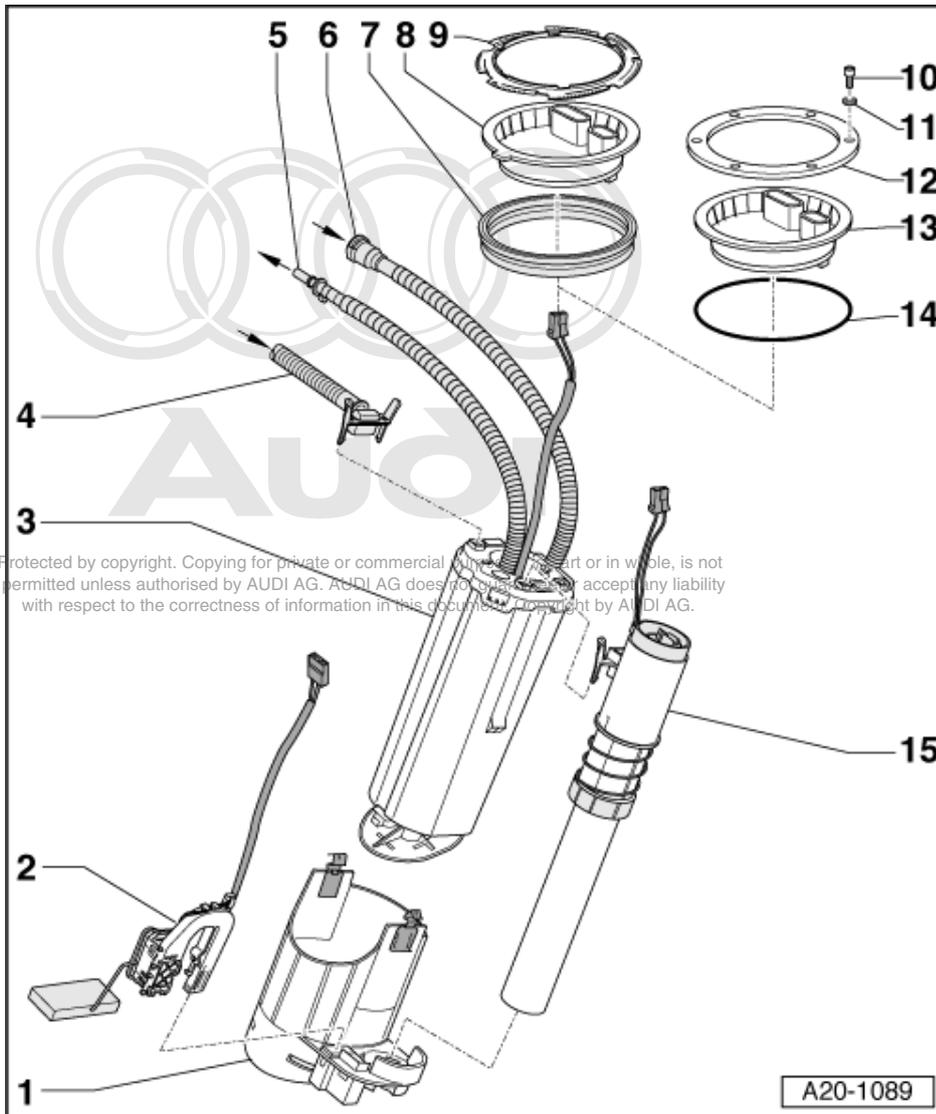
- ◆ To activated charcoal filter in rear left wheel housing



-> Fig.1 Installation position of fuel delivery pipes

Delivery pipes -1- and -3- must be routed beneath fuel filler pipe -2- in area of left fuel tank opening.

2.6 - Exploded view of left fuel delivery unit with fuel pump -G6, fuel gauge sender -G and fuel gauge sender 3 -G237



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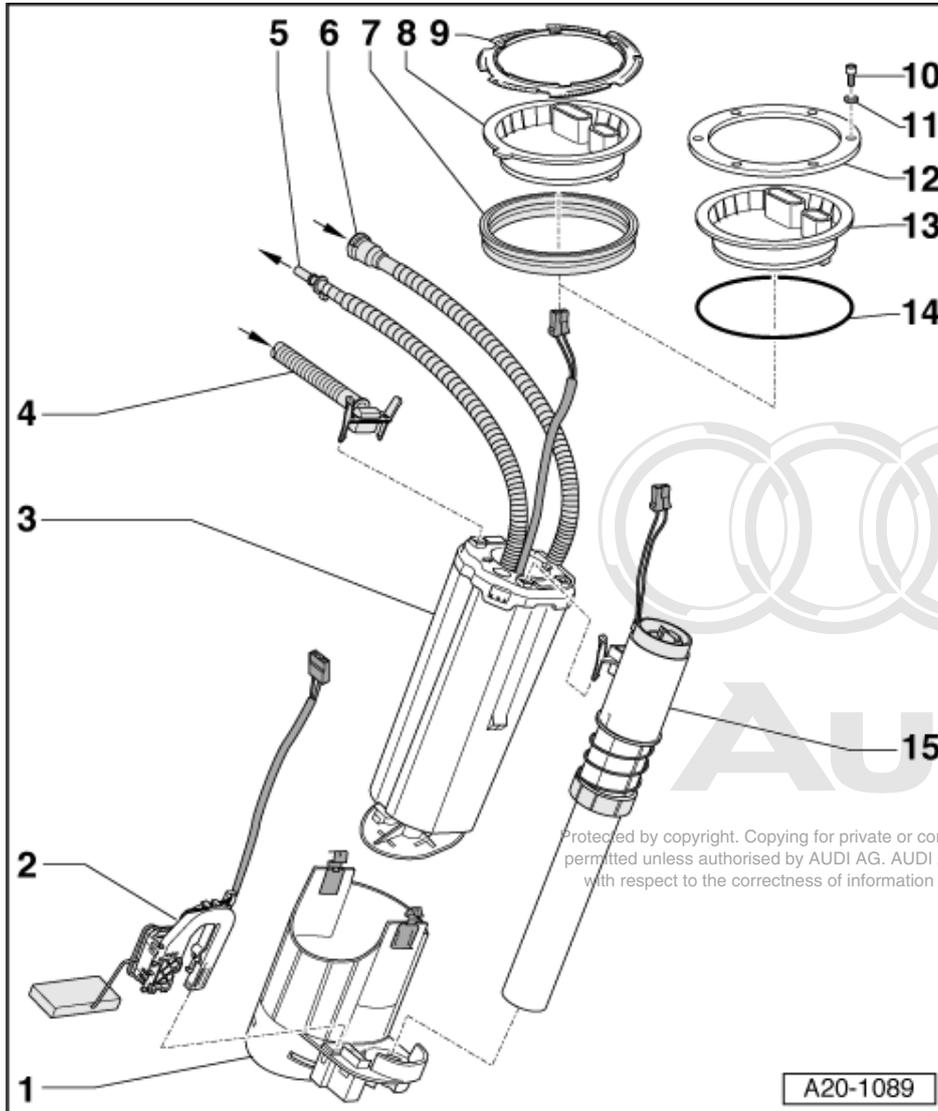


1 Mount

- ◆ For fuel delivery unit

2 Fuel gauge sender -G

- ◆ Clipped in at fuel delivery unit -Item 3 -
- ◆ Checking resistance values
=> Page 76
- ◆ Removing and installing
=> Page 78



3 Left fuel delivery unit

- ◆ With fuel pump -G6
- ◆ Clipped in at mount -Item 3 -
- ◆ Different versions, assignment

=> Parts List

- ◆ Electrical check on fuel pump
=> Page 28
- ◆ Checking holding pressure

=> Motronic injection and ignition system; Repair Group 24

- ◆ Removing and installing

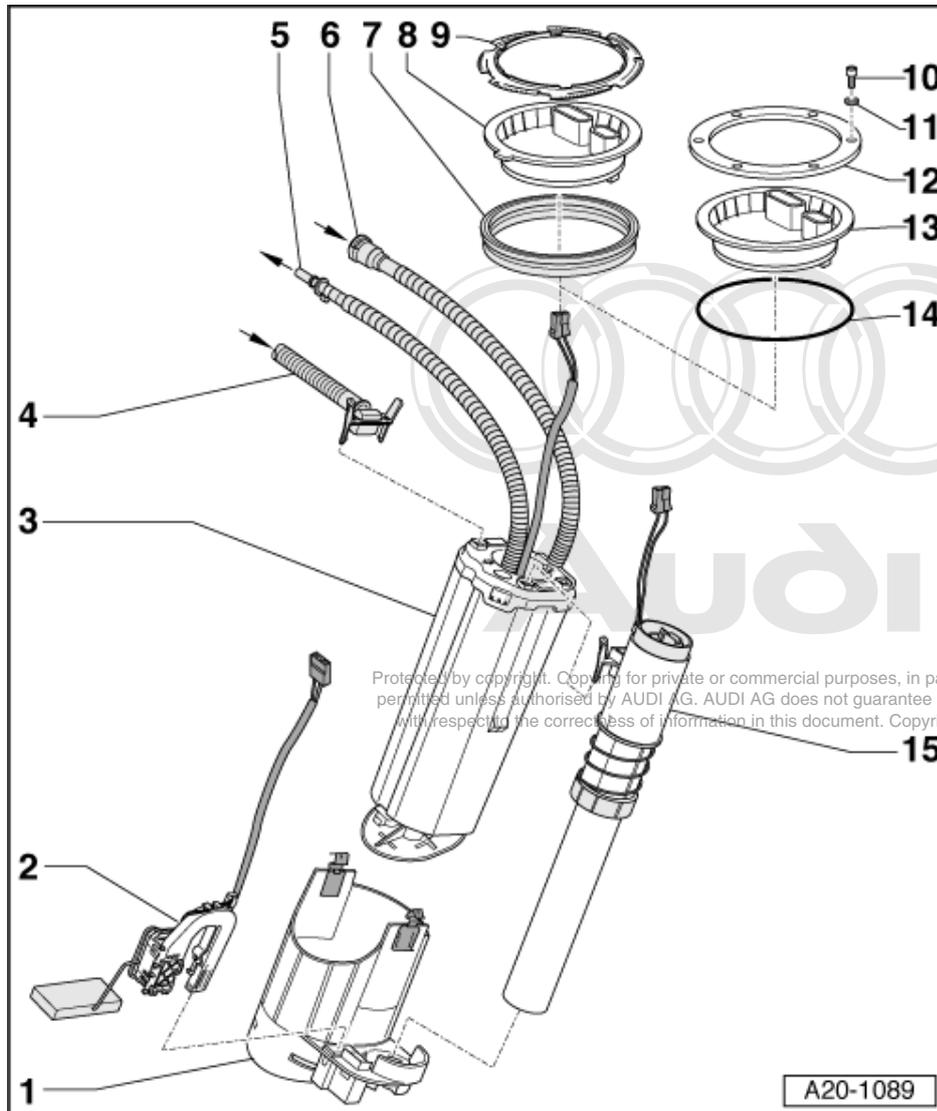
=> Page 32

4 Fuel delivery pipe

- ◆ From right suction jet pump
- ◆ Clipped in at fuel delivery unit -Item 3 -

5 Fuel supply pipe

- ◆ Plug-in coupling is located on right side of fuel tank
- ◆ Press release tab on connection to detach



6 Fuel return pipe

- ◆ Plug-in coupling is located on right side of fuel tank
- ◆ Press release tab on connection to detach

7 Sealing ring

- ◆ For vehicles as of 10.02
- ◆ Replace
- ◆ When fitting, insert dry sealing ring in fuel tank opening

8 Left sealing flange

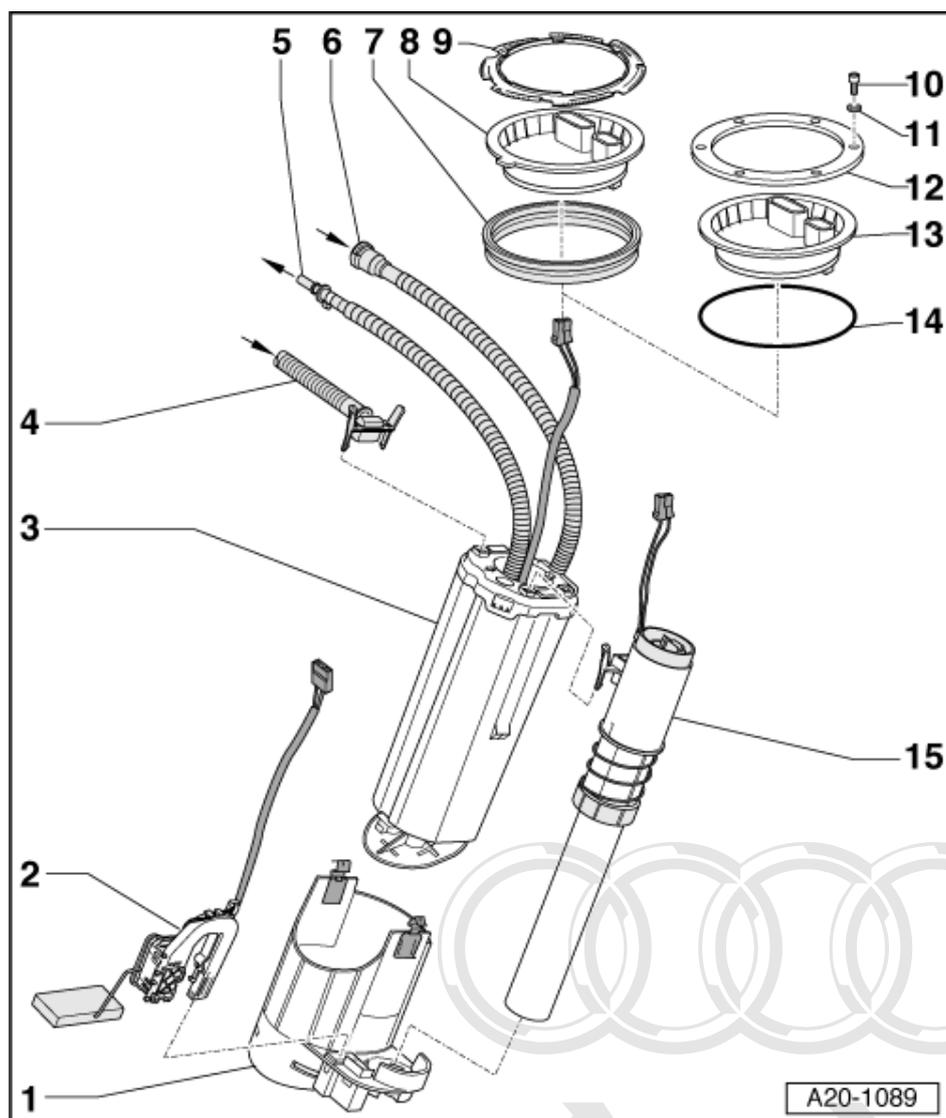
- ◆ For vehicles as of 10.02
- ◆ Installation position => Fig. 2

9 Locking ring

- ◆ For vehicles as of 10.02
- ◆ Use spanner 3087 to remove and install



- ◆ Tighten to 120 Nm



10 10 Nm

- ◆ For vehicles up to 10.02
- ◆ Tighten bolts diagonally

11 Washer

- ◆ For vehicles up to 10.02

12 Securing ring

- ◆ For sealing flange
- ◆ For vehicles up to 10.02

13 Left sealing flange

- ◆ For vehicles up to 10.02
- ◆ Installation position => Fig. 1

14 O-ring

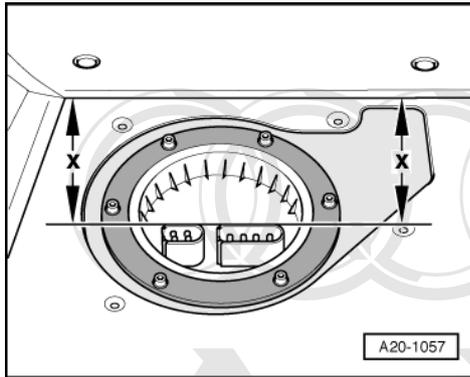
- ◆ For vehicles up to 10.02
- ◆ Replace

15 Fuel gauge sender 3 -G237

- ◆ Clipped in at mount -Item 3 -
- ◆ Checking resistance values => Page 81
- ◆ Removing and installing

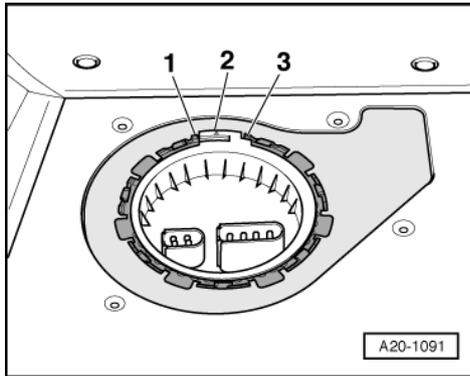
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=> Page 83



-> Fig. 1 Installation position of left sealing flange - vehicles up to 10.02

- Insert sealing flange with new O-ring. Installation position:
 - Connectors at right angles to direction of travel
 - Dimension x on left = Dimension x on right

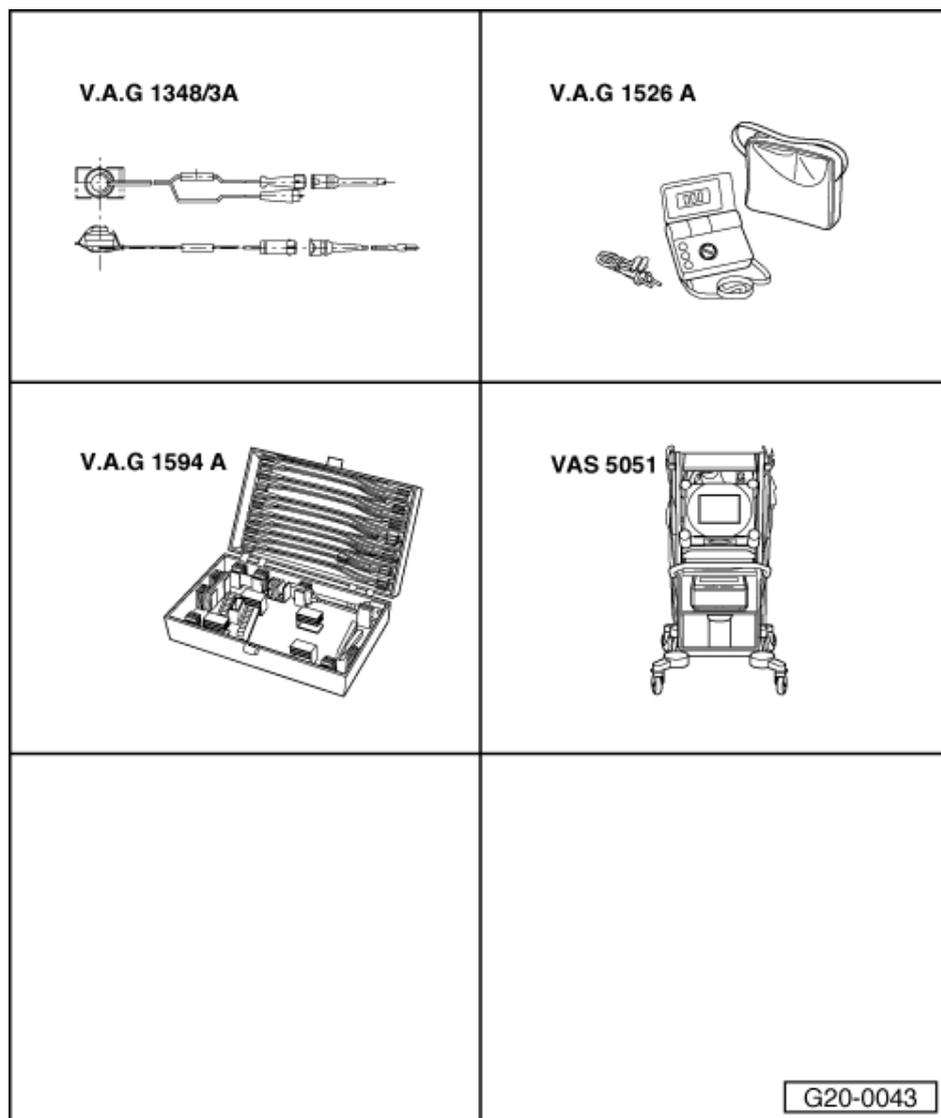


-> Fig. 2 Installation position of left sealing flange - vehicles as of 10.02

- Insert new dry sealing flange gasket in fuel tank opening.
- Insert sealing flange in fuel tank, paying attention to installation position.
 - Lug -2- at sealing flange must be located between tabs -1- and -3- at fuel tank

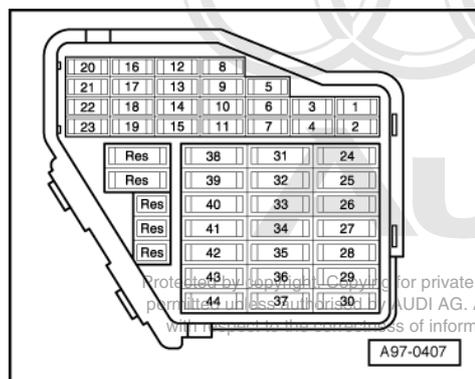


2.7 - Electrical check on fuel pump -G6 (left)



Special tools and workshop equipment required

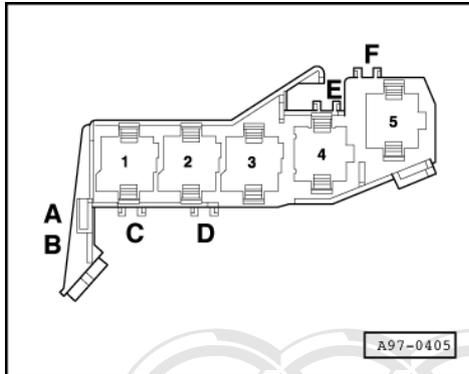
- ◆ V.A.G 1348/3A with V.A.G 1348/3-2
- ◆ V.A.G 1526 A
- ◆ V.A.G 1594 A
- ◆ VAS 5051 with VAS 5051/9



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Test requirements:

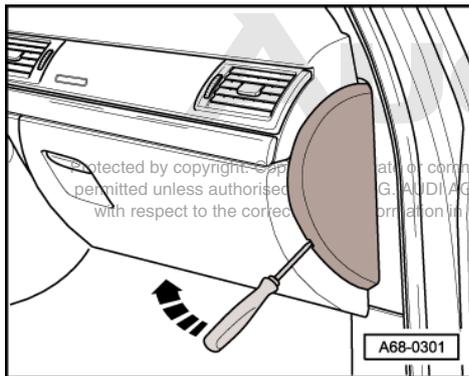
- Battery voltage at least 12.7 V
- -> Fuse SC31 (in dash panel fuse box on right) OK



- -> Fuel-pump relay OK (on relay and fuse box in footwell, front right), position 4; Checking

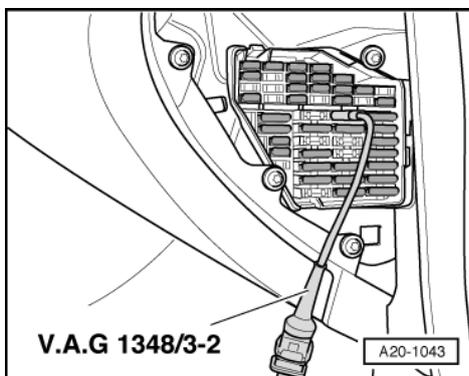
=> Motronic injection and ignition system; Repair Group 24

- Fuel filter OK
- Ignition off



Checking power supply

- -> Use screwdriver to prise off cover on right of dash panel -arrow-.



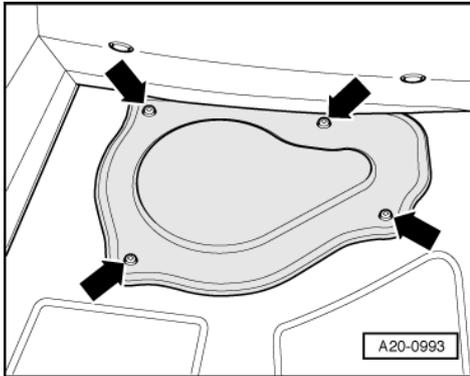
- Take out fuse SC31 at fuse carrier (in dash panel fuse box on right, position 31) (centre row, 1st large fuse from top).
- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to left terminal of socket of fuse SC31 (in dash panel fuse box on right) -arrow-.



- Connect pick-off to vehicle battery (+).
- Press switch on remote control.
 - Pump running noise must be audible in vicinity of fuel tank

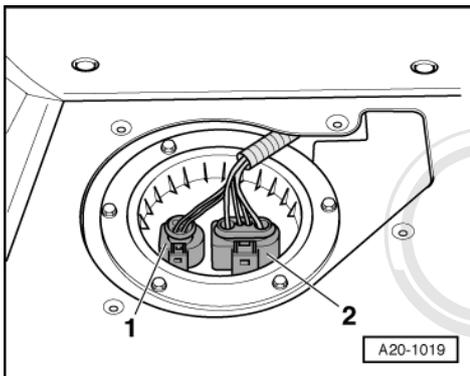
Note:

Fuel pump is very quiet-running. Avoid background noise whilst checking fuel pump. Have second mechanic perform check if necessary.



If running noise is not audible:

- Remove luggage compartment floor lining.
- -> Unscrew cover for left sealing flange -arrows-.

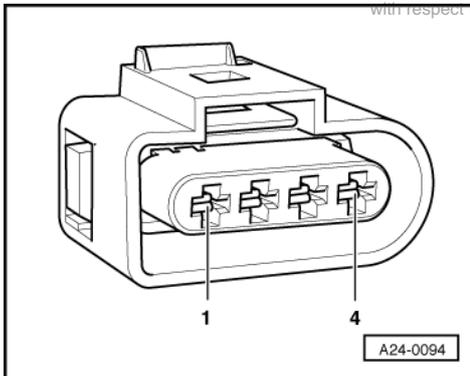


- -> Carefully release connector -2- at left sealing flange and unplug.

Note:

Ignore item -1-.

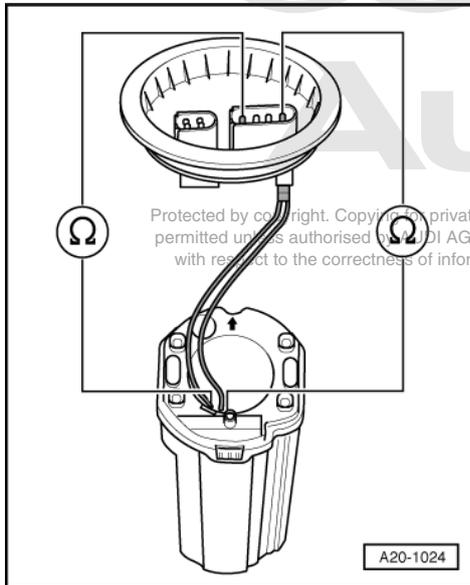
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- -> Connect up multimeter for voltage measurement between contacts 1 and 4 of connector.
- Press switch on remote control.
 - Specification: approx. battery voltage

If reading does not match specification:

- Use current flow diagram to eliminate open circuit in wiring.

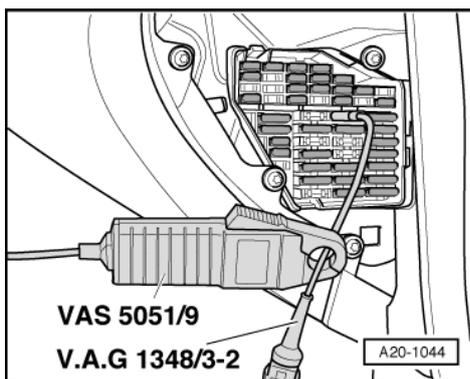


If reading matches specification although pump running noise cannot be heard:

- Remove left fuel delivery unit => Page 32 .
- -> Check connection of wiring between flange and fuel pump/check for continuity.

If no fault is found in wiring:

- Fuel pump is defective. Replace left fuel delivery unit => Page 32 .
- Install left fuel delivery unit => Page 38 .



Checking current input

Test requirement:

- Fuel pump power supply OK
=> Page 29
- Take out fuse SC31 at fuse carrier (in dash panel fuse box on right, position 31) (centre row, 1st large fuse from top).
- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to left terminal of socket of fuse SC31 (in dash panel fuse box on right) -arrow-.



- Connect pick-off to vehicle battery (+).
- Connect up vehicle diagnostic, testing and information system VAS 5051 with current probe VAS 5051/9 to wire of remote control.
- Press switch on remote control.
- Measure current input of fuel pump.
 - Specification: approx. 8 A

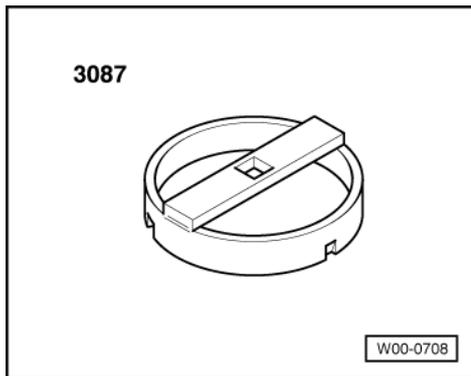
If reading does not match specification:

Note:

Current input reading of 4 A indicates dry running of fuel pump.

Reading	Cause of trouble	Remedy
approx. 4 A	- Fuel tank empty	- Fill tank
	- Housing of fuel delivery unit leaking	- Replace fuel delivery unit=>Page 32
0 A	- Fuel pump -G6 defective	- Replace fuel delivery unit=>Page 32

2.8 - Removing and installing left fuel delivery unit with fuel pump -G6



Special tools and workshop equipment required

Vehicles as of 10.02:

- ◆ Fuel gauge sender wrench 3087

Removing

Heed safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

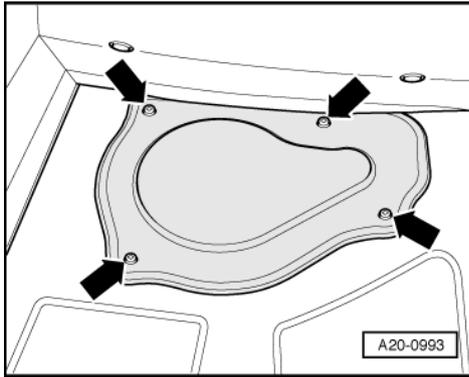
- When removing fuel delivery unit, fuel tank must not be more than 1/3 full. Drain fuel tank if necessary. Procedure => Page 7 .

Attention:

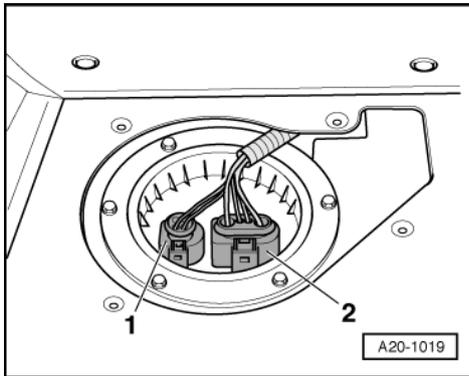
Heed appropriate instructions for battery disconnection. =>Electrical system; Repair Group 27

- Disconnect battery earth strap with ignition switched off.

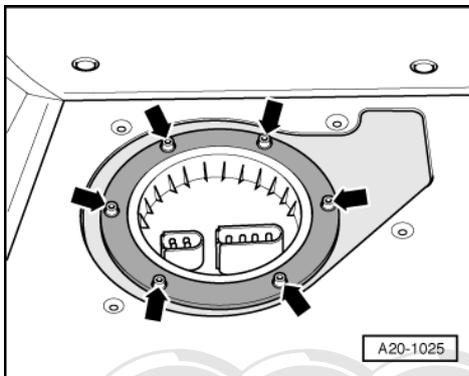
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- Remove luggage compartment floor lining.
- -> Unscrew cover for left sealing flange -arrows-.

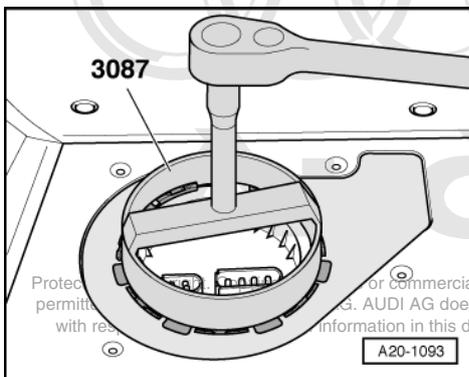


- -> Carefully release connectors -1- and -2- at left sealing flange and unplug.



Vehicles up to 10.02:

- -> Screw out bolts -arrows- and detach securing ring for left sealing flange.

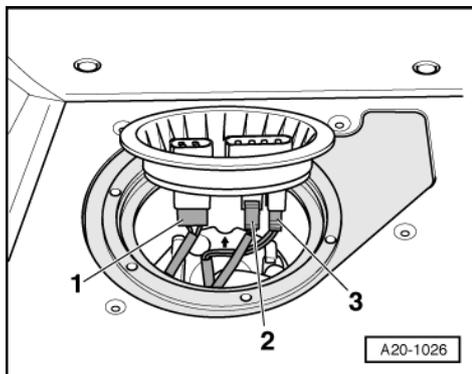


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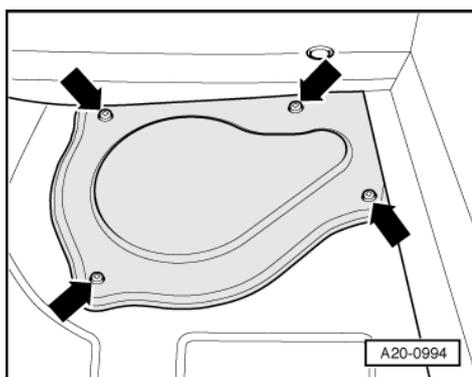
Vehicles as of 10.02:

- -> Use fuel gauge sender wrench 3087 to unscrew locking ring.

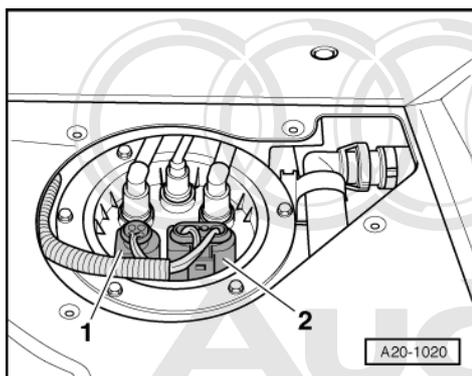


All models:

- Detach sealing flange and sealing ring/O-ring.
- -> Unplug connectors -1 ... 3- on underside of left sealing flange.

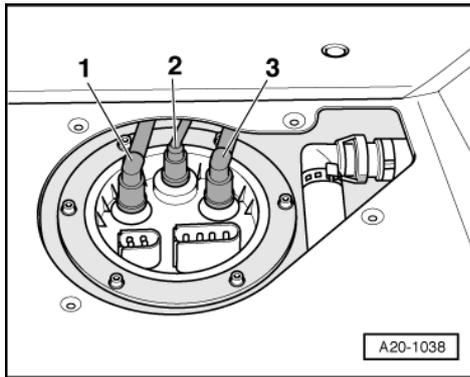


- -> Unscrew cover for right sealing flange -arrows-.



- -> Carefully release connectors -1- and -2- at right sealing flange and unplug.

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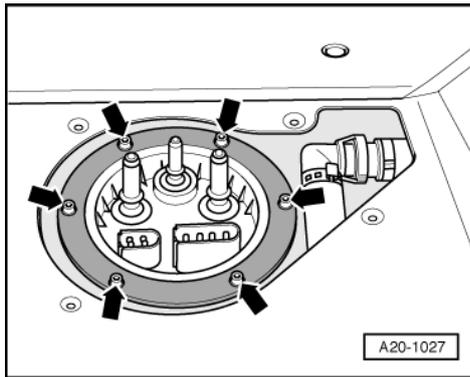


Attention:
 Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.

- -> Mark and detach (press release tab) fuel supply pipe -1- and fuel return pipe -3-.

Vehicles with auxiliary heater:

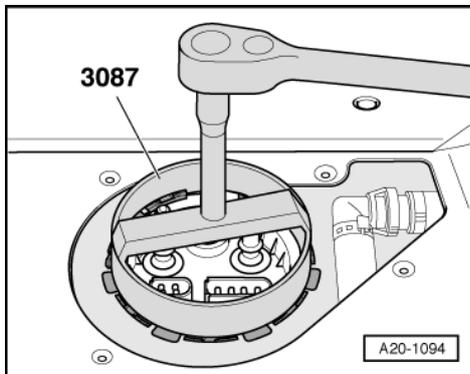
- Additionally disconnect fuel supply pipe -2- to auxiliary heater.



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Vehicles up to 10.02:

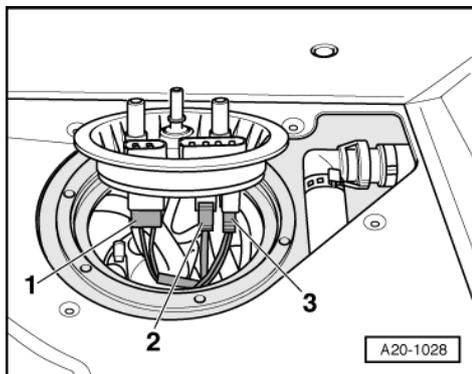
- -> Screw out bolts -arrows- and detach securing ring for right sealing flange.





Vehicles as of 10.02:

- -> Use fuel gauge sender wrench 3087 to unscrew locking ring.

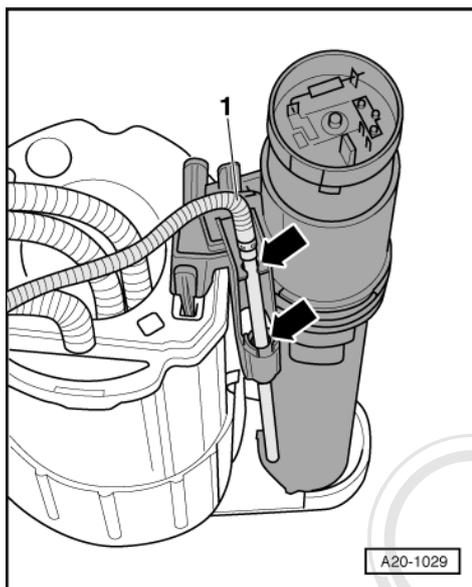


All models:

- Detach sealing flange and sealing ring/O-ring.
- -> Unplug connectors -1 ... 3- on underside of right sealing flange.

Notes:

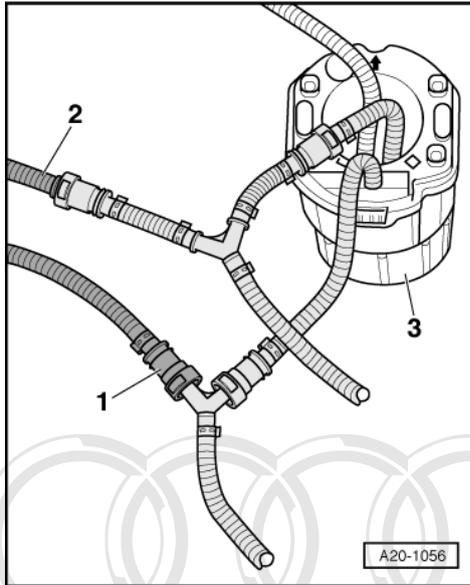
- ♦ For disconnection of pipe couplings described in the following, pull out fuel pipes to fuel tank opening.
- ♦ Certain components have been removed in the following illustrations.



Vehicles with auxiliary heater:

- -> Pull suction pipe -1- for auxiliary heater out of holders -arrows- at immersed tube sender.

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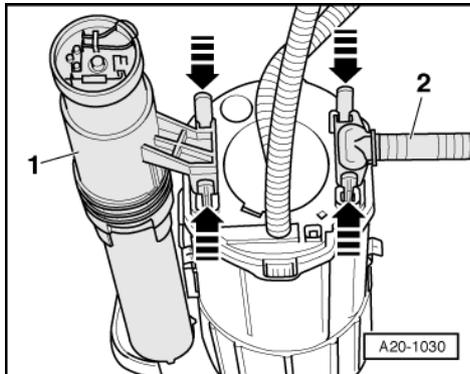
All models:

- -> Press release tab and disconnect fuel pipes -1- and -2- to left fuel delivery unit through right fuel tank opening.

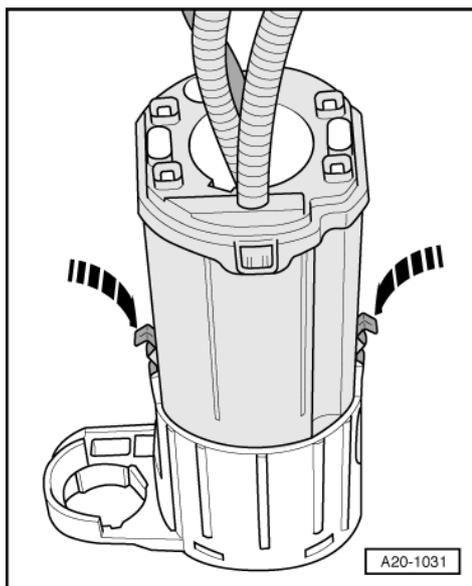
3 - Right fuel delivery unit with fuel pump -G23

- Following disconnection, pull both fuel pipes out of left fuel tank opening.

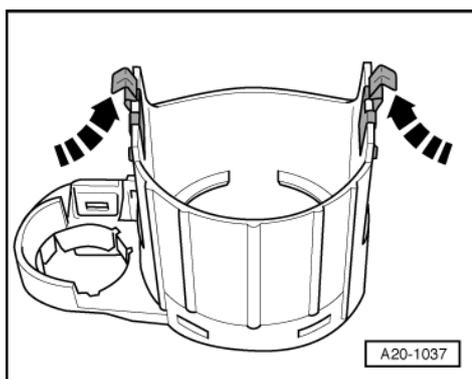
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- -> Through left fuel tank opening, press release tabs -arrows- and detach both delivery pipe -2- and fuel gauge sender 3 -G237 -Item 1-.
- Swivel aside fuel gauge sender 3 -G237 to left.

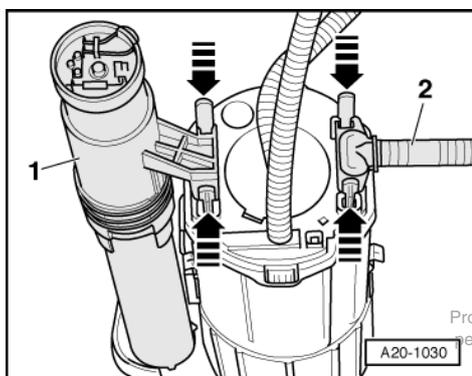


- -> Press down both retainers at mount for fuel delivery unit -arrows-.
- Take out fuel delivery unit.

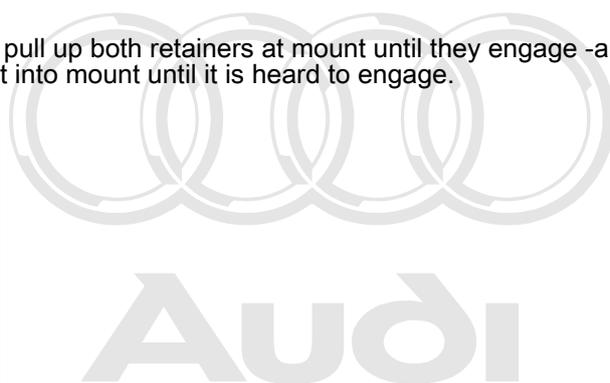


Installing

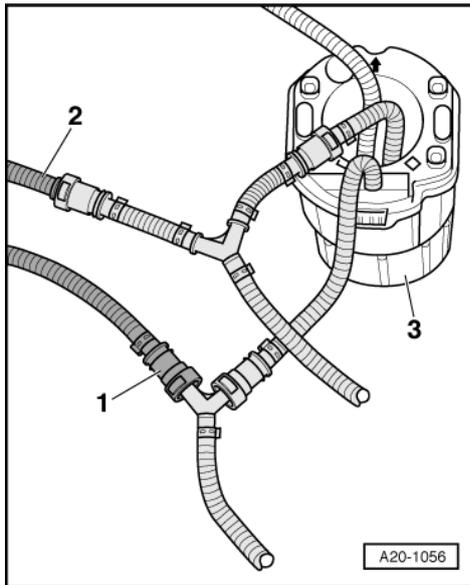
- -> Before installing fuel delivery unit, pull up both retainers at mount until they engage -arrows-.
- Then carefully press fuel delivery unit into mount until it is heard to engage.



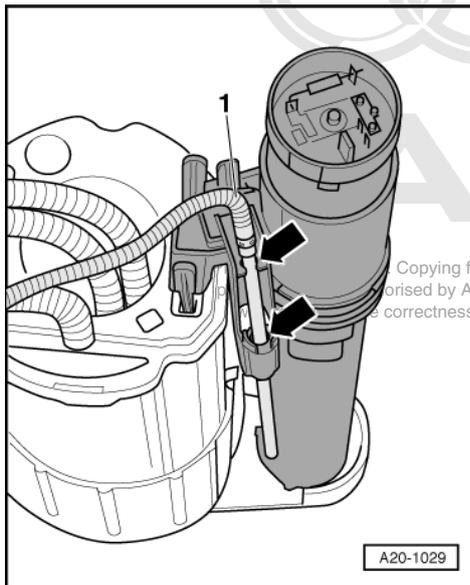
- -> Attach delivery pipe -2- and fuel gauge sender 3 -G237 -Item 1- (components must be heard to engage).



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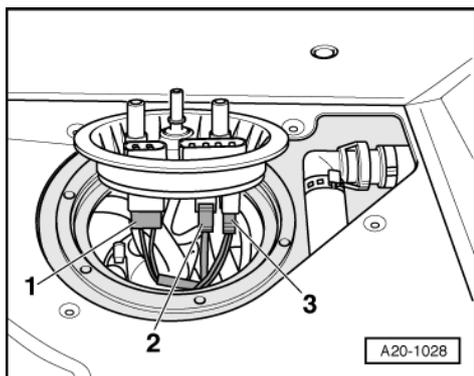


- Push supply and return pipe of left fuel delivery unit through to right fuel tank chamber.
 - -> Reach into right opening in fuel tank and attach fuel pipes -1- and -2- (pipes must be heard to engage).
- 3 - Right fuel delivery unit with fuel pump -G23



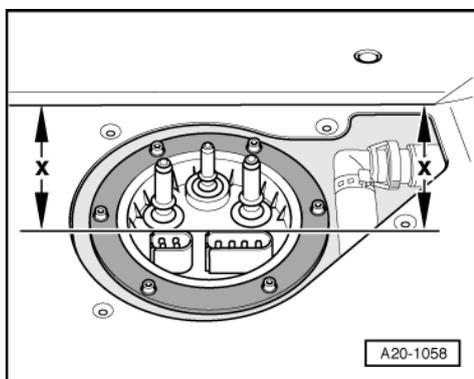
Vehicles with auxiliary heater:

- -> Insert suction pipe -1- for auxiliary heater in holders -arrows- at immersed tube sender.



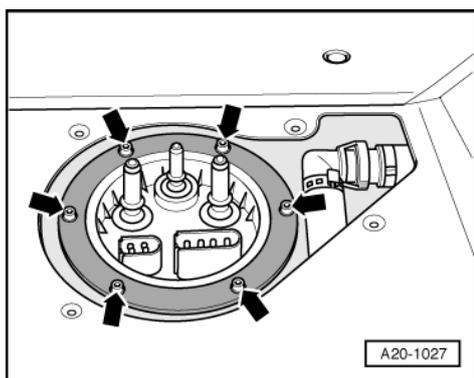
All models:

- -> Plug in connectors -1 ... 3- on underside of right sealing flange.

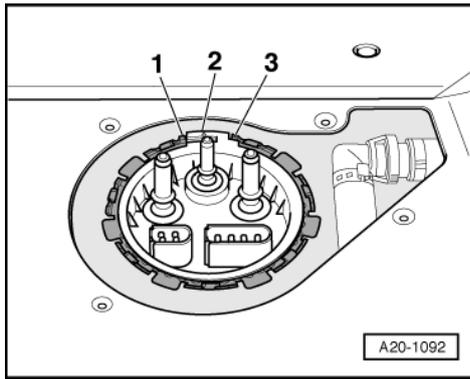


Vehicles up to 10.02:

- Insert right sealing flange with new O-ring. Installation position:
 - -> Connectors at right angles to direction of travel
 - Dimension x on left = Dimension x on right

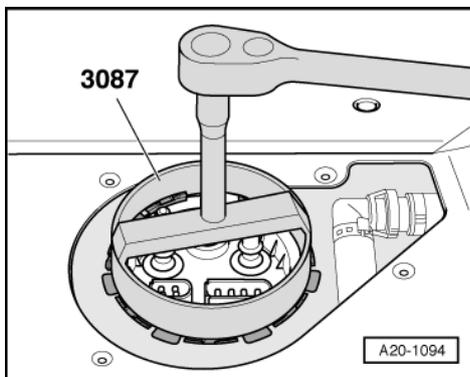


- -> Diagonally screw on securing ring for right sealing flange -arrows-.

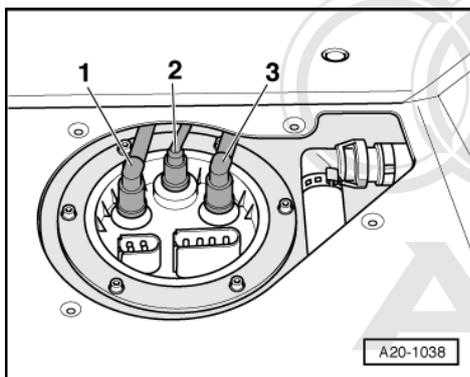


Vehicles as of 10.02:

- Insert new dry sealing flange gasket in fuel tank opening.
- Insert right sealing flange in fuel tank, paying attention to installation position.
 - -> Lug -2- at sealing flange must be located between tabs -1- and -3- at fuel tank



- -> Tighten locking ring (120 Nm).



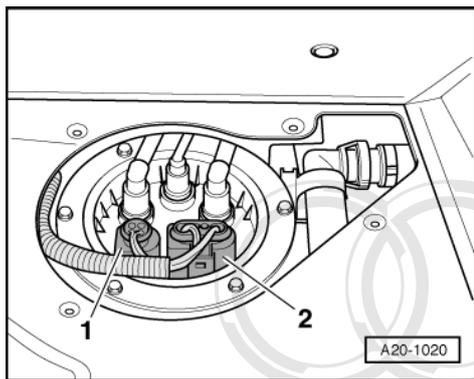
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All models:

- -> Attach fuel supply pipe -1- and fuel return pipe -3- (pipes must be heard to engage).

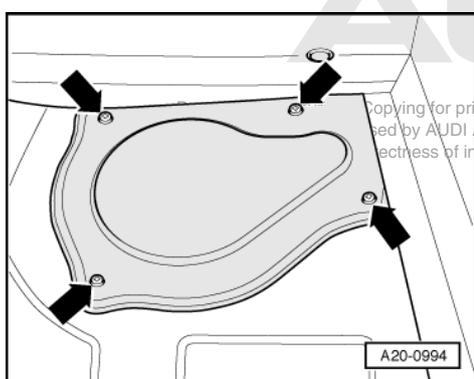
Vehicles with auxiliary heater:

- Additionally attach fuel supply pipe -2- to auxiliary heater (pipe must be heard to engage).



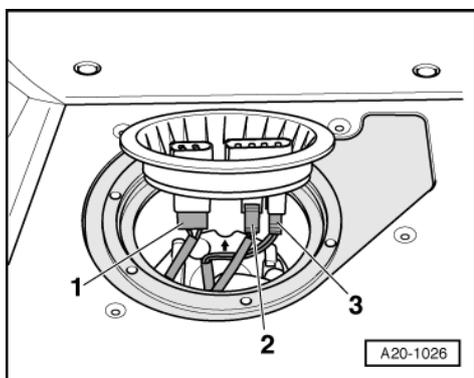
All models:

- -> Plug in connectors -1- and -2- at right sealing flange.

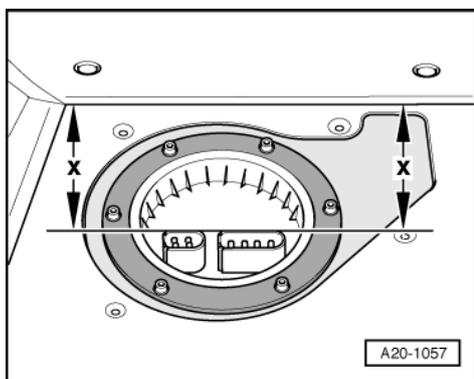


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- -> Screw on cover for right sealing flange -arrows-.

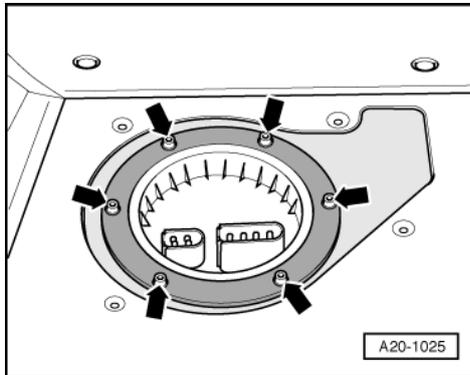


- -> Plug in connectors -1 ... 3- on underside of left sealing flange.

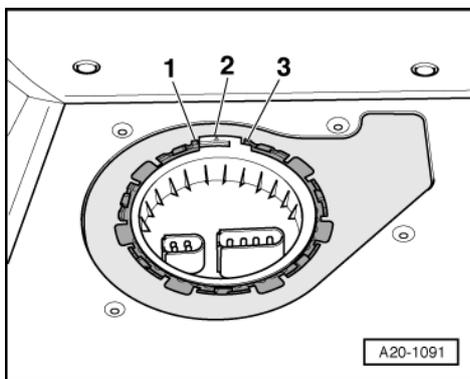


Vehicles up to 10.02:

- Insert left sealing flange with new O-ring. Installation position:
 - -> Connectors at right angles to direction of travel
 - Dimension x on left = Dimension x on right

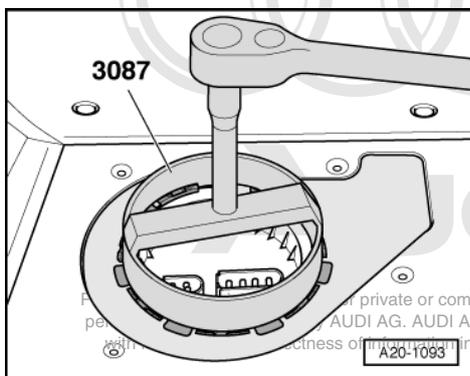


- -> Diagonally screw on securing ring for left sealing flange -arrows-.

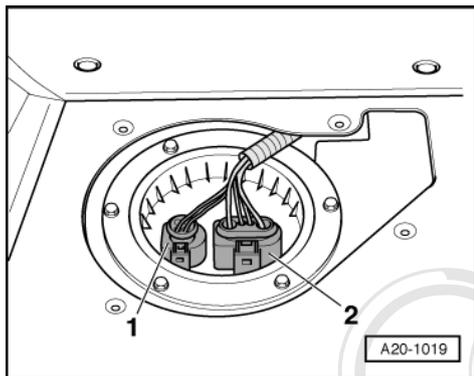


Vehicles as of 10.02:

- Insert new dry sealing flange gasket in fuel tank opening.
- Insert left sealing flange in fuel tank, paying attention to installation position.
 - -> Lug -2- at sealing flange must be located between tabs -1- and -3- at fuel tank

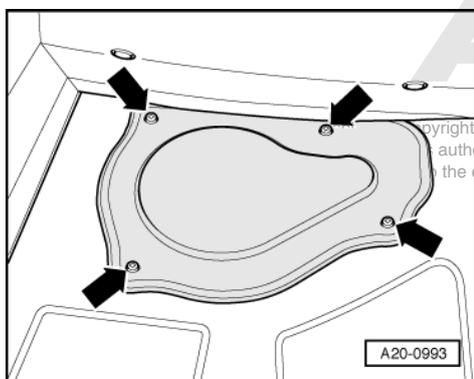


- -> Tighten locking ring (120 Nm).



All models:

- -> Plug in connectors -1- and -2- at left sealing flange.



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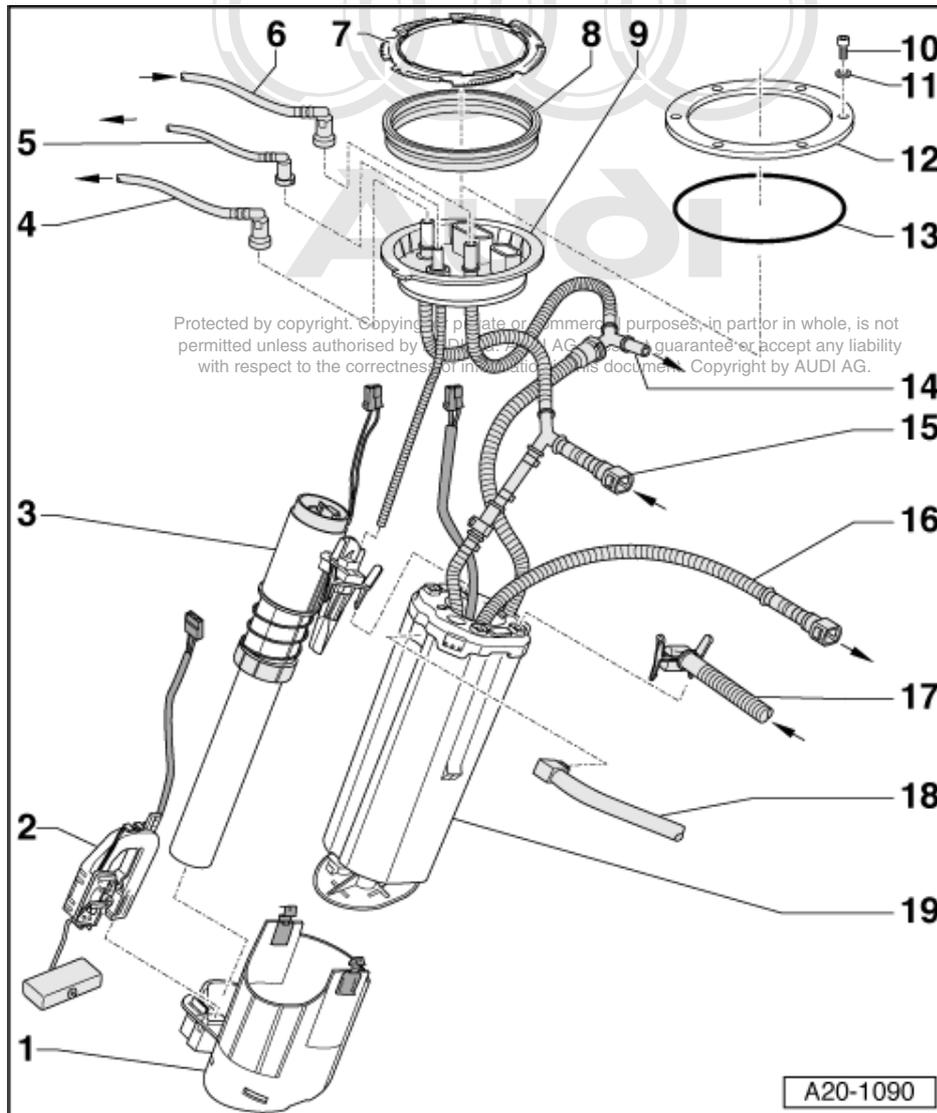
- -> Screw on cover for left sealing flange -arrows-.
- Connect battery. Heed appropriate instructions for work to be performed following battery connection.

=> Electrical system; Repair Group 27

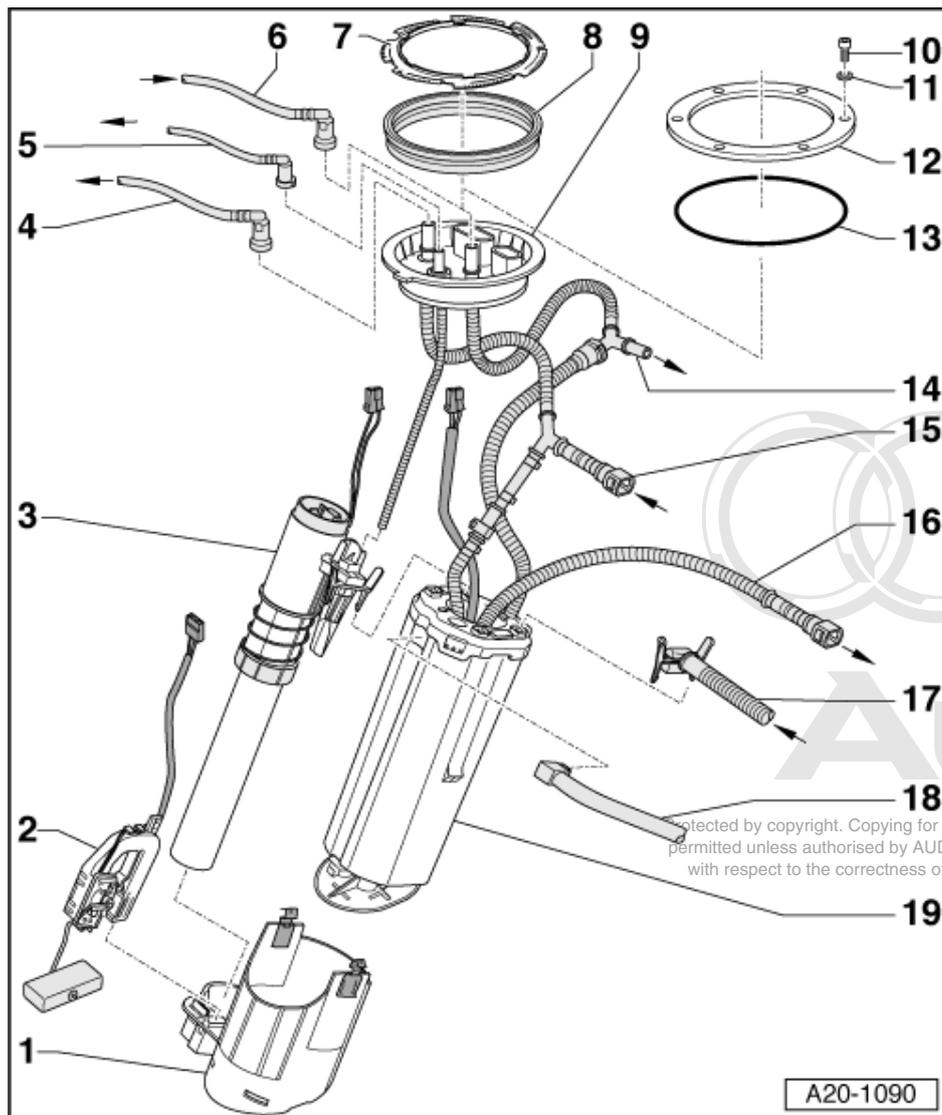
Tightening torques

Component	Nm
Locking ring for fuel delivery unit to fuel tank (up to 10.02)	10
Locking ring for fuel delivery unit (as of 10.02)	120

2.9 - Exploded view of right fuel delivery unit with fuel pump -G23, fuel gauge sender 2 -G169 and fuel gauge sender 4 -G393



- 1 Mount
 - ◆ For fuel delivery unit
- 2 Fuel gauge sender 2 -G169
 - ◆ Clipped in at mount -Item 1 -
 - ◆ Checking resistance values
=> Page 79
 - ◆ Removing and installing
=> Page 81
- 3 Fuel gauge sender 4 -G393
 - ◆ Clipped in at fuel delivery unit -Item 19 -
 - ◆ Checking resistance values
=> Page 89
 - ◆ Removing and installing
=> Page 91



4 Fuel supply pipe

- ◆ To fuel filter
- ◆ Mark before disconnecting
- ◆ Press release tab on connection to detach
- ◆ Do not kink
- ◆ Clip in at fuel tank

5 Fuel supply pipe

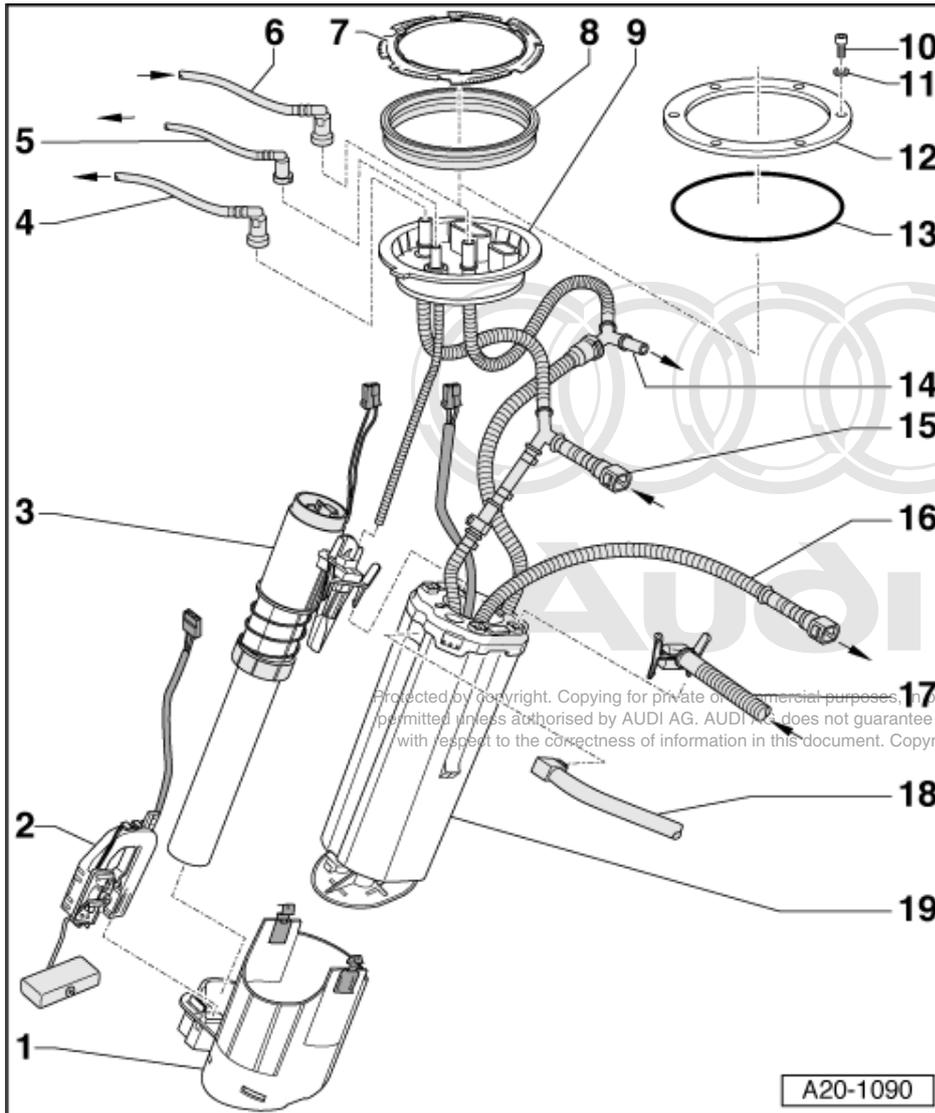
- ◆ To auxiliary heater
- ◆ Press release tab on connection to detach
- ◆ Do not kink
- ◆ Clip in at fuel tank

6 Fuel return pipe

- ◆ From fuel rail
- ◆ Mark before disconnecting
- ◆ Press release tab on connection to detach
- ◆ Do not kink
- ◆ Clip in at fuel tank

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7 Locking ring

- ◆ For vehicles as of 10.02
- ◆ Use spanner 3087 to remove and install
- ◆ Tighten to 120 Nm

8 Sealing ring

- ◆ For vehicles as of 10.02
- ◆ Replace
- ◆ When fitting, insert dry sealing ring in fuel tank opening

9 Right sealing flange

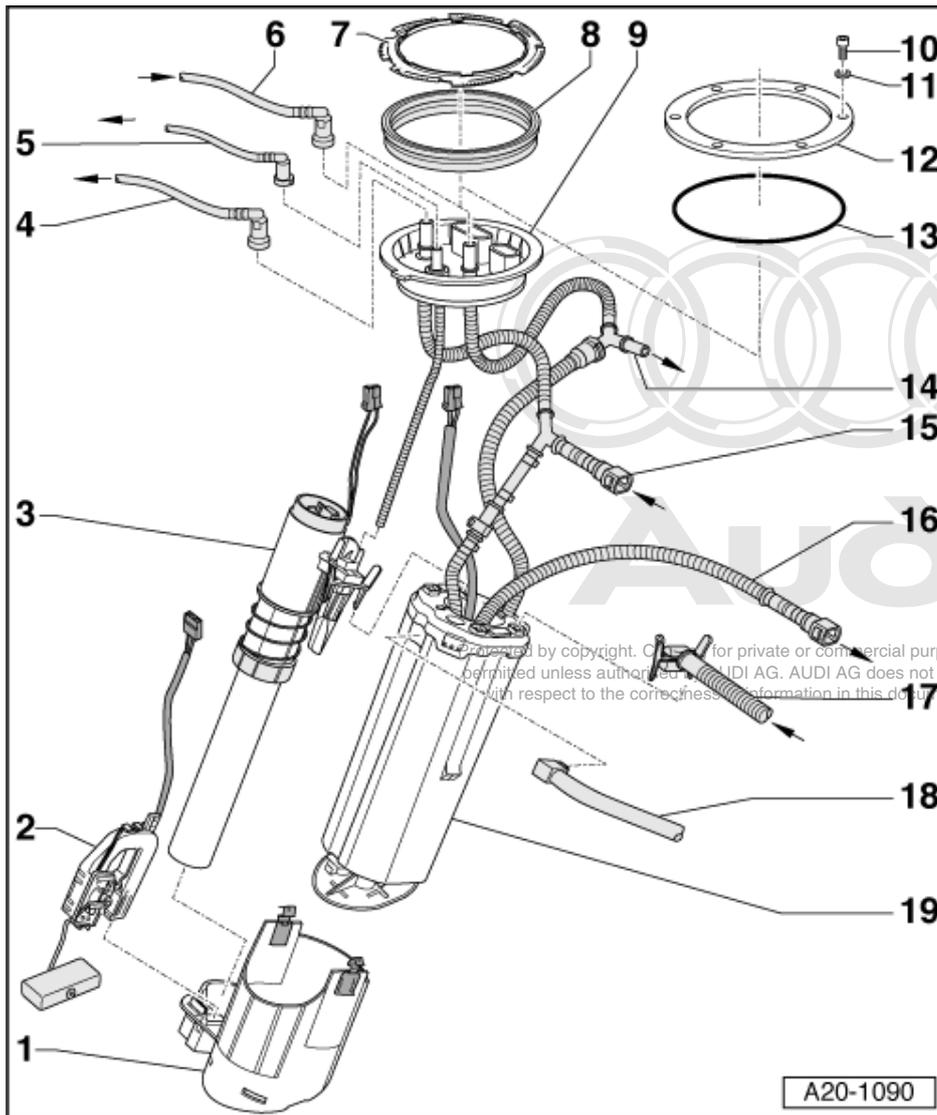
- ◆ Installation position up to 10.02
=>Fig. 1
- ◆ Installation position as of 10.02
=> Fig. 2

10 10 Nm

- ◆ For vehicles up to 10.02
- ◆ Tighten bolts diagonally

11 Washer

- ◆ For vehicles up to 10.02



12 Securing ring

- ◆ For sealing flange
- ◆ For vehicles up to 10.02

13 O-ring

- ◆ For vehicles up to 10.02
- ◆ Replace

14 Fuel return pipe

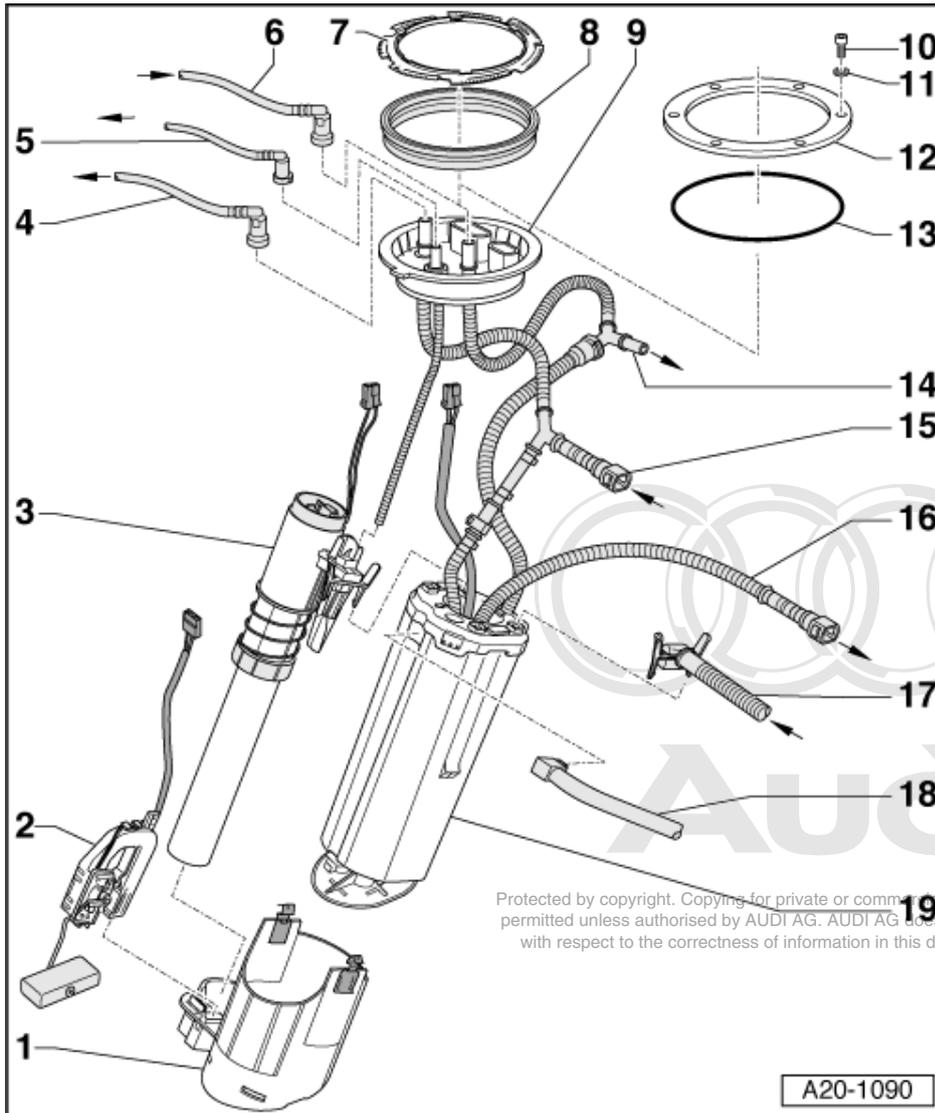
- ◆ To left fuel delivery unit

15 Fuel supply pipe

- ◆ From left fuel delivery unit
- ◆ Press release tab on connection to detach

16 Propulsion jet pipe

- ◆ For suction jet pump
- ◆ Press release tab on connection to detach



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17 Fuel delivery pipe

- ◆ From left suction jet pump
- ◆ Clipped in at fuel delivery unit
- Item 19 -

18 Fuel filler pipe

- ◆ From fuel filler neck
- ◆ Clipped in at fuel delivery unit
- Item 19 -

19 Right fuel delivery unit

- ◆ With fuel pump -G23
- ◆ Clipped in at mount -Item 1 -
- ◆ Different versions, assignment

=> Parts List

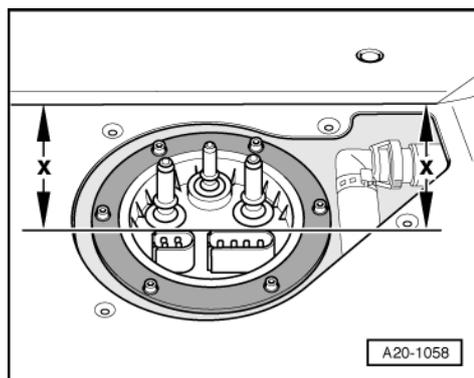
- ◆ Electrical check on fuel pump
=> Page 51
- ◆ Checking holding pressure

=> Motronic injection and ignition system; Repair Group 24

- ◆ Removing and installing

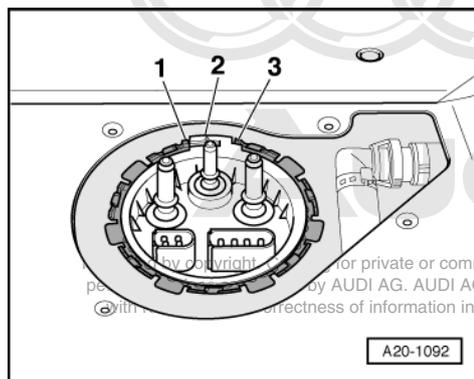


=> Page 55



-> Fig. 1 Installation position of right sealing flange - vehicles up to 10.02

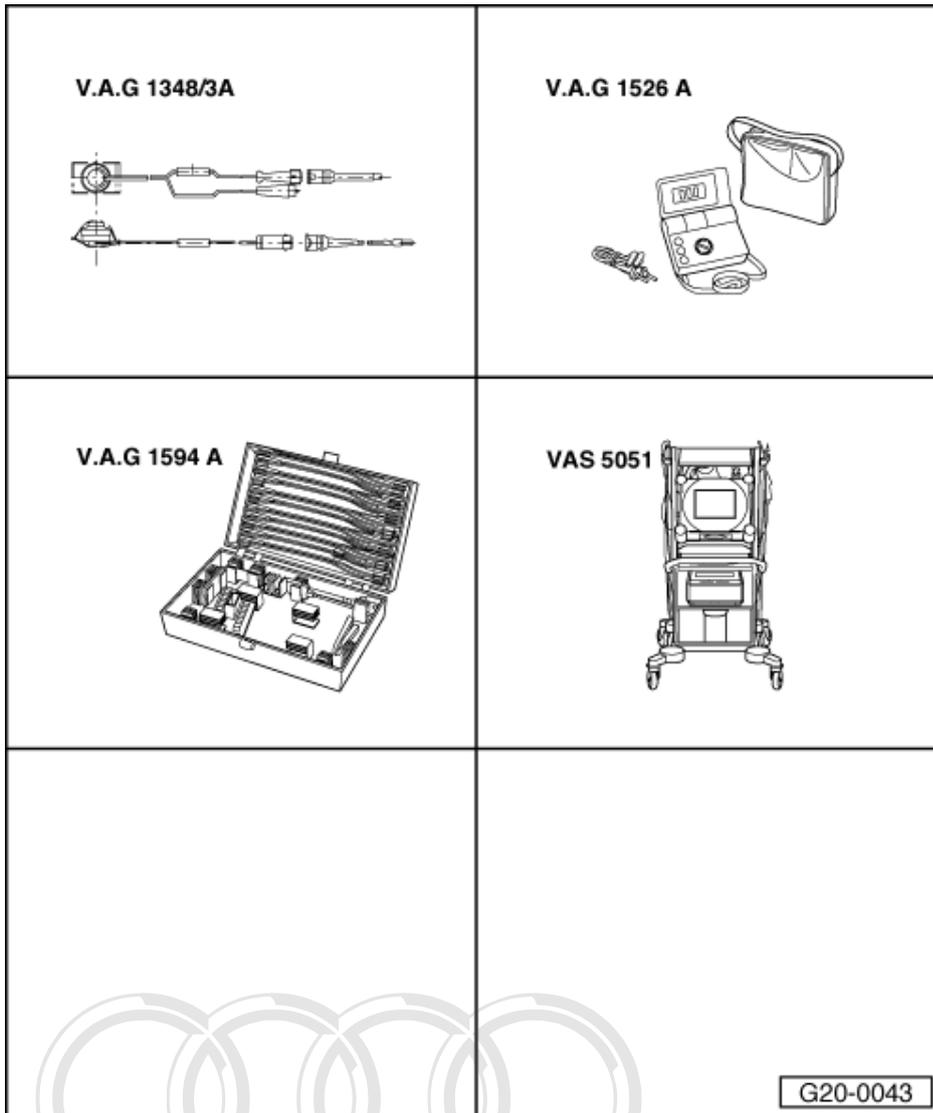
- Insert sealing flange with new O-ring. Installation position:
 - Connectors at right angles to direction of travel
 - Dimension x on left = Dimension x on right



-> Fig. 2 Installation position of right sealing flange - vehicles as of 10.02

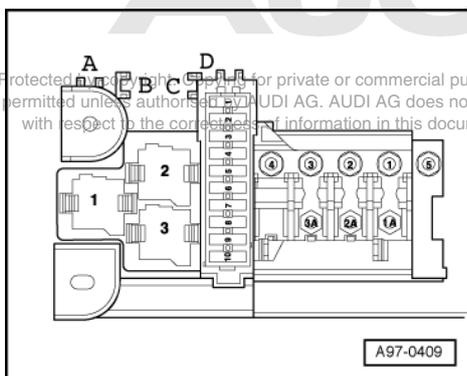
- Insert new dry sealing flange gasket in fuel tank opening.
- Insert sealing flange in fuel tank, paying attention to installation position.
 - Lug -2- at sealing flange must be located between tabs -1- and -3- at fuel tank

2.10 - Electrical check on fuel pump -G23 (right)



Special tools and workshop equipment required

- ◆ V.A.G 1348/3A with V.A.G 1348/3-2
- ◆ V.A.G 1526 A
- ◆ V.A.G 1594 A
- ◆ VAS 5051 with VAS 5051/9



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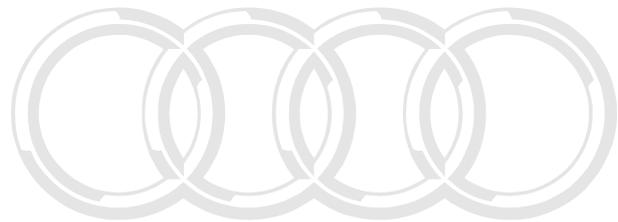
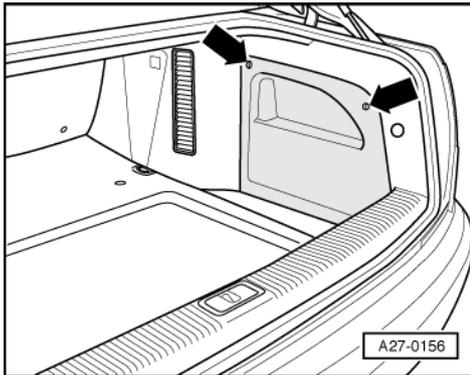


Test requirements:

- Battery voltage at least 12.7 V
- -> Fuse SF10 (in relay and fuse box in luggage compartment on right) OK
- Electric fuel pump 2 relay -J49 OK (on relay and fuse box in luggage compartment on right), position 3; Checking

=> Motronic injection and ignition system; Repair Group 24

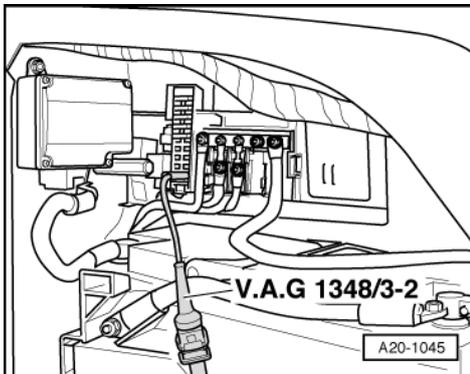
- Fuel filter OK
- Ignition off



Audi

Checking power supply

- -> Remove right luggage compartment side trim cover -arrows-

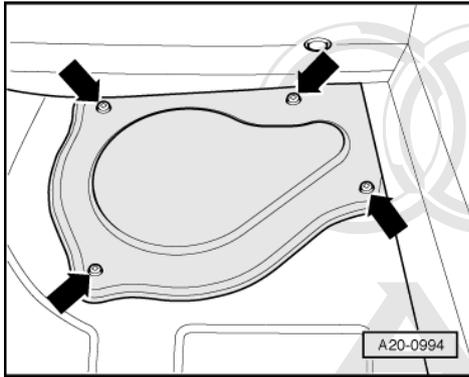


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- Take out fuse SF10 at fuse carrier (in relay and fuse box in luggage compartment on right, position 10) (fuse right at bottom).
- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to right terminal of socket of fuse SF10 (in relay and fuse box in luggage compartment on right) -arrow-
- Connect pick-off to vehicle battery (+).
- Press switch on remote control.
 - Pump running noise must be audible in vicinity of fuel tank

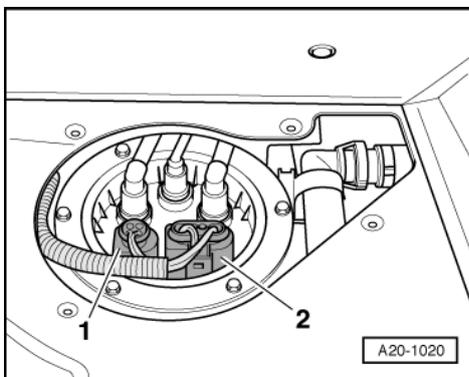
Note:

Fuel pump is very quiet-running. Avoid background noise whilst checking fuel pump. Have second mechanic perform check if necessary.



If running noise is not audible:

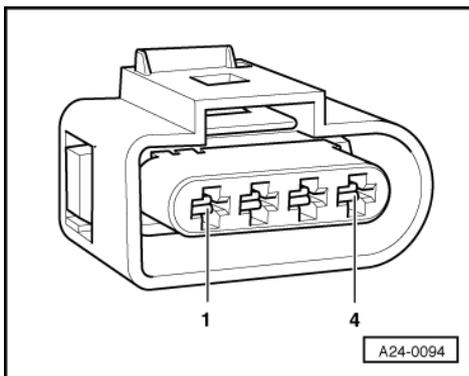
- Remove luggage compartment floor lining.
- -> Unscrew cover for right sealing flange -arrows-.



- -> Carefully release connector -2- at right sealing flange and unplug.

Note:

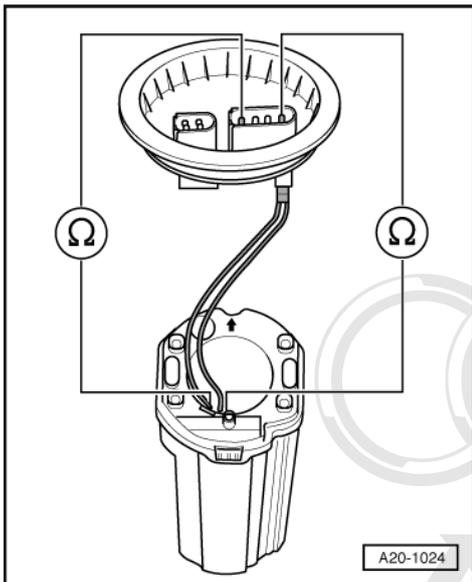
Ignore item -1-.



- -> Connect up multimeter for voltage measurement between contacts 1 and 4 of connector.
- Press switch on remote control.
 - Specification: approx. battery voltage

If reading does not match specification:

- Use current flow diagram to eliminate open circuit in wiring.



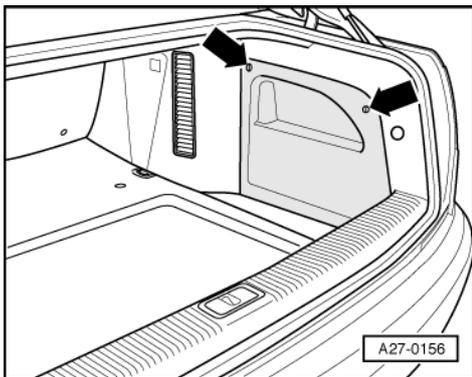
If reading matches specification although pump running noise cannot be heard:

- Remove right fuel delivery unit => Page 55 .
- -> Check connection of wiring between flange and fuel pump/check for continuity.

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If no fault is found in wiring:

- Fuel pump is defective. Replace right fuel delivery unit=>Page 55 .
- Install right fuel delivery unit => Page 61 .

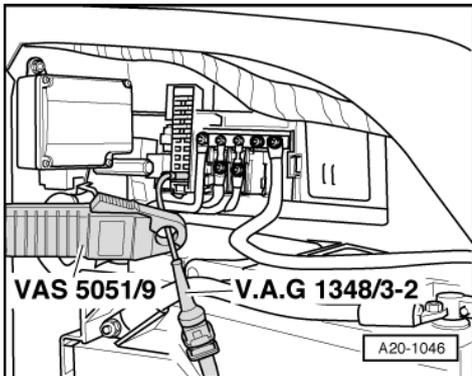


Checking current input

Test requirement:

- Fuel pump power supply OK
=> Page 29

- -> Remove right luggage compartment side trim cover -arrows-.



- Take out fuse SF10 at fuse carrier (in relay and fuse box in luggage compartment on right, position 10) (fuse right at bottom).
- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to right terminal of socket of fuse SF10 (in relay and fuse box in luggage compartment on right) -arrow-.
- Connect pick-off to vehicle battery (+).

- Connect up vehicle diagnostic, testing and information system VAS 5051 with current probe VAS 5051/9 to wire of remote control.
- Press switch on remote control.
- Measure current input of fuel pump.
 - Specification: approx. 8 A

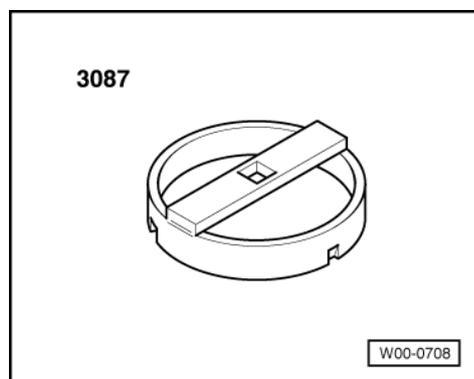
If reading does not match specification:

Note:

Current input reading of 4 A indicates dry running of fuel pump. is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Reading	Cause of trouble	Remedy
approx. 4 A	- Fuel tank empty	- Fill tank
	- Housing of fuel delivery unit leaking	- Replace fuel delivery unit=>Page 55
0 A	- Fuel pump -G23 defective	- Replace fuel delivery unit=>Page 55

2.11 - Removing and installing right fuel delivery unit with fuel pump -G23



Special tools and workshop equipment required

Vehicles as of 10.02:

- ◆ Fuel gauge sender wrench 3087

Removing

Heed safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

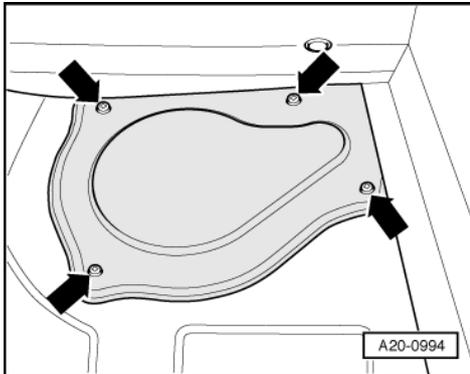
- When removing fuel delivery unit, fuel tank must not be more than 1/3 full. Drain fuel tank if necessary. Procedure => Page 7 .



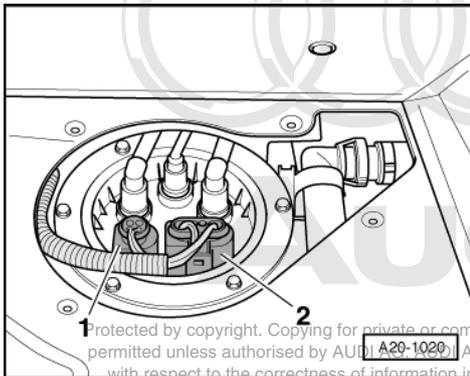
Attention:

Heed appropriate instructions for battery disconnection. =>Electrical system; Repair Group 27

- Disconnect battery earth strap with ignition switched off.

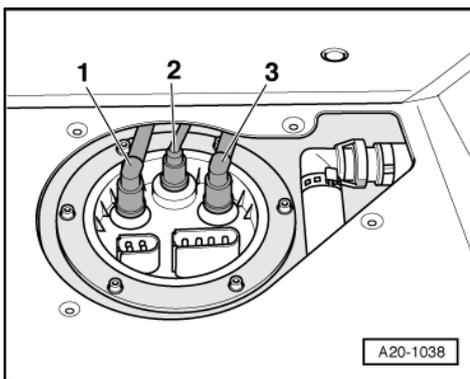


- Remove luggage compartment floor lining.
- -> Unscrew cover for right sealing flange -arrows-.



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- -> Carefully release connectors -1- and -2- at right sealing flange and unplug.



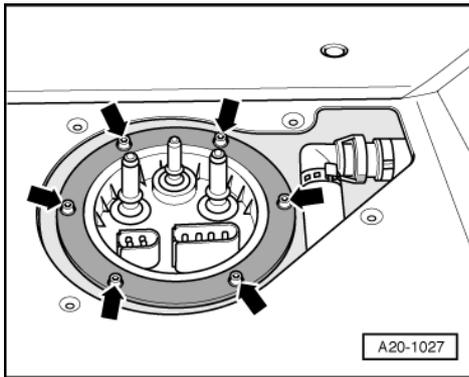
Attention:

Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.

- -> Mark and detach (press release tab) fuel supply pipe -1- and fuel return pipe -3-.

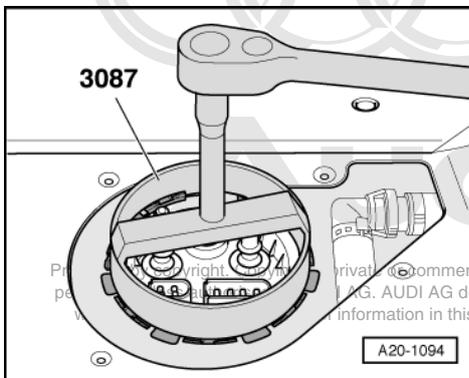
Vehicles with auxiliary heater:

- Additionally disconnect fuel supply pipe -2- to auxiliary heater.



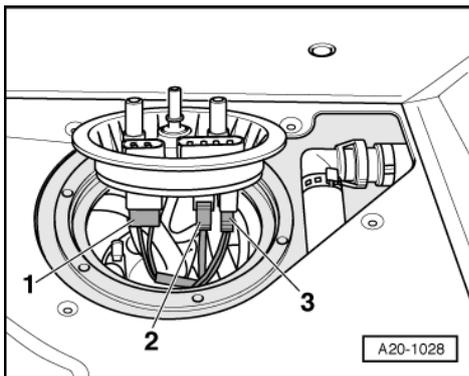
Vehicles up to 10.02:

- -> Screw out bolts -arrows- and detach securing ring for right sealing flange.



Vehicles as of 10.02:

- -> Use fuel gauge sender wrench 3087 to unscrew locking ring.



All models:

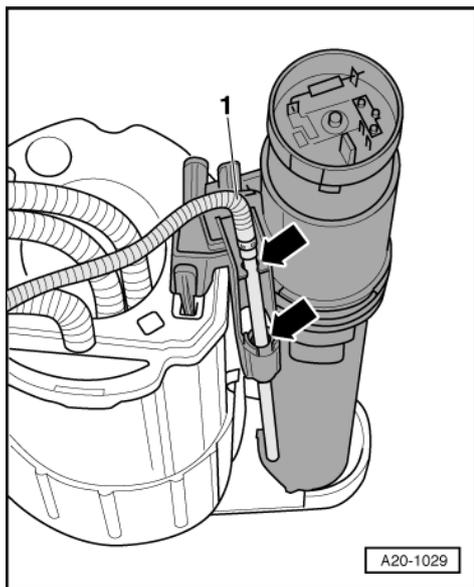
- Detach sealing flange and sealing ring/O-ring.
- -> Unplug connectors -1 ... 3- on underside of right sealing flange.

Notes:

- ◆ For disconnection of pipe couplings described in the following, pull out fuel pipes to fuel tank opening.

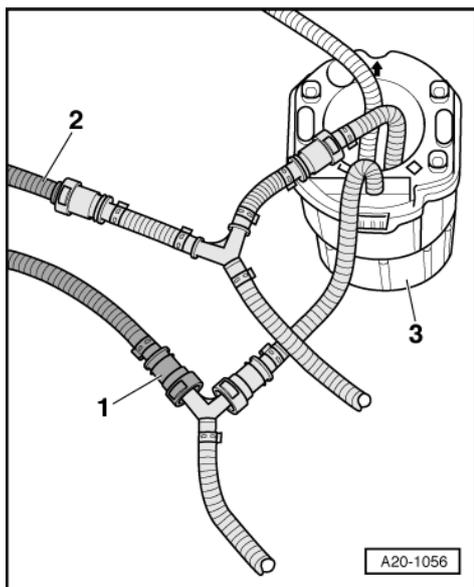


- ◆ Certain components have been removed in the following illustrations.



Vehicles with auxiliary heater:

- -> Pull suction pipe -1- for auxiliary heater out of holders -arrows- at immersed tube sender.



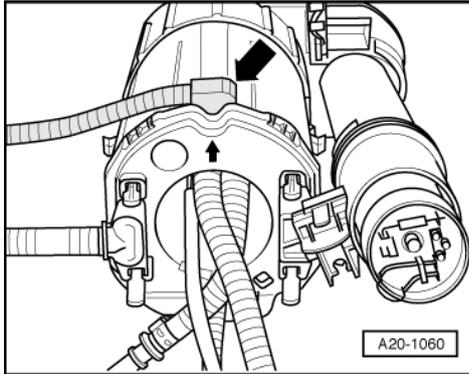
All models:

- -> Press release tab and disconnect fuel pipes -1- and -2- to left fuel delivery unit through right fuel tank opening.

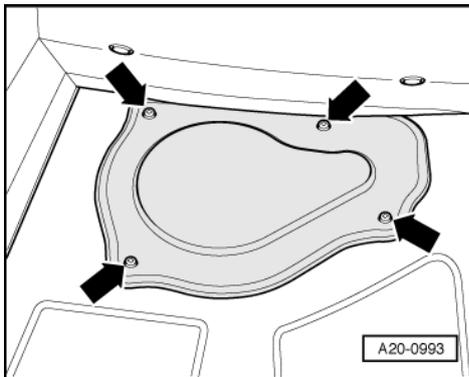
3 - Right fuel delivery unit with fuel pump -G23



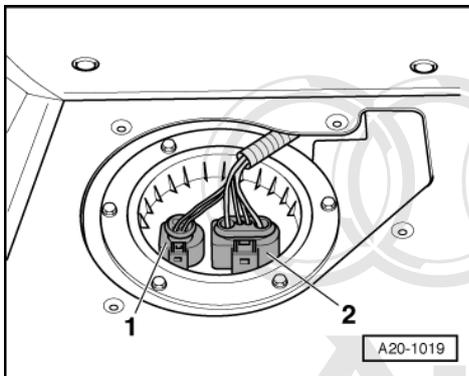
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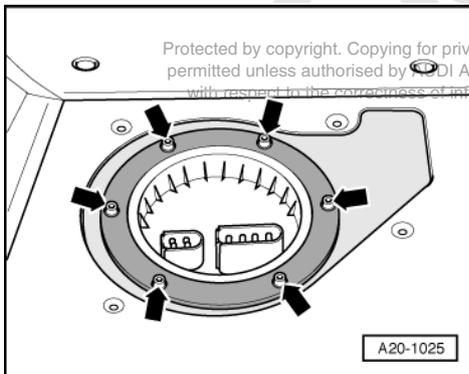
- -> Unclip filler pipe -arrow- at front of right fuel delivery unit.



- -> Unscrew cover for left sealing flange -arrows-.



- -> Carefully release connectors -1- and -2- at left sealing flange and unplug.

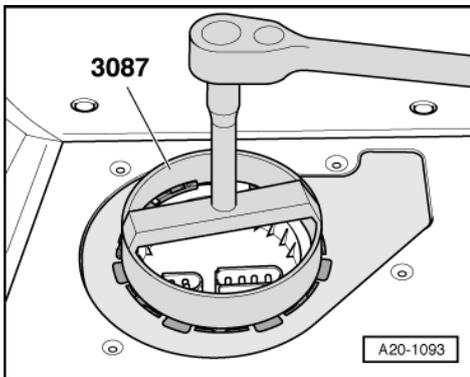


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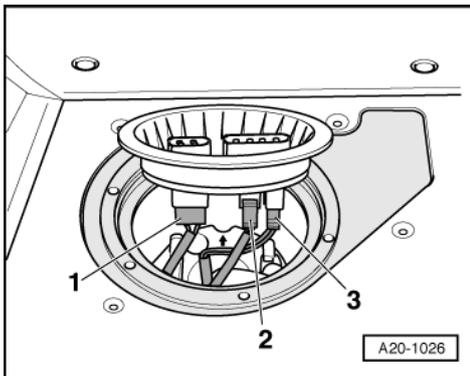
Vehicles up to 10.02:

- -> Screw out bolts -arrows- and detach securing ring for left sealing flange.



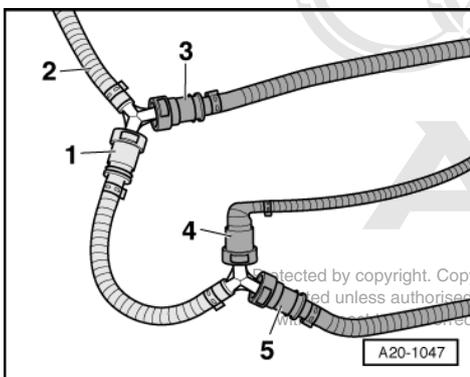
Vehicles as of 10.02:

- -> Use fuel gauge sender wrench 3087 to unscrew locking ring.

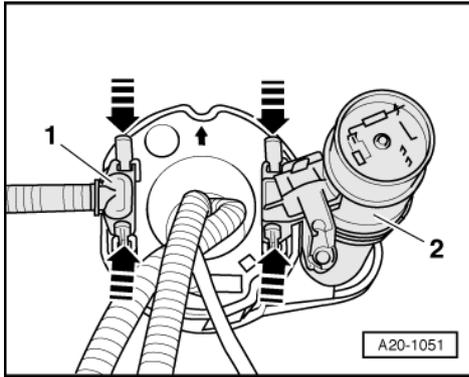


All models:

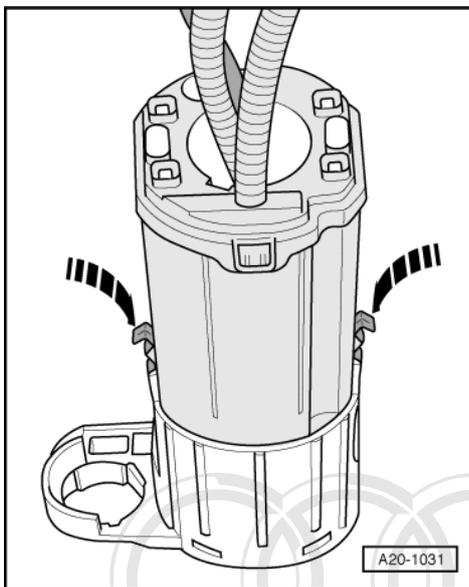
- Detach sealing flange and sealing ring/O-ring.
- -> Unplug connectors -1 ... 3- on underside of left sealing flange.



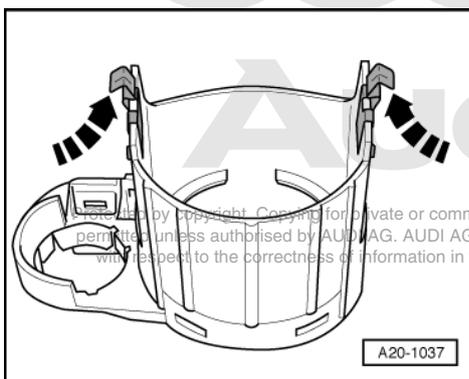
- -> Press release tab and disconnect propulsion jet pipe -3- from Y-piece through left fuel tank opening.
- Pull out propulsion jet pipe to right fuel tank opening.



- -> Through right fuel tank opening, press release tabs -arrows- and detach both delivery pipe -1- and fuel gauge sender 4 -G393 -Item 2-.
- Swivel aside fuel gauge sender 4 -G393 to right.

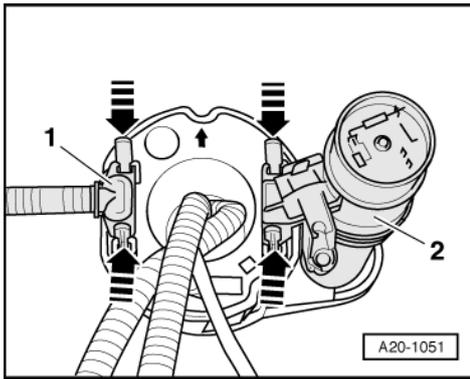


- -> Press down both retainers at mount for fuel delivery unit -arrows-.
- Take out fuel delivery unit.

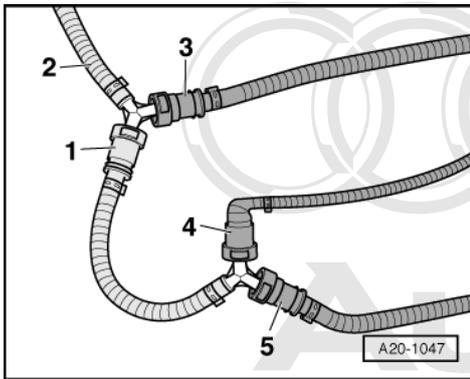


Installing

- -> Before installing fuel delivery unit, pull up both retainers at mount until they engage -arrows-.
- Then carefully press fuel delivery unit into mount until it is heard to engage.

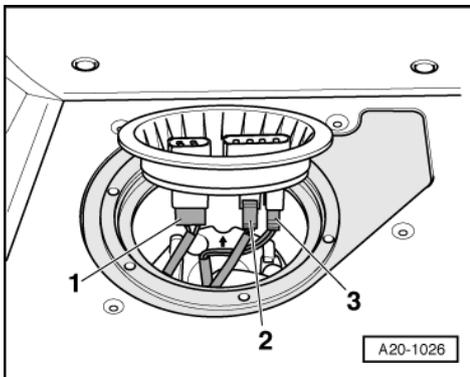


- -> Attach delivery pipe -1- and fuel gauge sender 4 -G393 -Item 2- to right fuel delivery unit (components must be heard to engage).

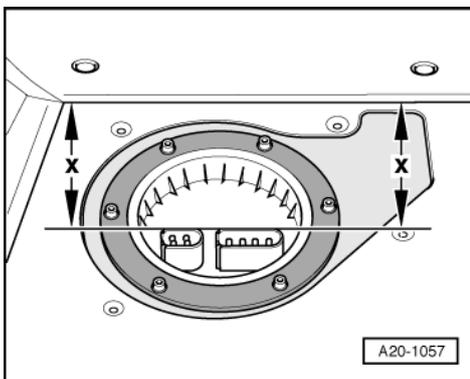


- -> Slide propulsion jet pipe -3- through right fuel tank opening to left fuel tank chamber.
- Attach propulsion jet pipe to Y-piece (pipe must be heard to engage).

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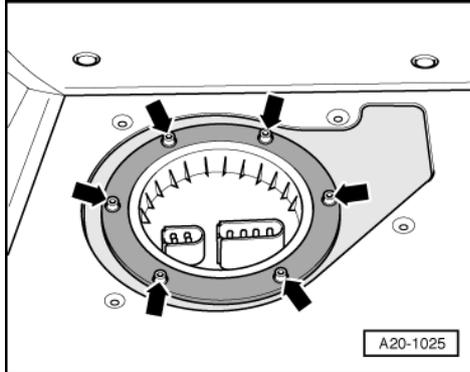


- -> Plug in connectors -1 ... 3- on underside of left sealing flange.



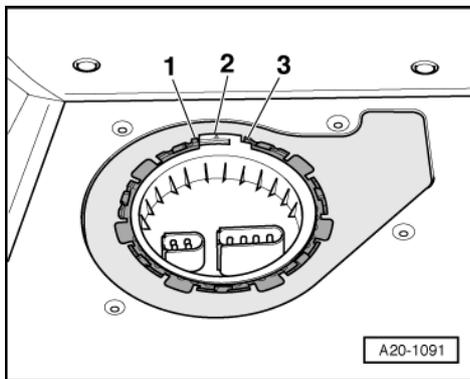
Vehicles up to 10.02:

- Insert left sealing flange with new O-ring. Installation position:
 - -> Connectors at right angles to direction of travel
 - Dimension x on left = Dimension x on right



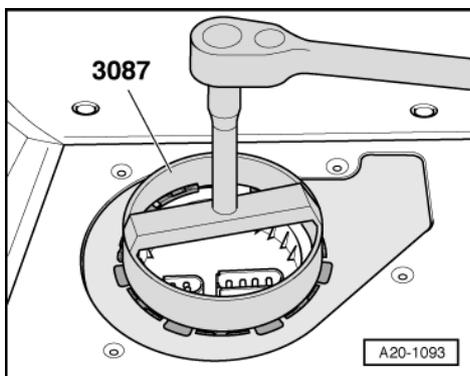
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- -> Diagonally screw on securing ring for left sealing flange -arrows-

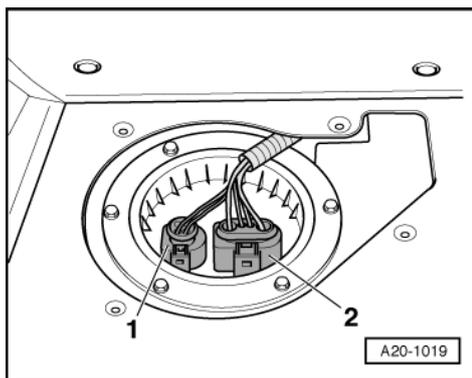


Vehicles as of 10.02:

- Insert new dry sealing flange gasket in fuel tank opening.
- Insert left sealing flange in fuel tank, paying attention to installation position.
 - -> Lug -2- at sealing flange must be located between tabs -1- and -3- at fuel tank

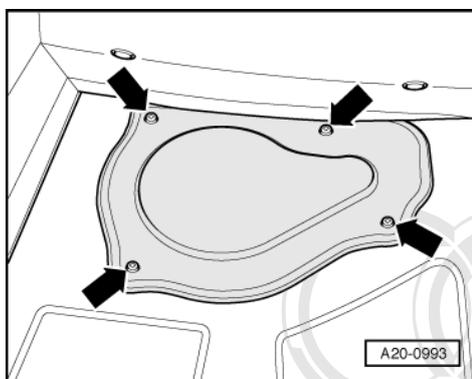


- -> Tighten locking ring (120 Nm).

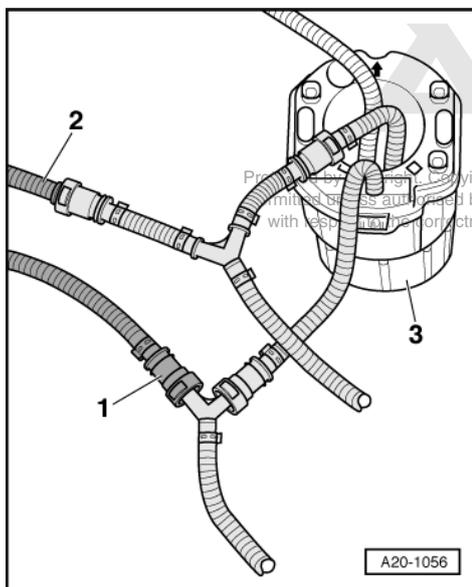


All models:

- -> Plug in connectors -1- and -2- at left sealing flange.

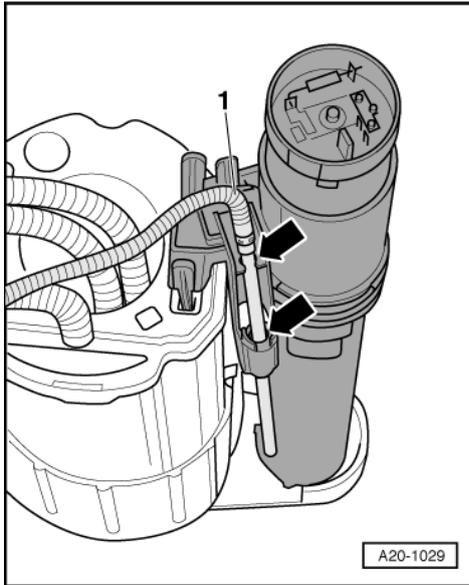


- -> Screw on cover for left sealing flange -arrows-.



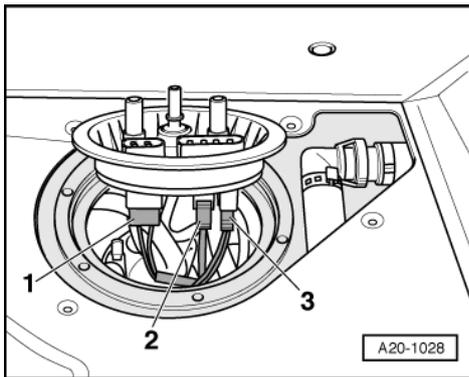
- -> Attach fuel pipes -1- and -2- to left fuel delivery unit through right opening in fuel tank (pipes must be heard to engage).

3 - Right fuel delivery unit with fuel pump -G23



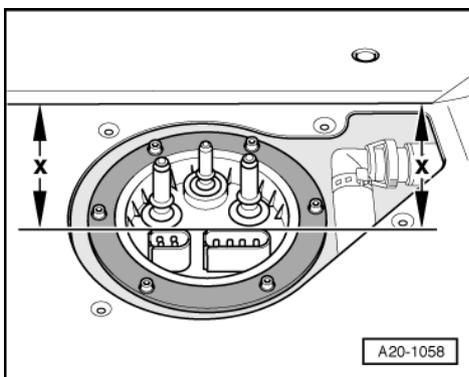
Vehicles with auxiliary heater:

- -> Insert suction pipe -1- for auxiliary heater in holders -arrows- at immersed tube sender.



All models:

- -> Plug in connectors -1 ... 3- on underside of right sealing flange.



Vehicles up to 10.02:

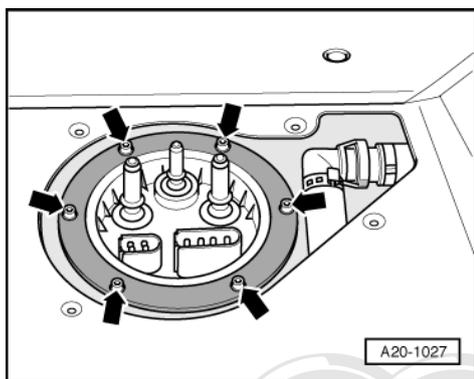
- Insert right sealing flange with new O-ring. **Installation position:**
 - -> Connectors at right angles to direction of travel



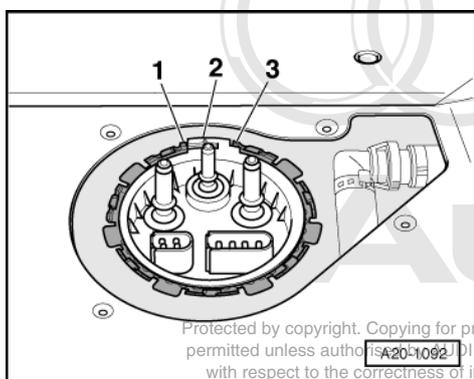
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- Dimension x on left = Dimension x on right

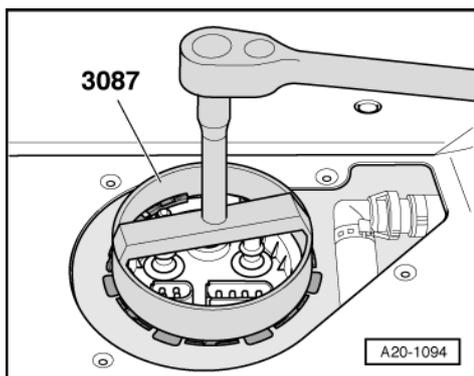


- -> Diagonally screw on securing ring for right sealing flange -arrows-.

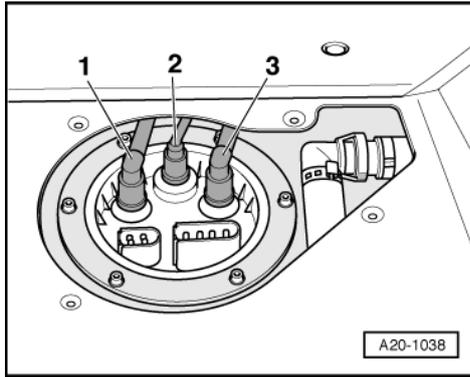


Vehicles as of 10.02:

- Insert new dry sealing flange gasket in fuel tank opening.
- Insert right sealing flange in fuel tank, paying attention to installation position.
 - -> Lug -2- at sealing flange must be located between tabs -1- and -3- at fuel tank



- -> Tighten locking ring (120 Nm).

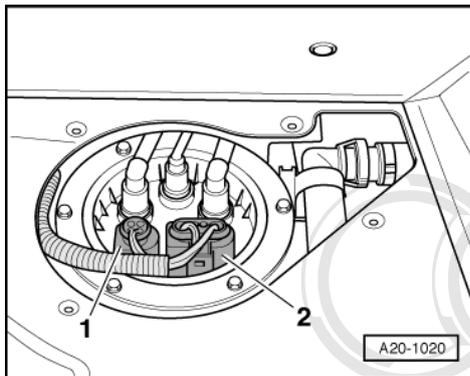


All models:

- -> Attach fuel supply pipe -1- and fuel return pipe -3- (pipes must be heard to engage).

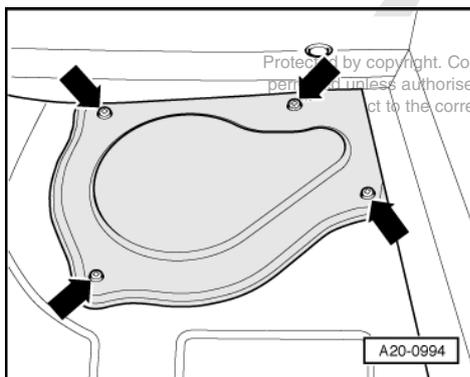
Vehicles with auxiliary heater:

- Additionally attach fuel supply pipe -2- to auxiliary heater (pipe must be heard to engage).



All models:

- -> Plug in connectors -1- and -2- at right sealing flange.



- -> Screw on cover for right sealing flange -arrows-.
- Connect battery. Heed appropriate instructions for work to be performed following battery connection.

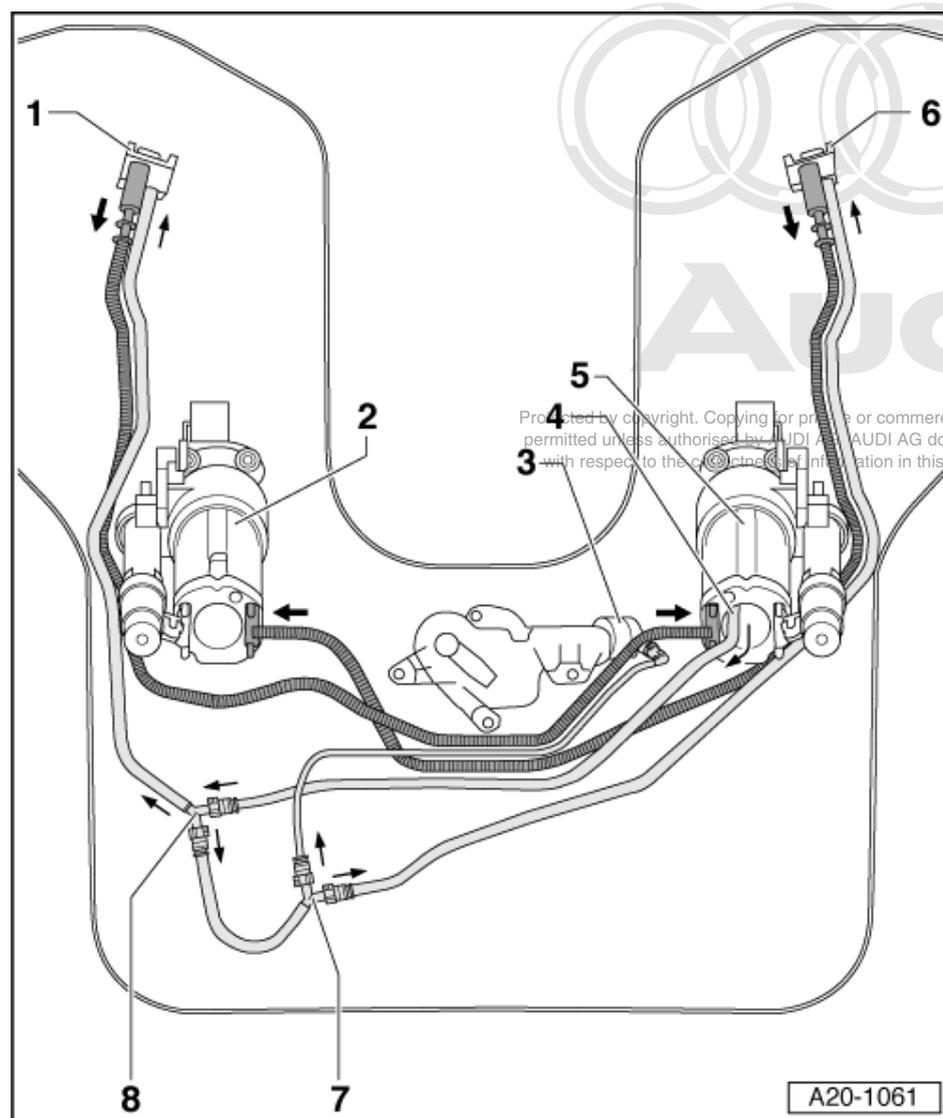
=> Electrical system; Repair Group 27



Tightening torques

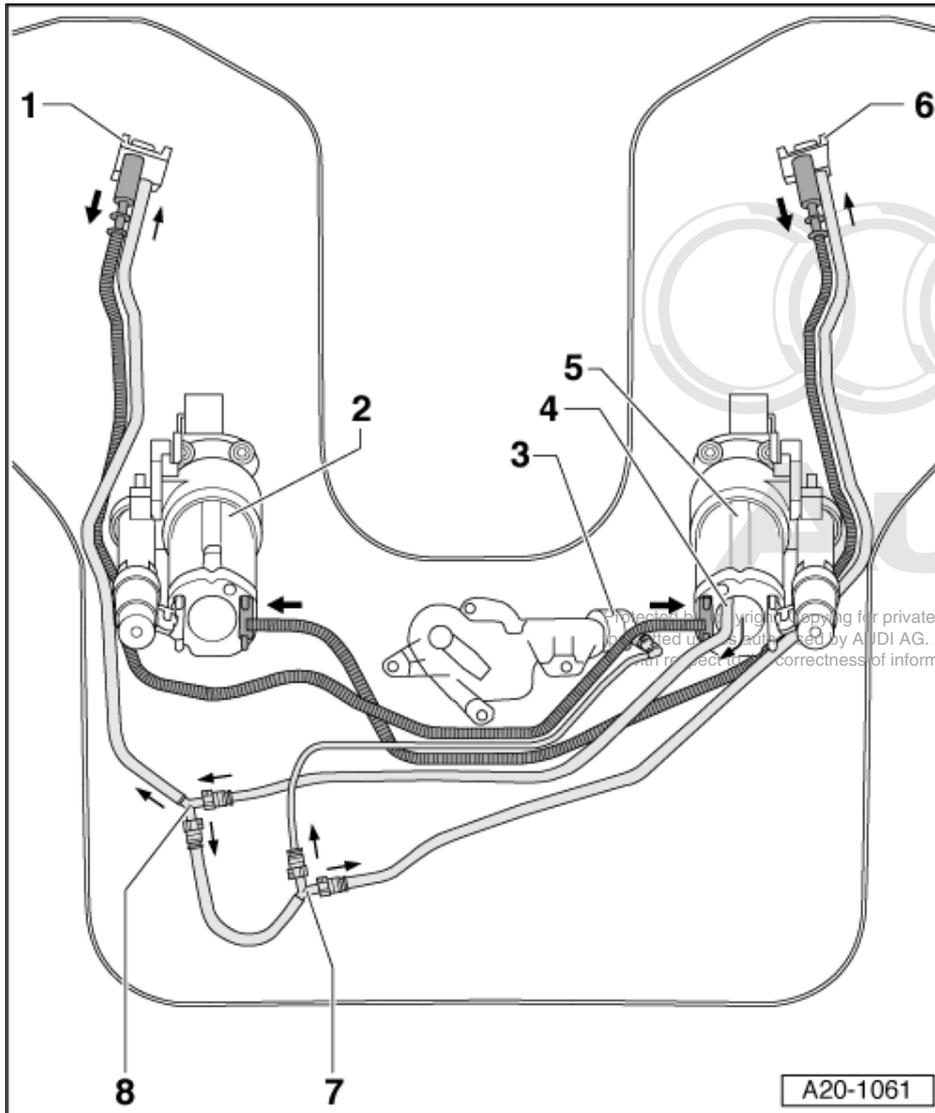
Component	Nm
Locking ring for fuel delivery unit to fuel tank (up to 10.02)	10
Locking ring for fuel delivery unit (as of 10.02)	120

2.12 - Function of suction jet pumps



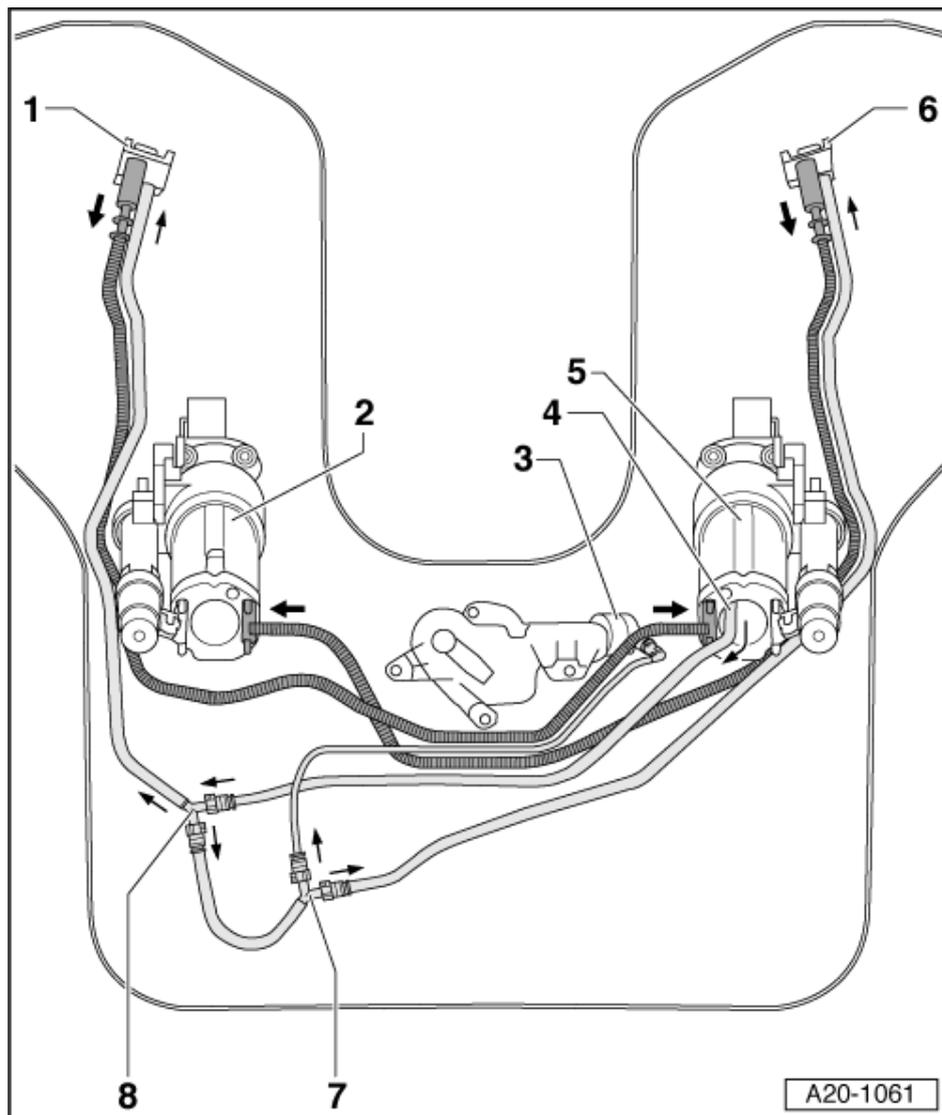
To ensure a reliable supply of fuel in all driving situations, the fuel pumps must be prevented from drawing in air even on very tight bends or if drastic braking action is required. Such a danger primarily exists if the tank is only partially full and all the fuel runs into one corner of the tank.

Consequently, the fuel delivery units -2- and -5- consist not only of the respective fuel pumps, but also both feature a so-called baffle housing into which the pumps are inserted. The baffle housing is a vessel which is constantly filled with fuel. As a result, the fuel pumps are always surrounded by fuel irrespective of the level in the fuel tank.



Filling of the baffle housings is thus crucial to proper operation of the fuel pumps. This is the function of the so-called suction jet pumps.

The suction jet pumps employ a simple physical principle: A propulsion jet from the pre-stage of the right fuel pump -4- is forced through a nozzle in the suction jet pumps -1- and -6- and thus accelerated. The effect of this acceleration is to entrain the surrounding fuel and propel it to the baffle housings of the fuel delivery units. The right suction jet pump -6- supplies the left baffle housing and the left suction jet pump -1- the right baffle housing.



Two Y-fittings -7- and -8- distribute the propulsion jet from the pre-stage of the right fuel pump to the two suction jet pumps.

A further small suction jet pump is located in the expansion tank -3- from where it conveys fuel back to the fuel tank.

2.13 - Removing and installing left suction jet pump

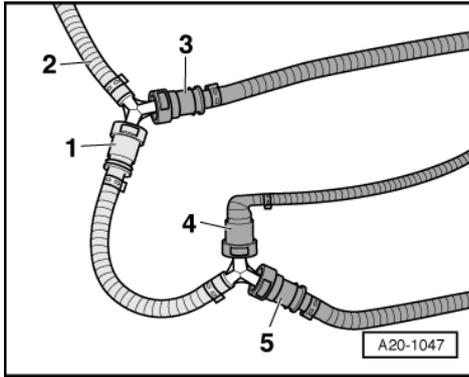
Removing

Heed safety precautions=> Page 1 .

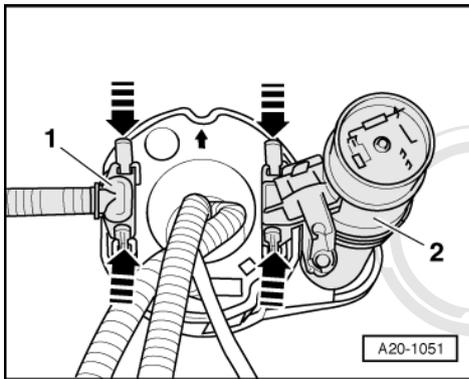
Observe rules for cleanliness => Page 2 .

- Remove left fuel delivery unit => Page 32 .
- Take left fuel gauge sender 3 -G237 (immersed tube sender) out of fuel tank.

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- -> Press release tab and disconnect propulsor jet pipes -1- and -3- from Y-piece through left fuel tank opening.



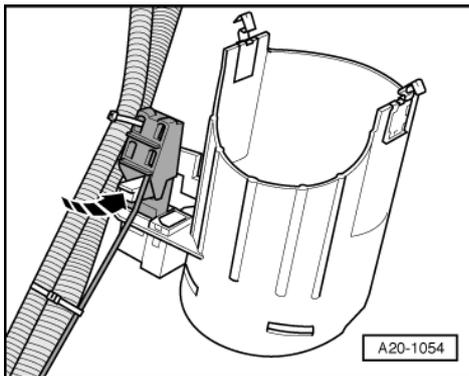
- -> Through right fuel tank opening, press release tabs -arrows- and disconnect delivery pipe -1-.

Note:

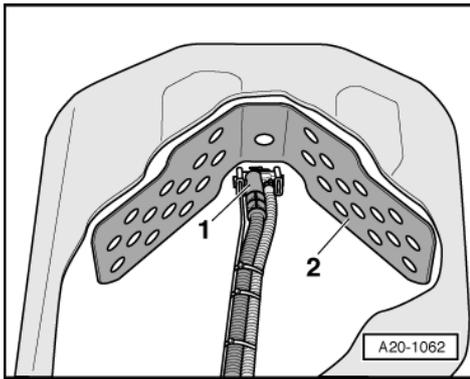
Ignore item -2-.

- Pull out delivery pipe through left fuel tank opening.

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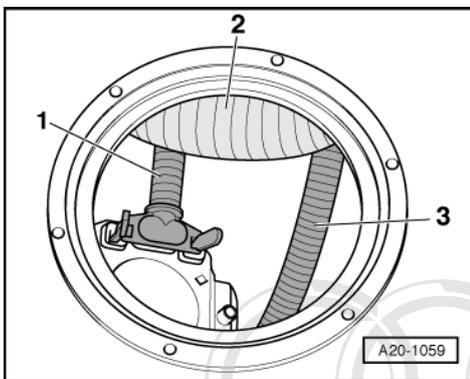


- -> Through left fuel tank opening, press release tab -arrow- and detach holder for suction jet pipes from mount.
- Pull out left suction jet pump with pipes to left fuel tank opening.



Installing

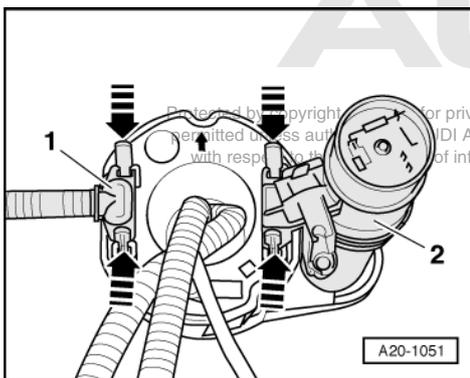
- -> Insert left suction jet pump -1- in fuel tank such that it is positioned in recess in baffle plate -2- at front of fuel tank as shown.
- Press holder for suction jet pump into mount until it is heard to engage.



- Slide delivery pipe through left fuel tank opening to right fuel tank chamber. Pay attention to routing:
 - -> Delivery pipe -3- must be routed beneath fuel filler pipe -2- in area of left fuel tank opening

Note:

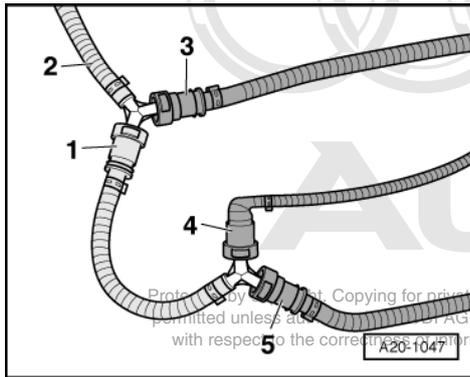
Ignore item -1-.



- -> Attach delivery pipe -1- to right fuel delivery unit (fasteners must be heard to engage).

Note:

Ignore item -2-.



- -> In left fuel tank opening, attach propulsor jet pipes -1- and -3- to Y-piece (pipes must be heard to engage).
- Insert fuel gauge sender 3 -G237 in fuel tank.
- Install left fuel delivery unit => Page 38 .

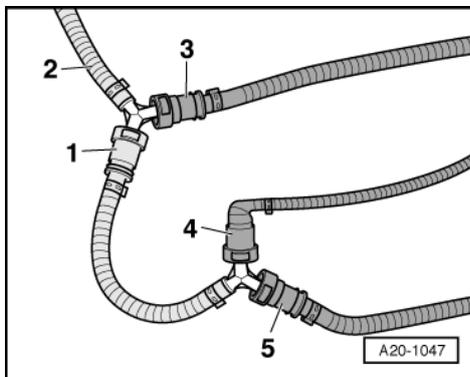
2.14 - Removing and installing right suction jet pump

Removing

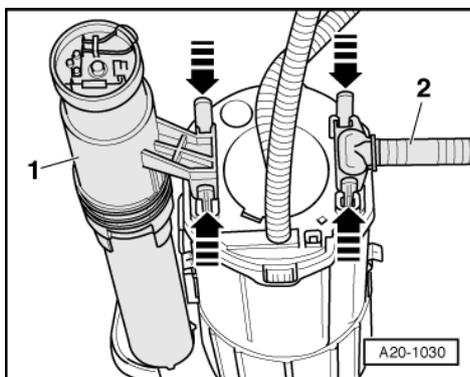
Heed safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

- Remove right fuel delivery unit => Page 55 .
- Take right fuel gauge sender 4 -G393 (immersed tube sender) out of fuel tank.



- -> Press release tab and disconnect propulsor jet pipe -5- from Y-piece through left fuel tank opening.



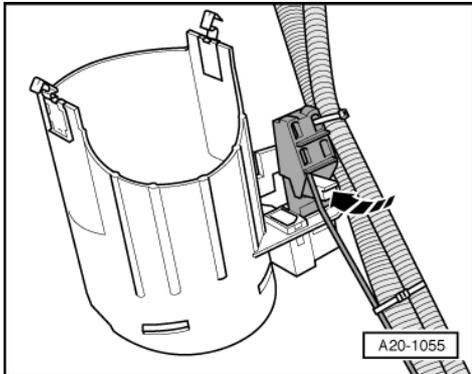
- -> Through left fuel tank opening, press release tabs -arrows- and disconnect delivery pipe -2-.



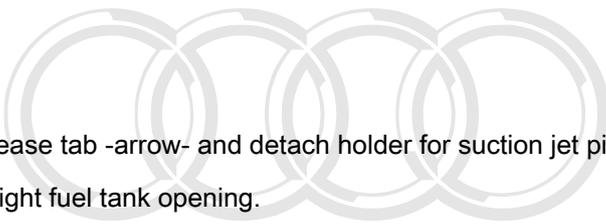
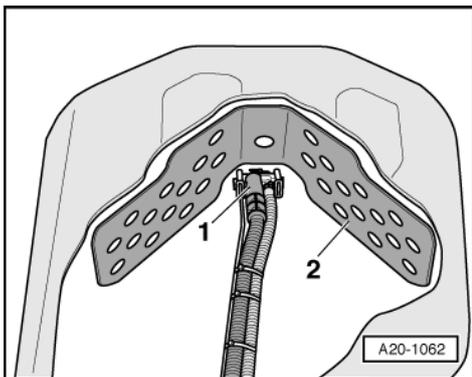
Note:

Ignore item -1-.

- Pull out delivery pipe through right fuel tank opening.



- -> Through right fuel tank opening, press release tab -arrow- and detach holder for suction jet pipes from mount.
- Pull out right suction jet pump with pipes to right fuel tank opening.

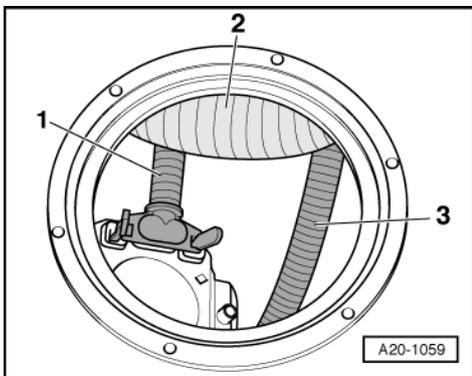


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Installing

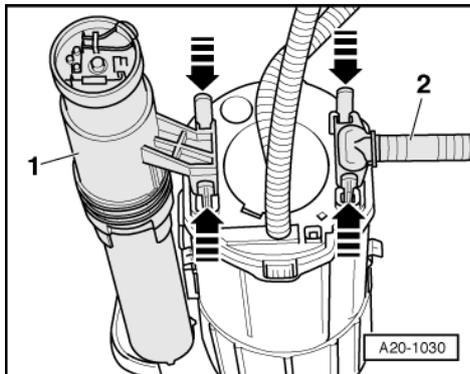
- -> Insert right suction jet pump -1- in fuel tank such that it is positioned in recess in baffle plate -2- at front of fuel tank as shown.
- Press holder for suction jet pump into mount until it is heard to engage.



- Slide delivery pipe through right fuel tank opening to left fuel tank chamber. Pay attention to routing:
 - -> Delivery pipe -1- must be routed beneath fuel filler pipe -2- in area of left fuel tank opening

Note:

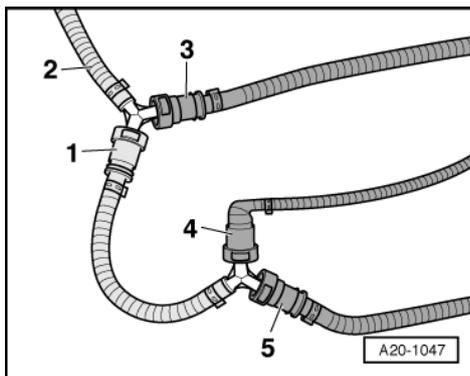
Ignore item -3-.



- -> Attach delivery pipe -2- to left fuel delivery unit (fasteners must be heard to engage).

Note:

Ignore item -1-.



- -> Slide propulsion jet pipe -5- through right fuel tank opening to left fuel tank chamber.
- Attach propulsion jet pipe to Y-piece (pipe must be heard to engage).
- Insert fuel gauge sender 4 -G393 in fuel tank.
- Install right fuel delivery unit => Page 61 .



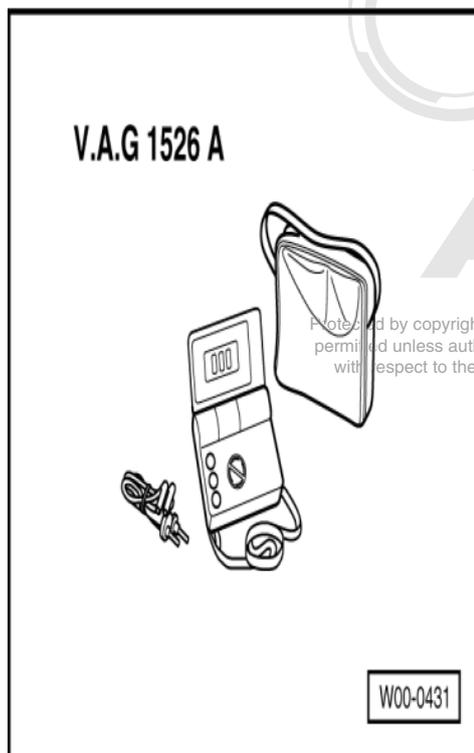
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3 - Fuel gauge sender

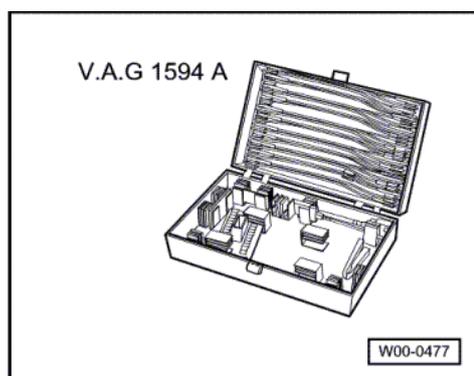
3.1 - Fuel gauge sender

3.2 - Checking fuel gauge sender -G (left float-and-lever sender)

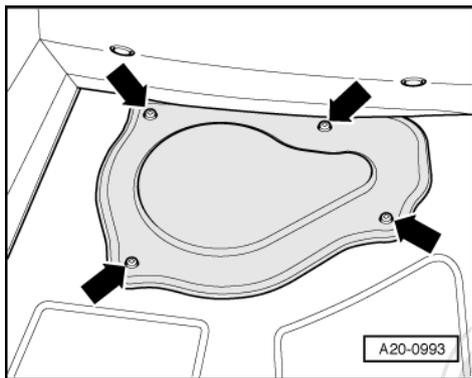


Special tools and workshop equipment required

- ◆ V.A.G 1526 A

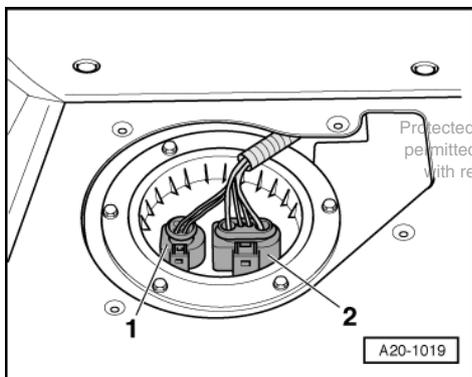


- ◆ V.A.G 1594 A



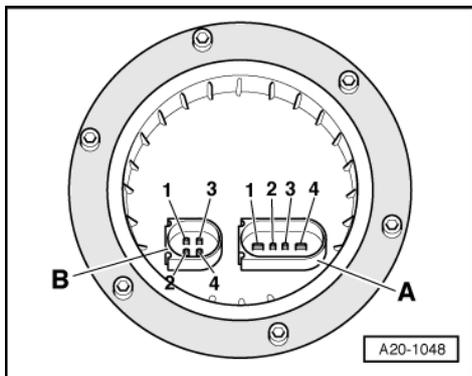
Test sequence

- Remove luggage compartment floor lining.
- -> Unscrew cover for left sealing flange -arrows-.



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- -> Carefully release connector -1- at left sealing flange and unplug.



- -> Connect up multimeter for resistance measurement between contacts 2 and 4 at connector -B-.

Sender installed	Sender at lower stop	Sender at upper stop
Fuel gauge sender -G	approx. 700Ω	approx. 55Ω

- Measured value of 0Ω is an indication of a short circuit, whereas ∞Ω signifies an open circuit in the wiring.

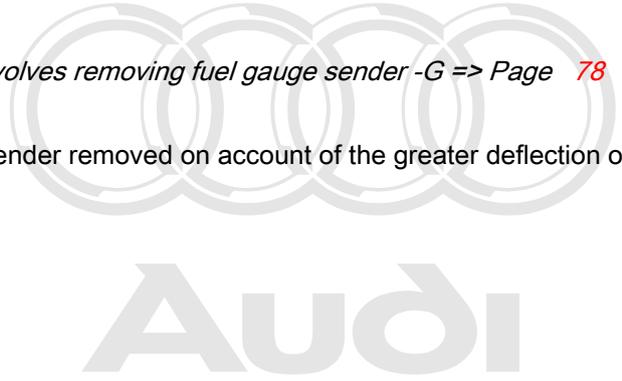


Note:

Checking "Tank full"/"Tank empty" resistance values involves removing fuel gauge sender -G => Page 78 and swivelling sender float to upper/lower stop.

The following values are obtained with the fuel gauge sender removed on account of the greater deflection of the float arm:

Sender removed	Sender at lower stop	Sender at upper stop
Fuel gauge sender -G	approx. 990 ω	approx. 55 ω



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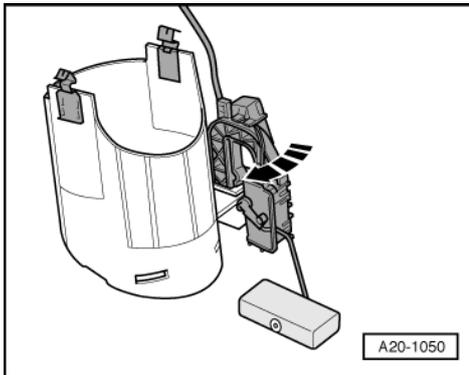
3.3 - Removing and installing fuel gauge sender -G (left float-and-lever sender)

Removing

Heed safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

- Fuel tank must be completely drained for removal of float-and-lever sender. Procedure for draining fuel tank => Page 7 .
- Remove left fuel delivery unit => Page 32 .
- Take left fuel gauge sender 3 -G237 (immersed tube sender) out of fuel tank.

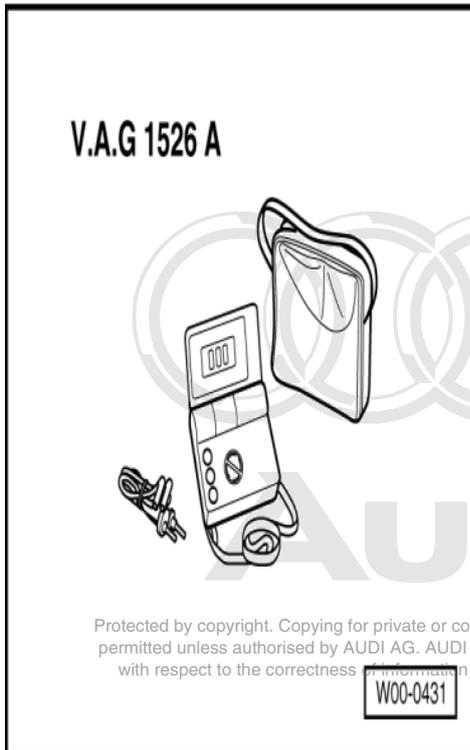


- -> Release fuel gauge sender -G -arrow- and detach it from mount.

Installing

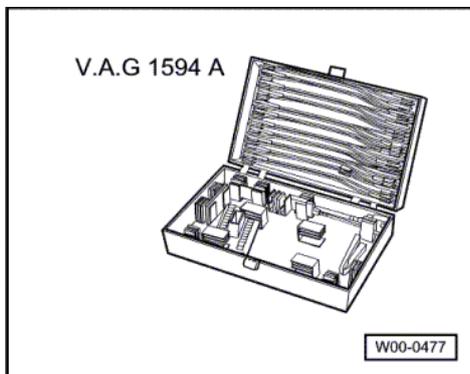
- Insert fuel gauge sender -G in mount until it is heard to engage.
- Insert fuel gauge sender 3 -G237 in fuel tank.
- Install left fuel delivery unit => Page 38 .

3.4 - Checking fuel gauge sender 2 -G169 (right float-and-lever sender)

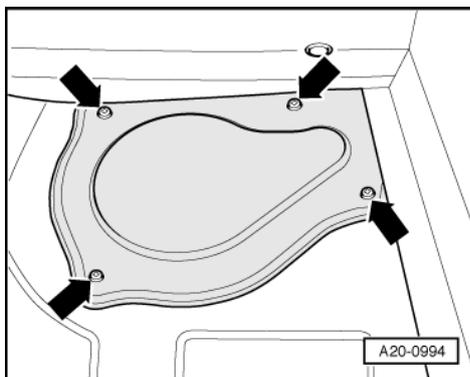


Special tools and workshop equipment required

- ◆ V.A.G 1526 A



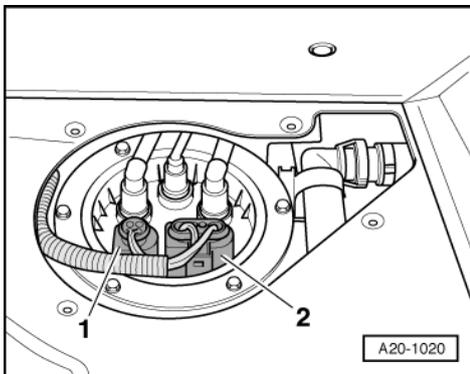
- ◆ V.A.G 1594 A



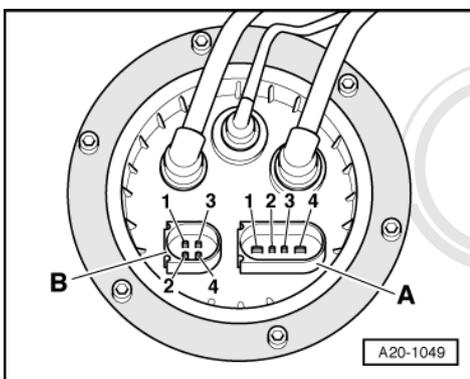


Test sequence

- Remove luggage compartment floor lining.
- -> Unscrew cover for right sealing flange -arrows-.



- -> Carefully release connector -1- at right sealing flange and unplug.



- -> Connect up multimeter for resistance measurement between contacts 2 and 4 at connector -B-.

Sender installed	Sender at lower stop	Sender at upper stop
Fuel gauge sender 2 -G169	approx. 750 ω	approx. 55 ω

- Measured value of 0 ω is an indication of a short circuit, whereas $\infty\omega$ signifies an open circuit in the wiring.

Note:

Checking "Tank full"/"Tank empty" resistance values involves removing fuel gauge sender 2 => Page 81 and swivelling sender float to upper/lower stop.

The following values are obtained with the fuel gauge sender removed on account of the greater deflection of the float arm:

Sender removed	Sender at lower stop	Sender at upper stop
Fuel gauge sender 2 -G169	approx. 990 ω	approx. 55 ω

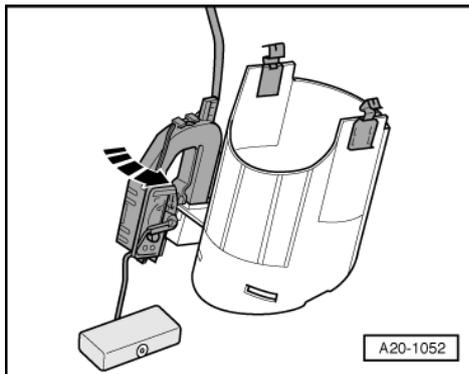
3.5 - Removing and installing fuel gauge sender 2 -G169 (right float-and-lever sender)

Removing

Heed safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

- Fuel tank must be completely drained for removal of float-and-lever sender. Procedure for draining fuel tank => Page 7 .
- Remove right fuel delivery unit => Page 55 .
- Take right fuel gauge sender 4 -G393 (immersed tube sender) out of fuel tank.



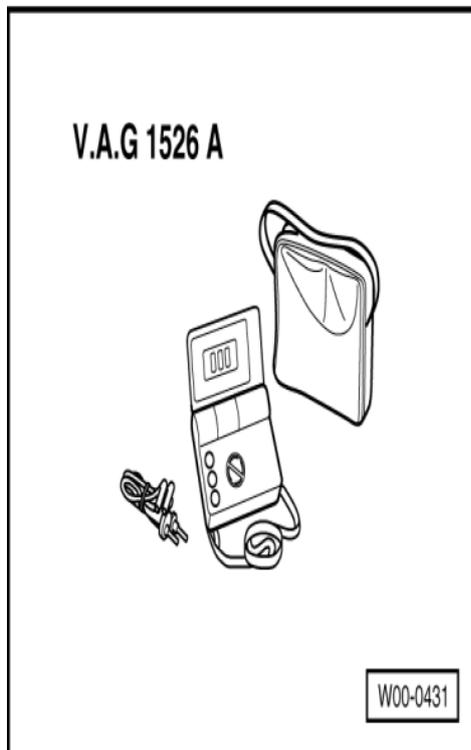
- -> Release fuel gauge sender 2 -G169 -arrow- and detach it from mount.

Installing

- Insert fuel gauge sender 2 -G169 in mount until it is heard to engage.
- Insert fuel gauge sender 4 -G393 in fuel tank.
- Install right fuel delivery unit => Page 61 .

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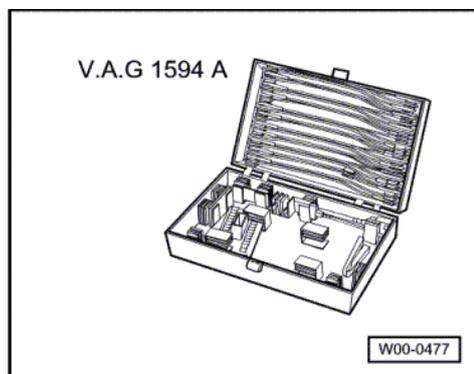
3.6 - Checking fuel gauge sender 3 -G237 (left immersed tube sender)



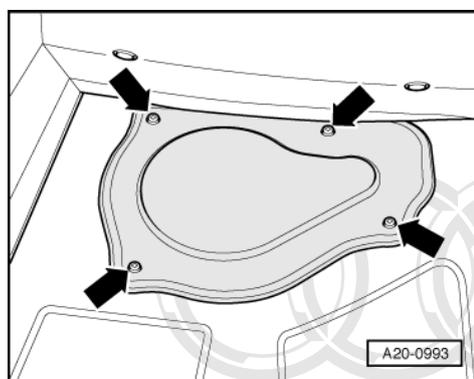


Special tools and workshop equipment required

- ♦ V.A.G 1526 A



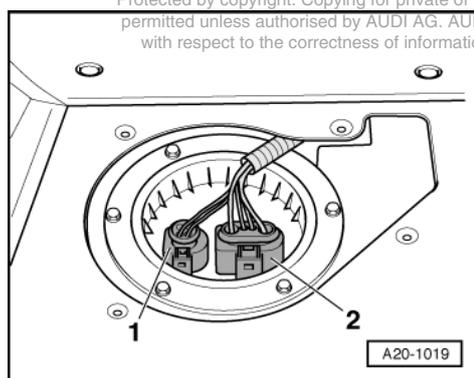
- ♦ V.A.G 1594 A



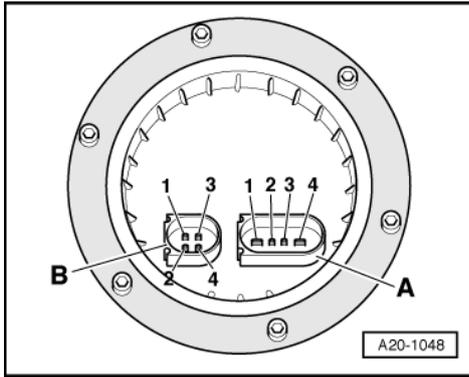
Test sequence

- Remove luggage compartment floor lining.
- -> Unscrew cover for left sealing flange -arrows-.

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- -> Carefully release connector -2- at left sealing flange and unplug.



- -> Connect up multimeter for resistance measurement between contacts 2 and 3 at connector -A-

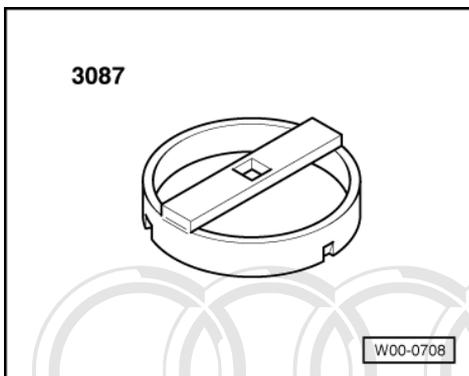
Sender removed	Sender at lower stop	Sender at upper stop
Fuel gauge sender 3 -G237	approx. 155 ω	approx. 70 ω

- Measured value of 0 ω is an indication of a short circuit, whereas $\infty\omega$ signifies an open circuit in the wiring.

Note:

Checking "Tank full"/"Tank empty" resistance values involves removing fuel gauge sender 3 => Page 83 and allowing sender float to move to upper/lower stop.

3.7 - Removing and installing fuel gauge sender 3 -G237 (left immersed tube sender)



Special tools and workshop equipment required

Vehicles as of 10.02:

- ◆ Fuel gauge sender wrench 3087

Removing

Heed safety precautions=> Page 1.

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Observe rules for cleanliness => Page 2. Copyright by AUDI AG.

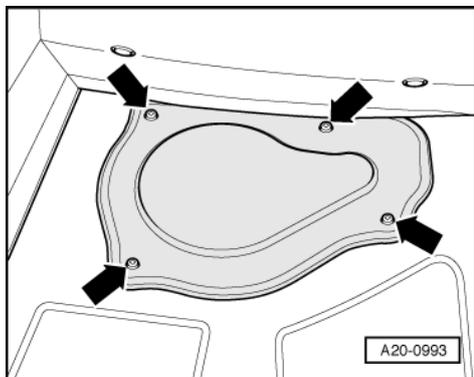
- When removing immersed tube sender, left fuel tank chamber must not be more than 1/3 full. Procedure for draining fuel tank=>Page 7.



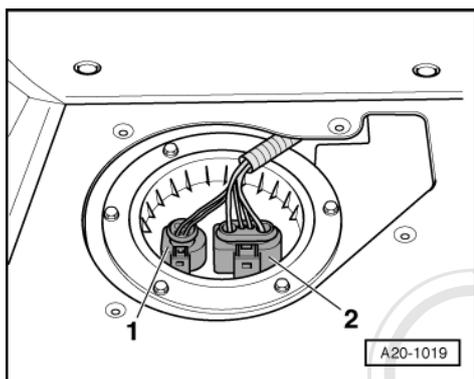
Attention:

Heed appropriate instructions for battery disconnection. =>Electrical system; Repair Group 27

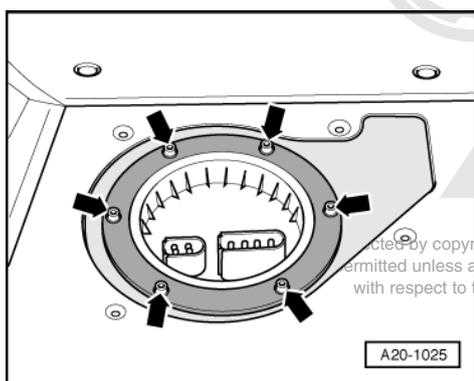
- Disconnect battery earth strap with ignition switched off.
- Briefly open fuel tank cap and close again.



- Remove luggage compartment floor lining.
- -> Unscrew cover for left sealing flange -arrows-.

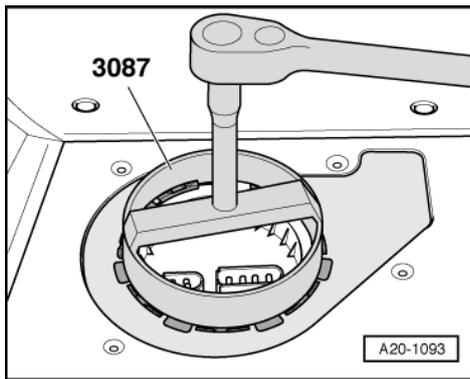


- -> Carefully release connectors -1- and -2- at left sealing flange and unplug.



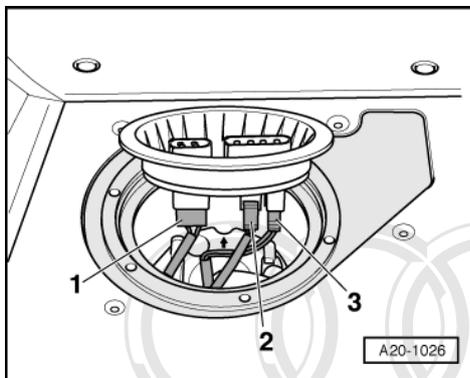
Vehicles up to 10.02:

- -> Screw out bolts -arrows- and detach securing ring for left sealing flange.



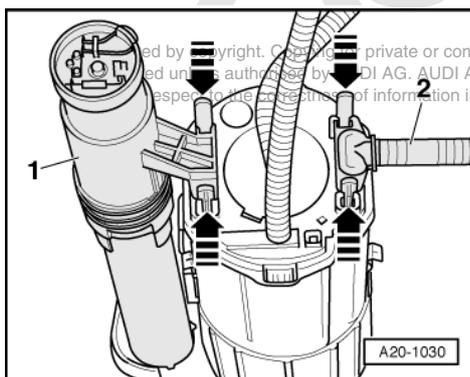
Vehicles as of 10.02:

- -> Use fuel gauge sender wrench 3087 to unscrew locking ring.

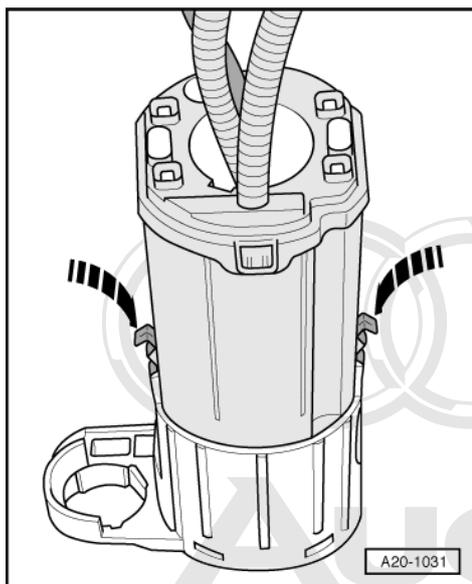


All models:

- Detach sealing flange and sealing ring/O-ring.
- -> Unplug connectors -1 ... 3- on underside of left sealing flange.

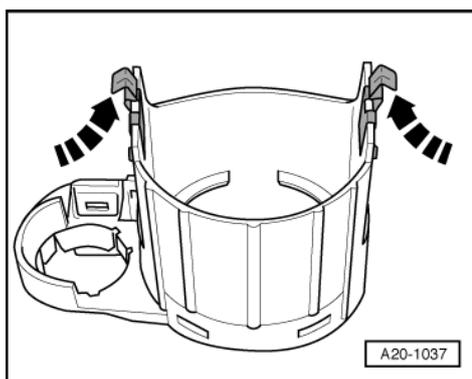


- -> Through left fuel tank opening, press release tabs -arrows- and detach both delivery pipe -2- and fuel gauge sender 3 -G237 -Item 1-.
- Swivel aside fuel gauge sender 3 -G237 to left.



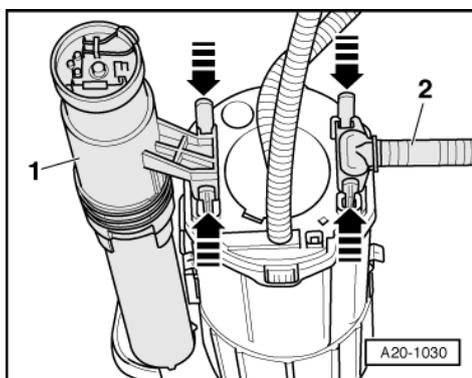
- -> Press down both retainers at mount for fuel delivery unit -arrows-.
- Lift fuel delivery unit slightly and at the same time pull out fuel gauge sender 3 -G237.

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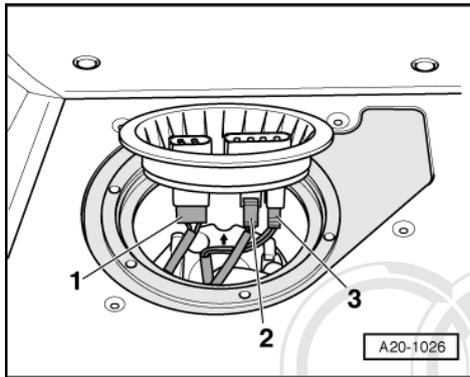


Installing

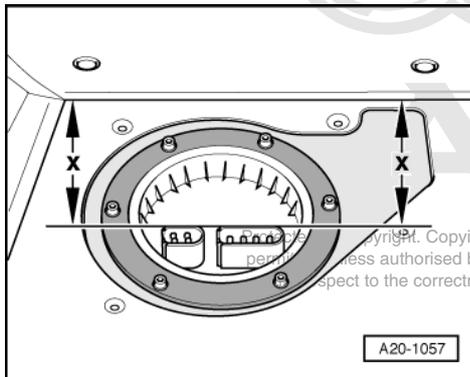
- -> Before installing fuel delivery unit, pull up both retainers at mount until they engage -arrows-.
- Then carefully press fuel delivery unit into mount until it is heard to engage.



- -> Attach delivery pipe -2- and fuel gauge sender 3 -G237 -Item 1- (components must be heard to engage).

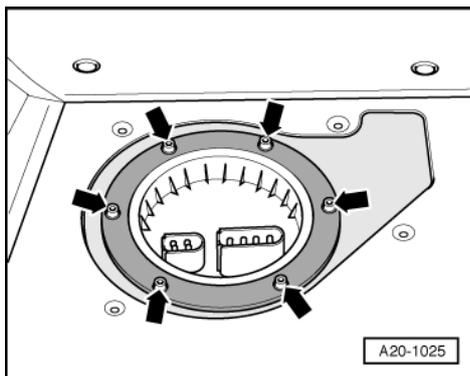


- -> Plug in connectors -1 ... 3- on underside of left sealing flange.

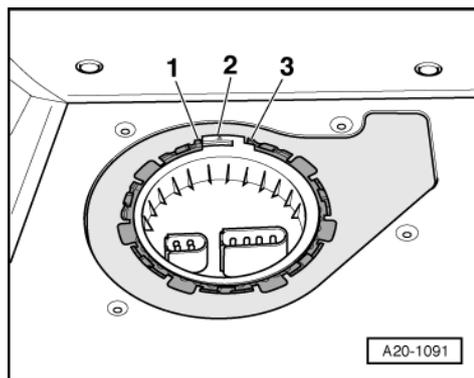


Vehicles up to 10.02:

- Insert left sealing flange with new O-ring. Installation position:
 - -> Connectors at right angles to direction of travel
 - Dimension x on left = Dimension x on right

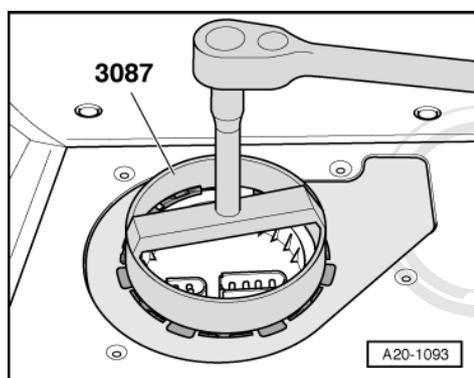


- -> Diagonally screw on securing ring for left sealing flange -arrows-.

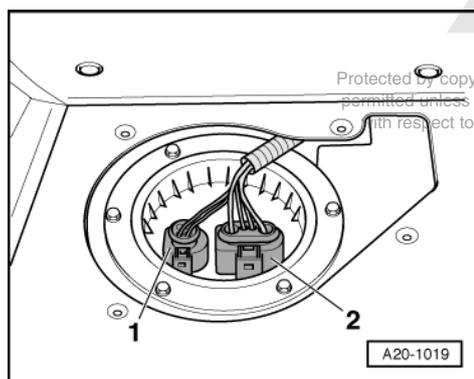


Vehicles as of 10.02:

- Insert new dry sealing flange gasket in fuel tank opening.
- Insert left sealing flange in fuel tank, paying attention to installation position.
 - -> Lug -2- at sealing flange must be located between tabs -1- and -3- at fuel tank



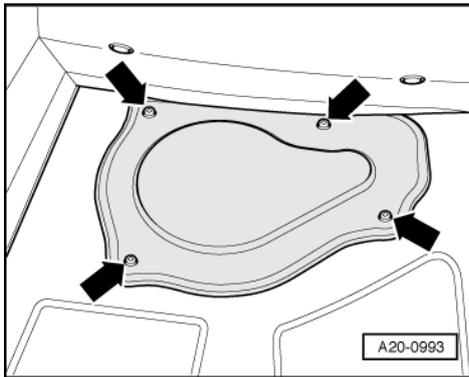
- -> Tighten locking ring (120 Nm).



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All models:

- -> Plug in connectors -1- and -2- at left sealing flange.



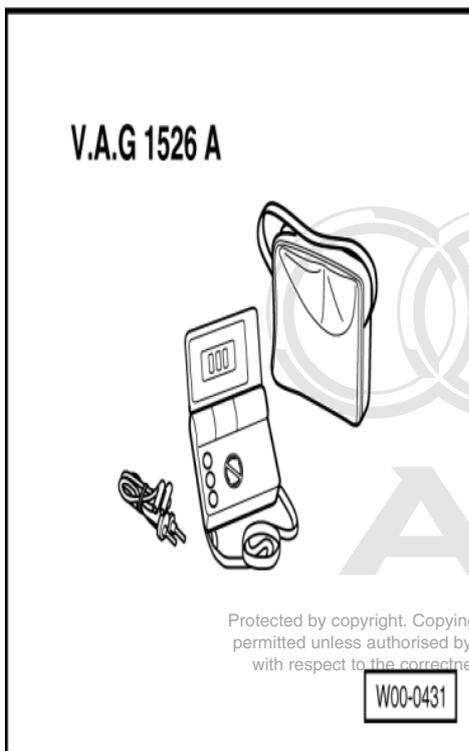
- -> Screw on cover for left sealing flange -arrows-.
- Connect battery. Heed appropriate instructions for work to be performed following battery connection.

=> Electrical system; Repair Group 27

Tightening torques

Component	Nm
Locking ring for fuel delivery unit to fuel tank (up to 10.02)	10
Locking ring for fuel delivery unit (as of 10.02)	120

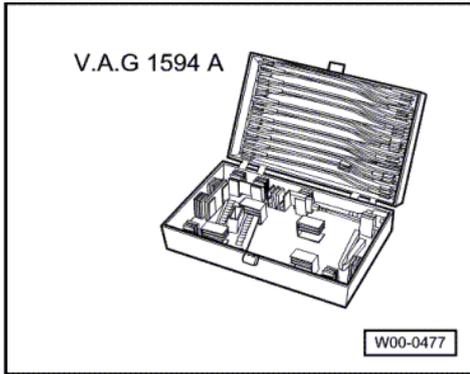
3.8 - Checking fuel gauge sender 4 -G393 (right immersed tube sender)



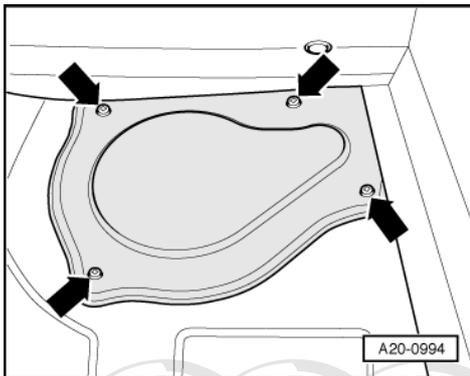
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Special tools and workshop equipment required

- ◆ V.A.G 1526 A

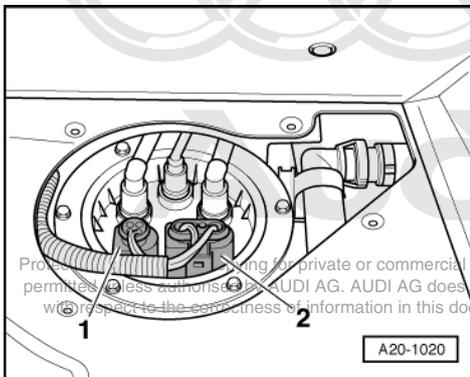


◆ V.A.G 1594 A



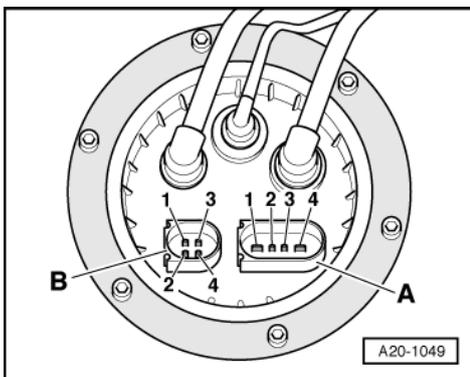
Test sequence

- Remove luggage compartment floor lining.
- -> Unscrew cover for right sealing flange -arrows-.



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- -> Carefully release connector -2- at right sealing flange and unplug.



- -> Connect up multimeter for resistance measurement between contacts 2 and 3 at connector -A-.

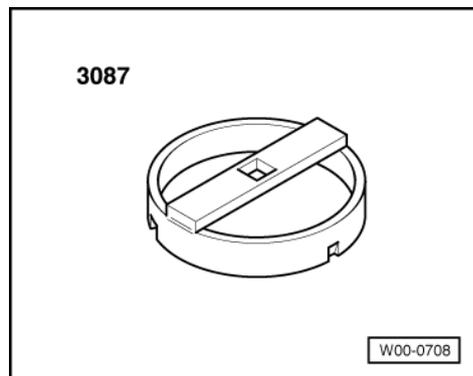
Sender removed	Sender at lower stop	Sender at upper stop
Fuel gauge sender 4 -G393	approx. 155 ω	approx. 70 ω

- Measured value of 0 ω is an indication of a short circuit, whereas $\infty\omega$ signifies an open circuit in the wiring.

Note:

Checking "Tank full"/"Tank empty" resistance values involves removing fuel gauge sender 4 -G393 => Page 91 and swivelling sender float to upper/lower stop.

3.9 - Removing and installing fuel gauge sender 4 -G393 (right immersed tube sender)



Special tools and workshop equipment required
Vehicles as of 10.02:

- ◆ Fuel gauge sender wrench 3087

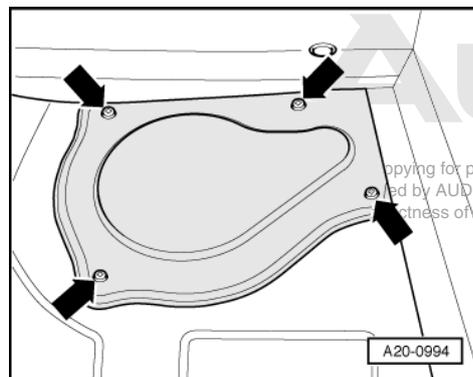
Removing

Heed safety precautions => Page 1.
 Observe rules for cleanliness => Page 2.

- When removing immersed tube sender, right fuel tank chamber must not be more than 1/3 full. Procedure for draining fuel tank => Page 7.

Attention:
 Heed appropriate instructions for battery disconnection. => Electrical system; Repair Group 27

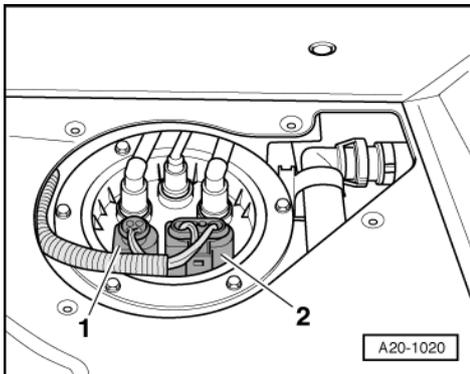
- Disconnect battery earth strap with ignition switched off.
- Briefly open fuel tank cap and close again.



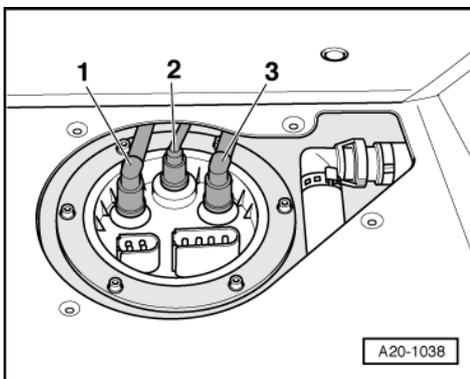
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- Remove luggage compartment floor lining.
- -> Unscrew cover for right sealing flange -arrows-.



- -> Carefully release connectors -1- and -2- at right sealing flange and unplug.

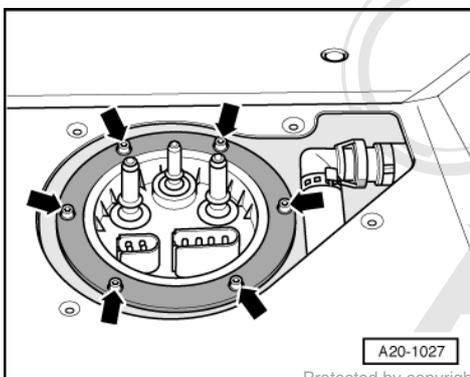


Attention:
Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.

- -> Mark and detach (press release tab) fuel supply pipe -1- and fuel return pipe -3-.

Vehicles with auxiliary heater:

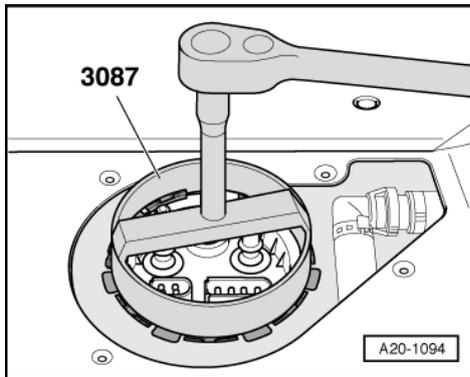
- Additionally disconnect fuel supply pipe -2- to auxiliary heater.



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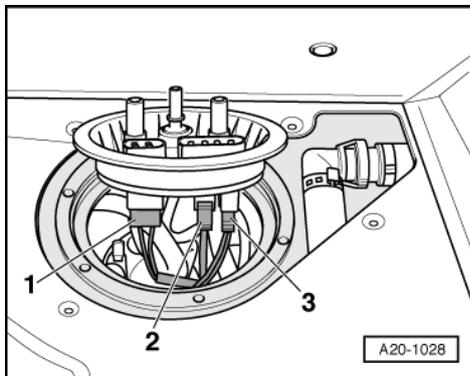
Vehicles up to 10.02:

- -> Screw out bolts -arrows- and detach securing ring for right sealing flange.



Vehicles as of 10.02:

- -> Use fuel gauge sender wrench 3087 to unscrew locking ring.

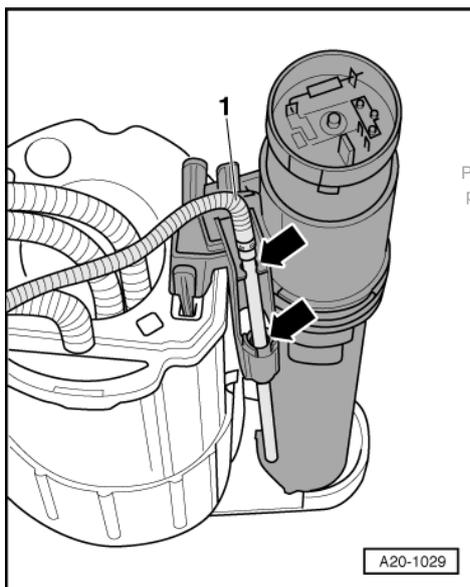


All models:

- Detach sealing flange and sealing ring/O-ring.
- -> Unplug connectors -1 ... 3- on underside of right sealing flange.

Notes:

- ◆ For disconnection of pipe couplings described in the following, pull out fuel pipes to fuel tank opening.
- ◆ Certain components have been removed in the following illustrations.



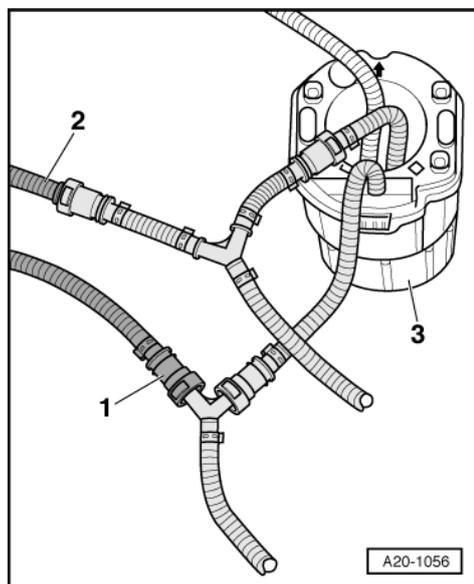
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Vehicles with auxiliary heater:

- -> Pull suction pipe -1- for auxiliary heater out of holders -arrows- at immersed tube sender.

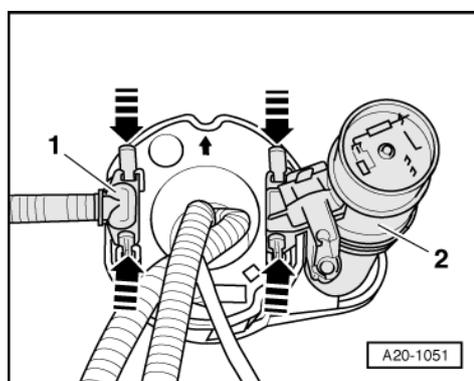


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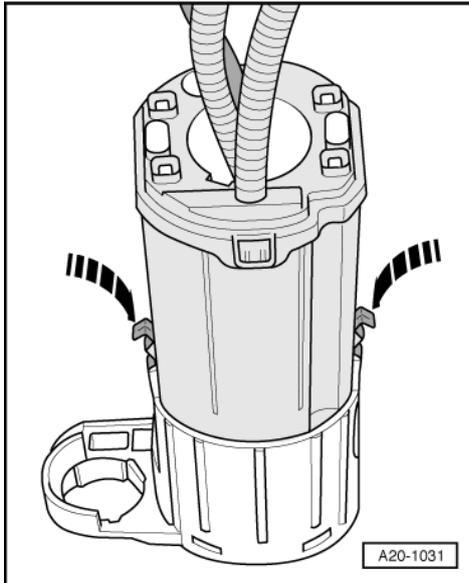
All models:

- -> Press release tab and disconnect fuel pipes -1- and -2- to left fuel delivery unit through right fuel tank opening.

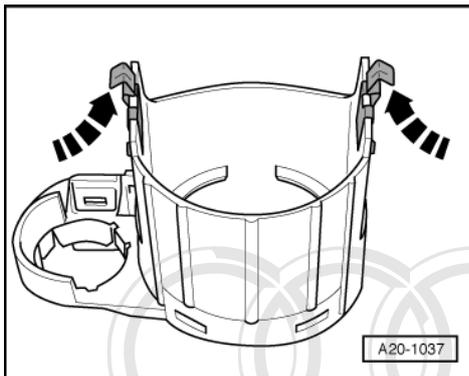
3 - Right fuel delivery unit with fuel pump -G23



- -> Through right fuel tank opening, press release tabs -arrows- and detach both delivery pipe -1- and fuel gauge sender 4 -G393 -Item 2-.
- Swivel aside fuel gauge sender 4 -G393 to right.

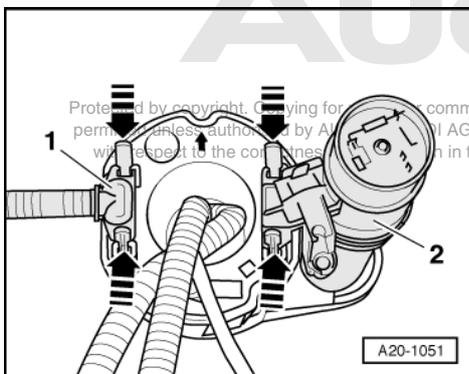


- -> Press down both retainers at mount for fuel delivery unit -arrows-.
- Lift fuel delivery unit slightly and at the same time pull out fuel gauge sender 4 -G393.

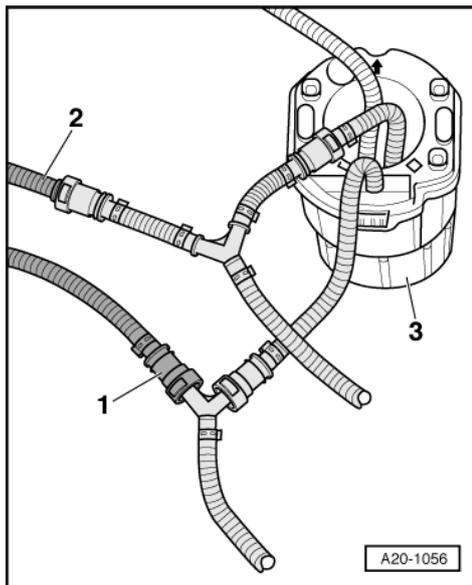


Installing

- -> Before installing fuel delivery unit, pull up both retainers at mount until they engage -arrows-.
- Then carefully press fuel delivery unit into mount until it is heard to engage.



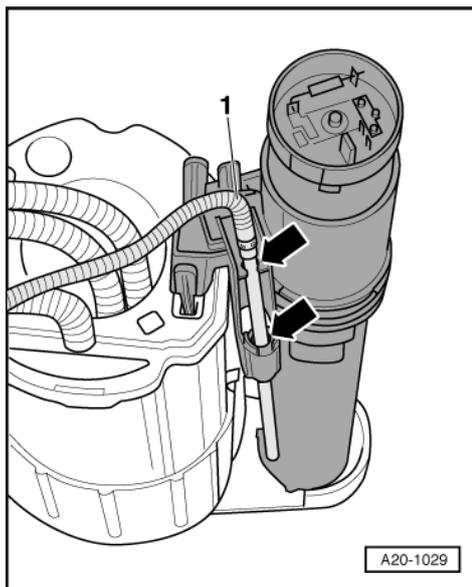
- -> Attach delivery pipe -1- and fuel gauge sender 4 -G393 -Item 2- (components must be heard to engage).



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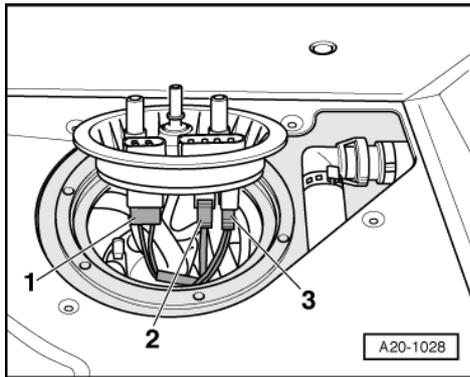
- -> Attach fuel pipes -1- and -2- to left fuel delivery unit through right opening in fuel tank (pipes must be heard to engage).

3 - Right fuel delivery unit with fuel pump -G23



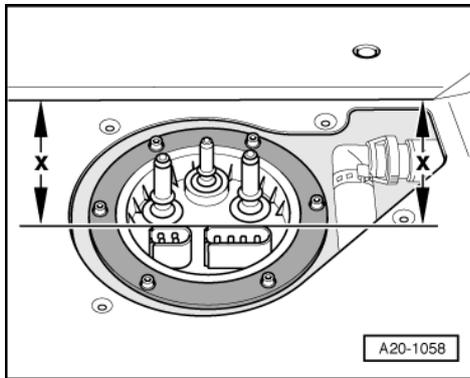
Vehicles with auxiliary heater:

- -> Insert suction pipe -1- for auxiliary heater in holders -arrows- at immersed tube sender.



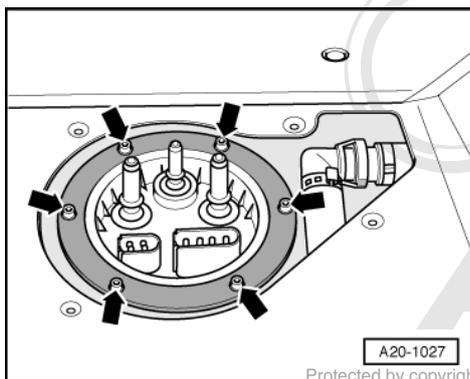
All models:

- -> Plug in connectors -1 ... 3- on underside of right sealing flange.



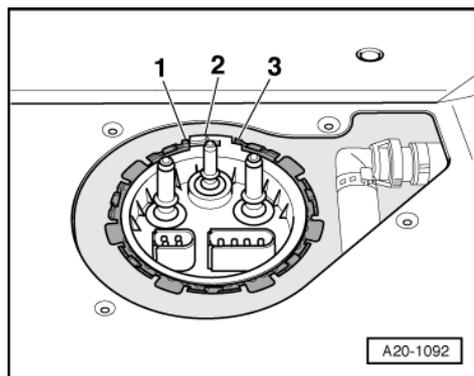
Vehicles up to 10.02:

- Insert right sealing flange with new O-ring. Installation position:
 - -> Connectors at right angles to direction of travel
 - Dimension x on left = Dimension x on right



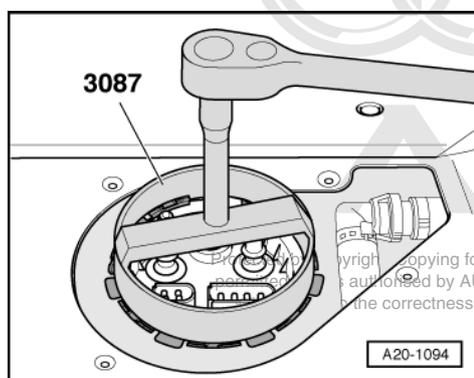
- -> Diagonally screw on securing ring for right sealing flange -arrows-

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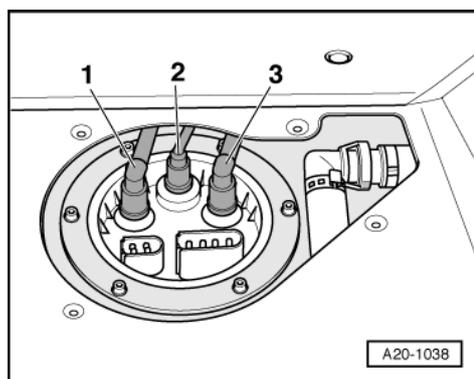


Vehicles as of 10.02:

- Insert new dry sealing flange gasket in fuel tank opening.
- Insert right sealing flange in fuel tank, paying attention to installation position.
 - -> Lug -2- at sealing flange must be located between tabs -1- and -3- at fuel tank



- -> Tighten locking ring (120 Nm).

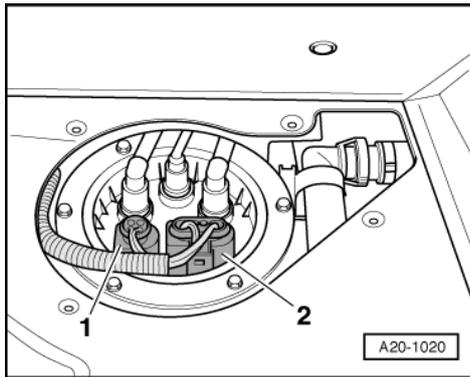


All models:

- -> Attach fuel supply pipe -1- and fuel return pipe -3- (pipes must be heard to engage).

Vehicles with auxiliary heater:

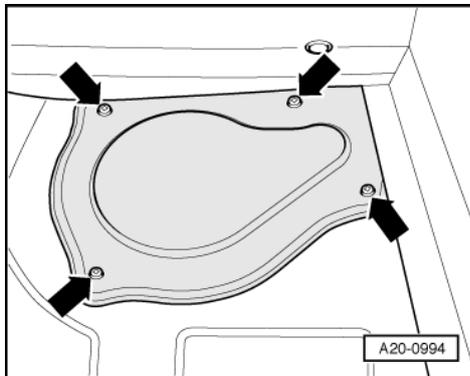
- Additionally attach fuel supply pipe -2- to auxiliary heater (pipe must be heard to engage).



All models:

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- -> Plug in connectors -1- and -2- at right sealing flange.



- -> Screw on cover for right sealing flange -arrows-.
- Connect battery. Heed appropriate instructions for work to be performed following battery connection.

=> Electrical system; Repair Group 27

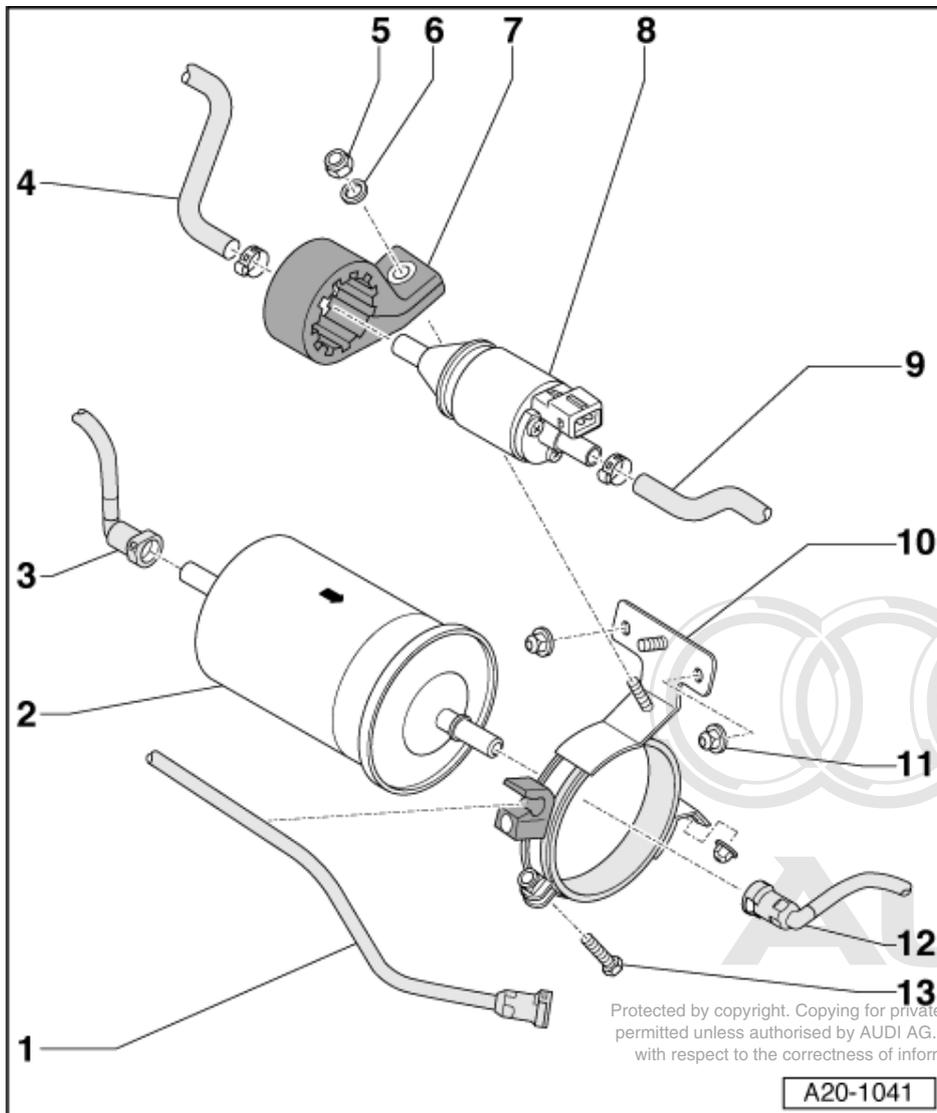
Tightening torques

Component	Nm
Locking ring for fuel delivery unit to fuel tank (up to 10.02)	10
Locking ring for fuel delivery unit (as of 10.02)	120



4 - Servicing fuel filter

4.1 - Servicing fuel filter



4.2 - Exploded view of components

Note:

Secure all hose connections with standard hose clamps.

=> Parts List

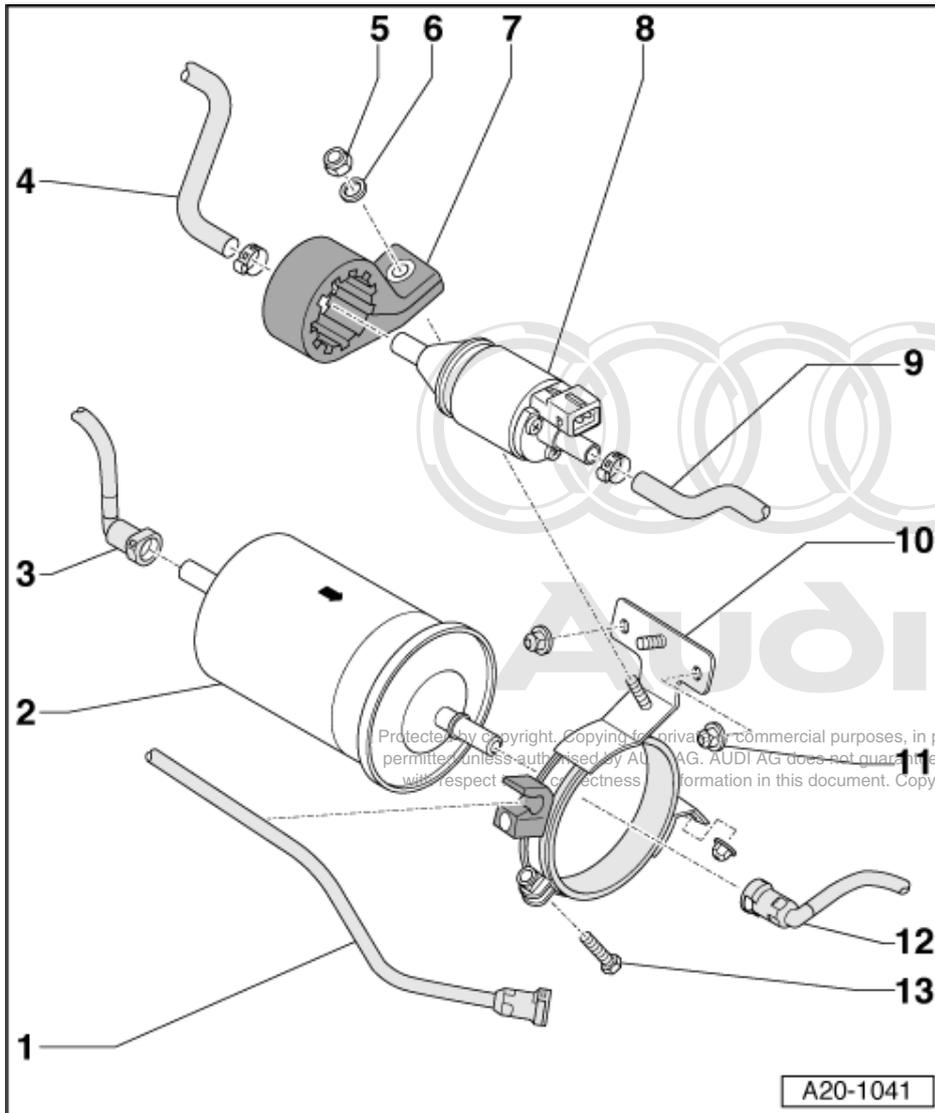
1 Fuel return pipe

- ◆ From fuel rail
- ◆ Clipped in at holder for fuel filter
- ◆ Press release tab on connection to detach

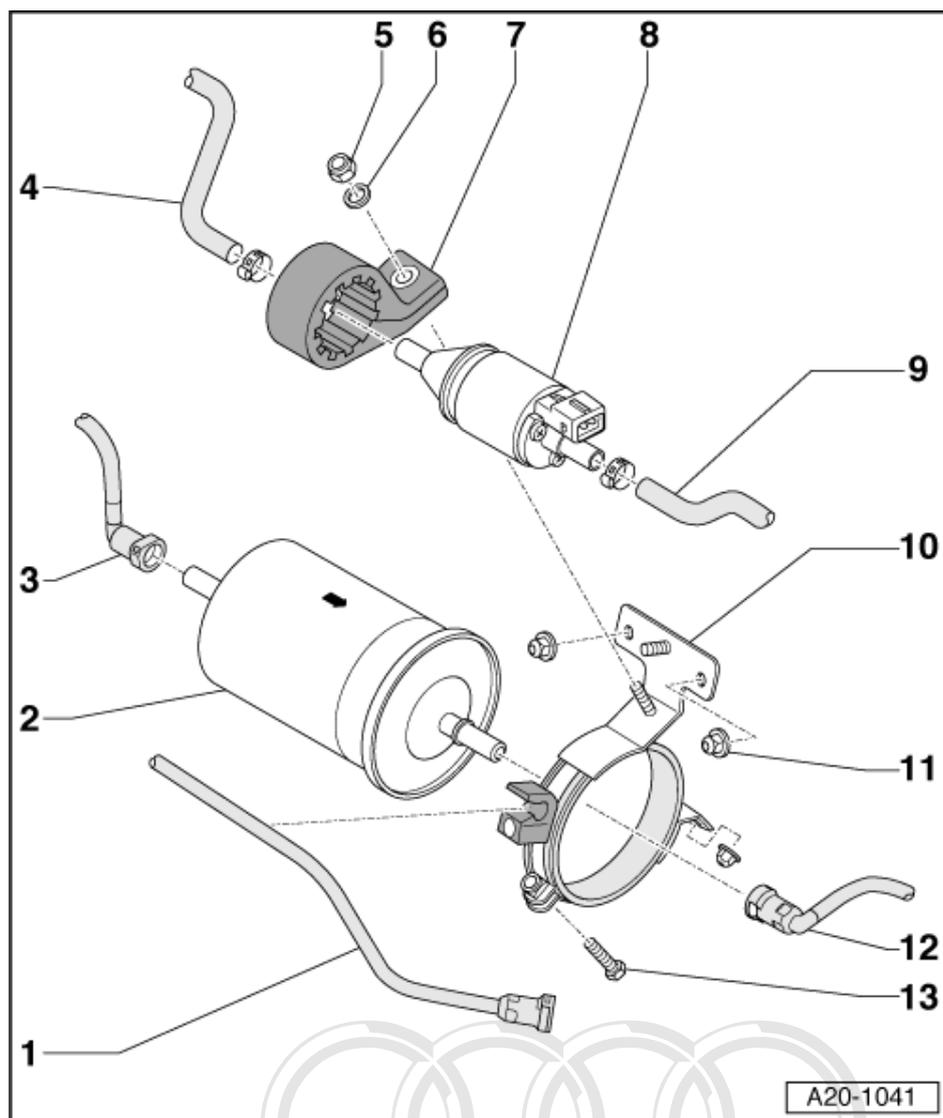
2 Fuel filter

- ◆ Direction of flow is marked by arrows
- ◆ Take care not to interchange connections
- ◆ Removing and installing

=> Page 102



- 3 Fuel supply pipe**
 - ◆ From fuel tank
 - ◆ Press release tab on connection to detach
- 4 Fuel supply pipe**
 - ◆ To metering pump for auxiliary heater
- 5 10 Nm**
 - ◆ Self-locking
 - ◆ Replace
- 6 Washer**
- 7 Collar**
- 8 Metering pump**
 - ◆ For auxiliary heater
 - ◆ Attach with collar -Item **7** - to holder -Item **10** -
- 9 Fuel supply pipe**
 - ◆ To auxiliary heater



10 Holder

- ◆ For fuel filter

11 1.5 Nm

12 Fuel supply pipe

- ◆ To fuel rail
- ◆ Press release tab on connection to detach

13 3 Nm

4.3 - Removing and installing fuel filter

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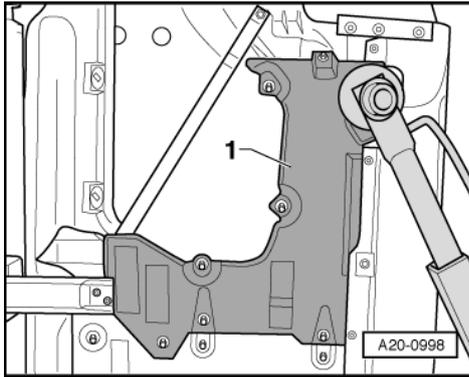
Special tools and workshop equipment required

- ◆ Drip tray

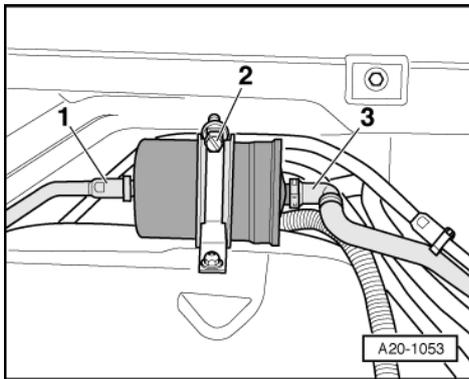
Removing

Heed safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .



- -> Unscrew cover at bottom right on underside of vehicle -arrows-.
- Place drip tray under fuel filter.



Attention:
 Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.

- -> Press release tab and disconnect fuel pipes -1- and -3-.
- Screw out bolt -2-.
- Detach fuel filter.

Installing

Install in reverse order, paying attention to the following:

- ◆ Direction of flow is marked by arrows

Tightening torque

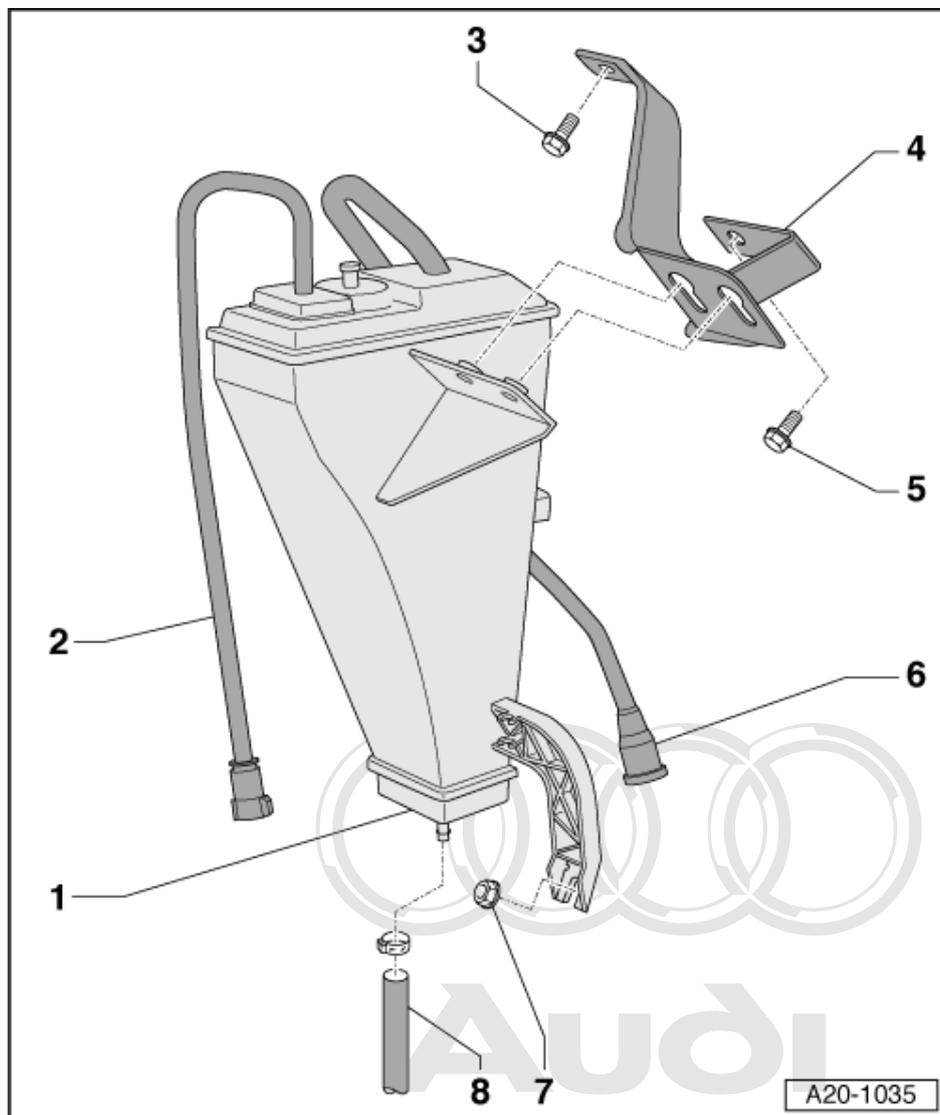
Component	Nm
Clip for fuel filter	3

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5 - Servicing activated charcoal filter system components

5.1 - Servicing activated charcoal filter system components



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5.2 - Exploded view of components

- 1 Activated charcoal filter
- 2 Breather pipe
 - ◆ To fuel tank
- 3 10 Nm
- 4 Holder
- 5 10 Nm
- 6 Breather pipe
 - ◆ To activated charcoal filter system solenoid valve 1 -N80
- 7 10 Nm
- 8 Hose
 - ◆ Exits in centre of vehicle at rear

5.3 - Removing and installing activated charcoal filter

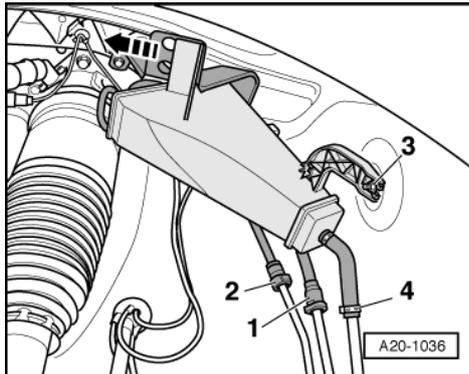
Removing

Heed safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

- Unscrew rear left wheel.
- Remove rear left wheel housing liner.

=> General body repairs, Exterior; Repair Group 66



- -> Press release tab and disconnect breather pipes -1-, -2- and -4-.
- Unscrew nut -3- and disengage activated charcoal filter at upper mount -arrow-.
- Detach activated charcoal filter with breather pipes.

Installing

Install in reverse order, paying attention to the following:

Note:

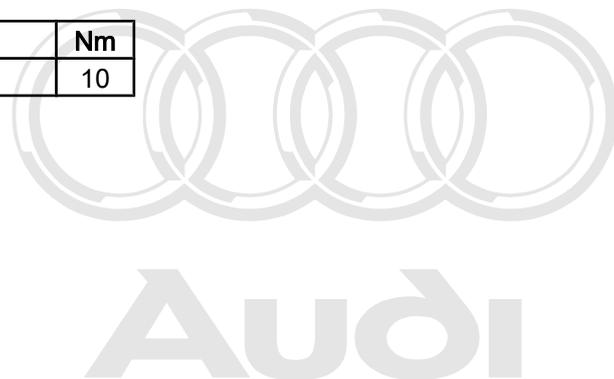
Secure all hose connections with standard hose clamps.

=> Parts List

- Engage activated charcoal filter in upper mount.
- Screw on activated charcoal filter at wheel housing.

Tightening torque

Component	Nm
Activated charcoal filter to body	10

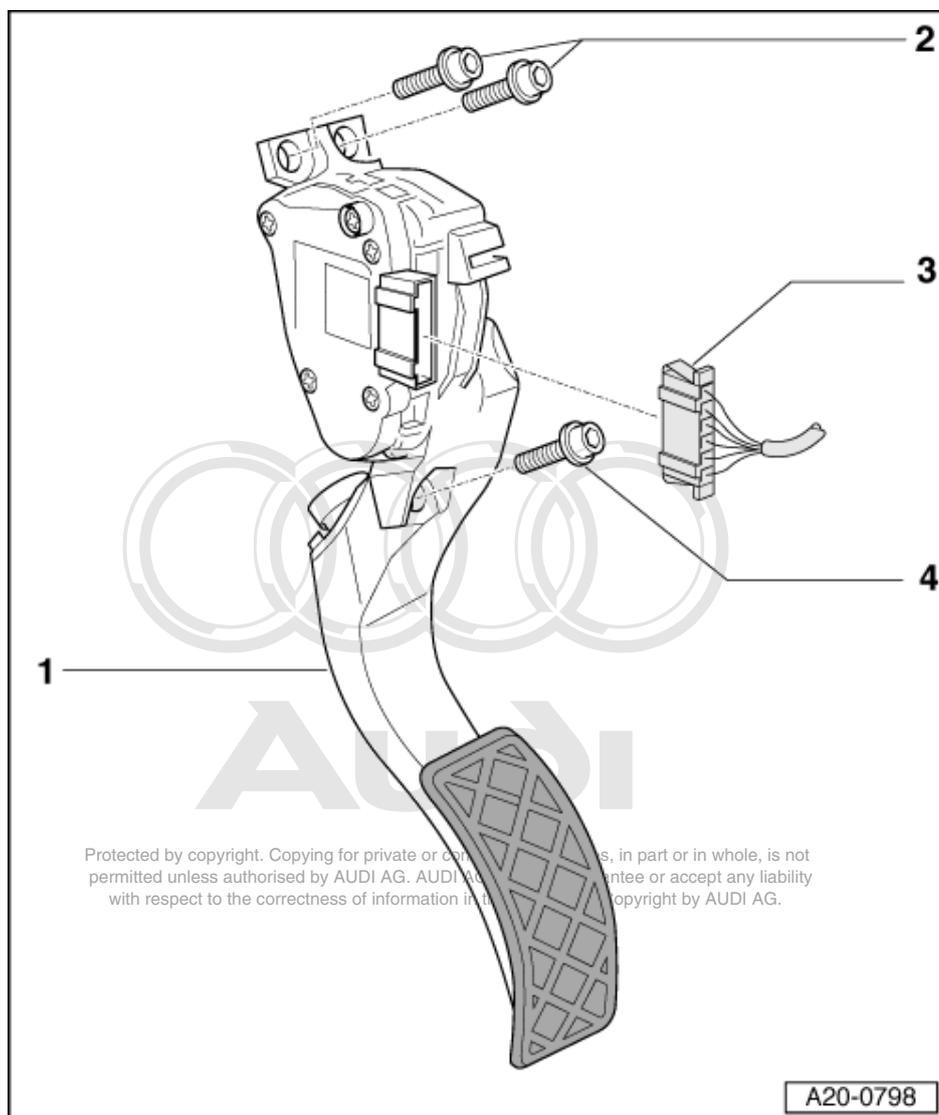


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6 - Servicing accelerator mechanism

6.1 - Servicing accelerator mechanism



1 Accelerator pedal module

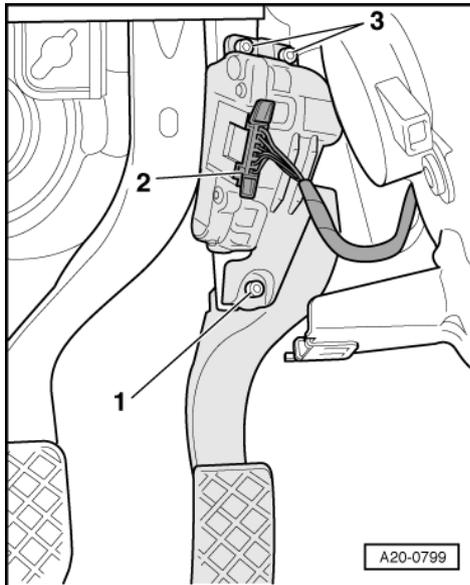
- ◆ With accelerator pedal position senders -G79 and -G185
- ◆ Removing and installing
=> Page 107

2 10 Nm

3 6-pin connector

4 10 Nm

6.2 - Removing and installing accelerator pedal module with accelerator pedal position sender



Removing

- Remove driver's storage compartment.

=> General body repairs, Interior; Repair Group 68

- -> Unplug 6-pin connector -2-.
- Screw out bolts -1- and -3-.
- Detach accelerator pedal module.

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Installing

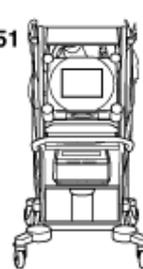
Install in reverse order.

Tightening torque

Component	Nm
Accelerator pedal module to pedal bracket	10

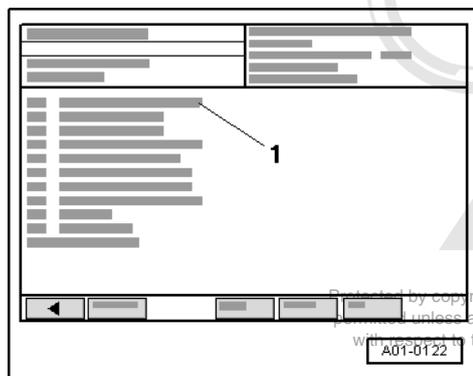


6.3 - Checking kickdown switch

<p>V.A.G 1526 A</p> 	<p>V.A.G 1594 A</p> 
<p>VAS 5051</p> 	
	<p style="text-align: right;">G20-0044</p>

Special tools and workshop equipment required

- ◆ V.A.G 1526 A
- ◆ V.A.G 1594 A
- ◆ VAS 5051 with VAS 5051/1



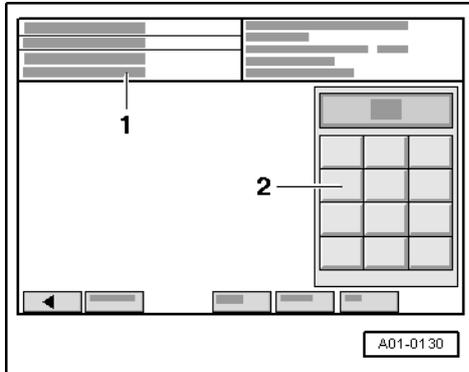
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Test sequence

- Connect up vehicle diagnostic, testing and information system VAS 5051 and select vehicle system "02 - Gearbox electronics" from list. Ignition must be on.

-> Indicated on VAS 5051:

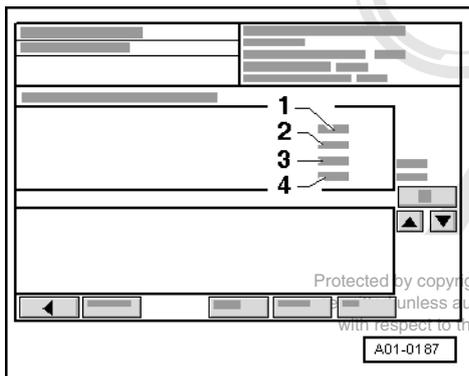
- From list -1- select diagnostic function "08 - Reading measured value block".



-> Indicated on VAS 5051:

1 - Enter display group

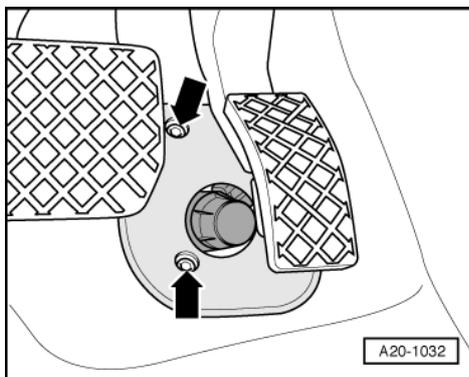
- Use keypad -2- to enter "008" for "Display group number 008" and confirm by touching Q key.



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-> Indicated on VAS 5051:

- Check display in zone -1-.
 - Accelerator pedal not pressed: No display
 - Slowly move accelerator pedal in full-throttle direction.
 - Resistance must drop to 0 ω shortly after kickdown pressure point
- Terminate function "08 - Reading measured value block" by touching ◀ key.
- Touch "06 - End of output".





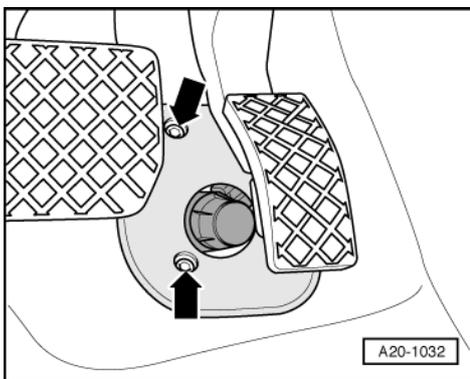
If display is not as described:

- -> Screw out bolts -arrows- and detach cover for kickdown switch.
- Unplug connector.
- Connect multimeter to kickdown switch for resistance measurement.
 - Specification: $\infty \omega$ (no continuity)
- Slowly move accelerator pedal in full-throttle direction.
 - Resistance must drop to 0 ω shortly after kickdown pressure point

If display is not as described:

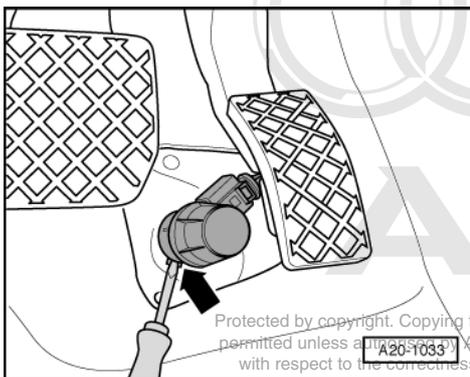
- Replace kickdown switch => Page 110 .

6.4 - Removing and installing kickdown switch



Removing

- -> Screw out bolts -arrows- and detach cover for kickdown switch.



- -> Use small screwdriver to release retainer tab -arrow- and turn kickdown switch anti-clockwise.
- Unplug connector.

Installing

Install in reverse order.