

Workshop Manual Audi A8 2003 ➤

Fuel supply system, petrol engines									
Engine ID	ASN	AUK	BBJ	BFL	BFM	BGK	BHT	BPK	BSB
	BTE	BSM	BVJ	BKH	BDX	CJBA			

Edition 02.2014



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

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

Repair Group

00 - Technical data

20 - Fuel supply system



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

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.

All rights reserved.
No reproduction without prior agreement from publisher.

Contents

00 - Technical data	1
1 Safety precautions	1
1.1 Safety precautions when working on the fuel system	1
1.2 Safety precautions when using testers and measuring instruments during a road test	2
2 Repair instructions	3
2.1 Rules for cleanliness	3
2.2 Test conditions	3
2.3 Contact corrosion	3
2.4 Routing and attachment of pipes, hoses and wiring	4
20 - Fuel supply system	5
1 Fuel tank with attached components - all rest-of-world vehicles	5
1.1 Fuel tank with attached components - exploded view	5
1.2 Draining fuel tank	7
1.3 Removing and installing fuel tank with attached components	10
2 Routing of pipes/hoses (inside fuel tank) - rest-of-world vehicles with MPI engine	17
2.1 Routing of pipes/hoses (inside fuel tank) - exploded view	17
3 Fuel delivery unit with fuel pump and fuel gauge senders - rest-of-world vehicles with MPI engine	19
3.1 Exploded view - fuel delivery unit (left-side) with fuel system pressurisation pump G6 and fuel gauge senders G and G237	19
3.2 Checking fuel system pressurisation pump G6 (left-side) - electrical test	21
3.3 Removing and installing fuel delivery unit (left-side) with fuel system pressurisation pump G6	26
3.4 Exploded view - fuel delivery unit (right-side) with fuel pump G23 and fuel gauge senders G169 and G393	36
3.5 Checking fuel pump G23 (right-side) - electrical test	39
3.6 Removing and installing fuel delivery unit (right-side) with fuel pump G23	42
3.7 Checking delivery rate of fuel pumps - vehicles with fuel return line	53
3.8 Checking delivery rate of fuel pumps - vehicles with fuel system without fuel return line ..	56
3.9 Suction-jet pumps	60
3.10 Removing and installing suction-jet pump (left-side)	62
3.11 Removing and installing suction-jet pump (right-side)	63
4 Routing of pipes/hoses (inside fuel tank) - rest-of-world vehicles with FSI engine	66
4.1 Routing of pipes/hoses (inside fuel tank) - exploded view	66
5 Fuel delivery unit with fuel pump and fuel gauge senders - rest-of-world vehicles with FSI engine	68
5.1 Exploded view - fuel delivery unit (left-side) with fuel system pressurisation pump G6 and fuel gauge senders G and G237	68
5.2 Checking fuel system pressurisation pump G6 (left-side) - electrical test	70
5.3 Removing and installing fuel delivery unit (left-side) with fuel system pressurisation pump G6	70
5.4 Exploded view - fuel delivery unit (right-side) with fuel pump G23 and fuel gauge senders G169 and G393	79
5.5 Checking fuel pump G23 (right-side) - electrical test	81
5.6 Removing and installing fuel delivery unit (right-side) with fuel pump G23	81
5.7 Checking delivery rate of fuel pumps - vehicles with 6-cylinder engine	90
5.8 Checking delivery rate of fuel pumps - vehicles with 8-cylinder engine	94
5.9 Checking delivery rate of fuel pumps - vehicles with 10-cylinder engine (Audi S8)	98
5.10 Fuel pump control unit J538	102
5.11 Removing and installing fuel pump control unit J538	102
5.12 Suction-jet pumps	103
5.13 Removing and installing suction-jet pump (left-side)	105
5.14 Removing and installing suction-jet pump (right-side)	107

Produced by copyrighting and publishing in the German language. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of Audi AG. Copyright by Audi AG.

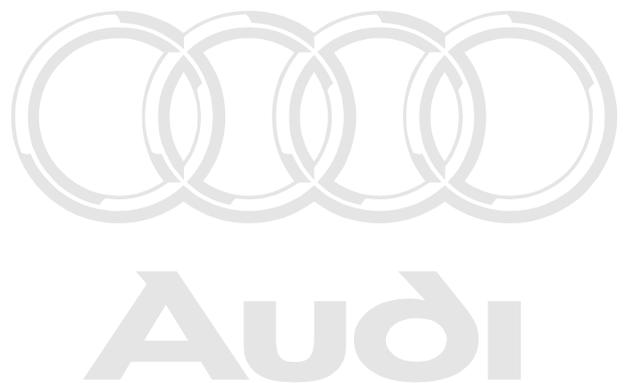


6	Fuel tank with attached components - all USA vehicles	110
6.1	Fuel tank with attached components - exploded view	110
6.2	Draining fuel tank	112
6.3	Removing and installing fuel tank with attached components	115
7	Routing of pipes/hoses (inside fuel tank) - USA vehicles with MPI engine	121
7.1	Routing of pipes/hoses (inside fuel tank) - exploded view	121
8	Fuel delivery unit with fuel pump and fuel gauge senders - USA vehicles with MPI engine	123
8.1	Exploded view - fuel delivery unit (left-side) with fuel system pressurisation pump G6 and fuel gauge senders G and G237	123
8.2	Checking fuel system pressurisation pump G6 (left-side) - electrical test	125
8.3	Removing and installing fuel delivery unit (left-side) with fuel system pressurisation pump G6	129
8.4	Exploded view - fuel delivery unit (right-side) with fuel pump G23 and fuel gauge senders G169 and G393	136
8.5	Checking fuel pump G23 (right-side) - electrical test	138
8.6	Removing and installing fuel delivery unit (right-side) with fuel pump G23	141
8.7	Checking delivery rate of fuel pumps - vehicles with fuel return line	149
8.8	Checking delivery rate of fuel pumps - vehicles with fuel system without fuel return line	153
8.9	Suction-jet pumps	157
8.10	Removing and installing suction-jet pump (left-side)	159
8.11	Removing and installing suction-jet pump (right-side)	160
9	Routing of pipes/hoses (inside fuel tank) - USA vehicles with FSI engine	163
9.1	Routing of pipes/hoses (inside fuel tank) - exploded view	163
10	Fuel delivery unit with fuel pump and fuel gauge senders - USA vehicles with FSI engine	165
10.1	Exploded view - fuel delivery unit (left-side) with fuel system pressurisation pump G6 and fuel gauge senders G and G237	165
10.2	Checking fuel system pressurisation pump G6 (left-side) - electrical test	167
10.3	Removing and installing fuel delivery unit (left-side) with fuel system pressurisation pump G6	167
10.4	Exploded view - fuel delivery unit (right-side) with fuel pump G23 and fuel gauge senders G169 and G393	175
10.5	Checking fuel pump G23 (right-side) - electrical test	176
10.6	Removing and installing fuel delivery unit (right-side) with fuel pump G23	177
10.7	Checking delivery rate of fuel pumps - vehicles with 8-cylinder engine	185
10.8	Checking delivery rate of fuel pumps - vehicles with 10-cylinder engine (Audi S8)	189
10.9	Fuel pump control unit J538	193
10.10	Removing and installing fuel pump control unit J538	193
10.11	Suction-jet pumps	194
10.12	Removing and installing suction-jet pump (left-side)	196
10.13	Removing and installing suction-jet pump (right-side)	198
11	Fuel gauge senders - rest-of-world vehicles	201
11.1	Checking fuel gauge sender G (lever-type sender, left-side)	201
11.2	Removing and installing fuel gauge sender G (lever-type sender, left-side)	202
11.3	Checking fuel gauge sender 2 G169 (lever-type sender, right-side)	203
11.4	Removing and installing fuel gauge sender 2 G169 (lever-type sender, right-side)	204
11.5	Checking fuel gauge sender 3 G237 (tubular sender, left-side)	205
11.6	Removing and installing fuel gauge sender 3 G237 (tubular sender, left-side)	206
11.7	Checking fuel gauge sender 4 G393 (tubular sender, right-side)	211
11.8	Removing and installing fuel gauge sender 4 G393 (tubular sender, right-side)	213
12	Fuel gauge senders - USA vehicles	221
12.1	Checking fuel gauge sender G (lever-type sender, left-side)	221
12.2	Removing and installing fuel gauge sender G (lever-type sender, left-side)	222
12.3	Checking fuel gauge sender 2 G169 (lever-type sender, right-side)	223
12.4	Removing and installing fuel gauge sender 2 G169 (lever-type sender, right-side)	224

12.5	Checking fuel gauge sender 3 G237 (tubular sender, left-side)	225
12.6	Removing and installing fuel gauge sender 3 G237 (tubular sender, left-side)	226
12.7	Checking fuel gauge sender 4 G393 (tubular sender, right-side)	230
12.8	Removing and installing fuel gauge sender 4 G393 (tubular sender, right-side)	232
13	Fuel filter - all vehicles	239
13.1	Fuel filter on vehicles without auxiliary heater - exploded view	239
13.2	Removing and installing fuel filter on vehicles without auxiliary heater	240
13.3	Fuel filter on vehicles with auxiliary heater - exploded view	240
13.4	Removing and installing fuel filter on vehicles with auxiliary heater	241
13.5	Fuel filter on vehicles with fuel system without fuel return line - exploded view	242
13.6	Removing and installing fuel filter on vehicles with fuel system without fuel return line	243
14	Activated charcoal filter system - rest-of-world vehicles	245
14.1	Activated charcoal filter system - exploded view	245
14.2	Removing and installing activated charcoal filter	245
15	Activated charcoal filter system - USA vehicles	247
15.1	Activated charcoal filter system - exploded view	247
15.2	Removing and installing activated charcoal filter	248
15.3	Routing of pipes/hoses for activated charcoal filter system with tank leak diagnostic system - vehicles with 8-cylinder and 10-cylinder engines	249
15.4	Routing of pipes/hoses for activated charcoal filter system with tank leak diagnostic system - vehicles with 12-cylinder engine	251
15.5	Tank leak diagnostic system	251
15.6	Performing tank leak diagnosis	252
15.7	Fuel system diagnostic pump V144 - exploded view	253
15.8	Removing and installing fuel system diagnostic pump V144	254
15.9	Removing and installing activated charcoal filter solenoid valve 2 N115	255
16	Accelerator mechanism - all vehicles	256
16.1	Accelerator mechanism - exploded view	256
16.2	Removing and installing accelerator pedal module with accelerator position sender	257
16.3	Removing and installing kickdown switch F8	257



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

00 – Technical data

1 Safety precautions

(ARL003707; Edition 02.2014)

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

⇒ [“1.2 Safety precautions when using testers and measuring instruments during a road test”, page 2](#)

1.1 Safety precautions when working on the fuel system

When working on the fuel system note the following warnings:

	<p>WARNING</p> <p><i>Risk of injury - fuel system operates under high pressure.</i></p> <ul style="list-style-type: none"> ◆ <i>Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.</i> ◆ <i>Vehicles with FSI engine: fuel system components on the engine that are fed from the high-pressure pump operate under very high pressure. When working on the engine or injection system, the pressure in the high-pressure section of the system must be reduced to a residual pressure prior to opening ⇒ Rep. gr. 24 .</i> <p><i>Health risk: avoid skin contact with fuel.</i></p> <ul style="list-style-type: none"> ◆ <i>Avoid skin contact with fuel. Wear fuel-resistant gloves.</i> <p><i>Mobile phones can cause an explosion risk.</i></p> <ul style="list-style-type: none"> ◆ <i>Ensure that any mobile phones are well clear of the work-bay.</i>
---	---

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

- ◆ Fuel tank must not be full. The amount of fuel which can be left in the fuel tank is indicated in the corresponding procedure description. Drain fuel tank if necessary: rest-of-world vehicles ⇒ [page 7](#) , USA vehicles ⇒ [page 112](#) .
- ◆ Before commencing work, switch on exhaust extraction system and place an extraction hose close to the opening in the fuel tank to extract escaping petrol fumes.
- ◆ If no exhaust extraction system is available, a radial fan with a displacement of at least 15 m³/h can be used (the fan motor must be clear of the air stream).

Fuel tank must be empty when installing and removing to reduce weight. Drain fuel tank if necessary: rest-of-world vehicles ⇒ [page 7](#) , USA vehicles ⇒ [page 112](#) .

Observe the following to prevent injuries to persons and damage to the injection and ignition system:

- ◆ Persons wearing a cardiac pacemaker must at all times maintain a safe distance from high-voltage components such as the ignition system and xenon headlights.



- ◆ Do not touch or disconnect ignition coils with output stages when the engine is running or being turned at cranking speed.
- ◆ Always switch off the ignition before connecting or disconnecting electrical wiring for the injection or ignition system or tester cables.
- ◆ Always switch off ignition before washing engine.
- ◆ When installing, note colour coding of plug-in connectors.
- ◆ Plug-in connectors should engage audibly when connecting.
- ◆ Pull plug-in connectors to check that they are correctly engaged.
- ◆ Erase any entries in event memory resulting from testing or installation → Vehicle diagnostic tester, Guided Functions, Interrogate event memory, then Generate readiness code.

**Caution**

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

- ◆ *Observe notes on procedure for disconnecting the battery.*
- ◆ *Always switch off the ignition before disconnecting the battery → Electrical system; Rep. gr. 27 .*

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

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

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

**WARNING**

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

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

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

2 Repair instructions

⇒ [“2.1 Rules for cleanliness”, page 3](#)

⇒ [“2.2 Test conditions”, page 3](#)

⇒ [“2.3 Contact corrosion”, page 3](#)

⇒ [“2.4 Routing and attachment of pipes, hoses and wiring”, page 4](#)

2.1 Rules for cleanliness

Even small amounts of dirt can cause malfunctions. When working on the fuel supply system and injection system, pay careful attention to the following basic rules:

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

2.2 Test conditions

- Battery voltage at least 12.5 V.
- Fuel pump fuse OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel pump relay - J17- / electric fuel pump 2 relay - J49- OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel pump control unit - J538- OK; checking in [Guided Fault Finding](#) ⇒ Vehicle diagnostic tester.
- Fuel tank at least 1/4 full.
- Fuel filter OK.
- Fuel lines OK (not obstructed or crushed).
- Ignition off.

2.3 Contact corrosion

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

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

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



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

Note the following:

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

2.4 Routing and attachment of pipes, hoses and wiring



Caution

Risk of damage to pipes/hoses/wiring.

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



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

20 – Fuel supply system

1 Fuel tank with attached components - all rest-of-world vehicles

⇒ “1.1 Fuel tank with attached components - exploded view”, page 5

⇒ “1.2 Draining fuel tank”, page 7

⇒ “1.3 Removing and installing fuel tank with attached components”, page 10

1.1 Fuel tank with attached components - exploded view

Note

The illustration shows a fuel system with fuel return line.

1 - Securing strap

- With spacer, installation position ⇒ [page 6](#)

2 - Bolt

- 22 Nm

3 - Fuel supply line

- From fuel filter
- To engine
- Mark before removing
- Press release tab on connection piece to disconnect

4 - Fuel return line

- From engine
- Mark before removing
- Press release tab on connection piece to disconnect
- Note direction of arrow on flange
- Clip onto fuel tank

5 - Supply line

- To auxiliary heater

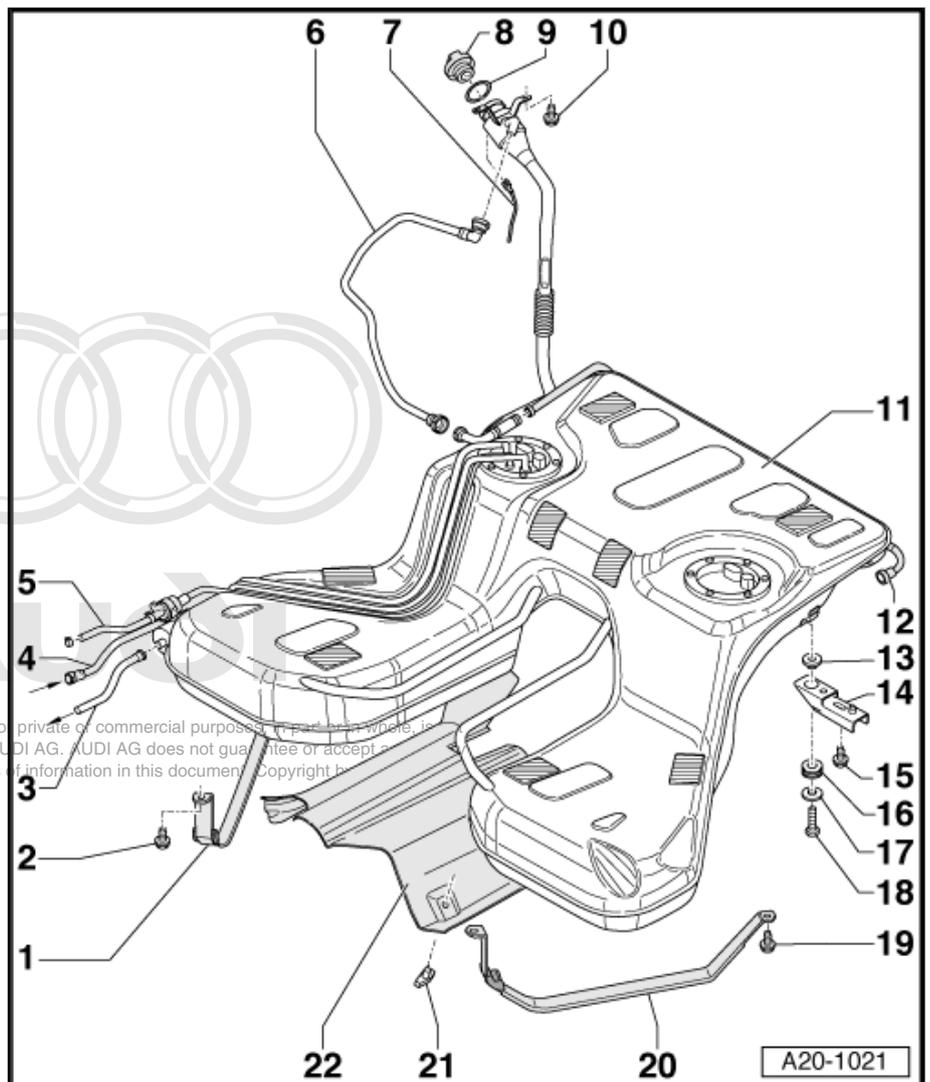
6 - Breather line

7 - Earth connection

- To eliminate electrostatic charge
- Installation position / test procedure ⇒ [page 7](#)

- Make sure that connector is securely fitted

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





8 - Filler cap

9 - Seal

- Renew if damaged

10 - Bolt

- 22 Nm

11 - Fuel tank

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

12 - Breather line

- To activated charcoal filter in rear left wheel housing
- Clip onto fuel tank
- Remains on fuel tank when tank is removed

13 - Bush

14 - Fuel tank bracket

15 - Bolt

- 22 Nm

16 - Rubber buffer

17 - Washer

18 - Bolt

- 22 Nm

19 - Bolt

- 22 Nm

20 - Securing strap

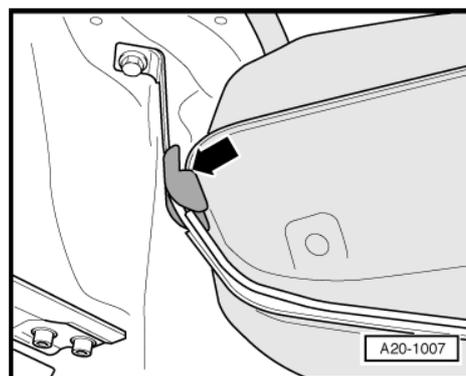
- With spacer, installation position ⇒ [page 6](#)

21 - Retaining clip for heat shield

22 - Heat shield

Installation position of spacers

- Make sure that securing strap spacers are located directly under seam of fuel tank -arrow-.



Installation position of earth connection

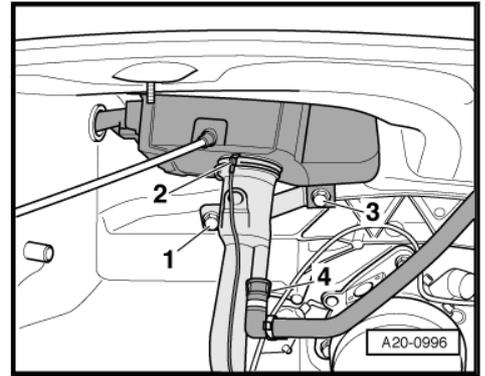
- Position the earth connection as illustrated -2-.
- Ensure that plug connector for earth connection is properly seated on metal ring on fuel filler neck.



Caution

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

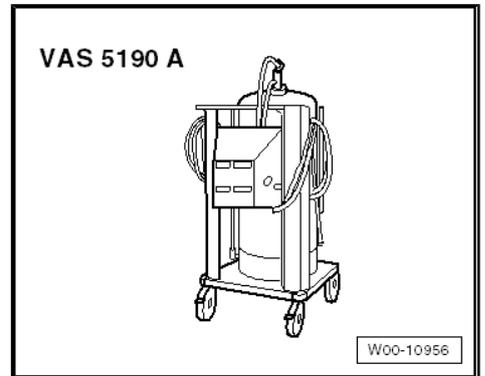
- *Specification: approx. 0 Ω.*



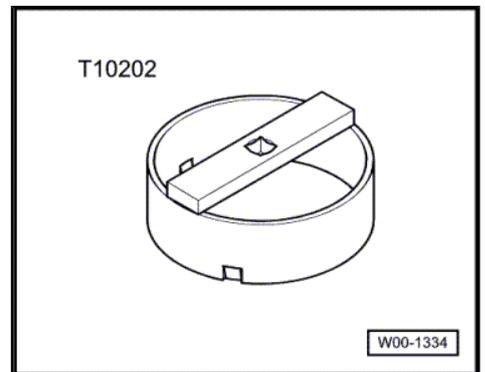
1.2 Draining fuel tank

Special tools and workshop equipment required

- ◆ Fuel extractor - VAS 5190A-



- ◆ Vehicles from approx. 11.2002: Wrench - T10202-



Procedure

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

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

- Briefly open filler cap for fuel tank and close again.



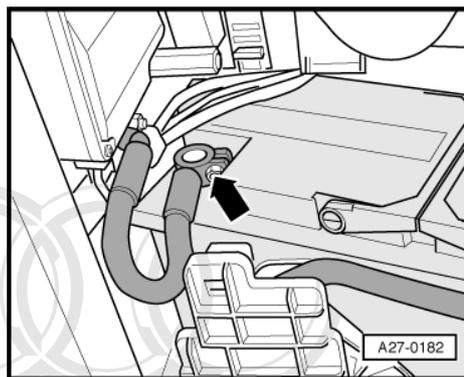
Caution

Observe notes on procedure for disconnecting the battery.

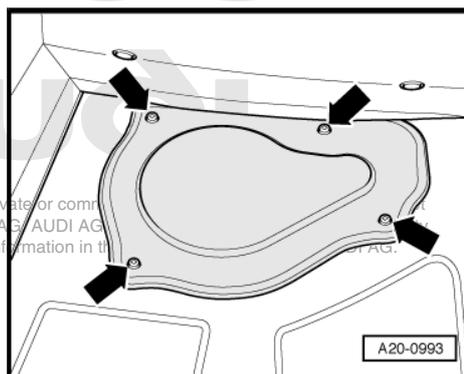
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- With ignition switched off, disconnect battery earth cable -arrow- => Electrical system; Rep. gr. 27 .

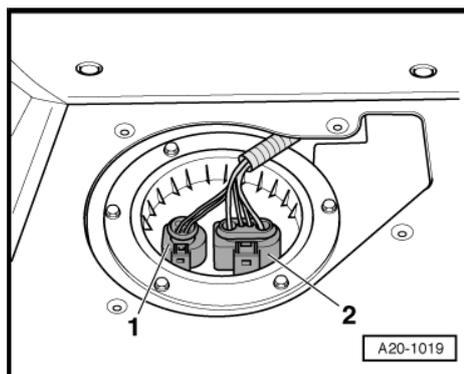


- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



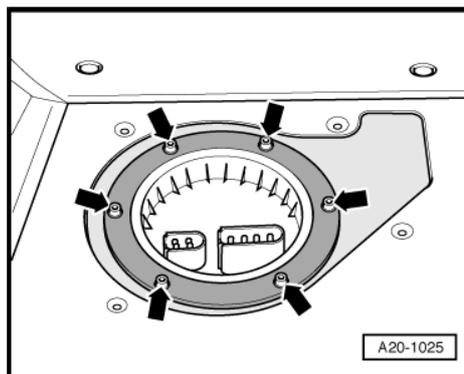
Protected by copyright. Copying for private or commercial use is not permitted unless authorised by AUDI AG. AUDI AG is not liable for any damage with respect to the correctness of information in this manual.

- Unplug electrical connectors -1- and -2- on flange (left-side).



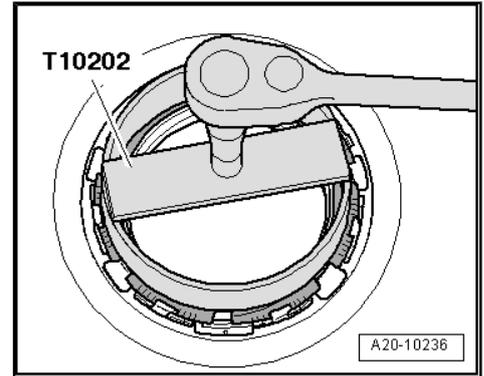
Vehicles up to approx. 10.2002:

- Remove bolts -arrows- and take off locking ring for flange (left-side).



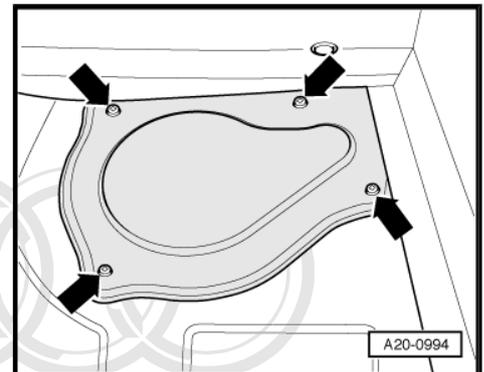
Vehicles from approx. 11.2002 onwards:

- Unscrew locking ring using wrench - T10202- .

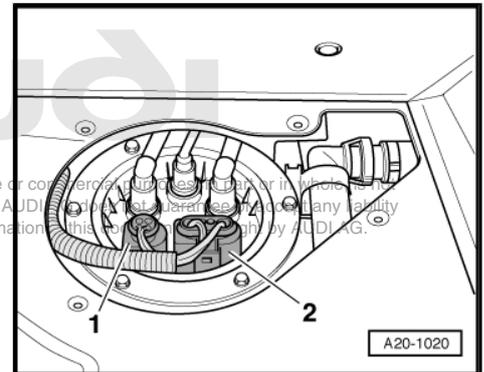


All vehicles (continued):

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



- Unplug electrical connectors -1- and -2- on flange (right-side).



- Mark fuel return line -1- and fuel supply line -3-.

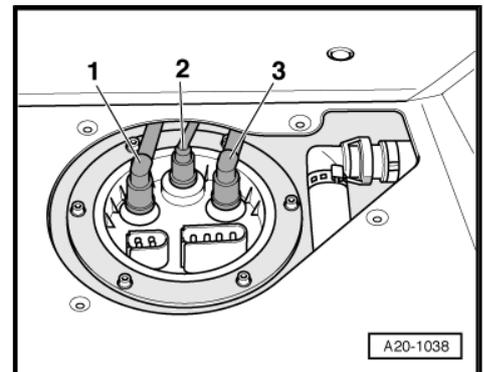
⚠ WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

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

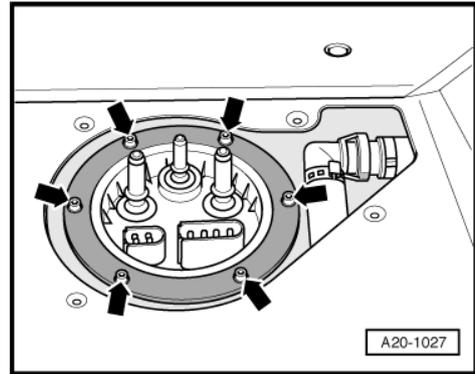
Vehicles with auxiliary heater:

- In addition, disconnect fuel supply line -2- for auxiliary heater.

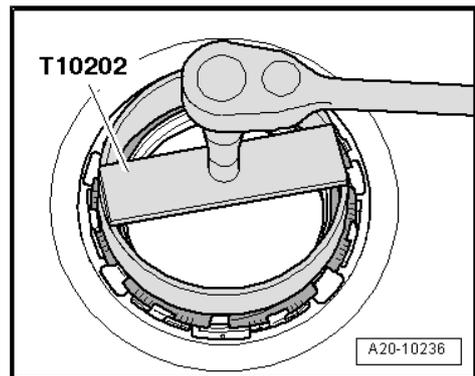


**Vehicles up to approx. 10.2002:**

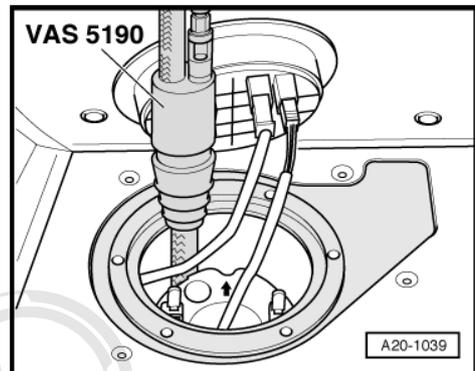
- Remove bolts -arrows- and take off locking ring for flange (right-side).

**Vehicles from approx. 11.2002 onwards:**

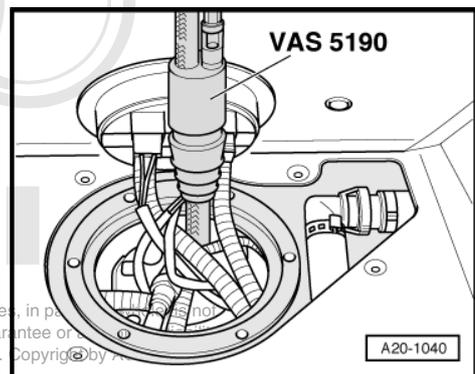
- Unscrew locking ring using wrench - T10202- .

**All vehicles (continued):**

- Connect earth wire of fuel extractor - VAS 5190A- to earth stud of energy management control unit - J644- .
- Remove flange (left-side) and lay it aside with electrical wires connected.
- Remove seal/O-ring.
- Extract fuel from left fuel tank chamber through fuel tank opening using fuel extractor - VAS 5190A- .



- Remove flange (right-side) and lay it aside with electrical wires and fuel lines connected.
- Remove seal/O-ring.
- Extract fuel from right fuel tank chamber through fuel tank opening using fuel extractor unit - VAS 5190A- .
- Re-install flange: left-side => [page 31](#) , right-side => [page 48](#) .

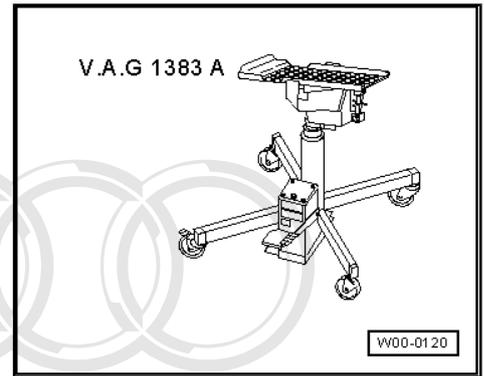


Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or assume any liability with respect to the correctness of information in this document. Copyright © by Audi AG.

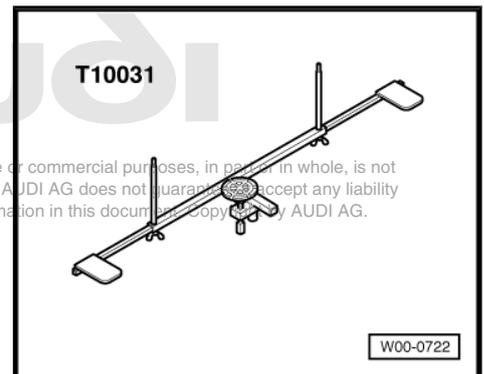
1.3 Removing and installing fuel tank with attached components

Special tools and workshop equipment required

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



◆ Support - T10031-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee, accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Removing

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

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

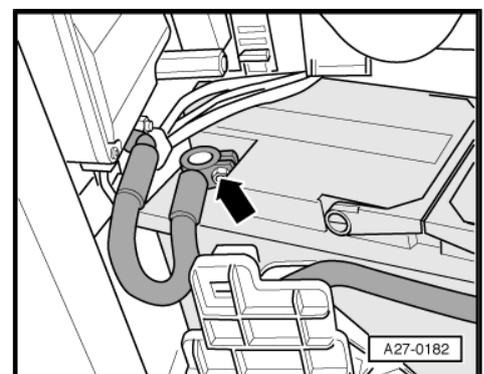
- To reduce weight, the fuel tank must be empty when it is removed from the vehicle. Drain the tank if necessary. Procedure ⇒ [page 7](#)
- Release the tank flap.



Caution

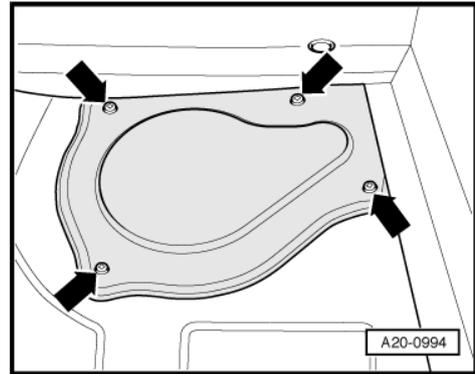
Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable -arrow- ⇒ Electrical system; Rep. gr. 27 .





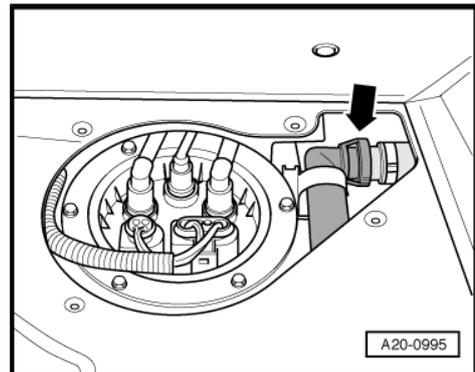
- Remove luggage compartment floor covering.
- Unscrew cover for flange (right-side) -arrows-.



- Press release tabs to disconnect breather pipe -arrow-.

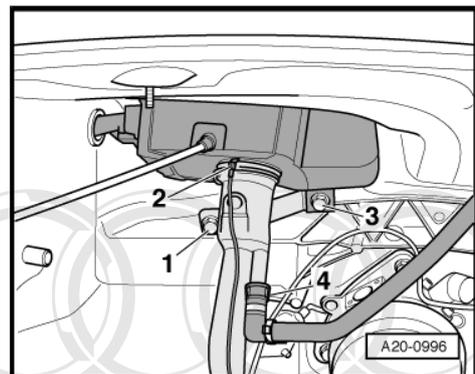
! WARNING

BEFORE loosening the subframe bolts, ensure that the vehicle cannot tip forwards (for instance by putting a weight of about 50 kg in the luggage compartment).



- Remove rear axle => Rep. gr. 42 .
- Remove rear right wheel housing liner => Rep. gr. 66 .

- Disconnect earth wire -2- from fuel filler neck.
- Disconnect breather pipe -4- from fuel filler neck.
- Remove bolts -1- and -3- for fuel filler neck.

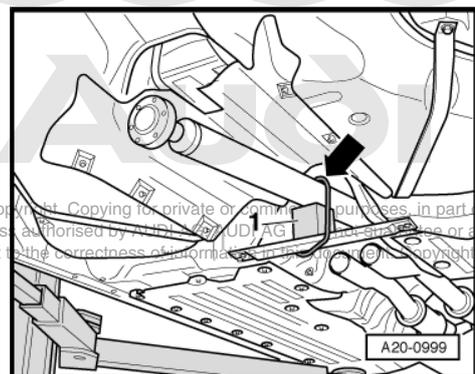


- Check that propshaft is secured to prevent it falling.
- The propshaft should be placed on a block of wood -1- and secured with wire or a cable tie -arrow-.
- The propshaft should be inclined slightly downwards to ensure there is sufficient space when installing the fuel tank.



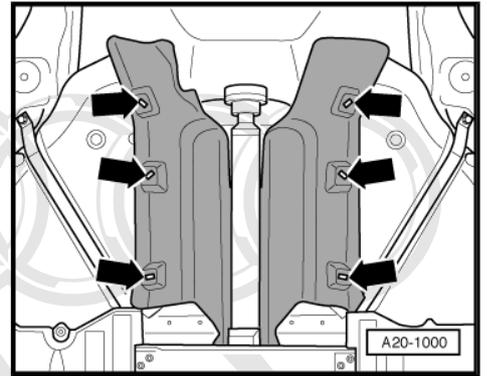
Note

The propshaft must not be bent more than 8°.



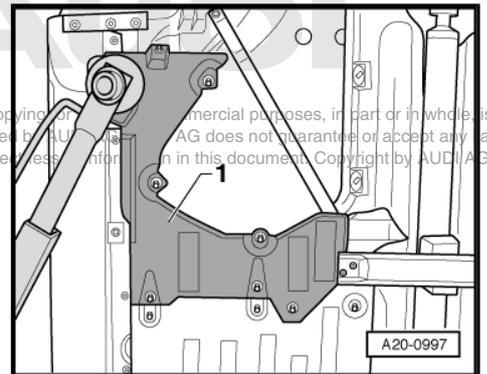
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not assume any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Remove heat shield for propshaft -arrows-.

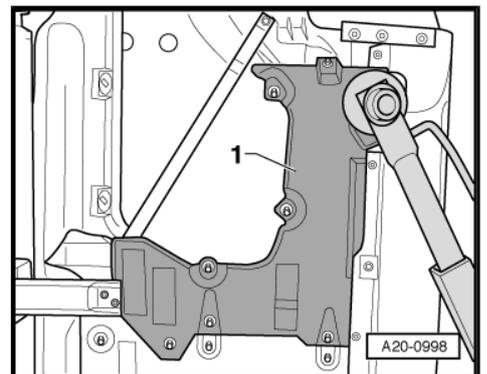


- Remove cover -1- from underside of vehicle (left-side).

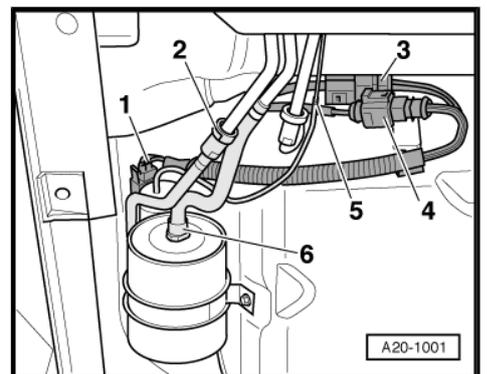
Protected by copyright. Copying or reproduction for commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of the information in this document. Copyright by AUDI AG.



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

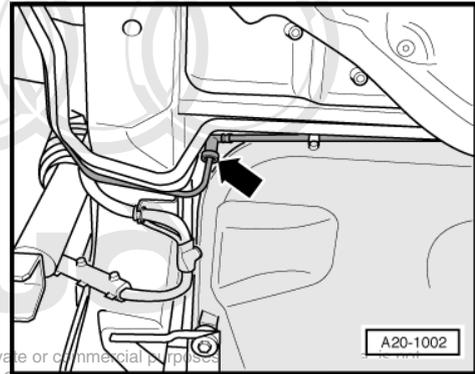


- Unplug electrical connectors:
 - 1 - To metering pump for auxiliary/additional heater
 - 3 - To fuel pumps
 - 4 - To fuel gauge senders
- Disconnect fuel pipes (press release tabs):
 - 2 - Fuel return line (only MPI engines with return line)
 - 5 - Fuel pipe to metering pump for auxiliary/additional heater
 - 6 - Fuel supply line

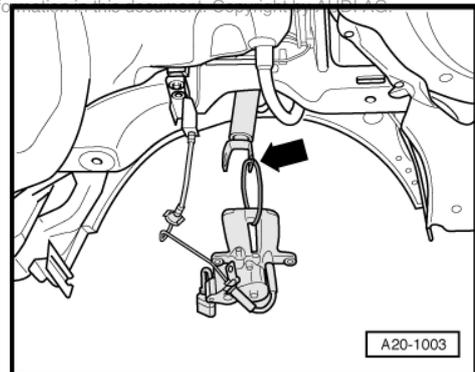




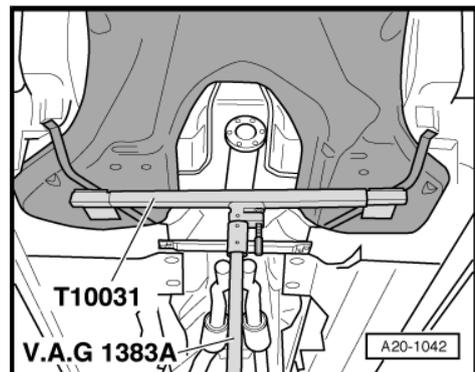
- Disconnect breather pipe -arrow- at rear left of fuel tank (press release tab).



- Attach brake calipers to suspension struts with wire -arrow- (brake calipers were fastened to fuel tank brackets upon removal of rear suspension).



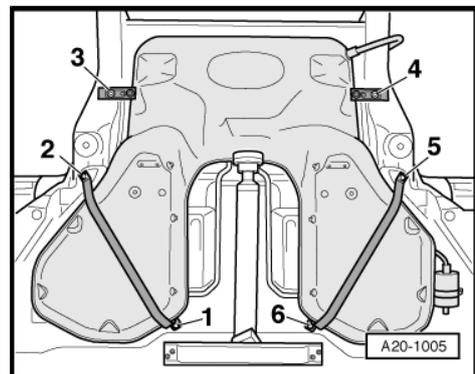
- Position engine and gearbox jack - V.A.G 1383 A- with support - T10031- under vehicle to support tank (do not use threaded rods of support).
- Support fuel tank using engine and gearbox jack - V.A.G 1383 A- and support - T10031- .
- In addition, a 2nd mechanic will be required to support the fuel tank at the rear by hand.



WARNING

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

- Unscrew bolts -1 ... 6-; swivel fuel tank brackets forward if necessary.
- First lower fuel tank slightly at the rear so the fuel filler neck can be guided out of the body.
- Then lower fuel tank using engine and gearbox jack - V.A.G 1383 A- .

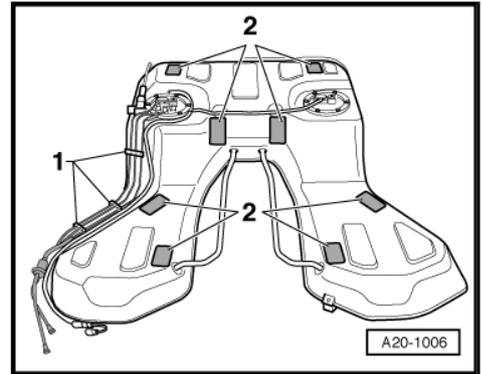


Note

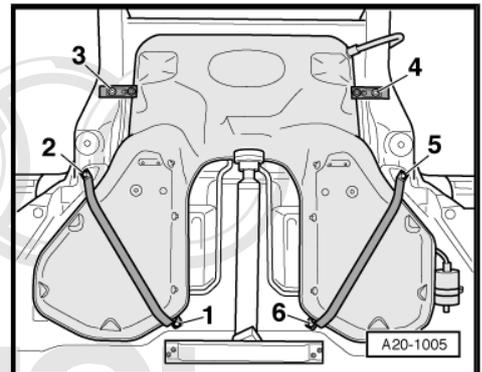
For illustration purposes the fuel tank is shown without engine and gearbox jack.

Installing

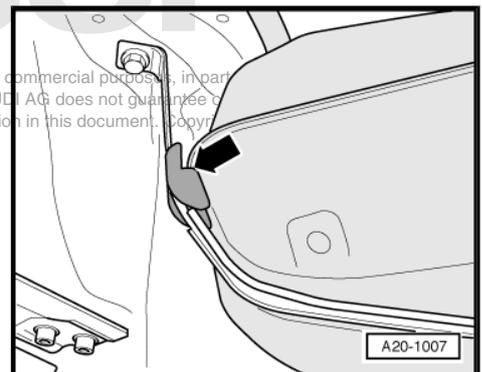
- Tightening torques ⇒ [page 5](#)
- Check that fuel pipes and wiring harness for fuel pumps and fuel gauge senders are clipped into brackets -1- on fuel tank.
- Bond pads -2- to fuel tank as shown when installing new fuel tank.



- Position fuel tank with securing straps and brackets on underbody, using engine and gearbox jack - V.A.G 1383 A- and support - T10031- .
- When installing fuel tank, make sure that the fuel filler neck is correctly inserted into the opening on the body.
- Secure fuel tank by first tightening bolts at points -1-, -2-, -5- and -6-, then at points -3- and -4-.



- Make sure that securing strap spacers are located directly under seam of fuel tank -arrow-.



Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy of the information with respect to the correctness of information in this document. Copyright © 2004 Audi AG



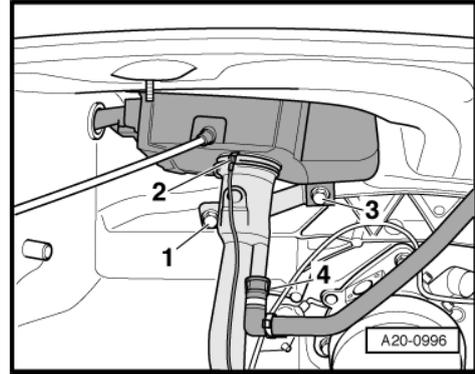
- Secure fuel filler neck using bolts -1- and -3-.
- Fit breather pipe -4- so that it engages audibly.
- Check the earth wiring -2- and connector tab for traces of oxidation. Remove any traces of oxidation if necessary.



Caution

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

- **Specification: approx. 0 Ω.**



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



Note

- ◆ *Always renew seals and gaskets when assembling.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- Install rear axle ⇒ Rep. gr. 42 .
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .
- Install rear section of exhaust system ⇒ Rep. gr. 26 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Electrical system; Rep. gr. 27 .

Vehicles with auxiliary heater:

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

2 Routing of pipes/hoses (inside fuel tank) - rest-of-world vehicles with MPI engine

⇒ [“2.1 Routing of pipes/hoses \(inside fuel tank\) - exploded view”](#), page 17

2.1 Routing of pipes/hoses (inside fuel tank) - exploded view

Note

- ◆ The illustration shows the correct routing of pipes/hoses inside the fuel tank (schematic view).
- ◆ It is not necessary to route the pipes/hoses in exactly the same way as shown in the illustration, except for pipes/hoses shown in ⇒ [page 18](#). However it is essential to fit the pipes/hoses with sufficient space in relation to each other and to prevent rattling noises.
- ◆ The -arrow- points in direction of travel.

1 - Fuel delivery unit (left-side) with fuel system pressurisation pump - G6-

2 - Fuel supply line

- From suction-jet pump (left-side) to fuel delivery unit (right-side)

3 - Supply line for suction-jet pump

- From fuel pump (right-side) to suction-jet pump (left-side)

4 - Suction-jet pump (left-side)

5 - Expansion tank

- With suction-jet pump to extract fuel from expansion tank

6 - Non-return flap

- For fuel filler pipe

7 - Primary filler pipe

- To fuel delivery unit (right-side).
- Ensures that a small amount of fuel is delivered immediately to the fuel delivery unit when the tank is filled for the first time.

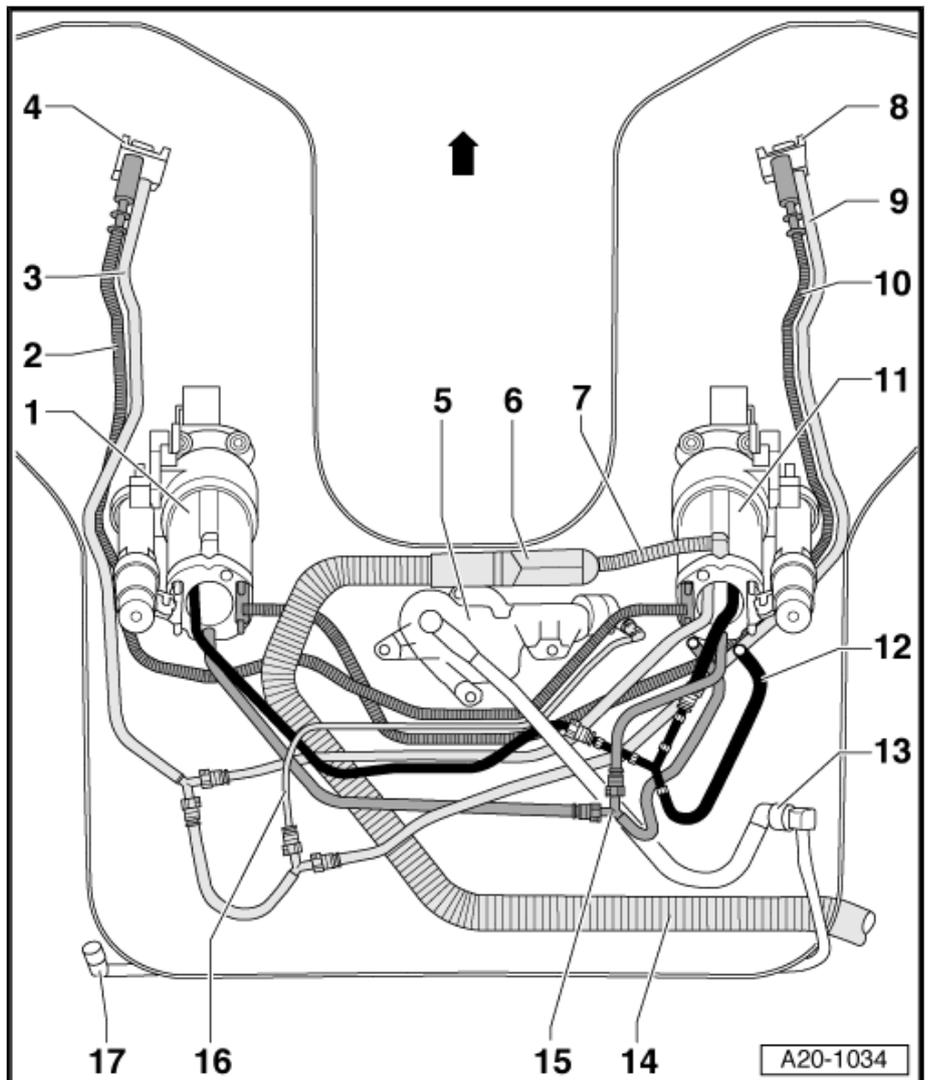
8 - Suction-jet pump (right-side)

9 - Supply line for suction-jet pump

- From fuel pump (right-side) to suction-jet pump (right-side)

10 - Fuel supply line

- From suction-jet pump (right-side) to fuel delivery unit (left-side)





11 - Fuel delivery unit (right-side) with fuel pump - G23-

12 - Fuel supply line

- From fuel pumps (left and right) to flange

13 - Breather line

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

14 - Fuel filler pipe

- From fuel filler neck to non-return flap in fuel tank

15 - Fuel return line

- From flange to fuel delivery units (left and right)

16 - Supply line for suction-jet pump

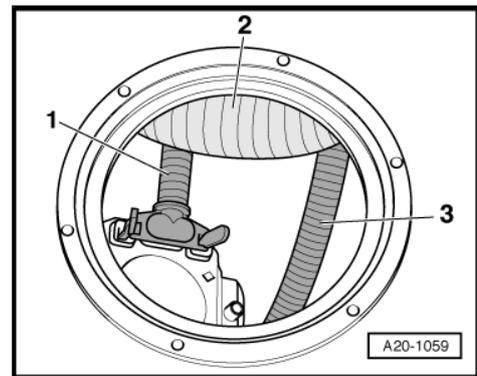
- To suction-jet pump in expansion tank

17 - Breather line

- To activated charcoal filter in rear left wheel housing

Installation position of fuel supply lines

- The fuel supply lines -1- and -3- must be routed below the fuel filler pipe -2- at the left fuel tank opening.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

3 Fuel delivery unit with fuel pump and fuel gauge senders - rest-of-world vehicles with MPI engine

⇒ [“3.1 Exploded view - fuel delivery unit \(left-side\) with fuel system pressurisation pump G6 and fuel gauge senders G and G237”](#), page 19

⇒ [“3.2 Checking fuel system pressurisation pump G6 \(left-side\) - electrical test”](#), page 21

⇒ [“3.3 Removing and installing fuel delivery unit \(left-side\) with fuel system pressurisation pump G6”](#), page 26

⇒ [“3.4 Exploded view - fuel delivery unit \(right-side\) with fuel pump G23 and fuel gauge senders G169 and G393”](#), page 36

⇒ [“3.5 Checking fuel pump G23 \(right-side\) - electrical test”](#), page 39

⇒ [“3.6 Removing and installing fuel delivery unit \(right-side\) with fuel pump G23”](#), page 42

⇒ [“3.7 Checking delivery rate of fuel pumps - vehicles with fuel return line”](#), page 53

⇒ [“3.8 Checking delivery rate of fuel pumps - vehicles with fuel system without fuel return line”](#), page 56

⇒ [“3.9 Suction-jet pumps”](#), page 60

⇒ [“3.10 Removing and installing suction-jet pump \(left-side\)”](#), page 62

⇒ [“3.11 Removing and installing suction-jet pump \(right-side\)”](#), page 63

3.1 Exploded view - fuel delivery unit (left-side) with fuel system pressurisation pump - G6- and fuel gauge senders -G- and -G237-



1 - Retainer

- For fuel delivery unit

2 - Fuel gauge sender - G-

- Black
- Clipped onto retainer -item 1-
- Checking resistance values ⇒ [page 201](#)
- Removing and installing ⇒ [page 202](#)

3 - Fuel delivery unit (left-side)

- With fuel system pressurisation pump - G6-
- Clipped onto retainer -item 1-
- Different versions available; for correct version refer to ⇒ Electronic parts catalogue
- Checking fuel pump (electrical test) ⇒ [page 21](#)
- Checking residual pressure ⇒ Rep. gr. 24
- Removing and installing ⇒ [page 26](#)
- Put at least 5 litres of fuel into tank after installing

4 - Fuel supply line

- From suction jet pump (right-side)
- Clipped onto fuel delivery unit -item 3-

5 - Fuel supply line

- The plug connector is located on the right side of the fuel tank
- Press release tab on connection piece to disconnect

6 - Fuel return line

- The plug connector is located on the right side of the fuel tank
- Press release tab on connection piece to disconnect

7 - Seal

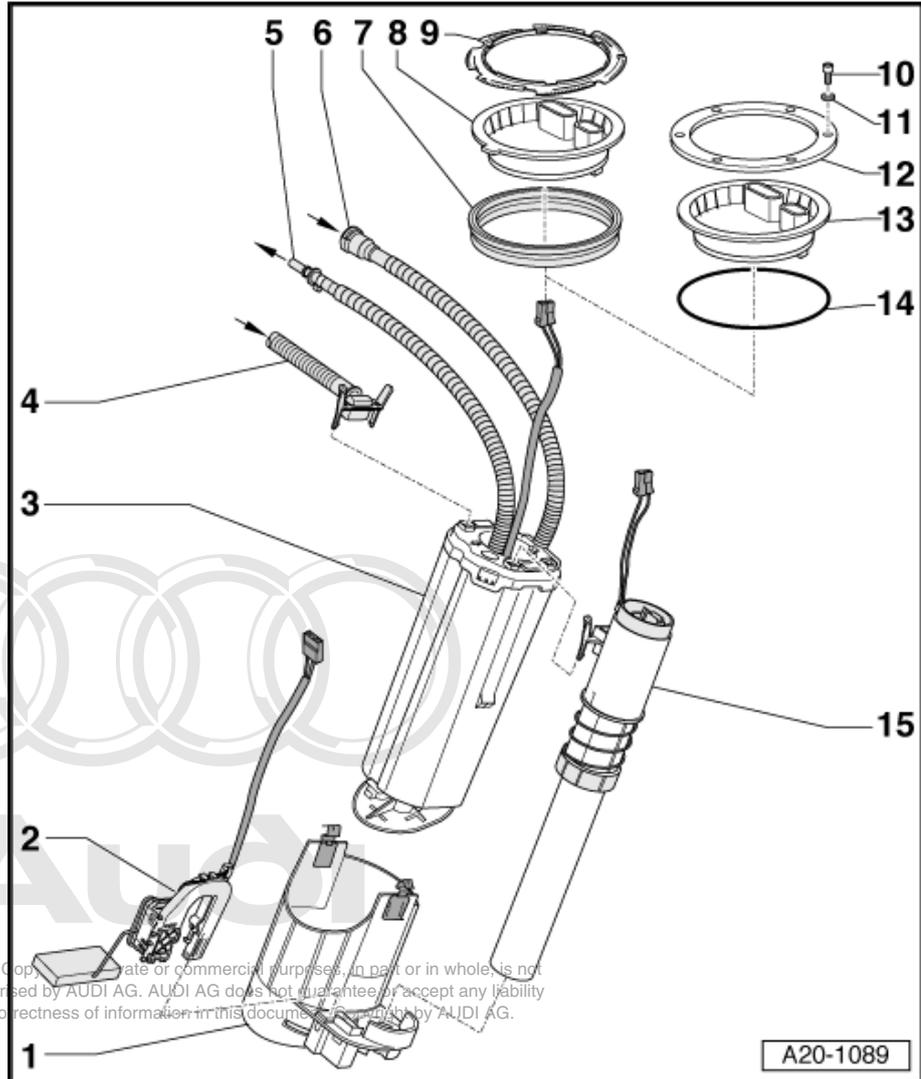
- Applies to vehicles from approx. 11.2002
- Renew
- Install dry

8 - Flange (left-side)

- Applies to vehicles from approx. 11.2002
- Installation position ⇒ [page 21](#)

9 - Locking ring

- Applies to vehicles from approx. 11.2002
- Remove and install using wrench - T10202-
- Tighten to 120 Nm



A20-1089

10 - 10 Nm

- Applies to vehicles up to approx. 10.2002
- Tighten bolts in diagonal sequence

11 - Washer

- Applies to vehicles up to approx. 10.2002

12 - Locking ring

- Applies to vehicles up to approx. 10.2002
- For flange

13 - Flange (left-side)

- Applies to vehicles up to approx. 10.2002
- Installation position => [page 21](#)

14 - O-ring

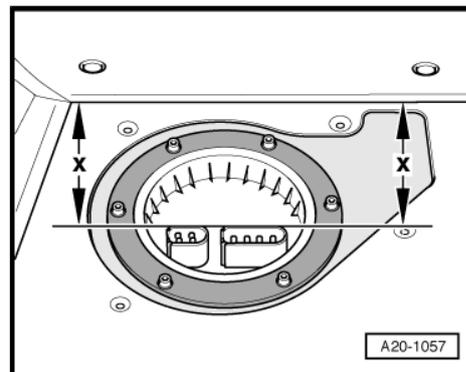
- Applies to vehicles up to approx. 10.2002
- Renew

15 - Fuel gauge sender 3 - G237-

- Grey
- Clipped onto fuel delivery unit -item 3-
- Checking resistance values => [page 205](#)
- Removing and installing => [page 206](#)

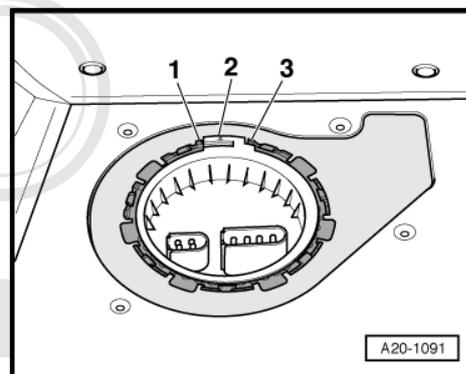
Installation position of flange (left-side) - vehicles up to approx. 10.2002

- Fit flange with new O-ring into fuel tank; note correct installation position:
- The electrical connectors are positioned transversely in relation to direction of travel.
- Dimension -x- (left-side) = dimension -x- (right-side)



Installation position of flange (left-side) - vehicles from approx. 11.2002

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.

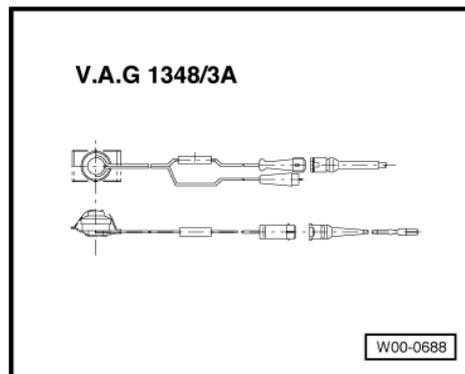


3.2 Checking fuel system pressurisation pump - G6- (left-side) - electrical test

Special tools and workshop equipment required

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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



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

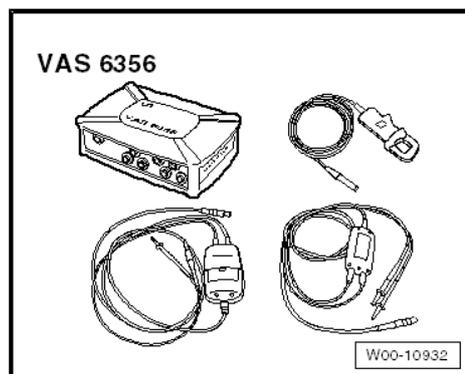


- ◆ Auxiliary measuring set - V.A.G 1594C-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

- ◆ Test instrument box - VAS 6356- with trigger clamp, 100 A - VAS 6356/4A-

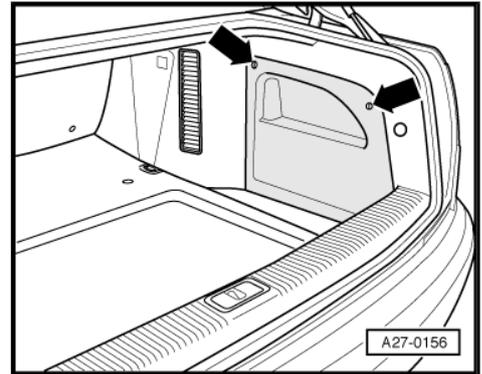


Procedure

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

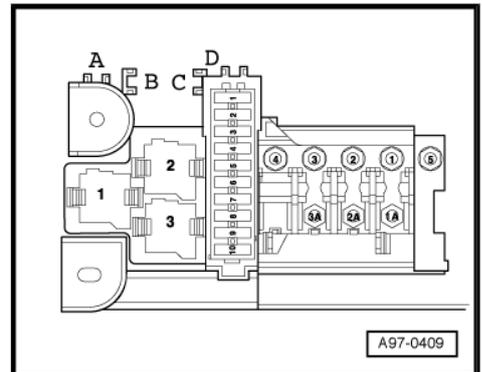
Checking voltage supply

- Remove luggage compartment side trim cover (right-side) -arrows-.



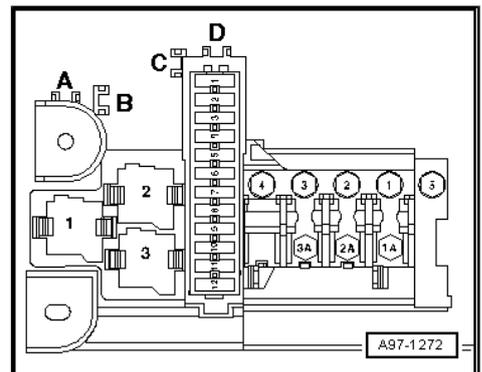
Vehicles built in model year 2003:

- Take fuse 10 out of fuse holder SF10 (located in relay and fuse carrier in luggage compartment (right-side), position 10).



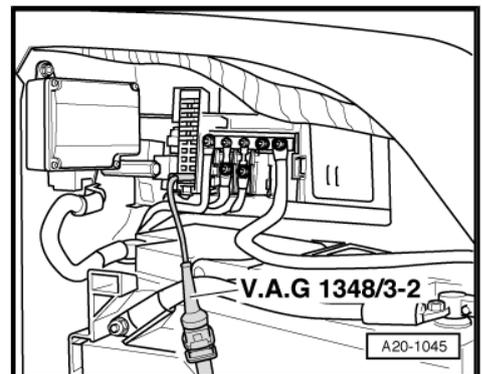
Vehicles from model year 2004 onwards:

- Take fuse 2 out of fuse holder SF2 (located in relay and fuse carrier in luggage compartment (right-side), position 2).



All vehicles (continued):

- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2- to right-hand terminal of fuse socket from which fuse has been taken out.
- Connect crocodile clip of remote control - V.A.G 1348/3A- for V.A.G 1348 to battery “+” (positive).
- Press remote control button.
- Fuel pump should start running (noise is audible in vicinity of fuel tank).



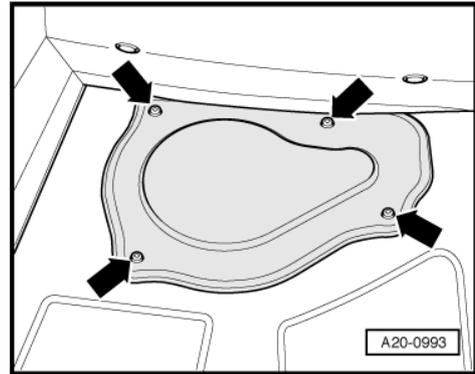
The fuel pump runs very quietly. Avoid background noise whilst checking fuel pump. Have second mechanic perform check if necessary.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



If no noise can be heard from pump:

- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.

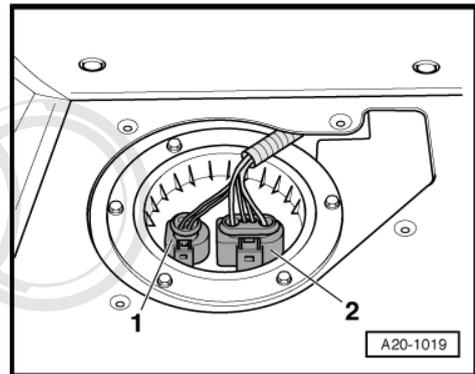


- Unplug electrical connector -2- on flange (left-side).



Note

Disregard -item 1-.

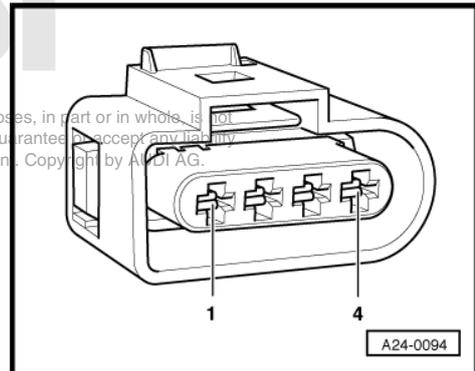


- Connect multimeter between contacts -1- and -4- of electrical connector to measure voltage.
- Press remote control button.
- **Specification: approx. battery voltage**

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the prior written authorisation by AUDI AG. AUDI AG does not guarantee, accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

If specification is not obtained:

- Repair wiring harness according to current flow diagram.

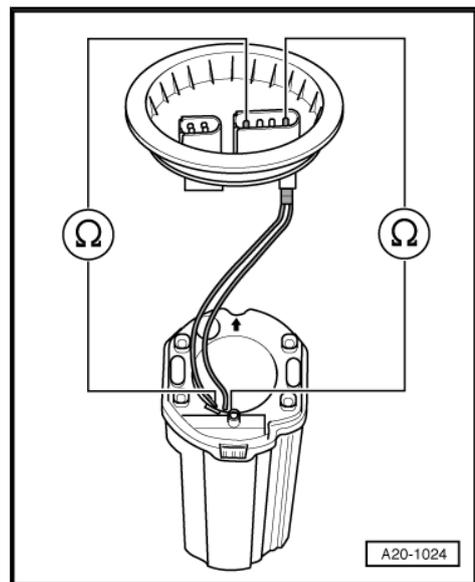


If reading matches specification although no noise can be heard from pump:

- Remove the fuel delivery unit (left-side) => [page 26](#) .
- Check that the electrical wires between flange and fuel pump are connected and test for continuity.

If no faults are found in the wiring:

- Fuel pump is defective. Renew the fuel delivery unit (left-side).
- Install fuel delivery unit (left-side) => [page 31](#) .



Checking current draw

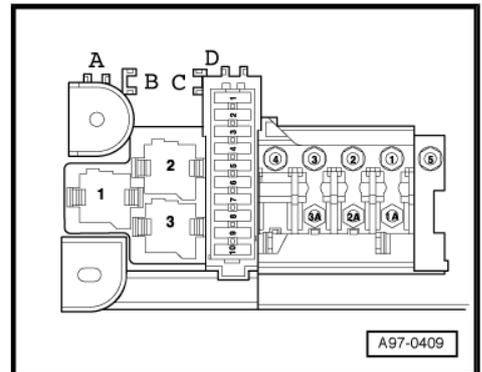
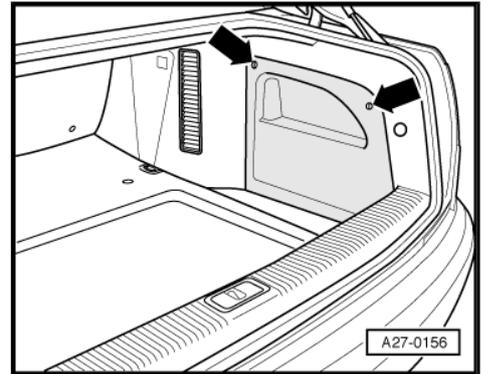
- Fuel pump voltage supply OK ⇒ [page 23](#)
- Remove luggage compartment side trim cover (right-side) -arrows-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

Vehicles built in model year 2003:

- Take fuse 10 out of fuse holder SF10 (located in relay and fuse carrier in luggage compartment (right-side), position 10).

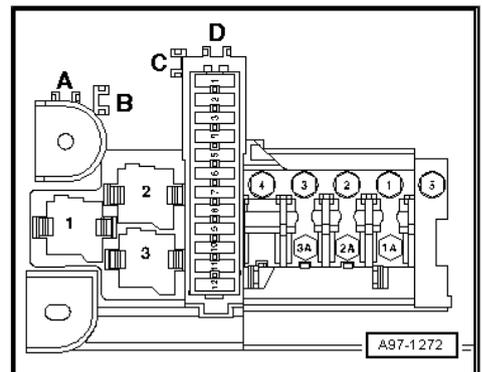


Vehicles from model year 2004 onwards:

- Take fuse 2 out of fuse holder SF2 (located in relay and fuse carrier in luggage compartment (right-side), position 2).

All vehicles (continued):

- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2- to right-hand terminal of fuse socket from which fuse has been taken out.
- Connect crocodile clip of remote control - V.A.G 1348/3A- for V.A.G 1348 to battery “+” (positive).

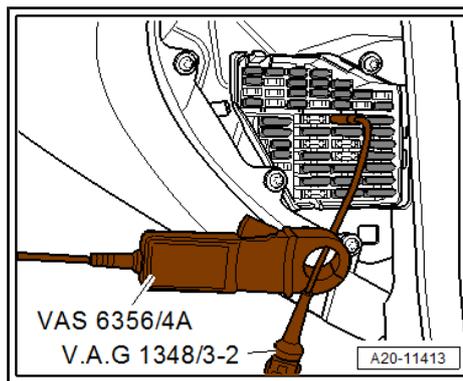


- Connect test instrument box - VAS 6356- with trigger clamp, 100 A - VAS 6356/4A- to cable of remote control.
- Press remote control button.
- Measure current draw of fuel pump.
- Specification: approx. 8 A.

If specification is not obtained:

 **Note**

A current draw of 4 A indicates that the fuel pump is running dry.

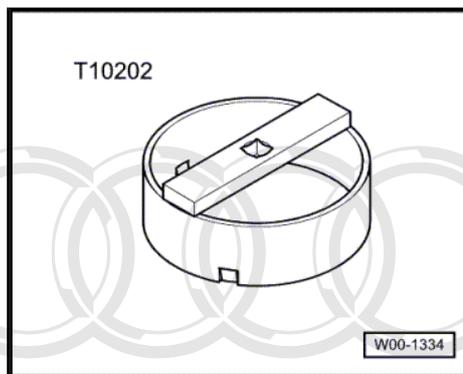


Readout	Cause of fault	Remedy
approx. 4 A	◆ Fuel tank empty	- Fill tank
	◆ Housing of fuel delivery unit leaking	- Renew fuel delivery unit ⇒ page 26
0 A	◆ Fuel system pressurisation pump - G6- defective	- Renew fuel delivery unit ⇒ page 26

3.3 Removing and installing fuel delivery unit (left-side) with fuel system pressurisation pump - G6-

Special tools and workshop equipment required

- ◆ Vehicles from approx. 11.2002: Wrench - T10202-



Removing

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

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

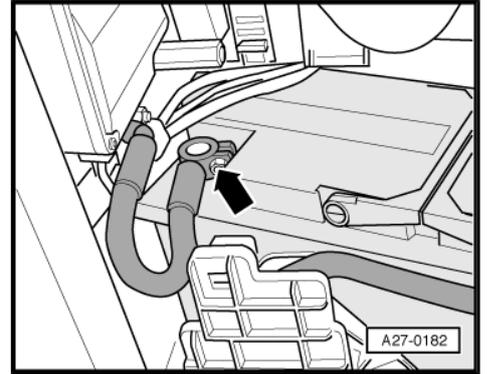
- The fuel tank must not be more than $\frac{1}{3}$ full when removing the fuel delivery unit. Drain the tank if necessary. Procedure ⇒ [page 7](#)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability in respect to the correctness of information in this document. Copyright by AUDI AG.

 **Caution**

Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable -arrow- → Electrical system; Rep. gr. 27 .

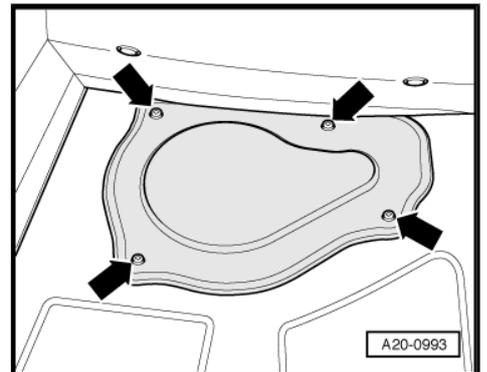


- Remove luggage compartment floor covering.

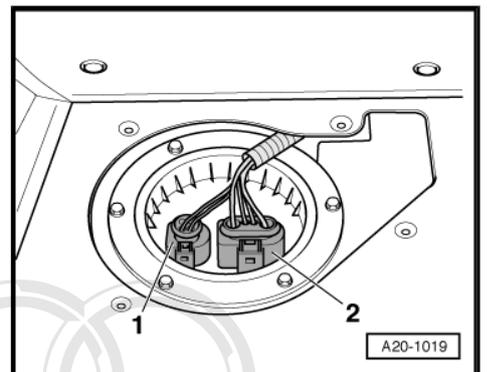
 **Note**

For removing and installing fuel delivery unit, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

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

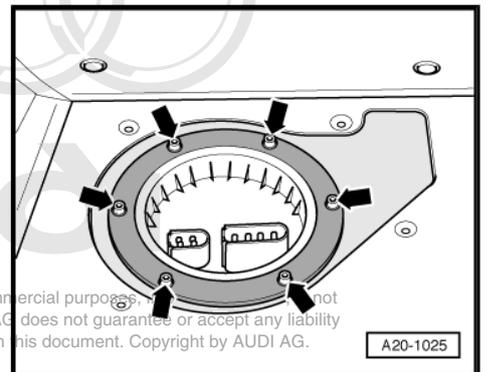


- Unplug electrical connectors -1- and -2- on flange (left-side).



Vehicles up to approx. 10.2002:

- Remove bolts -arrows- and take off locking ring for flange (left-side).

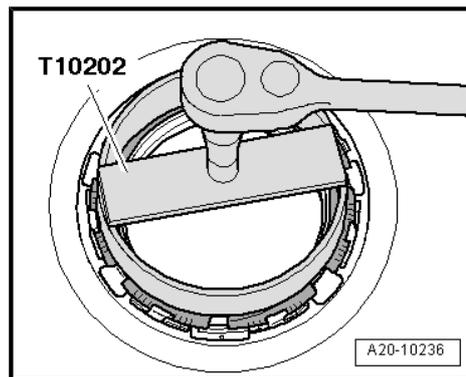


Protected by copyright. Copying for private or commercial purposes, or for the reproduction or translation of any part of this document, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



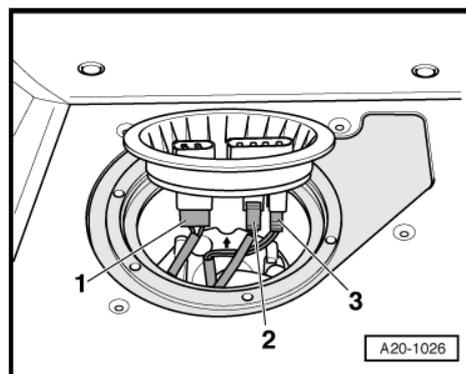
Vehicles from approx. 11.2002 onwards:

- Unscrew locking ring using wrench - T10202- .

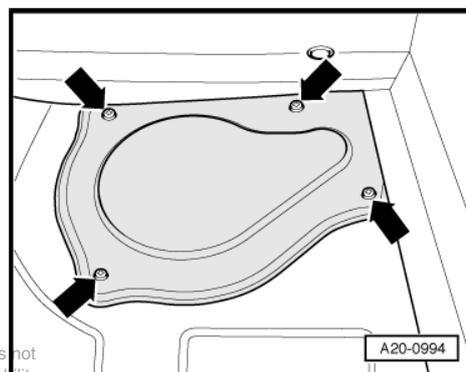


All vehicles (continued):

- Detach flange and remove seal/O-ring.
- Unplug electrical connectors -1 ... 3- on underside of flange (left-side).

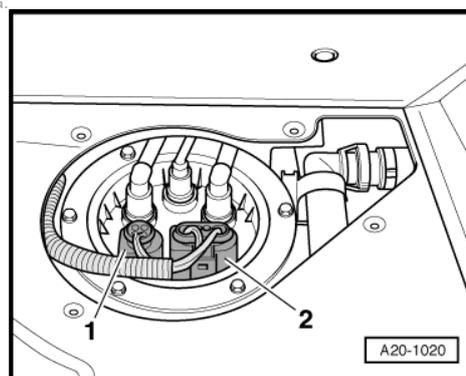


- Unscrew cover for flange (right-side) -arrows-.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

- Unplug electrical connectors -1- and -2- on flange (right-side).

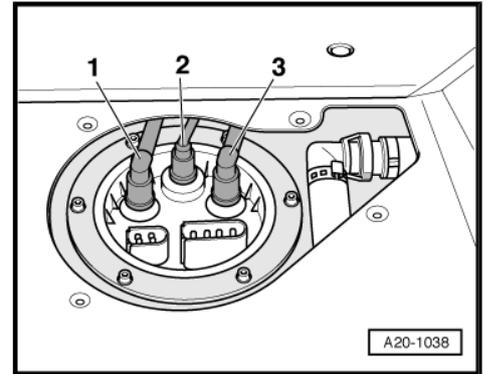


- Mark fuel return line -1- and fuel supply line -3-.



WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.



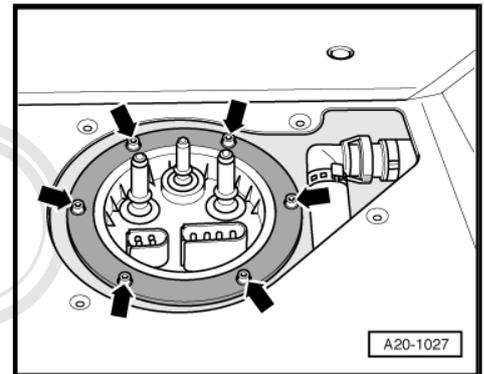
- Detach both lines from flange (press release tabs).

Vehicles with auxiliary heater:

- In addition, disconnect fuel supply line -2- for auxiliary heater.

Vehicles up to approx. 10.2002:

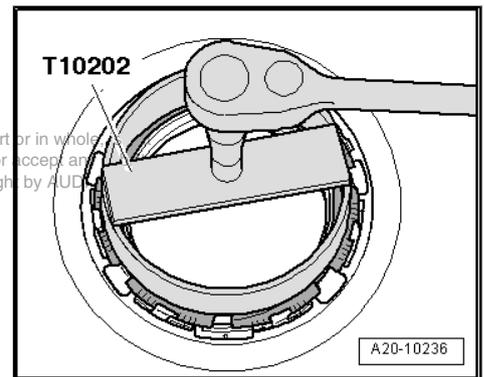
- Remove bolts -arrows- and take off locking ring for flange (right-side).



Vehicles from approx. 11.2002 onwards:

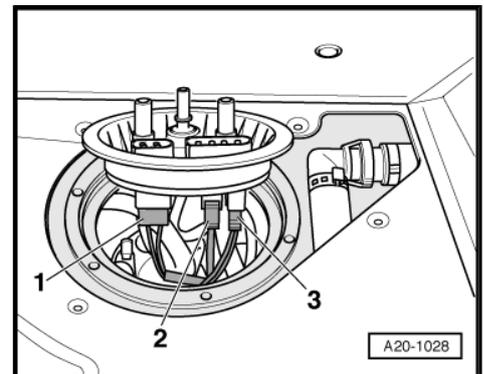
- Unscrew locking ring using wrench - T10202- .

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



All vehicles (continued):

- Detach flange and remove seal/O-ring.
- Unplug electrical connectors -1 ... 3- on underside of flange (right-side).



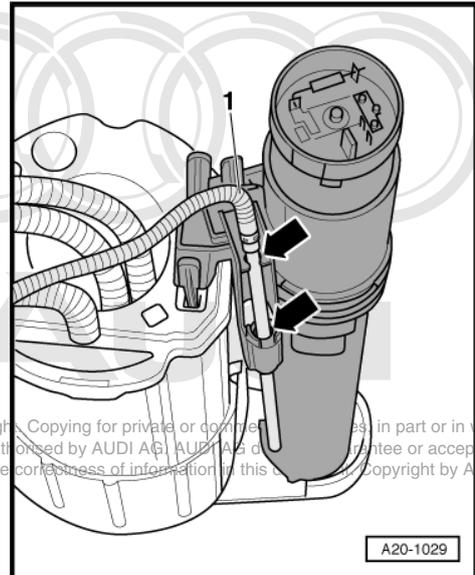


Note

- ◆ Pull out fuel lines from fuel tank opening prior to disconnecting the pipe connectors mentioned below.
- ◆ For illustration purposes some of the components are shown removed in the following illustrations.

Vehicles with auxiliary heater:

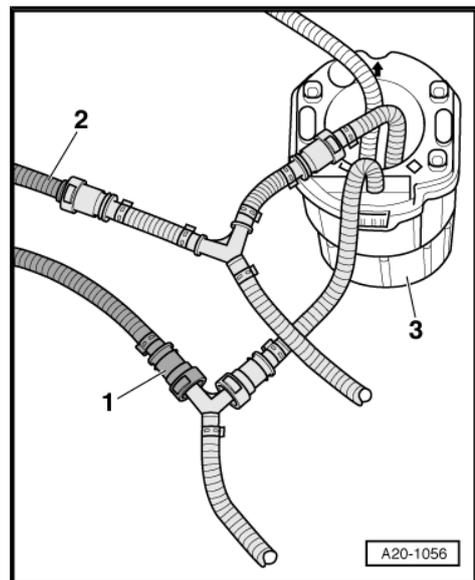
- Pull out suction pipe -1- for auxiliary heater from retainers -arrows- on tubular sender.



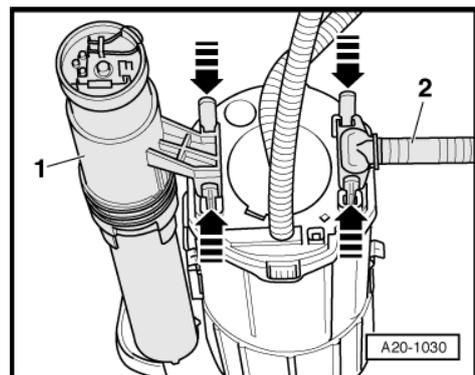
Protected by copyright. Copying for private or domestic use, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not warrant or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

All vehicles (continued):

- Working through right fuel tank opening, press release tabs and disconnect fuel lines -1- and -2- going to fuel delivery unit (left-side).
- 3 - Fuel delivery unit (right-side) with fuel pump - G23-
- Pull the two disconnected fuel lines out of left fuel tank opening.



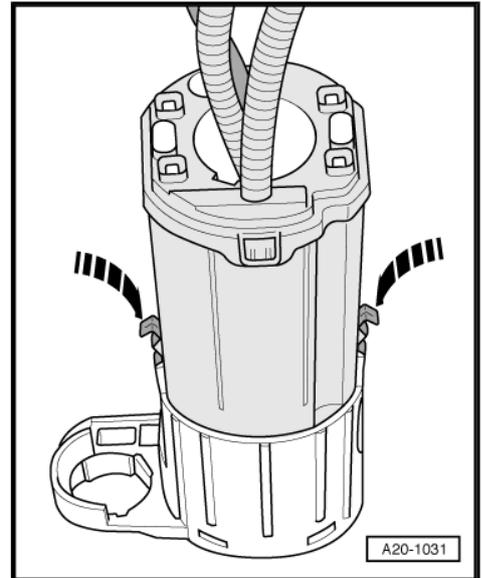
- Working through left fuel tank opening, press release tabs -arrows- and detach fuel supply line -2- and fuel gauge sender 3 - G237- -item 1-.
- Move fuel gauge sender 3 - G237- to left side.



- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Remove fuel delivery unit.

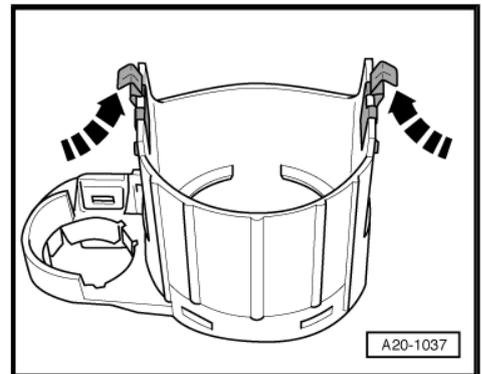
i Note

Keep in mind that the fuel delivery unit still contains fuel.

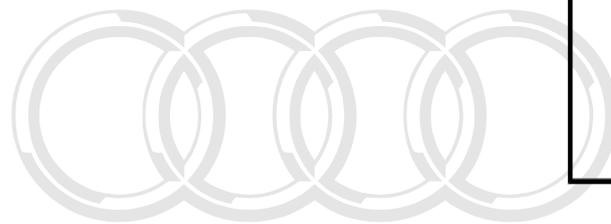
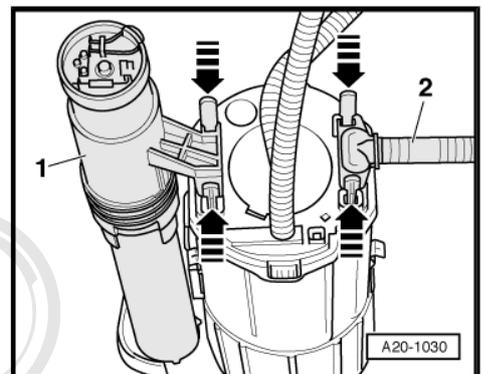


Installing

- Tightening torques => [page 19](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Then press fuel delivery unit carefully into retainer so that it engages audibly.



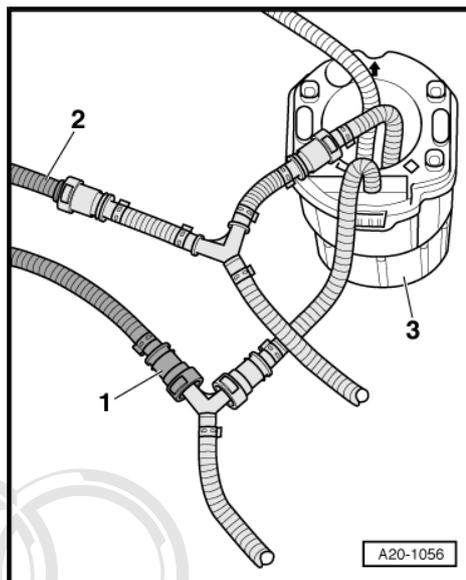
- Fit fuel supply line -2- and fuel gauge sender 3 - G237- -item 1- so that they engage audibly.
- Guide supply line and return line for fuel delivery unit (left-side) into fuel tank chamber (right-side).



Audi

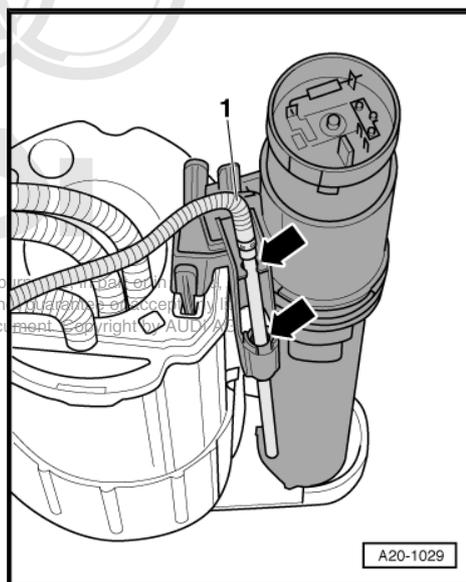
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Fit fuel lines -1- and -2- through right fuel tank opening so that they engage audibly.
- 3 - Fuel delivery unit (right-side) with fuel pump - G23-



Vehicles with auxiliary heater:

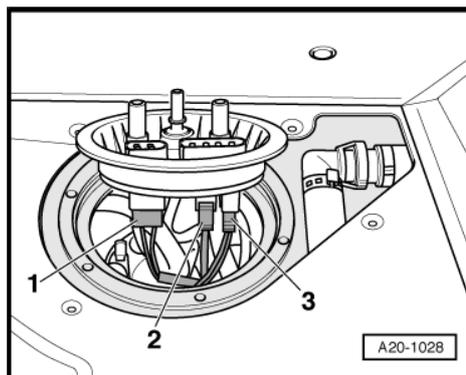
- Fit suction pipe -1- for auxiliary heater into retainers -arrows- on tubular sender.



Protected by copyright. Copying for private or commercial purposes is prohibited without the written permission of AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. Copyright © AUDI AG 2014.

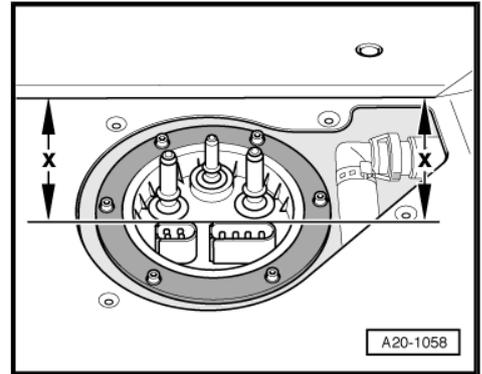
All vehicles (continued):

- Connect electrical connectors -1 ... 3- on underside of flange (right-side).

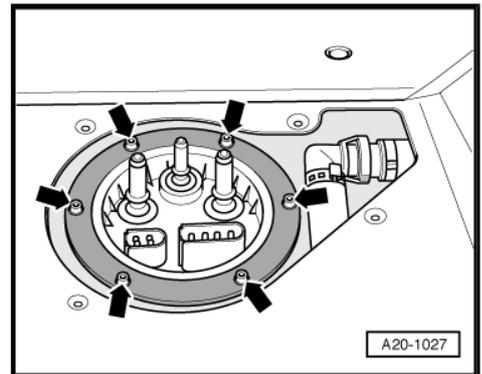


Vehicles up to approx. 10.2002:

- Fit flange with new O-ring into fuel tank; note correct installation position:
- The electrical connectors are positioned transversely in relation to direction of travel.
- Dimension -x- (left-side) = dimension -x- (right-side)

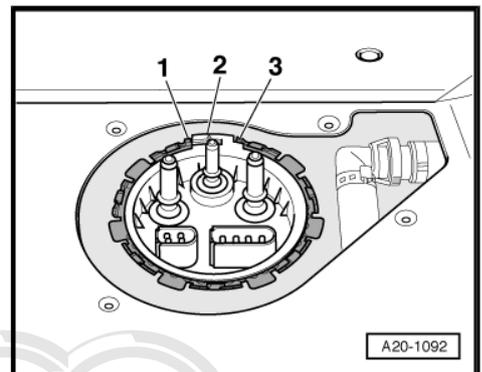


- Secure locking ring for flange (right-side) in diagonal sequence -arrows-.

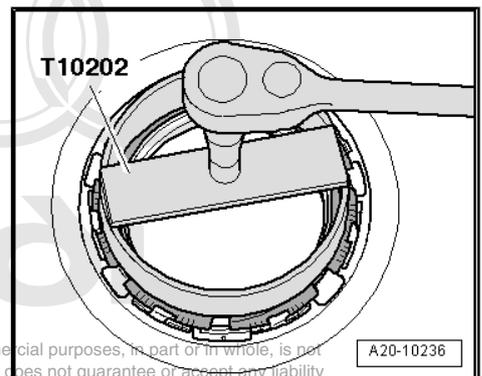


Vehicles from approx. 11.2002 onwards:

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



- Tighten locking ring.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

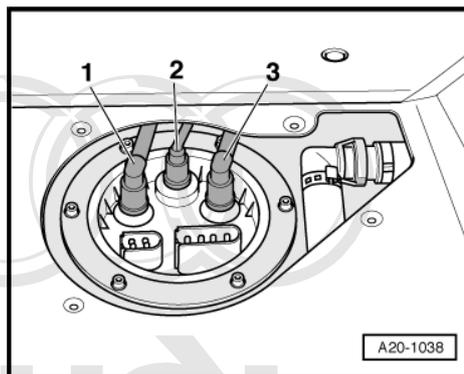


All vehicles (continued):

- Install fuel supply line -3- and fuel return line -1- (as marked) so that they engage audibly.

Vehicles with auxiliary heater:

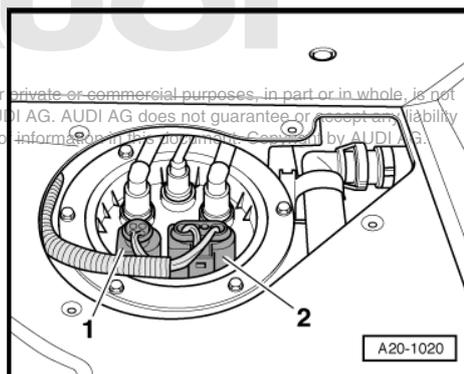
- Also fit supply line -2- going to auxiliary heater so that it engages audibly.



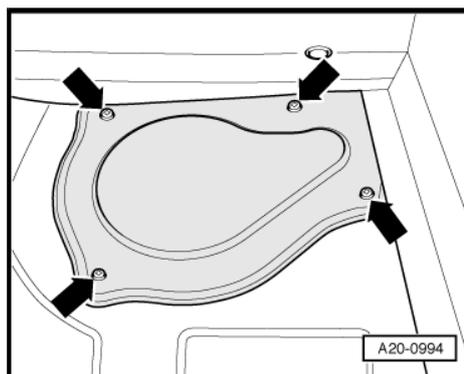
All vehicles (continued):

- Attach electrical connectors -1- and -2- on flange (right-side).

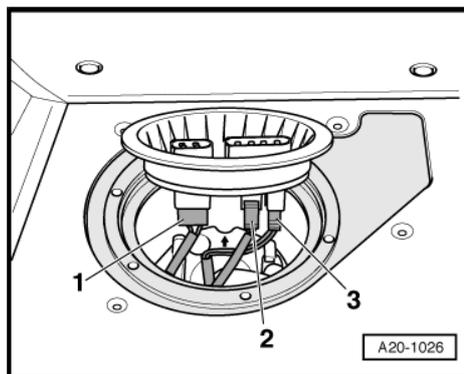
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information that is not controlled by AUDI AG.



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

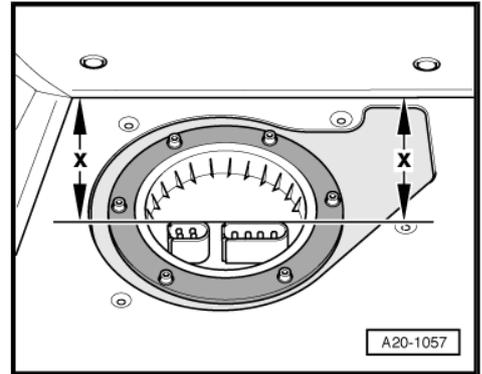


- Connect electrical connectors -1 ... 3- on underside of flange (left-side).

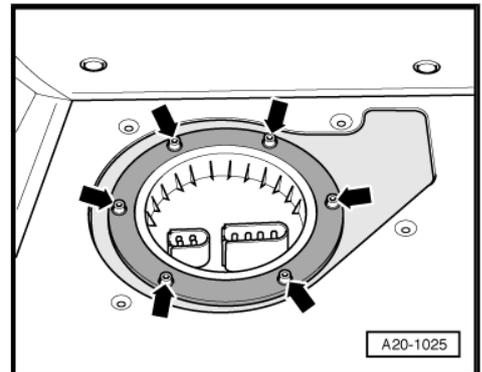


Vehicles up to approx. 10.2002:

- Fit flange with new O-ring into fuel tank; note correct installation position:
- The electrical connectors are positioned transversely in relation to direction of travel.
- Dimension -x- (left-side) = dimension -x- (right-side)

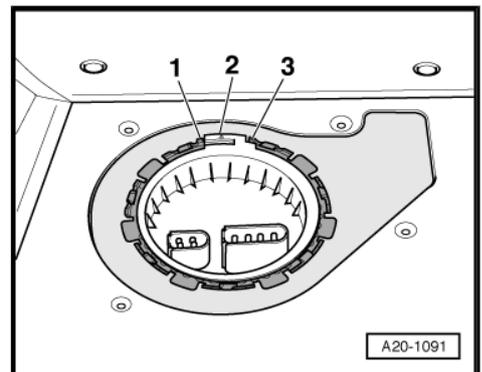


- Secure locking ring for flange (left-side) in diagonal sequence -arrows-.

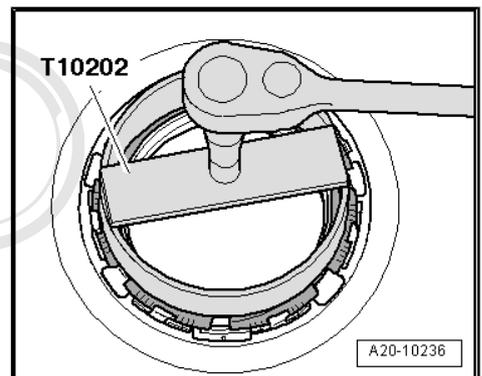


Vehicles from approx. 11.2002 onwards:

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



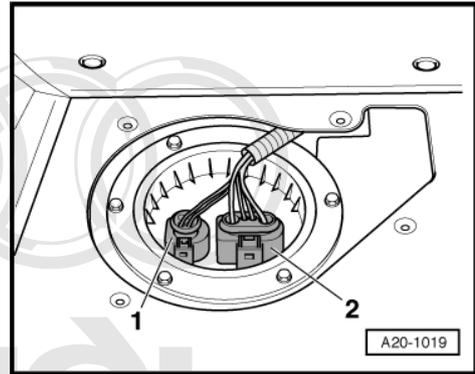
- Tighten locking ring.



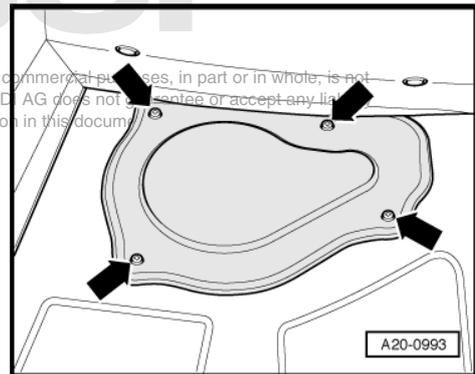
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

All vehicles (continued):

- Attach electrical connectors -1- and -2- on flange (left-side).



- Secure cover for flange (left-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery ⇒ **Electrical system - Rep. gr. 27**.
- Put at least 5 litres of fuel into tank after installing

**Vehicles with auxiliary heater:**

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

3.4 Exploded view - fuel delivery unit (right-side) with fuel pump - G23- and fuel gauge senders -G169- and -G393-

1 - Retainer

- For fuel delivery unit

2 - Fuel gauge sender 2 - G169-

- Yellow
- Clipped onto retainer -item 1-
- Checking resistance values ⇒ [page 203](#)
- Removing and installing ⇒ [page 204](#)

3 - Fuel gauge sender 4 - G393-

- White
- Clipped onto fuel delivery unit -item 19-
- Checking resistance values ⇒ [page 211](#)
- Removing and installing ⇒ [page 213](#)

4 - Fuel supply line

- To fuel filter
- Mark before removing
- Press release tab on connection piece to disconnect
- Do not kink
- Clip onto fuel tank

5 - Fuel supply line

- To auxiliary heater
- Press release tab on connection piece to disconnect
- Do not kink
- Clip onto fuel tank

6 - Fuel return line

- From engine or fuel filter
- Mark before removing
- Press release tab on connection piece to disconnect
- Do not kink
- Clip onto fuel tank

7 - Locking ring

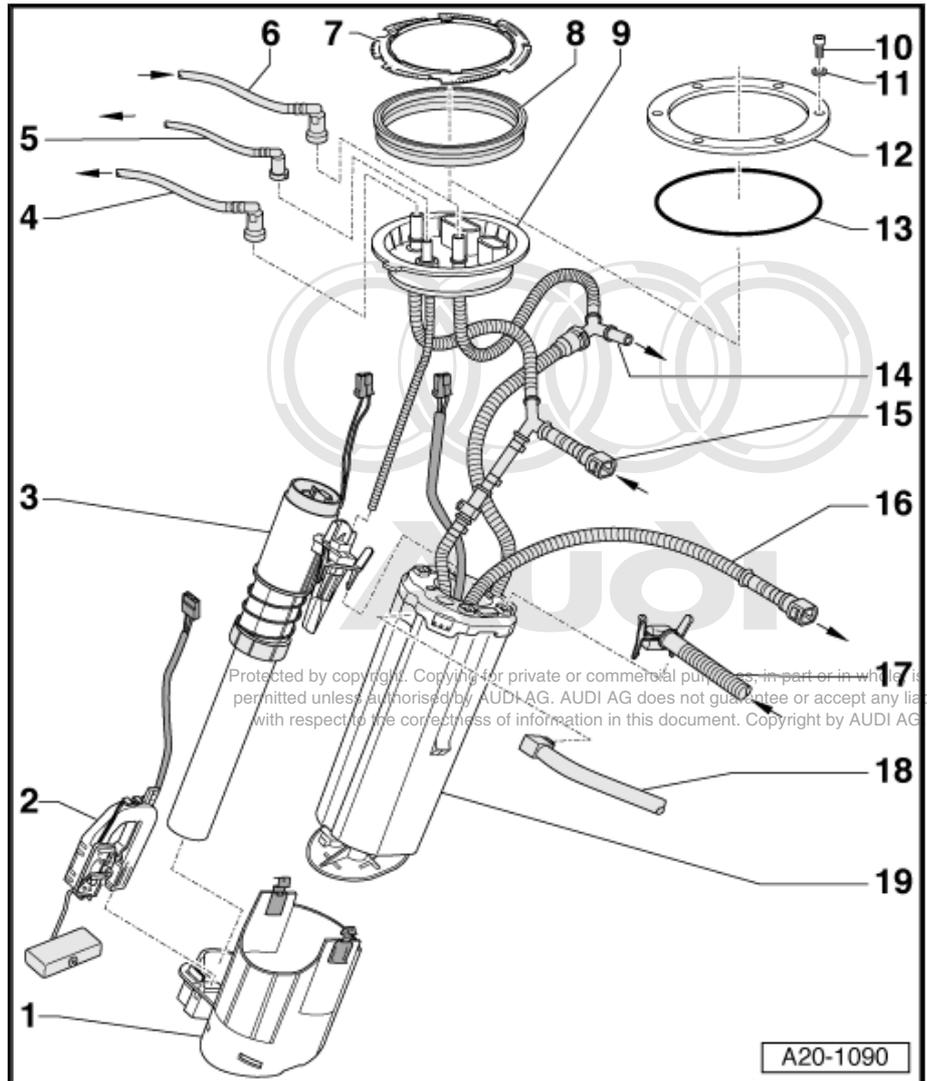
- Applies to vehicles from approx. 11.2002
- Remove and install using wrench - T10202-
- Tighten to 120 Nm

8 - Seal

- Applies to vehicles from approx. 11.2002
- Renew
- Install dry

9 - Flange (right-side)

- Installation position up to approx. 10.2002 ⇒ [page 38](#)



- Installation position from approx. 11.2002 ⇒ [page 39](#)

10 - 10 Nm

- Applies to vehicles up to approx. 10.2002
- Tighten bolts in diagonal sequence

11 - Washer

- Applies to vehicles up to approx. 10.2002

12 - Locking ring

- For flange
- Applies to vehicles up to approx. 10.2002

13 - O-ring

- Applies to vehicles up to approx. 10.2002
- Renew

14 - Fuel return line

- To fuel delivery unit (left-side)

15 - Fuel supply line

- From fuel delivery unit (left-side)
- Press release tab on connection piece to disconnect

16 - Supply line for suction-jet pump

- For suction-jet pump
- Press release tab on connection piece to disconnect

17 - Fuel supply line

- From suction-jet pump (left-side)
- Clipped onto fuel delivery unit -item 19-

18 - Fuel filler pipe

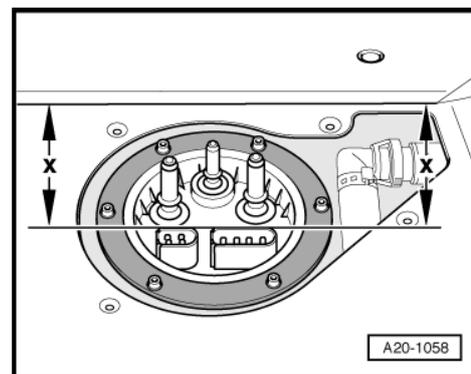
- From filler neck
- Clipped onto fuel delivery unit -item 19-

19 - Fuel delivery unit (right-side)

- With fuel pump - G23-
- Clipped onto retainer -item 1-
- Different versions available; for correct version refer to ⇒ Electronic parts catalogue
- Checking fuel pump (electrical test) ⇒ [page 39](#)
- Checking residual pressure ⇒ Rep. gr. 24
- Removing and installing ⇒ [page 42](#)
- Put at least 5 litres of fuel into tank after installing

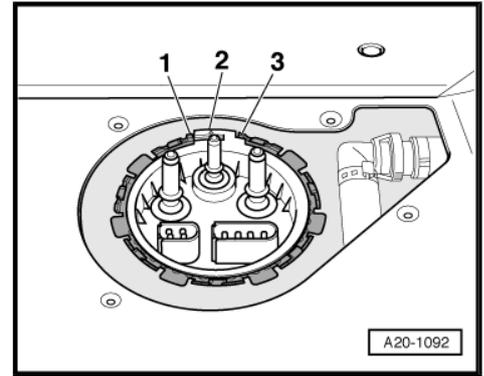
Installation position of flange (right-side) - vehicles up to approx. 10.2002

- Fit flange with new O-ring into fuel tank; note correct installation position:
- The electrical connectors are positioned transversely in relation to direction of travel.
- Dimension -x- (left-side) = dimension -x- (right-side)



Installation position of flange (right-side) - vehicles from approx. 11.2002

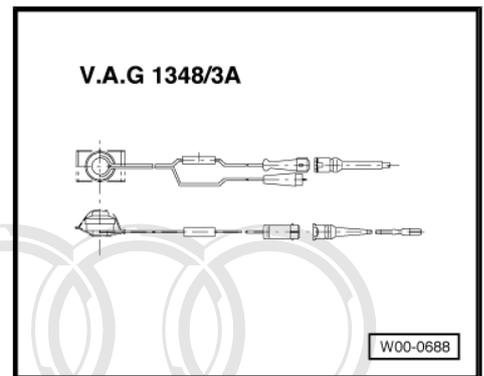
- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



3.5 Checking fuel pump - G23- (right-side) - electrical test

Special tools and workshop equipment required

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



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



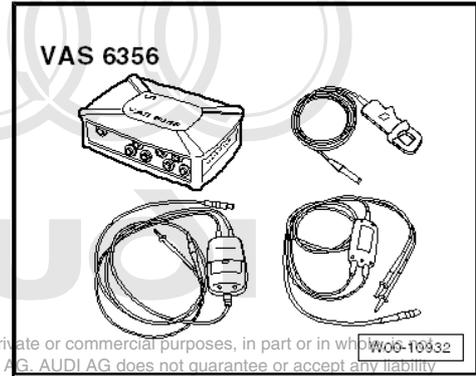
- ◆ Auxiliary measuring set - V.A.G 1594C-



Protected by copyright. Copying for private or commercial use, in whole or in part, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. © Audi AG



- ◆ Test instrument box - VAS 6356- with trigger clamp, 100 A - VAS 6356/4A-



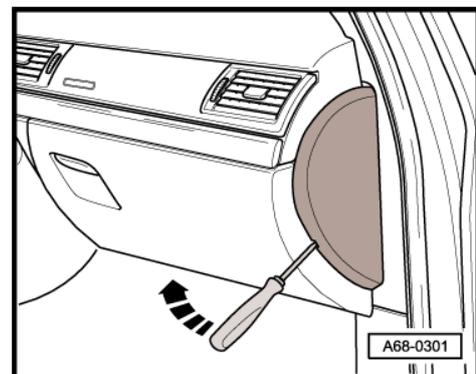
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Procedure

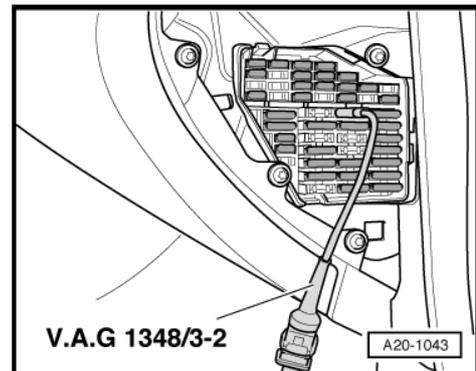
- Observe test conditions ⇒ [page 3](#) .

Checking voltage supply

- Use screwdriver to pry off cover (right-side) at dash panel -arrow-.



- Take fuse 31 out of fuse holder SC31 (right side of dash panel, middle row, 1st large fuse from the top).
- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2- to left-hand fuse socket terminal of fuse SC31.
- Connect crocodile clip of remote control - V.A.G 1348/3A- for V.A.G 1348 to battery "+" (positive).
- Press remote control button.
- Fuel pump should start running (noise is audible in vicinity of fuel tank).

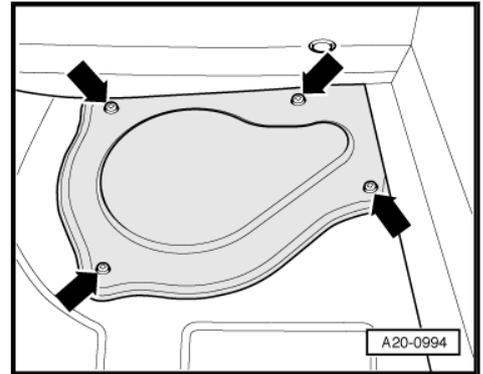


Note

The fuel pump runs very quietly. Avoid background noise whilst checking fuel pump. Have second mechanic perform check if necessary.

If no noise can be heard from pump:

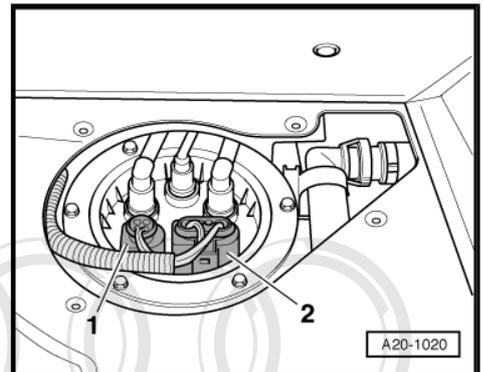
- Remove luggage compartment floor covering.
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -2- on flange (right-side).

i Note

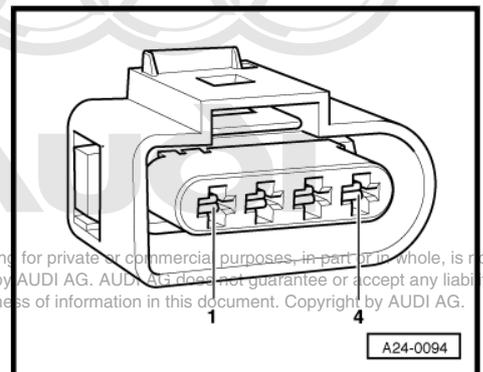
Disregard -item 1-.



- Connect multimeter between contacts -1- and -4- of electrical connector to measure voltage.
- Press remote control button.
- Specification: approx. battery voltage

If specification is not obtained:

- Repair wiring harness according to current flow diagram.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

If reading matches specification although no noise can be heard from pump:

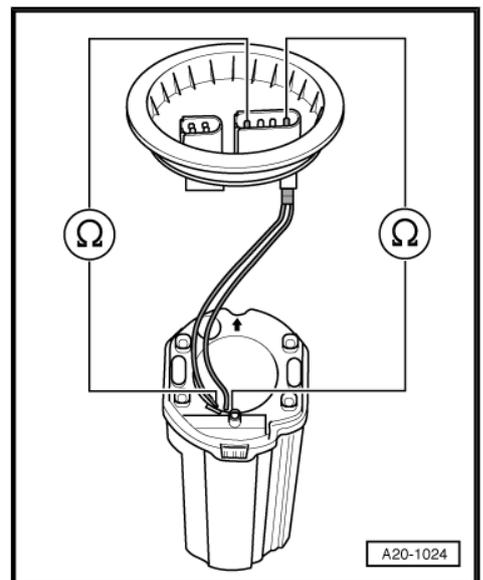
- Remove fuel delivery unit (right-side) ⇒ [page 42](#) .
- Check that the electrical wires between flange and fuel pump are connected and test for continuity.

If no faults are found in the wiring:

- Fuel pump is defective. Renew the fuel delivery unit (right-side) ⇒ [page 42](#) .
- Install fuel delivery unit (right-side) ⇒ [page 48](#) .

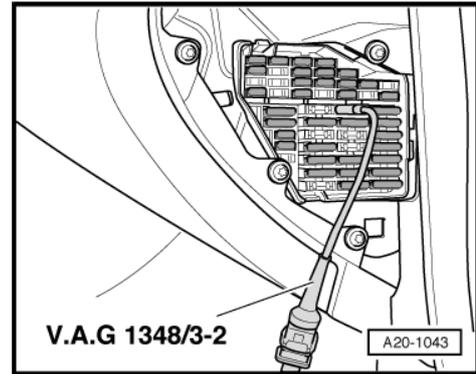
Checking current draw

- Fuel pump voltage supply OK ⇒ [page 40](#)





- Take fuse 31 out of fuse holder SC31 (right side of dash panel, middle row, 1st large fuse from the top).
- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2- to left-hand fuse socket terminal of fuse SC31.
- Connect crocodile clip of remote control - V.A.G 1348/3A- for V.A.G 1348 to battery "+" (positive).



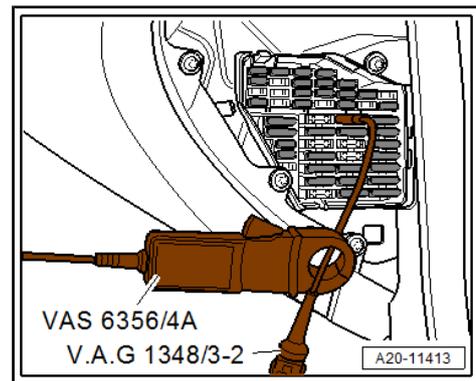
- Connect test instrument box - VAS 6356- with trigger clamp, 100 A - VAS 6356/4A- to cable of remote control.
- Press remote control button.
- Measure current draw of fuel pump.
- Specification: approx. 8 A.

If specification is not obtained:



Note

A current draw of 4 A indicates that the fuel pump is running dry.



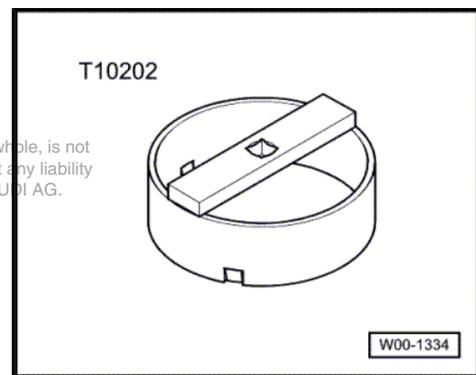
Readout	Cause of fault	Remedy
approx. 4 A	◆ Fuel tank empty	- Fill tank
	◆ Housing of fuel delivery unit leaking	- Renew fuel delivery unit ⇒ page 42
0 A	◆ Fuel pump - G23- defective	- Renew fuel delivery unit ⇒ page 42

3.6 Removing and installing fuel delivery unit (right-side) with fuel pump - G23-

Special tools and workshop equipment required

- ◆ Vehicles from approx. 11.2002: Wrench - T10202-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



Removing

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

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

- The fuel tank must not be more than $\frac{1}{3}$ full when removing the fuel delivery unit. Drain the tank if necessary. Procedure => [page 7](#)

Caution
Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable -arrow- => Electrical system; Rep. gr. 27 .



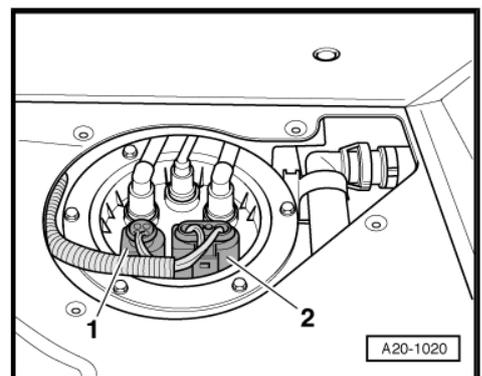
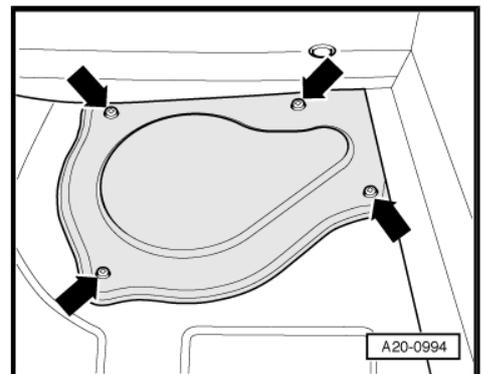
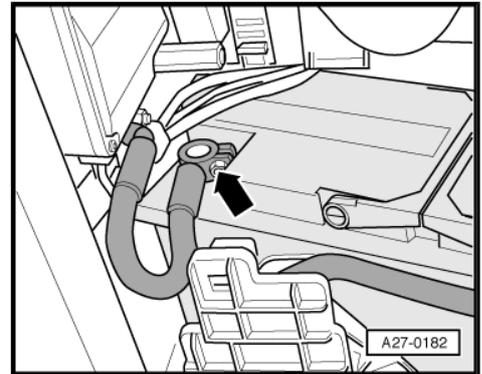
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Remove luggage compartment floor covering.

Note

For removing and installing fuel delivery unit, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

- Unscrew cover for flange (right-side) -arrows-.
- Unplug electrical connectors -1- and -2- on flange (right-side).





- Mark fuel return line -1- and fuel supply line -3-.



WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

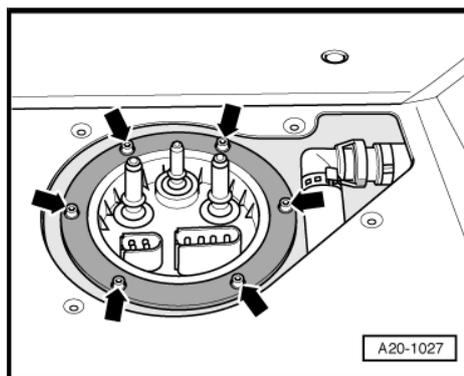
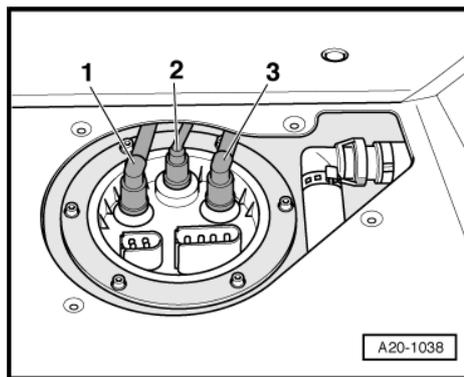
- Detach both lines from flange (press release tabs).

Vehicles with auxiliary heater:

- In addition, disconnect fuel supply line -2- for auxiliary heater.

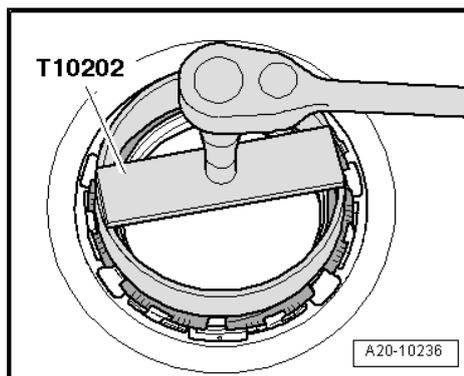
Vehicles up to approx. 10.2002:

- Remove bolts -arrows- and take off locking ring for flange (right-side).



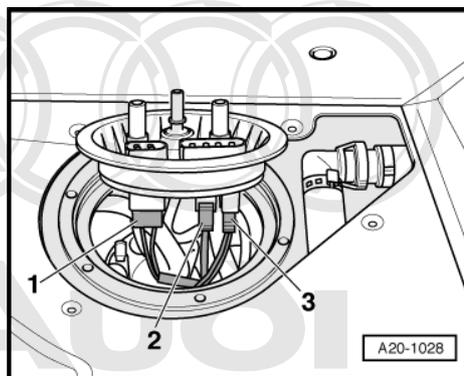
Vehicles from approx. 11.2002 onwards:

- Unscrew locking ring using wrench - T10202- .



All vehicles (continued):

- Detach flange and remove seal/O-ring.
- Unplug electrical connectors -1 ... 3- on underside of flange (right-side).



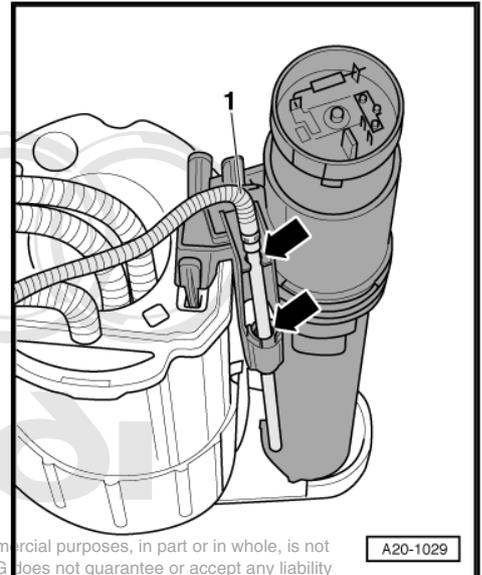
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

i Note

- ◆ Pull out fuel lines from fuel tank opening prior to disconnecting the pipe connectors mentioned below.
- ◆ For illustration purposes some of the components are shown removed in the following illustrations.

Vehicles with auxiliary heater:

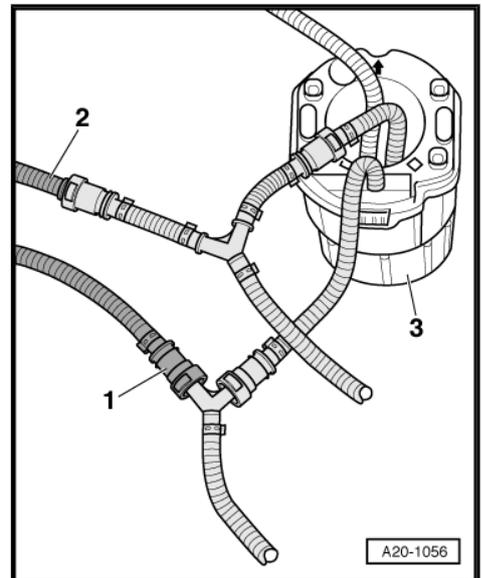
- Pull out suction pipe -1- for auxiliary heater from retainers -arrows- on tubular sender.



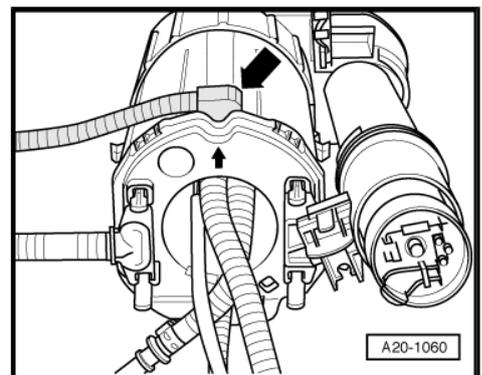
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

All vehicles (continued):

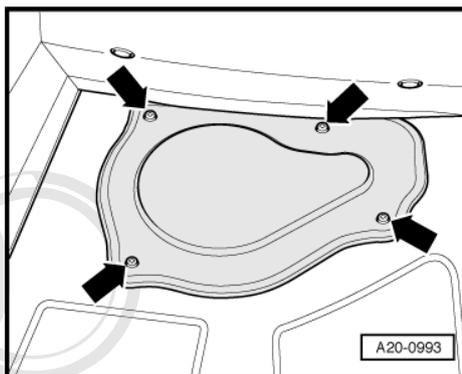
- Working through right fuel tank opening, press release tabs and disconnect fuel lines -1- and -2- going to fuel delivery unit (left-side).
- 3 - Fuel delivery unit (right-side) with fuel pump - G23-



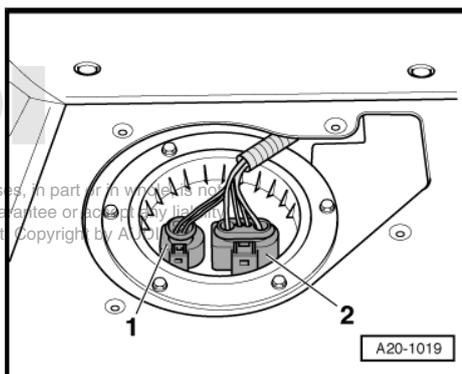
- Unclip fuel filler pipe -arrow- at front of fuel delivery unit (right-side).



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



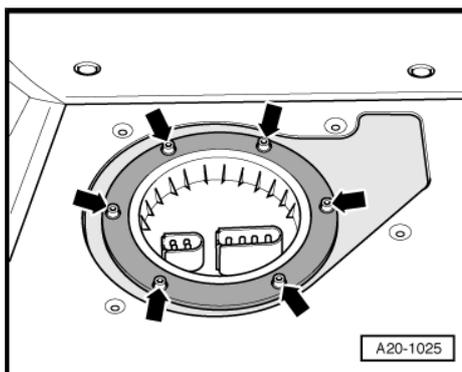
- Unplug electrical connectors -1- and -2- on flange (left-side).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

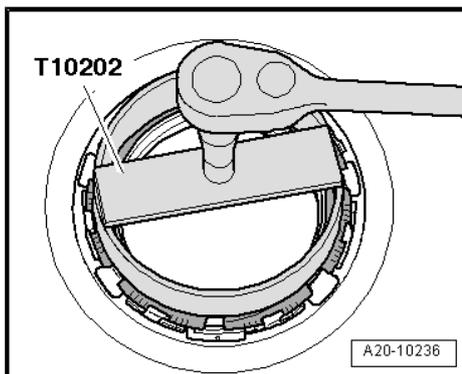
Vehicles up to approx. 10.2002:

- Remove bolts -arrows- and take off locking ring for flange (left-side).



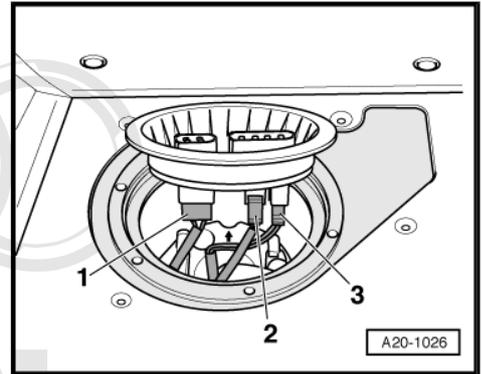
Vehicles from approx. 11.2002 onwards:

- Unscrew locking ring using wrench - T10202- .

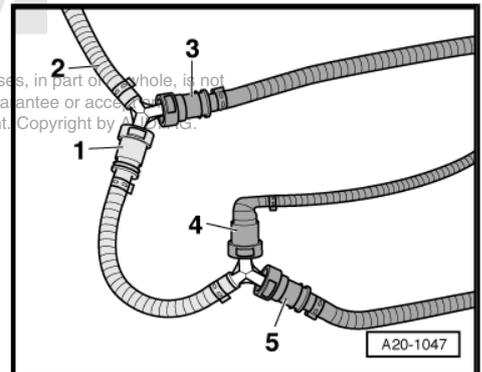


All vehicles (continued):

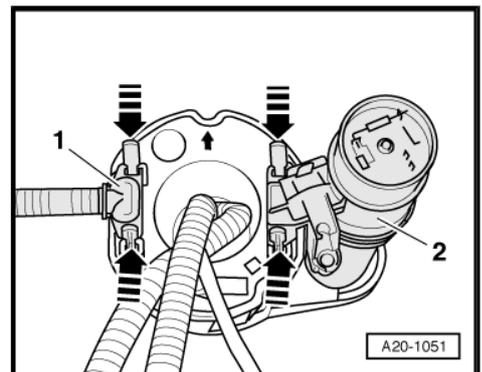
- Detach flange and remove seal/O-ring.
- Unplug electrical connectors -1 ... 3- on underside of flange (left-side).



- Working through left fuel tank opening, disconnect supply line -3- for suction-jet pump from Y-connector (press release tab).
- Pull supply line for suction-jet pump out of right fuel tank opening.



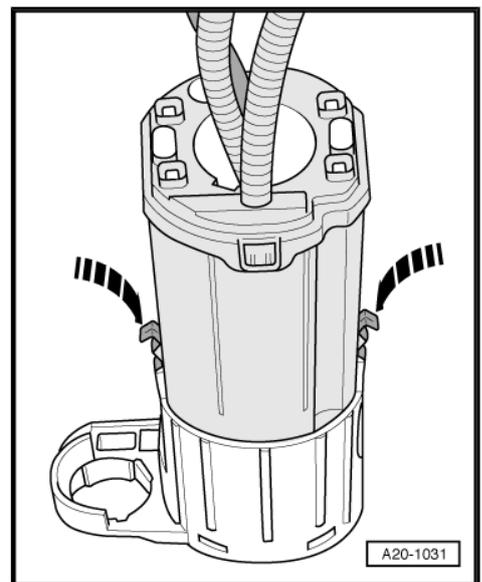
- Working through right fuel tank opening, press release tabs -arrows- and detach fuel supply line -1- and fuel gauge sender 4 - G393- -item 2-.
- Move fuel gauge sender 4 - G393- to right side.



- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Remove fuel delivery unit.

i Note

Keep in mind that the fuel delivery unit still contains fuel.





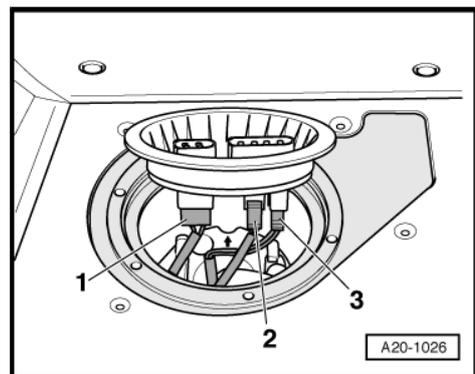
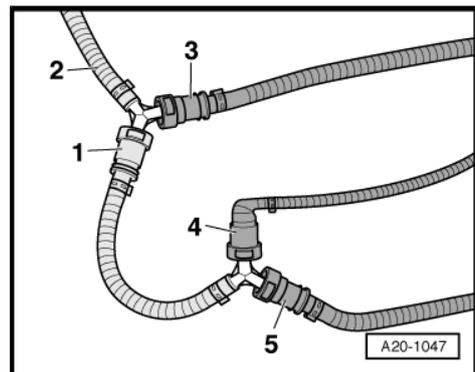
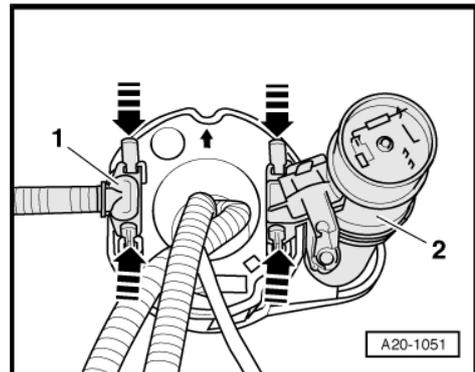
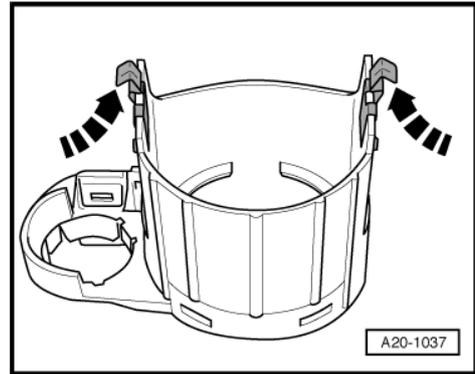
Installing

- Tightening torques ⇒ [page 36](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Then press fuel delivery unit carefully into retainer so that it engages audibly.

- Fit fuel supply line -1- and fuel gauge sender 4 - G393-
-item 2- so that they engage audibly on fuel delivery unit (right-side).

- Push supply line -3- for suction-jet pump through right fuel tank opening into left fuel tank chamber.
- Fit supply line for suction-jet pump onto Y-connector so it engages audibly.

- Connect electrical connectors -1 ... 3- on underside of flange (left-side).



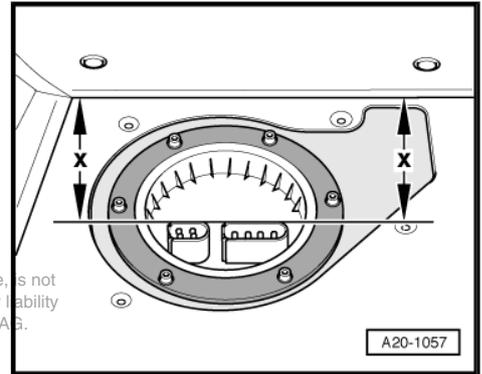
Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

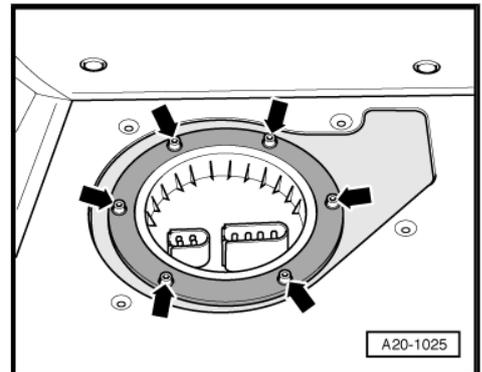
Vehicles up to approx. 10.2002:

- Fit flange with new O-ring into fuel tank; note correct installation position:
- The electrical connectors are positioned transversely in relation to direction of travel.
- Dimension -x- (left-side) = dimension -x- (right-side)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

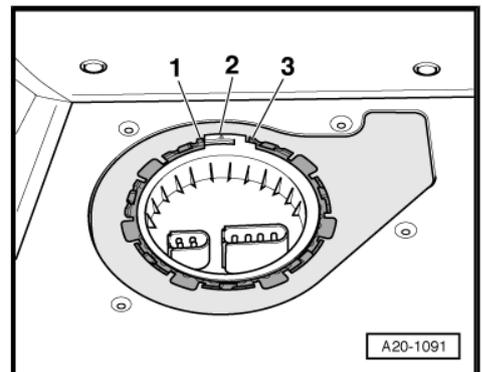


- Secure locking ring for flange (left-side) in diagonal sequence -arrows-.

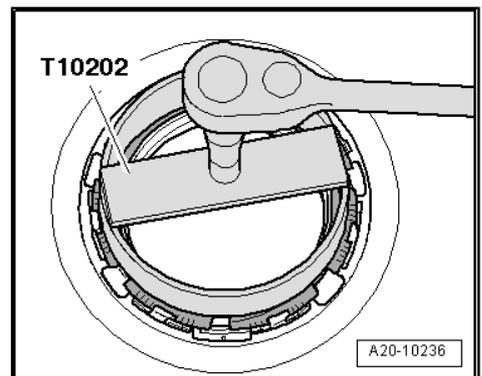


Vehicles from approx. 11.2002 onwards:

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.

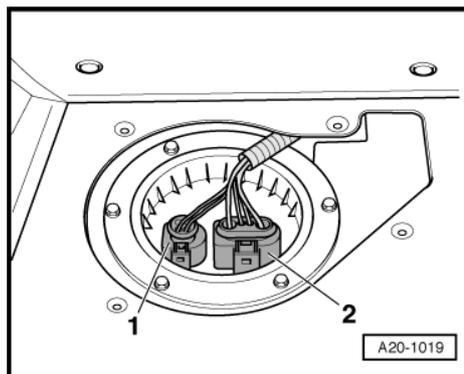


- Tighten locking ring.

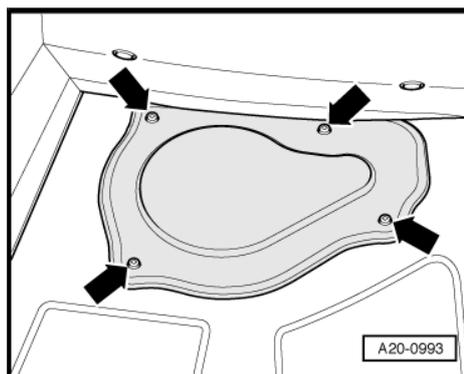


All vehicles (continued):

- Attach electrical connectors -1- and -2- on flange (left-side).

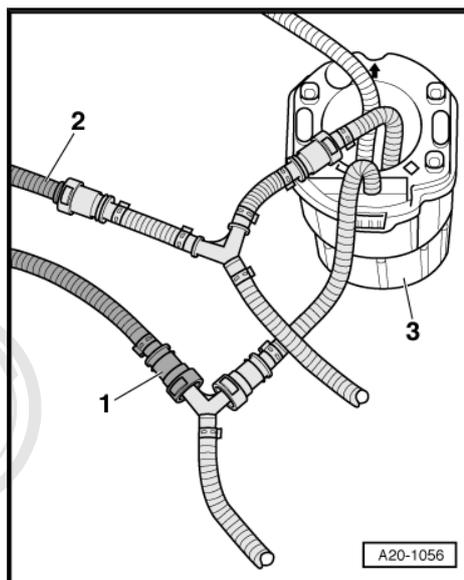


- Secure cover for flange (left-side) -arrows-.



- Working through right fuel tank opening, connect fuel lines -1- and -2- going to left fuel delivery unit so that they engage audibly.

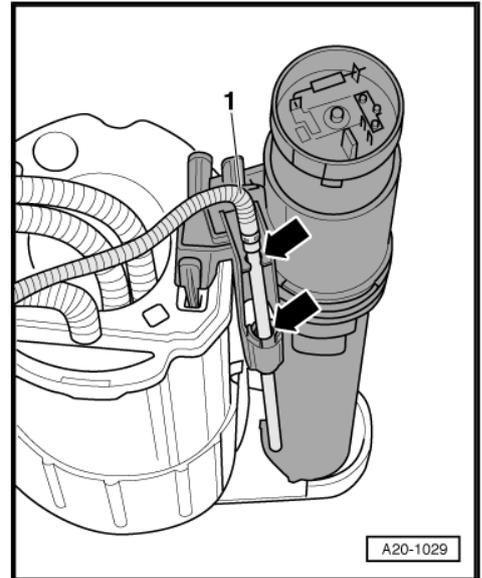
- 3 - Fuel delivery unit (right-side) with fuel pump - G23-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

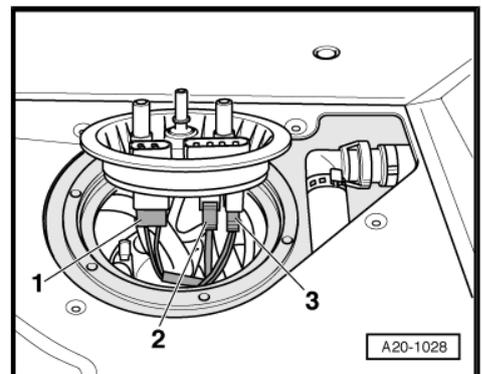
Vehicles with auxiliary heater:

- Fit suction pipe -1- for auxiliary heater into retainers -arrows- on tubular sender.



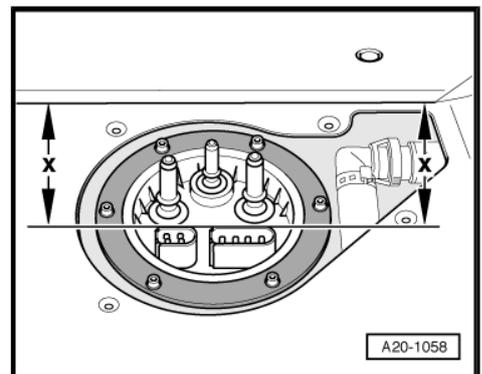
All vehicles (continued):

- Connect electrical connectors -1 ... 3- on underside of flange (right-side).

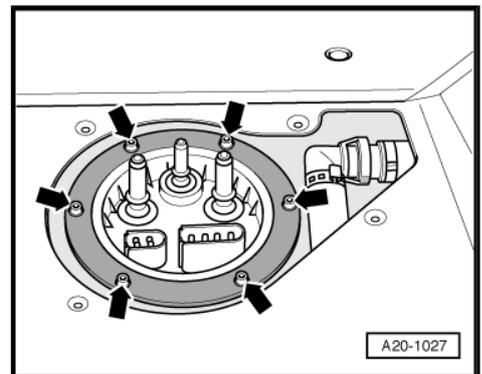


Vehicles up to approx. 10.2002:

- Fit flange with new O-ring into fuel tank; note correct installation position:
- The electrical connectors are positioned transversely in relation to direction of travel.
- Dimension -x- (left-side) = dimension -x- (right-side)



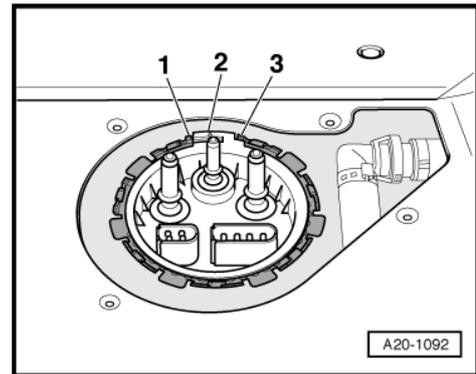
- Secure locking ring for flange (right-side) in diagonal sequence -arrows-.



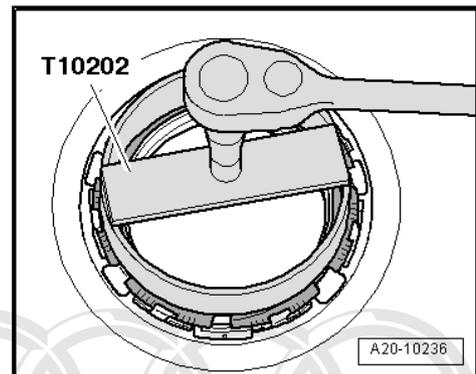
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Vehicles from approx. 11.2002 onwards:

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
 - Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



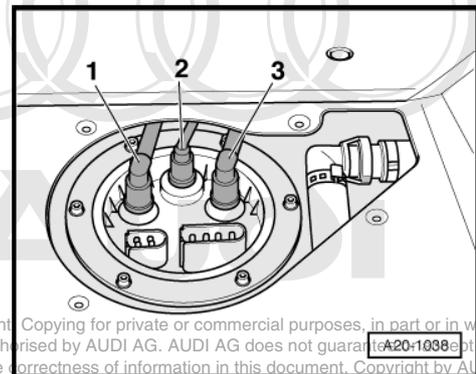
- Tighten locking ring.

**All vehicles (continued):**

- Fit fuel return line -1- and fuel supply line -3- so that they engage audibly.

Vehicles with auxiliary heater:

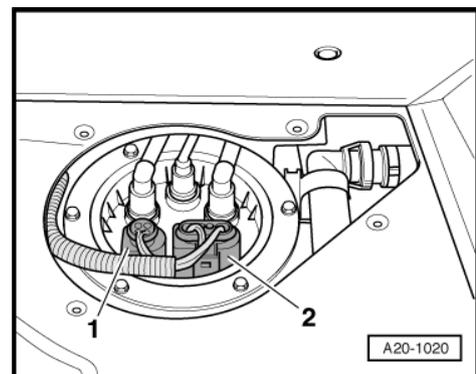
- Also fit supply line -2- going to auxiliary heater so that it engages audibly.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

All vehicles (continued):

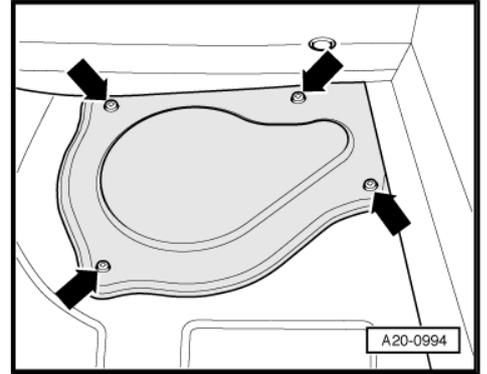
- Attach electrical connectors -1- and -2- on flange (right-side).



- Secure cover for flange (right-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery => Electrical system; Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing

Vehicles with auxiliary heater:

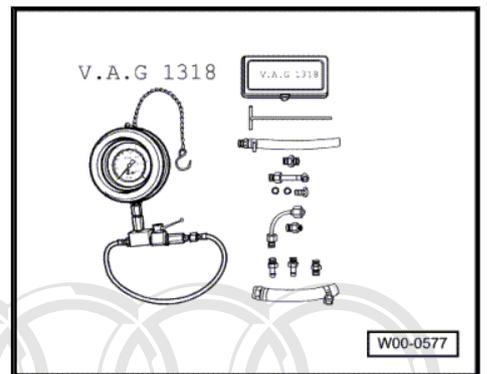
- Let auxiliary heater run with full load for 10 minutes to bleed fuel supply line going to metering pump.



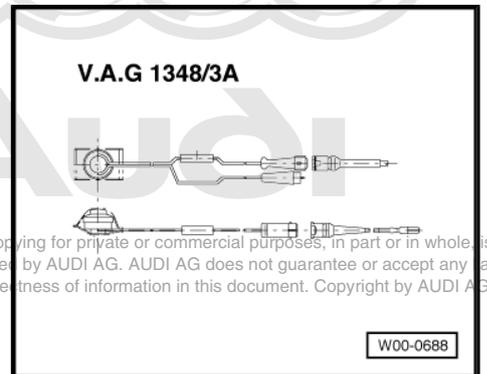
3.7 Checking delivery rate of fuel pumps - vehicles with fuel return line

Special tools and workshop equipment required

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



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



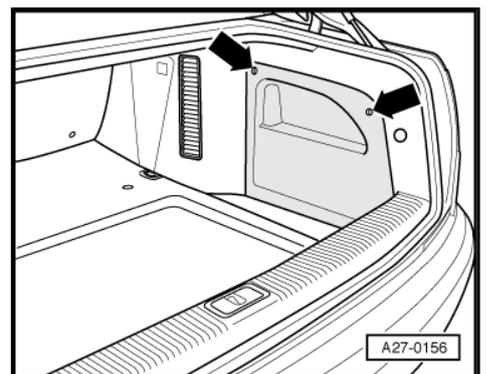
- ◆ Fuel-resistant measuring container

Procedure

- Observe test conditions => [page 3](#) .

 **WARNING**
 Observe safety precautions => [page 1](#) .

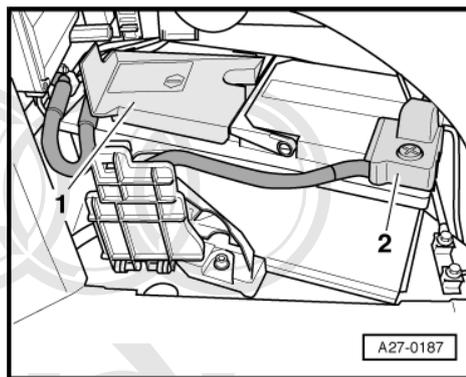
- Remove luggage compartment side trim cover (right-side) -arrows-.



- Remove cover -2- over battery.

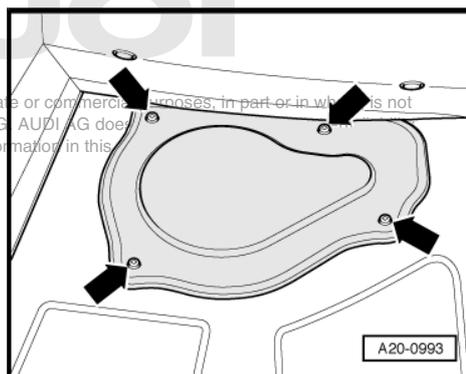
 **Note**

Disregard -item 1-.



- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.

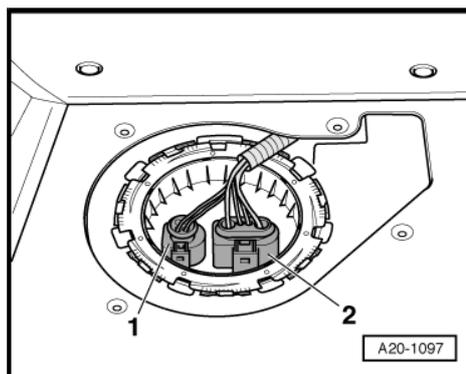
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document.



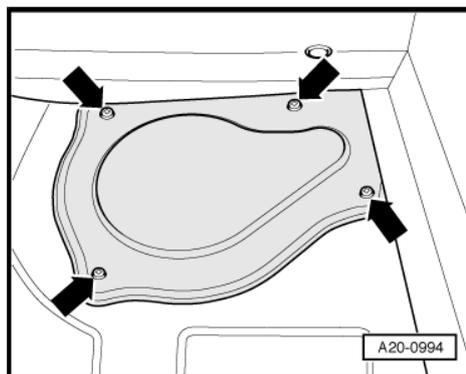
- Unplug electrical connector -2- on flange (left-side).

 **Note**

Disregard -item 1-.



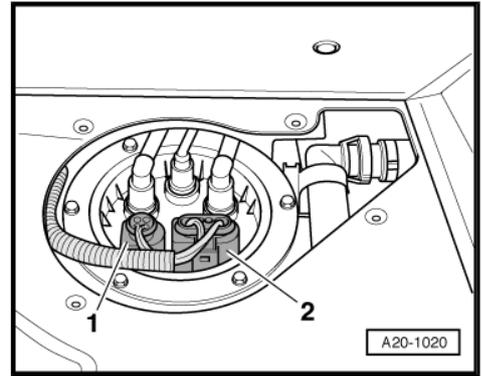
- Unscrew cover for flange (right-side) -arrows-.



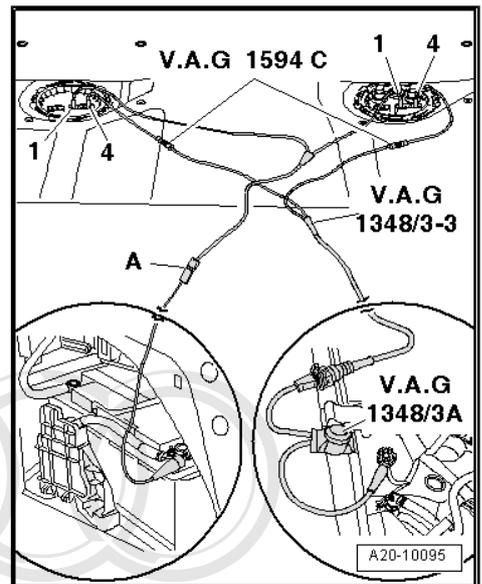
- Unplug electrical connector -2- on flange (right-side).

i Note

Disregard -item 1-.



- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3- to contact -4- (earth) of fuel delivery unit (left-side) and fuel delivery unit (right-side) using test leads from auxiliary measuring set - V.A.G 1594C- .
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- (positive) of fuel delivery unit (left-side) and fuel delivery unit (right-side) to battery "+" via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.

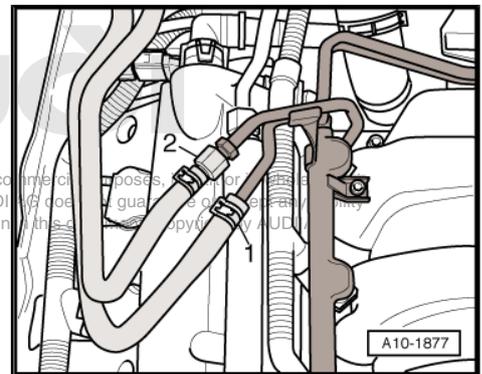


! WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

! Caution

Rules for cleanliness when working on the injection system => page 3 .



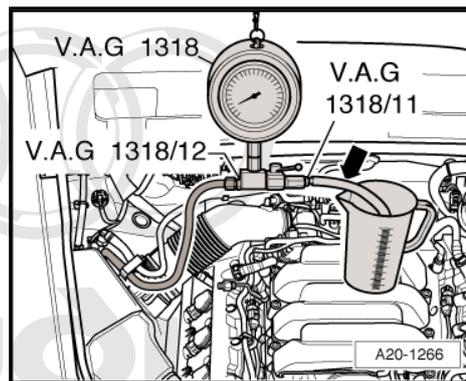
- Disconnect fuel supply line -2- at fuel rail.

i Note

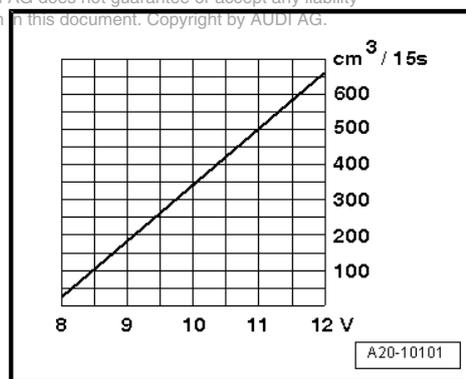
Disregard -item 1-.



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



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

**Note**

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

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

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

**Note**

As there is hardly any difference in the fuel delivery rate if only one of the two fuel pumps is working (because of the hose connections inside the tank), it is difficult to diagnose a defective pump by just measuring the delivery rate.

In this case proceed as follows:

- Unplug the electrical auxiliary lead at the fuel delivery units (one at a time).
- Measure delivery rate of fuel delivery unit located on the opposite side.

If the delivery rate of the fuel delivery unit which has been measured separately is considerably below specification:

- Renew the relevant fuel delivery unit.

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

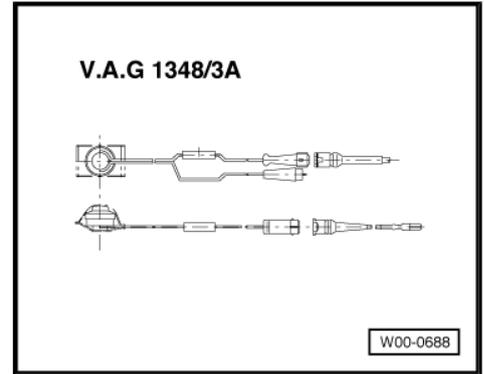
- Secure fuel supply line to fuel rail ⇒ Rep. gr. 24 .

3.8 Checking delivery rate of fuel pumps - vehicles with fuel system without fuel return line

Special tools and workshop equipment required

- ◆ Adapter -V.A.G 1318/26-

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



- ◆ Fuel-resistant measuring container

Procedure

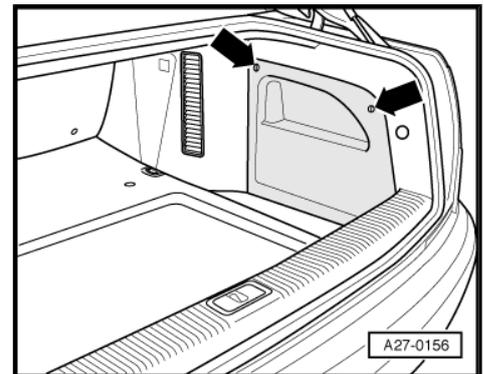
- Observe test conditions => page 3 .

WARNING

Observe safety precautions => page 1 .

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

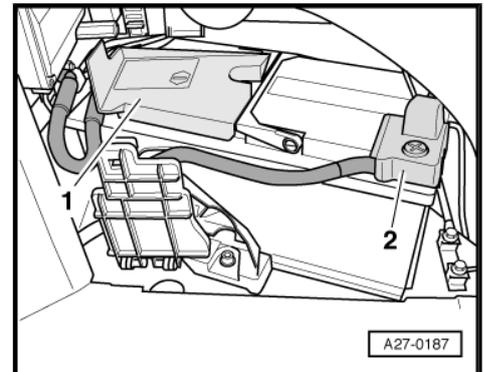
- Remove luggage compartment side trim cover (right-side) -arrows-.



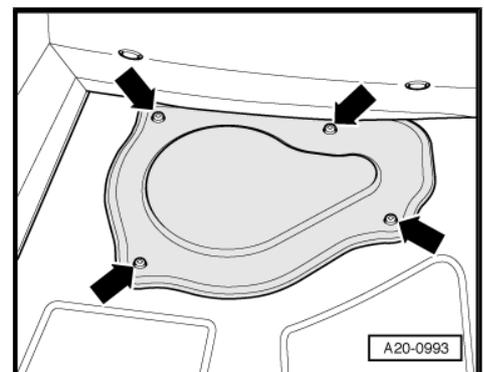
- Remove cover -2- over battery.

Note

Disregard -item 1-.



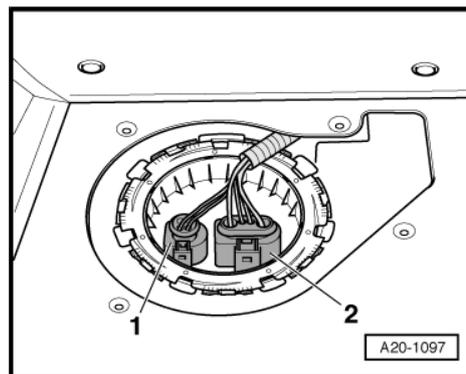
- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



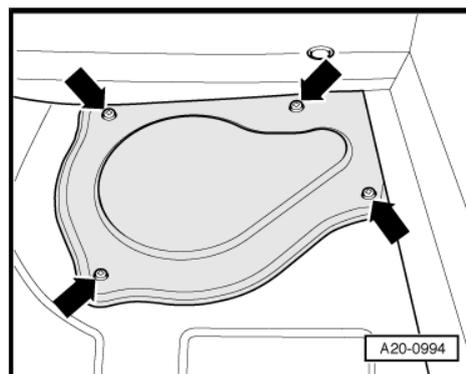
- Unplug electrical connector -2- on flange (left-side).

 **Note**

Disregard -item 1-.



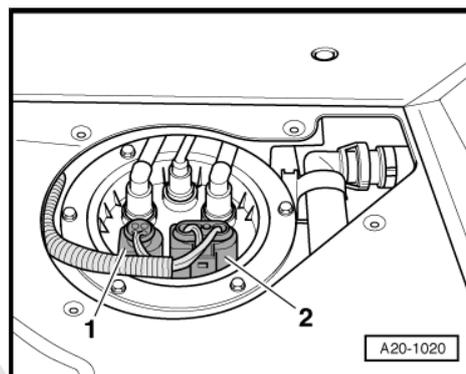
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -2- on flange (right-side).

 **Note**

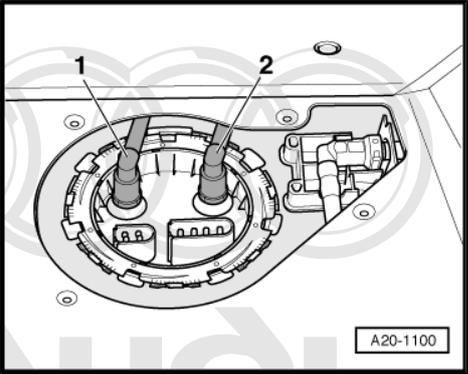
Disregard -item 1-.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

! WARNING
The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

! Caution
Rules for cleanliness when working on the injection system => page 3.



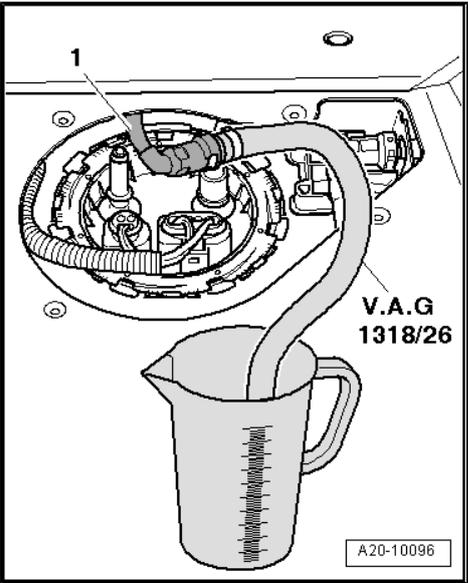
- Disconnect fuel return line -1- from flange by pressing release tabs.

Right. Copying for private or commercial purposes, in part or in whole, 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.

i Note

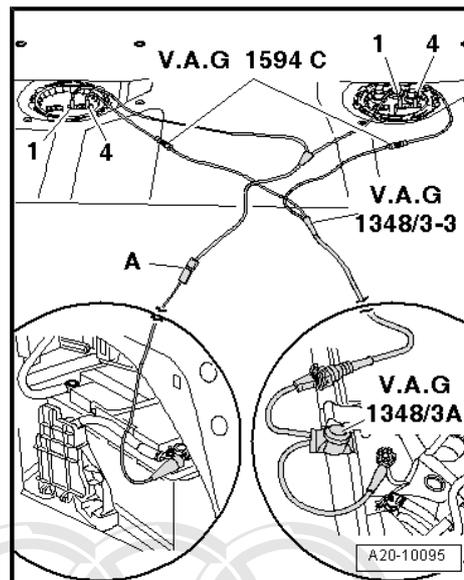
Disregard -item 2-.

- Fit adapter -V.A.G 1318/26- onto disconnected fuel pipe -1- and hold adapter hose in measuring container.





- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3- to contact -4- (earth) of fuel delivery unit (left-side) and fuel delivery unit (right-side) using test leads from auxiliary measuring set - V.A.G 1594C- .
- Connect crocodile clip to earth point next to battery.
- Connect contact -1- (positive) of fuel delivery unit (left-side) and fuel delivery unit (right-side) to battery "+" via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.



- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).

**Note**

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

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

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

**Note**

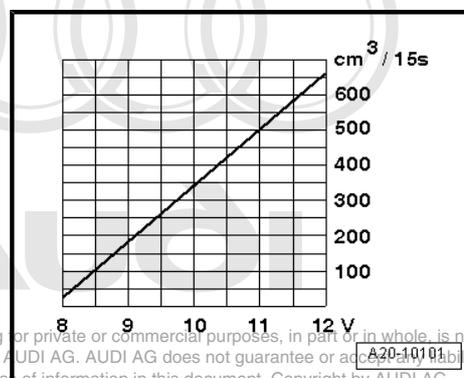
As there is hardly any difference in the fuel delivery rate if only one of the two fuel pumps is working (because of the hose connections inside the tank), it is difficult to diagnose a defective pump by just measuring the delivery rate.

In this case proceed as follows:

- Unplug the electrical auxiliary lead at the fuel delivery units (one at a time).
- Measure delivery rate of fuel delivery unit located on the opposite side.

If the delivery rate of the fuel delivery unit which has been measured separately is considerably below specification:

- Renew the relevant fuel delivery unit.



3.9 Suction-jet pumps

- 1 - Suction-jet pump (left-side)
- 2 - Fuel delivery unit (left-side)
- 3 - Expansion tank
- 4 - Fuel pump (right-side)
- 5 - Fuel delivery unit (right-side)
- 6 - Suction-jet pump (right-side)
- 7 - Y-connector
- 8 - Y-connector

Description of operation

To ensure a reliable fuel supply in all situations, the fuel pumps must never draw in air, even under extreme driving conditions such as very sharp bends or under heavy braking. This may happen when the fuel sloshes into one of the corners of a partially filled fuel tank.

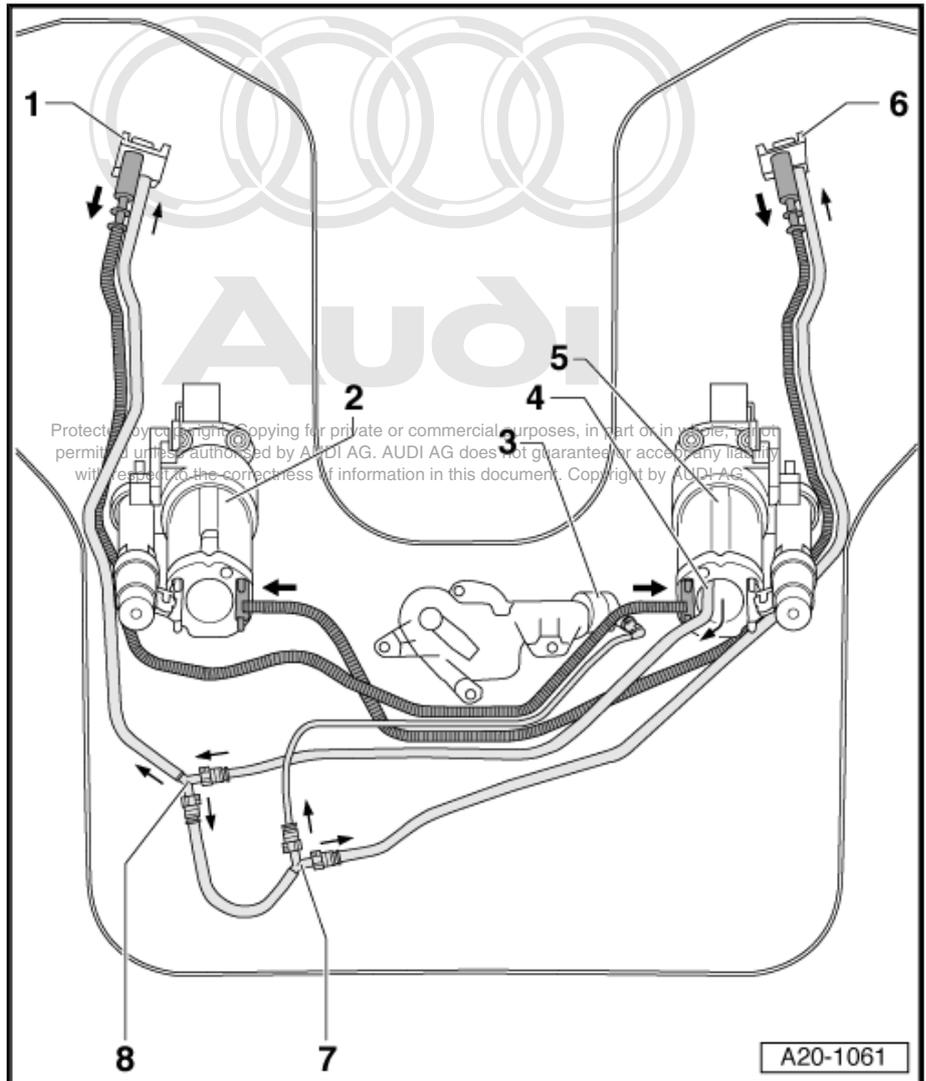
- ◆ For this reason, the fuel delivery units -item 2- and -item 5- incorporate a baffle housing, in which the fuel pumps are fitted, as well as the fuel pumps themselves. The baffle housing is a container permanently filled with fuel, so that the fuel pumps are surrounded with fuel regardless of the fuel level in the tank.

- ◆ Consequently, proper filling of the baffle housings is essential for trouble-free operation of the fuel pumps. This is the purpose of the “suction-jet pumps”.

- ◆ The suction-jet pumps operate according to the principle of fluid entrainment: a stream of fuel from the primary stage of the fuel pump (right-side) -item 4- is passed through a nozzle in the suction-jet pumps -item 1- and -item 6-, and is thus accelerated. The accelerated stream of fuel draws off the surrounding fuel and delivers it to the baffle housings in the fuel delivery unit. The suction jet pump (right-side) -item 6- delivers the fuel into the baffle housing (left-side); the suction jet pump (left-side) -item 1- delivers the fuel into the baffle housing (right-side).

- ◆ The stream of fuel is distributed from the primary stage of the fuel pump (right-side) to the two suction-jet pumps via two Y-connectors -item 7- and -item 8-.

- ◆ Another small suction-jet pump is located in the expansion tank -item 3- and delivers fuel from there back to the fuel tank.



3.10 Removing and installing suction-jet pump (left-side)

Removing

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

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

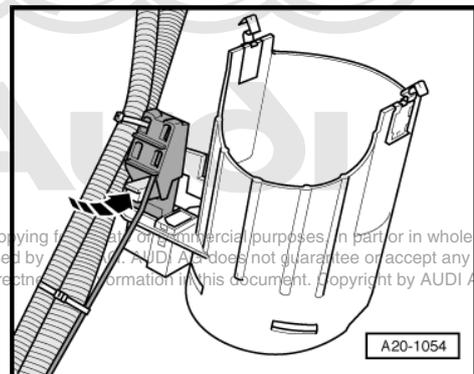
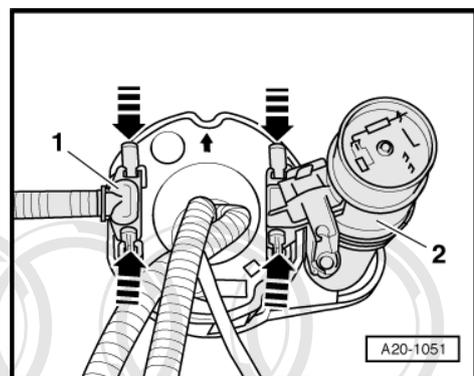
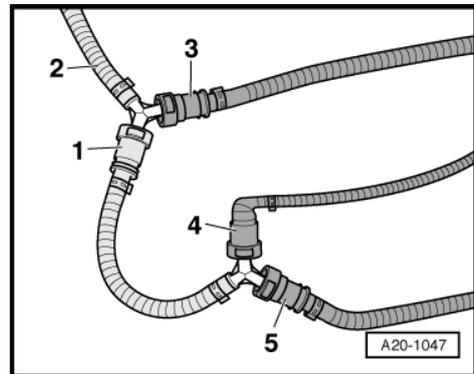
- Remove the fuel delivery unit (left-side) ⇒ [page 26](#) .
- Remove fuel gauge sender 3 - G237- (tubular sender, left-side) from fuel tank.
- Working through left fuel tank opening, disconnect supply lines -1- and -3- for suction-jet pumps from Y-connector (press release tabs).
- Working through right fuel tank opening, press release tabs -arrows- and detach fuel supply line -1-.



Note

Disregard -item 2-.

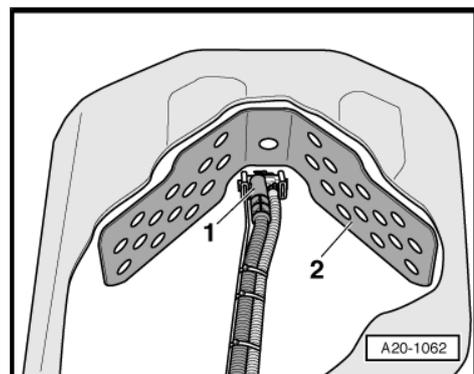
- Pull out disconnected fuel supply line through left fuel tank opening.
- Working through left fuel tank opening, press release tab -arrow- and detach retaining clip for suction jet lines from retainer.
- Pull out suction-jet pump (left-side) together with lines through left fuel tank opening.



Protected by copyright. Copying for private or commercial purposes, in part or in whole is not permitted unless authorised by Audi AG. Audi AG does not guarantee or accept any liability with respect to the correctness of the information in this document. Copyright by AUDI AG.

Installing

- Insert suction-jet pump (left-side) -1- into fuel tank and place into recess in baffle plate -2- in fuel tank at front, as shown in illustration.
- Then press retaining clip for suction-jet pump into retainer so it engages audibly.



- Push fuel supply line through left fuel tank opening into right fuel tank chamber. Note routing:
- The fuel supply line -3- must be routed below the fuel filler pipe -2- at the left fuel tank opening.

 **Note**

Disregard -item 1-.

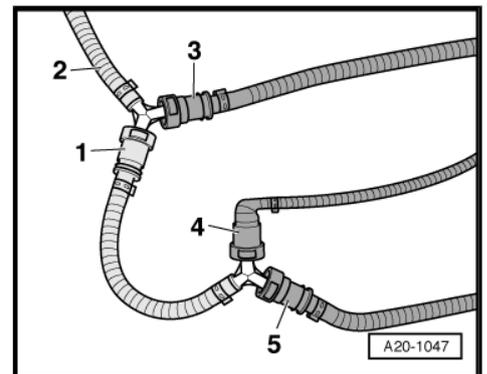
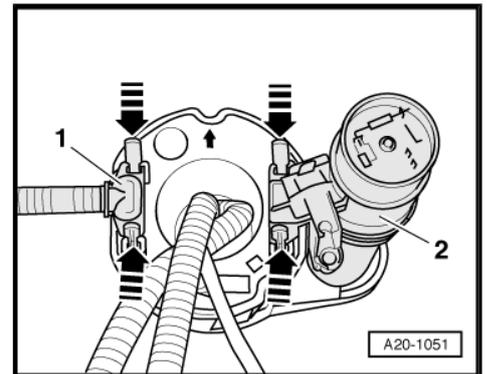
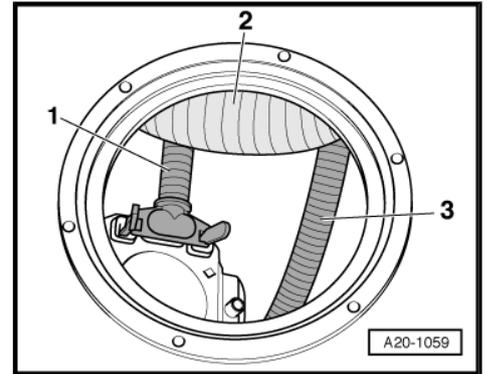
- Fit fuel supply line -1- onto fuel delivery unit (right-side) so that it engages audibly.

 **Note**

Disregard -item 2-.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

- Working through left fuel tank opening, fit supply lines -1- and -3- for suction-jet pumps onto Y-connector so that they engage audibly.
- Insert fuel gauge sender 3 - G237- into fuel tank.
- Install fuel delivery unit (left-side) ⇒ [page 31](#) .



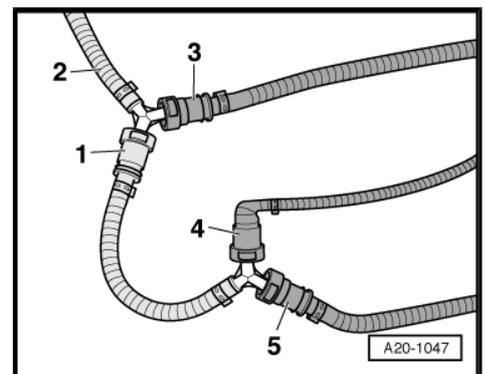
3.11 Removing and installing suction-jet pump (right-side)

Removing

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

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

- Remove fuel delivery unit (right-side) ⇒ [page 42](#) .
- Remove fuel gauge sender 4 - G393- (tubular sender, right-side) from fuel tank.
- Working through left fuel tank opening, disconnect supply line -5- for suction-jet pump from Y-connector (press release tab).



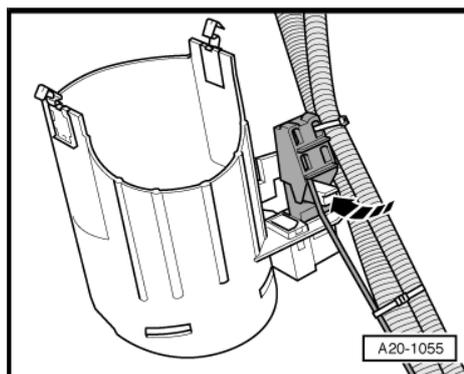
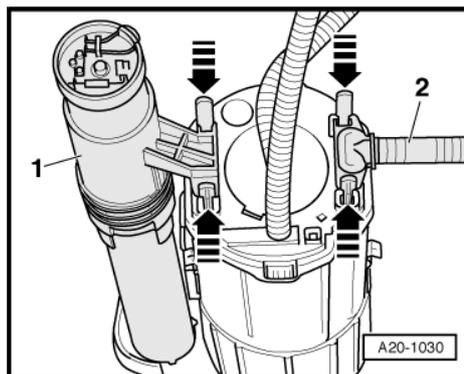
- Working through left fuel tank opening, press release tabs -arrows- and detach fuel supply line -2-.

 **Note**

Disregard -item 1-.

- Pull out disconnected fuel supply line through right fuel tank opening.

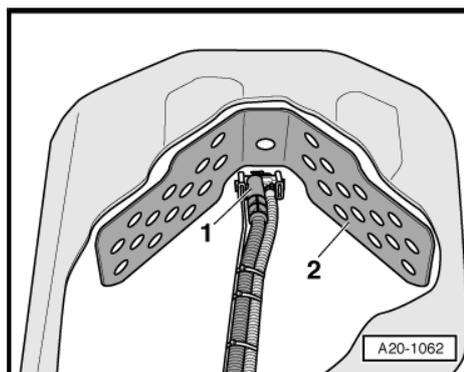
- Working through right fuel tank opening, press release tab -arrow- and detach retaining clip for suction jet lines from retainer.
- Pull suction-jet pump (right-side) together with lines out of right fuel tank opening.



Installing

- Insert suction-jet pump (right-side) -1- into fuel tank and place into recess in baffle plate -2- in fuel tank at front, as shown in illustration.

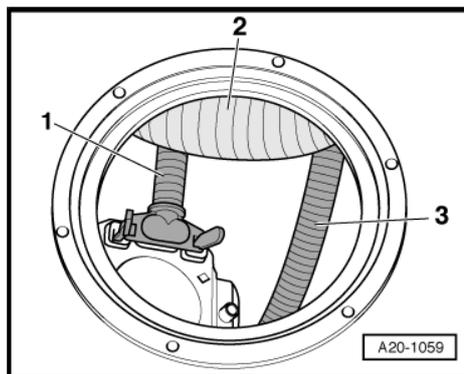
- Then press retaining clip for suction-jet pump into retainer so it engages audibly.



- Push fuel supply line through right fuel tank opening into left fuel tank chamber. Note routing:
 - The fuel supply line -1- must be routed below the fuel filler pipe -2- at the left fuel tank opening.

 **Note**

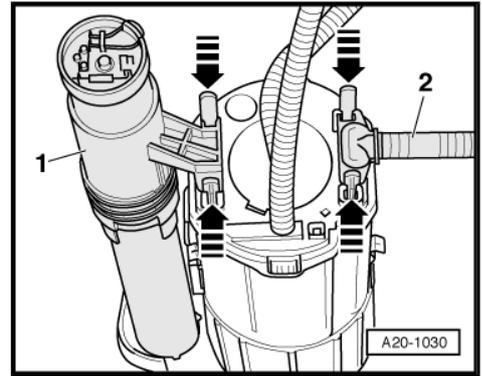
Disregard -item 3-.



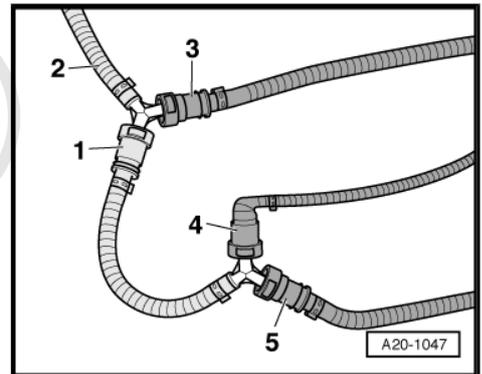
- Fit fuel supply line -2- onto fuel delivery unit (left-side) so that it engages audibly.

i Note

Disregard -item 1-.



- Push supply line -5- for suction-jet pump through right fuel tank opening into left fuel tank chamber.
- Fit supply line for suction-jet pump onto Y-connector so it engages audibly.
- Insert fuel gauge sender 4 - G393- into fuel tank.
- Install fuel delivery unit (right-side) => [page 48](#) .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

4 Routing of pipes/hoses (inside fuel tank) - rest-of-world vehicles with FSI engine

⇒ ["4.1 Routing of pipes/hoses \(inside fuel tank\) - exploded view", page 66](#)

4.1 Routing of pipes/hoses (inside fuel tank) - exploded view



Note

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

- ◆ The illustration shows the correct routing of pipes/hoses inside the fuel tank (schematic view).
- ◆ It is not necessary to route the pipes/hoses in exactly the same way as shown in the illustration, except for pipes/hoses shown in ⇒ [page 67](#). However it is essential to fit the pipes/hoses with sufficient space in relation to each other and to prevent rattling noises.
- ◆ The -arrow- points in direction of travel.

1 - Fuel delivery unit (left-side) with fuel system pressurisation pump - G6-

2 - Fuel supply line

- From suction-jet pump (left-side) to fuel delivery unit (right-side)

3 - Supply line for suction-jet pump

- From fuel pump (right-side) to suction-jet pump (left-side)

4 - Suction-jet pump (left-side)

5 - Supply line for suction-jet pump

- For fuel delivery unit (left-side)

6 - Expansion tank

- With suction-jet pump to extract fuel from expansion tank

7 - Non-return flap

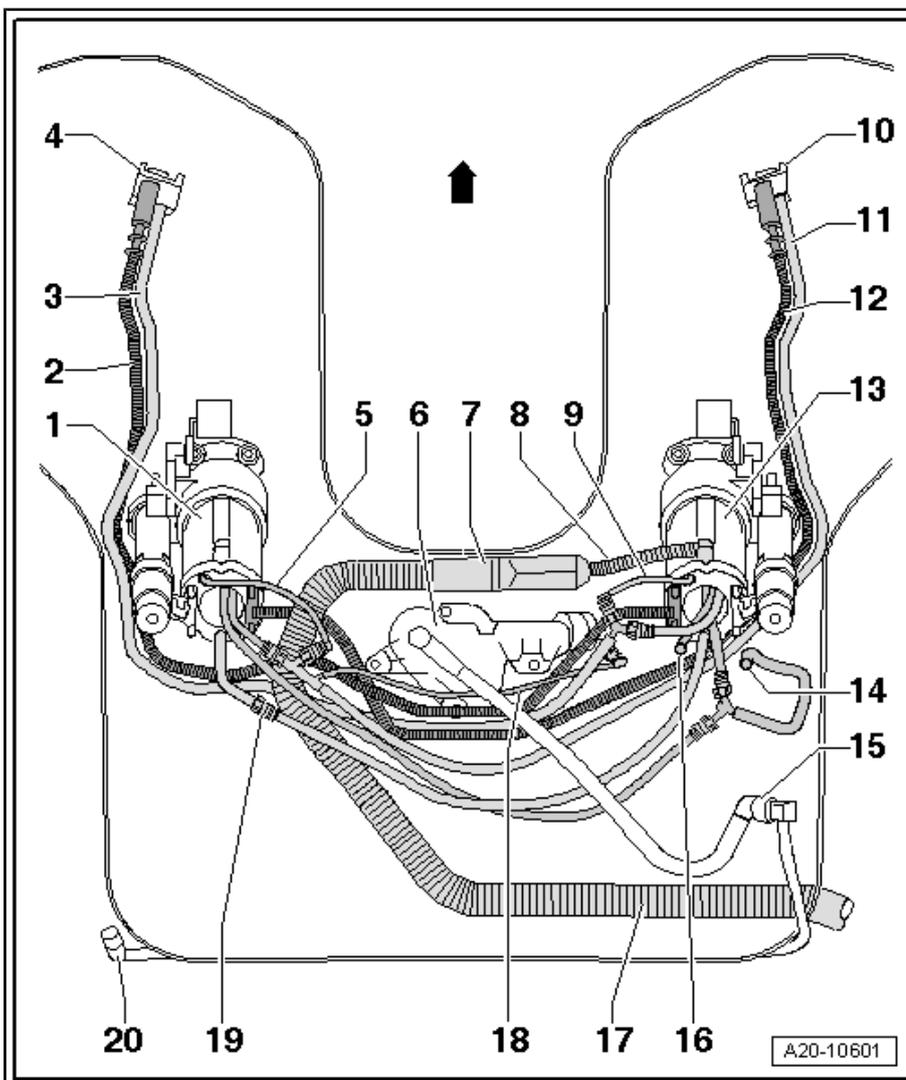
- For fuel filler pipe

8 - Primary filler pipe

- To fuel delivery unit (right-side).
- Ensures that a small amount of fuel is delivered immediately to the fuel delivery unit when the tank is filled for the first time.

9 - Supply line for suction-jet pump

- For fuel delivery unit (right-side)



10 - Suction-jet pump (right-side)

11 - Supply line for suction-jet pump

- From fuel pump (left-side) to suction-jet pump (right-side)

12 - Fuel supply line

- From suction-jet pump (right-side) to fuel delivery unit (left-side)

13 - Fuel delivery unit (right-side) with fuel pump - G23-

14 - Fuel supply line

- From fuel pumps (left and right) to flange

15 - Breather line

- To breather connection at top of fuel filler neck

16 - Fuel return line

- From flange to fuel delivery unit (right-side)
- Fitted loosely in fuel delivery unit (right-side)

17 - Fuel filler pipe

- From fuel filler neck to non-return flap in fuel tank

18 - Supply line for suction-jet pump

- To suction-jet pump in expansion tank

19 - Balance pipe

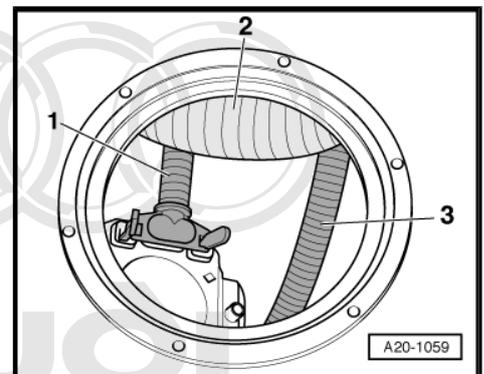
- Between fuel delivery units

20 - Breather line

- To activated charcoal filter in rear left wheel housing

Installation position of fuel supply lines

- The fuel supply lines -1- and -3- must be routed below the fuel filler pipe -2- at the left fuel tank opening.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

5 Fuel delivery unit with fuel pump and fuel gauge senders - rest-of-world vehicles with FSI engine

⇒ [“5.1 Exploded view - fuel delivery unit \(left-side\) with fuel system pressurisation pump G6 and fuel gauge senders G and G237 ”, page 68](#)

⇒ [“5.2 Checking fuel system pressurisation pump G6 \(left-side\) - electrical test”, page 70](#)

⇒ [“5.3 Removing and installing fuel delivery unit \(left-side\) with fuel system pressurisation pump G6 ”, page 70](#)

⇒ [“5.4 Exploded view - fuel delivery unit \(right-side\) with fuel pump G23 and fuel gauge senders G169 and G393 ”, page 79](#)

⇒ [“5.5 Checking fuel pump G23 \(right-side\) - electrical test”, page 81](#)

⇒ [“5.6 Removing and installing fuel delivery unit \(right-side\) with fuel pump G23 ”, page 81](#)

⇒ [“5.7 Checking delivery rate of fuel pumps - vehicles with 6-cylinder engine”, page 90](#)

⇒ [“5.8 Checking delivery rate of fuel pumps - vehicles with 8-cylinder engine”, page 94](#)

⇒ [“5.9 Checking delivery rate of fuel pumps - vehicles with 10-cylinder engine \(Audi S8\)”, page 98](#)

⇒ [“5.10 Fuel pump control unit J538 ”, page 102](#)

⇒ [“5.11 Removing and installing fuel pump control unit J538 ”, page 102](#)

⇒ [“5.12 Suction-jet pumps”, page 103](#)

⇒ [“5.13 Removing and installing suction-jet pump \(left-side\)”, page 105](#)

⇒ [“5.14 Removing and installing suction-jet pump \(right-side\)”, page 107](#)

5.1 Exploded view - fuel delivery unit (left-side) with fuel system pressurisation pump - G6- and fuel gauge senders -G- and -G237-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

1 - Retainer

- For fuel delivery unit

2 - Fuel gauge sender - G-

- Black
- Clipped onto retainer -item 1-
- Checking resistance values => [page 221](#)
- Removing and installing => [page 222](#)

3 - Fuel delivery unit (left-side)

- With fuel system pressurisation pump - G6-
- Clipped onto retainer -item 1-
- Different versions available; for correct version refer to => Electronic parts catalogue
- Checking fuel pump (electrical test) => [page 125](#)
- Checking residual pressure => Rep. gr. 24
- Removing and installing => [page 70](#)
- Put at least 5 litres of fuel into tank after installing

4 - Fuel supply line

- From suction jet pump (right-side)
- Clipped onto fuel delivery unit -item 3-

5 - Supply line for suction-jet pump

- For fuel delivery unit (left-side)

6 - Supply line for suction-jet pump

- To suction-jet pump (right-side)

7 - Fuel supply line

- The plug connector is located on the right side of the fuel tank
- Press release tab on connection piece to disconnect

8 - Locking ring

- Remove and install using wrench - T10202-
- Tighten to 120 Nm

9 - Flange (left-side)

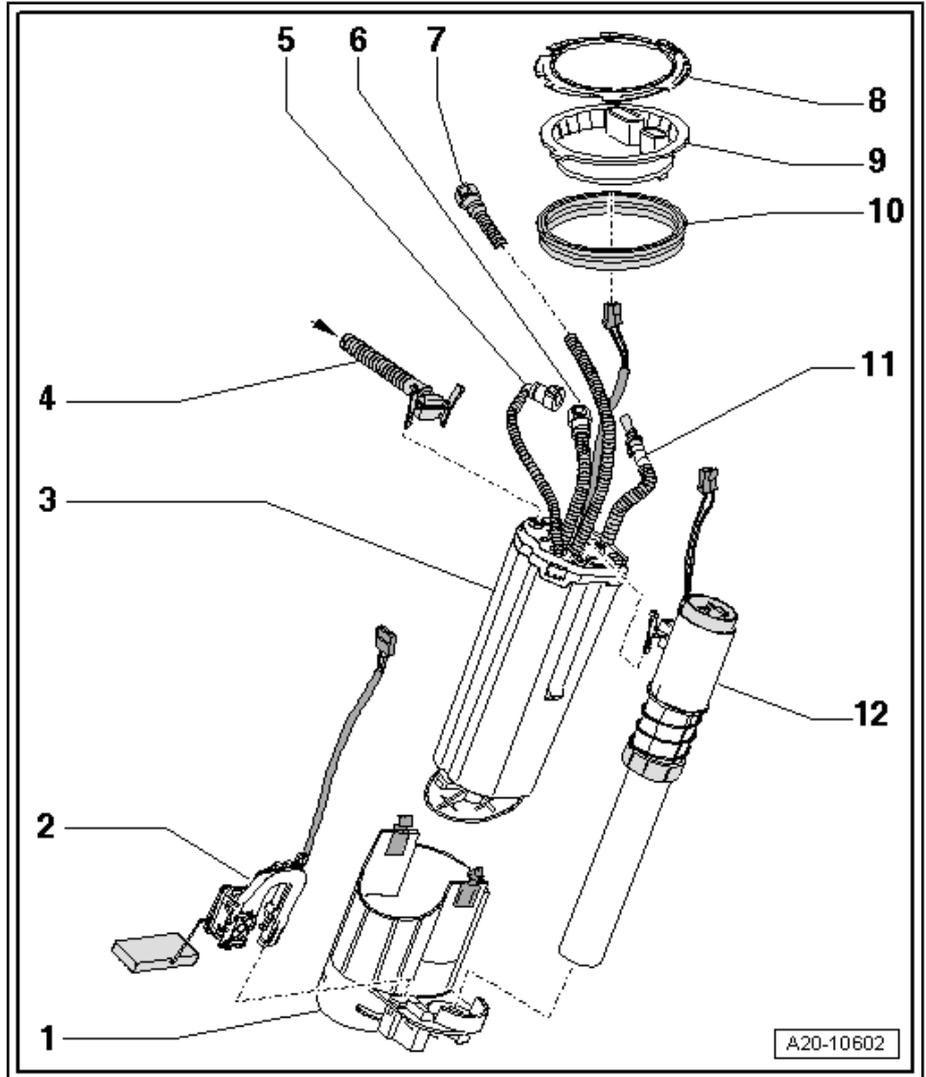
- Installation position => [page 70](#)

10 - Seal

- Renew
- Install dry

11 - Balance pipe

- To fuel delivery unit (right-side).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

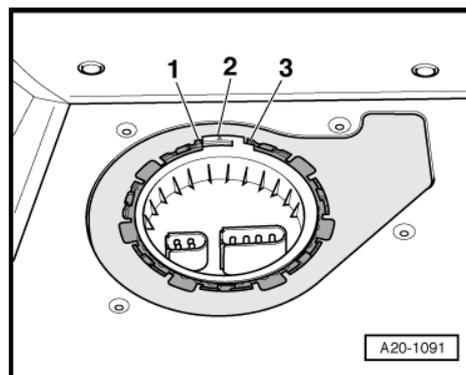


12 - Fuel gauge sender 3 - G237-

- Grey
- Clipped onto fuel delivery unit -item 3-
- Checking resistance values ⇒ [page 225](#)
- Removing and installing ⇒ [page 226](#)

Installation position of flange (left-side)

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



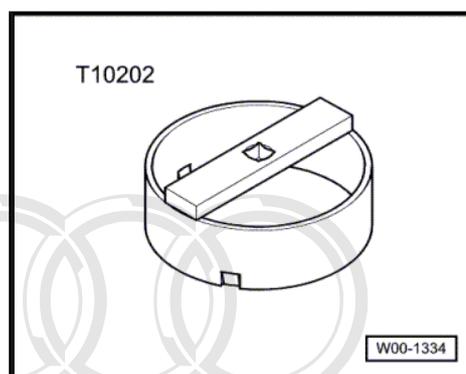
5.2 Checking fuel system pressurisation pump - G6- (left-side) - electrical test

- ◆ On vehicles with FSI engine, voltage for the fuel pumps is supplied via fuel pump control unit - J538- .
- ◆ Check fuel pump control unit - J538- in “Guided Fault Finding” ⇒ Vehicle diagnostic tester.

5.3 Removing and installing fuel delivery unit (left-side) with fuel system pressurisation pump - G6-

Special tools and workshop equipment required

- ◆ Wrench - T10202-



Removing

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

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



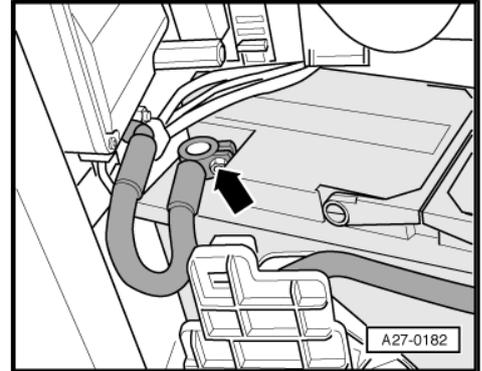
Caution

- **The fuel tank must not be more than 1/3 full when removing the fuel delivery unit. Drain the tank if necessary. Procedure ⇒ [page 112](#)**

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability in respect to the correctness of information in this document. Copyright by AUDI AG.

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

- With ignition switched off, disconnect battery earth cable -arrow- ⇒ Electrical system; Rep. gr. 27 .

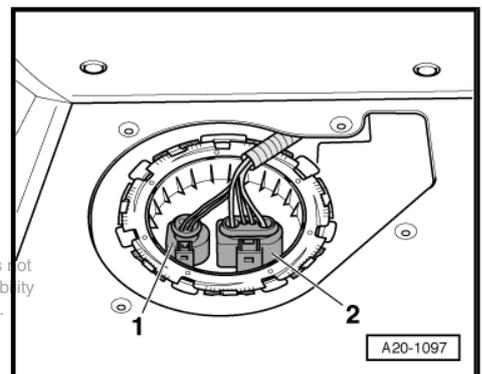
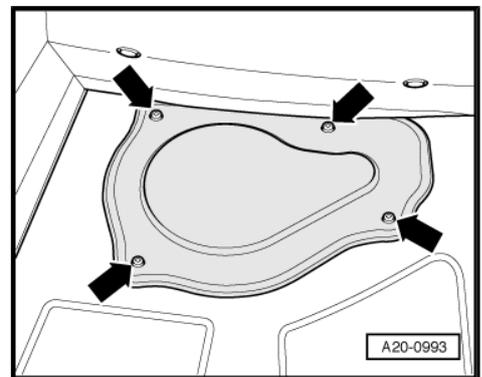


- Remove luggage compartment floor covering.

 **Note**

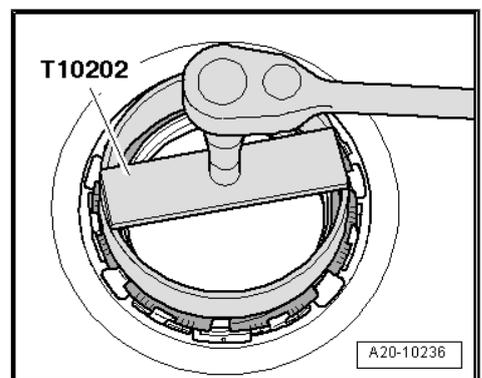
For removing and installing fuel delivery unit, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

- Detach cover for flange (left-side) -arrows-.
- Unplug electrical connectors -1- and -2- on flange (left-side).

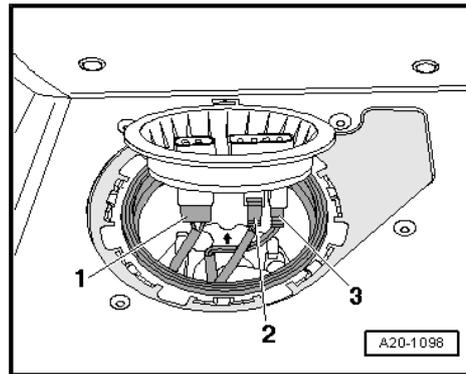


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

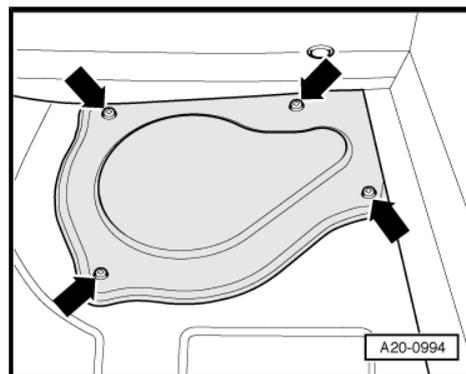
- Unscrew locking ring using wrench - T10202- .



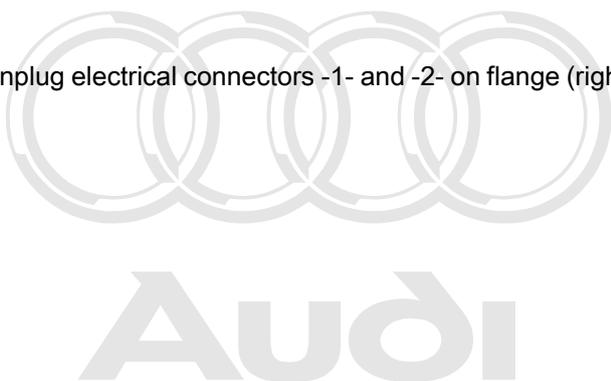
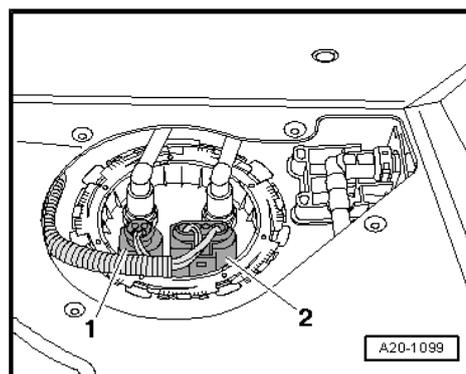
- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (left-side).



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



- Unplug electrical connectors -1- and -2- on flange (right-side).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for errors or omissions.

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

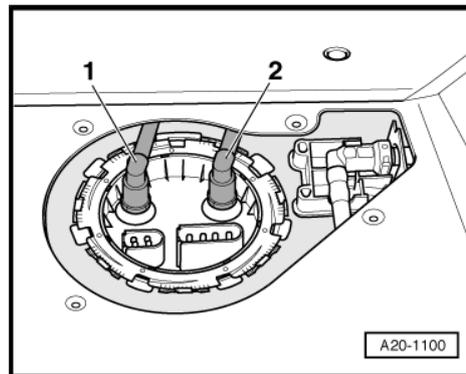
 **WARNING**

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

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

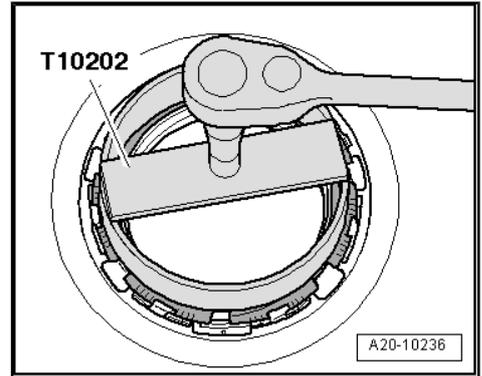
Vehicles with auxiliary heater:

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

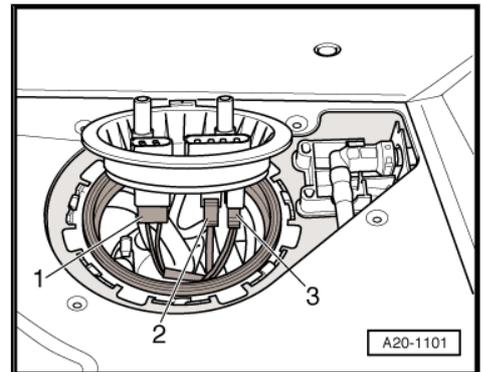


All vehicles (continued):

- Unscrew locking ring using wrench - T10202- .



- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (right-side).

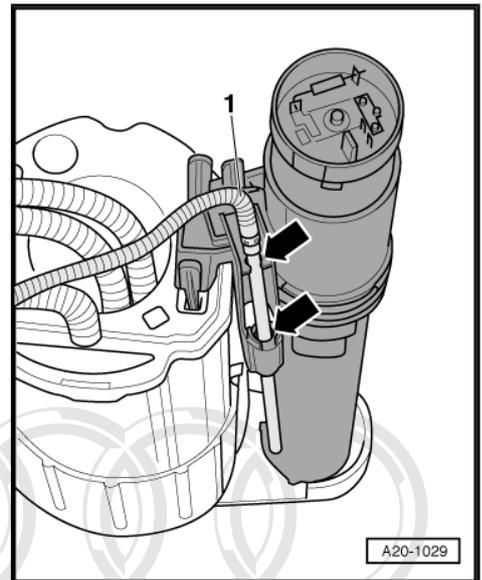


Note

Pull out fuel lines from fuel tank opening prior to disconnecting the pipe connectors mentioned below.

Vehicles with auxiliary heater:

- Pull out suction pipe -1- for auxiliary heater from retainers -arrows- on tubular sender.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



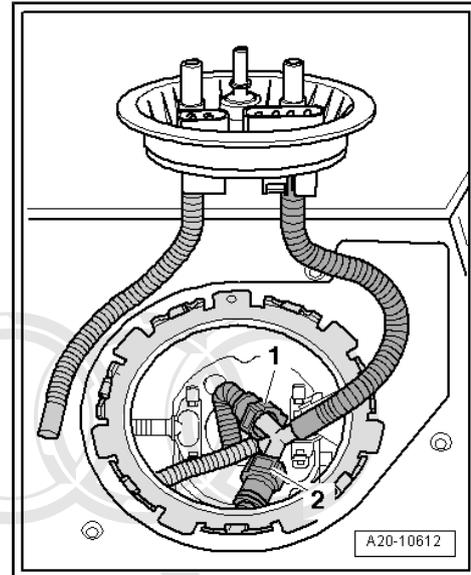
All vehicles (continued):

- Working through right fuel tank opening, press release tab and disconnect fuel supply line -2- going to fuel delivery unit (left-side).



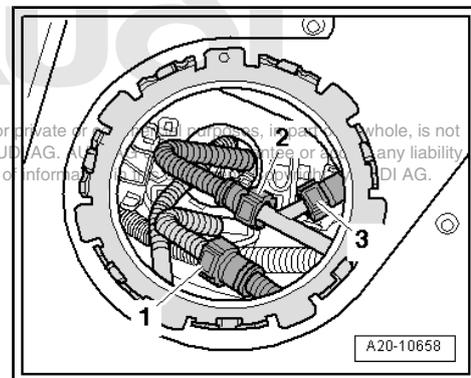
Note

Disregard -item 1-.

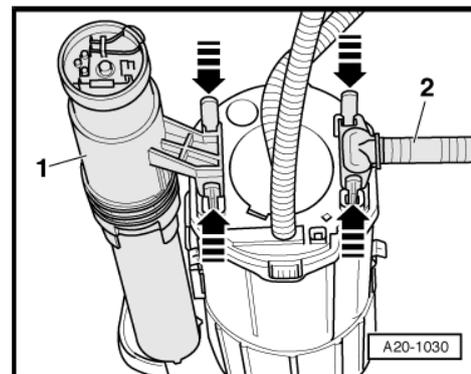


- Working through left fuel tank opening, press release tabs and disconnect balance pipe -1- and supply line -2- going to suction-jet pump (right-side) and supply line -3- going to fuel delivery unit (left-side).
- Pull disconnected fuel lines out of left fuel tank opening.

Protected by copyright. Copying for private or business purposes, in part or whole, is not permitted without the written authorisation of AUDI AG. AUDI AG assumes no liability with respect to the correctness of information.



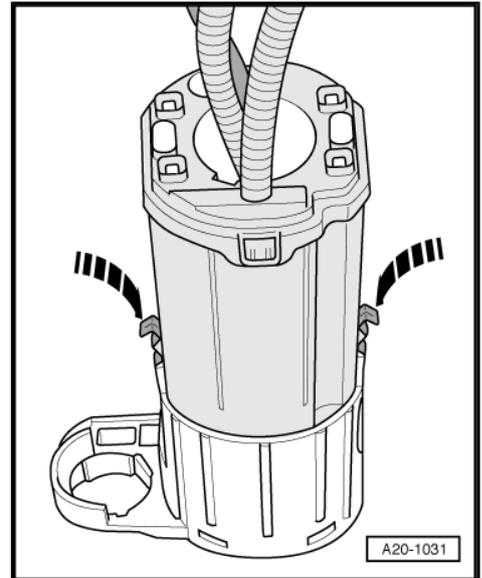
- Working through left fuel tank opening, press release tabs -arrows- and detach fuel supply line -2- and fuel gauge sender 3 - G237- -item 1-.
- Move fuel gauge sender 3 - G237- to left side.



- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Remove fuel delivery unit.

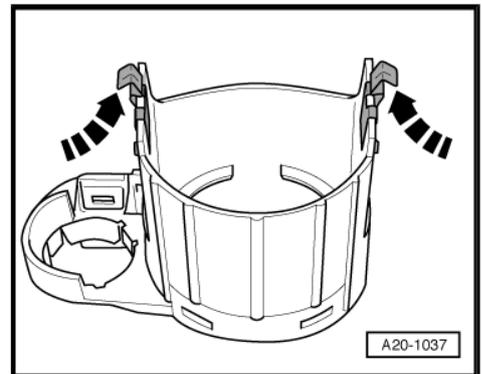
i Note

Keep in mind that the fuel delivery unit still contains fuel.

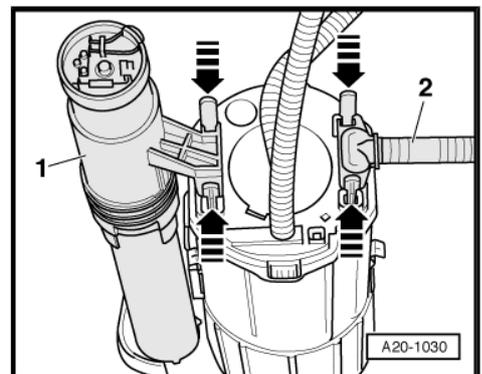


Installing

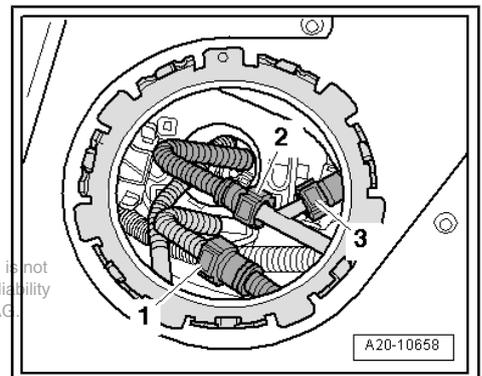
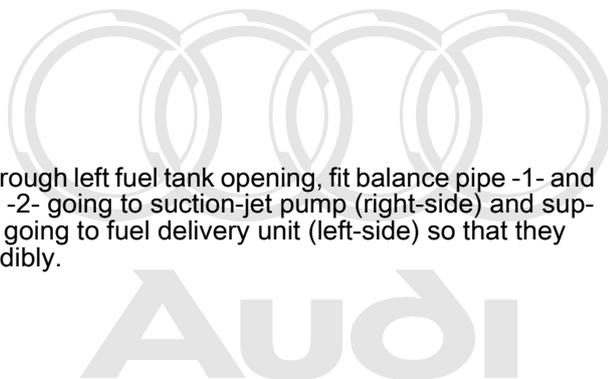
- Tightening torque => [page 68](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Then press fuel delivery unit carefully into retainer so that it engages audibly.



- Fit fuel supply line -2- and fuel gauge sender 3 - G237- -item 1- so that they engage audibly.
- Guide fuel supply line for fuel delivery unit (left-side) into fuel tank chamber (right-side).



- Working through left fuel tank opening, fit balance pipe -1- and supply line -2- going to suction-jet pump (right-side) and supply line -3- going to fuel delivery unit (left-side) so that they engage audibly.



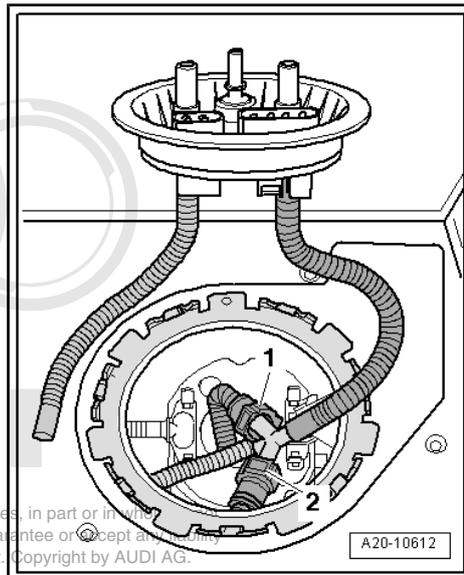
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Working through right fuel tank opening, fit fuel supply line -2- so that it engages audibly.

 **Note**

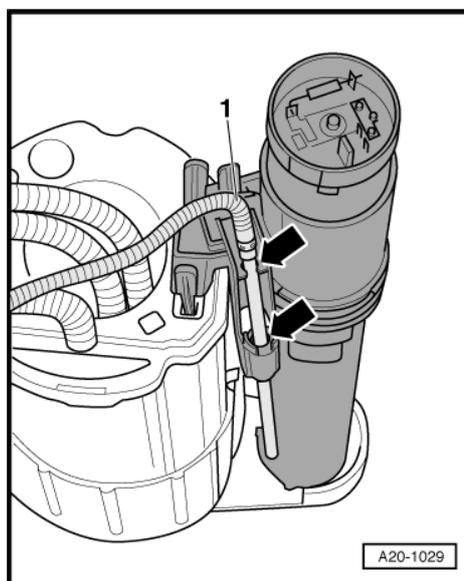
Disregard -item 1-.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



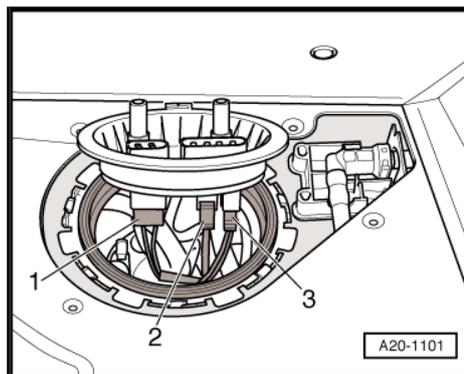
Vehicles with auxiliary heater:

- Fit suction pipe -1- for auxiliary heater into retainers -arrows- on tubular sender.

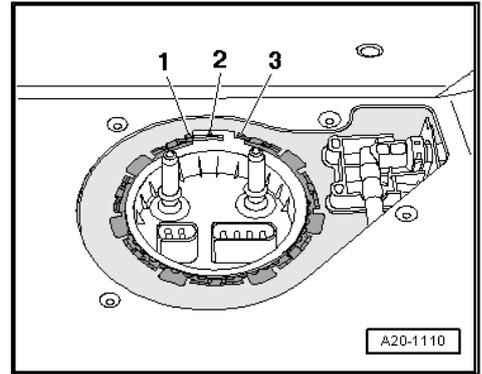


All vehicles (continued):

- Connect electrical connectors -1 ... 3- on underside of flange (right-side).
- Install new seal for flange (seal must be installed dry).

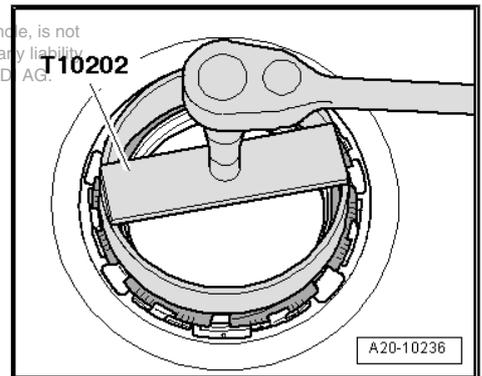


- Fit flange into fuel tank; note correct installation position:
- The hose for the return line must be guided into the opening in the centre of the fuel delivery unit.
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



- Tighten locking ring.

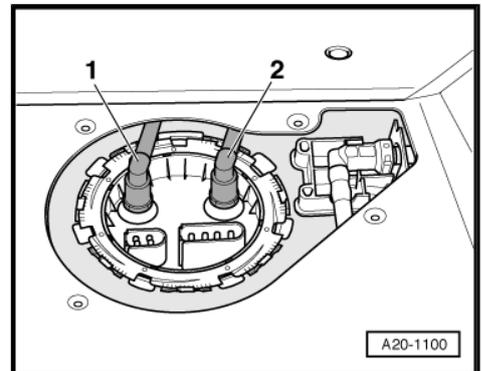
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- Install fuel supply line -2- and fuel return line -1- (as marked) so that they engage audibly.

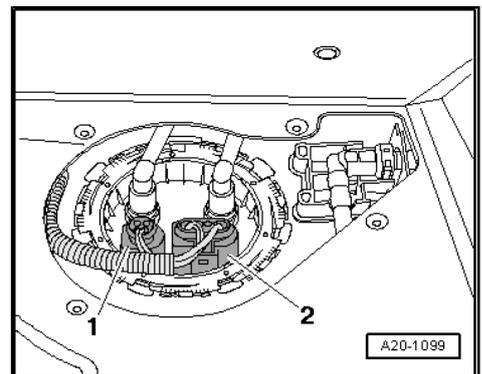
Vehicles with auxiliary heater:

- Also fit fuel supply line going to auxiliary heater so that it engages audibly.

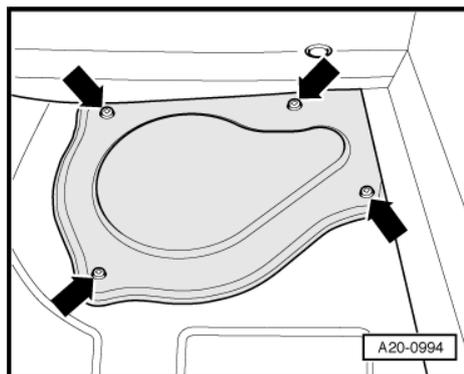


All vehicles (continued):

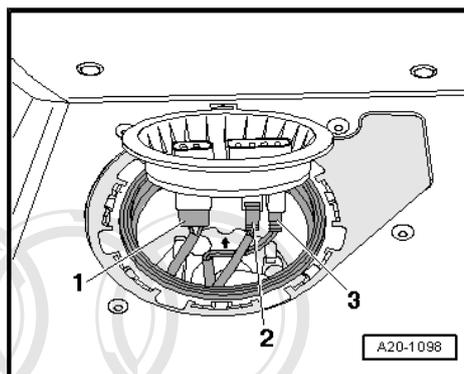
- Attach electrical connectors -1- and -2- on flange (right-side).



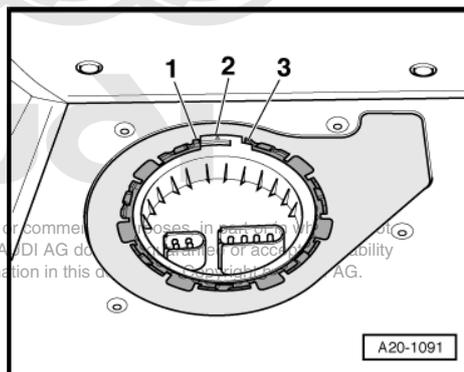
- Secure cover for flange (right-side) -arrows-.



- Connect electrical connectors -1 ... 3- on underside of flange (left-side).
- Install new seal for flange (seal must be installed dry).

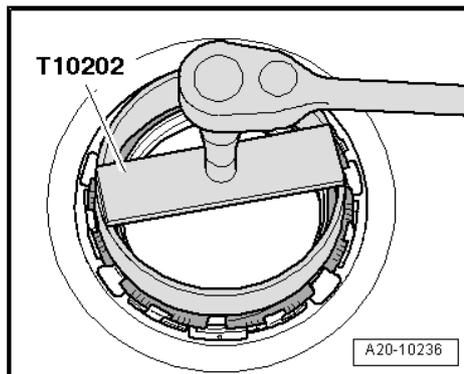


- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



Protected by copyright. Copying for private or commercial purposes in any form is prohibited without the prior written permission of Audi AG. Audi AG does not accept any liability with respect to the correctness of information in this document.

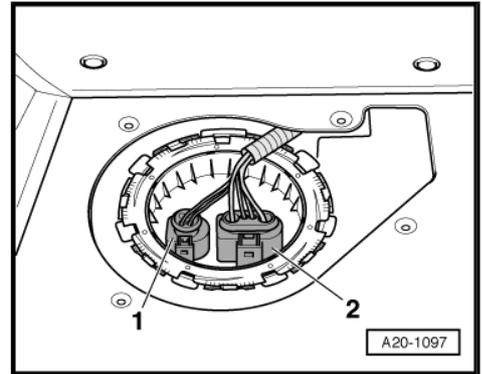
- Tighten locking ring.



- Attach electrical connectors -1- and -2- on flange (left-side).



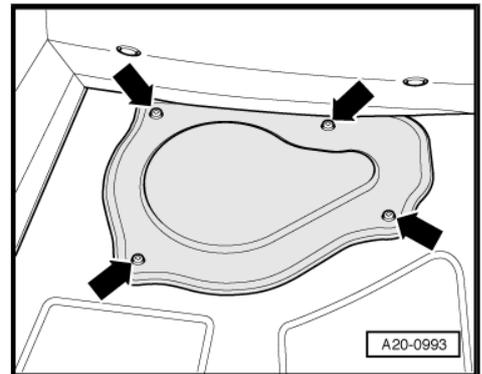
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- Secure cover for flange (left-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Electrical system; Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing

Vehicles with auxiliary heater:

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



5.4 Exploded view - fuel delivery unit (right-side) with fuel pump - G23- and fuel gauge senders -G169- and -G393-

**1 - Retainer**

- For fuel delivery unit

2 - Fuel gauge sender 2 - G169-

- Yellow
- Clipped onto retainer -item 1-
- Checking resistance values ⇒ [page 223](#)
- Removing and installing ⇒ [page 224](#)

3 - Fuel gauge sender 4 - G393-

- White
- Clipped onto fuel delivery unit -item 16-
- Checking resistance values ⇒ [page 230](#)
- Removing and installing ⇒ [page 232](#)

4 - Fuel supply line

- To fuel filter
- Mark before removing
- Press release tab on connection piece to disconnect
- Do not kink
- Clip onto fuel tank

5 - Fuel return line

- From fuel rail
- Mark before removing
- Press release tab on connection piece to disconnect
- Do not kink
- Clip onto fuel tank

6 - Locking ring

- Remove and install using wrench - T10202-
- Tighten to 120 Nm

7 - Seal

- Renew
- Install dry

8 - Flange (right-side)

- Installation position ⇒ [page 81](#)

9 - Fuel return line

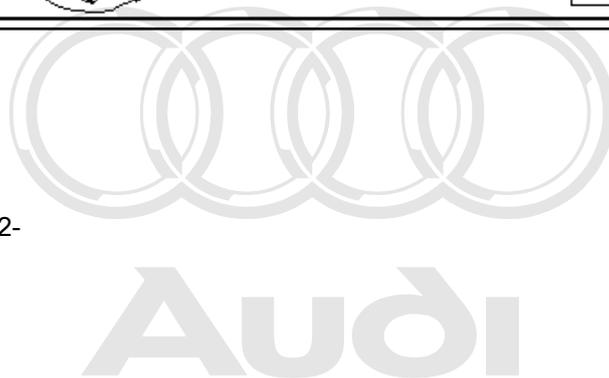
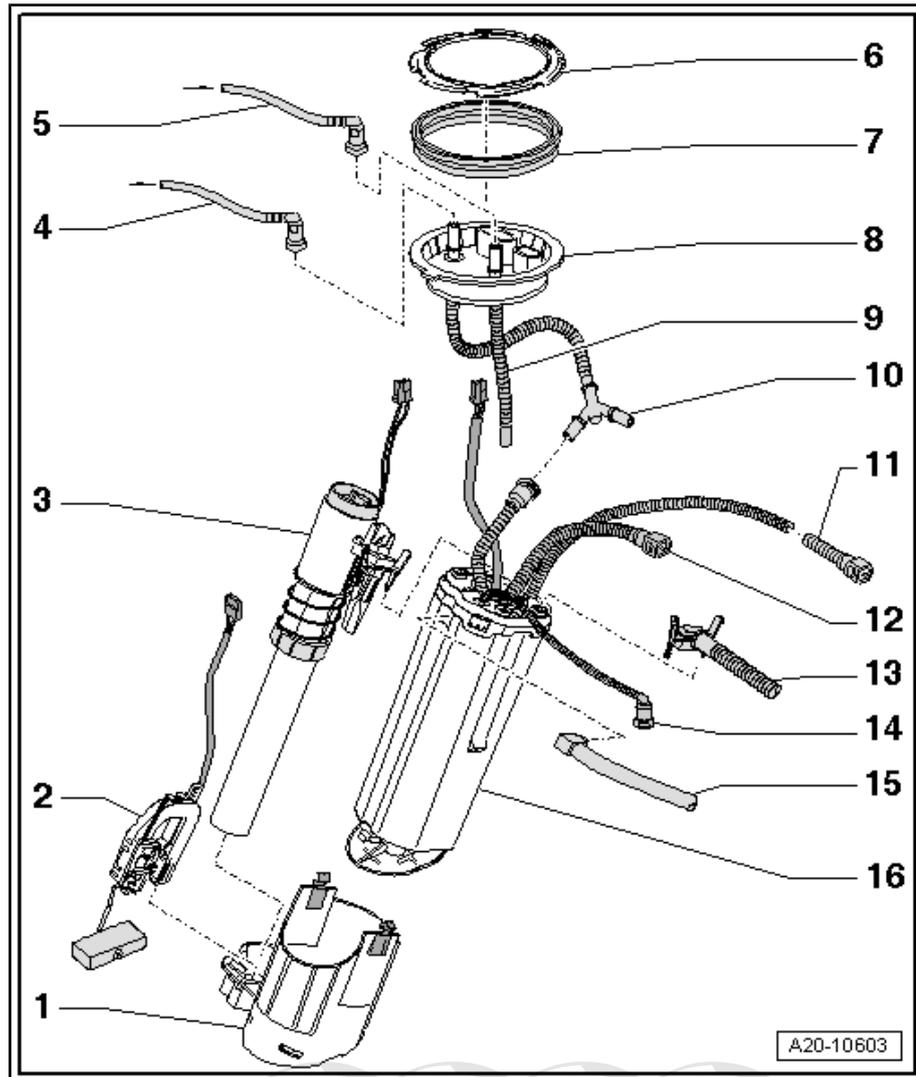
- From flange to fuel delivery unit (right-side)
- Fitted loosely in fuel delivery unit (right-side)

10 - Fuel supply line

- From fuel delivery units to flange

11 - Balance pipe

- Between fuel delivery units



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

12 - Supply line for suction-jet pump

- For suction-jet pump
- Press release tab on connection piece to disconnect

13 - Fuel supply line

- From suction-jet pump (left-side)
- Clipped onto fuel delivery unit -item 16-

14 - Supply line for suction-jet pump

- For fuel delivery unit (right-side)

15 - Fuel filler pipe

- From filler neck
- Clipped onto fuel delivery unit -item 16-

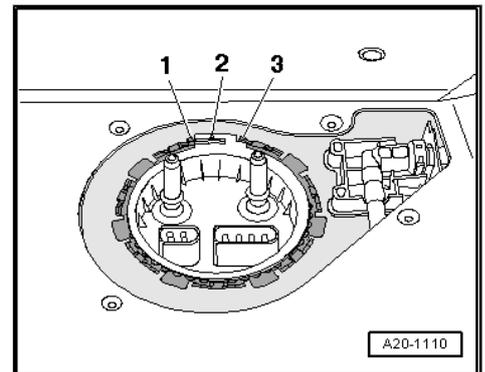
16 - Fuel delivery unit (right-side)

- With fuel pump - G23-
- Clipped onto retainer -item 1-
- Different versions available; for correct version refer to ⇒ Electronic parts catalogue
- Checking fuel pump (electrical test) ⇒ [page 81](#)
- Checking residual pressure ⇒ Rep. gr. 24
- Removing and installing ⇒ [page 81](#)
- Put at least 5 litres of fuel into tank after installing

Installation position of flange (right-side)

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



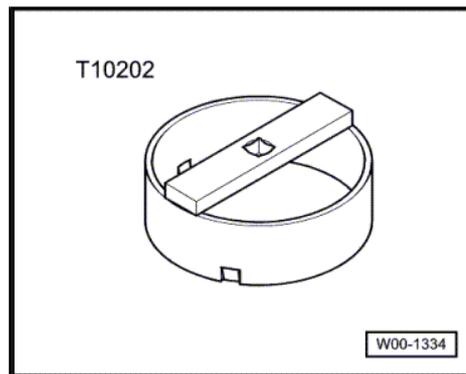
5.5 Checking fuel pump - G23- (right-side) - electrical test

- ◆ On vehicles with FSI engine, voltage for the fuel pumps is supplied via fuel pump control unit - J538- .
- ◆ Check fuel pump control unit - J538- in "Guided Fault Finding" ⇒ Vehicle diagnostic tester.

5.6 Removing and installing fuel delivery unit (right-side) with fuel pump - G23-

Special tools and workshop equipment required

◆ Wrench - T10202-



Removing

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

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

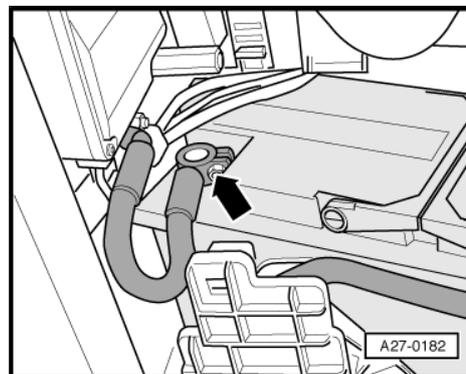
 **Caution**

- *The fuel tank must not be more than $\frac{1}{3}$ full when removing the fuel delivery unit. Drain the tank if necessary. Procedure ⇒ [page 112](#)*

 **Caution**

Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable -arrow- ⇒ [Electrical system; Rep gr. 27](#)

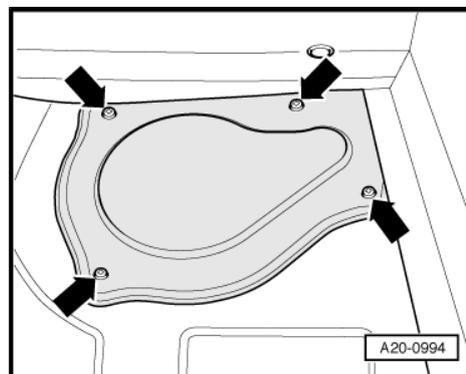


- Remove luggage compartment floor covering.

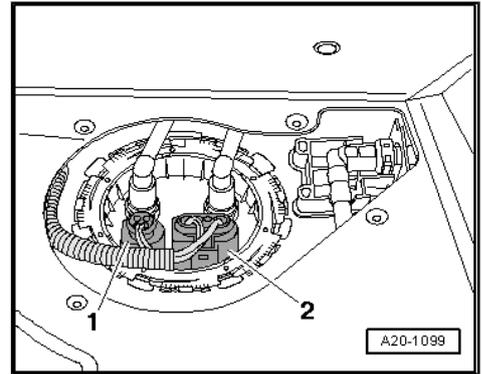
 **Note**

For removing and installing fuel delivery unit, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

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



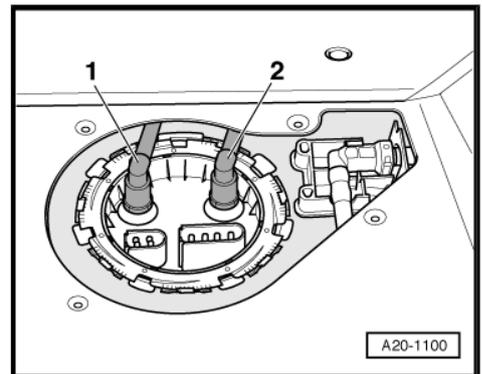
- Unplug electrical connectors -1- and -2- on flange (right-side).



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

 **WARNING**

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.



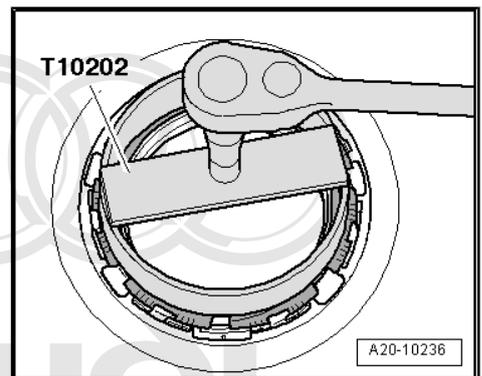
- Detach both lines from flange (press release tabs).

Vehicles with auxiliary heater:

- In addition, disconnect fuel supply line -2- for auxiliary heater.

All vehicles (continued):

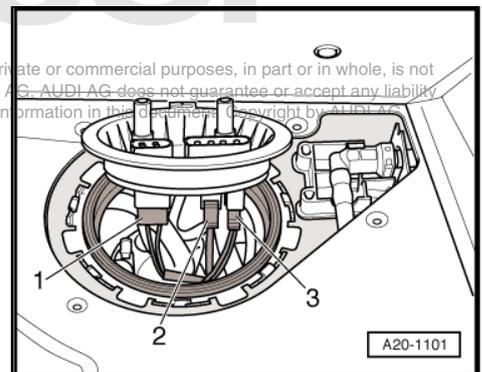
- Unscrew locking ring using wrench - T10202- .



- Detach flange and remove seal.

- Unplug electrical connectors -1 ... 3- on underside of flange (right-side).

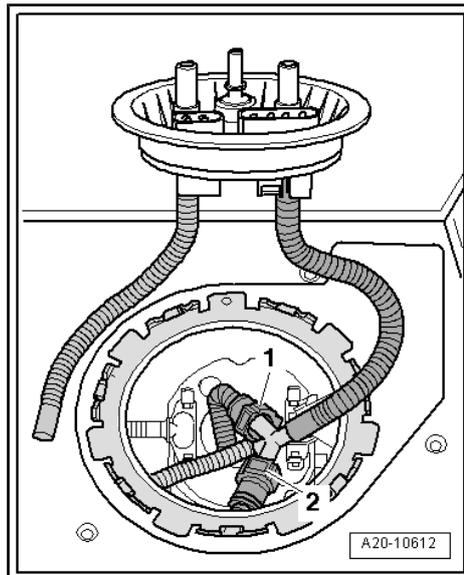
Information in this document is intended for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



 **Note**

Pull out fuel lines from fuel tank opening prior to disconnecting the pipe connectors mentioned below.

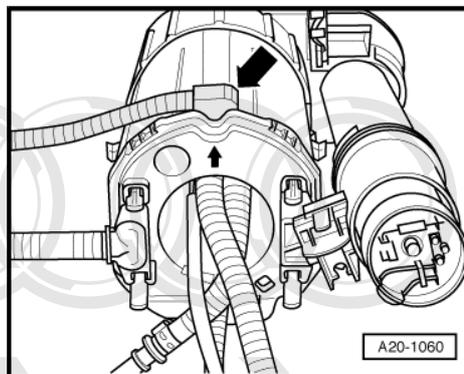
- Working through right fuel tank opening, press release tabs and disconnect fuel supply lines -1- and -2- going to fuel delivery units.



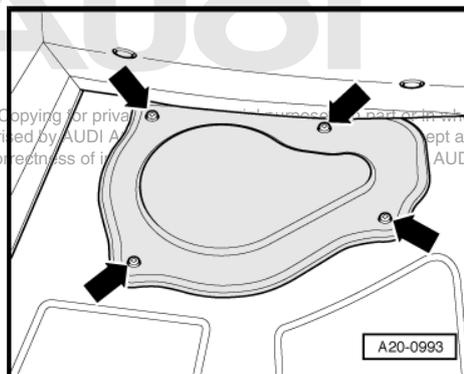
 **Note**

For illustration purposes some of the components are shown removed in the following illustrations.

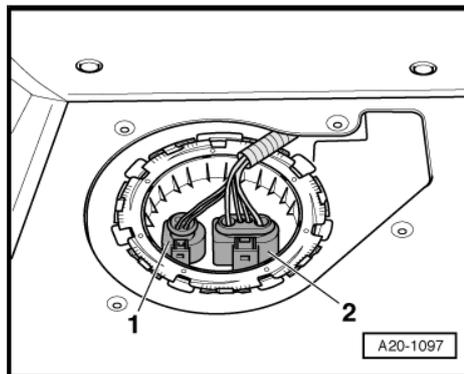
- Unclip fuel filler pipe -arrow- at front of fuel delivery unit (right-side).



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

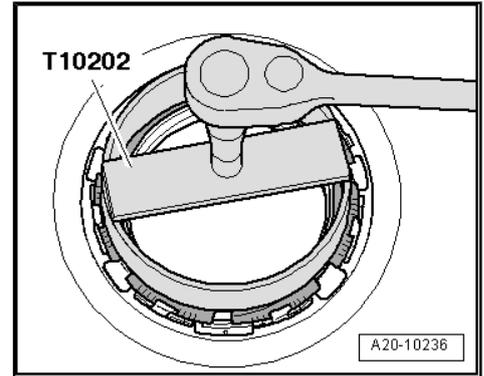


- Unplug electrical connectors -1- and -2- on flange (left-side).

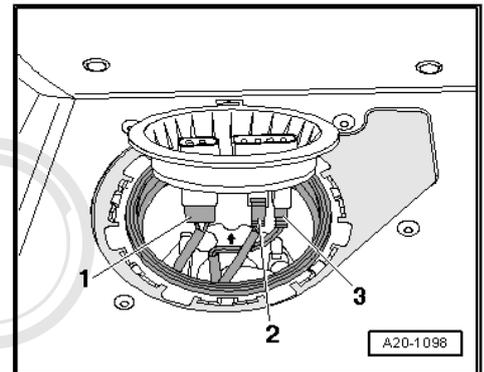


Protected by copyright. Copying for private use, or the reproduction or transmission of any part of this work, is not permitted unless authorized by AUDI AG. In no event shall AUDI AG be held liable for any damage or liability with respect to the correctness of this information. AUDI AG.

- Unscrew locking ring using wrench - T10202- .



- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (left-side).

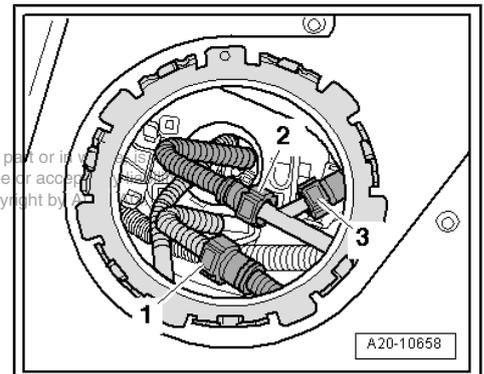


- Working through left fuel tank opening, press release tab and disconnect connecting pipe -1-.
- Pull out connecting pipe from right fuel tank opening.

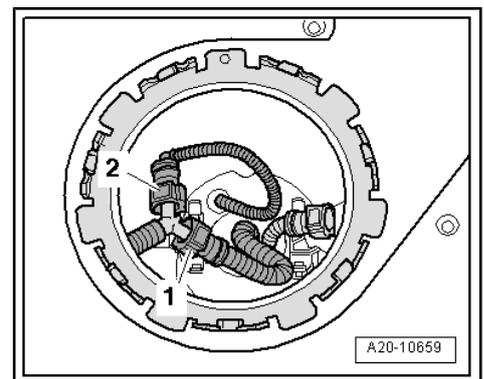
i Note

Protected by copyright. Copying for private or commercial purposes, in part or in full, 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.

Disregard -items 2, 3-.



- Working through right fuel tank opening, press release tabs and disconnect supply line -1- going to suction-jet pump (left-side) and supply line -2- going to fuel delivery unit (right-side).





- Working through right fuel tank opening, press release tabs -arrows- and detach fuel supply line -1- and fuel gauge sender 4 - G393- -item 2-.
- Move fuel gauge sender 4 - G393- to right side.



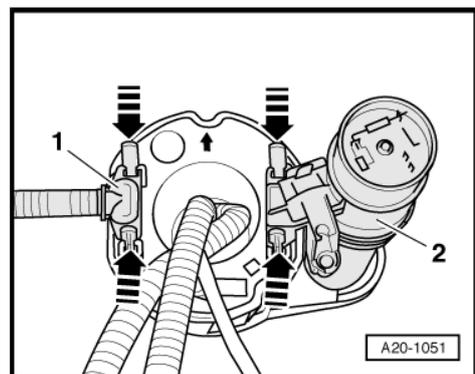
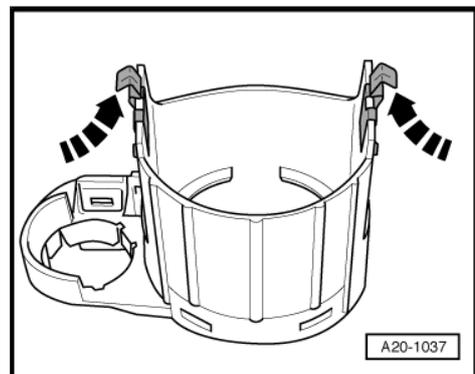
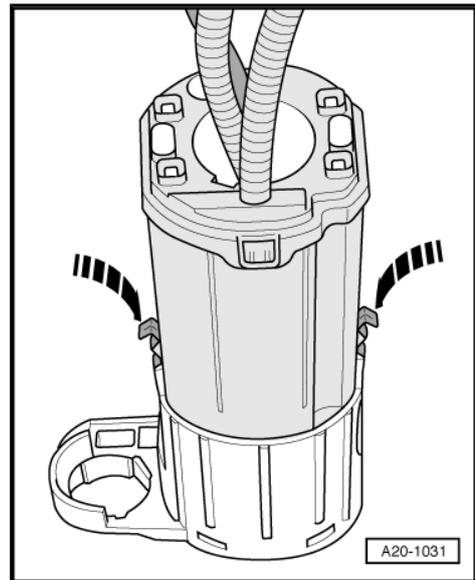
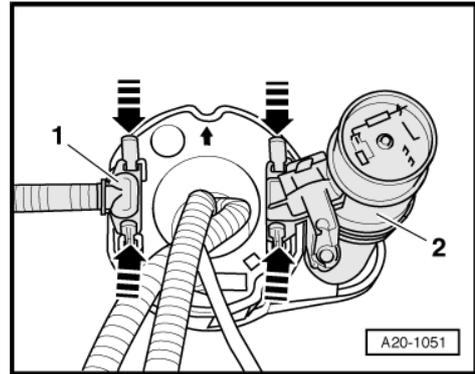
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Remove fuel delivery unit.



Note

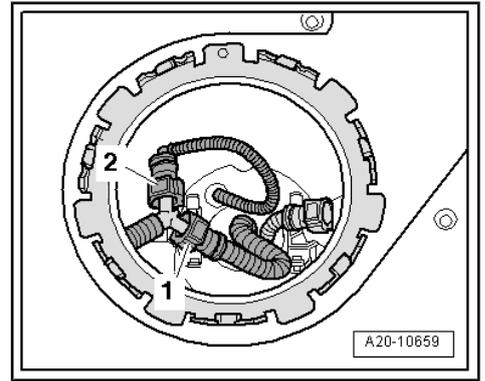
Keep in mind that the fuel delivery unit still contains fuel.



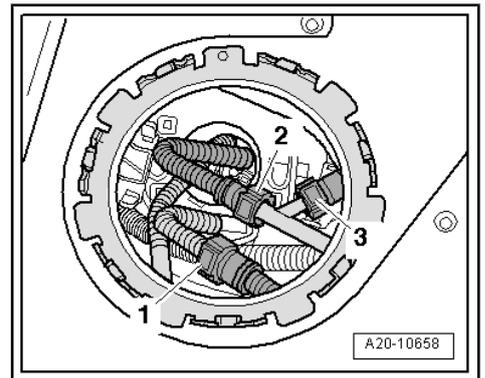
Installing

- Tightening torque ⇒ [page 79](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Then press fuel delivery unit carefully into retainer so that it engages audibly.
- Fit fuel supply line -1- and fuel gauge sender 4 - G393- -item 2- so that they engage audibly on fuel delivery unit (right-side).

- Working through right fuel tank opening, fit supply line -1- going to suction-jet pump (left-side) and supply line -2- going to fuel delivery unit (right-side) so that they engage audibly.

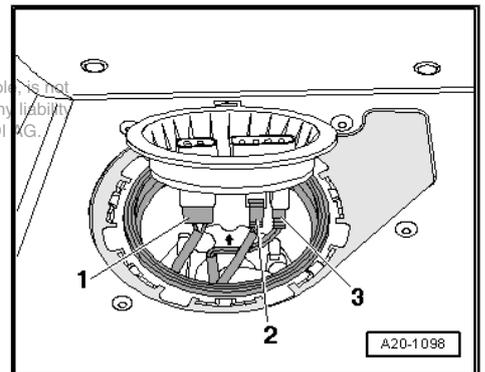


- Fit connecting pipe -1- through left opening on fuel tank so that it engages audibly.

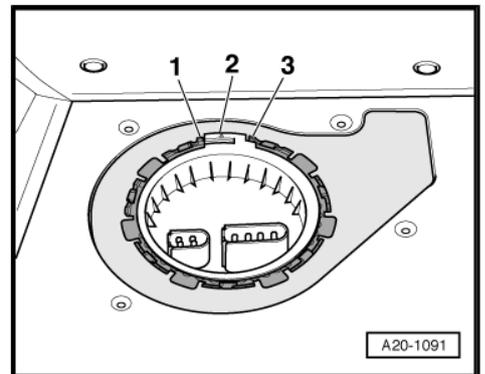


- Connect electrical connectors -1 ... 3- on underside of flange (left-side).
- Install new seal for flange (seal must be installed dry).

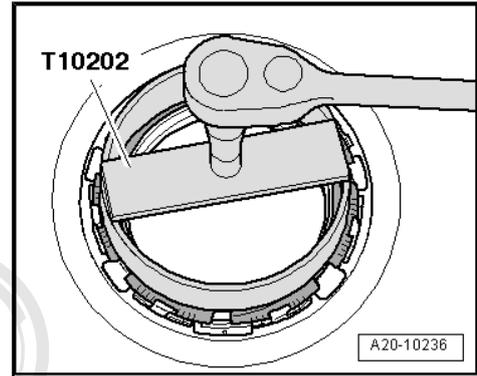
Protect your rights. Copying, reprinting or unauthorized use, in part or in whole, is not permitted unless authorized by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



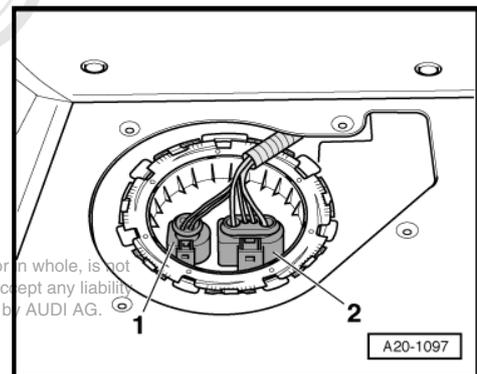
- Fit flange into fuel tank; note correct installation position:
 - Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



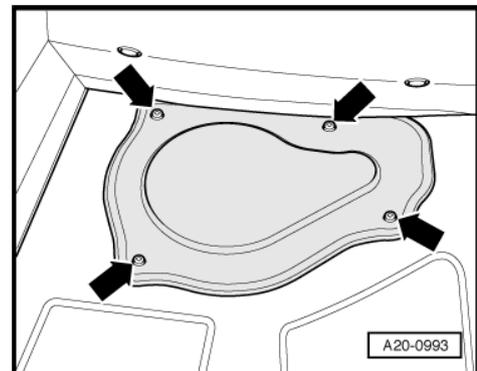
- Tighten locking ring.



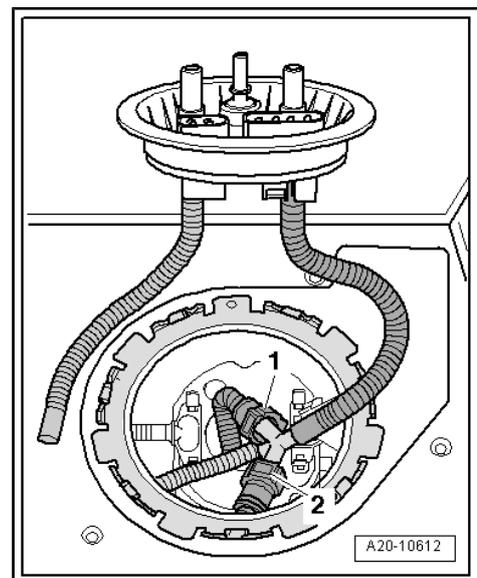
- Attach electrical connectors -1- and -2- on flange (left-side).



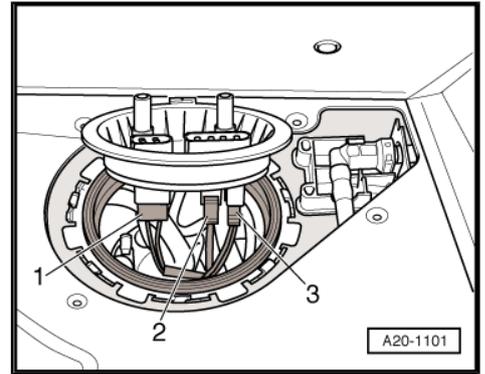
- Secure cover for flange (left-side) -arrows-.



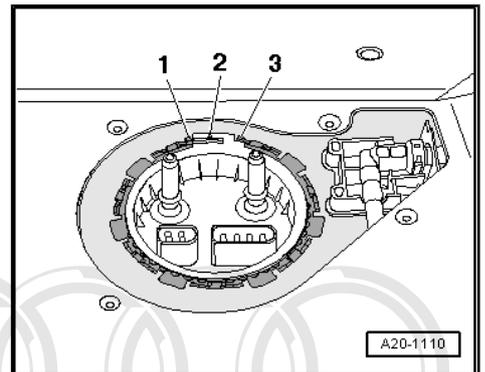
- Working through right fuel tank opening, fit fuel lines -1- and -2- going to fuel delivery units so that they engage audibly.



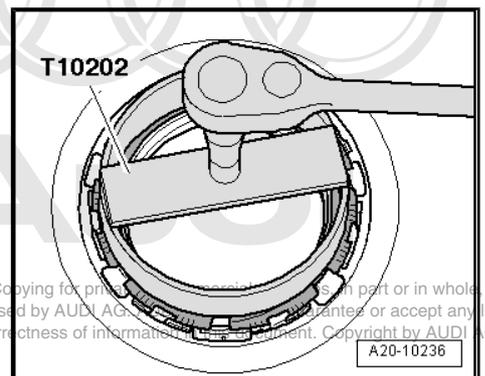
- Connect electrical connectors -1 ... 3- on underside of flange (right-side).
- Install new seal for flange (seal must be installed dry).



- Fit flange into fuel tank; note correct installation position:
 - Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



- Tighten locking ring.

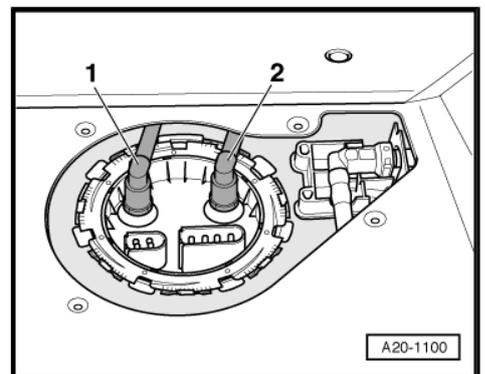


Protected by copyright. Copying for private or commercial use, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not warrant or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Install fuel supply line -2- and fuel return line -1- (as marked) so that they engage audibly.

Vehicles with auxiliary heater:

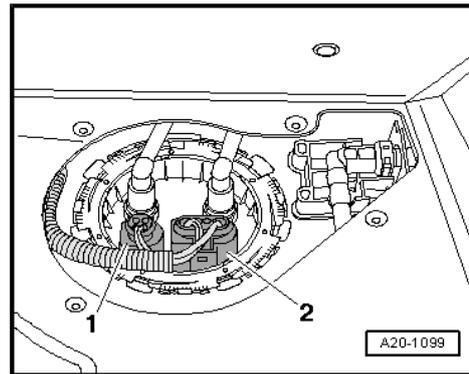
- Also fit fuel supply line going to auxiliary heater so that it engages audibly.





All vehicles (continued):

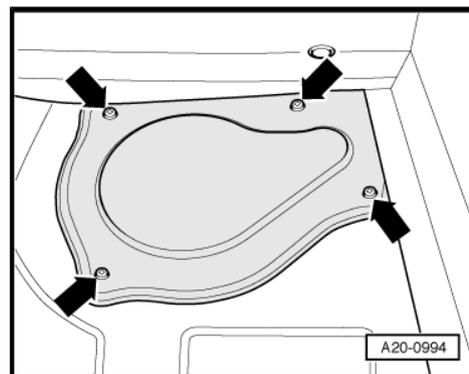
- Attach electrical connectors -1- and -2- on flange (right-side).



- Secure cover for flange (right-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Electrical system; Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing

Vehicles with auxiliary heater:

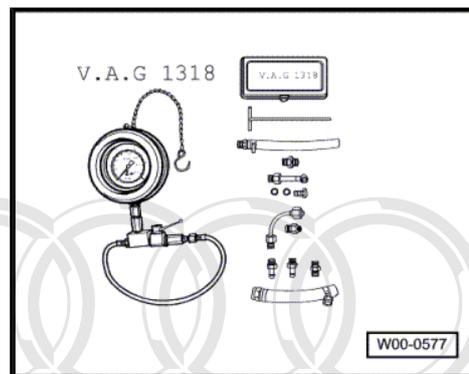
- Let auxiliary heater run with full load for 10 minutes to bleed fuel supply line going to metering pump.



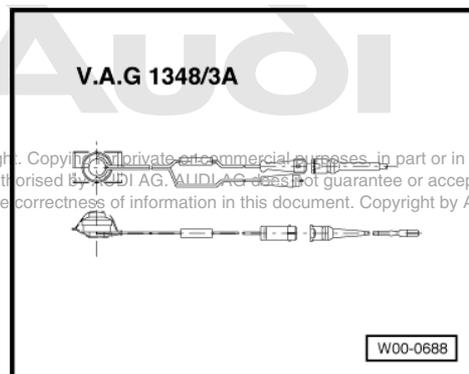
5.7 Checking delivery rate of fuel pumps - vehicles with 6-cylinder engine

Special tools and workshop equipment required

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



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



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

- ◆ Fuel-resistant measuring container

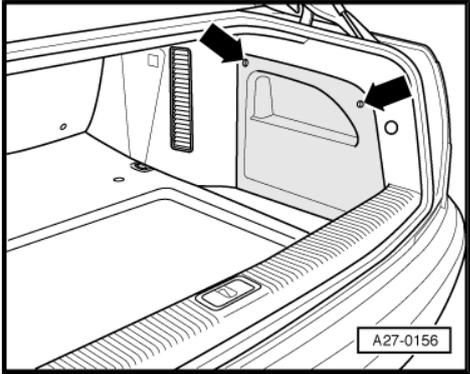
Procedure

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



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

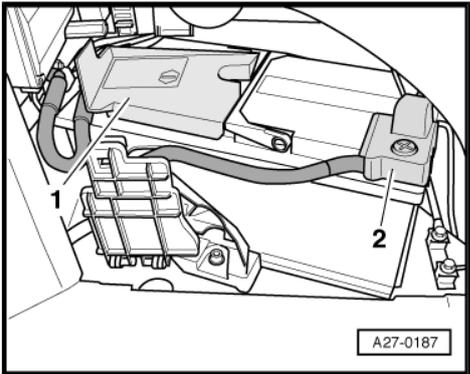
- Remove luggage compartment side trim cover (right-side) -arrows-.



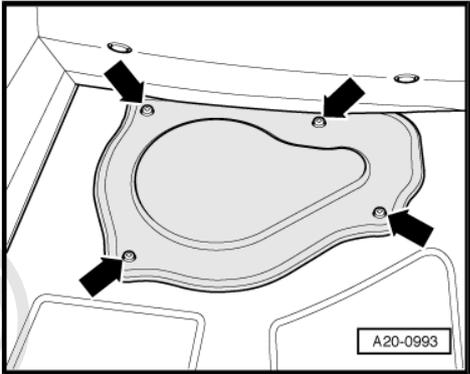
- Remove cover -2- over battery.

 **Note**

Disregard -item 1-.



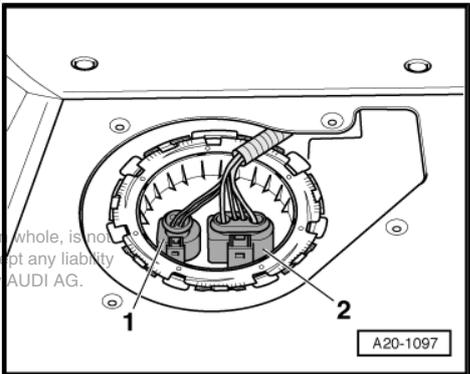
- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



- Unplug electrical connector -2- on flange (left-side).

 **Note**

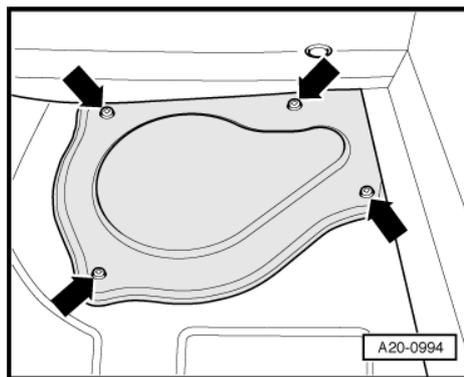
Disregard -item 1-.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



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

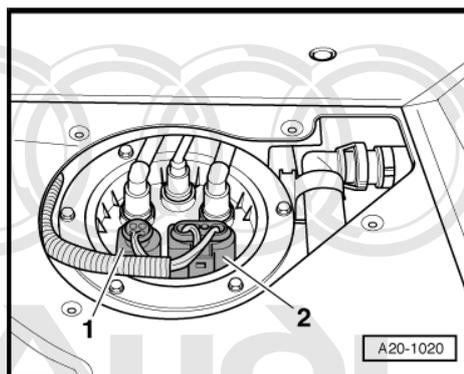


- Unplug electrical connector -2- on flange (right-side).

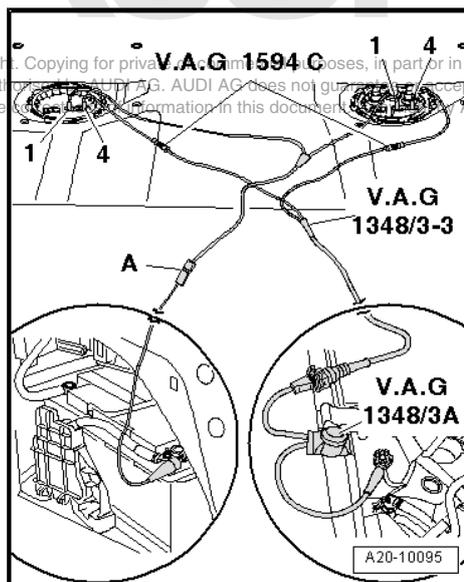


Note

Disregard -item 1-.



- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3- to contact -4- (earth) of fuel delivery unit (left-side) and fuel delivery unit (right-side) using test leads from auxiliary measuring set - V.A.G 1594C-
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- (positive) of fuel delivery unit (left-side) and fuel delivery unit (right-side) to battery "+" via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.



Protected by copyright. Copying for private use, in part or in whole, is not permitted, unless authorized by AUDI AG. AUDI AG does not guarantee any liability with respect to the correctness of the information in this document. AUDI AG.



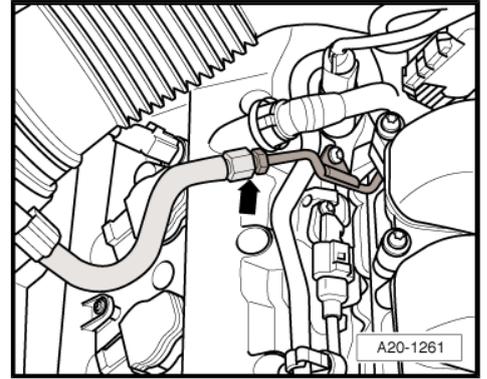
WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

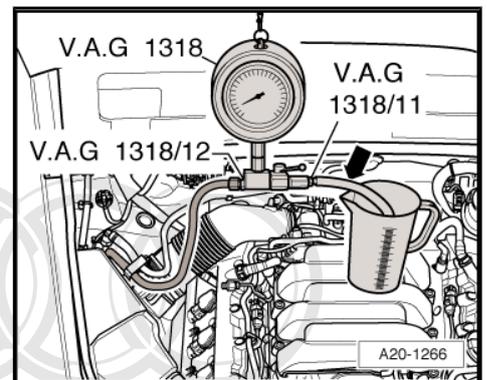


Caution

*Rules for cleanliness when working on the injection system
 => page 3.*



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



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).

**Note**

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

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

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

**Note**

As there is hardly any difference in the fuel delivery rate if only one of the two fuel pumps is working (because of the hose connections inside the tank), it is difficult to diagnose a defective pump by just measuring the delivery rate.

In this case proceed as follows:

- Unplug the electrical auxiliary lead at the fuel delivery units (one at a time).
- Measure delivery rate of fuel delivery unit located on the opposite side.

If the delivery rate of the fuel delivery unit which has been measured separately is considerably below specification:

- Renew the relevant fuel delivery unit.

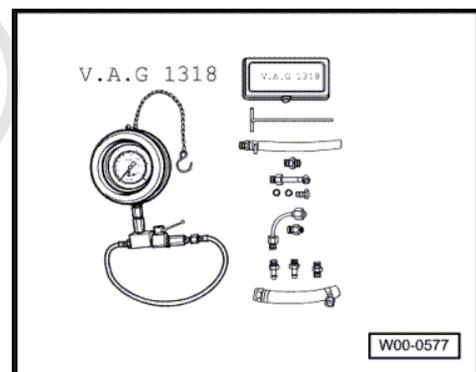
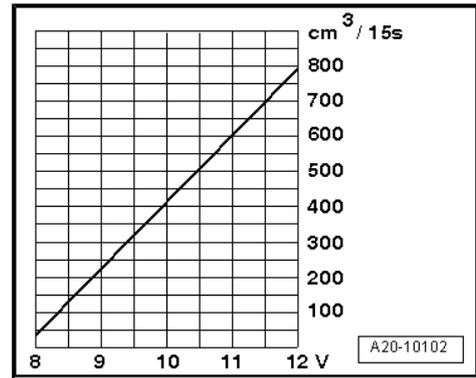
Installation is carried out in the reverse order; note the following:

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

5.8 Checking delivery rate of fuel pumps - vehicles with 8-cylinder engine

Special tools and workshop equipment required

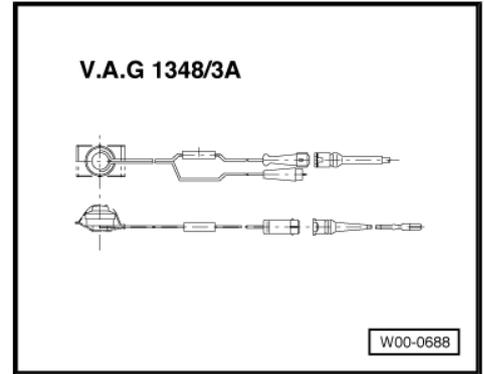
- ◆ K-Jetronic pressure tester - V.A.G 1318-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the accuracy or completeness of information in this document. Copyright by AUDI AG.

- ◆ Adapter set - V.A.G 1318/10-12-

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



- ◆ Fuel-resistant measuring container

Procedure

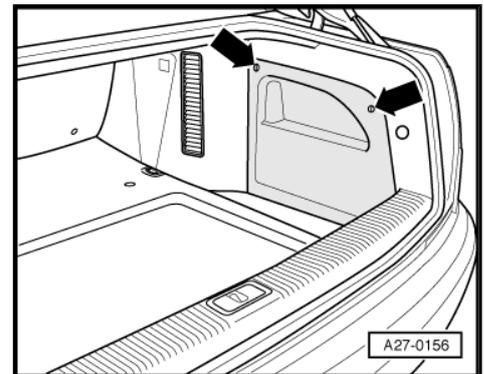
- Observe test conditions ⇒ [page 3](#) .



WARNING

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

- Remove luggage compartment side trim cover (right-side) -arrows-.

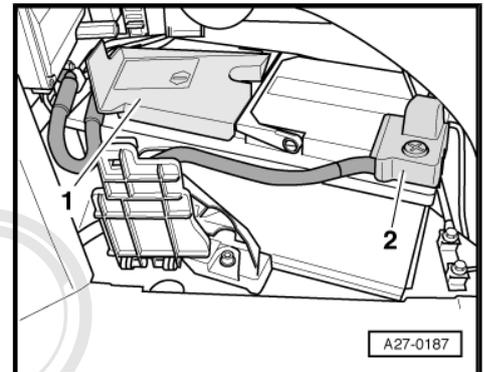


- Remove cover -2- over battery.

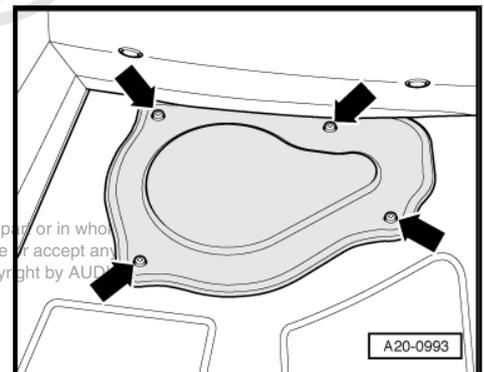


Note

Disregard -item 1-.



- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.

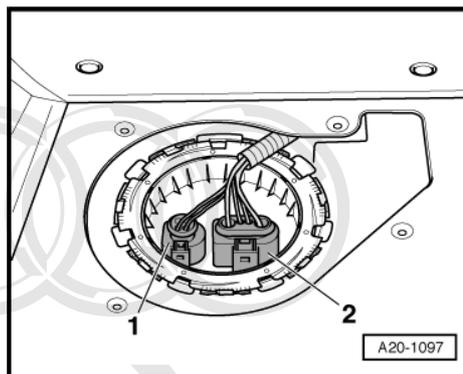


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Unplug electrical connector -2- on flange (left-side).

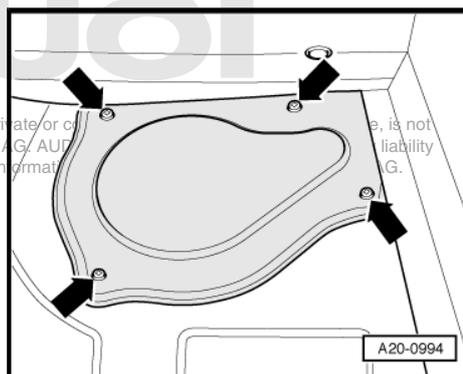
 **Note**

Disregard -item 1-.



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

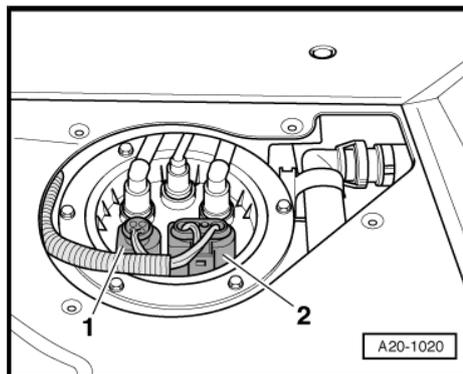
Protected by copyright. Copying for private or commercial use is not permitted unless authorised by AUDI AG. AUDI AG is not liable for any damage or liability with respect to the correctness of information.



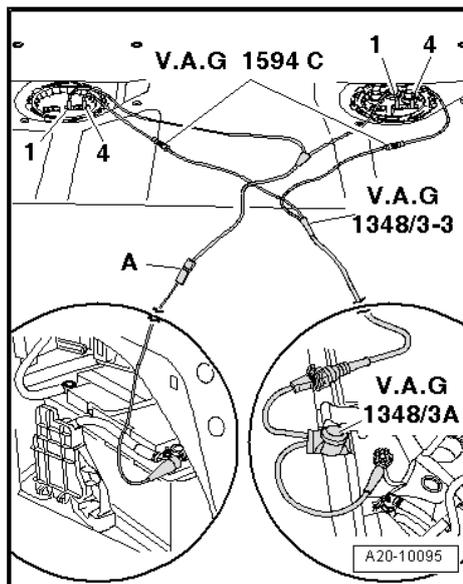
- Unplug electrical connector -2- on flange (right-side).

 **Note**

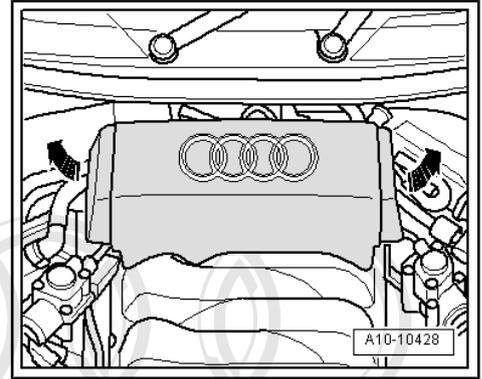
Disregard -item 1-.



- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3- to contact -4- (earth) of fuel delivery unit (left-side) and fuel delivery unit (right-side) using test leads from auxiliary measuring set - V.A.G 1594C- .
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- (positive) of fuel delivery unit (left-side) and fuel delivery unit (right-side) to battery "+" via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.



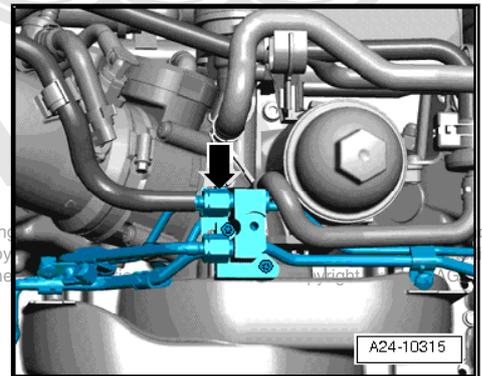
- Pull off engine cover panel (rear) -arrows-.



WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

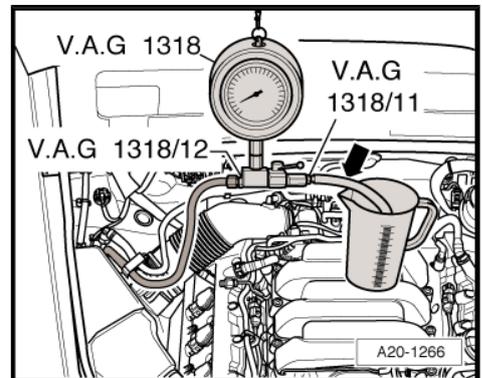
- Disconnect fuel supply line -arrow- at connecting piece.



Caution

*Rules for cleanliness when working on the injection system
 => page 3.*

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





- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).

**Note**

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

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

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

**Note**

As there is hardly any difference in the fuel delivery rate if only one of the two fuel pumps is working (because of the hose connections inside the tank), it is difficult to diagnose a defective pump by just measuring the delivery rate.

In this case proceed as follows:

- Unplug the electrical auxiliary lead at the fuel delivery units (one at a time).
- Measure delivery rate of fuel delivery unit located on the opposite side.

If the delivery rate of the fuel delivery unit which has been measured separately is considerably below specification:

- Renew the relevant fuel delivery unit.

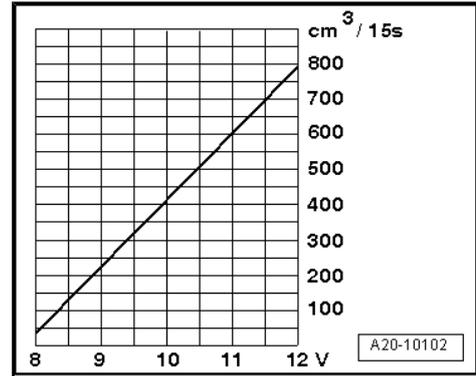
Installation is carried out in the reverse order; note the following:

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

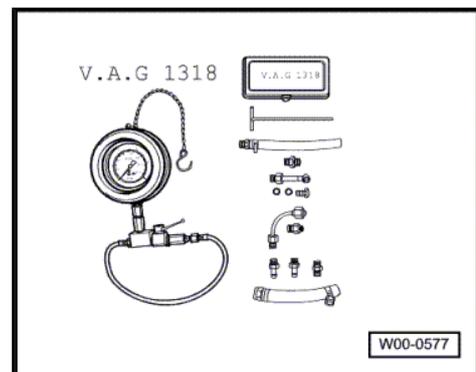
5.9 Checking delivery rate of fuel pumps - vehicles with 10-cylinder engine (Audi S8)

Special tools and workshop equipment required

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

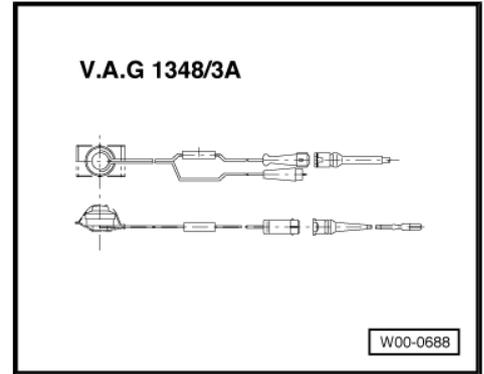


This document is intended for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- ◆ Adapter set - V.A.G 1318/10-12-

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



- ◆ Fuel-resistant measuring container

Procedure

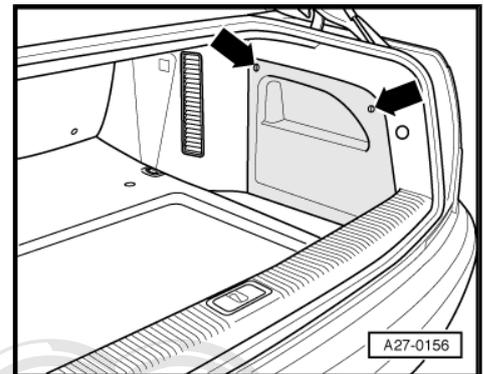
- Observe test conditions ⇒ [page 3](#) .



WARNING

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

- Remove luggage compartment side trim cover (right-side) -arrows-

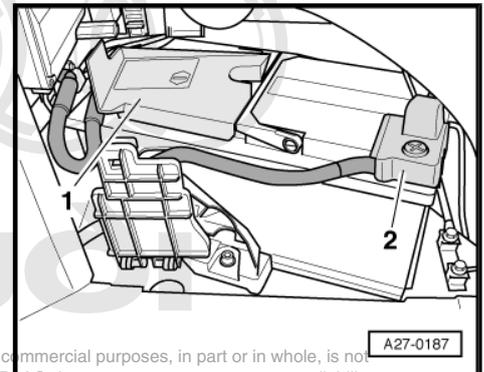


- Remove cover -2- over battery.

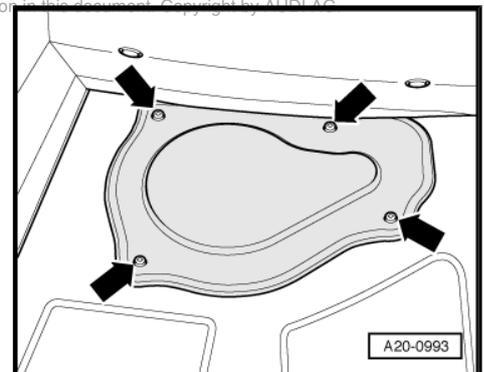


Note

Disregard -item 1-.



- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-

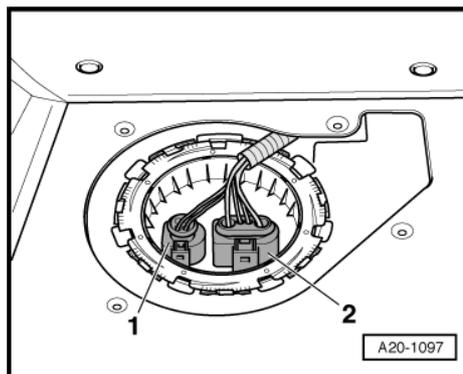


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

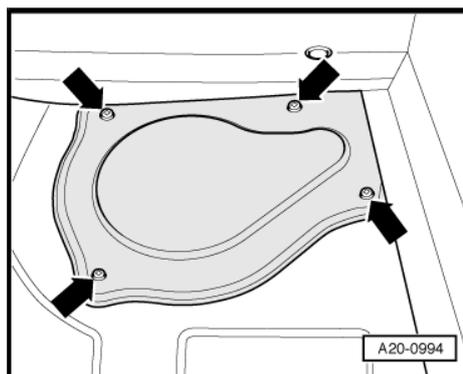
- Unplug electrical connector -2- on flange (left-side).

 **Note**

Disregard -item 1-.



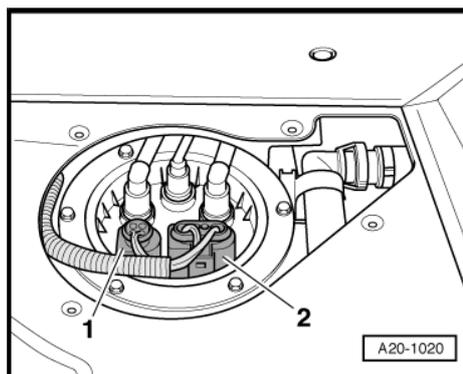
- Unscrew cover for flange (right-side) -arrows-.



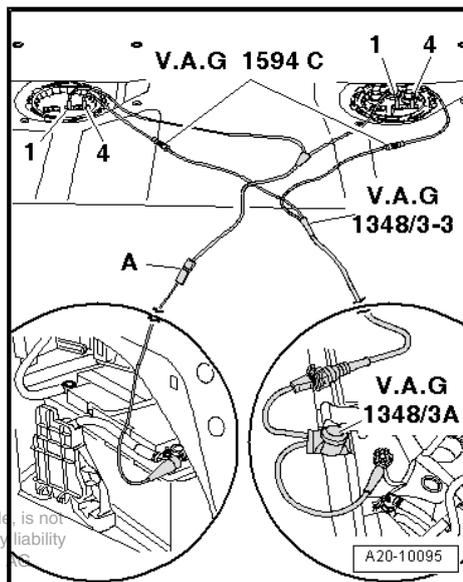
- Unplug electrical connector -2- on flange (right-side).

 **Note**

Disregard -item 1-.



- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3- to contact -4- (earth) of fuel delivery unit (left-side) and fuel delivery unit (right-side) using test leads from auxiliary measuring set - V.A.G 1594C- .
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- (positive) of fuel delivery unit (left-side) and fuel delivery unit (right-side) to battery “+” via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.

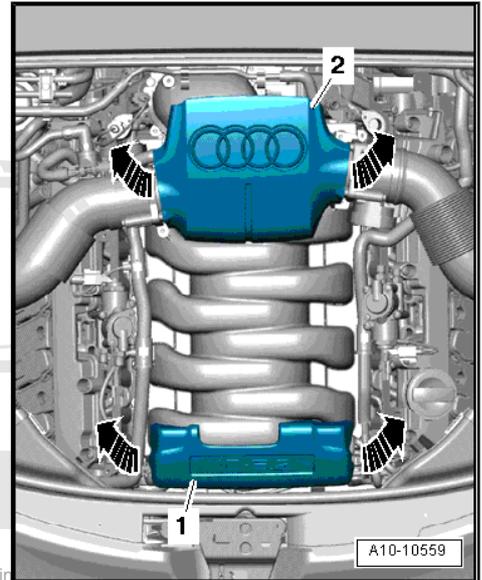


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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

i Note

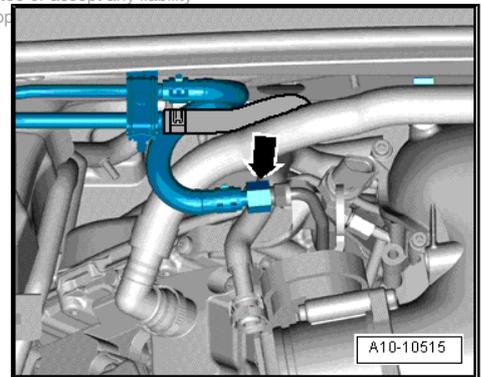
Disregard -item 1-.



Protected by copyright. Copying for private or commercial purposes, in whole or in part, 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. Cop

! WARNING

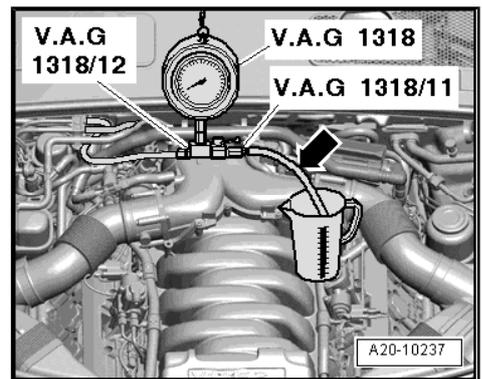
The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.



! Caution

Rules for cleanliness when working on the injection system => page 3.

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





- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).

**Note**

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

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

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

**Note**

As there is hardly any difference in the fuel delivery rate if only one of the two fuel pumps is working (because of the hose connections inside the tank), it is difficult to diagnose a defective pump by just measuring the delivery rate.

In this case proceed as follows:

- Unplug the electrical auxiliary lead at the fuel delivery units (one at a time).
- Measure delivery rate of fuel delivery unit located on the opposite side.

If the delivery rate of the fuel delivery unit which has been measured separately is considerably below specification:

- Renew the relevant fuel delivery unit.

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

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

5.10 Fuel pump control unit - J538-

Check fuel pump control unit - J538- in "Guided Fault Finding" ⇒ Vehicle diagnostic tester.

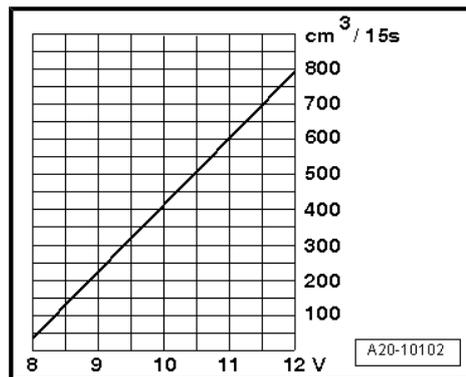
5.11 Removing and installing fuel pump control unit - J538-

Removing

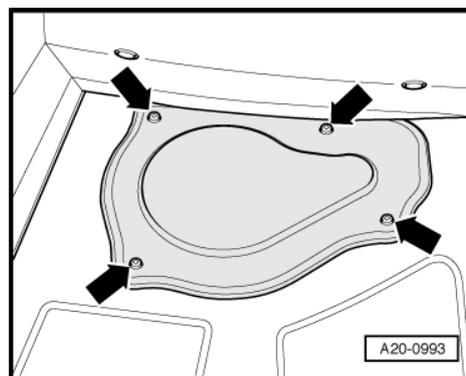
Observe safety precautions ⇒ [page 1](#) .

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

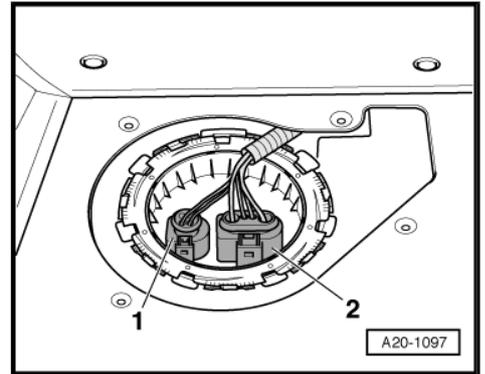
- Switch off ignition and remove ignition key.
- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the prior written authorisation 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.



- Unplug electrical connectors -1- and -2- on flange (left-side).



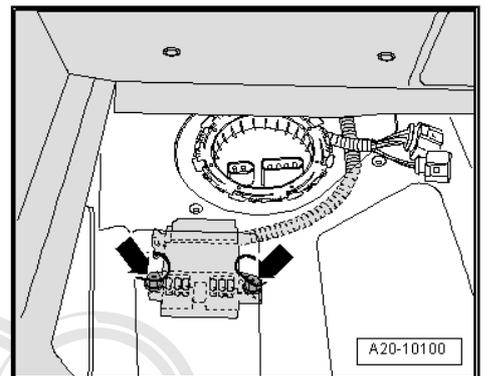
- Remove plugs in luggage compartment floor and unscrew nuts -arrows-.
- Slightly lift floor panel in the area of flange by hand and remove fuel pump control unit - J538- between floor panel and fuel tank flange.
- Unplug electrical connector at control unit.

Installing

Install in reverse order.

Tightening torque

Component	Nm
Fuel pump control unit - J538- to fuel tank	1.6



5.12 Suction-jet pumps



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



1 - Suction-jet pump (left-side)

2 - Fuel delivery unit (left-side)

3 - Expansion tank

4 - Fuel delivery unit (right-side)

5 - Suction-jet pump (right-side)

6 - Supply line for suction-jet pump

- From fuel delivery unit (right-side) to suction-jet pump (left-side)

7 - Supply line for suction-jet pump

- From fuel delivery unit (left-side) to suction-jet pump (right-side)

8 - Balance pipe

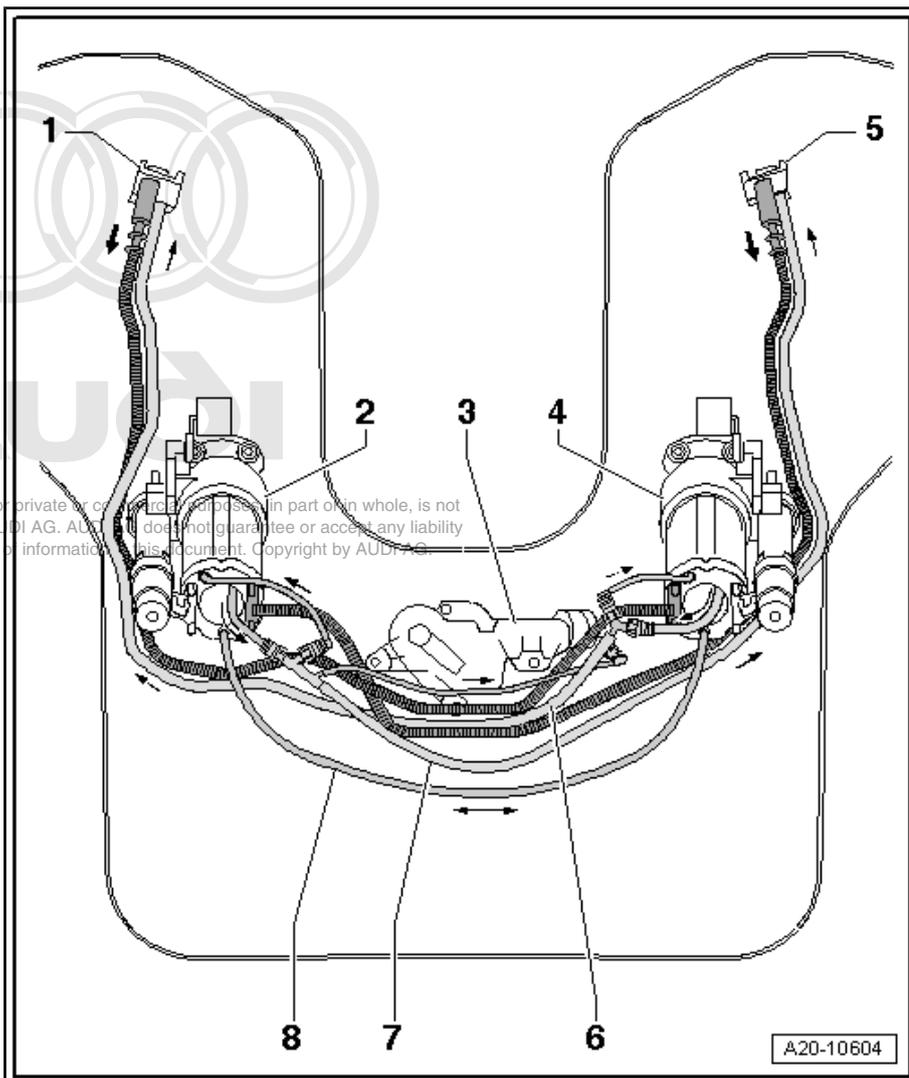
- Between fuel delivery units

Description of operation

To ensure a reliable fuel supply in all situations, the fuel pumps must never draw in air, even under extreme driving conditions such as very sharp bends or under heavy braking. This may happen when the fuel sloshes into one of the corners of a partially filled fuel tank.

- ◆ For this reason, the fuel delivery units -item 2- and -item 4- incorporate a so-called baffle housing, in which the fuel pumps are fitted, as well as the fuel pumps themselves. The baffle housing is a container permanently filled with fuel, so that the fuel pumps are surrounded with fuel regardless of the fuel level in the tank.

- ◆ Consequently, proper filling of the baffle housings is essential for trouble-free operation of the fuel pumps. This is the purpose of the "suction-jet pumps".
- ◆ The suction-jet pumps operate according to the principle of fluid entrainment: a stream of fuel from the primary stage of the fuel pumps -2- (left-side) and -4- (right-side) is fed via the supply lines -6- and -7- to the suction-jet pumps -1- and -5-, where it is passed through a nozzle and thus accelerated. The accelerated stream of fuel draws off the surrounding fuel and delivers it to the baffle housings in the fuel delivery units. The suction jet pump (right-side) -item 5- delivers the fuel into the baffle housing (left-side); the suction jet pump (left-side) -item 1- delivers the fuel into the baffle housing (right-side).
- ◆ In addition, the stream of fuel from the fuel pumps is supplied to the two smaller suction-jet pumps in the baffle housings via two Y-connectors. Working through the balance pipe -item 8-, these ensure that the baffle housings in both fuel delivery units are filled evenly.
- ◆ Another small suction-jet pump is located in the expansion tank -item 3- and delivers fuel from there back to the fuel tank.



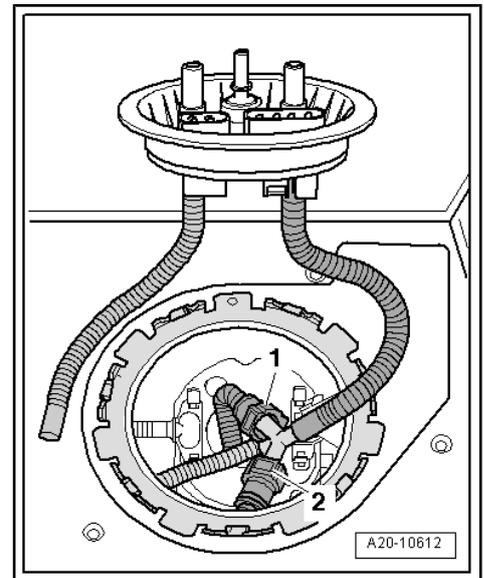
5.13 Removing and installing suction-jet pump (left-side)

Removing

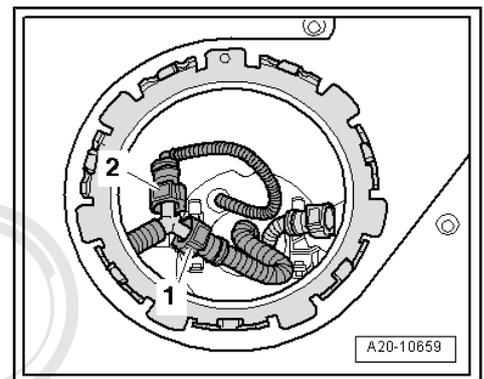
Observe safety precautions ⇒ [page 1](#) .

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

- Remove the fuel delivery unit (left-side) ⇒ [page 26](#) .
- Remove fuel gauge sender 3 - G237- (tubular sender, left-side) from fuel tank.
- Working through right fuel tank opening, press release tab and disconnect fuel supply line -1-.
- Detach flange.



- Working through right fuel tank opening, press release tabs and disconnect supply lines -1- and -2- for suction-jet pumps from Y-connector.

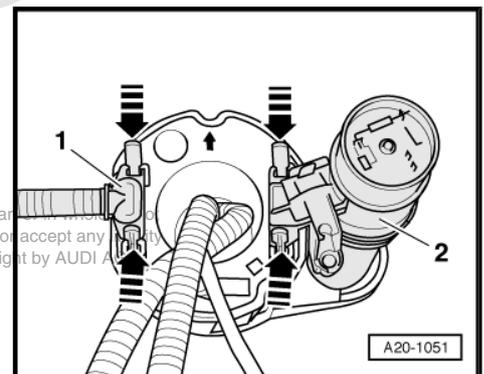


- Working through right fuel tank opening, press release tabs -arrows- and detach fuel supply line -1-.

Note

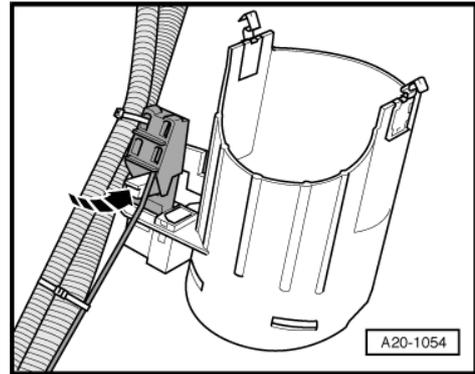
Disregard -item 2-.

- Pull out disconnected fuel supply line through left fuel tank opening.



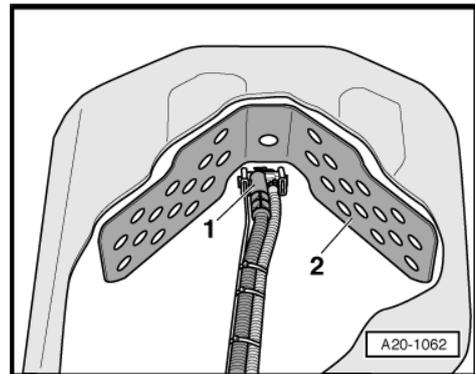


- Working through left fuel tank opening, press release tab -arrow- and detach retaining clip for suction jet lines from retainer.
- Pull out suction-jet pump (left-side) together with lines through left fuel tank opening.

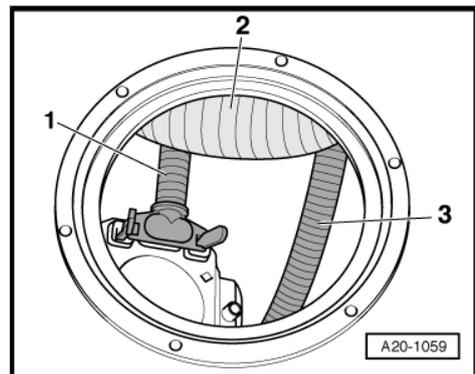


Installing

- Version with baffle plate: insert suction-jet pump (left-side) -1- so it fits in recess in baffle plate -2- at front of fuel tank, as shown in illustration.
- Then press retaining clip for suction-jet pump into retainer so it engages audibly.



- Push fuel supply line through left fuel tank opening into right fuel tank chamber. Note routing:
- The fuel supply line -3- must be routed below the fuel filler pipe -2- at the left fuel tank opening.



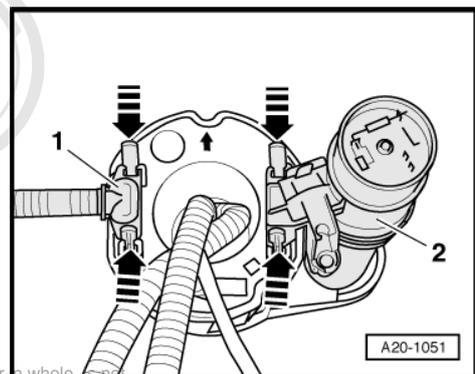
i Note

Disregard -item 1-.

- Fit fuel supply line -1- onto fuel delivery unit (right-side) so that it engages audibly.

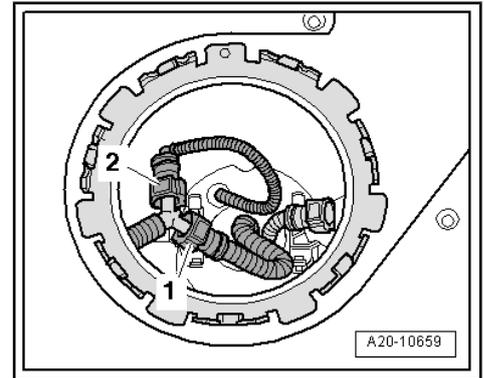
i Note

Disregard -item 2-.

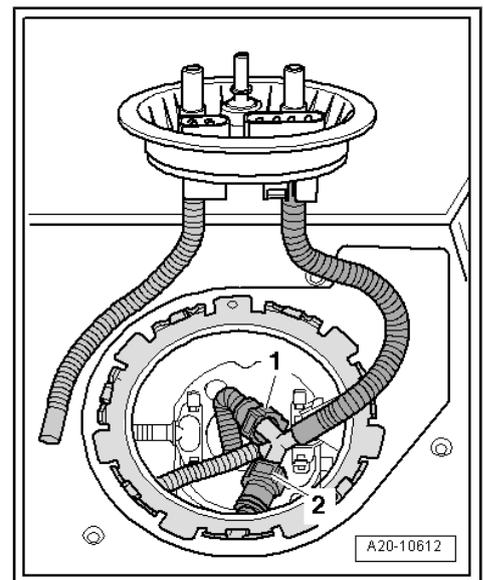


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Working through right fuel tank opening, fit supply lines -1- and -2- for suction-jet pumps onto Y-connector so that they engage audibly.



- Working through right fuel tank opening, fit fuel supply line -1- so that it engages audibly.
- Insert fuel gauge sender 3 - G237- into fuel tank.
- Install fuel delivery unit (left-side) ⇒ [page 31](#) .



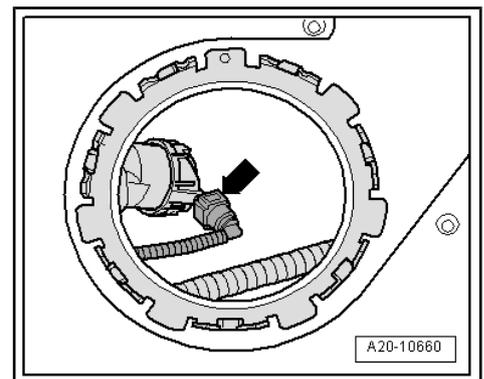
5.14 Removing and installing suction-jet pump (right-side)

Removing

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

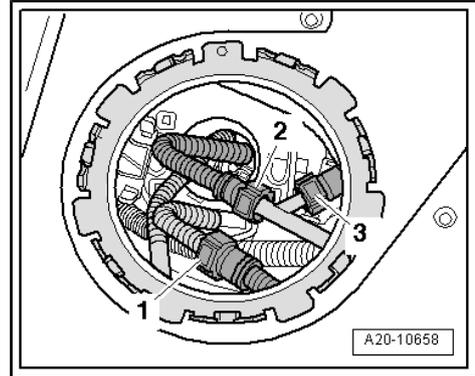
Observe rules for cleanliness ⇒ [page 3](#) .

- Remove fuel delivery unit (right-side) ⇒ [page 42](#) .
- Remove fuel gauge sender 4 - G393- (tubular sender, right-side) from fuel tank.
- Working through right fuel tank opening, press release tab and disconnect supply line for suction-jet pump -arrow- from expansion tank.





- Working through left fuel tank opening, press release tabs and disconnect supply lines -2- and -3- for suction-jet pumps from Y-connector.



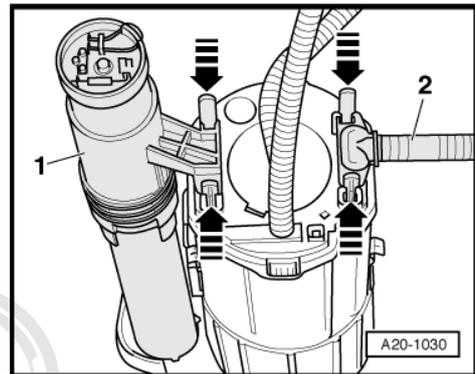
- Working through left fuel tank opening, press release tabs -arrows- and detach fuel supply line -2-.



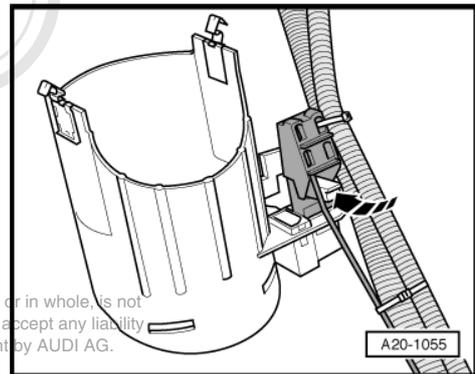
Note

Disregard -item 1-.

- Pull out disconnected fuel supply line through right fuel tank opening.



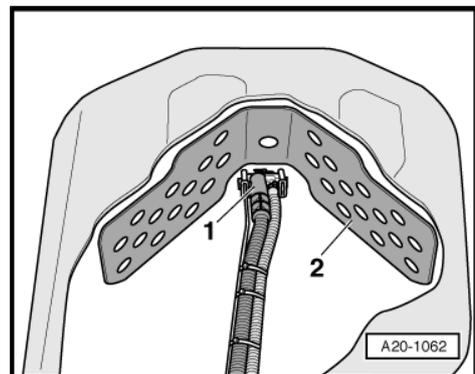
- Working through right fuel tank opening, press release tab -arrow- and detach retaining clip for suction jet lines from retainer.
- Pull suction-jet pump (right-side) together with lines out of right fuel tank opening.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

Installing

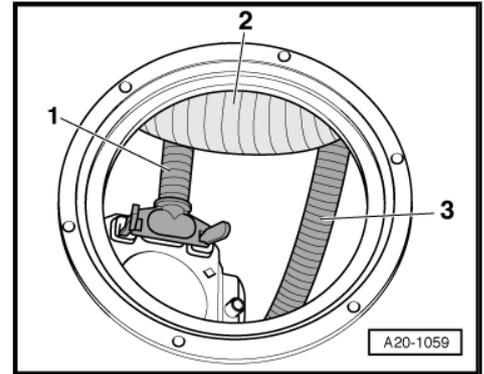
- Version with baffle plate: insert suction-jet pump (right-side) -1- so it fits in recess in baffle plate -2- at front of fuel tank, as shown in illustration.
- Then press retaining clip for suction-jet pump into retainer so it engages audibly.



- Push fuel supply line through right fuel tank opening into left fuel tank chamber. Note routing:
- The fuel supply line -1- must be routed below the fuel filler pipe -2- at the left fuel tank opening.

 **Note**

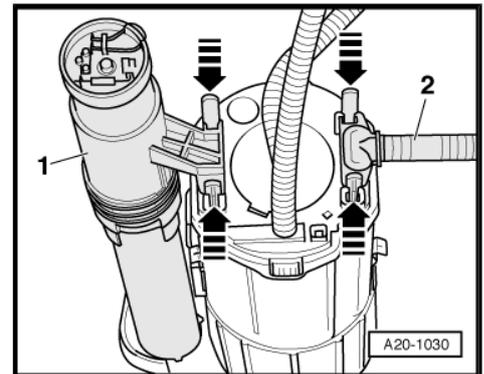
Disregard -item 3-.



- Fit fuel supply line -2- onto fuel delivery unit (left-side) so that it engages audibly.

 **Note**

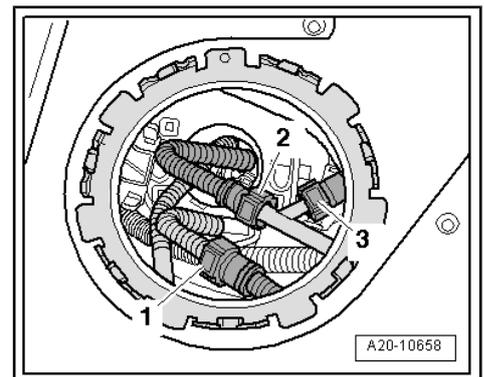
Disregard -item 1-.



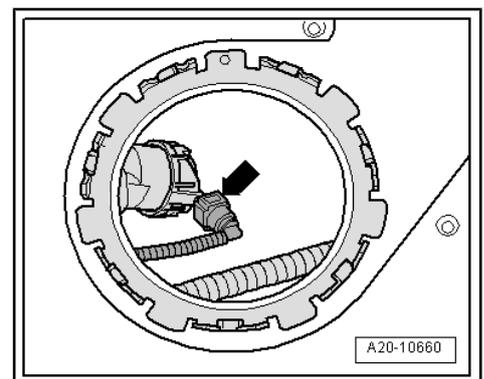
- Push supply line for suction-jet pump through right fuel tank opening into left fuel tank chamber.
- Working through left fuel tank opening, fit supply lines -2- and -3- for suction-jet pumps onto Y-connector so that they engage audibly.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



- Working through right fuel tank opening, fit supply line for suction-jet pump -arrow- onto connection on expansion tank so that it engages audibly.
- Insert fuel gauge sender 4 - G393- into fuel tank.
- Install fuel delivery unit (right-side) ⇒ [page 48](#) .



6 Fuel tank with attached components - all USA vehicles

⇒ "6.1 Fuel tank with attached components - exploded view", page 110

⇒ "6.2 Draining fuel tank", page 112

⇒ "6.3 Removing and installing fuel tank with attached components", page 115

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the reproduction of this document. Copyright © 2014 Audi AG

6.1 Fuel tank with attached components - exploded view

1 - Securing strap

- ❑ With spacer, installation position ⇒ [page 111](#)

2 - 22 Nm

3 - Fuel line

- ❑ From fuel filter
- ❑ To engine
- ❑ Press release tab on connection piece to disconnect

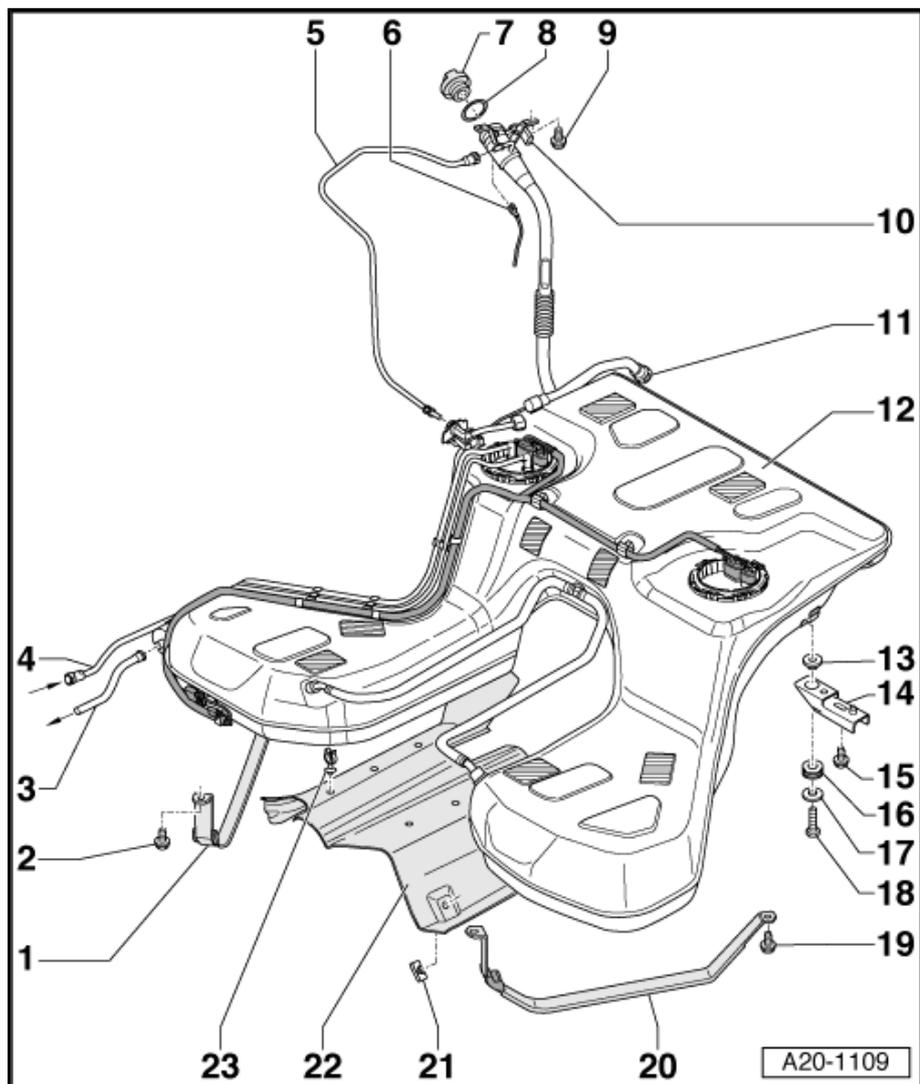
4 - Fuel return line

- ❑ From engine
- ❑ Press release tab on connection piece to disconnect
- ❑ Clip onto fuel tank

5 - Breather line

6 - Earth connection

- ❑ To eliminate electrostatic charge
- ❑ Installation position / test procedure ⇒ [page 111](#)
- ❑ Make sure that connector is securely fitted
- ❑ After installation, use an ohmmeter to check the electrical connection between the fuel filler neck and a bare metal part on the body. Specification: approx. 0 Ω



7 - Filler cap

- ❑ With solenoid for fuel tank cap switch - F314- ⇒ [page 112](#)

8 - Seal

- ❑ Renew if damaged

9 - 22 Nm

10 - Electrical connector

- ❑ For fuel tank cap switch - F314- ⇒ [page 112](#)

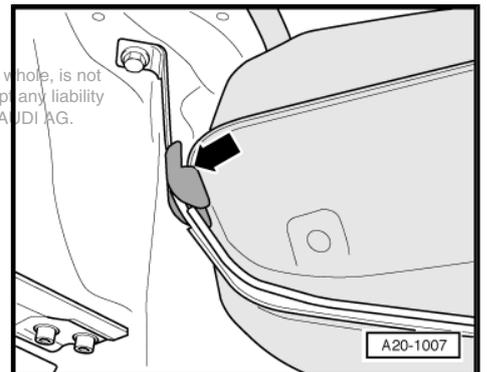
11 - Breather line

- ❑ To activated charcoal filter at bottom of spare wheel well on underbody

- Remains on fuel tank when tank is removed
- 12 - Fuel tank**
 - Removing and installing ⇒ [page 115](#)
- 13 - Bush**
- 14 - Fuel tank bracket**
- 15 - 22 Nm**
- 16 - Rubber buffer**
- 17 - Washer**
- 18 - 22 Nm**
- 19 - 22 Nm**
- 20 - Securing strap**
 - With spacer, installation position ⇒ [page 111](#)
- 21 - Clip**
 - For heat shield
- 22 - Heat shield**
- 23 - Clip**
 - For heat shield

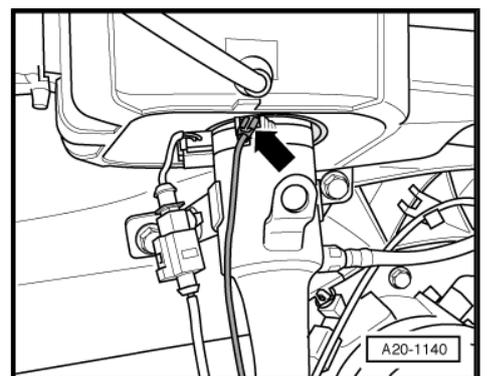
Installation position of spacers

- Make sure that securing strap spacers are located directly under seam of fuel tank -arrow-



Installation position of earth connection

- Route earth connection as shown in illustration.
- Ensure that connector for earth connection is securely fitted on metal ring on fuel filler neck -arrow-.



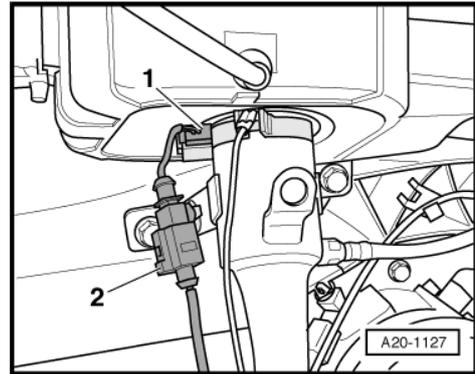
 **WARNING**

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

- *Specification: approx. 0 Ω.*

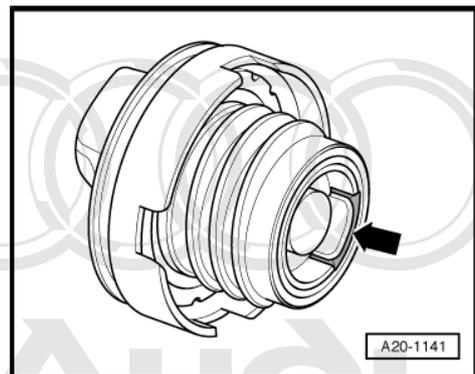
Fuel tank cap switch - F314-

- Ensure that electrical connector -2- for fuel tank cap switch - F314- -item 1- is firmly seated on fuel filler neck.



Filler cap with solenoid

- Solenoid for fuel tank cap switch - F314- -arrow-.

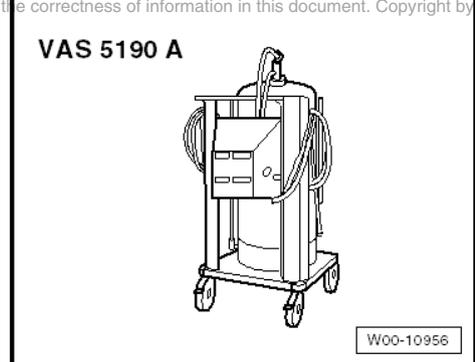


6.2 Draining fuel tank

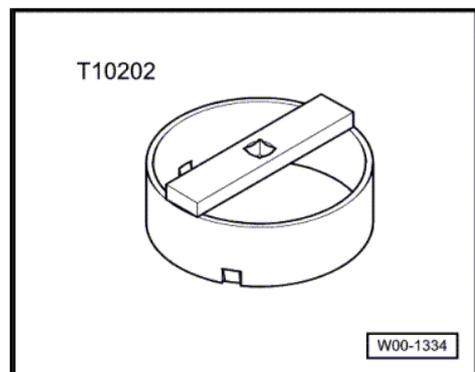
Special tools and workshop equipment required

- ◆ Fuel extractor - VAS 5190A-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



- ◆ Vehicles from approx. 11.2002: Wrench - T10202-



Procedure

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

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

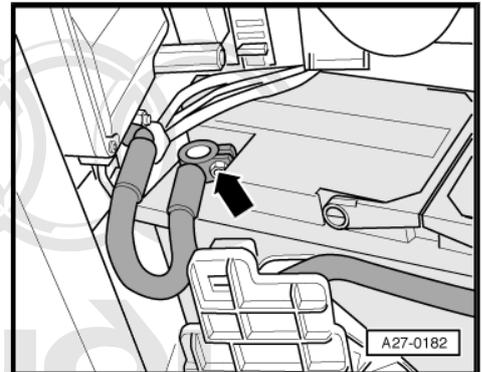
- Briefly open filler cap for fuel tank and close again.



Caution

Observe notes on procedure for disconnecting the battery.

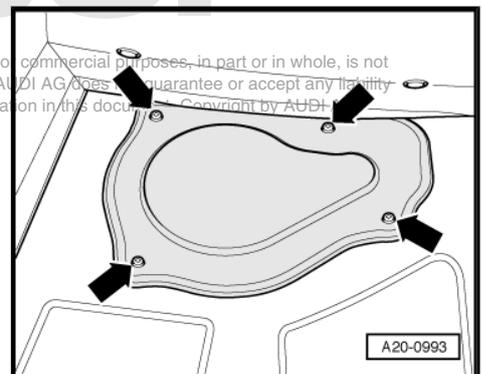
- With ignition switched off, disconnect battery earth cable -arrow- ⇒ Electrical system; Rep. gr. 27 .



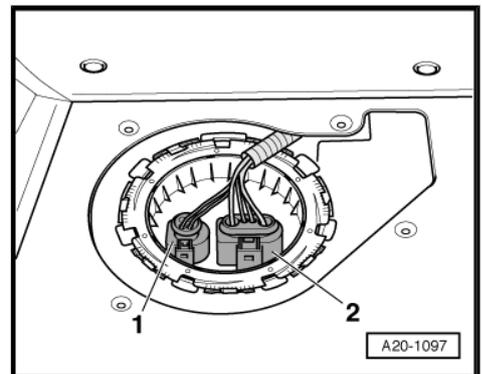
- Remove luggage compartment floor covering.

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

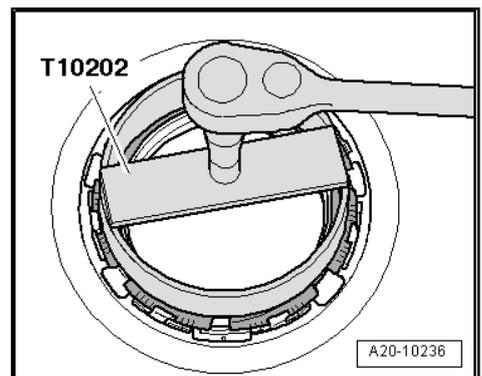
Copyright by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



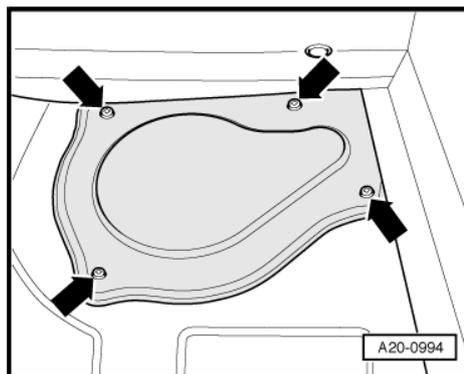
- Unplug electrical connectors -1- and -2- on flange (left-side).



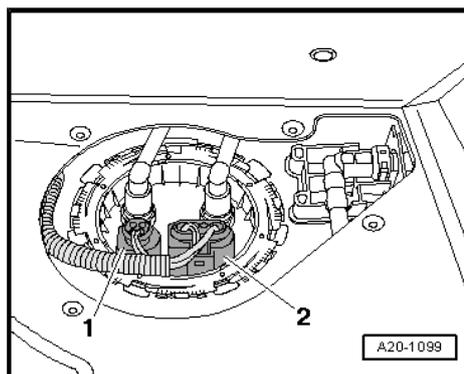
- Unscrew locking ring using wrench - T10202- .



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



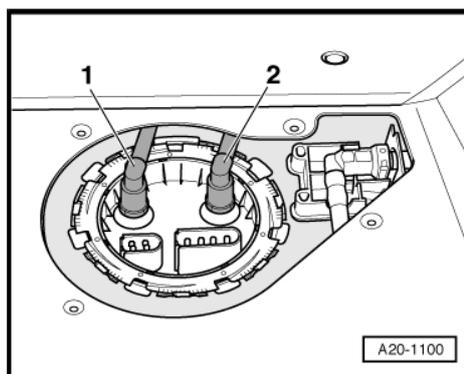
- Unplug electrical connectors -1- and -2- on flange (right-side).



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

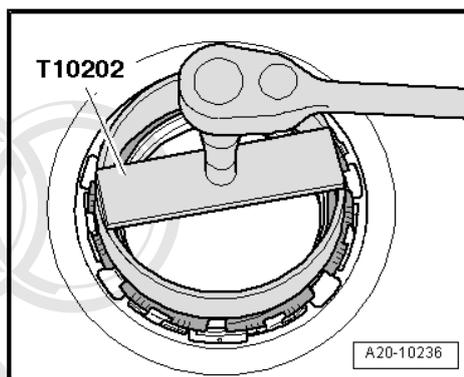
 **WARNING**

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.



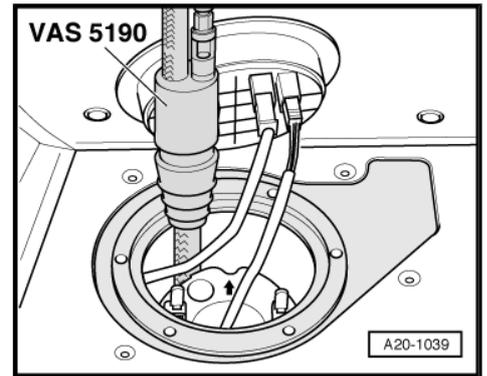
- Detach both lines from flange (press release tabs).

- Unscrew locking ring using wrench - T10202- .

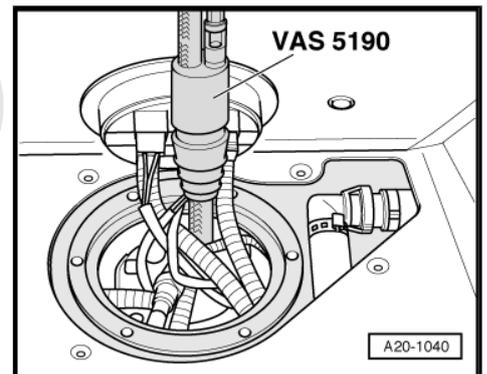


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Connect earth wire of fuel extractor - VAS 5190A- to earth stud of energy management control unit - J644- .
- Remove flange (left-side) and lay it aside with electrical wires connected.
- Detach seal.
- Extract fuel from left fuel tank chamber through fuel tank opening using fuel extractor - VAS 5190A- .



- Remove flange (right-side) and lay it aside with electrical wires and fuel lines connected.
- Detach seal.
- Extract fuel from right fuel tank chamber through fuel tank opening using fuel extractor unit - VAS 5190A- .
- Re-install flange: left-side ⇒ [page 75](#) , right-side ⇒ [page 86](#) .

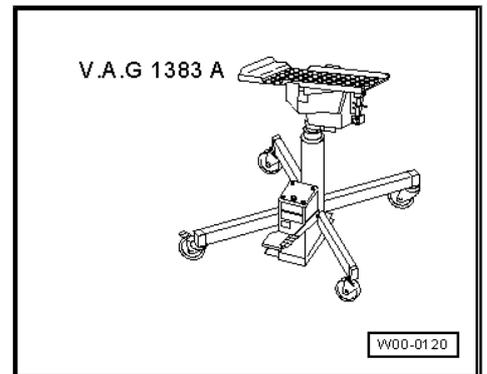


6.3 Removing and installing fuel tank with attached components

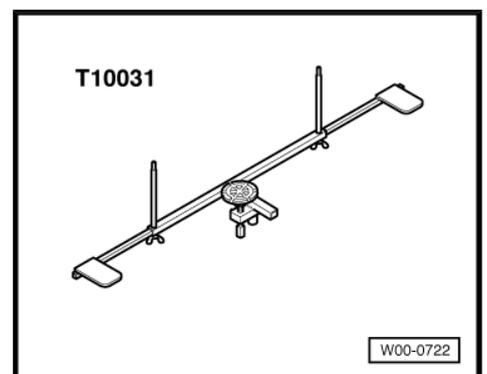
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorized by Audi AG. Audi AG does not guarantee or accept any liability for errors or omissions in this document. Copyright by AUDI AG.

Special tools and workshop equipment required

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



- ◆ Support - T10031-



Removing

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

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



WARNING

- *To reduce weight, the fuel tank must be empty when it is removed from the vehicle. Drain the tank if necessary. Procedure ⇒ [page 112](#)*

- Release the tank flap.



Caution

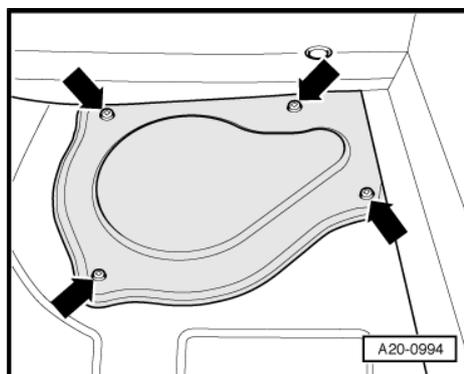
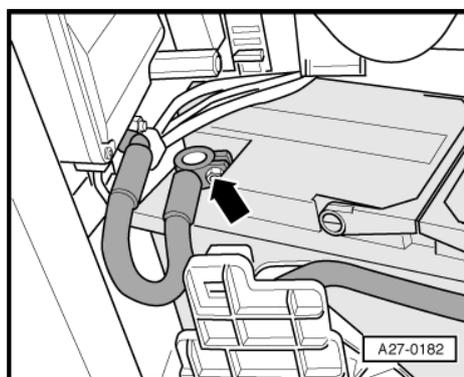
Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable
-arrow- ⇒ Electrical system; Rep. gr. 27 .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

- Remove luggage compartment floor covering.
- Unscrew cover for flange (right-side) -arrows-.



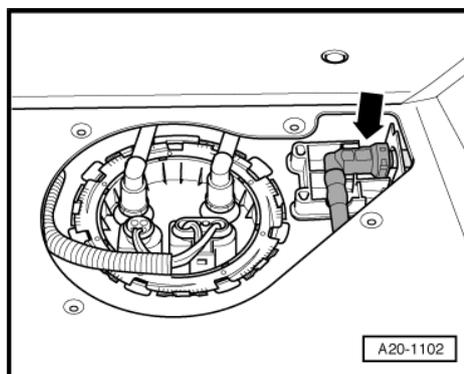
- Press release tabs to disconnect breather pipe -arrow-.



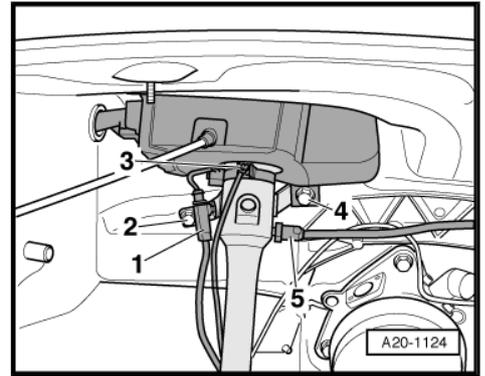
WARNING

BEFORE loosening the subframe bolts, ensure that the vehicle cannot tip forwards (for instance by putting a weight of about 50 kg in the luggage compartment).

- Remove rear axle ⇒ Rep. gr. 42 .
- Remove rear right wheel housing liner ⇒ Rep. gr. 66 .



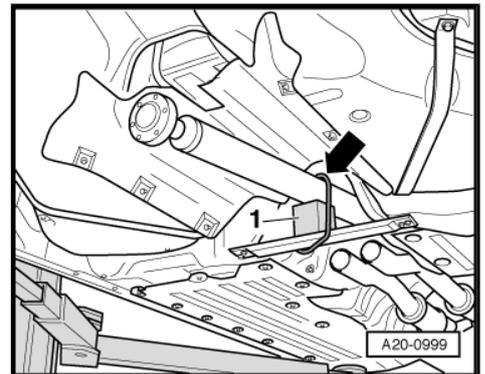
- Disconnect earth wire -3- from fuel filler neck.
- Unplug electrical connector -1- for fuel tank cap switch - F314- .
- Disconnect breather pipe -5- from fuel filler neck.
- Remove bolts -2- and -4- for fuel filler neck.



- Check that propshaft is secured to prevent it falling.
 - The propshaft should be placed on a block of wood -1- and secured with wire or a cable tie -arrow-.
 - The propshaft should be inclined slightly downwards to ensure there is sufficient space when installing the fuel tank.

i Note

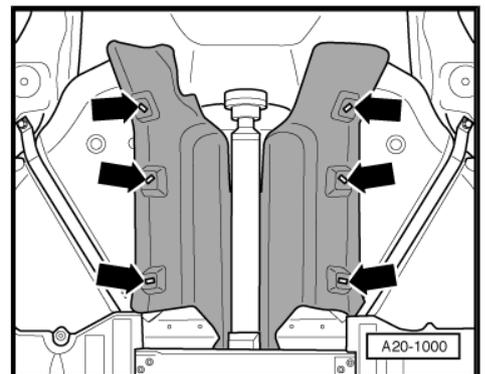
The propshaft must not be bent more than 8°.



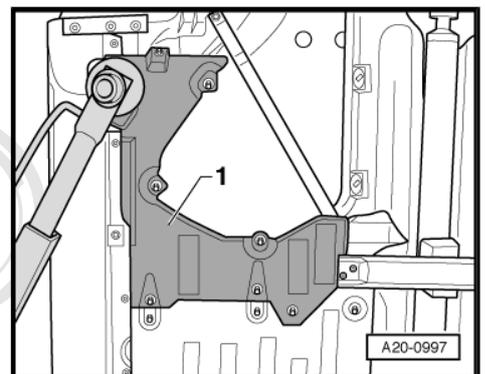
- Remove heat shield for propshaft -arrows-.

i Note

The heat shield is also clipped in at the top of the breather pipe.

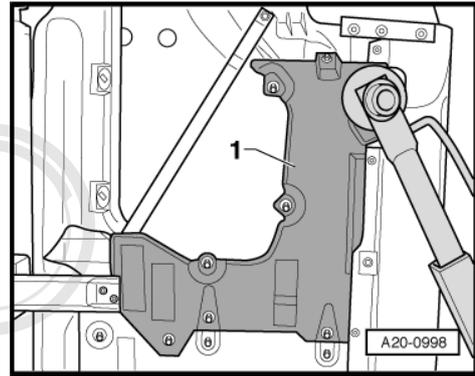


- Remove cover -1- from underside of vehicle (left-side).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

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

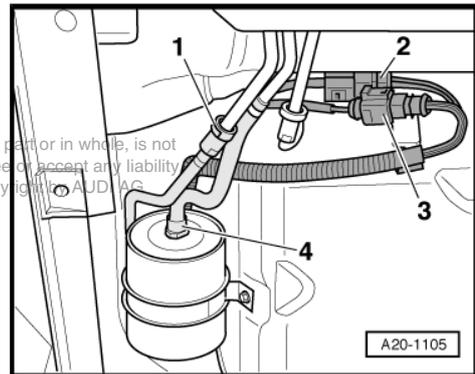


- Unplug electrical connectors:

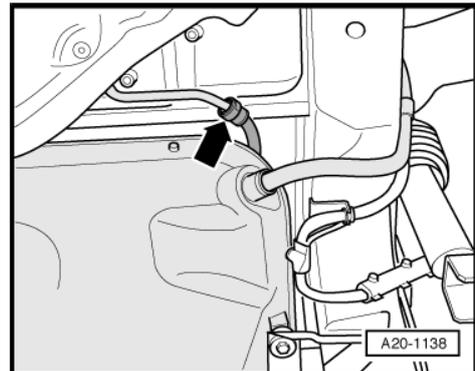
- 2 - To fuel pumps
- 3 - To fuel gauge senders

- Disconnect fuel pipes (press release tabs)

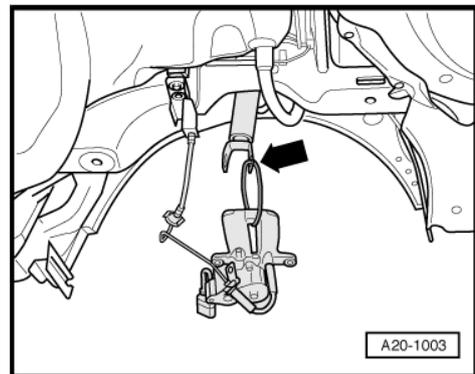
- 1 - Fuel return line
- 4 - Fuel supply line



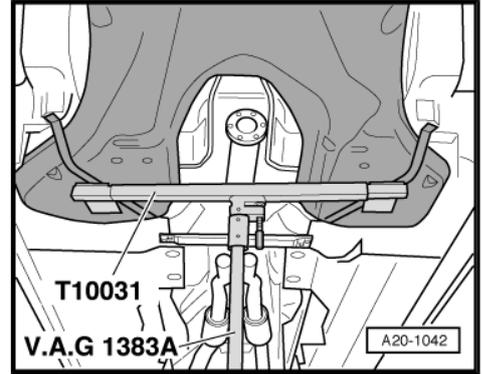
- Disconnect breather pipe -arrow- at rear right of fuel tank (press release tab).



- Attach brake calipers to suspension struts with wire -arrow- (brake calipers were fastened to fuel tank brackets upon removal of rear suspension).

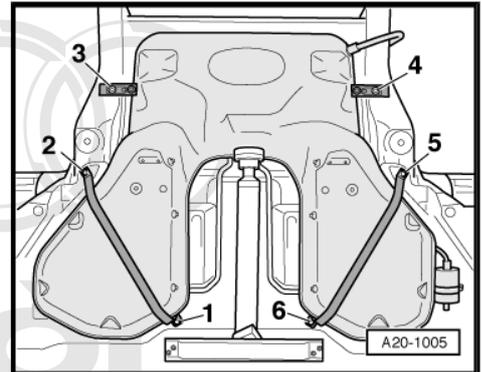


- Position engine and gearbox jack - V.A.G 1383 A- with support - T10031- under vehicle to support tank (do not use threaded rods of support).
- Support fuel tank using engine and gearbox jack - V.A.G 1383 A- and support - T10031- .
- In addition, a 2nd mechanic will be required to support the fuel tank at the rear by hand.



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

- Unscrew bolts -1 ... 6-; swivel fuel tank brackets forward if necessary.
- First lower fuel tank slightly at the rear so the fuel filler neck can be guided out of the body.
- Then lower fuel tank using engine and gearbox jack - V.A.G 1383 A- , simultaneously guiding fuel tank down by hand.



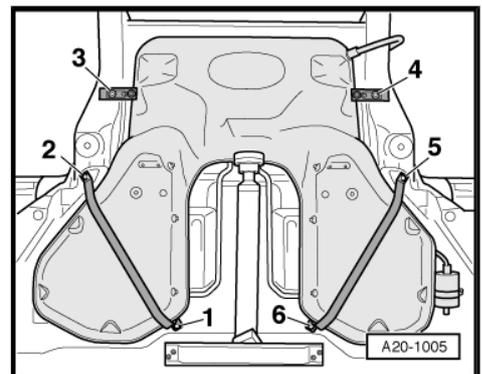
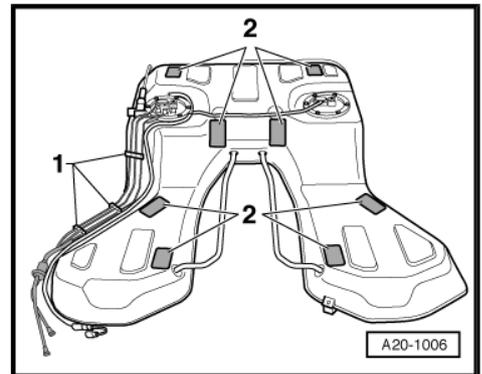
Note

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

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

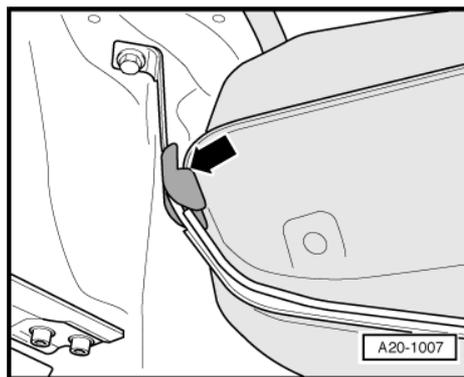
Installing

- Tightening torques ⇒ [page 110](#)
- Check that fuel pipes and wiring harnesses for fuel pumps and fuel gauge senders are clipped into brackets -1- on fuel tank.
- Bond pads -2- to fuel tank as shown when installing new fuel tank.
- Position fuel tank with securing straps and brackets on underbody, using engine and gearbox jack - V.A.G 1383 A- and support - T10031- .
- When installing fuel tank, make sure that the fuel filler neck is correctly inserted into the opening on the body.
- Secure fuel tank by first tightening bolts at points -1-, -2-, -5- and -6-, then at points -3- and -4-.

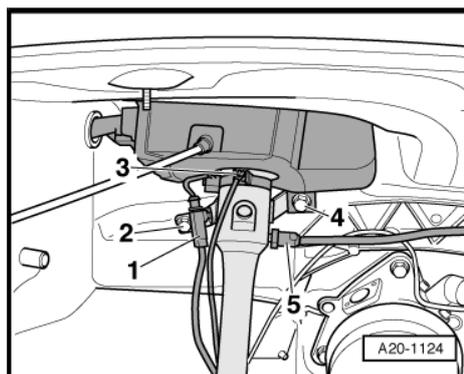




- Make sure that securing strap spacers are located directly under seam of fuel tank -arrow-.



- Secure fuel filler neck using bolts -2- and -4-.
- Fit breather pipe -5- so that it engages audibly.
- Connect electrical connector -1- for fuel tank cap switch - F314-
- Check the earth wiring -3- and connector tab for traces of oxidation. Remove any traces of oxidation if necessary.



WARNING

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

- *Specification: approx. 0 Ω.*

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



Note

- ◆ *Always renew seals and gaskets when assembling.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- Install rear axle ⇒ Rep. gr. 42 .
- Install rear right wheel housing liner ⇒ Rep. gr. 66 .
- Install rear section of exhaust system ⇒ Rep. gr. 26 .
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Electrical system; Rep. gr. 27 .



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

7 Routing of pipes/hoses (inside fuel tank) - USA vehicles with MPI engine

⇒ ["7.1 Routing of pipes/hoses \(inside fuel tank\) - exploded view", page 121](#)

7.1 Routing of pipes/hoses (inside fuel tank) - exploded view

Note

- ◆ *The illustration shows the correct routing of pipes/hoses inside the fuel tank (schematic view).*
- ◆ *It is not necessary to route the pipes/hoses in exactly the same way as shown in the illustration, except for pipes/hoses shown in ⇒ [page 122](#). However it is essential to fit the pipes/hoses with sufficient space in relation to each other and to prevent rattling noises.*
- ◆ *The -arrow- points in direction of travel.*

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

1 - Fuel delivery unit (left-side) with fuel system pressurisation pump - G6-

2 - Fuel supply line

- From suction-jet pump (left-side) to fuel delivery unit (right-side)

3 - Supply line for suction-jet pump

- From fuel pump (right-side) to suction-jet pump (left-side)

4 - Suction-jet pump (left-side)

5 - Expansion tank

- With suction-jet pump to extract fuel from expansion tank

6 - Non-return flap

- For fuel filler pipe

7 - Primary filler pipe

- To fuel delivery unit (right-side).
- Ensures that a small amount of fuel is delivered immediately to the fuel delivery unit when the tank is filled for the first time.

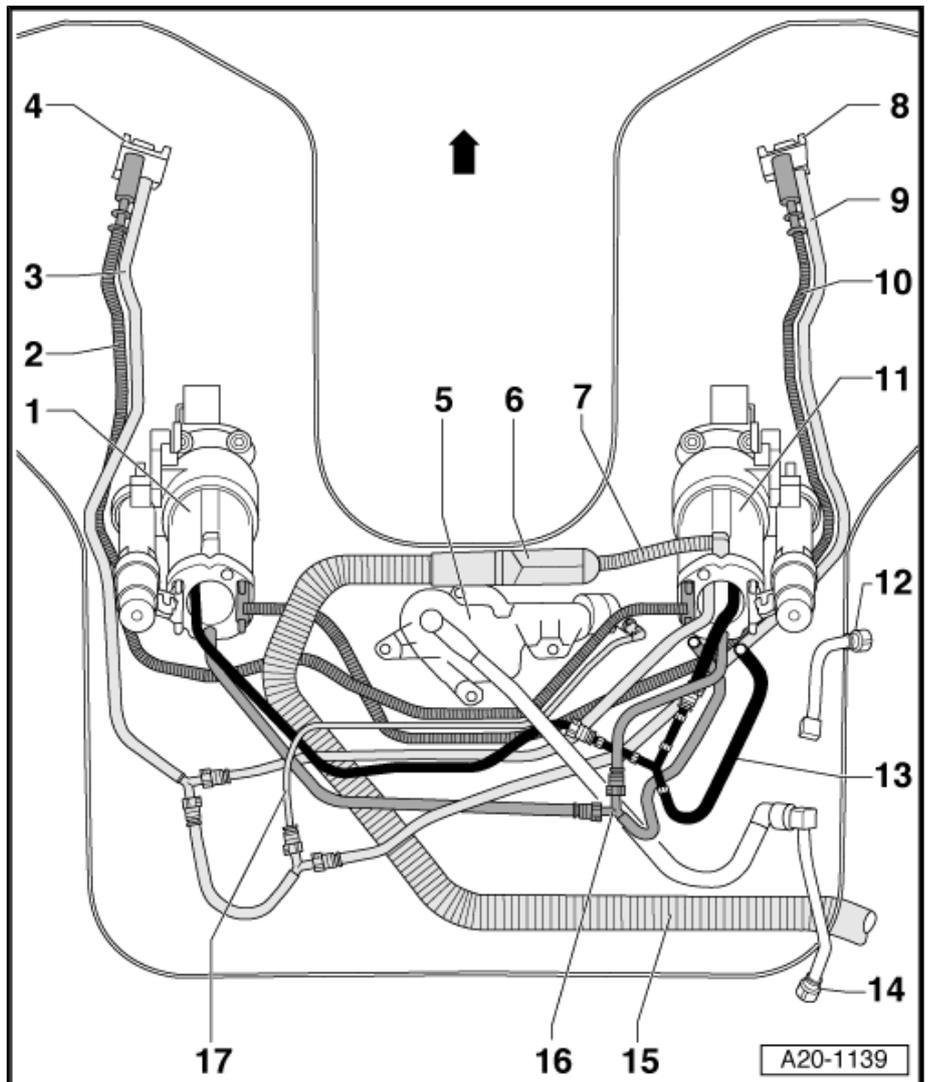
8 - Suction-jet pump (right-side)

9 - Supply line for suction-jet pump

- From fuel pump (right-side) to suction-jet pump (right-side)

10 - Fuel supply line

- From suction-jet pump (right-side) to fuel delivery unit (left-side)





11 - Fuel delivery unit (right-side) with fuel pump - G23-

12 - Breather line

- To breather connection at top of fuel filler neck

13 - Fuel supply line

- From fuel pumps (left and right) to flange

14 - Breather line

- To activated charcoal filter at bottom of spare wheel well on underbody

15 - Fuel filler pipe

- From fuel filler neck to non-return flap in fuel tank

16 - Fuel return line

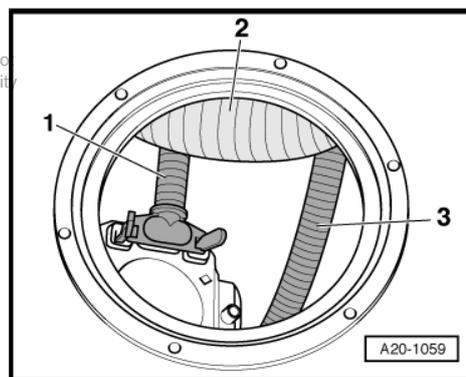
- From flange to fuel delivery units (left and right)

17 - Supply line for suction-jet pump

- To suction-jet pump in expansion tank

Installation position of fuel supply lines

- The fuel supply lines -1- and -3- must be routed below the fuel filler pipe -2- at the left fuel tank opening



8 Fuel delivery unit with fuel pump and fuel gauge senders - USA vehicles with MPI engine

⇒ [“8.1 Exploded view - fuel delivery unit \(left-side\) with fuel system pressurisation pump G6 and fuel gauge senders G and G237”, page 123](#)

⇒ [“8.2 Checking fuel system pressurisation pump G6 \(left-side\) - electrical test”, page 125](#)

⇒ [“8.3 Removing and installing fuel delivery unit \(left-side\) with fuel system pressurisation pump G6”, page 129](#)

⇒ [“8.4 Exploded view - fuel delivery unit \(right-side\) with fuel pump G23 and fuel gauge senders G169 and G393”, page 136](#)

⇒ [“8.5 Checking fuel pump G23 \(right-side\) - electrical test”, page 138](#)

⇒ [“8.6 Removing and installing fuel delivery unit \(right-side\) with fuel pump G23”, page 141](#)

⇒ [“8.7 Checking delivery rate of fuel pumps - vehicles with fuel return line”, page 149](#)

⇒ [“8.8 Checking delivery rate of fuel pumps - vehicles with fuel system without fuel return line”, page 153](#)

⇒ [“8.9 Suction-jet pumps”, page 157](#)

⇒ [“8.10 Removing and installing suction-jet pump \(left-side\)”, page 159](#)

⇒ [“8.11 Removing and installing suction-jet pump \(right-side\)”, page 160](#)

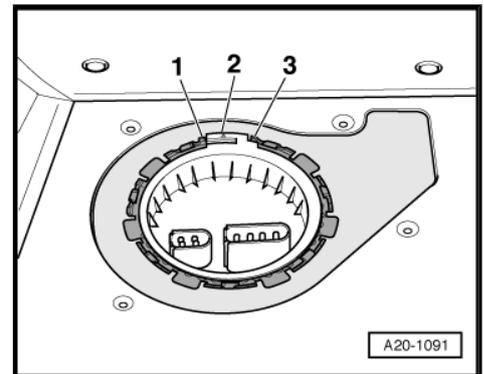
8.1 Exploded view - fuel delivery unit (left-side) with fuel system pressurisation pump - G6- and fuel gauge senders -G- and -G237-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

❑ Removing and installing ⇒ [page 226](#)

Installation position of flange (left-side)

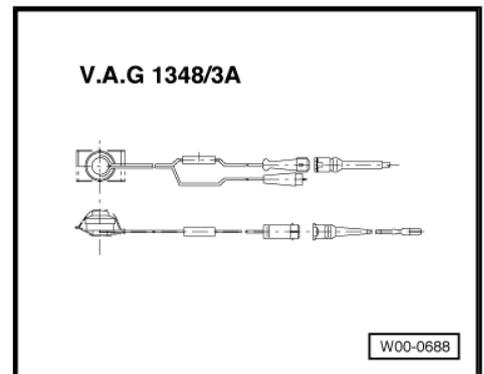
- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



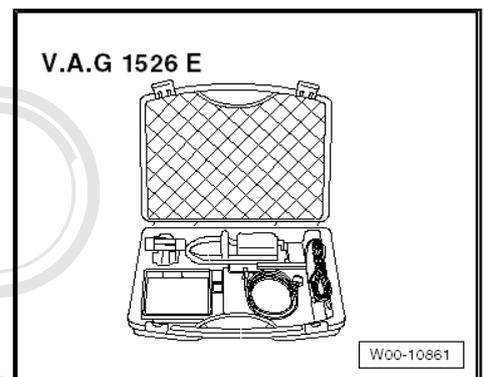
8.2 Checking fuel system pressurisation pump - G6- (left-side) - electrical test

Special tools and workshop equipment required

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



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

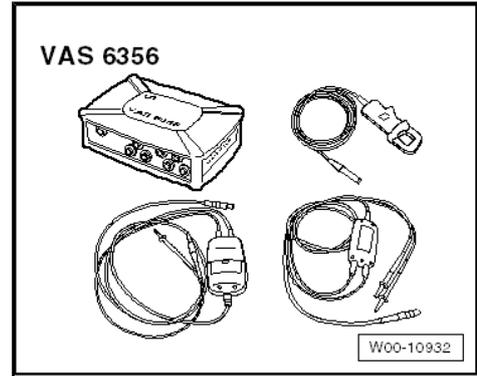


- ◆ Auxiliary measuring set - V.A.G 1594C-



Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy of information with respect to the correctness of information in this document. Copy

- ◆ Test instrument box - VAS 6356- with trigger clamp, 100 A - VAS 6356/4A-

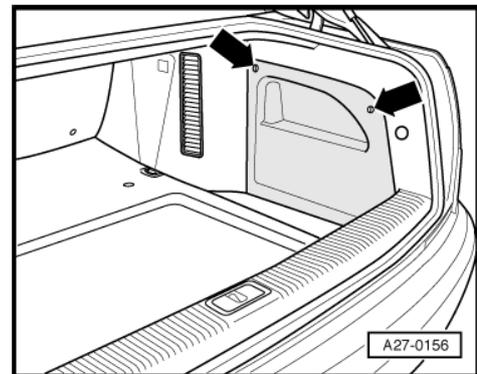


Procedure

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

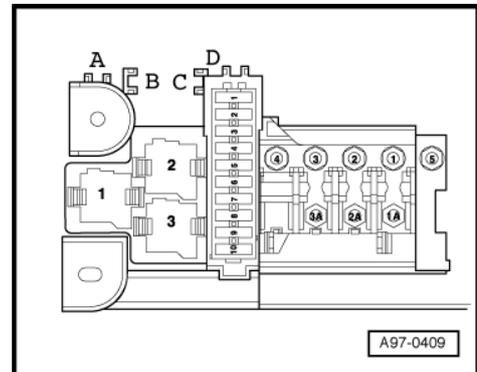
Checking voltage supply

- Remove luggage compartment side trim cover (right-side) -arrows-.



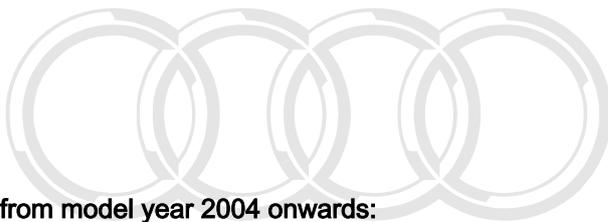
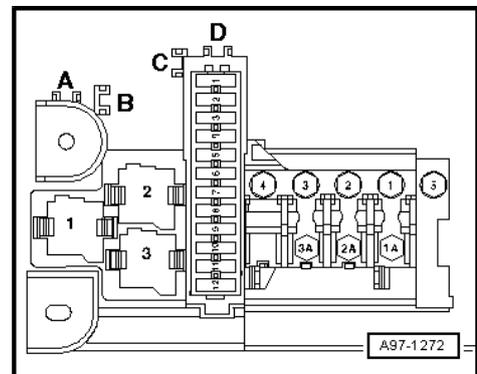
Vehicles built in model year 2003:

- Take fuse 10 out of fuse holder SF10 (located in relay and fuse carrier in luggage compartment (right-side), position 10).



Vehicles from model year 2004 onwards:

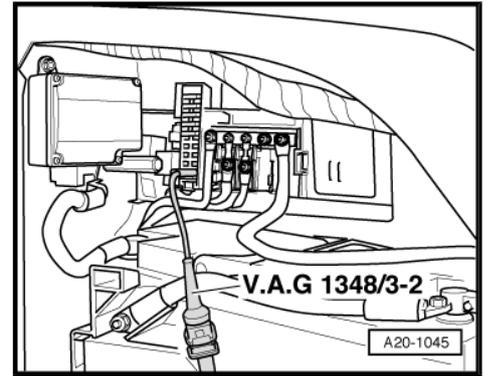
- Take fuse 2 out of fuse holder SF2 (located in relay and fuse carrier in luggage compartment (right-side), position 2).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

All vehicles (continued):

- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2- to right-hand terminal of fuse socket from which fuse has been taken out.
- Connect crocodile clip of remote control - V.A.G 1348/3A- for V.A.G 1348 to battery "+" (positive).
- Press remote control button.
- Fuel pump should start running (noise is audible in vicinity of fuel tank).

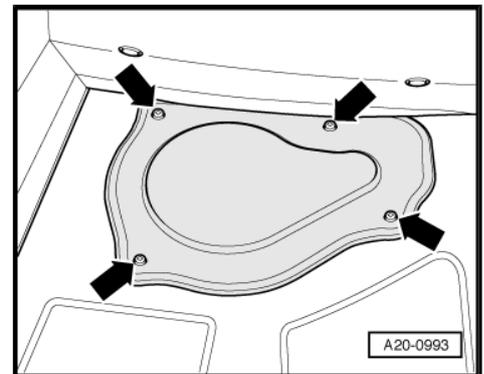


Note

The fuel pump runs very quietly. Avoid background noise whilst checking fuel pump. Have second mechanic perform check if necessary.

If no noise can be heard from pump:

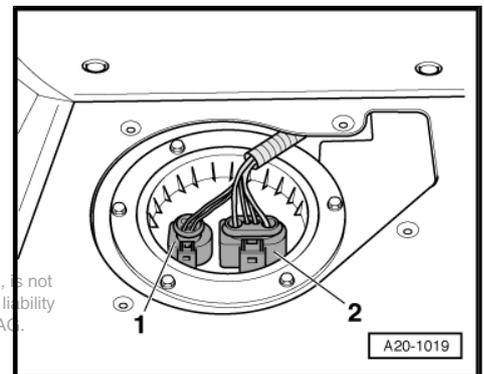
- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



- Unplug electrical connector -2- on flange (left-side).

Note

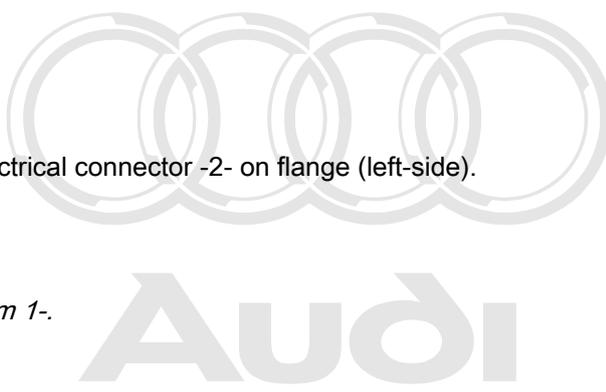
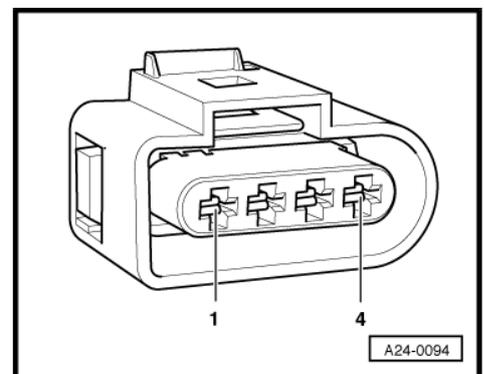
Disregard -item 1-.



- Connect multimeter between contacts -1- and -4- of electrical connector to measure voltage.
- Press remote control button.
- Specification: approx. battery voltage

If specification is not obtained:

- Repair wiring harness according to current flow diagram.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

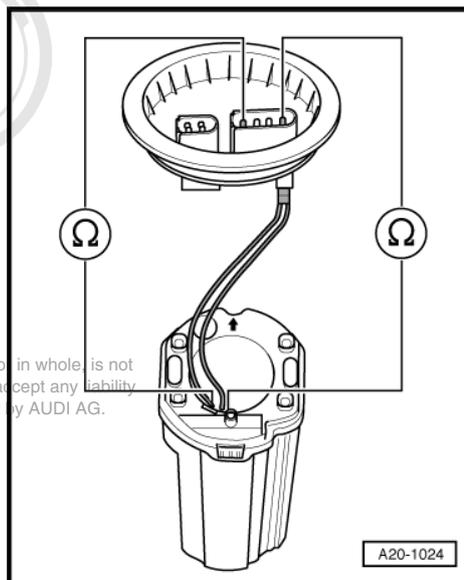
If reading matches specification although no noise can be heard from pump:

- Remove the fuel delivery unit (left-side) ⇒ [page 129](#) .
- Check that the electrical wires between flange and fuel pump are connected and test for continuity.

If no faults are found in the wiring:

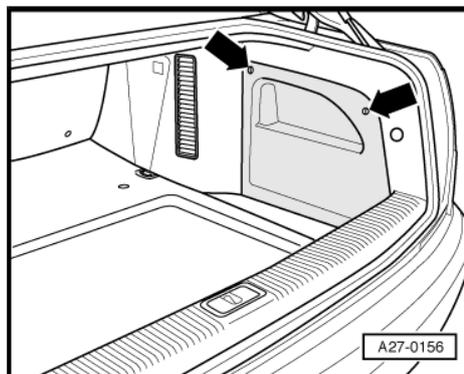
- Fuel pump is defective. Renew the fuel delivery unit (left-side).
- Install fuel delivery unit (left-side) ⇒ [page 75](#) .

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



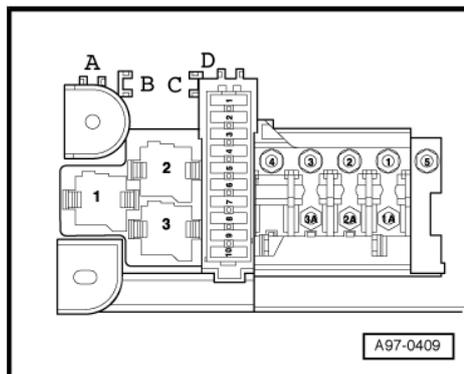
Checking current draw

- Fuel pump voltage supply OK ⇒ [page 126](#)
- Remove luggage compartment side trim cover (right-side) -arrows-.



Vehicles built in model year 2003:

- Take fuse 10 out of fuse holder SF10 (located in relay and fuse carrier in luggage compartment (right-side), position 10).

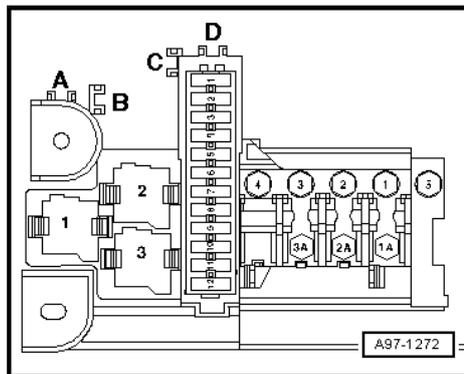


Vehicles from model year 2004 onwards:

- Take fuse 2 out of fuse holder SF2 (located in relay and fuse carrier in luggage compartment (right-side), position 2).

All vehicles (continued):

- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2- to right-hand terminal of fuse socket from which fuse has been taken out.
- Connect crocodile clip of remote control - V.A.G 1348/3A- for V.A.G 1348 to battery "+" (positive).

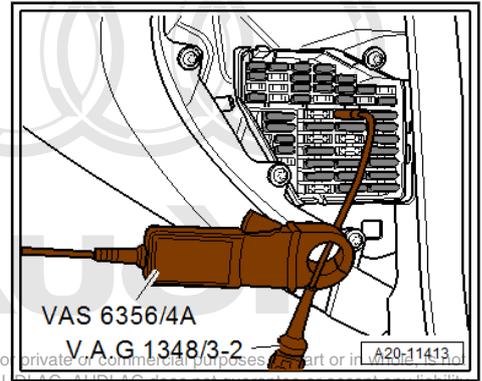


- Connect test instrument box - VAS 6356- with trigger clamp, 100 A - VAS 6356/4A- to cable of remote control.
- Press remote control button.
- Measure current draw of fuel pump.
- Specification: approx. 8 A.

If specification is not obtained:

 **Note**

A current draw of 4 A indicates that the fuel pump is running dry.



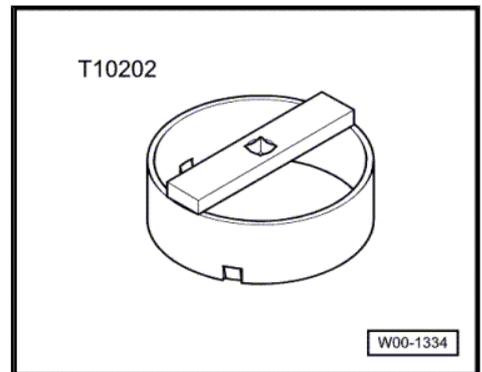
Protected by copyright. Copying for private or commercial purposes is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Readout	Cause of fault	Remedy
approx. 4 A	◆ Fuel tank empty	- Fill tank
	◆ Housing of fuel delivery unit leaking	- Renew fuel delivery unit ⇒ page 129
0 A	◆ Fuel system pressurisation pump - G6- defective	- Renew fuel delivery unit ⇒ page 129

8.3 Removing and installing fuel delivery unit (left-side) with fuel system pressurisation pump - G6-

Special tools and workshop equipment required

- ◆ Wrench - T10202-



Removing

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

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

 **Caution**

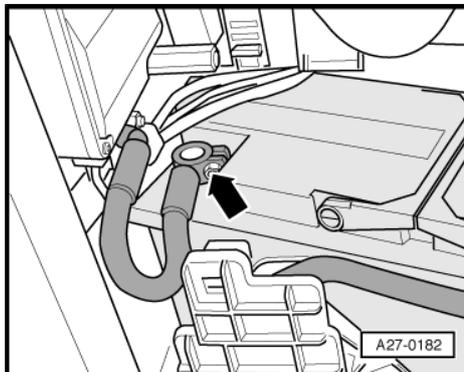
- *The fuel tank must not be more than 1/3 full when removing the fuel delivery unit. Drain the tank if necessary. Procedure ⇒ [page 112](#)*



Caution

Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable
 -arrow- ⇒ Electrical system; Rep. gr. 27 .



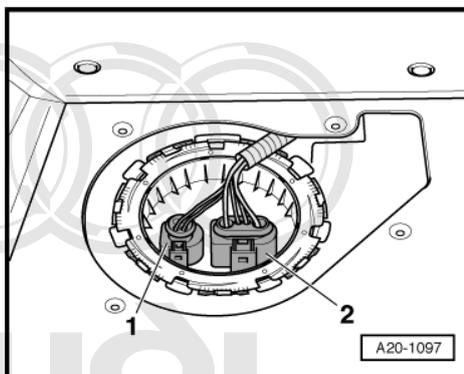
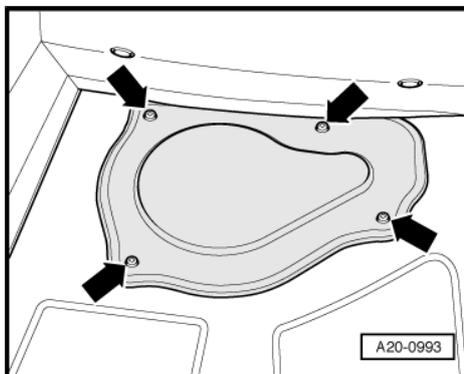
- Remove luggage compartment floor covering.



Note

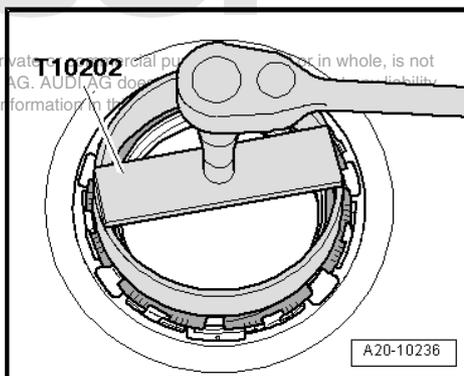
For removing and installing fuel delivery unit, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

- Detach cover for flange (left-side) -arrows-.
- Unplug electrical connectors -1- and -2- on flange (left-side).

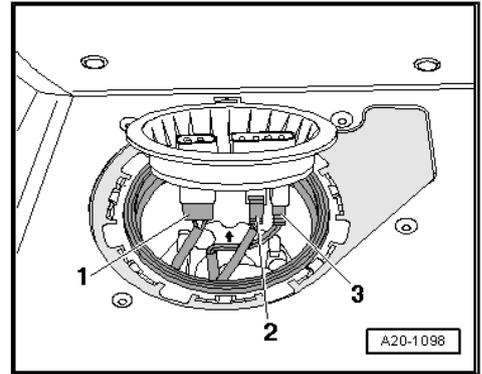


- Unscrew locking ring using wrench - T10202- .

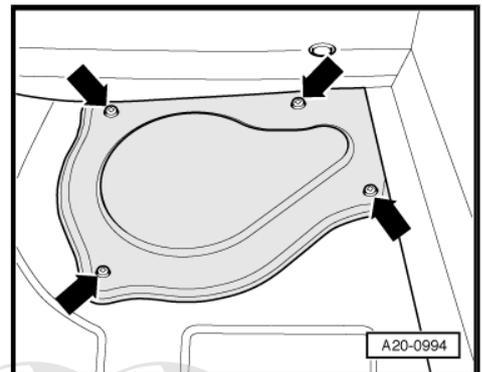
Protected by copyright. Copying for private or commercial purposes in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this manual.



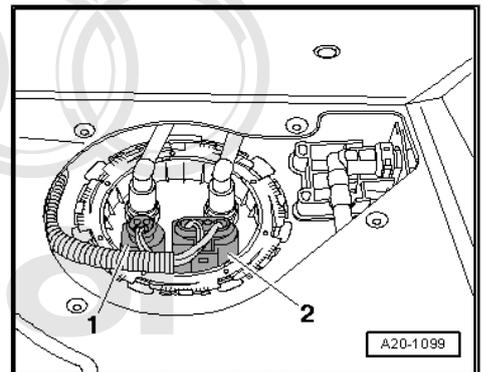
- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (left-side).



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



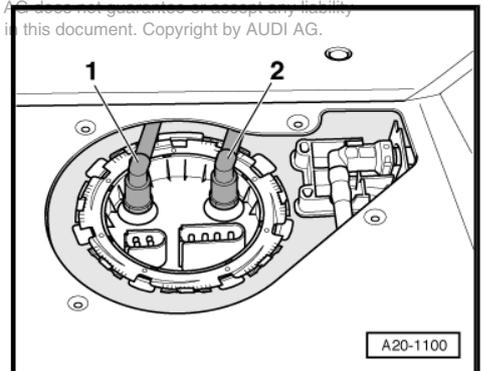
- Unplug electrical connectors -1- and -2- on flange (right-side).



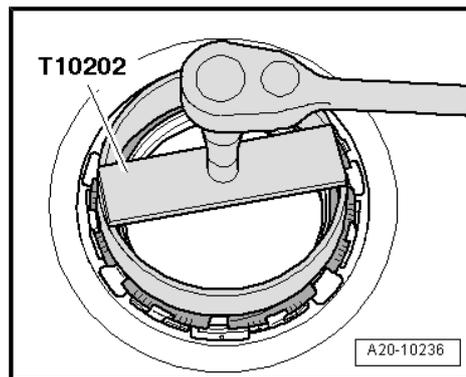
- Mark fuel return line -1- and fuel supply line -2-.

! WARNING
The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

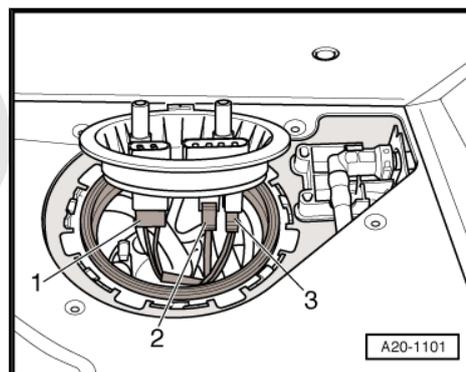
- Detach both lines from flange (press release tabs).



- Unscrew locking ring using wrench - T10202- .



- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (right-side).



Note

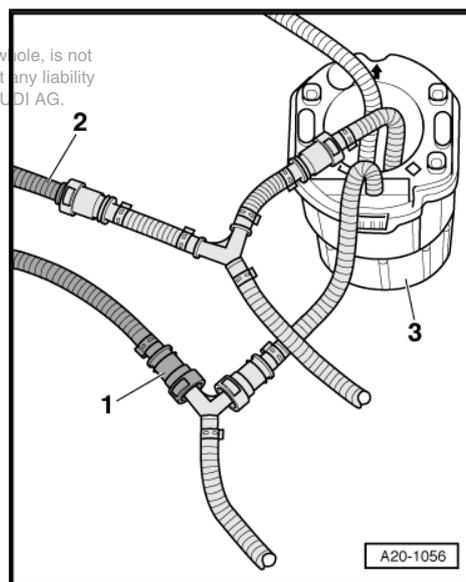
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ *Pull out fuel lines from fuel tank opening prior to disconnecting the pipe connectors mentioned below.*
- ◆ *For illustration purposes some of the components are shown removed in the following illustrations.*

- Working through right fuel tank opening, press release tabs and disconnect fuel lines -1- and -2- going to fuel delivery unit (left-side).

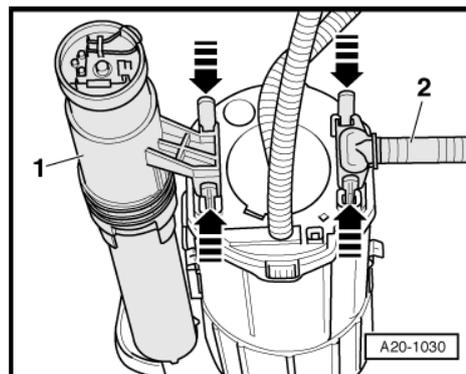
3 - Fuel delivery unit (right-side) with fuel pump - G23-

- Pull the two disconnected fuel lines out of left fuel tank opening.



- Working through left fuel tank opening, press release tabs -arrows- and detach fuel supply line -2- and fuel gauge sender 3 - G237- -item 1-.

- Move fuel gauge sender 3 - G237- to left side.



- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Remove fuel delivery unit.

i Note

Keep in mind that the fuel delivery unit still contains fuel.

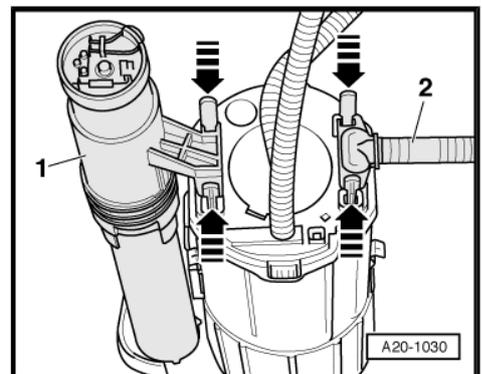
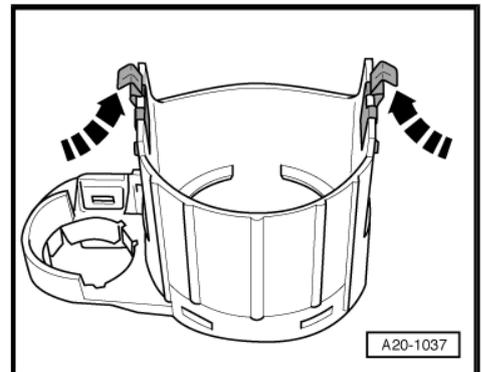
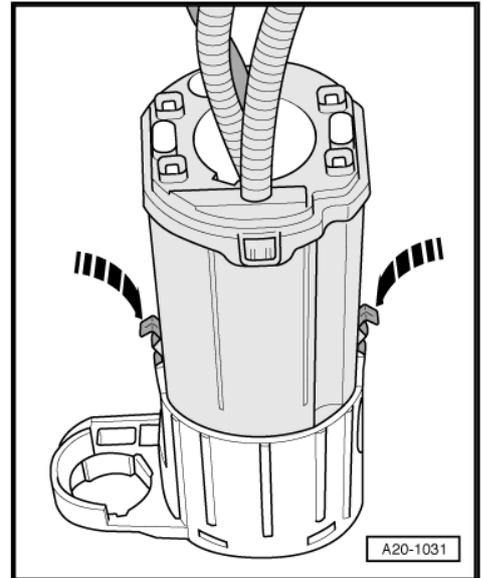


Installing

- Tightening torque => [page 123](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Then press fuel delivery unit carefully into retainer so that it engages audibly.

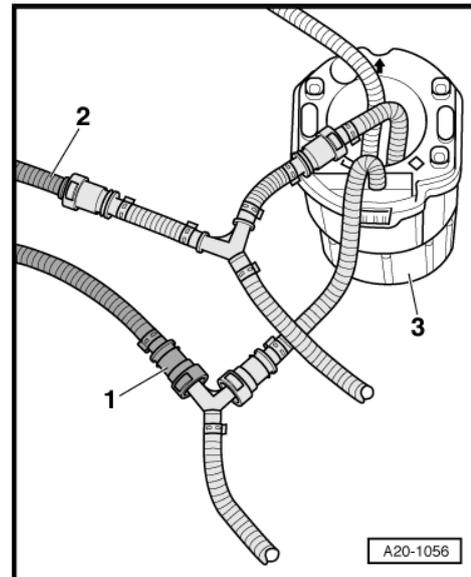
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Fit fuel supply line -2- and fuel gauge sender 3 - G237- -item 1- so that they engage audibly.
- Guide supply line and return line for fuel delivery unit (left-side) into fuel tank chamber (right-side).

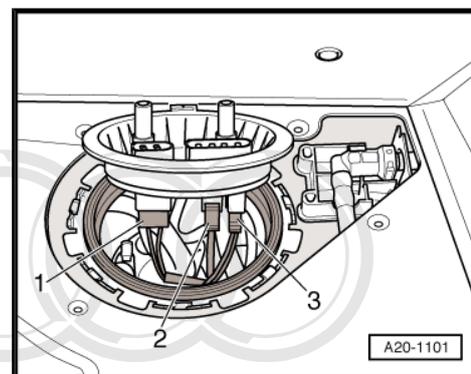




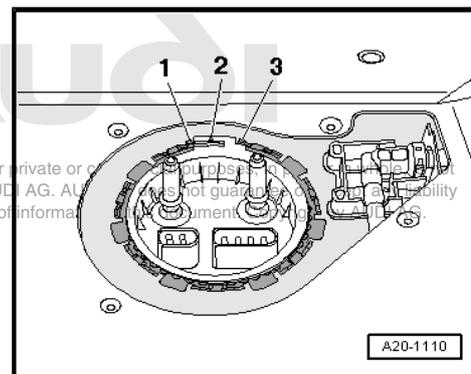
- Fit fuel lines -1- and -2- through right fuel tank opening so that they engage audibly.
- 3 - Fuel delivery unit (right-side) with fuel pump - G23-



- Connect electrical connectors -1 ... 3- on underside of flange (right-side).
- Install new seal for flange (seal must be installed dry).

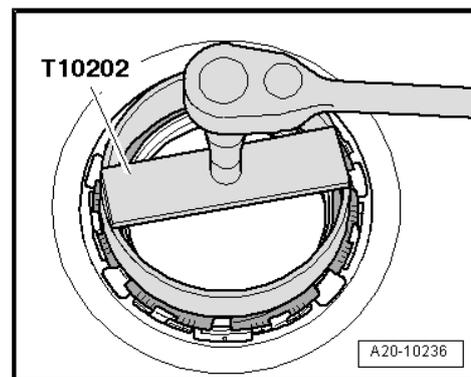


- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.

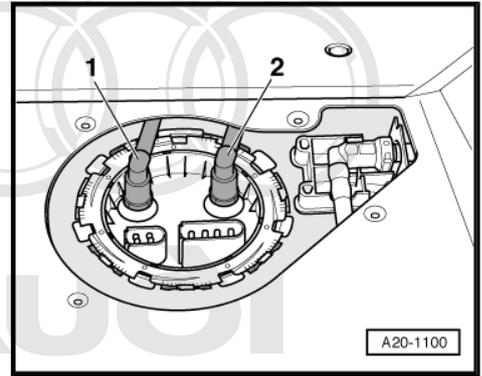


Protected by copyright. Copying for private or commercial use is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy of the information with respect to the correctness of information.

- Tighten locking ring.

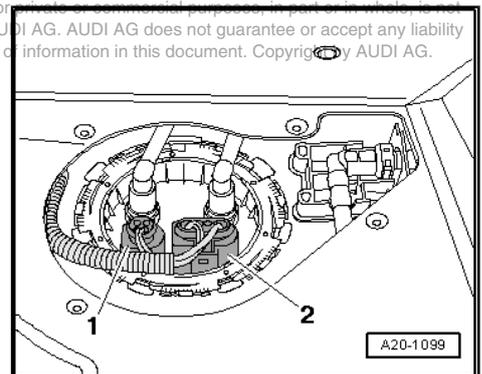


- Install fuel supply line -2- and fuel return line -1- (as marked) so that they engage audibly.

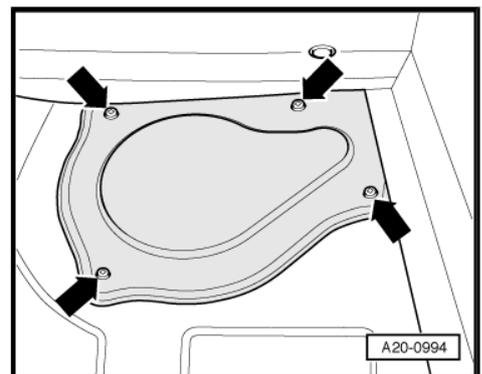


- Attach electrical connectors -1- and -2- on flange (right-side).

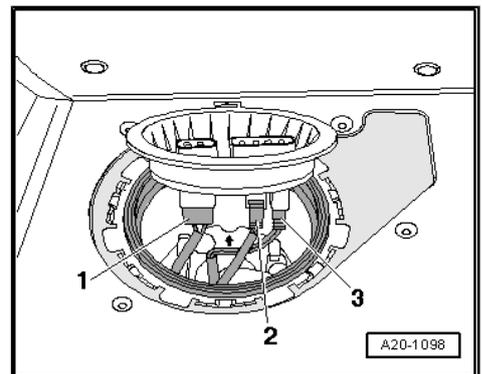
Protected by copyright. Copying for non-commercial purposes is permitted and authorized by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



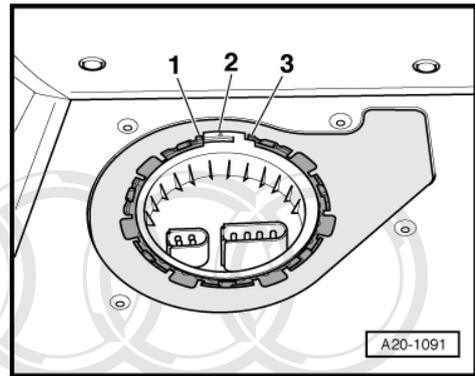
- Secure cover for flange (right-side) -arrows-.



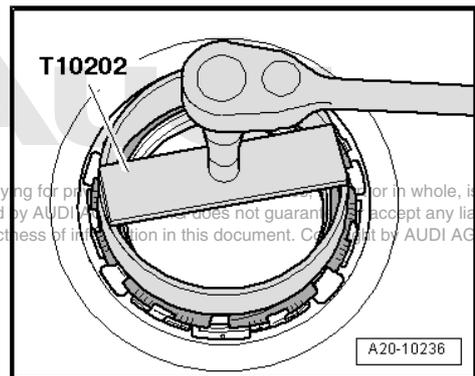
- Connect electrical connectors -1 ... 3- on underside of flange (left-side).
- Install new seal for flange (seal must be installed dry).



- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.

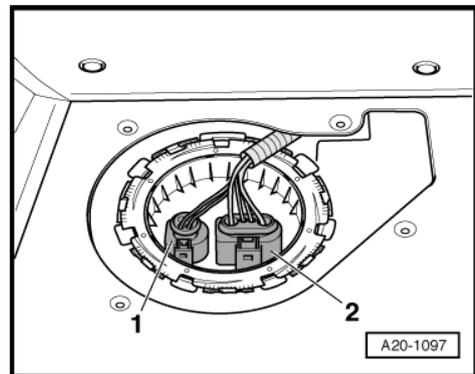


- Tighten locking ring.

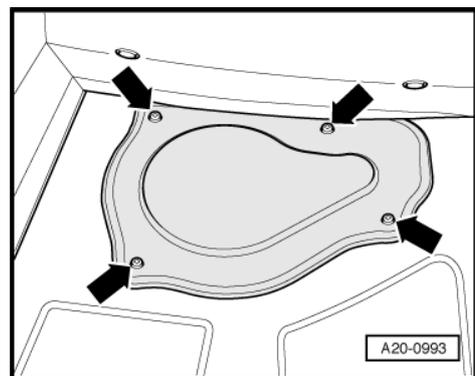


Protected by copyright. Copying for private use, or for internal or external advertising, promotional purposes, or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee, and will not accept any liability for, the correctness of information in this document. Copyright © 2002 by AUDI AG.

- Attach electrical connectors -1- and -2- on flange (left-side).



- Secure cover for flange (left-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Electrical system; Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing



8.4 Exploded view - fuel delivery unit (right-side) with fuel pump - G23- and fuel gauge senders -G169- and -G393-

1 - Retainer

- For fuel delivery unit

2 - Fuel gauge sender 2 - G169-

- Yellow
- Clipped onto retainer -item 1-
- Checking resistance values ⇒ [page 223](#)
- Removing and installing ⇒ [page 224](#)

3 - Fuel gauge sender 4 - G393-

- White
- Clipped onto fuel delivery unit -item 14-
- Checking resistance values ⇒ [page 230](#)
- Removing and installing ⇒ [page 232](#)

4 - Fuel supply line

- To fuel filter
- Mark before removing
- Press release tab on connection piece to disconnect
- Do not kink
- Clip onto fuel tank

5 - Fuel return line

- From fuel rail
- Mark before removing
- Press release tab on connection piece to disconnect
- Do not kink
- Clip onto fuel tank

6 - Locking ring

- Remove and install using wrench - T10202-
- Tighten to 120 Nm

7 - Seal

- Renew
- Install dry

8 - Flange (right-side)

- Installation position ⇒ [page 138](#)

9 - Fuel return line

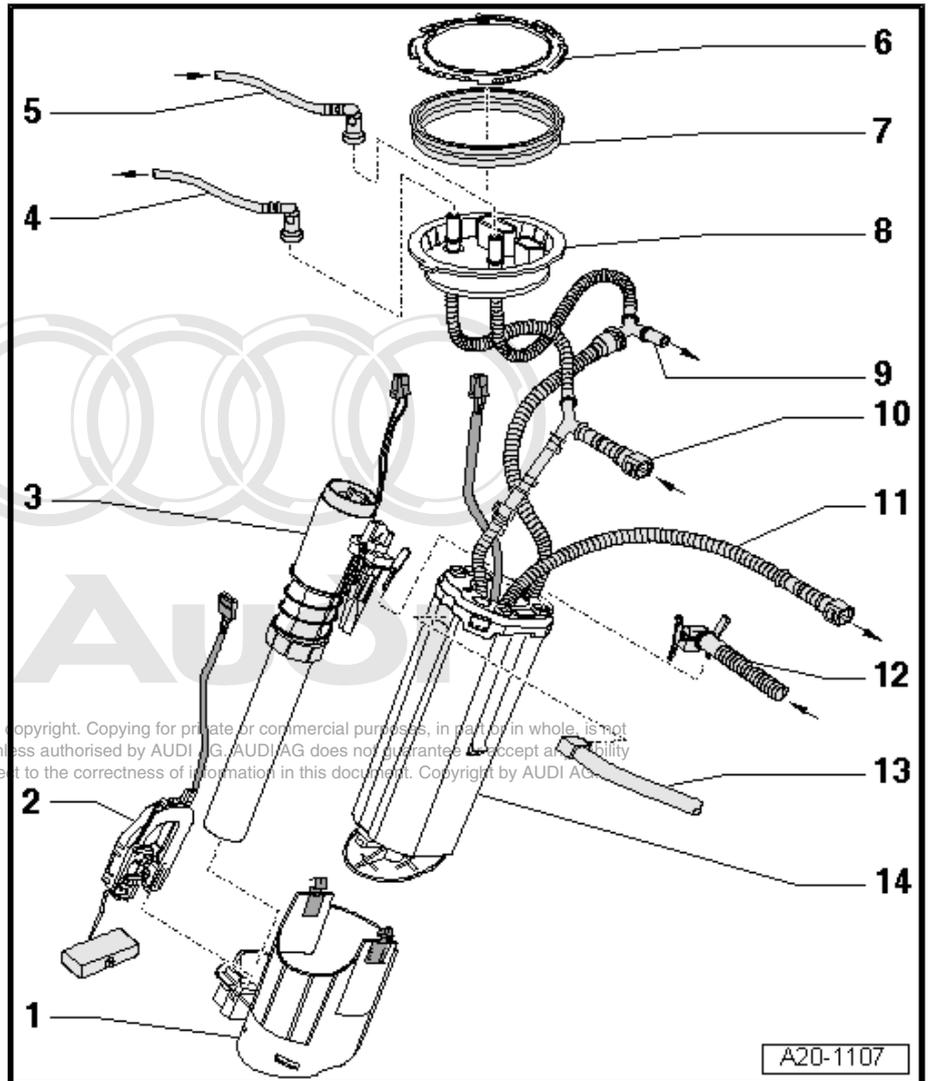
- To fuel delivery unit (left-side)

10 - Fuel supply line

- From fuel delivery unit (left-side)
- Press release tab on connection piece to disconnect

11 - Supply line for suction-jet pump

- For suction-jet pump
- Press release tab on connection piece to disconnect



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the acceptability with respect to the correctness of information in this document. Copyright by AUDI AG

12 - Fuel supply line

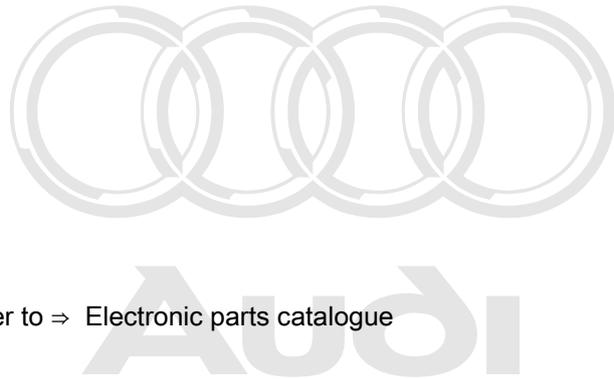
- ❑ From suction-jet pump (left-side)
- ❑ Clipped onto fuel delivery unit -item 14-

13 - Fuel filler pipe

- ❑ From filler neck
- ❑ Clipped onto fuel delivery unit -item 14-

14 - Fuel delivery unit (right-side)

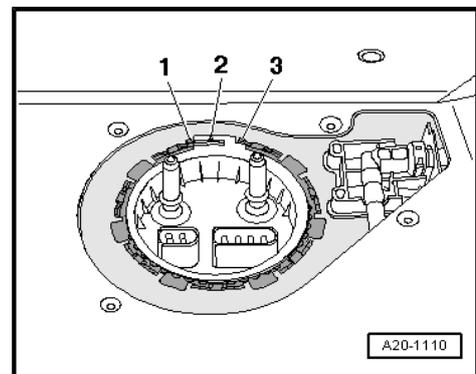
- ❑ With fuel pump - G23-
- ❑ Clipped onto retainer -item 1-
- ❑ Different versions available; for correct version refer to ⇒ Electronic parts catalogue
- ❑ Checking fuel pump (electrical test) ⇒ [page 138](#)
- ❑ Checking residual pressure ⇒ Rep. gr. 24
- ❑ Removing and installing ⇒ [page 141](#)
- ❑ Put at least 5 litres of fuel into tank after installing



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

Installation position of flange (right-side)

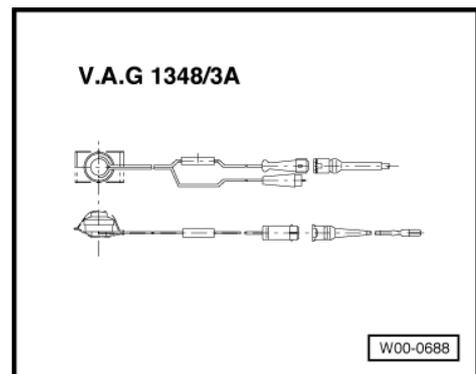
- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



8.5 Checking fuel pump - G23- (right-side) - electrical test

Special tools and workshop equipment required

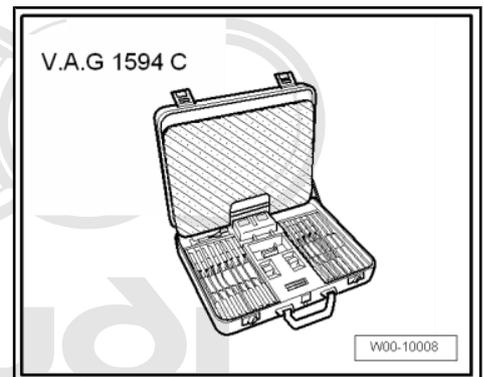
- ◆ Remote control for V.A.G 1348 - V.A.G 1348/3A-



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

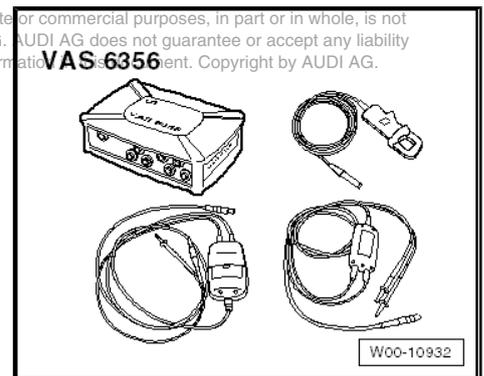


- ◆ Auxiliary measuring set - V.A.G 1594C-



- ◆ Test instrument box - VAS 6356- with trigger clamp, 100 A - VAS 6356/4A-

Copyright by Audi AG. All rights reserved. Audi AG does not guarantee or accept any liability with respect to the correctness of information. Copyright by Audi AG.

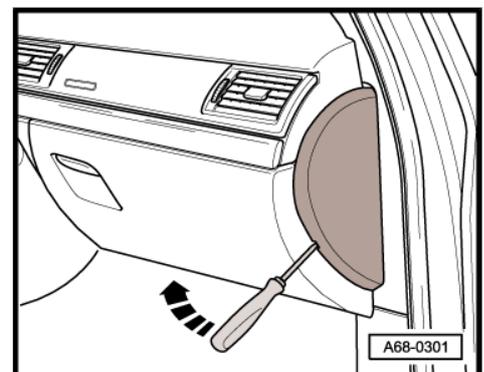


Procedure

- Observe test conditions => [page 3](#) .

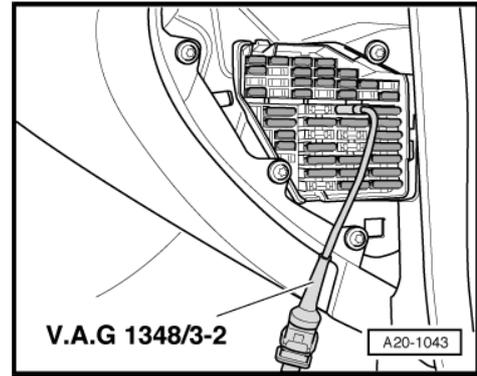
Checking voltage supply

- Use screwdriver to pry off cover (right-side) at dash panel -arrow-.





- Take fuse 31 out of fuse holder SC31 (right side of dash panel, middle row, 1st large fuse from the top).
- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2- to left-hand fuse socket terminal of fuse SC31.
- Connect crocodile clip of remote control - V.A.G 1348/3A- for V.A.G 1348 to battery "+" (positive).
- Press remote control button.
- Fuel pump should start running (noise is audible in vicinity of fuel tank).

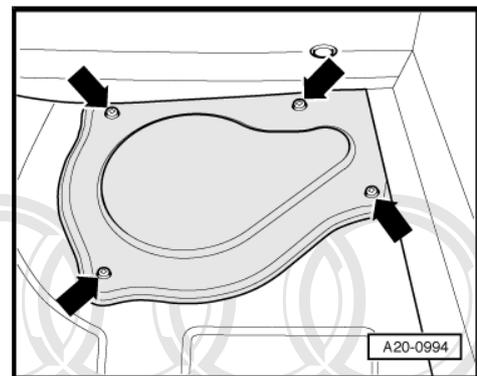


Note

The fuel pump runs very quietly. Avoid background noise whilst checking fuel pump. Have second mechanic perform check if necessary.

If no noise can be heard from pump:

- Remove luggage compartment floor covering.
- Unscrew cover for flange (right-side) -arrows-.

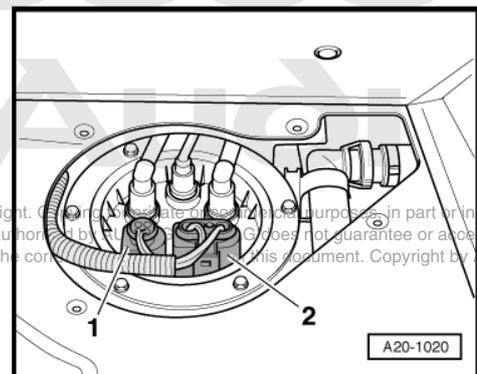


- Unplug electrical connector -2- on flange (right-side).



Note

Disregard -item 1-.

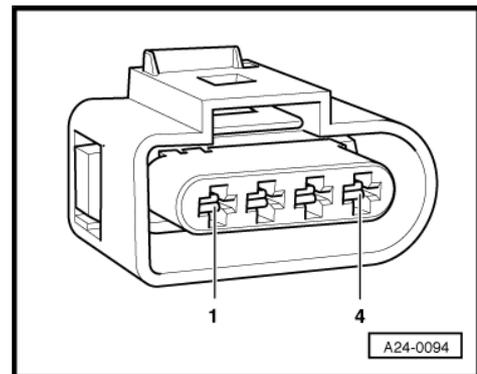


Protected by copyright. Copying, storing, disseminating or for any other purpose, in part or in whole, is not permitted unless authorized by Audi AG. Audi AG does not guarantee or accept any liability with respect to the content of this document. Copyright by AUDI AG.

- Connect multimeter between contacts -1- and -4- of electrical connector to measure voltage.
- Press remote control button.
- Specification: approx. battery voltage

If specification is not obtained:

- Repair wiring harness according to current flow diagram.



If reading matches specification although no noise can be heard from pump:

- Remove fuel delivery unit (right-side) ⇒ [page 141](#) .
- Check that the electrical wires between flange and fuel pump are connected and test for continuity.

If no faults are found in the wiring:

- Fuel pump is defective. Renew fuel delivery unit (right-side).
- Install fuel delivery unit (right-side) ⇒ [page 86](#) .

Checking current draw

- Fuel pump voltage supply OK ⇒ [page 139](#)
- Take fuse 31 out of fuse holder SC31 (right side of dash panel, middle row, 1st large fuse from the top).
- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable - V.A.G 1348/3-2- to left-hand fuse socket terminal of fuse SC31.
- Connect crocodile clip of remote control - V.A.G 1348/3A- for V.A.G 1348 to battery “+” (positive).
- Connect test instrument box - VAS 6356- with trigger clamp, 100 A - VAS 6356/4A- to cable of remote control.

- Press remote control button.
- Measure current draw of fuel pump.

- Specification: approx. 8 A.

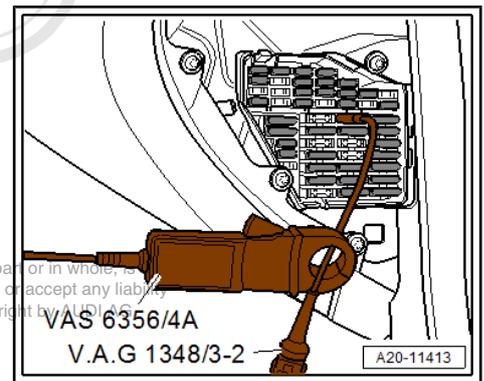
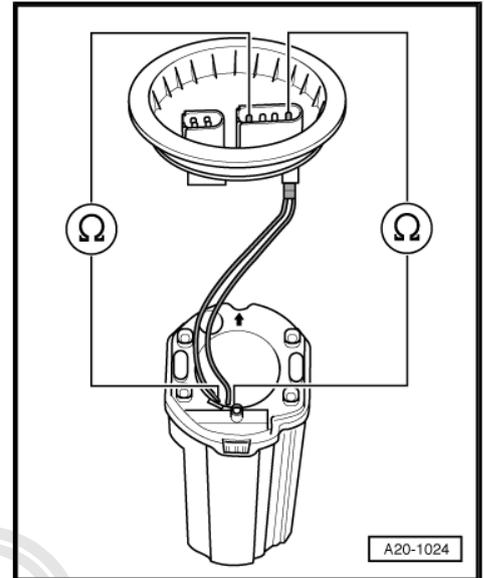
If specification is not obtained:



Note

A current draw of 4 A indicates that the fuel pump is running dry.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is 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.

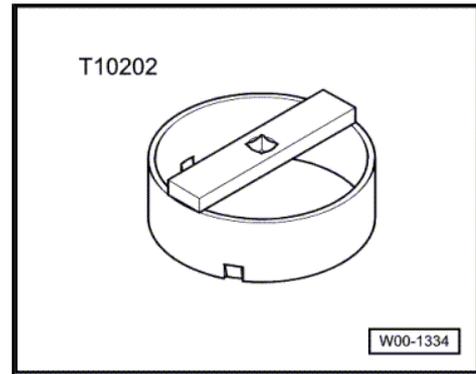


Readout	Cause of fault	Remedy
approx. 4 A	◆ Fuel tank empty	- Fill tank
	◆ Housing of fuel delivery unit leaking	- Renew fuel delivery unit ⇒ page 141
0 A	◆ Fuel pump - G23- defective	- Renew fuel delivery unit ⇒ page 141

8.6 Removing and installing fuel delivery unit (right-side) with fuel pump - G23-

Special tools and workshop equipment required

◆ Wrench - T10202-



Removing

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

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



Caution

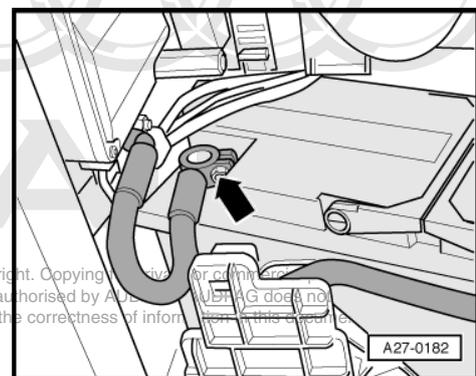
- *The fuel tank must not be more than $\frac{1}{3}$ full when removing the fuel delivery unit. Drain the tank if necessary. Procedure ⇒ [page 112](#)*



Caution

Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable -arrow- ⇒ Electrical system; Rep. gr. 27 .



Protected by copyright. Copying or reproduction in any form or by any means, without the prior written permission of Audi AG, is not permitted unless authorised by Audi AG. Audi AG does not accept any liability with respect to the correctness of information in this document. AUDI AG.

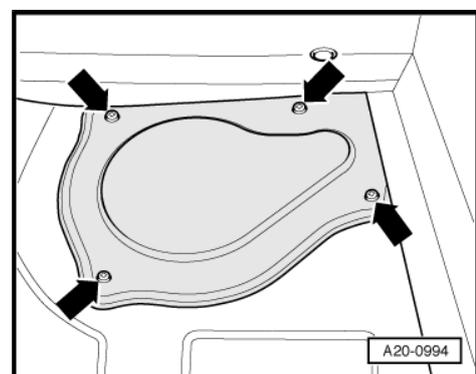
- Remove luggage compartment floor covering.



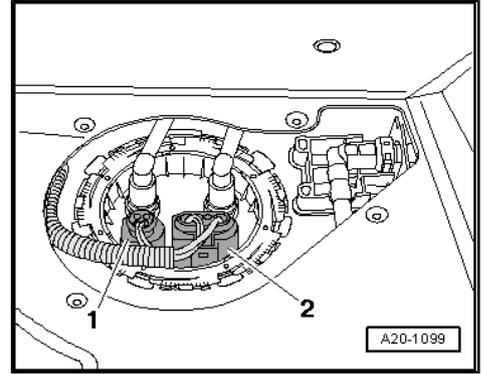
Note

For removing and installing fuel delivery unit, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

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

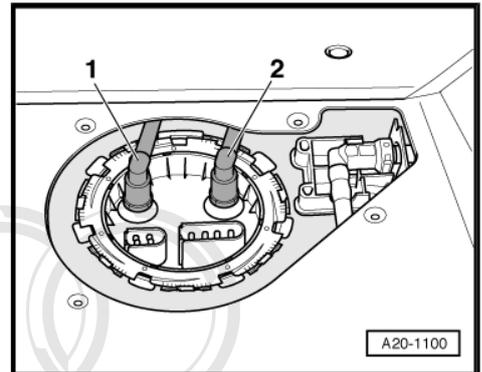


- Unplug electrical connectors -1- and -2- on flange (right-side).



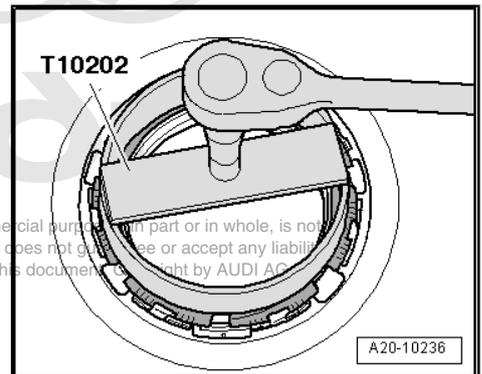
- Mark fuel return line -1- and fuel supply line -2-.

! WARNING
The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

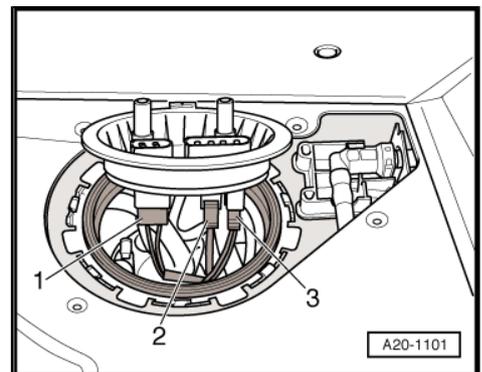


- Detach both lines from flange (press release tabs).

- Unscrew locking ring using wrench - T10202- .



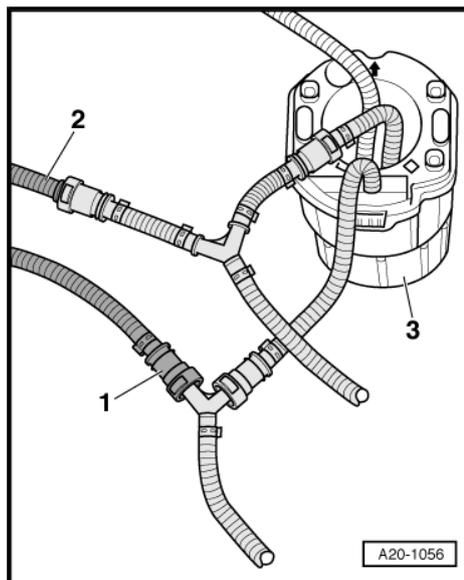
- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (right-side).



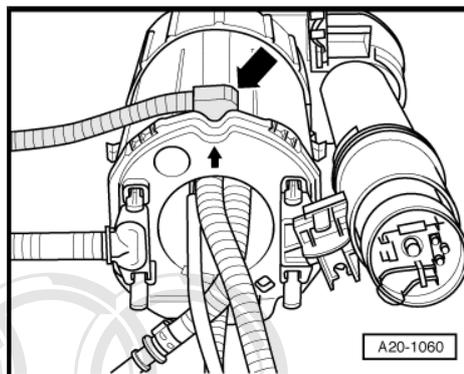
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

 **Note**

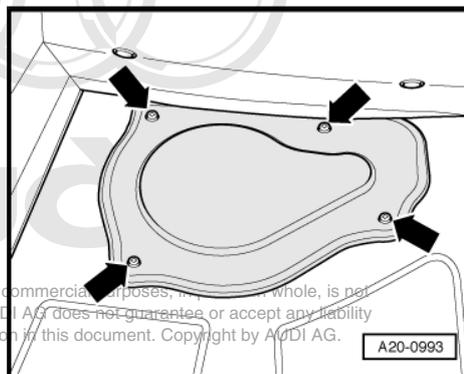
- ◆ Pull out fuel lines from fuel tank opening prior to disconnecting the pipe connectors mentioned below.
 - ◆ For illustration purposes some of the components are shown removed in the following illustrations.
- Working through right fuel tank opening, press release tabs and disconnect fuel lines -1- and -2- going to fuel delivery unit (left-side).
- 3 - Fuel delivery unit (right-side) with fuel pump - G23-



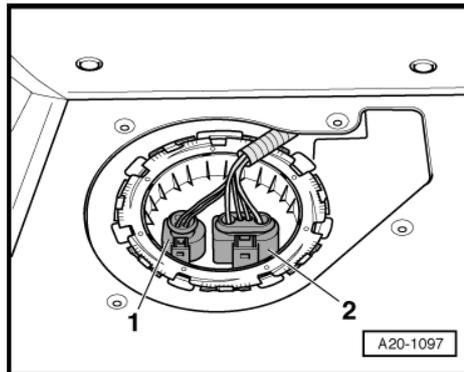
- Unclip fuel filler pipe -arrow- at front of fuel delivery unit (right-side).



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

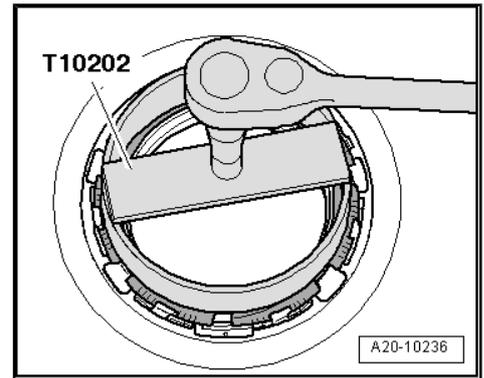


- Unplug electrical connectors -1- and -2- on flange (left-side).

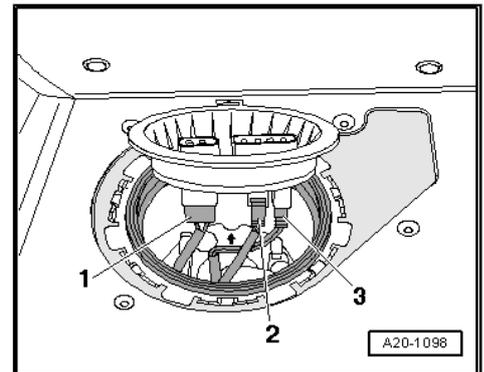


Protected by copyright. Copying for private or commercial purposes, in whole or in part, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

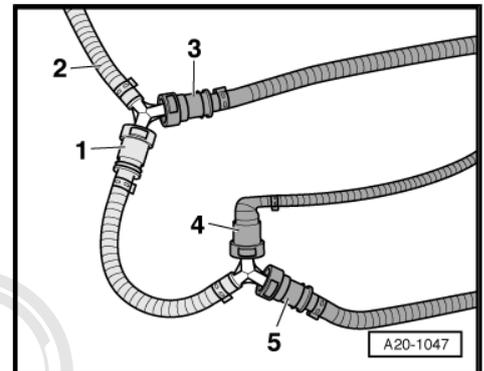
- Unscrew locking ring using wrench - T10202- .



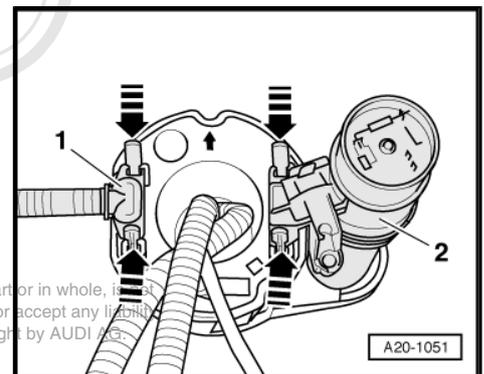
- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (left-side).



- Working through left fuel tank opening, disconnect supply line -3- for suction-jet pump from Y-connector (press release tab).
- Pull supply line for suction-jet pump out of right fuel tank opening.



- Working through right fuel tank opening, press release tabs -arrows- and detach fuel supply line -1- and fuel gauge sender 4 - G393- -item 2-.
- Move fuel gauge sender 4 - G393- to right side.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

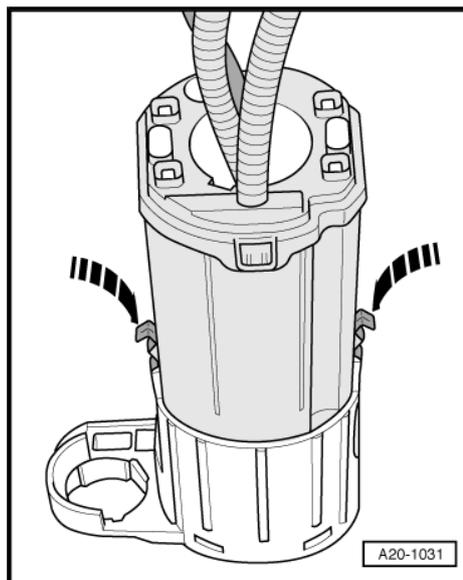


- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Remove fuel delivery unit.



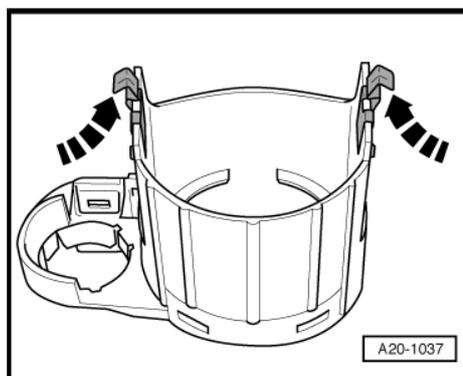
Note

Keep in mind that the fuel delivery unit still contains fuel.



Installing

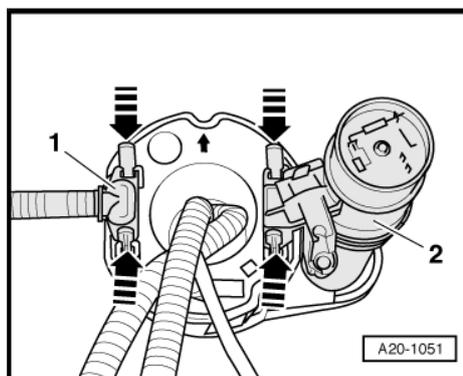
- Tightening torque => [page 136](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Then press fuel delivery unit carefully into retainer so that it engages audibly.



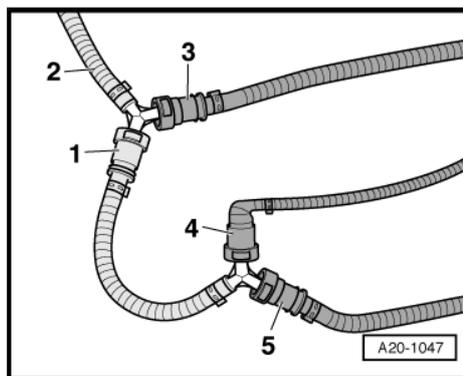
- Fit fuel supply line -1- and fuel gauge sender 4 - G393- -item 2- so that they engage audibly on fuel delivery unit (right-side).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



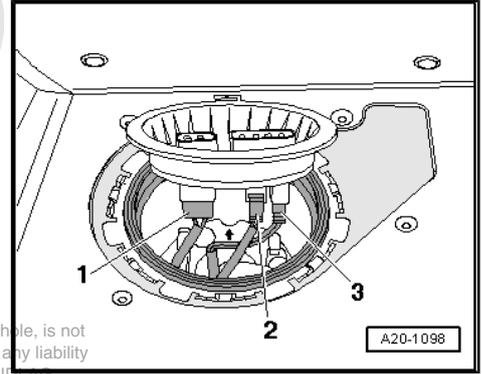
- Push supply line -3- for suction-jet pump through right fuel tank opening into left fuel tank chamber.
- Fit supply line for suction-jet pump onto Y-connector so it engages audibly.



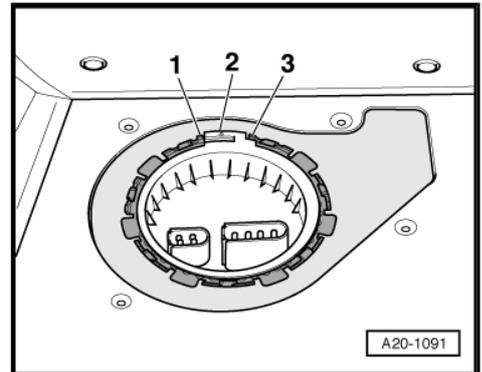
- Connect electrical connectors -1 ... 3- on underside of flange (left-side).
- Install new seal for flange (seal must be installed dry).



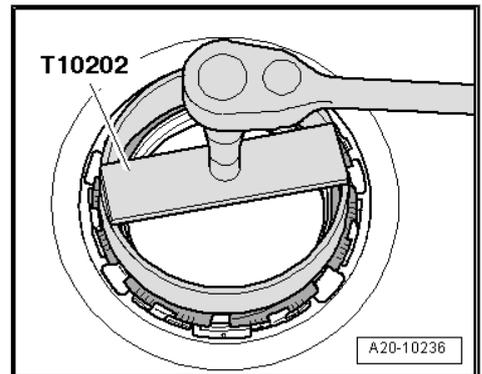
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



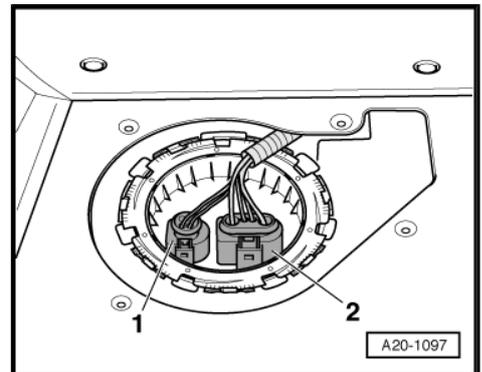
- Fit flange into fuel tank; note correct installation position:
 - Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



- Tighten locking ring.

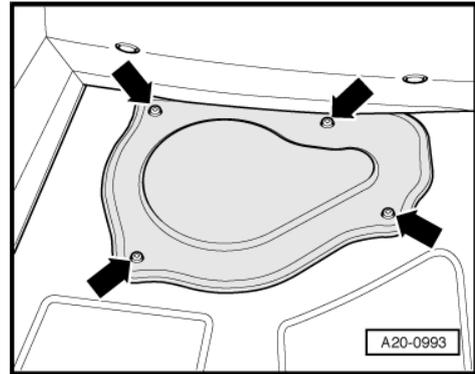


- Attach electrical connectors -1- and -2- on flange (left-side).



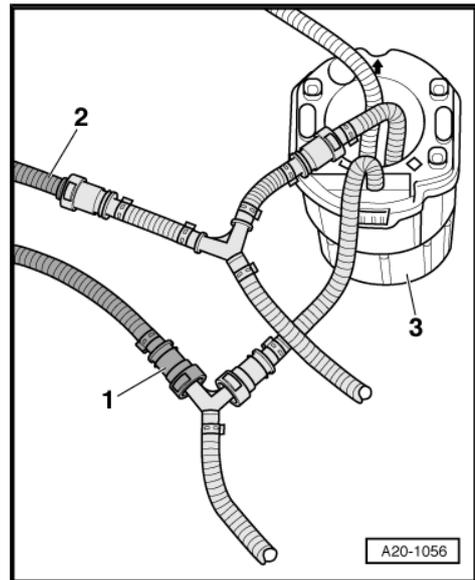


- Secure cover for flange (left-side) -arrows-.



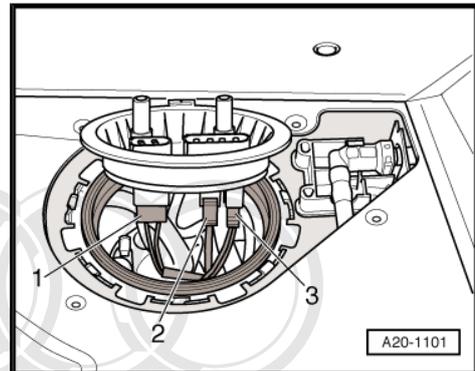
- Working through right fuel tank opening, connect fuel lines -1- and -2- going to left fuel delivery unit so that they engage audibly.

3 - Fuel delivery unit (right-side) with fuel pump - G23-



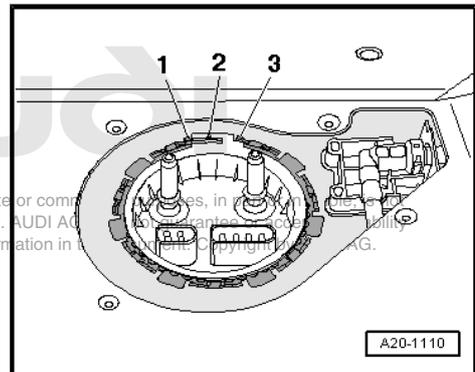
- Connect electrical connectors -1 ... 3- on underside of flange (right-side).

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



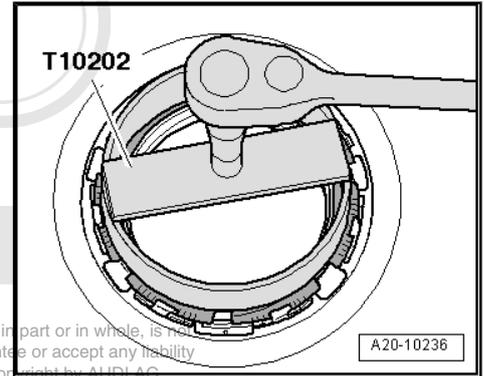
- Fit flange into fuel tank; note correct installation position:

- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



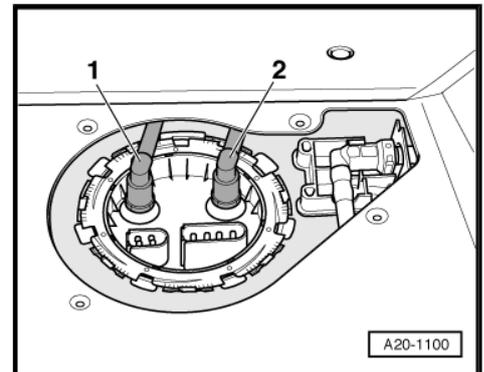
Protected by copyright. Copying for private or commercial purposes, in whole or in part, is prohibited without the written permission of AUDI AG. AUDI AG does not guarantee the accuracy of the information in this document with respect to the correctness of information in third party sources. Copyright © AUDI AG.

- Tighten locking ring.

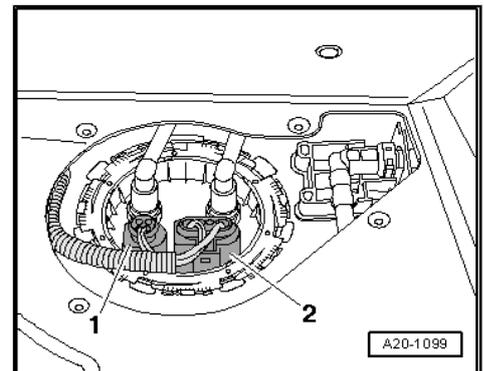


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

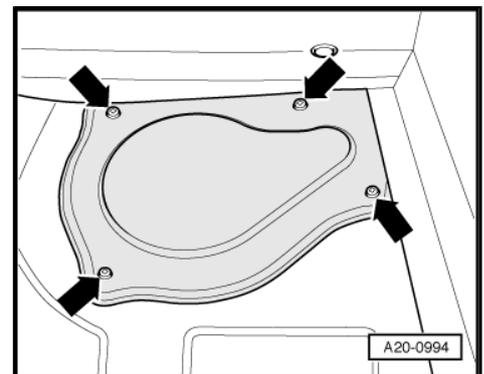
- Install fuel supply line -2- and fuel return line -1- (as marked) so that they engage audibly.



- Attach electrical connectors -1- and -2- on flange (right-side).



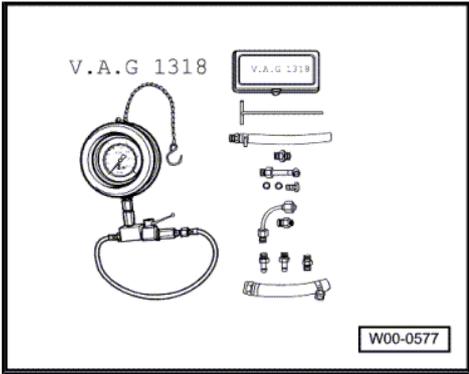
- Secure cover for flange (right-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery => Electrical system; Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing



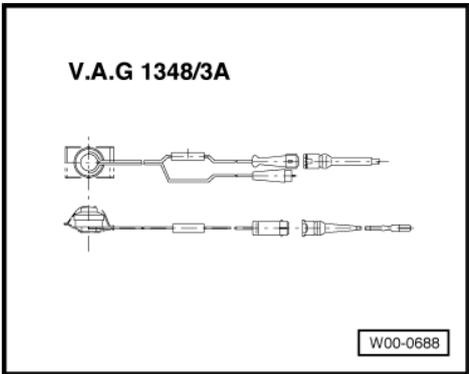
8.7 Checking delivery rate of fuel pumps - vehicles with fuel return line

Special tools and workshop equipment required

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



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



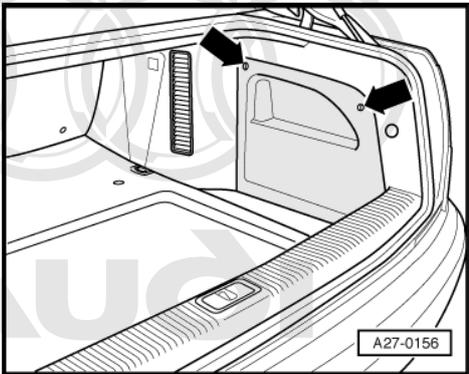
◆ Fuel-resistant measuring container

Procedure

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

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

- Remove luggage compartment side trim cover (right-side) -arrows-.

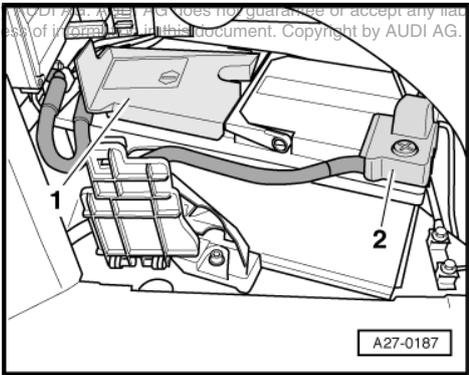


- Remove cover -2- over battery.

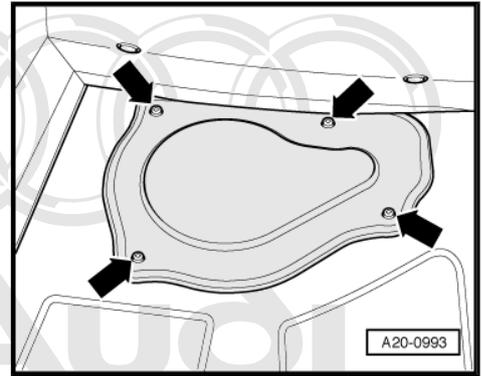
 **Note**

Disregard -item 1-.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.

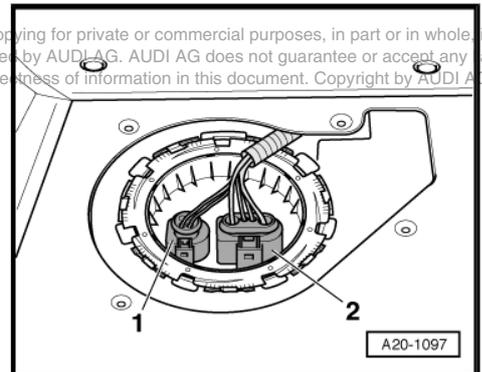


- Unplug electrical connector -2- on flange (left-side).

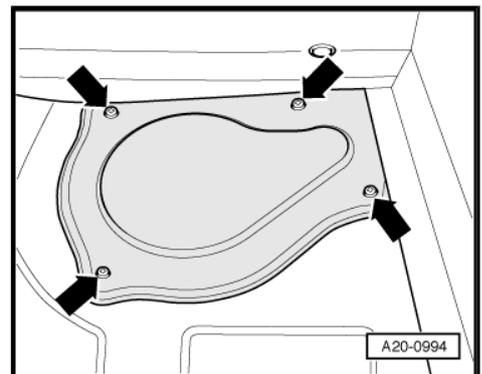
i Note

Disregard -item 1-.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



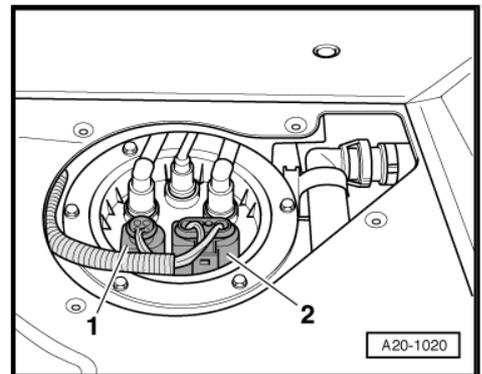
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -2- on flange (right-side).

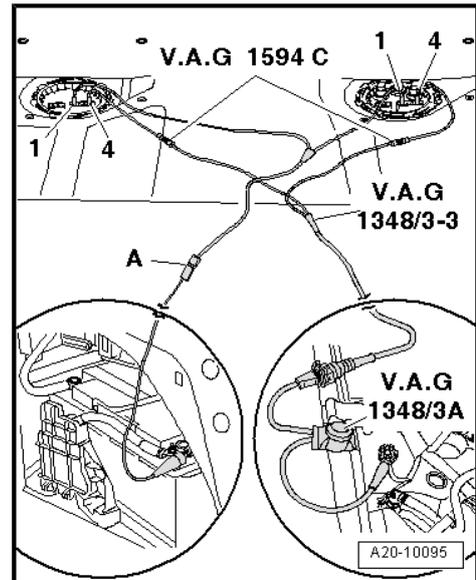
i Note

Disregard -item 1-.





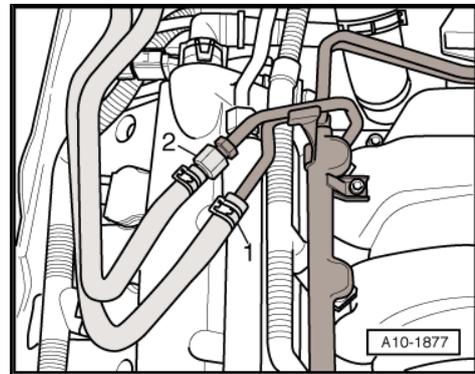
- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3- to contact -4- (earth) of fuel delivery unit (left-side) and fuel delivery unit (right-side) using test leads from auxiliary measuring set - V.A.G 1594C- .
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- (positive) of fuel delivery unit (left-side) and fuel delivery unit (right-side) to battery "+" via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.

**WARNING**

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

**Caution**

*Rules for cleanliness when working on the injection system
=> page 3.*

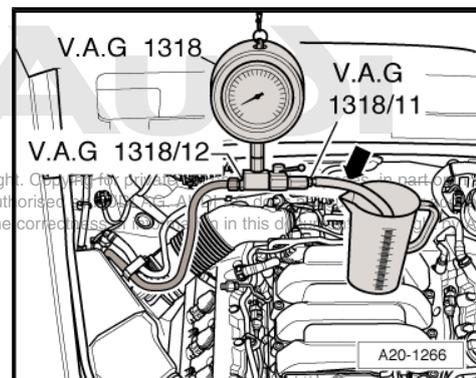


- Disconnect fuel supply line -2- at fuel rail.

**Note**

Disregard -item 1-.

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



- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).

i Note

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

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

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

i Note

As there is hardly any difference in the fuel delivery rate if only one of the two fuel pumps is working (because of the hose connections inside the tank), it is difficult to diagnose a defective pump by just measuring the delivery rate.

In this case proceed as follows:

- Unplug the electrical auxiliary lead at the fuel delivery units (one at a time).
- Measure delivery rate of fuel delivery unit located on the opposite side.

If the delivery rate of the fuel delivery unit which has been measured separately is considerably below specification:

- Renew the relevant fuel delivery unit.

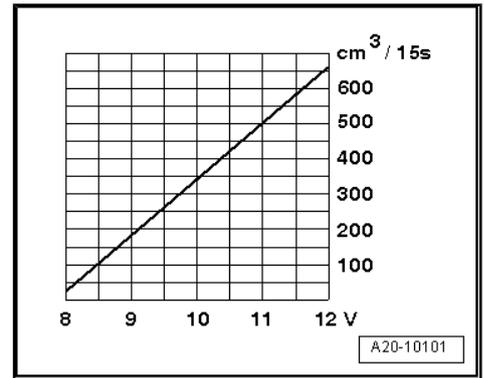
Installation is carried out in the reverse order; note the following:

- **Secure fuel supply line to fuel rail -> Rep.gr. 24**

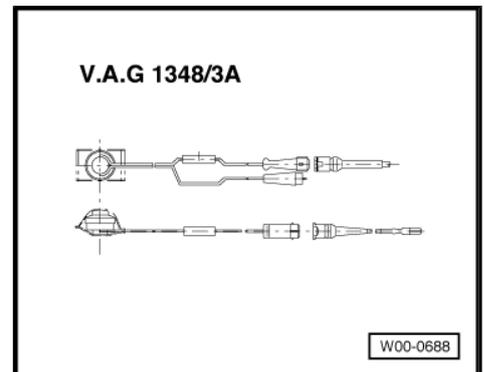
8.8 Checking delivery rate of fuel pumps - vehicles with fuel system without fuel return line

Special tools and workshop equipment required

- ◆ Adapter -V.A.G 1318/26-
- ◆ Remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3-



Protected by copyright. This document is intended for personal use only. It is not permitted to reproduce, store, or transmit any part of this document, in whole or in part, without the prior written permission of 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.



- ◆ Fuel-resistant measuring container

Procedure

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



WARNING

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

- Remove luggage compartment side trim cover (right-side) -arrows-.
- Remove cover -2- over battery.



Note

Disregard -item 1-.



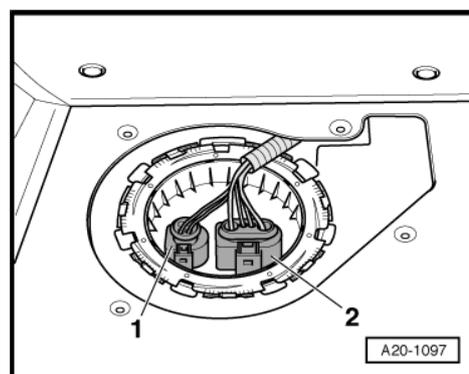
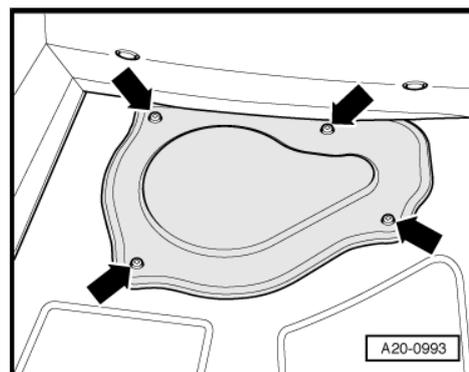
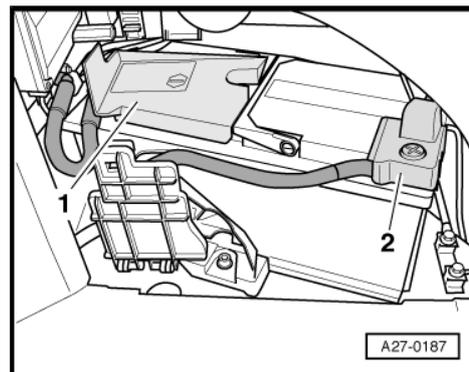
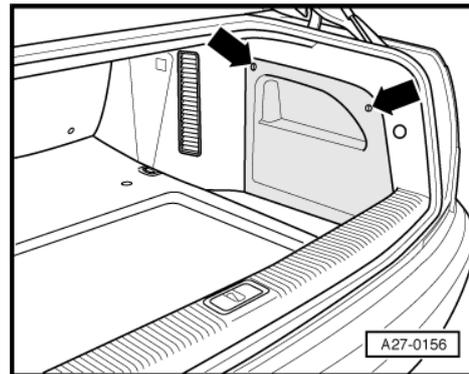
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.
- Unplug electrical connector -2- on flange (left-side).

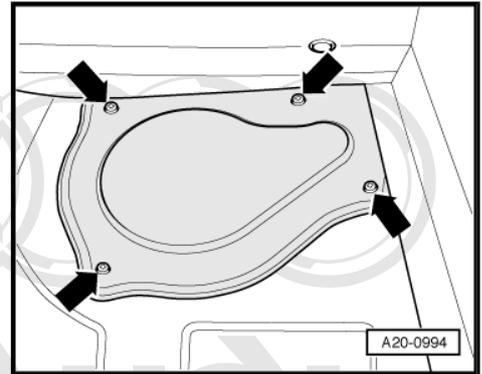


Note

Disregard -item 1-.



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

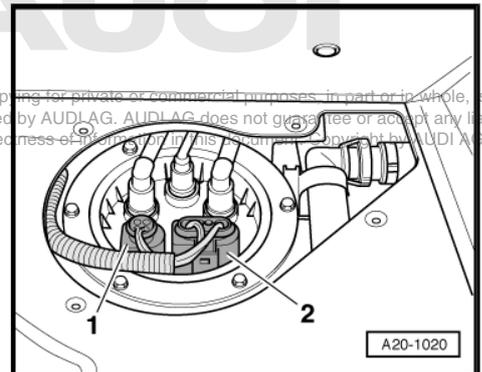


- Unplug electrical connector -2- on flange (right-side).

i Note

Disregard -item 1-.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of this information. Copyright by AUDI AG.

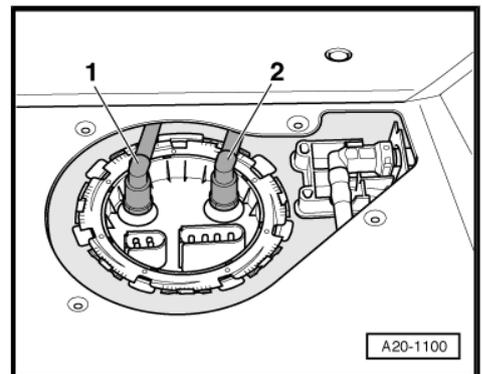


! WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

! Caution

Rules for cleanliness when working on the injection system => page 3.



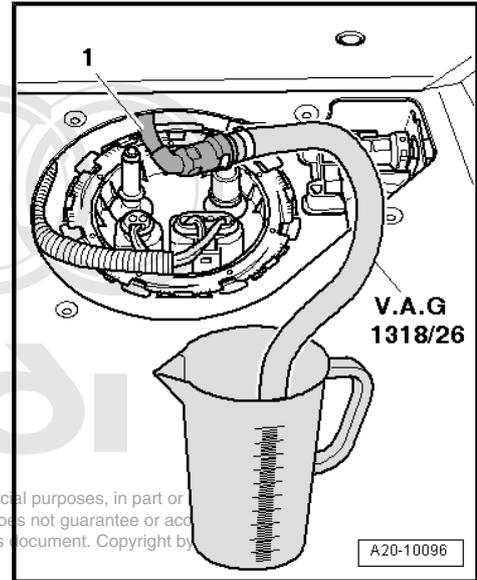
- Disconnect fuel return line -1- from flange by pressing release tabs.

i Note

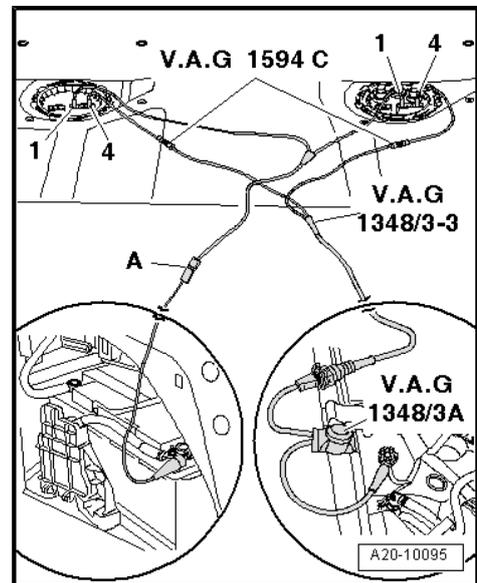
Disregard -item 2-.



- Fit adapter -V.A.G 1318/26- onto disconnected fuel pipe -1- and hold adapter hose in measuring container.



- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3- to contact -4- (earth) of fuel delivery unit (left-side) and fuel delivery unit (right-side) using test leads from auxiliary measuring set - V.A.G 1594C- .
- Connect crocodile clip to earth point next to battery.
- Connect contact -1- (positive) of fuel delivery unit (left-side) and fuel delivery unit (right-side) to battery "+" via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.



- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).

i Note

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

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

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

i Note

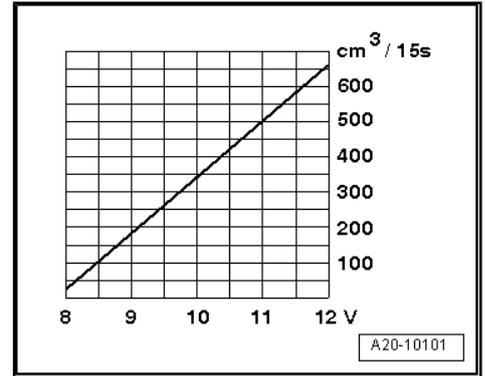
As there is hardly any difference in the fuel delivery rate if only one of the two fuel pumps is working (because of the hose connections inside the tank), it is difficult to diagnose a defective pump by just measuring the delivery rate.

In this case proceed as follows:

- Unplug the electrical auxiliary lead at the fuel delivery units (one at a time).
- Measure delivery rate of fuel delivery unit located on the opposite side.

If the delivery rate of the fuel delivery unit which has been measured separately is considerably below specification:

- Renew the relevant fuel delivery unit.



8.9 Suction-jet pumps

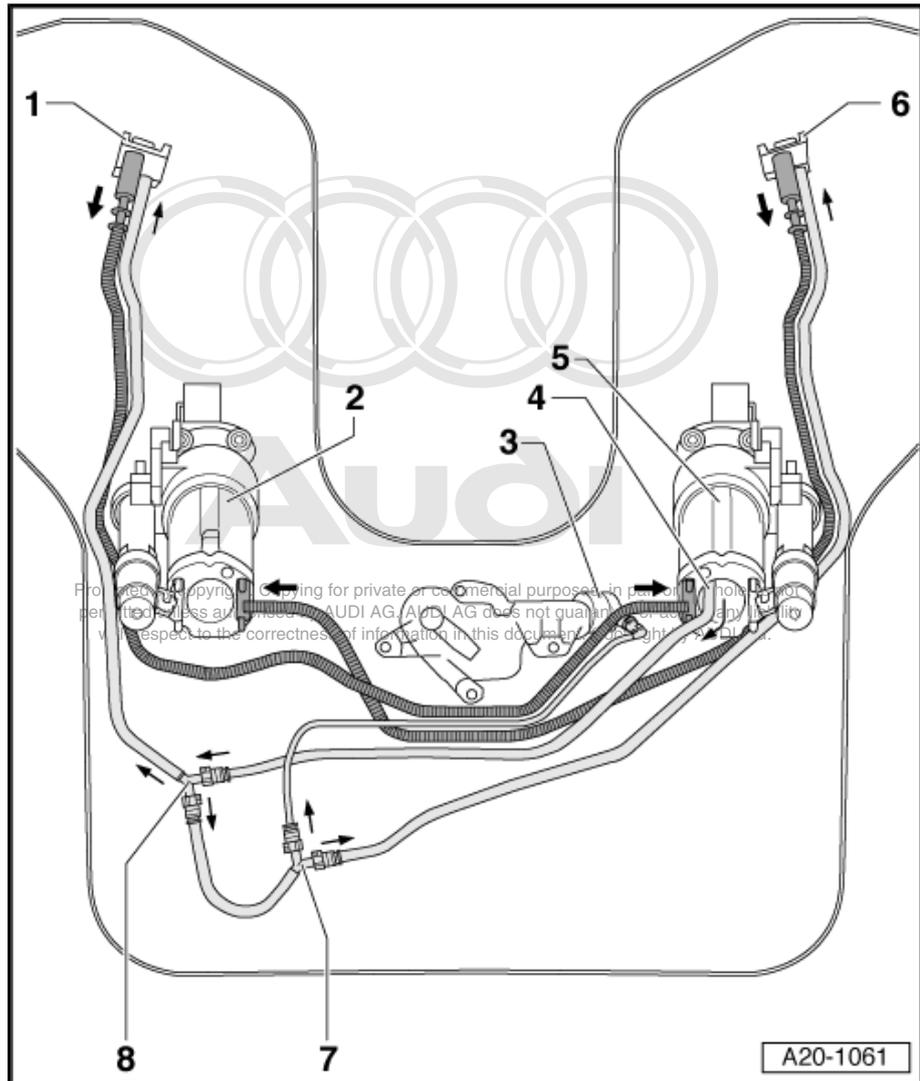


- 1 - Suction-jet pump (left-side)
- 2 - Fuel delivery unit (left-side)
- 3 - Expansion tank
- 4 - Fuel pump (right-side)
- 5 - Fuel delivery unit (right-side)
- 6 - Suction-jet pump (right-side)
- 7 - Y-connector
- 8 - Y-connector

Description of operation

To ensure a reliable fuel supply in all situations, the fuel pumps must never draw in air, even under extreme driving conditions such as very sharp bends or under heavy braking. This may happen when the fuel sloshes into one of the corners of a partially filled fuel tank.

- ◆ For this reason, the fuel delivery units -item 2- and -item 5- incorporate a so-called baffle housing, in which the fuel pumps are fitted, as well as the fuel pumps themselves. The baffle housing is a container permanently filled with fuel, so that the fuel pumps are surrounded with fuel regardless of the fuel level in the tank.
- ◆ Consequently, proper filling of the baffle housings is essential for trouble-free operation of the fuel pumps. This is the purpose of the "suction-jet pumps".
- ◆ The suction-jet pumps operate according to the principle of fluid entrainment: a stream of fuel from the primary stage of the fuel pump (right-side) -item 4- is passed through a nozzle in the suction-jet pumps -item 1- and -item 6-, and is thus accelerated. The accelerated stream of fuel draws off the surrounding fuel and delivers it to the baffle housings in the fuel delivery units. The suction jet pump (right-side) -item 6- delivers the fuel into the baffle housing (left-side); the suction jet pump (left-side) -item 1- delivers the fuel into the baffle housing (right-side).
- ◆ The stream of fuel is distributed from the primary stage of the fuel pump (right-side) to the two suction-jet pumps via two Y-connectors -item 7- and -item 8-.
- ◆ Another small suction-jet pump is located in the expansion tank -item 3- and delivers fuel from there back to the fuel tank.



8.10 Removing and installing suction-jet pump (left-side)

Removing

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

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

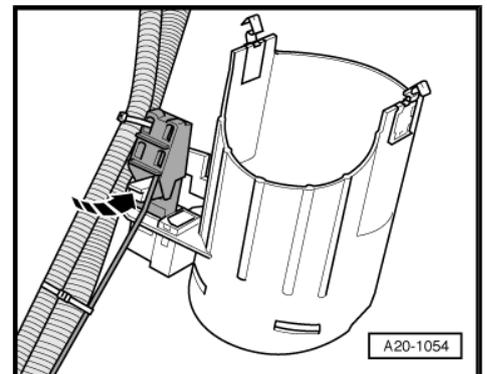
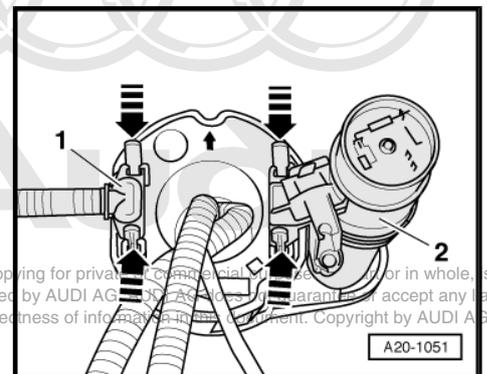
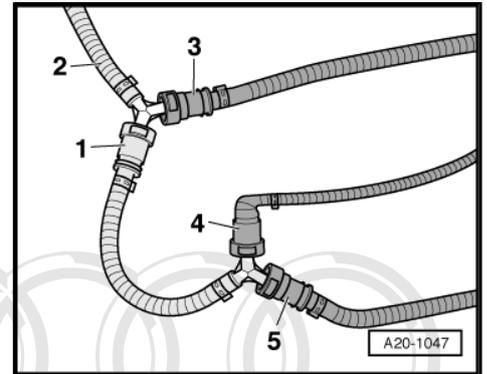
- Remove the fuel delivery unit (left-side) ⇒ [page 129](#) .
- Remove fuel gauge sender 3 - G237- (tubular sender, left-side) from fuel tank.
- Working through left fuel tank opening, disconnect supply lines -1- and -3- for suction-jet pumps from Y-connector (press release tabs).
- Working through right fuel tank opening, press release tabs -arrows- and detach fuel supply line -1-.



Note

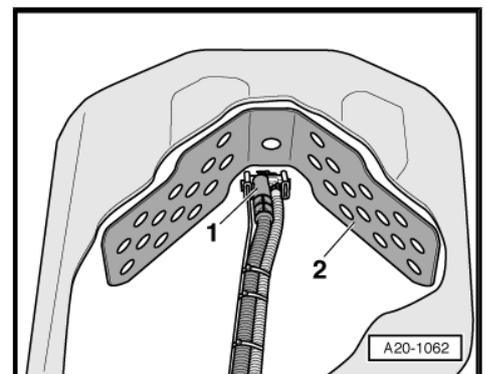
Disregard -item 2-.

- Pull out disconnected fuel supply line through left fuel tank opening.
- Working through left fuel tank opening, press release tab -arrow- and detach retaining clip for suction jet lines from retainer.
- Pull out suction-jet pump (left-side) together with lines through left fuel tank opening.



Installing

- Insert suction-jet pump (left-side) -1- into fuel tank and place into recess in baffle plate -2- in fuel tank at front, as shown in illustration.
- Then press retaining clip for suction-jet pump into retainer so it engages audibly.



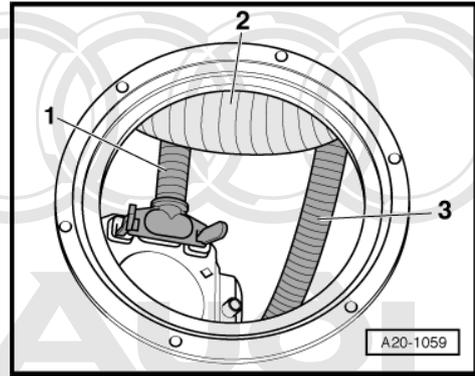


- Push fuel supply line through left fuel tank opening into right fuel tank chamber. Note routing:
- The fuel supply line -3- must be routed below the fuel filler pipe -2- at the left fuel tank opening.



Note

Disregard -item 1-.



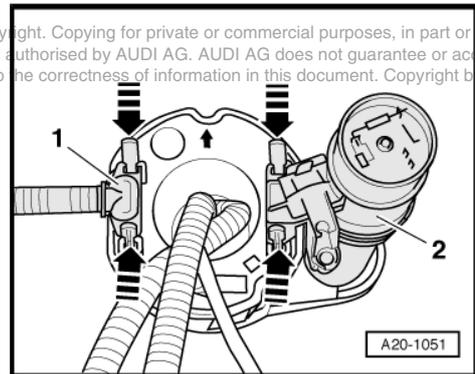
- Fit fuel supply line -1- onto fuel delivery unit (right-side) so that it engages audibly.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

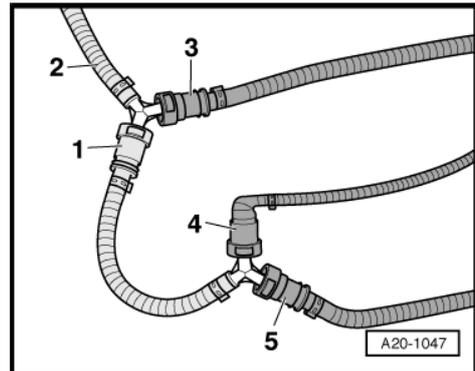


Note

Disregard -item 2-.



- Working through left fuel tank opening, fit supply lines -1- and -3- for suction-jet pumps onto Y-connector so that they engage audibly.
- Insert fuel gauge sender 3 - G237- into fuel tank.
- Install fuel delivery unit (left-side) ⇒ [page 129](#) .



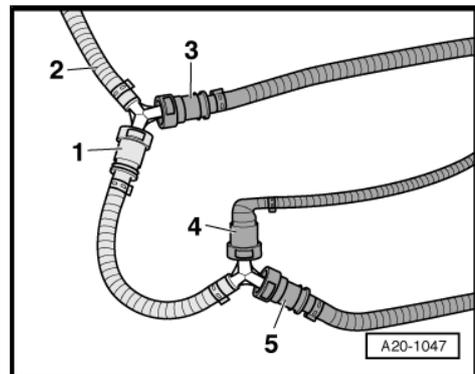
8.11 Removing and installing suction-jet pump (right-side)

Removing

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

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

- Remove fuel delivery unit (right-side) ⇒ [page 141](#) .
- Remove fuel gauge sender 4 - G393- (tubular sender, right-side) from fuel tank.
- Working through left fuel tank opening, disconnect supply line -5- for suction-jet pump from Y-connector (press release tab).



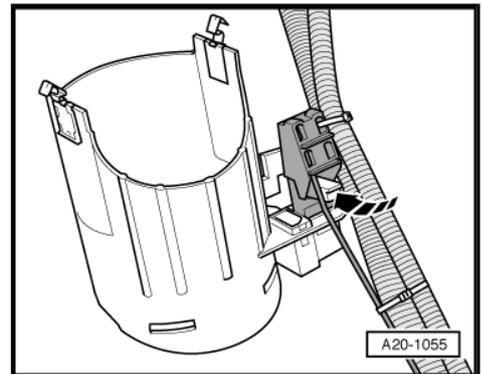
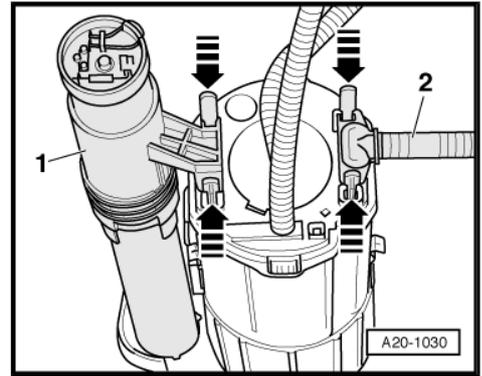
- Working through left fuel tank opening, press release tabs -arrows- and detach fuel supply line -2-.

i Note

Disregard -item 1-.

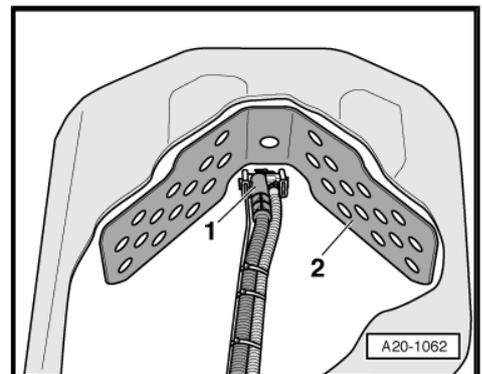
- Pull out disconnected fuel supply line through right fuel tank opening.

- Working through right fuel tank opening, press release tab -arrow- and detach retaining clip for suction jet lines from retainer.
- Pull suction-jet pump (right-side) together with lines out of right fuel tank opening.



Installing

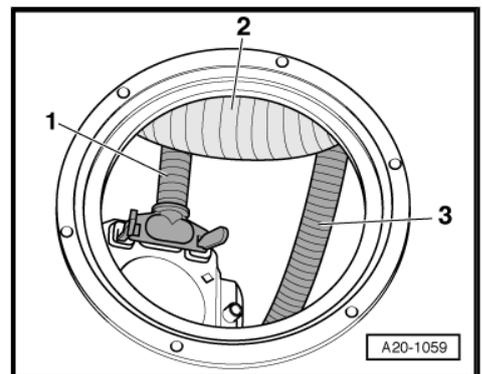
- Insert suction-jet pump (right-side) -1- into fuel tank and place into recess in baffle plate -2- in fuel tank at front, as shown in illustration.
- Then press retaining clip for suction-jet pump into retainer so it engages audibly.



- Push fuel supply line through right fuel tank opening into left fuel tank chamber. Note routing:
 - The fuel supply line -1- must be routed below the fuel filler pipe -2- at the left fuel tank opening.

i Note

Disregard -item 3-.





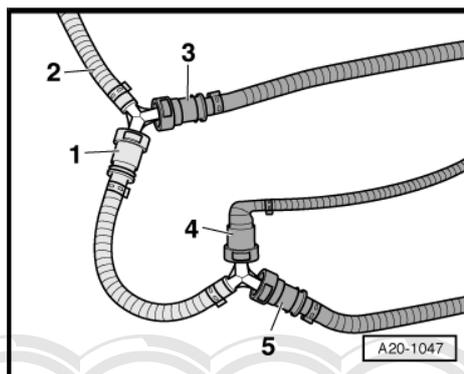
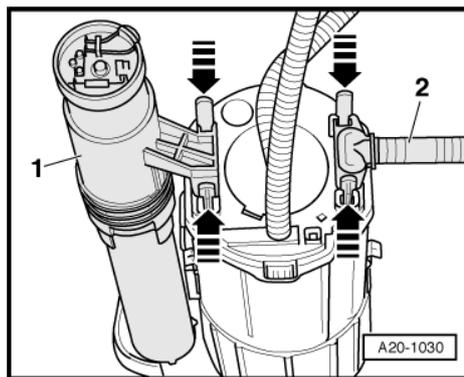
- Fit fuel supply line -2- onto fuel delivery unit (left-side) so that it engages audibly.



Note

Disregard -item 1-.

- Push supply line -5- for suction-jet pump through right fuel tank opening into left fuel tank chamber.
- Fit supply line for suction-jet pump onto Y-connector so it engages audibly.
- Insert fuel gauge sender 4 - G393- into fuel tank.
- Install fuel delivery unit (right-side) ⇒ [page 86](#) .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

9 Routing of pipes/hoses (inside fuel tank) - USA vehicles with FSI engine

⇒ "9.1 Routing of pipes/hoses (inside fuel tank) - exploded view", page 163

9.1 Routing of pipes/hoses (inside fuel tank) - exploded view

Note

- ◆ The illustration shows the correct routing of pipes/hoses inside the fuel tank (schematic view).
- ◆ It is not necessary to route the pipes/hoses in exactly the same way as shown in the illustration, except for pipes/hoses shown in ⇒ page 164 . However it is essential to fit the pipes/hoses with sufficient space in relation to each other and to prevent rattling noises.
- ◆ The -arrow- points in direction of travel.

1 - Fuel delivery unit (left-side) with fuel system pressurisation pump - G6-

2 - Fuel supply line

- From suction-jet pump (left-side) to fuel delivery unit (right-side)

3 - Supply line for suction-jet pump

- From fuel pump (right-side) to suction-jet pump (left-side)

4 - Suction-jet pump (left-side)

5 - Supply line for suction-jet pump

- For fuel delivery unit (left-side)

6 - Expansion tank

- With suction-jet pump to extract fuel from expansion tank

7 - Non-return flap

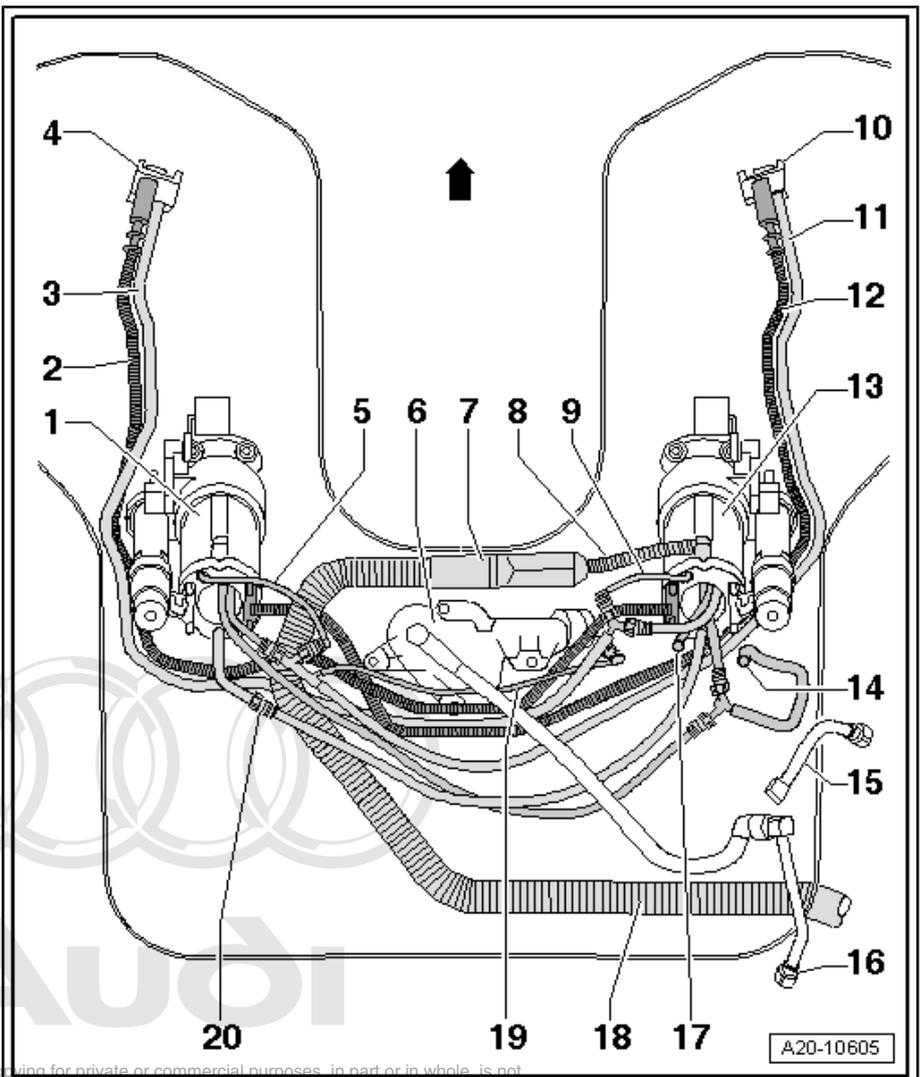
- For fuel filler pipe

8 - Primary filler pipe

- To fuel delivery unit (right-side).
- Ensures that a small amount of fuel is delivered immediately to the fuel delivery unit when the tank is filled for the first time.

9 - Supply line for suction-jet pump

- For fuel delivery unit (right-side)



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not 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.



10 - Suction-jet pump (right-side)

11 - Supply line for suction-jet pump

- From fuel pump (left-side) to suction-jet pump (right-side)

12 - Fuel supply line

- From suction-jet pump (right-side) to fuel delivery unit (left-side)

13 - Fuel delivery unit (right-side) with fuel pump - G23-

14 - Fuel supply line

- From fuel pumps (left and right) to flange

15 - Breather line

- To breather connection at top of fuel filler neck

16 - Breather line

- To activated charcoal filter at bottom of spare wheel well on underbody

17 - Fuel return line

- From flange to fuel delivery unit (right-side)
- Fitted loosely in fuel delivery unit (right-side)

18 - Fuel filler pipe

- From fuel filler neck to non-return flap in fuel tank

19 - Supply line for suction-jet pump

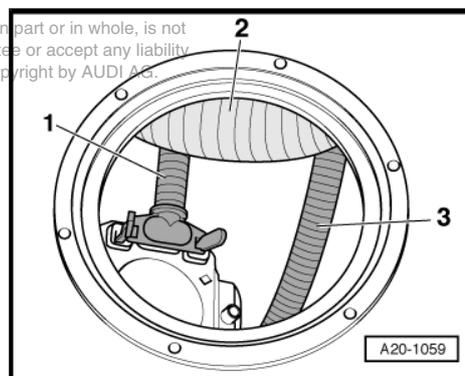
- To suction-jet pump in expansion tank

20 - Balance pipe

- Between fuel delivery units

Installation position of fuel supply lines

- The fuel supply lines -1 and 3- must be routed below the fuel filler pipe -2- at the left fuel tank opening.



10 Fuel delivery unit with fuel pump and fuel gauge senders - USA vehicles with FSI engine

⇒ [“10.1 Exploded view - fuel delivery unit \(left-side\) with fuel system pressurisation pump G6 and fuel gauge senders G and G237”, page 165](#)

⇒ [“10.2 Checking fuel system pressurisation pump G6 \(left-side\) - electrical test”, page 167](#)

⇒ [“10.3 Removing and installing fuel delivery unit \(left-side\) with fuel system pressurisation pump G6”, page 167](#)

⇒ [“10.4 Exploded view - fuel delivery unit \(right-side\) with fuel pump G23 and fuel gauge senders G169 and G393”, page 175](#)

⇒ [“10.5 Checking fuel pump G23 \(right-side\) - electrical test”, page 176](#)

⇒ [“10.6 Removing and installing fuel delivery unit \(right-side\) with fuel pump G23”, page 177](#)

⇒ [“10.7 Checking delivery rate of fuel pumps - vehicles with 8-cylinder engine”, page 185](#)

⇒ [“10.8 Checking delivery rate of fuel pumps - vehicles with 10-cylinder engine \(Audi S8\)”, page 189](#)

⇒ [“10.9 Fuel pump control unit J538”, page 193](#)

⇒ [“10.10 Removing and installing fuel pump control unit J538”, page 193](#)

⇒ [“10.11 Suction-jet pumps”, page 194](#)

⇒ [“10.12 Removing and installing suction-jet pump \(left-side\)”, page 196](#)

⇒ [“10.13 Removing and installing suction-jet pump \(right-side\)”, page 198](#)

10.1 Exploded view - fuel delivery unit (left-side) with fuel system pressurisation pump - G6- and fuel gauge senders G and -G237-

**1 - Retainer**

- For fuel delivery unit

2 - Fuel gauge sender - G-

- Black
- Clipped onto retainer -item 1-
- Checking resistance values ⇒ [page 221](#)
- Removing and installing ⇒ [page 222](#)

3 - Fuel delivery unit (left-side)

- With fuel system pressurisation pump - G6-
- Clipped onto retainer -item 1-
- Different versions available; for correct version refer to ⇒ Electronic parts catalogue
- Checking fuel pump (electrical test) ⇒ [page 125](#)
- Checking residual pressure ⇒ Rep. gr. 24
- Removing and installing ⇒ [page 70](#)
- Put at least 5 litres of fuel into tank after installing

4 - Fuel supply line

- From suction jet pump (right-side)
- Clipped onto fuel delivery unit -item 3-

5 - Supply line for suction-jet pump

- For fuel delivery unit (left-side)

6 - Supply line for suction-jet pump

- To suction-jet pump (right-side)

7 - Fuel supply line

- The plug connector is located on the right side of the fuel tank
- Press release tab on connection piece to disconnect

8 - Locking ring

- Remove and install using wrench - T10202-
- Tighten to 120 Nm

9 - Flange (left-side)

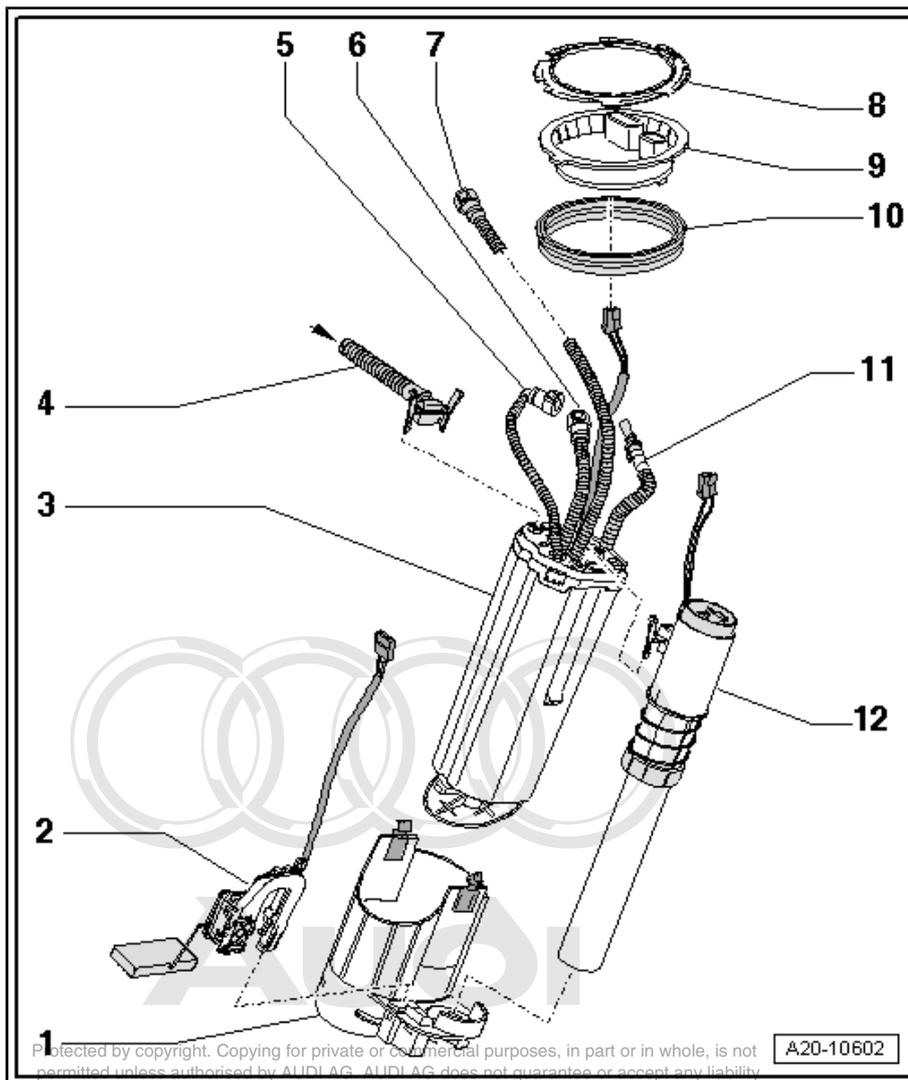
- Installation position ⇒ [page 167](#)

10 - Seal

- Renew
- Install dry

11 - Balance pipe

- To fuel delivery unit (right-side).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

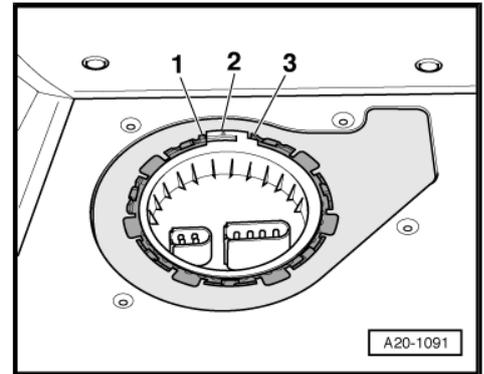
A20-10602

12 - Fuel gauge sender 3 - G237-

- Grey
- Clipped onto fuel delivery unit -item 3-
- Checking resistance values ⇒ [page 225](#)
- Removing and installing ⇒ [page 226](#)

Installation position of flange (left-side)

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



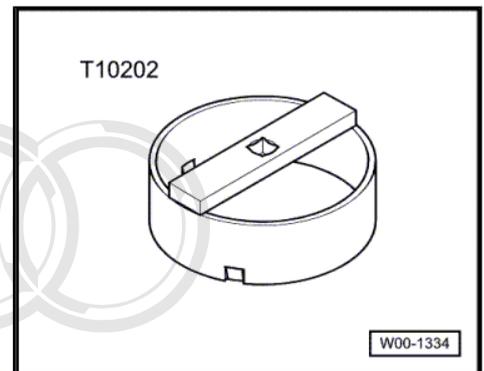
10.2 Checking fuel system pressurisation pump - G6- (left-side) - electrical test

- ◆ On vehicles with FSI engine, voltage for the fuel pumps is supplied via fuel pump control unit - J538- .
- ◆ Check fuel pump control unit - J538- in "Guided Fault Finding" ⇒ Vehicle diagnostic tester.

10.3 Removing and installing fuel delivery unit (left-side) with fuel system pressurisation pump - G6-

Special tools and workshop equipment required

- ◆ Wrench - T10202-



Removing

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

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



Caution

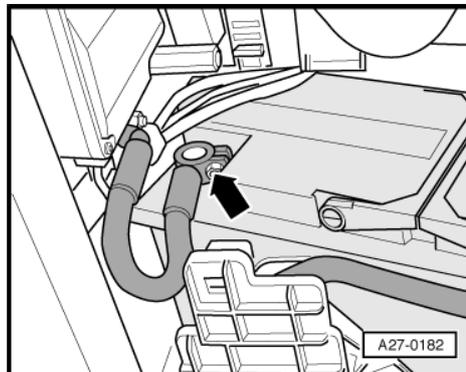
- *The fuel tank must not be more than 1/3 full when removing the fuel delivery unit. Drain the tank if necessary. Procedure ⇒ [page 112](#)*



Caution

Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable -arrow- ⇒ Electrical system; Rep. gr. 27 .



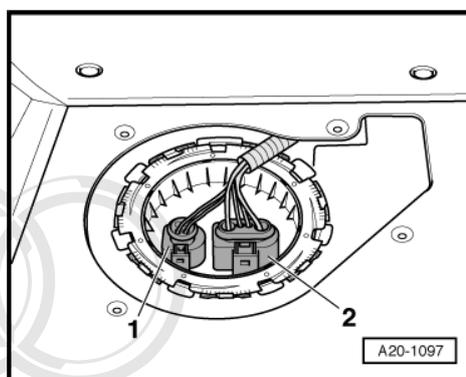
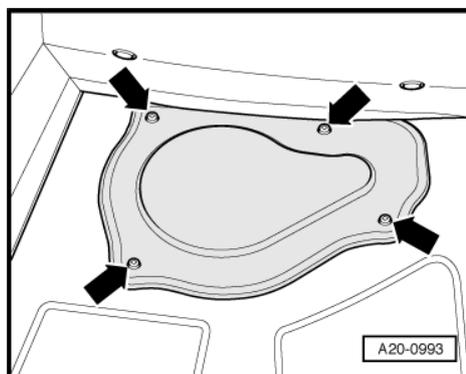
- Remove luggage compartment floor covering.



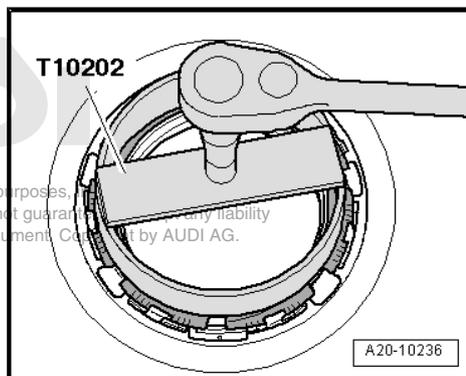
Note

For removing and installing fuel delivery unit, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

- Detach cover for flange (left-side) -arrows-.
- Unplug electrical connectors -1- and -2- on flange (left-side).

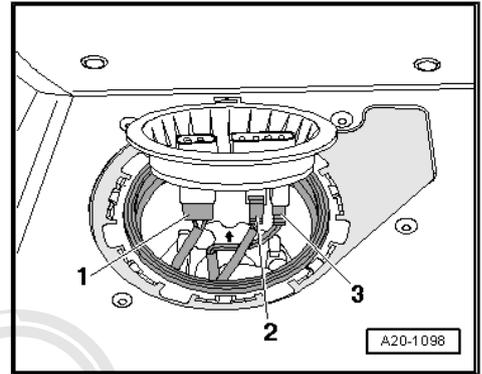


- Unscrew locking ring using wrench - T10202- .

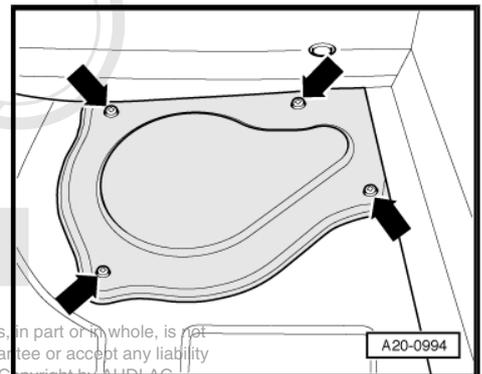


Protected by copyright. Copying for private or commercial purposes, or for advertising or promotional purposes, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy or completeness of the information provided, nor any liability with respect to the correctness of information in this document. Copyright © 2014 by AUDI AG.

- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (left-side).

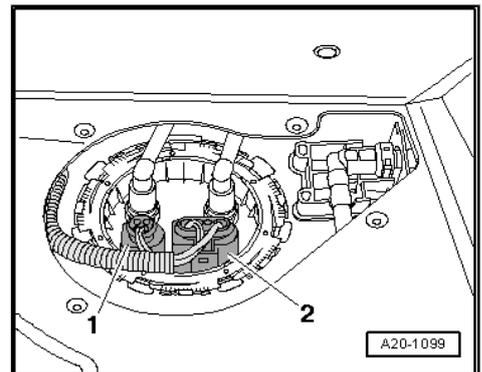


- Unscrew cover for flange (right-side) -arrows-.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

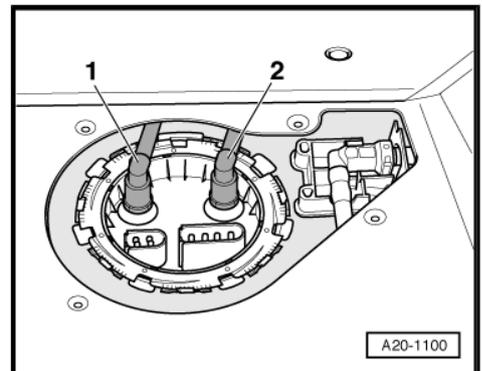
- Unplug electrical connectors -1- and -2- on flange (right-side).



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

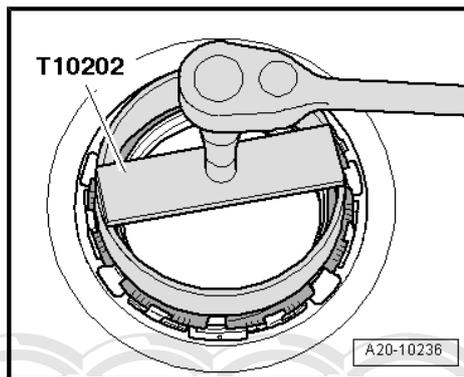
! **WARNING**

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

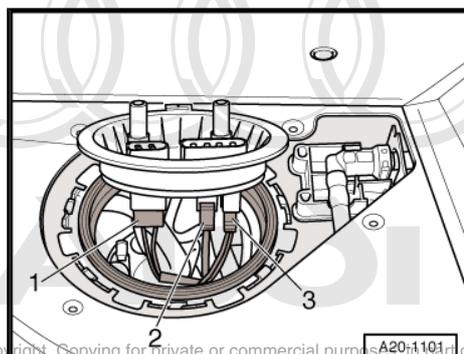


- Detach both lines from flange (press release tabs).

- Unscrew locking ring using wrench - T10202- .



- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (right-side).



Protected by copyright. Copying for private or commercial purposes in whole, 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.

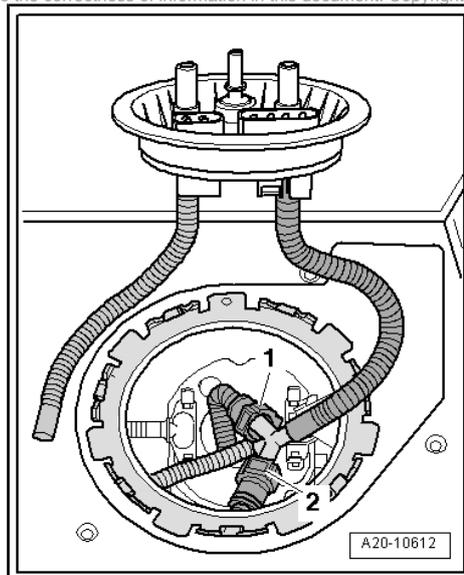
 **Note**

Pull out fuel lines from fuel tank opening prior to disconnecting the pipe connectors mentioned below.

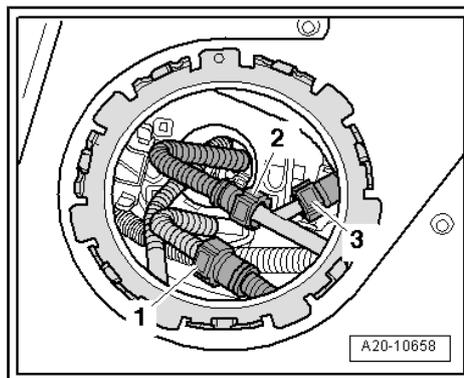
- Working through right fuel tank opening, press release tab and disconnect fuel supply line -2- going to fuel delivery unit (left-side).

 **Note**

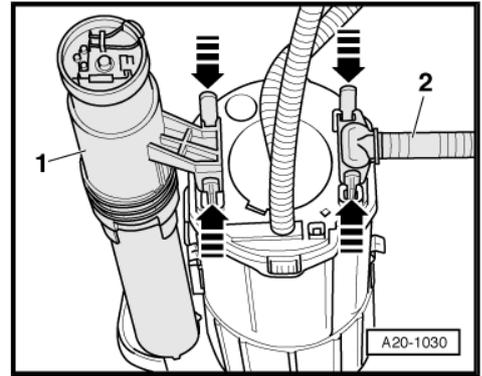
Disregard -item 1-.



- Working through left fuel tank opening, press release tabs and disconnect balance pipe -1- and supply line -2- going to suction-jet pump (right-side) and supply line -3- going to fuel delivery unit (left-side).
- Pull disconnected fuel lines out of left fuel tank opening.



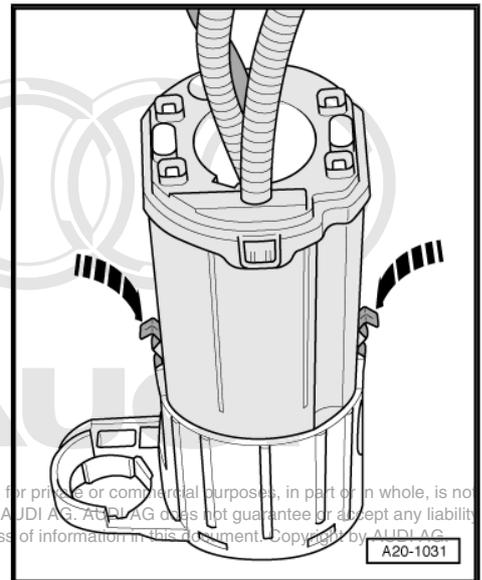
- Working through left fuel tank opening, press release tabs -arrows- and detach fuel supply line -2- and fuel gauge sender 3 - G237- -item 1-.
- Move fuel gauge sender 3 - G237- to left side.



- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Remove fuel delivery unit.

 **Note**

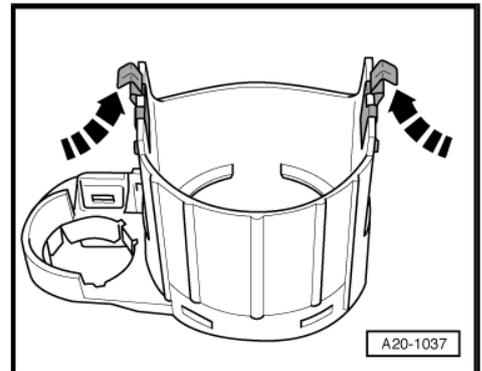
Keep in mind that the fuel delivery unit still contains fuel.



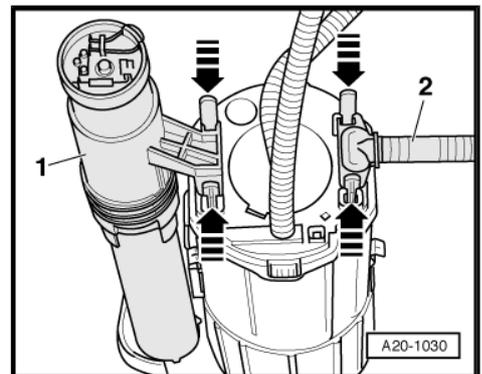
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Installing

- Tightening torque ⇒ [page 68](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Then press fuel delivery unit carefully into retainer so that it engages audibly.

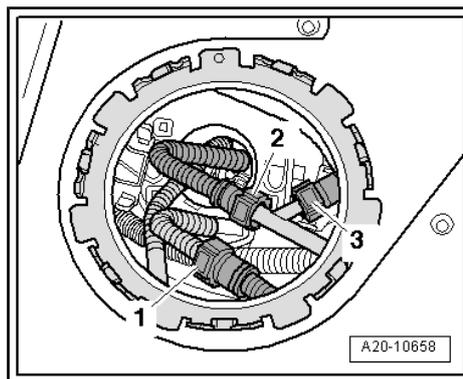


- Fit fuel supply line -2- and fuel gauge sender 3 - G237- -item 1- so that they engage audibly.
- Guide fuel supply line for fuel delivery unit (left-side) into fuel tank chamber (right-side).





- Working through left fuel tank opening, fit balance pipe -1- and supply line -2- going to suction-jet pump (right-side) and supply line -3- going to fuel delivery unit (left-side) so that they engage audibly.

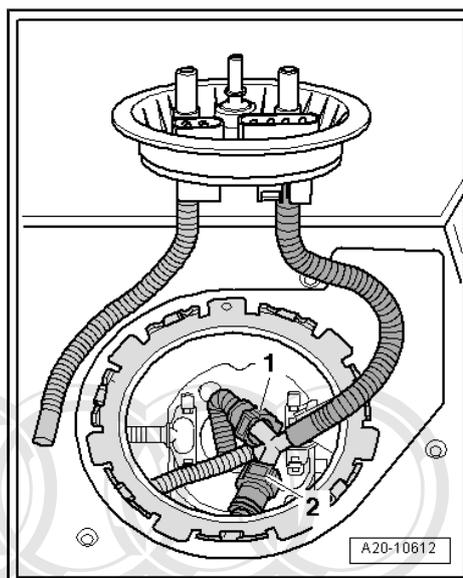


- Working through right fuel tank opening, fit fuel supply line -2- so that it engages audibly.

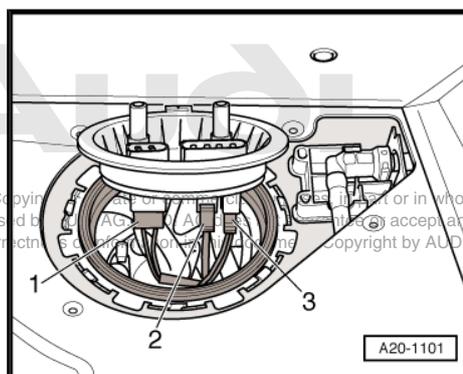


Note

Disregard -item 1-.

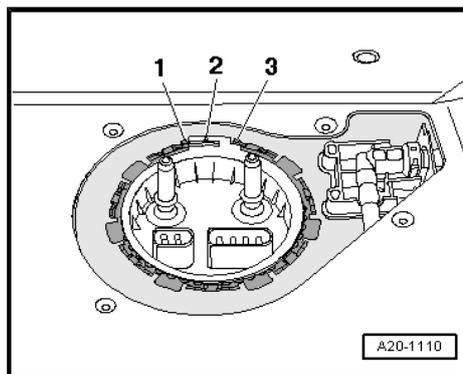


- Connect electrical connectors -1 ... 3- on underside of flange (right-side).
- Install new seal for flange (seal must be installed dry).

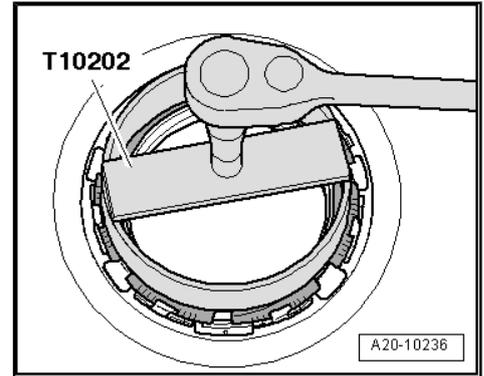


Protected by copyright. Copying, reproduction, distribution, or in whole, is not permitted unless authorised by Audi AG. Audi AG does not accept any liability with respect to the correctness of the information. Copyright by AUDI AG.

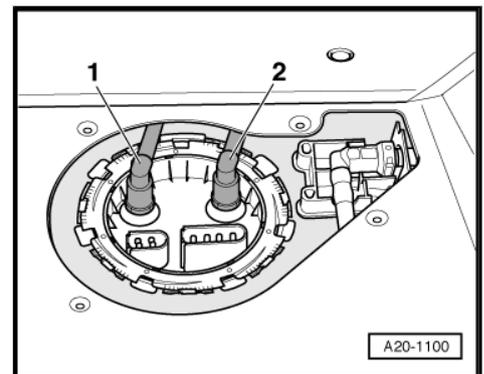
- Fit flange into fuel tank; note correct installation position:
 - The hose for the return line must be guided into the opening in the centre of the fuel delivery unit.
 - Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



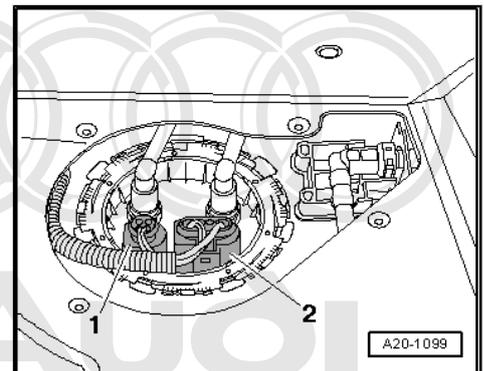
- Tighten locking ring.



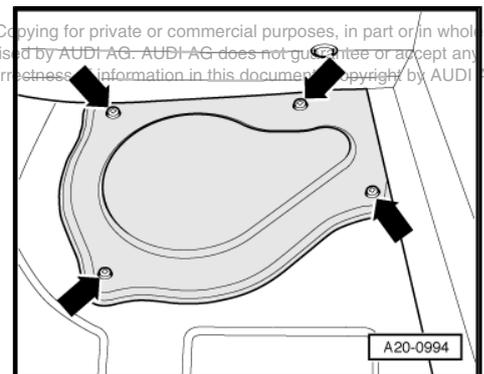
- Install fuel supply line -2- and fuel return line -1- (as marked) so that they engage audibly.



- Attach electrical connectors -1- and -2- on flange (right-side).



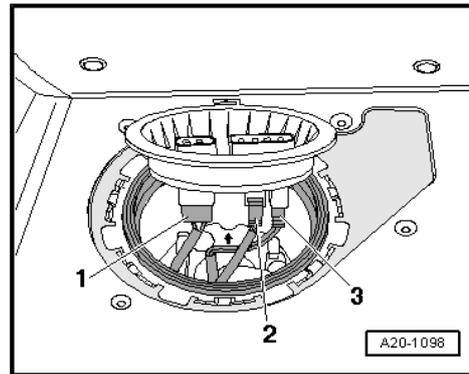
- Secure cover for flange (right-side) -arrows-.



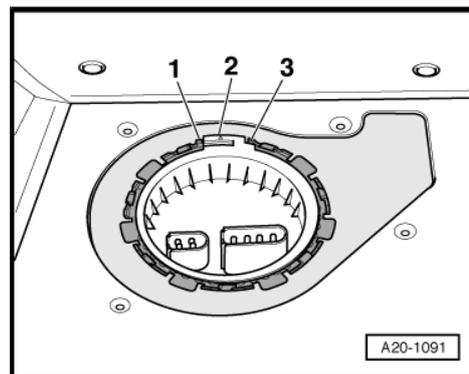
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- Connect electrical connectors -1 ... 3- on underside of flange (left-side).
- Install new seal for flange (seal must be installed dry).

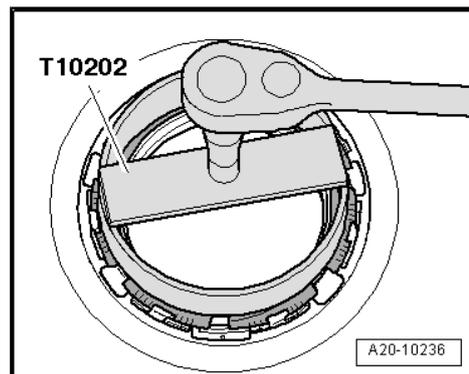


- Fit flange into fuel tank; note correct installation position:
 - Lug -2- on flange must be between tabs -1- and -3- on fuel tank.

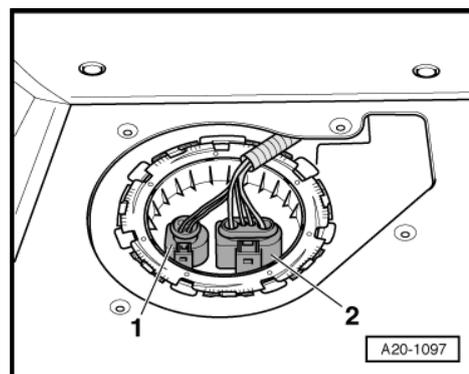


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

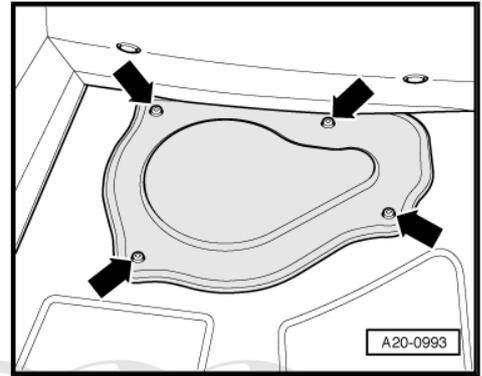
- **Tighten locking ring** of information in this document. Copyright by AUDI AG.



- Attach electrical connectors -1- and -2- on flange (left-side).



- Secure cover for flange (left-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery → Electrical system; Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing



10.4 Exploded view - fuel delivery unit (right-side) with fuel pump - G23- and fuel gauge senders -G169- and -G393-

1 - Retainer

- For fuel delivery unit

2 - Fuel gauge sender 2 - G169-

- Yellow
- Clipped onto retainer -item 1-
- Checking resistance values ⇒ [page 223](#)
- Removing and installing ⇒ [page 224](#)

3 - Fuel gauge sender 4 - G393-

- White
- Clipped onto fuel delivery unit -item 16-
- Checking resistance values ⇒ [page 230](#)
- Removing and installing ⇒ [page 232](#)

4 - Fuel supply line

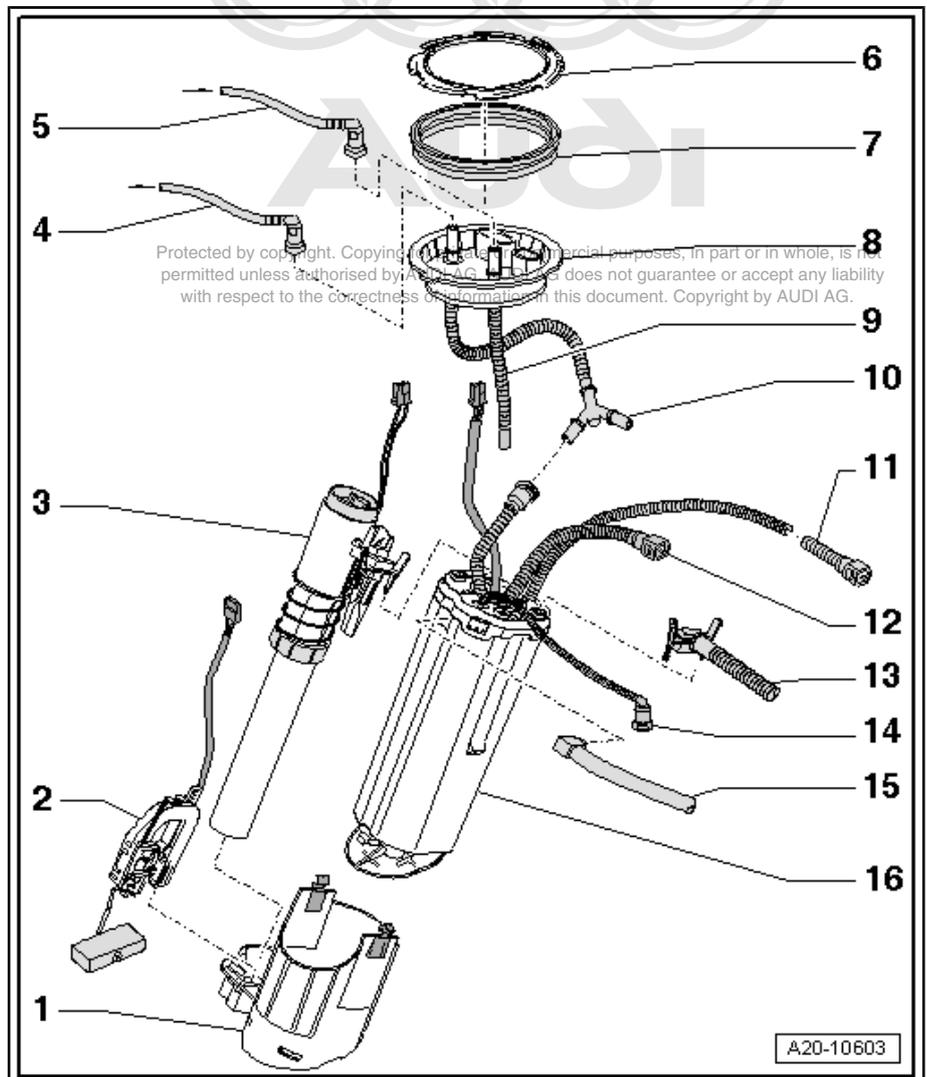
- To fuel filter
- Mark before removing
- Press release tab on connection piece to disconnect
- Do not kink
- Clip onto fuel tank

5 - Fuel return line

- From fuel rail
- Mark before removing
- Press release tab on connection piece to disconnect
- Do not kink
- Clip onto fuel tank

6 - Locking ring

- Remove and install using wrench - T10202-
- Tighten to 120 Nm





7 - Seal

- Renew
- Install dry

8 - Flange (right-side)

- Installation position ⇒ [page 176](#)

9 - Fuel return line

- From flange to fuel delivery unit (right-side)
- Fitted loosely in fuel delivery unit (right-side)

10 - Fuel supply line

- From fuel delivery units to flange

11 - Balance pipe

- Between fuel delivery units

12 - Supply line for suction-jet pump

- For suction-jet pump
- Press release tab on connection piece to disconnect

13 - Fuel supply line

- From suction-jet pump (left-side)
- Clipped onto fuel delivery unit -item 16-

14 - Supply line for suction-jet pump

- For fuel delivery unit (right-side)

15 - Fuel filler pipe

- From filler neck
- Clipped onto fuel delivery unit -item 16-

16 - Fuel delivery unit (right-side)

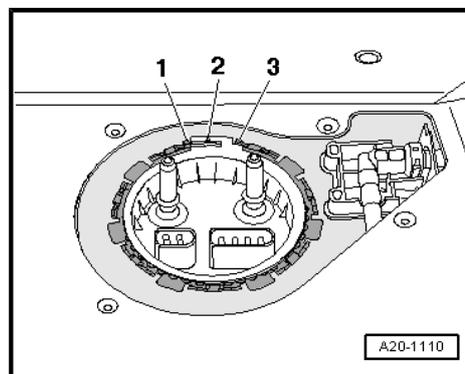
- With fuel pump - G23-
- Clipped onto retainer -item 1-
- Different versions available; for correct version refer to ⇒ Electronic parts catalogue
- Checking fuel pump (electrical test) ⇒ [page 81](#)
- Checking residual pressure ⇒ Rep. gr. 24
- Removing and installing ⇒ [page 81](#)
- Put at least 5 litres of fuel into tank after installing



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

Installation position of flange (right-side)

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



10.5 Checking fuel pump - G23- (right-side) - electrical test

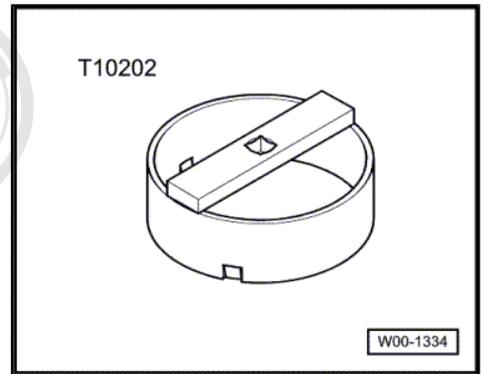
- ◆ On vehicles with FSI engine, voltage for the fuel pumps is supplied via fuel pump control unit - J538- .

- ◆ Check fuel pump control unit - J538- in "Guided Fault Finding"
 ⇒ Vehicle diagnostic tester.

10.6 Removing and installing fuel delivery unit (right-side) with fuel pump - G23-

Special tools and workshop equipment required

- ◆ Wrench - T10202-



Removing

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

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

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

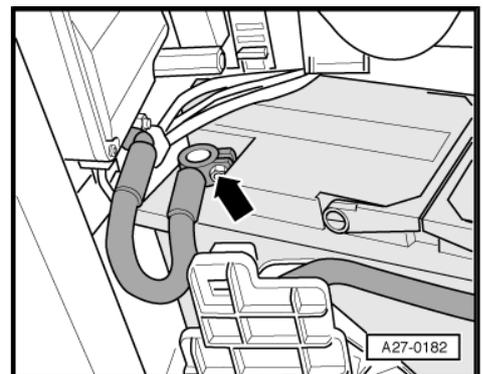
 **Caution**

- *The fuel tank must not be more than 1/3 full when removing the fuel delivery unit. Drain the tank if necessary. Procedure ⇒ [page 112](#)*

 **Caution**

Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable -arrow- ⇒ Electrical system; Rep. gr. 27 .





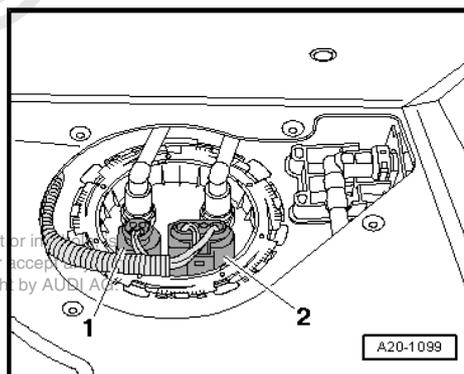
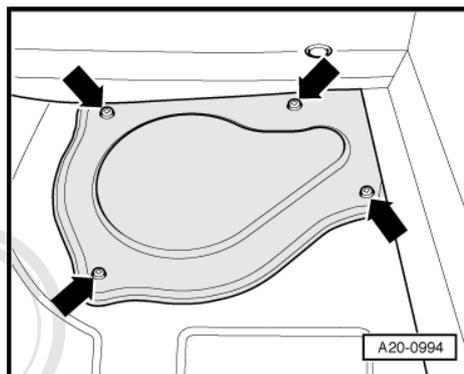
- Remove luggage compartment floor covering.



Note

For removing and installing fuel delivery unit, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

- Unscrew cover for flange (right-side) -arrows-.
- Unplug electrical connectors -1- and -2- on flange (right-side).



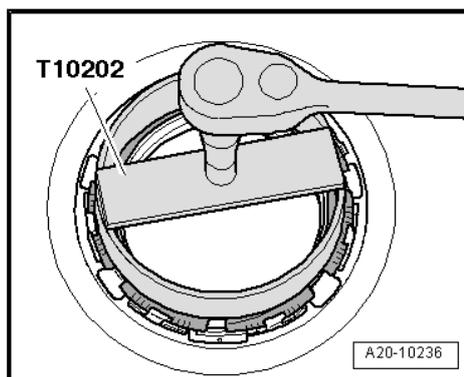
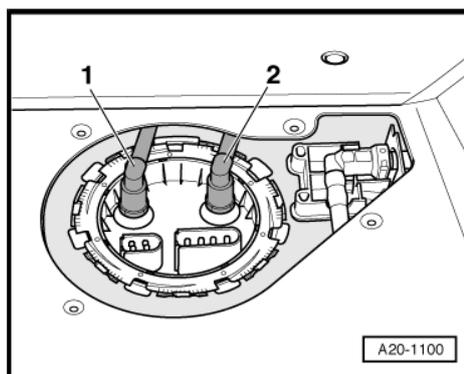
- Mark fuel return line -1- and fuel supply line -2-.



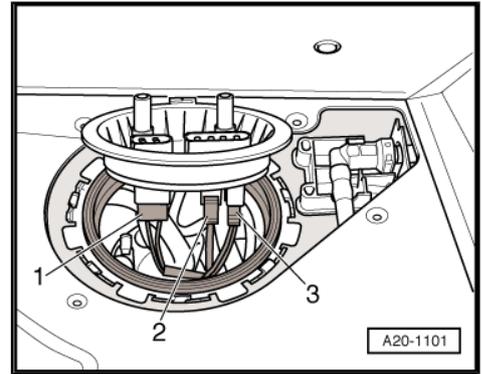
WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

- Detach both lines from flange (press release tabs).
- Unscrew locking ring using wrench - T10202- .



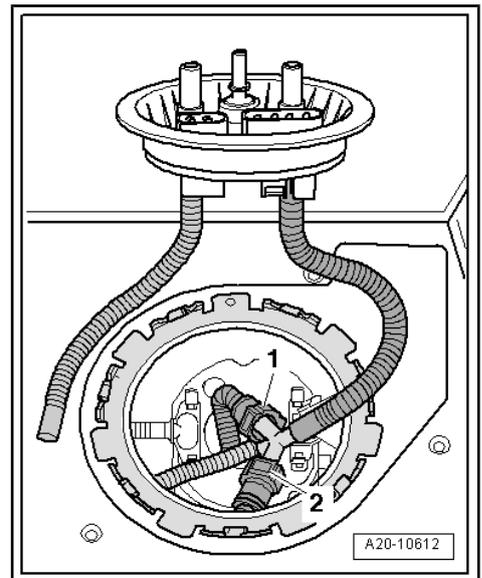
- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (right-side).



i Note

Pull out fuel lines from fuel tank opening prior to disconnecting the pipe connectors mentioned below.

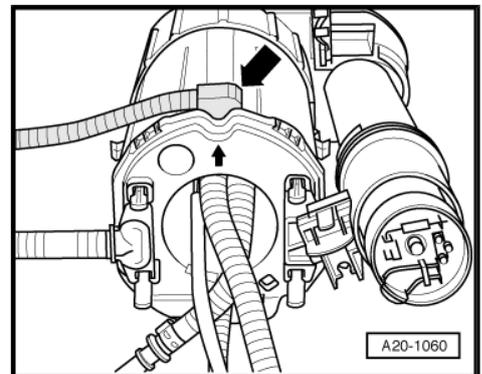
- Working through right fuel tank opening, press release tabs and disconnect fuel supply lines -1- and -2- going to fuel delivery units.



i Note

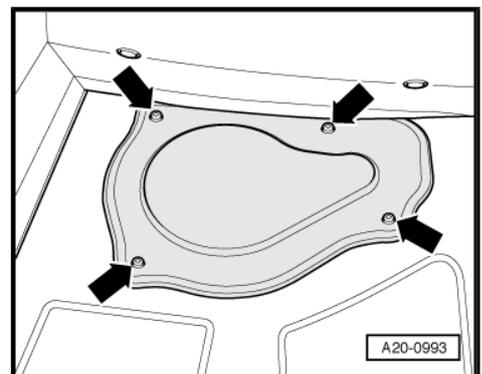
For illustration purposes some of the components are shown removed in the following illustrations.

- Unclip fuel filler pipe -arrow- at front of fuel delivery unit (right-side).

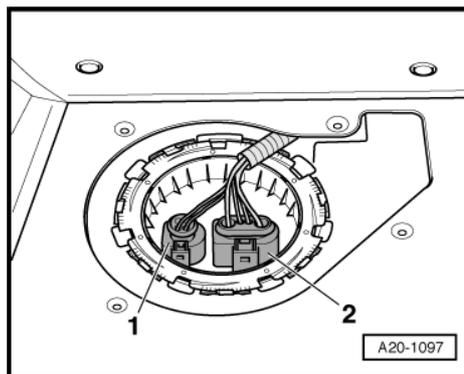


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

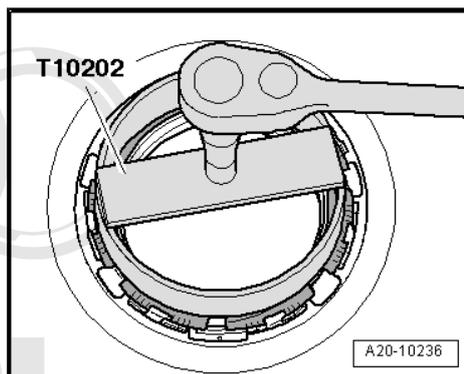
- Detach cover for flange (left-side) -arrows-.



- Unplug electrical connectors -1- and -2- on flange (left-side).

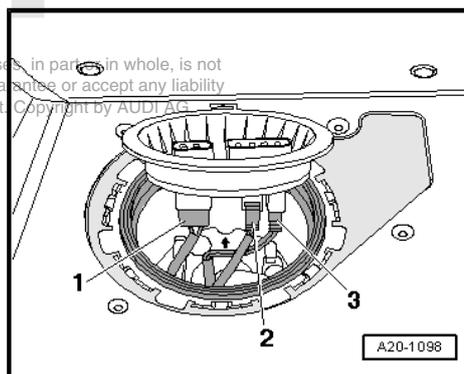


- Unscrew locking ring using wrench - T10202- .



- Detach flange and remove seal.
- Unplug electrical connectors -1...3- on underside of flange (left-side).

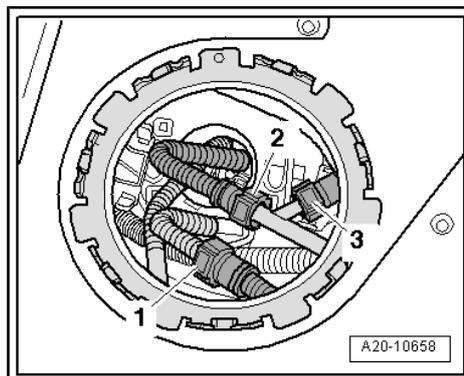
Copyright © Audi AG. All rights reserved. This document is for informational purposes only. In part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



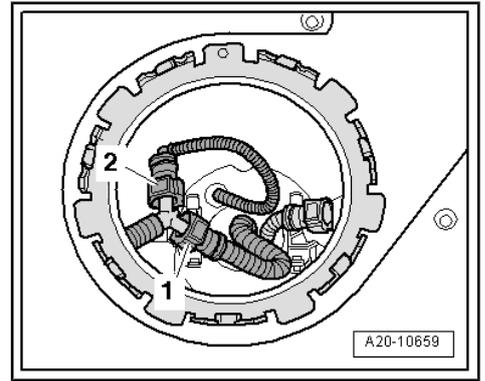
- Working through left fuel tank opening, press release tab and disconnect connecting pipe -1-.
- Pull out connecting pipe from right fuel tank opening.

 **Note**

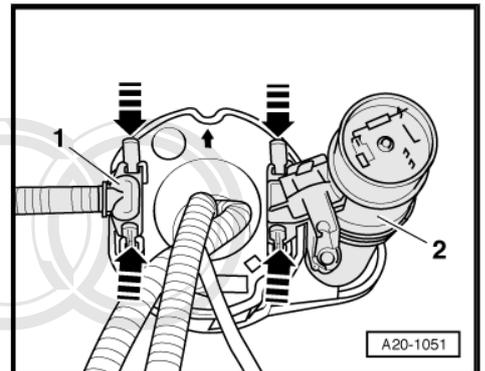
Disregard -items 2, 3-.



- Working through right fuel tank opening, press release tabs and disconnect supply line -1- going to suction-jet pump (left-side) and supply line -2- going to fuel delivery unit (right-side).



- Working through right fuel tank opening, press release tabs -arrows- and detach fuel supply line -1- and fuel gauge sender 4 - G393- -item 2-.
- Move fuel gauge sender 4 - G393- to right side.

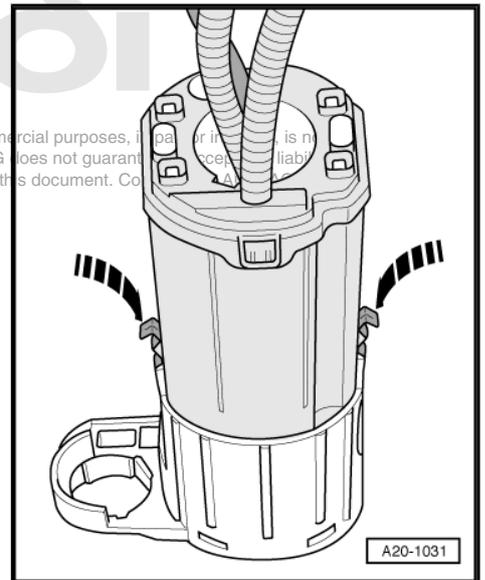


- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Remove fuel delivery unit.

 **Note**

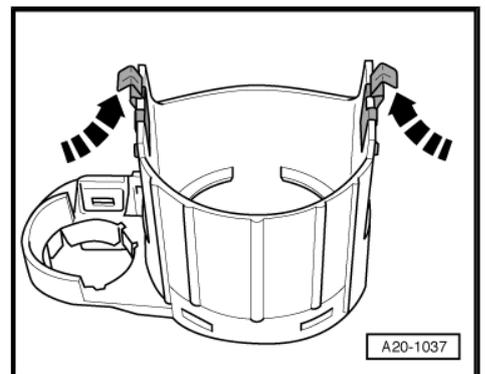
Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy of the information with respect to the correctness of information in this document. Copyright © 2014 Audi AG

Keep in mind that the fuel delivery unit still contains fuel.



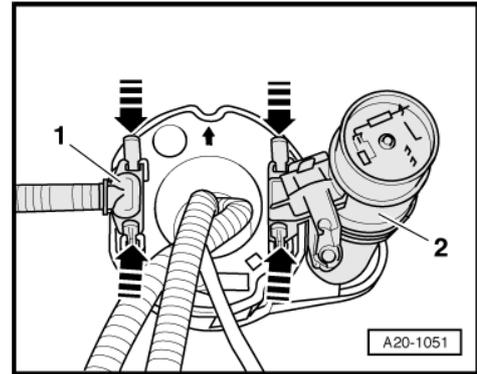
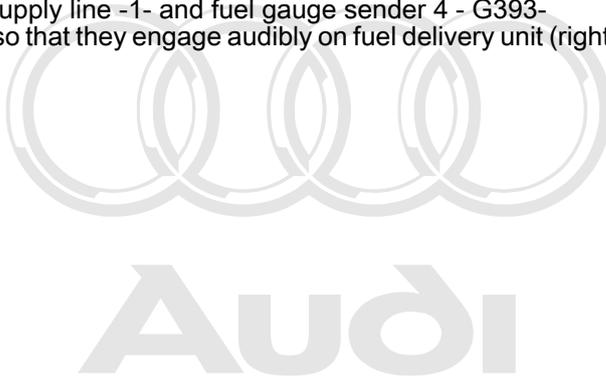
Installing

- Tightening torque ⇒ [page 79](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Then press fuel delivery unit carefully into retainer so that it engages audibly.

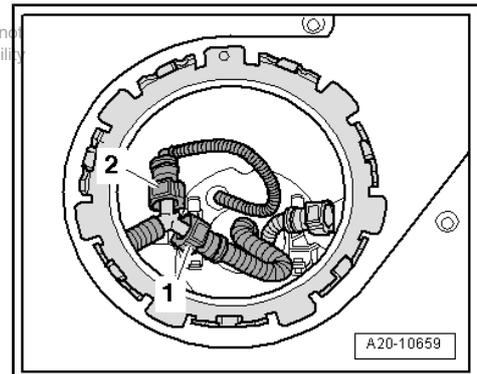




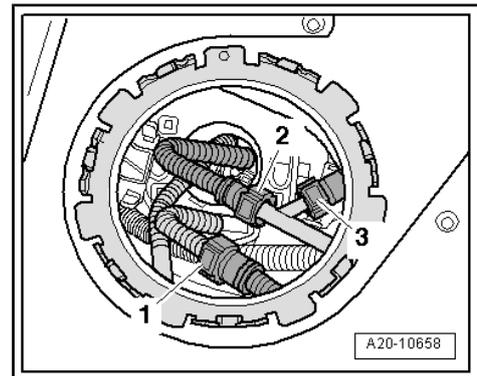
- Fit fuel supply line -1- and fuel gauge sender 4 - G393-
-item 2- so that they engage audibly on fuel delivery unit (right-
side).



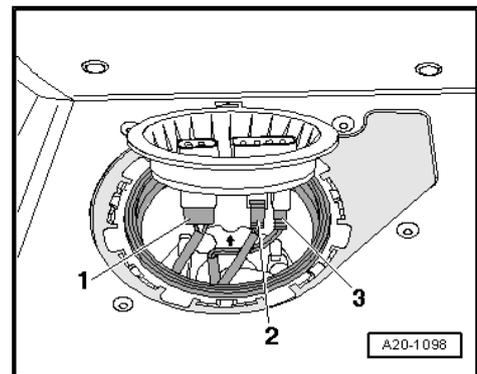
- Working through right fuel tank opening, fit supply line -1- go-
ing to suction-jet pump (left-side) and supply line -2- going to
fuel delivery unit (right-side) so that they engage audibly



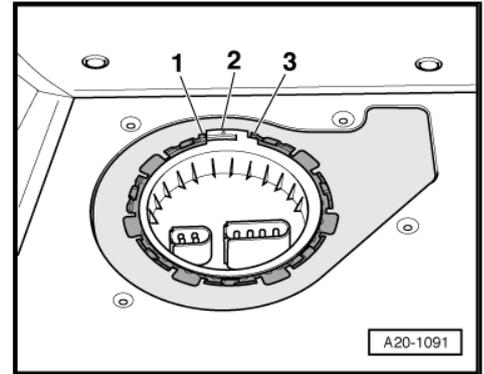
- Fit connecting pipe -1- through left opening on fuel tank so that
it engages audibly.



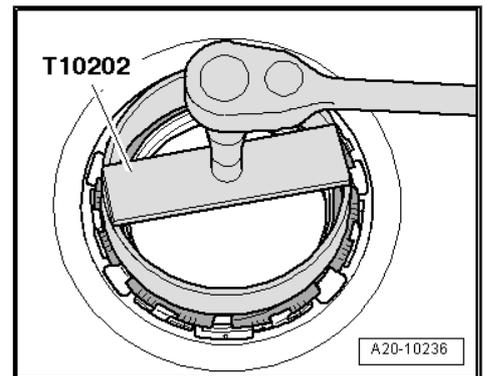
- Connect electrical connectors -1 ... 3- on underside of flange
(left-side).
- Install new seal for flange (seal must be installed dry).



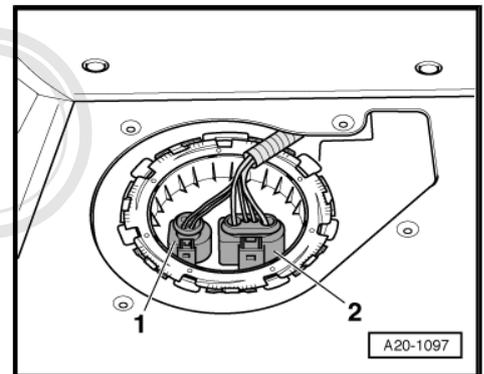
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



- Tighten locking ring.

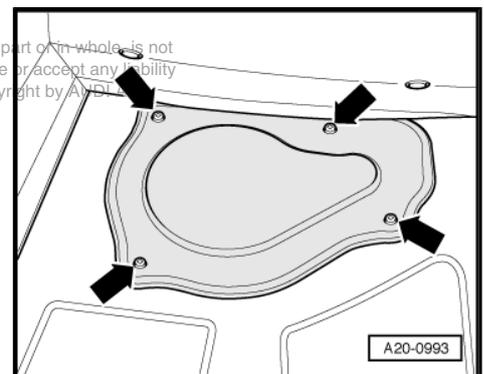


- Attach electrical connectors -1- and -2- on flange (left-side).

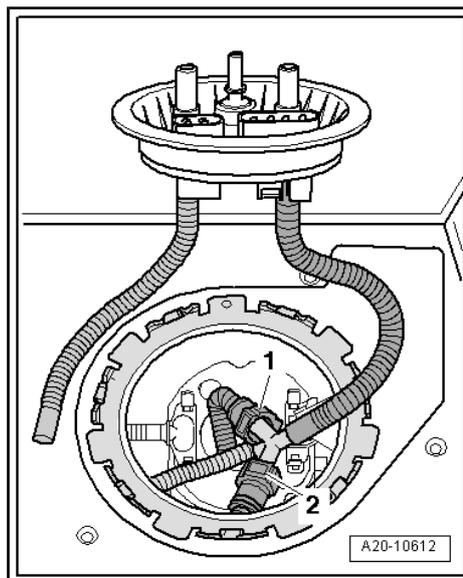


- Secure cover for flange (left-side) -arrows-.

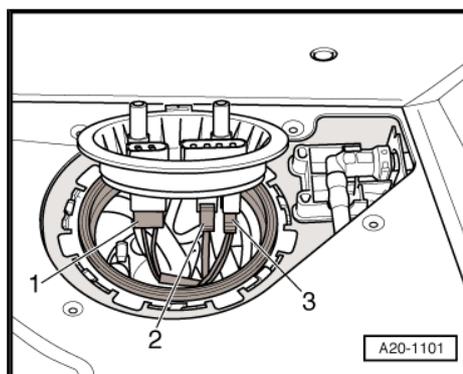
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



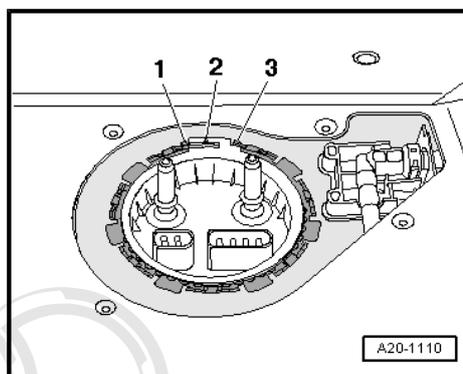
- Working through right fuel tank opening, fit fuel lines -1- and -2- going to fuel delivery units so that they engage audibly.



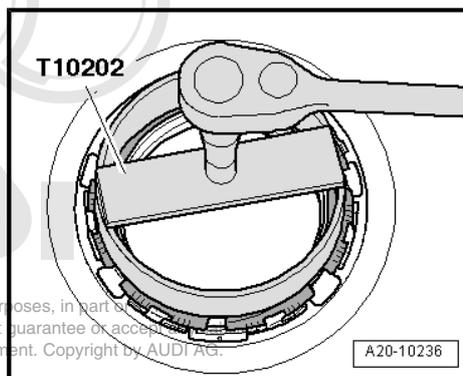
- Connect electrical connectors -1 ... 3- on underside of flange (right-side).
- Install new seal for flange (seal must be installed dry).



- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.

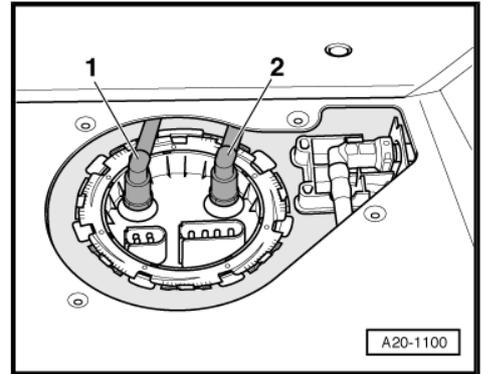


- Tighten locking ring.

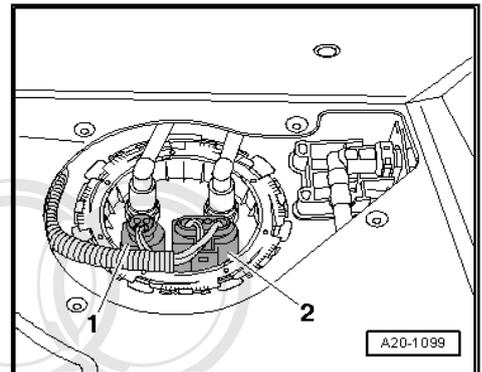


Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

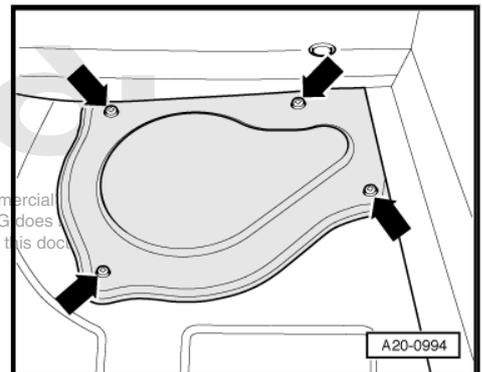
- Install fuel supply line -2- and fuel return line -1- (as marked) so that they engage audibly.



- Attach electrical connectors -1- and -2- on flange (right-side).



- Secure cover for flange (right-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery => Electrical system; Rep. gr. 27 .
- Put at least 5 litres of fuel into tank after installing

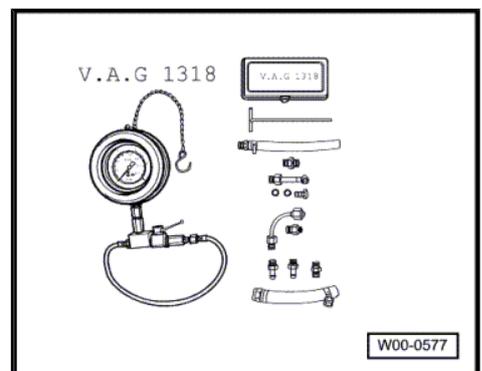


Protected by copyright. Copying for private or commercial use is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document.

10.7 Checking delivery rate of fuel pumps - vehicles with 8-cylinder engine

Special tools and workshop equipment required

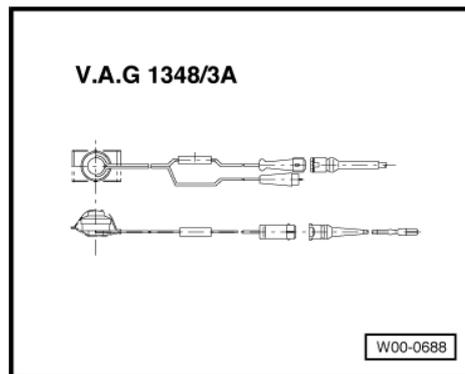
- ◆ K-Jetronic pressure tester - V.A.G 1318-



- ◆ Adapter set - V.A.G 1318/10-12-



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



- ◆ Fuel-resistant measuring container

Procedure

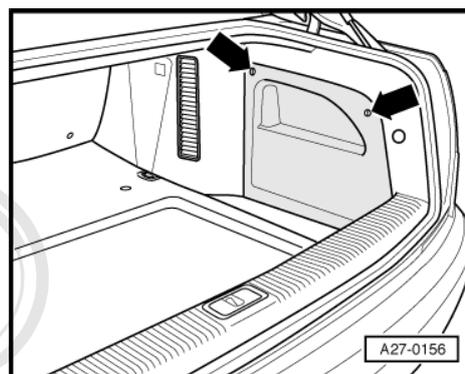
- Observe test conditions ⇒ [page 3](#) .



WARNING

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

- Remove luggage compartment side trim cover (right-side) -arrows-.

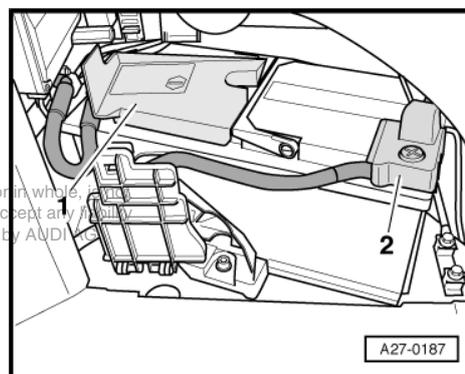


- Remove cover -2- over battery.

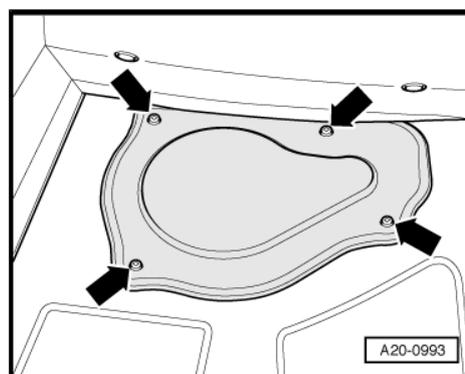
 **Note**

Disregard -item 1-.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



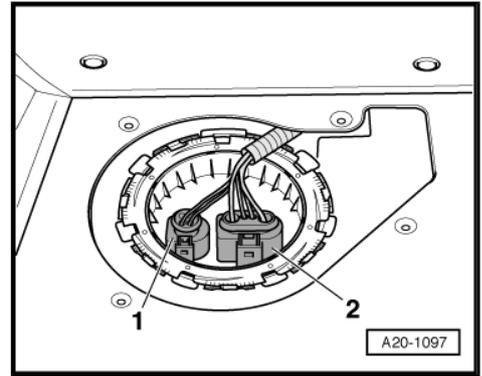
- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



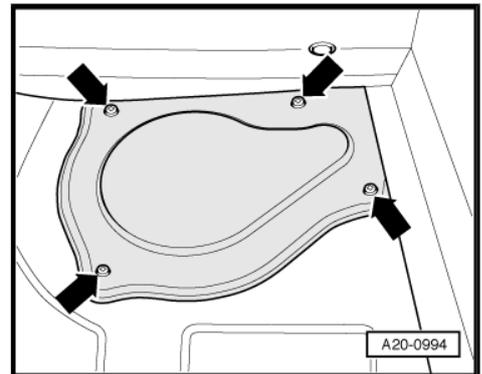
- Unplug electrical connector -2- on flange (left-side).



Disregard -item 1-.



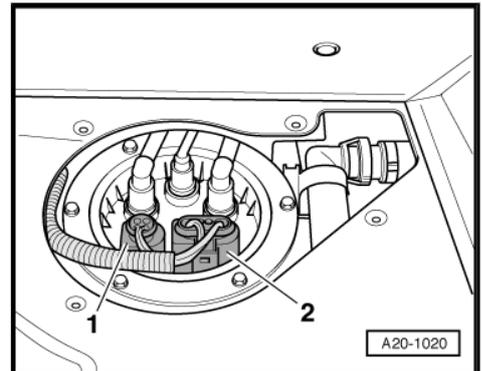
- Unscrew cover for flange (right-side) -arrows-.



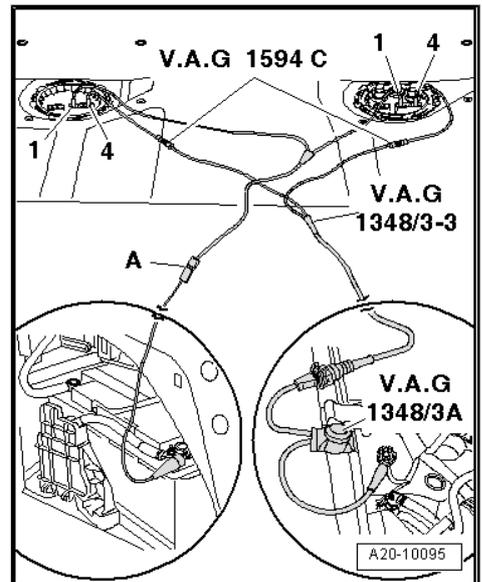
- Unplug electrical connector -2- on flange (right-side).



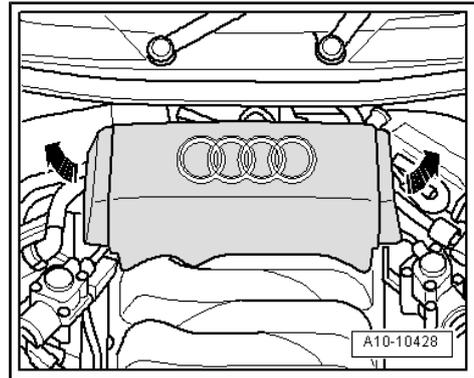
Disregard -item 1-.



- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3- to contact -4- (earth) of fuel delivery unit (left-side) and fuel delivery unit (right-side) using test leads from auxiliary measuring set - V.A.G 1594C- .
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- (positive) of fuel delivery unit (left-side) and fuel delivery unit (right-side) to battery "+" via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.



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



WARNING

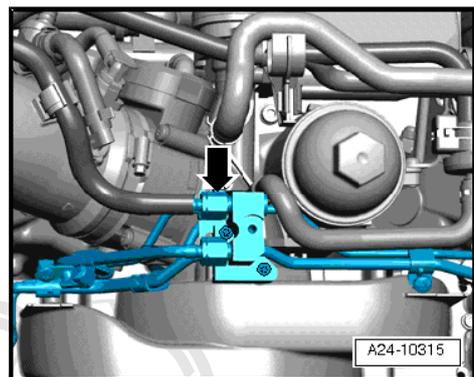
The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

- Disconnect fuel supply line -arrow- at connecting piece.

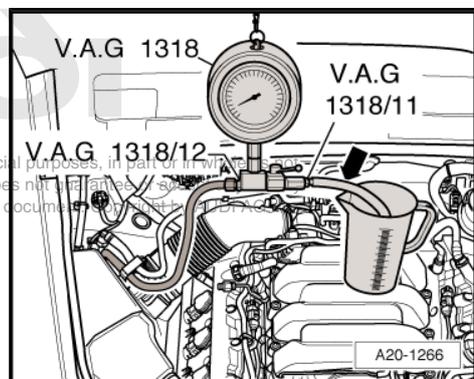


Caution

*Rules for cleanliness when working on the injection system
 => page 3.*



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



- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).

i Note

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

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

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

i Note

As there is hardly any difference in the fuel delivery rate if only one of the two fuel pumps is working (because of the hose connections inside the tank), it is difficult to diagnose a defective pump by just measuring the delivery rate.

In this case proceed as follows:

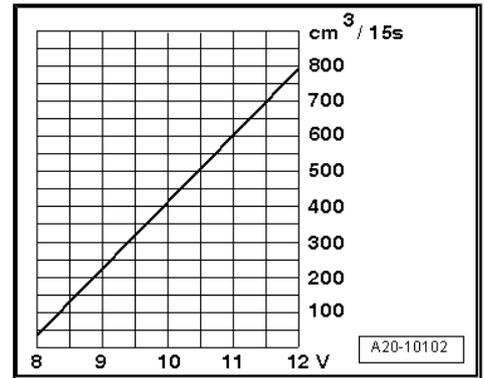
- Unplug the electrical auxiliary lead at the fuel delivery units (one at a time).
- Measure delivery rate of fuel delivery unit located on the opposite side.

If the delivery rate of the fuel delivery unit which has been measured separately is considerably below specification:

- Renew the relevant fuel delivery unit.

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

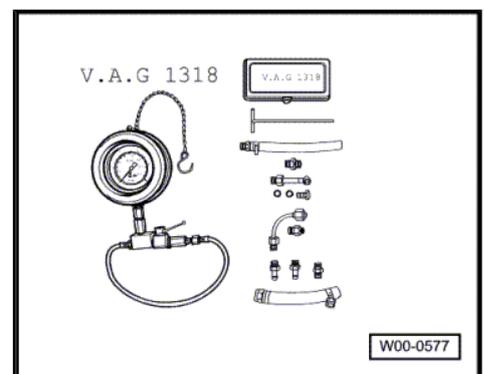
- Secure fuel line to engine ⇒ Rep. gr. 24 .



10.8 Checking delivery rate of fuel pumps - vehicles with 10-cylinder engine (Audi S8)

Special tools and workshop equipment required

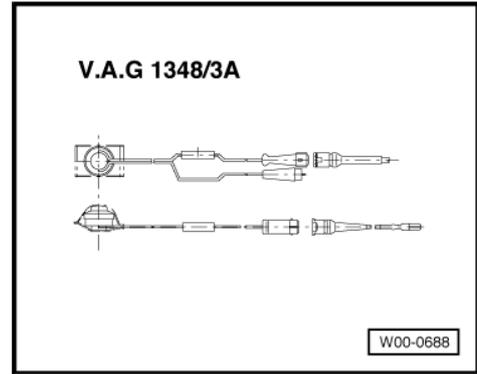
- ◆ K-Jetronic pressure tester - V.A.G 1318-



- ◆ Adapter set - V.A.G 1318/10-12-



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



- ◆ Fuel-resistant measuring container

Procedure

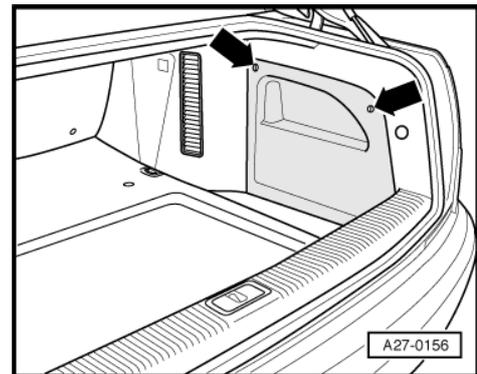
- Observe test conditions ⇒ [page 3](#) .



WARNING

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

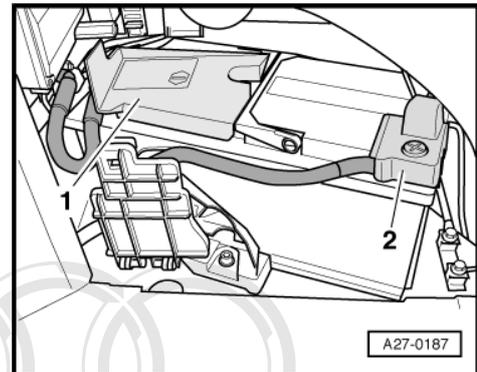
- Remove luggage compartment side trim cover (right-side) -arrows-.



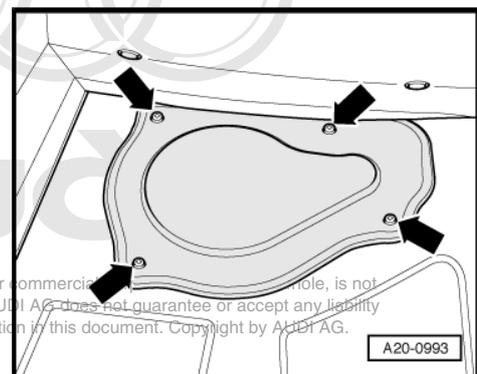
- Remove cover -2- over battery.

 **Note**

Disregard -item 1-.



- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.

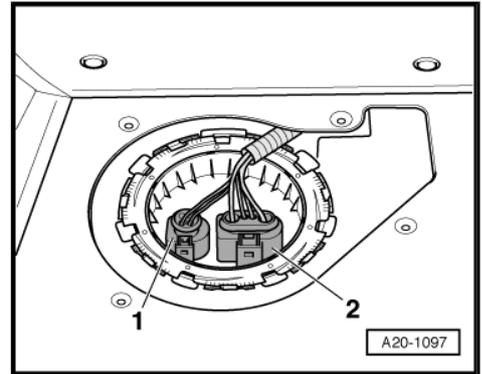


Protected by copyright. Copying for private or commercial use, in whole or in part, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

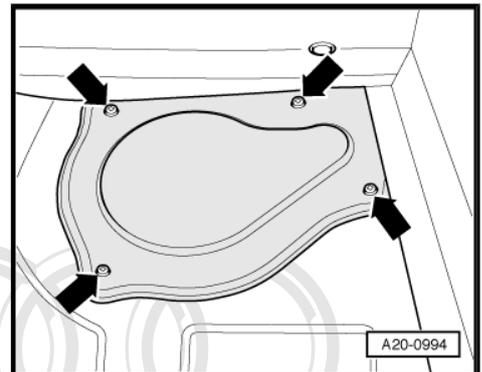
- Unplug electrical connector -2- on flange (left-side).

 **Note**

Disregard -item 1-.



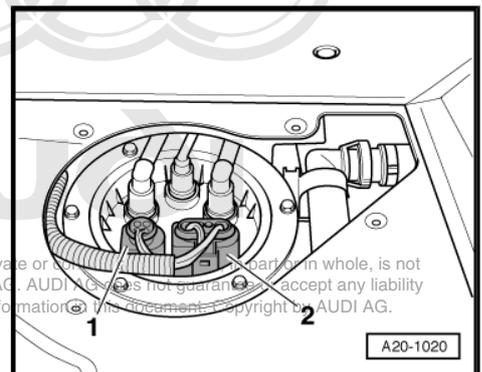
- Unscrew cover for flange (right-side) -arrows-.



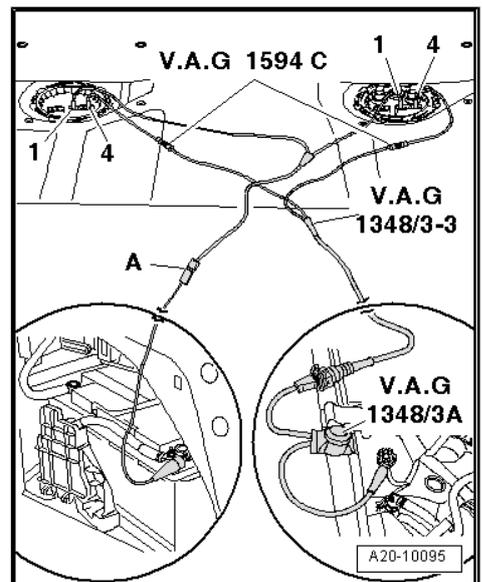
- Unplug electrical connector -2- on flange (right-side).

 **Note**

Disregard -item 1-.



- Connect remote control - V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-3- to contact -4- (earth) of fuel delivery unit (left-side) and fuel delivery unit (right-side) using test leads from auxiliary measuring set - V.A.G 1594C- .
- Move switch of remote control - V.A.G 1348/3A- for V.A.G 1348 to front of engine compartment.
- Connect crocodile clip to earth point in engine compartment.
- Connect contact -1- (positive) of fuel delivery unit (left-side) and fuel delivery unit (right-side) to battery “+” via an improvised test lead. For safety reasons an in-line fuse -A- (10 A) must be connected into the lead.
- Remove filler cap from fuel filler neck.

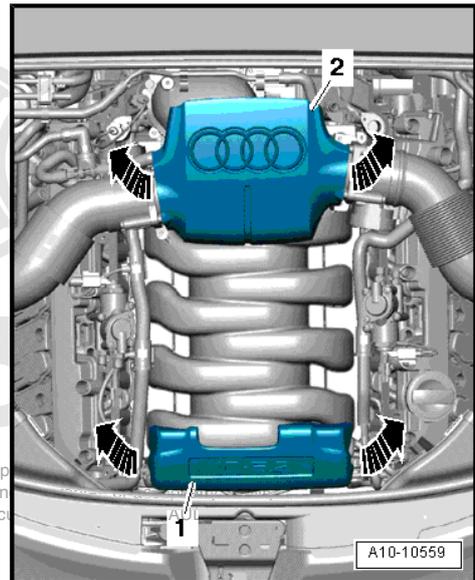


- Pull off engine cover panel (rear) -2- -arrows-.



Disregard -item 1-.

Protected by copyright. Copying for private or commercial purposes is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document.



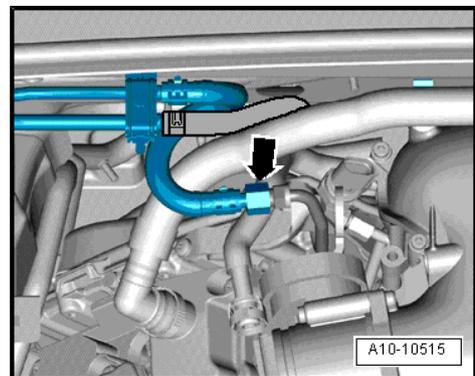
WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

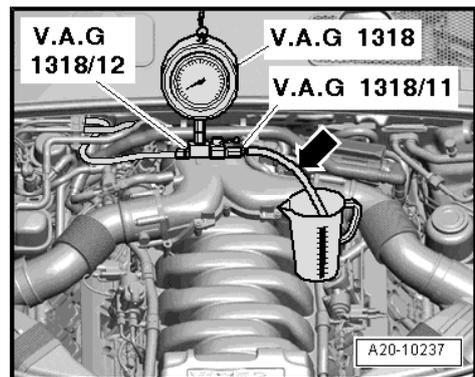


Caution

*Rules for cleanliness when working on the injection system
 => page 3.*



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



- Press remote control button for 15 seconds.
- Compare amount of fuel delivered with minimum delivery shown in diagram (cm³/15 sec.).

i Note

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

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

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

i Note

As there is hardly any difference in the fuel delivery rate if only one of the two fuel pumps is working (because of the hose connections inside the tank), it is difficult to diagnose a defective pump by just measuring the delivery rate.

Protection of Audi AG. This document, in part or in whole, 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.

In this case proceed as follows:

- Unplug the electrical auxiliary lead at the fuel delivery units (one at a time).
- Measure delivery rate of fuel delivery unit located on the opposite side.

If the delivery rate of the fuel delivery unit which has been measured separately is considerably below specification:

- Renew the relevant fuel delivery unit.

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

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

10.9 Fuel pump control unit - J538-

Check fuel pump control unit - J538- in "Guided Fault Finding" ⇒ Vehicle diagnostic tester.

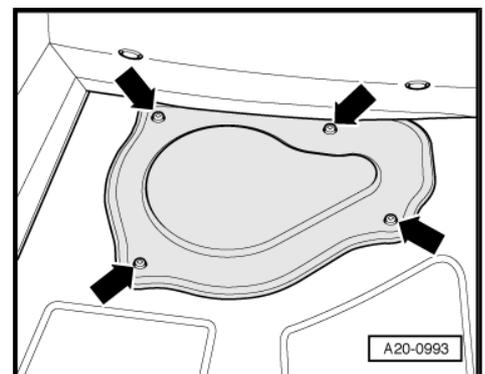
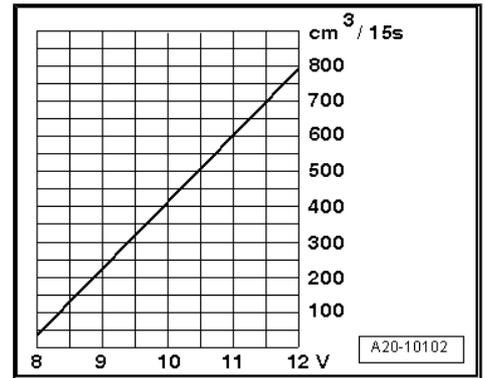
10.10 Removing and installing fuel pump control unit - J538-

Removing

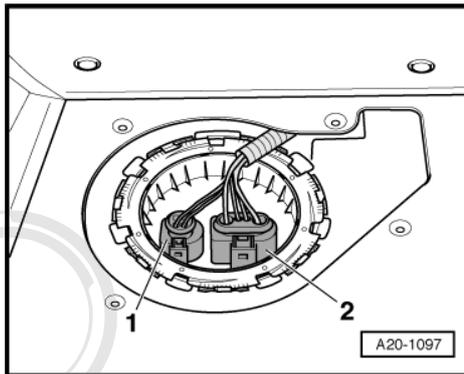
Observe safety precautions ⇒ [page 1](#) .

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

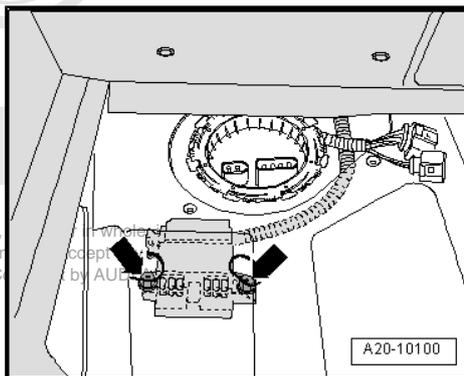
- Switch off ignition and remove ignition key.
- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



- Unplug electrical connectors -1- and -2- on flange (left-side).



- Remove plugs in luggage compartment floor and unscrew nuts -arrows-.
- Slightly lift floor panel in the area of flange by hand and remove fuel pump control unit - J538- between floor panel and fuel tank flange.
- Unplug electrical connector at control unit.



Installing

Install in reverse order.

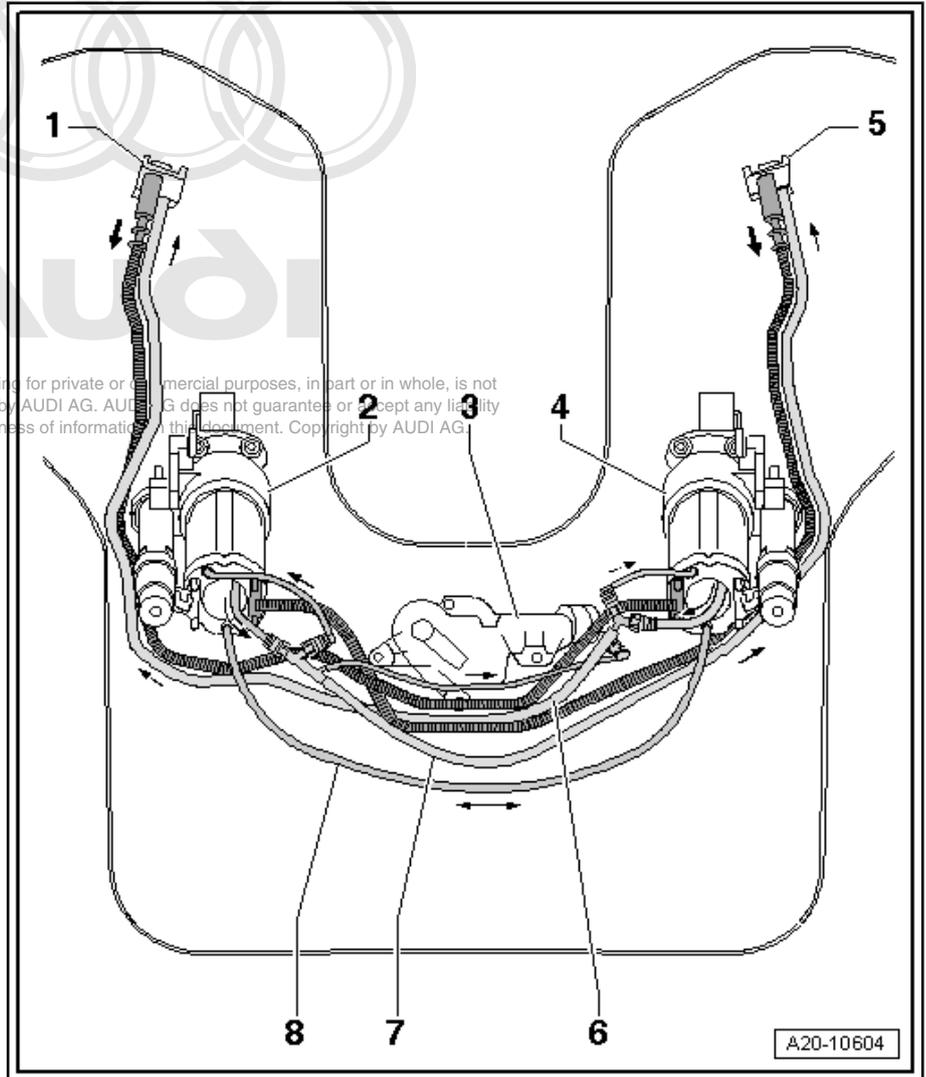
Protected by copyright. Copying for private or commercial purposes, permitted unless authorised by AUDI AG. AUDI AG does not guarantee with respect to the correctness of information in this document. Copyright © 2003 Audi AG

Tightening torque

Component	Nm
Fuel pump control unit - J538- to fuel tank	1.6

10.11 Suction-jet pumps

- 1 - Suction-jet pump (left-side)
- 2 - Fuel delivery unit (left-side)
- 3 - Expansion tank
- 4 - Fuel delivery unit (right-side)
- 5 - Suction-jet pump (right-side)
- 6 - Supply line for suction-jet pump
 - From fuel delivery unit (right-side) to suction-jet pump (left-side)
- 7 - Supply line for suction-jet pump
 - From fuel delivery unit (left-side) to suction-jet pump (right-side)
- 8 - Balance pipe
 - Between fuel delivery units



Description of operation

To ensure a reliable fuel supply in all situations, the fuel pumps must never draw in air, even under extreme driving conditions such as very sharp bends or under heavy braking. This may happen when the fuel sloshes into one of the corners of a partially filled fuel tank.

- ◆ For this reason, the fuel delivery units -item 2- and -item 4- incorporate a so-called baffle housing, in which the fuel pumps are fitted, as well as the fuel pumps themselves. The baffle housing is a container permanently filled with fuel, so that the fuel pumps are surrounded with fuel regardless of the fuel level in the tank.
- ◆ Consequently, proper filling of the baffle housings is essential for trouble-free operation of the fuel pumps. This is the purpose of the "suction-jet pumps".
- ◆ The suction-jet pumps operate according to the principle of fluid entrainment: a stream of fuel from the primary stage of the fuel pumps -2- (left-side) and -4- (right-side) is fed via the supply lines -6- and -7- to the suction-jet pumps -1- and -5-, where it is passed through a nozzle and thus accelerated. The accelerated stream of fuel draws off the surrounding fuel and delivers it to the baffle housings in the fuel delivery units. The suction jet pump (right-side) -item 5- delivers the fuel into the baffle housing (left-side); the suction jet pump (left-side) -item 1- delivers the fuel into the baffle housing (right-side).
- ◆ In addition, the stream of fuel from the fuel pumps is supplied to the two smaller suction-jet pumps in the baffle housings via two Y-connectors. Working through the balance pipe -item 8-, these ensure that the baffle housings in both fuel delivery units are filled evenly.
- ◆ Another small suction-jet pump is located in the expansion tank -item 3- and delivers fuel from there back to the fuel tank.

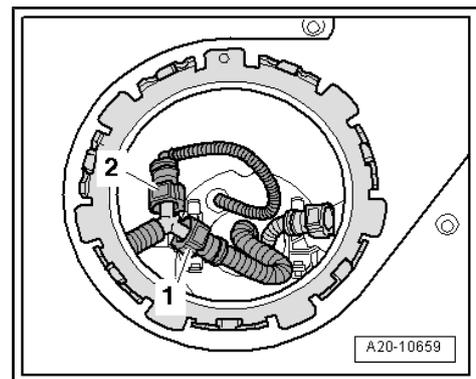
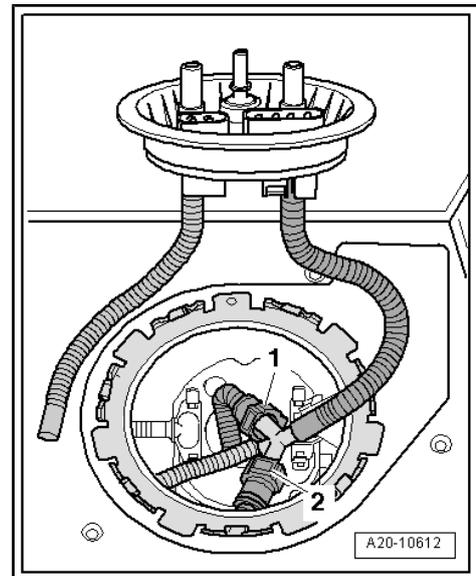
10.12 Removing and installing suction-jet pump (left-side)

Removing

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

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

- Remove the fuel delivery unit (left-side) ⇒ [page 26](#) .
- Remove fuel gauge sender 3 - G237- (tubular sender, left-side) from fuel tank.
- Working through right fuel tank opening, press release tab and disconnect fuel supply line -1-.
- Detach flange.
- Working through right fuel tank opening, press release tabs and disconnect supply lines -1- and -2- for suction-jet pumps from Y-connector.



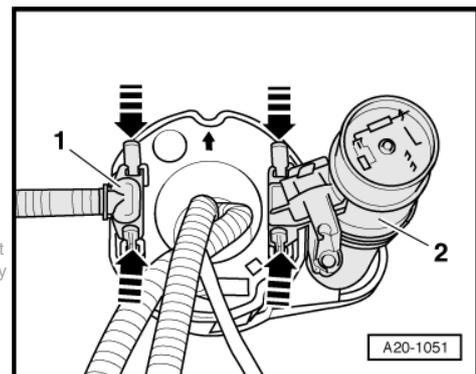
- Working through right fuel tank opening, press release tabs -arrows- and detach fuel supply line -1-.



Note

Disregard -item 2-.

- Pull out disconnected fuel supply line through left fuel tank opening.



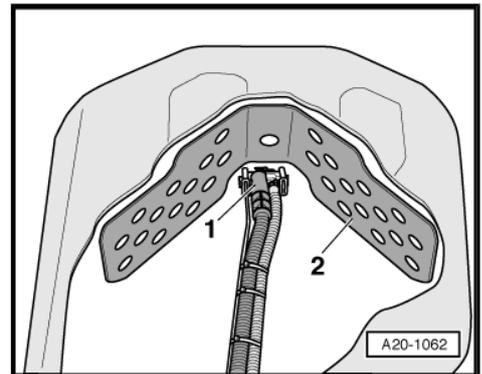
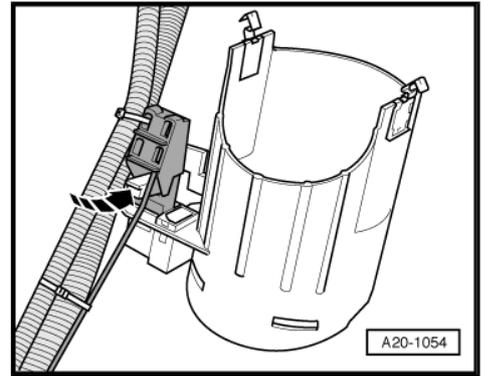
- Working through left fuel tank opening, press release tab -arrow- and detach retaining clip for suction jet lines from retainer.
- Pull out suction-jet pump (left-side) together with lines through left fuel tank opening.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

Installing

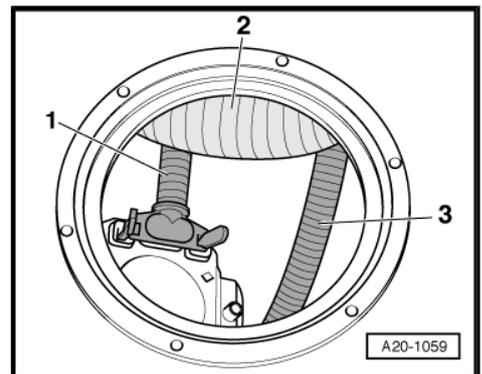
- Version with baffle plate: insert suction-jet pump (left-side) -1- so it fits in recess in baffle plate -2- at front of fuel tank, as shown in illustration.
- Then press retaining clip for suction-jet pump into retainer so it engages audibly.



- Push fuel supply line through left fuel tank opening into right fuel tank chamber. Note routing:
- The fuel supply line -3- must be routed below the fuel filler pipe -2- at the left fuel tank opening.

i Note

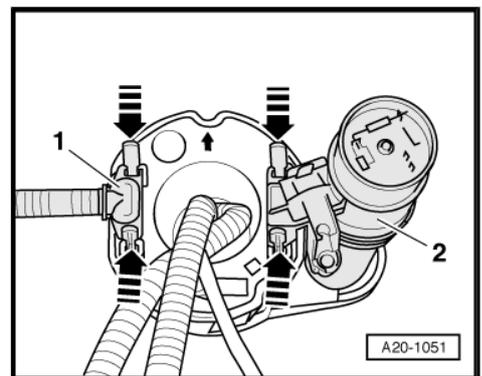
Disregard -item 1-.



- Fit fuel supply line -1- onto fuel delivery unit (right-side) so that it engages audibly.

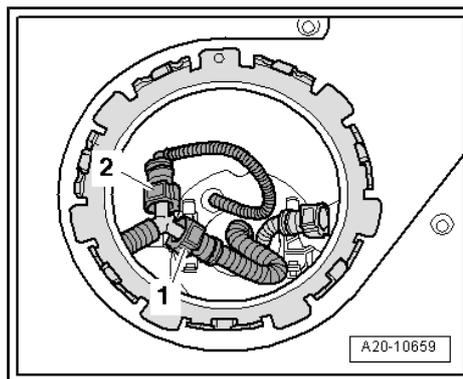
i Note

Disregard -item 2-.

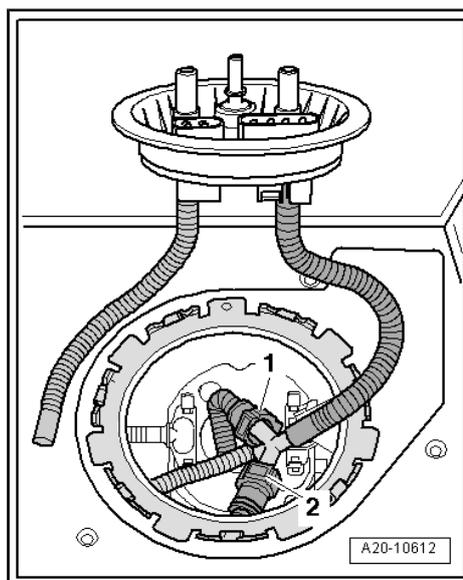




- Working through right fuel tank opening, fit supply lines -1- and -2- for suction-jet pumps onto Y-connector so that they engage audibly.



- Working through right fuel tank opening, fit fuel supply line -1- so that it engages audibly.
- Insert fuel gauge sender 3 - G237- into fuel tank.
- Install fuel delivery unit (left-side) => [page 31](#) .



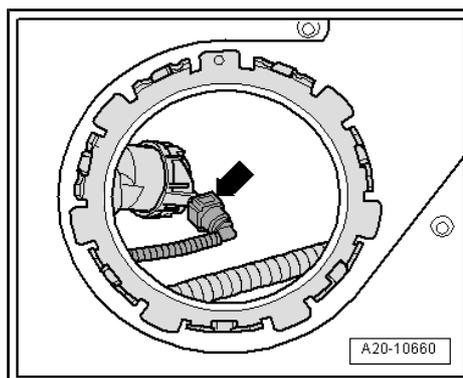
10.13 Removing and installing suction-jet pump (right-side)

Removing

Observe safety precautions => [page 1](#) .

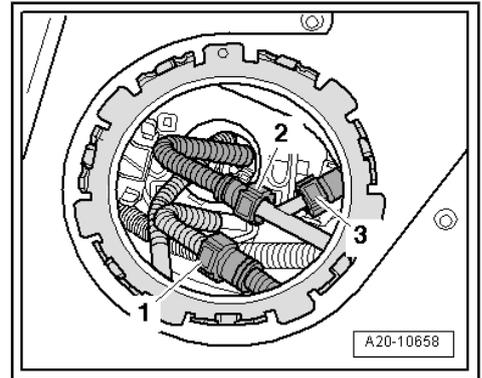
Observe rules for cleanliness => [page 3](#) .

- Remove fuel delivery unit (right-side) => [page 42](#) .
- Remove fuel gauge sender 4 - G393- (tubular sender, right-side) from fuel tank.
- Working through right fuel tank opening, press release tab and disconnect supply line for suction-jet pump -arrow- from expansion tank.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

- Working through left fuel tank opening, press release tabs and disconnect supply lines -2- and -3- for suction-jet pumps from Y-connector.

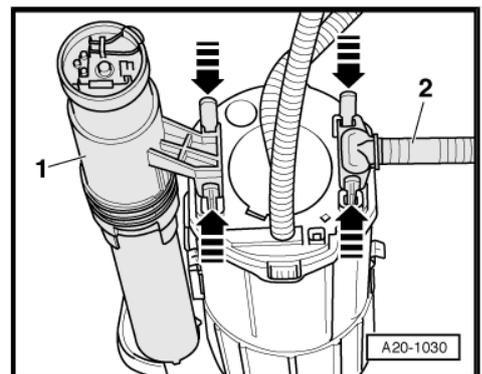


- Working through left fuel tank opening, press release tabs -arrows- and detach fuel supply line -2-.

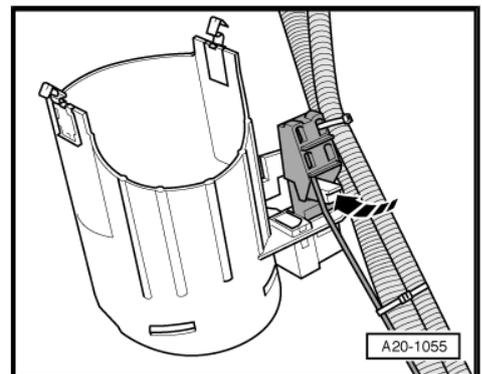
 **Note**

Disregard -item 1-.

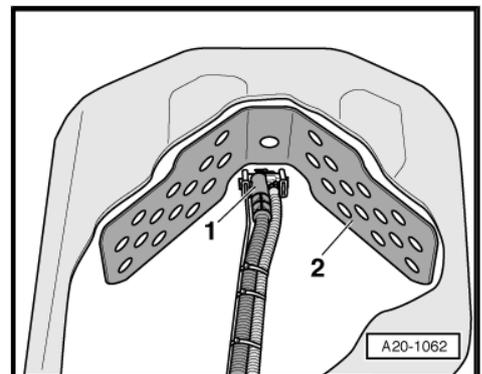
- Pull out disconnected fuel supply line through right fuel tank opening.



- Working through right fuel tank opening, press release tab -arrow- and detach retaining clip for suction jet lines from retainer.
- Pull suction-jet pump (right-side) together with lines out of right fuel tank opening.



- Installing** Copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of the information.
- **Version with baffle plate:** insert suction-jet pump (right-side) -1- so it fits in recess in baffle plate -2- at front of fuel tank, as shown in illustration.
 - Then press retaining clip for suction-jet pump into retainer so it engages audibly.



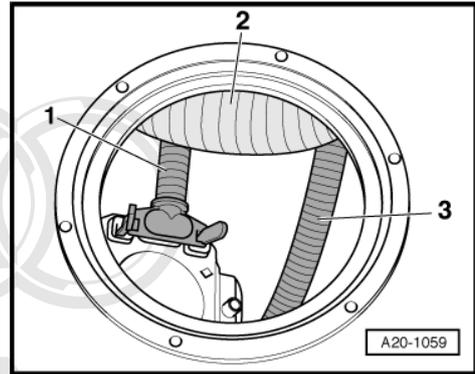


- Push fuel supply line through right fuel tank opening into left fuel tank chamber. Note routing:
 - The fuel supply line -1- must be routed below the fuel filler pipe -2- at the left fuel tank opening.



Note

Disregard -item 3-.



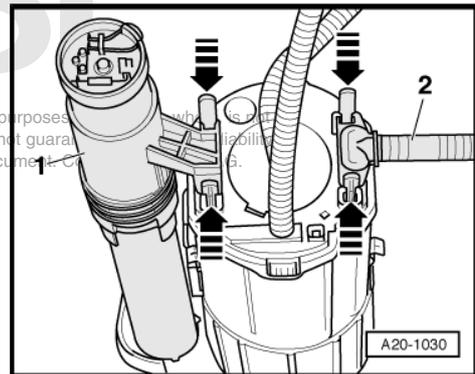
- Fit fuel supply line -2- onto fuel delivery unit (left-side) so that it engages audibly.



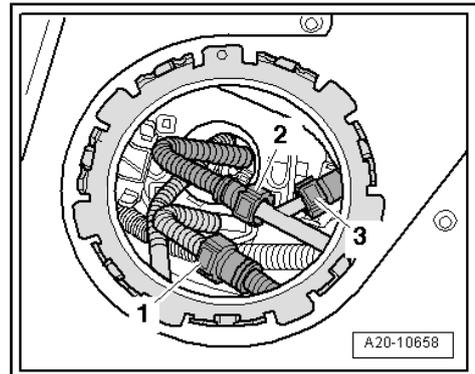
Note

Disregard -item 1-.

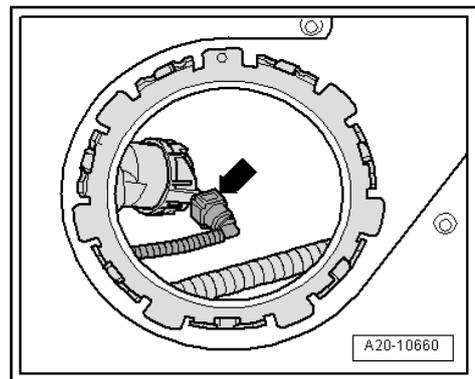
Protected by copyright. Copying for private or commercial purposes without the written permission of Audi AG is prohibited. Audi AG does not guarantee the liability for the correctness of information in this document.



- Push supply line for suction-jet pump through right fuel tank opening into left fuel tank chamber.
- Working through left fuel tank opening, fit supply lines -2- and -3- for suction-jet pumps onto Y-connector so that they engage audibly.



- Working through right fuel tank opening, fit supply line for suction-jet pump -arrow- onto connection on expansion tank so that it engages audibly.
- Insert fuel gauge sender 4 - G393- into fuel tank.
- Install fuel delivery unit (right-side) ⇒ [page 48](#) .



11 Fuel gauge senders - rest-of-world vehicles

⇒ [“11.1 Checking fuel gauge sender G \(lever-type sender, left-side\)”, page 201](#)

⇒ [“11.2 Removing and installing fuel gauge sender G \(lever-type sender, left-side\)”, page 202](#)

⇒ [“11.3 Checking fuel gauge sender 2 G169 \(lever-type sender, right-side\)”, page 203](#)

⇒ [“11.4 Removing and installing fuel gauge sender 2 G169 \(lever-type sender, right-side\)”, page 204](#)

⇒ [“11.5 Checking fuel gauge sender 3 G237 \(tubular sender, left-side\)”, page 205](#)

⇒ [“11.6 Removing and installing fuel gauge sender 3 G237 \(tubular sender, left-side\)”, page 206](#)

⇒ [“11.7 Checking fuel gauge sender 4 G393 \(tubular sender, right-side\)”, page 211](#)

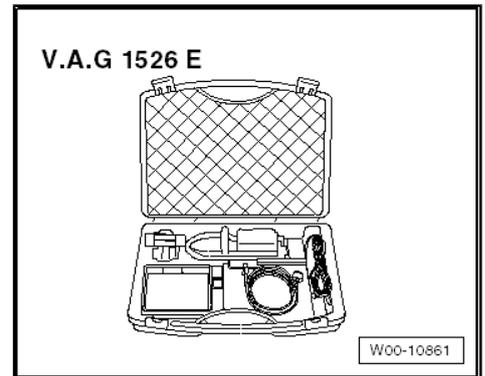
⇒ [“11.8 Removing and installing fuel gauge sender 4 G393 \(tubular sender, right-side\)”, page 213](#)

11.1 Checking fuel gauge sender - G- (lever-type sender, left-side)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Special tools and workshop equipment required

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

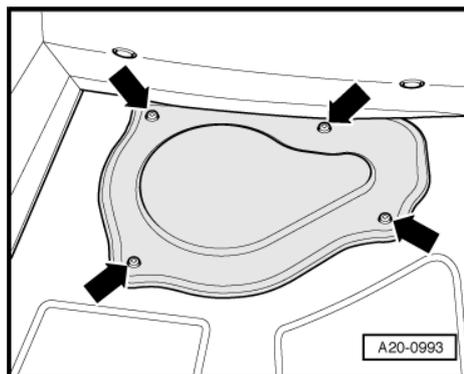


- ◆ Auxiliary measuring set - V.A.G 1594C-



Procedure

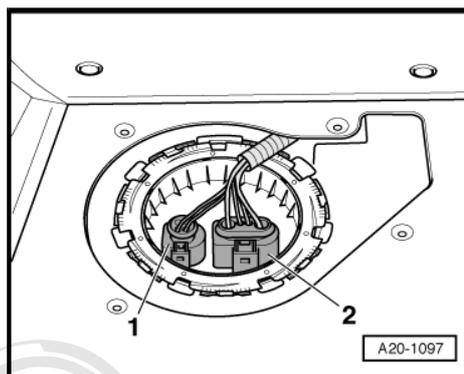
- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



- Unplug electrical connector -1- on flange (left-side).

 **Note**

Disregard -item 2-.



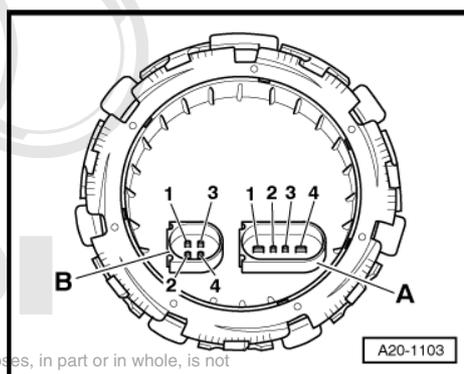
- Connect hand-held multimeter between contacts -2- and -4- of connector -B- to measure resistance.

Sender installed	Sender at low-er stop	Sender at up-per stop
Fuel gauge sender - G-	approx. 700 Ω	approx. 55 Ω

 **Note**

- ◆ If the resistance is 0 Ω, there is a short circuit. If the resistance is ∞ Ω, there is an open circuit in the wiring.
- ◆ In order to test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel gauge sender - G- ⇒ [page 202](#) and move the float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender - G- removed, due to the greater travel of the float arm:

Sender removed	Sender at low-er stop	Sender at up-per stop
Fuel gauge sender - G-	approx. 990 Ω	approx. 55 Ω



11.2 Removing and installing fuel gauge sender - G- (lever-type sender, left-side)

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

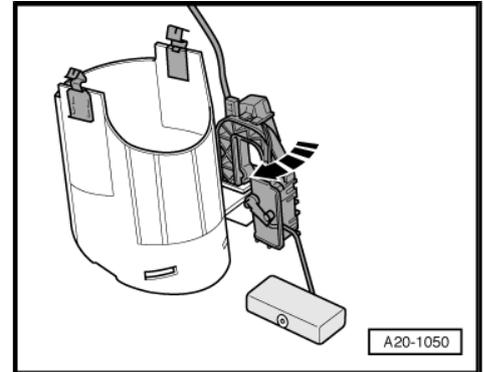
Observe rules for cleanliness ⇒ [page 3](#) .

- The fuel tank must be drained completely before removing the lever-type sender. Procedure for draining the fuel tank ⇒ [page 7](#) .
- Remove fuel delivery unit (left-side):

- ◆ Vehicles with MPI engine ⇒ [page 26](#) .
- ◆ Vehicles with FSI engine ⇒ [page 70](#) .
- Remove fuel gauge sender 3 - G237- (tubular sender, left-side) from fuel tank.
- Release fuel gauge sender - G- -arrow- and detach from retainer.

Installing

- Press fuel gauge sender - G- into retainer so that it engages audibly.
- Insert fuel gauge sender 3 - G237- into fuel tank.
- Install fuel delivery unit (left-side):
- ◆ Vehicles with MPI engine ⇒ [page 26](#) .
- ◆ Vehicles with FSI engine ⇒ [page 70](#) .



11.3 Checking fuel gauge sender 2 - G169- (lever-type sender, right-side)

Special tools and workshop equipment required

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



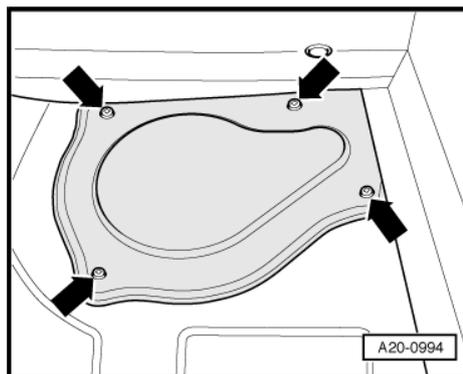
- ◆ Auxiliary measuring set - V.A.G 1594C-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



Procedure

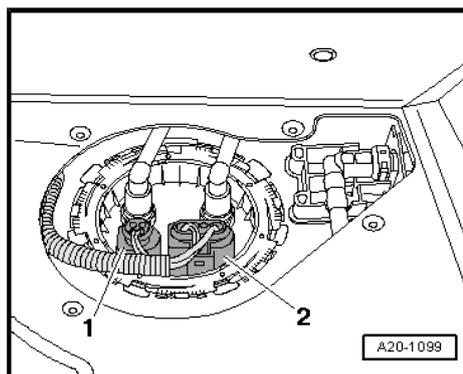
- Remove luggage compartment floor covering.
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -1- on flange (right-side).

Note

Disregard -item 2-.

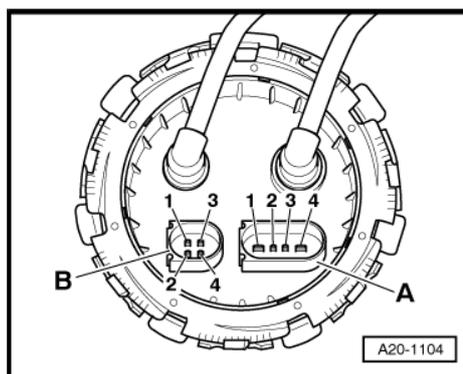


- Connect hand-held multimeter between contacts -2- and -4- of connector -B- to measure resistance.

Sender installed	Sender at low-er stop	Sender at up-per stop
Fuel gauge sender 2 - G169-	approx. 750 Ω	approx. 55 Ω

Note

- ◆ If the resistance is 0 Ω, there is a short circuit. If the resistance is ∞ Ω, there is an open circuit in the wiring.
- ◆ In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 2 - G169- ⇒ [page 204](#) and move the float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender 2 - G169- removed, due to the greater travel of the float arm:



Sender removed	Sender at low-er stop	Sender at up-per stop
Fuel gauge sender 2 - G169-	approx. 990 Ω	approx. 55 Ω

11.4 Removing and installing fuel gauge sender 2 - G169- (lever-type sender, right-side)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the express authorisation 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.

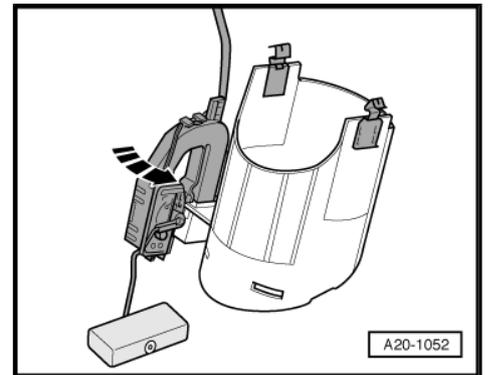
Removing

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

- The fuel tank must be drained completely before removing the lever-type sender. Procedure for draining the fuel tank ⇒ [page 7](#) .
- Remove fuel delivery unit (right-side):
 - ◆ Vehicles with MPI engine ⇒ [page 42](#) .
 - ◆ Vehicles with FSI engine ⇒ [page 81](#) .
- Remove fuel gauge sender 4 - G393- (tubular sender, right-side) from fuel tank.
- Release fuel gauge sender 2 - G169- -arrow- and detach from retainer.

Installing

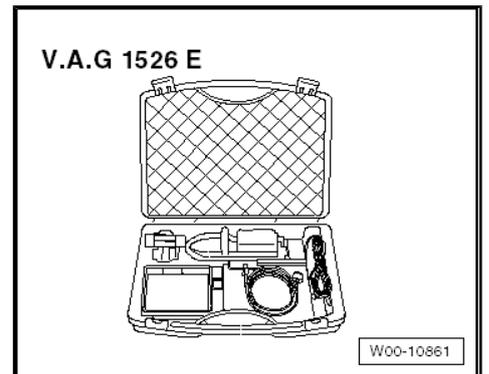
- Press fuel gauge sender 2 - G169- into retainer so that it engages audibly.
- Insert fuel gauge sender 4 - G393- into fuel tank.
- Install fuel delivery unit (right-side):
 - ◆ Vehicles with MPI engine ⇒ [page 42](#) .
 - ◆ Vehicles with FSI engine ⇒ [page 81](#) .



11.5 Checking fuel gauge sender 3 - G237- (tubular sender, left-side)

Special tools and workshop equipment required

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



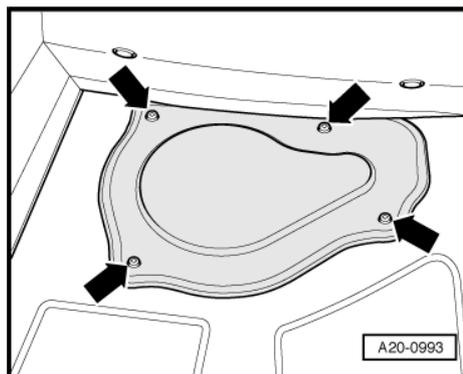
- ◆ Auxiliary measuring set - V.A.G 1594C-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

Procedure

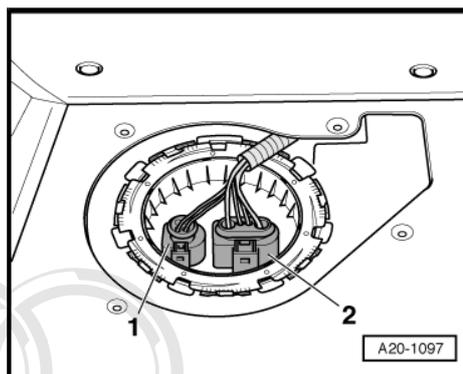
- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



- Unplug electrical connector -2- on flange (left-side).

 **Note**

Disregard -item 1-.

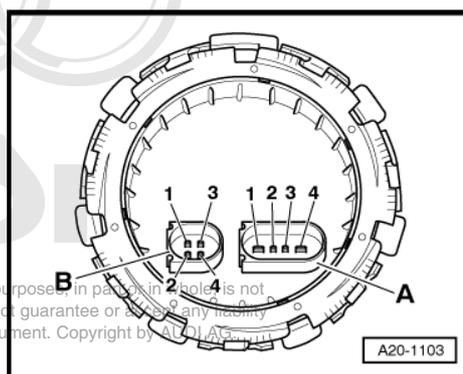


- Connect hand-held multimeter between contacts -2- and -3- of connector -A- to measure resistance.

Sender removed	Sender at low- er stop	Sender at up- per stop
Fuel gauge sender 3 - G237-	approx. 155 Ω	approx. 70 Ω

 **Note**

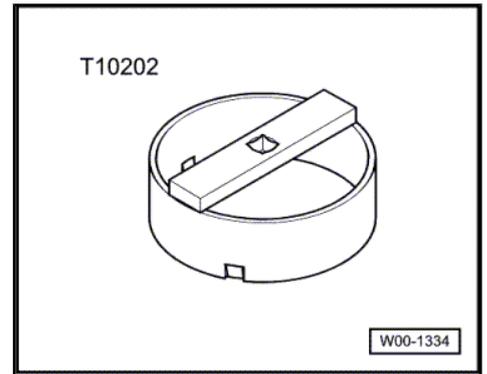
- ◆ *If the resistance is 0 Ω, there is a short circuit. If the resistance is ∞ Ω, there is an open circuit in the wiring.*
- ◆ *In order to test the maximum and minimum values for “tank full” and “tank empty”, remove the fuel gauge sender 3 - G237- ⇒ [page 206](#) and move the float all the way to its top or bottom position.*



11.6 Removing and installing fuel gauge sender 3 - G237- (tubular sender, left-side)

Special tools and workshop equipment required

- ◆ Vehicles from approx. 11.2002: Wrench - T10202-



Removing

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

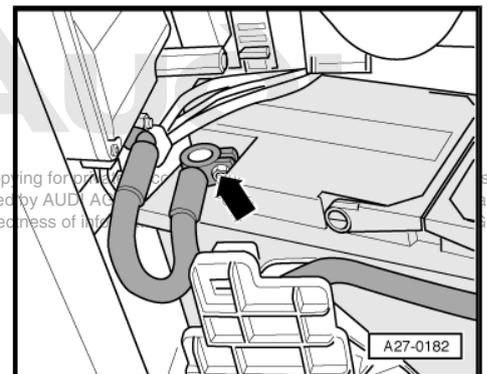
Observe rules for cleanliness ⇒ [page 3](#) .

- The left fuel tank chamber must not be more than $\frac{1}{3}$ full when removing the tubular sender. Procedure for draining the fuel tank ⇒ [page 7](#) .



Caution
Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable -arrow- ⇒ Electrical system; Rep. gr. 27 .
- Briefly open filler cap for fuel tank and close again.



Protected by copyright. Copying for private use is not permitted unless authorised by AUDI AG. Liability with respect to the correctness of this information is not assumed.

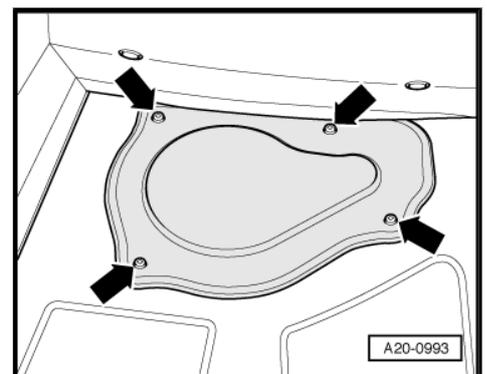
- Remove luggage compartment floor covering.



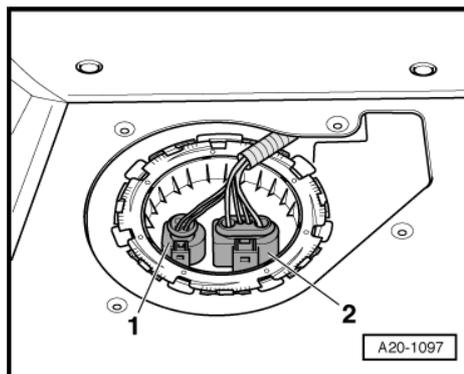
Note

For removing and installing tubular sender, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

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

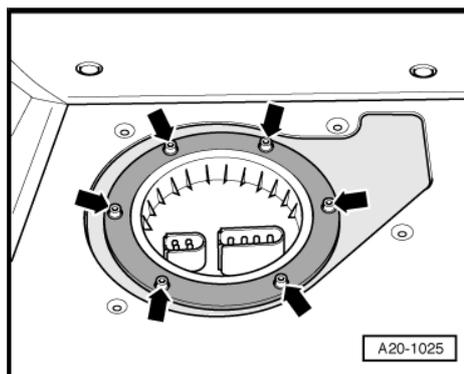


- Unplug electrical connectors -1- and -2- on flange (left-side).



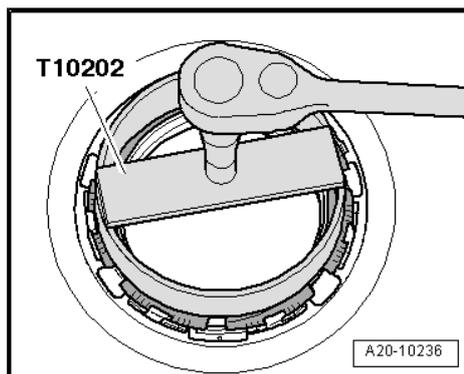
Vehicles up to approx. 10.2002:

- Remove bolts -arrows- and take off locking ring for flange (left-side).



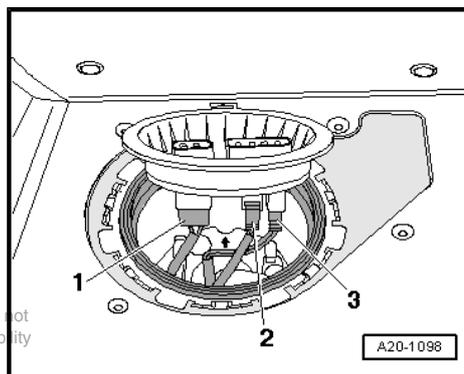
Vehicles from approx. 11.2002 onwards:

- Unscrew locking ring using wrench - T10202- .



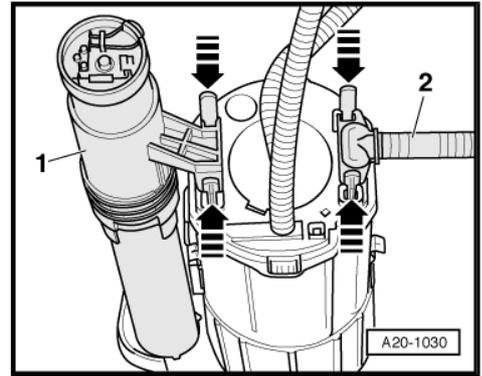
All vehicles (continued):

- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (left-side).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

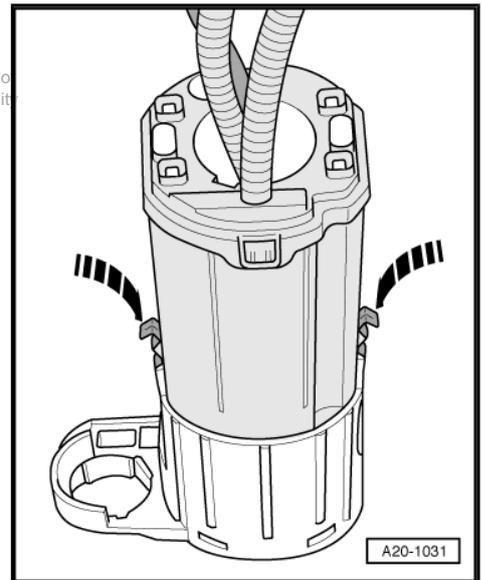
- Working through left fuel tank opening, press release tabs -arrows- and detach fuel supply line -2- and fuel gauge sender 3 - G237- -item 1-.
- Move fuel gauge sender 3 - G237- to left side.



- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Pull fuel delivery unit slightly upwards and at the same time take out fuel gauge sender 3 - G237-.

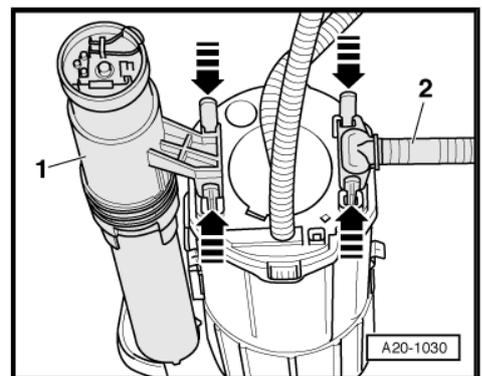
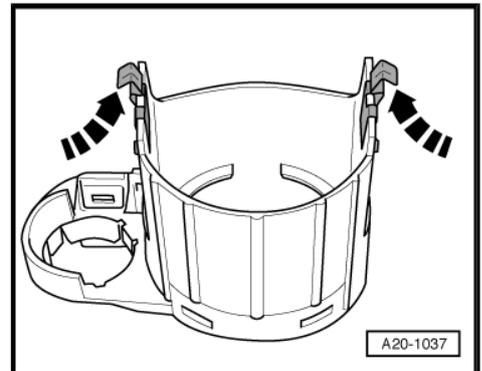
i Note

Keep in mind that the fuel gauge sender 3 - G237- still contains fuel.



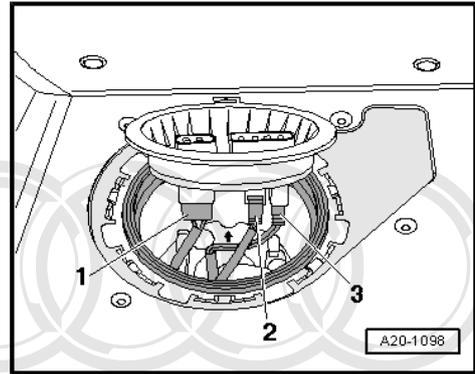
Installing

- Tightening torques => [page 19](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Pull fuel delivery unit up slightly and insert fuel gauge sender 3 - G237- .
- Then press fuel delivery unit carefully into retainer so that it engages audibly.
- Fit fuel supply line -2- and fuel gauge sender 3 - G237- -item 1- so that they engage audibly.



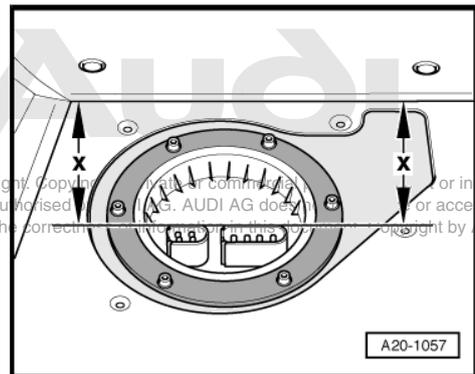


- Connect electrical connectors -1 ... 3- on underside of flange (left-side).



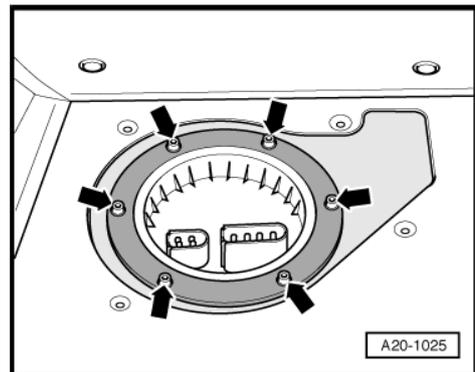
Vehicles up to approx. 10.2002:

- Fit flange with new O-ring into fuel tank; note correct installation position:
- The electrical connectors are positioned transversely in relation to direction of travel.
- Dimension -x- (left-side) = dimension -x- (right-side)



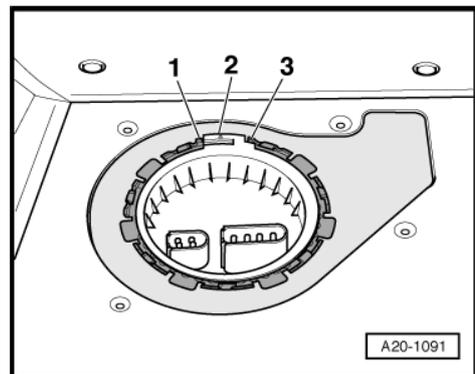
Protected by copyright. Copying or reproduction in any form or by any means, in whole or in part, is not permitted unless authorised in writing by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of this document. Copyright by AUDI AG.

- Secure locking ring for flange (left-side) in diagonal sequence -arrows-.

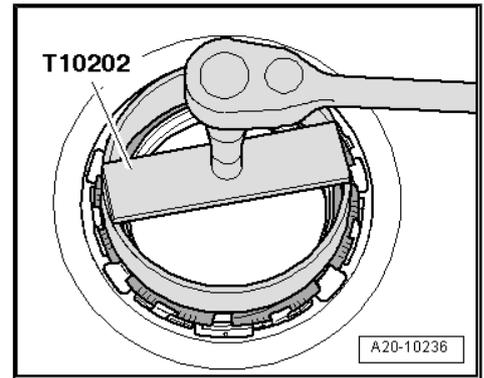


Vehicles from approx. 11.2002 onwards:

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.

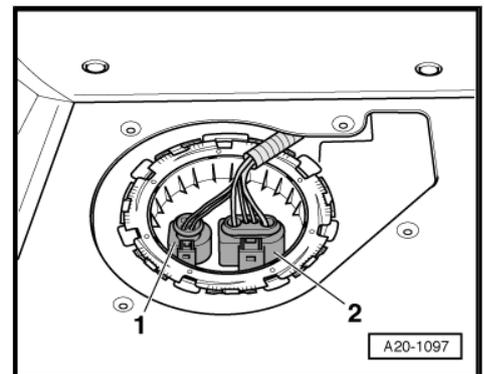


- Tighten locking ring.

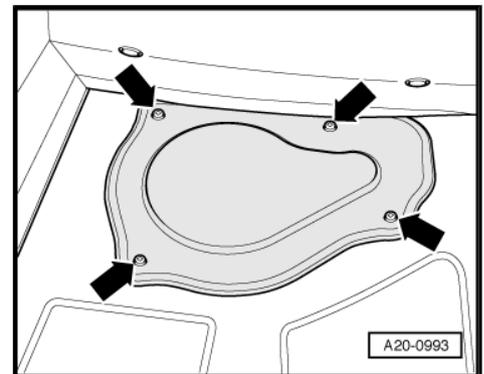


All vehicles (continued):

- Attach electrical connectors -1- and -2- on flange (left-side).



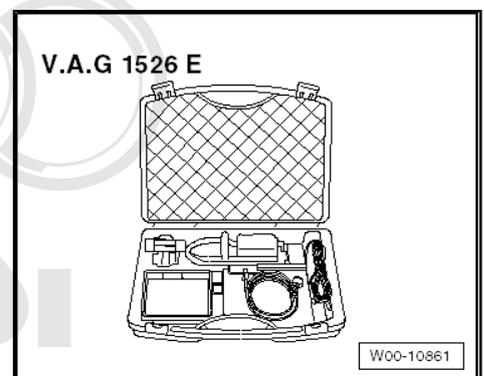
- Secure cover for flange (left-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery => Electrical system; Rep. gr. 27 .



11.7 Checking fuel gauge sender 4 - G393- (tubular sender, right-side)

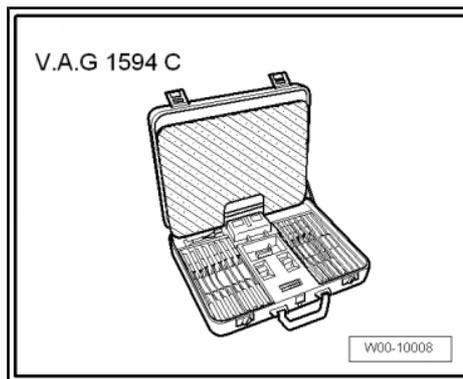
Special tools and workshop equipment required

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



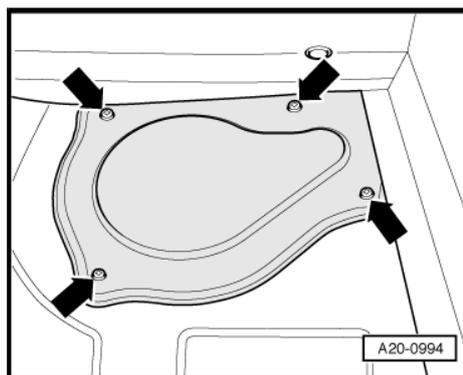
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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



Procedure

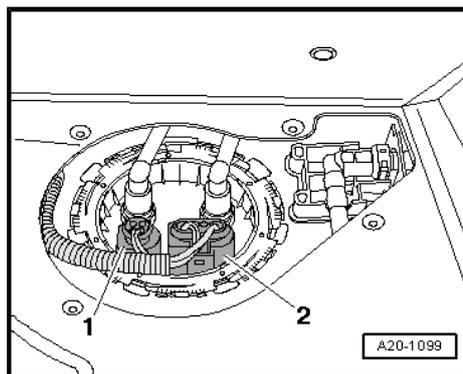
- Remove luggage compartment floor covering.
- Unscrew cover for flange (right-side) -arrows-.



- Unplug electrical connector -2- on flange (right-side).

 **Note**

Disregard -item 1-.

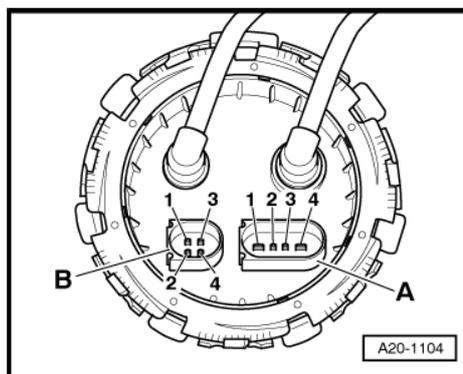


- Connect hand-held multimeter between contacts -2- and -3- of connector -A- to measure resistance.

Sender removed	Sender at low-er stop	Sender at up-per stop
Fuel gauge sender 4 - G393-	approx. 155 Ω	approx. 70 Ω

 **Note** Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

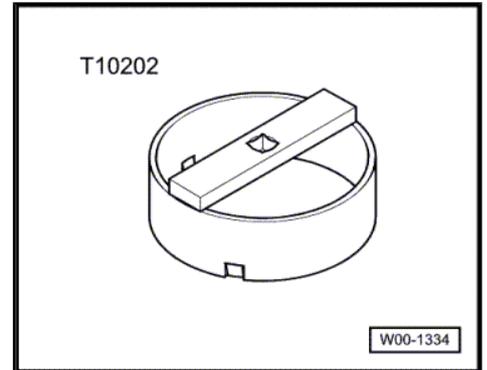
- ◆ If the resistance is 0 Ω, there is a short circuit. If the resistance is ∞ Ω, there is an open circuit in the wiring.
- ◆ In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 4 - G393- ⇒ [page 213](#) and move the float all the way to its top or bottom position.



11.8 Removing and installing fuel gauge sender 4 - G393- (tubular sender, right-side)

Special tools and workshop equipment required

- ◆ Vehicles from approx. 11.2002: Wrench - T10202-



Removing

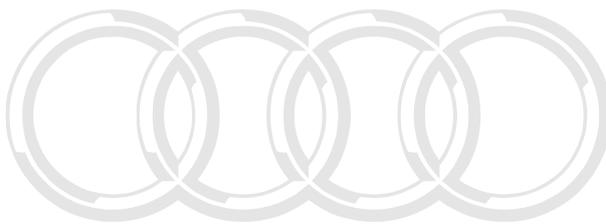
Observe safety precautions ⇒ [page 1](#) .

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

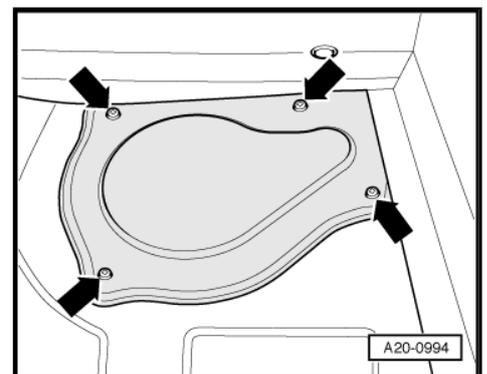
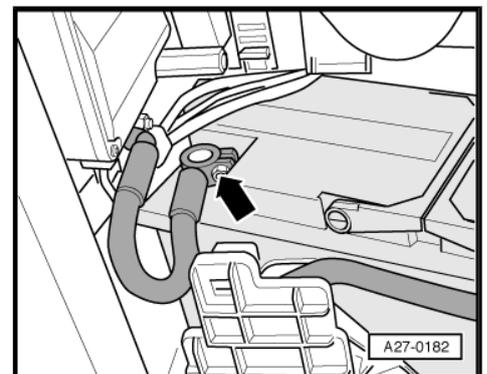
- The right fuel tank chamber must not be more than $\frac{1}{3}$ full when removing the tubular sender. Procedure for draining the fuel tank ⇒ [page 7](#) .

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

- With ignition switched off, disconnect battery earth cable -arrow- ⇒ Electrical system; Rep. gr. 27 .
- Briefly open filler cap for fuel tank and close again.



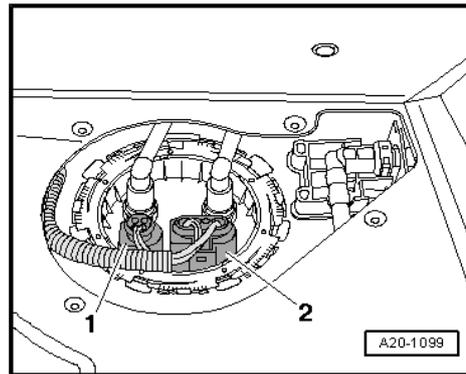
- Remove luggage compartment floor covering.
- Unscrew cover for flange (right-side) -arrows-.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



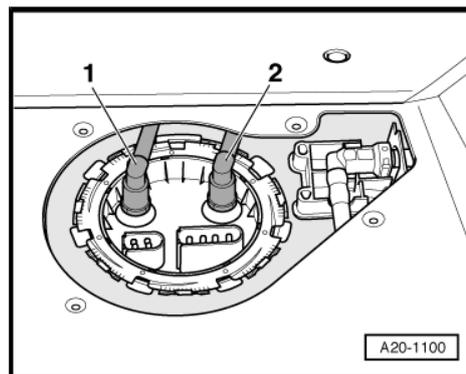
- Unplug electrical connectors -1- and -2- on flange (right-side).



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

! WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.



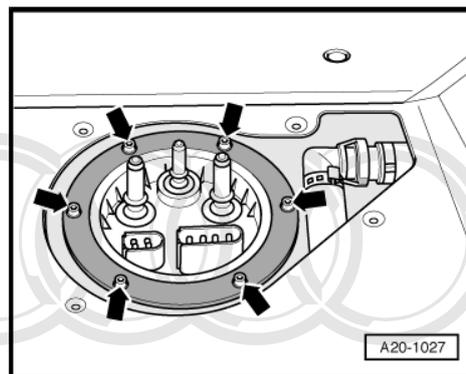
- Detach both lines from flange (press release tabs).

Vehicles with auxiliary heater:

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

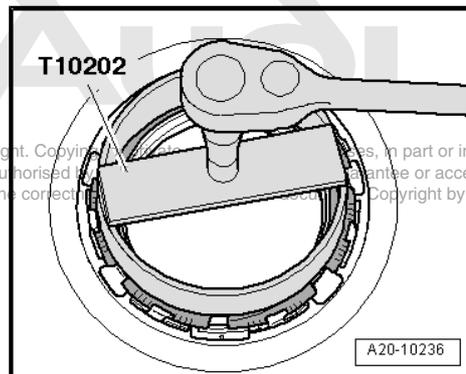
Vehicles up to approx. 10.2002:

- Remove bolts -arrows- and take off locking ring for flange (right-side).



Vehicles from approx. 11.2002 onwards:

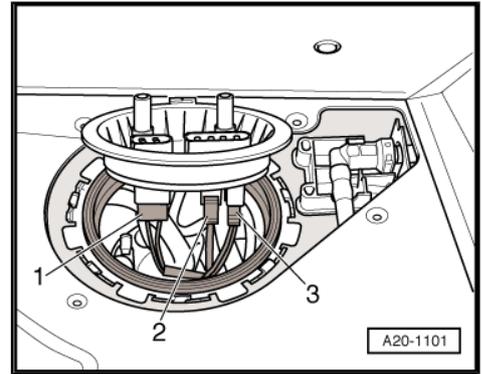
- Unscrew locking ring using wrench - T10202- .



Protected by copyright. Copying, in part or in whole, is not permitted unless authorised by Audi AG. Copyright by AUDI AG.

All vehicles (continued):

- Detach flange and remove seal/O-ring.
- Unplug electrical connectors -1 ... 3- on underside of flange (right-side).

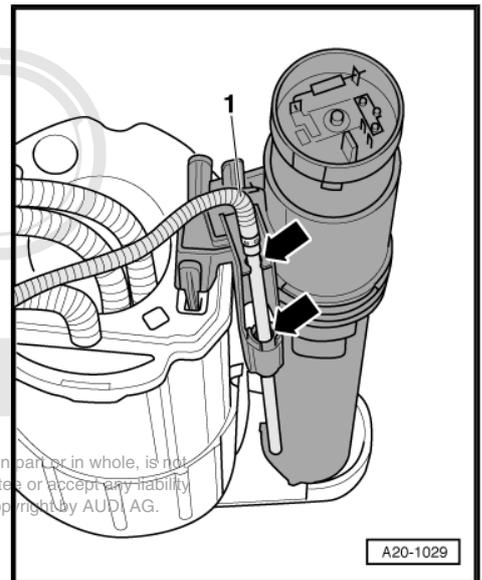


Note

- ◆ Pull out fuel lines from fuel tank opening prior to disconnecting the pipe connectors mentioned below.
- ◆ For illustration purposes some of the components are shown removed in the following illustrations.

Vehicles with auxiliary heater:

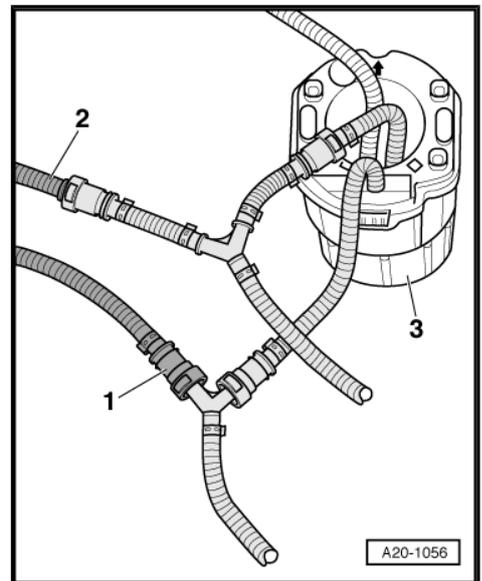
- Pull out suction pipe -1- for auxiliary heater from retainers -arrows- on tubular sender.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

Vehicles with MPI engine:

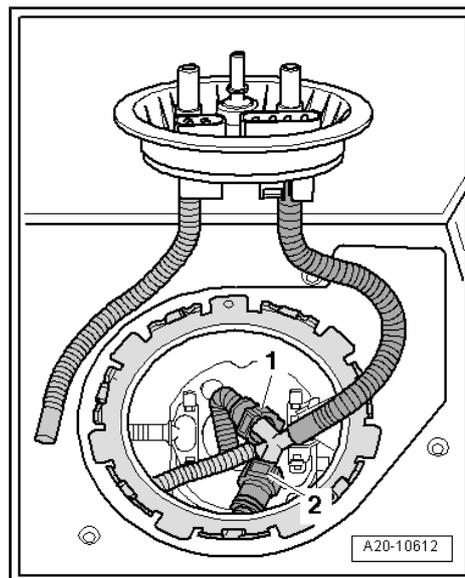
- Working through right fuel tank opening, press release tabs and disconnect fuel lines -1- and -2- going to fuel delivery unit (left-side).
- 3 - Fuel delivery unit (right-side) with fuel pump - G23-





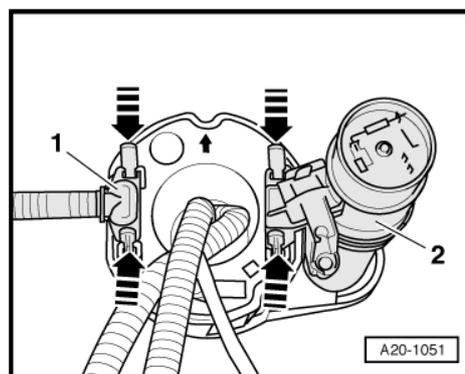
Vehicles with FSI engine:

- Working through right fuel tank opening, press release tabs and disconnect fuel supply lines -1- and -2- going to fuel delivery units.



All vehicles (continued):

- Working through right fuel tank opening, press release tabs -arrows- and detach fuel supply line -1- and fuel gauge sender 4 - G393- -item 2-.
- Move fuel gauge sender 4 - G393- to right side.

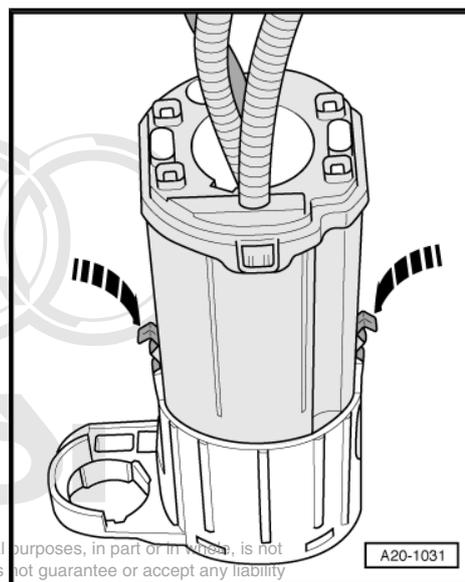


- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Pull fuel delivery unit slightly upwards and at the same time take out fuel gauge sender 4 - G393- .



Note

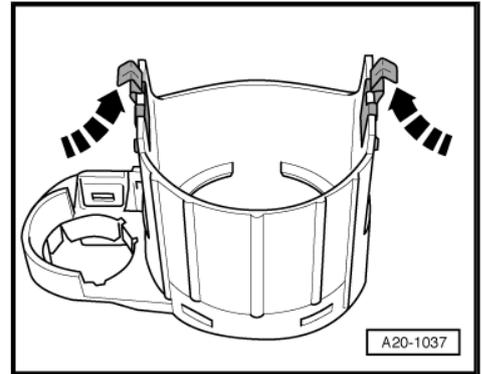
Keep in mind that the fuel gauge sender 4 - G393- still contains fuel.



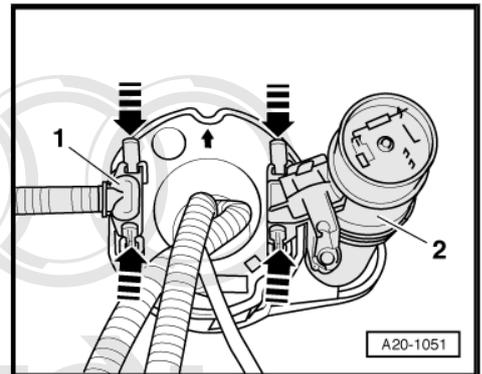
Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Installing

- Tightening torques ⇒ [page 36](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Pull fuel delivery unit up slightly and insert fuel gauge sender 4 - G393- .
- Then press fuel delivery unit carefully into retainer so that it engages audibly.

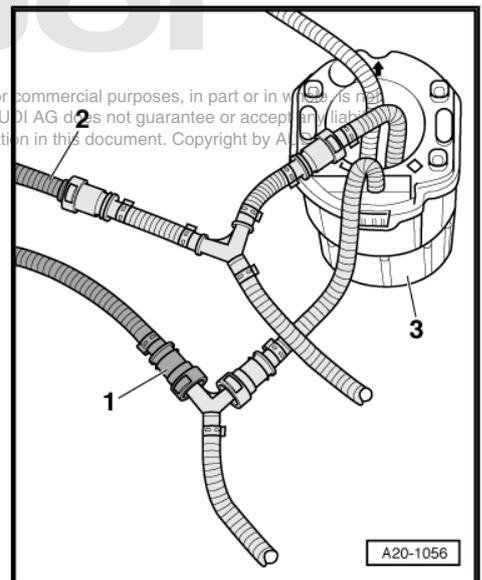


- Fit fuel supply line -1- and fuel gauge sender 4 - G393- -item 2- so that they engage audibly.



Vehicles with MPI engine:

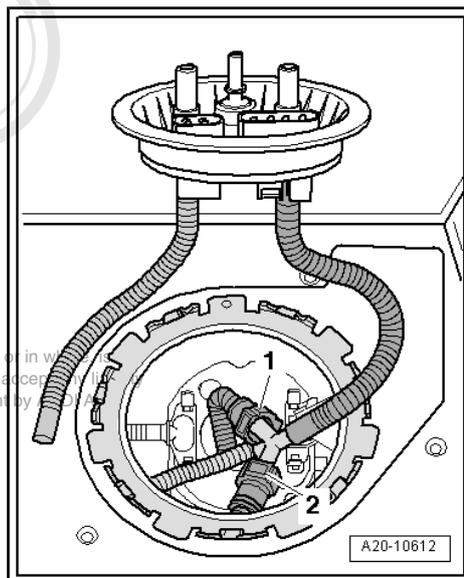
- Working through right fuel tank opening, connect fuel lines -1- and -2- going to left fuel delivery unit so that they engage audibly.
- 3 - Fuel delivery unit (right-side) with fuel pump - G23-



Vehicles with FSI engine:

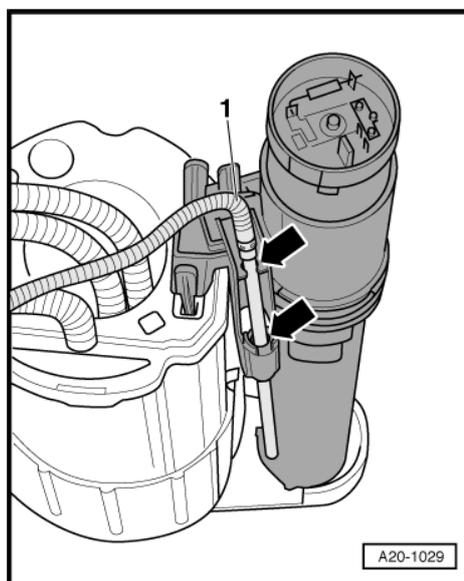
- Working through right fuel tank opening, fit fuel lines -1- and -2- going to fuel delivery units so that they engage audibly.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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



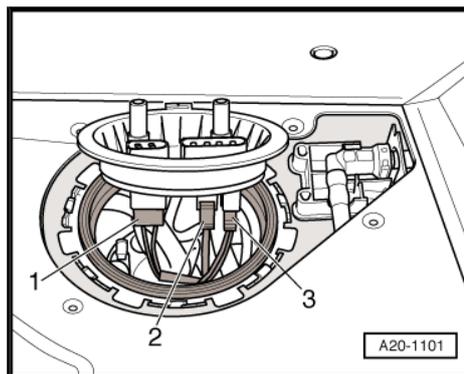
Vehicles with auxiliary heater:

- Fit suction pipe -1- for auxiliary heater into retainers -arrows- on tubular sender.



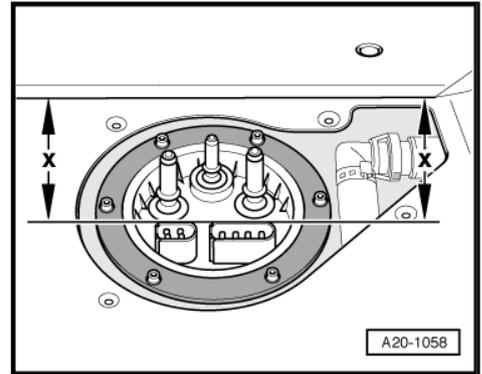
All vehicles (continued):

- Connect electrical connectors -1 ... 3- on underside of flange (right-side).

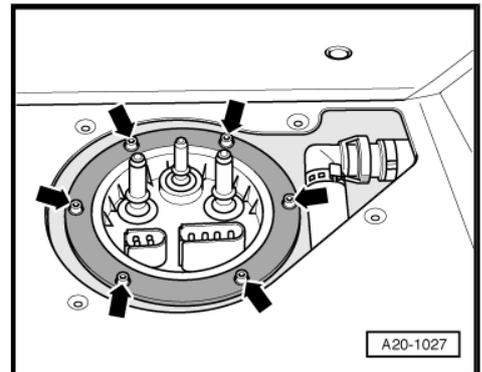


Vehicles up to approx. 10.2002:

- Fit flange with new O-ring into fuel tank; note correct installation position:
- The electrical connectors are positioned transversely in relation to direction of travel.
- Dimension -x- (left-side) = dimension -x- (right-side)

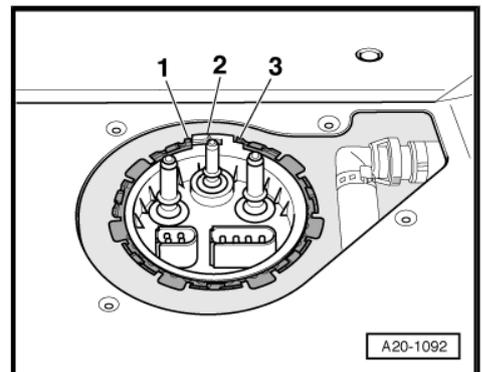


- Secure locking ring for flange (right-side) in diagonal sequence -arrows-.

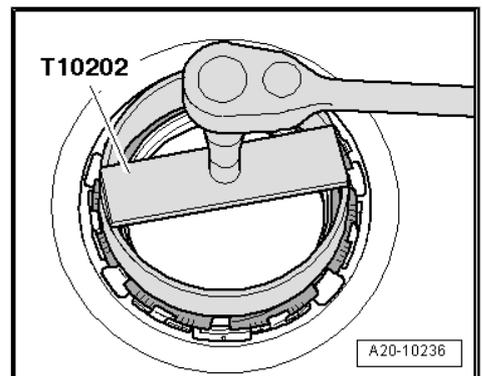


Vehicles from approx. 11.2002 onwards:

- Install new seal for flange (seal must be installed dry).
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



- Tighten locking ring.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

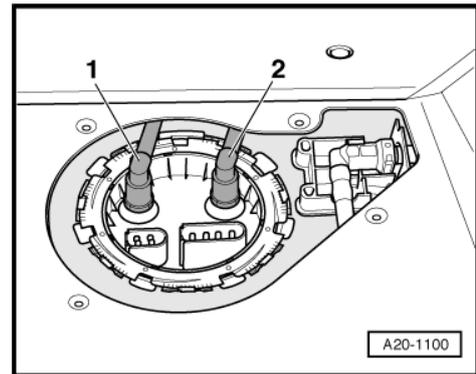


All vehicles (continued):

- Install fuel supply line -2- and fuel return line -1- (as marked) so that they engage audibly.

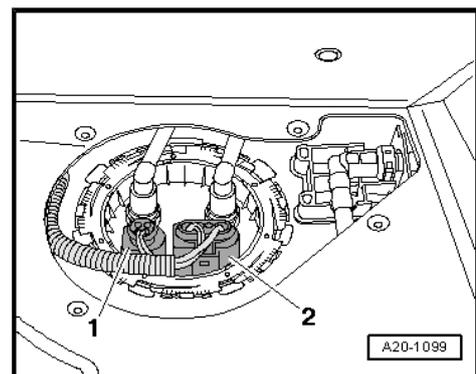
Vehicles with auxiliary heater:

- Also fit fuel supply line going to auxiliary heater so that it engages audibly.



All vehicles (continued):

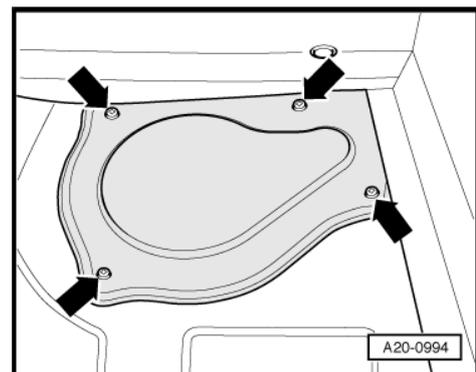
- Attach electrical connectors -1- and -2- on flange (right-side).



- Secure cover for flange (right-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Electrical system; Rep. gr. 27 .

Vehicles with auxiliary heater:

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



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

12 Fuel gauge senders - USA vehicles

⇒ [“12.1 Checking fuel gauge sender G \(lever-type sender, left-side\)”, page 221](#)

⇒ [“12.2 Removing and installing fuel gauge sender G \(lever-type sender, left-side\)”, page 222](#)

⇒ [“12.3 Checking fuel gauge sender 2 G169 \(lever-type sender, right-side\)”, page 223](#)

⇒ [“12.4 Removing and installing fuel gauge sender 2 G169 \(lever-type sender, right-side\)”, page 224](#)

⇒ [“12.5 Checking fuel gauge sender 3 G237 \(tubular sender, left-side\)”, page 225](#)

⇒ [“12.6 Removing and installing fuel gauge sender 3 G237 \(tubular sender, left-side\)”, page 226](#)

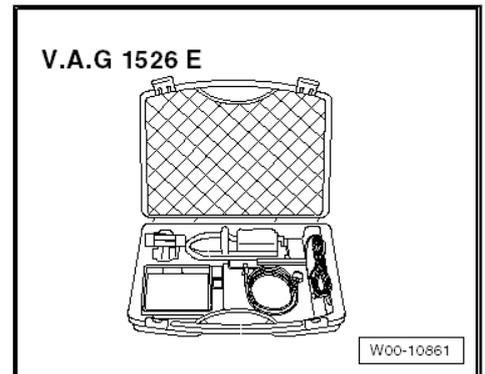
⇒ [“12.7 Checking fuel gauge sender 4 G393 \(tubular sender, right-side\)”, page 230](#)

⇒ [“12.8 Removing and installing fuel gauge sender 4 G393 \(tubular sender, right-side\)”, page 232](#)

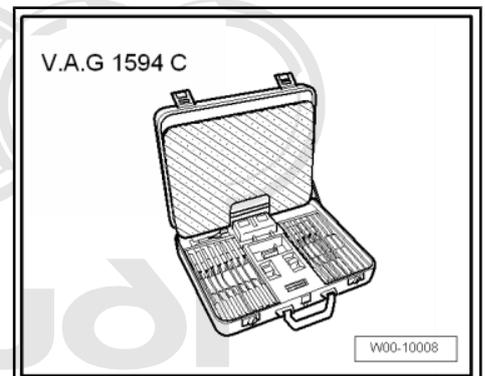
12.1 Checking fuel gauge sender - G- (lever-type sender, left-side)

Special tools and workshop equipment required

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



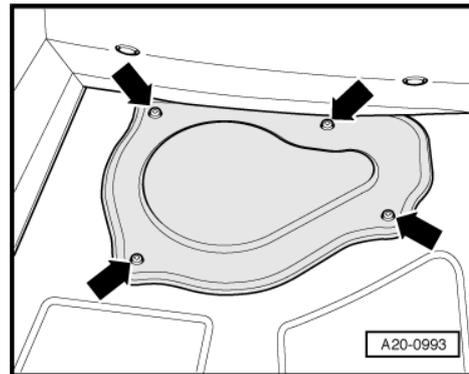
◆ Auxiliary measuring set - V.A.G 1594C-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

Procedure

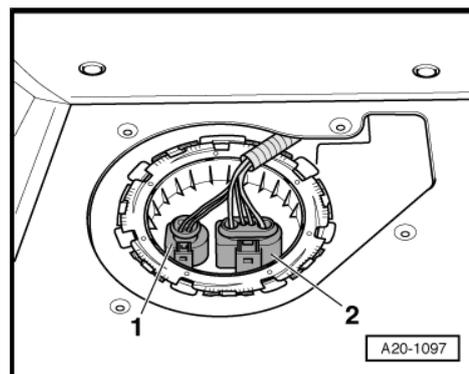
- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



- Unplug electrical connector -1- on flange (left-side).

 **Note**

Disregard -item 2-.

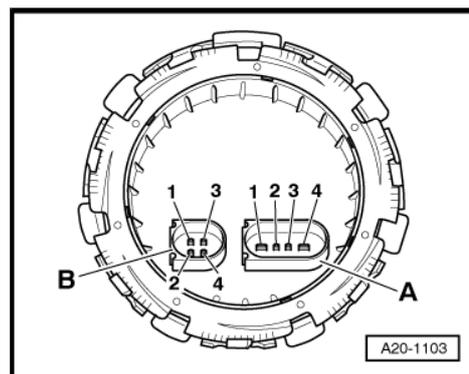


- Connect hand-held multimeter between contacts -2- and -4- of connector -B- to measure resistance.

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

 **Note**

- ◆ If the resistance is 0 Ω, there is a short circuit. If the resistance is ∞ Ω, there is an open circuit in the wiring.
- ◆ In order to test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel gauge sender - G- ⇒ [page 222](#) and move the float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender - G- removed, due to the greater travel of the float arm.



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

12.2 Removing and installing fuel gauge sender - G- (lever-type sender, left-side)

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

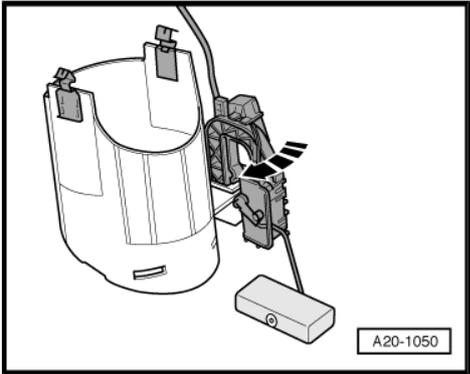
Caution

- *The fuel tank must be drained completely before removing the lever-type sender. Procedure for draining the fuel tank ⇒ page 112.*

- Remove fuel delivery unit (left-side):
- ◆ Vehicles with MPI engine ⇒ page 129 .
- ◆ Vehicles with FSI engine ⇒ page 167 .
- Remove fuel gauge sender 3 - G237- (tubular sender, left-side) from fuel tank.
- Release fuel gauge sender - G- -arrow- and detach from retainer.

Installing

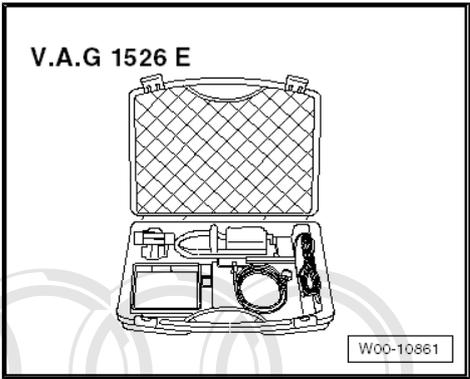
- Press fuel gauge sender - G- into retainer so that it engages audibly.
- Insert fuel gauge sender 3 - G237- into fuel tank.
- Install fuel delivery unit (left-side):
- ◆ Vehicles with MPI engine ⇒ page 129 .
- ◆ Vehicles with FSI engine ⇒ page 167 .



12.3 Checking fuel gauge sender 2 - G169- (lever-type sender, right-side)

Special tools and workshop equipment required

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



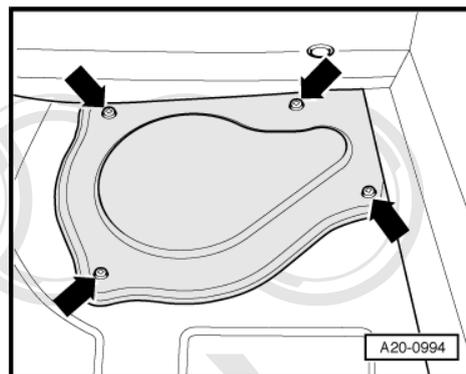
- ◆ Auxiliary measuring set - V.A.G 1594C-



Protected by copyright. Copying for private or commercial use, or for advertising or promotional purposes, or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability for the use of the information or for any damage or with respect to the correctness of information in this document. Copyright by AUDI AG

**Procedure**

- Remove luggage compartment floor covering.
- Unscrew cover for flange (right-side) -arrows-.

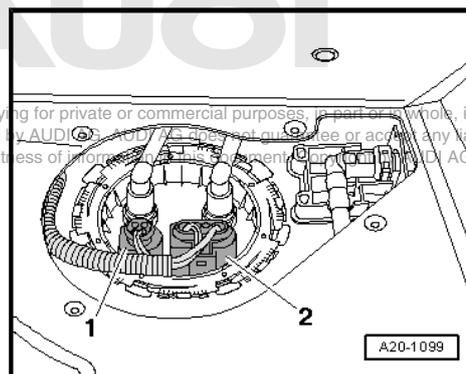


- Unplug electrical connector -1- on flange (right-side).

**Note**

Disregard -item 2-.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of AUDI AG.



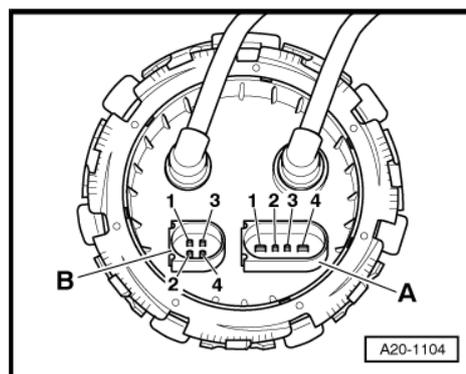
- Connect hand-held multimeter between contacts -2- and -4- of connector -B- to measure resistance.

Sender installed	Sender at low-er stop	Sender at up-per stop
Fuel gauge sender 2 - G169-	approx. 750 Ω	approx. 55 Ω

**Note**

- ◆ If the resistance is 0 Ω , there is a short circuit. If the resistance is $\infty \Omega$, there is an open circuit in the wiring.
- ◆ In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 2 - G169- [⇒ page 224](#) and move the float all the way to its top or bottom position.
- ◆ The following values are obtained with the fuel gauge sender 2 - G169- removed, due to the greater travel of the float arm:

Sender removed	Sender at low-er stop	Sender at up-per stop
Fuel gauge sender 2 - G169-	approx. 990 Ω	approx. 55 Ω



12.4 Removing and installing fuel gauge sender 2 - G169- (lever-type sender, right-side)

Removing

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

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



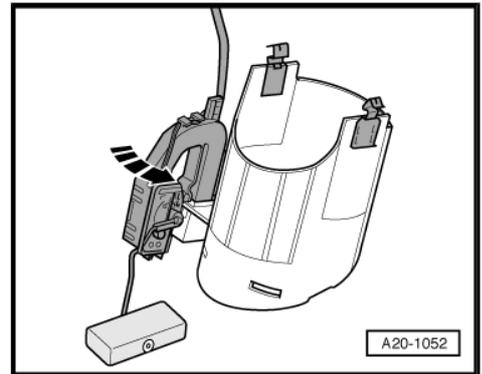
Caution

- *The fuel tank must be drained completely before removing the lever-type sender. Procedure for draining the fuel tank ⇒ page 112.*

- Remove fuel delivery unit (right-side):
 - ◆ Vehicles with MPI engine ⇒ page 141 .
 - ◆ Vehicles with FSI engine ⇒ page 177 .
- Remove fuel gauge sender 4 - G393- (tubular sender, right-side) from fuel tank.
- Release fuel gauge sender 2 - G169- -arrow- and detach from retainer.

Installing

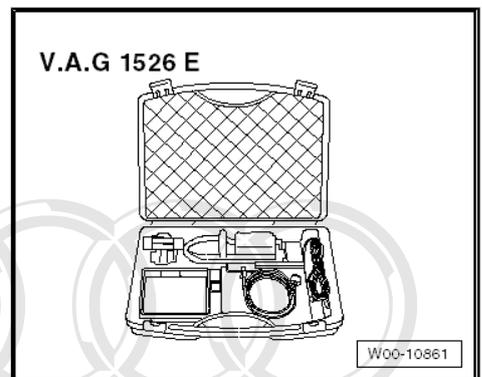
- Press fuel gauge sender 2 - G169- into retainer so that it engages audibly.
- Insert fuel gauge sender 4 - G393- into fuel tank.
- Install fuel delivery unit (right-side):
 - ◆ Vehicles with MPI engine ⇒ page 141 .
 - ◆ Vehicles with FSI engine ⇒ page 177 .



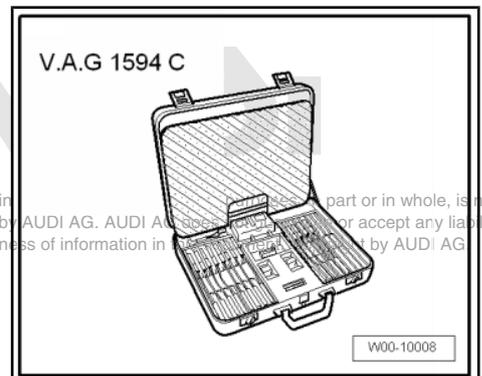
12.5 Checking fuel gauge sender 3 - G237- (tubular sender, left-side)

Special tools and workshop equipment required

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



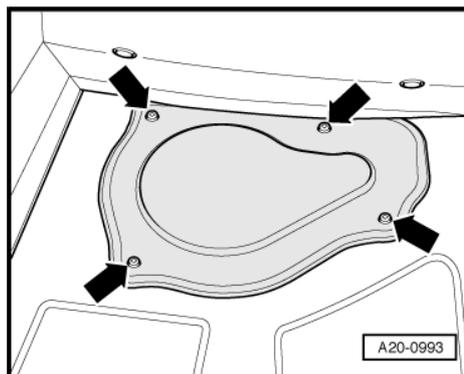
- ◆ Auxiliary measuring set - V.A.G 1594C-



Protected by copyright. Copying or reproduction in any form or by any means, in whole or in part, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. © 2002 by AUDI AG

Procedure

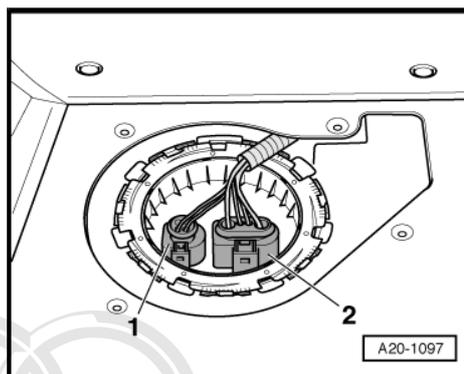
- Remove luggage compartment floor covering.
- Detach cover for flange (left-side) -arrows-.



- Unplug electrical connector -2- on flange (left-side).

i Note

Disregard -item 1-.

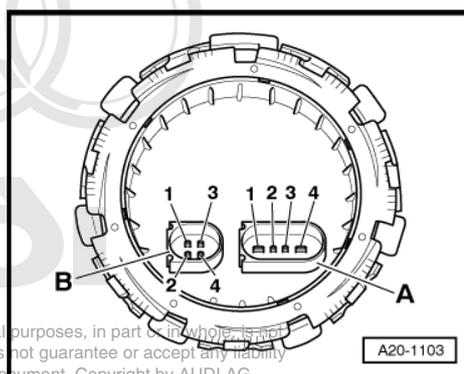


- Connect hand-held multimeter between contacts -2- and -3- of connector -A- to measure resistance.

Sender removed	Sender at low- er stop	Sender at up- per stop
Fuel gauge sender 3 - G237-	approx. 155 Ω	approx. 70 Ω

i Note

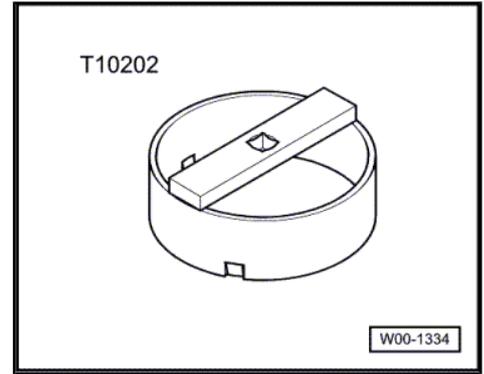
- ◆ *If the resistance is 0 Ω, there is a short circuit. If the resistance is ∞ Ω, there is an open circuit in the wiring.*
- ◆ *In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 3 - G237- => page 226 and move the float all the way to its top or bottom position.*



12.6 Removing and installing fuel gauge sender 3 - G237- (tubular sender, left-side)

Special tools and workshop equipment required

◆ Wrench - T10202-



Removing

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

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

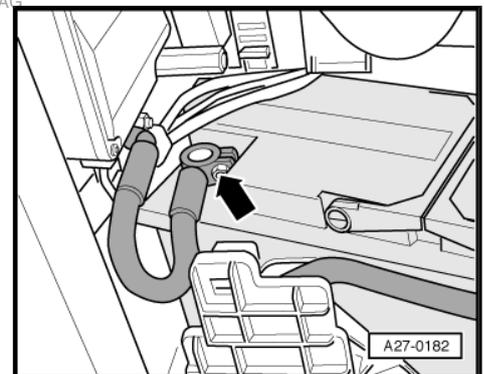
Caution

- *The left fuel tank chamber must not be more than 1/3 full when removing the tubular sender. Procedure for draining the fuel tank ⇒ [page 112](#) .*

Caution

Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable -arrow- ⇒ Electrical system; Rep. gr. 27 .
- Briefly open filler cap for fuel tank and close again.

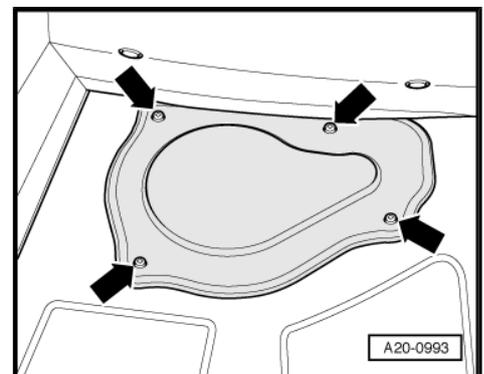


- Remove luggage compartment floor covering.

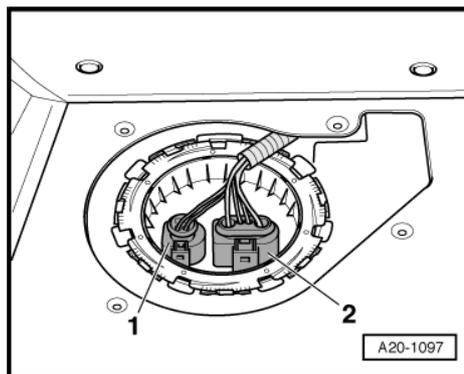
Note

For removing and installing tubular sender, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

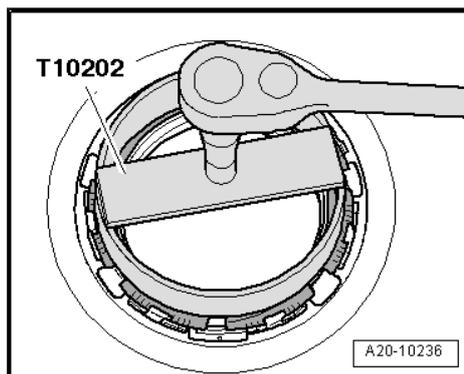
- Detach cover for flange (left-side) -arrows-.



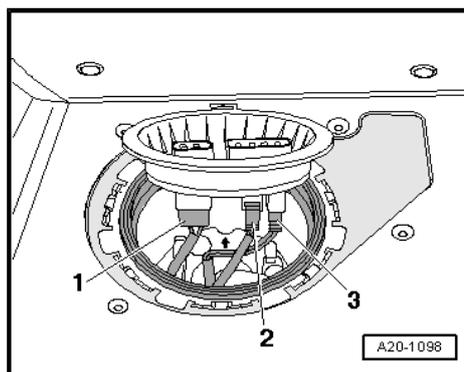
- Unplug electrical connectors -1- and -2- on flange (left-side).



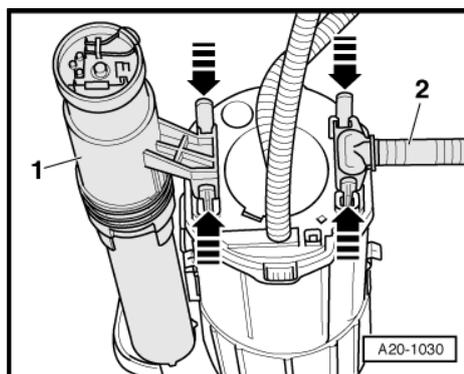
- Unscrew locking ring using wrench - T10202- .



- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (left-side).



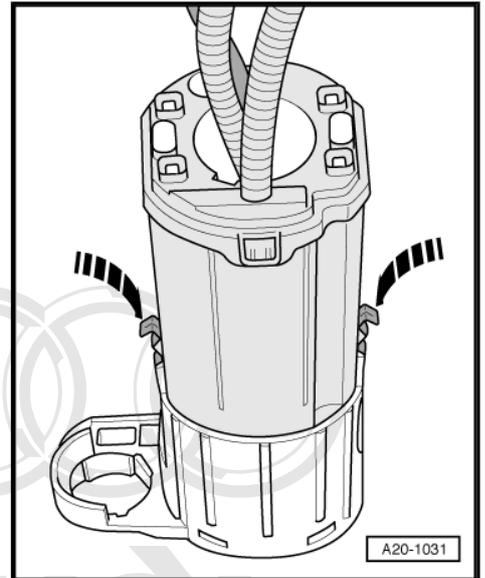
- Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the express written consent of Audi AG. All rights reserved. Liability is limited to the extent permitted by law.
- Working through left fuel tank opening, press release tabs -arrows- and detach fuel supply line -2- and fuel gauge sender 3 - G237- -item 1-.
 - Move fuel gauge sender 3 - G237- to left side.



- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Pull fuel delivery unit slightly upwards and at the same time take out fuel gauge sender 3 - G237- .

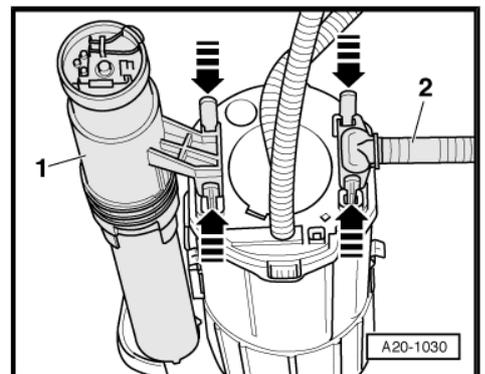
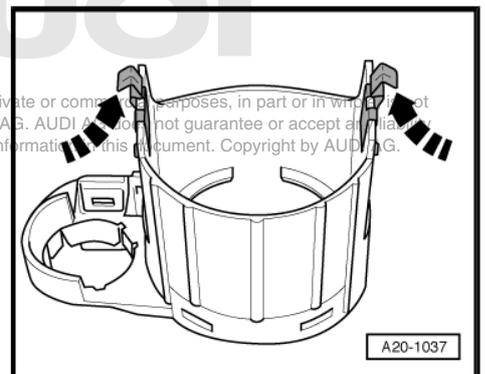
 **Note**

Keep in mind that the fuel gauge sender 3 - G237- still contains fuel.

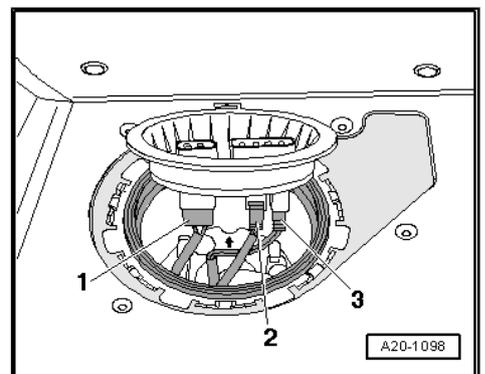


Installing

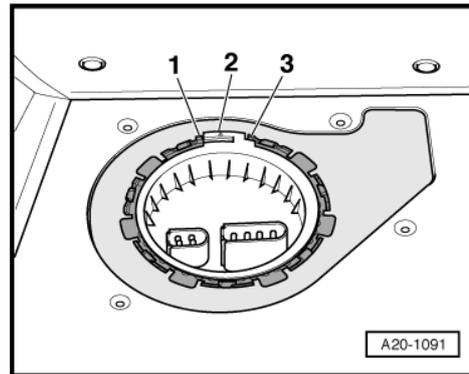
- Tightening torques ⇒ [page 123](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Pull fuel delivery unit up slightly and insert fuel gauge sender 3 - G237- .
- Then press fuel delivery unit carefully into retainer so that it engages audibly.
- Fit fuel supply line -2- and fuel gauge sender 3 - G237- -item 1- so that they engage audibly.



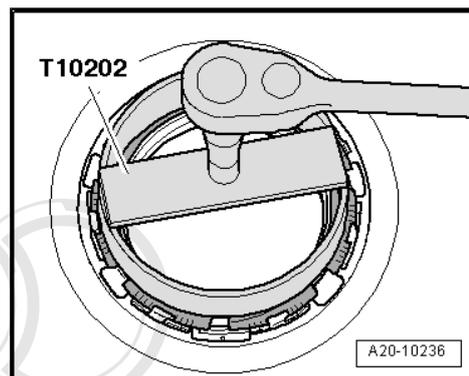
- Connect electrical connectors -1 ... 3- on underside of flange (left-side).
- Install new seal for flange (seal must be installed dry).



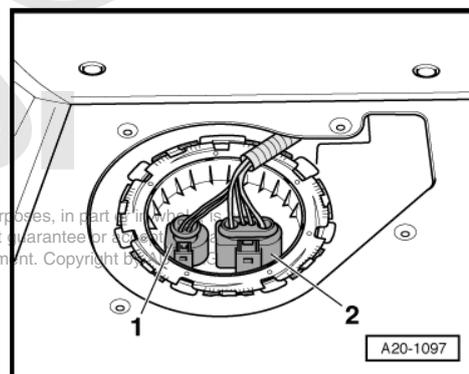
- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.



- Tighten locking ring.

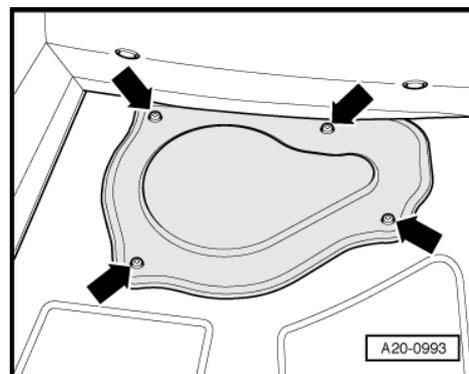


- Attach electrical connectors -1- and -2- on flange (left-side).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or warrant the accuracy or completeness with respect to the correctness of information in this document. Copyright by Audi AG.

- Secure cover for flange (left-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Electrical system; Rep. gr. 27 .



12.7 Checking fuel gauge sender 4 - G393- (tubular sender, right-side)

Special tools and workshop equipment required

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

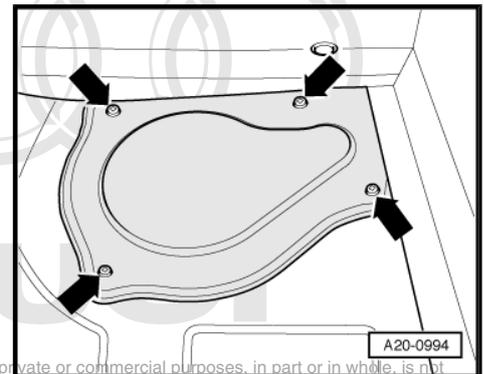


- ◆ Auxiliary measuring set - V.A.G 1594C-



Procedure

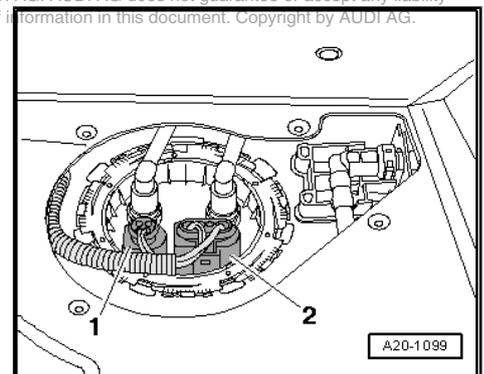
- Remove luggage compartment floor covering.
- Unscrew cover for flange (right-side) -arrows-



- Unplug electrical connector -2- on flange (right-side).

Note

Disregard -item 1-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the correctness of information in this document. Copyright by AUDI AG.

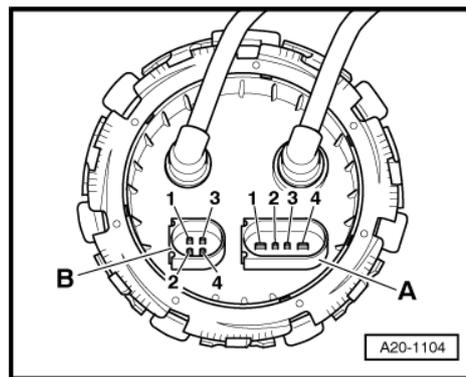


- Connect hand-held multimeter between contacts -2- and -3- of connector -A- to measure resistance.

Sender removed	Sender at low-er stop	Sender at up-per stop
Fuel gauge sender 4 - G393-	approx. 155 Ω	approx. 70 Ω

**Note**

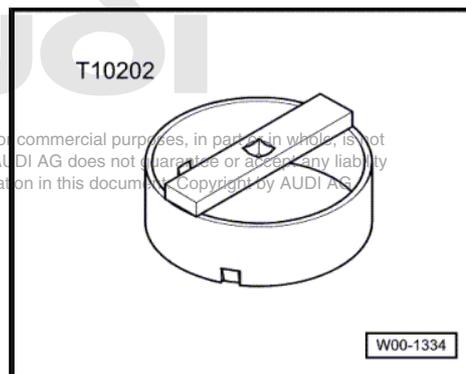
- ◆ If the resistance is 0 Ω, there is a short circuit. If the resistance is ∞ Ω, there is an open circuit in the wiring.
- ◆ In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 4 - G393- ⇒ [page 232](#) and move the float all the way to its top or bottom position.



12.8 Removing and installing fuel gauge sender 4 - G393- (tubular sender, right-side)

Special tools and workshop equipment required

- ◆ Wrench - T10202-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

Removing

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

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

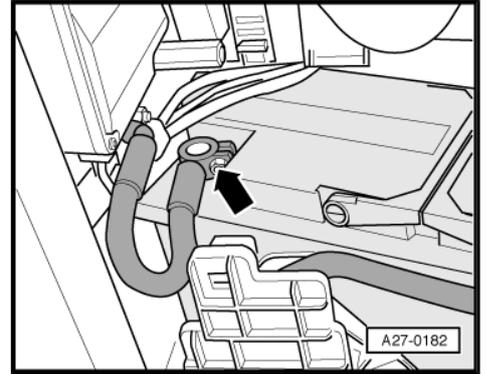
**Caution**

- The right fuel tank chamber must not be more than 1/3 full when removing the tubular sender. Procedure for draining the fuel tank ⇒ [page 112](#) .

**Caution**

Observe notes on procedure for disconnecting the battery.

- With ignition switched off, disconnect battery earth cable -arrow- ⇒ Electrical system; Rep. gr. 27 .
- Briefly open filler cap for fuel tank and close again.

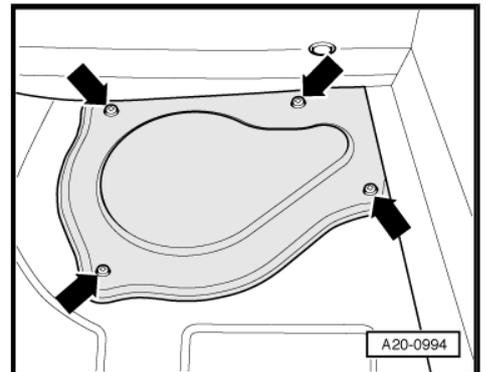


- Remove luggage compartment floor covering.

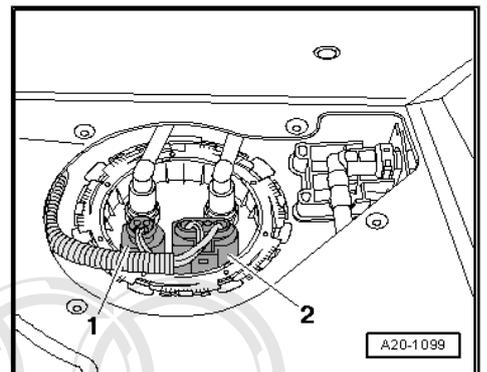
 **Note**

For removing and installing tubular sender, take tool kit and spare wheel out of luggage compartment. You can then sit or kneel in the spare wheel well.

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



- Unplug electrical connectors -1- and -2- on flange (right-side).

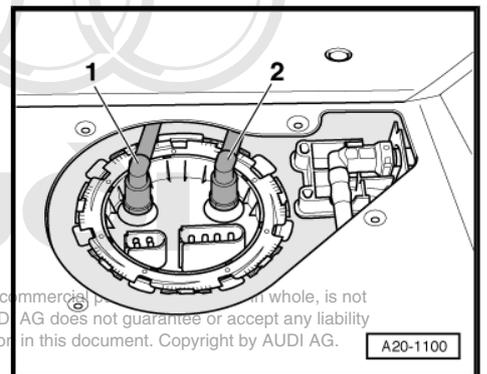


- Mark fuel return line -1- and fuel supply line -2-.

 **WARNING**

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

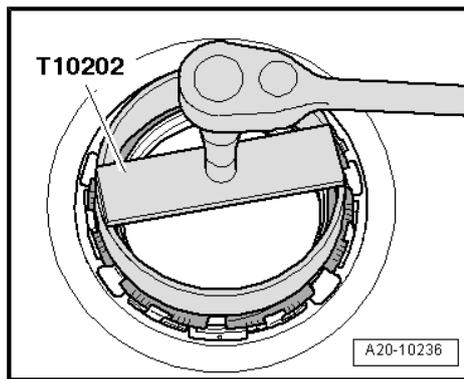
- Detach both lines from flange (press release tabs)



Copying for private or commercial purposes, in whole or in part, 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.



- Unscrew locking ring using wrench - T10202- .

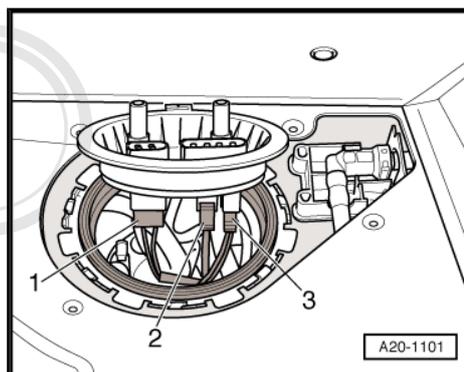


- Detach flange and remove seal.
- Unplug electrical connectors -1 ... 3- on underside of flange (right-side).



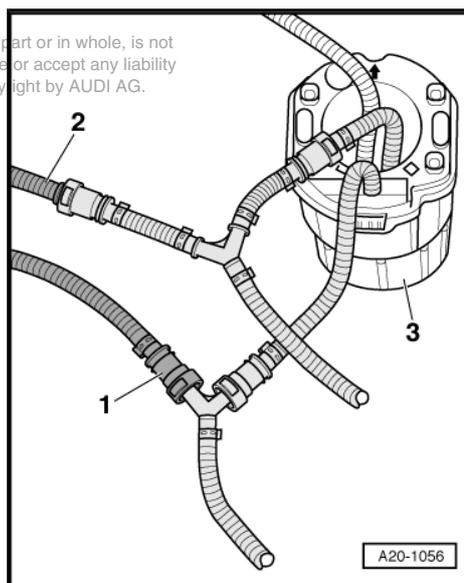
Note

- ◆ Pull out fuel lines from fuel tank opening prior to disconnecting the pipe connectors mentioned below.
- ◆ For illustration purposes some of the components are shown removed in the following illustrations.



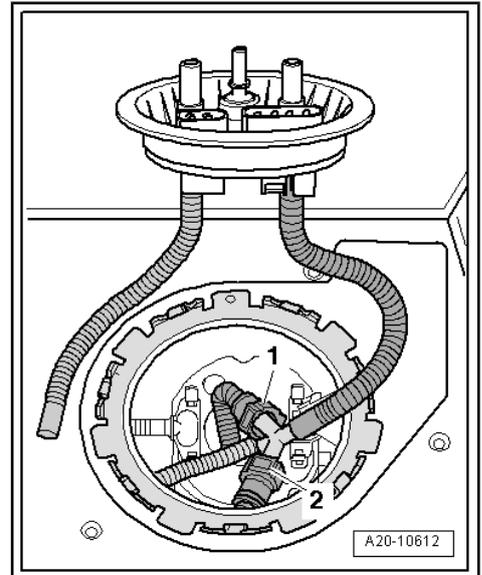
Vehicles with MPI engine:

- Working through right fuel tank opening, press release tabs and disconnect fuel lines -1- and -2- going to fuel delivery unit (left-side).
- 3 - Fuel delivery unit (right-side) with fuel pump - G23-



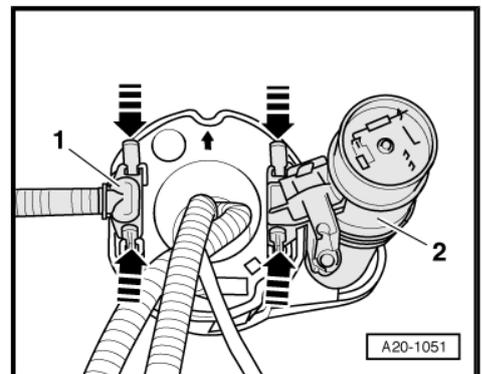
Vehicles with FSI engine:

- Working through right fuel tank opening, press release tabs and disconnect fuel supply lines -1- and -2- going to fuel delivery units.



All vehicles (continued):

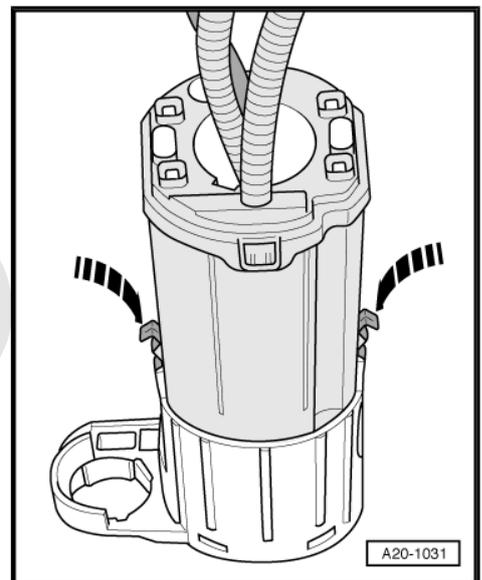
- Working through right fuel tank opening, press release tabs -arrows- and detach fuel supply line -1- and fuel gauge sender 4 - G393- -item 2-.
- Move fuel gauge sender 4 - G393- to right side.



- Press down both retaining clips on retainer for fuel delivery unit -arrows-.
- Pull fuel delivery unit slightly upwards and at the same time take out fuel gauge sender 4 - G393- .

Note

Keep in mind that the fuel gauge sender 4 - G393- still contains fuel.

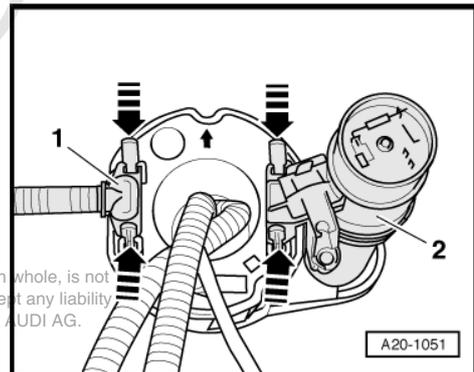
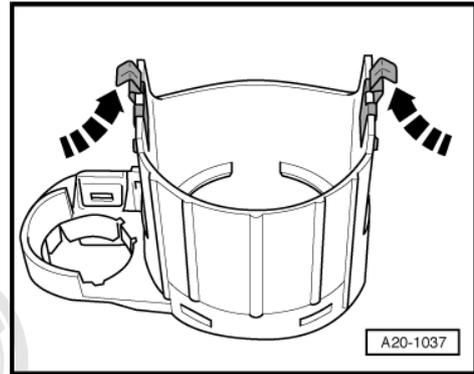


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Installing

- Tightening torques ⇒ [page 136](#)
- Pull both retaining clips on retainer upwards -arrows- so that they engage audibly before installing the fuel delivery unit.
- Pull fuel delivery unit up slightly and insert fuel gauge sender 4 - G393- .
- Then press fuel delivery unit carefully into retainer so that it engages audibly.

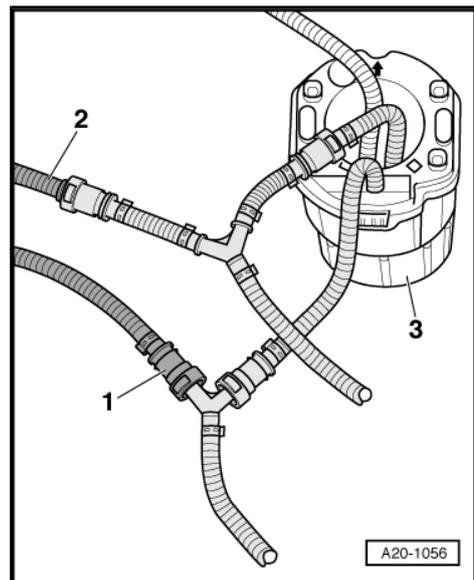
- Fit fuel supply line -1- and fuel gauge sender 4 - G393- -item 2- so that they engage audibly.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

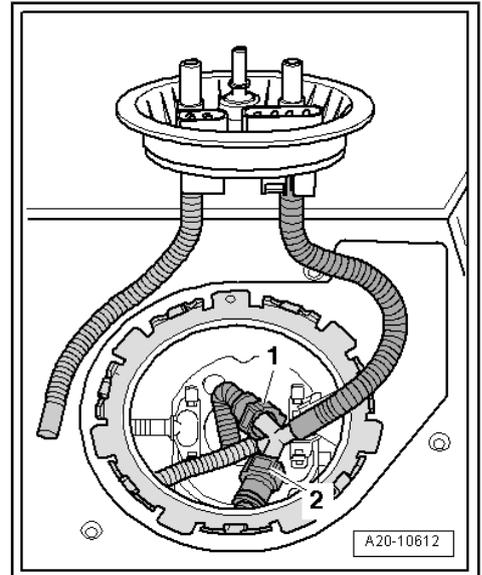
Vehicles with MPI engine:

- Working through right fuel tank opening, connect fuel lines -1- and -2- going to left fuel delivery unit so that they engage audibly.
- 3 - Fuel delivery unit (right-side) with fuel pump - G23-



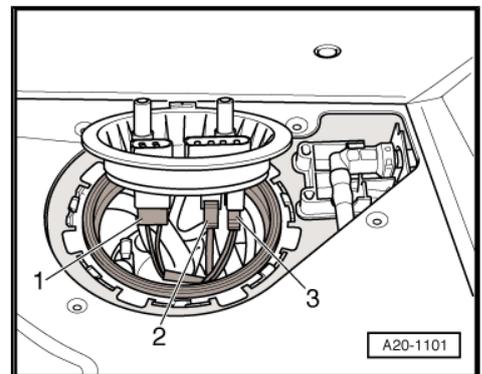
Vehicles with FSI engine:

- Working through right fuel tank opening, fit fuel lines -1- and -2- going to fuel delivery units so that they engage audibly.

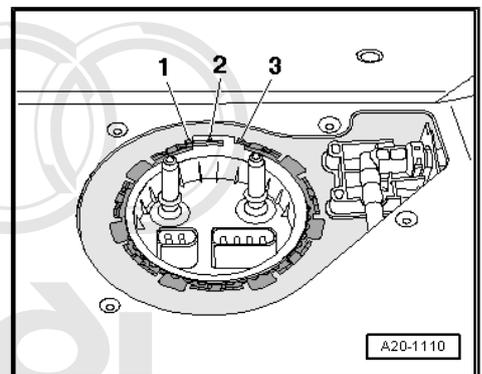


All vehicles (continued):

- Connect electrical connectors -1 ... 3- on underside of flange (right-side).
- Install new seal for flange (seal must be installed dry).

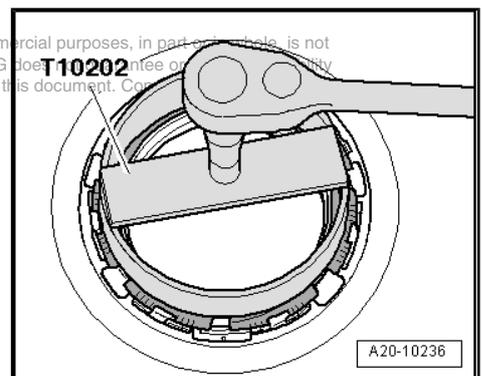


- Fit flange into fuel tank; note correct installation position:
- Lug -2- on flange must be between tabs -1- and -3- on fuel tank.

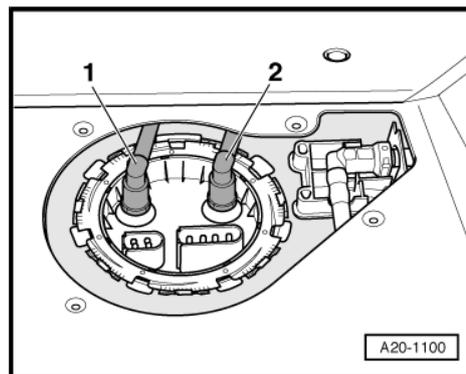


- Tighten locking ring.

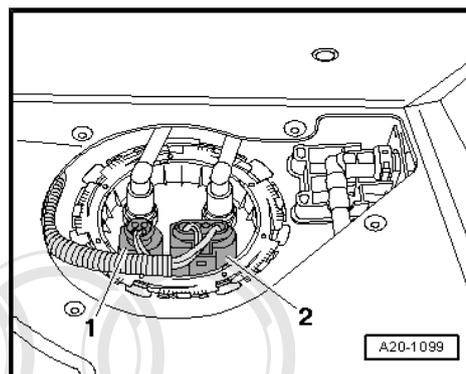
Protected by copyright. Copying for private or commercial purposes, in part or whole, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document.



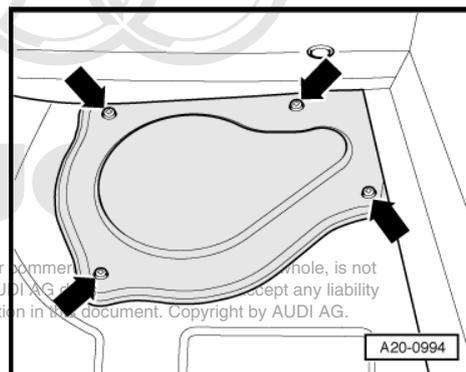
- Install fuel supply line -2- and fuel return line -1- (as marked) so that they engage audibly.



- Attach electrical connectors -1- and -2- on flange (right-side).



- Secure cover for flange (right-side) -arrows-.
- Connect battery. Observe notes on procedures required after connecting battery ⇒ Electrical system; Rep. gr. 27 .



Protected by copyright. Copying for private or commercial use, in whole or in part, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

13 Fuel filter - all vehicles

⇒ [“13.1 Fuel filter on vehicles without auxiliary heater - exploded view”, page 239](#)

⇒ [“13.2 Removing and installing fuel filter on vehicles without auxiliary heater”, page 240](#)

⇒ [“13.3 Fuel filter on vehicles with auxiliary heater - exploded view”, page 240](#)

⇒ [“13.4 Removing and installing fuel filter on vehicles with auxiliary heater”, page 241](#)

⇒ [“13.5 Fuel filter on vehicles with fuel system without fuel return line - exploded view”, page 242](#)

⇒ [“13.6 Removing and installing fuel filter on vehicles with fuel system without fuel return line”, page 243](#)

13.1 Fuel filter on vehicles without auxiliary heater - exploded view

1 - Fuel return line

- From engine
- Clipped onto fuel filter bracket
- Press release tab on connection piece to disconnect

2 - Fuel filter

- Flow direction is marked by arrows
- Do not interchange connections
- Removing and installing
⇒ [page 240](#)

3 - Fuel supply line

- From fuel tank
- Press release tab on connection piece to disconnect

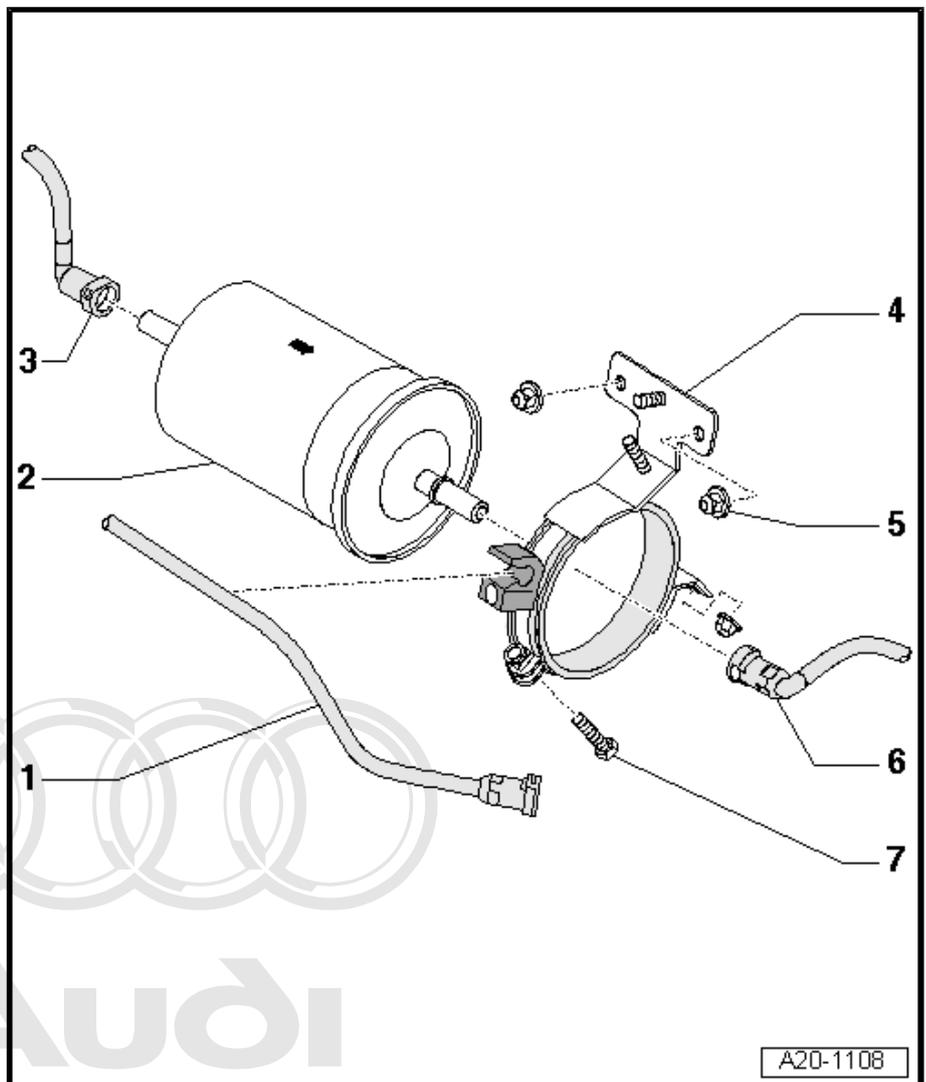
4 - Bracket for fuel filter

5 - 1.5 Nm

6 - Fuel supply line

- To engine
- Press release tab on connection piece to disconnect

7 - 3 Nm



A20-1108

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

13.2 Removing and installing fuel filter on vehicles without auxiliary heater

Special tools and workshop equipment required

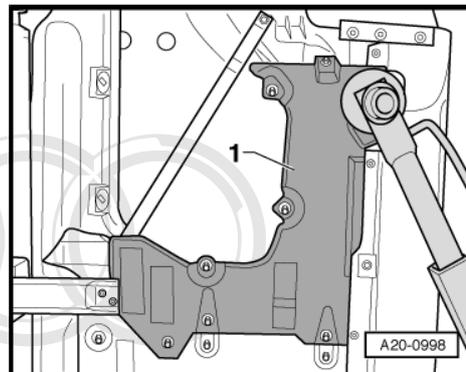
- ◆ Drip tray

Removing

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

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

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



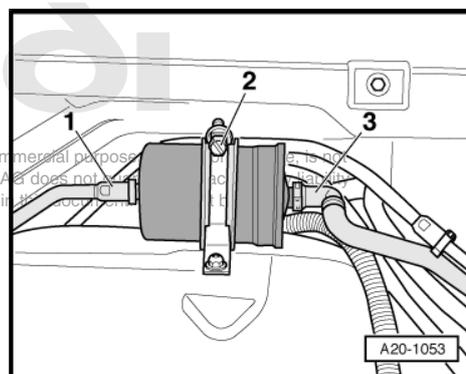
- Place drip tray under fuel filter.



WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

- Disconnect fuel pipes -1- and -3- by pressing the release tabs.
- Remove bolt -2-.
- Remove fuel filter.



Installing

- Tightening torque ⇒ [page 239](#)

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

- Flow direction is marked by arrows

13.3 Fuel filter on vehicles with auxiliary heater - exploded view

1 - Fuel return line

- From engine
- Clipped onto fuel filter bracket
- Press release tab on connection piece to disconnect

2 - Fuel filter

- Flow direction is marked by arrows
- Do not interchange connections
- Removing and installing ⇒ [page 241](#)

3 - Fuel supply line

- From fuel tank
- Press release tab on connection piece to disconnect

4 - Fuel supply line

- To metering pump for auxiliary heater

5 - 10 Nm

- Self-locking
- Renew

6 - Washer

7 - Retainer

- For metering pump for auxiliary heater

8 - Metering pump for auxiliary heater

- Secure with retainer -item 7- to bracket -item 10-

9 - Fuel supply line

- To auxiliary heater

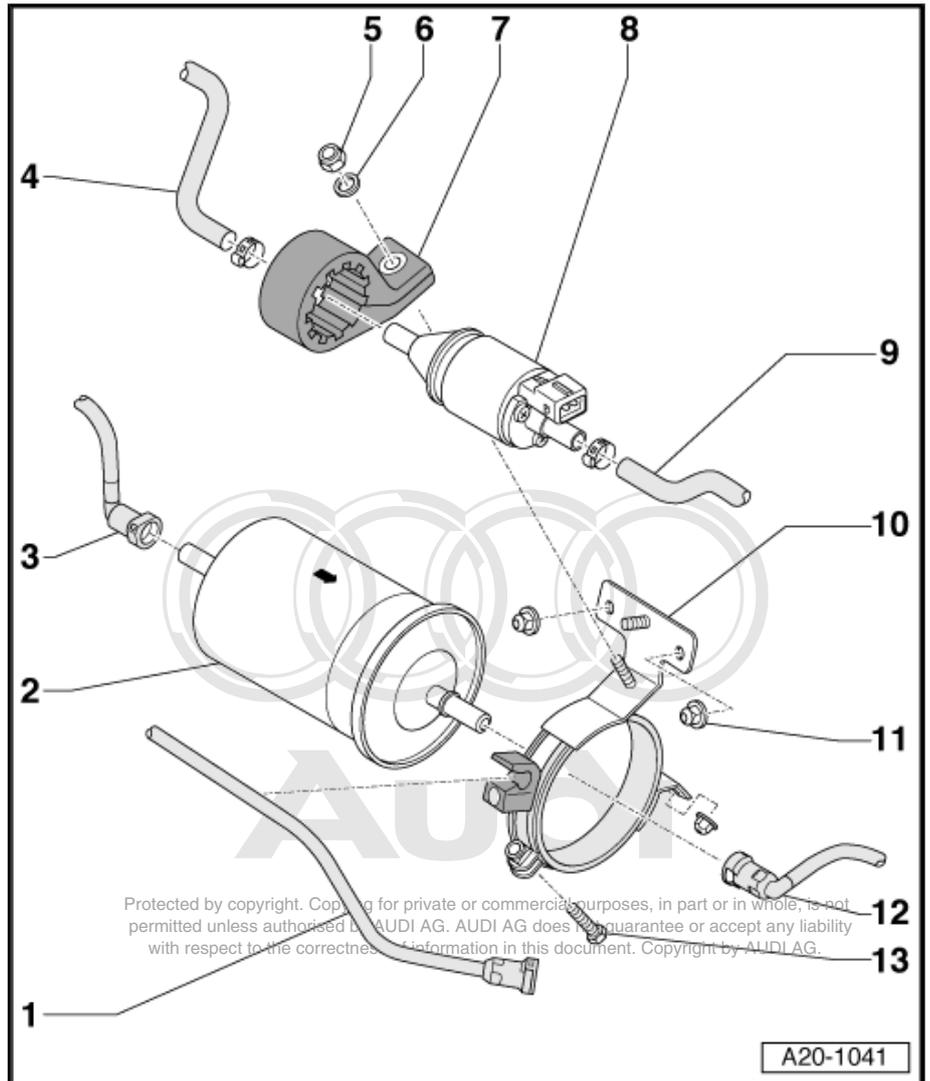
10 - Bracket for fuel filter

11 - 1.5 Nm

12 - Fuel supply line

- To engine
- Press release tab on connection piece to disconnect

13 - 3 Nm



13.4 Removing and installing fuel filter on vehicles with auxiliary heater

Special tools and workshop equipment required

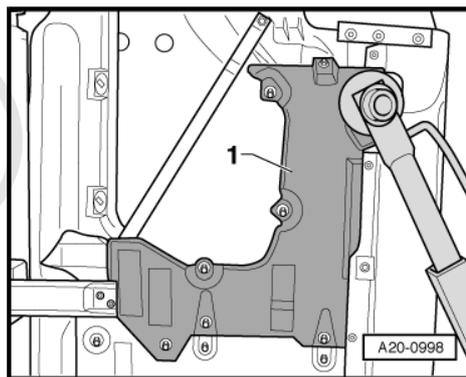
- ◆ Drip tray

Removing

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

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

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



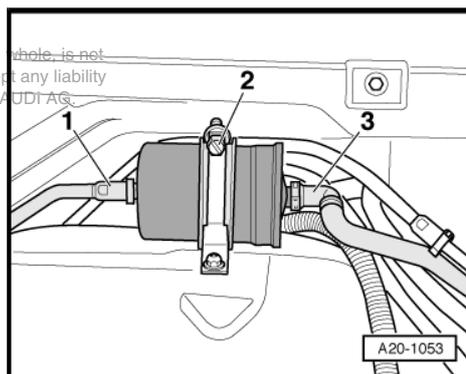
- Place drip tray under fuel filter.



WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

- Disconnect fuel pipes -1- and -3- by pressing the release tabs.
- Remove bolt -2-.
- Remove fuel filter.



Installing

- Tightening torque ⇒ [page 240](#)

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

- Flow direction is marked by arrows

13.5 Fuel filter on vehicles with fuel system without fuel return line - exploded view

1 - Fuel filter with pressure control valve, 4 bar

- Flow direction is marked by arrows
- Do not interchange connections
- Removing and installing ⇒ [page 243](#)

2 - Fuel supply line

- From fuel tank
- Press release tab on connection piece to disconnect

3 - Fuel return line

- To fuel tank
- Press release tab on connection piece to disconnect

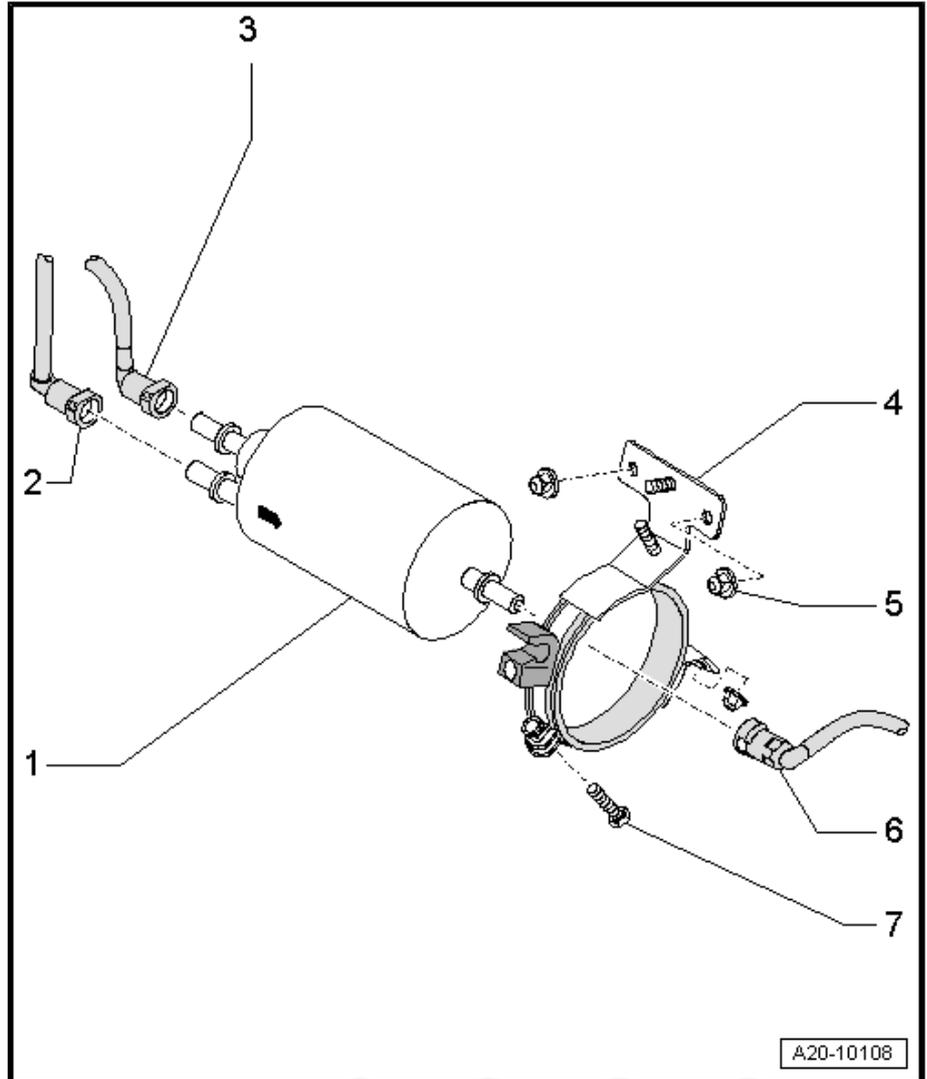
4 - Bracket for fuel filter

5 - 1.5 Nm

6 - Fuel line

- To engine
- Press release tab on connection piece to disconnect

7 - 3 Nm



13.6 Removing and installing fuel filter on vehicles with fuel system without fuel return line

Special tools and workshop equipment required

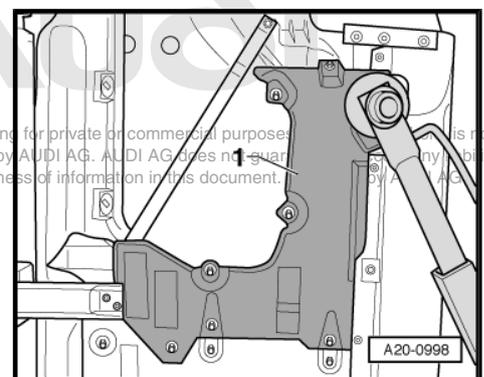
- ◆ Drip tray

Removing

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

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

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



Protected by copyright. Copying for private or commercial purposes without express authorisation by AUDI AG. AUDI AG does not guarantee any liability with respect to the correctness of information in this document.



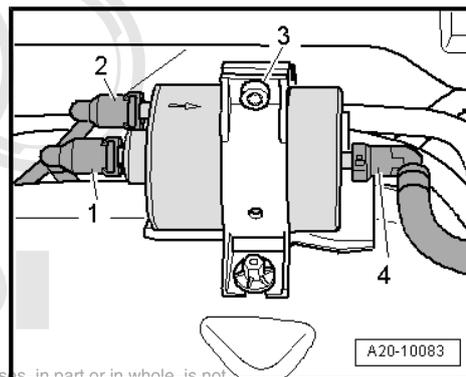
- Place drip tray under fuel filter.



WARNING

The fuel system is pressurised. Before opening the system place a clean cloth around the connection. Then release pressure by carefully loosening the connection.

- Disconnect fuel pipes -1-, -2- and -4- by pressing the release tabs.
- Remove bolt -3-.
- Remove fuel filter.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

Installing

- Tightening torque ⇒ [page 242](#) .

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

- Flow direction is marked by arrows

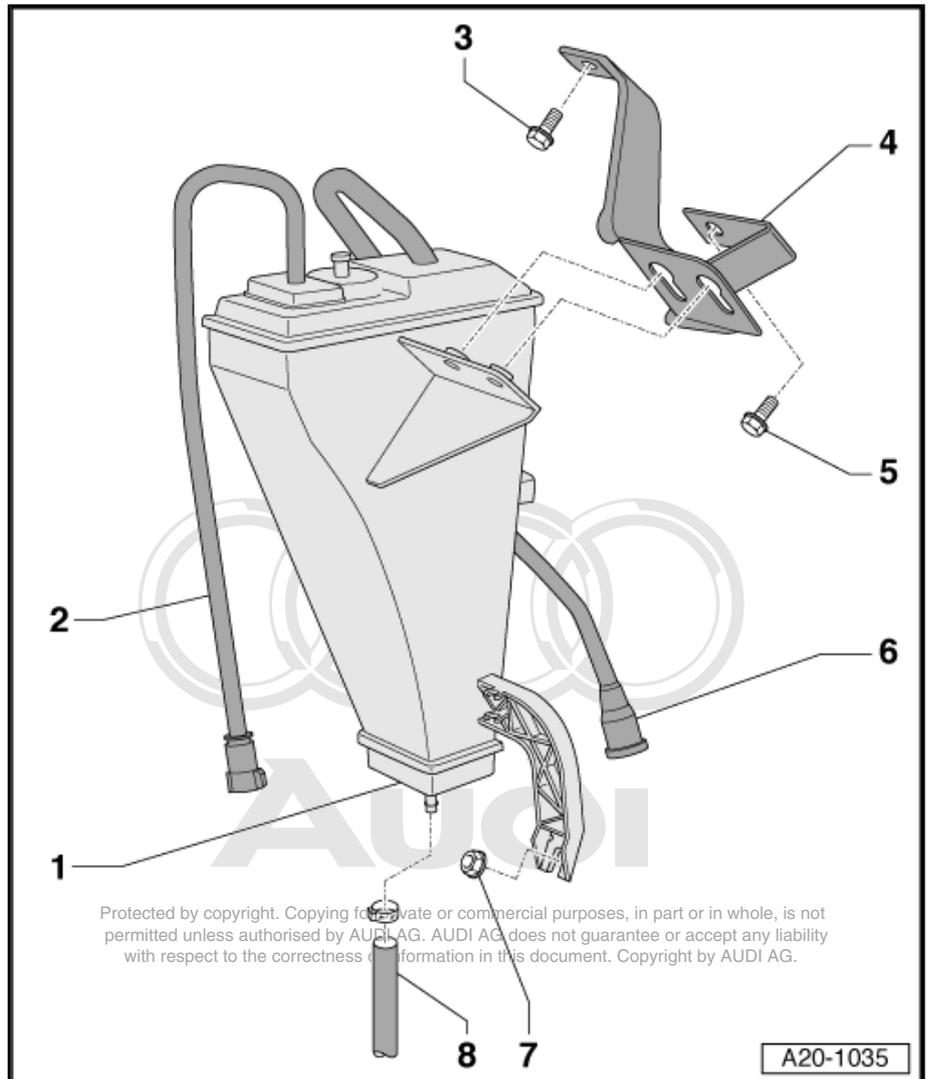
14 Activated charcoal filter system - rest-of-world vehicles

⇒ ["14.1 Activated charcoal filter system - exploded view"](#), page 245

⇒ ["14.2 Removing and installing activated charcoal filter"](#), page 245

14.1 Activated charcoal filter system - exploded view

- 1 - Activated charcoal filter
- 2 - Breather line
 - To fuel tank
- 3 - 10 Nm
- 4 - Bracket
- 5 - 10 Nm
- 6 - Breather line
 - To activated charcoal filter solenoid valve 1 - N80-
- 7 - 10 Nm
- 8 - Hose
 - Open to atmosphere at rear of vehicle (centre)



14.2 Removing and installing activated charcoal filter

Removing

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

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

- Remove rear wheel (left-side).
- Remove rear left wheel housing liner ⇒ Rep. gr. 66 .

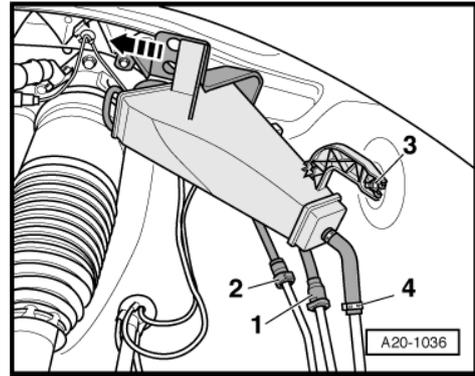


- Disconnect breather lines -1- and -2- by pressing release tabs.
- Detach breather pipe -4-.
- Unscrew nut -3- and detach activated charcoal filter at top mounting -arrow-.
- Remove activated charcoal filter with breather pipes.

Installing

- Tightening torque ⇒ [page 245](#)

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



Note

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of the information in this document. Copyright © AUDI AG.

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

- Attach activated charcoal filter at top mounting.
- Secure activated charcoal filter to wheel housing.
- Install rear left wheel housing liner ⇒ Rep. gr. 66 .

15 Activated charcoal filter system - USA vehicles

⇒ [“15.1 Activated charcoal filter system - exploded view”,
page 247](#)

⇒ [“15.2 Removing and installing activated charcoal filter”,
page 248](#)

⇒ [“15.3 Routing of pipes/hoses for activated charcoal filter system
with tank leak diagnostic system - vehicles with 8-cylinder and 10-
cylinder engines”, page 249](#)

⇒ [“15.4 Routing of pipes/hoses for activated charcoal filter system
with tank leak diagnostic system - vehicles with 12-cylinder en-
gine”, page 251](#)

⇒ [“15.5 Tank leak diagnostic system”, page 251](#)

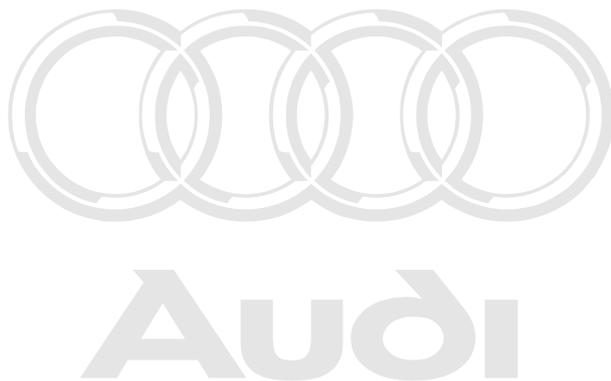
⇒ [“15.6 Performing tank leak diagnosis”, page 252](#)

⇒ [“15.7 Fuel system diagnostic pump V144 - exploded view”,
page 253](#)

⇒ [“15.8 Removing and installing fuel system diagnostic pump
V144”, page 254](#)

⇒ [“15.9 Removing and installing activated charcoal filter solenoid
valve 2 N115”, page 255](#)

15.1 Activated charcoal filter system - exploded view



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



1 - Cover for activated charcoal filter

2 - Breather line

- ❑ To activated charcoal filter solenoid valve 1 - N80-

3 - Breather line

- ❑ To fuel tank

4 - Activated charcoal filter

- ❑ Fitting location: at bottom of spare wheel well on underbody

5 - Connecting hose

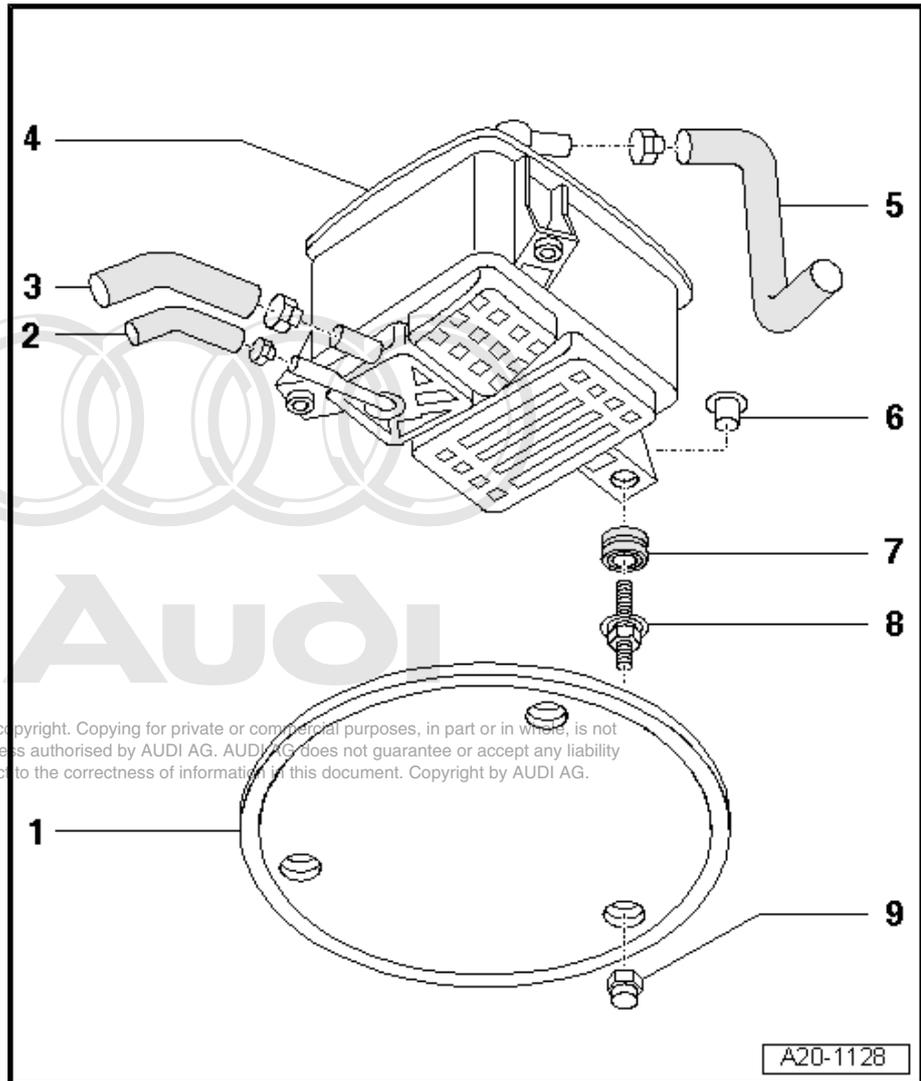
- ❑ Diagnostic pump / activated charcoal filter

6 - Bush

7 - Rubber grommet

8 - Stud, 16 Nm

9 - Cap nut, 9 Nm



15.2 Removing and installing activated charcoal filter



Note

Checking for leaks

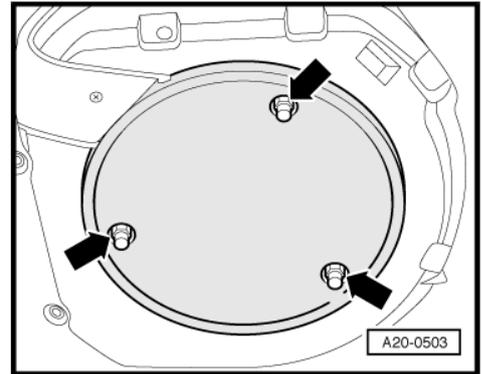
⇒ "15.6 Performing tank leak diagnosis", page 252

Removing

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

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

- Unscrew cover for activated charcoal filter at underside of spare wheel well -arrows-.



- Detach hose connections -1 ... 3- from breather pipes.
- Unscrew studs -arrows- and remove activated charcoal filter.

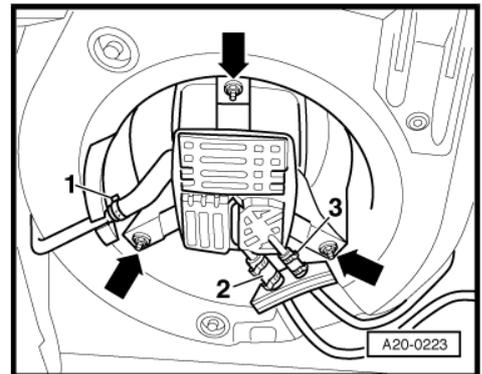
Installing

- Tightening torques => [page 247](#)

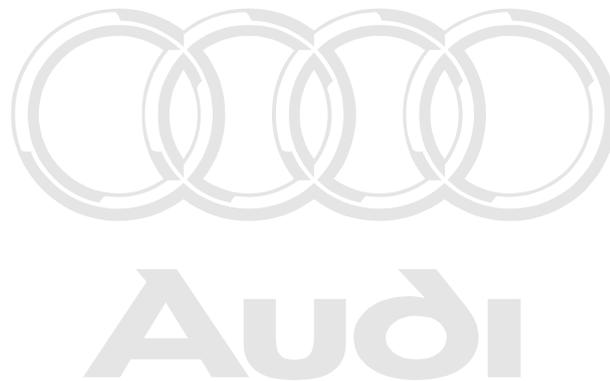
Installation is carried out in the reverse order; note the following:

i Note

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



15.3 Routing of pipes/hoses for activated charcoal filter system with tank leak diagnostic system - vehicles with 8-cylinder and 10-cylinder engines



Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



1 - Throttle valve module - J338-

2 - Activated charcoal filter solenoid valve 1 - N80-

- Fitting location: in engine compartment

3 - Breather line

- From activated charcoal filter to activated charcoal filter solenoid valve 1 - N80-
- Installation position: on underside of vehicle (right-side)

4 - Breather line

- To fuel tank

5 - Activated charcoal filter

- Fitting location: at bottom of spare wheel well on underbody

6 - Connecting hose

- Diagnostic pump / activated charcoal filter
- Pressure side

7 - Activated charcoal filter solenoid valve 2 - N115-

- Fitting location: in rear left wheel housing beneath liner

8 - Fuel system diagnostic pump - V144-

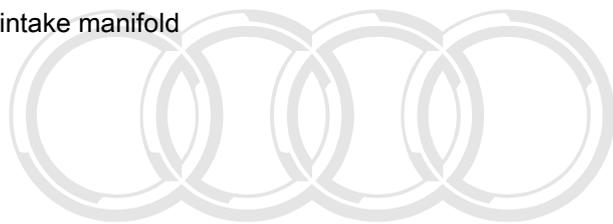
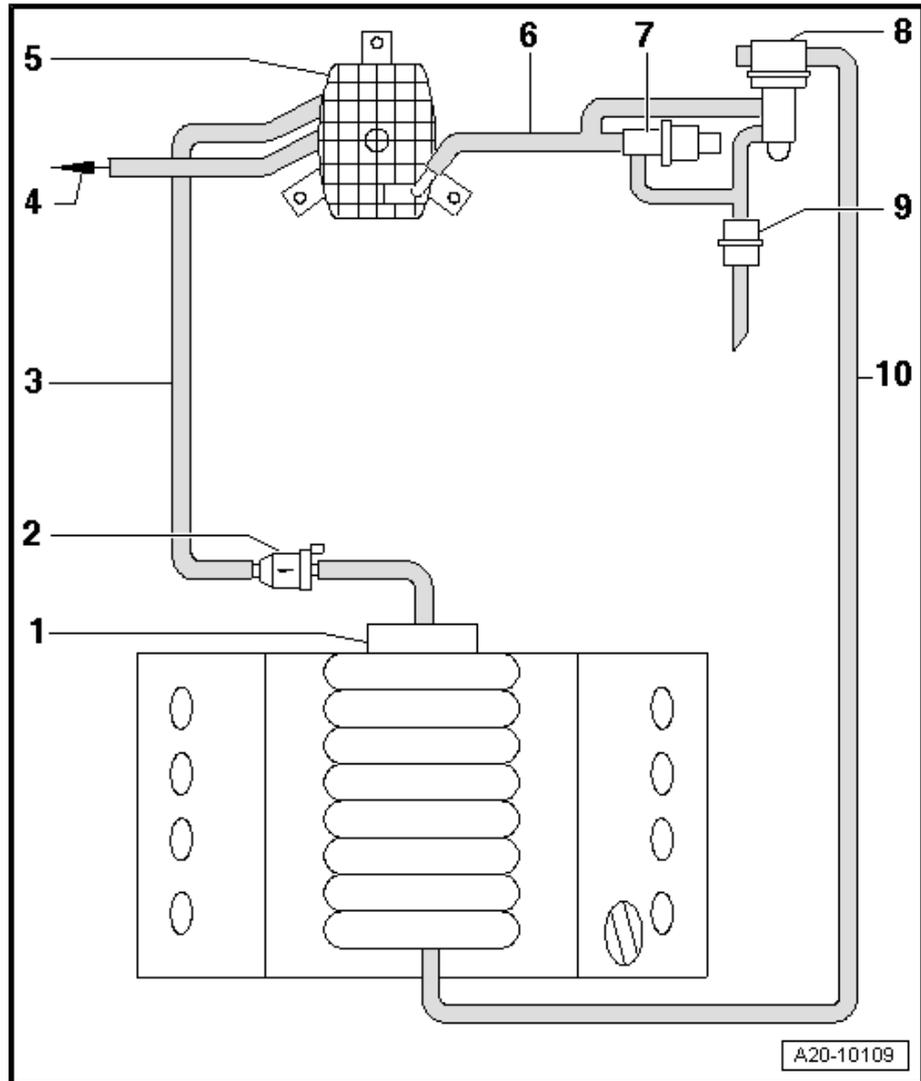
- Vacuum-driven
- Fitting location: in rear left wheel housing beneath liner

9 - Air filter for diagnostic pump

- Installation position: arrow on filter housing points to diagnostic pump -item 8-

10 - Vacuum line

- Supplies diagnostic pump with vacuum from intake manifold

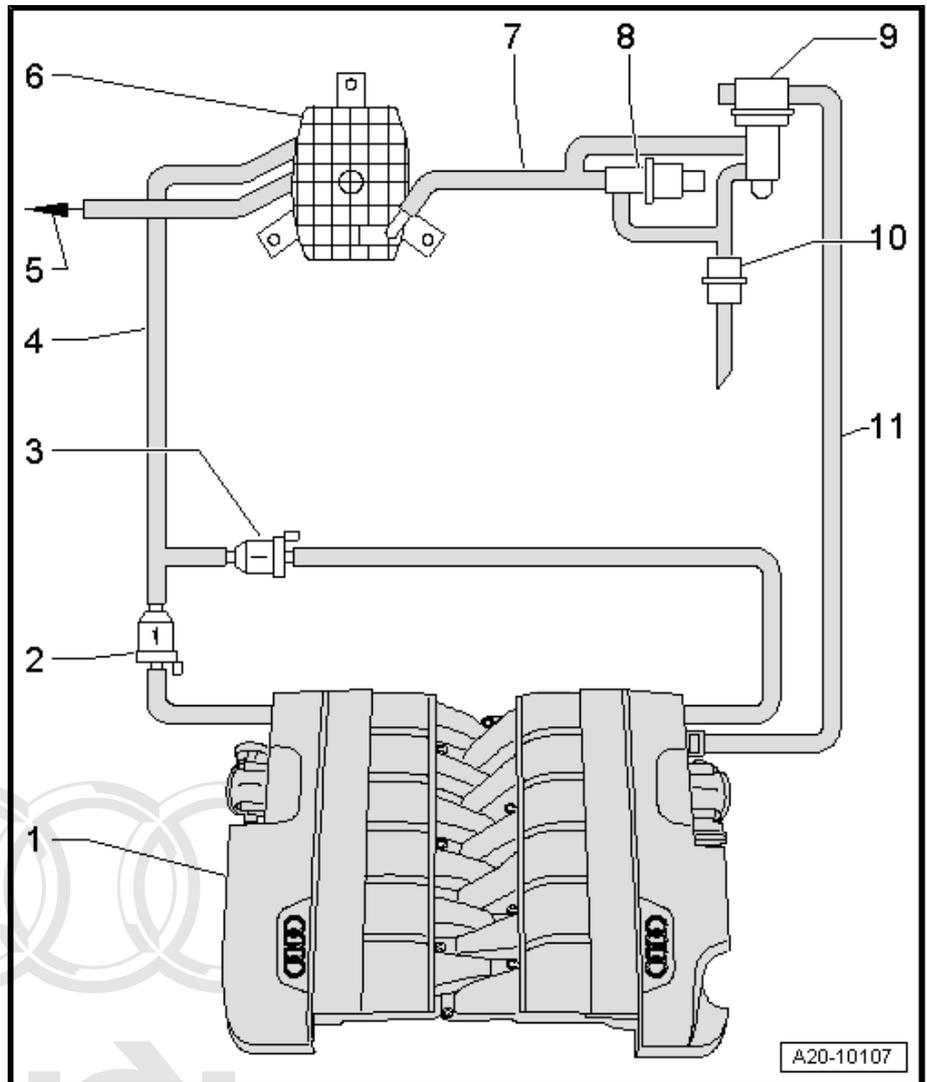


Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.

15.4 Routing of pipes/hoses for activated charcoal filter system with tank leak diagnostic system - vehicles with 12-cylinder engine

- 1 - Intake manifold
- 2 - Activated charcoal filter solenoid valve 1 - N80-
 - Fitting location: in engine compartment
- 3 - Activated charcoal filter system solenoid valve 2 - N333-
 - Fitting location: in engine compartment
- 4 - Breather line
 - From activated charcoal filter to solenoid valves for activated charcoal filter in engine compartment
 - Installation position: on underside of vehicle (right-side)
- 5 - Breather line
 - To fuel tank
- 6 - Activated charcoal filter
 - Fitting location: at bottom of spare wheel well on underbody
- 7 - Connecting hose
 - Diagnostic pump / activated charcoal filter
 - Pressure side
- 8 - Activated charcoal filter solenoid valve 2 - N115-
 - Fitting location: in rear left wheel housing beneath liner



- 9 - Fuel system diagnostic pump - V144-
 - Vacuum-driven
 - Fitting location: in rear left wheel housing beneath liner
- 10 - Air filter for diagnostic pump
 - Installation position: arrow on filter housing points to diagnostic pump -item 9-
- 11 - Vacuum line
 - Supplies diagnostic pump with vacuum from intake manifold

15.5 Tank leak diagnostic system

How the system works

The tank leak diagnostic system detects leaks in the complete fuel system, including fuel tank, activated charcoal filter and activated charcoal filter solenoid valve 1 - N80- .

The mechanical components of the tank leak diagnostic system consist primarily of a vacuum-driven diaphragm pump, with a reed



contact located on the operating rod of the pump diaphragm. The vacuum required is supplied to the pump from the engine intake.

- ◆ The diaphragm pump delivers a pressure of 20 ... 30 mbar to the fuel system when the tank leak diagnostic system starts up. In this condition the pump diaphragm is extended, so the reed contact located on the operating rod is in the "open" position.
- ◆ The diagnostic system detects whether the reed contact remains open for 10 seconds. In this case the fuel system is free of leaks.
- ◆ If the pressure drops (indicating a leak), the diaphragm returns and the reed contact closes.
- ◆ If the reed contact closes within 10 seconds, a further test is performed. The diaphragm pump is then activated for another 4 strokes. For each of these strokes the engine control unit measures the period of time it takes for the reed contact to close again after pressure delivery. In this way the control unit can distinguish between a "small leak" (smaller than 1 mm diameter) and a "large leak".

The diagnosis is activated automatically shortly after every engine start. If a fault is detected, the fault is stored in the fault memory. A fault message is displayed in the instrument cluster if the fault is detected during two consecutive road trips. The diagnosis function can also be activated with the vehicle diagnostic tester
[⇒ page 252](#).

Automatic tank leak diagnosis

The engine control unit performs a tank leak diagnosis at regular intervals when the engine is running.

15.6 Performing tank leak diagnosis

Check the fuel tank leak diagnosis system using the "Guided Fault Finding" function ⇒ Vehicle diagnostic tester.

Checking fuel tank system and tank breather system for leaks



Note

The following locations/components must be checked when checking the fuel tank system and tank breather system for leaks. Initiate a tank leak diagnosis after eliminating a suspected leak to make sure the diagnosed leak has been eliminated.

- Switch off ignition.
- Check whether the filler cap of the fuel tank was properly closed when performing the diagnosis.
- Check whether the seal of the filler cap is damaged or deformed. Renew if necessary.
- Remove luggage compartment floor covering.
- Detach covers for flanges on fuel tank (left and right sides).



Note

Observe notes on re-installing flanges: left-side ⇒ [page 75](#), right-side ⇒ [page 86](#).

- Check that the seals under the fuel tank flanges are undamaged and that the locking rings on the flanges are properly

tightened. Also check whether the fuel lines are connected properly.

- Perform a visual check on all pipe/hose connections of the fuel tank system and renew leaking pipes/hoses, e.g.:
- ◆ Pipe between activated charcoal filter and activated charcoal filter solenoid valve 1 - N80- / activated charcoal filter system solenoid valve 2 - N333- (in engine compartment).
- ◆ Pipes from activated charcoal filter to diagnostic pump for fuel system - V144- / activated charcoal filter solenoid valve 2 - N115- .
- ◆ Pipe between fuel tank and activated charcoal filter (behind cover for activated charcoal filter).
- ◆ Fuel lines to engine

 **Note**

Leaks in pipes and components of the fuel tank system can sometimes be detected by applying a non-flammable, environment-friendly leak detecting spray. Initiate a tank leak diagnosis repeatedly to build up pressure in the system. Bubbles will form at the leak.

- Perform a visual check on the components of the fuel tank system/fuel tank breather system:
- ◆ Fuel tank
- ◆ Activated charcoal filter
- ◆ Fuel system diagnostic pump - V144-
- ◆ Activated charcoal filter solenoid valve 1 - N80-
- ◆ Activated charcoal filter solenoid valve 2 - N115-
- ◆ Activated charcoal filter system solenoid valve 2 - N333-

 **Note**

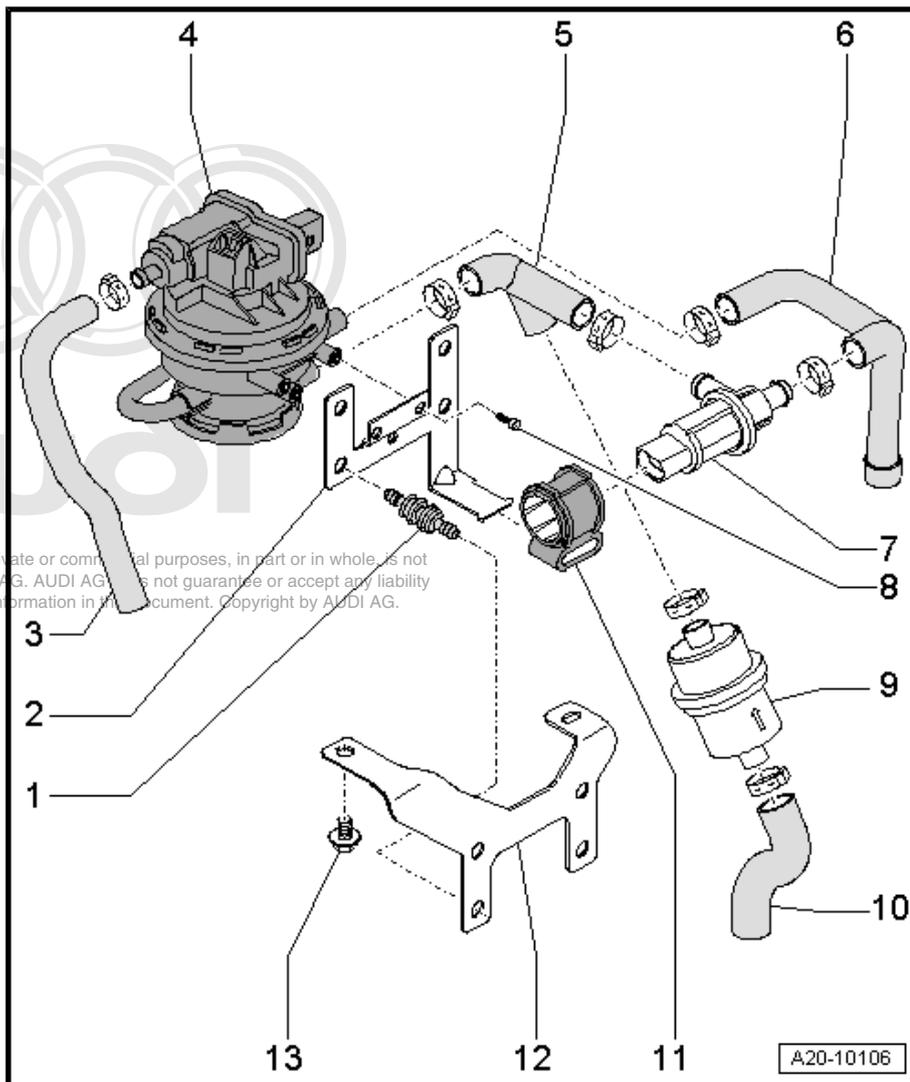
Due to the shape or function of these components it is not always possible to detect leaks by applying leak detecting spray. If this is the case, clamp off hoses going to the respective component using hose clamps up to 25 mm - 3094- and initiate tank leak diagnosis. If no leak is then found after clamping off the hoses, the corresponding component is defective. If the hoses are clamped off directly at the diagnostic pump and a leak is still indicated, there is a leak in the diagnostic pump itself.

15.7 Fuel system diagnostic pump - V144- - exploded view

Protected by copyright. Copying for private or commercial purposes, in part or in whole, 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.



- 1 - Retaining peg
- 2 - Bracket for diagnostic pump
- 3 - Vacuum line
 - To intake manifold (front)
- 4 - Fuel system diagnostic pump - V144-
 - Fitting location: in rear left wheel housing beneath liner
 - Checking in "Guided Fault Finding" => Vehicle diagnostic tester
 - Removing and installing => [page 254](#)
- 5 - Elbow hose with branch
- 6 - Elbow hose with branch
 - To activated charcoal filter
- 7 - Activated charcoal filter solenoid valve 2 - N115-
 - Checking in "Guided Fault Finding" => Vehicle diagnostic tester
 - Removing and installing => [page 255](#)
- 8 - 1.2 Nm
- 9 - Air filter for diagnostic pump
- 10 - Hose
- 11 - Retainer
 - For activated charcoal filter solenoid valve 2 - N115-
- 12 - Bracket
 - To body
- 13 - 9 Nm



15.8 Removing and installing fuel system diagnostic pump - V144-

Removing

- Switch off ignition.
- Remove rear wheel (left-side).
- Remove rear left wheel housing liner => Rep. gr. 66 .

- Detach hose connections -1-, -3- and -4-.
- Unplug electrical connector -2- at activated charcoal filter solenoid valve 2 - N115- .
- Unscrew securing bolts -arrows-.
- Detach fuel system diagnostic pump - V144- and disconnect electrical connector.
- Detach diagnostic pump from bracket.

Installing

- Tightening torques ⇒ [page 253](#)

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



Note

Copyright. Copying for private or commercial purposes, in part or in whole, is not authorized 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.

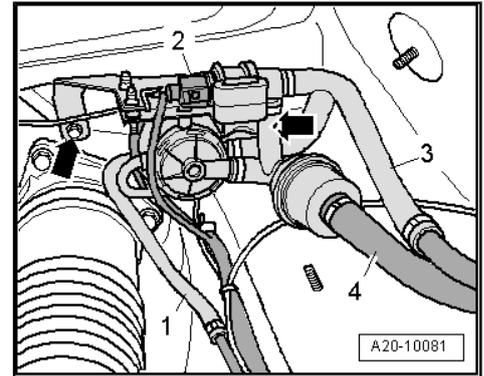
Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Install rear left wheel housing liner ⇒ Rep. gr. 66 .

15.9 Removing and installing activated charcoal filter solenoid valve 2 - N115-

Removing

- Switch off ignition.
- Remove rear wheel (left-side).
- Remove rear left wheel housing liner ⇒ Rep. gr. 66 .
- Disconnect hose connections -1-, -3- and -4-.
- Unplug electrical connector -2- at activated charcoal filter solenoid valve 2 - N115- .



- Detach vacuum hoses -3- and -4- from activated charcoal filter solenoid valve 2 - N115- -item 2-.
- Detach solenoid valve from mounting -1-.

Installing

- Tightening torque ⇒ [page 253](#)

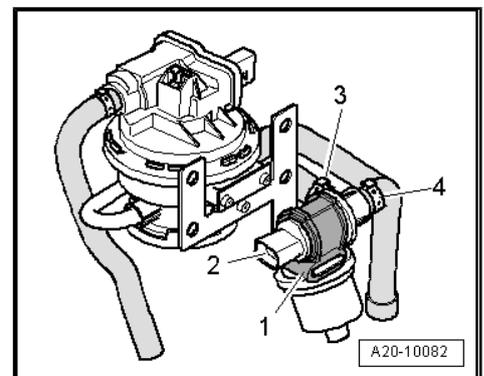
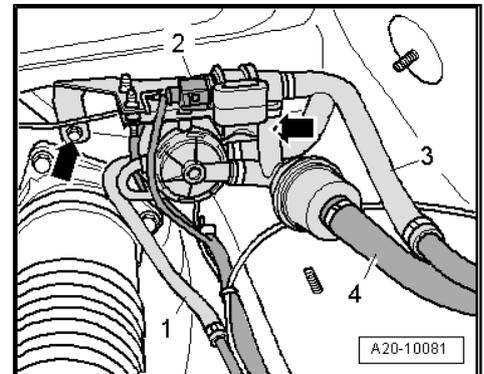
Installation is carried out in the reverse order; note the following:



Note

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

- Install rear left wheel housing liner ⇒ Rep. gr. 66 .



16 Accelerator mechanism - all vehicles

⇒ "16.1 Accelerator mechanism - exploded view", page 256

⇒ "16.2 Removing and installing accelerator pedal module with accelerator position sender", page 257

⇒ "16.3 Removing and installing kickdown switch F8", page 257

16.1 Accelerator mechanism - exploded view



Note

There is a separate kickdown switch - F8- installed in vehicles with automatic gearbox. Removing and installing kickdown switch - F8- ⇒ [page 257](#) .

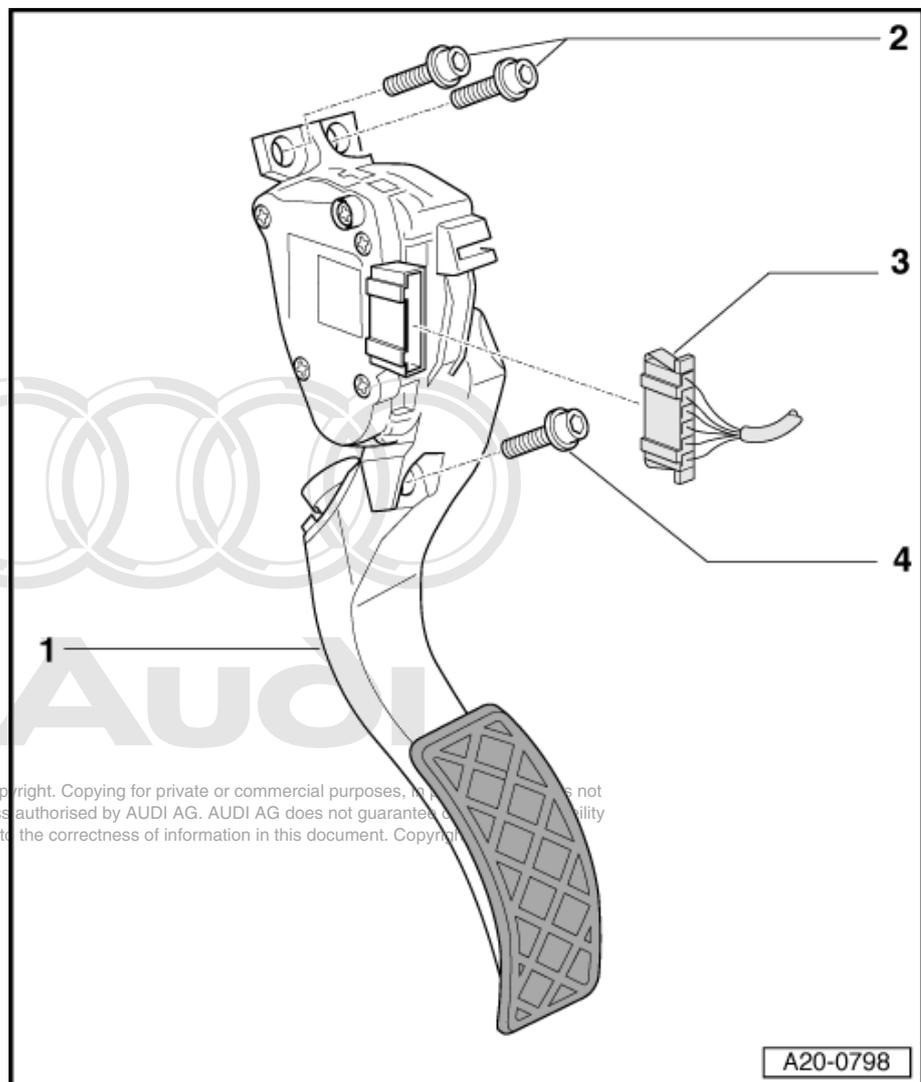
1 - Accelerator pedal module

- With accelerator position sender - G79- and accelerator position sender 2 - G185-
- Removing and installing ⇒ [page 257](#)

2 - 10 Nm

3 - Electrical connector

4 - 10 Nm



Protected by copyright. Copying for private or commercial purposes, in whole or in part, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy and reliability with respect to the correctness of information in this document. Copyright © 2003 Audi AG

A20-0798

16.2 Removing and installing accelerator pedal module with accelerator position sender

Removing

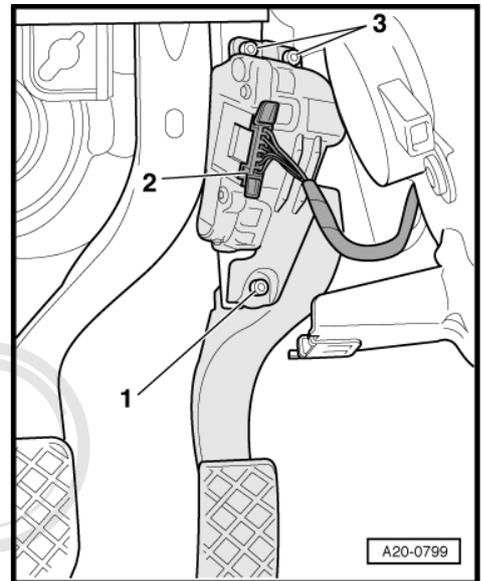
- Remove storage compartment on driver's side ⇒ Rep. gr. 68 .
- Unplug electrical connector -2-.
- Remove bolts -1- and -3-.
- Remove accelerator pedal module.

Installing

- Tightening torque ⇒ [page 256](#)

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

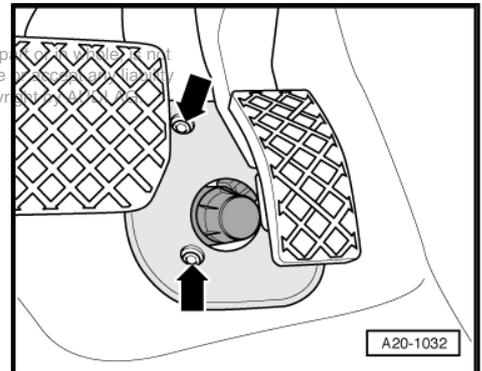
- Install storage compartment on driver's side ⇒ Rep. gr. 68 .



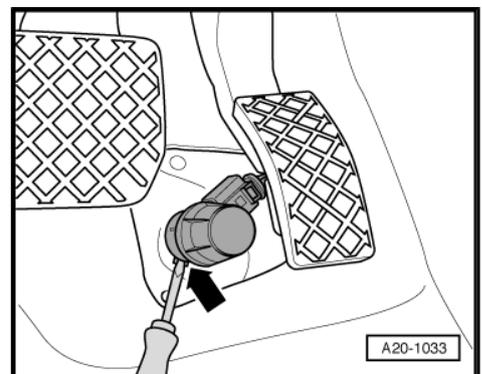
16.3 Removing and installing kickdown switch - F8-

Removing

- Use screwdriver to prise off cover caps.
- Unscrew bolts -arrows- and remove cover for kickdown switch.



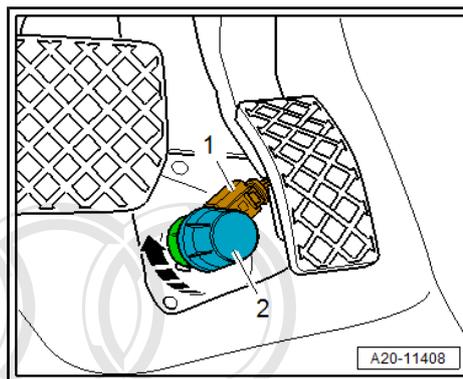
- Use a small screwdriver to release retainer tab -arrow- and turn kickdown switch anti-clockwise.
- Unplug electrical connector.



Installing

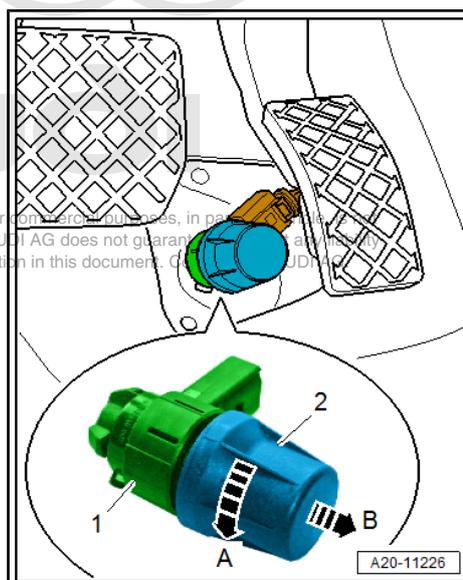
Installation is carried out in the reverse order; note the following:

- Connect electrical connector -1- on kickdown switch - F8- .
- Insert kickdown switch in mounting on vehicle floor and engage by turning clockwise -arrow-.

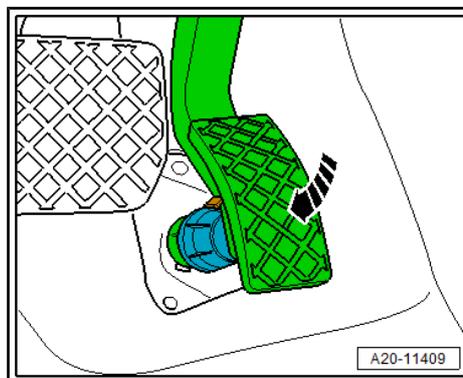


- Disengage cap -2- of kickdown switch -1-; to do so turn cap anti-clockwise -arrow A-. Pull cap out as far as stop -arrow B-.

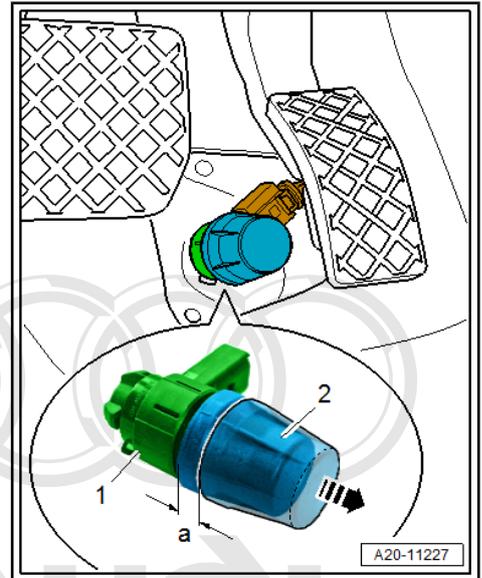
Protected by copyright. Copying for private or internal purposes, in part or in full, is permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy of the information with respect to the correctness of information in this document. © AUDI AG 2014



- Press accelerator pedal down as far as stop -arrow- and release again.

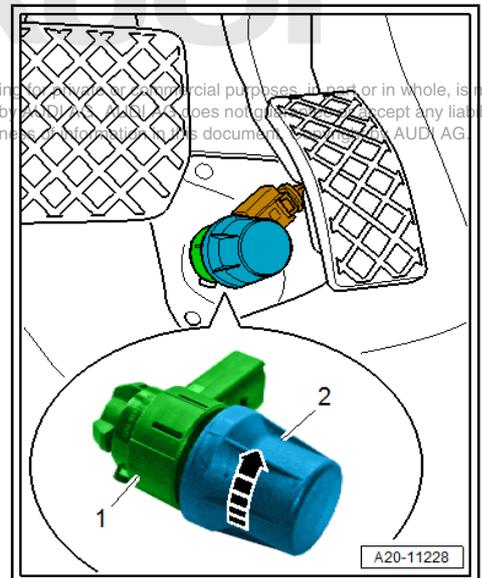


- Pull cap -2- of kickdown switch -1- outwards by distance -a- -arrow-.
- Distance -a- = 5 mm.



- Lock cap -2- of kickdown switch -1- in place by turning cap 15° in clockwise direction -arrow- as far as stop.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by Audi AG. Audi AG does not accept any liability with respect to the correctness of information in this document. © AUDI AG



- Fit cover -arrows-.
- Perform a test drive and check that kickdown switch -F8- is functioning correctly.

