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Workshop Manual Audi TT 2007 ➤

Fuel supply system, diesel engines									
Engine ID	CBB B	CFG B	·						

Edition 06.2010



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



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

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Contents

00 -	- Tech	nical data	1
	1	Safety precautions	1
	1.1	Working on the fuel system	1
	1.2	Using testers and measuring instruments during a road test	2
	1.3	Working on vehicles with start/stop system	2
	1.4	Removing and installing components from a full or partly full fuel tank	2
	1.5	Removing and installing fuel tank	2
	2	General repair instructions	3
	2.1	Rules for cleanliness when working on fuel supply system and injection system	3
	2.2	Test conditions	3
	2.3	Contact corrosion!	3
20 -	- Fuel	supply system	5
	1	Fuel tank with attached components - vehicles with four-wheel drive	5
	1.1	Fuel tank with attached components - exploded view	5
	1.2	Draining fuel tank	6
	1.3	Removing and installing fuel tank with attached components	8
	2	Fuel delivery unit and fuel gauge senders - vehicles with four-wheel drive	14
	- 2.1	Fuel delivery unit and fuel gauge senders - exploded view	14
	2.2	Fuel system pressurisation pump G6 - electrical test	16
	2.3	Removing and installing fuel delivery unit	18
	2.4	Checking fuel gauge sender G	22
	2.5	Removing and installing fuel gauge sender G	24
	2.6	Checking fuel gauge sender 2 G169	25
	2.7	Removing and installing fuel gauge sender 2 G169	27
	2.8	Suction-jet pump	31
	2.9	Removing and installing suction-jet pump	31
	3	Supplementary fuel pump	38
	3.1	Supplementary fuel pump V393 - exploded view	38
	3.2	Removing and installing supplementary fuel pump V393	39
	4	Fuel filter	40
	4 .1	Fuel filter - exploded view	40
	4.2	Removing and installing fuel filter housing	41
	5	Bleeding fuel system	43
		•	
	6	Checking fuel system for leaks	44
	7	Accelerator pedal module	
	7.1	Accelerator pedal module - exploded view	45
	7.2	Removing and installing accelerator pedal module with accelerator position senders	45



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00 – Technical data

Safety precautions

Overview

- ♦ "1.1 Working on the fuel system", page 1
- ⇒ "1.2 Using testers and measuring instruments during a road <u>test", page 2</u>
- ⇒ "1.3 Working on vehicles with start/stop system", page 2
- ⇒ "1.4 Removing and installing components from a full or partly full fuel tank", page 2
- ⇒ "1.5 Removing and installing fuel tank", page 2

Working on the fuel system

When working on the fuel system note the following warnings:



WARNING

Risk of injury - fuel system operates under pressure.

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

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

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

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

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



Caution

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

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

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

1.2 Using testers and measuring instruments during a road test

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



WARNING

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

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

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

1.3 Working on vehicles with start/stop system

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



WARNING

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

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

1.4 Removing and installing components from a full or partly full fuel tank properties of private or commercial purposes, in part or in whole, is not a superior or private or commercial purposes, in part or in whole, is not a superior or private or commercial purposes, in part or in whole, is not a superior or private or commercial purposes.

When removing and installing components from a full or partly full this document. Copyright by AUDI AG. AUDI AG does not guarantee or accept any liability full this document. Copyright by AUDI AG. fuel tank, note the following:

- ◆ Fuel tank must not be full. The amount of fuel which can be left in the fuel tank is indicated in the corresponding procedure description. Drain fuel tank if necessary ⇒ page 6.
- Before commencing work, switch on exhaust extraction system and place an extraction hose close to the sender opening in the fuel tank to extract escaping petrol fumes. If no exhaust extraction system is available, a radial fan with a displacement of at least 15 m³/h can be used (the fan motor must be clear of the air stream).
- ◆ Avoid skin contact with fuel. Wear fuel-resistant gloves.

1.5 Removing and installing fuel tank

Fuel tank must be empty to reduce weight. Drain fuel tank if necessary ⇒ page 6.

2 General repair instructions

Overview

- \Rightarrow "2.1 Rules for cleanliness when working on fuel supply system and injection system", page 3
- ⇒ "2.2 Test conditions", page 3
- ⇒ "2.3 Contact corrosion!", page 3

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

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

- Carefully clean connection points and the surrounding area with engine cleaner or brake cleaner and dry thoroughly before opening.
- Seal off open pipes/lines and connections immediately with clean plugs, e.g. from engine bung set -VAS 6122-.
- Place parts that have been removed on a clean surface and cover them over. Use only lint-free cloths.
- Carefully cover or seal open components if repairs cannot be carried out immediately.
- Only install clean components; replacement parts should only be unpacked immediately prior to installation. Do not use parts that have not been stored in their packing (e.g. in tool boxes
- 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- 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 in Original Section Fuel lines of Computation of C h respect to the correctness of information in this document. Copyright by AUDI AG.

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.



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20 – Fuel supply system

1 Fuel tank with attached components

- vehicles with four-wheel drive

 \Rightarrow "1.1 Fuel tank with attached components - exploded view", page $\underline{5}$

⇒ "1.2 Draining fuel tank", page 6

 \Rightarrow "1.3 Removing and installing fuel tank with attached components", page 8

1.1 Fuel tank with attached components - exploded view

1 - Nut

□ 23 Nm

2 - Heat shield for fuel tank

■ With support bracket

3 - Fuel return line

- □ Blue
- □ From fuel filter
- □ Do not kink
- ☐ Clip onto fuel tank

4 - Fuel supply line

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

5 - Electrical connector

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

6 - Protective plate

☐ For fuel filler neck

7 - Filler cap

Secured to tank flap unit

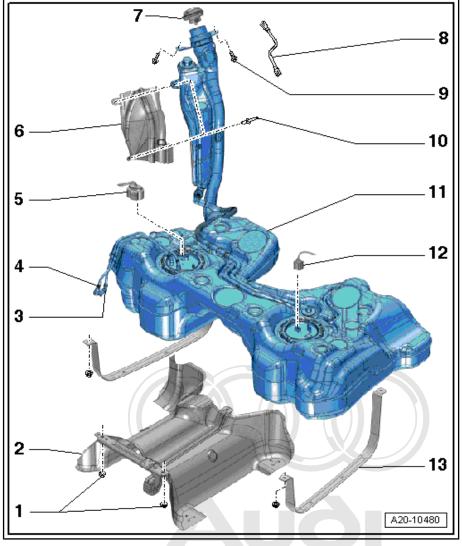
8 - Earth connection

- ☐ To eliminate electrostatic charge
- ☐ Installation position

 ⇒ page 6
- Make sure that connector is securely fitted
- After installation, use an ohmmeter to check the electrical connection between the protective plate -item 6- on the fuel filler neck and a bare metal part on the body. Specification approximate of 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

9 - Bolt

□ 11 Nm



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11 - Fuel tank

□ Removing and installing ⇒ page 8

12 - Electrical connector

☐ For fuel gauge sender 2 -G169-

13 - Securing strap

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

Earth connection for fuel filler neck and protective plate

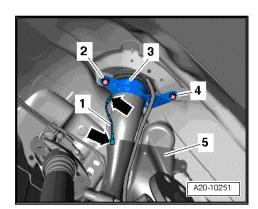
- The connections -2- and -4- on filler neck must be free from corrosion to ensure earth connection to body is not impaired.
- Position the earth connection as illustrated -1-.
- Ensure that connectors -arrows- for earth connection are properly seated on protective plate -5- and on fuel filler neck -3-.



WARNING

Risk of explosion caused by electrostatic discharge.

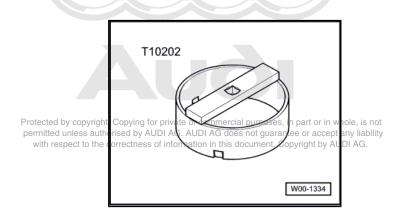
- ♦ After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body:
- Specification: approx. 0 Ω



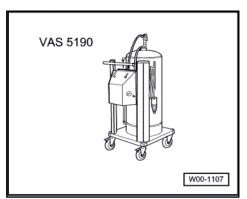
1.2 Draining fuel tank

Special tools and workshop equipment required

♦ Wrench -T10202-



◆ Fuel extractor -VAS 5190-

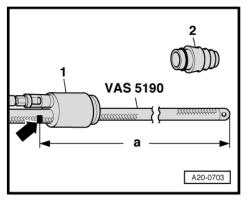


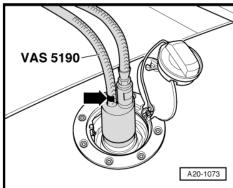
Procedure

Observe safety precautions ⇒ page 1.

Observe rules for cleanliness ⇒ page 3.

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







Note

- The procedure when using a fuel extractor without shaft end is basically the same.
- ♦ In this case, make a mark -arrow- on the extraction hose at distance -a- = 1,305 mm from the end of the hose using insulating tape. The extraction hose has been properly inserted when the affixed mark is level with the edge of the filler neck.
- ♦ If hose is difficult to insert, apply a thin coat of engine oil. DO NOT use silicone-based lubricant.
- Drain fuel tank as much as possible through fuel filler neck.
- Carefully remove extraction hose.

TT Coupé:

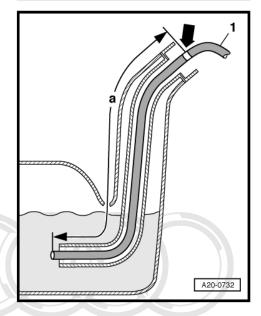
Remove rear seat bench ⇒ Rep. Gr. 72.

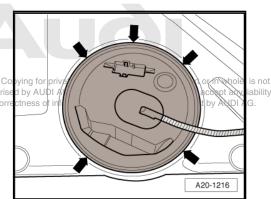
TT Roadster:

Remove back panel side trim (left-side) ⇒ Rep. Gr. 70.

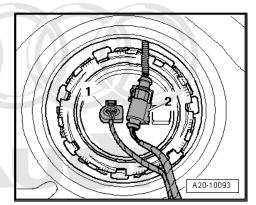
All vehicles (continued):

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

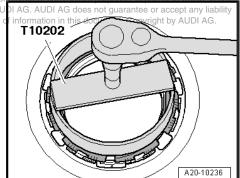




- Unplug electrical connector -1- at flange.
- Disengage electrical connector -2- and move it clear to the side.



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 Carefully pull fuel gauge sender 2 -G169- -item 1- with suctionjet pump just slightly out of aperture in fuel tank.



Note

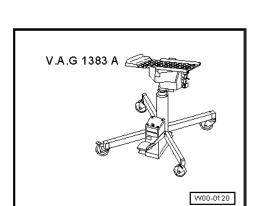
When removing, make sure you do not bend float arm of fuel gauge sender 2 -G169- .

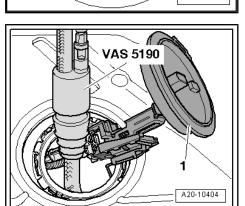
- Extract fuel from left fuel tank chamber through fuel tank opening using fuel extractor -VAS 5190-.
- Push hose into right-hand chamber of fuel tank and extract remaining fuel.
- Re-install fuel gauge sender 2 -G169- ⇒ page 29; observe notes on procedure for connecting battery.

1.3 Removing and installing fuel tank with attached components

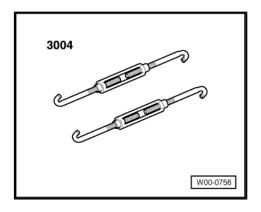
Special tools and workshop equipment required

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





♦ Hook -3004-



Removing

Observe safety precautions ⇒ page 1.

Observe rules for cleanliness <u>⇒ page 3</u>.

- Release the tank flap.



WARNING

Risk of accident caused by weight of fuel tank

- ♦ Fuel tank must be empty when it is removed.
- Drain fuel tank ⇒ page 6.

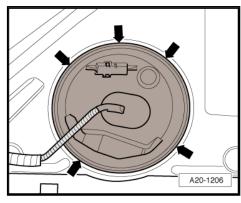
TT Coupé:

Remove rear seat bench ⇒ RepeGf. by 72pyright. 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.

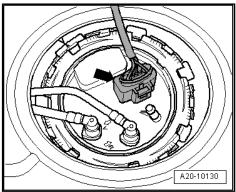
- Remove back panel trim (right and left) ⇒ Rep. Gr. 70 .

All vehicles (continued):

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



Unplug electrical connector -arrow- at flange.

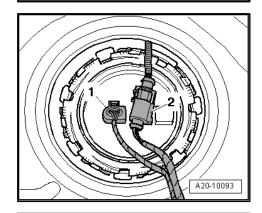


Unclip the retaining tabs -arrows- for the flange cover (left-



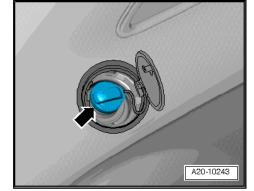
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- Unplug electrical connector -1- at flange.
- Unplug electrical connector -2- for Haldex coupling.



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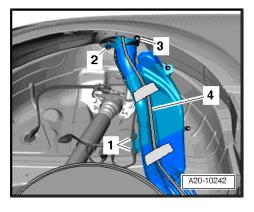
- Clean area around fuel filler neck.
- Remove filler cap -arrow- from fuel filler neck.
- Seal opening of fuel filler neck with a piece of clean foam or similar to prevent dirt from dropping into the tank.



- Remove rear right wheel housing liner \Rightarrow Rep. Gr. 66.
- Detach electrical wire -1- for ABS speed sensor from bracket on fuel filler neck.
- Remove bolts -2- and -3- for fuel filler neck.
- Move overflow hose -4- on fuel filler neck clear.

TT Roadster:

Remove diagonal struts ⇒ Rep. Gr. 42.



All vehicles (continued):



Caution

Risk of damage to flexible joints in front exhaust pipe

- The flexible joints in the front exhaust pipe must not be bent more than 10°.
- Before slackening clamp on exhaust pipe, secure front section of exhaust system to underbody of vehicle with a chain.
- Separate exhaust system at clamp -arrows-.
- Secure front section of exhaust system with a chain. To do so, engage hooks -3004- into openings on underside of vehicle (remove plugs if fitted).
- Push the clamp back in order to separate the exhaust system.



Note

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

- Disengage rear silencer at the rubber mountings and remove rear section of exhaust system.
- Remove propshaft ⇒ Rear final drive 02D/0AV; Rep. Gr. 39.



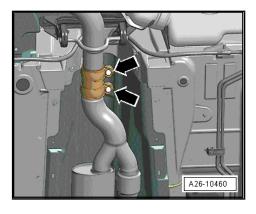
WARNING

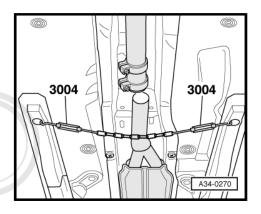
Risk of injury - fuel system operates under pressure. does not guara

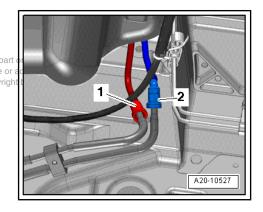
- Wrap a clean cloth around the connection before opening the fuel system. Then release pressure by carefully loosening the connection.
- Wear protective gloves.
- ♦ Wear safety goggles.

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

- ♦ In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.
- Wear protective gloves.
- Wear safety goggles.
- Press release tab and disconnect fuel supply pipe -1- and return pipe -2- at front right of fuel tank.









WARNING

Risk of accident caused by weight of fuel tank

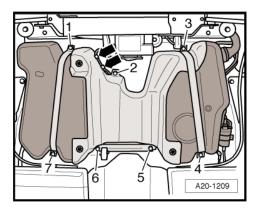
- Fuel tank must be empty when it is removed.
- First remove bolts -2, 5, 6-.
- If fitted, unhook wiring harness -arrows- and move it clear.
- Position engine and gearbox jack -V.A.G 1383 A- below vehicle to support tank.
- Remove bolts -1, 3, 4, and 7-.
- Then lower fuel tank using engine and gearbox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

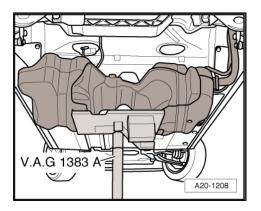
Installing

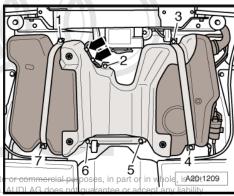
Tightening torques ⇒ page 5

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

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







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- The connections -2- and -4- on filler neck must be free from corrosion to ensure earth connection to body is not impaired.
- Tighten bolts -2- and -4- for fuel filler neck.
- Check the earth wiring at both ends for traces of oxidation and remove oxidation if necessary.
- Position the earth connection as illustrated -1-.
- Ensure that connectors -arrows- for earth connection are properly seated on protective plate -5- and on fuel filler neck -3-.



WARNING

Risk of explosion caused by electrostatic discharge.

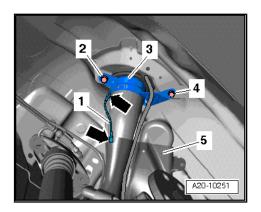
- ♦ After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body:
- ected by copyright. Copying for private or commercial purposes, in part or in whole, is not nitted un Specification:(approx: \mathcal{Q} : Ω does not guarantee or accept any liability
- Attach electrical wire for ABS speed sensor to bracket on fuel filler neck.
- Install rear right wheel housing liner ⇒ Rep. Gr. 66.
- Install propshaft ⇒ Rear final drive 02D/0AV; Rep. Gr. 39.
- Install rear section of exhaust system ⇒ Rep. Gr. 26.
- Install diagonal struts ⇒ Rep. Gr. 42.

TT Coupé:

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

TT Roadster:

Install back panel trim (right and left) ⇒ Rep. Gr. 70.



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

- ⇒ "2.1 Fuel delivery unit and fuel gauge senders exploded view", page 14
- <u>"2.2 Fuel system pressurisation pump G6 electrical test", page</u>
- ⇒ "2.3 Removing and installing fuel delivery unit", page 18
- ⇒ "2.4 Checking fuel gauge sender G ", page 22
- ⇒ "2.5 Removing and installing fuel gauge sender G", page 24
- ⇒ "2.6 Checking fuel gauge sender 2 G169", page 25
- <u>.7 Removing and installing fuel gauge sender 2 G169 ", page</u>
- ⇒ "2.8 Suction-jet pump", page 31
- ⇒ "2.9 Removing and installing suction-jet pump", page 31

2.1 Fuel delivery unit and fuel gauge senders - exploded view

1 - Fuel gauge sender -G-

- Checking resistance values ⇒ page 22
- Removing and installing ⇒ page 2²

2 - Fuel delivery unit with flange

- □ Checking fuel system pressurisation pump -G6- (electrical test) ⇒ page 16
- Removing and installing <u>⇒ page 18</u>
- □ Put at least 5 litres of fuel into tank after installing

3 - Seal

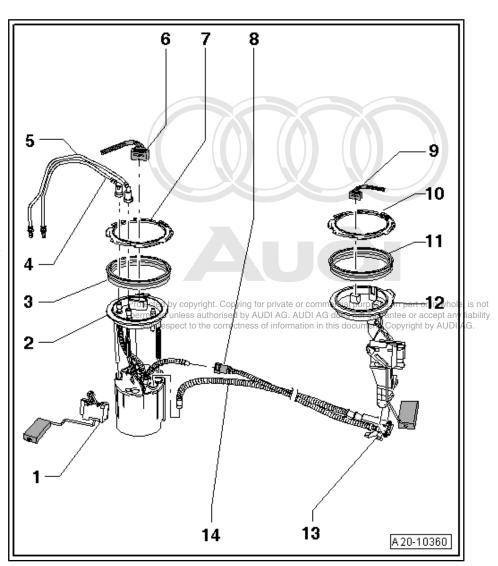
- ☐ Renew
- Install dry

4 - Fuel supply line

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

5 - Fuel return line

- □ Blue
- From fuel filter
- Do not kink

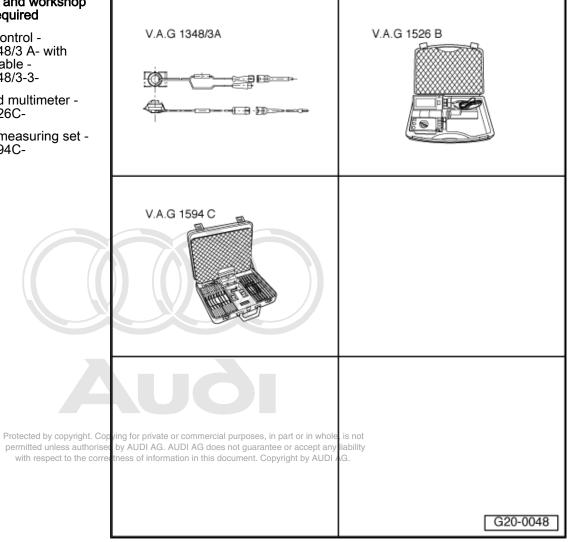


	Attached to connection marked "R" on flange
	To disconnect from flange, press release tab on connection
	lectrical connector For fuel system pressurisation pump -G6- and fuel gauge sender -G-
	ocking ring
	Remove and install using wrench -T10202- 110 Nm
8 - Sı	upply pipe for suction-jet pump
	Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not From fuel pump to suction-jet pump permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability Press release tab on pipe connector to disconnect
9 - El	lectrical connector
	For fuel gauge sender 2 -G169-
10 - L	Locking ring Remove and install using wrench -T10202- 110 Nm
- 11 - 8	
	Renew
	Install dry
12 - F	Fuel gauge sender 2 -G169-
	Only available together with -item 13
	Checking resistance values <u>⇒ page 25</u>
	Removing and installing <u>⇒ page 27</u>
	Installation position ⇒ page 30
13 - 8	Suction-jet pump
	Only available together with -item 12
	Removing and installing <u>⇒ page 31</u>
14 - F	Fuel supply pipe
	From suction-jet pump to fuel delivery unit
	Inserted in baffle housing of fuel delivery unit

Fuel system pressurisation pump -G6- - electrical test 2.2

Special tools and workshop equipment required

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



Procedure

Observe test conditions ⇒ page 3.

TT Coupé:

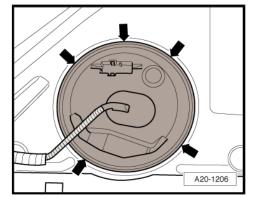
- Remove rear seat bench ⇒ Rep. Gr. 72.

TT Roadster:

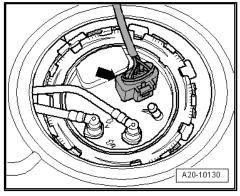
Remove back panel side trim (right-side) ⇒ Rep. Gr. 70.

All vehicles (continued):

- Unclip retaining tabs -arrows- for flange cover.



Unplug electrical connector -arrow- at flange.

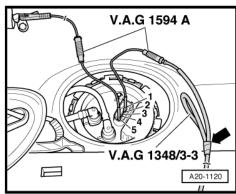


- Connect remote control -V.A.G 1348/3 A- with adapter cable -V.A.G 1348/3-3- to contact -1- using a test lead from auxiliary measuring set -V.A.G 1594C- .
- Tape off 2nd connector contact of the adapter cable -V.A.G 1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Connect contact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

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

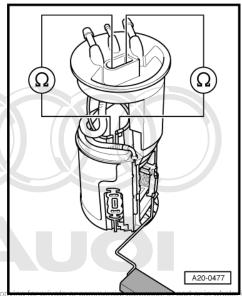


If no noise can be heard from pump:

- Remove fuel delivery unit ⇒ page 18.
- Check that the electrical wires between flange and fuel pump are connected and test for continuity.

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

Install fuel delivery unit ⇒ page 20.

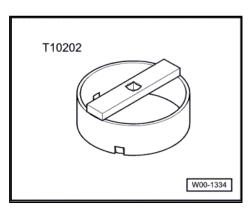


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2.3 Removing and installing fuel delivery: to the correctness of information in this document. Copyright by AUDI AG. unit

Special tools and workshop equipment required

♦ Wrench -T10202-



Removing

Observe safety precautions ⇒ page 1.

Observe rules for cleanliness ⇒ page 3.

TT Roadster:



Caution

- On the TT Roadster, the fuel tank must first be removed before removing the fuel delivery unit.
- Removing fuel tank ⇒ page 8.

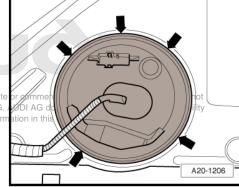
TT Coupé:



WARNING

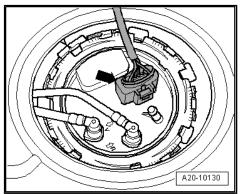
Large amounts of fuel can escape.

- The fuel tank must not be more than 1/3 full when removing the fuel delivery unit, otherwise a large amount of fuel will escape.
- Drain fuel tank if necessary ⇒ page 6.
- Remove rear seat bench ⇒ Rep. Gr. 72.
- Unclip the retaining tabs -arrows- for the flange cover (right-



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- Unplug electrical connector -arrow- at flange.



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



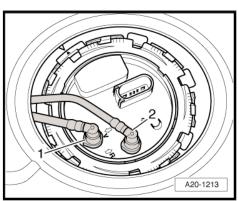
WARNING

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

- In extreme cases the fuel lines and the fuel can reach a temperature of 100 °C. Allow the fuel to cool down before disconnecting the lines - danger of scalding.
- Wear protective gloves.
- ♦ Wear safety goggles.

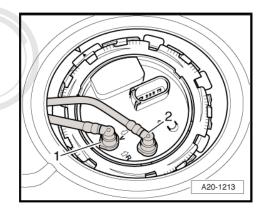
Risk of injury - fuel system operates under high pressure.

- To reduce the pressure in the fuel system, wrap a clean cloth around the connection and carefully loosen the connection.
- Detach both pipes from flange (press release tabs).



TT Roadster:

- With fuel tank removed, mark fuel supply line -1- and fuel return line -2-.
- Detach both pipes from flange (press release tabs).



TT Coupé:

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WARNING

Large amounts of fuel can escape.

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

All vehicles (continued):

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



Note

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

Installing

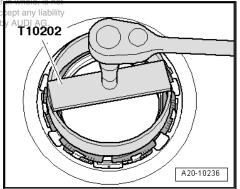
Tightening torque ⇒ page 14

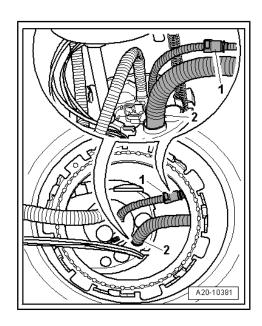
Installation is carried out in the reverse order; note the following:



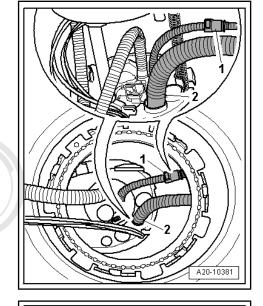
Note

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





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



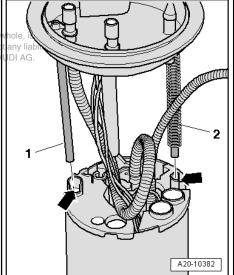


Note

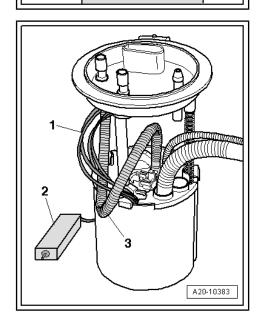
Protected by copyright. Copying for private or commercial purposes, in part or in

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

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



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

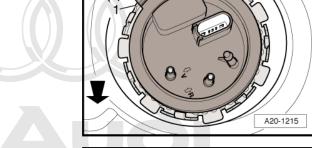


- Press flange down against spring pressure, and turn flange to installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.



Note

The -arrow- points in direction of travel.



Tighten locking ring.

TT Coupé:

Install rear seat bench ⇒ Rep. Gr. 72.

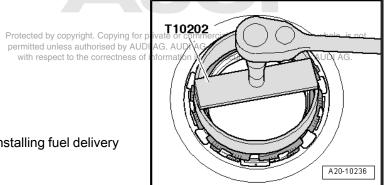
TT Roadster:

Install fuel tank ⇒ page 12.

All vehicles (continued):

Put at least 5 litres of fuel into tank after installing fuel delivery

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2.4 Checking fuel gauge sender -G-

Special tools and workshop equipment required

♦ Hand-held multimeter -V.A.G 1526C-



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



Procedure

TT Coupé:

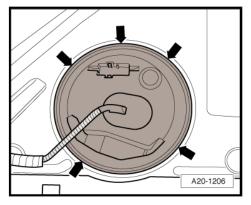
- Remove rear seat bench ⇒ Rep. Gr. 72 .

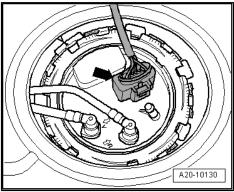
TT Roadster:

Remove back panel side trim (right-side) ⇒ Rep. Gr. 70.

All vehicles (continued):

- Unclip the retaining tabs -arrows- for the flange cover (rightside).
- Unplug electrical connector -arrow- at flange.







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

Fuel gauge sender -G- installed:

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



Note

- To test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel delivery unit ⇒ page 18 and move the sender float all the way to its top or bottom position.
- If the resistance is 0 Ω, there is a short circuit. If the resistance
 is ∞ Ω, there is an open-circuit in the wiring or 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
- ♦ The following values are obtained with the fuel gauge sender ent. Copyright by AUDI AG. -G- removed, due to the greater travel of the float arm:

Fuel gauge sender -G- removed:

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

Fuel gauge sender -G- installed or removed:

Sender in any position: approx. 340 Ω.

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

TT Coupé:

Install rear seat bench ⇒ Rep. Gr. 72.

TT Roadster:

Install back panel side trim (right-side) ⇒ Rep. Gr. 70.

2.5 Removing and installing fuel gauge sender -G-

Removing

Observe safety precautions ⇒ page 1.

Observe rules for cleanliness ⇒ page 3.

TT Roadster:

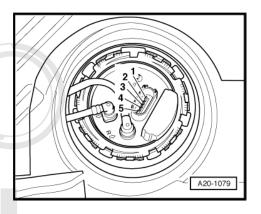


Caution

- On the TT Roadster, the fuel tank must first be removed before removing the fuel delivery unit.
- Removing fuel tank ⇒ page 8.

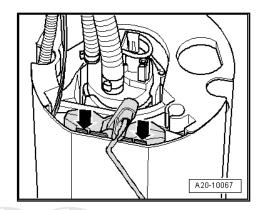
All vehicles (continued):

Remove fuel delivery unit ⇒ page 18.





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





Caution

Risk of damage.

- ♦ First release retainer tabs on connector contact before detaching electrical connectors on fuel gauge sender -G-.
- Release retainer tabs on electrical connectors -1 ... 3- and then detach electrical connectors.



Installation is carried out in the reverse order; note the following: ommercial purposes, in part or in whole, is not

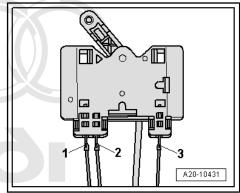
- Insert fuel gauge sender -G- into guides on fuel delivery uniton in this document. Copyright by AUDI AG. and press upwards until it clicks into place.
- Plug in electrical connectors and check that they have engaged properly.
- Install fuel delivery unit ⇒ page 20.

Checking fuel gauge sender 2 -G169-2.6

Special tools and workshop equipment required

♦ Hand-held multimeter -V.A.G 1526C-





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



A20-1216

Procedure

TT Coupé:

Remove rear seat bench \Rightarrow Rep. Gr. 72.

TT Roadster:

Remove back panel side trim (left-side) ⇒ Rep. Gr. 70.

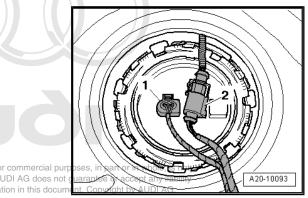
All vehicles (continued):

- Unclip the retaining tabs -arrows- for the flange cover (leftside).
- Unplug electrical connector -1- at flange.



Note

Disregard -item 2-.



Protected by copyright. Copying for private or commercial pur permitted unless authorised by AUDI AG. AUDI AG does not with respect to the correctness of information in this docum Connect multimeter (resistance test) between contacts -1- and

With fuel gauge sender 2 -G169- installed:

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



Note

- In order to test the maximum and minimum values for "tank full" and "tank empty", remove the fuel gauge sender 2 -G169-⇒ page 27 and move the float all the way to its top or bottom position.
- If the resistance is 0 Ω , there is a short circuit. If the resistance is ∞ Ω , there is an open circuit in the wiring.
- The following values are obtained with the fuel gauge sender 2 -G169- removed, due to the greater travel of the float arm:



- Sender at lower stop: applieded by 88 right. Copying for private or commercial purposes, in part or in whole, is not perhitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- correctness of information in this document. Copyright by AUDI AG. Sender at upper stop: approx. 50 Ω .
- Connect multimeter (resistance test) between contacts -2- and

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

Sender in any position: approx. 340 Ω .

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

TT Coupé:

Install rear seat bench ⇒ Rep. Gr. 72.

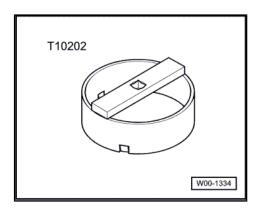
TT Roadster:

Install back panel side trim (left-side) ⇒ Rep. Gr. 70.

2.7 Removing and installing fuel gauge sender 2 -G169-

Special tools and workshop equipment required

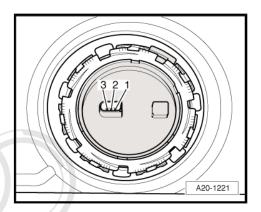
♦ Wrench -T10202-



Removing

Observe safety precautions ⇒ page 1.

Observe rules for cleanliness <u>⇒ page 3</u>.



TT Roadster:



Caution

- On the TT Roadster, the fuel tank must first be removed before removing the fuel gauge sender 2 -G169- .
- Removing fuel tank ⇒ page 8.

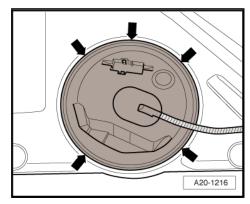
TT Coupé:



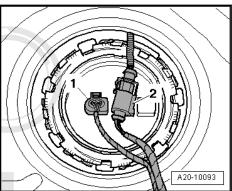
WARNING

Large amounts of fuel can escape.

- The fuel tank must not be more than 1/3 full when removing the fuel gauge sender 2 -G169-, otherwise a large amount of fuel will escape.
- Drain fuel tank if necessary ⇒ page 6.
- Briefly open filler cap for fuel tank and close again.
- Remove rear seat bench ⇒ Rep. Gr. 72.
- Unclip the retaining tabs -arrows- for the flange cover (leftside).



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



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WARNING

Large amounts of fuel can escape.

◆ The fuel tank must not be more than ¹/₃ full when removing the fuel gauge sender 2 -G169-, otherwise a large amount of fuel will escape.

All vehicles (continued):

- Unscrew locking ring using wrench -T10202- .
- Carefully pull fuel gauge sender 2 -G169- -item 2- together with suction-jet pump -1- just slightly out of opening in fuel tank.
- Detach seal.
- Unclip suction-jet pump from flange -arrows-.



Note

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

Installing

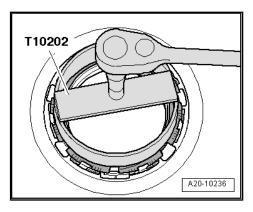
Tightening torque ⇒ page 14

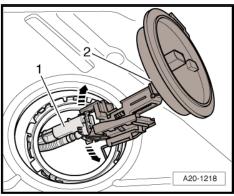
Installation is carried out in the reverse order; note the following:



Note

- Renew seal.
- When installing, make sure you do not bend float arm of fuel gauge sender 2 -G169- .
- Carefully insert fuel gauge sender 2-G169- into opening in fuel 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
- Clip suction-jet/pumped to contorflange; isonthat you hear it clickight by AUDI AG. into place.







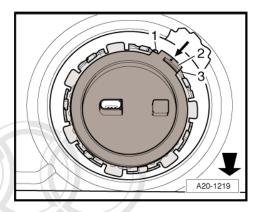
Install new seal for flange (seal must be installed dry).



Caution

Leakage risk

- The seal must not be pinched or damaged when installing the flange.
- Press flange down against spring pressure and move flange into installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.





Note

The -arrow- points in direction of travel.

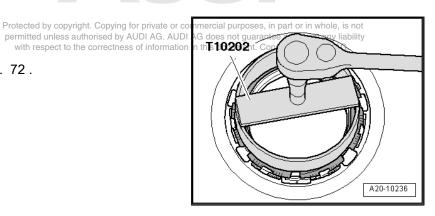
Tighten locking ring.

TT Coupé:

Install rear seat bench ⇒ Rep. Gr. 72.

TT Roadster:

Install fuel tank ⇒ page 12.



2.8 Suction-jet pump

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

Suction-jet pump: operation

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

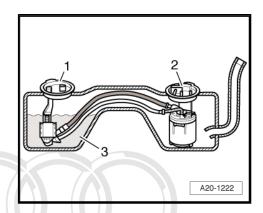
Faults caused by defective suction-jet pump



Caution

The engine can stop due to fuel starvation if the suction-jet pump is defective.

♦ If the suction-jet pump is defective, the engine can stop due to fuel starvation when the tank is still 1/₄ full.



If the suction-jet pump is not working, up to 15 litres of fuel (up to r private or commercial purposes, in part or in whole, is not about ¹/₄ of tank capacity) may remain in the refit chamber of the of the of information in this document. Copyright by AUDI AG. tank, from where it cannot be drawn into the fuel delivery unit.

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

Check fuel system pressurisation pump -G6- ⇒ page 16.

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

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

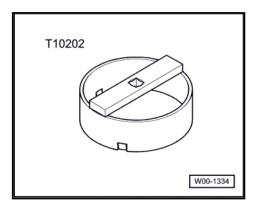
If engine now starts:

Renew suction-jet pump ⇒ page 31.

2.9 Removing and installing suction-jet pump

Special tools and workshop equipment required

♦ Wrench -T10202-



Removing

Observe safety precautions ⇒ page 1.

Observe rules for cleanliness ⇒ page 3.

TT Roadster:



Caution

- On the TT Roadster, the fuel tank must first be removed before removing the suction-jet pump.
- Removing fuel tank ⇒ page 8.

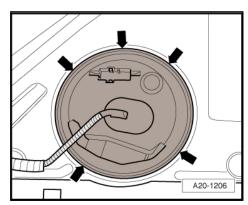
TT Coupé:



WARNING

Large amounts of fuel can escape.

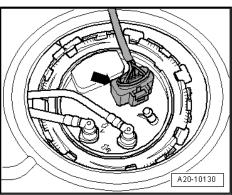
- ◆ The fuel tank must not be more than ¹/₃ full when removing the suction-jet pump, otherwise a large amount of fuel will escape.
- Drain fuel tank if necessary ⇒ page 6.
- Remove rear seat bench ⇒ Rep. Gr. 72.
- Unclip the retaining tabs -arrows- for the flange cover (rightside).



Unplug electrical connector -arrow- at flange.



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



WARNING

Risk of injury - fuel system operates under pressure.

- ♦ Wrap a clean cloth around the connection before opening the fuel system. Then release pressure by carefully loosening the connection.
- Wear protective gloves.
- Wear safety goggles.

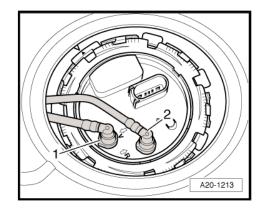
The fuel can become extremely hot. This can cause injuries.

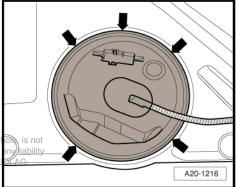
- ♦ In extreme cases the temperature of the fuel lines and the fuel can be up to 100 °C after the engine is switched off. Allow the fuel to cool down before disconnecting the lines - danger of scalding.
- Wear protective gloves.
- Wear safety goggles.
- Detach both pipes from flange (press release tabs).
- Unclip the retaining tabs -arrows- for the flange cover (left-

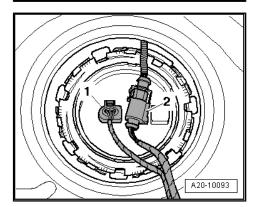


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- Unplug electrical connector -1- at flange.
- Disengage electrical connector -2- and move it clear to the side.

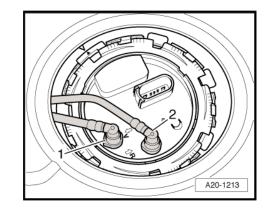






TT Roadster:

- With fuel tank removed, mark fuel supply line -1- and fuel return line -2-.
- Detach both pipes from flange (press release tabs).



TT Coupé:



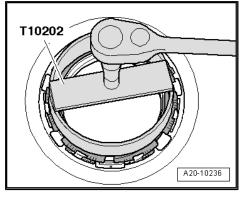
WARNING

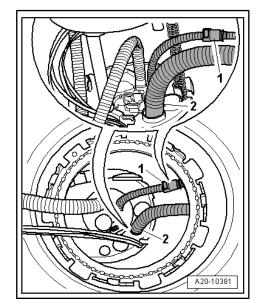
Large amounts of fuel can escape.

◆ The fuel tank must not be more than ¹/₃ full when removing the suction-jet pump, otherwise a large amount of fuel will escape.

All vehicles (continued):

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

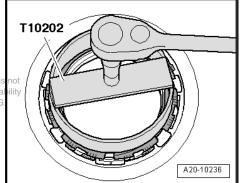






Unscrew locking ring (left-side) using wrench -T10202- .





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



Note

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

Reach into fuel tank opening on left side of vehicle and pull out n part or in whole, is not suction-jet pumpote with properly pointing of private or campeleit purposes, in part or in whole, is not pumpoted in the permitted unless authorised by AUDI AC AUDI AC does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Installing

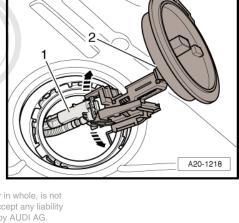
Tightening torque ⇒ page 14

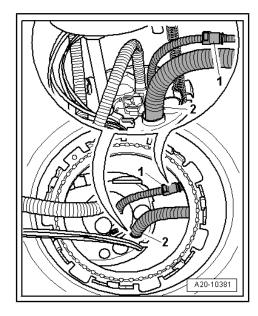
Installation is carried out in the reverse order; note the following:



Note

- Renew seals.
- When installing, make sure you do not bend float arm of fuel gauge sender 2 -G169-.
- Push suction-jet pump (with pipes attached) into fuel tank opening on left side of vehicle.
- Reach into fuel tank opening on right side of vehicle and pull suction-jet pump with pipes into the installation position.
- Push fuel supply pipe -2- into hole in fuel delivery unit so that it engages audibly.
- Connect ends of supply pipe -1- leading to suction-jet pump together so that they engage audibly.

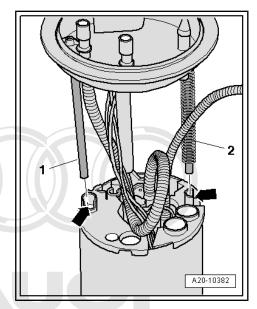




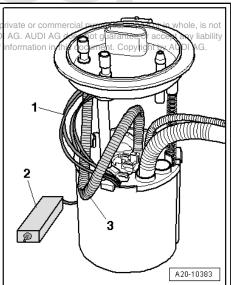
Note

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

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



Make sure that electrical wiring -1- and fuel supply line -3- are
 positioned as shown so they do not obstruct deverby2 of fuel by AU
 gauge sender.

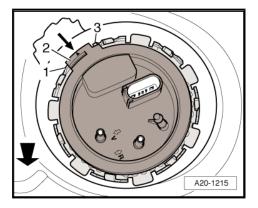




Caution

Leakage risk

- ◆ The seal must not be pinched or damaged when installing the flange.
- Press flange down against spring pressure and move flange into installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.



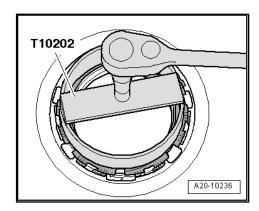


Note

The -arrow- points in direction of travel.

A20-1218

Tighten locking ring.



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



Install new seal for flange (seal must be installed dry).

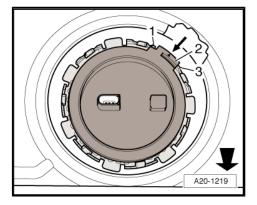


Prote peri

Caution

te**Leakage risk** ying for private or commercial purposes, in part or in whole, is not tted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

- ◆ The seal must not be pinched or damaged when installing the flange.
- Press flange down against spring pressure and move flange into installation position.
- Lug -2- on flange points towards arrow marking, and must be between tabs -1- and -3- on fuel tank.





Note

The -arrow- points in direction of travel.

- Tighten locking ring.

TT Coupé:

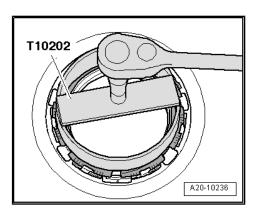
- Install rear seat bench ⇒ Rep. Gr. 72.

TT Roadster:

Install fuel tank ⇒ page 12.

All vehicles (continued):

Put at least 5 litres of fuel into tank after installing suction-jet pump



3 Supplementary fuel pump

- ⇒ "3.1 Supplementary fuel pump V393 exploded view",
- ⇒ "3.2 Removing and installing supplementary fuel pump V393", page 39

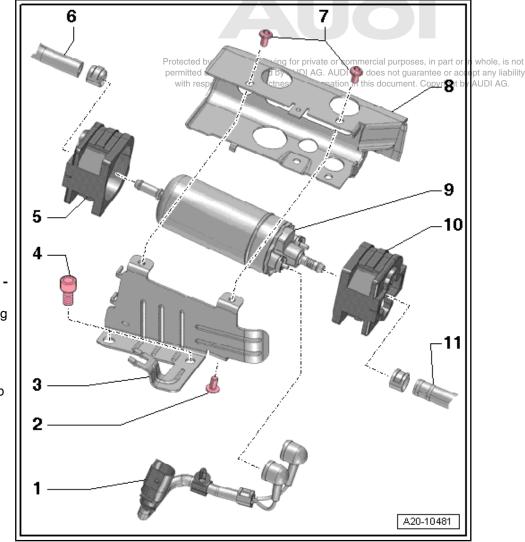
3.1 Supplementary fuel pump -V393- - exploded view



Caution

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

- ♦ If the fuel filter, the fuel lines or the supplementary fuel pump -V393- are renewed, it is important to bleed the fuel system before the engine is started for the first time.
- Bleed fuel system ⇒ Rep. Gr. 23; Performing first fuel filling after installing high-pressure pump.
- 1 Electrical connector
- 2 Bolt
 - □ 9 Nm
- 3 Bracket
- 4 Bolt
 - □ 20 Nm
- 5 Rubber mounting
- 6 Fuel supply hose
 - From fuel filter
 - White marking
- 7 Bolt
 - □ 9 Nm
- 8 Bracket
- 9 Supplementary fuel pump -V393-
 - Removing and installing ⇒ page 39
- 10 Rubber mounting
- 11 Fuel supply hose
 - ☐ To high-pressure pump
 - White marking



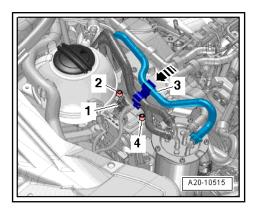
3.2 Removing and installing supplementary fuel pump -V393-

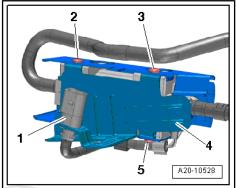
Removing

Observe safety precautions <u>⇒ page 1</u>.

Observe rules for cleanliness ⇒ page 3.

- Disengage fuel hose -3- at bracket -arrow-.
- Press release tab and unplug electrical connector -1-.
- Remove bolts -2, 4- and detach bracket with supplementary fuel pump.
- Detach electrical connector -1- from bracket.
- Unscrew bolts -2, 3, 5- and remove bracket -4-.





- Move electrical wiring clear -arrow-.
- Take supplementary fuel pump -5- with rubber mountings -4, 6- out of bracket -2-.
- Detach fuel hoses -1- and -3-.

Installing

Tightening torque ⇒ page 38

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

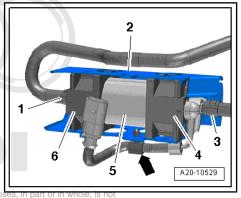


Note

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Secure all hose connections with the correct type Unit has policy goes not guarantee or accept any liability (came as original occurrent) will reject to the correct type of the secure of the correct will reject to the correct will reject (same as original equipment) ⇒ Electronic parts catalogue.

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



Fuel filter 4

- ⇒ "4.1 Fuel filter exploded view", page 40
- ⇒ "4.2 Removing and installing fuel filter housing", page 41

4.1 Fuel filter - exploded view



Caution

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

- ♦ If the fuel filter, the fuel lines or the supplementary fuel pump -V393- are renewed, it is important to bleed the fuel system before the engine is started for the first time.
- Bleed fuel system > Rep.PGrcte23/p-Recforming first/fuel/filling/roial purposes, in part or in whole, is not after installing high-pressure plumpless 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

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

10

- 1 Bolt
 - □ 9 Nm
- 2 Nut
 - □ 9 Nm
- 3 Bolt
 - □ 9 Nm
- 4 Seal
 - ☐ Renew
- 5 Cover
 - For filter housing
- 6 Fuel return hose
 - □ To fuel tank
 - □ Blue marking
- 7 Fuel supply hose
 - □ From fuel tank
 - White marking
- 8 Bolt
 - □ 5 Nm
- 9 Fuel return hose
 - ☐ From high-pressure pump
 - □ Blue marking
- 10 Fuel supply hose
 - ☐ From supplementary fuel pump -V393-
 - White marking
- 11 Filter element
 - ☐ Renewing ⇒ Maintenance tables

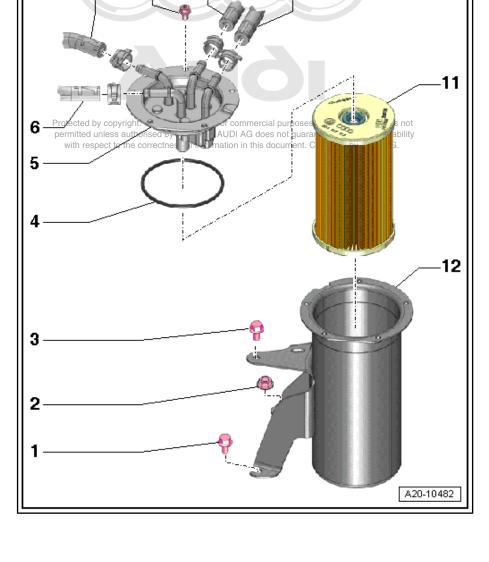
12 - Fuel filter housing

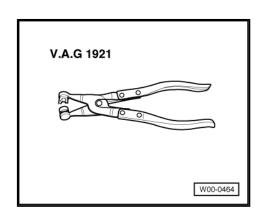
□ Removing and installing ⇒ page 41

4.2 Removing and installing fuel filter housing

Special tools and workshop equipment required

♦ Hose clip pliers -V.A.G 1921-





Removing

Observe safety precautions <u>⇒ page 1</u>.

Observe rules for cleanliness <u>⇒ page 3</u>.

- Mark positions of fuel hoses for re-installation.
- Detach fuel hoses -4, 5, 6, 7- from fuel filter.
- Remove bracket -arrow- for coolant hose at fuel filter.
- Slacken bolt -1- a few turns.
- Remove bolt -3- and nut -2-.
- Detach fuel filter housing -8-.

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

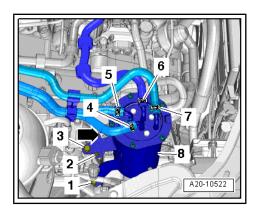


Note

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

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

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Bleeding fuel system 5



Caution

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

♦ If the fuel filter, the fuel lines or the supplementary fuel pump -V393- are renewed, it is important to bleed the fuel system before the engine is started for the first time.

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



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6 Checking fuel system for leaks

Observe rules for cleanliness ⇒ page 3.

A leaking fuel system can cause:

- ♦ Foam build-up or air bubbles in the supply pipe.
- ♦ Lack of power, misfiring.
- ♦ Starting problems.

Checking fuel system and fuel lines for leaks

- Check whether the seals on the flanges are damaged and whether the union nuts on the fuel tank flanges are properly tightened.
- tightened.

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- ◆ Fuel lines to engine
- ◆ Fuel lines to fuel tank
- ♦ Fuel cooler
- ◆ Fuel filter
- ♦ Fuel tank

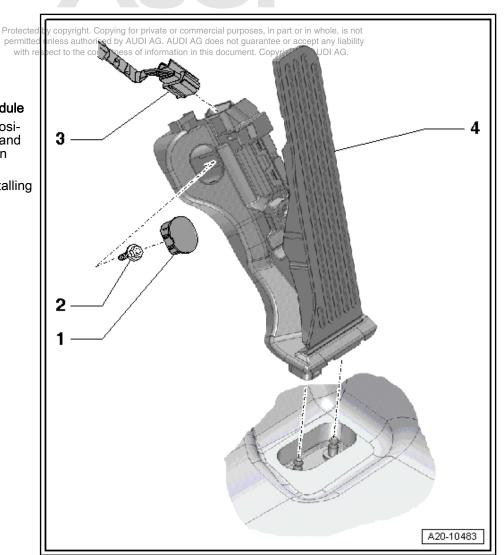


Accelerator pedal module 7

- ⇒ "7.1 Accelerator pedal module exploded view", page 45
- \Rightarrow "7.2 Removing and installing accelerator pedal module with accelerator position senders", page 45

Accelerator pedal module - exploded view 7.1

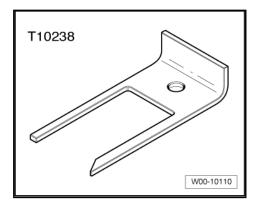
- 1 Cover cap
- 2 Bolt
 - □ 9 Nm
- 3 Electrical connector
- 4 Accelerator pedal module
 - ☐ With accelerator position sender -G79- and accelerator position sender 2 -G185-
 - □ Removing and installing ⇒ page 45



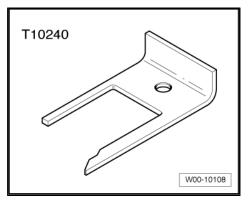
Removing and installing accelerator 7.2 pedal module with accelerator position senders

Special tools and workshop equipment required

For LHD vehicles: release tool -T10238-

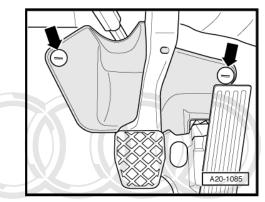


♦ For RHD vehicles: release tool -T10240-

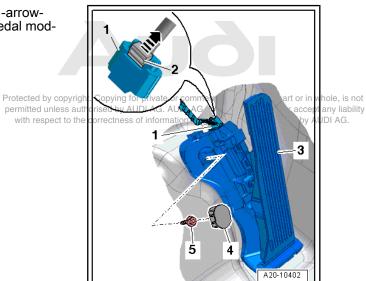


Removing

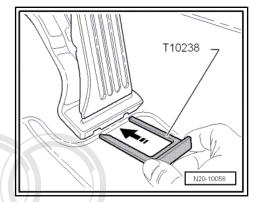
- Remove cover for steering column -arrows-.



- Pull out release tab -2- as far as stop in direction of -arrow-and unplug electrical connector -1- at accelerator pedal module -3-.
- Use screwdriver to prise off cap -4-.
- Remove bolt -5-.



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



Installing

Tightening torque ⇒ page 45

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

- Plug in electrical connector -2- at accelerator pedal module -5-.
- The connector must audibly engage.
- Press accelerator pedal module onto retaining studs 46 pr commercial permitted unless authorised by AUDI AG. AUDI AG does
- Insert centring pin -7- into hole in emderbody ectness of information in this doc
- Secure accelerator pedal module with bolt -3- and press on cap -4-.



Note

Disregard -item 1-.

Vehicles with dual clutch gearbox:

After renewing, perform kick-down adaption in "Guided Functions" mode \Rightarrow Vehicle diagnosis, testing and information system VAS 5051.

