

Audi A3 1997 ➤

Fuel supply system - Diesel engines

Engine ID	AGR	AHF	ALH	ASV	ASZ	ATD	AXR		
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Edition 12.2000



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

Audi A3 1997 ➤

Fuel supply system - Diesel engines

Repair Group

20 - Fuel supply system



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

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20 - Fuel supply system

1 - Notes for working on fuel supply system

1.1 - Notes for working on fuel supply system

1.2 - Safety precautions when working on the fuel supply system

Warning

- ◆ The fuel system of vehicles with unit injector engine and four-wheel drive is under pressure. Place a cloth over the connection before opening the system. Then open the connection carefully to relieve pressure.
- ◆ In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.
- ◆ Wear protective gloves.
- ◆ Wear protective goggles.

When removing and installing the fuel gauge sender or fuel delivery unit from a full or partly full fuel tank, note the following:

Note:

The fuel tank must not be more than partly full. The amount of fuel which can be allowed to remain in the tank is specified in the relevant repair instructions. If necessary, drain fuel tank. Procedure on vehicles with front-wheel drive => Page 32.

- ◆ 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 fuel fumes.
If no exhaust extraction system is available, a radial fan (as long as motor is not in air flow) with a displacement greater than 15 m³/h can be used.
- ◆ Prevent skin contact with fuel! Wear fuel-resistant gloves.

When removing and installing fuel tank, note the following:

Note:

The fuel tank must be empty in order to reduce weight. If necessary, drain fuel tank. Procedure on vehicles with front-wheel drive => Page 32.

1.3 - Rules for cleanliness

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

- ◆ Thoroughly clean all unions and the adjacent areas before disconnecting.
- ◆ Place parts that have been removed on a clean surface and cover them over. Do not use fluffy cloths.
- ◆ Carefully cover over or seal opened components if the repair cannot be completed immediately.
- ◆ Only install clean components:
Only unpack replacement parts immediately prior to installation.
Do not use parts that have been stored loose (e.g. in tool boxes etc.).
- ◆ When the system is open:
Do not work with compressed air.
Do not move vehicle unless absolutely necessary.



- ♦ Also ensure that no diesel fuel runs onto the coolant hoses. Hoses coming in contact with fuel must be cleaned immediately. Damaged hoses must be replaced.

2 - Fuel supply system - front-wheel drive

2.1 - Fuel supply system - front-wheel drive

Notes:

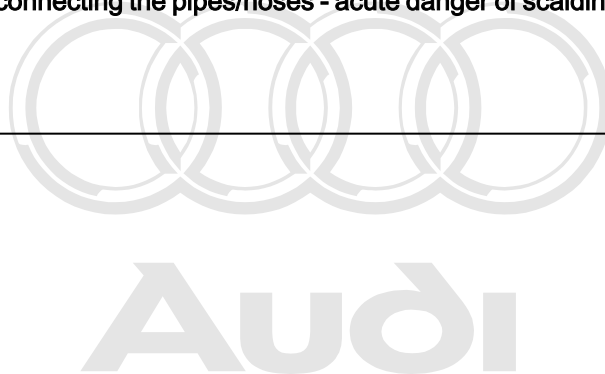
- ♦ Secure all hose connections with the correct hose clips (same as original equipment)

=> Parts catalogue

- ♦ Always renew sealing rings and gaskets when assembling.

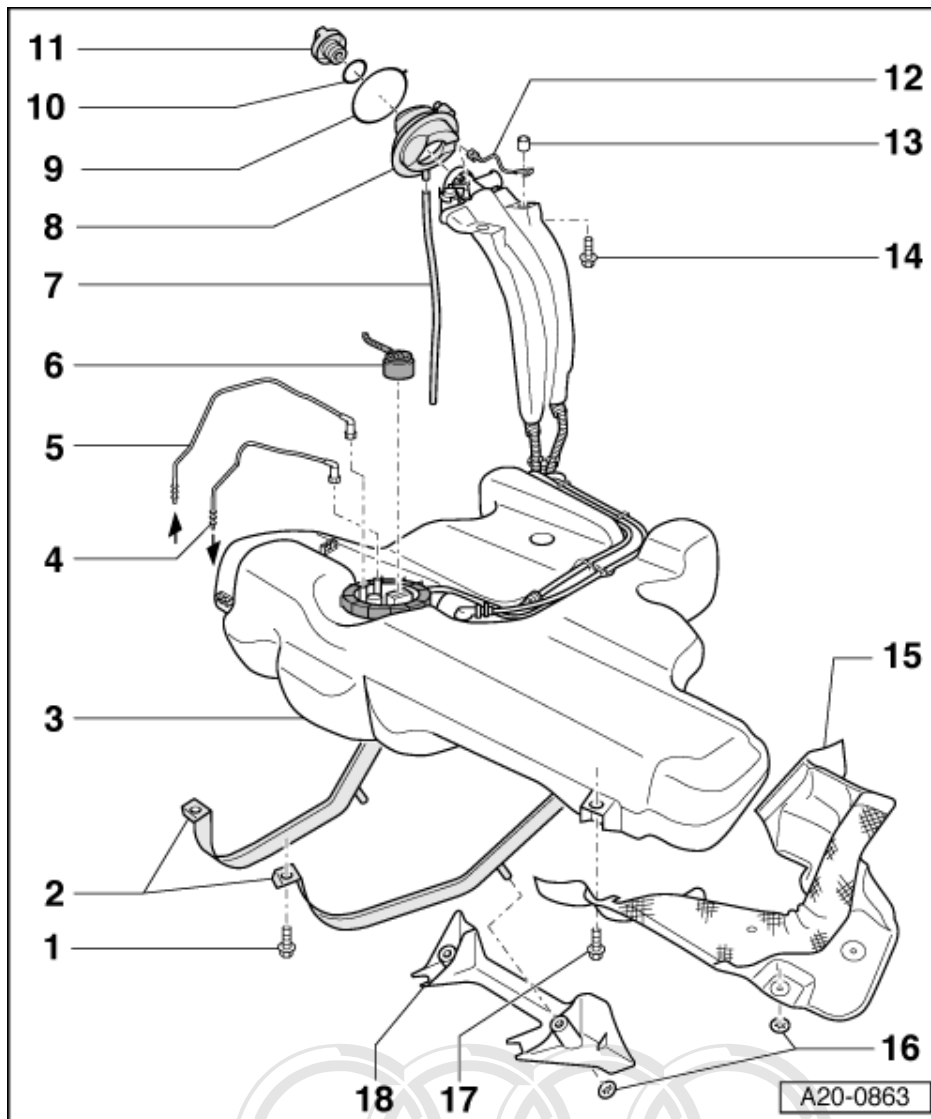
Warning

- ♦ In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.
- ♦ Wear protective gloves.
- ♦ Wear protective goggles.



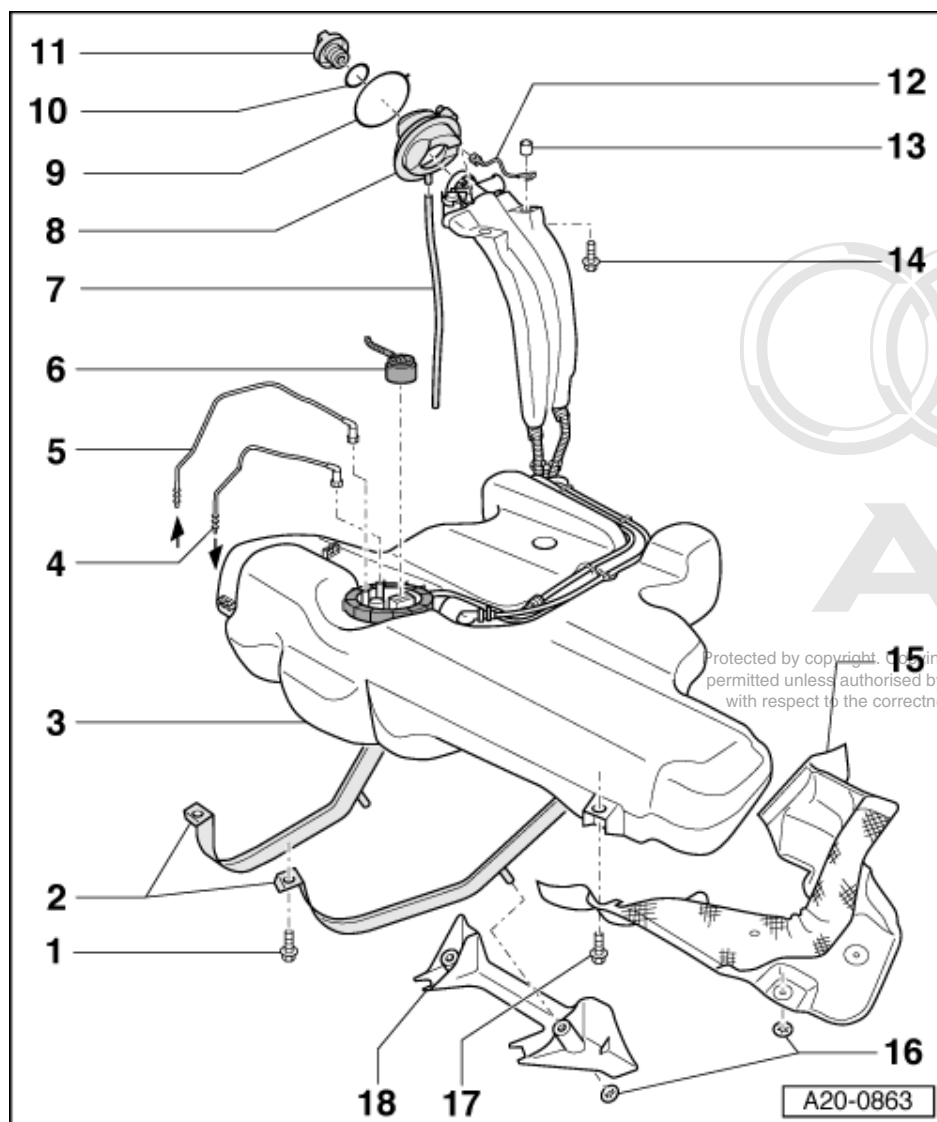
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2.2 - Overview of components: fuel tank with attachments



- 1 26 Nm
- 2 **Securing straps**
 - ♦ Removing and installing
=> Page 12
 - ♦ Note differing length
 - ♦ Note correct position
- 3 **Fuel tank**
 - ♦ Removing and installing
=> Page 12

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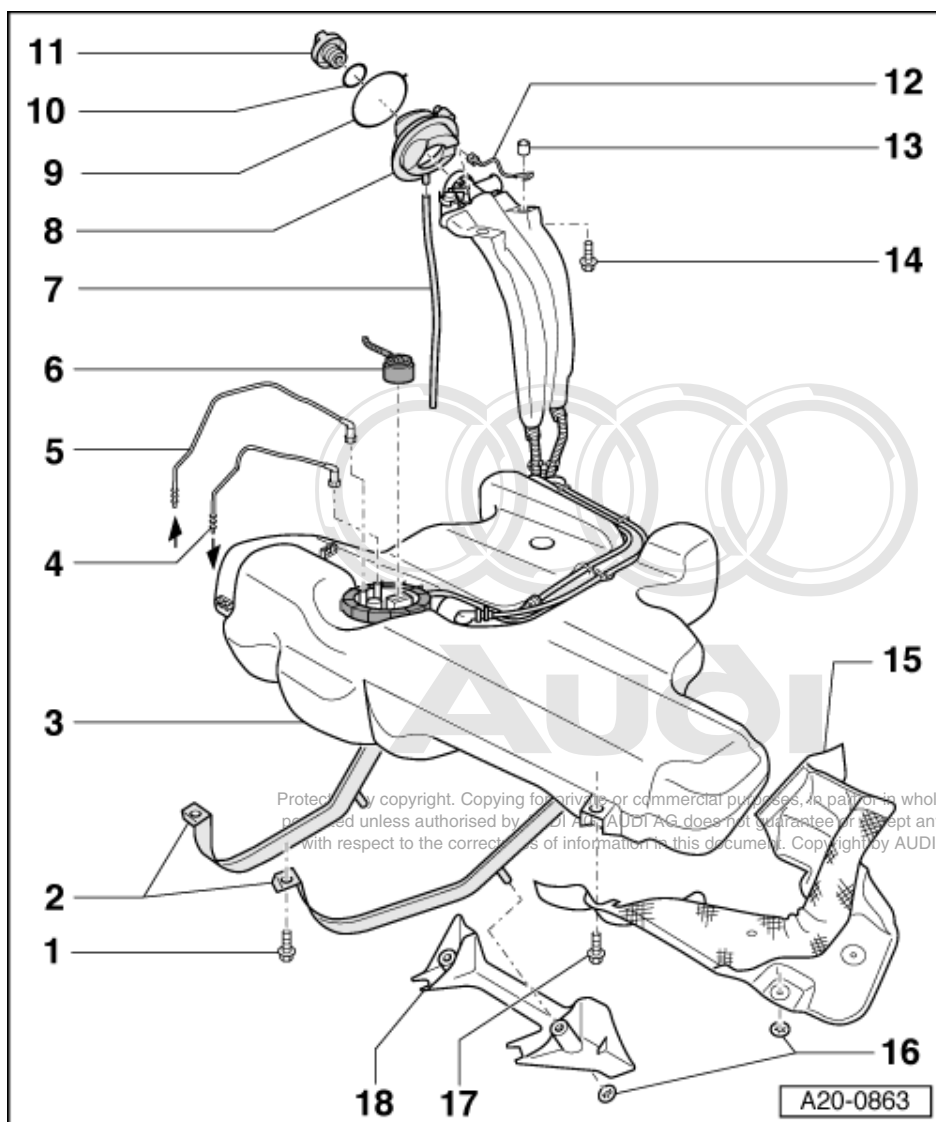
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4 Fuel supply pipe

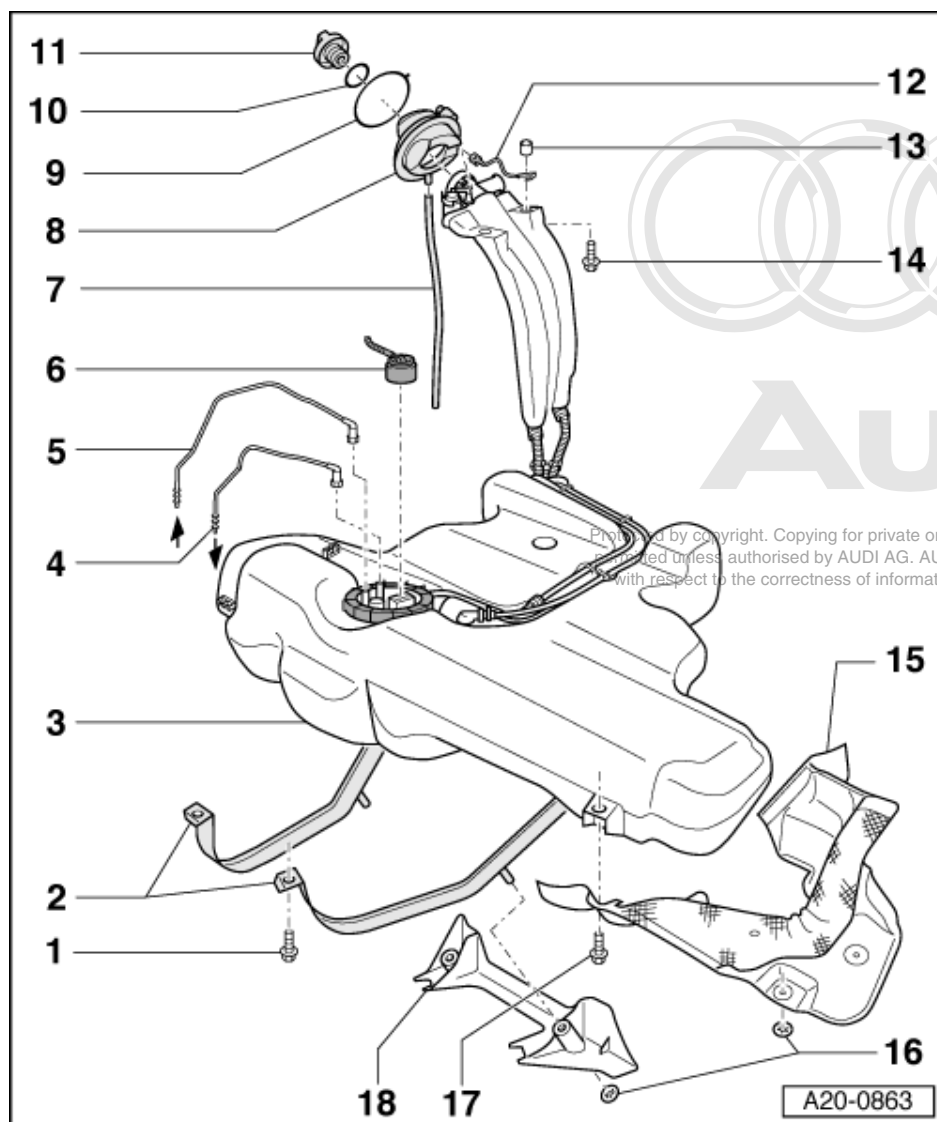
- ◆ Black
- ◆ Goes to fuel filter
- ◆ Connected to connection marked "V" on sealing flange
- ◆ Clip onto fuel tank (front right)
- ◆ To disconnect from sealing flange, press release tab on connection

5 Fuel return pipe

- ◆ Blue
- ◆ From fuel filter or fuel cooler
- ◆ Connected to connection marked "R" on sealing flange
- ◆ Clip onto fuel tank (front right)
- ◆ To disconnect from sealing flange, press release tab on connection



- 6 Electrical connector**
- ♦ For fuel gauge sender -G
 - ♦ Releasing
=> Fig. 20
- 7 Overflow hose**
- 8 Rubber cup**
- 9 Retaining ring**
- 10 Gasket**
- ♦ Renew if damaged
- 11 Filler cap**

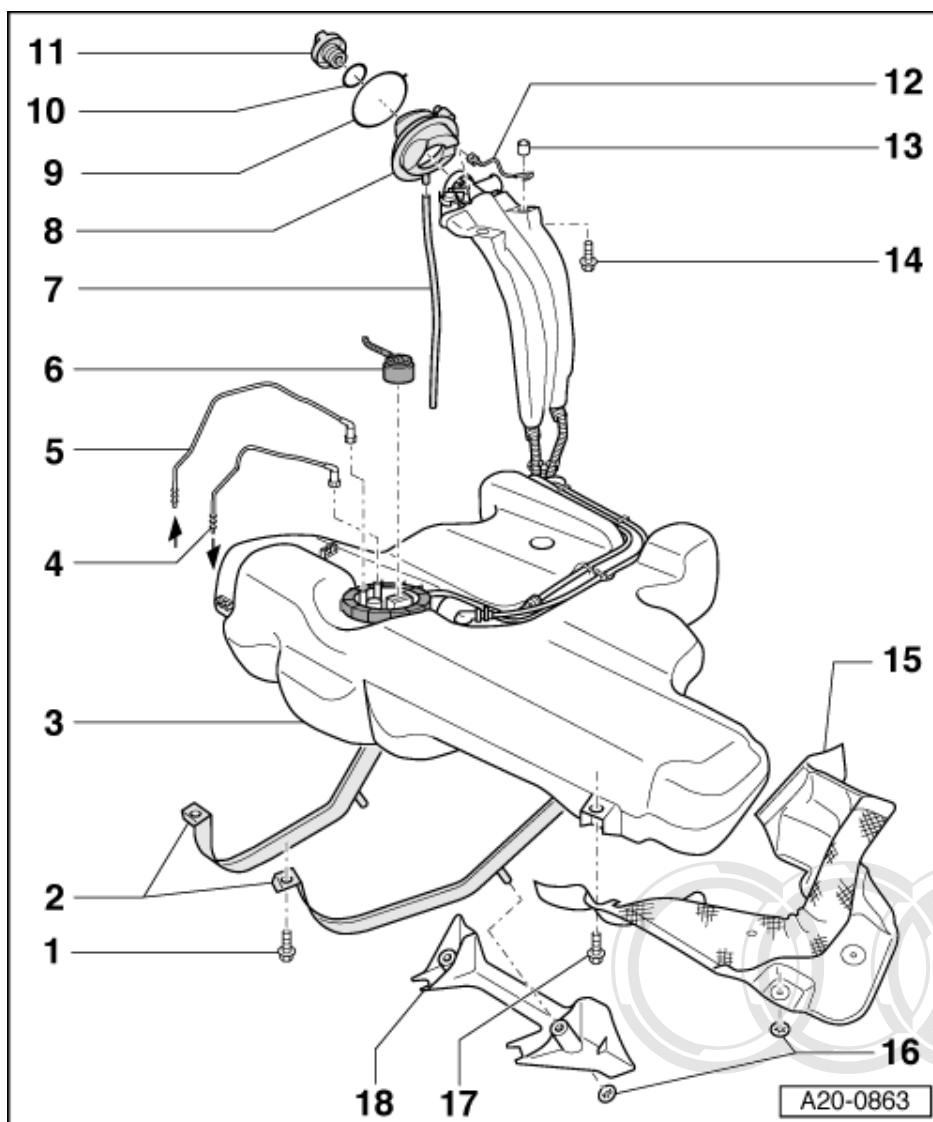


12 Earth connection

- ♦ To eliminate electrostatic charge
- ♦ Position/ test procedure => Fig. 8
- ♦ Ensure that connector is seated properly on metal ring of filler neck
- ♦ To secure earth connection, first insert into mounting hole on fuel tank, then press in spacer bush -Item 13 -.

13 Spacer bush

- ♦ First insert earth connection -Item 12 - into mounting hole on fuel tank, then press in spacer bush.



14 11 Nm

- ◆ Secures fuel filler neck and earth connection -Item **6**

15 Heat shield

- ◆ For fuel tank

16 Clamping washer

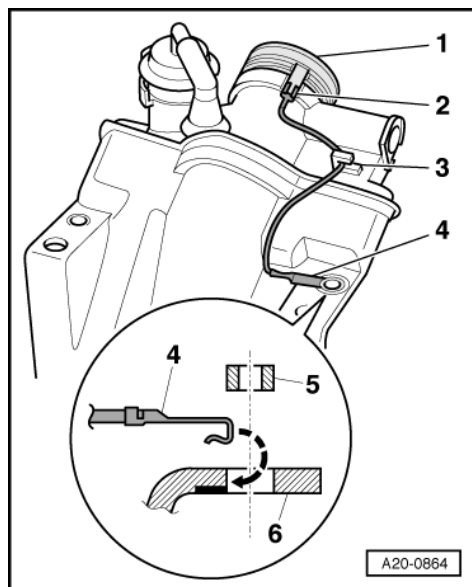
- ◆ Removing: turn anti-clockwise
- ◆ Installing: tighten to 2 Nm

17 26 Nm

18 Cover

- ◆ For fuel tank

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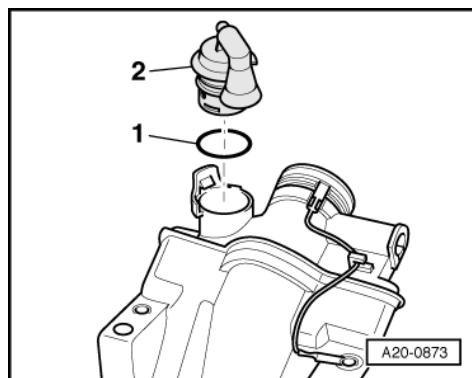
-> Fig.1 Installation position of earth connection

- Route earth connection as shown in illustration.
- To secure earth connection contact -4-, hook into mounting hole on fuel tank -6- and then press in spacer bush -5-.
- Hook earth connection into the retainer -3- on fuel filler neck.
- Ensure that plug connector -2- for earth connection is properly seated on metal ring -1- 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:

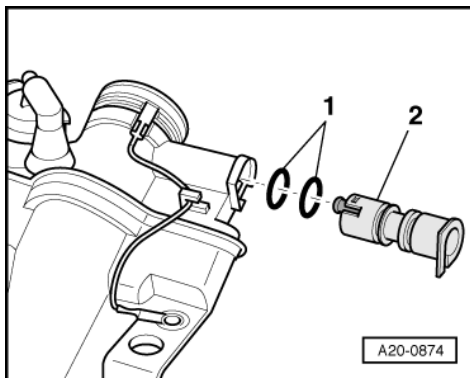
- ♦ **Specification:** approx. 0Ω.



-> Fig. 2 Removing, installing and checking gravity valve

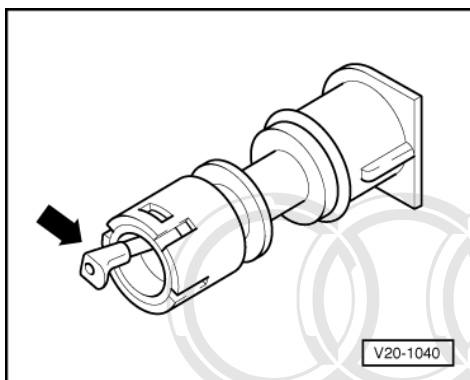
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- To remove, unclip gravity valve -2- and lift out of filler neck.
- Checking gravity valve:
 - Hold valve in a vertical position: it should be possible to blow through valve.
 - Tilt valve to 45 °; it should not be possible to blow through valve.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



-> Fig. 3 Removing, installing and checking vent valve

- To remove, unclip vent valve -2- from side of filler neck.
- Before installing vent valve, unscrew filler cap from fuel tank.
 - Make sure O-rings -1- are not damaged.



- -> Checking vent valve:
 - Lever in released position: it should not be possible to blow through valve
 - Lever pressed in direction of arrow: it should be possible to blow through valve

2.3 - Draining fuel tank

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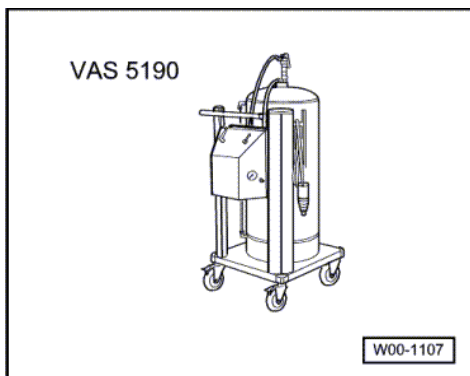
Observe safety precautions => Page **1**

Observe rules for cleanliness => Page **1**.

A - Procedure if fuel tank is more than 3/4 full => Page **10**.

B - Procedure if fuel tank is less than 3/4 full => Page **12**.

Special tools and workshop equipment required





- ♦ VAS 5190

or

- ♦ V.A.G 1433 A

Work sequence

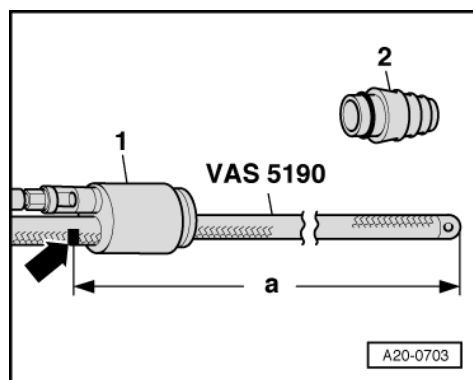
Warning

Secure earth wire of V.A.G 1433

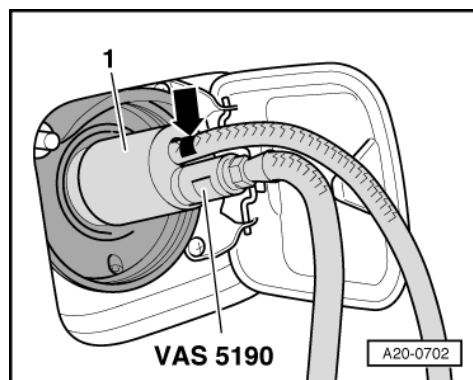
A - Procedure if fuel tank is more than 3/4 full

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- Remove filler cap from fuel tank filler neck.

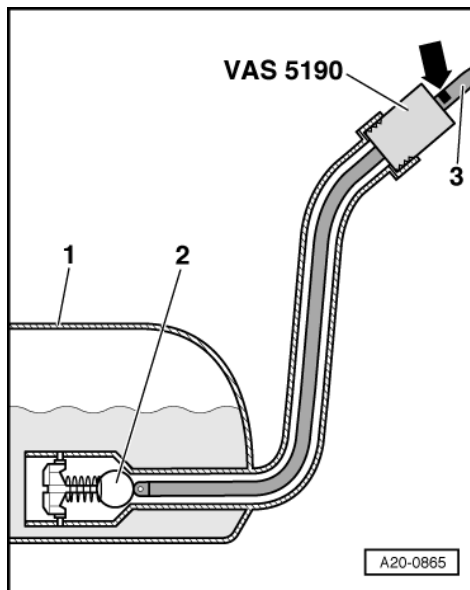


- -> Detach tapered adapter -2- from shaft end -1- of VAS 5190.
- Mark drain hose -arrow- at distance a = 1045 mm from end of hose using insulating tape.



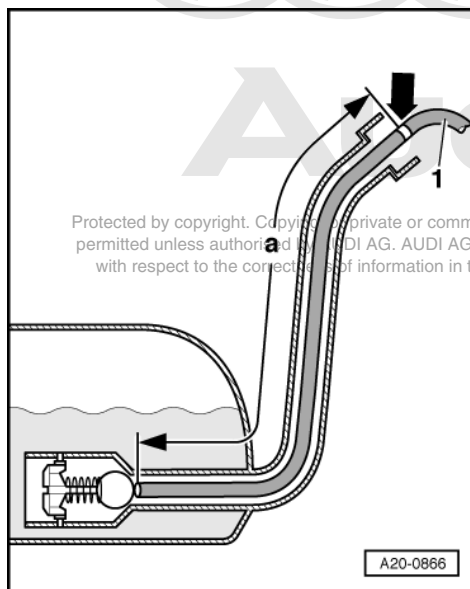
- -> Screw shaft end -1- of fuel extractor VAS 5190 onto fuel filler neck.
- Push drain hose into fuel tank until marking on drain hose -arrow- coincides with shaft end.

Note:



-> A ball valve -2- is located at the bottom end of the fuel filler neck in the fuel tank -1-. To avoid damaging the ball valve with the drain hose -3-, do not push the hose into the fuel tank further than the mark -arrow- applied earlier.

- Drain tank as far as possible via fuel filler neck.
- Carefully pull out drain hose.
- Remove fuel take-off unit =>Page 20 .
- Extract remaining fuel through opening for fuel take-off unit.

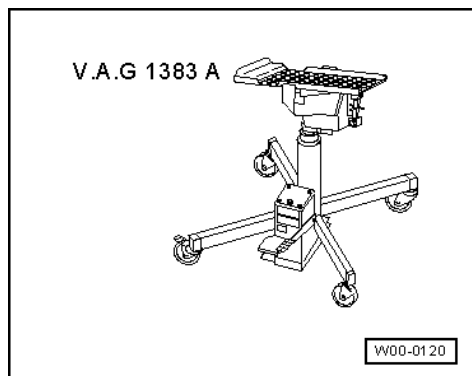


Notes:

- ◆ The procedure when using a fuel extractor without shaft end is basically the same.
- ◆ -> In this case, mark drain hose -arrow- at distance a = 980 mm from end of hose using insulating tape. The drain hose is fitted properly when marking on drain hose -arrow- coincides with rim of filler neck.
- ◆ If the hose does not go in easily, lubricate lightly with engine oil. Do not use silicone lubricant.

B - Procedure if tank is less than 3/4 full

- Remove fuel take-off unit =>Page 20 .
- Extract remaining fuel through opening for fuel take-off unit.

2.4 - Removing and installing fuel tank with attachments

Observe safety precautions=> Page 1 .

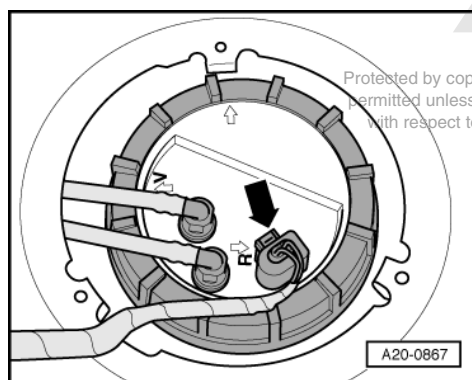
Observe rules for cleanliness => Page 1 .

Special tools and workshop equipment required

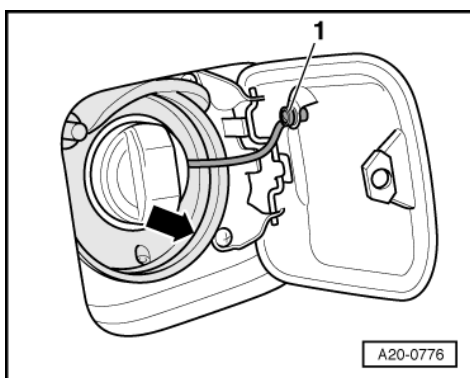
- ♦ V.A.G 1383 A and V.A.G 1359/2

Removing

- To avoid unnecessary weight, the fuel tank must be empty when it is removed. Drain the tank if necessary. Procedure for draining fuel tank => Page 9 .
 - Remove rear seat bench.
- => General body repairs, Interior; Repair group 72; Rear seats Rear seats
- Fold back floor covering under rear seat bench.
 - Detach cover for flange on fuel tank under rear seat bench (right side).



- -> Release and unplug electrical connector -arrow-.



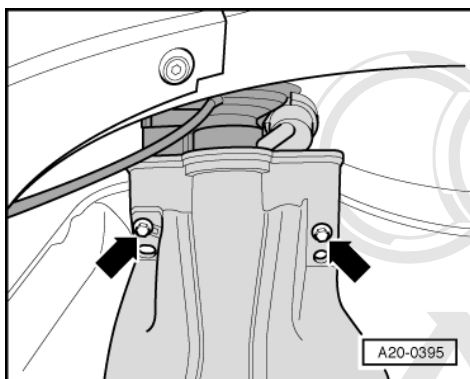
- Clean area around tank filler neck.
- -> Open tank flap and (if fitted) detach loop -1- on tank flap.
- Lever out clamping ring -arrow- in rubber cup (on filler neck).

Note:

Do not remove filler cap.

- Press rubber cup through to the inside.
- Remove rear right wheel.
- Remove rear right wheel housing liner:

=> General body repairs, Exterior; Repair group 66; Removing and installing rear wheel housing liner Removing and installing rear wheel housing liner



- -> Unscrew bolts -arrows- securing fuel filler neck.
- Remove rear section of exhaust system:

=> Engine Mechanics; Repair group 26

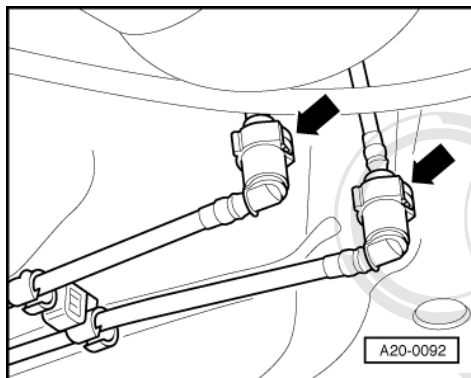
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- Remove rear axle:

=> Running gear, Front-wheel drive and four-wheel drive; Repair group 42; Servicing rear axle (front-wheel drive vehicles); Removing and installing rear axle Servicing rear axle (front-wheel drive vehicles) Removing and installing rear axle

Warning

- ◆ In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.
- ◆ Wear protective gloves.
- ◆ Wear protective goggles.



- -> Press release catches -arrows- and disconnect black fuel supply line and blue fuel return line at front of fuel tank (right side).

Vehicles with auxiliary heater

- In addition, disconnect supply hose for auxiliary heater.

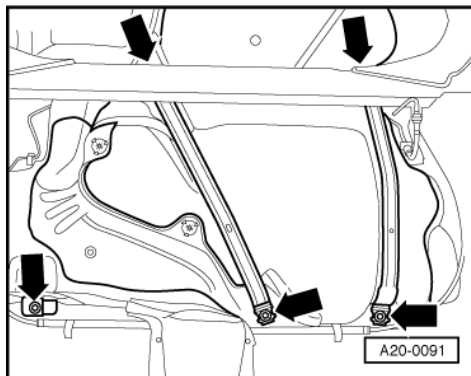
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All models

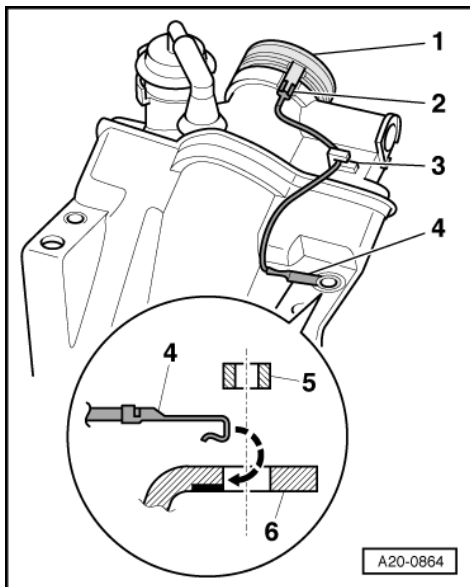
- Position engine/gearbox hoist V.A.G 1383 A below vehicle to support tank.

Warning!

The fuel tank must be empty when it is removed from the vehicle in order to reduce weight.



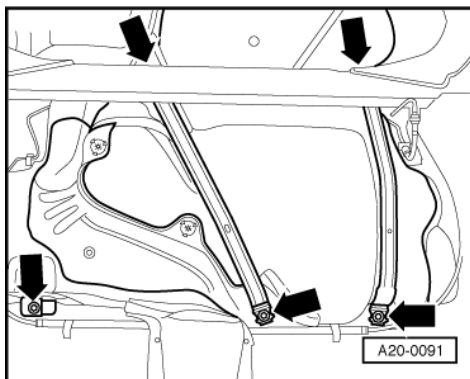
- -> Loosen bolted connections -arrows-, starting with retaining lug -arrow on bottom left-.
- Lower fuel tank with V.A.G 1383 A.



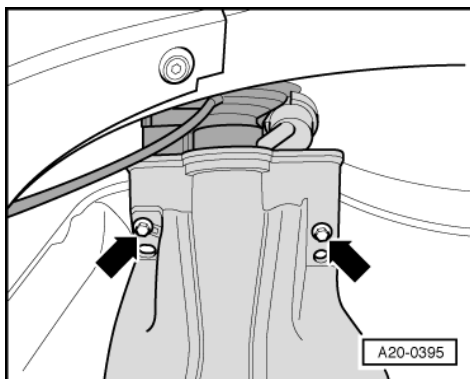
Installing

Install in reverse sequence; note the following points:

- -> Check position of earth connection:
 - Ensure connector -2- is seated properly on metal ring -1-
 - Make sure that earth wire is in retainer -3-
 - The contact -4- must be hooked onto the fuel tank -6- and secured with the spacer bush -5-.
- Check that supply pipe and return pipe are clipped onto front right of fuel tank.



- Position fuel tank and securing straps on underside of vehicle using engine/gearbox jack V/A.G.1383 A
- -> Secure fuel tank at the points shown -arrows- (26 Nm). Tighten securing straps first.



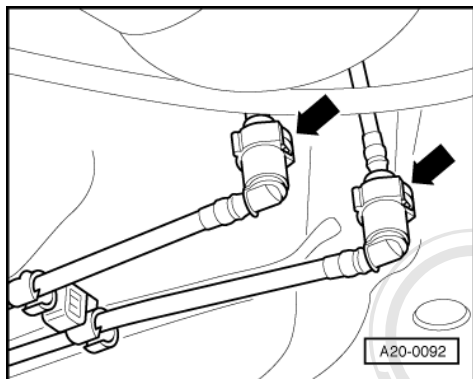


- -> Tighten bolts -arrows- to 11 Nm.

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. 0Ω.**



- -> Connect black fuel supply line and blue fuel return line at front of fuel tank (right side -arrows-).

- Install rear axle:

=> Running gear, Front-wheel drive and four-wheel drive; Repair group 42; Servicing rear axle (front-wheel drive vehicles); Removing and installing rear axle Servicing rear axle (front-wheel drive vehicles) Removing and installing rear axle

- Install rear right wheel housing liner:

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=> General body repairs, Exterior; Repair group 66; Removing and installing rear wheel housing liner Removing and installing rear wheel housing liner

- Install rear section of exhaust system:

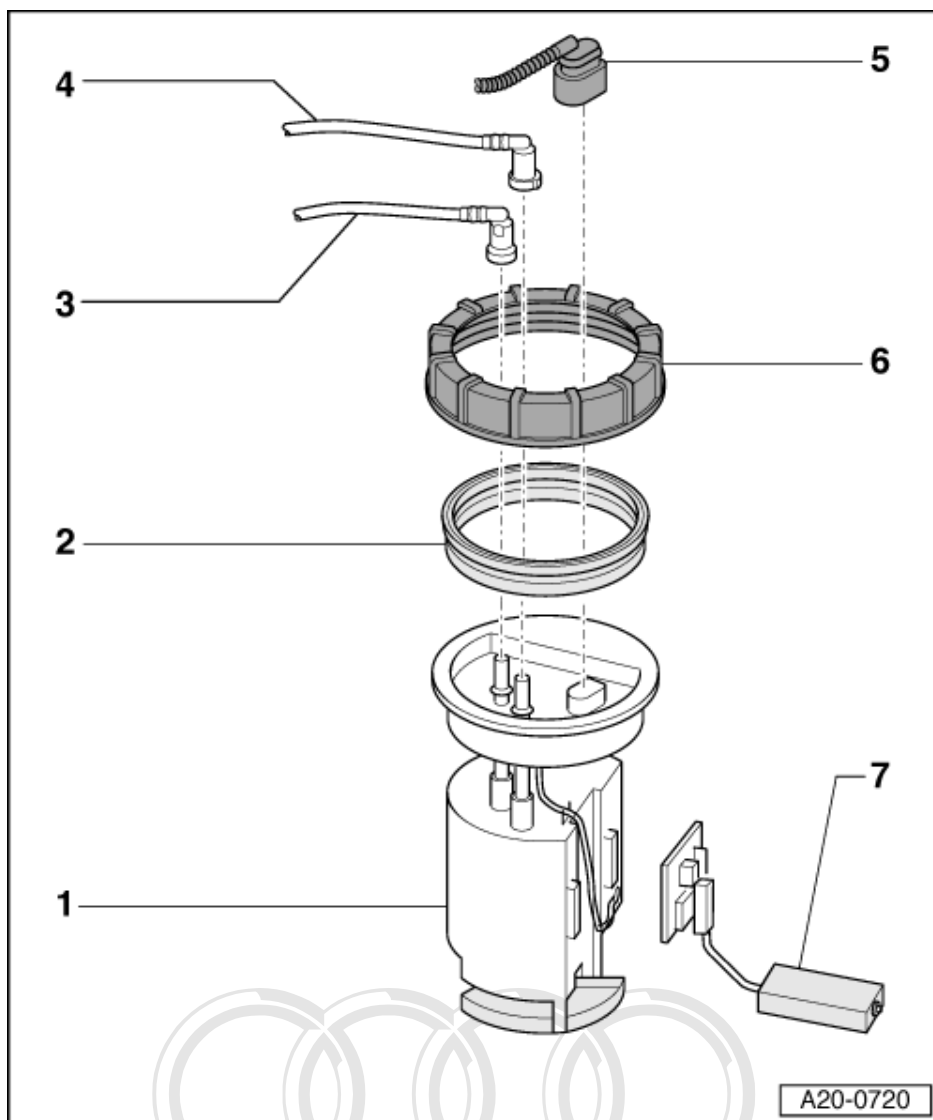
=> Engine Mechanics; Repair group 26

- Plug in electrical connectors.

Tightening torques

Component	Nm
Securing straps for fuel tank to body	26
Fuel tank to body	26
Fuel filler neck to wheel housing	11

2.5 - Overview of components: fuel take-off unit and fuel gauge sender



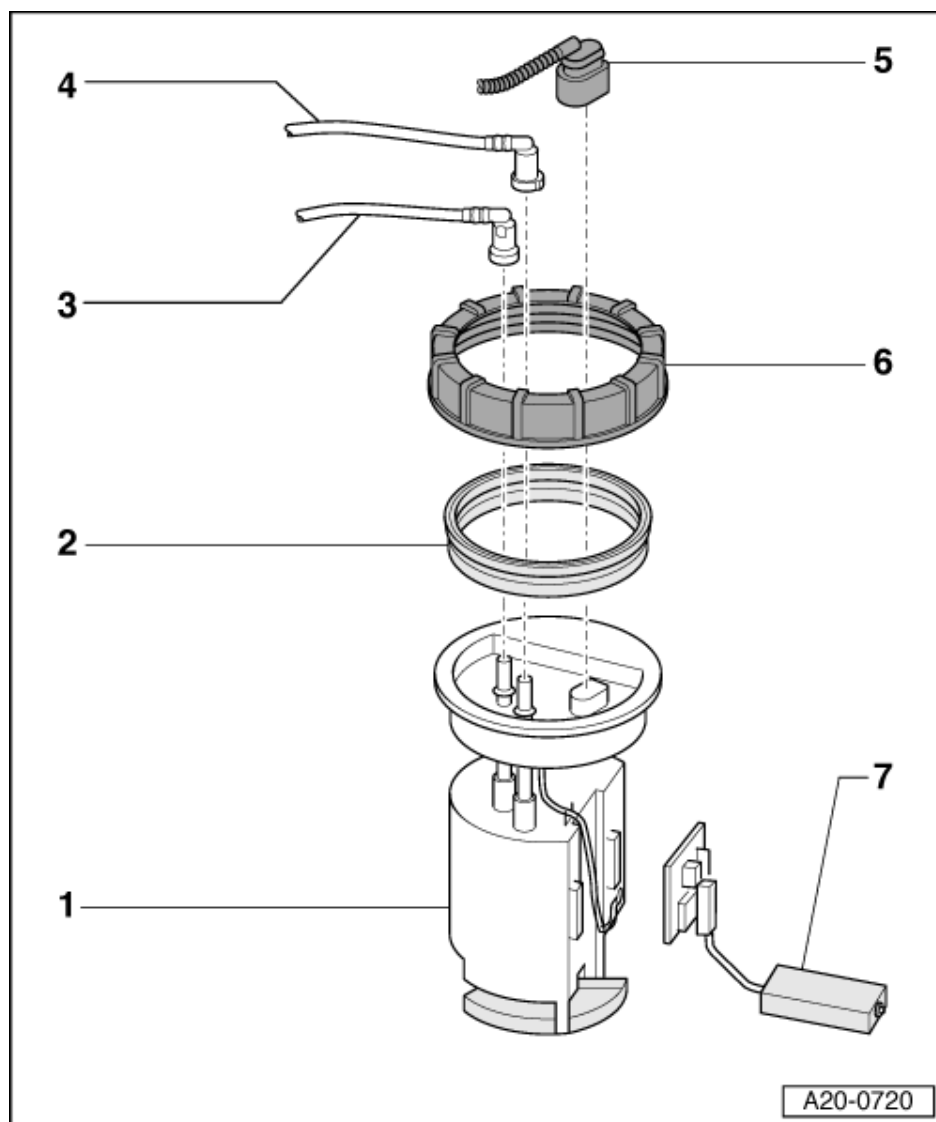
1 Fuel take-off unit and sealing flange

- ♦ Removing and installing
=> Page 20

2 Seal

- ♦ Renew
- ♦ When installing, fit seal (dry) in opening in fuel tank

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3 Fuel supply pipe

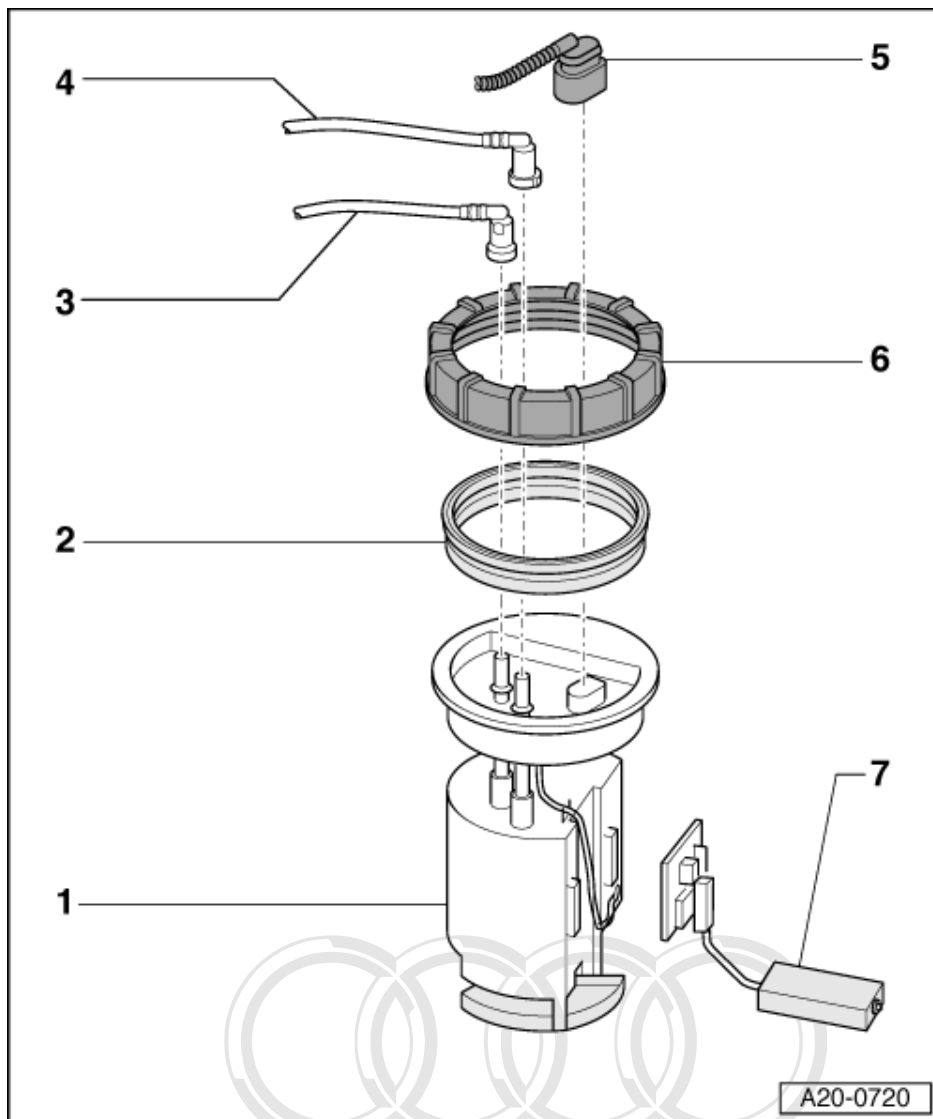
- ◆ Black
- ◆ To fuel filter
- ◆ Connected to connection marked "V" on sealing flange
- ◆ Clipped onto fuel tank (front)
- ◆ To disconnect from sealing flange, press release tab on connection

4 Fuel return pipe

- ◆ Blue
- ◆ From fuel filter or fuel cooler
- ◆ Connected to connection marked "R" on sealing flange
- ◆ Clipped onto fuel tank (front)
- ◆ To disconnect from sealing flange, press release tab on connection



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5 Electrical connector

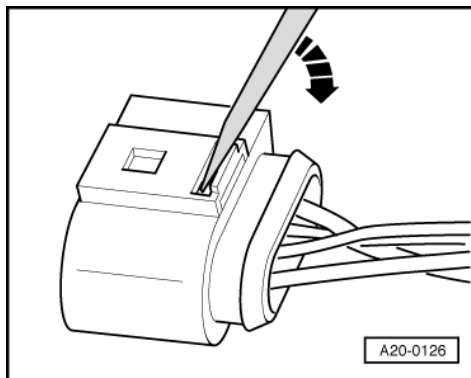
- ◆ For fuel gauge sender -G
- ◆ Releasing
=> Fig. 20

6 Union nut, 80 Nm

- ◆ Remove and install with spanner 3217

7 Fuel gauge sender -G

- ◆ **Testing resistance**
=> Page 23
- ◆ Removing and installing
=> Page 25



-> Fig.1 Releasing connector

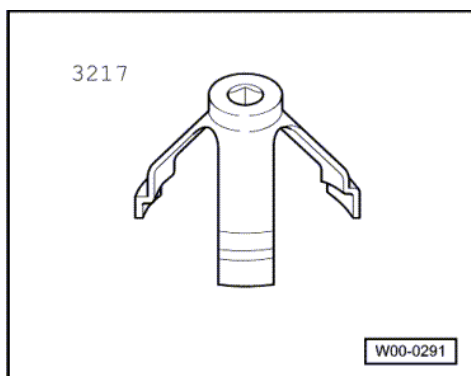
- To unplug multi-pin connector at fuel take-off unit, first release retaining catch. This can be done by hand or by using a small screwdriver -arrow-.

2.6 - Removing and installing fuel take-off unit

Observe safety precautions=> Page 1 .

Observe rules for cleanliness => Page 1 .

Special tools and workshop equipment required



- ♦ Union nut spanner 3217



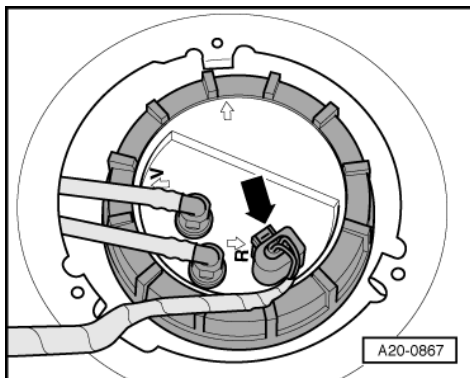
Removing

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- The fuel tank must not be more than 3/4 full when removing the fuel take-off unit. Drain the tank if necessary. Procedure for draining fuel tank => Page 9 .
- Remove rear seat bench.

=> General body repairs, Interior; Repair group 72; Rear seats Rear seats

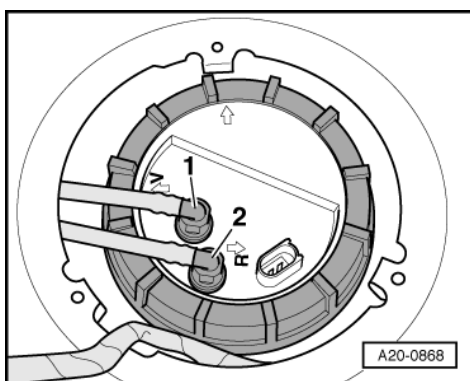
- Fold back floor covering under rear seat bench.
- Detach cover for flange on fuel tank under rear seat bench (right side).



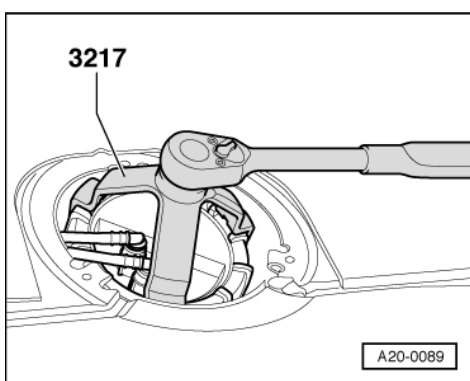
- -> Release and unplug electrical connector -arrow-.

Warning

- ◆ In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.
- ◆ Wear protective gloves.
- ◆ Wear protective goggles.



- -> Press release catches and disconnect black fuel supply line -1- and blue fuel return line -2-



Warning!

The fuel tank must not be more than 3/4 full when removing the fuel take-off unit.

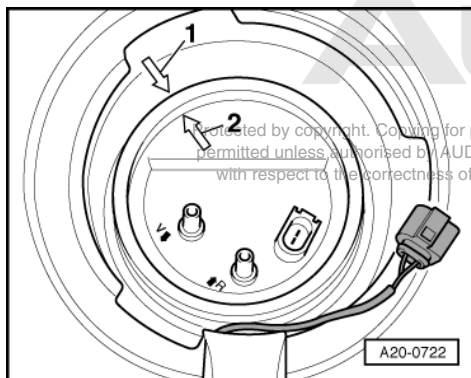
- -> Remove union nut with spanner 3217.
- Pull fuel take-off unit and seal out of opening in fuel tank.



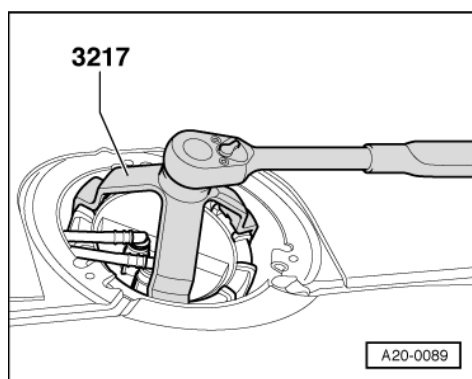
Installing

Install in reverse sequence; note the following points:

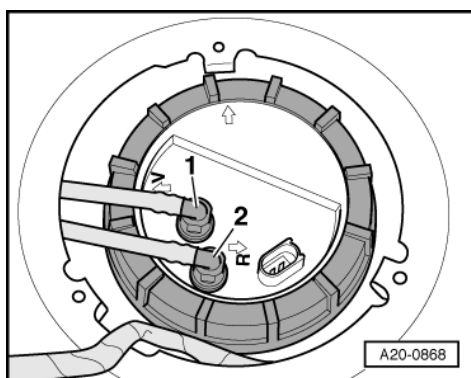
Notes:



- ♦ Take care not to bend the fuel gauge sender when inserting the fuel take-off unit.
- ♦ Fit new seal for flange (dry) in opening in fuel tank.
- -> Note correct installation position:
 - Arrow -2- on flange must coincide with arrow -1- on fuel tank.



- -> Tighten union nut with spanner 3217.



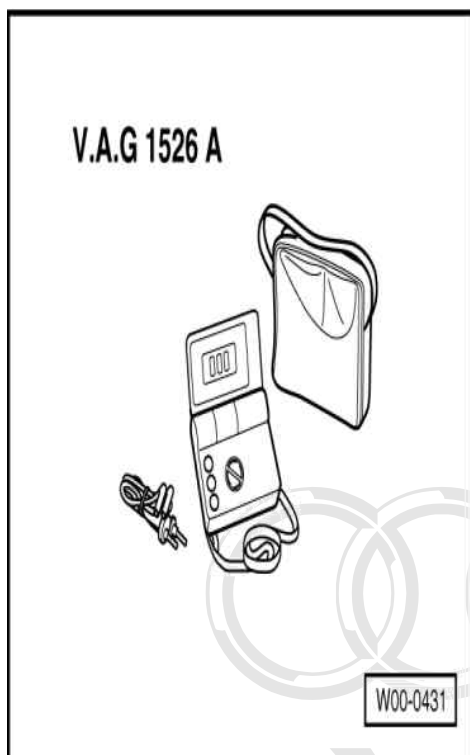
- -> Connect fuel lines.
 - Black supply pipe -1- goes to connection marked -V-.
 - Blue return pipe -2- goes to connection marked -R-.
- Plug in electrical connectors.

Tightening torque

Component	Nm
Union nut for fuel take-off unit	80

2.7 - Testing fuel gauge sender -G

Note:



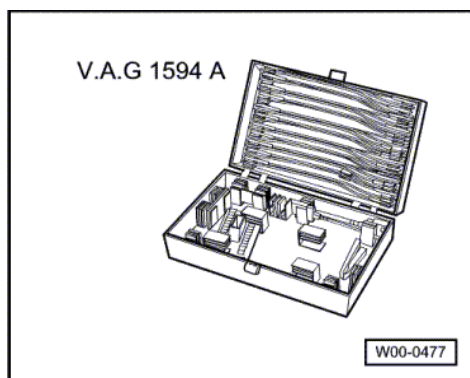
Testing signal from fuel gauge sender:

=> Electrical system; Repair group 90

Special tools and workshop equipment required

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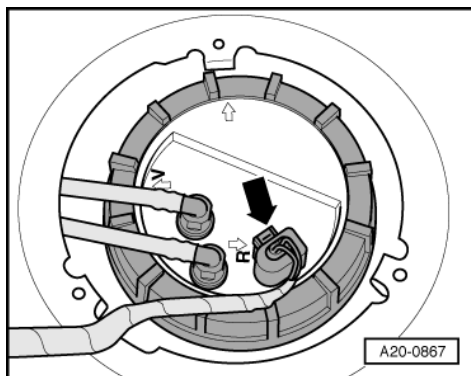
- ♦ V.A.G 1526 A



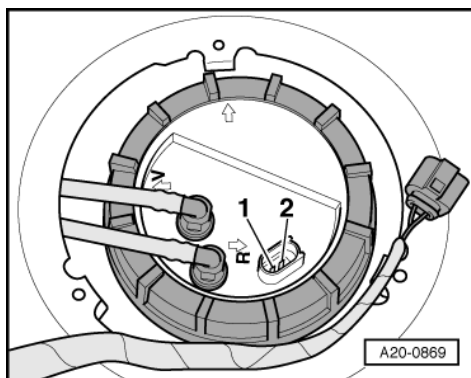


♦ V.A.G 1594 A

Test sequence



- Fold down rear seat bench.
- Detach cover for flange on fuel tank under rear seat bench (right side).
- Fold back floor covering under rear seat bench.
- -> Release and unplug electrical connector -arrow-.



- -> Connect multimeter (resistance measurement range) between contacts 1 and 2.
- Specification:
between 57 ω (tank empty) and approx. 290 ω (tank full)
- If the resistance is 0 ω or ∞ ω , this means there is a short circuit or an open circuit in the wiring in the tank.

Notes:

To test the maximum and minimum values for "tank full" and "tank empty", remove the fuel take-off unit => Page 20 and move the sender float all the way to its top or bottom position.

When the fuel gauge sender is removed, the arm of the float will travel further and the specifications are:

Sender removed from tank	Sender at top position	Sender at bottom position
Fuel gauge sender -G	approx. 290 ω	approx. 54 ω

If the specifications are not obtained:

- Renew fuel gauge sender.

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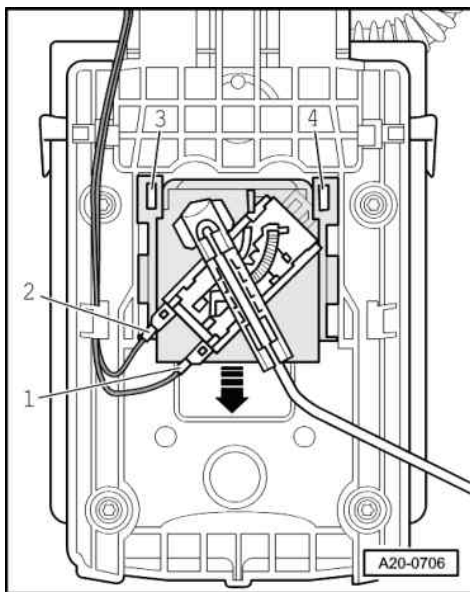
2.8 - Removing and installing fuel gauge sender -G

Observe safety precautions=> Page 1 .

Observe rules for cleanliness => Page 1 .

Removing

- Remove fuel take-off unit =>Page 20 .



- -> Release connectors -1- and -2- and disconnect.
- Carefully lift retaining lugs -3- and -4- with a screwdriver and pull fuel gauge sender off towards the bottom -arrow-.

Installing

Install in reverse sequence; note the following points:

- Insert fuel gauge sender into guides on fuel take-off unit and press upwards until it clicks into place.
- Connect connector tabs of wiring and check they have engaged properly.
- Install fuel take-off unit => Page 22 .

3 - Fuel supply system - four-wheel drive

3.1 - Fuel supply system - four-wheel drive

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Notes:

- ♦ Secure all hose connections with the correct hose clips (same as original equipment)

=> Parts catalogue

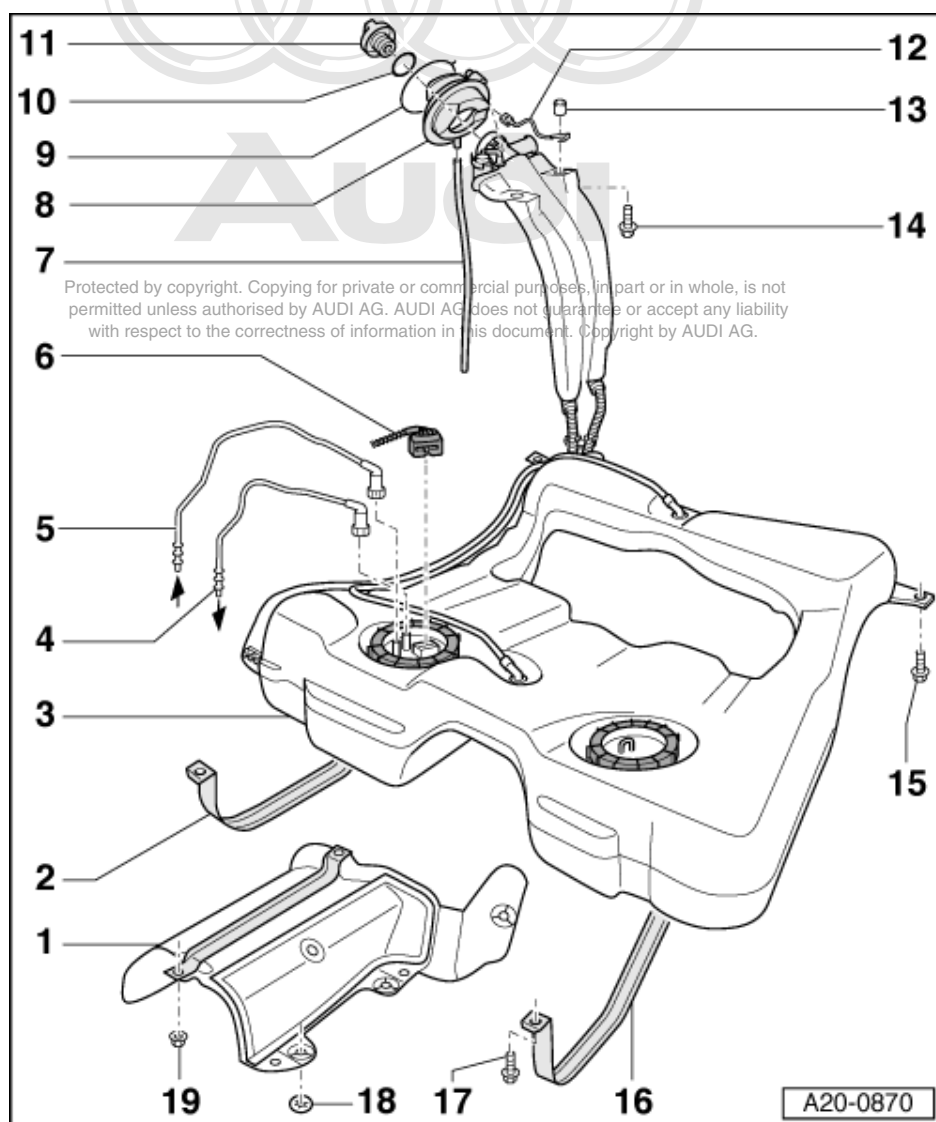
- ♦ Always renew sealing rings and gaskets when assembling.



Warning

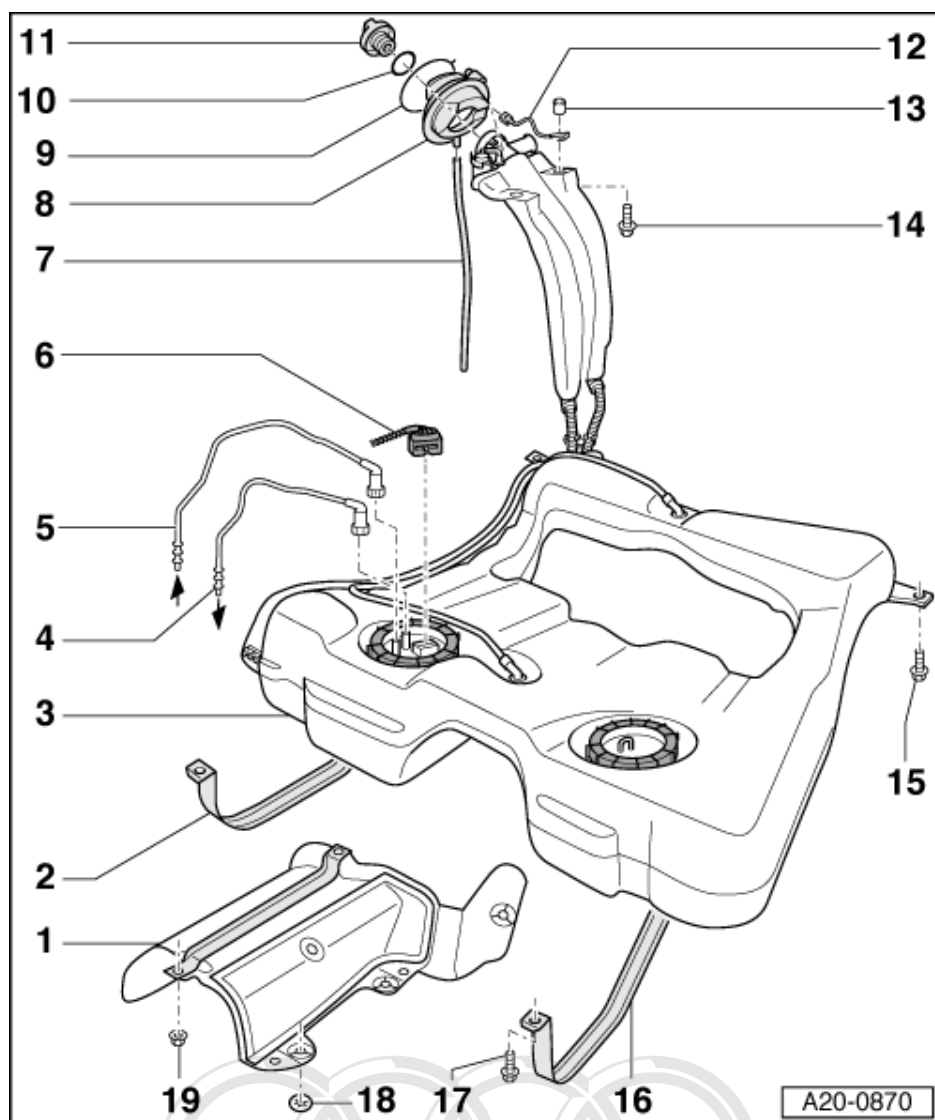
- ♦ The fuel system is under pressure. Place a cloth over the connection before opening the system. Then open the connection carefully to relieve pressure.
- ♦ In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.
- ♦ Wear protective gloves.
- ♦ Wear protective goggles.

3.2 - Overview of components: fuel tank with attachments



- 1 Heat shield**
 - ♦ For fuel tank
 - ♦ With reinforcement panel
- 2 Securing strap**
 - ♦ Removing and installing
=> Page 38
- 3 Fuel tank**
 - ♦ Removing and installing

=> Page 38



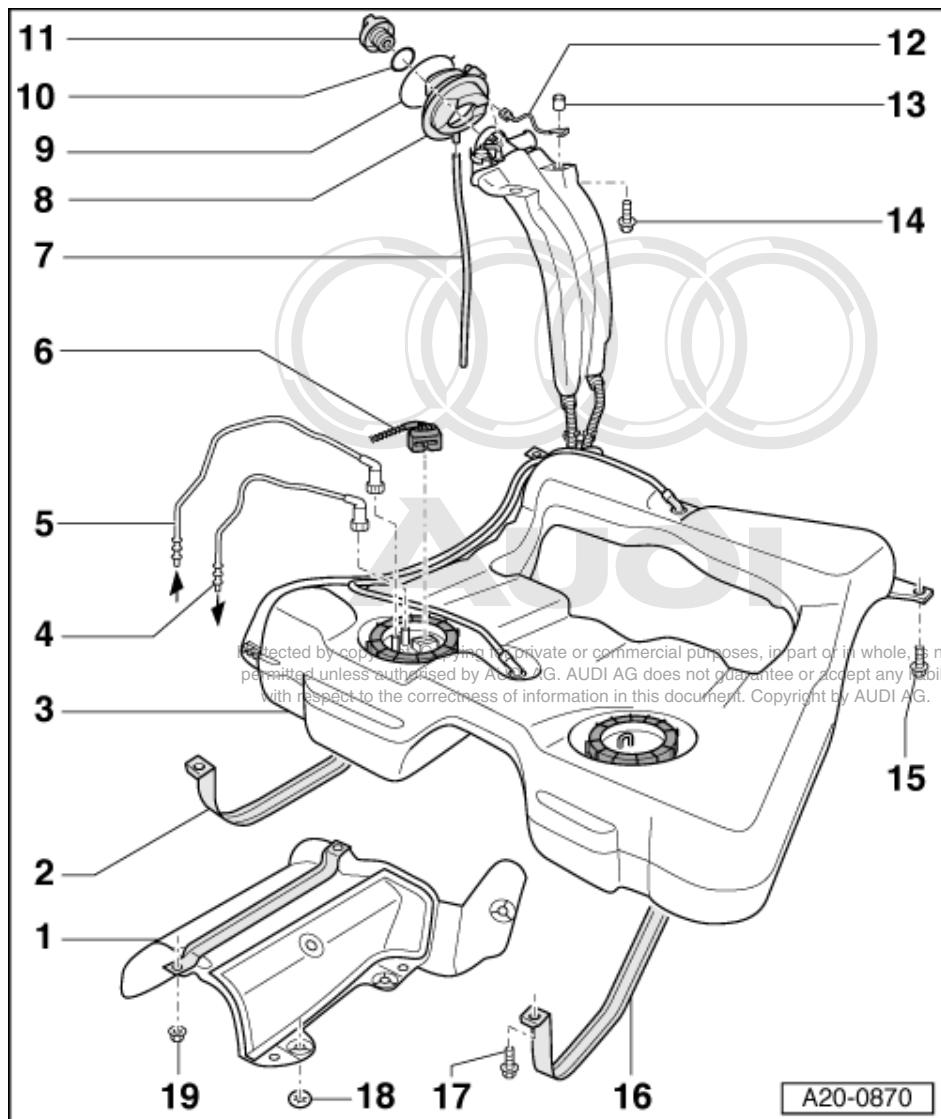
4 Fuel supply pipe

- ◆ Black
- ◆ Goes to fuel filter
- ◆ Connected to connection marked "V" on sealing flange
- ◆ Clip onto fuel tank (front right)
- ◆ To disconnect from sealing flange, press release tab on connection

5 Fuel return pipe

- ◆ Blue
- ◆ From fuel cooler
- ◆ Connected to connection marked "R" on sealing flange
- ◆ Clip onto fuel tank (front right)
- ◆ To disconnect from sealing flange, press release tab on connection

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6 Electrical connector

- ♦ For fuel pump and fuel gauge sender -G
- ♦ Releasing connector
=> Fig. 47

7 Overflow hose

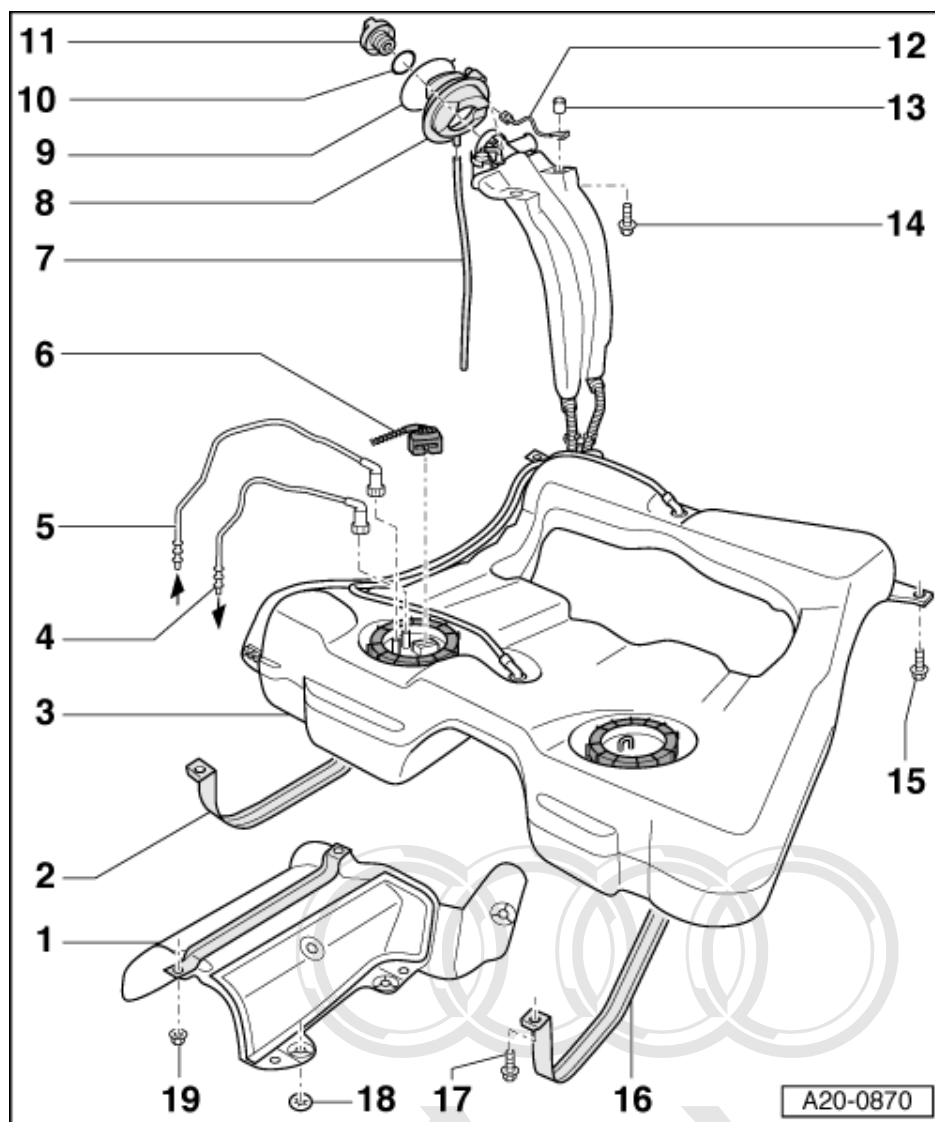
8 Rubber cup

9 Retaining ring

10 Seal

- ♦ Renew if damaged

11 Filler cap

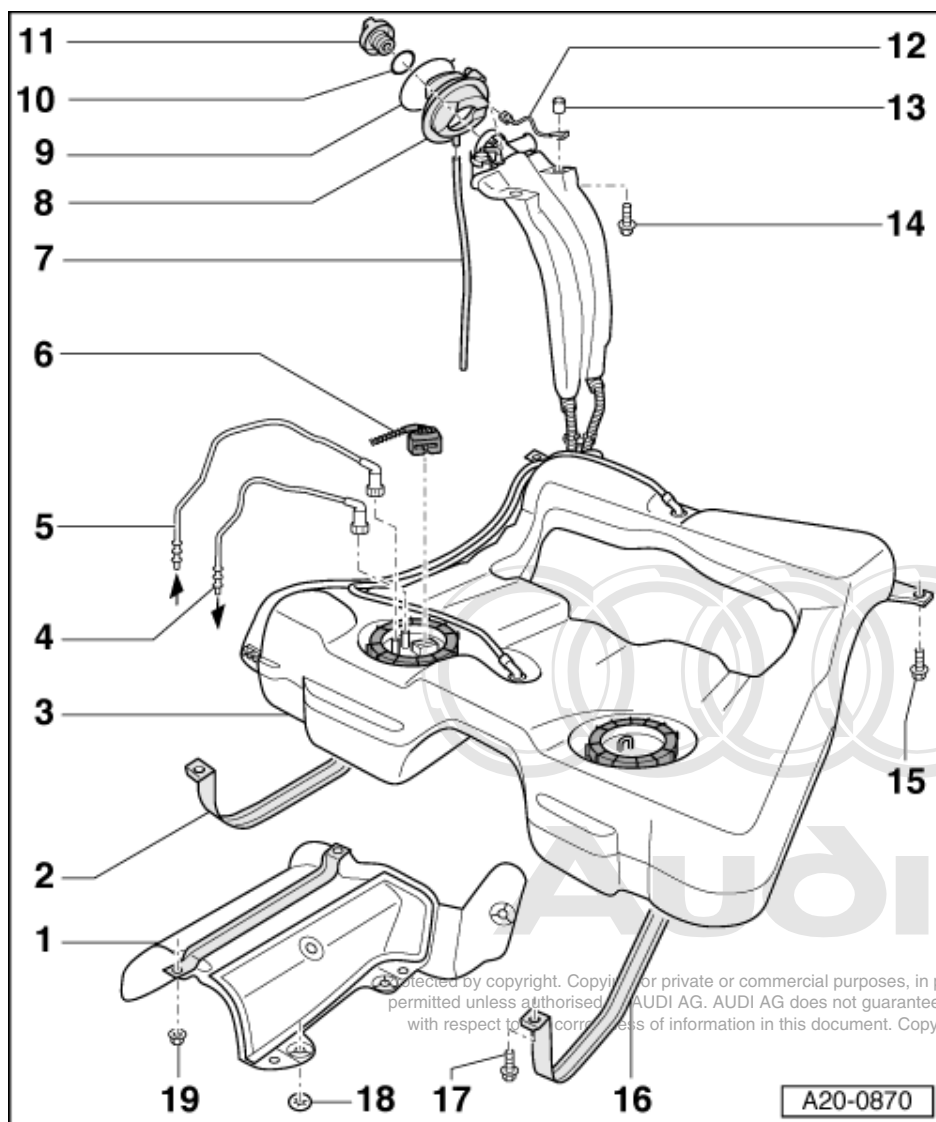


12 Earth connection

- ◆ To eliminate electrostatic charge
- ◆ Position / test procedure => Fig. 31
- ◆ Ensure that connector is seated properly on metal ring of filler neck
- ◆ To secure earth connection, first insert into mounting hole on fuel tank, then press in spacer bush -Item 13 -.

13 Spacer bush

- ◆ First insert earth connection -Item 12 - into mounting hole on fuel tank, then press in spacer bush.



14 11 Nm

- ♦ Secures fuel filler neck and earth connection -Item **29**

15 26 Nm

16 Securing strap

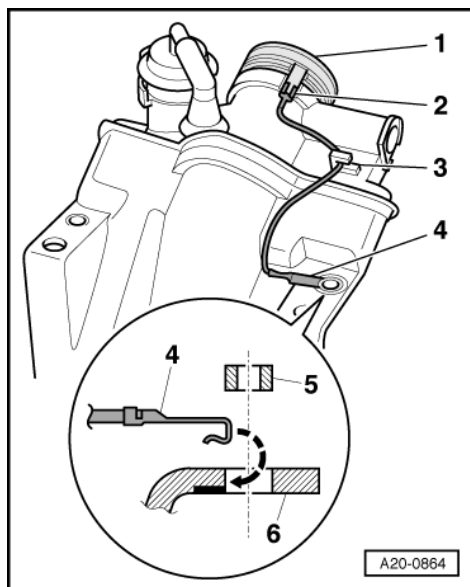
- ♦ Removing and installing
=> Page **38**

17 26 Nm

18 Clamping washer

- ♦ Removing: turn anti-clockwise
- ♦ Installing: tighten to 2 Nm

19 26 Nm



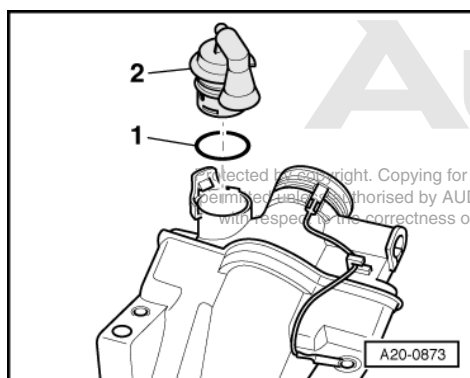
➔ Fig.1 Position of earth connection

- Route earth connection as shown in illustration.
- To secure earth connection contact -4-, hook into mounting hole on fuel tank -6- and then press in spacer bush -5-.
- Hook earth connection into the retainer -3- on fuel filler neck.
- Ensure that plug connector -2- for earth connection is properly seated on metal ring -1- on fuel filler neck.

Caution

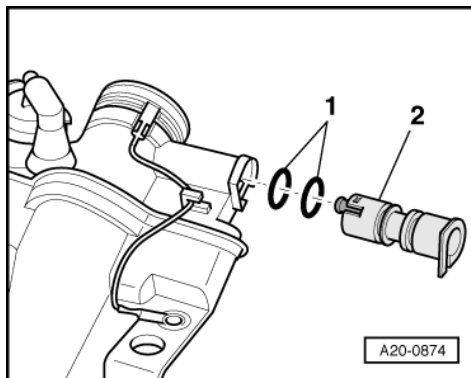
After installation, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body:

- ◆ **Specification: approx. 0Ω.**



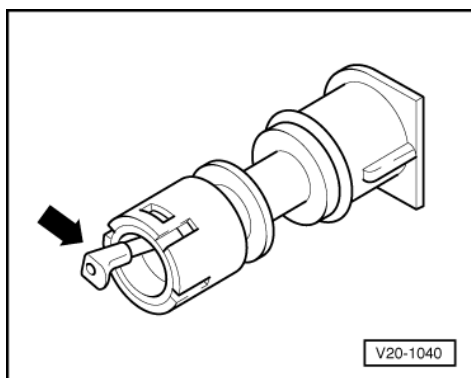
➔ Fig. 2 Removing, installing and checking gravity valve

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



-> Fig. 3 Removing, installing and checking vent valve

- To remove, unclip vent valve -2- from side of filler neck.
- Before installing vent valve, unscrew filler cap from fuel tank.
 - Make sure O-rings -1- are not damaged.



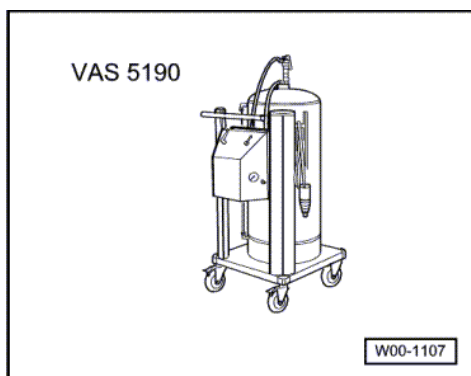
- -> Checking vent valve:
 - Lever in released position: it should not be possible to blow through valve
 - Lever pressed in direction of arrow: it should be possible to blow through valve

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3.3 - Draining fuel tank

Observe safety precautions=> Page 1 .

Observe rules for cleanliness => Page 1 .



A - Procedure if tank is more than 1/3 full => Page **33** .

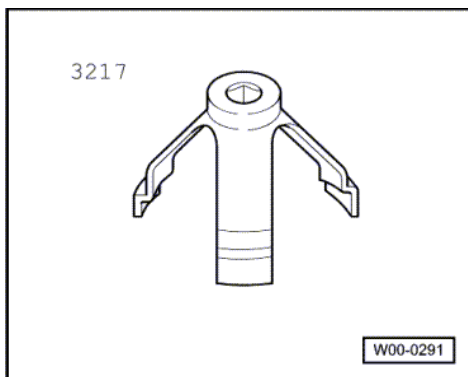
B - Procedure if tank is less than 1/3 full => Page **36** .

Special tools and workshop equipment required

- ♦ VAS 5190

or

- ♦ V.A.G 1433 A



- ♦ Union nut spanner 3217

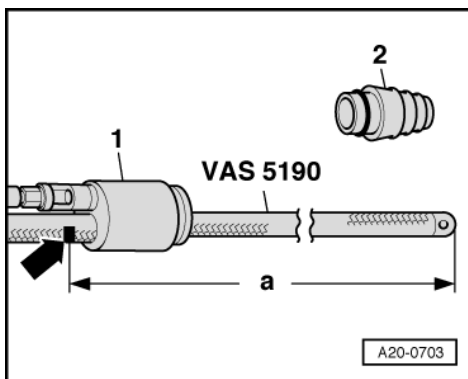
Work sequence

Warning

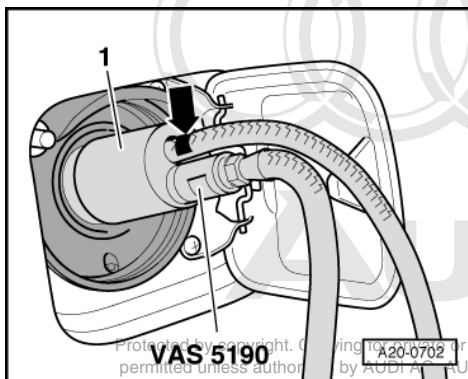
Secure earth wire of V.A.G 1433

A - Procedure if fuel tank is more than 1/3 full

- Remove filler cap from fuel tank filler neck.



- -> Detach tapered adapter -2- from shaft end -1- of VAS 5190.
- Mark drain hose -arrow- at distance a = 1415 mm from end of hose using insulating tape.

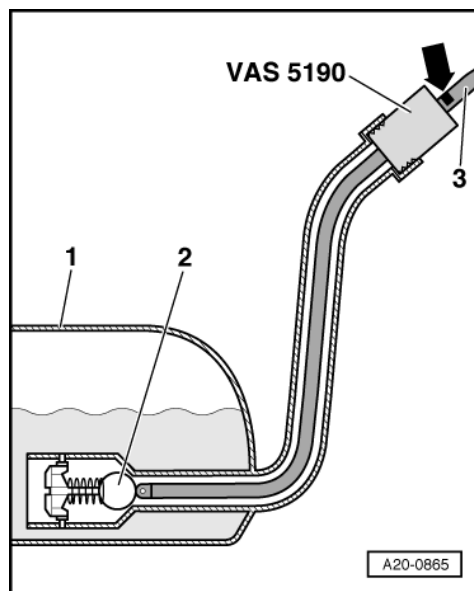


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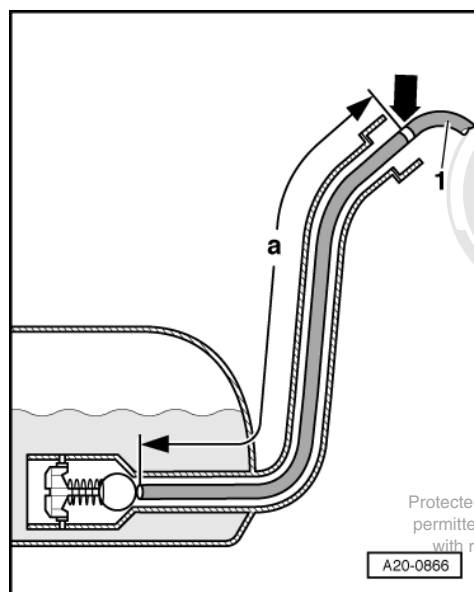
- -> Screw shaft end -1- of fuel extractor VAS 5190 onto fuel filler neck.
- Push drain hose into fuel tank until marking on drain hose -arrow- coincides with shaft end.

Note:



-> A ball valve -2- is located at the bottom end of the fuel filler neck in the fuel tank -1-. To avoid damaging the ball valve with the drain hose -3-, do not push the hose into the fuel tank further than the mark -arrow- applied earlier.

- Drain tank as far as possible via fuel filler neck.
- Carefully pull out drain hose.



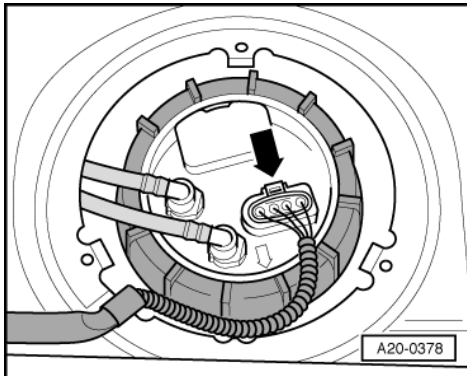
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Notes:

- ♦ The procedure when using a fuel extractor without shaft end is basically the same.
- ♦ -> In this case, mark drain hose -arrow- at distance a = 1350 mm from end of drain hose using insulating tape. The drain hose is fitted properly when the marking on the hose coincides with the rim of the filler neck.
- ♦ If the hose does not go in easily, lubricate lightly with engine oil. Do not use silicone lubricant.

- Remove rear seat bench.

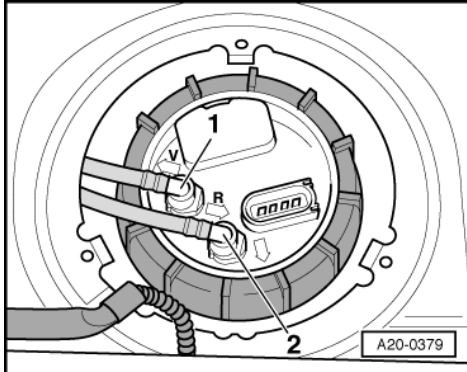
=> General body repairs, Interior; Repair group 72; Rear seats Rear seats



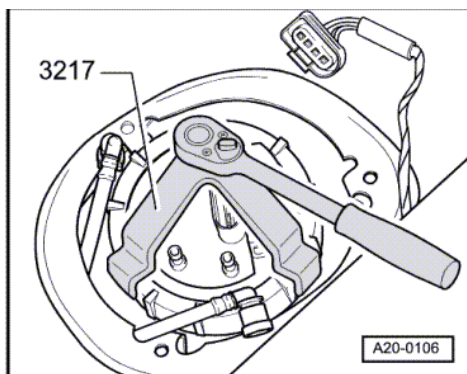
- Fold back floor covering under rear seat bench.
- Detach cover for flange on fuel tank under rear seat bench (right side).
- -> Release and unplug electrical connector -arrow-.

Warning

- ◆ **The fuel system is under pressure. Place a cloth over the connection before opening the system. Then open the connection carefully to relieve pressure.**
- ◆ **In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 °C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.**
- ◆ **Wear protective gloves.**
- ◆ **Wear protective goggles.**



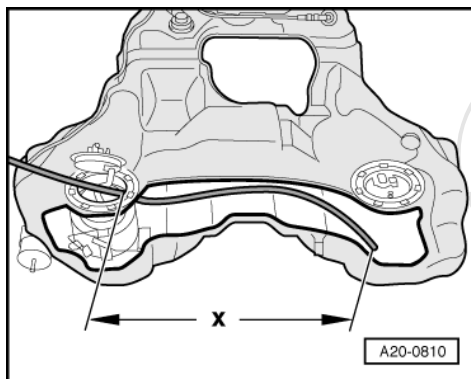
- -> Press release catches and disconnect black fuel supply line -1- and blue fuel return line -2-.



- -> Remove union nut with spanner 3217.
- Take flange of fuel delivery unit out of opening in fuel tank and move clear, with hoses connected.



- Draw off fuel in right chamber of fuel tank.



- -> Insert drain hose to marking x = 800 mm through right opening in fuel tank and into left fuel chamber.
- Draw off fuel in left chamber of fuel tank.
- Re-install flange on right side => **Page 49**

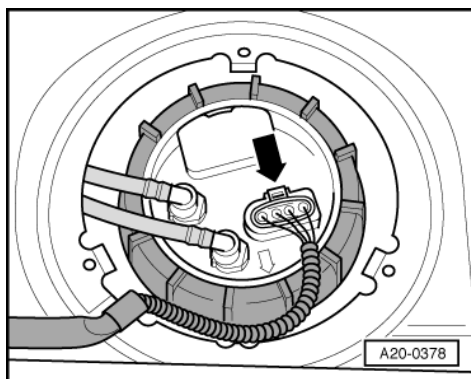
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B - Procedure if tank is less than 1/3 full

- Remove rear seat bench.

=> General body repairs, Interior; Repair group 72; Rear seats Rear seats

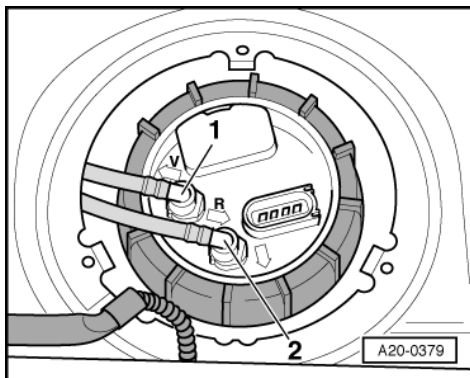
- Fold back floor covering under rear seat bench.
- Detach cover for flange on fuel tank under rear seat bench (right side).



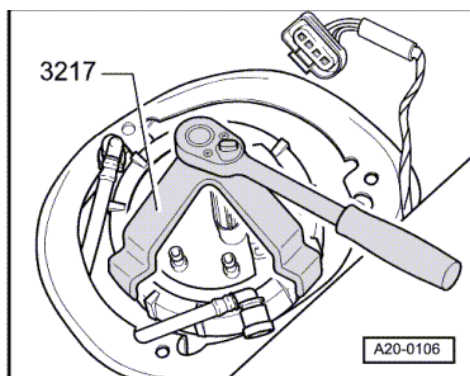
- -> Release and unplug electrical connector -arrow-.

Warning

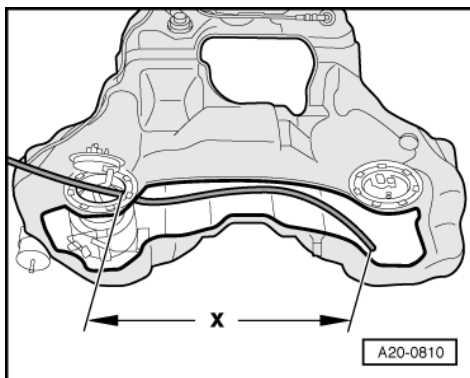
- ♦ **The fuel system is under pressure. Place a cloth over the connection before opening the system. Then open the connection carefully to relieve pressure.**
- ♦ **In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.**
- ♦ **Wear protective gloves.**
- ♦ **Wear protective goggles.**



- -> Press release catches and disconnect black fuel supply line -1- and blue fuel return line -2-.



- -> Remove union nut with spanner 3217.
- Take flange of fuel delivery unit out of opening in fuel tank and move clear, with hoses connected.
- Draw off fuel in right chamber of fuel tank.

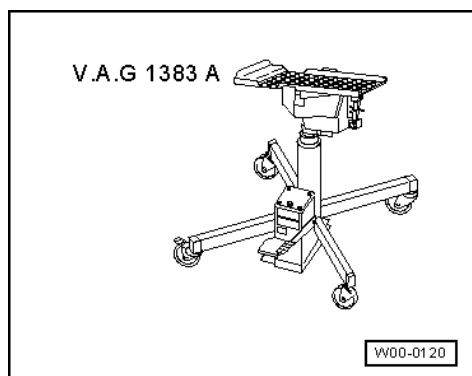


- -> Insert drain hose to marking x = 700 mm through right opening in fuel tank and into left fuel chamber.
- Draw off fuel in left chamber of fuel tank.
- Re-install flange on right side => Page 49.

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3.4 - Removing and installing fuel tank with attachments



Observe safety precautions=> Page 1 .

Observe rules for cleanliness => Page 1 .

Special tools and workshop equipment required

- ♦ V.A.G 1383 A and V.A.G 1359/2

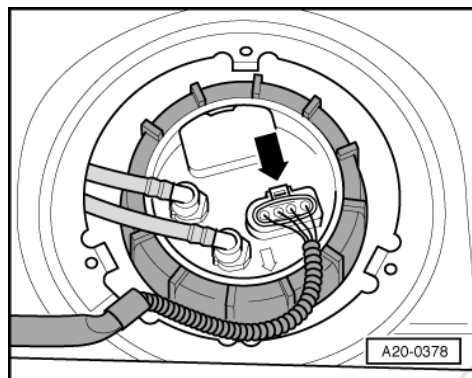
Removing

- To avoid unnecessary weight, the fuel tank must be empty when it is removed. Drain the tank if necessary. Procedure for draining fuel tank => Page 32 .

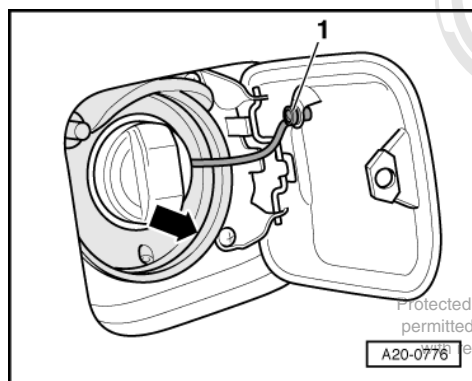
- Remove rear seat bench.

=> General body repairs, Interior; Repair group 72; Rear seats Rear seats

- Fold back floor covering under rear seat bench.
- Detach cover for flange on fuel tank under rear seat bench (right side).



- -> Release and unplug electrical connector -arrow-.



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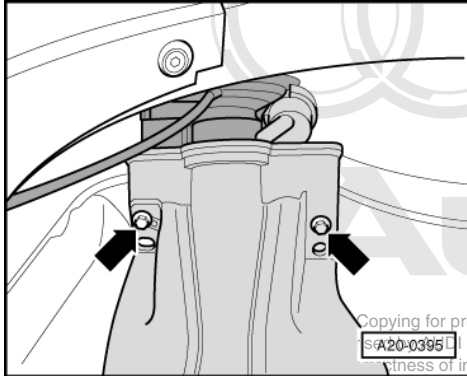
- Clean area around tank filler neck.
- -> Open tank flap and (if fitted) detach loop -1- on tank flap.
- Lever out clamping ring -arrow- in rubber cup (on filler neck).

Note:

Do not remove filler cap.

- Press rubber cup through to the inside.
- Remove rear right wheel.
- Remove rear right wheel housing liner:

=> General body repairs, Exterior; Repair group 66; Removing and installing rear wheel housing liner Removing and installing rear wheel housing liner



- -> Unscrew bolts -arrows- securing fuel filler neck.
- Remove rear section of exhaust system:

=> Engine Mechanics; Repair group 26

- Remove propshaft:

=> Manual gearbox; Repair group 39

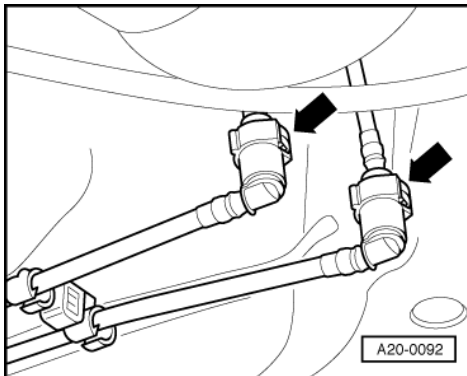
=> Automatic gearbox; Repair group 39

- Remove rear axle:

=> Running gear, Front-wheel drive and four-wheel drive; Repair group 42; Servicing rear axle (four-wheel drive vehicles) Servicing rear axle (four-wheel drive vehicles)

Warning

- ◆ **The fuel system is under pressure. Place a cloth over the connection before opening the system. Then open the connection carefully to relieve pressure.**
- ◆ **In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.**
- ◆ **Wear protective gloves.**
- ◆ **Wear protective goggles.**

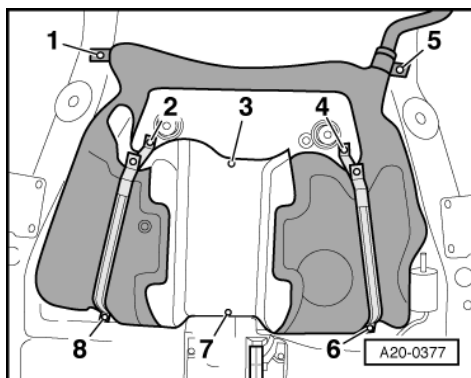




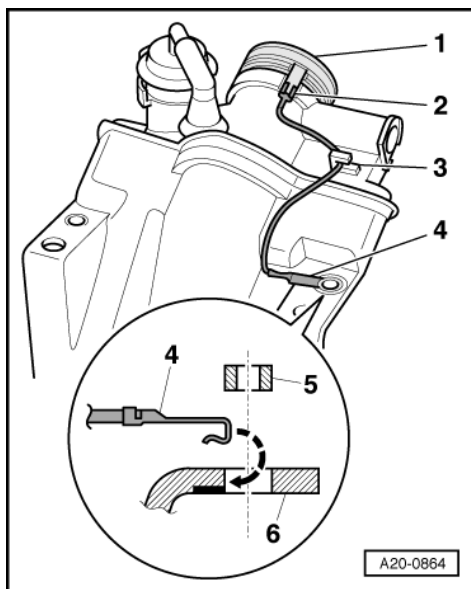
- -> Press release catches -arrows- and disconnect black fuel supply line and blue fuel return line at front of fuel tank (right side).

Vehicles with auxiliary heater

- In addition, disconnect supply hose for auxiliary heater.
- Position engine/gearbox hoist V.A.G 1383 A below vehicle to support tank.



- -> Slacken bolted connections in following order:
 - Retaining lugs: -1- and -5-
 - Reinforcement panel: -3- and -7-
 - Securing straps: -2-, -4-, -6- and -8-
- Lower fuel tank with V.A.G 1383 A.

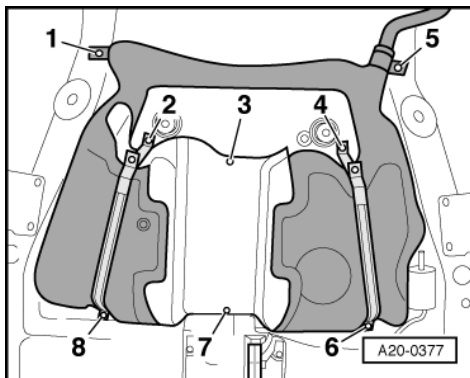


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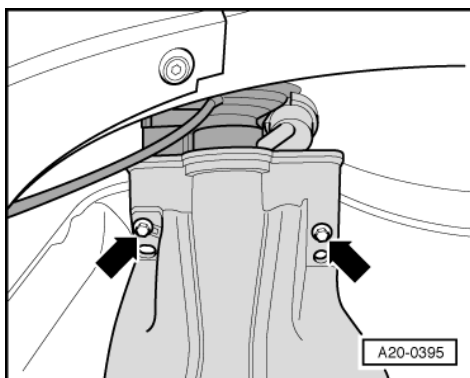
Installing

Install in reverse sequence; note the following points:

- -> Check position of earth connection:
 - Ensure connector -2- is seated properly on metal ring -1-
 - Make sure earth wire is in retainer -3-
 - The contact -4- must be hooked into the fuel tank -6- and secured with the spacer bush -5-
- Check that supply pipe and return pipe are clipped onto front right of fuel tank.



- Position fuel tank with securing straps and carrier plate on underside of vehicle using engine/gearbox jack V.A.G 1383 A.
- -> Secure fuel tank by tightening bolted connections to 26 Nm in following order:
 - Securing straps: -2-, -4-, -6- and -8-
 - Reinforcement panel: -3- and -7-
 - Retaining lugs: -1- and -5-



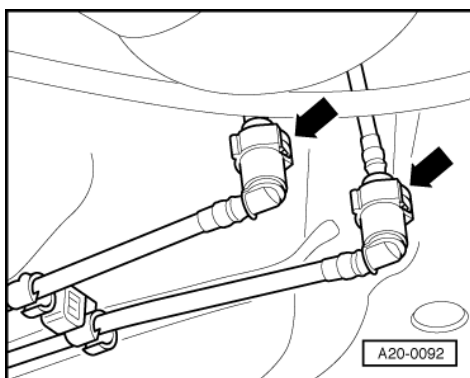
- -> Tighten bolts -arrows- to 11 Nm.

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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. 0Ω.**



- -> Connect black fuel supply line and blue fuel return line at front of fuel tank (right side -arrows-).
- Install rear axle:



=> Running gear, Front-wheel drive and four-wheel drive; Repair group 42; Servicing rear axle (four-wheel drive vehicles) Servicing rear axle (four-wheel drive vehicles)

- Install rear right wheel housing liner:

=> General body repairs, Exterior; Repair group 66; Removing and installing rear wheel housing liner Removing and installing rear wheel housing liner

- Install propshaft:

=> Manual gearbox; Repair group 39

=> Automatic gearbox; Repair group 39

- Install rear section of exhaust system:

=> Engine Mechanics; Repair group 26

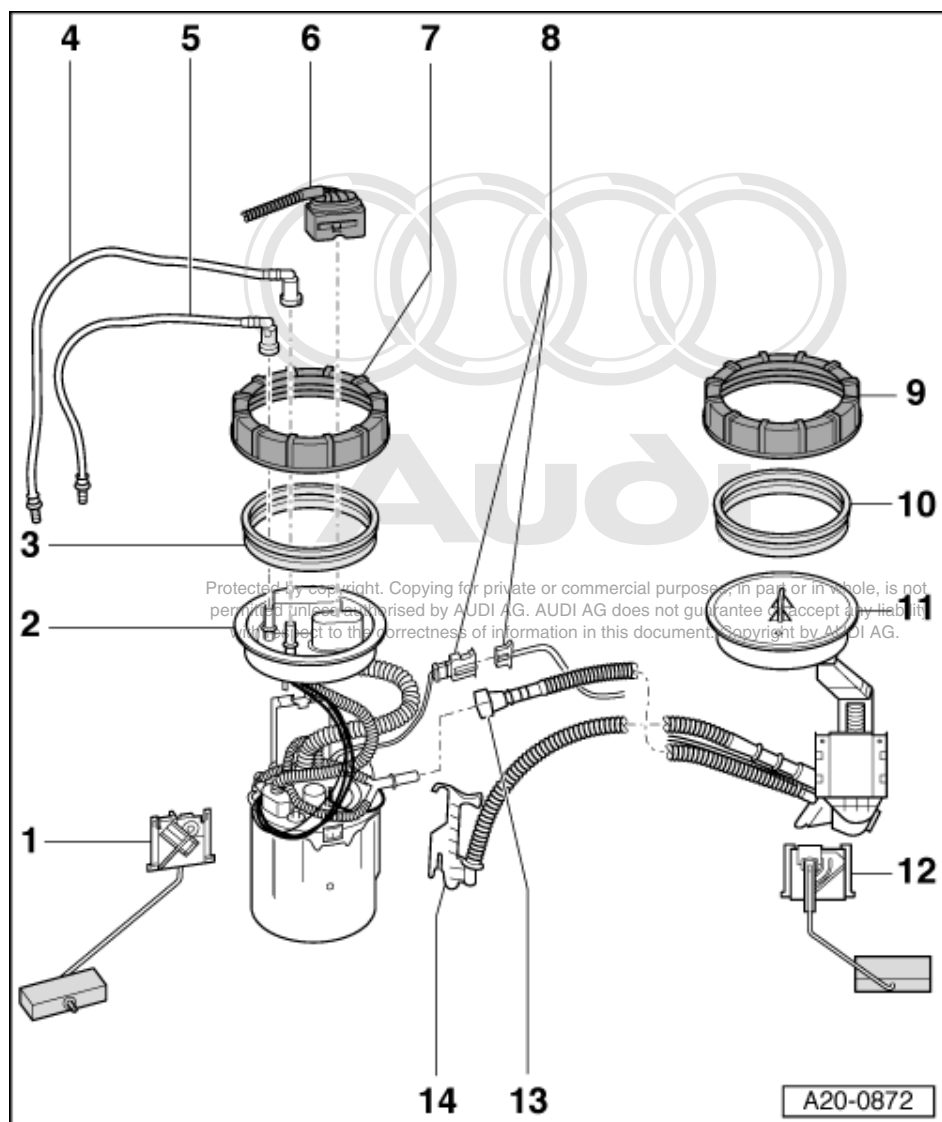
- Plug in electrical connectors.
- Install cover for flange on fuel tank under rear seat bench (right side).

Tightening torques

Component	Nm
Securing straps for fuel tank to body	26
Fuel tank to body	26
Fuel filler neck to wheel housing	11

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- ### 3.5 - Overview of components: fuel delivery unit and fuel gauge senders 43

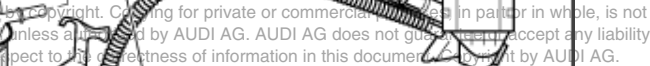


4 Fuel return pipe

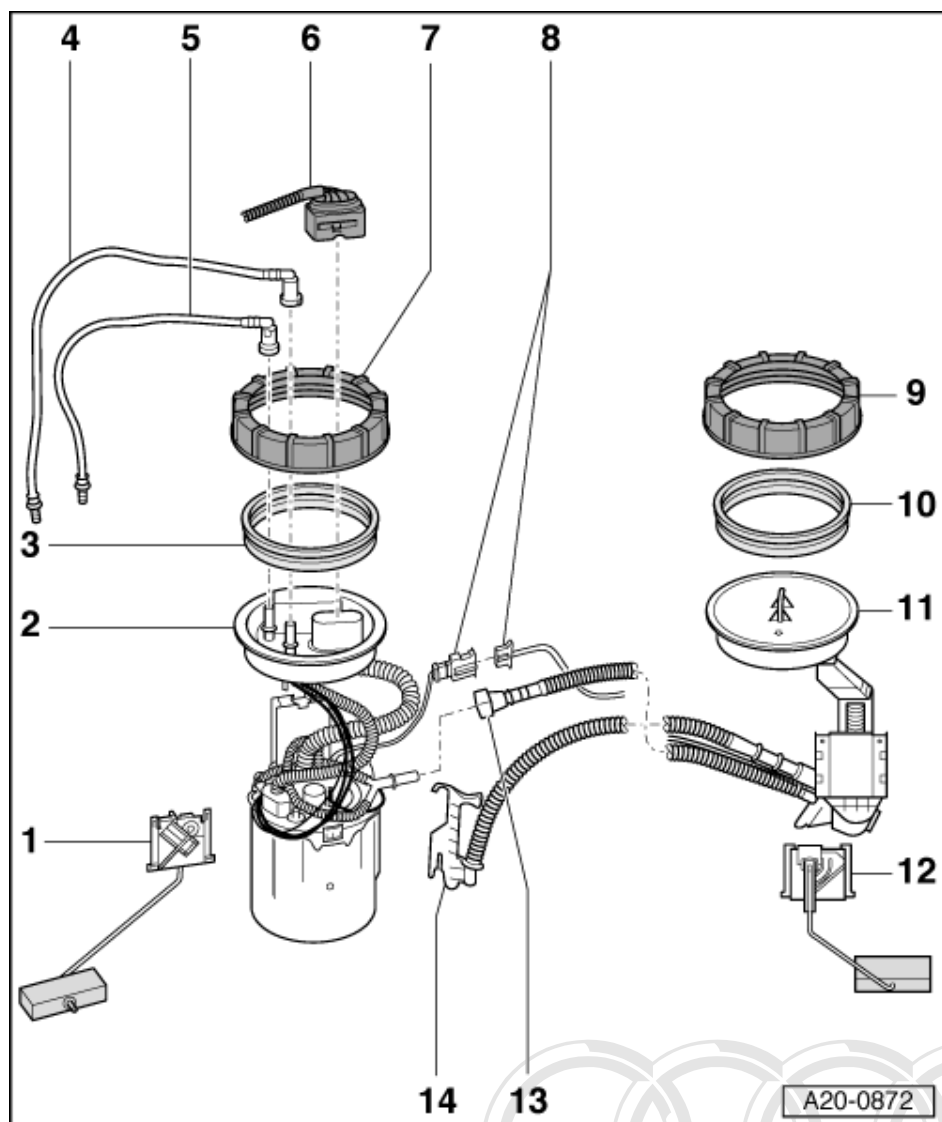
- ◆ Blue
- ◆ From fuel cooler
- ◆ Clipped onto front of fuel tank
- ◆ Connected to connection marked "R" on sealing flange
- ◆ To disconnect from sealing flange, press release tab on connection

5 Fuel supply pipe

- ◆ Black
- ◆ Goes to fuel filter
- ◆ Clipped onto front of fuel tank
- ◆ Connected to connection marked "V" on sealing flange
- ◆ To disconnect from sealing flange, press release tab on connection



- A20-0872

**11 Suction jet pump**

- ◆ Only available together with -Item 12 -.
- ◆ With pipes
- ◆ Removing and installing
=> Page 55

12 Fuel gauge sender II (-G169)

- ◆ Only available together with -Item 11 -
- ◆ Checking => Page 51
- ◆ Removing and installing
=> Page 54

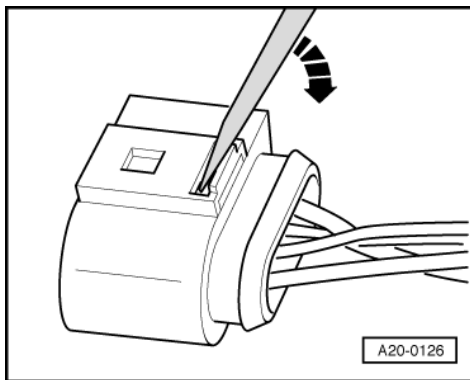
13 Hose connection

- ◆ Connects fuel hose to suction jet pump
- ◆ Press release tab on connection to pull off

14 Retainer

- ◆ Retains fuel hose (from suction jet pump)
- ◆ Hook into fuel delivery unit and press in until it engages

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-> Fig.1 Releasing connectors

- To unplug multi-pin connectors at fuel delivery unit, release retaining catch on connector. This can be done by hand or by using a small screwdriver -arrow-.

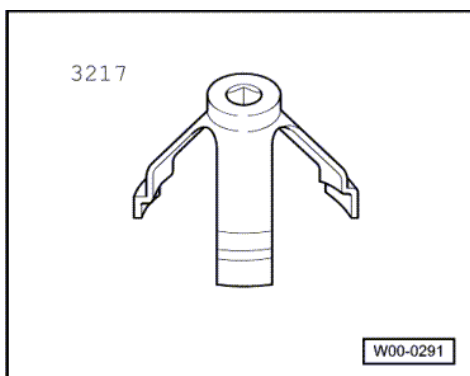
3.6 - Removing and installing fuel delivery unit

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Observe safety precautions=> Page 1 .

Observe rules for cleanliness => Page 1 .

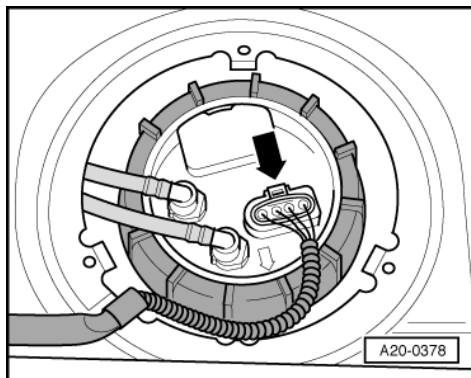
Special tools and workshop equipment required



- ◆ Union nut spanner 3217

Removing

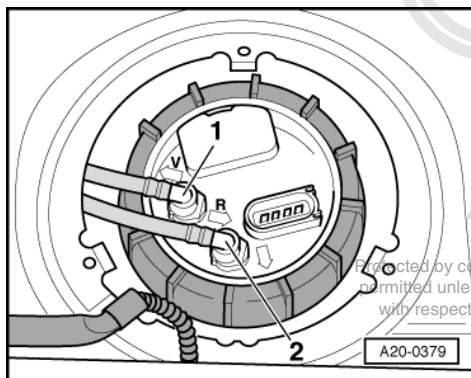
- The fuel tank must not be more than 1/3 full when removing the fuel delivery unit. Drain the tank if necessary. Procedure for draining fuel tank => Page 32 .
 - Remove rear seat bench.
- => General body repairs, Interior; Repair group 72; Rear seats Rear seats
- Fold back floor covering under rear seat bench.
 - Detach cover for flange on fuel tank under rear seat bench (right side).



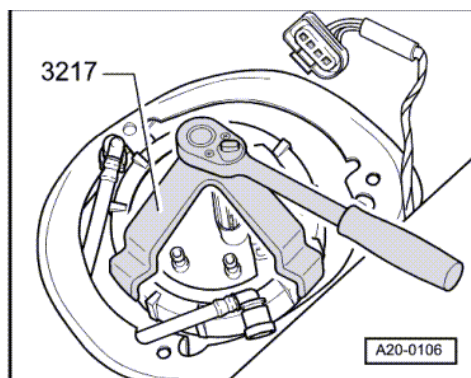
- -> Release and unplug electrical connector -arrow-.

Warning

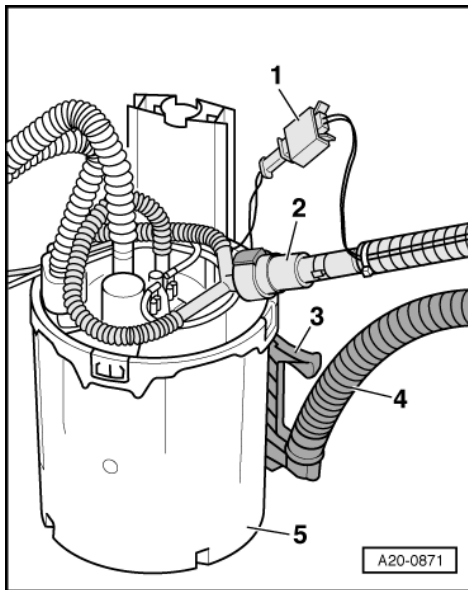
- ♦ The fuel system is under pressure. Place a cloth over the connection before opening the system. Then open the connection carefully to relieve pressure.
- ♦ In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.
- ♦ Wear protective gloves.
- ♦ Wear protective goggles.



- -> Press release catches and disconnect black fuel supply line -1- and blue fuel return line -2-.



- -> Remove union nut with spanner 3217.
- Take flange of fuel delivery unit out of opening in fuel tank and move clear, with hoses connected.



- -> Reach into fuel tank and disconnect connector -1-.
- Press release tab for hose connection and disconnect hose -2-.
- Lift retainer -3- upwards and disengage retainer and hose -4- from fuel delivery unit -5-.

Note:

The illustration shows the fuel delivery unit removed from the vehicle.

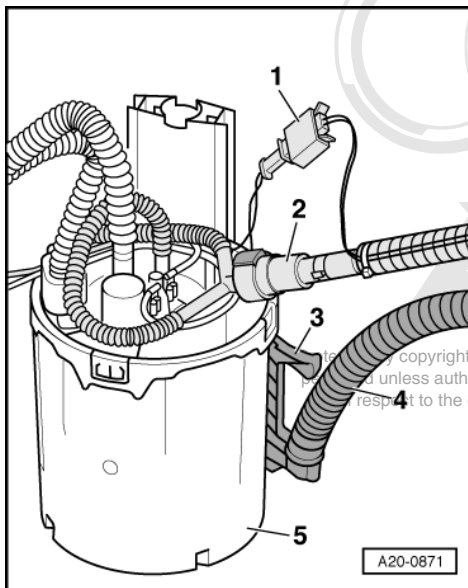
- Pull fuel delivery unit and seal out of the opening in fuel tank.

Installing

Install in reverse sequence; note the following points:

Notes:

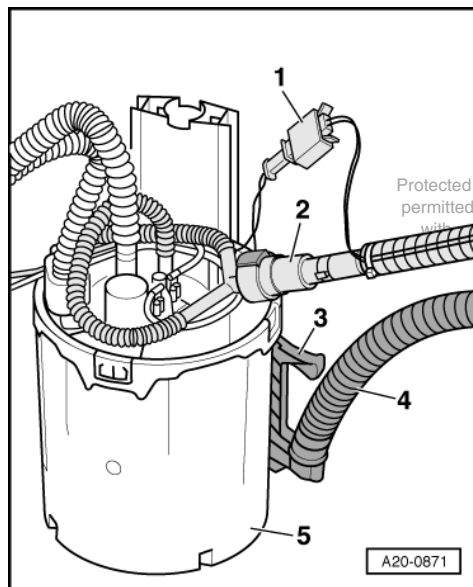
- ◆ Take care not to bend the fuel gauge sender when fitting fuel delivery unit.
- ◆ Fit new seal for flange (dry) in opening in fuel tank.



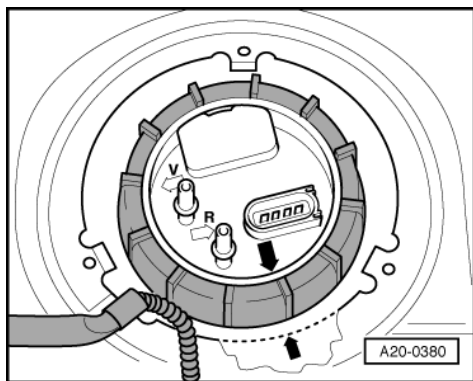
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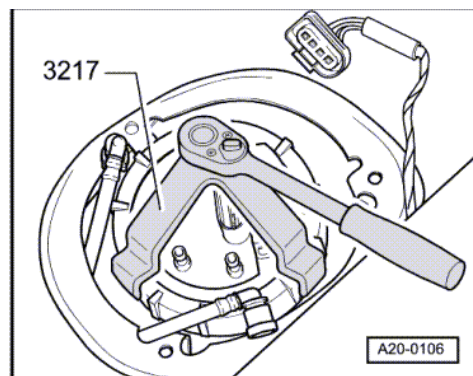
- -> Fit fuel delivery unit -5- into fuel tank (sealing flange is set aside).
- Insert retainer -3- for hose -4- in fuel delivery unit, and press in until it engages.
 - The retainer must be fitted correctly and engage properly



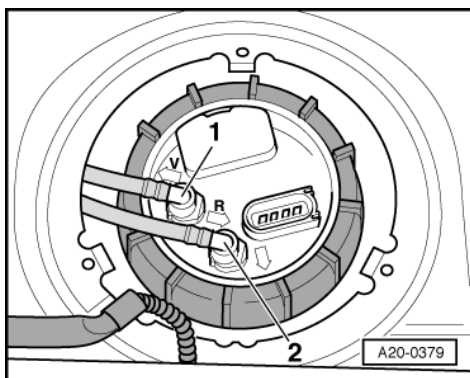
- -> Press hose connector onto hose -2- so that it engages.
- Connect electrical connector -1- for fuel gauge sender II.
- Slot guide on sealing flange into guide on fuel delivery unit (watch spring).



- -> Press sealing flange down against spring pressure, and turn sealing flange to installation position.
- Marking on flange must coincide with marking on fuel tank -arrows-.



- -> Tighten union nut with spanner 3217.



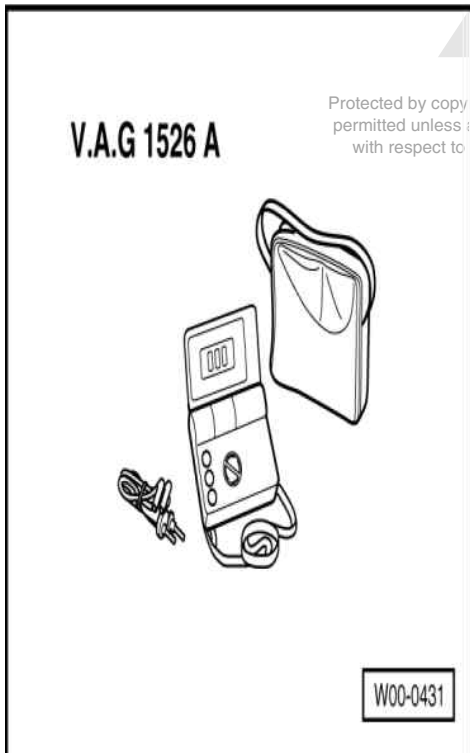
- -> Connect fuel lines.
- Black fuel supply pipe -1- goes to connection marked -V-.
- Blue fuel return pipe -2- goes to connection marked -R-.
- Plug in electrical connector.

Tightening torque

Component	Nm
Union nut for fuel delivery unit	80

3.7 - Testing fuel gauge sender

Note:



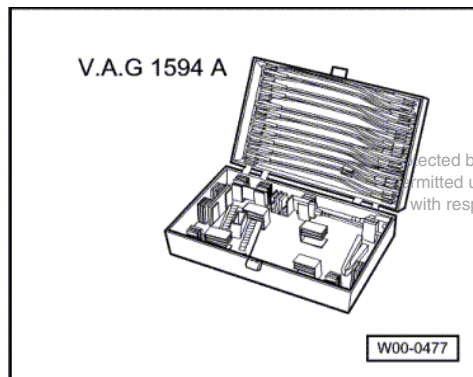
Testing signal from fuel gauge sender:



=> Electrical system; Repair group 90

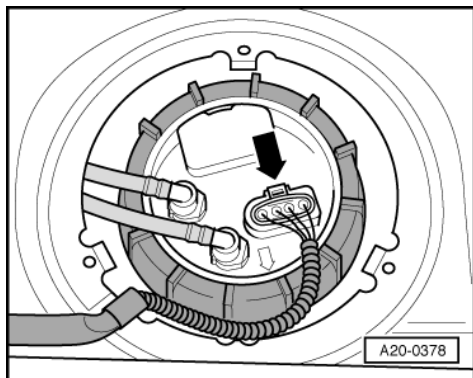
Special tools and workshop equipment required

- ♦ V.A.G 1526 A

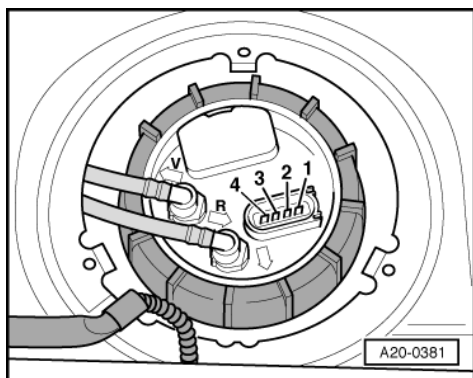


- ♦ V.A.G 1594 A

Test sequence



- Fold down rear seat bench.
- Detach cover for flange on fuel tank under rear seat bench (right side).
- Fold back floor covering under rear seat bench.
- -> Release and unplug electrical connector -arrow-.



- -> Connect multimeter (resistance range) between contacts 2 and 3.
- Specification:
 - between 59 ω (tank empty) and approx. 282 ω (tank full)
- If the resistance is 0 ω or ∞ ω , this means there is a short circuit or an open circuit in the wiring in the tank.

Note:

In order to test the maximum and minimum resistance values for "tank full" and "tank empty", remove the fuel delivery unit => Page 55 and move the floats of the two senders all the way to their top or bottom positions.

When the fuel gauge sender is removed, the arm of the float will travel further and the specifications are:

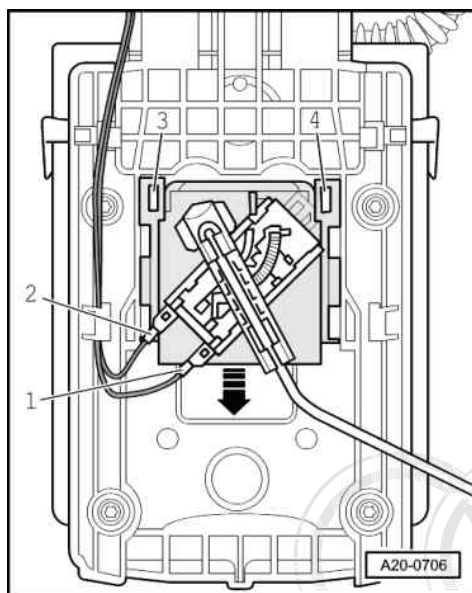
Sender removed from tank	Sender at top position	Sender at bottom position
Fuel gauge sender -G (at fuel delivery unit)	approx. 147 ω	approx. 29 ω
Fuel gauge sender II -G169	approx. 140 ω	approx. 27 ω

3.8 - Removing and installing fuel gauge sender I (-G)

Observe safety precautions=> Page 1 .

Observe rules for cleanliness => Page 1 .

Removing



- Remove fuel delivery unit => Page 47 .
- -> Release connectors -1- and -2- and disconnect.
- Carefully lift retaining lugs -3- and -4- with a screwdriver and pull fuel gauge sender off towards the bottom -arrow-.

Installing

Install in reverse sequence; note the following points:

- Insert fuel gauge sender into the guides on fuel delivery unit and press upwards until it clicks into place.
- Connect connector tabs of wiring and check they have engaged properly.
- Install fuel delivery unit => Page 49 .

3.9 - Removing and installing fuel gauge sender II -G169

Observe safety precautions=> Page **1** .

Observe rules for cleanliness => Page **1** .

Note:

The fuel gage sender II is only available together with the suction jet pump as a replacement part.

- Remove and install suction jet pump => Page **55** .

3.10 - Suction jet pump: operation

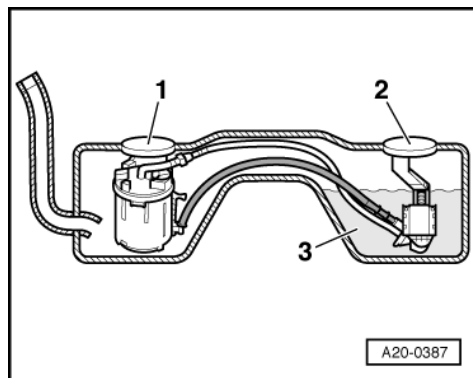
The electric fuel pump sends a pressurised stream of fuel into the suction jet pump (entrainment pump) located in the left chamber of the tank.

The suction jet pump delivers the fuel in the left-hand chamber into the right chamber, where it is drawn into the fuel delivery unit and fed to the engine.

Faults caused by defective suction jet pump

Warning

If the suction jet pump is defective, the vehicle may break down due to a lack of fuel even if the tank is / full.



-> If suction jet pump -2- is not working, up to 15 litres of fuel -3- (up to about 1/4 of tank capacity) may remain in the left chamber of the tank, where it cannot enter the fuel delivery unit.

If the engine stops due to fuel starvation with the tank up to about 1/4 full, take the following steps:

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

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

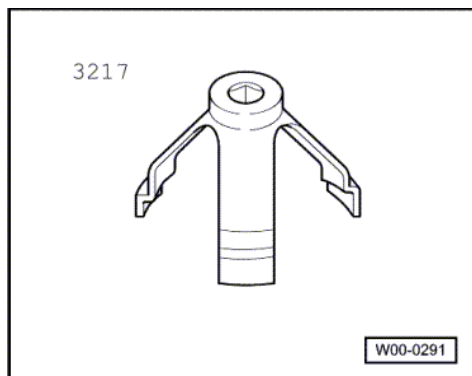
If engine now starts:

- Replace suction jet pump.

3.11 - Removing and installing suction jet pump

Observe safety precautions=> Page 1.

Observe rules for cleanliness => Page 1.



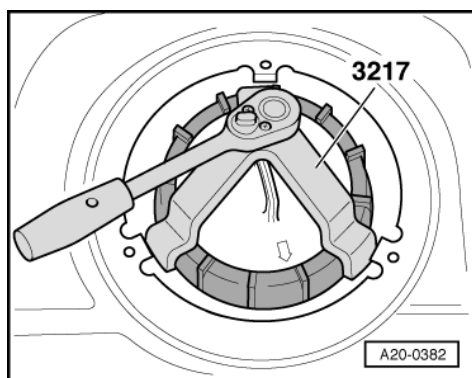
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Special tools and workshop equipment required

- ♦ Union nut spanner 3217

Removing

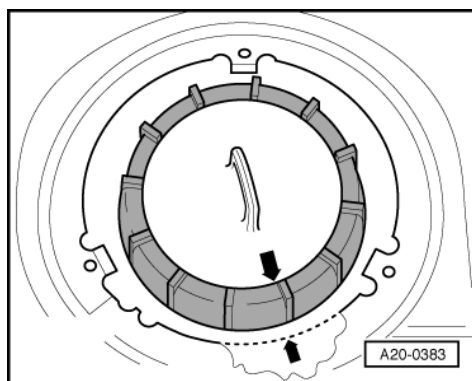
- Remove fuel delivery unit => Page 47.
- Unbolt cover on left under rear seat bench.



- -> Remove union nut with spanner 3217.
- Take suction jet pump flange and fuel gauge sender II -G169 out of opening in fuel tank, leaving hoses connected.

Installing

Install in reverse sequence; note the following points:



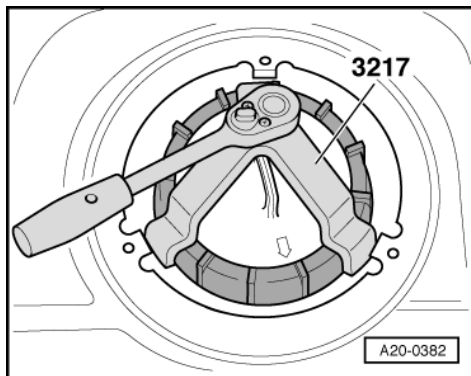


- Working through opening for suction jet pump, push suction jet pump hoses through to installation position of fuel delivery unit.

Note:

Fit new seal for sealing flange (dry) in opening in fuel tank.

- -> Move sealing flange to installation position.
- Marking on flange must coincide with marking on fuel tank -arrows-.



- Install fuel delivery unit => Page 49.
- -> Tighten union nut with spanner 3217.

Tightening torque

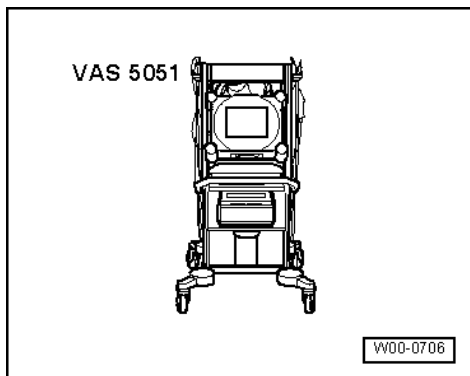
Component	Nm
Union nut for suction jet pump	80

4 - Servicing tandem pump

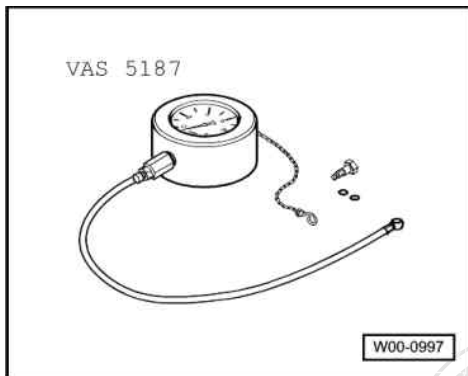
4.1 - Servicing tandem pump

4.2 - Testing tandem pump

Special tools and workshop equipment required



- ♦ VAS 5051 and VAS 5051/1



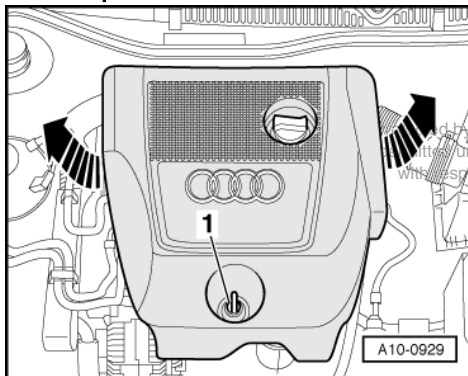
- ♦ Tandem pump test device VAS 5187

Observe rules for cleanliness => Page 1.

Requirements for test:

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

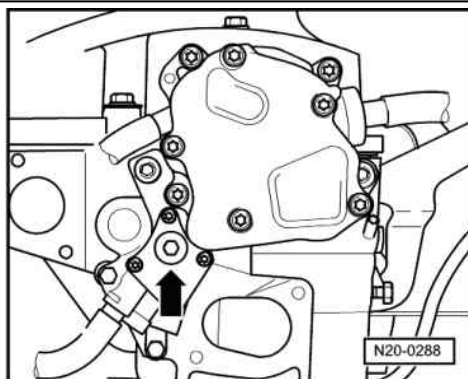
Test sequence



- -> Pull out oil dipstick -1- from guide tube.
- Remove engine cover -arrows-.
- Re-insert oil dipstick into guide tube.

Warning

- ♦ **The fuel system is under pressure. Place a cloth over the connection before opening the system. Then open the connection carefully to relieve pressure.**
- ♦ **In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.**
- ♦ **Wear protective gloves.**
- ♦ **Wear protective goggles.**

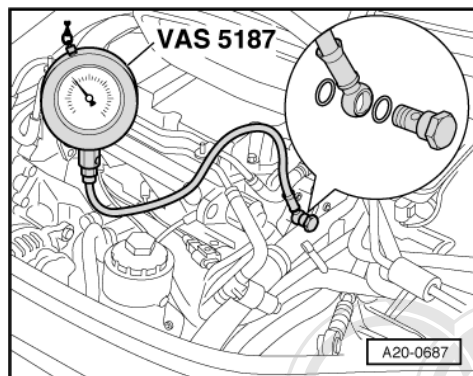




- -> Remove plug -arrow-.

Note:

Illustration shows tandem pump with engine removed from vehicle.



- -> Connect pressure tester VAS 5187 as illustrated.
- Start the engine.
- Increase engine speed to 1500 rpm.
- Observe pressure on pressure gauge:
 - Specification: min. 3.5 bar

If the specification is not obtained:

- Replace tandem pump => Page **58**

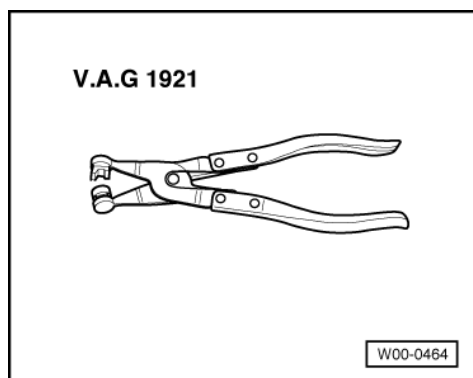
Note:

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After removing pressure tester, tighten plug to 25 Nm. Always replace seal.

4.3 - Removing and installing tandem pump

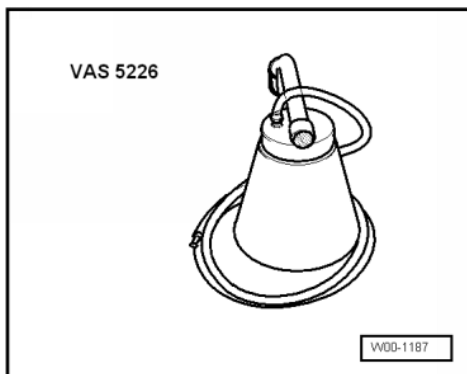
Special tools and workshop equipment required



- ♦ V.A.G 1921

or

- ♦ VAS 5024



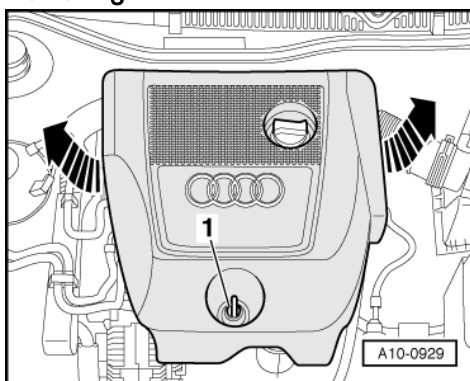
- ♦ VAS 5226

or

- ♦ Hand-operated vacuum pump V.A.G 1390 with bleeder container V.A.G 1390/1.

Observe rules for cleanliness => Page 1 .

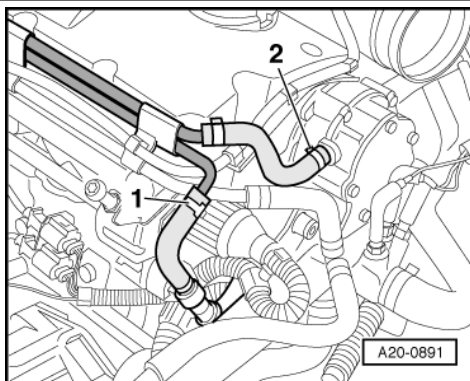
Removing



- -> Pull out oil dipstick -1- from guide tube.
- Remove engine cover -arrows-.
- Re-insert oil dipstick into guide tube.
- Remove air intake hose between top air intake pipe and air cleaner housing.

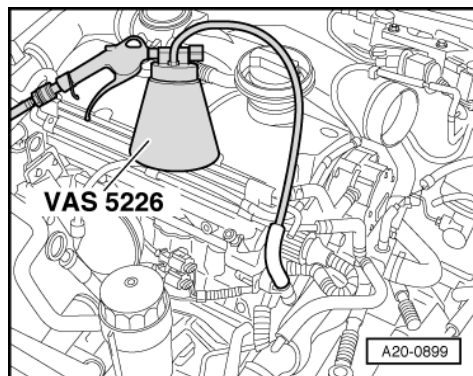
Warning

- ♦ **The fuel system is under pressure. Place a cloth over the connection before opening the system. Then open the connection carefully to relieve pressure.**
- ♦ **In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.**
- ♦ **Wear protective gloves.**
- ♦ **Wear protective goggles.**





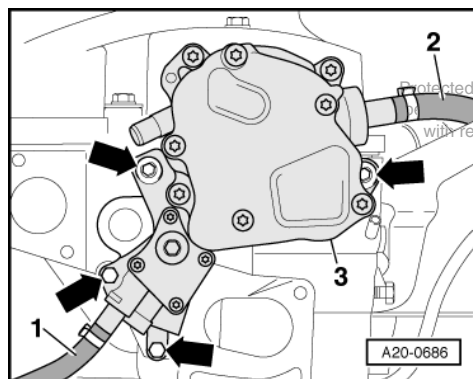
- -> Disconnect fuel supply hose -2- from tandem pump.
- Disconnect fuel return hose -1- (with blue marking) from fuel pipe.
- Connect compressed air line to diesel fuel extractor unit VAS 5226.



- -> Connect diesel fuel extractor unit VAS 5226 to fuel return hose.

Notes:

- ♦ You can also use hand vacuum pump V.A.G 1390 with bleeder container V.A.G 1390/1 instead of diesel fuel extractor unit VAS 5226.
- ♦ It is important to empty the bleeder container in good time to prevent any fuel from entering the vacuum pump.
- Operate diesel fuel extractor unit VAS 5226 until no more fuel comes out of return hose.

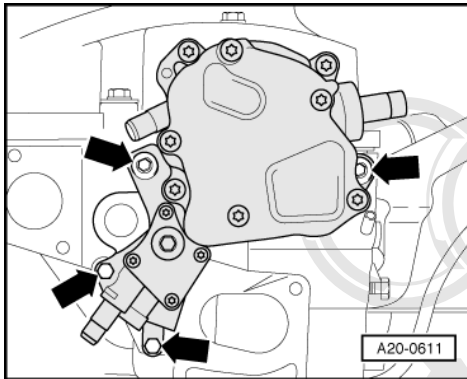


- Disconnect fuel return hose -1- from tandem pump.
- -> Disconnect vacuum hose -2- from tandem pump.
- Remove bolts -arrows-.
- Remove tandem pump -3- from cylinder head.

Installing

Install in reverse sequence; note the following points:

Notes:



- ♦ Always replace tandem pump seals.
 - ♦ Ensure proper seating of tandem pump coupling in camshaft.
 - -> Install tandem pump and tighten upper securing bolts to 20 Nm.
 - Tighten lower securing bolts to 10 Nm.
 - Connect all hoses to tandem pump.
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5 - Fuel cooler

5.1 - Fuel cooler

5.2 - Removing and installing fuel cooler

Observe rules for cleanliness => Page 1 .

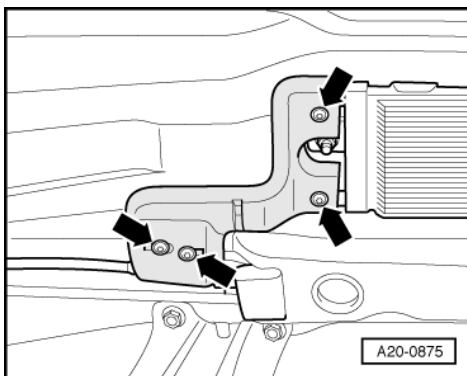
Note:

The fuel cooler is located under the vehicle on the right side.

Auxiliary material required

- ♦ Drip tray

Removing

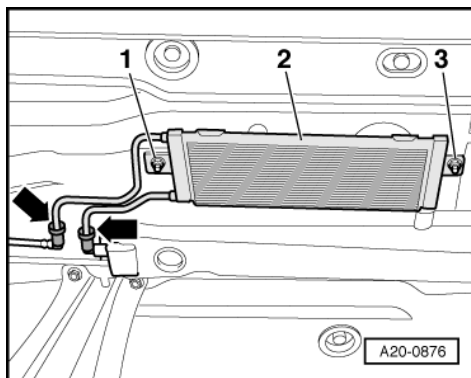


- -> Unbolt cover for hose connection on fuel cooler -arrows-.



Warning

- ♦ The fuel system is under pressure. Place a cloth over the connection before opening the system. Then open the connection carefully to relieve pressure.
- ♦ In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.
- ♦ Wear protective gloves.
- ♦ Wear protective goggles.



- -> Disconnect fuel pipes at fuel cooler -arrows-.
- Unscrew nuts -1- and -3- and detach fuel cooler -2-.

Installing

Installation is performed in the reverse order.

Tightening torque

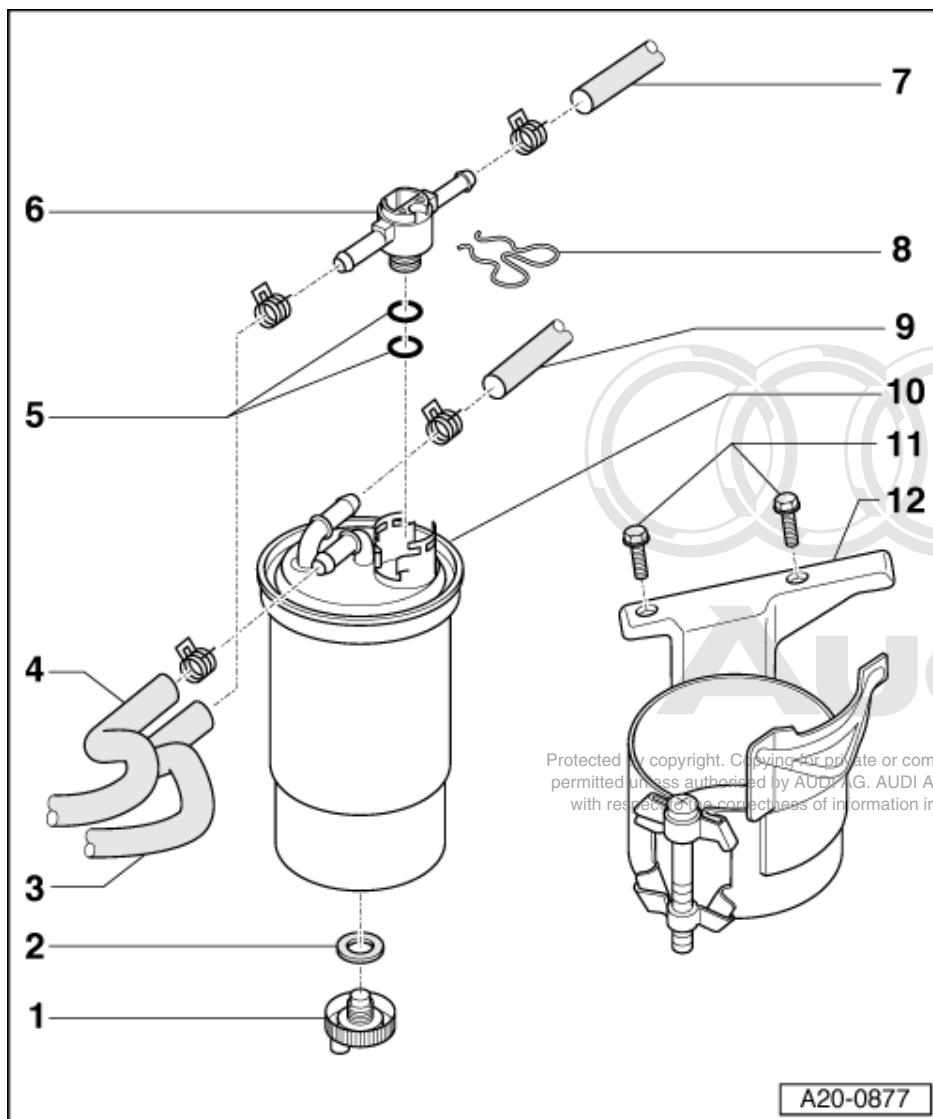
Component	Nm
Fuel cooler to vehicle underside	8



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6 - Servicing fuel filter

6.1 - Servicing fuel filter



6.2 - Overview of fuel filter components

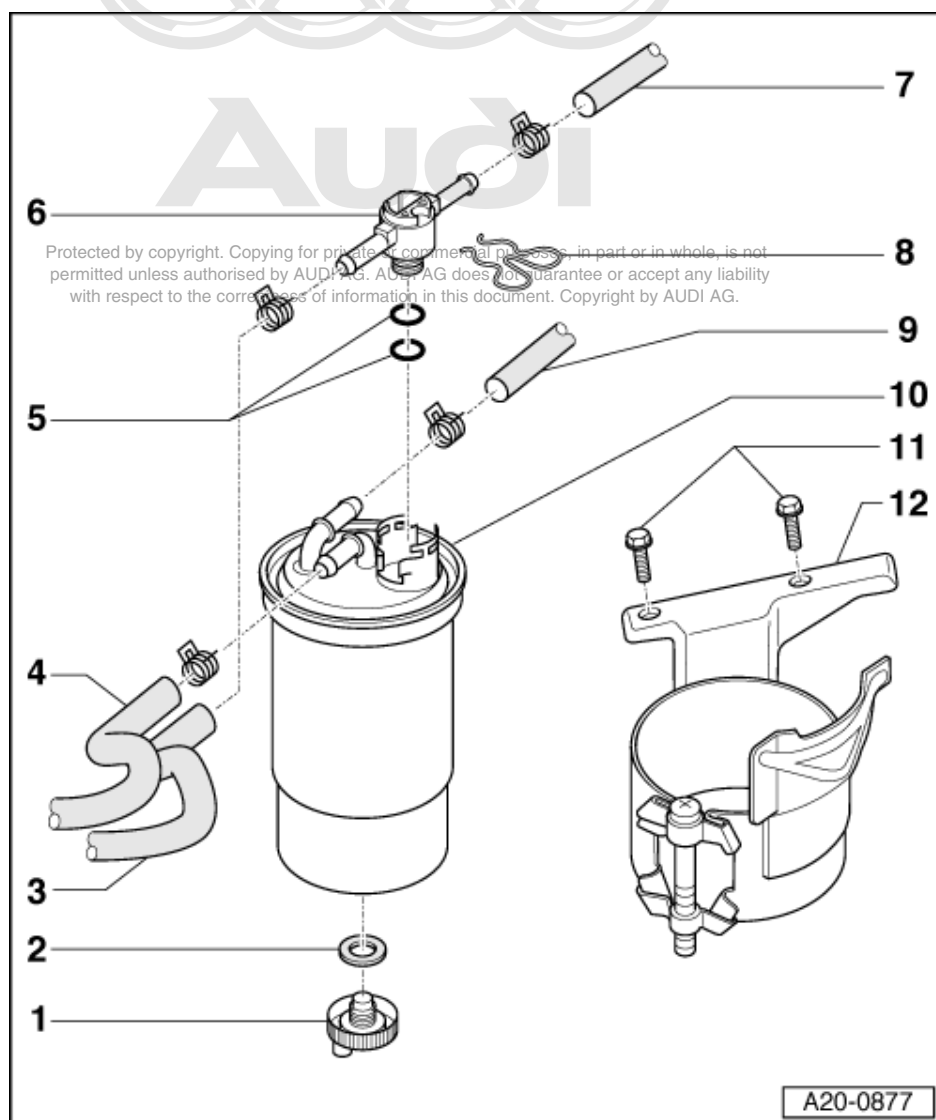
Notes:

- ♦ Fitting location of fuel filter: right side of engine compartment
- ♦ All hose connections must be secured with hose clips (same as original parts).

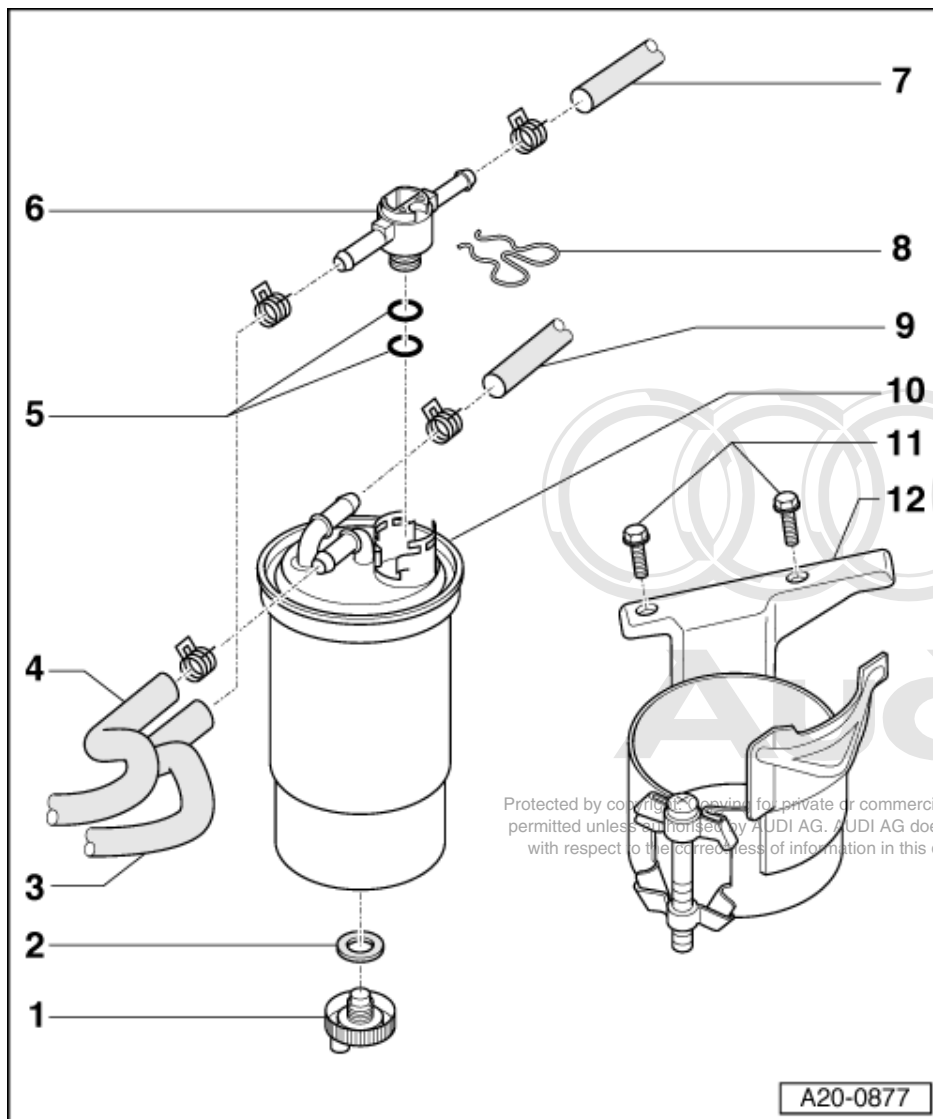
=> Parts List

- 1 Water drain plug
- 2 Seal
 - ♦ Renew if damaged
- 3 Fuel return hose

- ◆ From tandem pump



- 4 Fuel supply hose**
 - ◆ To tandem pump
- 5 O rings**
 - ◆ Renew
- 6 Control valve**
 - ◆ Installation position: arrow points towards fuel tank
 - ◆ When changing filter, remove securing clip and take off control valve complete with fuel hoses
 - ◆ Watch O-rings when fitting valve
 - ◆ Temperatures below + 15 °C:
Passage to filter open
 - ◆ Temperatures over + 31 °C:
Passage to filter closed
- 7 Fuel return hose**
 - ◆ To fuel tank or fuel cooler



8 Securing clip

9 Fuel supply hose

- ♦ From fuel tank

10 Fuel filter

- ♦ Renew filter at intervals specified in Service Schedule

=> Maintenance booklet

- ♦ Fill with diesel before installing

11 10 Nm

12 Bracket

- ♦ For fuel filter

6.3 - Removing and installing fuel filter

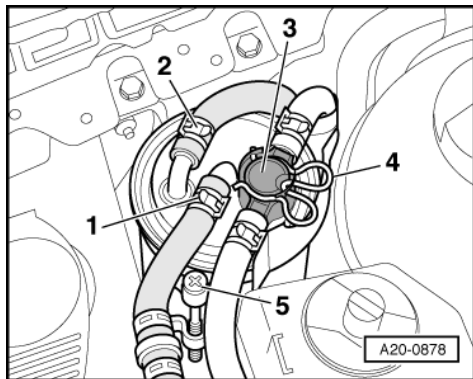
Observe rules for cleanliness => Page 1 .



Notes:

- ♦ Please ensure that no Diesel fuel contacts coolant hoses. If necessary clean hose immediately.
- ♦ Observe disposal regulations!

Removing



- -> Pull off retaining clip -4-.
- Take off control valve -3- with fuel hoses connected.
- Disconnect fuel hoses -1- and -2- from hose connections.
- Loosen locking screw -5- on bracket and take filter out of bracket.

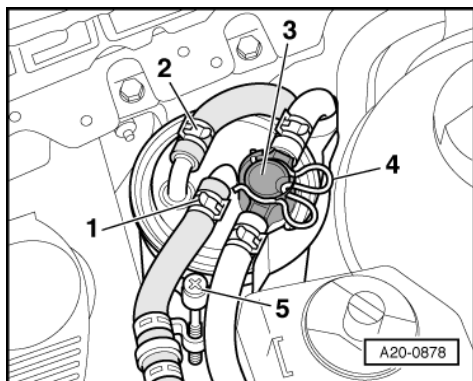
Installing

Install in reverse sequence; note the following points:

Note:

Replace O-rings.

- Fill new filter with clean diesel. This will enable the engine to start more quickly.



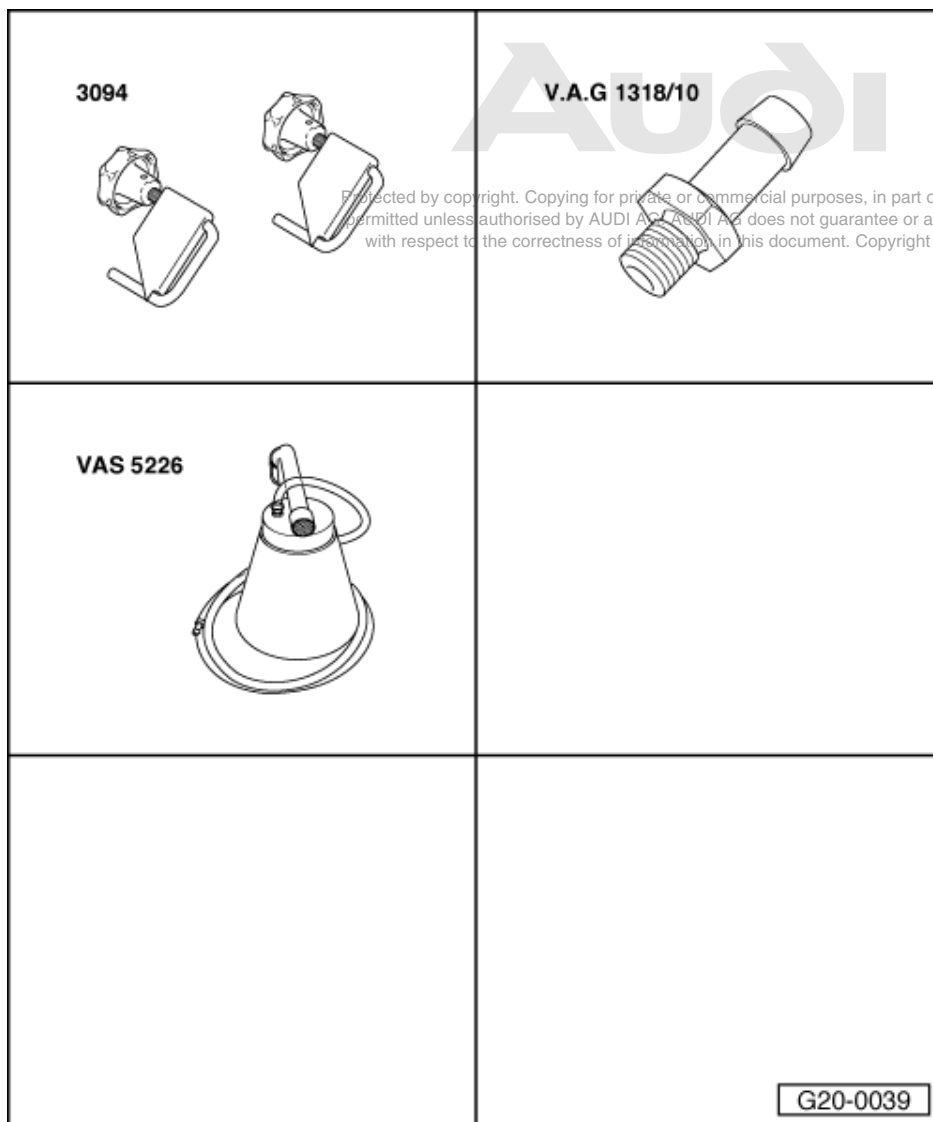
- -> Insert fuel filter into bracket and secure with clamping nut -5-.
- Install control valve with fuel pipes connected.
- Fit securing clip -4-.
- Push fuel hoses -1- and -2- onto hose connections and secure with hose clamps.
- Start engine and check fuel system for leaks (visual check).



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7 - Bleeding fuel system

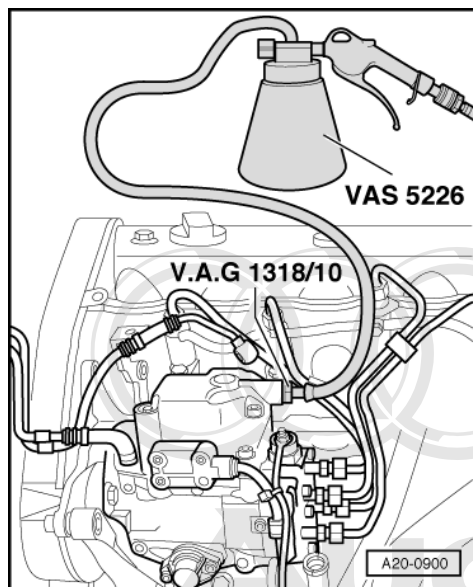
7.1 - Bleeding fuel system



7.2 - Vehicles with distributor-type injection pump

Special tools and workshop equipment required

- ♦ Hose clamps 3094
 - ♦ Adapter V.A.G 1318/10
 - ♦ VAS 5226
- or
- ♦ V.A.G 1390 with V.A.G 1390/1

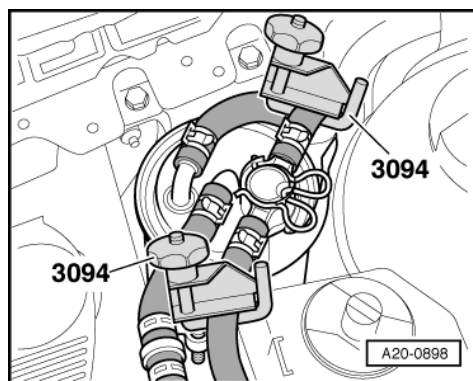


- -> Screw adapter V.A.G 1318/10 into return connection on injection pump.
- Connect compressed air line to diesel fuel extractor unit VAS 5226.
- Connect diesel fuel extractor unit VAS 5226 to connection on injection pump.

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Notes:

- ♦ You can also use hand vacuum pump V.A.G 1390 with bleeder container V.A.G 1390/1 instead of diesel fuel extractor unit VAS 5226.
- ♦ It is important to empty the bleeder container in good time to prevent any fuel from entering the vacuum pump.



- -> Clamp off fuel return hose upstream and downstream of regulating valve using hose clamps 3094.
- Operate diesel fuel extractor unit VAS 5226 until fuel is drawn off with no bubbles.
- Reconnect return pipe to injection pump (25 Nm).

Note:

Replace seals.

- Remove hose clamps 3094 from return hose.
- Start the engine and check fuel system for leaks (visual check).

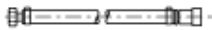
7.3 - Vehicles with unit injector engine

Due to the design of the engine, with a pre-delivery pump located in the fuel tank, it is not necessary to bleed vehicles with unit injector engine.

The fuel system bleeds itself when the starter is operated.

8 - Checking fuel system for leaks

8.1 - Checking fuel system for leaks

3094 	V.A.G 1274 
V.A.G 1318/17 V.A.G 1318/17-1  V.A.G 1318/17-4  V.A.G 1318/17-8  V.A.G 1318/17-3 	
	G20-0036



8.2 - Vehicles with distributor-type injection pump

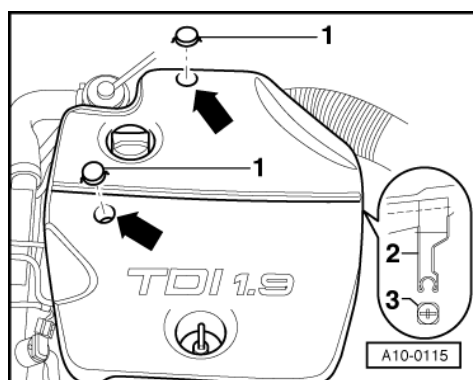
Special tools and workshop equipment required

- ♦ Hose clamps 3094
- ♦ V.A.G 1274 with V.A.G 1274/2 A
- ♦ V.A.G 1318/17-1

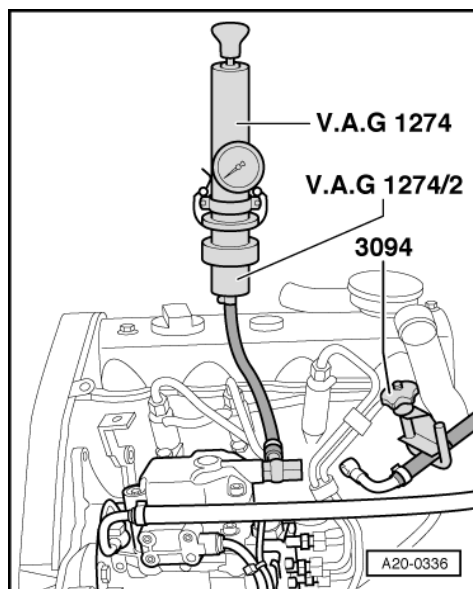
Leaks in the fuel system may result in the following:

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

Work sequence



- -> Remove engine cover:
- Take out plugs -1-, loosen nuts -arrows-.
- Pull clip -2- off pin -3-.



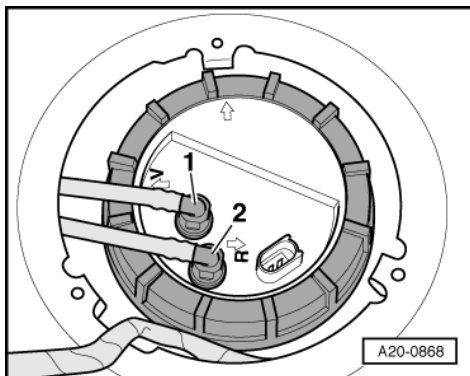
- -> Attach adapter 1274/2A to cooling system tester V.A.G 1274.
- Disconnect fuel return pipe from injection pump and connect hose from adapter V.A.G 1274/2A in its place.
- Remove rear seat bench.



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=> General body repairs, Interior; Repair group 72; Rear seats Rear seats

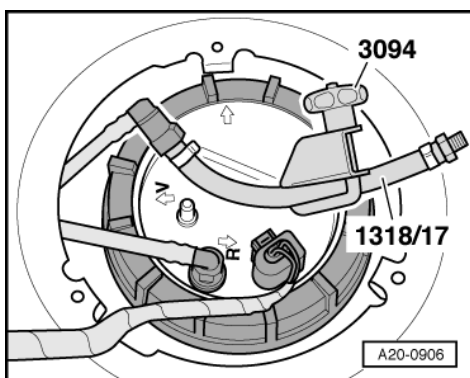
- Fold back floor covering under rear seat bench.
- Detach cover for flange on fuel tank under rear seat bench (right side).



- -> Press release tab and disconnect black fuel supply pipe -1-.

Note:

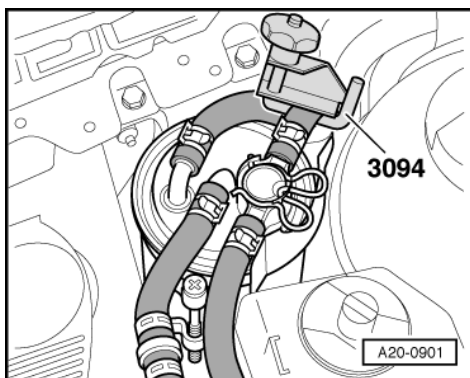
Do not disconnect fuel return pipe -2-.



- -> Connect adapter hose V.A.G 1318/17-1 onto fuel supply pipe.
- Clamp off adapter hose using hose clamp 3094.

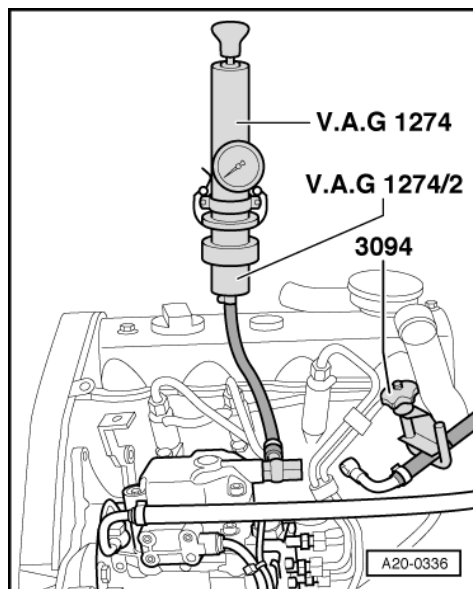
Note:

The hose clamp 3094 must not be applied directly to the fuel pipe as this would cause damage.



- -> Clamp off fuel return hose upstream of regulating valve using hose clamp 3094.

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- -> Use hand pump on tester to create a pressure of between 1.0 and 1.5 bar.
- If the pressure constantly drops, locate leak and eliminate fault.

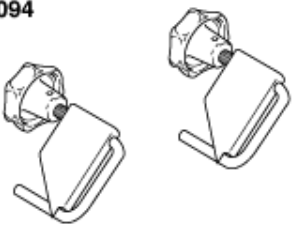
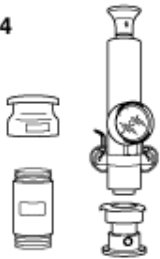
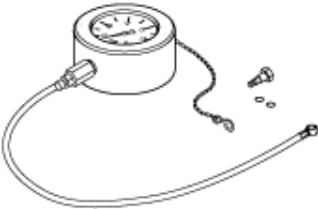
Note:

To test the fuel return pipe, apply the hose clamp to the fuel supply hose at the fuel filter and connect the adapter hose 1318/17 to the fuel return connection.



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8.3 - Vehicles with unit injector engine

3094 	V.A.G 1274 
V.A.G 1318/17 V.A.G 1318/17-1 V.A.G 1318/17-4  V.A.G 1318/17-6 V.A.G 1318/17-3 	VAS 5187 
	G20-0035

Special tools and workshop equipment required

- ◆ Hose clamps 3094
- ◆ V.A.G 1274 with V.A.G 1274/2 A
- ◆ V.A.G 1318/17-1
- ◆ Test device for tandem pump VAS 5187

Leaks in the fuel system may result in the following:

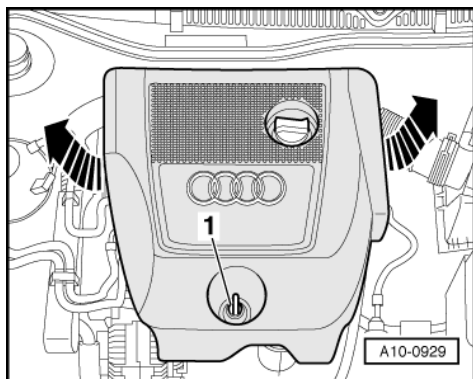
- ◆ Foam build-up or air bubbles in the supply pipe
- ◆ Loss of power, misfiring
- ◆ Starting problems



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Work sequence



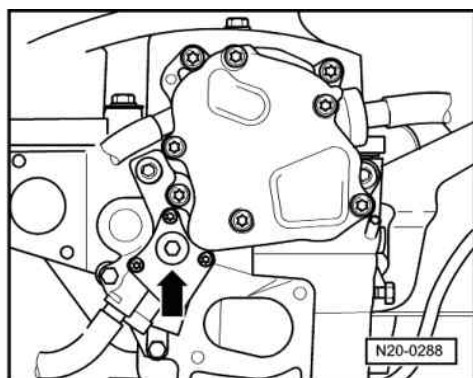
- -> Pull out oil dipstick -1- from guide tube.
- Remove engine cover -arrows-.
- Re-insert oil dipstick into guide tube.



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Warning

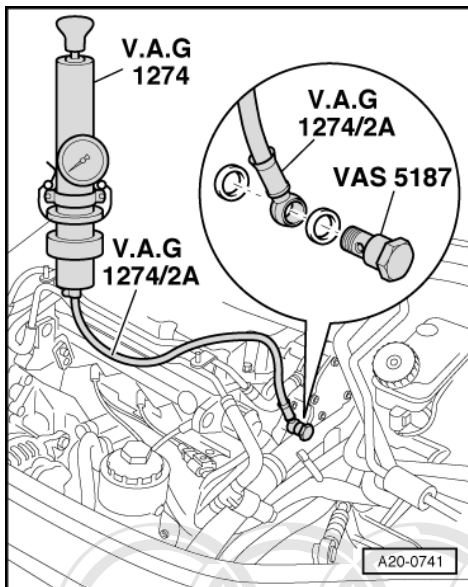
- ♦ The fuel system is under pressure. Place a cloth over the connection before opening the system. Then open the connection carefully to relieve pressure.
- ♦ In extreme cases the fuel pipes/hoses or the fuel can reach a temperature of 100 C on vehicles with unit injector engine. Allow the fuel to cool down before disconnecting the pipes/hoses - acute danger of scalding.
- ♦ Wear protective gloves.
- ♦ Wear protective goggles.



- -> Remove plug -arrow-.

Note:

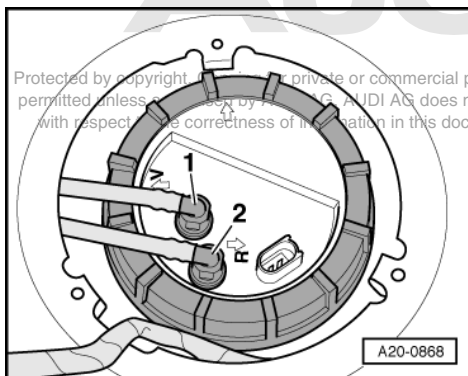
Illustration shows tandem pump with engine removed from vehicle.



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

=> General body repairs, Interior; Repair group 72; Rear seats Rear seats

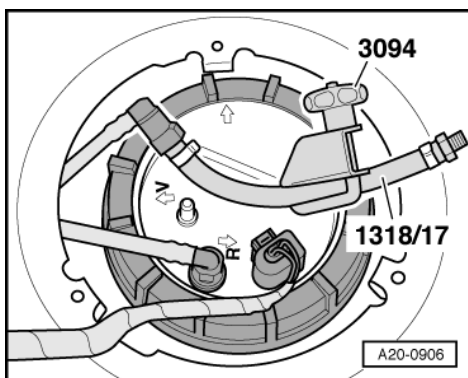
- Fold back floor covering under rear seat bench.
- Detach cover for flange on fuel tank under rear seat bench (right side).



- -> Press release tab and disconnect black fuel supply pipe -1-.

Note:

Do not disconnect fuel return pipe -2-.

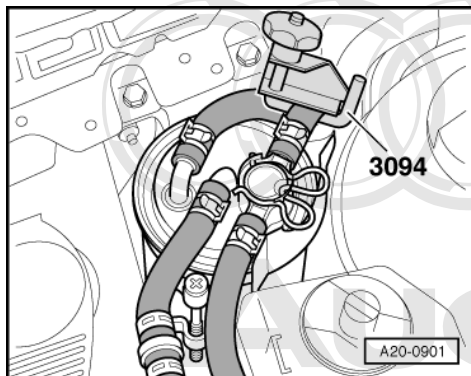




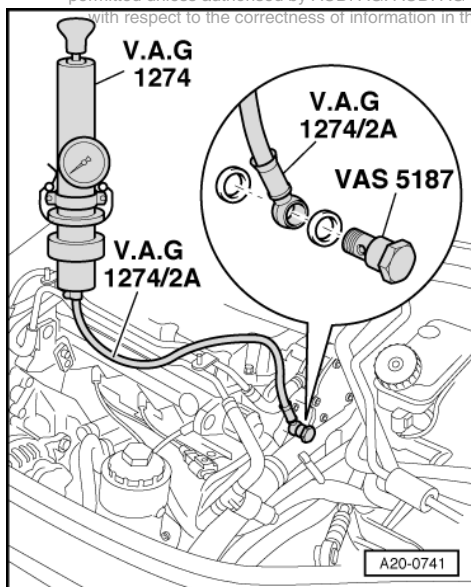
- -> Connect adapter hose V.A.G 1318/17-1 onto fuel supply pipe.
- Clamp off adapter hose using hose clamp 3094.

Note:

The hose clamp 3094 must not be applied directly to the fuel pipe as this would cause damage.



- -> Clamp off fuel return hose upstream of regulating valve using hose clamp 3094.



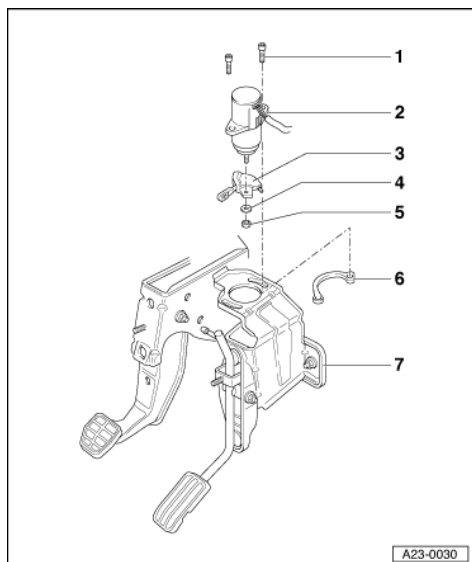
- -> Use hand pump on tester to create a pressure of between 1.0 and 1.5 bar.
- If the pressure constantly drops, locate leak and eliminate fault.

Notes:

- ♦ After disconnecting the pressure tester, fit the plug and tighten to 25 Nm. Always replace seal.
- ♦ To test the fuel return pipe, apply the hose clamp to the fuel supply hose at the fuel filter and connect the adapter hose 1318/17 to the fuel return connection.

9 - Servicing accelerator linkage - Vehicles with accelerator pedal position sender

9.1 - Servicing accelerator linkage - Vehicles with accelerator pedal position sender



1 10 Nm

2 Accelerator position sender -G79

- ♦ To remove and install or adjust, remove storage compartment on driver's side

=> General body repairs, Interior; Repair group 68; Trays, compartments and trim; Removing and installing storage compartment on driver's side Trays, compartments and trim Removing and installing storage compartment on driver's side

3 Cable cam

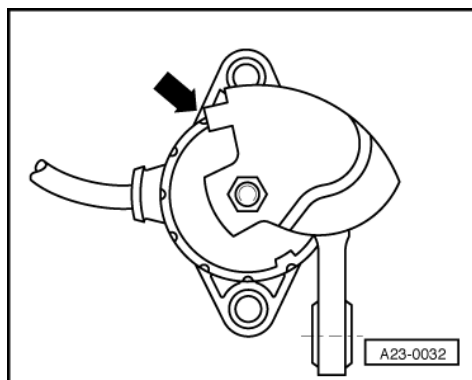
4 Spring washer

5 10 Nm

6 Threaded retainer

7 Pedal bracket

Adjusting accelerator position sender



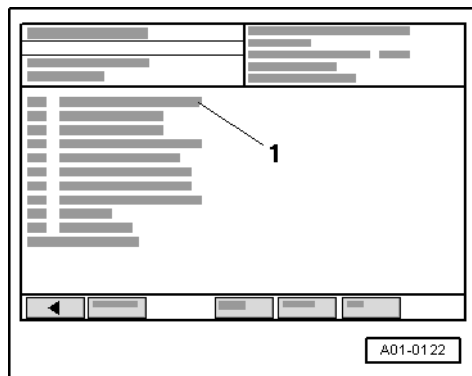
If the sender has been removed:

- -> Fit cable cam as shown.
- Install sender with cable cam already fitted.



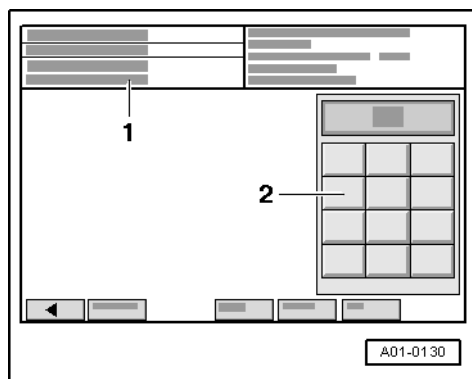
Requirement for test:

- Connect vehicle diagnosis, testing and information system VAS 5051, select "Vehicle self-diagnosis" and vehicle system "01 - Engine electronics".



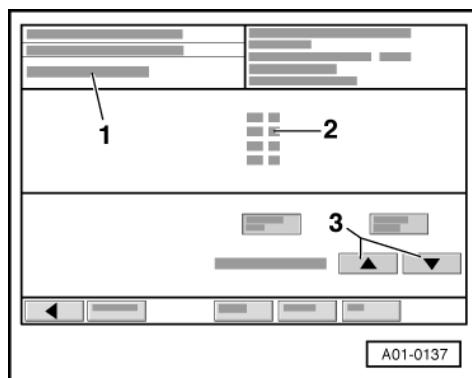
-> Display on VAS 5051:

- Select diagnosis function "08 - Read data block" from the menu -1-.



-> Display on VAS 5051:

- 1 - Enter display group
(figures up to 255)
- Using keypad -2-, enter "002" to select Display group 002 and confirm entry with the Q button.



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- > Display on VAS 5051:
- Check display in display zone -2-.
 - Specification: 0.0 % (accelerator pedal not pressed down)
 - Press accelerator pedal down slowly.
 - Specification: the value in display zone -2- should increase gradually to 100 % (with accelerator fully depressed).
 - The accelerator pedal should contact the full throttle stop on the floor when the value reaches 100 %.

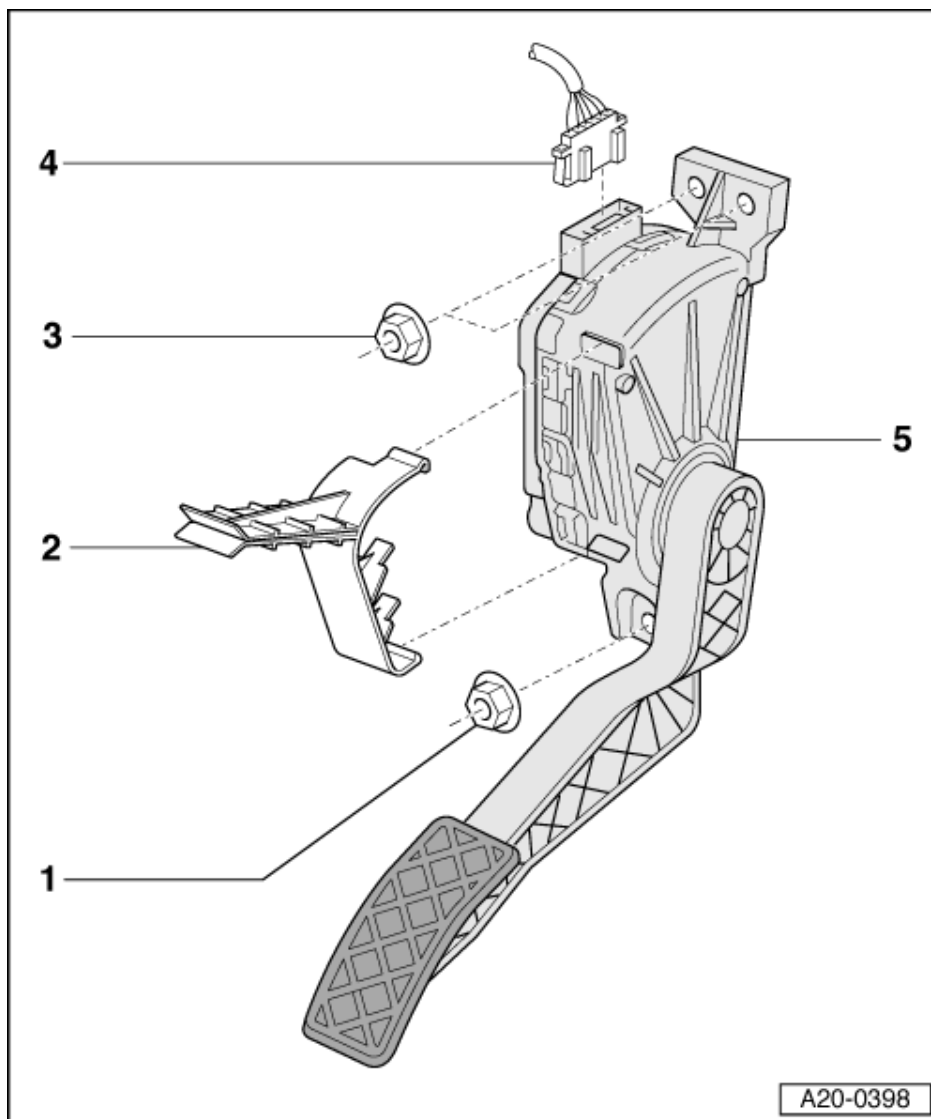
If the readout is not as specified or the pedal has not reached the full-throttle stop:

- Turn the sender within the elongated holes on the pedal bracket.
- Press the ◀ button to exit from the function "08 - Read data block".

10 - Servicing accelerator linkage - Vehicles with accelerator pedal module

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10.1 - Servicing accelerator linkage - Vehicles with accelerator pedal module



- 1 10 Nm
- 2 **Bracket**
 - ◆ For driver's storage compartment
 - ◆ Engage in accelerator pedal module
- 3 10 Nm



4 6 pin connector

5 Accelerator pedal module

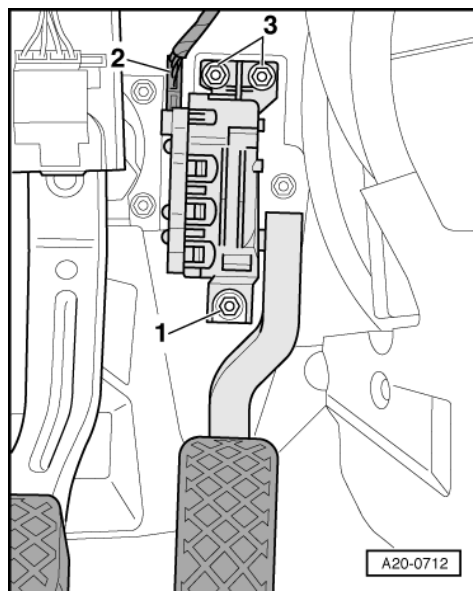
- ◆ With accelerator pedal position sender -G79
- ◆ Removing and installing
 - => Page **80**
- ◆ Incorporates kickdown switch on vehicles with automatic gearbox

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

Removing

- Remove storage compartment on driver's side.

=> General body repairs, Interior; Repair group 68; Storage compartments, covers; Removing driver's storage compartment Storage compartments, covers Removing driver's storage compartment



- -> Unplug 6-pin connector -2-.
- Unscrew bolts -1- and -3-.
- Remove accelerator pedal module.

Installing

Installation is performed in the reverse order.

Tightening torque

Component	Nm
Accelerator pedal module to pedal bracket	10



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