Audi 80 1992 ➤

Fuel supply system - petrol engines									
Engine ID	6A	AAH	ABB	ABC	ABK	ABM	ABT	ABY	ACE
	ACZ	ADA	ADW	NG					

Edition 03.2000

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

Audi 80 1992 ➢

Fuel supply system - petrol engines

Repair Group

20 - Fuel supply system

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

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20 - Fuel supply system

1 - Notes on performing work on fuel supply system

1.1 - Notes on performing work on fuel supply system

1.2 - General repair instructions

Pay attention to safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

Checking fuel-pump relay and actuation:

=> Injection and Ignition System; Repair Group 24; Servicing Injection System; Checking fuel-pump relay and actuation Servicing Injection System Checking fuel-pump relay and actuation

=> Injection and Ignition System; Repair Group 25; Servicing Injection System; Checking fuel-pump relay and actuation Servicing Injection System Checking fuel-pump relay and actuation

1.3 - Safety precautions when working on fuel supply system

Attention:
- **Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.**
- **Opening of fuel supply pipe on vehicles fitted with KE III Jetronic und KE Motronic causes pressure container to be drained - approx. 10 cm of fuel squirts out.**

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

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

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

- Drain fuel tank if necessary => Page 9 .

- The fuel tank must not be more than 3/4 full.
- Before starting work, switch on exhaust extraction system and place extraction hose in the vicinity of the fuel tank assembly opening to draw off the fuel vapours escaping.
  If no exhaust extraction system is available, use can be made of a radial fan with a displacement of more than 15 m3/h provided that motor is not in air flow.
- Do not allow fuel to come into contact with skin. Wear fuel-resistant gloves.

Drain fuel tank prior to removal so as to reduce weight.

- Drain fuel tank if necessary => Page 9 .

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1.4 - Rules for cleanliness

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

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

2 - Fuel supply system - front-wheel drive

2.1 - Fuel supply system - front-wheel drive

Notes:

- Secure all hose connections with standard hose clamps.

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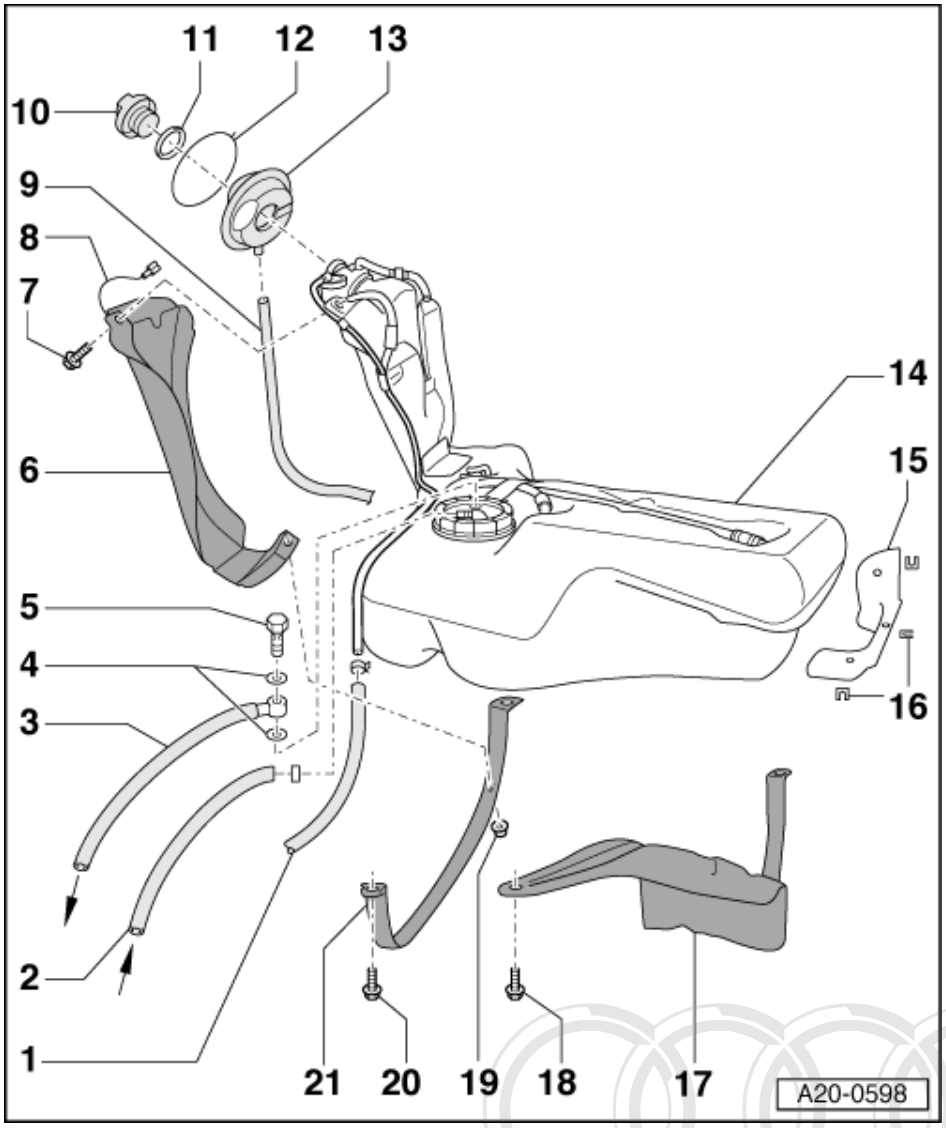
=> Parts List

- Special tool V.A.G 1921 is recommended for fitting spring clips.
- Always replace sealing rings and gaskets on assembly.

2.2 - Exploded view of components: Fuel tank with attachments



1 **Breather pipe**
- To activated charcoal filter
  => Item 12, Page 115

2 **Fuel return pipe**
- From engine

3 **Fuel supply pipe**
- To fuel filter

4 **Sealing ring**
- Replace

5 **Banjo bolt, 23 Nm**

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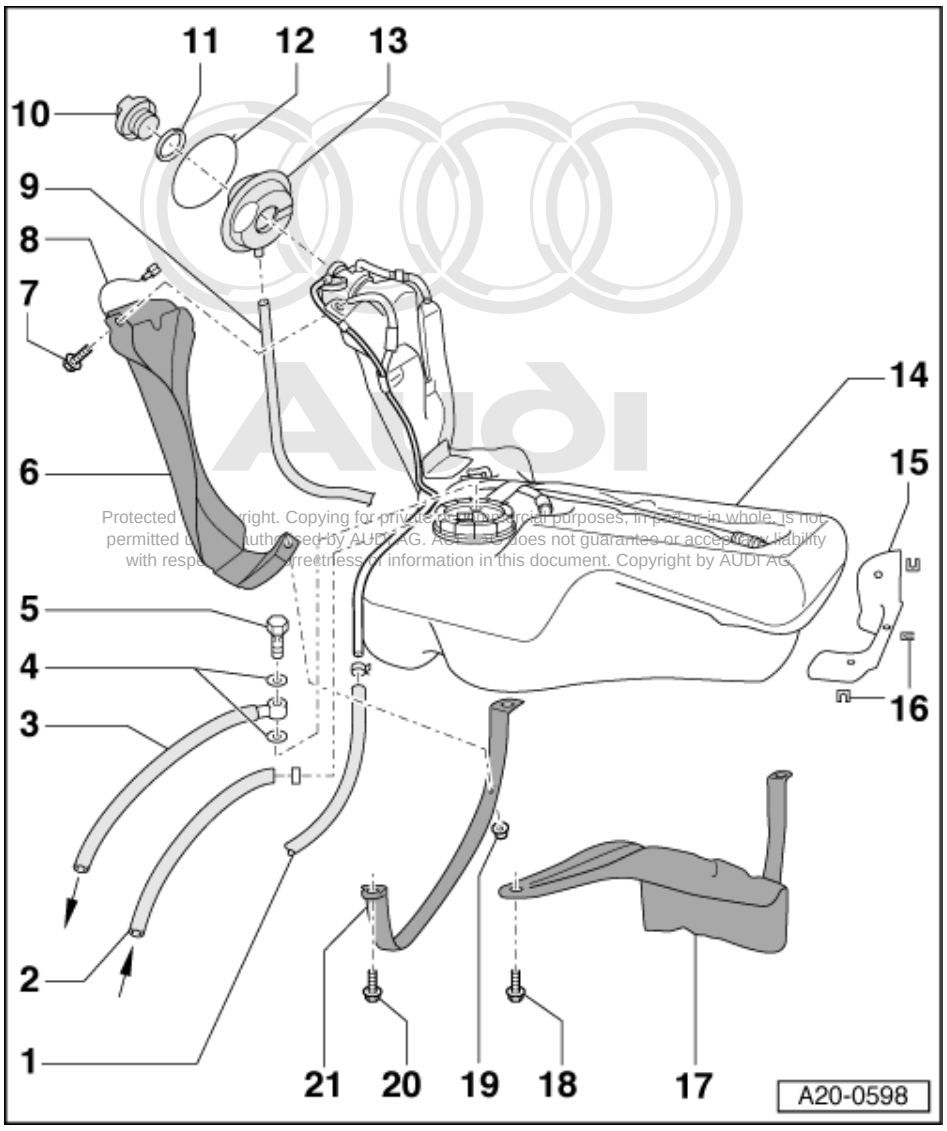

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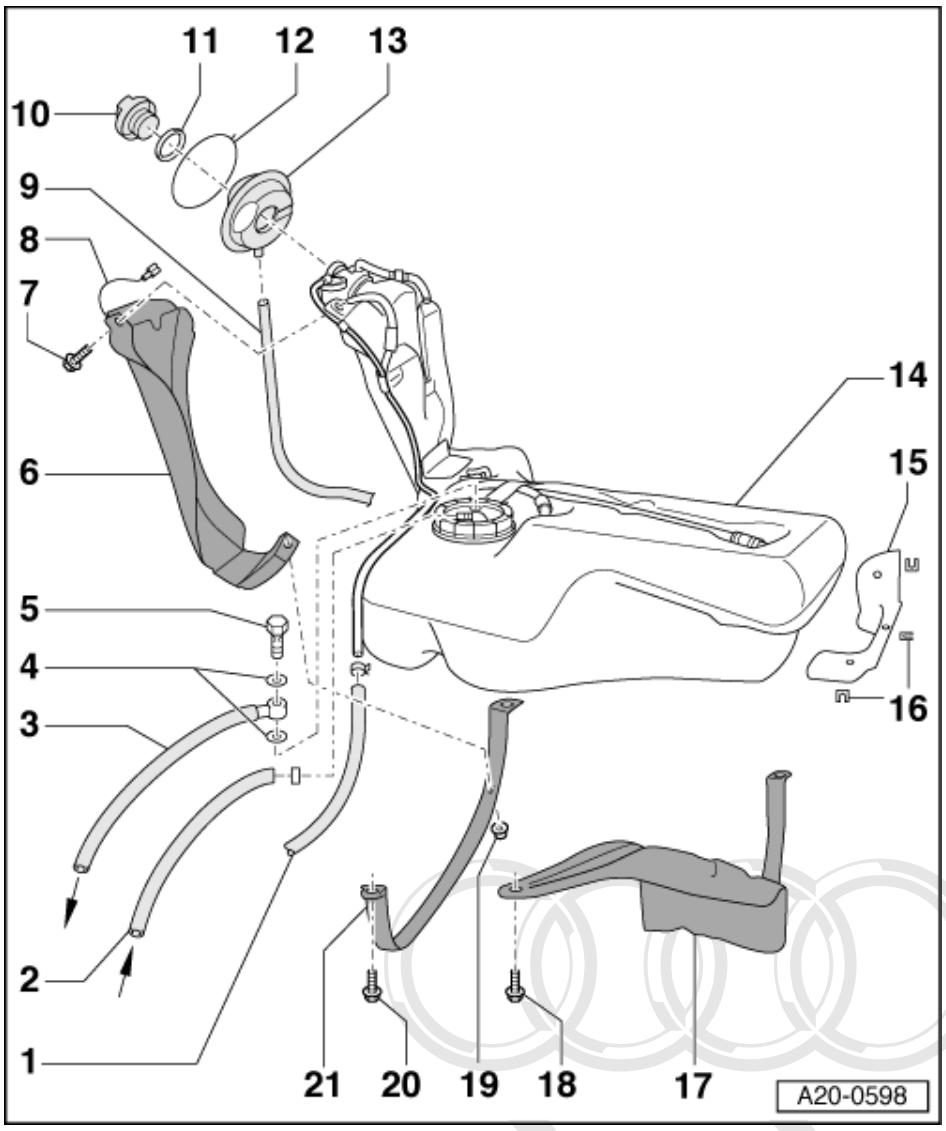
6 Guard

- For fuel filler neck
- With earth connection
- Before screwing in bolt -item 7 - check tightness (flange connection) of contact terminal of earth connection

7 25 Nm

8 Earth connection

- Installation position
  => Fig. 7
- Make sure connector is firmly attached at metal ring of fuel filler neck (check flange connection at guard -item 6 -)
- After installing, use ohmmeter to check electrical connection between metal ring on fuel filler neck and bare metal part on body - Specification: approx. 0 ω



9 Overflow hose

10 Cap

11 Gasket

- Replace if damaged

12 Tensioning ring

13 Rubber adapter

14 Fuel tank

- Removing and installing=>Page 11

15 Heat shield

- For fuel tank

16 Fastener

- Make sure fastener is firmly attached

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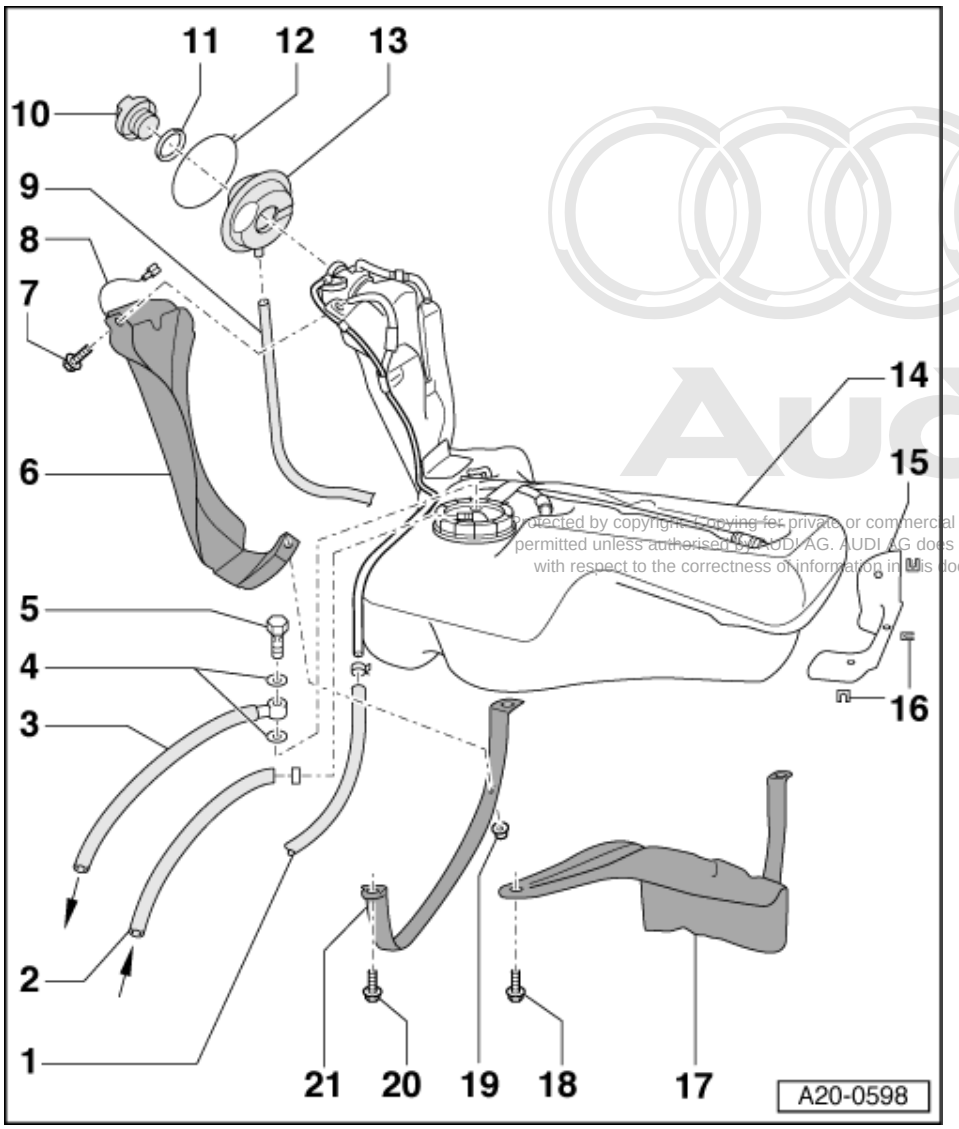

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17 Support bracket

- Removing and installing=>Page 11

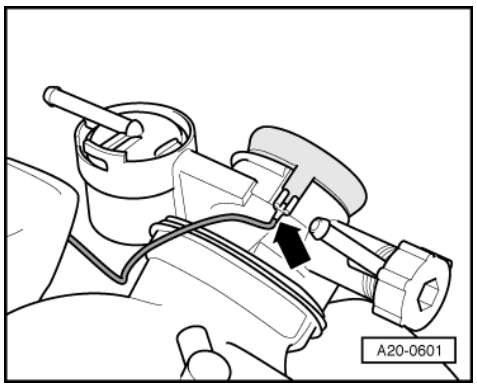
18 25 Nm

19 Plastic nut, 2 Nm

20 25 Nm

21 Securing strap

- Removing and installing=>Page 11
- Pay attention to installation direction



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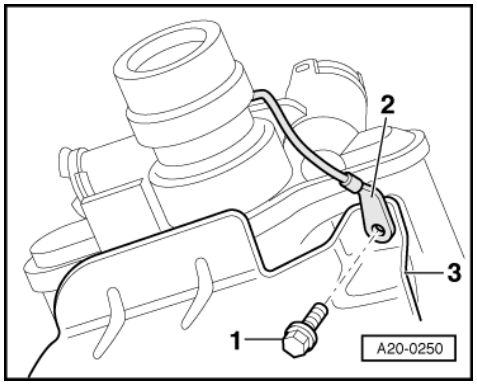
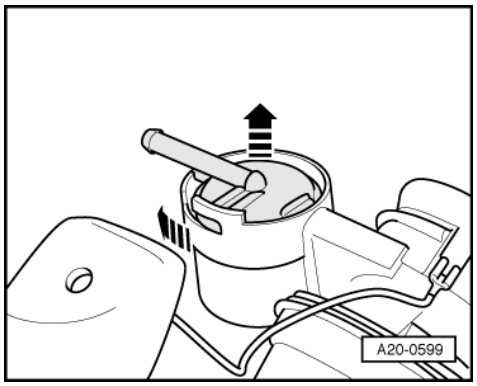
-> Fig.1 Installation position of earth connection

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



- -> Before screwing in bolt -1- check tightness (flange connection) of contact terminal -2- of earth connection at guard -3- for fuel filler neck.

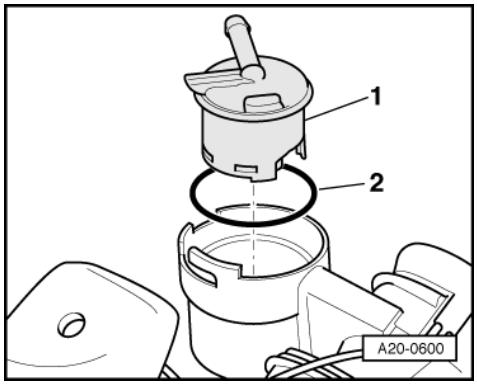
Attention:
After installing, use ohmmeter to check electrical connection between metal ring on fuel filler neck and bare metal part on body.
- **Specification: approx. 0 ω**



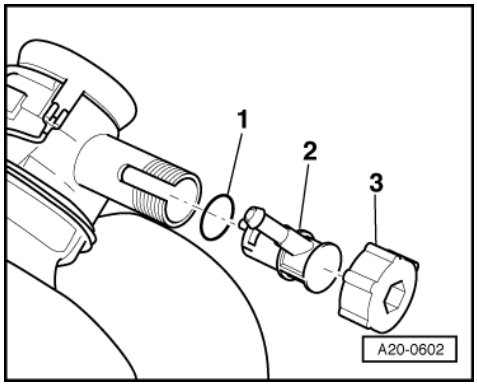
-> Fig. 2 Removing, installing and checking gravity valve

- Fuel tank removed

- Detach breather pipe from gravity valve.
- Turn gravity valve anti-clockwise -arrow- and pull it off upwards.

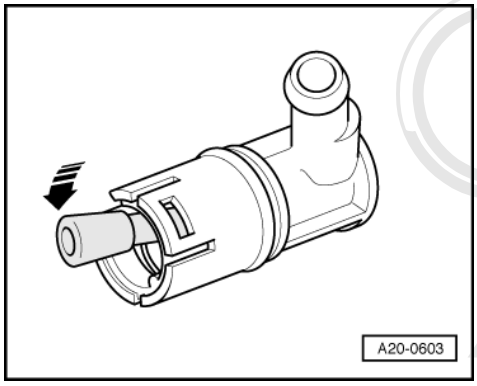


- -> Checking gravity valve -1-:
  - Hold valve in vertical position: It should be possible to blow through it
  - Tilt valve to 45°: It should not be possible to blow through it
  - Make sure O-ring -2- is not damaged



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

- To remove, unscrew union nut -3- from side of neck.
- Pull out valve -2- sideways.
- Before installing breather valve, detach cap from fuel filler neck.
- Replace O-ring -1-.



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

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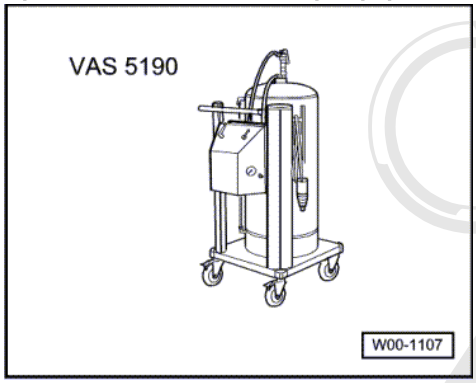
2.3 - Draining fuel tank

Pay attention to safety precautions=> Page 1 .
Observe rules for cleanliness => Page 2 .
Procedure if fuel tank is more than 3/4 full => Page 9 .
Procedure if fuel tank is less than 3/4 full => Page 11 .

Special tools and workshop equipment required



- VAS 5190

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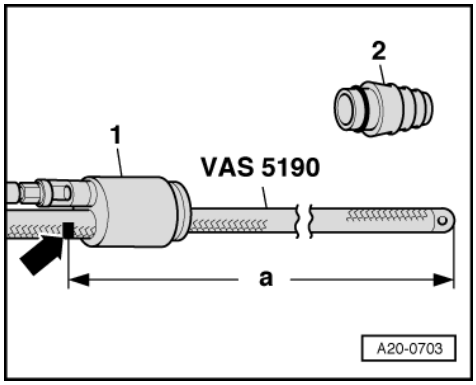
Sequence of operations

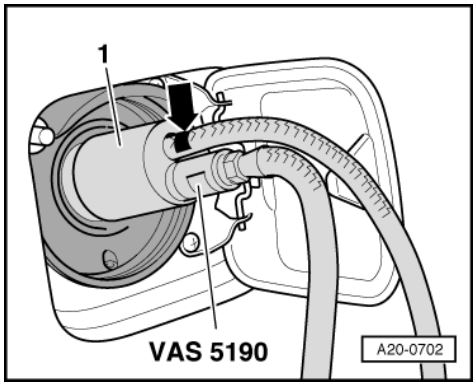
- Heed (if necessary obtain) radio code for vehicles with encoded radio.
- Disconnect battery earth strap with ignition switched off.

Attention: Attach earth wire of V.A.G 1433

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

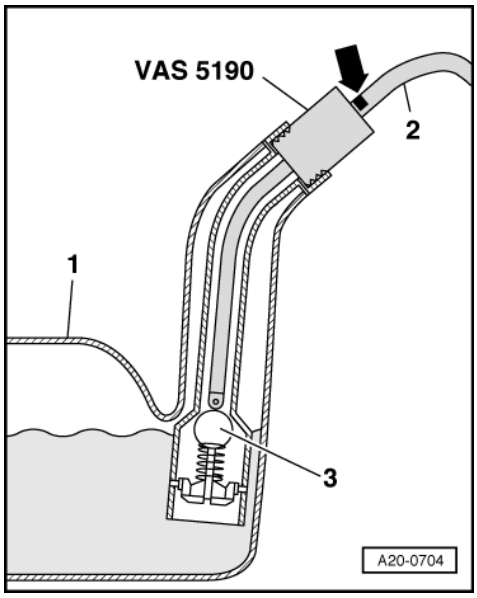


- Detach cap from fuel filler neck.
- -> Pull tapered section -2- off shank section -1- of VAS 5190.
- Use insulating tape to make a mark -arrow- on drain hose at a distance a = 565 mm from end of hose.



- -> Screw shank section -1- of extraction unit VAS 5190 onto filler neck of fuel tank.
- Insert drain hose into fuel tank until previously affixed mark -arrow- makes contact with shank section.

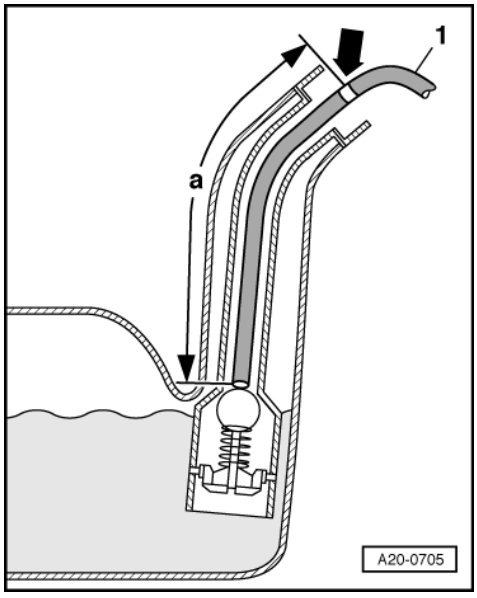
Note:



-> Located at the bottom end of the filler neck is a ball valve -3- in the fuel tank -1- which is not to be squashed or damaged by the drain hose -2-. Hose is therefore only to be inserted as far as previously affixed mark -arrow-.

- Drain fuel tank as far as possible via fuel filler neck.
- Carefully pull out drain hose.
- Remove sealing flange => Removing fuel delivery unit, Page 34 and lay aside.
- Extract remaining fuel through opening for fuel delivery unit.

Notes:



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- -> The procedure is essentially the same if use is made of an extractor with no shank section.
- In this case, use insulating tape to make a mark -arrow- on drain hose at a distance a = 500 mm from end of hose. Drain hose -1- has been properly inserted if previously affixed mark -arrow- is opposite edge of filler neck.

- If hose is difficult to insert, apply a thin coat of engine oil. Never use silicone lubricants.

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

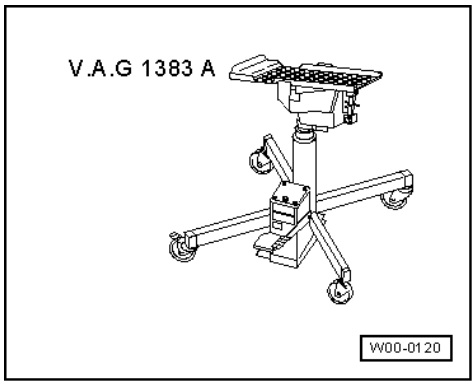
- Remove sealing flange => Removing fuel delivery unit, Page 34 and lay aside.
- Extract fuel through opening for fuel delivery unit.

2.4 - Removing and installing fuel tank with attachments

Pay attention to safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

Special tools and workshop equipment required

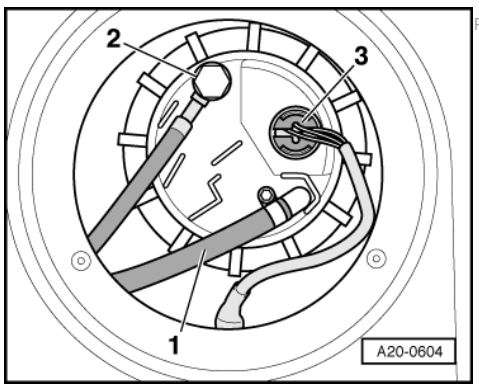


- V.A.G 1383 with V.A.G 1359/2

Removing

- Heed (if necessary obtain) radio code for vehicles with encoded radio.
- Disconnect battery earth strap with ignition switched off.
- Briefly open fuel tank cap and close again.
- Fuel tank must be empty when removing it from vehicle so as to reduce weight. Drain fuel tank if necessary. Procedure => Page 9 .

- Fold forward right backrest of rear seat bench.
- Remove luggage compartment lining.
- Unscrew cover for sealing flange beneath luggage compartment lining.



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- -> Carefully release 4-pin connector -3- and unplug.

Attention:
- **Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.**
- **Opening of fuel supply pipe on vehicles fitted with KE III Jetronic und KE Motronic causes pressure container to be drained - approx. 10 cm of fuel squirts out.**

- Pull off fuel return pipe -1- and unscrew fuel supply pipe -2-.

- Clean area around fuel filler neck.

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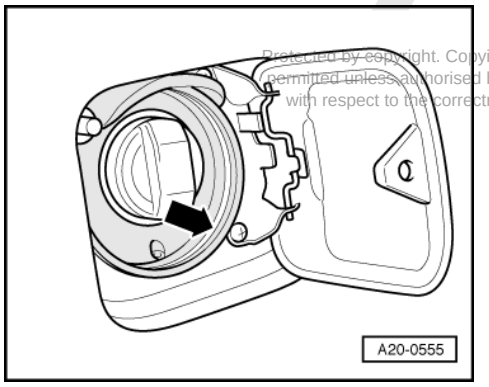
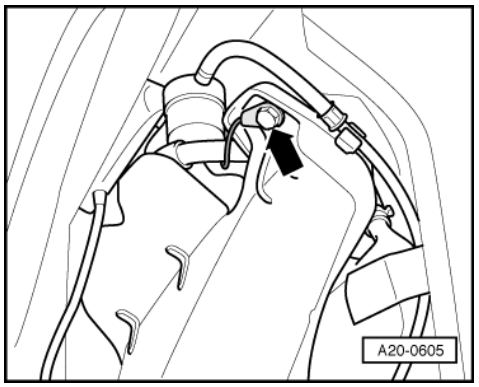


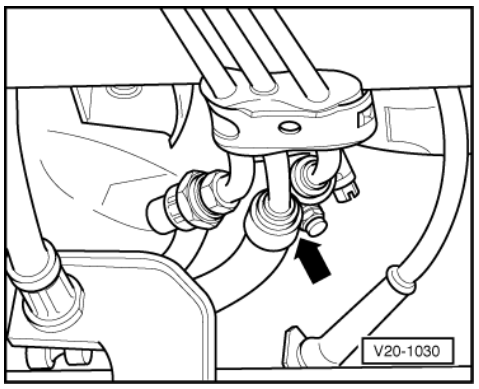
- -> Open tank flap and prise out tensioning ring -arrow- in rubber adapter (around filler neck).
- Press out rubber adapter inwards.

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

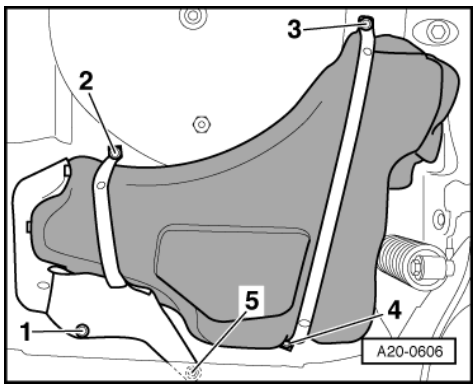
=> General Body Repairs; Repair Group 66; Wheel housing liners; Removing and installing rear wheel housing liner Wheel housing liners Removing and installing rear wheel housing liner



- -> Unscrew bolt -arrow- for tank filler neck beneath wheel housing liner.



- -> Pull off breather pipe -arrow- to activated charcoal filter on underside of vehicle.
- Position engine/gearbox lifter V.A.G 1383 A beneath vehicle to support fuel tank.



- -> Unscrew securing strap and support bracket -1 ... 5-.
- By turning it appropriately, lower fuel tank to one side and remove.

Installing

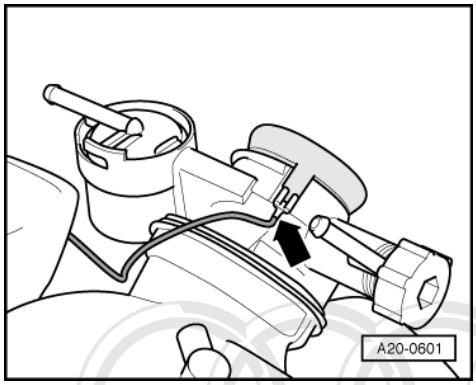
Install in reverse order, paying attention to the following:

Notes:

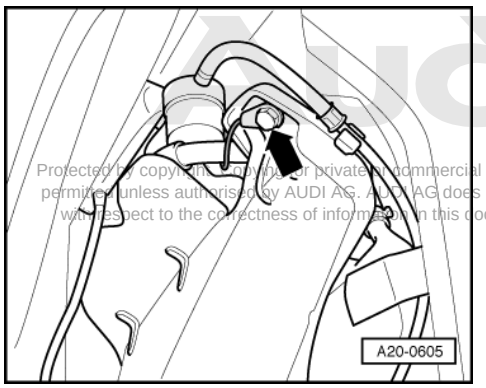
- Secure all hose connections with standard hose clamps.

=> Parts List

- Special tool V.A.G 1921 is recommended for fitting spring clips.
- Always replace sealing rings and gaskets on assembly.



- -> Make sure connector of earth connection -arrow- is attached at metal ring of filler neck. Check routing of earth wire.
- Loosely attach securing strap and support bracket at fuel tank.
- Position fuel tank with securing strap and support bracket on underside of vehicle using engine/gearbox lifter V.A.G 1383 A.



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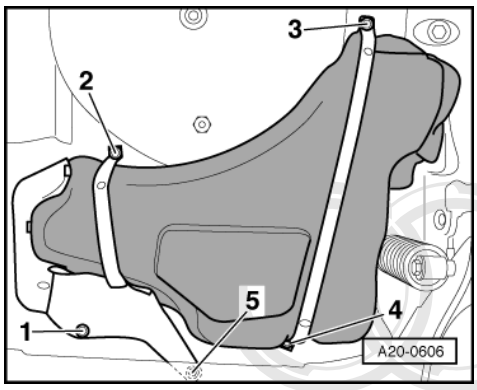
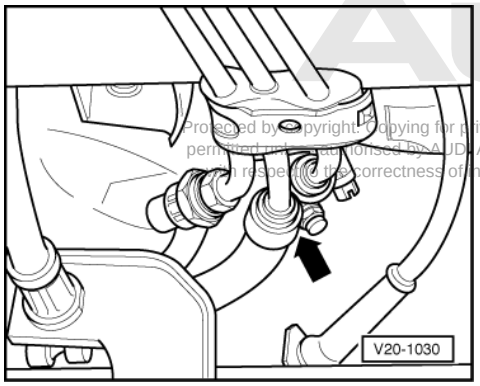
- -> Start by securing guard, earth connection and fuel filler neck with bolt -arrow-.

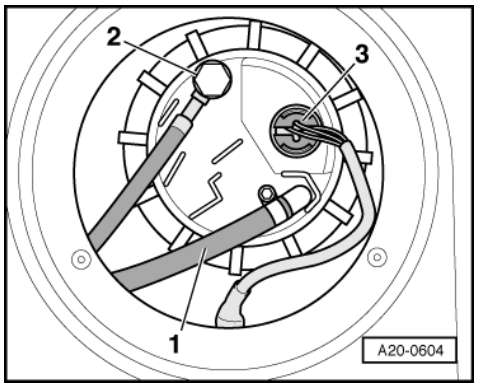
Attention:
Make sure earth connection is screwed on and connector is firmly attached at fuel filler neck. Installation position=>Fig. 7 .



- -> Screw on securing strap and support bracket -1...5-.
- Tighten plastic nuts at securing straps and support bracket.



- -> Attach breather pipe -arrow- and tighten hose clamp.



- -> Tighten fuel supply pipe -2- to 23 Nm.
- Attach fuel return pipe -1- and tighten hose clamp.
- Attach connector -3- for fuel pump and fuel gauge sender.

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Attention:
After installing, use ohmmeter to check electrical connection between metal ring on fuel filler neck and bare metal part on body.
- **Specification: approx. 0 ω**

- After connecting battery, enter radio anti-theft code.

=> Radio operating instructions

- Set clock to correct time.

Tightening torques

Component	Nm
Securing strap/support bracket for fuel tank to body	25
Securing strap to fuel tank	2
Support bracket to fuel tank	2
Hose clamps	2

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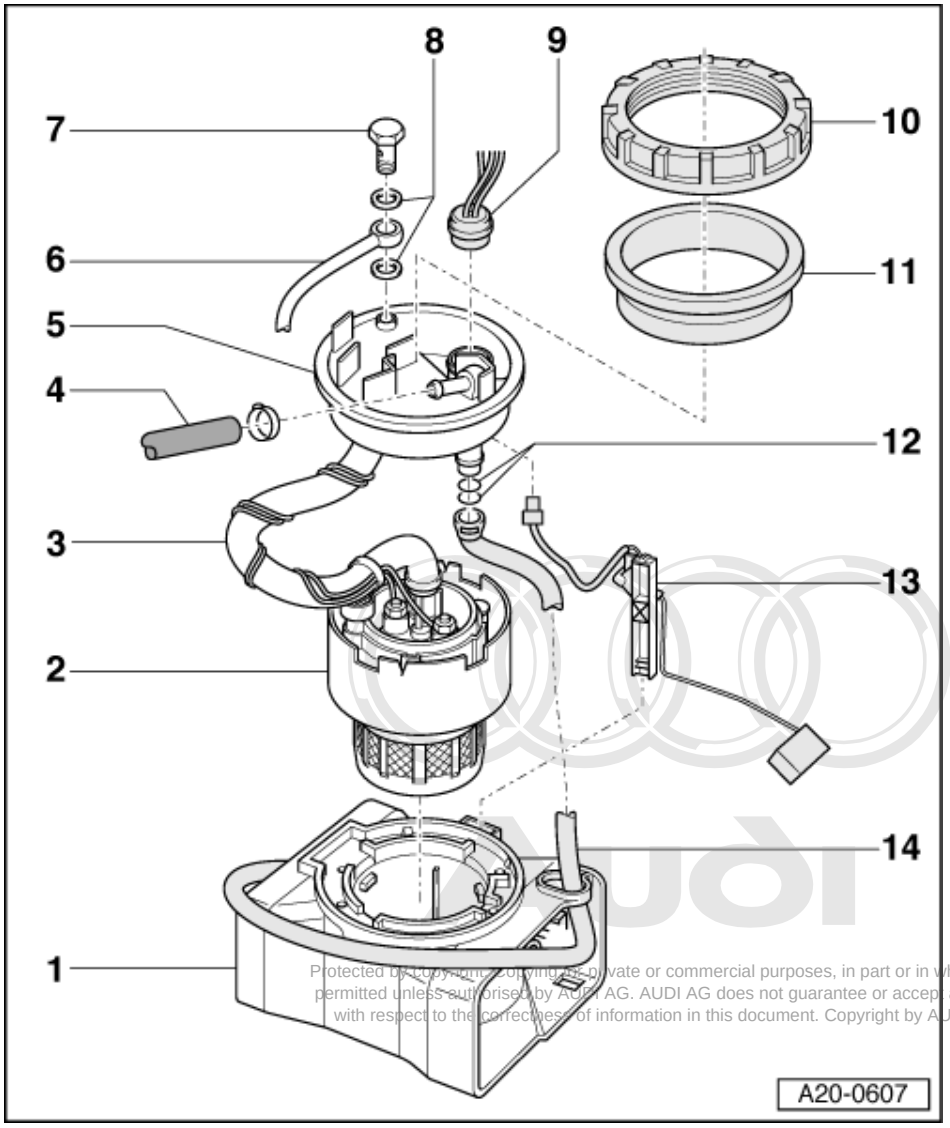
2.5 - Exploded view of components: Fuel delivery unit and fuel gauge sender



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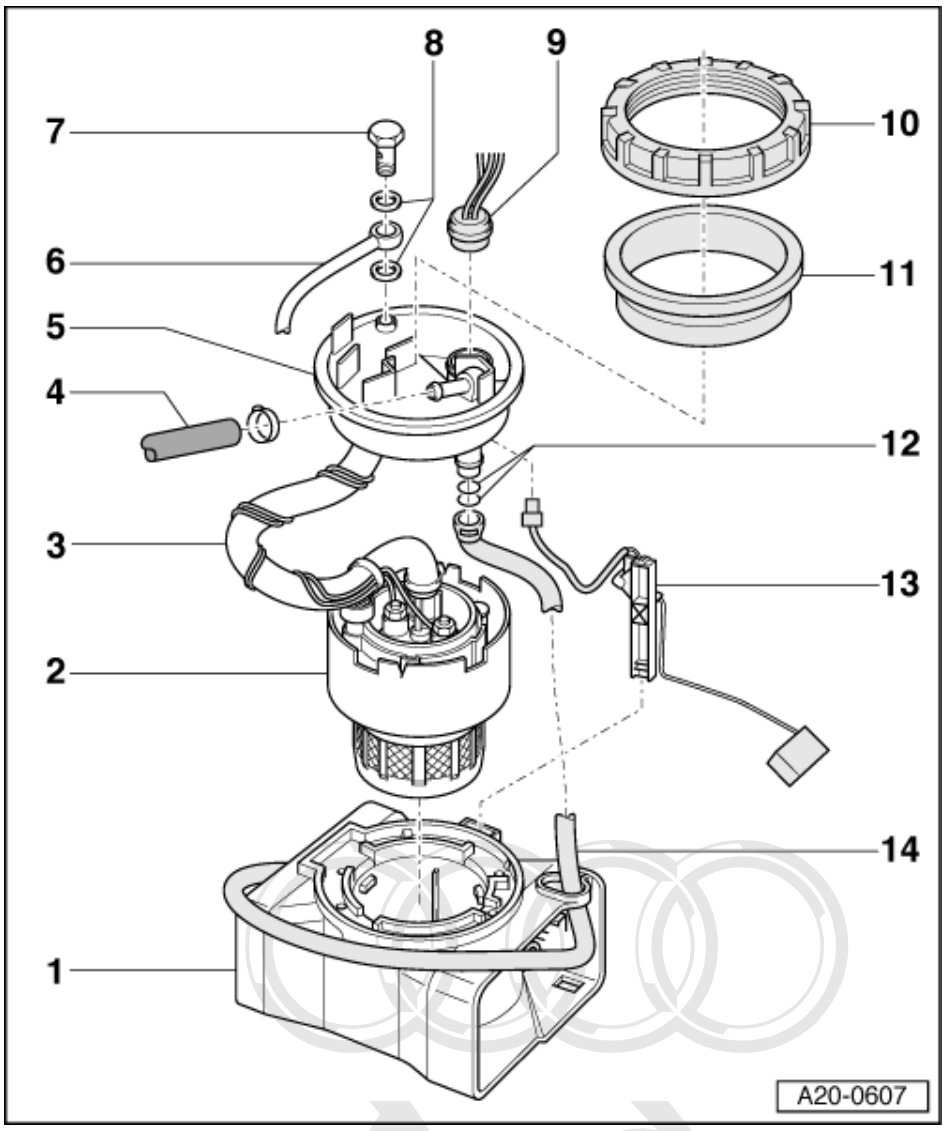
1 **Bottom part of baffle housing**
- Secured in position in fuel tank
- Cannot be removed

2 **Fuel delivery unit**
- Removing and installing=>Page 34
- Electrical checking of fuel pump => Page 20
- Checking holding pressure

=> Injection and Ignition System; Repair Group 24

=> Injection and Ignition System; Repair Group 25

3 **Fuel supply pipe**
- Fuel pump/baffle housing



4 Fuel return pipe
- From engine

5 Sealing flange
- Removing and installing=>Page 34
- Installation position: Observe arrow mark => Page 38

6 Fuel supply pipe
- To fuel filter

7 Banjo bolt, 23 Nm

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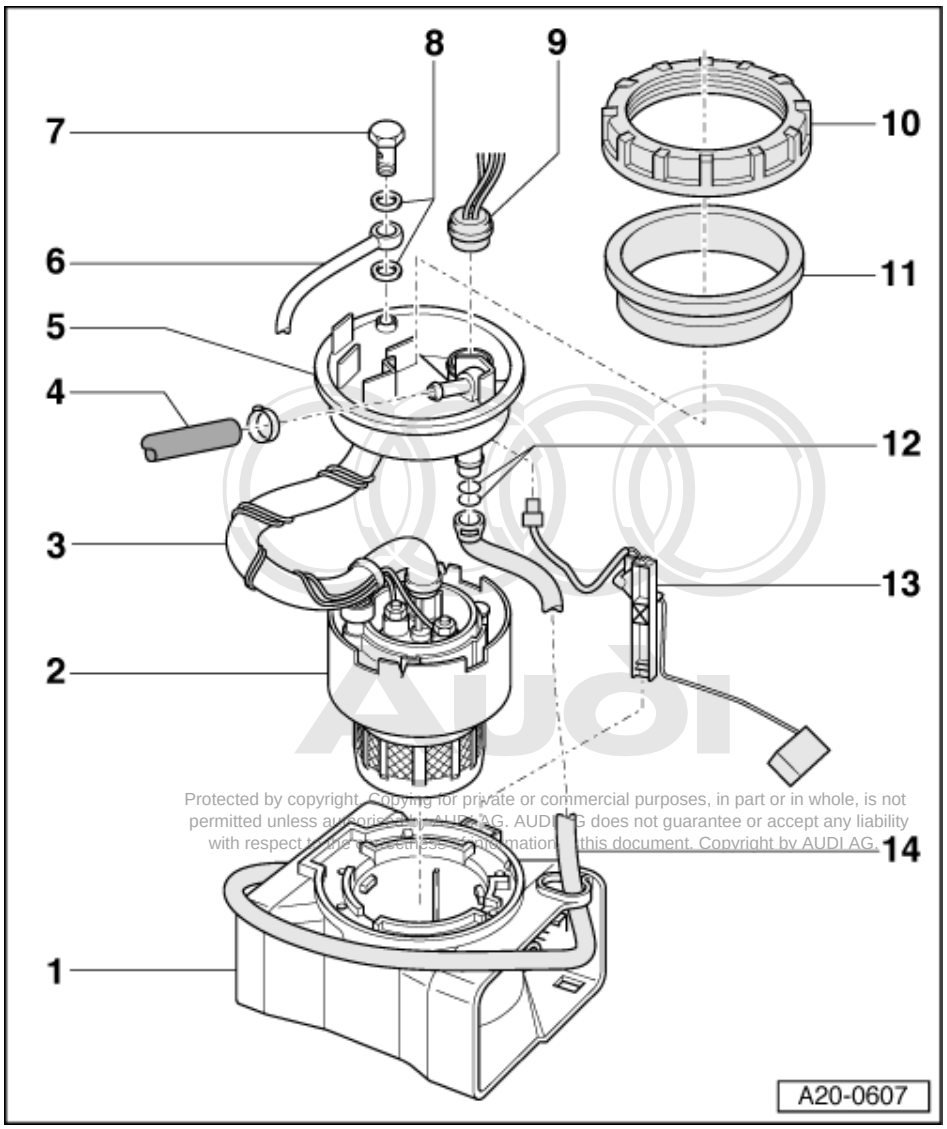
Attention:
Care is to be taken on vehicles fitted with KE



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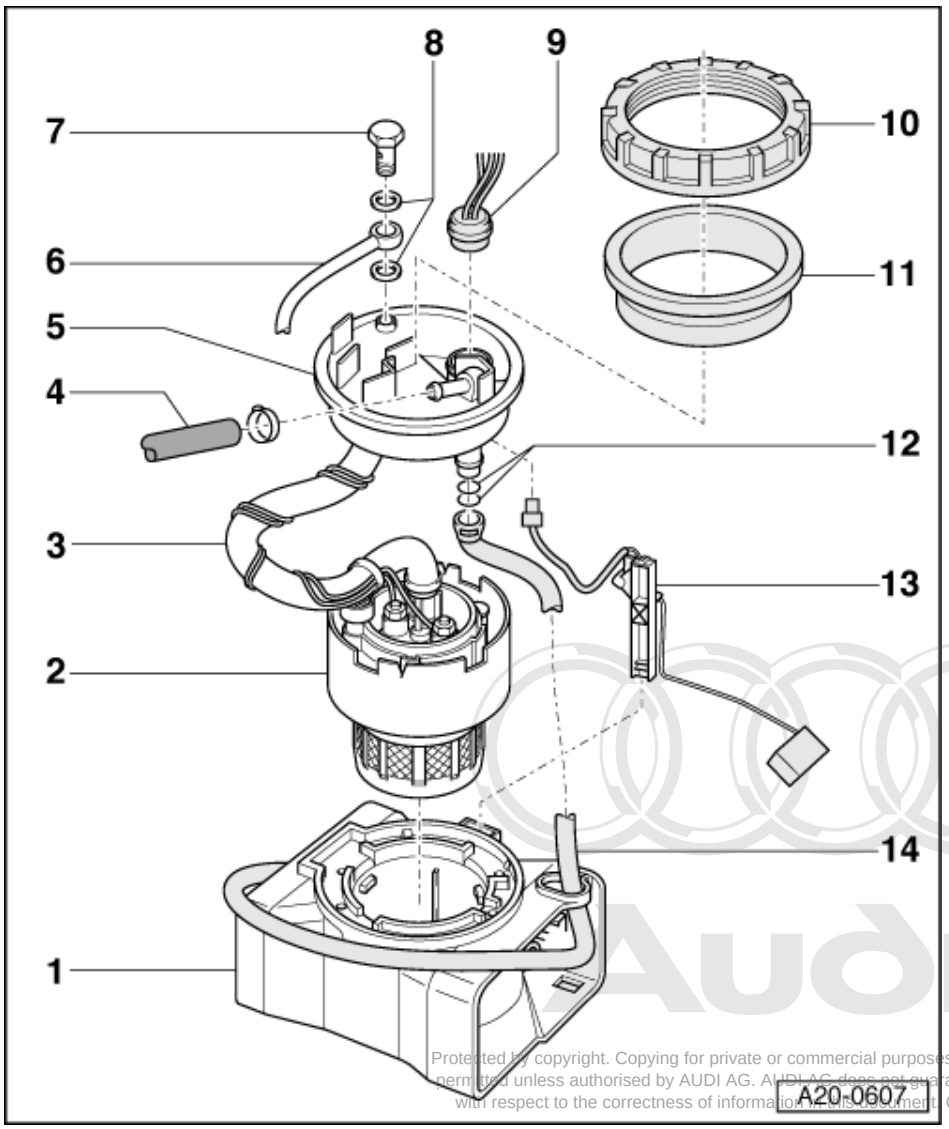
8 Sealing ring
- Replace

9 Connector
- For fuel pump and fuel gauge sender -G

10 Union nut, 50 Nm
- Use spanner 3217 to remove and install

11 Sealing ring
- Replace
- When installing, fit dry seal in fuel tank opening

12 O-ring
- Always replace
- Check installation position



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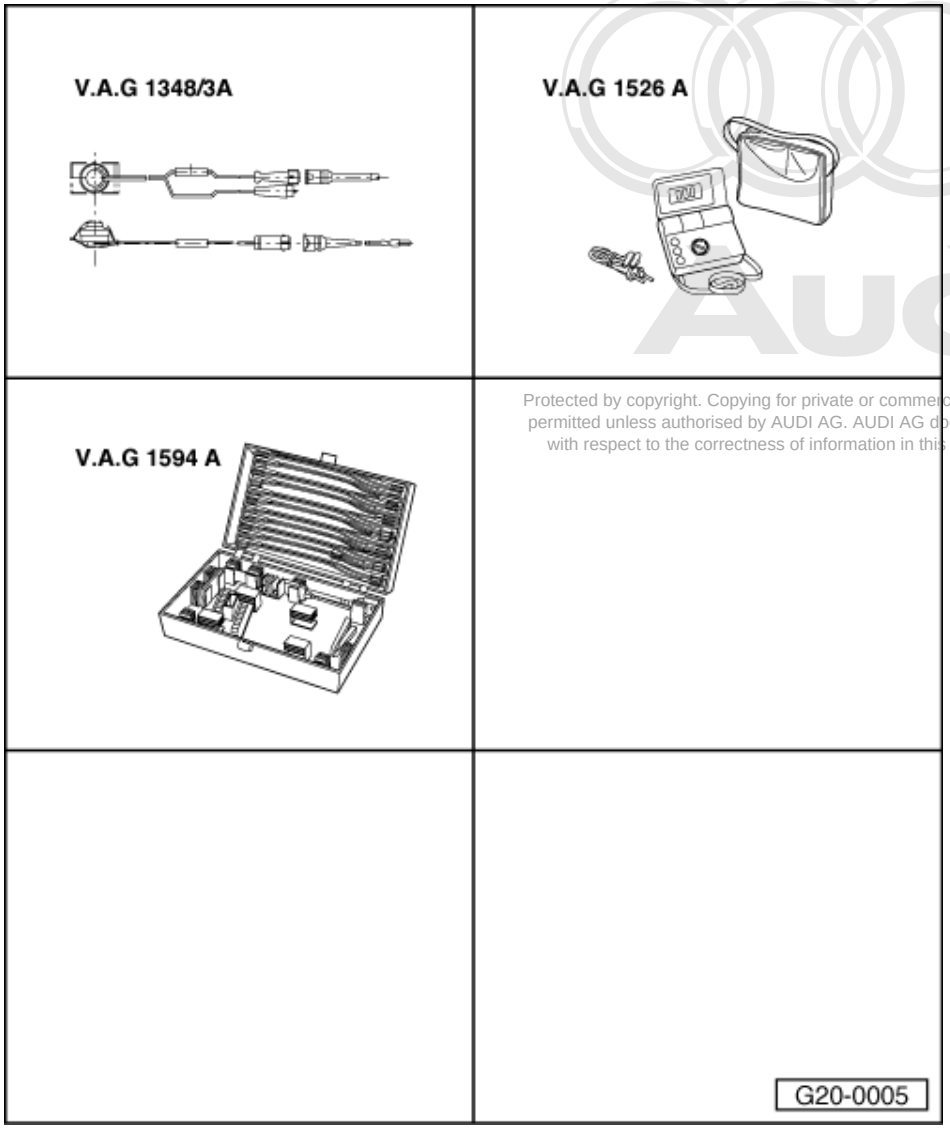
13 Fuel gauge sender -G

- Checking => Page 58
- Removing and installing=>Page 59

14 Return pipe

- Attached to inside of sealing flange
- To pull off, use release tool T40020 or press release buttons

2.6 - Electrical checking of fuel pump



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Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- V.A.G 1526 A
- V.A.G 1594 A

Test requirements:

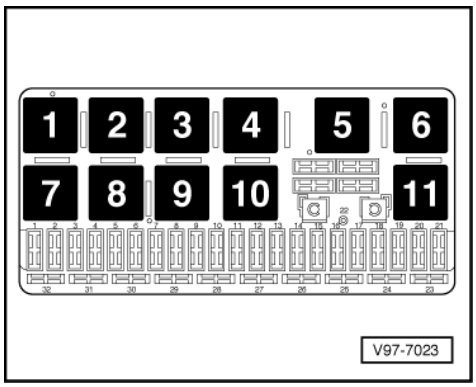
- Battery voltage at least 12.7 V
- Fuel pump relay OK
- Fuse S13 OK (in fuse box)
- Fuel filter OK

Test sequence

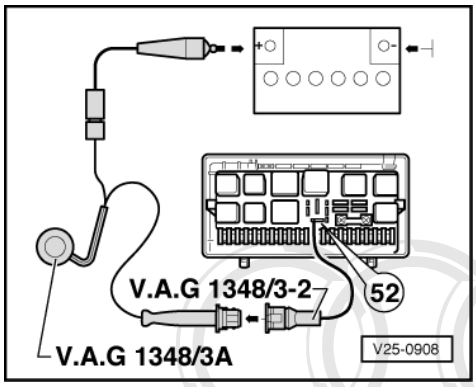
- Briefly operate starter.
  - Fuel pump must be heard to start up

If fuel pump does not run:

- Switch off ignition.



- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).
- Press switch on remote control.

If fuel pump now runs:

Check fuel-pump relay and actuation

=> Injection and Ignition System; Repair Group 24; Servicing Injection System; Checking fuel-pump relay and actuation Servicing Injection System Checking fuel-pump relay and actuation

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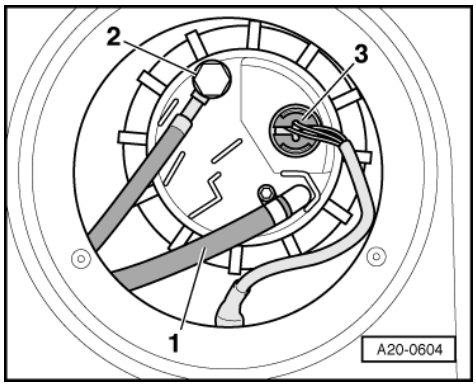
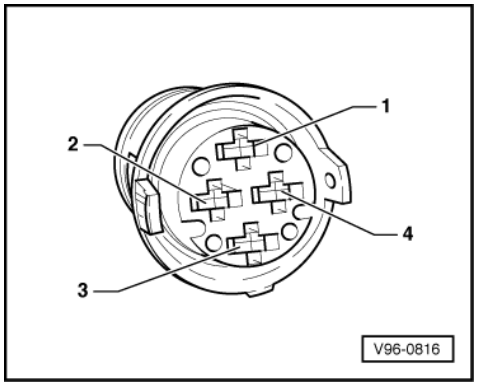
=> Injection and Ignition System; Repair Group 25; Servicing Injection System; Checking fuel-pump relay and actuation Servicing Injection System Checking fuel-pump relay and actuation

If fuel pump does not run:



- Fold forward right backrest of rear seat bench.
- Remove luggage compartment lining.
- Unscrew cover for sealing flange beneath luggage compartment lining.

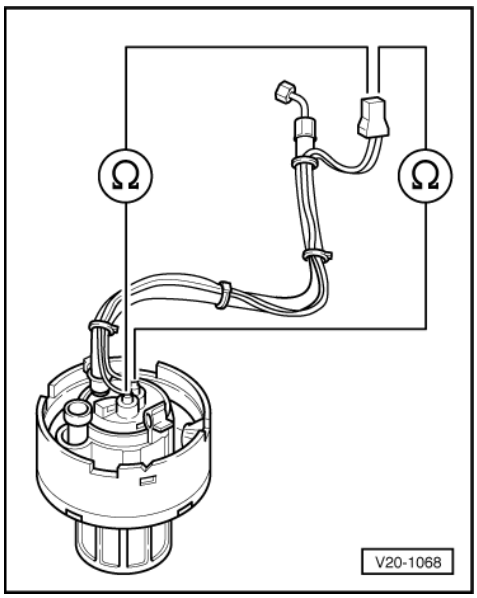
- -> Carefully release 4-pin connector -3- and unplug.



- -> Connect up multimeter for voltage measurement between contacts 1 (green/yellow) and 4 (brown).
- Keep switch on remote control permanently pressed and read off voltage.
  - Specification: approx. battery voltage

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

- Remove fuel delivery unit => Page 34 .



- -> Check connection of wiring between flange and fuel pump/check for continuity.

If no fault is found in wiring:

- Replace fuel pump => Dismantling fuel delivery unit, Page 39 onwards.
- Install fuel delivery unit => Page 36 , paying attention to notes on battery connection.

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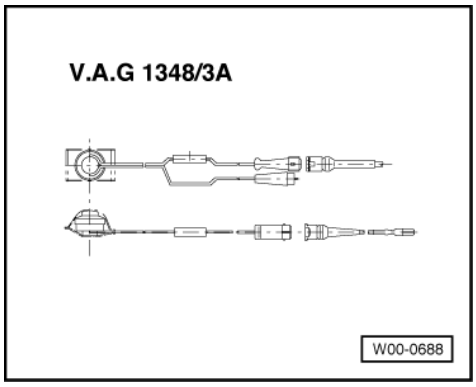
2.7 - Checking fuel pump delivery rate - 4-cyl. engine (2-valve)- Engine code letters ABM, ABT



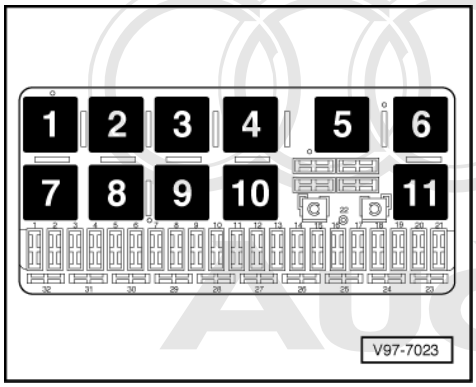
Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- Fuel-resistant beaker

Test requirement:

- Battery voltage at least 12.7 V

Test sequence



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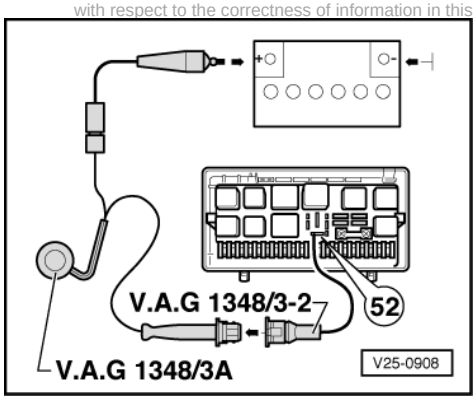
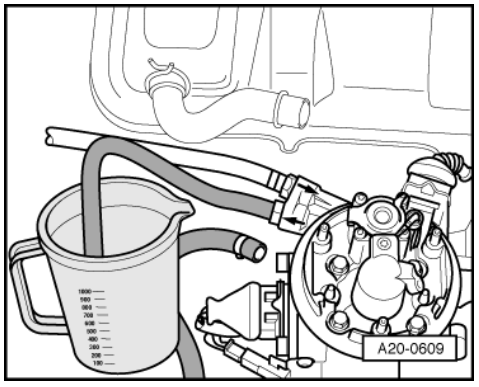
- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).

- Detach cap from fuel filler neck.

Attention:



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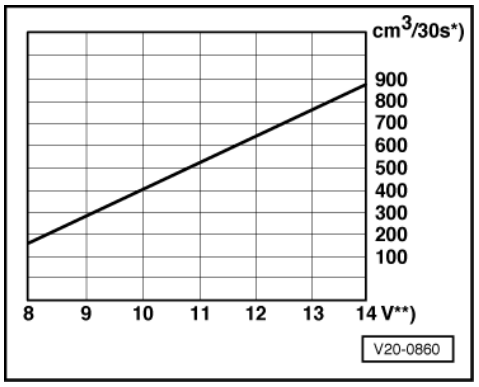
- -> Pull fuel return pipe off connection of injection unit.
- Hold fuel return pipe over fuel-resistant beaker.

- Operate remote control for 30 seconds, keeping button constantly pressed.



- -> Compare fuel delivery rate to specification.

  *) Minimum delivery rate cm3/30 s

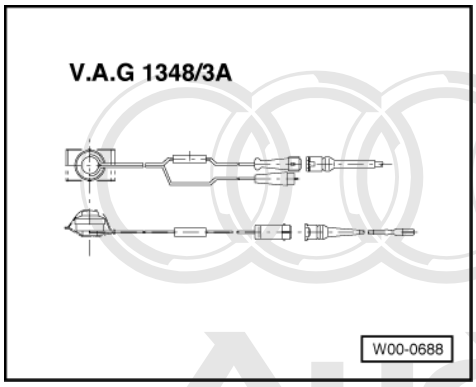
  **) Voltage at fuel pump with engine stopped and pump running (approx. 2 V less than battery voltage)

- Attach fuel return pipe and tighten hose clamp.

Tightening torque

Component	Nm
Hose clamps	2

2.8 - Checking fuel pump delivery rate - 4-cyl. engine (2-valve) - Engine code letters ABK, ADW



Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- Fuel-resistant beaker

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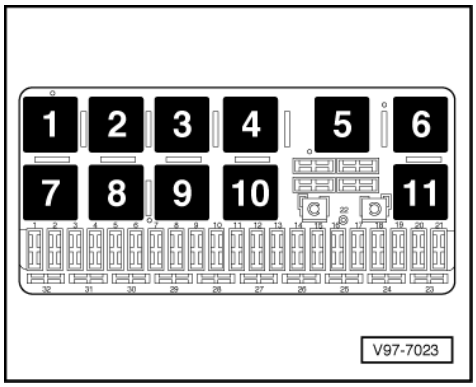
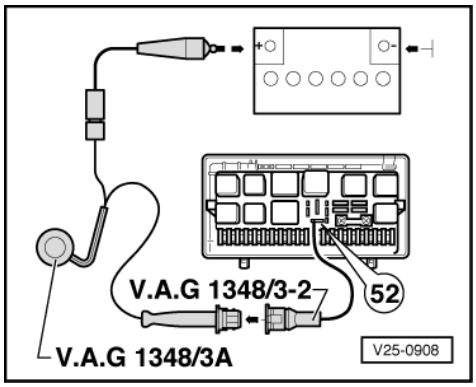
Test requirement:

- Battery voltage at least 12.7 V

Test sequence



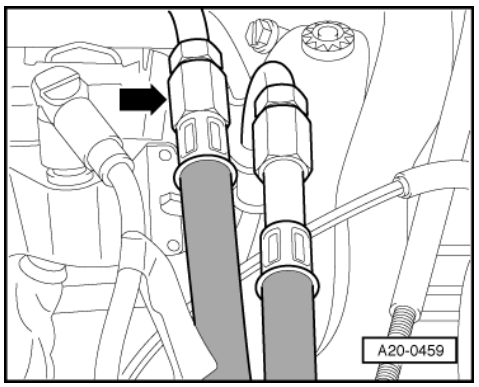
- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).

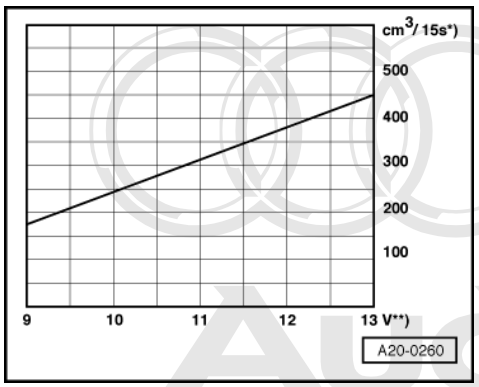
- Detach cap from fuel filler neck.

Attention:



- -> Unscrew fuel return pipe -arrow-.
- Hold fuel return pipe over fuel-resistant beaker.

- Operate remote control for 15 seconds, keeping button constantly pressed.



- -> Compare fuel delivery rate to specification.

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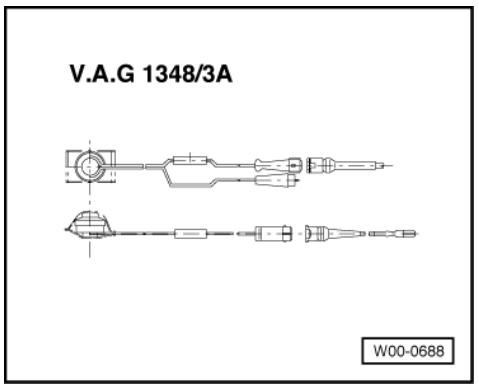
*) Minimum delivery rate cm3/15 s

**) Voltage at fuel pump with engine stopped and pump running (approx. 2 V less than battery voltage)

- Tighten return pipe to 23 Nm.

2.9 - Checking fuel pump delivery rate - 4-cyl. engine (4-valve)



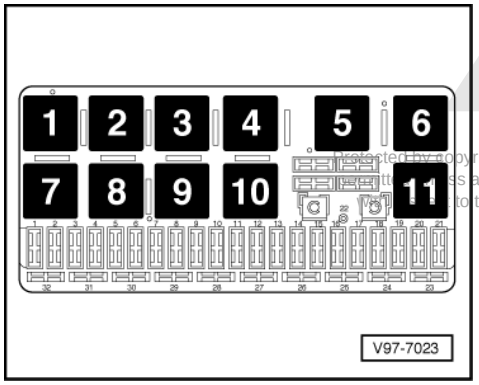
Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- Fuel-resistant beaker

Test requirement:

- Battery voltage at least 12.7 V

Test sequence



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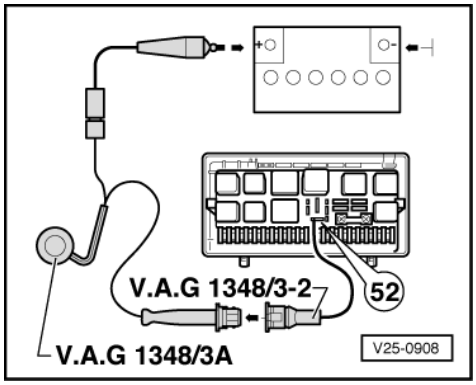
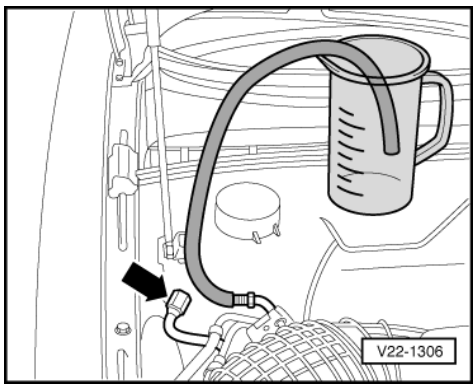
- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).

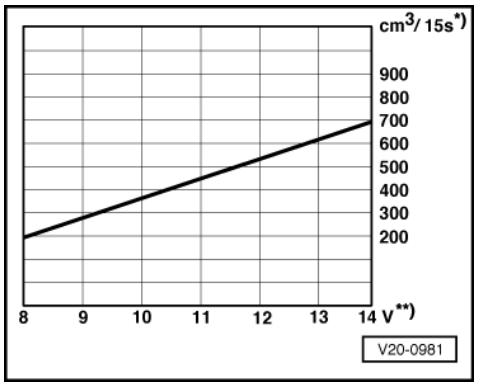
Attention:

- **Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.**
- **Opening of fuel supply pipe on vehicles fitted with KE Motronic causes pressure container to be drained - approx. 10 cm of fuel squirts out.**



- Detach cap from fuel filler neck.
- -> Unscrew fuel supply pipe -arrow- at fuel distributor.
- Attach test hose to fuel supply pipe (from fuel tank) and hold over fuel-resistant beaker.

- Operate remote control for 15 seconds, keeping button constantly pressed.



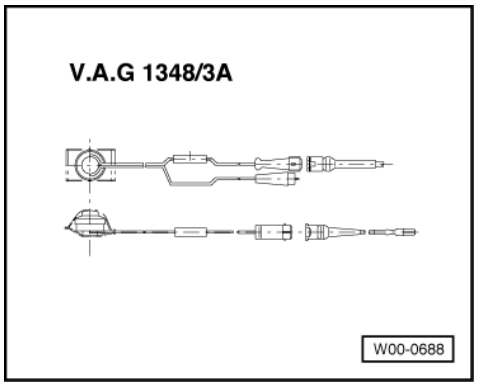
- -> Compare fuel delivery rate to specification.

  *) Minimum delivery rate cm3/15 s

  **) Voltage at fuel pump with engine stopped and pump running (approx. 2 V less than battery voltage)

- Tighten supply pipe to 23 Nm.

2.10 - Checking fuel pump delivery rate - 5-cyl. engine (2-valve)



Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- Fuel-resistant beaker

Test requirement:

- Battery voltage at least 12.7 V

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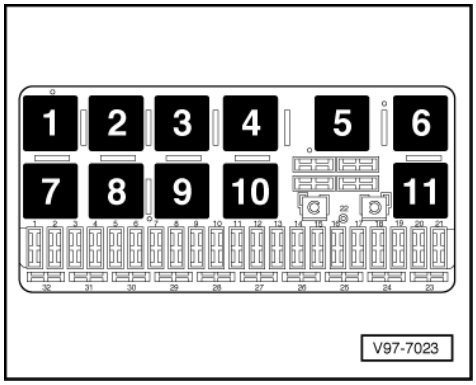
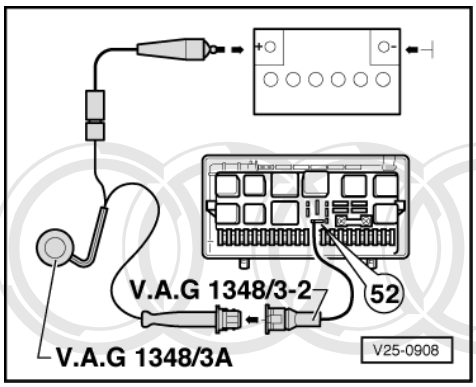
Test sequence



- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).

Attention:

- **Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.**
- **Opening of fuel supply pipe on vehicles fitted with KE III Jetronic causes pressure container to be drained - approx. 10 cm of fuel squirts out.**

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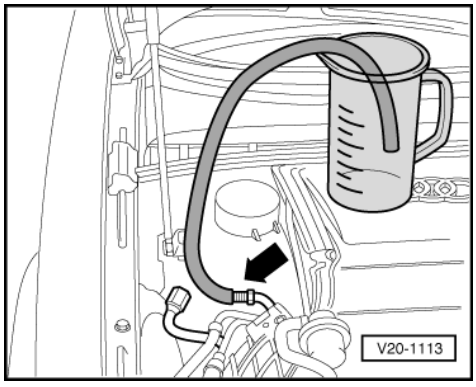
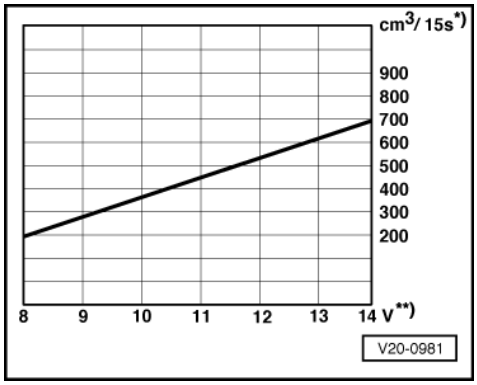


- Detach cap from fuel filler neck.
- -> Unscrew fuel supply pipe -arrow- at fuel distributor.

- Attach test hose to fuel supply pipe (from fuel tank) and hold over fuel-resistant beaker.
- Operate remote control for 15 seconds, keeping button constantly pressed.



- -> Compare fuel delivery rate to specification.

  *) Minimum delivery rate cm3/15 s

  **) Voltage at fuel pump with engine stopped and pump running (approx. 2 V less than battery voltage)

- Tighten supply pipe to 23 Nm.

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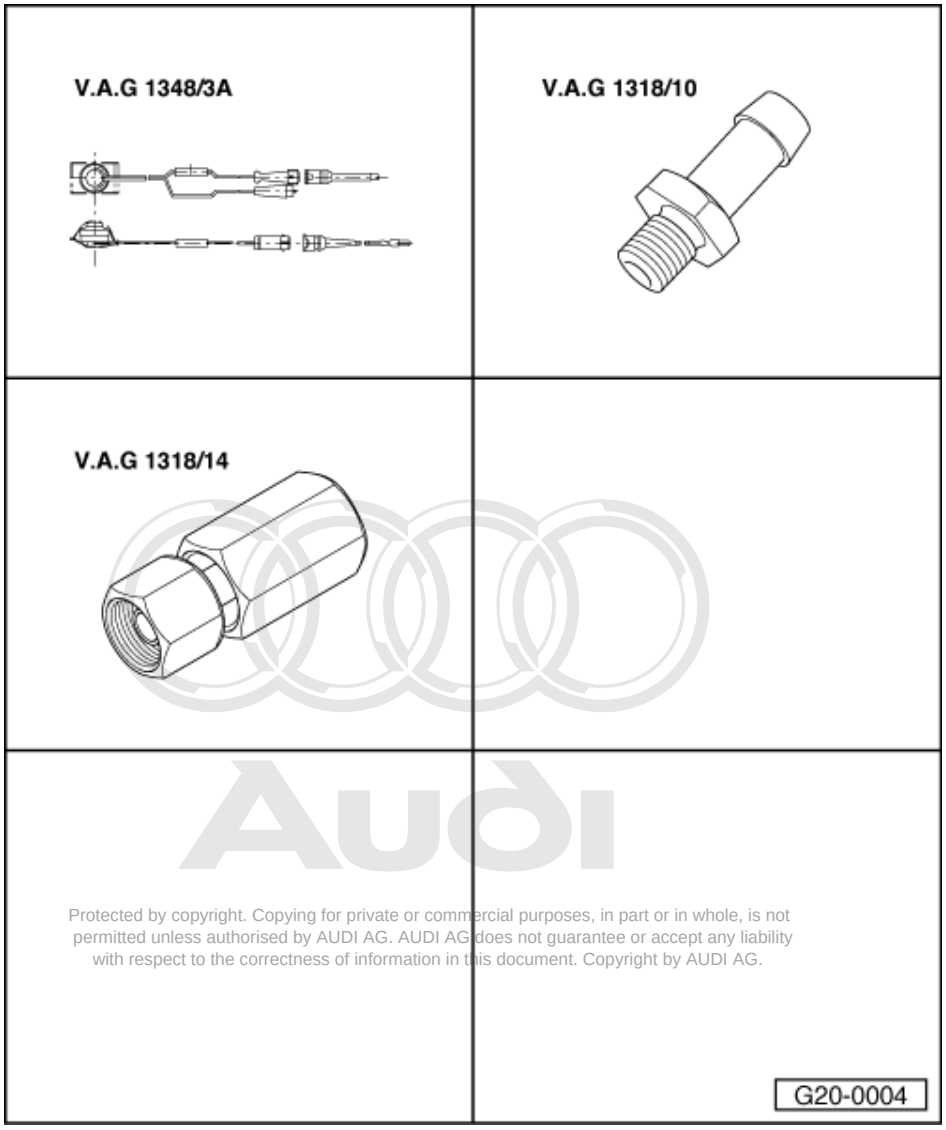
2.11 - Checking fuel pump delivery rate - 6-cyl. engine



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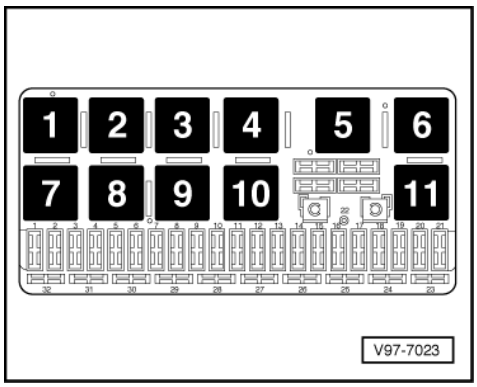
Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- V.A.G 1318/10
- V.A.G 1318/14
- Fuel-resistant beaker

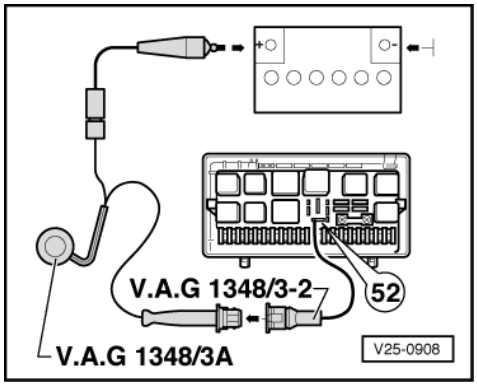
Test requirement:

- Battery voltage at least 12.7 V



Test sequence

- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).

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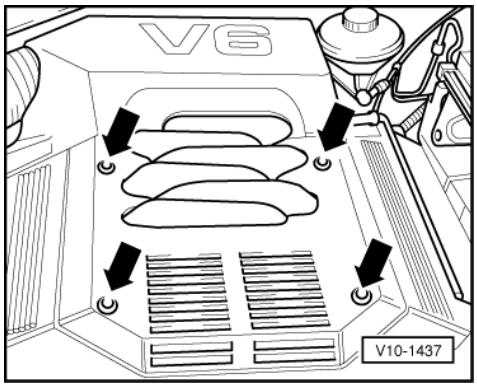
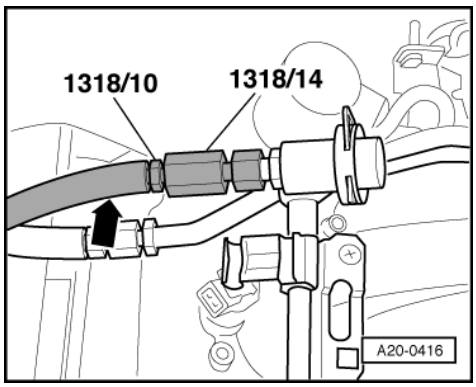


- -> Remove engine cover -arrows-.

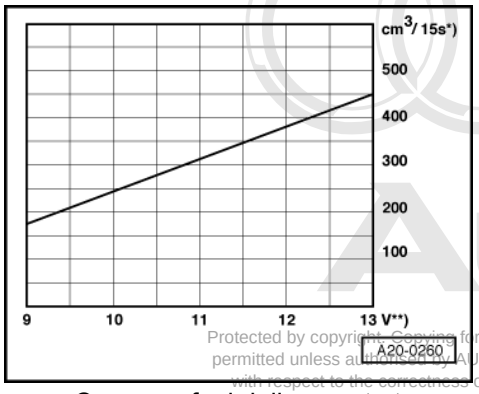
- Detach cap from fuel filler neck.

Attention:



- -> Unscrew fuel return pipe at fuel pressure distributor.
- Fit adapters V.A.G 1318/14 and V.A.G 1318/10 at fuel pressure regulator.
- Attach test hose -arrow- and hold over fuel-resistant beaker.

- Operate remote control for 15 seconds, keeping button constantly pressed.



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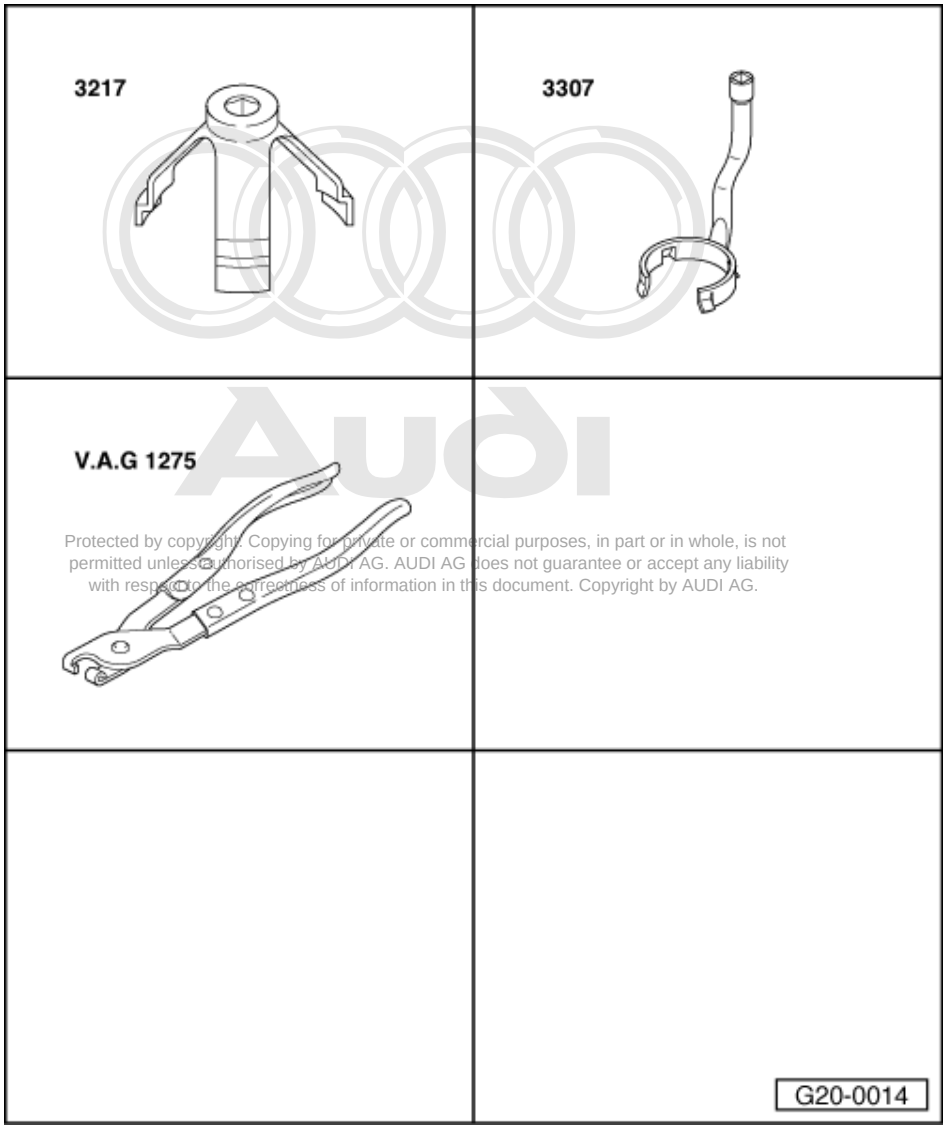
- -> Compare fuel delivery rate to specification.

  *) Minimum delivery rate cm3/15 s

  **) Voltage at fuel pump with engine stopped and pump running (approx. 2 V less than battery voltage)

- Tighten return pipe to 23 Nm.

2.12 - Removing and installing fuel delivery unit



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Special tools and workshop equipment required

- Spanner for union nut 3217
- Spanner for fuel delivery unit (fuel pump) 3307
- Hose clamp pliers V.A.G 1275

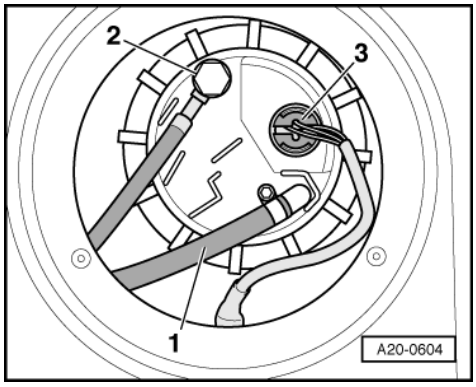
Pay attention to safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

Removing

- Heed (if necessary obtain) radio code for vehicles with encoded radio.
- Disconnect battery earth strap with ignition switched off.
- When removing fuel delivery unit, fuel tank must not be more than 3/4 full. Drain fuel tank if necessary. Procedure => Page 9 .
- Briefly open fuel tank cap and close again.
- Fold forward right backrest of rear seat bench.
- Remove luggage compartment lining.

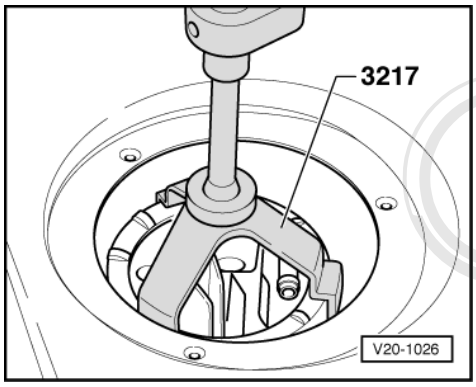
- Unscrew cover for sealing flange beneath luggage compartment lining.



- -> Carefully release 4-pin connector -3- and unplug.

Attention:
- **Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.**
- **Opening of fuel supply pipe on vehicles fitted with KE III Jetronic und KE Motronic causes pressure container to be drained - approx. 10 cm of fuel squirts out.**

- Pull off fuel return pipe -1- and unscrew fuel supply pipe -2-.



- -> Use spanner 3217 to unscrew union nut.
- Detach sealing flange and sealing ring from fuel tank opening.

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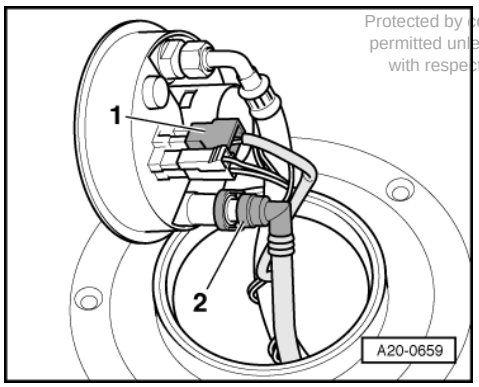
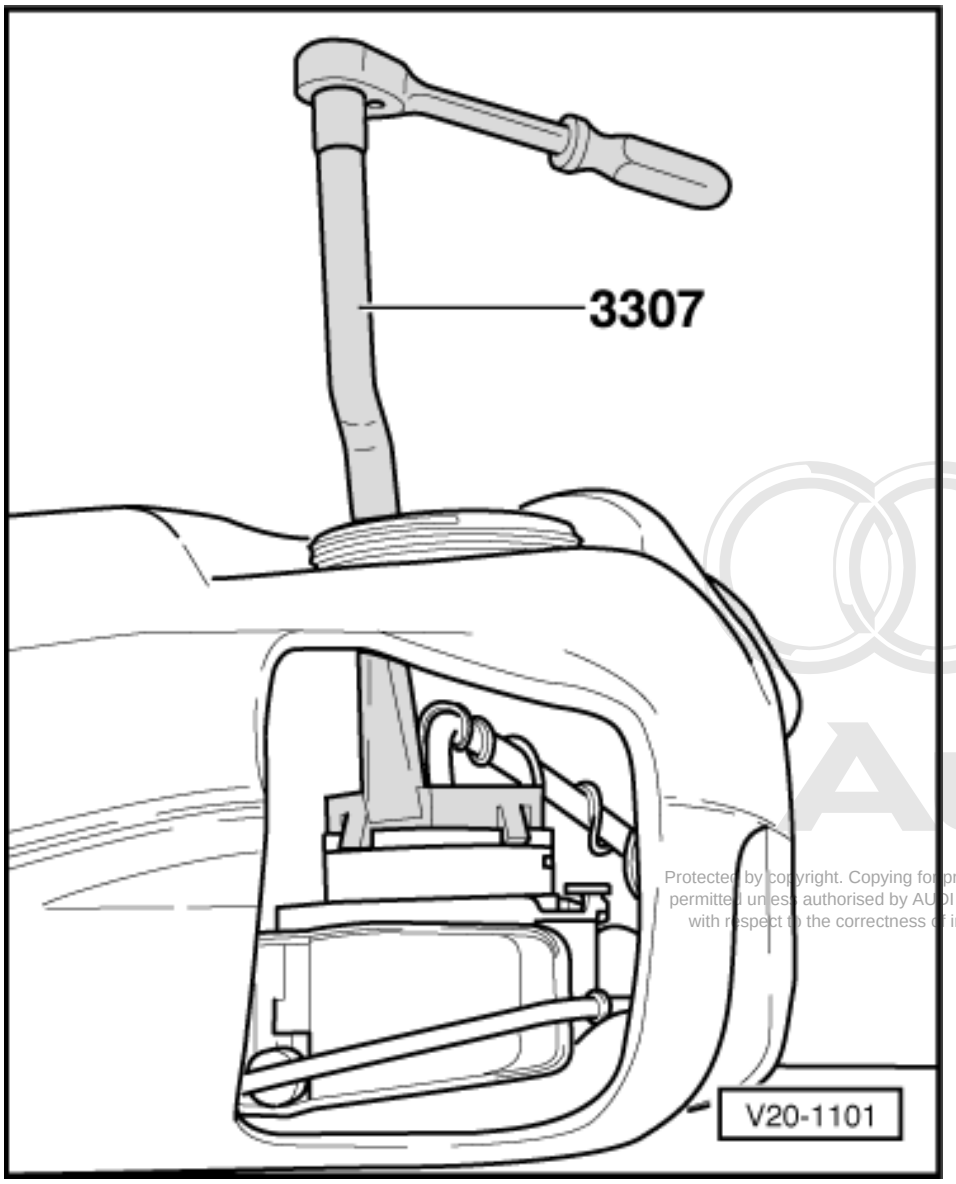


- -> Unplug connector for fuel gauge -1- on inside of sealing flange.
- Pull off return pipe -2- on inside of sealing flange (use release tool T40020 or press release buttons).



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- -> Insert spanner for fuel pump 3307 through fuel tank opening and apply at inner part of baffle housing.
- Use spanner 3307 to turn inner part of baffle housing approx. 15°in anti-clockwise direction as far as it will go and take out fuel pump with inner part of baffle housing.

Note:

If delivery unit is to be replaced, drain old unit prior to disposal.

Installing

Install in reverse order, paying attention to the following:

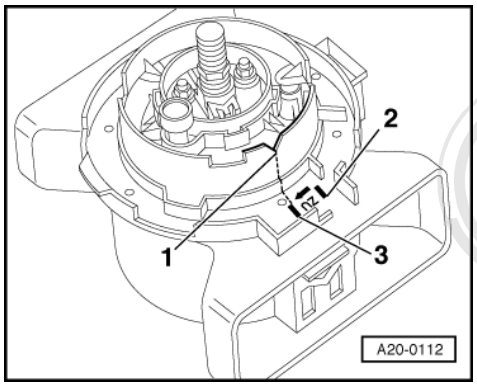
- If sealing flange and delivery unit have been separated/if fuel pump has been removed, pre-assemble components as described under "Dismantling fuel delivery unit" for the various engine versions.

Note:

Secure all hose connections with standard hose clamps.

=> Parts List

- Insert fuel delivery unit in fuel tank.



- -> Insert inner part of baffle housing into outer part in tank such that notch -1- on inner part of baffle housing coincides with mark -2- on outer part.
  - Inner part of baffle housing can be pressed downwards to a noticeable extent
- Apply spanner for fuel pump 3307 and turn inner part of baffle housing with pump approx. 15° in clockwise direction as far as it will go. Notch -1- is then in front of mark -3- (bayonet lock).

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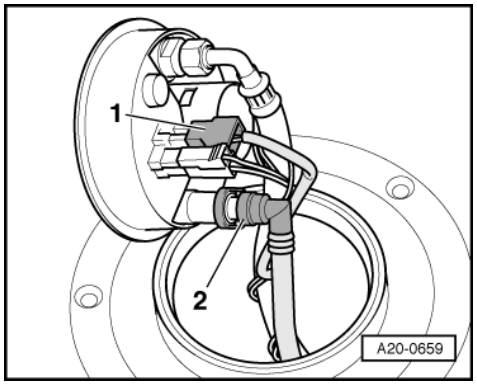
Note:

For ease of illustration, baffle housing is shown without fuel tank.

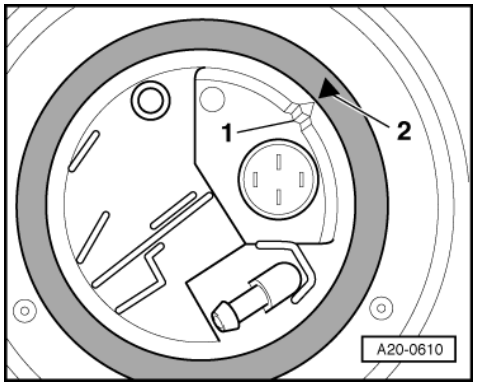


- -> Connect return pipe -2- to inside of sealing flange.

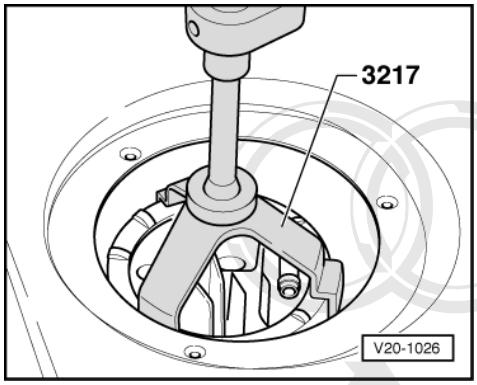
Notes:

- Always use new O-rings for return pipe.
- Moisten O-rings with fuel or coat with lubricant.

- Loop wire to fuel gauge sender -1- once around supply pipe (in fuel tank) and insert at sealing flange.
- Insert new dry sealing flange seal in fuel tank opening.



- -> Insert sealing flange in fuel tank.
  - Installation position: Mark on sealing flange -1- must coincide with mark on fuel tank -2-



- -> Use spanner 3217 to tighten union nut.
- Attach wires and connector.

Note:

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Make sure fuel hoses are a tight fit.

- After connecting battery, enter radio anti-theft code.

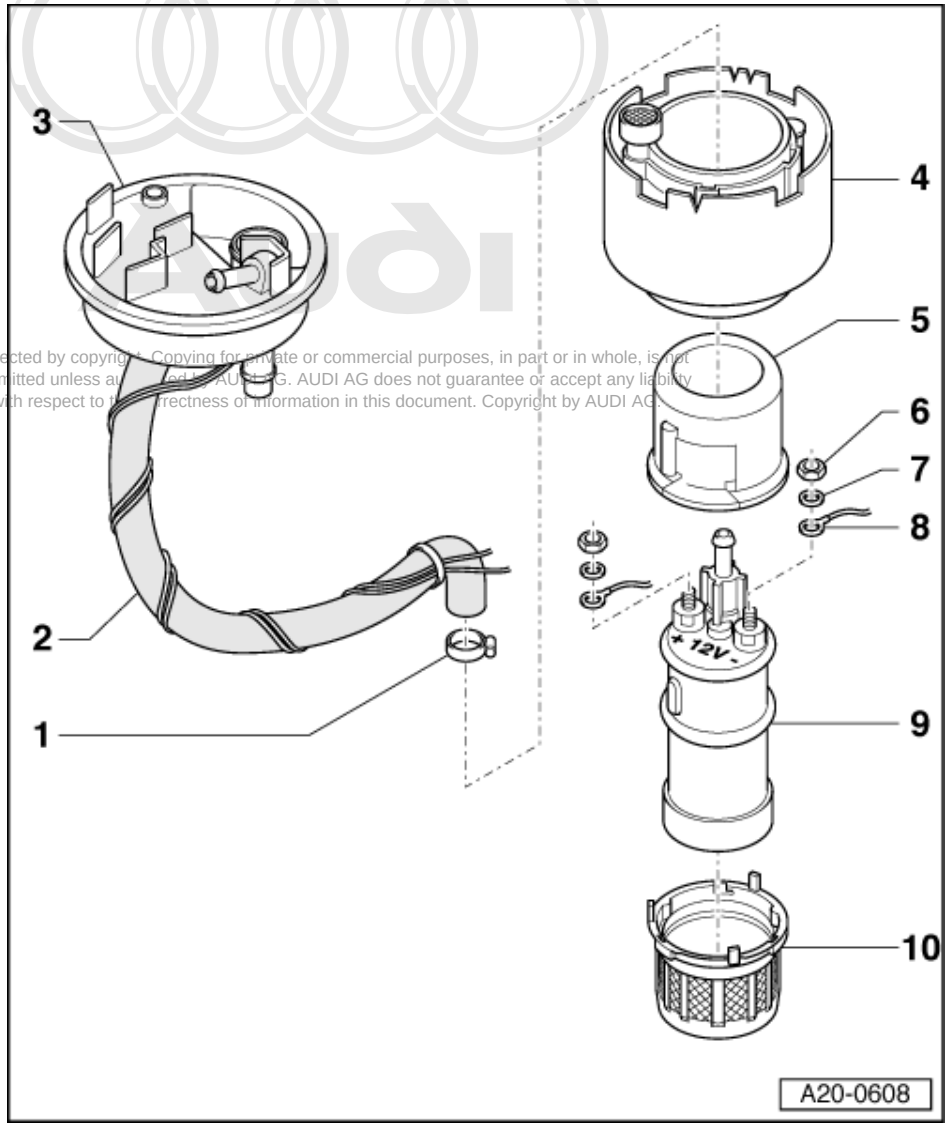
=> Radio operating instructions

- Set clock to correct time.

Tightening torques

Component	Nm
Union nut for sealing flange	50
Banjo bolt for supply pipe	23
Hose clamps	2

2.13 - Dismantling fuel delivery unit - vehicles with engine code letters ABM, ABT



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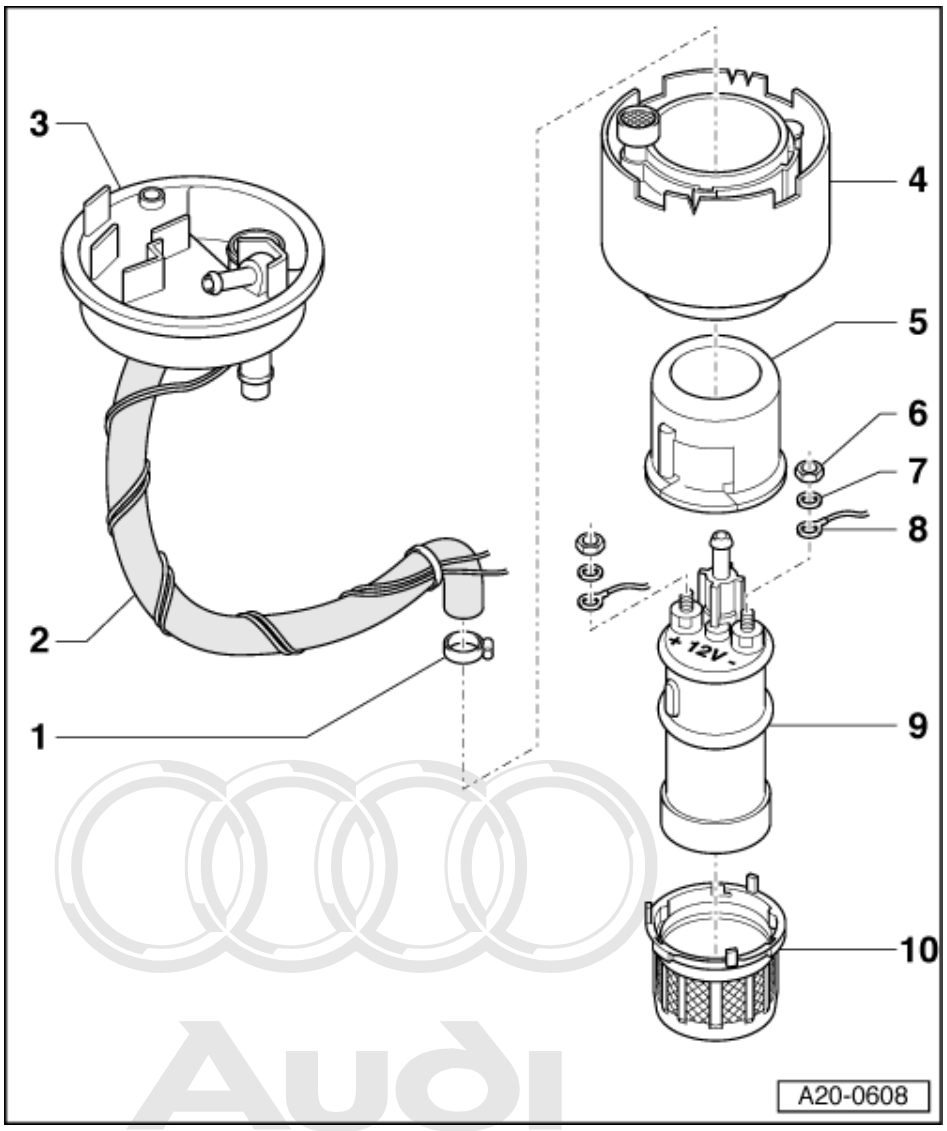
1 **Hose clamp**
- Use V.A.G 1275 to secure

2 **Fuel supply pipe**
- Fuel pump/baffle housing
- Pre-assembly => Page 41

3 **Sealing flange**
- Removing and installing=>Page 34
- Installation position: Observe arrow mark => Page 38
- Pre-assembly => Page 41

4 **Inner part of baffle housing**

5 **Mount**
- For fuel pump



6 M5 = 1.6 Nm
M6 = 2 Nm

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7 Washer

8 Wire

- Installation position => Page 42

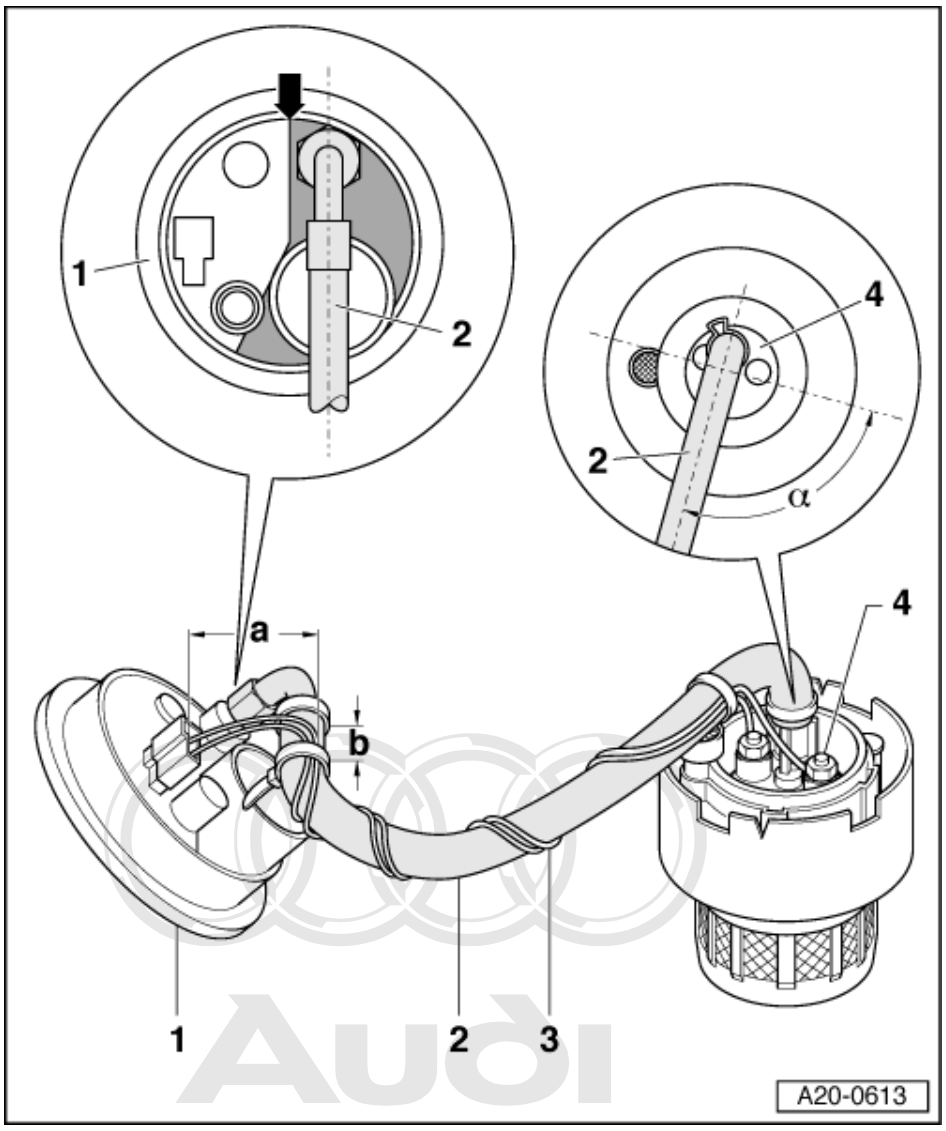
9 Fuel pump

- Removing and installing
  =>Fig. 43
- Pre-assembly => Page 41
- Electrical checking => Page 20
- Checking holding pressure

=> Injection and Ignition System; Repair Group 24

10 Fuel filter screen

- Turn anti-clockwise to detach (bayonet lock)
- Cannot be replaced separately
- Clean if contaminated



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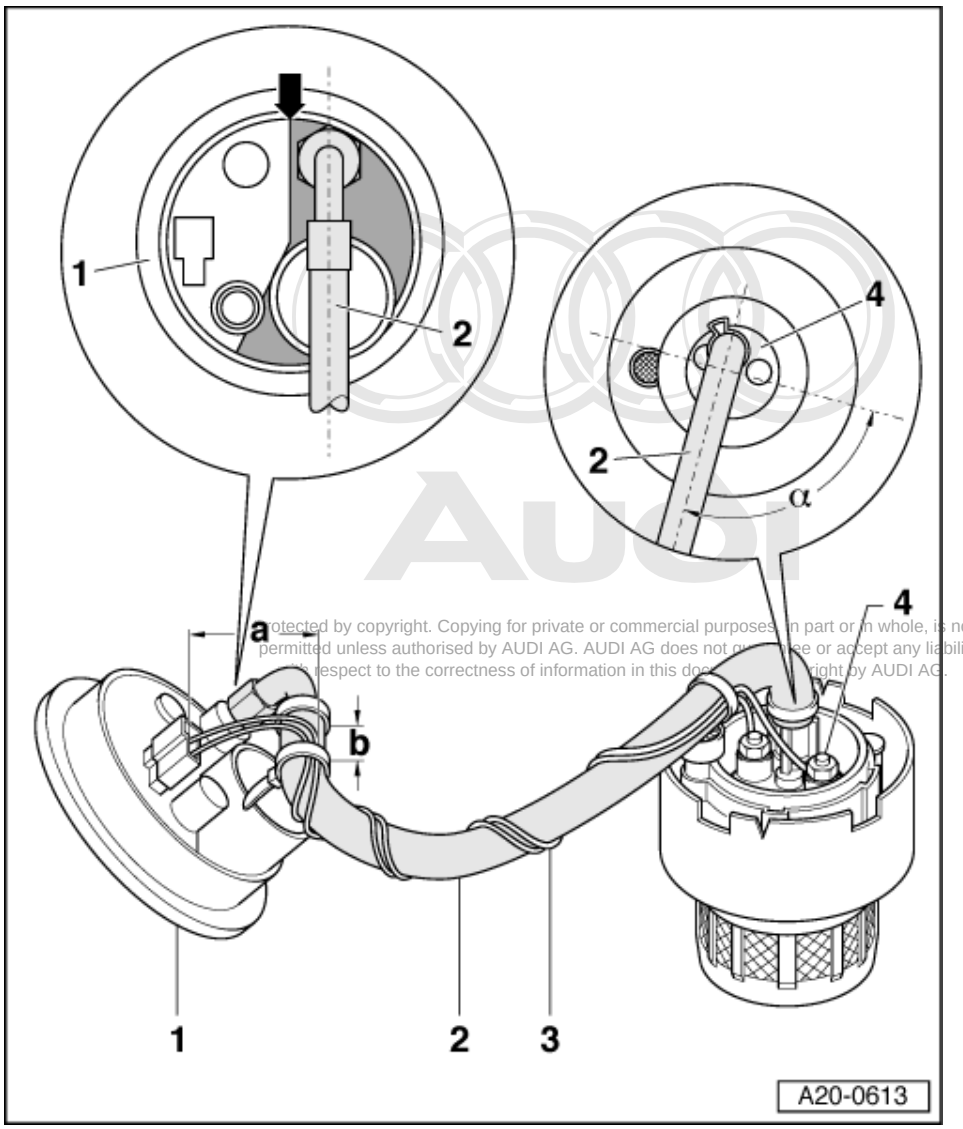
Pre-assembling fuel pump, sealing flange and fuel supply pipe

- Fit fuel supply pipe -2- at sealing flange -1- and fuel pump -4- as shown.
- Align fuel supply pipe at sealing flange in parallel with edge of housing -arrow-.
- Tighten fuel supply pipe to 23 Nm.
- Align fuel supply pipe at fuel pump at an angle of α = 90° to electrical connections.



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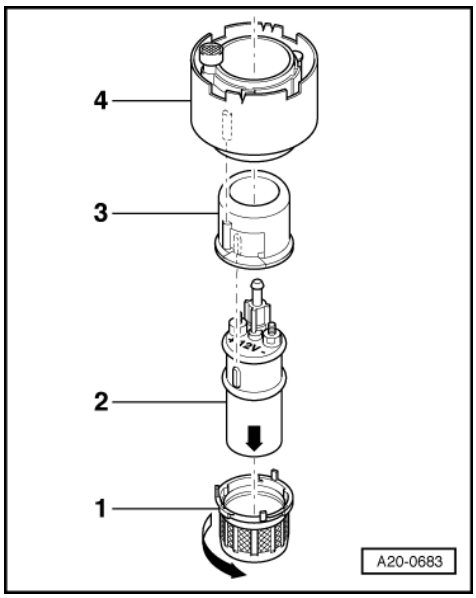
- Secure fuel supply pipe with new tab-type hose clamp. To do so, use V.A.G 1275.
- Wind wiring -3- to fuel pump around fuel supply pipe.
- Secure wiring with fuel-resistant cable tie at marked location.
  - a = Effective wire length 75 mm
  - b = 25 mm



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-> Fig.1 Removing and installing fuel pump

- Fuel delivery unit dismantled

Removing

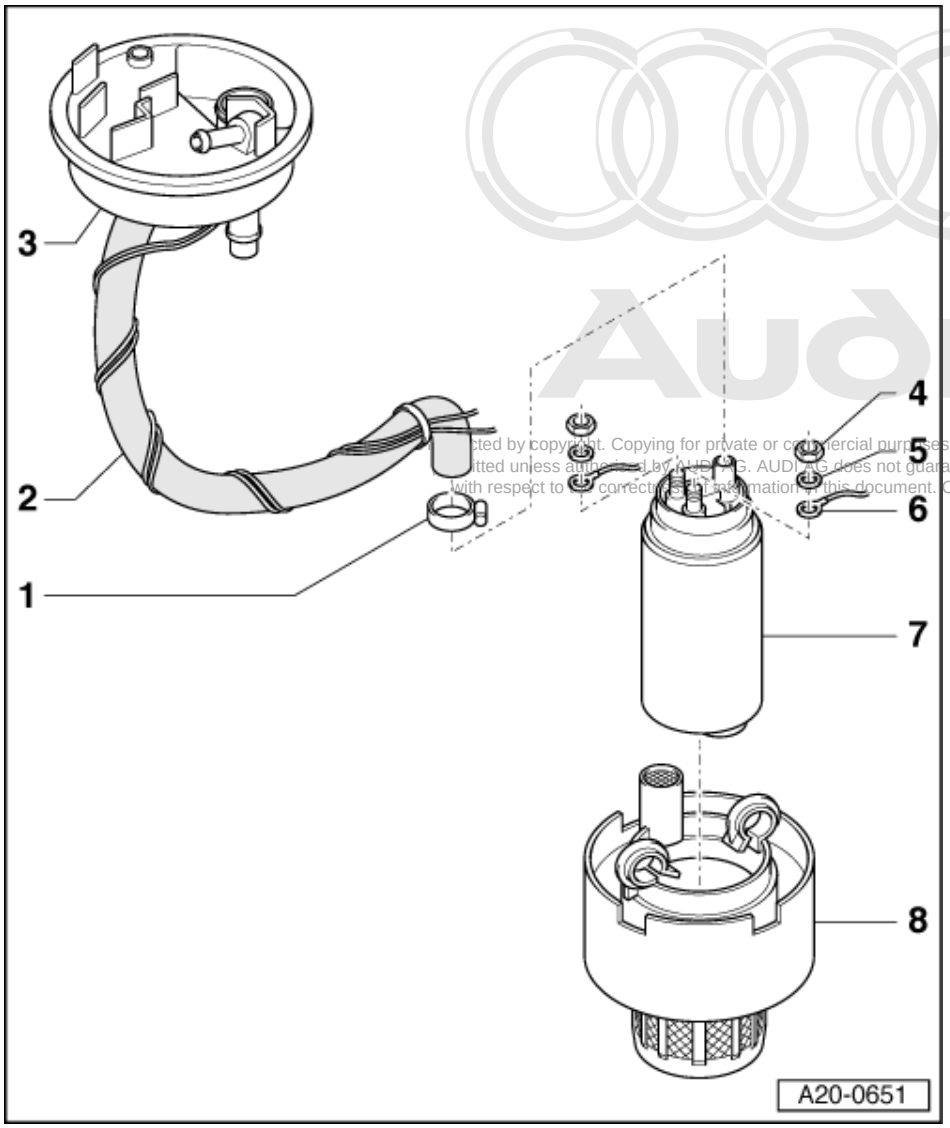
- Turn fuel filter screen -1- anti-clockwise and detach it (bayonet lock).
- Pull fuel pump -2- with mount -3- downwards out of inner part of baffle housing -4-.

Installing

Install in reverse order.

- Make sure tab at fuel pump engages in recess at inner part of baffle housing.

2.14 - Dismantling fuel delivery unit - vehicles with engine code letters AAH, ABC, ABK, ACZ, ADA, ADW



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1 Hose clamp

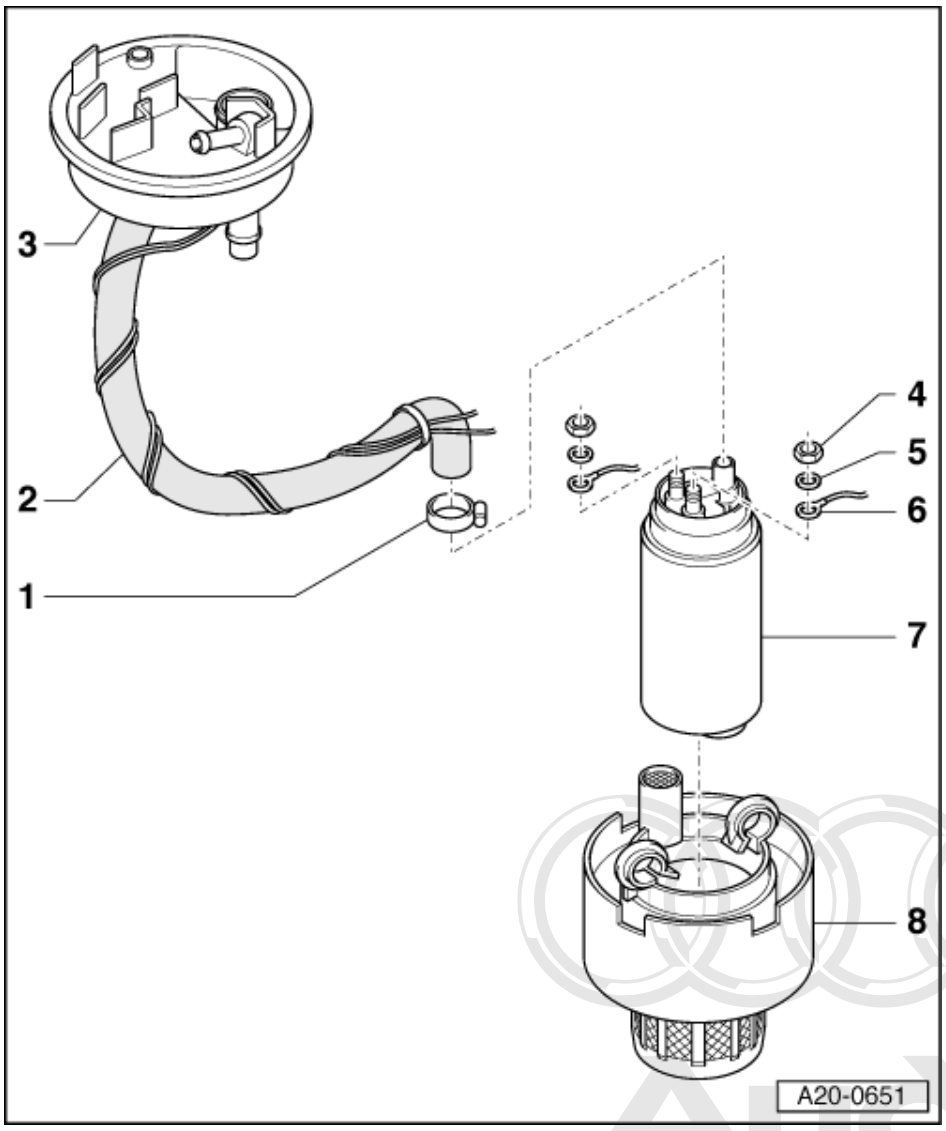
- Use V.A.G 1275 to secure

2 Fuel supply pipe

- Fuel pump/baffle housing
- Pre-assembly => Page 46

3 Sealing flange

- Removing and installing=>Page 34
- Installation position: Observe arrow mark => Page 38
- Pre-assembly => Page 46



4 M4 = 1.2 Nm
M5 = 1.6 Nm

5 Washer

6 Wire
- Installation position => Page 47

7 Fuel pump
- Removing and installing =>Fig. 47
- Pre-assembly => Page 46
- Electrical checking => Page 20
- Checking holding pressure

=> Injection and Ignition System; Repair Group 24

8 Inner part of baffle housing

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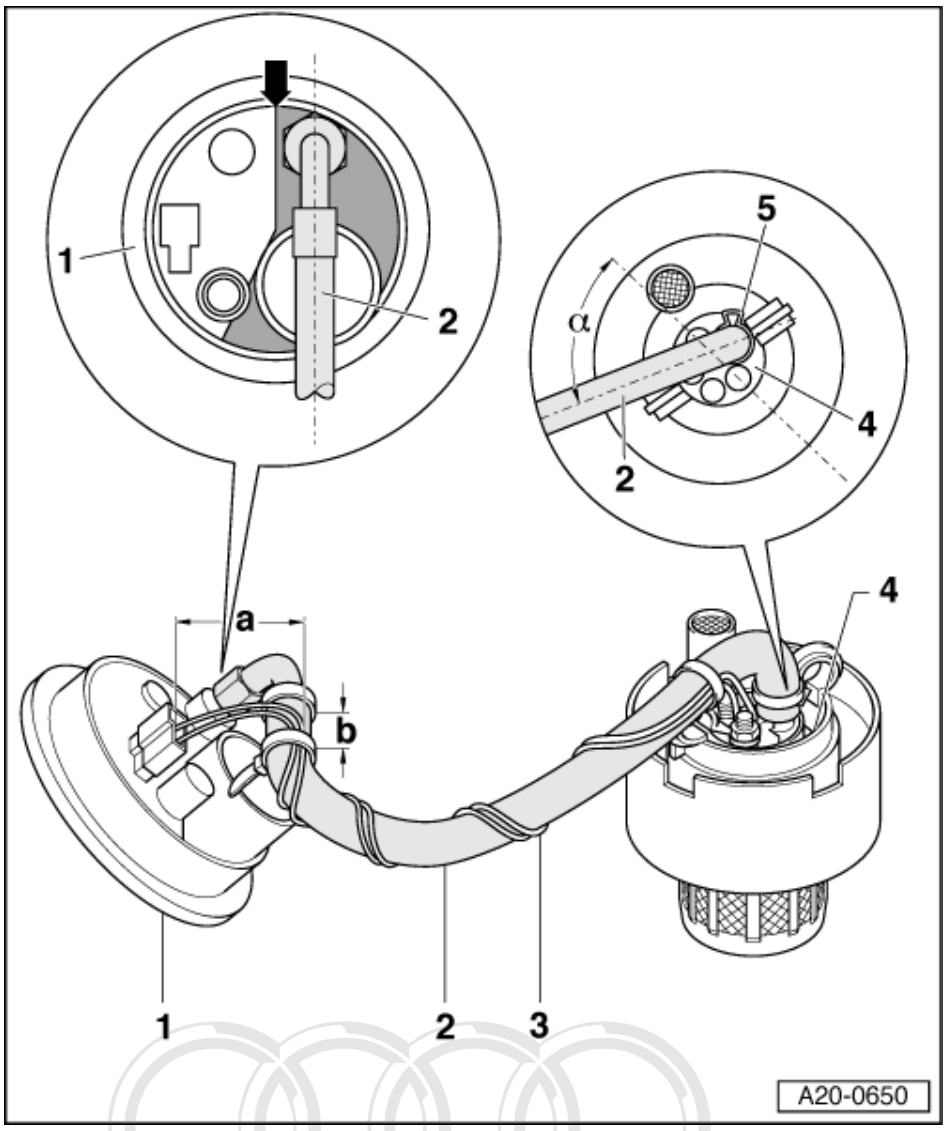

Pre-assembling fuel pump, sealing flange and fuel supply pipe

- Fit fuel supply pipe -2- at sealing flange -1- and fuel pump -4- as shown.
- Align fuel supply pipe at sealing flange in parallel with edge of housing -arrow-.
- Tighten fuel supply pipe to 23 Nm.
- Align fuel supply pipe at fuel pump at an angle of α = 65° to electrical connections.

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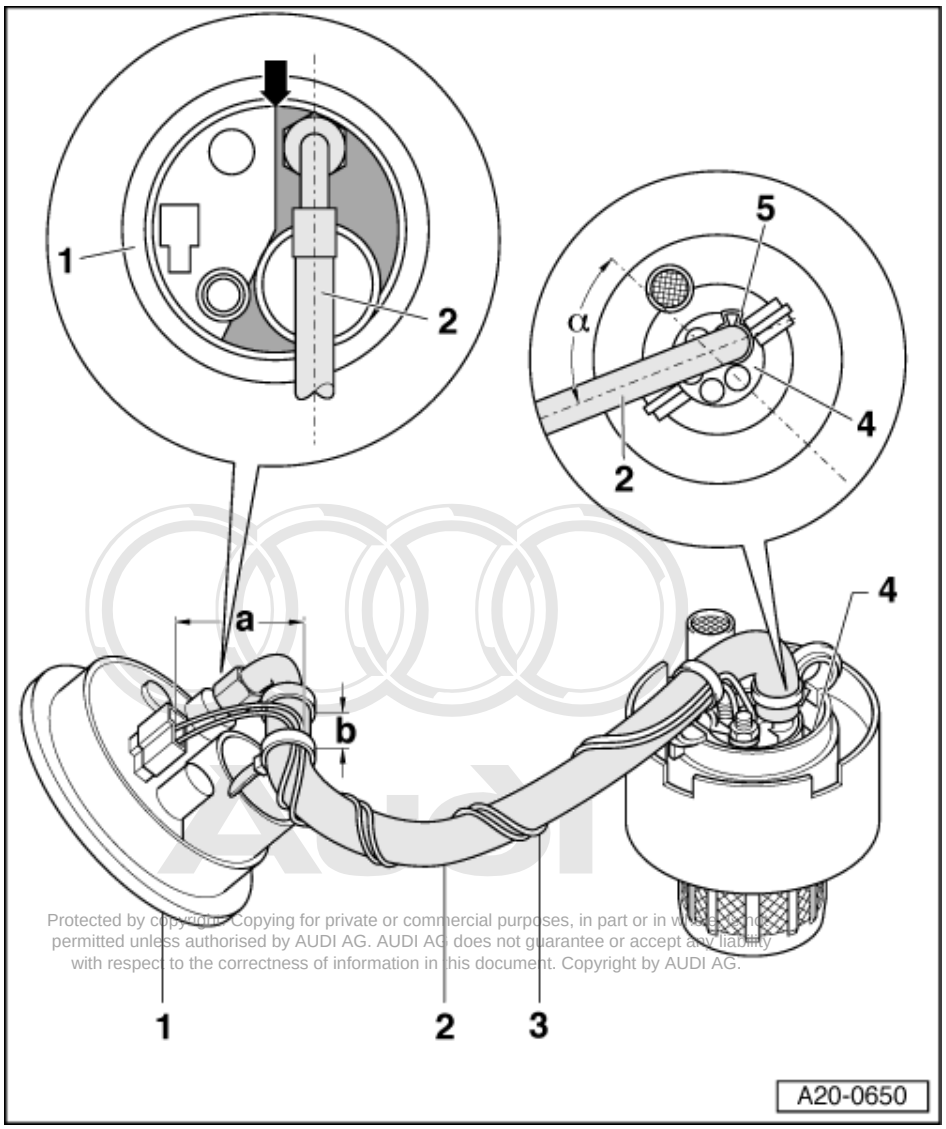

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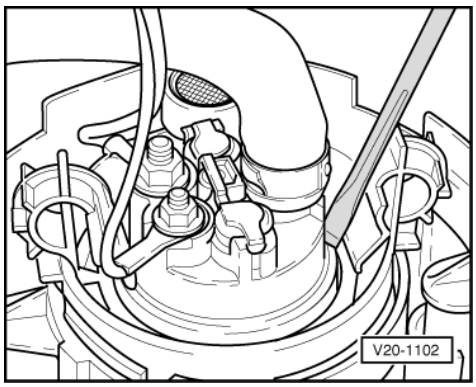
- Secure fuel supply pipe with new tab-type hose clamp. To do so, use V.A.G 1275.
- Wind wiring -3- to fuel pump around fuel supply pipe.
- Secure wiring with fuel-resistant cable tie at marked location.
  - a = Effective wire length 75 mm
  - b = 25 mm



-> Fig.1 Removing and installing fuel pump

- Fuel delivery unit dismantled

Removing

- Use screwdriver to press both locking lugs at baffle housing outwards and at the same time pull fuel pump slightly upwards to prevent re-engagement of locking lugs.
- Repeat procedure at second shoulder of fuel pump.
- Twist fuel pump and pull it upwards out of baffle housing.

Installing

Install in reverse order, paying attention to the following:

- Installation position: Offset connection at bottom of fuel pump must be inserted in hole in inner part of baffle housing

2.15 - Dismantling fuel delivery unit (pump ø 40 mm) - vehicles with engine code letters 6A, NG, ABB, ACE

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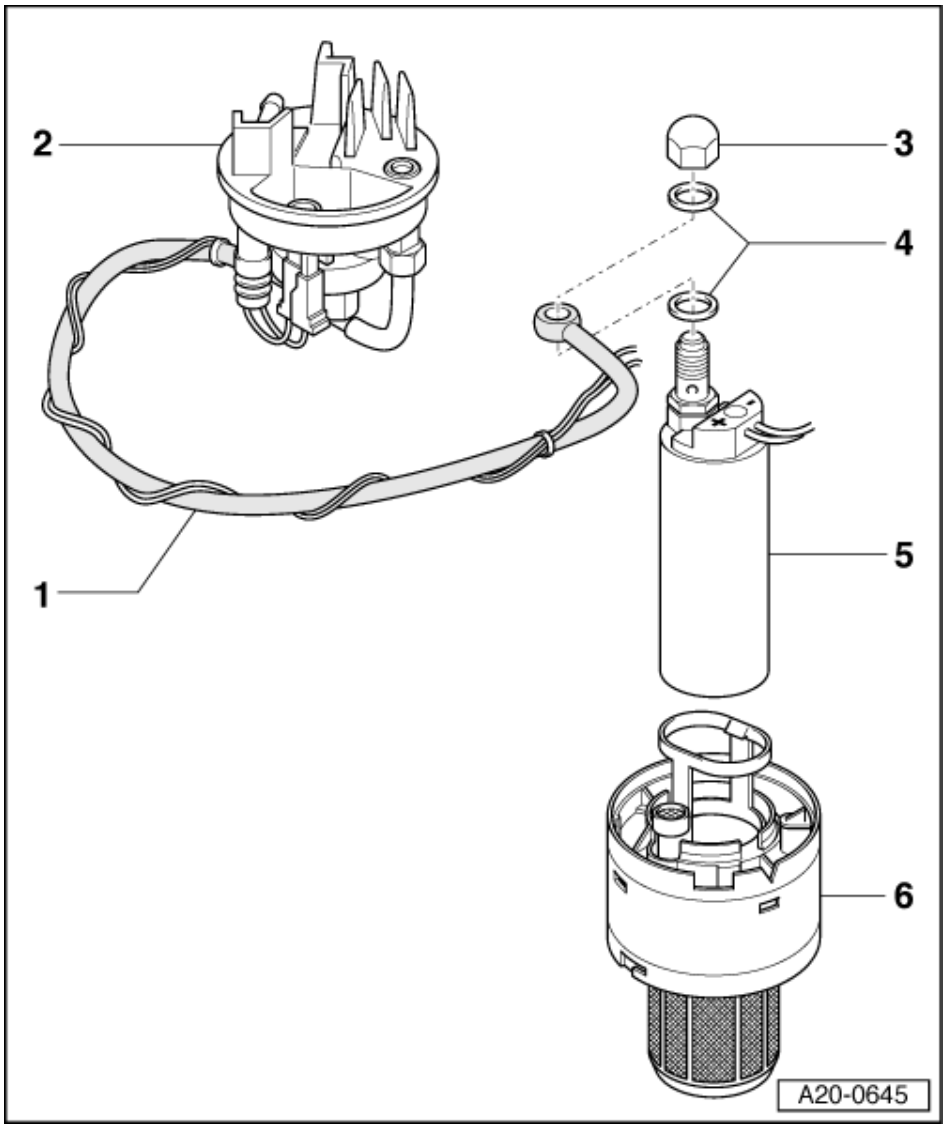


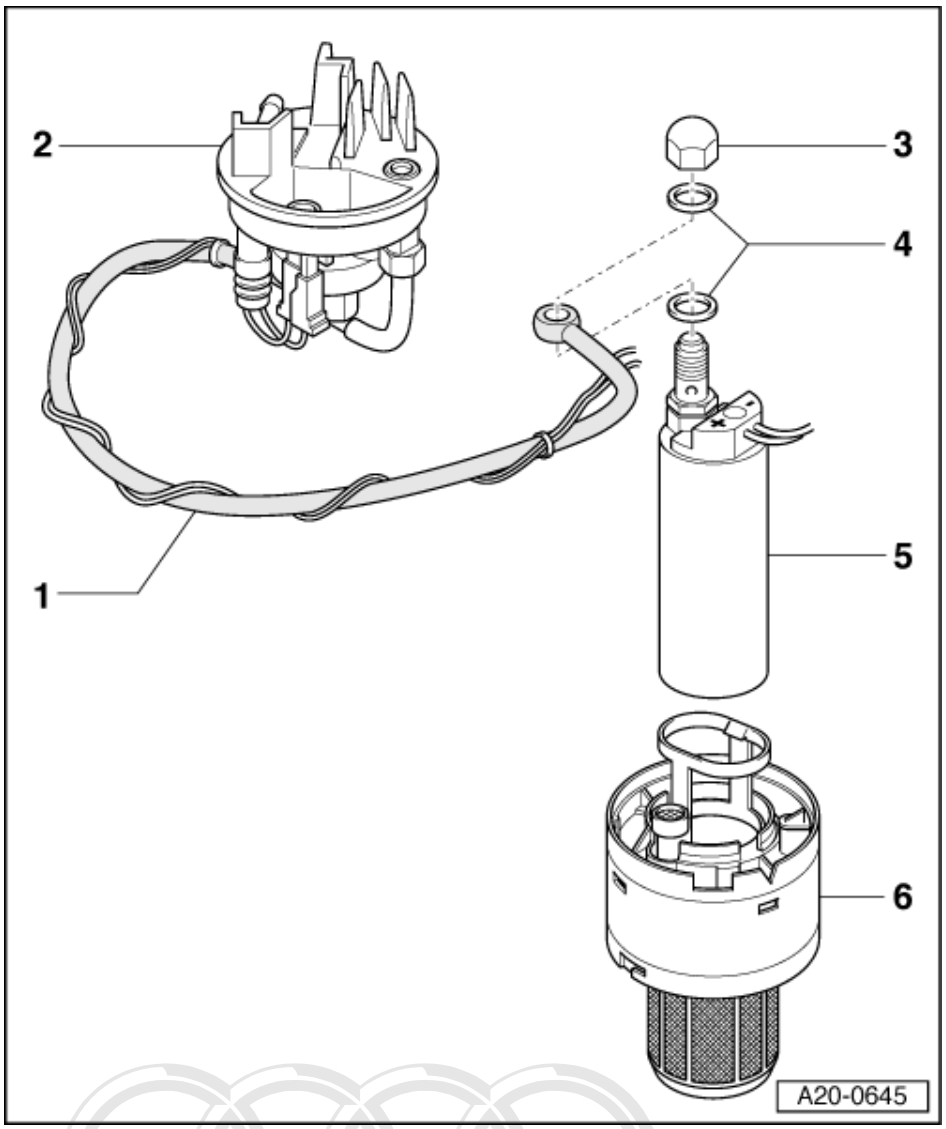
1 **Fuel supply pipe**
- Fuel pump/baffle housing
- Pre-assembly => Page 50

2 **Sealing flange**
- Removing and installing=>Page 34
- Installation position: Observe arrow mark => Page 38

- Pre-assembly => Page 50

3 Cap nut, 13 Nm

- Provide support at hexagon of fuel pump when unfastening and tightening



4 Sealing ring

- Replace

5 Fuel pump

- Removing and installing
  =>Fig. 52
- Pre-assembly => Page 50
- Electrical checking => Page 20
- Checking holding pressure

=> Injection and Ignition System; Repair Group 25

6 Inner part of baffle housing

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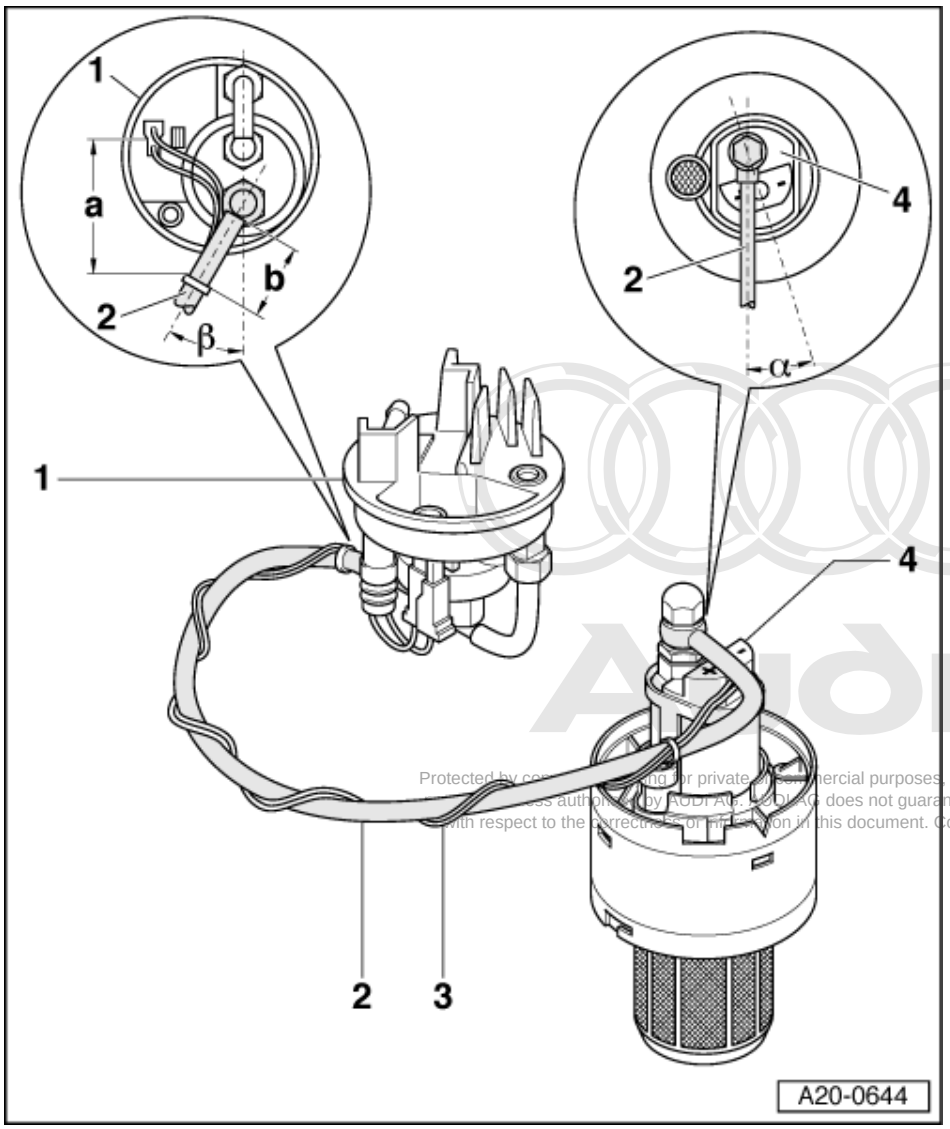

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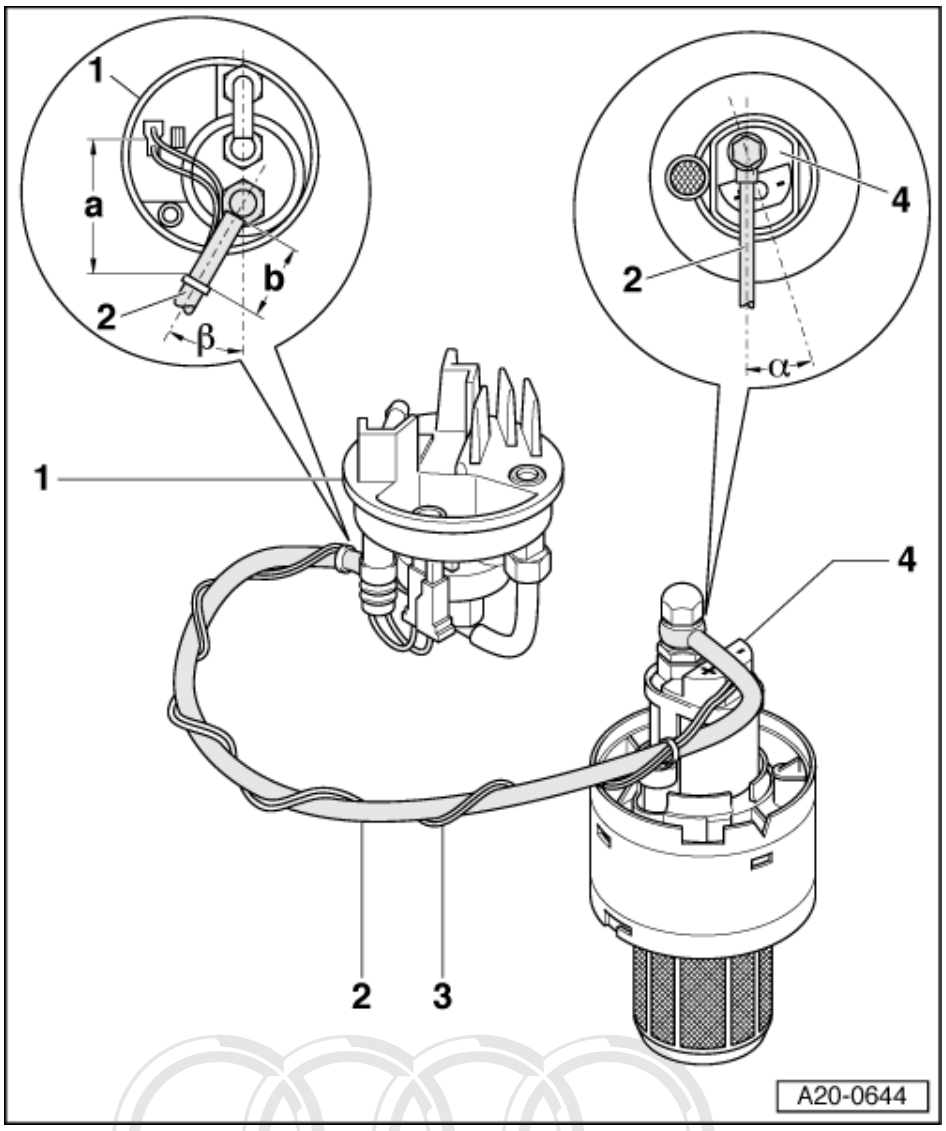
Pre-assembling fuel pump (ø 40 mm), sealing flange and fuel supply pipe

- Fit fuel supply pipe -2- at sealing flange -1- and fuel pump -4- as shown.
- Align fuel supply pipe at sealing flange at an angle of β = 35° to fuel supply tube.
- Screw fuel supply pipe (23 Nm) to sealing flange.
- Align fuel supply pipe at fuel pump at an angle of α = 20° to electrical connections.



- Screw fuel supply pipe with cap nut and new sealing rings to fuel pump (13 Nm).
- Wind wiring -3- to fuel pump around fuel supply pipe.
- Secure wiring with fuel-resistant cable tie at marked location.
  - a = Effective wire length 110 mm
  - b = 25 mm

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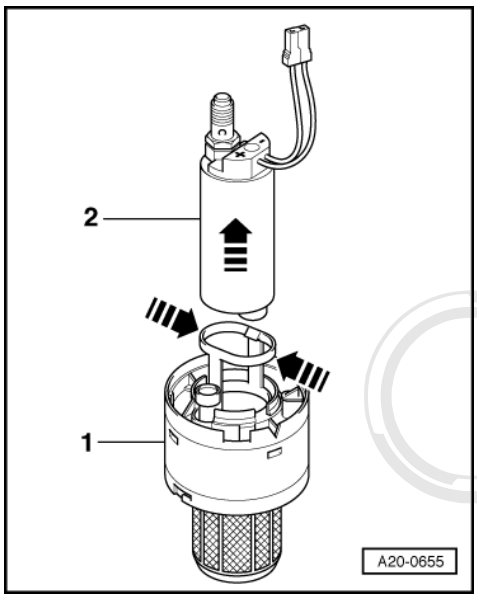

-> Fig.1 Removing and installing fuel pump

- Fuel delivery unit dismantled

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Removing

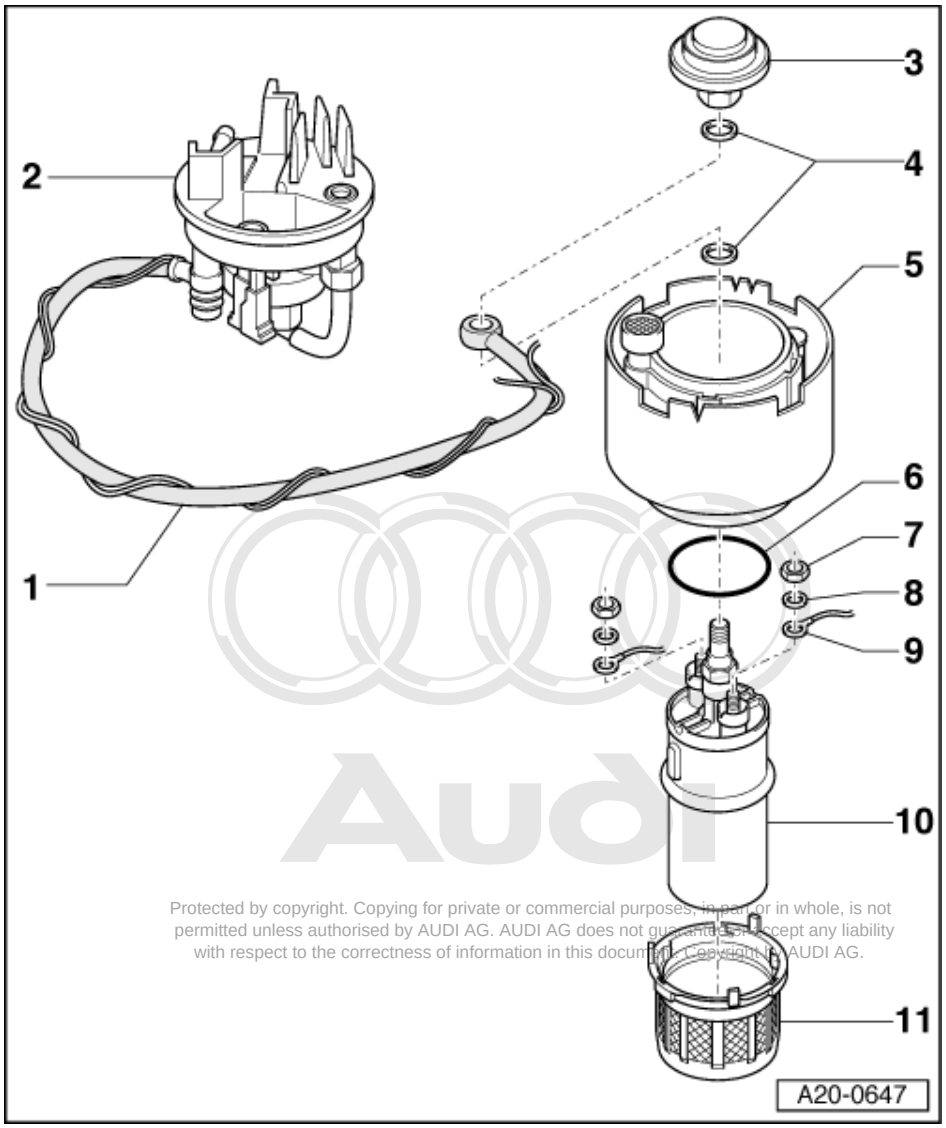
- Squeeze both release areas -arrows- at inner part of baffle housing -1-.
- Pull fuel pump -2- upwards -arrow- out of inner part of baffle housing.

Installing

Install in reverse order, paying attention to the following:

- Installation position: Offset connection at bottom of fuel pump must be inserted in hole in inner part of baffle housing

2.16 - Dismantling fuel delivery unit (pump ø 60 mm) - vehicles with engine code letters 6A, NG, ABB, ACE



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1 Fuel supply pipe

- Fuel pump/baffle housing
- Pre-assembly => Page 55

2 Sealing flange

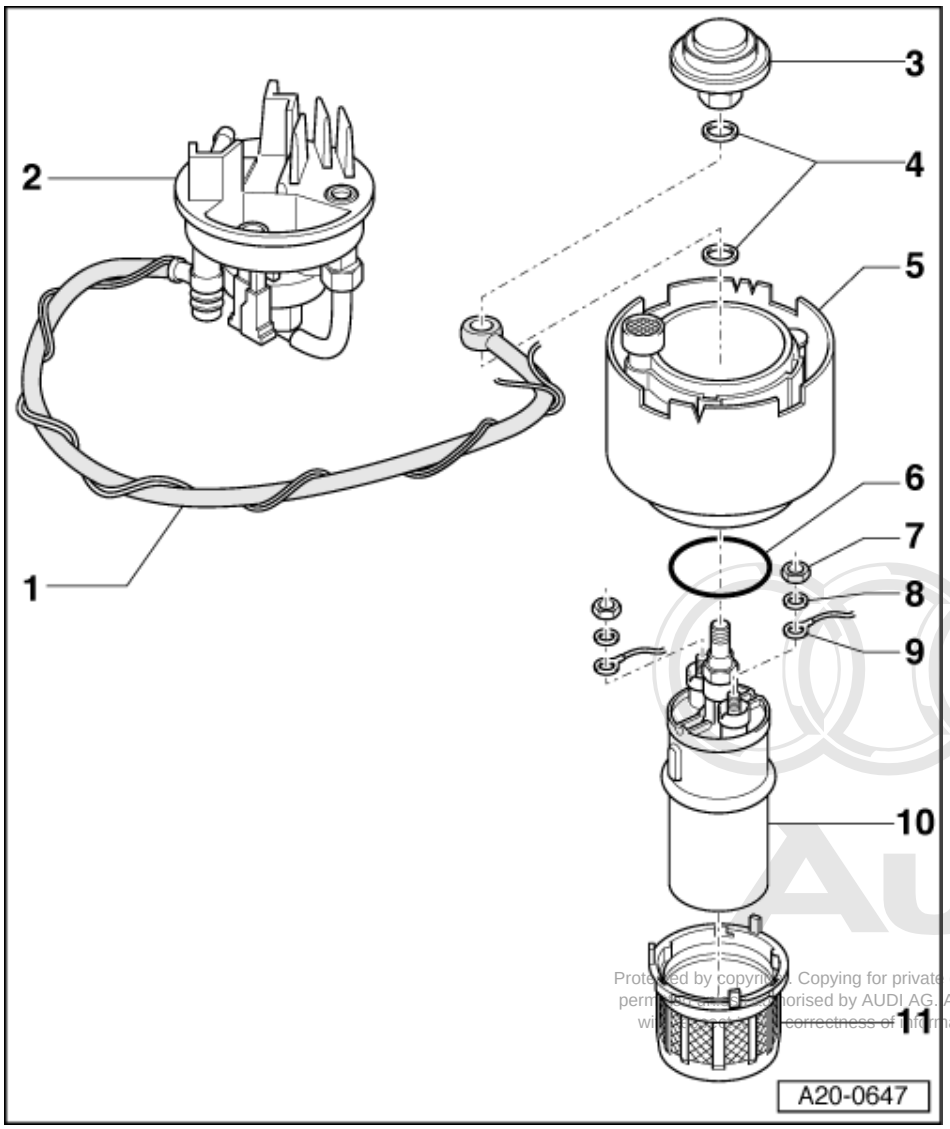
- Removing and installing=>Page 34
- Installation position: Observe arrow mark => Page 38
- Pre-assembly => Page 55

3 Pressure damper, 13 Nm

- Provide support at hexagon of fuel pump when unfastening and tightening

4 Sealing ring

- Replace



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5 Inner part of baffle housing

6 O-ring
- Replace

7 M5 = 1.6 Nm
M6 = 2 Nm

8 Washer

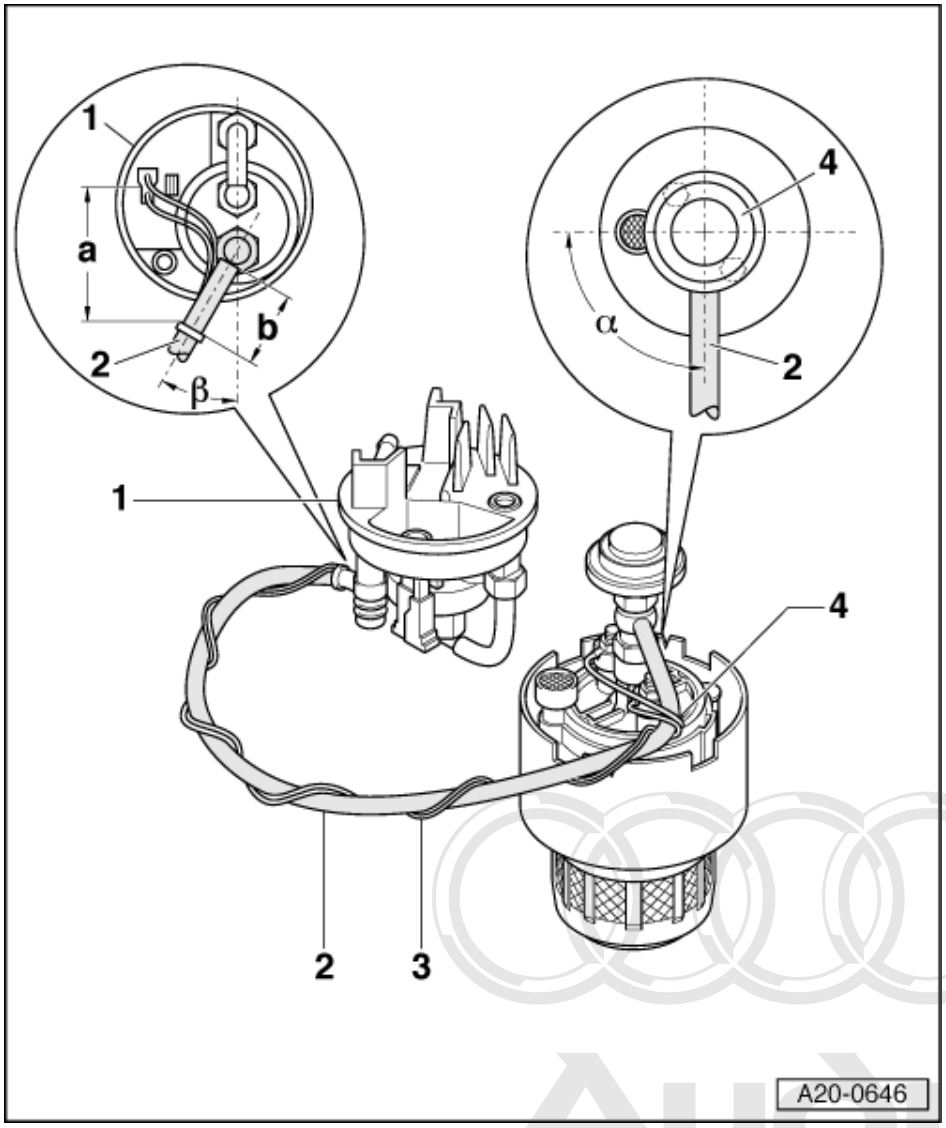
9 Wire
- Installation position => Page 56

10 Fuel pump
- Removing and installing
=>Fig. 57
- Pre-assembly => Page 55
- Electrical checking => Page 20
- Checking holding pressure

=> Injection and Ignition System; Repair Group 25

11 Fuel filter screen
- Turn anti-clockwise to detach (bayonet lock)
- Cannot be replaced separately

- Clean if contaminated



Pre-assembling fuel pump (ø 60 mm), sealing flange and fuel supply pipe

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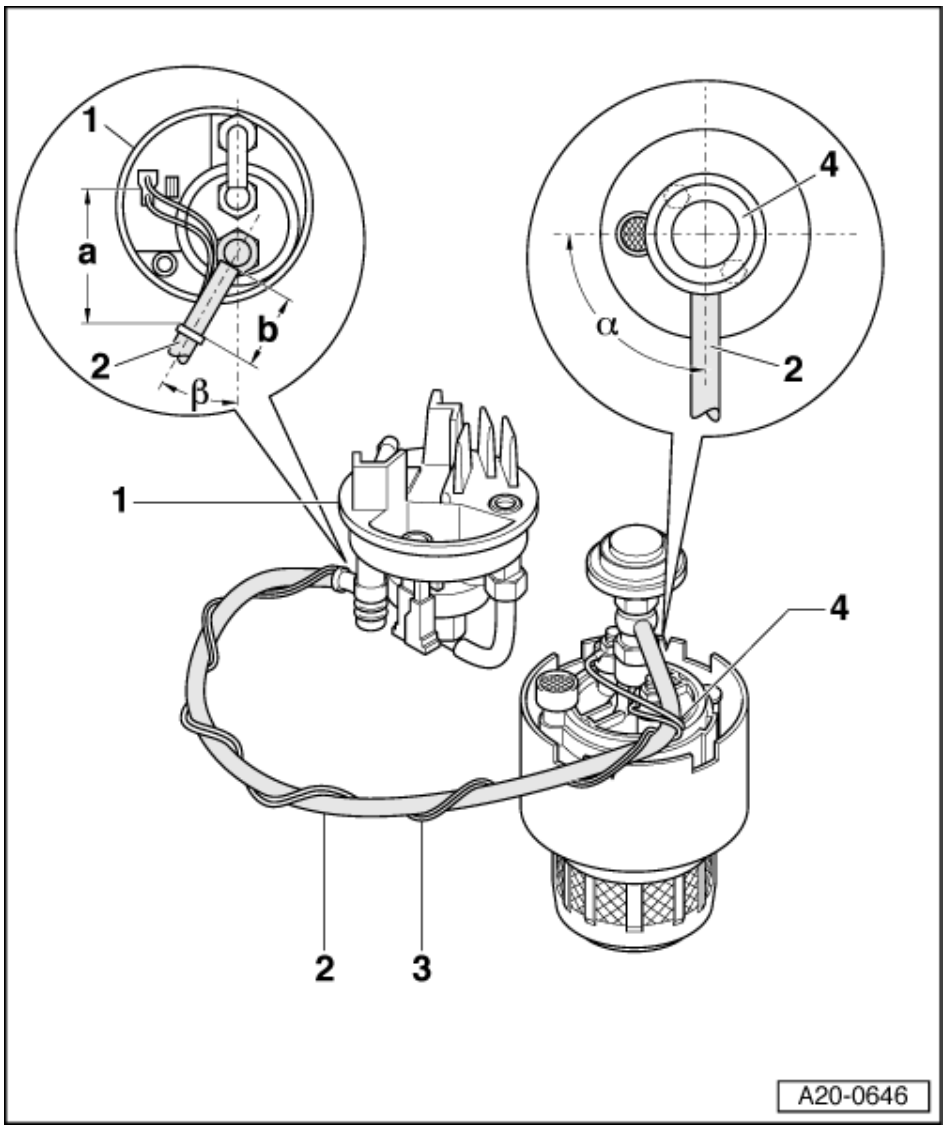
- Fit fuel supply pipe -2- at sealing flange -1- and fuel pump -4- as shown.
- Align fuel supply pipe at sealing flange at an angle of β = 35° to fuel supply tube.
- Screw fuel supply pipe (23 Nm) to sealing flange.
- Align fuel supply pipe at fuel pump at an angle of α = 90° to connection.



- Screw fuel supply pipe with pressure damper and new sealing rings to fuel pump (13 Nm).
- Wind wiring -3- to fuel pump around fuel supply pipe.
- Secure wiring with fuel-resistant cable tie at marked location.
  - a = Effective wire length 110 mm
  - b = 25 mm

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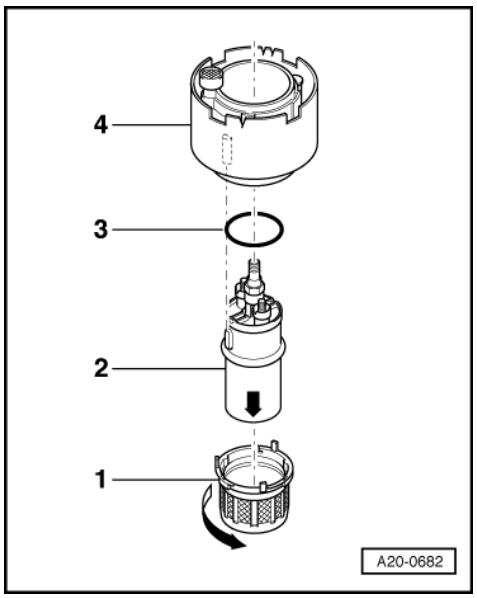

-> Fig.1 Removing and installing fuel pump

- Fuel delivery unit dismantled

Removing

- Turn fuel filter screen -1- anti-clockwise and detach it (bayonet lock).
- Pull fuel pump -2- with O-ring -3- downwards out of inner part of baffle housing -4-.

Installing

Install in reverse order.

- Make sure tab at fuel pump engages in recess at inner part of baffle housing.

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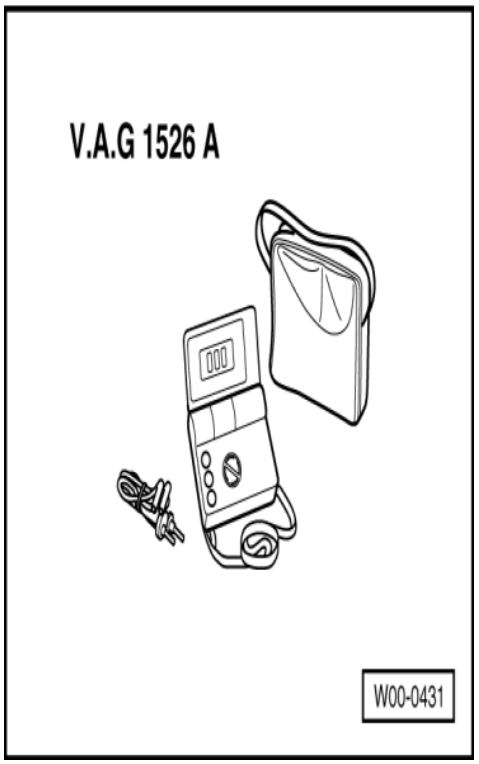
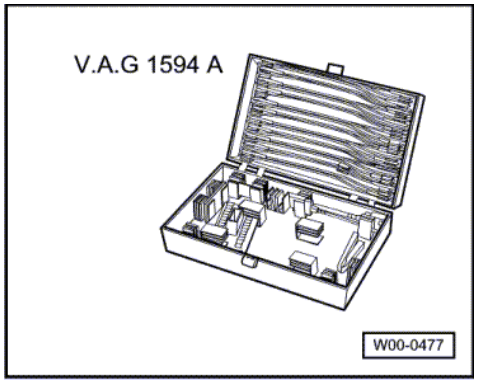
2.17 - Checking fuel gauge sender -G

Special tools and workshop equipment required

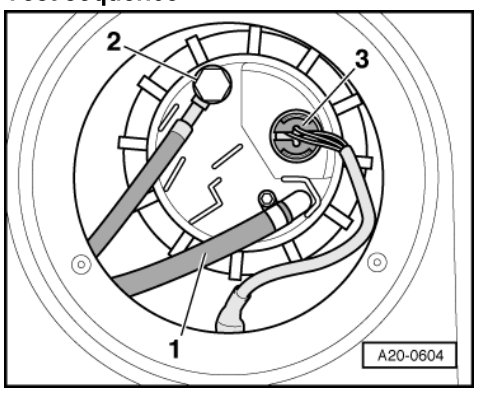


- V.A.G 1526 A



- V.A.G 1594 A

Test sequence



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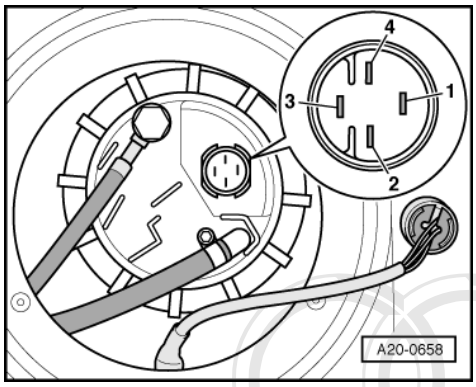
- Fold forward right backrest of rear seat bench.
- Remove luggage compartment lining.
- Unscrew cover for sealing flange beneath luggage compartment lining.
- -> Carefully release 4-pin connector -3- and unplug.



- -> Measure resistance at both contacts -2- and -3- at sealing flange.

Sender	Tank full	Tank empty
Fuel gauge sender -G	40 ω	280 ω

Note:

If level is between "Tank full" and "Tank empty" resistance value displayed must be between the two specifications.

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- If measurement yields 0 ωor ∞ ω, there is an open circuit in the wiring in the tank or a short circuit.

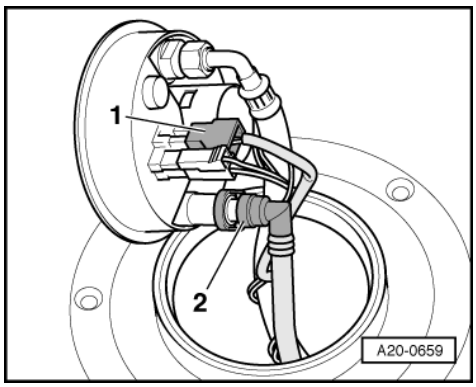
2.18 - Removing and installing fuel gauge sender -G

Pay attention to safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

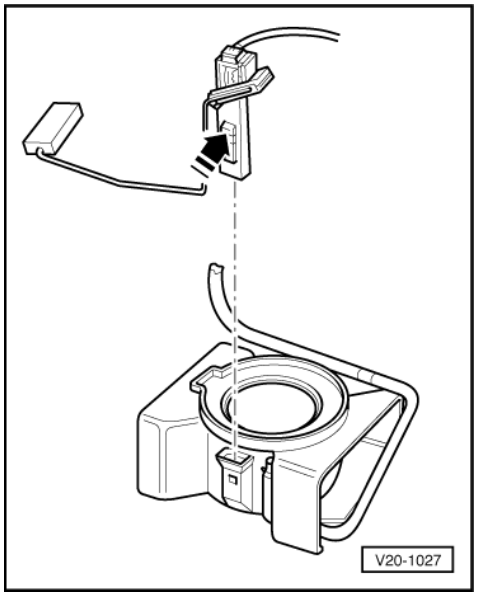
Removing

- Remove sealing flange => Removing fuel delivery unit, Page 34 .



- -> Unplug connector for fuel gauge -1- on inside of sealing flange.
- Pull off return pipe -2- on inside of sealing flange (use release tool T40020 or press release buttons).

- Carefully pull out sealing flange and lay aside with supply pipe connected.



- -> Whilst pressing retainer tab -arrow-, pull sender out of baffle housing in fuel tank.

Note:

For ease of illustration, baffle housing is shown without fuel tank.

Installing

Install in reverse order, paying attention to the following:

- Insert fuel gauge sender in guide at outer part of baffle housing and press downwards until it engages.
- Install fuel delivery unit => Page 36 , paying attention to notes on battery connection.

3 - Fuel supply system - four-wheel drive

3.1 - Fuel supply system - four-wheel drive

Notes:

- Secure all hose connections with standard hose clamps.

=> Parts List

- Special tool V.A.G 1921 is recommended for fitting spring clips.
- Always replace sealing rings and gaskets on assembly.

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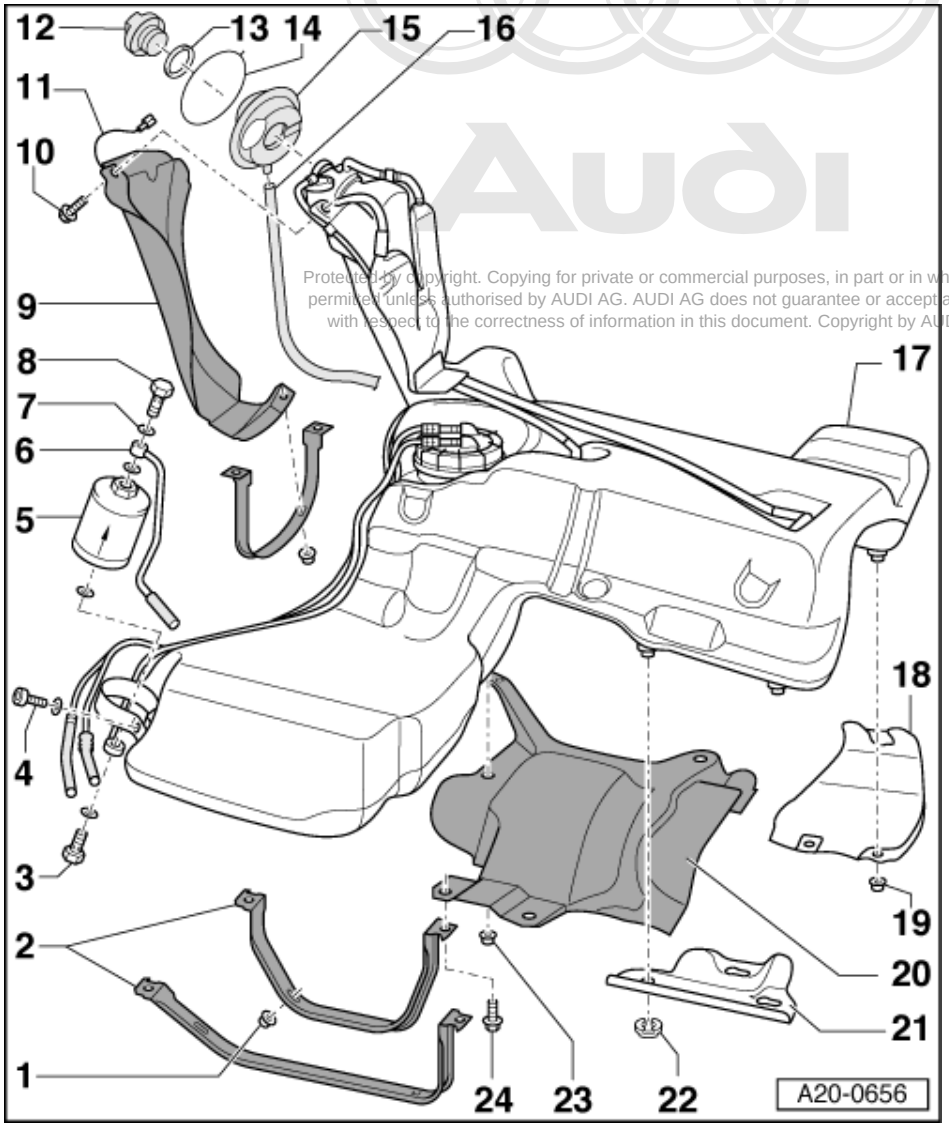
3.2 - Exploded view of components: Fuel tank with attachments



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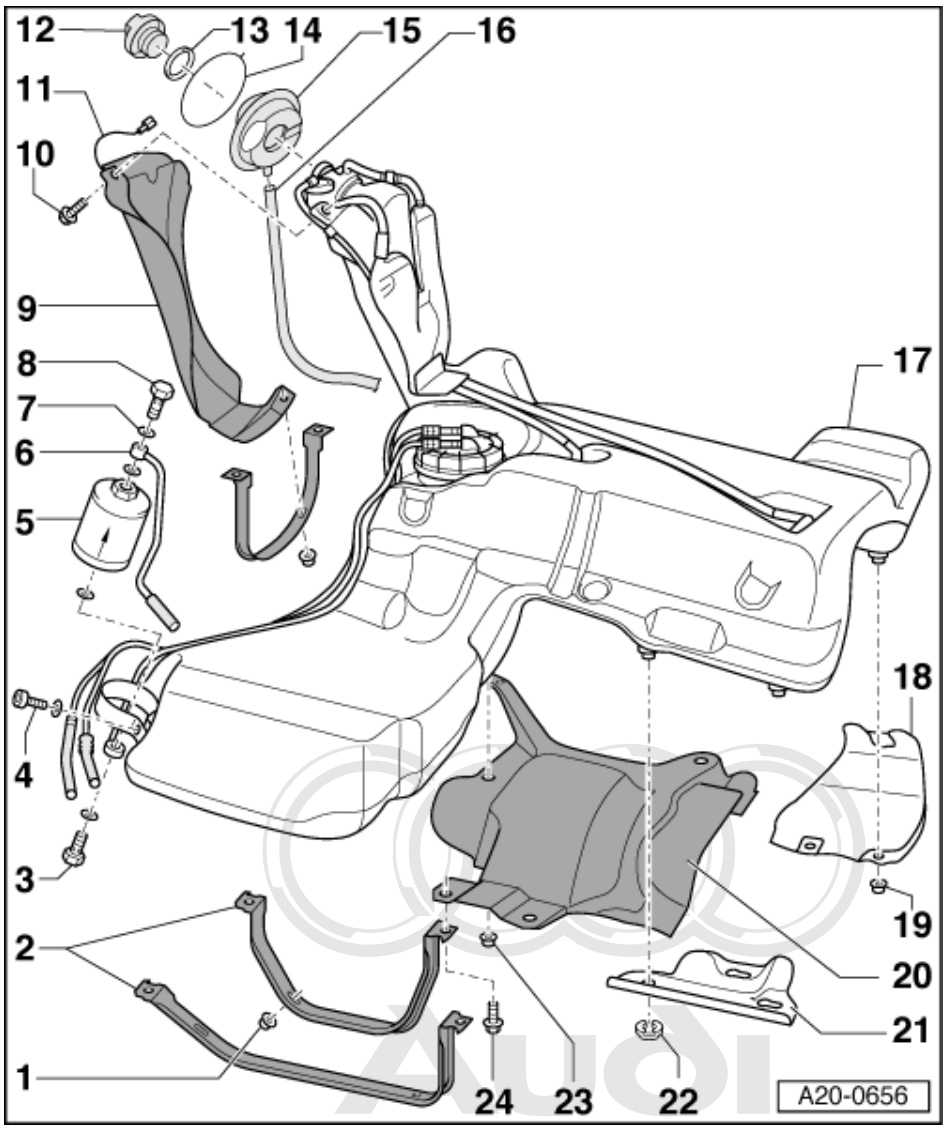
1 **Plastic nut, 2 Nm**
- Screw on loosely for fixing securing straps in position at fuel tank
- Do not tighten until securing straps have been fastened

2 **Securing strap**
- Removing and installing=>Page 72
- Note different length
- Pay attention to installation direction

3 **Banjo bolt, 23 Nm**



4 1.2 Nm

5 Fuel filter
- Installation position: Arrow points in direction of flow

6 Fuel supply pipe
- To injection system (to engine)

7 Sealing ring
- Replace

8 Banjo bolt, 23 Nm

9 Guard
- For fuel filler neck
- With earth connection
- Before screwing in bolt -item 10 - check tightness (flange connection) of contact terminal of earth connection

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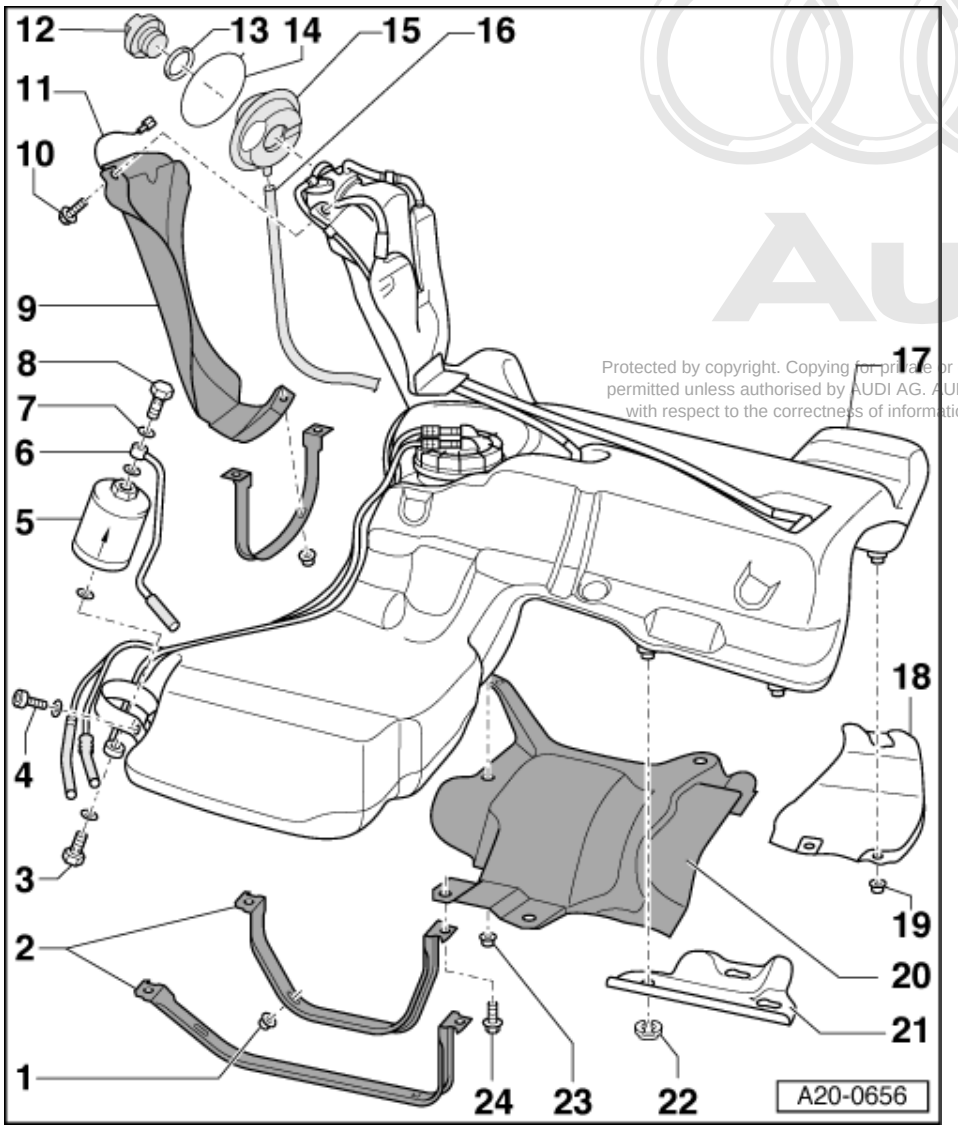

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10 25 Nm

11 Earth connection

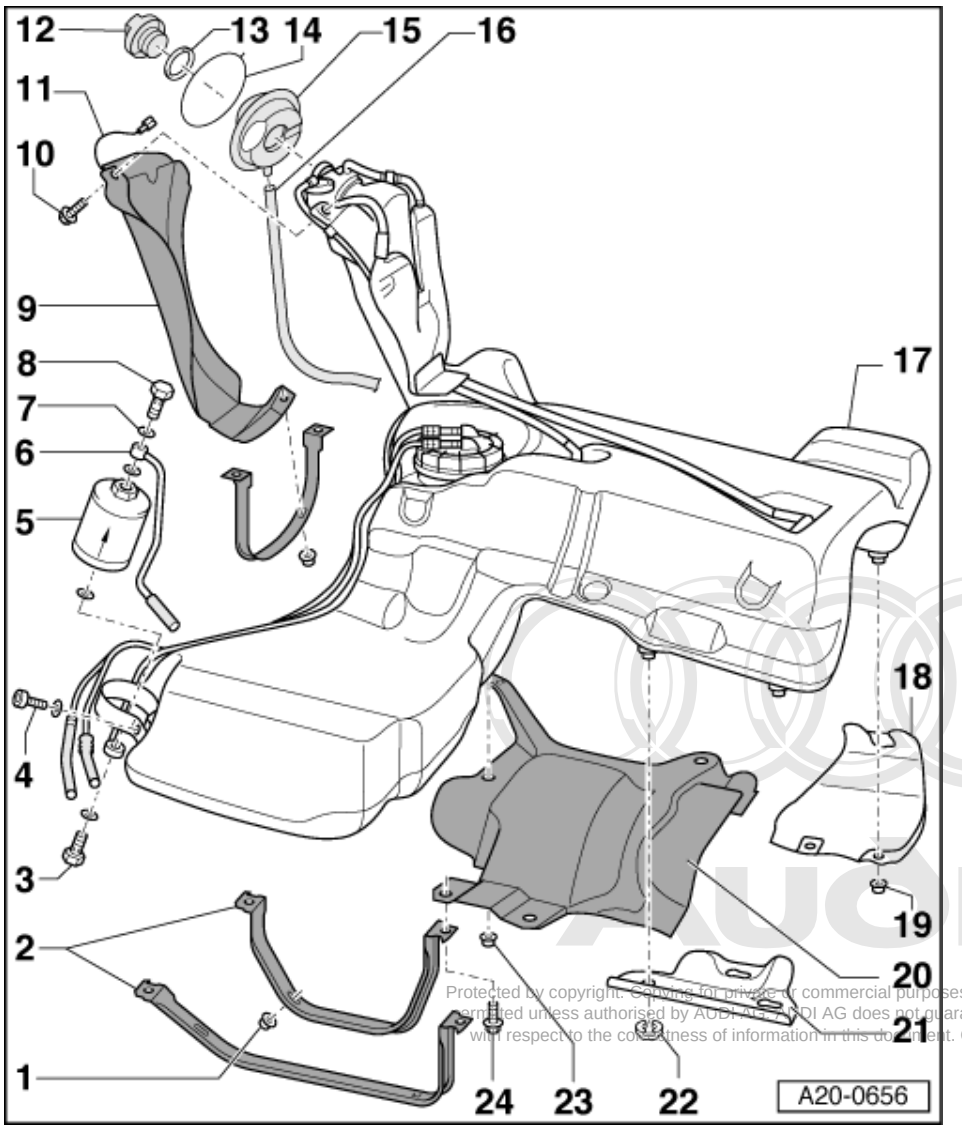
- Installation position
  =>Fig. 66
- Make sure connector is firmly attached at metal ring of fuel filler neck (check flange connection at guard -item 9 -)
- After installing, use ohmmeter to check electrical connection between metal ring on fuel filler neck and bare metal part on body - Specification: approx. 0 ω

12 Cap

13 Gasket

- Replace if damaged

14 Tensioning ring



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15 Rubber adapter

16 Overflow hose

17 Fuel tank

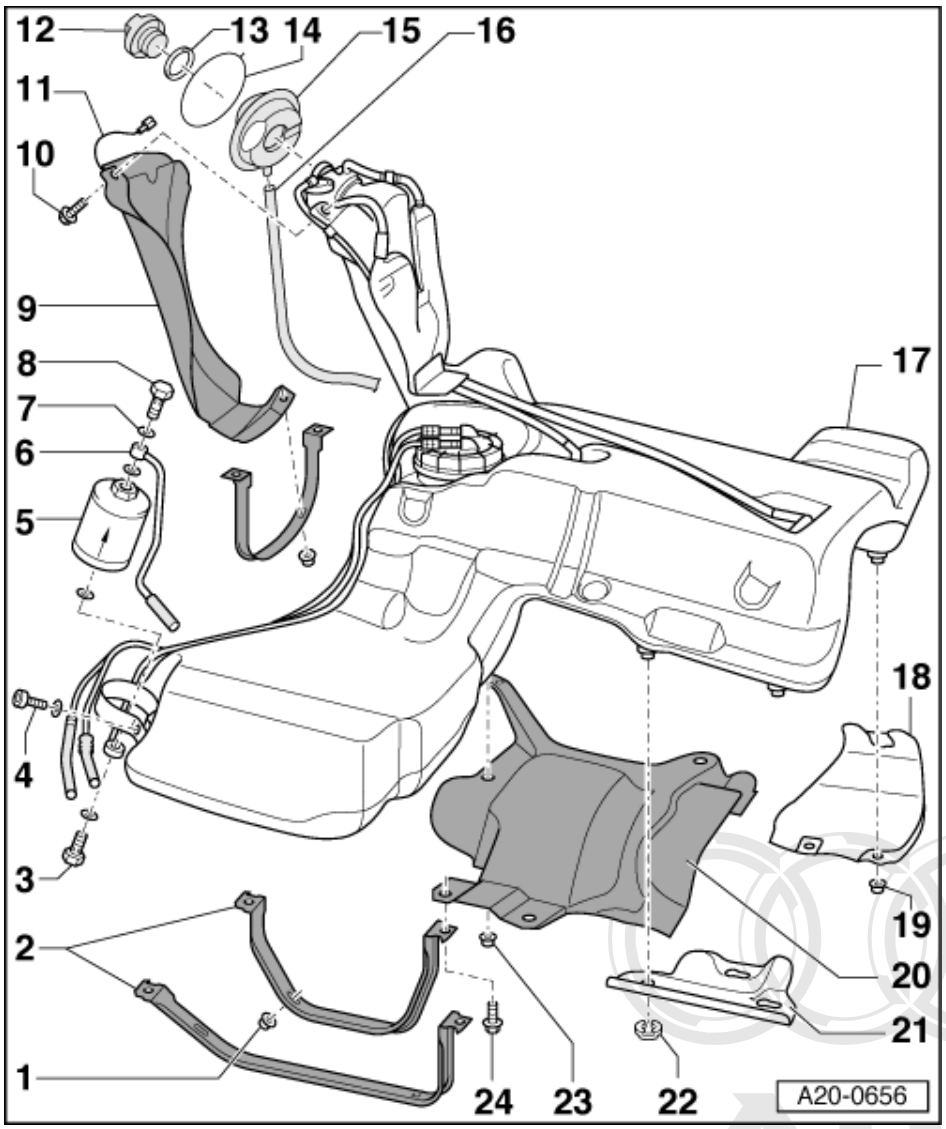
- Removing and installing=>Page 70

18 Heat shield

- For fuel tank
- Attached at rear edge to fuel tank with adhesive tape

19 Plastic nut, 2 Nm

20 Support bracket



21 Heat shield

- For fuel tank

22 Fastener

- Make sure fastener is firmly attached

23 Plastic nut, 2 Nm

24 25 Nm

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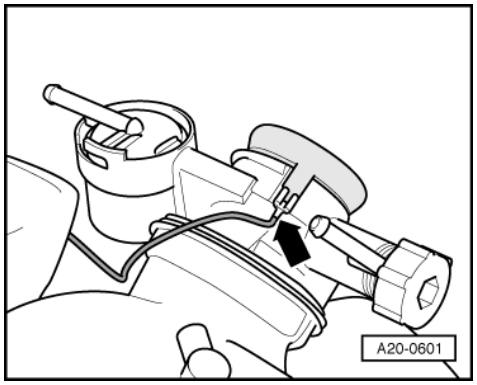

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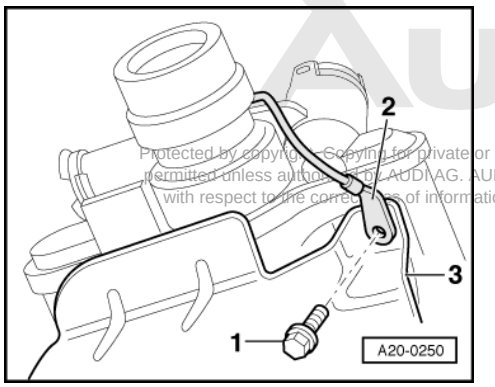
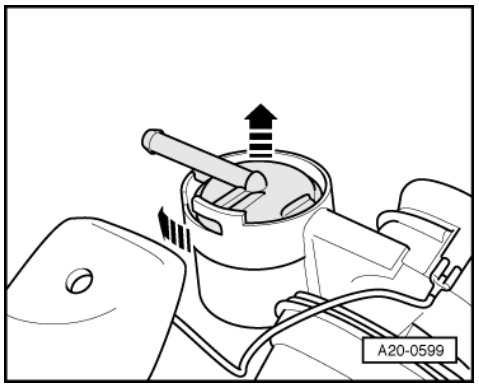
-> Fig.1 Installation position of earth connection

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



- -> Before screwing in bolt -1- check tightness (flange connection) of contact terminal -2- of earth connection at guard -3- for fuel filler neck.

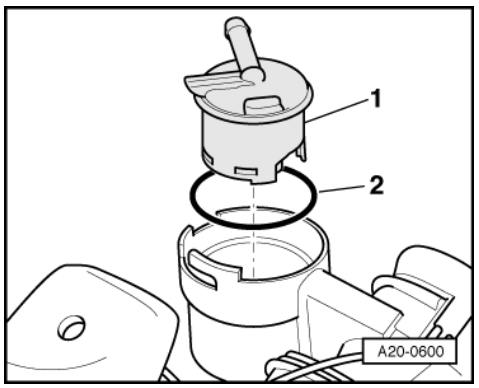
Attention:
After installing, use ohmmeter to check electrical connection between metal ring on fuel filler neck and bare metal part on body.
◆ **Specification: approx. 0 ω**



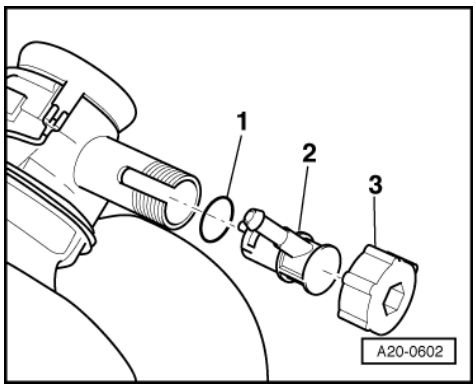
-> Fig. 2 Removing, installing and checking gravity valve

- Fuel tank removed

- Detach breather pipe from gravity valve.
- Turn gravity valve anti-clockwise -arrow- and pull it off upwards.

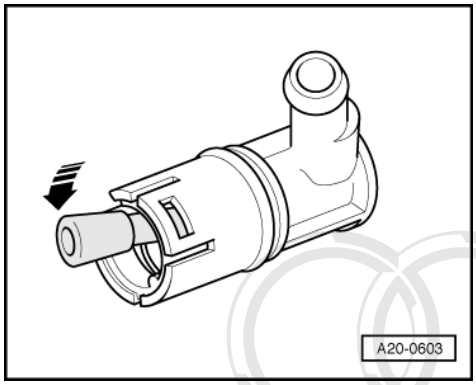


- -> Checking gravity valve -1-:
  - Hold valve in vertical position: It should be possible to blow through it
  - Tilt valve to 45°: It should not be possible to blow through it
  - Make sure O-ring -2- is not damaged



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

- To remove, unscrew union nut -3- from side of neck.
- Pull out valve -2- sideways.
- Before installing breather valve, detach cap from fuel filler neck.
- Replace O-ring -1-.



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

3.3 - Draining fuel tank

Pay attention to safety precautions=> Page 1 .

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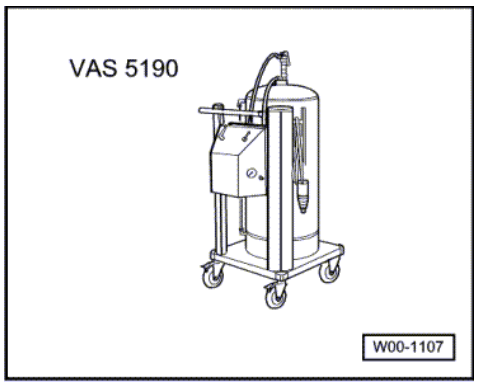
Observe rules for cleanliness => Page 2 .

Procedure if fuel tank is more than 3/4 full => Page 68 .

Procedure if fuel tank is less than 3/4 full => Page 70 .

Special tools and workshop equipment required



- VAS 5190

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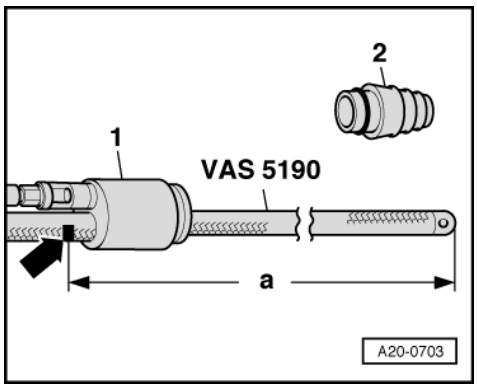
Sequence of operations

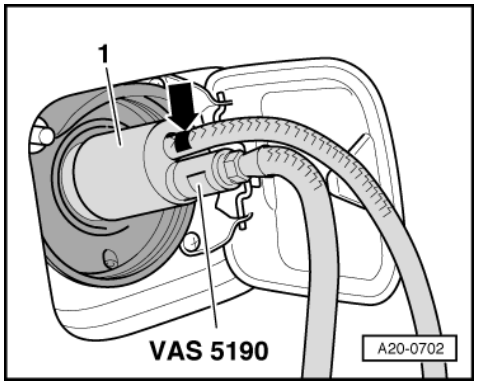
- Heed (if necessary obtain) radio code for vehicles with encoded radio.
- Disconnect battery earth strap with ignition switched off.

Attention:
Attach earth wire of V.A.G 1433

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

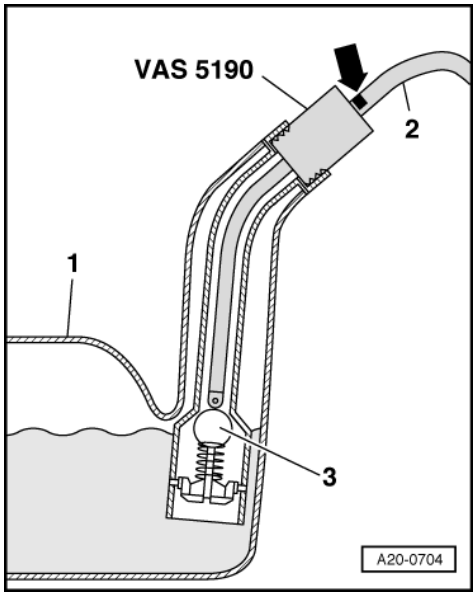


- Detach cap from fuel filler neck.
- -> Pull tapered section -2- off shank section -1- of VAS 5190.
- Use insulating tape to make a mark -arrow- on drain hose at a distance a = 465 mm from end of hose.



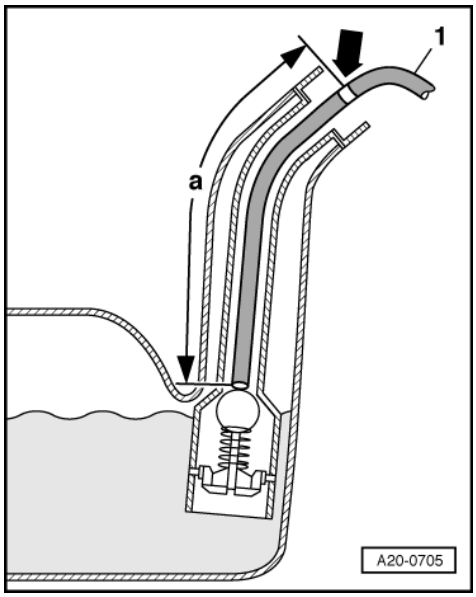
- -> Screw shank section -1- of extraction unit VAS 5190 onto filler neck of fuel tank.
- Insert drain hose into fuel tank until previously affixed mark -arrow- makes contact with shank section.

Note:



-> Located at the bottom end of the filler neck is a ball valve -3- in the fuel tank -1- which is not to be squashed or damaged by the drain hose -2-. Hose is therefore only to be inserted as far as previously affixed mark -arrow-.

- Drain fuel tank as far as possible via fuel filler neck.
- Carefully pull out drain hose.
- Remove sealing flange => Removing fuel delivery unit, Page 92 and lay aside.
- Extract remaining fuel through opening for fuel delivery unit.



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Notes:

- -> The procedure is essentially the same if use is made of an extractor with no shank section.
- In this case, use insulating tape to make a mark -arrow- on drain hose at a distance a = 400 mm from end of hose. Drain hose -1- has been properly inserted if previously affixed mark -arrow- is opposite edge of filler neck.
- If hose is difficult to insert, apply a thin coat of engine oil. Never use silicone lubricants.

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

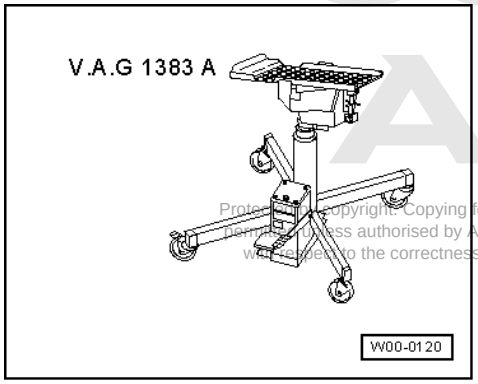
- Remove sealing flange => Removing fuel delivery unit, Page 92 and lay aside.
- Extract fuel through opening for fuel delivery unit.

3.4 - Removing and installing fuel tank with attachments

Pay attention to safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

Special tools and workshop equipment required



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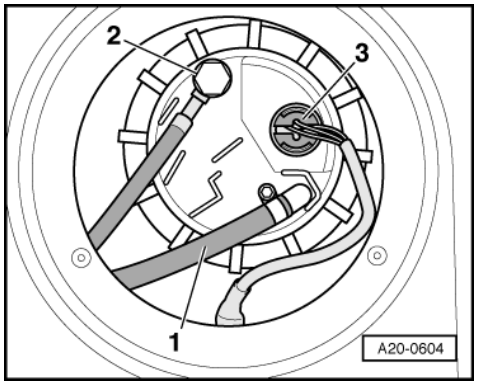
- V.A.G 1383 with V.A.G 1359/2

Removing

- Heed (if necessary obtain) radio code for vehicles with encoded radio.
- Disconnect battery earth strap with ignition switched off.
- Briefly open fuel tank cap and close again.
- Fuel tank must be empty when removing it from vehicle so as to reduce weight. Drain fuel tank if necessary. Procedure => Page 67 .

- Remove rear axle.

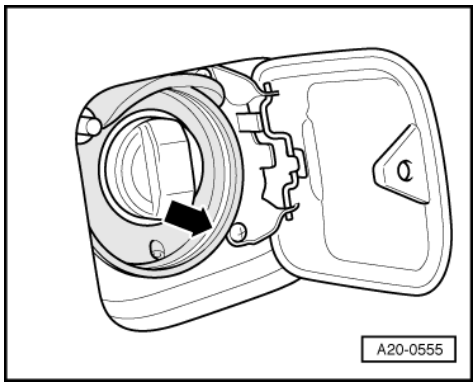
=> Running Gear, Four-wheel Drive; Repair Group 42; Removing, installing and servicing rear axle Removing, installing and servicing rear axle



- Fold forward right backrest of rear seat bench.
- Remove luggage compartment lining.
- Unscrew cover for sealing flange beneath luggage compartment lining.
- -> Carefully release 4-pin connector -3- and unplug.

Note:

Leave return pipe -1- and supply pipe -2- attached.



- Clean area around fuel filler neck.
- -> Open tank flap and prise out tensioning ring -arrow- in rubber adapter (around filler neck).
- Press out rubber adapter inwards.

- Remove rear right wheel housing liner.

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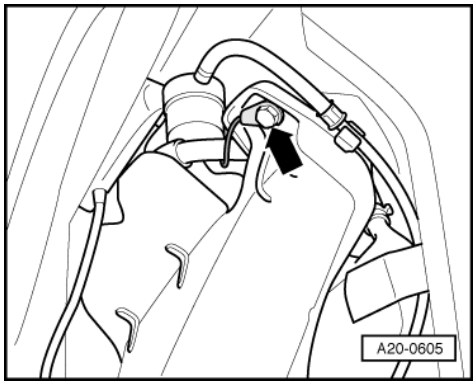
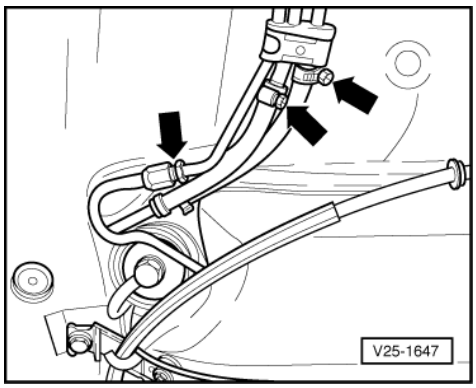
=> General Body Repairs; Repair Group 66; Wheel housing liners; Removing and installing rear wheel housing liner Wheel housing liners Removing and installing rear wheel housing liner



- -> Unscrew bolt -arrow- for tank filler neck beneath wheel housing liner.

Attention:
- **Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.**
- **Opening of fuel supply pipe on vehicles fitted with KE III Jetronic und KE Motronic causes pressure container to be drained - approx. 10 cm of fuel squirts out.**

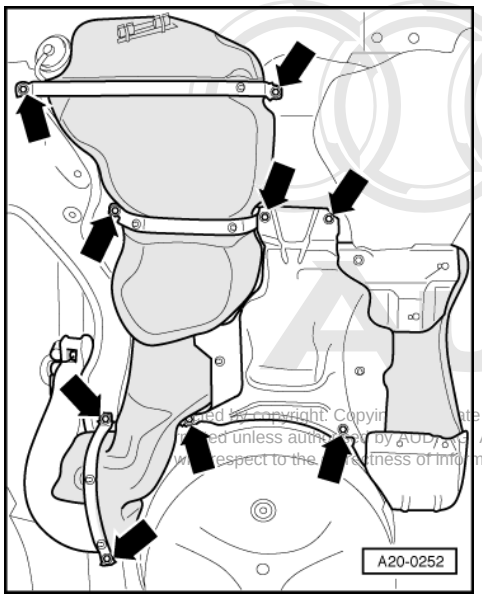


- -> On underside of vehicle, mark supply pipe, return pipe and breather pipe -arrows- at front of fuel tank and detach.

Note:

Place drip tray in position to catch fuel.

- Position engine/gearbox lifter V.A.G 1383 A beneath vehicle to support fuel tank.



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- -> Unscrew securing straps and support bracket -arrows-.
- Lower fuel tank.

Installing

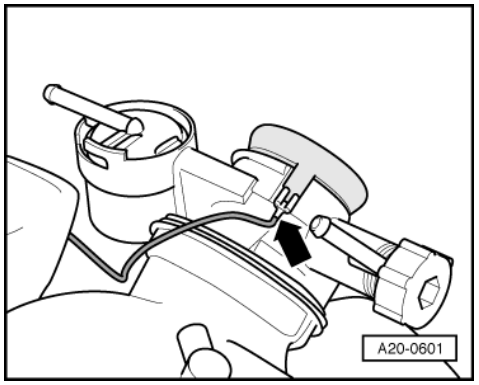
Install in reverse order, paying attention to the following:

Notes:

- Secure all hose connections with standard hose clamps.

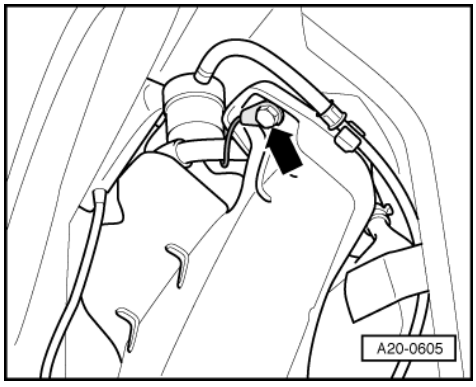
=> Parts List

- Special tool V.A.G 1921 is recommended for fitting spring clips.
- Always replace sealing rings and gaskets on assembly.



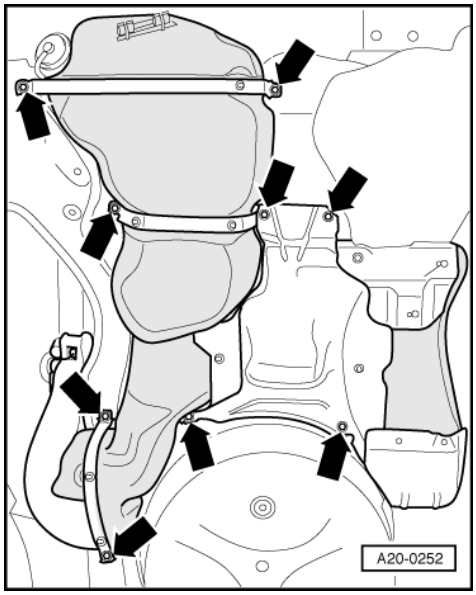
- -> Make sure connector of earth connection -arrow- is attached at metal ring of filler neck. Check routing of earth wire.
- Loosely attach securing straps and support bracket at fuel tank.

- Position fuel tank with securing straps and support bracket on underside of vehicle using engine/gearbox lifter V.A.G 1383 A.

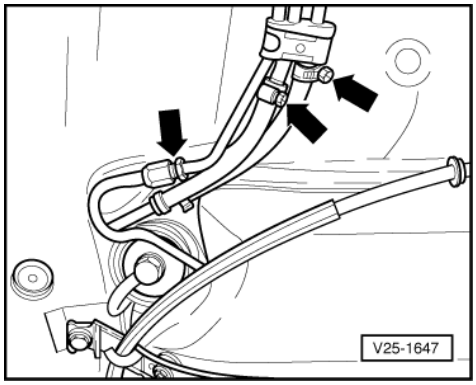


- -> Start by securing guard, earth connection and fuel filler neck with bolt -arrow-.

Attention:
Make sure earth connection is screwed on and connector is firmly attached at fuel filler neck. Installation position=>Fig. 66 .



- -> Fasten securing straps and support bracket -arrows-.
- Tighten plastic nuts at securing straps and support bracket.



- -> Connect wiring -arrows- as marked.

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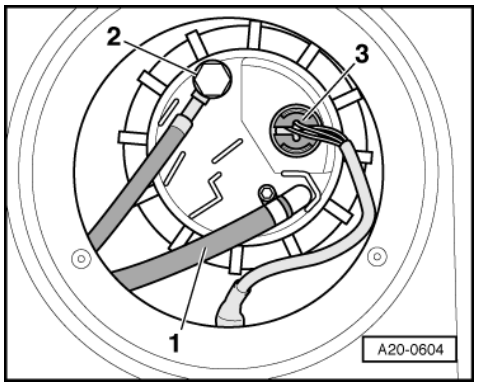

- -> Attach connector -3- for fuel pump and fuel gauge sender.

Attention:
After installing, use ohmmeter to check electrical connection between metal ring on fuel filler neck and bare metal part on body.
- **Specification: approx. 0 ω**

- After connecting battery, enter radio anti-theft code.

=> Radio operating instructions

- Set clock to correct time.

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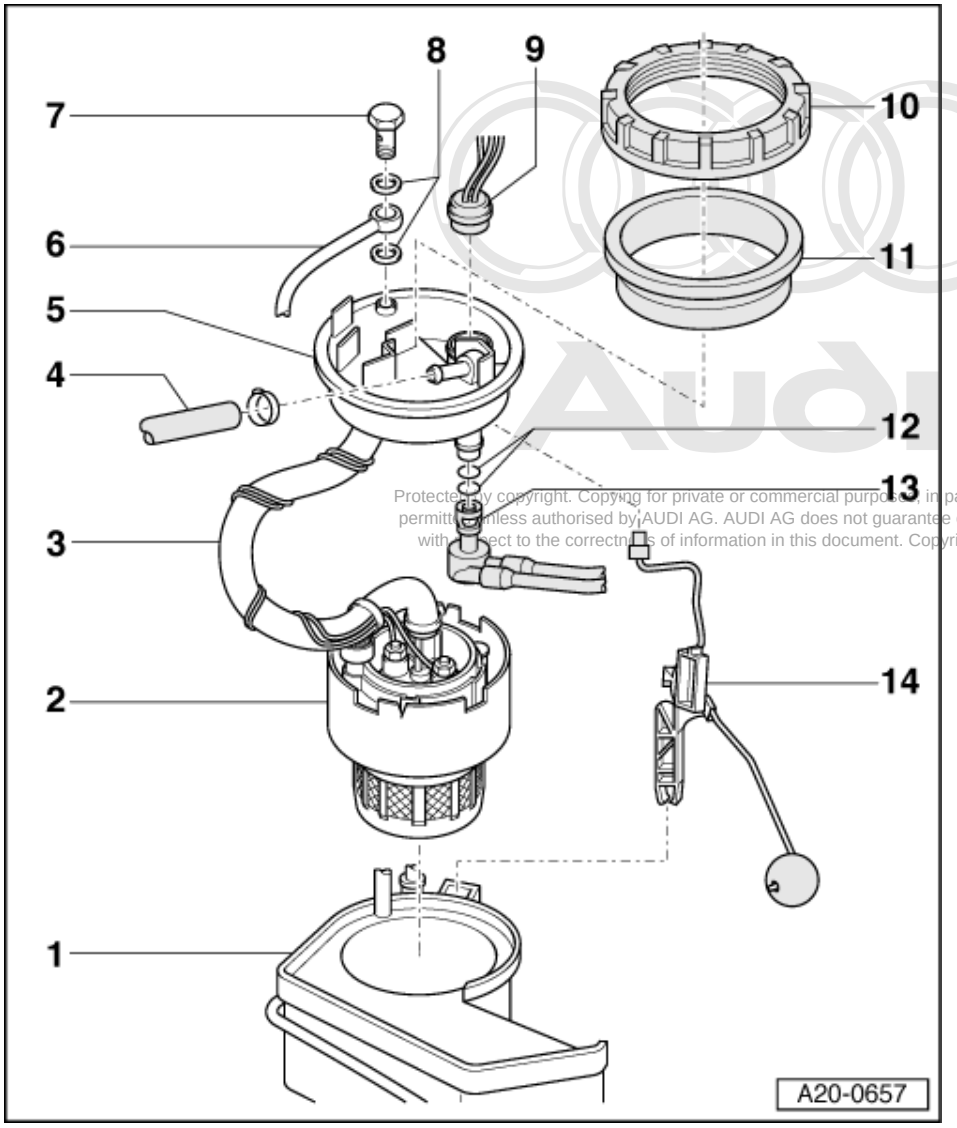
Tightening torques

Component	Nm
Securing straps/support bracket for fuel tank to body	25
Securing straps to fuel tank	2
Support bracket to fuel tank	2
Hose clamps	2
Bolted joint of fuel supply pipe	20

3.5 - Exploded view of components: Fuel delivery unit and fuel gauge sender



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1 Bottom part of baffle housing

- Secured in position in fuel tank
- Cannot be removed

2 Fuel delivery unit

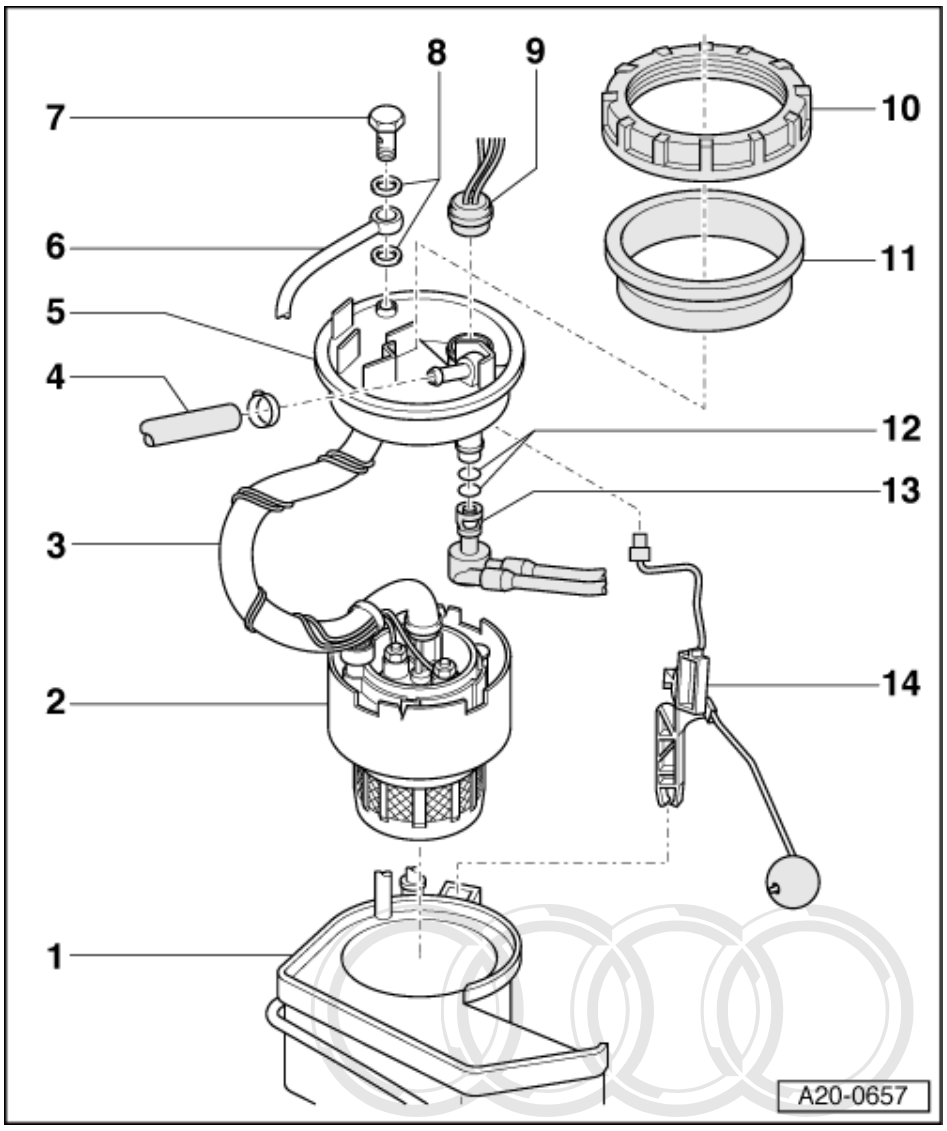
- Removing and installing=>Page 92
- Electrical checking of fuel pump => Page 79
- Checking holding pressure

=> Injection and Ignition System; Repair Group 24

=> Injection and Ignition System; Repair Group 25

3 Fuel supply pipe

- Fuel pump/baffle housing



4 Fuel return pipe
- From engine

5 Sealing flange
- Removing and installing=>Page 92
- Installation position: Observe arrow mark => Page 96

6 Fuel supply pipe
- To fuel filter

7 Banjo bolt, 23 Nm

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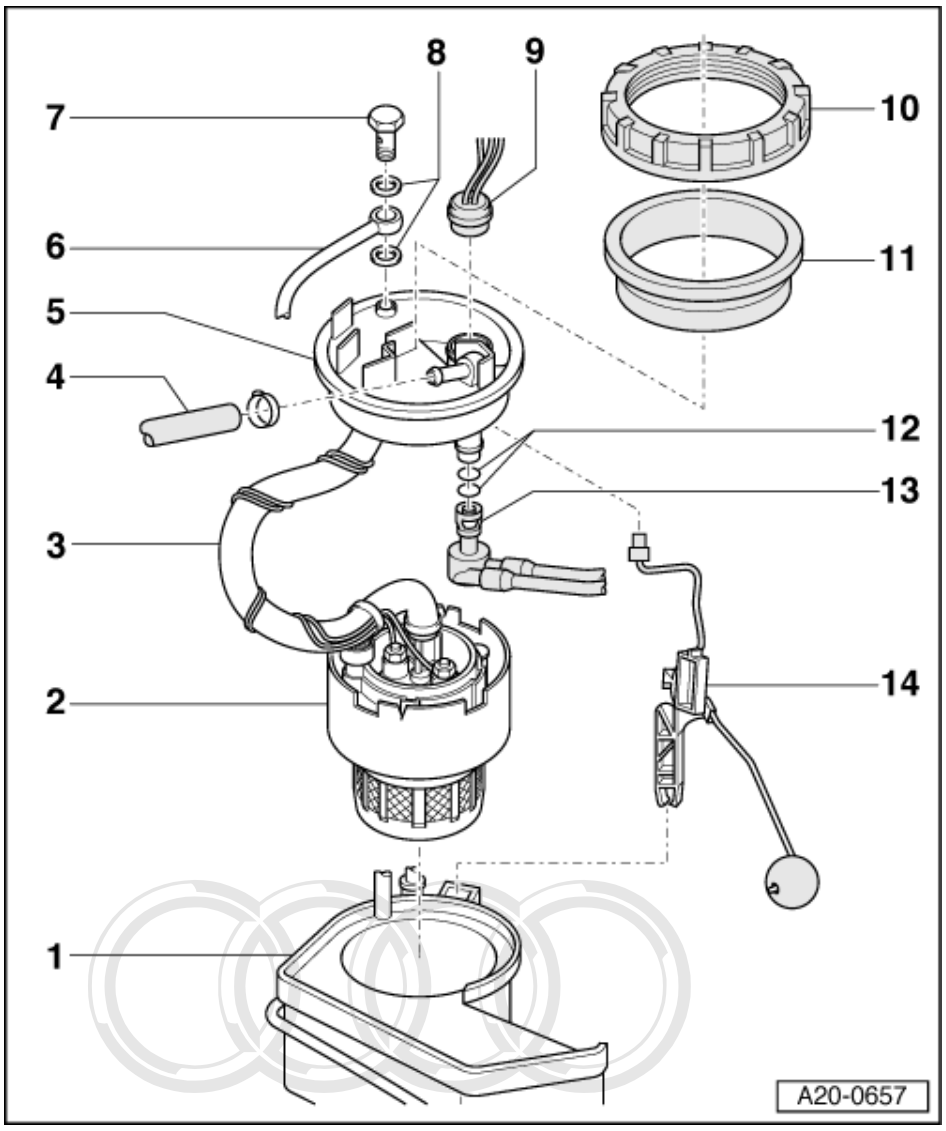
Attention:
Care is to be taken on vehicles fitted with KE



8 Sealing ring
- Replace

9 Connector
- For fuel pump and fuel gauge sender -G

10 Union nut, 50 Nm
- Use spanner 3217 to remove and install

11 Sealing ring
- Replace
- When installing, fit dry seal in fuel tank opening

12 O-ring
- Always replace
- Check installation position

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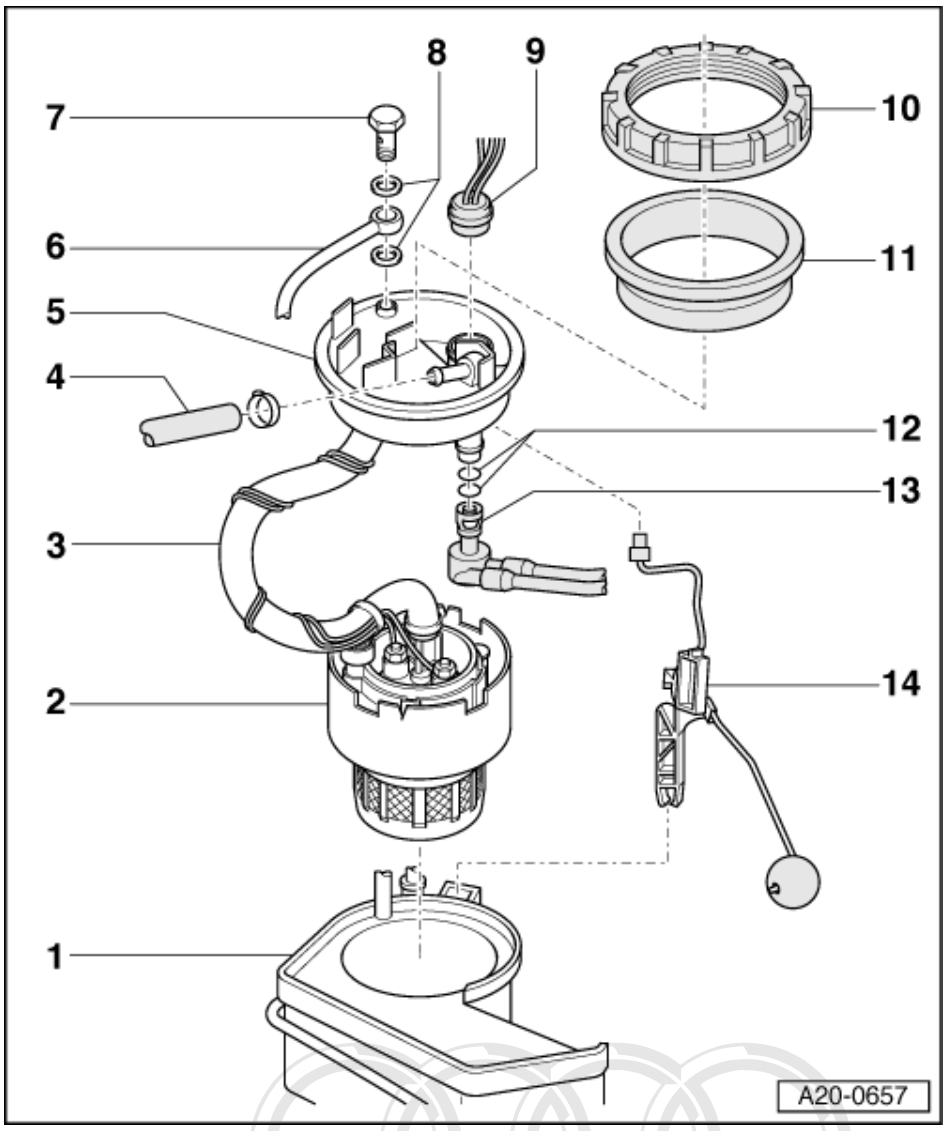

13 Return pipe

- Attached to inside of sealing flange
- To pull off, use release tool T40020 or press release buttons

14 Fuel gauge sender -G

- Checking => Page 112
- Removing and installing=>Page 113

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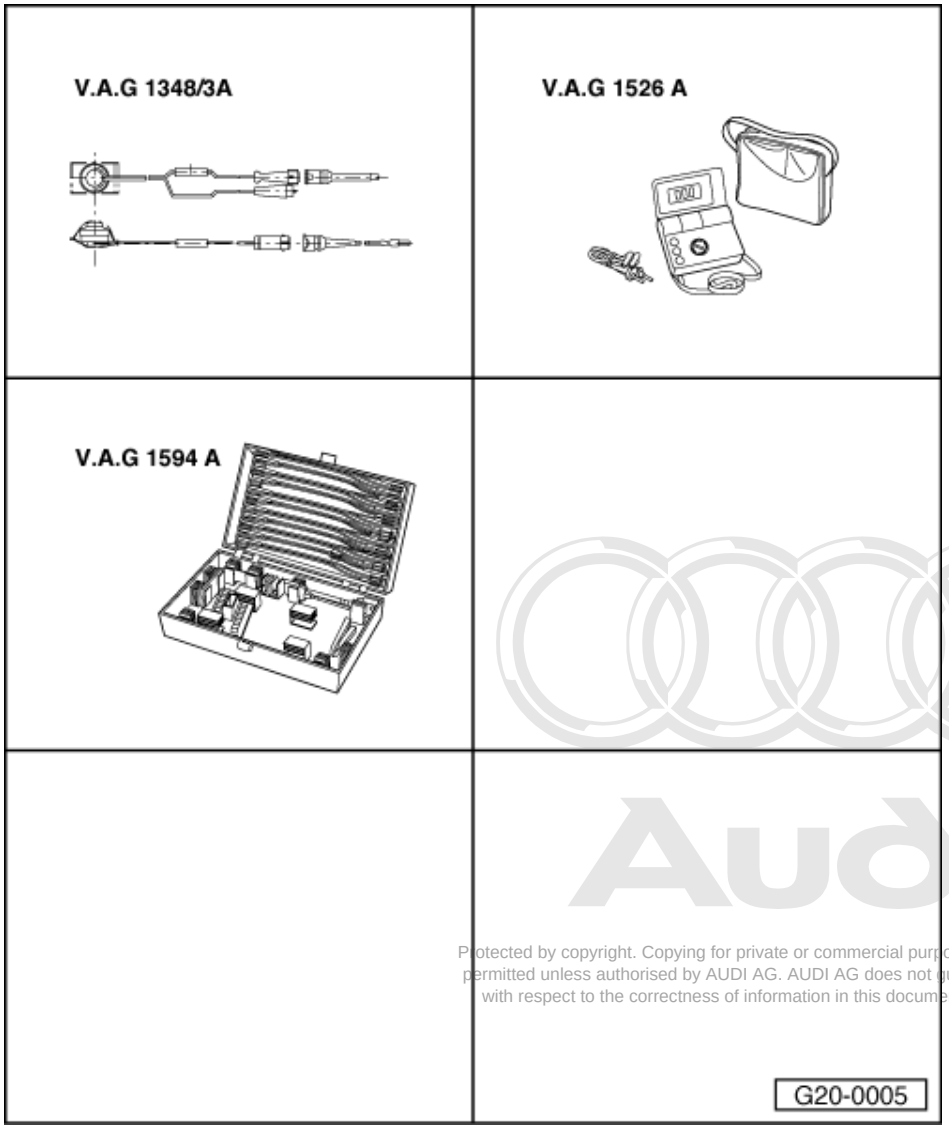
3.6 - Electrical checking of fuel pump



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Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- V.A.G 1526 A
- V.A.G 1594 A

Test requirements:

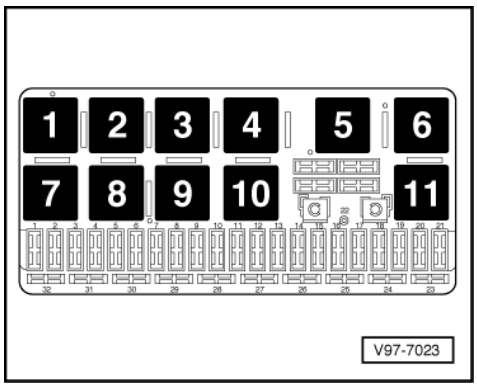
- Battery voltage at least 12.7 V
- Fuel pump relay OK
- Fuse S13 OK (in fuse box)
- Fuel filter OK

Test sequence

- Briefly operate starter.
  - Fuel pump must be heard to start up

If fuel pump does not run:

- Switch off ignition.



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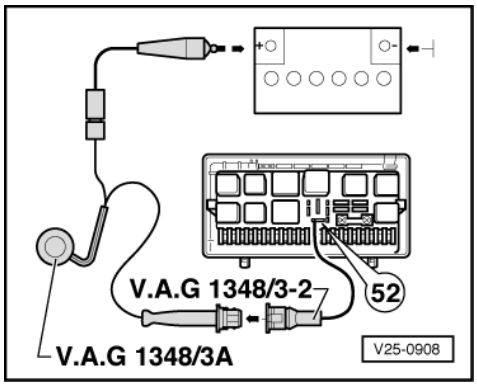
- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).
- Press switch on remote control.

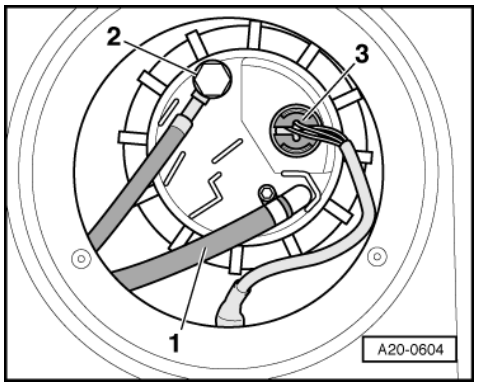
If fuel pump now runs:

Check fuel-pump relay and actuation

=> Injection and Ignition System; Repair Group 24; Servicing Injection System; Checking fuel-pump relay and actuation Servicing Injection System Checking fuel-pump relay and actuation

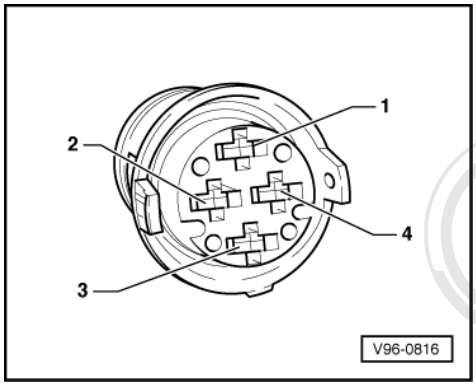
=> Injection and Ignition System; Repair Group 25; Servicing Injection System; Checking fuel-pump relay and actuation Servicing Injection System Checking fuel-pump relay and actuation

If fuel pump does not run:



- Fold forward right backrest of rear seat bench.
- Remove luggage compartment lining.
- Unscrew cover for sealing flange beneath luggage compartment lining.

- -> Carefully release 4-pin connector -3- and unplug.



- -> Connect up multimeter for voltage measurement between contacts 1 (green/yellow) and 4 (brown).
- Keep switch on remote control permanently pressed and read off voltage.
  - Specification: approx. battery voltage

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

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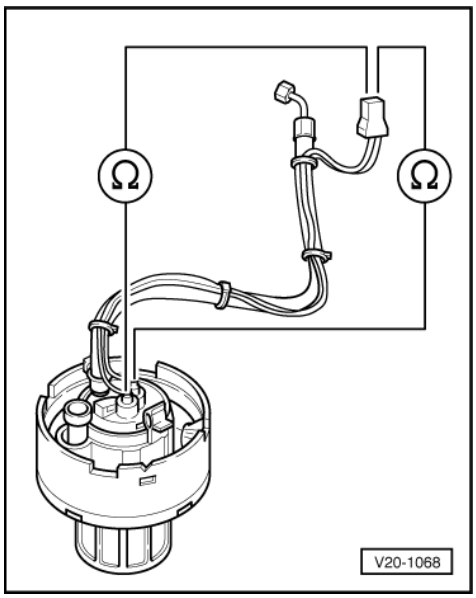
- Remove fuel delivery unit => Page 92 .

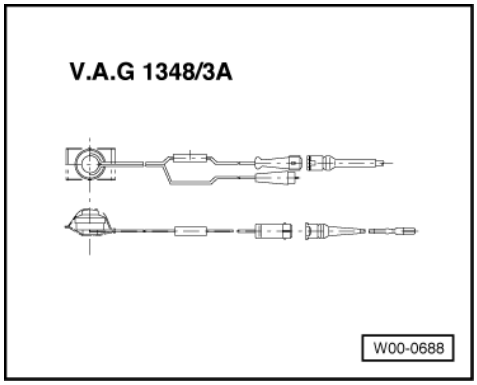


- -> Check connection of wiring between flange and fuel pump/check for continuity.

If no fault is found in wiring:

- Replace fuel pump => Dismantling fuel delivery unit, Page 97 onwards.
- Install fuel delivery unit => Page 94 .

3.7 - Checking fuel pump delivery rate - 4-cyl. engine (2-valve)



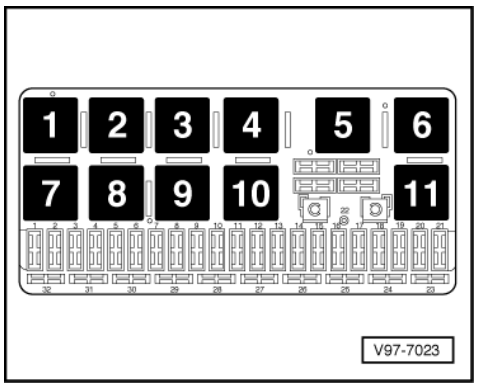
Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- Fuel-resistant beaker

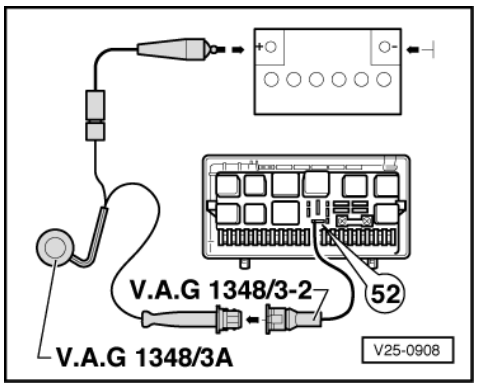
Test requirement:

- Battery voltage at least 12.7 V

Test sequence



- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



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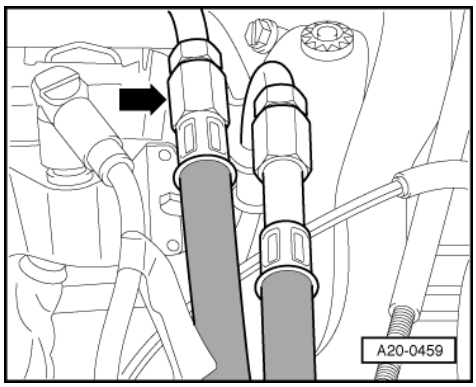
- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).

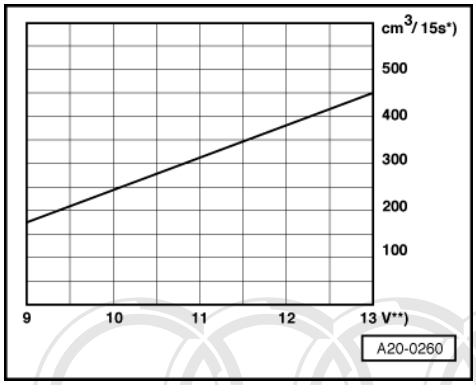
- Detach cap from fuel filler neck.

Attention:



- -> Unscrew fuel return pipe -arrow-.
- Hold fuel return pipe over fuel-resistant beaker.

- Operate remote control for 15 seconds, keeping button constantly pressed.



- -> Compare fuel delivery rate to specification.

  *) Minimum delivery rate cm3/15 s

  **) Voltage at fuel pump with engine stopped and pump running (approx. 2 V less than battery voltage)

- Tighten return pipe to 23 Nm.

3.8 - Checking fuel pump delivery rate - 4-cyl. engine (4-valve)

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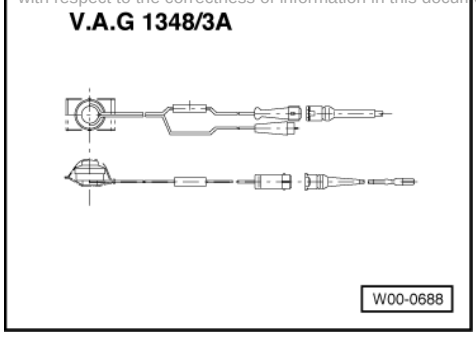


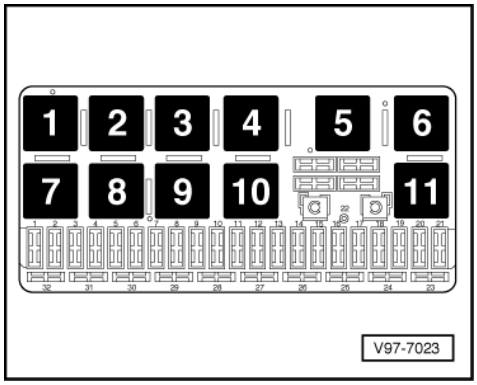
Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- Fuel-resistant beaker

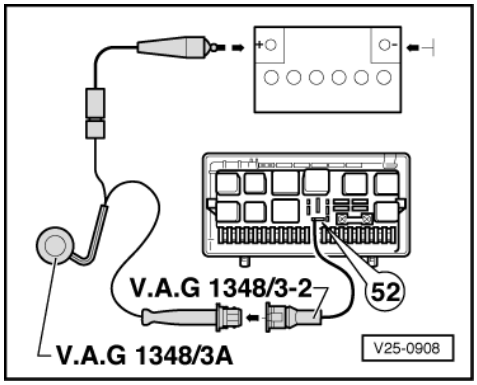
Test requirement:

- Battery voltage at least 12.7 V

Test sequence



- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).

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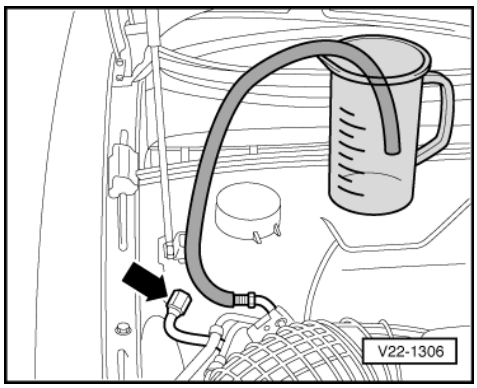
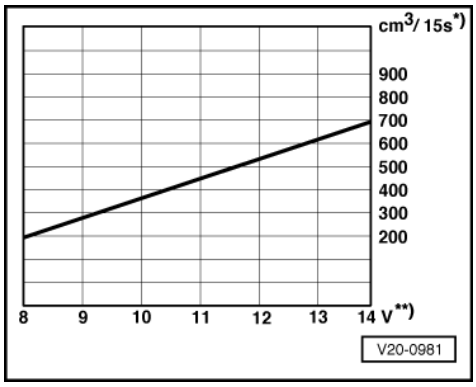
Attention:

- **Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.**
- **Opening of fuel supply pipe on vehicles fitted with KE Motronic causes pressure container to be drained - approx. 10 cm of fuel squirts out.**



- Detach cap from fuel filler neck.
- -> Unscrew fuel supply pipe -arrow- at fuel distributor.
- Attach test hose to fuel supply pipe (from fuel tank) and hold over fuel-resistant beaker.

- Operate remote control for 15 seconds, keeping button constantly pressed.



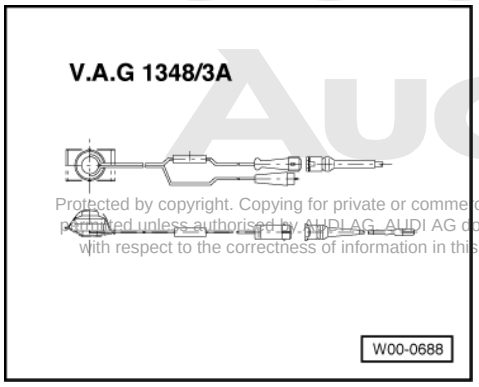
- -> Compare fuel delivery rate to specification.

  *) Minimum delivery rate cm3/15 s

  **) Voltage at fuel pump with engine stopped and pump running (approx. 2 V less than battery voltage)

- Tighten supply pipe to 23 Nm.

3.9 - Checking fuel pump delivery rate - 5-cyl. engine (2-valve)



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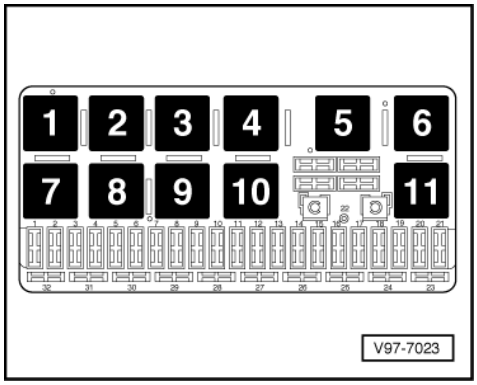
Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- Fuel-resistant beaker

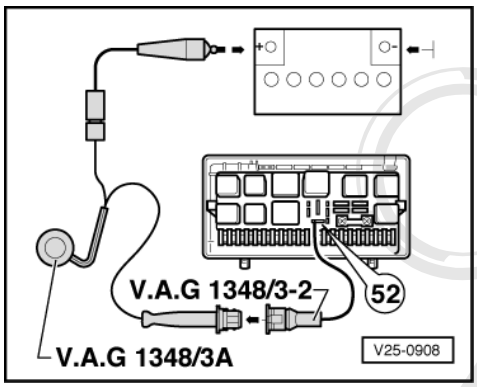
Test requirement:

- Battery voltage at least 12.7 V

Test sequence



- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).

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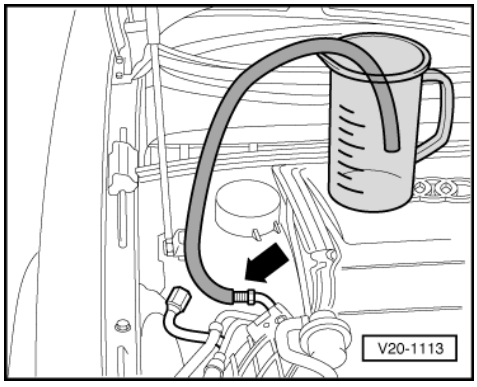
Attention:

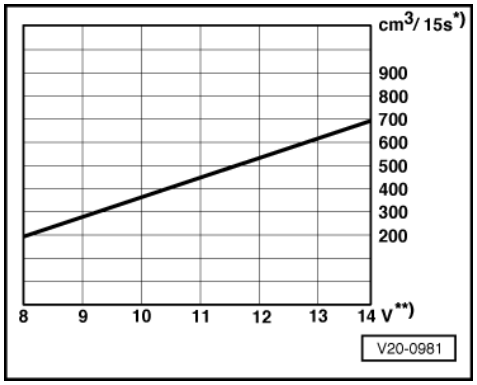
- **Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.**
- **Opening of fuel supply pipe on vehicles fitted with KE III Jetronic causes pressure container to be drained - approx. 10 cm of fuel squirts out.**



- Detach cap from fuel filler neck.
- -> Unscrew fuel supply pipe -arrow- at fuel distributor.

- Attach test hose to fuel supply pipe (from fuel tank) and hold over fuel-resistant beaker.

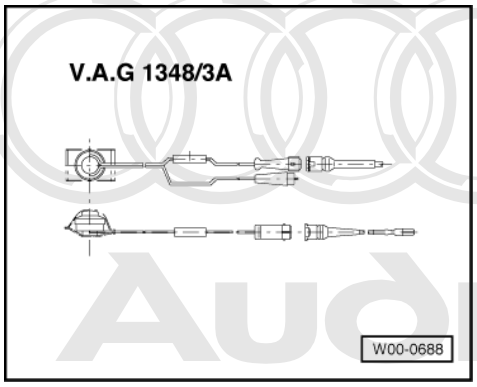
- Operate remote control for 15 seconds, keeping button constantly pressed.



- -> Compare fuel delivery rate to specification.

  *) Minimum delivery rate cm3/15 s
  **) Voltage at fuel pump with engine stopped and pump running (approx. 2 V less than battery voltage)
- Tighten supply pipe to 23 Nm.

3.10 - Checking fuel pump delivery rate - 5-cyl. engine (4-valve)



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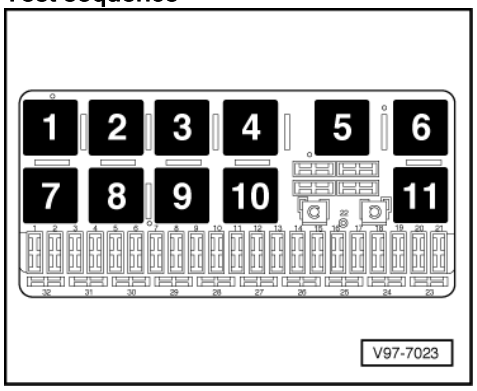
Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- Fuel-resistant beaker

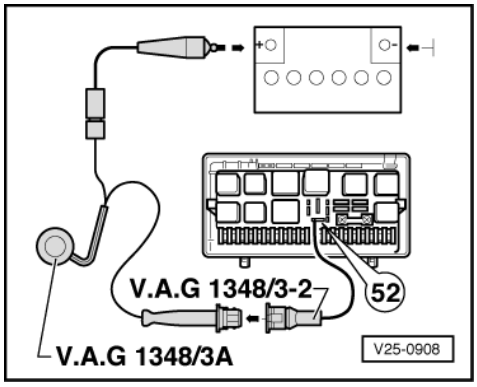
Test requirement:

- Battery voltage at least 12.7 V

Test sequence

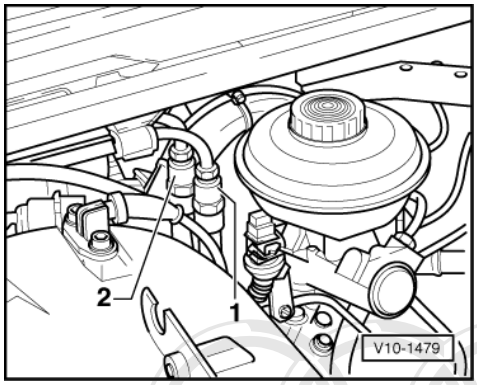


- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



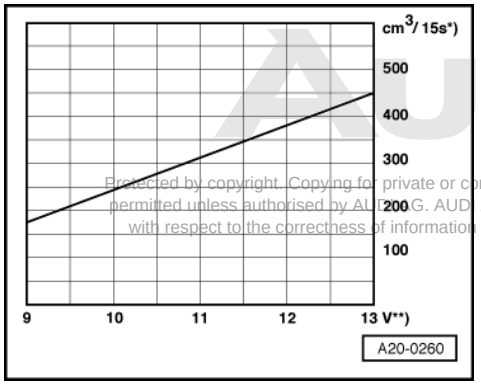
- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).

Attention:
- **Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.**
- **Opening of fuel supply pipe on vehicles fitted with KE III Jetronic causes pressure container to be drained - approx. 10 cm of fuel squirts out.**



- Detach cap from fuel filler neck.
- -> Unscrew fuel return pipe -2-.
- Attach test hose to fuel return pipe (from engine) and hold over fuel-resistant beaker.

- Operate remote control for 15 seconds, keeping button constantly pressed.



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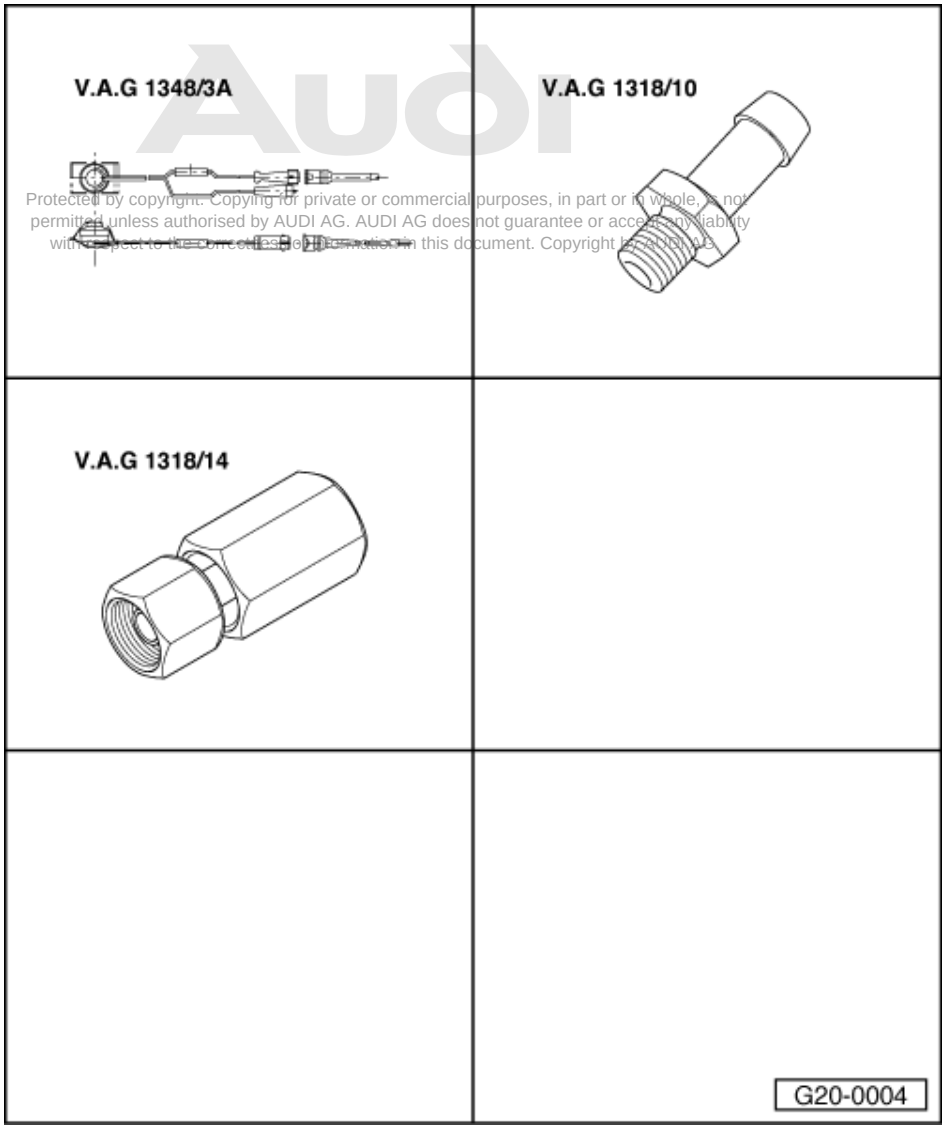
- -> Compare fuel delivery rate to specification.

*) Minimum delivery rate cm3/15 s

**) Voltage at fuel pump with engine stopped and pump running (approx. 2 V less than battery voltage)

- Tighten return pipe to 23 Nm.

3.11 - Checking fuel pump delivery rate - 6-cyl. engine



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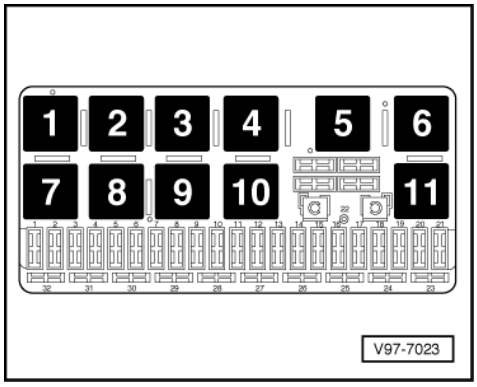
Special tools and workshop equipment required

- V.A.G 1348/3A with V.A.G 1348/3-2
- V.A.G 1318/10
- V.A.G 1318/14
- Fuel-resistant beaker

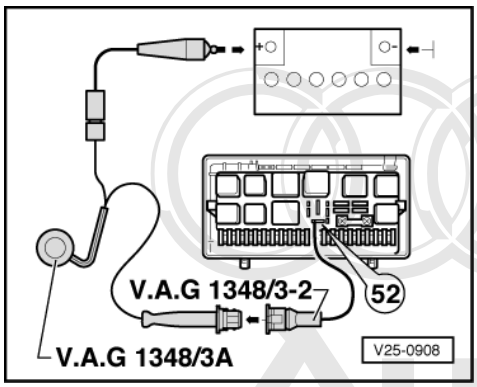
Test requirement:

- Battery voltage at least 12.7 V

Test sequence



- -> Pull off fuel-pump relay (on relay plate with fuse box in plenum chamber, position 10).



- -> Connect remote control V.A.G 1348/3A with adapter lead V.A.G 1348/3-2 to contact 52 of relay socket (position 10).
- Connect pick-off to vehicle battery (+).

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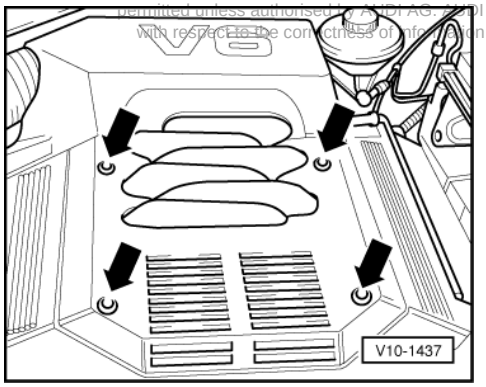
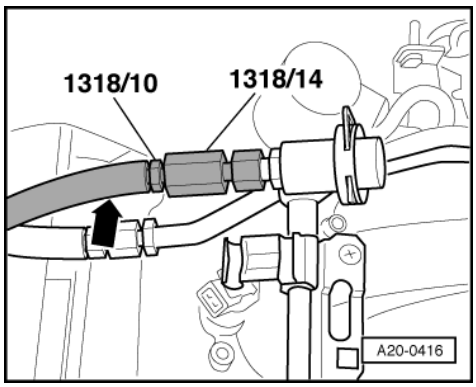


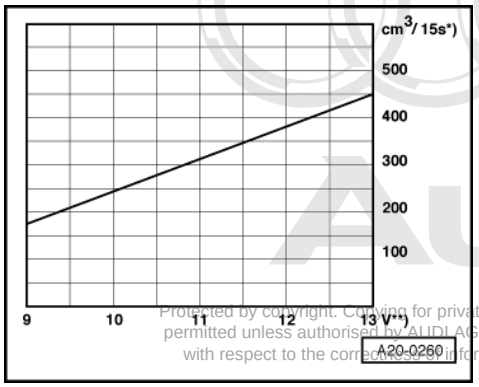
- -> Remove engine cover -arrows-.

Attention:



- -> Unscrew fuel return pipe at fuel pressure distributor.
- Fit adapters V.A.G 1318/14 and V.A.G 1318/10 at fuel pressure regulator.
- Attach test hose -arrow- and hold over fuel-resistant beaker.

- Operate remote control for 15 seconds, keeping button constantly pressed.



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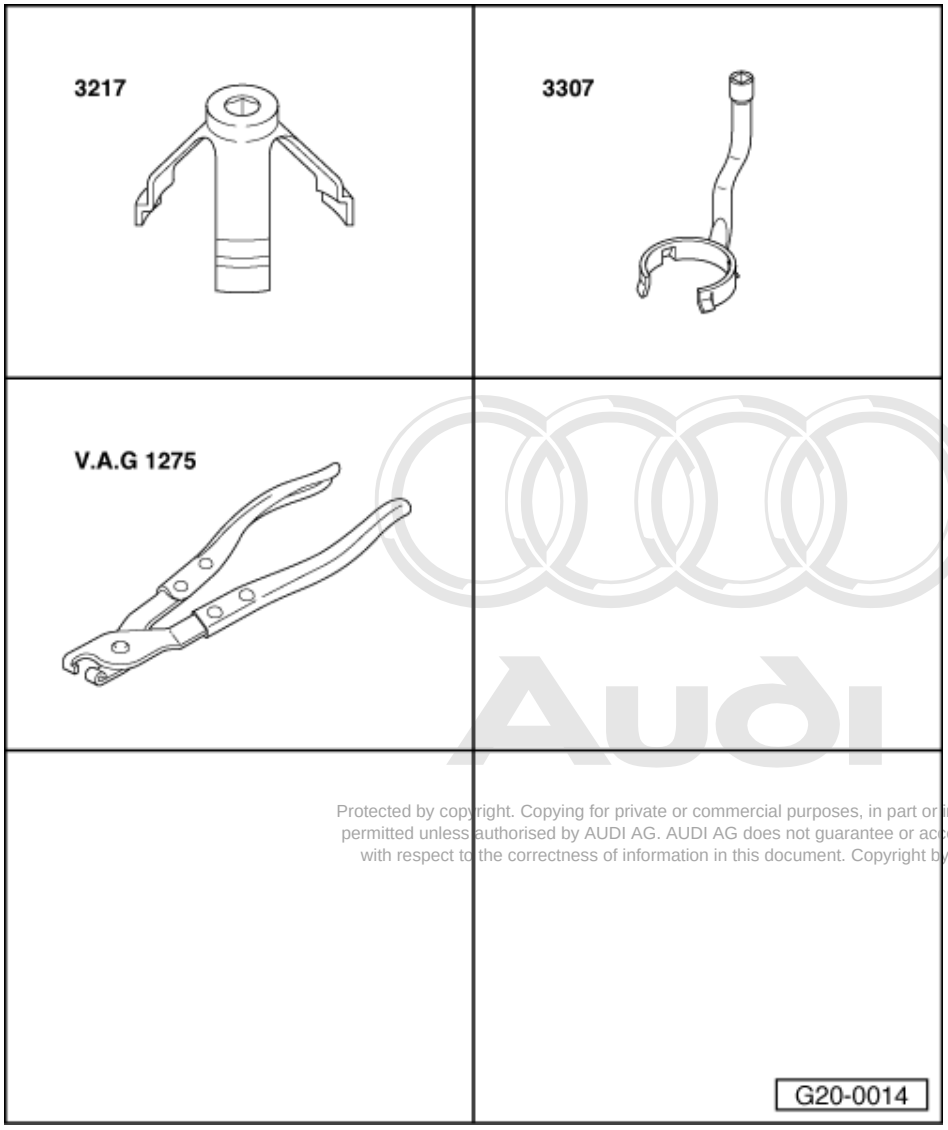
- -> Compare fuel delivery rate to specification.

  *) Minimum delivery rate cm3/15 s

  **) Voltage at fuel pump with engine stopped and pump running (approx. 2 V less than battery voltage)

- Tighten return pipe to 23 Nm.

3.12 - Removing and installing fuel delivery unit



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Special tools and workshop equipment required

- Spanner for union nut 3217
- Spanner for fuel delivery unit (fuel pump) 3307
- Hose clamp pliers V.A.G 1275

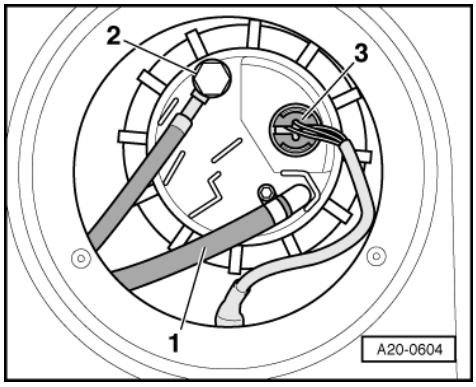
Pay attention to safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

Removing

- Heed (if necessary obtain) radio code for vehicles with encoded radio.
- Disconnect battery earth strap with ignition switched off.
- Briefly open fuel tank cap and close again.
- When removing fuel delivery unit, fuel tank must not be more than 3/4 full. Drain fuel tank if necessary. Procedure => Page 67 .
- Fold forward right backrest of rear seat bench.
- Remove luggage compartment lining.

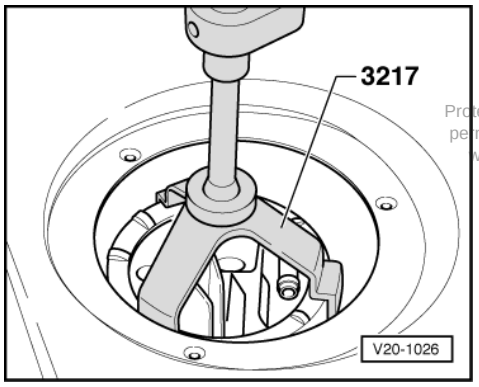
- Unscrew cover for sealing flange beneath luggage compartment lining.



- -> Carefully release 4-pin connector -3- and unplug.

Attention:
- **Fuel system is pressurised. Wrap cloth around joint before opening system. Then dissipate pressure by carefully unfastening joint.**
- **Opening of fuel supply pipe on vehicles fitted with KE III Jetronic und KE Motronic causes pressure container to be drained - approx. 10 cm of fuel squirts out.**

- Pull off fuel return pipe -1- and unscrew fuel supply pipe -2-.



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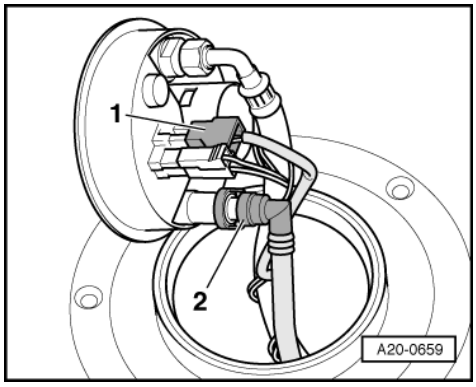
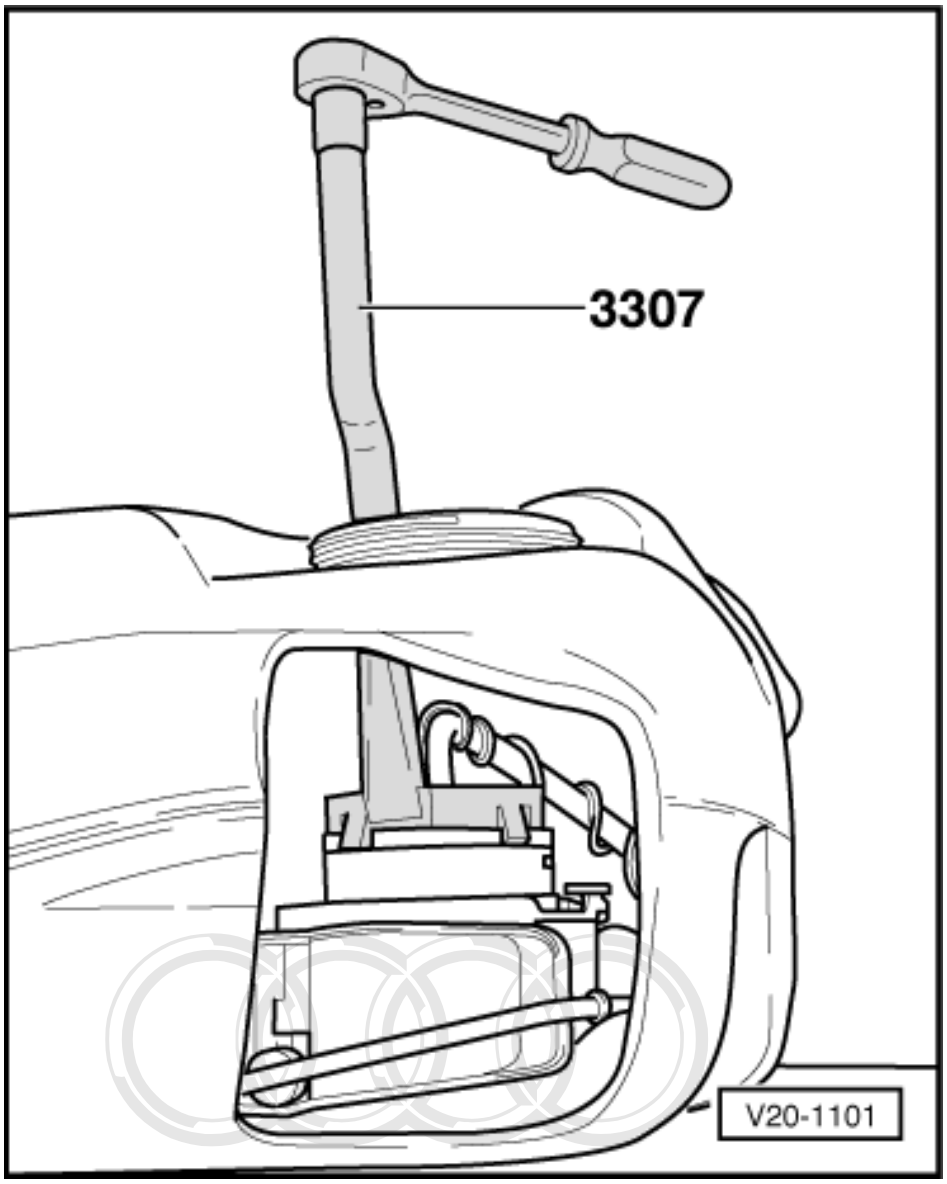
- -> Use spanner 3217 to unscrew union nut.
- Detach sealing flange and sealing ring from fuel tank opening.



- -> Unplug connector for fuel gauge -1- on inside of sealing flange.
- Pull off return pipe -2- on inside of sealing flange (use release tool T40020 or press release buttons).



- -> Insert spanner for fuel pump 3307 through fuel tank opening and apply at inner part of baffle housing.
- Use spanner 3307 to turn inner part of baffle housing approx. 15°in anti-clockwise direction as far as it will go and take out fuel pump with inner part of baffle housing.

Note:

If delivery unit is to be replaced, drain old unit prior to disposal.

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Installing

Install in reverse order, paying attention to the following:

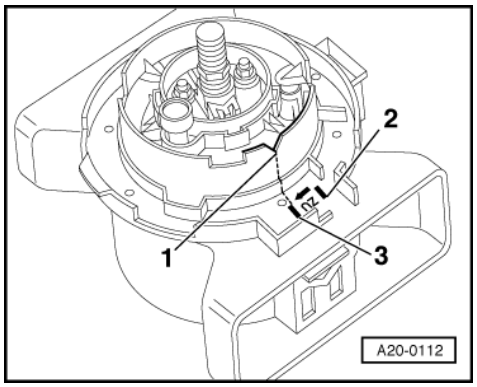
- If sealing flange and delivery unit have been separated/if fuel pump has been removed, pre-assemble components as described under "Dismantling fuel delivery unit" for the various engine versions.

Note:

Secure all hose connections with standard hose clamps.

=> Parts List

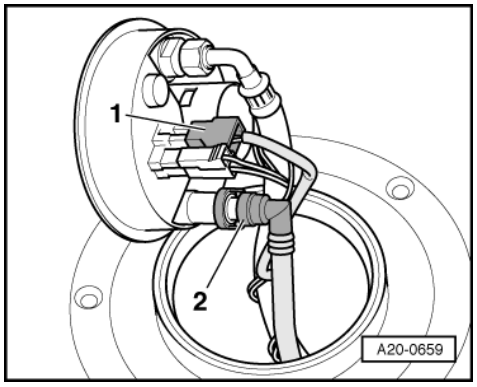
- Insert inner part of baffle housing, supply hose and sealing flange in fuel tank.



- -> Insert inner part of baffle housing into outer part in tank such that notch -1- on inner part of baffle housing coincides with mark -2- on outer part.
  - Inner part of baffle housing can be pressed downwards to a noticeable extent
- Apply spanner for fuel pump 3307 and turn inner part of baffle housing with pump approx. 15° in clockwise direction as far as it will go. Notch -1- is then in front of mark -3- (bayonet lock).

Note:

For ease of illustration, baffle housing is shown without fuel tank.



- -> Connect return pipe -2- to inside of sealing flange.

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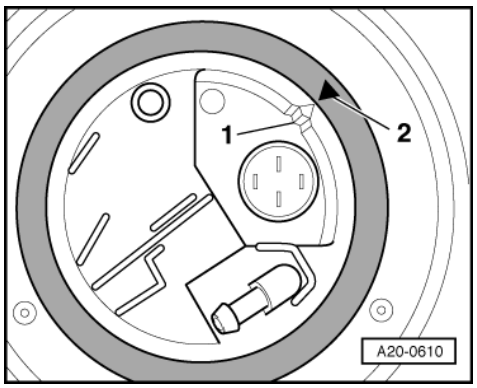
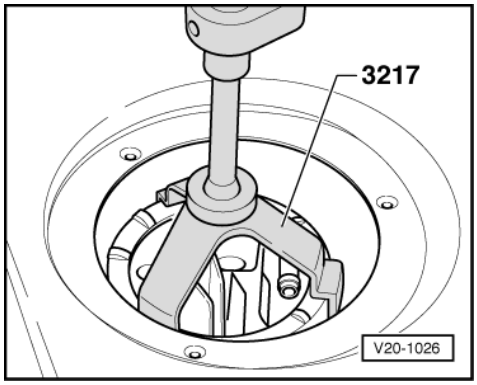
Notes:

- Always use new O-rings for return pipe.
- Moisten O-rings with fuel or coat with lubricant.

- Loop wire to fuel gauge sender -1- once around supply pipe (in fuel tank) and insert at sealing flange.
- Insert new dry sealing flange seal in fuel tank opening.



- -> Insert sealing flange in fuel tank.
  - Installation position: Mark on sealing flange -1- must coincide with mark on fuel tank -2-



- -> Use spanner 3217 to tighten union nut.
- Attach wires and connector.

Note:

Make sure fuel hoses are a tight fit.

- After connecting battery, enter radio anti-theft code.

=> Radio operating instructions

- Set clock to correct time.

Tightening torques

Component	Nm
Union nut for sealing flange	50
Banjo bolt for supply pipe	23
Hose clamps	2

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3.13 - Dismantling fuel delivery unit - vehicles with engine code letters AAH, ABC, ABK, ABY, ACZ, ADW

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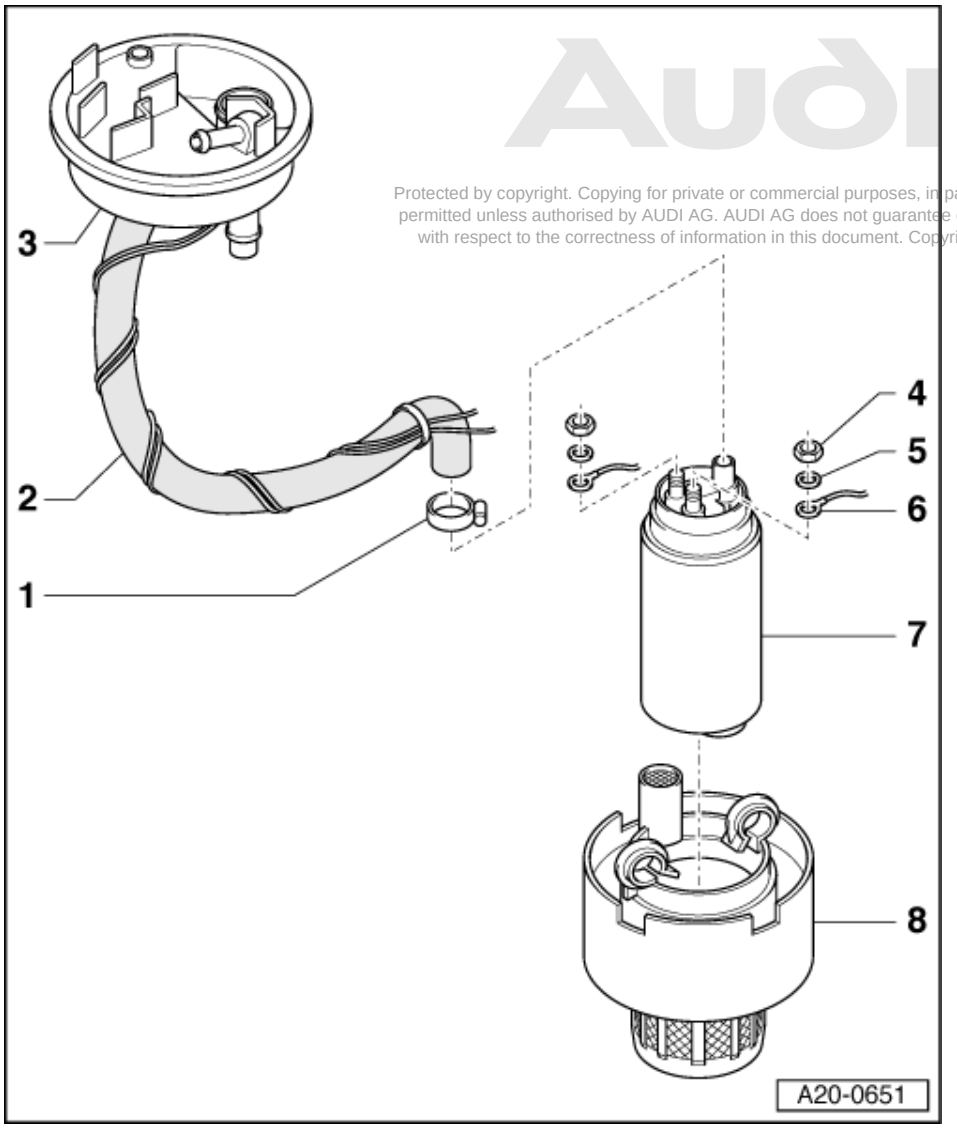
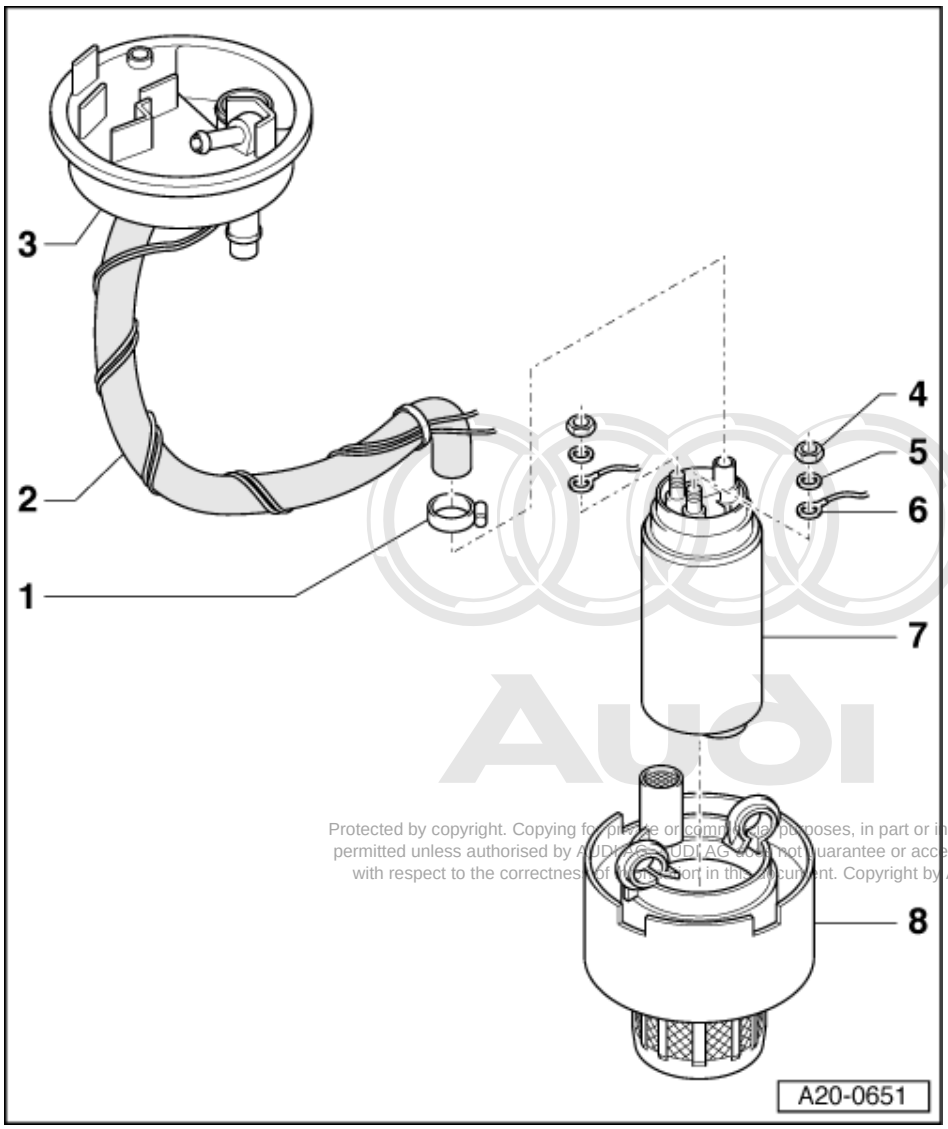


1 Hose clamp
- Use V.A.G 1275 to secure

2 Fuel supply pipe
- Fuel pump/baffle housing
- Pre-assembly => Page 99

3 Sealing flange
- Removing and installing=>Page 92
- Installation position: Observe arrow mark => Page 96
- Pre-assembly => Page 99



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4 M4 = 1.2 Nm
M5 = 1.6 Nm

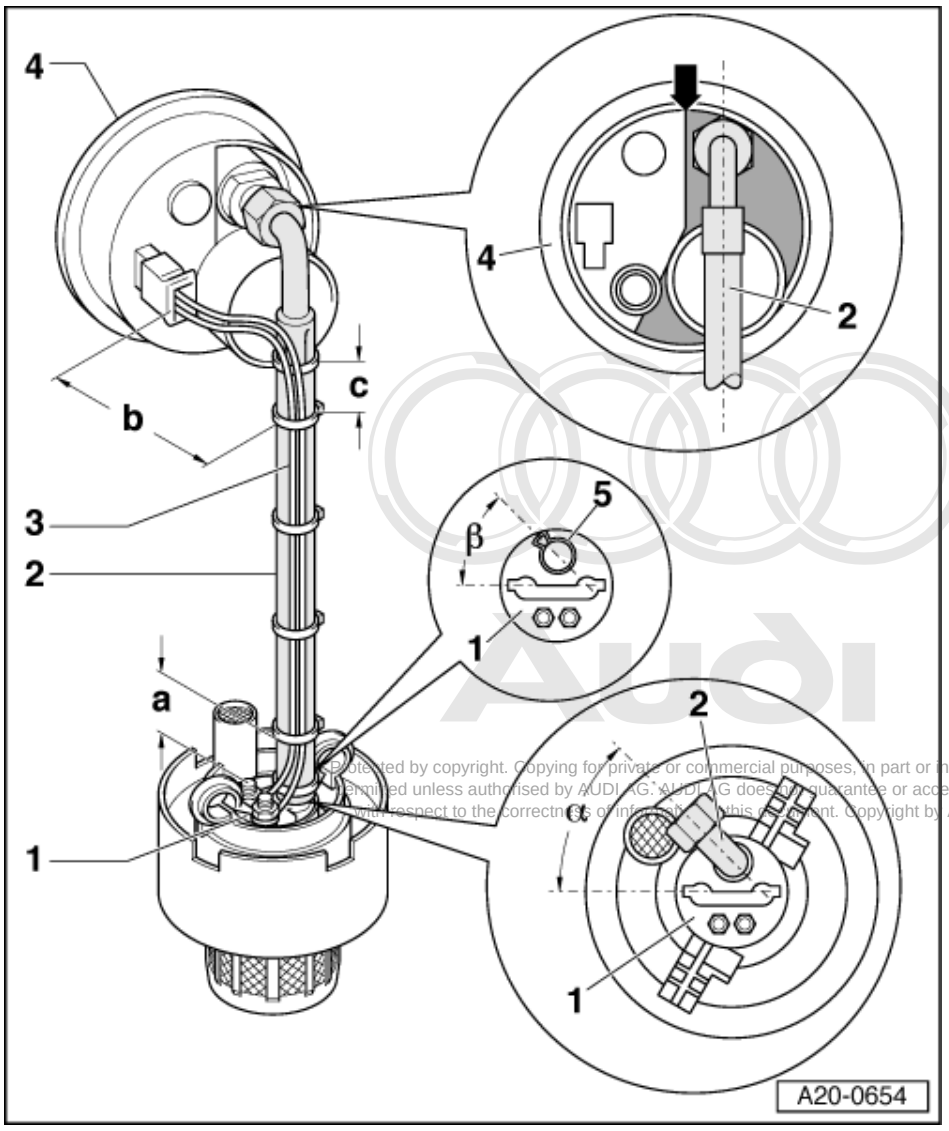
5 Washer

6 Wire
- Installation position => Page 100

7 Fuel pump
- Removing and installing
=>Fig. 101
- Pre-assembly => Page 99
- Electrical checking => Page 79
- Checking holding pressure

=> Injection and Ignition System; Repair Group 24

8 Inner part of baffle housing



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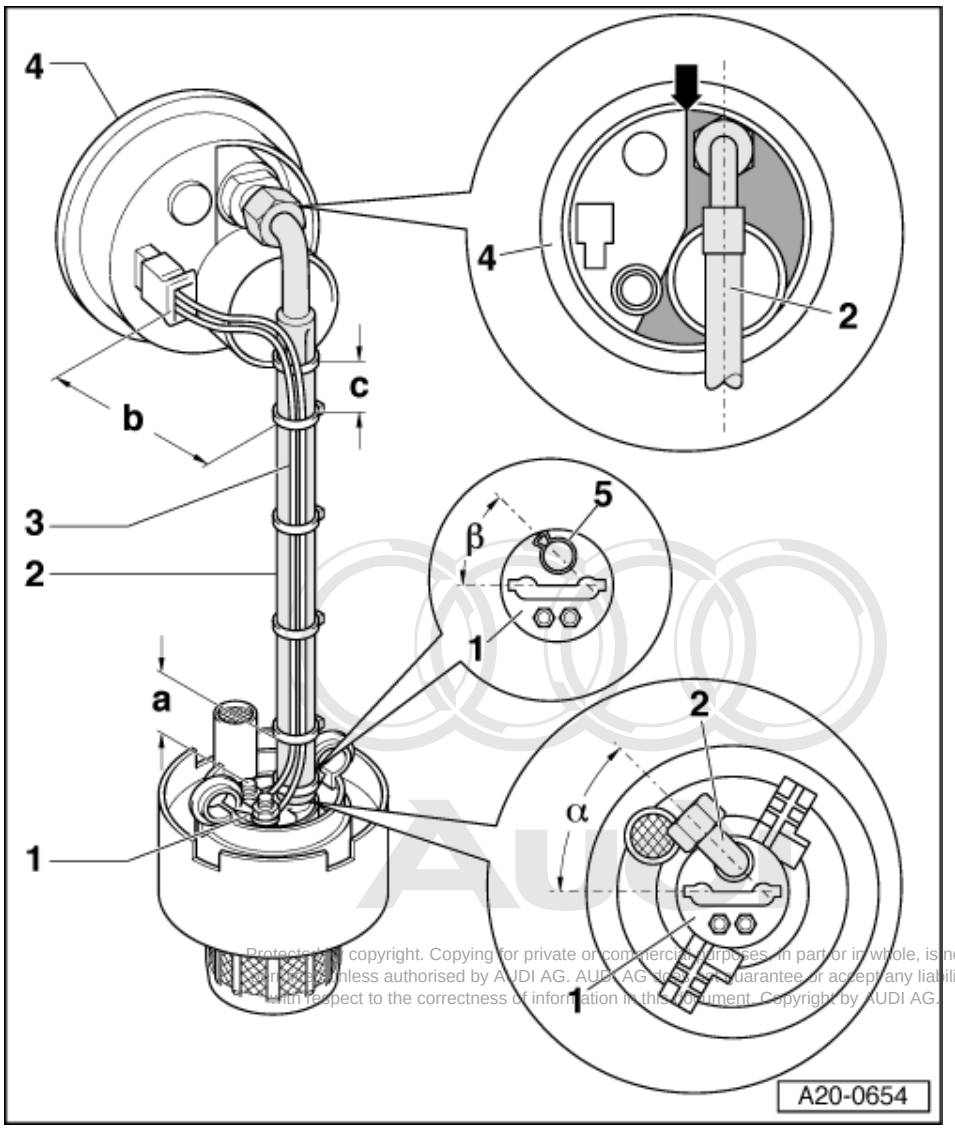
Pre-assembling fuel pump, sealing flange and fuel supply pipe

- Fit fuel supply pipe -2- at sealing flange -4- and fuel pump -1- as shown.
- Align fuel supply pipe at sealing flange in parallel with edge of housing -arrow-.
- Tighten fuel supply pipe to 23 Nm.
- Align fuel supply pipe at fuel pump at an angle of α = 45° to edge of housing.



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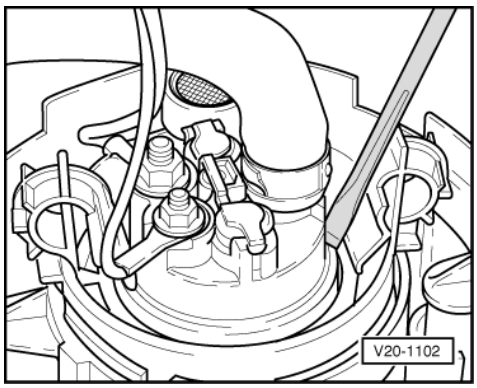
- Align new tab-type hose clamp -5- at fuel pump -1- at an angle of β = 45° to hose connections.
- Secure fuel supply pipe with new tab-type hose clamp. To do so, use V.A.G 1275.
- Lay wiring -3- to fuel pump along fuel supply pipe.
- Secure wiring with a total of 4 fuel-resistant cable ties. Attach upper and lower cable tie at marked locations.
  - a = 50 mm
  - b = Effective wire length 75 mm
  - c = 25 mm



-> Fig.1 Removing and installing fuel pump

- Fuel delivery unit dismantled

Removing

- Use screwdriver to press both locking lugs at baffle housing outwards and at the same time pull fuel pump slightly upwards to prevent re-engagement of locking lugs.
- Repeat procedure at second shoulder of fuel pump.
- Twist fuel pump and pull it upwards out of baffle housing.

Installing

Install in reverse order, paying attention to the following:

- Installation position: Offset connection at bottom of fuel pump must be inserted in hole in inner part of baffle housing

3.14 - Dismantling fuel delivery unit (pump ø 40 mm) - vehicles with engine code letters 6A, NG, ACE

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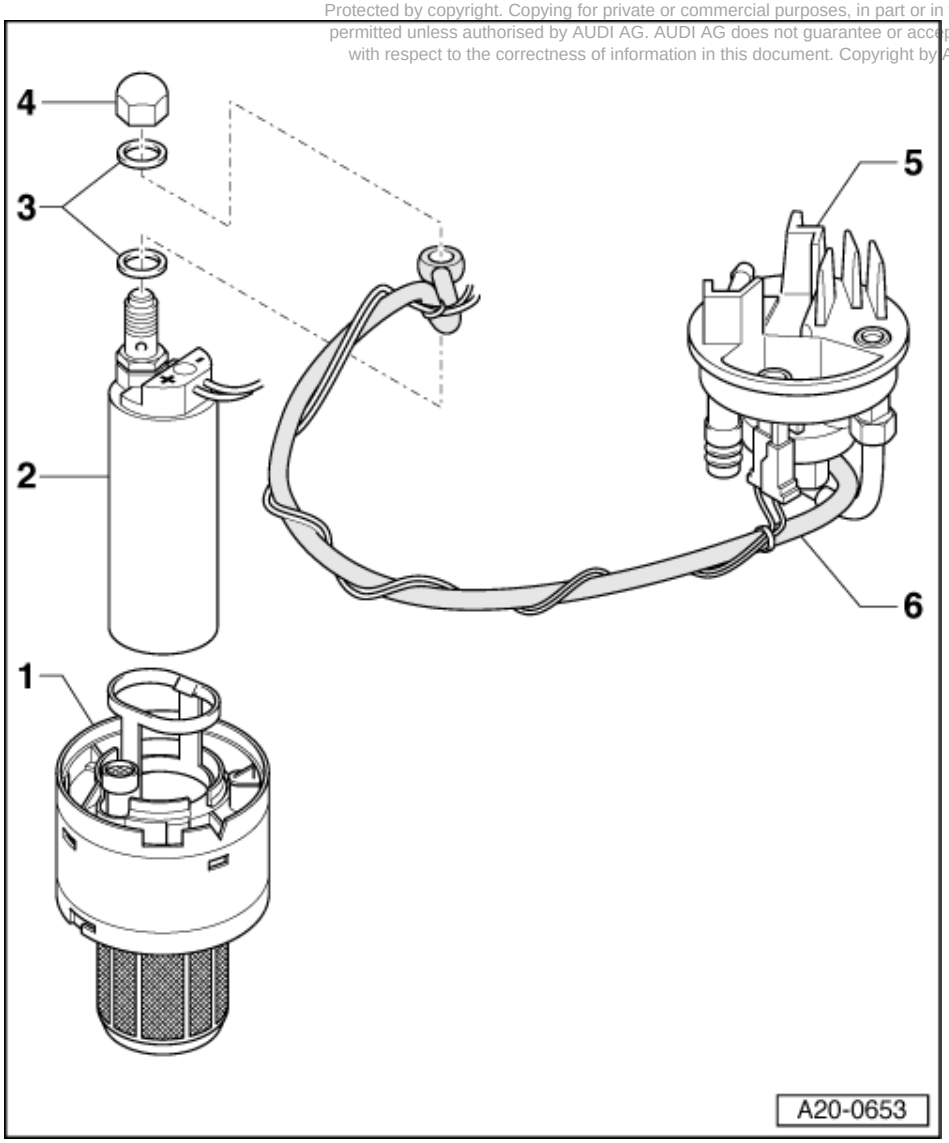


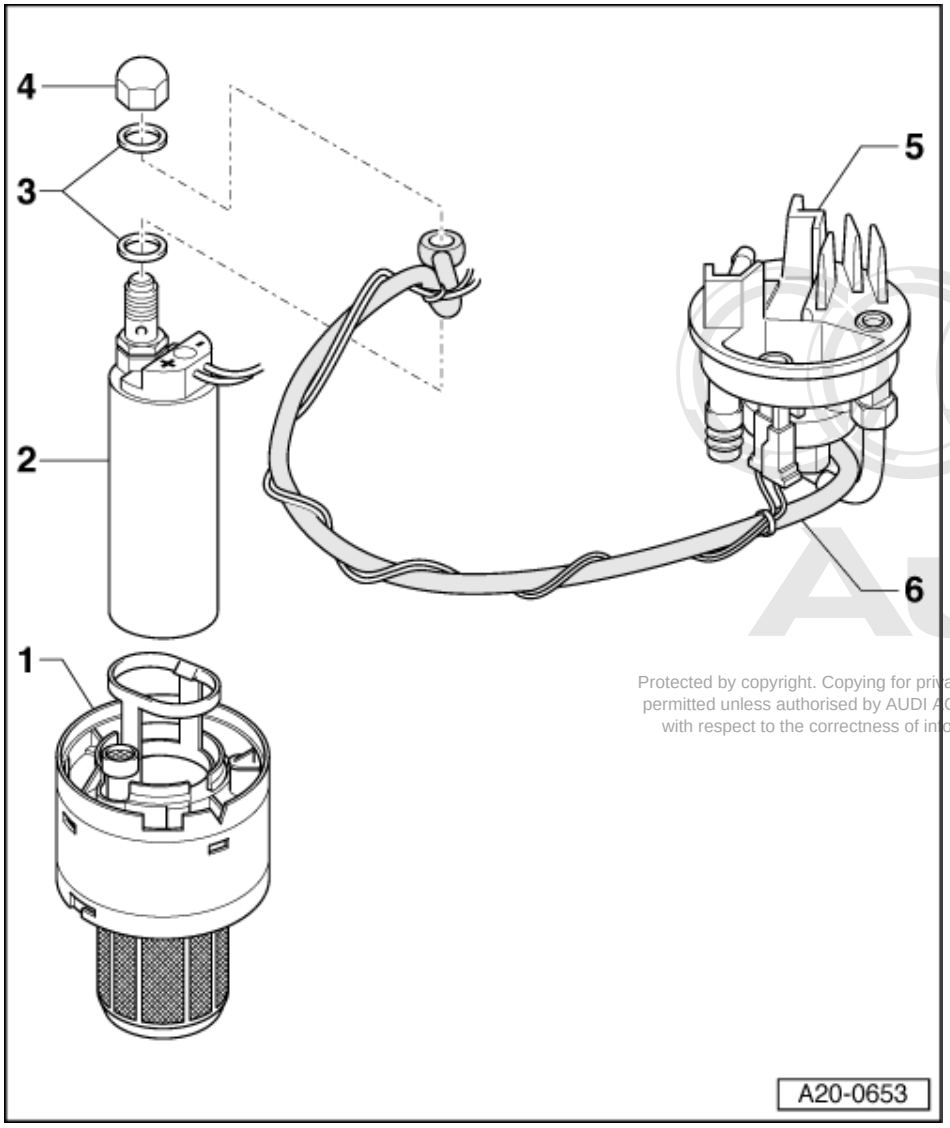
1 Inner part of baffle housing
2 Fuel pump

- Removing and installing
  =>Fig. 105
- Pre-assembly => Page 103
- Electrical checking => Page 79
- Checking holding pressure

=> Injection and Ignition System; Repair Group 25

3 Sealing ring

- Replace



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4 Cap nut, 13 Nm

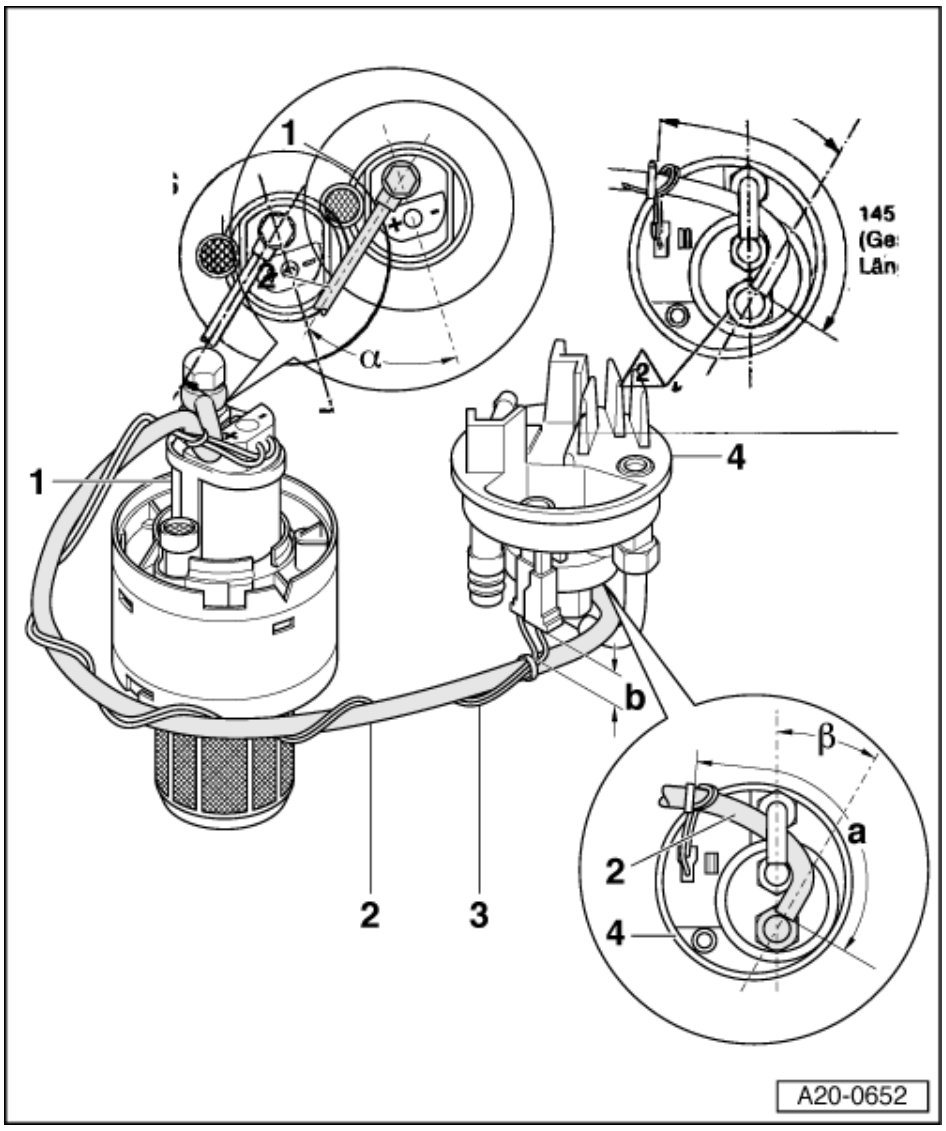
- Provide support at hexagon of fuel pump when unfastening and tightening

5 Sealing flange

- Removing and installing=>Page 92
- Installation position: Observe arrow mark => Page 96
- Pre-assembly => Page 103

6 Fuel supply pipe

- Fuel pump/baffle housing
- Pre-assembly => Page 103



Pre-assembling fuel pump (ø 40 mm), sealing flange and fuel supply pipe

- Fit fuel supply pipe -2- at sealing flange -4- and fuel pump -1- as shown.
- Align fuel supply pipe at sealing flange at an angle of β = 30° to fuel supply tube.
- Screw fuel supply pipe (23 Nm) to sealing flange.
- Align fuel supply pipe at fuel pump at an angle of α = 50° to connections.

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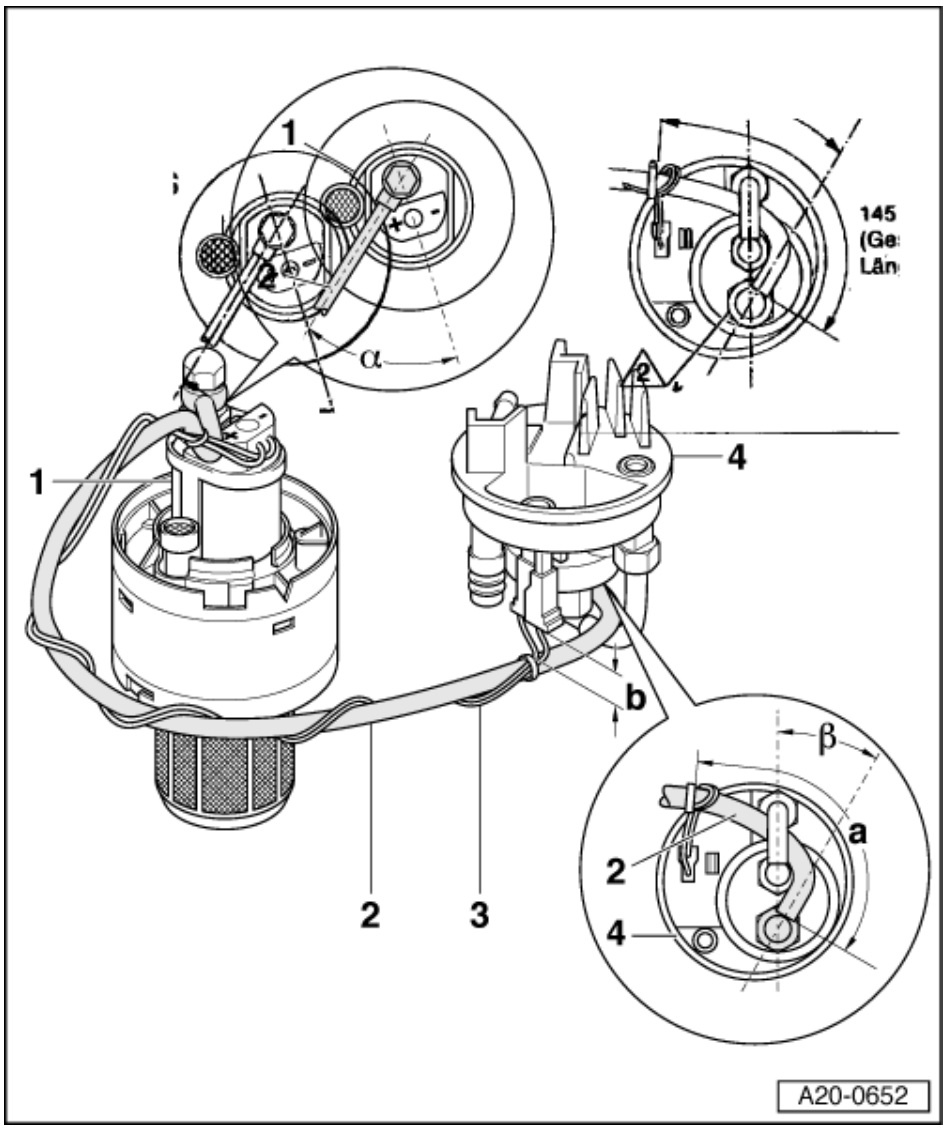

- Screw fuel supply pipe with cap nut and new sealing rings to fuel pump (13 Nm).
- Wind wiring -3- to fuel pump around fuel supply pipe.
- Secure wiring with fuel-resistant cable tie at marked location.
  - a = Effective length of fuel supply pipe 145 mm
  - b = 50 mm

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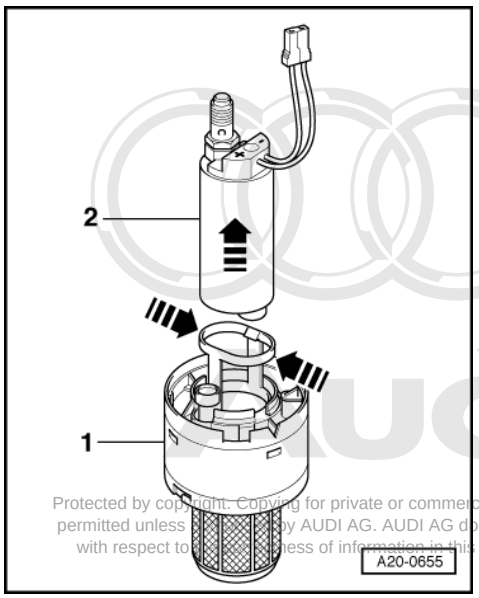

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-> Fig.1 Removing and installing fuel pump

- Fuel delivery unit dismantled

Removing

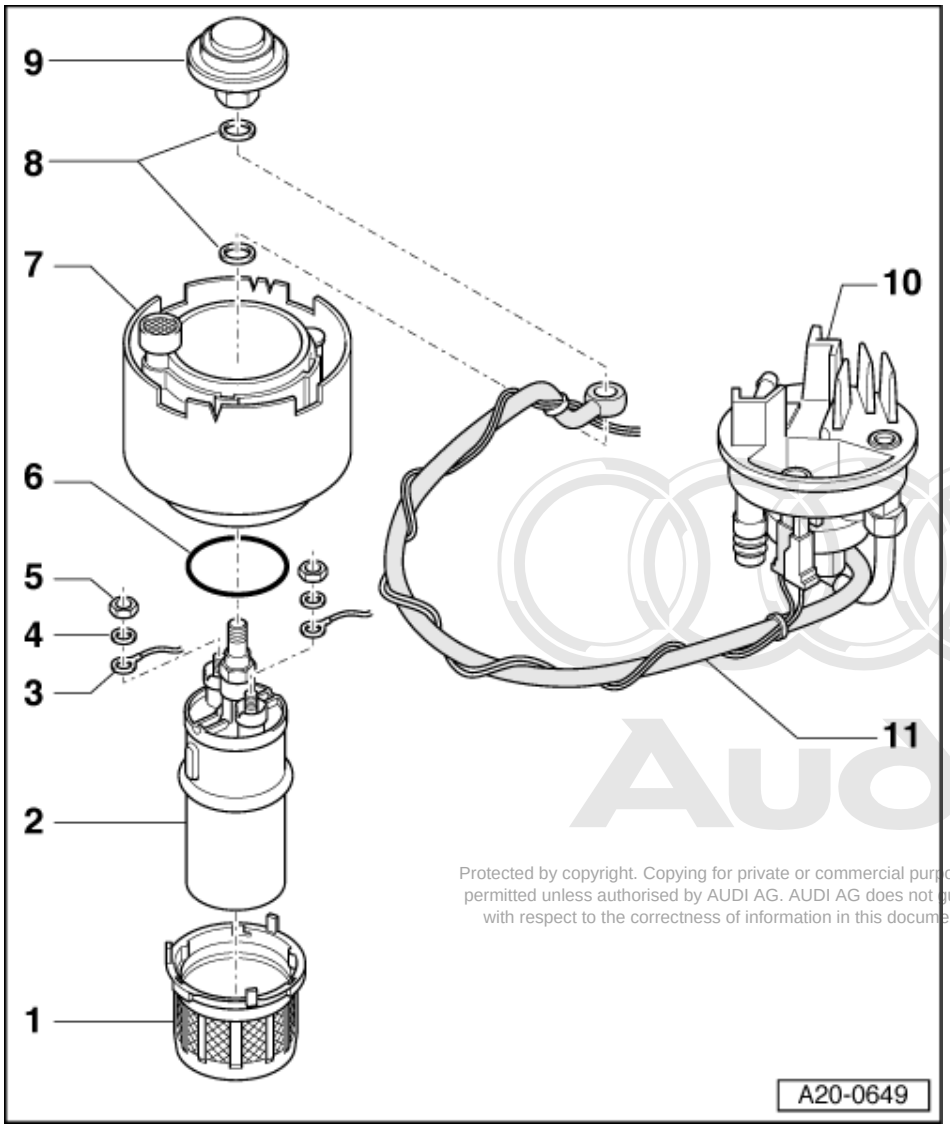
- Squeeze both release areas -arrows- at inner part of baffle housing -1-.
- Pull fuel pump -2- upwards -arrow- out of inner part of baffle housing.

Installing

Install in reverse order, paying attention to the following:

- Installation position: Offset connection at bottom of fuel pump must be inserted in hole in inner part of baffle housing

3.15 - Dismantling fuel delivery unit (pump ø 60 mm) - vehicles with engine code letters 6A, NG, ACE



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1 Fuel filter screen

- Turn anti-clockwise to detach (bayonet lock)
- Cannot be replaced separately
- Clean if contaminated

2 Fuel pump

- Removing and installing
  =>Fig. 111
- Pre-assembly => Page 109
- Electrical checking => Page 79
- Checking holding pressure

=> Injection and Ignition System; Repair Group 25

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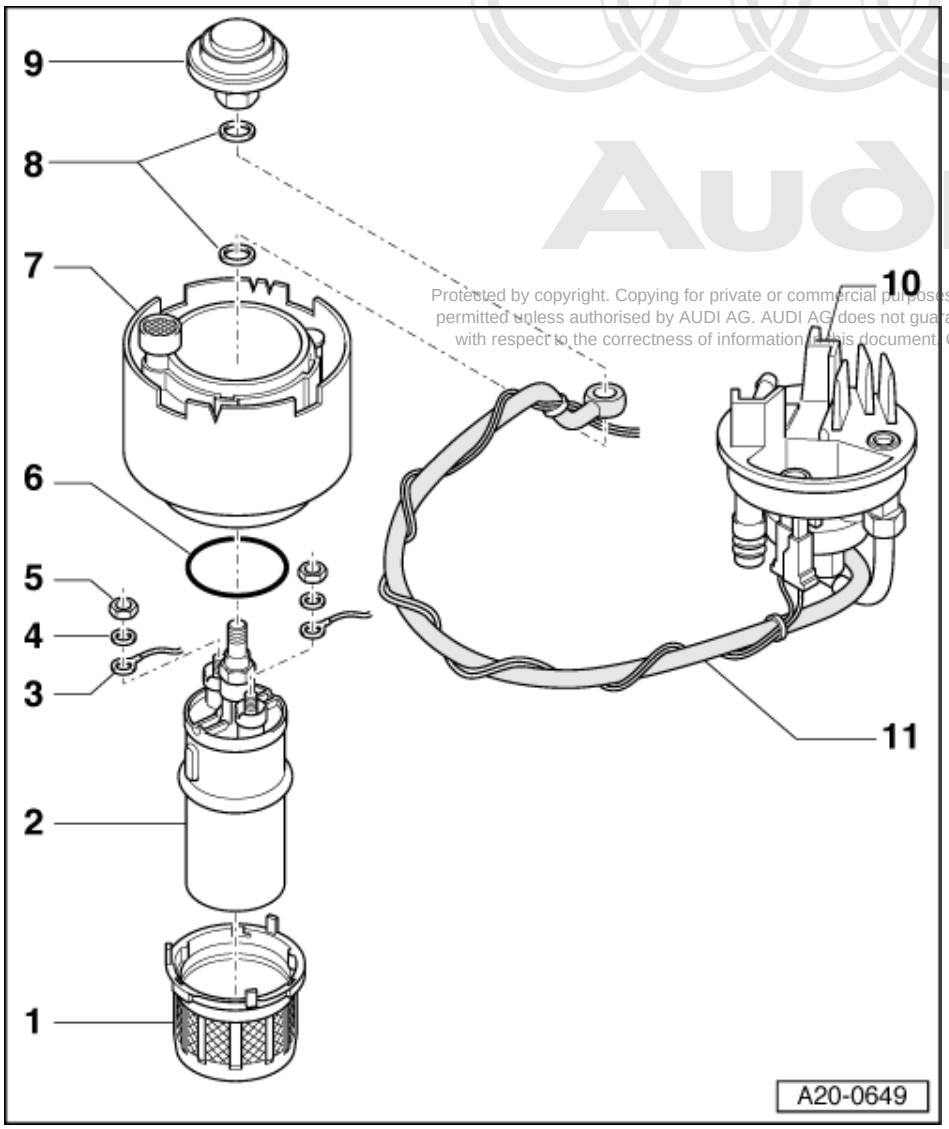


3 **Wire**
- Installation position => Page 110

4 **Washer**

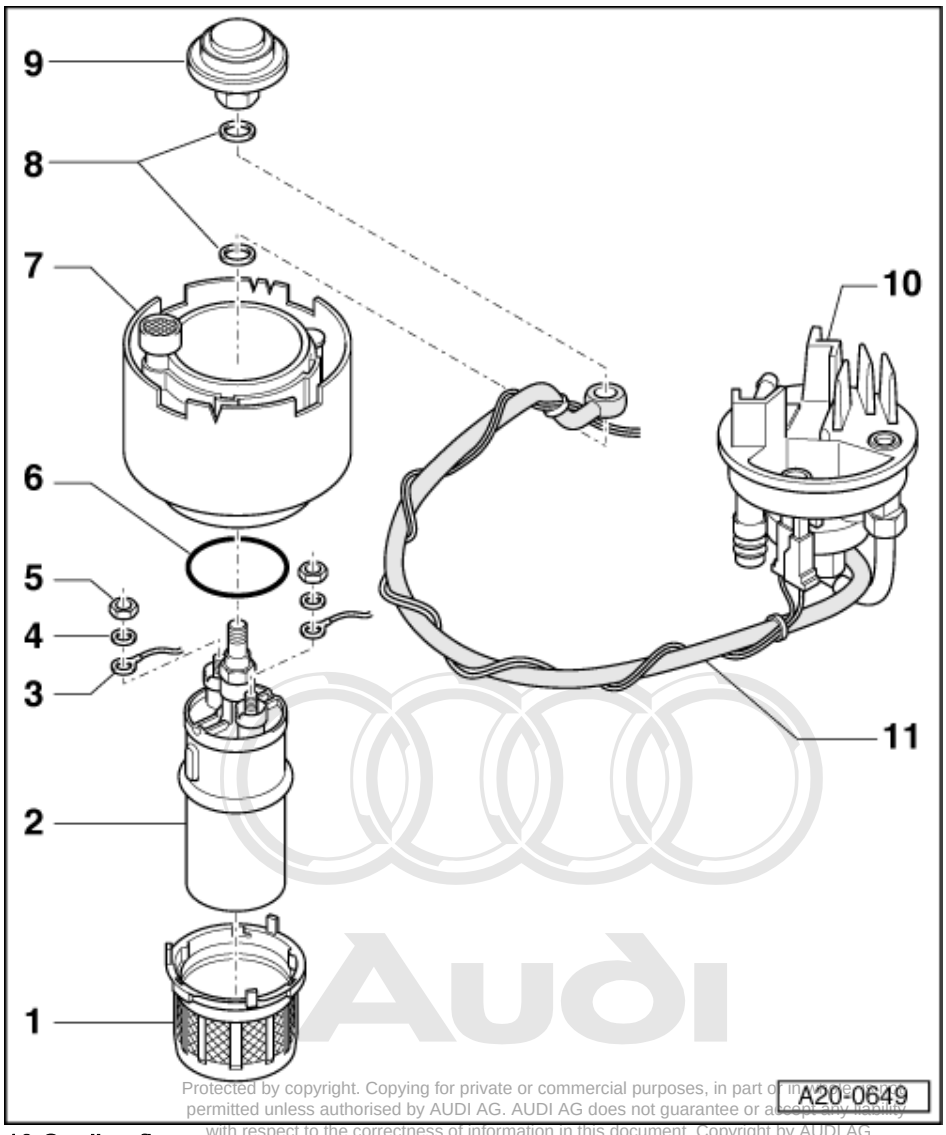
5 **M5 = 1.6 Nm**
M6 = 2 Nm

6 **O-ring**
- Replace

7 **Inner part of baffle housing**

8 **Sealing ring**
- Replace

9 **Pressure damper, 13 Nm**
- Provide support at hexagon of fuel pump when unfastening and tightening



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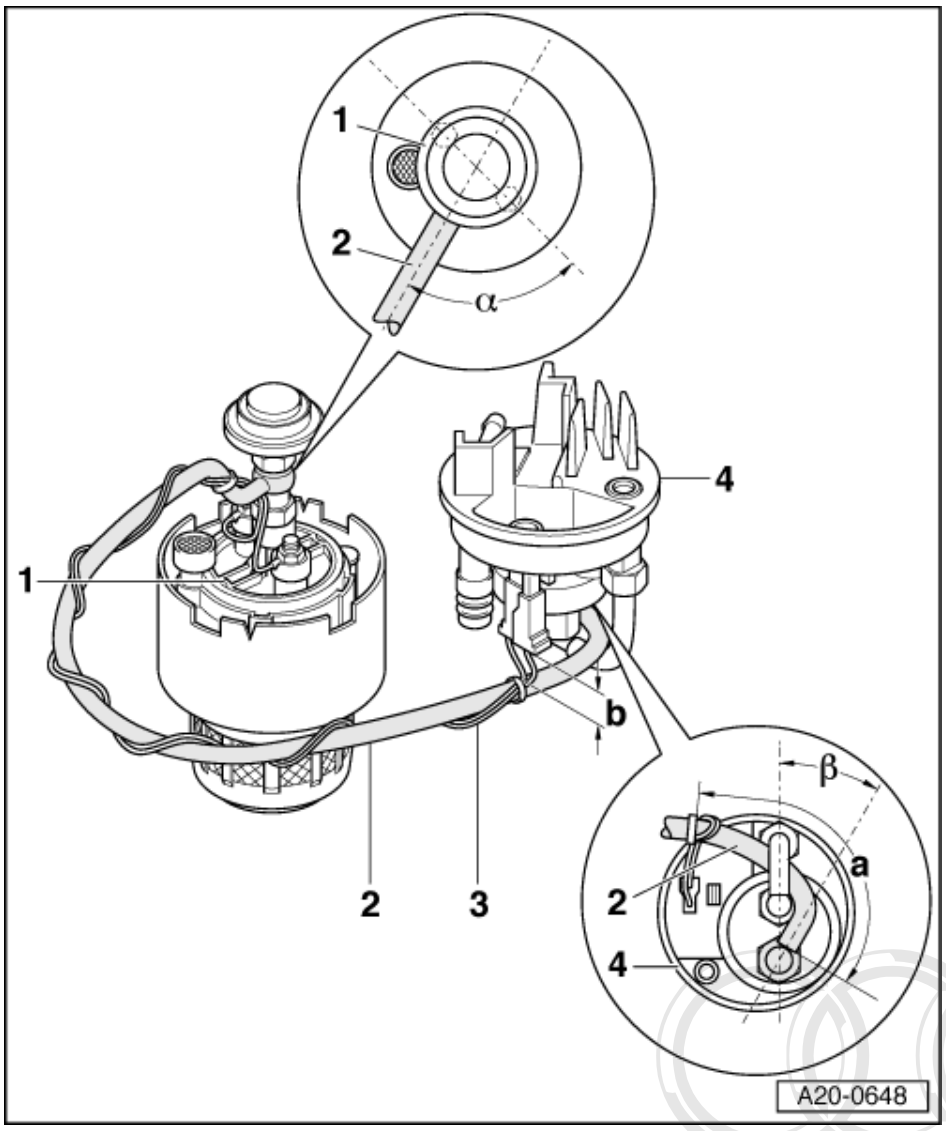
10 Sealing flange

- Removing and installing=>Page 92
- Installation position: Observe arrow mark => Page 96
- Pre-assembly => Page 109

11 Fuel supply pipe

- Fuel pump/baffle housing
- Pre-assembly => Page 109



Pre-assembling fuel pump (ø 60 mm), sealing flange and fuel supply pipe

- Fit fuel supply pipe -2- at sealing flange -4- and fuel pump -1- as shown.
- Align fuel supply pipe at sealing flange at an angle of β = 30° to fuel supply tube.
- Screw fuel supply pipe (23 Nm) to sealing flange.
- Align fuel supply pipe at fuel pump at an angle of α = 70° to electrical connections.

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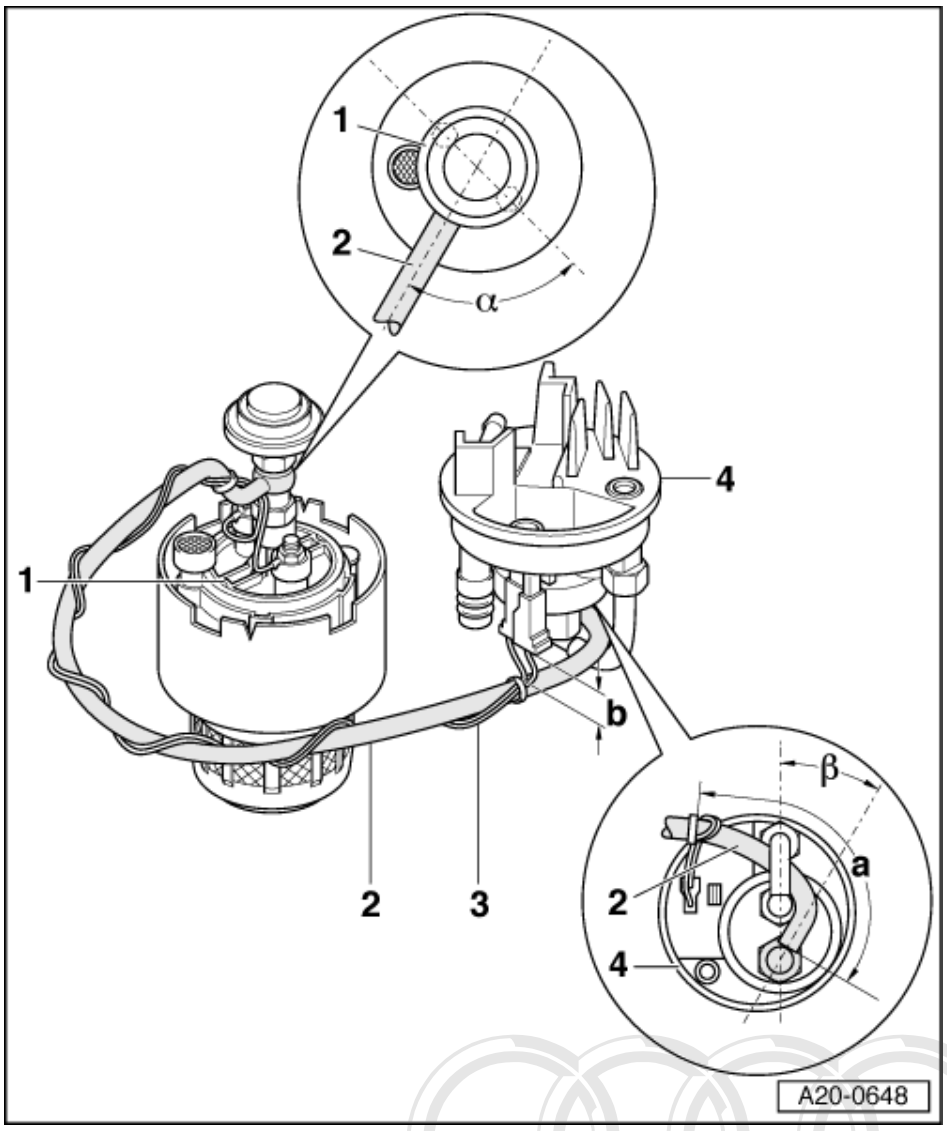

- Screw fuel supply pipe with pressure damper and new sealing rings to fuel pump (13 Nm).
- Wind wiring -3- to fuel pump around fuel supply pipe.
- Secure wiring with fuel-resistant cable tie at marked location.
  - a = Effective length of fuel supply pipe 145 mm
  - b = 50 mm

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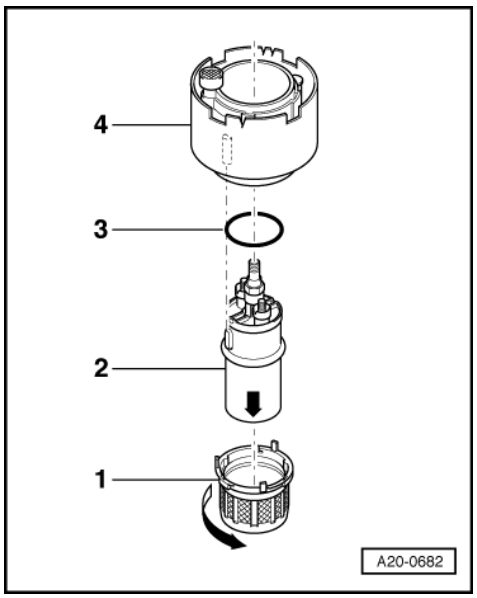

-> Fig.1 Removing and installing fuel pump

- Fuel delivery unit dismantled

Removing

- Turn fuel filter screen -1- anti-clockwise and detach it (bayonet lock).
- Pull fuel pump -2- with O-ring -3- downwards out of inner part of baffle housing -4-.

Installing

Install in reverse order.

- Make sure tab at fuel pump engages in recess at inner part of baffle housing.

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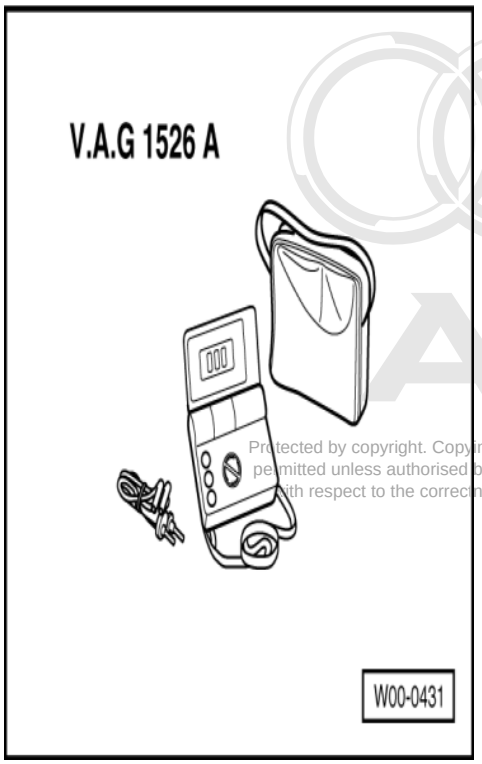
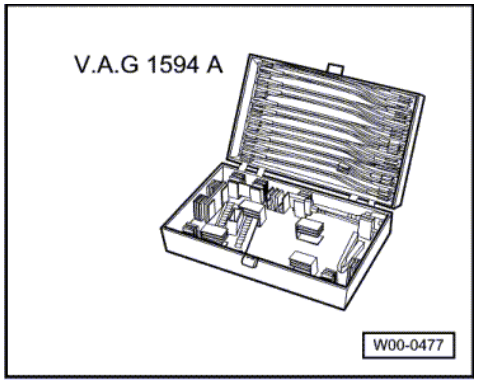
3.16 - Checking fuel gauge sender -G

Special tools and workshop equipment required

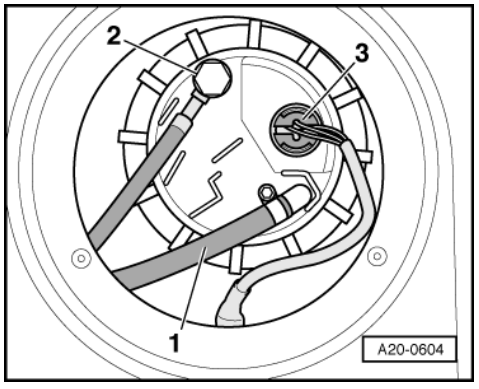


- V.A.G 1526 A



- V.A.G 1594 A

Test sequence



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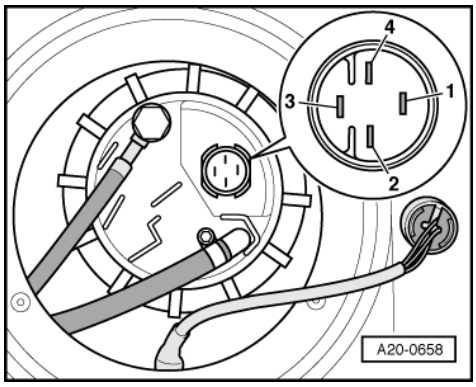
- Fold forward right backrest of rear seat bench.
- Remove luggage compartment lining.
- Unscrew cover for sealing flange beneath luggage compartment lining.
- -> Carefully release 4-pin connector -3- and unplug.



- -> Measure resistance at both contacts -2- and -3- at sealing flange.

Sender	Tank full	Tank empty
Fuel gauge sender -G	40 ω	280 ω

Note:

If level is between "Tank full" and "Tank empty" resistance value displayed must be between the two specifications.

- If measurement yields 0 ωor ∞ ω, there is an open circuit in the wiring in the tank or a short circuit.

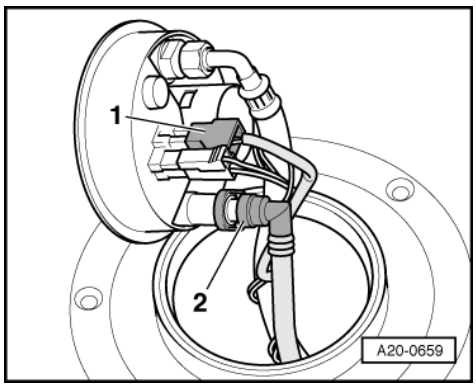
3.17 - Removing and installing fuel gauge sender -G

Pay attention to safety precautions=> Page 1 .

Observe rules for cleanliness => Page 2 .

Removing

- Remove sealing flange => Removing fuel delivery unit, Page 92 .



- -> Unplug connector for fuel gauge -1- on inside of sealing flange.
- Pull off return pipe -2- on inside of sealing flange (use release tool T40020 or press release buttons).

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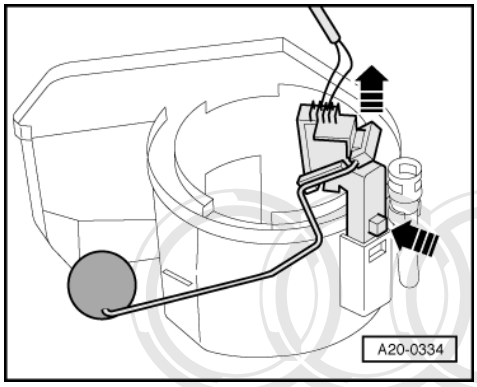
- Carefully pull out sealing flange and lay aside with hoses connected.



- -> Whilst pressing retainer tab, pull sender out of baffle housing in fuel tank -arrows-.

Note:

For ease of illustration, baffle housing is shown without fuel tank.

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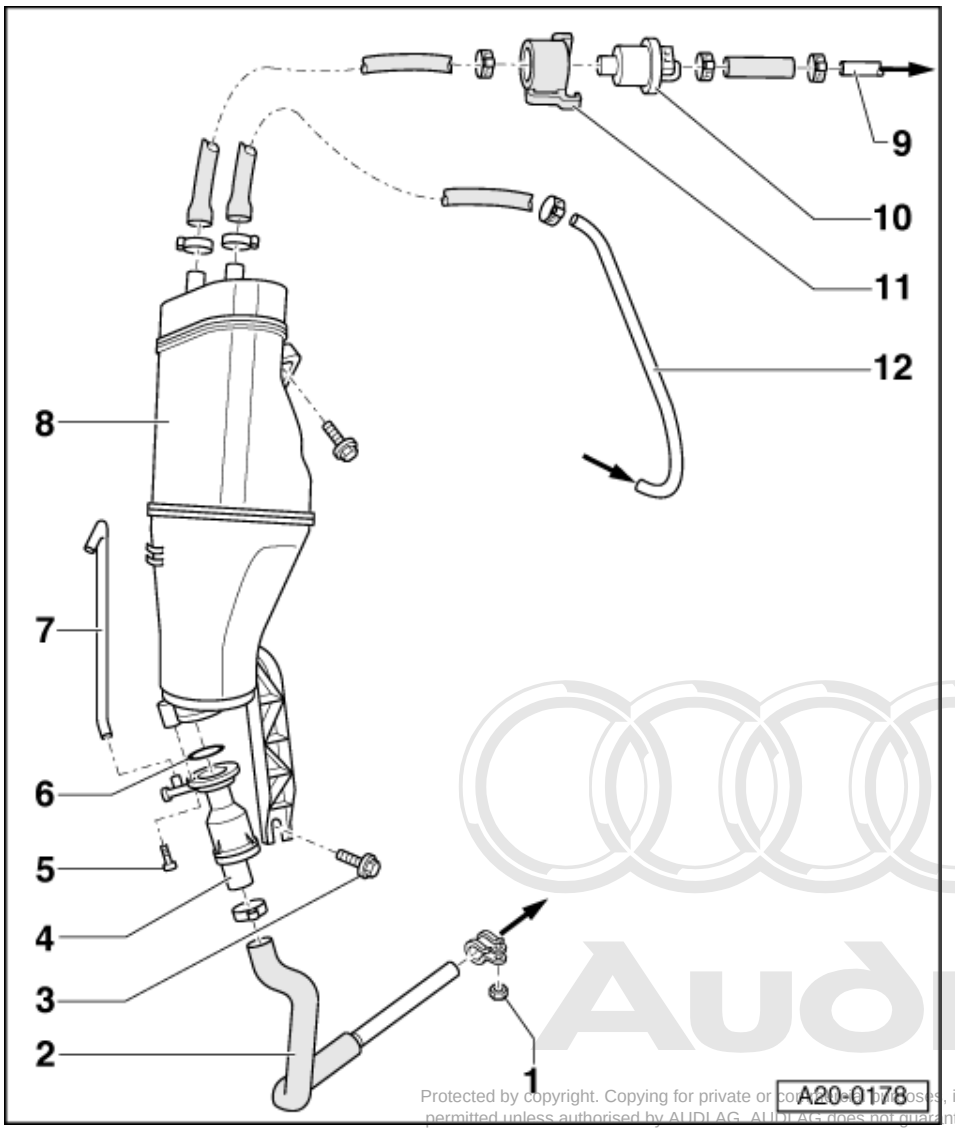
Installing

Install in reverse order, paying attention to the following:

- Insert fuel gauge sender in guide at outer part of baffle housing and press downwards until it engages.
- Install sealing flange => Page 94 , paying attention to notes on battery connection.

4 - Servicing activated charcoal filter system components -

4.1 - Servicing activated charcoal filter system components -



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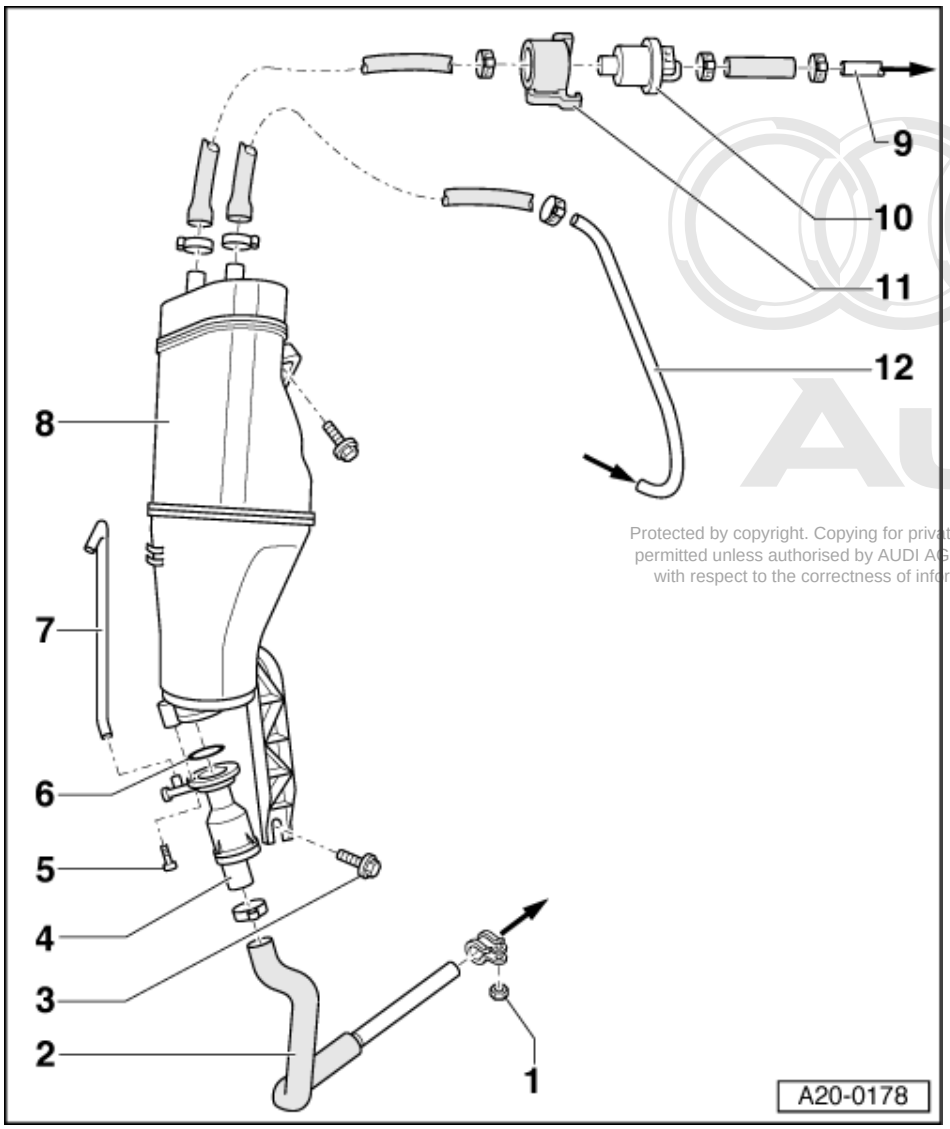
4.2 - Servicing activated charcoal filter system components - front and four-wheel drive

1 10 Nm
2 Hose
- Exits from underside of vehicle on right

3 10 Nm
4 Breather valve
- Design status-dependent
- Controls activated charcoal filter breather function
- Stops splash water entering activated charcoal filter

5 Self-tapping screw
6 O-ring
- Replace if damaged



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7 Hose

- Exits out of vehicle
- Engage in clip at activated charcoal filter

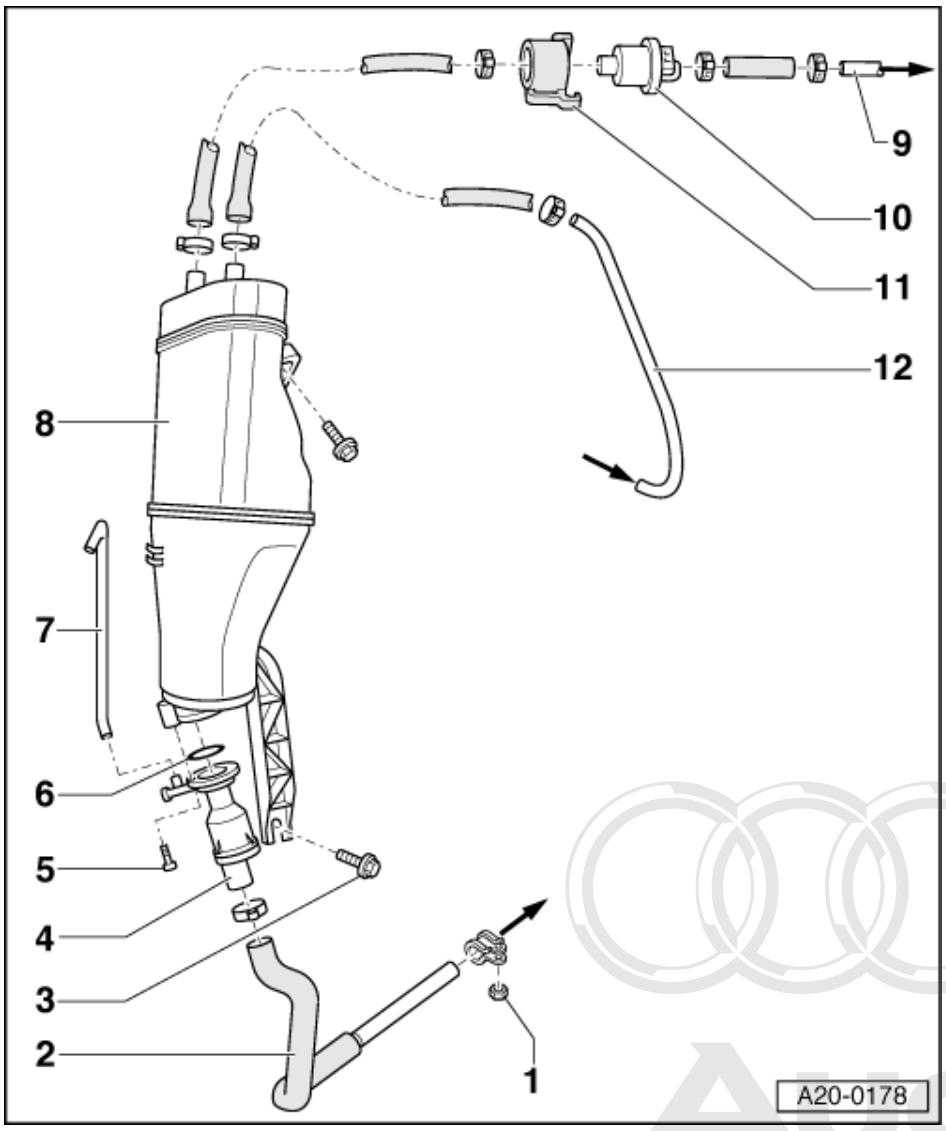
8 Activated charcoal filter

- Fitting location: In front right wheel housing
- Attached to body
- Removal involves taking out front right wheel housing liner

=> General Body Repairs; Repair Group 66; Wheel housing liners; Removing and installing front wheel housing liner Wheel housing liners Removing and installing front wheel housing liner

9 Breather pipe

- To intake manifold



10 Activated charcoal filter solenoid valve -N80

- In engine compartment
- Installation position: Arrow points in direction of flow
- Checking operation and actuation

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=> Injection and Ignition System; Repair Group 24; Checking fuel tank breather system; Checking activated charcoal filtersolenoid valve -N80 Checking fuel tank breather system Checking activated charcoal filtersolenoid valve -N80

=> Injection and Ignition System; Repair Group 25; Checking fuel tank breather system; Checking activated charcoal filtersolenoid valve -N80 Checking fuel tank breather system Checking activated charcoal filtersolenoid valve -N80

11 Retainer ring

- In engine compartment
- For activated charcoal filter solenoid valve -N80

12 Breather pipe

- From fuel tank

5 - Servicing accelerator mechanism - front and four-wheel drive

5.1 - Servicing accelerator mechanism - front and four-wheel drive

Notes:

- The throttle cable is extremely sensitive to kinking and must therefore be handled with extreme care on installation.
- A single slight kink can subsequently cause cable to break whilst driving. If they have been kinked, throttle cables are therefore not to be fitted.
- On installation, make sure throttle cable is aligned between support brackets and cable attachment points.

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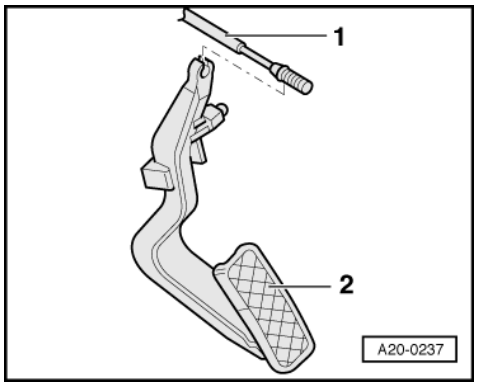
5.2 - Removing and installing throttle cable - vehicles with 4 and 5-cylinder engine



Removing

- Remove driver's storage compartment.

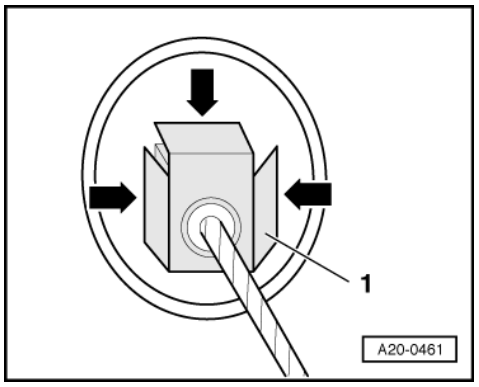
=> General Body Repairs; Repair group 70; Dash Panel; Removing driver's storage compartment Dash Panel Removing driver's storage compartment

- -> Disengage end of throttle cable -1- at top of accelerator pedal -2-.

Vehicles with automatic gearbox:

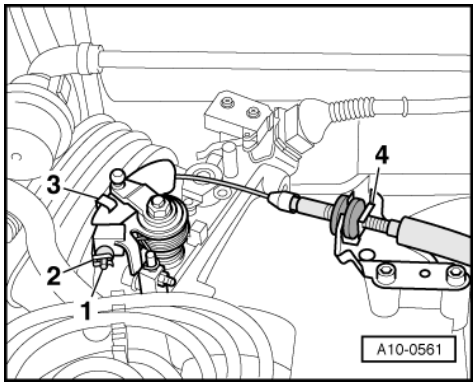
- Unplug connector at kickdown switch.

All models:



- -> Working from passenger compartment, squeeze together/break off retainer tabs -arrows- of square mount -1- at bulkhead.

- Press out square mount to front towards engine compartment.



- -> Prise off securing clips -2- and -3-.
- Disengage nipple -1- at end of throttle cable from cable cam.
- Pull detent segment of throttle cable sheath out of rubber grommet of support bracket; leave retainer -4- attached.
- Pull out throttle cable towards engine compartment.

Note:

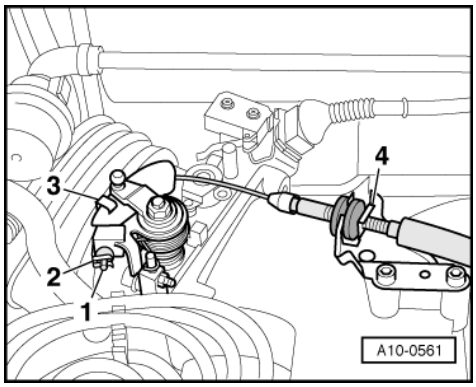
Fig. shows 5-cyl. 2V engine.

Installing

Install in reverse order, paying attention to the following:

- Heed notes => Page 118 .
- Adjust throttle cable => Page 119 .

5.3 - Adjusting throttle cable - vehicles with 4 and 5-cylinder engine



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- -> Throttle cable -1- engaged at accelerator pedal and cam plate of throttle valve control part, securing clips -2- and -3- fitted

Note:

Fig. shows 5-cyl. 2V engine.

- Pull off retainer -4- at detent segment of throttle cable sheath.
- Press accelerator pedal into full throttle position.

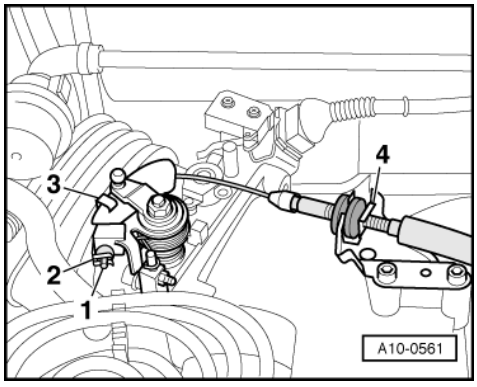
Note:

This requires a second mechanic or accelerator pedal must be supported against steering wheel with spring-loaded expanding rod.

Vehicles with manual gearbox:

- Adjust throttle cable by re-positioning retainer -4- at rubber grommet of support bracket such that full-throttle position is reached at throttle valve.

Vehicles with automatic gearbox:



- -> By re-positioning retainer -4- at rubber grommet of support bracket, set throttle cable such that throttle valve is fully open and kickdown switch is heard to click.

All models:

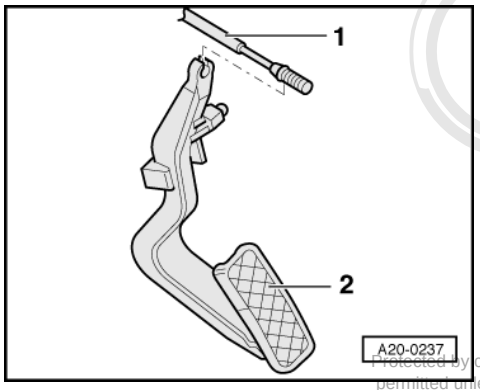
- Release accelerator pedal/remove expanding rod.
- After performing adjustment, check idle and full-throttle stops of throttle valve.

Vehicles with automatic gearbox:

- Check throttle cable adjustment => Page 123 .

5.4 - Removing and installing throttle cable - vehicles with 6-cylinder engine

Removing



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- Remove driver's storage compartment.

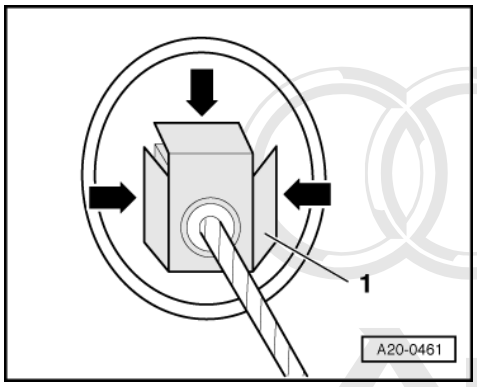
=> General Body Repairs; Repair group 70; Dash Panel; Removing driver's storage compartment Dash Panel Removing driver's storage compartment

- -> Disengage end of throttle cable -1- at top of accelerator pedal -2-.

Vehicles with automatic gearbox:

- Unplug connector at kickdown switch.

All models:



- -> Working from passenger compartment, squeeze together/break off retainer tabs -arrows- of square mount -1- at bulkhead.
- Press out square mount to front towards engine compartment.

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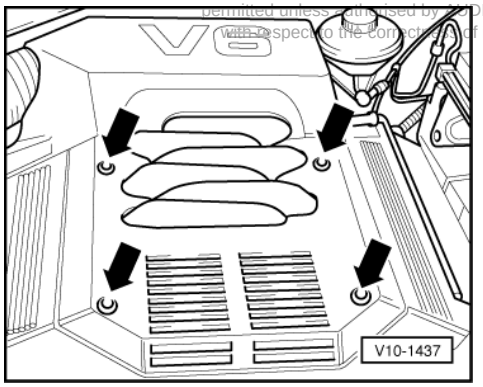
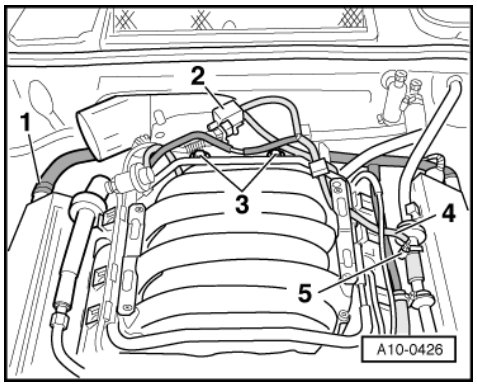
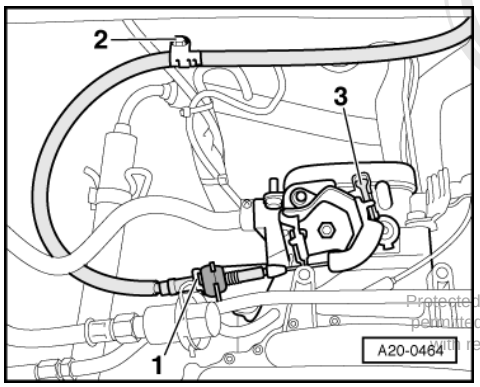


- -> Remove engine cover -arrows-.



- -> Screw out bolts -3- and pull air duct off throttle valve assembly.



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- -> Screw out bolt -2-.
- Disengage nipple -3- at end of throttle cable from cable cam.
- Pull detent segment of throttle cable sheath out of rubber grommet of support bracket; leave retainer -1- attached.
- Pull out throttle cable towards engine compartment.

Installing

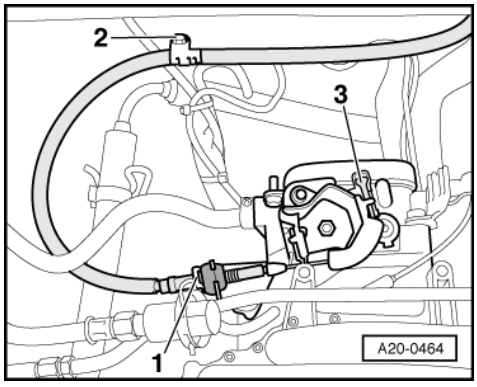
Install in reverse order, paying attention to the following:

- Heed notes => Page 118 .
- Adjust throttle cable => Page 122 .

Tightening torque

Component	Nm
Holder for throttle cable	10

5.5 - Adjusting throttle cable - vehicles with 6-cylinder engine



- -> Throttle cable -3- engaged at accelerator pedal and cam plate of throttle valve control part

- Pull off retainer -1- at detent segment of throttle cable sheath.
- Press accelerator pedal into full throttle position.

Note:

This requires a second mechanic or accelerator pedal must be supported against steering wheel with spring-loaded expanding rod.

Vehicles with manual gearbox:

- Adjust throttle cable by re-positioning retainer -1- at rubber grommet of support bracket such that full-throttle position is reached at throttle valve.

Vehicles with automatic gearbox:

- By re-positioning retainer -1- at rubber grommet of support bracket, set throttle cable such that throttle valve is fully open and kickdown switch is heard to click.

All models:

- Release accelerator pedal/remove expanding rod.
- After performing adjustment, check idle and full-throttle stops of throttle valve.

Vehicles with automatic gearbox:

- Check throttle cable adjustment => Page 123 .

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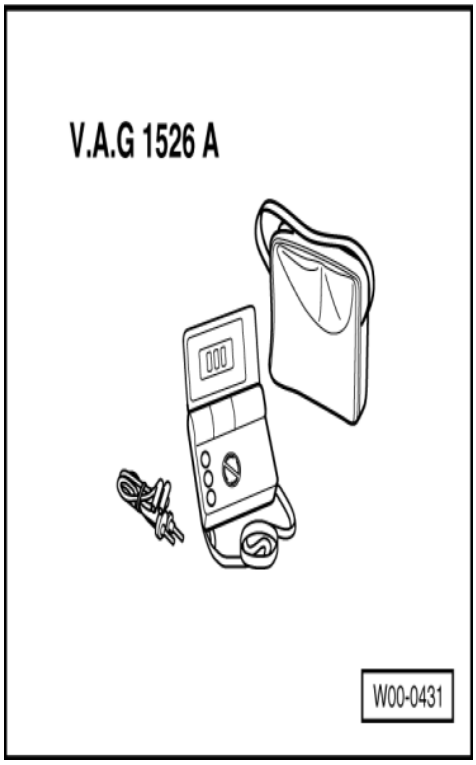
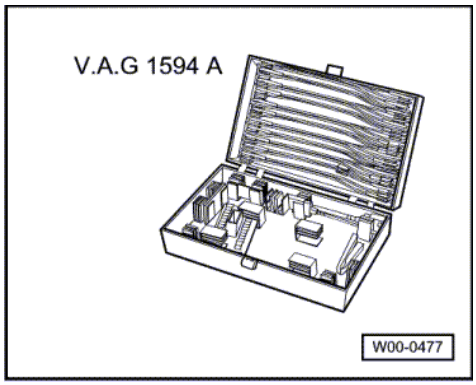
5.6 - Checking throttle cable adjustment on vehicles with automatic gearbox (checking kickdown switch)



Special tools and workshop equipment required

- V.A.G 1526 A



- V.A.G 1594 A

Vehicles with 4 and 5-cyl. engine:

- Remove driver's storage compartment.

=> General Body Repairs; Repair group 70; Dash Panel; Removing driver's storage compartment Dash Panel Removing driver's storage compartment

- Unplug connector at kickdown switch.
- Connect multimeter to kickdown switch for resistance measurement.
  - Specification: ∞ ω (no continuity)
- Slowly move accelerator pedal in full-throttle direction.
  - Resistance must drop to 0 ωshortly after kickdown pressure point
  - Accelerator pedal must be just before stop

Vehicles with 6-cylinder engine:

=> Automatic Gearbox Self-diagnosis; Repair Group 01; Electrical/Electronic Components and Fitting Locations; Adjusting kickdown switch Electrical/Electronic Components and Fitting Locations Adjusting kickdown switch

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