



Workshop Manual CC 2012 ➤ Passat 2011 ➤ Passat Variant 2011 ➤

Fuel supply system - diesel engines									
Engine ID	CAY C	CFFA	CFFB	CFG B	CLLA	CFG C	CUV C	CUW A	

Edition 05.2019



List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

20 - Fuel supply system

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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00 – Technical data

1 Safety information

(VRL013020; Edition 05.2019)

⇒ [“1.1 Safety regulations for working on fuel supply”, page 1](#)

⇒ [“1.2 Safety measures when working on vehicles with a start/stop system”, page 2](#)

⇒ [“1.3 Safety precautions when using testers and measuring instruments during a road test”, page 2](#)

⇒ [“1.4 Safety precautions when working on the SCR system”, page 2](#)

1.1 Safety regulations for working on fuel supply

Risk of injury from highly pressurised fuel.

The fuel system is pressurised. Injury from fuel spray possible.

Before opening the fuel system:

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.

Danger of fire caused by escaping fuel

When the battery is connected and the driver door opens, the door contact switch activates the fuel pump. Escaping fuel can ignite and cause a fire.

- Disconnect voltage supply to fuel pump before opening the fuel system.

Observe the fill level of the fuel tank:

- ◆ Fuel tank must be only partly filled. To find out how much fuel may remain in the fuel tank, refer to the corresponding work procedure.
- ◆ If necessary, drain fuel tank
⇒ [“2.2 Emptying fuel tank”, page 17](#) .
- ◆ Before starting work, the extraction hose of a switched-on exhaust gas extraction system must be laid near to the assembly opening of the fuel tank.
- ◆ The exhaust extraction system is used to extract fuel vapours.
- ◆ If no exhaust gas extraction system is available, a radial fan with a displacement greater than 15 m³/h can be used providing that motor is not in air flow.
- ◆ Prevent skin contact with fuel! Wear fuel-resistant gloves!



To prevent injuries to persons and destruction of the injection and glow plug system, the following must be noted:

- ◆ Always switch off the ignition before connecting or disconnecting electrical wiring of injection and glow plug system or connecting/disconnecting tester cables.
- ◆ Wash the engine only with the ignition switched off.
- ◆ Entries are stored in the event memory of the engine control unit if electrical connectors were disconnected and the engine was started: Read event memory in Guided functions
⇒ Vehicle diagnostic tester.

1.2 Safety measures when working on vehicles with a start/stop system

Risk of injury due to unexpected motor start

If the vehicle's start/stop system is activated, the engine can start unexpectedly. A message in the dash panel insert indicates whether the Start/Stop system is activated.

- Deactivate Start/Stop system by switching off the ignition.

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

Risk of injury caused by unsecured testing and measuring instruments

When the front passenger airbag is triggered in an accident, insufficiently secured testing and measuring instruments become dangerous projectiles.

- Secure testing and measuring instruments on the rear seat.
- or
- Have a second person operate the test and measuring equipment on the rear seat.

1.4 Safety precautions when working on the SCR system

When removing and installing components of the SCR system, note the following:

- ◆ The tank for reducing agent must be empty when working on the SCR system. Information on when the tank for reducing agent has to be emptied can be obtained from the respective work instruction. Drain tank for reducing agent ⇒ Rep. gr. 26 ; SCR system (selective catalytic reduction) .

Automatic return of reducing agent

- After the ignition has been switched off, the reducing agent is returned from the metering line leading to the reducing agent injector - N474- back to the reducing agent tank.
- Before any work is done in this area, it is necessary to wait until all the reducing agent has been returned to the tank; this can take up to 10 minutes after the ignition is switched off.
- Similarly, it is not permissible to disconnect the battery until all the reducing agent has been returned to the tank, i.e. 10 mi-



nutes after the ignition is switched off ⇒ Electrical system;
Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



2 Identification

⇒ "2.1 Engine number/engine data", page 4

2.1 Engine number/engine data

Identification code	CAYC	CFFA	CFFB	CFGB	CFGC	CLA 1)
Exhaust emission standard	EU 5	EU 5	EU 5	EU 5	EU 5	EU 4
Displacement	1.6	2.0	2.0	2.0	2.0	2.0
Power kW	77	100	103	125	130	125
Fuel: acc. to	DIN EN 590	DIN EN 590	DIN EN 590	DIN EN 590	DIN EN 590	

1) only for India, South America and Russia

Identification code	CUVC	CUWA
Exhaust emission standard	EU 6	EU 6
Displacement	2.0	2.0
Power kW	110	135
RON	DIN EN 590	DIN EN 590



3 General information

⇒ [“3.1 Rules for cleanliness when working on auxiliary/supplementary heater and fuel system”, page 5](#)

3.1 Rules for cleanliness when working on auxiliary/supplementary heater and fuel system

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

- ◆ Thoroughly clean all joints and surrounding areas before dismantling.
- ◆ Place removed parts on a clean surface and cover them over. Use lint-free cloths only.
- ◆ Carefully cover opened components or seal them if repairs cannot be carried out immediately.
- ◆ Install only clean parts; do not remove new parts from packaging until immediately before installing. Do not use parts that have been kept unpackaged (for example in toolboxes).
- ◆ When the system is open: Do not work with compressed air.
- ◆ Do not move the vehicle.
- ◆ Immediately seal open lines and unions with clean plugs, for example from engine bung set - VAS 6122- .
- ◆ Protect disconnected electrical connectors from dirt and water, and reconnect them only when dry.



4 Repair notes

⇒ ["4.1 Pipe/wire routing and attachment", page 6](#)

⇒ ["4.2 General repair instructions", page 6](#)

4.1 Pipe/wire routing and attachment

Risk of damage to lines

Lines may become damaged by moving or hot components.

- Route lines in their original positions.
- Make sure there is sufficient clearance between the lines and moving as well as hot components.

- ◆ Mark components prior to removal to prevent them from being interchanged and to ensure that they are fitted in their original installation positions. Where necessary, make sketches or take photographs.

4.2 General repair instructions

Before starting work on the fuel supply system, the following steps must be performed:

- ◆ Before starting work, the extraction hose of a switched-on exhaust gas extraction system must be laid near to the assembly opening of the fuel tank.
- ◆ It is used to extract fuel fumes.
- ◆ If no exhaust gas extraction system is available, a radial fan with a displacement greater than 15 m³/h can be used providing that motor is not in air flow.
- ◆ Prevent skin contact with fuel! Wear fuel-resistant gloves!
- ◆ Interrupt power supply to fuel system pressurisation pump - G6- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ Drain fuel tank ⇒ [page 17](#) .



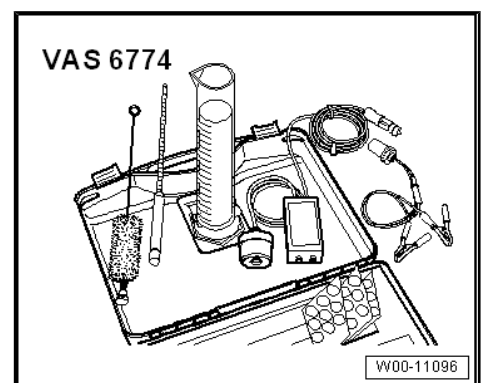
20 – Fuel supply system

1 Procedure should vehicle be misfuelled

Irreversible damage to high-pressure components, especially the high-pressure pump, can occur due to lack of lubrication through diesel when filling the fuel tank with incorrect fuel. Damage due to seizure and metal particles can be expected. These particles can also cause further damage in the pressure control valve and injectors. Test sample, if unsure of fuel quality. Analyse fuel using Fuel analyser unit - VAS 6774- → Instruction manual . This analyser unit is no substitute for a laboratory test in warranty cases.

Special tools and workshop equipment required

- ◆ Fuel identification unit - VAS 6774-



Note

These instructions are intended as a guide through the individual work steps by means of a flowchart, with various factors being taken into account.

Was the engine started with the incorrect fuel?

Yes

⇒ ["1.1 Step 1, engine was started with incorrect fuel", page 7](#)

No

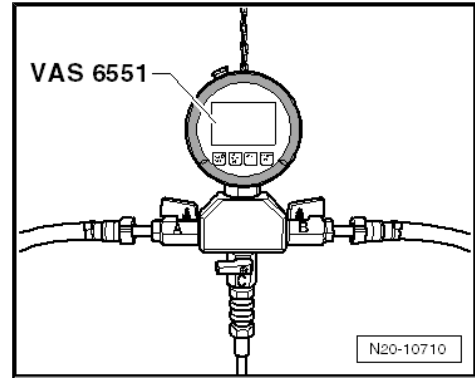
⇒ ["1.2 Step 2, engine was not started with incorrect fuel", page 9](#)

1.1 Step 1, engine was started with incorrect fuel

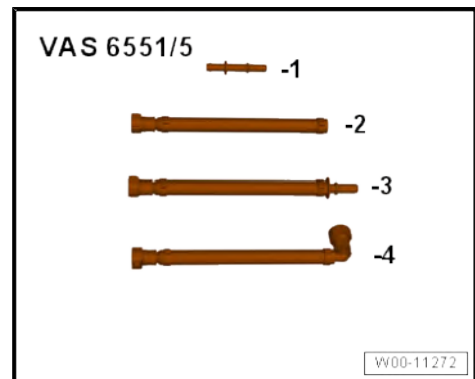
Special tools and workshop equipment required



◆ Pressure gauge - VAS 6551-



◆ Adapter set - VAS 6551/5-



◆ Removal wedge - 3409-

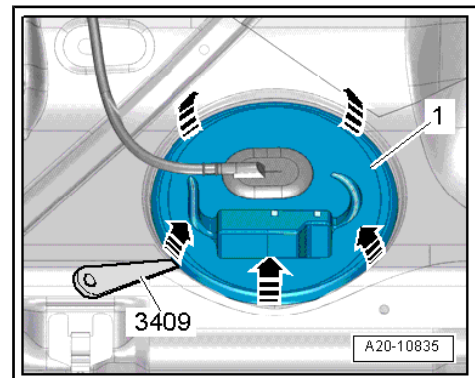


◆ Vehicle diagnosis and service information system

- Empty fuel tank as far as possible via fuel filler neck using fuel extractor - VAS 5190- => [page 17](#) .
- Remove rear bench seat => General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat / individual seats .
- Unclip cover -1- for flange at retaining tabs -arrows-, using removal wedge - 3409- .

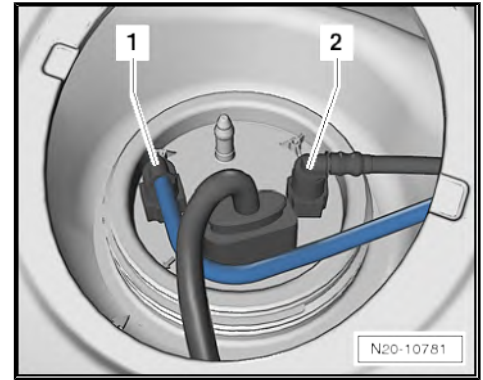
! NOTICE

The fuel pump is activated when opening a door when the battery is connected! Fuel can escape if the system has been opened.





- Pull fuel return line (blue line or blue marking) -1- off fuel delivery unit. Separate plug-in connectors ⇒ [page 46](#) .
- Connect pressure gauge pipe -VAS 6551/5-2- to the fuel return line -1-.
- Put open end of line -VAS 6551/5-2- into a suitable container.
- Connect vehicle diagnostic tester and then carry out guided function "Fuel pump activation (Emptying fuel system)".
- Carry out the guided function `Empty fuel tank`.



i Note

The fuel pump is now activated.

- Repeat procedure, if necessary, until fuel tank is completely empty.

Remove fuel delivery unit ⇒ [page 37](#) .

- Check fuel tank for metal particles.
- Drain fuel pump reservoir of fuel delivery unit.
- Carry out a visual inspection for foreign bodies and metal particles in fuel pump reservoir and on preliminary filter.

Metal particles found?

Yes

⇒ ["1.3 Step 3, there are metal particles in fuel delivery unit and fuel tank", page 11](#)

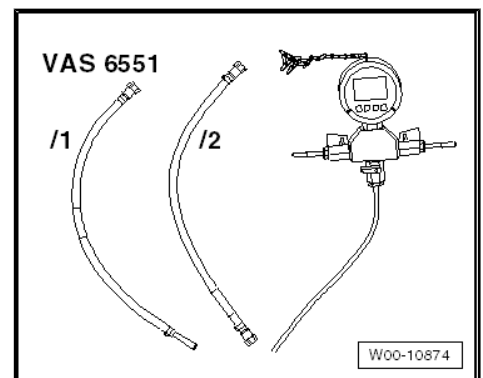
No

⇒ ["1.4 Step 4, there are no metal particles in fuel delivery unit or fuel tank", page 12](#)

1.2 Step 2, engine was not started with incorrect fuel

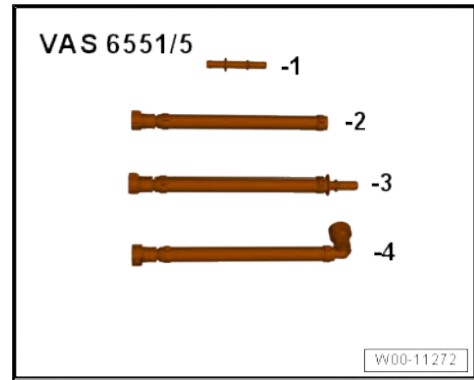
Special tools and workshop equipment required

- ◆ Pressure gauge - VAS 6551-

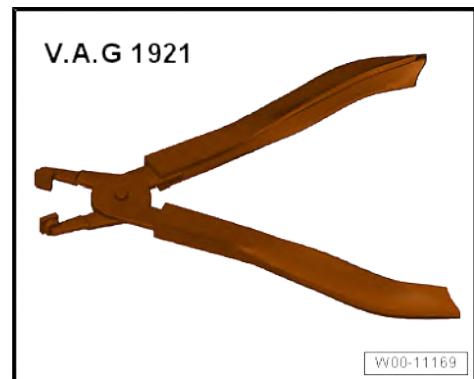




◆ Adapter set - VAS 6551/5-



◆ Hose clamp pliers - V.A.G 1921-



◆ Removal wedge - 3409-

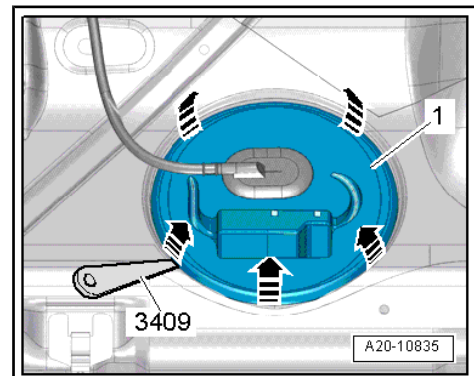


◆ Vehicle diagnosis and service information system

- Empty fuel tank as far as possible via fuel filler neck using fuel extractor - VAS 5190- => [page 17](#) .
- Remove rear bench seat => General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat / individual seats .
- Unclip cover -1- for flange at retaining tabs -arrows-, using removal wedge - 3409- .

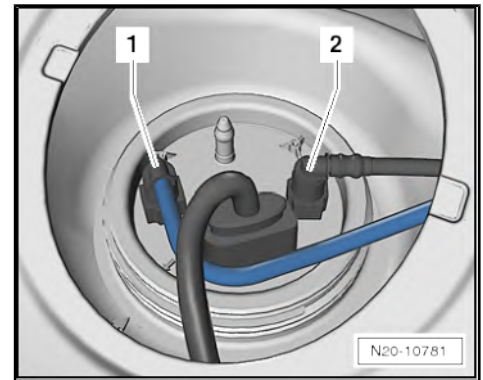
! NOTICE

The fuel pump is activated when opening a door when the battery is connected! Fuel can escape if the system has been opened.





- Pull fuel return line (blue line or blue marking) -1- off fuel delivery unit. Separate plug-in connectors ⇒ [page 46](#) .
- Connect pressure gauge pipe -VAS 6551/5-2- to the fuel return line -1-.
- Put open end of line -VAS 6551/5-2- into a suitable container.
- Connect vehicle diagnostic tester and then carry out guided function "Fuel pump activation".
- Carry out the guided function Empty fuel tank.

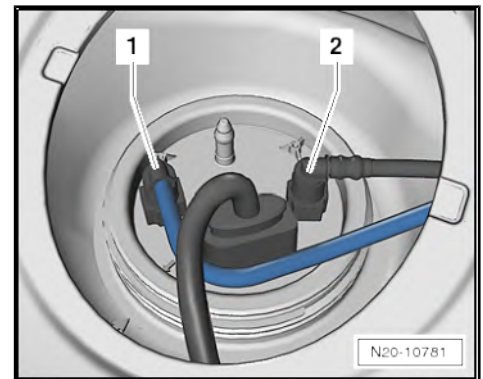


i Note

The fuel pump is now activated.

- Repeat procedure, if necessary, until fuel tank is completely empty.
- Fill fuel tank with 5 litres of diesel fuel.
- Completely empty fuel tank again as described above.
- Reconnect fuel return line (blue or blue marking) -1-.
- Renew fuel filter ⇒ [page 52](#) .
- Fill up vehicle and perform road test.

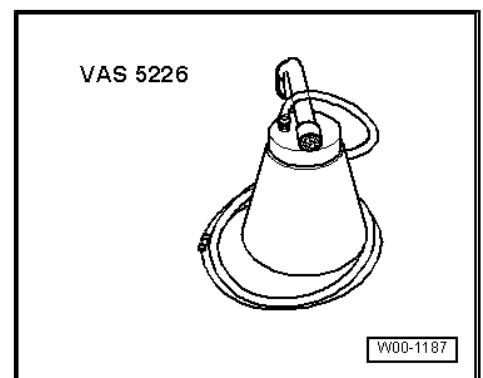
End



1.3 Step 3, there are metal particles in fuel delivery unit and fuel tank

Special tools and workshop equipment required

- ◆ Diesel extractor - VAS 5226-



- Clean fuel delivery unit and fuel tank with diesel extractor - VAS 5226- .

Install fuel delivery unit ⇒ [page 37](#) .

For vehicles with auxiliary heating

- Check fuel line between fuel tank and metering pump - V54- for metal particles. If required, renew both ⇒ Auxiliary heater,



supplementary heater; Rep. gr. 82 ; Fuel supply system; Removing and installing metering pump - V54- .

Continued for all vehicles:

- Fill fuel tank with 5 litres of diesel fuel.
- Completely empty fuel tank again as described above.
- Renew following high-pressure components:
 - ◆ High-pressure pump ⇒ Rep. gr. 23 ; High-pressure pump: Removing and installing high-pressure pump .
 - ◆ High-pressure lines ⇒ Rep. gr. 23 ; Injectors/fuel rail (fuel rail): Removing and installing high-pressure lines .
 - ◆ Fuel rail including fuel pressure regulating valve - N 276- and fuel pressure sender - G 247- ⇒ Rep. gr. 23 ; Injectors/fuel rail; Removing and installing fuel rail
 - ◆ Injector ⇒ Rep. gr. 23 ; Injectors/fuel rail (fuel rail): Removing and installing injectors .
 - ◆ Fuel return lines (leakage oil lines) ⇒ Rep. gr. 23 ; Injection system; Assembly overview - fuel system
 - ◆ Fuel filter
⇒ ["5.2 Removing and installing fuel filter", page 52](#)
- Fill up vehicle.
- Bleed fuel system ⇒ Rep. gr. 23 ; Injection system; Filling/bleeding fuel system .
- Carry out road test.

End

1.4 Step 4, there are no metal particles in fuel delivery unit or fuel tank

- Fill fuel tank with 5 litres of diesel fuel.
- Completely empty fuel tank again as described above.

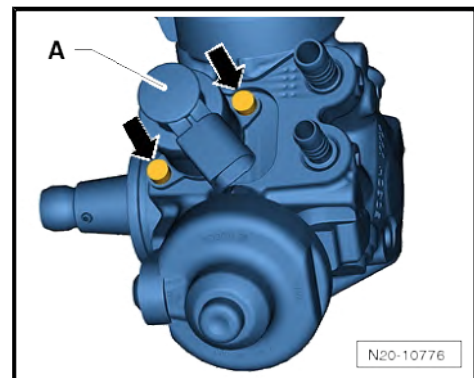
NOTICE

When the fuel metering valve - N290- is removed, there is the risk of damage to the high-pressure pump by the ingress of dirt from the outside. Scrupulous cleanliness must therefore be ensured.

- Carefully clean high-pressure pump in vicinity of fuel metering valve - N290- .
- Detach connector from valve.

Vehicles with radiator, variant 1

- Unscrew bolts -arrows-, and carefully remove fuel metering valve - N290- -A-.
- Check fuel metering valve - N290- and high-pressure pump for metal particles.





Vehicles with radiator, variant 2

- Unscrew bolts -arrows-, and carefully remove fuel metering valve - N290- -A-.

Continued for all vehicles:

- Check fuel metering valve - N290- and high-pressure pump for metal particles.

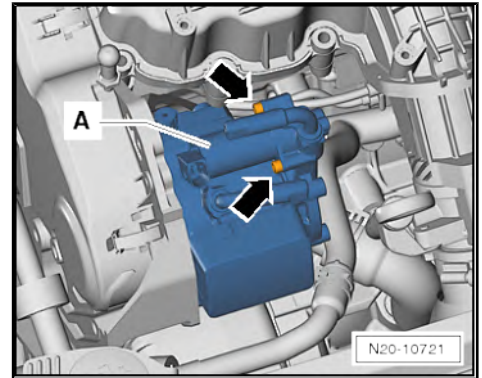
Metal particles found?

Yes

⇒ [“1.5 Step 5, there are metal particles in high-pressure pump”, page 13](#)

No

⇒ [“1.6 Step 6, there are no metal particles in high-pressure pump”, page 13](#)



1.5 Step 5, there are metal particles in high-pressure pump

- Renew following high-pressure components:
 - ◆ High-pressure lines ⇒ Rep. gr. 23 ; Injectors/fuel rail (fuel rail): Removing and installing high-pressure lines .
 - ◆ Fuel rail including fuel pressure regulating valve - N 276- and fuel pressure sender - G 247- ⇒ Rep. gr. 23 ; Injectors/fuel rail; Removing and installing fuel rail
 - ◆ Injector ⇒ Rep. gr. 23 ; Injectors/fuel rail (fuel rail): Removing and installing injectors .
 - ◆ Fuel return lines (leakage oil lines) ⇒ Rep. gr. 23 ; Injection system; Assembly overview - fuel system
 - ◆ Fuel filter
⇒ [“5.2 Removing and installing fuel filter”, page 52](#) .
- Fill up vehicle.
- Bleed fuel system ⇒ Rep. gr. 23 ; Injection system; Filling/bleeding fuel system .
- Carry out road test.

End

1.6 Step 6, there are no metal particles in high-pressure pump

- Renew fuel filter ⇒ [page 52](#) .
- Bleed fuel system ⇒ Rep. gr. 23 ; Injection system; Filling/bleeding fuel system .
- Fill up vehicle and perform road test.

End



2 Fuel

⇒ [“2.1 Assembly overview - fuel tank”, page 14](#)

⇒ [“2.2 Emptying fuel tank”, page 17](#)

⇒ [“2.3 Removing and installing fuel tank”, page 25](#)

2.1 Assembly overview - fuel tank

⇒ [“2.1.1 Assembly overview - fuel tank, vehicles with front-wheel drive”, page 14](#)

⇒ [“2.1.2 Assembly overview - fuel tank, vehicles with four-wheel drive”, page 16](#)

2.1.1 Assembly overview - fuel tank, vehicles with front-wheel drive

1 - Cap

2 - Bolt

- 1.5 Nm

3 - Tank flap unit

- With rubber cup.
- Removing and installing
⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing fuel tank flap unit .

4 - Earth connection

- Ensure firm seating.

5 - Angled piece

6 - Bolt

- Renew after removal
- 8 Nm +90°

7 - Fuel

- When removing, support using engine and gearbox jack - V.A.G 1383 A- .
- Removing and installing
⇒ [page 25](#)
- Emptying fuel tank
⇒ [page 17](#) .

8 - Tensioning straps

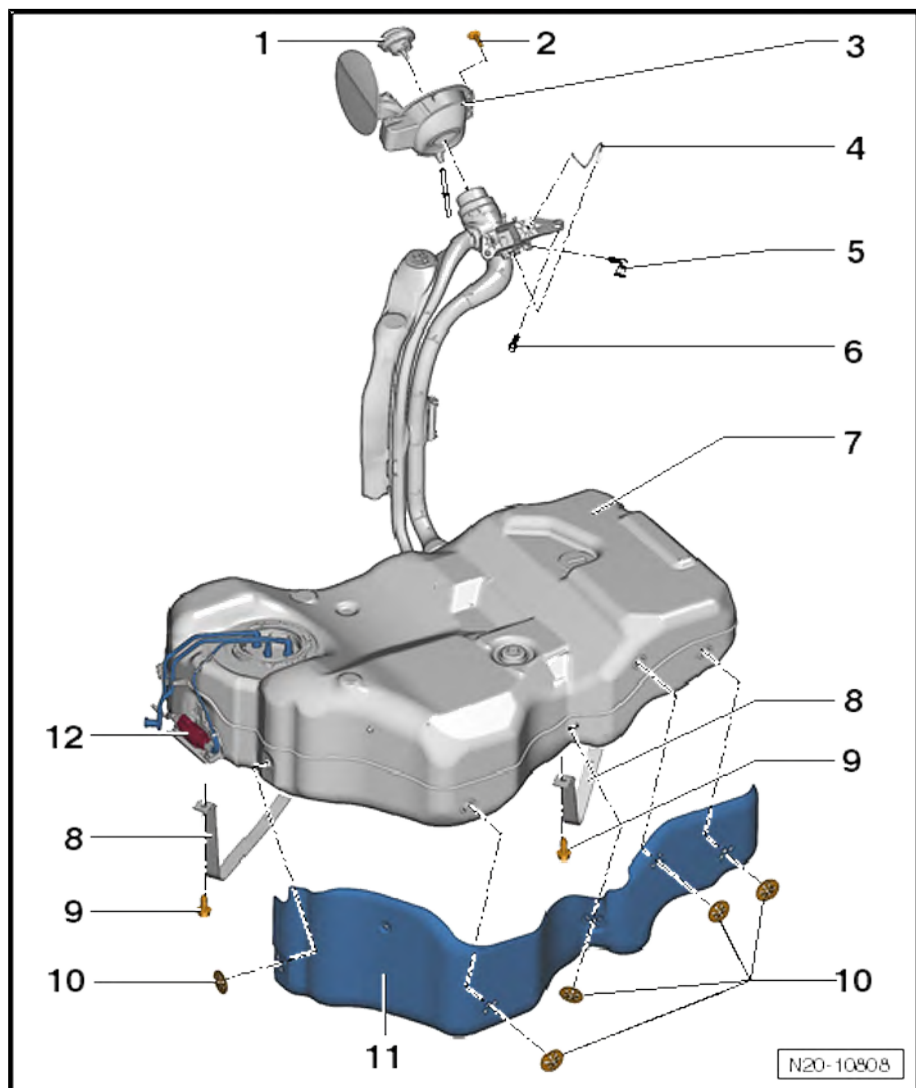
- Observe installation position
- Use suitable workshop equipment to prevent the securing straps from turning while tightening the bolts.

9 - Bolt

- Renew after removal
- 20 Nm +90°

10 - Clamping washer

- 2.5 Nm





11 - Heat shield

- For fuel tank

12 - Metering pump - V54-

- Vehicles with auxiliary heater
- Removing and installing ⇒ Auxiliary heater, supplementary heater; Rep. gr. 82 ; Fuel supply system; Removing and installing metering pump - V54- .

Installation position of fuel delivery unit

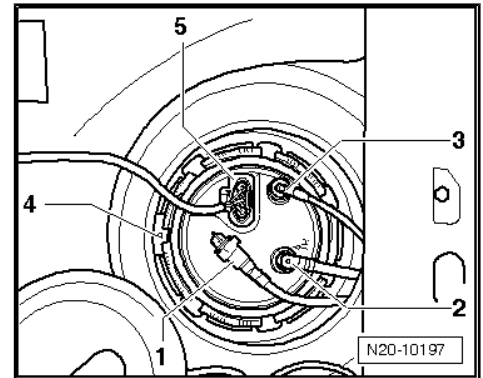
Marking -4- on flange points opposite direction of travel.



Note

The fuel delivery unit flange can only be installed in this position.

- 1 - Black supply line with arrow to union on flange
- 2 - Blue return line (or with blue marking) to connection marked "R"
- 3 - Supply line to metering pump - V54- for auxiliary heating



Note

After installing fuel delivery unit flange, check that fuel lines are still clipped onto fuel tank.



2.1.2 Assembly overview - fuel tank, vehicles with four-wheel drive

1 - Supply line

- Clipped onto fuel tank
- Ensure firm seating.

2 - Locking ring

- Remove and install using wrench - T10202- .
- Tightening torque 110 Nm

3 - Cap

- Renew if damaged

4 - Securing bolt

- 1.5 Nm

5 - Tank flap unit

- With rubber cup.
- Removing and installing
⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing fuel tank flap unit .

6 - Bolt

- Renew after removal
- 8 Nm +90°

7 - Earth connection

- Ensure firm seating.

8 - Pressure retention valve with connecting hose

- To remove, grasp securing ring (grey) and pull off upwards.
- Ensure firm seating.

9 - Breather line

- Clipped onto fuel tank
- Ensure firm seating.

10 - Suction-jet pump

- Clipped onto fuel gauge sender 2 - G169-
- Removing and installing ⇒ [page 91](#)

11 - Bolt

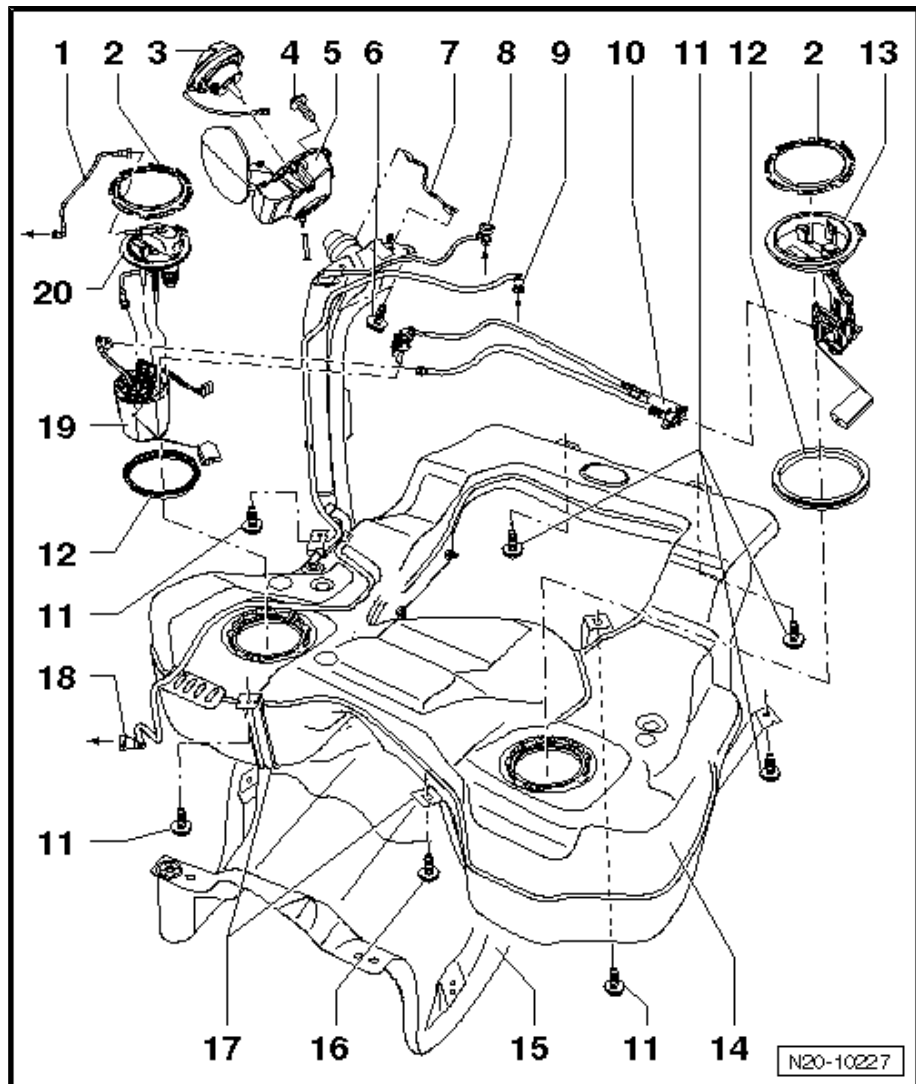
- Renew after removal
- 20 Nm +90°

12 - Seal

- Renew after removal
- When installing, fit dry in fuel tank opening.
- Moisten with fuel only when installing flange.

13 - Fuel gauge sender 2 - G169-

- Note installation position on fuel tank ⇒ [page 17](#)
- Removing and installing ⇒ [page 43](#)





14 - Fuel

- Emptying ⇒ [page 17](#)
- Removing and installing ⇒ [page 29](#)

15 - Heat shield

- Bolted with clamping washers.

16 - Bolt

- Renew after removal
- 20 Nm +90°

17 - Tensioning straps

- Observe installation position
- Use suitable workshop equipment to prevent the securing straps from turning while tightening the bolts.

18 - Breather line

- Clipped onto fuel tank
- Ensure firm seating.

19 - Fuel delivery unit

- Removing and installing ⇒ [page 35](#)
- With fuel gauge sender - G-
- Removing and installing fuel gauge sender - G- ⇒ [page 42](#)
- Clean strainer if soiled

20 - Flange with fuel filter

- With 6 bar pressure relief valve
- Note installation position on fuel tank ⇒ [page 17](#)
- removing and installing

Installation position of flange for fuel delivery unit and fuel gauge sender 2 - G169-

The marking on the flange must align with the marking on the fuel tank -arrow-.

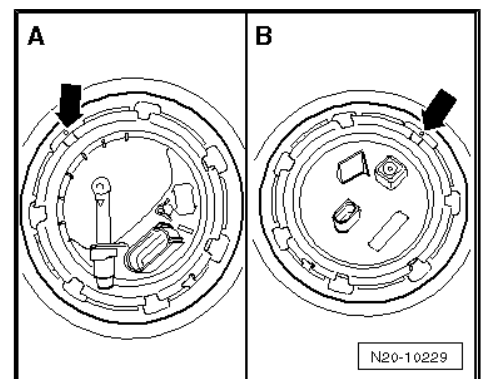


Note

The marking on the fuel tank is not clearly visible.

A - Flange for fuel delivery unit

B - Flange for fuel gauge sender 2 - G169-



2.2 Emptying fuel tank

⇒ ["2.2.1 Emptying fuel tank when fuel pump is intact", page 17](#)

⇒ ["2.2.2 Emptying fuel tank if it is more than 3/4 full", page 19](#)

⇒ ["2.2.3 Emptying fuel tank with fuel tank less than 3/4 full, vehicles with front-wheel drive", page 20](#)

⇒ ["2.2.4 Emptying fuel tank with fuel tank less than 3/4 full, vehicles with four-wheel drive", page 21](#)

2.2.1 Emptying fuel tank when fuel pump is intact

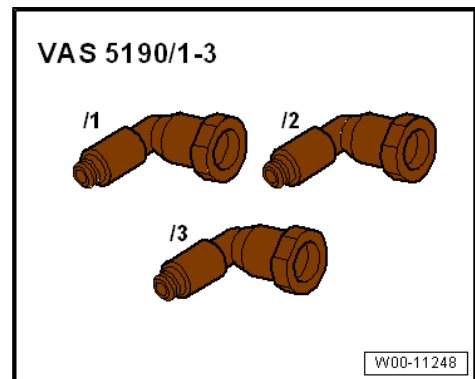
Special tools and workshop equipment required



◆ Fuel extractor - VAS 5190-



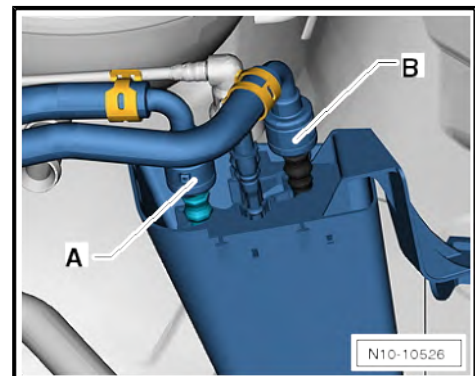
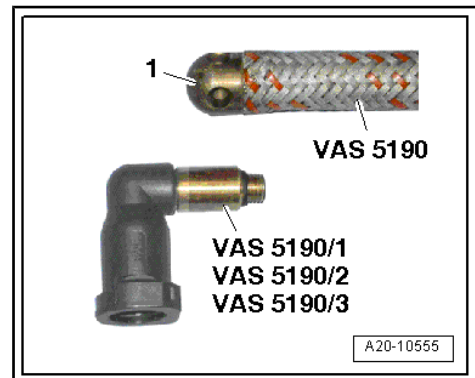
◆ Adapter for fuel extraction - VAS 5190-



i Note

If the fuel extraction unit - VAS 5190- is still fitted with the extraction hose with a solid tip, the extraction hose must be replaced with the version with a screwed tip.

- Unscrew tip -1- from extraction hose of fuel extraction unit - VAS 5190- .
- Screw fuel extraction adapter - VAS 5190 /2- from fuel extraction adapter set - VAS 5190 /10- onto extraction hose.
- Pull off supply line -B-, and catch escaping fuel with a cloth. Separate plug-in connectors => [page 46](#) .





- Connect fuel extractor - VAS 5190- with adapter for fuel extractor - VAS 5190 /3 - to fuel supply line.

⚠ CAUTION

Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- Check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.

- Connect the vehicle diagnostic tester .
- Carry out the guided function `Empty fuel tank`.
- Repeat the function if necessary.

i Note

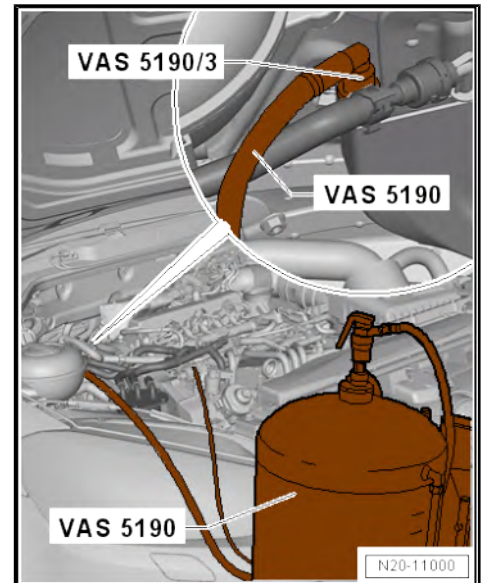
The fuel pump is now activated.

- Open shut-off tap on fuel extractor - VAS 5190- until fuel tank is emptied.

2.2.2 Emptying fuel tank if it is more than $\frac{3}{4}$ full

Special tools and workshop equipment required

- ◆ Fuel extractor - VAS 5190-



- ◆ Fuel extractor - VAS 5190 A- for E 85 fuel (not shown).
- Secure earth wire of fuel extractor to a bare metal part of the body.
- Make a mark -arrow- on the hose with insulating tape at a distance = 950 mm from end of extraction hose.

i Note

There is a flap on the lower end of the fuel filler neck in the fuel tank which must not be damaged by the extraction hose. You must therefore push hose into filler neck only as far as marking.

- Push extraction hose into fuel tank until marking on hose coincides with filler neck.
- Drain fuel tank via filler neck as far as possible.
- Pull extraction hose out carefully.



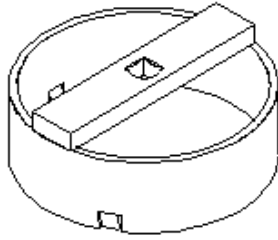
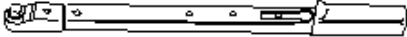
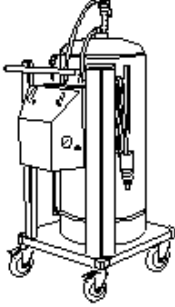


Note

- ◆ *When no more fuel is extracted, the tank is emptied just enough for the sender flange to be opened without danger. The tank may be removed while containing remaining fuel.*
- ◆ *Draining fuel tank completely ⇒ [page 20](#)*

2.2.3 Emptying fuel tank with fuel tank less than $\frac{3}{4}$ full, vehicles with front-wheel drive

Special tools and workshop equipment required

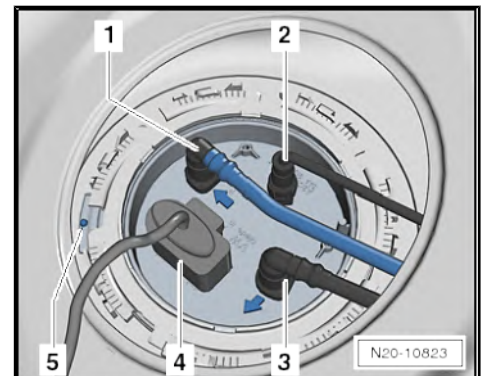
T10202 	V.A.G 1332 
VAS 5190 	

W20-10026

- ◆ Special wrench - T10202-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Fuel extractor - VAS 5190-
- Secure earth wire of fuel extractor to a bare metal part of the body.
- Remove bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat/individual seats .



- Remove cover of fuel delivery unit.
- Release connector -4- and fuel line -1- and pull them off flange -3-. Separate plug-in connectors ⇒ [page 46](#) .
- If fitted, pull out supply line -2- to metering pump - V54- . Separate plug-in connectors ⇒ [page 46](#) .



- Open locking ring using wrench - T10202- .
- Do not cant key - T10202- and press against locking ring firmly. If the key slips off, the fuel delivery unit can be damaged.
- Raise sender flange.
- Insert suction hose of fuel extractor - VAS 5190- as far as possible into fuel tank. Then extract fuel.

If fuel tank was only emptied, install sender flange again ⇒ [page 37](#) .

Torque settings


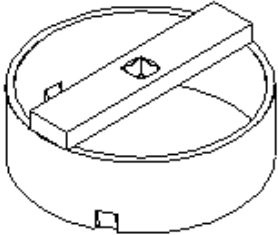

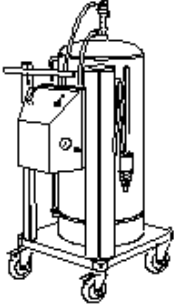
- ◆ ⇒ ["2.1.2 Assembly overview - fuel tank, vehicles with four-wheel drive", page 16](#)
- ◆ ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seat; Removing and installing bench seat / individual seats
- ◆ ⇒ Auxiliary heater; Rep. gr. 82 ; Fuel supply system; Overview of fitting locations – fuel supply system .



2.2.4 Emptying fuel tank with fuel tank less than $\frac{3}{4}$ full, vehicles with four-wheel drive



Special tools and workshop equipment required

<p>3409</p> 	<p>T10202</p> 
<p>V.A.G 1332</p> 	<p>VAS 5190</p> 
	<p>W20-10054</p>

- ◆ Removal wedge - 3409-
- ◆ Special wrench - T10202-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Fuel extractor - VAS 5190-

i Note

To drain fuel tank completely: fuel must be extracted from fuel delivery unit flange and also from fuel pump sender 2 - G169- flange.

- Secure earth wire of fuel extractor to a bare metal part of the body.

Draining fuel tank at fuel delivery unit flange ⇒ [page 22](#) .

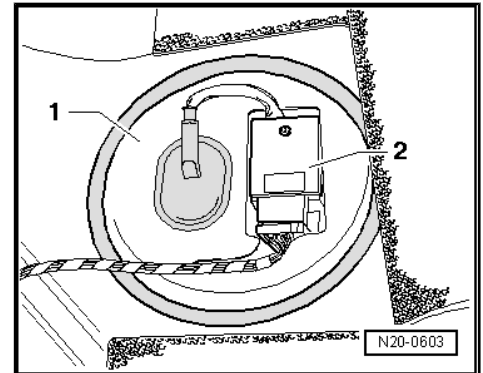
Draining fuel tank at fuel gauge sender 2 - G169- flange ⇒ [page 24](#) .

Emptying fuel tank at fuel delivery unit flange

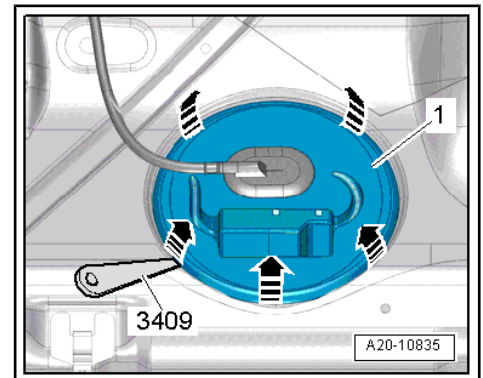
- Remove bench seat or fold it upwards ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seat; Removing and installing bench seat / individual seats .



- Guide carpet out and fold upwards, if fitted.
- Remove right cover with fuel pump control unit - J538- -2- from assembly opening above fuel delivery unit.

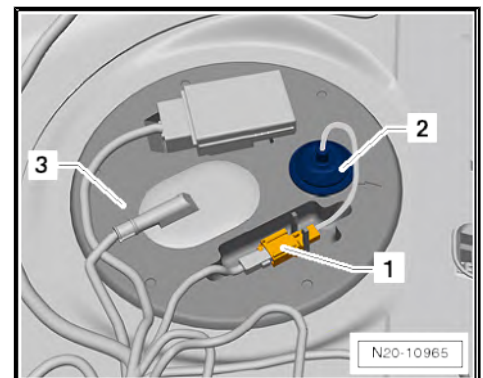


- To do this, unclip right cover -1- at retaining tabs -arrows- using removal wedge - 3409- .

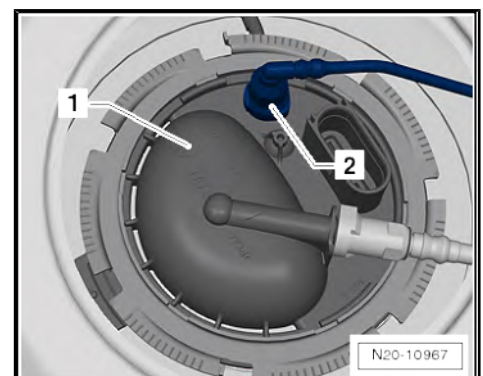


Vehicles with auxiliary heater

- Remove connector -1- from cover -3-.
- Release connectors -1- and pull off.
- Unclip sealing grommet -2- downwards from cover -3-.
- Guide wiring harness out downwards.



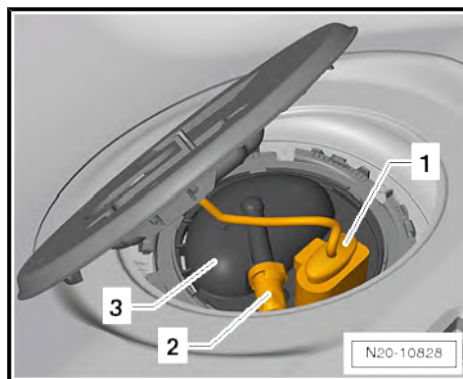
- Release and pull fuel delivery line -2- from flange -1-. Separate plug-in connectors ⇒ [page 46](#) .





Continued for all vehicles:

- Pull connector -1- off flange -3-.
- Disconnect fuel line -2- at flange -3-. Separate plug-in connectors => [page 46](#) .

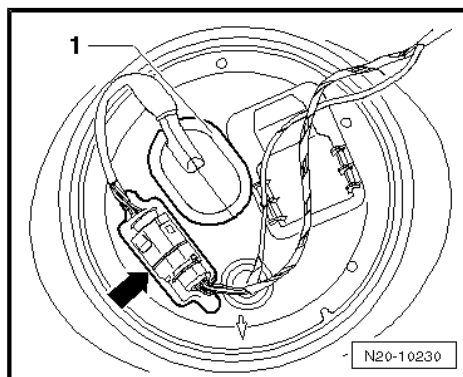


- Open locking ring using wrench - T10202- .
- Do not cant key - T10202- and press against locking ring firmly. If the key slips off, the fuel delivery unit can be damaged.
- Raise flange.
- Insert extraction hose of fuel extractor - VAS 5190- as far as possible into fuel tank.
- Then extract fuel.
- Draining fuel tank at flange of fuel gauge sender 2 - G169- => [page 24](#) .

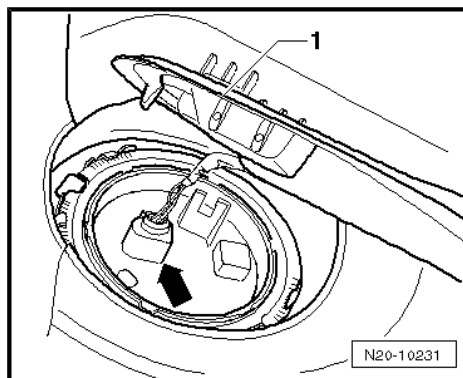


Draining fuel tank at fuel gauge sender 2 - G169- flange

- Disconnect connector to four-wheel drive control unit - J492- -arrow-.
- Unclip sealing grommet -1- downwards from cover.
- Guide wiring harness of all-wheel drive control unit - J492- out downwards.



- Remove cover -1- and detach 3-pin connector -arrow- from flange.



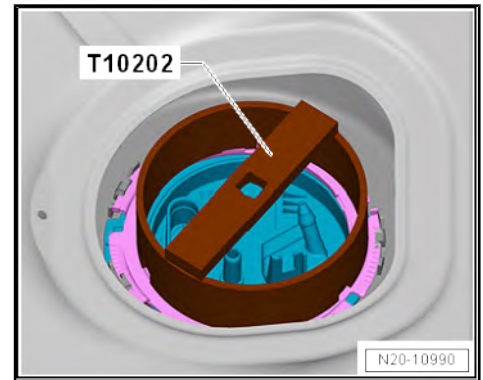


- Open locking ring using wrench - T10202- .
- Do not cant key - T10202- and press against locking ring firmly. If the key slips off, the fuel delivery unit can be damaged.
- Raise flange.
- Insert extraction hose of fuel extractor - VAS 5190- as far as possible into fuel tank.
- Then extract fuel.

If fuel tank needs only to be emptied, reinstall flanges with covers
⇒ [page 37](#) .

Torque settings

- ◆ ⇒ [“2.1.2 Assembly overview - fuel tank, vehicles with four-wheel drive”, page 16](#)
- ◆ ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seat; Removing and installing bench seat / individual seats
- ◆ ⇒ Auxiliary heater; Rep. gr. 82 ; Fuel supply system; Overview of fitting locations – fuel supply system .



2.3 Removing and installing fuel tank

⇒ [“2.3.1 Removing and installing fuel tank - vehicles with front-wheel drive”, page 25](#)

⇒ [“2.3.2 Removing and installing fuel tank - vehicles with four-wheel drive”, page 29](#)

2.3.1 Removing and installing fuel tank - vehicles with front-wheel drive

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Removal wedge - 3409-





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

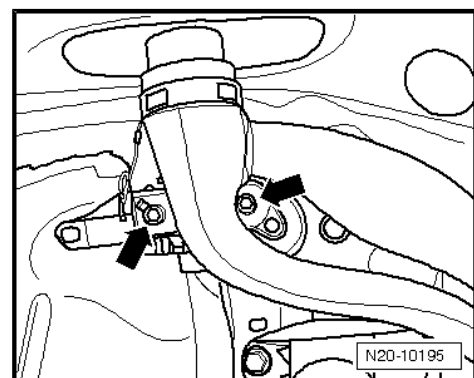
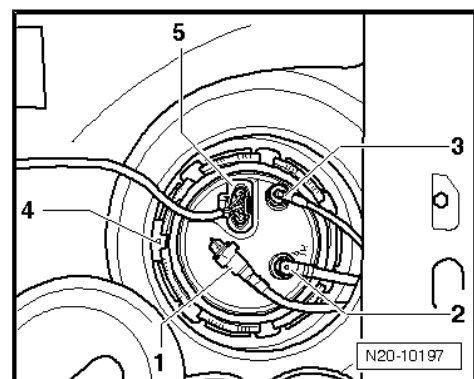


◆ Torque wrench - V.A.G 1332-



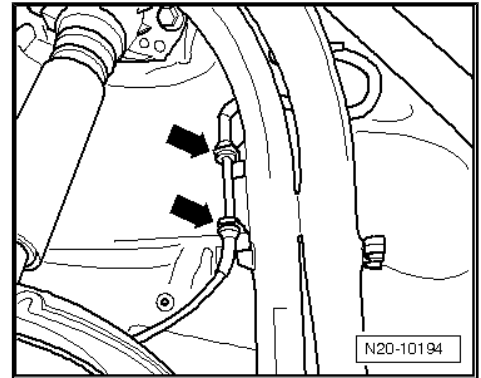
Removing

- Switch off ignition.
- Remove bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat/individual seats .
- Remove fuel delivery unit.
- Pull 5-pin connector -5- off fuel delivery unit flange.
- Remove tank flap unit -2- ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit .
- Drain fuel tank ⇒ [page 17](#) .
- Remove rear right wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres and alignment .
- Remove rear right wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Assembly overview - rear wheel housing liner .
- Unscrew bolts -arrows- on filler neck.

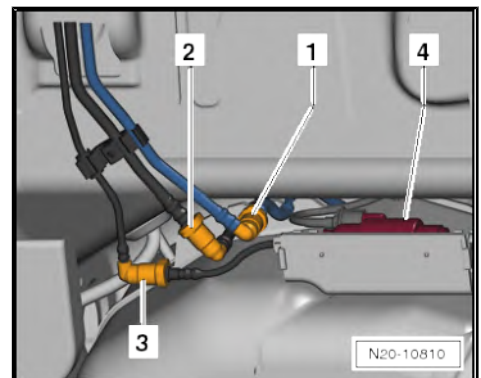




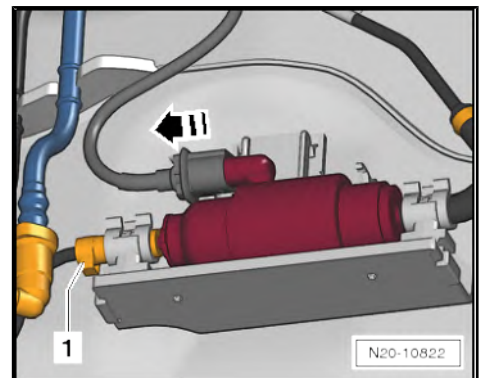
- Unclip line from filler neck -arrows-.
- Remove underbody panel between rear axle and side underbody panels ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody panel; Removing and installing underbody panels .
- Remove rear axle panel ⇒ Running gear, axles, steering; Rep. gr. 42 ; Rear axle; Lowering rear axle .



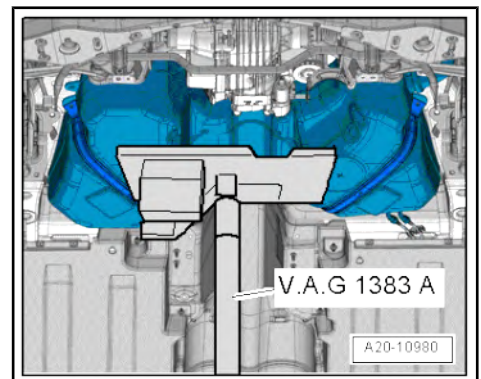
- Detach return line -1- and supply line -2- at connections. Separate plug-in connectors ⇒ [page 46](#) .
- If fitted, detach fuel line -3- for metering pump - V54- at connection ⇒ [page 46](#) .



- If fitted, pull connector -arrow- off metering pump - V54- .

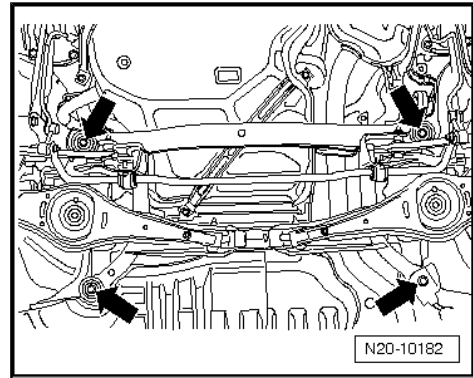


- Place engine and gearbox jack - V.A.G 1383 A- under rear axle to support it.
- If fitted, disconnect headlight range control connector.

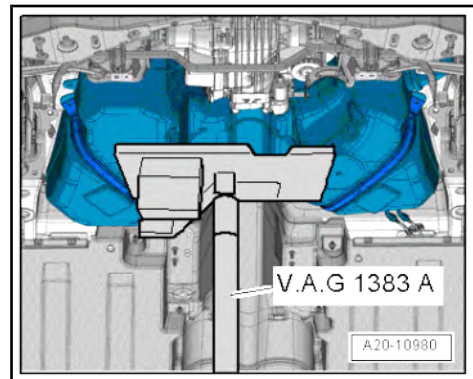




- Loosen securing bolts -arrows-, and lower rear axle ⇒ Running gear, axles, steering; Rep. gr. 42 ; Rear axle; Lowering rear axle .



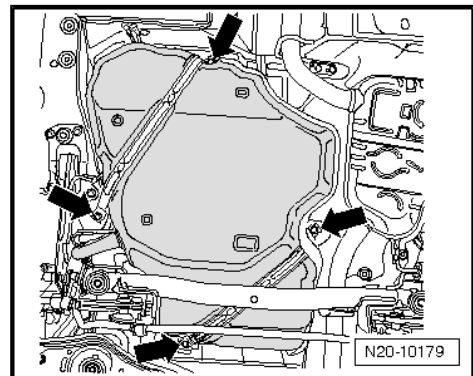
- Place engine and gearbox jack - V.A.G 1383 A- under fuel tank to support it.



- Unbolt securing straps with securing bolts -arrows-.
- With the aid of a 2nd mechanic, guide out filler neck from between rear axle and body. Then, place fuel tank on engine and gearbox jack - V.A.G 1383 A- .
- If necessary, unclip lines secured to upper side of fuel tank.

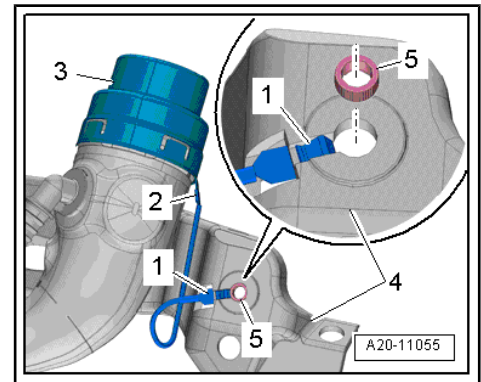
Installing

- Guide filler neck in between rear axle and body.
- Use suitable workshop equipment to prevent the securing straps from turning while tightening the bolts.
- If metering pump - V54- is fitted, ensure that it is securely fastened to bracket.
- Ensure that the filler neck of the fuel tank is correctly inserted into the opening in the body.
- Install breather lines and fuel lines free of kinks.
- After installing fuel tank, check that the supply, return and breather lines are still clipped onto the fuel tank.
- Position the fuel tank together with securing strap on underbody, using the engine and gearbox jack - V.A.G 1383 A- .
- Ensure that bracket for exhaust system is seated correctly ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Assembly overview - silencers .
- Use suitable workshop equipment to prevent the securing straps from turning while tightening the bolts.
- Ensure that line connections are tight.
- Ensure connections are secured properly by pulling.





- Check whether there are signs of oxidation on the earth wire of the connectors, remove if necessary.
- Check installation position of earth connection.
- Ensure that connector -2- is seated securely on metal ring -3-.
- Contact -1- must be attached to fuel tank -4- and secured with spacer bush -5-.
- Check connection of metal ring on fuel filler neck by measuring between ring and a bare metal part of body using an ohmmeter.
- Specification: approx. 0 ohm.
- If the specification is not attained, there is a risk of explosion due to electrostatic discharge.
- Fill fuel tank with at least 5 litres of fuel.



! NOTICE

Risk of irreparable damage to fuel pump if allowed to run dry.

- **Never allow fuel pump to run »dry«.**

- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Assembly overview - silencers
- ◆ ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seat; Removing and installing bench seat / individual seats
- ◆ ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres; Wheel change .
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Assembly overview- rear wheel housing liner .

2.3.2 Removing and installing fuel tank - vehicles with four-wheel drive

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-





◆ Removal wedge - 3409-



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



◆ Torque wrench - V.A.G 1332-



Removing

- Switch off ignition.

Drain fuel tank with fuel extractor - VAS 5190- ⇒ [page 17](#) .

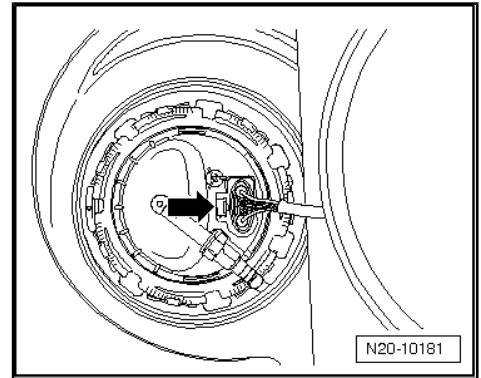
- Remove rear right wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres and alignment .
- Remove rear right wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Assembly overview - rear wheel housing liner .
- Remove tank flap unit -2- ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit .
- Remove bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat/individual seats .



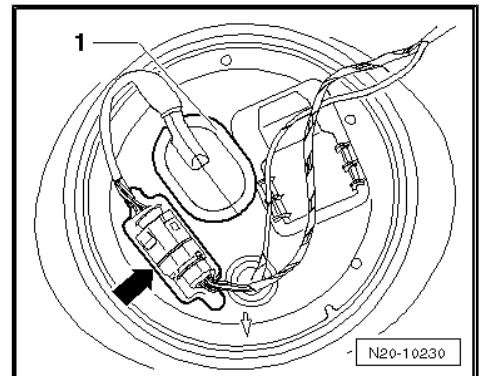
- Remove cover, and disconnect connector -arrow-.

i Note

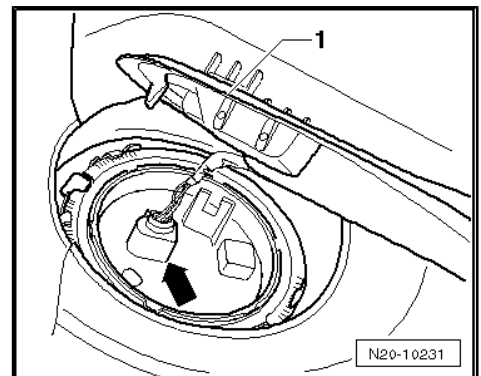
For vehicles with auxiliary heater the metering pump - V54- connector must be separated additionally.



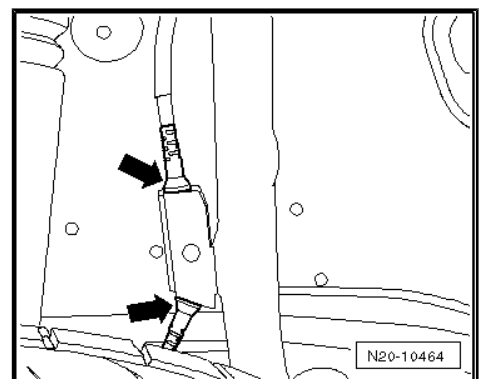
- Disconnect connector for all-wheel drive control unit - J492- -arrow- on left side.
- Unclip sealing grommet -1- downwards from cover. Guide wiring harness of all-wheel drive control unit - J492- out downwards.



- Remove left cover -1-. Pull off 3-pin connector -arrow- from flange when doing this.

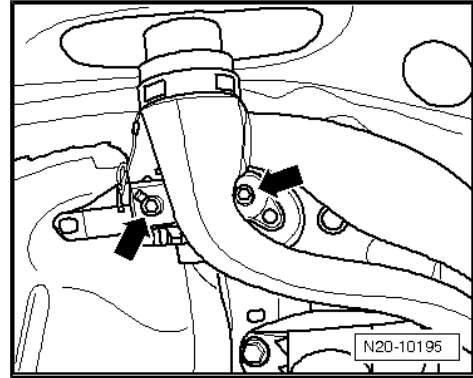


- Unclip wheel sensor wire -arrows- from retainer on filler neck.

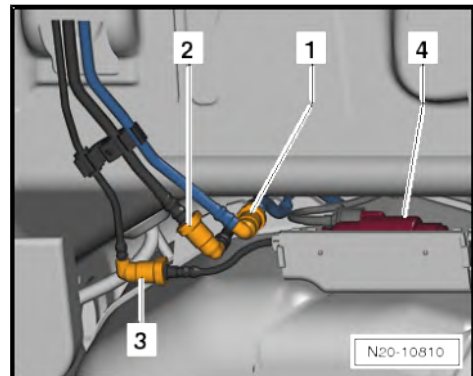




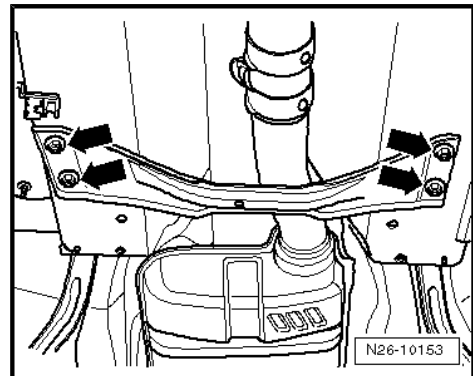
- Unbolt filler neck from body -arrows-.
- Remove front left and right underbody panels from underbody.
- Remove rear part of exhaust system => Rep. gr. 26 ; Exhaust system/silencer; Assembly overview - silencers .



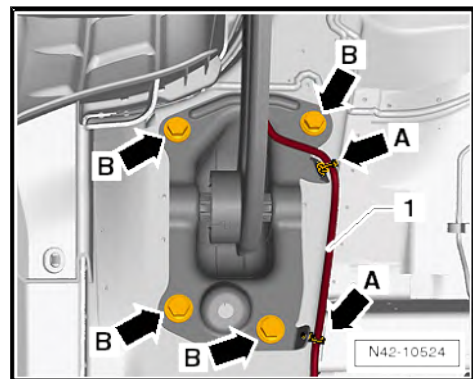
- Detach return line -1- and supply line -2- at connections. Separate plug-in connectors => [page 46](#) .
- If fitted, detach fuel line -3- for metering pump - V54- at connection => [page 46](#) .



- Remove tunnel cross-piece from underbody -arrows-.
- Remove heat shields under propshaft.
- Remove propshaft => Rep. gr. 39 ; Propshaft; Removing and installing propshaft .
- Remove heat shield under fuel tank.
- Lower rear axle => Running gear, axles, steering; Rep. gr. 42 ; Rear axle; Lowering rear axle .



- Open clips -A-. Free off line -1- and unscrew bolts -B- from right trailing arm.

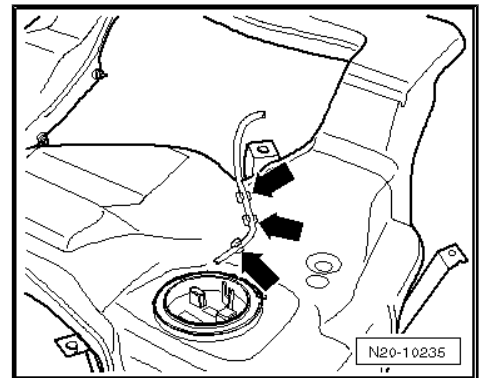
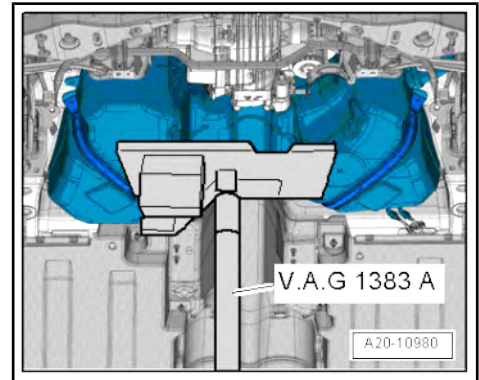




- Place engine and gearbox jack - V.A.G 1383 A- under fuel tank to support it.
- Unbolt securing straps with securing bolts -arrows-.
- With the aid of a 2nd mechanic, guide out filler neck from between rear axle and body. Then, place fuel tank on engine and gearbox jack - V.A.G 1383 A- .
- If necessary, unclip lines secured to upper side of fuel tank.

Installing

- Clip in line from the four-wheel drive control unit - J492- at the fuel tank -arrow- if necessary.
- Guide filler neck in between rear axle and body.
- Use suitable workshop equipment to prevent the securing straps from turning while tightening the bolts.
- If metering pump - V54- is fitted, ensure that it is securely fastened to bracket.
- Ensure that the filler neck of the fuel tank is correctly inserted into the opening in the body.
- Install breather lines and fuel lines free of kinks.
- After installing fuel tank, check that the supply, return and breather lines are still clipped onto the fuel tank.
- Position the fuel tank together with securing strap on underbody, using the engine and gearbox jack - V.A.G 1383 A- .
- Ensure that bracket for exhaust system is seated correctly ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Assembly overview - silencers .
- Use suitable workshop equipment to prevent the securing straps from turning while tightening the bolts.
- Ensure that line connections are tight.
- Ensure connections are secured properly by pulling.





- Check whether there are signs of oxidation on the earth wire of the connectors, remove if necessary.
- Check installation position of earth connection.
- Ensure that connector -2- is seated securely on metal ring -3-.
- Contact -1- must be attached to fuel tank -4- and secured with spacer bush -5-.
- Check connection of metal ring on fuel filler neck by measuring between ring and a bare metal part of body using an ohmmeter.
- Specification: approx. 0 ohm.
- If the specification is not attained, there is a risk of explosion due to electrostatic discharge.
- Fill fuel tank with at least 5 litres of fuel.

NOTICE

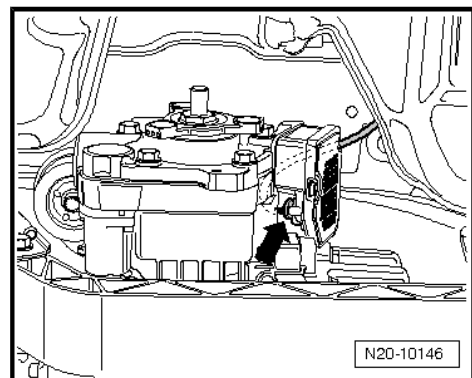
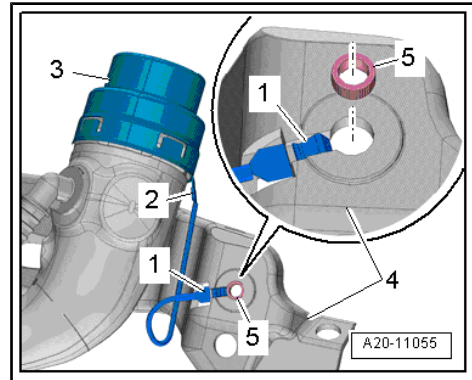
Risk of irreparable damage to fuel pump if allowed to run dry.

- **Never allow fuel pump to run »dry«.**

- Fit adapter cable onto all-wheel drive control unit - J492- .

Torque settings

- ◆ ⇒ [“2.1.2 Assembly overview - fuel tank, vehicles with four-wheel drive”, page 16](#)
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Assembly overview - silencers
- ◆ ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seat; Removing and installing bench seat / individual seats
- ◆ ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres; Wheel change .
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Assembly overview- rear wheel housing liner .





3 Fuel delivery unit, fuel gauge sender

⇒ [“3.1 Assembly overview - fuel delivery unit/fuel gauge sender”, page 35](#)

⇒ [“3.2 Removing and installing fuel delivery unit, fuel gauge sender”, page 37](#)

⇒ [“3.3 Removing and installing fuel gauge sender G”, page 42](#)

⇒ [“3.4 Removing and installing fuel gauge sender 2 G169”, page 43](#)

3.1 Assembly overview - fuel delivery unit/ fuel gauge sender

⇒ [“3.1.1 Assembly overview - fuel delivery unit/fuel gauge sender”, page 35](#)

⇒ [“3.1.2 Assembly overview - fuel delivery unit/fuel gauge sender, vehicles with auxiliary heater”, page 37](#)

3.1.1 Assembly overview - fuel delivery unit/fuel gauge sender

1 - Locking ring

- Ensure firm seating.
- Remove and install using wrench - 3087- .
- 110 Nm

2 - Supply line to fuel filter

- Clipped onto fuel tank
- Ensure firm seating.
- black
- To pull off flange, press release button on connecting piece.

3 - Return line

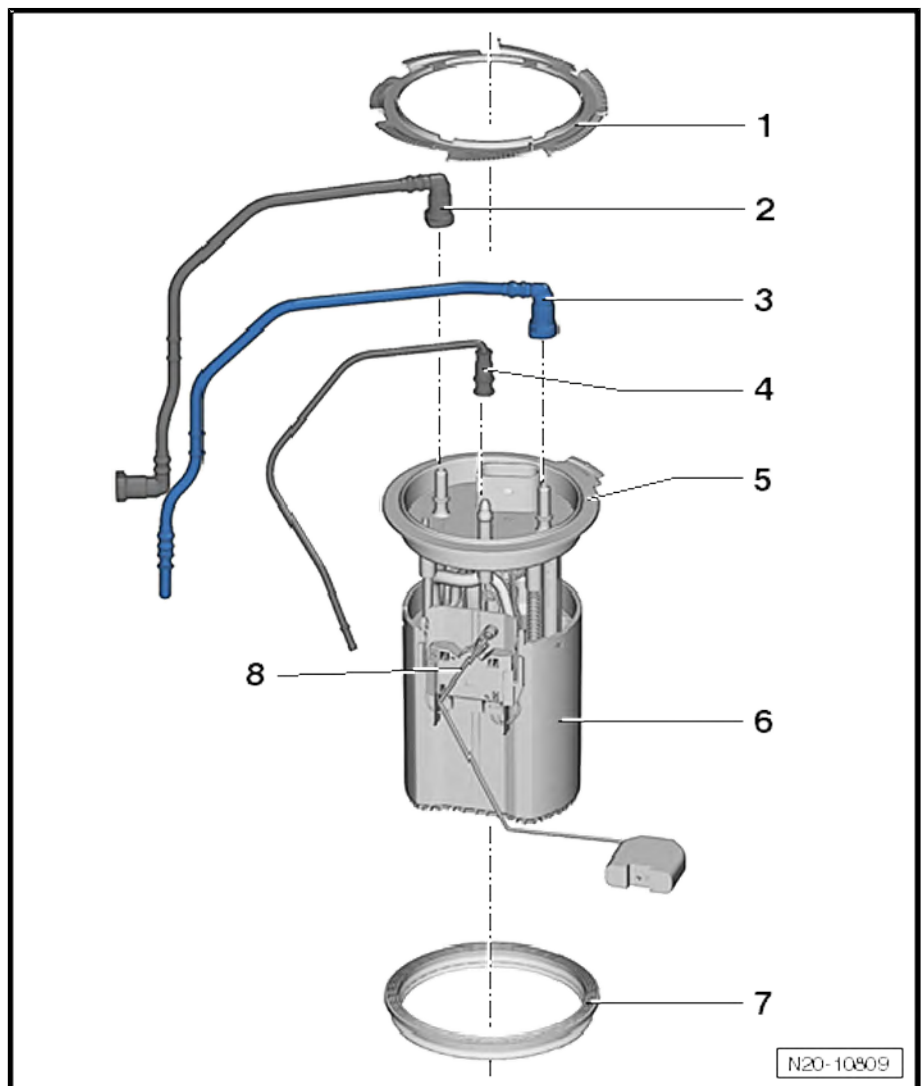
- Blue or with blue marking
- Clipped onto fuel tank
- Ensure firm seating.
- To pull off flange, press release button on connecting piece.

4 - Supply line for auxiliary heater

- Vehicles with auxiliary heater
- To metering pump - V54-
- Clipped onto fuel tank
- Ensure firm seating.
- To pull off flange, press release button on connecting piece.

5 - Flange

- For fuel delivery unit.





- Note installation position of flange on fuel tank => [page 36](#) .

6 - Fuel delivery unit

- Removing and installing
=> ["3.2 Removing and installing fuel delivery unit, fuel gauge sender"](#), [page 37](#)
- With fuel system pressurisation pump - G6- and fuel gauge sender.

7 - Seal

- Renew after removal
- When installing, fit dry in fuel tank opening.
- Moisten with fuel only when installing flange.

8 - Fuel gauge sender (G).

- Removing and installing fuel gauge sender => [page 42](#) .

Installation position of flanges

The marking on the flange must align with the marking on the fuel tank -arrow-.

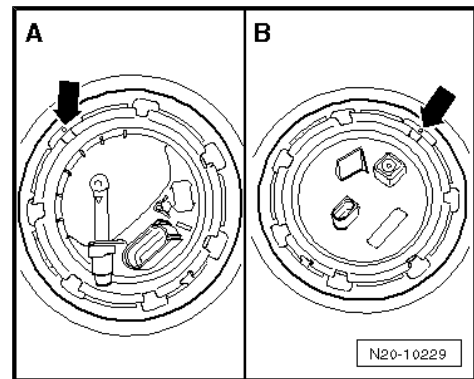


Note

The marking on the fuel tank is not clearly visible. It is opposite direction of travel.

A - Flange for fuel delivery unit.

B - Fuel gauge sender 2 - G169- flange (only vehicles with four-wheel drive)





3.1.2 Assembly overview - fuel delivery unit/fuel gauge sender, vehicles with auxiliary heater

1 - Fuel delivery unit

- With fuel system pressurisation pump - G6-
- With integrated fuel filter; fuel filter cannot be renewed separately
- Carrying out electrical test of fuel pump in Guided fault finding mode ⇒ Vehicle diagnostic tester
- Removing and installing ⇒ [page 40](#)
- After installing, fill vehicle with at least 5 litres of fuel.

2 - Clip

- Renew after removal
- Secure hose connection with the hose clips corresponding to original equipment.

3 - Clip

- Renew after removal
- Secure hose connection with the hose clips corresponding to original equipment.

4 - Fuel line

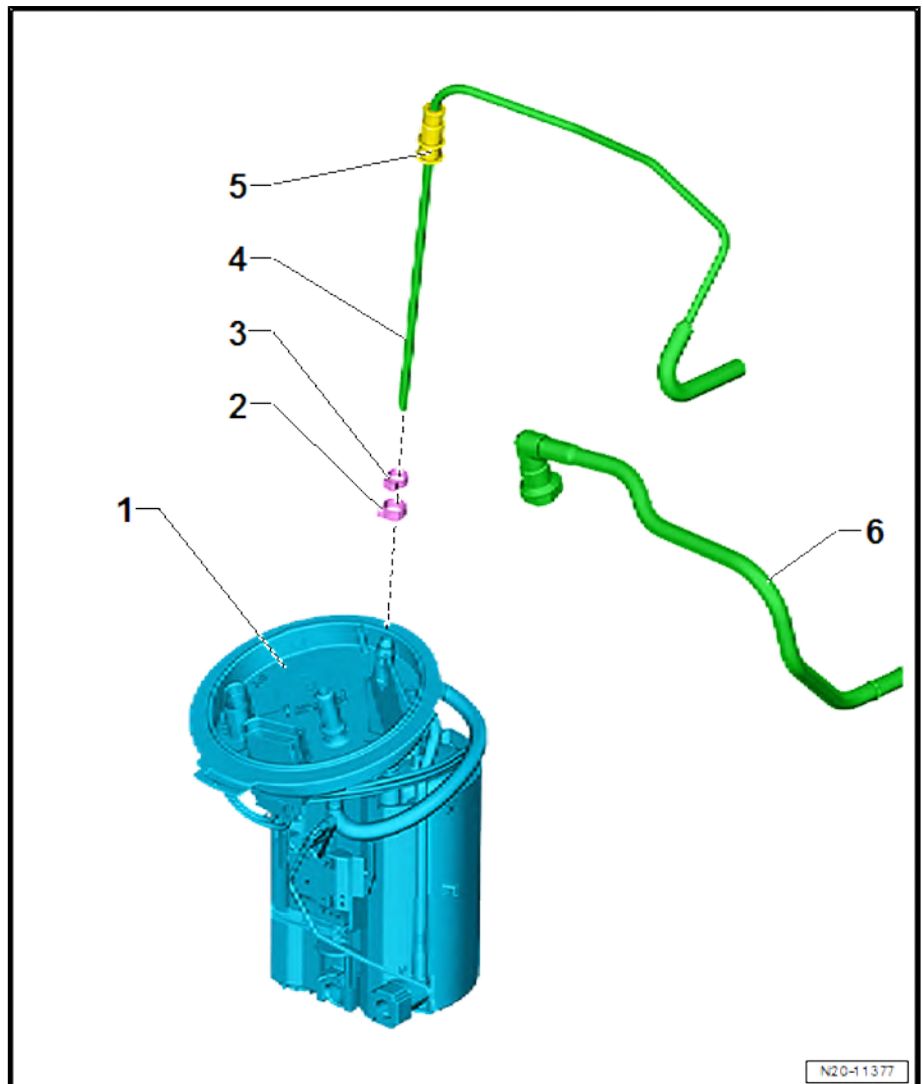
- To metering pump - V54-
- Removing and installing ⇒ [page 40](#)

5 - Sealing grommet

- Check for damage

6 - Fuel line

- To engine



3.2 Removing and installing fuel delivery unit, fuel gauge sender

⇒ [“3.2.1 Removing and installing fuel delivery unit, fuel gauge sender”, page 37](#)

⇒ [“3.2.2 Removing and installing fuel line for auxiliary/supplementary heater”, page 40](#)

3.2.1 Removing and installing fuel delivery unit, fuel gauge sender

Special tools and workshop equipment required



- ◆ Special wrench - T10202-



- ◆ Torque wrench - V.A.G 1332-



- ◆ Removal wedge - 3409-



Removing

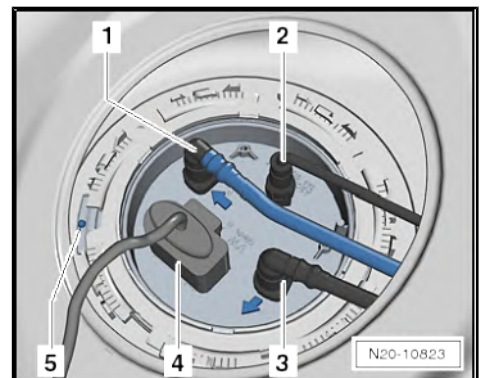
- The fuel tank must not be more than $\frac{3}{4}$ full. This ensures that the fill level is below the flange of the fuel delivery unit.
- Drain fuel tank ⇒ [page 17](#) .
- Remove bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat/individual seats .



- First check that connector -arrow- is fitted securely by pulling connector without pressing catch. If connector was not inserted correctly, repeat function test.
- First press down connector -arrow-.
- Then pull locking element of connector upwards. At same time, remove connector upwards.
- Unlock and pull fuel line -1- and -3- off flange. Separate plug-in connectors ⇒ [page 46](#) .



- If fitted, pull out supply line -2- to metering pump - V54- . Separate plug-in connectors ⇒ [page 46](#) .



- Open locking ring using wrench - T10202- .
- Do not cant key - T10202- and press against locking ring firmly. If the key slips off, the fuel delivery unit can be damaged.
- Raise sender flange.

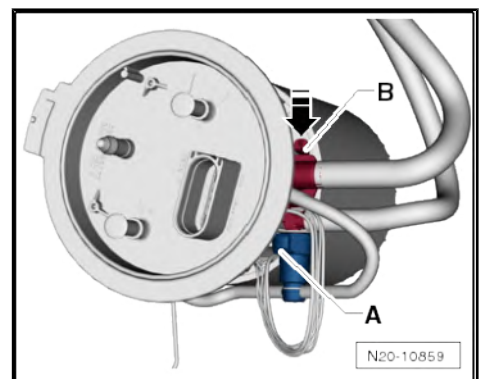


All-wheel drive vehicles

- Press securing ring and pull fuel line -A- for suction-jet pump off.
- Press tab -B- of suction-jet pump in -direction of arrow- and unclip from fuel delivery unit.

Continued for all vehicles:

- Carefully lift flange of fuel delivery unit.
- Lift delivery unit slightly, and remove seal from opening in fuel tank.
- When the delivery unit is replaced, the old delivery unit must be emptied before disposal.
- Observe relevant disposal regulations.

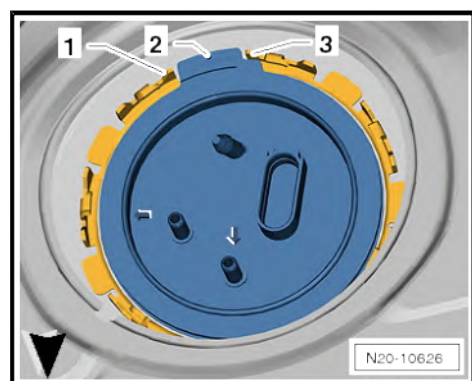
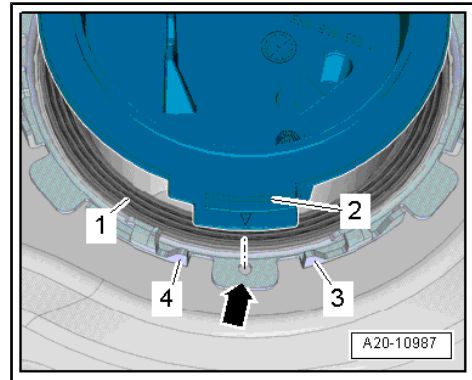


Installing

- Renew seal.



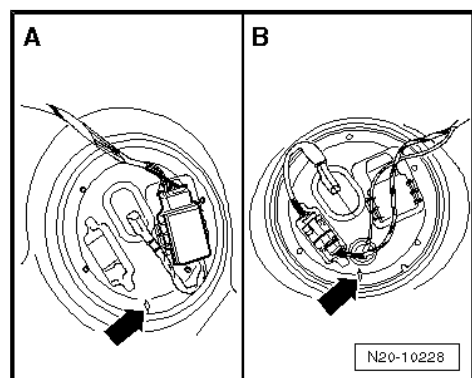
- Insert dry seal -1- for fuel delivery unit into opening in fuel tank.
 - When inserting fuel delivery unit, ensure that fuel gauge sender is not bent.
 - Coat inner side of seal -1- with fuel.
 - Press down sealing flange -2- against spring force.
 - Bring sealing flange to installation position.
 - When flange is inserted, ensure that seal is not damaged or squashed.
 - Installing the fuel delivery unit is carried out in reverse order of removal.
 - Push fuel lines -1- and -2- onto flange until they engage audibly.
 - Note installation position of flanges -arrows-:
 - Tab -2- on flange must be between lugs -1- and -3- on fuel tank.
 - -Arrow- points in direction of travel.
- A - Flange for fuel delivery unit
B - Flange for fuel gauge sender 2 - G169-
- Tighten locking ring using wrench - T10202- .



- Note installation position of covers -arrows-:
The -arrows- on the covers point forwards.
- A - Cover for fuel delivery unit
B - Cover for fuel gauge sender 2 - G169-

Torque settings

- ◆ ⇒ ["3.1 Assembly overview - fuel delivery unit/fuel gauge sender", page 35](#)
- ◆ ⇒ ["2.1.2 Assembly overview - fuel tank, vehicles with four-wheel drive", page 16](#)



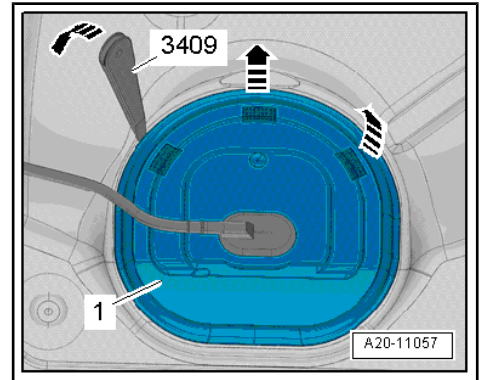
3.2.2 Removing and installing fuel line for auxiliary/supplementary heater

Removing

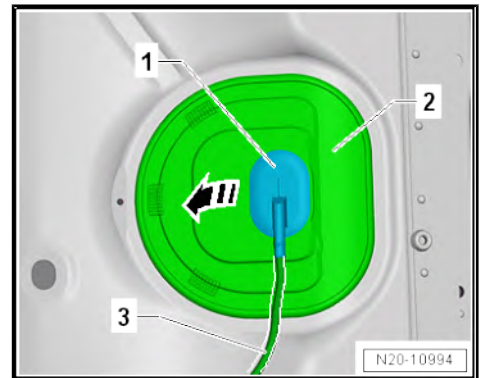
- The fuel tank must not be more than $\frac{3}{4}$ full. This ensures that the fill level is below the flange of the fuel delivery unit.
- Drain fuel tank ⇒ [page 17](#) .
- Remove rear bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat / individual seats .



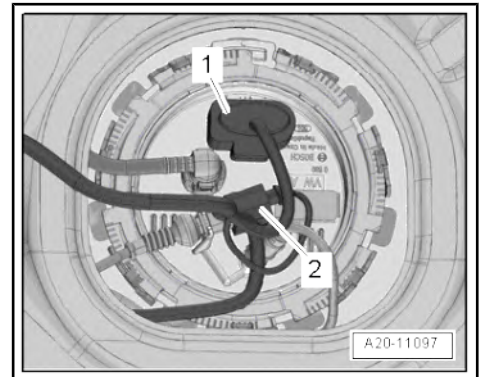
- Unclip cover -1- for flange at retaining tabs -arrows-, using removal wedge - 3409- .



- Unclip sealing grommet -1- downwards from cover -2-.



- Push cover -2- back along wiring harness -3-.
- Release and pull off connector -1- on sealing flange.
- If fitted, detach connector -2- for metering pump - V54- of auxiliary heater on sealing flange and lay connector aside.



If fuel line for metering pump - V54- is to be disconnected from fuel delivery unit:

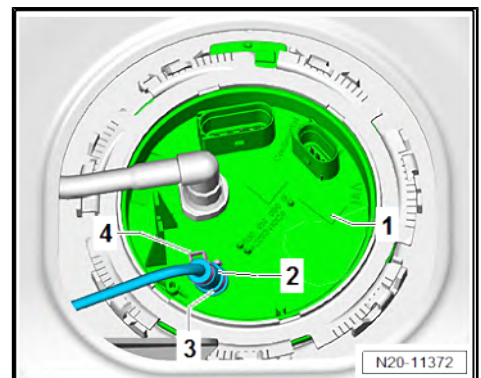
- Open lower clip -3- on flange -1-.

⚠ CAUTION

The fuel system is pressurised.

Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



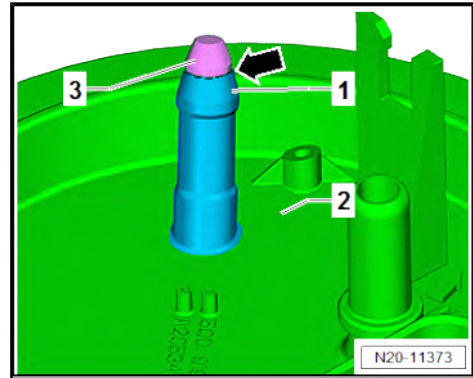
- Do not open upper clip -4-.
- Pull fuel line -2- together with grommet off flange.

If a new fuel delivery unit is installed:

- Remove fuel line ⇒ [page 41](#) .

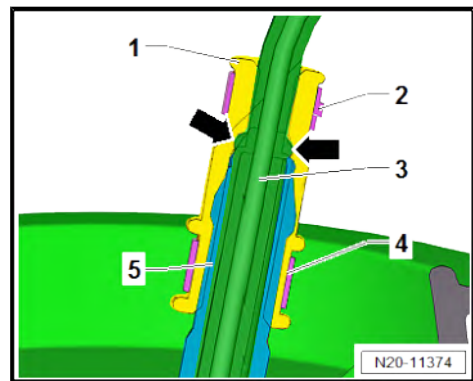


- Remove fuel delivery unit ⇒ [page 37](#) .
- The connection on the fuel delivery unit -2- must be opened.
- To do this, cut off sealing piece -3- on connection -1-.
- Cut it off on the respective marking line -arrow-.
- Deburr edges of cutting point.
- Prevent any dirt or swarf from entering the fuel delivery unit.
- Check fuel delivery unit for soiling, and clean it as necessary.
- Install fuel delivery unit ⇒ [page 37](#) .



Installing fuel line:

- Insert fuel line -3- in connection -5-.
- Insert fuel line to stop -arrow-.
- While doing this, fit grommet -1- over connection.
- Renew lower clip -4-.
- If the fuel line or grommet has been renewed, the upper clip must be renewed as well.
- Renew clips -2- and -4-, if they have been opened.
- Secure hose connections with hose clips corresponding to original equipment.



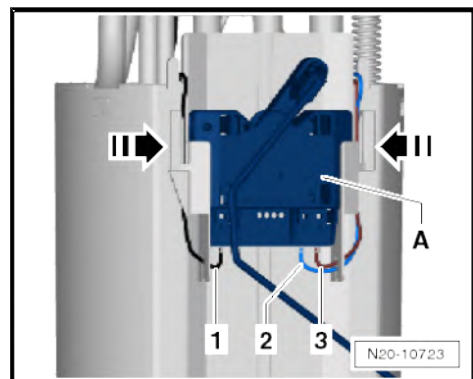
Torque settings

- ◆ ⇒ [“3.1.2 Assembly overview - fuel delivery unit/fuel gauge sender, vehicles with auxiliary heater”, page 37](#)

3.3 Removing and installing fuel gauge sender - G-

Removing

- Remove fuel delivery unit ⇒ [page 37](#) .
- Press together securing tabs -arrows- and remove fuel gauge sender - G- upwards.
- Note colour assignment of cables for reinstallation.

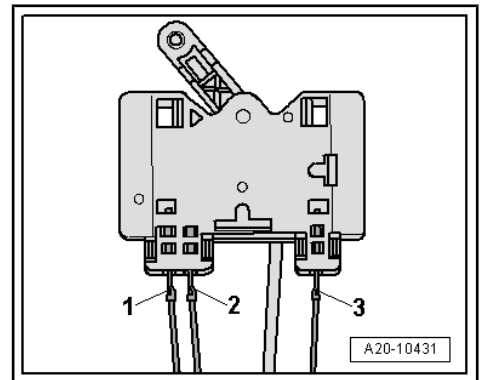
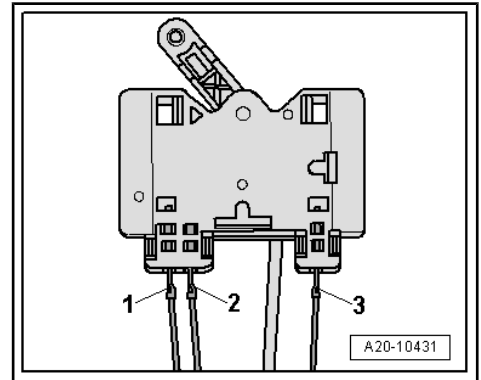




- Release and pull off connectors -1 ... 3-. Then bend back locking lugs of connectors.

Installing

- Connect connectors -1 ... 3-. Adhere to colour assignment while doing this.
- Check connectors are secured properly by pulling.
- Insert fuel gauge sender - G- into guide on fuel delivery unit and press down until it engages.
- Clip lines on corresponding positions and secure on cup into retaining slots.
- Install fuel delivery unit ⇒ [page 37](#) .



3.4 Removing and installing fuel gauge sender 2 - G169-

Special tools and workshop equipment required

- ◆ Special wrench - T10202-



- ◆ Torque wrench - V.A.G 1332-



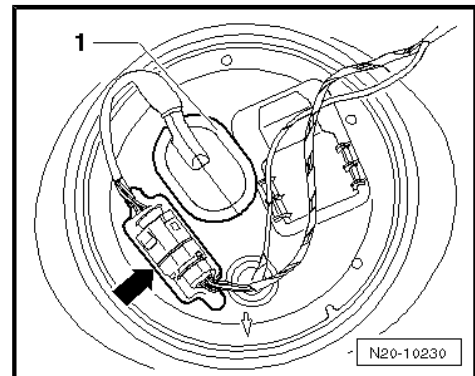


◆ Removal wedge - 3409-

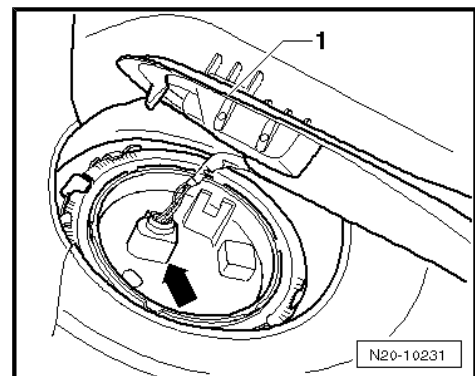


Removing

- The fuel tank must not be more than 1/2 full.
- Drain fuel tank, if necessary, using fuel extractor - VAS 5190- => [page 17](#) .
- Remove bench seat => General body repairs, interior; Rep. gr. 72 ; Rear seat; Removing and installing bench seat / individual seats .
- Disconnect connector for all-wheel drive control unit - J492- -arrow-.
- Unclip sealing grommet -1- downwards from cover. Guide wiring harness of all-wheel drive control unit - J492- out downwards.



- Remove cover -1- and detach 3-pin connector -arrow- from flange.



- Open locking ring using wrench - T10202- .
- Lift flange slightly and remove seal out of opening in fuel tank.

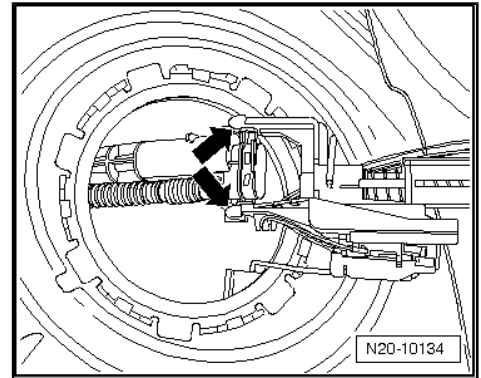




- Pull fuel gauge sender 2 - G169- upwards a little. Unclip locking lugs -arrows- of suction-jet pump.

Installing

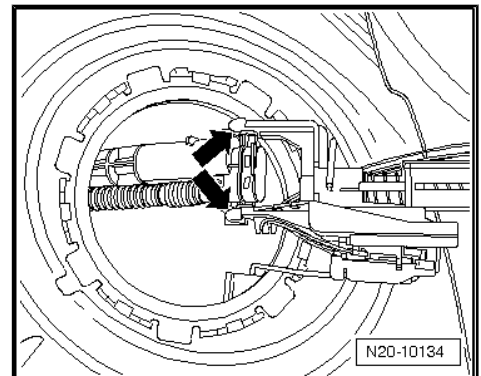
- When installing do not bend fuel gauge sender 2 - G169- float arm.
- Insert fuel gauge sender 2 - G169- into fuel tank.



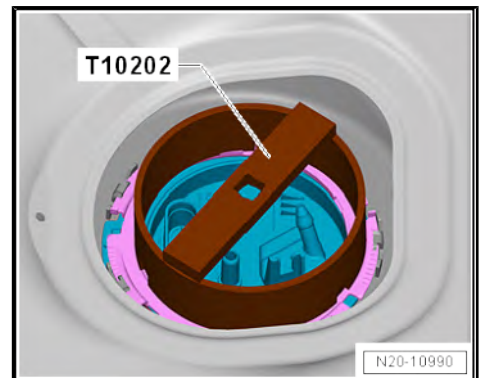
- Push suction-jet pump onto sender inside fuel tank. Suction-jet locking lugs -arrows- must engage.

The remaining installation steps are carried out in the reverse sequence of removal. The following should be observed:

- Make sure that oil seal is in correct position.



- Tighten locking ring using wrench - T10202- .
- ◆ Moisten seal with fuel only when installing flange.

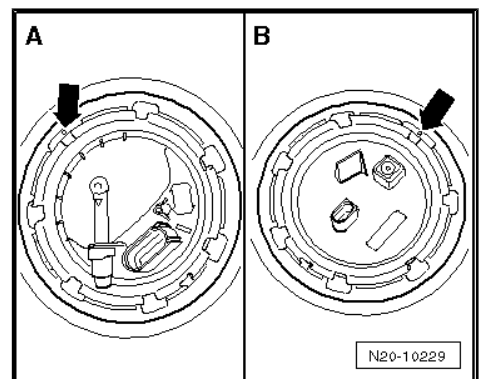


- Observe installation position of flange -B-.

The marking on the flange must align with the marking on the fuel tank -arrow-.

Torque settings

- ◆ ⇒ ["2.1.2 Assembly overview - fuel tank, vehicles with four-wheel drive", page 16](#)





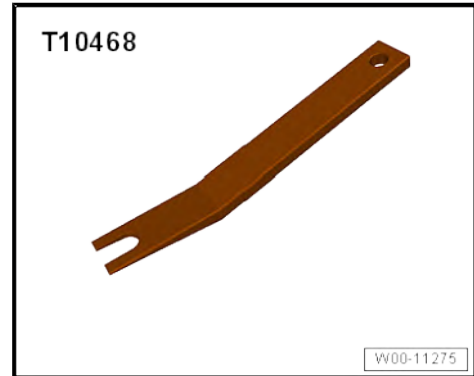
4 Plug-in connectors

⇒ "4.1 Separating plug-in connectors", page 46

4.1 Separating plug-in connectors

Special tools and workshop equipment required

- ◆ Lever - T10468-



Assignment of plug-in connectors:



Note

- ◆ *The plug-in connectors for fuel, vacuum and breather lines are colour coded. There is either a coloured dot on the plug-in connector or the release button is of the respective colour ⇒ page 46.*
- ◆ *Plug-in connectors for fuel lines must engage »audibly« when joined.*
- ◆ *Ensure plug-in connector is secured properly by pulling it.*

Colour assignment

Plug-in connector	Colour code on plug-in connector
Fuel supply	black
Fuel return line	blue
Breather	White, beige
Vacuum	green

CAUTION

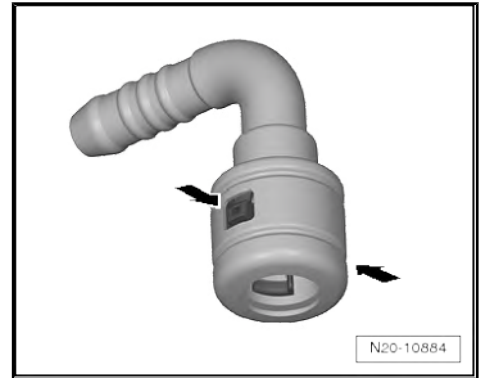
The fuel system is pressurised.
 Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



Version 1

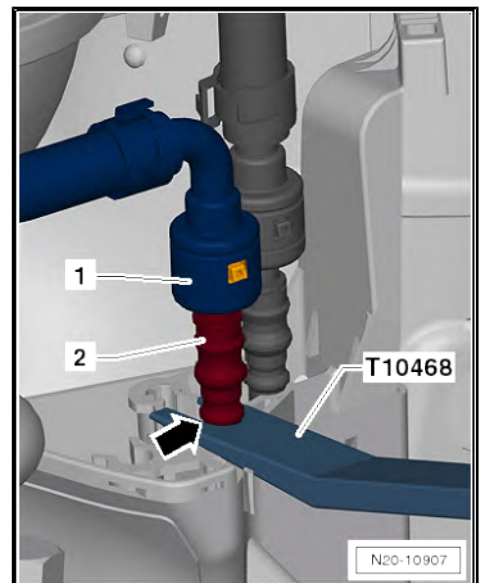
Plug-in connector with release buttons -arrows- on right and left:



Open

Counterhold at the coupling point for fuel -1- in the engine compartment.

- Insert lever - T10468- between heat shield and stop -arrow- of fuel line -2- and counterhold.



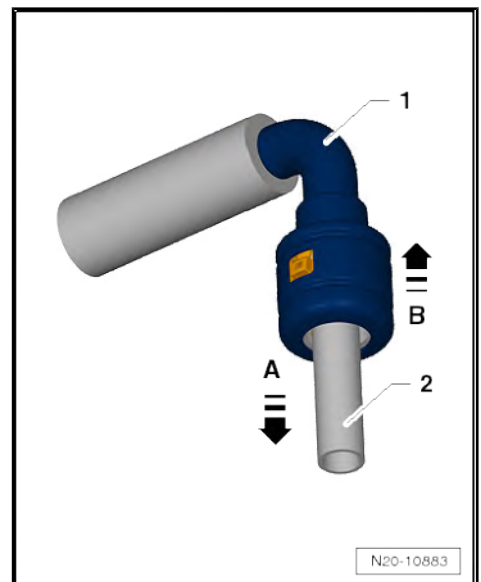
Continuation for all connections in the fuel system:

- Push plug-in connector -1- in -direction of arrow A-.
- Press and hold release buttons.
- Pull plug-in connector -1- off fuel line -2- in -direction of arrow B-.

Note colour assignment during installation ⇒ [page 46](#) .

Plug-in connectors for fuel lines must engage »audibly« when joined.

- Ensure plug-in connector is secured properly by pulling it.





Version 2

Plug-in connector with pull-release mechanism -arrow-

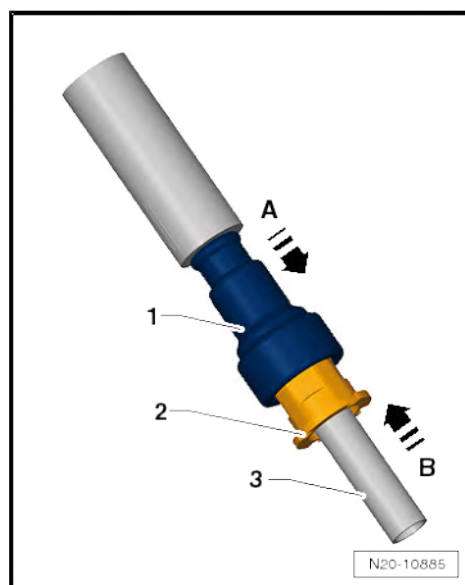
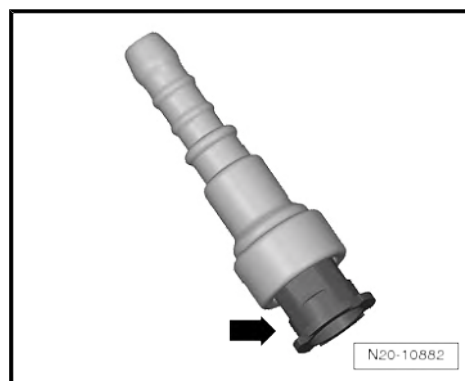
Open

- Push plug-in connector -1- in -direction of arrow A-
- Pull pull-release mechanism -2- in -direction of arrow B-
- Pull plug-in connector -1- off fuel line -3- in -direction of arrow B-

Note colour assignment during installation ⇒ [page 46](#) .

Plug-in connectors for fuel lines must engage »audibly« when joined.

- Ensure plug-in connector is secured properly by pulling it.



Version 3

Plug-in connector with button in front -arrow-

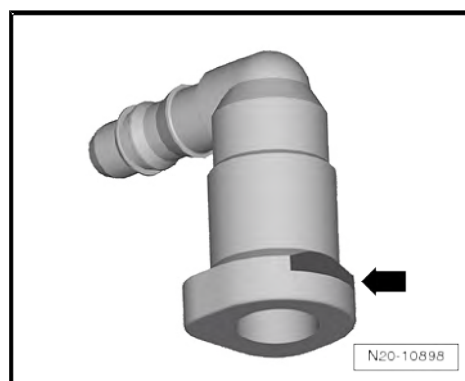
Open

- Press release button -arrow- and pull off plug-in connectors.

Note colour assignment during installation ⇒ [page 46](#) .

Plug-in connectors for fuel lines must engage »audibly« when joined.

- Ensure plug-in connectors are secure properly by pulling.



Version 4

Plug-in connector with release button -arrows- on right and left:

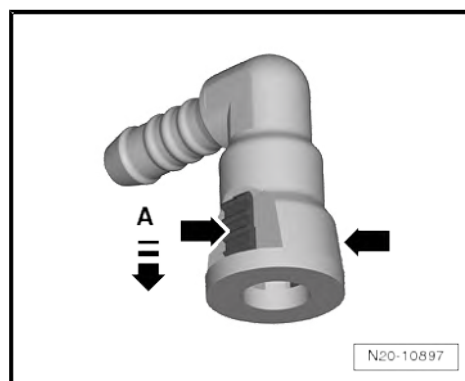
Open

- Push plug-in connector in -direction of arrow A-
- Press release buttons -arrows- and pull off plug-in connector.

Note colour assignment during installation ⇒ [page 46](#) .

Plug-in connectors for fuel lines must engage »audibly« when joined.

- Ensure plug-in connector is secured properly by pulling it.





Version 5

Plug-in connector with release buttons -arrows- on right and left:

Open

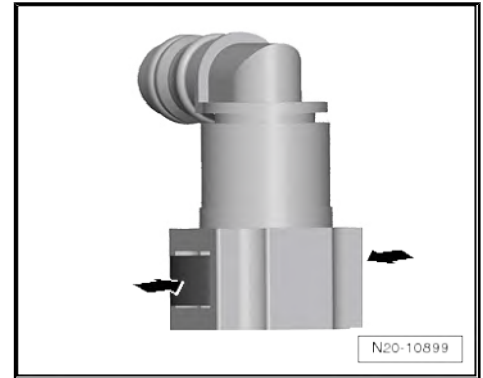
Note colour assignment during installation ⇒ [page 46](#) .

- Press release buttons -arrows- and pull off plug-in connector.

Note colour assignment during installation ⇒ [page 46](#) .

Plug-in connectors for fuel lines must engage »audibly« when joined.

- Ensure plug-in connector is secured properly by pulling it.



Version 6

Plug-in connector with release buttons -arrows- on right and left:

Open

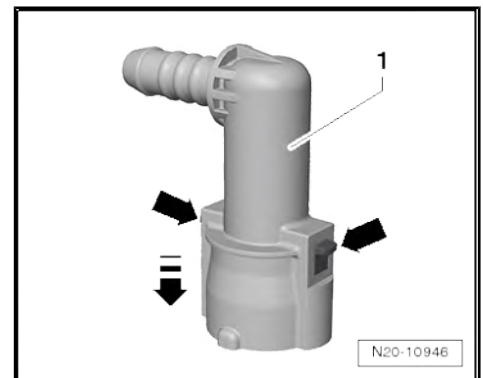
- Push plug-in connector -1- in -direction of arrow- and maintain pressure.

- Press release buttons -arrows- and pull off plug-in connector.

Note colour assignment during installation ⇒ [page 46](#) .

Plug-in connectors for fuel lines must engage »audibly« when joined.

- Ensure plug-in connector is secured properly by pulling it.



Version 7

Plug-in connector -1- with release buttons -2- on right and left:

Open

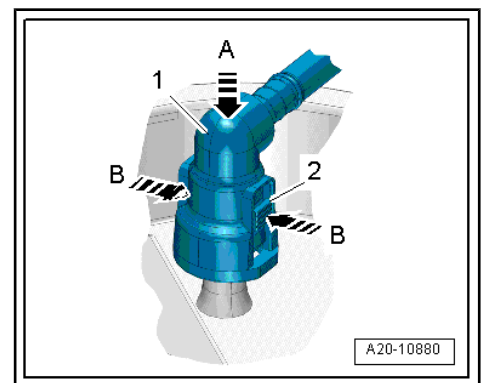
- Press plug-in connector -1- in -direction of arrow A- and maintain pressure.

- Press release button -2- in -direction of arrow B- and pull off plug-in connector -1-.

Note colour assignment during installation ⇒ [page 46](#) .

Plug-in connectors for fuel lines must engage »audibly« when joined.

- Ensure plug-in connector is secured properly by pulling it.



<p>⚠ CAUTION</p>
<p>Risk of fire due to escaping fuel. Risk of severe injuries and burns.</p> <ul style="list-style-type: none"> – Check all connected lines for secure fit by pulling. – Take any fuel-soaked cloths away from area of vehicle.



5 Fuel filter

⇒ [“5.1 Assembly overview - fuel filter”, page 50](#)

⇒ [“5.2 Removing and installing fuel filter”, page 52](#)

⇒ [“5.3 Fuel hoses in the engine compartment”, page 56](#)

5.1 Assembly overview - fuel filter

⇒ [“5.1.1 Assembly overview - fuel filter, engine codes CAYC, CFFA, CFFB, CFGB, CLLA, CFGC”, page 50](#)

⇒ [“5.1.2 Assembly overview - fuel filter, engine codes CUVC, CUWA”, page 51](#)

5.1.1 Assembly overview - fuel filter, engine codes CAYC, CFFA, CFFB, CFGB, CLLA, CFGC

1 - Supply line

- ❑ From fuel tank

2 - Supply line

- ❑ To high-pressure pump

3 - Return line

- ❑ From fuel pressure regulating valve - N 276- .

4 - Bolt for upper part of fuel filter

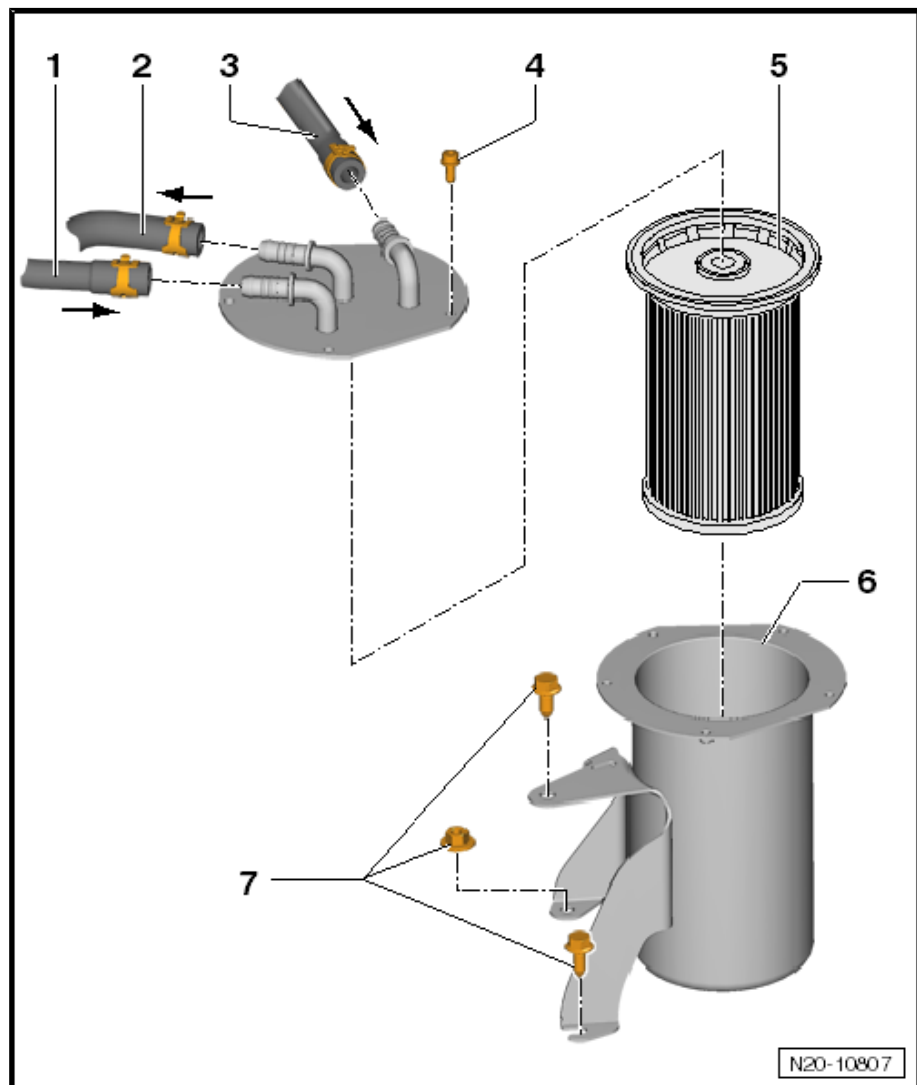
- ❑ Removing upper part of fuel filter ⇒ [page 51](#)
- ❑ 5 Nm

5 - Filter insert

6 - Lower part of fuel filter

7 - Fasteners for securing to body

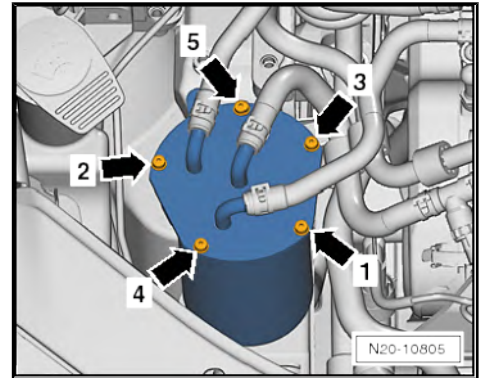
- ❑ 10 Nm





Removing upper part of fuel filter

- Unscrew bolts in the sequence shown.
- Collect any escaping fuel.



5.1.2 Assembly overview - fuel filter, engine codes CUVC, CUWA

1 - Fuel filter

- Removing and installing
⇒ [page 53](#)
- Observe notes reference fuel hoses in the engine compartment
⇒ [page 53](#).

2 - Filter element

- Removing and installing
⇒ Maintenance ; Booklet 821
- To do this, remove and install the upper part of fuel filter
⇒ [Item 3 \(page 51\)](#).

3 - Upper part of fuel filter

- With connections
- Removing and installing
⇒ [page 54](#)
- Observe notes reference fuel hoses in the engine compartment
⇒ [page 56](#).

4 - Bolt

- Qty. 5
- 5 Nm

5 - Hose clip

- Release with hose clip pliers - V.A.G 1921-

6 - Fuel supply hose

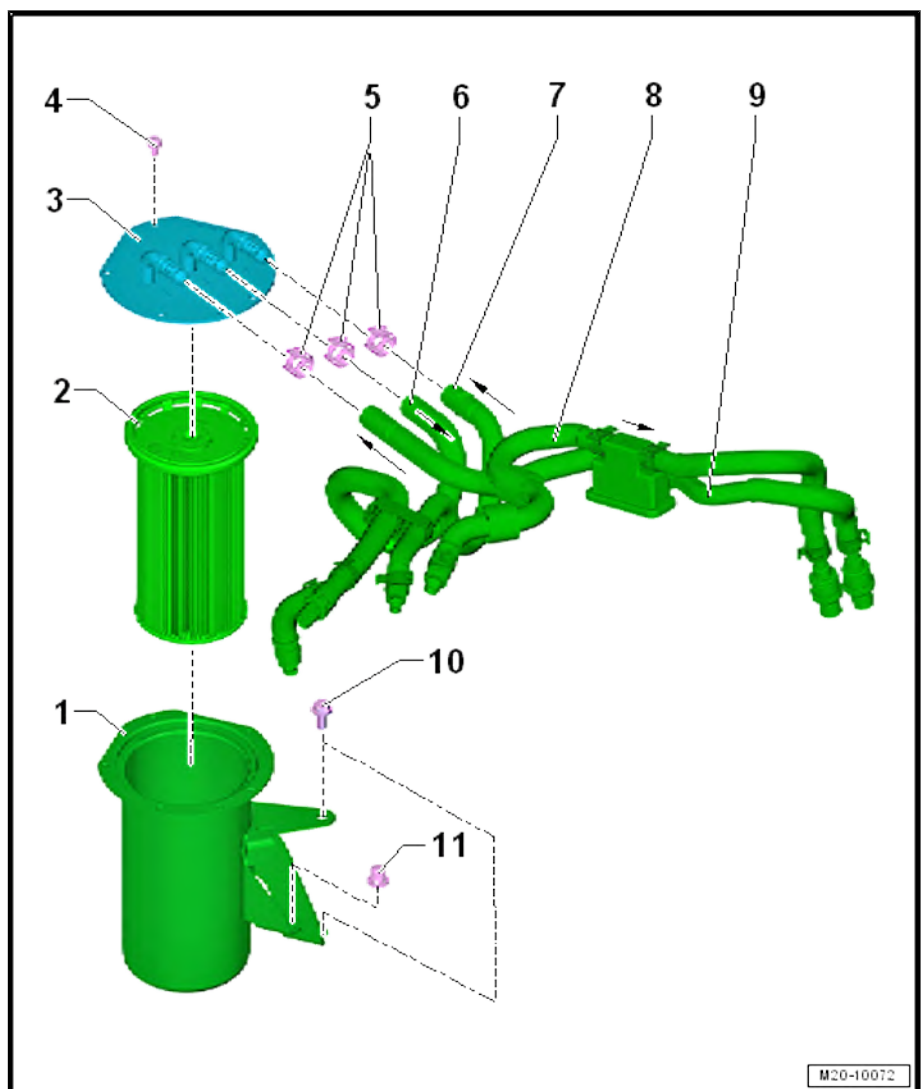
- To high-pressure pump
- Observe notes reference fuel hoses in the engine compartment ⇒ [page 56](#).

7 - Fuel return hose

- Observe notes reference fuel hoses in the engine compartment ⇒ [page 56](#).
- From engine

8 - Fuel return hose

- From high-pressure pump to fuel tank.
- Observe notes reference fuel hoses in the engine compartment ⇒ [page 56](#).





- ❑ Separate plug-in connectors ⇒ [page 46](#) .

9 - Fuel supply hose

- ❑ Observe notes reference fuel hoses in the engine compartment ⇒ [page 56](#) .
- ❑ From fuel tank
- ❑ Separate plug-in connectors ⇒ [page 46](#) .

10 - Bolt

- ❑ Qty. 2
- ❑ 8 Nm

11 - Guide bush

- ❑ Locks fuel filter in place on pin at engine mounting

5.2 Removing and installing fuel filter

⇒ [“5.2.1 Removing and installing fuel filter, engine codes CAYC, CFFA, CFFB, CFGB, CLLA, CFGC”, page 52](#)

⇒ [“5.2.2 Removing and installing fuel filter, engine codes CUVC, CUWA”, page 53](#)

5.2.1 Removing and installing fuel filter, engine codes CAYC, CFFA, CFFB, CFGB, CLLA, CFGC

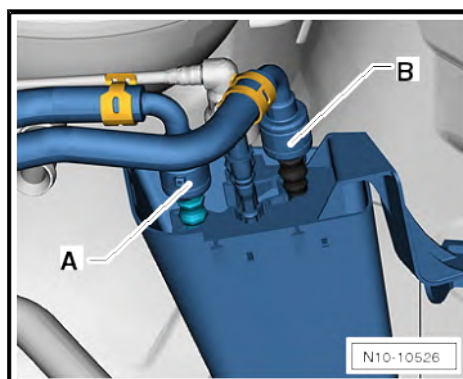
Removing



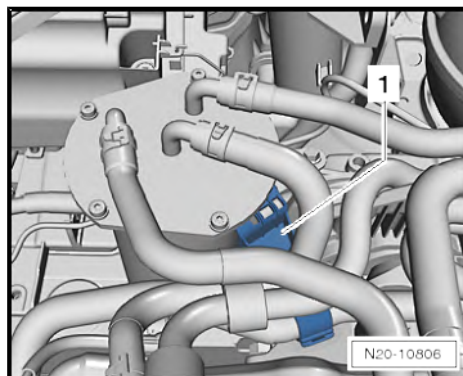
Note

If the fuel filter only has to be removed to gain space, leave the fuel hoses on the fuel filter and high-pressure pump, if possible. Place the fuel filter with the hoses connected on the engine to avoid having to replace them unnecessarily.

- Open quick-release fasteners -A- and -B- of fuel lines.



- Unclip bracket for coolant hose -1-.



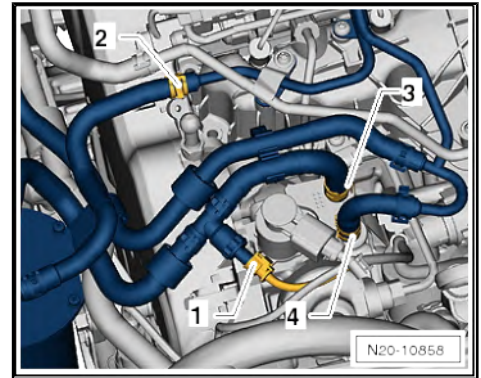


- Open the clamps and pull off the fuel hoses -2 ... 4-, disconnect plug -1- on the fuel temperature sender - G81- .
- Unscrew securing bolts or nut ⇒ [Item 7 \(page 50\)](#) (7).
- Take fuel filter out upwards.
- Collect any escaping fuel.

Installing

Install in reverse order. The following should be observed:

- ◆ Rout fuel hoses free of kinks.
- ◆ Ensure fuel hoses are seated correctly.
- ◆ Do not interchange fuel supply and return lines (return line is blue or with blue markings and supply line is white or with white markings).
- ◆ Clip fuel and coolant hoses into retainers again.
- Bleed fuel system ⇒ Rep. gr. 23 ; Injection system; Filling/bleeding fuel system .



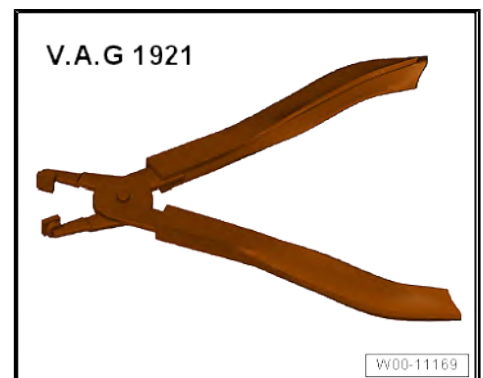
Note

- ◆ *Plug-in connectors for fuel lines must engage »audibly« when joined.*
- ◆ *Note colour assignment when installing the plug-in connectors ⇒ [page 46](#) .*
- ◆ *Ensure plug-in connector is secured properly by pulling it.*
- ◆ *Separate plug-in connectors ⇒ [page 46](#) .*

5.2.2 Removing and installing fuel filter, engine codes CUVC, CUWA

Special tools and workshop equipment required

- ◆ Hose clamp pliers - V.A.G 1921-



Removing

- Observe notes reference fuel hoses in the engine compartment ⇒ [page 56](#) .
- Switch off ignition.



Removing fuel filter to make space:

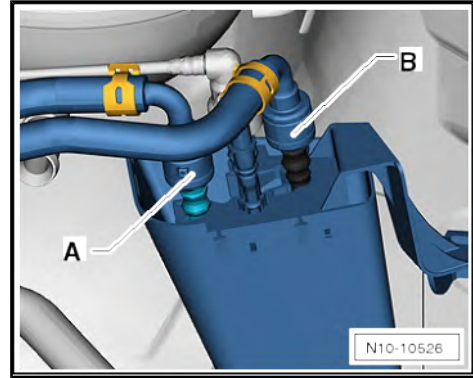
CAUTION

The fuel system is pressurised.

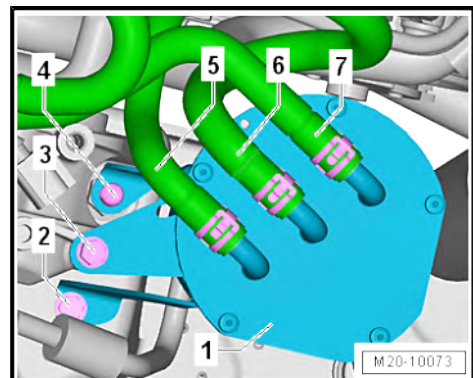
Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.

- Pull off fuel supply line -B-. Separate plug-in connectors => [page 46](#) .
- Unclip fuel lines from retainer, and lay them to one side.
- Loosen bolt -2-, and unscrew it slightly.
- Unscrew bolt -3-.

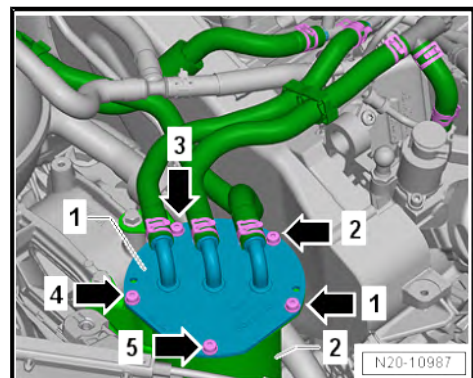
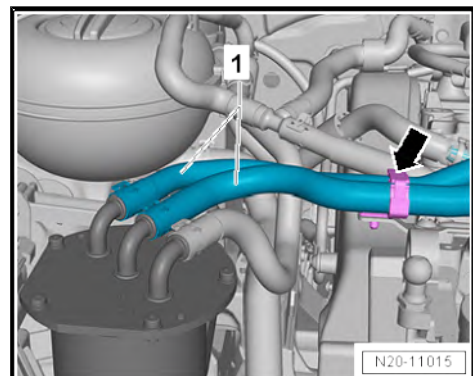


- Open retainer -arrow- and unclip fuel lines -1-.
- Then, lay fuel filter to one side.



Opening fuel filter:

- Unscrew bolts -arrows- in sequence shown -1- to -5-.
- Collect any escaping fuel.
- Remove upper part of fuel filter -1- from fuel filter housing -2-.
- Lay fuel filter upper part -1- aside with fuel lines still attached.





Renewing fuel filter:

- Remove fuel hoses -5- to -7-.
- To do so, release hose clips using hose clip pliers - V.A.G 1921- .
- Loosen bolt -2-, and unscrew it slightly.
- Unscrew bolt -3-.
- Remove fuel filter housing.
- Collect any escaping fuel.

Installing

Install in reverse order. The following should be observed:



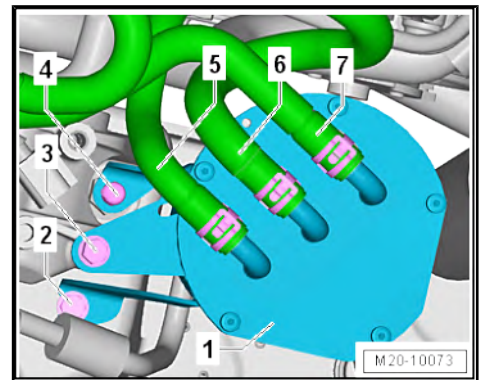
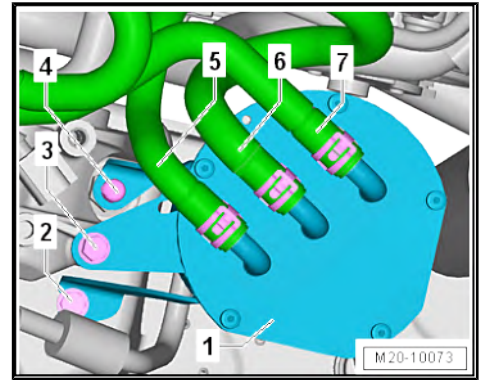
Note

- ◆ *Observe notes reference fuel hoses in the engine compartment*
⇒ ["5.3 Fuel hoses in the engine compartment", page 56](#) .
- ◆ *Secure hose connections with hose clips of the same standard as that used during production* ⇒ *Electronic parts catalogue* .

- Fit retainer under bolt -2-.
- Make sure that guide -4- is properly seated on pin.
- Bleed fuel system ⇒ Rep. gr. 23 ; Injection system; Filling/bleeding fuel system .

Torque settings

- ◆ ⇒ ["5.1.2 Assembly overview - fuel filter, engine codes CUVC, CUWA", page 51](#)



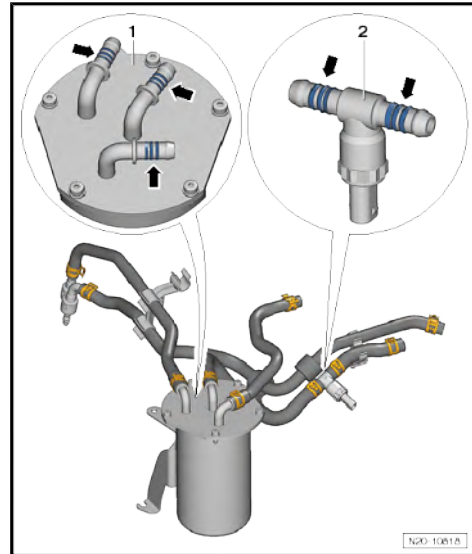


5.3 Fuel hoses in the engine compartment



Note

- ◆ *The connectors for the fuel hoses on the fuel filter -1- and fuel temperature sender -2- have been given a 2-ribbed section -arrow- and bite edge. This reduces the likelihood of fuel system leaks.*
- ◆ *When the fuel hoses are removed, the very thin sealing layer on the inside of the fuel hoses is damaged.*
- ◆ *This damage cannot be detected with the naked eye. After some time, it leads to leaks in the fuel system.*
- ◆ *If other components are just removed, check whether it is really necessary to disconnect the fuel system from components with wave section and engagement lip.*
- ◆ *Open a different connection in the fuel system in the engine compartment.*
- ◆ *Plug-in connectors for fuel lines must engage »audibly« when joined.*
- ◆ *Note colour assignment when installing the plug-in connectors ⇒ [page 46](#) .*
- ◆ *Ensure plug-in connector is secured properly by pulling it.*
- ◆ *Separate plug-in connectors ⇒ [page 46](#) .*



CAUTION

After removing fuel hoses from connections with a 2 wave profile section and engagement lip, replace these fuel hoses.

If a fuel hose cannot be removed from the connections by hand:

CAUTION

Never insert a screwdriver or similar tool between the hose and the connection!

- ◆ Risk of damage to the connection - component must be renewed.

– Turn fuel hose with suitable pliers and pull off hose.

If fuel hose still cannot be removed from the connection:

- Cut only into the textile layer of the fuel hose lengthways and pull hose off.
- Do not cut the inner rubber layer. If the connection is damaged, the entire component must be renewed.



Note

- ◆ *Before attaching a new fuel hose, remove grease, oil and dirt thoroughly from the hose connection. Do not use any metal tools to do this since they could damage the hose connection.*
- ◆ *Attach fuel hose to connection without lubricant and then secure with spring-type clip.*



6 Accelerator pedal

⇒ ["6.1 Assembly overview - accelerator module", page 57](#)

⇒ ["6.2 Removing and installing accelerator pedal module GX2 ", page 57](#)

6.1 Assembly overview - accelerator module

1 - Connector

- ❑ Black, 6-pin.

2 - Gas pedal module - GX2-

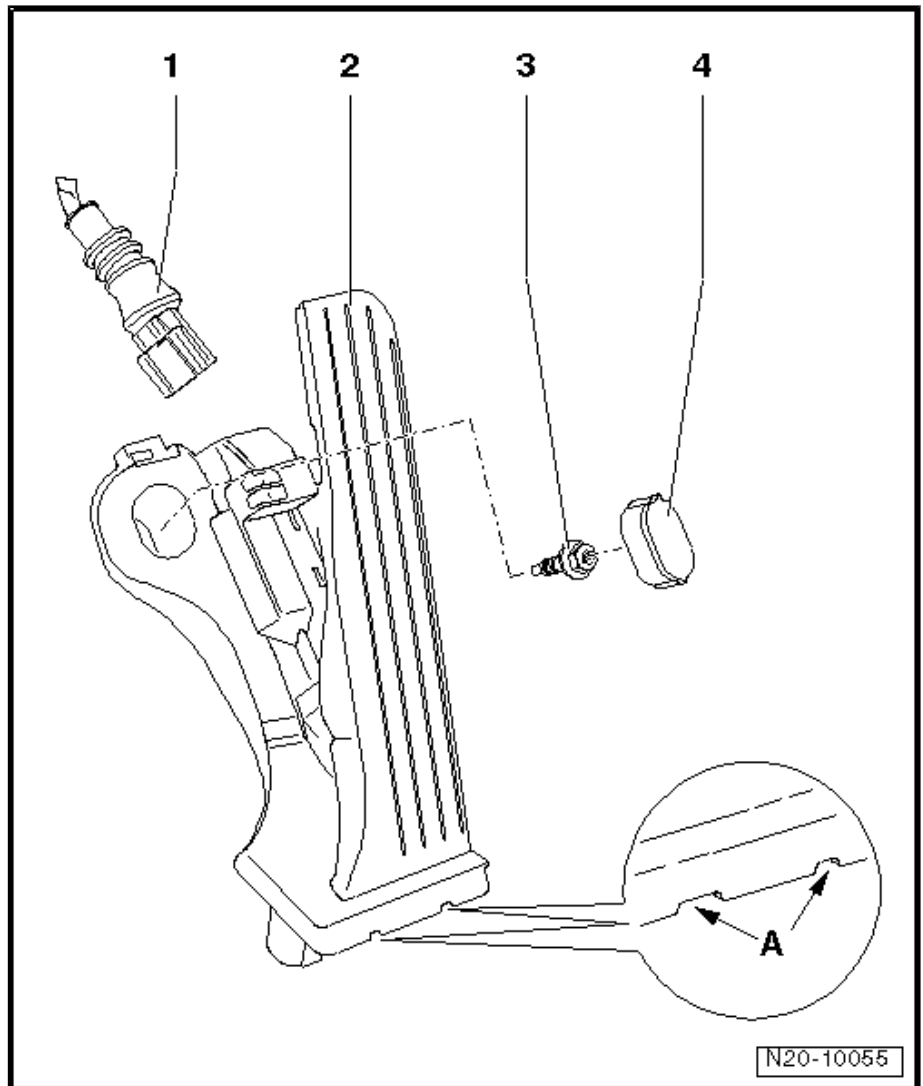
– Includes:

- ◆ Acceleration pedal position sender - G79-
- ◆ Accelerator position sender 2 - G185-
- ❑ Openings -A- for release tool.
- ❑ Removing and installing
⇒ [page 57](#)

3 - Bolt

- ❑ 10 Nm

4 - Cap

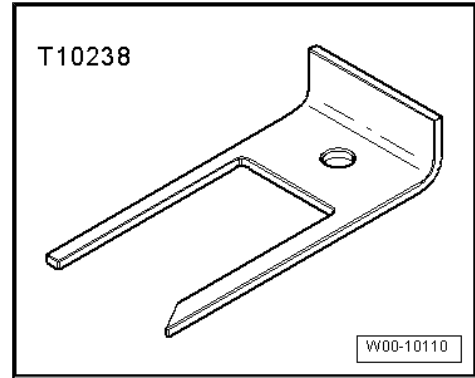


6.2 Removing and installing accelerator pedal module - GX2-

Special tools and workshop equipment required

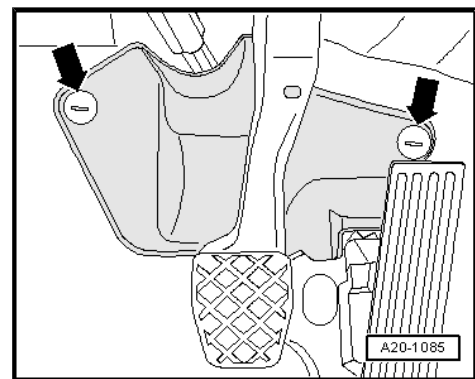


◆ Release tool - T10238-

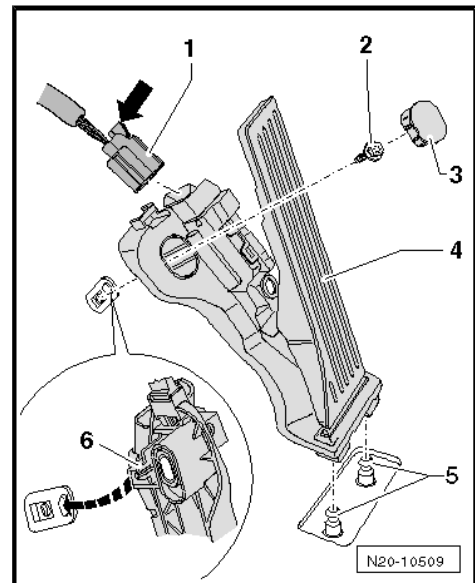


Removing

– Remove cover for steering column -arrows-.

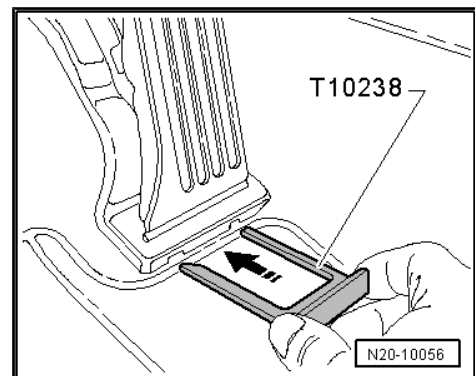


- Lever cover cap -3- out with a screwdriver.
- Unscrew securing bolt -2-.
- Unplug connector -1-.
- Push release tool - T10238- to stop into intended holes as shown in illustration.



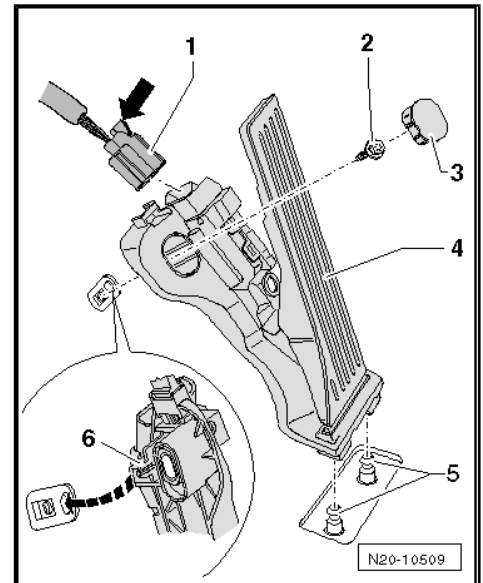
– Remove accelerator module.

Installing





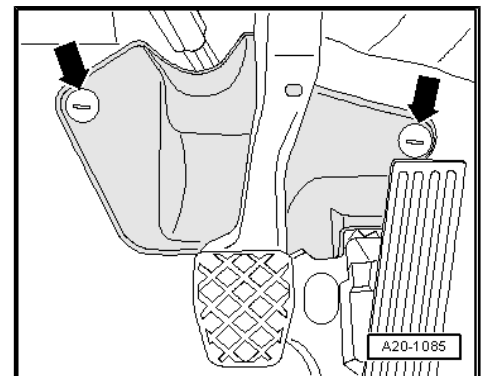
- Push connector -2- onto accelerator module -5-.
- Push accelerator module onto retaining pins -5-.
- Insert centring pin -6- into hole in underbody.
- Secure accelerator module with bolt -2-.
- Fit cap -3-.



- Reinstall cover for steering column -arrows-.
- If the accelerator pedal module was replaced, adapt module to engine control unit ⇒ vehicle diagnostic tester "Guided functions".
- If the accelerator pedal module was renewed on vehicles with an automatic gearbox, the kick-down function must be reprogrammed ⇒ Vehicle diagnostic tester "Guided functions".

Torque settings

- ◆ ⇒ ["6.1 Assembly overview - accelerator module", page 57](#)





7 Fuel pump

⇒ [“7.1 Checking fuel system pressurisation pump G6”, page 60](#)

⇒ [“7.2 Removing and installing suction-jet pump”, page 91](#)

7.1 Checking fuel system pressurisation pump - G6-

⇒ [“7.1.1 Checking fuel pressure, engine codes CUVC, CUWA”, page 60](#)

⇒ [“7.1.2 Checking fuel delivery rate, engine codes CUVC, CUWA”, page 66](#)

⇒ [“7.1.3 Checking delivery pressure and fuel delivery quantity of fuel system pressurisation pump G6, engine codes CFFA, CFFB, CFGB, CLLA, CFGC”, page 73](#)

⇒ [“7.1.4 Delivery pressure of fuel pump, engine code CAYC”, page 80](#)

⇒ [“7.1.5 Checking delivery rate of fuel pump, engine code CAYC”, page 84](#)

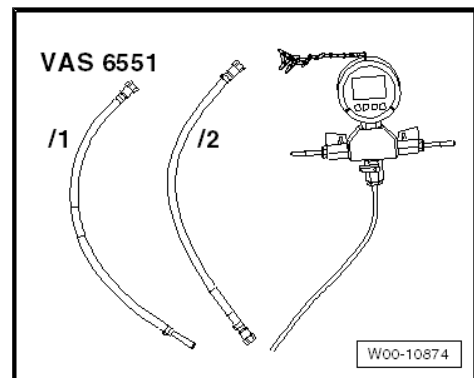
⇒ [“7.1.6 Checking current consumption of fuel system pressurisation pump G6”, page 87](#)

⇒ [“7.1.7 Checking voltage supply of fuel system pressurisation pump G6”, page 89](#)

7.1.1 Checking fuel pressure, engine codes CUVC, CUWA

Special tools and workshop equipment required

- ◆ Pressure gauge - VAS 6551-

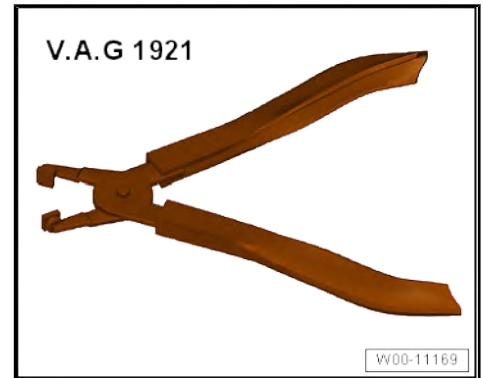


- ◆ Adapter set - VAS 6551/5-





- ◆ Hose clamp pliers - V.A.G 1921-



- ◆ Removal wedge - 3409-



- ◆ Vehicle diagnosis and service information system

! NOTICE

Bear in mind that the fuel pump can be activated due to opening of a door with the battery connected. Fuel can escape if the system has been opened.

Test conditions:

- Connect battery charger, battery voltage at least 12.5 volts ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery .
- Fuses OK: ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- Fuel pump control unit - J538- OK ⇒ Vehicle diagnostic tester.
- Fuel filter OK.
- Ensure that vehicle is placed on a level surface.
- Fuel tank at least $\frac{1}{2}$ full.
- All electrical consumers, e.g. lights and rear window heating, must be switched off.



Note

- ◆ *The vehicle must be fuelled with the diesel fuel appropriate for the time of the year. Summer fuel may coagulate (flock) at very low winter temperatures.*
- ◆ *Diesel fuel sold in the summer is guaranteed to be capable of filtration down to 0°C.*
- ◆ *Diesel fuel sold in the summer/winter transition is guaranteed to be capable of filtration down to -10°C.*
- ◆ *Diesel fuel sold in the winter is guaranteed to be capable of filtration down to -20°C.*
- ◆ *Test sample, if unsure in winter.*
- ◆ *Expose sample to low ambient temperature for approx. 1 hour.*
- ◆ *If the diesel fuel coagulates at temperatures down to -20°C, it is unsuitable for low temperatures. This coagulation can block the strainer in the fuel delivery unit as well as the fuel filter.*

Test sequence

- Switch off ignition.
- Remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Open clamp -arrow-.

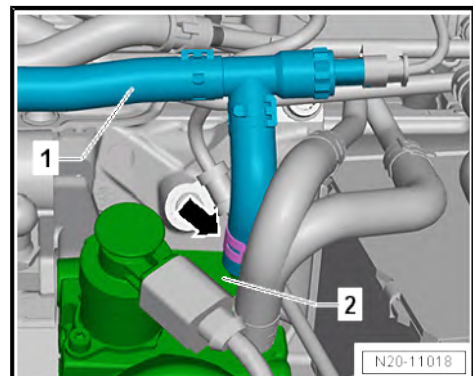
CAUTION

The fuel system is pressurised.

Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.

- Pull fuel supply line -1- off high-pressure pump -2-.





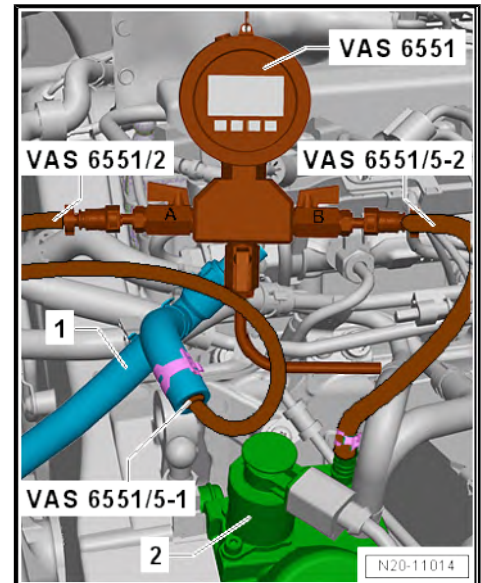
- Insert connection fitting - VAS 6551/5-1- into fuel supply line -1- and secure it with a clip.
- Connect hose - VAS 6551/2- between connecting nipple - VAS 6551/5-1- and connection point -A- of pressure tester (diesel) - VAS 6551- .
- Connect hose - VAS 6551/5-2- between connection -B- of pressure tester (diesel) - VAS 6551- and high-pressure pump -2-.
- Secure hose - VAS 6551/5-2- to high-pressure pump -2- with a clip.

⚠ CAUTION

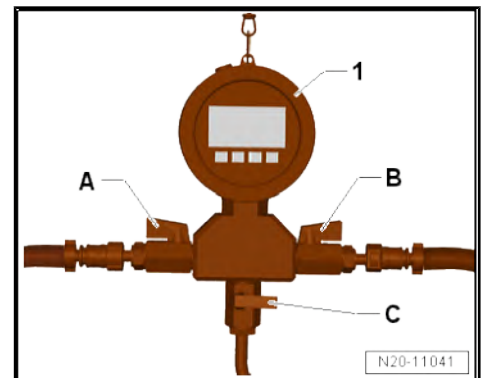
Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.



- Switch on pressure tester - VAS 6551- by pressing button.
- Ensure that drain tap -C- on pressure tester - VAS 6551- -1- is closed.
- Shut-off valves -A- and -B- on pressure tester - VAS 6551- -1- are open.
- Connect the vehicle diagnostic tester .
- Select guided function .
- Select function .
- Follow instructions on vehicle diagnostic tester .



i Note

The fuel pump is now activated.

- Read off fuel pressure on pressure gauge - VAS 6551- .
- Specification is min. 4.5 bar.

If specification is not obtained

- Check fuel lines in engine compartment for possible restrictions (kinks), blockages and damages.
- Check fuel lines in engine compartment for leaks.

If no fault is detected:

Check fuel pressure ahead of fuel filter as follows:

Checking fuel pressure before fuel filter:

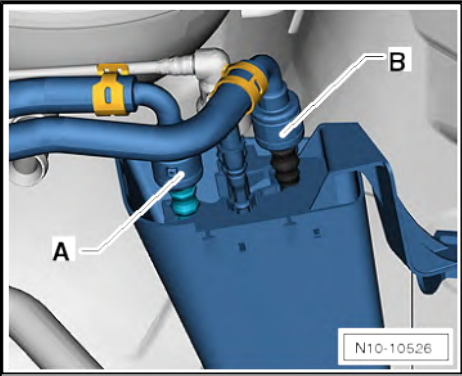


- Pull off supply line -B-, and catch escaping fuel with a cloth. Separate plug-in connectors => [page 46](#) .

CAUTION

The fuel system is pressurised.
 Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.

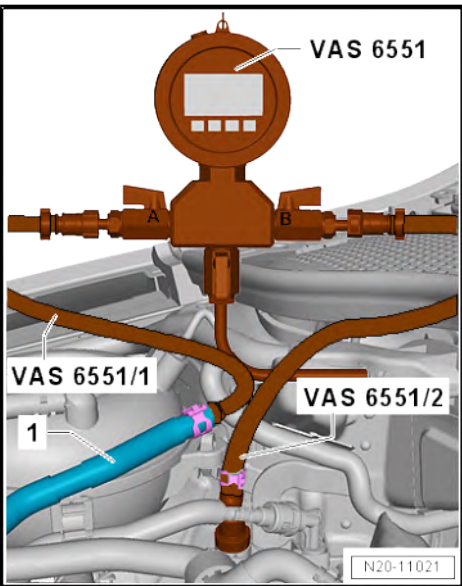


- Connect hose - VAS 6551/2- between fuel supply line from fuel tank and connection point -B- of pressure tester - VAS 6551- .
- Connect hose - VAS 6551/1- between connection point -A- of pressure tester (diesel) - VAS 6551- and fuel line -1- leading to fuel filter.

CAUTION

Risk of fire due to escaping fuel.
 Risk of severe injuries and burns.

- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.
- Place measuring container down outside vehicle and ensure that its base is secure.
- Have a second mechanic ensure that end of hose remains in measuring container during test and measuring container does not tip over.



- Switch on pressure tester - VAS 6551- .
- Ensure that drain tap -C- on pressure tester - VAS 6551- -1- is closed.
- Shut-off valves -A- and -B- on pressure tester - VAS 6551- -1- are open.
- Repeat function Checking fuel pump delivery pressure/ delivery rate => [page 63](#) .

If specification is now obtained:

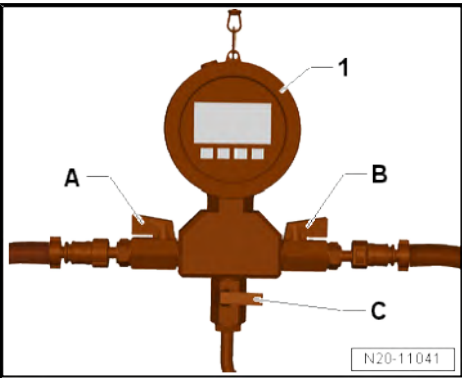
Check fuel filter, renew if necessary => [page 52](#) .

If specification is not obtained

Proceed as follows to check fuel pressure at fuel delivery unit:

Checking fuel pressure on fuel delivery unit:

- Remove rear bench seat => General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat / individual seats .

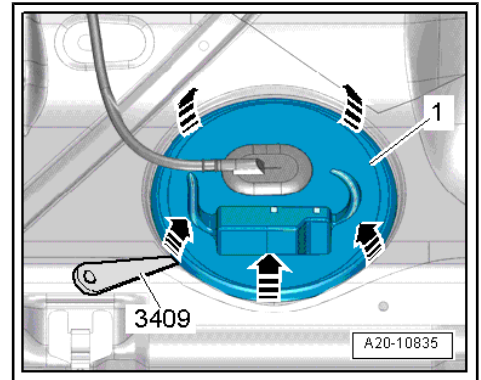




- Unclip cover -1- at retaining tabs -arrows-, using removal wedge - 3409- .

! NOTICE

The fuel pump is activated when opening a door when the battery is connected! Fuel can escape if the system has been opened.

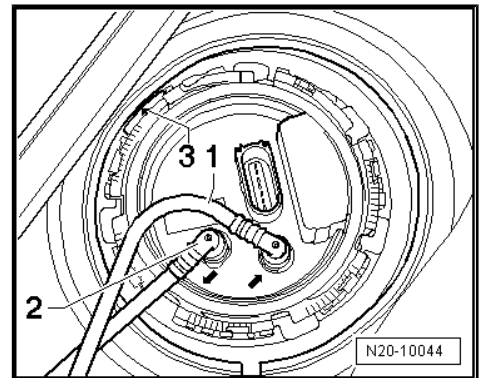


- Disconnect fuel return line -1- at flange. Separate plug-in connectors => [page 46](#) .

! CAUTION

The fuel system is pressurised.
 Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



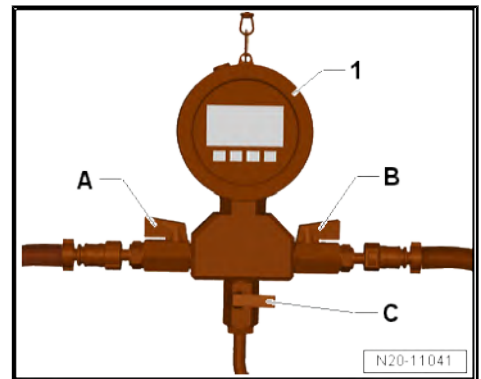
- Connect pressure tester - VAS 6551/1- and fuel supply line leading to fuel filter by means of hose - VAS 6551- .
- Connect hose - VAS 6551/2- between pressure tester - VAS 6551- and fuel delivery unit.
- Ensure that drain tap -C- on pressure tester - VAS 6551- -1- is closed.
- Shut-off valves -A- and -B- on pressure tester - VAS 6551- -1- are open.
- Repeat function Checking fuel pump delivery pressure/delivery rate => [page 63](#) .

If reading matches specification:

- Check fuel lines leading to engine for possible restrictions (kinks), blockages and damages.
- Check fuel lines for leaks.

If specification is not obtained

- Remove fuel delivery unit => [page 37](#) .
- Check filter strainer for soiling.
- Check that all electrical wires are connected correctly.
- Pull on connectors to check they are firmly seated.





- Check that all hoses are connected -arrows-.

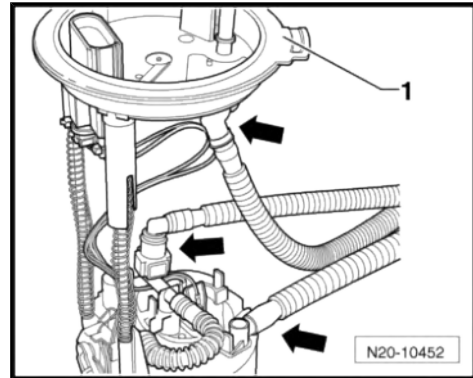
If no fault is detected:



Note

If the filter strainer is not clogged/soiled, if all lines are connected and the fuel pressure specification is still not attained, the fuel delivery unit is defective.

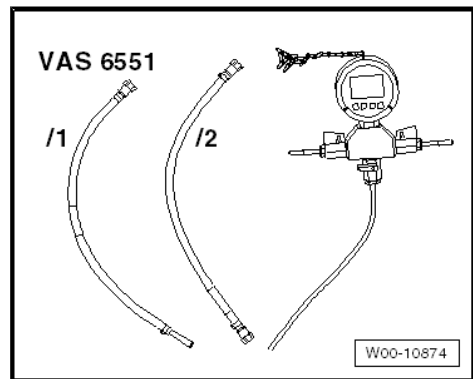
- Renew fuel delivery unit ⇒ [page 37](#) .



7.1.2 Checking fuel delivery rate, engine codes CUVK, CUWA

Special tools and workshop equipment required

- ◆ Pressure gauge - VAS 6551-



- ◆ Adapter set - VAS 6551/5-

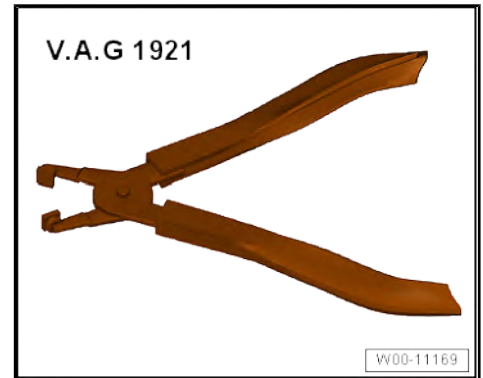


- ◆ Removal wedge - 3409-





- ◆ Hose clamp pliers - V.A.G 1921-



- ◆ Pressure regulating valve - VAS 6551/6-



- ◆ Vehicle diagnosis and service information system
- ◆ Measuring container, capacity at least 3 litres

! NOTICE

Bear in mind that the fuel pump can be activated due to opening of a door with the battery connected. Fuel can escape if the system has been opened.

Test conditions:

- Connect battery charger, battery voltage at least 12.5 volts ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery .
- Fuses OK: ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel pump control unit - J538- OK ⇒ Vehicle diagnostic tester.
- Fuel filter OK.
- Fuel tank at least $\frac{1}{2}$ full.
- Ensure that vehicle is placed on a level surface.
- All electrical consumers, e.g. lights and rear window heating, must be switched off.
- Fuel pressure OK ⇒ [page 60](#) .



Note

- ◆ *The vehicle must be fuelled with the diesel fuel appropriate for the time of the year. Summer diesel may coagulate (flock) in very low winter temperatures.*
 - ◆ *Diesel fuel sold in the summer is guaranteed to be capable of filtration down to 0°C.*
 - ◆ *Diesel fuel sold in the summer/winter transition is guaranteed to be capable of filtration down to -10°C.*
 - ◆ *Diesel fuel sold in the winter is guaranteed to be capable of filtration down to -20°C.*
 - ◆ *If the diesel fuel coagulates at temperatures down to -20°C, it is unsuitable for low temperatures. This coagulation can block the strainer in the fuel delivery unit as well as the fuel filter.*
- Switch off ignition.
 - Remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
 - Fold front right seat forwards as far as possible.
 - Remove rear bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat / individual seats .

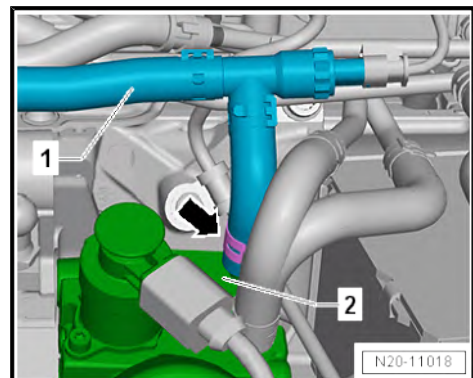
CAUTION

The fuel system is pressurised.

Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.

- Open clamp -arrow- of fuel supply line -1-.
- Pull fuel supply line -1- off high-pressure pump -2-.





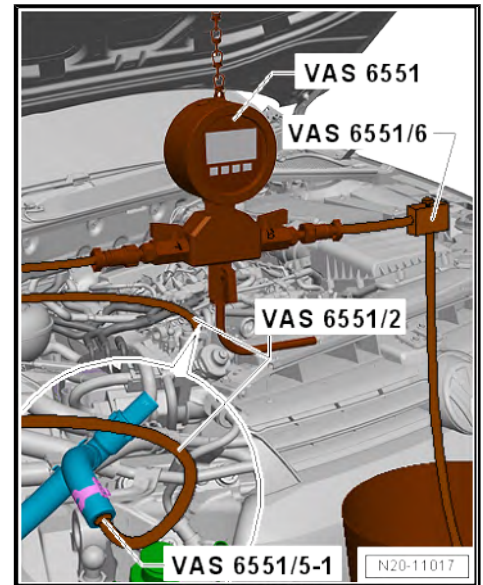
- Fit connection fitting - VAS 6551/5-1- in supply line and secure it with clamp.
- Connect hose - VAS 6551/2- between connection fitting - VAS 6551/5-1- and connection point -A- of pressure tester (diesel) - VAS 6551- .
- Connect pressure regulator valve - VAS 6551/6- to connection -B- of pressure tester - VAS 6551- .

⚠ CAUTION

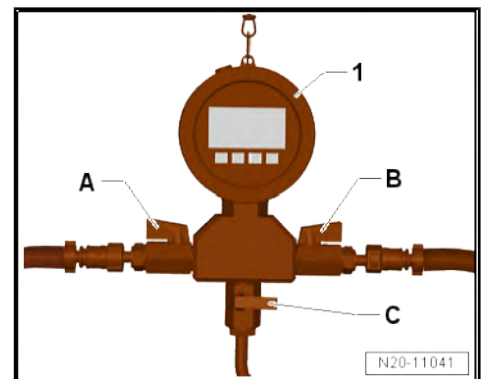
Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.
- Place measuring container down outside vehicle and ensure that its base is secure.
- Have a second mechanic ensure that end of hose remains in measuring container during test and measuring container does not tip over.

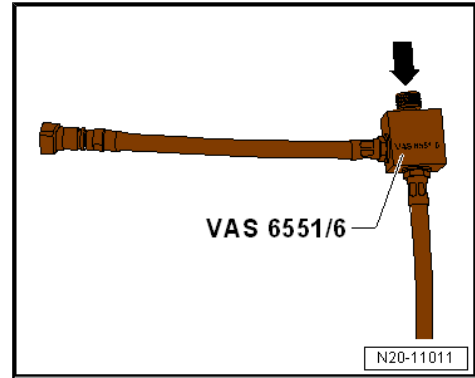


- Hold end of hose of pressure regulating valve - VAS 6551/6- in measuring container.
- Switch on pressure tester - VAS 6551- by pressing **On/Off** button.
- Ensure that drain tap -C- on pressure tester - VAS 6551- -1- is closed.
- Shut-off valves -A- and -B- on pressure tester - VAS 6551- -1- are open.
- Connect the vehicle diagnostic tester .
- Select guided function **01 Actuating fuel pump**.
- Select function **Check fuel pump delivery pressure/delivery rate**.
- Follow instructions on vehicle diagnostic tester .





- Adjust pressure to 4.5 bar with pressure regulating valve - VAS 6551/6- .
- Set pressure regulating valve - VAS 6551/6- to feed pressure using adjuster wheel -arrow-.
- Specification: 4.5 bar.
- From this point on do not move position of adjuster wheel -arrow-.
- Drain measuring container.
- Repeat function Checking fuel pump delivery pressure/ delivery rate.



Note

The fuel system pressurisation pump - G6- is now activated for 30 seconds.

- Check quantity delivered in measuring container.
- Specification: fuel delivery rate 1100 cm³/30 s.

If the fuel delivery rate is not reached:

- Check fuel lines in engine compartment for possible restrictions (kinks), blockages and damages.
- Check fuel lines in engine compartment for leaks.

If no fault is found:

Check fuel delivery rate before fuel filter as follows:

Checking fuel delivery rate ahead of fuel filter:

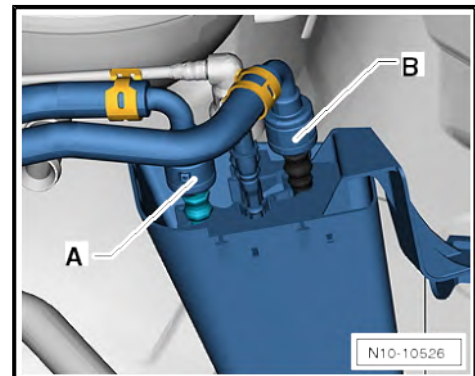
- Pull off supply line -B-, and catch escaping fuel with a cloth. Separate plug-in connectors ⇒ [page 46](#) .

CAUTION

The fuel system is pressurised.

Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.





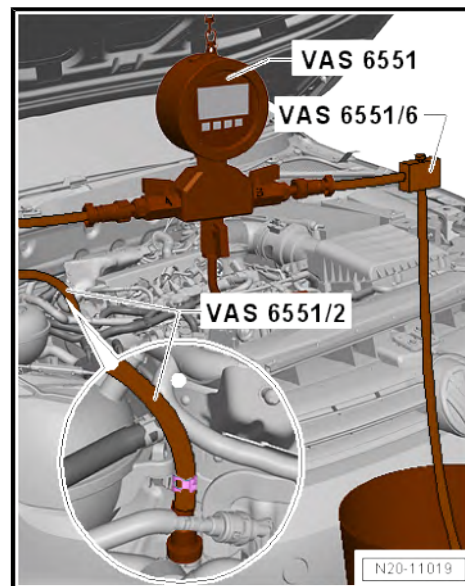
- Connect hose - VAS 6551/2- to fuel supply line coming from fuel tank.
- Connect hose - VAS 6551/2- to connection point -A- of pressure tester (diesel) - VAS 6551- .
- Connect pressure regulator valve - VAS 6551/6- to connection -B- of pressure tester - VAS 6551- .

⚠ CAUTION

Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.
- Place measuring container down outside vehicle and ensure that its base is secure.
- Have a second mechanic ensure that end of hose remains in measuring container during test and measuring container does not tip over.



- Hold end of hose of pressure regulating valve - VAS 6551/6- in measuring container.
- Switch on pressure tester - VAS 6551- by pressing **On/Off** button.
- Ensure that drain tap -C- on pressure tester - VAS 6551- -1- is closed.
- Shut-off valves -A- and -B- on pressure tester - VAS 6551- -1- are open.
- Repeat function Checking fuel pump delivery pressure/delivery rate ⇒ [page 69](#) .

If the fuel delivery rate is now reached:

Check fuel filter, renew if necessary
 ⇒ [“5.2 Removing and installing fuel filter”, page 52](#) .

If reading again does not match specification:

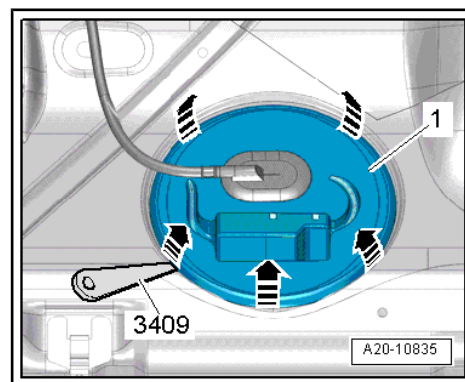
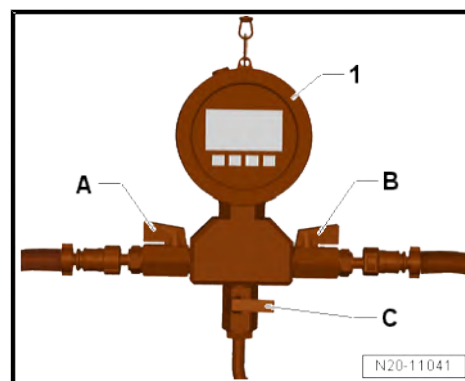
Proceed as follows to check fuel delivery rate at fuel delivery unit:

Checking fuel delivery rate on fuel delivery unit:

- Remove rear bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat / individual seats .
- Unclip cover -1- at retaining tabs -arrows-, using removal wedge - 3409- .

⚠ NOTICE

Bear in mind that the fuel pump can be activated due to opening of a door with the battery connected. Fuel can escape if the system has been opened.





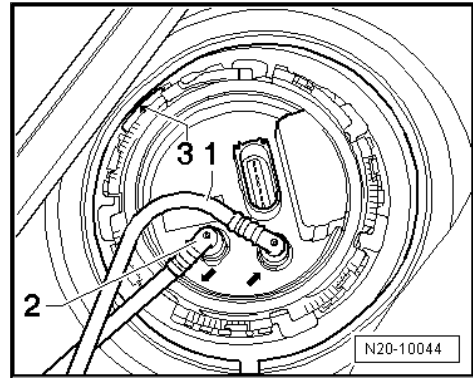
- Disconnect fuel return line -1- at flange. Separate plug-in connectors => [page 46](#) .

CAUTION

The fuel system is pressurised.

Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



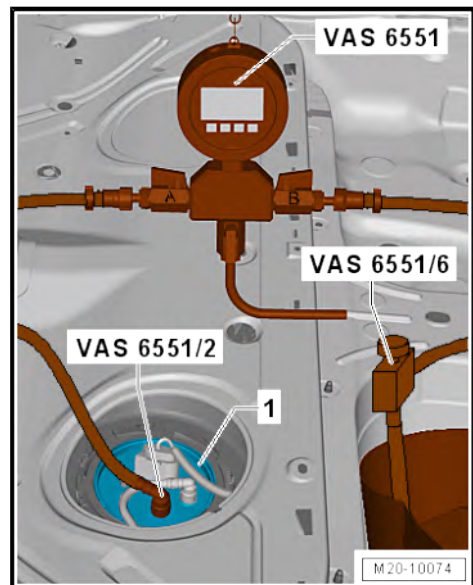
- Connect hose - VAS 6551/2- to fuel supply line connection on fuel delivery unit.
- Connect hose - VAS 6551/2- to connection point -A- of pressure tester - VAS 6551- .
- Connect pressure regulator valve - VAS 6551/6- to connection -B- of pressure tester - VAS 6551- .

CAUTION

Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.
- Place measuring container down outside vehicle and ensure that its base is secure.
- Have a second mechanic ensure that end of hose remains in measuring container during test and measuring container does not tip over.



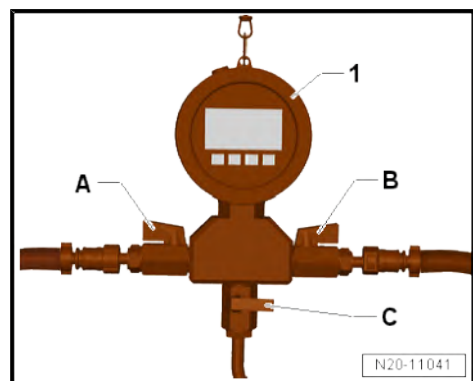
- Hold end of hose of pressure regulating valve - VAS 6551/6- in measuring container.
- Switch on pressure tester - VAS 6551- by pressing button.
- Ensure that drain tap -C- on pressure tester - VAS 6551- -1- is closed.
- Shut-off valves -A- and -B- on pressure tester - VAS 6551- -1- are open.
- Repeat function Checking fuel pump delivery pressure/ delivery rate => [page 69](#) .

If the fuel delivery rate is now reached:

- Check fuel lines for possible restrictions (kinks), blockages and damages.
- Check fuel lines for leaks.

If reading again does not match specification:

- Remove fuel delivery unit => [page 37](#) .
- Check filter strainer for soiling.

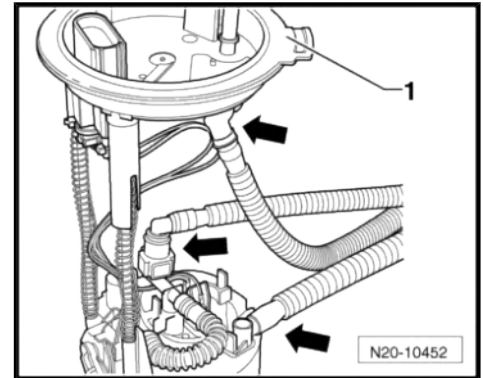




- Check that all hoses are connected -arrows-.

Only if no fault has yet been detected:

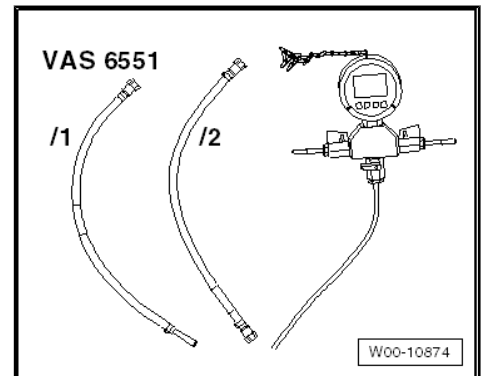
- Renew fuel delivery unit ⇒ [page 37](#) .



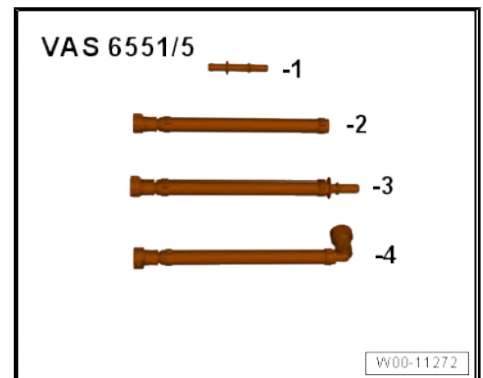
7.1.3 Checking delivery pressure and fuel delivery quantity of fuel system pressurisation pump - G6- , engine codes CFFA, CFFB, CFGB, CLLA, CFGC

Special tools and workshop equipment required

- ◆ Pressure gauge - VAS 6551-



- ◆ Adapter set - VAS 6551/5-

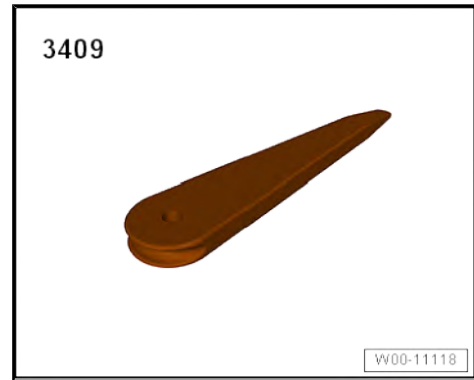


- ◆ Hose clamp pliers - V.A.G 1921-

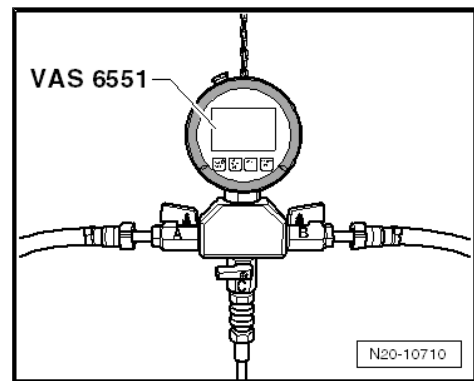




- ◆ Removal wedge - 3409-



- ◆ Vehicle diagnosis and service information system
- ◆ Pressure tester (diesel) - VAS 6551-



- ◆ Vehicle diagnostic tester
- ◆ Connecting nipple - VAS 6551/5-1-
- ◆ Hose - VAS 6551/2-
- ◆ Hose - VAS 6551/1-
- Remove bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat/individual seats .
- Raise cover of fuel delivery unit.



- Check that plug connector -arrow- is fitted securely by pulling the plug connector without pressing the catch. If connector was not inserted correctly, repeat function test.

Test specification:

- Fuses must be OK.
- Connect battery charger to ensure sufficient voltage supply of min. 12.5 V.
- Minimum filling level of fuel tank: 15 l.
- Ensure that vehicle is placed on a level surface.
- Ensure that fuel hoses and lines in engine compartment and on underbody are not closed through damage (kinks).
- All electrical consumers, e.g. lights and rear window heating, must be switched off.



Note

- ◆ *Note that various fuel filters require the fuel lines be connected to them in different ways.*
- ◆ *Mark the positions of the fuel hoses on the fuel filter, and note them for reinstallation.*
- ◆ *The vehicle must be fuelled with the diesel fuel appropriate for the time of the year. Summer fuel may coagulate (flock) at very low winter temperatures.*
- ◆ *Diesel fuel sold in the summer is guaranteed to be capable of filtration down to 0°C.*
- ◆ *Diesel fuel sold in the summer/winter transition is guaranteed to be capable of filtration down to -10°C.*
- ◆ *Diesel fuel sold in the winter is guaranteed to be capable of filtration down to -20°C.*
- ◆ *Test a sample, if unsure in winter. Expose sample to low ambient temperature for approx. 1 hour. If the fuel flocculates at temperatures of up to -20°C, diesel fuel is not suitable. Diesel fuel is not suitable for use at low temperatures. This coagulation can block the strainer in the fuel delivery unit as well as the fuel filter.*



CAUTION

The fuel system is pressurised.

Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.

Test sequence for high-pressure pump

- Remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .



- Open clamp and pull fuel supply line -arrow- off the high-pressure pump.
- Place connecting nipple - VAS 6551/5-1- in supply line and secure with clamp.
- Connect hose - VAS 6551/2- between connecting nipple - VAS 6551/5-1- and connection point »A« of pressure tester (diesel) - VAS 6551- .
- Connect hose - VAS 6551/1- to connection point »B« of pressure tester (diesel) - VAS 6551- .

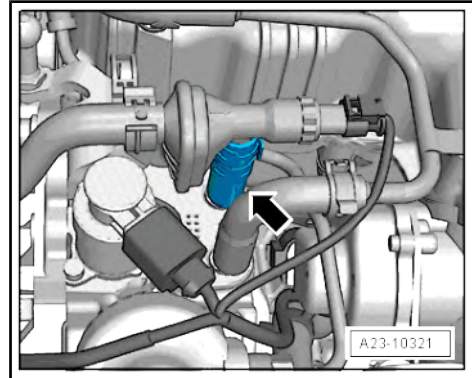
⚠ CAUTION

Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- **Before testing, check all connected lines for secure fit by pulling.**
- **Take any fuel-soaked cloths away from area of vehicle.**
- **Place measuring container down outside vehicle and ensure that its base is secure.**
- **Have a second mechanic ensure that end of hose remains in measuring container during test and measuring container does not tip over.**

- Guide open end of hose - VAS 6551/1- into a suitable measurement container.
- Switch on pressure tester - VAS 6551- .





- Open shut-off taps “A” and “B” of pressure tester - VAS 6551- . Close shut-off tap “C”.
- Connect vehicle diagnostic tester and then carry out “Guided Fault Finding, Checking electrical fuel pump(s)”.

i Note

The fuel pump will be activated for 30 seconds.

- Carefully close shut-off tap “B” and set pressure of 4.5 ± 0.1 bar.

i Note

If the specified pressure is not reached, carry out “test sequence for fuel filter” ⇒ [page 77](#) . Reason may be a blocked fuel filter.

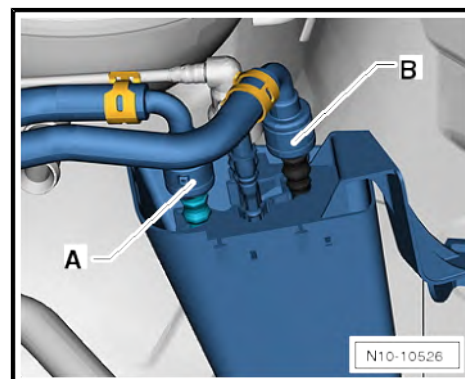
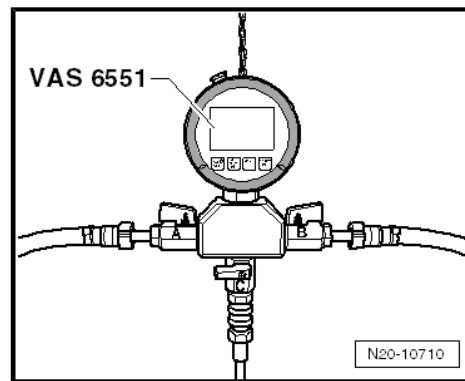
- Once pressure has been set, empty measuring beaker. Carry out Guided Function “Check electric fuel pump(s)” again.
- Observe pressure on pressure tester - VAS 6551- .
- After controlling pump (30 seconds), read supplied fuel quantity in measurement container. Specification: min. 1100 ml.

If the specifications are attained: fuel system pressurisation pump - G6- OK.

If the specified value is not attained, carry out test sequence for fuel filter ⇒ [page 77](#) .

Test sequence for fuel filter

- Reconnect fuel supply line to high-pressure pump.
- Pull off fuel supply line -B-. To do this, press quick-release couplings onto connections, press in locking elements (keep pressed) and pull off quick-release couplings. Separate plug-in connectors
 ⇒ [“4.1 Separating plug-in connectors”, page 46](#) .
- Connect hose - VAS 6551/2- between fuel line from fuel tank and connection point “A” of pressure tester - VAS 6551- .
- Connect hose - VAS 6551/1- to connection point “B” of pressure tester (diesel) - VAS 6551- .



CAUTION

Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.
- Place measuring container down outside vehicle and ensure that its base is secure.
- Have a second mechanic ensure that end of hose remains in measuring container during test and measuring container does not tip over.

- Guide open end of hose - VAS 6551/1- into a suitable measurement container.
- Switch on pressure tester - VAS 6551- .



- Open shut-off taps "A" and "B" of pressure tester - VAS 6551- .
Close shut-off tap "C".
- Connect vehicle diagnostic tester and then carry out "Guided Fault Finding, Checking electrical fuel pump(s)".



Note

The fuel pump will be activated for 30 seconds.

- Carefully close shut-off tap "B" and set pressure of 4.5 ± 0.1 bar.



Note

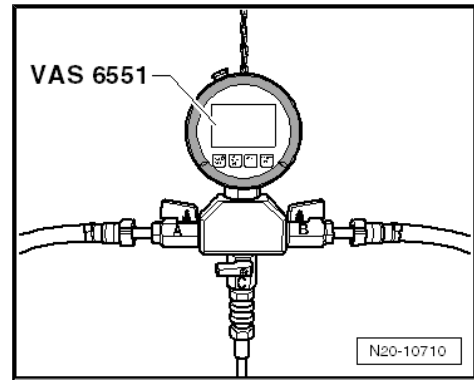
If the specified pressure is not reached, carry out "test sequence at flange of fuel delivery unit" ⇒ [page 78](#) . Reason: fuel line may be pinched or kinked.

- Once pressure has been set, empty measuring beaker. Carry out Guided Function "Check electric fuel pump(s)" again.
- Observe pressure on pressure tester - VAS 6551- .
- After controlling pump (30 seconds), read supplied fuel quantity in measurement container. Specification: min. 1100 ml.

If the specifications are attained: Fuel system pressurisation pump - G6- OK, renew fuel filter element ⇒ Maintenance ; Booklet .

If the specified value is not achieved, carry out test sequence on the flange of the fuel delivery unit ⇒ [page 78](#) .

Test sequence on the flange of the fuel delivery unit



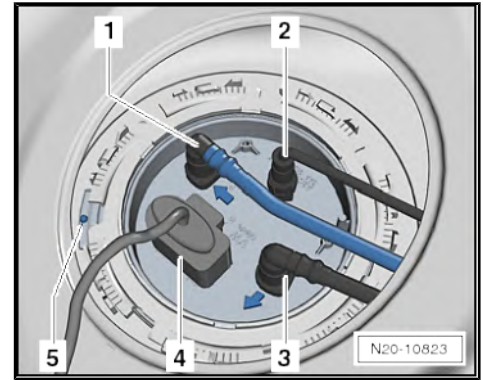


- Pull fuel supply line (black or black marking) -3- off fuel delivery unit. Separate plug-in connectors ⇒ [page 46](#) .

i Note

Press in securing ring to release the fuel lines.

- Collect escaping fuel with a cleaning cloth.
- Connect hose - VAS 6551/2- between fuel line on the flange and connection point "A" of pressure tester - VAS 6551- .
- Connect hose - VAS 6551/1- to connection point "B" of pressure tester (diesel) - VAS 6551- .



⚠ CAUTION

Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.
- Place measuring container down outside vehicle and ensure that its base is secure.
- Have a second mechanic ensure that end of hose remains in measuring container during test and measuring container does not tip over.

- Guide open end of hose - VAS 6551/1- into a suitable measurement container.
- Switch on pressure tester - VAS 6551- .



- Open shut-off taps "A" and "B" of pressure tester - VAS 6551- .
Close shut-off tap "C".
- Connect vehicle diagnostic tester and then carry out "Guided Fault Finding, Checking electrical fuel pump(s)".



Note

The fuel pump will be activated for 30 seconds.

- Carefully close shut-off tap "B" and set pressure of 4.5 ± 0.1 bar.



Note

If the specified pressure is not reached, check the current draw of the fuel pump

⇒ ["7.1.6 Checking current consumption of fuel system pressurisation pump G6"](#), page 87 .

- Once pressure has been set, empty measuring beaker. Carry out Guided Function "Check electric fuel pump(s)" again.
- Observe pressure on pressure tester - VAS 6551- .
- After controlling pump (30 seconds), read supplied fuel quantity in measurement container. Specification: min. 1100 ml.

If the specifications are attained: fuel system pressurisation pump - G6- OK., check that fuel line to engine is not kinked or crushed and renew as necessary.

If the specified value is not achieved, check the voltage supply for the fuel pump

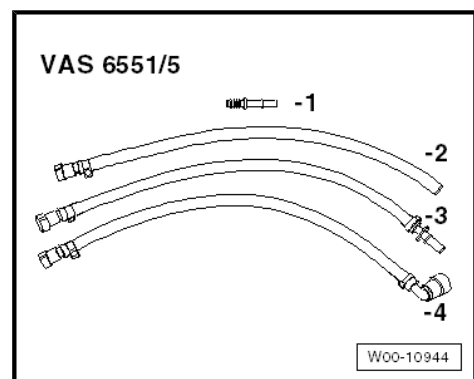
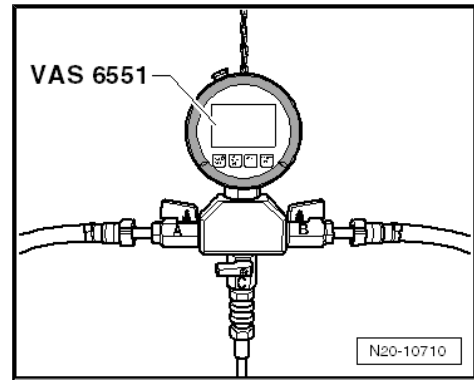
⇒ ["7.1.7 Checking voltage supply of fuel system pressurisation pump G6"](#), page 89 .

7.1.4 Delivery pressure of fuel pump, engine code CAYC

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester
- ◆ Hose adapter - VAS 6551/5-2-
- ◆ Hose adapter - VAS 6551/5-3-
- ◆ Adapter - VAS 6551/5-1-

Hose adapter set - VAS 6551/5-

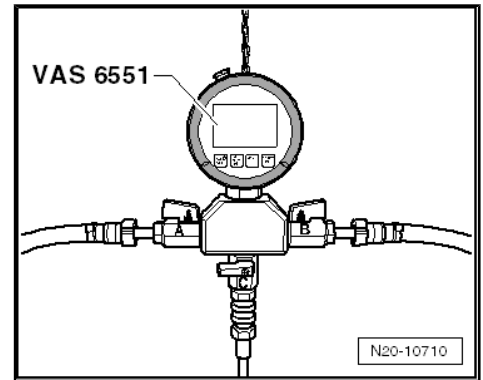




Pressure tester - VAS 6551-

Test specification:

- Fuses must be OK.
- Battery voltage at least 12 V
- The fuel level is not important for this measurement. However, the fuel tank should have at least 5 litres of fuel.
- Ensure that vehicle is placed on a level surface.
- Ensure that fuel hoses and lines in engine compartment and on underbody are not closed through damage (kinks).
- All electrical consumers, e.g. lights and rear window heating, must be switched off.



CAUTION

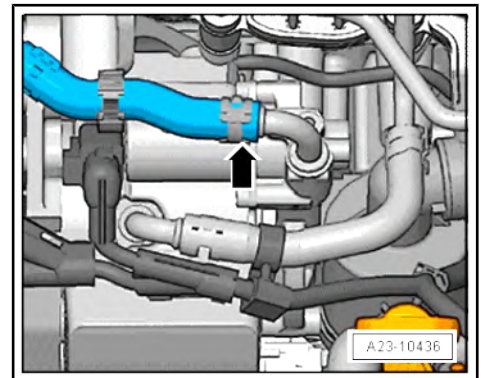
The fuel system is pressurised.

Danger of injury through fuel spray.

- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.

Test sequence

- Remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Join hose adapter - VAS 6551/5-2- and adapter - VAS 6551/5-4- .
- Collect escaping fuel with a cleaning cloth.
- Pull fuel supply line -arrow- off the high-pressure pump.
- Integrate the pressure tester - VAS 6551- together with the following adapters:
 - ◆ Hose adapter - VAS 6551/2-
 - ◆ Adapter - VAS 6551/5-1-
 - ◆ Hose adapter - VAS 6551/5-2-





- Connect pressure tester - VAS 6551- to fuel circuit as shown.

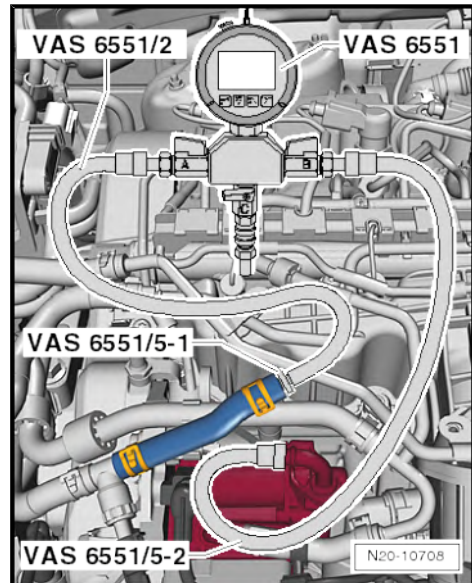
CAUTION

Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.

- Switch on pressure tester - VAS 6551- .



- Open shut-off valves "A" and "B" of pressure tester - VAS 6551- . Close shut-off tap "C".
- Connect vehicle diagnostic tester and carry out guided function "Checking electronic fuel pump(s)".



Note

The fuel pump will be activated for 30 seconds.

- Take pressure reading on pressure tester - VAS 6551- . Specification: Min. 4.5 bar.
- Start engine and allow it to run at idling speed.
- Take pressure reading on pressure tester - VAS 6551- . Specification: Min. 4.5 bar.
- Place pressure tester - VAS 6551- onto windscreen so that it can be read from inside of vehicle.
- Increase idling speed to 2500 rpm.
- Read pressure on pressure tester - VAS 6551- . Specification: min. 4.5 bar

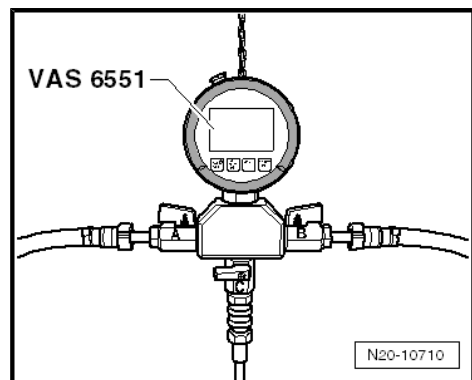
If specification is not reached, check must be repeated in front of fuel filter. This checks whether the fuel filter is clogged.

If no pressure builds up, first check voltage supply

⇒ ["7.1.7 Checking voltage supply of fuel system pressurisation pump G6", page 89](#) and current draw

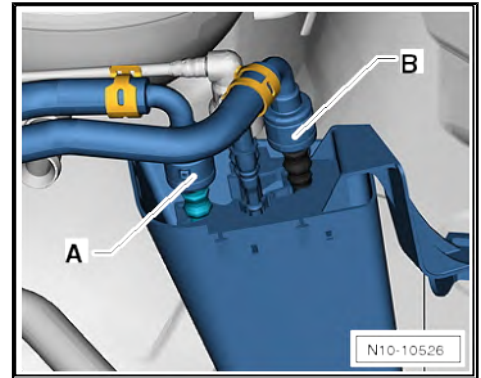
⇒ ["7.1.6 Checking current consumption of fuel system pressurisation pump G6", page 87](#) of fuel delivery unit.

- Reconnect fuel supply line to high pressure pump.





- Pull off fuel supply line -B-. To do this, press quick-release couplings onto connections. Separate plug-in connectors => "4.1 Separating plug-in connectors", page 46 .



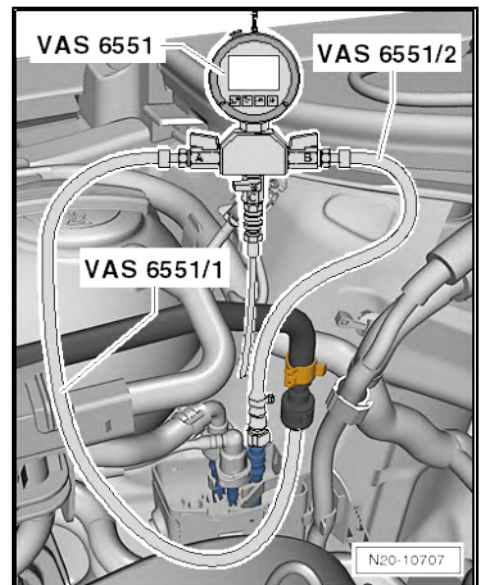
- Connect pressure tester - VAS 6551- to lines -VAS 6551/1- and -VAS 6551/2- in fuel circuit.

⚠ CAUTION

Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.



Make sure that couplings engage correctly.

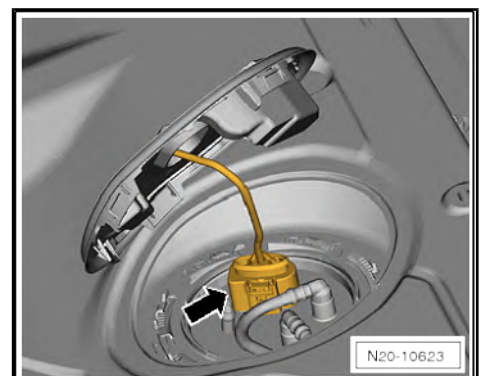
- Collect escaping fuel with a cleaning cloth.
- Perform pressure measurement as in previous check.

Pressure reading should be at least 4.6 bar.

- ◆ If specified pressure values are obtained
- ◆ If difference in measured pressure value (before filter and after filter) ≥ 0.4 bar
 - Renew filter => Maintenance ; Booklet .
- ◆ If specified pressure values are not obtained
- ◆ Perform measurement directly on fuel delivery unit.
 - Reconnect push-fit connector to fuel filter.

Ensure for secure engagement of coupling.

- Raise cover of fuel delivery unit.
- First check that connector -arrow- is fitted securely by pulling connector without pressing catch. If connector was not inserted correctly, repeat function test.





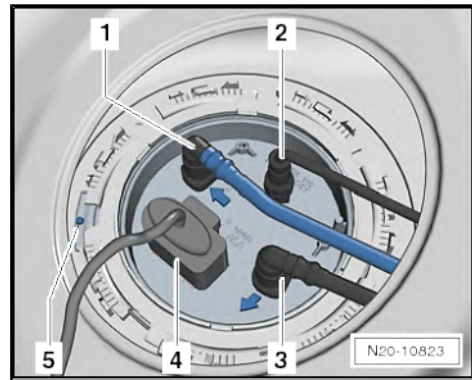
- Pull fuel supply line (black or black marking) -3- off fuel delivery unit. Separate plug-in connectors ⇒ [page 46](#) .



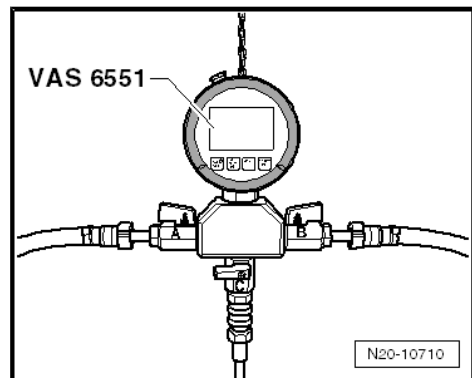
Note

Press in securing ring to release the fuel lines.

- Collect escaping fuel with a cleaning cloth.



- Connect connection -A- of pressure tester - VAS 6551- with line -VAS 6551/1- to open end of fuel delivery unit.
- Open shut-off taps "B" + "C" of pressure tester - VAS 6551- .
- Switch on pressure tester - VAS 6551- .
- Connect vehicle diagnostic tester and carry out guided function "Checking electronic fuel pump(s)".



Note

The fuel pump will be activated for 30 seconds.

- Take pressure reading on pressure tester - VAS 6551- . Specification: 7.2 ± 0.5 bar.

If specified pressure is not reached, or if specified pressure drops completely or temporarily, following faults may be present:

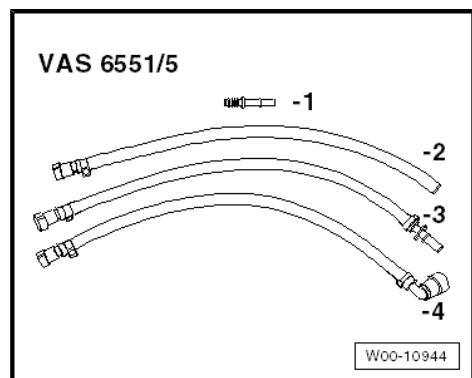
- ◆ Battery voltage below 12.5 V (connect charger)
- ◆ Delivery rate of fuel pump too slow. Check ⇒ [page 84](#) .
- ◆ Voltage supply of fuel pump faulty. Check ⇒ [page 89](#) .
- ◆ Current consumption of fuel pump too low. Check ⇒ [page 87](#) .
- ◆ Fuel delivery unit filter strainer soiled. In order to check it, remove fuel delivery unit ⇒ [page 37](#) .
- ◆ Quick-release coupling in the fuel delivery unit defective. In order to check it, remove the fuel delivery unit ⇒ [page 37](#) .

7.1.5 Checking delivery rate of fuel pump , engine code CAYC

Special tools and workshop equipment required

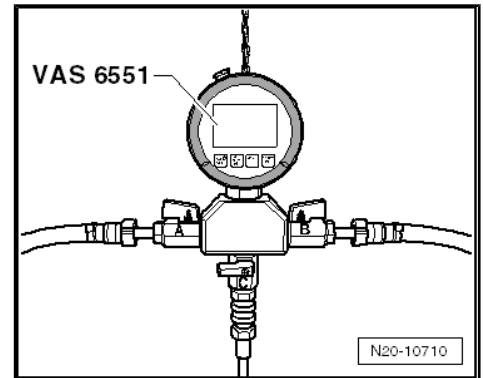
- ◆ Vehicle diagnostic tester
- ◆ Hose adapter - VAS 6551/5-2-
- ◆ Hose adapter - VAS 6551/5-3-
- ◆ Adapter - VAS 6551/5-1-

Hose adapter set - VAS 6551/5-

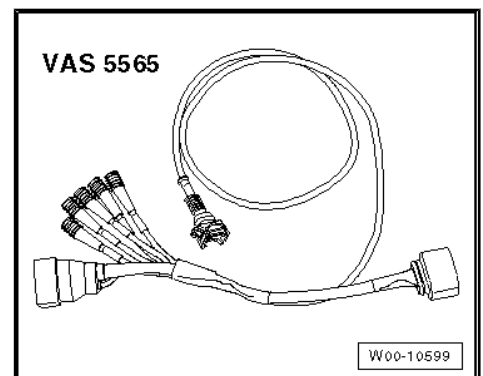




Pressure tester - VAS 6551-



Test instrument adapter/DSO (5-pin) - VAS 5565-



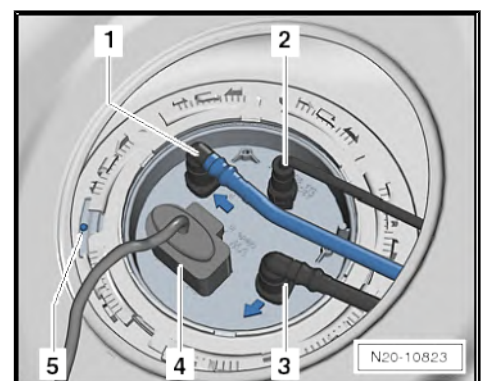
Hand multimeter - V.A.G 1526D-

Test sequence

- Delivery pressure of fuel pump previously checked [⇒ page 60](#) .
- Fuel tank at least $\frac{3}{4}$ full.
- Connect charger or battery voltage above 12.5 volts.



- Pull fuel supply line (black or black marking) -3- off fuel delivery unit. Separate plug-in connectors [⇒ page 46](#) .
- Collect escaping fuel with a cleaning cloth.





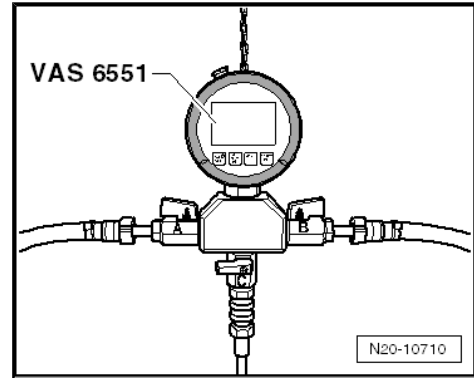
- Connect connection -A- of pressure tester - VAS 6551- with line -VAS 6551/1- to open end of fuel delivery unit.

CAUTION

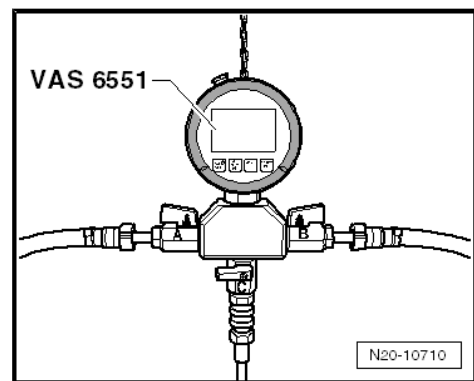
Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.
- Place measuring container down outside vehicle and ensure that its base is secure.
- Have a second mechanic ensure that end of hose remains in measuring container during test and measuring container does not tip over.



- From connection -B-, route hose adapter - VAS 6551/2- into a ≤ 3 -litre measuring container -3- and hold there.
- Switch on pressure tester - VAS 6551- .
- Open shut-off taps "B" + "C" of pressure tester - VAS 6551- .
- Switch on ignition.
- Connect vehicle diagnostic tester and carry out guided function "Checking electronic fuel pump(s)".



Note

The fuel pump will be activated for 30 seconds.

- Carefully open shut-off tap -B- completely.
- Slowly close shut-off valve -B- while taking pressure reading shown on pressure tester - VAS 6551- . Close carefully to set specification to 5 ± 0.2 bar.
- Drain measuring container.

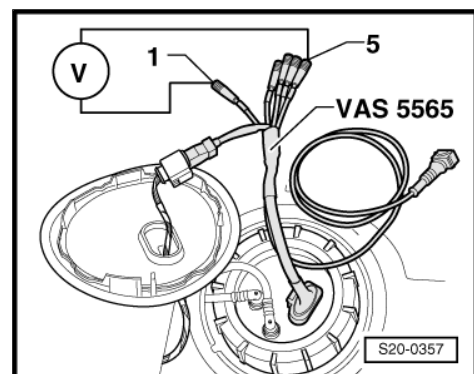
Repeat function "Checking electronic fuel pump(s)"

The amount of fuel delivered by the fuel pump depends on the voltage at the fuel delivery unit.

- Therefore, also connect multimeter - V.A.G 1526- to outputs -1 and 5- of test instrument/DSO adapter 5-pin - VAS 5565- .

Test conditions

- Ambient temperature or fuel temperature: $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$.
- At a pressure of 5 ± 0.2 bar at flange output
- During the checking process, voltages ranging from 11 to 15 volts must be evident at the fuel pump. Measured at the flange connector of the delivery unit.
- Carry out in the guided function "Checking electronic fuel pump(s)"





– Compare the amount of fuel delivered with the read value from the table.

* Delivered amount of fuel in ml/30 s

** Voltage at fuel delivery unit (V) with engine stationary and pump running.

Reading example:

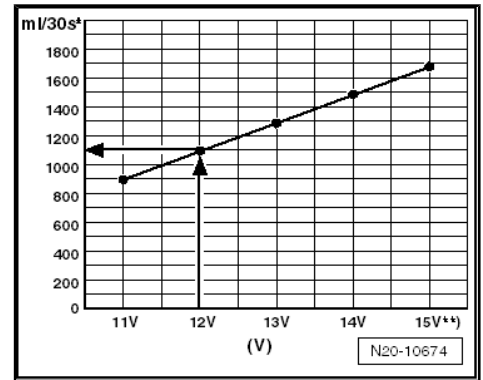
During the test, a voltage of 12.0 volts, for example, is measured at the fuel delivery unit.

The delivered amount of fuel is therefore 1100 ml/30 s.

If the required amount of delivered fuel is achieved, or if more is measured: Fuel pump OK.

If the amount of fuel to be delivered by the fuel pump is not achieved, the following faults might have occurred:

- ◆ Battery voltage below 12.5 V (connect charger)
- ◆ Fuel delivery unit filter strainer soiled. Check filter strainer for soiling.
- ◆ Voltages in the range from 11 to 15 volts were not reached during the testing process.
- ◆ Checking voltage supply of fuel pump
⇒ [“7.1.7 Checking voltage supply of fuel system pressurisation pump G6”](#), page 89 .
- ◆ Check current consumption of fuel pump
⇒ [“7.1.6 Checking current consumption of fuel system pressurisation pump G6”](#), page 87 .



7.1.6 Checking current consumption of fuel system pressurisation pump - G6-

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester
- ◆ Hand-held multimeter - V.A.G 1526D- or pickup clamp - V.A.G 1526B/2-
- ◆ Test instrument adapter/DSO (5-pin) - VAS 5565-
- ◆ Vehicle diagnostic tester



Note

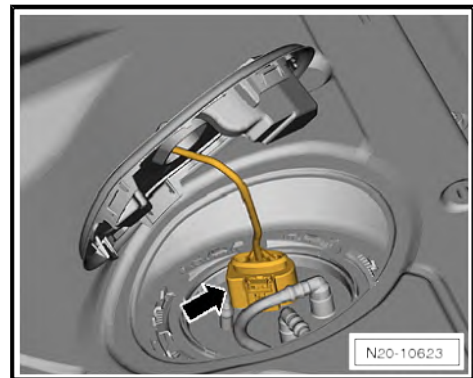
- ◆ *Note that various fuel filters require the fuel lines be connected to them in different ways.*
- ◆ *Mark the positions of the fuel hoses on the fuel filter, and note them for reinstallation.*
- ◆ *The vehicle must be fuelled with the diesel fuel appropriate for the time of the year. Summer fuel may coagulate (flock) at very low winter temperatures.*
- ◆ *Diesel fuel sold in the summer is guaranteed to be capable of filtration down to 0°C.*
- ◆ *Diesel fuel sold in the summer/winter transition is guaranteed to be capable of filtration down to -10°C.*
- ◆ *Diesel fuel sold in the winter is guaranteed to be capable of filtration down to -20°C.*
- ◆ *Test a sample, if unsure in winter. Expose sample to low ambient temperature for approx. 1 hour. If the fuel flocculates at temperatures of up to -20°C, diesel fuel is not suitable. Diesel fuel is not suitable for use at low temperatures. This coagulation can block the strainer in the fuel delivery unit as well as the fuel filter.*

Test conditions:

- Connect battery charger to ensure sufficient voltage supply of min. 12.5 V.
- Fuel temperature over 10°C

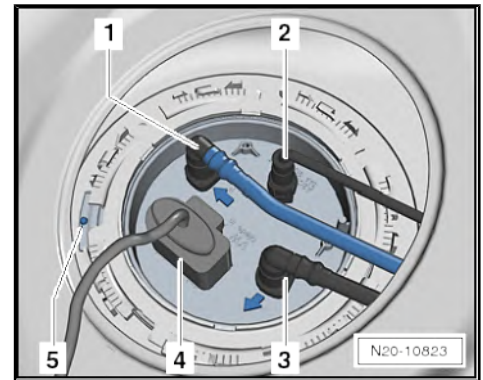
Test sequence

- Fold rear seat bench up ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seat; Removing and installing bench seat / individual seats .
- Raise cover of fuel delivery unit.
- First check that connector -arrow- is fitted securely by pulling connector without pressing catch. If connector was not inserted correctly, repeat function test.





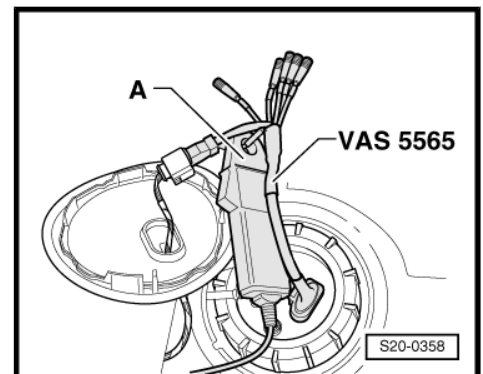
- Pull off connector -4-.



- Connect test instrument adapter/DSO (5-pin) - VAS 5565- to connector and fuel delivery unit.
- Connect pick-up clamp - V.A.G 1526B/2- -A- to red terminal with lettering "pick-up clamp" for test instrument adapter/DSO (5-pin) - VAS 5565- .

i Note

Pickup clamp of hand-held multimeter - V.A.G 1715- can also be connected to red terminal with lettering "pick-up clamp" of test instrument adapter/DSO (5-pin) - VAS 5565- .



- Switch on ignition.
- Connect vehicle diagnostics tester and then carry out Guided Fault Finding "Checking electrical fuel pump(s)".

i Note

The fuel pump will be activated for 30 seconds.

- Read current consumption on hand-held multimeter - V.A.G 1526D- : specification: max. 14.0 amperes.

If the measured value is not within specifications:

- Remove fuel delivery unit
 ⇒ ["3.2 Removing and installing fuel delivery unit, fuel gauge sender", page 37](#) .
- Check electrical wiring between flange and fuel pump for continuity.
- Check filter in floor of fuel delivery unit for dirt or clogging.

If no cable break or soiling can be found:

- Renew fuel delivery unit
 ⇒ ["3.2 Removing and installing fuel delivery unit, fuel gauge sender", page 37](#) .

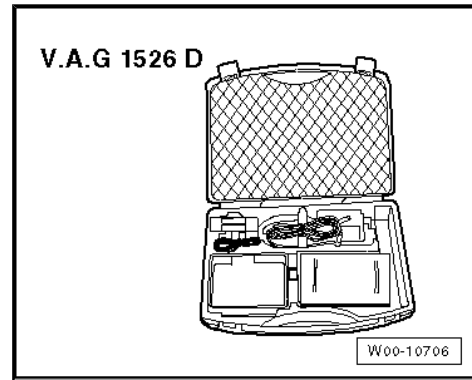
7.1.7 Checking voltage supply of fuel system pressurisation pump - G6-

Special tools and workshop equipment required

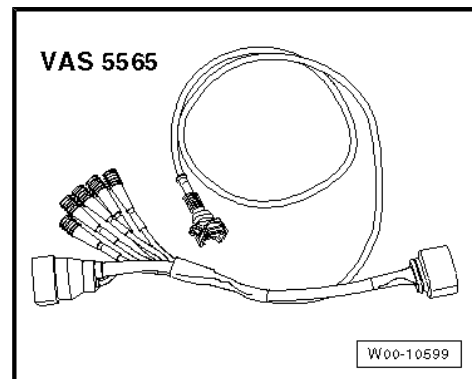
- ◆ Vehicle diagnostic tester
- ◆ Pick-up clamp - V.A.G 1526B/2-



- ◆ Hand multimeter - V.A.G 1526D-



- ◆ Test instrument adapter/DSO (5-pin) - VAS 5565-

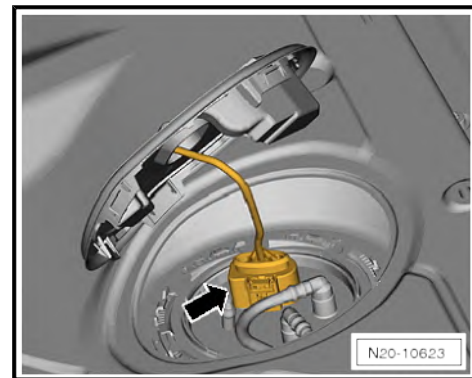


Test conditions

- Fuses must be OK.
- The battery voltage must be at least 12 V; if necessary connect a battery charger.
- All electrical consumers, e.g. lights and rear window heating, must be switched off.
- Visual check of cables OK.

Test sequence

- Remove rear bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat / individual seats .
- Raise cover of fuel delivery unit.
- First check that connector -arrow- is fitted securely by pulling connector without pressing catch. If connector was not inserted correctly, repeat function test.
- Pull connector off fuel delivery unit flange.
- Connect test instrument/DSO adapter (5-pin) - VAS 5565- between connector and flange.





- Connect hand-held multimeter - V.A.G 1526D- to contacts -1- and -5- of adapter.
- Connect vehicle diagnostic tester and then carry out "Guided Fault Finding, Checking electrical fuel pump(s)".

i Note

The fuel pump will be activated for 30 seconds.

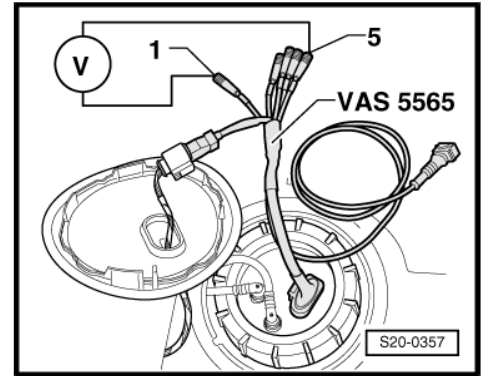
- Read voltage value on hand-held multimeter - V.A.G 1526D- : specification = approx. battery voltage.

If no voltage is present:

- Check activation of fuel pump relay and wiring for an open or short circuit ⇒ Vehicle diagnostic tester.

Voltage supply OK.

- Check current consumption of fuel pump ⇒ [page 87](#) .



7.2 Removing and installing suction-jet pump

Special tools and workshop equipment required

- ◆ Special wrench - T10202-



- ◆ Torque wrench - V.A.G 1332-





◆ Removal wedge - 3409-



Function of suction-jet pump

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

Faults caused by defective suction-jet pump



Note

- ◆ *Risk of breakdown due to defective suction-jet pump.*
- ◆ *If the suction-jet pump is defective, the engine can stop due to fuel starvation when the tank is still $\frac{1}{4}$ full.*

If suction-jet pump does not work, approx. 15 litres of fuel remain in left chamber of fuel tank and cannot be extracted by fuel delivery unit.

If the engine stops due to fuel starvation with the tank filled up to about $\frac{1}{4}$, proceed as follows:

- Use ⇒ Vehicle diagnostic tester to check fuel pump.

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

- Refill fuel tank with approx. 5 litres of fuel.
- Start engine.

If engine starts OK now:

- Renew suction-jet pump as described below.

Removing

- Pull out fuel delivery unit through opening in fuel tank
⇒ ["3.2 Removing and installing fuel delivery unit, fuel gauge sender", page 37](#) .
- Press securing ring and pull fuel line -A- for suction-jet pump off.



- Press tab -B- of suction-jet pump in -direction of arrow- and unclip from fuel delivery unit.
- Remove fuel gauge sender 2 - G169- ⇒ [page 43](#) .
- Pull suction-jet pump out from left side of vehicle.
- Check that the fuel lines on suction-jet pump are fitted securely and are not damaged.
- Also check suction-jet pump for any dirt.

Installing suction-jet pump

Install in reverse order of removal. The following should be observed:

- ◆ Fuel lines are to be installed free of kinks.
- ◆ Ensure that line connections are tight.

Torque settings

- ◆ ⇒ [“2.1.2 Assembly overview - fuel tank, vehicles with four-wheel drive”, page 16](#)

