



Workshop Manual

up! 2012 ➤

up! 2017 ➤

up! 2020 ➤

Fuel supply system, petrol engines

Engine ID	CHY A	CHY B	DAF A	CHZ A	DKL C	DKR A	CHY E		
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Edition 10.2019



List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

20 - Fuel supply system



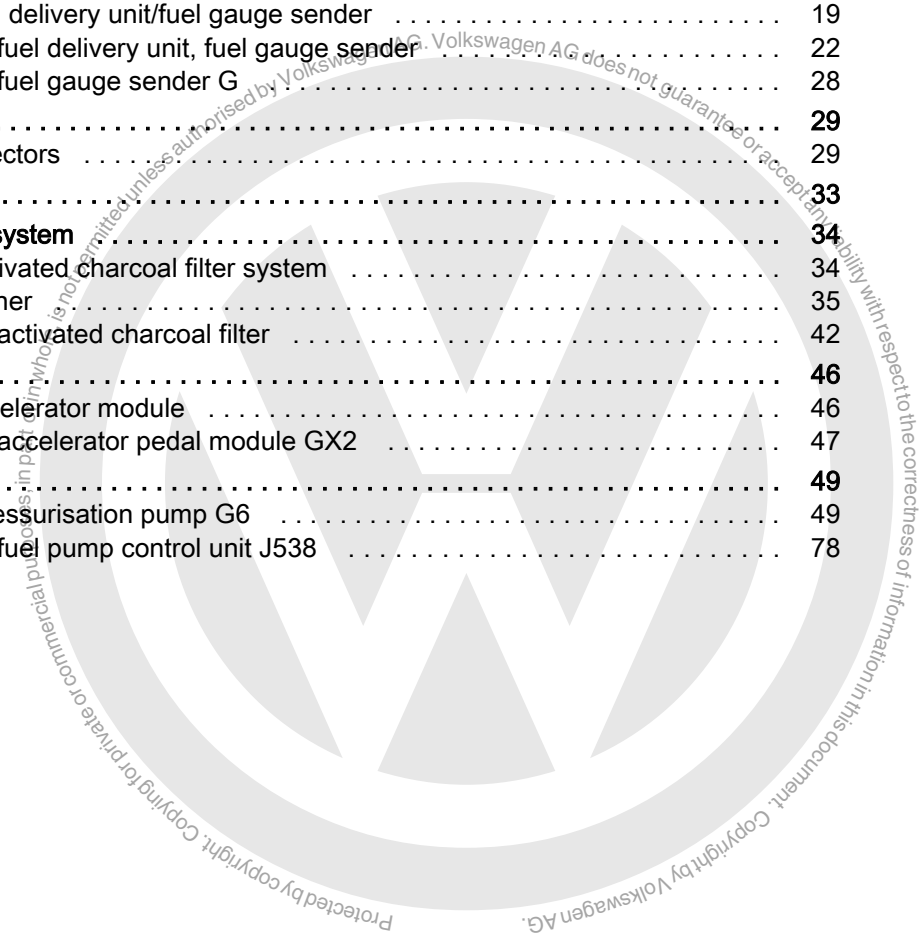
Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of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

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00 – Technical data

1 Safety information

(VRL013571; Edition 10.2019)

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

⇒ [“1.3 Safety precautions when using testers and measuring instruments during a road test”, page 1](#)

⇒ [“1.2 Safety measures when working on vehicles with a start/stop system”, page 1](#)

1.1 Safety measures when 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.

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 could 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.





2 Identification

⇒ **“2.1 Engine number/engine data”, page 3**

2.1 Engine number/engine data

Codes	CHYA	CHYB	CHYE	DAFA	CHZA	DKLC	DKRA
Exhaust emission standard	EU5 / EU6	EU5 / EU6	EU6	EU6	EU6	EU6	EU6
Displacement	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Power	44	55	44	44	66	66	85
RON	95 unleaded	95 unleaded	95 unleaded	95 unleaded	95 unleaded	95 unleaded	95 unleaded





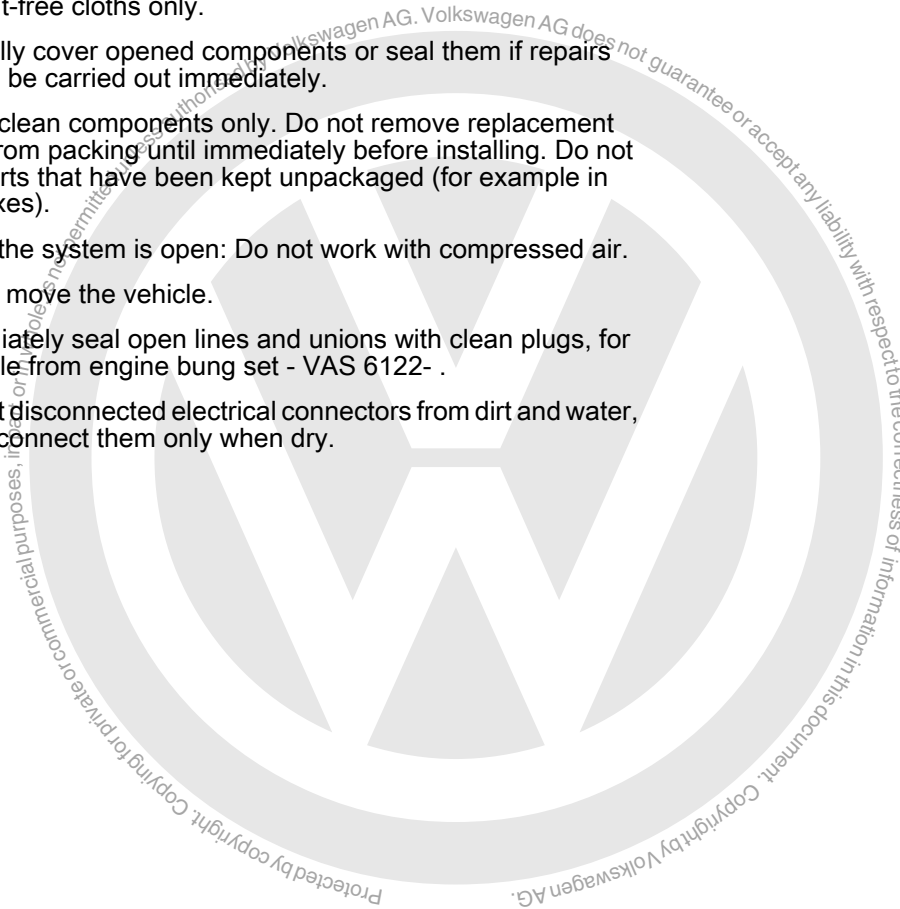
3 General information

⇒ **"3.1 Rules for cleanliness when working on auxiliary/supplementary heater and fuel system", page 4**

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 connections and adjacent areas before disconnecting.
- ◆ 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 clean components only. Do not remove replacement parts from packing 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.





20 – Fuel supply system

1 Fuel

⇒ [“1.1 Assembly overview - fuel tank”, page 5](#)

⇒ [“1.3 Removing and installing fuel tank”, page 13](#)

⇒ [“1.2 Emptying fuel tank”, page 6](#)

1.1 Assembly overview - fuel tank

1 - Cap

- Renew if damaged

2 - Earth cable

3 - Bolt

- 8 Nm +90°
- Qty. 2
- Renew

4 - Filler neck

5 - Breather line

- Clipped onto fuel tank
- Ensure firm seating
- Connection
⇒ [Item 4 \(page 34\)](#)

6 - Activated charcoal filter

- Assembly overview
⇒ [“5.1 Assembly overview - activated charcoal filter system”, page 34](#)
- Checking breather
⇒ [“5.2 Checking fuel tank breather”, page 35](#)
- Removing and installing
⇒ [“5.3 Removing and installing activated charcoal filter”, page 42](#)

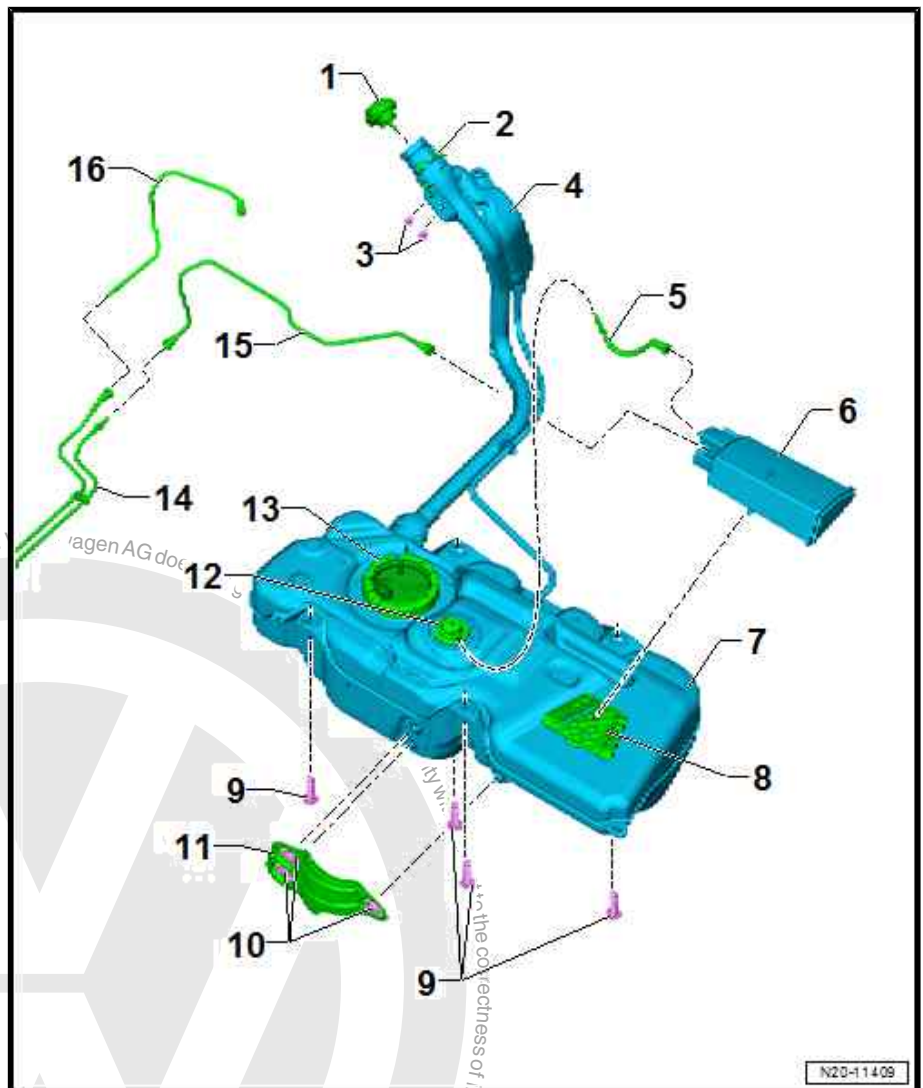
7 - Fuel

- When removing, support using engine and gearbox jack - V.A.G 1383 A- .
- Removing and installing ⇒ [“1.3 Removing and installing fuel tank”, page 13](#)

8 - Bracket for activated charcoal filter

9 Bolt

- 20 Nm +90°
- Qty. 4
- Renew



N20-11409



10 - Clamping washer

11 - Heat shield

12 - Gravity valve

13 - Fuel delivery unit

- Assembly overview ⇒ [“2.1 Assembly overview - fuel delivery unit/fuel gauge sender”, page 19](#)
- Removing and installing
⇒ [“2.2 Removing and installing fuel delivery unit, fuel gauge sender”, page 22](#)
- Checking fuel pump ⇒ [“7 Fuel pump”, page 49](#) .
- With fuel gauge sender - G-
- Removing and installing fuel gauge sender - G-
⇒ [“2.3 Removing and installing fuel gauge sender G ”, page 28](#)
- Clean filter strainer if soiled.

14 - Breather line

- Ensure firm seating
- To connection ⇒ [Item 3 \(page 34\)](#)

15 - Breather line

- Clipped onto fuel tank
- Ensure firm seating
- Connection ⇒ [Item 3 \(page 34\)](#)

16 - Fuel line

- To engine

1.2 Emptying fuel tank

⇒ [“1.2.1 Emptying fuel tank when fuel pump is intact”, page 6](#) .

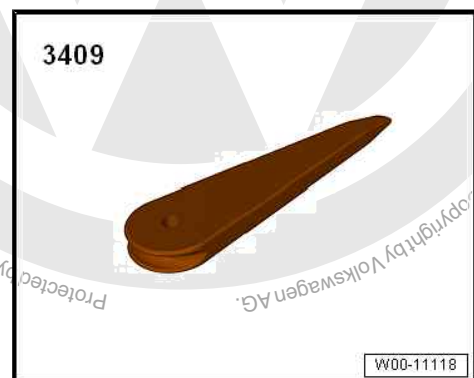
⇒ [“1.2.2 Emptying fuel tank if it is more than 3/4 full”, page 10](#)

⇒ [“1.2.3 Emptying fuel tank if it is less than 3/4 full”, page 11](#)

1.2.1 Emptying fuel tank when fuel pump is intact

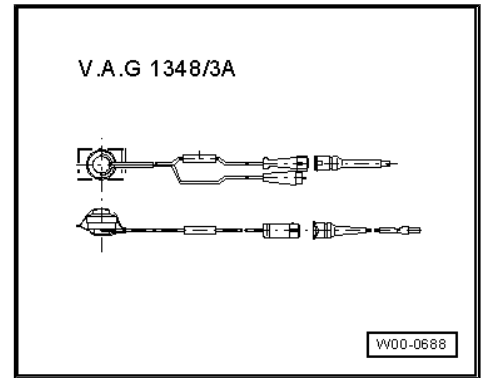
Special tools and workshop equipment required

- ◆ Removal wedge - 3409-





- ◆ Remote control - V.A.G 1348/3A-



- ◆ Test instrument adapter/DSO (5-pin) - VAS 5565-
- ◆ Fuel extractor - VAS 5190-



- ◆ Fuel extractor - VAS 5190 A- for E85 fuel.



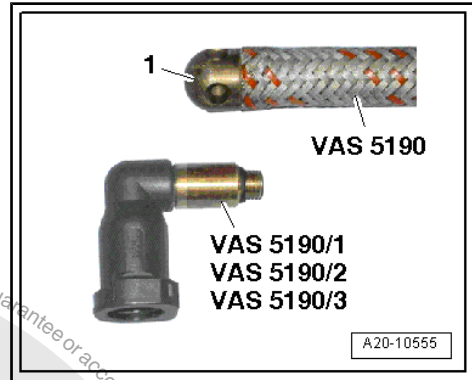
- ◆ Adapter for fuel extraction - VAS 5190-



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



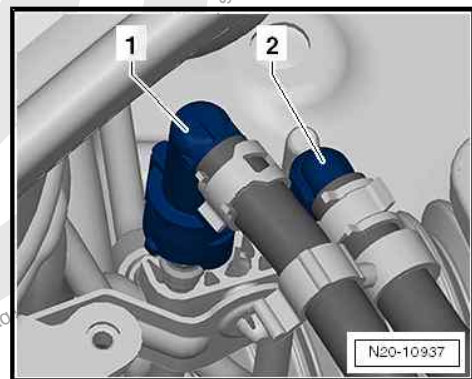
CAUTION

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 supply line -1- (black). Collect escaping fuel with a cleaning cloth. Separate plug-in connectors => ["3.1 Separating plug-in connectors", page 29](#) .



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

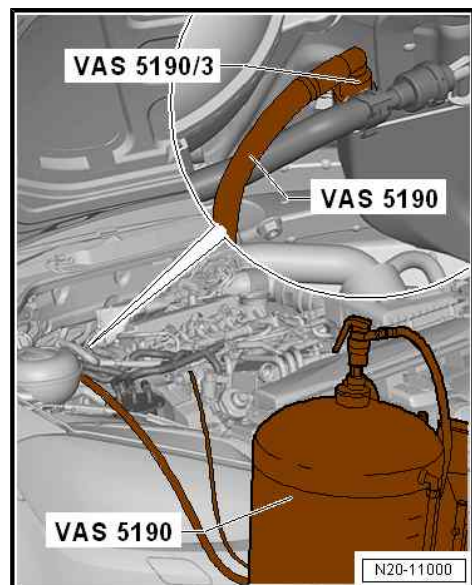
CAUTION

Risk of fire due to escaping fuel.

Risk of severe injuries and burns.

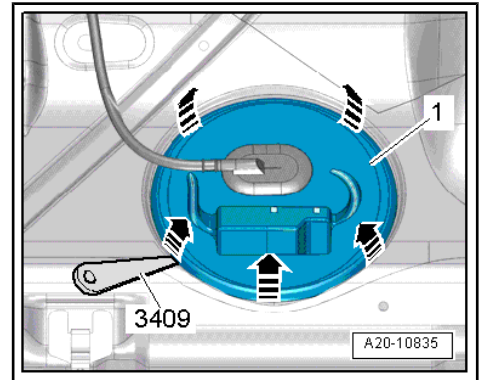
- Check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.

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

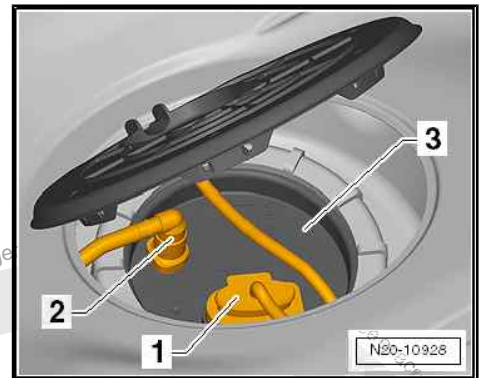




- Unclip cover -1- at retaining tabs -arrows- using removal wedge - 3409- .



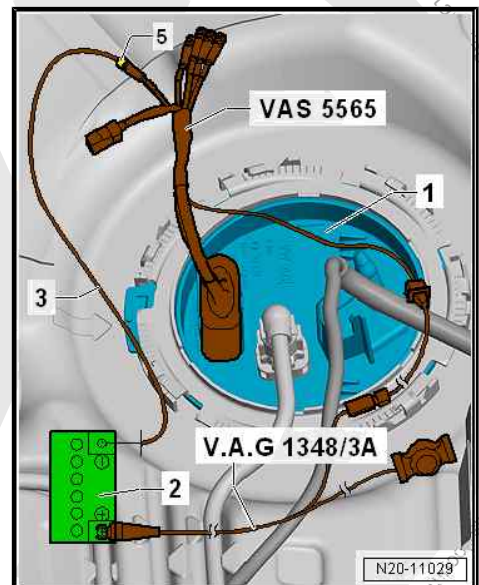
- Release connector -1- and pull off.



- Connect test instrument adapter/DSO (5-pin) - VAS 5565- to connector and fuel delivery unit.
- Connect remote control - V.A.G 1348/3A- to test instrument adapter/DSO (5-pin) - VAS 5565- and to battery positive.

i Note

This step serves only to have the fuel pump running when the engine is stopped.

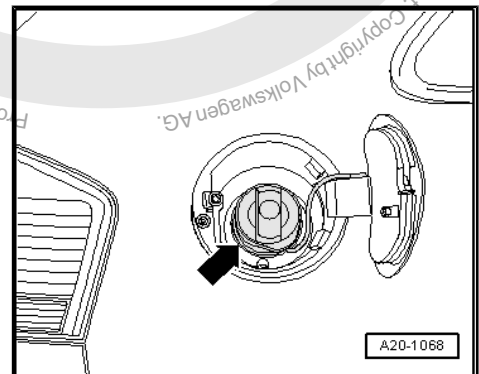


- Open fuel tank flap.
- Remove cap -arrow- from fuel filler neck.
- Operate remote control - V.A.G 1348/3A- and shut-off tap on fuel extractor - VAS 5190- until fuel tank is empty.

! NOTICE

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

- Never allow fuel pump to run »dry«.





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

Special tools and workshop equipment required

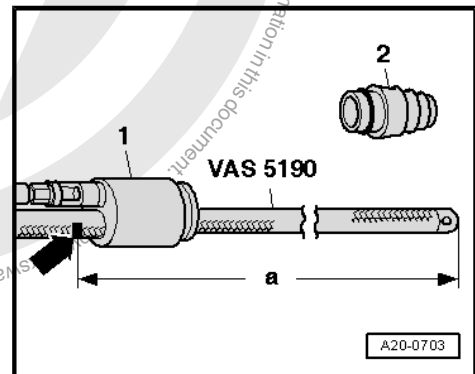
- ◆ Fuel extractor - VAS 5190-



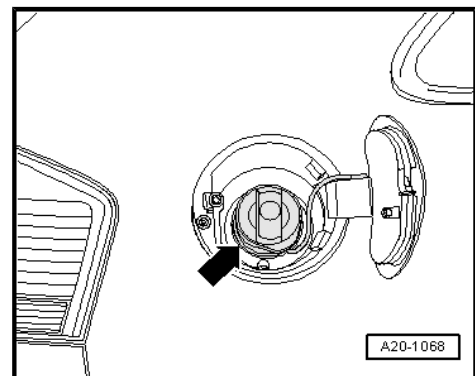
- ◆ Fuel extractor - VAS 5190 A- for E85 fuel.



- Remove cone piece -2- from shaft -1- of fuel extractor - VAS 5190- .
- Make a mark -arrow- on hose with insulating tape at distance -a- = 1340 mm from end of extraction hose.

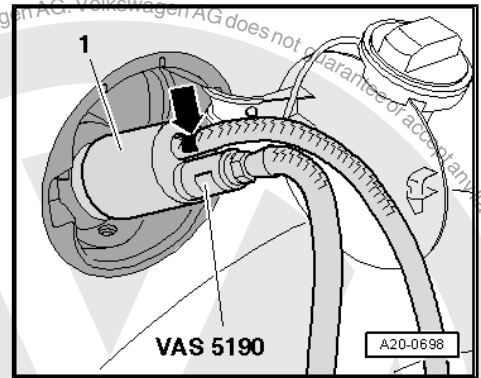


- Open fuel tank flap.
- Remove cap -arrow- from fuel filler neck.





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



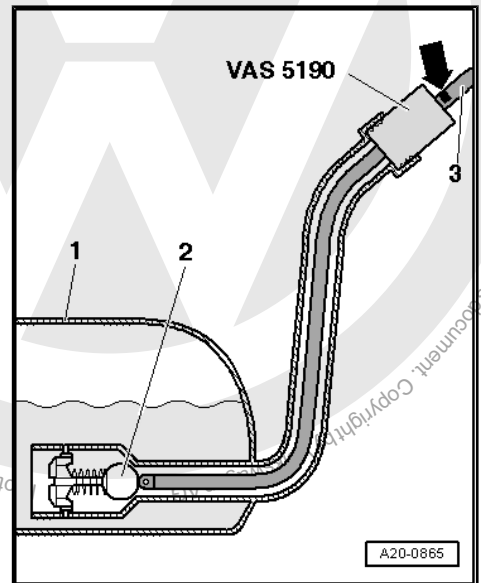
i Note

A ball valve -2- is located at the bottom of the filler neck in the fuel tank -1-; take care not to damage it with the extraction hose -3-. Therefore push hose into filler neck only as far as marking -arrow-.

- Drain fuel tank via filler neck as far as possible.
- Pull extraction hose out carefully.

i Note

- ◆ When no more fuel is extracted, the tank is emptied just enough for the sender flange to be opened without danger.
- ◆ The fuel tank must be drained completely before removal ⇒ "1.2.3 Emptying fuel tank if it is less than 3/4 full", page 11 .



1.2.3 Emptying fuel tank if it is less than 3/4 full

Special tools and workshop equipment required

- ◆ Special wrench - T10202-





- ◆ Torque wrench - V.A.G 1332-



- ◆ Fuel extractor - VAS 5190-



- ◆ Fuel extractor - VAS 5190 A- for E85 fuel.

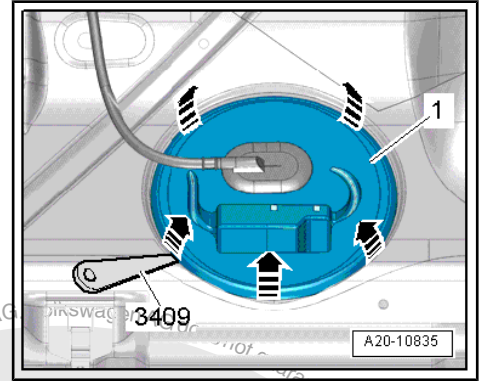


Note

- ◆ *Plug-in connectors for fuel lines must engage »audibly« when joined.*
- ◆ *Note colour assignment when installing the plug-in connectors*
⇒ [page 29](#) .
- ◆ *Ensure plug-in connector is secured properly by pulling it.*
- ◆ *Separate plug-in connectors*
⇒ ["3.1 Separating plug-in connectors"](#), [page 29](#) .
- Remove bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat/individual seats .

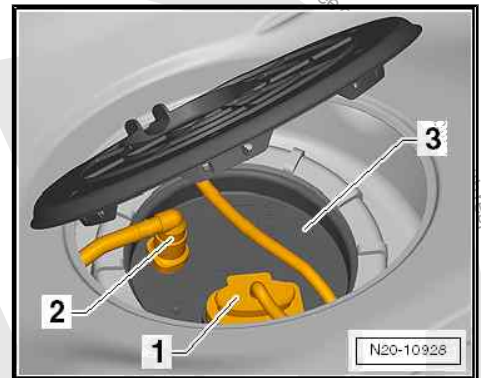


- Unclip cover -1- at retaining tabs -arrows- using removal wedge - 3409- .



- Release connector -1- and pull off.

CAUTION
<p>The fuel system is pressurised. Danger of injury through fuel spray.</p> <ul style="list-style-type: none"> - Wear protective goggles. - Wear protective gloves. - To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



- Release and disconnect fuel lines -2- from fuel delivery unit -3-. Separate plug-in connectors => ["3.1 Separating plug-in connectors", page 29](#) .
- Open fuel delivery unit => [page 22](#)
- Carefully lift flange of fuel delivery unit.
- Secure earth wire of fuel extractor to a bare metal part of the body.
- Insert suction hose of fuel extractor - VAS 5190- as far as possible into fuel tank.
- Extract fuel.

If the fuel tank has only been emptied, reinstall fuel delivery unit => ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .

Torque setting

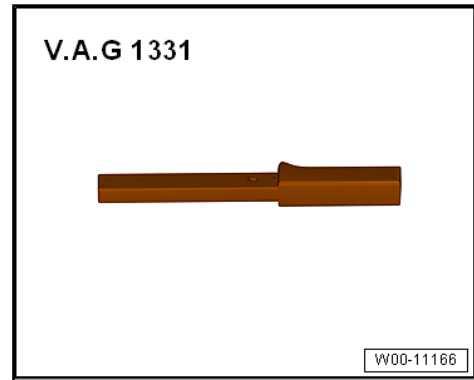
- ◆ => ["2.1 Assembly overview - fuel delivery unit/fuel gauge sender", page 19](#)
- ◆ => General body repairs, interior; Rep. gr. 72 ; Rear seat; Removing and installing bench seat / individual seats

1.3 Removing and installing fuel tank

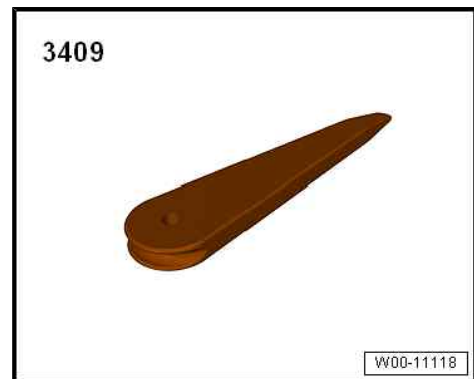
Special tools and workshop equipment required



- ◆ Torque wrench - V.A.G 1331-



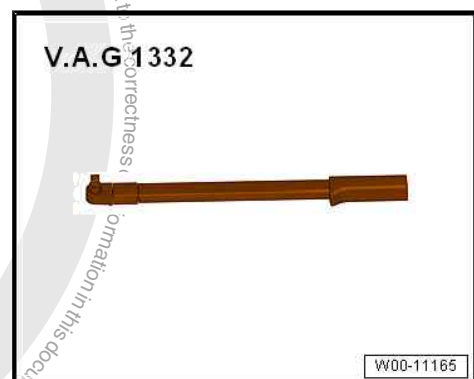
- ◆ Removal wedge - 3409-



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



- ◆ Torque wrench - V.A.G 1332-

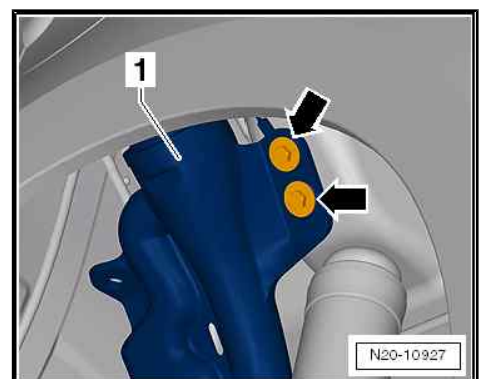
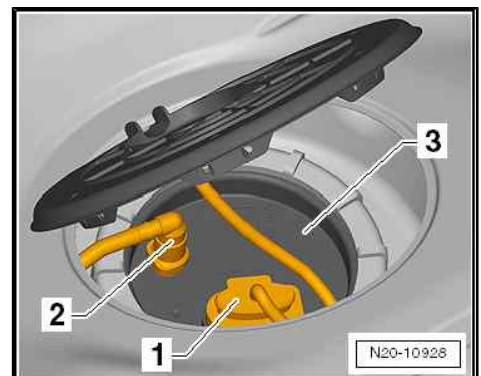
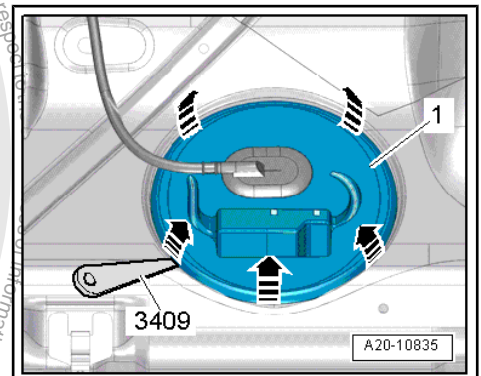
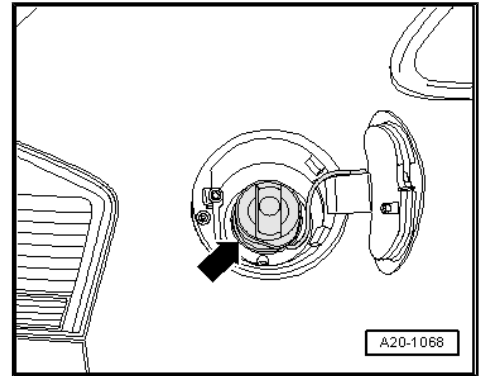


Removing

- Disconnect battery earth strap ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery



- Open fuel tank flap.
- Remove cap -arrow- from fuel filler neck.
- Clean area around fuel filler neck.
- Drain fuel tank completely
 => ["1.2 Emptying fuel tank", page 6](#) .
- Remove tank flap unit => 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 .
- Unclip cover -1- at retaining tabs -arrows- using removal wedge - 3409- .
- Release connector -1- and pull off.
- Remove fuel pump control unit - J538-
 => ["7.2 Removing and installing fuel pump control unit J538", page 78](#) .
- Remove rear right wheel => Wheels, tyres, wheel alignment; Rep. gr. 44 ; Wheels, tyres; Wheel change .
- If fitted, 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- of filler neck -1- from body structure.



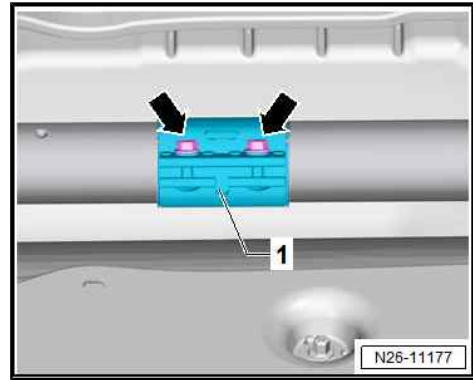
i Note

The aid of a 2nd mechanic is required to remove the rear part of the exhaust system.



Vehicles with clamp on exhaust system

- If fitted, loosen clamp -arrows-.

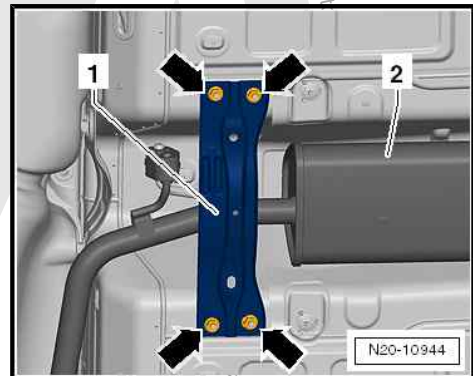
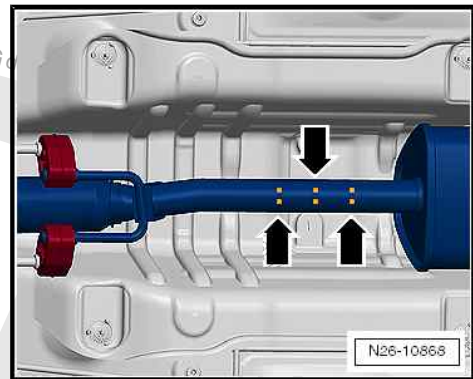


Vehicles without clamp on exhaust system

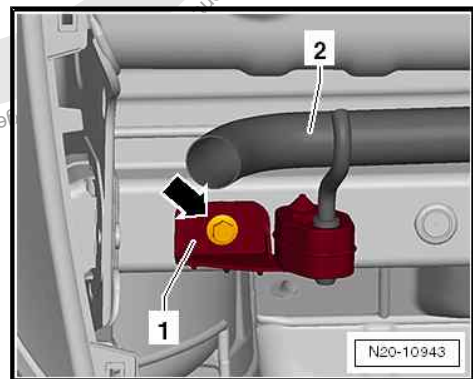
On vehicles without clamp on exhaust system, separate exhaust system ➔ Rep. gr. 26 ; Exhaust pipes, silencers; Separating exhaust pipes, silencers .

Continued for all vehicles

- Remove exhaust system cross member -1- from underbody -2-.
- Remove nuts -arrows-



- Remove rear bracket -1- for exhaust system -2-.
- Unscrew bolt -arrow-.
- Remove rear silencer ➔ Rep. gr. 26 ; Exhaust pipes, silencers; Separating exhaust pipes, silencers .



CAUTION

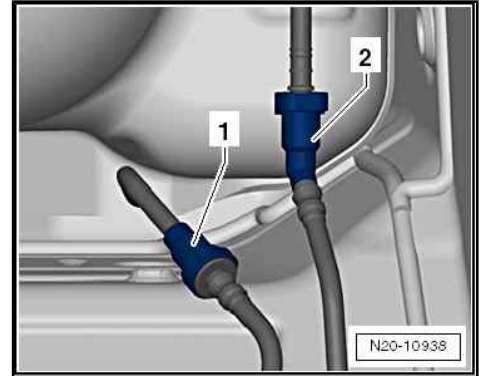
The fuel system is pressurised.

Danger of injury through fuel spray.

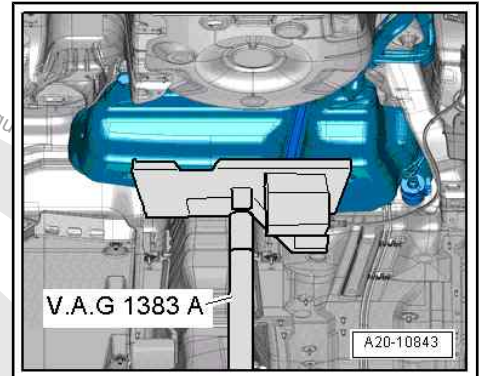
- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



- Disconnect fuel lines. Separate plug-in connectors
 ⇒ [“3.1 Separating plug-in connectors”, page 29](#) .
- 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.



- Unscrew bolts -arrows- on fuel tank -1-.



The aid of a second mechanic is required to remove the fuel tank.

- Lower fuel tank and guide it out of the body structure.

If fuel tank is to be renewed, remove activated charcoal filter
 ⇒ [“5.3 Removing and installing activated charcoal filter”, page 42](#) .

Installing

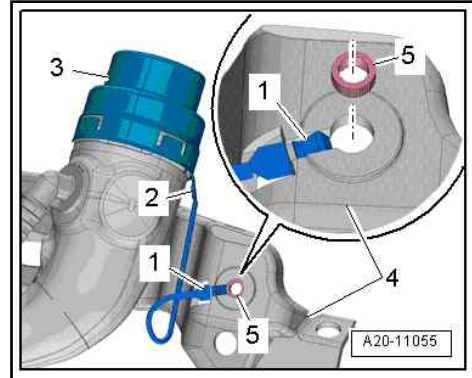
Install in reverse order of removal. The following should be observed:

- Ensure that the filler neck of the fuel tank is correctly inserted into the opening in the body.
- Use engine and gearbox jack - V.A.G 1383 A- to position fuel tank on underbody.
- Ensure proper seating of activated charcoal filter.
- Install breather lines and fuel lines free of kinks.
- Ensure that line connections are tight.
- After installing fuel tank, check that supply and breather lines are still clipped onto fuel tank.

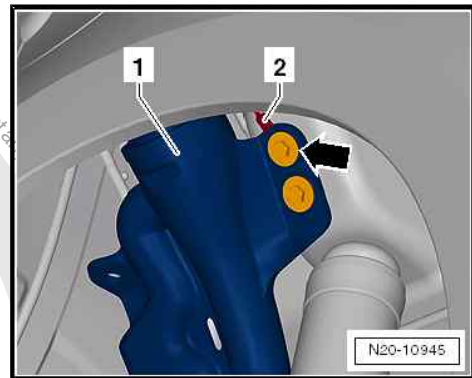




- Connect earth connection as shown in illustration.
- Hook contact tab -1- of earth connection into mounting hole on fuel tank -4-.
- Press in spacer bush -5-.
- Ensure that connector -2- for earth connection is properly seated on metal ring -3- of fuel filler neck.



- Secure contact tab -2- of earth connection with flange bolt -arrow- for fuel filler neck -1-.
- After installation, check electrical connection.
- Check connection of metal ring on fuel filler neck by measuring between ring and a bare metal part of the body.
- Use an ohmmeter for this. Specification: approx. 0 ohm.
- Fill fuel tank with at least 5 litres of fuel.



⚠ WARNING

**Risk of explosion of fuel tank caused by fuel pump activation.
Risk of severe injuries and burns.**

- If a new or completely empty fuel tank has been installed, fill it immediately with at least 5 litres of fuel.

Torque setting

- ◆ ⇒ ["1.1 Assembly overview - fuel tank", page 5](#)
- ◆ ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seat; Removing and installing bench seat / individual seats
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing silencer
- ◆ ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit .



2 Fuel delivery unit, fuel gauge sender

⇒ [“2.1 Assembly overview - fuel delivery unit/fuel gauge sender”, page 19](#)

⇒ [“2.2 Removing and installing fuel delivery unit, fuel gauge sender”, page 22](#)

⇒ [“2.3 Removing and installing fuel gauge sender G”, page 28](#)

2.1 Assembly overview - fuel delivery unit/fuel gauge sender

⇒ [“2.1.1 Assembly overview - fuel delivery unit and fuel gauge sender, vehicles with union nut”, page 19](#)

⇒ [“2.1.2 Assembly overview - fuel delivery unit and fuel gauge sender, vehicles with locking ring”, page 21](#)

2.1.1 Assembly overview - fuel delivery unit and fuel gauge sender, vehicles with union nut



Note

- ◆ *Hose connections are secured with either spring-type or clamp-type clips.*
- ◆ *Renew clamp-type clips with spring-type clips.*
- ◆ *Fuel hoses on engine must be secured with spring-type clips only. The use of crimp-type or screw-type clips is not permissible.*
- ◆ *Hose clip pliers - VAS 6340- are recommended to install spring-type clips.*



1 - Supply line

- black
- Clipped onto side of fuel tank.
- Ensure firm seating

2 - Union nut

- 80 Nm
- Loosen using union nut tool - 3217-

3 - Flange

- For fuel delivery unit.
- Note installation position of flange on fuel tank

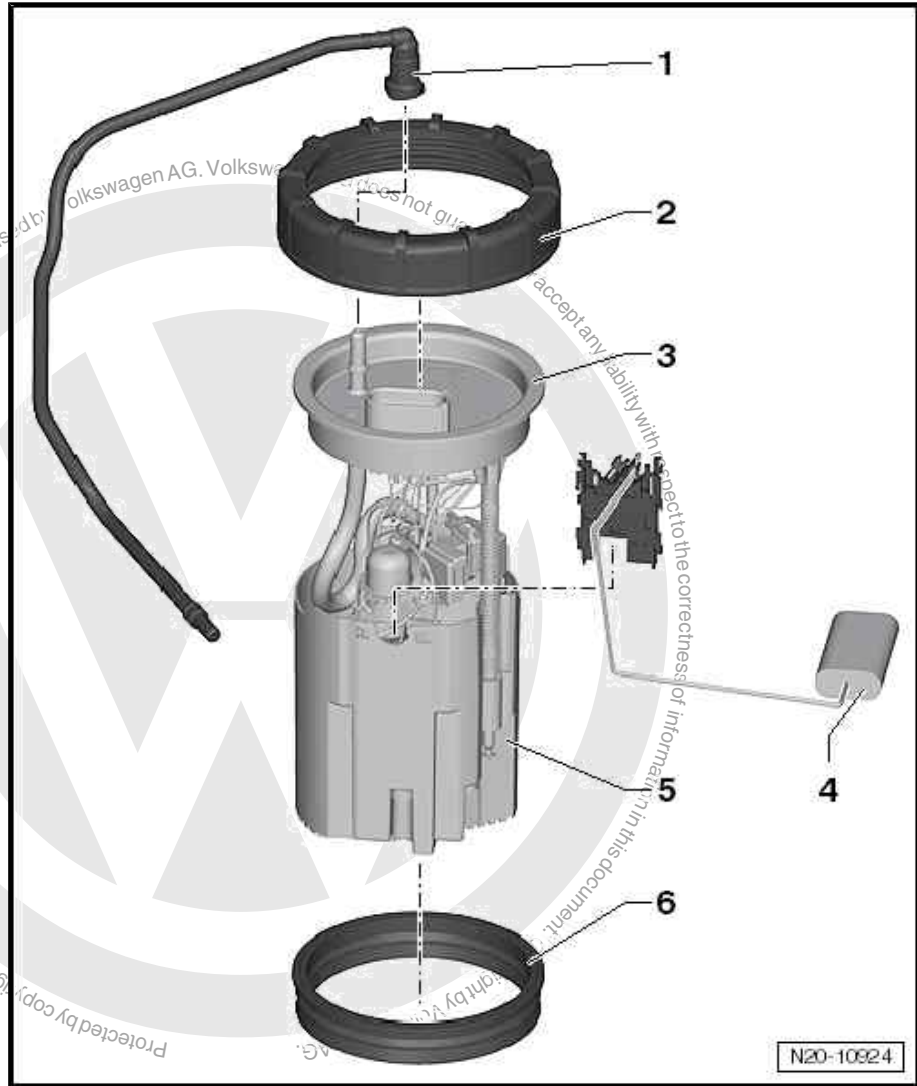
⇒ Fig. "Installation position of fuel delivery unit", page 20 .

4 - Fuel gauge sender - G-

- Removing and installing ⇒ "2.3 Removing and installing fuel gauge sender G", page 28

5 - Fuel delivery unit

- Removing and installing ⇒ "2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22
- With fuel system pressurisation pump - G6-
- Fuel system pressurisation pump - G6- ⇒ "7.1 Checking fuel system pressurisation pump G6", page 49



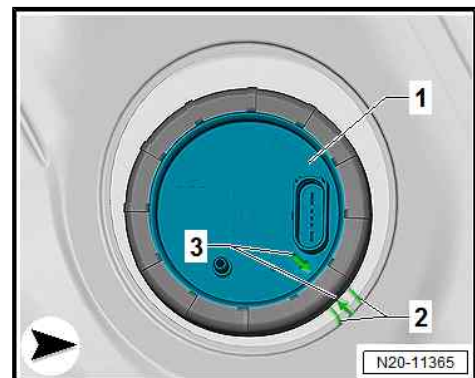
6 - Seal

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

Installation position of fuel delivery unit

Version 1:

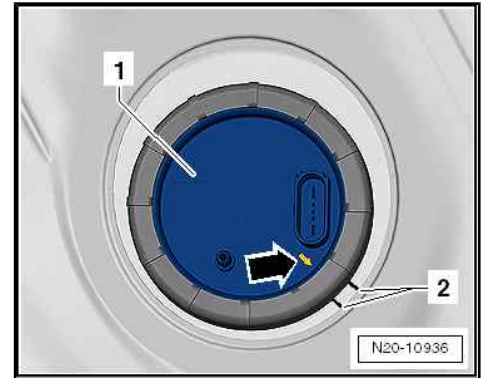
- There is an arrow between markings -2- on fuel tank.
- The lines -2- are, in the direction of travel, in front of the opening for the fuel delivery unit.
- There is also an arrow on flange -1-.
- The two arrows -3- must be aligned when installing.





Version 2:

- There are two lines -2- on the fuel tank.
- The lines are, in the direction of travel, in front of the opening for the fuel delivery unit.
- There is also an arrow on flange -1-.
- The arrow must be between the marks during installation.



2.1.2 Assembly overview - fuel delivery unit and fuel gauge sender, vehicles with locking ring

1 - Locking ring

- 110 Nm

2 - Supply line

- black
- Clipped onto side of fuel tank.
- Ensure firm seating

3 - Return line

- Not fitted

4 - Flange

- For fuel delivery unit.
- Note installation position of flange on fuel tank

⇒ Fig. "Installation position of flange", page 22 .

5 - Fuel gauge sender - G-

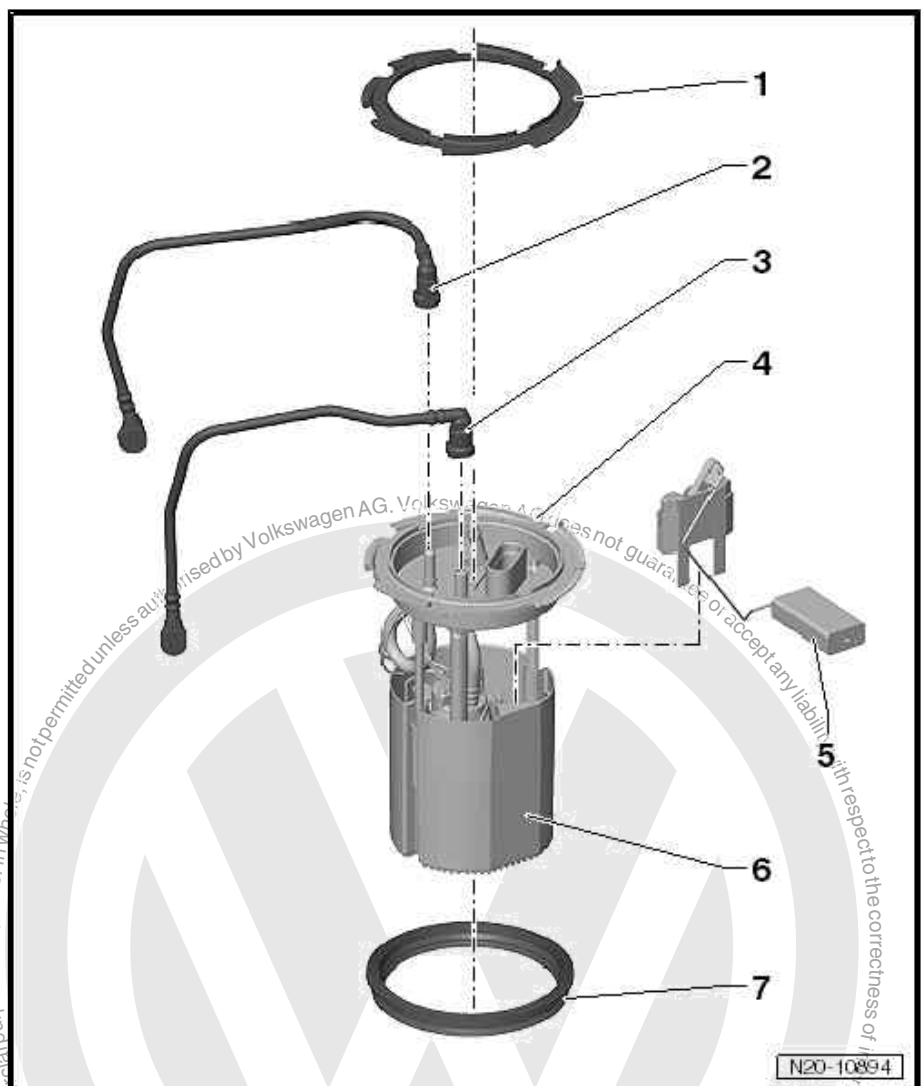
- Removing and installing
 ⇒ "2.3 Removing and installing fuel gauge sender G", page 28

6 - Fuel delivery unit

- Removing and installing
 ⇒ "2.2 Removing and installing fuel delivery unit, fuel gauge sender" page 22
- With fuel system pressurisation pump - G6-
- Checking fuel pump
 ⇒ "7.1 Checking fuel system pressurisation pump G6", page 49 .

7 - Seal

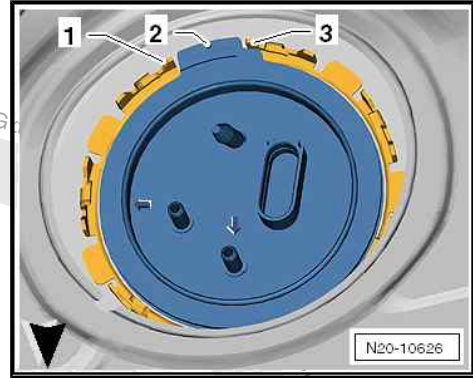
- Renew
- When installing, fit dry in fuel tank opening.
- Moisten with fuel only when installing flange.





Installation position of flange

- Push flange downwards against spring force and move flange into installation position.
- Tab -2- on flange must be between lugs -1- and -3- on fuel tank.
- The sealing flange can be installed only in this position.
- Disregard the -arrows- on the sealing flange.



2.2 Removing and installing fuel delivery unit, fuel gauge sender

⇒ [“2.2.1 Removing and installing fuel delivery unit/fuel gauge sender, vehicles with union nut”, page 22](#)

⇒ [“2.2.2 Removing and installing fuel delivery unit/fuel gauge sender, vehicles with locking ring”, page 25](#)

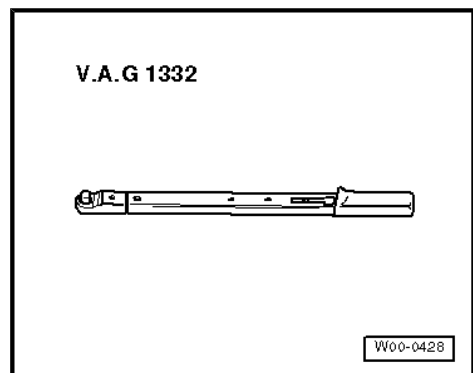
2.2.1 Removing and installing fuel delivery unit/fuel gauge sender, vehicles with union nut

Special tools and workshop equipment required

- ◆ Union nut tool - 3217-

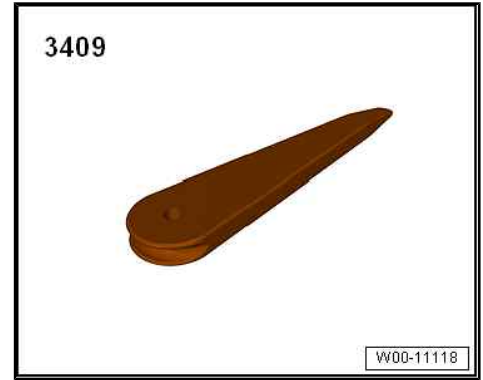


- ◆ Torque wrench - V.A.G 1332-



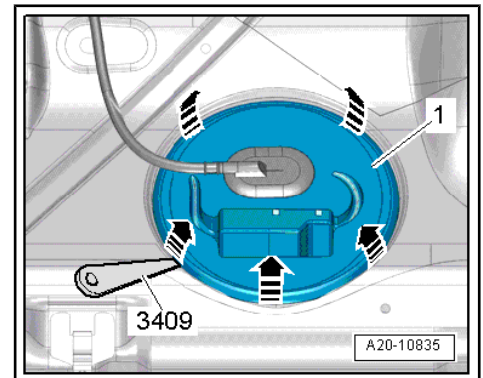


◆ Removal wedge - 3409-



Removing

- Drain fuel tank ⇒ [“1.2 Emptying fuel tank”, page 6](#) .
- Disconnect battery earth strap ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- 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- .



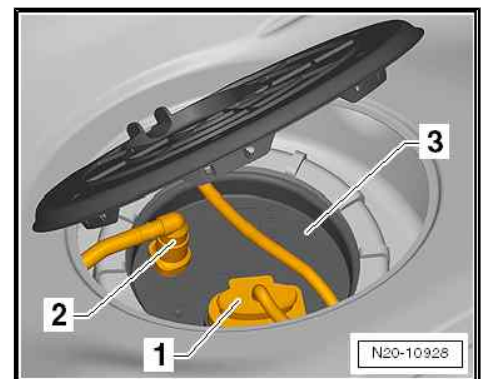
- Release connector -1- and pull off.

⚠ CAUTION

The fuel system is pressurised.

Danger of injury through fuel spray.

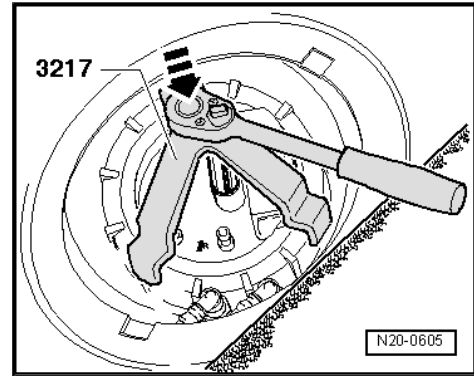
- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



- Release and disconnect fuel lines -2- from fuel delivery unit -3-. Separate plug-in connectors ⇒ [“3.1 Separating plug-in connectors”, page 29](#) .



- Loosen union nut with union nut tool - 3217- .



- Pull sealing flange out of the opening in fuel tank.
- Remove seal from opening in fuel tank.
- Place a cloth underneath to absorb fuel.
- Pull fuel extraction unit -1- with fuel gauge sender out through the installation opening of the fuel tank carefully.
- When removing fuel delivery unit, ensure that float arm of fuel gauge sender -G- is not bent.
- Check fuel tank for foreign bodies and dirt.



Note

- ◆ *When the delivery unit is replaced, the old delivery unit must be emptied before disposal.*
- ◆ *Observe environmental regulations for disposal.*

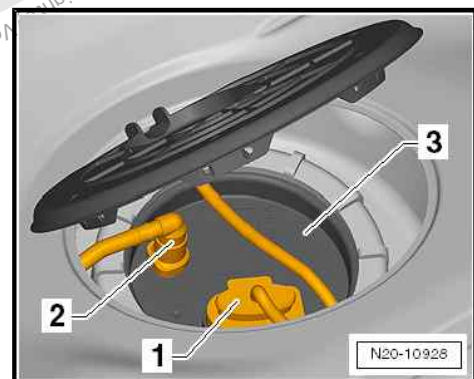
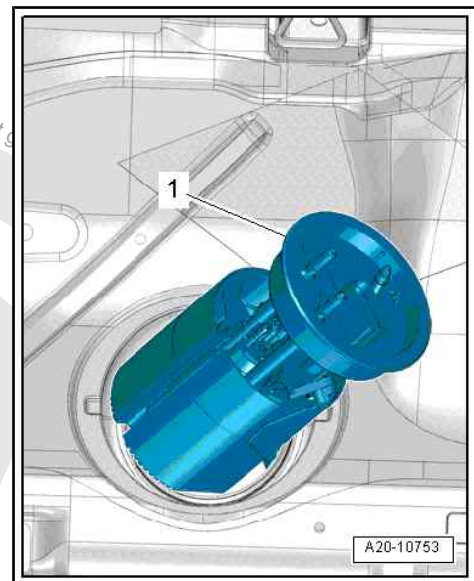
Installing

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

- Renew seal.
- Insert seal for fuel delivery unit dry into opening of fuel tank.
- Coat inner side of seal with fuel.
- When inserting fuel delivery unit, ensure that fuel gauge sender is not bent.
- Press down sealing flange -3- against spring force.
- Move sealing flange into installation position
⇒ [Fig. "Installation position of fuel delivery unit"](#) , page 20 .
- Tighten union nut.
- Connect connector -1-.
- Push on fuel line -2-.
- Ensure plug-in connector and connector are secured properly by pulling.

Torque setting

- ◆ ⇒ ["2.1 Assembly overview - fuel delivery unit/fuel gauge sender"](#) , page 19





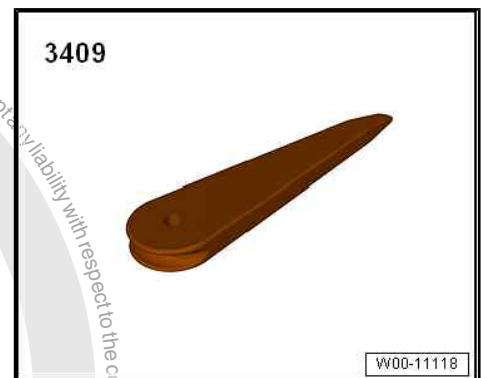
2.2.2 Removing and installing fuel delivery unit/fuel gauge sender, vehicles with locking ring

Special tools and workshop equipment required

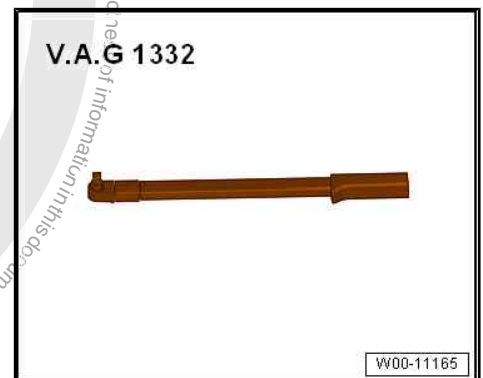
- ◆ Special wrench - T10202-



- ◆ Removal wedge - 3409-



- ◆ Torque wrench - V.A.G 1332-

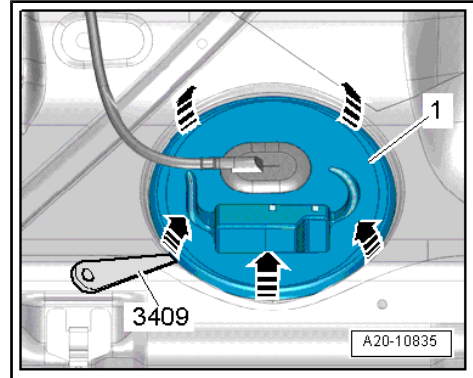


Removing

- Drain fuel tank ⇒ ["1.2 Emptying fuel tank", page 6](#) .
- Disconnect battery earth strap ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- 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- .



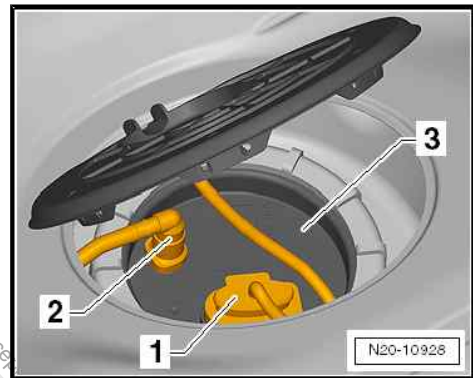
- Release connector -1- and pull off.

CAUTION

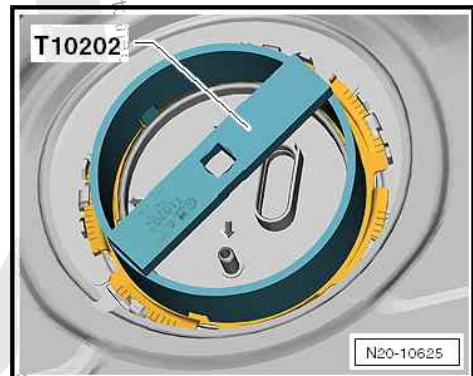
The fuel system is pressurised.

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.



- Release and disconnect fuel lines -2- from fuel delivery unit -3-. Separate plug-in connectors
=> ["3.1 Separating plug-in connectors", page 29](#) .
- Remove fuel pump control unit - J538-
=> ["7.2 Removing and installing fuel pump control unit J538 ", page 78](#) .
- Open locking ring using wrench - T10202- and raise flange slightly.





- Pull sealing flange out of the opening in fuel tank.
- Remove seal from opening in fuel tank.
- Place a cloth underneath to absorb fuel.
- Pull fuel extraction unit -1- with fuel gauge sender out through the installation opening of the fuel tank carefully.
- When removing fuel delivery unit, ensure that float arm of fuel gauge sender -G- is not bent.
- Check fuel tank for foreign bodies and dirt.

i Note

- ◆ If delivery unit is to be renewed, old delivery unit must be drained before disposal.
- ◆ Observe environmental regulations for disposal.

Installing

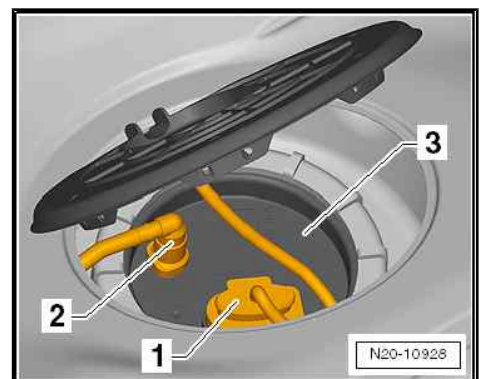
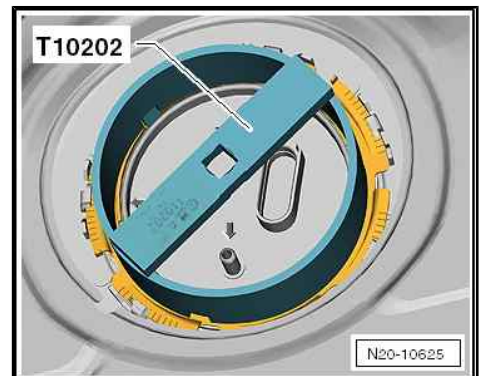
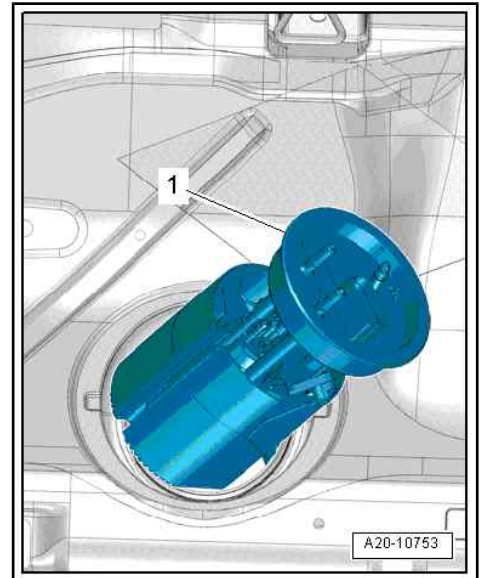
Install in reverse order of removal. The following should be observed:

- Renew seal.
- Insert seal for fuel delivery unit dry into opening of fuel tank.
- Coat inner side of seal with fuel.
- When inserting fuel delivery unit, ensure that fuel gauge sender is not bent.
- Bring sealing flange to installation position
 ⇒ Fig. "Installation position of flange", page 22 .
- Tighten locking ring using wrench - T10202- .

- Connect connector -1-.
- Push on fuel line -2-.
- Ensure plug-in connector and connector are secured properly by pulling.

Torque setting

- ◆ ⇒ "2.1 Assembly overview - fuel delivery unit/fuel gauge sender", page 19

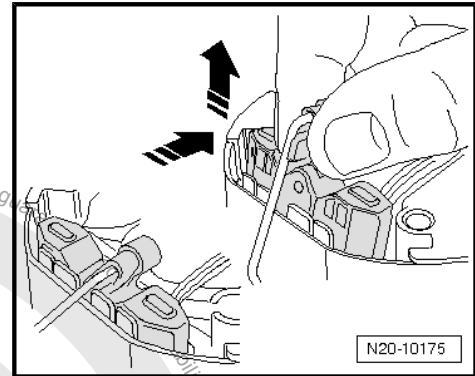




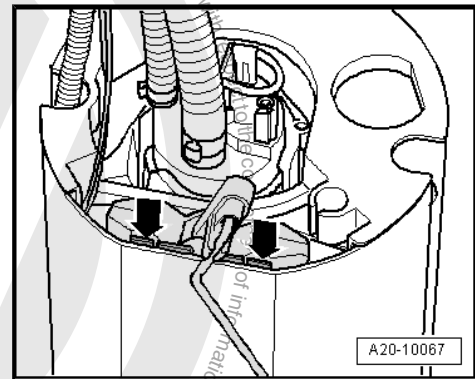
2.3 Removing and installing fuel gauge sender - G-

Removing

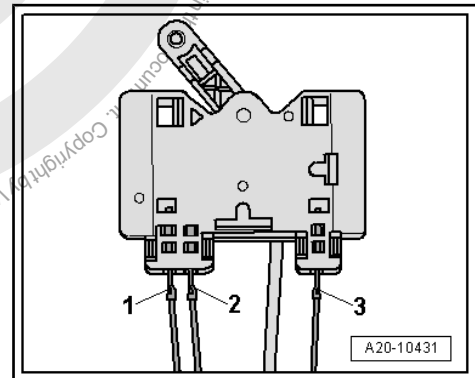
- Remove fuel delivery unit
⇒ [“2.2 Removing and installing fuel delivery unit, fuel gauge sender”, page 22](#) .
- Pull fuel gauge sender - G- slightly to side and upwards at the same time.



- Push locking lugs -arrows- inwards to unlock.
- Pull fuel gauge sender - G- upwards out of fuel delivery unit.
- Note colour assignment of cables for re-installation.

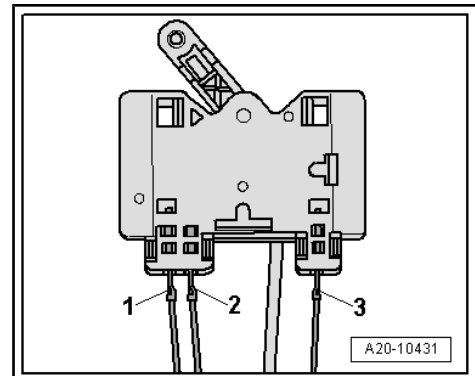


- Release and pull off connectors -1- to -3-.
- Bend back the locking hooks of the connectors.



Installing:

- Attach connectors -1- to -3-.
- Note colour assignment.
- Check connectors are secured properly by pulling.
- Insert fuel gauge sender - G- into guide on fuel delivery unit and press down until it engages.
- Install fuel delivery unit
⇒ [“2.2 Removing and installing fuel delivery unit, fuel gauge sender”, page 22](#) .





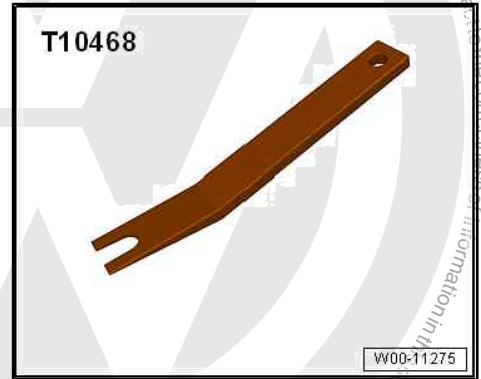
3 Plug-in connectors

⇒ **“3.1 Separating plug-in connectors”, page 29**

3.1 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 coloured.

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

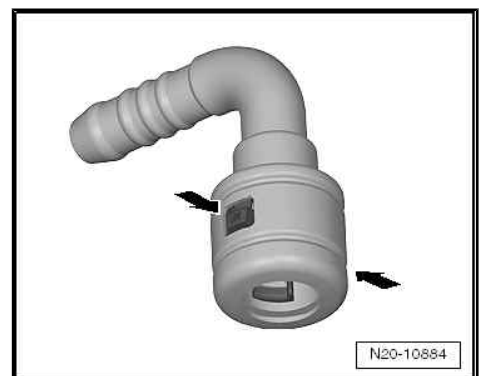
CAUTION

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

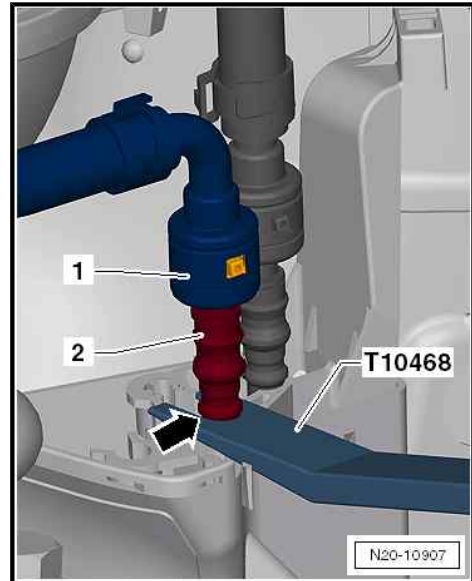




Open

It is necessary to counter hold the fuel connection -1-.

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

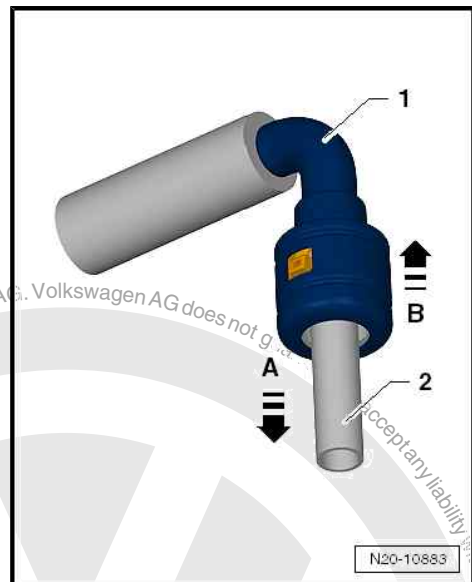


Continuation for all fuel system connections:

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

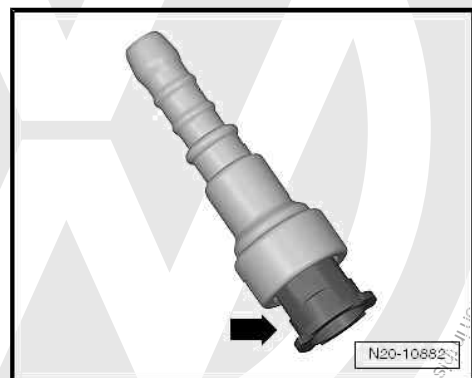
Note colour assignment during installation ⇒ [page 29](#) .

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



Version 2

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



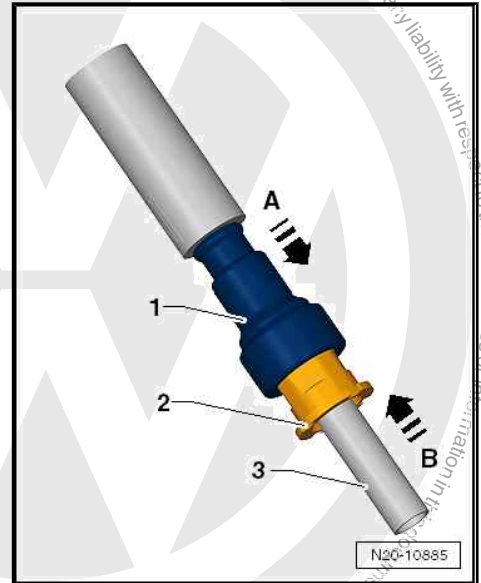


Open

- 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 29](#) .

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



Version 3

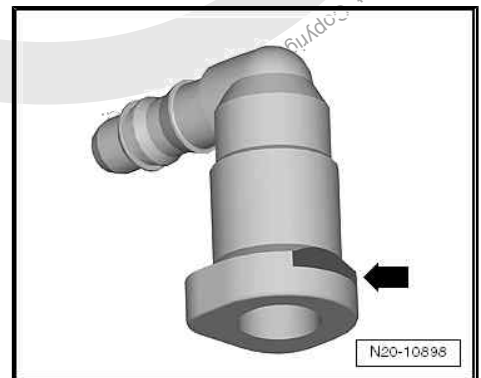
Plug-in connector with front button -arrow-

Open

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

Note colour assignment during installation => [page 29](#) .

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



Version 4

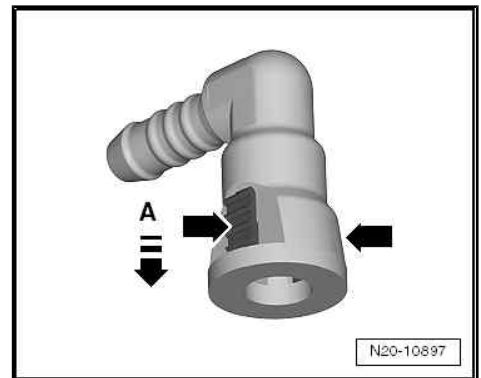
Plug-in connector with release buttons -arrows- on right and left

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 29](#) .

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



Version 5

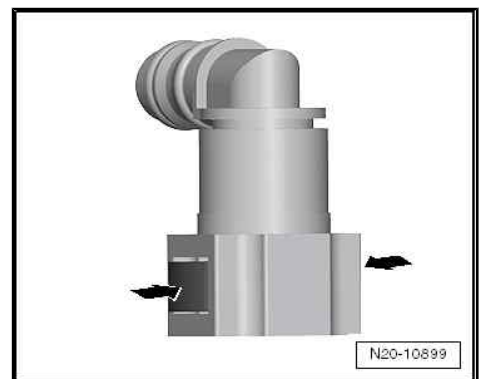
Plug-in connector with release buttons -arrows- on right and left

Open

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

Note colour assignment during installation => [page 29](#) .

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





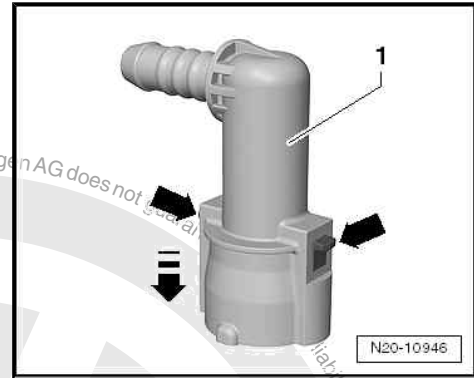
Version 6

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 29](#) .

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



Version 7

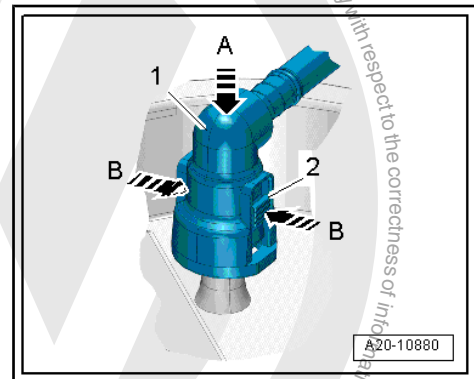
Plug-in connector -1- with release buttons -2- on right and left:
Open

- 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 29](#) .

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

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



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.



4 Fuel filter



Note

- ◆ *Fuel filter and pressure limiting valve are integrated in the fuel delivery unit and cannot be renewed individually.*
- ◆ *Renew fuel delivery unit*
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .





5 Activated charcoal filter system

⇒ [“5.1 Assembly overview – activated charcoal filter system”, page 34](#)

⇒ [“5.2 Checking fuel tank breather”, page 35](#)

⇒ [“5.3 Removing and installing activated charcoal filter”, page 42](#)

5.1 Assembly overview – activated charcoal filter system

1 - Activated charcoal filter

- ❑ Fitting location
⇒ [Item 8 \(page 5\)](#)

2 - Activated charcoal filter solenoid valve 1 - N80-

- ❑ Location: on intake manifold
- ❑ Valve closed with ignition switched off
- ❑ When engine is warm, valve is activated (pulsed) by engine control unit - J623- .

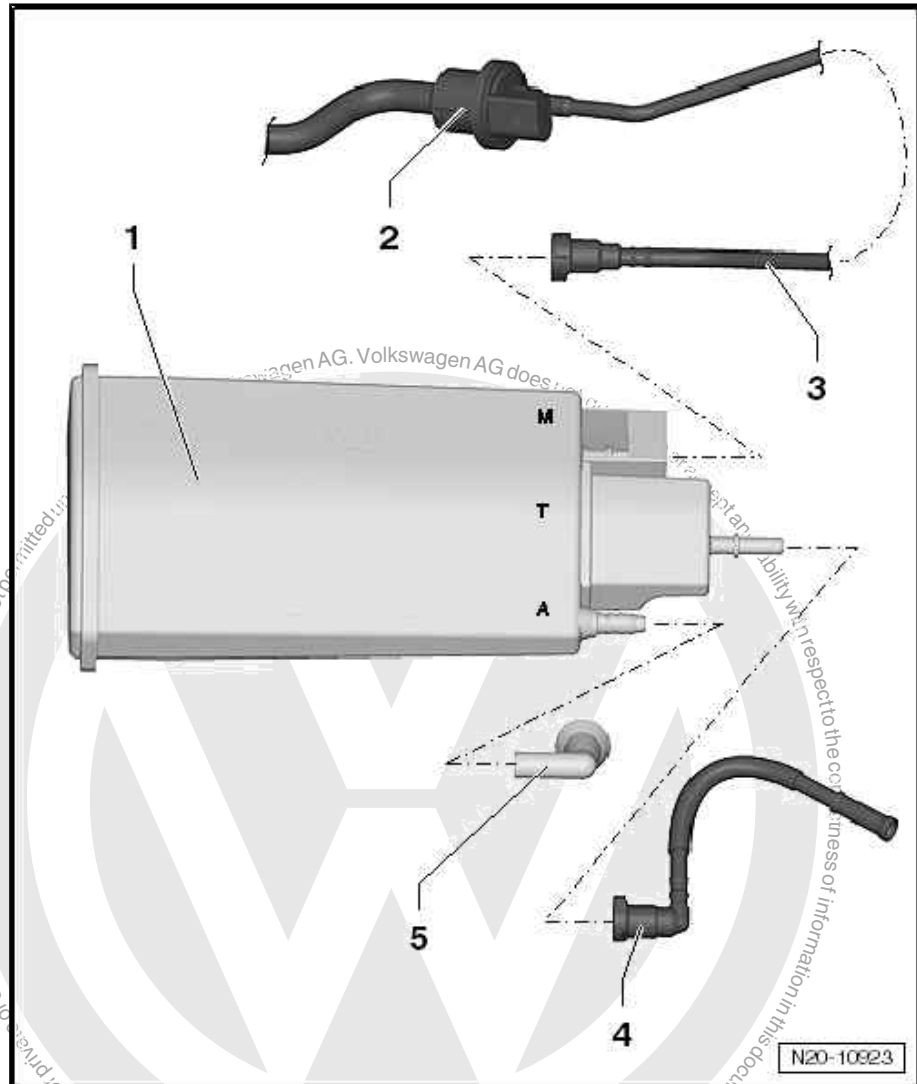
3 - Breather line

- ❑ To engine
- ❑ Ensure firm seating
- ❑ Between connecting point on underbody and fuel tank

4 - Connection hose

- ❑ To gravity valve on fuel tank
- ❑ Ensure firm seating

5 - Breather hose



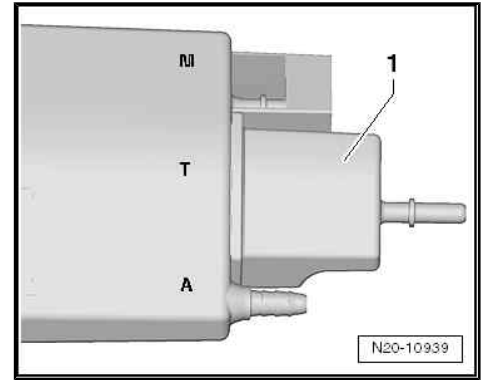


Connections on activated charcoal filter

M - Connection for breather line leading to engine
⇒ [Item 14 \(page 6\)](#)

T - Connection to gravity valve on fuel tank ⇒ [Item 4 \(page 34\)](#)

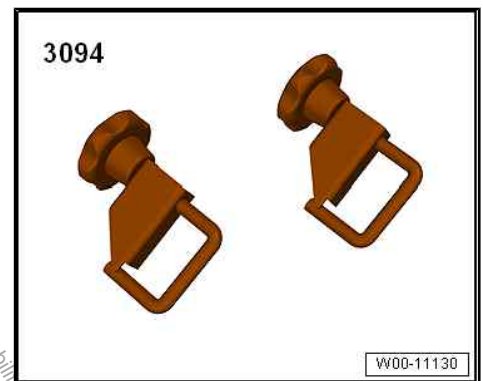
A - Breather connection ⇒ [Item 5 \(page 34\)](#)



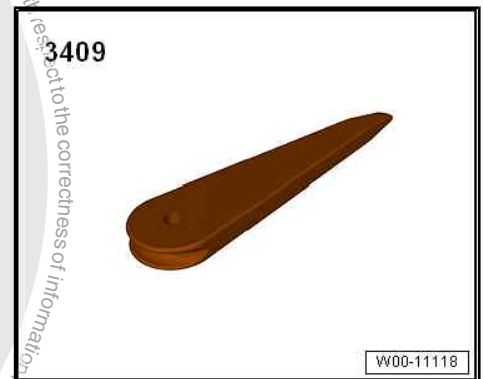
5.2 Checking fuel tank breather

Special tools and workshop equipment required

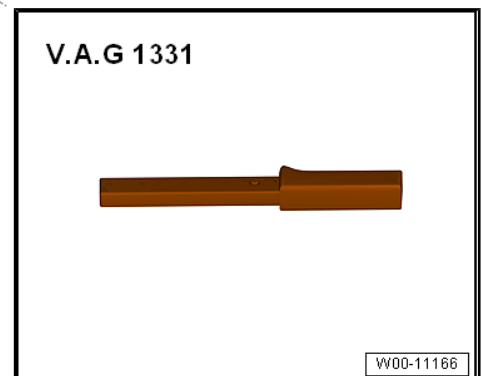
- ◆ Hose clamps to 25 mm - 3094-



- ◆ Removal wedge - 3409-

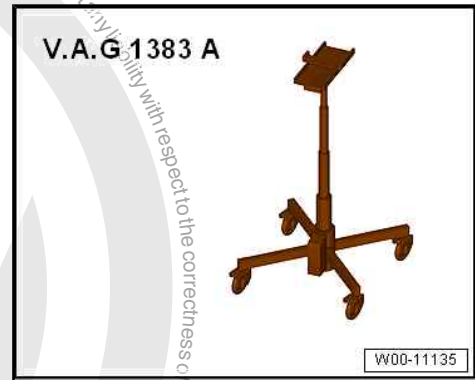


- ◆ Torque wrench - V.A.G 1331-

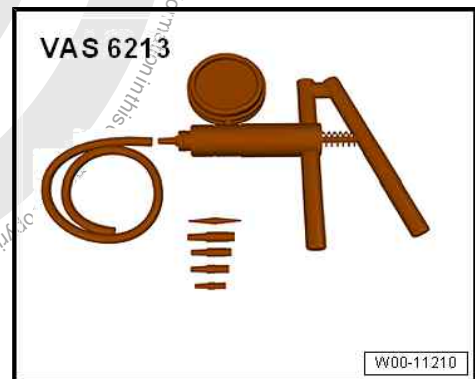




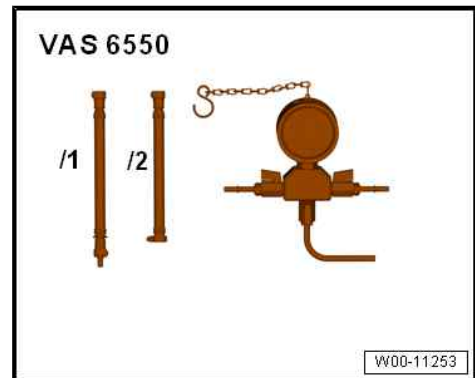
- ◆ Engine and gearbox jack - V.A.G 1383 A-



- ◆ Hand operated vacuum pump - VAS 6213-



- ◆ Pressure gauge - VAS 6550-



- ◆ Adapter set - VAS 6550/3-

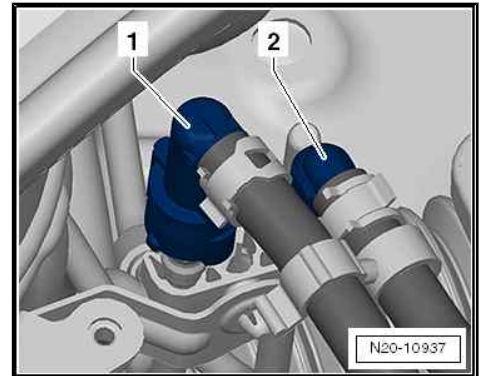
Test conditions

- Seal all open lines immediately after disconnecting.
- Note connections on activated charcoal filter ⇒ [page 35](#) .
- Ignition must be switched off.

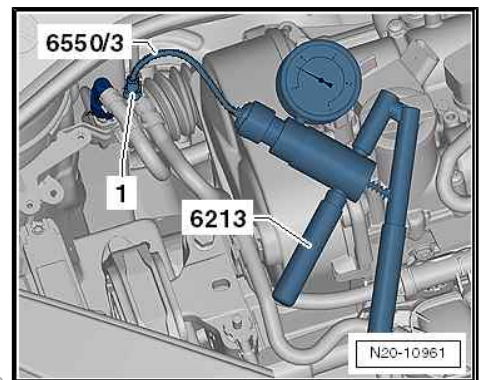


Test sequence

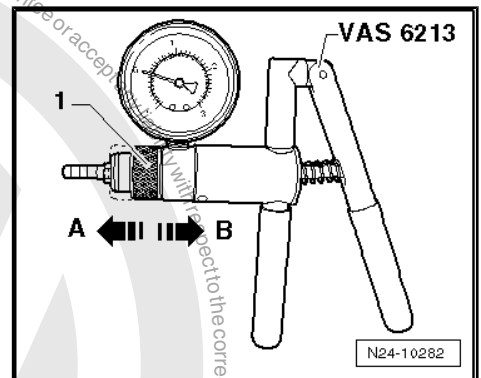
- Release and disconnect breather line -2- (white). Separate plug-in connectors
 ⇒ [“3.1 Separating plug-in connectors”, page 29](#) .



- Connect hand vacuum pump - VAS 6213- with adapter set - VAS 6550/3- to line -1- leading to activated charcoal filter.

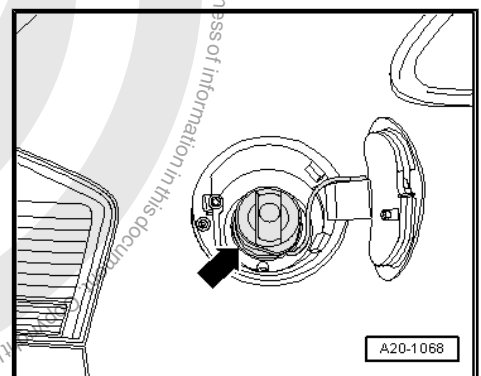


- Move slide ring -1- on hand vacuum pump - VAS 6213- to position -B- for “pressure”.
- Using hand-operated vacuum pump - VAS 6213- , build up pressure of approx. 0.1 bar. There must be no development of pressure.



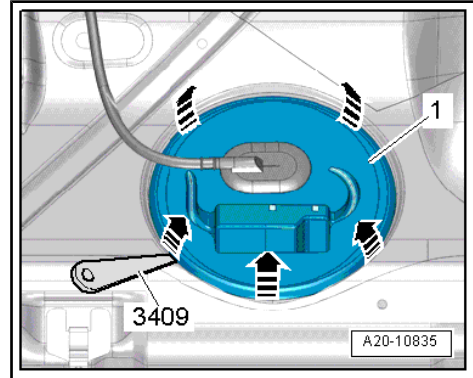
If pressure builds up:

- Open fuel tank flap.
- Remove cap -arrow- from fuel filler neck.
- Clean area around fuel filler neck.
- Drain fuel tank ⇒ [“1.2 Emptying fuel tank”, page 6](#) .
- Remove tank flap unit ⇒ 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 .

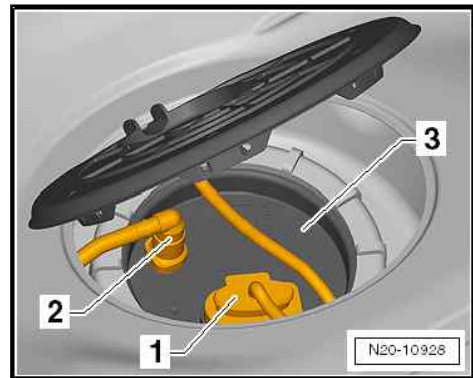




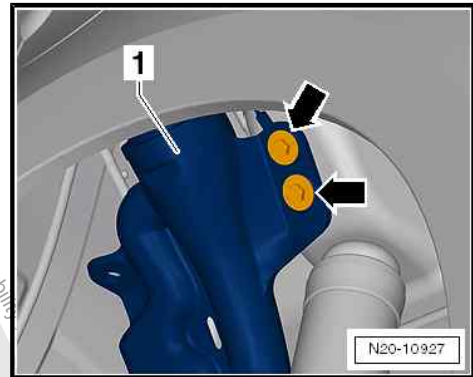
- Unclip cover -1- at retaining tabs -arrows- using removal wedge - 3409- .



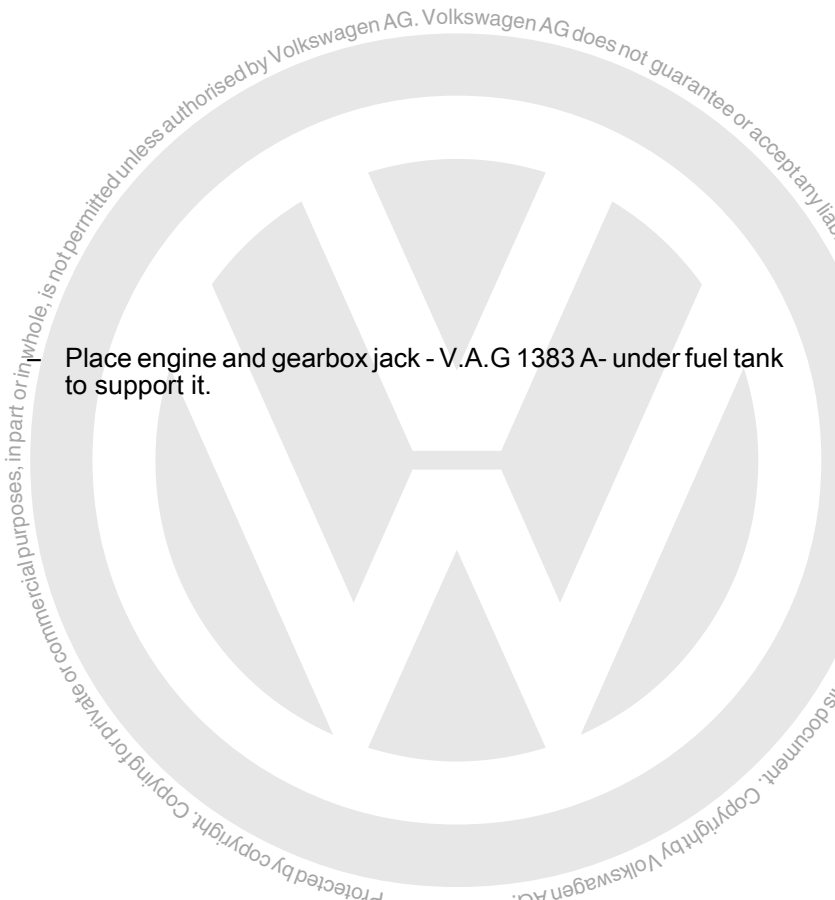
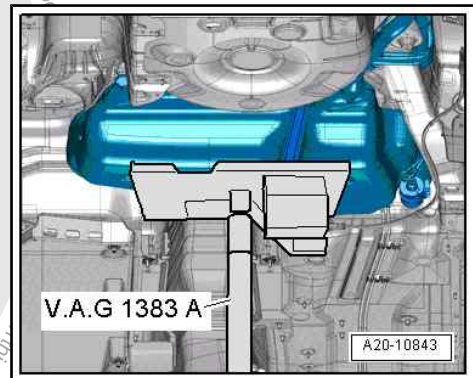
- Release connector -1- and pull off.
- Remove rear right wheel => Wheels, tyres, wheel alignment; Rep. gr. 44 ; Wheels, tyres; Wheel change .



- Unscrew bolts -arrows- of filler neck -1- from body structure.

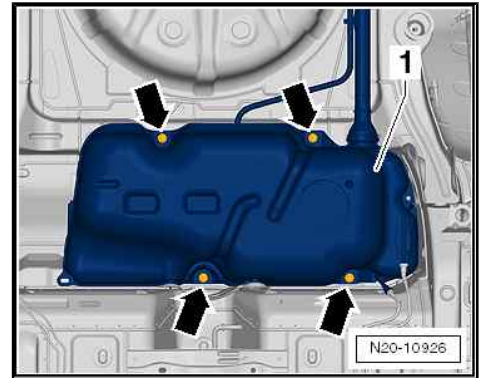


Place engine and gearbox jack - V.A.G 1383 A- under fuel tank to support it.



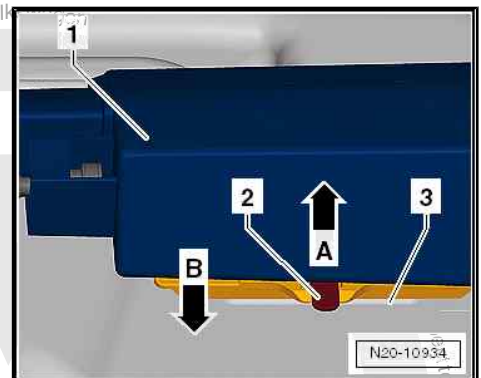


- Unscrew bolts -arrows- on fuel tank -1-.
- Lower fuel tank by 6 cm.
- Ensure that there is sufficient clearance to all components.
- Check breather hose => [Item 5 \(page 34\)](#) on activated charcoal canister for soiling and clean if necessary.
- Repeat test.

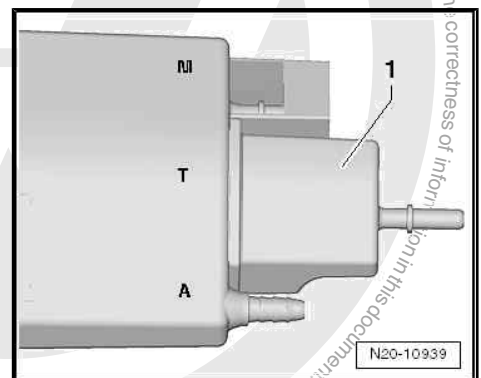


Check for leaks

- Loosen activated charcoal filter -1- from bracket -3-.
- Disengage locking lug -2- upwards in -direction of arrow A-.
- Pull activated charcoal filter -1- in -direction of arrow B- out of bracket -3-.



- Disconnect lines from connections -T- => [Item 4 \(page 34\)](#) and -A- => [Item 5 \(page 34\)](#) . Separate plug-in connectors => ["3.1 Separating plug-in connectors"](#), page 29 .

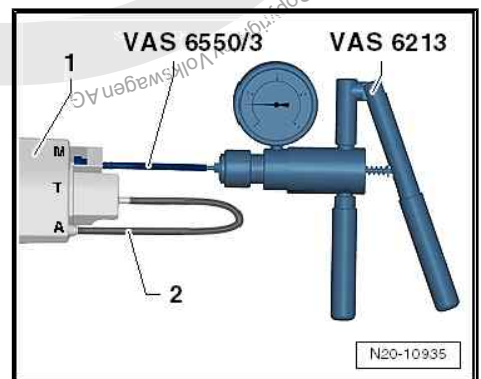


- Join connections -T- and -A- using a standard hose -2-, in order to seal connections.



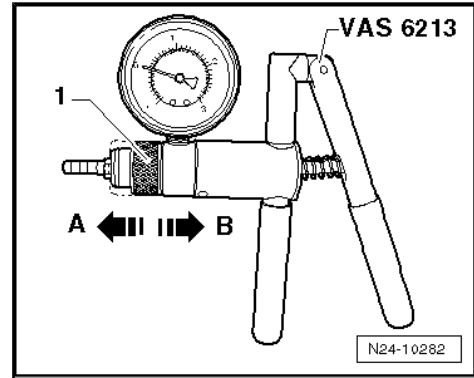
Note

Connection -T- can also be sealed with the sealing tool - T10249/2- . Connection -A- must then also be sealed using suitable means.





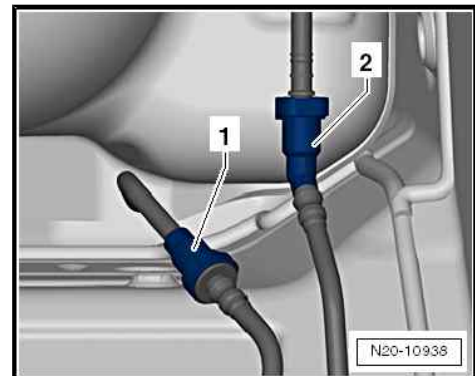
- Move slide ring -1- on hand vacuum pump - VAS 6213- to position -B- for "pressure".
- Using hand-operated vacuum pump - VAS 6213- , build up pressure of approx. 0.1 bar.



If pressure does not build up:

Proceed as follows to check activated charcoal filter system at connecting point on underbody:

- Disconnect line -1- (white) on underbody. Separate plug-in connectors ⇒ ["3.1 Separating plug-in connectors", page 29](#) .



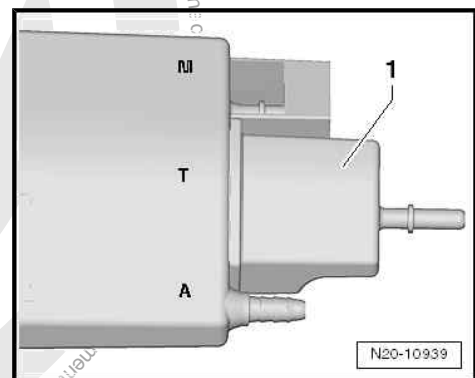
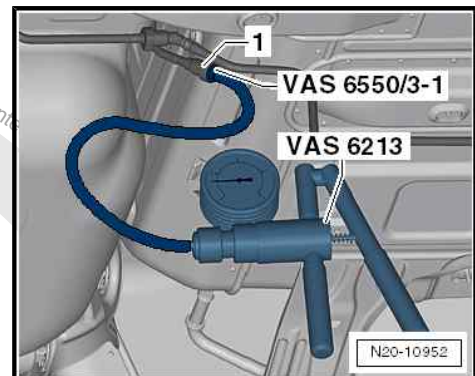
- Connect line to activated charcoal filter -1- with hand vacuum pump - VAS 6213- , adapter - VAS 6550/3-1- and a standard hose.
- Connections -A- and -T- are sealed by means of a standard hose ⇒ [page 39](#) .
- Operate hand vacuum pump - VAS 6213- several times. Build up pressure.

If vacuum builds up:

- Check line between connecting point in engine compartment and connecting point on underbody and renew, if necessary.

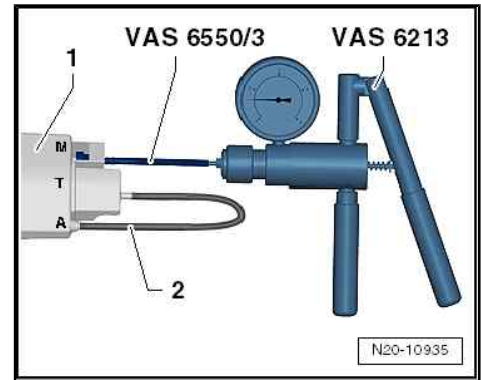
If vacuum does not build up:

- Disconnect line from connection -M- of activated charcoal filter. Separate plug-in connectors ⇒ ["3.1 Separating plug-in connectors", page 29](#) .





- Connect hand vacuum pump - VAS 6213- with adapter - VAS 6550/3- to connection -M- of activated charcoal filter -1-.
- Join connections -T- and -A- using a standard hose -2-, in order to seal connections.
- Operate hand vacuum pump - VAS 6213- several times. Pressure must build up.



If pressure builds up:

- Check line between connecting point -1- (white) on underbody and connection -M- on activated charcoal filter and renew, if necessary.

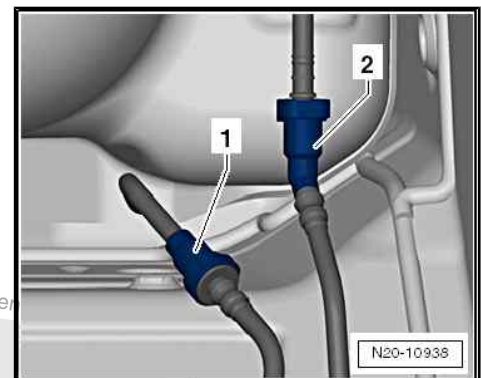
If pressure does not build up:

- Renew activated charcoal filter
 => ["5.3 Removing and installing activated charcoal filter", page 42](#).

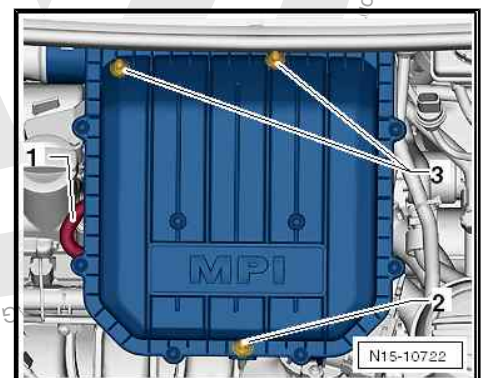
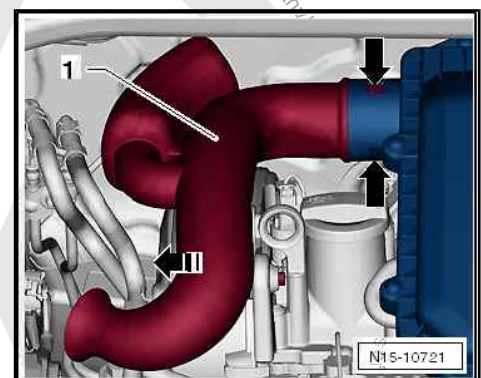
If pressure builds up and lines are OK, proceed as follows.

Check activated charcoal filter system solenoid valve 1 - N80- as follows:

- Ignition switched off
- Press locking lugs -arrows- and pull intake connection off -1- in -direction of arrow-.

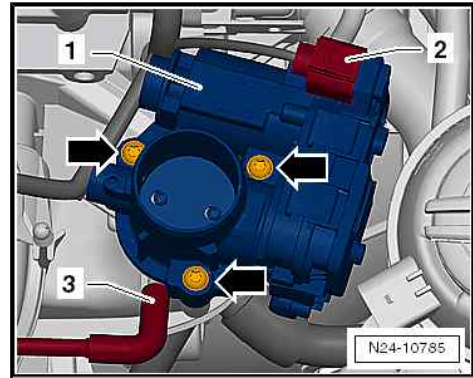


- Pull hose -1- off air filter housing.
- Pull air filter housing upwards off studs at positions -2- and -3-.





- Seal line -3- between activated charcoal filter solenoid valve 1 - N80- and throttle valve module - J338- .
- To do this, use hose clips up to 25 mm - 3094- .



- Disconnect bleeder line -2- (white). Separate plug-in connectors => ["3.1 Separating plug-in connectors", page 29](#) .
- Using a connecting nipple - VAS 6213- and a standard hose, connect hand vacuum pump - VAS 6550/3-1- to line leading to active charcoal filter system solenoid valve 1 - N80- .
- Operate hand vacuum pump - VAS 6213- several times. Pressure must build up.

If pressure does not build up:

- Check lines and renew, if necessary.

If pressure builds up:

- Check line between activated charcoal filter solenoid valve 1 - N80- and throttle valve module - J338- .

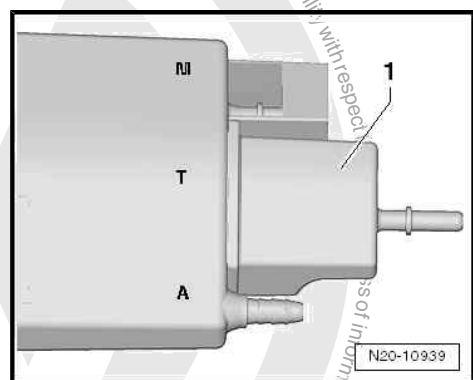
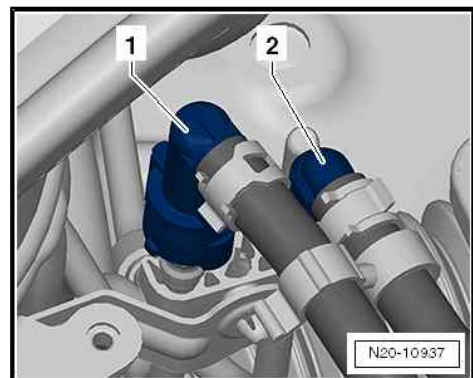
If no fault is found:

- Replace the activated charcoal filter system solenoid valve 1 - N80- .

Installing

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

- Install fuel tank
=> ["1.3 Removing and installing fuel tank", page 13](#) .
- ◆ Ensure that the filler neck of the fuel tank is correctly inserted into the opening in the body.
- ◆ Use engine and gearbox jack - V.A.G 1383 A- to position fuel tank on underbody.
- ◆ Ensure proper seating of activated charcoal filter in bracket on fuel tank.
- ◆ Install breather lines and fuel lines free of kinks.
- ◆ Ensure that line connections are tight.
- ◆ After installing fuel tank, check that supply and breather lines are still clipped onto fuel tank.
- ◆ Note the schematic diagram on activated charcoal filter.

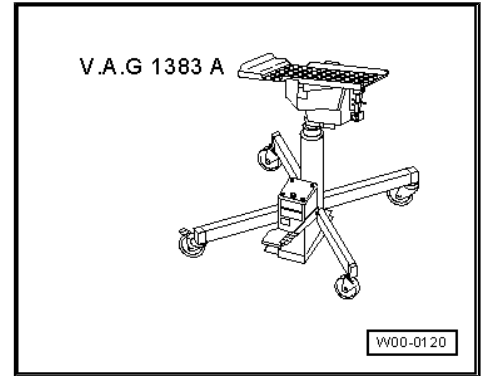


5.3 Removing and installing activated charcoal filter

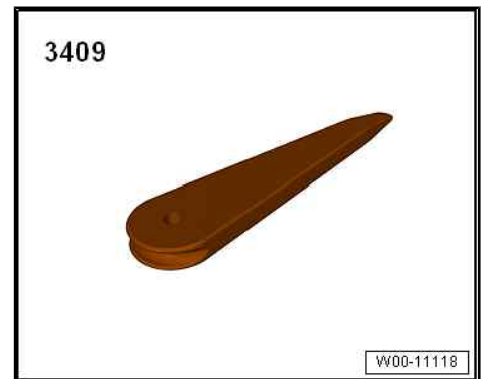
Special tools and workshop equipment required



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

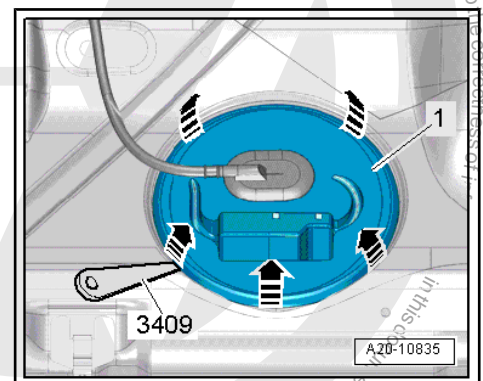
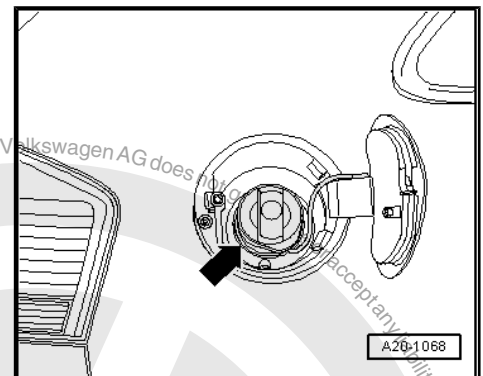


◆ Removal wedge - 3409-



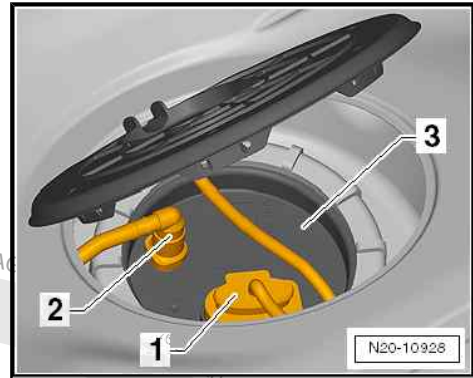
Removing

- Open fuel tank flap.
- Remove cap -arrow- from fuel filler neck.
- Clean area around fuel filler neck.
- Drain fuel tank ⇒ ["1.2 Emptying fuel tank", page 6](#).
- If fitted, 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 ⇒ 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 .
- Unclip cover -1- at retaining tabs -arrows- using removal wedge - 3409- .

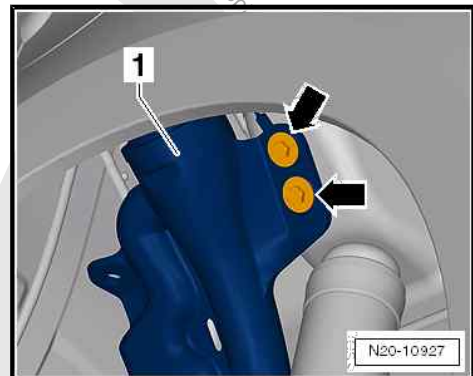




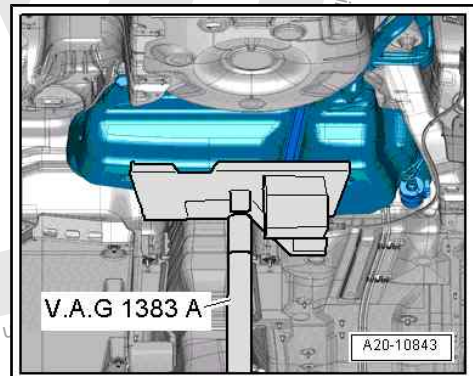
- Release connector -1- and pull off.
- Remove rear right wheel => Wheels, tyres, wheel alignment; Rep. gr. 44 ; Wheels, tyres; Wheel change .



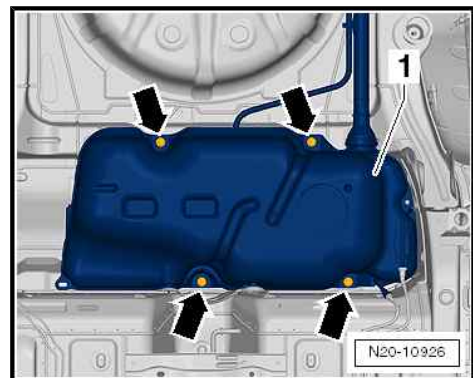
- Unscrew bolts -arrows- of filler neck -1- from body structure.



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

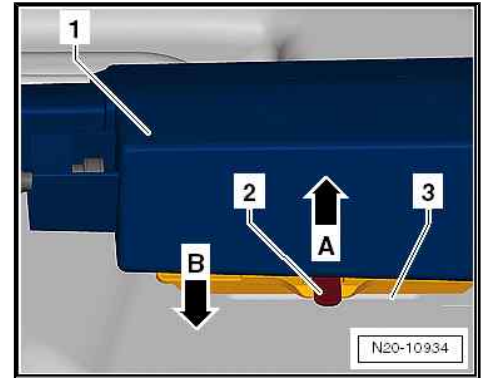


- Unscrew bolts -arrows- on fuel tank -1-.
- Lower fuel tank by 6 cm.
- Ensure that there is sufficient clearance to all components.





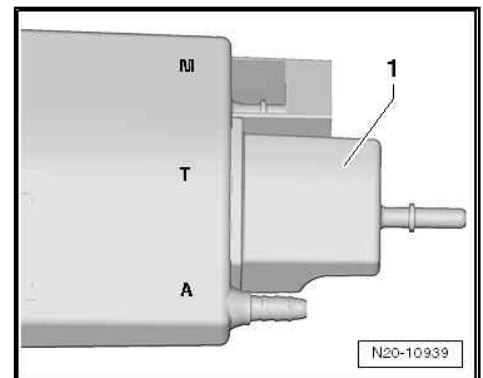
- Loosen activated charcoal filter -1- from bracket -3-.
- Disengage locking lug -2- upwards in -direction of arrow A-.
- Pull activated charcoal filter -1- in -direction of arrow B- out of bracket -3-.
- Unlock and disconnect lines from connections -M- and -T- of activated charcoal filter -1-. Separate plug-in connectors => [page 29](#) .



Installing

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

- ◆ Ensure that the filler neck of the fuel tank is correctly inserted into the opening in the body.
- ◆ Use engine and gearbox jack - V.A.G 1383 A- to position fuel tank on underbody.
- ◆ Ensure proper seating of activated charcoal filter in bracket on fuel tank.
- ◆ Install breather lines and fuel lines free of kinks.
- ◆ Ensure that line connections are tight.
- ◆ After installing fuel tank, check that supply and breather lines are still clipped onto fuel tank.
- ◆ Note the schematic diagram on activated charcoal filter.



M - Connection for breather line leading to engine

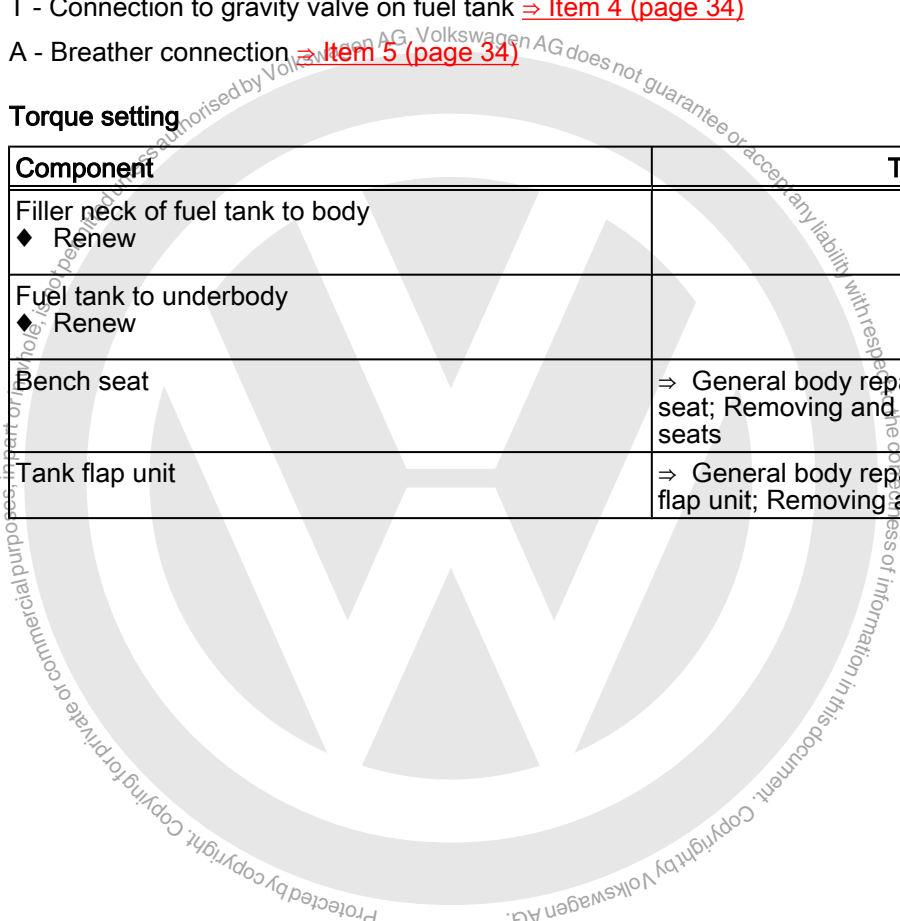
=> [Item 14 \(page 6\)](#)

T - Connection to gravity valve on fuel tank => [Item 4 \(page 34\)](#)

A - Breather connection => [Item 5 \(page 34\)](#)

Torque setting

Component	Torque setting
Filler neck of fuel tank to body ◆ Renew	8 Nm +90°
Fuel tank to underbody ◆ Renew	20 Nm +90°
Bench seat	=> General body repairs, interior; Rep. gr. 72 ; Rear seat; Removing and installing bench seat / individual seats
Tank flap unit	=> General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit .





6 Accelerator pedal

⇒ [“6.1 Assembly overview - accelerator module”, page 46](#)

⇒ [“6.2 Removing and installing accelerator pedal module GX2”, page 47](#)

6.1 Assembly overview - accelerator module

1 - Brake pedal

- ❑ Removing and installing
⇒ Brake system; Rep. gr. 46 ; Brake pedal

2 - Connector

- ❑ black

3 - Gas pedal module - GX2

- ❑ Includes

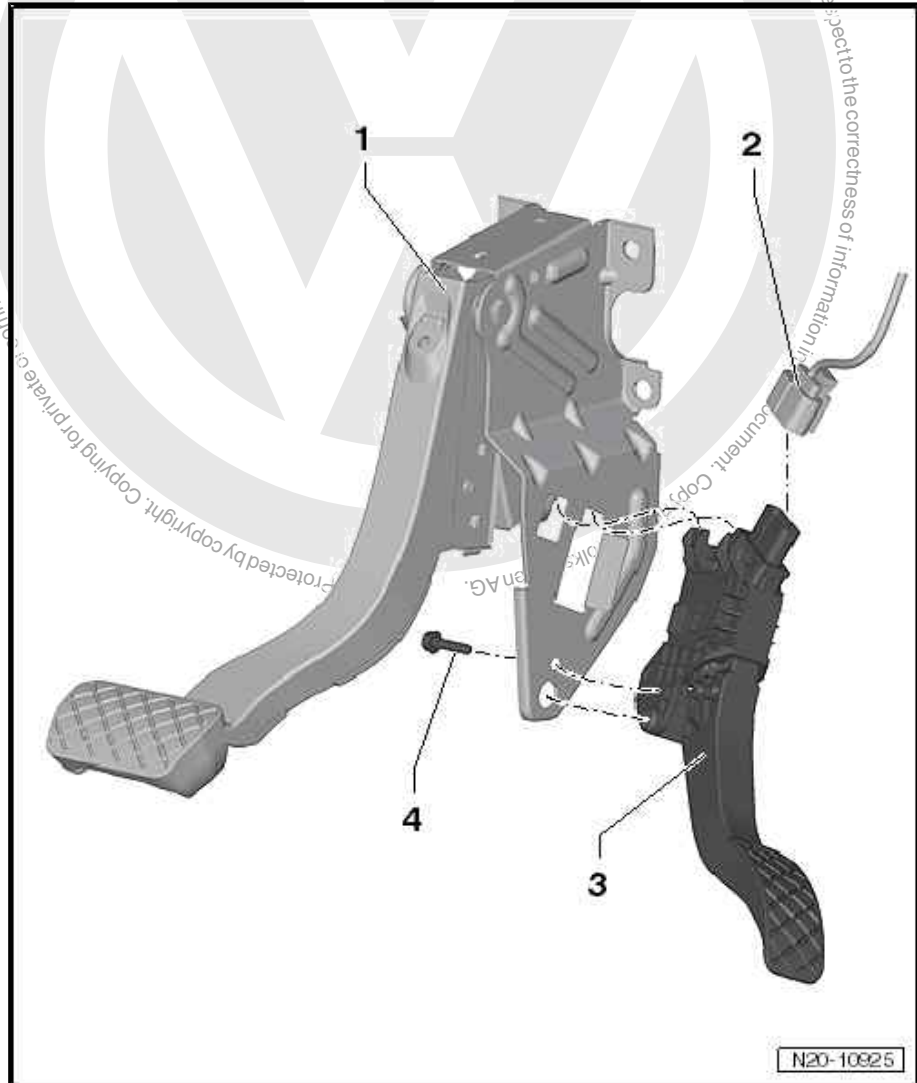
Acceleration pedal position sender - G79-

Accelerator position sender 2 - G185-

- ❑ Removing and installing accelerator pedal module
⇒ [“6.2 Removing and installing accelerator pedal module GX2”, page 47](#)

4 - Bolt

- ❑ 6 Nm

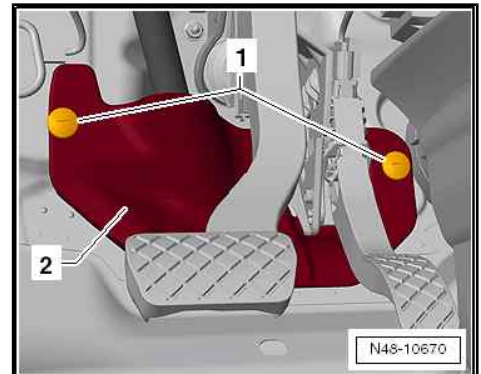




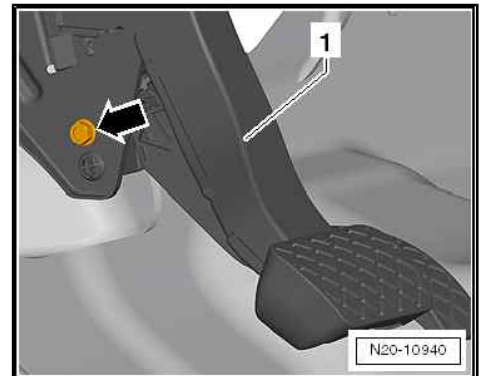
6.2 Removing and installing accelerator pedal module - GX2-

Removing

- Unscrew bolts -1- to remove steering column trim -2-.
- Release connector ⇒ [Item 2 \(page 46\)](#) and pull it off accelerator module.



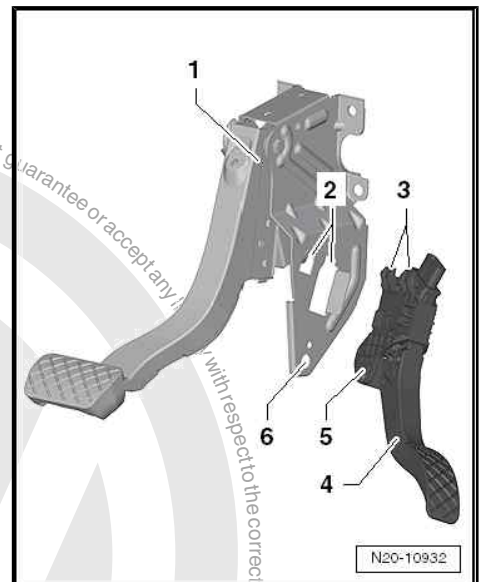
- Unscrew securing bolt -arrow- from brake pedal support.



- Pull accelerator module -4- downwards out of guides -2-.
- Remove accelerator module.

Installing

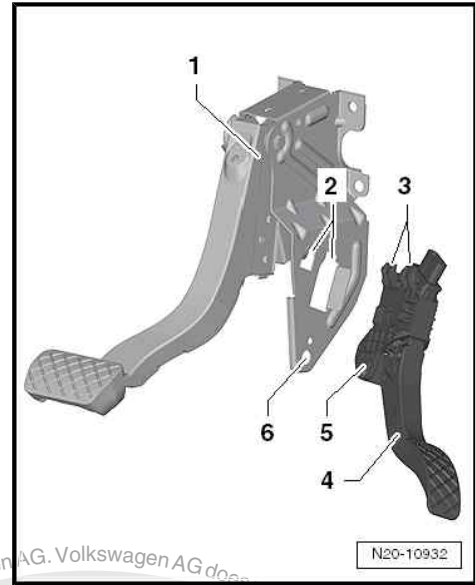
Install in reverse order of removal. The following should be observed:



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- Insert retaining lugs -3- of accelerator module -4- into guide -2- on brake pedal support -1-.
- Ensure that guide -5- of accelerator module -4- is properly seated in hole -6- on brake pedal support -1-.



Torque setting

Component	Torque setting
Accelerator	6 Nm



7 Fuel pump

⇒ [“7.1 Checking fuel system pressurisation pump G6”, page 49](#)

⇒ [“7.2 Removing and installing fuel pump control unit J538”, page 78](#)

7.1 Checking fuel system pressurisation pump - G6-

⇒ [“7.1.1 Checking function and voltage supply, engine codes CHYA, CHYB, DAFA, CHYE”, page 49](#)

⇒ [“7.1.2 Checking function and voltage supply, engine codes CHZA, DKRA, DKLC”, page 52](#)

⇒ [“7.1.3 Checking fuel pressure”, page 55](#)

⇒ [“7.1.4 Checking holding pressure”, page 60](#)

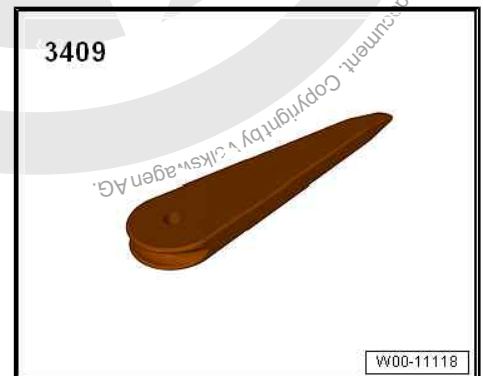
⇒ [“7.1.5 Checking fuel delivery rate”, page 67](#)

⇒ [“7.1.6 Checking current consumption”, page 76](#)

7.1.1 Checking function and voltage supply, engine codes CHYA, CHYB, DAFA, CHYE

Special tools and workshop equipment required

◆ Removal wedge - 3409-

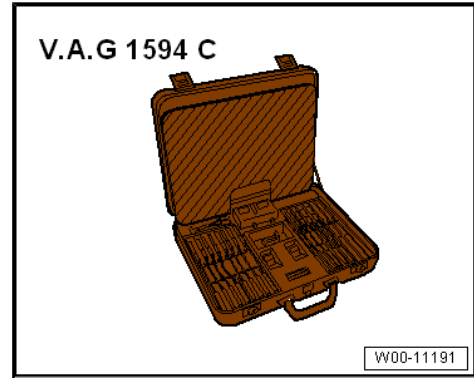


◆ Multimeter, e.g. hand-held multimeter - V.A.G 1526E-

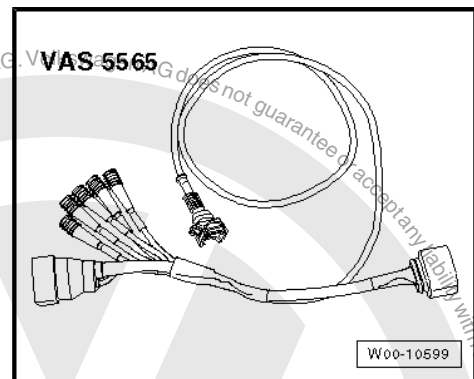




◆ Adapter set - V.A.G 1594C-



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



◆ Vehicle diagnostic tester

Test conditions:

- Battery voltage must be at least 11.5 V. If necessary, charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery .
- Fuse for fuel system pressurisation pump - G6- OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

Test sequence

i Note

Function of fuel pump is checked using final control diagnosis.

- Connect the vehicle diagnostic tester .
- Switch on ignition.
- Press one after the other in the display the buttons for Vehicle self-diagnosis, Engine electronics and Final control diagnosis.

The fuel pump must now start up.

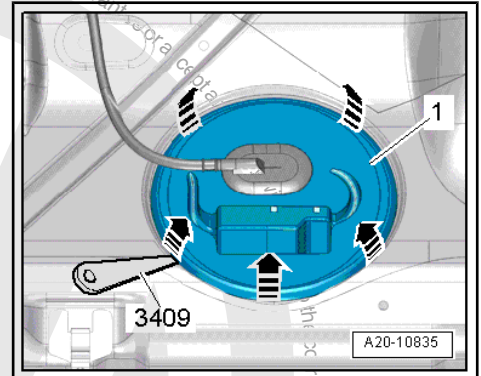
i Note

- ◆ *The fuel pump runs very quietly.*
- ◆ *If the final control diagnosis is to be carried out several times in succession, it may be necessary to start the engine briefly before repeating the final control diagnosis.*
- Switch off ignition.

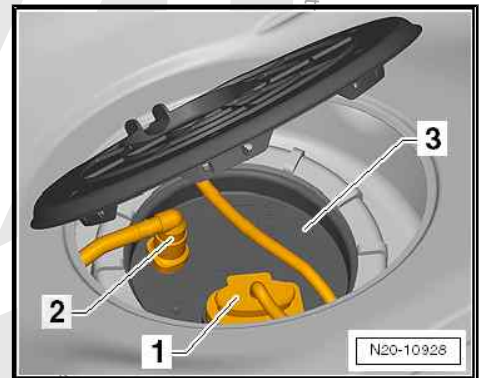


If fuel pump does not run:

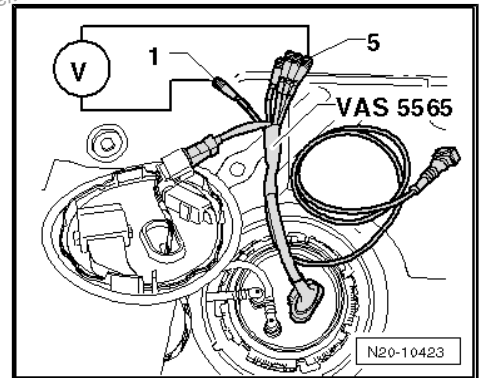
- Remove bench seat => General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat/individual seats .
- Unclip cover -1- at retaining tabs -arrows- using removal wedge - 3409- .



- Check that connector -1- is fitted securely by pulling connector without pressing catch. If connector was not inserted correctly, repeat functional check of fuel pump.
- Release connector -1- and pull off.
- Check contacts on connector and on fuel delivery unit -3- for damage.



- Test instrument adapter/DSO (5-pin) - VAS 5565- to connector and fuel delivery unit.
- Connect multimeter - V.A.G 1526D- to cables -1- and -5- of test instrument adapter/DSO (5-pin) - VAS 5565- .
- Initiate final control diagnosis again and measure voltage at fuel pump.
- Specification: approx. battery voltage.



Voltage supply not OK:

- Locate and eliminate open circuit referring to current flow diagram => Current flow diagrams, Electrical fault finding and Fitting locations.

Voltage supply OK:

⚠ CAUTION

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

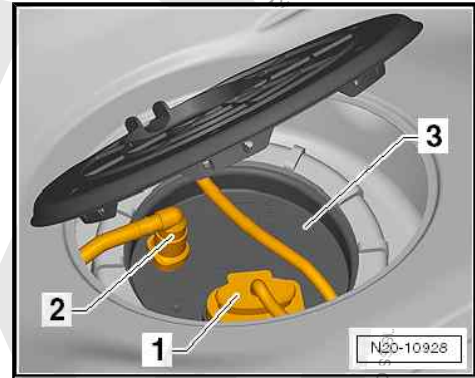
- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



- Disconnect fuel line -2- from fuel delivery unit -3-. Separate plug-in connectors
⇒ ["3.1 Separating plug-in connectors", page 29](#) .
- Release connector -1- and pull off.
- Open fuel delivery unit
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .
- Check that electrical wires between flange and fuel pump are connected.
- Check contacts for damage.

If no open circuits are found in wiring:

- Fuel pump is defective; renew fuel delivery unit
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .



7.1.2 Checking function and voltage supply, engine codes CHZA, DKRA, DKLC

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-

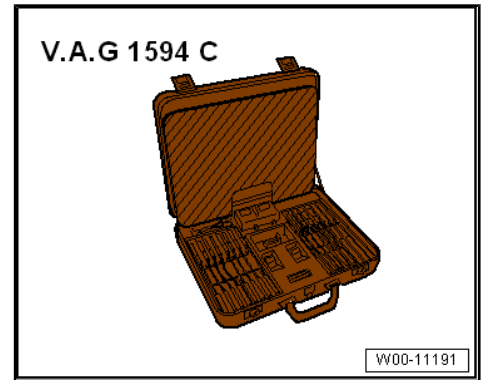


- ◆ Multimeter, e.g. hand-held multimeter - V.A.G 1526E-





- ◆ Adapter set - V.A.G 1594C-



- ◆ Vehicle diagnostic tester

Test conditions:

- Battery voltage must be at least 11.5 V. If necessary, charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery .
- Fuse for fuel pump control unit - J538- OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel pump control unit - J538- OK ⇒ Vehicle diagnostic tester.

Test sequence



Note

Function of fuel pump is checked using final control diagnosis.

- Connect ⇒ Vehicle diagnostic tester:
- Switch on ignition.
- Select final control diagnosis for fuel pump in vehicle self-diagnosis program.

The fuel pump must now run slowly up to maximum speed.



Note

- ◆ *The fuel pump runs very quietly.*
- ◆ *If the final control diagnosis is to be carried out several times in succession, it may be necessary to start the engine briefly before repeating the final control diagnosis.*
- Switch off ignition.

If fuel pump does not run:

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



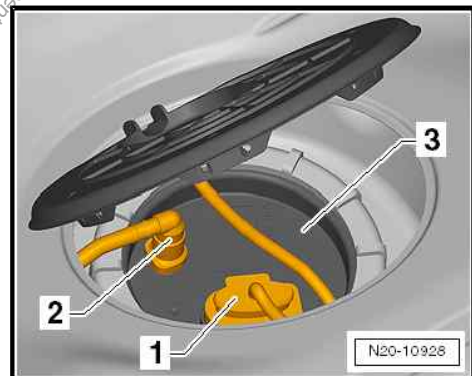
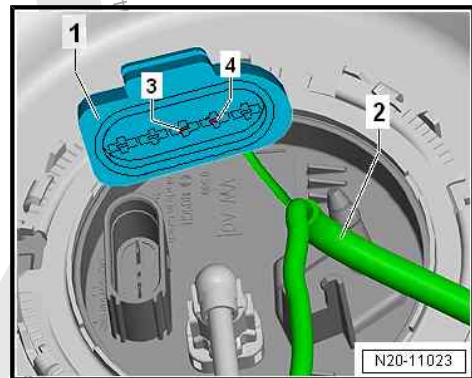
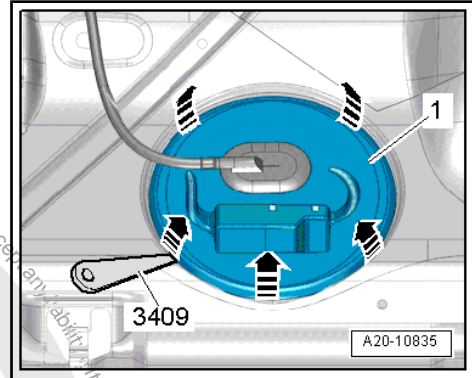
- Unclip cover -1- at retaining tabs -arrows- using removal wedge - 3409- .
- Remove fuel pump control unit - J538-
⇒ ["7.2 Removing and installing fuel pump control unit J538"](#),
[page 78](#) .
- Ensure that connector on fuel pump control unit - J538- is fitted
securely by pulling connector without pressing catch. If connector
was not inserted correctly, repeat functional check of
fuel pump.
- Release and pull off connector from fuel pump control unit -
J538- .
- Check contacts on connector and on fuel pump control unit -
J538- for damage.
- Check voltage supply between contacts -3- and -4- using mul-
timeter ⇒ Current flow diagrams, Electrical fault finding and
Fitting locations.
- Use auxiliary measuring set - V.A.G 1594C- to do this.
- Switch on ignition.
- Specification: approx. battery voltage

If specification is not obtained

- Locate and eliminate open circuit referring to current flow di-
agram ⇒ Current flow diagrams, Electrical fault finding and
Fitting locations.

Voltage supply OK:

- Check that connector -1- is fitted securely by pulling connector
without pressing catch. If connector was not inserted correctly,
repeat functional check of fuel pump.
- Release connector -1- and pull off.
- Check contacts on plug and on fuel delivery unit for damage.
- Check wiring harness between fuel pump control unit - J538-
and fuel delivery unit ⇒ Current flow diagrams, Electrical fault
finding and Fitting locations.
- Remove fuel delivery unit
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge
sender"](#), [page 22](#) .

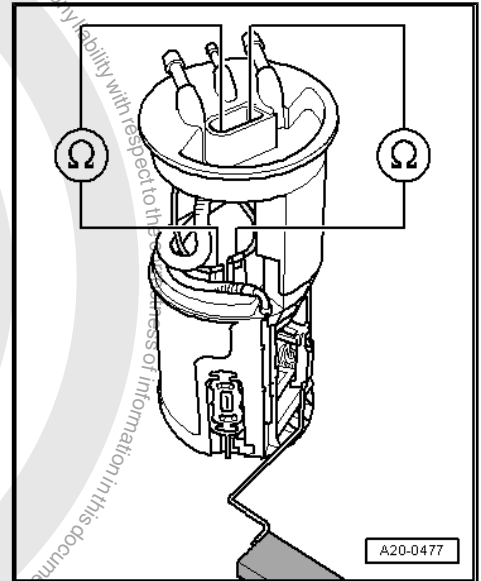




- Check that electrical wires between flange and fuel pump are connected.
- Check electrical wiring between flange and fuel pump for continuity using an ohmmeter.
- Check contacts for damage.

If no open circuits are found in wiring:

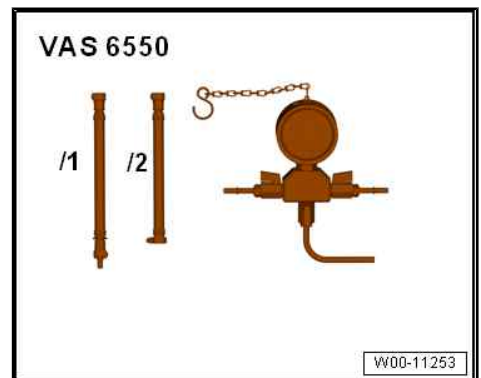
- Fuel pump is defective; renew fuel delivery unit
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .



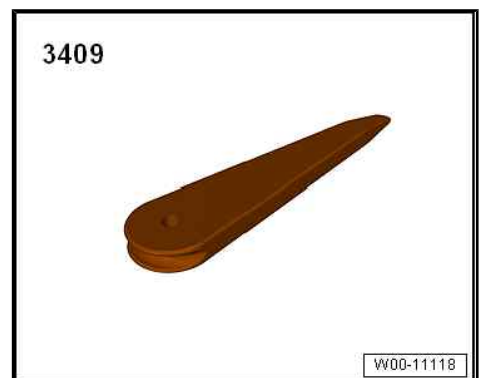
7.1.3 Checking fuel pressure

Special tools and workshop equipment required

- ◆ Pressure gauge - VAS 6550-



- ◆ Removal wedge - 3409-



- ◆ Vehicle diagnostic tester
- Battery charger connected.
- Battery voltage must be at least 11.5 V. If necessary, charge battery ⇒ [Electrical system; Rep. gr. 27 ; Battery; Charging battery](#) .
- Filling level in fuel tank above reserve.
- Voltage supply OK
⇒ ["7.1 Checking fuel system pressurisation pump G6 ", page 49](#) .



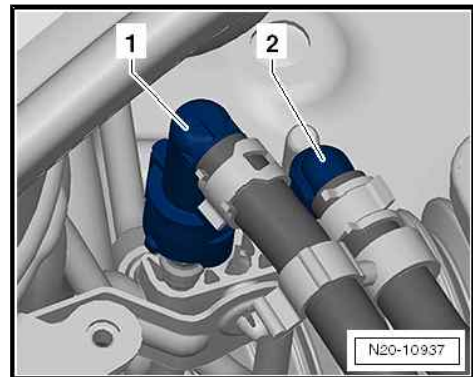
CAUTION

The fuel system is pressurised.

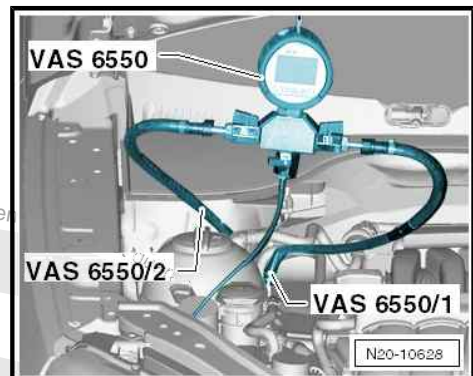
Danger of injury through fuel spray.

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

- Pull off supply line -1- (black). Collect escaping fuel with a cleaning cloth. Separate plug-in connectors
⇒ ["3.1 Separating plug-in connectors", page 29](#) .



- Connect pressure tester - VAS 6550- to fuel supply line with adapter - VAS 6550/1- and -VAS 6550/2- .
- Connect hose - VAS 6550/1- to engine fuel supply line and to shut-off tap -B-.
- Connect hose - VAS 6550/2- to connection -A- of pressure tester - VAS 6550- .
- Use hose - VAS 6550- to connect fuel line leading to fuel tank with pressure tester - VAS 6550/2- .



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.

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

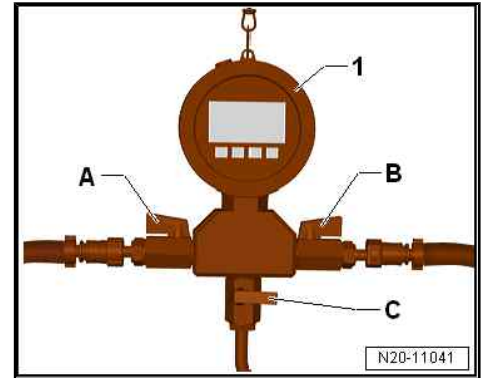


- Ensure that drain tap -C- on pressure tester - VAS 6550- -1- is closed.
- Shut-off taps -A- and -B- on pressure tester - VAS 6550- -1- must be open.
- Connect the vehicle diagnostic tester .

Vehicles with engine code CHYA, CHYB, CHYE, DAFA:

- Press following buttons on display one after the other:

- ◆ Vehicle self-diagnosis
- ◆ Engine electronics
- ◆ Final control diagnosis
- ◆ Electric fuel pump
- ◆
- ◆ Button



Note

The fuel pump is now actuated to build up fuel pressure.

- Read off fuel pressure on pressure gauge.
- Specification: 3.0...3.3 bar.

Vehicles with engine codes CHZA, DKRA, DKLC:

- Select final control diagnosis for fuel pump in vehicle self-diagnosis program.

Note

- ◆ *The fuel pump is now actuated to build up fuel pressure.*
- ◆ *If the final control diagnosis is to be carried out several times in succession, it may be necessary to start the engine briefly before repeating the final control diagnosis.*

- Read off fuel pressure on pressure gauge.
- Specification: 4.0 ... 7.0 bar

Continued for all vehicles:

If fuel pressure is OK, check holding pressure
⇒ ["7.1.4 Checking holding pressure", page 60](#) .

If the specification is exceeded:

- Pressure limiting valve in fuel delivery unit is defective.
- Renew fuel delivery unit
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .

If specification is not obtained

- Check fuel line for possible restrictions (kinks) or blockages.
- Check fuel line for leaks and damage.

If no fault is found:

Proceed as follows to check fuel pressure at connecting point on underbody:



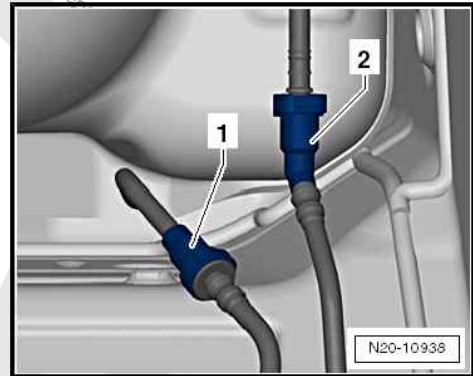
CAUTION

The fuel system is pressurised.

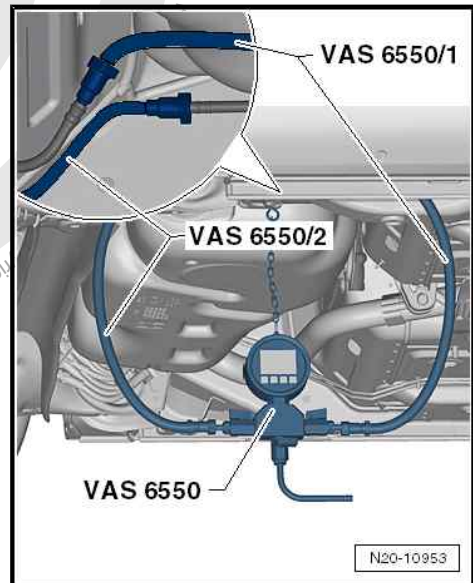
Danger of injury through fuel spray.

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

- Disconnect fuel supply line -2-. Separate plug-in connectors => "3.1 Separating plug-in connectors", page 29 .
- Collect escaping fuel with a cleaning cloth.



- Connect pressure tester - VAS 6550- with adapters - VAS 6550/1- and -VAS 6550/2- to plug-in connector of fuel supply line.
- Connect adapter - VAS 6550/1- to fuel line (leading to engine compartment) and to shut-off tap -B-.
- Connect hose -VAS 6550/2- to fuel line (leading to fuel tank) and to shut-off tap -A-.



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.

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



- Ensure that drain tap -C- on pressure tester - VAS 6550- -1- is closed.
- Shut-off taps -A- and -B- on pressure tester - VAS 6550- -1- must be open.
- Repeat **Final control diagnosis** to build up fuel pressure.

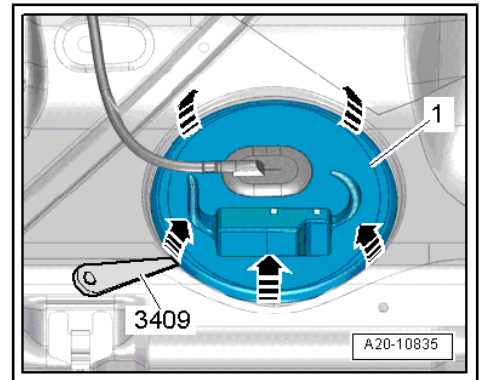
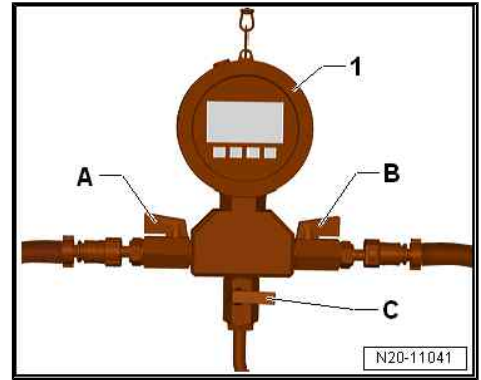
If reading matches specification:

- Fuel pump OK, check fuel line leading to engine compartment for possible restrictions (kinks) or blockages.
- Check fuel line for leaks and damage.

If specification is not obtained

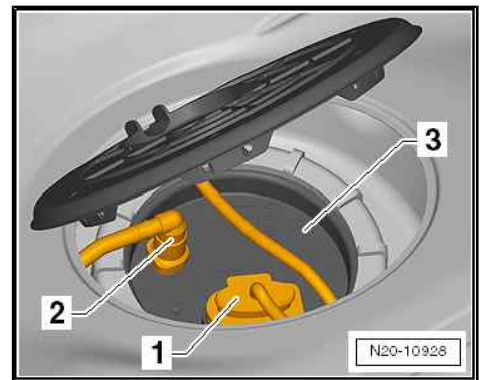
Proceed as follows to check fuel pressure at fuel delivery unit:

- Remove 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- .



- Check that connector -1- is fitted securely by pulling connector without pressing catch. If connector was not inserted correctly, repeat functional check of fuel pump.

CAUTION
<p>The fuel system is pressurised. Danger of injury through fuel spray.</p> <ul style="list-style-type: none"> - Wear protective goggles. - Wear protective gloves. - To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



- Disconnect fuel supply line -2- from fuel delivery unit. Separate plug-in connectors
 ⇒ ["3.1 Separating plug-in connectors", page 29](#) .



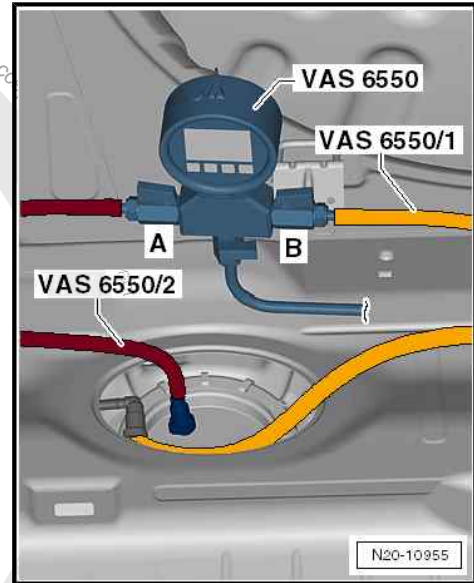
- Connect pressure tester - VAS 6550- with adapter - VAS 6550/1- and adapter - VAS 6550/2- between fuel supply line and fuel delivery unit.
- Connect hose - VAS 6550/1- between fuel line and shut-off tap -B-.
- Connect hose - VAS 6550/2- between fuel delivery unit and shut-off tap -A-.

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.



- Ensure that drain tap -C- on pressure tester - VAS 6550- -1- is closed.
- Shut-off taps -A- and -B- on pressure tester - VAS 6550- -1- must be open.
- Repeat **Final control diagnosis** to build up fuel pressure.

If reading matches specification:

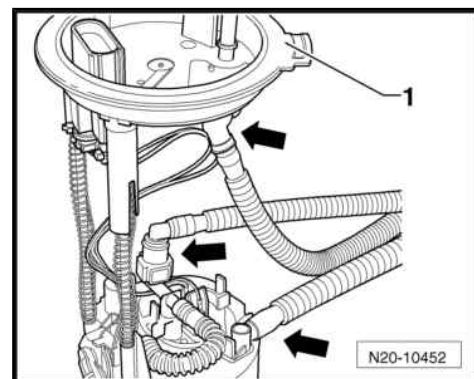
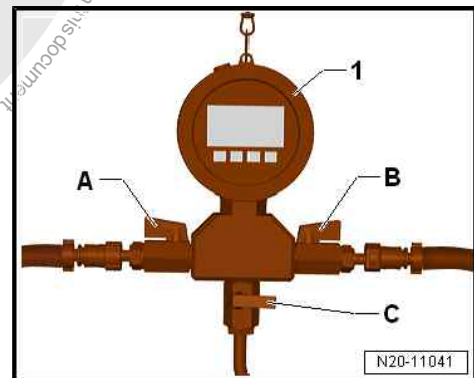
- Fuel pump OK, check fuel line leading to engine compartment for possible restrictions (kinks) or blockages.
- Check fuel line for leaks and damage.

If specification is not obtained

- Remove fuel delivery unit
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender"](#), page 22 and check for contamination.
- Check that all hose connections -arrows- are connected.

If no fault is found:

- Fuel pump is defective, renew fuel delivery unit
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender"](#), page 22 .

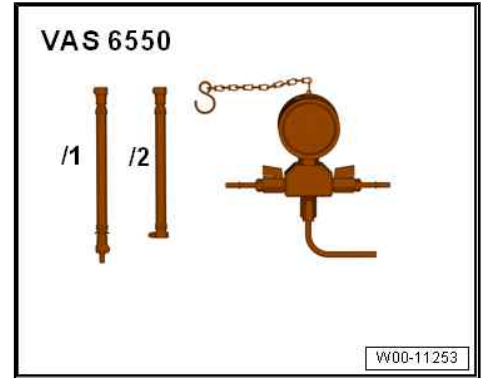


7.1.4 Checking holding pressure

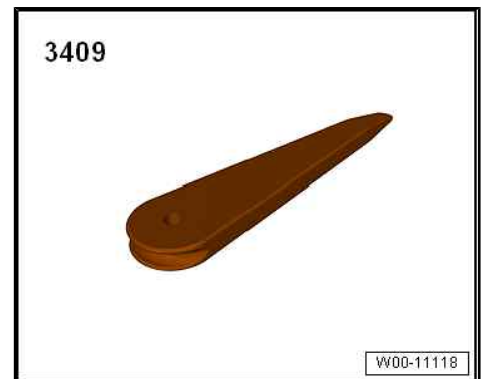
Special tools and workshop equipment required



◆ Pressure gauge - VAS 6550-



◆ Removal wedge - 3409-



◆ Vehicle diagnostic tester

Test conditions:

- Fuel pressure OK
⇒ ["7.1 Checking fuel system pressurisation pump G6", page 49](#) .
- Battery voltage must be at least 11.5 V. If necessary, charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery .
- Pull off supply line -1- (black). Collect escaping fuel with a cleaning cloth. Separate plug-in connectors
⇒ ["3.1 Separating plug-in connectors", page 29](#) .

CAUTION

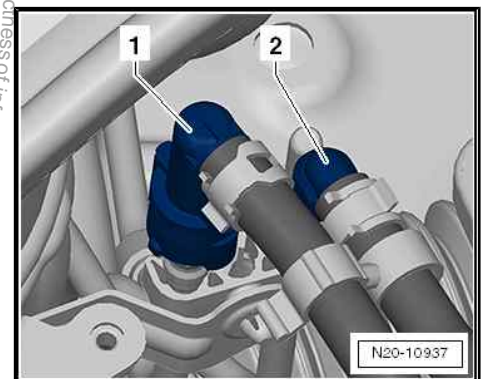
The fuel system is pressurised.

Danger of injury through fuel spray.

Wear protective goggles.

– Wear protective gloves.

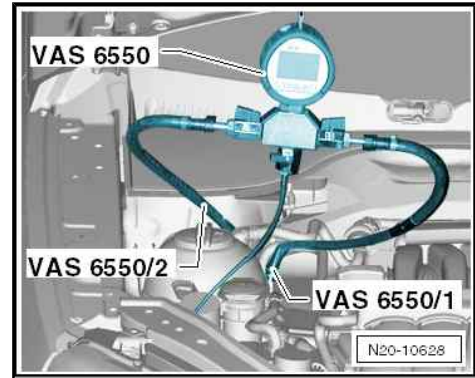
– To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



- Collect escaping fuel with a cleaning cloth.



- Connect pressure tester - VAS 6550- to fuel supply line with adapter - VAS 6550/1- and -VAS 6550/2- .
- Connect hose - VAS 6550/1- to fuel supply line leading to engine.
- Connect hose - VAS 6550/2- to connection -A- of pressure tester - VAS 6550- .
- Use hose - VAS 6550- to connect fuel line leading to fuel tank with pressure tester - VAS 6550/2- .



⚠ 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.**

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

Test sequence





- Ensure that drain tap -C- on pressure tester - VAS 6550- -1- is closed.
- Shut-off taps -A- and -B- on pressure tester - VAS 6550- -1- must be open.
- Connect the vehicle diagnostic tester .

Vehicles with engine code CHYA, CHYB, CHYE, DAFA:

- Press following buttons on display one after the other:

- ◆
- ◆
- ◆
- ◆
- ◆
- ◆



Note

The fuel pump is now actuated to build up fuel pressure.

- Read off fuel pressure on pressure gauge.
- Specification: 3.0...3.3 bar.

Vehicles with engine codes CHZA, DKRA, DKLC:

- Select final control diagnosis for fuel pump in vehicle self-diagnosis program.
- Read off fuel pressure on pressure gauge.
- Specification: 4.0 ... 7.0 bar

Continued for all vehicles:

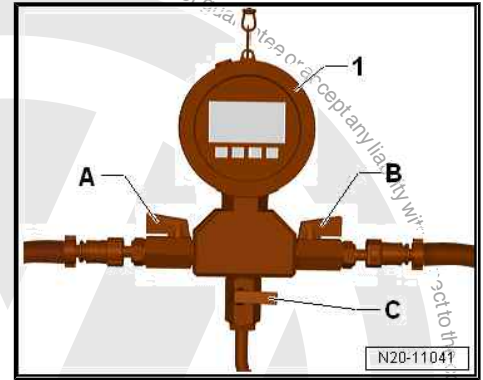


Note

- ◆ *The fuel pump is now actuated to build up fuel pressure.*
- ◆ *If the final control diagnosis is to be carried out several times in succession, it may be necessary to start the engine briefly before repeating the final control diagnosis.*
- Observe pressure drop on pressure gauge. After 10 minutes, the pressure must not drop by more than 1.0 bar.

If the pressure drops:

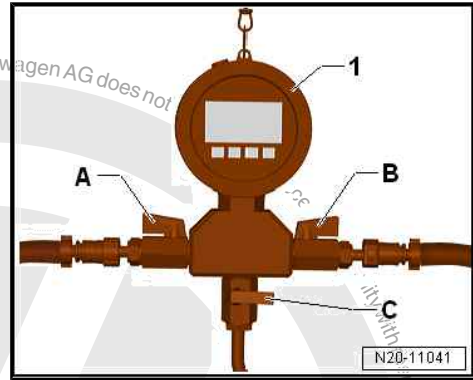
- Check all fuel lines for leaks and damage.





If no fault is detected:

- Ensure that drain tap -C- on pressure tester -1- is closed.
- Shut-off valves -A- and -B- on pressure tester -1- are open.
- Actuate fuel pump with final control diagnosis to build up fuel pressure.
- After pressure has built up, close shut-off tap -B- of pressure tester immediately. Lever is then at right angle to direction of flow.



If the pressure now drops (leak on fuel tank side):

Leak must be sought on fuel tank side; proceed as follows
⇒ [page 64](#) :

If the pressure does not drop now (leak on engine side):



Note

Search for leak on engine side. Repeat holding pressure check. This time, close shut-off tap -A- to check whether leak actually is on engine side.

If there is a leak on engine side:

- Check surfaces of fuel lines for leaks.
- Check surfaces of fuel rail and injectors for leaks ⇒ Rep. gr. 24 ; Injectors; Assembly overview - fuel rail with injectors .

If no fault can be determined, check the injectors for leaks:

- Remove spark plugs.
- Open shut-off valves -A- and -B-. Actuate fuel pump with final control diagnosis.
- Check through spark plug holes whether fuel has collected on piston crown due to a leaking injector.

If no fault is found:

- Check injectors for leaks ⇒ Rep. gr. 24 ; Injectors; Checking injectors .

Checking holding pressure on underbody:

Proceed as follows to check holding pressure at connecting point on underbody.

CAUTION

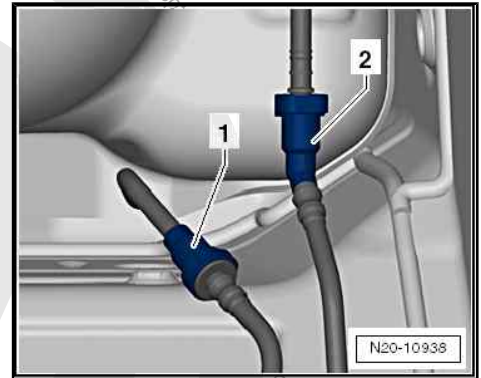
The fuel system is pressurised.

Danger of injury through fuel spray.

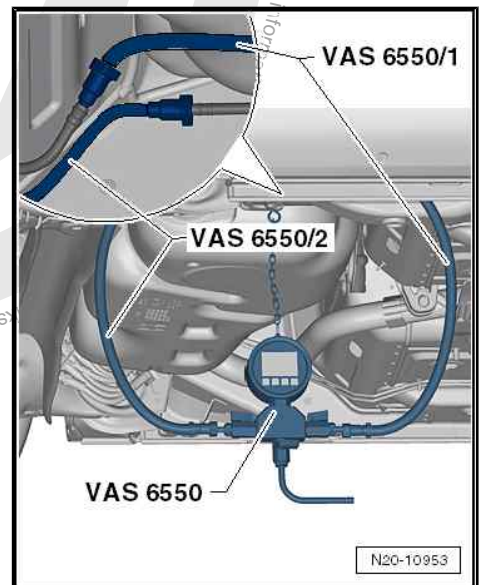
- Wear protective goggles.
- Wear protective gloves.
- To release pressure, wrap a clean cloth around the connection and carefully loosen the connection.



- Disconnect fuel supply line -2-. Separate plug-in connectors
 ⇒ ["3.1 Separating plug-in connectors", page 29](#) .



- Connect pressure tester - VAS 6550- with adapters - VAS 6550/1- and -VAS 6550/2- to plug-in connector of fuel supply line.
- Connect hose - VAS 6550/1- between fuel line to engine compartment and shut-off tap -B-.
- Connect hose - VAS 6550/2- between fuel line to fuel tank and shut-off tap -A-.



⚠ 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 drain tap is closed and cut-off taps are open.
- Actuate fuel pump with final control diagnosis to build up fuel pressure.
- After pressure has built up, close shut-off tap -B- of pressure tester immediately. Lever is then at right angle to direction of flow.

If the pressure does not drop now:

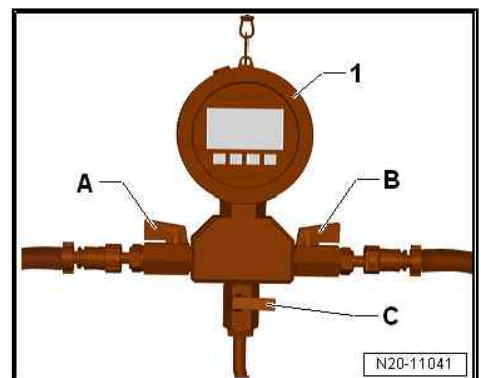
i Note

Check for leaks in the fuel line between connecting point on underbody and connecting point in the engine compartment.

If the pressure drops again:

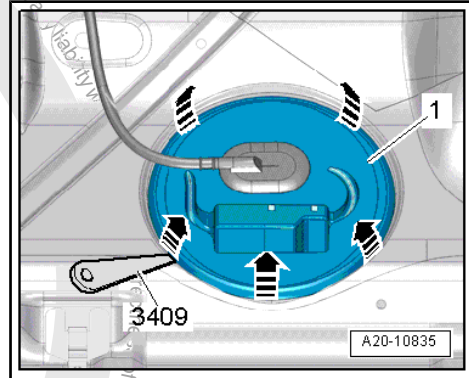
Proceed as follows to check holding pressure at fuel delivery unit:

- Remove 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- .

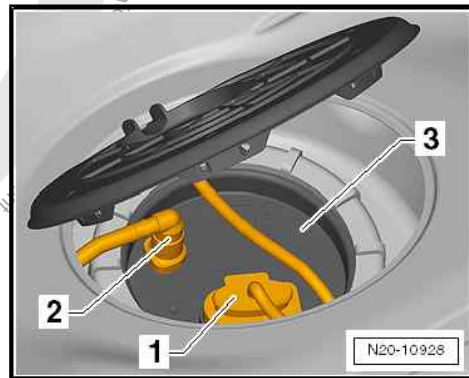


- Check that connector -1- is fitted securely by pulling connector without pressing catch. If connector was not inserted correctly, repeat functional check of fuel pump.

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.

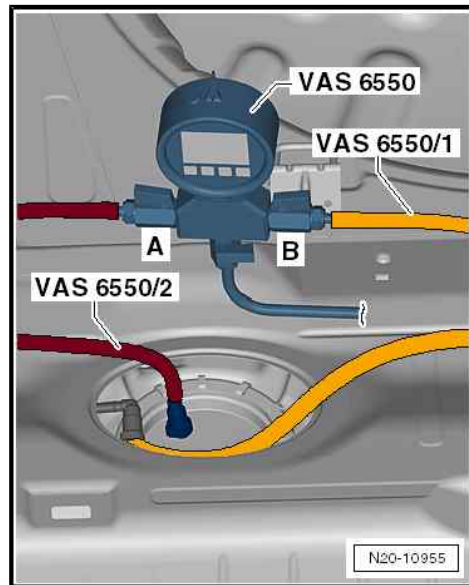


- Disconnect fuel supply line -2- from fuel delivery unit. Separate plug-in connectors
⇒ ["3.1 Separating plug-in connectors", page 29](#) .
- Connect pressure tester - VAS 6550- with adapter - VAS 6550/1- and -VAS 6550/2- between fuel supply line and fuel delivery unit.
- Connect hose - VAS 6550/1- between fuel line and shut-off tap -B-.
- Connect hose - VAS 6550/2- between fuel delivery unit and shut-off tap -A-.

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.





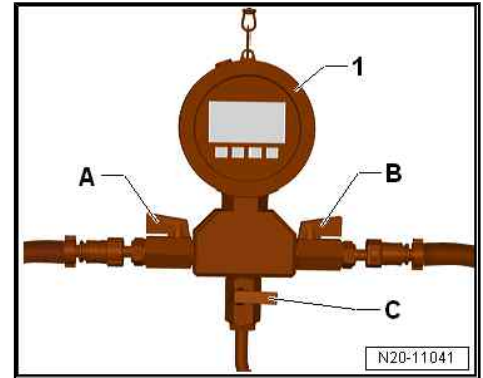
- Make sure that drain tap -C- is closed and cut-off taps -A- and -B- are open.
- Actuate fuel pump with final control diagnosis to build up fuel pressure.
- After pressure has built up, close shut-off tap -B- of pressure tester immediately. Lever is then at right angle to direction of flow.

If the pressure does not drop now:



Note

Check for leaks in the fuel line between coupling point on the underbody and the fuel delivery unit.

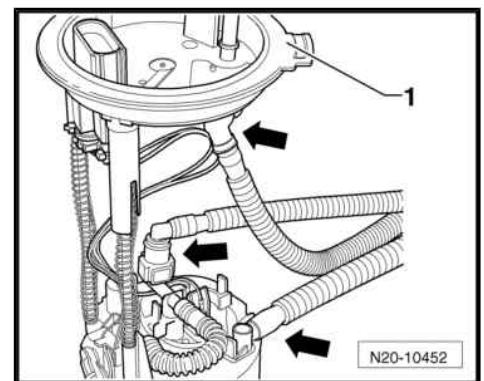


If the pressure drops again:

- Remove fuel delivery unit
 => ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .
- Check that all hose connections -arrows- are connected.
- Check fuel lines for leaks and damage.

If no fault is found:

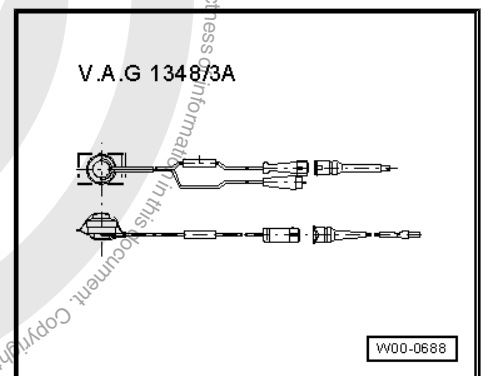
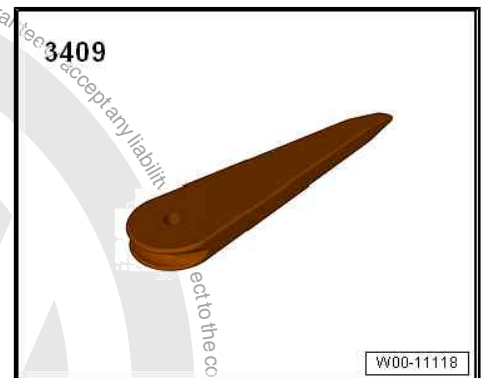
- Renew fuel delivery unit
 => ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .



7.1.5 Checking fuel delivery rate

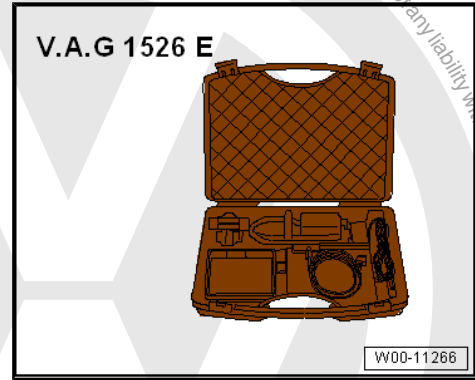
Special tools and workshop equipment required

- ◆ Removal wedge - 3409
- ◆ Remote control for V.A.G 1348 - V.A.G 1348/3A-

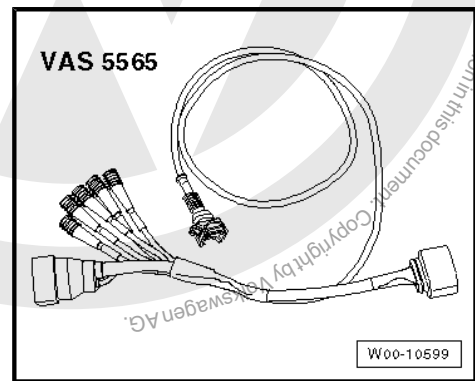




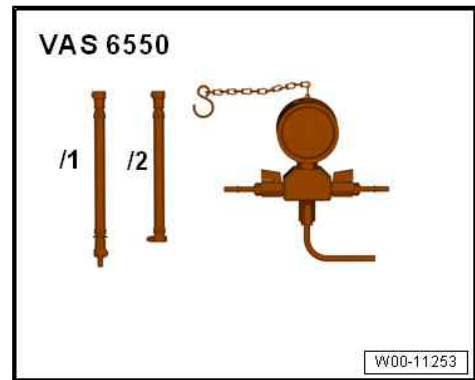
- ◆ Multimeter, e.g. hand-held multimeter - V.A.G 1526E-



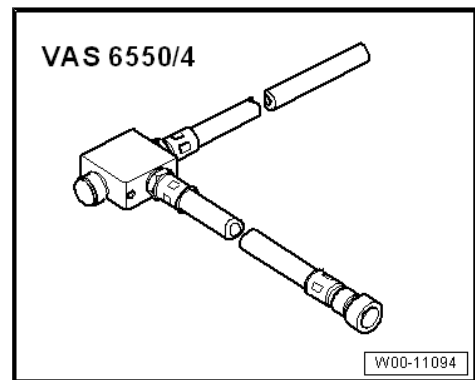
- ◆ Test instrument adapter/DSO (5-pin) - VAS 5565-



- ◆ Pressure gauge - VAS 6550-

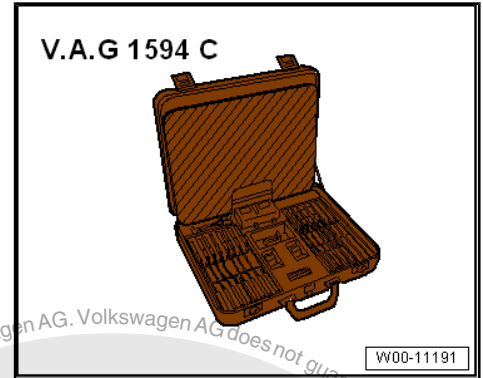


- ◆ Pressure regulating valve - VAS 6550/4-





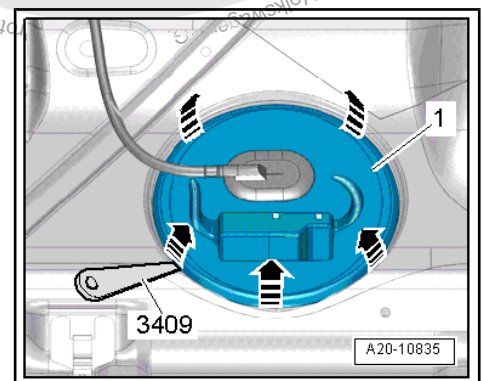
- ◆ Adapter set - V.A.G 1594C-



- ◆ Vehicle diagnostic tester
- ◆ Measuring container, min. 3 l

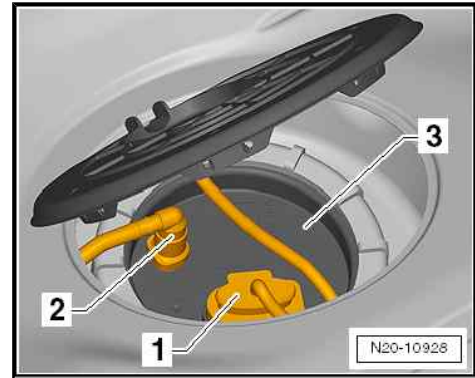
i Note

- ◆ *Separate plug-in connectors*
⇒ ["3.1 Separating plug-in connectors" page 29](#) .
- ◆ *When driving characteristic problems occur when the fuel tank is a approx. 1/4 filled, then check fuel delivery rates with approx. 1/4 filled tank or less.*
- Battery voltage must be at least 11.5 V. If necessary, connect battery charger ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery .
- Fuel pump control unit - J538- OK ⇒ Vehicle diagnostic tester.
- Filling level in fuel tank above reserve.
- Fuel pressure OK
⇒ ["7.1.3 Checking fuel pressure", page 55](#) .
- Remove 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- .





- Check that connector -1- is fitted securely by pulling connector without pressing catch. If connector was not inserted correctly, repeat functional check of fuel pump.
- Release connector -1- and pull off.
- Check contacts on plug and on fuel delivery unit for damage.



- Connect test instrument adapter/DSO (5-pin) - VAS 5565- to fuel delivery unit -1-.
- Connect remote control - V.A.G 1348/3A- to adapter - VAS 5565- and to battery positive terminal in engine compartment.
- Connect connection -5- (yellow) of adapter - VAS 5565- to battery negative terminal using suitable workshop equipment -3-.
- Also use auxiliary measuring set - V.A.G 1594C- for this purpose.



Note

This step serves only to have the fuel pump running when the engine is stopped.

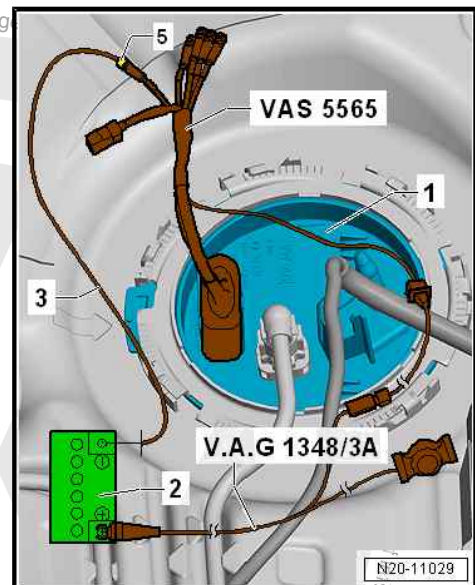
Continued for all vehicles:

CAUTION

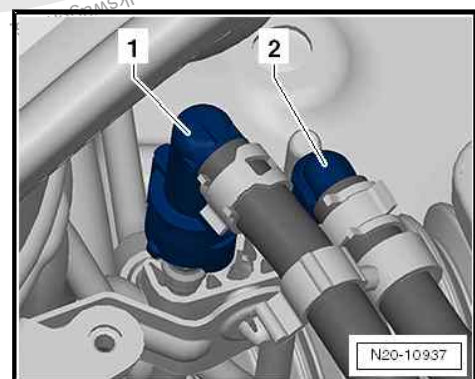
The fuel system is pressurised.

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.

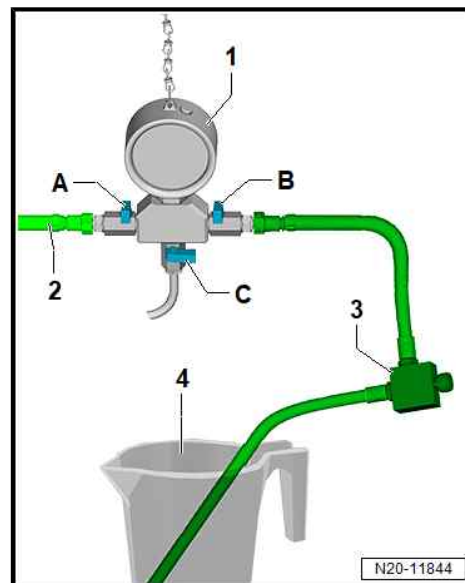


- Pull off supply line -1- (black). Collect escaping fuel with a cleaning cloth. Separate plug-in connectors => "3.1 Separating plug-in connectors", page 29 .
- Using hose - VAS 6550- , connect pressure tester - VAS 6550/2- to fuel supply line coming from fuel tank.





- Connect hose - VAS 6550/2- to connection -A- of pressure tester - VAS 6550- -1-.
- Connect pressure regulator valve - VAS 6550/4- -3- to connection -B- of pressure tester - VAS 6550- .
- Place measuring container down outside vehicle and ensure that its base is secure. Use suitable workshop equipment to do this.
- Hold end of hose of pressure regulating valve in measuring container. Have a second mechanic hold the measuring container and hose.
- Have a second mechanic ensure that end of hose remains in measuring container during test.



CAUTION

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

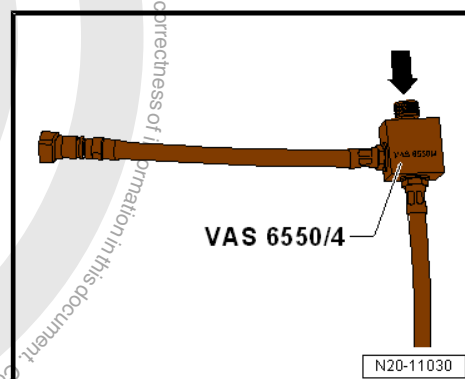
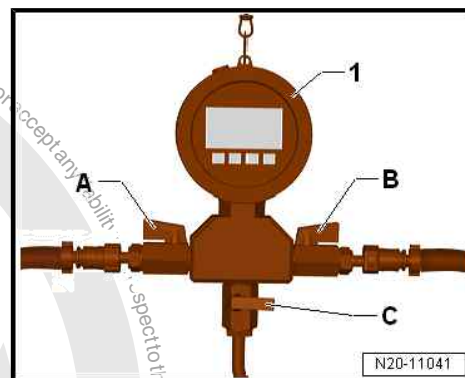
- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.
- Place measuring container down outside vehicle and ensure that its base is secure.
- Have a second mechanic ensure that end of hose remains in measuring container during test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

- Ensure that drain tap -C- on pressure tester -1- is closed.
- Shut-off valves -A- and -B- on pressure tester -1- are open.
- Press remote control - V.A.G 1348/3A- .

Note

The fuel system pressurisation pump - G6- will be actuated.

- Set counter pressure on pressure regulating valve -arrow- using adjuster wheel.



Engine code	Counter pressure
CHYA, CHYB, CHYE, DAFA	3.0 bar
CHZA, DKRA, DKLC	4.0 bar



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.

- Hold container in front of open connection of pressure tester - VAS 6550- .
- From this point on do not change position of adjuster wheel any more.
- Drain measuring container.
- The quantity delivered by the fuel pump depends on the battery voltage. Therefore, also connect multimeter - V.A.G 1715- to outputs -1- and -5- of test instrument/DSO adapter 5-pin - VAS 5565- .

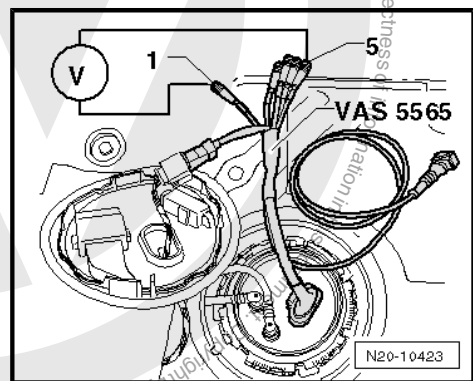
Vehicles with engine code CHYA, CHYB, CHYE, DAFA:

- Operate remote control for 60 seconds, whilst measuring voltage at fuel pump.
- Compare delivered quantity of fuel with specification.

Minimum delivery $\text{cm}^3/60$ seconds

Voltage at fuel pump with engine stopped and pump running is 12 V.

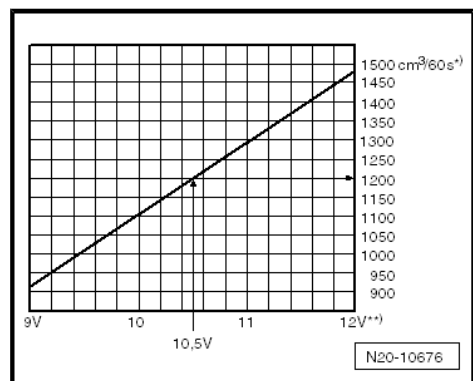
Specification: approx. $1050 \text{ cm}^3/60 \text{ s}$.



Vehicles with engine codes CHZA, DKRA, DKLC:

- Press remote control for 60 seconds whilst measuring voltage at fuel pump.
- Compare delivered quantity of fuel with specification indicated in chart.

Name of axis	Unit
Minimum delivery rate	cm^3
Voltage at fuel pump with engine not running and pump running.	Volt



Reading example:

During the test a voltage of 10.5 volts is measured. This equates to a minimum delivery rate of approx. 1200 cm^3 in 60 seconds.

If specification is not obtained

- Open fuel tank flap.



- Remove cap -arrow- from fuel filler neck.
- Repeat delivery rate check.
- If fuel delivery rate is now reached, check fuel tank breather
 => ["5.2 Checking fuel tank breather", page 35](#) .

If specification is not obtained

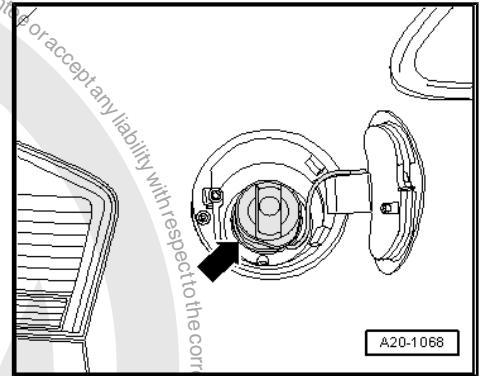
- Check fuel lines for possible restrictions (kinks) or blockages.
- Check fuel lines for leaks and damage.

If no fault is found:

Check fuel delivery rate at connecting point on underbody as follows:

Checking fuel delivery rate at connecting point on underbody:

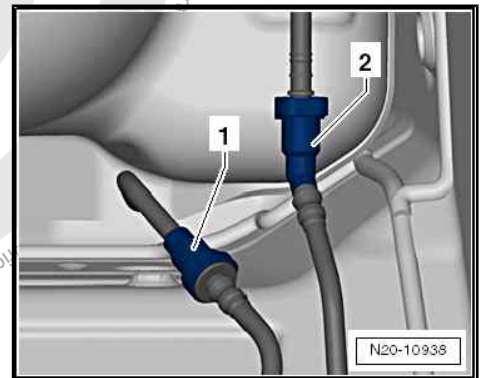
- Disconnect fuel supply line -2-. Separate plug-in connectors
 => ["3.1 Separating plug-in connectors", page 29](#) .



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.

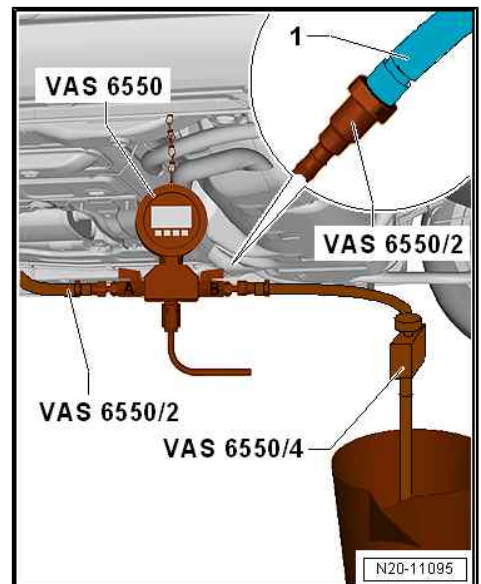


- Collect escaping fuel with a cleaning cloth.
- Using hose - VAS 6550- , connect pressure tester - VAS 6550/2- to shut-off tap -A-.
- Using hose - VAS 6550- , connect pressure tester - VAS 6550/2- to fuel supply line -1- coming from fuel tank.
- Connect pressure regulating valve - VAS 6550/4- to connection -B- of pressure tester - VAS 6550- .
- Hold end of hose of pressure regulating valve in measuring container -4-. Have a second mechanic hold the measuring container and hose.

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.
- Have a second mechanic ensure that end of hose remains in measuring container during test and measuring container does not tip over.





- Ensure that drain tap -C- on pressure tester - VAS 6550- -1- is closed.
- Shut-off taps -A- and -B- on pressure tester - VAS 6550- -1- must be open.
- Repeat test ⇒ [page 71](#)

If reading matches specification:

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

If reading again does not match specification:

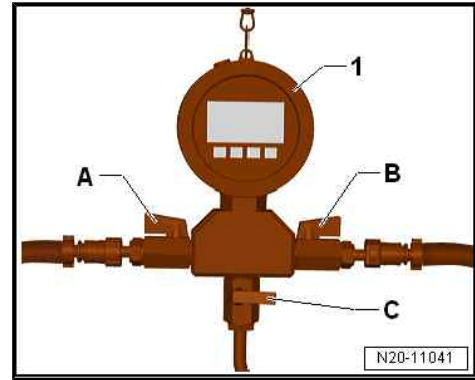
Proceed as follows to check fuel delivery rate at fuel delivery unit:

⚠ CAUTION

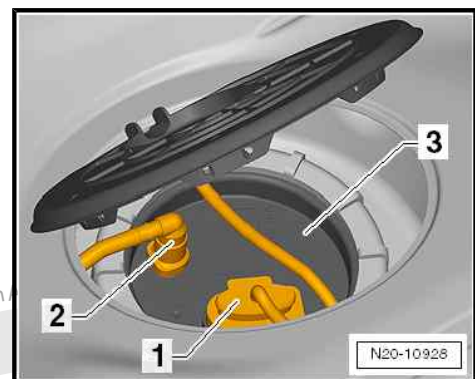
The fuel system is pressurised.

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 line -2-. Separate plug-in connectors ⇒ [“3.1 Separating plug-in connectors”, page 29](#) .



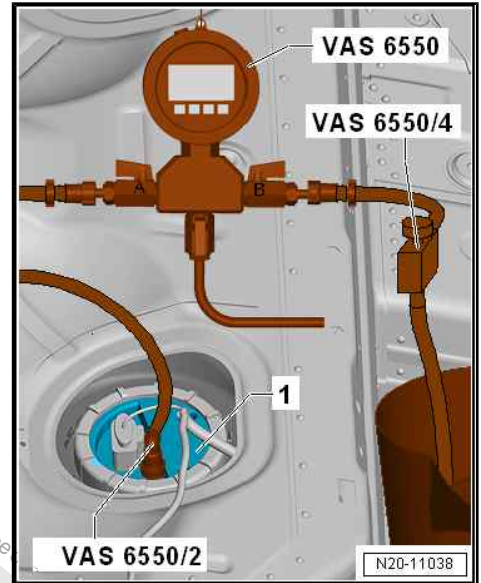


- Connect pressure tester - VAS 6550- with hose - VAS 6550/2- to fuel delivery unit -1-.
- Connect hose - VAS 6550/2- to connection -A- of pressure tester - VAS 6550- .
- Connect pressure regulator valve - VAS 6550/4- to connection -B- of pressure tester - VAS 6550- .

CAUTION

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

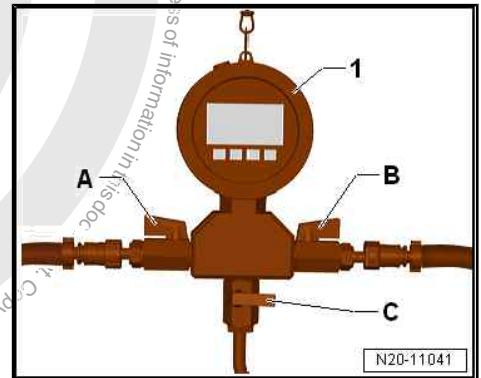
- Before testing, check all connected lines for secure fit by pulling.
- Take any fuel-soaked cloths away from area of vehicle.
- Place measuring container down outside vehicle and ensure that its base is secure.
- Have a second mechanic ensure that end of hose remains in measuring container during test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



- Place measuring container down outside vehicle and ensure that its base is secure. Use suitable workshop equipment to do this.
- A second mechanic may be needed to ensure that it is secure.
- Hold open end of hose from pressure regulating valve in measuring container.
- Have a second mechanic ensure that end of hose remains in measuring container during test.
- Ensure that drain tap -C- on pressure tester -1- is closed.
- Shut-off valves -A- and -B- on pressure tester -1- are open.
- Press remote control - V.A.G 1348/3A- .

Note

The fuel system pressurisation pump - G6- will be actuated.



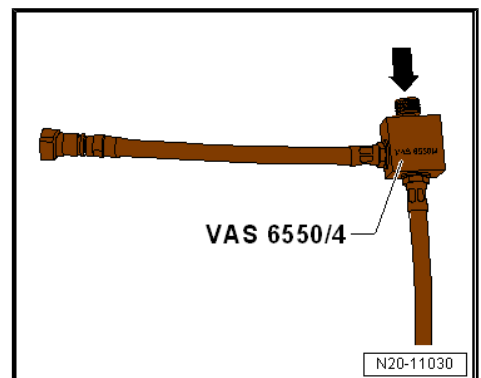
- Set pressure of 3.0 bar on pressure regulating valve -arrow- using adjuster wheel.
- From this point on do not change position of adjuster wheel any more.
- Drain measuring container.
- Repeat delivery rate check at fuel delivery unit.

If the minimum delivery rate is now attained:

- Check fuel lines for possible restrictions (kinks) or blockages.

If the minimum delivery rate is again not attained

- Remove fuel delivery unit
 ⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .
- Check filter strainer for soiling.





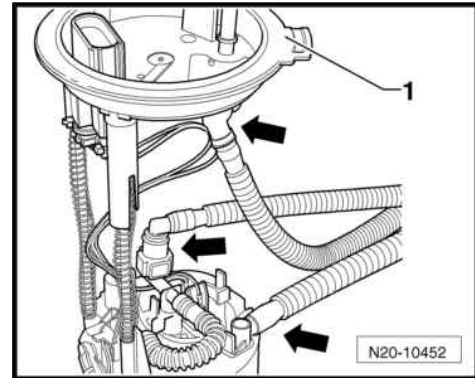
- Check that all hose connections -arrows- are connected.

Only if no fault has yet been detected:

- Renew fuel delivery unit
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .

If fuel delivery rate has been attained, but nevertheless you suspect a fuel supply system fault:

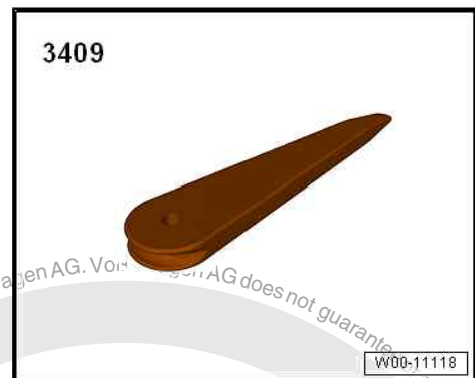
- Check current draw of fuel pump
⇒ ["7.1.6 Checking current consumption", page 76](#) .



7.1.6 Checking current consumption

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-

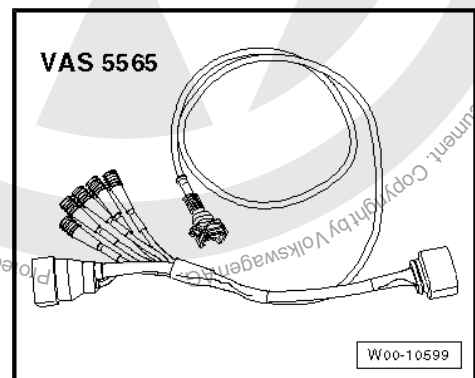


- ◆ Multimeter, e.g. hand-held multimeter - V.A.G 1526E-



- ◆ Pick-up clamp e.g. pick-up clamp - V.A.G 1526B/2-

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

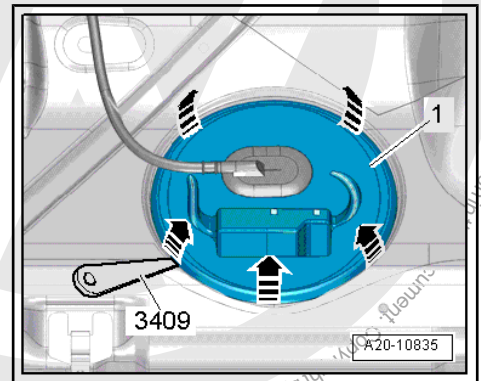




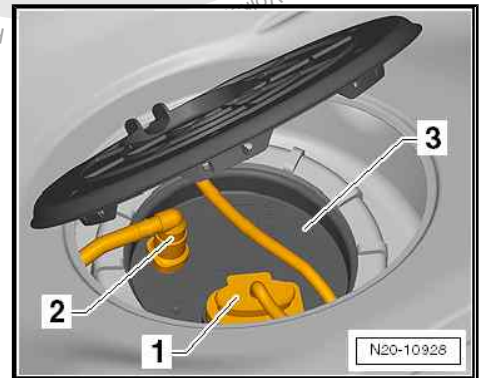
i Note

- ◆ *Plug-in connectors for fuel lines must engage »audibly« when joined.*
- ◆ *Note colour assignment when installing the plug-in connectors*
⇒ [page 29](#) .
- ◆ *Ensure plug-in connector is secured properly by pulling it.*
- ◆ *Separate plug-in connectors*
⇒ ["3.1 Separating plug-in connectors", page 29](#) .

- Battery charger connected.
- Voltage supply OK
⇒ ["7.1 Checking fuel system pressurisation pump G6", page 49](#) .
- Remove bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat/individual seats .
- To do this, unclip cover -1- for flange at retaining tabs -arrows-, using removal wedge - 3409- .

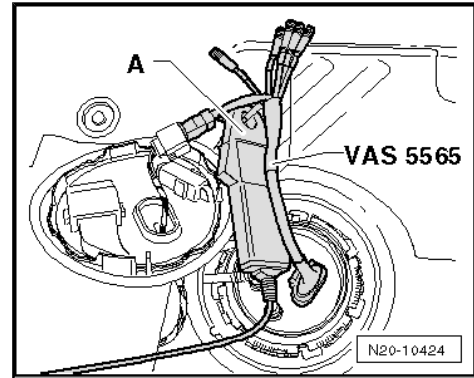


- Check that connector -1- is fitted securely by pulling connector without pressing catch. The connector may have caused a fault if it was not fitted correctly.
- Release connector -1- and pull off.
- Check contacts on plug and on fuel delivery unit for damage.





- Connect test instrument adapter/DSO (5-pin) - VAS 5565- to connector and fuel delivery unit.
- Connect pick-up clamp -A- to red terminal with lettering "pick-up clamp" for test instrument adapter/DSO (5-pin) - VAS 5565- .
- Start engine and allow to idle.
- Measure current draw of fuel pump.
- Specification: max. 8 amps



Note

- ◆ *The starting current for the fuel pump can be briefly above specifications when starting the engine.*
- ◆ *If the fault in the fuel system is only sporadically evident, the check can also be carried out during a road test. A 2nd person is required to do this, however.*

If the current draw is exceeded:

- Remove fuel delivery unit
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .
- Check filter strainer for soiling.

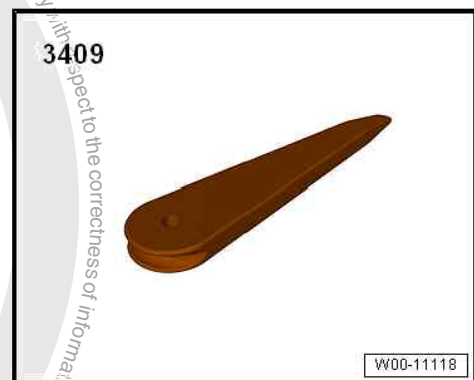
Check OK:

- Fuel pump is defective, renew fuel delivery unit
⇒ ["2.2 Removing and installing fuel delivery unit, fuel gauge sender", page 22](#) .

7.2 Removing and installing fuel pump control unit - J538-

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



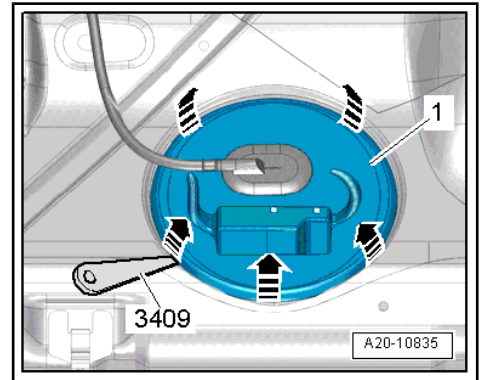
Procedure:

Removing

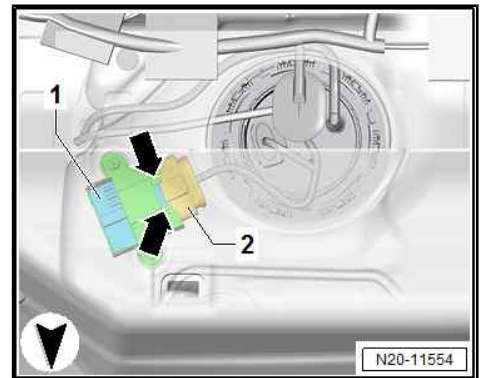
- Move front seats to foremost position.
- Switch off ignition.
- Remove rear bench seat ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing bench seat / individual seats .



- Unclip cover -1- at retaining tabs -arrows- using removal wedge - 3409- .
- Move cover towards rear along wiring harness.



- Press locking lugs -arrows- upwards using an appropriate screwdriver.
- At the same time, carefully pull fuel pump control unit -1- out of mounting by grasping wiring harness -2-.
- Guide fuel pump control unit - J538- out towards interior between fuel tank and floor panel.
- Unplug electrical connector and remove fuel pump control unit - J538- .



Installing

Install in reverse order of removal. Observe the following:

- Connect wiring harness to fuel pump control unit - J538- .
- Check if connector is secured properly by pulling it.
- Insert fuel pump control unit - J538- into mounting bracket on fuel tank and push it in until it audibly engages.
- Pull on fuel pump control unit - J538- to make sure that it is properly secured.

