



Fuel supply system components

Observe safety precautions when working on fuel supply ⇒ [20-1, Safety precautions when working on fuel supply system](#) .

Observe rules for cleanliness ⇒ [20-1, Rules for cleanliness](#) .

Fuel tank, assembly overview ⇒ [20-1, Fuel tank, assembly overview](#)

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Removing and installing fuel delivery unit ⇒ [20-1, Fuel delivery unit, removing and installing](#)

Fuel Level Sensor G , removing and installing ⇒ [20-1, Fuel Level Sensor G , removing and installing](#)

Fuel tank, removing and installing ⇒ [20-1, Fuel tank, removing and installing](#) .

Fuel filter with attachments, assembly overview ⇒ [20-1, Fuel filter with attachments - assembly overview](#)

Fuel filter, removing and installing ⇒ [20-1, Fuel filter, removing and installing](#)

Check fuel pump ⇒ [20-1, Fuel pump, checking](#)

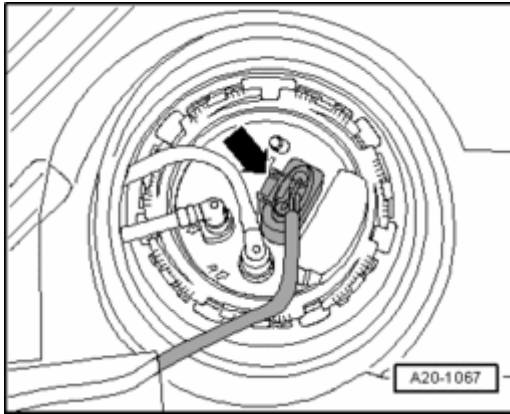
Fuel system, bleeding ⇒ [20-1, Fuel system, bleeding](#)

Safety precautions when working on fuel supply system

Caution!

When doing any repair work, especially in the engine compartment, pay attention to the following due to clearance issues:

- ***Route lines of all types (e.g. for fuel, hydraulic, EVAP canister system, coolant and refrigerant, brake fluid, vacuum) and electrical wiring so that the original path is followed.***
- ***To prevent damage to the lines, make sure there is sufficient clearance to all moving or hot components.***



Fuel pump is activated with switching on ignition and by door contact switch of drivers door. Therefore for reasons of safety, connector - **arrow** - must be disconnected from fuel delivery unit before opening fuel supply system, if the battery is not disconnected.

Always observe the following when removing and installing fuel gauge sensor or Fuel Pump (FP) from full or partially filled fuel tanks.

- Before starting work, switch on exhaust extraction system and place an extraction hose close to installation opening of fuel tank to extract escaping fuel fumes. If no exhaust extraction system is available, a radial fan (as long as motor is not in air flow) with a displacement greater than 15 m³ /h can be used.
- Prevent fuel from contacting skin! Wear fuel-resistant gloves!

Rules for cleanliness

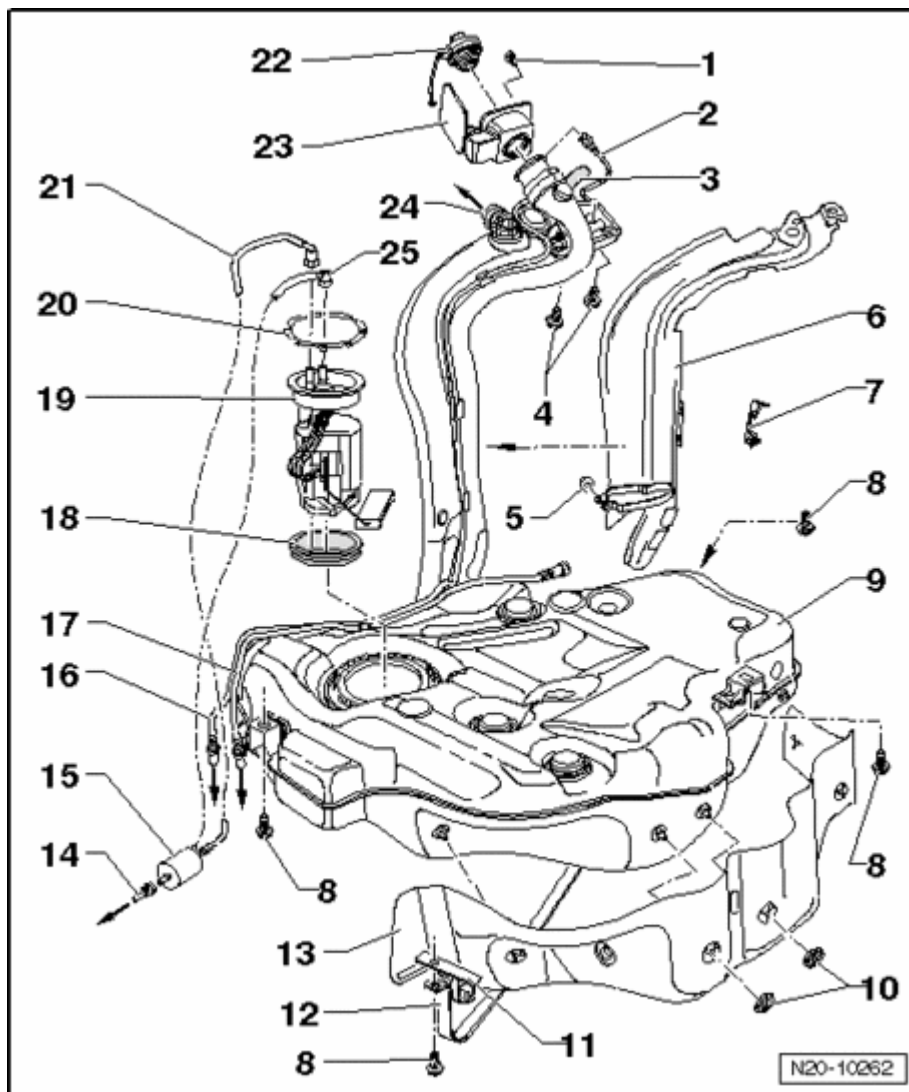
When working on fuel supply/injection system, pay careful attention to the following "5 rules" of cleanliness:

- Thoroughly clean all connections and surrounding area before disconnecting.
- Place parts that have been removed on a clean surface and cover them. Do not use fluffy cloths!
- Carefully cover over opened components or seal, if repairs are not performed immediately.
- Only install clean components: Only unpack

replacement parts immediately prior to installation.
Do not use parts that have been stored loose (e.g. in tool boxes etc.).

- When the system is open: Avoid working with compressed air if possible. Do not move vehicle unless absolutely necessary.

Fuel tank, assembly overview



- Bolt
- Ground (GND) connection
 - Ensure seated tightly
- Vacuum line
 - To Leak detection pump

(LDP) V144

- **10 Nm**
- **Rivet**
- **Protective plate**
 - Riveted to lower clamp at factory
 - When replacing fuel tank, set protective plate on filler tube and rivet clamp (holes on protective plate must coincide with holes on filler tube).
- **Wiring router**
 - For ABS line
 - Clipped in on protective plate
- **25 Nm**
 - Replace
- **Fuel tank**
 - Removing and installing ⇒ [20-1, Fuel tank, removing and installing](#)
- **Lock washer**
- **Bracket for exhaust system**
- **Securing strap**
 - Note installation position
- **Heat shield**
- **Supply line**
 - To fuel rail
 - Ensure seated tightly

■ Fuel filter

- Installed location: Arrow points in direction of flow
- Fuel filter with attachments
⇒ [20-1, Fuel filter with attachments - assembly overview](#)
- Removing and installing ⇒ [20-1, Fuel filter, removing and installing](#)

■ Vacuum line

- From Leak Detection Pump (LDP) V144 to intake manifold
- Clipped in at fuel tank
- Ensure seated tightly

■ Vent line

- From EVAP canister to Evaporative Emission (EVAP) Canister Purge Regulator Valve N80
- Clipped in at fuel tank
- Ensure seated tightly

■ Seal

- Replace
- To install, place into opening of fuel tank dry
- Only coat inner part with fuel when installing fuel delivery unit.

■ Fuel delivery unit

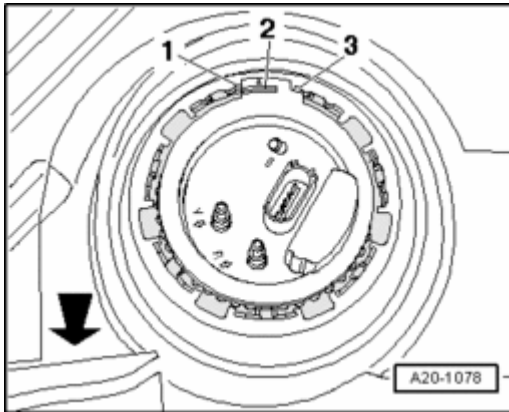
- Removing and installing ⇒ [20-1, Fuel delivery unit, removing and installing](#)

- Check fuel pump ⇒ [20-1, Fuel pump, checking](#)
- Note installation position in fuel tank ⇒ [20-1, Installed position of fuel delivery unit](#)
- With Fuel Level Sensor G
- Fuel Level Sensor G , removing and installing ⇒ [20-1, Fuel Level Sensor G , removing and installing](#)
- Clean strainer if dirty
- **Locking ring, 110 Nm**
 - Ensure seated tightly
 - Use wrench 3087 to remove and install
- **Return line**
 - Blue
 - Clipped to side of fuel tank
 - Ensure seated tightly
- **Cap**
 - BGP: Screw plug
 - BGQ: Bayonet connection
 - Replace gaskets if damaged
- **Tank flap unit**
 - With rubber gasket
 - Removing and installing

⇒ [Repair Manual, Body Exterior, Repair Group 55,](#)
- **To EVAP canister**

- **Supply line**

- Black
- Clipped to side of fuel tank
- Ensure seated tightly



Installed position of fuel delivery unit

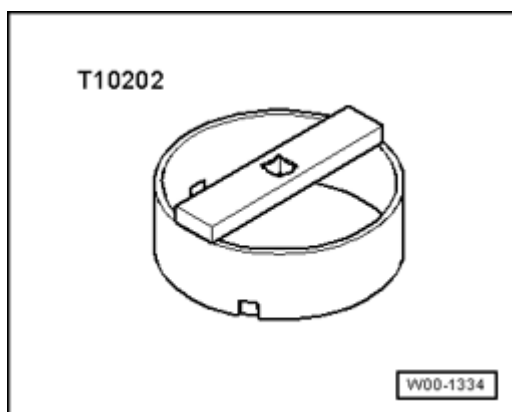
Tab - **2** - on fuel delivery unit must lie between tabs - **1** - and - **3** - .

Note:

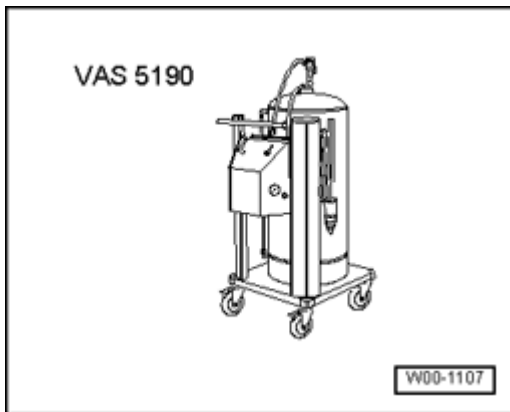
- - **Arrow** - points in direction of travel.
- Fuel deliver unit can only be installed in this position.

Fuel tank, emptying

Special tools, testers and auxiliary items required



- Wrench T10202



- Fuel siphoning unit VAS 5190
- Torque wrench V.A.G 1332

- Read safety precautions before beginning work ⇒ [20-1, Safety precautions when working on fuel supply system](#) .

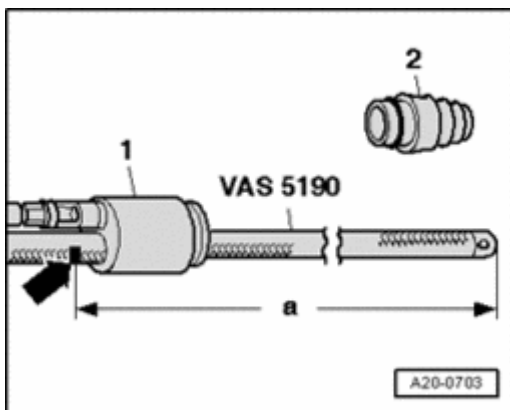
Fuel tank, emptying

Note:

- Vehicles with engine code BGQ have a bayonet connection and require a corresponding adapter.
- If there is no adapter available, screw-in part of extraction unit must be held accordingly.

Caution!

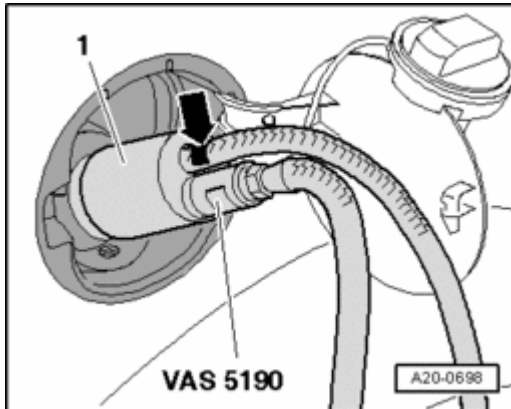
Secure Ground (GND) wire of fuel extraction unit VAS 5190 to a blank portion of the chassis.



- Pull cone piece - 2 - from shaft piece - 1 - of fuel

siphoning device VAS 5190 .

- Using insulating tape, apply a mark - **arrow** - on hose at length - **a** - = 1500 mm from end of suction hose.
- Remove fuel filler cap from fuel filler tube.



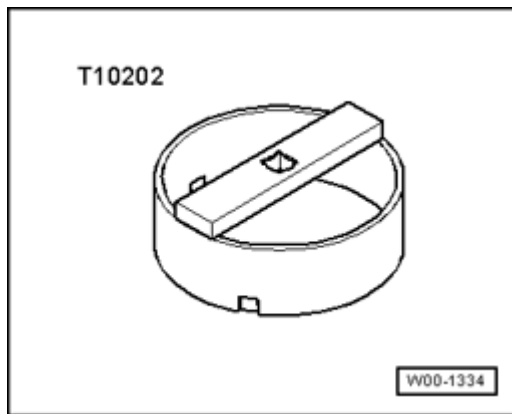
- Screw shaft piece - **1** - of fuel siphoning device VAS 5190 on to fuel filler tube of fuel tank.
- Slide suction hose as far into fuel tank until mark applied earlier - **arrow** - stands on shaft piece and extract fuel ⇒
Operating instructions for Fuel Siphoning Unit VAS 5190 .

Note:

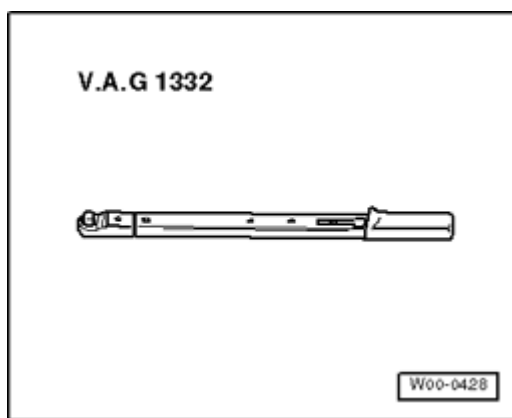
- *A pressure point can be sensed after approx. 120 cm. Check valve in fuel tank must be pushed open. Pull out hose slightly and slide it in using a light jerk.*
- *Fuel tank is drained almost completely.*
- *When pulling out hose, perform the same procedure.*

Fuel delivery unit, removing and installing

Special tools, testers and auxiliary items required



- Wrench T10202



- Torque wrench V.A.G 1332

Requirements

- Fuel tank may be a maximum of $\frac{3}{4}$ full.

Removing

Note:

- Empty the fuel tank if necessary using fuel extraction unit VAS 5190 ⇒ [20-1, Fuel tank, emptying](#) .
- Observe safety precautions ⇒ [20-1, Safety precautions when working on fuel supply system](#) .
- Observe rules for cleanliness ⇒ [20-1, Rules for cleanliness](#) .

- Check whether a coded radio is installed. If necessary, obtain the anti-theft coding.

- Disconnect battery

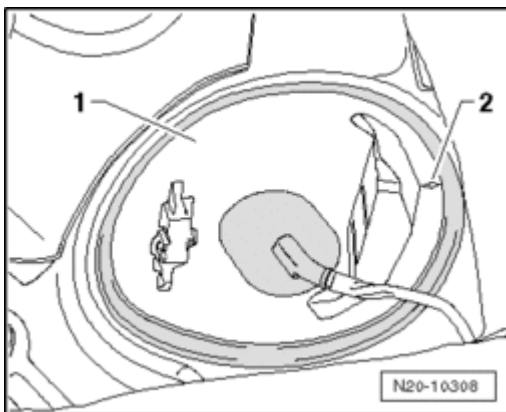
⇒ [Repair Manual, Electrical Equipment, Repair Group 27,](#)

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- Remove seat bench

⇒ [Repair Manual, Body Interior, Repair Group 72,](#)

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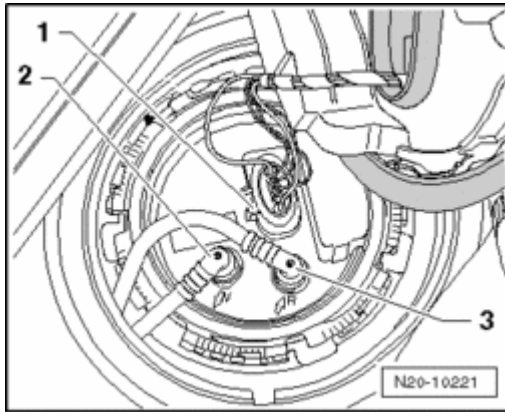
- Unclip cover - **1** - from fuel delivery unit. Arrow - **2** - points in direction of travel.

Note:

- On vehicles with auxiliary heater, harness connector of Metering Pump V54 must also be disconnected.

Warning!

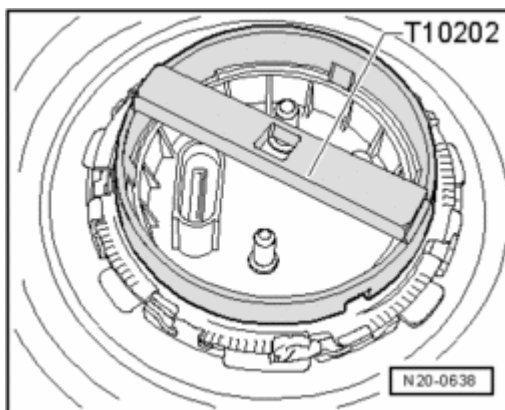
Fuel supply line is under pressure! Wear protective goggles and protective clothing to prevent injuries and contact with skin. Before loosening the fuel lines, place a rag around the connection point. Then release pressure by carefully pulling hose off connection.



- Disconnect 5-pin connector - **1** - , black supply line - **2** - and blue return line - **3** - .

Note:

- *Press in securing ring to disengage the fuel lines.*
- *On vehicles with auxiliary heater, fuel line of Metering Pump V54 must also be disconnected.*



- Open locking ring using wrench T10202 .

- Pull fuel delivery unit with sealing ring out of fuel tank opening.

Note:

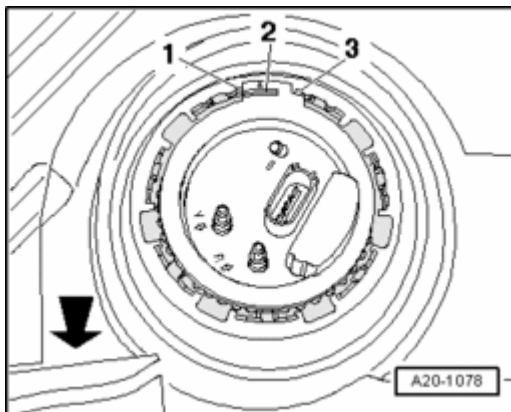
- *When removing fuel delivery unit, be sure not to bend fuel gauge sensor.*
- *When replacing fuel delivery unit, empty old fuel delivery unit before disposing.*

Installing

Installation of fuel delivery unit is in reverse order of

removal. Note the following:

- Insert dry new sealing ring of fuel delivery unit into opening of fuel tank.
- Only coat seal with fuel on the inside when installing fuel delivery unit.
- When inserting fuel delivery unit into fuel tank, be sure not to bend Fuel Level Sensor G .



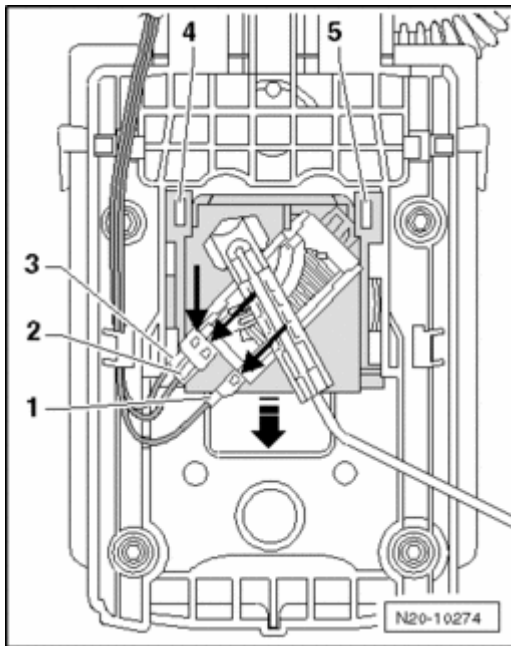
- Note installation position of fuel delivery unit: Tab - **2** - on fuel delivery unit must lie between tabs - **1** - and - **3** - . - **Arrow** - points in direction of travel.
- Tighten locking ring to 110 Nm.
- Do not interchange black supply line and blue return line (arrows on flange of fuel delivery unit).
- Make sure fuel lines are securely fastened.
- After installing fuel delivery unit, check whether supply and return lines are still clipped in at fuel tank.
- Observe required safety precautions after connecting battery

⇒ [Repair Manual, Electrical Equipment, Repair Group 27.](#)

Fuel Level Sensor G , removing and installing

Removing

- Remove fuel delivery unit ⇒ [20-1, Fuel delivery unit, removing and installing](#) .



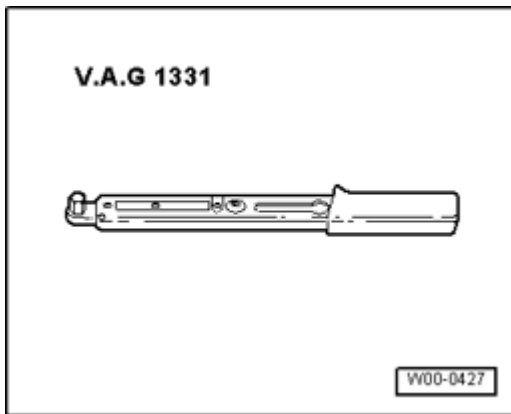
- Release connectors - **arrows** - and remove electrical wires - **1, 2 and 3** - .
- Lift retaining tabs - **4** - and - **5** - with a screwdriver and pull fuel level sensor G downward and off - **arrow** - .

Installing

- Insert Fuel Level Sensor into guides at fuel delivery unit and press up until engagement.
- Connect connector and check for secure locking.
- Install Fuel Pump (FP) ⇒ [20-1, Fuel delivery unit, removing and installing](#) .

Fuel tank, removing and installing

Special tools, testers and auxiliary items required



- Torque wrench V.A.G 1331

Removing

- Fuel tank may be a maximum of $\frac{1}{4}$ full.

Note:

- *Empty the fuel tank if necessary using fuel extraction unit VAS 5190 ⇒ [20-1, Fuel tank, emptying](#) .*
- *Read safety precautions before beginning work ⇒ [20-1, Safety precautions when working on fuel supply system](#) .*
- *Observe the rules for cleanliness ⇒ [20-1, Rules for cleanliness](#) .*

- Check whether a coded radio is installed. If necessary, obtain anti-theft coding.

- If necessary, take out adapter for wheel rim lock from luggage compartment.

- Open fuel filler flap and remove fuel filler cap.

- Disconnect battery

⇒ [Repair Manual, Electrical Equipment, Repair Group 27,](#)

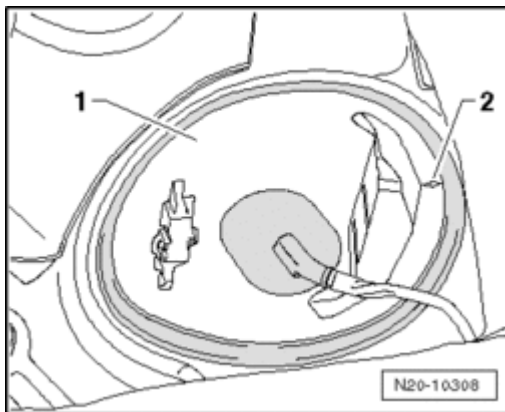
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- Remove mounting bolt for fuel flap unit and remove fuel flap unit

⇒ [Repair Manual, Body Exterior, Repair Group 55.](#)

- Remove seat bench

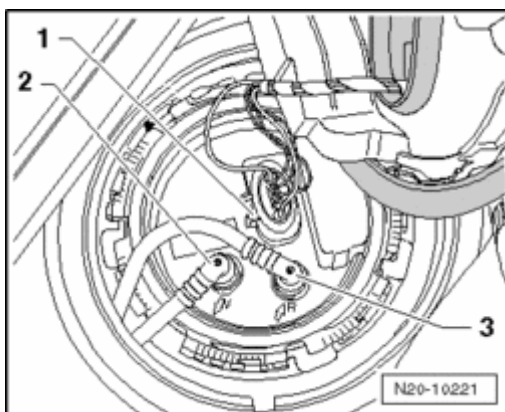
⇒ [Repair Manual, Body Interior, Repair Group 72,](#)



- Unclip cover - **1** - for fuel delivery unit. Arrow - **2** - points in direction of travel.

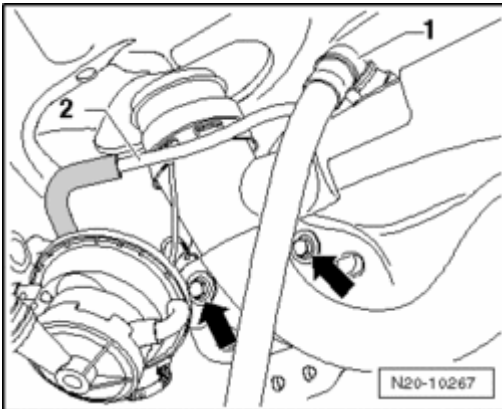
Note:

- *On vehicles with auxiliary heater, harness connector of Metering Pump V54 must also be disconnected.*

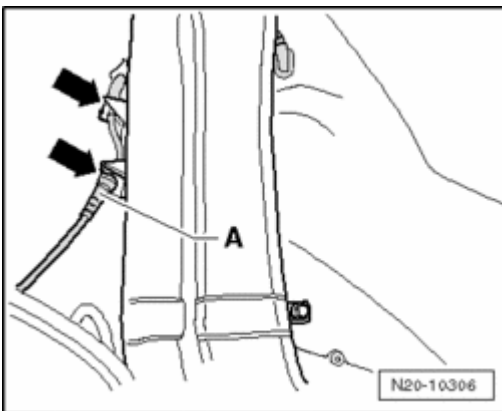


- Disconnect harness connector - **1** - from fuel delivery unit.
- Remove right rear wheelhousing liner

⇒ [Repair Manual, Body Exterior, Repair Group 66.](#)



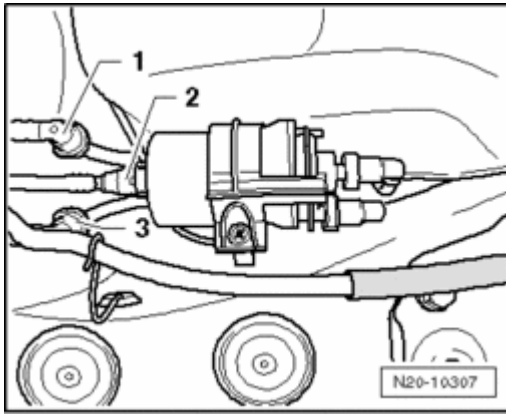
- Disconnect connections - **1** - and - **2** - .
- Remove fuel filler tube from body - **arrows** - .



- Unclip ABS line - **A** - from bracket - **arrows** - .
- Remove exhaust system.

Warning!

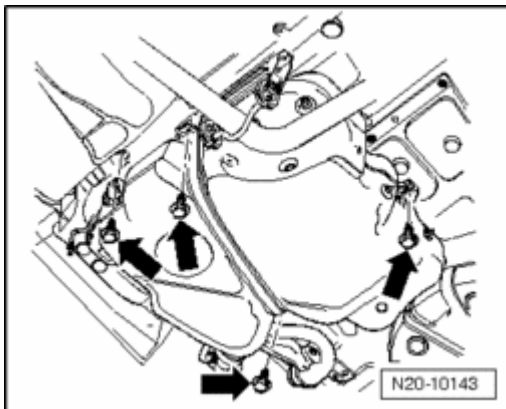
Fuel supply line is under pressure! Wear protective goggles and protective clothing to prevent injuries and contact with skin. Before loosening the fuel lines, place a rag around the connection point. Then release pressure by carefully pulling hose off connection.



- Disconnect white vent line - **1** - , black supply line - **2** - and green vacuum line for Leak Detection Pump (LDP) V144 - **3** - at connection point.

Note:

- Press in securing ring to disengage the lines.
- For the continuing work sequence, a second technician is needed to support the fuel tank.



- Remove tension strap and mounting bolts - **arrows** - .
- Remove fuel tank at sides.

Installing

Installation is in reverse order of removal. Note the following:

- Make sure vent and fuel lines are not kinked.
- Do not interchange supply and return line (supply line black, return line blue).
- Make sure lines connections are securely fastened.

- Check Ground (GND) connection of fuel tank/chassis at filler tube.
- After installing fuel tank, check to be sure lines are still clipped in at fuel tank.

- Bleed fuel supply system ⇒ [20-1, Fuel system, bleeding](#) .

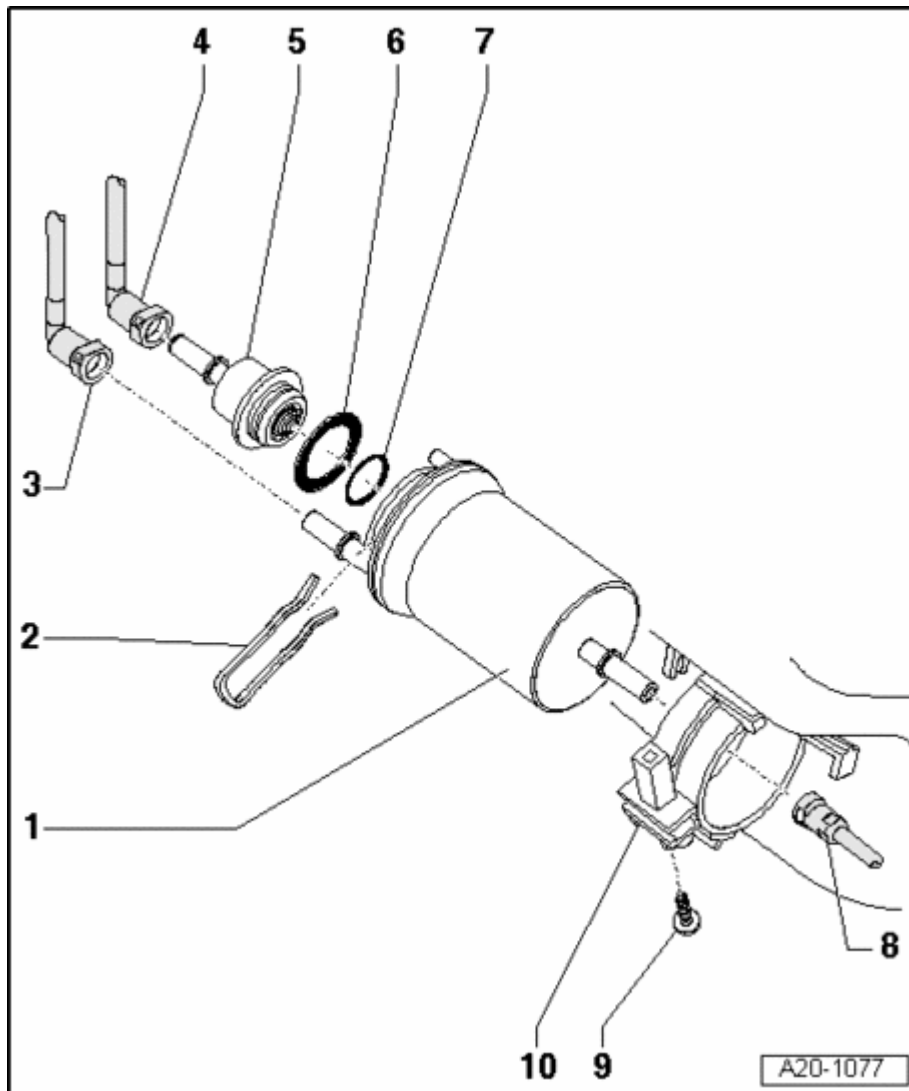
- Connect battery

⇒ [Repair Manual, Electrical Equipment, Repair Group 27,](#)

Tightening torques:

Component	Nm
Fuel tank to chassis - M6	10
Fuel tank to chassis - M8 ■ Replace bolts	25

Fuel filter with attachments - assembly overview



■ Fuel filter

- Direction of flow is marked with arrows
- Do not interchange connections
- Removing and installing ⇒ [20-1, Fuel filter, removing and installing](#)
- Installed location: Pin on filter housing must engage in recess of guide on filter bracket ⇒ [20-1, Installed location](#) .

■ Retaining clip

- For fuel pressure regulator

- **Fuel supply line**

- Black
- From fuel tank
- Press in securing ring to disengage lines.

- **Fuel return line**

- Blue
- To fuel tank
- Press in securing ring to disengage lines.

- **Fuel pressure regulator**

- 4 bar
- Checking ⇒ [24-2, Fuel pressure regulator and residual pressure, checking](#)

- **Gasket**

- Replace

- **O-ring**

- Replace

- **Fuel supply line**

- Black
- To engine
- Press in securing ring to disengage lines.

- **3 Nm**

- **Bracket**

- For fuel filter
- Secured to fuel tank

Fuel filter, removing and installing

Special tools, testers and auxiliary items required

- Container for fuel

Removing

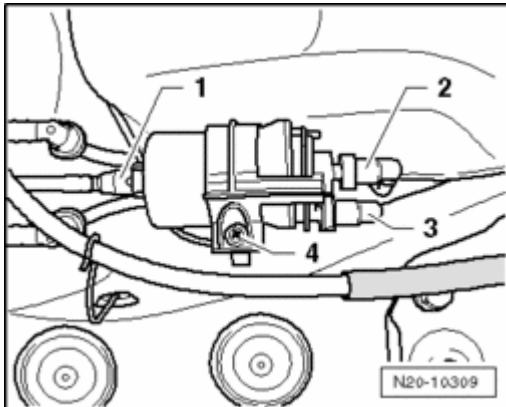
Note:

- Observe safety precautions ⇒ [20-1, Safety precautions when working on fuel supply system](#) .
- Observe rules for cleanliness ⇒ [20-1, Rules for cleanliness](#) .

- Place container underneath fuel filter.

Warning!

Fuel supply line is under pressure! Wear protective goggles and protective clothing to prevent injuries and contact with skin. Before loosening the fuel lines, place a rag around the connection point. Then release pressure by carefully pulling hose off connection.



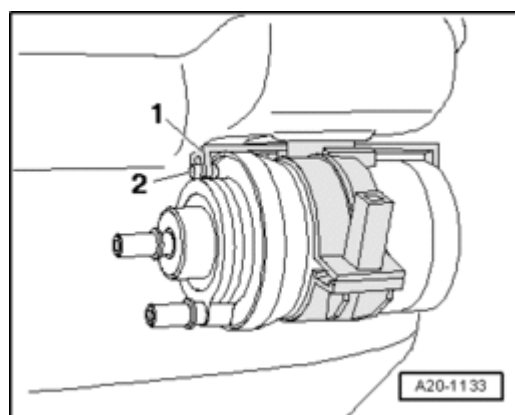
- Disconnect fuel lines - **1** - , - **2** - and - **3** - , to do so, press in securing ring.
- Remove bolts - **4** - .
- Remove fuel filter.

Installing

Installation is in reverse order of removal. Note the following:

The direction of flow is marked on filter housing with arrows.

- Bleed fuel supply system $\Rightarrow$ [20-1, Fuel system, bleeding](#) .



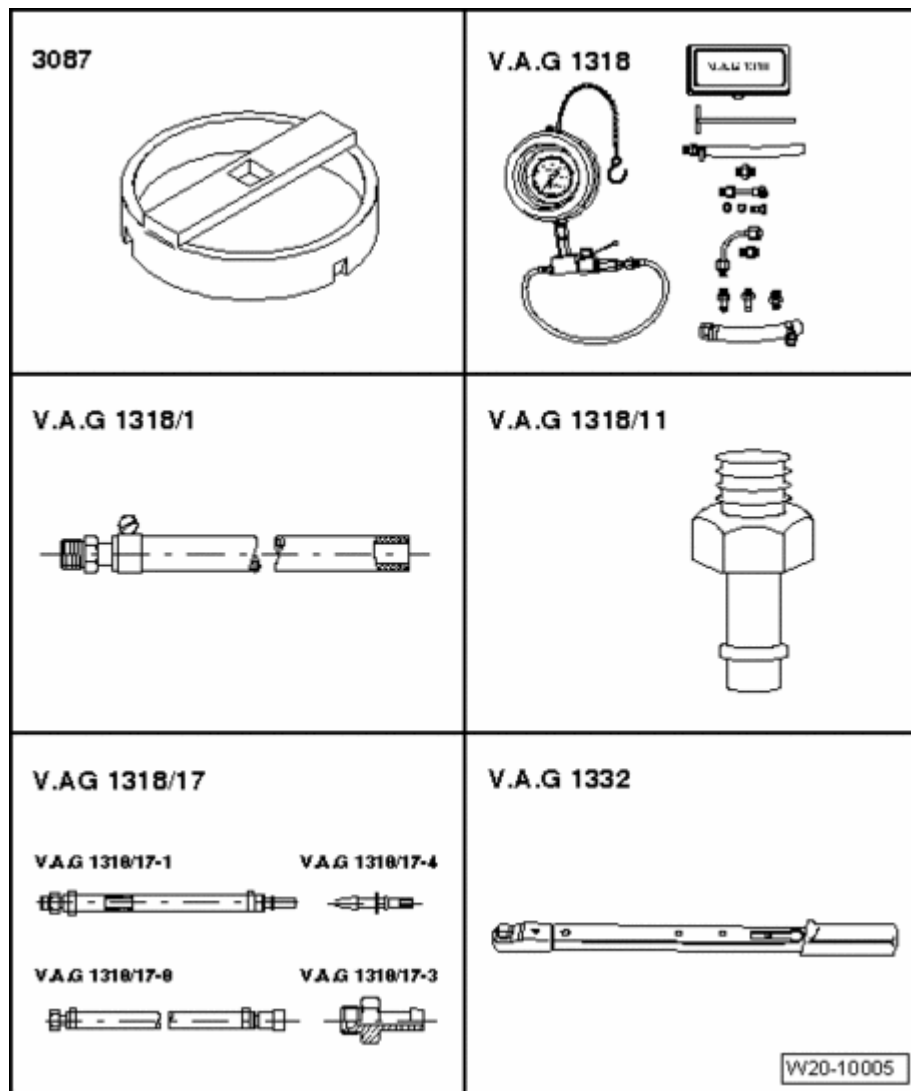
Installed location

Pin - 2 - on filter housing must engage in recess of guide - 1 - on filter bracket.

Tightening torque:

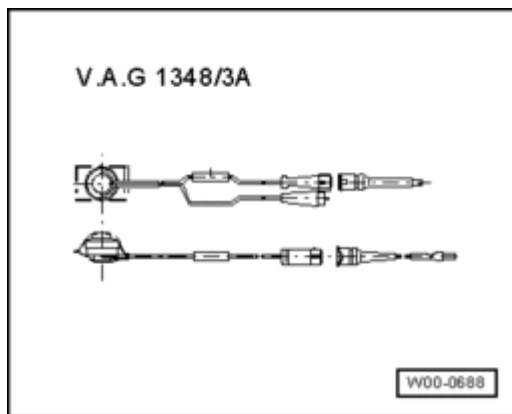
Component	Nm
Screw clip for fuel filter	3

Fuel pump, checking



Special tools, testers and auxiliary items required

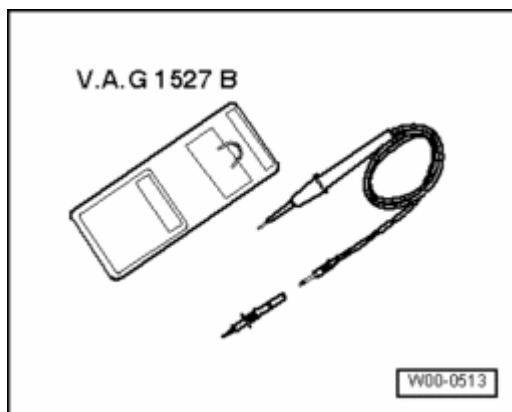
- Wrench 3087 or wrench T10202
- Pressure gauge V.A.G 1318
- Adapter V.A.G 1318/1
- Adapter V.A.G 1318/11
- Pressure gauge adapter V.A.G 1318/17
- Torque wrench V.A.G 1332

Special tools, testers and auxiliary items required

- Remote control connection V.A.G 1348/3A



- Connector test set V.A.G 1594 C



- Voltage tester V.A.G 1527B
- Measuring container

Checking function and voltage supply ⇒ [20-1, Function and voltage supply, checking](#)

Checking fuel delivery ⇒ [20-1, Checking delivery rate](#)

Checking current draw ⇒ [20-1, Checking current draw](#)

Fuel Pump (FP) check-valve, checking ⇒ [20-1, Fuel Pump \(FP\) check-valve, checking](#)

Function and voltage supply, checking

- Battery voltage at least 11.5 V
 - Fuse for Fuel Pump (FP) on fuse holder OK ⇒ *Electrical Wiring Diagrams, Troubleshooting and Component Locations binder* .
- Switch ignition on.
- Fuel Pump (FP) must briefly start up audibly.

Note:

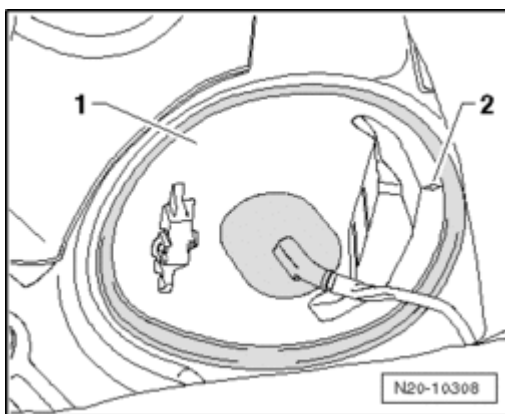
- *Fuel Pump (FP) runs quietly.*
- Switch off ignition.

If Fuel Pump (FP) does not start up

- Remove seat bench

⇒ *Repair Manual, Body Interior, Repair Group 72,*

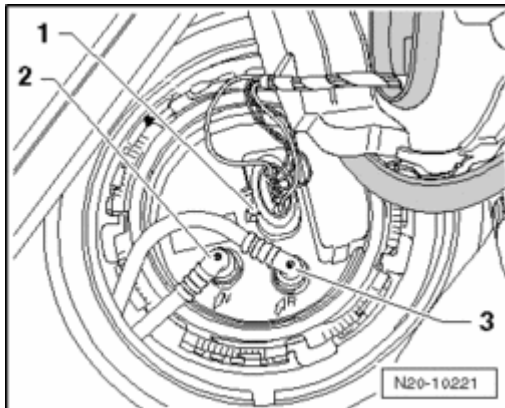
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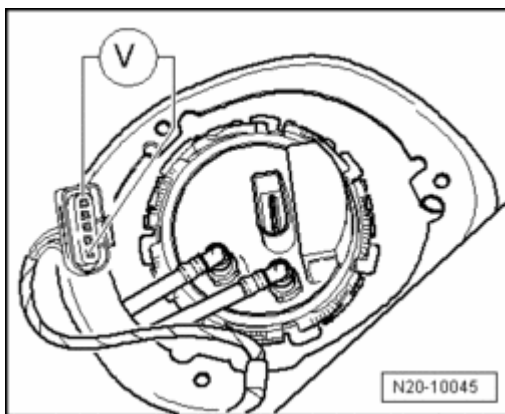
- Unclip cover - **1** - from fuel delivery unit. Arrow - **2** - points in direction of travel.

Note:

- On vehicles with auxiliary heater, harness connector of Metering Pump V54 must also be disconnected.



- Disconnect connector - **1** - .



- Connect voltage tester V.A.G 1527 B using adapter cables from connector test kit V.A.G 1594 C to outer terminals of connector.
- Switch ignition on.
 - LED must light up briefly.

If LED does not light up briefly:

- Locate and repair open circuit in wiring using wiring diagram ⇒ *Electrical Wiring Diagrams, Troubleshooting and Component Locations binder* .

LED lights up briefly (voltage supply OK):

- Remove fuel delivery unit ⇒ [20-1, Fuel delivery unit, removing and installing](#) .
- Check if electrical wiring between flange and fuel pump is connected.

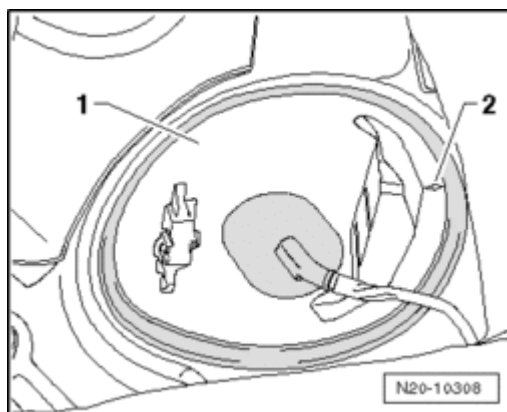
If no open circuits are found:

- Fuel Pump (FP) faulty, replace fuel delivery unit ⇒ [20-1, Fuel delivery unit, removing and installing](#) .

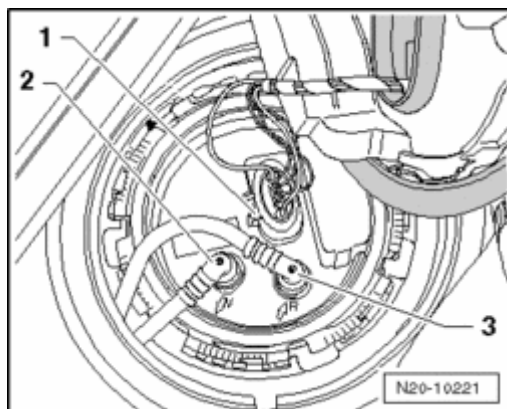
Checking delivery rate

- Voltage supply OK.
 - Fuel pressure regulator and residual pressure OK ⇒ [24-2, Fuel pressure regulator and residual pressure, checking](#)
 - Fuel filter OK.
- Remove fuel filler cap from fuel filler tube.
 - Remove seat bench

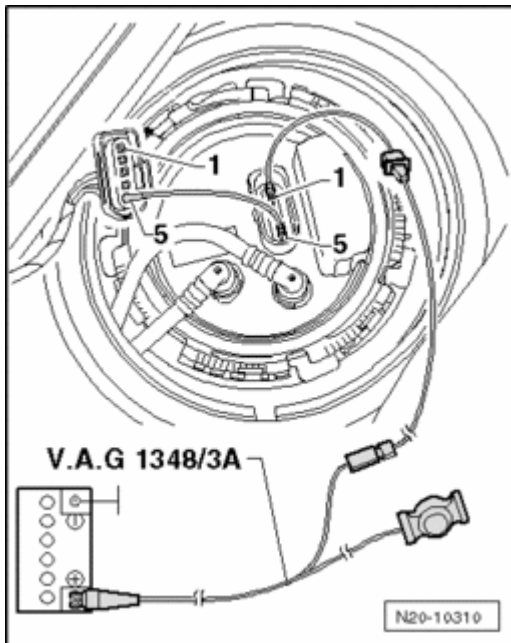
⇒ *Repair Manual, Body Interior, Repair Group 72,*



- Unclip cover - **1** - from fuel delivery unit. Arrow - **2** - points in direction of travel.



- Disconnect harness connector - **1** - from fuel delivery unit.



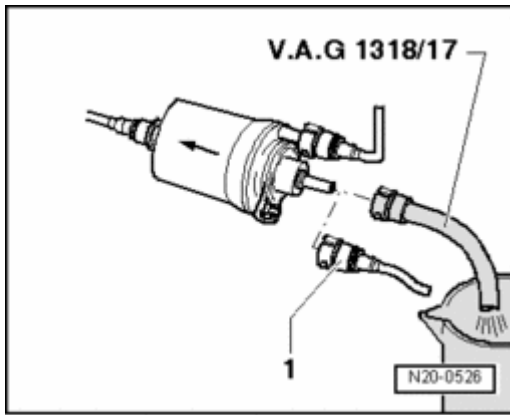
- Connect remote control for VAG 1348 V.A.G 1348/3A with an adapter cable to terminal - **1** - of Fuel Pump (FP) and to battery plus (+).
- Connect terminals - **5** - of harness connector and Fuel Pump (FP) using an adapter cable from connector test kit V.A.G 1594 C .

Note:

- Delivery rate of Fuel Pump (FP) is measured at 4 bar. Therefore, measure fuel pressure before measuring delivery rate ⇒ [24-2, Fuel pressure regulator and residual pressure, checking](#) .

Warning!

Fuel supply line is under pressure! Wear protective goggles and protective clothing to prevent injuries and contact with skin. Before loosening the fuel lines, place a rag around the connection point. Then release pressure by carefully pulling hose off connection.

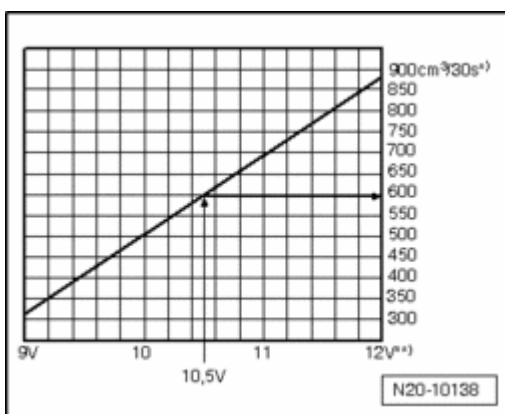


- Disconnect return line - **1** - from fuel pressure regulator.

Note:

- Press in securing ring to disengage the fuel line.

- Connect adapter V.A.G 1318/17 to fuel pressure regulator and hold end of the adapter into a measuring container.
- Operate remote control V.A.G 1348/3A approx. 5 seconds in order to fill fuel filter.
- Empty measuring container.
- Delivery rate of Fuel Pump (FP) is dependent on voltage. Therefore connect multimeter to battery.
- Operate remote control for 30 seconds and measure battery voltage.



- Compare quantity of fuel delivered with specification.

*) Minimum delivery rate $\text{cm}^3 / 30 \text{ s}$

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

Example:

During test, a voltage of 12.5 volts is measured at battery. Since voltage at pump is approx. 2 Volts less than battery voltage, there is a minimum delivery rate of $580 \text{ cm}^3 / 30 \text{ s}$.

If minimum delivery rate is not attained:

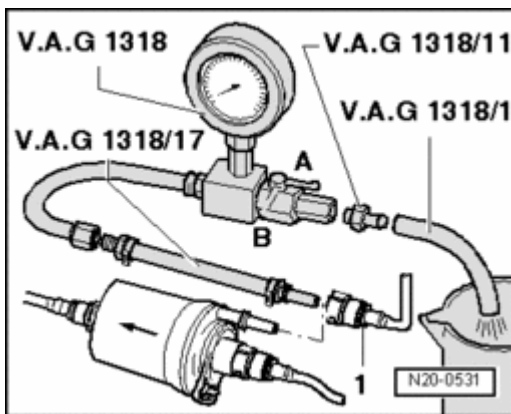
- Check supply line to filter for possible restrictions (kinks) or clogging.

If fuel line is OK:

- Check fuel delivery rate in front of fuel filter.

Warning!

Fuel supply line is under pressure! Wear protective goggles and protective clothing to prevent injuries and contact with skin. Before loosening the fuel lines, place a rag around the connection point. Then release pressure by carefully pulling hose off connection.



- Disconnect supply line - **1** - from fuel filter input.

Note:

- Press in securing ring to disengage the fuel line.

- Connect pressure gauge V.A.G 1318 with adapter V.A.G 1318/17 as shown.
- Connect adapter V.A.G 1318/1 to adapter V.A.G 1318/11 of pressure gauge and hold it in a measuring container.

Warning!

Danger of spraying when opening shut-off valve! Wear protective goggles and protective clothing to prevent injuries and contact with skin. Hold container in front of free connection of pressure measuring device.

- Open shut-off valve of pressure gauge. Lever will point in

direction of flow - **A** - .

- Operate remote control V.A.G 1348/3A . Slowly close shut-off tap, until pressure gauge shows 4 bar. From this point on do not move position of shut-off tap.

- Empty measuring container.

- Operate remote control again for 30 seconds. Compare delivery rate with value determined from first measurement.

If minimum delivery rate is now obtained:

- Replace fuel filter.

If minimum delivery rate is again not obtained:

- Remove fuel delivery unit and check filter strainer for dirt.

Only when up to now no malfunction has been detected:

- Replace fuel delivery unit ⇒ [20-1, Fuel delivery unit, removing and installing](#) .

- Reconnect all disconnected fuel lines.

- Bleed fuel supply system ⇒ [20-1, Fuel system, bleeding](#) .

Delivery rate has been obtained, but malfunctions are still suspected in fuel supply, for example sporadic loss of fuel supply:

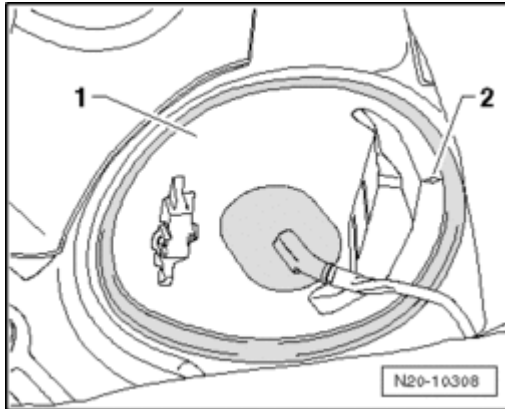
- Check Fuel Pump (FP) current draw ⇒ [20-1, Checking current draw](#) .

Checking current draw

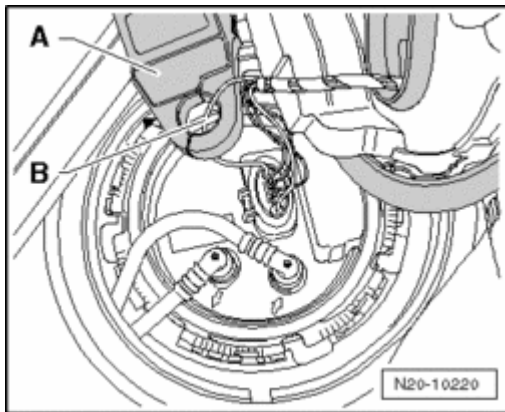
- Remove seat bench

⇒ *Repair Manual, Body Interior, Repair Group 72,*

.



- Unclip cover - **1** - from fuel delivery unit. Arrow - **2** - points in direction of travel.



- Connect current probe - **A** - of Vehicle Diagnosis, Testing and Information System VAS 5051 on cable - **B** - to terminal 1 of 5-pin harness connector.

- Start engine and run at idle speed.
- Measure current draw of fuel pump.

Specification: max. 9 amps.

Note:

- *If malfunction in fuel system is sporadic, test can also be performed during a road test, but a second person is required.*

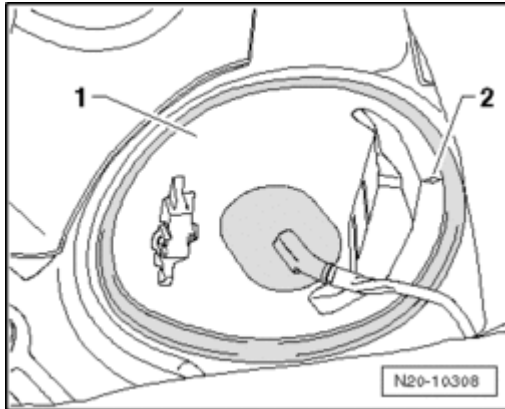
If current draw is exceeded:

- Fuel Pump (FP) faulty, replace fuel delivery unit ⇒ [20-1, Fuel delivery unit, removing and installing](#) .

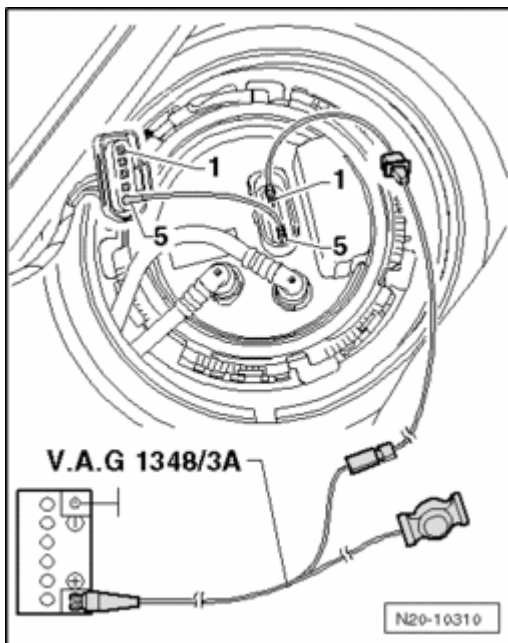
Fuel Pump (FP) check-valve, checking

- Remove seat bench

⇒ *Repair Manual, Body Interior, Repair Group 72,*



- Unclip cover - **1** - from fuel delivery unit. Arrow - **2** - points in direction of travel.

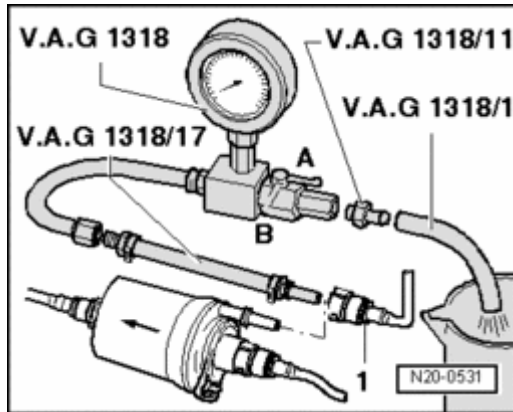


- Disconnect 5-pin harness connector from fuel delivery unit.
- Connect remote control for VAG 1348 V.A.G 1348/3A with an adapter cable to terminal - **1** - of Fuel Pump (FP) and to battery plus (+).
- Connect terminals - **5** - of harness connector and Fuel Pump (FP) using an adapter cable from connector test kit V.A.G 1594 C .

Warning!

Fuel supply line is under pressure! Wear protective

goggles and protective clothing to prevent injuries and contact with skin. Before loosening the fuel lines, place a rag around the connection point. Then release pressure by carefully pulling hose off connection.



- Disconnect supply line - **1** - from fuel filter input.

Note:

- Press in securing ring to disengage the fuel line.

- Connect pressure gauge V.A.G 1318 with adapter V.A.G 1318/17 as shown.
- Connect adapter V.A.G 1318/1 to adapter V.A.G 1318/11 of pressure gauge and hold it in a measuring container.
- Close shut-off valve of pressure gauge V.A.G 1318 (lever perpendicular to direction of flow, position - **B** -).
- Operate remote control at short intervals, until a pressure of approx. 4 bar has built up.

Warning!

Danger of spraying when opening shut-off valve; wear protective goggles and protective clothing to prevent injuries and contact with skin. Hold container in front of free connection of pressure measuring device.

- If pressure builds up too high, lower excess pressure by carefully opening shut-off tap.
- Watch pressure drop on gauge.

After 10 minutes pressure must not drop below a 3 bar decrease.

If pressure drops further:

- Check line connections for leaks.

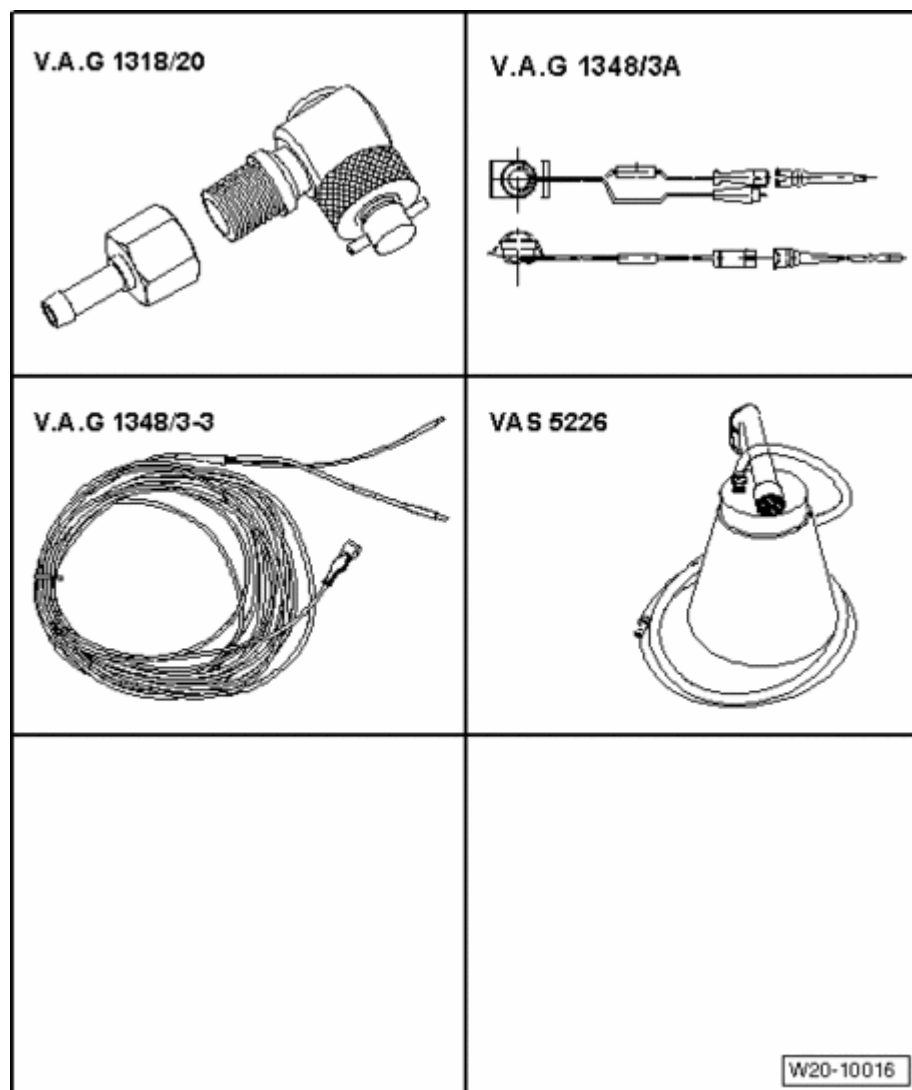
If no fault is detected in wiring:

- Fuel Pump (FP) faulty, replace fuel delivery unit ⇒ [20-1, Fuel delivery unit, removing and installing](#) .

Fuel system, bleeding

Note:

- *If fuel supply system was opened, it must always be bled before starting engine.*
- *If fuel supply system is not bled, catalytic converter will be damaged.*
- *Observe the rules for cleanliness ⇒ [20-1, Rules for cleanliness](#) .*



Special tools, testers and auxiliary items required

- Adapter V.A.G 1318/20
- Remote control connection V.A.G 1348/3A
- Adapter cable V.A.G 1348/3-3
- Diesel extractor VAS 5226

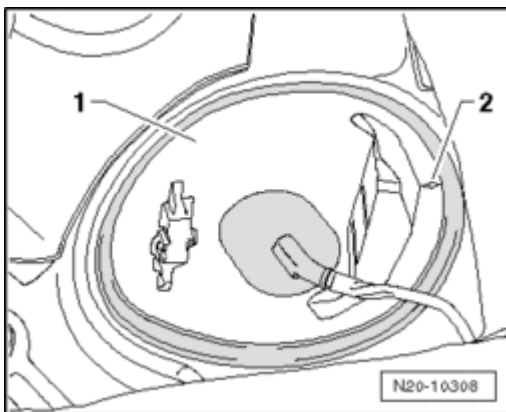
Work procedure

Warning!

Fuel supply line is under pressure! Wear protective goggles and protective clothing to prevent injuries and contact with skin. Before loosening the fuel lines, place a rag around the connection point. Then release pressure by carefully pulling hose off connection.

- Remove seat bench

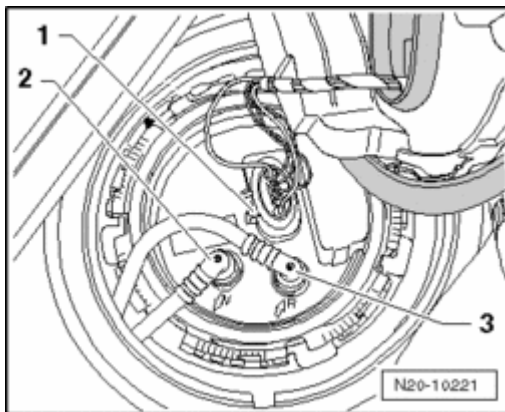
⇒ *Repair Manual, Body Interior, Repair Group 72,*



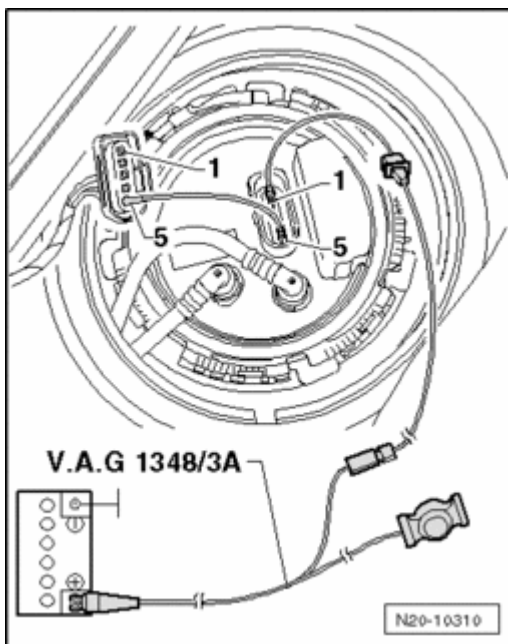
- Unclip cover - **1** - from fuel delivery unit. Arrow - **2** - points in direction of travel.

Note:

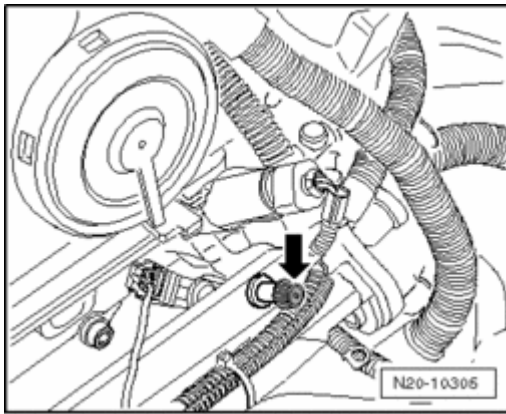
- *On vehicles with auxiliary heater, harness connector of Metering Pump V54 must also be disconnected.*



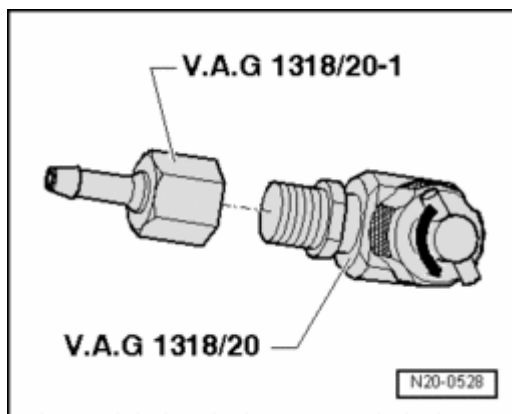
- Disconnect connector - **1** - .



- Connect remote control for VAG 1348 V.A.G 1348/3A with an adapter cable to terminal - **1** - of Fuel Pump (FP) and to battery plus (+).
- Connect terminals - **5** - of harness connector and Fuel Pump (FP) using an adapter cable from connector test kit V.A.G 1594 C .



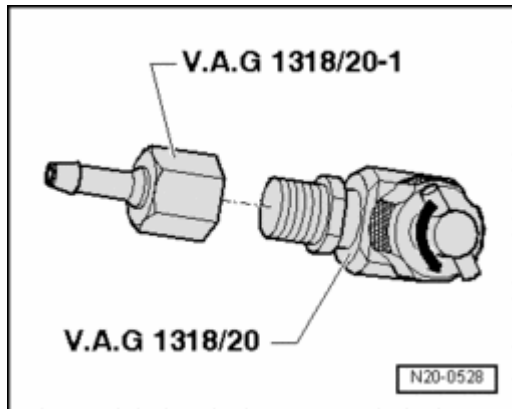
- Remove cover cap - **arrow** - of bleeder valve.



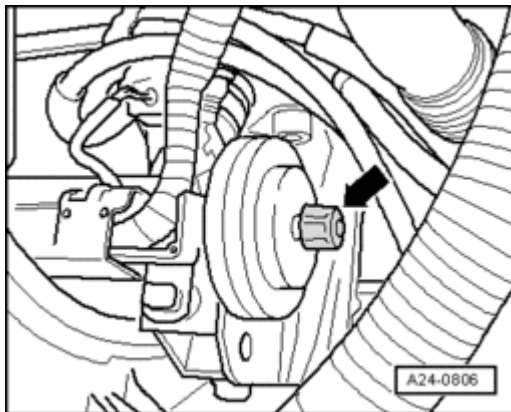
- Turn valve at T-piece counterclockwise until it is completely open.
- Screw adapter V.A.G 1318/20-1 on to adapter V.A.G 1318/20 .
- Screw adapter V.A.G 1318/20 hand-tight on to bleeder valve.



- Connect hose of diesel extractor VAS 5226 as shown.
- Turn valve (at T-piece) clockwise into bleeder valve to stop.
- Check adapter and hose connection for leaks.
- Operate remote control V.A.G 1348/3A until fuel flows out of bleeder valve without bubbles.



- Turn valve at T-piece counterclockwise until it is completely open again.
- Clamp hose of diesel extractor VAS 5226 (e.g. using hose clamps 3094) and disconnect it from adapter V.A.G 1318/20-1 .
- Unscrew adapter V.A.G 1318/20 from bleeder valve.



- Screw on cover cap - **arrow** - of bleeder valve again.



Electronic Engine Power Control (EPC)

Function of EPC system ⇒ [20-2, Function of EPC system](#)

Accelerator pedal module, assembly overview ⇒ [20-2, Accelerator pedal module, assembly overview](#)

Accelerator pedal module, removing and installing ⇒ [20-2, Accelerator pedal module, removing and installing](#)

Function of EPC system

For EPC, the throttle valve is not operated by a cable from the accelerator pedal. There is no mechanical connection between the gas pedal and throttle valve.

The position of the accelerator pedal is transmitted to the engine control module via two accelerator pedal position sensors (adjustable resistances, accommodated in one housing), that are connected to the accelerator pedal.

The position of the accelerator pedal (driver controlled) is a main input for the engine control module.

Operation of the throttle valve occurs via an electric motor (throttle valve actuator) in the throttle valve control module. This applies across the entire engine speed and engine load spectrum.

The throttle valve is operated by the throttle drive according to the instructions of the Engine Control Module (ECM).

With the engine at standstill and the ignition switched on, the Engine Control Module (ECM) activates the throttle valve actuator precisely according to the specifications of the Throttle Position (TP) Sensor. This means, if the accelerator pedal is depressed half way, the throttle drive opens the throttle valve to the same degree; i.e. throttle valve is then opened approx. half way.

With engine running (under load) the engine control module can open and close the throttle valve independently of the accelerator pedal position sensor.

This means, for example, that the throttle valve could be fully opened even though the accelerator pedal has only been depressed half way. This has the advantage of preventing torque losses at the throttle valve.

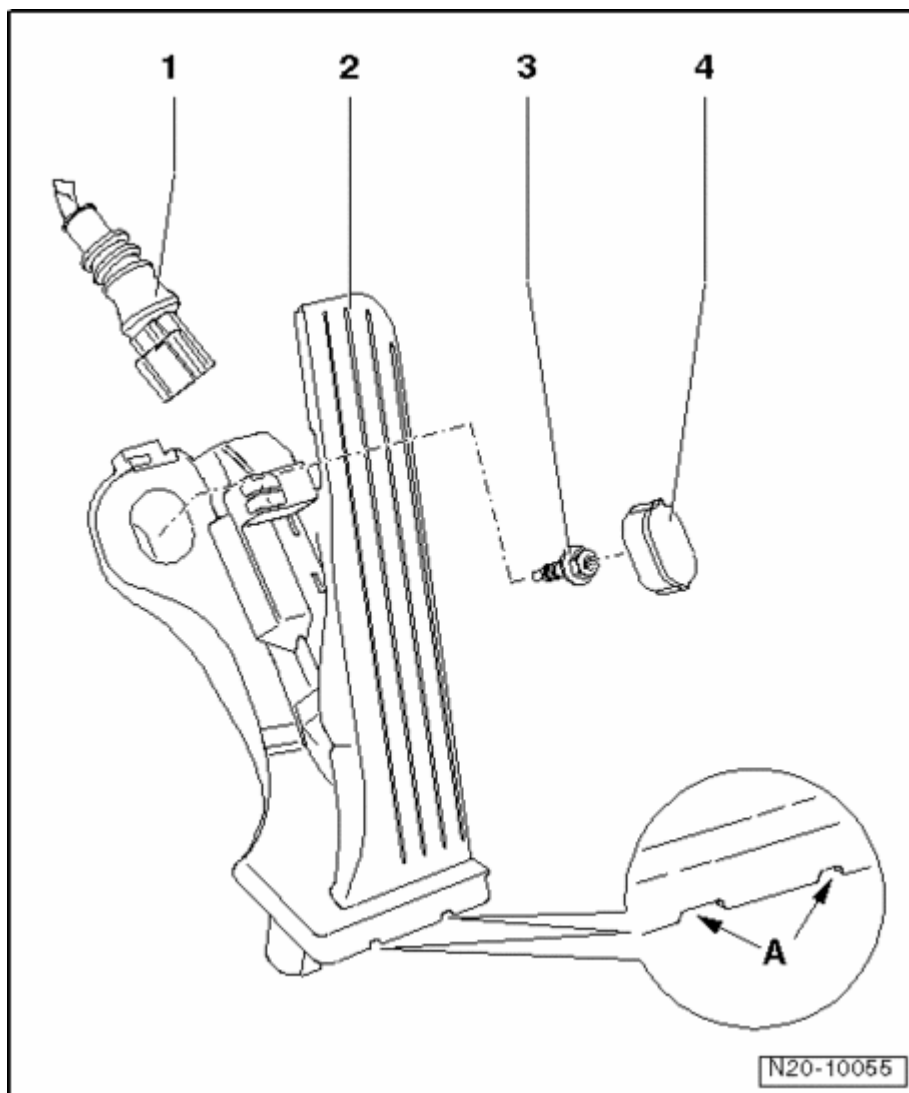
The Engine Control Module (ECM) calculates after evaluation of torque requirements of the different components (e.g. A/C system, automatic transmission,

ABS/ESP, etc.) a throttle valve opening angle optimal for the respective situation.

Aside from that, it results in clearly better pollutant output and consumption values under certain load conditions.

"EPC" is a system containing all components that contribute to determining, controlling and monitoring the throttle valve position, e.g. Throttle Position (TP) Sensor, Throttle Valve Control Module, EPC warning light, Engine Control Module (ECM).

Accelerator pedal module, assembly overview

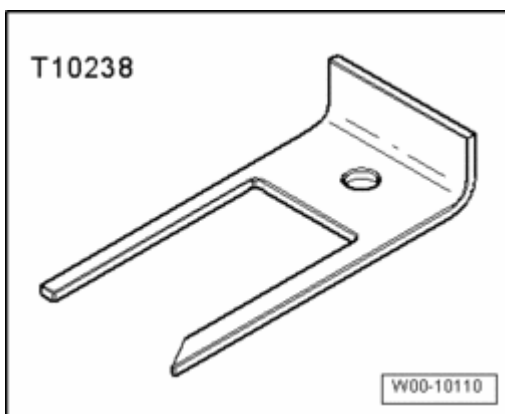


- **Connector**
 - Black, 6-pin
- **Throttle Position (TP) Sensor**
G79 with Accelerator Pedal
Position Sensor 2 G185

- Not adjustable
 - The throttle position sensor transmits the driver control to engine control module
 - - **A** - Openings for release tool T10238
 - Removing and installing ⇒ [20-2, Accelerator pedal module, removing and installing](#)
-
- 10 Nm
 - Cover cap

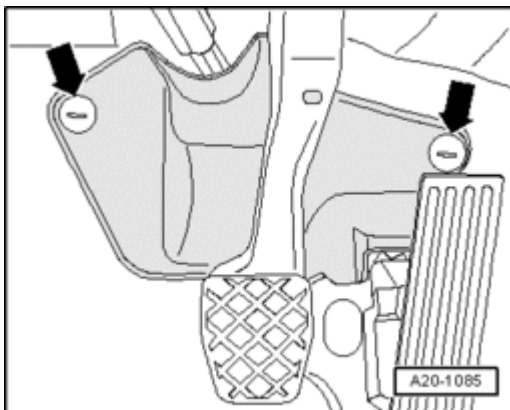
Accelerator pedal module, removing and installing

Special tools, testers and auxiliary items required



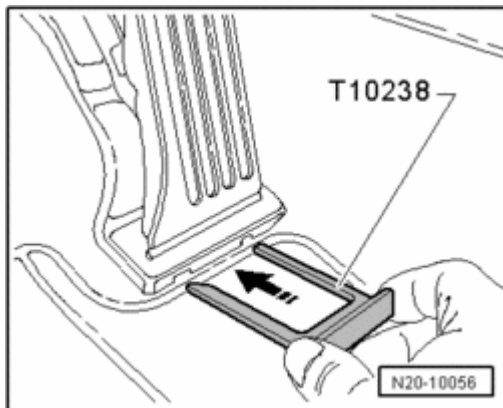
- Release tool T10238

Removing



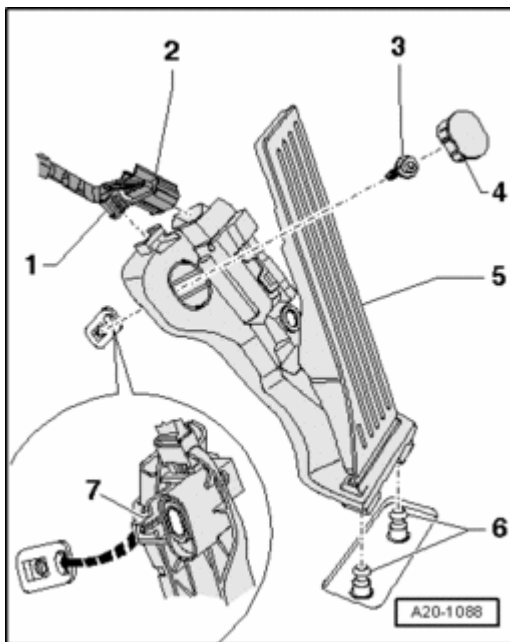
- Remove steering column cover - **arrows** - .

- Pry out cover cap ⇒ [Item - 4 -](#) using a screwdriver.
- Remove mounting bolt ⇒ [Item - 3 -](#) .



- Slide release tool T10238 as shown into openings designated for it until it stops and remove accelerator pedal module.
- Disconnect harness connector from accelerator pedal module.

Installing



- Connect harness connector - **2** - to accelerator pedal module - **5** - and slide rubber grommet again on to harness connector - **1** - .
- Press accelerator pedal module on to securing studs - **6** - .
- Insert centering pin - **7** - into hole on vehicle floor.
- Secure accelerator pedal module with bolt - **3** - and

install cover cap - 4 - .

- Reinstall steering column cover.

- If accelerator pedal module was replaced, adapt accelerator pedal module to Engine Control Module (ECM)
⇒ *Vehicle Diagnosis, Testing and Information System VAS 5051* "Guided Functions" .

- If accelerator pedal module was replaced in vehicles with automatic transmission or Direct Shift Transmission, kick-down function must be learned ⇒ *Vehicle Diagnosis, Testing and Information System VAS 5051* "Guided Functions" .

Tightening torque:

Component	Nm
Accelerator pedal module to body	10

EVAP canister system

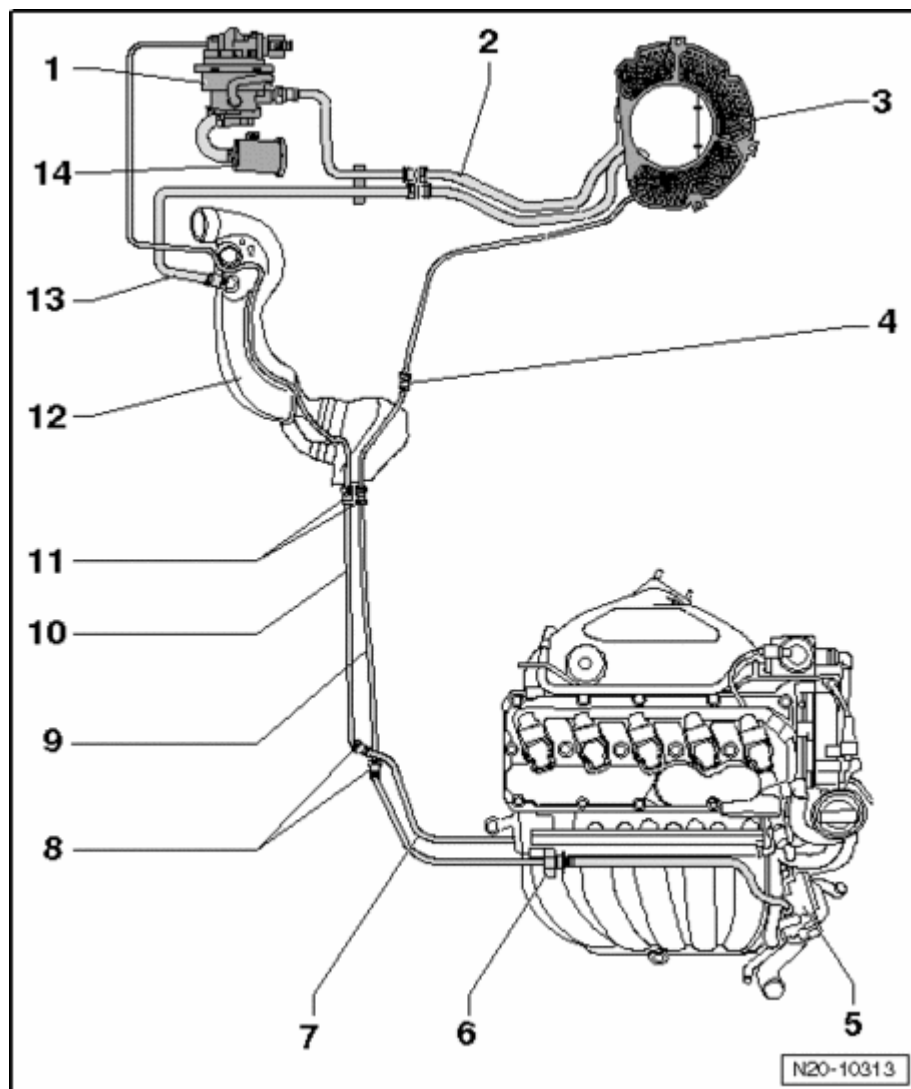
EVAP canister system, overview ⇒ [20-3, EVAP canister system, overview](#)

EVAP canister system, assembly overview ⇒ [20-3, EVAP canister system, assembly overview](#)

EVAP canister, removing and installing ⇒ [20-3, Evaporative emissions \(EVAP\) canister, removing and installing](#)

Leak Detection Pump (LDP) V144 , removing and installing ⇒ [20-3, Leak Detection Pump \(LDP\) V144 , removing and installing](#)

EVAP canister system, overview



- Leak detection pump (LDP) V144

- Location: Under wheel housing liner in right rear wheelhousing
- Checking ⇒ *Vehicle Diagnosis, Testing and Information System VAS 5051*
- Removing and installing ⇒ [20-3, Leak Detection Pump \(LDP\) V144 , removing and installing](#)
- **Connecting line**
 - From Leak Detection Pump (LDP) V144 to EVAP canister
 - Clipped in on bracket
- **EVAP canister**
 - Location: Bottom of spare wheel well
 - Removing and installing ⇒ [20-3, Evaporative emissions \(EVAP\) canister, removing and installing](#)
- **Separating point**
 - At right rear on fuel tank
- **Throttle valve control module J338**

Removing and installing ⇒ [24-1, Throttle Valve Control Module J338 , removing and installing](#)
- **Evaporative Emission (EVAP) Canister Purge Solenoid Valve 1 N80**
 - Checking ⇒ *Vehicle Diagnosis, Testing and*

*Information System VAS
5051*

- **Vacuum line**

- Connected to intake manifold

- **Separating point**

- At right, front in engine compartment under coolant expansion tank

- **Vent line**

- White
- From EVAP canister to Evaporative Emission (EVAP) Canister Purge Regulator Valve N80
- Installed location: at right on underbody
- Secured to fuel tank

- **Vacuum line**

- Green
- From engine to Leak Detection Pump (LDP) V144
- Installed location: at right on underbody
- Secured to fuel tank

- **Separating point**

- At right, front on fuel tank in area of fuel filter

- **Filler tube**

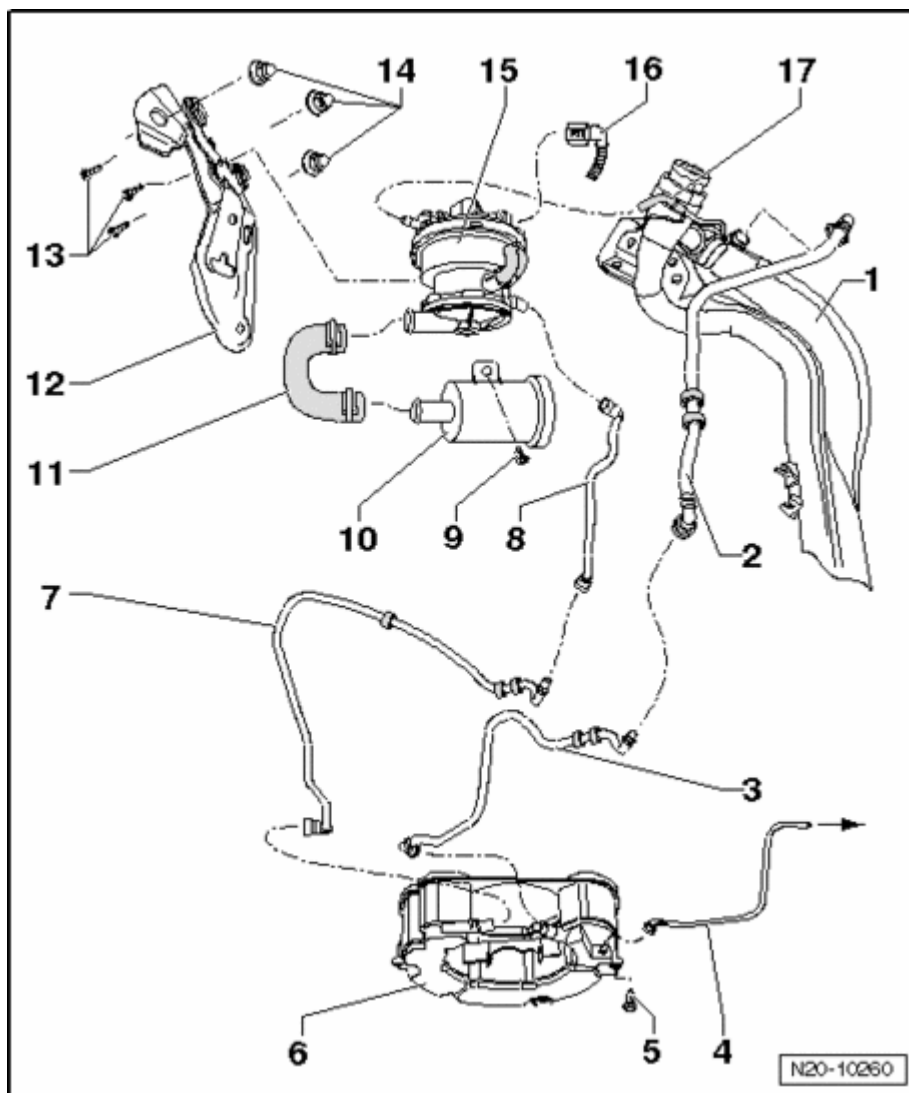
- **Vent line**

- From filler connection to

EVAP canister

- **Air filter housing**
 - For Leak detection pump (LDP) V144

EVAP canister system, assembly overview



- **Fuel tank**
- **Vent line**
 - Behind wheel housing liner
- **Vent line**
 - On underbody

- **Vent line**

- To Evaporative Emission (EVAP) Canister Purge Regulator Valve N80
- To remove, press release button

- **8 Nm**

- **EVAP canister**

- Component location: Bottom of spare wheel well
- Removing and installing ⇒ [20-3, Evaporative emissions \(EVAP\) canister, removing and installing](#)

- **Connecting line**

- On underbody

- **Connecting line**

- Behind wheel housing liner

- **3 Nm**

- **Air filter housing**

- For Leak detection pump (LDP) V144

- **Connecting hose**

- **Bracket**

- For Leak detection pump (LDP) V144

- **2 Nm**

- **6 Nm**

- **Leak detection pump (LDP) V144**

- Component location: Under

wheel housing liner in right rear wheelhousing

- Removing and installing ⇒ [20-3, Leak Detection Pump \(LDP\) V144 , removing and installing](#)

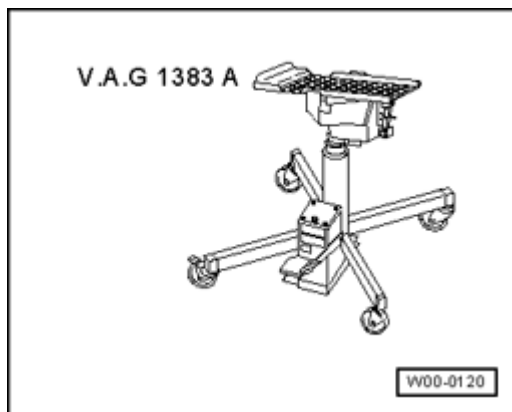
- **Connector**

- **Vacuum line**

- From intake manifold

Evaporative emissions (EVAP) canister, removing and installing

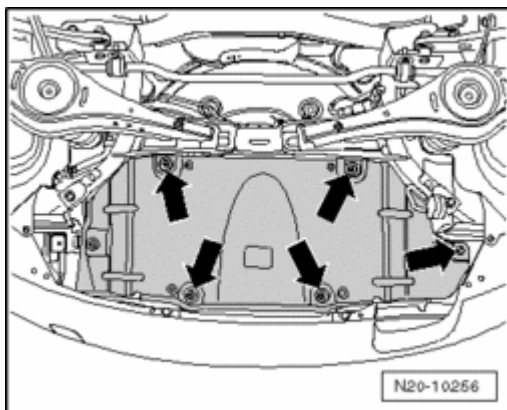
Special tools, testers and auxiliary items required



- Engine/transmission jack V.A.G 1383 A

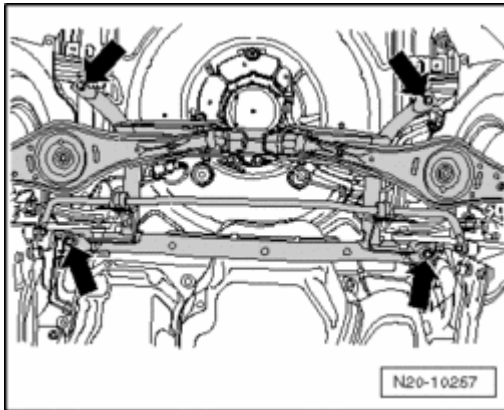
Removing

- Remove center and rear mufflers.

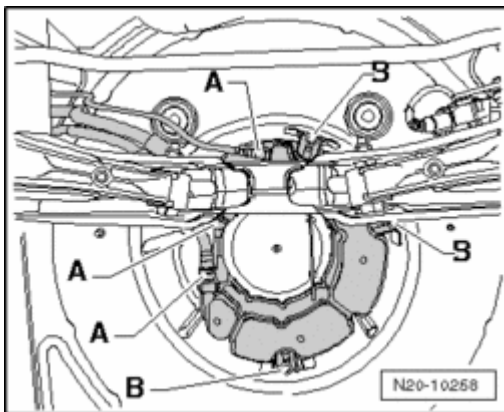


- Remove heat shield - **arrows** - .

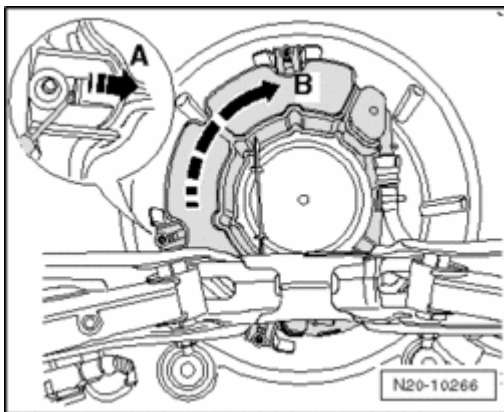
- For supporting purposes, place Engine and Transmission Holder V.A.G 1383 A under rear axle.



- Loosen mounting bolts - **arrows** - of rear axle and unscrew them approx. 20 mm.
- Slowly lower rear axle using Engine and Transmission Holder V.A.G 1383 A .



- Disconnect vent lines - **A** - by pressing release button.
- Remove screws - **B** - .



- Release retaining straps - **A** - using a screwdriver.
- Rotate EVAP canister - **B** - approx. 90 ° clockwise and remove EVAP canister.

Installing

Installation is in reverse order of removal. Note the following:

- Connect ventilation lines until they engage audibly.
- Install rear axle

⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 42,](#)

.

Torque specifications

Component	Nm
EVAP canister to body	8

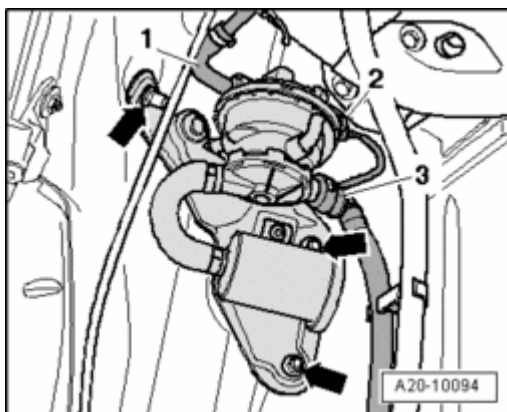
Leak Detection Pump (LDP) V144 , removing and installing

Removing

- Remove right rear wheel housing liner

⇒ [Repair Manual, Body Exterior, Repair Group 66,](#)

.



- Disconnect vacuum line - **1** - .
- Disconnect electrical connector - **2** - .
- Disconnect vent line - **3** - by pressing release button.
- Remove nuts - **arrows** - .

- Disengage diagnostic pump with bracket.

Installing

Installation is in reverse order of removal. Note the following:

- Vent line - **3** - must engage audibly.
- Install right rear wheel housing liner

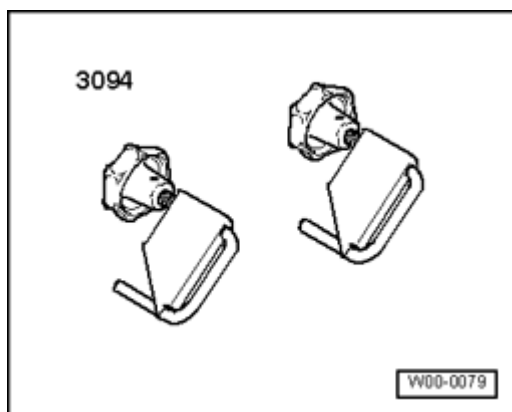
⇒ [Repair Manual, Body Exterior, Repair Group 66.](#)

Torque specifications

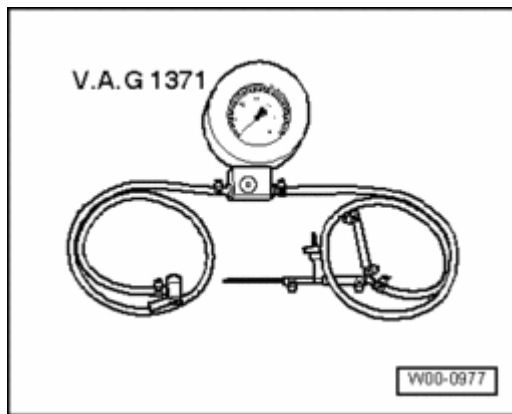
Component	Nm
Bracket for leak detection pump to wheel housing	8

Fuel supply system for leaks, checking

Special tools, testers and auxiliary items required



- Hose clamps up to 25 mm dia. 3094

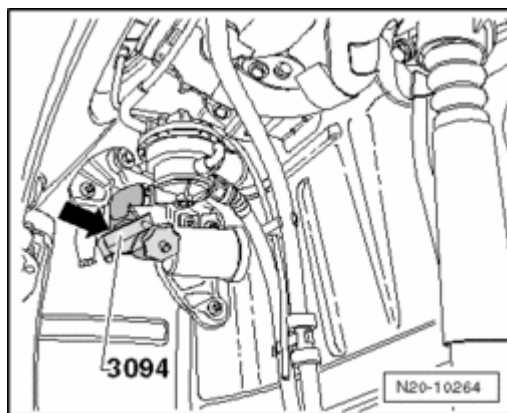


- Tester V.A.G 1371

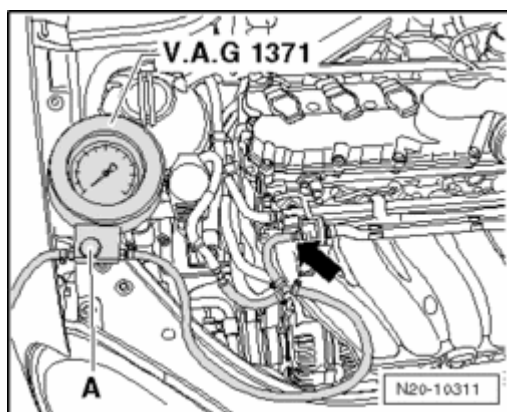
Test conditions:

- Ignition switched off.
- A leak was detected by Leak Detection Pump (LDP) V144 .

- Remove right rear wheel and wheelhousing liner.



- Clamp hose - **arrow** - closed between Leak Detection Pump (LDP) V144 and air filter using a hose clamp 3094 .



- Connect tester V.A.G 1371 as shown between Evaporative Emission (EVAP) Canister Purge Regulator Valve N80 - **arrow** - and vent line.
- Connect valve attachment of tester V.A.G 1371 to tire valve.
- Using valve - **A** - , regulate pressure to 35 mbar. After pressure has stabilized, it must not drop below 30 mbar for the next 5 minutes.

If pressure does not build up or if positive pressure is not maintained for at least 5 minutes, locate leak as follows:

- Perform visual inspection at all components and hoses of fuel supply system.

Note:

- *Also check sealing cap of fuel tank for proper seal.*

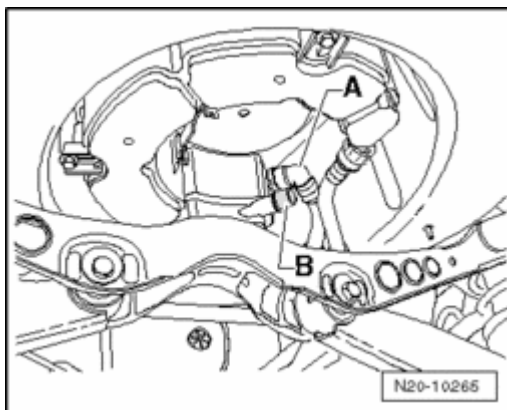
Only up to now no malfunction has been detected:

- First check Evaporative Emission (EVAP) Canister Purge Regulator Valve N80 for proper seal. To do so, clamp hose closed between Evaporative Emission (EVAP) Canister Purge Regulator Valve N80 and tester V.A.G 1371 using a hose clamp.

Repeat pressure test.

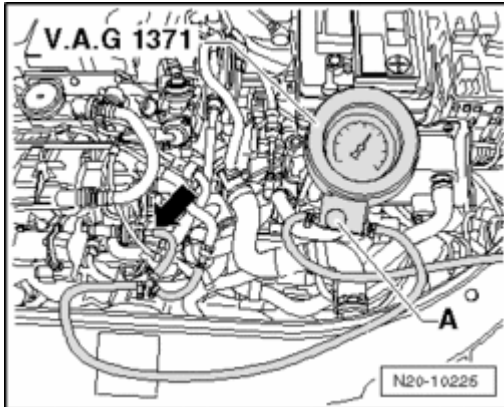
- If pressure now no longer falls, replace Evaporative Emission (EVAP) Canister Purge Regulator Valve N80 .

If pressure still drops:



- Check vent line, Leak Detection Pump (LDP) V144 and EVAP canister for proper seal. To do so, disconnect vent line - **A** - from EVAP canister and seal connection using a plug - **B** - .
- Repeat pressure test.

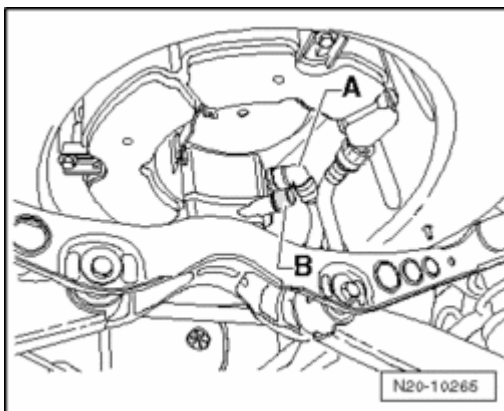
If pressure still drops:



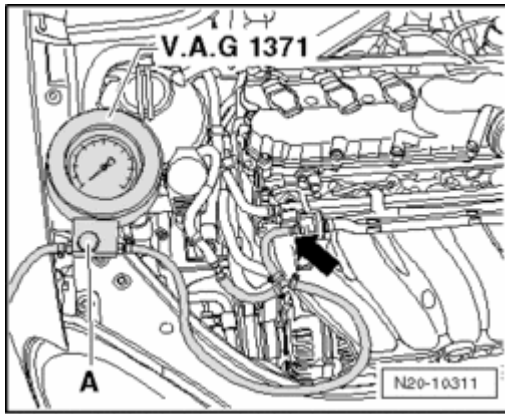
- With valve - **A** - opened, check the following lines and components for leaking areas by listening, touch, using standard leak detection spray or using ultrasonic measuring device V.A.G 1842 .

- Line from Evaporative Emission (EVAP) Canister Purge Regulator Valve N80 to EVAP canister.
- EVAP canister
- Hose from EVAP canister to Leak Detection Pump (LDP) V144
- Leak detection pump (LDP) V144

If pressure no longer falls now, search for leak on fuel tank.



- To do so, connect vent line - **A** - again to EVAP canister.



- With valve - **A** - opened, check fuel tank for leaking areas by listening, touch, using standard leak detection spray or using ultrasonic measuring device V.A.G 1842 .
- To test connector flange, rear seat bench and cover of fuel delivery unit must be removed.

After completing work, perform a leak test with Leak Detection Pump (LDP) V144 ⇒ *Vehicle Diagnosis, Testing and Information System VAS 5051 "Guided Functions"* .

Caution!

After completing work, check tire pressure!