



Repair Manual

Golf 2013 ➤

Golf 2015 ➤

Golf Variant 2014 ➤

Golf Variant 2015 ➤

Fuel Supply - Gasoline Engines

Engine ID	CYF B								
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Edition 07.2015



List of Workshop Manual Repair Groups

Repair Group

00 - General, Technical Data

20 - Fuel Supply



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.



Contents

00 - General, Technical Data	1
1 Safety Precautions	1
1.1 Safety Precautions when Working on Fuel Supply System	1
1.2 Safety Precautions during Road Test with Testing Equipment	1
1.3 Safety Precautions when Working on Start/Stop System	2
2 Identification	3
2.1 Engine Number/Engine Specifications	3
3 General Information	4
3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions	4
4 Repair Information	5
4.1 Line Routing and Securing	5
4.2 General Repair Information	5
20 - Fuel Supply	6
1 Fuel Tank	6
1.1 Overview - Fuel Tank	6
1.2 Fuel Tank, Removing and Installing	10
1.3 Fuel Tank, Draining	19
2 Fuel Delivery Unit/Fuel Level Sensor	25
2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor	25
2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing	27
2.3 Fuel Level Sensor G , Removing and Installing	30
2.4 Fuel Level Sensor 2 G169 , Removing and Installing	31
3 Connector Couplings	34
3.1 Connector Couplings, Disconnecting	34
4 Fuel Filter	38
5 EVAP System	39
5.1 Connection Diagram - EVAP System	39
5.2 Overview - EVAP System	40
5.3 EVAP Canister, Removing and Installing	42
5.4 Fuel Tank, Checking Ventilation	46
6 Accelerator Mechanism	51
6.1 Overview - Accelerator Pedal Module	51
6.2 Accelerator Pedal Module GX2 , Removing and Installing	52
7 Fuel Pump	53
7.1 Transfer Fuel Pump G6 , Checking	53
7.2 Fuel Pump Control Module J538 , Removing and Installing	64
7.3 Suction Jet Pump, Removing and Installing	65
8 Special Tools	67
9 Revision History	72





00 – General, Technical Data

1 Safety Precautions

(Edition 07.2015)

⇒ [“1.1 Safety Precautions when Working on Fuel Supply System”, page 1](#)

⇒ [“1.2 Safety Precautions during Road Test with Testing Equipment”, page 1](#)

⇒ [“1.3 Safety Precautions when Working on Start/Stop System”, page 2](#)

1.1 Safety Precautions when Working on Fuel Supply System



WARNING

There is a risk of injury because the fuel is under pressure.

Fuel system is under pressure. Injuries are possible from fuel spraying out.

Before Opening the Fuel System:

- Wear protective eyewear.
- Wear safety gloves.
- Reduce the pressure: Lay clean cloths around the connection point and carefully open the connection point.

Procedure for reducing the high fuel pressure. Refer to ⇒ Rep. Gr. 24 ; Injection System; High Fuel Pressure, Reducing .



Caution

Risk of a fire due to leaking fuel.

When the battery is connected, the door contact switch activates the fuel pump when opening the driver door. Leaking fuel can ignite and start a fire.

- Before opening the fuel system, cut off the fuel pump power supply.

1.2 Safety Precautions during Road Test with Testing Equipment

There is a risk of injury caused by unsecured testing equipment.

If the front passenger airbag deploys during an accident, unsecured testing equipment becomes a dangerous projectile.

- Secure the testing equipment to the rear seat.

or

- Have a second person operate the testing equipment on the rear seat.



1.3 Safety Precautions when Working on Start/Stop System

There is a risk of injury due to the engine starting unexpectedly.

The engine can start unexpectedly on vehicles with an activated Start/Stop System. A message in the instrument cluster indicates whether the Start/Stop System is activated.

- Deactivating the Start/Stop System: Switch off the ignition.





2 Identification

⇒ **"2.1 Engine Number/Engine Specifications", page 3**

2.1 Engine Number/Engine Specifications

Engine Specifications

Codes		CYFB
Displacement	liters	1.984
Output	kW at RPM	215/5400 to 6200
Torque	Nm at RPM	380/1900 to 5300
Bore	Diameter in mm	82.5
Stroke	mm	92.8
Compression ratio		9.3:1
Research Octane Number (RON)		98 ¹⁾
Injection system/ignition system		FSI MPI
Exhaust Gas Recirculation (EGR)		no
Exhaust Temperature Regulation		no
Turbocharger, Supercharger		Turbocharger
Knock Sensors (KS)		yes
Charge air cooler		yes
Oxygen sensor regulation		yes
Variable valve timing		yes
Variable intake manifold		yes
Secondary Air System		no
Valve per cylinder		4
Ignition sequence		1-3-4-2
Cylinder cut-off		no
<ul style="list-style-type: none"> ¹⁾ Unleaded RON 95 is also permissible, although with reduced power. 		



3 General Information

⇒ **"3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions", page 4**

3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions

Even Small Pieces of Debris Can Lead to Faults. When Working on the Fuel Supply and the Fuel Injection System, Observe the Following Guidelines for a Clean Working Environment:

- ◆ Before loosening, the connection points and surrounding areas must be cleaned thoroughly with engine or brake cleaner, and then the cleaned area must be dried completely.
- ◆ Immediately seal off any open lines and connections with clean plugs, for example, taken from the Engine Bung Set - VAS6122- .
- ◆ Place the removed parts on a clean surface and cover them. Only use lint-free cloths!
- ◆ Carefully cover or seal opened components if repairs are not performed immediately.
- ◆ Only install clean parts: remove the replacement parts from their packaging just before installing them. Do not use parts that have been stored loose (for example, in tool boxes).
- ◆ If the system is open, do not work with compressed air and do not move the vehicle.
- ◆ Protect any disconnected connectors from dirt and moisture, and only connect them when they are completely dry.



4 Repair Information

⇒ [“4.1 Line Routing and Securing”, page 5](#)

⇒ [“4.2 General Repair Information”, page 5](#)

4.1 Line Routing and Securing

There is a risk of damaging the lines.

The lines can be damaged by the moving or hot components.

- Route the wires in the original routing.
- Ensure sufficient clearance to moving or hot components.

- ◆ Mark the lines, for example, the fuel, vacuum and EVAP system lines and electrical wires before removal to avoid interchanging them and to ensure the original installation position. If necessary, draw sketches or take pictures.

4.2 General Repair Information

Complete the following Steps before Starting Work on the Fuel Supply System:

- ◆ Before starting work, place a suction hose near the installation opening for the fuel tank when the exhaust extracting system is switched on.
- ◆ This extracts the fuel vapors.
- ◆ If no exhaust extraction system is available, a radial fan (as long as motor is not in air flow) with a delivery volume greater than 15 m³/h can be used.
- ◆ Do not let fuel come in contact with skin. Wear fuel-resistant gloves.
- ◆ Disable the current to the Transfer Fuel Pump - G6- . Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ◆ Drain the fuel tank. Refer to ⇒ [“1.3 Fuel Tank, Draining”, page 19](#) .



20 – Fuel Supply

1 Fuel Tank

⇒ [“1.1 Overview - Fuel Tank”, page 6](#)

⇒ [“1.2 Fuel Tank, Removing and Installing”, page 10](#)

⇒ [“1.3 Fuel Tank, Draining”, page 19](#)

1.1 Overview - Fuel Tank

⇒ [“1.1.2 Overview - Fuel Tank”, page 8](#)

1.1.1 Overview - Fuel Tank



WARNING

There is a risk of the fuel tank exploding! After installing a new or completely emptied fuel tank, fill it immediately with a minimum of five liters of fuel. Do not allow the fuel pump to run when the fuel tank is completely empty.

1 - Vent Line

- ☐ To the EVAP Canister
- ☐ Do not kink
- ☐ Clipped to the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Install until it clicks into place
- ☐ Press again and pull to make sure the connection is engaged correctly.

2 - Vent Line

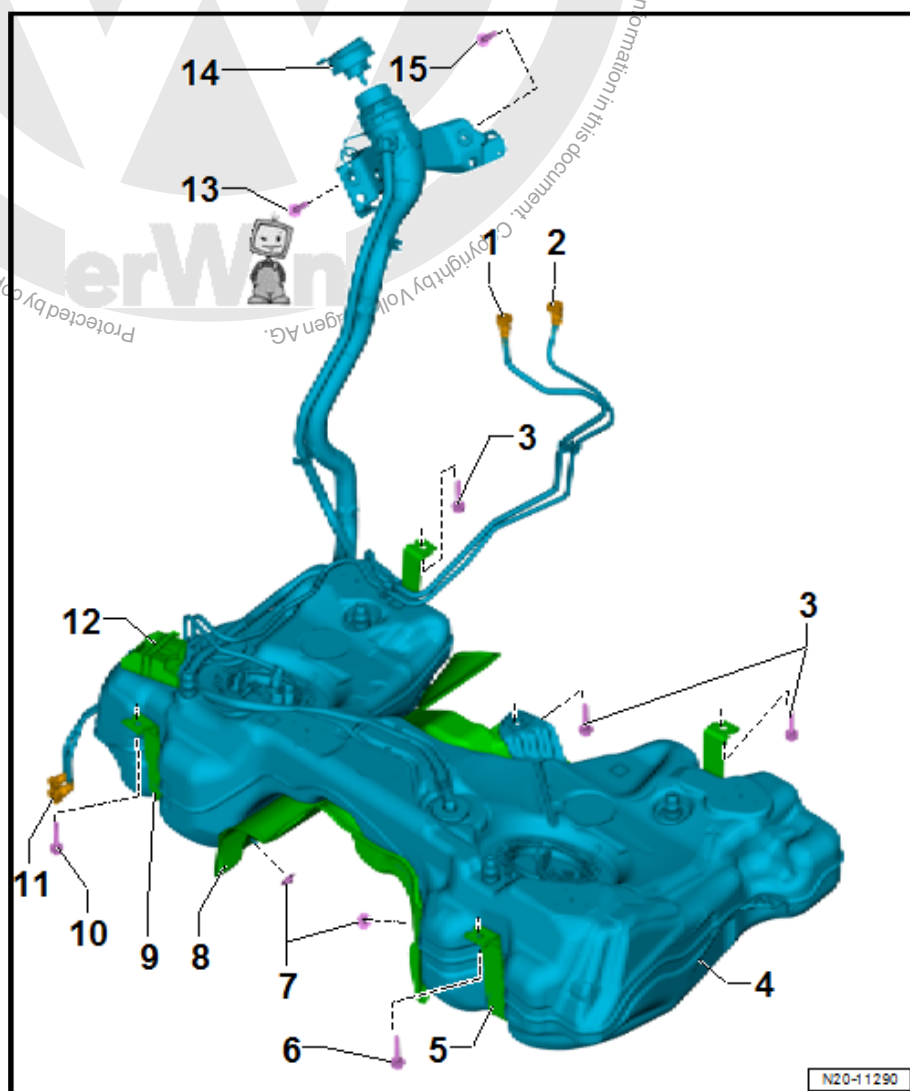
- ☐ To the EVAP Canister
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Install until it clicks into place
- ☐ Press again and pull to make sure the connection is engaged correctly.

3 - Bolts

- ☐ 20 Nm

4 - Fuel Tank

- ☐ Removing and installing. Refer to
⇒ [“1.2 Fuel Tank, Removing and Installing”, page 10](#).





5 - Left Mounting Strap

6 - Bolt

- ☐ 20 Nm

7 - Nut

- ☐ 2 Nm
- ☐ For the heat shield

8 - Heat Shield

- ☐ For the fuel tank

9 - Right Mounting Strap

10 - Bolt

- ☐ 20 Nm

11 - Fuel Line

- ☐ To the engine
- ☐ Do not kink
- ☐ Clipped to the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Install until it clicks into place
- ☐ Press again and pull to make sure the connection is engaged correctly.

12 - Fuel Pump Control Module - J538-

- ☐ Removing and installing. Refer to
⇒ [“7.2 Fuel Pump Control Module J538 , Removing and Installing” , page 64 .](#)

13 - Bolt

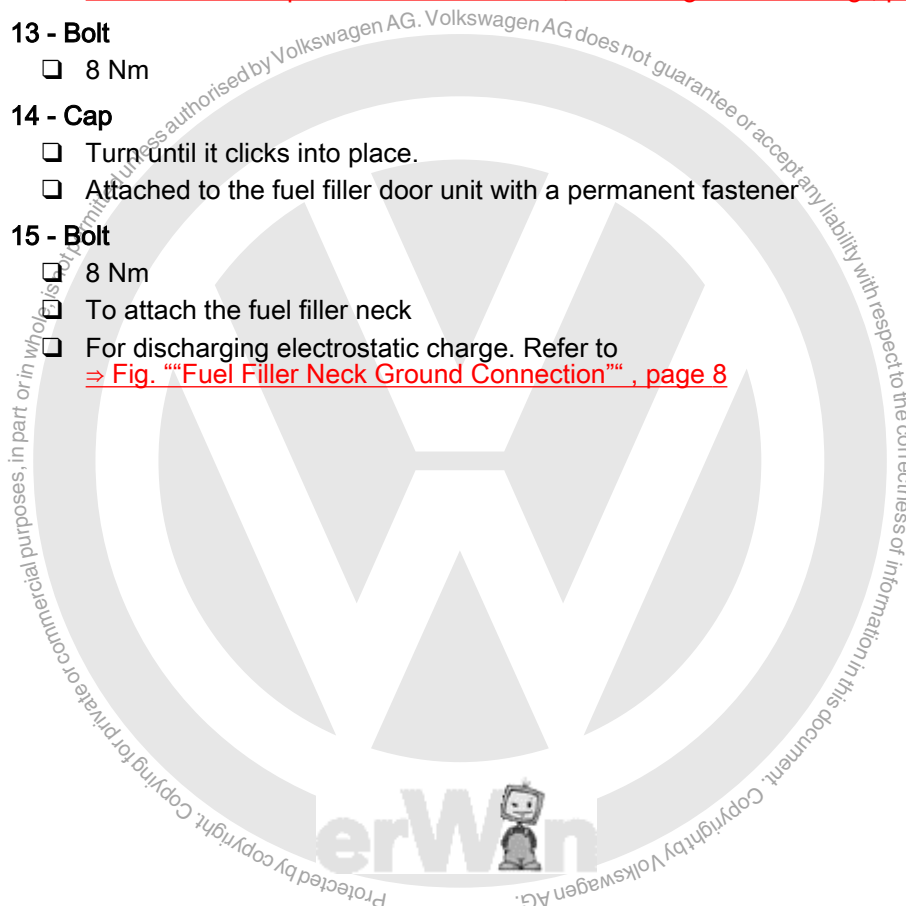
- ☐ 8 Nm

14 - Cap

- ☐ Turn until it clicks into place.
- ☐ Attached to the fuel filler door unit with a permanent fastener

15 - Bolt

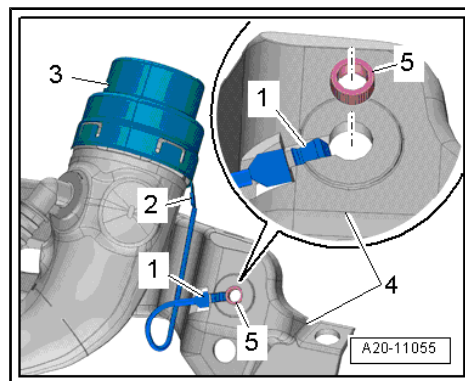
- ☐ 8 Nm
- ☐ To attach the fuel filler neck
- ☐ For discharging electrostatic charge. Refer to
⇒ [Fig. “Fuel Filler Neck Ground Connection” , page 8](#)





Fuel Filler Neck Ground Connection

- Route the ground connection as illustrated.
- Make sure the following connectors are secure:
 - ◆ Connector -2- for ground connection on the threaded ring -3- of the fuel filler neck.
- Engage the ground connection contact -1- in the opening on the fuel tank -4-. Push in the spacer -5-.



WARNING

Risk of explosion due to electrostatic charge.

- ◆ **After installing, check the electrical connection on fuel filler neck metal ring to a bare spot on the body using an ohmmeter.**
- **Specified value: approximately 0 Ω.**

1.1.2 Overview - Fuel Tank



WARNING

There is a risk of the fuel tank exploding! After installing a new or completely emptied fuel tank, fill it immediately with a minimum of five liters of fuel. Do not allow the fuel pump to run when the fuel tank is completely empty.



1 - Heat Shield

- ☐ For the fuel tank

2 - Right Mounting Strap

3 - Bolt

- ☐ 20 Nm

4 - Fuel Line

- ☐ To the engine
- ☐ Do not kink
- ☐ Clipped to the fuel tank
- ☐ Refer to
⇒ ["3.1 Connector Couplings, Disconnecting"](#),
[page 34](#) .

5 - Vent Line

- ☐ To the EVAP Canister
Purge Regulator Valve
1 - N80-
- ☐ Do not kink
- ☐ Clipped to the fuel tank
- ☐ Connector Couplings,
Separating and Connecting. Refer to
⇒ ["3.1 Connector Couplings, Disconnecting"](#),
[page 34](#) .

6 - Bolt

- ☐ 8 Nm
- ☐ To attach the fuel filler
neck
- ☐ For discharging electro-
static charge. Refer to
⇒ [Fig. "Fuel Filler Neck
Ground Connection"](#) ,
[page 10](#)

7 - Ground Connection

- ☐ For the fuel filler neck
- ☐ For discharging electrostatic charge. Refer to
⇒ [Fig. "Fuel Filler Neck Ground Connection"](#) , [page 10](#)

8 - Cap

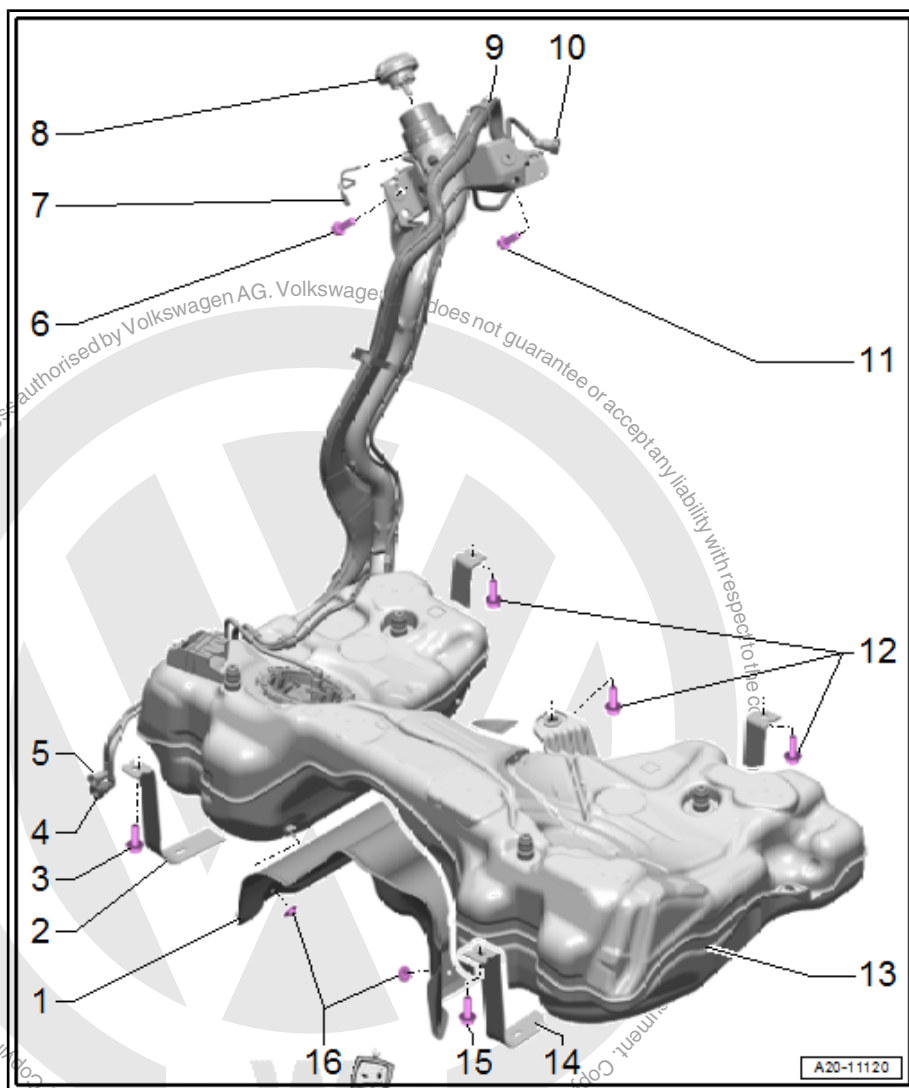
- ☐ Turn until it clicks into place.
- ☐ Attached to the fuel filler door unit with fastening device

9 - Vent Line

- ☐ To the EVAP Canister
- ☐ Do not kink
- ☐ Clipped to the fuel tank
- ☐ Connector Couplings, Separating and Connecting. Refer to
⇒ ["3.1 Connector Couplings, Disconnecting"](#), [page 34](#) .

10 - Vent Line

- ☐ To the EVAP Canister
- ☐ Do not kink
- ☐ Connector Couplings, Separating and Connecting. Refer to
⇒ ["3.1 Connector Couplings, Disconnecting"](#), [page 34](#) .





11 - Bolt

- 8 Nm

12 - Bolts

- 20 Nm
- Quantity: 3

13 - Fuel Tank

- Removing and installing. Refer to ⇒ ["1.2.2 Fuel Tank, Removing and Installing", page 15](#) .

14 - Left Mounting Strap

15 - Bolt

- 20 Nm

16 - Nut

- 2 Nm
- For the heat shield

Fuel Filler Neck Ground Connection

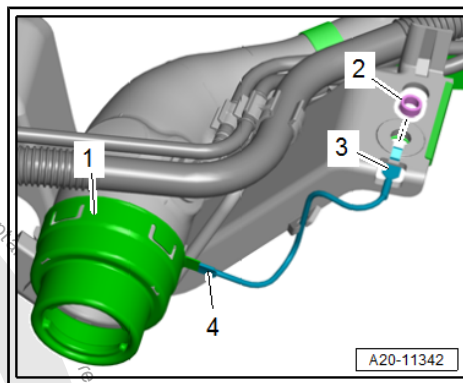
- ◆ Ground connection connector -4- on the threaded ring -1- of the fuel filler neck.
- Engage the ground connection contact -3- in the hole on the fuel tank and then install the spacer -2-.



WARNING

Risk of explosion due to electrostatic charge.

- ◆ *After installing, check the electrical connection on fuel filler neck metal ring to a bare spot on the body using an ohm-meter.*
- *Specified value: approximately 0 Ω.*



1.2 Fuel Tank, Removing and Installing

⇒ ["1.2.2 Fuel Tank, Removing and Installing", page 15](#)

1.2.1 Fuel Tank, Removing and Installing

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-
- ◆ Engine and Gearbox Jack - VAS6931-

Removing

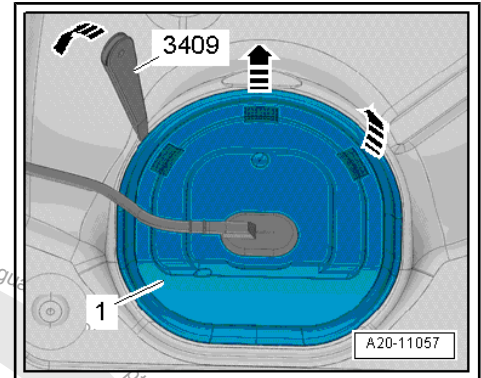
Follow all safety precautions. Refer to ⇒ ["1.1 Safety Precautions when Working on Fuel Supply System", page 1](#) .

Follow the guidelines for clean working conditions. Refer to ⇒ ["3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions", page 4](#) .

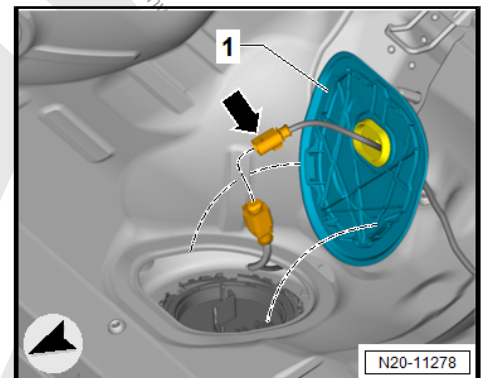
- Move the front seats all the way forward.
- Disconnect the ground cable from the battery terminal. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .



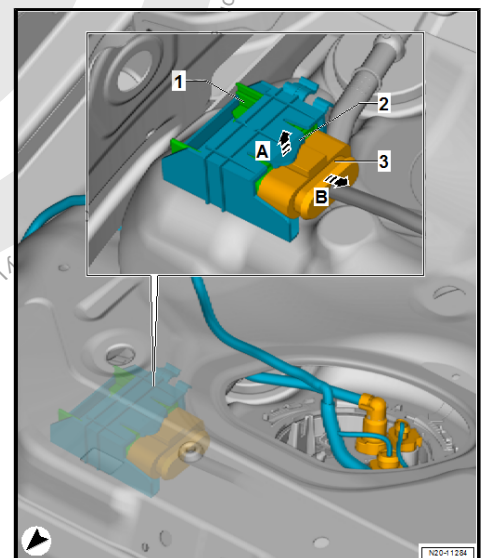
- Remove the rear bench seat. Refer to ➤ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Drain the fuel tank. Refer to
 ➤ [“1.3 Fuel Tank, Draining”, page 19](#) .
- Using the Trim Removal Wedge - 3409- , unclip the cover
 -1- at the tabs in the direction of -arrow-.



- Disconnect the connector -arrow-.
- Move the cover -1- with the wiring harness to the side.
- Lift the tab -2- in the direction of -arrow A- by using a finger to reach between the floor panel and the fuel tank.
- At the same time, carefully pull the Fuel Pump Control Module - J538- -1- out of the mount at the wiring harness -3- in the direction of -arrow B-.

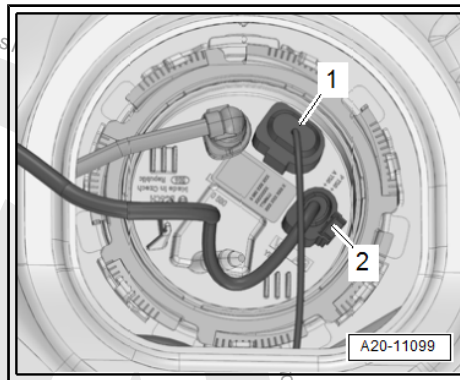


- Remove the Fuel Pump Control Module - J538- toward the inside between the fuel tank and the floor panel.





- Disconnect the connector -1 and 2-.

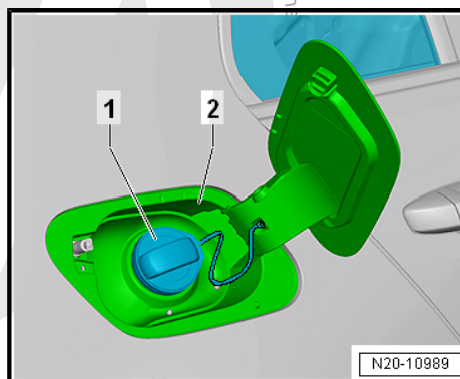


- Open the fuel filler door unit -2-.
- Clean the area around the fuel filler neck.
- Remove the cap -1- for the fuel filler neck.



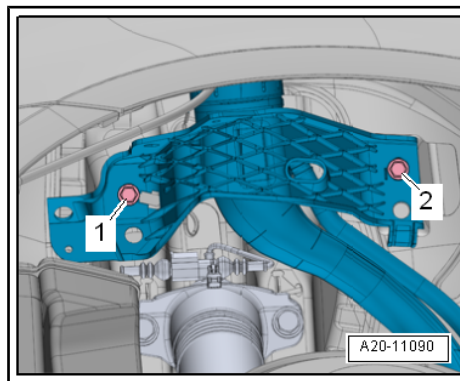
Note

Seal the fuel filler neck opening with a clean plug to prevent any dirt from getting in.

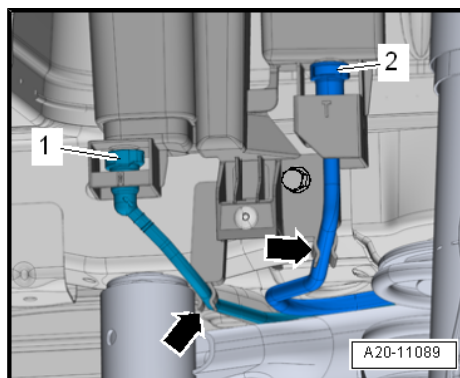


- Remove the right rear wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Rear Wheel Housing Liner, Removing and Installing .
- Remove the right and left rear underbody trim panels. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Underbody Trim Panel; Overview - Underbody Panels .

- Remove the fuel filler neck bolts -1 and 2-.

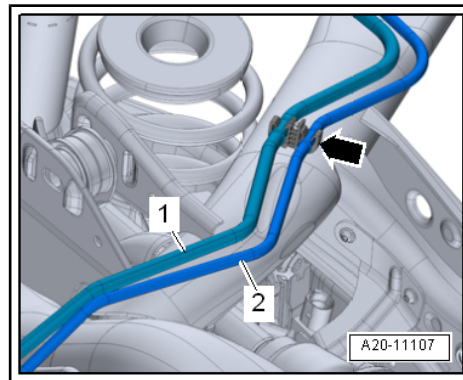


- Disconnect the vent lines -1 and 2- from the EVAP canister.
- To do so, push the release button and remove the connecting piece from the connection.
- Unclip the vent lines from the bracket -arrows-.





- Unclip the breather lines -1 and 2- from the bracket -arrow- on the subframe.
- Remove the driveshaft. Refer to ➤ Rear Final Drive; Rep. Gr. 39 ; Driveshaft; Driveshaft, Removing and Installing .



- Disconnect the connector -1- for the Haldex clutch.

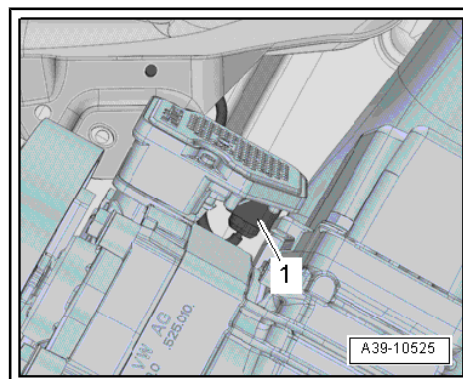


WARNING

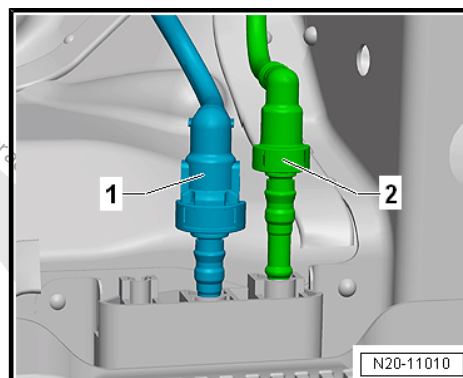
The fuel line is under pressure.

Fuel poses a risk of injury to the eyes and skin.

Wear protective eyewear and protective clothing to avoid injury and contact with skin. Place a cleaning cloth around the connection point before loosening hose connections. Carefully open the connection point to release the pressure.



- Disconnect the lines -1 and 2- from the underbody on the right side.



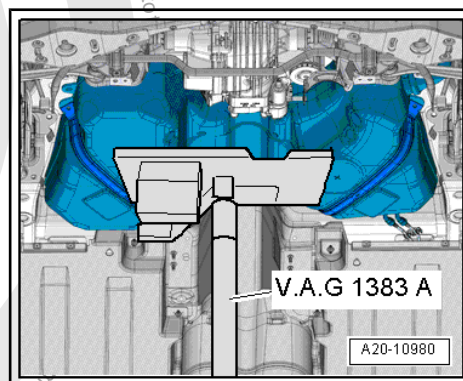
- Place the Engine and Gearbox Jack - VAS6931- under the fuel tank to support it as illustrated.



WARNING

Risk of accident due to the weight of the fuel tank.

♦ *The fuel tank must be empty when removing it.*





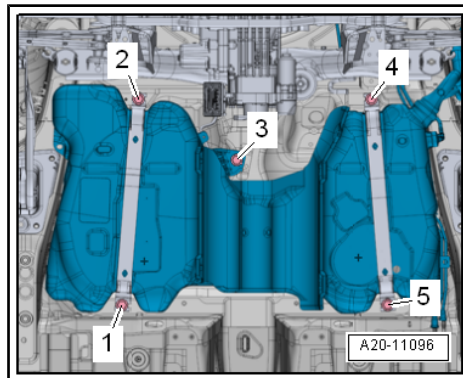
- A second technician is also needed to hold the rear edge of the fuel tank.
- Remove the bolts -1 to 5-.



Note

To improve clarity, the fuel tank is shown without the Engine and Gearbox Jack - VAS6931- .

- Carefully lower the fuel tank using Engine and Gearbox Jack - VAS6931- . At this point, unclip the lines from the fuel tank.
- By turning it accordingly, lower the fuel tank sideways and remove it.
- A second technician is also required to guide out the fuel filler neck by hand.



Installing

Install in reverse order of removal and note the following:



WARNING

There is a risk of the fuel tank exploding! After installing a new or completely emptied fuel tank, fill it immediately with a minimum of five liters of fuel. Do not allow the fuel pump to run when the fuel tank is completely empty.



Note

- ◆ *Press the fuel supply lines on again and pull on them to make sure the connector coupling is engaged correctly.*
- ◆ *Make sure when connecting the connectors that they are secure.*



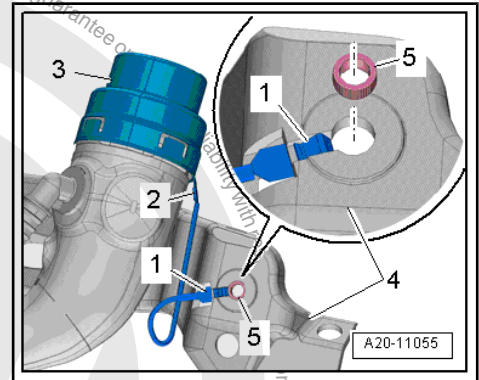
- Check the ground cable for traces of oxidation on the connectors. Remove any oxidation if necessary.
- Make sure the following connectors are secure:
 - The connector -2- must be securely attached to the metal ring -3-.
 - The contact -1- must be engaged in the fuel tank -4- and secured with the spacer -5-.



WARNING

Risk of explosion due to electrostatic charge.

- ◆ *After installing, check the electrical connection on fuel filler neck metal ring to a bare spot on the body using an ohmmeter.*
 - *Specified value: approximately 0 Ω.*



- Make sure the fuel and vent line is clipped to the fuel tank.
- Position the fuel tank with the tensioning straps on the underbody using the Engine and Gearbox Jack - VAS6931- .
- When positioning the fuel tank, make sure that the fuel filler neck is guided into the opening of the body correctly.
- Connect the battery. While doing so, follow all steps after connecting the battery. Refer to ⇒ [Electrical Equipment; Rep. Gr. 27](#) ; Battery; Battery, Disconnecting and Connecting .

Tightening Specifications

- Refer to ⇒ [“1.1 Overview - Fuel Tank”, page 6](#) .

1.2.2 Fuel Tank, Removing and Installing

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-
- ◆ Engine and Gearbox Jack - VAS6931-



Note

- ◆ *For All Wheel Drive (AWD) vehicles in the North American region, there is no sealing flange on the left side of the fuel tank.*
- ◆ *After evacuating the right fuel tank chamber, place the suction hose from the Fuel Extraction Unit - VAS5190A- through the right sealing flange as deep as possible into the left fuel tank chamber to continue extracting fuel.*
- ◆ *After evacuating a small amount remains in the fuel tank, for this reason the fuel tank must be handled with special care when removing and installing.*

Removing

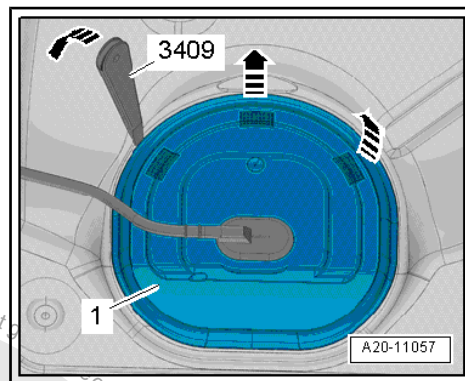
Follow all safety precautions. Refer to ⇒ [“1.1 Safety Precautions when Working on Fuel Supply System”, page 1](#) .

Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions”, page 4](#) .

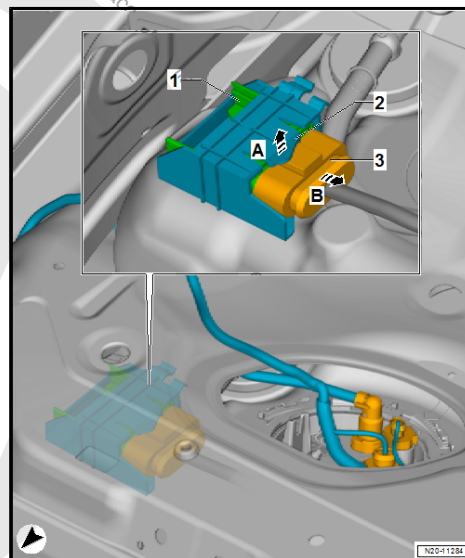
- Move the front seats all the way forward.



- Disconnect the ground cable from the battery terminal. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the rear bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Drain the fuel tank. Refer to ⇒ **"1.3 Fuel Tank, Draining", page 19** .
- Using the Trim Removal Wedge - 3409- , unclip the cover -1- at the tabs in the direction of the -arrow-.



- Lift the tab -2- in the direction of the -arrow A- by using a finger to reach between the floor panel and the fuel tank.
- At the same time, carefully pull the Fuel Pump Control Module - J538- -1- out of the mount at the wiring harness -3- in the direction of the -arrow B-.
- Remove the Fuel Pump Control Module - J538- toward the inside between the fuel tank and the floor panel.

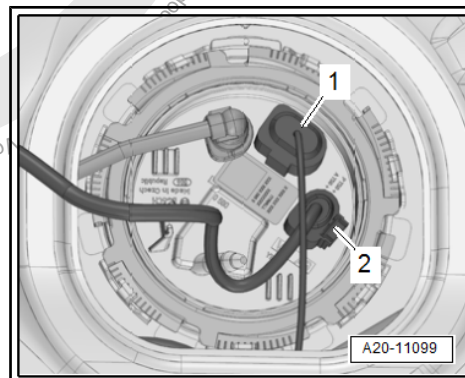


- Disconnect the connector -2-.



Note

Ignore -item 1-.





- Open the fuel filler door unit -2-.
- Clean the area around the fuel filler neck.
- Remove the cap -1- for the fuel filler neck.



Note

Seal the fuel filler neck opening with a clean plug to prevent any dirt from getting in.

- Remove the right rear wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Rear Wheel Housing Liner, Removing and Installing .
- Remove the breather lined -1- from the EVAP canister by disconnecting the connector couplings. Refer to ➤ ["3.1 Connector Couplings, Disconnecting", page 34](#) .
- Disconnect the connector -2-.
- Remove the bolts -3-.
- Remove the driveshaft. Refer to ➤ Rep. Gr. 39 ; Driveshaft; Driveshaft, Removing and Installing .

- Disconnect the connector -1- for the Haldex clutch.



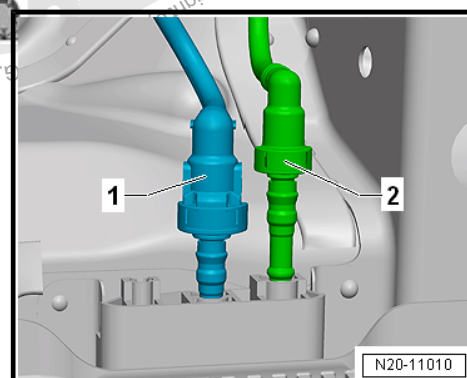
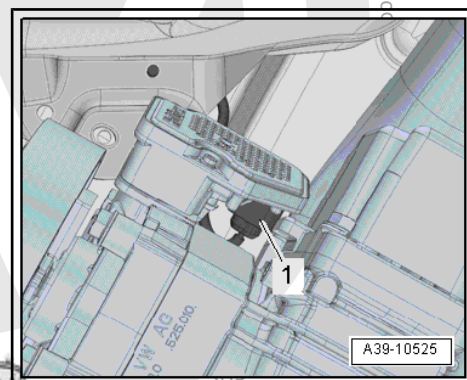
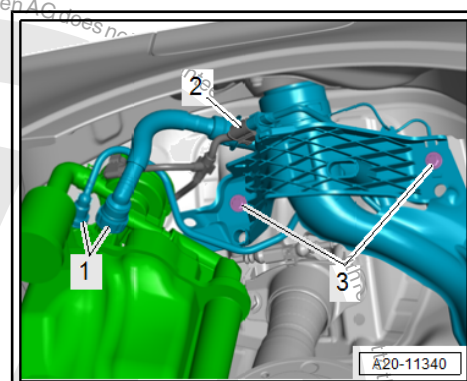
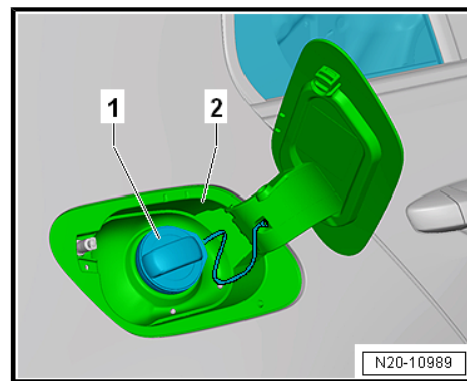
WARNING

The fuel line is under pressure.

Fuel poses a risk of injury to the eyes and skin.

Wear protective eyewear and protective clothing to avoid injury and contact with skin. Place a cleaning cloth around the connection point before loosening hose connections. Carefully open the connection point to release the pressure.

- Disconnect the line -1- from the underbody on the right side.
- Disconnect the line -2-.





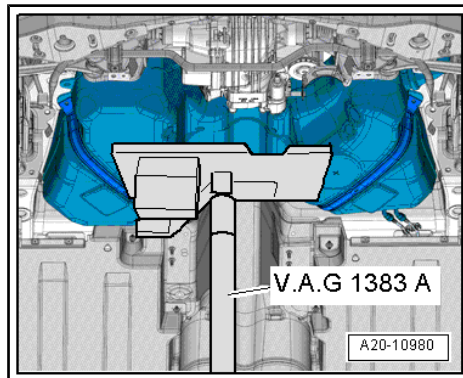
- Place the Engine and Gearbox Jack - VAS6931- under the fuel tank to support it as illustrated.



WARNING

Risk of accident due to the weight of the fuel tank.

- ◆ *The fuel tank must be empty when removing it.*



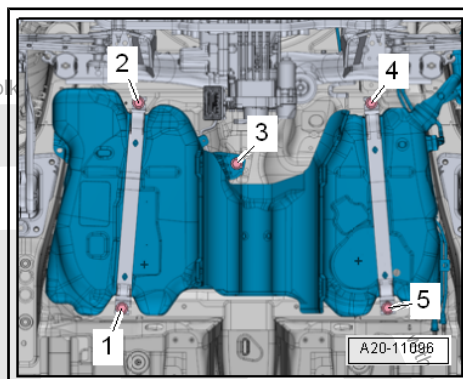
- A second technician is also needed to hold the rear edge of the fuel tank.
- Remove the bolts -1 to 5-.



Note

To improve clarity, the fuel tank is shown without the Engine and Gearbox Jack - VAS6931- .

- Carefully lower the fuel tank using Engine and Gearbox Jack - VAS6931- . At this point, unclip the lines from the fuel tank.
- By turning it accordingly, lower the fuel tank sideways and remove it.
- A second technician is also required to guide out the fuel filler neck by hand.



Installing

Install in reverse order of removal and note the following:



WARNING

There is a risk of the fuel tank exploding! After installing a new or completely emptied fuel tank, fill it immediately with a minimum of five liters of fuel. Do not allow the fuel pump to run when the fuel tank is completely empty.



Note

- ◆ *Press the fuel supply lines on again and pull on them to make sure the connector coupling is engaged correctly.*
- ◆ *Make sure when connecting the connectors that they are secure.*



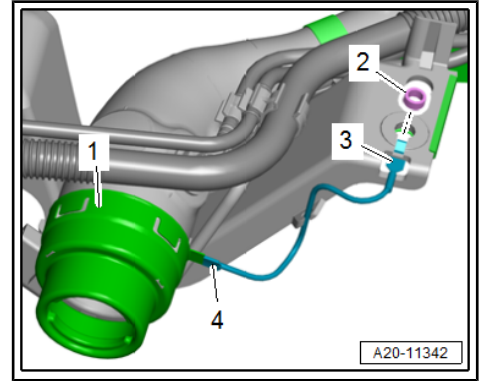
- The connector -4- must be securely attached to the metal ring -1-.
- The contact -3- must be engaged in the fuel tank and secured with the spacer -2-.



WARNING

Risk of explosion due to electrostatic charge.

- ◆ *After installing, check the electrical connection on fuel filler neck metal ring to a bare spot on the body using an ohm-meter.*
- *Specified value: approximately 0 Ω.*



- Make sure the fuel and breather line is clipped to the fuel tank.
- Position the fuel tank with the tensioning straps on the underbody using the Engine and Gearbox Jack - VAS6931- .
- When positioning the fuel tank, make sure that the fuel filler neck is guided into the opening of the body correctly.
- Connect the battery. While doing so, follow all steps after connecting the battery. Refer to ➔ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .

Tightening Specifications

- Refer to ➔ [“1.1 Overview - Fuel Tank”, page 6](#) .

1.3 Fuel Tank, Draining

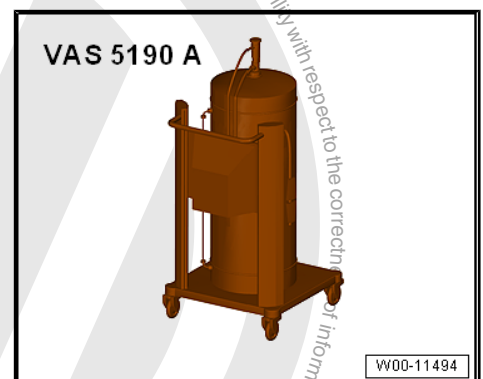
➔ [“1.3.1 Fuel Tank, Draining When More than 3/4 Full”, page 19](#)

➔ [“1.3.2 Fuel Tank, Draining When Less Than 3/4 Full”, page 21](#)

1.3.1 Fuel Tank, Draining When More than 3/4 Full

Special tools and workshop equipment required

- ◆ Fuel Extraction Unit - VAS5190A- (for E 85 - fuel)
- ◆ Fuel Extraction Unit - VAS5190- (not illustrated)

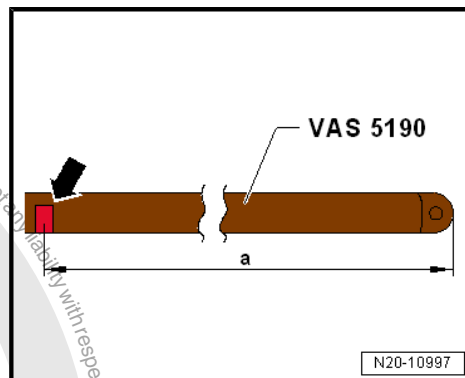


- Follow all safety precautions. Refer to ➔ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ➔ [“3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions”, page 4](#) .



- Disconnect the ground cable from the battery terminal. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Make a mark -arrow- on the hose with insulating tape at distance -a- from the end of the suction hose from the Fuel Extraction Unit - VAS5190A- , or Fuel Extraction Unit - VAS5190- .

All Wheel Drive (AWD) vehicles: -a- = 960 mm.

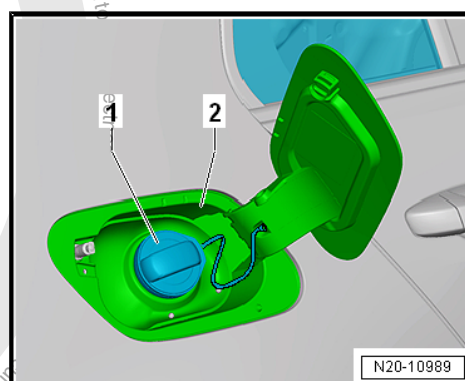


- Open the fuel filler door unit -2-.
- Clean the area around the fuel filler neck.
- Remove the cap -1- for the fuel filler neck.



Caution

Attach the ground wire from the Fuel Extraction Unit to a bare area on the body.

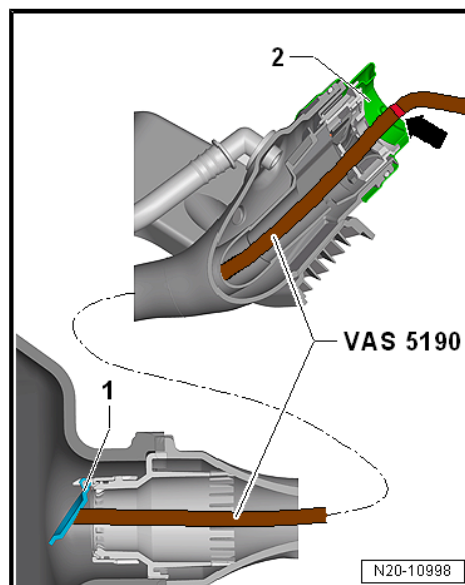


- Slide the suction hose from the Fuel Extraction Unit into the fuel tank until the previously made marking -arrow- lines up with the filler neck -2-.
- Drain the fuel tank as much as possible through the filler neck.



Note

- ♦ A flap -1- is located in the fuel tank on the lower end of the filler neck. It must not be damaged by the suction hose. Only slide the hose in as far as the marking that was made earlier -arrow-.
 - ♦ Do not use force to remove the suction hose if it gets stuck on the check valve.
 - ♦ In this case, remove the fuel delivery unit and manually hold the check valve open. When doing this, make sure the arm does not come in contact with the fuel.
- Carefully remove the suction hose.



Note

- ♦ When no more fuel can be extracted, the fuel tank is only emptied enough so that the sensor flange can be opened safely.
- ♦ When working on the fuel delivery unit or on the Fuel Level Sensor - G- , proceed as follows. Refer to ⇒ ["1.3.2 Fuel Tank, Draining When Less Than 3/4 Full", page 21](#) .



1.3.2 Fuel Tank, Draining When Less Than $\frac{3}{4}$ Full



Caution

Attach the ground wire of the Fuel Extractor Unit to a bare area on the body.

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-
- ◆ Wrench - Fuel Sending Unit - T10202-
- ◆ Fuel Extraction Unit - VAS5190A- (for E 85 - fuel)
- ◆ Fuel Extraction Unit - VAS5190- (not illustrated)

3409



T10202



VAS 5190 A



W20-10070



Note

- ◆ For AWD vehicles in the North American region, there is no sealing flange on the left side of the fuel tank.
- ◆ After evacuating the right fuel tank chamber, place the suction hose from the Fuel Extraction Unit - VAS5190A- through the right sealing flange as deep as possible into the left fuel tank chamber to continue extracting fuel.
- ◆ After evacuating a small amount of fuel remains in the fuel tank, for this reason the fuel tank must be handled with special care when removing and installing.



Removing

- Follow all safety precautions. Refer to
⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to
⇒ [“3.1 Parking/Auxiliary Heater and Fuel System Guidelines
for Clean Working Conditions”, page 4](#)
- Move the front seats all the way forward.
- Remove the bench seat. Refer to ⇒ Body Interior; Rep. Gr.
72 ; Rear Seats; Seat Bench/Single Seat, Removing and In-
stalling .
- Disconnect the ground cable from the battery terminal. Refer
to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery,
Disconnecting and Connecting .



WARNING

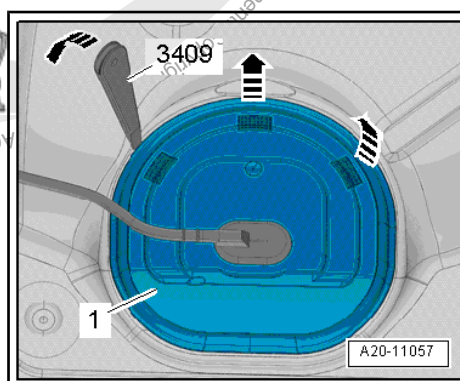
The fuel line is under pressure.

Fuel poses a risk of injury to the eyes and skin.

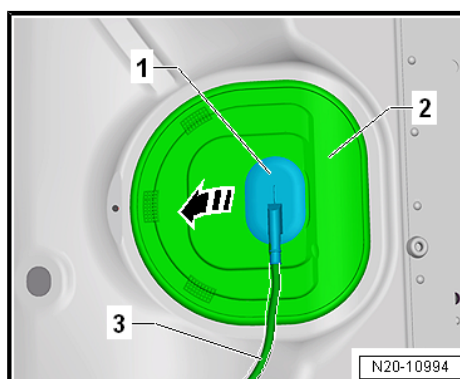
***Wear protective eyewear and protective clothing to avoid injury
and contact with skin. Place a cleaning cloth around the con-
nection point before loosening hose connections. Carefully
open the connection point to release the pressure.***

Extract fuel from both fuel tank chambers with the Fuel Extraction
Unit - VAS5190A- or Fuel Extraction Unit - VAS5190- .

- Unclip the sealing flange cover -1- at the tabs in direction of
-arrows- on the left and right using the Trim Removal Wedge
- 3409- .

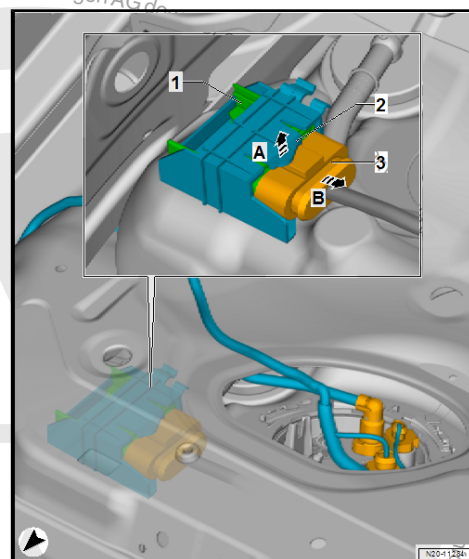


- Unclip the right grommet -1- downward out of the cover -2-.
- Guide the cover -2- on the wiring harness -3- toward the rear.

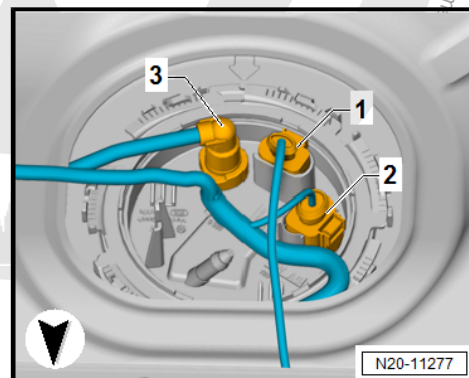




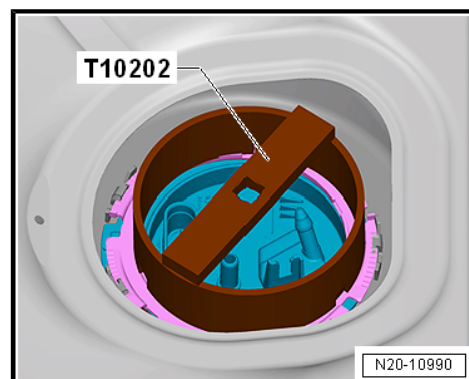
- Lift the tab -2- in the direction of the -arrow A-.
- To do so, reach a finger between the floor panel and the fuel tank.
- At the same time, carefully pull the Fuel Pump Control Module - J538- -1- out of the mount at the wiring harness -3- in the direction of the -arrow B-.
- Remove the Fuel Pump Control Module - J538- toward the inside between the fuel tank and the floor panel.
- Move the Fuel Pump Control Module - J538- together with the wiring harness to the side.



- Disconnect the connectors -1 and 2- as well as the fuel line -3- from the sealing flange.



- Open the locking ring using the Wrench - Fuel Sending Unit - T10202- .



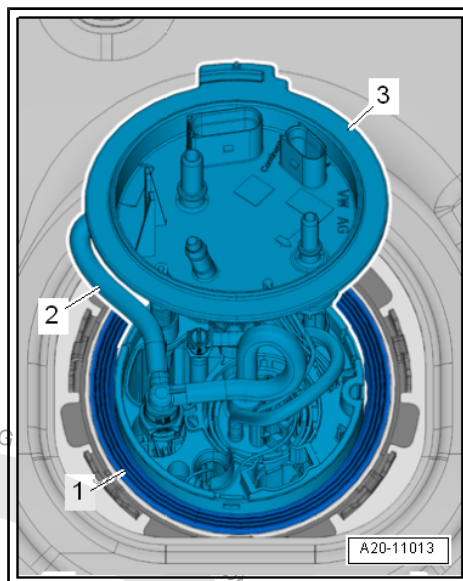


- Carefully lift the fuel delivery unit flange -3-.
- Remove the seal -1- and slightly lift the fuel delivery unit flange again carefully.

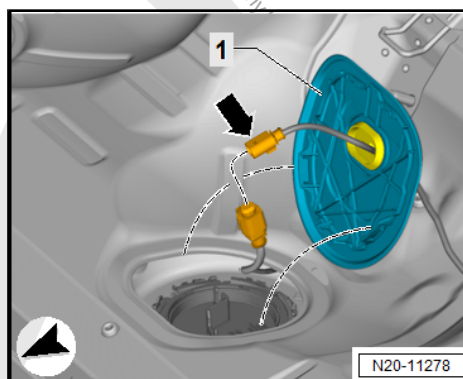


Caution

Attach the ground wire of the Fuel Extractor Unit to a bare area on the body.



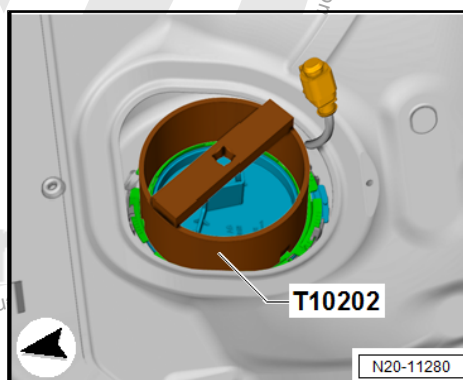
- Disconnect the left connector -arrow-. Move the cover -1- with the wiring harness to the side.



- Open the locking ring using the Wrench - Fuel Sending Unit - T10202- .
- Insert the suction hose from the Fuel Extraction Unit - VAS5190A- or Fuel Extraction Unit - VAS5190- as deep as possible into the fuel tank.
- Extract fuel from both chambers using the Fuel Extraction Unit .

If the fuel tank only needs to be drained, reinstall the fuel delivery unit. Refer to

⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 27](#) .



Installing

Install in reverse order of removal and note the following:

Tightening Specifications

- ◆ Refer to
⇒ ["2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor", page 25](#)



2 Fuel Delivery Unit/Fuel Level Sensor

⇒ [“2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor”, page 25](#)

⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 27](#)

⇒ [“2.3 Fuel Level Sensor G , Removing and Installing”, page 30](#)

⇒ [“2.4 Fuel Level Sensor 2 G169 , Removing and Installing”, page 31](#)

2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor

1 - Fuel Pump Control Module - J538-

- ☐ Check. Refer to Vehicle Diagnostic Tester .
- ☐ Removing and installing. Refer to
 ⇒ [“7.2 Fuel Pump Control Module J538 , Removing and Installing”, page 64](#)

2 - Connector

- ☐ For Fuel Pump Control Module - J538-
- ☐ Pull on the connector to make sure it is engaged correctly and securely.

3 - Connector

- ☐ For Transfer Fuel Pump - G6-
- ☐ Pull on the connector to make sure it is engaged correctly and securely.

4 - Connector

- ☐ For Fuel Level Sensor - G- and Fuel Level Sensor 2 - G169-
- ☐ Pull on the connector to make sure it is engaged correctly and securely.

5 - Locking Ring

- ☐ 110 Nm
- ☐ Market-specific North American region: not installed

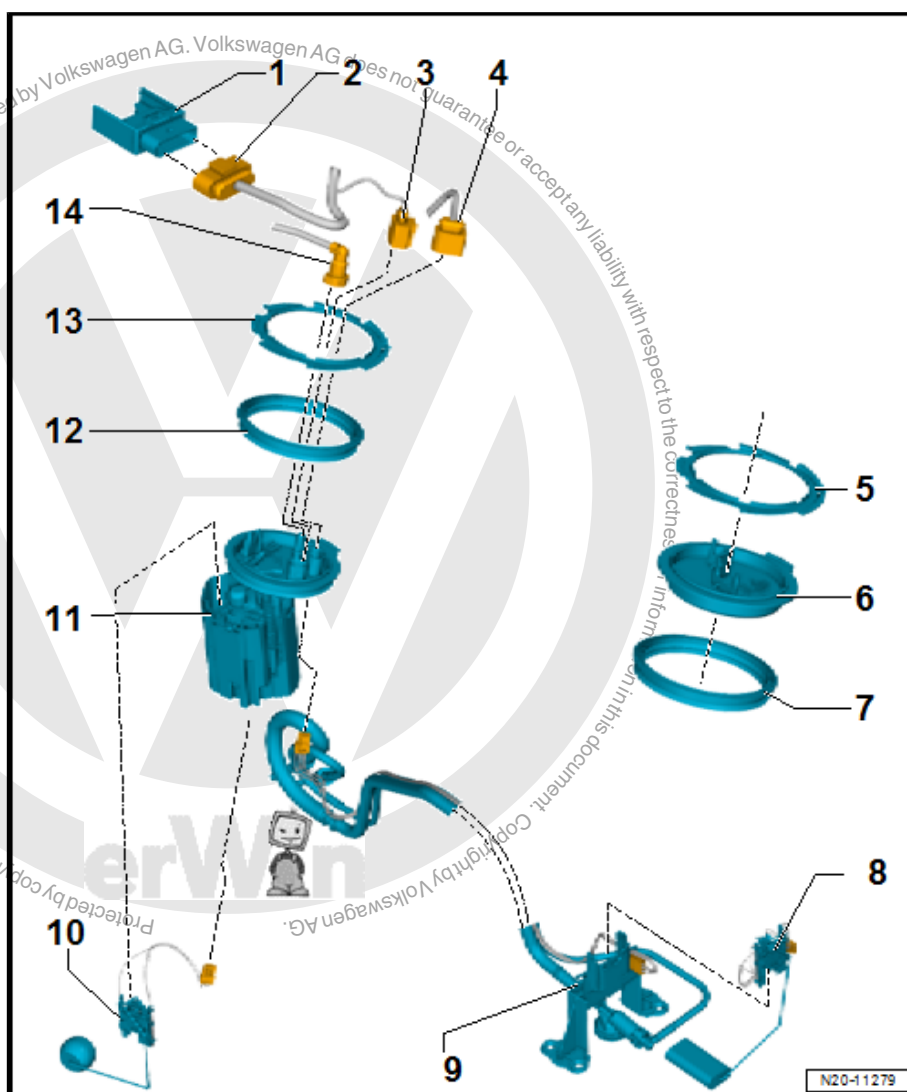
- ☐ Loosen and tighten using the Wrench - Fuel Sending Unit - T10202-

6 - Sealing Flange

- ☐ Market-specific North American region: not installed
- ☐ Removing and Installing. Refer to
 ⇒ [“2.4 Fuel Level Sensor 2 G169 , Removing and Installing”, page 31](#)

7 - Gasket

- ☐ Market-specific North American region: not installed
- ☐ Replace after removing





- ☐ Install dry

8 - Fuel Level Sensor 2 - G169-

- ☐ Market-specific North America region: fuel tank without a left installation opening, removing the fuel level sensor 2 is not possible
- ☐ Check electrically with the Vehicle Diagnostic Tester .
- ☐ Removing and Installing. Refer to [⇒ "2.4 Fuel Level Sensor 2 G169 , Removing and Installing", page 31 .](#)

9 - Mount with Suction Jet Pump

- ☐ No replacement part
- ☐ Welded to the fuel tank
- ☐ Function. Refer to [⇒ "7.3 Suction Jet Pump, Removing and Installing", page 65 .](#)

10 - Fuel Level Sensor - G-

- ☐ Check. Refer to Vehicle Diagnostic Tester .
- ☐ Removing and installing. Refer to [⇒ "2.3 Fuel Level Sensor G , Removing and Installing", page 30 .](#)

11 - Fuel Delivery Unit

- ☐ With the Transfer Fuel Pump - G6-
- ☐ With integrated fuel filter
- ☐ The fuel filter cannot be replaced separately.
- ☐ Check the fuel pump. Refer to Vehicle Diagnostic Tester .
- ☐ Fill the fuel tank with at least five liters of fuel after installing.
- ☐ Removing and installing. Refer to [⇒ "2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 27 .](#)

12 - Seal

- ☐ Replace after removing
- ☐ Install dry

13 - Locking Ring

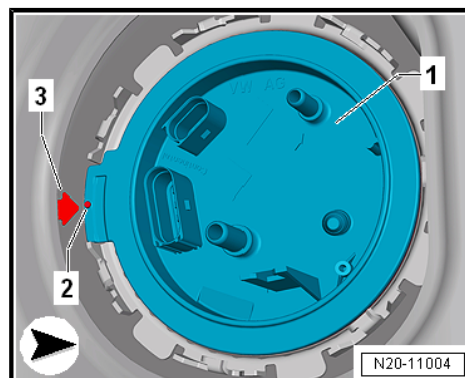
- ☐ 110 Nm
- ☐ Loosen and tighten using the Wrench - Fuel Sending Unit - T10202-

14 - Fuel Line

- ☐ To the engine
- ☐ Do not kink
- ☐ Press the release button on the connecting piece to remove from the locking flange
- ☐ Install until it clicks into place
- ☐ Press again and pull to make sure the connection is engaged correctly.

Fuel Delivery Unit Installation Position

- The arrow -3- on the fuel tank must point to the mark -2- on the locking flange -1-.





2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing

Special tools and workshop equipment required

- ◆ Wrench - Fuel Sending Unit - T10202-
- ◆ Trim Removal Wedge - 3409-

Removing

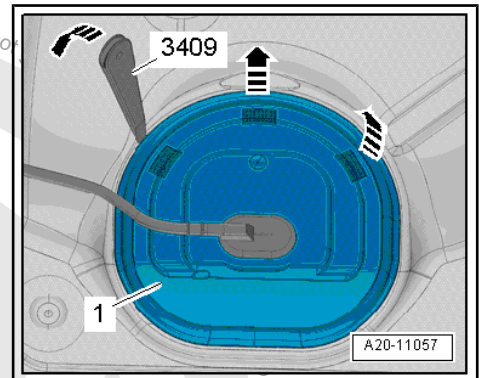


DANGER!

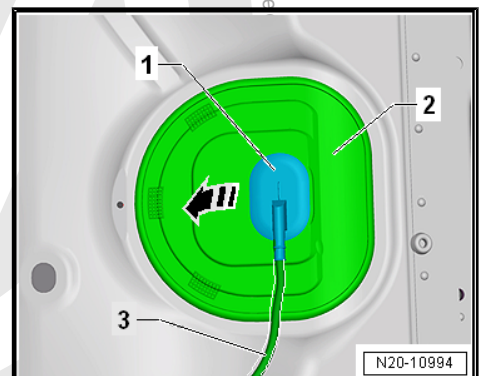
There is a risk of fire due to leaking fuel.

- *The fuel tank may be a maximum of $\frac{3}{4}$ full. This ensures the fuel level is below the fuel delivery unit flange.*

- Follow all safety precautions. Refer to [⇒ "1 Safety Precautions", page 1](#) .
- Follow the guidelines for clean working conditions. Refer to [⇒ "3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions", page 4](#) .
- Move the front seats all the way forward.
- Remove the rear bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Disconnect the ground cable from the battery terminal. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- If required, drain the fuel tank. Refer to [⇒ "1.3 Fuel Tank, Draining", page 19](#) .
- Unclip the right locking flange cover -1- at the tabs in direction of -arrows- using the Trim Removal Wedge - 3409- .



- Unclip the grommet -1- downward out of the cover -2-.
- Guide the cover -2- on the wiring harness -3- toward the rear.



WARNING

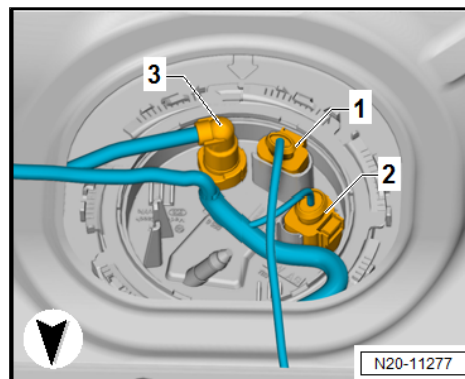
The fuel line is under pressure.

Fuel poses a risk of injury to the eyes and skin.

Wear protective eyewear and protective clothing to avoid injury and contact with skin. Place a cleaning cloth around the connection point before loosening hose connections. Carefully open the connection point to release the pressure.



- Release and disconnect the connectors -1 and 2- and fuel line -3- from the locking flange.



- Open the locking ring using the Wrench - Fuel Sending Unit - T10202- .



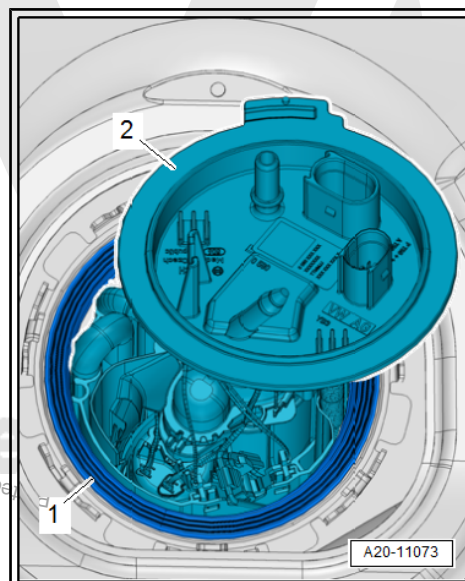
WARNING

There is a risk of fuel leaking out from the filled fuel delivery unit.

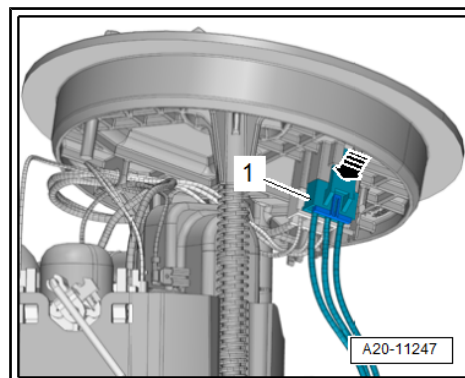
- ◆ *Lay cloths below to catch the leaking fuel.*



- Carefully lift the fuel delivery unit flange.
- Pull the right sealing flange -2- slightly out of the fuel tank opening.
- Remove the seal -1- at the fuel tank opening.



- Release the connector in direction of -arrow-. Disconnect the connector -1- on the right locking flange.



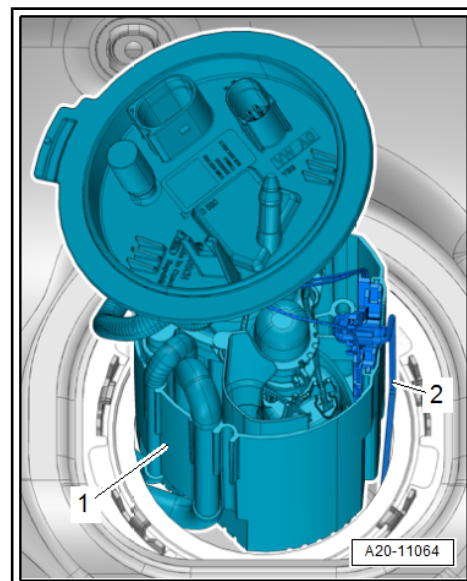


- Carefully pull the fuel delivery unit -1- with the Fuel Level Sensor - G- -2- out of the fuel tank opening by turning and tipping it appropriately.



Note

- ◆ *Be careful not to bend the floater arm on the fuel level sensor when removing the fuel delivery unit.*
 - ◆ *If the delivery unit is being replaced, the old delivery unit must be emptied before disposing of it.*
 - ◆ *Follow all waste disposal regulations.*
 - ◆ *Check the fuel tank for contamination.*
- Carefully remove the fuel lines from the fuel tank opening.





- Disconnect the suction jet line -1- and the delivery line -2- by pressing the release on the connecting piece.

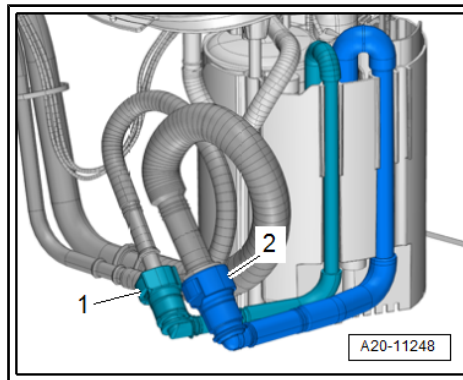
Installing

Install in reverse order of removal and note the following:



WARNING

There is a risk of the fuel tank exploding! After installing a new or completely emptied fuel tank, fill it immediately with a minimum of five liters of fuel. Do not allow the fuel pump to run when the fuel tank is completely empty.



DANGER!

Risk of leaking.

- ◆ ***When inserting the locking flange, the seal must not be damaged or crushed.***

There is a risk of fire due to leaking fuel.



Note

- ◆ *Install the suction jet line and delivery line until they click into place.*
- ◆ *Install the new, dry fuel delivery unit seal into the fuel tank opening.*
- ◆ *Be careful not to bend the fuel level sensor when installing the fuel delivery unit.*
- ◆ *Only coat the inside of the seal with fuel.*
- ◆ *Pull on the connectors to make sure they are secure.*
- Pay attention to the installation position of the locking flange.
Refer to
⇒ [Fig. "Fuel Delivery Unit Installation Position"](#), page 26 .

Tightening Specifications

- ◆ Refer to ⇒ ["1.1 Overview - Fuel Tank"](#), page 6
- ◆ Refer to
⇒ ["2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor"](#), page 25

2.3 Fuel Level Sensor - G- , Removing and Installing

Removing

- Remove the fuel delivery unit. Refer to
⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing"](#), page 27 .
- Disconnect the connector -4- on the right locking flange.
- Disengage and free up the wires on the bracket -arrow-.

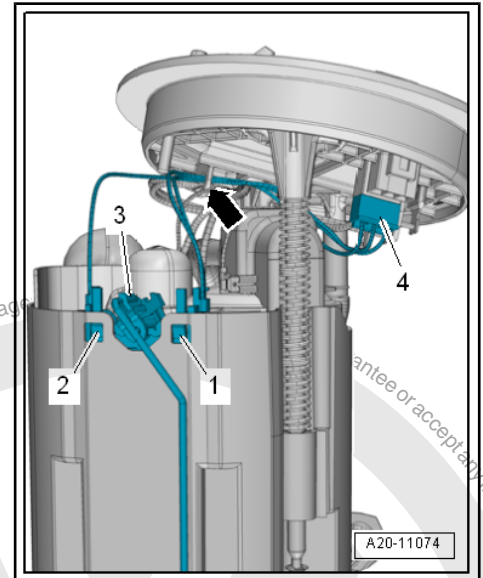


- Release the tab -1 and 2- on the retainers and at the same time remove the Fuel Level Sensor - G- -3- upward.

Installing

Install in reverse order of removal and note the following:

- Insert the Fuel Level Sensor - G- into the guides on the fuel delivery unit and push downward until it engages.
- Route and engage the wires on the fuel delivery unit.
- Install the fuel delivery unit. Refer to
 ⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 27](#) .



2.4 Fuel Level Sensor 2 - G169- , Removing and Installing



Note

- ◆ *For North American region, there is no sealing flange on the left side of the fuel tank.*
- ◆ *Removing and installing the Fuel Level Sensor 2 - G169- is not possible.*

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-
- ◆ Wrench - Fuel Sending Unit - T10202-

Removing

- Follow all safety precautions. Refer to
 ⇒ [“1.1 Safety Precautions when Working on Fuel Supply System”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to
 ⇒ [“3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions”, page 4](#) .
- Move the front seats all the way forward.
- Switch off the ignition.
- Remove the rear bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .



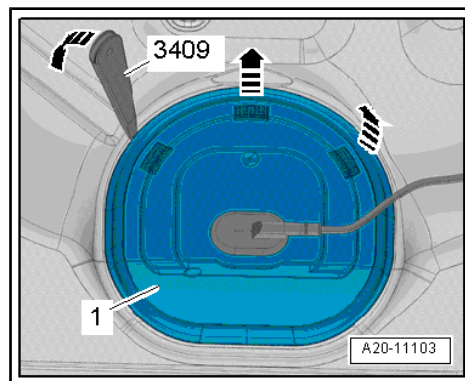
WARNING

There is a risk of fire due to leaking fuel.

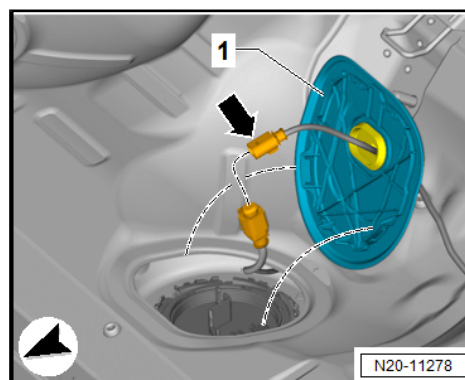
- ◆ *To prevent large quantities of fuel from leaking when removing the fuel level sensor, the fuel tank may only be a maximum of $\frac{3}{4}$ full.*



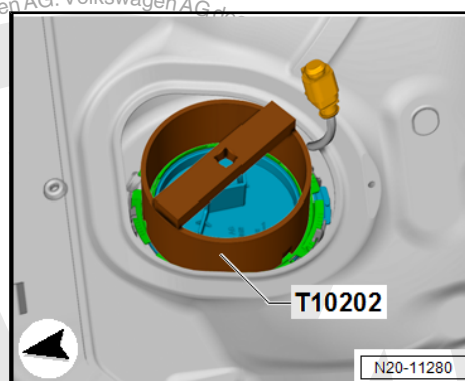
- If required, drain the fuel tank. Refer to
⇒ ["1.3 Fuel Tank, Draining", page 19](#) .
- Unclip the left locking flange cover -1- at the tabs in direction of -arrows- using the Trim Removal Wedge - 3409- .



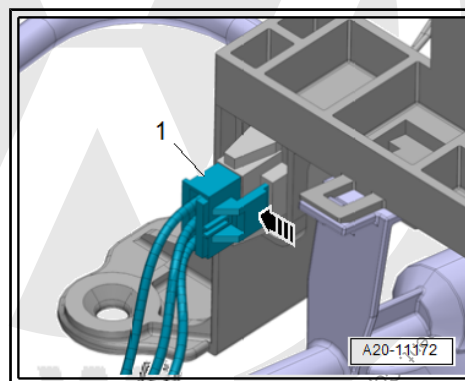
- Disconnect the connector -arrow-. Move the cover -1- with the wiring harness to the side.



- Open the locking ring using the Wrench - Fuel Sending Unit - T10202- .
- Remove the locking flange and seal from the fuel tank opening.



- Reach through the opening on the fuel tank. Release the connector safety catch in direction of -arrow- and disconnect the connector -1-.





- Reach through the opening in the fuel tank, release the connector safety catches in direction of -A arrows- and press the connector -1- out of the retainer in direction of -arrow B-.
- Reach through the opening in the fuel tank, release the tab -2- on the retainers and at the same time remove the Fuel Level Sensor 2 - G169- upward in direction of -arrow C-.

Installing

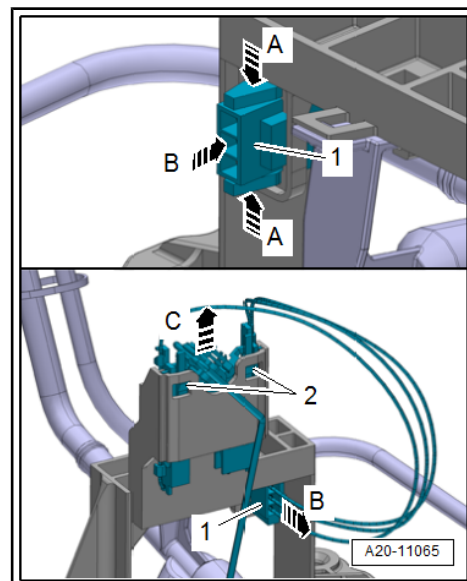
Install in reverse order of removal and note the following:

- Refer to
 ➤ [“2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor”, page 25](#)



Note

- ◆ Pay attention to the installation position of the locking flange.
- ◆ Replace the seal.
- ◆ Check that the connectors are securely engaged.





3 Connector Couplings

⇒ "3.1 Connector Couplings, Disconnecting", page 34

3.1 Connector Couplings, Disconnecting

Special tools and workshop equipment required

- ◆ Lever - Fuel Line - T10468-

Connector Coupling Allocation



Note

- ◆ *The connector couplings for fuel, vacuum and vent lines are color coded. There is either a colored dot on the connector coupling, or the release button has the corresponding color. Refer to ⇒ page 34 .*
- ◆ *The connector couplings must »audibly« engage when locking.*
- ◆ *Pull on the connector coupling to make sure it is secure.*

Color Coding

Connector Coupling	Color Coding on the Connector Coupling
Fuel supply	Black
Fuel Return Line	Blue
Ventilation	White beige
Vacuum	Green



WARNING

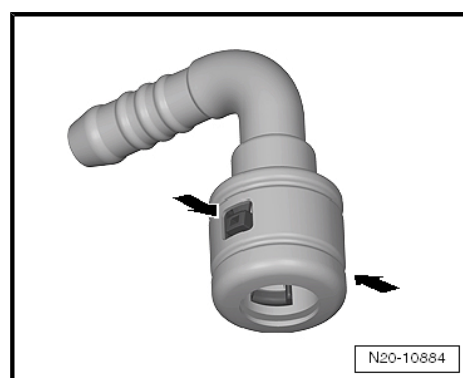
The fuel line is under pressure.

Fuel poses a risk of injury to the eyes and skin.

Wear protective eyewear and protective clothing to avoid injury and contact with skin. Place a cleaning cloth around the connection point before loosening hose connections. Carefully open the connection point to release the pressure.

Version 1

Connector coupling with right and left release buttons -arrows-:





Opening

The fuel coupling point -1- in the engine compartment must be counterheld.

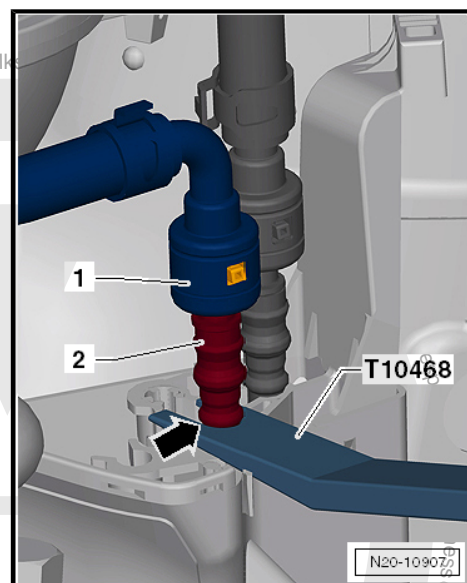
- Insert the Lever - Fuel Line - T10468- between the heat shield and the stop -arrow- for the fuel line -2- and counterhold it.

Continuation for All Coupling Points on Fuel System

- Push the connector coupling -1- in the direction of -arrow A-.
- Push the release buttons and hold them pressed.
- Disconnect the connector coupling -1- from the fuel line -2- in the direction of -arrow B-.

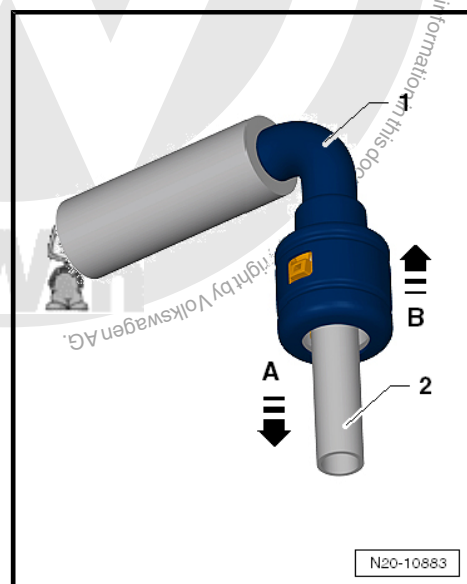
Note the color coding when installing. Refer to ➔ [page 34](#) .

The connector couplings must audibly engage when locking.



- Pull on the connector coupling to make sure it is secure.

Version 2



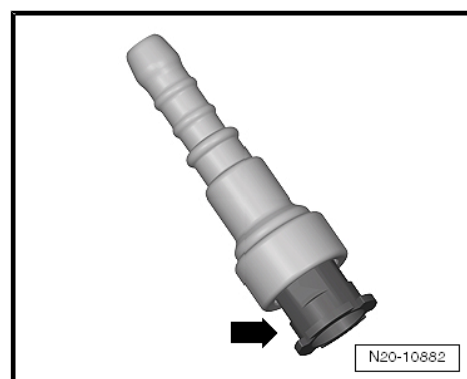
Connector coupling with pull release -arrow-:

Opening

- Push the connector coupling -1- in the direction of -arrow A-.
- Pull the pull release -2- in the direction of -arrow B-.
- Pull the connector coupling -1- off the fuel line -3- in the direction of -arrow B-.

Note the color coding when installing. Refer to ➔ [page 34](#) .

The connector couplings must »audibly« engage when locking.





- Pull on the connector coupling to make sure it is secure.

Version 3

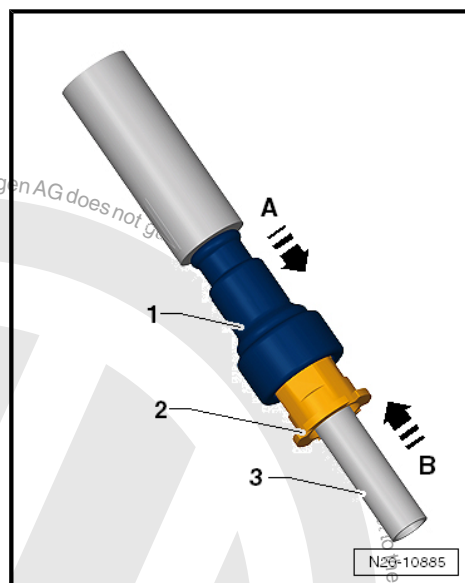
Connector coupling with front button -arrow-:

Opening

- Press the release button -arrow- and remove the connector couplings.

Note the color coding when installing. Refer to ➤ [page 34](#) .

The connector couplings must »audibly« engage when locking.



- Pull on the connector coupling to make sure it is secure.

Version 4

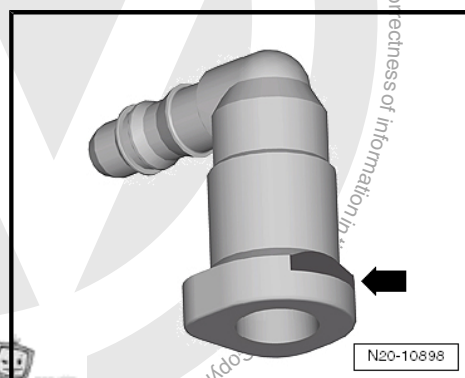
Connector coupling with right and left release button -arrows-:

Opening

- Push the connector coupling in the direction of -arrow A-.
- Press the release buttons -arrows- and remove the connector coupling.

Note the color coding when installing. Refer to ➤ [page 34](#) .

The connector couplings must »audibly« engage when locking.



- Pull on the connector coupling to make sure it is secure.

Version 5

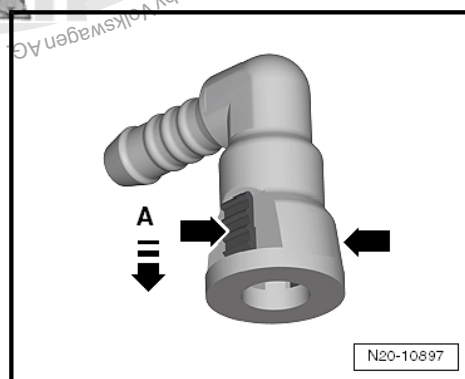
Connector coupling with right and left release buttons -arrows-:

Opening

- Press the release buttons -arrows- and remove the connector coupling.

Note the color coding when installing. Refer to ➤ [page 34](#) .

The connector couplings must »audibly« engage when locking.



- Pull on the connector coupling to make sure it is secure.

Version 6

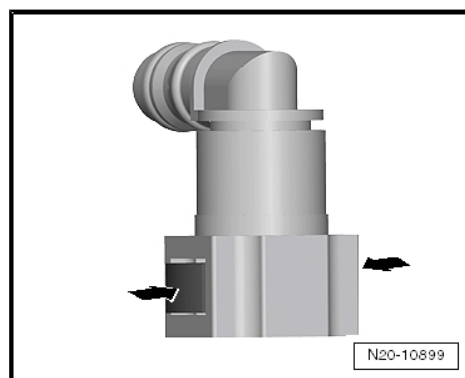
Connector coupling with right and left release buttons -arrows-:

Opening

- Press the connector coupling -1- in the direction of -arrow- and hold it down.
- Press the release buttons -arrows- and remove the connector coupling.

Note the color coding when installing. Refer to ➤ [page 34](#) .

The connector couplings must audibly engage when locking.





- Pull on the connector coupling to make sure it is secure.

Version 7

Connector coupling -1- with right and left release buttons -2-:

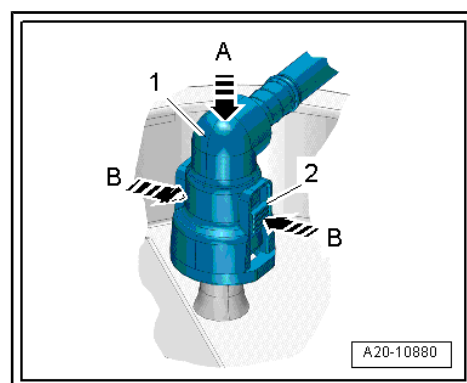
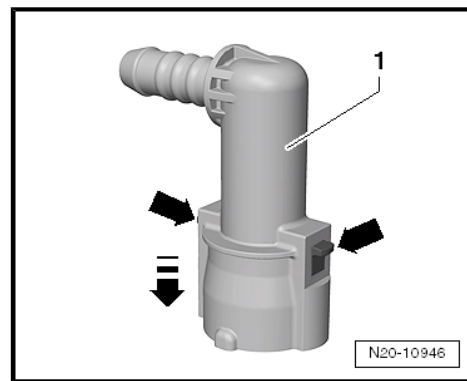
Opening

- Press the connector coupling -1- in the direction of -arrow A- and hold it down.
- Push the release buttons -2- in the direction of -arrow B- and remove the connector coupling -1-.

Note the color coding when installing. Refer to ➔ [page 34](#) .

The connector couplings must audibly engage when locking.

- Pull on the connector coupling to make sure it is secure.





4 Fuel Filter

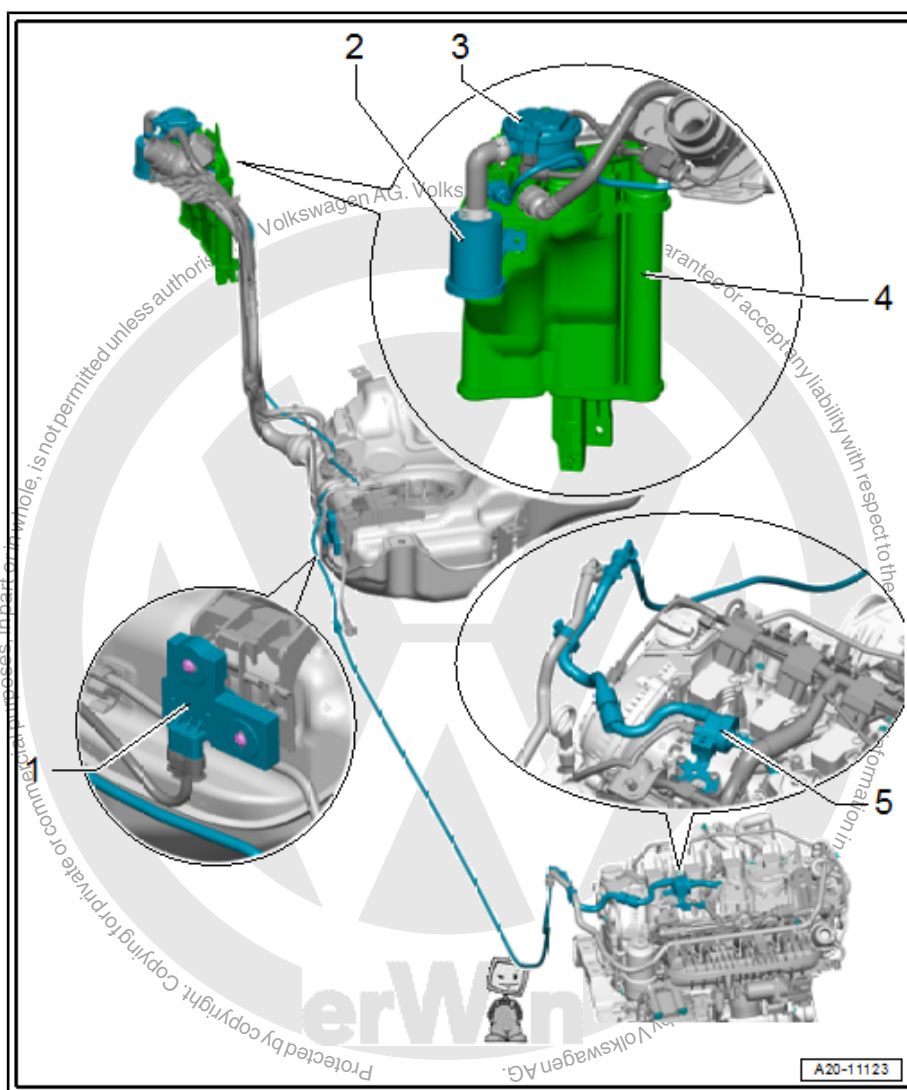
The pressure relief valve and the fuel filter are integrated in the fuel delivery unit and cannot be replaced separately. Refer to [⇒ "2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor", page 25](#).



⇒ “5.4 Fuel Tank, Checking Ventilation”, page 46

5.1.1 Connection Diagram - EVAP System

- 5 - EVAP Canister Purge Regulator Valve 1 - N80-**





5.2 Overview - EVAP System

⇒ [“5.2.2 Overview - EVAP System”, page 41](#)

5.2.1 Overview - EVAP System

1 - Vent Line

- ☐ To the EVAP Canister Purge Regulator Valve 1 - N80-
- ☐ Clipped to the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to make sure it is secure.
- ☐ Ventilation, Checking. Refer to ⇒ [“5.4 Fuel Tank, Checking Ventilation”, page 46](#) .
- ☐ Connection Diagram. Refer to ⇒ [Fig. “Connection Diagram on EVAP Canister”](#) , page 41 .
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ [“3.1 Connector Couplings, Disconnecting”, page 34](#) .

2 - Bolt

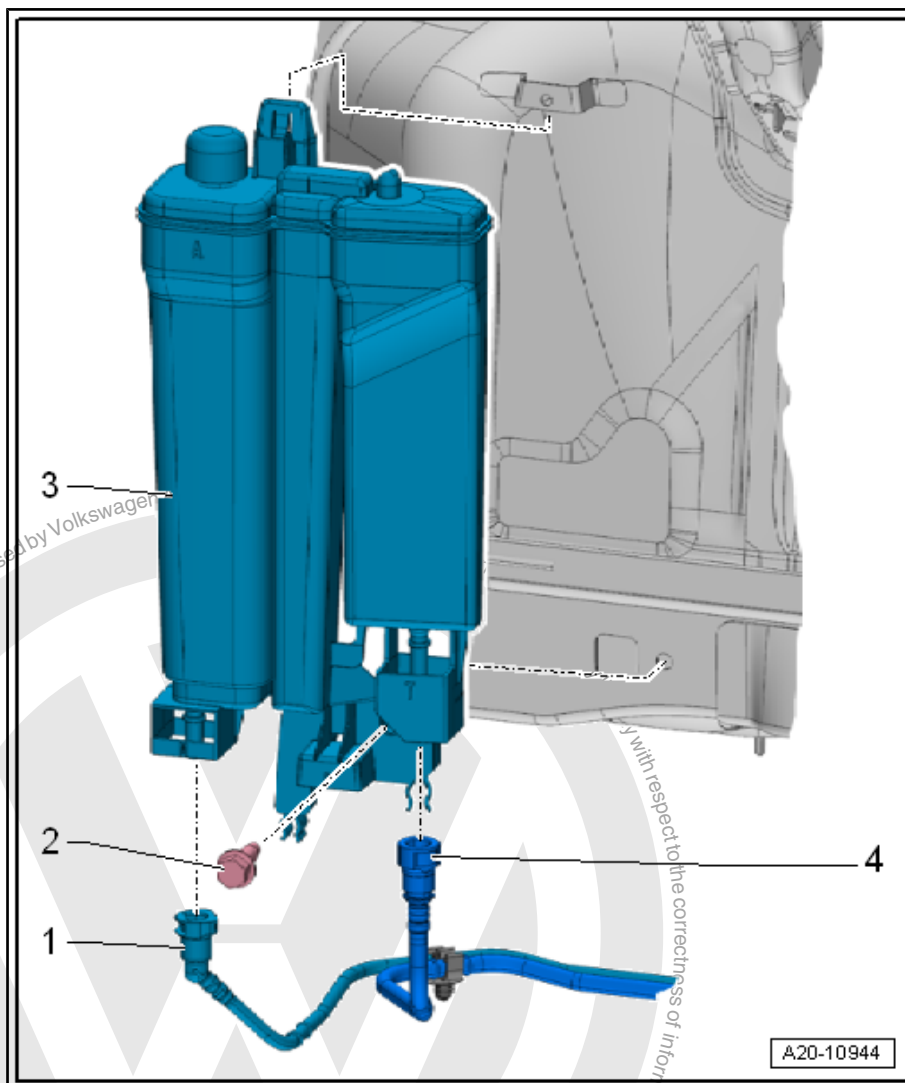
- ☐ 20 Nm

3 - EVAP Canister

- ☐ Component location: at the right rear in the wheel housing under the wheel housing liner
- ☐ Ventilation, Checking. Refer to ⇒ [“5.4 Fuel Tank, Checking Ventilation”, page 46](#) .
- ☐ Removing and installing. Refer to ⇒ [“5.3 EVAP Canister, Removing and Installing”, page 42](#) .

4 - Vent Line

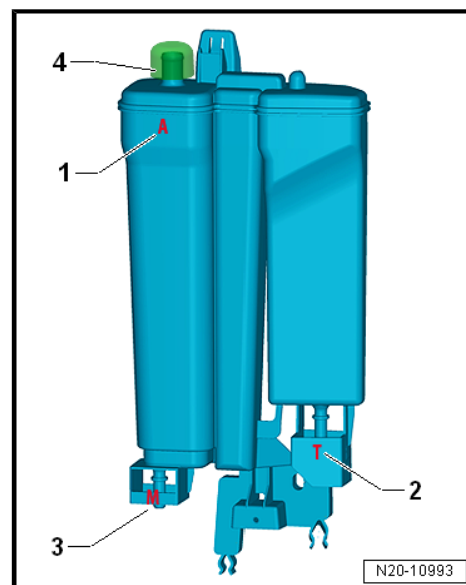
- ☐ To the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to make sure it is secure.
- ☐ Ventilation, Checking. Refer to ⇒ [“5.4 Fuel Tank, Checking Ventilation”, page 46](#) .
- ☐ Connection Diagram. Refer to ⇒ [Fig. “Connection Diagram on EVAP Canister”](#) , page 41 .
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ [“3.1 Connector Couplings, Disconnecting”, page 34](#) .





Connection Diagram on EVAP Canister

- 1 - -A- Vent connection
- 2 - -T- Connection to fuel tank
- 3 - -M- To EVAP Canister Purge Regulator Valve 1 - N80-
- 4 - Cap



5.2.2 Overview - EVAP System

1 - Vent Line

- ☐ To the fuel tank
- ☐ Connector Couplings, Separating and Connecting. Refer to ➤ ["3.1 Connector Couplings, Disconnecting", page 34](#).

2 - Vent Line

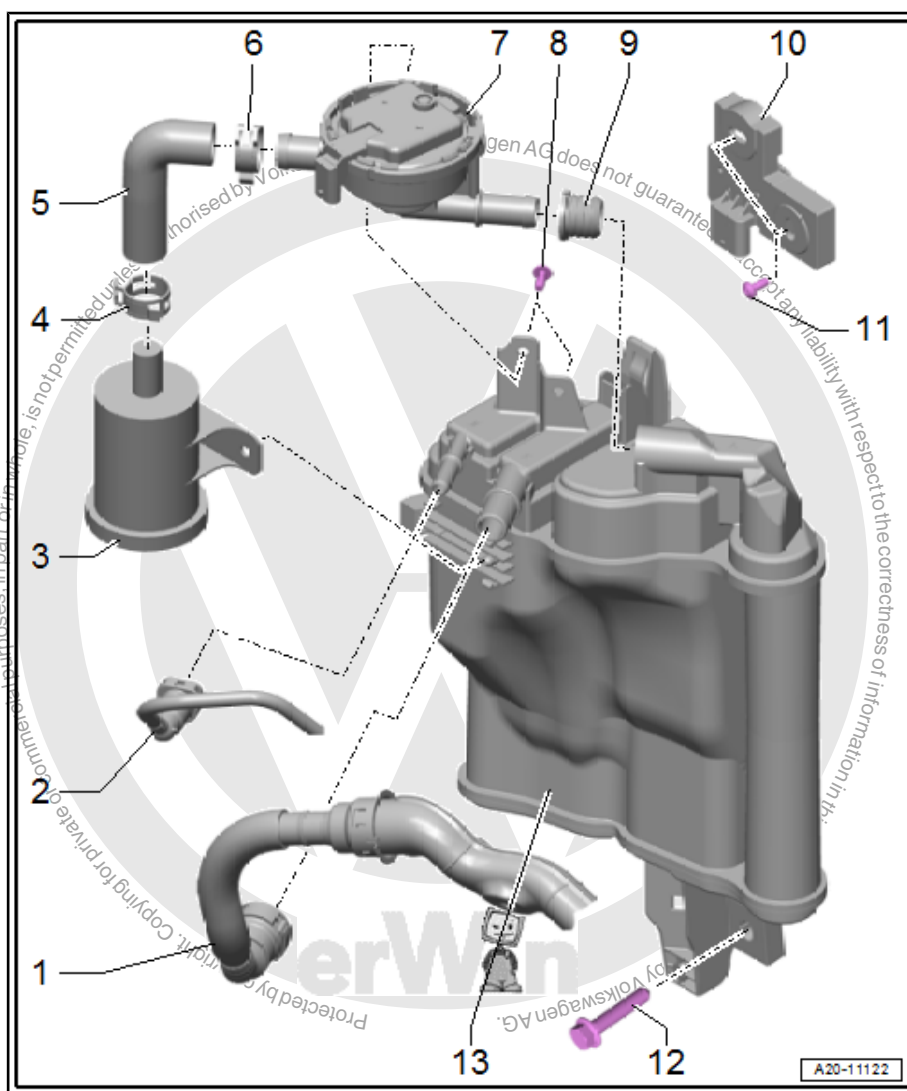
- ☐ To the EVAP Canister Purge Regulator Valve 1 - N80-
- ☐ Clipped to the fuel tank
- ☐ Connector Couplings, Separating and Connecting. Refer to ➤ ["3.1 Connector Couplings, Disconnecting", page 34](#).

3 - Air Filter

- ☐ For the leak detection system
- ☐ Component location: at the right rear in the wheel housing under the wheel housing liner
- ☐ Clipped in at EVAP canister -item 13-
- ☐ Removing and installing. Refer to ➤ ["5.3.3 EVAP System Air filter, Removing and Installing", page 44](#).

4 - Hose Clamp

- ☐ Must be appropriate for the model type. Refer to the Parts Catalog.





5 - Hose

6 - Hose Clamp

- ☐ Must be appropriate for the model type. Refer to the Parts Catalog.

7 - Fuel Tank Pressure Sensor - G400-

- ☐ Component location: at the right rear in the wheel housing under the wheel housing liner
- ☐ Removing and installing. Refer to
⇒ ["5.3.4 Fuel Tank Pressure Sensor G400 , Removing and Installing", page 44](#) .

8 - Bolts

- ☐ 1.8 Nm
- ☐ Quantity: 2

9 - Seal

- ☐ Insert into the EVAP canister
- ☐ Replace after removing. Refer to the Parts Catalog.

10 - Fuel Tank Leak Detection Control Module - J909-

- ☐ Component location: At the right on the fuel tank
- ☐ Removing and installing. Refer to
⇒ ["5.3.5 Fuel Tank Leak Detection Control Module J909 , Removing and Installing", page 45](#) .

11 - Bolts

- ☐ 3 Nm
- ☐ Quantity: 2

12 - Bolt

- ☐ 20 Nm

13 - EVAP Canister

- ☐ Component location: at the right rear in the wheel housing under the wheel housing liner
- ☐ Removing and installing. Refer to ⇒ ["5.3.2 EVAP Canister, Removing and Installing", page 43](#) .

5.3 EVAP Canister, Removing and Installing

⇒ ["5.3.1 EVAP Canister, Removing and Installing", page 42](#)

⇒ ["5.3.2 EVAP Canister, Removing and Installing", page 43](#)

⇒ ["5.3.3 EVAP System Air filter, Removing and Installing", page 44](#)

⇒ ["5.3.4 Fuel Tank Pressure Sensor G400 , Removing and Installing", page 44](#)

⇒ ["5.3.5 Fuel Tank Leak Detection Control Module J909 , Removing and Installing", page 45](#)

⇒ ["5.3.6 Fuel System, Checking for Leaks", page 46](#)

5.3.1 EVAP Canister, Removing and Installing

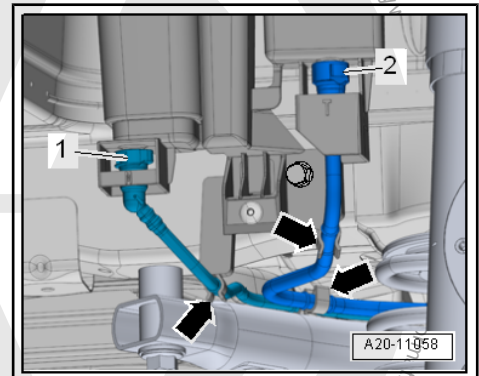
Removing

Observe the safety precautions. Refer to
⇒ ["1 Safety Precautions", page 1](#) .

Follow the guidelines for clean working conditions. Refer to
⇒ ["3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions", page 4](#) .



- Remove the right rear wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Rear Wheel Housing Liner .
- Disconnect the vent lines -1 and -2- from the EVAP canister.
- Unclip the vent lines from the bracket -arrows-.
- Remove the bolt -1-.
- Press in the hook -3- using a screwdriver.



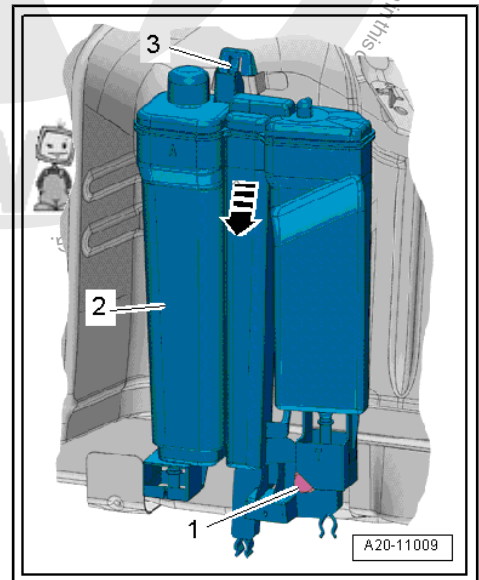
- Remove the EVAP canister -2- downward from the bracket in the direction of -arrow-.

Installing

Install in reverse order of removal and note the following:

Tightening Specifications

- ◆ Refer to ⇒ [“5.2 Overview - EVAP System”, page 40](#)



5.3.2 EVAP Canister, Removing and Installing

Removing

- Observe the safety precautions. Refer to ⇒ [“1.1 Safety Precautions when Working on Fuel Supply System”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions”, page 4](#) .
- Remove the right rear wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Rear Wheel Housing Liner, Removing and Installing .
- Remove the vent lines -3- from the EVAP canister by disconnecting the connector couplings. Refer to ⇒ [“3.1 Connector Couplings, Disconnecting”, page 34](#) .
- Disconnect the connector -2-.
- Remove the bolt -1-.



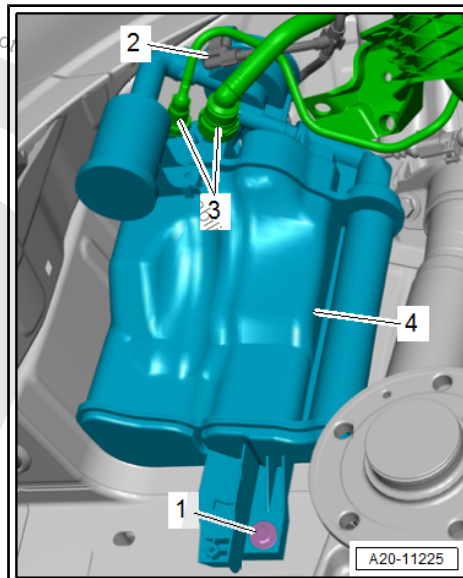
- Pull the EVAP canister -4- downward from the mount and remove it.

Installing

Install in reverse order of removal and note the following:

Tightening Specifications

- ◆ Refer to ⇒ [“5.2.2 Overview - EVAP System”, page 41](#)



5.3.3 EVAP System Air filter, Removing and Installing

Special tools and workshop equipment required

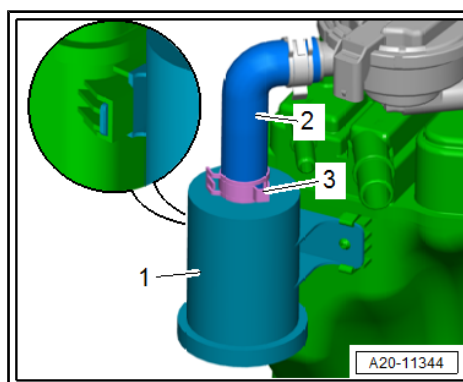
- ◆ Hose Clip Pliers - VAS6362-

Removing

- Remove the EVAP canister. Refer to ⇒ [“5.3.2 EVAP Canister, Removing and Installing”, page 43](#).
- Unclip the air filter -1- from the EVAP canister at the retaining tabs.
- Remove the vent hose -2- by loosening the hose clamp -3- with the Hose Clip Pliers - VAS6362- .
- Remove the air filter -1-.

Installing

Install in reverse order of removal.



5.3.4 Fuel Tank Pressure Sensor - G400- , Removing and Installing

Special tools and workshop equipment required

- ◆ Hose Clip Pliers - VAS6362-

Removing

- Remove the EVAP canister. Refer to ⇒ [“5.3.2 EVAP Canister, Removing and Installing”, page 43](#).
- Remove the vent hose -3- to do so loosen the hose clamps -2- with Hose Clip Pliers - VAS6362- .
- Remove the screws -4-.



- Remove the Fuel Tank Pressure Sensor - G400- -1- in the direction of -arrow-.

Installing

Install in reverse order of removal and note the following:

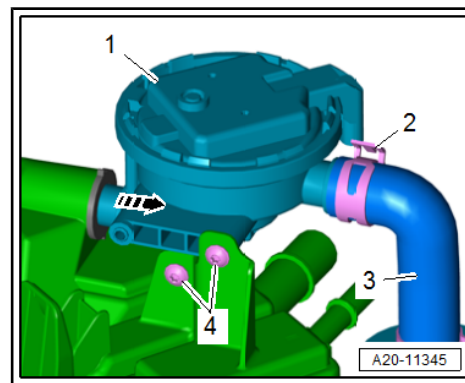


Note

Replace the seal after removing. Refer to the Parts Catalog.

Tightening Specifications

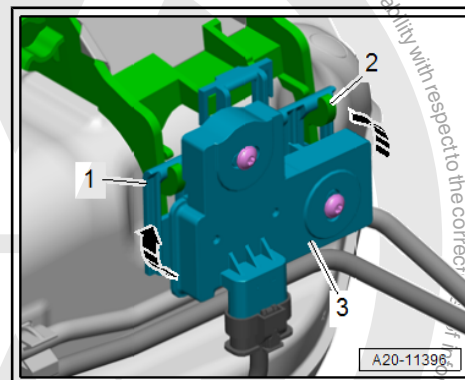
- ◆ Refer to ➔ [“5.2.2 Overview - EVAP System”, page 41](#)



5.3.5 Fuel Tank Leak Detection Control Module - J909- , Removing and Installing

Removing

- Disengage the bracket -1- for the Fuel Tank Leak Detection Control Module - J909- from the mount -2- on the fuel tank.
- To do so, grasp the Fuel Tank Leak Detection Control Module - J909- -3- by hand and carefully loosen it from the hooks, moving it back and forth in the direction of -arrow-.
- Remove the control module -2- with the bracket -4- downward.
- Disconnect the connector -1-.



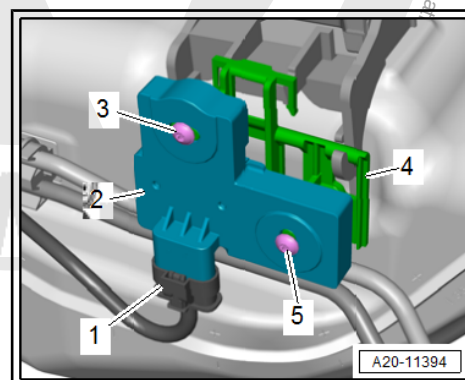
- Remove the screws -3 and 5- and remove the Fuel Tank Leak Detection Control Module - J909- from the bracket.

Installing

Install in reverse order of removal and note the following:

Tightening Specifications

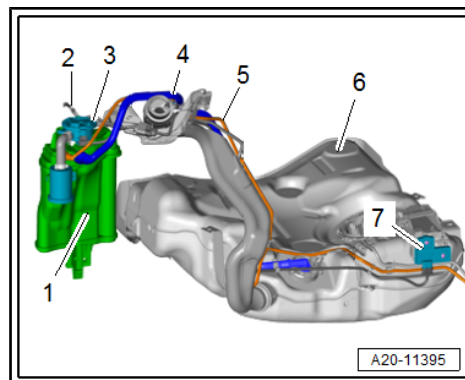
- ◆ Refer to ➔ [“5.2.2 Overview - EVAP System”, page 41](#)





5.3.6 Fuel System, Checking for Leaks

- ◆ The function of the leak detection system is based on the premise that the fuel system creates a natural vacuum when the fuel in the fuel tank becomes colder.
- ◆ The Fuel Tank Pressure Sensor - G400- -item 3- senses the vacuum in the vent line -4- near the EVAP canister -1-. The Fuel Tank Leak Detection Control Module - J909- -item 7- is attached directly to the wall of the fuel tank -6- and monitors the temperature inside the fuel tank. The system is considered to be closed if the measured vacuum is 2.5 mbar (0.36 psi). If there is no vacuum, then there is a leak in the fuel system, which will result in an entry in the engine control module DTC memory.



2 - Signal Wire to Engine Control Module - J623-

5 - Vent Line to Engine

5.4 Fuel Tank, Checking Ventilation

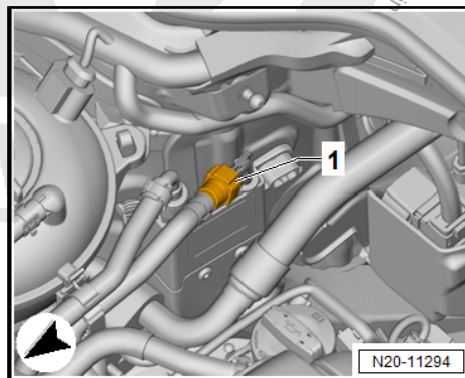
Special tools and workshop equipment required

- ◆ Engine Bung Set - VAS6122-
- ◆ Hand Vacuum Pump - VAS6213-
- ◆ Pressure Tester Kit - VAS6550-

Test Sequence

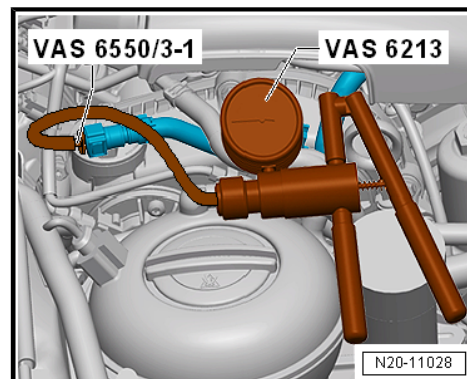
EVAP Canister Purge Regulator Valve 1 - N80- , Checking:

- Follow all safety precautions. Refer to [⇒ "1 Safety Precautions", page 1](#) .
- Follow the guidelines for clean working conditions. Refer to [⇒ "3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions", page 4](#) .
- Check the DTC memory. Refer to Vehicle Diagnostic Tester .
- Switch off the ignition.
- Release and remove the vent line -1-. Disconnect the connector couplings. Refer to [⇒ "3.1 Connector Couplings, Disconnecting", page 34](#) .





- Connect the Hand Vacuum Pump - VAS6213- to line leading to the EVAP Canister Purge Regulator Valve 1 - N80- using the Pressure Tester Kit - Adapter Set - Fitting - VAS6550/3-1- and a commercially available hose.



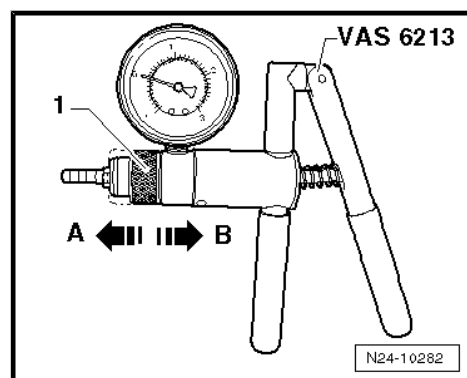
- Set the slide ring -1- on the Hand Vacuum Pump - VAS6213- in position -A- for “vacuum”.
- Press the Hand Vacuum Pump - VAS6213- several times. A vacuum must form.

If No Vacuum Forms:

- Check the line to the EVAP Canister Purge Regulator Valve 1 - N80- for leaks and damage.

If No Error Was Detected:

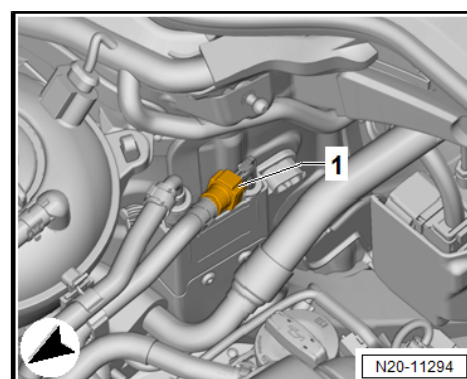
EVAP Canister Purge Regulator Valve 1 - N80- is not OK.



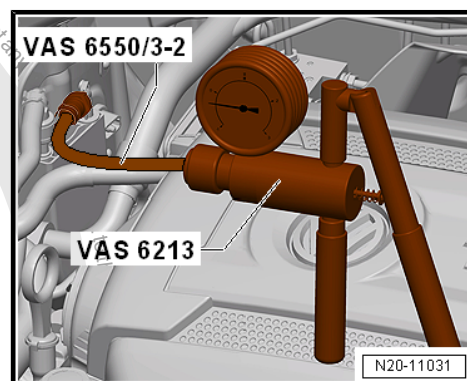
If a Vacuum Forms:

EVAP Canister Purge Regulator Valve 1 - N80- is OK.

- Release and remove the vent line -1-. Disconnect the connector couplings. Refer to [“3.1 Connector Couplings, Disconnecting”, page 34](#) .



- Connect the Hand Vacuum Pump - VAS6213- with the Pressure Tester Kit - Adapter Set - Hose 2 - VAS6550/3-2- to the EVAP canister line.

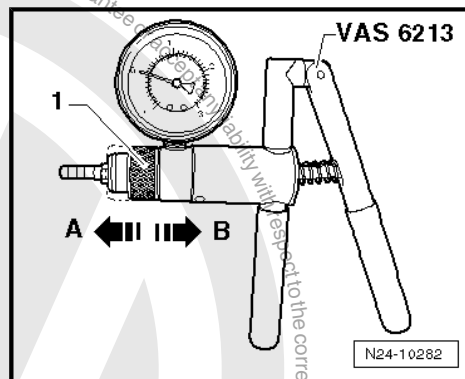




- Set the slide ring -1- on the Hand Vacuum Pump - VAS6213- in position -A- for “vacuum”
- Press the Hand Vacuum Pump - VAS6213- several times. No vacuum should be built up.

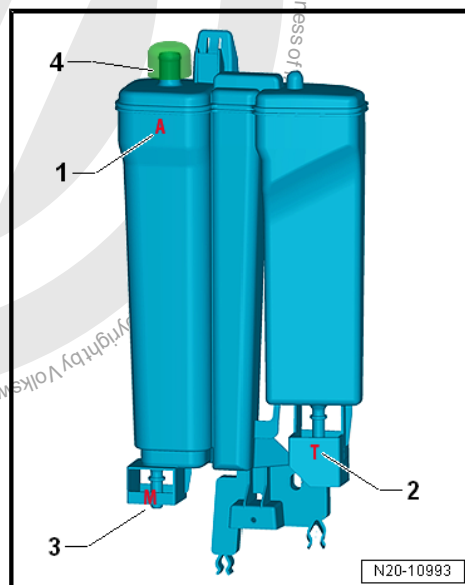
If a Vacuum Forms:

- Remove the right rear wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Rear Wheel Housing Liner .

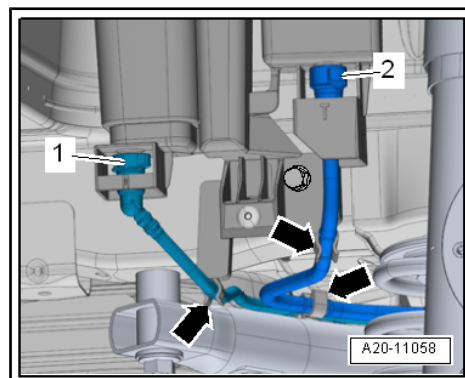


- Remove the cap -4- from the connection -1-.
- Check the vent connection -A- on the EVAP canister for contamination and clean it if necessary.
- Repeat the test.

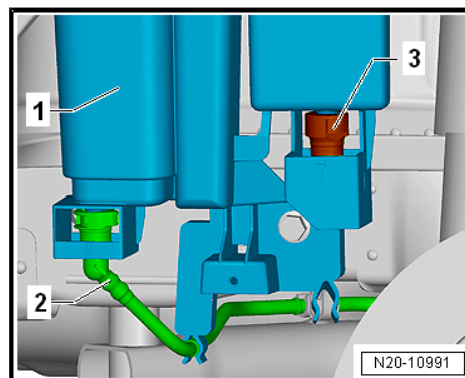
If No Vacuum Forms:



- Remove the vent lines -2- at the connection -T- from the EVAP canister. Disconnect the connector couplings. Refer to ➤ [“3.1 Connector Couplings, Disconnecting”, page 34](#) .

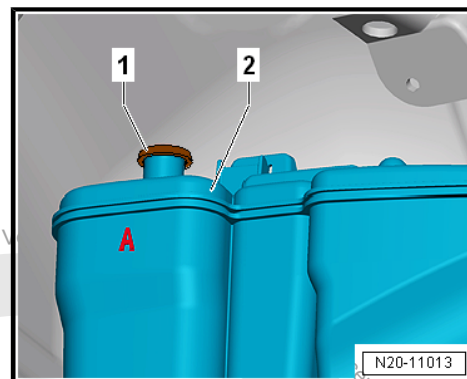


- Seal the connection -3- using suitable workshop equipment.



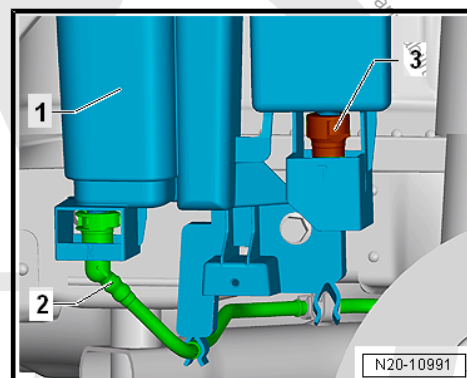


- Seal the connection -A- on the EVAP canister -2- with a suitable plug from the Engine Bung Set - VAS6122- -1-.
- Press the Hand Vacuum Pump - VAS6213- several times. A vacuum must form.

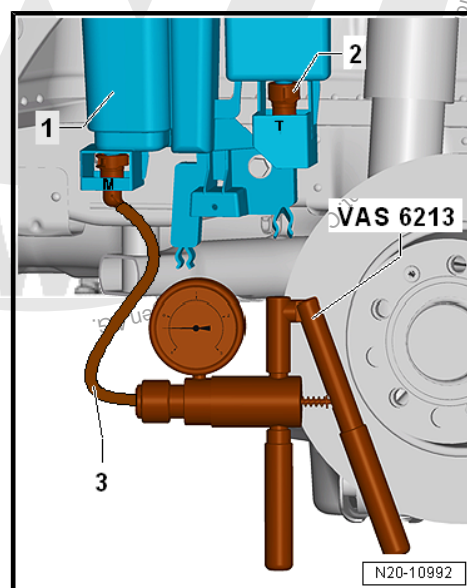


If No Vacuum Forms:

- Remove the vent lines -2- at the connection -M- from the EVAP canister -1-. Disconnect the connector couplings. Refer to ⇒ ["3.1 Connector Couplings, Disconnecting", page 34](#) .
- Connect the Hand Vacuum Pump - VAS6213- to the connection -M- on the EVAP canister -1- using a commercially available hose -3-.



- Connection -2- is sealed appropriately.
- Connection -A- is sealed with a plug from the Engine Bung Set - VAS6122- . Refer to ⇒ [page 49](#) .
- Press the Hand Vacuum Pump - VAS6213- several times. A vacuum must form.





If a Vacuum Forms:

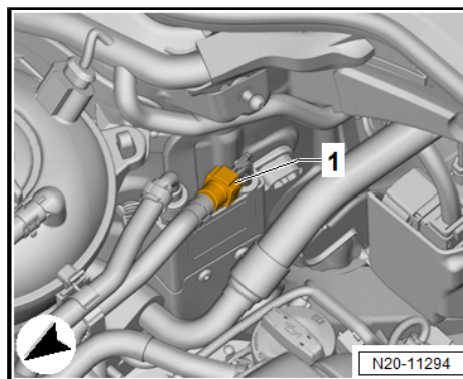
- Check the line between the coupling point -1- in the engine compartment and the connection -M- on the EVAP canister. Replace if necessary.

If No Vacuum Forms:

- Replace the EVAP canister. Refer to [⇒ “5.3 EVAP Canister, Removing and Installing”, page 42](#) .

If a Vacuum Builds up and the Line Is OK:

- Check the line -item 4- [⇒ Item 4 \(page 40\)](#) between the connection -T- on the EVAP canister and the fuel tank. Replace if necessary.



The Line to the Fuel Tank Is OK:

- Check the fuel tank for leaks.
- Check the cap -item 14- [⇒ Item 14 \(page 7\)](#) on the fuel filler neck.

If a Vacuum Builds up and the Lines Are OK:

Check the EVAP Canister Purge Regulator Valve 1 - N80- by proceeding as follows. Refer to [⇒ page 46](#) .





6 Accelerator Mechanism

⇒ [“6.1 Overview - Accelerator Pedal Module”, page 51](#)

⇒ [“6.2 Accelerator Pedal Module GX2 , Removing and Installing”, page 52](#)

6.1 Overview - Accelerator Pedal Module

1 - Bolt

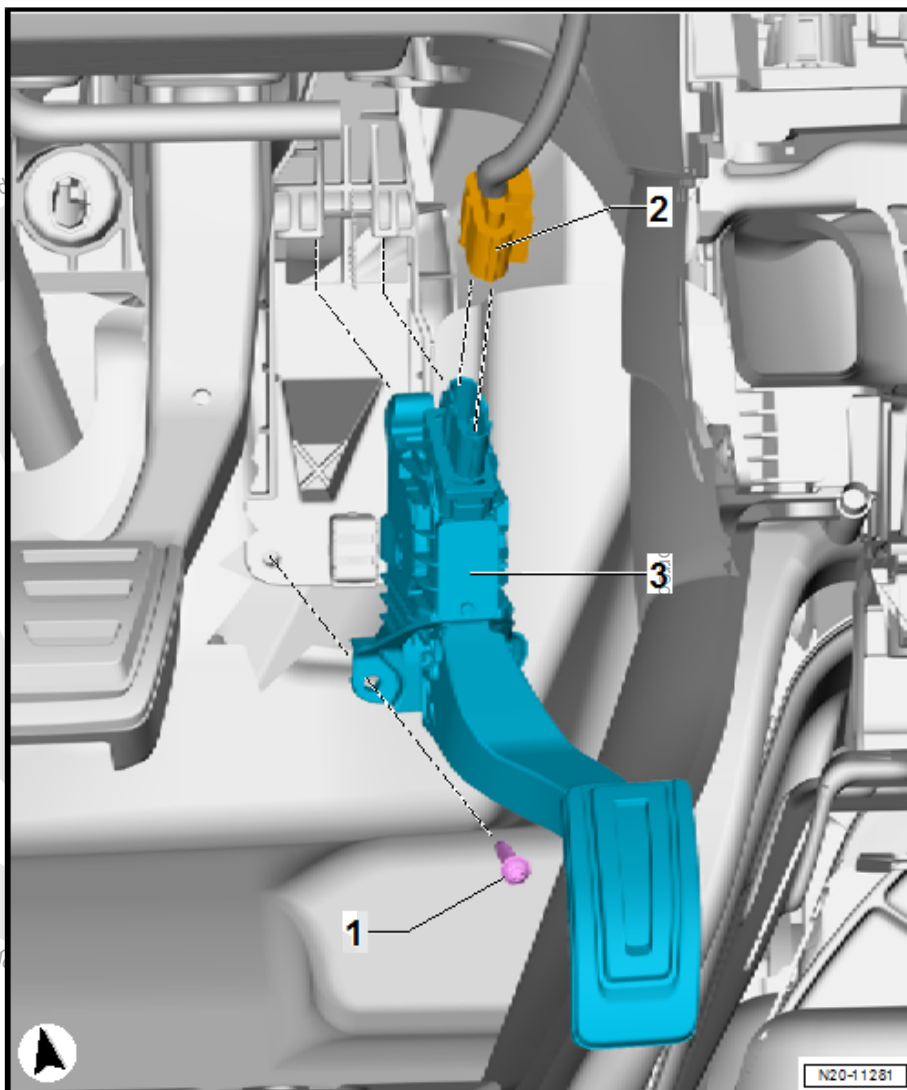
- ☐ 6 Nm

2 - Connector

- ☐ Pull on the connector to make sure it is engaged correctly and securely.

3 - Accelerator Pedal Module - GX2-

- ☐ Contains
Accelerator Pedal Position Sensor - G79-
Accelerator Pedal Position Sensor 2 - G185-
- ☐ Removing and installing. Refer to
⇒ [“6.2 Accelerator Pedal Module GX2 , Removing and Installing”, page 52](#).

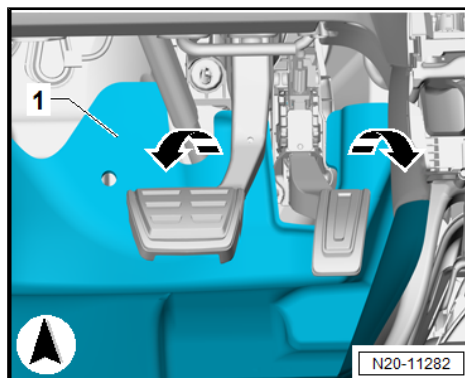




6.2 Accelerator Pedal Module - GX2- , Removing and Installing

Removing

- Fold the carpet -1- forward in the direction of -arrows-.
- Release and remove the connector -2- from the Accelerator Pedal Module - GX2- .



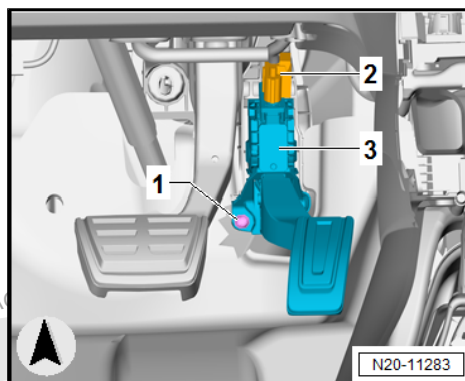
- Remove the bolt -1- and remove the accelerator pedal module -3- from the mount.

Installing

Install in reverse order of removal and note the following:

Tightening Specifications

- ♦ Refer to
⇒ [“6.1 Overview - Accelerator Pedal Module”, page 51](#)





7 Fuel Pump

⇒ [“7.1 Transfer Fuel Pump G6 , Checking”, page 53](#)

⇒ [“7.2 Fuel Pump Control Module J538 , Removing and Installing”, page 64](#)

⇒ [“7.3 Suction Jet Pump, Removing and Installing”, page 65](#)

7.1 Transfer Fuel Pump - G6- , Checking

⇒ [“7.1.1 Fuel Pressure, Checking”, page 53](#)

⇒ [“7.1.2 Residual Pressure, Checking”, page 56](#)

⇒ [“7.1.3 Fuel Delivery Rate, Checking”, page 60](#)

7.1.1 Fuel Pressure, Checking

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-
- ◆ Pressure Tester Kit - VAS6550-
- ◆ Pressure Tester Kit - Adapter Set - Hose 3 - VAS6550/3-3-
- ◆ Pressure Tester Kit - Adapter Set - Hose 4 - VAS6550/3-4-
- ◆ Vehicle Diagnostic Tester

Conditions:

- Power supply is OK.
- Follow all safety precautions. Refer to
⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to
⇒ [“3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions”, page 4](#) .



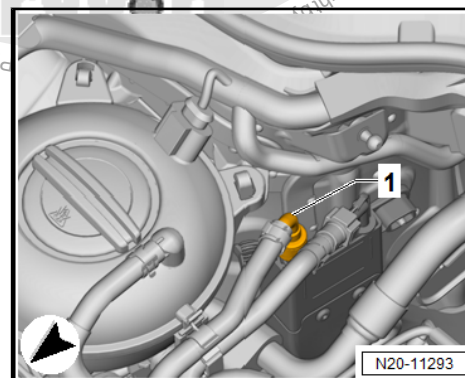
WARNING

The fuel line is under pressure.

Fuel poses a risk of injury to the eyes and skin.

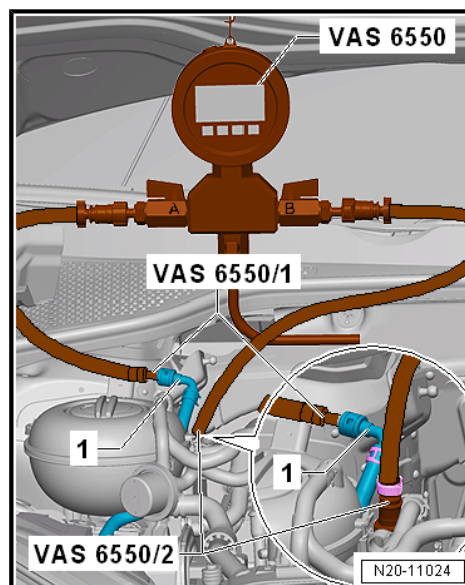
Wear protective eyewear and protective clothing to avoid injury and contact with skin. Place a cleaning cloth around the connection point before loosening hose connections. Carefully open the connection point to release the pressure.

- Remove the supply line -1-. Disconnect the connector couplings. Refer to
⇒ [“3.1 Connector Couplings, Disconnecting”, page 34](#) .
- Collect leaking fuel with a cleaning cloth.





- Connect the Pressure Tester Kit - Hose 1 - VAS6550/1- to the connection -A- on the Pressure Tester Kit - VAS6550- .
- Connect the Pressure Tester Kit - Hose 1 - VAS6550/1- to the fuel supply line -1- to the engine.
- Connect the Pressure Tester Kit - Hose 2 - VAS6550/2- to the connection -B- on the Pressure Tester Kit - VAS6550- .
- Connect the fuel line to the fuel tank with the Pressure Tester Kit - VAS6550- via the Pressure Tester Kit - Hose 2 - VAS6550/2- .
- Pull on the connector couplings to make sure they are secure.



- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A and B- on the Pressure Tester Kit -1- are opened.
- Connect the Vehicle Diagnostic Tester .
- Select the fuel pump output diagnostic test mode in OBD.



Note

- ♦ The fuel pump is now activated to build up the fuel pressure.
- ♦ If the output diagnostic test mode is performed several times in succession, it may be necessary to briefly start the motor before repeating the output diagnostic test mode.

- Read the fuel pressure on the pressure gauge.
- Specified value: 4.0 to 7.0 bar (58.01 to 101.52 psi).

If the fuel pressure is OK, check the residual pressure. Refer to ⇒ [“7.1.2 Residual Pressure, Checking”, page 56](#) .

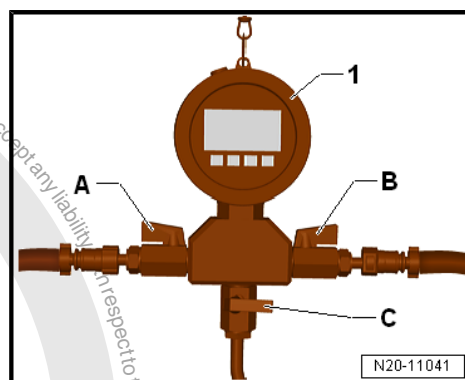
If the Specified Value Is Exceeded:

- The pressure relief valve in the fuel delivery unit is faulty.
- Replace the fuel delivery unit. Refer to ⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 27](#)

If the Specified Value Is Not Obtained:

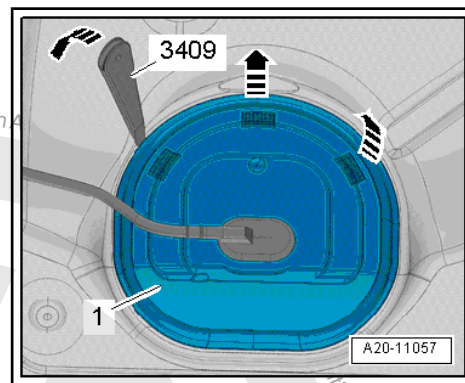
Proceed as follows to check the fuel pressure at the fuel delivery unit:

- Remove the bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .

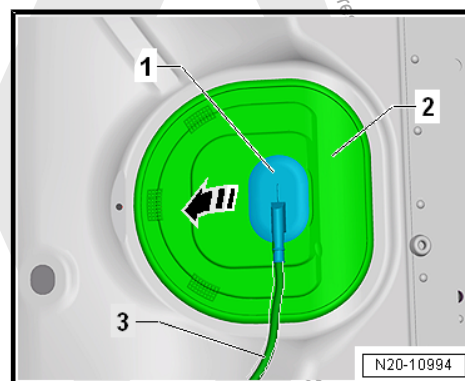




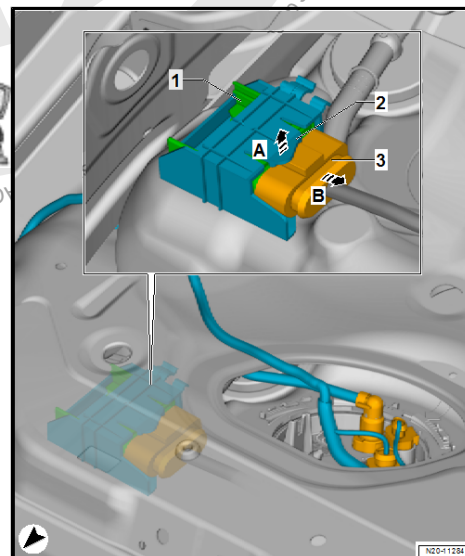
- Unclip the locking flange cover -1- at the tabs in direction of -arrows- using the Trim Removal Wedge - 3409- .



- Unclip the grommet -1- downward out of the cover -2-.
- Guide the cover -2- on the wiring harness -3- toward the rear.
- Lift the tab -2- in the direction of -arrow A-. To do so, reach a finger between the floor panel and the fuel tank.



- At the same time, carefully pull the Fuel Pump Control Module - J538- -1- out of the mount at the wiring harness -3- in the direction of -arrow B-.
- Remove the Fuel Pump Control Module - J538- toward the inside between the fuel tank and the floor panel.
- Move the Fuel Pump Control Module - J538- to the side with the connector still connected.



WARNING

The fuel line is under pressure.

Fuel poses a risk of injury to the eyes and skin.

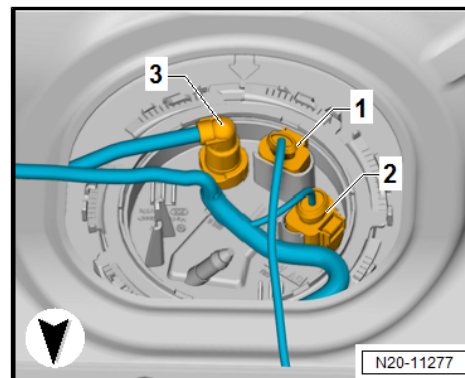
Wear protective eyewear and protective clothing to avoid injury and contact with skin. Place a cleaning cloth around the connection point before loosening hose connections. Carefully open the connection point to release the pressure.

- Pull the fuel line -3- off the flange.



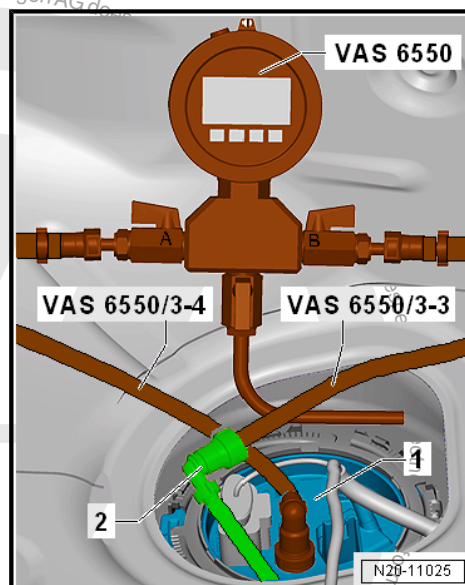
Note

Do not disconnect the connectors -1 and 2-.





- Connect the Pressure Tester Kit - VAS6550- to the fuel delivery unit -1- using the Pressure Tester Kit - Adapter Set - Hose 4 - VAS6550/3-4- .
- Connect the Pressure Tester Kit - Adapter Set - Hose 3 - VAS6550/3-3- between the Pressure Tester Kit - VAS6550- and the fuel supply line -2-.
- Pull on the connector couplings to make sure they are secure.



- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A and B- on the Pressure Tester Kit -1- are opened.
- Repeat the output diagnostic test mode to build up the fuel pressure again.

If the Specified Value Is Obtained:

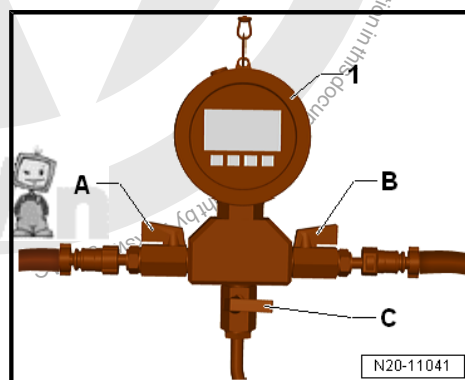
- Check the fuel lines for possible restrictions (kinks) or blockages.
- Check the fuel line for leaks and damage.

If the Specified Value Is Not Obtained:

- Remove the fuel delivery unit and inspect it for debris. Refer to
⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 27](#) .
- Make sure all of the hoses are connected.
- Check the fuel lines for possible restrictions (kinks) or blockages.
- Check the fuel lines for leaks and damage.

If No Error Can Be Found:

- If the fuel pump is faulty, replace the fuel delivery unit. Refer to
⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 27](#) .



7.1.2 Residual Pressure, Checking

Special tools and workshop equipment required

- ◆ Pressure Tester Kit - VAS6550-
- ◆ Trim Removal Wedge - 3409-
- ◆ Pressure Tester Kit - Adapter Set - Hose 3 - VAS6550/3-3-
- ◆ Pressure Tester Kit - Adapter Set - Hose 4 - VAS6550/3-4-
- ◆ Vehicle Diagnostic Tester



- Follow all safety precautions. Refer to
⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to
⇒ [“3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions”, page 4](#) .
- Fuel pressure is OK and Pressure Tester Kit - VAS6550- connected. Check the fuel pressure. Refer to
⇒ [“7.1.1 Fuel Pressure, Checking”, page 53](#) .
- Connect the Pressure Tester Kit - Hose 2 - VAS6550/2- between the fuel line from the fuel tank and the shut-off valve -B- on the Pressure Tester Kit - VAS6550- .
- Connect the Pressure Tester Kit - Hose 1 - VAS6550/1- between the fuel line leading to the engine -1- and the shut-off valve -A- on the Pressure Tester Kit - VAS6550- .

Test Sequence:

- Connect the Vehicle Diagnostic Tester .
- Select the fuel pump output diagnostic test mode in OBD.



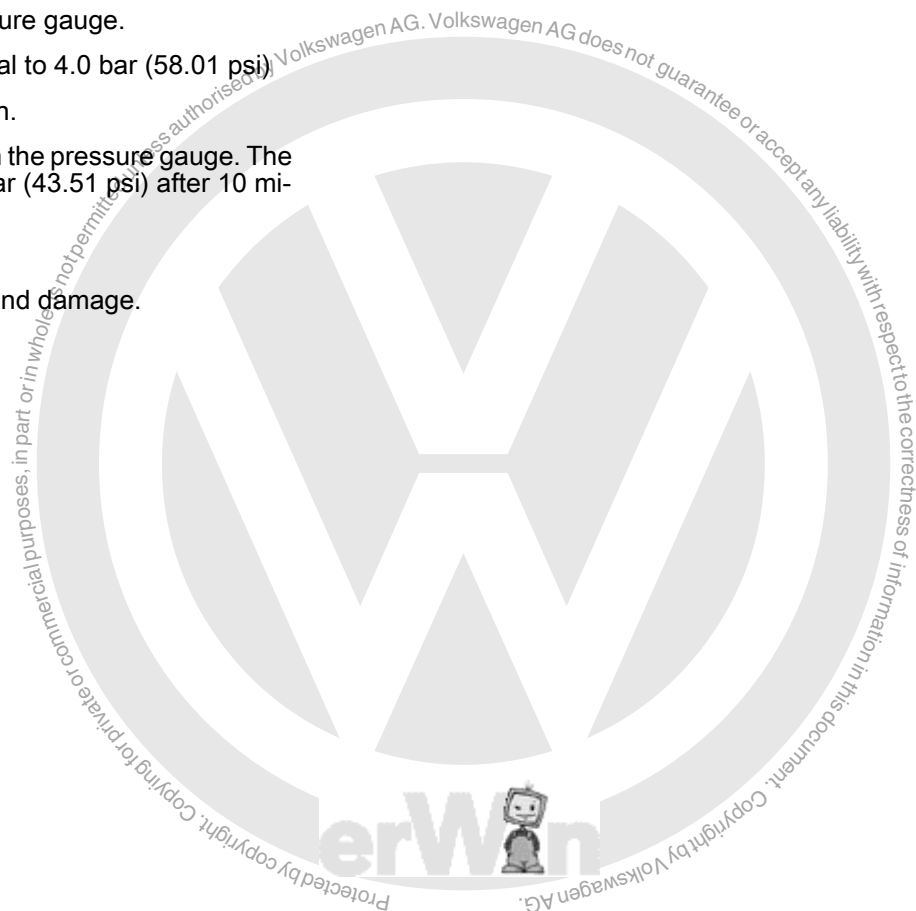
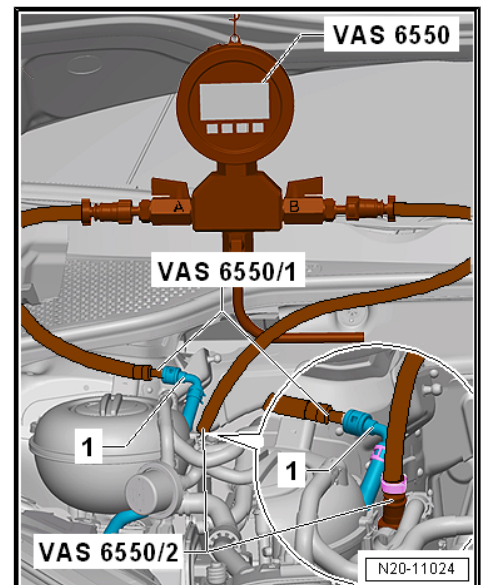
Note

- ◆ *The fuel pump is now activated to build up the fuel pressure.*
- ◆ *If the output diagnostic test mode is performed several times in succession, it may be necessary to briefly start the motor before repeating the output diagnostic test mode.*

- Read the fuel pressure on the pressure gauge.
- Specified value: greater than or equal to 4.0 bar (58.01 psi)
- End the OBD and turn off the ignition.
- Observe the decrease in pressure on the pressure gauge. The pressure must not drop below 3.0 bar (43.51 psi) after 10 minutes.

If the Pressure Drops:

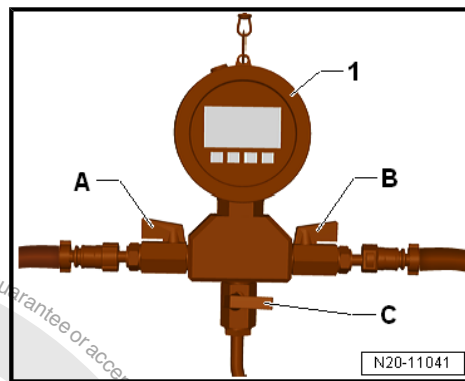
- Check all of the fuel lines for leaks and damage.





If No Faults Can Be Found:

- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A and B- on the Pressure Tester Kit -1- are opened.
- Activate the fuel pump using the output diagnostic test mode to build the fuel pressure.
- Close the shut-off valve -A- on the pressure gauge immediately after the pressure has been reached. The lever is perpendicular to the flow direction.



If the Pressure Drops Again (Leak on Fuel Tank Side):

Proceed as follows to check residual pressure on the fuel delivery unit. Refer to ➤ [page 58](#) .

If the Pressure No Longer Decreases (Leak on the Engine Side):



Note

Check for the leak on the engine side. Repeat the residual pressure check. Close the shut-off valve -B- this time to determine if there actually is a leak on the engine side.

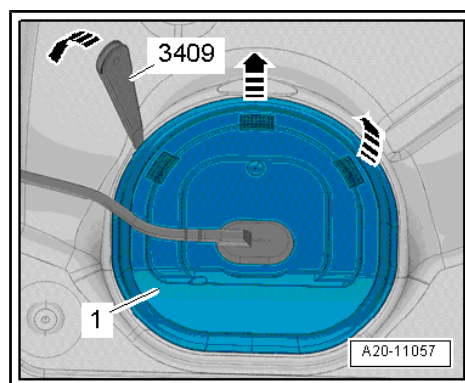
- If there is a leak on the engine side, check the fuel pipes and high pressure pump for leaks.

If no malfunction is found, check the fuel injectors for leaks:

- Remove the spark plugs.
- Open the shut-off valve -A and B-. Activate the fuel pump with output diagnostic test mode.
- Check through the spark plug hole if fuel is collecting on the piston crown due to a leaking fuel injector.

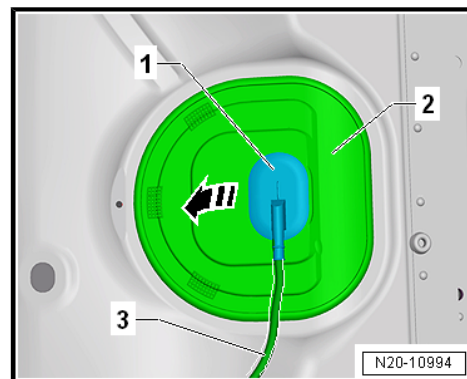
Residual Pressure in Fuel Delivery Unit, Checking:

- Remove the bench seat. Refer to ➤ [Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing](#) .
- Unclip the locking flange cover -1- at the tabs in direction of -arrows- using the Trim Removal Wedge - 3409- .

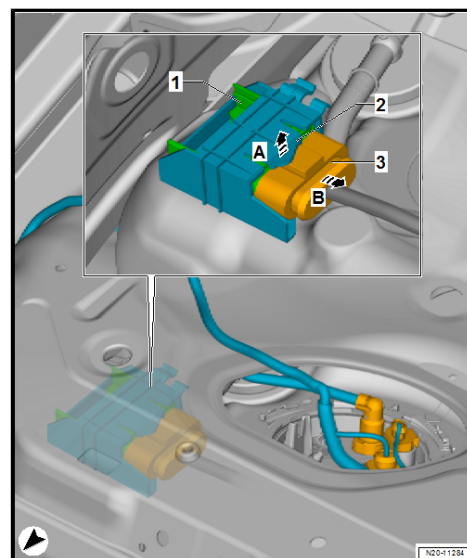




- Unclip the grommet -1- downward out of the cover -2-.
- Guide the cover -2- on the wiring harness -3- toward the rear.
- Lift the tab -2- in the direction of -arrow A-. To do so, reach a finger between the floor panel and the fuel tank.



- At the same time, carefully pull the Fuel Pump Control Module - J538- -1- out of the mount at the wiring harness -3- in the direction of -arrow B-.
- Remove the Fuel Pump Control Module - J538- toward the inside between the fuel tank and the floor panel.
- Move the Fuel Pump Control Module - J538- to the side with the connector still connected.



WARNING

The fuel line is under pressure.

Fuel poses a risk of injury to the eyes and skin.

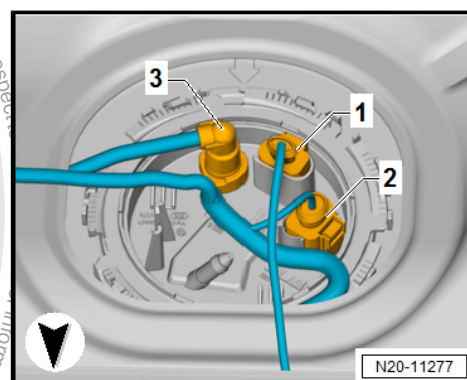
Wear protective eyewear and protective clothing to avoid injury and contact with skin. Place a cleaning cloth around the connection point before loosening hose connections. Carefully open the connection point to release the pressure.



Note

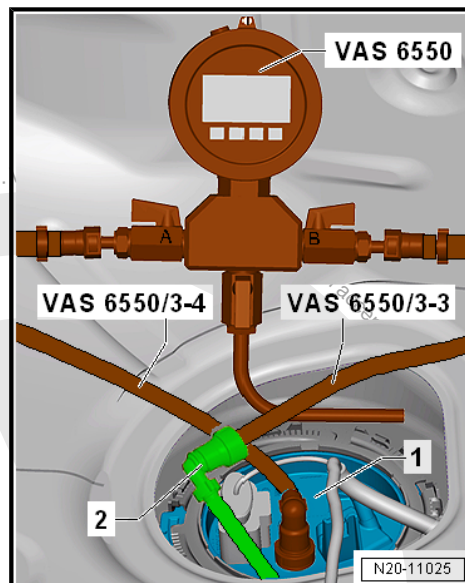
Do not disconnect the connectors -1 and 2-.

- Pull the fuel line -3- off the flange.





- Connect the Pressure Tester Kit - VAS6550- to the fuel delivery unit -1- using the Pressure Tester Kit - Adapter Set - Hose 4 - VAS6550/3-4- .
- Connect the Pressure Tester Kit - Adapter Set - Hose 3 - VAS6550/3-3- between the Pressure Tester Kit - VAS6550- and the fuel line -2-.
- Pull on the connector couplings to make sure they are secure.



- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A and B- on the Pressure Tester Kit -1- are opened.
- Activate the fuel pump using the output diagnostic test mode to build the fuel pressure.
- Close the shut-off valve -B- on the pressure gauge immediately after the pressure has been reached. The lever is perpendicular to the flow direction.
- Repeat the residual pressure check. Refer to [⇒ page 57](#) .

If the Pressure No Longer Decreases:

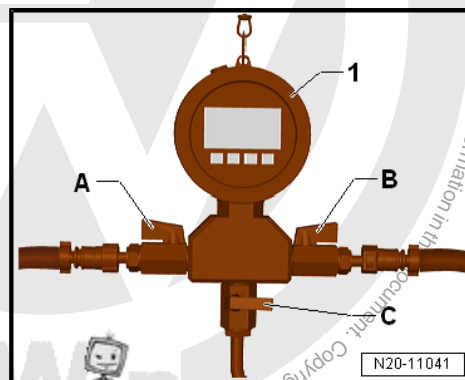
- Check the fuel line for leaks.

If the Pressure Drops Again:

- Open the fuel delivery unit. Refer to [⇒ "2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 27](#) .
- Make sure all of the hose connections are connected.
- Check the fuel lines for leaks and damage.

If No Error Can Be Found:

- If the pressure retaining valve in the fuel delivery unit is faulty, replace the fuel delivery unit. Refer to [⇒ "2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 27](#) .



7.1.3 Fuel Delivery Rate, Checking

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-
- ◆ Injection Rate Comparison Meter Kit - Remote Cable - VAG1348/3A- with Injection Rate Kit - Remote Cable - VAG1348/3-3- .
- ◆ Pressure Tester Kit - VAS6550- with Pressure Tester Kit - Hose 2 - VAS6550/2-
- ◆ Pressure Regulator Valve - VAS6550/4- (not illustrated)



◆ Connector Test Set - VAG1594D-

Procedure

- Follow all safety precautions. Refer to
⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to
⇒ [“3.1 Parking/Auxiliary Heater and Fuel System Guidelines for Clean Working Conditions”, page 4](#) .

Fuel Delivery Rate, Checking in Engine Compartment, Quick Test:



Note

The fuel delivery rate is first checked in the engine compartment with the “Check fuel delivery rate, quick test” Guided Function. A second measurement on the fuel delivery unit flange must be performed if the minimum delivery rate is not attained.

- Connect the Vehicle Diagnostic Tester .
- Start Guided Functions.
- Check the fuel delivery rate function and select the quick test.
- Follow the instructions displayed on the Vehicle Diagnostic Tester .

If the Specified Value Is Not Obtained:

- Open the fuel filler door unit -2-.
- Clean the area around the fuel filler neck.
- Remove the cap -1- for the fuel filler neck.
- When checking the fuel delivery rate, repeat the quick test.

If the Specified Value Is Obtained:

- Check the fuel tank ventilation. Refer to
⇒ [“5.4 Fuel Tank, Checking Ventilation”, page 46](#) .

If the Specified Value Is Not Obtained:

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

If No Error Can Be Found:

Check the fuel delivery rate on the fuel delivery unit as follows:

Fuel Delivery Rate, Checking in Fuel Delivery Unit:

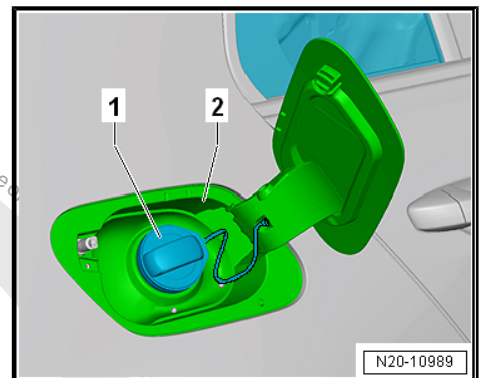


WARNING

The fuel line is under pressure.

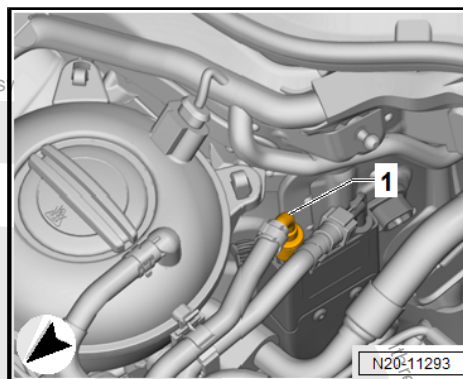
Fuel poses a risk of injury to the eyes and skin.

Wear protective eyewear and protective clothing to avoid injury and contact with skin. Place a cleaning cloth around the connection point before loosening hose connections. Carefully open the connection point to release the pressure.

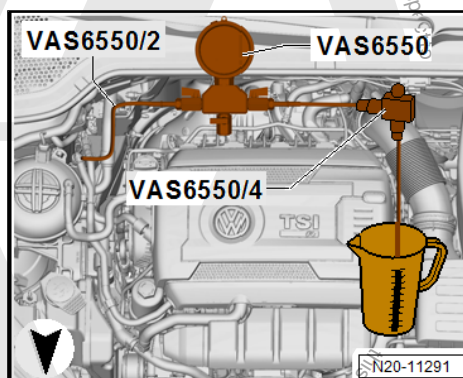




- Remove the supply line -1-. Disconnect the connector couplings. Refer to
⇒ [“3.1 Connector Couplings, Disconnecting”, page 34](#) .



- Connect the Pressure Tester Kit - VAS6550- to the fuel supply line with the Pressure Tester Kit - Hose 2 - VAS6550/2- .
- Connect the Pressure Regulator Valve - VAS6550/4- and hold the hose in a fuel-resistant measuring container.



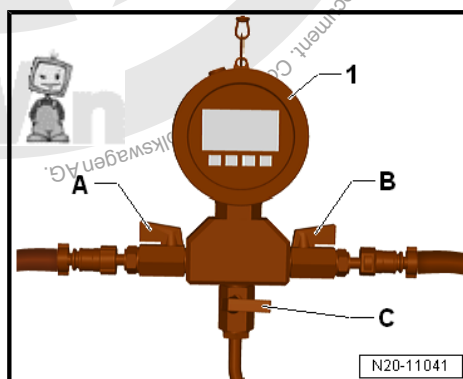
- Switch on the Pressure Tester Kit - VAS6550- -item 1- by pressing the **On/Off** button.



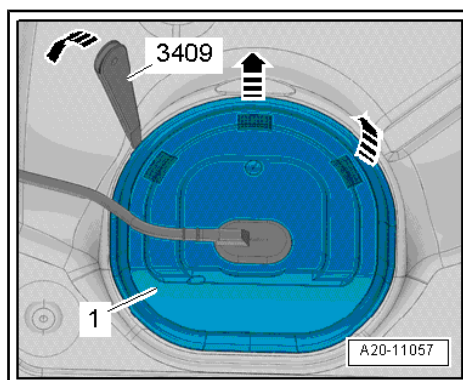
DANGER!

There is a risk of fire due to leaking fuel.

- ◆ *Make sure that the drain valve -C- is shut.*
- ◆ *The lever is perpendicular to the direction of flow.*

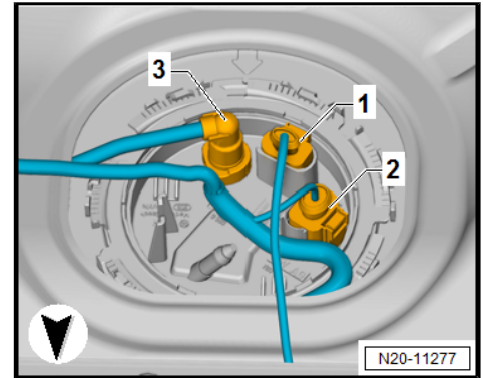


- Open the shut-off valves -A and B-.
- The levers point in the direction of flow.
- Remove the bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Unclip the right locking flange cover -1- at the tabs in direction of -arrows- using the Trim Removal Wedge - 3409- .





- Release the connector safety catch to disconnect the connector -1- on the right locking flange.



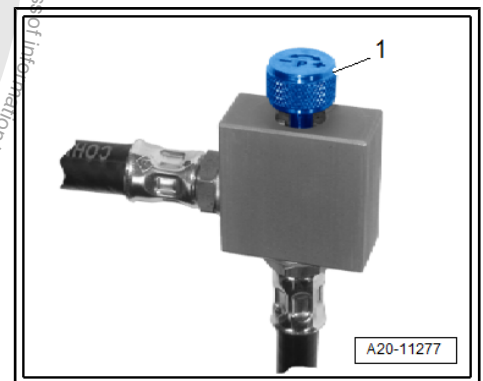
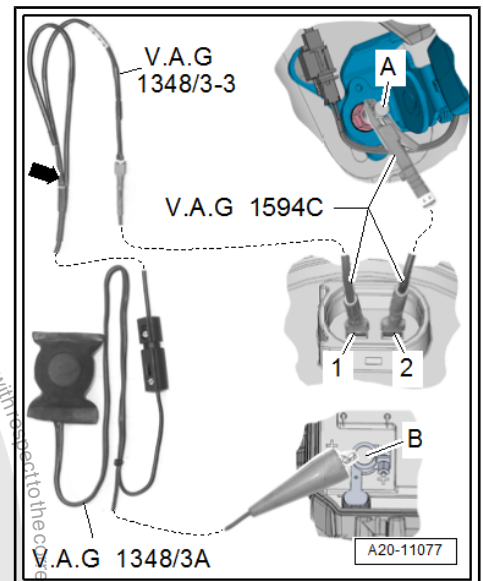
- Connect the Injection Rate Comparison Meter Kit - Remote Cable - VAG1348/3A- to the contact -1- using the Injection Rate Kit - Remote Cable - VAG1348/3-3- and cable from the Connector Test Set - VAG1594D- .
- Tape off the second connector terminal of the Injection Rate Kit - Remote Cable - VAG1348/3-3- with insulating tape -arrow- to prevent short circuits.
- Connect the contact -5- to the body ground -A- using an adapter cable from the Connector Test Set - VAG1594D- .
- Connect the alligator clip to the battery positive terminal -item B-.



Note

To measure the fuel delivery rate, an initial pressure must be created in the fuel line which the fuel pump must work against during measurement. Adjust the initial pressure using the Pressure Regulator Valve - VAS6550/4- as follows:

- Create an initial pressure in the fuel system. To do so, press the remote control switch and turn the adjusting screw -1- on the Pressure Regulator Valve - VAS6550/4- until the correct initial pressure value is reached.
- Specified value: 4.0 bar (58.01 psi) pressure.
- Do not turn the adjusting screw -1- any farther.
- Empty the measuring container.
- Press the remote control switch for 15 seconds.





- Compare the quantity of fuel delivered with the minimum delivery rate in the diagram (cm³/15s).



Note

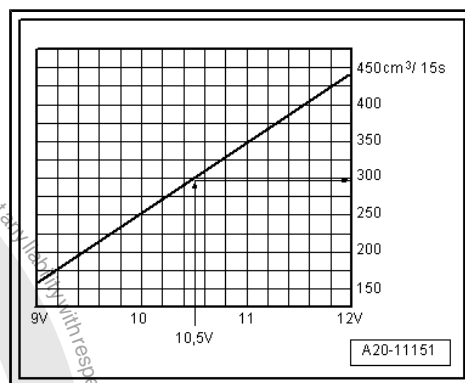
Voltage at the fuel pump with the engine stopped and the pump running is approximately 2 volts less than battery voltage.

If the minimum delivery rate is not obtained, the following malfunctions may be present:

- ♦ The fuel lines are pinched.
- ♦ The fuel pressure regulator is faulty.
- ♦ The fuel pump is faulty.
- ♦ The fuel filter in the fuel delivery unit is blocked.

Install in reverse order of removal and note the following:

- Attach the fuel line until it clicks into place.
- Press the fuel line on again and pull it to make sure the connector coupling is engaged correctly.



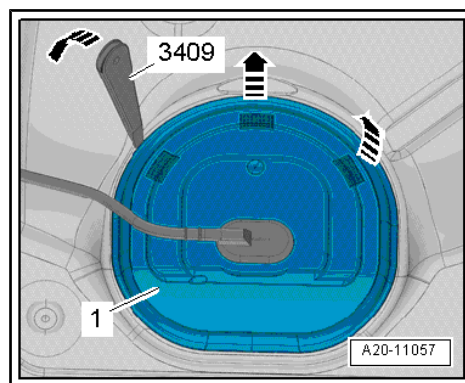
7.2 Fuel Pump Control Module - J538- , Removing and Installing

Special tools and workshop equipment required

- ♦ Trim Removal Wedge - 3409-

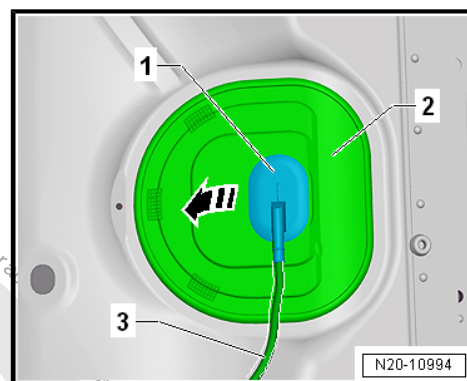
Removing

- Move the front seats all the way forward.
- Switch off the ignition.
- Remove the rear bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Seat Bench/Single Seat, Removing and Installing .
- Unclip the right locking flange cover -1- at the tabs in direction of -arrows- using the Trim Removal Wedge - 3409- .





- Unclip the grommet -1- downward out of the cover -2-.
- Guide the cover -2- on the wiring harness -3- toward the rear.
- Lift the tab -2- in the direction of -arrow A-. To do so, reach a finger between the floor panel and the fuel tank.
- At the same time, carefully pull the Fuel Pump Control Module - J538- -1- out of the mount at the wiring harness -3- in the direction of -arrow B-.

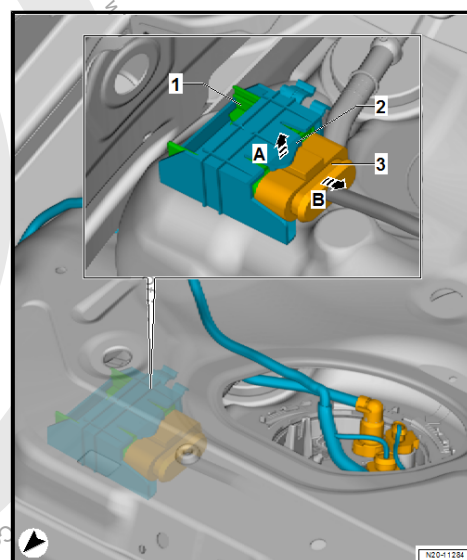


- Remove the Fuel Pump Control Module - J538- toward the inside between the fuel tank and the floor panel.

Installing

Install in reverse order of removal and note the following:

- Connect the wiring harness to the Fuel Pump Control Module - J538- .
- Pull on the connector to make sure it is secure.
- Insert the Fuel Pump Control Module - J538- into the mount on the fuel tank and press on it until it clicks into place.
- Pull on the Fuel Pump Control Module - J538- to make sure it is secure.



7.3 Suction Jet Pump, Removing and Installing



Note

For North American region, there is no sealing flange on the left side of the fuel tank.



For All Wheel Drive (AWD) vehicles, the fuel tank is divided into a left and right chamber. To move the volume of fuel from the left fuel tank chamber to the right to the baffle housing of the fuel delivery unit -1-, a suction jet pump -2- is utilized.

Suction Jet Pump Function

The suction jet pump functions according to a simple physical principle: A suction jet from the electric fuel pump is compressed by a nozzle in the suction jet pump and is thereby accelerated. This acceleration causes the surrounding fuel to be drawn in and be forced to the baffle housing of the fuel delivery unit.

Malfunctions of Faulty Suction Jet Pump



Caution

Tow-in due to faulty suction jet pump

- ◆ ***If the suction jet pump is faulty, the vehicle with a fuel tank up to $\frac{1}{4}$ filled may stop running due to a lack of fuel.***

If the suction jet pump does not function, up to 15 liters of fuel (up to approximately $\frac{1}{4}$ of the tank) remains in left chamber of fuel tank which cannot be extracted by the fuel delivery unit.

If the vehicle with a fuel tank up to $\frac{1}{4}$ filled stops running due to lack of fuel, proceed as follows:

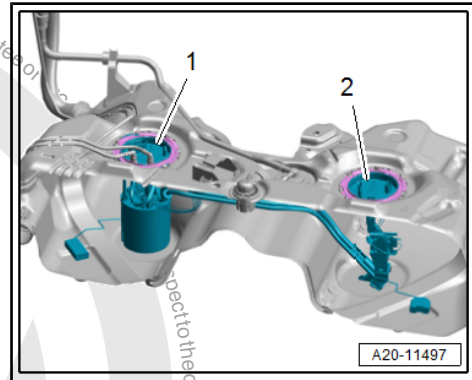
- Check the fuel pump. Refer to Vehicle Diagnostic Tester.

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

- Fill approximately 5 liters (5.28 quarts) of fuel.
- Start the engine.

If the engine now starts:

- The suction jet pump cannot be delivered separately; replace the fuel tank. Refer to
⇒ ["1.2 Fuel Tank, Removing and Installing", page 10](#) .





8 Special Tools

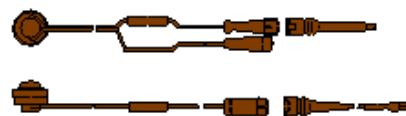
Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-
- ◆ Injection Rate Comparison Meter Kit - Remote Cable VAG1348/3A- with Injection Rate Kit - Remote Cable - VAG1348/3-3-
- ◆ Pressure Tester Kit - VAS6550- with Pressure Tester Kit - Hose 2 - VAS6550/2-
- ◆ Pressure Regulator Valve - VAS6550/4- (not illustrated)
- ◆ Connector Test Set - VAG1594D-

3409



V.A.G 1348/3A



VA S 6550



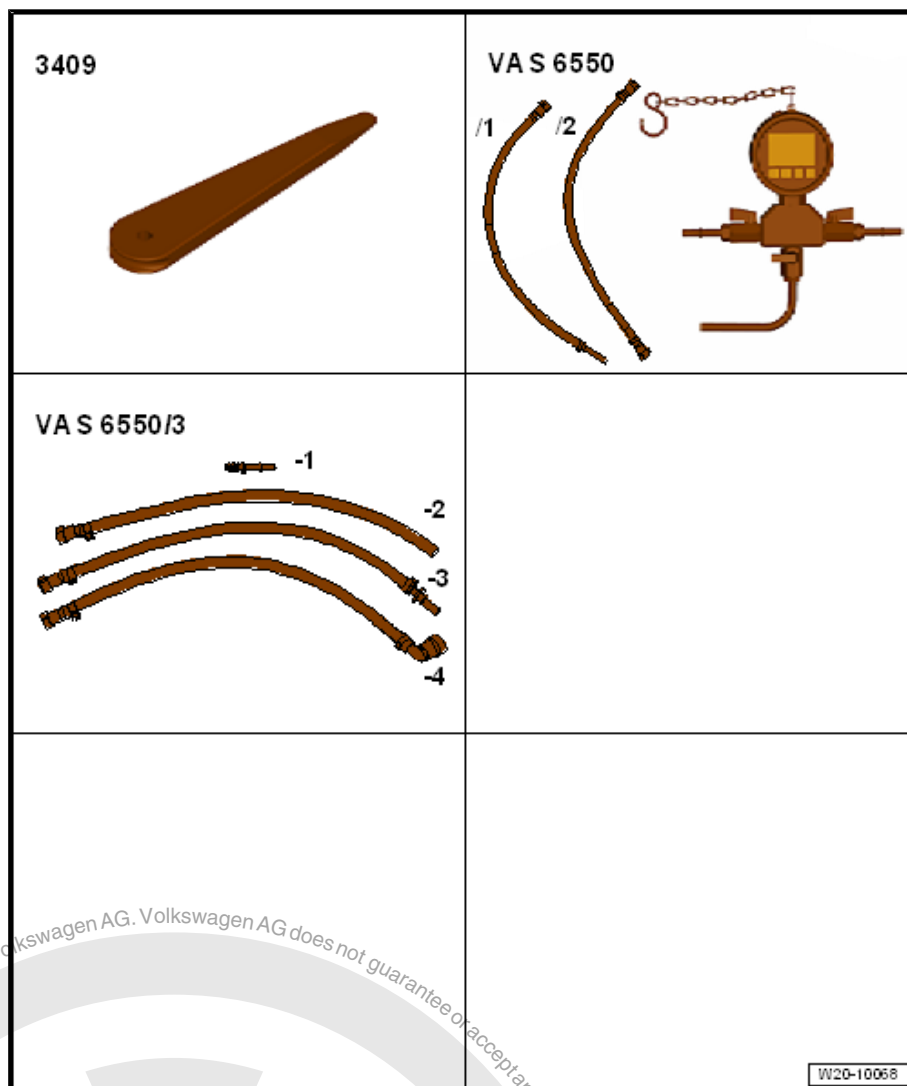
V.A.G 1594 C



W20-10073

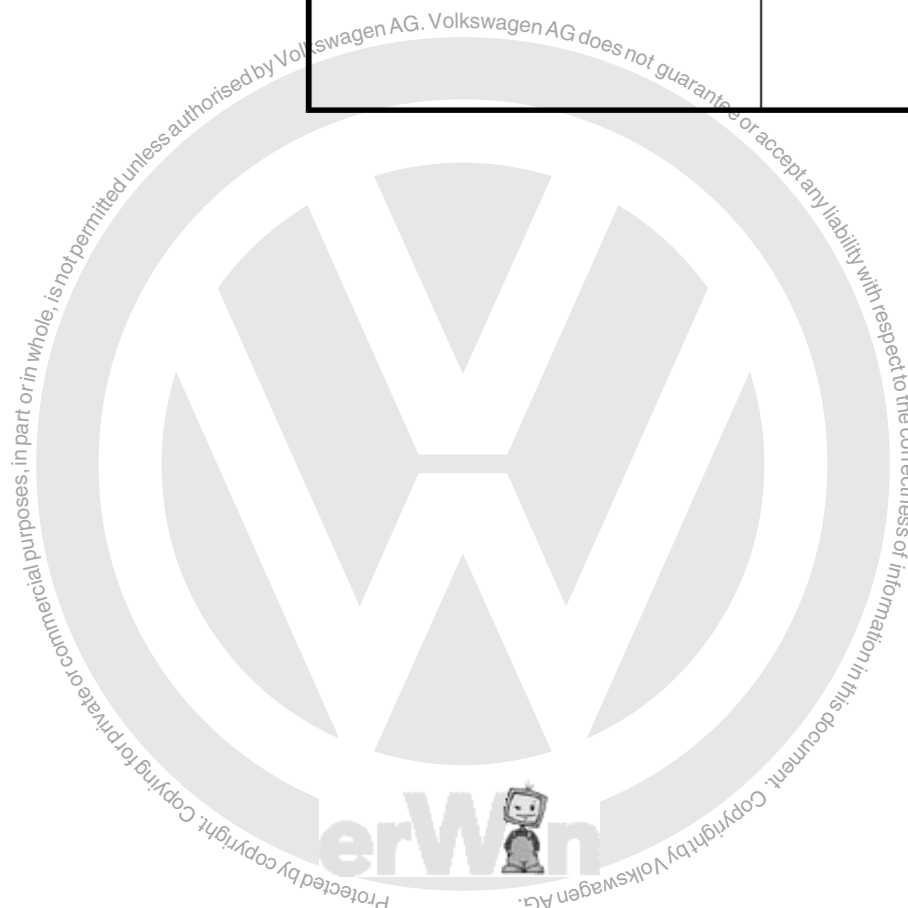
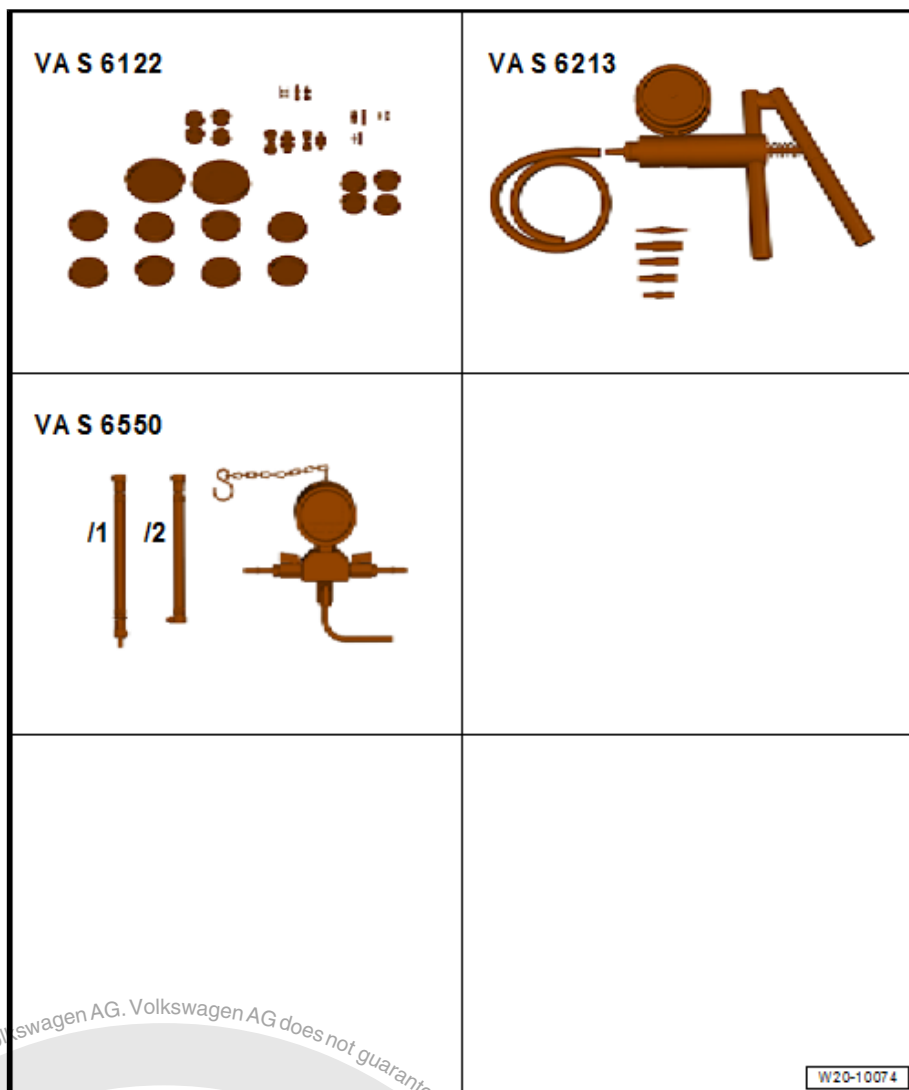


- ◆ Trim Removal Wedge - 3409-
- ◆ Pressure Tester Kit - VAS6550-
- ◆ Pressure Tester Kit - Adapter Set - Hose 3 - VAS6550/3-3-
- ◆ Pressure Tester Kit - Adapter Set - Hose 4 - VAS6550/3-4-
- ◆ Vehicle Diagnostic Tester





- ◆ Engine Bung Set - VAS6122-
- ◆ Hand Vacuum Pump - VAS6213-
- ◆ Pressure Tester Kit - VAS6550-





- ◆ Trim Removal Wedge - 3409-
- ◆ Wrench - Fuel Sending Unit - T10202-
- ◆ Fuel Extraction Unit - VAS5190A- (for E 85 - fuel)
- ◆ Fuel Extraction Unit - VAS5190- (not illustrated)

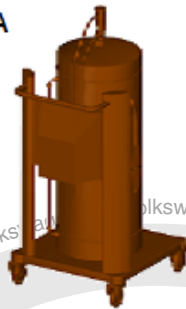
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T10202



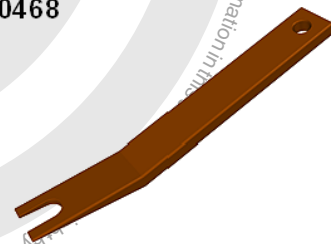
VAS 5190 A



W20-10070

- ◆ Lever - Fuel Line - T10468-

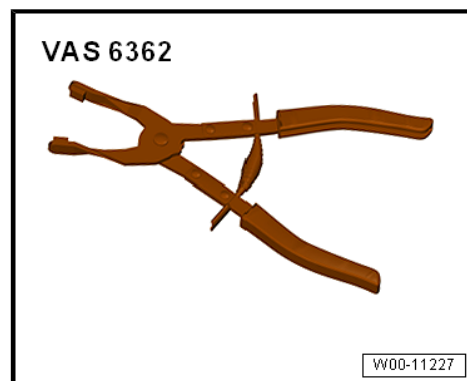
T10468



W00-11275



◆ Hose Clip Pliers - VAS6362-



◆ Engine and Gearbox Jack - VAS6931-





9 Revision History

DRUCK NUMBER: K0059212821


Factory Edition	Edit Edition	Job Type	Feed back	Notes	Quality Checked By
07.2 015	07/2 1/15	Correc-tion	N/A	Remove BX5 and AU1 from metadata - Not for NAR	Eric P.
07.2 015	07/1 6/20 15	Fac-tory Up-date	N/A	Added BX5 vehicle to met-adata	Eric P.
05.2 015	05/2 6/20 15	Fac-tory Up-date/ Feed back	1091 477		Joe Y.
03.2 015	05/1 3/20 15	Fac-tory Up-date	N/A		Eric P.
03.2 014	04/1 3/20 15	Fac-tory Up-date	N/A		Eric P.
11.2 014	12/1 1/20 14	Fac-tory Up-date	N/A		Jim H.
06.2 014	11/1 9/20 14	Link Chec-king	N/A		Jim H.
06.2 014	11/1 2/20 14	Fac-tory New	N/A		Jim H.

Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the VAG 1551 Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode. 
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the VAG 1551 Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.