



Workshop Manual

Audi A4 2015 ➤

Audi A5 2016 ➤

Fuel supply system - g-tron

Engine ID

CVLA

Edition 04.2019

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List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

20 - Fuel supply system



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

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Contents

00 - Technical data	1
1 Safety precautions	1
1.1 Safety precautions when working on vehicles with gas systems	1
1.2 Safety precautions when working on the fuel system	3
1.3 Safety precautions when working on vehicles with start/stop system	4
1.4 Safety precautions when using testers and measuring instruments during a road test	4
2 Repair instructions	5
2.1 Rules for cleanliness	5
2.2 General repair instructions	5
2.3 Test conditions	6
2.4 Contact corrosion	6
20 - Fuel supply system	7
1 Fuel system	7
1.1 Overview of fitting locations - fuel system	7
2 Fuel tank	9
2.1 Exploded view - fuel tank	9
2.2 Exploded view - natural gas fuel tanks	11
2.3 Exploded view - shut-off mechanism for tank	17
2.4 Exploded view - filler neck	19
2.5 Draining fuel tank	20
2.6 Discharging natural gas fuel tanks	22
2.7 Dissipating pressure in natural gas high-pressure pipe	34
2.8 Removing and installing natural gas fuel tanks with mounting bracket	37
2.9 Removing natural gas fuel tanks with mounting bracket from scissor-type assembly platform	44
2.10 Removing and installing fuel tanks	47
2.11 Removing and installing solenoid on fuel tank shut-off valve N361 / N362	69
2.12 Removing and installing filler connection	71
2.13 Determining residual pressure in natural gas fuel tank	73
3 Fuel delivery unit/fuel gauge sender	74
3.1 Exploded view - fuel delivery unit/fuel gauge sender	74
4 Plug-in connectors	76
4.1 Disconnecting plug-in connectors	76
5 Activated charcoal filter system	82
5.1 Connection diagram - activated charcoal filter system	82
5.2 Exploded view - activated charcoal filter system	83
5.3 Removing and installing activated charcoal filter	83
6 Accelerator mechanism	85
6.1 Exploded view - accelerator pedal module	85
6.2 Removing and installing accelerator pedal module with accelerator position sender G79 / G185	86
7 Fuel pump	87
7.1 Checking fuel system pressurisation pump G6	87
7.2 Removing and installing fuel pump control unit J538	91



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00 – Technical data

1 Safety precautions

(ARL006336; Edition 04.2019)

⇒ [“1.1 Safety precautions when working on vehicles with gas systems”, page 1](#)

⇒ [“1.2 Safety precautions when working on the fuel system”, page 3](#)

⇒ [“1.3 Safety precautions when working on vehicles with start/stop system”, page 4](#)

⇒ [“1.4 Safety precautions when using testers and measuring instruments during a road test”, page 4](#)

1.1 Safety precautions when working on vehicles with gas systems



DANGER

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!
Danger of severe or fatal injuries due to explosion.

- Never work on a natural gas system if you can hear gas escaping.
- Never drive the vehicle into the workshop if you can hear gas escaping.
- If you can hear gas escaping, park the vehicle outside and set up a protected area.
- Any work on the natural gas system must be performed by a specially trained person.
- Check for leaks after performing work on the natural gas system.

- Any work on the natural gas system must be performed by a specially trained person ⇒ Natural gas engines - General information; Rep. gr. 00 ; Safety briefing/employee qualification .
- Setting up a protected area ⇒ Natural gas engines - General information; Rep. gr. 20 ; Fuel tanks; Discharging natural gas fuel tanks

Risk of explosion due to flammable natural gas - risk of death!

Risk of explosion due to static discharge near natural gas systems - risk of death! Escaping natural gas may ignite and cause an explosion. Danger of severe or fatal injuries due to explosion.

- Wear protective clothing consisting of at least 35% cotton.
- Wear protective gloves consisting of at least 35% cotton.
- Wear safety shoes with ESD protection.

Risk of frostbite caused by escaping natural gas

In the natural gas system's high-pressure section, an uncontrolled escape of natural gas may occur.



Danger of frostbite to hands and other parts of the body.

- Dissipate pressure in high-pressure section of natural gas system before working on system.

Risk of injury due to high pressure

Uncontrolled gas escape may occur under high pressure. Danger of frostbite to hands and other parts of the body.

- Dissipate high pressure in natural gas system before performing work on natural gas system ⇒ Fuel supply system - g-tron; Rep. gr. 20 ; Fuel tanks; Dissipating pressure in natural gas high-pressure pipe .
- Check for leaks after performing work on the natural gas system.

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!

Danger of severe or fatal injuries due to explosion.

- Never drive a vehicle with a natural gas system into the workshop if you can clearly hear gas escaping. Instead, park the vehicle outside and set up a protected area ⇒ Natural gas engines - General information; Rep. gr. 20 ; Fuel tanks; Setting up and marking a protected area .
- Work on natural gas systems may only be performed by specially trained persons ⇒ Natural gas engines - General information; Rep. gr. 00 ; Safety briefing/employee qualification .
- Gas tank must be closed manually on vehicles with natural gas systems if gas can be heard escaping and smelt ⇒ Fuel supply system - g-tron; Rep. gr. 20 ; Fuel tanks; Closing fuel tank shut-off valves mechanically .

Risk of fire and explosion from auxiliary/supplementary heater

In areas where there is a danger of fire and explosion, a fire or explosion may be caused by a spark or high temperatures in the auxiliary/supplementary heater. Risk of burn injuries.

- Switch off auxiliary/supplementary heater in areas where there is a danger of fire/explosion.



NOTICE

Natural gas fuel tanks made of composite fibre materials can be damaged irreparably if they are unpressurised when stored.

- **Never store natural gas fuel tanks unpressurised.**
- Dissipate pressure in natural gas high-pressure pipe
⇒ [page 34](#) .



1.2 Safety precautions when working on the fuel system

Risk of injury - fuel system operates under high pressure

The fuel system is pressurised. There is a risk of injury as fuel may spray out.

Before opening the fuel system:

- Put on safety goggles.
- Put on protective gloves.
- Release pressure (wrap a clean cloth around connection and open connection carefully).

Risk of fire due to escaping fuel

If the battery is connected, the door contact switch activates the fuel pump when the driver's door is opened. Escaping fuel may ignite, causing a fire.

- Before opening the fuel system, disconnect power supply to fuel pump.

Risk of malfunctions due to air in fuel supply system

After working on the fuel tank or the fuel delivery unit, the metering pump draws in air and delivers it to the auxiliary/supplementary heater. Malfunctions of the auxiliary/supplementary heater due to air in the fuel supply system for the heater are possible.

- Fill fuel take-off pipe with fuel.

Risk of damage if engine is started

If parts of the fuel system (e.g. metering pump, fuel line, fuel gauge sender) are removed or opened, there is a risk of damage to the auxiliary/supplementary heater.

- Never start the engine when parts of the fuel system are open or removed.



Perform the following steps before starting work on the fuel system:

- ◆ Fuel tank must not be full. The amount of fuel which can be left in the fuel tank is indicated in the corresponding procedure description. Drain fuel tank if necessary [⇒ page 20](#).
- ◆ Before commencing work, switch on exhaust extraction system and place an extraction hose close to the opening in the fuel tank to extract escaping petrol fumes. If no exhaust extraction system is available, a radial fan with a displacement



of at least 15 m³/h can be used (the fan motor must be clear of the air stream).

- ◆ Avoid skin contact with fuel. Wear fuel-resistant gloves.

1.3 Safety precautions when working on vehicles with start/stop system

Risk of injury - engine may start unexpectedly

The engine can start unexpectedly if the vehicle's start/stop system is activated. A message in the instrument cluster indicates whether the start/stop system is activated.

- To deactivate the start/stop system, switch off the ignition.

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

Risk of injury if test equipment is not secured

If an accident occurs and the front passenger's airbag is triggered, test equipment which is not secured adequately may be catapulted through the vehicle with potentially serious consequences.

- Secure test equipment on the rear seat with a strap.

Or:

- Have a second mechanic operate test equipment on the rear seat.



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2 Repair instructions

⇒ [“2.1 Rules for cleanliness”, page 5](#)

⇒ [“2.2 General repair instructions”, page 5](#)

⇒ [“2.3 Test conditions”, page 6](#)

⇒ [“2.4 Contact corrosion”, page 6](#)

2.1 Rules for cleanliness

Even small quantities of dirt can lead to defects. For this reason, please observe the following rules when working on the fuel supply system and injection system:

- ◆ Clean connections and surrounding areas thoroughly with cleaning agent - D 009 401 04- before loosening; commercially available brake cleaner can damage the surfaces. Dry cleaned area thoroughly.
- ◆ Seal off open pipes and connections immediately with clean plugs, e.g. from engine bung set - VAS 6122- .
- ◆ Place removed parts on a clean surface and cover them. Use only lint-free cloths.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components; replacement parts should only be unpacked immediately prior to installation. Do not use parts that have not been stored in their packing (e.g. in tool boxes etc.).
- ◆ When the system is open, do not work with compressed air and do not move the vehicle.
- ◆ Protect unplugged electrical connectors against dirt and moisture and make sure connections are dry when attaching.

2.2 General repair instructions

Natural gas high-pressure pipe

- Take care not to bend or deform natural gas high-pressure pipe.
- The natural gas high-pressure pipe must be fitted so that it is free of tension; screw it on by hand initially until contact is made, then tighten.
- Ensure sufficient clearance from all moving or hot components.
- The original routing must be restored when installing natural gas high-pressure pipe.
- Ensure that surface of fuel tank and natural gas high-pressure pipe is not damaged. If necessary, protect surface using suitable workshop materials.

Work on natural gas system

- ◆ The battery must be disconnected before work is performed on the natural gas system.
- ◆ When renewing components from the high-pressure system, only components of the same type and the same manufacturer type approval must be used.
- ◆ A final leak test must always be performed after working on the natural gas system ⇒ Natural gas engines - General information; Rep. gr. 00 ; Checking natural gas system; Checking natural gas system for leaks and ⇒ Maintenance ; Booklet



821 ; Maintenance; Natural gas system: checking for damage and leaks .

2.3 Test conditions

- Battery voltage at least 12.5 V. Connect battery charger if necessary.
- Fuses OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel pump control unit - J538- OK; checking in Guided Fault Finding ⇒ Vehicle diagnostic tester.
- Fuel tank at least $\frac{1}{4}$ full.
- Fuel filter OK.
- Fuel lines OK (not obstructed or crushed).
- All electrical equipment switched off.

2.4 Contact corrosion

Contact corrosion can occur if unsuitable fasteners are used (e.g. bolts, nuts, washers, etc.).

For this reason, only fasteners with a special surface coating are fitted.

Additionally, all rubber and plastic parts and all adhesives are made of non-conductive materials.

Always install new parts if you are not sure whether used parts can be re-fitted ⇒ Electronic parts catalogue .

Please note:

- ◆ We recommend using only genuine replacement parts; these have been tested and are compatible with aluminium.
- ◆ We recommend using Audi Genuine Accessories.
- ◆ Damage caused by contact corrosion is not covered by warranty.

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20 – Fuel supply system

1 Fuel system

⇒ [“1.1 Overview of fitting locations - fuel system”, page 7](#)

1.1 Overview of fitting locations - fuel system

DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .

1 - Activated charcoal filter

- ☐ Exploded view
⇒ [page 83](#)

2 - Fuel line

- ☐ Petrol

3 - Line

- ☐ To activated charcoal filter

4 - Natural gas fuel tank 4 (front)

- ☐ With fuel tank shut-off valve 4 - N429-
- ☐ Exploded view
⇒ [page 14](#)

5 - Petrol fuel tank

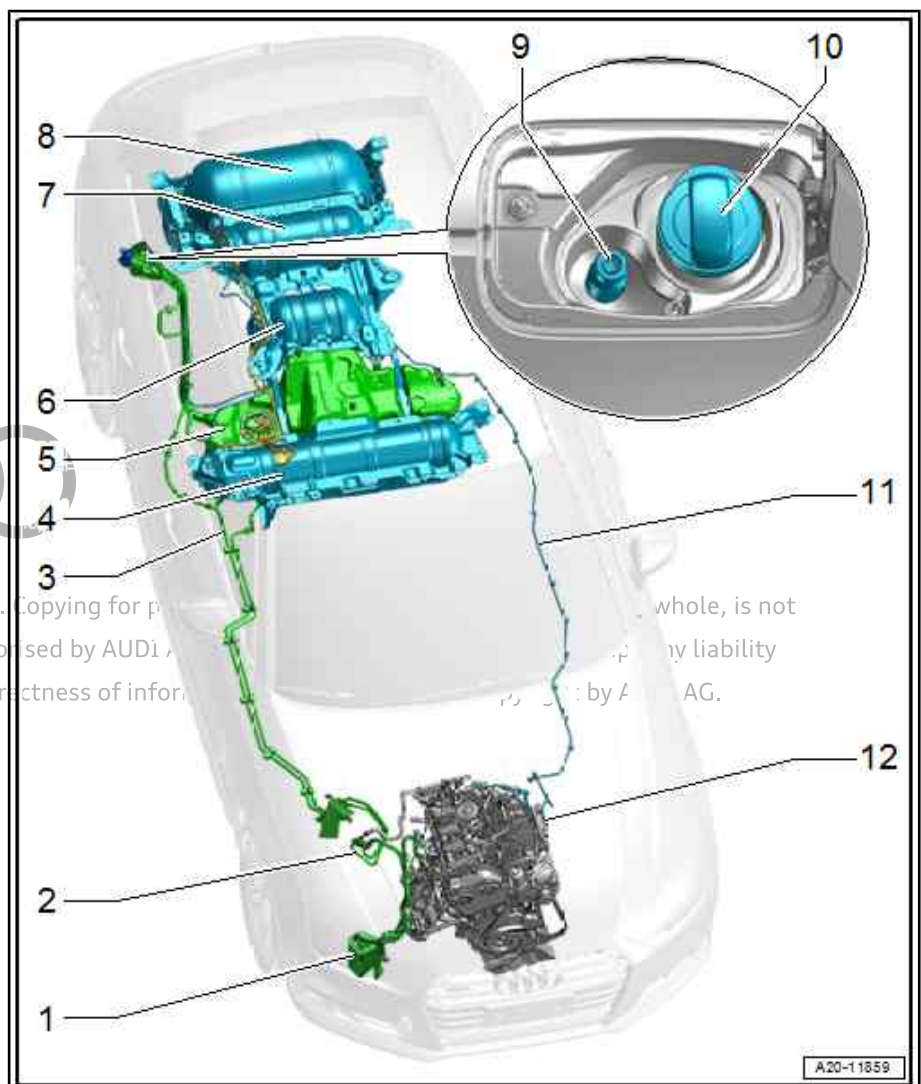
- ☐ Exploded view
⇒ [page 9](#)

6 - Natural gas fuel tank 3 (front centre)

- ☐ With fuel tank shut-off valve 3 - N363-
- ☐ Exploded view
⇒ [page 14](#)

7 - Natural gas fuel tank 2 (rear centre)

- ☐ With fuel tank shut-off valve 2 - N362-
- ☐ Exploded view
⇒ [page 14](#)





8 - Natural gas fuel tank 1 (rear)

- ☐ With fuel tank shut-off valve 1 - N361-
- ☐ Exploded view ⇒ [page 13](#)

9 - Filler connection

- ☐ For natural gas
- ☐ Exploded view ⇒ [page 19](#)

10 - Filler neck

- ☐ For petrol
- ☐ Exploded view ⇒ [page 19](#)

11 - High-pressure pipe

- ☐ Natural gas

12 - Gas pressure regulator

- ☐ Exploded view ⇒ Engine; Rep. gr. 24 ; Gas pressure regulator; Exploded view - gas pressure regulator



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2 Fuel tank

- ⇒ ["2.1 Exploded view - fuel tank", page 9](#)
- ⇒ ["2.2 Exploded view - natural gas fuel tanks", page 11](#)
- ⇒ ["2.3 Exploded view - shut-off mechanism for tank", page 17](#)
- ⇒ ["2.4 Exploded view - filler neck", page 19](#)
- ⇒ ["2.5 Draining fuel tank", page 20](#)
- ⇒ ["2.6 Discharging natural gas fuel tanks", page 22](#)
- ⇒ ["2.7 Dissipating pressure in natural gas high-pressure pipe", page 34](#)
- ⇒ ["2.8 Removing and installing natural gas fuel tanks with mounting bracket", page 37](#)
- ⇒ ["2.9 Removing natural gas fuel tanks with mounting bracket from scissor-type assembly platform", page 44](#)
- ⇒ ["2.10 Removing and installing fuel tanks", page 47](#)
- ⇒ ["2.11 Removing and installing solenoid on fuel tank shut-off valve N361 / N362 ", page 69](#)
- ⇒ ["2.12 Removing and installing filler connection", page 71](#)
- ⇒ ["2.13 Determining residual pressure in natural gas fuel tank", page 73](#)

2.1 Exploded view - fuel tank



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1 - Securing strap

2 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

3 - Fuel line

- ☐ To engine
- ☐ Do not kink
- ☐ Clipped onto underbody
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 76](#)

4 - Breather line

- ☐ To activated charcoal filter
- ☐ Do not kink
- ☐ Clipped to vehicle body
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 76](#)

5 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

6 - Bolt

- ☐ 2x
- ☐ 8 Nm

7 - Filler cap

- ☐ Secured to tank flap unit
- ☐ Screw down until it engages audibly

8 - Rubber buffer

- ☐ 3x
- ☐ Insert in mounting on fuel tank

9 - Fuel tank



Note

Fuel delivery unit and fuel gauge sender - G- are integrated in fuel tank and cannot be renewed separately.

- ☐ Removing and installing ⇒ [page 47](#)

10 - Bush

- ☐ Insert in rubber bush

11 - Rubber bush

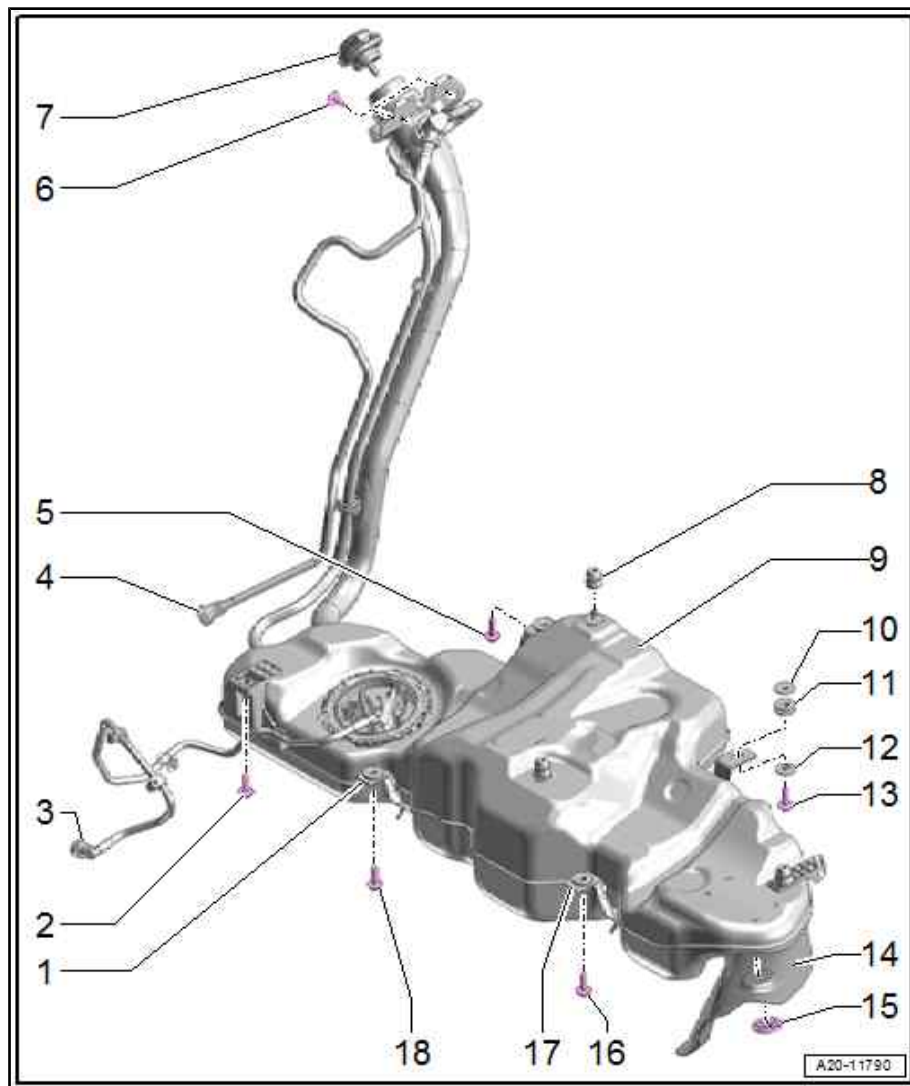
- ☐ Insert in securing strap

12 - Bush

- ☐ Insert in rubber bush

13 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°





14 - Heat shield

- ☐ For fuel tank

15 - Clamping washer

- ☐ 3x
- ☐ Press in as far as stop

16 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

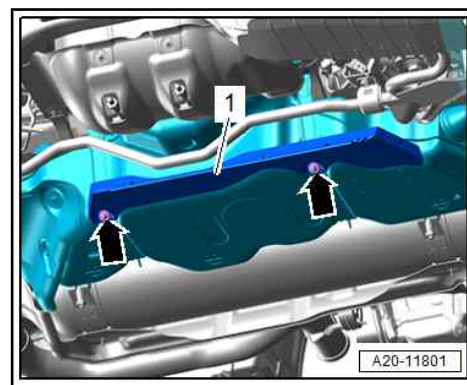
17 - Strap wrench

18 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

Wind deflector - tightening torque

- Tighten nuts -arrows- to 2 Nm.



2.2 Exploded view - natural gas fuel tanks

DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .

Part I

Part II ⇒ [page 13](#)

Part III ⇒ [page 14](#)



1 - Clamping washer

- ☐ Press in as far as stop

2 - Heat shield

- ☐ For natural gas fuel tank 1

3 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

4 - Bolts

- ☐ Renew after removing
- ☐ 20 Nm +90°

5 - Mounting

- ☐ For rear silencer

6 - Mounting bracket

- ☐ For natural gas fuel tank 1

7 - Heat shield

- ☐ For natural gas fuel tank 3

8 - Mounting bracket

- ☐ For natural gas fuel tanks 2, 3, 4
- ☐ For petrol fuel tank

9 - Locking piece

10 - Bolts

- ☐ Renew after removing
- ☐ 20 Nm +90°

11 - Heat shield

- ☐ For natural gas fuel tank 4

12 - Clamping washers

13 - Heat shield

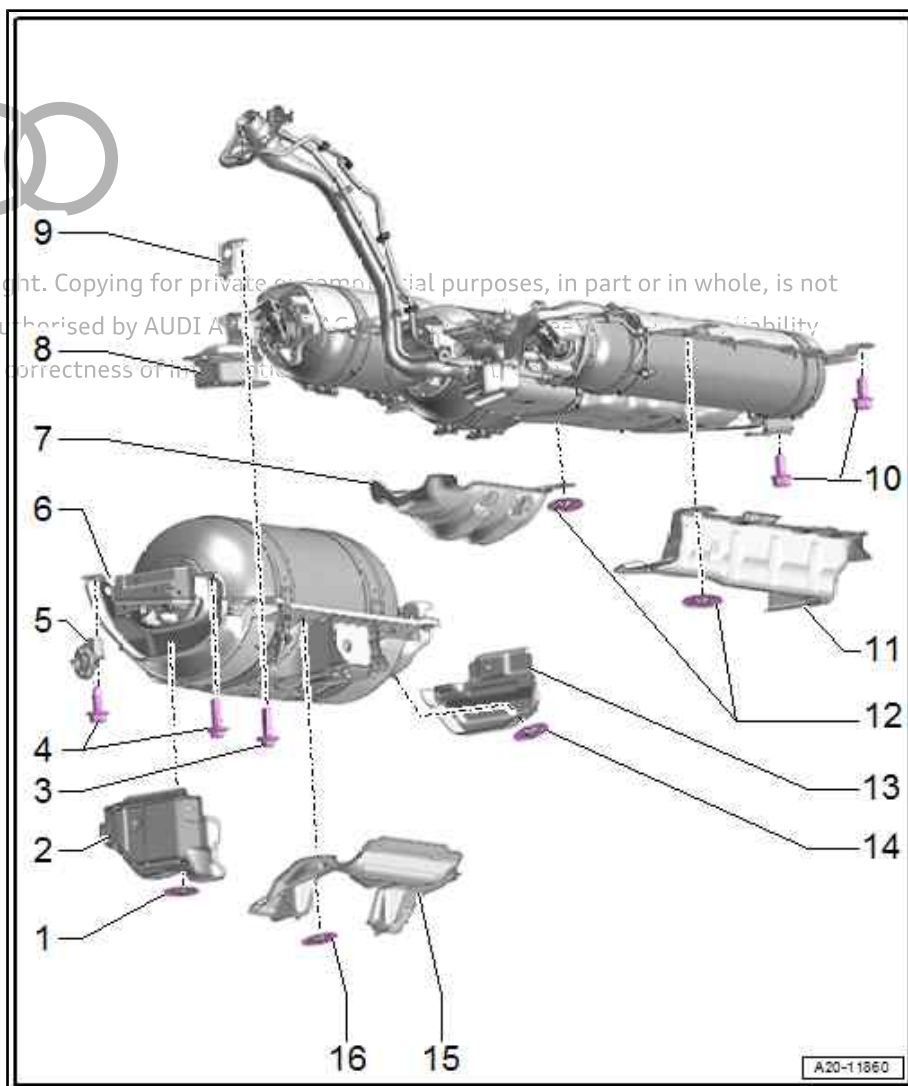
- ☐ For natural gas fuel tank 1

14 - Clamping washer

15 - Heat shield

- ☐ For natural gas fuel tank 2

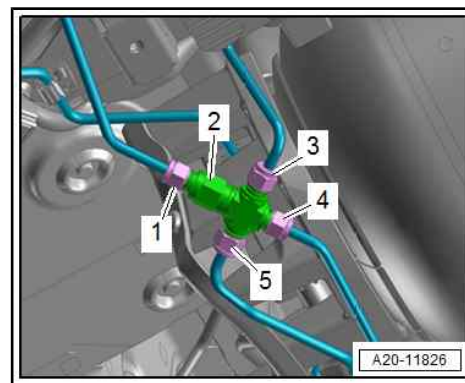
16 - Clamping washer





Connecting piece - connection diagram

- 1 - Filler line
- 2 - Connecting piece
- 3 - Line to gas pressure regulator
- 4 - Line to fuel tank 1
- 5 - Line to fuel tank 2



Part II

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1 - Mounting bracket

- ☐ For natural gas fuel tank 1 (rear)

2 - Cover

3 - Cover

4 - Clamping washer

5 - Cover

6 - Clamping washer

7 - High-pressure pipe

- ☐ Use a suitable tool to counterhold at line connections when loosening
- ☐ Do not alter shape
- ☐ Original routing must be restored when reinstalling
- ☐ Ensure sufficient clearance from all moving or hot components
- ☐ Tighten by hand until contact is made
- ☐ 17 Nm

8 - Valve protector

- ☐ Installation position ➤ [page 14](#)

9 - Valve protector

10 - Bolt

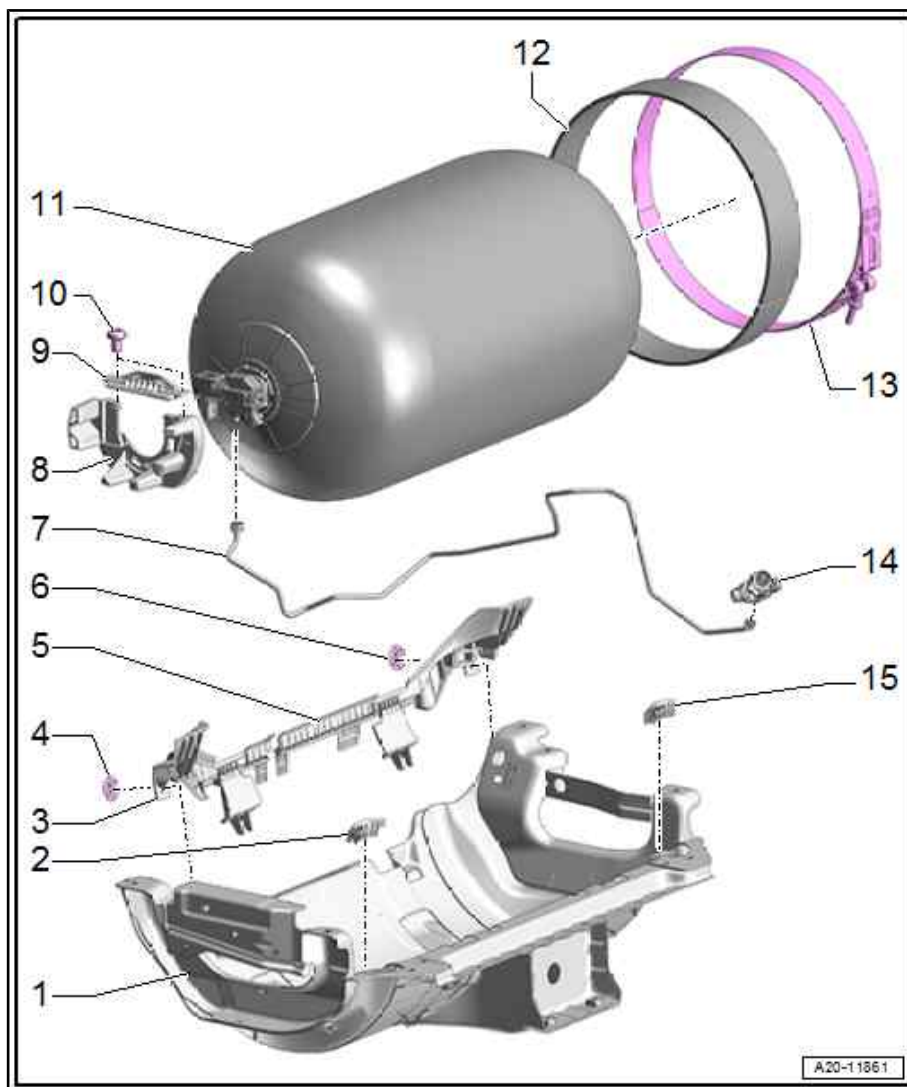
- ☐ 8 Nm

11 - Natural gas fuel tank 1 (rear)

- ☐ Removing and installing ➤ [page 52](#)

12 - Protective strip for tensioning strap

- ☐ Renew after removing fuel tank





13 - Tensioning strap

- ☐ Renew nut for tensioning strap after removing
- ☐ Tightening torque ⇒ [page 17](#)

14 - Connecting piece

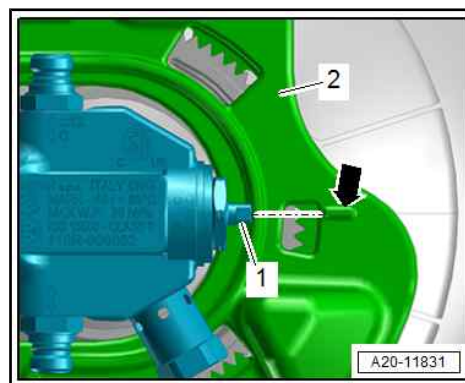
- ☐ With non-return valve
- ☐ Connection diagram ⇒ [page 13](#)

15 - Cover

Valve protector - installation position

- The manual shut-off mechanism -1- on the fuel tank shut-off valve must align with the cast projection -arrow- on the valve protector. Shown on natural gas fuel tank 2 (rear centre).

Maximum deviation	◆ Natural gas fuel tank 1 (rear)	◆ Natural gas fuel tank 3 (front centre)
	◆ Natural gas fuel tank 2 (rear centre)	◆ Natural gas fuel tank 4 (front)
∠°	± 2.5°	± 2°



Part III

Part I ⇒ [page 11](#)

Part II ⇒ [page 13](#)



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1 - Guard plate

- ☐ For natural gas fuel tank 3 (front centre)

2 - Bolt

- ☐ Renew after removing
- ☐ Apply locking fluid when installing; refer to ⇒ Electronic parts catalogue
- ☐ 8 Nm

3 - Valve protector

- ☐ For natural gas fuel tank 3 (front centre)

4 - Valve protector

- ☐ For natural gas fuel tank 2 (rear centre)
- ☐ Installation position
⇒ [page 14](#)

5 - Bolt

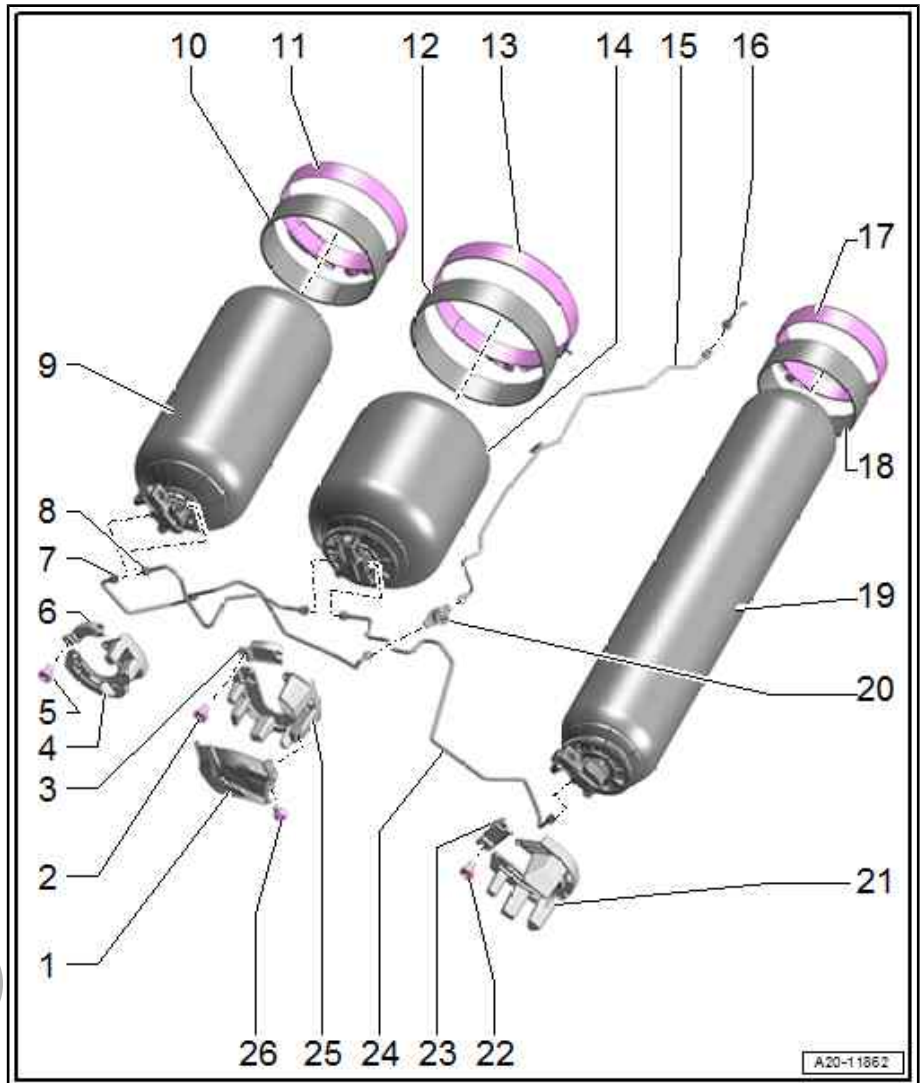
- ☐ Renew after removing
- ☐ Apply locking fluid when installing; refer to ⇒ Electronic parts catalogue
- ☐ 8 Nm

6 - Valve protector

- ☐ For natural gas fuel tank 2 (rear centre)

7, 8 - High-pressure pipe

- ☐ Use a suitable tool to counterhold at line con-



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nections when loosening

- ☐ Do not alter shape
- ☐ Original routing must be restored when reinstalling
- ☐ Ensure sufficient clearance from all moving or hot components
- ☐ Tighten by hand until contact is made
- ☐ 17 Nm

9 - Natural gas fuel tank 2 (rear centre)

- ☐ Removing and installing ⇒ [page 58](#)

10 - Protective strip for tensioning strap

- ☐ For natural gas fuel tank 2 (rear centre)
- ☐ Renew after removing fuel tank

11 - Tensioning strap

- ☐ For natural gas fuel tank 2 (rear centre)
- ☐ Renew nut for tensioning strap after removing
- ☐ Tightening torque ⇒ [page 17](#)

12 - Protective strip for tensioning strap

- ☐ For natural gas fuel tank 3 (front centre)
- ☐ Renew after removing fuel tank

13 - Tensioning strap

- ☐ For natural gas fuel tank 3 (front centre)
- ☐ Renew nut for tensioning strap after removing
- ☐ Tightening torque ⇒ [page 17](#)

14 - Natural gas fuel tank 3 (front centre)

- ☐ Removing and installing ⇒ [page 61](#)

15, 16 - High-pressure pipe

- ☐ Use a suitable tool to counterhold at line connections when loosening
- ☐ Do not alter shape
- ☐ Original routing must be restored when reinstalling
- ☐ Ensure sufficient clearance from all moving or hot components
- ☐ Tighten by hand until contact is made
- ☐ 17 Nm

17 - Tensioning strap

- ☐ For natural gas fuel tank 4 (front)
- ☐ Renew nut for tensioning strap after removing
- ☐ Tightening torque ⇒ [page 17](#)

18 - Protective strip for tensioning strap

- ☐ For natural gas fuel tank 4 (front)
- ☐ Renew after removing fuel tank

19 - Natural gas fuel tank 4 (front)

- ☐ Removing and installing ⇒ [page 65](#)

20 - Connecting piece

- ☐ Connection diagram ⇒ [page 13](#)

21 - Valve protector

- ☐ For natural gas fuel tank 4 (front)
- ☐ Installation position ⇒ [page 14](#)



22 - Bolt

- ☐ 8 Nm

23 - Valve protector

- ☐ For natural gas fuel tank 4 (front)

24 - High-pressure pipe

- ☐ Use a suitable tool to counterhold at line connections when loosening
- ☐ Do not alter shape
- ☐ Original routing must be restored when reinstalling
- ☐ Ensure sufficient clearance from all moving or hot components
- ☐ Tighten by hand until contact is made
- ☐ 17 Nm

25 - Valve protector

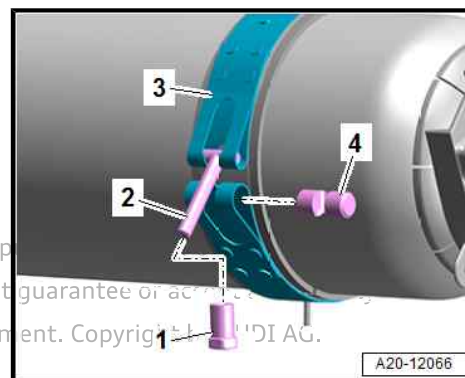
- ☐ For natural gas fuel tank 3 (front centre)
- ☐ Installation position ⇒ [page 14](#)

26 - Bolt

- ☐ Renew after removing
- ☐ Apply locking fluid when installing; refer to ⇒ Electronic parts catalogue
- ☐ 8 Nm

Overview - tensioning strap

- 1 - Nut for tensioning strap: 16 Nm; use locking fluid ⇒ Electronic parts catalogue
- 2 - Bolt - supplied with tensioning strap
- 3 - Tensioning strap
- 4 - Clamping pin - supplied with tensioning strap



2.3 Exploded view - shut-off mechanism for tank

DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .



1 - Corrugated washer

- ☐ Allocation ⇒ Electronic parts catalogue

2 - Seal

- ☐ Not available separately; supplied with tank shut-off valve
- ☐ Lubricate lightly with engine oil or vaseline
- ☐ Ensure correct seating in groove

3 - Fuel tank shut-off valve

- ☐ Magnetic coil
- ◆ Fuel tank shut-off valve 1 - N361- for natural gas fuel tank 1
- ◆ Fuel tank shut-off valve 2 - N362- for natural gas fuel tank 2
- ◆ Fuel tank shut-off valve 3 - N363- for natural gas fuel tank 3
- ◆ Fuel tank shut-off valve 4 - N429- for natural gas fuel tank 4
 - ☐ Removing and installing ⇒ [page 69](#)
 - ☐ Installation position ⇒ [page 19](#)

4 - Nut

- ☐ Renew after removing
- ☐ 12 Nm

5 - Seal

- ☐ Supplied together with plug ⇒ [Item 6 \(page 18\)](#)
- ☐ Must be properly seated

6 - Plug

- ☐ Renew after removing
- ☐ 9 Nm

7 - O-ring

- ☐ Renew after removing

8 - Pipe connection

- ☐ Renew after loosening
- ☐ Apply locking fluid when installing; refer to ⇒ Electronic parts catalogue
- ☐ 18 Nm

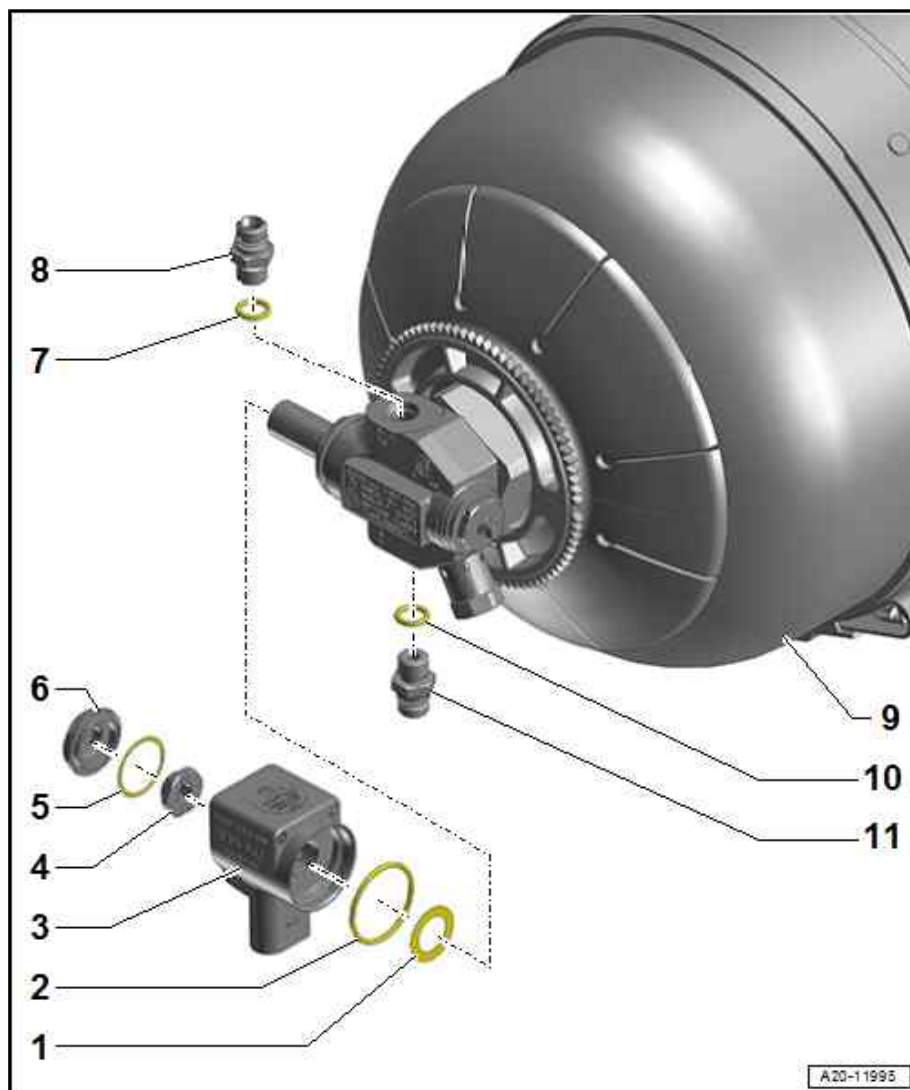
9 - Natural gas fuel tank

10 - O-ring

- ☐ Renew after removing

11 - Pipe connection

- ☐ Renew after loosening
- ☐ Apply locking fluid when installing; refer to ⇒ Electronic parts catalogue



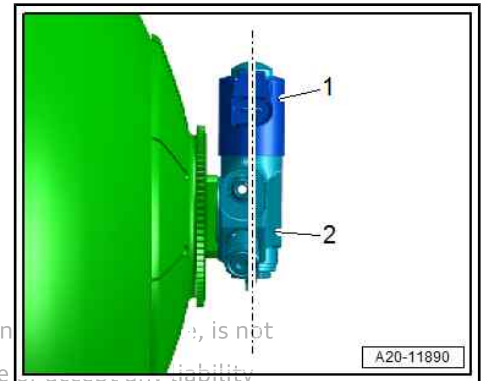
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□ 18 Nm

Tank shut-off valve - installation position

- Align tank shut-off valve -1- so it is parallel to mechanical tank shut-off valve -2-.
- Side with lettering faces outwards



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2.4 Exploded view - filler neck

DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .



1 - Connecting piece

- ☐ With non-return valve
- ☐ Connection diagram
⇒ [page 13](#)

2 - Filler connection

- ☐ For natural gas
- ☐ Use a suitable tool to counterhold at line connections when loosening
- ☐ Do not alter shape
- ☐ Original routing must be restored when reinstalling
- ☐ Ensure sufficient clearance from all moving or hot components
- ☐ Tighten by hand until contact is made
- ☐ Removing and installing
⇒ [page 71](#)
- ☐ 17 Nm

3 - O-ring

- ☐ Renew if damaged

4 - Washer

5 - Nut

- ☐ Left-hand thread
- ☐ 35 Nm

6 - Filler cap

- ☐ For natural gas filler connection

7 - Filler cap

- ☐ For petrol fuel tank

8 - Tank flap unit

- ☐ Exploded view ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Exploded view - tank flap unit

9 - Bolt

- ☐ Secures fuel filler neck and also serves as earth connection

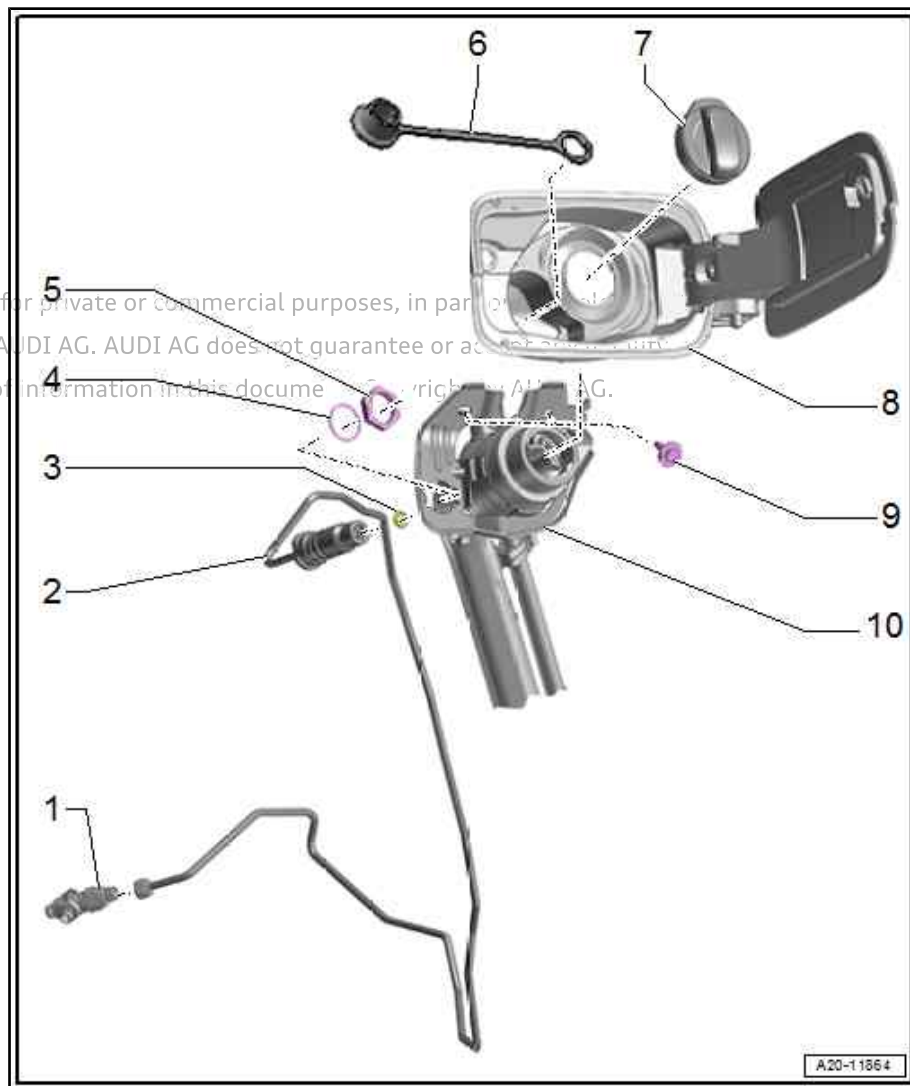
◆ A4: 2x

◆ A5: 3x

- ☐ 8 Nm

10 - Filler neck

- ☐ For petrol



2.5 Draining fuel tank

Special tools and workshop equipment required



◆ Fuel extractor - VAS 5190A-



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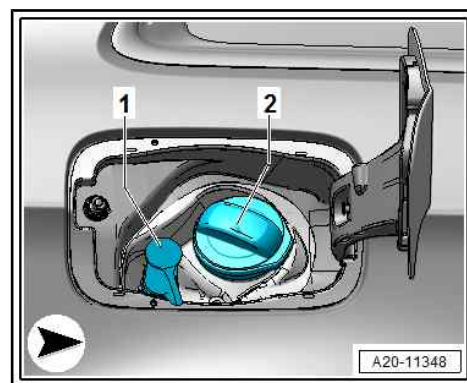
Procedure

- Observe safety precautions ➔ [page 1](#) .
- Observe rules for cleanliness ➔ [page 5](#) .
- Switch off ignition.
- Open tank flap.
- Clean area around fuel filler neck.
- Remove filler cap -2- for fuel filler neck.

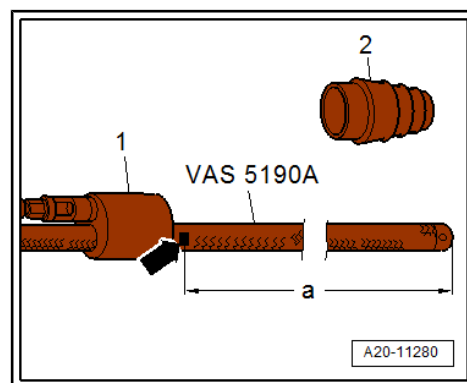
! WARNING

**Risk of fuel tank explosion due to electrostatic discharge.
 Severe injuries and burns possible.**

- **Secure earth wire of fuel extractor to a bare metal part on vehicle body.**



- Shaft end -1- and tapered adapter -2- of fuel extractor -VAS 5190A- are not used.
- Slide shaft end -1- slightly towards rear on hoses.
- Use insulating tape to mark the extraction hose -arrow- at a distance of -a- from the end of the hose.
- Distance -a- = 990 mm



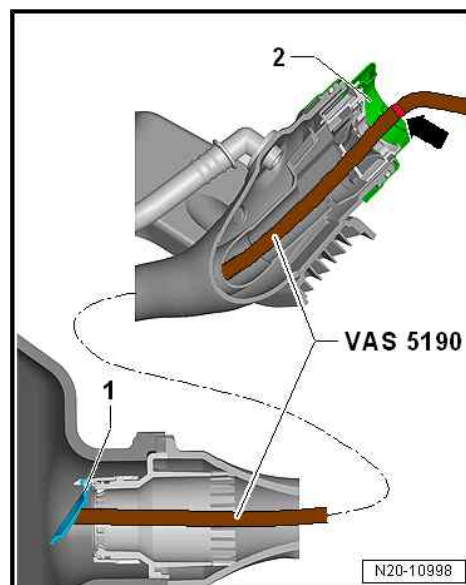


A flap -1- is located at the bottom of the filler neck -2- in the fuel tank; it must not be damaged by the extraction hose from -VAS 5190A- .

- Only push the hose in as far as the tape marking -arrow-.
- Push extraction hose from -VAS 5190A- into fuel tank until marking on hose -arrow- is level with edge of filler neck.
- Extract fuel from tank via fuel filler neck.
- Pull out extraction hose carefully.

Note:

When no more fuel is extracted, the fuel tank has been drained enough to be removed safely.



2.6 Discharging natural gas fuel tanks

⇒ [“2.6.1 Preparing to discharge natural gas fuel tanks”, page 22](#)

⇒ [“2.6.2 Preparing to discharge natural gas fuel tank 1”, page 26](#)

⇒ [“2.6.3 Preparing to discharge natural gas fuel tank 2”, page 28](#)

⇒ [“2.6.4 Preparing to discharge natural gas fuel tank 3”, page 29](#)

⇒ [“2.6.5 Preparing to discharge natural gas fuel tank 4”, page 31](#)

⇒ [“2.6.6 Discharging natural gas fuel tanks”, page 32](#)

2.6.1 Preparing to discharge natural gas fuel tanks



Note

Natural gas fuel tanks made of composite fibre materials are damaged irreparably when discharged. They must only be discharged in order to dispose of them.

! DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .



Special tools and workshop equipment required

T10349 	T10521 
T10522 	T50026 
	W20-10054

- ◆ Magnetic release tool - T10349-
- ◆ Open end spanner insert, AF 17 - T10521-
- ◆ Open end spanner insert, AF 22 - T10522-
- ◆ Hand wheel - T50026-
- ◆ Gas leak detector - VAS 6227-



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- ◆ Engine and gearbox jack - VAS 6931-

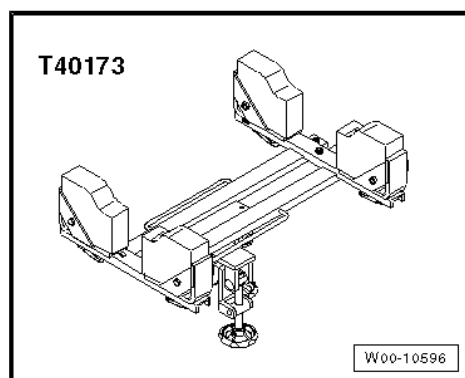


- ◆ Tensioning strap - T10523- (2x)

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- ◆ Gearbox support - T40173-



- ◆ Support elements - T40173/3-



- ◆ Leak detection spray (commercially available)
- ◆ Protective gloves consisting of at least 35 % cotton

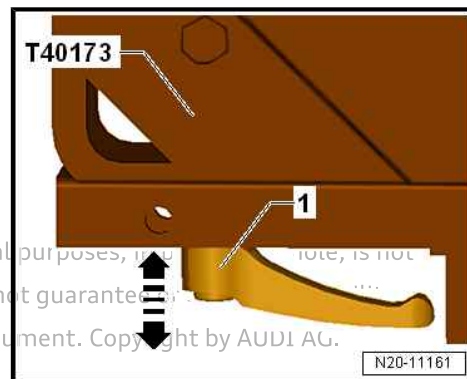


- Tighten support elements - T40173/3- after positioning them.

Note:

If lever -1- makes contact with parts of gearbox support - T40173- when tightening, pull lever down, turn it back and allow it to engage again before continuing to turn.

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- ◆ Gas discharge tube - VAS 523 001-

1 - Bracket - VAS 523 001/6-

2 - Adapter - VAS 523 001/2-

3 - Seal

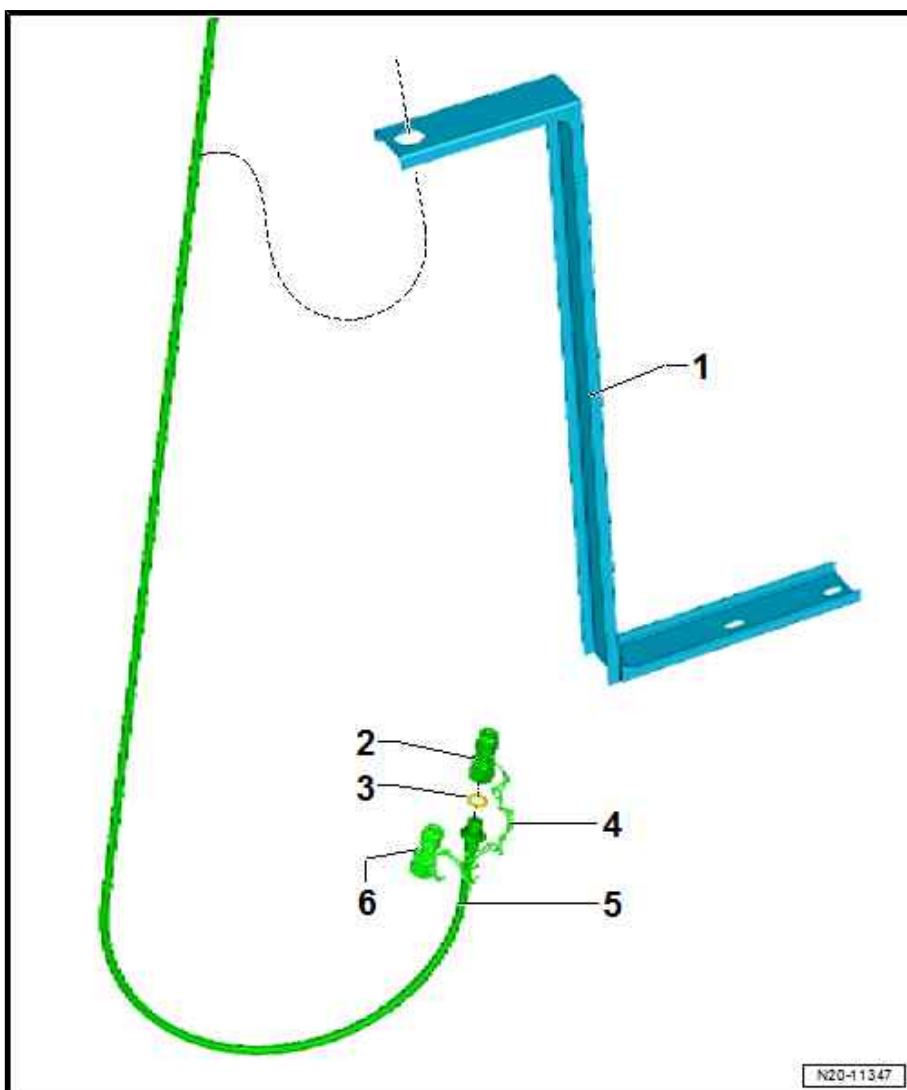
4 - Retaining chain

5 - Gas discharge tube - VAS 523 001/1-

6 - Adapter - VAS 523 001/3-

- Sealing plug - VAS 523 001/7-

☐ Not illustrated



Procedure

- Observe safety precautions
⇒ [“1 Safety precautions”, page 1](#) .
- Observe safety precautions when working on the natural gas system
⇒ [“1.1 Safety precautions when working on vehicles with gas systems”, page 1](#) .



- Observe rules for cleanliness ➔ [page 5](#) .

DANGER

Risk of explosion due to gas escape in connection with ignition sources and electrostatic discharge - risk of death!

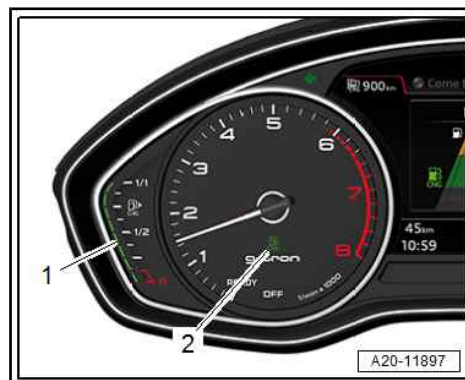
Danger of severe or fatal injuries due to explosion.

- Never discharge natural gas fuel tanks in enclosed areas.
- Never discharge natural gas fuel tanks if a thunderstorm is approaching.
- Set up a protected area of 10x10 m.
- The protected area must be kept under permanent supervision.
- Never bring ignition sources into the protected area.
- Equalise potential between mechanic and natural gas fuel tank.

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Preparatory work ➔ Natural gas engines - General information;
Rep. gr. 20 ; Fuel tanks; Discharging natural gas fuel tanks :

- ◆ Set up a protected area.
- ◆ Set up appropriate signage for protected area.
- ◆ Take precautions against electrostatic charging.
- ◆ Ensure that requirements for discharging are met.
- The vehicle must be driven until the tank is empty (provided that the vehicle still functions properly and is safe to drive).
- When the fuel gauge for natural gas -1- shows “tank empty” and the engine control unit has switched to petrol operation, the tank is still under pressure of up to approx. 12 bar. The remaining natural gas in the tank must be discharged using the mechanical tank shut-off valve ➔ [page 32](#) .
- Symbol -2- lights up if the vehicle is running in natural gas mode.
- Dissipate pressure in natural gas high-pressure pipe ➔ [page 34](#) .
- Disconnect battery ➔ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



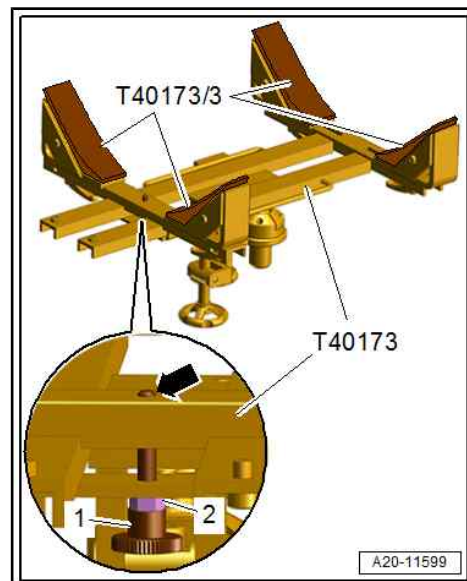
2.6.2 Preparing to discharge natural gas fuel tank 1

Procedure

- Natural gas fuel tank 1 removed ➔ [page 52](#)



- Fit support elements - T40173/3- on gearbox support - T40173- .
- Place knurled screw -1- underneath with an M10 nut -item 2-.
- After being tightened, knurled screw must only protrude slightly -arrow-.

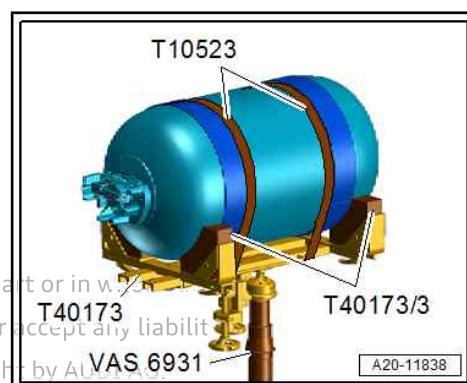


- Put natural gas fuel tank onto gearbox support - T40173- as shown.
- The pipe connection of the fuel tank shut-off valve must face downwards when the natural gas fuel tank is fitted.

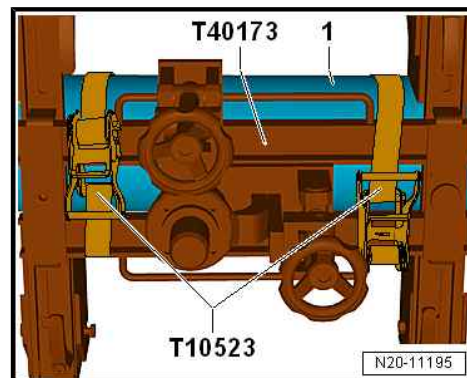
CAUTION

Risk of irreparable damage to natural gas fuel tank if it falls down.

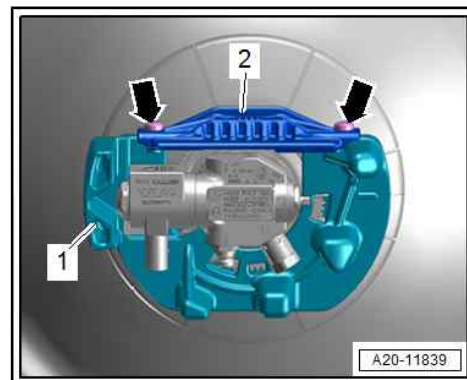
- **Secure tank with tensioning straps to prevent it from falling.**



- Secure natural gas fuel tank -1- to gearbox support - T40173- using tensioning straps - T10523- .
- Position buckles of tensioning straps so that they are offset.
- When tightening tensioning straps, ensure that the surface of the fuel tank is not damaged. Use adhesive tape to protect at risk areas.

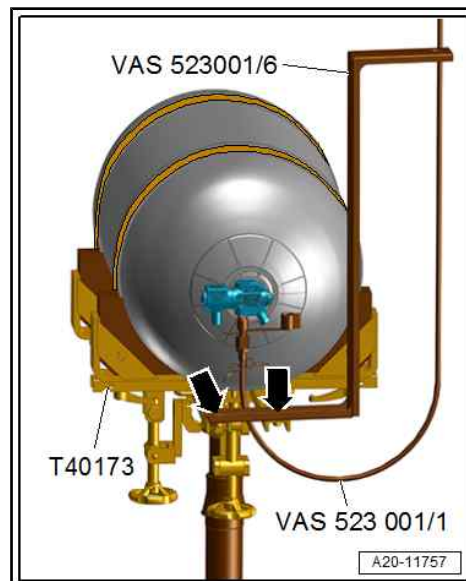


- Remove bolts -arrows- and detach valve protector -1, 2-.

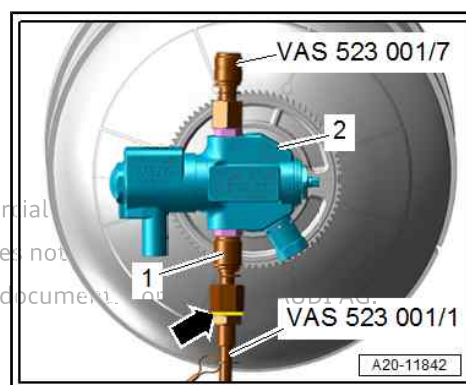




- Secure bracket - VAS 523 001/6- to gearbox support - T40173-
-arrows-.
- Insert gas discharge tube - VAS 523 001/1- in guide on top of
bracket.



- Screw a suitable adapter -1- onto gas discharge tube - VAS
523 001/1- , ensuring that seal -arrow- is seated correctly.
- Screw adapter onto mechanical tank shut-off valve -2- by hand
until it makes contact (do not use tools).



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2.6.3 Preparing to discharge natural gas fuel tank 2

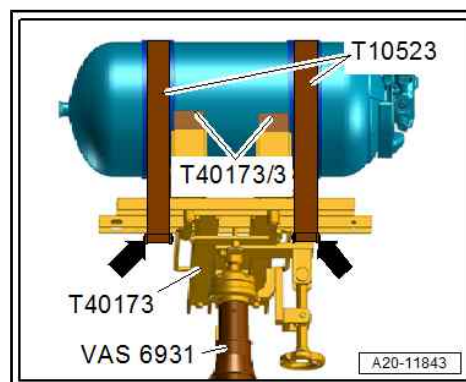
Procedure

- Natural gas fuel tank 2 removed ➔ [page 58](#)

CAUTION

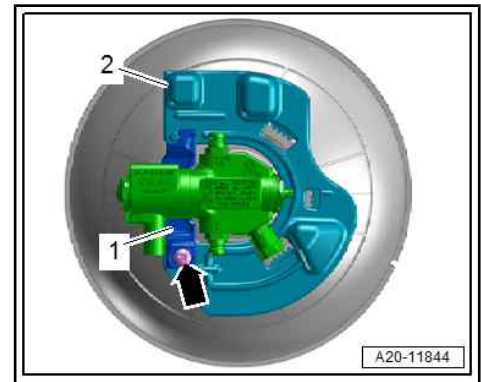
Risk of irreparable damage to natural gas fuel tank if it falls down.

- **Secure tank with tensioning straps to prevent it from falling.**
- Secure natural gas fuel tank to gearbox support - T40173- us-
ing tensioning straps - T10523- .
- Position buckles of tensioning straps -arrows- as shown.
- The pipe connection of the fuel tank shut-off valve must face
downwards when the natural gas fuel tank is fitted.
- When tightening tensioning straps, ensure that the surface of
the fuel tank is not damaged. Use adhesive tape to protect at
risk areas.





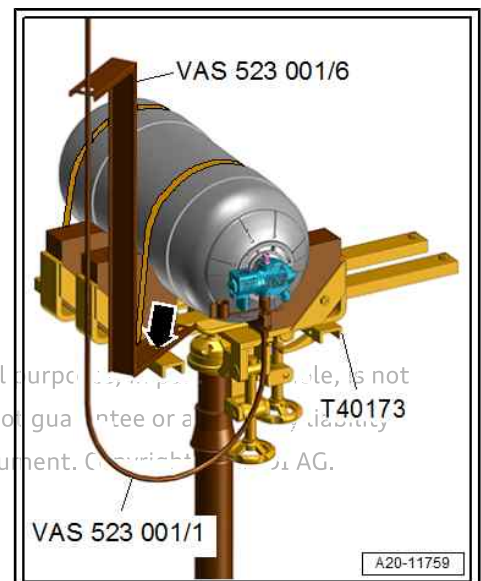
- Remove bolt -arrow- and detach valve protector -1, 2-.



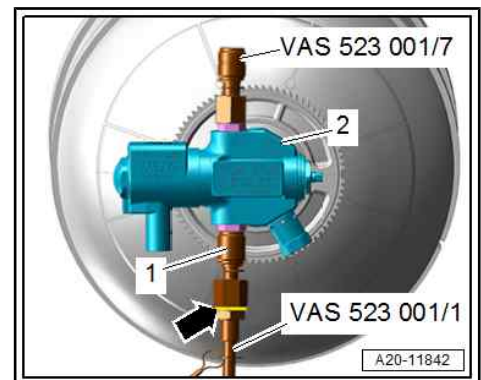
- Secure bracket - VAS 523 001/6- to gearbox support - T40173- -arrow-.
- Insert gas discharge tube - VAS 523 001/1- in guide on top of bracket.



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- Screw a suitable adapter -1- onto gas discharge tube - VAS 523 001/1- , ensuring that seal -arrow- is seated correctly.
- Screw adapter onto mechanical tank shut-off valve -2- by hand until it makes contact (do not use tools).
- Seal second connection (open) using sealing plug - VAS 523 001/7- .



2.6.4 Preparing to discharge natural gas fuel tank 3

Procedure

- Natural gas fuel tank 3 removed ➔ [page 61](#)

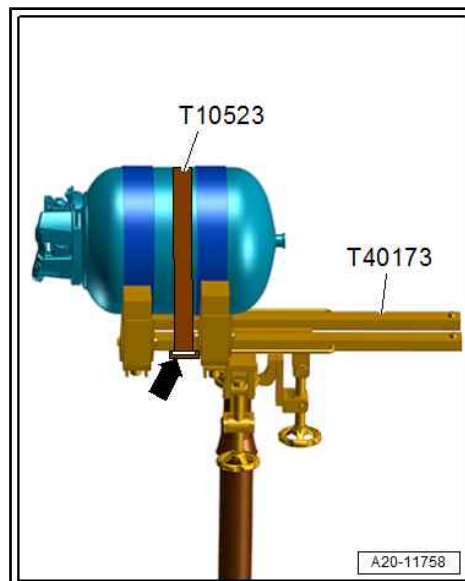
⚠ CAUTION

Risk of irreparable damage to natural gas fuel tank if it falls down.

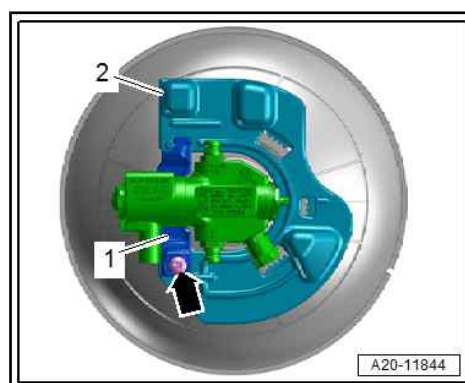
- Secure tank with tensioning strap to prevent it from falling.



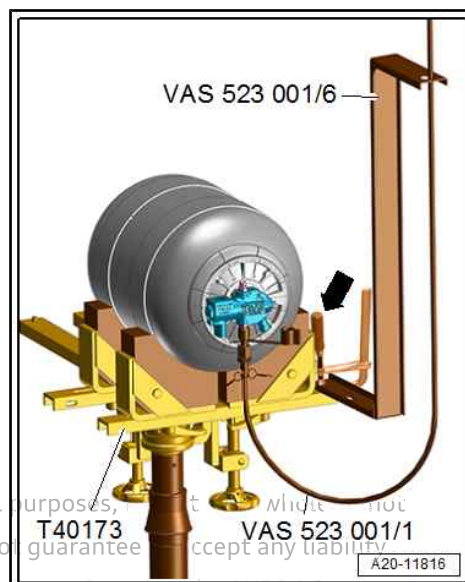
- Secure natural gas fuel tank to gearbox support - T40173- using tensioning strap - T10523- .
- Position buckle of tensioning strap -arrow- as shown.
- The pipe connection of the fuel tank shut-off valve must face downwards when the natural gas fuel tank is fitted.
- When tightening tensioning strap, ensure that the surface of the fuel tank is not damaged. Use adhesive tape to protect at risk areas.



- Remove bolt -arrow- and detach valve protector -1, 2-.



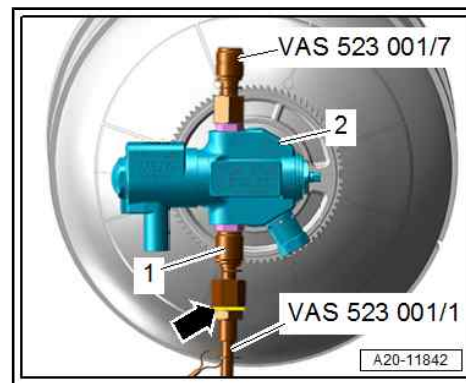
- Secure bracket - VAS 523 001/6- to gearbox support - T40173- e.g. with a screw clamp -arrow-.
- Insert gas discharge tube - VAS 523 001/1- in guide on top of bracket.



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- Screw a suitable adapter -1- onto gas discharge tube - VAS 523 001/1- , ensuring that seal -arrow- is seated correctly.
- Screw adapter onto mechanical tank shut-off valve -2- by hand until it makes contact (do not use tools).
- Seal second connection (open) using sealing plug - VAS 523 001/7- .



2.6.5 Preparing to discharge natural gas fuel tank 4

Procedure

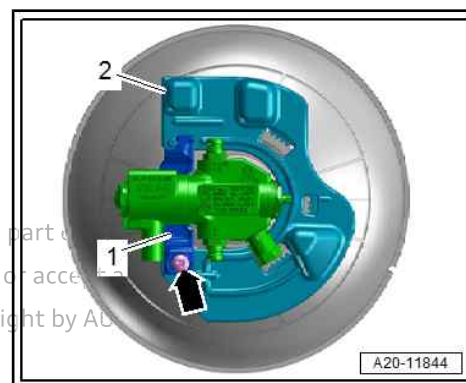
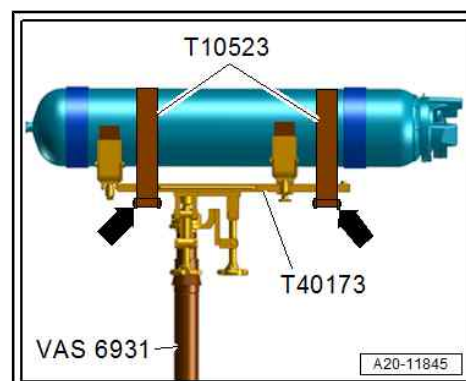
- Natural gas fuel tank 4 removed ➔ [page 65](#)

CAUTION

Risk of irreparable damage to natural gas fuel tank if it falls down.

- Secure tank with tensioning straps to prevent it from falling.

- Secure natural gas fuel tank to gearbox support - T40173- using tensioning straps - T10523- .
- Position buckles of tensioning straps -arrows- as shown.
- The pipe connection of the mechanical tank shut-off valve must face downwards when the natural gas fuel tank is fitted.
- Secure natural gas fuel tank to gearbox support - T40173- using tensioning straps - T10523- .
- When tightening tensioning straps, ensure that the surface of the fuel tank is not damaged. Use adhesive tape to protect at risk areas.
- Remove bolt -arrow- and detach valve protector -1, 2- (different versions).



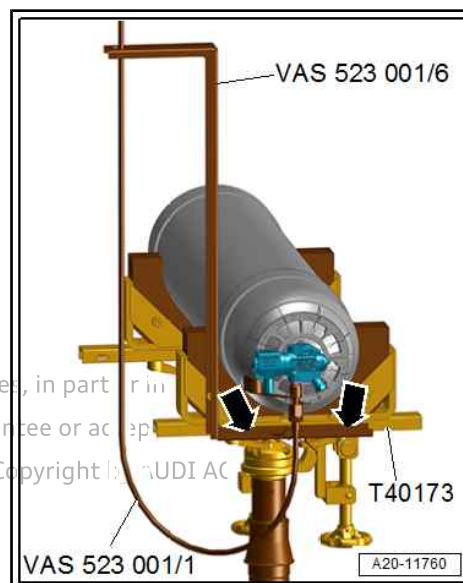
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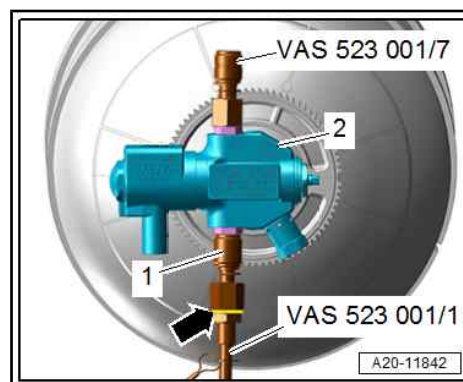
- Secure bracket - VAS 523 001/6- to gearbox support - T40173-
-arrows-.
- Insert gas discharge tube - VAS 523 001/1- in guide on top of
bracket.



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- Screw a suitable adapter -1- onto gas discharge tube - VAS
523 001/1- , ensuring that seal -arrow- is seated correctly.
- Screw adapter onto mechanical tank shut-off valve -2- by hand
until it makes contact (do not use tools).



2.6.6 Discharging natural gas fuel tanks

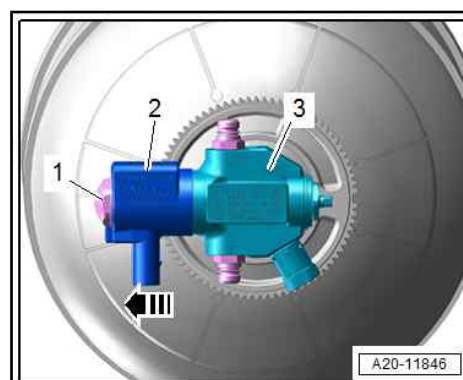
! DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .

Procedure

- Unscrew plug -1- from tank shut-off valve using insert tool (22 mm) - T10522- .
- Unscrew nut underneath using insert tool (17 mm) - T10521- and detach tank shut-off valve -2- from mechanical tank shut-off valve -3- -arrow-.
- Handling unpressurised natural gas fuel tanks made of composite fibre materials ⇒ Natural gas engines - General information; Rep. gr. 20 ; Fuel tanks; Handling unpressurised natural gas fuel tanks made of composite fibre materials .





- Fit magnetic release tool - T10349- onto mechanical tank shut-off valve -1-.
- To prevent mechanical tank shut-off valve from sticking, leave magnetic release tool - T10349- on tank shut-off valve for the entire discharging procedure.

CAUTION

Danger of frostbite if tank shut-off valves are frozen.

Danger of frostbite on hands.

- Wear protective gloves consisting of at least 35% cotton.

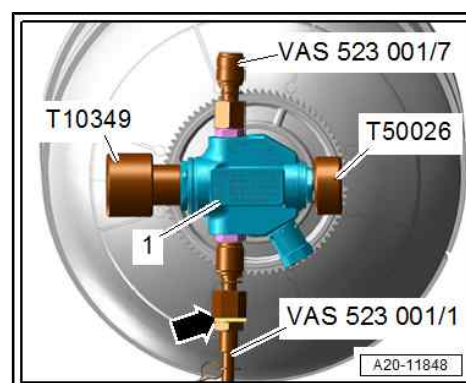
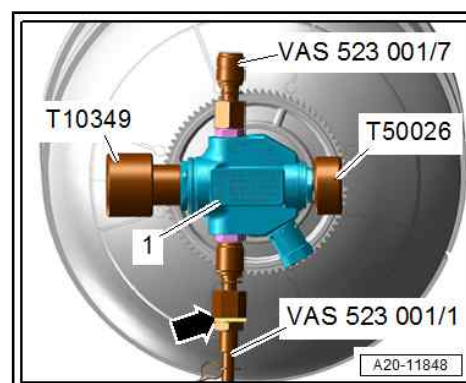
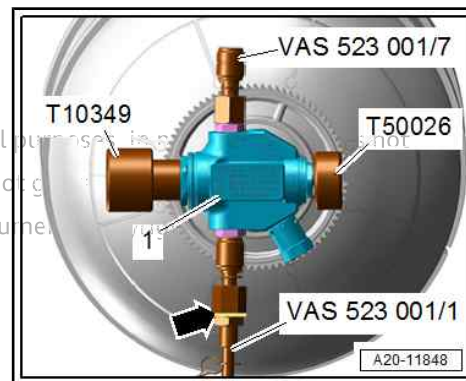
- Fit hand wheel - T50026- on manual shut-off mechanism of mechanical tank shut-off valve and carefully open it until natural gas escapes.
- Close mechanical tank shut-off valve again after 1 to 2 seconds.

Checking for leaks at connection points of gas discharge tube - VAS 523 001- :

- Check connection points between gas discharge tube - VAS 523 001/1- and mechanical tank shut-off valve -1- for leaks.
- If fitted, check connection points between sealing plug - VAS 523 001/7- and mechanical tank shut-off valve for leaks.
- To do so, use gas leak detector - VAS 6227- .

If a leak is found:

- Check seal -arrow- for damage and renew if necessary.
- Check that all connections are clean, and tighten connection if necessary.
- If leak cannot be repaired, gas discharge tube must NOT be used.





If no leak is found or the leak could be repaired:

WARNING

Risk of poisoning if escaping natural gas is inhaled.

- Leave the protected area after opening the manual shut-off valve.
- Carefully open manual shut-off mechanism on mechanical tank shut-off valve -1- using hand wheel - T50026- until natural gas escapes.
- Carefully open tank shut-off valve as far as possible without triggering pipe break safety mechanism.
- Fuel tank shut-off valve must not be opened all the way.

Note:

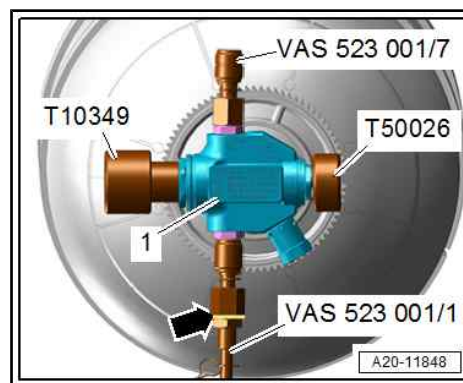
Opening the valve all the way triggers the pipe break safety mechanism, after which only a minimal amount of natural gas can escape.

If valve is opened too far and pipe break safety mechanism is triggered:

- To deactivate the pipe break safety mechanism, the pressure must be equalised by closing the manual shut-off valve.
- Close valve and open it again (but not as far as before).
- The valve can be opened all the way again after approx. 2 minutes.

Continued:

- When no more natural gas escapes from the fuel tank, the manual shut-off valve must be closed again.
- Determine the residual pressure in the natural gas fuel tank to ensure that the tank has been discharged sufficiently ⇒ Natural gas engines - General information; Rep. gr. 20 ; Fuel tanks; Determining residual pressure in natural gas fuel tank .
- Handling unpressurised natural gas fuel tanks made of composite fibre materials ⇒ Natural gas engines - General information; Rep. gr. 20 ; Fuel tanks; Handling unpressurised natural gas fuel tanks made of composite fibre materials .



2.7 Dissipating pressure in natural gas high-pressure pipe

DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .

Special tools and workshop equipment required For private or commercial purposes, in part or in whole, is not

- ◆ Vehicle diagnostic tester authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



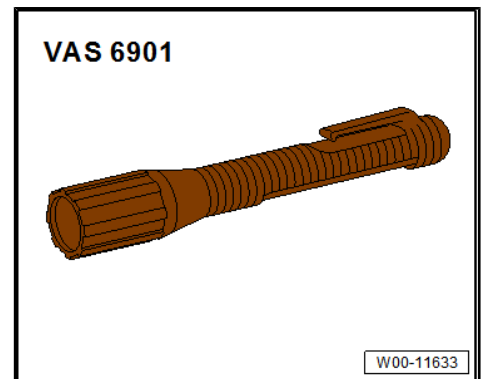
◆ Hand wheel - T50026-



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◆ Explosion-proof LED battery lamp - VAS 6901-



◆ Extension -T40333-

Procedure

- Observe safety precautions ⇒ [page 1](#) .
- Observe safety precautions when working on the natural gas system ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .

! WARNING

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!

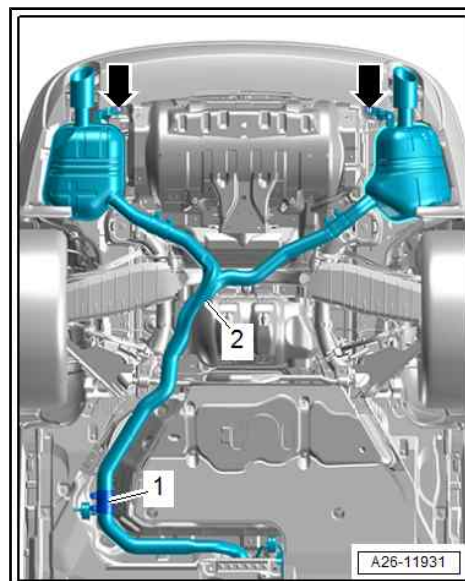
Danger of severe or fatal injuries due to explosion.

- Pressure in natural gas high-pressure pipe must be dissipated by a specially trained person.

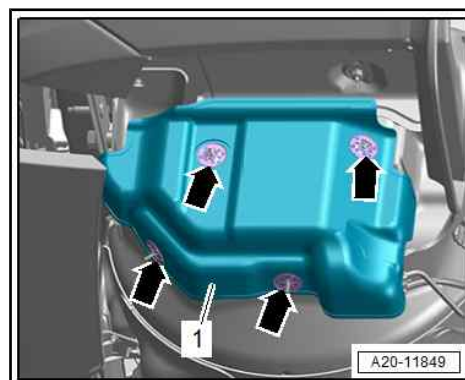
- Remove underbody trim (rear right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim .



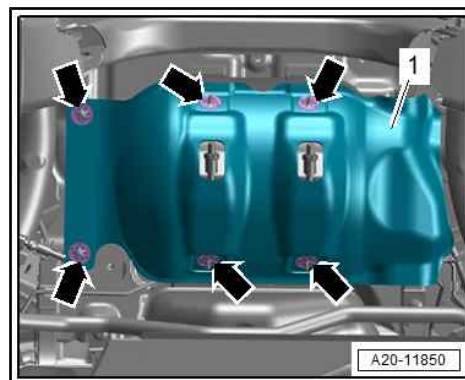
- Loosen clamp -1-.
- Remove bolts -arrows-, press silencer -2- to right side and place it on diagonal strut.
- Screw in bolts again until contact is made.



- Remove clamping washers -arrows- and detach heat shield (right-side) -1-.



- Remove clamping washers -arrows- and detach heat shield -1-.



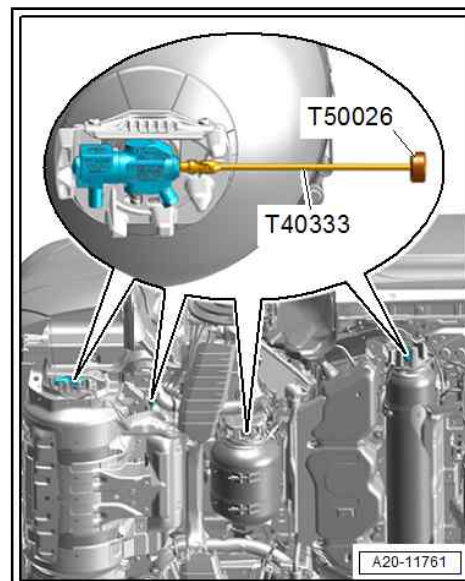
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- Close manual shut-off mechanisms on mechanical tank shut-off valves using extension -T40333- and hand wheel -T50026- .
- Connect vehicle diagnostic tester .
- On touch screen, press buttons for the following functions one after the other:
 - ◆ **Guided Functions**
 - ◆ Select vehicle.
 - ◆ **Engine**
 - ◆ **01 Pressure reduction, high-pressure line**
 - ◆ **01 Pressure drop in natural gas high-pressure line**
- Follow instructions shown on vehicle diagnostic tester .
- Release and unplug electrical connectors on all tank shut-off valves.

Note:

- ◆ This step ensures that the system cannot be activated accidentally.
- ◆ If the battery is to be disconnected later in the process, the connectors can remain plugged in.



2.8 Removing and installing natural gas fuel tanks with mounting bracket

DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

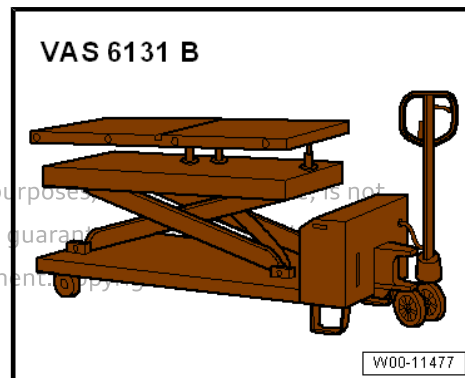
- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .

Special tools and workshop equipment required

- ◆ Scissor-type assembly platform - VAS 6131 B-

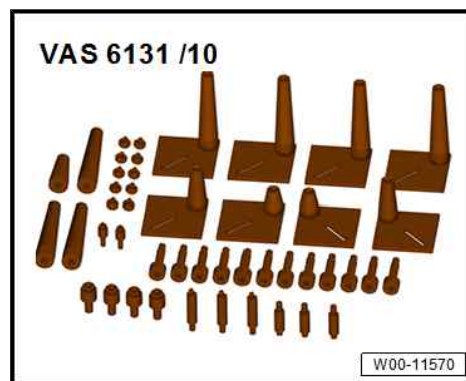


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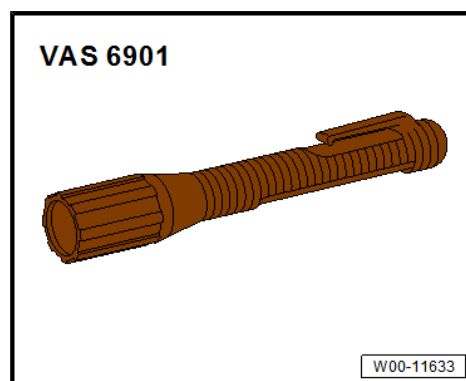




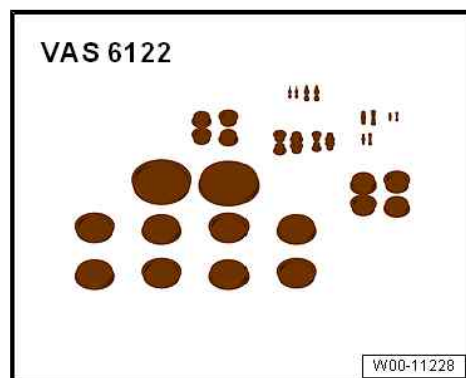
- ◆ Support set for Audi - VAS 6131/10-



- ◆ Adapter -VAS 6131/11-3- from support set, Audi A8 >2002 - VAS 6131/11- (not illustrated)
- ◆ Adapter -VAS 6131/12-1- (2x) from support set, Audi A6 >2005 - VAS 6131/12- (not illustrated)
- ◆ Explosion-proof LED battery lamp - VAS 6901-



- ◆ Engine bung set - VAS 6122-



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Removing

- Vehicle must be at room temperature (at least 15 °C).
- When working on natural gas fuel tanks, take care not to damage the surface. Use adhesive tape to protect at risk areas.
- Observe safety precautions ⇒ [page 1](#) .
- Observe safety precautions when working on the natural gas system ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .



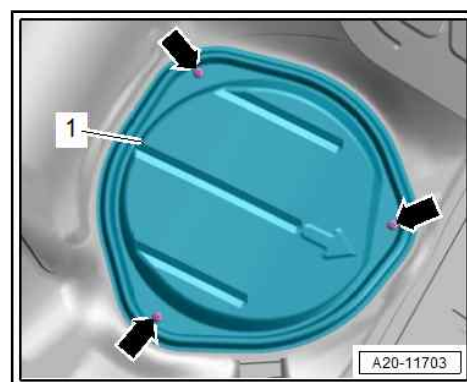
⚠ WARNING

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!

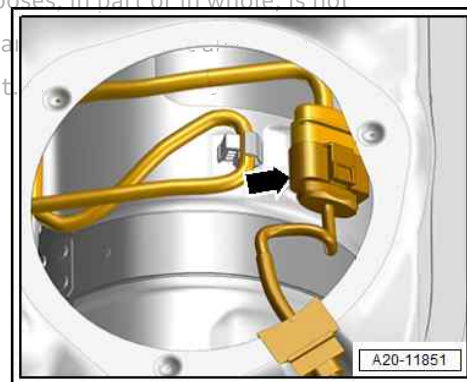
Danger of severe or fatal injuries due to explosion.

- Pressure in natural gas high-pressure pipe must be dissipated by a specially trained person.

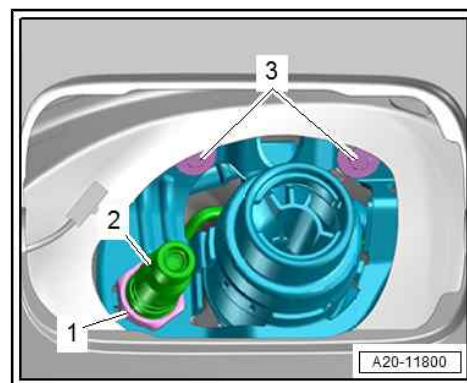
- Dissipate pressure in natural gas high-pressure pipe
⇒ [page 34](#) .
- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove seat bench/individual seats (right-side) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Unscrew bolts -arrows- and remove cover -1-.



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- Unplug electrical connector -arrow-.
 - Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
 - Remove tank flap unit ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit .

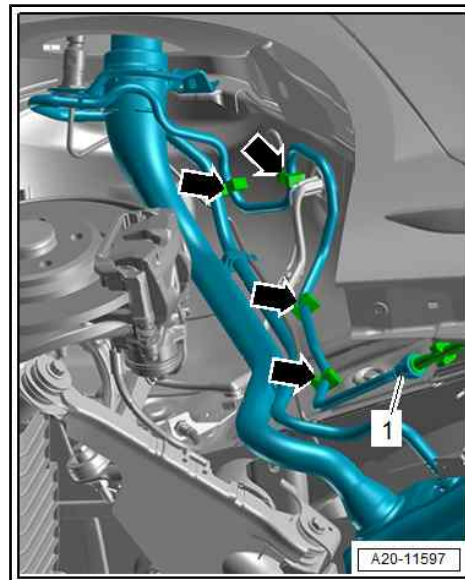


- Remove bolts -3- for fuel filler neck (2x or 3x depending on version).

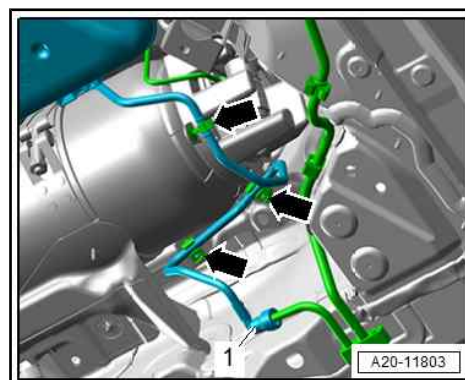




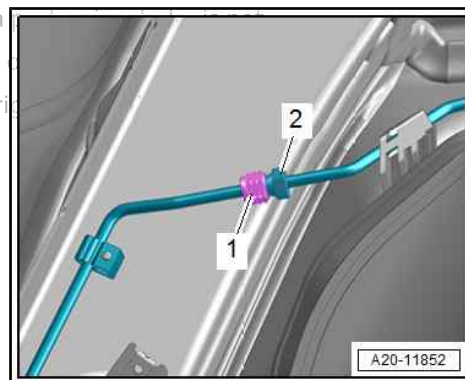
- Disconnect breather line -1- to activated charcoal filter. Disconnecting plug-in connectors ⇒ [page 76](#)
- Remove subframe ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .



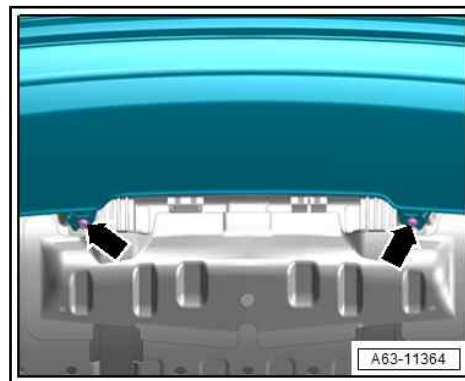
- Lay a cloth under the connection to catch escaping fuel.
- Disconnect fuel line -1-. Disconnecting plug-in connectors ⇒ [page 76](#)



- Do not attempt to bend high-pressure pipes to a different shape.
- Carefully loosen union nut -1- so that residual gas can escape; counterhold at connection -2- with a suitable tool.
- Seal off open lines and connections with plugs (thoroughly cleaned) from engine bung set - VAS 6122- .

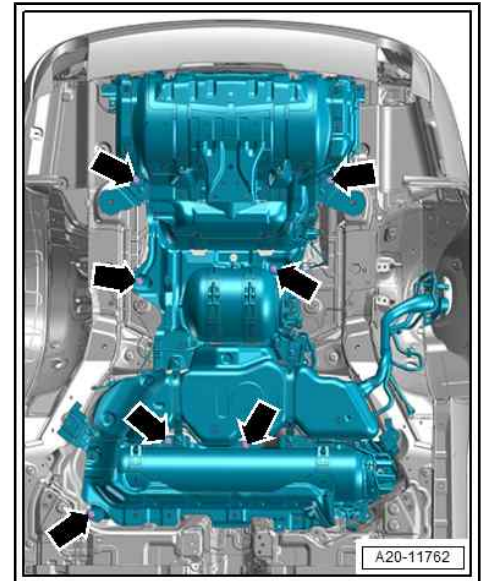


- Remove nuts -arrows- for bumper cover (rear).





- Remove bolts -arrows-.

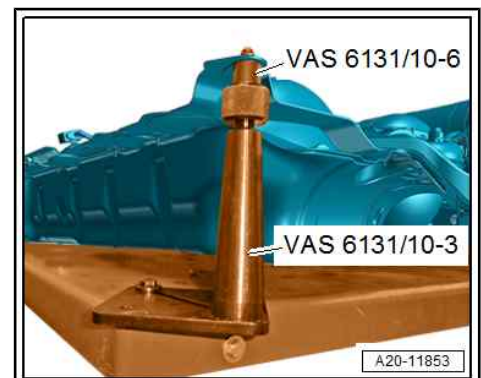
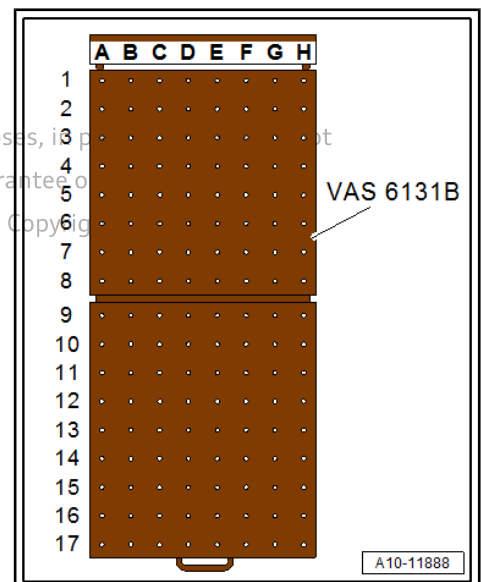


Setting up scissor-type assembly platform:

- Set up scissor-type assembly platform - VAS 6131 B- as follows:

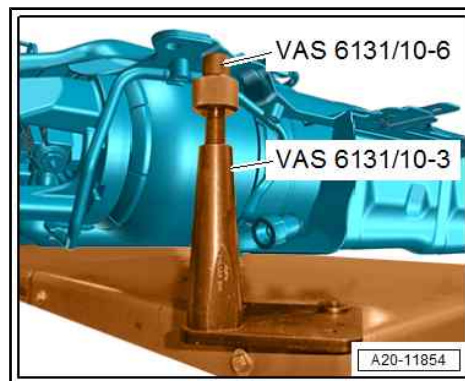
Platform coordinates	Parts from -VAS 6131/10-, adapter -VAS 6131/11-3- and adapters -VAS 6131/12-1-			
A1	/10-1	/10-3	/10-5	/10-6
H1	/10-1	/10-3	/10-5	/10-6
A11	/10-1	/10-4	/10-5	/12-1
G11	/10-1	/10-4	/10-5	/12-1
A17	/10-1	/10-4	/10-5	/10-11
H17	/10-1	/10-4	/10-5	/11-3

- Initially hand-tighten the support elements on the scissor-type assembly platform.
- Position scissor-type assembly platform - VAS 6131 B- horizontally.
- Take note of spirit level (bubble gauge).
- Move scissor-type assembly platform - VAS 6131 B- under mounting bracket for natural gas fuel tanks.
- Fit support elements from -VAS 6131/10- at front left of mounting bracket for natural gas fuel tanks, as shown.
- Threaded spindle must be fully screwed in.

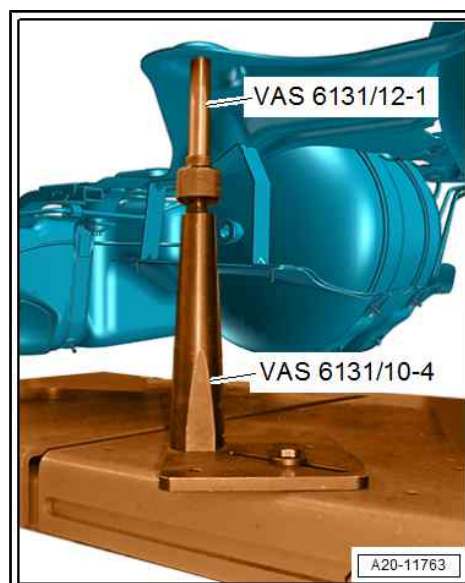




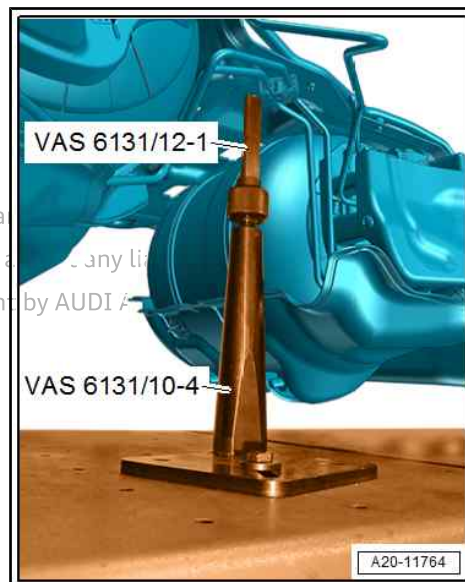
- Fit support elements from -VAS 6131/10- at front right of mounting bracket for natural gas fuel tanks, as shown.



- Fit support elements from -VAS 6131/10- and adapter -VAS 6131/12-1- at centre left of mounting bracket for natural gas fuel tanks, as shown.



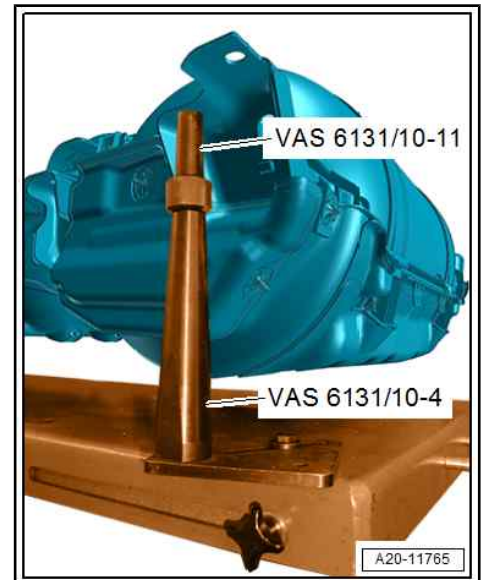
- Fit support elements from -VAS 6131/10- and adapter -VAS 6131/12-1- to centre right of mounting bracket for natural gas fuel tanks, as shown.



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- Fit support elements from -VAS 6131/10- to rear left of mounting bracket for natural gas fuel tanks, as shown.



- Fit support elements from -VAS 6131/10- and adapter -VAS 6131/11-3- to rear right of mounting bracket for natural gas fuel tanks, as shown.
- Turn remaining spindles for support elements upwards until all locating lugs make contact with mounting points.
- Tighten base plates for support elements to 20 Nm on scissor-type assembly platform - VAS 6131 B- .

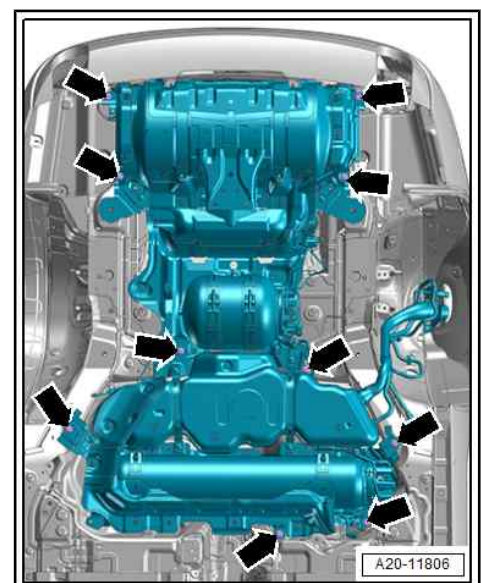


- Remove remaining bolts -arrows- on mounting bracket for natural gas fuel tanks.
- Carefully lower scissor-type assembly platform - VAS 6131 B- with mounting bracket and natural gas fuel tanks and pull it out from under the vehicle.

Installing

Installation is carried out in reverse order; note the following:

- Do not remove plugs from engine bung set - VAS 6122- until immediately prior to securing pipes.
- Observe instructions for installing high-pressure pipes
⇒ [page 11](#) .





- Open manual shut-off mechanisms on mechanical tank shut-off valves using extension -T40333- and hand wheel - T50026- .
- Connect high-pressure pipe and breather line ➔ [page 76](#) .
- Install subframe ➔ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .
- Install tank flap unit ➔ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit .
- Install seat bench/individual seats ➔ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Observe steps required after re-connecting battery ➔ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



WARNING

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!
Danger of severe or fatal injuries due to explosion.

- Natural gas system must be re-activated by a specially trained person.

- Perform gas system inspection ➔ Maintenance ; Booklet 830 ; Maintenance; Natural gas system: checking for damage and leaks .

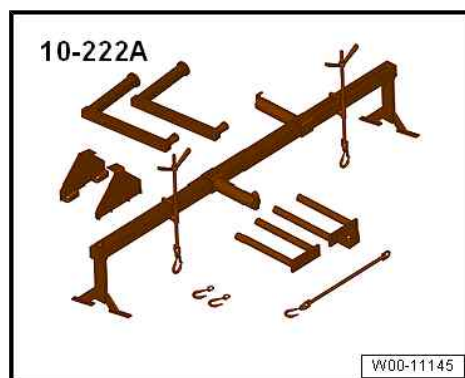
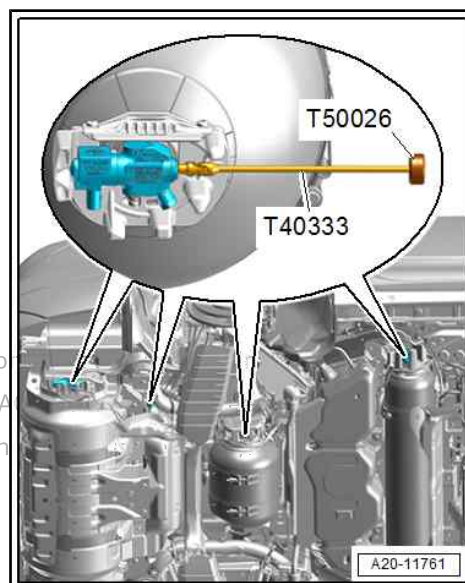
Tightening torques

- ◆ ➔ [“2.2 Exploded view - natural gas fuel tanks”, page 11](#)
- ◆ ➔ General body repairs, exterior; Rep. gr. 63 ; Bumper (rear); Exploded view - bumper cover
- ◆ ➔ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)

2.9 Removing natural gas fuel tanks with mounting bracket from scissor-type assembly platform

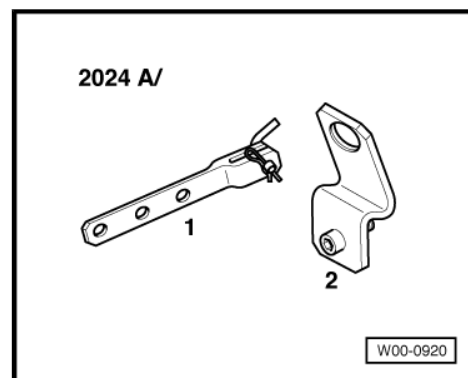
Special tools and workshop equipment required

- ◆ Support bracket - 10-222A-

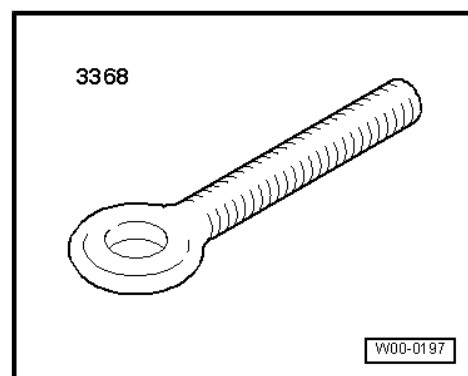




◆ Hook - 2024A/2-



◆ Eye-head bolt - 3368-



◆ Workshop hoist - VAS 6100-



◆ Shackle - VAS 691 009-



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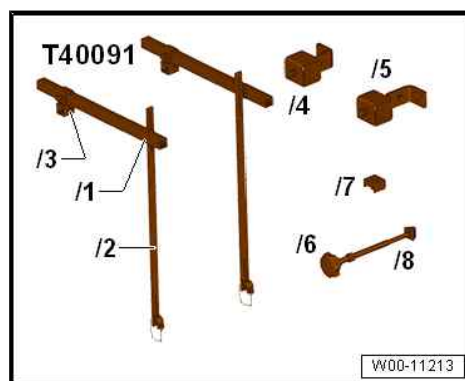


◆ Tensioning strap - T10038-

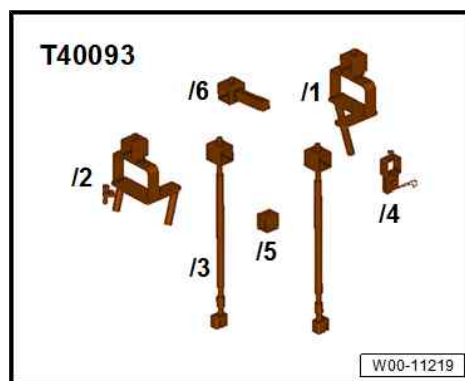
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◆ Adapter -T40091/1- from engine support basic set - T40091-

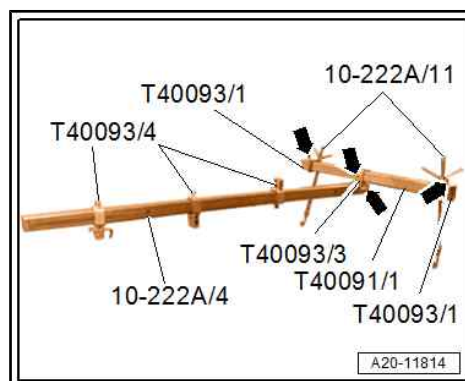


◆ Engine support bracket (supplementary set) - T40093B-



Preparing support bracket

- Set up adapter - 10-222A/4- with spindles - 10-222A/11- and adapters from -T40091- and -T40093B- , as shown. Secure adapters with bolts -arrows-.





Procedure

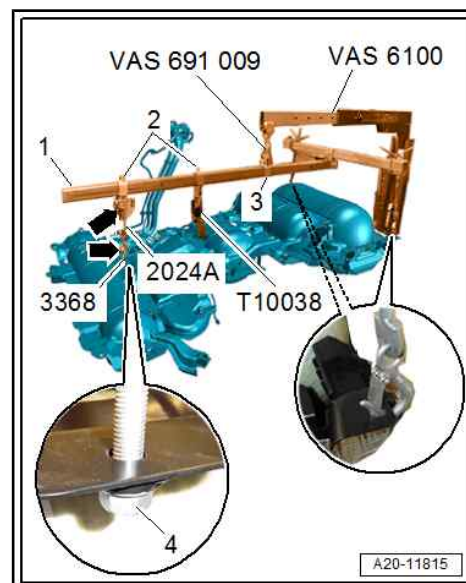
- Natural gas fuel tanks removed with mounting bracket
 ⇒ [page 37](#) .
- Attach prepared support bracket -1- to workshop hoist - VAS 6100- using shackle - VAS 691 009- .
- Secure eye-head bolt - 3368- to mounting bracket for fuel tanks using nut -4- and attach it to support bracket using hook - 2024A/2- .

CAUTION

Risk of injury if the lifted mounting bracket with the natural gas fuel tanks falls.

Danger of trapping or crushing parts of the body.

- The support hooks and retaining pins on the lifting tackle must be secured with locking pins.
- Fit locking pins -arrows- to support hooks and retaining pins.
- Secure mounting bracket for fuel tanks in centre using tensioning strap - T10038- and tighten bolts -2-.
- Adjust mounting bracket for fuel tanks to centre of gravity and tighten bolt -3-.
- Lift mounting bracket for fuel tanks off scissor-type assembly platform - VAS 6131 B- .



2.10 Removing and installing fuel tanks

⇒ [“2.10.1 Removing and installing petrol fuel tank”, page 47](#)

⇒ [“2.10.2 Removing and installing natural gas fuel tank 1”, page 52](#)

⇒ [“2.10.3 Removing and installing natural gas fuel tank 2”, page 58](#)

⇒ [“2.10.4 Removing and installing natural gas fuel tank 3”, page 61](#)

⇒ [“2.10.5 Removing and installing natural gas fuel tank 4”, page 65](#)

2.10.1 Removing and installing petrol fuel tank

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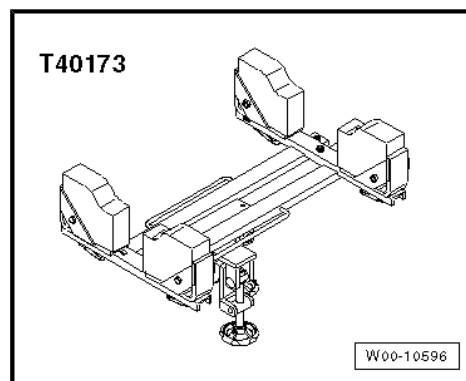
Special tools and workshop equipment required

- ◆ Engine and gearbox jack - VAS 6931-





◆ Gearbox support - T40173-



Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .
- Disconnect earth wire from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

⚠ CAUTION

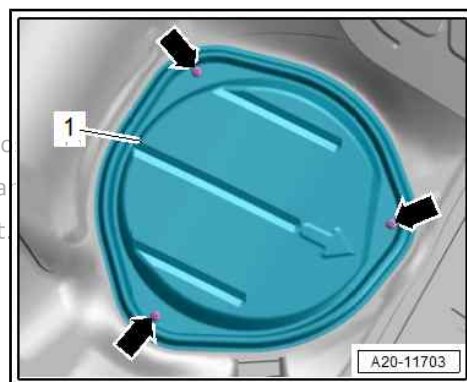
Risk of injury if filled fuel tank falls.

Danger of trapping or crushing parts of the body.

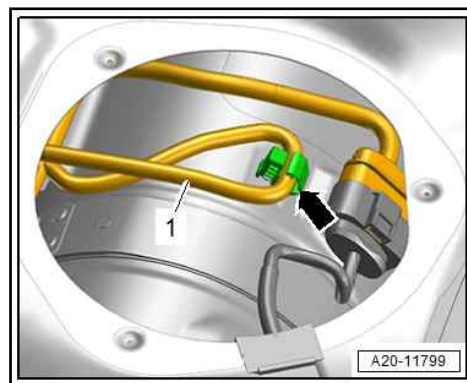
- Drain fuel tank as much as possible before removing.

- Extract fuel from tank via fuel filler neck ⇒ [page 20](#) .
- Remove seat bench/individual seats ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Remove bolts -arrows- and detach cover -1-.

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- Move electrical wire -1- for connectors clear at retainer -arrow- at sealing flange.
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Remove tank flap unit ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit .

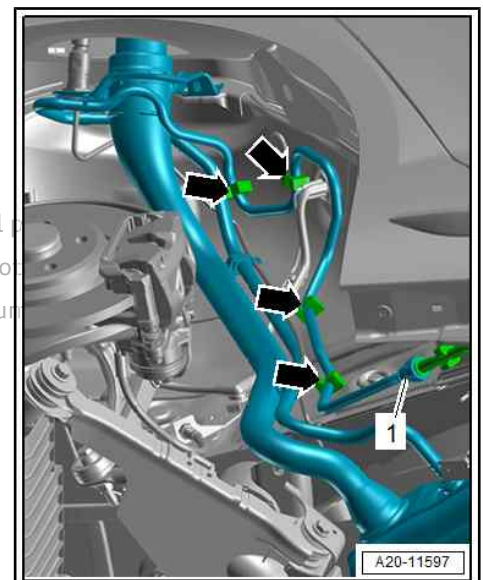
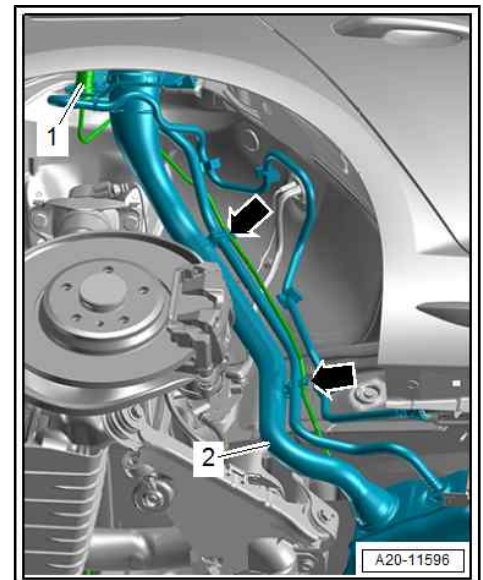
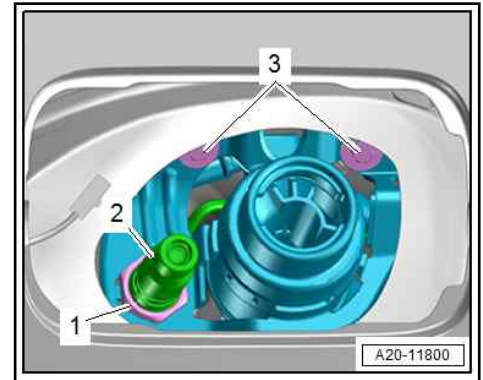




Note:

The filler connection has a left-hand thread.

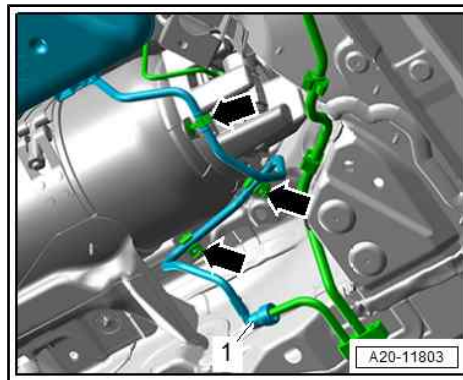
- Remove nut -1- for natural gas filler connection -2- and detach washer.
- Remove bolts -3- for fuel filler neck (2x or 3x depending on version).
- Unclip natural gas filler connection -1- at fuel filler neck -2- -arrows- and unhook.
- Do not attempt to bend filler connection to a different shape.
- Remove underbody trim panels (rear right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Remove diagonal struts ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .
- Remove rear section of exhaust system ⇒ Engine; Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing silencers .
- Remove anti-roll bar ⇒ Running gear, axles, steering; Rep. gr. 42 ; Anti-roll bar; Removing and installing anti-roll bar .
- Disconnect breather line -1- to activated charcoal filter. Disconnecting plug-in connectors ⇒ [page 76](#)
- Unclip breather line at retainers -arrows- and move clear.



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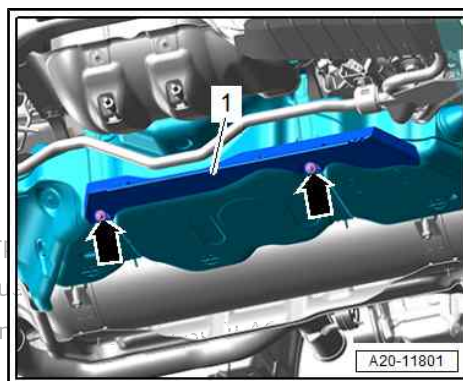
- Unclip fuel line at retainers -arrows-.
- Lay a cloth under the connection to catch escaping fuel.
- Disconnect fuel line -1-. Disconnecting plug-in connectors
⇒ [page 76](#)



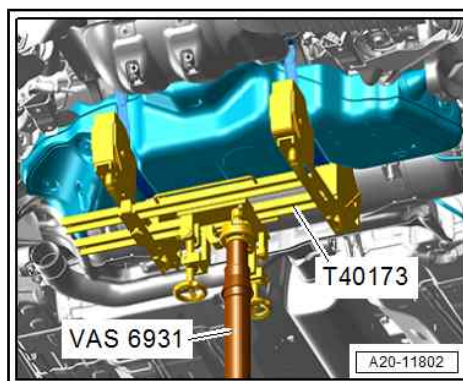
- Remove nuts -arrows- and detach wind deflector -1-.



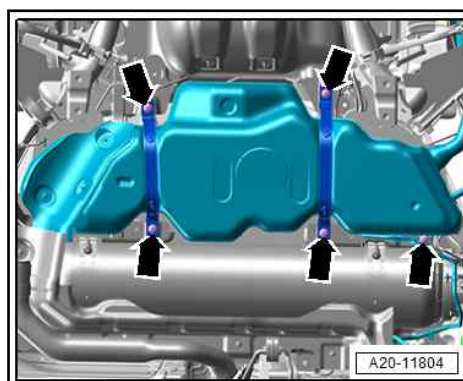
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- Fit gearbox support - T40173- on engine and gearbox jack - VAS 6931- and position it so it supports fuel tank, as shown.



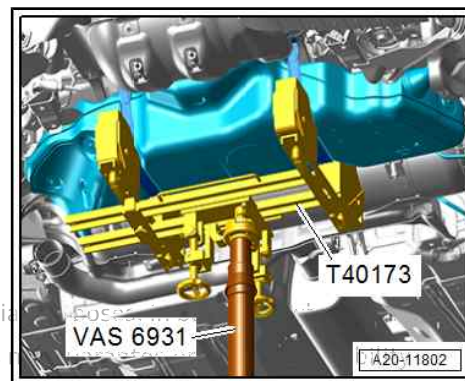
- Remove bolts -arrows- (fuel tank shown without engine and gearbox jack).





- Carefully lower fuel tank slightly using engine and gearbox jack - VAS 6931- .
- When lowering the fuel tank, make sure there is sufficient clearance for the fuel filler neck.
- In addition, a second mechanic will be required to support the fuel tank by hand.

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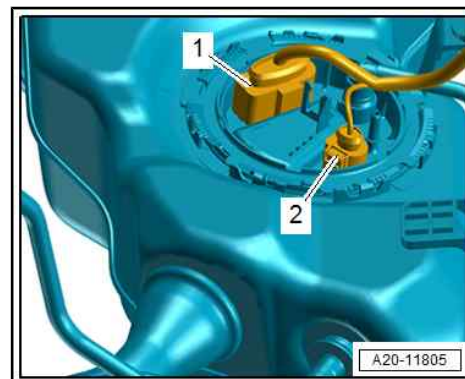
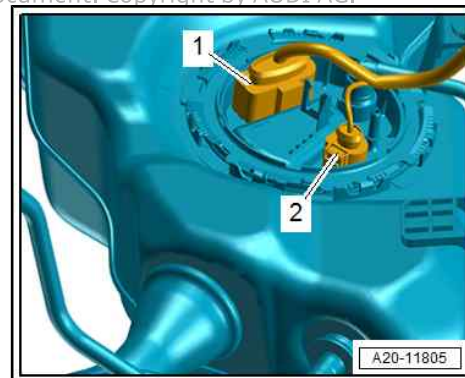


- Carefully lower fuel tank slightly, reach beneath underbody and unplug electrical connectors -1, 2- at sealing flange, releasing retainer catch to do so.
- Ensuring that fuel tank has sufficient clearance , lower fuel tank using engine and gearbox jack - VAS 6931- .

Installing

Installation is carried out in reverse order; note the following:

- Fuel lines and wiring harness for fuel delivery unit must be clipped in at fuel tank.
- Lift fuel tank with securing straps using engine and gearbox jack - VAS 6931- , reach beneath underbody and connect electrical connectors -1, 2- at sealing flange.
- Position fuel tank and securing straps on underside of vehicle using engine and gearbox jack - VAS 6931- .
- When installing fuel tank, make sure that fuel filler neck is correctly inserted into opening on body.



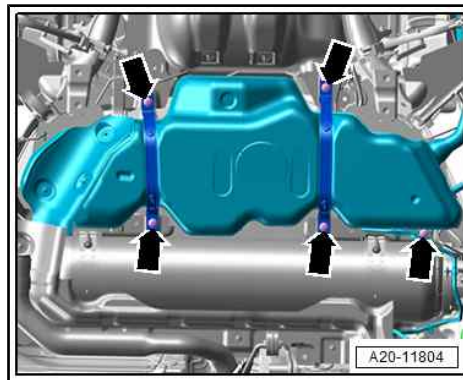


- Tighten bolts -arrows- for securing straps and fuel tank.
- Install natural gas filler connection on fuel filler neck
⇒ [page 71](#) .

WARNING

**Risk of fuel tank explosion due to electrostatic discharge.
Severe injuries and burns possible.**

- After installation, use an ohmmeter to check the electrical connection between the threaded ring on the fuel filler neck and a bare metal part on the body.



- Specification: approx. 0 Ω
- Install tank flap unit ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit .
- Connect battery and perform steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

WARNING

**Risk of fuel tank explosion due to fuel pump starting
Severe injuries and burns possible.**

- Fill a new or completely drained fuel tank with fuel after installing.

- Fill up with at least 5 litres of fuel before starting the engine for the first time.

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - fuel tank”, page 9](#)
- ◆ ⇒ [Fig. ““Wind deflector - tightening torque””, page 11](#)
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 42 ; Anti-roll bar; Exploded view - anti-roll bar
- ◆ ⇒ Engine; Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (rear)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim

2.10.2 Removing and installing natural gas fuel tank 1

DANGER

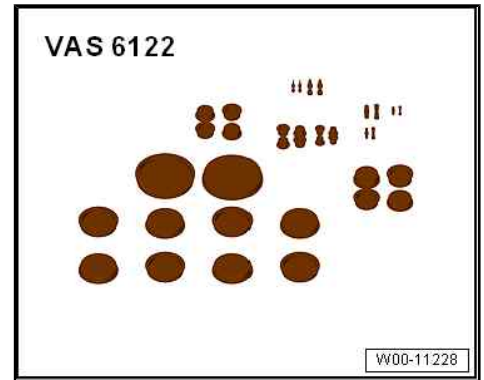
Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .

Special tools and workshop equipment required



◆ Engine bung set - VAS 6122-



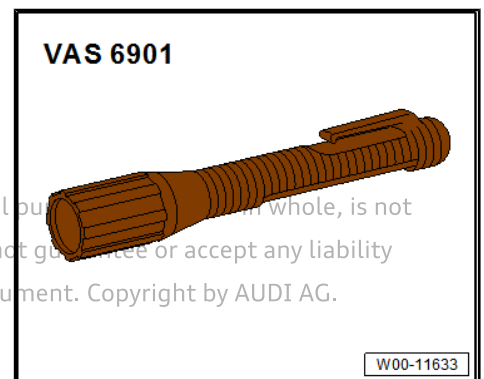
◆ Engine and gearbox jack - VAS 6931-



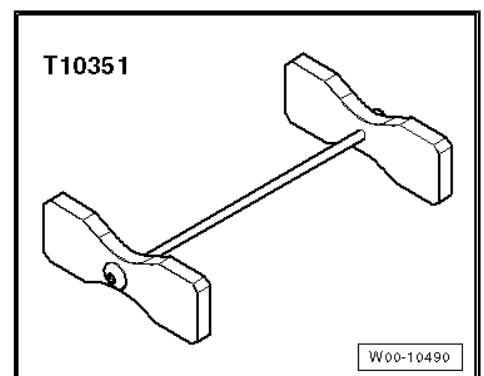
◆ Explosion-proof LED battery lamp - VAS 6901-



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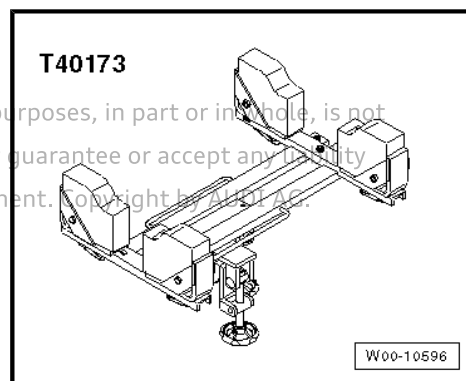
◆ Bracket - T10351-





◆ Gearbox support - T40173-

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Removing

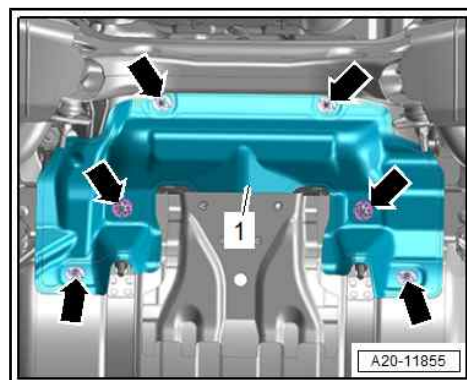
- Vehicle must be at room temperature (at least 15 °C).
- When working on natural gas fuel tanks, take care not to damage the surface. Use adhesive tape to protect at risk areas.
- Observe safety precautions ⇒ [page 1](#) .
- Observe safety precautions when working on the natural gas system ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .



WARNING

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!
Danger of severe or fatal injuries due to explosion.

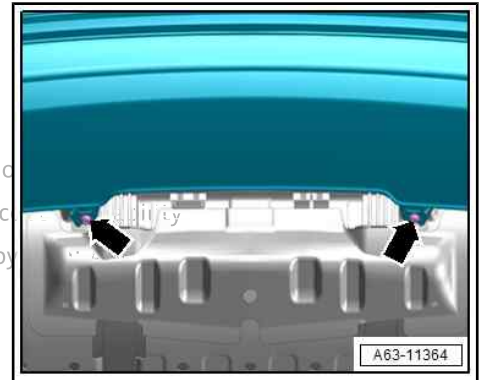
- Pressure in natural gas high-pressure pipe must be dissipated by a specially trained person.
- Dissipate pressure in natural gas high-pressure pipe ⇒ [page 34](#) .
- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove rear silencer ⇒ Engine; Rep. gr. 26 ; Exhaust pipes/ silencers; Removing and installing silencers .
- Remove clamping washers -arrows- and detach heat shield -1-.



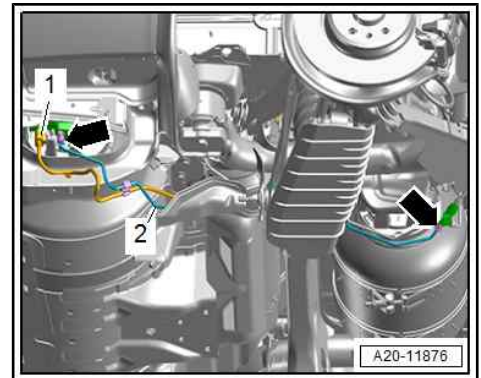


- Remove nuts -arrows- for bumper cover (rear).

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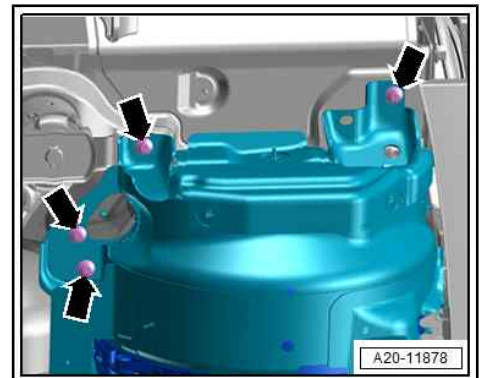
- Unplug electrical connector -1- and move electrical wire clear.
- Carefully loosen union nuts -arrows- so that residual gas can escape; counterhold at connections with a suitable tool.
- Do not attempt to bend high-pressure pipes to a different shape.
- Unscrew union nuts and detach high-pressure pipe -2-.
- Seal off open lines and connections with plugs (thoroughly cleaned) from engine bung set - VAS 6122- .



- Position engine and gearbox jack - VAS 6931- with gearbox support - T40173- at mounting bracket for natural gas fuel tank 1 as shown and secure with tensioning strap -arrow-.



- Remove bolts -arrows- on both sides and carefully lower mounting bracket for natural gas fuel tank 1 using engine and gearbox jack - VAS 6931- , paying attention to bumper cover.





Detaching natural gas fuel tank 1 from mounting bracket

- Loosen nut -1- several turns on both sides at tensioning strap -2- and swivel screwing element outwards -arrow-.

NOTICE

Risk of damage to natural gas fuel tank if tensioning straps are handled incorrectly.

- Perform the following work with the assistance of a second mechanic.
- Pull tensioning straps apart slightly and guide natural gas fuel tank out.
- Place natural gas fuel tank on bracket - T10351- .

Installing

Installation is carried out in reverse order; note the following:

- Renew protective strips for tensioning straps after removing tensioning straps.
- Do not remove plugs from engine bung set - VAS 6122- until immediately prior to securing pipes.
- Observe instructions for installing high-pressure pipes
⇒ [page 11](#) .

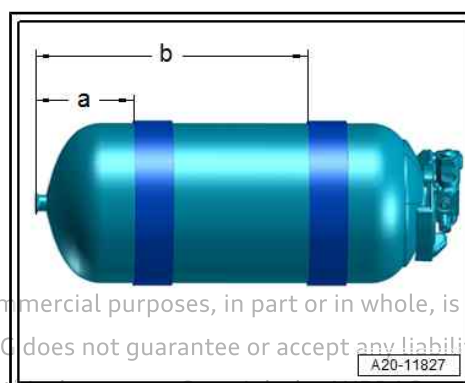
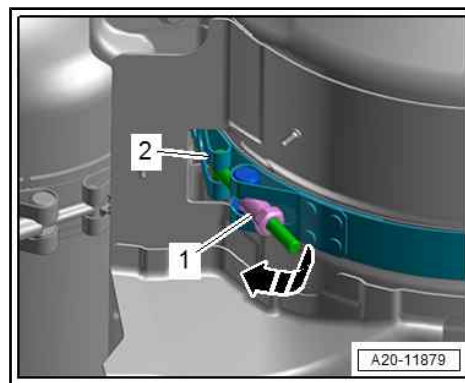
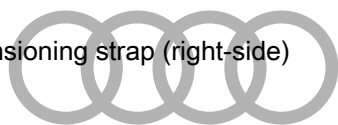
- Align protective strips for tensioning straps:

Protective strip for tensioning strap (left-side)

a - 170 mm

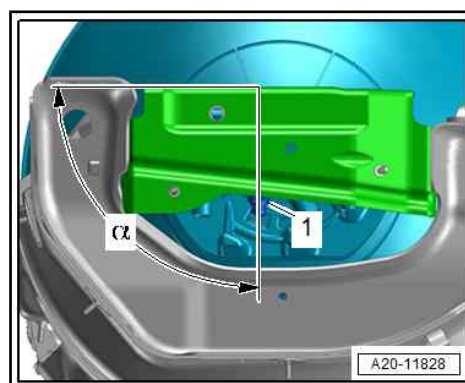
Protective strip for tensioning strap (right-side)

b - 530 mm



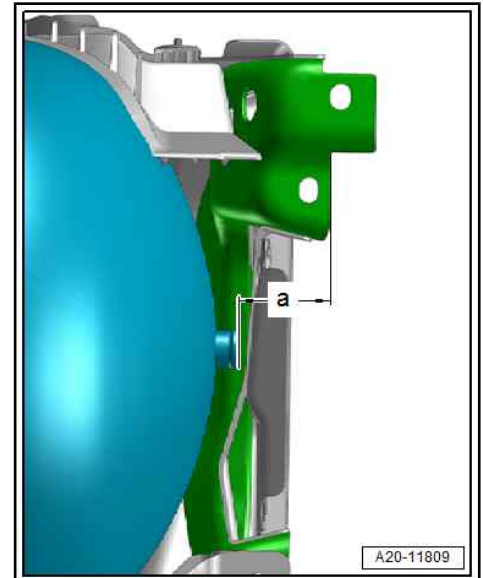
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- Check installation position of natural gas fuel tank 1.
- Installation position of pipe connection -1-: angle $-\alpha-$ = 90°





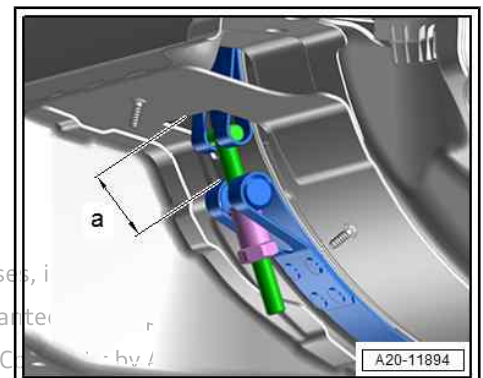
Installation position of natural gas fuel tank: dimension -a- = 60 mm



- Align tensioning strap centrally with protective strip for tensioning strap.
- Dimension -a- (left and right) = 40 mm



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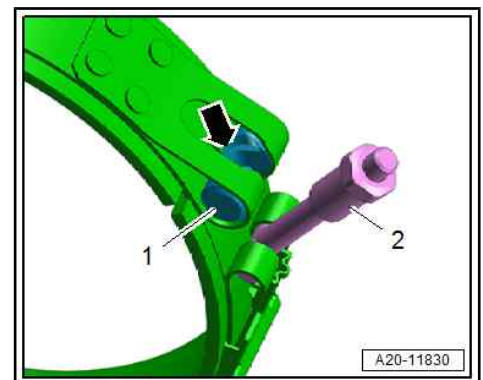
- Flat side -arrow- of clamping pin -1- must face nut -2-.
- Install rear silencer ⇒ Engine; Rep. gr. 26 ; Exhaust pipes/ silencers; Removing and installing silencers .
- Observe steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

⚠ WARNING

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!

Danger of severe or fatal injuries due to explosion.

- Natural gas system must be re-activated by a specially trained person.



- Perform gas system inspection ⇒ Maintenance ; Booklet 830 ; Maintenance; Natural gas system: checking for damage and leaks .

Tightening torques

- ◆ ⇒ [“2.2 Exploded view - natural gas fuel tanks”, page 11](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (rear); Exploded view - bumper cover



2.10.3 Removing and installing natural gas fuel tank 2

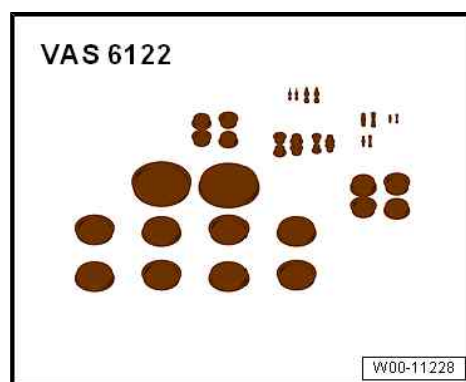
DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .

Special tools and workshop equipment required

- ◆ Engine bung set - VAS 6122-



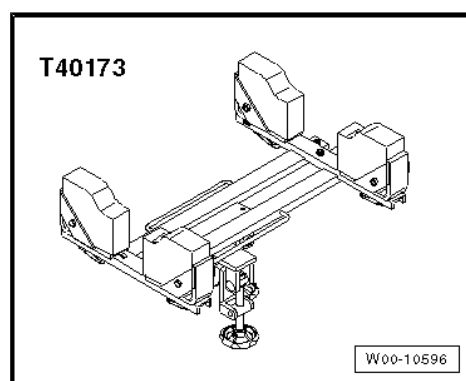
- ◆ Engine and gearbox jack - VAS 6931-



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- ◆ Gearbox support - T40173-





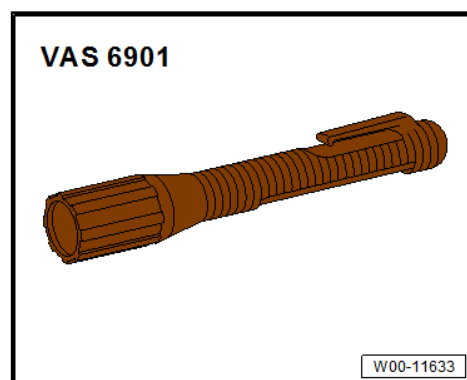
◆ Support elements - T40173/3-

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◆ Adjusting tool - T40390- , not illustrated

◆ Explosion-proof LED battery lamp - VAS 6901-



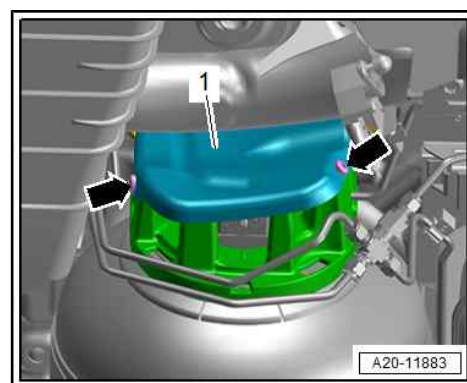
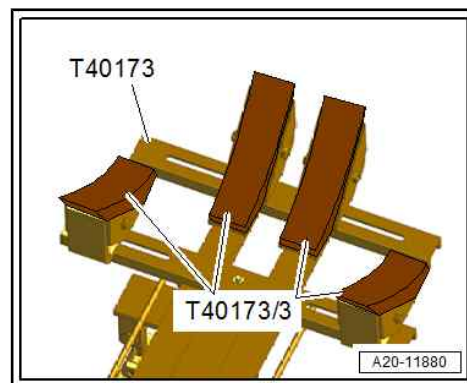
◆ Open crow-foot ring spanner, 14 mm (commercially available)

Preparing tool

- Prepare gearbox support - T40173- as shown and fit support elements - T40173/3- .

Removing

- Vehicle must be at room temperature (at least 15 °C).
- When working on natural gas fuel tanks, take care not to damage the surface. Use adhesive tape to protect at risk areas.
- Observe safety precautions ⇒ [page 1](#) .
- Observe safety precautions when working on the natural gas system ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .
- Remove natural gas fuel tank 1 with mounting bracket ⇒ [page 52](#) .
- Remove bolts -arrows- and detach guard plate -1-.





- Carefully loosen union nuts -arrows- so that residual gas can escape; counterhold at connections with a suitable tool.
- Do not attempt to bend high-pressure pipes to a different shape.
- Unscrew union nuts and move high-pressure pipe -1- to one side (high-pressure pipe -3- will be removed later).
- Seal off open lines and connections with plugs (thoroughly cleaned) from engine bung set - VAS 6122- .
- Unplug electrical connector -2- (shown with subframe removed).
- Position engine and gearbox jack - VAS 6931- with gearbox support - T40173- at natural gas fuel tank 2 as shown and secure with tensioning strap -4-.
- Unscrew nut -2- on both sides at tensioning strap -1- and swivel screwing element outwards -arrow C-.
- Turn tensioning straps in direction of -arrow B- as far as stop, ensuring that paintwork of subframe is not damaged.
- Detach high-pressure pipe loosened previously.

⚠ CAUTION

Risk of irreparable damage to natural gas fuel tank if its surface is damaged.

- When lowering, guide tank carefully out of mounting bracket.
- Use adhesive tape to protect at risk areas.
- Pull tensioning straps apart slightly and lower natural gas fuel tank 2 carefully. While doing so, tilt gearbox support - T40173- to left -arrow A- using spindle.

Installing

Installation is carried out in reverse order; note the following:

- Renew protective strips for tensioning straps after removing tensioning straps.
- Do not remove plugs from engine bung set - VAS 6122- until immediately prior to securing pipes.
- Observe instructions for installing high-pressure pipes

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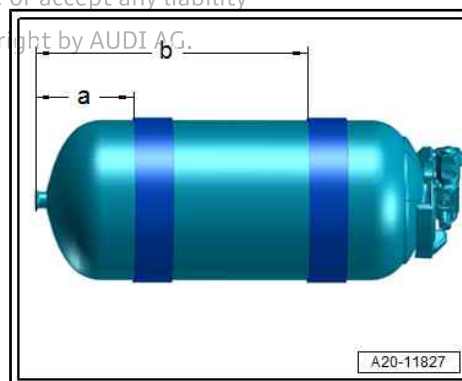
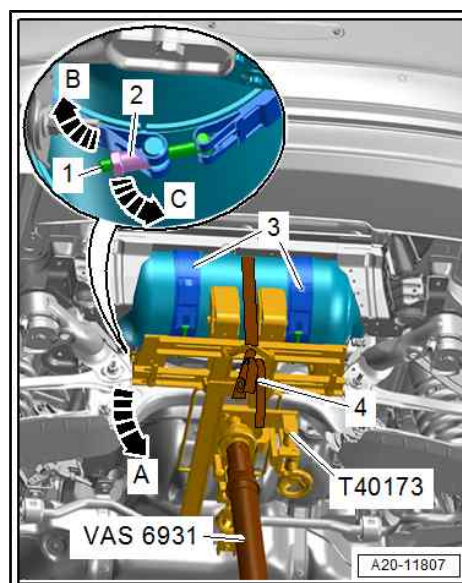
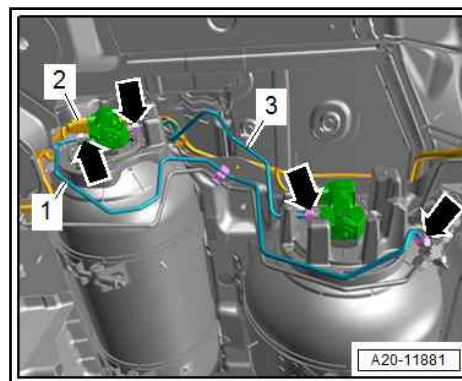
- Align protective strips for tensioning straps:

Protective strip for tensioning strap (left-side)

a - 135 mm

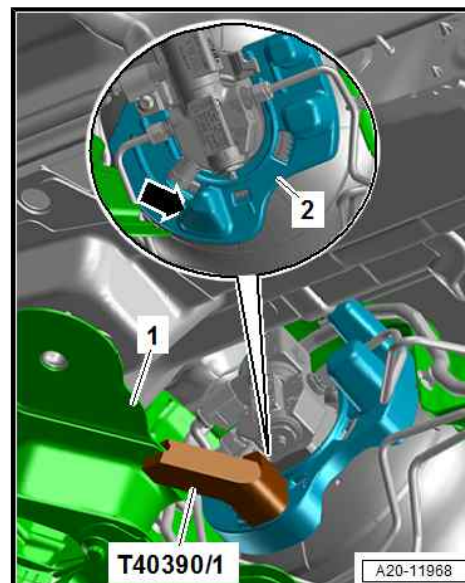
Protective strip for tensioning strap (right-side)

b - 380 mm





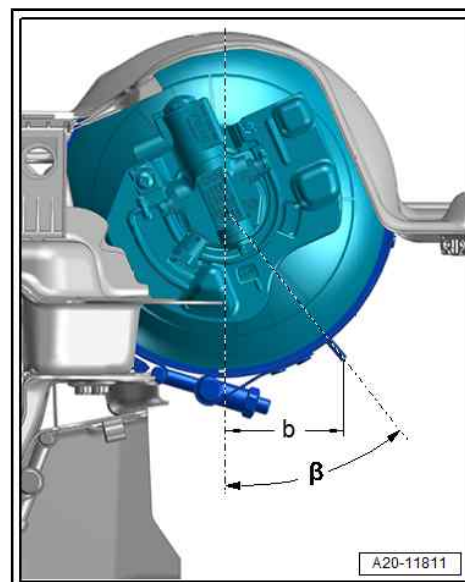
- Check installation position of natural gas fuel tank 2 using adjusting tool - T40390/1- .
- Adjusting tool must be attached at mounting -1- for natural gas fuel tank.
- Adjusting tool must fit onto protrusion -arrow- on natural gas fuel tank -2-.



- Align tensioning strap centrally with protective strip for tensioning strap:
- Dimension -b- (left and right) = 84 mm
- or
- Angle - β - = 38°
- Install natural gas fuel tank 1 with mounting bracket
 ⇒ [page 52](#) .

Tightening torques

- ◆ ⇒ [“2.2 Exploded view - natural gas fuel tanks”, page 11](#)



2.10.4 Removing and installing natural gas fuel tank 3

! DANGER

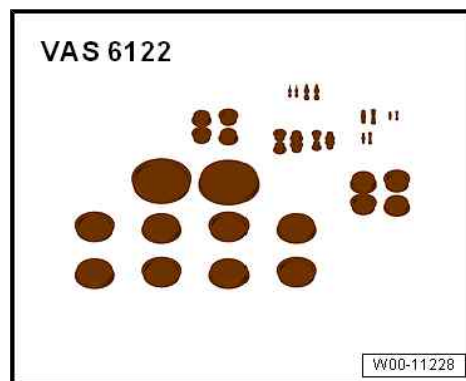
Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ **Natural gas engines - General information; Rep. gr. 20 : Assessing damage to fuel tanks** .

Special tools and workshop equipment required



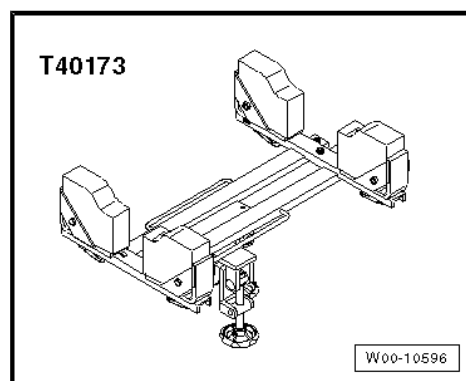
- ◆ Engine bung set - VAS 6122-



- ◆ Engine and gearbox jack - VAS 6931-

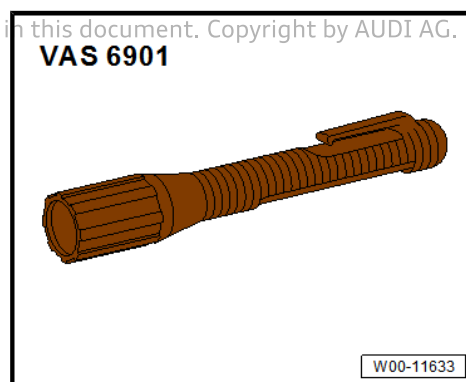


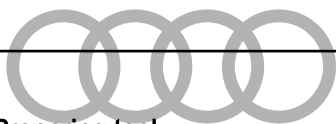
- ◆ Gearbox support - T40173-



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- ◆ Adjusting tool - T40390- not illustrated
- ◆ Explosion-proof LED battery lamp - VAS 6901-



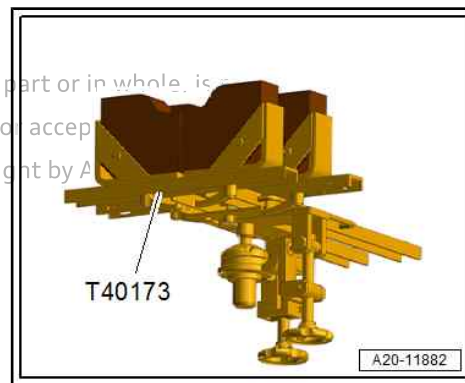


Preparing tool

- Prepare gearbox support - T40173- as shown.

Removing

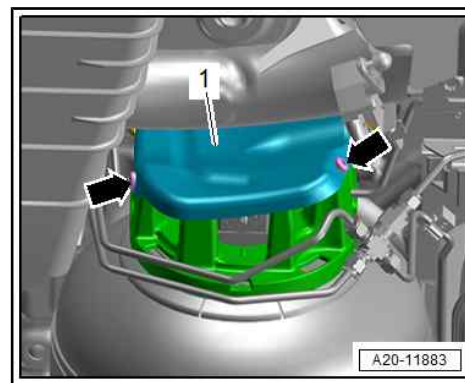
- Vehicle must be at room temperature (at least 15 °C).
- When working on a natural gas fuel tank, take care not to damage the surface. Use adhesive tape to protect at risk areas.
- Observe safety precautions ⇒ [page 1](#) .
- Observe safety precautions when working on the natural gas system ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .



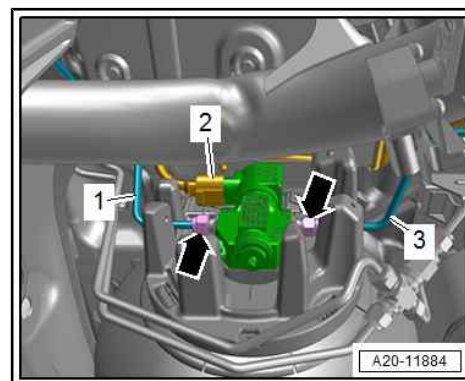
⚠ WARNING

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!
Danger of severe or fatal injuries due to explosion.

- Pressure in natural gas high-pressure pipe must be dissipated by a specially trained person.
- Dissipate pressure in natural gas high-pressure pipe ⇒ [page 34](#) .
- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove rear silencer ⇒ Engine; Rep. gr. 26 ; Exhaust pipes/ silencers; Removing and installing silencers .
- Remove bolts -arrows- and detach guard plate -1-.



- Unplug electrical connector -2-.
- Carefully loosen union nuts -arrows- so that residual gas can escape; counterhold at connections with a suitable tool.
- Do not attempt to bend high-pressure pipes to a different shape.
- Remove union nuts.
- Move high-pressure pipe -3- clear at connection (high-pressure pipe -1- will be moved clear later).
- Seal off open lines and connections with plugs (thoroughly cleaned) from engine bung set - VAS 6122- .





- Position engine and gearbox jack - VAS 6931- with gearbox support - T40173- at natural gas fuel tank 3 as shown and secure with tensioning strap -arrow-.



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- Loosen nut -2- several turns on both sides at tensioning strap -1- and swivel screwing element outwards -arrow-.
- Move high-pressure pipe loosened previously clear at connection.
- Pull tensioning straps apart slightly and carefully lower natural gas fuel tank 3.

Installing

Installation is carried out in reverse order; note the following:

- Renew protective strips for tensioning straps after removing tensioning straps.
- Do not remove plugs from engine bung set - VAS 6122- until immediately prior to securing pipes.
- Observe instructions for installing high-pressure pipes
⇒ [page 11](#) .

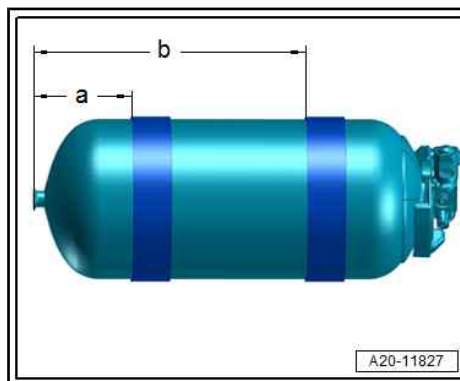
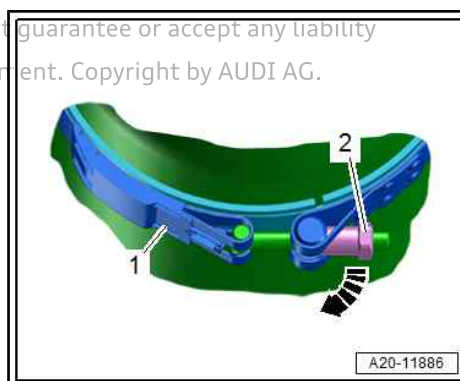
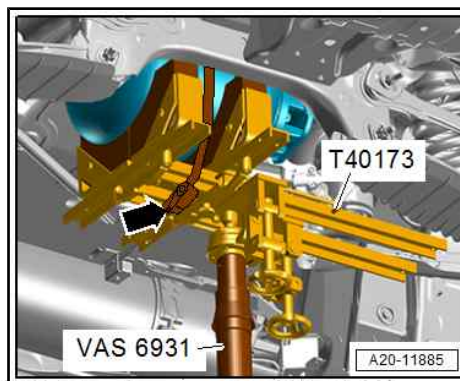
- Align protective strips for tensioning straps:

Protective strip for tensioning strap (left-side)

a - 110 mm

Protective strip for tensioning strap (right-side)

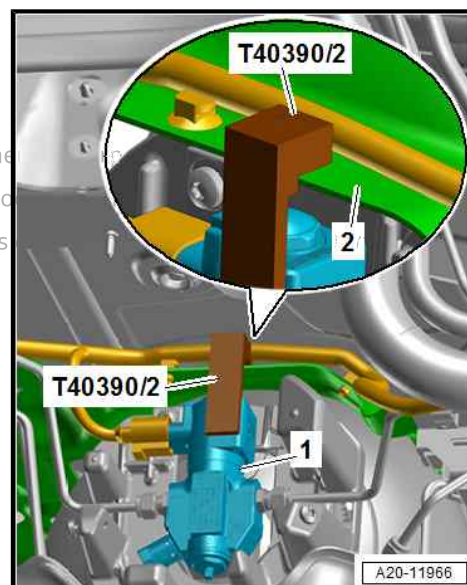
b - 240 mm





- Check installation position of natural gas fuel tank 3 using adjusting tool - T40390/2- .
- Adjusting tool must rest on mounting -2- for natural gas fuel tank and make contact with outer edge of mounting.
- Adjusting tool must make full contact with fuel tank shut-off valve -1-.

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- Align tensioning strap centrally with protective strip for tensioning strap:
 - Dimension -b- (left and right) = 111 mm
- or
- Angle - β - = 46°

WARNING

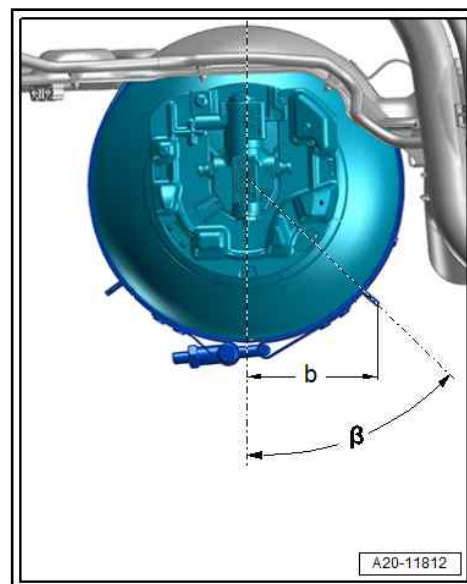
Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!
 Danger of severe or fatal injuries due to explosion.

- Natural gas system must be re-activated by a specially trained person.

- Perform gas system inspection ⇒ Maintenance ; Booklet 830 ; Maintenance; Natural gas system: checking for damage and leaks .

Tightening torques

- ◆ ⇒ [“2.2 Exploded view - natural gas fuel tanks”, page 11](#)
- ◆ ⇒ Engine; Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers



2.10.5 Removing and installing natural gas fuel tank 4

DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .

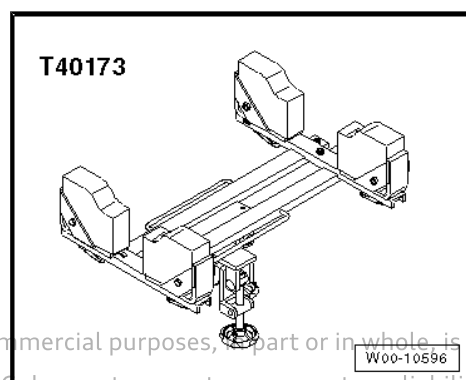


Special tools and workshop equipment required

- ♦ Engine and gearbox jack - VAS 6931-

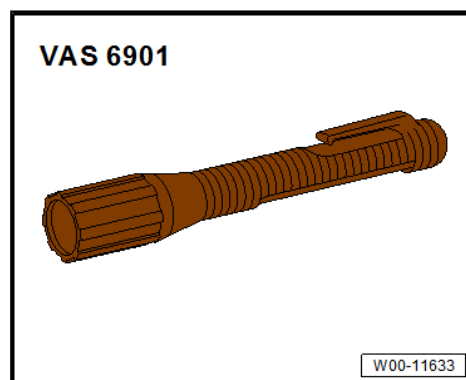


- ♦ Gearbox support - T40173-



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- ♦ Adjusting tool - T40390- , not illustrated
- ♦ Explosion-proof LED battery lamp - VAS 6901-



Removing

- Vehicle must be at room temperature (at least 15 °C).
- When working on a natural gas fuel tank, take care not to damage the surface. Use adhesive tape to protect at risk areas.
- Observe safety precautions ⇒ [page 1](#) .
- Observe safety precautions when working on the natural gas system ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .



⚠ WARNING

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!

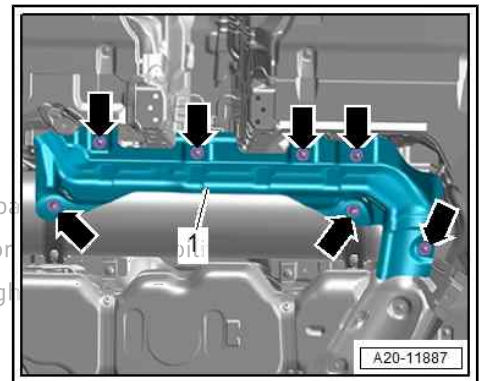
Danger of severe or fatal injuries due to explosion.

- Pressure in natural gas high-pressure pipe must be dissipated by a specially trained person.

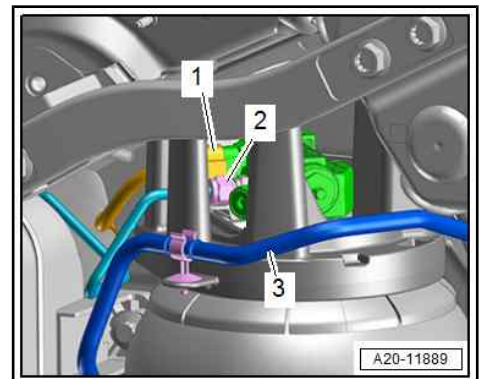
- Dissipate pressure in natural gas high-pressure pipe
⇒ [page 34](#) .
- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove front silencer ⇒ Engine; Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing front silencer .
- Remove clamping washers -arrows- and detach heat shield -1-.



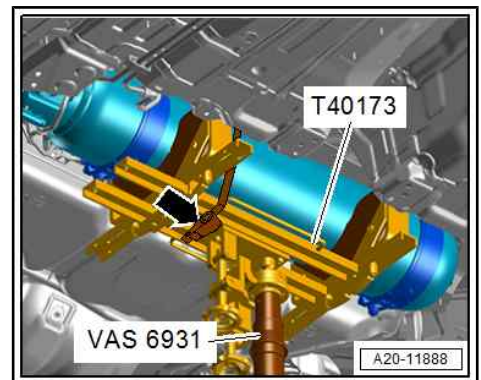
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- Unplug electrical connector -1-.
- Carefully loosen union nut -2- so that residual gas can escape; counterhold at connection with a suitable tool.
- Remove union nut and move high-pressure pipe clear at connection.
- Seal off open lines and connections with plugs (thoroughly cleaned) from engine bung set - VAS 6122- .
- Move high-pressure pipe -3- clear.



- Position engine and gearbox jack - VAS 6931- with gearbox support - T40173- at natural gas fuel tank 4 as shown and secure with tensioning strap -arrow-.





- Loosen nut -2- several turns on both sides at tensioning strap -1- and swivel screwing element outwards -arrow-.
- Pull tensioning straps apart slightly and carefully lower natural gas fuel tank 4.

Installing

Installation is carried out in reverse order; note the following:

- Renew protective strips for tensioning straps after removing tensioning straps.
- Do not remove plugs from engine bung set - VAS 6122- until immediately prior to securing pipes.
- Observe instructions for installing high-pressure pipes
⇒ [page 11](#) .

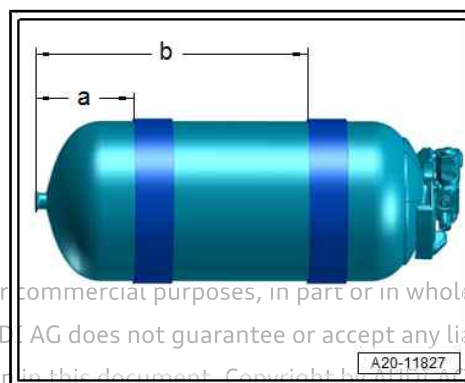
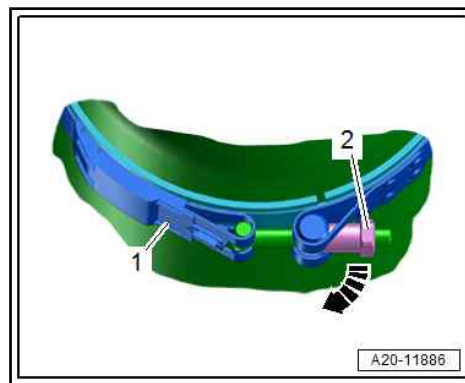
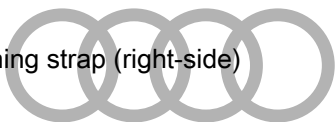
- Align protective strips for tensioning straps:

Protective strip for tensioning strap (left-side)

a - 100 mm

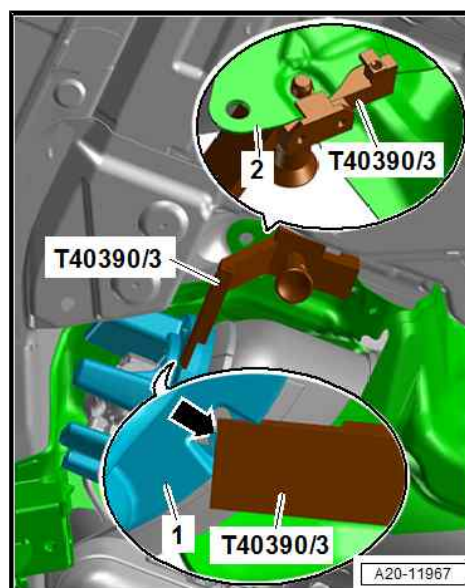
Protective strip for tensioning strap (right-side)

b - 785 mm



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- Check installation position of natural gas fuel tank 4 using adjusting tool - T40390/3- .
- Adjusting tool must be engaged at mounting -2- for natural gas fuel tank and be secured with pin of adjusting tool in bore in mounting.
- Adjusting tool must engage fully in recess -arrow- in natural gas fuel tank.





- Align tensioning strap centrally with protective strip for tensioning strap:
 - Dimension -b- (left and right) = 37 mm
- or
- Angle -β- = 18°

⚠ WARNING

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!

Danger of severe or fatal injuries due to explosion.

- Natural gas system must be re-activated by a specially trained person.

- Perform gas system inspection ⇒ Maintenance ; Booklet 830 ; Maintenance; Natural gas system: checking for damage and leaks .

Tightening torques

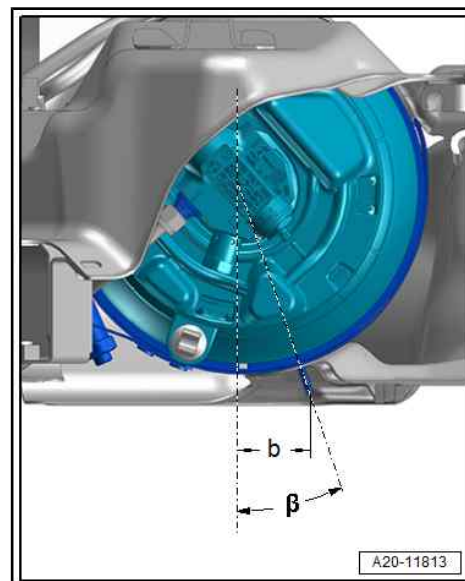
- ♦ ⇒ **"2.2 Exploded view, natural gas fuel tanks", page 11**
- ♦ ⇒ Engine; Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers

2.11 Removing and installing solenoid on fuel tank shut-off valve -N361- / -N362-

The description applies to tank shut-off valves -N361- , -N362- , -N363- , -N429- .

Special tools and workshop equipment required

- ♦ Open end spanner insert, AF 17 - T10521-

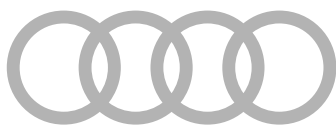


- ♦ Open end spanner insert, AF 22 - T10522-

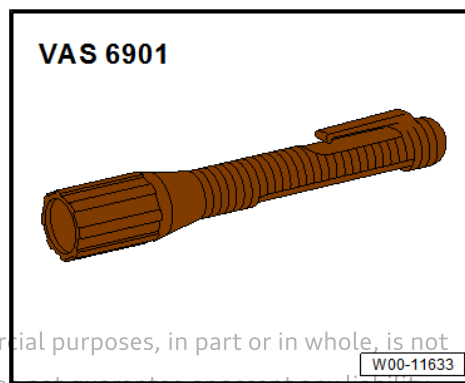




- ◆ Explosion-proof LED battery lamp - VAS 6901-



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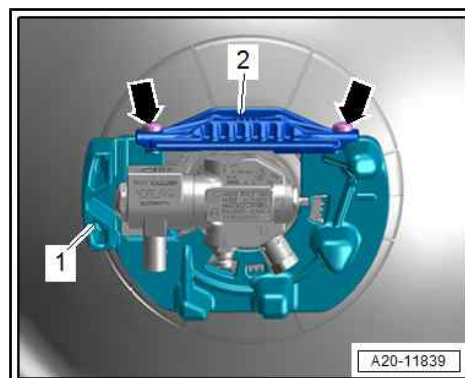


Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe safety precautions when working on the natural gas system ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .
- When working on a natural gas fuel tank, take care not to damage the surface. Use adhesive tape to protect at risk areas.
- Remove relevant fuel tank ⇒ [page 47](#) .

Fuel tank shut-off valve 1 - N361- :

- Remove bolts -arrows- and detach valve protector -1, 2-.



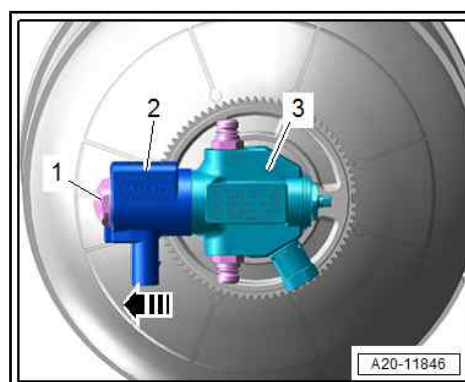
All fuel tank shut-off valves (continued):

- Unscrew plug -1- from tank shut-off valve using insert tool (22 mm) - T10522- .
- Unscrew nut underneath using insert tool (17 mm) - T10521- and detach tank shut-off valve -2- from mechanical tank shut-off valve -3- -arrow-.

Installing

Installation is carried out in the reverse order; note the following:

- Renew nut, O-rings and plug after removal.
- Install fuel tank
⇒ [“2.10 Removing and installing fuel tanks”, page 47](#) .



Tightening torques

- ◆ ⇒ [“2.3 Exploded view - shut-off mechanism for tank”, page 17](#)



2.12 Removing and installing filler connection

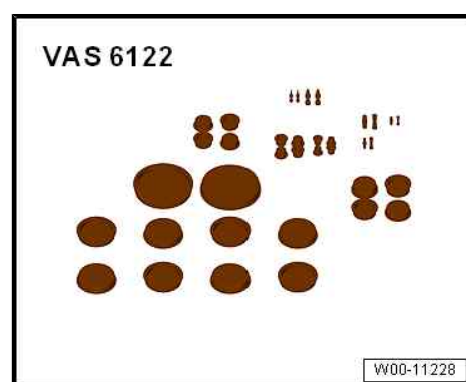
DANGER

Damaged natural gas fuel tanks constitute an explosion risk - risk of death!

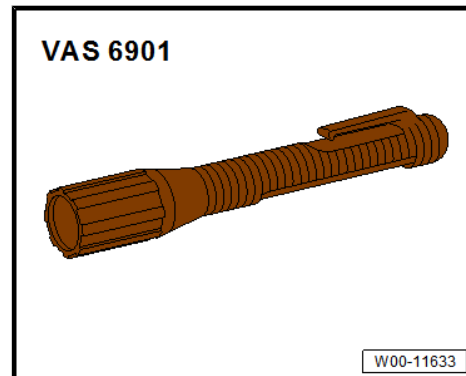
- If components at the rear and/or rear side of the vehicle (e.g. bumper cover, rear lid, underbody trim, longitudinal member, rear cross panel, etc.) are removed due to accident damage, the natural gas fuel tanks must be checked for damage.
- Carry out assessment of damage to fuel tanks ⇒ Natural gas engines - General information; Rep. gr. 20 ; Assessing damage to fuel tanks .

Special tools and workshop equipment required

- ◆ Engine bung set - VAS 6122-



- ◆ Explosion-proof LED battery lamp - VAS 6901-



Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe safety precautions when working on the natural gas system ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .

WARNING

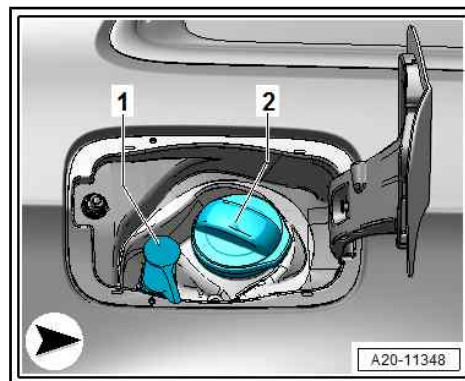
Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!

Danger of severe or fatal injuries due to explosion.

- Pressure in natural gas high-pressure pipe must be dissipated by a specially trained person.
- Dissipate pressure in natural gas high-pressure pipe ⇒ [page 34](#) .



- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- A5: Remove tank flap unit ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit .
- Remove rear wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (rear) .
- Open tank flap.
- Clean area around fuel filler necks.
- Detach filler cap -1- from filler connection.



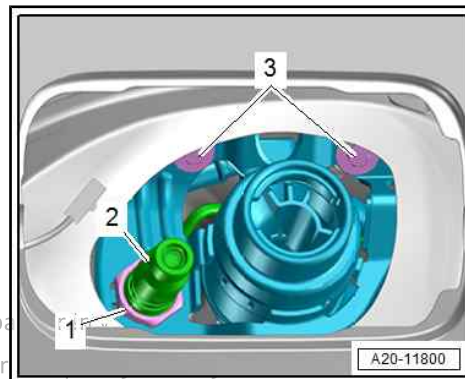
Note:

The filler connection has a left-hand thread.

**DANGER**

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!
Danger of severe or fatal injuries due to explosion.

- Keep any ignition sources away from the vicinity of the natural gas system.
- **Service and repairs on the natural gas system may only be performed by specially trained staff.**



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- Unscrew nut -1- for natural gas filler connection -2- (nut and washer remain in installation position).
- Remove bolts -3- for fuel filler neck (2x or 3x depending on version).

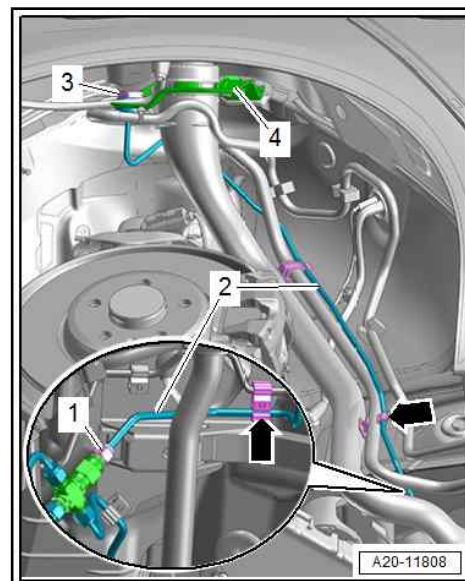


- Carefully loosen union nut -1- on connecting piece so that residual gas can escape; counterhold at connecting piece with a suitable tool.
- Unscrew union nut at connecting piece.
- Seal off open lines and connections with plugs (thoroughly cleaned) from engine bung set - VAS 6122- .
- Move filler connection -2- clear -arrows-, disengage at filler pipe -4- and remove nut -3-.
- Guide filler connection out carefully.
- Do not attempt to bend filler connection to a different shape.

Installing

Installation is carried out in reverse order; note the following:

- Observe instructions for installing high-pressure pipes
⇒ ["2.2 Exploded view - natural gas fuel tanks", page 11](#) .
- Install tank flap unit ⇒ General body repairs, exterior; Rep. gr. 55 ; Tank flap unit; Removing and installing tank flap unit .



WARNING

Risk of explosion due to uncontrolled gas escape in connection with ignition sources and electrostatic discharge - risk of death!

Danger of severe or fatal injuries due to explosion.

- Natural gas system must be re-activated by a specially trained person.

- Perform gas system inspection ⇒ Maintenance ; Booklet 830 ; Maintenance; Natural gas system: checking for damage and leaks .

Tightening torques

- ◆ ⇒ ["2.4 Exploded view - filler neck", page 19](#)

2.13 Determining residual pressure in natural gas fuel tank

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All work is described in ⇒ Natural gas engines - General information; Rep. gr. 20; Fuel tanks; Determining residual pressure in natural gas fuel tank .



3 Fuel delivery unit/fuel gauge sender

⇒ "3.1 Exploded view - fuel delivery unit/fuel gauge sender", page 74

3.1 Exploded view - fuel delivery unit/fuel gauge sender

1 - Fuel tank



Note

Fuel delivery unit and fuel gauge sender - G- are integrated in fuel tank and cannot be renewed separately.

- ☐ Checking fuel pump (electrical test) ⇒ Vehicle diagnostic tester
- ☐ Exploded view ⇒ [page 9](#)

2 - Fuel line

- ☐ To engine
- ☐ Do not kink
- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 76](#)

3 - Electrical connector

- ☐ For fuel pump control unit - J538-
- ☐ Ensure item is connected securely

4 - Fuel pump control unit - J538-

- ☐ Checking ⇒ Vehicle diagnostic tester
- ☐ Fitting location: on right side under sill panel trim (rear)
- ☐ Removing and installing ⇒ [page 91](#)

5 - Cover for flange

6 - Bolt

- ☐ 3x
- ☐ 1.5 Nm

7 - Wiring harness

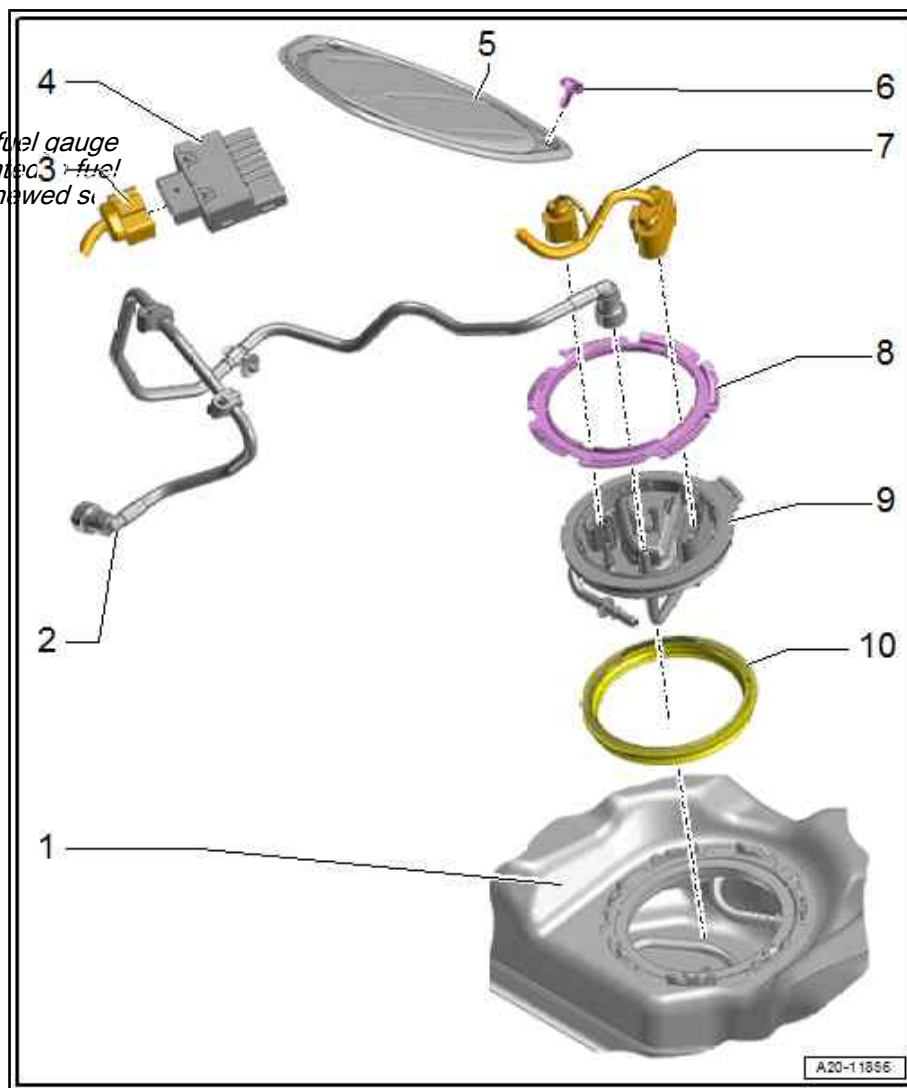
- ☐ For fuel system pressurisation pump - G6- and fuel gauge sender - G-
- ☐ Ensure item is connected securely

8 - Locking ring

- ☐ Loosen and tighten with key - T10202-
- ☐ 110 Nm

9 - Flange

- ☐ Disconnecting and connecting plug-in connectors ⇒ [page 76](#)



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10 - Seal

- ☐ Renew after removing
- ☐ Install dry



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4 Plug-in connectors

⇒ "4.1 Disconnecting plug-in connectors", page 76

4.1 Disconnecting plug-in connectors

- Observe rules for cleanliness ⇒ page 5 .

Allocation of plug-in connectors

The plug-in connectors for the fuel lines, vacuum lines, and breather lines are colour coded. There is either a coloured marking on the plug-in connector, or the release tab is the corresponding colour ⇒ page 76 .

Colour coding

Plug-in connector	Colour coding on plug-in connector
Fuel supply line	Black
Fuel return line	Blue
Breather	White-beige
Vacuum	Green



CAUTION

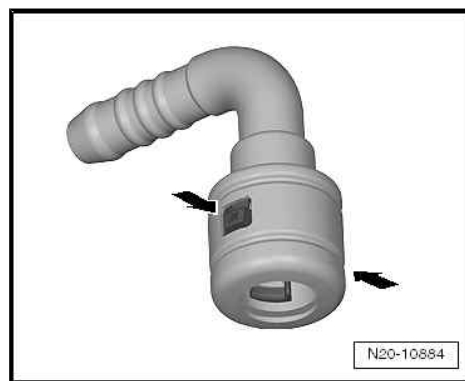
The fuel system is pressurised.

Risk of injury as fuel may spray out.

- Put on safety goggles.
- Put on protective gloves.
- Release pressure (wrap a clean cloth around connection and open connection carefully).

Version 1

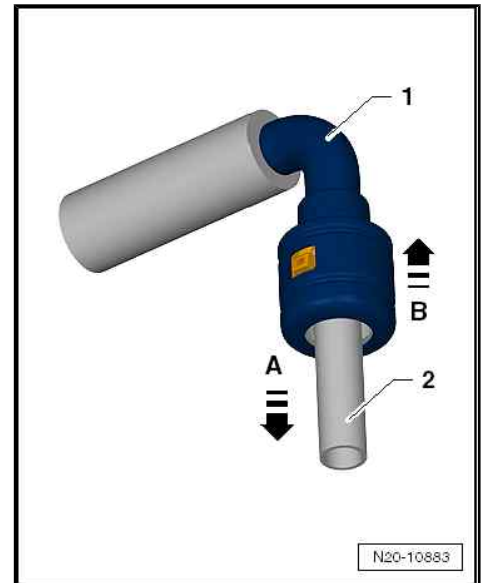
- ◆ Plug-in connector with release tabs -arrows- on both sides





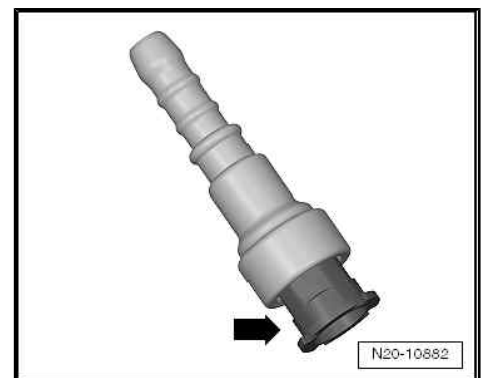
Disconnecting

- Press plug-in connector -1- in direction of -arrow A-.
- Press in and hold release tabs.
- Unplug plug-in connector -1- from fuel line -2- in direction of -arrow B-.
- When installing observe colour coding ⇒ [page 76](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.



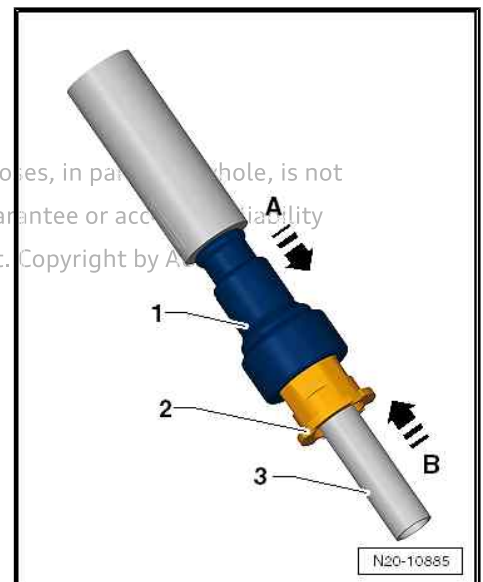
Version 2

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



Disconnecting

- Press plug-in connector -1- in direction of -arrow A-.
- Pull the pull release catch -2- in direction of -arrow B-.
- Unplug plug-in connector -1- from fuel line -3- in direction of -arrow B-.
- When installing observe colour coding ⇒ [page 76](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.



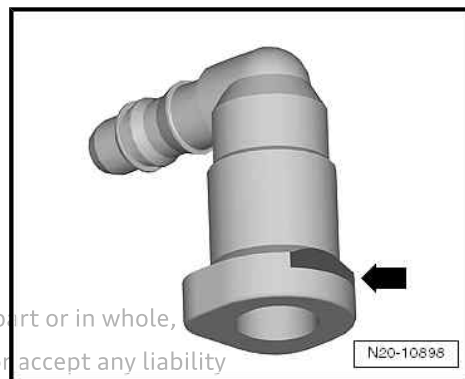


Version 3

- ◆ Plug-in connector with release tab at front -arrow-

Disconnecting

- Press release tab -arrow- and disconnect plug-in connectors.
- When installing observe colour coding ⇒ [page 76](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

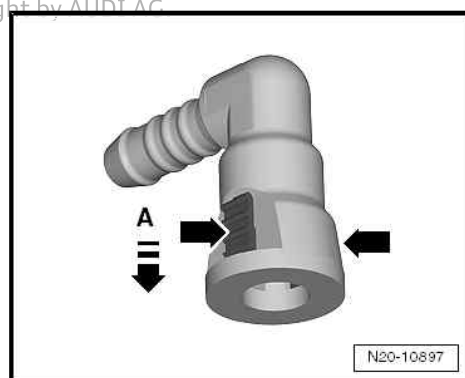


Version 4

- ◆ Plug-in connector with release tab -arrows- on both sides

Disconnecting

- Press plug-in connector in direction of -arrow A-.
- Press release tabs -arrows- and disconnect plug-in connector.
- When installing observe colour coding ⇒ [page 76](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

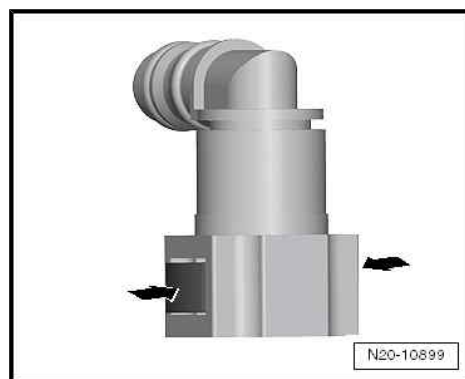


Version 5

- ◆ Plug-in connector with release tabs -arrows- on both sides

Disconnecting

- Press release tabs -arrows- and disconnect plug-in connector.
- When installing observe colour coding ⇒ [page 76](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

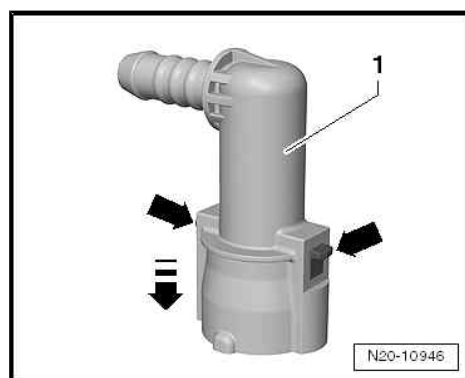


Version 6

- ◆ Plug-in connector with release tabs -arrows- on both sides

Disconnecting

- Press and hold plug-in connector -1- in direction of -arrow -.
- Press release tabs -arrows- and disconnect plug-in connector.
- When installing observe colour coding ⇒ [page 76](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.



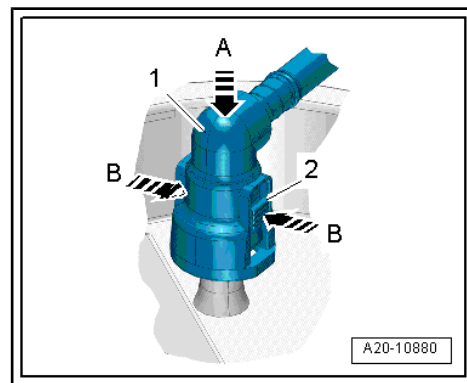


Version 7

- ◆ Plug-in connector -1- with release tabs -2- on both sides

Disconnecting

- Press and hold plug-in connector -1- in direction of -arrow A-.
- Press release tabs -2- in direction of -arrow B- and unplug plug-in connector -1-.
- When installing observe colour coding ⇒ [page 76](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.

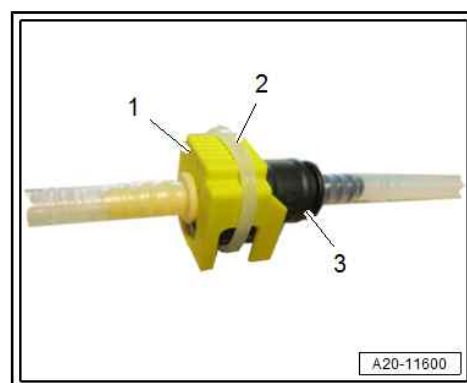


Version 8

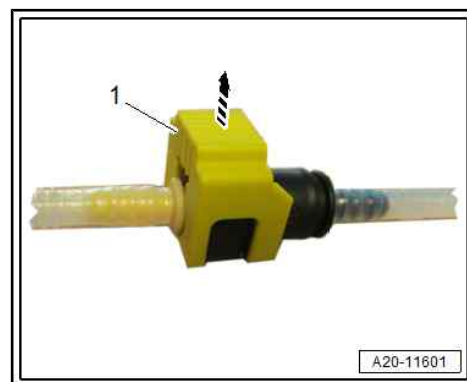
- ◆ Straight plug-in connector with release tabs on both sides and with retaining clip -1- and cable tie -2-

Disconnecting

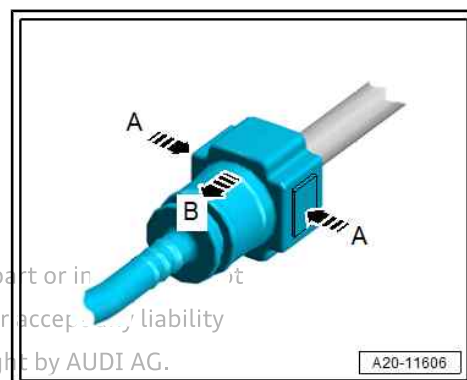
- Cut through cable tie for retaining clip and plug-in connector -3-.



- Release retaining clip -1- at plug-in connector in direction of -arrow-.



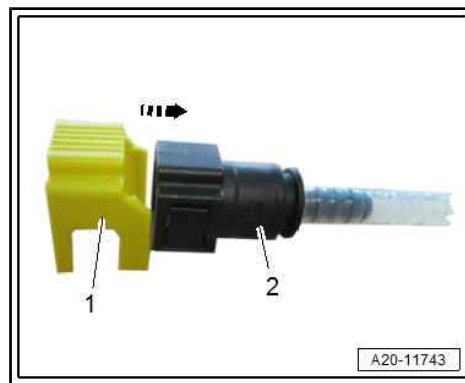
- Press in and hold release tabs -arrows A-.
- Detach plug-in connector in direction of -arrow B-.
- When installing observe colour coding ⇒ [page 76](#) .
- Plug-in connectors should engage audibly when connecting.
- Check that plug-in connector is securely seated by pulling at it.



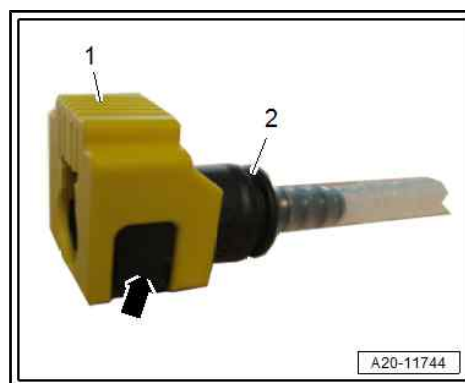
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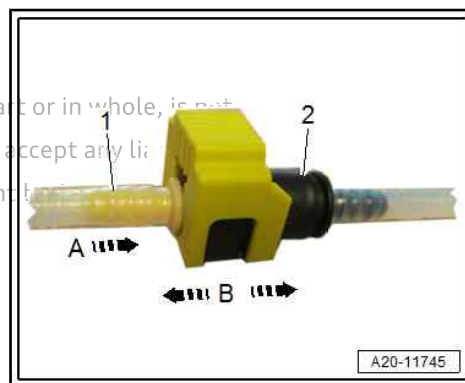
- Slide retaining clip -1- onto plug-in connector -2- -arrow-.



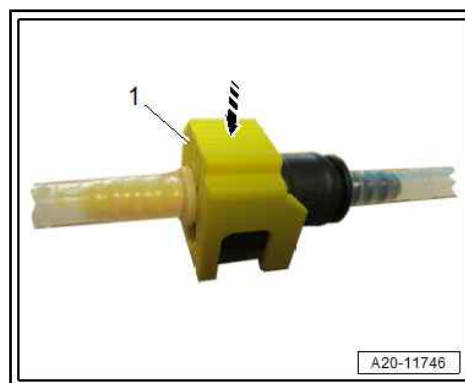
- Retaining clip -1- should be seated on plug-in connector as shown in illustration.
- Release tabs -arrow- on plug-in connector -2- should be accessible through openings in retaining clip.



- Fit fuel line -1- onto plug-in connector -2- -arrow A-.
- Check that plug-in connector is securely seated by pulling at it -arrows B-.

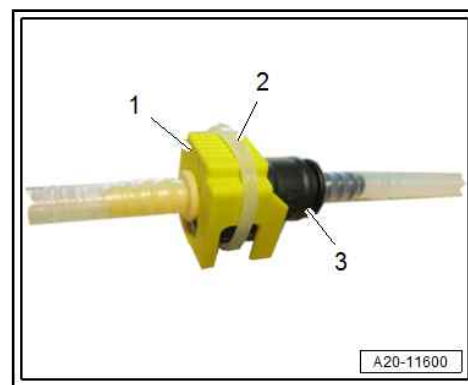


- Press retaining clip -1- down -arrow- to secure plug-in connector.





- Secure retaining clip -1- on plug-in connector -3- with cable tie -2-.



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5 Activated charcoal filter system

⇒ ["5.1 Connection diagram - activated charcoal filter system", page 82](#)

⇒ ["5.2 Exploded view - activated charcoal filter system", page 83](#)

⇒ ["5.3 Removing and installing activated charcoal filter", page 83](#)

5.1 Connection diagram - activated charcoal filter system

1 - Activated charcoal filter

2 - Breather line

- To activated charcoal filter solenoid valve 1 - N80-

3 - Breather line

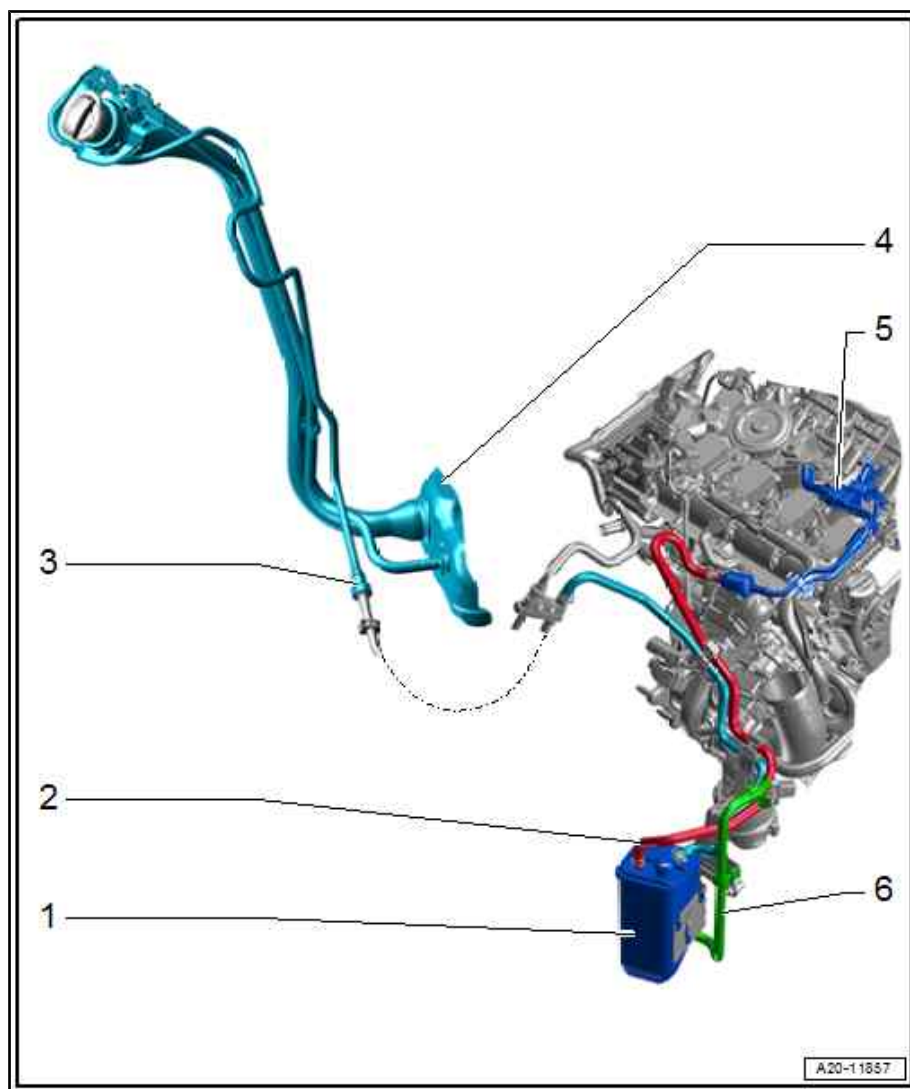
- From fuel tank

4 - Fuel tank

5 - Activated charcoal filter solenoid valve 1 - N80-

6 - Vent line

- Vents to atmosphere



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5.2 Exploded view - activated charcoal filter system

1 - Vent line

- ☐ Vents to atmosphere

2 - Hose clip

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

3 - Activated charcoal filter

- ☐ Fitting location: front right
- ☐ Removing and installing
⇒ [page 83](#)

4 - Hose clips

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

5 - Breather line

- ☐ To activated charcoal filter solenoid valve 1 - N80-

6 - Retainer

- ☐ For breather lines

7 - Breather line

- ☐ From fuel tank

8 - Nut

- ☐ 8 Nm

9 - Bracket

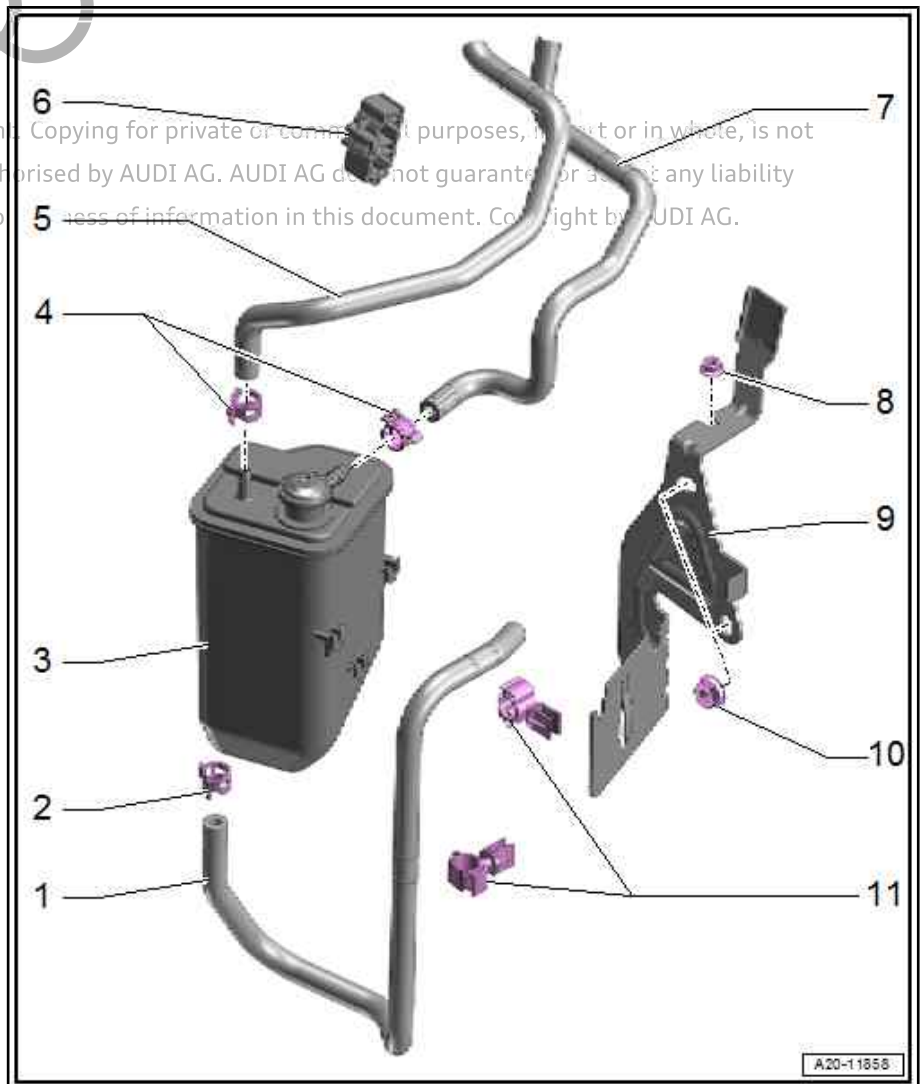
- ☐ For activated charcoal filter
- ☐ Removing and installing
⇒ ["5.3 Removing and installing activated charcoal filter", page 83](#)

10 - Nuts

- ☐ 20 Nm

11 - Bracket

- ☐ For vent line

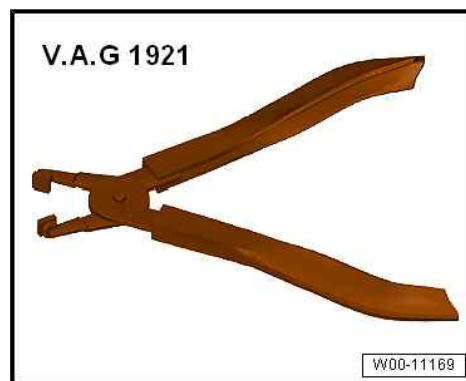


5.3 Removing and installing activated charcoal filter

Special tools and workshop equipment required

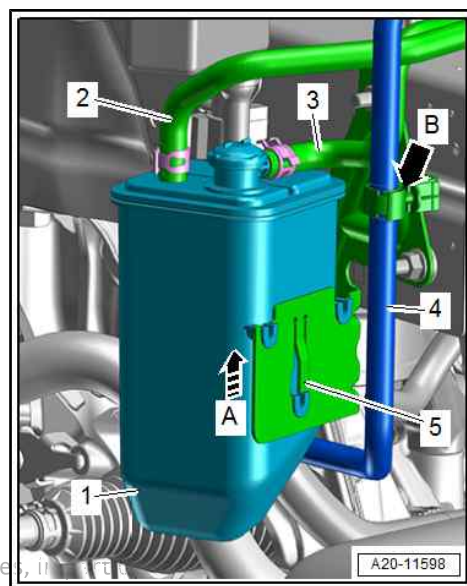


- ◆ Hose clip pliers - V.A.G 1921-



Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .
- Remove front section of wheel housing liner (front right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Remove wheel spoiler (front right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Release retaining hook -5- with a screwdriver and disengage activated charcoal filter -1- at bracket -arrow A-.
- Move breather line -4- clear at retainer -arrow B-.
- Release hose clips with hose clip pliers - V.A.G 1921- and detach breather lines -2, 3-.



Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ [“5.2 Exploded view - activated charcoal filter system”, page 83](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front)



6 Accelerator mechanism

⇒ [“6.1 Exploded view - accelerator pedal module”, page 85](#)

⇒ [“6.2 Removing and installing accelerator pedal module with accelerator position sender G79 / G185”, page 86](#)

6.1 Exploded view - accelerator pedal module

1 - Accelerator pedal module

- ☐ With accelerator position sender - G79- and accelerator position sender 2 - G185-
- ☐ Checking ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 86](#)
- ☐ Adaption may be required after renewing, depending on engine/gearbox combination
- ☐ Perform adaption if this menu item is shown under “Functions” in the engine electronics tree ⇒ Vehicle diagnostic tester

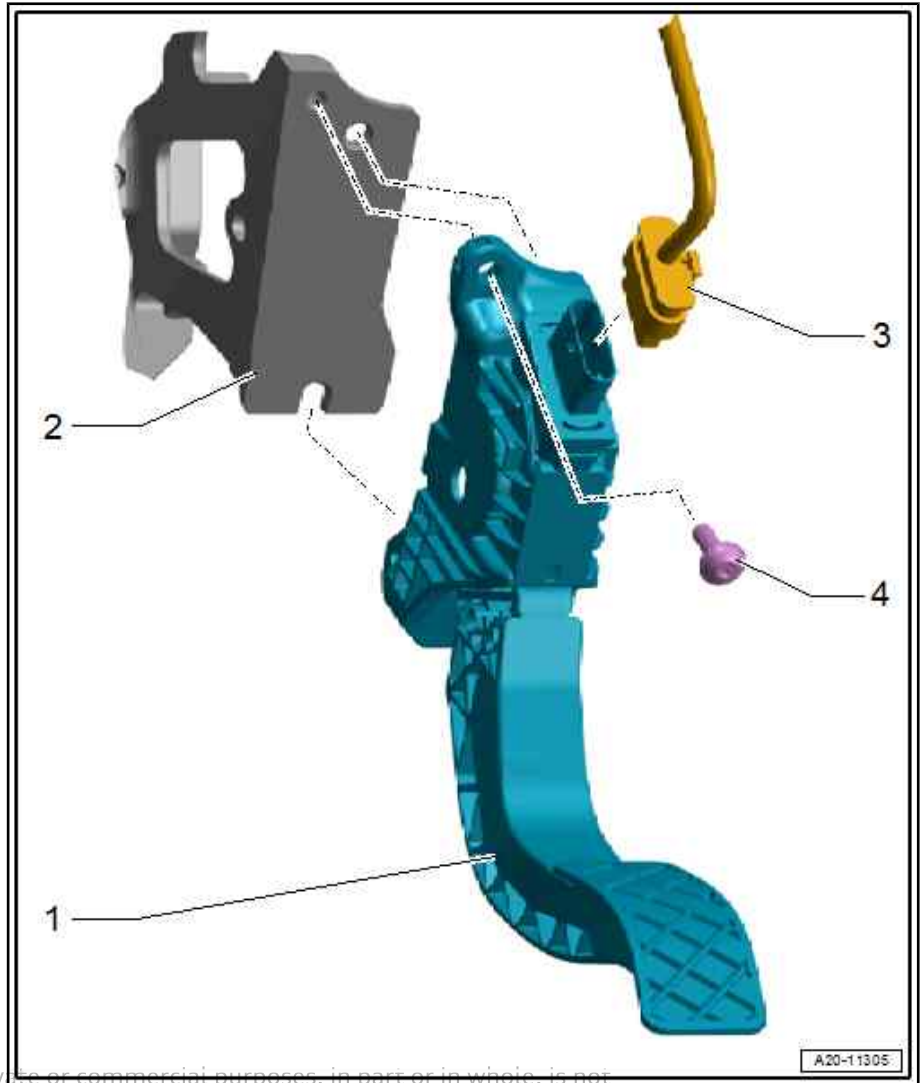
2 - Pedal bracket

3 - Electrical connector

- ☐ Ensure item is connected securely

4 - Bolt

- ☐ 8 Nm



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6.2 Removing and installing accelerator pedal module with accelerator position sender -G79- / -G185-

Removing

- Remove dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Storage compartments/covers/trim panels; Removing and installing dash panel cover (driver side) .
- Press release tab and unplug electrical connector -2-.
- Remove bolt -1-.
- Disengage accelerator pedal module -3- from bottom of pedal bracket and detach.

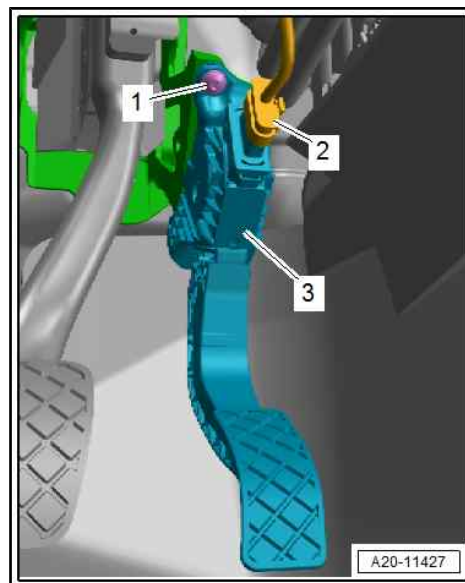
Installing

Installation is carried out in reverse order; note the following:

- Attach accelerator pedal module to bottom of pedal bracket, insert centring pin and tighten bolt.
- Adaption must be carried out after renewing, depending on engine/gearbox combination.
- Perform adaption if this menu item is shown under “Functions” in the engine electronics tree ⇒ Vehicle diagnostic tester.

Tightening torques

- ◆ ⇒ [“6.1 Exploded view - accelerator pedal module”, page 85](#)
- ◆ ⇒ General body repairs, interior; Rep. gr. 68 ; Storage compartments/covers/trim panels; Exploded view - dash panel cover (driver side)



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7 Fuel pump

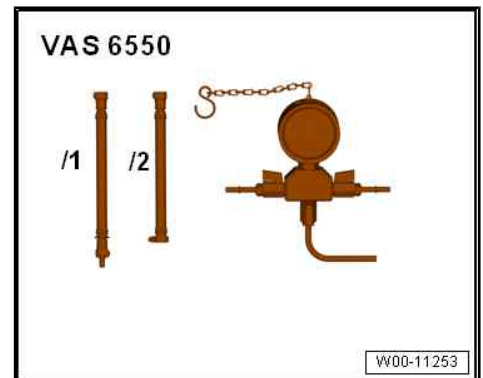
⇒ ["7.1 Checking fuel system pressurisation pump G6", page 87](#)

⇒ ["7.2 Removing and installing fuel pump control unit J538", page 91](#)

7.1 Checking fuel system pressurisation pump - G6-

Special tools and workshop equipment required

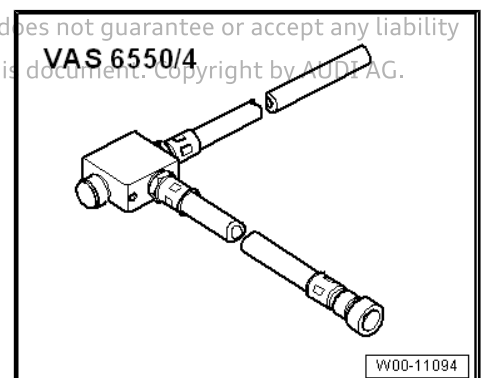
- ◆ Pressure tester - VAS 6550- with hoses - VAS 6550/2-



- ◆ Adapter set - VAS 6550/3-



- ◆ Pressure control valve VAS 6550/4-

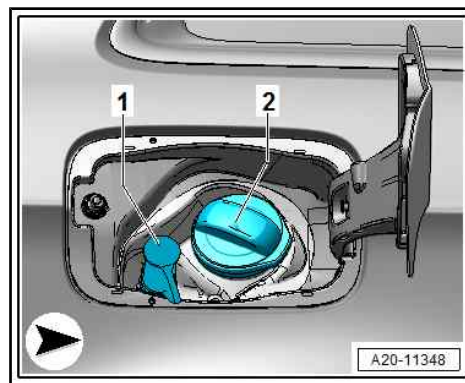


- ◆ Vehicle diagnostic tester
- ◆ Fuel-resistant measuring container



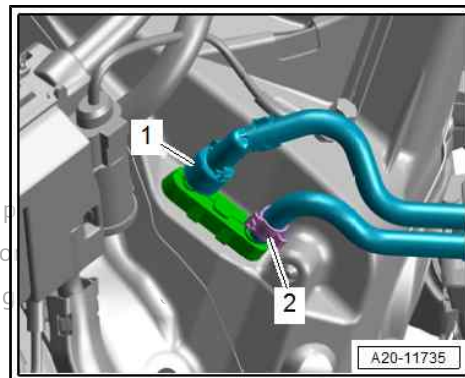
A - Checking fuel delivery rate

- Observe test conditions ⇒ [page 6](#) .
- Open tank flap.
- Remove filler cap -2- for fuel filler neck.
- Remove engine cover panel ⇒ Engine; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

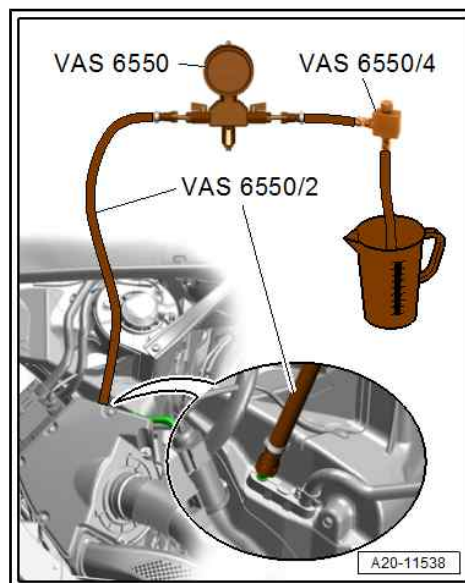


- Disconnect fuel hose -1-. Disconnecting plug-in connectors ⇒ [page 76](#)
- If necessary, remove air cleaner housing ⇒ Engine; Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .

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- Connect pressure tester - VAS 6550- to fuel supply line with hose - VAS 6550/2- .
- Attach pressure control valve - VAS 6550/4- and hold end of hose into fuel-resistant measuring container.





- Switch on pressure tester - VAS 6550- -item 1- by pressing **On/Off** button.

- To measure the fuel delivery rate, pressure must first be built up in the fuel line; the fuel pump must then operate against this pressure during the measurement. This pressure can be built up using the pressure control valve - VAS 6550/4- as follows:

- Open cut-off valves -A and B-.

- Levers must point in direction of flow.

- Close cut-off valve -C- to prevent fuel from escaping.

- The lever should point perpendicular to direction of flow.

- Connect vehicle diagnostic tester.

- Switch on ignition.

- Select **Self-diagnosis** mode.

- ◆ Select **0001 - Engine electronics**.

- ◆ Select **Basic setting** in menu item Control unit self-diagnosis.

- ◆ Select **Empty fuel tank** from the list.

- Press **Start**.

- The fuel pump starts running.

- Build up pressure in fuel system by turning adjuster screw -1- on pressure control valve - VAS 6550/4- until correct pressure is reached.

- Specification: 4.5 bar

- From this point on, do not turn adjuster screw -1-.

- Press **Stop**.

- Drain measuring container.

- For measurement, press **Start** again and let fuel pump run for 15 seconds.

- Press **Stop** after 15 seconds.

- Check amount of fuel delivered in measuring container.

- Specification: minimum delivery rate 400 cm³/15 sec.

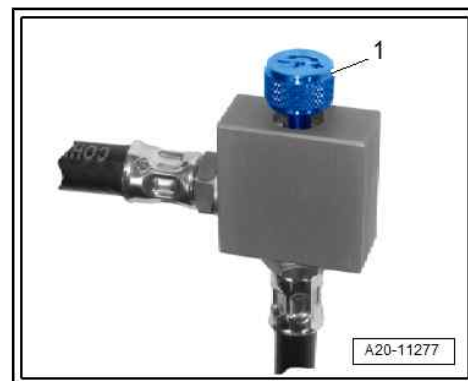
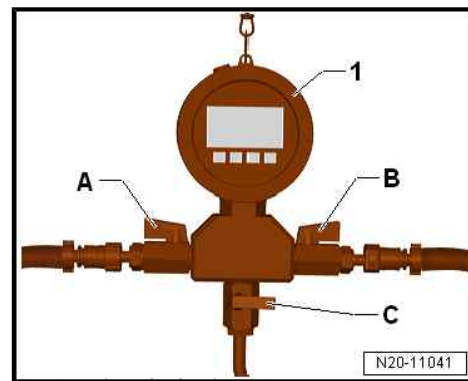
If the minimum delivery rate is attained:

- ◆ Fuel delivery unit with fuel filter, fuel pressure regulator and fuel supply line OK.

If minimum delivery rate is not achieved, check for the following causes:

- ◆ Fuel delivery unit with integrated fuel filter defective.
- ◆ Fuel pressure regulator in fuel delivery unit defective.
- ◆ Fuel supply line crushed.

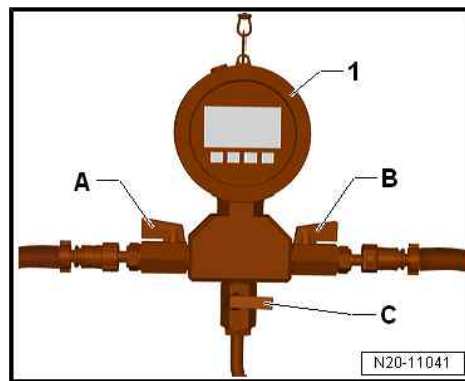
To find the precise cause of the fault, a pressure test must be performed on the fuel supply line as described below.





B - Pressure test on fuel supply line

- Leave measuring equipment connected in the same way as for measuring the fuel delivery rate.
- Vehicle diagnostic tester still connected.
- Switch on pressure tester - VAS 6550- -item 1- by pressing **On/Off** button.
- Open cut-off valves -A and B-.
- Levers must point in direction of flow.
- Close cut-off valve -C- to prevent fuel from escaping.
- The lever should point perpendicular to direction of flow.
- Press **Start** on vehicle diagnostic tester display to start the fuel pump.
- When fuel emerging is free of bubbles, close cut-off valve -B- to allow fuel pressure to build up.
- The lever should point perpendicular to direction of flow.
- Read fuel pressure off pressure tester - VAS 6550- .
- Specification: 6.0...8.0 bar.
- Press **Stop**.



If specification is attained although fuel delivery rate was not OK:

- ◆ Fuel filter in fuel delivery unit blocked or fuel supply line crushed.

If specification is not attained:

- ◆ Fuel delivery unit or fuel pressure regulator in fuel tank defective.

C - Checking residual pressure

- Check system for leaks and check residual pressure by watching drop in pressure on pressure tester - VAS 6550- :
- After 10 minutes pressure should still be at least 3 bar.

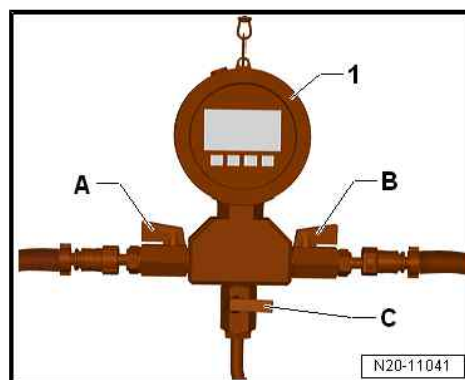
If the residual pressure drops below 3 bar:

- ◆ Check fuel lines and their connections for leaks.
- ◆ Non-return valve in fuel pump leaking: fuel delivery unit cannot be renewed separately; renew fuel tank ⇒ [page 47](#) .

Assembling

Assembly is performed in reverse sequence; note the following:

- The ignition must be switched off.
- Before removing the pressure tester -1-, release the fuel pressure by opening the cut-off valves -B, C- and allowing fuel to drain off into a measuring container.
- Detach pressure tester - VAS 6550- together with connection cables.
- Connect fuel supply line, making sure it engages audibly.
- Press fuel supply line in again and then pull to check that plug-in connector is correctly engaged.





7.2 Removing and installing fuel pump control unit - J538-

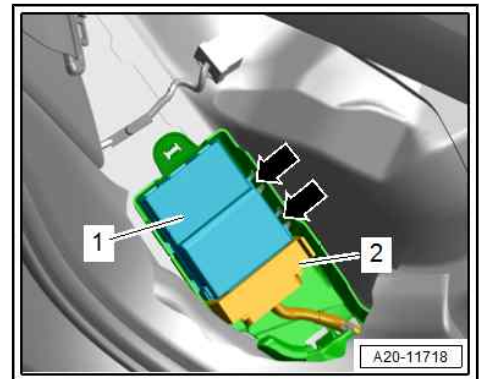
Removing

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 5](#) .
- Remove seat bench/individual seats ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .
- Release catches -arrows- with a screwdriver and detach fuel pump control unit - J538- -item 1- from bracket.
- Pull fuel pump control unit out under sill panel trim.
- Release retainer catch and unplug electrical connector -2- for fuel pump control unit - J538- .

Installing

Installation is carried out in reverse order; note the following:

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



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