Maintenance

Audi A8 2010 ➤

Edition 11.2014

Maintenance

Heading

1. General information
2. Preparations
3. Maintenance

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

Contents

1 General information

(AIGG000588; Edition 11.2014)

1.1 --- Change history ---

No.	Date	Chapter	Changes made
2	07.11.2014	Battery: reading out status and sending diagnostic log ⇒ page 28	Procedure modified to include: Sending diagnosis log
		Headlights and reversing lights, side lights, number plate lights, turn signals, hazard warning lights: checking operation ⇒ page 62	Procedure modified to include: Checking brake lights
		Engine oil: filling up ⇒ page 78	Notes for 6.3 ltr. FSI engine version added
		Body: checking vehicle paintwork for damage and corrosion from below and with bonnet, rear lid and doors open ⇒ page 135	Vehicle body from below added
		Stock vehicles: observing measures specified in Maintenance table for stock vehicles (see “Before handing vehicle over to customer”) ⇒ page 136	New chapter
		Battery: connecting to a stationary battery charging unit for sustained charging ⇒ page 34	New chapter
1	20.05.2014	All	Completely revised

Note

For greater clarity, only the last three updates to the document are listed.

1.2 Overview of engines

1.2.1 Petrol engines

Engine code	Engine type/ number of cylinders	Capacity [ltr.]	Injection system	Power output [kW] (rpm)	Torque [Nm] (rpm)	Camshaft drive	Stroke [mm]	Bore [mm]	Compression ratio [:1]
CDRA	V8	4.2	FSI	273 (6800)	445 (3500)	Timing chain	92.8	84.5	12.5
CEJA	W12	6.3	FSI	368 (6200)	625 (4750)	Timing chain	90.37	86.0	11.8

Engine code	Engine type/ number of cylinders	Capacity [ltr.]	Injection system	Power output [kW] (rpm)	Torque [Nm] (rpm)	Camshaft drive	Stroke [mm]	Bore [mm]	Compression ratio [:1]
CEUA	V8	4.0	TFSI	309 (5000-6000)	600 (1500-4500)	Timing chain	89.0	84.5	10.1
CGTA	V8	4.0	TFSI	382 (5800-6400)	650 (1700-5500)	Timing chain	89.0	84.5	9.3
CGWA	V6	3.0	TFSI	213 (4850-6500)	420 (2500-4850)	Timing chain	89.0	84.5	10.5
CGWD	V6	3.0	TFSI	228 (5500-6500)	440 (2900-4500)	Timing chain	89.0	84.5	10.5
CGXC	V6	3.0	TFSI	245 (5500-6500)	440 (2900-5300)	Timing chain	89.0	84.5	10.5
CHJA	4-cyl. in-line	2.0	TFSI hybrid	155 (4200-6000)	350 (1500-4200)	Timing chain	92.8	82.5	9.6
CMDA	V6	3.0	TFSI	245 (5500-6500)	440 (2900-5300)	Timing chain	89.0	84.5	10.5
CPAA	V6	2.5	FSI	150 (5800-6500)	250 (3000-4750)	Timing chain	82.4	80.2	12.3
CREA	V6	3.0	TFSI	228 (4850-6500)	440 (2500-4850)	Timing chain	89.0	84.5	10.8
CREC	V6	3.0	TFSI	245 (5300-6500)	440 (2900-5300)	Timing chain	89.0	84.5	10.8
CREG	V6	3.0	TFSI	213 (4850-6500)	420 (2500-4850)	Timing chain	89.0	84.5	10.8
CTDA	V6	3.0	TFSI	245 (5300-6500)	440 (2900-5300)	Timing chain	89.0	84.5	10.8
CTFA	V8	4.0	TFSI	382 (5800-6400)	650 (1700-5500)	Timing chain	89.0	84.5	9.3

Engine code	Engine type/ number of cylinders	Capacity [ltr.]	Injection system	Power output [kW] (rpm)	Torque [Nm] (rpm)	Camshaft drive	Stroke [mm]	Bore [mm]	Compression ratio [:1]
CTGA	V8	4.0	TFSI	320 (6000)	600 (1500-4500)	Timing chain	89.0	84.5	10.1
CTNA	W12	6.3	FSI	368 (6200)	625 (4750)	Timing chain	90.3	86.0	11.8
CTUB	V6	3.0	TFSI	245 (5500-6500)	440 (2900-5300)	Timing chain	89.0	84.5	10.5
CVBA	V6	2.5	FSI	150 (6000)	250 (3250-4750)	Timing chain	82.4	80.2	12.3

1.2.2 Diesel engines

Engine code	Engine type/ number of cylinders	Capacity [ltr.]	Injection system	Power output [kW] (rpm)	Torque [Nm] (rpm)	Camshaft drive	Stroke [mm]	Bore [mm]	Compression ratio [:1]
CDSB	V8	4.2	TDI common rail	258 (4000)	800 (1750-2750)	Timing chain	95.5	83.0	16.4
CDTA	V6	3.0	TDI common rail	184 (4000-4500)	550 (1500-3000)	Timing chain	91.4	83.0	16.8
CDTB	V6	3.0	TDI common rail	155 (2750-5000)	550 (1500-2500)	Timing chain	91.4	83.0	16.8
CDTC	V6	3.0	TDI common rail	184 (4500)	580 (1500-3000)	Timing chain	91.4	83.0	16.8
CLAB	V6	3.0	TDI common rail	150 (3750-4500)	400 (1250-3500)	Timing chain	91.4	83.0	16.8
CMHA	V6	3.0	TDI common rail	184 (4000-4500)	550 (1500-3000)	Timing chain	91.4	83.0	16.8
CPNA	V6	3.0	TDI common rail	176 (4000)	550 (2200)	Timing chain	91.4	83.0	16.8
CPNB	V6	3.0	TDI common rail	176 (4000)	580 (2100)	Timing chain	91.4	83.0	16.8

Engine code	Engine type/ number of cylinders	Capacity [ltr.]	Injection system	Power output [kW] (rpm)	Torque [Nm] (rpm)	Camshaft drive	Stroke [mm]	Bore [mm]	Compression ratio [:1]
CTBA	V6	3.0	TDI common rail	190 (4000)	580 (2100-4100)	Timing chain	91.4	83.0	16.8
CTBB	V6	3.0	TDI common rail	155 (4000)	580 (2100-4100)	Timing chain	91.4	83.0	16.8
CTEC	V8	4.2	TDI common rail	283 (3750)	850 (2000-2750)	Timing chain	95.5	83.0	16.4

1.3 Engine number

Note

The engine number consists of the engine code letters (3 or 4 characters) and the serial number.

1.3.1 4-cyl. petrol engine 2.0 ltr. TFSI hybrid

DANGER!

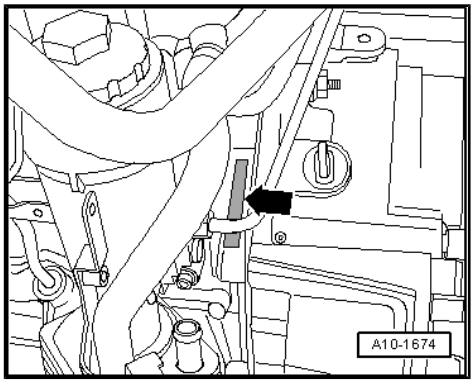
Risk of fatal injury if high-voltage components are damaged.

- *Observe warnings for high-voltage system:*
- *Handling high-voltage wires ⇒ page 11 .*
- *For work in the vicinity of high-voltage components ⇒ page 10 .*

The engine number is stamped on the left side at the joint between the engine and the gearbox -arrow-.

The engine number is also given on the sticker on the toothed belt cover (top).

In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 7 .

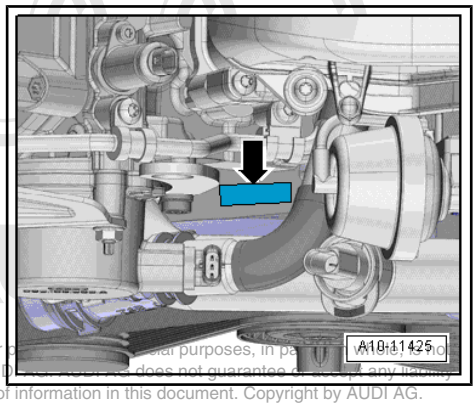


1.3.2 6-cyl. petrol engine 2.5 ltr. FSI

The engine number is stamped on the left side at the joint between the engine and the gearbox -arrow-.

The engine number is also given on the sticker on the toothed belt cover (top).

In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 7 .

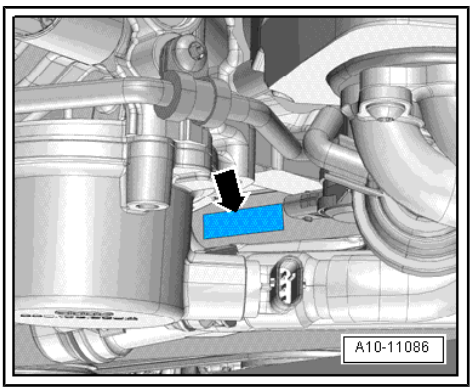


1.3.3 6-cyl. petrol engine 3.0 ltr. TFSI

The engine number is stamped on the left side at the joint between the engine and the gearbox -arrow-.

The engine number is also given on the sticker on the toothed belt cover (top).

In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 7 .

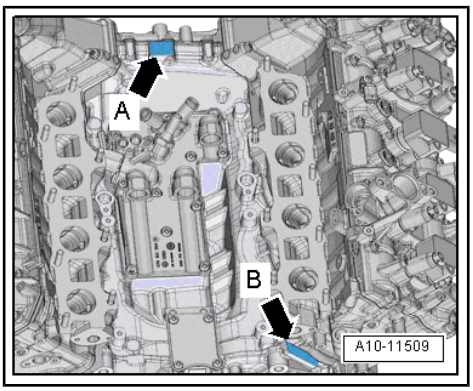


1.3.4 8-cyl. petrol engine 4.0 ltr. TFSI

The engine number is stamped on the left side at the joint between the engine and the gearbox -arrow A-.

The engine number is also listed on the sticker on the toothed belt cover (top) -arrow B-.

In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 7 .

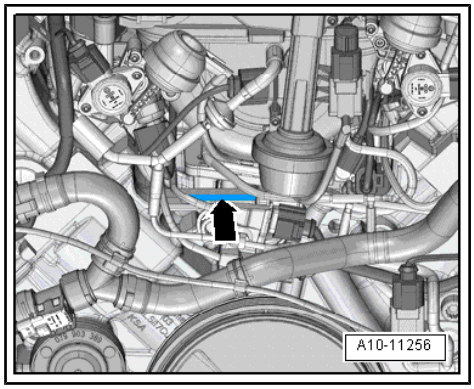


1.3.5 8-cyl. petrol engine 4.2 ltr. FSI

The engine number is stamped on the left side at the joint between the engine and the gearbox -arrow-.

The engine number is also given on the sticker on the toothed belt cover (top).

In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 7 .

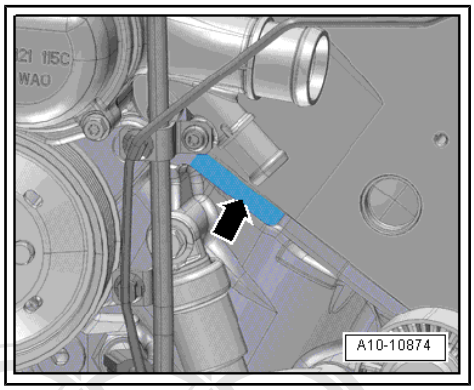


1.3.6 12-cyl. petrol engine 6.3 ltr. FSI

The engine number is stamped on the left side at the joint between the engine and the gearbox -arrow-.

The engine number is also given on the sticker on the toothed belt cover (top).

In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 7 .

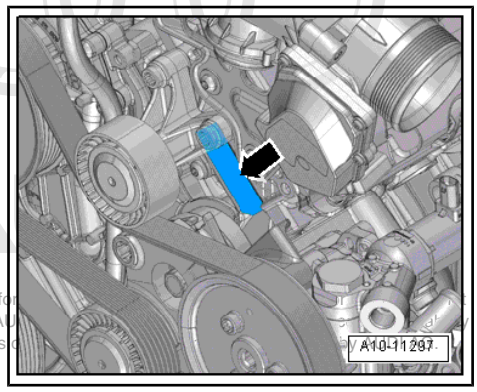


1.3.7 6-cyl. diesel engine 3.0 ltr. TDI

The engine number is stamped on the left side at the joint between the engine and the gearbox -arrow-.

The engine number is also given on the sticker on the toothed belt cover (top).

In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 7 .

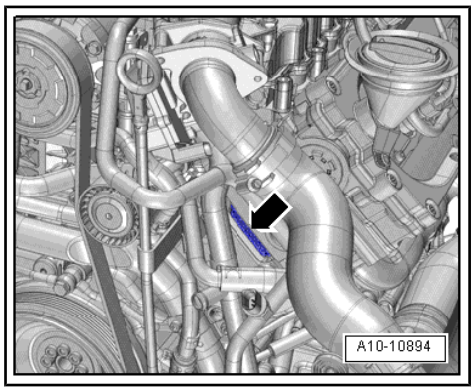


1.3.8 8-cyl. diesel engine 4.2 ltr. TDI

The engine number is stamped on the left side at the joint between the engine and the gearbox -arrow-.

The engine number is also given on the sticker on the toothed belt cover (top).

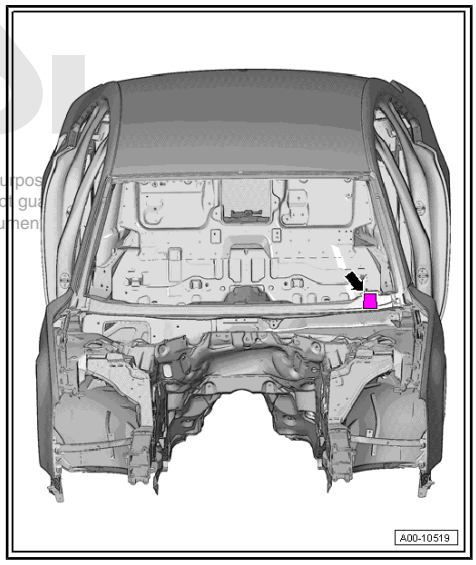
In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 7 .



1.4 Vehicle identification number

Depending on the equipment and country-specific version, the vehicle identification number is located:

- At the bottom left edge of the windscreen
- Optional: In the MMI under »Car systems«
- Under the carpet on the front passenger's side
- On the vehicle data sticker ⇒ page 7



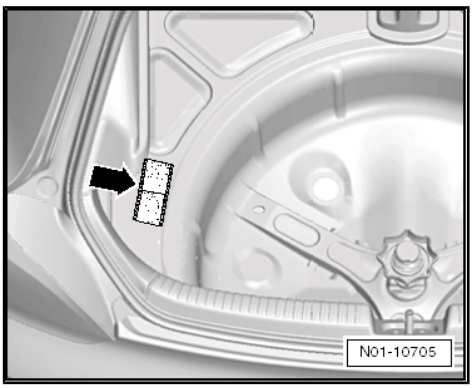
The vehicle identification number consists of the following:

WAU	ZZZ	4H	Z	B	A / N	000 234
Manufacturer's mark	Filler characters	Type	Filler characters	Model year	Production location	Serial number

1.5 Vehicle data sticker

The vehicle data sticker is located:

- In the Service Schedule
- In the area of the spare wheel well under the floor covering -arrow-



The vehicle data sticker contains the following vehicle data:

1 - Vehicle identification number

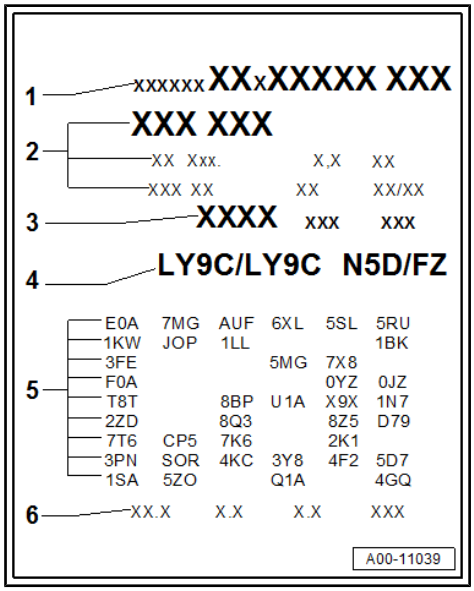
2 - Vehicle model, manufacturer's code, engine type and power output, production month and year

3 - Engine and gearbox code letters (not specified on some export models)

4 - Paint number, interior equipment number

5 - Numbers for optional extras

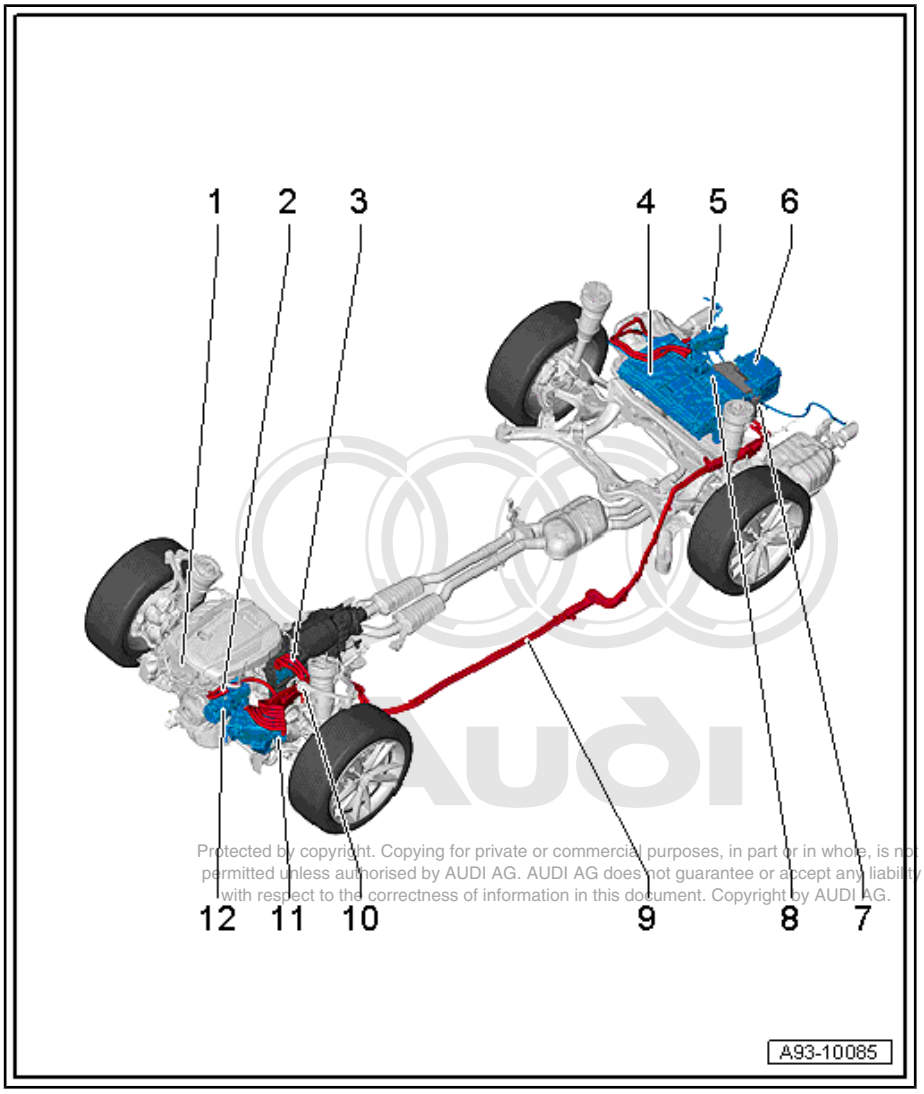
6 - Fuel consumption: urban, extra urban, combined, CO2 (not specified on some export models)



1.6 Warnings for high-voltage vehicles

1.6.1 Overview of high-voltage components and wires

The high-voltage system of the Audi A8 is comprised of the following components:



1 - Combustion engine

2 - High-voltage wire for electrical air conditioner compressor - P3-

- Coding of high-voltage connection: red coloured ring

3 - Electric drive motor - V141-

- Red warning label
- Coded high-voltage connections

4 - Hybrid battery unit - AX1-

- Red warning label and battery warning label
- Coded high-voltage connections
- Maintenance connector for high-voltage system - TW-

5 - Wiring junction - TV1-

6 - Second battery - A1-

7 - Battery - A-

8 - Battery cooling module for hybrid battery unit - AX1-

9 - High-voltage wiring harness for hybrid battery - PX1-

- High-voltage wiring harness for high-voltage battery, positive terminal - P1- (red coloured ring)
- High-voltage wiring harness for hybrid battery, negative terminal - P2- (brown coloured ring)
- Coded high-voltage connections on hybrid battery unit - AX1-
- Coding of high-voltage connections to power and control electronics for electric drive - JX1-

10 - High-voltage wiring harness for drive motor - PX2-

- High-voltage wire 1 for drive motor - P4- (U) blue coloured ring/coding lug on right side
- High-voltage wire 1 for drive motor - P5- (V) green coloured ring/coding lug on left side
- High-voltage wire 1 for drive motor - P6- (W) violet coloured ring/two coding lugs
- Coding of high-voltage connections to power and control electronics for electric drive - JX1-
- Coding of high-voltage connections to electric drive motor - V141-

11 - Power and control electronics for electric drive - JX1-

- Electric drive control unit - J841-
- Voltage converter - A19-
- DC/AC converter for drive motor - A37-
- Red warning label
- Coded high-voltage connections

12 - Electrical air conditioner compressor - V470-

- Coding of high-voltage connection: red coloured ring

1.6.2 Working in the vicinity of high-voltage components

DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- *Before starting work, visually inspect the high-voltage components in the areas involved.*
- *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- *There must be no external damage on any component.*
- *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- *There must be no unusual deformation of the high-voltage wiring.*
- *All high-voltage components must be identified by a red warning sticker.*

Note

- *Certain qualifications are required to perform different types of work on high-voltage vehicles ⇒ Basic information on high-voltage vehicles; Rep. gr. 00 ; Qualification of internal/external personnel .*
- *Note distinguishing features of Audi high-voltage vehicles, description of high-voltage technology etc. ⇒ Basic information on high-voltage vehicles; Rep. gr. 00 ; Distinguishing features of Audi high-voltage vehicles .*
- *Overview of high-voltage components and wires ⇒ page 8 .*

1.6.3 Handling high-voltage wires

WARNING

Handling high-voltage wires:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

Note

- *Certain qualifications are required to perform different types of work on high-voltage vehicles ⇒ Basic information on high-voltage vehicles; Rep. gr. 00 ; Qualification of internal/external personnel .*
- *Note distinguishing features of Audi high-voltage vehicles, description of high-voltage technology etc. ⇒ Basic information on high-voltage vehicles; Rep. gr. 00 ; Distinguishing features of Audi high-voltage vehicles .*
- *Overview of high-voltage components and wires ⇒ page 8 .*

1.6.4 Work that must be performed with the ignition switched on

DANGER!

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- *Move selector lever to position P*
- *Activate parking brake*
- *Switch off ignition*
- *Open bonnet*
- *Connect battery charger (e.g. charger - VAS 5095A-) to jump-start connections of 12 V electrical system*
- *Switch on ignition.*

Note

- *Certain qualifications are required to perform different types of work on high-voltage vehicles ⇒ Basic information on high-voltage vehicles; Rep. gr. 00 ; Qualification of internal/external personnel .*
- *Note distinguishing features of Audi high-voltage vehicles, description of high-voltage technology etc. ⇒ Basic information on high-voltage vehicles; Rep. gr. 00 ; Distinguishing features of Audi high-voltage vehicles .*
- *Overview of high-voltage components and wires ⇒ page 8 .*

1.6.5 Work that must be performed with the ignition switched off

WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

Note

- *Certain qualifications are required to perform different types of work on high-voltage vehicles ⇒ Basic information on high-voltage vehicles; Rep. gr. 00 ; Qualification of internal/external personnel .*
- *Note distinguishing features of Audi high-voltage vehicles, description of high-voltage technology etc. ⇒ Basic information on high-voltage vehicles; Rep. gr. 00 ; Distinguishing features of Audi high-voltage vehicles .*
- *Overview of high-voltage components and wires ⇒ page 8 .*

2 Preparations

Vehicle: raising ⇒ page 13

Engine cover panel: removing and installing ⇒ page 15

Noise insulation: removing and installing ⇒ page 18

Window regulators: activating automatic open/close function ⇒ page 20

Vehicle diagnostic tester: connecting ⇒ page 20

2.1 Vehicle: raising

Caution

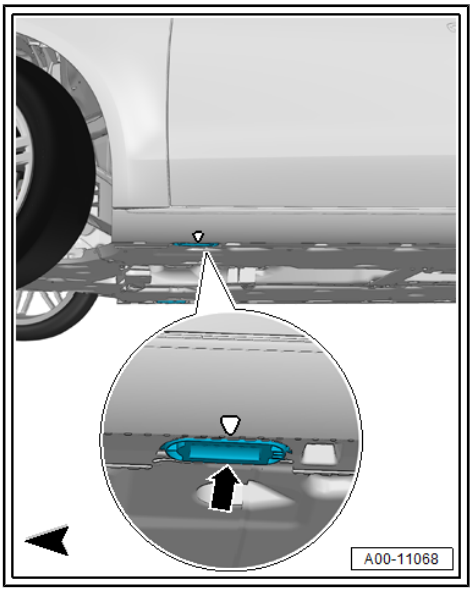
Risk of damage to vehicle due to incorrect use of lifting platform.

- *Do not exceed the permissible lifting capacity of the lifting platform.*
- *The vehicle should be lifted only at the points shown in the illustration.*
- *Position support plates so that they are aligned centrally below the lifting points.*
- *Ensure sufficient clearance between low-mounted vehicle components and the lifting platform.*

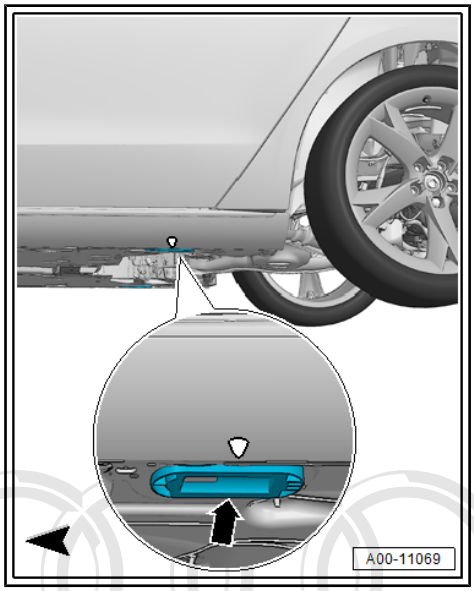
Procedure:

– For vehicles with adaptive air suspension: Activate jacking mode before lifting vehicle ⇒ page 14 .

– Front: Position support plates of lifting platform under plastic mountings -arrow- on underside of side member trim.



– Rear: Position support plates of lifting platform under plastic mountings -arrow- on underside of side member trim.



Note

The location of the lifting points is indicated by markings stamped on the side member trim.

2.1.1 Activating jacking mode

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- ***Observe warnings for high-voltage system:***
- ***For work that must be performed with the ignition switched on ⇒ page 11 .***

Procedure:

– Switch on ignition and activate MMI.

– Press function selector button CAR.

– Under »Car systems«, navigate through following menu structure:

♦ Servicing & checks

– Use MMI rotary pushbutton to select “Air suspension: wheel change” and set to “on”.

Note

- *Jacking mode is switched off again automatically once a speed higher than 15 km/h is reached.*
- *If jacking mode is activated for a longer period of time, the pressure in the suspension struts may dissipate, thereby lowering the vehicle. If necessary, start the engine briefly to reactivate jacking mode.*

2.2 Engine cover panel: removing and installing

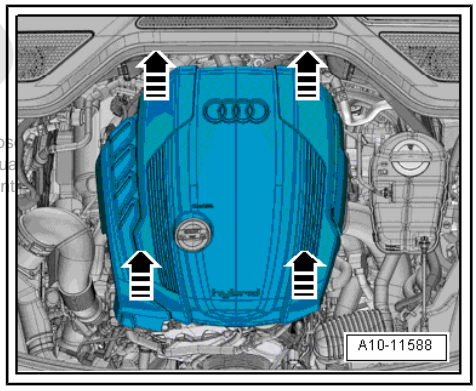
2.2.1 4-cyl. petrol engine 2.0 ltr. TFSI hybrid

Procedure for removing:

– Carefully pull engine cover panel off retaining pins one after another -arrows-.

Procedure for installing:

– Position engine cover panel on retaining pins and then use your hands to press it onto retaining pins, one after the other.



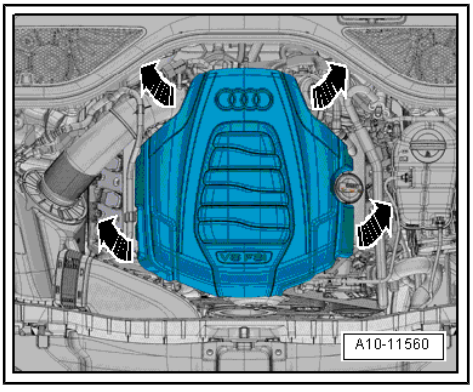
2.2.2 6-cyl. petrol engine 2.5 ltr. FSI

Procedure for removing:

– Carefully pull engine cover panel off retaining pins one after another -arrows-.

Procedure for installing:

– Position engine cover panel on retaining pins and then use your hands to press it onto retaining pins, one after the other.



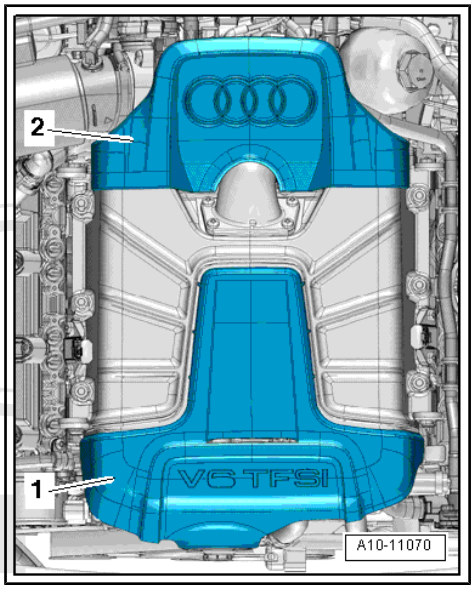
2.2.3 6-cyl. petrol engine 3.0 ltr. TFSI (version 1)

Procedure for removing:

– Carefully pull engine cover panels -1- and -2- off retaining pins one after another.

Procedure for installing:

– Position engine cover panels on retaining pins and then use your hands to press it onto retaining pins, one after the other.



Note

There is more than one version of the engine cover panel for the 6-cylinder 3.0 ltr. TFSI petrol engine ⇒ page 16 .

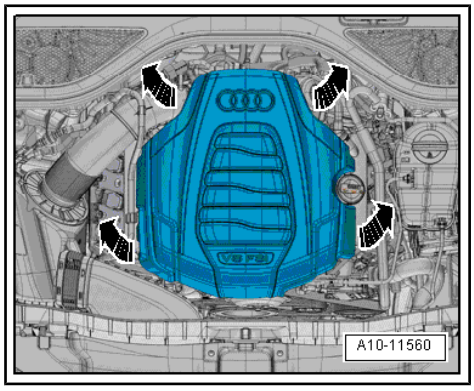
2.2.4 6-cyl. petrol engine 3.0 ltr. TFSI (version 2)

Procedure for removing:

– Carefully pull engine cover panel off retaining pins one after another -arrows-.

Procedure for installing:

– Position engine cover panel on retaining pins and then use your hands to press it onto retaining pins, one after the other.



Note

There is more than one version of the engine cover panel for the 6-cylinder 3.0 ltr. TFSI petrol engine ⇒ page 16 .

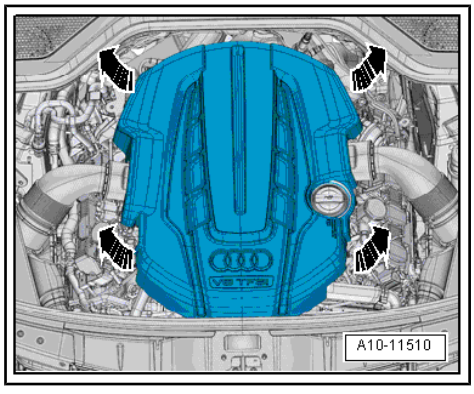
2.2.5 8-cyl. petrol engine 4.0 ltr. TFSI

Procedure for removing:

– Carefully pull engine cover panel off retaining pins one after another -arrows-.

Procedure for installing:

– Position engine cover panel on retaining pins and then use your hands to press it onto retaining pins, one after the other.



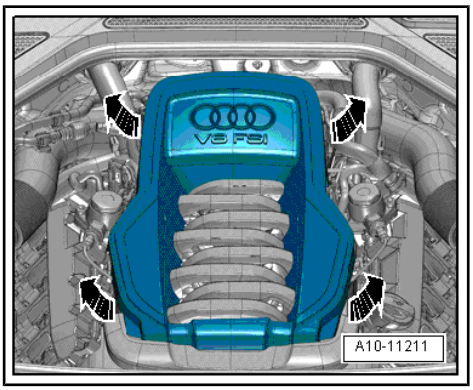
2.2.6 8-cyl. petrol engine 4.2 ltr. FSI

Procedure for removing:

– Carefully pull engine cover panel off retaining pins one after another -arrows-.

Procedure for installing:

– Position engine cover panel on retaining pins and then use your hands to press it onto retaining pins, one after the other.



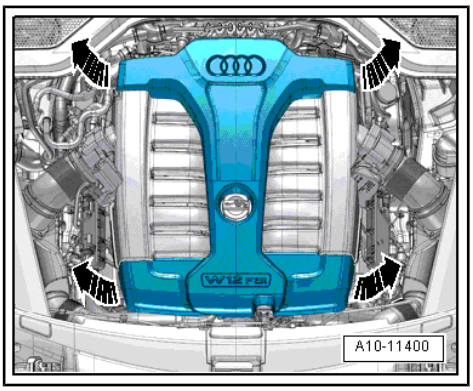
2.2.7 12-cyl. petrol engine 6.3 ltr. FSI

Procedure for removing:

– Carefully pull engine cover panel off retaining pins one after another -arrows-.

Procedure for installing:

– Position engine cover panel on retaining pins and then use your hands to press it onto retaining pins, one after the other.



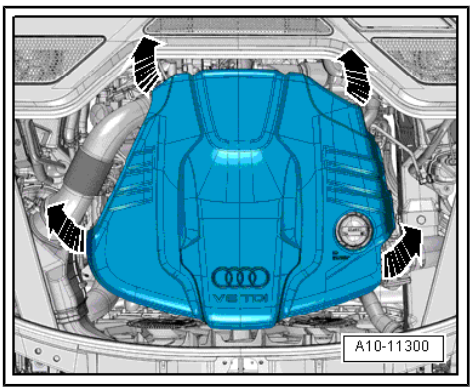
2.2.8 6-cyl. diesel engine 3.0 ltr. TDI (version 1)

Procedure for removing:

– Carefully pull engine cover panel off retaining pins one after another -arrows-.

Procedure for installing:

– Position engine cover panel on retaining pins and then use your hands to press it onto retaining pins, one after the other.



Note

There is more than one version of the engine cover panel for the 6-cylinder 3.0 ltr. TDI diesel engine ⇒ page 18 .

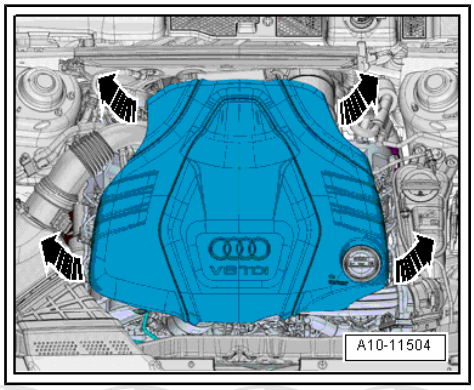
2.2.9 6-cyl. diesel engine 3.0 ltr. TDI (version 2)

Procedure for removing:

– Carefully pull engine cover panel off retaining pins one after another -arrows-.

Procedure for installing:

– Position engine cover panel on retaining pins and then use your hands to press it onto retaining pins, one after the other.



Note

There is more than one version of the engine cover panel for the 6-cylinder 3.0 ltr. TDI diesel engine ⇒ page 17 .

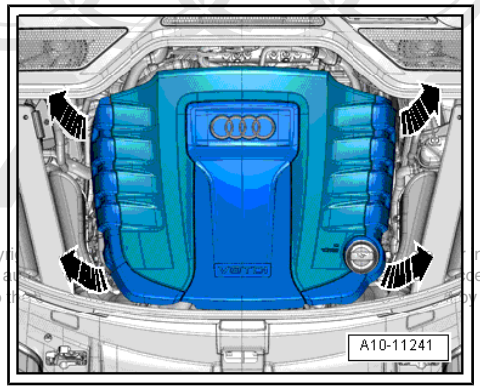
2.2.10 8-cyl. diesel engine 4.2 ltr. TDI

Procedure for removing:

– Carefully pull engine cover panel off retaining pins one after another -arrows-.

Procedure for installing:

– Position engine cover panel on retaining pins and then use your hands to press it onto retaining pins, one after the other.



2.3 Noise insulation: removing and installing

DANGER!

Risk of fatal injury if high-voltage components are damaged.

- ***Observe warnings for high-voltage system:***
- ***For work in the vicinity of high-voltage components ⇒ page 10 .***

Noise insulation (front) ⇒ page 18

Noise insulation (rear) ⇒ page 19

2.3.1 Noise insulation (front)

Special tools and workshop equipment required

- Torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Or: torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm

Table of tightening torques for installation:

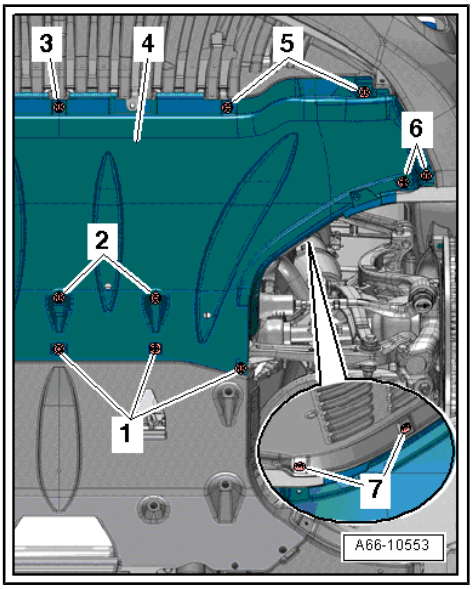
Component/fastener	[Nm]
Bolts -7-	2.5

Procedure for removing:

– Unscrew quick-release fasteners -1-, -2-, -3-, -5- and -6-.

– Remove bolts -7- from connection between wheel housing liner and noise insulation (front).

– Pull noise insulation -4- towards rear out of bottom section of bumper cover and detach.



Procedure for installing:

Install in reverse sequence. Note tightening torques (see table of tightening torques for installation ⇒ page 19).

Note

- *Ensure that you feel the quick-release fasteners engage when installing.*
- *On vehicles with supplementary heater, opening of exhaust pipe must be routed vertically through grommet in noise insulation.*

2.3.2 Noise insulation (rear)

Special tools and workshop equipment required

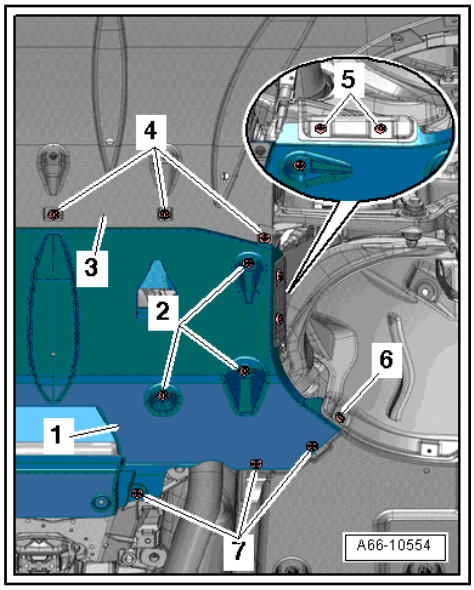
- Torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Or: torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Bolts -7-	2.5

Procedure for removing:

- Remove quick-release fasteners -5- and -6- from connection between wheel housing liner and noise insulation.
- Remove quick-release fasteners -4- from noise insulation (front) -3-.
- Unscrew quick-release fasteners -2- and -7-.
- Detach noise insulation (rear) -1-.



Procedure for installing:

Install in reverse sequence. Note tightening torques (see table of tightening torques for installation ⇒ page 19).

Note

Ensure that you feel the quick-release fasteners engage when installing.

2.4 Window regulators: activating automatic open/close function

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- ***Observe warnings for high-voltage system:***
- ***For work that must be performed with the ignition switched on ⇒ page 11 .***

If the vehicle battery was disconnected, the automatic open/close function for the electric windows must be reactivated.

Procedure:

- Pull up on window regulator switch until windows are completely closed.
- Release switch and pull on it again for at least one second.
- Repeat procedure with all window regulators.

2.5 Vehicle diagnostic tester: connecting

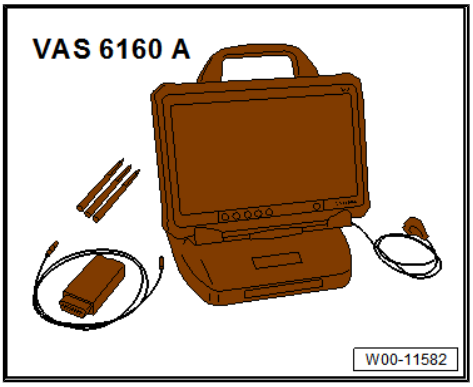
WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- ***Observe warnings for high-voltage system:***
- ***For work that must be performed with the ignition switched on ⇒ page 11 .***

Special tools and workshop equipment required

- Diagnosis system - VAS 6160 A-



- Remote diagnosis head - VAS 5054A-
- Or: Diagnosis interface - VAS 5055-

Procedure:

– Plug connector for remote diagnosis head - VAS 5054A- into diagnostic connection in vehicle.
– Switch on diagnostic system - VAS 6160 A- .
– Switch on ignition.
– Follow the menu on the screen to start the desired functions.

3 Maintenance

Poly V-belts for ancillaries and all pulleys: renewing ⇒ page 138

Poly V-belts for ancillaries: renewing ⇒ page 138

Poly V-belts for ancillaries: checking ⇒ page 81

Luggage compartment lighting: checking operation ⇒ page 63

Instrument cluster: resetting driver information system ⇒ page 138

Instrument cluster: checking warning lamps ⇒ page 65

Fuel tank: adding fuel additive ⇒ page 126

Fuel filter: renewing ⇒ page 125

Cooling system: checking anti-freeze protection and coolant level, and correcting if necessary ⇒ page 100

Air cleaner: renewing filter element and cleaning housing ⇒ page 103

Engine, gearbox, final drive and steering: checking for leaks and damage ⇒ page 51

Engine oil: draining ⇒ page 67

Engine oil: extracting ⇒ page 69

Engine oil: renewing oil filter ⇒ page 70

Engine oil: filling up ⇒ page 78

Engine oil: checking oil level and correcting if necessary ⇒ page 79

Battery: connecting to a stationary battery charging unit for sustained charging ⇒ page 34

Road test ⇒ page 135

Wheel bolts: tightening to specified torque ⇒ page 47

Reducing agent (AdBlue®): filling up tank completely ⇒ page 127

Tyre Pressure Loss Indicator: storing changed tyre pressures ⇒ page 46

Tyre repair kit: checking that set is complete, and checking and recording expiry date ⇒ page 46

Windscreen washer system: checking spray pattern and adjusting if necessary ⇒ page 59

Wiper blades: checking for damage ⇒ page 60

Headlights: checking for correct adjustment ⇒ page 61

Headlight washer system: checking operation ⇒ page 60

Service interval display: resetting service ⇒ page 26

Seat belts: checking that retaining rivets are fitted, and checking locking action of automatic belt retractor ⇒ page 65

Horn: checking operation ⇒ page 64

Stock vehicles: observing measures specified in Maintenance table for stock vehicles (see “Before handing vehicle over to customer”) ⇒ page 136

Dust and pollen filter: renewing ⇒ page 124

Transport mode: deactivating ⇒ page 27

Underbody: checking trim, wheel housing liners, side members and pipes/wiring for damage, and checking that they are properly secured ⇒ page 51

First-aid kit: checking and recording expiry date ⇒ page 66

Shipping mode: deactivating ⇒ page 28

Warning triangle: checking availability ⇒ page 66

Plenum chamber and water drains: checking for dirt ⇒ page 123

Spark plugs: renewing ⇒ page 85

3.1 Diesel particulate filter: reading out ash deposit volume

Table of test values and procedure guidelines:

Engine	Engine code	Measured value designation for diagnostic tester	Maximum value for ash deposit
6-cyl. diesel engine 3.0 ltr. TDI	CDTA, CDTB, CDTC, CLAB, CMHA, CTBB	Particulate filter, oil ash deposit volume	Oil ash deposit volume: 370 ml
6-cyl. diesel engine 3.0 ltr. TDI	CPNA, CPNB, CTBA	Particulate filter, oil ash deposit volume	Oil ash deposit volume: 380 ml
8-cyl. diesel engine 4.2 ltr. TDI	All	Exhaust bank 1: particulate filter, oil ash deposit volume Exhaust bank 2: particulate filter bank 2, oil ash deposit volume	Oil ash deposit volume: 550 ml

Procedure:

– Connect vehicle diagnostic tester ⇒ page 20 .

– Select Diagnosis mode and begin diagnosis.

– Perform vehicle identification.

– De-select “Working with Guided Fault Finding” by removing v and press Apply.

– Continue to follow instructions on screen.

– Switch to “Control units” tab.

– Select control unit “01 — Engine electronics” and carry out following functions via right mouse button:

♦ Identify control unit

♦ Guided Functions

♦ 01 - Read measured values

– Select desired measured value (see table of test values and procedure guidelines ⇒ page 25) by entering v and confirming with OK.

– Evaluate measured value and follow further instructions on screen.

– Perform the following measures according to the measured value:

Result:	Measure:
Measured value < critical value	Vehicle can be driven for a further 30,000 km (19,000 miles).

Result:	Measure:
Measured value ≥ critical value	Renew diesel particulate filter and reset measured value to zero ⇒ Engine; Rep. gr. 26 ; Emission control system; Removing and installing particulate filter .

Note

- *The critical values listed are always given for one diesel particulate filter.*
- *For vehicles with two exhaust pipes, the ash deposit volume must be read out for both diesel particulate filters.*

3.2 Event memory: reading out and erasing

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- ***Observe warnings for high-voltage system:***
- ***For work that must be performed with the ignition switched on ⇒ page 11 .***

Procedure:

– Connect vehicle diagnostic tester ⇒ page 20 .

– Select Diagnosis mode and begin diagnosis.

– Perform vehicle identification.

– Select “Working with Guided Fault Finding” by entering V and press Apply.

The control unit is then identified, and the event memory is interrogated. Observe notes and test conditions.

– Switch to “Control units” tab and call up “Event memory list” for an overview of all entries stored in event memory.

– Correct relevant faults and erase event memory.

Note

The event memory is erased automatically if the Guided Fault Finding is closed correctly.

3.3 Service interval display: resetting service

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- ***Observe warnings for high-voltage system:***
- ***For work that must be performed with the ignition switched on ⇒ page 11 .***

Procedure:

– Connect vehicle diagnostic tester ⇒ page 20 .

– Select Diagnosis mode and begin diagnosis.

– Perform vehicle identification.

– De-select “Working with Guided Fault Finding” by removing V and press Apply.

– Switch to “Special functions” tab.

– Select service setting to be reset (e.g. “17 — Inspection”).

– Start program by selecting Carry out check.

– Continue to follow instructions on screen.

Note

Please refer to the relevant Maintenance table for information on which service channel to reset and what data to enter.

3.4 Transport mode: deactivating

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- ***Observe warnings for high-voltage system:***
- ***For work that must be performed with the ignition switched on ⇒ page 11 .***

Procedure:

– Connect vehicle diagnostic tester ⇒ page 20 .

– Select Diagnosis mode and begin diagnosis.

– Perform vehicle identification.

– De-select “Working with Guided Fault Finding” by removing V and press Apply.

– Switch to “Special functions” tab and select following program:

- 19 - Activating / deactivating transport mode

– Start program by selecting Carry out check.

– Continue to follow instructions on screen.

Note

- *The transport mode serves to maintain the vehicle's ability to start.*
- *When the vehicle is in transport mode, many functions, e.g. radio, are restricted or unavailable.*

3.5 Shipping mode: deactivating

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- *Observe warnings for high-voltage system:*
- *For work that must be performed with the ignition switched on ⇒ page 11 .*

Procedure:

– Connect vehicle diagnostic tester ⇒ page 20 .

– Select Diagnosis mode and begin diagnosis.

– Perform vehicle identification.

– De-select “Working with Guided Fault Finding” by removing v and press Apply.

– Switch to “Special functions” tab and select following program:

- 34 - Activating / deactivating shipping mode

– Start program by selecting Carry out check.

– Continue to follow instructions on screen.

Note

Deactivating shipping mode may cause the height of the vehicle to drop.

3.6 Battery: reading out status and sending diagnostic log

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- *Observe warnings for high-voltage system:*
- *For work that must be performed with the ignition switched on ⇒ page 11 .*

Battery -A- ⇒ page 28

Second battery -A1- ⇒ page 29

3.6.1 Battery -A-

Procedure:

– Connect vehicle diagnostic tester ⇒ page 20 .

– Select Diagnosis mode and begin diagnosis.

– Perform vehicle identification.

– Select “Working with Guided Fault Finding” by entering v and press Apply.

– Switch to “Special functions” tab and select following program:

♦ A - Battery check

– Start program by selecting Carry out check.

– Continue to follow instructions on screen.

– Use results of test to determine following measures:

Result on vehicle diagnostic tester:	Measure:
“Battery OK”	No further measures necessary.
“Charge battery”	Charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery .
“Battery is no longer of the same quality as when shipped”	Renew battery after consulting with customer ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .

– Switch to Control units tab.

– Press X Diagnosis button and close diagnosis program.

– Send off diagnosis log online.

Note

♦ *A working network connection is necessary to send the diagnostic log file online.*

♦ *After the diagnosis is complete, you will receive confirmation that the test log was sent successfully.*

3.6.2 Second battery -A1-

Only applies to hybrid vehicles.

Procedure:

– Connect vehicle diagnostic tester ⇒ page 20 .

– Select Diagnosis mode and begin diagnosis.

– Perform vehicle identification.

– Select “Working with Guided Fault Finding” by entering V and press Apply.

– Switch to “Special functions” tab and select following program:

♦ A - second battery -A1-, check

– Start program by selecting Carry out check.

– Continue to follow instructions on screen.

– Use results of test to determine following measures:

Result on vehicle diagnostic tester:	Measure:
“Battery OK”	No further measures necessary.
“Charge battery”	Charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery .
“Battery is no longer of the same quality as when shipped”	Renew battery after consulting with customer ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .

– Switch to Control units tab.

– Press X Diagnosis button and close diagnosis program.

– Send off diagnosis log online.

Note

- *A working network connection is necessary to send the diagnostic log file online.*
- *After the diagnosis is complete, you will receive confirmation that the test log was sent successfully.*

3.7 Battery: checking that battery and battery cables are securely fitted

All models except A8 hybrid ⇒ page 30

A8 hybrid ⇒ page 31

3.7.1 All models except A8 hybrid

WARNING

Risk of injury due to loose battery clamp on positive terminal.

- ***Disconnect battery clamp from negative terminal and then tighten battery clamp on positive terminal.***

Special tools and workshop equipment required

- Torque wrench - V.A.G 1410- , measuring range 4 to 20 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Nut on battery clamp	4
Bolt on retainer plate	18

The battery is located in the luggage compartment.

Requirements:

- Ignition switched off during test.

Removal steps:

– Lift luggage compartment floor and secure in position.

– Remove spare wheel (where applicable).

– If fitted, take out tool box.

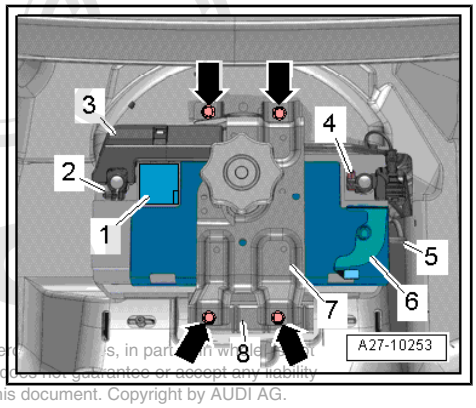
– Open battery terminal covers.

Procedure:

– Check by hand that battery terminal clamps are securely seated. If necessary tighten nuts -2- and -4- to specified torque (see table of tightening torques for installation ⇒ page 30).

– Check by hand that battery is securely installed. If necessary tighten securing bolts -arrows- on retainer plate to specified torque (see table of tightening torques for installation ⇒ page 30).

Install in reverse sequence.



3.7.2 A8 hybrid

DANGER!

Risk of fatal injury if high-voltage components are damaged.

- *Observe warnings for high-voltage system:*
- *Handling high-voltage wires ⇒ page 11 .*
- *For work in the vicinity of high-voltage components ⇒ page 10 .*

WARNING

Risk of injury due to loose battery clamp on positive terminal.

- *Disconnect battery clamp from negative terminal and then tighten battery clamp on positive terminal.*

Special tools and workshop equipment required

- Torque wrench - VAS 6583- , measuring range 3 to 60 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Battery terminal clamps (battery -A-)	4
Battery terminal clamps (second battery -A1-)	4
Bolts for retainer plate on battery base	24

Battery -A- and second battery -A1- are located under the luggage compartment floor.

Requirements:

- Ignition switched off during test.

Removal steps:

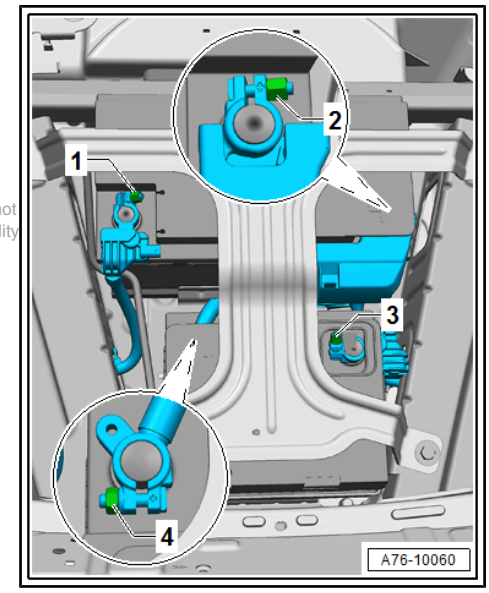
– Remove cover for high-voltage battery unit ⇒ Rep. gr. 70 ; Removing and installing luggage compartment floor; Removing and installing high-voltage battery unit .

– Open battery terminal covers.

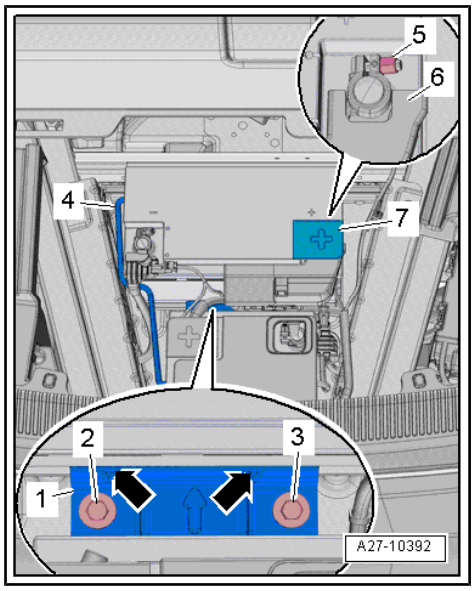
Procedure:

– Check by hand that battery terminal clamps of battery -A- are securely seated. If necessary tighten nuts -1- and -2- to specified torque (see table of tightening torques for installation ⇒ page 31).

– Check by hand that battery terminal clamps of second battery -A1- are securely seated. If necessary tighten nuts -3- and -4- to specified torque (see table of tightening torques for installation).



– Check by hand that battery -A- and second battery -A1- are securely installed. If necessary tighten securing bolts -2- and -3- on shared retainer plate -1- on battery base to specified torque (see table of tightening torques for installation ⇒ page 31).



Install in reverse sequence.

3.8 Battery: checking electrolyte level

The battery is located in the luggage compartment.

Note

Batteries must not be opened.

Battery without magic eye ⇒ page 32

Battery with magic eye ⇒ page 33

3.8.1 Battery without magic eye

Removal steps:

– Lift luggage compartment floor and secure in position.

– Remove spare wheel (where applicable).

– If fitted, take out tool box.

Procedure:

– Check battery housing for the following:

- Battery terminals are not corroded or damaged
- Mechanical damage to battery housing and cover, indicated by electrolyte leakage or crystals at the damaged area

– Damaged batteries must be renewed.

– Check electrolyte level of all battery cells using markings on housing.

– If electrolyte level of one or more battery cells is below MIN marking: Renew battery.

Install in reverse sequence.

Note

- *A bright hand-held light helps to better see the MIN and MAX markings on the housing.*
- *If battery is difficult to see: Use a small mirror to check the electrolyte level (shine a bright hand-held light at a right angle onto the battery cells).*

3.8.2 Battery with magic eye

WARNING

Risk of explosion if magic eye is colourless or light yellow!

- ***Do not attempt to jump-start vehicle.***
- ***Do not check or charge battery.***
- ***Renew battery.***

Removal steps:

– Lift luggage compartment floor and secure in position.

– Remove spare wheel (where applicable).

– If fitted, take out tool box.

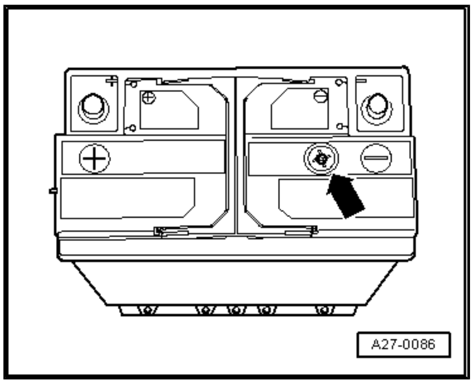
Procedure:

– Check battery housing for the following:

- Battery terminals are not corroded or damaged
- Mechanical damage to battery housing and cover, indicated by electrolyte leakage or crystals at the damaged area

– Damaged batteries must be renewed.

– Before checking electrolyte level: Tap magic eye -arrow- carefully with handle of a screwdriver.



– Read off battery electrolyte level according to colour display. Two different results are possible:

Colour of magic eye:	Measure:
Black or green	Electrolyte level OK: No further measures necessary
Colourless or light yellow	Electrolyte level too low: Battery must be renewed

Install in reverse sequence.

Note

- *The magic eye is also referred to as an ALI (acid level indicator).*
- *The magic eye is only for use in determining the electrolyte level.*
- *During battery charging or vehicle operation, air bubbles can form underneath the magic eye which could falsify the colour display. Tap magic eye lightly to release any bubbles.*

3.9 Battery: connecting to a stationary battery charging unit for sustained charging

DANGER!

Risk of fatal injury if high-voltage components are damaged.

- *Observe warnings for high-voltage system:*
- *Handling high-voltage wires* *⇒ page 11* *.*
- *For work in the vicinity of high-voltage components* *⇒ page 10* *.*

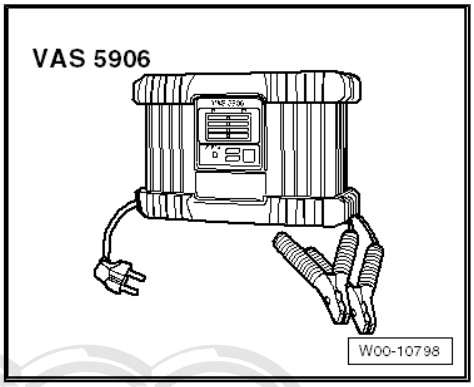
WARNING

Risk of injury if battery terminal clamps are connected incorrectly.

- *Connect positive battery terminal clamp first, then connect negative battery terminal clamp.*

Special tools and workshop equipment required

♦ Battery charger - VAS 5906-



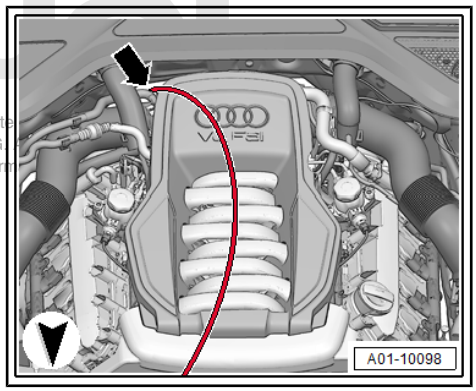
♦ Wire

Requirements:

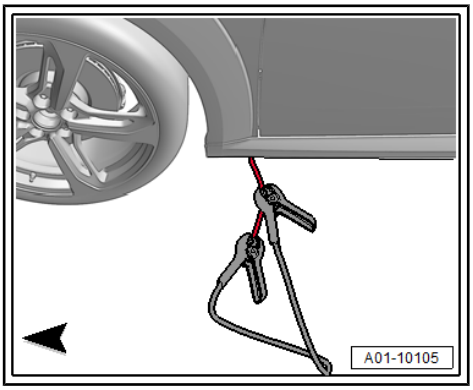
- Ignition switched off.

Procedure for connecting battery charger:

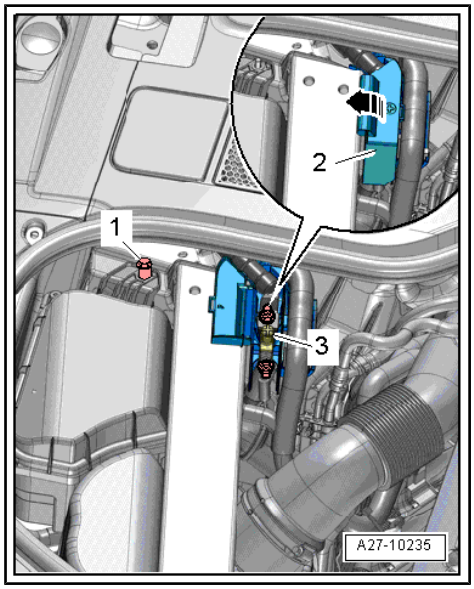
– Guide wire from above through engine compartment in area of turbocharger -arrow- and out from underside of vehicle.



– Attach both charger clamps to wire (see -illustration-) and guide upwards into engine compartment.



- Open cover for jump start connection (+) -2- in direction of -arrow-.
- First connect charger clamp (+) to jump start connection (+) -3-, and ensure that charger clamp does not make contact with bonnet when it is closed.
- Then connect charger clamp (-) to earth point (-) -1- on body, and ensure that charger clamp does not make contact with bonnet when it is closed.
- Arrange wiring of battery charger - VAS 5906- neatly in engine compartment.
- Switch on battery charger - VAS 5906- and adjust settings as needed.
- Position battery charger - VAS 5906- under vehicle so that it is hidden from view as well as possible, ensuring that ventilation grille of charger is unobstructed.



Procedure for disconnecting battery charger:

Remove in reverse sequence.

3.10 Brake fluid: changing

WARNING

Risk of accident if the brake pedal has too much free play.

- *Make sure that the brakes work properly before the vehicle is driven on the road.*

WARNING

Risk of injury due to caustic brake fluid.

- *Avoid contact with skin.*

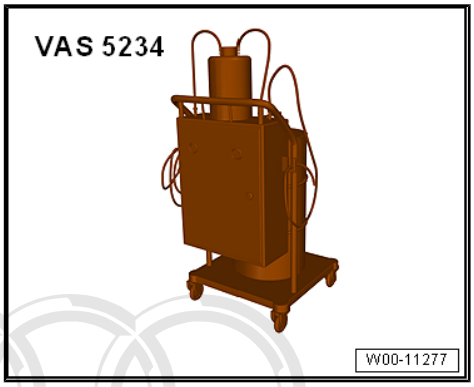
Caution

Risk of damage due to improper handling of brake fluid.

- *Avoid contact with vehicle paint.*
- *Avoid contact with liquids containing mineral oils (oil, petrol, cleaning agents).*

Special tools and workshop equipment required

♦ Brake filling and bleeding equipment - VAS 5234-



♦ Tool set for brake bleeding - VAS 6564-

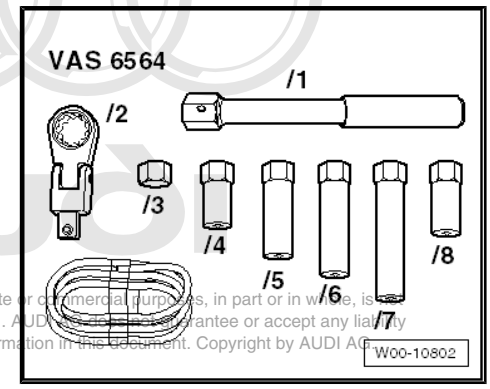


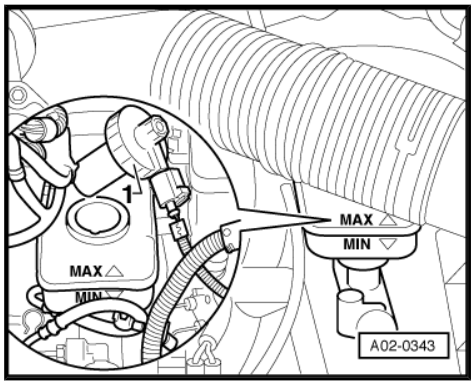
Table of test values and procedure guidelines:

The value given in the table is for one brake caliper, i.e. if there are two bleeder screws on one caliper, the sum of the quantities discharged from both bleeder screws must equal the value given in the table.

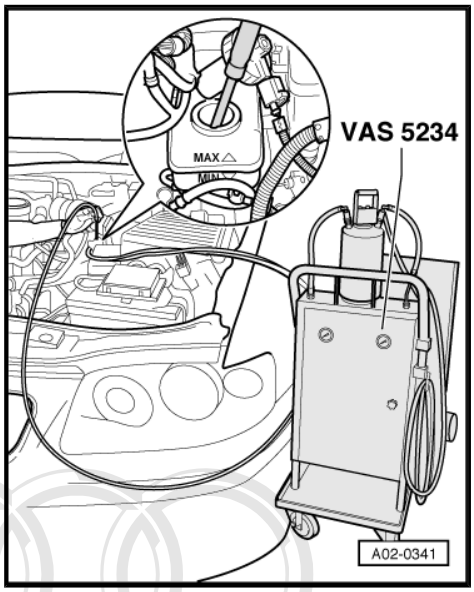
Sequence of opening bleeder screws:		Quantity of brake fluid to discharge:
Brake calipers		
Front axle on driver's side	1.	0.20 ltr.
Front axle on front passenger's side	2.	0.20 ltr.
Rear axle on driver's side	3.	0.30 ltr.
Rear axle on front passenger's side	4.	0.30 ltr.
Clutch slave cylinder	5.	0.15 ltr.
⇒ Total quantity, automatic gearbox		1.00 ltr.
⇒ Total quantity, manual gearbox		1.15 ltr.

Step 1 - connecting brake filling and bleeding equipment:

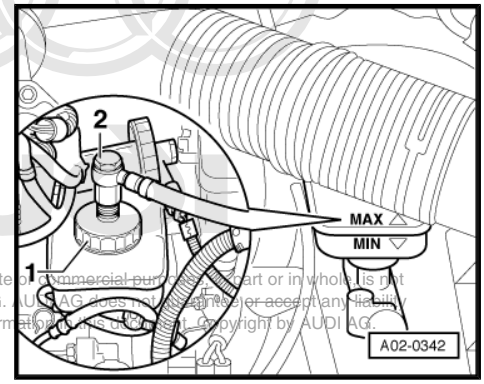
– Unscrew filler cap -1- from brake fluid reservoir.



– Use extraction hose included in brake filling and bleeding equipment - VAS 5234- to extract brake fluid from reservoir (with strainer installed) until fluid is level with bottom edge of strainer. Make sure that no more fluid flows back into reservoir from strainer after extracting fluid.



– Screw adapter -1- onto brake fluid reservoir.
– Connect filling hose -2- included with brake filling and bleeding equipment - VAS 5234- to adapter.
– Set pressure on brake filling and bleeding equipment - VAS 5234- (see operating instructions).



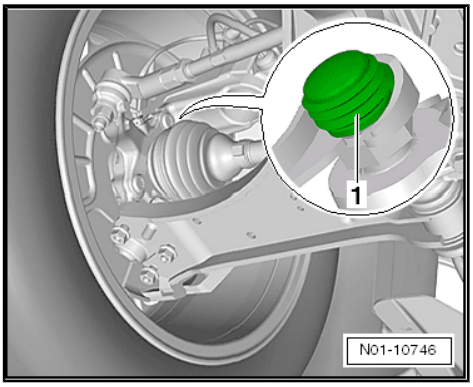
Step 2 - bleeding and filling brake system:

If there are two bleeder screws on each brake caliper, first bleed the inner, then the outer bleeder screw.

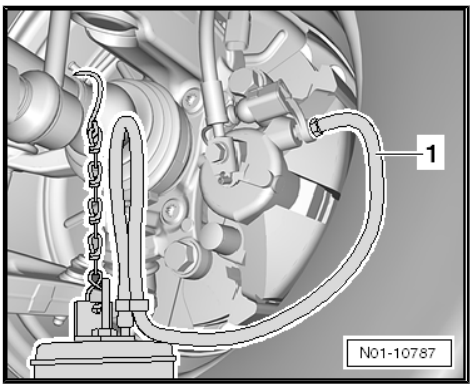
– Raise vehicle ⇒ page 13 .

Front axle:

– Brake caliper (driver's side): Remove cap(s) -1- from bleeder screw(s).

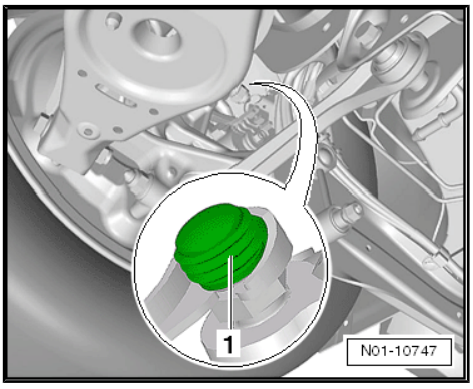


– Fit bleeder hose -1- attached to collector container onto bleeder screw from inside of rim.
– Open bleeder screw and allow brake fluid to discharge. Refer to table for correct quantity of brake fluid to discharge ⇒ page 37 .
– Close bleeder screw.
– If there are two bleeder screws on each brake caliper: Repeat procedure with second bleeder screw.
– Refit cap on bleeder screw(s).
– Repeat procedure on passenger's side.

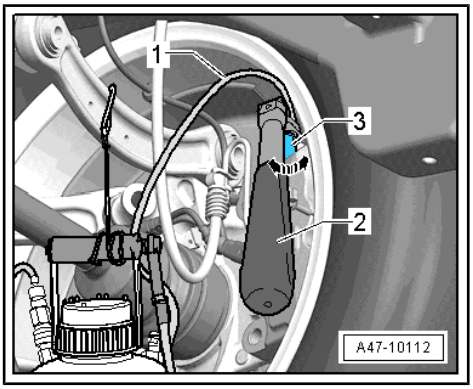


Rear axle:

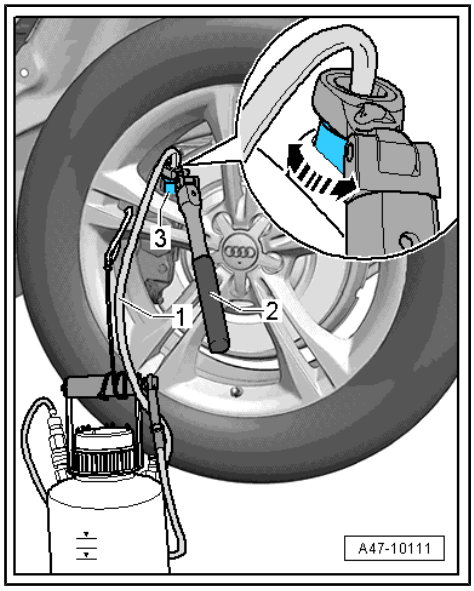
– Brake caliper (driver's side): Remove cap(s) -1- from bleeder screw(s).
– Take reversible ratchet and appropriate socket from tool set for brake bleeding - VAS 6564- and fit together.



– Run bleeder hose -1- from inside of rim through reversible ratchet -2- and socket -3- and fit onto bleeder screw.
– Open bleeder screw with ratchet -2- and allow brake fluid to discharge. Refer to table for correct quantity of brake fluid to discharge ⇒ page 37 .
– Close bleeder screw.



– If there are two bleeder screws on each brake caliper: Working from outside of rim, apply reversible ratchet -2- and socket -3- and repeat procedure.
– Refit cap on bleeder screw(s) on brake caliper.
– Repeat procedure on passenger's side.



Step 3 - bleeding clutch slave cylinder

Only for vehicles with manual gearbox

– Remove components necessary for access; refer to ⇒ Manual gearbox; Rep. gr. 30 ; Clutch mechanism; Bleeding clutch mechanism .
– Fit bleeder hose attached to collector container -1- onto bleeder screw of clutch slave cylinder.
– Open bleeder screw and allow correct amount of brake fluid to flow out (see table of test values and procedure guidelines ⇒ page 37).
– Close bleeder screw and fit cap.

Step 4 - final steps:

– Close filling lever of brake filling and bleeding equipment - VAS 5234- .
– Detach filling hose from adapter.
– Unscrew adapter from brake fluid reservoir.
– Check brake fluid level and adjust if necessary (depending on brake pad wear) ⇒ page 41 .
– Screw cap onto brake fluid reservoir.

– Operate clutch pedal several times.
– Check pedal pressure and free travel: No more than $^{1}/_{3}$ of total pedal travel.
– Make sure that the brakes work properly before the vehicle is driven on the road.
– If free travel of brake pedal is greater than specified, or if brake function is impaired: Check brake system for leaks and renew brake fluid again.

Note

- *The bleeder hose must fit tightly on the bleeder screw to prevent air from entering the brake system.*
- *In the case of certain wheel combinations, the wheels may have to be removed.*
- *With the aid of the tool set for brake bleeding - VAS 6564- , the rear brakes or, depending on version, the front and rear brakes can be bled without having to remove the wheels.*
- *Use genuine Audi brake fluid; see Electronic parts catalogue (ETKA).*
- *Do not reuse brake fluid.*
- *Always observe the relevant environmental regulations for disposal of brake fluid.*

3.11 Brake fluid: checking fluid level

Table of test values and procedure guidelines:

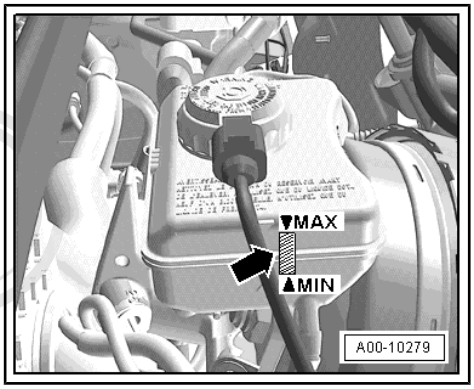
Type of service:	Fluid level specification:
Delivery Inspection	Fluid level must be at MAX marking.
Brake fluid change	Fluid level must be between MAX marking and MIN marking according to wear level of brake pads.

Checking the brake system for leaks is a repair measure and should be charged separately.

Procedure:

– Evaluate brake fluid level according to markings -arrows- on brake fluid reservoir.

– Perform the following measures according to the results of the check:



Fluid level:	Evaluation/measure:
Above MAX marking	Extract brake fluid.
Below specified level	Carry out brake system leak test ⇒ Brake system; Rep. gr. 47 ; Hydraulic system; Leak test.

Note

When the vehicle is in use, the fluid level drops due to wear and automatic adjustment of the brake pads.

3.12 Brake system: checking condition of brake hoses, and checking that caps are fitted on bleeder screws

Requirements:

- Brake hoses must not touch any components when steering is on full lock.
- Brake hoses must not be twisted.

Procedure:

– Check that all brake hoses are secured properly; when doing so, ensure that the conditions listed are met:

– Check all brake hoses for abrasion, porosity, blistering and cracking.

– Check that brake connections are seated correctly, and check for corrosion and leaks.

– If faults are found on brake hoses: Repair/renew relevant component.

– Check that caps are fitted and secured on bleeder screws of all brake calipers.

– Renew any missing caps.

3.13 Brake pads: checking thickness

Special tools and workshop equipment required

♦ Test pin - T40139- : Use the side with the thin probe (brake symbol) to measure brake pad thickness.

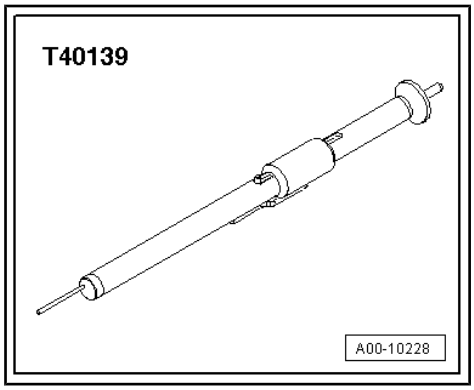


Table of test values and procedure guidelines:

Axle	Brake pad wear limit including backplate and damper plate [mm]
Front axle:	9
Rear axle:	8

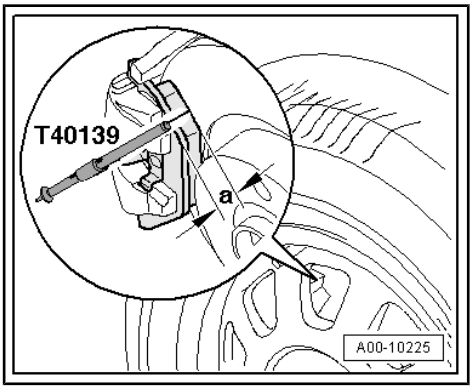
Check only the thickness of the outer brake pads.

Procedure:

– Before you begin: Push sliding ring towards tip of test pin as far as it will go.

– Bring tip of test pin into contact with brake disc.

– Slide test pin towards brake pad until test pin makes contact with backplate of brake pad.
– Remove test pin and read off brake pad wear value -a- from scale on tool.
– Repeat procedure for all wheels.
– If brake pad thickness has reached wear limit (see table of test values and procedure guidelines ⇒ page 42): Renew brake pads ⇒ Brake system; Rep. gr. 46 ; Removing and installing brake pads .



Note

- *When removing the test gauge, take care not to move the sliding ring. This would give an incorrect measurement.*
- *Note where the test gauge makes contact on the rear of the brake pad and include the thickness of the damper plate in the calculation if necessary.*
- *In the case of certain wheel combinations, the wheels must be removed.*

3.14 Tyres: checking condition and wear pattern, and checking and recording tread depth

Special tools and workshop equipment required

- Test pin - T40139- : Use the side with the thick probe and shoulder (scale marked with tyre symbol) to measure tread depth.

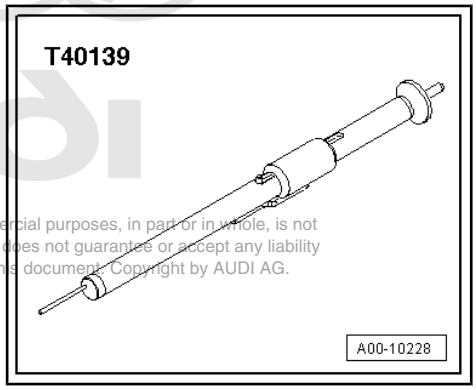


Table of test values and procedure guidelines:

Country-specific regulations for minimum tread depth apply; for countries not listed, evaluate values according to the country's specifications.

Country	Minimum tread depth [mm]
EU countries	1.6[1)]
Brazil	1.6
China	1.6
India	1.6
Japan	1.6
Norway	1.6[1)]
Russia	1.6

Country	Minimum tread depth [mm]
Switzerland	1.6
Turkey	1.6
Ukraine	1.6[1)]
USA	1.6

1) Larger values for winter tyres where these are mandatory

Performing wheel alignment is a repair measure and should be charged separately.

Step 1 - checking condition:

– Check for and remove any foreign bodies in tyre tread.

– Check all tyres for following types of damages:

♦ Cuts, cracks, tears

♦ Scuffing or flattened areas on tyre tread

♦ Porous sidewalls

♦ Blisters on sidewalls

– If damage is found: Renew tyres.

Step 2 - checking tyre wear pattern:

– Check tyre wear pattern of front wheels; check for the following:

♦ Feathering on tread indicating possible incorrect toe setting

♦ One-sided tread wear indicating possible incorrect camber

– If the above types of wear are found: Check wheel alignment to determine the cause.

Step 3 - checking tread depth:

– Measure tread depth on all tyres (including spare tyre) at several points using test pin - T40139- . Uneven tread depth indicates damage.

– Record average measurement for each tyre in Maintenance table.

– If minimum tread depth has been reached (as specified for your country; see table of test values and procedure guidelines ⇒ page 43): Renew tyre.

Note

Vehicles with four-wheel drive must be fitted with tyres with the same tread pattern. Otherwise the centre differential may be damaged.

3.15 Tyres: checking tyre pressures and adjusting if necessary

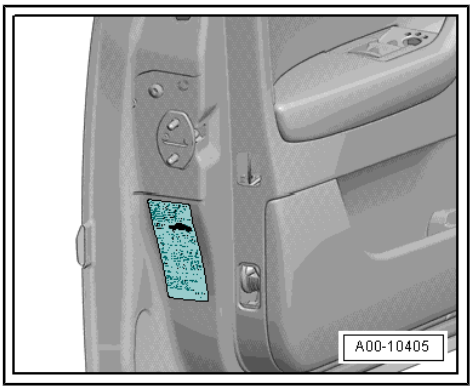
Note

The tyre valves must be sealed with valve caps. Otherwise, dirt could enter the valve, which will then become blocked and will no longer seal properly.

Front and rear axles ⇒ page 45

Spare wheel and temporary spare wheel ⇒ page 45

3.15.1 Front and rear axle



The tyre pressure specifications are listed on the sticker on the inside of the driver's door.

Tyre sizes not listed: See Wheel/tyre guide for tyre pressure specification ⇒ Wheel/Tyre Guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Tyre pressures .

Procedure:

– Check tyre pressure of all tyres.

– If necessary, adjust to correct tyre pressures.

Note

The tyre pressures listed only apply to cold tyres. When the tyres are warm, the actual pressures will be higher, but must not be reduced.

3.15.2 Spare wheel and temporary spare wheel

The following parameters apply to the tyre pressure specifications:

- Spare wheel with standard-size tyre: Inflate to maximum tyre pressure indicated on tyre pressure sticker.
- Temporary spare wheel: The correct tyre pressure is indicated on the sidewall.

Procedure:

– Check tyre pressure of spare wheel/temporary spare wheel.

– If necessary, adjust to correct tyre pressures.

Note

Depending on equipment version, there may only be a tyre repair kit supplied; see Maintenance table.

3.16 Tyre Pressure Loss Indicator: storing changed tyre pressures

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- *Observe warnings for high-voltage system:*
- *For work that must be performed with the ignition switched on* ⇒ page 11 .

The Tyre Pressure Loss Indicator must be initialised after every time the tyre pressures are changed or the tyres are renewed.

Requirements:

- The inflation pressures of all tyres must be adjusted to the correct values before the pressures are stored.

Procedure:

– Switch on ignition and activate MMI.

– Press function selector button CAR.

– Under »Car systems«, navigate through following menu structure:

- Servicing & checks
- Tyre pressure monitoring
- Store tyre pressures

– Use MMI rotary pushbutton to select option to store tyre pressures.

3.17 Tyre repair kit: checking that set is complete, and checking and recording expiry date

The tyre repair kit is located under the luggage compartment floor.

Procedure:

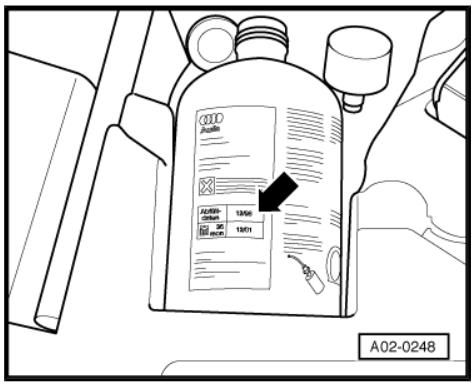
– Check that the following components of the tyre repair kit are present:

- Compressor
- Tyre filler bottle incl. filler hose

– Take out the bottle and check the expiry date (printed on bottle -arrow-).

– Record expiry date in Maintenance table.

– If expiry date has been exceeded or if bottle has already been used: Renew tyre filler bottle.



3.18 Tool kit: checking that all components necessary in the event of a breakdown are present

The tool kit and vehicle jack are located under the luggage compartment floor.

Procedure:

– Check that jack (including crank handle) is present.

– Check that following components of tool kit are present:

- ♦ Wheel bolt spanner
- ♦ Adapter for anti-theft wheel bolts
- ♦ Puller
- ♦ Clip
- ♦ Towing hook

– Renew any missing components.

3.19 Wheel bolts: tightening to specified torque

Special tools and workshop equipment required

- ♦ Torque wrench - V.A.G 1332- , measuring range 40 to 200 Nm
- ♦ Or: torque wrench - V.A.G 1576- , measuring range 80 to 400 Nm

Table of test values and procedure guidelines:

Fastener	Tightening torque [Nm]
Wheel bolts (all wheels except PAX and A8 Security)	120
Wheel bolts (wheels with PAX tyres)	140
Wheel bolts (A8 Security)	140

The adapter for loosening and tightening anti-theft wheel bolts is included in vehicle tool kit.

Procedure:

– Tighten wheel bolts in a diagonal sequence to specified torque (see table of test values and procedure guidelines ⇒ page 47).

– If adapter for anti-theft wheel bolts was used from tool kit: Put adapter back in tool kit.

3.20 Components of front and rear axles: checking play, secure attachment and protective boots

The following applies to all components shown below:

- There must be no noticeable or visual play.
- As a rule you can identify damage to the boots/drive shaft boots by emerging grease.

- Check that retaining rings and spring-type clips are seated correctly.

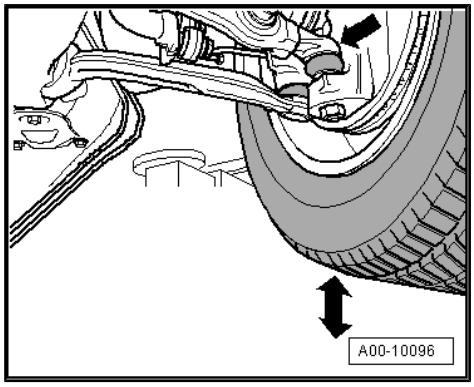
Front axle ⇒ page 48

Rear axle ⇒ page 50

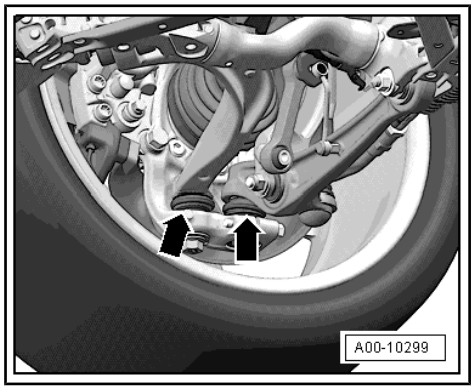
3.20.1 Front axle

Track control links, guide links and coupling rod:

– Check relative movement between wheel bearing housing and track control link/guide link.



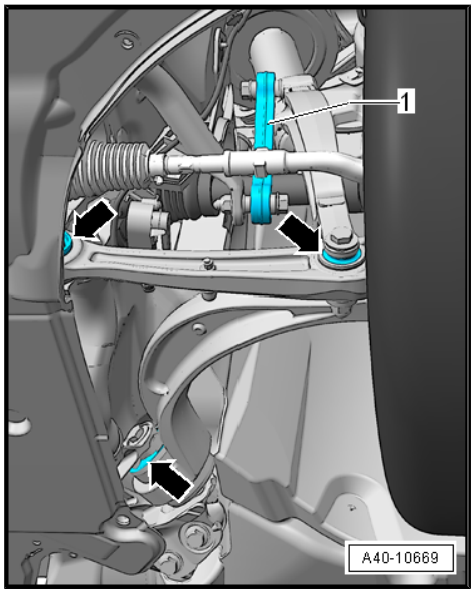
– Track control links and guide links: Check boots -arrows- of swivel joints all around for damage and make sure they are seated correctly.



– Check swivel joints for play.

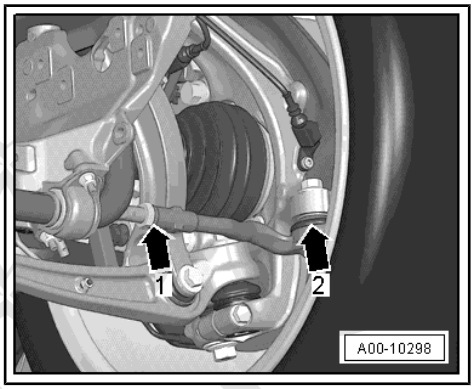
– Check all bonded rubber bushes -arrows- of track control links and guide links for play.

– Check play at coupling rod -1-.



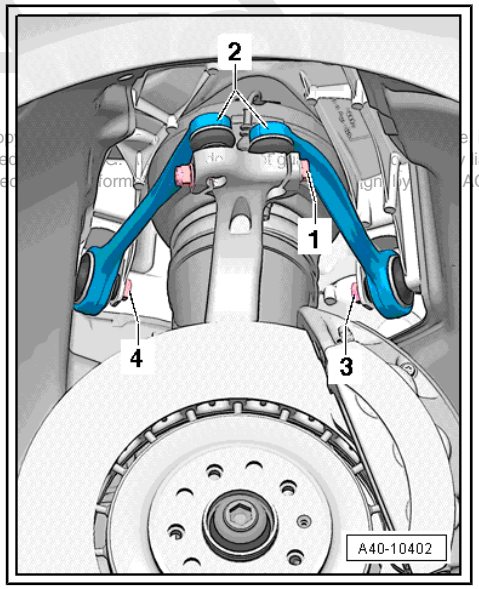
Track rod ball joint:

– Check boot -2- for track rod ball joint all around for damage and make sure it is seated correctly.
– Check play at track rod ball joint.



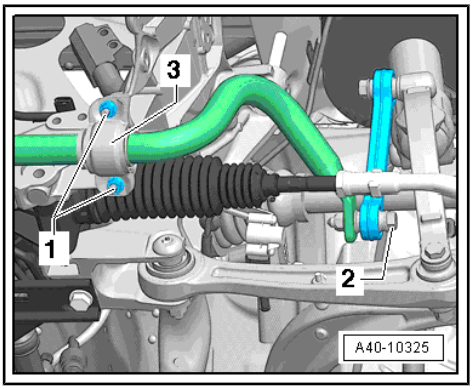
Upper links:

– Upper links -2-: Check bushes of swivel joints all around for damage and make sure they are seated correctly.
– Check swivel joints for play.
– Check bonded rubber bushes -3- and -4- of swivel joints (top) for play.



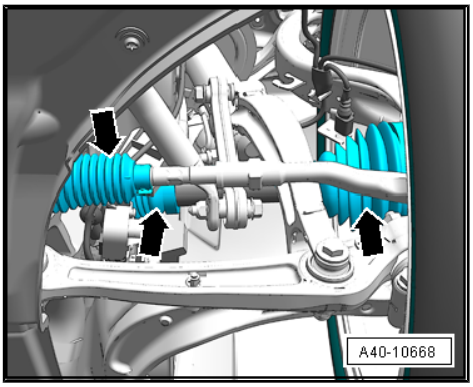
Anti-roll bar:

– Check anti-roll bar bush -3- for damage.



Drive shaft and steering rack:

– With steering turned: Check drive shaft boots -arrows- all around for damage and make sure they are seated correctly.
– Check boot -arrow- of steering rack all around for damage and correct seating.



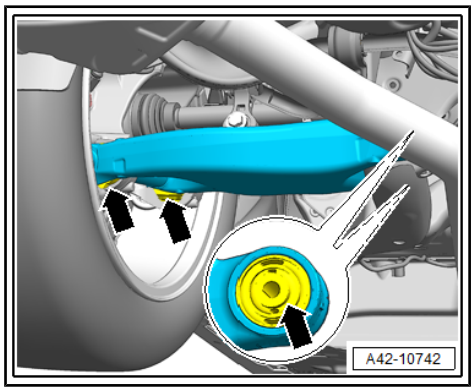
– Repeat checks for components on opposite side of vehicle.
– If faults are found on any of the above components: Renew relevant component.

3.20.2 Rear axle

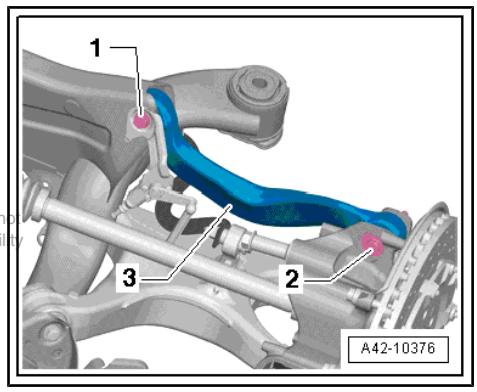
Lower and upper transverse links:

– Check relative movement between wheel bearing housing and both transverse links.

– Check all bonded rubber bushes -arrows- of lower transverse link for play.

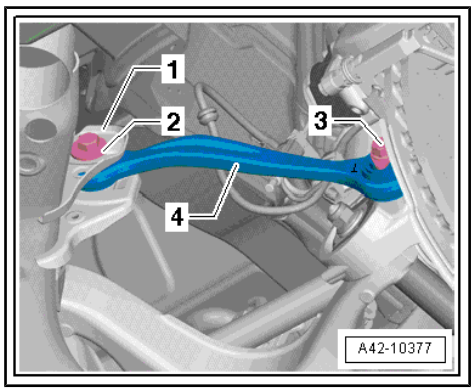


– Check all bonded rubber bushes of upper transverse link -3- for play.



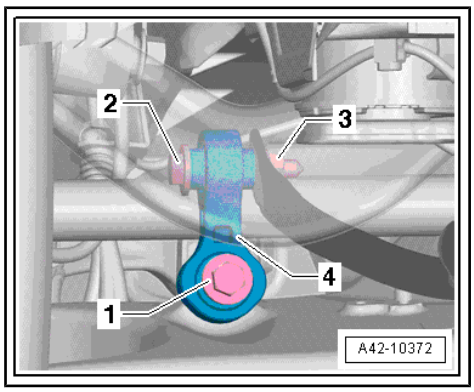
Track rod:

– Check play at all bonded rubber bushes of track rod -4-.

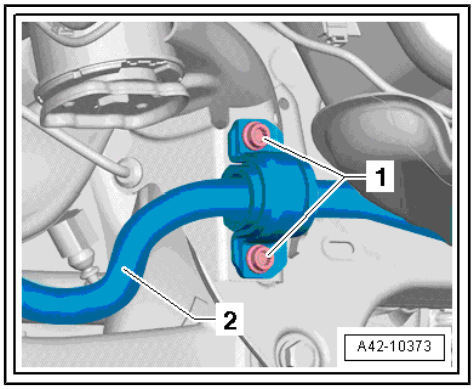


Coupling rod and anti-roll bar:

– Check play at coupling rod -4-.



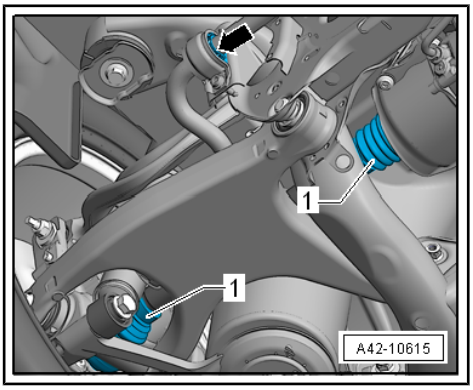
– Check anti-roll bar bush -1- for damage.



Drive shaft:

Only applies to vehicles with four-wheel drive.

– Check drive shaft boots -1- all around for damage and make sure they are seated correctly.



– Repeat checks for components on opposite side of vehicle.
– If faults are found on any of the above components: Renew relevant component.

3.21 Engine, gearbox, final drive and steering: checking for leaks and damage

DANGER!

Risk of fatal injury if high-voltage components are damaged.

- ***Observe warnings for high-voltage system:***
- ***For work in the vicinity of high-voltage components*** ***⇒ page 10*** ***.***

Procedure:

– Check engine and engine ancillaries from below for leaks and damage.
– Check radiator and cooling circuit for leaks and damage.
– Check refrigerant circuit for damage (check air conditioner compressor, condenser and refrigerant lines including connections).
– Check gearbox, final drive and steering for leaks and damage.
– If faults are found: repair or renew relevant component.

3.22 Underbody: checking trim, wheel housing liners, side members and pipes/wiring for damage, and checking that they are properly secured

Procedure:

– Check all underbody trim panels and wheel housing liners for tears and cracks.

– Use your hands to check that all underbody trim panels and wheel housing liners are secured correctly and check for missing fasteners.

– Inspect side members for deformations.

– Check visible area of pipes/wiring and connections for damage and ensure they are secured correctly.

– If faults are found: Renew missing fastener or damaged component.

3.23 Roof insert: checking operation

> ⚠ WARNING
>
> *Risk of injury as engine of high-voltage vehicle can start unexpectedly!*
>
> ♦ *Observe warnings for high-voltage system:*
>
> ♦ *For work that must be performed with the ignition switched on* *⇒ page 11 .*

Only applies to equipment version with sliding/tilting sunroof.

Cleaning and lubricating the roof insert is a repair measure and should be charged separately.

Procedure:

– Open and close roof system completely and check for unusual noises and stiffness/sticking.

– If there is unusual noise or stiffness/sticking: Clean and lubricate roof insert ⇒ page 52 .

3.24 Roof insert - sliding/tilting sunroof: cleaning and lubricating

> ⚠ WARNING
>
> *Risk of injury as engine of high-voltage vehicle can start unexpectedly!*
>
> ♦ *Observe warnings for high-voltage system:*
>
> ♦ *For work that must be performed with the ignition switched on* *⇒ page 11 .*

Special tools and workshop equipment required

♦ Lubricating paste - G 060 751 A2-

♦ Krytox lubricating paste - G 052 141 A2-

♦ Cleaning solution - D 009 401 04-

♦ Industrial vacuum cleaner, e.g. wet/dry vacuum cleaner - VAS 5128-

♦ Commercially available paintbrush: approx. 15 mm wide and bent by approx. 40° using workshop equipment

♦ Fine-pored sponge (e.g. a piece of household sponge without a scouring surface)

Cleaning and lubricating the roof insert is a repair measure and should be charged separately.

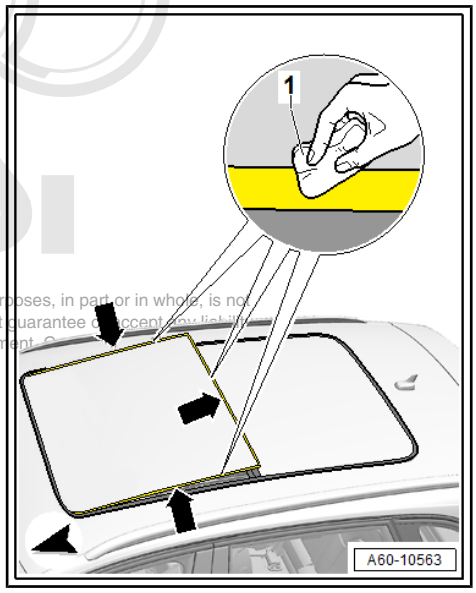
Protect vehicle interior from becoming dirty.

Step 1 - cleaning and lubricating glass panel seal:

– Tilt open glass panel at rear.

– Remove all accessible grease and dirt residue from glass panel seal using cleaning solution - D 009 401 04- and a lint-free cloth.

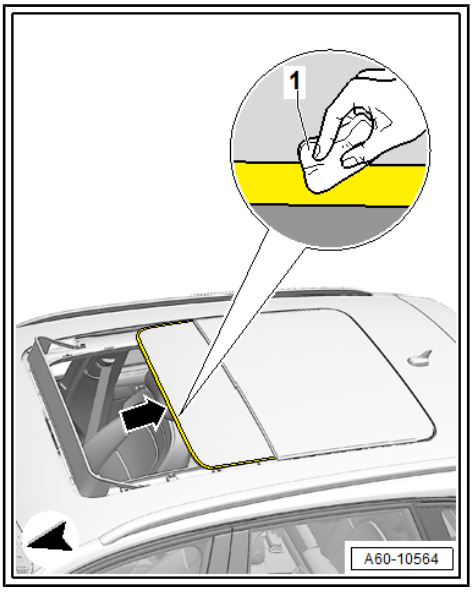
– Use a fine-pored sponge -1- to lubricate sides and rear of glass panel seal -arrows- with Krytox lubricating paste - G 052 141 A2- . Make sure that no coarse residue remains visible after applying lubricant.



– Open glass panel completely.

– Using cleaning solution - D 009 401 04- and a lint-free cloth, remove any grease or dirt residue from front of glass panel seal in area that has not been lubricated yet.

– Use a fine-pored sponge -1- to lubricate glass panel seal at front -arrow- with Krytox lubricating paste - G 052 141 A2- . Make sure that no coarse residue remains visible after applying lubricant.



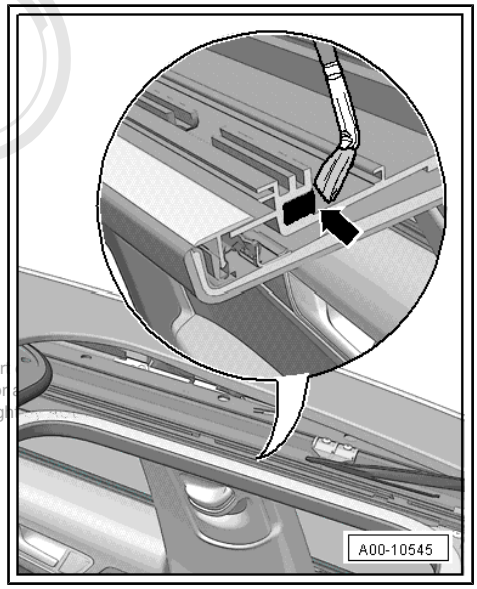
Step 2 - cleaning and lubricating guide rails:

Glass panel opened completely.

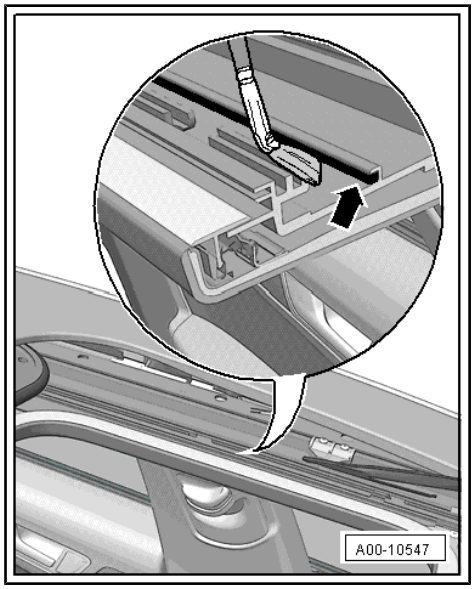
– First use an industrial vacuum cleaner to remove any loose residue from guide rails.

– Remove grease and dirt from guide rails with a lint-free cloth.

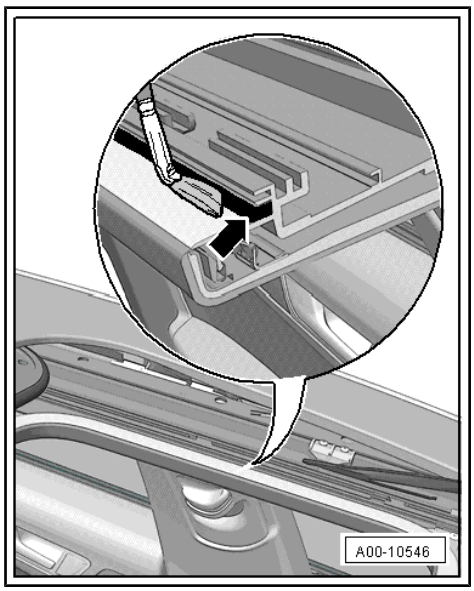
– Use a paintbrush to lubricate inside of guide rail -arrow- with lubricating paste - G 060 751 A2- .



– Use a paintbrush to lubricate outside of guide rail -arrow- with lubricating paste - G 060 751 A2- .



– Use a paintbrush to lubricate side guide rail of sliding headliner -arrow- with lubricating paste - G 060 751 A2- .
– Remove surplus lubricant on guide rails with a lint-free cloth.
– Repeat procedure on opposite side of vehicle.



– Open and close roof system completely and check again for surplus lubricant.

3.25 Roof insert - panorama sunroof: cleaning and lubricating

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- *Observe warnings for high-voltage system:*
- *For work that must be performed with the ignition switched on* *⇒ page 11* *.*

Special tools and workshop equipment required

- Spray-on grease - G 060 751 A3-
- Lubricating paste - G 060 751 A2-
- Krytox lubricating paste - G 052 141 A2-
- Cleaning solution - D 009 401 04-
- Industrial vacuum cleaner, e.g. wet/dry vacuum cleaner - VAS 5128-
- Commercially available paintbrush, approx. 15 mm wide and bent by approx. 40° using workshop equipment
- Fine-pored sponge (e.g. a piece of household sponge without a scouring surface)

Cleaning and lubricating the roof insert is a repair measure and should be charged separately.

Protect vehicle interior from becoming dirty.

Step 1 - cleaning and lubricating slotted guide for glass panel:

– Open sunroof sun blind completely.

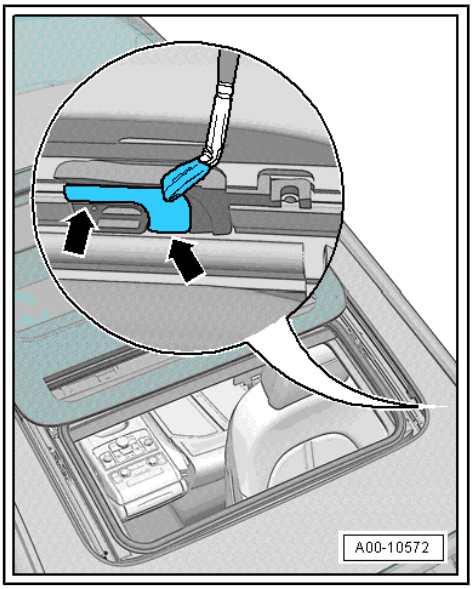
– Open glass panel completely.

– Remove grease and dirt from slotted guide with a lint-free cloth.

– Use a paintbrush to lubricate inside of slotted guide for glass panel -arrows- with lubricating paste - G 060 751 A2- .

– Remove surplus lubricant from slotted guide with a lint-free cloth.

– Repeat procedure on opposite side of vehicle.



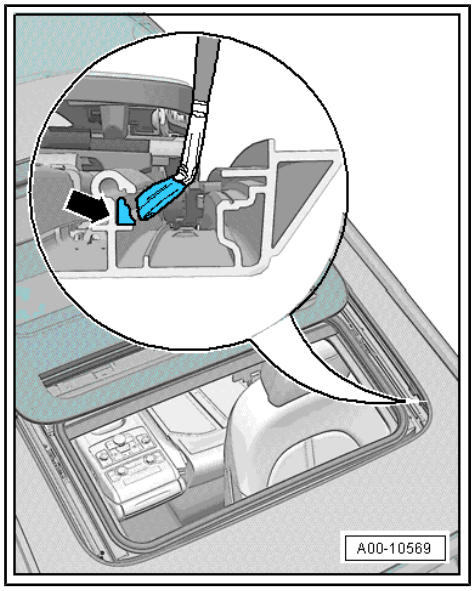
Step 2 - cleaning and lubricating guide rails:

Glass panel opened completely.

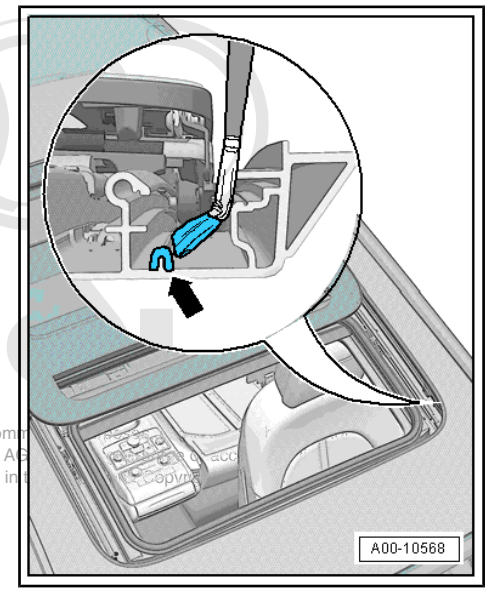
– First use an industrial vacuum cleaner to remove any loose residue from guide rail.

– Remove grease and dirt from guide rail with a lint-free cloth.

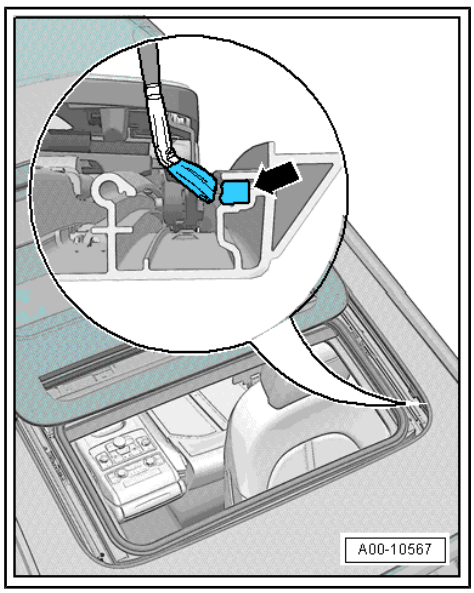
– Use a paintbrush to lubricate top guide rail of glass panel -arrow- with lubricating paste - G 060 751 A2- .



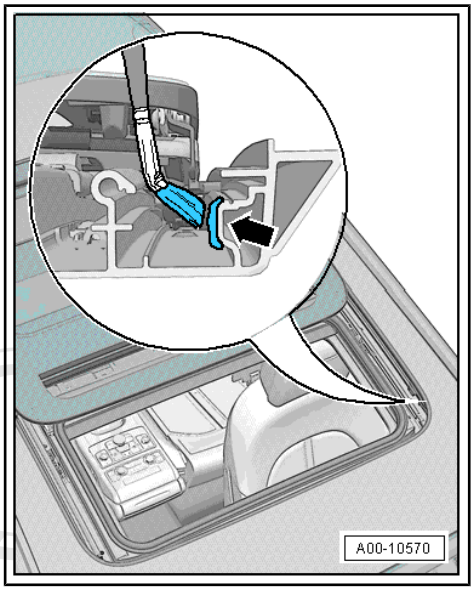
– Use a paintbrush to lubricate bottom guide rail of glass panel -arrow- with lubricating paste - G 060 751 A2- .



– Use a paintbrush to lubricate outer guide rail -arrow- with lubricating paste - G 060 751 A2- .



– Use a paintbrush to lubricate outer guide surface -arrow- with lubricating paste - G 060 751 A2- .
– Repeat procedure on opposite side of vehicle.

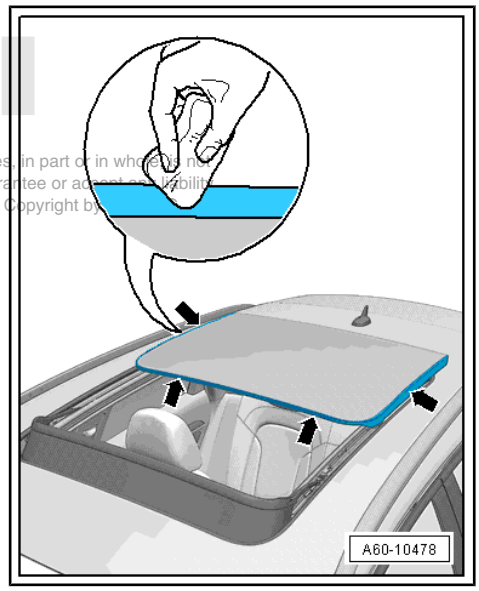


– Open and close roof system completely and check again for surplus lubricant.

Step 3 - cleaning glass panel:

Glass panel opened completely.

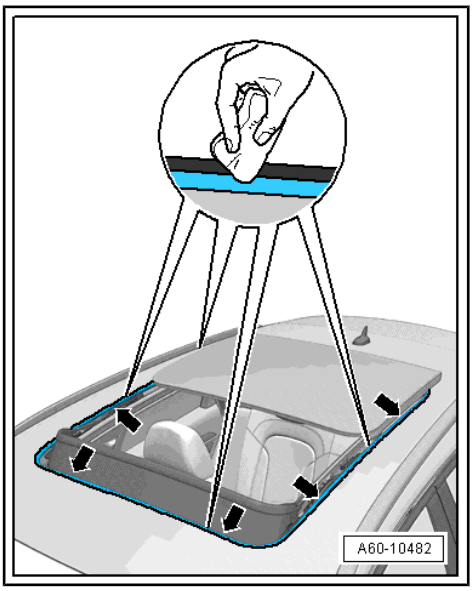
– Remove grease and dirt from front and side edges of glass panel -arrows- using cleaning solution - D 009 401 04- and a lint-free cloth.



Step 4 - cleaning and lubricating roof frame seal:

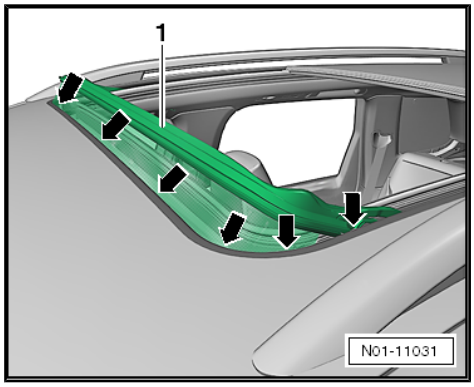
Glass panel opened completely.

– Remove grease and dirt from roof frame seal -arrows- using cleaning solution - D 009 401 04- and a lint-free cloth.
– Use a fine-pored sponge to lubricate roof frame seal -arrows- with Krytox lubricating paste - G 052 141 A2- . Make sure that no coarse residue remains visible.



Step 5 - cleaning wind deflector:

– Clean screen and frame of wind deflector -1- using a sponge and soap solution.
– Use an industrial vacuum cleaner to remove any loose residue from wind deflector slot -arrows-.



3.26 Bonnet arrester hook: lubricating

Special tools and workshop equipment required

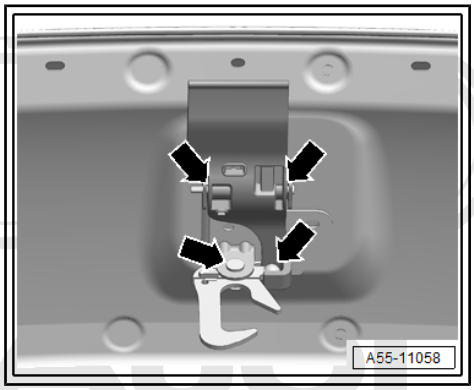
♦ Universal spray oil - G 000 115 A2-

Requirements:

• The vehicle must be at least at room temperature.

Procedure:

– First clean all lubricating points with a lint-free cloth.
– Lubricate arrester hook with universal spray oil - G 000 115 A2- at points marked -arrows-.
– Operate moving parts several times so that the lubricant is able to penetrate.
– Remove surplus lubricant with cloth.



3.27 Windscreen washer system: checking spray pattern and adjusting if necessary

Checking windscreen spray pattern: triple washer jets ⇒ page 59

Checking windscreen spray pattern: hybrid jets ⇒ page 59

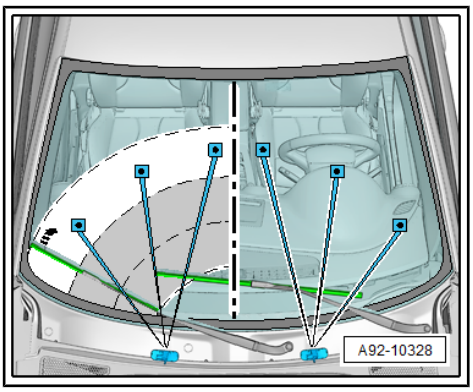
Setting windscreen spray pattern, triple washer jets ⇒ page 59

Setting windscreen spray pattern: hybrid jets ⇒ page 60

3.27.1 Checking windscreen spray pattern: triple washer jets

The spray pattern must meet the following specifications:

- Evenly distributed, symmetrical spray pattern
- Uniform, precise jets of water
- Jet unit (passenger's side): Water from all washer jets makes contact within upper third of wiper area -illustration-
- Jet unit (driver's side): Spray pattern symmetrically opposite that of jet unit on passenger's side



Procedure:

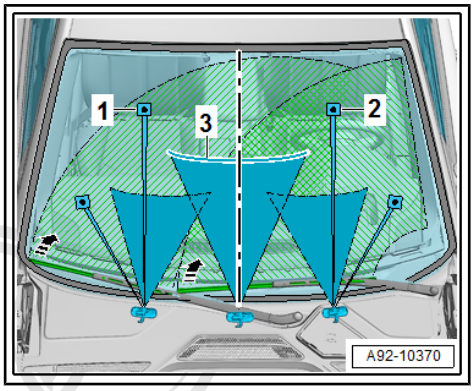
– Operate windscreen washer system and check spray pattern.

– If spray pattern is not set as specified, adjust windscreen washer jets ⇒ page 59 .

3.27.2 Checking windscreen spray pattern: hybrid jets

The spray pattern must meet the following specifications:

- Jet unit (passenger's side): Upper concentrated jet should make contact near upper edge of wiper area -1-.
- Jet unit (driver's side): Upper concentrated jet should make contact -2- at same level as stream of jet unit (right-side).
- Jet unit (centre): Spray jet should make contact -3- in area between spray jet of correctly adjusted side jet units and their upper concentrated jets.



Procedure:

– Operate windscreen washer system and check spray pattern.

– If spray pattern is not set as specified, adjust windscreen washer jets ⇒ page 60 .

3.27.3 Setting windscreen spray pattern: triple washer jets

Special tools and workshop equipment required

♦ Commercially available adjusting tool (e.g. adjusting tool - T10127-) or suitable needle

Procedure:

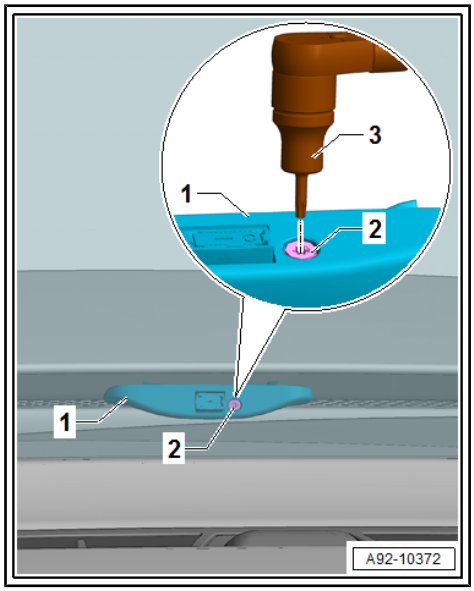
– Use adjusting tool to align washer jets as required according to specification.

– If the spray pattern still does not correspond to the specification, clean appropriate washer jets ⇒ Electrical system; Rep. gr. 92 ; Windscreen wiper system; Adjusting washer jets .

3.27.4 Setting windscreen spray pattern, hybrid jets

Procedure:

- Via adjuster screw -2-, set jet unit being adjusted according to specified pattern (use a tool with size 9 external Torx -3-).
- If the spray pattern still does not correspond to the specification, clean appropriate washer jets ⇒ Electrical system; Rep. gr. 92 ; Windscreen wiper system; Adjusting washer jets .



Note

Only the height of the jets of water of each jet unit can be adjusted, and all jets must be adjusted together via an adjuster screw. The jets cannot be adjusted individually or laterally.

3.28 Wiper blades: checking for damage

Step 1 - service position:

- Switch off ignition.
- Press windscreen wiper lever downwards briefly.

Step 2 - checking:

- Lift windscreen wipers and check each wiper blade for tears, cuts, abraded areas or other damage.
- If you find damage: Renew relevant wiper blade. Windscreen wiper system ⇒ Electrical system; Rep. gr. 92 ; Windscreen wiper system; Removing and installing wiper blade .

3.29 Headlight washer system: checking operation

Not all vehicles are equipped with a headlight washer system (depending on equipment version).

Procedure:

- Operate headlight washer system and check function.
- If water jet does not contact headlight: Renew relevant washer jets ⇒ Electrical system; Rep. gr. 92 ; Headlight washer system; Removing and installing washer jets .

Note

The headlight washer jets are set by the manufacturer and therefore cannot be adjusted.

3.30 Headlights: checking for correct adjustment

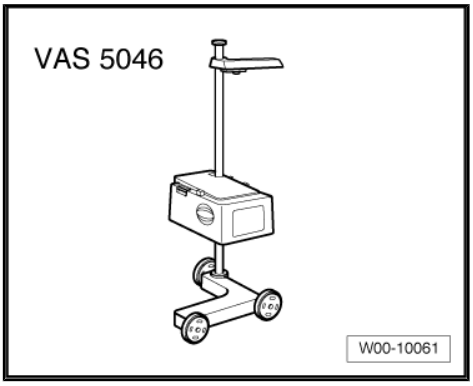
WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- *Observe warnings for high-voltage system:*
- *For work that must be performed with the ignition switched on ⇒ page 11 .*

Special tools and workshop equipment required

- Headlight adjustment unit - VAS 5046 A-



- Or: headlight adjustment unit - VAS 5047 A-
- Or: headlight adjustment unit - VAS 5208A-
- Or: headlight adjustment unit - VAS 5209B-

Performed as part of an inspection, this check is merely an abbreviated form of the headlight adjustment check required, for example, after a repair, and does not take the place of a full headlight adjustment check.

Do not adjust the vehicle load or the tyre pressures for this procedure.

Do not adjust the headlights to their basic setting using the vehicle diagnostic tester.

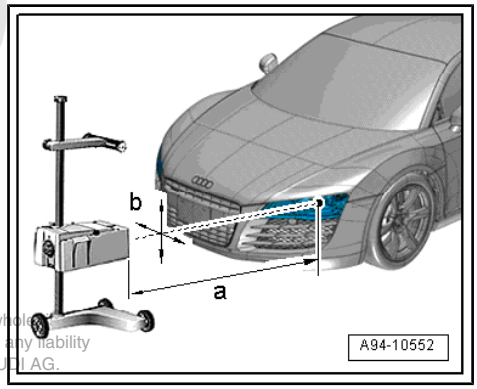
Checking and adjusting the headlights according to the instructions in the Workshop Manual is a repair measure and must be charged separately.

Procedure:

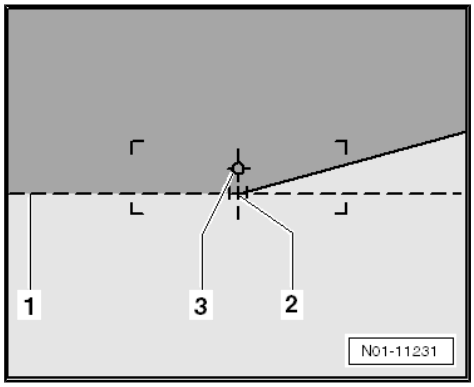
– For vehicles with manually adjustable headlight range control: Use manual adjuster to set to basic setting.

– Activate dipped headlights.

– Align headlight adjustment unit parallel to vehicle and position it centrally in front of headlight at a distance of 30 to 70 cm -distance a-; deviation from centre of light emission surface must not exceed 3 cm -distance b-.



– Adjust dip setting of headlight adjustment unit so that beam of headlight falls on test screen according to following parameter: Horizontal light-dark border should coincide with setting line -1-.



– Read off dip setting of headlight adjuster.
– Repeat procedure on opposite side.
– Compare dip setting on left and right sides.
– If they deviate 2.0% or more from one another: Check and adjust headlight setting according to procedure specified in Workshop Manual ⇒ Electrical system; Rep. gr. 94 ; Headlights; Adjusting headlights .

3.31 Headlights and reversing lights, side lights, number plate lights, turn signals, hazard warning lights: checking operation

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- *Observe warnings for high-voltage system:*
- *For work that must be performed with the ignition switched on ⇒ page 11 .*

Check the lights/signals listed below from the outside to ensure they function properly.

Procedure:

– Activate side lights and check that the following exterior lights function properly:

- Side lights (front)
- Side lights (rear)
- If applicable: additional tail light under open rear lid

– Switch on ignition.
– Check operation of daytime running lights (front).
– Operate right turn signal, left turn signal and hazard warning lights, and check that corresponding turn signal lamps at front, rear and side function properly.

– Activate dipped headlights and check that the following exterior lights function properly:

♦ Dipped headlights

♦ Taillights

♦ Number plate lights

– Use appropriate switch to activate fog lights and check that they function properly.

– Check that main beam headlights function properly.

– Operate brakes and check function of all brake lights.

– Engage reverse gear and check that all reversing lights function properly. This model is fitted with two reversing lights.

– Use appropriate switch to activate rear fog lights and check that they function properly. This model is fitted with two rear fog lights.

– Renew any defective bulbs.

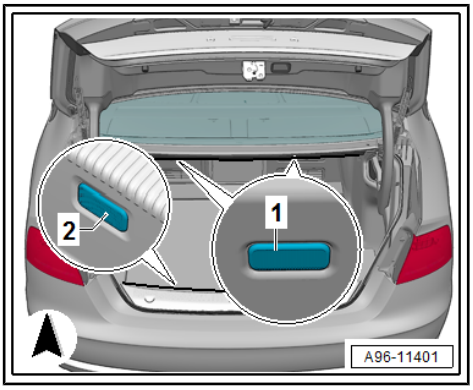
Note

It is possible to deactivate the daytime running lights intentionally via the appropriate MMI setup menu.

3.32 Luggage compartment lighting: checking operation

Procedure:

– Check that luggage compartment lights shown -arrows- function properly.



3.33 Glove box light, interior lighting and reading light: checking operation

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- *Observe warnings for high-voltage system:*
- *For work that must be performed with the ignition switched on* *⇒ page 11* *.*

Procedure:

– Open glove box and check that glove box light functions properly.

– Use the appropriate switches to activate the following interior lights and check that the lights function properly:

- If fitted: All reading lights in roof frame
- Interior lights in headliner at front
- Interior lights in headliner at rear

Note

Checking the ambient lighting is NOT part of the inspection.

3.34 Horn: checking operation

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- ***Observe warnings for high-voltage system:***
- ***For work that must be performed with the ignition switched on ⇒ page 11 .***

Procedure:

– Switch on ignition.

– Operate horn and check proper function of treble horn and bass horn.

Note

Perform this check outdoors, e.g. when driving the vehicle to the workshop or during a road test.

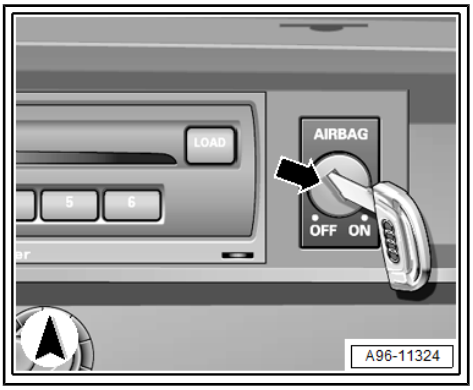
3.35 Front passenger's airbag: checking key switch on / off and setting to "on"

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- ***Observe warnings for high-voltage system:***
- ***For work that must be performed with the ignition switched on ⇒ page 11 .***

Switch for “Airbag ON/OFF” is located in glove box -arrow-.



Procedure:

– Turn switch to “AIRBAG OFF” position.
– Switch ignition on and wait for vehicle to complete initial system check.
– Check that “PASSENGER AIRBAG OFF” display lights up in instrument cluster.
– Switch off ignition.
– Turn switch to “AIRBAG ON” position.
– Switch ignition on and wait for vehicle to complete initial system check.
– Check that “PASSENGER AIRBAG OFF” disappears.
– Switch off ignition.

Note

The amount of time needed for the vehicle system check varies depending on the model and equipment.

3.36 Seat belts: checking that retaining rivets are fitted, and checking locking action of automatic belt retractor

Procedure:

For all seat belts installed:

– Check that retaining rivets/clips are fitted.
– Check locking action of automatic belt retractors when belt is unrolled abruptly.

Note

If the seat belt is securing an object (e.g. child seat), do not release the seat belt. Only check the locking action when the belt is buckled; it is not necessary to check the retaining rivet/clip in this case.

3.37 Instrument cluster: checking warning lamps

Reading out the event memory is a repair measure and should be charged separately.

Procedure:

– Start engine and wait for vehicle to complete initial system check.
– Check whether warning lamps light up in instrument cluster.
– Switch off engine.
– If relevant warning lamps light up: Read out event memory ⇒ page 26 .

Note

The amount of time needed for the vehicle system check varies depending on the model and equipment.

3.38 Warning triangle: checking availability

Procedure:

– Check that warning triangle(s) is/are present.

3.39 First-aid kit: checking and recording expiry date

The first-aid kit is located in the storage net (right-side) in the luggage compartment.

Procedure:

– Take out first-aid kit and check expiry date printed on kit.

– Record expiry date in Maintenance table.

– If expiry date has passed: Renew first-aid kit.

3.40 Vehicle keys: checking operation and recording number of keys given to customer

Procedure:

– Open key ring to check each key individually.

– Start engine with each key individually.

– Record number of keys which have been matched and handed over in Maintenance table.

– If a vehicle key has not been matched: Re-match all keys to vehicle using Guided Function of vehicle diagnostic tester via online tool GeKo.

– If there is reason to suspect improper use (e.g. missing key): See current notices from AUDI AG under “Technical information ► Anti-theft protection” on ServiceNet.

Note

- *Only the key being checked may be inside the vehicle. Place all other keys out of transmission range.*
- *If the key has not been matched, the engine will turn off after a few seconds. In addition, the warning lamp for the immobiliser or the display “SAFE” will appear in the instrument cluster, depending on the vehicle equipment.*

3.41 Engine oil: draining

Note

- *Oil should always be changed when engine is warm.*
- *Always observe the relevant environmental regulations for disposal.*
- *Keep components clean.*

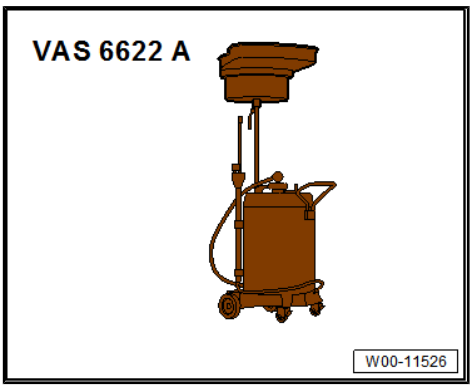
8-cyl. petrol engine 4.0 ltr. TFSI ⇒ page 67

12-cyl. petrol engine 6.3 ltr. FSI ⇒ page 68

3.41.1 8-cyl. petrol engine 4.0 ltr. TFSI

Special tools and workshop equipment required

- Used oil collection and extraction unit - V.A.S 6622 A-



- Torque wrench - V.A.G. 1410- , measuring range 4 to 20 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Oil drain plug on sump	20
Oil drain plug on oil filter cover	4

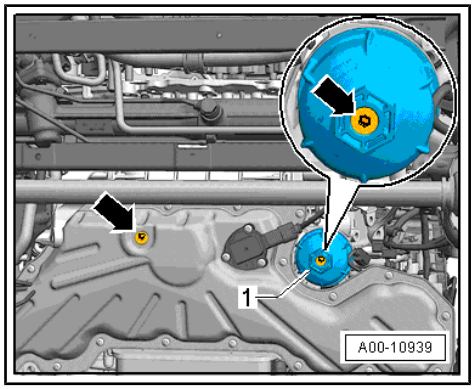
Removal steps:

– Remove noise insulation ⇒ page 18 .

Procedure:

– Place oil drip tray under engine sump.

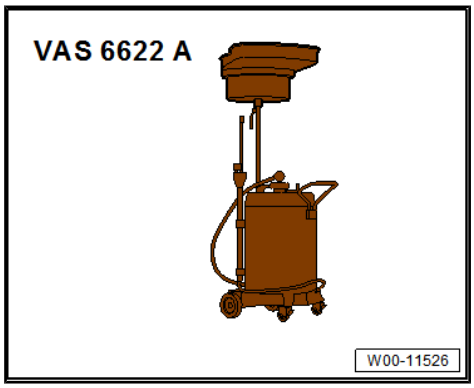
– Unscrew oil drain plugs -arrows- of sump and in oil filter cover -1-.
– Drain engine oil from oil filter housing and sump.
– Renew seals of both oil drain plugs.
– Re-install both oil drain plugs and tighten to specified torque (see table of tightening torques for installation ⇒ page 67).



3.41.2 12-cyl. petrol engine 6.3 ltr. FSI

Special tools and workshop equipment required

♦ Used oil collection and extraction unit - V.A.S 6622 A-



♦ Torque wrench - VAS 6583- , measuring range 3 to 60 Nm
♦ Or: torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
♦ Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Oil drain plug on sump	30

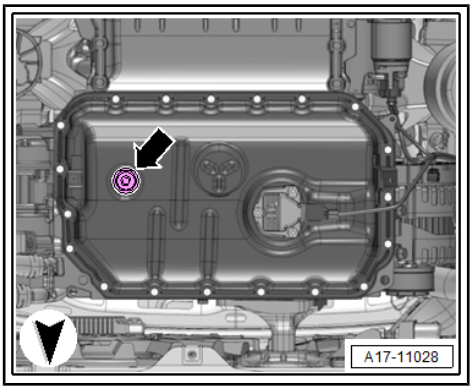
Removal steps:

– Remove noise insulation ⇒ page 18 .

Procedure:

– Place oil drip tray under engine sump.

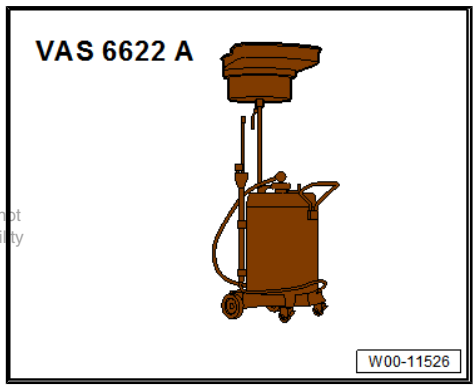
– Unscrew oil drain plug of sump -arrow-.
– Drain engine oil from sump.
– Renew seal for oil drain plug.
– Screw oil drain plug into sump and tighten to specified torque (see table of tightening torques for installation ⇒ page 68).



3.42 Engine oil: extracting

Special tools and workshop equipment required

♦ Used oil collection and extraction unit - V.A.S 6622 A-



Procedure:

– Pull oil dipstick/sealing plug out of guide tube.
– Insert extraction probe of oil extraction unit into guide tube. Use flexible extraction probe with largest possible diameter and insert without using any significant force. Otherwise the tip can become diverted on the bottom of the sump and a large amount of used oil will remain in the engine.
– Extract engine oil completely. Observe operating instructions for extraction unit.
– Finally, install oil dipstick/sealing plug.

Note

♦ *Oil should always be changed when engine is warm.*
♦ *Always observe the relevant environmental regulations for disposal.*
♦ *Keep components clean.*

3.43 Engine oil: renewing oil filter

3.43.1 4-cyl. petrol engine 2.0 ltr. TFSI hybrid

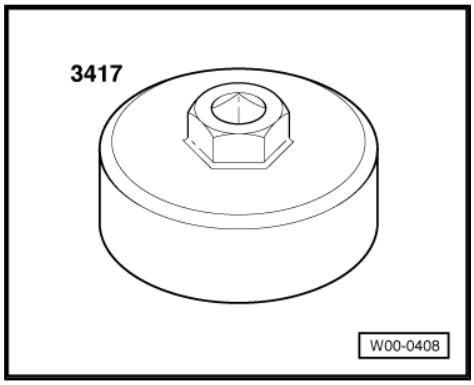
DANGER!

Risk of fatal injury if high-voltage components are damaged.

- *Observe warnings for high-voltage system:*
- *For work in the vicinity of high-voltage components* ⇒ page 10 .

Special tools and workshop equipment required

- Oil filter tool - 3417-



- Hazet strap wrench - 2171-1-
- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Oil filter cartridge	22

Removal steps:

– Remove engine cover panel ⇒ page 15 .

Procedure:

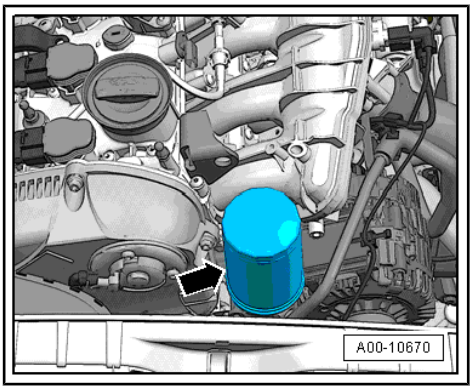
– Use Hazet strap wrench - 2171-1- or oil filter tool - 3417- to slacken oil filter cartridge and then remove it.

– Clean sealing surface for oil filter cartridge at engine.

– Lubricate rubber seal on new oil filter cartridge with engine oil.

– Fit new oil filter cartridge on engine and tighten to specified torque (see table of tightening torques for installation ⇒ page 70).

Continue installation in reverse sequence.



3.43.2 6-cyl. petrol engine 2.5 ltr. FSI/3.0 ltr. TFSI (version 1)

Special tools and workshop equipment required

- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Sealing cap	25

Removal steps:

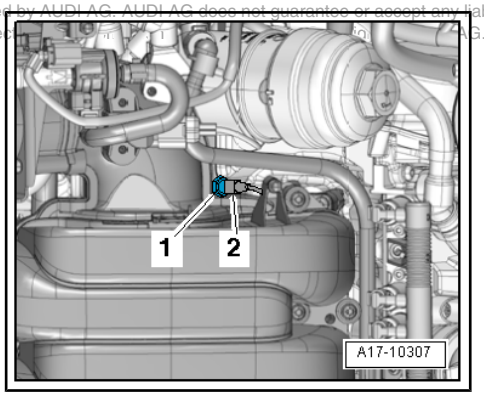
– Remove engine cover panel ⇒ page 15 .

Procedure:

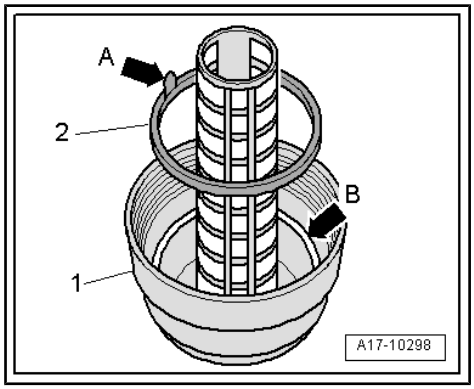
– Loosen sealing cap -illustration- of oil filter using socket (36 mm) . This causes a valve to open.

– Wait a few minutes to allow engine oil to drain from filter housing into crankcase.

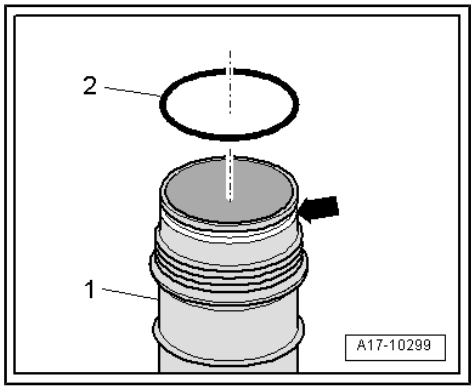
– Completely remove sealing cap. Make sure that no engine oil drips onto engine.



– Pull oil filter element and seal -2- out of sealing cap -1-.
– Clean sealing surface -B- of sealing cap -1-.
– Lightly lubricate new seal -2- with engine oil and insert into sealing cap. Note position of service tab -A- on seal. Flat side of seal profile must face outwards.



– Remove O-ring -2- on oil filter housing -1-.
– Lightly lubricate new O-ring -2- with engine oil and insert into groove -arrow-.
– Fit new oil filter element in sealing cap.
– Screw sealing cap into oil filter housing and tighten it to specified torque using socket (36 mm) (see table of tightening torques for installation ⇒ page 71).



Continue installation in reverse sequence.

Note

There is more than one version of the oil filter for the 6-cylinder 3.0 ltr. TFSI petrol engine ⇒ page 72 .

3.43.3 6-cyl. petrol engine 3.0 ltr. TFSI (version 2)

Special tools and workshop equipment required

- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm

Table of tightening torques for installation:

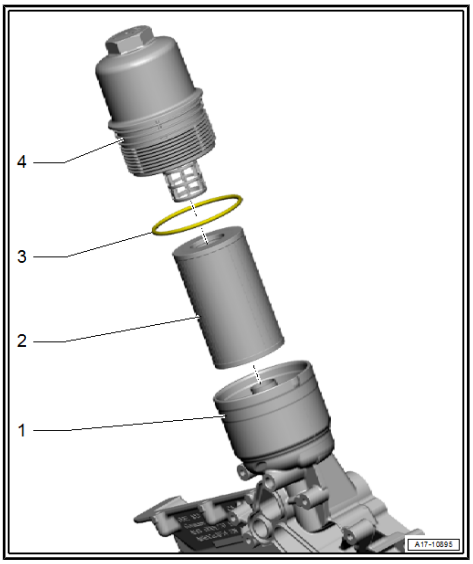
Component/fastener	[Nm]
Sealing cap	25

Removal steps:

– Remove engine cover panel ⇒ page 15 .

Procedure:

- Loosen sealing cap -4- of oil filter using socket (32 mm) . This causes a valve to open.
- Wait a few minutes to allow engine oil to drain from filter housing into crankcase.
- Completely remove sealing cap. Make sure that no engine oil drips onto engine.
- Pull oil filter element -2- and seal -3- out of sealing cap -4-.
- Clean sealing surfaces of sealing cap -4-.
- Lightly lubricate new seal -3- with engine oil and fit it.
- Fit new oil filter element -2- in sealing cap.
- Screw sealing cap -4- into oil filter housing -1- and tighten it to specified torque using socket (32 mm) (see table of tightening torques for installation ⇒ page 72).



Continue installation in reverse sequence.

Note

There is more than one version of the oil filter for the 6-cylinder 3.0 ltr. TFSI petrol engine ⇒ page 71 .

3.43.4 8-cyl. petrol engine 4.0 ltr. TFSI

Special tools and workshop equipment required

- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Sealing cap	25

Requirements:

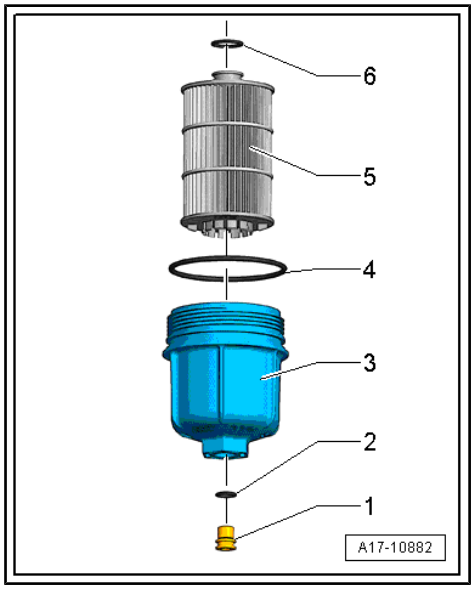
- Engine oil drained.

Procedure:

- Loosen sealing cap using socket (32 mm) and remove it.

– Pull oil filter element -5- and O-ring -4- out of sealing cap -3-.
– Clean sealing surfaces of sealing cap.
– Lightly lubricate new O-rings -4- and -6- with engine oil and insert into grooves.
– Fit new oil filter element -5- in sealing cap -3-.
– Fit sealing cap -3- on engine and tighten to appropriate torque using socket (32 mm) (see table of tightening torques for installation ⇒ page 73).

Continue installation in reverse sequence.



3.43.5 8-cyl. petrol engine 4.2 ltr. FSI

Special tools and workshop equipment required

- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

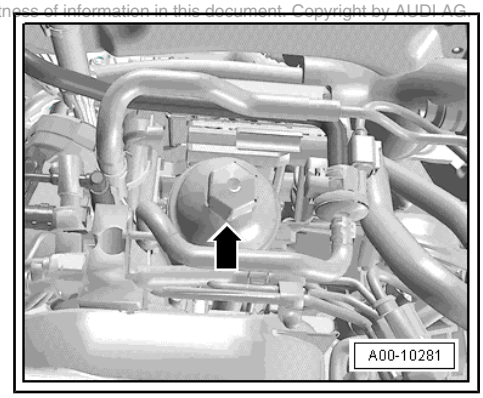
Component/fastener	[Nm]
Sealing cap	25

Removal steps:

– Remove engine cover panel ⇒ page 15 .

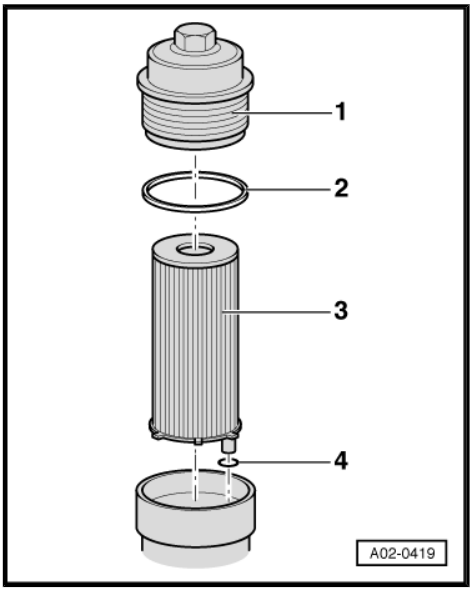
Procedure:

– Loosen sealing cap -arrow- of oil filter using socket (32 mm) . This causes a valve to open.
– Wait a few minutes to allow engine oil to drain from filter housing into crankcase.
– Completely remove sealing cap. Make sure that no engine oil drips onto engine.



– Pull oil filter element -3- and O-ring -2- out of sealing cap -1-.
– Clean sealing surfaces of sealing cap -1-.
– Lightly lubricate new O-rings -2- and -4- with engine oil and insert O-rings.
– Fit new oil filter element -3- in sealing cap.
– Screw sealing cap -1- into oil filter housing and tighten it to specified torque using socket (32 mm) (see table of tightening torques for installation ⇒ page 74).

Continue installation in reverse sequence.



3.43.6 12-cyl. petrol engine 6.3 ltr. FSI

Special tools and workshop equipment required

- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

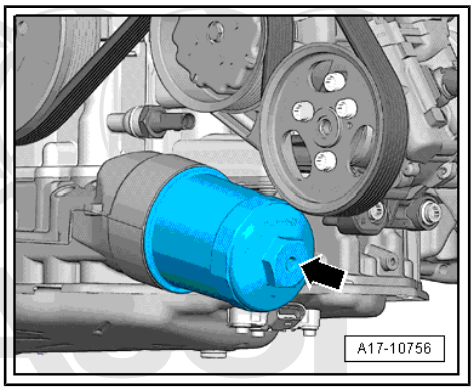
Component/fastener	[Nm]
Sealing cap	25

Requirements:

- Engine oil drained.

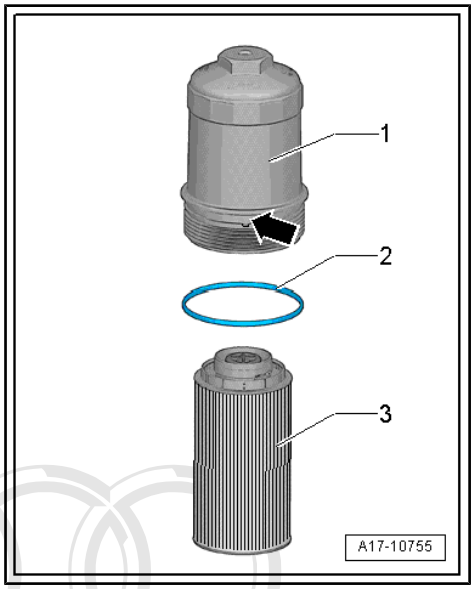
Procedure:

– Loosen sealing cap -arrow- using socket (32 mm) and remove it.



– Pull oil filter element -3- and O-ring -2- out of sealing cap -1-.
– Clean sealing surfaces of sealing cap.
– Lightly lubricate new O-ring -2- with engine oil and insert into groove -arrow-.
– Fit new oil filter element -3- in sealing cap -1-.
– Fit sealing cap -1- on engine and tighten to appropriate torque using socket (32 mm) (see table of tightening torques for installation ⇒ page 75).

Continue installation in reverse sequence.



3.43.7 6-cyl. diesel engine 3.0 ltr. TDI

Special tools and workshop equipment required

- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

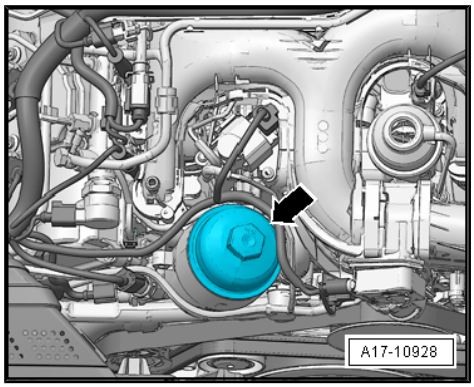
Component/fastener	[Nm]
Sealing cap	35

Removal steps:

– Remove engine cover panel ⇒ page 15 .

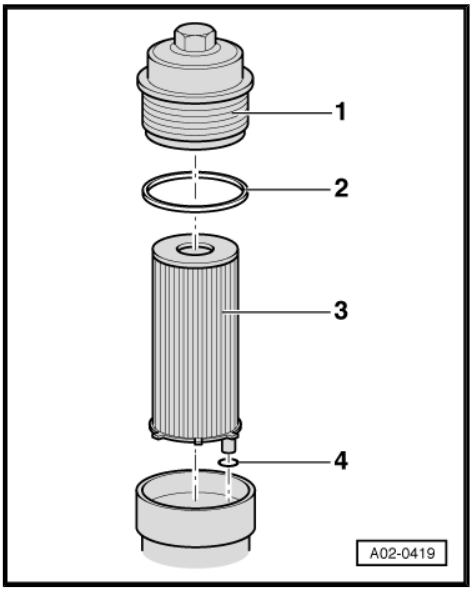
Procedure:

– Loosen sealing cap -arrow- of oil filter using socket (32 mm) . This causes a valve to open.
– Wait a few minutes to allow engine oil to drain from filter housing into crankcase.
– Completely remove sealing cap. Make sure that no engine oil drips onto engine.



– Pull oil filter element -3- and O-ring -2- out of sealing cap -1-.
– Clean sealing surfaces of sealing cap -1-.
– Lightly lubricate new O-rings -2- and -4- with engine oil and insert O-rings.
– Fit new oil filter element -3- in sealing cap.
– Screw sealing cap -1- into oil filter housing and tighten it to specified torque using socket (32 mm) (see table of tightening torques for installation ⇒ page 76).

Continue installation in reverse sequence.



3.43.8 8-cyl. diesel engine 4.2 ltr. TDI

Special tools and workshop equipment required

♦ Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm

Table of tightening torques for installation:

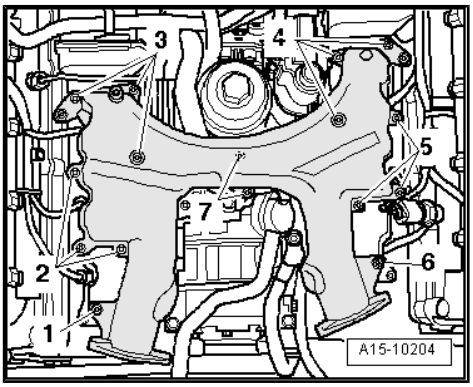
Component/fastener	[Nm]
Sealing cap	35

Removal steps:

– Remove engine cover panel ⇒ page 15.

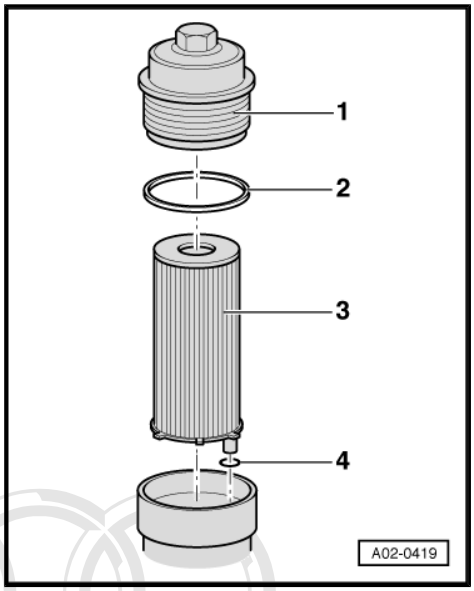
Procedure:

– Loosen sealing cap -illustration- of oil filter using socket (32 mm) . This causes a valve to open.
– Wait a few minutes to allow engine oil to drain from filter housing into crankcase.
– Completely remove sealing cap. Make sure that no engine oil drips onto engine.



– Pull oil filter element -3- and O-ring -2- out of sealing cap -1-.
– Clean sealing surfaces of sealing cap -1-.
– Lightly lubricate new O-rings -2- and -4- with engine oil and insert O-rings.
– Fit new oil filter element -3- in sealing cap.
– Screw sealing cap -1- into oil filter housing and tighten it to specified torque using socket (32 mm) (see table of tightening torques for installation ⇒ page 77).

Continue installation in reverse sequence.



3.44 Engine oil: filling up

Caution

Risk of engine damage if the engine is revved too soon after changing the oil!

- ***The engine must only run at idling speed as long as the oil pressure warning lamp in the instrument cluster is on.***
- ***Increase the engine speed only after the warning lamp has gone out.***

Refer to ELSA maintenance table for engine-specific oil capacities and oil grades.

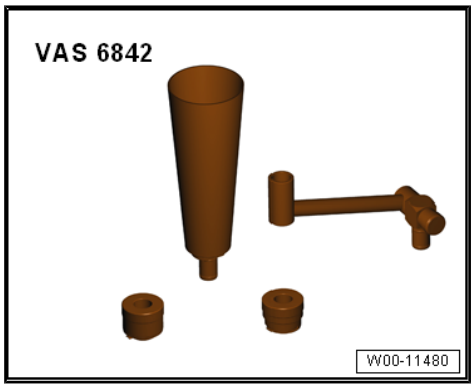
All engines except 12-cyl. petrol engine 6.3 ltr. FSI ⇒ page 78

12-cyl. petrol engine 6.3 ltr. FSI ⇒ page 79

3.44.1 All engines except 12-cyl. petrol engine 6.3 ltr. FSI

Special tools and workshop equipment required

- Oil filler funnel - VAS 6842-



Procedure:

– Fill up engine oil using oil filler funnel - VAS 6842- .

– Then check oil level and adjust if necessary ⇒ page 79 .

3.44.2 12-cyl. petrol engine 6.3 ltr. FSI

Caution

Risk of engine damage if engine oil is poured in too quickly.

- *Do not use funnels or similar filling aids.*
- *Fill up engine oil carefully.*

Procedure:

– Fill up engine oil slowly through oil filler neck.

– Then check oil level and adjust if necessary ⇒ page 79 .

Note

The oil for this engine is filled up via the oil separator structure of the blow-by module and therefore only runs in slowly. Engine oil can enter the intake manifold if the flow becomes backed up.

3.45 Engine oil: checking oil level and correcting if necessary

Caution

Risk of damage to catalytic converter if engine oil level is too high!

- *Drain engine oil until level meets specification.*

Requirements for all engines except V6 diesel engines and V8 petrol engines:

- Engine oil temperature at least 60 °C.
- Wait a few minutes after switching off the engine to allow the oil to flow back into the sump.
- Vehicle must be level (horizontal).

Requirements for V6 diesel engines:

- The engine must be at operating temperature (90 °C oil temperature).
- Wait approx. two minutes after switching off the engine to allow the oil to drain back into the sump.
- Vehicle must be level (horizontal).

Requirements for V8 petrol engines:

- The engine must be at operating temperature (90 °C oil temperature).
- Allow engine to run at idling speed for approx. one minute.
- Switch off engine and wait approx. five minutes (to allow oil to flow back slowly).
- Check engine oil level within one minute.
- Vehicle must be level (horizontal).

Checking oil level with dipstick ⇒ page 80

Checking oil level on MMI ⇒ page 80

3.45.1 Checking oil level with dipstick

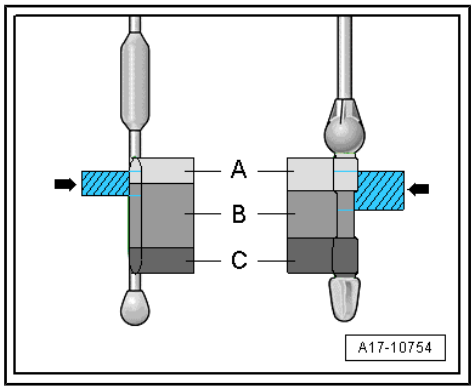
Procedure:

– Pull out dipstick and wipe it off with a clean cloth.

– Re-insert dipstick into guide tube as far as it will go.

– Pull oil dipstick out again and read off oil level on marked area.

– Evaluate oil level and determine any necessary measures accordingly:



Oil level:	Evaluation/measure:
Marked area -arrow-	Optimum oil level.
Area A	Oil must not be topped up.
Area B	Oil can be topped up.
Area C	Oil must be topped up.

Note

Some engines are not fitted with an oil dipstick; if this is the case, use the oil level display in the MMI system ⇒ page 80 .

3.45.2 Checking oil level on MMI

Procedure:

– If necessary, close bonnet.

– Switch on ignition and activate MMI.

– Press function selector button CAR.

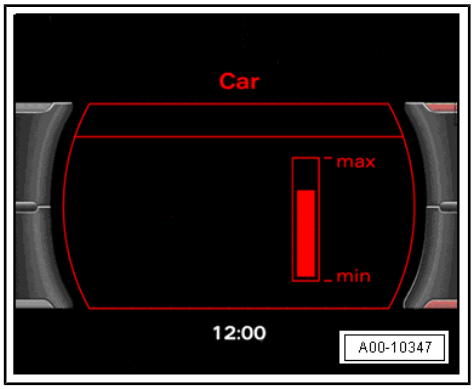
– Under »Car systems«, navigate through following menu structure:

♦ Servicing & checks

♦ Oil level

– Read off and evaluate oil level on display.

– If necessary, correct oil level:



Oil level	Evaluation/measure
At “max”	Drain engine oil until level meets optimum level.
Just under “max”	Optimum oil level.
Significantly under “max”	Fill up engine oil to optimum level (close bonnet to refresh oil level display).

Note

- *The oil level display on the MMI is not refreshed when the bonnet is open.*
- *A warning lamp in the driver information system indicates that the level is too low.*

3.46 Poly V-belts for ancillaries: checking

Caution

Risk of engine damage if camshaft drive slips.

- ***Turn crankshaft only in normal direction of engine rotation.***

This maintenance item only applies to certain countries: Note specification in Maintenance table.

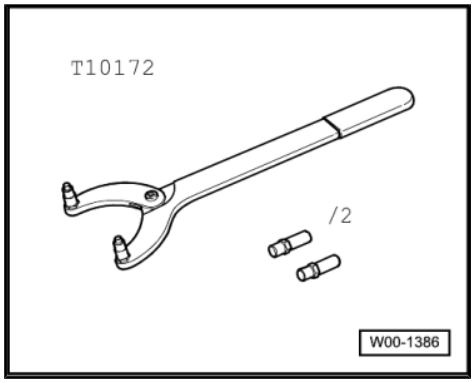
12-cyl. petrol engine 6.3 ltr. FSI ⇒ page 81

8-cyl. diesel engine 4.2 ltr. TDI ⇒ page 83

3.46.1 12-cyl. petrol engine 6.3 ltr. FSI

Special tools and workshop equipment required

♦ Counterhold tool - T10172-



♦ Pins - T10172/1-

Table of test values and procedure guidelines:

This table specifies which component(s) to renew according to the damage or irregularities found.

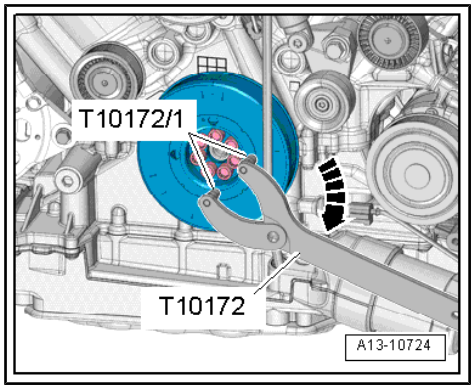
Damage/irregularities found on:	Following component(s) must be renewed:					
	Poly V-belt	Pulley (power steering pump)	Pulley (coolant pump)	Belt tensioner	Vibration damper	Idler rollers
Poly V-belt	X	---	---	---	---	---
Pulley (power steering pump)	X	X	---	---	---	---
Pulley (coolant pump)	X	---	X	---	---	---
Belt tensioner	---	---	---	X	---	---
Vibration damper	X	---	---	---	X	---
Idler rollers	X	---	---	---	---	X

Removal steps:

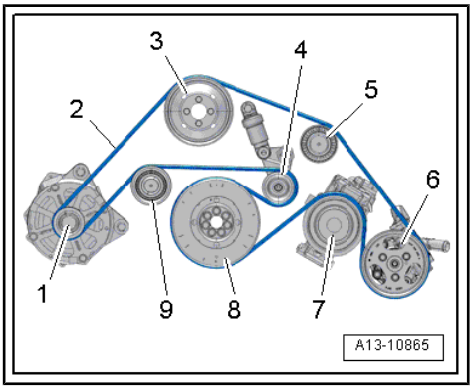
– Remove noise insulation ⇒ page 18 .

Procedure:

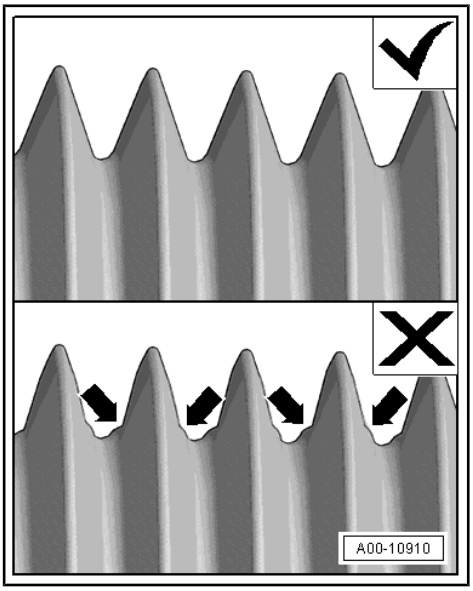
– Apply counterhold tool - T10172- with pin - T10172/1- to crankshaft vibration damper (see -illustration-).



– Turn poly V-belt clockwise using counterhold tool - T10172- and check pulley for air conditioner compressor -7- and entire belt. Look for the following types of damage:



- ♦ Cracks or tears in belt profile and on reverse side (cracks, core fractures, cross-sectional fractures)
- ♦ Layer separation (top layer, cord strands)
- ♦ Fraying of cord strands
- ♦ Foreign objects in belt profile and reverse side
- ♦ Excessive traces of oil and grease on rollers and pulleys
- ♦ Flank wear on pulleys (material wear, frayed flanks, surface cracks); see -illustration-



– If faults are found: Renew components according to table (see table of test values and procedure guidelines ⇒ page 82); refer to Workshop Manual for procedure ⇒ ; Rep. gr. 13 ; Cylinder block (pulley end); Exploded view - poly V-belt drive .

Continue installation in reverse sequence.

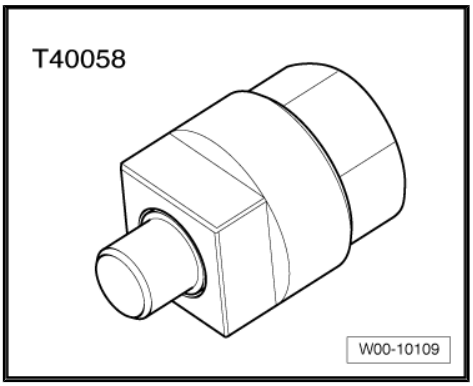
Note

- ♦ *The illustration shows possible damage to the pulley. The appearance of other types of material wear on the load-bearing flanks of the ribbing can be different.*
- ♦ *Vehicles from model year 2014 onwards are not fitted with a power steering pump.*

3.46.2 8-cyl. diesel engine 4.2 ltr. TDI

Special tools and workshop equipment required

- ♦ Adapter - T40058-

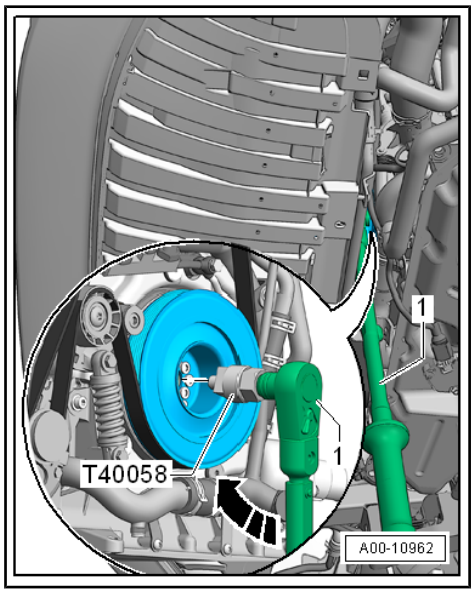


Removal steps:

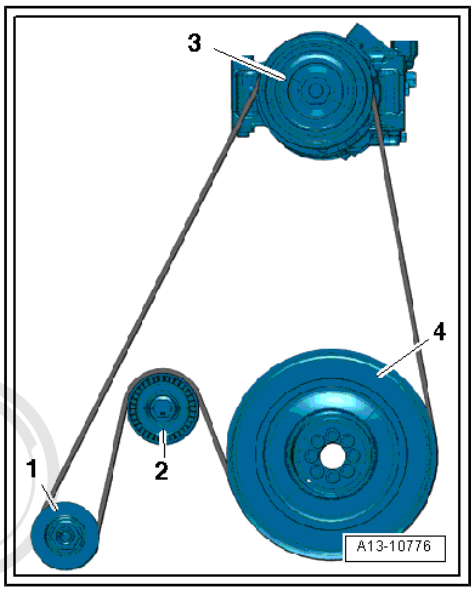
– Remove noise insulation ⇒ page 18 .

Procedure:

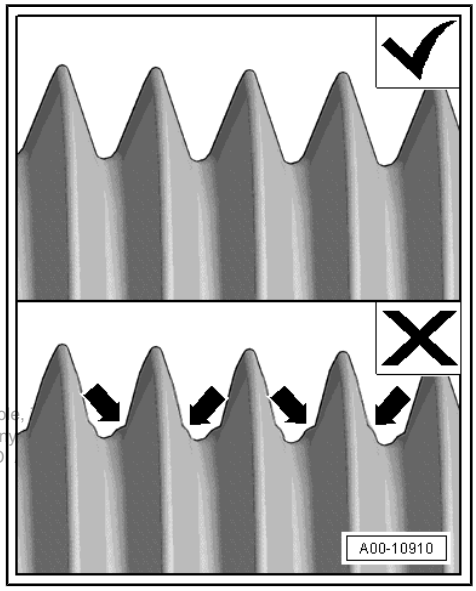
– Apply adapter - T40058- to crankshaft vibration damper (see -illustration-).



– Turn poly V-belt clockwise using reversible ratchet and adapter - T40058- , and check pulley for air conditioner compressor -3- and entire belt. Look for the following types of damage:



- Cracks or tears in belt profile and on reverse side (cracks, core fractures, cross-sectional fractures)
- Layer separation (top layer, cord strands)
- Fraying of cord strands
- Foreign objects in belt profile and reverse side
- Excessive traces of oil and grease on rollers and pulleys
- Flank wear on pulleys (material wear, frayed flanks, surface cracks); see -illustration-



– If faults are found: Renew poly V-belt ⇒ Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .

Continue installation in reverse sequence.

Note

The example given here shows possible damage to a pulley. The appearance of other types of material wear on the load-bearing flanks of the ribbing can be different.

3.47 Spark plugs: renewing

4-cyl. petrol engine 2.0 ltr. TFSI hybrid ⇒ page 85

6-cyl. petrol engine 2.5 ltr. FSI, 3.0 ltr. TFSI ⇒ page 87

8-cyl. petrol engine 4.0 ltr. TFSI ⇒ page 89

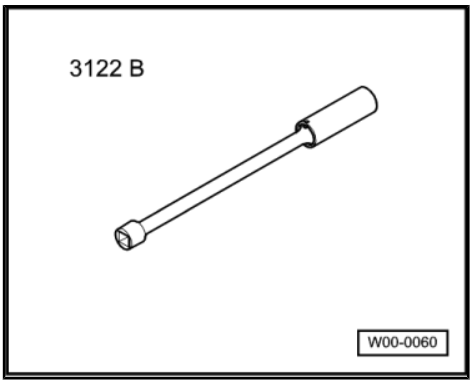
8-cyl. petrol engine 4.2 ltr. FSI ⇒ page 94

12-cyl. petrol engine 6.3 ltr. FSI ⇒ page 97

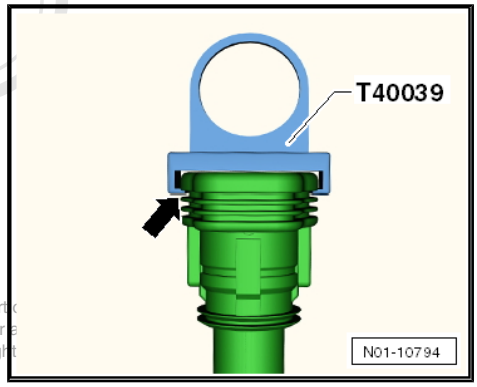
3.47.1 4-cyl. petrol engine 2.0 ltr. TFSI hybrid

Special tools and workshop equipment required

- Spark plug socket and extension - 3122B-



- Puller - T40039-



- Torque wrench - VAS 6583- , measuring range 3 to 60 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Spark plugs	30
Securing bolts for connector rail	5

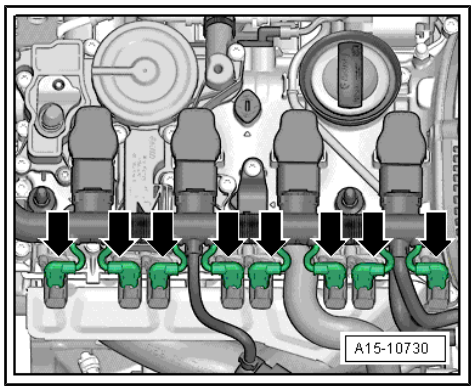
Removal steps:

– Remove engine cover panel ⇒ page 15 .

Step 1 - removing spark plugs:

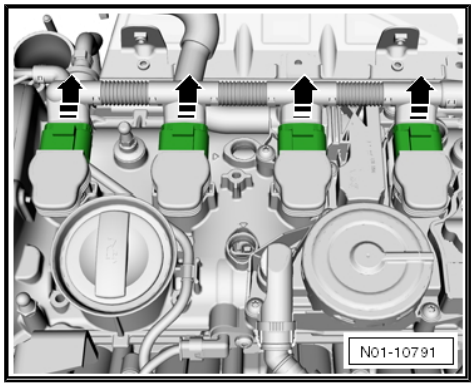
– Unplug electrical connectors -arrows- from actuators for camshaft adjustment.

– Unscrew bolts for connector rail.

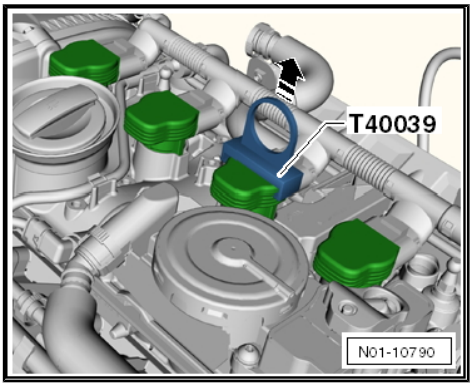


– Release connectors for ignition coils -arrows- and unplug all connectors from ignition coils at the same time.

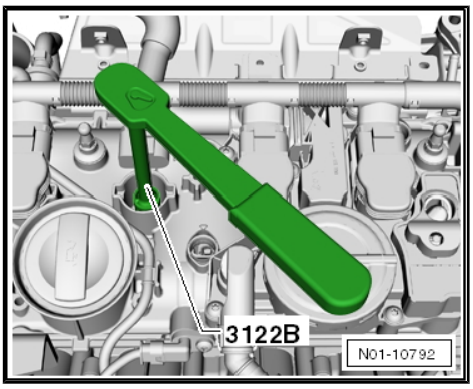
– Place connector rail slightly to one side. Make sure that wiring is not kinked or damaged.



– Position puller - T40039- on thick rib at top of ignition coils and detach all ignition coils from spark plugs one after the other in direction of -arrow-.



– Unscrew spark plugs from cylinder head using spark plug socket - VAS 3122B- .



Step 2 - installing spark plugs:

– Install new spark plugs using spark plug socket and extension - VAS 3122B- and tighten to specified torque (table ⇒ page 86).

– Fit all ignition coils loosely into spark plug apertures and align with connectors of connector rail.

– Push ignition coils evenly onto spark plugs by hand (do not attempt to knock in coils with any kind of tool).

– Align connector rail and plug all connectors onto ignition coils so that they engage.

– Plug electrical connectors into actuators for camshaft adjustment so that they engage.

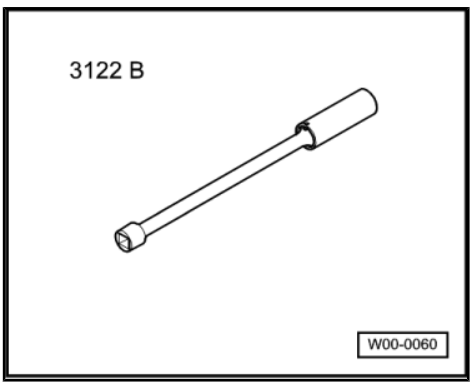
– Install connector rail, screwing in securing bolts to specified torque (see table of tightening torques for installation ⇒ page 86).

Continue installation in reverse sequence.

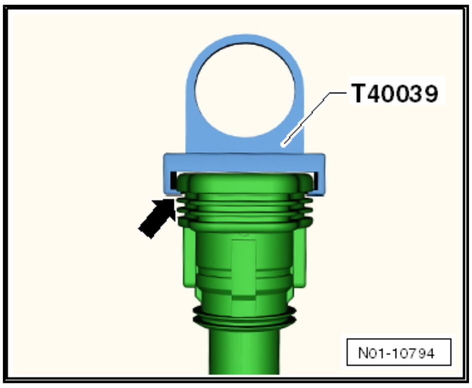
3.47.2 6-cyl. petrol engine 2.5 ltr. FSI, 3.0 ltr. TFSI

Special tools and workshop equipment required

♦ Spark plug socket and extension - 3122B-



◆ Puller - T40039-



◆ Torque wrench - VAS 6583- , measuring range 3 to 60 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Spark plugs	30
Securing bolts for connector rail	5

Removal steps:

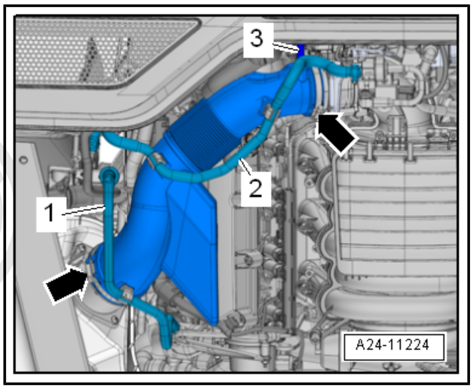
– Remove engine cover panel ⇒ page 15 .

Step 1 - removing spark plugs, cylinder bank (right-side):

– Move fuel line -1- and hose -2- leading to activated charcoal filter clear at air pipe.

– Pull vacuum hose -3- off air pipe.

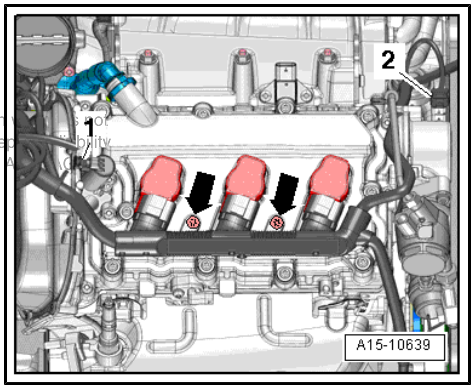
– Loosen hose clips -arrows- and detach air pipe.



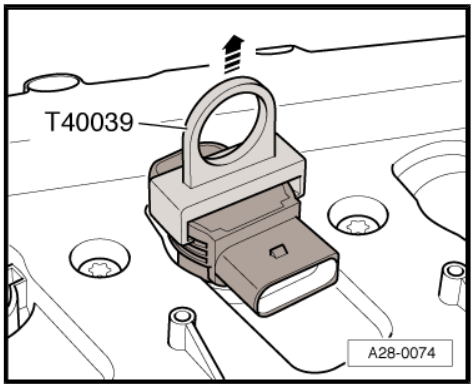
– Unscrew bolts -arrows- for connector rail.

– Release connectors for ignition coils and unplug all connectors from ignition coils at the same time.

– Place connector rail slightly to one side. Make sure that wiring is not kinked or damaged.

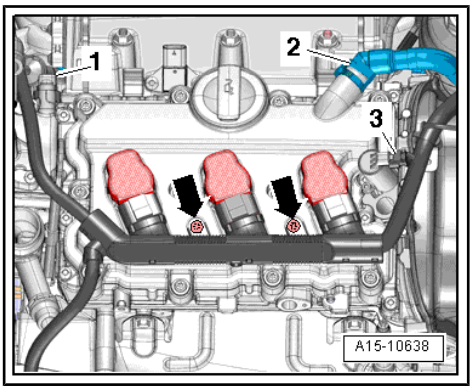


– Position puller - T40039- on thick rib at top of ignition coils and detach all ignition coils from spark plugs one after the other in direction of -arrow-.
– Unscrew spark plugs using spark plug socket and extension - VAS 3122B- .

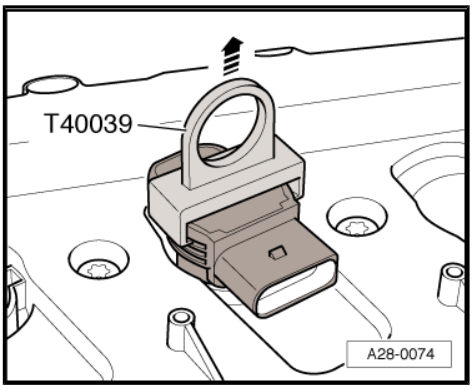


Step 2 - removing spark plugs, cylinder bank (left-side):

– Unscrew bolts -arrows- for connector rail.
– Release connectors for ignition coils and unplug all connectors from ignition coils at the same time.
– Place connector rail slightly to one side. Make sure that wiring is not kinked or damaged.



– Position puller - T40039- on thick rib at top of ignition coils and detach all ignition coils from spark plugs one after the other in direction of -arrow-.
– Unscrew spark plugs using spark plug socket and extension - VAS 3122B- .



Step 3 - installing spark plugs:

– Install new spark plugs using spark plug socket and extension - VAS 3122B- and tighten to specified torque (see table of tightening torques for installation ⇒ page 88).
– Fit all ignition coils loosely into spark plug apertures and align with connectors of connector rail.
– Push ignition coils evenly onto spark plugs by hand (do not attempt to knock in coils with any kind of tool).
– Align connector rail and plug all connectors onto ignition coils so that they engage.
– Install connector rail, screwing in securing bolts to specified torque (see table of tightening torques for installation ⇒ page 88).

Continue installation in reverse sequence.

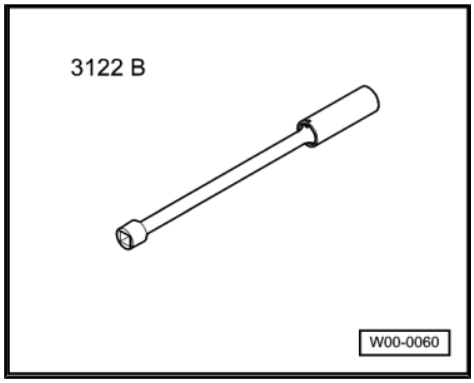
Note

Different versions of air pipe are possible.

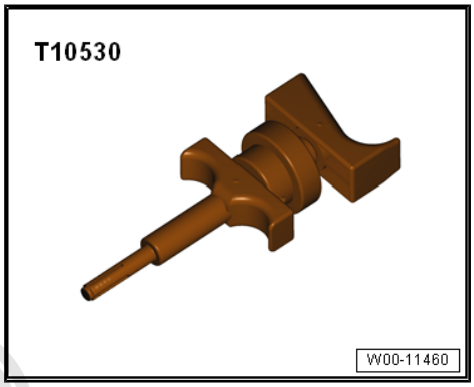
3.47.3 8-cyl. petrol engine 4.0 ltr. TFSI

Special tools and workshop equipment required

♦ Spark plug socket and extension - 3122B-



♦ Puller - T10530-



♦ Torque wrench - VAS 6583- , measuring range 3 to 60 Nm

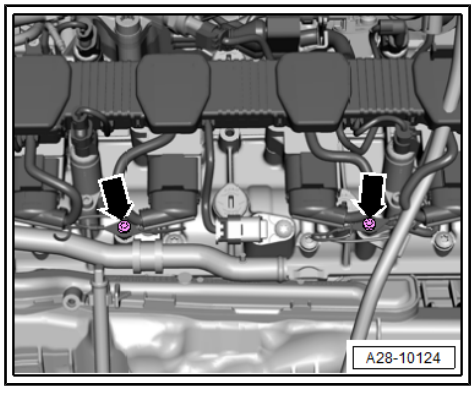
Table of tightening torques for installation:

Component/fastener	[Nm]
Spark plugs	30
Bolt securing ignition coil	9
Securing bolts for connector rail	5

Removal steps:

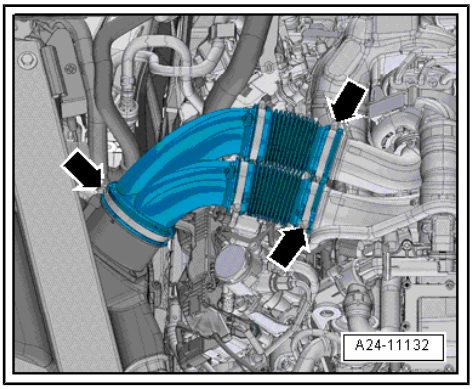
– Remove engine cover panel ⇒ page 15 .

– Applies to vehicles from model year 2014 onwards: Remove nuts -arrows- for earth wires and place them to one side. Make sure that wiring is not kinked or damaged.



Step 1 - removing spark plugs, cylinder bank (right-side):

– Loosen hose clips -arrows- and detach air pipe.



– Unplug the following electrical connectors and move electrical wiring harness clear:

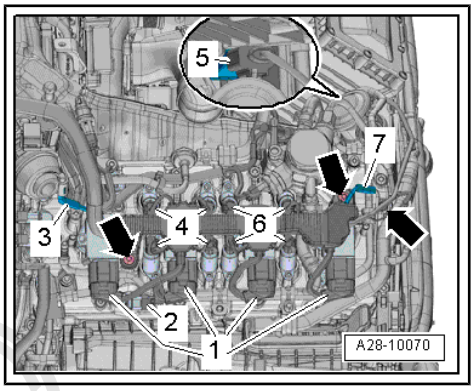
1 - For ignition coils -N70- , -N127- , -N291- , -N292-

2 - For Hall sender - G40-

4 - For inlet/exhaust cam actuators -F456- , -F457- , -F458- and -F459-

5 - For intake air temperature sender - G42-

6 - For inlet/exhaust cam actuators -F452- , -F453- , -F454- and -F455-



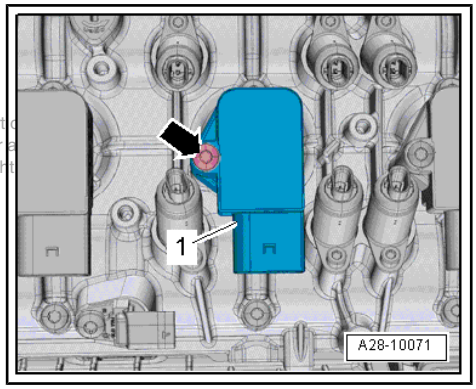
– Disconnect vacuum hoses -3- and -7-.

– Unscrew bolts -arrows- for connector rail.

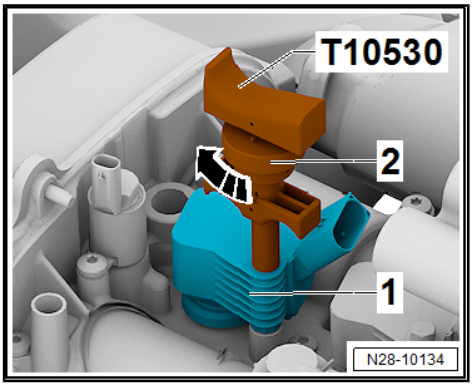
– Push ignition coil connector towards ignition coil, release retainer and detach connector from ignition coil.

– Place connector rail slightly to one side. Make sure that wiring is not kinked or damaged.

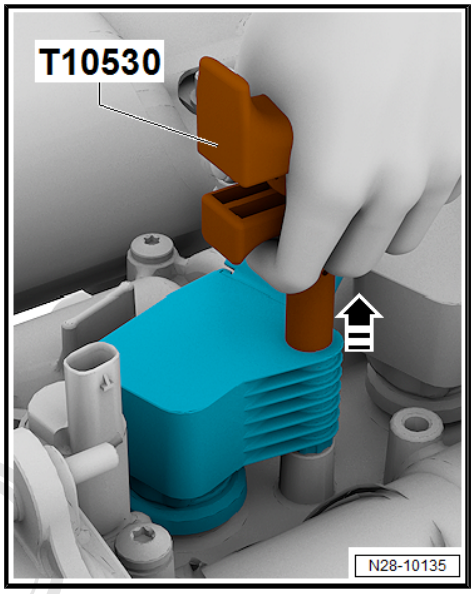
– Unscrew bolts -arrow- for ignition coils.



– Insert puller - T10530- into hole -1- of ignition coil and turn knurled nut -2- clockwise until puller is secured in place.

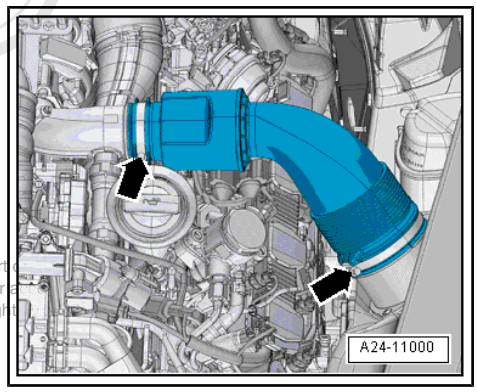


– Carefully pull ignition coil out upwards using puller - T10530- .
– Repeat removal procedure with all other ignition coils.
– Unscrew spark plugs using spark plug socket and extension - VAS 3122B- .

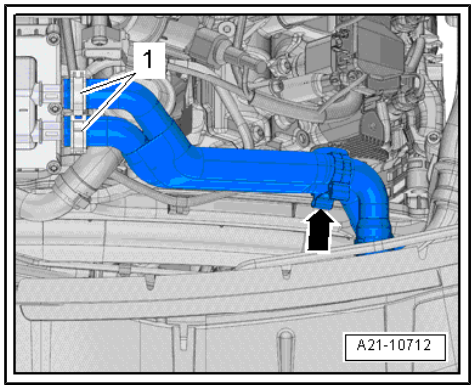


Step 2 - removing spark plugs, cylinder bank (left-side):

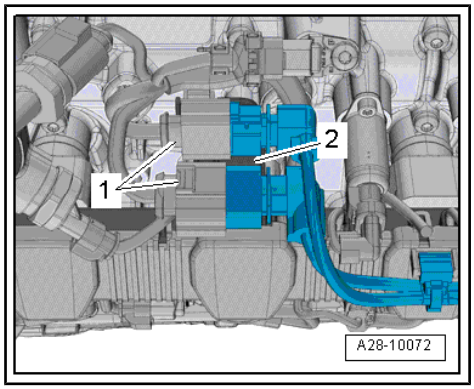
– Applies to S8: Loosen hose clips -arrows- and detach air pipe.



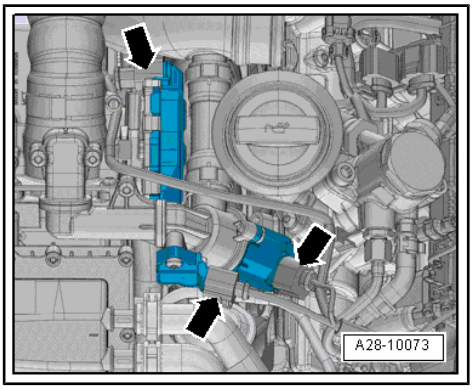
– Move coolant hoses -arrow- clear.



– Take electrical connectors -1- out of bracket -2-, unplug connectors and move wiring clear.
– Lift off bracket -2-.



– Unplug electrical connectors -arrows- and move wiring clear.



– Unplug the following electrical connectors and move electrical wiring harness clear:

3 - For inlet/exhaust cam actuators -F464- , -F465- , -F466- and -F467-

4 - For fuel metering valve 2 - N402-

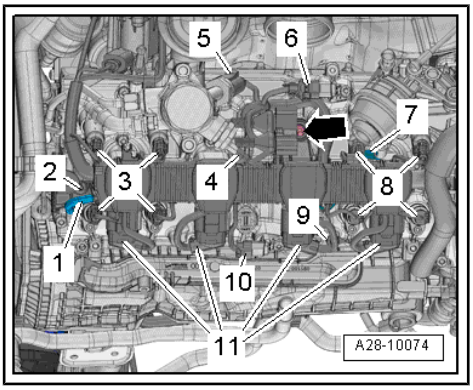
5 - For fuel pressure sender for low pressure - G410-

6 - For Hall sender 4 - G301-

8 - For inlet/exhaust cam actuators -F476- , -F477- , -F478- and -F479-

10 - For Hall sender 2 - G163-

11 - For ignition coils -N323- , -N324- , -N325- , -N326-



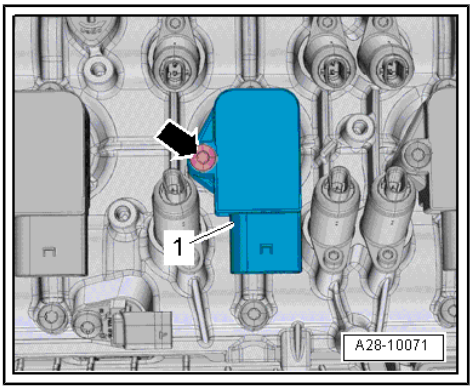
– Disconnect vacuum hoses -1- and -7-.

– Remove bolts -2-, -9- and centre hex stud -arrow- and move earth wire clear.

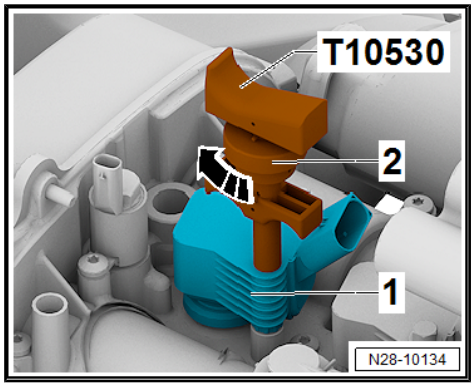
– Push ignition coil connector towards ignition coil, release retainer and detach connector from ignition coil.

– Place connector rail slightly to one side. Make sure that wiring is not kinked or damaged.

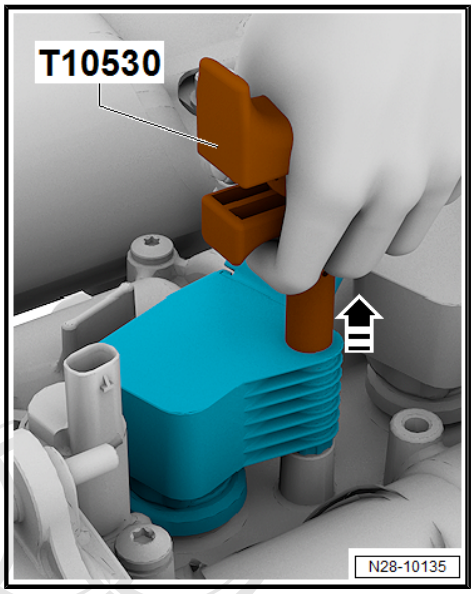
– Unscrew bolts -arrow- for ignition coils.



– Insert puller - T10530- into hole -1- of ignition coil and turn knurled nut -2- clockwise until puller is secured in place.



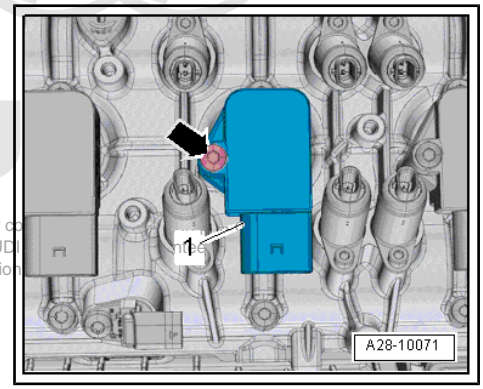
– Carefully pull ignition coil out upwards using puller - T10530- .
– Repeat removal procedure with all other ignition coils.
– Unscrew spark plugs using spark plug socket and extension - VAS 3122B- .



Step 3 - installing spark plugs:

– Install new spark plugs using spark plug socket and extension - VAS 3122B- and tighten to specified torque (table ⇒ page 90).
– Fit all ignition coils loosely into spark plug apertures and align with connectors of connector rail.
– Push ignition coils evenly onto spark plugs by hand (do not attempt to knock in coils with any kind of tool).

– Tighten bolts -arrow- for ignition coils to specified torque (see table of tightening torques for installation ⇒ page 90).
– Plug in connector on each ignition coil until it engages.



Continue installation in reverse sequence.

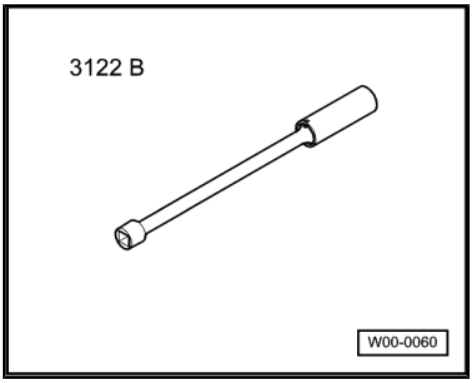
Note

Different versions of air pipe are possible.

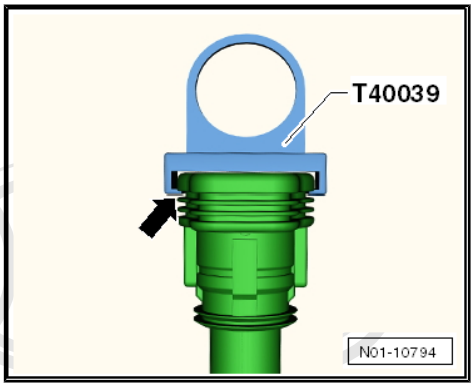
3.47.4 8-cyl. petrol engine 4.2 ltr. FSI

Special tools and workshop equipment required

- Spark plug socket and extension - 3122B-



- Puller - T40039-



- Torque wrench - VAS 6583- , measuring range 3 to 60 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Spark plugs	30
Securing bolts for connector rail	5

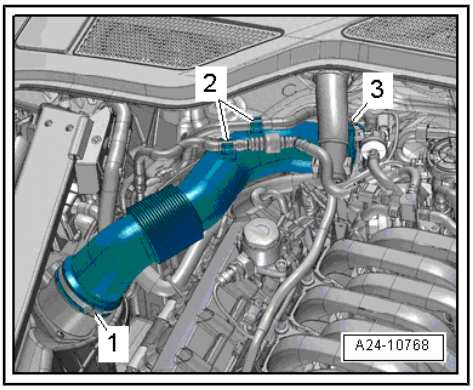
Removal steps:

– Remove engine cover panel ⇒ page 15 .

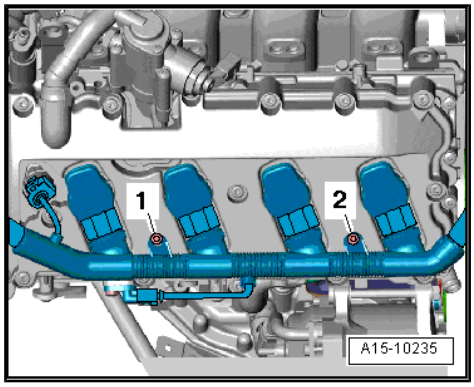
Step 1 - removing spark plugs, cylinder bank (right-side):

– Move vacuum hoses -2- clear at air pipe.

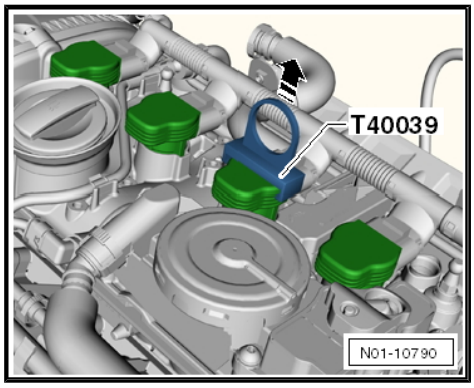
– Release hose clips -1- and -3- and detach air pipe.



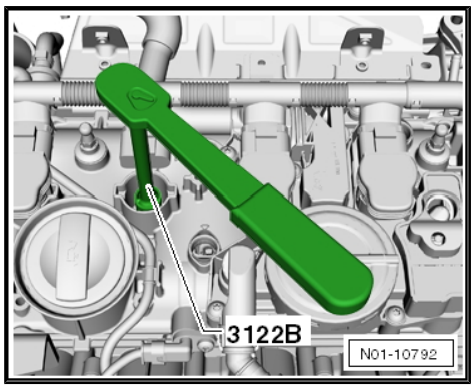
– Unplug electrical connector from actuator for camshaft adjustment.
– Remove bolts -1- and -2- for connector rail.
– Push ignition coil connector towards ignition coil, release retainer and detach connector from ignition coil.
– Place connector rail slightly to one side. Make sure that wiring is not kinked or damaged.



– Position puller - T40039- on thick rib -arrow- at top of ignition coils and detach all ignition coils from spark plugs one after the other in direction of -arrow-.



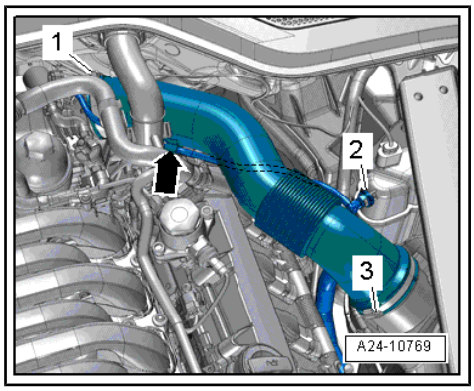
– Unscrew spark plugs using spark plug socket and extension - VAS 3122B- .



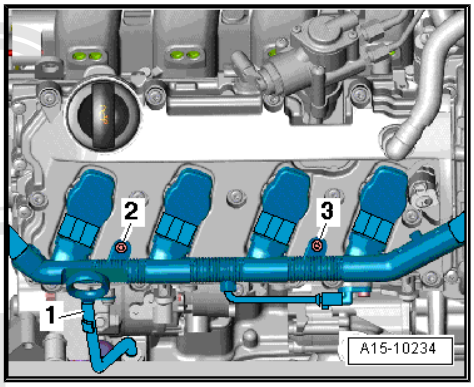
Step 2 - removing spark plugs, cylinder bank (left-side):

– Move line -arrow- clear at air pipe.

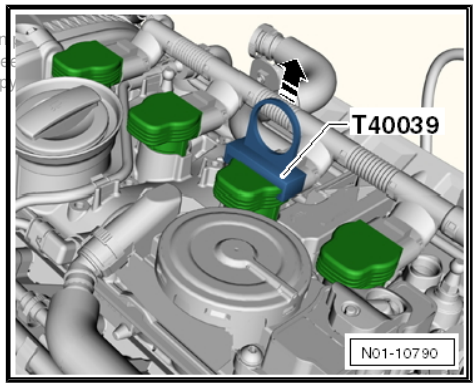
– Release hose clips -1- and -3- and detach air pipe.



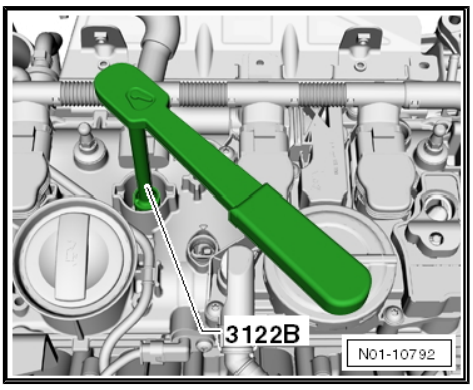
– Pull oil dipstick -1- out of guide tube.
– Unplug electrical connector of actuator for camshaft adjustment.
– Remove bolts -2- and -3- for connector rail.
– Push ignition coil connector towards ignition coil, release retainer and detach connector from ignition coil.
– Place connector rail slightly to one side. Make sure that wiring is not kinked or damaged.



– Position puller - T40039- on thick rib at top of ignition coils and detach all ignition coils from spark plugs one after the other in direction of -arrow-.



– Unscrew spark plugs using spark plug socket and extension - VAS 3122B- .



Step 3 - installing spark plugs:

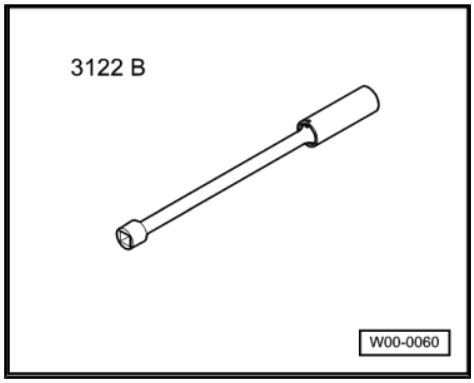
– Install new spark plugs using spark plug socket and extension - VAS 3122B- and tighten to specified torque (see table of tightening torques for installation ⇒ page 95).
– Fit all ignition coils loosely into spark plug apertures and align with connectors of connector rail.
– Push ignition coils evenly onto spark plugs by hand (do not attempt to knock in coils with any kind of tool).
– Align connector rail and plug all connectors onto ignition coils so that they engage.
– Push in electrical connectors of actuators for camshaft adjustment until retainers engage.
– Install connector rail, screwing in securing bolts to specified torque (see table of tightening torques for installation ⇒ page 95).

Continue installation in reverse sequence.

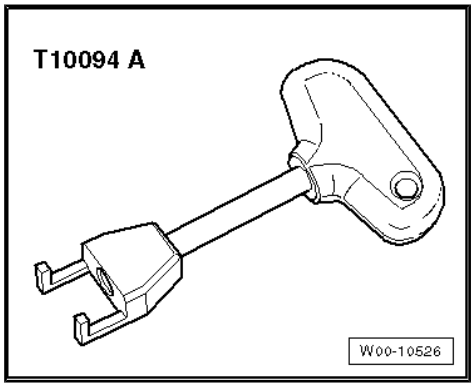
3.47.5 12-cyl. petrol engine 6.3 ltr. FSI

Special tools and workshop equipment required

- Spark plug socket and extension - 3122B-



- Puller - T10094 A-



- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

Component/fastener	[Nm]
Spark plugs	30

Removal steps:

– Remove engine cover panel ⇒ page 15 .

– Remove intake manifolds ⇒ 12-cylinder direct petrol injection engine (6.3 ltr. 4-valve); Rep. gr. 24 ; Intake manifolds; Removing and installing intake manifolds .

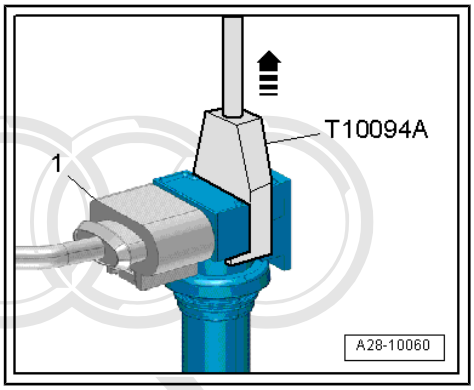
Step 1 - removing spark plugs:

– Release and unplug connectors -1- for ignition coils.

– Place electrical connectors slightly to one side. Make sure that wiring is not kinked or damaged.

– Use puller - T10094 A- to pull ignition coils out of spark plug apertures in direction of -arrow-.

– Unscrew spark plugs using spark plug socket and extension - VAS 3122B- .



Step 2 - installing spark plugs:

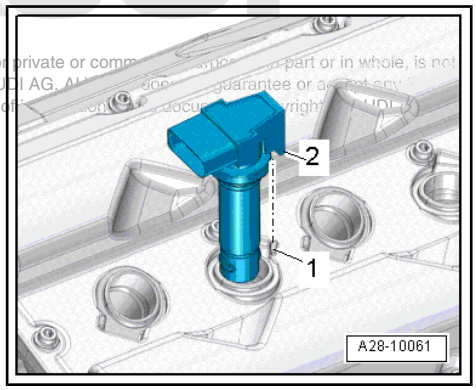
– Install new spark plugs using spark plug socket and extension - VAS 3122B- and tighten to specified torque (table ⇒ page 98).

– Fit ignition coils -2- loosely into spark plug apertures and align each with corresponding recess -1- in cylinder head cover.

– Push ignition coils evenly onto spark plugs by hand (do not attempt to knock in coils with any kind of tool).

– Align connectors and push all connectors onto ignition coils, making sure they engage.

Continue installation in reverse sequence.



3.48 Hydraulic system: checking fluid level

Table of test values and procedure guidelines:

Hydraulic fluid temperature:	Fluid level specification:
Ambient temperature (approx. 20 °C)	Fluid level within area -B-.
Hydraulic fluid at operating temperature (approx. 80 °C)	Fluid level within area -A-.

The hydraulic fluid reservoir is located in the engine compartment.

Checking the hydraulic system for leaks is a repair measure and should be charged separately.

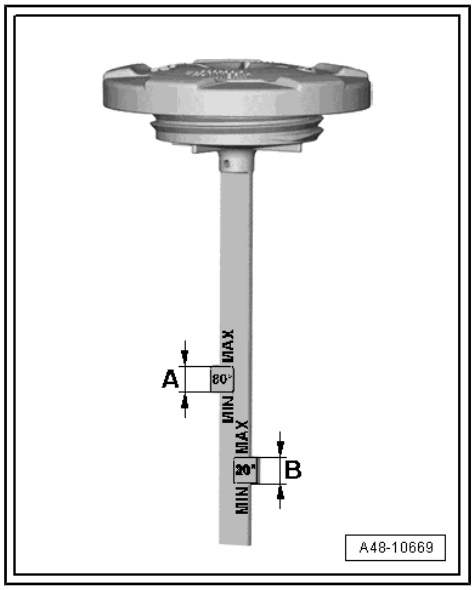
Requirements:

- Engine switched off
- Bring front wheels into straight-ahead position.

Procedure:

- Unscrew filler cap with dipstick.
- Clean dipstick with a clean cloth.
- Screw cap on hand tight and unscrew again.
- Check fluid level according to scale on dipstick.

- If fluid level does not meet specification: Perform following measures as appropriate:



Fluid level:	Measure:
Above specified level	Extract hydraulic fluid.
Below specified level	Check hydraulic power steering system for leaks ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 48 ; Hydraulic power steering; Checking steering system for leaks .

3.49 Cooling system: checking anti-freeze protection and coolant level, and correcting if necessary

WARNING

Coolant expansion tank under pressure - risk of injuries!

- *Only open coolant expansion tank when engine is cold.*

Note

- *Coolant additives may only be mixed with distilled water, as the effectiveness of the coolant and the corrosion protection it provides are greatly influenced by the quality of the water with which the coolant is mixed. To ensure an adequate water quality, the coolant additive should be mixed with distilled water.*
- *For approved coolant additives, refer to Electronic parts catalogue (ETKA).*
- *G13 and G12++ may be mixed together.*
- *Coolant additives G13 and G12++ may be mixed with coolant additives G11, G12 and G12+, though this may result in decreased corrosion protection.*
- *G12 and G11 may NOT be mixed together.*
- *Do not reuse coolant.*
- *Only water/coolant additive may be used as lubricant for coolant hoses.*

Checking coolant level and anti-freeze ⇒ page 101

Filling up coolant ⇒ page 103

3.49.1 Checking coolant level and anti-freeze

Special tools and workshop equipment required

- Refractometer - T10007 A-

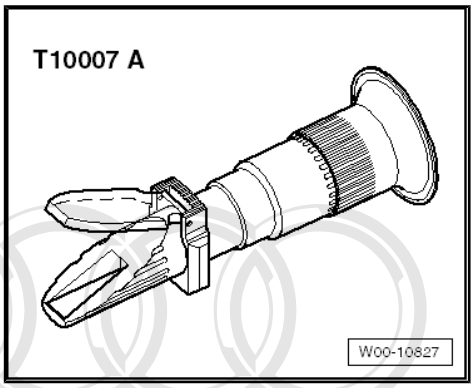


Table of test values and procedure guidelines:

Type of service:	Coolant level specification:
Delivery Inspection	Coolant at level of MAX marking.
Inspection	Coolant level between MIN and MAX markings.

Checking the coolant system for leaks is a repair measure and should be charged separately.

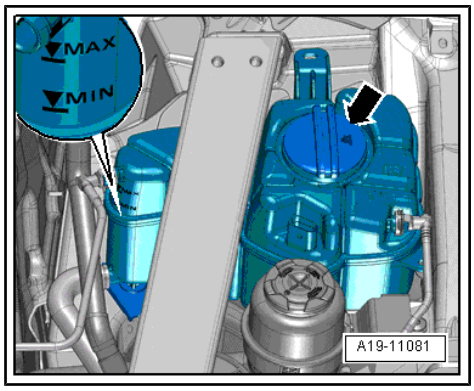
Requirements:

- Anti-freeze protection must be guaranteed to -25 °C (in countries with an arctic climate to -36 °C); note specification in Maintenance table.
- The proportion of coolant additive must not exceed 55 % (gives anti-freeze protection down to -48 °C); beyond this con-

centration the frost protection and the cooling efficiency are reduced again.

- The vehicle must be parked on a level surface.

Step 1 - checking coolant level:



– Check coolant level (according to marking -illustration-) in expansion tank with engine cold.

– If coolant level is too low: Add required amount (using correct mixture ratio) ⇒ page 103 .

– If fluid losses are greater than can be reasonably expected: First use a leak test determine the cause ⇒ Engine; Rep. gr. 19 ; Cooling system/coolant; Checking cooling system for leaks .

Step 2 - checking anti-freeze:

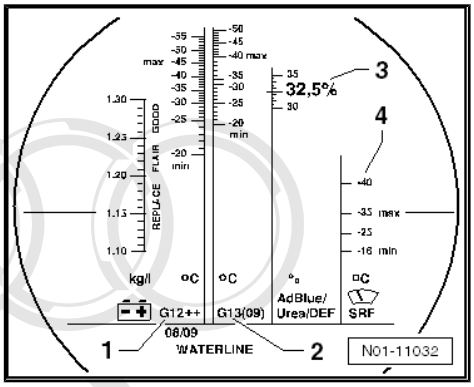
– Use a pipette to place a drop of coolant on glass of refractometer - T10007 A- . Light-dark border will now be clearly visible through refractometer.

– Check level of anti-freeze protection using corresponding scale on refractometer; to do so, read off value on light-dark border.

– If anti-freeze protection level does not meet specification in Maintenance table: Perform following measures:

Anti-freeze protection level:	Evaluation/measure:
> Specification	Depending on deviation from specification, remove a small amount of coolant and replace it with distilled water. Repeat procedure until coolant mixture meets correct specification.
< Specification	Depending on deviation from specification, remove a small amount of coolant and replace it with coolant additive. Repeat procedure until coolant mixture meets correct specification.

– Check coolant additive concentration once more following road test.



Note

- *The refractometer - T10007 A- must be used to determine the current anti-freeze concentration.*
- *Scale -1- on the refractometer applies to coolant additives G11, G12, G12+ and G12++.*
- *Scale -2- refers only to coolant additive G13.*
- *If more than one type of coolant additive has been used: Always use the scale for G13 to determine the anti-freeze protection.*
- *The temperature indicated on the refractometer - T10007 A- corresponds to the temperature at which the first ice crystals can form in the coolant.*
- *It is essential that anti-freeze be used in the cooling system all year round. In the correct concentration, coolant additives prevent scaling and frost and corrosion damage, and also raise the boiling point of the coolant.*
- *Because of its high boiling point, the coolant improves engine reliability under heavy loads in countries with tropical climates.*

3.49.2 Filling up coolant

Table of test values and procedure guidelines:

Frost protection to:	Coolant additive:	Water:
-25 °C	approx. 40 %	approx. 60 %
-36 °C	approx. 50 %	approx. 50 %

Procedure:

– Add required amount (using mixture ratio according to anti-freeze protection specification in Maintenance table). Use the table as a reference for the coolant mixture ratio.

Note

Small quantities of coolant can simply be topped up. Use the cooling system charge unit - VAS 6096- to add larger quantities of coolant.

3.50 Air cleaner: renewing filter element and cleaning housing

Note

- *Use only silicone-free lubricants when installing intake hoses.*
- *Secure all hose connections with hose clips (same as original equipment); see Electronic parts catalogue (ETKA).*

3.50.1 4-cyl. petrol engine 2.0 ltr. TFSI hybrid

Special tools and workshop equipment required

- Torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm
- Or: torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

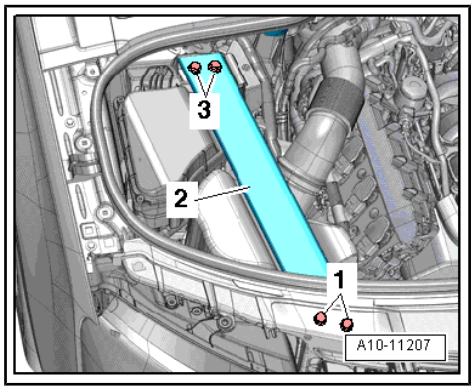
Table of tightening torques for installation:

Component/fastener:	[Nm]
Securing bolts for air cleaner (top section)	1.5
Securing bolts for longitudinal member (top right)	24

Removal steps:

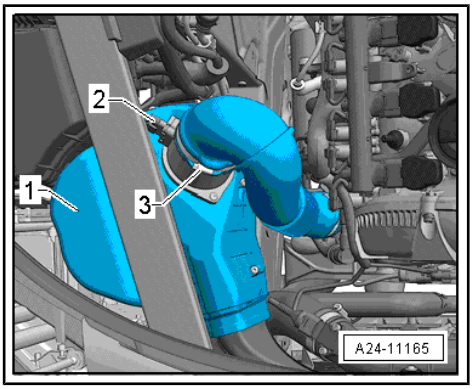
– Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Removing and installing lock carrier .

– Remove bolts -1- and -3- and detach longitudinal member (top right) -2-.

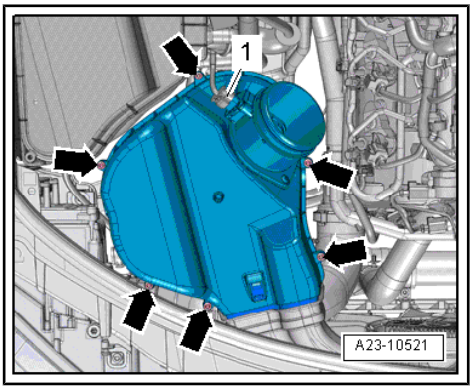


Step 1 - removing air filter element:

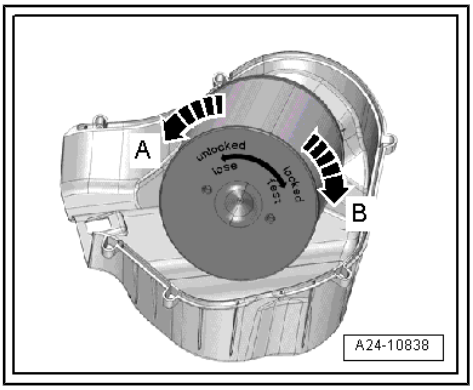
– Release hose clip -3- and detach air pipe.



– Unplug electrical connector -1- for air mass meter - G70- .
– Remove securing bolts -arrows- and detach air cleaner (top section).

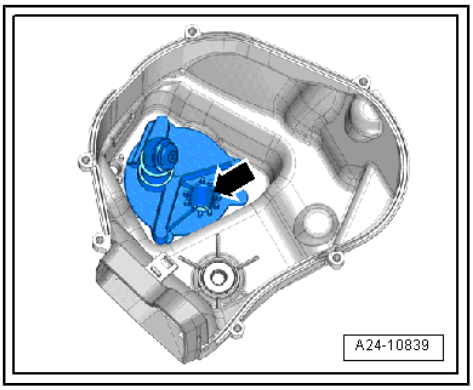


– Turn filter element in anti-clockwise direction -arrow A- and remove it.

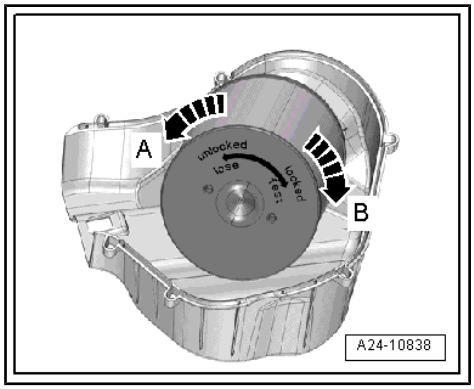


Step 2 - installing air filter element:

– Check for dirt in housing and water drains -arrow- and clean if necessary ⇒ page 122 .



– Fit new filter element in air cleaner (top section) and turn it in clockwise direction -arrow B- until it engages.
– Place top section of air cleaner onto bottom section of air cleaner without applying any significant force. Ensure that top and bottom sections of air cleaner are flush.
– Fit securing bolts in air cleaner (top section) and tighten to specified torque (see table of tightening torques for installation ⇒ page 104).
– Attach air pipe to air cleaner (top section) and fit hose clip.
– Plug electrical connector for air mass meter - G70- back in.



Continue installation in reverse sequence. Note tightening torque ⇒ page 104 .

3.50.2 6-cyl. petrol engine 2.5 ltr. FSI

Special tools and workshop equipment required

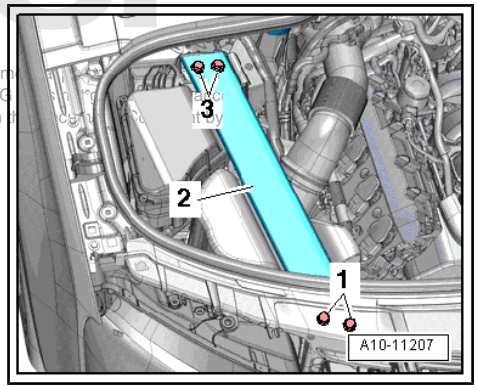
- Torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm
- Or: torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

Component/fastener:	[Nm]
Securing bolts for air cleaner (top section)	2.5
Securing bolts for longitudinal member (top right)	24

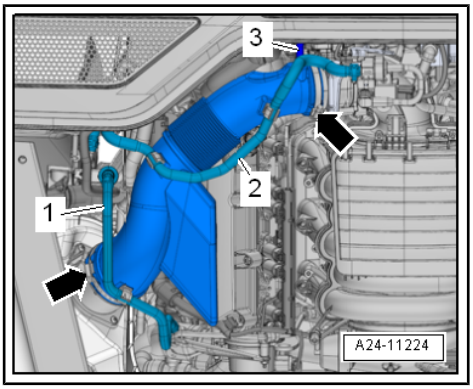
Removal steps:

– Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Removing and installing lock carrier .
– Remove bolts -1- and -3- and detach longitudinal member (top right) -2-.

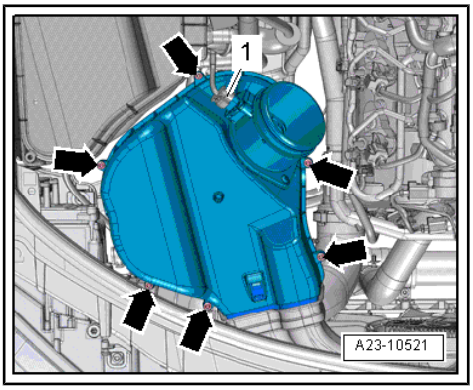


Step 1 - removing air filter element:

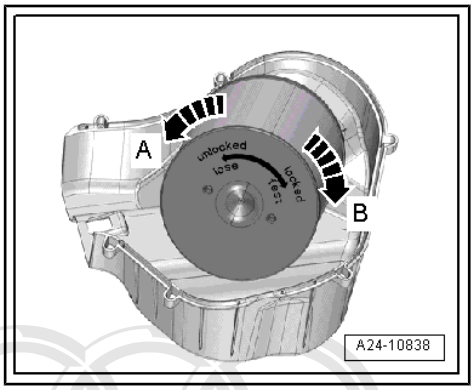
– Move fuel line -1- and hose -2- leading to activated charcoal filter clear at air pipe.
– Disconnect vacuum hose -3- from air hose.
– Loosen hose clips -arrows- and detach air pipe.



– Unplug electrical connector -1- for air mass meter - G70- .
– Remove securing bolts -arrows- and detach air cleaner (top section).

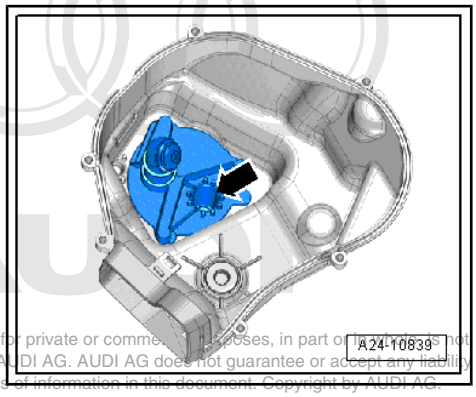


– Turn filter element in anti-clockwise direction -arrow A- and remove it.

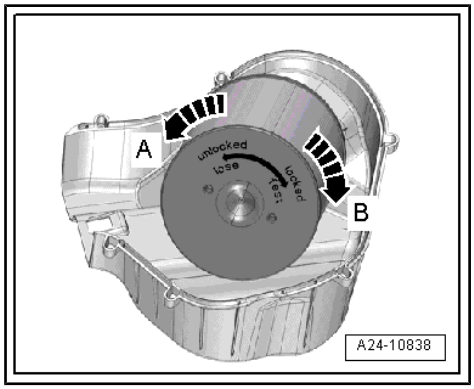


Step 2 - installing air filter element:

– Check for dirt in housing and water drains -arrow- and clean if necessary ⇒ page 122 .



– Fit new filter element in air cleaner (top section) and turn it in clockwise direction -arrow B- until it engages.
– Place top section of air cleaner onto bottom section of air cleaner without applying any significant force. Ensure that top and bottom sections of air cleaner are flush.
– Fit securing bolts in air cleaner (top section) and tighten to specified torque (see table of tightening torques for installation ⇒ page 106).
– Attach air pipe to air cleaner (top section) and fit hose clip.
– Plug electrical connector for air mass meter - G70- back in.



Continue installation in reverse sequence. Note tightening torque ⇒ page 106 .

3.50.3 6-cyl. petrol engine 3.0 ltr. TFSI

Special tools and workshop equipment required

- Torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm
- Or: torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

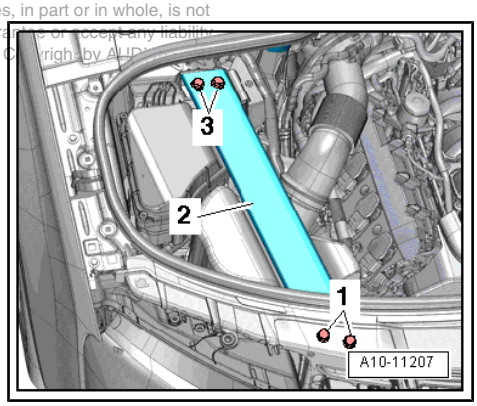
Table of tightening torques for installation:

Component/fastener:	[Nm]
Securing bolts for air cleaner (top section)	2.5
Securing bolts for longitudinal member (top right)	24

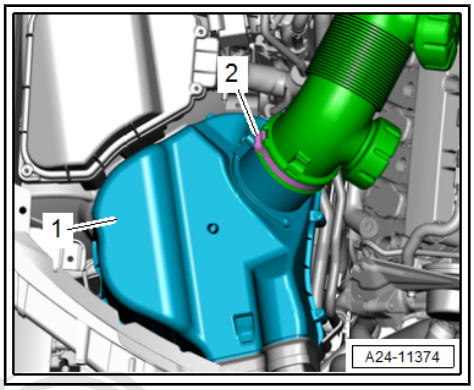
Removal steps:

– Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Removing and installing lock carrier .
– Remove bolts -1- and -3- and detach longitudinal member (top right) -2-.

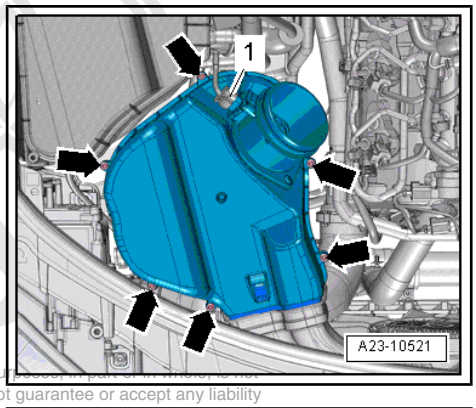
Step 1 - removing air filter element:



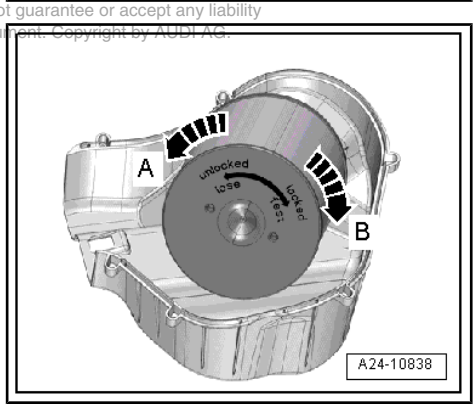
– Release hose clip -2- and detach air pipe.



– Unplug electrical connector -1- for air mass meter - G70- .
– Remove securing bolts -arrows- and detach air cleaner (top section).

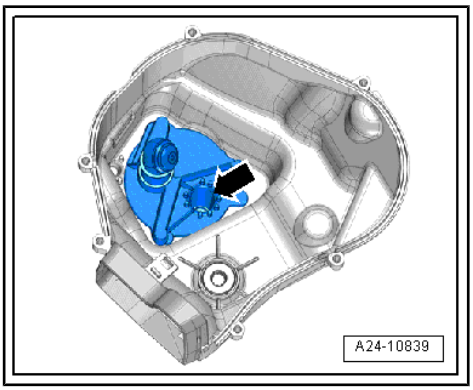


– Turn filter element in anti-clockwise direction -arrow A- and remove it.

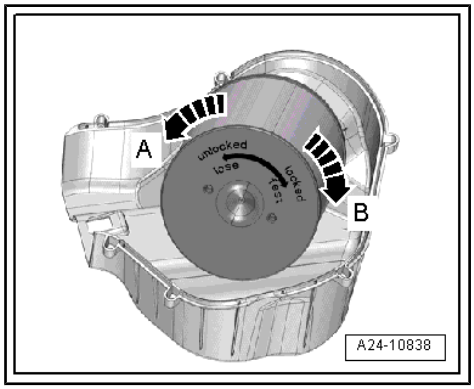


Step 2 - installing air filter element:

– Check for dirt in housing and water drains -arrow- and clean if necessary ⇒ page 122 .



– Fit new filter element in air cleaner (top section) and turn it in clockwise direction -arrow B- until it engages.
– Place top section of air cleaner onto bottom section of air cleaner without applying any significant force. Ensure that top and bottom sections of air cleaner are flush.
– Fit securing bolts in air cleaner (top section) and tighten to specified torque (see table of tightening torques for installation ⇒ page 108).
– Attach air pipe to air cleaner (top section) and fit hose clip.
– Plug electrical connector for air mass meter - G70- back in.



Continue installation in reverse sequence. Note tightening torque ⇒ page 108 .

3.50.4 8-cyl. petrol engine 4.0 ltr. TFSI (version 1)

Special tools and workshop equipment required

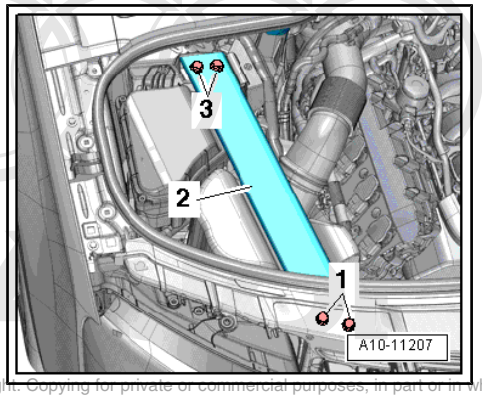
- Torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm
- Or: torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

Component/fastener:	[Nm]
Securing bolts for air cleaner (top section)	2.5
Securing bolts for longitudinal member (top right)	24

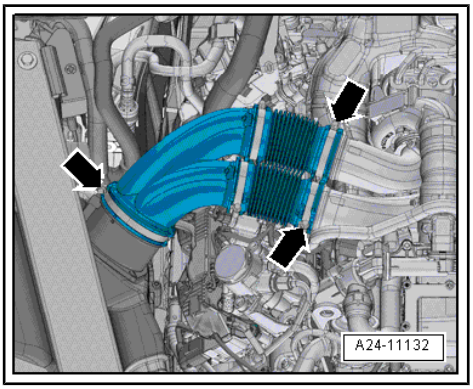
Removal steps:

– Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Removing and installing lock carrier .
– Remove bolts -1- and -3- and detach longitudinal member (top right) -2-.

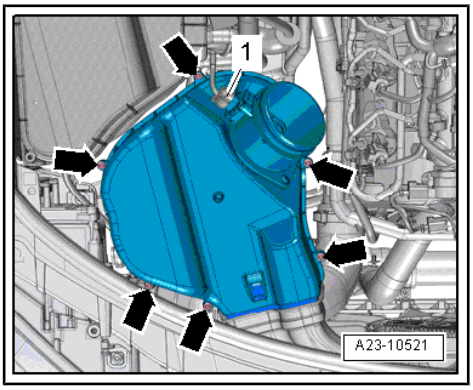


Step 1 - removing air filter element:

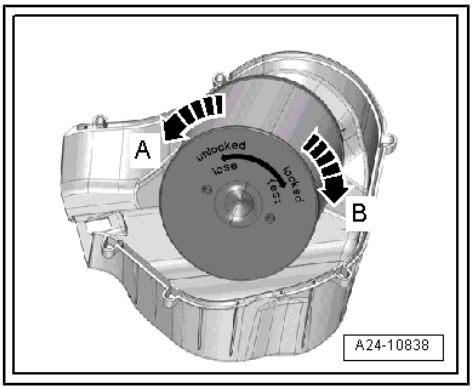
– Loosen hose clips -arrows- and detach air pipe.



– Unplug electrical connector -1- for air mass meter - G70- .
– Remove securing bolts -arrows- and detach air cleaner (top section).

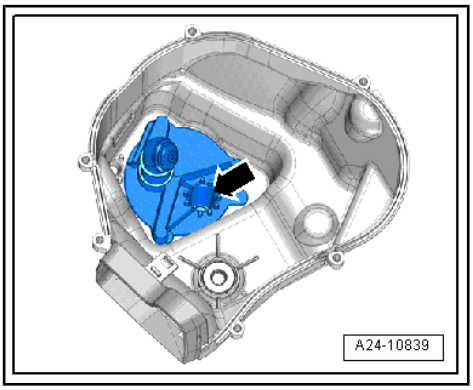


– Turn filter element in anti-clockwise direction -arrow A- and remove it.
– Repeat procedure on opposite side.

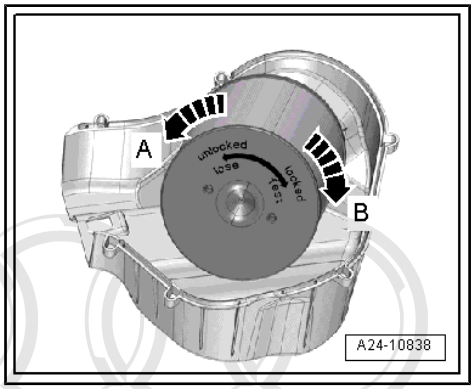


Step 2 - installing air filter element:

– Check for dirt in housing and water drains -arrow- and clean if necessary ⇒ page 122 .



– Fit new filter element in air cleaner (top section) and turn it in clockwise direction -arrow B- until it engages.
– Place top section of air cleaner onto bottom section of air cleaner without applying any significant force. Ensure that top and bottom sections of air cleaner are flush.
– Fit securing bolts in air cleaner (top section) and tighten to specified torque (see table of tightening torques for installation ⇒ page 110).
– Attach air pipe to air cleaner (top section) and fit hose clip.
– Plug electrical connector for air mass meter - G70- back in.
– Repeat procedure on opposite side of vehicle.



Continue installation in reverse sequence. Note tightening torque ⇒ page 110 .

Note

There is more than one version of the air cleaner for the 8-cylinder 4.0 ltr. TFSI petrol engine ⇒ page 112 .

3.50.5 8-cyl. petrol engine 4.0 ltr. TFSI (version 2)

Special tools and workshop equipment required

- Torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm
- Or: torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

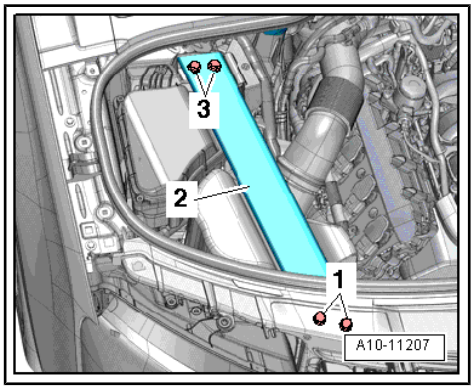
Table of tightening torques for installation:

Component/fastener:	[Nm]
Securing bolts for air cleaner (top section)	2.5
Securing bolts for longitudinal member (top right)	24

Removal steps:

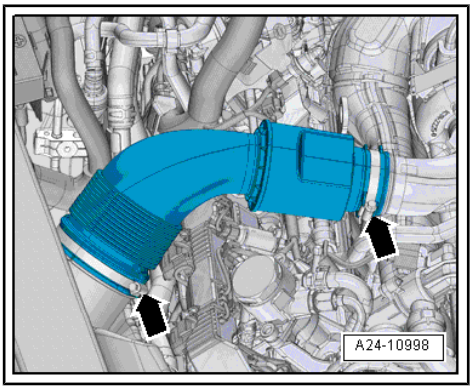
– Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Removing and installing lock carrier .

– Remove bolts -1- and -3- and detach longitudinal member (top right) -2-.

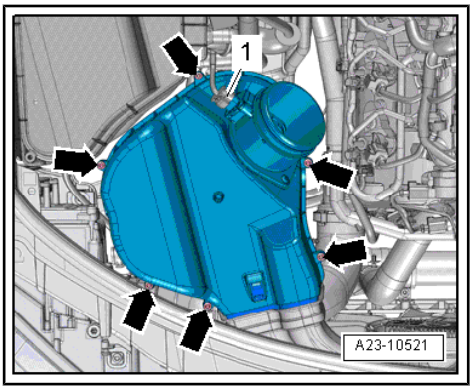


Step 1 - removing air filter element:

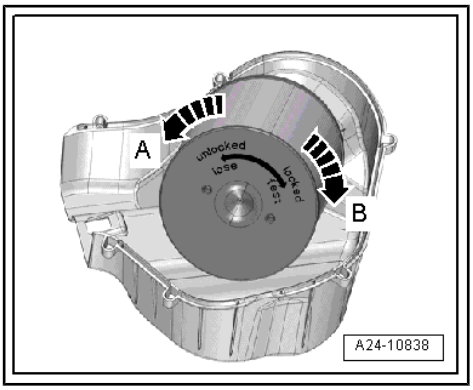
– Loosen hose clips -arrows- and detach air pipe.



– Unplug electrical connector -1- for air mass meter - G70- .
– Remove securing bolts -arrows- and detach air cleaner (top section).

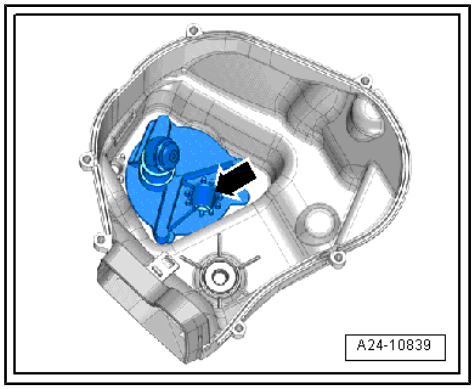


– Turn filter element in anti-clockwise direction -arrow A- and remove it.
– Repeat procedure on opposite side.

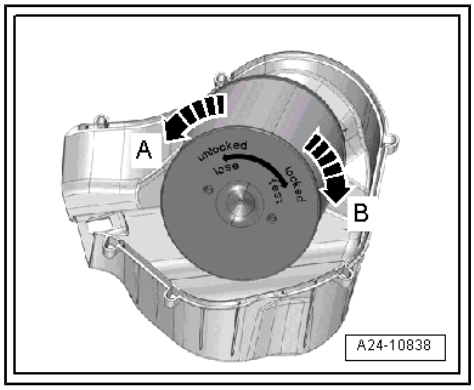


Step 2 - installing air filter element:

– Check for dirt in housing and water drains -arrow- and clean if necessary ⇒ page 122 .



– Fit new filter element in air cleaner (top section) and turn it in clockwise direction -arrow B- until it engages.
– Place top section of air cleaner onto bottom section of air cleaner without applying any significant force. Ensure that top and bottom sections of air cleaner are flush.
– Fit securing bolts in air cleaner (top section) and tighten to specified torque (see table of tightening torques for installation ⇒ page 112).
– Attach air pipe to air cleaner (top section) and fit hose clip.
– Plug electrical connector for air mass meter - G70- back in.
– Repeat procedure on opposite side of vehicle.



Continue installation in reverse sequence. Note tightening torque ⇒ page 112 .

Note

There is more than one version of the air cleaner for the 8-cylinder 4.0 ltr. TFSI petrol engine ⇒ page 110 .

3.50.6 8-cyl. petrol engine 4.2 ltr. FSI

Special tools and workshop equipment required

- Torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm
- Or: torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

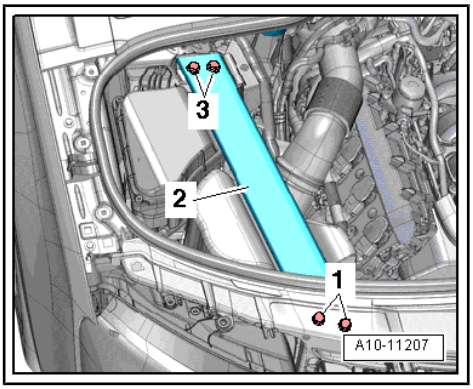
Table of tightening torques for installation:

Component/fastener:	[Nm]
Securing bolts for air cleaner (top section)	1.5
Securing bolts for longitudinal member (top right)	24

Removal steps:

– Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Removing and installing lock carrier .

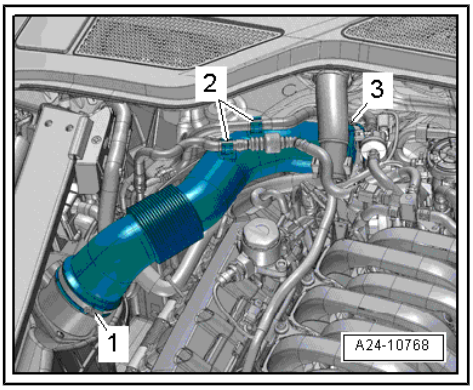
– Remove bolts -1- and -3- and detach longitudinal member (top right) -2-.



Step 1 - removing air filter element:

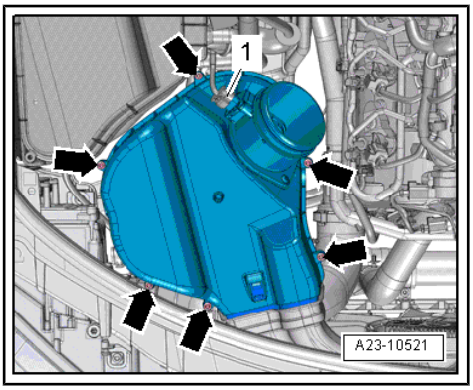
– Move vacuum hoses -2- clear at air pipe.

– Release hose clips -1- and -3- and detach air pipe.



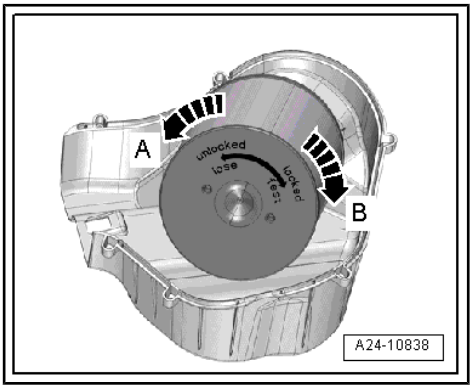
– Unplug electrical connector -1- for air mass meter - G70- .

– Remove securing bolts -arrows- and detach air cleaner (top section).



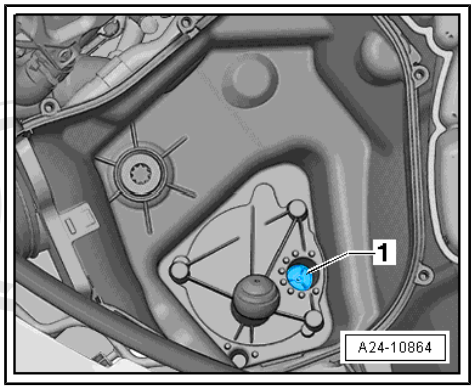
– Turn filter element in anti-clockwise direction -arrow A- and remove it.

– Repeat procedure on opposite side of vehicle.

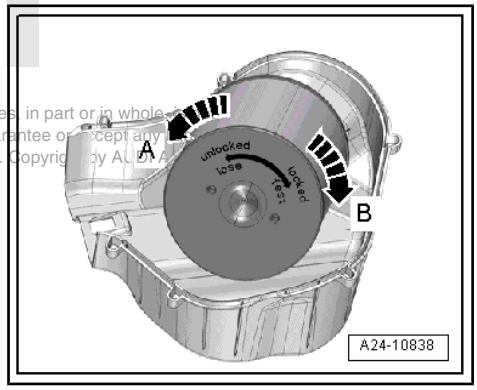


Step 2 - installing air filter element:

– Check for dirt in housing and water drains -1- and clean if necessary ⇒ page 122 .



– Fit new filter element in air cleaner (top section) and turn it in clockwise direction -arrow B- until it engages.
– Place top section of air cleaner onto bottom section of air cleaner without applying any significant force. Ensure that top and bottom sections of air cleaner are flush.
– Fit securing bolts in air cleaner (top section) and tighten to specified torque (see table of tightening torques for installation ⇒ page 114).
– Attach air pipe to air cleaner (top section) and fit hose clip.
– Plug electrical connector for air mass meter - G70- back in.
– Repeat procedure on opposite side of vehicle.



Continue installation in reverse sequence. Note tightening torque ⇒ page 114 .

3.50.7 12-cyl. petrol engine 6.3 ltr. FSI

Special tools and workshop equipment required

- Torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm
- Or: torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

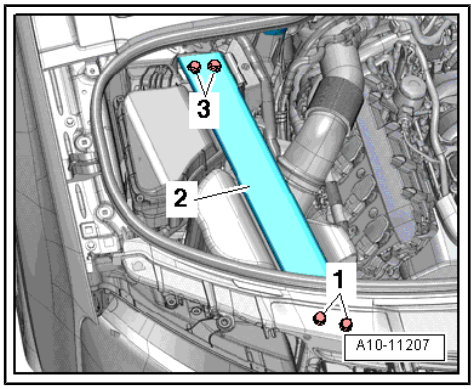
Table of tightening torques for installation:

Component/fastener:	[Nm]
Securing bolts for air cleaner (top section)	2.5
Securing bolts for longitudinal member (top right)	24

Removal steps:

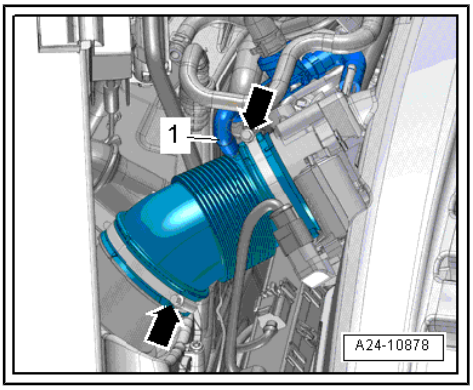
– Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Removing and installing lock carrier .

– Remove bolts -1- and -3- and detach longitudinal member (top right) -2-.

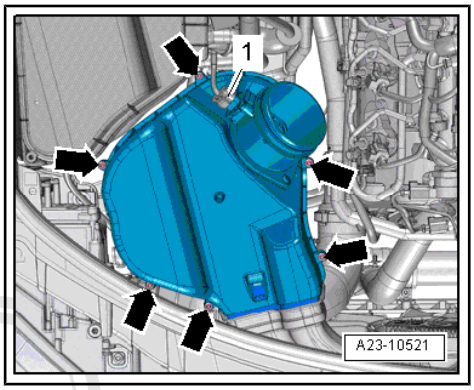


Step 1 - removing air filter element (right-side):

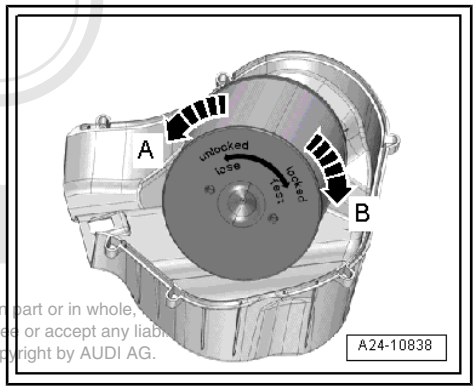
– Disconnect vacuum hose -1- from air pipe.
– Loosen hose clips -arrows- and detach air pipe.



– Unplug electrical connector -1- for air mass meter - G70- .
– Remove securing bolts -arrows- and detach air cleaner (top section).

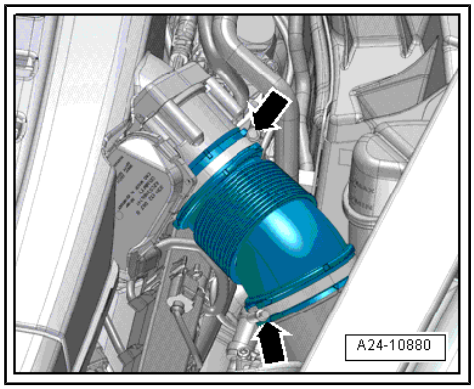


– Turn filter element in anti-clockwise direction -arrow A- and remove it.

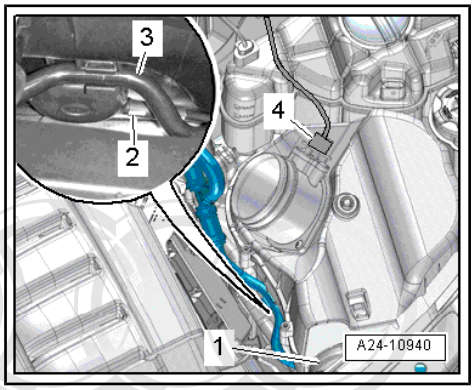


Step 2 - removing air filter element (left-side):

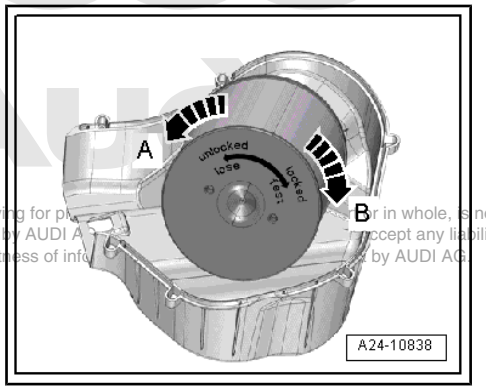
– Loosen hose clips -arrows- and detach air pipe.



– Unplug electrical connector -4- for air mass meter 2 - G246- .
– Remove securing bolts and detach air cleaner (top section).

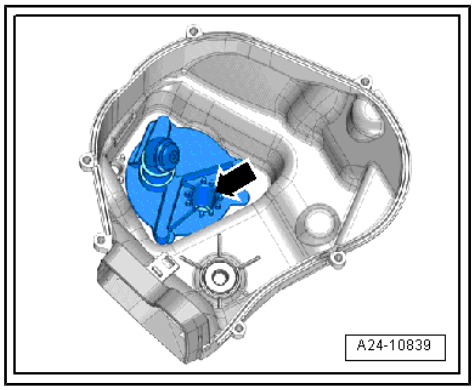


– Turn filter element in anti-clockwise direction -arrow A- and remove it.

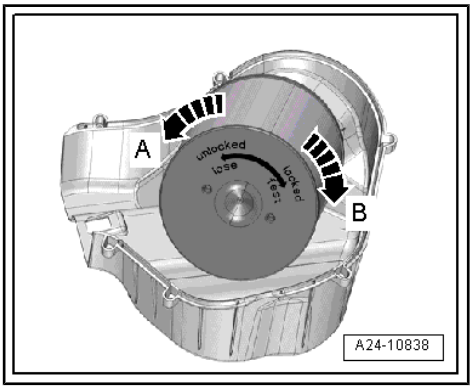


Step 3 - installing air filter elements:

– Check for dirt in housing and water drains -arrow- and clean if necessary ⇒ page 122 .



– Fit new filter element in air cleaner (top section) and turn it in clockwise direction -arrow B- until it engages.
– Place top section of air cleaner onto bottom section of air cleaner without applying any significant force. Ensure that top and bottom sections of air cleaner are flush.
– Fit securing bolts in air cleaner (top section) and tighten to specified torque (see table of tightening torques for installation ⇒ page 116).
– Attach air pipe to air cleaner (top section) and fit hose clip.
– Plug electrical connector for air mass meter - G70- back in.
– Repeat procedure on opposite side of vehicle.



Continue installation in reverse sequence. Note tightening torque ⇒ page 116 .

3.50.8 6-cyl. diesel engine 3.0 ltr. TDI

Special tools and workshop equipment required

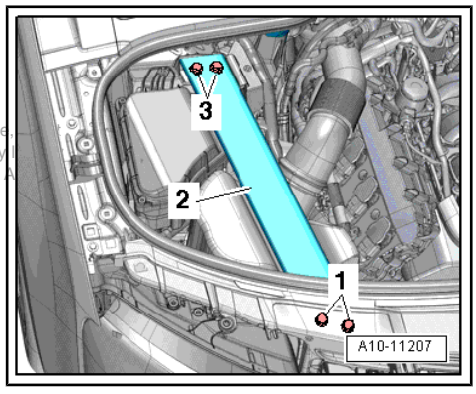
- Torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm
- Or: torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

Component/fastener:	[Nm]
Securing bolts for air cleaner (top section)	2.5
Securing bolts for longitudinal member (top right)	24

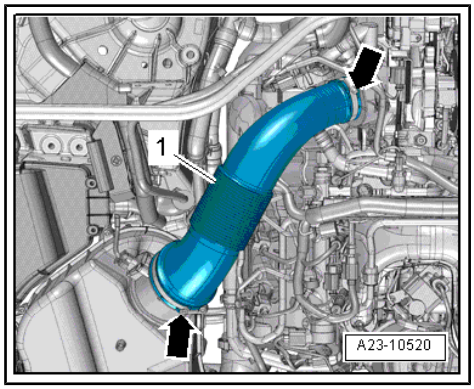
Removal steps:

– Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Removing and installing lock carrier .
– Remove bolts -1- and -3- and detach longitudinal member (top right) -2-.

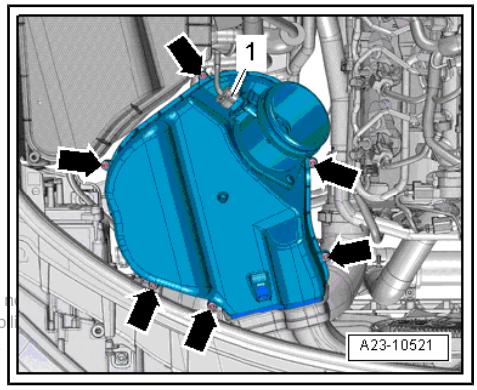


Step 1 - removing air filter element:

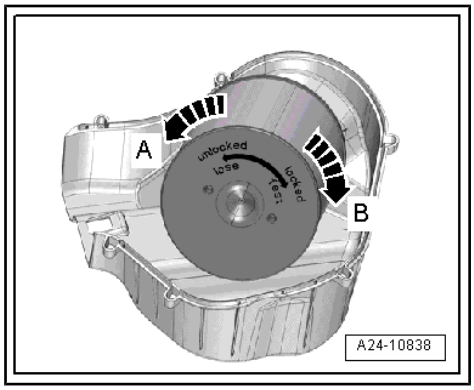
– Release hose clips -arrows- and detach air pipe -1-.



– Unplug electrical connector -1- for air mass meter - G70- .
– Remove securing bolts -arrows- and detach air cleaner (top section).

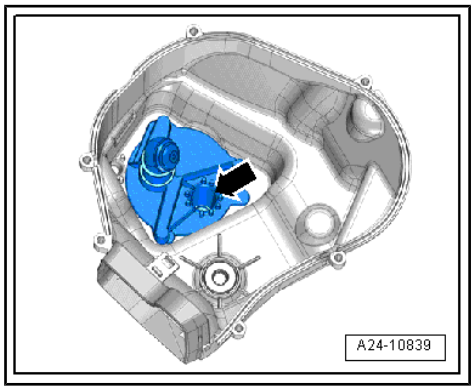


– Turn filter element in anti-clockwise direction -arrow A- and remove it.

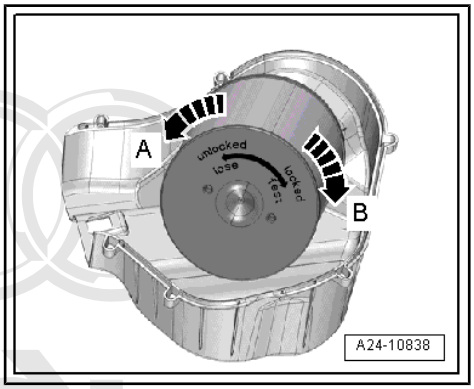


Step 2 - installing air filter element:

– Check for dirt in housing and water drains -arrow- and clean if necessary ⇒ page 122 .



– Fit new filter element in air cleaner (top section) and turn it in clockwise direction -arrow B- until it engages.
– Place top section of air cleaner onto bottom section of air cleaner without applying any significant force. Ensure that top and bottom sections of air cleaner are flush.
– Fit securing bolts in air cleaner (top section) and tighten to specified torque (see table of tightening torques for installation ⇒ page 119).
– Attach air pipe to air cleaner (top section) and fit hose clip.
– Plug electrical connector for air mass meter - G70- back in.



Continue installation in reverse sequence. Note tightening torque ⇒ page 119 .

3.50.9 8-cyl. diesel engine 4.2 ltr. TDI

Special tools and workshop equipment required

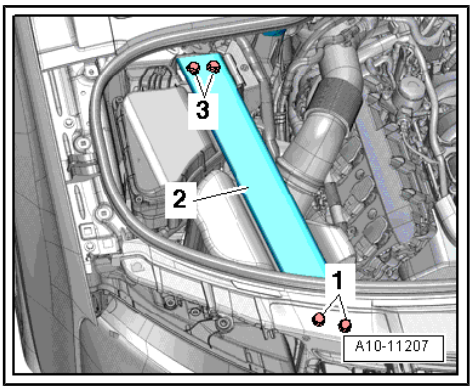
- Torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - VAS 5820- , measuring range 20 to 100 Nm

Table of tightening torques for installation:

Component/fastener:	[Nm]
Securing bolts for air cleaner (top section)	3.5
Securing bolts for longitudinal member (top right)	24

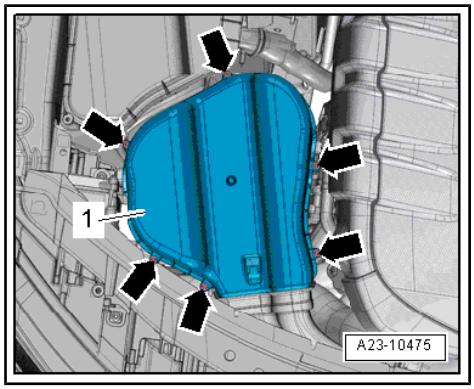
Removal steps:

– Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Removing and installing lock carrier .
– Remove bolts -1- and -3- and detach longitudinal member (top right) -2-.

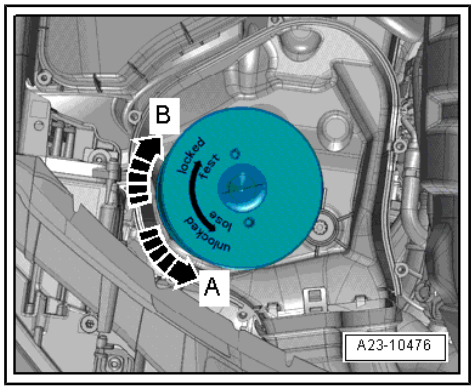


Step 1 - removing air filter element:

– Remove securing bolts -arrows- and detach air cleaner (top section).

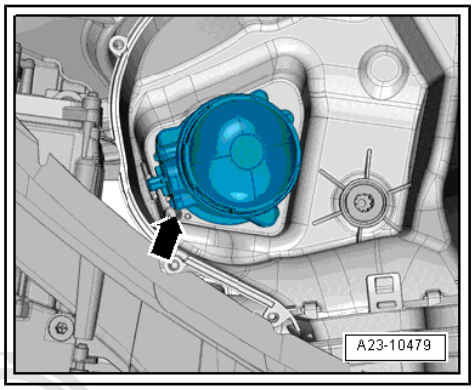


– Turn filter element in anti-clockwise direction -arrow A- and remove it.
– Repeat procedure on opposite side of vehicle.

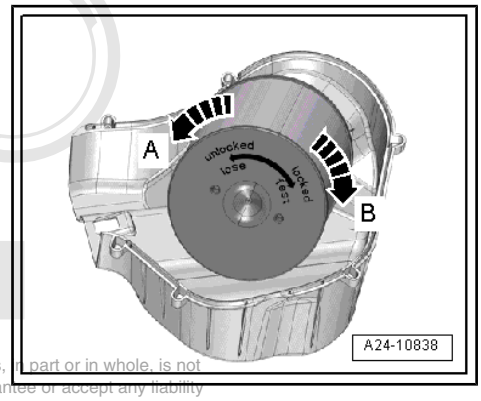


Step 2 - installing air filter element:

– Check for dirt in housing and water drains -arrow- and clean if necessary ⇒ page 122 .



– Fit new filter element in air cleaner (top section) and turn it in clockwise direction -arrow B- until it engages.
– Place top section of air cleaner onto bottom section of air cleaner without applying any significant force. Ensure that top and bottom sections of air cleaner are flush.
– Fit securing bolts in air cleaner (top section) and tighten to specified torque (see table of tightening torques for installation ⇒ page 121).
– Repeat procedure on opposite side of vehicle.



Continue installation in reverse sequence. Note tightening torque ⇒ page 121 .

3.50.10 Cleaning air cleaner housing

Procedure:

– Remove any loose dirt or leaves out of air cleaner housing (top and bottom sections).
– Check whether water drain hose in air cleaner (bottom section) is dirty or blocked and clean if necessary.

Note

- *When cleaning air cleaner housing with compressed air: Cover air mass meter with a clean cloth.*
- *On vehicles for cold countries, the snow screen in the intake section must also be cleaned; see specification in ELSA Maintenance table.*

3.51 Plenum chamber and water drains: checking for dirt

DANGER!

Risk of fatal injury if high-voltage components are damaged.

- *Observe warnings for high-voltage system:*
- *Handling high-voltage wires ⇒ page 11 .*
- *For work in the vicinity of high-voltage components ⇒ page 10 .*

Checking plenum chamber and water drains for dirt
⇒ page 123

Cleaning plenum chamber and water drains ⇒ page 124

3.51.1 Checking plenum chamber and water drains for dirt

Cleaning the plenum chamber, as well as the removal procedures required, are a repair measure and should be charged separately.

Removal steps:

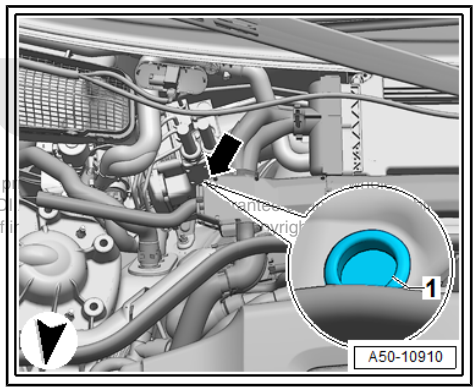
– Remove wiper arms ⇒ Electrical system; Rep. gr. 92 ; Windscreen wiper system; Removing and installing wiper arms .

– Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .

Step 1 - checking plenum chamber and water drains (passenger's side):

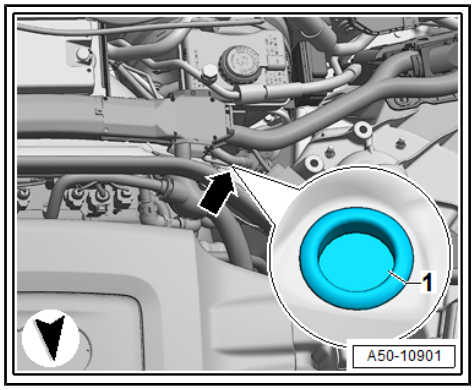
– Use a hand-held light to check for dirt in plenum chamber and water drain grommet -1-.

– If necessary, clean plenum chamber and water drains ⇒ page 124 .



Step 2 - checking plenum chamber and water drains (driver's side):

– Use a hand-held light to check for dirt in plenum chamber and water drain grommet -1-.
– If necessary, clean plenum chamber and water drains ⇒ page 124 .



Install in reverse sequence.

3.51.2 Cleaning plenum chamber and water drains

Special tools and workshop equipment required

- Suction feed spray-gun - VAG 1538-
- Nylon probe - VAG 1538/2-
- Flexible picking tool

Cleaning the plenum chamber, as well as the removal procedures required, are a repair measure and should be charged separately.

Procedure:

– Remove coarse dirt from plenum chamber and water drain grommets with a flexible picking tool.
– Remove fine dirt using suction-feed spray gun - V.A.G 1538- and nylon probe - V.A.G 1538/2- or a thin water hose.

3.52 Dust and pollen filter: renewing

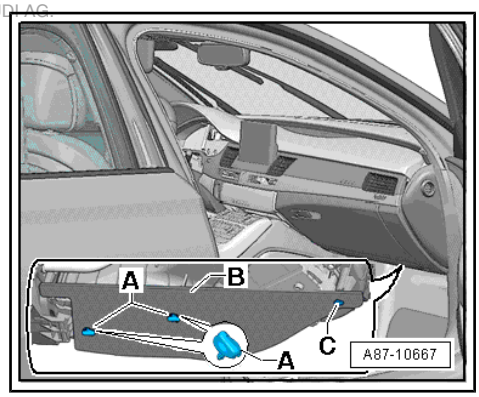
The dust and pollen filter is fitted under the glove box.

Removal steps:

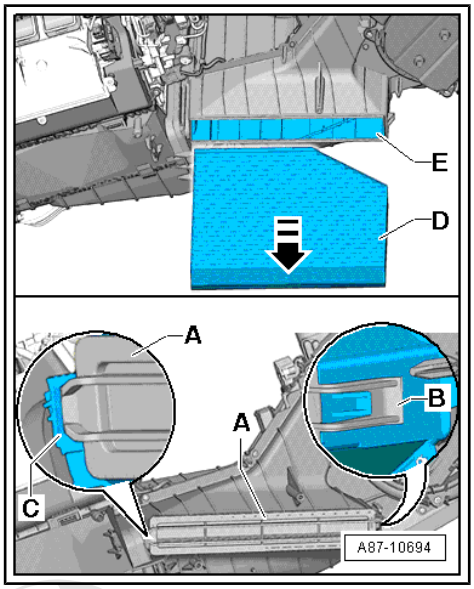
– On vehicles with special equipment used by driving schools: Remove pedal cluster if necessary; see installation instructions for equipment for driving schools.

Step 1 - removing filter element:

– Cover footwell beneath dust and pollen filter with paper.
– Remove quick-release fasteners -A-.
– Unfasten and detach insulating mat -B- from retainer -C-.



– Release retaining tab -B-, swivel cover -A- for aperture down and detach.
– Pull filter element -D- out of aperture -E- in direction of -arrow-.



Step 2 - installing filter element:

– Clean aperture -E- with a vacuum cleaner before fitting new filter element.
– Fit new filter element -D- correctly: angled side faces fresh air blower.
– Position aperture cover -A- in tab -C- and engage on opposite side -B-.

Continue installation in reverse sequence.

3.53 Fuel filter: renewing

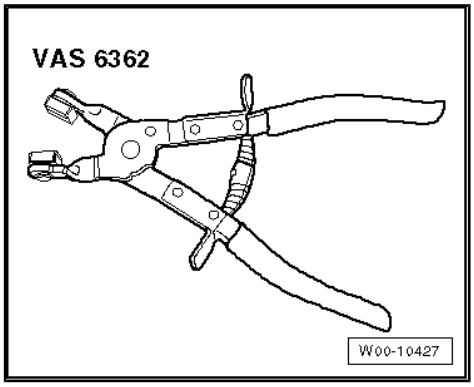
WARNING

Fuel is hot and under pressure - risk of injuries!

- *Wear protective gloves.*
- *Wear safety goggles.*
- *Allow connections of fuel lines to cool down.*
- *Place cloths around connections and loosen them carefully.*

Special tools and workshop equipment required

- Hose clip pliers - VAS 6362-



- Container for collecting fluid
- Torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Torque screwdriver - VAS 6494- , measuring range 1.5 to 3 Nm
- Torque wrench - V.A.G 1783- , measuring range 2 to 10 Nm

Table of tightening torques for installation:

Fastener	Tightening torque [Nm]
Nut	2

The fuel filter is located on the underbody.

Removal steps:

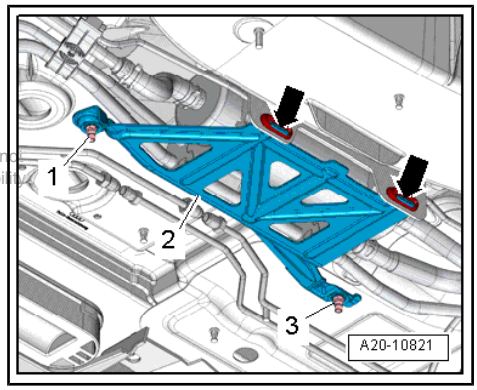
– Remove underbody trim (centre) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Removing and installing underbody trim .

Step 1 - removing:

– Observe the safety precautions when working on the fuel system ⇒ Fuel supply system, diesel engines; Rep. gr. 00 ; Safety precautions; Safety precautions when working on the fuel system .

– Remove nuts -1- and -3-.

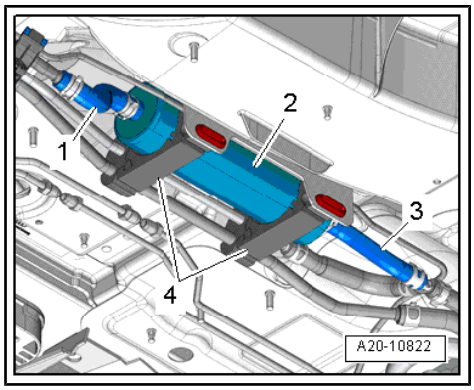
– Swivel bracket -2- downwards, disengage it from mounting points -arrows- and detach it.



– Remove rubber mountings -4-.

– Place drip tray under fuel filter.

– Use hose clip pliers to disconnect fuel supply hoses -1- and -3- and detach fuel filter -2-.



Step 2 - installing:

Install in reverse sequence. Note tightening torques (see table of tightening torques for installation ⇒ page 126).

Flow direction is indicated by arrows on filter housing.

– Then bleed fuel system ⇒ Engine; Rep. gr. 23 ; Injection system; Filling/bleeding fuel system .

3.54 Fuel tank: adding fuel additive

Special tools and workshop equipment required

♦ Multi-purpose additive for petrol fuel - G 001 770 A2-

♦ Or: Multi-purpose additive for petrol fuel - G 001 780 M3-

Table of test values and procedure guidelines:

Indicated on fuel gauge	-G 001 770 A2-		-G 001 780 M3-	
	78 ltr. tank	82 ltr. tank	78 ltr. tank	82 ltr. tank
	Vehicles with high-voltage system	**Vehicles without high-voltage system**	**Vehicles with high-voltage system**	**Vehicles without high-voltage system**
approx. 1/4	approx. 19 ml	approx. 21 ml	approx. 64 ml	approx. 68 ml
approx. 1/2	approx. 39 ml	approx. 41 ml	approx. 129 ml	approx. 135 ml
approx. 3/4	approx. 59 ml	approx. 62 ml	approx. 193 ml	approx. 203 ml
approx. 1/1	approx. 78 ml	approx. 82 ml	approx. 257 ml	approx. 271 ml

This maintenance item only applies to certain countries: Note specification in Maintenance table.

Procedure:

– Add fuel additive to fuel tank according to current fuel tank level.

Note

If the fuel level in the fuel tank is other than quoted: Add multi-purpose additive for petrol fuel - G 001 770 A2- in a ratio of 10 ml per 10 litres of fuel. For multi-purpose additive for petrol fuel - G 001 780 M3- , add in a ratio of 33 ml per 10 litres of fuel.

3.55 Reducing agent (AdBlue®): filling up tank completely

Vehicles up to model year 2013 ⇒ page 127

Vehicles model year from 2014 onwards ⇒ page 131

3.55.1 Vehicles up to model year 2013

WARNING

Risk of injury due to contact with reducing agent!

- *Do not kink lines of filling device.*
- *If you come into contact with this liquid: Rinse it off immediately with plenty of water and contact a medical professional.*

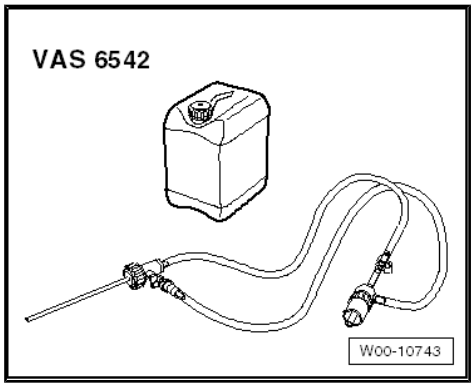
Caution

Risk of damage to trim and body components due to contact with reducing agent!

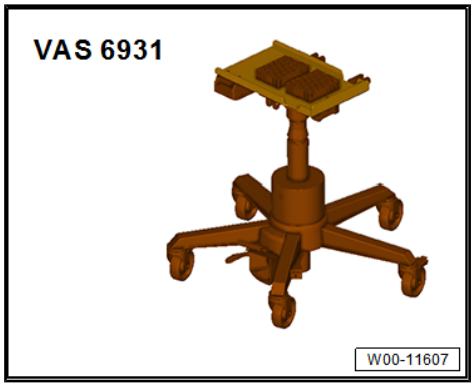
- *Do not kink lines of filling device.*
- *Clean the affected areas with clean water and a cotton cloth.*
- *Remove any crystallised reducing agent using warm water and a sponge.*

Special tools and workshop equipment required

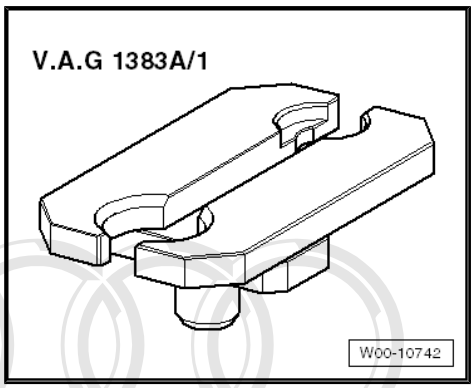
- Filling device for AdBlue - VAS 6542-



- Engine and gearbox jack - VAS 6931-



- Mounting plate - V.A.G 1383A/1-



Components of filling device -VAS 6542-

1 - Breather connection for reducing agent container

2 - Union nut for reducing agent container

3 - Cut-off valve for breather line

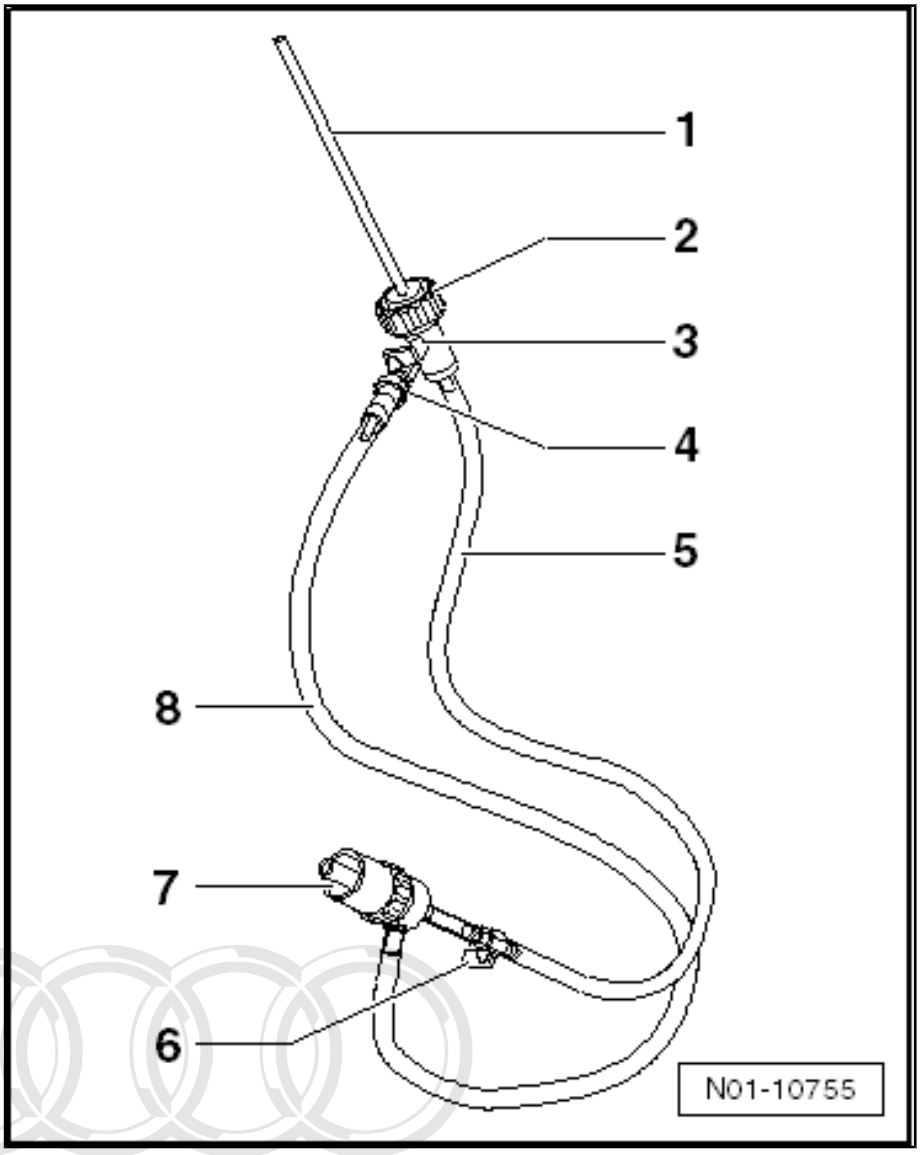
4 - Quick-release coupling on breather line

5 - Filler line

6 - Cut-off valve for filler line

7 - Union nut for tank filler neck

8 - Breather line



Procedure:

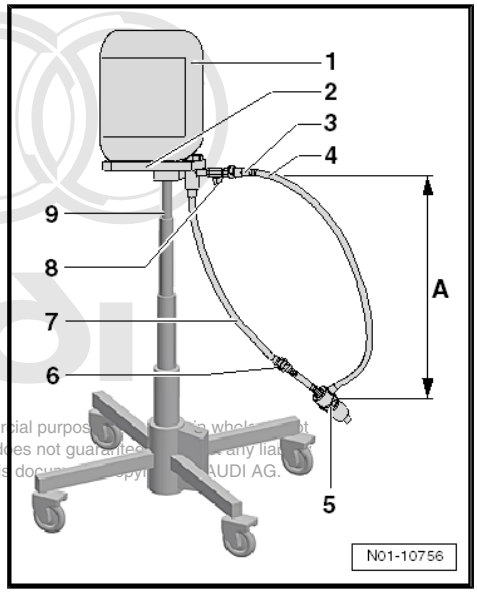
– Open tank flap and unscrew filler cap for reducing agent tank.

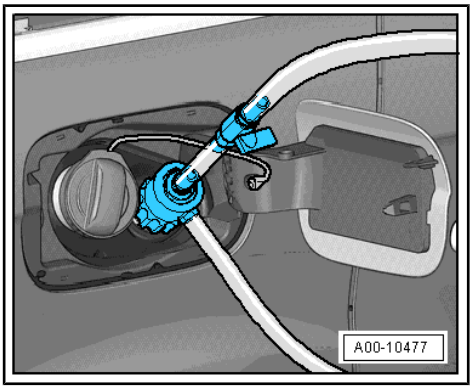
– Clean filler neck of tank for reducing agent with a lint-free cotton cloth soaked with water.

– Close cut-off valves of breather and filler lines of filling device for AdBlue - VAS 6542- .

– Apply filling device for AdBlue - VAS 6542- to reducing agent container (see Electronic parts catalogue, ETKA) and screw it on as far as stop.

– Position reducing agent container on engine and gearbox jack - VAS 6931- with mounting plate - V.A.G 1383A/1- . Difference in height of reducing agent container and filler neck of tank for reducing agent must be between 60 - 80 cm -dimension A-.





- Position filling device for AdBlue - VAS 6542- on filler neck on vehicle and screw it on as far as stop.
- Open cut-off valve for breather line.
- Open cut-off valve for filler line and fill reducing agent tank of vehicle completely. Tank is completely full when container contracts and bleeder line fills with liquid.
- Close cut-off valve for filler line.
- Close cut-off valve for breather line.
- Disconnect quick-release coupling on breather line and let any excess liquid flow into a suitable container.
- Unscrew filling device for AdBlue - VAS 6542- from tank filler neck.
- Clean filler neck and filler cap with a lint-free cotton cloth soaked with water.
- Screw filler cap onto reducing agent tank.
- Take container off mounting plate and put it on the floor.
- Open cut-off valve on filler line and let remaining liquid drain back into container.
- Unscrew filling device for AdBlue - VAS 6542- from container.

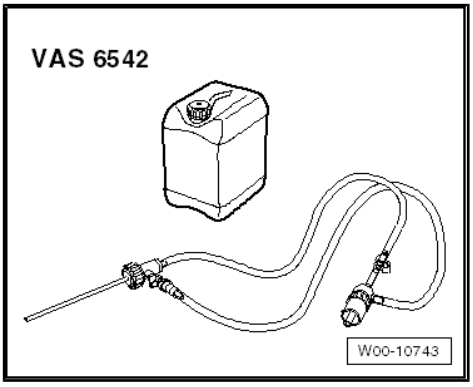
Note

- *The reducing agent is statutory for vehicles with SCR system.*
- *The reducing agent is used for the after-treatment of exhaust gases of diesel-engined vehicles, i.e. to reduce the level of nitrogen oxides.*
- *The reducing agent is not a diesel additive and must not be filled into the diesel fuel tank.*
- *Do not add any additives to the reducing agent, and do not dilute it with water.*
- *Only use the reducing agent as supplied in its original container.*
- *In addition, please observe the reducing agent manufacturer's notices on usage and storage.*

3.55.2 Vehicles model year from 2014 onwards

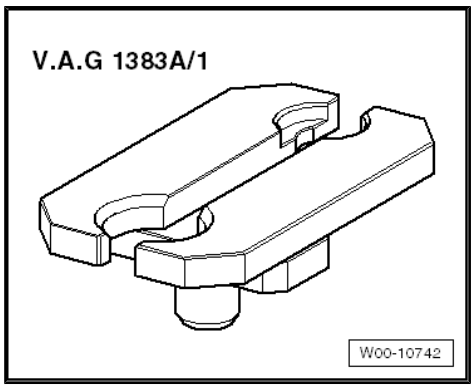
Special tools and workshop equipment required

- Filling device for AdBlue - VAS 6542-



- Engine and gearbox jack - VAS 6931-

- Mounting plate - V.A.G 1383A/1-



Components of filling device -VAS 6542-

1 - Breather connection for reducing agent container

2 - Union nut for reducing agent container

3 - Cut-off valve for breather line

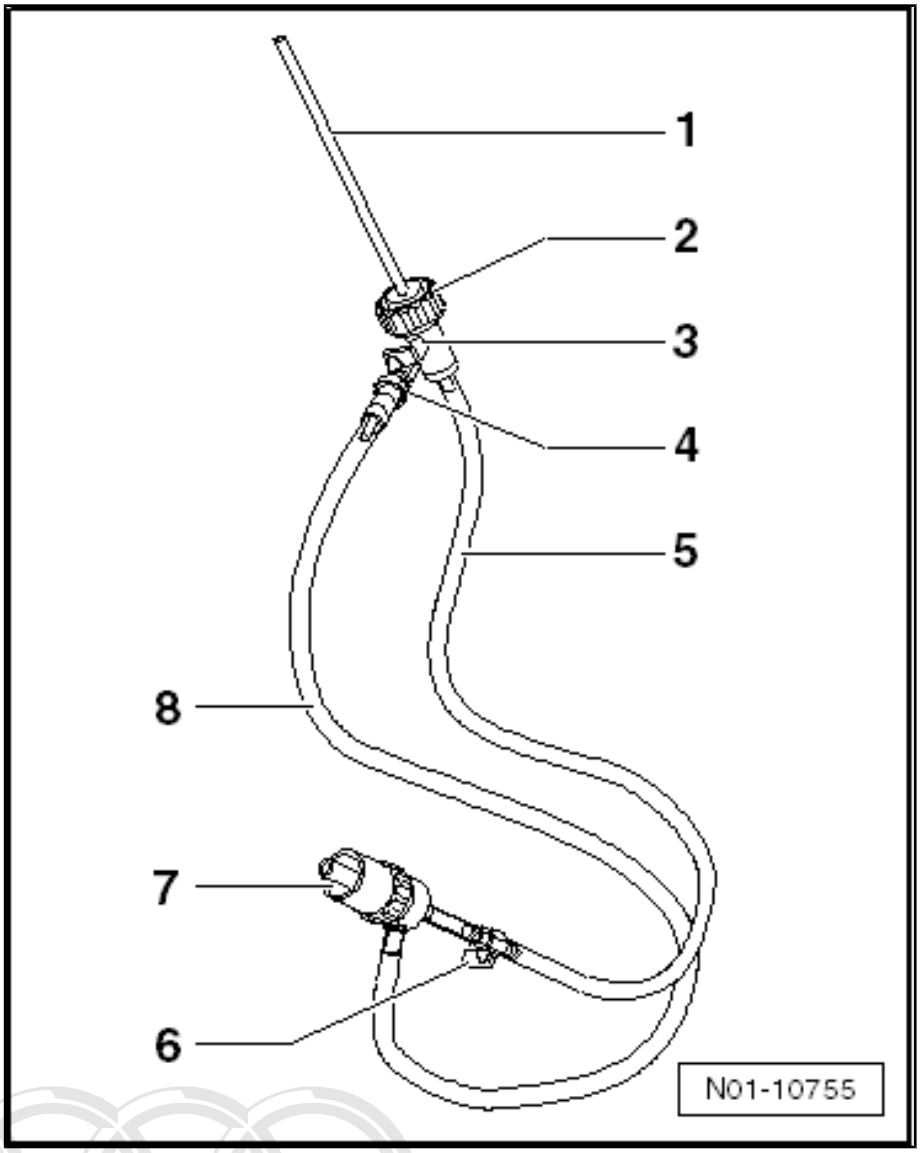
4 - Quick-release coupling on breather line

5 - Filler line

6 - Cut-off valve for filler line

7 - Union nut for tank filler neck

8 - Breather line



Step 1 - filling passive tank:

– Lift luggage compartment floor.

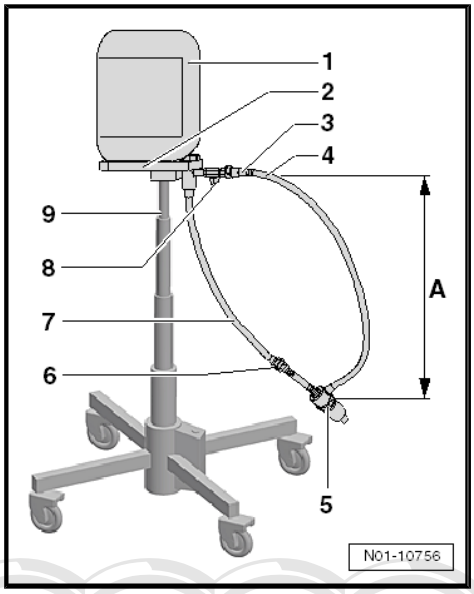
– Unscrew filler cap from reducing agent tank.

– Clean filler neck of tank for reducing agent with a lint-free cotton cloth soaked with water.

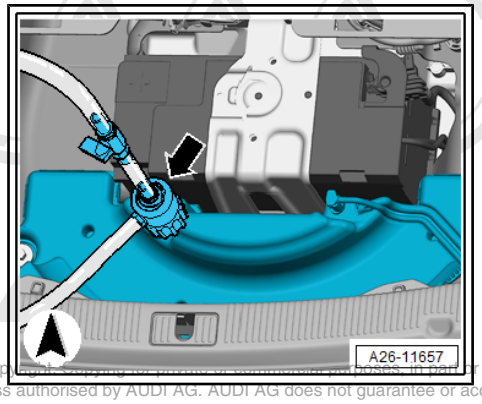
– Close cut-off valves of breather and filler lines of filling device for AdBlue - VAS 6542- .

– Apply filling device for AdBlue - VAS 6542- to reducing agent container (see Electronic parts catalogue, ETKA) and screw it on as far as stop.

– Position reducing agent container on engine and gearbox jack - VAS 6931- with mounting plate - V.A.G 1383A/1- . The difference in height of the reducing agent container and the filler neck must be between 60 - 80 cm -dimension A-.



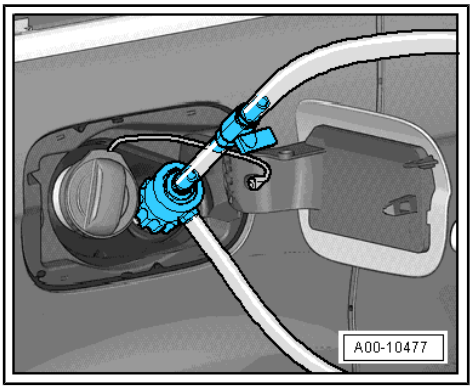
– Position filling device for AdBlue - VAS 6542- on filler neck -arrow- in spare wheel well and screw it on as far as stop.



– Open cut-off valve for breather line.
– Open cut-off valve for filler line and fill passive tank completely. Tank is completely full when container contracts and bleeder line fills with liquid.
– Close cut-off valve for filler line.
– Close cut-off valve for breather line.
– Disconnect quick-release coupling on breather line and let any excess liquid flow into a suitable container.
– Close quick-release coupling for breather line.
– Unscrew filling device for AdBlue - VAS 6542- from tank filler neck.
– Clean filler neck and tank cap with a lint-free cotton cloth soaked with water.
– Screw filler cap onto reducing agent tank.

Step 2 - filling active tank:

– Open tank flap and unscrew filler cap for reducing agent tank.
– Clean filler neck of tank for reducing agent with a lint-free cotton cloth soaked with water.



- Position filling device for AdBlue - VAS 6542- on filler neck on vehicle and screw it on as far as stop.
- If necessary, adjust difference in height of reducing agent container and filler neck so that it is between 60 - 80 cm.
- Open cut-off valve for breather line.
- Open cut-off valve for filler line and fill active tank completely. Tank is completely full when container contracts and bleeder line fills with liquid.
- Close cut-off valve for filler line.
- Close cut-off valve for breather line.
- Disconnect quick-release coupling on breather line and let any excess liquid flow into a suitable container.
- Unscrew filling device for AdBlue - VAS 6542- from tank filler neck.
- Clean filler neck and tank cap with a lint-free cotton cloth soaked with water.
- Screw filler cap onto reducing agent tank.
- Take container off mounting plate and put it on the floor.
- Open cut-off valve on filler line and let remaining liquid drain back into container.
- Unscrew filling device for AdBlue - VAS 6542- from container.

Note

- *The reducing agent is statutory for vehicles with SCR system.*
- *The reducing agent is used for the after-treatment of exhaust gases of diesel-engined vehicles, i.e. to reduce the level of nitrogen oxides.*
- *The reducing agent is not a diesel additive and must not be filled into the diesel fuel tank.*
- *Do not add any additives to the reducing agent, and do not dilute it with water.*
- *Only use the reducing agent as supplied in its original container.*
- *In addition, please observe the reducing agent manufacturer's notices on usage and storage.*

3.56 Body: checking vehicle paintwork for damage and corrosion from below and with bonnet, rear lid and doors open

Procedure:

- Open all vehicle doors, bonnet and rear lid.
- Check vehicle paint on inside and outside of body for damage and corrosion.
- Rectify defects of any kind (repair measure).

3.57 Road test

Procedure:

- The following points must be checked during the road test:

- Engine: performance, misfiring, idling speed, acceleration, starting behaviour (engine cold and warm), engine noise
- Clutch: pulling away, pedal pressure, odours, noise due to load change
- Manual gearbox: ease of operation, gear lever position, gearbox noise
- Automatic gearbox: selector lever position, shift lock / ignition key lock, gearbox noise, kickdown, shift behaviour, instrument cluster display
- Brake pedal and handbrake: operation, travel and effectiveness, pulling to one side, response (delayed braking), juddering, squeal
- ABS function: pulsing must be felt at the brake pedal when performing ABS-controlled braking.
- Steering: operation, steering free play, steering wheel centralised when wheels are in straight-ahead position, moving off line when travelling straight
- Imbalance: wheels, drive shafts
- Wheel bearings: noises
- Roof insert: unusual noise during operation
- Horn: checking
- Hybrid vehicles: check electrical operation by pressing EV button, charging function in overrun phases

Note

To what extent all of these can be checked depends on vehicle equipment and local conditions (urban/country).

3.58 Stock vehicles: observing measures specified in Maintenance table for stock vehicles (see “Before handing vehicle over to customer”)

This maintenance item only applies to stock vehicles.

Procedure:

– Before handing vehicle over to customer: Check whether the following three measures for stock vehicles (as specified in the Maintenance table) are due, and carry them out as necessary:

- For vehicles older than 12 months (from date of manufacture): Renew brake fluid ⇒ page 36 .
- For vehicles with a defective battery: Renew battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery; Removing and installing battery, vehicles without high-voltage system .
- Check brake discs for surface rust; if necessary, operate brakes to remove rust according to manufacturer's instructions.

– Record measures performed in maintenance table for stock vehicles.

3.59 Display instruments: setting language, time and date

Procedure:

– Change settings of display instruments: Refer to Operating Manual for radio/sound system/MMI system.

3.60 Automatic gearbox (tiptronic): changing ATF fluid

Procedure:

– Change ATF fluid according to Workshop Manual ⇒ ; Rep. gr. 37 ; ATF; Draining and filling ATF .

3.61 Interior mirror: calibrating compass

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- *Observe warnings for high-voltage system:*
- *For work that must be performed with the ignition switched on ⇒ page 11 .*

Procedure:

– Calibrate compass according to Workshop Manual ⇒ General body repairs, interior; Rep. gr. 68 ; Interior mirror; Calibrating digital compass .

3.62 Wireless headphones: connecting to MMI

WARNING

Risk of injury as engine of high-voltage vehicle can start unexpectedly!

- *Observe warnings for high-voltage system:*
- *For work that must be performed with the ignition switched on ⇒ page 11 .*

Procedure:

– Connect headphones provided with MMI; refer to MMI Operating Manual.

3.63 Poly V-belt for supercharger with charge air coolers: renewing

Procedure:

– Renew poly V-belt for supercharger with charge air coolers according to specifications in Workshop Manual ⇒ ; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .

3.64 Poly V-belts for ancillaries: renewing

Procedure:

– Renew poly V-belt for ancillaries according to specifications in Workshop Manual ⇒ ; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .

3.65 Poly V-belts for ancillaries and all pulleys: renewing

Procedure:

– Renew poly V-belt for ancillaries according to specifications in Workshop Manual ⇒ ; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .

– Renew pulleys according to Workshop Manual ⇒ ; Rep. gr. 13 ; Cylinder block (pulley end); Exploded view - cylinder block (pulley end) .

3.66 Instrument cluster: resetting driver information system

Procedure:

– Reset single journey memory and total journey memory of driver information system; refer to vehicle Owner's Manual.