# Maintenance
## Audi A5 2016 ➤
Edition 06.2019

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# Maintenance

## Heading

1. General information
2. Preparations
3. Maintenance
4. Exhaust emissions test

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

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# 1 General information

(AIGG001007; Edition 06.2019)

**Change history** ⇒ page 1

**Engine number** ⇒ page 1

**Vehicle identification number** ⇒ page 3

**Vehicle data sticker** ⇒ page 4

## 1.1 --- Change history ---

| No. | Date | Chapter | Changes made |
|---|---|---|---|
| 6 | 10.07.2019 | Emergency call function: checking status LED ⇒ page 28 | New chapter |
| 5 | 20.08.2018 | Natural gas system: checking for damage and leaks ⇒ page 105 | New chapter |
| | | Service display for checking natural gas system: resetting ⇒ page 114 | New chapter |
| 4 | 03.05.2018 | Diagnostic work: performing ⇒ page 19 | New chapter |
| | | Connectivity box: checking emergency battery ⇒ page 28 | New chapter |
| 3 | 06.11.2017 | Various chapters on stock vehicle management | Chapter modified |
| | | Poly V-belt for ancillaries: renewing ⇒ page 119 | New chapter |
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**Note**

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

## 1.2 Engine number

**Note**

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

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**4-cyl. petrol engine 1.4 TFSI** ⇒ page 2

**4-cyl. petrol engine 2.0 TFSI** ⇒ page 2

**6-cyl. petrol engine 2.9 TFSI** ⇒ page 2

**6-cyl. petrol engine 3.0 TFSI** ⇒ page 2

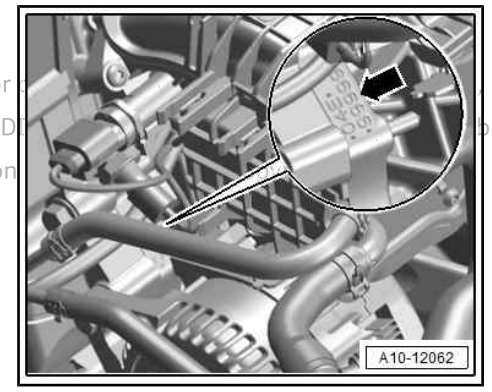
**4-cyl. diesel engine 2.0 TDI** ⇒ page 3

**6-cyl. diesel engine 3.0 TDI** ⇒ page 3

## 1.2.1 4-cyl. petrol engine 1.4 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 4 .

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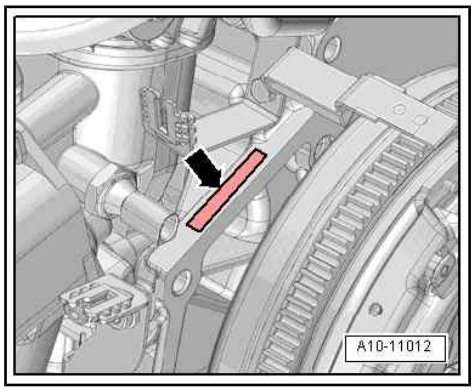
## 1.2.2 4-cyl. petrol engine 2.0 TFSI

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 timing chain cover (top).




In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 4 .

## 1.2.3 6-cyl. petrol engine 2.9 TFSI

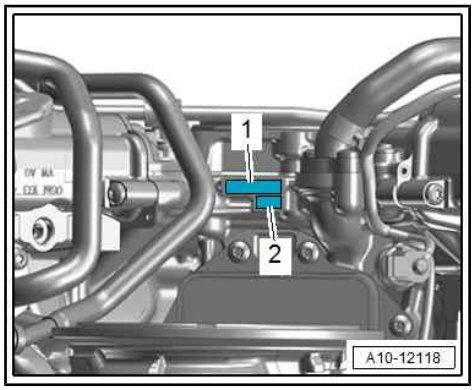
**Engine number**

- Pull off engine cover panel and heat shield to make engine number visible.
- The engine number is located at the top rear of the cylinder block.

1 - Serial number

2 - Engine code

- There is also a sticker on the timing chain cover (top) showing the engine code and the serial number.
- In addition, the engine code is listed on the vehicle data stickers.




## 1.2.4 6-cyl. petrol engine 3.0 TFSI

The engine number is located at the top rear of the cylinder block.

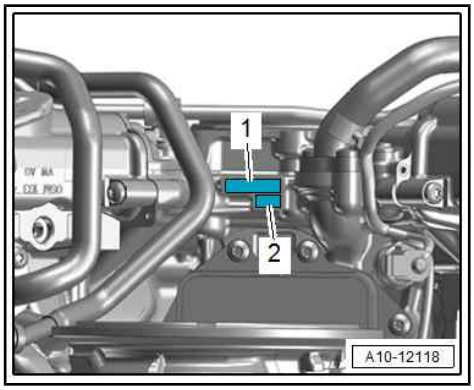
Pull off engine cover panel and heat shield to make engine number visible.

1 - Serial number

2 - Engine code

The engine number is also given on the sticker on the timing chain cover (top).

In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 4 .

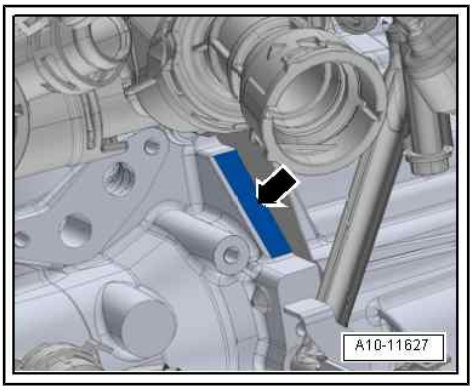



## 1.2.5 4-cyl. diesel engine 2.0 TDI

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 4 .

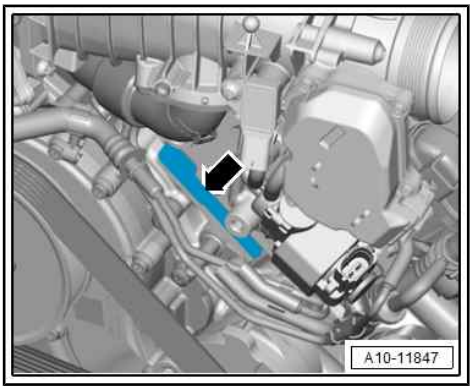



## 1.2.6 6-cyl. diesel engine 3.0 TDI

The engine number is stamped on the left side under the toothed belt for the high-pressure pump -arrow-.

There is also a sticker on the intake manifold showing the engine code and serial number.

In addition, the engine code letters are listed on the vehicle data sticker ⇒ page 4 .




## 1.3 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
- On the vehicle data sticker ⇒ page 4
- Optional: In the MMI under »Servicing & checks«

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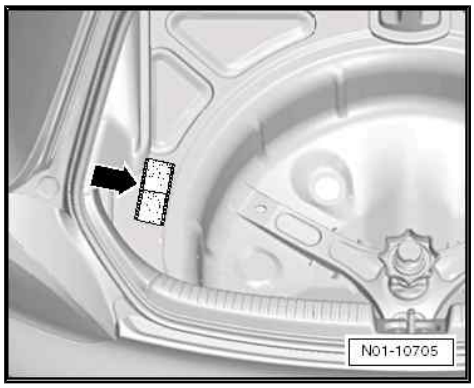
The vehicle identification number consists of the following:

| WAU | ZZZ | 8W | Z | B | A/N | 000 234 |
|---|---|---|---|---|---|---|
| Manufacturer code | Filler characters | Type | Filler characters | Model year | Production location | Serial number |

## 1.4 Vehicle data sticker

The vehicle data sticker is located:

- In the Service Schedule or service wallet
- 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

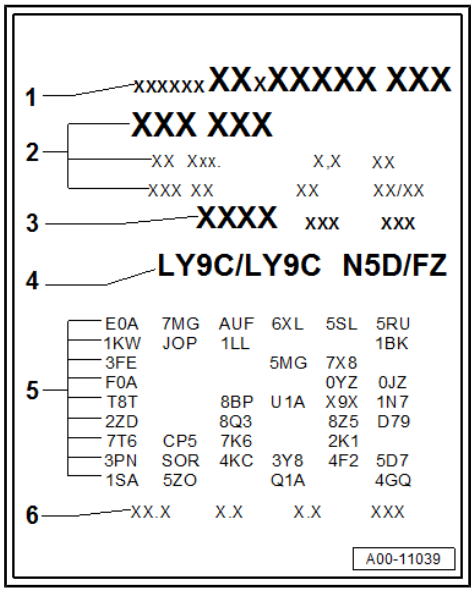
2 - Vehicle model, manufacturer's code, engine type and power output, production month and year

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)

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# 2 Preparations

Vehicle: raising ⇒ page 5

Engine cover panel: removing and installing ⇒ page 7

Noise insulation: removing and installing ⇒ page 9

Window regulators: activating automatic open/close function ⇒ page 10

Vehicle diagnostic tester: connecting ⇒ page 11

## 2.1 Vehicle: raising

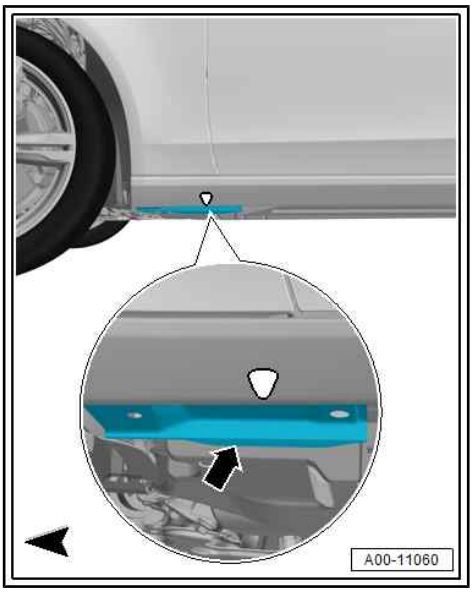
**WARNING**

**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:**

– Front: Position support plates of lifting platform under lifting point on side member -arrow-.

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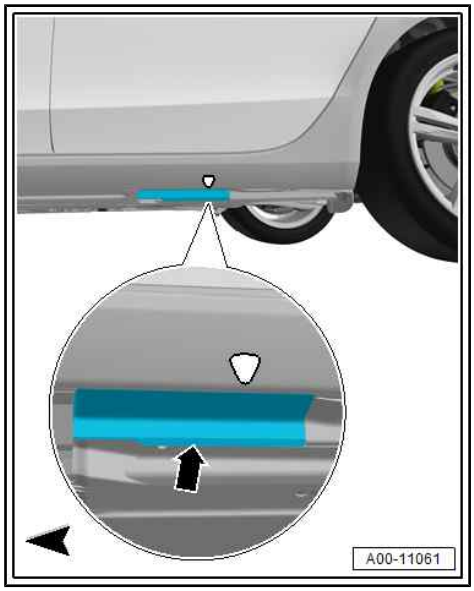
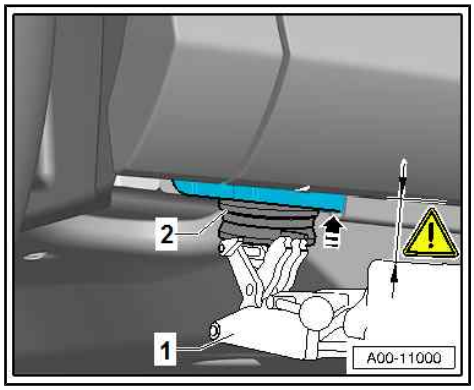
– Rear: Position support plates of lifting platform under lifting point on side member -arrow-.




**Note**

- *The location of the lifting points is indicated by markings stamped on the side member trim.*
- *Extend all support plates -2- far enough so that the lifting arm of the lifting platform does not touch the vehicle trim.*

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## 2.2 Engine cover panel: removing and installing

4-cyl. petrol engine 1.4 TFSI ⇒ page 7

4-cyl. petrol engine 2.0 TFSI ⇒ page 7

6-cyl. petrol engine 2.9 TFSI ⇒ page 7

6-cyl. petrol engine 3.0 TFSI ⇒ page 8

4-cyl. diesel engine 2.0 TDI ⇒ page 9

6-cyl. diesel engine 3.0 TDI ⇒ page 9

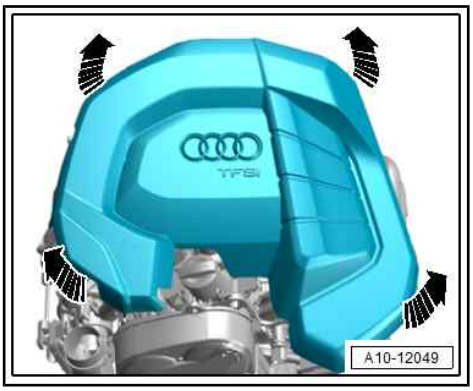
### 2.2.1 4-cyl. petrol engine 1.4 TFSI

**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.




### 2.2.2 4-cyl. petrol engine 2.0 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.

### 2.2.3 6-cyl. petrol engine 2.9 TFSI

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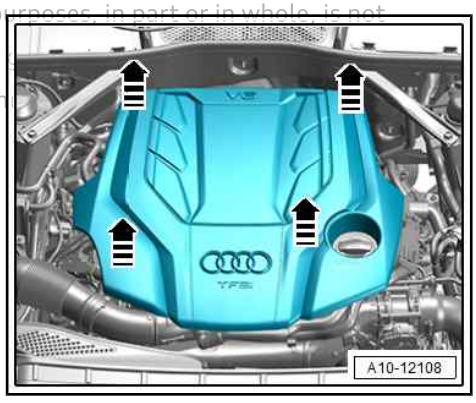
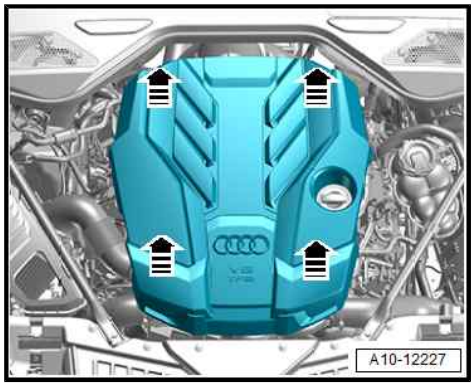
**Removing engine cover panel (version 1)**

– Carefully pull engine cover panel off retaining pins one after another -arrows-. Do not jerk engine cover panel away, and do not try to pull on one side only.



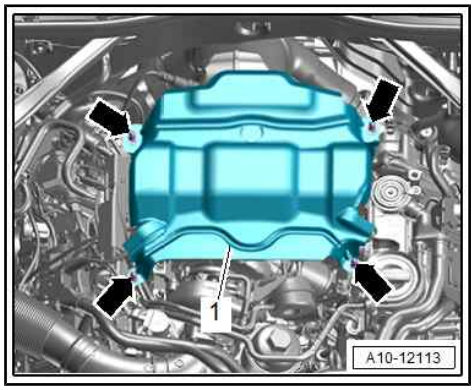
**Removing engine cover panel (version 2)**

– Carefully pull engine cover panel off retaining pins one after another -arrows-. Do not jerk engine cover panel away, and do not try to pull on one side only.




**Removing heat shield**

– Remove ball studs and bolts -arrows- and detach heat shield -1-.




**Installing**

**WARNING**

**Danger of fire and damage if the heat shield/engine cover panel is not fitted.**

- **The heat shield and the engine cover panel must always be fitted before the bonnet is closed.**
- **If the heat shield and engine cover panel are not fitted, it is not permissible to start the vehicle with the bonnet closed or drive the vehicle.**

– To avoid damage, do not strike the engine cover panel with your fist or with any kind of tool.

– Position engine cover panel, paying attention to oil filler neck and dipstick.

– Press engine cover panel into rubber grommets first on left side, then on right side.

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## 2.2.4 6-cyl. petrol engine 3.0 TFSI

**Procedure:**

Remove and install engine cover panel according to instructions in Workshop Manual ⇒ Servicing 6-cylinder engine, 3.0 ltr. TFSI, 4-valve (EA 839); Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

**Note**

*Remove the engine cover panel according to the instructions in the Workshop Manual.*

## 2.2.5 4-cyl. diesel engine 2.0 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.

– To avoid damage, do not strike the engine cover panel with your fist or with any kind of tool.

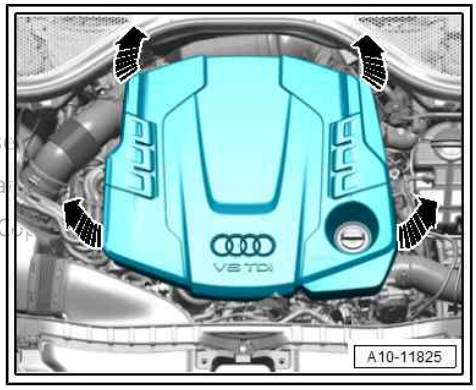
– Position engine cover panel, paying attention to oil filler neck and dipstick.

– Press engine cover panel into rubber grommets first on left side, then on right side.

## 2.2.6 6-cyl. diesel engine 3.0 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.

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## 2.3 Noise insulation: removing and installing

**Noise insulation (front)** ⇒ page 9

**Noise insulation (rear)** ⇒ page 10

## 2.3.1 Noise insulation (front)

**Special tools and workshop equipment required**

- Torque wrench - V.A.G 1410- , measuring range 4 to 20 Nm
- Or: torque wrench - VAS 6854- , measuring range 5 to 13 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm
- Or: torque wrench - V.A.G 1331- , measuring range 6 to 50 Nm

**Table of tightening torques for installation:**

| Component/fastener | [Nm] |
|---|---|
| Bolt -1- | 12 |

**Procedure for removing:**

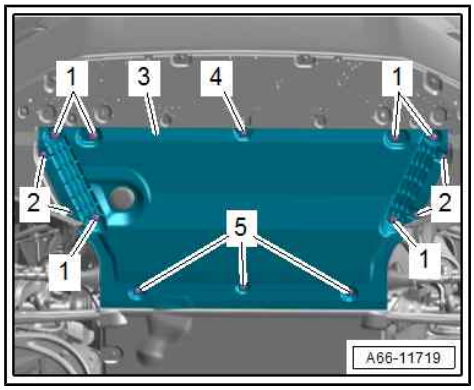
– Remove bolts -1-.

– Unscrew quick-release fasteners -2-, -4- and -5- from noise insulation (front).

– Pull noise insulation -3- 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 9 ).

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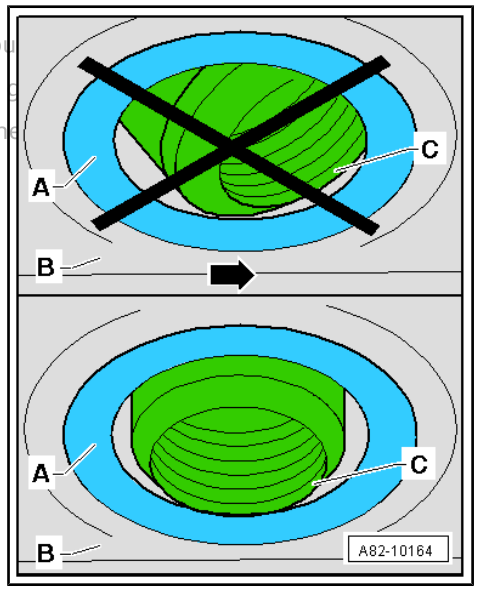
**Note**

- *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)

**Procedure for removing:**

– Release fasteners -arrows-.

– Release quick-release fasteners -2- and -3-.

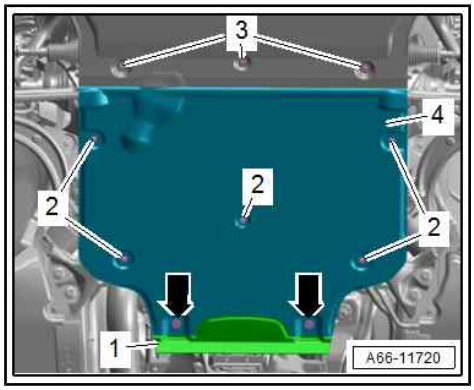
– Pull noise insulation panel -4- out towards rear.

**Procedure for installing:**

Install in reverse sequence.

**Note**

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




## 2.4 Window regulators: activating automatic open/close function

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

**Special tools and workshop equipment required**

♦ Diagnosis system - VAS 6160 A-

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♦ 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.

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# 3 Maintenance

Display instruments: setting time and date ⇒ page 118

Battery: determining and recording state of charge (SOC) ⇒ page 25

Battery: checking electrolyte level ⇒ page 21

Battery: connecting stationary battery charging unit (min. 30A, charging voltage max. 14.8 V on IV characteristic curve) ⇒ page 23

Battery: reading out status ⇒ page 20

Axles (front and rear): checking components for play, secure attachment and damage, and checking protective boots ⇒ page 44

Passenger airbag: checking key switch on/off and setting to "on" ⇒ page 60

Tyres: checking tyre pressures and adjusting if necessary ⇒ page 38

Tyres: checking condition and wear pattern, and checking and recording tread depth ⇒ page 37

Tyres (except spare wheel): checking tyre pressures and adjusting to 3.5 bar if necessary ⇒ page 40

Service wallet: affixing vehicle data sticker ⇒ page 61

Owner's literature: checking that all documents are present ⇒ page 61

Brake system: checking condition of brake hoses, and checking that caps are fitted on bleeder screws ⇒ page 34

Brake pads: checking thickness ⇒ page 35

Brake fluid (vehicles older than 12 months): changing ⇒ page 34

Brake fluid: checking fluid level ⇒ page 34

Brake fluid: changing ⇒ page 29

Brake discs: checking for surface rust and operating brakes to clean if necessary ⇒ page 36

Checklist "Documentation of cleaning and care routine": checking that list is present ⇒ page 117

“Stock vehicle maintenance” checklist: signing and placing in vehicle wallet ⇒ page 117

Connected gateway: renewing emergency battery, telematics ⇒ page 27

Connectivity box: checking emergency battery ⇒ page 28

Roof insert for panorama sunroof: checking operation ⇒ page 53

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Roof insert: checking operation ⇒ page 50

Data sheet for Radio Equipment Directive: printing and placing in glove compartment ⇒ page 27

Diagnostic work: performing ⇒ page 19

Diesel particulate filter: reading out ash deposit volume ⇒ page 16

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Dual clutch gearbox (S tronic): changing ATF ⇒ page 118

Dual clutch gearbox (S tronic): changing ATF and renewing exchangeable ATF filter ⇒ page 118

Dual clutch gearbox (S tronic): changing ATF and renewing exchangeable ATF filter (if fitted) ⇒ page 118

ERA-GLONASS: checking emergency call function ⇒ page 17

Natural gas system: checking for damage and leaks ⇒ page 105

Filler connection for natural gas: checking condition and cleaning if necessary ⇒ page 114

Event memory: reading out ⇒ page 18

Headlights and reversing lights, side lights, number plate lights, turn signals, hazard warning lights: checking operation ⇒ page 58

Connecting vehicle diagnostic tester and sending diagnostic log ⇒ page 21

Vehicle key(s), wheel covers and owner's literature: checking availability and recording number present ⇒ page 64

Vehicle key: removing from ignition lock ⇒ page 63

Vehicle key(s): checking operation and recording number of keys given to customer ⇒ page 63

Mirror hanger indicating defective battery: renewing battery on affected vehicles ⇒ page 27

Vehicle doors: removing edge protection ⇒ page 115

Vehicle exterior: checking unprotected areas for dirt, and cleaning if necessary ⇒ page 115

Vehicle exterior: removing protective film ⇒ page 115

Vehicle interior and exterior: checking for and documenting any damage ⇒ page 62

Vehicle interior: checking that it is clean and cleaning if necessary ⇒ page 62

Vehicle interior: removing any objects other than those protecting interior surfaces ⇒ page 62

Vehicle interior: removing protective covers for seats and carpet ⇒ page 62

Vehicle (from below): checking for damage ⇒ page 49

Vehicle cover: checking position and correcting if necessary ⇒ page 115

Vehicle cover: removing according to manufacturer's instructions ⇒ page 115

Cleaning and care: checking that required measures have been carried out on time ⇒ page 117

Suspension struts on front and rear axle: removing locking elements and correctly fitting bump stops ⇒ page 42

Filter (water separator): renewing ⇒ page 96

Luggage compartment cover and sun blind: checking that they are rolled up and rolling up if necessary ⇒ page 64

Glove box light, interior lighting and reading light: checking operation ⇒ page 59

Interior mirror: calibrating compass ⇒ page 118

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Body: checking vehicle paintwork for damage and corrosion from below and with bonnet, rear lid and doors open ⇒ page 115

Poly V-belt for ancillaries: renewing ⇒ page 119

Luggage compartment lighting: checking operation ⇒ page 59

Luggage compartment: removing protective film and felt pieces ⇒ page 59

Instrument cluster: resetting driver information system ⇒ page 118

Instrument cluster: checking warning lamps ⇒ page 62

Fuel tank: adding fuel additive ⇒ page 100

Fuel filter: renewing ⇒ page 97

Coolant level: checking (coolant level must reach at least top marking on coolant expansion tank) ⇒ page 83

Paintwork, trims, side windows and wiper blades: checking cleanliness ⇒ page 115

Air cleaner: renewing filter element and cleaning housing ⇒ page 88

Engine, gearbox, final drive and steering: checking for leaks and damage ⇒ page 48

Engine oil: draining ⇒ page 64

Engine oil: extracting ⇒ page 66

Engine oil: renewing oil filter ⇒ page 67

Engine oil: filling up ⇒ page 72

Engine oil: checking oil level and correcting if necessary ⇒ page 73

Emergency call function: checking status LED ⇒ page 28

Parking brake: releasing ⇒ page 37

Road test ⇒ page 116

Wheel bolts: tightening to specified torque ⇒ page 41

Reducing agent (AdBlue®): filling up tank completely ⇒ page 100

Tyre Pressure Loss Indicator: storing changed tyre pressures ⇒ page 40

Tyre repair kit: checking that set is complete, and checking and recording expiry date ⇒ page 40

Manual gearbox/automatic gearbox: selecting 1st gear/park ⇒ page 118

Windscreen washer system: checking spray pattern and adjusting if necessary ⇒ page 55

Wiper blades: checking for damage ⇒ page 56

Headlights: checking for correct adjustment ⇒ page 57

Headlight washer system: checking operation ⇒ page 56

Convertible roof locking element: lubricating ⇒ page 49

Service Schedule: entering Delivery Inspection ⇒ page 61

Service display for checking natural gas system: resetting ⇒ page 114

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Service interval display: resetting service event ⇒ page 18

Seat belts: checking that retaining rivets are fitted, and checking locking action of automatic belt retractor ⇒ page 61

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Sun visors: checking that they are folded up and folding up if necessary ⇒ page 64

Stock vehicles: observing measures specified in Maintenance table for stock vehicles (see “Before handing vehicle over to customer”) ⇒ page 116

Dust and pollen filter: renewing ⇒ page 95

Stock vehicle care management: deciding and recording date of next check ⇒ page 117

Transport mode: checking activation and activating if necessary ⇒ page 20

Transport mode: deactivating ⇒ page 19

Door hinges with separate door arrester: cleaning and lubricating ⇒ page 54

Underbody: checking trim, wheel housing liners, side members and pipes/wiring for damage, and checking that they are properly secured ⇒ page 49

First-aid kit: checking and recording expiry date ⇒ page 63

Shipping mode: deactivating ⇒ page 17

Warning triangle: checking availability ⇒ page 63

Water separator (fuel filter): draining ⇒ page 96

Toothed belt for coolant pump drive: checking ⇒ page 119

Toothed belt for camshaft drive and tensioning roller: renewing ⇒ page 119

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## 3.1 Diesel particulate filter: reading out ash deposit volume

Table of test values and procedure guidelines:

| Engine | Measured value designation for diagnostic tester | Maximum value for ash deposit |
|---|---|---|
| 4-cyl. diesel engine 2.0 TDI | Particulate filter, oil ash deposit mass | Oil ash deposit mass: 80 g |
| 6-cyl. diesel engine 3.0 TDI | Particulate filter, oil ash deposit volume | Oil ash deposit volume: 380 ml |

Procedure:

– Connect vehicle diagnostic tester ⇒ page 11 .
– 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/Control unit self-diagnosis

♦ 01 - Read measured values/Measured values

– Select desired measured value (see table of test values and procedure guidelines ⇒ page 16 ) by entering V and confirming with OK.

– Evaluate measured value and follow further instructions on screen.

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– 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). |
| 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 . |

## 3.2 Shipping mode: deactivating

**Procedure:**

– Connect vehicle diagnostic tester ⇒ page 11 .

– 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.

– Select “Test plan” tab and carry out test plans according to instructions.

## 3.3 ERA-GLONASS: checking emergency call function

**Requirements:**

- Applies to: vehicles with ERA-GLONASS emergency call function (depends on market).
- The services can only used if there is sufficient mobile network coverage.
- The test mode can only be started within 20 seconds of the ignition being switched on.
- Transport mode deactivated.
- The system is designed to allow up to 15 minutes between deactivating the transport mode and checking the emergency call function.

- Ensure adequate mobile reception; move vehicle outside if necessary.

**Procedure:**

– Switch on ignition.

– Check if LED -2- is lit in green.

– Run ERA-GLONASS test mode:

– Press emergency call button behind cover in roof module -1- 10 times in succession and follow the voice prompts to perform the test.

– Once the test is completed, press the emergency call button to initiate a test call.

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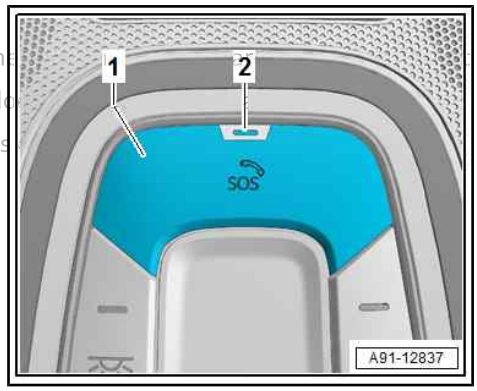


**Note**

- *If the LED lights up in red or if it is not possible to activate the test mode, connect vehicle diagnostic tester ⇒ page 11 and perform Guided Fault Finding "19 - Data Bus On Board Diagnostic Interface, functions, Commissioning ERA-GLONASS".*
- *Due to applicable legislation in certain countries, the vehicle must not be delivered unless the ERA-GLONASS emergency call function (red LED) has been successfully activated.*

## 3.4 Event memory: reading out

**Procedure:**

– Connect vehicle diagnostic tester ⇒ page 11 .

– 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.

– Select "Test plan" tab and carry out test plans according to instructions.

## 3.5 Service interval display: resetting service event

**Procedure:**

– Connect vehicle diagnostic tester. ⇒ page 11

– 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.

– Reset service event via ODIS (select corresponding service event).

– Start program by selecting Carry out check.

– Continue to follow instructions on screen.

**Note**

*The distance until the next oil service is calculated on the basis of the customer's driving profile. When the service interval display is reset, the distance until the next oil service is recalculated on the basis of this driving profile. Frequent cold starts or short journeys make high demands on the engine oil. This can cause the information about the distance until the next oil service to vary, depending on the driving profile.*

## 3.6 Diagnostic work: performing

**Procedure:**

– Connect vehicle diagnostic tester ⇒ page 11 .

– Select `Diagnosis` mode and begin diagnosis.

– Perform vehicle identification.

– Untick `Working with Guided Fault Finding`.

– Switch to `Special functions` tab and select following program:

♦ Predelivery inspection total

– Start program by selecting `Carry out check`.

– Continue to follow instructions on screen and complete the process.

– Switch to the `Control units` tab, press the `Guided Fault Finding` button and launch Guided Fault Finding as far as the test plan.

– Carry out test programs on the events read out of the event memory.

## 3.7 Transport mode: deactivating

**Procedure:**

– Connect vehicle diagnostic tester ⇒ page 11 .

– 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.

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♦ *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.*

## 3.8 Transport mode: checking activation and activating if necessary

**Checking transport mode** ⇒ page 20

**Activating transport mode** ⇒ page 20

### 3.8.1 Checking transport mode

**Procedure:**

– Switch on ignition.

– Check whether »Transport mode on« is shown in instrument cluster.

– If necessary, activate transport mode ⇒ page 20 .

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### 3.8.2 Activating transport mode

**Procedure:**

– Connect vehicle diagnostic tester ⇒ page 11 .

– 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.*

## 3.9 Battery: reading out status

**Procedure:**

– Connect vehicle diagnostic tester ⇒ page 11 .

– 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, Testing

– 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. |

| Result on vehicle diagnostic tester: | Measure: |
|---|---|
| “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 ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery . |

**Note**

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

## 3.10 Connecting vehicle diagnostic tester and sending diagnostic log

– Carry out test programs according to test plan.

– Switch to `Control units` tab.

– Press `X Diagnosis` button and close diagnosis program.

– Send off diagnostic log online.

**Note**

- *The event memory is erased automatically when you exit Guided Fault Finding.*
- *The diagnostic log is sent automatically when you exit Guided Fault Finding.*
- *If no network connection is available, the diagnostic log will be cached for a few days. Complete the online data transfer as soon as possible.*

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## 3.11 Battery: checking electrolyte level

**Note**

*Batteries must not be opened.*

**Battery without magic eye** ⇒ page 21

**Battery with magic eye** ⇒ page 22

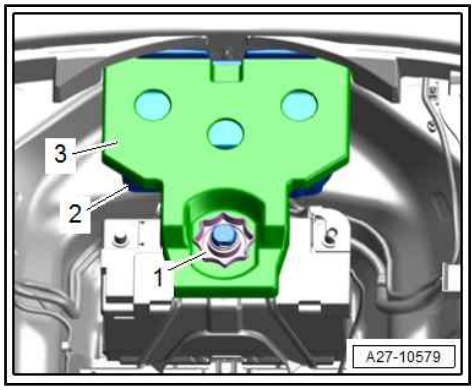
### 3.11.1 Battery without magic eye

The battery is located in the luggage compartment.

**Removal steps:**

– Lift luggage compartment floor and secure in position.

– Unscrew nut -1- for vehicle tool kit and take out cover with tool kit -2- or temporary spare wheel.




**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).*

## 3.11.2 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.**

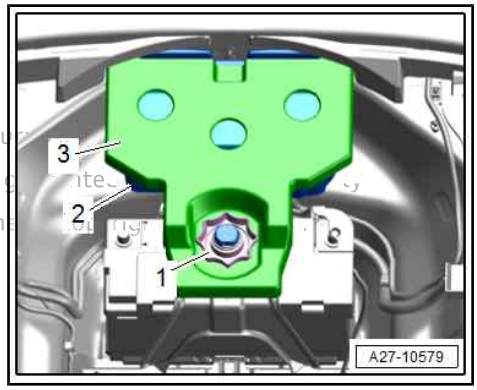
♦ **Renew battery.**

The battery is located in the luggage compartment.

**Removal steps:**

– Lift luggage compartment floor and secure in position.

– Unscrew nut -1- for vehicle tool kit and take out cover with tool kit -2- or temporary spare wheel.

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**Procedure:**

– Check battery housing for the following:

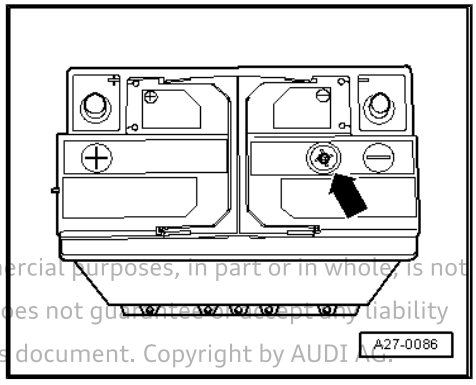
♦ Battery terminals are not corroded or damaged

♦ 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:

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| 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.*

## 3.12 Battery: connecting stationary battery charging unit (min. 30A, charging voltage max. 14.8 V on IV characteristic curve)

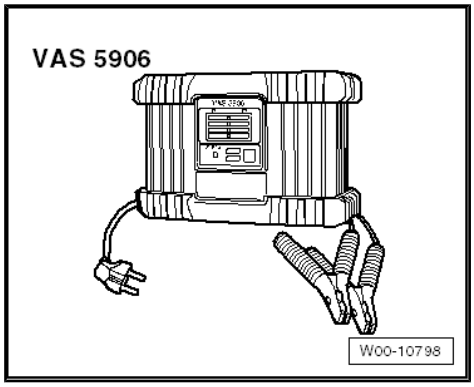
**WARNING**

**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-




Only applies to vehicles intended for display.

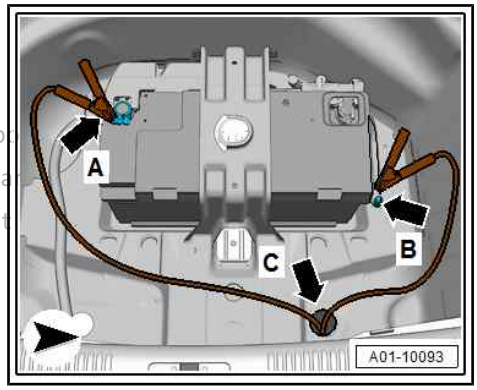
**Requirements:**

- Ignition switched off.

**Removal steps:**

– Lift luggage compartment floor and secure in position.

– Remove plastic stopper -C- in spare wheel well and store it in glove box.

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**Procedure for connecting battery charger:**

– Disconnect charger clamps from battery charger - VAS 5906- .

– Working from above, thread connector end of cable for charger clamps through hole in spare wheel well.

– Open battery terminal cover (+).

– First connect charger clamp (+) to positive battery terminal -A-.

– Then connect charger clamp (-) to earth point (-) -B- on body.

– Arrange wiring of battery charger - VAS 5906- neatly in spare wheel well.

– Stow tool kit in spare wheel well and fit cover for tool kit.

– Fit luggage compartment floor cover.

– Under vehicle: Connect cable for charger clamps to battery charger - VAS 5906- .

– 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.

## 3.13 Battery: determining and recording state of charge (SOC)

**Vehicles with transport mode ON** ⇒ page 25

**Vehicles with transport mode OFF** ⇒ page 25

### 3.13.1 Vehicles with transport mode ON

**Procedure:**

– Read off battery charge level on instrument cluster.

– Use results of test to determine following measures:

| State of charge (SOC): | Measure: |
|---|---|
| “≥ 80% (12.5 V)” | No further measures necessary. |
| “SOC < 80% (12.5 V) and SOC ≥ 10% (11.6 V)” | Charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery . |
| “< 10% (11.6 V)” | Charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery , and attach mirror hanger for “Battery defective”. |

– Record charge level in maintenance table.

**Note**

*If if is not possible to read off the state of charge in the instrument cluster, measure the battery's no load voltage* ⇒ page 26 *.*

### 3.13.2 Vehicles with transport mode OFF

**Special tools and workshop equipment required**

♦ Battery tester - VAS 6161-

The battery is located in the luggage compartment.

**Removal steps:**

– Lift luggage compartment floor and secure in position.

**Procedure:**

– Switch on battery tester - VAS 6161- and select “QC check, new vehicles”.

– Use battery tester - VAS 6161- to measure voltage between battery clamps.

– Use results of test to determine following measures:

| Battery tester shows: | Measure: |
|---|---|
| “Battery good” | No further measures necessary. |
| “Charge fully now” | Charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery . |
| “Battery Faulty” | Charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery , and attach mirror hanger for “Battery defective”. |

– Record charge level in maintenance table.

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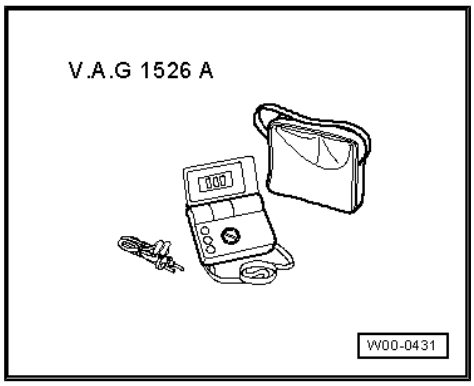
**Note**

- *When using battery tester - VAS 6161- , ensure that the software is up to date.*
- *If if is not possible to measure the state of charge with battery tester - VAS 6161- , measure the battery's no load voltage* *⇒ page 26* *.*

## 3.13.3 Measuring no load voltage of battery

**Special tools and workshop equipment required**

- Hand-held multimeter - V.A.G. 1526 C-




- Or: digital multimeter - V.A.G. 1715-

The battery is located in the luggage compartment.

**Requirements:**

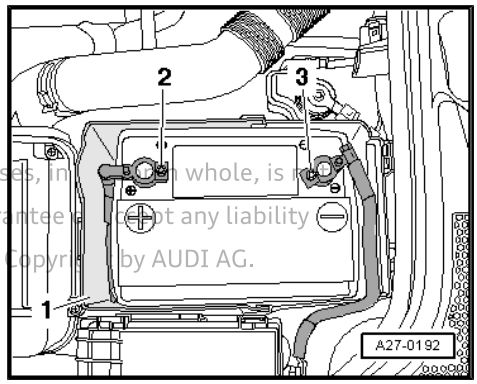
- Battery must not be placed under load from connected electrical equipment for at least 12 hours before test.
- Battery must not have been charged for at least 12 hours before test.
- Engine must remain off for at least 2 hours before test.
- Ignition switched off during test.

**Removal steps:**

– Lift luggage compartment floor and secure in position.

**Procedure:**

– Use hand-held multimeter - V.A.G. 1526 C- to measure voltage between battery clamps -2- and -3-.




– Use results of test to determine following measures:

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| State of charge (SOC): | Measure: |
|---|---|
| “≥ 12.5 V” | No further measures necessary. |

| State of charge (SOC): | Measure: |
|---|---|
| “SOC < 12.5 V and SOC ≥ 11.6 V” | Charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery . |
| “< 11.6 V” | Charge battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Charging battery , and attach mirror hanger for “Battery defective”. |

– Record charge level in maintenance table.

Install in reverse sequence.

## 3.14 Mirror hanger indicating defective battery: renewing battery on affected vehicles

Only for vehicles with mirror hanger for “Battery defective”.

**Procedure:**

– Wait until shortly before vehicle delivery, then renew battery according to instructions in workshop manual ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .

## 3.15 Data sheet for Radio Equipment Directive: printing and placing in glove compartment

As part of the European Union’s Radio Equipment Directive (RED 2014/53/EU), legislation requires that a data sheet be provided containing information regarding which radio frequencies are used.

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**The Radio Equipment Directive data sheet can be downloaded at www.audi.com/generalinfo.**

– Print out data sheet (same language as owner's literature) and fold it.

– Place data sheet in glove compartment.

**Note**

- *Only markets within the EU.*
- *The data sheet applies to all vehicles across Europe; it can therefore be printed out in advance and kept at hand.*

## 3.16 Connected gateway: renewing emergency battery

The emergency battery, telematics - A16- is located in the data bus diagnostic interface - J533- .

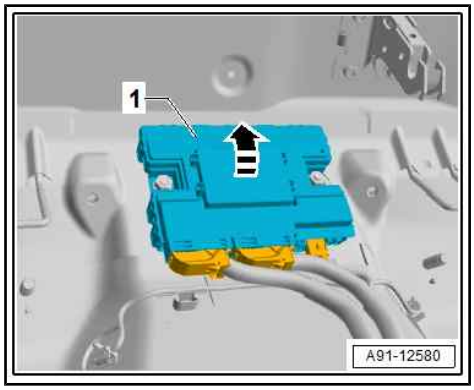
**Removing**

– Switch off ignition and all electrical equipment, and remove ignition key.

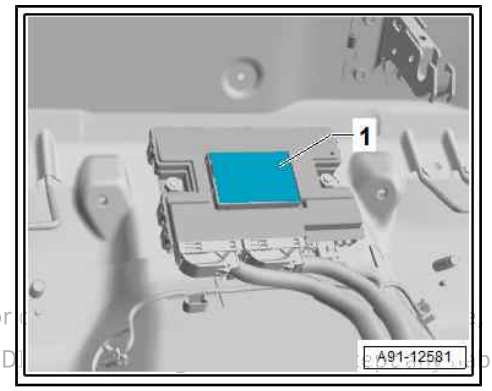
– Remove seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench/individual seats .

It is not necessary to remove data bus diagnostic interface - J533- .

– Release catches and lift cover off data bus diagnostic interface - J533- -1- in direction of -arrow-.




– Pivot emergency battery, telematics - A16- -1- out of data bus diagnostic interface - J533- .
– Release and unplug electrical connector.




**Installing**

Install in reverse sequence.

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## 3.17 Connectivity box: checking emergency battery

**Procedure:**

– Connect vehicle diagnostic tester ⇒ page 11 .
– 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:
♦ A16 - Emergency battery, telematics, check component
– Start program by selecting Carry out check.
– Continue to follow instructions on screen.

## 3.18 Emergency call function: checking status LED

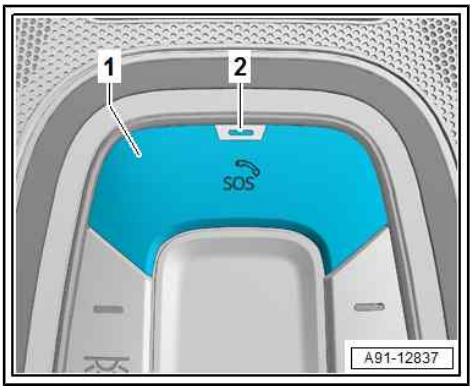
**Requirements:**

- Applies to: vehicles with private and statutory emergency call function (Europe)
- The services can only used if there is sufficient mobile network coverage.
- Flight and transport mode deactivated
- Ensure adequate mobile reception and GPS reception; move vehicle outside if necessary.

**Procedure:**

– Switch on ignition.

– Deactivate flight and transport mode.
– Check if LED -2- is lit in green.




**Note**

- *It may take up to 15 minutes for the emergency call system to be activated (LED lights up in green) after deactivating flight/ transport mode.*
- *The vehicle must not be delivered to the customer if the emergency call function has not been successfully activated (LED lights up in green).*
- *Due to applicable legislation in certain countries, the vehicle is only approved for road use with a functioning emergency call system (LED lights up in green).*
- *If the emergency call system has not been activated after the specified time has elapsed, please refer to TPI 2055311.*

## 3.19 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-

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♦ Tool set for brake bleeding - VAS 6564-

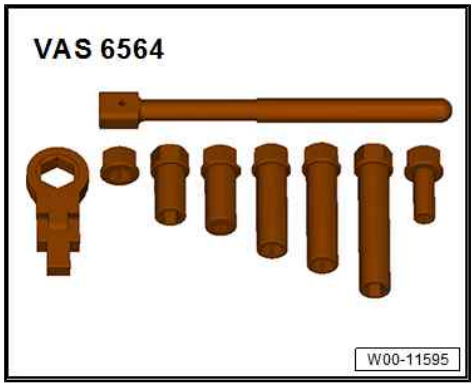


**Table of test values and procedure guidelines:**

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 passenger's side | 2. | 0.20 ltr. |
| Rear axle on driver's side | 3. | 0.30 ltr. |
| Rear axle on 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. |

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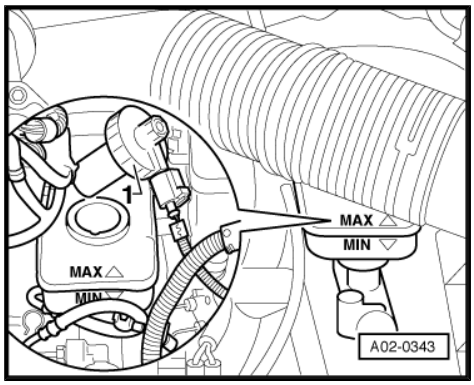
**Step 1 - connecting brake filling and bleeding equipment:**

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



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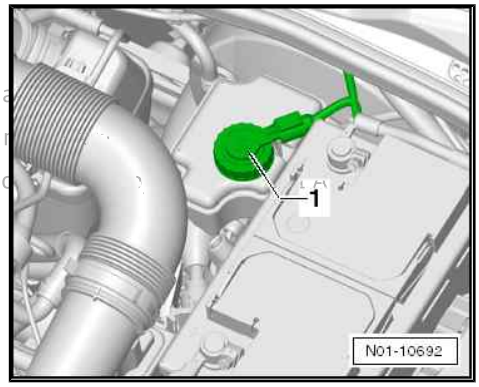
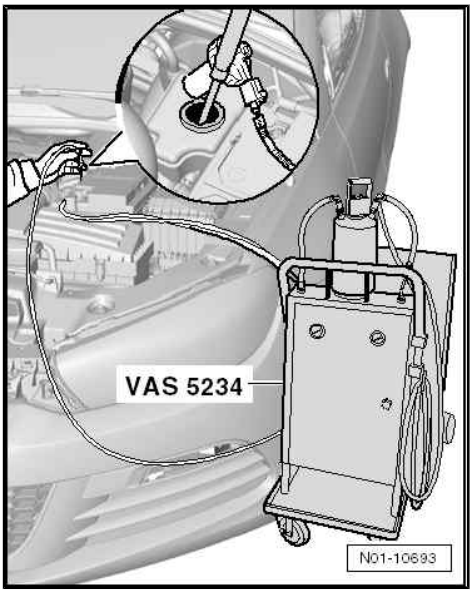
– Use extraction hose included in brake filling and bleeding equipment - VAS 5234- to extract brake fluid from reservoir (with strainer installed) until fluid is level with bottom edge of strainer. Make sure that no more fluid flows back into reservoir from strainer after extracting fluid.




– 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).



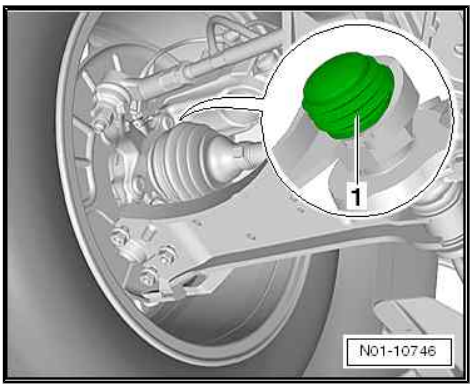

**Step 2 - bleeding and filling brake system:**

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

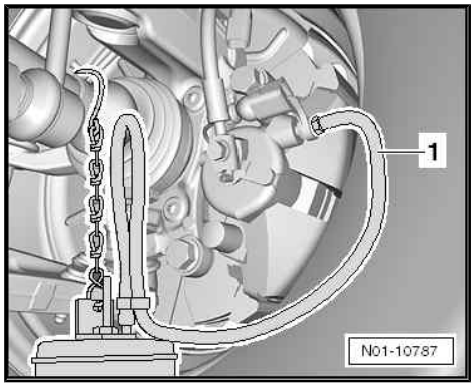
– Raise vehicle ⇒ page 5 .

**Front axle:**

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

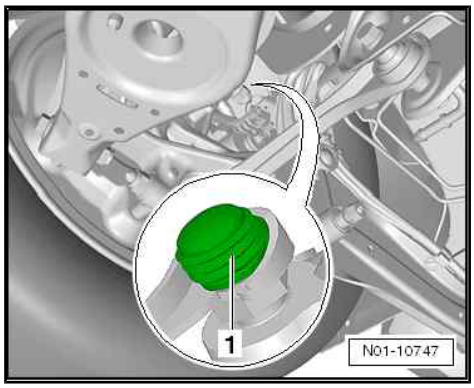


– Fit bleeder hose -1- attached to collector container onto bleeder screw from inside of rim.
– Open bleeder screw and allow brake fluid to discharge. Refer to table for correct quantity of brake fluid to discharge ⇒ page 30 .
– Close bleeder screw.
– If there are two bleeder screws on each brake caliper: Repeat procedure with second bleeder screw.
– Refit cap on bleeder screw(s).
– Repeat procedure on passenger's side.

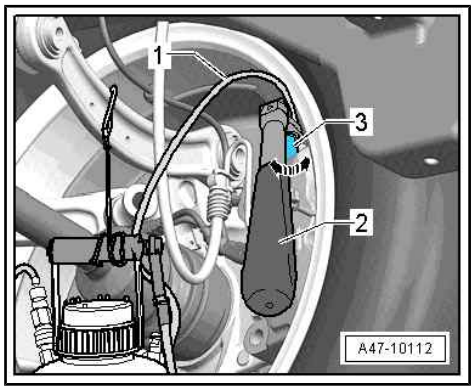



**Rear axle:**

– 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 30 .
– Close bleeder screw.

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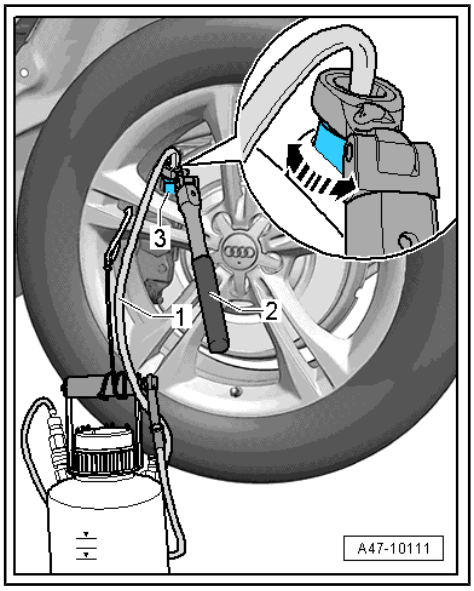
– If there are two bleeder screws on each brake caliper: Working from outside of rim, apply reversible ratchet -2- and socket -3- and repeat procedure.
– Refit cap on bleeder screw(s) on brake caliper.
– Repeat procedure on passenger's side.




### 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 30 ).
– 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 34 .
– 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.

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**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.*

## 3.20 Brake fluid (vehicles older than 12 months): changing

Only applies to vehicles older than 12 months (from date of manufacture).

**Procedure:**

– Change brake fluid ⇒ page 29 .

## 3.21 Brake fluid: checking fluid level

**Table of test values and procedure guidelines:**

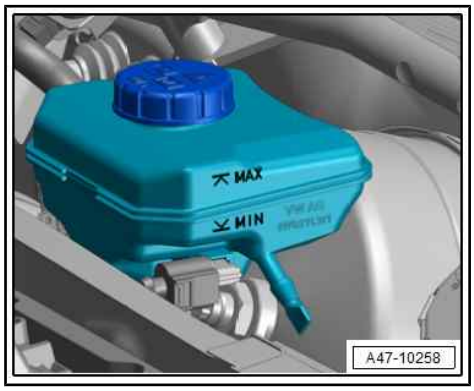
| Type of service: | Fluid level specification: |
|---|---|
| Delivery Inspection | Fluid level must be at MAX marking. |
| Brake fluid change | Fluid level must be between MAX marking and MIN marking according to wear level of brake pads. |

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

**Procedure:**

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

– 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.*

## 3.22 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.

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**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.

## 3.23 Brake pads: checking thickness

**Special tools and workshop equipment required**

- Test pin - T40139 - / test pin - T40139A- : Use the side with the thin probe (brake symbol) to measure brake pad thickness.

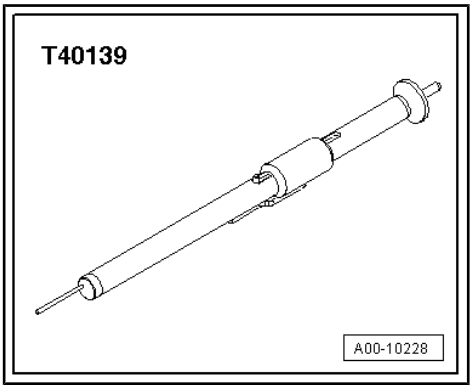


**Table of test values and procedure guidelines:**

| Axle | Brake pad wear limit including backplate and damper plate [mm] |
|---|---|
| Front axle | 10 |
| Rear axle | 10 |

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.

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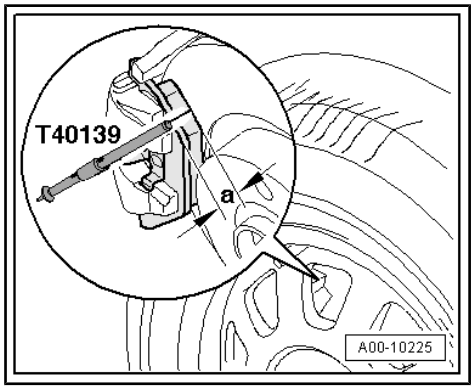
– Remove test pin and read off brake pad wear value -a- from scale on tool.
– Repeat procedure for all wheels.
– If brake pad thickness has reached wear limit (see table of test values and procedure guidelines ⇒ page 35 ): Renew brake pads ⇒ Brake system; Rep. gr. 46 ; Removing and installing brake pads .




**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.*
- *On S and RS models, it may be necessary to measure the brake pads from the inside of the wheels.*

## 3.24 Brake discs: checking for surface rust and operating brakes to clean if necessary

**Checking brake discs** ⇒ page 36

**Operating brakes to clean brake discs** ⇒ page 36

### 3.24.1 Checking brake discs

**Procedure:**

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– Check outside of all brake discs for surface rust.
– If necessary, operate brakes to clean brake discs ⇒ page 36 .

**Note**

*The brake discs can be damaged irreparably if surface rust is not removed at the specified intervals.*

### 3.24.2 Operating brakes to clean brake discs

**Procedure:**

– Accelerate vehicle to 40 km/h, then brake gently to 10 km/h (do this five times).
– Accelerate vehicle to 40 km/h, then brake sharply to a standstill (do this five times).

**Note**

*The wheels should not spin or lock during acceleration and braking.*

## 3.25 Parking brake: releasing

**Mechanical parking brake** ⇒ page 37

**Electromechanical parking brake** ⇒ page 37

### 3.25.1 Mechanical parking brake

**Procedure:**

– Release parking brake.

### 3.25.2 Electromechanical parking brake

**Procedure:**

– Press brake pedal, then press switch for electromechanical parking brake.

## 3.26 Tyres: checking condition and wear pattern, and checking and recording tread depth

**Special tools and workshop equipment required**

♦ Test pin - T40139- / test pin - T40139A- : Use the side with the thick probe and shoulder (scale marked with tyre symbol) to measure tread depth.

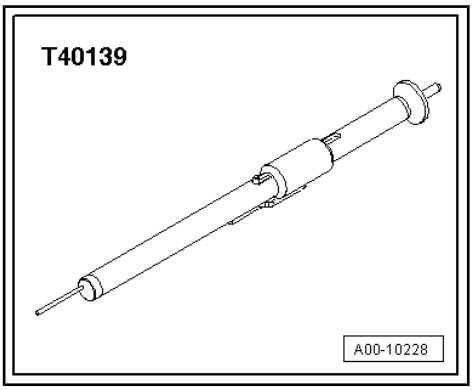


**Table of test values and procedure guidelines:**

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

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| 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 |
| 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.

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**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 37 ): 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.*

## 3.27 Tyres: checking tyre pressures and adjusting if necessary

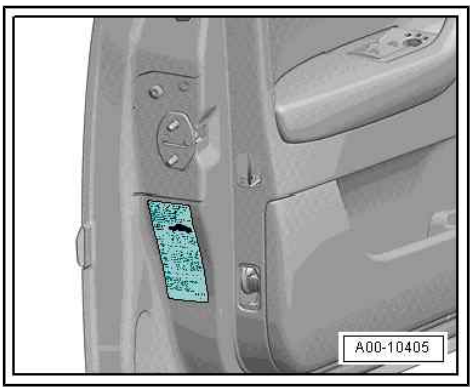
**Note**

*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 39

**Spare wheel and temporary spare wheel** ⇒ page 39

## 3.27.1 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.*
- *Tyre pressures which significantly differ from the specification may be the result of a defect. If this occurs, check the tyres and inform the customer if necessary.*
- *Always adjust to max. tyre pressure specified on vehicles with stickers indicating tyre pressures for speed range >250km/h (vehicles without speed limiter system; max. tyre pressures are obligatory).*

## 3.27.2 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.*

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## 3.28 Tyres (except spare wheel): checking tyre pressures and adjusting to 3.5 bar 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.*

**Procedure:**

– Check tyre pressure of all tyres.

– If necessary, adjust tyre pressure to 3.5 bar and record pressure in maintenance table.

## 3.29 Tyre Pressure Loss Indicator: storing changed tyre pressures

**The Tyre Pressure Loss Indicator must be initialised at every inspection (after the tyre pressures have been checked or changed).**

**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 MENU.

– Select »Car«.

– Press left control button and navigate through following menu structure:

♦ Servicing & checks

♦ Tyre pressure monitoring

♦ Store tyre pressures

♦ Yes, store

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

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

The tyre repair kit is located in the spare wheel well.

**Procedure:**

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

♦ Compressor

♦ Tyre filler bottle incl. filler hose

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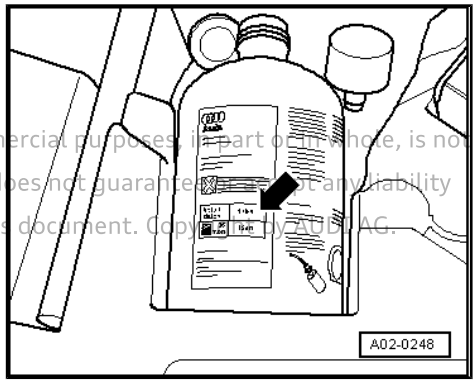
– Take out the bottle and check the expiry date (printed on bottle -arrow-).
– Record expiry date in Maintenance table.
– If expiry date has been exceeded or if bottle has already been used: Renew tyre filler bottle.

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## 3.31 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
- Tool to secure wheel nut caps 8Z0.012.287

**Table of test values and procedure guidelines:**

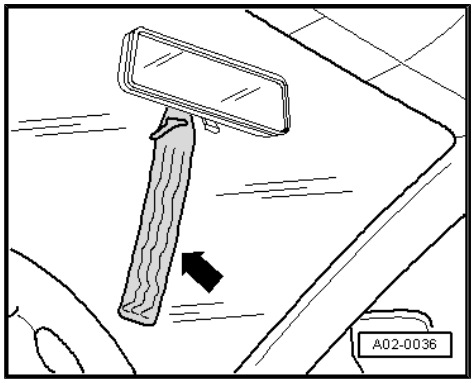
| Fastener | Tightening torque [Nm] |
|---|---|
| Wheel bolt | 120 |

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

**Procedure:**

– Remove wheel bolt caps.
– Tighten wheel bolts in a diagonal sequence to specified torque (see table of test values and procedure guidelines ⇒ page 41 ).
– Press wheel bolt caps on using tool 8Z0.012.287 so that they are correctly seated.
– If adapter for anti-theft wheel bolts was used from tool kit: Put adapter back in tool kit.

## 3.32 Suspension struts on front and rear axle: removing locking elements and correctly fitting bump stops




**Note**

- *These vehicles are identified by a coloured tag fixed to the mirror -arrow-.*
- *It is not necessary to remove the wheels to perform this operation.*

**Suspension struts on front axle** ⇒ page 42

**Suspension struts on rear axle** ⇒ page 43

**Pressing in bump stop** ⇒ page 43

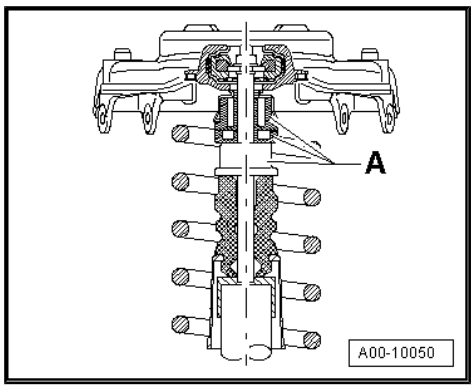
### 3.32.1 Suspension struts on front axle

**Requirements:**

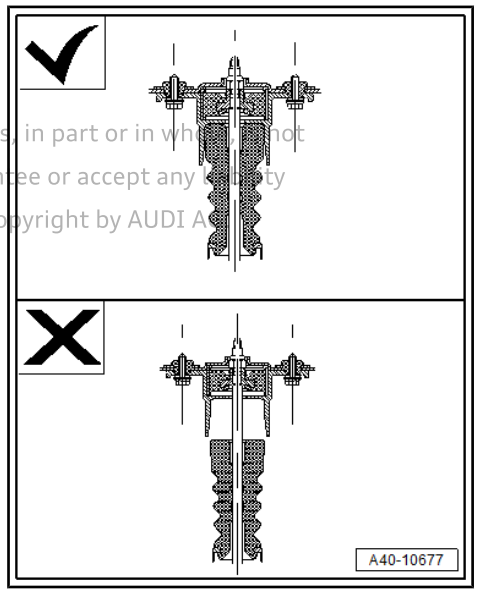
- Vehicle suspension extended

**Procedure:**

– Push all locking elements -A- off piston rod.




– Press bump stops all the way into shock absorber mountings (make sure they are straight).




**Note**

*With vehicle suspension extended, check that all bump stops are firmly seated in shock absorber mountings.*

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– If necessary, use a suitable tool to press any loose bump stops into shock absorber mountings ⇒ page 43 .

– When all locking elements have been removed from vehicle: Remove tag on interior mirror.

## 3.32.2 Suspension struts on rear axle

**Requirements:**

- Vehicle suspension extended

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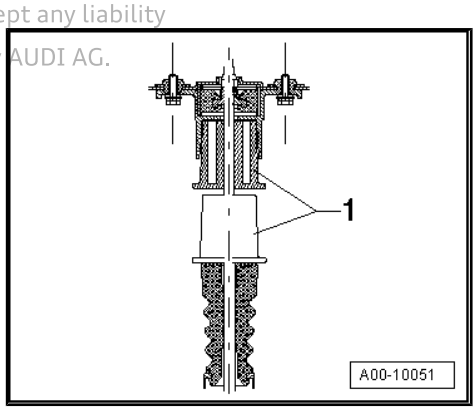
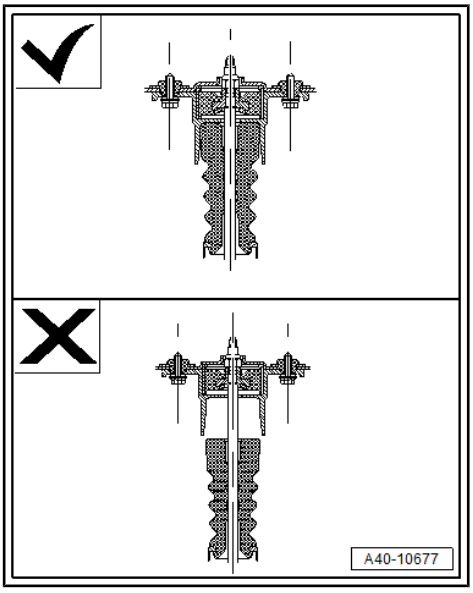
**Procedure:**

– Push all locking elements -1- off piston rod.




– Press bump stops all the way into shock absorber mountings (make sure they are straight).




**Note**

*With vehicle suspension extended, check that all bump stops are firmly seated in shock absorber mountings.*

– If necessary, use a suitable tool to press any loose bump stops into shock absorber mountings ⇒ page 43 .

– When all locking elements have been removed from vehicle: Remove tag on interior mirror.

## 3.32.3 Pressing in bump stop

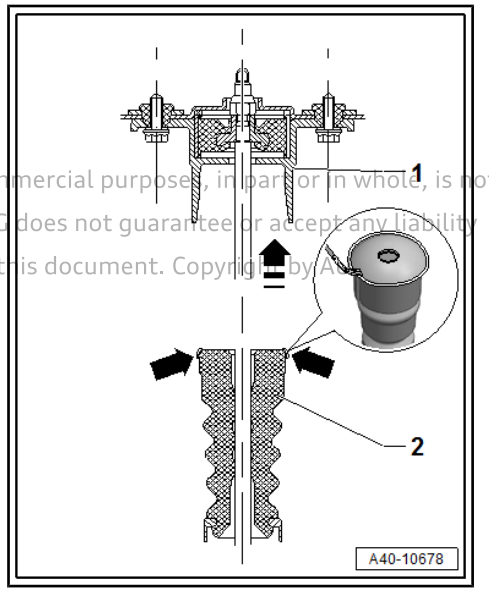
**Special tools and workshop equipment required**

- T40401 Lever for mounting bump stops
- Soap-based lubricant, e.g. tyre assembly paste

**Procedure:**

– Remove coarse dirt from top edge of loose bump stop and coat with tyre assembly paste.

– Press bump stop firmly into shock absorber mounting by hand or using lever - T40401- .

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**Note**

*Lever - T40401- can only be used on the rear axle.*

## 3.33 Axles (front and rear): checking components for play, secure attachment and damage, and checking protective boots

The following applies to all components shown below:

- There must not be any noticeable 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.

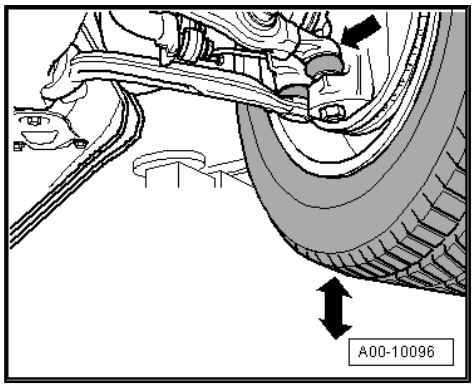
**Front axle** ⇒ page 44

**Rear axle** ⇒ page 46

### 3.33.1 Front axle

**Track control links, guide links and coupling rod:**

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



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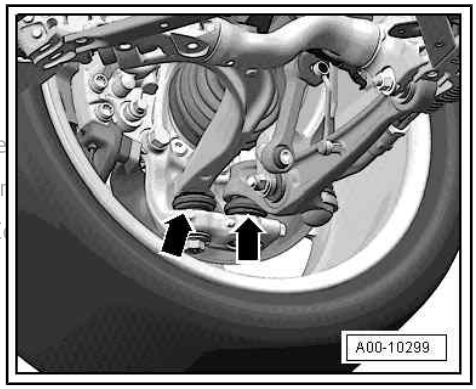
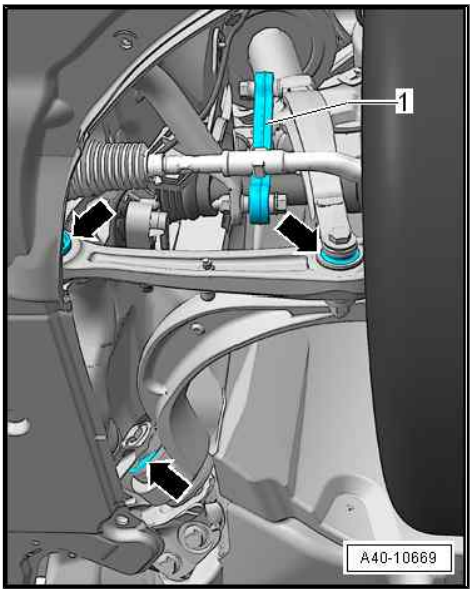
- Track control links and guide links: Check boots -arrows- of swivel joint all around for damage and make sure they are seated correctly.
- Check swivel joints for play.

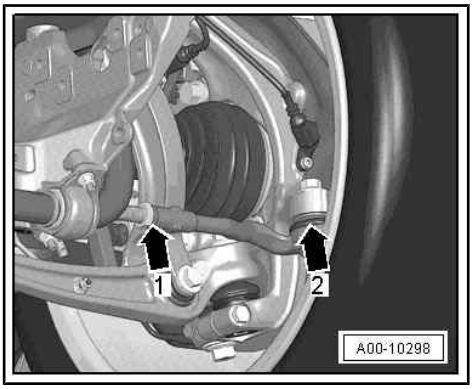



- Check all bonded rubber bushes of track control links and guide links -arrows- for play.
- Check play at coupling rod -1-.



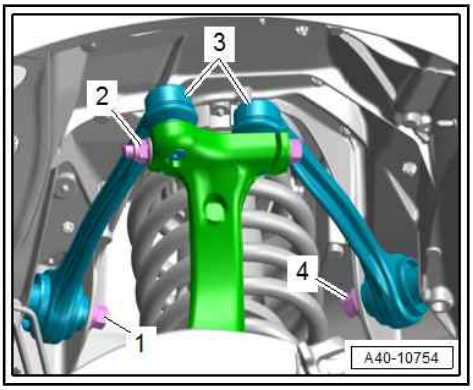

**Track rod ball joint:**

- 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.



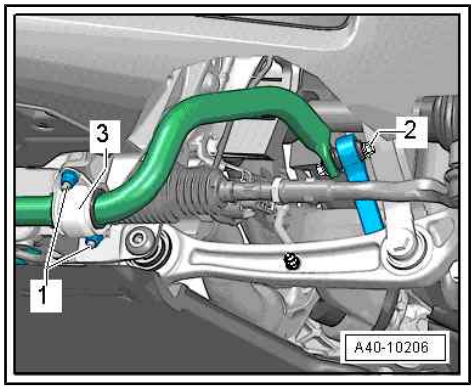

**Upper links:**

- 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 the two bonded rubber bushes -1- and -4- of swivel joints (top) for play.




**Anti-roll bar:**

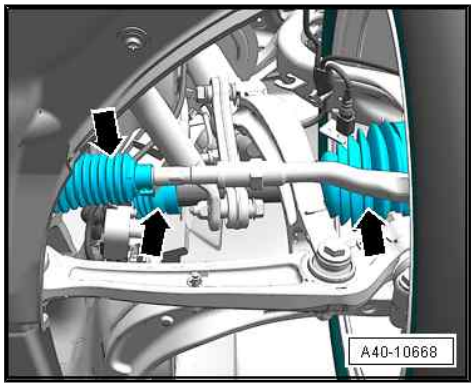
– Check anti-roll bar bush -3- for damage.




**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.

## 3.33.2 Rear axle

**Lower transverse links (front and rear):**

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

– Check all bonded rubber bushes of lower transverse link (front) -2- for play.

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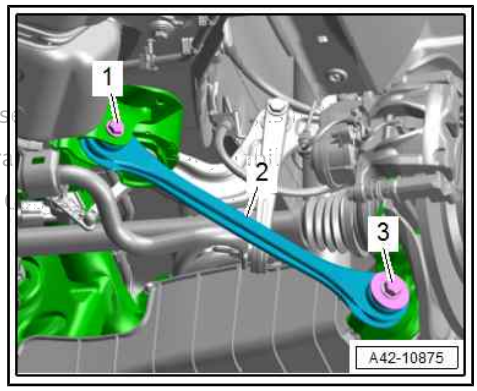
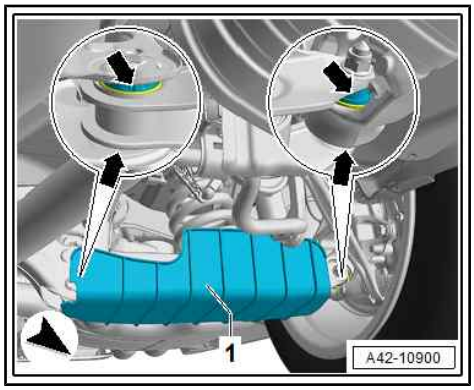


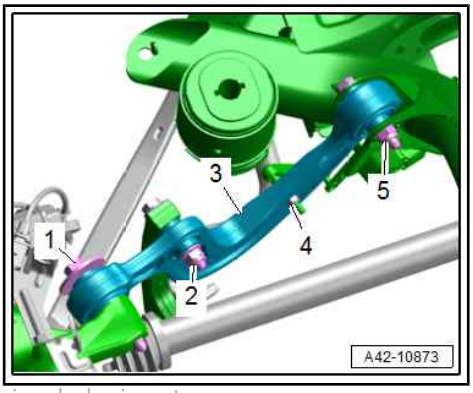

– Check bonded rubber bushes -arrows- of all transverse links for play.

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




**Upper transverse links (front and rear):**

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

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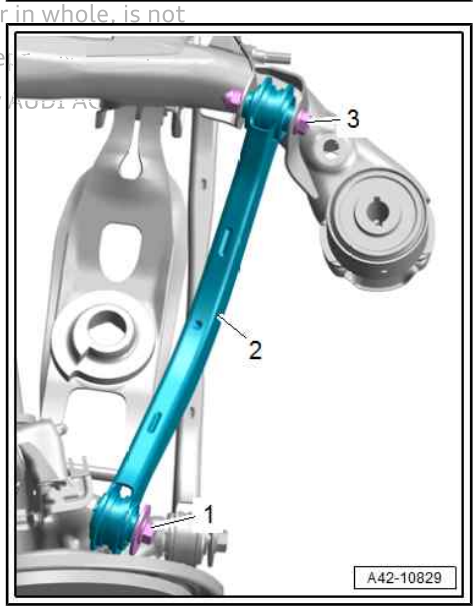
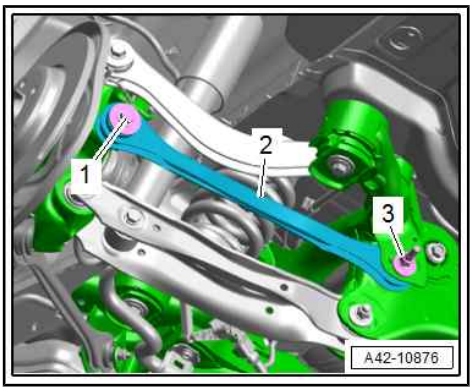
– Check all bonded rubber bushes of upper transverse link (rear) -2- for play.



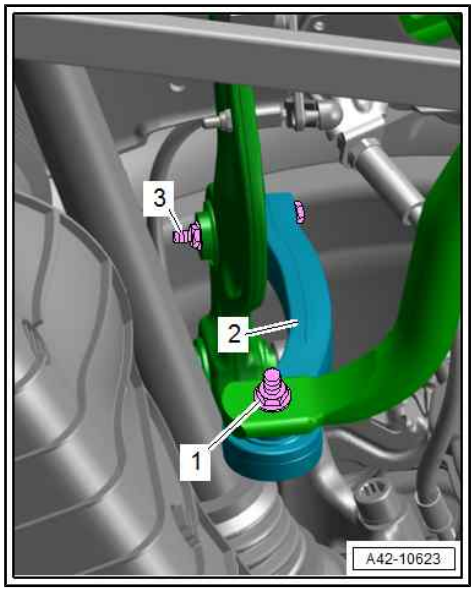

**Track rod:**

– Check play at bonded rubber bushes of track rod -2-.

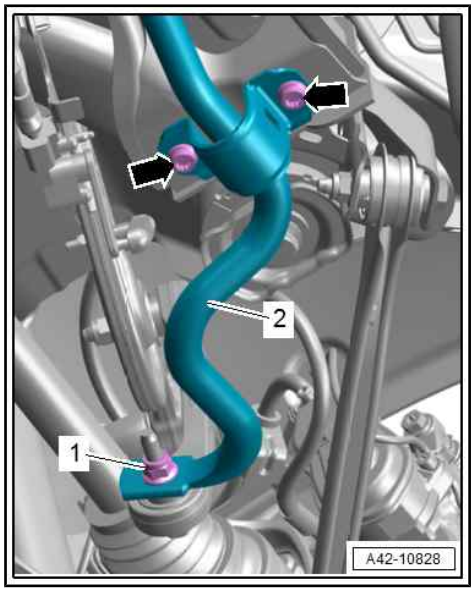



**Coupling rod and anti-roll bar:**

– Check play at coupling rod -2-.



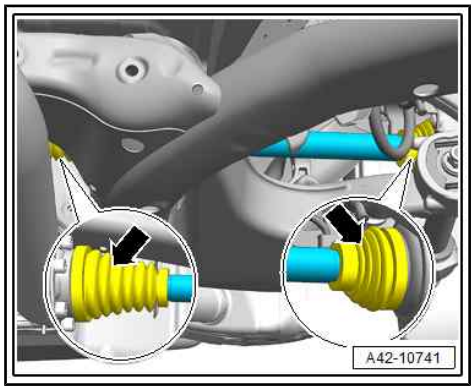

– Check anti-roll bar bush -arrows- for damage.




**Drive shaft:**

Only applies to vehicles with four-wheel drive.

– Check drive shaft boots -arrows- 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.

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

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Remove noise insulation for every inspection.

**Removal steps:**

– Remove noise insulation ⇒ page 9 .

**Procedure:**

- Check engine and engine ancillaries from below for leaks and damage.
- Check visible area of belt drives for 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.

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## 3.35 Vehicle (from below): checking for damage

**Procedure:**

- Check underbody carefully and thoroughly for damage and loose fasteners.
- If faults are found: Renew missing fastener or damaged component.

## 3.36 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.
- Check stone deflector on rear track control links to make sure it is securely fitted and undamaged.
- If faults are found: Renew missing fastener or damaged component.

**Note**

*Depending on equipment version, some vehicles may not be fitted with a stone deflector.*

## 3.37 Convertible roof locking element: lubricating

**Special tools and workshop equipment required**

- Lubricating paste - G 060 751 A2-
- Commercially available paintbrush: approx. 15 mm wide and bent by approx. 40° using workshop equipment

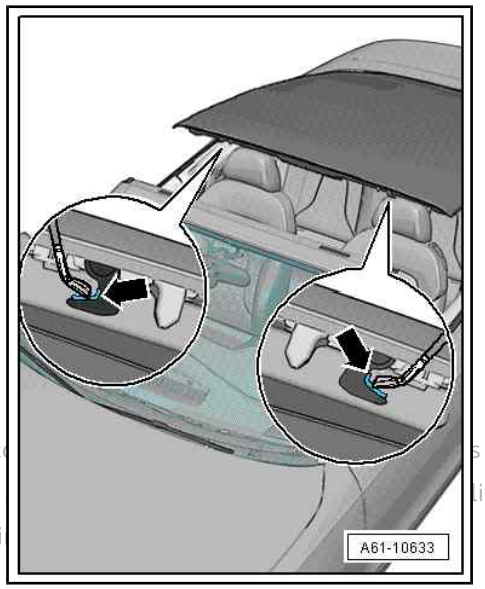
Protect vehicle interior from becoming dirty.

**Procedure:**

– Run convertible roof to a half-open position.

– Remove grease and dirt from locking hook and guide bush with a lint-free cloth.

– Use a paintbrush to apply lubricating paste - G 060 751 A2- to point marked on locking hook -arrows-.

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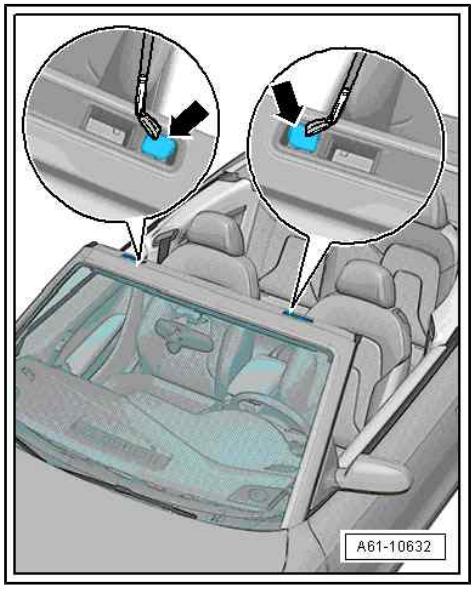
– Use a paintbrush to apply lubricating paste - G 060 751 A2- to point marked on guide bush -arrows-.

– Remove surplus grease from all lubricated points.

– Repeat procedure on opposite side of vehicle.

– Close convertible roof.




## 3.38 Roof insert: checking operation

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 51 .

## 3.39 Roof insert - sliding/tilting sunroof: cleaning and lubricating

**CAUTION**

**Risk of breaking cowl panel.**

- **Use care when lifting cowl panel.**

**Special tools and workshop equipment required**

- Lubricating paste - G 060 751 A2-
- 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.

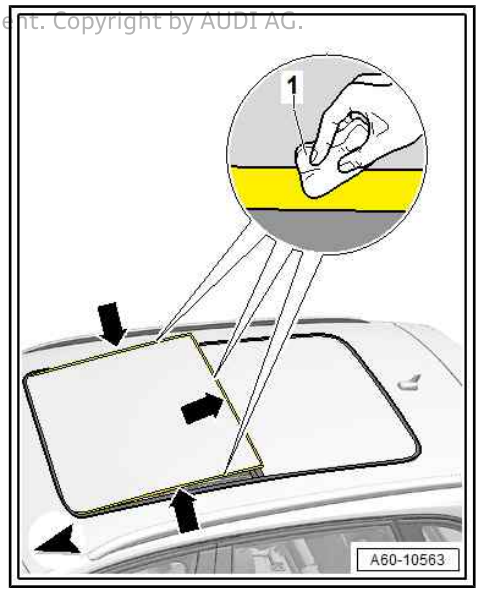
Protect vehicle interior from becoming dirty.

**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 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.

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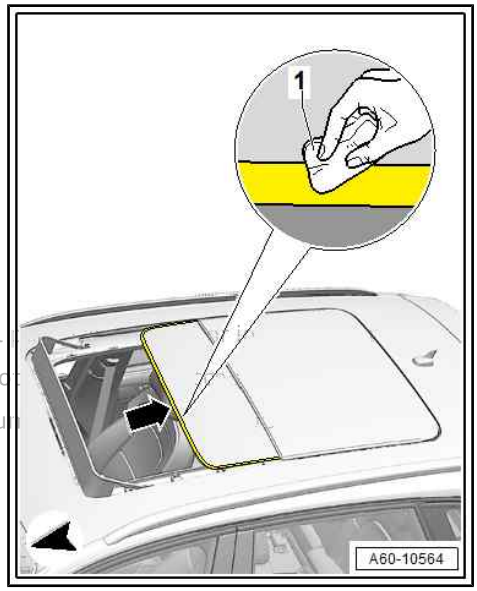
– Use a fine-pored sponge -1- to lubricate glass panel seal at front -arrow- with lubricating paste - G 052 141 A2- . Make sure that no coarse residue remains visible after applying lubricant.




**Step 2 - cleaning and lubricating wind deflector seal:**

Glass panel opened completely.

To avoid risk of breakage, lift the wind deflector carefully with your hand but do not remove it for the following procedure.

– Remove grease and dirt from wind deflector seal using cleaning solution - D 009 401 04- and a lint-free cloth.

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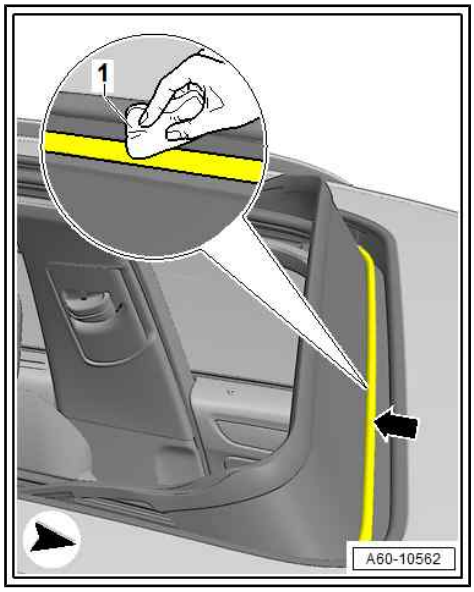
– Use a fine-pored sponge -1- to lubricate rubber lip of wind deflector -arrow- along the entire length with lubricating paste - G 052 141 A2- . Make sure that no coarse residue remains visible after applying lubricant.



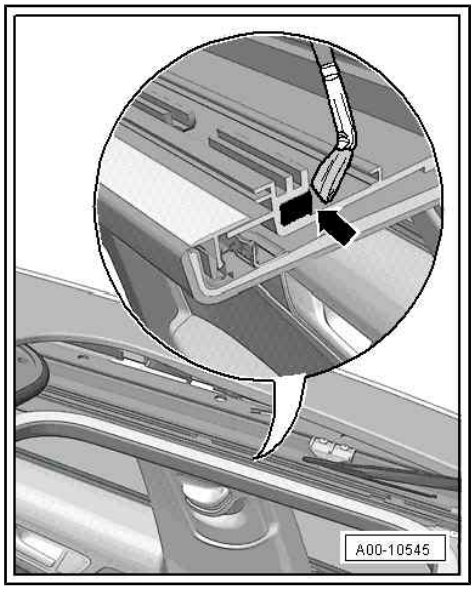

**Step 3 - cleaning and lubricating guide rails:**

Glass panel opened completely.

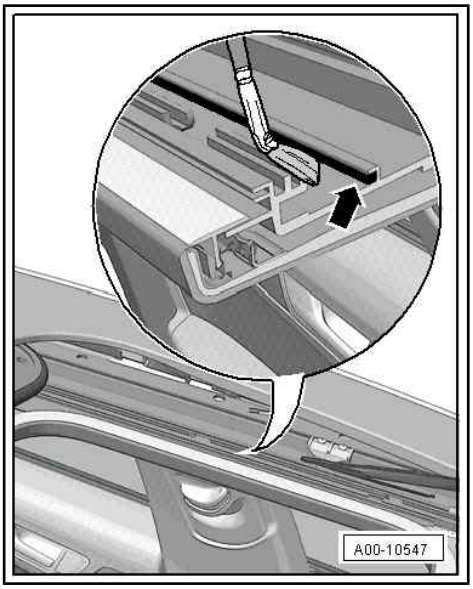
– First use an industrial vacuum cleaner to remove any loose residue from guide rails.

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

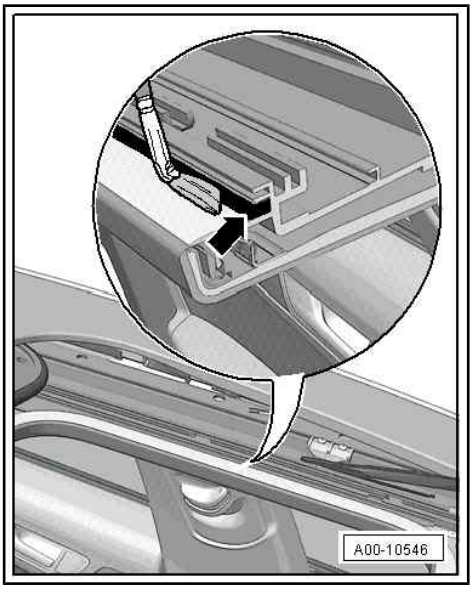
– Use a paintbrush to lubricate inside of guide rail -arrow- with lubricating paste - G 060 751 A2- .



– 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.

## 3.40 Roof insert for panorama sunroof: checking operation

**CAUTION**

**Risk of damage to roof insert if locking element of guide piece is disengaged.**

- **Guide piece must not be cleaned or lubricated.**

– Open and close sunroof completely; this must not produce any vibrations or noises (rattling, squeaking, clicking) other than those of normal operation.

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**Note**

*Please refer to TPI if normal operating sounds are accompanied by other noises or vibrations on a sunroof version with new spray-on grease.*

## 3.41 Door hinges with separate door arrester: cleaning and lubricating

**Special tools and workshop equipment required**

- ♦ Universal spray oil - G 000 115 A2- for door arresters and hinges

**Requirements:**

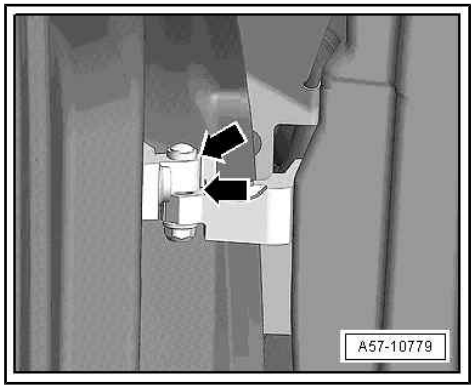
- The vehicle must be at least at room temperature.

**Procedure:**

– First clean all lubricating points with a lint-free cloth.

– Lubricate door hinge (top and bottom) at points marked -arrows- as well as separate door arrester -arrows- with universal oil spray - G 000 115 A2- .

**Door hinge:**




**Door arrester:**

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– Move door several times so that the universal spray oil is able to penetrate.

– Use cloth to remove surplus lubricant from all door hinges.

– Repeat cleaning and lubricating procedure on all remaining doors of vehicle.

## 3.42 Windscreen/rear window washer system: checking spray pattern and adjusting if necessary

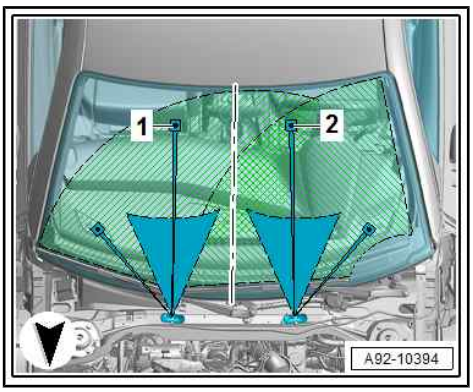
**Checking spray pattern on windscreen** ⇒ page 55

**Checking spray pattern on rear window** ⇒ page 55

**Adjusting windscreen washer jets** ⇒ page 56

**Adjusting rear window washer jets** ⇒ page 56

### 3.42.1 Checking spray pattern on windscreen




The spray pattern must meet the following specifications:

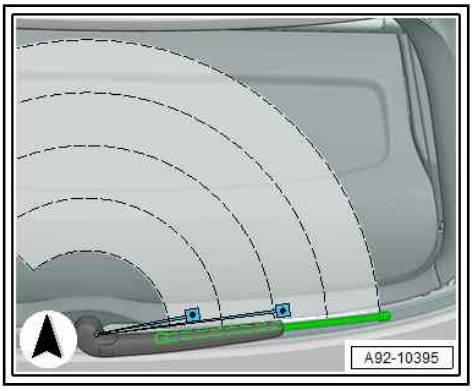
- Evenly distributed, symmetrical spray pattern
- Uniform, precise jets of water
- Jet unit (passenger's side): Upper concentrated jet should make contact near upper edge of wiper area -1-.
- Jet unit (driver's side): Upper concentrated jet should make contact -2- at same level as jet unit (passenger's side).

**Procedure:**

– Operate windscreen washer system and check spray pattern.

– If spray pattern is not as specified, adjust windscreen washer jets ⇒ page 56 .

### 3.42.2 Checking spray pattern on rear window




The spray pattern must meet the following specifications:

- Water from both spray jets makes contact just above wiper blade
- Uniform, precise jets of water
- Water from inner spray jet makes contact within approx. first quarter of wiper blade length -illustration-
- Water from outer spray jet makes contact approx. at or just beyond centre of wiper blade length -illustration- (third quarter)

**Procedure:**

– Operate rear window washer system and check spray pattern.

– If spray pattern is not as specified, adjust rear window washer jets. ⇒ page 56

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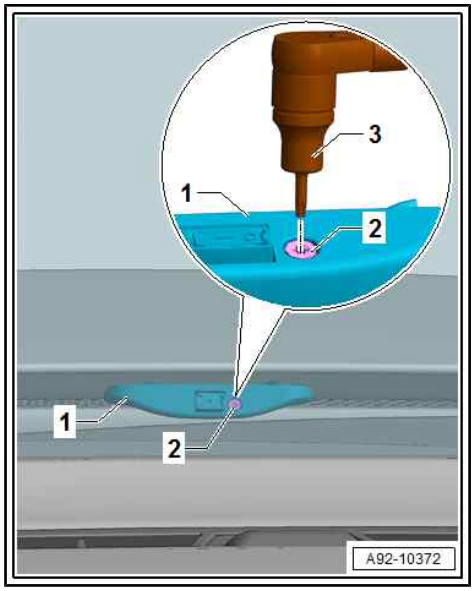
## 3.42.3 Adjusting windscreen washer jets

**Procedure:**

– Using adjuster screw -2-, set washer jet 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 ⇒ Vehicle electrics; Rep. gr. 92 ; Windscreen wash/wipe 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.*

## 3.42.4 Adjusting rear window 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 washer jets ⇒ Electrical system; Rep. gr. 92 ; Rear window wiper system; Adjusting washer jets .

## 3.43 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.

– Repeat check on rear window.

– If you find damage: Renew relevant wiper blade. Windscreen wiper system ⇒ Electrical system; Rep. gr. 92 ; Windscreen wiper system; Removing and installing wiper blade ; rear window wiper system ⇒ Electrical system; Rep. gr. 92 ; Rear window wiper system; Removing and installing wiper blade

## 3.44 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.

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

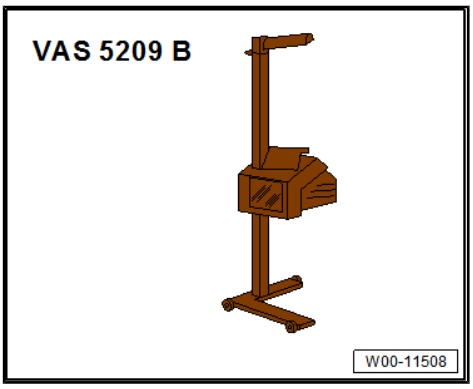
**Note**

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

## 3.45 Headlights: checking for correct adjustment

**Special tools and workshop equipment required**

- Headlight adjustment unit - VAS 5209B-




- Or: headlight adjustment unit - VAS 621 001-

**Note**

*Other headlight adjustment units (e.g. VAS 5208A, VAS 621 005, VAS 5046A and VAS 5047A) can also be used to check the headlight adjustment (except for matrix LED headlights). Checking matrix LED headlights requires adjustment unit VAS 5209B or VAS 621 001.*

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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.

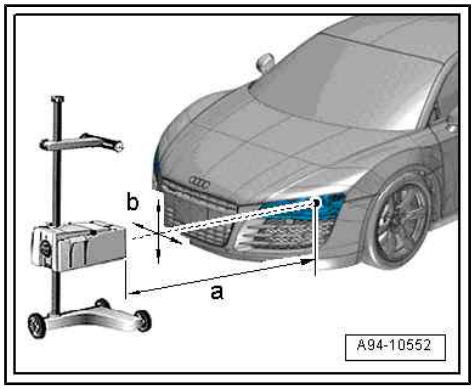
Checking and adjusting the headlights according to the instructions in the Workshop Manual is a repair measure and must be charged separately.

**Procedure:**

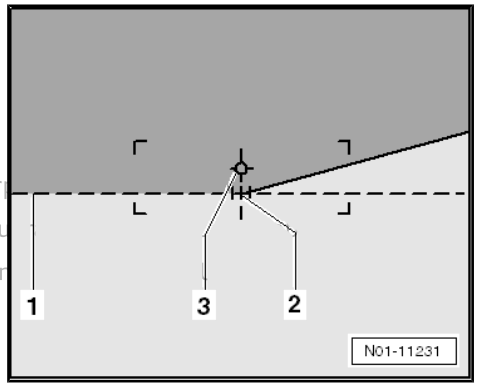
– For vehicles with manually adjustable headlight range control: Use manual adjuster to set to basic setting.

– 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 .

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

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
♦ Tail lights
♦ 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 one rear fog light.
– Renew any defective bulbs.

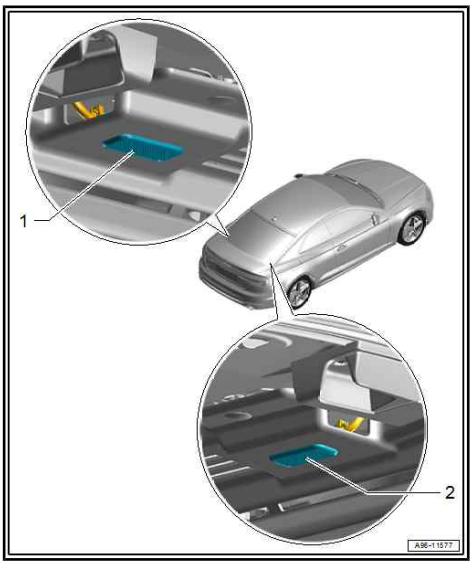
## 3.47 Luggage compartment lighting: checking operation

A5 Coupé ⇒ page 59

### 3.47.1 A5 Coupé

**Procedure:**

– Check proper function of lights in luggage compartment side trim (left and right, as shown in illustration).




## 3.48 Luggage compartment: removing protective film and felt pieces

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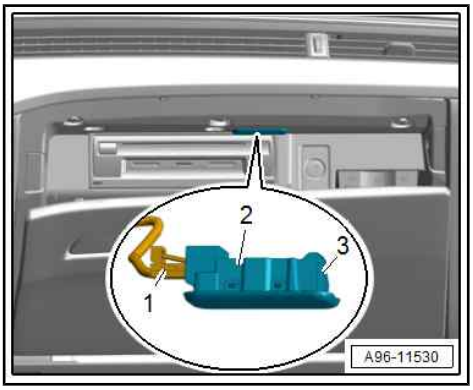
**Procedure:**

– Remove protective film and felt pieces carefully and completely from luggage compartment.

## 3.49 Glove box light, interior lighting and reading light: checking operation

**Procedure:**

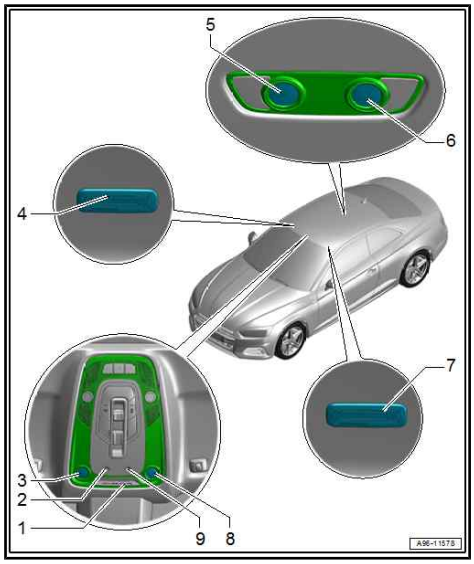
– Open glove box and check that glove box light functions properly.



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

♦ Interior lights in headliner at front

♦ Interior lights in headliner at rear




**Note**

*Checking the background lighting is NOT part of the inspection.*

## 3.50 Horn: checking operation

**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.*

## 3.51 Passenger airbag: checking key switch on/off and setting to "on"

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.

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**Note**

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

## 3.52 Owner's literature: checking that all documents are present

**Procedure:**

– Check that all parts of owner's literature are present, and prepare them for handover to customer.

## 3.53 Service wallet: affixing vehicle data sticker

The vehicle data sticker can be found in the supplied pack.

**Procedure:**

– Remove vehicle data sticker from supplied pack.

– Affix vehicle data sticker in service wallet under “Warranty entitlement record”.

**Note**

*Does not apply to vehicles for USA and China.*

## 3.54 Service Schedule: entering Delivery Inspection

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The field for documenting the Delivery Inspection can be found on page 2 of the Service Schedule.

**Procedure:**

– Apply stamp of Audi Workshop.

– Enter date of work carried out.

– Mark relevant field(s).

**Note**

*Only for markets not using the Digital Service Schedule.*

## 3.55 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.*

## 3.56 Vehicle interior: removing protective covers for seats and carpet

**Procedure:**

– Remove protective covers for seats and carpet carefully and completely from vehicle interior.

## 3.57 Vehicle interior: checking that it is clean and cleaning if necessary

**Procedure:**

Check that the following items are clean (clean them if necessary):

- Front seats
- Rear seat bench
- Interior trim
- Carpets
- Floor mats
- Windows/windscreen

## 3.58 Vehicle interior: removing any objects other than those protecting interior surfaces

**Procedure:**

– Remove any objects from vehicle other than those which are protecting interior surfaces.

## 3.59 Vehicle interior and exterior: checking for and documenting any damage

**Procedure:**

– Check interior of vehicle for damage and document any damage found.

– Check exterior of vehicle for damage and document any damage found.

## 3.60 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 18 .

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**Note**

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

## 3.61 Warning triangle: checking availability

**Procedure:**

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

## 3.62 First-aid kit: checking and recording expiry date

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

**Procedure:**

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

– Record expiry date in Maintenance table.

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

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

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**Procedure:**

– Open key ring to check each key individually.

– Start vehicle 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.*

## 3.64 Vehicle key: removing from ignition lock

Only applies to vehicles with ignition lock.

**Procedure:**

– Remove vehicle key from ignition lock.

## 3.65 Vehicle key(s), wheel covers and owner's literature: checking availability and recording number present

**Procedure:**

- Check whether there are keys for the vehicle and record number of keys in maintenance table.
- Check whether there are wheel covers for the vehicle and record number of wheel covers in maintenance table.
- Check whether owner's literature is in place and record number of copies in maintenance table.
- Wait until shortly before vehicle delivery to renew any missing components.

## 3.66 Sun visors: checking that they are folded up and folding up if necessary

**Procedure:**

- Check that sun visors are folded up, and fold them up if necessary.

## 3.67 Luggage compartment cover and sun blind: checking that they are rolled up and rolling up if necessary

**Procedure:**

- If a luggage compartment cover is fitted, check that it is rolled up (roll it up if necessary).
- Check that sun blinds are folded up (fold them up if necessary).

## 3.68 Engine oil: draining

**Note**

- *Oil should always be changed when engine is warm.*
- *Always observe the relevant environmental regulations for disposal.*
- *Keep components clean.*
- *Open oil filter before opening drain plug.*

**4-cyl. petrol engine 1.4 TFSI ⇒ page 64**

**4-cyl. diesel engine 2.0 TDI ⇒ page 65**

### 3.68.1 4-cyl. petrol engine 1.4 TFSI

**Special tools and workshop equipment required**

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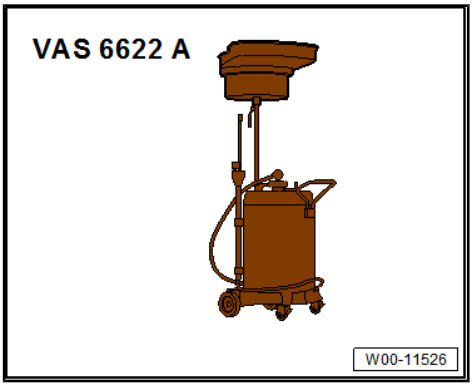
- Used oil collection and extraction unit - V.A.S 6622 A-




- Assembly tool - T10549- for oil drain plug (plastic sumps)

**Table of tightening torques for installation:**

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

**Note**

- *On vehicles with 2.0 TFSI engines, the bottom section of the sump can be made of sheet metal or plastic.*
- *Tightening torque specification does not apply for oil drain plugs on plastic sumps. Tighten plug all the way using assembly tool - T10549- .*

**Removal steps:**

– Remove noise insulation ⇒ page 9 .

**Procedure:**

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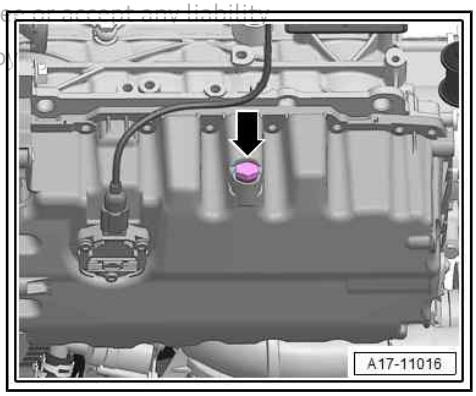
– Place oil drip tray under engine sump.
– Unscrew sealing plug -arrow- for sump.
– Drain engine oil from sump.
– Renew seal for sealing plug.
– Tighten sealing plug all the way.

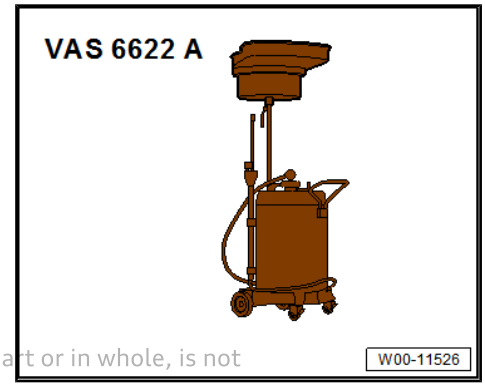
Continue installation in reverse sequence.




## 3.68.2 4-cyl. diesel engine 2.0 TDI

**Special tools and workshop equipment required**

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

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- 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] |
|---|---|
| Oil drain plug on sump | 30 |

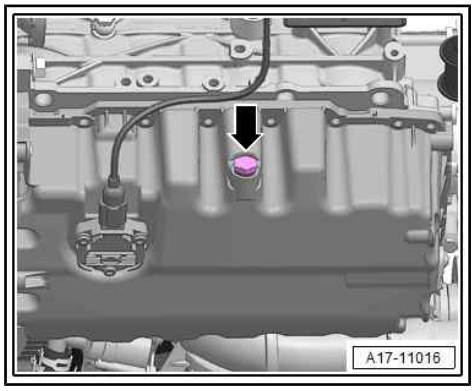
**Removal steps:**

– Remove noise insulation ⇒ page 9 .

**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 66 ).

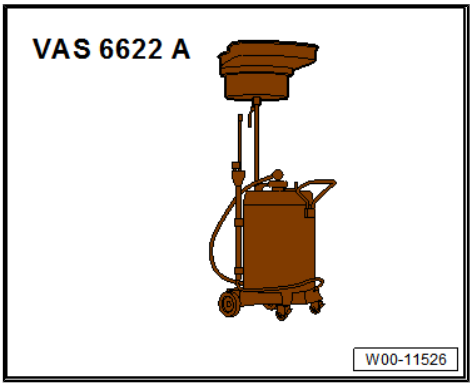
Continue installation in reverse sequence.




## 3.69 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.*

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## 3.70 Engine oil: renewing oil filter

**4-cyl. petrol engine 1.4 TFSI ⇒ page 67**

**4-cyl. petrol engine 2.0 TFSI ⇒ page 68**

**6-cyl. petrol engine 2.9 TFSI/3.0 TFSI ⇒ page 69**

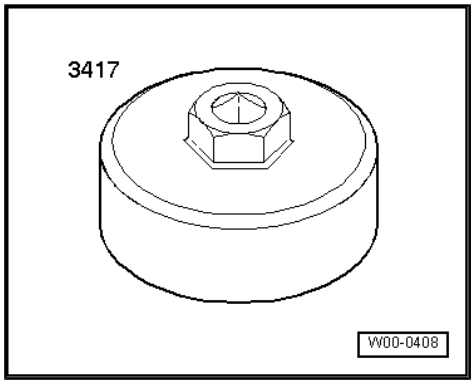
**4-cyl. diesel engine 2.0 TDI ⇒ page 70**

**6-cyl. diesel engine 3.0 TDI ⇒ page 71**

### 3.70.1 4-cyl. petrol engine 1.4 TFSI

**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 | 20 |

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**Requirements:**

- Engine oil drained.

**Procedure:**

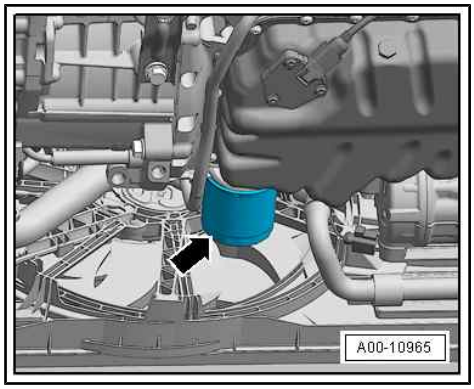
– Use Hazet strap wrench - 2171-1- or oil filter tool - 3417- to slacken oil filter cartridge -arrow- and then remove it.

– Clean sealing surface for oil filter 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 68 ).

Continue installation in reverse sequence.




## 3.70.2 4-cyl. petrol engine 2.0 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 |

**Removal steps:**

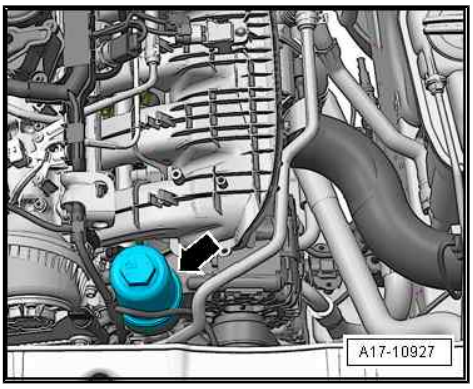
– Remove engine cover panel ⇒ page 7 .

**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.

– Fully unscrew sealing cap -arrow- and pull it off straight upwards. Make sure that no engine oil drips onto engine.




– Pull oil filter element -3- and O-ring -4- out of sealing cap -5-.

– Pull oil drain connection -6- out fully and check for damage.

– Clean sealing surfaces of sealing cap.

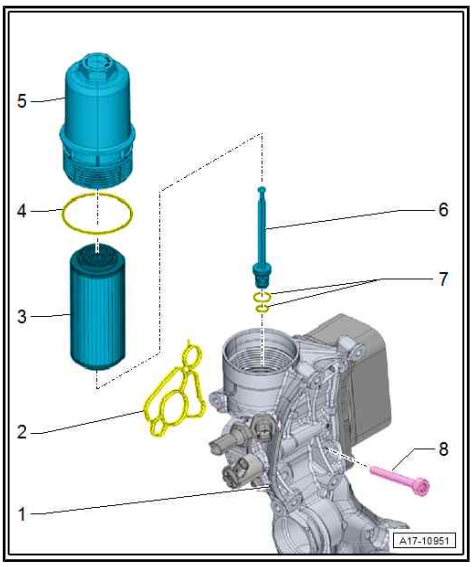
– Lightly lubricate new O-ring -4- with engine oil and insert O-ring.

– Fit new oil filter element -3- in sealing cap.

– Fit oil drain connection in new oil filter element.

– Screw sealing cap into oil filter housing and tighten it to specified torque using socket (32 mm) (see table of tightening torques for installation).

Continue installation in reverse sequence.




## 3.70.3 6-cyl. petrol engine 2.9 TFSI/3.0 TFSI

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**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] |
|---|---|
| Oil filter | 25 |

**Removal steps:**

– Remove engine cover panel.

**Procedure:**

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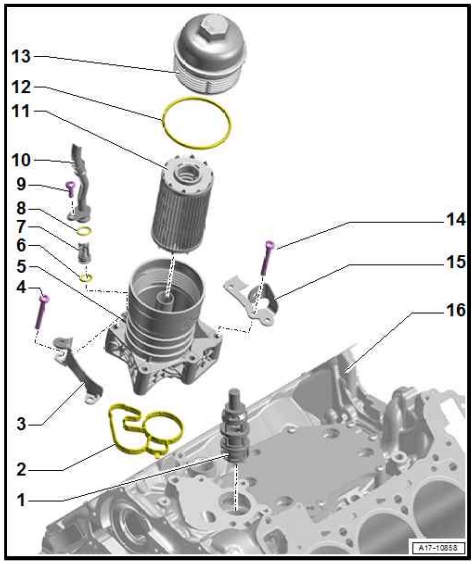
– Loosen sealing cap -13- of oil filter using socket (32 mm) . This causes a valve to open.
– Wait a few minutes to allow engine oil to drain from filter housing into crankcase.
– Completely remove sealing cap. Make sure that no engine oil drips onto engine.
– Pull oil filter element -11- and O-ring -12- out of sealing cap -13-.
– Clean sealing surfaces of sealing cap -13-.
– Lightly lubricate new O-ring -12- with engine oil and insert O-ring.
– Fit new oil filter element -11- in sealing cap.
– Screw sealing cap -13- into oil filter housing -5- and tighten it to specified torque using socket (32 mm) (see table of tightening torques for installation).

Continue installation in reverse sequence.




## 3.70.4 4-cyl. diesel engine 2.0 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

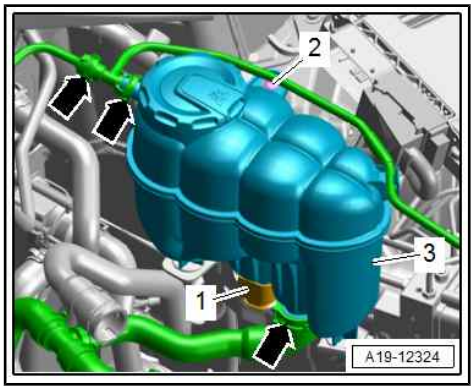
**Table of tightening torques for installation:**

| Component/fastener | [Nm] |
|---|---|
| Sealing cap | 25 |

**Removal steps:**

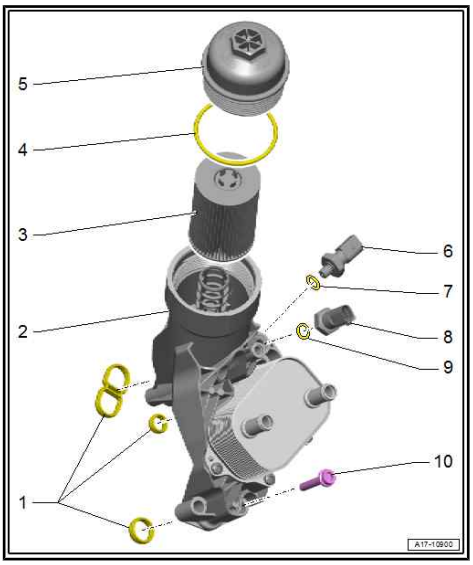
– Remove engine cover panel ⇒ page 7 .

– Unscrew bolt -arrow- on coolant expansion tank.
– Unplug electrical connector for coolant shortage indicator switch - F66- on coolant expansion tank (bottom).
– Move coolant expansion tank to one side with coolant hoses attached.




**Procedure:**

– Loosen sealing cap 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 -5-. Make sure that no engine oil drips onto engine.




– Pull oil filter element -3- and O-ring -4- out of sealing cap -5-.
– Clean sealing surfaces of sealing cap -5-.
– Lightly lubricate new O-ring -4- with engine oil and insert O-ring.
– Fit new oil filter element -3- in sealing cap.
– Screw sealing cap -5- into oil filter housing -2- and tighten it to specified torque using socket (32 mm) (see table of tightening torques for installation ⇒ page 70 ).

Continue installation in reverse sequence.

## 3.70.5 6-cyl. diesel engine 3.0 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

**Table of tightening torques for installation:**

| Component/fastener | [Nm] |
|---|---|
| Sealing cap | 35 |

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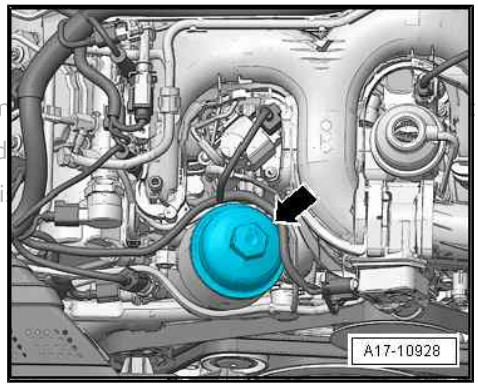
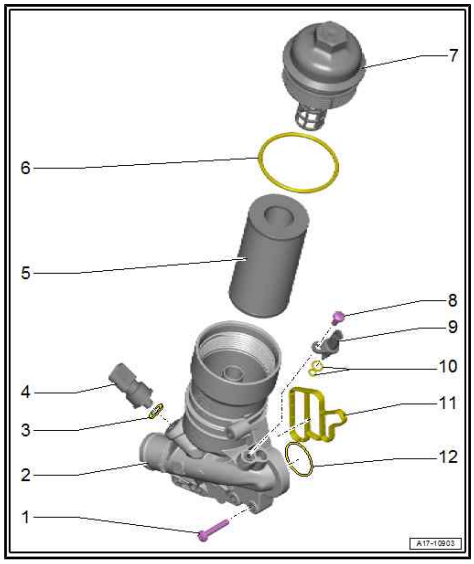
**Procedure:**

- Loosen sealing cap -arrow- 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 -5- and seal -6- out of sealing cap -7-.
- Clean sealing surfaces of sealing cap -7-.
- Lightly lubricate new seal -6- with engine oil and fit it.
- Fit new oil filter element -5- in sealing cap.
- Screw sealing cap -7- into oil filter housing -2- and tighten it to specified torque using socket (36 mm) (see table of tightening torques for installation ⇒ page 71 ).




Continue installation in reverse sequence.

## 3.71 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.**

**Special tools and workshop equipment required**

- Oil filler funnel - VAS 6842-

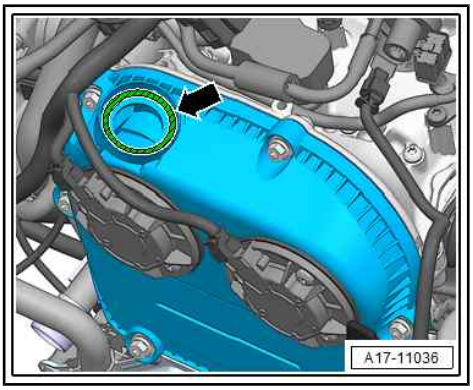
Refer to ELSA maintenance table for engine-specific oil capacities and oil grades.

**Procedure:**

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

– Then check oil level and adjust if necessary ⇒ page 73 .

– For all 4-cylinder 2.0 TFSI petrol engines with oil filler neck on timing chain cover: Clean sealing surface -arrow- on inside of oil filler neck with a lint-free cloth before screwing on filler cap.




**Note**

*The quantity of oil specified in the maintenance table refers to the oil change; it is not identical to the quantity required for the initial filling.*

## 3.72 Engine oil: checking oil level and correcting if necessary

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**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:**

- 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).

**Checking oil level on MMI** ⇒ page 73

### 3.72.1 Checking oil level on MMI

**Procedure:**

– If necessary, close bonnet.

– Switch on ignition and activate MMI.

– Press function selector button MENU.

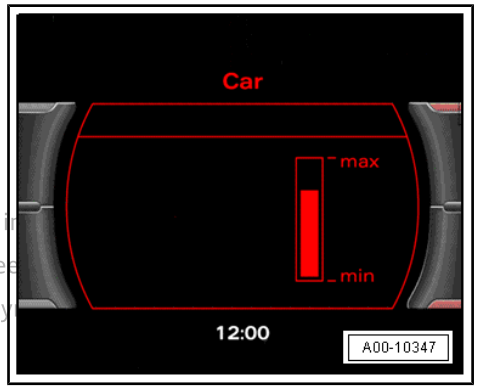
– Select »Car«.

– Press left control button and navigate through following menu structure:

♦ Servicing & checks

♦ Fluid level

– Read off and evaluate oil level on display.




– If necessary, correct oil level:

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| Fluid level | Evaluation/measure |
|---|---|
| At or 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.*

## 3.73 Spark plugs: renewing

**4-cyl. petrol engine 1.4 TFSI** ⇒ page 74

**4-cyl. petrol engine 2.0 TFSI** ⇒ page 77

**6-cyl. petrol engine 2.9 TFSI/3.0 TFSI** ⇒ page 79

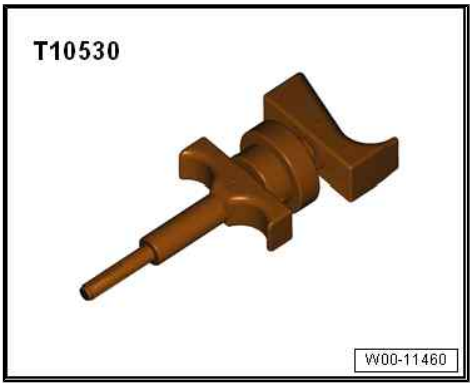
**Lubricating ignition coils with output stages** ⇒ page 82

### 3.73.1 4-cyl. petrol engine 1.4 TFSI

**Special tools and workshop equipment required**

- Spark plug spanner - 3122B-

♦ Puller - T 10530-




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

**Table of tightening torques for installation:**

| Component/fastener | [Nm] |
|---|---|
| Spark plugs with M12 thread | 20+5 |
| Spark plugs with M14 thread | 30+5 |
| Bolt for ignition coil | 8 |
| Nut for earth wire | 8 |
| Bolt for fuel line | 4 |
| Bolt for crankshaft breather | 9 |

**Removal steps:**

– Remove engine cover panel ⇒ page 7 .

– Disconnect crankcase breather hose -1-.

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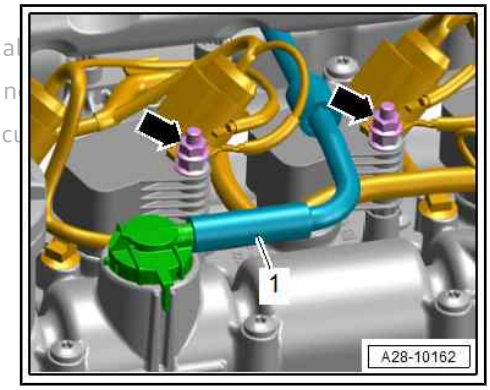
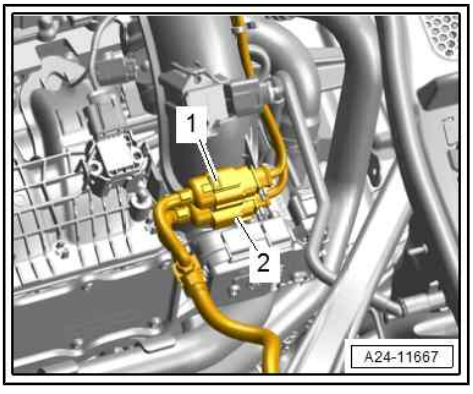
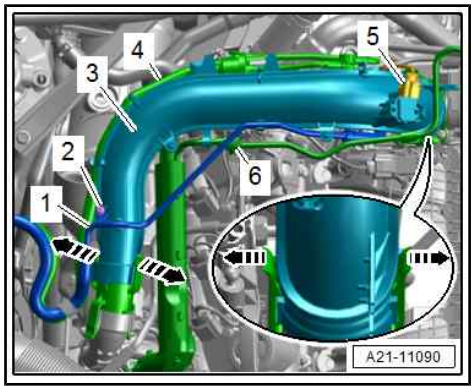


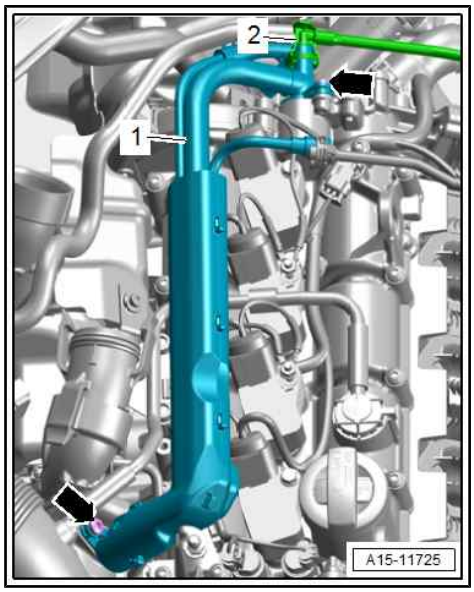

– Unplug electrical connectors -1- and -2- and move clear.



– Unscrew bolt -2- and move fuel line clear.
– Move hose -4- for activated charcoal filter system and coolant hose -6- clear.
– Unplug electrical connector -5- from charge pressure sender - G31- .
– Release catches -arrows- and detach air pipe -3-.



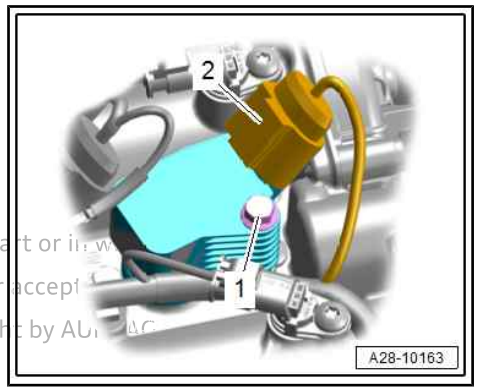

– Press release tabs and disconnect hose -2-.
– Unscrew bolts -arrows- and disconnect crankcase breather hose -1- towards rear.




**Step 1 - removing spark plugs:**

– Unscrew nuts for earth wires and move earth wires clear.

– Push ignition coil connector -2- towards ignition coil, release retainer and detach connector from ignition coil.
– Move connector -2- slightly to one side. Make sure that wiring is not kinked or damaged.
– Unscrew bolts -1- for ignition coils.

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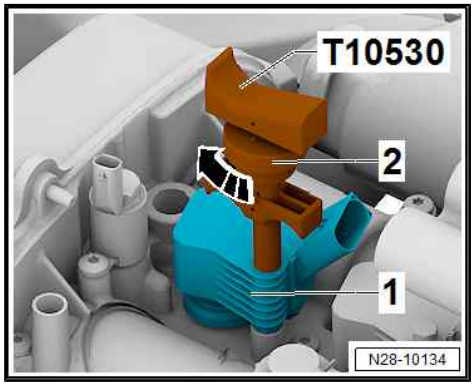
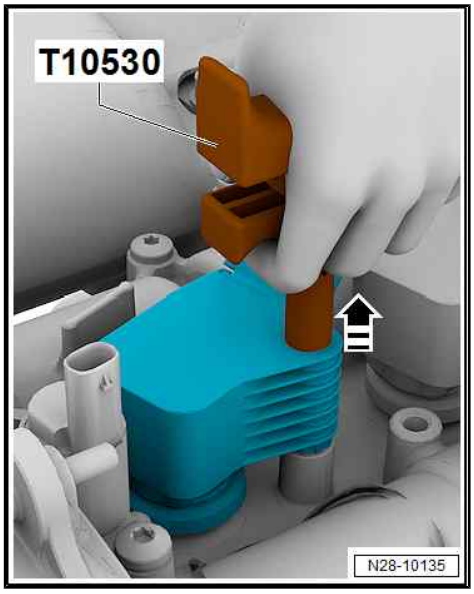
– Insert puller - T10530- into hole -1- of ignition coil and turn knurled nut -2- clockwise until puller is secured in place.

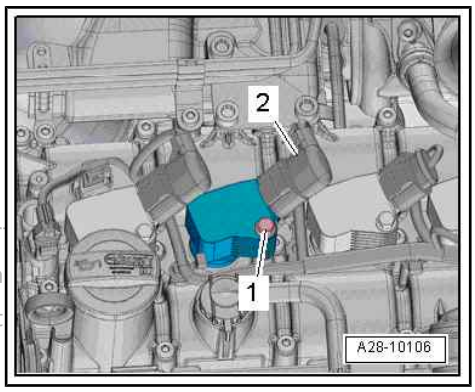


– Carefully pull ignition coils out upwards using puller - T10530- .
– Repeat removal procedure with all other ignition coils.
– Unscrew spark plugs using spark plug socket and extension - VAS 3122B- .




**Step 2 - 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 75 ).
– Lubricating ignition coils ⇒ page 82
– Fit all ignition coils loosely into spark plug apertures and align with connectors of connector rail.
– Press ignition coils onto spark plugs by hand evenly (do NOT knock in with tools).




– Tighten bolts -1- for ignition coils to specified torque (see table of tightening torques for installation ⇒ page 75 ).
– Plug in connector -2- on each ignition coil until it engages.

Continue installation in reverse sequence. Note tightening torques (see table of tightening torques for installation ⇒ page 75 ).

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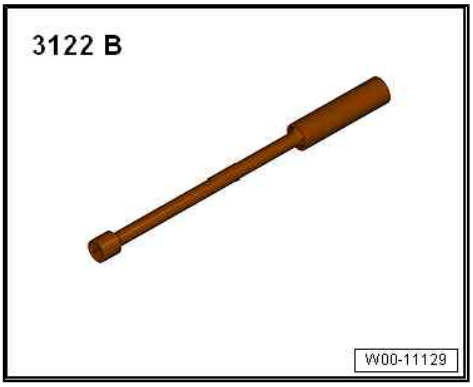
## 3.73.2 4-cyl. petrol engine 2.0 TFSI

**Special tools and workshop equipment required**

♦ Spark plug spanner - 3122B-



- Puller - T10530-

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

**Table of tightening torques for installation:**

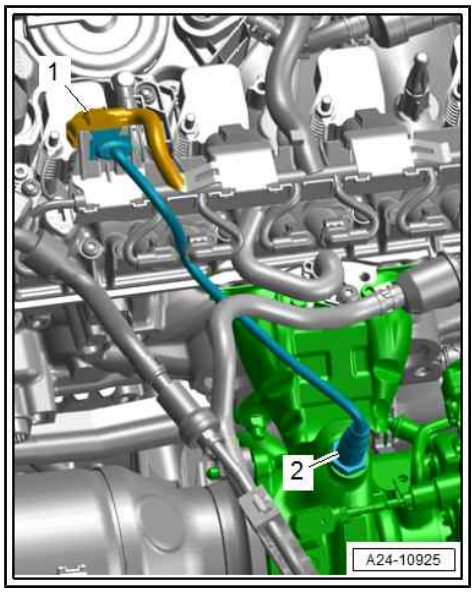
| Component/fastener | [Nm] |
|---|---|
| Spark plugs with M12 thread | 20+5 |
| Spark plugs with M14 thread | 30+5 |
| Bolt for ignition coil | 10 |
| Nut for earth wire | 9 |

**Removal steps:**

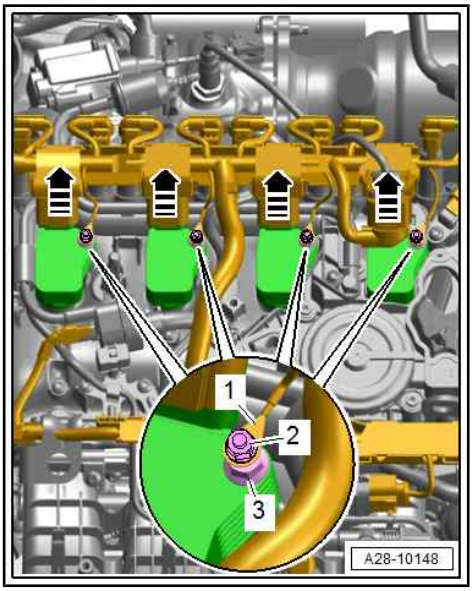
– Remove engine cover panel ⇒ page 7 .

**Step 1 - removing spark plugs:**

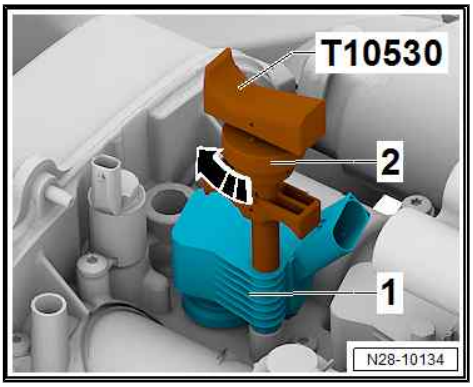
– Unplug electrical connector -1- for Lambda probe - G39- .



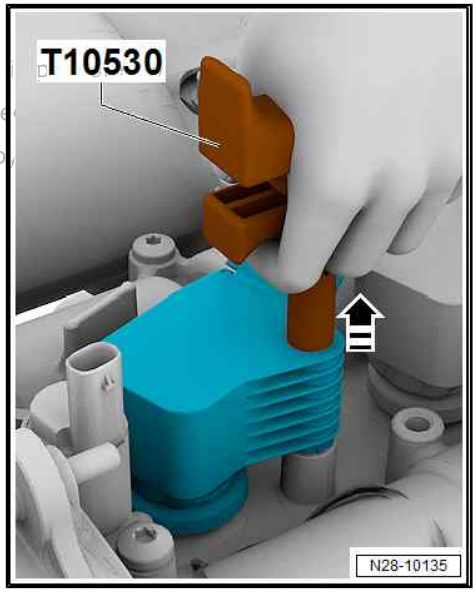
– Unscrew nut -2- for earth wire and move earth wire -1- clear.
– Push ignition coil connector towards ignition coil, release retainer and detach connector from ignition coil in direction of -arrow-.
– Place electrical connectors slightly to one side. Make sure that wiring is not kinked or damaged.
– Unscrew bolts -3- 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 coils out upwards using puller - T10530- .
– Repeat removal procedure with all other ignition coils.
– Unscrew spark plugs using spark plug socket and extension - VAS 3122B- .

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**Step 2 - 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 78 ).
– Lubricating ignition coils ⇒ page 82
– Fit all ignition coils loosely into spark plug apertures and align with connectors of connector rail.
– Press ignition coils onto spark plugs by hand evenly (do NOT knock in with tools).
– Tighten bolts -arrows- for ignition coils to specified torque (see table of tightening torques for installation ⇒ page 78 ).

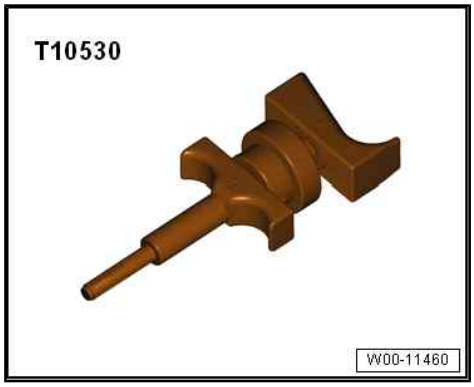
Continue installation in reverse sequence. Note tightening torques (see table of tightening torques for installation ⇒ page 78 ).

## 3.73.3 6-cyl. petrol engine 2.9 TFSI/3.0 TFSI

**Special tools and workshop equipment required**

♦ Spark plug spanner - VAS 6919-

- Puller - T10530-

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

**Table of tightening torques for installation:**

| Component/fastener | [Nm] |
|---|---|
| Spark plugs with M12 thread | 20+5 |
| Spark plugs with M14 thread | 30+5 |
| Bolt for ignition coil | 9 |

**Removal steps:**

– Remove engine cover panel.

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

– Remove air cleaner housing ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .

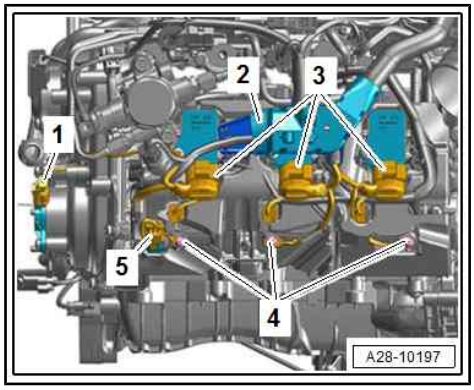
– Unplug connectors -1- and -2- for Lambda probe - G39- and move wiring clear.

– Release and unplug electrical connectors -arrows- from actuators for camshaft adjustment.

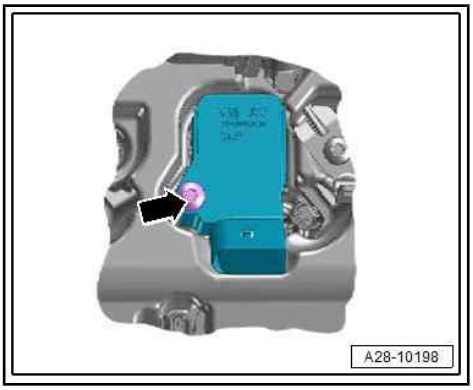
– Unplug connectors -3- for ignition coils.

– Remove bolts -4- and move earth wire clear.

– Detach wiring duct -2- from ball studs and press to one side.



– Unscrew bolt -arrow- for ignition coil.




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

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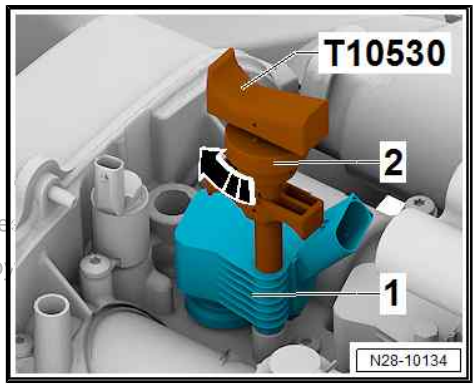
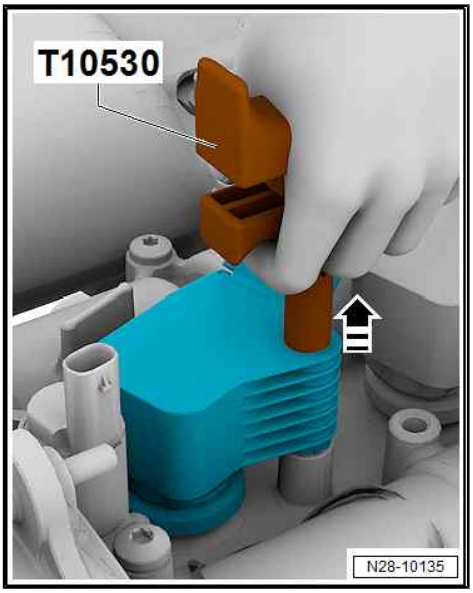


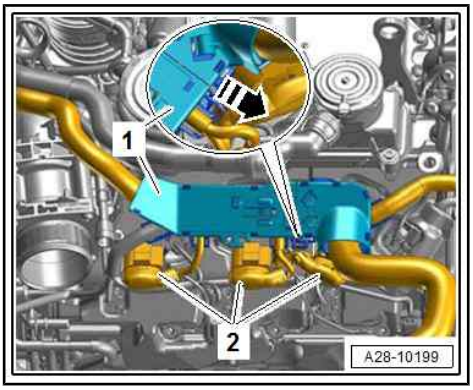

– Carefully pull ignition coils out upwards using puller - T10530- .
– Repeat removal procedure with all other ignition coils.
– Unscrew spark plugs using spark plug socket and extension - VAS 6919- .



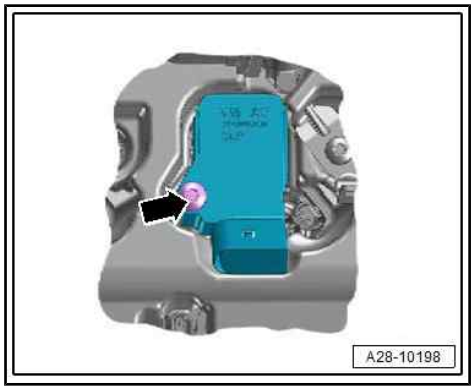

**Step 2 - removing spark plugs, cylinder bank (left-side):**

– Take engine control unit - J623- out of bracket and move to one side ⇒ Rep. gr. 24 ; Engine control unit .

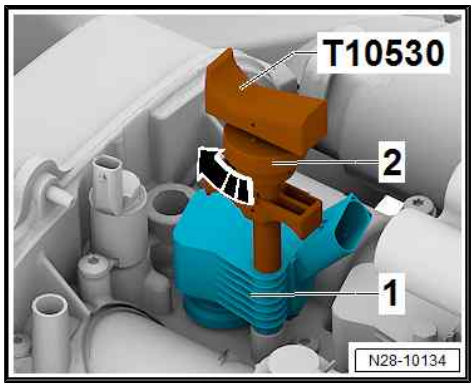
– Release retainer -arrow-, detach wiring duct -1- from ball studs and press to one side. If necessary, move electrical wiring harness clear.
– Unplug connectors -2- for ignition coils.



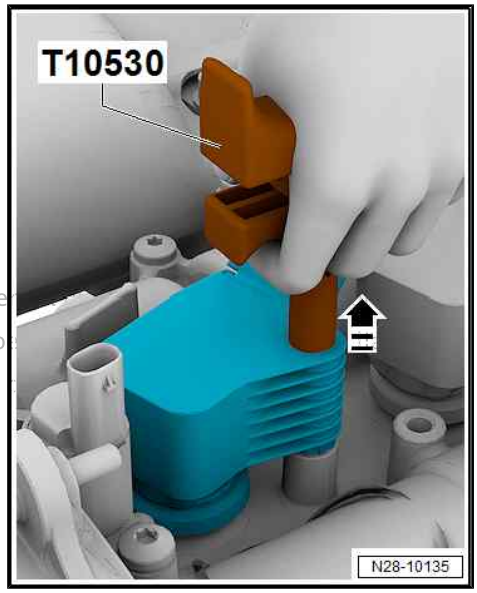
– Unscrew bolt -arrow- for ignition coil.




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




– Carefully pull ignition coils out upwards using puller - T10530- .
– Repeat removal procedure with all other ignition coils.
– Unscrew spark plugs using spark plug socket and extension - VAS 6919- .




**Step 3 - installing spark plugs:**

– Install new spark plugs using spark plug socket and extension - VAS 6919- and tighten to specified torque (see table of tightening torques for installation ⇒ page 80 ).
– Lubricate ignition coils.
– Fit all ignition coils loosely into spark plug apertures and align with connectors of connector rail.
– Press ignition coils onto spark plugs by hand evenly (do NOT knock in with tools).
– Tighten bolts for ignition coils to specified torque (see table of tightening torques for installation ⇒ page 80 ).
– Plug in connector on each ignition coil until it engages.

Continue installation in reverse sequence. Note tightening torques (see table of tightening torques for installation ⇒ page 80 ).

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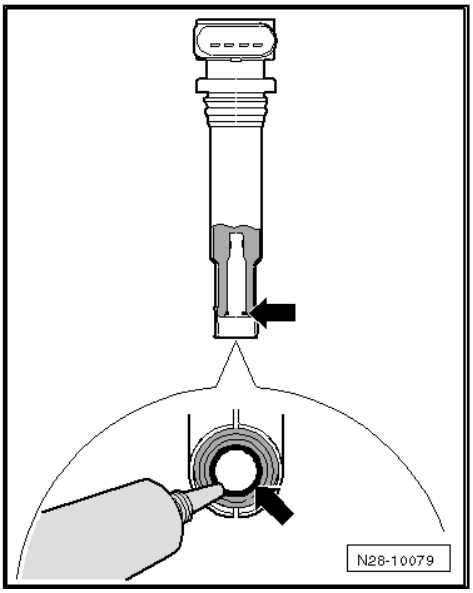
## 3.73.4 Lubricating ignition coils

**Special tools and workshop equipment required**

♦ Silicone paste

**Procedure:**

– Grease all around sealing hose -arrow- of ignition coils with silicone paste. The bead of grease should be 1-2 mm thick.




**Note**

- *For the silicone paste to be used, refer to Electronic parts catalogue (ETKA).*
- *New ignition coils are already lubricated when they are delivered; it is not necessary to lubricate them again when installing.*

**CAUTION**

**Ignition coils can be damaged irreparably if the wrong lubricant is used.**

**– Use only the approved silicone paste.**

## 3.74 Coolant level: checking (coolant level must reach at least top marking on coolant expansion tank)

**WARNING**

**Coolant expansion tank under pressure - risk of injuries!**

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

**CAUTION**

**Incorrect coolant additives can cause serious damage to vehicle components.**

**The coolant additive G12EVO is not approved for engines based on EA288 (A5 2.0 TDI).**

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**Note**

- *Specification for coolant level is top marking on coolant expansion tank.*
- *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.*
- *Only use approved coolant additives; refer to Electronic parts catalogue (ETKA).*
- *Coolant additives G12EVO, G13 and G12++ may be mixed together.*
- *G12EVO, G13 and G12++ may be mixed with coolant additives G11, G12 and G12+.*
- *G12 and G11 must NOT be mixed together.*
- *Do not reuse coolant.*
- *Only use water/coolant additive as a lubricant for coolant hoses.*
- *It is permissible to operate the vehicle if the coolant level is above the MAX marking on the coolant expansion tank (this is by technical design). Do NOT extract coolant.*
- *The vehicle must not be driven if the coolant level is below the top marking.*

**Checking coolant level and anti-freeze: all vehicles except 6-cyl. diesel engine 3.0 TDI ⇒ page 84**

**Checking coolant level and anti-freeze: 6-cyl. diesel engine 3.0 TDI ⇒ page 86**

**Filling up coolant ⇒ page 88**

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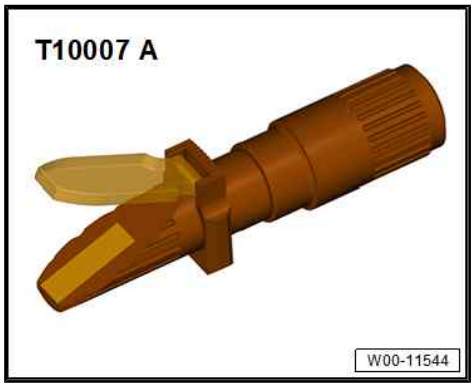
## 3.74.1 Checking coolant level and anti-freeze: all vehicles except 6-cyl. diesel engine 3.0 TDI

**Special tools and workshop equipment required**

- Refractometer - T10007 A-




- Refractometer - VAS 531 005-

**Table of test values and procedure guidelines:**

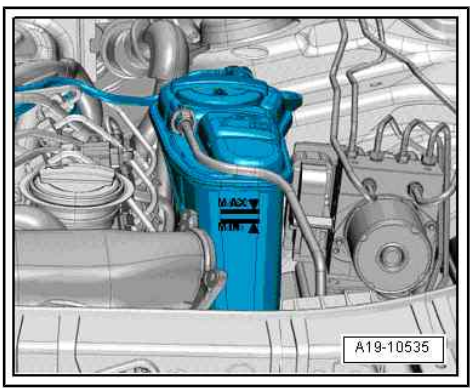
| Type of service: | Coolant level specification: |
|---|---|
| Delivery Inspection | Coolant at least at level of MAX marking. |
| Inspection | Coolant at level of MAX marking. |

Checking the cooling 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 concentration 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 coolant expansion tank with engine cold.

– If coolant level is too low: Add required amount (using correct mixture ratio) ⇒ page 88 .

– If fluid losses are greater than can be reasonably expected: First use a leak test to 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.

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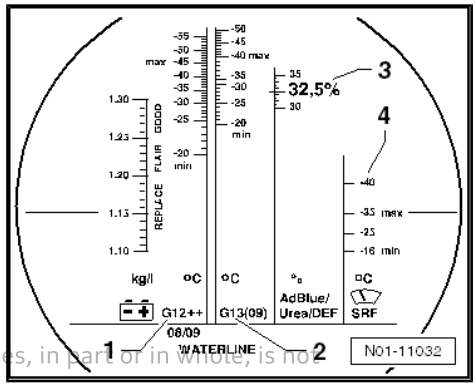
– If anti-freeze protection level does not meet specification in Maintenance table: Perform following measures:

| 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.*

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## 3.74.2 Checking coolant level and anti-freeze: 6-cyl. diesel engine 3.0 TDI

**Special tools and workshop equipment required**

- Refractometer - T10007 A-

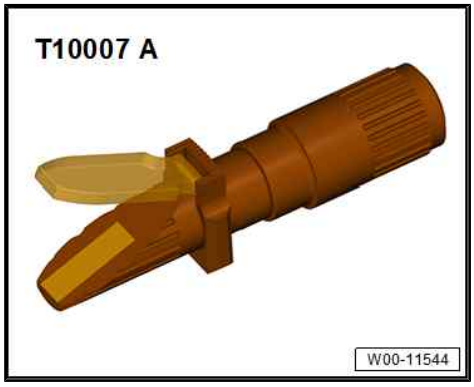



**Table of test values and procedure guidelines:**

| Type of service: | Coolant level specification: |
|---|---|
| Delivery Inspection | Top edge of floater flush with opening in coolant expansion tank |
| Inspection | Top edge of floater between MIN marking and opening in coolant expansion tank |

Checking the cooling 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.

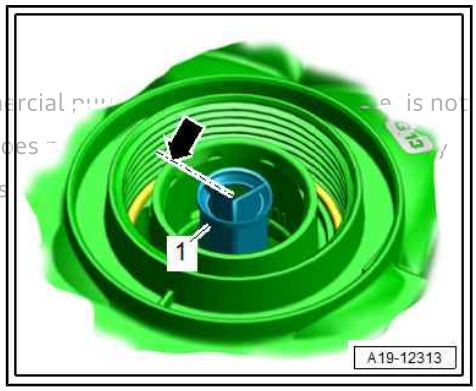
- The vehicle must be parked on a level surface.

**Step 1 - checking coolant level:**

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

– If coolant level is too low: Add required amount (using correct mixture ratio) ⇒ page 88 .

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

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**Step 2 - checking anti-freeze:**

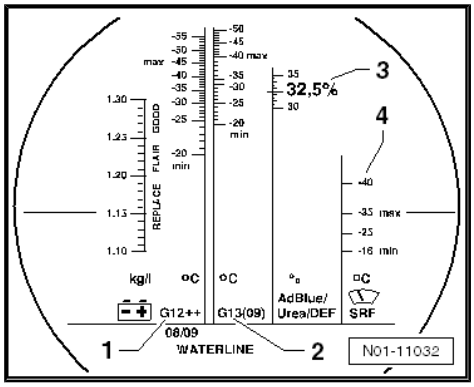
– Use a pipette to place a drop of coolant on glass of refractometer - T10007 A- . Light-dark border will now be clearly visible through refractometer.

– 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.*

## 3.74.3 Filling cooling system

**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.*

## 3.75 Air cleaner: renewing filter element and cleaning housing

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**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).*

**Air cleaner housing: cleaning** ⇒ page 94

**4-cyl. petrol engine 1.4 TFSI/2.0 TFSI (version 1)** ⇒ page 89

**4-cyl. petrol engine 2.0 TFSI (version 2)** ⇒ page 90

**6-cyl. petrol engine 2.9 TFSI/3.0 TFSI** ⇒ page 91

**4-cyl. diesel engine 2.0 TDI** ⇒ page 92

**6-cyl. diesel engine 3.0 TDI** ⇒ page 93

## 3.75.1 4-cyl. petrol engine 1.4 TFSI/2.0 TFSI (version 1)

**Special tools and workshop equipment required**

- Torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Or: torque wrench - V.A.G 1783- , measuring range 2 to 10 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm

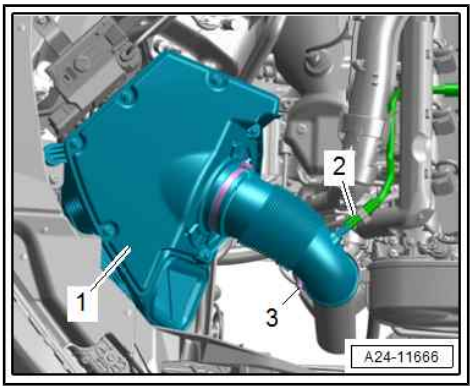
**Table of tightening torques for installation:**

| Component/fastener: | [Nm] |
|---|---|
| Securing bolts for air cleaner (top section) | 3.5 |

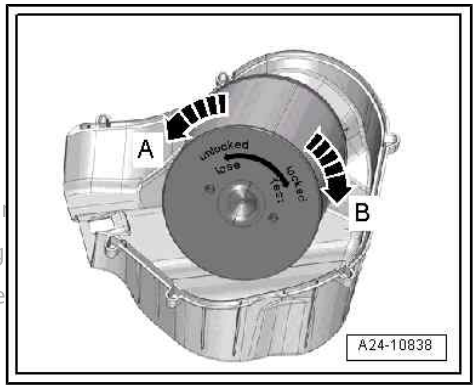
**Step 1 - removing air filter element:**

– Release hose clip and detach air pipe.

– Remove securing bolts and detach air cleaner (top section) -1-.




– 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 and clean if necessary ⇒ page 94

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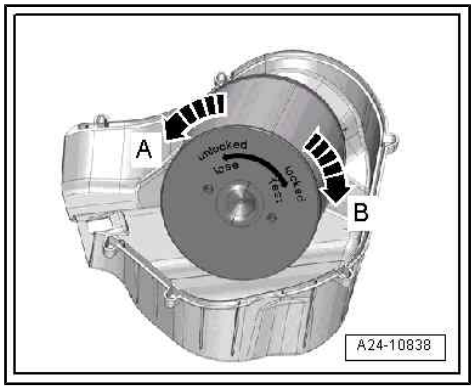
– Fit new filter element in air cleaner (top section) and turn it in clockwise direction -arrow B- until it engages.
– Place top section of air cleaner onto bottom section of air cleaner without applying any significant force. Ensure that top and bottom sections of air cleaner are flush.
– Fit securing bolts in air cleaner (top section) and tighten to specified torque (see table of tightening torques for installation ⇒ page 89 ).
– Attach air pipe to air cleaner (top section) and fit hose clip.

Continue installation in reverse sequence.




**Note**

*There is more than one version of the air cleaner for the 4-cylinder 2.0 TFSI petrol engine ⇒ page 90 .*

## 3.75.2 4-cyl. petrol engine 2.0 TFSI (version 2)

**Special tools and workshop equipment required**

- Torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Or: torque wrench - V.A.G 1783- , measuring range 2 to 10 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm

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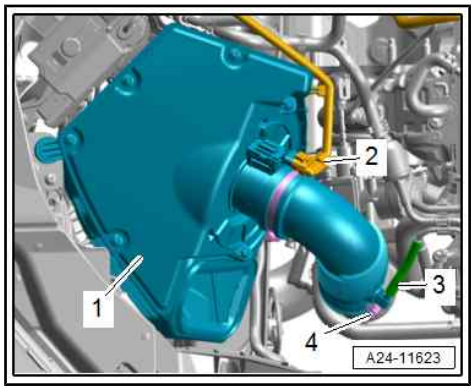
**Table of tightening torques for installation:**

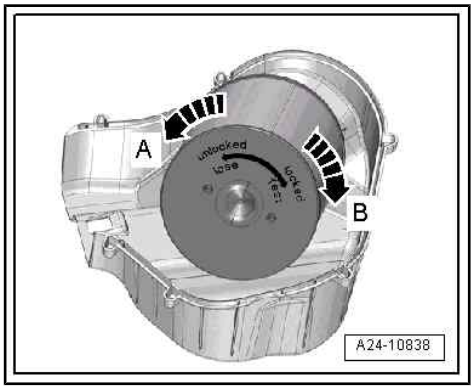
| Component/fastener: | [Nm] |
|---|---|
| Securing bolts for air cleaner (top section) | 3.5 |

**Step 1 - removing air filter element:**

– Release hose clip and detach air pipe.
– Unplug electrical connector -2- for air mass meter - G70- .
– Remove securing bolts and detach air cleaner (top section) -1-.

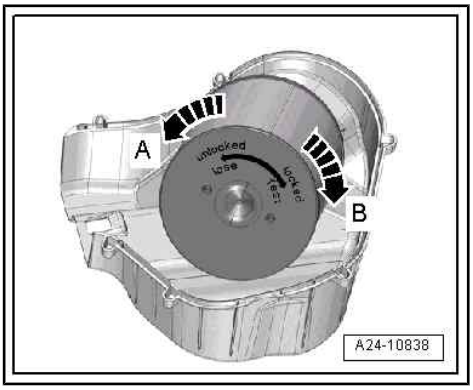


– Press release tab, turn filter element in anti-clockwise direction -arrow A- and remove it.




**Step 2 - installing air filter element:**

– Check for dirt in housing and water drains and clean if necessary ⇒ page 94 .




– 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 90 ).
– Attach air pipe to air cleaner (top section) and fit hose clip.

Continue installation in reverse sequence.

**Note**

*There is more than one version of the air cleaner for the 4-cylinder 2.0 TFSI petrol engine ⇒ page 89 .*

## 3.75.3 6-cyl. petrol engine 2.9 TFSI/3.0 TFSI

**Special tools and workshop equipment required**

♦ Torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm

**Table of tightening torques for installation:**

| Component/fastener: | [Nm] |
|---|---|
| Securing bolts for air cleaner (top section) | 3.5 |
| Securing bolts for air filter element | 1.5 |

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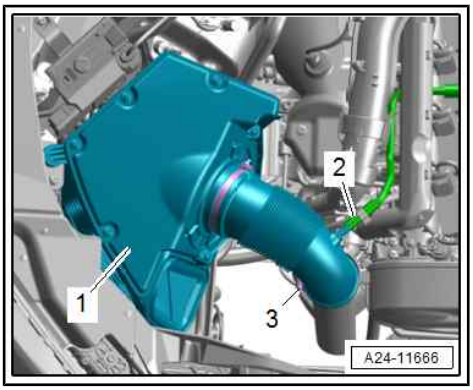
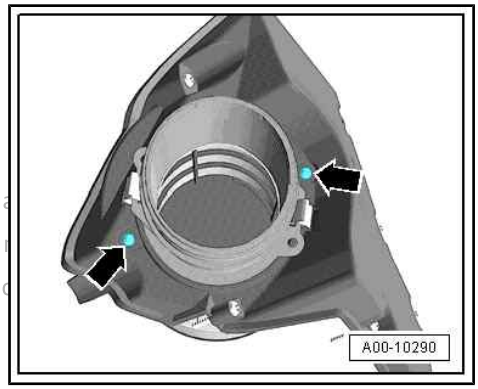
**Step 1 - removing air filter element:**

– Release hose clip -3- and detach air pipe.
– Remove securing bolts and detach air cleaner (top section).



– Remove filter element from air cleaner (top section) by unscrewing both bolts -arrows-.




**Step 2 - installing air filter element:**

– Check for dirt in housing and water drains -arrow- and clean if necessary ⇒ page 94 .

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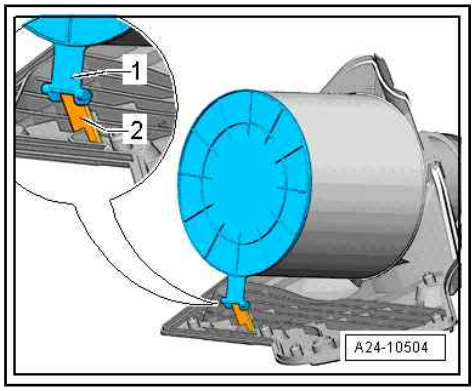
– Insert new air filter element centrally in mounting in air cleaner (top section). Tab of air filter element -1- must rest against tab of air cleaner (top section) -2-.




– 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 91 ).

– Attach air pipe to air cleaner (top section) and fit hose clip.

Continue installation in reverse sequence.

## 3.75.4 4-cyl. diesel engine 2.0 TDI

**Special tools and workshop equipment required**

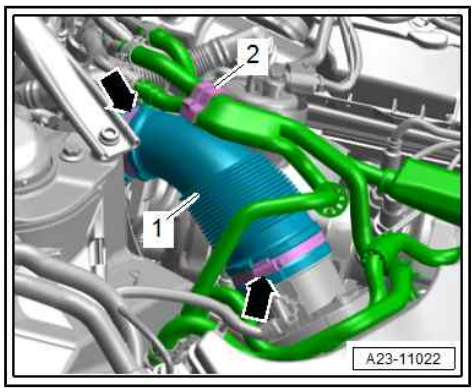
- Torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Or: torque wrench - V.A.G 1783- , measuring range 2 to 10 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm

**Table of tightening torques for installation:**

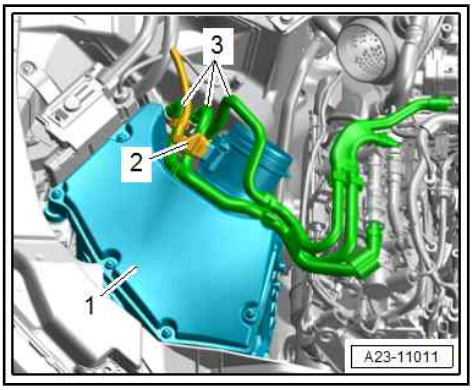
| Component/fastener: | [Nm] |
|---|---|
| Securing bolts for air cleaner (top section) | 3.5 |

**Step 1 - removing air filter element:**

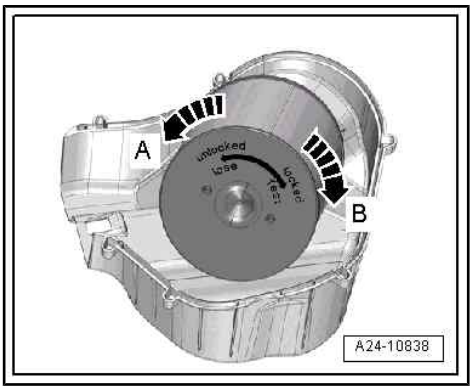
– Release hose clips -arrows- and detach air pipe -1-.



– Unplug electrical connector -2- for air mass meter - G70- .
– Move fuel hoses -3- clear and push to one side.
– Remove securing bolts and detach air cleaner (top section) -1-.

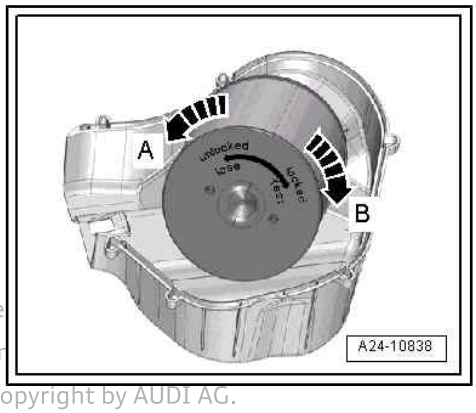



– Press release tab, turn filter element in anti-clockwise direction -arrow A- and remove it.




**Step 2 - installing air filter element:**

– Check for dirt in housing and water drains and clean if necessary ⇒ page 94 .
– 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 92 ).
– Attach air pipe to air cleaner (top section) and fit hose clip.




Continue installation in reverse sequence.

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## 3.75.5 6-cyl. diesel engine 3.0 TDI

**Special tools and workshop equipment required**

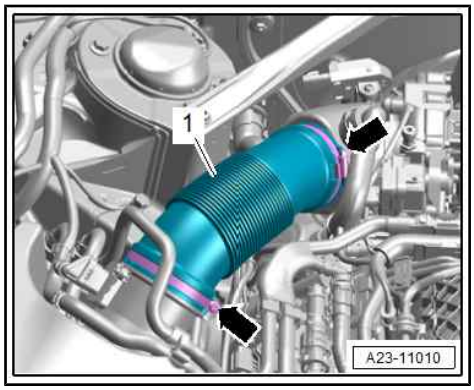
- Torque screwdriver - V.A.G 1624- , measuring range 1 to 5 Nm
- Or: torque wrench - V.A.G 1783- , measuring range 2 to 10 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm

**Table of tightening torques for installation:**

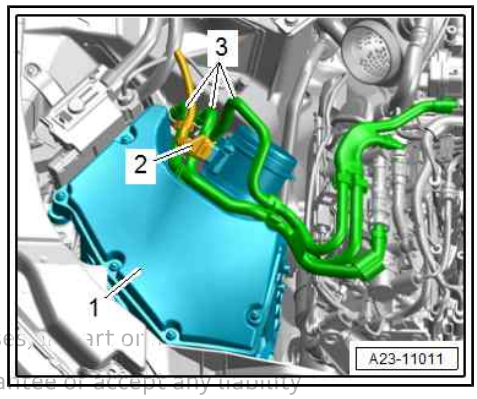
| Component/fastener: | [Nm] |
|---|---|
| Securing bolts for air cleaner (top section) | 3.5 |

**Step 1 - removing air filter element:**

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




– Unplug electrical connector -2- for air mass meter - G70- .
– Move fuel hoses -3- clear and push to one side.
– Remove securing bolts and detach air cleaner (top section) -1-.

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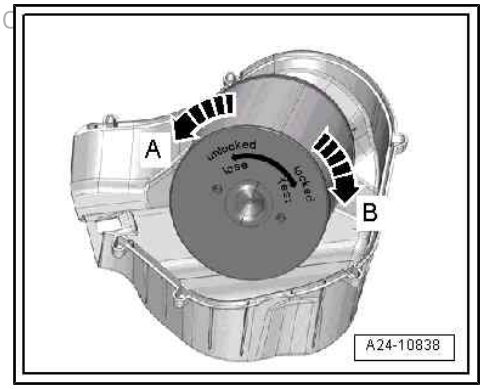
– Press release tab, turn filter element in anti-clockwise direction -arrow A- and remove it.

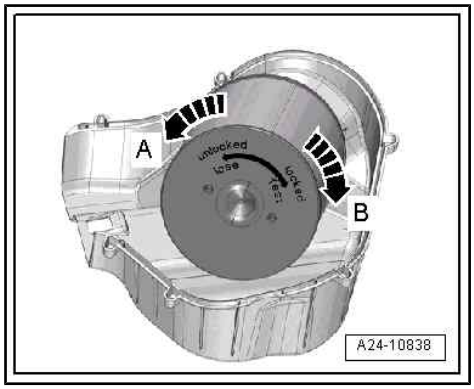



**Step 2 - installing air filter element:**

– Check for dirt in housing and water drains and clean if necessary ⇒ page 94 .

– 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 93 ).
– Attach air pipe to air cleaner (top section) and fit hose clip.

Continue installation in reverse sequence.




## 3.75.6 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.*

## 3.76 Dust and pollen filter: renewing

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

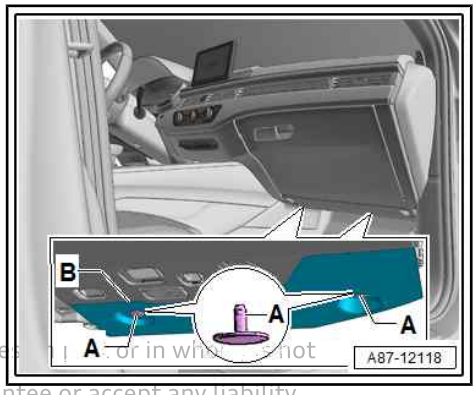
**Removal steps:**

– 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 screw fasteners -A- and detach insulating mat -B-.

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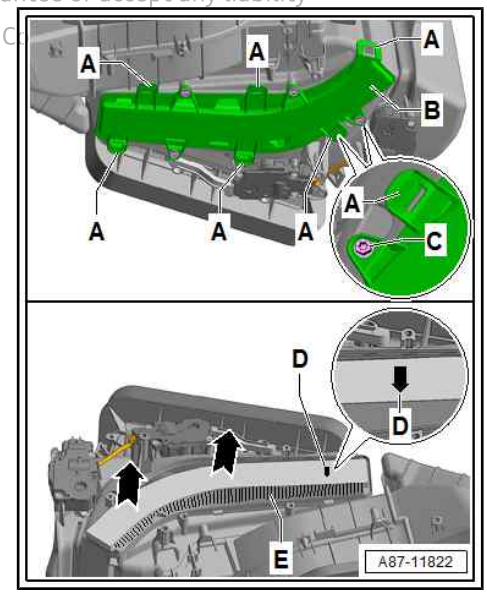
– Release retaining tabs -A-, swivel cover -B- for aperture down and detach.

– Pull filter element -E- out of aperture in direction of -arrow-.




**Step 2 - installing filter element:**

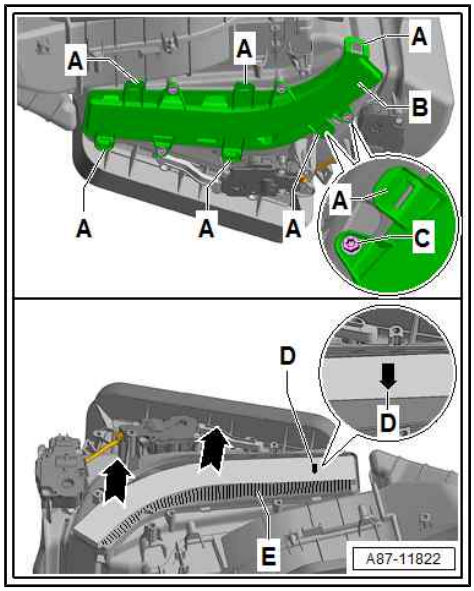
– Clean aperture with a vacuum cleaner before fitting new filter element.

– Fit new filter element -E- correctly: arrow -D- points towards fresh air blower.

Continue installation in reverse sequence.

**Note**

*If the retainers -A- for the cover -B- are broken off on the heating and air conditioning unit or on the service cover, the service cover can also be secured to the heating and air conditioning unit using four self-tapping screws -C- (e.g. 3.5 x 16 mm or 4.9 x 16 mm; see Electronic parts catalogue ETKA). To do so, drill holes (4.5 mm diameter) in the cover -B- at attaching points marked -C-.*




## 3.77 Water separator (fuel filter): draining

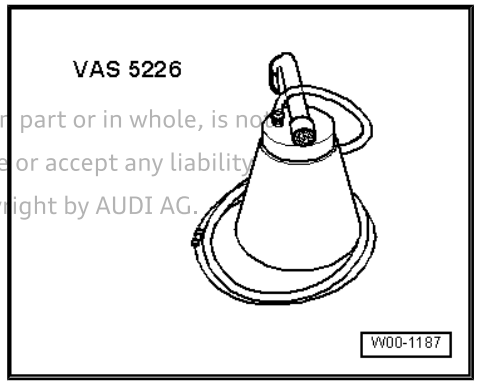
**WARNING**

**Fuel is hot and under pressure - risk of injuries!**

- **Put on protective gloves.**
- **Put on safety goggles.**
- **Loosen draining valve carefully.**

**Special tools and workshop equipment required**

- Diesel extractor - VAS 5226-

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- Torque wrench - V.A.G 1783- , measuring range 2 to 10 Nm
- Or: torque wrench - V.A.G 1410- , measuring range 4 to 20 Nm
- Or: torque wrench - VAS 6583- , measuring range 3 to 60 Nm

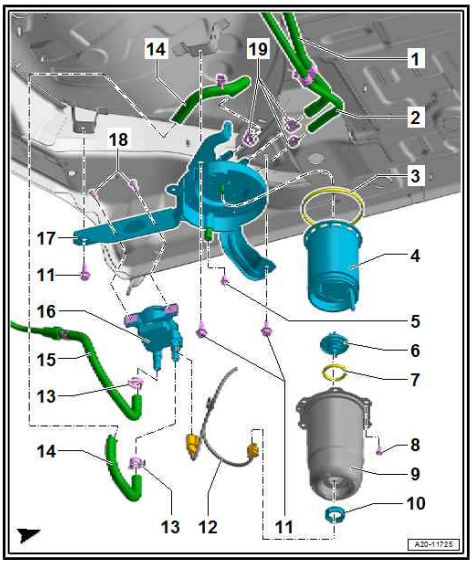
**Table of tightening torques for installation:**

| Fastener | Tightening torque [Nm] |
|---|---|
| Bolts for cover of filter housing | 4 |

The water separator filter is located in the engine compartment.

**Procedure:**

- Attach hose to water drain plug -5- on cover of filter housing. Place opposite end of hose in appropriate container.
- Start engine. System pressure is necessary for draining fuel filter.
- Open water drain plug slowly until water begins to drain.
- When diesel fuel begins to drain: Screw water drain plug back in.
- Turn off engine and disconnect hose from water drain plug.
- Tighten water drain plug -5- to specified torque (see table of tightening torques for installation ⇒ page 96 ).




## 3.78 Fuel filter: renewing

**WARNING**

**Fuel is hot and under pressure - risk of injuries!**

- **Put on protective gloves.**
- **Put on 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-

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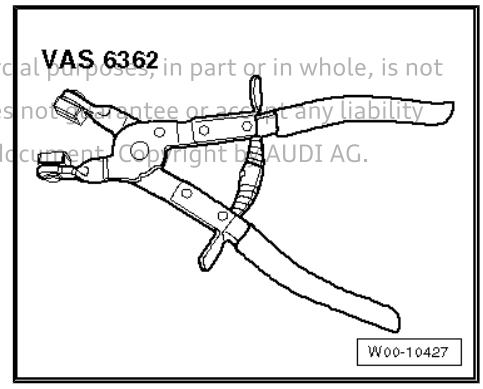


- Torque wrench - V.A.G 1783- , measuring range 2 to 10 Nm
- Or: torque wrench - V.A.G 1410- , measuring range 4 to 20 Nm
- Or: torque wrench - VAS 6854- , measuring range 5 to 13 Nm
- Reservoir

**Table of tightening torques for installation:**

| Fastener | Tightening torque [Nm] |
|---|---|
| Nuts for bracket | 8 |

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The fuel filter is located on the underbody.

**Removal steps:**

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

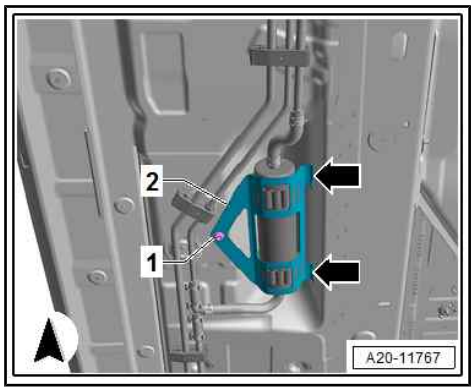
**Step 1 - removing fuel filter:**

– 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 .

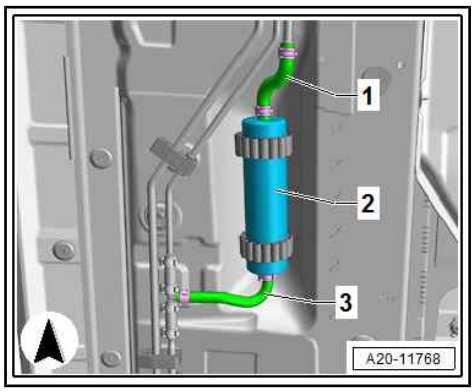
– Unscrew nut -1-.

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

– Place drip tray under fuel filter cartridge.




– Using hose clip pliers, disconnect fuel supply hoses -1- and -3- at T-piece and leading to aluminium pipe, and remove fuel filter -2- along with fuel supply hoses.




**Step 2 - installing fuel filter:**

Install in reverse sequence. Note tightening torques (see table of tightening torques for installation ⇒ page 98 ).

Flow direction for fuel filter cartridge is indicated by arrows on filter housing.

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

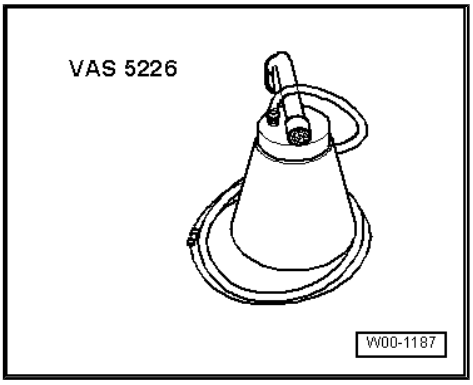
**Note**

- *Do not loosen spring-type clips on fuel filter.*
- *Renew spring-type clips on T-piece and leading to aluminium pipe.*

## 3.79 Water separator filter: renewing

**Special tools and workshop equipment required**

- Diesel extractor - VAS 5226-




- Torque wrench - V.A.G 1783- , measuring range 2 to 10 Nm
- Or: 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:**

| Fastener | Tightening torque [Nm] |
|---|---|
| Bolts for cover of filter housing | 4 |

The water separator filter is located in the engine compartment.

**Step 1 - removing:**

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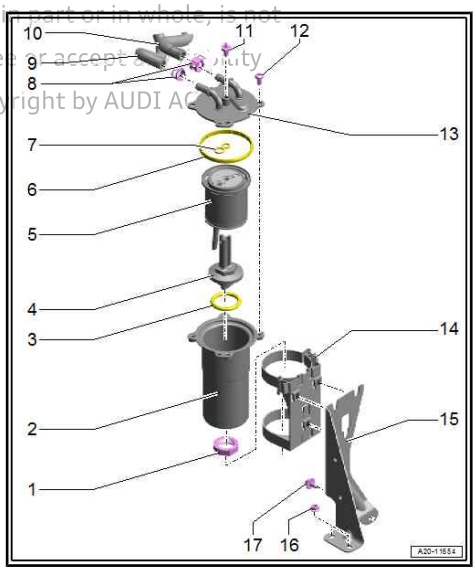


– Fit hose of diesel extractor - VAS 5226- together with suitable adapter onto water drain plug -11-.
– Open water drain plug -11-.
– Operate diesel extractor - VAS 5226- until no more diesel emerges.
– Hand-tighten water drain plug -11-.
– Unscrew bolts -12- and lift cover of filter housing to one side (fuel hoses remain connected).
– Remove filter element -5- and seals from filter housing -2-.
– Use diesel extractor - VAS 5226- to draw off remaining diesel fuel.
– Clean filter housing -2-.

**Step 2 - installing:**

– Insert new filter element in filter housing so that it is centred.
– Fit new seals.
– Fit and align cover of filter housing.
– Fit bolts for cover of filter housing and tighten to specified torque (see table of tightening torques for installation ⇒ page 99 ).
– Finally, bleed fuel system ⇒ Rep. gr. 23 ; Injection system; Filling/bleeding fuel system .

## 3.80 Fuel tank: adding fuel additive

**Special tools and workshop equipment required**

- Or: multi-purpose additive for petrol fuels - G 001 780 M3-

**Table of test values and procedure guidelines:**

| China, Middle East | Russia | India |
|---|---|---|
| VW 507 53 B: Applies to all petrol engines | VW 507 53 B: Applies to all petrol engines<br>VW 507 53 A: Applies to all petrol engines except g-tron and E85 flexible fuel | VW 507 53 B: Applies to all petrol engines<br>VW 507 53 A: Applies to all petrol engines except g-tron and E85 flexible fuel |
| Multi-purpose additive for petrol fuels - G 001 780 M3- | Multi-purpose additive for petrol fuels - G 001 780 M3- | Multi-purpose additive for petrol fuels - G 001 780 M3- |

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

**Procedure:**

– Follow measuring guidelines on fuel additive container and add fuel additive to fuel tank according to current fuel tank level.

**Note**

- *Use only fuel additives that correspond to the standard VW 507 53 A or VW 507 53 B.*
- *After adding fuel additive, it is very important to tell the customer to fill up the fuel tank.*

## 3.81 Reducing agent (AdBlue®): filling up tank completely

**WARNING**

**Risk of injury due to contact with reducing agent!**

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

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**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.*
- *Both filling device for AdBlue - VAS 6542- and AdBlue refuelling system - VAS 6960- can be used to fill up the reducing agent.*

**Filling up reducing agent (AdBlue®) using filling device for AdBlue - VAS 6542-** ⇒ page 101

**Filling up reducing agent (AdBlue®) using AdBlue refuelling system - VAS 6960-** ⇒ page 104

## 3.81.1 Filling up reducing agent (AdBlue®) using filling device for AdBlue - VAS 6542-

**Special tools and workshop equipment required**

- Filling device for AdBlue - VAS 6542-

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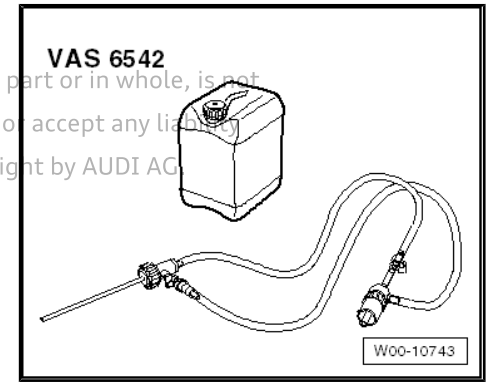
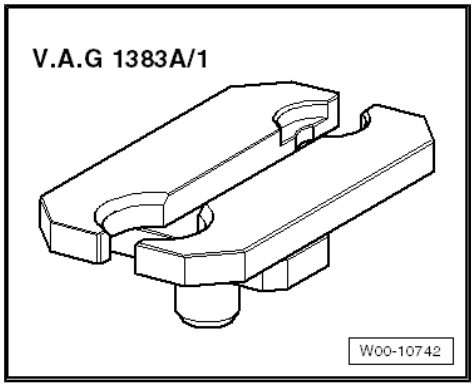



- Engine and gearbox jack - VAS 6931-

♦ 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**

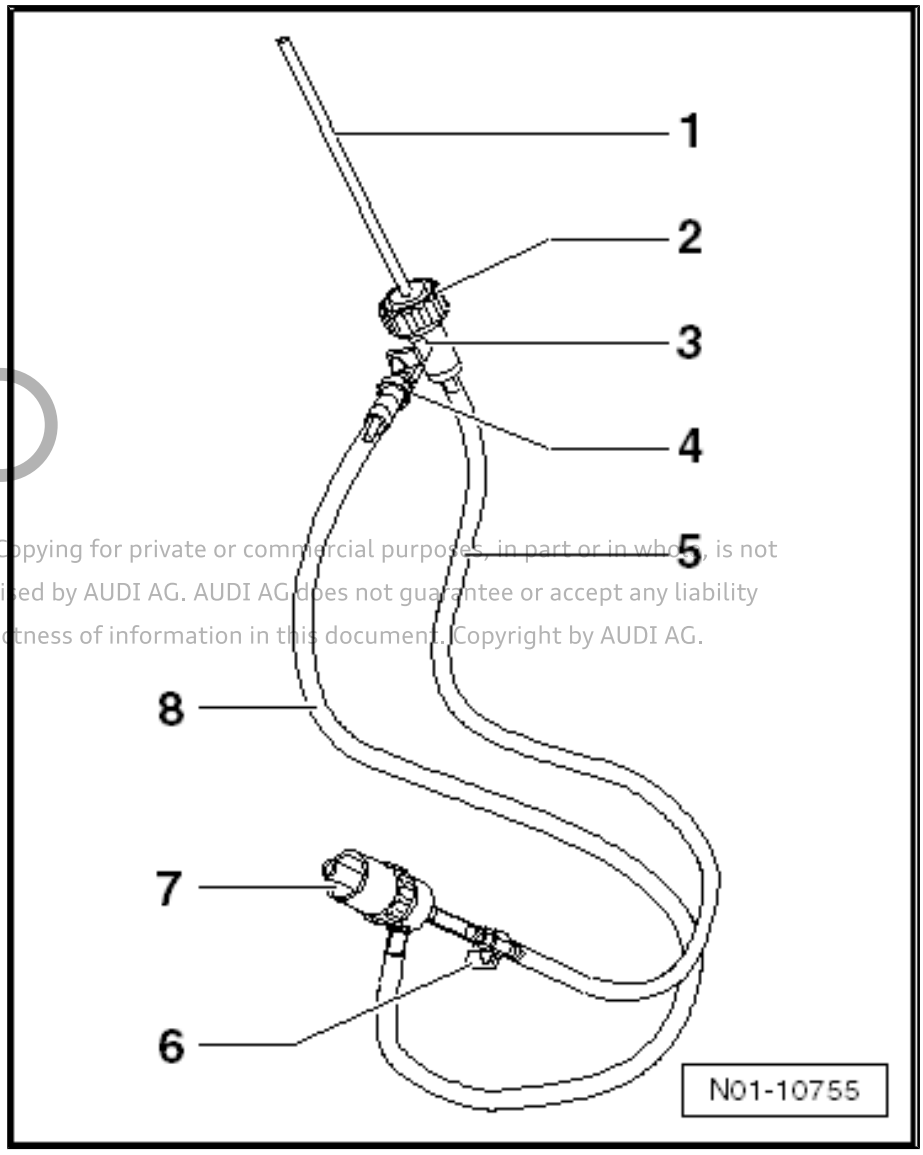
**4 - Quick-release coupling on breather line**

**5 - Filler line**

**6 - Cut-off valve for filler line**

**7 - Union nut for fuel filler neck**

**8 - Breather line**

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**Procedure:**

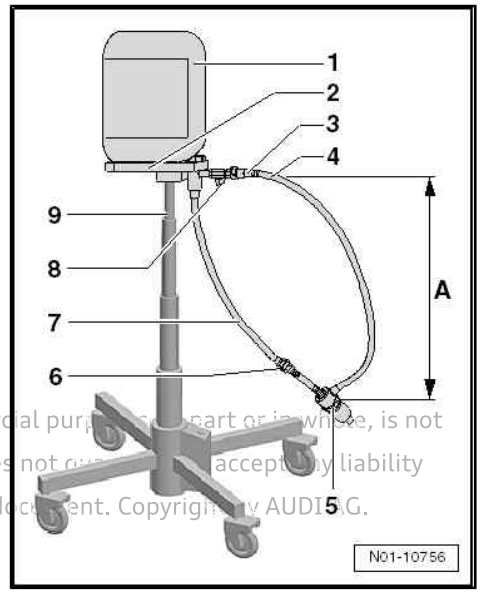
– Open tank flap and unscrew cap of reducing agent tank.

– 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 of the tank for reducing agent must be between 60 - 80 cm -dimension A-.

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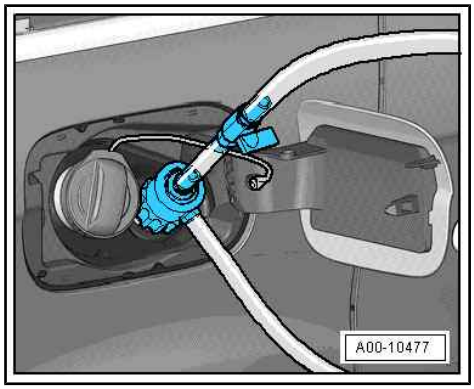


- Position filling device for AdBlue - VAS 6542- on filler neck on vehicle and screw it on as far as stop.
- Open cut-off valve for breather line.
- Open cut-off valve for filler line and fill reducing agent tank of vehicle completely. Tank is completely full when container contracts and bleeder line 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 fuel filler neck.
- Clean filler neck of reducing agent tank 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.

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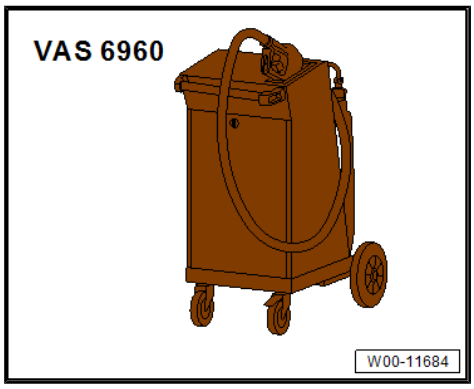
**Note**

*It is possible to overfill the reducing agent tank when using a filling device which operates using gravity. When filling the tank using VAS 6542 (or other filling device which operates in the same way), disconnect it from the vehicle immediately once filling is completed.*

## 3.81.2 Filling up reducing agent (AdBlue®) using AdBlue refuelling system - VAS 6960-

**Special tools and workshop equipment required**

- AdBlue refuelling system - VAS 6960-




**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.
- Insert nozzle of AdBlue refuelling system - VAS 6960- into filler neck of reducing agent tank.

– Operate nozzle to fill up reducing agent completely.
– Remove nozzle from filler neck of reducing agent tank.
– Clean filler neck of reducing agent tank and filler cap with a lint-free cotton cloth soaked with water.
– Screw filler cap onto reducing agent tank.

**Note**

- *Observe operating instructions for AdBlue refuelling system - VAS 6960- .*
- *Nozzle of AdBlue refuelling system - VAS 6960- switches off automatically when maximum fill level is reached.*

## 3.82 Natural gas system: checking for damage and leaks

**DANGER**

**Risk of explosion due to escaped natural gas!**

- **Keep any ignition sources away from the vicinity of the natural gas system.**
- **If you suspect a leak, follow the steps described immediately ⇒ page 113 .**
- **Service and repairs on the natural gas system may only be performed by specially trained staff ⇒ Natural gas engines - General information; Rep. gr. 00 ; Safety briefing/employee qualification .**

**WARNING**

**Risk of suffocation due to escaped natural gas!**

- **If you suspect a leak, follow the steps described immediately ⇒ page 113 .**
- **Service and repairs on the natural gas system may only be performed by specially trained staff**

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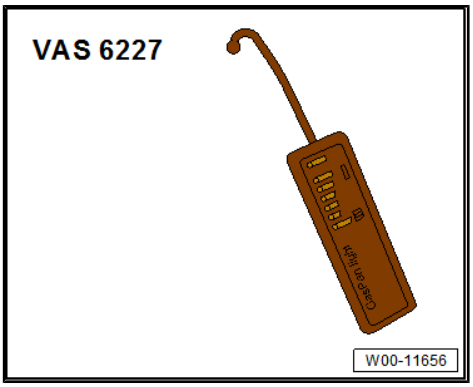
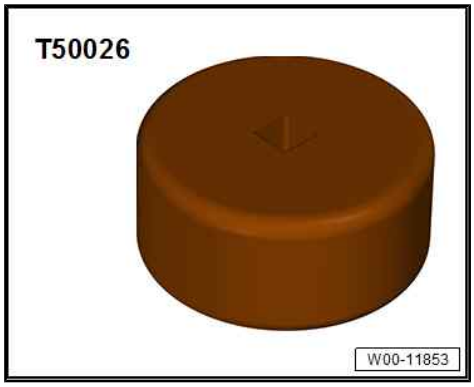
**Special tools and workshop equipment required**

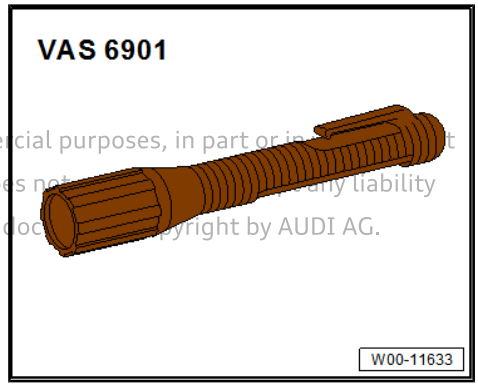
- Gas leak detector - VAS 6227-



- Hand wheel - T50026-




- Socket wrench -T40333-
- Explosion-proof LED battery lamp - VAS 6901-

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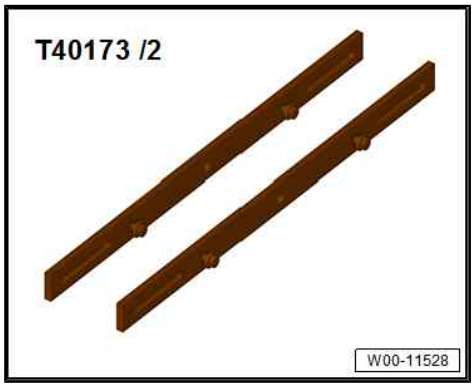
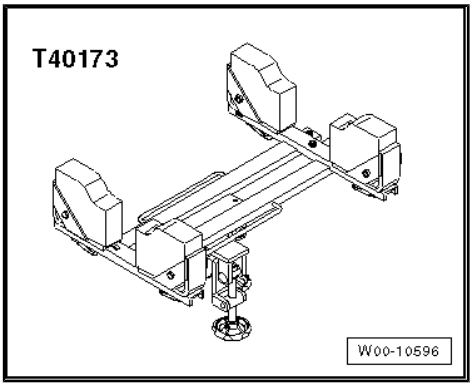
- Engine and gearbox jack - VAS 6931-

- Adapters - T40173/2-



- Gearbox support - T40173-




- Support elements - T40173/3-

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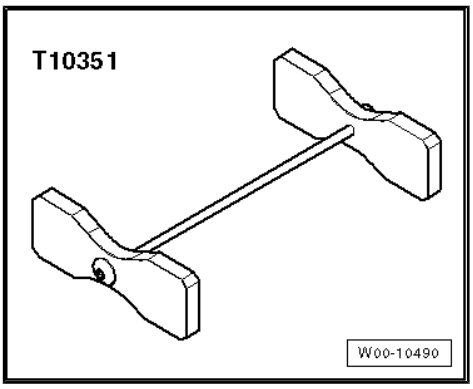
- Bracket - T10351-




- Endoscope - VAS 6785A- , VAS 6748A or VAS 6748B (probe head diameter max. 4 mm)
- Torque wrench - V.A.G 1783- , measuring range 2 to 10 Nm
- Extension - T40333-
- Hand mirror

**Note**

- *Work on the natural gas system itself may only be carried out by specially trained staff at a work station for natural gas vehicles!*
- *When checking the natural gas system, also observe any legal requirements valid in your market regarding the qualification of employees, documentation or additional checks.*
- *When working on the natural gas tanks, take care not to damage the surface of the tanks. If necessary, protect the tank surface using suitable workshop materials.*
- *For general notes on working on a natural gas system, refer to the Workshop Manual under Power unit -> Natural gas engines - General information.*

Natural gas can escape from pressurised natural gas tanks.

Natural gas is highly flammable and forms flammable air-vapour mixtures.

Natural gas is NOT odourless: it has been mixed with strong-smelling additives.

Natural gas can cause drowsiness and respiratory damage if inhaled. In high concentrations there is a danger of suffocation due to lack of oxygen.

**Requirements:**

- All areas of natural gas system that require testing must be accessible.
- Exhaust emissions warning lamp must not light up in dash panel insert.
- Natural gas tank must be at least 80% full.
- Ensure that the work area is free of draughts when performing the leak test with the gas leak detector. A draught over 1.8 km/h (slow gust of air) will cause incorrect measurement results.

**Removal steps:**

– Remove engine cover panel.

– Remove underbody trim for natural gas tanks ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim .

– Remove heat shields for natural gas tanks ⇒ General body repairs, exterior; Rep. gr. 66 ; Heat shields .

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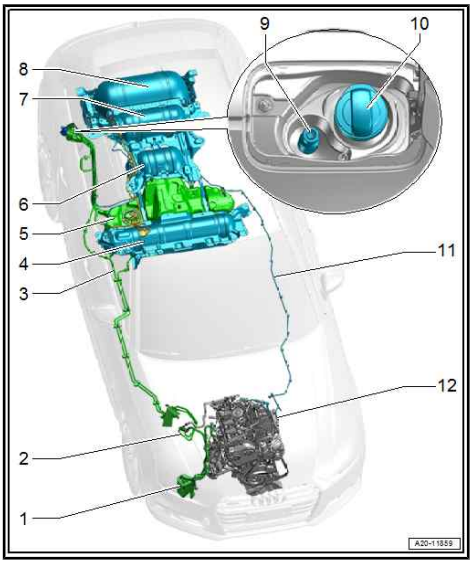
**Step 1 - checking for damage:**

– Check components of natural gas system in engine compartment for damage.

– In addition, check that rubber plug of pressure relief valve -arrow- is fitted on gas pressure regulator -A20-12001-.

– Check condition of natural gas filler connection -9- and clean it if necessary.
– Raise vehicle.

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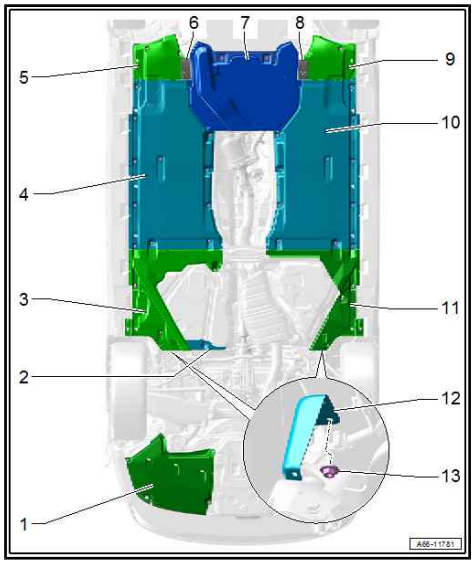
– Detach underbody trim (centre left) -A66-11781 no. 4- so that natural gas line -A20-11859 no. 11- is visible underneath ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim

– Check natural gas line for damage.




**Checking natural gas tanks:**

– Remove tank 1 -A20-11859 no. 8- ⇒ Fuel supply system - g-tron; Rep. gr. 20 ; Fuel tanks; Removing and installing fuel tanks .

– Check tank 1 all over for damage ⇒ Natural gas engines - General information; Rep. gr. 20 ; Fuel tanks .

– Read factory label of natural gas tank to check expiry date.

– If expiry date is past: Renew natural gas tank ⇒ Rep. gr. 20 ; Fuel tanks; Removing and installing natural gas fuel tanks .

– Check tanks 2, 3, 4 -A20-11859 nos. 4, 6, 7- for damage. Use endoscope - VAS 6785A- to check upper area of tank and hand mirror to check more accessible areas.

– In the event of irregularities, assess them with the help of the damage examples given in ⇒ Natural gas engines - General information; Rep. gr. 20 ; Fuel tanks .

– Read factory label of natural gas tank to check expiry date.

– If expiry date is past: Renew natural gas tank ⇒ Rep. gr. 20 ; Fuel tanks; Removing and installing natural gas fuel tanks .

– Damaged tanks or components must be renewed and then checked as part of a gas system inspection.

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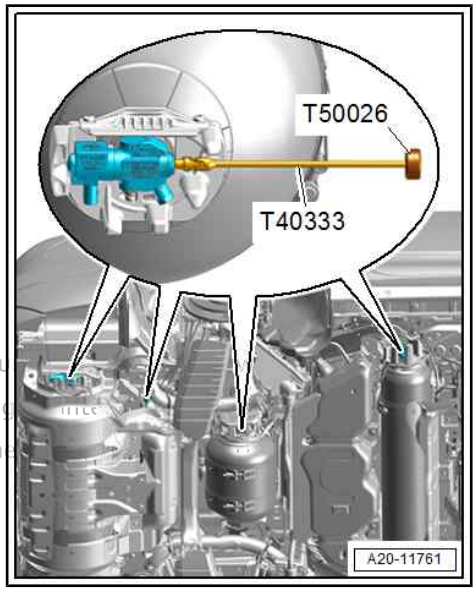
**Note**

- *If you are unsure of the damage situation in relation to the damage catalogue when performing the test procedure specified above, remove the corresponding tanks and perform sufficient tests.*
- *A gas system inspection according to the regulations in the relevant country must be performed after a tank has been removed and installed.*

**Step 2 - setting gas system to operating status:**

The system must be at least 80 % filled with natural gas in order to check for leaks.

– Using hand wheel - T50026- and extension - T40333- , ensure that all four mechanical shut-off valves N361, N362, N363 and N429 are fully open.
– Start engine to set pressure levels in gas system to operating status.
– Check whether green CNG light appears in the instrument cluster to ensure that vehicle has been started in natural gas mode.
– Switch engine off again.

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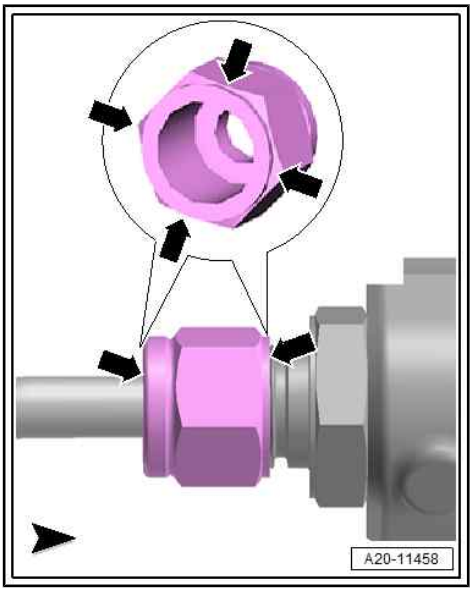
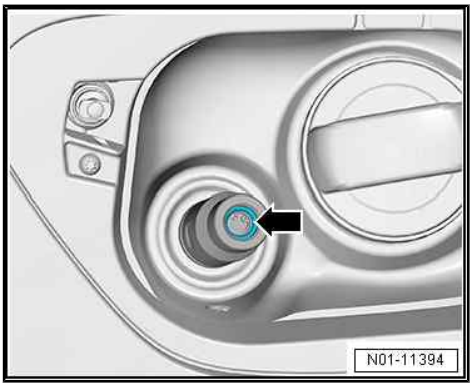
**Step 3 - checking for leaks:**

When performing the leak test with the gas leak detector - VAS 6227- :

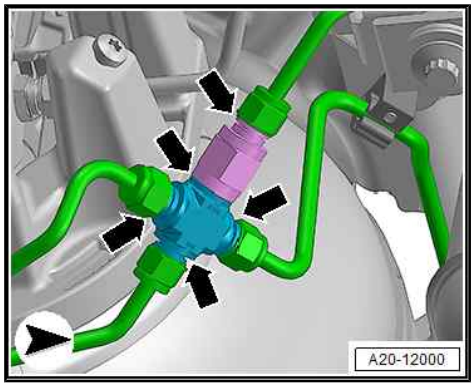



♦ Check for leaks all around all threaded connections of the gas system several times (from each 90° angle) and at all joints -arrows-.
♦ The tester head must be no further than 5 mm from the area/ component being checked. Measurements are not possible at distances greater than 5 mm.
♦ Gas leak detector can only detect whether there is natural gas in the ambient air.
♦ The results of the test using the gas leak detector are only satisfactory if the green LED for »O.K.« lights up.
♦ If a yellow or red LED lights up, a leak detector spray must be used to verify definitively whether gas is actually escaping from the vehicle system. When using the leak detector spray, bubbles must not emerge from the sprayed area during a test period of three minutes.

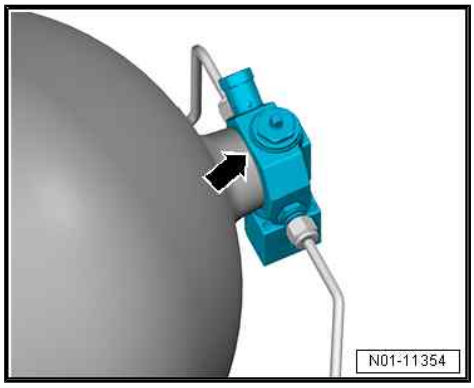
– Check natural gas filler connection for leaks in area of opening -arrow- with filler cap removed.



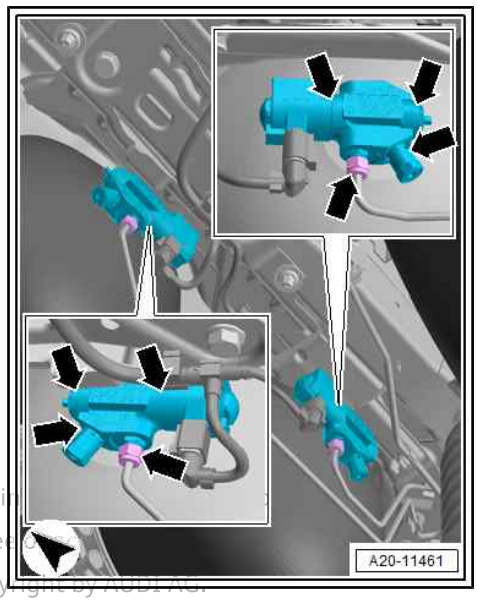
– Check for leaks at connecting piece adjoining non-return valve -arrow- and at all threaded connections -arrows- to gas lines.




– Check for leaks at threaded connections -arrow- for fuel tank shut-off valve 1 - N361- , fuel tank shut-off valve 2 - N362- , fuel tank shut-off valve 3 - N363- and fuel tank shut-off valve 4 - N429- on respective natural gas tank.




– At each fuel tank shut-off valve, check for leaks at threaded connections for mechanical shut-off valve -arrow- and for thermal fuse -arrow-, as well as at threaded connections for electromagnetic valve and for natural gas line -arrows-.

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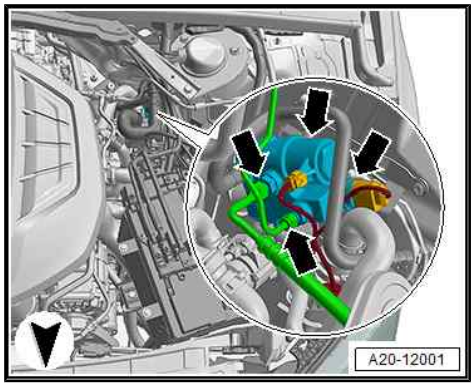
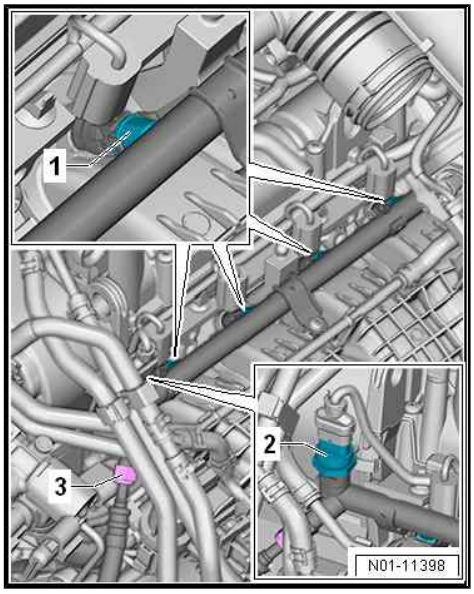
– Check for leaks at gas pressure regulator (in left of engine compartment at wheel housing) in area of high-pressure pipe and low-pressure pipe connections -arrows-, at threaded connection of high-pressure valve for gas mode - N372- -arrow- and at threaded connection and electrical connector for sensor module -GX23- -arrows-.



– Check for leaks at gas rail in area of connection for flexible low-pressure pipe -3-, at threaded connection and electrical connector for temperature and pressure sensor -GX21- -2- and at all four gas injection valves N366 to N369 -1-.
– Any leaking components must be renewed and then checked as part of a gas system inspection.




Install in reverse sequence.

**Note**

- *Maintain order and cleanliness when working on the natural gas system.*
- *Further information on the natural gas system and fuel tanks can be found in ⇒ Natural gas engines - General information; Rep. gr. 20 ; Fuel tanks .*

## 3.82.1 If you suspect a leak, take the following steps immediately

**Special tools and workshop equipment required**

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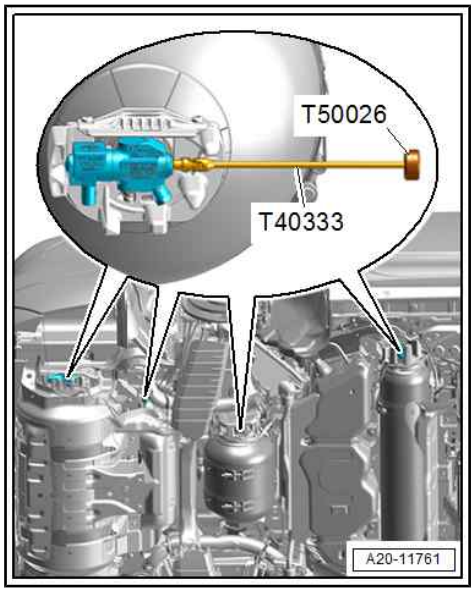
- Hand wheel - T50026-

- Extension -T40333-

**Procedure:**

- Close all four fuel tank shut-off valves -1- and -2- manually using extension -T40333- and hand wheel - T50026- .
- Ventilate the work area.
- Immediately inform staff with special gas system training to determine how to proceed.



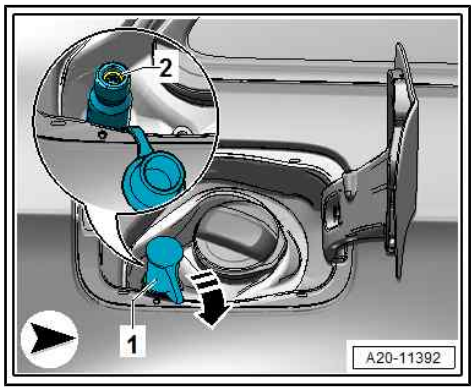

**Note**

*If natural gas continues to escape (noticeable odour) after the fuel tank shut-off valves have been closed, the vehicle must be moved outdoors and marked accordingly.*

## 3.83 Filler connection for natural gas: checking condition and cleaning if necessary

**Procedure:**

- Open tank flap and check condition of cap -1-.
- Remove cap in direction of -arrow-.
- Ensure that seal -2- is present and check its condition.
- If damage is found: Renew seal.
- Check filler connection for natural gas on outside and inside for dirt and damage.
- If filler connection is dirty: clean with compressed air and/or a dry cloth. This will not damage filler connection.




## 3.84 Service display for checking natural gas system: resetting

**Note**

- *Applies for vehicles with natural gas drive from model year 2019 onwards*
- *Check natural gas system before resetting specific interval display for vehicles with natural gas system (observe country-specific legal requirements for checking gas systems).*

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**Procedure:**

- Connect vehicle diagnostic tester.
- 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 display for checking CNG system: Reset”.
– Continue to follow instructions on screen.

## 3.85 Vehicle doors: removing edge protection

**Procedure:**

– Carefully remove edge protection from all vehicle doors.

## 3.86 Vehicle exterior: checking unprotected areas for dirt, and cleaning if necessary

**Procedure:**

– Check unprotected areas of vehicle exterior not covered by car cover or protective transport film for dirt/soiling.
– Clean any dirty areas.

## 3.87 Vehicle exterior: removing protective film

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**Procedure:**

– Remove protective film carefully and completely.

## 3.88 Vehicle cover: checking position and correcting if necessary

**Procedure:**

– Check, and if necessary, correct position of vehicle cover on vehicle body.
– Check, and if necessary, correct position of protective transport film.

## 3.89 Vehicle cover: removing according to manufacturer's instructions

**Procedure:**

– Vehicle cover: Remove according to manufacturer's instructions.

## 3.90 Paintwork, trims, side windows and wiper blades: checking cleanliness

**Procedure:**

– Check that exterior paintwork, trims, side windows and wiper blades are clean.
– Clean any dirty components.

## 3.91 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 paintwork on inside and outside of body for damage and corrosion.

– Rectify defects of any kind (repair measure).

## 3.92 Vehicles parked outdoors: locking

**Procedure:**

– Use vehicle key to lock vehicle if it is parked outdoors.

## 3.93 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 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

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**Note**

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

## 3.94 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 29 .
- For vehicles with defective battery: Renew battery ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .

- 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.

## 3.95 Accessories: installing

**Procedure:**

– Place any accessories included with the vehicle in the vehicle tool kit.

**Note**

- *The available accessories may vary according to model, equipment and market.*
- *Depending on the vehicle model, the accessories may be found in the luggage compartment, glove box or supplied pack.*

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## 3.96 Checklist "Documentation of cleaning and care routine": checking that list is present

**Procedure:**

– Check that checklist “Documentation of cleaning and care routine” is in glove box or front passenger footwell. This checklist is only present in vehicles which remained with the importer or manufacturer longer than 14 days without being transported further; it documents all cleaning and care work carried out there.

– If missing, place checklist “Documentation of cleaning and care routine” in glove box.

## 3.97 “Stock vehicle maintenance” checklist: signing and placing in vehicle wallet

**Procedure:**

– Sign “Stock vehicle maintenance” checklist and place it in vehicle wallet.

## 3.98 Cleaning and care: checking that required measures have been carried out on time

**Procedure:**

– Check that all cleaning and care measures due previously were carried out on time.

– Carry out and document any cleaning and care which is due.

## 3.99 Stock vehicle care management: deciding and recording date of next check

**Procedure:**

– Decide date of next check with person in charge of stock vehicle care management.

– Record chosen date in maintenance table.

## 3.100 Display instruments: setting time and date

**Procedure:**

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

## 3.101 Manual gearbox/automatic gearbox: selecting 1st gear/park

**Procedure:**

Vehicles with manual gearbox: Select 1st gear.

Vehicles with automatic gearbox: Select park position.

## 3.102 Dual clutch gearbox (S tronic): changing ATF

**Procedure:**

– Change ATF according to specifications in Workshop Manual ⇒ Rear final drive 0D2, 0D3, 0DB, 0B0, 0BX, 0DG, 0G2, 09R; Rep. gr. 39 ; ATF; Draining and filling gear ATF .

## 3.103 Dual clutch gearbox (S tronic): changing ATF and renewing exchangeable ATF filter

**Procedure:**

– Change ATF according to Workshop Manual ⇒ Rep. gr. 34 ; ATF; Draining and filling ATF .

– Renew exchangeable ATF filter according to Workshop Manual ⇒ Rep. gr. 34 ; Mechatronic unit; Removing and installing exchangeable ATF filter .

## 3.104 Dual clutch gearbox (S tronic): changing ATF and renewing exchangeable ATF filter (if fitted)

**Procedure:**

– Change ATF according to Workshop Manual ⇒ Rep. gr. 34 ; ATF; Draining and filling ATF .

– Renew exchangeable ATF filter according to Workshop Manual ⇒ Rep. gr. 34 ; Mechatronic unit; Removing and installing exchangeable ATF filter .

## 3.105 Interior mirror: calibrating compass

**Procedure:**

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

## 3.106 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.

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## 3.107 Poly V-belt for ancillaries: renewing

**Procedure:**

– Renew poly V-belt for ancillaries according to specifications in Workshop Manual ⇒ Servicing 6-cylinder engine, 2.9 ltr., 3.0 ltr. 4-valve TFSI EA 839; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .

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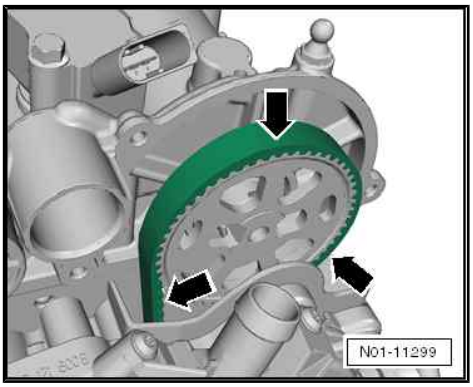
## 3.108 Toothed belt for coolant pump drive: checking

**Checking condition of toothed belt - 1.4 TFSI engines:**

– Remove toothed belt cover ⇒ 4-cylinder direct injection engine (1.4 ltr. 4-valve TFSI EA211); Rep. gr. 19 ; Coolant pump/ thermostat assembly; Removing and installing coolant pump .

– Turn bolt securing pulley to turn crankshaft in direction of normal engine rotation; check entire length of toothed belt for the following:

- Cracks, cross-sectional fractures, tears (on toothed belt cover side) -arrow-
- Wear along edges
- Fraying of cord strands
- Tears (on toothed side) -arrow-
- Layer separation (toothed belt body, cord strands)
- Surface cracks (synthetic coating)
- Traces of oil and grease




**Note**

*It is essential to renew the toothed belt if faults are found. This will prevent failures and malfunctions. Renewing the toothed belt is a repair measure.*

## 3.109 Toothed belt for camshaft drive: renewing

**Procedure:**

– Renew toothed belt for camshaft drive according to specifications in Workshop Manual ⇒ ; Rep. gr. 15 ; Toothed belt drive; Removing and installing toothed belt .

## 3.110 Toothed belt for camshaft drive and tensioning roller: renewing

**Procedure:**

– Renew toothed belt for camshaft drive according to specifications in Workshop Manual ⇒ ; Rep. gr. 15 ; Toothed belt drive; Removing and installing toothed belt .

– Renew tensioning roller according to Workshop Manual ⇒ ; Rep. gr. 15 ; Toothed belt drive; Exploded view - toothed belt .

# 4 Exhaust emissions test

**Note**

- *Please observe the statutory regulations applicable to your country.*
- *The exhaust emissions test described below conforms to the statutory regulations applicable in Germany.*

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**Petrol engines: performing exhaust emissions test** ⇒ page 120

**Diesel engines: performing exhaust emissions test** ⇒ page 127

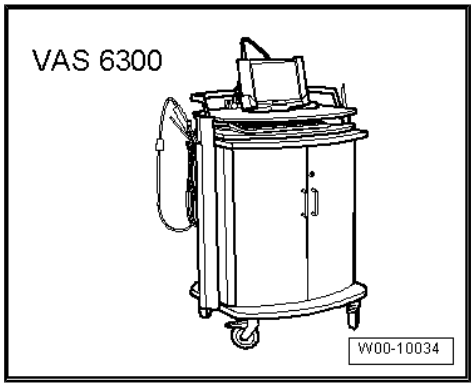
## 4.1 Petrol engines: performing exhaust emissions test

**Note**

- *The following description refers to vehicles equipped with on-board diagnosis (OBD) with a closed-loop catalytic converter.*
- *The OBD monitors all components and (sub)systems which affect the exhaust gas quality.*

### Special tools and workshop equipment required

- Emissions test station - VAS 6300-




- Adapter wire, OBD communication - VAS 5052/16-1-

**Note**

- *In order for the exhaust emissions test to be carried out, all components of the emissions test station - VAS 6300- must be properly plugged in and connected to one another as specified in the operating instructions.*
- *All the required steps are displayed on the emissions test station - VAS 6300- .*

### Test requirements

- All test requirements and data for the exhaust emissions test are stated on the exhaust emissions test data sheet for the required engine.
- If the specifications for the exhaust emissions test will be scanned in using a bar code, the data sheet must be available as a printout.

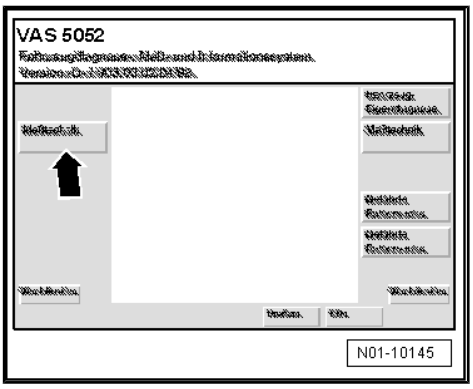
- Automatic gearbox: selector lever in position “P” or “N”
- Manual gearbox: gear lever in neutral
- Handbrake applied

– Follow instructions shown on display.

**Start screen**

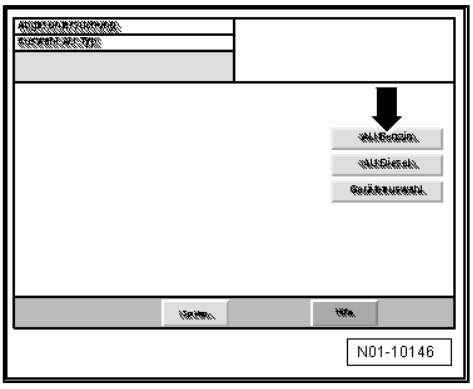
– Select “Emissions test” button -arrow-.

An overview of exhaust emissions test types will appear.

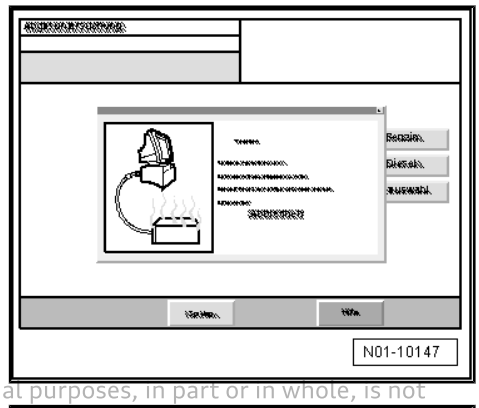



– Select “Emissions test, petrol” -arrow-.

A display for the warm-up period will be shown.




– Continue exhaust emissions test according to the instructions on the display.

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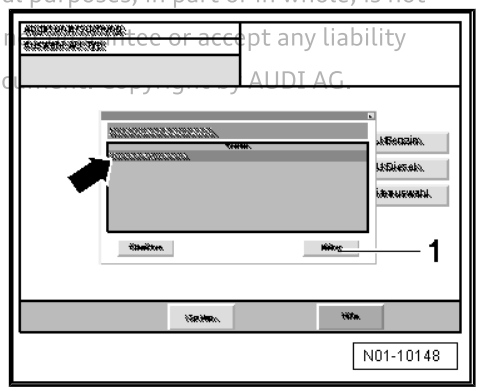
– When the options for the exhaust emissions test specifications are shown, select the option required -arrow-:

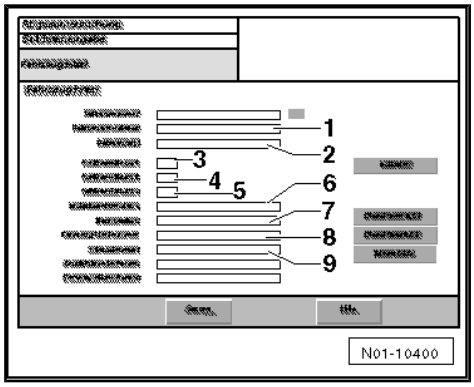
♦ Either “Standard specifications” (for an initial exhaust emissions test)

♦ Or “Last vehicle” (to repeat a previous exhaust emissions test)

– Confirm Next -item 1- on display.



### Entering vehicle data




The input menu for vehicle data will be shown.

– Enter the following data from the registration document (part 1):

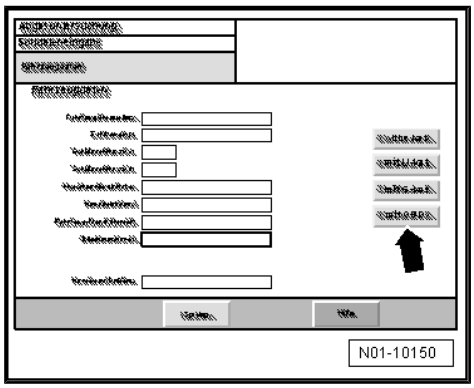
- -1- Vehicle manufacturer, e.g. Audi
- -2- Vehicle model, e.g. A6 / 4G
- -3- Code for 14.1, e.g. 0572
- -4- Code for 2.1, e.g. 0588
- -5- Code for 2.2, e.g. 846
- -6- Engine code: e.g. CHVA
- -7- Number plate: e.g. IN-MV 1234
- -8- Vehicle identification number, e.g. WAUZZZ4GZAN001234

– Enter mileage (km), e.g. 33350, at -item 9-.

**Note**

- *Additional functions can be selected using the* `Go to` *button.*
- *The* `Go to` *button can be used to cancel the test.*

– Select “With OBD” -arrow-.

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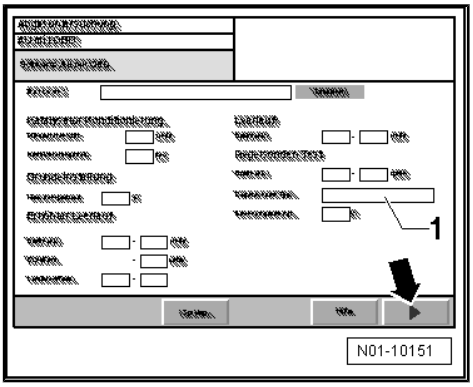
### Entering exhaust emissions test specifications




**Note**

- *The specifications must be entered manually if they are not available as a bar code.*
- *Refer to ⇒ Data sheets for exhaust emissions test (for required engine) for all test requirements and data for the exhaust emissions test.*

Entering exhaust emissions test specifications manually

– Follow instructions on display to enter data manually.

– Enter data listed on emissions test data sheet under “Test values for exhaust emissions test” on display in following order:

1 - Test engine speed (idling speed)

2 - Warm-up period of catalytic converter

3 - Engine temperature

4 - Increased idling speed

5 - CO content at increased idling speed

6 - Lambda at increased idling speed

7 - Idling speed

8 - Select control probe type: either »two-state probe« or »broad-band probe« -item 1-.

9 - Lambda probe value

– Once you have entered all data correctly, confirm your entry with Next button -arrow-.

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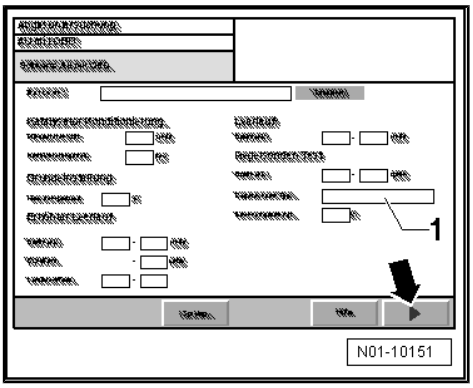
### Entering exhaust emissions test specifications with a bar code

– If exhaust emissions test specifications are available as a bar code, use scanner pen to scan bar code on data sheet.

All required data will be shown on display.

– Press ▶ button -arrow- to continue procedure.



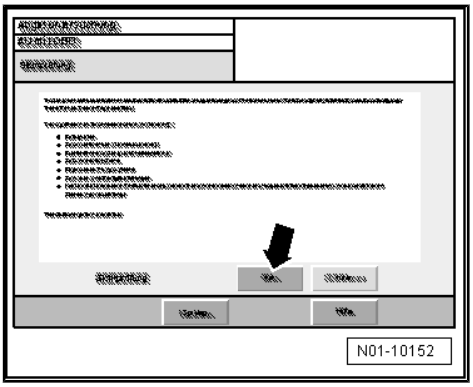

### Visual inspection

– Follow instructions shown on display.

– Inspect all components relevant to exhaust emissions.

– Check that all components of exhaust system are fitted, complete and free of leaks and damage.

– If results of inspection are OK, press button for “OK” -arrow-.

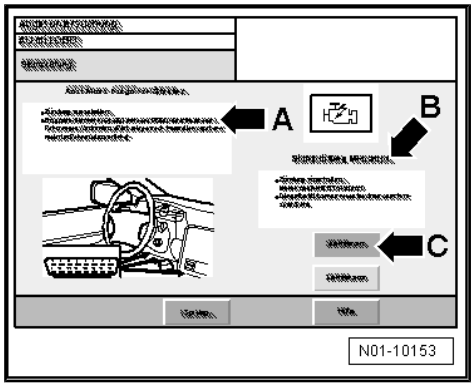



**Note**

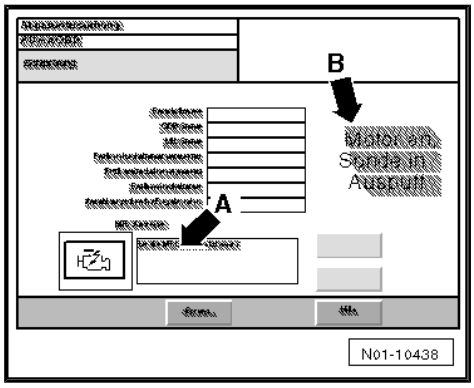
*Pressing the button for “Not OK” will start a test.*

### Plugging in diagnostic connector

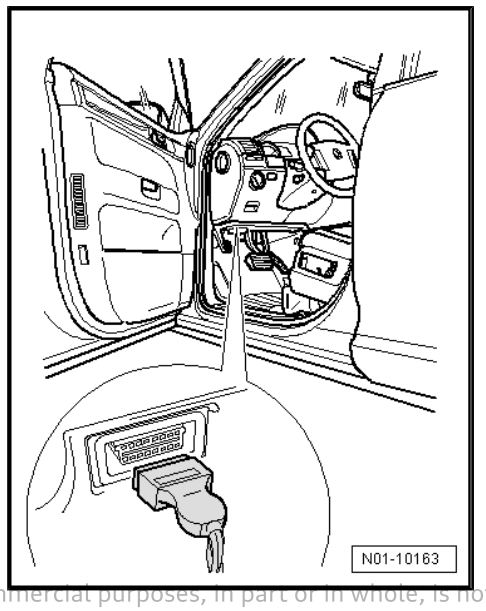
The screen for the visual inspection must be shown with prompts to plug in the diagnostic connector -arrow A- and to check exhaust emissions warning lamp -arrow B-.




– Follow instructions shown on display -arrow A- and -arrow B-.
– Switch off ignition.




– Plug connector of diagnosis cable into EOBD connection.

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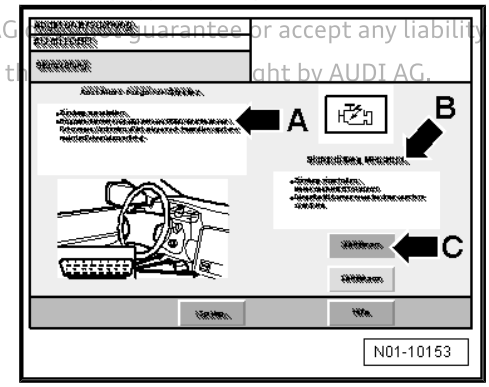
### Visual check of exhaust emissions warning lamp with engine off

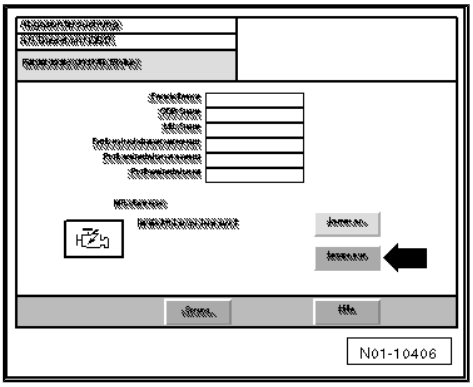
– Switch on ignition.
– Check exhaust emissions warning lamp.
– If lamp lights up, press button for “Lamp on” -arrow C-.

**Note**

*The exhaust emissions test is failed if the exhaust emissions warning lamp does not light up during the visual check.*



### Visual check of exhaust emissions warning lamp with engine on




– Start engine and confirm that it is running by selecting “Yes” on display.

– Check exhaust emissions warning lamp; it must not light up or flash.

– Insert emission probe into exhaust pipe.

**Note**

*Do not continue the exhaust emissions test until the test probe is in the exhaust pipe.*

The system will automatically switch over to a test readiness check.

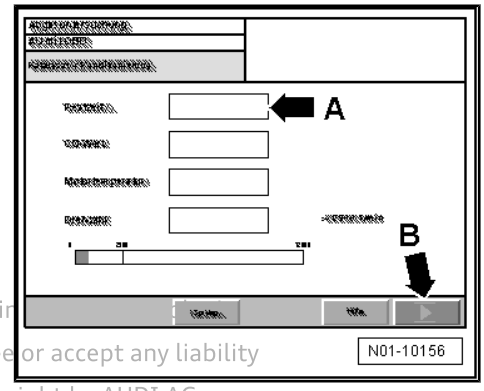
This checks that all test readiness checks supported by the control unit have been carried out.

– Confirm status of exhaust emissions warning lamp -arrow-.

**Note**

- *If all the display values are set to zero, a control probe test will not be performed.*
- *If not all the display values are set to zero, a control probe test will be performed in a later step.*

### Catalytic converter temperature conditioning




The system will automatically switch over to the warm-up phase of the catalytic converter.

– Follow instructions shown on display.

The measurement starts when the engine has reached the required speed.

– Keep engine speed within required range.

The remaining time for carrying out the warm-up phase will be shown -arrow A-.

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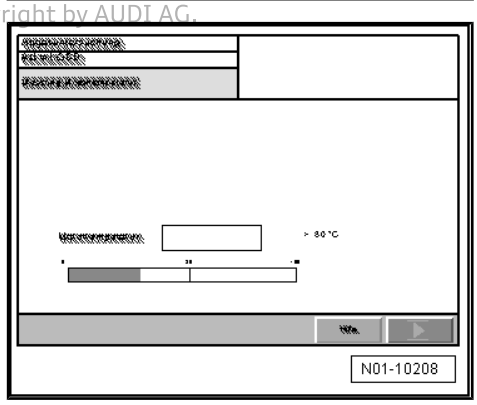
### Warm-up period




The system will automatically switch over to the screen for measuring the engine temperature.

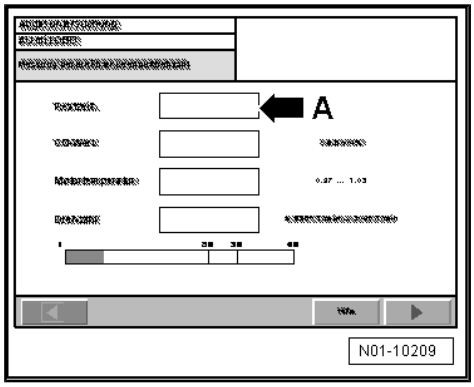
– Follow instructions shown on display.

**Note**

*This screen is only shown if the engine temperature has not yet reached 80 degrees Celsius.*

– Bring engine up to required temperature.

### Measurement at increased idling speed




The system will automatically switch over to the screen for measuring at increased idling speed.

– Follow instructions shown on display.

The measurement starts when the engine has reached the required speed.

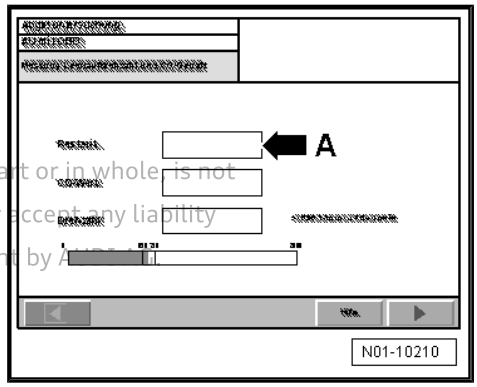
**Note**

- *You can skip the measurement by pressing the ▶ button (the emissions test will be failed).*
- *You can reset the test values with the ← button and repeat the test.*

– Keep engine speed within required range.

The remaining time for carrying out the measurement will be shown -arrow A-.

### Measuring idling speed and CO content




The system will automatically switch over to the screen for idling speed and CO content.

The measurement starts when the engine has reached the required speed.

The remaining time for carrying out the measurement will be shown -arrow A-.

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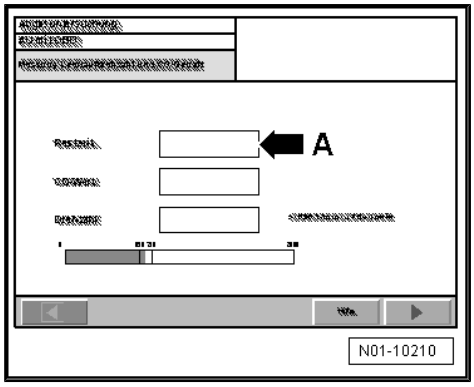
### Control probe test




**Note**

*The control probe test cannot be carried out unless all values displayed from the test readiness check are NOT set to zero.*

The system will automatically switch over to the screen for the control probe test.

**Note**

*The control probe test is carried out individually for each Lambda probe.*

The measurement starts when the engine has reached the required speed.

– Keep engine speed within required range.

The remaining time for carrying out the measurement will be shown -arrow A-.

### Evaluation

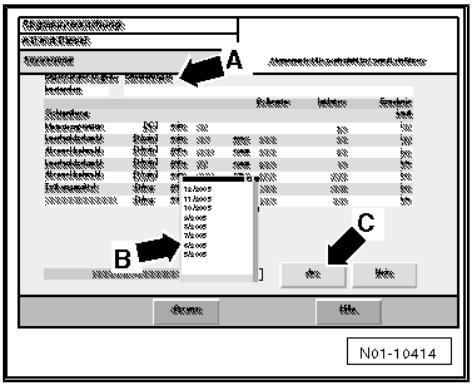
Once the exhaust emissions test is completed, the test log is displayed on the screen.

The result of the test will be shown.

You can enter remarks on the exhaust emissions test here -arrow A-. These will be added to the test log.

– If emissions test is passed, select date and “Emissions test seal granted” from drop-down menu -arrow B-.

– Confirm with “Yes” -arrow C-.




### Printing

Following confirmation, two test certificates will be printed automatically.

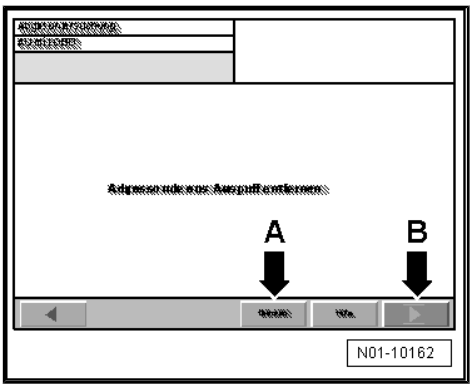
– If additional certificates are required, press button for “Print” -arrow A-.

– Follow instructions shown on display.

– Remove emission probe from exhaust pipe.

– Then press ▶ button -arrow B-.

The exhaust emissions test is completed; a new test can now be performed.



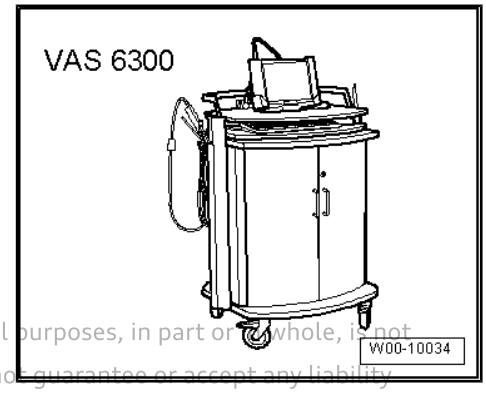

## 4.2 Diesel engines: performing exhaust emissions test

**Note**

- *The following description refers to vehicles equipped with on-board diagnosis (OBD).*
- *The OBD monitors all components and (sub)systems which affect the exhaust gas quality.*

### Special tools and workshop equipment required

- Emissions test station - VAS 6300-

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- Adapter wire, OBD communication - VAS 5052/16-1-

**Note**

- *In order for the exhaust emissions test to be carried out, all components of the emissions test station - VAS 6300- must be properly plugged in and connected to one another as specified in the operating instructions.*
- *All the required steps are displayed on the emissions test station - VAS 6300- .*

**Test requirements**

- All test requirements and data for the exhaust emissions test are stated on the exhaust emissions test data sheet for the required engine.
- If the specifications for the exhaust emissions test will be scanned in using a bar code, the data sheet must be available as a printout.
- Automatic gearbox: selector lever in position “P” or “N”
- Manual gearbox: gear lever in neutral
- Handbrake applied

– Follow instructions shown on display.

**Start screen**

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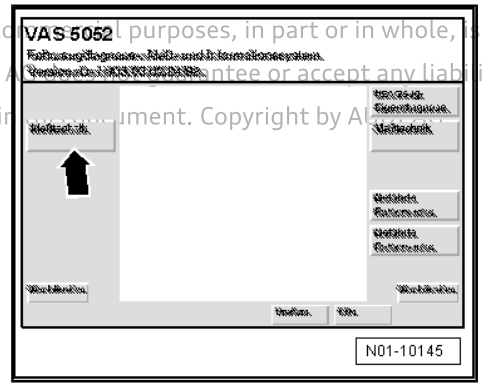
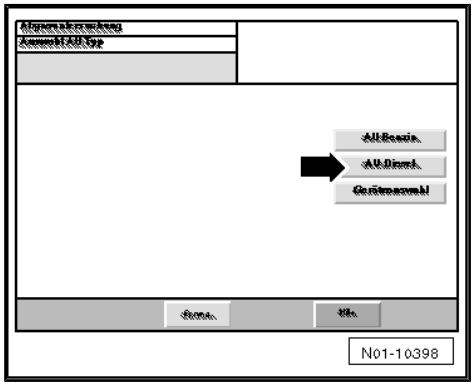
– Select “Emissions test” button -arrow-.

An overview of exhaust emissions test types will appear.

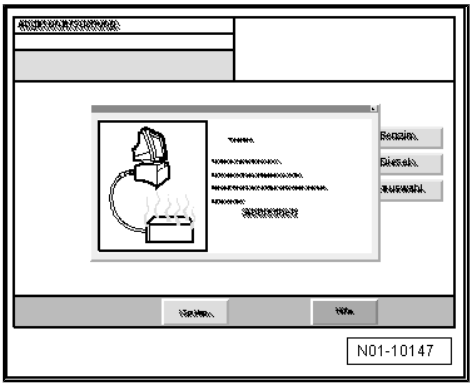



– Select “Emissions test, diesel” -arrow-.

A display for the warm-up period will be shown.



– Continue exhaust emissions test according to the instructions on the display.

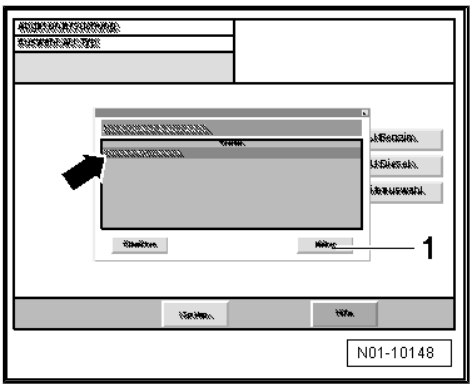



– When the options for the exhaust emissions test specifications are shown, select the option required -arrow-:

♦ Either “Standard specifications” (for an initial exhaust emissions test)

♦ Or “Last vehicle” (to repeat a previous exhaust emissions test)

– Confirm Next -item 1- on display.




### Entering vehicle data

The input menu for vehicle data will be shown.

– Enter the following data from the registration document (part 1):

♦ -1- Vehicle manufacturer, e.g. Audi

♦ -2- Vehicle model, e.g. A6 / 4G

♦ -3- Code for 14.1, e.g. 0572

♦ -4- Code for 2.1, e.g. 0588

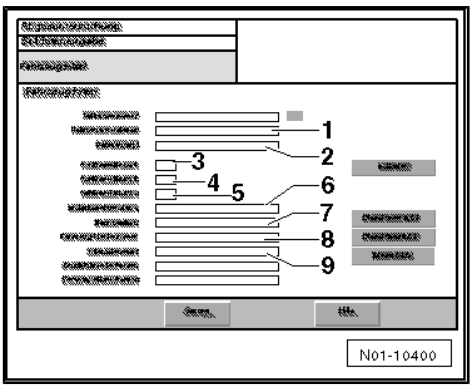
♦ -5- Code for 2.2, e.g. 846

♦ -6- Engine code: e.g. CHVA

♦ -7- Number plate: e.g. IN-MV 1234

♦ -8- Vehicle identification number, e.g. WAUZZZ4GZAN001234

– Enter mileage (km), e.g. 33350, at -item 9-.




**Note**

♦ *Additional functions can be selected using the Go to button.*

♦ *The Go to button can be used to cancel the test.*

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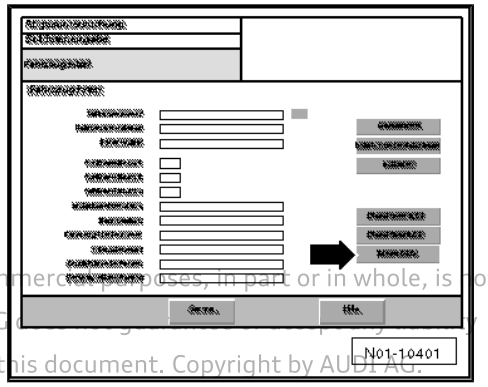
– Select “Diesel OBD” -arrow-.




**Entering exhaust emissions test specifications**

There are various ways of entering the specifications:

- 1. Manually
- 2. By scanning the bar code from the emissions test data sheet
- 3. Via the ELSA web service

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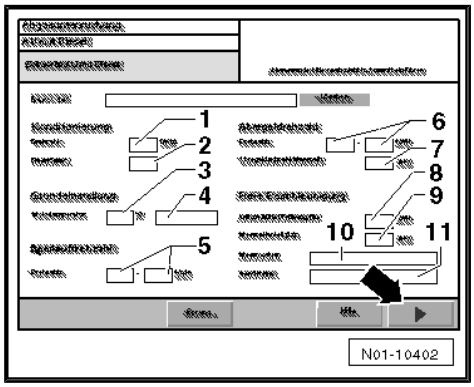
**Note**

- *To use the ELSA web service, the vehicle diagnostic tester being used to perform the exhaust emissions test must be integrated in the workshop network.*
- *When using the ELSA web service, the vehicle specifications are entered on the corresponding screen automatically via the network.*

Entering exhaust emissions test specifications manually

**Note**

*Refer to ⇒ Data sheets for exhaust emissions test (for required engine) for all test requirements and data for the exhaust emissions test.*




– Follow instructions on display to enter data manually.
– Enter data listed on emissions test data sheet under “Test values for exhaust emissions test” on display in following order:

1 - Engine speed for temperature conditioning
2 - Number of times engine revved up for temperature conditioning
3 - Engine oil temperature (minimum value)
4 - Select method for measuring engine oil temperature
5 - Idling speed
6 - Governed speed
7 - Governed speed measuring time (to nearest second)
8 - Turbidity value (arithmetic mean)
9 - Select probe type (probe number)
10 - Select measurement mode
11 - Time required for measurement

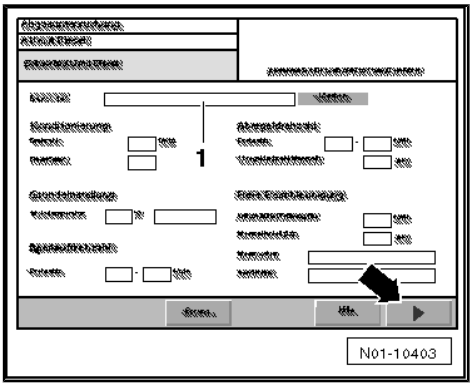
– Once you have entered all data correctly, confirm your entry with ↵ button -arrow-.

Entering exhaust emissions test specifications with a bar code

– If exhaust emissions test specifications are available as a bar code, use scanner pen to scan bar code on data sheet.

All required data will be shown on display -1-.

– Press ⇨ button -arrow- to continue procedure.



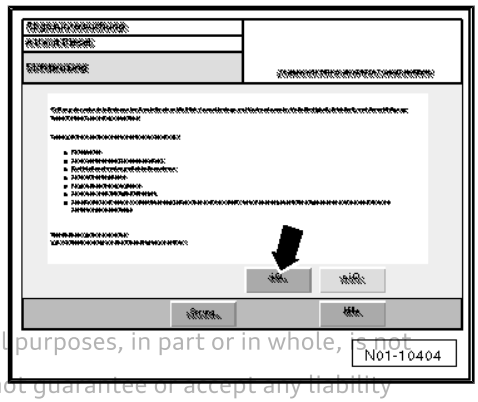

### Visual inspection

– Follow instructions shown on display.

– Inspect all components relevant to exhaust emissions.

– Check that all components of exhaust system are fitted, complete and free of leaks and damage.

– If results of inspection are OK, press button for “OK” -arrow-.




**Note**

*Pressing the button for “Not OK” will start a test.*

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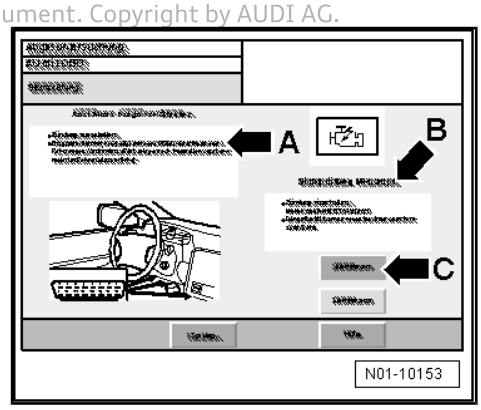
### Plugging in diagnostic connector

• Ignition is switched off.

The screen for the visual inspection must be shown with prompts to plug in the diagnostic connector -arrow A- and to check exhaust emissions warning lamp -arrow B-.

– Follow instructions shown on display.

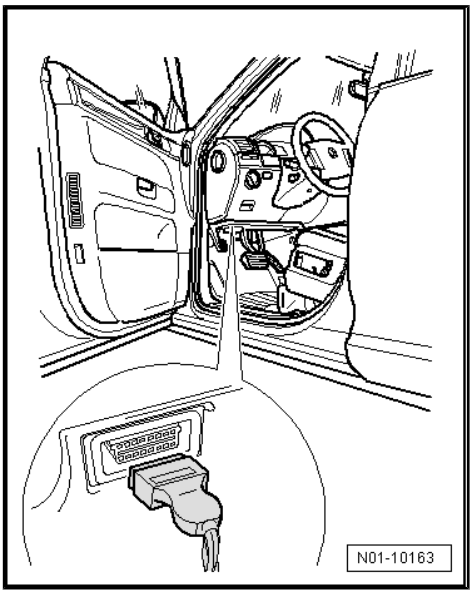
– Plug connector of diagnosis cable into EOBD connection.



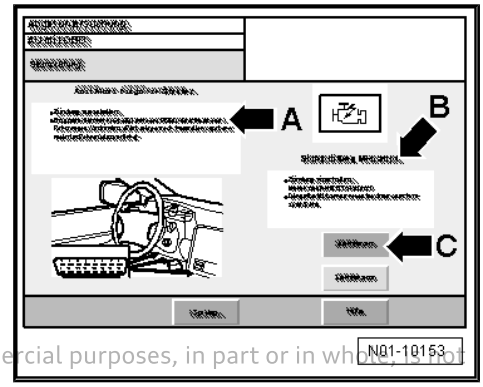

### Visual check of exhaust emissions warning lamp with engine off

– Switch on ignition.

– Check exhaust emissions warning lamp.



– If lamp lights up, press button for “Lamp on” -arrow C-.




**Note**

*The exhaust emissions test is failed if the exhaust emissions warning lamp does not light up during the visual check.*

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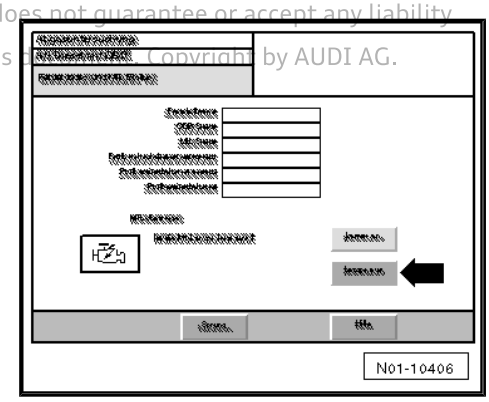
### Visual check of exhaust emissions warning lamp with engine on

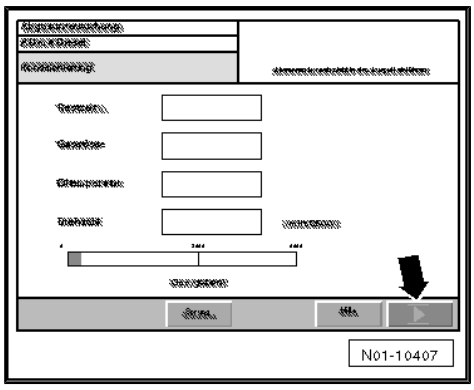



– Start engine and confirm that it is running by selecting “Yes” on display.
– Check exhaust emissions warning lamp; it must not light up or flash.
– Confirm status of exhaust emissions warning lamp -arrow-.

The system will automatically switch over to a test readiness check.

This checks that all test readiness checks supported by the control unit have been carried out.

### Temperature conditioning




In the temperature conditioning phase, the engine and any emission control systems are brought up to operating temperature by revving up the engine several times; this makes them ready for the exhaust emissions test.

– Follow instructions shown on display.
– Keep engine speed within required range.

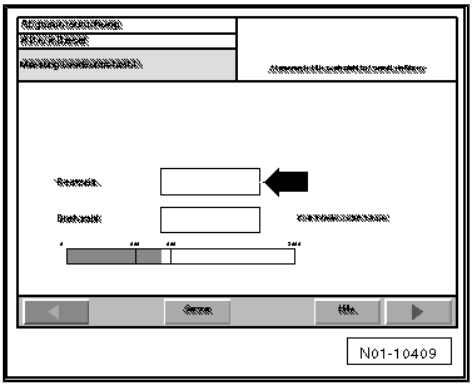
If you are certain that no temperature conditioning is necessary, press → button -arrow- to proceed to next measurement.

### Reading out the engine temperature

The engine temperature is read out from the engine control unit via the diagnostic connector.

After the required engine temperature has been reached, the system will automatically switch over to the screen for measuring the idling speed.

### Measuring the idling speed




– Follow instructions shown on display.

The measurement starts when the engine has reached the required speed.

**Note**

- *Do not insert emission probe into exhaust pipe yet.*
- *You can skip the measurement by pressing the → button (the emissions test will be failed).*
- *The ← button can be used to repeat the test.*

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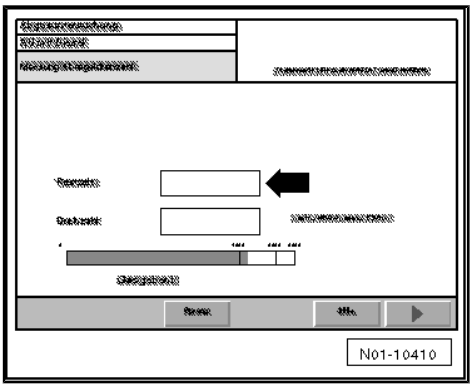
– Keep engine speed within required range.

The remaining time for carrying out the measurement will be shown -arrow-.

### Measuring the governed speed




The system will automatically switch over to the screen for measuring the governed speed.

The measurement starts when the engine has reached the required speed.

– Press the accelerator pedal down without delay and hold until measurement has been completed.

**Note**

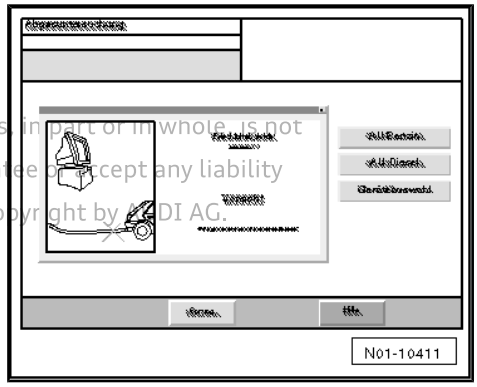
- *If the rev limiter is activated, deactivate it before performing the exhaust emissions test:*
- *Switch on the ignition and then press and hold the ESP button until the corresponding symbol flashes in the instrument cluster.*

The remaining time for carrying out the measurement will be shown -arrow-.

**Note**

- *Do not insert emission probe into exhaust pipe yet.*
- *You can skip the measurement by pressing the → button (the emissions test will be failed).*

### Air quality check




An air quality check is started before the free acceleration procedure is performed. The emission probe must NOT be in the exhaust pipe at this stage. Otherwise, measurement errors or error messages may occur during the subsequent measurement procedures.

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– After air quality check is completed, insert emission probe in exhaust pipe.

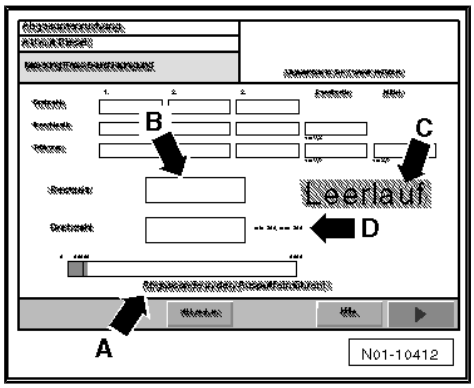
### Free acceleration

The system will automatically switch over to the screen for the free acceleration procedure.

In the free acceleration procedure, the engine is accelerated as quickly as possible (without load) until the governed speed is reached.

The free acceleration test consists of at least four individual accelerations.

### Free acceleration - phase 1




– Follow instructions shown on display -arrow A- and -arrow C-.

– Keep idling speed in specified speed range -arrow D-.

The remaining time for carrying out the measurement will be shown -arrow B-.

**Note**

- *The emission probe must be in the exhaust pipe.*
- *If the engine speed is not within the specified speed range, the measurement procedure is re-started.*
- *You can skip the measurement by pressing the → button (the emissions test will be failed).*

### Free acceleration - phase 2

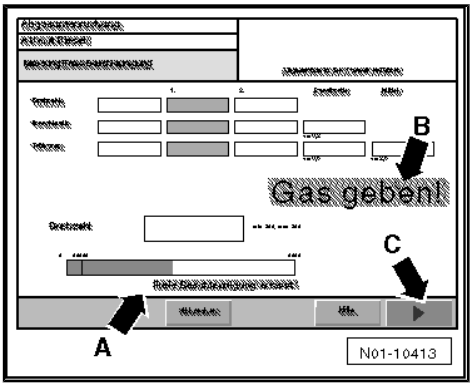
– Follow instructions shown on display -arrow B-.

– Press accelerator pedal down fully when prompted to do so and hold it until display prompts you to let engine idle.

### Free acceleration - phase 3

– Take your foot off accelerator pedal as soon as display shows prompt for engine idling speed -arrow B-, and let engine idle.

The result of the measurement procedure and information about the most recently performed free acceleration procedure will appear on the display -arrow A-. If the measured values are not OK, you will be informed at this stage about the reasons why the free acceleration test was failed.




**Note**

- *If the field is white, the measured value is within the tolerated range.*
- *If the field is red, the measured value is outside the tolerated range.*
- *If the field is yellow, the measured value is outside the tolerated range but is subject to the judgement of the person performing the test.*

### Further individual accelerations

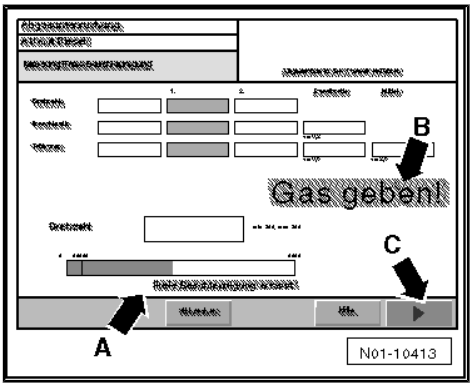
The next individual acceleration is now performed, beginning with phase 1 of the free acceleration procedure.

It is possible to perform as many free acceleration procedures as desired until:

- Three free acceleration procedures in a row have been passed, and the acceleration range is OK.
- All values are OK with the exception of the acceleration range, and the → button -arrow C- has been pressed to continue the test procedure (in this case, the person performing the test judges whether or not the value is OK).
- The values are not OK, and the → button -arrow C- has been pressed to end/skip the measurement.

If all measured values are OK after the engine has been revved up three times (i.e. all fields are white), the exhaust emissions test has been passed.

If all measured values are OK after the engine has been revved up three times, the exhaust emissions test has been passed.




### Evaluation

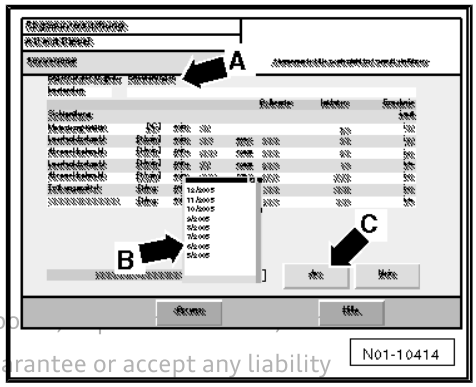
Once the exhaust emissions test is completed, the test log is displayed on the screen.

The result of the test will be shown.

You can enter remarks on the exhaust emissions test here -arrow A-. These will be added to the test log.

– If emissions test has been passed, select date and “Emissions test seal granted” from drop-down menu -arrow B-.

– Confirm with “Yes” -arrow C-.

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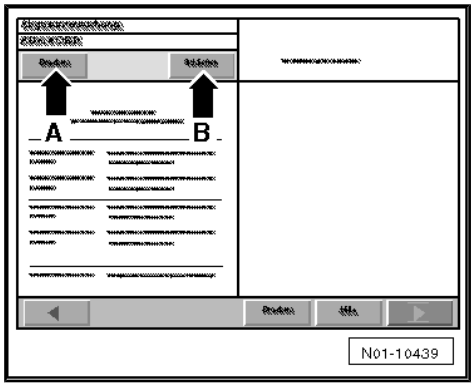
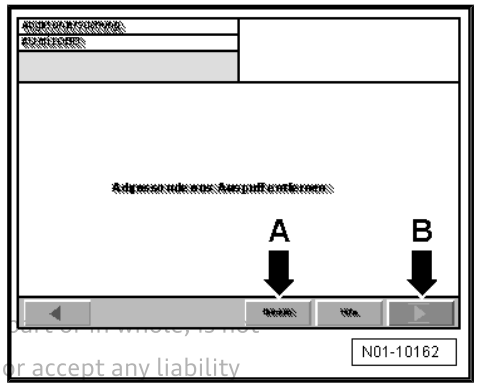
The emissions test log appears on the screen and can be printed out as often as desired using the “Print” button -arrow A- in the “Print preview” menu.




– You can close the “Print preview” menu by using the “Close” button -arrow B-.
– Follow instructions shown on display.
– Remove emission probe from exhaust pipe.

– Then press ⏎ button -arrow B-.




The exhaust emissions test is completed; a new test can now be performed.

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