Maintenance
Tiguan 2016 ➤
Tiguan RUS 2017 ➤

Edition 01.2019

Maintenance

Heading

1. Engine list
2. Service work
3. General information
4. Descriptions of work:
5. Exhaust emissions test
6. Glossary
7. ---Change history---

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

Contents

1 Engine list

(VIGG001247; Edition 01.2019)

Note

To ease the search for an engine, the engine codes are listed in alphabetical order.

Petrol engines

Engines ⇒	Petrol engine	Petrol engine	Petrol engine	Petrol engine
Displacement l	2.0	1.4	1.4	1.4
Engine code	**CHHB**	**CZCA**	**CZDA**	**CZEA**
No. of cylinders/valves per cylinder	4/4	4/4	4/4	4/4
Power kW at rpm	162/4200-6000	92/5000-6000	110/5000-6000	110/5000
Torque Nm at rpm	350/1500-4000	200/1400-4000	250/1500-3500	250/1500-3500
Bore ∅ mm	82.5	74.5	74.5	74.5
Stroke mm	92.8	80.0	80.0	80.0
Compression ratio	9.6	10.5	10.0	10.0
Injection/ignition	Motronic SIMOS 12.1 TSI turbocharger	Motronic MED17.5 TSI turbocharger	Motronic MED17.5.21 TSI turbocharger	Motronic MED17.5.21 TSI Turbocharger
RON unleaded, at least	95	95	95 (in exceptional circumstances at least 91 RON, but with reduced output)	95
Petrol engine particulate filter	no	no	no	no
Camshaft drive	Chain	Toothed belt	Toothed belt	Toothed belt

Engines ⇒	Petrol engine	Petrol engine	Petrol engine	Petrol engine
Displacement l	2.0	1.5	1.5	1.4
Engine code	**CZPA**	**DADA**	**DACB**	**DJVA**
No. of cylinders/valves per cylinder	4/4	4/4	4/4	4/4
Power kW at rpm	132/3900-6000	110/5000	96/5000	110/5000
Torque Nm at rpm	320/1400-3940	250/1500-3500	200/1400-4000	250/1500-4000
Bore ∅ mm	82.5	74.5	74.5	74.5
Stroke mm	92.8	85.7	85.7	80.0
Compression ratio	11.65	10.5	12.5	10.5
Injection/ignition	Motronic SIMOS TSI turbocharger	Bosch Motronic MG 1 TSI turbocharger	Bosch Motronic MG 1 TSI turbocharger	Motronic ME 17 TSI turbocharger

Engines ⇒	Petrol engine	Petrol engine	Petrol engine	Petrol engine
Displacement l	2.0	1.5	1.5	1.4
Engine code	**CZPA**	**DADA**	**DACB**	**DJVA**
RON unleaded, at least	95	95	95	95 unleaded (in exceptional circumstances min. 91 RON, however with reduced performance)
Petrol engine particulate filter	no	yes	yes	yes
Camshaft drive	Chain	Toothed belt	Toothed belt	Toothed belt

Engines ⇒	Petrol engine	Petrol engine
Displacement l	2.0	2.0
Engine code	**DKTA**	**DKZA**
No. of cylinders/valves per cylinder	4/4	4/4
Power kW at rpm	169/5000-6250	140/4200-6000
Torque Nm at rpm	350/1500-4300	320/1500-4100
Bore ∅ mm	82.5	82.5
Stroke mm	92.8	92.8
Compression ratio	9.6	11.65
Injection/ignition	Motronic SIMOS TSI turbocharger	Motronic SIMOS TSI turbocharger
RON unleaded, at least	95	95
Petrol engine particulate filter	yes	yes
Camshaft drive	Chain	Chain

Diesel engines

Engines ⇒	Diesel engine	Diesel engine	Diesel engine	Diesel engine
Displacement l	2.0	2.0	2.0	2.0
Engine code	**CRFC**	**CRFD**	**CRGA**	**CRGB**
No. of cylinders/valves per cylinder	4/4	4/4	4/4	4/4
Power kW at rpm	105/4000	105/3500-4000	130/3000-4000	130/3600-4000
Torque Nm at rpm	320/1750-3000	340/1750-3000	350/1750-3000	380/1750-3500
Bore ∅ mm	81.0	81.0	81.0	81.0
Stroke mm	95.5	95.5	95.5	95.5
Compression ratio	16.2	16.2	16.2	16.2
Injection/ignition	TDI common rail	TDI common rail	TDI common rail	TDI common rail
Diesel particle filters	no PMS[1)]	no PMS[1)]	no PMS[1)]	no PMS[1)]
Camshaft drive	Toothed belt	Toothed belt	Toothed belt	Toothed belt

Vehicles with factory-fitted diesel particulate filter can be identified by PR no. 7MM on vehicle data sticker.

1) PMS: particulate reduction system

Engines ⇒	Diesel engine	Diesel engine	Diesel engine	Diesel engine
Displace-ment l	2.0	2.0	2.0	2.0
Engine code	**CUAA**	**CYKB**	**CYKC**	**DBGA**
No. of cylinders/valves per cylinder	4/4	4/4	4/4	4/4
Power kW at rpm	176/4000	81/3100-4500	81/3100-4500	110/3500-4000
Torque Nm at rpm	500/1750-2500	250/1500-3000	280/1500-2750	320/1750-3500
Bore ∅ mm	81.0	81.0	81.0	81.0
Stroke mm	95.5	95.5	95.5	95.5
Compression ratio	15.5	16.2	16.2	16.2
Injection/ignition	TDI - bi-turbo common rail	TDI common rail	TDI common rail	TDI common rail
Diesel particle filters	yes	Yes	Yes	Yes
Camshaft drive	Toothed belt	Toothed belt	Toothed belt	Toothed belt

Vehicles with factory-fitted diesel particulate filter can be identified by PR no. 7MM on vehicle data sticker.

Engines ⇒	Diesel engine	Diesel engine	Diesel engine	Diesel engine
Displace-ment l	2.0	2.0	2.0	2.0
Engine code	**DBGC**	**DCYA**	**DCYB**	**DDMA**
No. of cylinders/valves per cylinder	4/4	4/4	4/4	4/4
Power kW at rpm	110/3500-4000	110/3500-4000	81/3500-4000	140/3500-4000
Torque Nm at rpm	340/1750-3500	340/1750-3000	280/1750-3000	400/1900-3300
Bore ∅ mm	81.0	81.0	81.0	91.0
Stroke mm	95.5	95.5	95.5	95.5
Compression ratio	16.2	16.2	16.2	16.2
Injection/ignition	TDI common rail	TDI common rail	TDI common rail	TDI common rail
Diesel particle filters	Yes	Yes	Yes	Yes
Camshaft drive	Toothed belt	Toothed belt	Toothed belt	Toothed belt

Vehicles with factory-fitted diesel particulate filter can be identified by PR no. 7MM on vehicle data sticker.

Engines ⇒	Diesel engine	Diesel engine	Diesel engine	Diesel engine
Displace-ment l	2.0	2.0	2.0	2.0
Engine code	**DFGA**	**DFGB**	**DFGC**	**DFHA**
No. of cylinders/valves per cylinder	4/4	4/4	4/4	4/4
Power kW at rpm	110/3500-4000	81/2750-4200	85/2750-4200	140/3500-4000
Torque Nm at rpm	340/1750-3000	280/1750-2750	320/1750-2750	400/1750-3250

Engines ⇒	Diesel engine	Diesel engine	Diesel engine	Diesel engine
Displace-ment l	2.0	2.0	2.0	2.0
Engine code	**DFGA**	**DFGB**	**DFGC**	**DFHA**
Bore ∅ mm	91.0	81.0	81.0	81.0
Stroke mm	95.5	95.5	95.5	95.5
Compression ratio	16.2	16.0	16.0	15.5
Injection/ignition	TDI common rail	TDI common rail	TDI common rail	TDI common rail
Diesel particle filters	Yes	Yes	Yes	Yes
Camshaft drive	Toothed belt	Toothed belt	Toothed belt	Toothed belt

Vehicles with factory-fitted diesel particulate filter can be identified by PR no. 7MM on vehicle data sticker.

Engines ⇒	Diesel engine
Displacement l	1.6
Engine code	**DGDB**
No. of cylinders/valves per cylinder	4/4
Power kW at rpm	85/3250-4000
Torque Nm at rpm	280/1500-3000
Bore ∅ mm	79.5
Stroke mm	80.5
Compression ratio	16.2
Injection/ignition	TDI common rail
Diesel particle filters	yes
Camshaft drive	Toothed belt

Vehicles with factory-fitted diesel particulate filter can be identified by PR no. 7MM on vehicle data sticker.

2 Service work

2.1 Information about flexible or fixed service

2.1.1 Service identification

– Referring to vehicle data sticker, check if vehicle is equipped with following PR numbers:

The PR number is decisive for the service intervals ⇒ page 8 .

Vehicle ID with PR number

Model year	PR number	Service
2016 ►	QI6	Flexible service
2016 ►	QI1, QI2, QI3, QI4, QI7	Fixed service

In the past, the PR numbers QG0, QG1 and QG2 determined the type of service.

With immediate effect, these PR numbers only denote whether an engine oil level sensor is installed or not and no longer have an influence on the oil change interval.

2.1.2 Flexible service

The flexible service enables long service intervals, depending on individual driving style and the conditions under which the vehicle is used.

Note

For the flexible service a special LongLife engine oil is required ⇒ page 8 .

Vehicles with production control number “QI6” are set up for flexible service at the factory. This means that these vehicles have a flexible service interval display and are fitted with the following components:

- Flexible service interval display in dash panel insert
- Engine oil level sensor
- Brake pad wear indicator (if fitted)

For vehicles with flexible service the service interval is determined by the control unit and is indicated on service interval display (SID) ⇒ page 6 .

Therefore the service intervals are flexible.

2.1.3 Fixed service

For vehicles with a fixed service, fixed services are calculated. This means that the mileage or time values are already set by Volkswagen. For normal operating conditions achieving these service intervals is technically assured.

Therefore the service intervals are fixed.

For vehicles

- which have not been delivered with extended servicing intervals (ESI) (PR numbers “QI1”, “QI2”, “QI3”, “QI4”, “QI7”),
- or for which the extended servicing interval (ESI) was stopped
- or for which no LongLife engine oil was used

the fixed service applies.

These non-flexible service intervals apply to all types of service including an engine oil change.

Therefore, these vehicles have a fixed service interval display ⇒ page 6 and for maintenance the fixed service intervals (rigid service intervals) apply. These vehicles are fitted with the following components:

- Fixed service interval display in dash panel insert
- Engine oil level sensor
- Brake pad wear indicator (if fitted)

2.1.4 Service interval display

Introduction of extended servicing intervals (ESI)

Ask your importer if the extended servicing interval (ESI) is available for your country.

Flexible service interval display (only vehicles with a flexible service)

Calculation of service intervals:

- The service intervals on vehicles with a flexible service is calculated. Input values such as, distance travelled, fuel consumption, oil temperature and loading on diesel particulate filter are evaluated by the control unit.
- The result of the evaluation is a value for the deterioration of the oil due to thermal loading.
- The oil deterioration is the deciding factor concerning the distance that can still be driven to the next service.

Note

For vehicles with a flexible service but which are serviced according to fixed service intervals, the service interval display must be recoded to "non-flexible" *⇒ page 121* *.*

Fixed service interval display (only vehicles with a fixed service)

Calculation of service intervals:

- The service interval for vehicles with a fixed service is calculated in fixed service intervals. This means that the mileage or time values have been previously determined and specified by Volkswagen.
- For normal operating conditions achieving these service intervals is technically assured.

Service type for service due

- On vehicles with text messages on dash panel insert, the message "Service now" and a "spanner symbol" are displayed.

The service information disappears after a few seconds or if engine is running.

Service initial warning

If a service is due, "Service initial warning" appears on dash panel insert display when ignition is switched on.

- On vehicles with text messages on dash panel insert display the following appears: "Service in --- km or --- days".

The service information disappears after a few seconds or if engine is running.

- The service initial warning is displayed 20 days before the next service is due.
- The remaining distance displayed is always rounded to the nearest 100 km or the remaining time rounded to full days.

Retrieving service information from Infotainment system

The current service information can always be read with ignition switched on, engine switched off and vehicle stationary.

– Switch on ignition.

– Switch on infotainment system.

– Press Infotainment button CAR.

– Press Setup function button.

– In the menu, scroll to the Service function button.

– Press Service function button.

The service information is displayed in Infotainment system.

2.2 Service tables

Note

- *The service tables apply in general with differences depending on the vehicle model and equipment level. There is no relation between individual vehicles and identified vehicle identification numbers.*
- *Vehicle-specific time and mileage dependent additional work can only be found in the ⇒ maintenance tables .*

2.2.1 Delivery inspection

Scope of work
– Battery: check battery terminal clamps for secure seating.
– Transportation mode: switch off.
– Service interval display: reset.
– Status of battery: read.
– Event memories of all systems: read.
– Radio/radio navigation system: store local radio stations to station buttons.
– Time and date: set.
– All switches, electrical consumers, sockets, gauges and other controls: check function.
– Front passenger airbag: check key switch and ON/OFF function.
– Window regulators: initialise (activate).
– Vehicle interior: check for cleanliness.
– Protective seat covers and protective carpet film: remove.
– All equipment which has been packed inside vehicle (if part of original equipment): install.
– Two safety hammers: install according to installation instructions.
– Edge protection on doors (plastic film): remove.
– Vehicle exterior: check for cleanliness.
– Tyre pressure: check.
– Wheel bolts: tighten to specified torque.
– Wiper blade protection: remove.
– Tyre Pressure Loss Indicator: calibrate after tyre pressure has been corrected.
– Vehicle: inspect for leaks and damage from above and below.
– Brake system: inspect for leaks and damage.
– Transportation devices: remove (if fitted).
– Vehicle underside (underbody): inspect for damage.
– Windscreen wash/wipe system and headlight washer system: check function and settings.
– Engine oil level: check; observe oil specification when topping up.
– Coolant level: check.
– Brake fluid: renew, if vehicle is older than 6 months.
– Brake fluid level: check that it is at maximum.
– Keys: check number, operation and cleanliness.
– Service Schedule / Digital Service Schedule: enter pre-delivery inspection.
– Owner's literature: check that literature is complete and prepare for delivery to customer.
– Carry out road test.
– Warning stickers: check that they are present.

Scope of work
– Charging cable: check that cable is present and check its condition. • Applies only to BEV and PHEV
– High-voltage battery: charging • Applies only to BEV and PHEV

2.2.2 Scopes of service

Note

- *Depending on the time elapsed and the mileage since the last service, service events may be combined (inspection with oil change).*
- *An extended scope of inspection is carried out in combination with an inspection.*
- *The scopes of service work are generally applicable and differ according to vehicle model and equipment level. There is no relation between individual vehicles and identified vehicle identification numbers.*
- *Scopes of service work for individual vehicles can be found only in the maintenance tables. ⇒ Maintenance tables*

Oil change service	Inspection	Extended scope of inspection (applies only in addition to regular inspection)	Scope of work
Vehicle interior			
		X	– Interior lights: check function of headliner, luggage compartment and glove compartment lights.
	X		– Horn: check function.
	X		– Charging cable: check that cable is present and check its condition. • Applies only to BEV
	X		– High-voltage battery: check charge level, charge as necessary. • Applies only to BEV
Vehicle exterior			
	X		– Headlight washer system: check function.
	X		– Front lighting: check function.
	X		– Static cornering light (cornering light): check function.
	X		– Automatic headlight control: check function.
	X		– Rear lighting: check function.

Oil change service	Inspection	Extended scope of inspection (applies only in addition to regular inspection)	Scope of work
	X		– Windscreen wash/wipe system: check function and spray jet settings and adjust if necessary; check for damage.
	X		– Wiper blades: move blades to service position and check for damage; check park position.
		X	– Interior and exterior of body: inspect for corrosion.
		X	– Windscreen: inspect for damage.
	X		– High-voltage charging socket in radiator grille: inspect for soiling and damage. • Applies only to PHEV
	X		– High-voltage charging socket in radiator grille and tank cap: inspect for soiling and damage. • Applies only to BEV
X			– Reducing agent (AdBlue®): replenish only if customer requests. • If part of equipment
		X	– Bonnet catch hook: grease. • Only applies for: CC, Touran 1T, Golf Cabriolet, EOS, Phaeton, Golf 5K1, Golf Plus, Passat 36, Tiguan 5N, Sharan 7N, Touareg 7P
		X	– Door arrester: grease. • Applies only to Touran 1T, EOS, Golf Cabriolet, CC and Phaeton
		X	– Convertible top: clean and lubricate locking element. • Applies only to Golf Cabriolet and Beetle Cabriolet
		X	– Convertible top: perform water test. • Applies only to Golf Cabriolet and Beetle Cabriolet
		X	– Sunroof: check function, clean guide rails and lubricate with special grease.
Underside of vehicle			
X			– Drain engine oil and renew oil filter.
	X		– Engine and components in engine compartment: inspect for leaks and damage (from below).
	X		– Gearbox, final drive and drive shaft boots: inspect for leaks and damage.
X			– Brakes, front and rear: check thickness of pads/linings and condition of brake discs.
		X	– Poly V-belt: check condition.
		X	– Swivel joints, axle mountings, coupling rod bearings and anti-roll bar rubber mounting: inspect for damage.
		X	– Track rods: checking clearance, attachment and boots

Oil change service	Inspection	Extended scope of inspection (applies only in addition to regular inspection)	Scope of work
	X		– Brake system and shock absorbers: inspecting for leaks and damage
		X	– Exhaust system: inspect for leaks, firm seating and damage.
		X	– Underbody: inspect for damage to undercoating, underbody cladding, routing of lines, plugs.
		X	– Front and rear coil springs and rubber buffers: inspect for damage.
X			– Warning stickers: check that they are present. • Applies only to high-voltage vehicles
	X		– Removable towing bracket: check. • If part of equipment
		X	– Air suspension: check for leaks and damage. • Applies only to Touareg and Phaeton
Tyres			
	X		– Tyre pressure: check.
	X		– Tyre mobility set: check for damage and use.
	X		– Tyres: check condition and wear pattern of tyre; enter tread depth.
Engine compartment			
X			– Engine oil: replenish.
	X		– Oil level: check.
	X		– Battery and, if fitted, second battery: check with battery tester.
	X		– Engine and components in engine compartment: inspect for leaks and damage (from above).
	X		– Brake fluid level (dependent upon brake pad/lining wear): checking
	X		– Cooling system: check frost protection and coolant level.
	X		– Window wash/wipe system: check anti-freeze protection; replenish washer fluid.
	X		– Hybrid components: inspect for damage to high-voltage components and wires. • Applies only to HEV and PHEV
	X		– High-voltage components and high-voltage cables: inspect for damage and correct routing and securing of lines. • Applies only to BEV
X			– Plenum chamber: check for soiling. • Applies only to up!
	X		– Plenum chamber: check for soiling. • Applicable for e-up! only

Oil change service	Inspection	Extended scope of inspection (applies only in addition to regular inspection)	Scope of work
Final checks			
X			– Service interval display: resetting
	X		– Headlight adjustment: check and adjust as necessary.
	X		– Tyre Pressure Loss Indicator: calibrate after tyre pressure has been corrected.
	X		– Carry out road test.
X			– High-voltage battery: charge. • Applies only to PHEV

2.2.3 Service intervals

Scope of work	Climate and traffic conditions usual for passenger vehicles operated on fuels compliant with EN 228 or EN 590	For operation with fuels that are »NOT« compliant with standards EN 228 ⇒ page 23 or EN 590 ⇒ page 24
Oil change service	---	QI1 every 5,000 km or 1 year (fixed) 1)
	---	QI2 every 7,500 km or 1 year (fixed) 1)
	---	QI3 every 10,000 km or 1 year (fixed) 1)
	QI4 every 15,000 km or 1 year (fixed) 1)	
	QI6 max. 30,000 km or 2 years (flexible) 1)	---
	QI7 every 10,000 mi or 1 year (fixed) 1)	---

1) Whichever occurs first.

Scope of work	Climate and traffic conditions usual for passenger vehicles operated on fuels compliant with EN 228 or EN 590	For operation with fuels that are »NOT« compliant with standards EN 228 ⇒ page 23 or EN 590 ⇒ page 24
Inspection	---	QI1 every 10,000 km or 1 year 1)
	---	QI2 every 15,000 km or 1 year 1)

Scope of work	Climate and traffic conditions usual for passenger vehicles operated on fuels compliant with EN 228 or EN 590	For operation with fuels that are »NOT« compliant with standards EN 228 ⇒ page 23 or EN 590 ⇒ page 24
	---	QI3 every 10,000 km or 1 year 1)
	QI4 30,000 km or 2 years then every 30,000 km or 1 year 1)	QI4 every 15,000 km or 1 year 1)
	QI6 30,000 km or 2 years then every 30,000 km or 1 year 1)	---
	QI7 Every 20,000 mi or 2 years 1)	---

1) Whichever occurs first.

Scope of work	Climate and traffic conditions usual for passenger vehicles operated on fuels compliant with EN 228 or EN 590	For operation with fuels that are »NOT« compliant with standards EN 228 ⇒ page 23 or EN 590 ⇒ page 24
Inspection with expanded scope • Applies only in conjunction with regular inspection	After 60,000 km or 3 years then every 60,000 km or 2 years 1)	After 30,000 km or 2 years or after 20,000 km or 2 years 1)

1) Whichever occurs first.

2.2.4 Air filter

Scope of work	Climate and traffic conditions usual for passenger vehicles	Countries with high levels of dust ⇒ page 25
Air filter: cleaning housing and renewing filter element • Applies only to Polo (except for 1.0 TSI and 1.0 manifold injection) and up! with manifold injection	Every 60,000 km or 4 years 1)	Every 30,000 km or 2 years 1)
Air filter: cleaning housing and renewing filter element	Every 90,000 km or 6 years 1)	Every 30,000 km or 2 years 1)

1) Whichever occurs first.

2.2.5 Dust and pollen filter

Scope of work	Climate and traffic conditions usual for passenger vehicles	Countries with high levels of dust ⇒ page 25
Dust and pollen filter (cabin filter): renew. • Applies only to Polo and up!	Every 30,000 km or 2 years 1)	Max. 1 year or 30,000 km 1)

Scope of work	Climate and traffic conditions usual for passenger vehicles	Countries with high levels of dust ⇒ page 25
Dust and pollen filter (cabin filter): renew.	Every 60,000 km or 2 years 1)	Max. 1 year or 30,000 km 1)

1) Whichever occurs first.

2.2.6 Panoramic sliding sunroof

Scope of work	Climate and traffic conditions usual for passenger vehicles	Countries with high levels of dust ⇒ page 25
Panoramic sliding sunroof • With colourless special lubricant: in countries with low dust levels, check only function and noise. In countries with high dust levels, the panorama sliding roof must continue to be cleaned and lubricated.	---	Max. 1 year or 15,000 km 1)
Panoramic sliding sunroof • If the lubricating paste is grey, clean and grease guide rails and clean wind deflector.	After 60,000 km or 3 years then every 60,000 km or 2 years 1)	Max. 1 year or 15,000 km 1)

1) Whichever occurs first.

2.2.7 Sliding sunroof drains at front and water drain valves at rear

Scope of work	Climate and traffic conditions usual for passenger vehicles	Countries with high levels of dust ⇒ page 25
Sliding sunroof drains at front: check for blockage, clean if necessary	Max. 2 years or 30,000 km 1)	Max. 1 year or 15,000 km 1)
Water drain valves at rear: check for blockage, clean if necessary		

1) Whichever occurs first.

2.2.8 Toothed belt

Scope of work	Climate and traffic conditions usual for passenger vehicles	Countries with high levels of dust ⇒ page 25
Toothed belt and camshaft drive tensioning roller: renew. • Applies only to TDI bi-turbo	Every 120,000 km	Every 120,000 km
Toothed belt and camshaft drive tensioning roller: renew. • Applies to all diesel engines with toothed belt	Every 210,000 km	Every 120,000 km
Toothed belt and camshaft drive tensioning roller: renew. • Applies to all petrol engines with toothed belt	---	Every 120,000 km

Scope of work	Climate and traffic conditions usual for passenger vehicles	Countries with high levels of dust ⇒ page 25
Toothed belt drive for coolant pump: renew. • Applies to all petrol engines with toothed belt for coolant pump	---	Every 120,000 km

1) Whichever occurs first.

2.2.9 Poly V-belt

Scope of work	Climate and traffic conditions usual for passenger vehicles	Countries with high levels of dust ⇒ page 25
Poly V-belt: renewing	---	Every 60,000 km

2.2.10 Diesel fuel filter

Scope of work	Diesel compliant with EN 590	Diesel not compliant with EN 590 ⇒ page 24
Diesel fuel filter: renewing • Applies only to Touareg	Every 60,000 km	Every 30,000 km
Diesel fuel filter: renewing	Every 90,000 km	Every 30,000 km

2.2.11 Spark plugs

Scope of work	Petrol engine compliant with EN 228	E100	Petrol engine not compliant with EN 228 ⇒ page 27
Spark plugs: renewing	Every 60,000 km or 4 years 1)	Every 40,000 km or 4 years 1)	Every 30,000 km / 20,000 km or 2 years 1) and every 15,000 km / 10,000 km or 1 year 1)
Spark plugs: renewing • Applies for all 6-cylinder engines	Every 90,000 km or 6 years 1)		

1) Whichever occurs first.

2.2.12 Brake fluid

Scope of work	Climate and traffic conditions usual for passenger vehicles	Only for markets outside Europe and with fixed oil change intervals
Brake and clutch system: changing brake fluid	3 years after initial registration, then every 2 years	Every 2 years

2.2.13 Automatic gearbox

Scope of work	Climate and traffic conditions usual for passenger vehicles	Countries with hot climate ⇒ page 22	North American market
Automatic gearbox: change ATF.	---	Every 60,000 km	---
Automatic gearbox: change ATF.	---	---	Every 80,000 mi

2.2.14 Country-specific additional work dependent on time and mileage

Scope of work	Interval
Reducing agent (AdBlue®/DEF): replenishing • Only if requested by customer, and as a separate charge	At every service.
Dual clutch gearbox (DSG) 02E and 0D9: change gear oil and filter.	Every 60,000 km
Dual clutch gearboxes (DSG) 0DD, 0DL and 0BH: change gear oil.	Every 60,000 km
Dual clutch gearbox (DSG) 0GC: change gear oil.	Every 120,000 km
Diesel particulate filter: check.	At 180,000 km/210,000 km, then every 30,000 km
All-wheel drive coupling: changing oil	Every 3 years
Front differential lock: changing oil	Every 3 years
Reducing agent (AdBlue®/DEF): changing • Applies only to vehicles driven less than 15,000 km in 4 years	Every 4 years

3 General information

3.1 Raising vehicle with lifting platform or trolley jack

Safety notes ⇒ page 17

Lifting points for lifting platform and trolley jack ⇒ page 18

3.1.1 Safety information

WARNING

- *Before driving onto a lifting platform ensure there is sufficient clearance between low lying components and lifting platform.*
- *Before driving a vehicle onto a lifting platform it must be ensured that the vehicle weight does not exceed the permissible lifting capacity of the platform.*
- *Lift vehicle only at points indicated in figure to avoid damaging vehicle underbody or tipping vehicle.*
- *Never start engine and engage a gear with vehicle lifted as long as even one driven wheel has contact with the floor! Disregarding these warnings risks the danger of an accident!*
- *If work is to be performed under vehicle, the vehicle must be supported by suitable stands.*

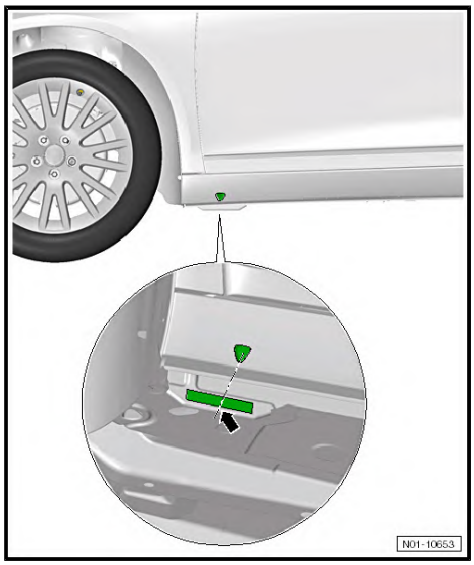
3.1.2 Lifting points for lifting platform and trolley jack

Caution

- *If the support plates or lifting arms of the lifting platform are improperly seated the surrounding parts of the vehicle may be damaged.*
- *Screw support plates of the lifting platform out far enough to ensure sufficient clearance between lifting arm and side member. Use only the side member reinforcement as a support point for the support plates of the lifting platform.*

Front lifting point

– Position support plate in area of side member marking (at vertical reinforcement of floor pan -arrow-).

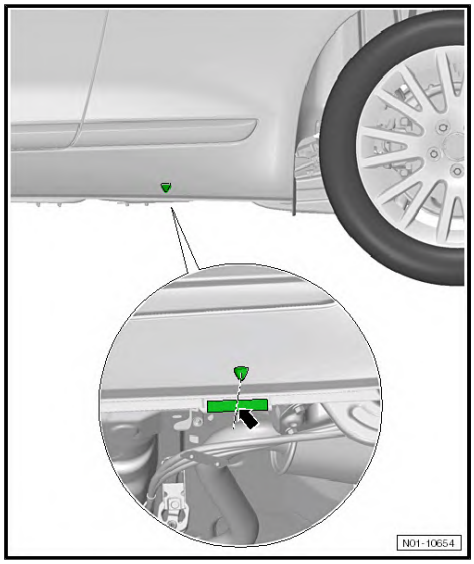


WARNING

Ensure that side member reinforcement seats centrally on support plate of hoist mounting.

Rear lifting point

– Position support plate in area of side member marking at vertical reinforcement of floor pan -arrow-.



WARNING

Ensure that side member reinforcement seats centrally on support plate of hoist mounting.

3.2 Entries in service schedule

If a component is changed which has a change interval prescribed by the manufacturer, e.g. the toothed belt, the new change interval begins at the time the component is changed.

- Therefore it is very important, every time a component is changed, to document this in the service schedule.

- This also applies to components which were changed before the regular change interval.

3.3 Severe operating conditions

If the vehicle is used under severe operating conditions some work will have to be performed before the next service is due or at shorter service intervals.

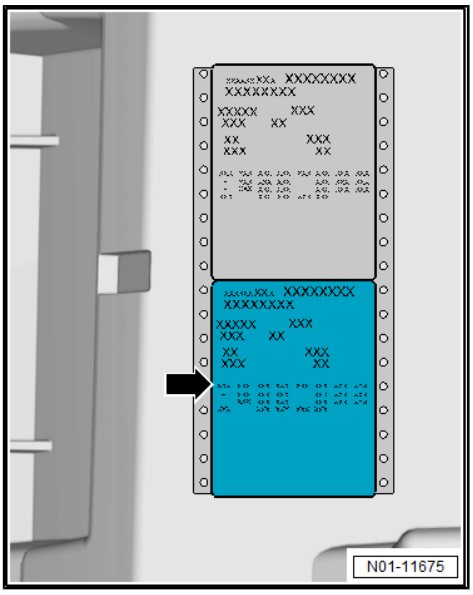
- Regular short trips or stop and go operation in urban traffic
- High percentage of cold starts
- Vehicle is used in areas with winter temperatures over a long period
- Regular long periods of idling (e.g. taxis)
- Vehicle is often driven at full throttle with high payload or whilst towing a trailer
- Using diesel with elevated sulphur content
- Regular operation in areas with high levels of dust
- Countries with generally poor road conditions such as high number of potholes, protrusions, high elevations in the road/ deep “tramlines”.
- High number of gravel roads with poor surface quality, such as irregularities/bumps, elevations, protruding stones, waves.
- Subtropical climates (combination of high ambient temperature and high air humidity)

3.4 Vehicle data sticker

3.4.1 “Vehicle data sticker”: attaching to service schedule or owner’s manual

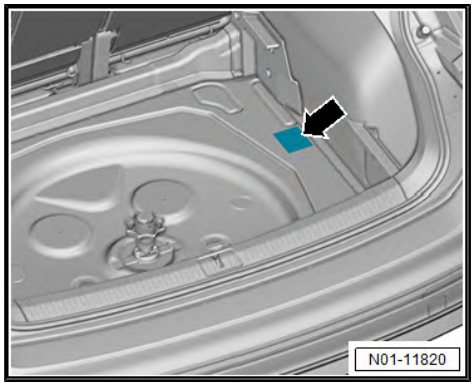
– Apply the lower of the two vehicle data stickers -arrow- in the service schedule or the owner's manual.

In markets with digital service schedules (DSP), the place to paste the vehicle date sticker has moved from the service schedule to the owner's manual.



3.4.2 Vehicle data sticker

The vehicle data sticker -arrow- is located in luggage compartment on right in spare wheel recess. The vehicle data sticker is also found in the service schedule for the customer.



The sticker contains the following data of the vehicle

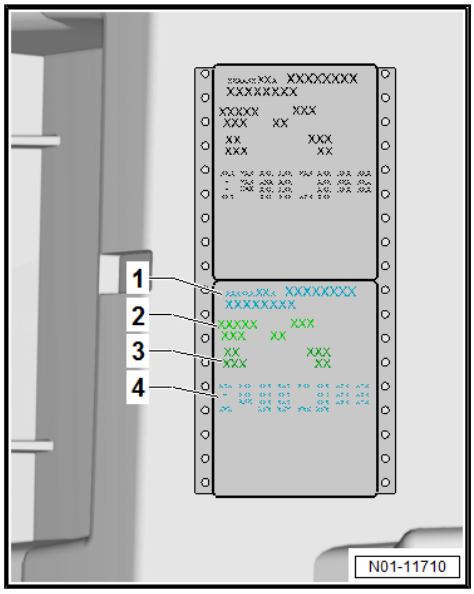
1 - Vehicle identification number

2 - Vehicle type, engine output, gearbox

3 - Engine and gearbox codes, paint number, interior equipment

4 - Optional equipment, PR numbers

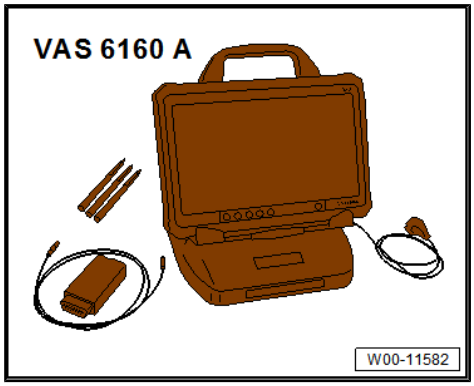
The sticker in service schedule includes the same data. The legend can be found below the sticker.



3.5 Vehicle diagnostic tester

Special tools and workshop equipment required

- Diagnosis system - VAS 6160 A-



- Diagnosis system VCI - VAS 6150 C-

Note

Ensure that the selected vehicle diagnostic tester is used only with the respective diagnostic cable.

WARNING

- *During a road test, always secure testing and measuring equipment on the back seat.*
- *Only a passenger may operate these devices while the vehicle is in motion.*

Procedure

– Connect diagnostic line connector to diagnostic connection.

– Switch on vehicle diagnostic tester .

– Switch on ignition.

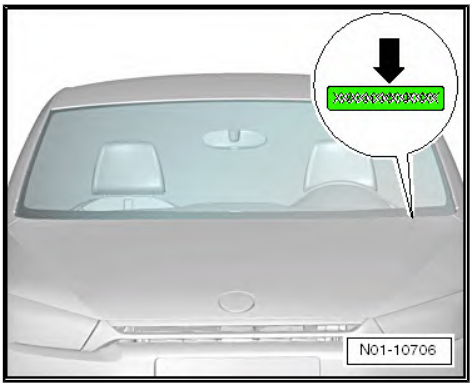
Now follow instructions on screen in order to start desired functions.

3.6 Vehicle identification number

- Vehicle identification number on lower edge of windscreen ⇒ page 21
- Vehicle identification number on extension of longitudinal member ⇒ page 22
- Significance of vehicle identification number ⇒ page 22

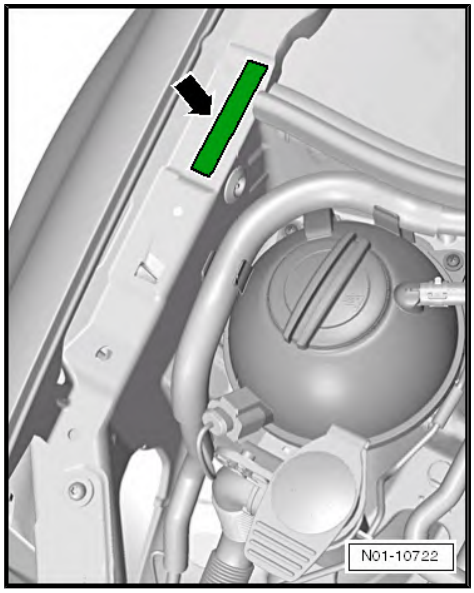
3.6.1 Vehicle identification number on lower edge of windscreen

The vehicle identification number (chassis number) -arrow- is located on the left-hand side of the vehicle in the windscreen near the wiper mounting. It is visible from the outside.



3.6.2 Vehicle identification number on extension of longitudinal member

The vehicle identification number is located on the extension of longitudinal member -arrow-.



3.6.3 Significance of vehicle identification number

WVG	ZZZ	5N	Z	G	W	000 234
Manufacturer code	Filler characters	Model	Filler characters	Model year 2016	Production location	Serial number

3.7 Countries with hot climate

- Countries with hot and super hot climates have elevated peak temperatures (50°C) compared with the European average (25°C).
- Locally high ambient temperatures have an influence on the longevity of the engine, gearbox and coolant circuit, such as journeys uphill and at higher speeds as well as start/stop operation.

Australia	Qatar	USA
Abu Dhabi	Lebanon	United Arab Emirates
Algeria	Libya	West Sahara
Egypt	Liberia	Zimbabwe
Afghanistan	Mexico	Central African Republic
Angola	Malaysia	
Equatorial Guinea	Mauritius	
Ethiopia	Morocco	
Bahrain	Madagascar	
Brunei	Mali	
Benin	Mozambique	
Burkina Faso	Malawi	
Botswana	Mauritania	
Burundi	Nigeria	
China	Niger	
Dubai	Oman	

Democratic Republic of the Congo	Puerto Rico	
Djibouti	Palestine	
Ivory Coast	Pakistan	
Eritrea	Republic of Congo	
Gabon	Rwanda	
Gambia	Saudi Arabia	
Ghana	Singapore	
Guinea	Senegal	
Guinea-Bissau	Sudan	
Iran	Zambia	
India	South Sudan	
Indonesia	Sierra Leone	
Iraq	Somalia	
Israel	Syria	
Yemen	Thailand	
Jordan	Tunisia	
Kuwait	Togo	
Cameroon	Tanzania	
Kenya	Uganda	

3.8 Country overview for petrol not compliant with EN 228

Examples in fuel inadequacies that can lead to shortened maintenance / exchange intervals:

- Petrol contaminated with diesel
- High sulphur content
- Poor boiling point / evaporation
- Metallic components / Octane Booster Additive
- Contaminants in petrol

Abu Dhabi	Georgia	Mauritius	Syria
Afghanistan	Ghana	Mexico	Tajikistan
Egypt	Guatemala	Mongolia	Taiwan
Algeria	Guinea	Mozambique	Tanzania
Angola	Guinea-Bissau	Myanmar (Burma)	Thailand
Equatorial Guinea	Haiti	Nepal (Indian subcontinent)	Togo
Armenia	Honduras	New Caledonia	Trinidad and Tobago
Azerbaijan	India	Nicaragua	Chad
Ethiopia	Indonesia	Dutch Overseas Territories	Tunisia
Bahamas	Iraq	Niger	Turkey
Bahrain	Iran	Nigeria	Turkmenistan
Bangladesh	Jamaica	North Korea	Uganda
Belize	Yemen	Oman	Ukraine
Benin (Dahomey)	Jordan	Pakistan	Uruguay
Bermudas	Cameroon	Panama	Uzbekistan

Bhutan	Cape Verde	Papua New Guinea	Venezuela
Bolivia	Caribbean, left-hand traffic	Paraguay	United Arab Emirates
Brunei	Kazakhstan	Peru	Vietnam
Burkina Faso (Upper Volta)	Qatar	Philippines	West Sahara
Burundi	Kenya	Republic of Congo	Central African Republic
Chile	Kyrgyz Republic	Rwanda	Macao
China	Columbia	Russian Federation	Libya
Costa Rica	Cuba	Zambia	
Democratic Republic of the Congo	Kuwait	Saudi Arabia	
Djibouti	Laos	Senegal	
Dominican Republic	Lebanon	Seychelles	
Dubai	Liberia	Sierra Leone	
Ecuador	Madagascar	Singapore	
El Salvador	Malawi	Somalia	
Ivory Coast	Maldives	Sri Lanka	
Eritrea	Malaysia	South Sudan	
Fiji	Mali	Zimbabwe	
Gabon	Morocco	Sudan	
Gambia	Mauritania	Suriname	

3.9 Country overview for diesel not compliant with EN 590

Examples in fuel inadequacies that can lead to shortened maintenance / exchange intervals:

- High sulphur content
- Elevated amount of biodiesel
- Contaminants in diesel
- Elevated amount of water in diesel

Abu Dhabi	Gambia	Malawi	Sierra Leone
Afghanistan	Georgia	Malaysia	Zimbabwe
Egypt	Ghana	Mali	Singapore
Algeria	Guatemala	Morocco	Somalia
Angola	Guinea	Mauritania	Sri Lanka and the Maldives
Equatorial Guinea	Guinea-Bissau	Mauritius	South Africa
Argentina	Guyana	Macedonia	Sudan
Armenia	Haiti	Mexico	South Sudan
Azerbaijan	Honduras	Moldova	Surinam
Ethiopia	India	Mongolia	Swaziland
Bahamas	Indonesia	Mozambique	Syria
Bahrain	Iraq	Myanmar	Tajikistan
Bangladesh	Iran	Namibia	Tanzania
Belize	Jamaica	Nepal	Thailand
Benin	Yemen	New Caledonia	Togo

Bermudas	Jordan	Nicaragua	Trinidad and Tobago
Bhutan	Cambodia	Dutch Overseas Territories	Chad
Bolivia	Cameroon	Niger	Tunisia
Botswana	Canada	Nigeria	Turkey
Brazil	Cape Verde	North Korea	Turkmenistan
Brunei	Caribbean driving on the left	Oman	Uganda
Burkina Faso	Kazakhstan	Pakistan	Ukraine
Burundi	Qatar	Panama	Uruguay
Cayman Islands	Kenya	Papua New Guinea	USA
China	Kyrgyz Republic	Paraguay	Uzbekistan
Costa Rica	Columbia	Peru	Venezuela
Democratic Republic of the Congo	Cuba	Philippines	United Arab Emirates
Djibouti	Kuwait	Puerto Rico	Vietnam
Dominican Republic	Laos	Republic of Congo	West Sahara
Dubai	Lesotho	Rwanda	Central African Republic
Ecuador	Lebanon	Russia	Ivory Coast
El Salvador	Liberia	Zambia	
Eritrea	Libya	Saudi Arabia	
Fiji	Macao	Senegal	
Gabon	Madagascar	Seychelles	

3.10 Engine code and engine number

Engine code and engine number are located:

- On vehicle data sticker ⇒ page 19 .
- On type plate

Or

⇒ Rep. gr. 00 ; Identification; Engine number, engine data

3.11 Countries with high levels of dust

- High dust content in the air due to road and environmental conditions.
- Dust is categorised according to particle size or type of dust (organic and inorganic material) such as e.g. pollen, bacteria, fungal spores or rock dust, mineral fibres.

Abu Dhabi	Gabon	Macau	Somalia
Afghanistan	Gambia	Madagascar	Sri Lanka
Egypt	Georgia	Malawi	Seychelles
Algeria	Ghana	Maldives	South Sudan
Angola	Guatemala	Mali	Sudan
Equatorial Guinea	Guinea	Morocco	Suriname
Argentina	Guinea-Bissau	Mauritania	Swaziland
Armenia	Guyana	Mauritius	Syria
Azerbaijan	Honduras	Mexico	Tajikistan
Ethiopia	Hong Kong	Mongolia	Tanzania

Australia	India	Mozambique	Thailand
Bahrain	Indonesia	Myanmar (Burma)	Togo
Bangladesh	Iraq	Namibia	Chad
Belize	Israel	Nepal (Indian subcontinent)	Tunisia
Benin (Dahomey)	Yemen	Nicaragua	Turkey
Bhutan	Jordan	Niger	Turkmenistan
Bolivia	Cambodia	Nigeria	Uganda
Botswana	Cameroon	North Korea	Uruguay
Brazil	Cape Verde	Oman	Ukraine
Brunei	Kazakhstan	Pakistan	Uzbekistan
Burkina Faso (Upper Volta)	Qatar	Palestine	Venezuela
Chile	Kenya	Panama	United Arab Emirates
China	Kyrgyz Republic	Papua New Guinea	Vietnam
Costa Rica	Columbia	Paraguay	West Sahara
Democratic Republic of the Congo	Cuba	Peru	Central African Republic
Djibouti	Kuwait	Puerto Rico	
Dominican Republic	Laos	Rwanda	
Dubai	Lesotho	Russian Federation	
Ecuador	Lebanon	Zambia	
El Salvador	Liberia	Saudi Arabia	
Ivory Coast	Libya	Senegal	
Eritrea	Philippines	Sierra Leone	
French Guyana	Burundi	Zimbabwe	
Fiji		South Africa	

3.12 Identification plate

Note

Vehicles for certain export countries have no type plate.

Type plate -arrow- is visible in lower area of B-pillar when front left door is opened.

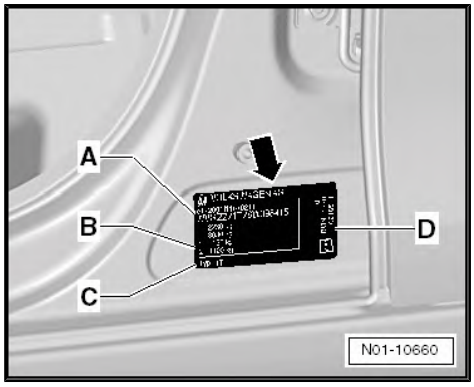
The type plate includes the following vehicle data:

A - Vehicle identification number

B - Variable indications e.g. axle loads, gross vehicle weight rating, gross combination weight

C - Model identification number

D - Engine code



3.13 Shortened intervals for spark plug replacement

Shortened spark plug replacement intervals are necessary if fuel not compliant with DIN EN 228 are used.

Examples in fuel inadequacies that can lead to shortened maintenance / exchange intervals:

- Petrol contaminated with diesel
- High sulphur content
- Poor boiling point / evaporation
- Metallic components / Octane Booster Additive
- Contaminants in petrol

Country				
	30,000 km / 2 years	20,000 km / 2 years	15,000 km /1 year	10,000 km /1 year
Abu Dhabi	X			
Afghanistan	X			
Egypt	X			
Algeria				X
Angola				X
Equatorial Guinea				X
Armenia	X			
Azerbaijan	X			
Ethiopia				X
Bahamas	X			
Bahrain	X			
Bangladesh	X			
Belize			X	
Benin (Dahomey)				X
Bermudas	X			
Bhutan	X			
Bolivia	X			
Brunei	X			
Burkina Faso (Upper Volta)				X
Burundi				X
Chile	X			
China		X		
Costa Rica	X			
Democratic Republic of the Congo				X
Djibouti				X
Dominican Republic	X			
Dubai	X			
Ecuador	X			
El Salvador	X			
Ivory Coast				X
Eritrea				X
Fiji	X			

Country				
	30,000 km / 2 years	20,000 km / 2 years	15,000 km /1 year	10,000 km /1 year
Gabon				X
Gambia				X
Georgia	X			
Ghana				X
Guatemala	X			
Guinea				X
Guinea-Bissau				X
Haiti	X			
Honduras	X			
India	X			
Indonesia	X			
Iraq	X			
Iran			X	
Jamaica	X			
Yemen	X			
Jordan	X			
Cameroon				X
Cape Verde				X
Caribbean, left-hand traffic	X			
Kazakhstan	X			
Qatar	X			
Kenya				X
Kyrgyz Republic			X	
Columbia	X			
Cuba	X			
Kuwait	X			
Laos	X			
Lebanon	X			
Liberia				X
Libya		X		
Macao				X
Madagascar				X
Malawi				X
Malaysia	X			
Mali				X
Morocco		X		
Mauritania				X
Mauritius				X
Mexico	X			
Mongolia	X			
Mozambique				X
Myanmar (Burma)	X			
Nepal (Indian sub-continent)	X			
Nicaragua	X			

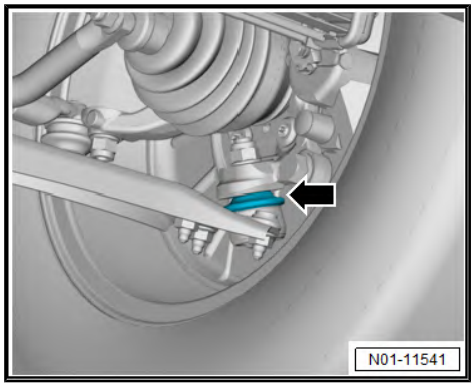
Country				
	30,000 km / 2 years	20,000 km / 2 years	15,000 km /1 year	10,000 km /1 year
Netherlands overseas territories Aruba, Curacao, Sint-Maarten (Dutch)	X			
Niger				X
Nigeria				X
North Korea			X	
Oman	X			
Pakistan			X	
Panama	X			
Papua New Guinea	X			
Paraguay	X			
Peru	X			
Philippines	X			
Republic of Congo				X
Rwanda				X
Russian Federation	X			
Zambia				X
Saudi Arabia	X			
Senegal				X
Seychelles				X
Sierra Leone				X
Singapore	X			
Somalia				X
Sri Lanka	X			
South Sudan				X
Sudan				X
Suriname				X
Syria			X	
Tajikistan	X			
Taiwan	X			
Tanzania				X
Thailand	X			
Togo				X
Trinidad and Tobago			X	
Chad				X
Tunisia			X	
Turkey	X			
Turkmenistan	X			
Uganda				X
Ukraine	X			
Uruguay	X			
Uzbekistan	X			
Venezuela	X			
United Arab Emirates	X			
Vietnam	X			

Country				
	30,000 km / 2 years	20,000 km / 2 years	15,000 km /1 year	10,000 km /1 year
West Sahara				X
Central African Republic				X
Zimbabwe				X

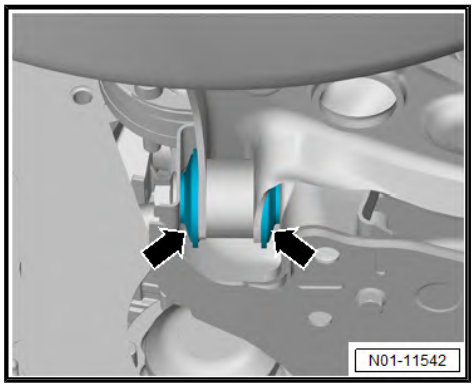
4 Descriptions of work:

4.1 Swivel joints and suspension link mountings: inspecting

– Check boots -arrow- of lower swivel joints for leaks and damage.



– Check lower axle mountings for large cracks, perforating cracks or cuts in rubber material -arrows-.

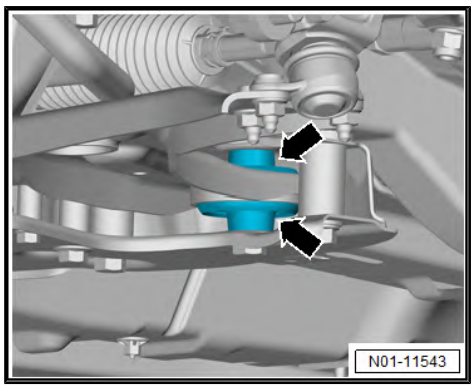


– Check lower axle mountings for large cracks, perforating cracks or cuts in rubber material -arrows-.

– Check axle mountings also for following damage:

♦ Complete separation of rubber and metal parts.

♦ Large play between mounting and suspension link, which has a considerably negative effect on the function of the mounting.



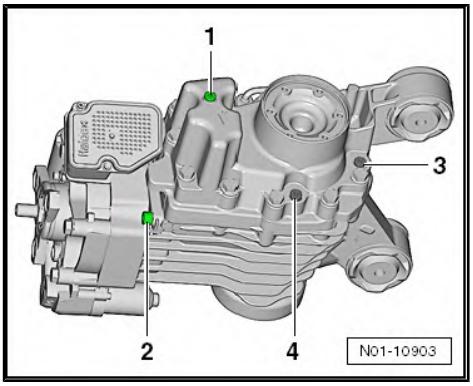
Note

♦ *Superficial cracks and cuts as well as minor separations of the rubber element from the metal part do not significantly affect the operation of the elasto-kinematic mounting and do not constitute a basis for a complaint.*

♦ *Damage to the thin rubber skin over cavities due to construction is also permissible.*

♦ *Play between bearing and axle component is permissible as long as there is no negative effect on the function of the bearing.*

4.2 All-wheel drive coupling: changing oil

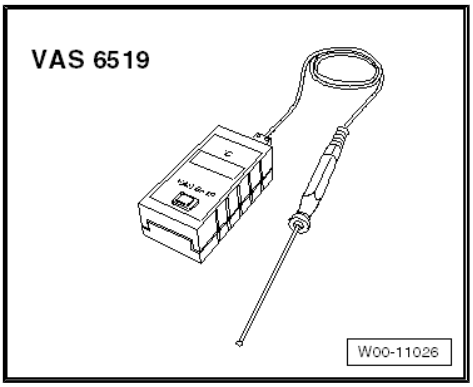


Note

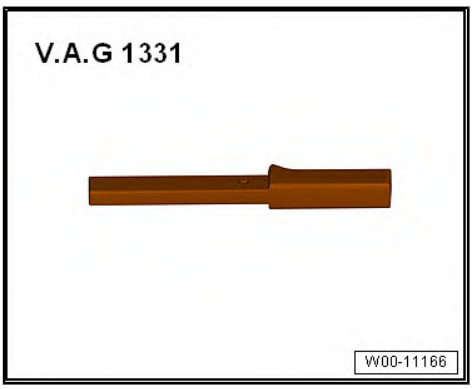
- *On vehicles with all-wheel drive coupling the drain plugs and sealing plugs of both systems are often interchanged owing to the integrated housing construction of all-wheel drive coupling and final drive. Caution must be exercised during maintenance and servicing as incorrect fitting can cause the all-wheel drive coupling and the final drive to fail.*
- *The all-wheel drive coupling and the final drive are one system with separate oil systems.*
- *-1- Sealing plug for filler hole of all-wheel drive coupling oil*
- *-2- Drain plug for all-wheel drive coupling oil*
- *-3- Sealing plug for gear oil filler hole*
- *-4- Drain plug for gear oil*

Special tools and workshop equipment required

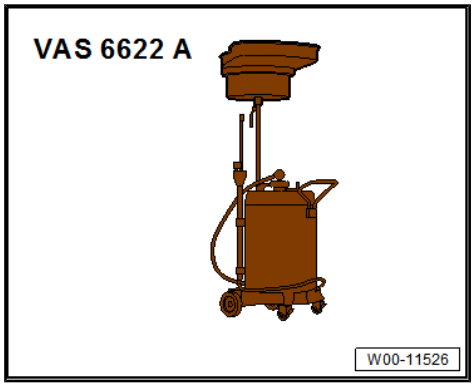
- Temperature gauge - VAS 6519-



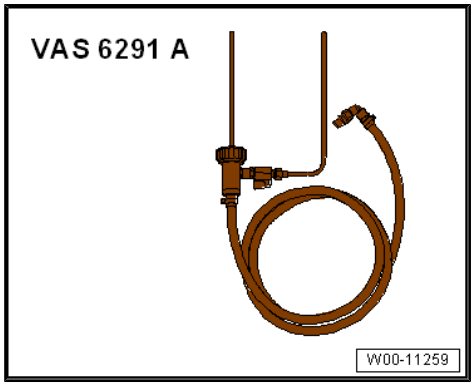
- Torque wrench - V.A.G 1331-



- Used oil collector and extractor - VAS 6622A-



- -VAS 6291 A-



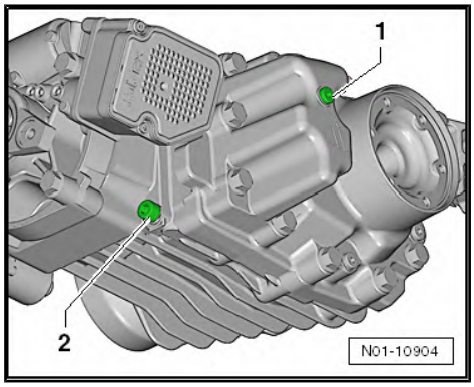
- Drip tray for workshop hoist - VAS 6208-

Draining oil

– Raise vehicle on lifting platform and place used oil collection and extraction unit - VAS 6622A- under all-wheel drive coupling.

– Unscrew oil drain plug -2- and drain high performance oil completely.

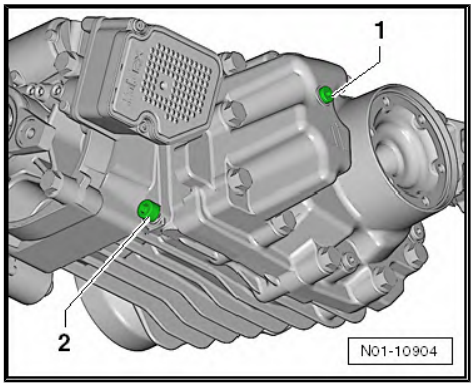
– Screw in new oil drain plug with new seal and tighten it to specified torque. Oil drain plug is fitted with captive seal.



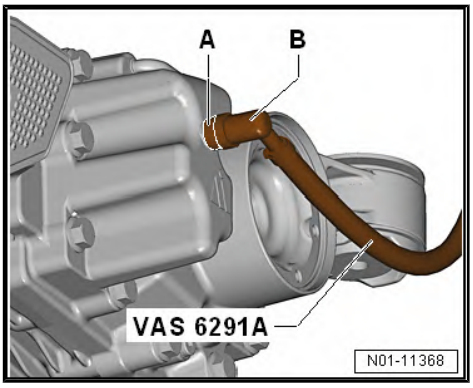
Specified torque	Nm
Oil drain plug	30

Filling with oil

– Unscrew oil filler plug -1-.



– Separate angled piece -B- from adapter -A- and screw adapter fully into oil filler hole.
– Refit angled piece again and route hose above drive shaft to prevent sagging.
– Place drip tray for workshop hoist - VAS 6208- under final drive.
– Once hose above rear left wheel has been moved away from vehicle, vehicle can be lowered.

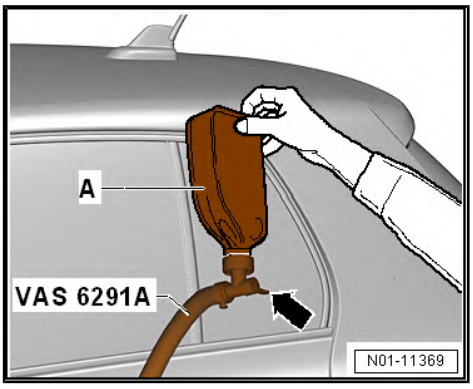


Note

- *The prescribed temperature range for oil during oil level check is 20°C to 40°C.*
- *Observe the temperature of oil container when topping up oil.*
- *After topping up oil, the temperature gauge - VAS 6519- can be used for measuring oil temperature.*

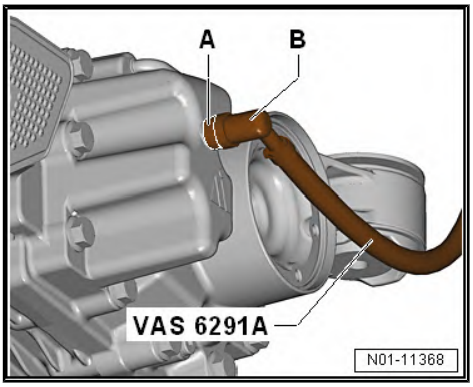
Oil capacity and oil specification ⇒ page 38

– Screw oil container -A- onto charging device -VAS 6291 A- with valve closed -arrow-.
– Open valve -arrow- and hold oil tank as shown in diagram.
– Fill enough oil in system with charging device -VAS 6291 A- until it starts to escape between adapter and gearbox housing.
– Remove filling device -VAS 6291 A- .
– Unscrew adapter -A-.

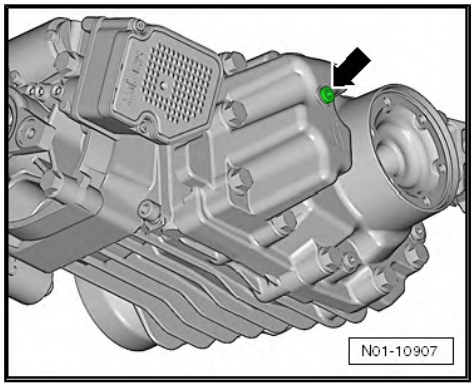


– Let any excess oil flow out until it is only dripping out of hole.

The oil level is correct if oil is dripping out of the oil filler hole.



– Screw in new oil filler plug -arrow- with captive seal and tighten it to specified torque.



Specified torque	Nm
Oil filler plug	15

Ensure adherence to prescribed temperature range during oil level check if oil temperature was not within prescribed temperature range of 20°C to 40°C when topping up oil.

The oil temperature can be measured using temperature gauge - VAS 6519- .

If the oil temperature is not between 20 and 40°C, adherence to prescribed temperature range must be ensured by running gearbox warm or allowing it to cool down.

Oil capacity and oil specification	
Oil capacity, 4MOTION	⇒ Rear propshaft and final drive; Rep. gr. 00 ; Technical data; Capacities
Oil specifications	⇒ Electronic parts catalogue (ETKA)

4.3 Automatic headlight control and static cornering light: checking function

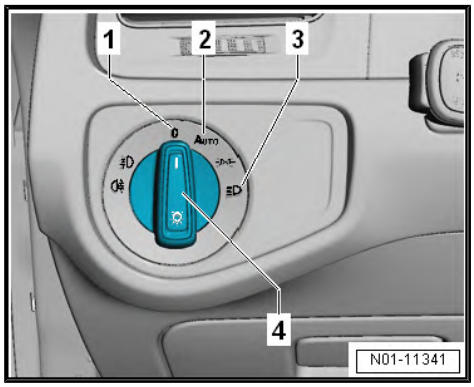
Note

The automatic headlight control was formerly called driving light assist.

- Vehicle must be in natural daylight.

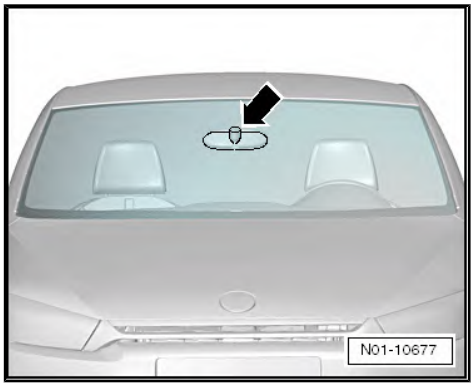
– Switch on ignition.

– Turn light switch -4- to position “Auto” -2-.



The headlights may not light in brightness.

The rain and light sensor is located centrally at top of windscreen -arrow-.



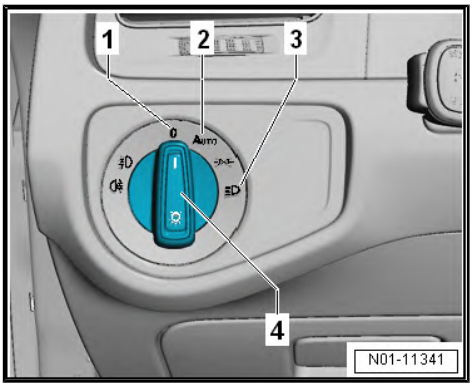
– Switch on ignition.
– Turn light switch -4- to position “Auto” -2-.
– Cover light/rain sensor -arrow- from outside with your hand or a suitable object.

This measures the light incidence and the headlights are switched on.

– Turn light switch -4- to position “0” -1- and switch off ignition.

Static cornering light

The static cornering light is integrated in the headlights.



– Start engine.
– Switch on dipped headlight.
– Switch on turn signal.
– Check cornering light.
– Repeat procedure on other side.

4.4 Front passenger front airbag: checking key switch and “ON/OFF function”

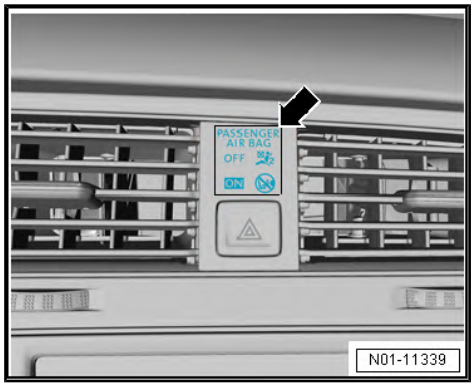
Note

The “PASSENGER AIRBAG ON/OFF” switch is located in the dashboard on the front passenger side.

Front passenger front airbag: checking key switch and “ON/OFF function”.

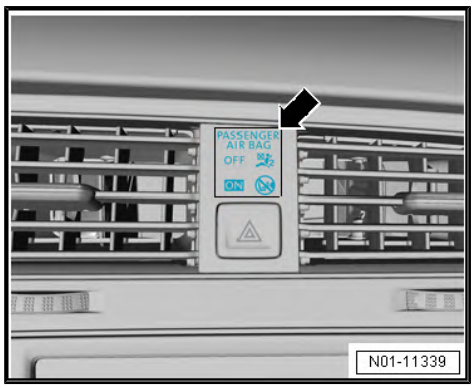
– Using ignition key, turn switch to position “PASSENGER AIR-BAG OFF”.
– Switch on ignition.
– Warning lamp “PASSENGER AIRBAG OFF” -arrow- must also light up after self-test (passenger airbag deactivated).

– Switch off ignition.



– Using the ignition key, turn switch to position “PASSENGER AIRBAG ON”.
– Switch on ignition.

– Warning lamp “PASSENGER AIRBAG OFF” -arrow- goes out after self-test (passenger airbag activated).
– Switch off ignition.

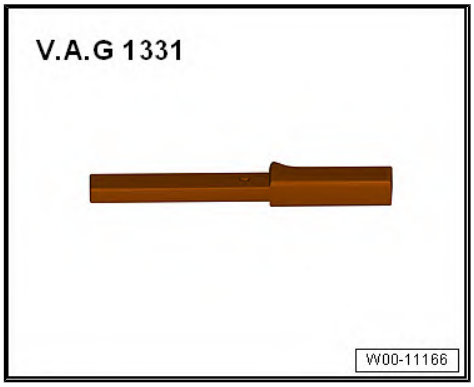


4.5 Battery (12V): checking battery terminal clamps for secure seating

4.5.1 12 V battery in engine compartment: checking battery terminal clamp for firm seating

Special tools and workshop equipment required

- Torque wrench - V.A.G 1331-



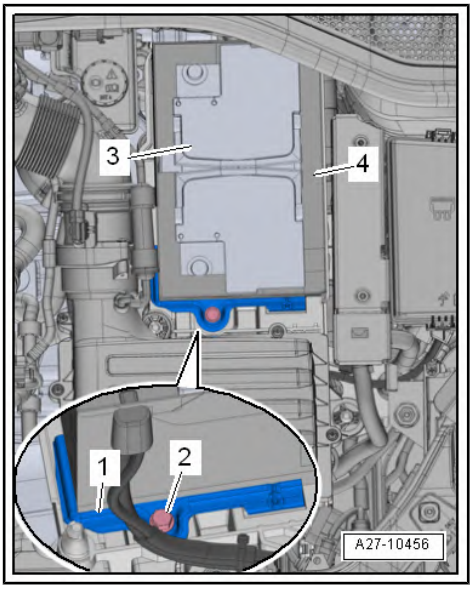
Note

- *A securely seated battery terminal clamp ensures trouble free function and long service life of the battery.*
- *When securing terminal clamp, ensure that it is completely seated on battery terminal.*

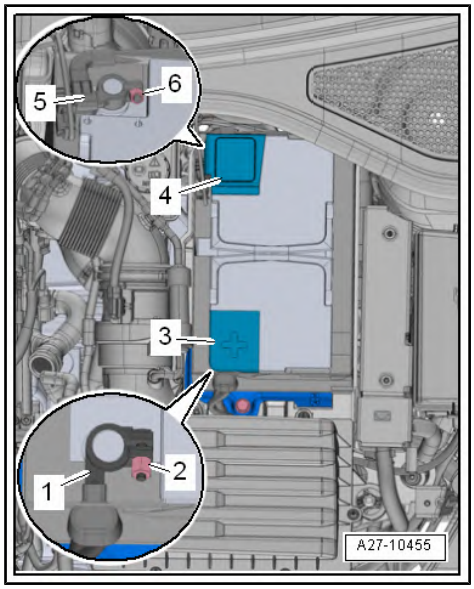
WARNING

If the battery terminal clamp is not seated securely on the positive terminal, disconnect battery earth strap at battery negative terminal first, to prevent possible accidents.

– Open cover of heat shield sleeve -4-.
– Check battery -3- for secure seating. If necessary, retighten bolt -2- to specified torque.
– Open cover -4- over battery negative terminal.



– If fitted, open cover -3- on battery positive terminal.
– Check battery terminal clamps -1- and -5- for secure seating. If necessary, retighten nuts -2- and -6-.



Specified torque	Nm
Nut for battery terminal	6
Bolt for securing bracket	20

Carry out following procedures after connecting battery:

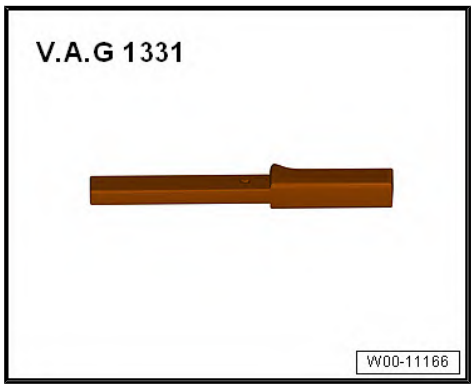
Procedure

⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery

4.5.2 12 V battery in luggage compartment: checking battery terminal clamp for firm seating

Special tools and workshop equipment required

♦ Torque wrench - V.A.G 1331-



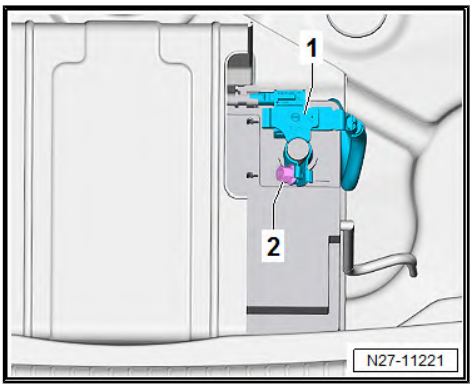
Note

♦ *A securely seated battery terminal clamp ensures trouble free function and long service life of the battery.*
♦ *When securing terminal clamp, ensure that it is completely seated on battery terminal.*

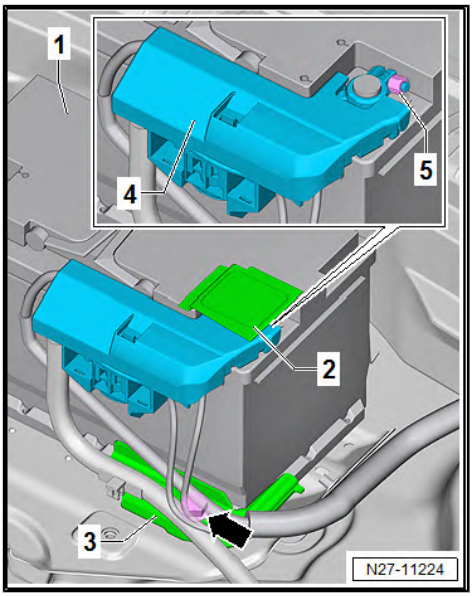
WARNING

If the battery terminal clamp is not seated securely on the positive terminal, disconnect battery earth strap at battery negative terminal first, to prevent possible accidents.

– Remove luggage compartment floor towards rear.
– Check battery terminal clamp -1- for secure seating. If necessary, retighten nut -2-.



– Open cover -2- for positive battery terminal.
– Check main fuse carrier with battery terminal clamp -4- for secure seating. If necessary, retighten nut -5-.
– Check battery -1- for firm seating. If necessary, retighten bolt -arrow- to specified torque.



Specified torque	Nm
Nut for battery terminal	6
Bolt for securing bracket	20

Carry out following procedures after connecting battery:

Procedure

⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery

4.6 Battery (12V): checking with battery tester (always refer to workshop manual)

Procedure

⇒ Electrical system, General information; Rep. gr. 27 ; Checking battery

4.7 Status of battery (12V): reading - sending diagnosis protocol via online connection

Note

Applies only to vehicles with start/stop and energy recovery system

Procedure

The battery status is read while the transportation mode is being switched off ⇒ page 123 .

4.8 Tyres: checking condition, wear pattern, tyre pressure and tread depth

Checking condition of tyre ⇒ page 44 .

Checking wear pattern ⇒ page 45

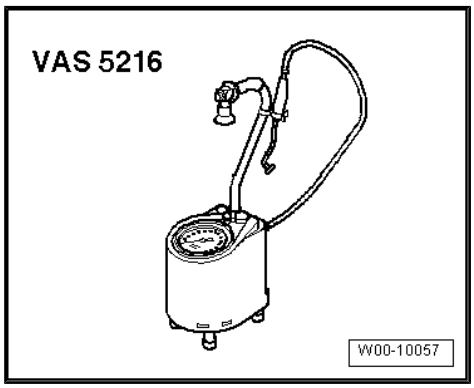
Tread depth (including spare wheel): check ⇒ page 45 .

General notes ⇒ page 45

Tiguan tyre pressures ⇒ page 47

Special tools and workshop equipment required

- Tyre inflator - VAS 5216-



4.8.1 Tyres: checking condition

WARNING

If damage is determined, always check to see if a new tyre should be fitted.

Tests at delivery inspection

– Check tyre side walls and treads for damage and foreign bodies such as, for example, nails or glass splinters.

Tests at service

– Check tyre side walls and treads for damage and foreign bodies such as, for example, nails or glass splinters.

– Check tyres for cupping, one-sided wear, porous side walls, cuts and punctures.

– Check for appropriate direction of rotation, or make sure that the inner and outer sides have not been interchanged.

4.8.2 Wear pattern: checking

The wear pattern on the front tyres will indicate, for example, if toe and camber settings should be checked:

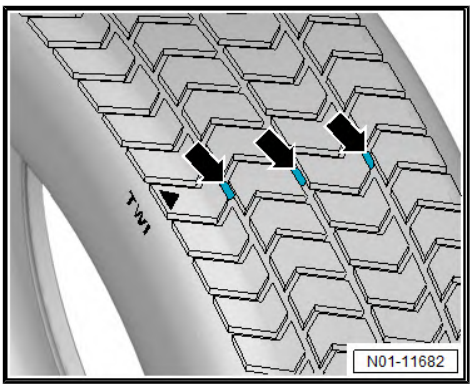
- Feathering on tread indicates incorrect toe setting.
- One-sided tread wear is mainly attributed to incorrect camber.

When wear of this nature is detected, determine cause by checking alignment (repair measure).

4.8.3 Tyre tread depth (including spare wheel): checking

– Check tyre tread depth.

Minimum tread depth: 1.6 mm



Note

- *This figure may vary according to legislation in individual countries. Your importer will inform you about this.*
- *The minimum tread depth is reached when the tyres have worn down level with the 1.6 mm high tread wear indicators -arrows- positioned at intervals around the tyre.*
- *If the tread depth is approaching the minimum allowed depth, inform the customer.*

4.8.4 General information

WARNING

- ***For safety reasons, only tyres of same type and tread pattern should be fitted on a vehicle! Approved wheel and tyre combinations e.g. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations .***
- ***On vehicles with four-wheel drive, tyres of the same type and tread pattern must be used. Otherwise the self-locking centre differential may be damaged.***

Note

- *Tyre pressures for the relevant model can also be found on a sticker. It is attached to the inside of tank flap or to B-pillar.*
- *Note that the pressures indicated on the sticker are applicable for cold tyres.*
- *Do not reduce increased pressures of warm tyres.*
- *Depending on the vehicle, the sticker may also contain information on the comfort tyre pressure. The comfort tyre pressure facilitates improved driving comfort.*
- *Adjust the tyre pressure to suit the vehicle load. For delivery inspections or repairs, the partial load tyre pressure is to be used.*
- *If no inflation pressure is shown for the spare wheel, then inflate the spare wheel to the highest inflation pressure for the vehicle.*
- *Note that a basic setting is to be performed on vehicles with Tyre Pressure Loss Indicator each time the pressure is changed* *⇒ page 102* *.*

M+S tyres

Note

- *Important information about Volkswagen-recommended winter tyres can be found in ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations .*
- *If winter tyres are fitted, a sticker indicating the speed limit must be attached in the interior where it is visible for the customer.*
- *For winter tyres, the tyre pressure does not have be increased.*
- *However, this only applies if the winter tyre used corresponds exactly to the standard summer tyre size and the speed index is no higher than “H”.*
- *If this is not the case, please refer to the recommendation of the tyre manufacturer.*

4.8.5 Tyre pressures, Tiguan

Note

- *During delivery inspection, check that tyre inflation pressure sticker is fitted. If the sticker is missing, order a new sticker through ETKA.*
- *The mandatory tyre pressures for the respective model can be found on a sticker attached to the inside of the tank flap or to the B-pillar.*
- *If the inflation pressure sticker is missing, proceed as follows:*
- *Locate correct part number for respective vehicle in ETKA.*
- *Using part number, determine respective inflation pressures in tyre inflation table.*
- *Uniform pressure: if tyre sizes are not shown for a part number, then a uniform pressure is valid for all authorised wheel/tyre combinations. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations*

Check tyre pressure using tyre inflator - VAS 5216- , correct if necessary.

Part number - 5NA 010 000-	Tiguan					
	Half payload kPa/bar/psi		Half load, comfort kPa/bar/psi		Full payload kPa/bar/psi	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
All [1]	260/2.6/38	260/2.6/38	230/2.3/33	230/2.3/33	260/2.6/38	280/2.8/41
T145/85 R18 [2]	415/4.2/61					

[1] Valid for all authorised wheel/tyre combinations. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations

[2] Spare wheel

Part number - 5NA 010 000 A- Part number - 5NA 010 000 L-	Tiguan					
	Half payload kPa/bar/psi		Half load, comfort kPa/bar/psi		Full payload kPa/bar/psi	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
All [1]	260/2.6/38	260/2.6/38	230/2.3/33	230/2.3/33	260/2.6/38	300/3.0/44
T145/85 R18 [2]	415/4.2/61					

[1] Valid for all authorised wheel/tyre combinations. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations

[2] Spare wheel

Part number - 5NA 010 000 B-	Tiguan					
	Half payload kPa/bar/psi		Half load, comfort kPa/bar/psi		Full payload kPa/bar/psi	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
All [1]	260/2.6/38	260/2.6/38	230/2.3/33	230/2.3/33	260/2.6/38	310/3.1/45
T145/85 R18 [2]	415/4.2/61					

[1] Valid for all authorised wheel/tyre combinations. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations

[2] Spare wheel

Part number - 5NA 010 000 C-	Tiguan					
	Half payload kPa/bar/psi		Half load, comfort kPa/bar/psi		Full payload kPa/bar/psi	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
All [1]	250/2.5/36	250/2.5/36	---	---	280/2.8/41	330/3.3/48
T145/85 R18 [2]	415/4.2/61					

[1] Valid for all authorised wheel/tyre combinations. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations

[2] Spare wheel

Part number - 5NA 010 000 D-	Tiguan					
	Half payload kPa/bar/psi		Half load, comfort kPa/bar/psi		Full payload kPa/bar/psi	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
All [1]	260/2.6/38	260/2.6/38	230/2.3/33	230/2.3/33	270/2.7/39	310/3.1/45
T145/85 R18 [2]	415/4.2/61					

[1] Valid for all authorised wheel/tyre combinations. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations

[2] Spare wheel

Part number - 5NA 010 000 J-	Tiguan					
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
All [1]	230/2.3	230/2.3	---	---	260/2.6	280/2.8
T145/85 R18 [2]	415/4.2					

[1] Valid for all authorised wheel/tyre combinations. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations

2) Spare wheel

Part number - 5NA 010 000 M-	Tiguan					
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
All 1)	230/2.3	230/2.3	---	---	260/2.6	300/3.0
T145/85 R18 2)	415/4.2					

1) Valid for all authorised wheel/tyre combinations. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations

2) Spare wheel

Part number - 5NA 010 000 K-	Tiguan					
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
All 1)	230/2.3	230/2.3	---	---	270/2.7	310/3.1
T145/85 R18 2)	415/4.2					

1) Valid for all authorised wheel/tyre combinations. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations

2) Spare wheel

Part number - 5NA 010 000 E-	Tiguan					
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
215/65 R17 99V	260/2.6	260/2.6	230/2.3	230/2.3	260/2.6	280/2.8
235/55 R18 100V						
235/50 R19 99V						
235/45 R20 100V						
255/45 R19 100V						
255/40 R20 101V						
T145/85 R18 103M 1)	415/4.2/61					

1) Spare wheel

Part number - 5NA 010 000 H-			Tiguan			
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
215/65 R17 99V	260/2.6	260/2.6	230/2.3	230/2.3	260/2.6	300/3.0
235/55 R18 100V						
235/50 R19 99V						
235/45 R20 100V						
255/45 R19 100V						
255/40 R20 101V						
T145/85 R18 103M [1)]	415/4.2/61					

[1)] Spare wheel

Part number - 5NA 010 000 G-			Tiguan			
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
215/65 R17 99V	260/2.6	260/2.6	230/2.3	230/2.3	260/2.6	310/3.1
235/55 R18 100V						
235/50 R19 99V						
235/45 R20 100V						
255/45 R19 100V						
255/40 R20 101V						
T145/85 R18 103M [1)]	415/4.2/61					

[1)] Spare wheel

Part number - 5NA 010 000 F-			Tiguan			
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
215/65 R17 99V	260/2.6	260/2.6	230/2.3	230/2.3	270/2.7	310/3.1
235/55 R18 100V						

Part number - 5NA 010 000 F-	Tiguan					
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
235/50 R19 99 V						
235/45 R20 10 0V						
255/45 R19 10 0V						
255/40 R20 10 1V						
T145/85 R18 1 03M [1)]	415/4.2/61					

[1)] Spare wheel

Part number - 5NA 010 000 N-	Tiguan					
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
215/65 R17 99V	260/2.6	260/2.6	230/2.3	230/2.3	260/2.6	280/2.8
235/55 R18 10 0V						
235/50 R19 99 V						
235/45 R20 10 0V						
T145/85 R18 1 03M [1)]	415/4.2/61					

[1)] Spare wheel

Part number - 5NA 010 000 P-	Tiguan					
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
215/65 R17 99V	260/2.6	260/2.6	230/2.3	230/2.3	260/2.6	300/3.0
235/55 R18 10 0V						
235/50 R19 99 V						
235/45 R20 10 0V						
T145/85 R18 1 03M [1)]	415/4.2/61					

[1)] Spare wheel

Part number - 5NA 010 000 R-	Tiguan					
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
215/65 R17 99V	260/2.6	260/2.6	230/2.3	230/2.3	260/2.6	310/3.1
235/55 R18 100V						
235/50 R19 99V						
235/45 R20 100V						
T145/85 R18 103M [1]	415/4.2/61					

[1] Spare wheel

Part number - 5NA 010 000 Q-	Tiguan					
	Half payload kPa/bar		Half payload kPa/bar		Full payload kPa/bar	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
215/65 R17 99V	260/2.6	260/2.6	230/2.3	230/2.3	270/2.7	310/3.1
235/55 R18 100V						
235/50 R19 99V						
235/45 R20 100V						
T145/85 R18 103M [1]	415/4.2/61					

[1] Spare wheel

Part number - 5NR 010 000-	Tiguan					
	Half payload kPa/bar/psi		Half load, comfort kPa/bar/psi		Full payload kPa/bar/psi	
Tyre size	**Front**	**Rear**	**Front**	**Rear**	**Front**	**Rear**
All [1]	230/2.3/33	230/2.3/33	---	---	260/2.6/38	280/2.8/41
T145/85 R18 [2]	415/4.2/61					

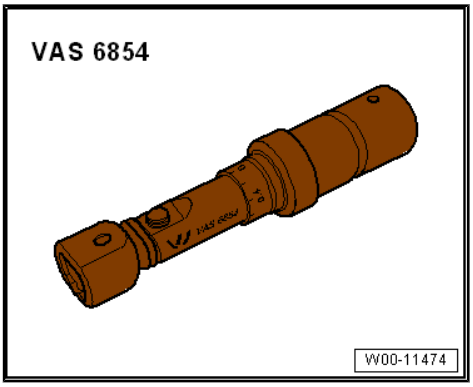
[1] Valid for all authorised wheel/tyre combinations. ⇒ Wheels and tyres guide; Rep. gr. 44 ; Wheels, tyres, vehicle geometry; Wheel and tyre combinations

[2] Spare wheel

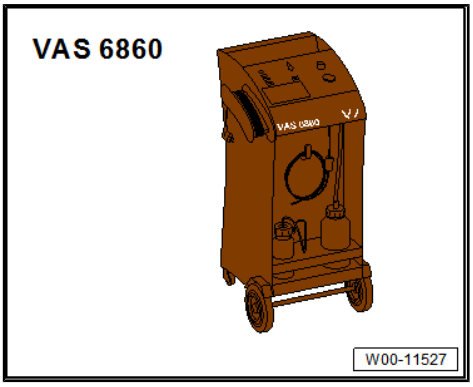
4.9 Brake and clutch system: changing brake fluid

Special tools and workshop equipment required

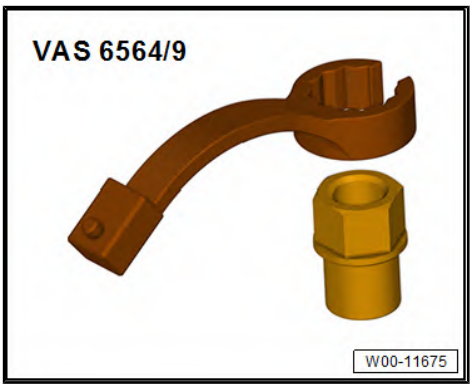
- Torque wrench - VAS 6854-



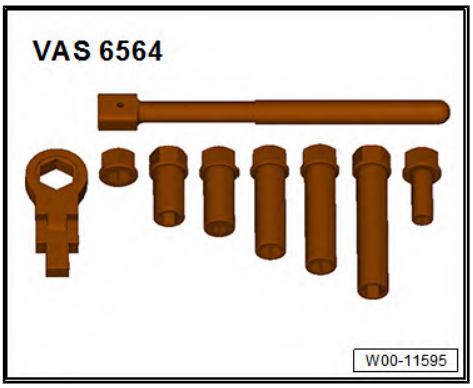
- Brake filling and bleeding equipment - VAS 6860-



- Insert tool - VAS 6564/9-



- Brake bleeding tool - VAS 6564-

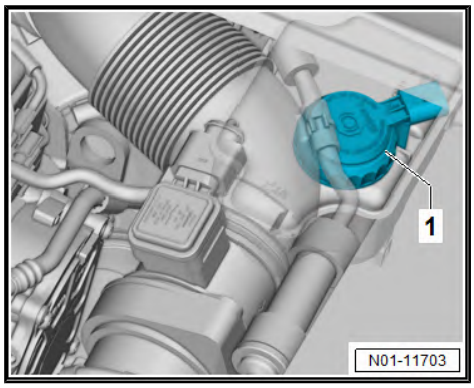


WARNING

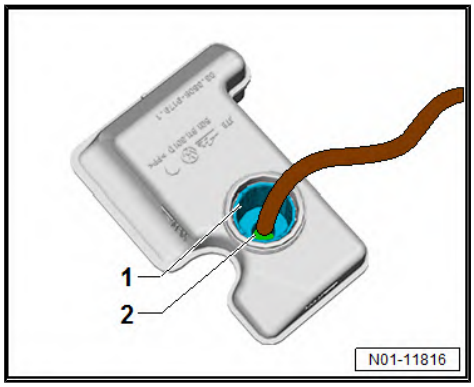
- *Never allow brake fluid to come into contact with fluids that contain mineral oils (e.g. oil, petrol, cleaning agents). Mineral oils will damage seals and rubber grommets of brake system.*
- *Brake fluid is poisonous. In addition, due to its corrosive nature, it must not come into contact with paint.*
- *Brake fluid is hygroscopic, which means it absorbs moisture from the ambient air and should therefore always be stored in air-tight containers.*
- *Rinse off spilled brake fluid using plenty of water.*
- *Do not reuse extracted (used) brake fluid!*
- *Observe relevant disposal regulations.*

Extracting brake fluid

– Unscrew cap -1- from brake fluid reservoir.



– Using the suction hose from brake filling and bleeding unit , extract as much brake fluid -2- from the brake fluid reservoir as possible through the strainer -1-.



Note

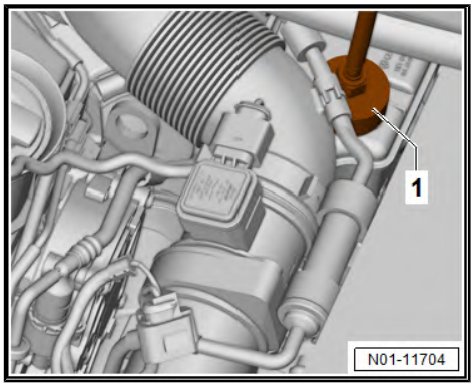
- *The strainer in brake fluid reservoir must remain in place.*
- *Ensure that no brake fluid runs through the strainer after completing the extraction (the brake fluid level in the reservoir must be even with the lower edge of the strainer).*

Connecting brake filling and bleeding equipment

– Screw adapter -1- onto brake fluid reservoir.

– Connect filler hose from brake filling and bleeding unit to adapter -1-.

– Set correct pressure on brake filling and bleeding equipment ⇒ Operating Manual , and switch on brake filling and bleeding equipment .

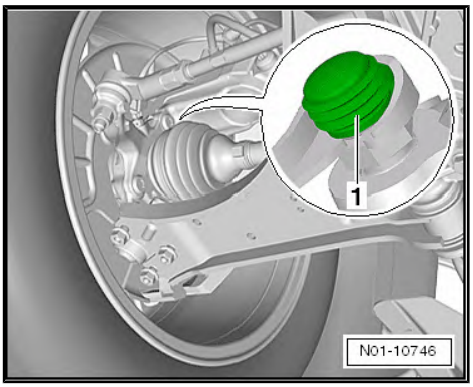


Note

- *The bleeder hose must be firmly seated on bleeder valve so that no air can enter the brake system.*
- *There must always be sufficient brake fluid in the brake reservoir so that no air can enter the brake system through the reservoir.*
- *Start with front right brake caliper on RHD vehicles.*
- *Due to the tool attachment - VAS 6564/9- the rear wheels do not need to be removed any more.*

Front axle

– Remove cap -1- from bleeder valve of front left brake caliper.



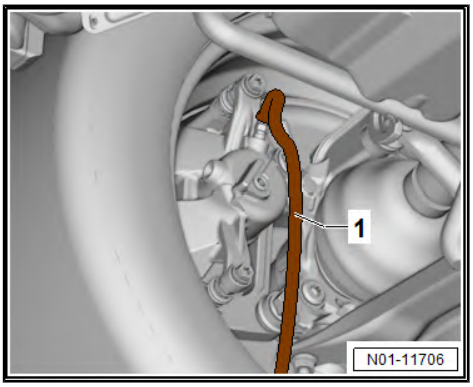
– Push collector bottle bleeder hose -1- onto front left bleeder valve.

– Open bleeder screw, and let appropriate quantity of brake fluid run out ⇒ page 57 .

– Close bleed screw. Torque: ⇒ Brake system; Rep. gr. 47 ; Front brake caliper; Assembly overview - front brake caliper .

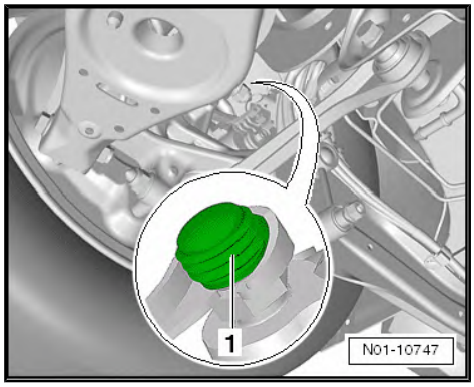
– Fit cap back onto bleeder valve on brake caliper.

– Repeat procedure on front right.

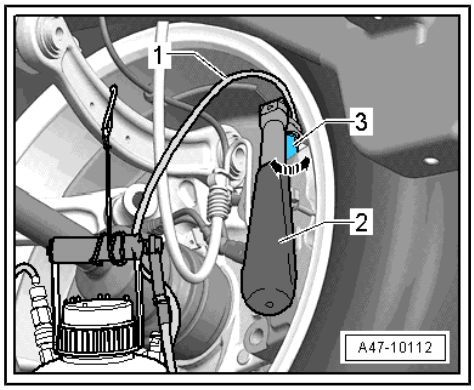


Rear axle

– Remove cover cap -1- from bleeder valve of rear left brake caliper.
– Use tool attachment - VAS 6564/9- for rear axle.



– Guide bleeder hose -1- from tool set for brake bleeding - VAS 6564- from inner side of rim through socket -3-, and fit it onto bleeder valve.
– Open bleeder screw, and let appropriate quantity of brake fluid run out ⇒ page 57 .
– Close bleeder screw; torque: ⇒ Brake system; Rep. gr. 47 ; Rear brake caliper; Assembly overview - rear brake caliper .
– Fit again cover cap on bleeder valve of rear left brake caliper.
– Repeat procedure on rear right of vehicle.



Bleeding clutch slave cylinder

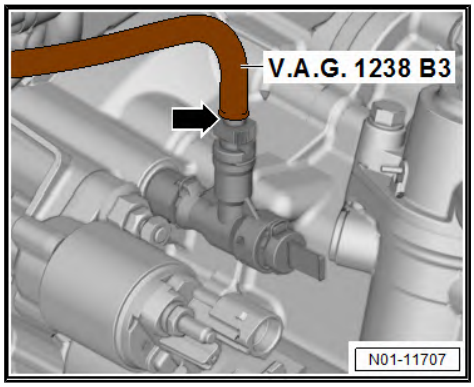
Note

Applies only to vehicles with manual gearbox.

– If the bleeder valve -arrow- is not accessible, remove complete air filter housing.
– ⇒ Rep. gr. 23 ; Air filter; Removing and installing air filter housing

Or

– ⇒ Rep. gr. 24 ; Air filter; Removing and installing air filter housing
– Remove dust cap from bleeder valve -arrow-.
– Connect bleeder hose to pressure hose of fluid collector bottle.

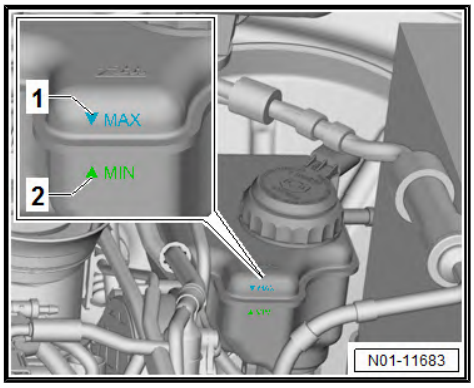


To bleed system, use 670 mm long bleed hose - V.A.G 1238/B3- if necessary.

– Open bleeder valve.
– Allow approx. 100 ml of brake fluid to flow out.
– Close bleeder valve.
– Rapidly operate pedal from stop to stop 10 to 15 times.
– Open bleeder valve.
– Allow another 50 ml of brake fluid to flow out.
– Close bleeder valve and fit dust cap.

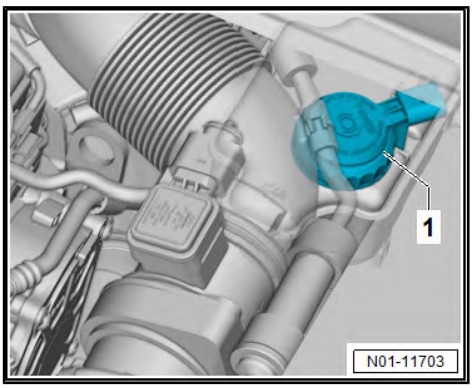
Specified torque	Nm
Bleeder valve	4.5

– Depress clutch pedal several times after completion of bleeding process.
– Switch off brake filling and bleeding unit .
– Reinstall air filter housing in reverse order.
– Take filler hose off adapter.
– Unscrew adapter from brake fluid reservoir.
– Check brake fluid level and adjust level if necessary. It must be between position -1- and -2-.



– Screw cap -1- onto brake fluid reservoir.
– Check function during road test.

Table - Sequence and quantity of brake fluid



Sequence bleeder valves:	Brake fluid quantity which must flow out of bleeder valves:
Brake caliper	
Front left	0.20 l
Front right	0.20 l
Wheel brake cylinder/brake caliper	
Rear left	0.30 l
Rear right	0.30 l
Clutch slave cylinder	0.15 l
Total quantity for automatic gearbox including the quantity extracted from the brake fluid reservoir	approx. 1.00 l
Total quantity for manual gearbox including the quantity extracted from the brake fluid reservoir	approx. 1.15 l

4.10 Brake system and shock absorbers: inspecting for leaks and damage

Check following components for leaks and damage:

♦ Brake master cylinder
♦ Brake servo (for anti-lock brake system: hydraulic unit)

- ♦ Brake pressure regulator and
- ♦ Brake caliper
- ♦ Shock absorbers (during inspection only)
- ♦ Presence of dust caps on brake fluid bleeder screws
- ♦ Presence of caps on guide bushes

– Ensure that brake hoses are not twisted.

– Additionally ensure that brake hoses do not touch any vehicle components when steering is at full lock.

– Check brake hoses for abrasion, porosity and brittleness.

– Check brake lines for corrosion.

– Check brake connections and fastenings for correct seating, leaks and corrosion.

– Check brake lines and brake hoses for correct seating and attachment in retainers.

WARNING

Faults found must always be rectified (repair measure).

4.11 Brakes, front and rear: checking thickness of brake pads and condition of brake discs

Front disc brake pads: checking thickness ⇒ page 59

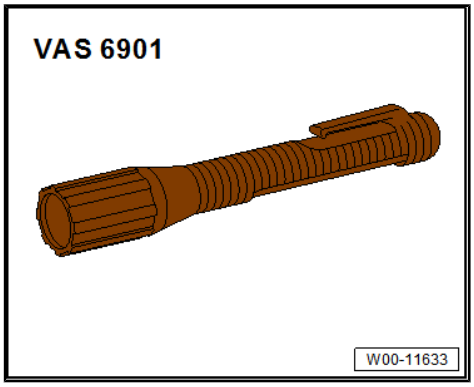
Rear disc brake pads: checking thickness ⇒ page 60

Brake discs: checking condition ⇒ page 61

Special tools and workshop equipment required

- ♦ Torque wrench - V.A.G 1332-

- Battery lamp - VAS 6901-



- Mirror

The adapter to loosen and tighten the anti-theft wheel bolts can be found in the vehicle tool kit ⇒ page 97 .

4.11.1 Front disc brake pads: checking thickness

Note

One some vehicles it may be very difficult to ascertain or measure the thickness of the pad due to the geometry of the wheel rim. If this is the case, remove the wheel on the side where the brake pad wear indicator is installed for better evaluation or measurement of the remaining pad thickness.

Procedure

– Measure outer and inner brake pad thickness by inspecting through the holes of wheel rim (depending on type).

– For better evaluation or measurement of remaining pad thickness, remove wheel on side where brake pad wear indicator is installed as necessary.

– Pull off wheel bolt covers if necessary ⇒ page 97 .

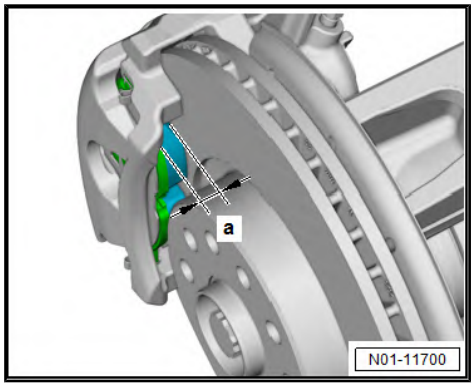
– Mark position of wheel relative to brake disc.

– Unbolt wheel bolts and remove wheel.

– Measure inner and outer pad thickness.

a - Pad thickness “without” backplate

Wear dimension: 2 mm



WARNING

The brake pads have reached their wear limit at a pad thickness of 2 mm (without backplate) and must be renewed (repair measure).

Note

When replacing brake pads, always check brake discs for wear as well. Checking and if necessary replacing the brake discs is a repair measure.

Procedure

– Check brake disc for wear ⇒ Brake system; Rep. gr. 46 ; Front brake; Assembly overview - front brake .

– If necessary, secure wheel in marked position.

– Tighten wheel securing bolts in diagonal sequence to specified torque ⇒ page 97 .

– Place adapter in vehicle tool kit after completing work.

– Fit wheel bolt covers if necessary .

4.11.2 Rear disc brake pads: checking thickness

Note

One some vehicles it may be very difficult to ascertain or measure the thickness of the pad due to the geometry of the wheel rim. If this is the case, remove the wheel on the side where the brake pad wear indicator is installed for better evaluation or measurement of the remaining pad thickness.

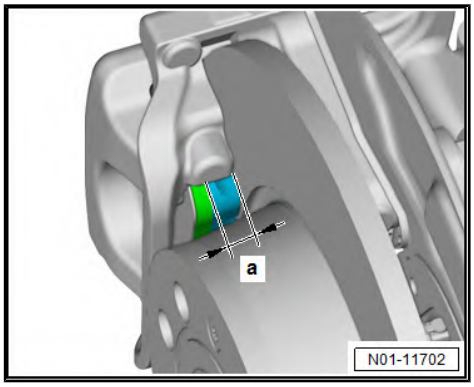
Procedure

– Illuminate area behind hole in rim using an electric hand torch.

– Inspect outer pad to determine its thickness.
– Illuminate inner pad with an electric hand torch and mirror.
– Determine thickness of inner pad by inspecting.

a - Inner and outer pad thickness “without” backplate

Wear dimension: 2 mm



WARNING

The brake pads have reached their wear limit at a pad thickness of 2 mm (without backplate) and must be renewed (repair measure).

Note

When replacing brake pads, always check brake discs for wear as well. Checking and if necessary replacing the brake discs is a repair measure.

Procedure

– Check brake disc for wear ⇒ Brake system; Rep. gr. 46 ; Rear brake; Assembly overview - rear brake .
– If necessary, secure wheel in marked position.
– Tighten wheel securing bolts in diagonal sequence to specified torque ⇒ page 97 .
– Place adapter in vehicle tool kit after completing work.
– Fit wheel bolt covers if necessary .

4.11.3 Brake discs: checking condition

Check all brake discs for the following damage patterns:

- Cracks
- Scoring
- Rust (no surface rust)
- Burrs on circumference of brake disc

Note

Inform the customer if brake disc damage is similar to these damage patterns. Renewing the brake discs is a repair measure.

4.12 Brake fluid level: checking

WARNING

- *Never allow brake fluid to come into contact with fluids that contain mineral oils (e.g. oil, petrol, cleaning agents). Mineral oils will damage seals and rubber grommets of brake system.*
- *Brake fluid is poisonous. In addition, due to its corrosive nature, it must not come into contact with paint.*
- *Brake fluid is hygroscopic, which means it absorbs moisture from the ambient air and should therefore always be stored in air-tight containers.*
- *Rinse off spilled brake fluid using plenty of water.*
- *Observe relevant disposal regulations.*

Caution

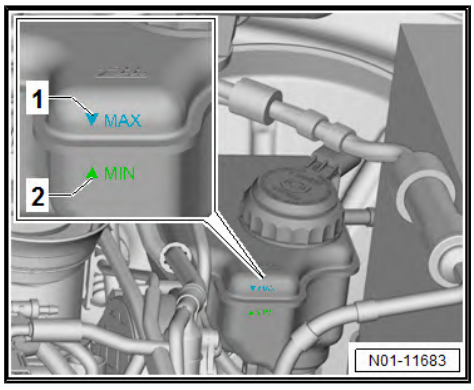
When replenishing, ensure to not spill any liquids in the engine compartment.

Spilled liquids may cause damage in the engine compartment.

Toothed belts, V-belts and poly V-belts which came into contact with oil, brake fluid or coolant must always be renewed.

Brake fluid level at delivery inspection

– At delivery inspection, the fluid level must be at MAX. marking -1-.



Note

To prevent brake fluid from flowing out of the reservoir, the max. marking -1- must not be exceeded.

Brake fluid level at inspection service

Note

- *The fluid level must always be judged in conjunction with lining/pad wear.*
- *When vehicle is in use, fluid level tends to drop slightly due to lining/pad wear and automatic adjustment.*

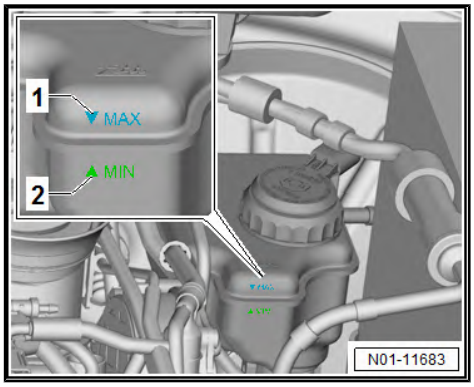
Recommended brake fluid level “before” brake pads are at wear limit

- At MIN marking or just above (-2-):

“replenishing is NOT required”.

Recommended brake fluid level, brake pads new or well within wear limit:

- Between MIN and MAX markings



WARNING

If the fluid level is below min. marking -2-, the brake system must be checked for leaks before fluid is topped up, “Repair measure”.

4.13 Dual clutch gearbox 0D9: changing gear oil and filter

⇒ 6-speed dual clutch gearbox 0D9; Rep. gr. 34 ; Gear oil; Draining and filling gear oil

⇒ 6-speed dual clutch gearbox 0D9; Rep. gr. 34 ; Gear oil circuit; Removing and installing gear oil filter

4.14 Dual clutch gearbox 0DL: changing gear oil

⇒ 7-speed dual clutch gearbox 0DL; Rep. gr. 34 ; Gear oil; Draining and filling gear oil

4.15 Dual clutch gearbox 0GC: changing gear oil

– ⇒ 7-speed dual clutch gearbox 0GC; Rep. gr. 34 ; Gear oil; Draining and filling gear oil

4.16 Diesel particulate filter: checking

– Check ash loading ⇒ Vehicle diagnostic tester.

4.17 Electric windows: checking positioning (open and close functions)

Note

The automatic opening and closing features for the electric windows do not function after disconnecting and reconnecting the battery. Therefore, before a new vehicle is delivered, the window regulators must be reactivated. Once the windows have been reactivated, the battery must not be disconnected again.

WARNING

After batteries have been disconnected and reconnected the roll-back function of the electric window regulators is disabled. Severe pinching injuries could result!

Carry out the following procedure to position the electric window regulators:

Note

The following work description applies to the front left window regulator. Reactivate the other window automatic functions in the same manner by operating the respective switch in the driver door.

– Switch on ignition.
– Close all doors and windows completely.
– Pull up button for window regulator and hold in this position for at least one second.
– Release button, pull it up again and hold.

The one-touch opening and closing function is now ready for use.

Note

It is possible to re-establish the position of one or more window regulators at the same time.

– Switch off ignition.

4.18 Fault memory of all systems: reading with vehicle diagnostic tester , correcting possible faults according to repair guidelines

– Read event memory ⇒ Vehicle diagnostic tester.
– Repair all faults according to repair guidelines.

Caution

The vehicle must always be delivered to the customer with event memory cleared.

Static faults

If one or more static faults are found in the event memory, we recommend seeking agreement from the customer to rectify these faults using Guided Fault Finding.

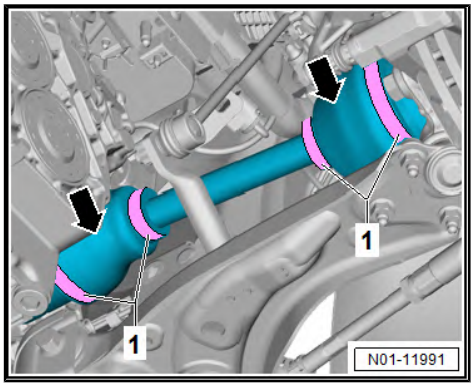
Sporadic faults

If only sporadic faults or notes are stored in the event memory and the customer has no complaints regarding the electronic vehicle system, erase event memory.

4.19 Boots: inspecting

– Check outer and inner boots -arrows- for leaks and damage.

– Ensure clamps -1- are fitted on boots.



4.20 Head-up display (HUD): removing protective film

Switching on Head-up Display

- The transport mode must be switched off.

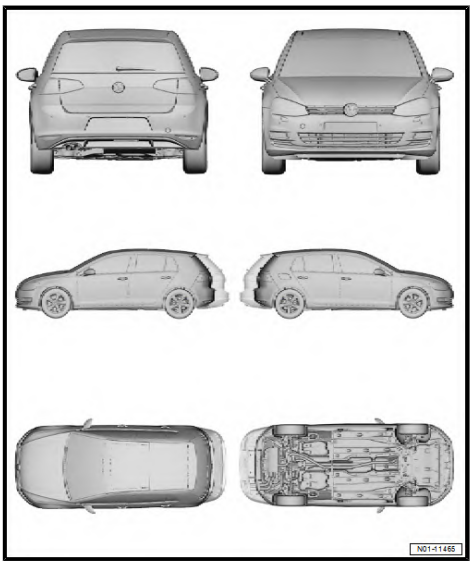
– Press control next to light switch to switch on the Head-up Display.

– Carefully remove protective film on Head-up Display.

4.21 Interior and exterior body: inspecting for corrosion with doors and flaps open

Test locations

- ♦ Sliding roof frame
- ♦ Inner and outer door frame
- ♦ Area around trim strips
- ♦ Windscreen roof edge
- ♦ Outer and inner A-pillar
- ♦ Bonnet
- ♦ Wheel arches
- ♦ Inner and outer tailgate



4.22 Poly V-belt: renewing

Procedure

⇒ Rep. gr. 13 ; Cylinder block belt pulley end; Removing and installing poly V-belt

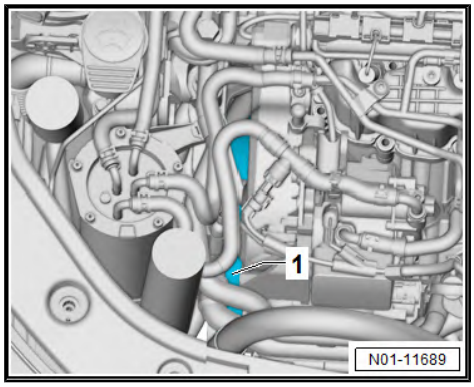
4.23 Poly V-belt: check condition

Procedure

– Use a socket spanner to turn the engine at the vibration damper/pulley.

Check poly V-belt -1- for:

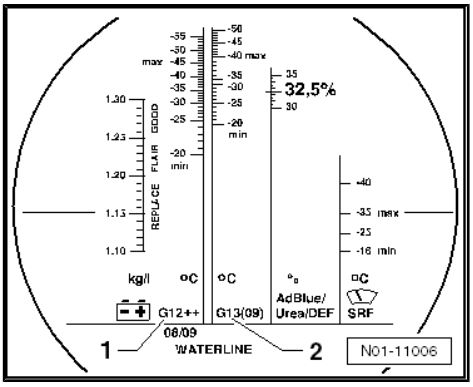
- Sub-surface cracks (cracks, core ruptures, cross sectional breaks)
- Layer separation (top layer, cord strands)
- Base break-up
- Frayed cord strands
- Flank wear (material wear, frayed flanks, flank brittleness - glassy flanks-, surface cracks)



Caution

- *If faults are found, it is absolutely necessary to renew the poly V-belt.*
- *In the case of diesel engines, toothed belts which came into contact with oil, brake fluid, fuel or reducing agent, must always be renewed.*
- *In the case of petrol engines, toothed belts which came into contact with oil, brake fluid, fuel or coolant, must always be renewed.*
- *This can avoid breakdowns and malfunctions.*
- *The replacement of a poly V-belt is a repair measure.*

4.24 Cooling system: checking frost protection and coolant level



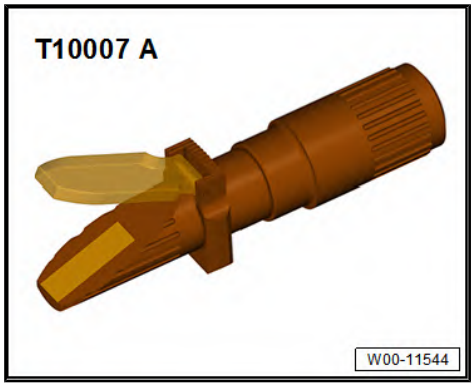
Note

- *The water used for mixing has a major influence on the effectiveness of the coolant. Because the water quality differs from country to country and even from region to region, the quality of the water to be used in the cooling system has been specified by Volkswagen. Distilled water fulfils all requirements. Therefore, only ever use distilled water when mixing coolant for topping up or renewing coolant.*
- *Use only coolant additives which conform with the ⇒ Electronic parts catalogue (ETKA) . Other coolant additives may reduce corrosion protection substantially. The resulting damage could lead to loss of coolant and subsequent severe damage to the motor.*
- *Mixed in the proper proportions, coolant inhibits frost and corrosion damage as well as scaling. Furthermore, the boiling point is raised. For these reasons, the cooling system must be filled all year round with a coolant additive.*
- *Because of its high boiling point, the coolant improves engine reliability under heavy loads, particularly in countries with tropical climates.*
- *Use ONLY refractometer - T10007A- for determining current anti-freeze value.*
- *Frost protection must be guaranteed down to -25°C as a minimum and, in countries with arctic conditions, down to approx. -36°C. Increasing the frost protection is permissible only if climatic conditions require stronger frost protection. It may, however, be increased only to a maximum of -48°C. Otherwise, the cooling effect will be impaired.*
- *Do not reduce the coolant concentration by adding water even in the warm season or in hot countries. Frost protection must be guaranteed down to at least -25°C.*
- *Read anti-freeze figures from the respective scale for type of anti-freeze added.*
- *The temperature read off the refractometer - T10007A- corresponds the »ice flocculation point«. Flakes of ice may start forming in the coolant at this temperature.*
- *Never reuse old coolant.*
- *Use only a water/coolant additive mixture as a slip agent for coolant hoses.*

4.24.1 Frost protection: checking, replenishing coolant additive if necessary

Special tools and workshop equipment required

- Refractometer - T10007 A-



Note

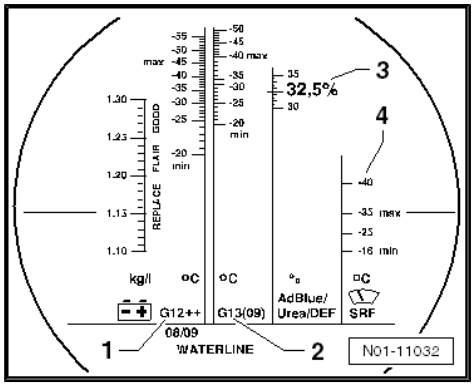
Read precise value for the following tests at light/dark boundary. Using a pipette, place a drop of water on the glass to improve the readability of the light/dark boundary. The light-dark border can be clearly recognised on the “WATERLINE”.

– Check concentration of coolant additive using refractometer - T10007 A- (refer to operating instructions).

The scale -1- of the refractometer is calibrated for coolant additives G12; G12 Plus, G12 Plus Plus and G11.

The scale -2- is only calibrated for coolant additive G13.

– If frost protection is insufficient, drain some coolant and top up with coolant additive ⇒ page 68 .



Note

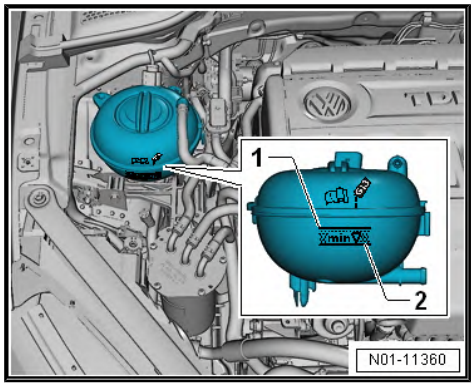
- *If the currently used coolant additive cannot be determined precisely, use the scale -2- for coolant additive G13.*
- *Please observe disposal instructions!*

– Check coolant additive concentration after road test again.

4.24.2 Coolant level: checking, replenishing coolant if necessary

– Check coolant level in coolant expansion tank with engine cold.

- Delivery inspection: coolant level is at least at marking -1-.
- At delivery inspection a coolant level above marking -1- is permissible.
- The excessive amount of coolant does not need to be extracted as the coolant level in new vehicles will decrease after the system has been bled.
- Inspection: coolant level is above “min. marking” -2-.



4.24.3 Mixing ratio:

Caution

Use only distilled water for mixing coolant additives. The use of distilled water ensures optimum protection against corrosion.

Frost protection to	Coolant additive portion	Distilled water
-25°C	approx. 40%	approx. 60%
-36°C	approx. 50%	approx. 50%

4.25 Diesel fuel filter: draining

Note

Applies only to vehicles with PR number 1A8.

Description of work

Caution

- *Ensure that no diesel fuel contacts other components in the engine compartment. Clean immediately, if necessary.*

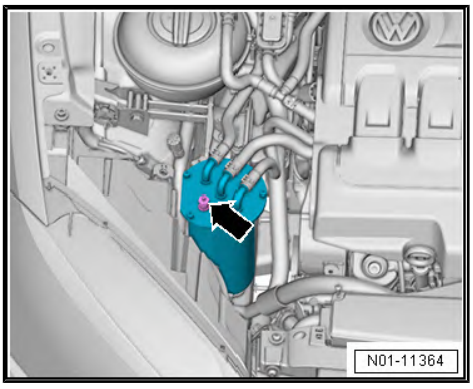
Note

Please observe disposal instructions!

– Fit a suitable hose onto banjo bolt -arrow-.
– Start engine.
– Carefully loosen banjo bolt -arrow- until water escapes.

The water is drained from the diesel fuel filter due the system pressure.

– When diesel fuel escapes, tighten banjo bolt, and pull off hose.
– Tighten banjo bolt to specified torque.



Specified torque	Nm
Banjo bolt	8

4.26 Diesel fuel filter: renewing

WARNING

Risk of burns from very hot fuel.

- *In extreme cases the fuel lines and the fuel can reach a temperature of 100°C. Allow the fuel to cool down before disconnecting the lines - risk of scalding.*
- *Wear protective gloves.*
- *Wear protective goggles.*

Risk of injury due to highly-pressurised fuel.

- *To release pressure in fuel system, place clean cloth around connection and carefully undo connection.*

Special tools and workshop equipment required

- Safety gloves
- Safety glasses

Note

Observe relevant disposal regulations.

Removing

Caution

- *Ensure that no diesel fuel contacts other components in the engine compartment. Clean immediately, if necessary.*

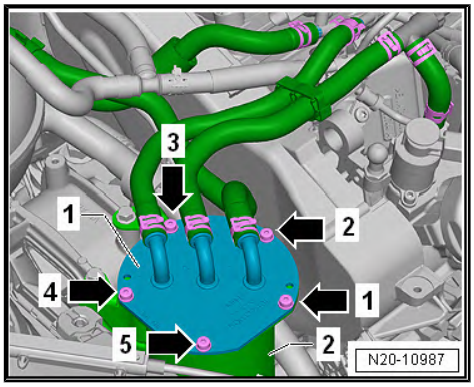
– Switch off ignition.

Note

Before opening the system, place a cloth around the filter housing.

– Unscrew bolts -arrows- in sequence shown -1- to -5-.
– Collect any escaping fuel.
– Remove upper part of fuel filter -1- from fuel filter housing -2-.

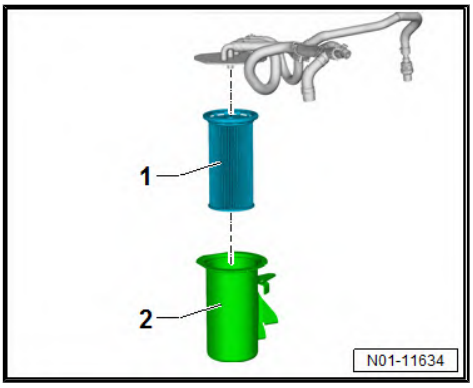
– Lay fuel filter upper part -1- aside with fuel lines still attached.



– Remove filter element -1- from fuel filter housing -2-.

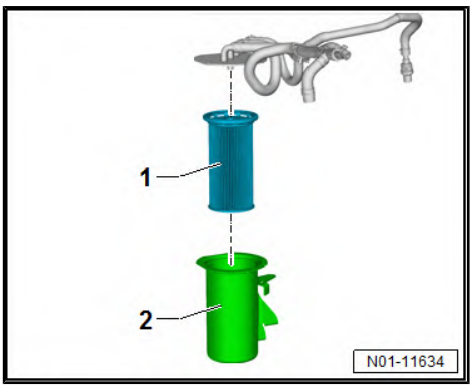
Installing

> **Caution**
>
> *Always moisten new seal slightly with diesel fuel to avoid malfunctions!*



– Insert filter element -2- centrally into fuel filter housing -1-.

Continue installation in reverse order of removal.



Specified torque	Nm
Bolts for filter housing	5

> **Caution**
>
> *The high-pressure pump has very close tolerances and must not be allowed to run without fuel. To prevent this and to enable the engine to start quickly after parts have been renewed, it is important to observe the following:*
>
> - *If components of the fuel system between the fuel tank and the high-pressure pump have been removed or renewed, the fuel system must be filled and bled before the engine is started for the first time.*

Bleeding fuel system

- There must be sufficient fuel in the tank.

– Activate fuel pump ⇒ Vehicle diagnostic tester.

– After the fuel system has been bled, start engine.
– Allow engine to run for several minutes at mid revs, then switch engine off again.
– Read event memory and erase if necessary.
– Carry out a leakage test of the fuel system.

Note

If there is still air in the fuel system, the engine can change to emergency running mode during road test. In this case, switch engine off and erase fault memory. Then continue with a road test.

4.27 Air filter: cleaning housing and renewing filter element

Air filter element: removing and installing, 1.4 l TSI engines
⇒ page 73

Air filter element: removing and installing, 1.5 l TSI engines
⇒ page 75

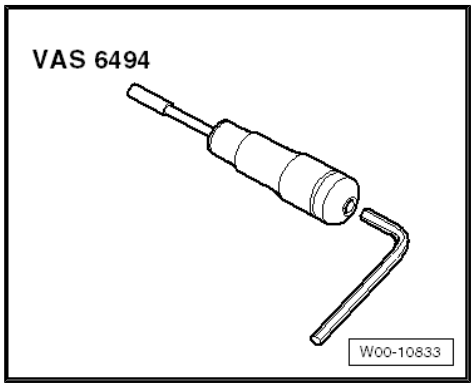
Air filter element: removing and installing, 2.0 l TSI engines
⇒ page 75

Air filter element: removing and installing, common rail engines
⇒ page 76

Air filter element, common rail engine, engine code CUAA: removing and installing ⇒ page 77

Special tools and workshop equipment required

♦ Torque screwdriver - VAS 6494-



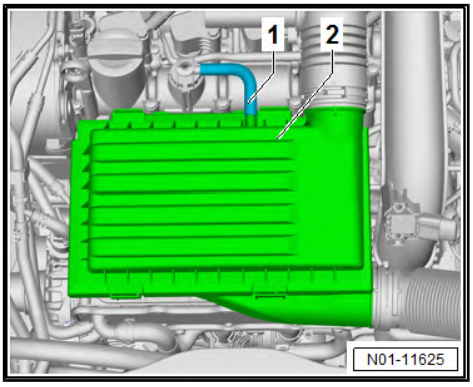
Note

- *Always use genuine part for air filter element: see Electronic parts catalogue (ETKA).*
- *Use a silicone-free lubricant when installing the intake hose.*
- *When installing the air filter element, ensure that it is properly centred in the mounting in lower part of air filter.*
- *Hose connections and hoses for charge air system must be free of oil and grease before assembly. Do not use lubricants containing silicone.*
- *Secure all hose connections with the correct type of hose clips (same as original equipment): see Electronic parts catalogue (ETKA).*

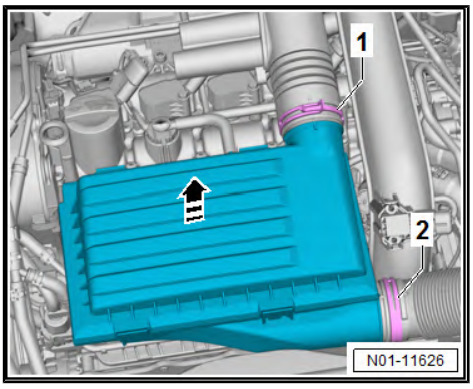
4.27.1 Air filter element: removing and installing, 1.4 l TSI engines

Removing

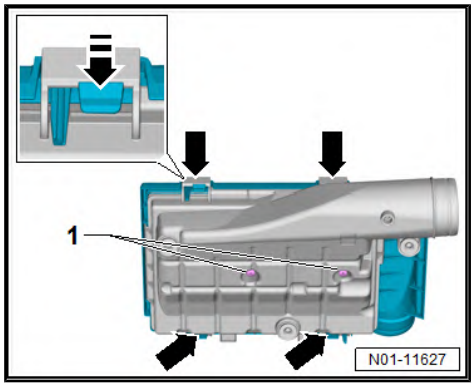
– Pull air intake hose -1- off upper part of air filter -2-.



– Release hose clips -1- and -2-.
– Pull air filter housing in -direction of arrow- off ball studs.
– Pull off both air hoses.
– Remove air filter housing completely, and place it down.



– Remove bolts -1-.
– Carefully release retaining tabs -arrows- on upper part of air filter one after the other.



Note

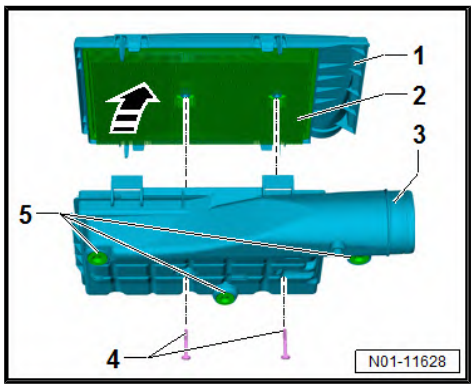
The retaining tabs may break.

– Remove upper part of air filter housing and remove air filter element.

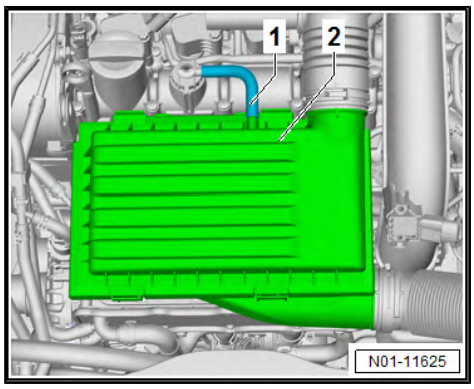
Installing

– Check air filter housing, air mass meter and water drains for soiling and clean them if necessary ⇒ page 77 .

– Insert air filter element -2- centrally into mounting in air filter upper part -1-.
– Fit lower part of air filter -3- onto upper part of air filter -1-.
– Carefully engage retaining tabs one after the other.
– Screw in bolts -4-, and tighten them to specified torque.
– Check ball stud grommets -5- for damage, and renew them as necessary.
– Position air filter housing centrally on ball studs, and press it on firmly.
– Fit both air ducts to air filter housing.



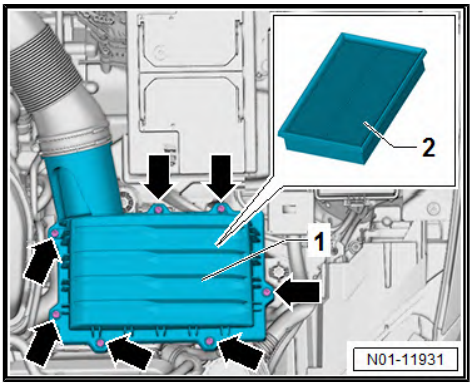
– Fit hose clips.
– Fit air intake hose -1- onto upper part of air filter -2-.



Specified torque	Nm
Securing bolts	1.5

4.27.2 Air filter element: removing and installing, 1.5 l TSI engines

Removing



– Unscrew securing bolts -arrows- from upper part of air filter housing -1- and lift it together with air ducts to one side.
– Remove air filter element -2-.

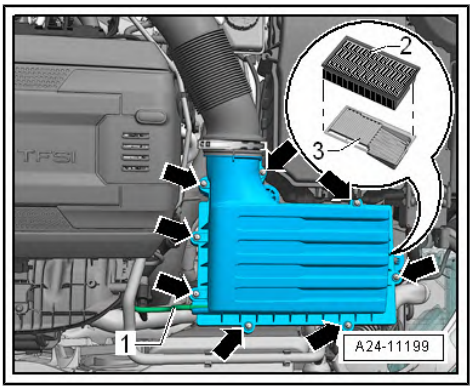
Installing

– Check air filter housing, air mass meter and water drains for soiling and clean them if necessary ⇒ page 77 .
– Insert air filter element -2- centrally into mounting in lower part of air filter.
– Carefully fit upper part of air filter onto lower part of air filter without applying excessive force. Screw in securing bolts -arrows-, and tighten them to specified torque.

Specified torque	Nm
Securing bolts	1.5

4.27.3 Air filter element: removing and installing, 2.0 l TSI engines

Removing



– Pull vacuum hose -1- off upper part of air filter.
– Unscrew securing bolts -arrows- from upper part of air filter and lift it together with air ducts to one side.
– Remove air filter element -2-.

Installing

– Check air filter housing, air mass meter and water drains for soiling, and clean them, if necessary ⇒ page 77 .
– Insert air filter element centred into mounting in lower part of air filter.
– Carefully fit upper part of air filter onto lower part of air filter without applying excessive force. Screw in securing bolts and tighten them to specified torque.

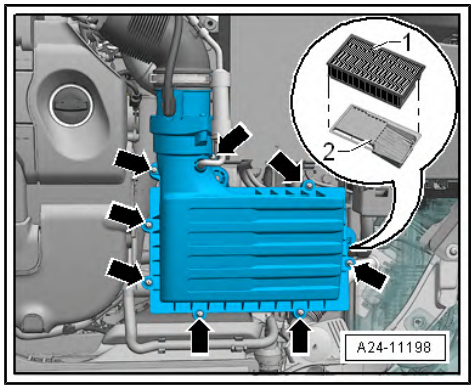
Specified torque	Nm
Securing bolts	1.5

4.27.4 Air filter element: removing and installing, common rail engines

Removing

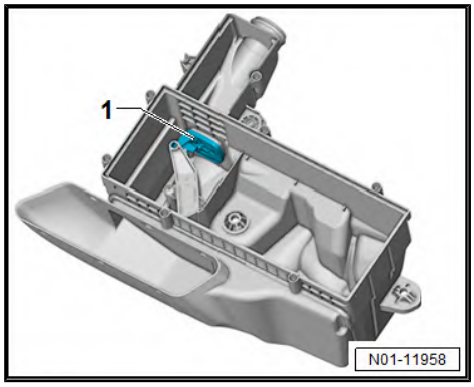
– Unscrew securing bolts -arrows- from upper part of air filter and lift it together with air ducts to one side.

– Remove air filter element -1-.



Checking position of warm air flap

– Check position of warm air flap -1- in lower part of air filter. The warm air flap must close completely at temperatures above +12°C.



Note

The snow screen land warm air flap are not fitted on all vehicles.

Installing

– Check air filter housing, air mass meter and water drains for soiling, and clean them, if necessary ⇒ page 77 .

– Insert air filter element centred into mounting in lower part of air filter.

– Carefully fit upper part of air filter onto lower part of air filter without applying excessive force. Screw in securing bolts and tighten them to specified torque.

Specified torque	Nm
Securing bolts	1.5

4.27.5 Air filter element, common rail engine, engine code CUAA: removing and installing

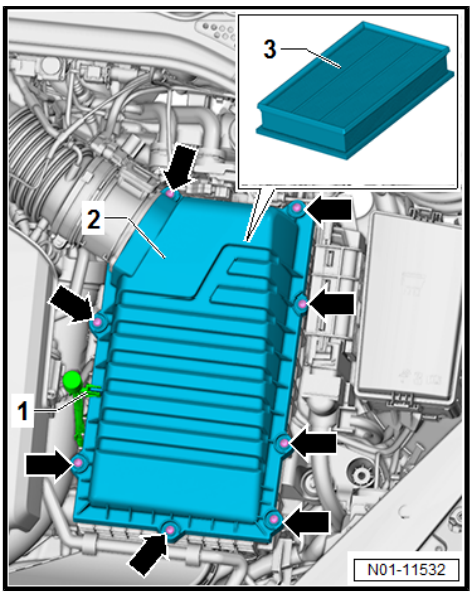
Removing

– Unclip line -1- on upper part of air filter.

– Unscrew and remove bolts -arrows- from upper part of air filter.

– Lift upper part of air filter -2-.

– Remove air filter element -3-.



Installing

– Check housing and water drains for soiling, clean if necessary.

– Insert air filter element -3- centrally into mounting in lower part of air filter.

– Carefully fit upper part of air filter -2- onto lower part of air filter without applying excessive force. Screw in securing bolts and tighten them to specified torque.

– Clip line -1- into upper part of air filter.

Specified torque	Nm
Securing bolts	1.5

4.27.6 Fuel filter housing: cleaning

Note

- *The air mass value may be falsified due to excessive soiling or moisture. This would lead to loss of power, since a smaller injection quantity is calculated.*
- *Please observe disposal instructions!*
- *The cleaning is carried out according to a separate calculation.*

– Check air mass meter and intake hose for salt residue, dirt and leaves (engine intake side).

– Check water drain hose in lower part of air filter housing for dirt and clogging.

– Remove salt residues, dirt and leaves from upper and lower part of air filter housing using a vacuum cleaner if necessary.

4.28 Multi-purpose additive for diesel fuel: adding

4.28.1 Specification for using multi-purpose additive for diesel fuel

Note

- *In the three markets mentioned below there is a particularly high risk of deposits forming on the injectors and inlet valves owing to the quality of the fuel.*
- *To counteract the formation of deposits, a multi-purpose additive for diesel fuel must be added.*
- *Only additives compliant with VW 505 26 (multi-purpose additive G 001 790 M3) may be used.*
- *After adding the additive, it is extremely important to fully refuel the vehicle to achieve optimal effectiveness of the additive.*

– During each change oil service, fill entire bottle of multi-purpose additive for diesel fuel into regular fuel tank.

Country		
China	India	Russia

4.28.2 Recommendation for using multi-purpose additive for diesel fuel

Note

- *In the following markets with a high risk of coke and deposit formation, the addition of a multi-purpose additive is recommended owing to the lower concentration of additives in the diesel fuel.*
- *Only additives compliant with VW 505 26 (multi-purpose additive G 001 790 M3) may be used.*
- *After adding the additive, it is extremely important to fully refuel the vehicle to achieve optimal effectiveness of the additive.*
- *The multi-purpose additive can also be used in all other markets that are not listed in the table.*

– During each change oil service, fill entire bottle of multi-purpose additive for diesel fuel into regular fuel tank.

Country	
Afghanistan	Mali
Egypt	Morocco
Albania	Mauritania
Equatorial Guinea	Macedonia
Argentina	Moldova
Azerbaijan	Myanmar
Belize	Dutch Overseas Territories

Country	
Benin	Nigeria
Bhutan	Pakistan
Brazil	Panama
Brunei	Paraguay
Burkina Faso	Saudi Arabia
Cayman Islands	Senegal
Democratic Republic of the Congo	Sierra Leone
Dominican Republic	Zimbabwe
El Salvador	Sri Lanka and the Maldives
Ivory Coast	South Africa
Fiji	Sudan
Gambia	South Sudan
Georgia	Surinam
Ghana	Syria
Guatemala	Thailand
Guinea	Togo
Guinea-Bissau	Trinidad and Tobago
Guyana	Chad
Haiti	Turkmenistan
Honduras	Ukraine
Indonesia	USA
Iraq	Belarus
Jamaica	Venezuela
Jordan	Central African Republic
Cambodia	Zimbabwe
Cameroon	
Canada	
Cape Verde	
Caribbean, left-hand traffic	
Columbia	
Laos	
Lebanon	
Liberia	

4.29 Multi-purpose additive for petrol fuel: adding

4.29.1 Specification for using multi-purpose additive for petrol fuel

Note

- *In the three markets mentioned below there is a particularly high risk of deposits forming on the injectors and inlet valves owing to the quality of the fuel.*
- *To counteract the formation of deposits, a multi-purpose additive for petrol fuel must be added.*
- *Only additives compliant with VW 507 53 B (multi-purpose additive G 001 780 M3) may be used.*
- *Observe the dosing instructions on the additive container.*
- *After adding the additive, it is extremely important to fully refuel the vehicle to achieve optimal effectiveness of the additive.*

– Fill multi-purpose additive for petrol fuels into regular fuel tank during each oil change service.

Country		
China	India	Russia

4.29.2 Recommendation for using multi-purpose additive for petrol fuel

Note

- *In the following markets with a high risk of coke and deposit formation, the addition of a multi-purpose additive is recommended owing to the elevated olefin content and aromatics in the petrol.*
- *Only additives compliant with VW 507 53 B (multi-purpose additive G 001 780 M3) may be used.*
- *Observe the dosing instructions on the additive container.*
- *After adding the additive, it is extremely important to fully refuel the vehicle to achieve optimal effectiveness of the additive.*
- *The multi-purpose additive can also be used in all other markets that are not listed in the table.*

– Fill multi-purpose additive for petrol fuels into regular fuel tank during each oil change service.

Country
Algeria
Bahrain
Bolivia
Brazil
Ghana

Country
Indonesia
Iraq
Iran
Japan
Yemen
Jordan
Cambodia
Qatar
Columbia
Kuwait
Lebanon
Malaysia
Mauritius
Niger
Nigeria
Oman
Pakistan
Peru
Philippines
Saudi Arabia
Senegal
Singapore
Surinam
Syria
Chad
Uzbekistan
United Arab Emirates
Vietnam

4.30 Engine and components in engine compartment: inspecting for leaks and damage (from above and below)

– Remove engine cover panel, if necessary. ⇒ page 82

– If necessary, remove engine cover panel (noise insulation) - bottom- ⇒ page 83 .

Inspect as follows:

– Check engine and components in engine compartment for leaks and damage.

– Lines, hoses and connections

♦ Fuel system

♦ Cooling and heating system

♦ Lubrication system

♦ Air conditioning system

♦ Intake system

- And brake system

Check for leaks, abrasion, porousness, cracks, correct seating and attachment in retainers.

Note

- *Arrange for defects to be rectified as repair measures.*
- *If fluid loss is greater than can be expected through normal use, determine source and rectify (repair measure).*

4.31 Engine cover panel “top”: removing and installing

Engine cover panel: removing and installing, 1.5 l TSI engines ⇒ page 82

Engine cover panel: removing and installing, 2.0 l TSI engines ⇒ page 83 .

Engine cover panel: removing and installing, common rail diesel engines ⇒ page 83

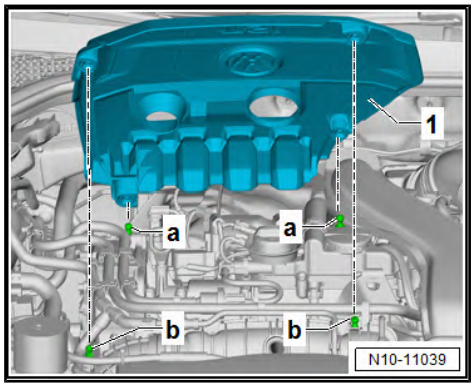
4.31.1 Engine cover panel: removing and installing, 1.5 l TSI engines

Removing

– Lift engine cover panel -1- off ball studs in the following sequence.

– Pull engine cover panel -1- off ball studs -a- first.

– Then pull engine cover panel -1- off ball studs -b-.



Installing

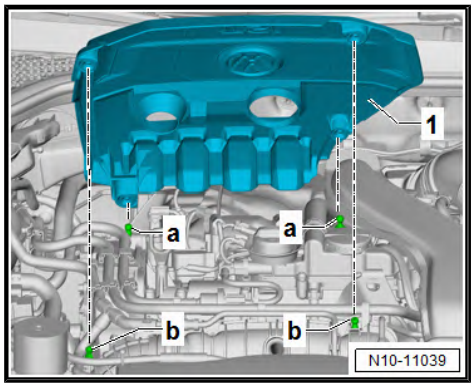
Install in the reverse order of removal, observing the following:

Note

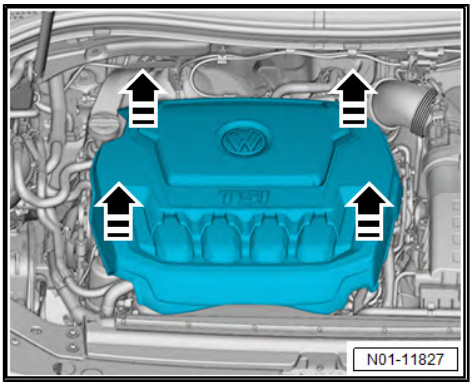
- *Moisten ball studs with water (without additive) prior to installation.*
- *Check that the rubber buffers are seated correctly in the engine cover panel, and adjust if necessary.*
- *Keep to the sequence during assembly.*

– Press engine cover panel -1- on ball studs -b-.

– Then press engine cover panel -1- on ball studs -a-.



4.31.2 Engine cover panel: removing and installing, 2.0 l TSI engines



Removing

– Carefully pull engine cover panel off retaining pins one after the other -arrows-. Do not pull off motor cover panel abruptly or only on one side.

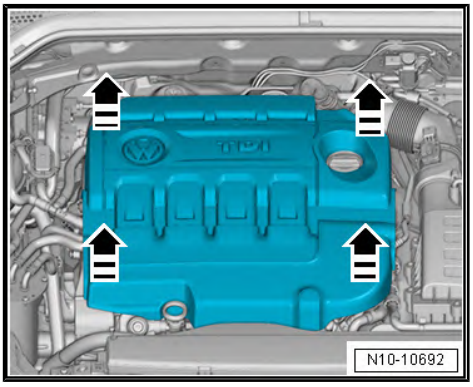
Installing

– To prevent damage, do not strike engine cover panel with your fist or a tool.

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

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

4.31.3 Engine cover panel, common rail diesel engines: removing and installing



Removing

– Carefully pull engine cover panel off retaining pins one after the other -arrows-. Do not pull off motor cover panel abruptly or only on one side.

Installing

– To prevent damage, do not strike engine cover panel with your fist or a tool.

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

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

4.32 Engine compartment cover (noise insulation) “bottom”: removing and installing

Procedure

The procedure of removing the engine cover panel -bottom- (noise insulation) can be found in Workshop Manual under:

⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Assembly overview - noise insulation

4.33 Engine oil level: checking

Note the following:

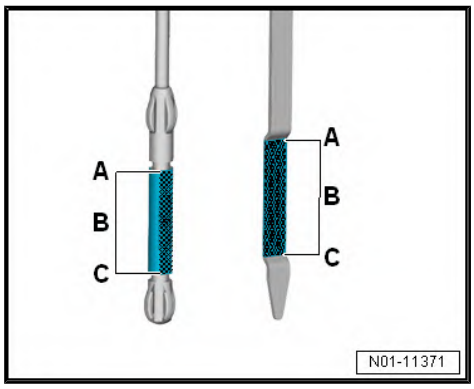
– After shutting off engine, wait at least 3 minutes so that the oil can flow back into the sump.

– Pull out dipstick, wipe with a clean cloth and push dipstick in again to limit stop.

– Pull dipstick out again and read oil level.

Note

- *The oil level must always be in the upper third of area -B- for the delivery inspection. This way, you will achieve the greatest possible customer satisfaction.*
- *The oil-change quantity in the service table was determined experimentally and is sufficient for the technical functionality of the engine in all operating conditions. During all other service events, the oil level must be checked and corrected as necessary if the customer requests this. This enables an additional topping-up to the specified oil quantity to the upper limit of the dip stick. Due to tolerances, the oil temperature and the drip time, various quantities may be required for topping up.*



A - Do not top up oil.

B - Oil can be replenished up to the max. mark -A-.

C - Oil must be replenished. The oil level must then be at least in the upper half of the measuring area -B-.

– If oil level is above max. mark -A-, drain or extract excess oil to prevent damage to catalytic converter.

– If the oil level is below min. marking -C- replenish a sufficient amount of oil (at least 0.5 l) ⇒ page 8 .

4.34 Engine oil: draining; renewing oil filter and filling engine oil

Notes on engines with turbocharger ⇒ page 84

Engine oil: draining and renewing oil filter, 1.4 l TSI and 1.5 l TSI engines ⇒ page 85

Engine oil: draining and renewing oil filter, 2.0 l TSI engines ⇒ page 87

Engine oil: draining and renewing oil filter, common rail diesel engines ⇒ page 90

Engine oil: replenishing ⇒ page 92

4.34.1 Notes on engines with turbocharger

After the engine oil has been changed and the oil filter has been renewed, observe the following when starting the engine for the first time:

- The engine must only run at idling speed as long as the oil pressure warning lamp lights up in dash panel.
- Do not rev up!
- The full oil pressure is not attained until the warning lamp has gone out. Only then can the engine be revved up.

Caution

If the engine is revved up the turbocharger can be damaged or fail completely. Since the turbocharger runs at very high speeds, the bearings may fail within seconds in the event of inadequate lubrication.

If leaks, vibrations and unusual noises are encountered on the turbocharger, immediately switch off the engine.

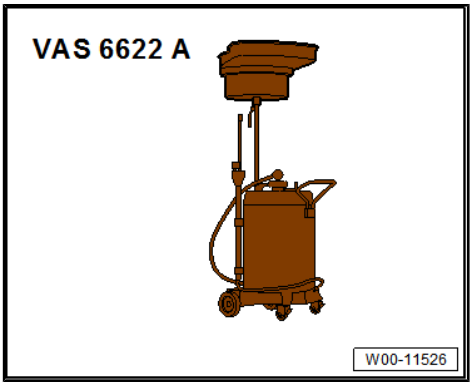
4.34.2 Engine oil: draining and renewing oil filter, 1.4 l TSI and 1.5 l TSI engines

Caution

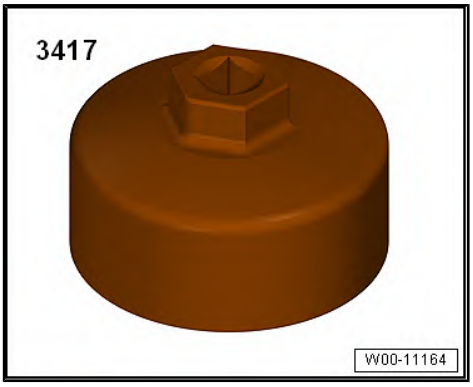
- *Catalytic converter damage due to excessive engine oil in the engine. Too much oil remains after extracting.*
- *Always drain engine oil. Vacuum extraction is not allowed.*

Special tools and workshop equipment required

- Used oil collector and extractor - VAS 6622A-

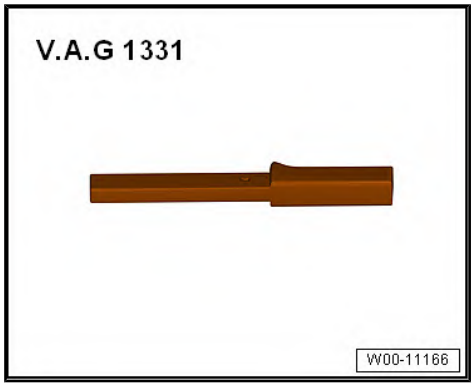


- Oil spill cloth
- Oil filter tool - 3417-



- Hazet oil filter strap - 2171-1-

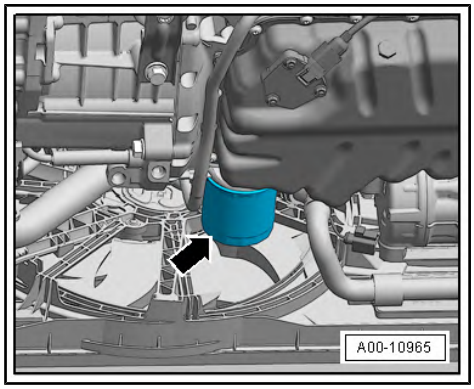
- Torque wrench - V.A.G 1331-



Removing oil filter

– Remove “bottom” engine compartment cover (noise insulation) ⇒ page 83 .

– Loosen oil filter element -arrow- using Hazet oil filter strap - 2171-1- or oil filter tool - 3417- , and remove oil filter.



Installing oil filter

– Clean sealing surface for oil filter on engine.

– Moisten rubber seal of oil filter element with engine oil.

– Screw in oil filter element -arrow- using oil filter tool - 3417- , and tighten it to specified torque.

Specified torque	Nm
Oil filter	20

Draining engine oil on 1st oil change ⇒ page 86

Draining engine oil after 1st oil change ⇒ page 87

Draining engine oil on 1st oil change

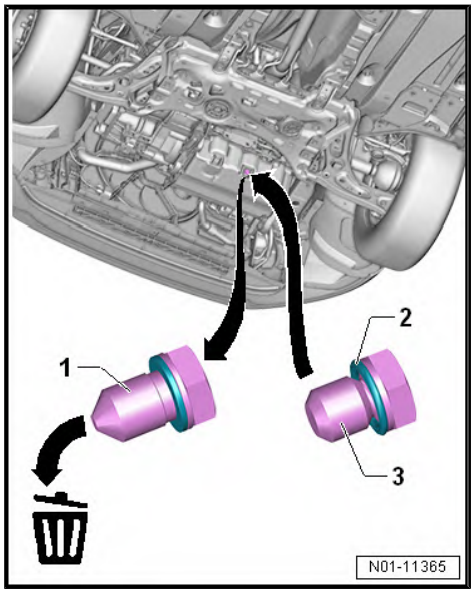
– Unscrew and dispose of oil drain plug with captive seal -1-.

– Let engine oil drain.

Note

Please observe disposal instructions!

– Screw in new oil drain plug -3- with new seal -2- hand-tight first and then tighten it to specified torque.



Draining engine oil after 1st oil change

– Unscrew oil drain plug -2- and dispose of seal -3-.

Note

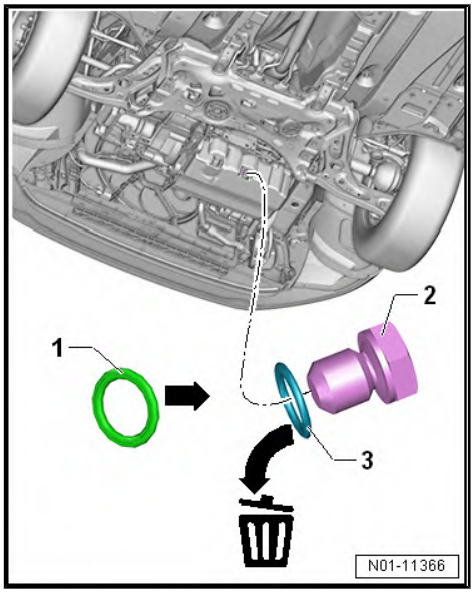
The oil drain plug will be reused after the 1st oil change.

– Let engine oil drain.

Note

Please observe disposal instructions!

– Screw in oil drain plug -2- with new seal -1- hand-tight and then tighten it firmly to specified torque.
– Install engine compartment cover (noise insulation) “bottom” ⇒ page 83 .



Specified torque	Nm
Oil drain plug	30

– Replenish engine oil.

Engine oil capacity:

- ⇒ Maintenance tables
- Engine oil: capacities and specifications ⇒ page 92

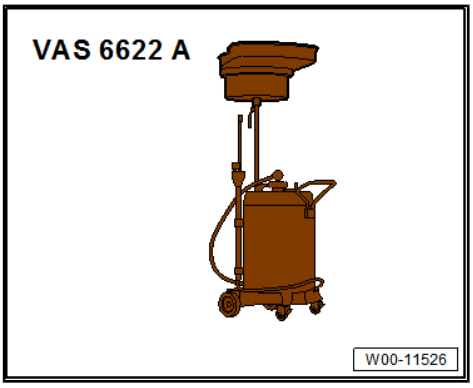
WARNING

- *Torque specifications must not be exceeded.*
- *Excessive torque can cause leaks in the area of the oil drain plug or even damage.*

4.34.3 Engine oil: draining and renewing oil filter, 2.0 l TSI engines

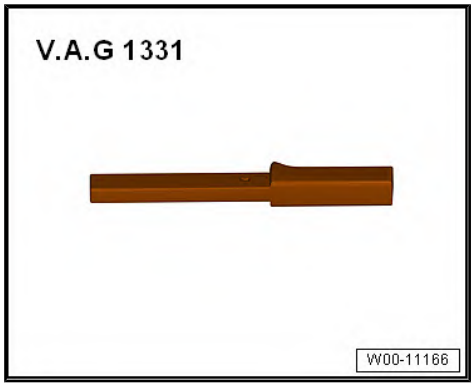
Special tools and workshop equipment required

- Used oil collector and extractor - VAS 6622A-



- 32 mm hexagon socket insert

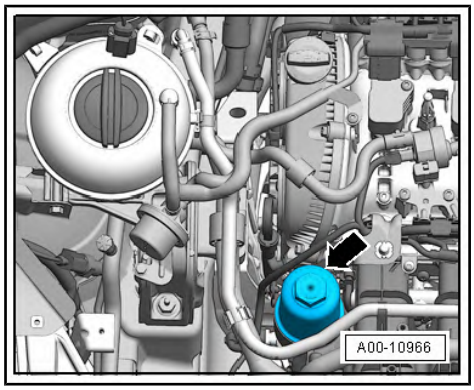
- Torque wrench - V.A.G 1331-



- Oil spill cloth
- Assembly tool - T10549-

Removing oil filter

– Remove engine cover panel ⇒ page 82 .
– Loosen oil filter housing -arrow- using 32 mm hexagon socket insert .
– Wait a few minutes for engine oil to flow back from oil filter housing.
– Remove complete oil filter housing -arrow-.

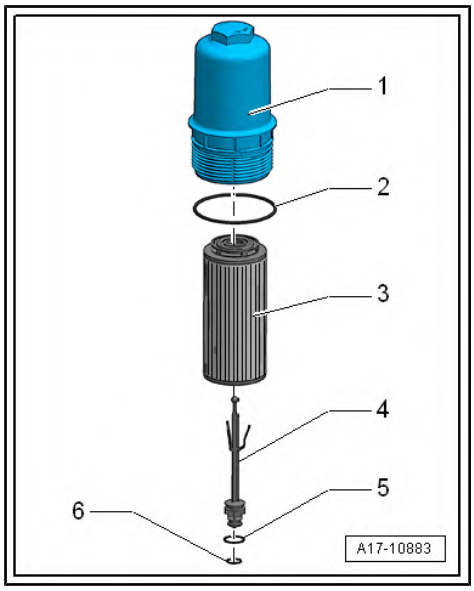


Note

Ensure that no engine oil drips onto engine. Use a cloth for collecting any dripping oil.

Oil filter: renewing element

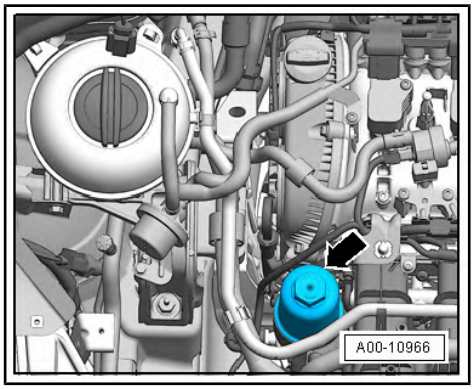
– Pull out filter element.
– Moisten new O-ring -2- with engine oil and insert it into groove in oil filter housing -1-.
– Renew filter element -3-.



Note

Disregard the remaining items -4, 5 and 6-.

– Tighten oil filter housing -arrow- to specified torque using 32 mm hexagon socket insert .



Specified torque	Nm
Oil filter housing	25

Note

- *Depending on version, the vehicle is fitted with a sump made of sheet-metal or plastic.*
- *After the engine oil has been drained, the oil drain plug (sheet-metal sump) or the sealing plug (plastic sump) must always be renewed. This prevents leaks.*
- *Please observe disposal instructions!*

– Remove “bottom” engine compartment cover (noise insulation) ⇒ page 83 .

– Unscrew oil drain plug or sealing plug. Unscrew plug using assembly tool - T10549- .

– Let engine oil drain.

– Screw in new oil drain plug together with seal hand-tight, and then tighten to specified torque. Or tighten new sealing plug to stop. Moisten new O-ring of sealing plug with engine oil before installing it.

– Install engine compartment cover (noise insulation) “bottom” ⇒ page 83 .

Specified torque	Nm
Oil drain plug	30

– Replenish engine oil.

Note

Proceed slowly when pouring in the engine oil. The filler neck is narrow, and the housing structure is directly underneath it. This causes the oil to run very slowly. If necessary, use oil filler funnel VAS 6842 for pouring in the engine oil.

Engine oil capacity:

- ⇒ Maintenance tables
- Engine oil: capacities and specifications ⇒ page 92

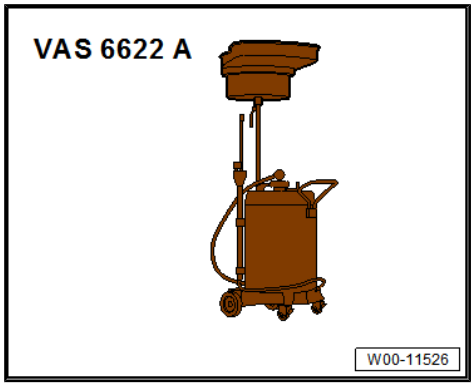
WARNING

- *Torque specifications must not be exceeded.*
- *Excessive torque can cause leaks in the area of the oil drain plug or even damage.*

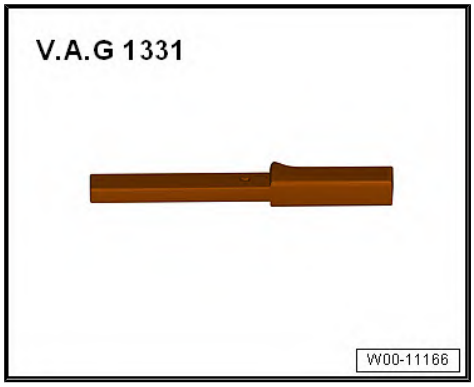
4.34.4 Engine oil: draining and renewing oil filter, common rail diesel engines

Special tools and workshop equipment required

- Used oil collector and extractor - VAS 6622A-

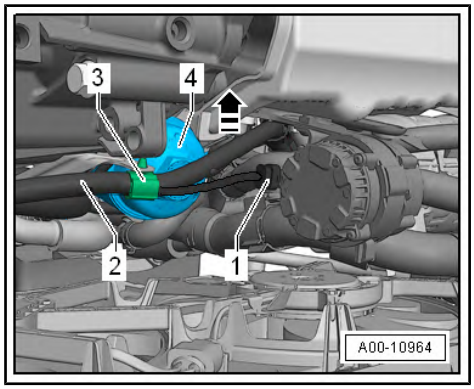


- 32 mm hexagon socket insert
- Torque wrench - V.A.G 1331-



- Oil spill cloth

– Remove “bottom” engine compartment cover (noise insulation) ⇒ page 83 .
– Disconnect connector -1- from return-flow pump.
– Unclip alternator cable -2- from clip -3- and swing it in -direction of arrow-.
– Unscrew oil drain plug -1- from screw cap -3- and drain engine oil.



Removing oil filter

– Remove screw cap -3- using 32 mm hexagon socket insert .

Oil filter: renewing element

– Pull out oil filter element -5-.

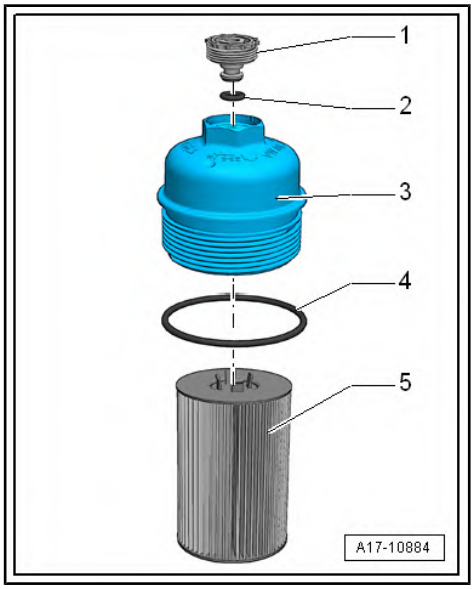
– Insert O-ring -2- in groove of oil drain plug for screw cap -1-. Screw in oil drain plug and tighten it to specified torque.

– Moisten new O-ring -4- with engine oil and renew oil filter element -5-.

– Screw on screw cap -3- and tighten it to specified torque using 32 mm hexagon socket insert .

– Clip in alternator cables and connect connector to return-flow pump.

– Clean all lines contaminated with engine oil using oil spill cloth .



Specified torque	Nm
Screw cap for oil filter	25
Oil drain plug in screw cap	5

– Remove oil drain plug.

– Let engine oil drain.

Note

- *After the engine oil has been drained, the oil drain plug must always be renewed. This prevents leaks.*
- *Please observe disposal instructions!*

– Screw in oil drain plug together with seal hand-tight and then tighten to specified torque.

– Install engine compartment cover (noise insulation) “bottom” ⇒ page 83 .

Specified torque	Nm
Oil drain plug	30

– Replenish engine oil.

Engine oil capacity:

- ⇒ Maintenance tables
- Engine oil: capacities and specifications ⇒ page 92

WARNING

- ***Torque specifications must not be exceeded.***
- ***Excessive torque can cause leaks in the area of the oil drain plug or even damage.***

4.34.5 Engine oil: replenishing

Special tools and workshop equipment required

- Oil filler funnel - VAS 6842A-

– When adding oil, use oil filler funnel - VAS 6842A- as appropriate.

– Clean sealing surface in engine oil filler neck using a lint-free cloth prior to screwing in the cap.

Engine oil: capacities and specifications ⇒ page 92

Oil level: checking ⇒ page 83

4.35 Engine oil: capacities and specifications

A new VW standard for engine oil - 508 00/509 00 - has been introduced with immediate effect. This is distinguished by reduced fuel consumption and CO_2 emissions.

The main facts are the following:

- VW 508 00/509 00 is a combined product that meets the petrol specification as VW 508 00 and the diesel specification as VW 509 00.
- Volkswagen recommends not using the new specifications for older engine generations. The recommended specifications are allocated to the engines in this chapter.
- Engines with particulate filter (petrol and diesel) can also be filled with oil standard VW 504 00/507 00 when serviced. However, the caveat could be elevated fuel consumption and CO_2 emissions.
- Engines without particulate filter can also be filled with oil standard VW 502 00/505 01 when serviced. However, the caveat could be elevated fuel consumption and CO_2 emissions.
- The new oil is miscible.
- If oil with VW engine oil standard 508 00/509 00 is used in engines that are not recommended for this, engine damage could ensue.
- As of model year 2018, engines that are not recommended to be used with the new oil will have a notice (lock carrier/engine compartment) from which the oil standard to be used can be gleaned.
- For an overview of the engine oils recommended by Volkswagen, refer to ⇒ Volkswagen InfoNet, Service, Inspection and Maintenance, Approved oils

Tiguan to model year ►2017					
Petrol engines		Oil quantity with filter (l)			
Engine code	Capacity / output		With flexible service	With fixed service	
				Not compliant with EN 228 **⇒ page 23**	**Applies only for EN 228 and USA and Canada**
CHHB	2.0 l / 162 kW	5.7	504 00	502 00	504 00, 502 00
CZCA	1.4 l / 92 kW	4.0	504 00	502 00	504 00, 502 00
CZDA	1.4 l / 110 kW	4.0	504 00	502 00	504 00, 502 00
CZEA	1.4 l / 110 kW	4.0	504 00	502 00	504 00, 502 00

Tiguan to model year ▸2017					
Petrol engines		Oil quantity with filter (l)			
Engine code	Capacity / output		With flexible service	With fixed service	
				Not compliant with EN 228 ⇒ page 23	Applies only for EN 228 and USA and Canada
CZPA	2.0 l / 132 kW	5.7	508 00, 504 00	502 00	508 00, 504 00, 502 00
DJVA 1)	1.4 l / 110 kW	4.0	508 00, 504 00	504 00	508 00, 504 00

1) With petrol particulate filter

Tiguan from model year 2018▸					
Petrol engines		Oil quantity with filter (l)	VW engine oil standards		
Engine code	Capacity / output		With flexible service	With fixed service	
				Not compliant with EN 228 ⇒ page 23	Applies only for EN 228 and USA and Canada
CHHB	2.0 l / 162 kW	5.7	504 00	502 00	504 00, 502 00
CZCA	1.4 l / 92 kW	4.0	508 00, 504 00	502 00	508 00, 504 00, 502 00
CZDA	1.4 l / 110 kW	4.0	508 00, 504 00	502 00	508 00, 504 00, 502 00
CZEA	1.4 l / 110 kW	4.0	508 00, 504 00	502 00	508 00, 504 00, 502 00
CZPA	2.0 l / 132 kW	5.7	508 00, 504 00	502 00	508 00, 504 00, 502 00
DADA 1)	1.5 l / 110 kW	4.3	508 00, 504 00	504 00	508 00, 504 00
DACB 1)	1.5 l / 96 kW	4.3	508 00, 504 00	504 00	508 00, 504 00
DJVA 1)	1.4 l / 110 kW	4.0	508 00, 504 00	504 00	508 00, 504 00
DKTA 1)	2.0 l / 169 kW	5.7	508 00, 504 00	504 00	508 00, 504 00
DKZA 1)	2.0 l / 140 kW	5.7	508 00, 504 00	504 00	508 00, 504 00

1) With petrol particulate filter

Tiguan				
Diesel engines		Oil quantity with filter (l)	VW engine oil standards	
Engine code	Capacity / output		With flexible service	With fixed service
CRFC	2.0 l / 105 kW	4.7	---	505 01
CRFD	2.0 l / 105 kW	4.7	---	505 01
CRGA	2.0 l / 130 kW	4.7	---	505 01
CRGB	2.0 l / 130 kW	4.7	---	505 01
CUAA	2.0 l / 176 kW	4.9	507 00	507 00
CYKB	2.0 l / 81 kW	5.5	507 00	507 00
CYKC	2.0 l / 81 kW	5.5	507 00	507 00
DBGA	2.0 l / 110 kW	5.5	507 00	507 00
DBGC	2.0 l / 110 kW	5.5	507 00	507 00
DCYA	2.0 l / 110 kW	4.7	507 00	507 00

Tiguan				
Diesel engines		Oil quantity with filter (l)	VW engine oil standards	
Engine code	Capacity / output		With flexible service	With fixed service
DCYB	2.0 l / 81 kW	4.7	507 00	507 00
DDMA	2.0 l / 140 kW	4.7	507 00	507 00
DFGA	2.0 l / 110 kW	4.7	507 00	507 00
DFGB	2.0 l / 81 kW	4.7	507 00	507 00
DFGC	2.0 l / 85 kW	4.7	507 00	507 00
DFHA	2.0 l / 140 kW	4.7	507 00	507 00
DGDB	1.6 l / 85 kW	4.7	507 00	507 00

4.36 Panorama sliding roof with rear panorama roof

Note

- *Lubricating paste G 060 751 is coloured grey and easy to detect. The new special lubricant G 060 567 is colourless and barely noticeable.*
- *Employing the new special lubricant results in a new procedure in the course of servicing.*
- *A differentiation is made between countries with high dust ⇒ page 25 and low dust levels.*
- *In countries with low dust levels, only function and noise are checked. In countries with high dust levels, the panorama sliding roof must continue to be cleaned and lubricated.*
- *Rather than a brush, it is better to apply the lubricant with a spray can and a long capillary tube.*

Special tools and workshop equipment required

- Special lubricant G 060 567 A2 (spray can with long capillary tube)
- Industrial vacuum cleaner
- Lint-free cloth
- Commercially-available brush: approx. 15 mm wide, angled to approx. 40° in a workshop

Noise and function: checking ⇒ page 94

Clean and grease guide rails and clean wind deflector ⇒ page 95

4.36.1 Noise and function: checking

– Check roof system for damage.

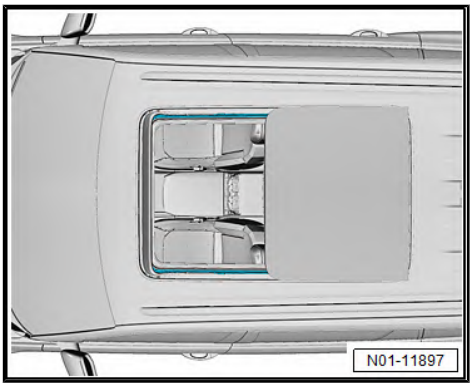
– Check function of roof system, i.e. open and close glass panel and sliding headliner/roller blind completely.

Other than the noises associated with normal operation there should be no unusual noises, such as chattering, squeaking, clicking, nor should there be any vibration.

4.36.2 Guide rails: cleaning and greasing, cleaning wind deflector

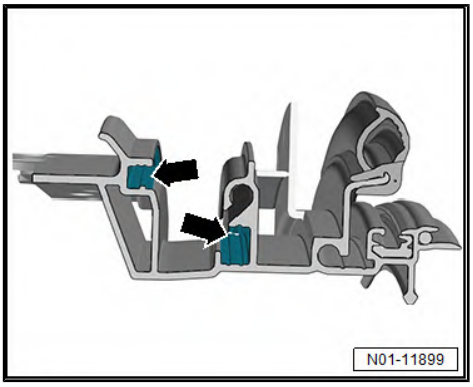
– Open roof system completely and remove loose particles of dust in guide rails in advance using a wet and dry vacuum cleaner .

– Remove residual grease and dirt from guide rails using iso-propanol and a lint-free cloth.

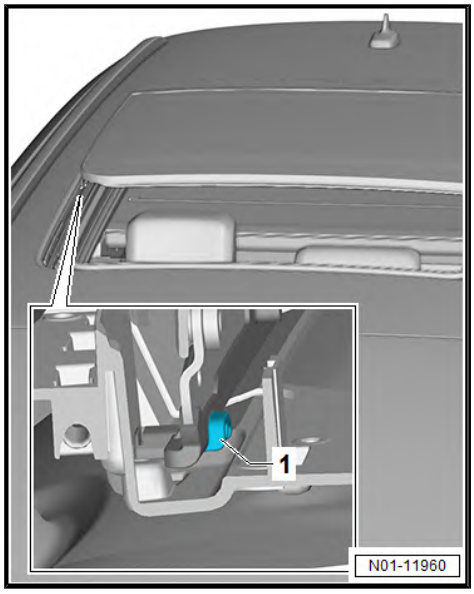


– Lubricate inside and outside of whole guide rail -arrows-.

– Repeat the process on the other side of the vehicle.



– Clean coarse dirt from support for mechanism -1- using a grease-free brush or a lint-free cloth.
– Grease support for mechanism -1- using a brush.
– Repeat the process on the other side of the vehicle.
– After lubricating, open and close roof system once completely and then remove excess grease.



Note

Ensure that no other components are soiled.

Caution

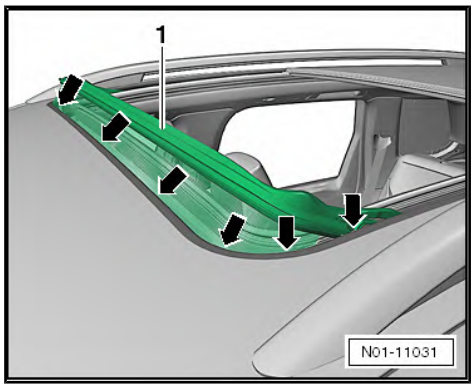
Faults found must always be rectified (repair measure).

Wind deflector: clean.

Note

Only if wind deflector with net is fitted.

– Check the wind deflector -1- for dirt. In particular, check lower part of wind deflector for dirt -arrows-.
– Remove dirt deposits using wet and dry vacuum cleaner , for example.



Note

- *To remove insects and particles from the net and wind deflector frame, use a sponge and a soapy solution.*
- *Mixing ratio for soap solution: 3 drops of washing-up liquid to 1 litre of water*

Caution

Do not use commercially-type insect removers or other removal agents as these products have not been appraised and approved.

Use a suitable nozzle for the wind deflector so that the net is not damaged.

Ensure that no dirt enters the inside of the vehicle while this work is being carried out.

– Then remove loose insects and particles using a vacuum cleaner with a suitable nozzle.

4.37 Road test: performing (driving behaviour, noises, air conditioner etc.)

Which of the following can be checked depends on vehicle equipment and local conditions (urban/country).

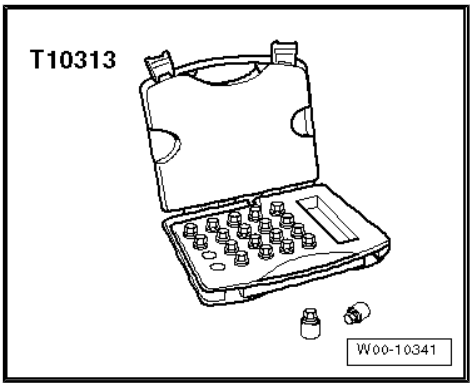
Check the following during a road test:

- Engine: output, misfiring, idling speed, acceleration
- Clutch: pulling away, pedal pressure, odours
- Gear selection: ease of operation, stick position
- Automatic gearbox: Selector lever position, shift lock/ignition key removal lock, shift behaviour, dash panel insert display
- Foot brake and handbrake: function, free travel and effectiveness, pulling to one side, juddering, squeal
- ABS function: pulsing must be felt at the brake pedal during ABS-regulated braking
- Steering: function, steering free clearance, steering wheel centred when vehicle is travelling straight ahead
- Tilting roof: function
- Radio/radio navigation system: function, reception, GALA, interference noise
- Multi-function indicator (MFI): functions
- Air conditioning system: check function (At low temperatures the function of air conditioner must be checked in a workshop).
- Vehicle: pulls to one side when travelling straight ahead (level road).
- Imbalance: wheels, drive shafts, propshaft
- Noise/vibration: wheel bearing, exhaust system
- Engine: hot starting behaviour

4.38 Wheel securing bolts: tightening to specified torque

Special tools and workshop equipment required

- Adapter set for tamper-proof wheel bolts - T10313-

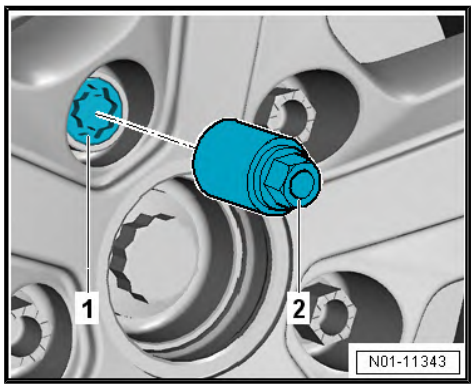


- Torque wrench - V.A.G 1332-

Note

- *To loosen/tighten the anti-theft wheel bolts a special adapter, located in vehicle tool kit, is required.*
- *To loosen the anti-theft wheel bolts (lockable wheel bolts) do not use an impact screwdriver.*
- *If the adapter to loosen or tighten the anti-theft wheel bolts is not available in the vehicle, use the corresponding adapter set for tamper-proof wheel bolts.*

– Fit adapter -2- onto anti-theft wheel bolt -1- as far as stop.
– Fit wheel brace onto adapter -2- as far as stop.
– Tighten wheel bolts diagonally to specified torque.



Specified torque	Nm
Wheel bolts	140

4.39 Reducing agent (AdBlue®/DEF): replenishing

Note

To prevent the descriptions from becoming unclear, the "NO_X reducing agent AUS 32" (AdBlue®) is merely called reducing agent (AdBlue®/DEF) in the following texts.

Caution

Only the reducing agent (AdBlue®/DEF) can be used in Blue TDI vehicles. NEVER fill in additive which has been used in the past. It can destroy the reducing agent.

Note

- *The following description applies to diesel vehicles with SCR process (selective catalytic reduction).*
- *Additional information on the SCR process and reducing agent (AdBlue ®/DEF) can be found in the glossary* ⇒ page 141

General notes ⇒ page 99

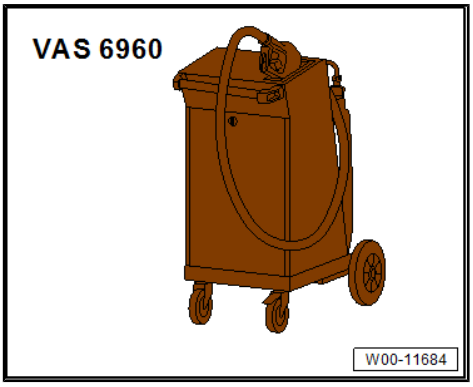
Health/endangerment and cleaning ⇒ page 101

Disposal instructions ⇒ page 101

Filling reducing agent tank ⇒ page 101

Special tools and workshop equipment required

- Filling device for AdBlue - VAS 6960-



4.39.1 General information

Characteristics

- The reducing agent (AdBlue®/DEF) is not a diesel additive and must not be poured into the diesel fuel tank.
- The reducing agent (AdBlue®/DEF) is used for exhaust treatment to reduce nitrogen oxides in the exhaust gas of diesel powered vehicles.
- The reducing agent (AdBlue®/DEF) reduces these nitrogen oxides to water and nitrogen.
- The reducing agent (AdBlue®/DEF) is a high-purity 32.5% urea solution and is used in systems with exhaust treatment (SCR catalytic converters) ⇒ page 141 for diesel engines.
- The reducing agent (AdBlue®/DEF) is legally required for operating vehicles with SCR.
- AdBlue® is a registered trademark of the Verband der Automobilindustrie e. V. (VDA) in the USA, Germany, the European Union and other countries.

Application

- Do not mix additives with reducing agent (AdBlue®/DEF).
- Do not dilute the reducing agent (AdBlue®/DEF) with water.
- Do not use fluid which has already been used.
- Use only reducing agent (AdBlue®/DEF) in the intended, original containers. Also note the expiry date information.
- Additionally note the reducing agent manufacturer's usage and storage instructions.

Technical data

- “NO_X reducing agent AUS 32” is the designation according to ISO 22241-1.
- The reducing agent (AdBlue®/DEF) is contained in a separate tank in the vehicle. It is NOT therefore mixed with diesel fuel.

- A refill container approved by Volkswagen must be used for replenishing the reducing agent (AdBlue®/DEF).
- The part numbers for available sizes of containers is available in ⇒ ETKA .

Insufficient reducing agent

If the level of reducing agent is low, one of the following messages appears on the dash panel insert:

- From a remaining distance of 2400 km, a gong sounds and “Top up AdBlue (DEF)!” is displayed“ Remaining distance 2400 km”.
- From a remaining distance of 1000 km, a warning buzzer sounds and “Top up AdBlue (DEF)!” is displayed“ No engine starting in 1000 km”
- From a remaining distance of 0 km, a warning buzzer sounds three times and “Top up AdBlue (DEF)!” is displayed“ Engine start no longer possible is shown.”

System malfunction or incorrect filling

Caution

The vehicle is damaged by filling with reducing agent (AdBlue®) NOT in compliance with the standard or with other fluids.

In case of system malfunction or incorrect filling, one of the following messages appears on the dash panel insert:

- From a remaining distance of 1050 km, “Check AdBlue (DEF)!” is displayed“ Remaining distance 1050 km”.
- From a remaining distance of 1000 km, a warning buzzer sounds and “Check AdBlue (DEF)!” is displayed“ No engine start possible in 1000 km”.
- From a remaining distance of 0 km, a warning buzzer sounds three times and “Check AdBlue (DEF)!” is displayed“ Engine start no longer possible”.

WARNING

- *As soon as “Check AdBlue!” appears:“ No engine start possible! ” is displayed and the engine is switched off; the engine cannot be started again.*

– Fault recovery ⇒ Guided fault finding

4.39.2 Health risk and cleaning

WARNING

- *AdBlue®/DEF is corrosive and an irritant that can cause injury on contact with the skin, eyes and respiratory organs.*
- *In the event of AdBlue®/DEF coming into contact with the eyes and skin, wash off immediately with plenty of water for at least 15 minutes and seek medical assistance.*
- *In the event of skin contact with this fluid, immediately wash off with plenty of water.*
- *In the event of AdBlue®/DEF ingestion, rinse out the mouth immediately with plenty of water for at least 15 minutes. Do not induce vomiting unless instructed to do so by a doctor. Seek medical assistance without delay.*

Caution

Never allow reducing agent (AdBlue®/DEF) to come into contact with trim or body parts.

If this happens, wash off the reducing agent (AdBlue®/DEF) with clear water and wipe area with a lint-free cotton cloth.

If the reducing agent (AdBlue®/DEF) has already crystallised, use warm water and a sponge.

Reducing agent that has not been removed will crystallise after a while and may damage the affected surface.

4.39.3 Disposal instructions

Caution

Information reference storage and disposal ⇒ Infonet, Operation, Strategy and deadlines, Environment, Handbook Service Environmental Protection ! Ask your importer about country-specific information on storage and disposal.

The refill container must be disposed of in accordance with environmental regulations.

4.39.4 Reducing agent tank: filling

Procedure

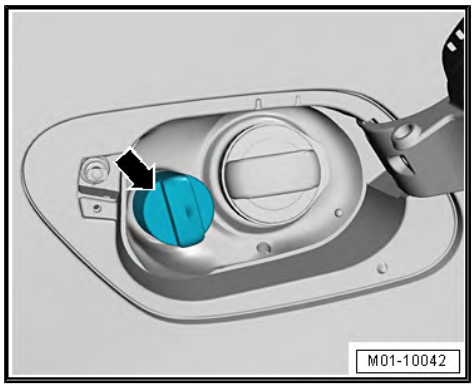
Note

- *Ensure that the vehicle is on a hard, level standing and that the ignition is switched off.*
- *Refer to the ⇒ Operating manual for the filling device for AdBlue - VAS 6960- .*
- *Use only demineralised water for cleaning any components of the AdBlue®/DEF system. Do not use tap water for this.*

– Switch off ignition.

The filler opening for the reduction agent tank (AdBlue®/DEF) is located under the tank flap.

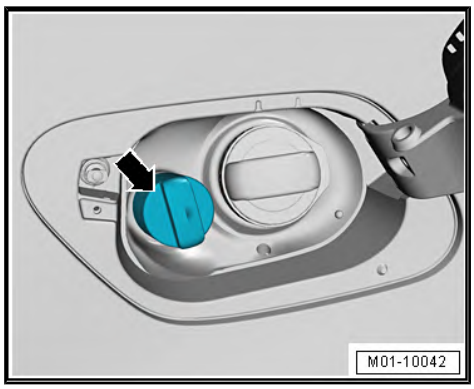
– Open fuel tank flap.
– Open the tank cap -arrow- of the reducing agent tank (AdBlue®/DEF) under the fuel tank flap.
– Clean reducing agent tank filler neck with a water-soaked, lint-free cotton cloth.
– Insert filler nozzle of filling device for AdBlue - VAS 6960- into filler neck of tank for reducing agent, and start filling the tank for reducing agent.



Note

The filler nozzle of the filling device for AdBlue - VAS 6960- stops automatically when the required reducing agent level has been attained.

– Remove filler nozzle.
– Screw on tank cap -arrow- of the reducing agent tank (AdBlue®/DEF) until the cap locks.
– Close tank flap.



Note

After filling the reducing agent tank, switch on the ignition and leave it switched on for at least 30 seconds so that the system can detect the replenishment.

4.40 Reducing agent (AdBlue®/DEF): changing

Procedure

– ⇒ 4-cylinder common rail (2.0 l, 4V, turbocharger); Rep. gr. 26 ; SCR system (Selective Catalytic Reduction)

4.41 Tyre pressure indicator : calibrating

Note

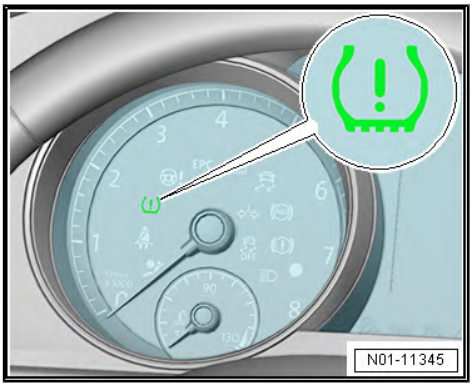
- *The calibration of the Tyre Pressure Loss Indicator must only be performed “after” the tyre pressure has been corrected to the prescribed values.*
- *If no pressure loss and tyre damage are found after a tyre pressure warning, the incorrect warning can be rectified by calibrating.*

Tyre Pressure Loss Indicator compares the speed and thus the rolling circumference and vibrations of the individual wheels via the ABS sensors. If the tyre pressure changes on one or several wheels, the Tyre Pressure Loss Indicator will indicate this in the dash panel insert and the Infotainment system.

The rolling circumference of tyre changes if:

- The tyre pressure is too low.
- The tyre has structural damage.
- The vehicle is loaded more heavily on one side.
- The wheels on one axle are loaded more heavily (e.g. when towing a trailer or when driving in mountains).
- Snow chains are fitted.
- The temporary spare wheel is fitted.
- One wheel per axle has been changed.

The tyre pressure monitoring warning lamp has a yellow warning lamp in the dash panel insert -arrow-.



- A “PERMANENT LIGHTING-UP” in conjunction with a warning tone, means “WARNING”, pressure loss has been detected, check tyre pressure and carry out calibration.

Calibrating

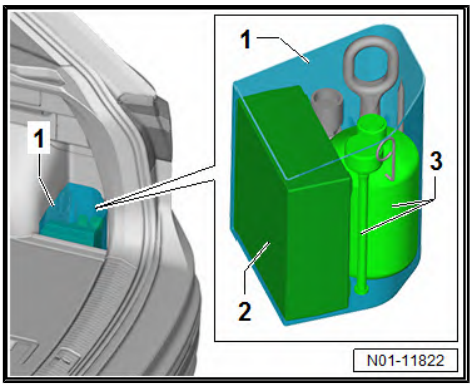
– Switch on ignition.
– Switch on infotainment system.
– Press Infotainment button CAR.
– Press Setup function button.
– Press Tyres function button.
– Press Set function button.
– Press Confirm function button.

4.42 Tyre repair set: checking

Note

- *Depending on the equipment level, the vehicles are equipped with a breakdown set.*
- *It also contains a filling bottle with tyre sealant.*

The tyre mobility set can be found in the tool bag -1- on the right side in the luggage compartment.



The breakdown set includes a bottle of tyre sealant -3- and a compressor -2-.

The tyre sealant in the bottle has a limited shelf life.

The expiry date is therefore indicated on the bottle.

– Enter expiry date in maintenance table.
– If the expiry date has been reached, replace tyre sealant. (The tyre sealant must not be more than 4 years old).

4.43 Window wash/wipe system and headlight washer system: checking function

Checking anti-freeze protection of fluid, topping up fluid
⇒ page 104

Window wash/wipe system: check spray jet settings and adjust if necessary ⇒ page 105

Headlight washer system: checking spray jet settings
⇒ page 106

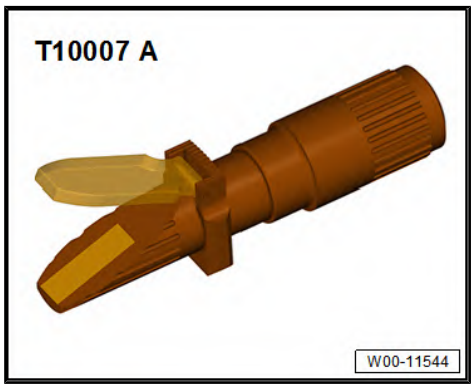
Windscreen wiper blades: check park position ⇒ page 107 .

Rear window wiper blades: checking park position ⇒ page 107

4.43.1 Anti-freeze: checking protection of fluid, topping up fluid if necessary

Special tools and workshop equipment required

- Refractometer - T10007 A-



Note

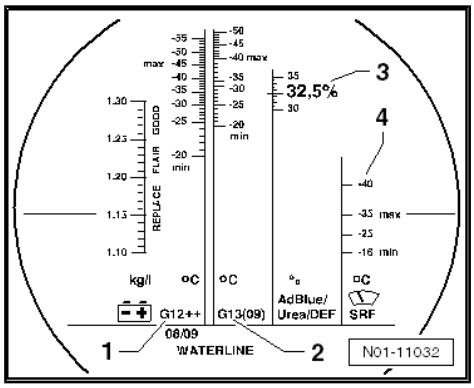
In countries and regions where no frost occurs due to the local climatic conditions, the anti-freeze protection does not need to be checked.

Read precise value for the following tests at light-dark border. Using a pipette, place a drop of water on the glass to improve the readability of the light-dark border. The light-dark border can be clearly recognised on the “WATERLINE”.

– Check concentration of anti-freeze additive using refractometer - T10007 A- .

The scale -4- of the refractometer is applicable for the anti-freeze protection of the window wash/wipe system.

Mixing ratio



Frost protection to	Genuine washer fluid ⇒ ETKA	Water
-17/-18°C	1 part	3 parts
-22/-23°C	1 part	2 part
-37/-38°C	1 part	1 part

– Top up fluid in window wash/wipe system (only if customer requests to do so).

Use genuine washer fluid ⇒ ETKA throughout all year to fill window wash/wipe system.

Depending on season, a winter product with anti-freeze protection or a summer product with increased cleaning capabilities should be used.

Ready-to-use window cleaner (Ready Mix) does not need to be mixed with water.

Note

- *Genuine washer fluid ⇒ ETKA prevents the spray jets, washer fluid reservoirs and connecting hoses from freezing.*
- *In vehicles with fan jets, the reservoir must be filled with Genuine washer fluid, as this fluid has a low viscosity at temperatures below freezing. Otherwise the complicated spray jet system can become blocked by the crystallised washer fluid, which affects the spray pattern of the spray jet. Genuine washer fluid ensures that the fan jets remain fully functional at low temperatures.*
- *Genuine washer fluid ⇒ ETKA can also be used in the summer. The powerful cleanser easily removes wax and oil residue from the glass.*
- *Frost protection must be guaranteed to approx. -25°C (approx. -35°C in countries with an arctic climate) in the windscreen wash/wipe system.*

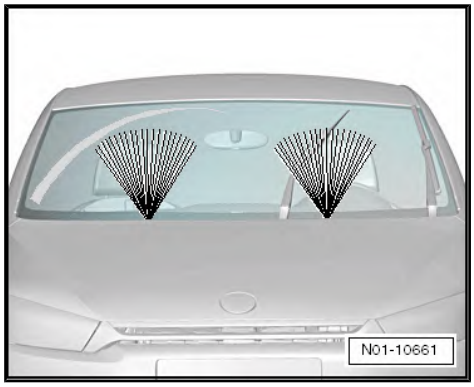
4.43.2 Window wash/wipe system: checking spray jet settings and adjusting if necessary

Note

In case of uneven spray field due to impurities in the spray jet: remove spray jet, and rinse it through with water, opposite to direction of spray. Subsequent blowing through with compressed air against the spraying direction is permitted. Never use items to clean the spray jets!

Windscreen spray jet settings

The spray jets are preset. However, small differences in height may be corrected.



– If both spray fields are not at same height, adjust spray direction upwards or downwards as follows:

1 - Cowl panel in front of windscreen

2 - Adjuster, Torx size 8

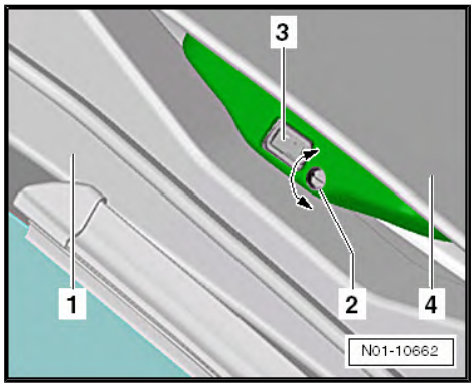
3 - Fan jet

4 - Bonnet

– Adjust spray jet -3- by turning adjuster -2- using a Torx screwdriver.

♦ “Clockwise” lower.

♦ “Anti-clockwise” higher.



Rear window spray jet setting:

Note

If the vehicle is equipped with a fan jet on its rear window, the fan jet cannot be adjusted.

4.43.3 Headlight washer system: checking spray jet settings

Caution

Only control function of spray jets but do not adjust them.

Washer spray jet: checking settings

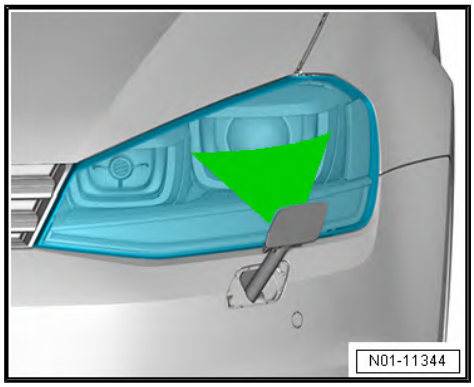
– Switch on dipped headlight.

– Operate windscreen washing system.

The headlights are washed if the windscreen wiper lever is held in “wipe position” for at least 1.5 seconds.

The washer fluid jet must hit the headlight lens centrally.

If spray pattern deviates from specifications, carry out repair measures.



Note

The same test pattern is also to be used for vehicles with halogen headlights.

4.43.4 Wiper blades: checking park position

Procedure

⇒ Electrical system; Rep. gr. 92 ; Windscreen wiper system; Adjusting windscreen wiper arms

Note

- *Adjusting the wiper blades is a repair measure.*
- *The repair measure is carried out subject to a separate charge.*

4.43.5 Rear window wiper blade: checking park position

Procedure

⇒ Electrical system; Rep. gr. 92 ; Rear window wiper system; Adjusting wiper arm

Note

- *Adjusting the wiper blades is a repair measure.*
- *The repair measure is carried out subject to a separate charge.*

4.44 Headlight adjustment: checking halogen headlights

Note

- *Additional weights are no longer used.*
- *Instead, a different inclination setting on the headlight adjustment unit is used.*
- *If the maintenance tables are used, the settings are displayed in the vehicle-specific maintenance list.*
- *In the US, Canadian and Mexican markets, SAE-compliant headlights are used.*
- *The headlight adjustment is subject to a separate charge.*

Test and adjustment conditions ⇒ page 107

Headlight adjustment (ECE): checking ⇒ page 108 .

Check headlight adjustment (SAE). ⇒ page 108

Adjusting halogen headlights ⇒ page 110

4.44.1 Test and adjustment conditions

- Tyre pressure OK
- Lenses must not be damaged or dirty.
- Reflectors and bulbs OK.
- The vehicle must be rolled forward and backward several metres or front and rear springs must be bounced fully several times so that springs settle.
- Vehicle and headlight adjuster must be on a level surface.

- Vehicle and headlight adjuster must be aligned.
- Inclination must be set.
- Refer to the ⇒ operating instructions for headlight adjustment units .

4.44.2 Headlight adjustment (ECE): adjusting

Special tools and workshop equipment required

- ♦ Headlight adjustment unit - VAS 5046 A-
- ♦ Headlight adjustment unit - VAS 5047 A-
- ♦ Headlight adjustment unit - VAS 621 001-

Note

For certain export markets, halogen headlights with manually regulated headlight range control are not offered.

– Check headlight height adjustment by setting the maximum level and monitoring the headlights' light.

– If fitted, then set the headlight range control thumb wheel to position 0.

The inclination on the headlight adjustment unit is set according to the fuel level in the fuel tank.

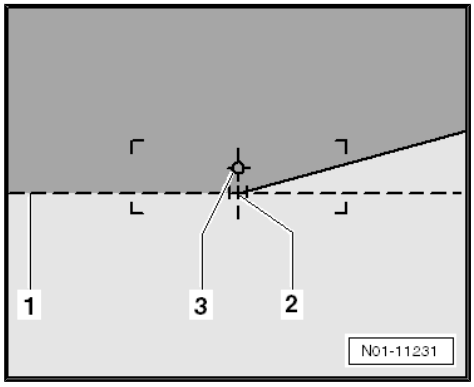
Inclination setting for ECE-compliant headlights

Fill level of fuel gauge	Inclination
0 to 1/2	1.2%
1/2 to 1	1.0%

Check the following:

– Whether, with the dipped beam switched on, the horizontal bright/dark boundary contacts the dividing line -1- of the test area and

– Whether the breaking point -2- between the horizontal part of the bright/dark boundary on the left and the rising part on the right lies on the vertical line of the central point -3-. The bright core of the light beam must be to the right of the vertical line.



Note

After correct adjustment of dipped beams, the centre point of the main beam must lie on the centre mark -3-.

4.44.3 Headlight adjustment (SAE): checking

Special tools and workshop equipment required

- ♦ Headlight adjustment unit - VAS 5046 A-
- ♦ Headlight adjustment unit - VAS 5047 A-
- ♦ Headlight adjustment unit - VAS 621 001-

Note

- *The VOL/VOR marking is visible on the outside the headlight.*
- *The lateral adjustment mechanism is sealed on SAE-compliant headlights.*
- *For certain export markets, halogen headlights with manually regulated headlight range control are not offered.*

– Check headlight height adjustment by setting the maximum level and monitoring the headlights' light.
– If fitted, then set the headlight range control thumb wheel to position 0.

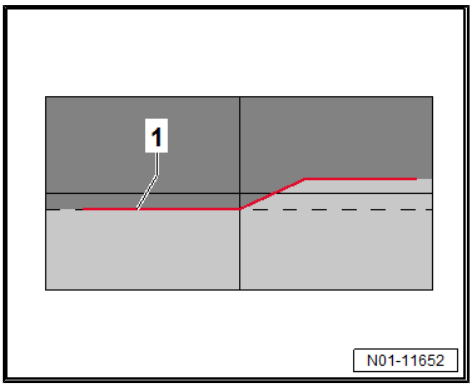
The inclination on the headlight adjustment unit is set according to the fuel level in the fuel tank.

Inclination for SAE VOL halogen headlights

Fill level of fuel gauge	Inclination
0 to 1/2	0.9%
1/2 to 1	0.7%

VOL: Visual Optical Aim Left -1-

– Check whether the left horizontal light-dark border touches the separating line -1- in the test area of the headlight adjustment unit.

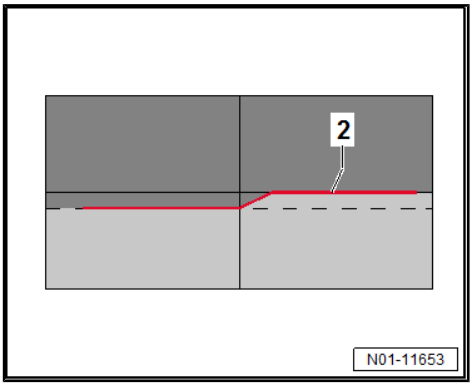


Inclination for SAE VOR halogen headlights

Fill level of fuel gauge	Inclination
0 to 1/2	0.2%
1/2 to 1	0.0%

VOR: Visual Optical Aim Right -2-

– Check whether the right horizontal light-dark border touches the separating line -2- in the test area of the headlight adjustment unit.



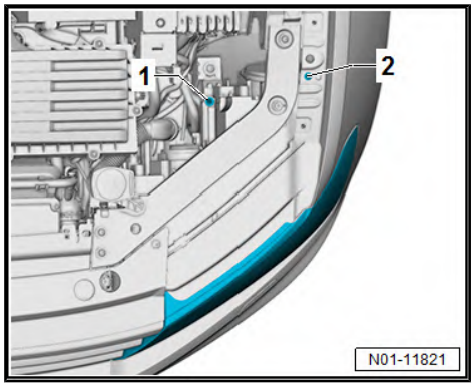
4.44.4 Halogen headlights: adjusting

Note

The headlight adjustment is subject to a separate charge.

Adjusting left headlight:

The adjustment bolts for the right headlight are a mirror image.



- ♦ Height adjustment screw (hexagon socket insert) of bright/dark boundary for dipped beam -1-
- ♦ Lateral adjustment screw (hexagon socket insert) of bright/dark boundary for dipped beam -2-, lead-sealed on SAE-compliant headlights

– First turn height adjustment bolt of bright/dark boundary -1-.

– Then check lateral adjustment, if necessary correct with adjustment screw -2-.

4.45 Headlight adjustment: checking LED headlights with cornering light

Note

- ♦ *Additional weights are no longer used.*
- ♦ *Instead, a different inclination setting on the headlight adjustment unit is used.*
- ♦ *If the maintenance tables are used, the settings are displayed in the vehicle-specific maintenance list.*
- ♦ *In the US, Canadian and Mexican markets, SAE-compliant headlights are used.*
- ♦ *The headlight adjustment is subject to a separate charge.*

Test and adjustment prerequisites ⇒ page 110

Check headlight adjustment (ECE). ⇒ page 111

Check headlight adjustment (SAE). ⇒ page 112

LED headlights with cornering light: adjusting ⇒ page 114

4.45.1 Test and adjustment conditions

- Tyre pressure OK
- Headlight lenses must not be damaged or dirty.
- Reflectors and lights OK
- The initialisation of the headlight range control must have been completed. [1)]
- The vehicle must be rolled forward and backward several metres or front and rear springs must be bounced fully several times so that springs settle.
- Vehicle and headlight adjuster must be on a level surface.
- Vehicle and headlight adjustment unit must be aligned.
- Inclination must be set.

- Event memory must be cleared.
- If the headlight adjustment unit has an adjustment mode, select it.
- Refer to the ⇒ operating instructions for headlight adjustment units .

1) During the initialisation, the step motors for the headlight range control are reset to dipped beam position. The initialisation of the headlight range control is performed during vehicle start or after an "on" signal is applied to terminal 15.

4.45.2 Headlight adjustment (ECE): adjusting

Special tools and workshop equipment required

- Headlight adjustment unit - VAS 5046 A-
- Headlight adjustment unit - VAS 5047 A-
- Headlight adjustment unit - VAS 621 001-
- Vehicle diagnostic tester

The inclination on the headlight adjustment unit is set according to the fuel level in the fuel tank.

Inclination setting for ECE-compliant gas discharge headlights, LED headlights and DLA headlights

Fill level of fuel gauge	Inclination
0 to 1/2	1.0%
1/2 to 1	1.0%

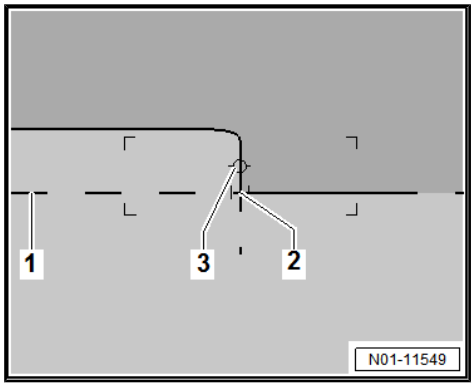
Test pattern with dynamic main beam

Note

- *For dynamic main beam test pattern, headlights need to be reset to basic settings using vehicle diagnostic tester .*
- *The basic settings can only be reset using vehicle diagnostic tester . After resetting, DLA main beam distribution is actuated automatically.*
- *Pay special attention to correct alignment of the adjustment sighting device on the headlight adjuster. Only when this has been done can you adjust the headlights to ensure that they do not dazzle other road users.*
- *In vehicles with DLA the dipped headlight setting can be checked as an alternative.* *⇒ page 112*
- *DLA: “Dynamic Light Assist”, dynamic high beam regulation.*

Check the following:

– Whether the horizontal light-dark border touches the separating line -1- in the test area when the main beam is on.
– Whether the breaking point -2- between horizontal part of the light-dark border on the right and the rising part on the left lies on the vertical line of the central point -3-. The bright core of the light beam must be to the left of the vertical line.



Note

The setup pattern applies only to the left headlight. The setup pattern for the right headlight is a mirror image.

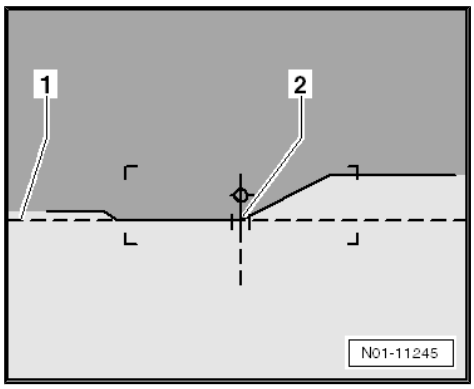
Test pattern with dipped headlights

Testing may also be carried out with dipped headlights switched on. Nevertheless, said dynamic main beam test pattern is preferred.

For checking dipped headlight it is not necessary to use the vehicle diagnostic tester .

The headlight setting can also be carried out using the dipped headlight test pattern.

– With the dipped beam switched on, the lowest part of the horizontal light-dark border must touch the dividing line -1- of the test area
– The breaking point -2- between the horizontal part of the light-dark border on the left and the slope on the right should be on the vertical line passing through the centre mark.



4.45.3 Headlight adjustment (SAE): checking

Special tools and workshop equipment required

- Headlight adjustment unit - VAS 5046 A-
- Headlight adjustment unit - VAS 5047 A-
- Headlight adjustment unit - VAS 621 001-
- Vehicle diagnostic tester

Note

- *The VOL/VOR marking is visible on the outside the headlight.*
- *The lateral adjustment mechanism is sealed on SAE-compliant headlights.*

The inclination on the headlight adjustment unit is set according to the fuel level in the fuel tank.

Inclination setting for SAE-compliant VOL gas discharge headlights, LED headlights and DLA headlights

Fill level of fuel gauge	Inclination
0 to 1/2	0.7%

Fill level of fuel gauge	Inclination
1/2 to 1	0.7%

Inclination setting for SAE-compliant VOR gas discharge headlights, LED headlights and DLA headlights

Fill level of fuel gauge	Inclination
0 to 1/2	0.0%
1/2 to 1	0.0%

Test pattern with dynamic main beam

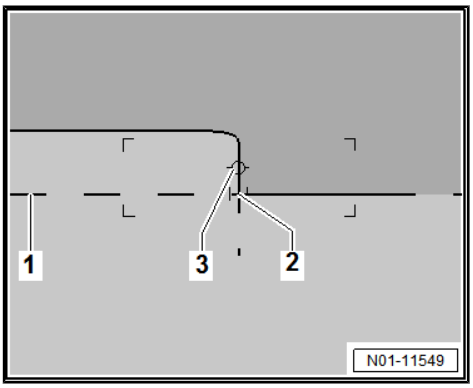
Note

- *For dynamic main beam test pattern, headlights need to be reset to basic settings using vehicle diagnostic tester .*
- *The basic settings can only be reset using vehicle diagnostic tester . After resetting, DLA main beam distribution is actuated automatically.*
- *Pay special attention to correct alignment of the adjustment sighting device on the headlight adjuster. Only when this has been done can you adjust the headlights to ensure that they do not dazzle other road users.*
- *In vehicles with DLA the dipped headlight setting can be checked as an alternative.* *⇒ page 113*
- *DLA: "Dynamic Light Assist", dynamic high beam regulation.*

Check the following:

– Whether the horizontal light-dark border touches the separating line -1- in the test area when the main beam is on.

– Whether the breaking point -2- between horizontal part of the light-dark border on the right and the rising part on the left lies on the vertical line of the central point -3-. The bright core of the light beam must be to the left of the vertical line.



Note

The setup pattern applies only to the left headlight. The setup pattern for the right headlight is a mirror image.

Test pattern with dipped headlights

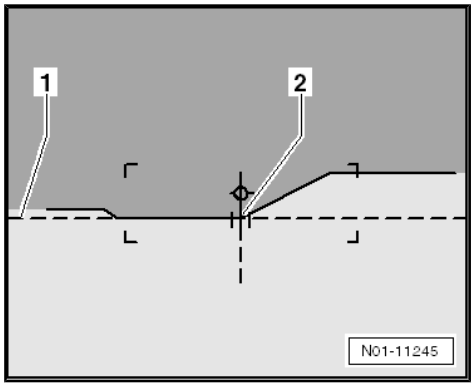
Testing may also be carried out with dipped headlights switched on. Nevertheless, said dynamic main beam test pattern is preferred.

For checking dipped headlight it is not necessary to use the vehicle diagnostic tester .

The headlight setting can also be carried out using the dipped headlight test pattern.

– With the dipped beam switched on, the lowest part of the horizontal light-dark border must touch the dividing line -1- of the test area

– The breaking point -2- between the horizontal part of the light-dark border on the left and the slope on the right should be on the vertical line passing through the centre mark.



If no light-dark border with rising asymmetric portion can be seen in the left headlight (right-hand drive) or in the right headlight (left-hand drive), the “city light” function must be deactivated.

The city light feature is used to ensure that oncoming traffic is not dazzled up to a speed of 30 km/h in city traffic.

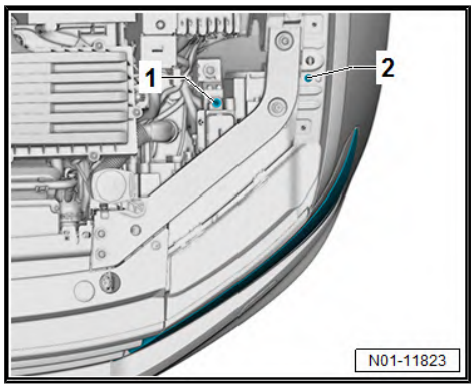
4.45.4 LED headlights with cornering light: adjusting

Note

- *The headlight adjustment is subject to a separate charge.*
- *A vehicle with LED headlights and cornering light can be identified by PR number 8IU and 8IX.*

– Carrying out basic setting of headlight range control ⇒ Vehicle diagnostic tester

Adjusting left headlight



1 - Height adjustment

2 - Lateral adjustment

– Turn height adjustment screw -1- until setting is correct.

– Turn lateral adjustment screw -2- until setting is correct. The lateral adjustment mechanism is sealed on SAE-compliant headlights.

Subsequent check of left headlight

Caution

The subsequent check of the headlight is performed using the test pattern for the dipped beam headlight.

It is not permitted to change the lateral setting of the headlight any more during the check. Readjusting the vertical setting is permissible.

– Check headlight setting.

– Adjust height setting of headlight, if necessary.

Note

- *Adjustment of the right headlight is carried out in the same sequence.*
- *The adjustment screws for the right headlight are a mirror image.*

4.46 Headlight adjustment: checking LED headlights

Note

- *Additional weights are no longer used.*
- *Instead, a different inclination setting on the headlight adjustment unit is used.*
- *If the maintenance tables are used, the settings are displayed in the vehicle-specific maintenance list.*
- *In the US, Canadian and Mexican markets, SAE-compliant headlights are used.*
- *The headlight adjustment is subject to a separate charge.*

Test and adjustment conditions ⇒ page 115

Headlight adjustment (ECE): checking ⇒ page 115 .

Check headlight adjustment (SAE). ⇒ page 116

LED headlights: adjusting ⇒ page 117 .

4.46.1 Test and adjustment conditions

- Tyre pressure OK
- Headlight lenses must not be damaged or dirty.
- Reflectors and lights OK
- The initialisation of the headlight range control must have been completed. [1)]
- The vehicle must be rolled forward and backward several metres or front and rear springs must be bounced fully several times so that springs settle.
- Vehicle and headlight adjuster must be on a level surface.
- Vehicle and headlight adjustment unit must be aligned.
- Inclination must be set.
- Event memory must be cleared.
- If the headlight adjustment unit has an adjustment mode, select it.
- Refer to the ⇒ operating instructions for headlight adjustment units .

[1)] During the initialisation, the step motors for the headlight range control are reset to dipped beam position. The initialisation of the headlight range control is performed during vehicle start or after an "on" signal is applied to terminal 15.

4.46.2 Headlight adjustment (ECE): adjusting

Special tools and workshop equipment required

- Headlight adjustment unit - VAS 5046 A-
- Headlight adjustment unit - VAS 5047 A-
- Headlight adjustment unit - VAS 621 001-
- Vehicle diagnostic tester

The inclination on the headlight adjustment unit is set according to the fuel level in the fuel tank.

Inclination setting for ECE-compliant gas discharge headlights, LED headlights and DLA headlights

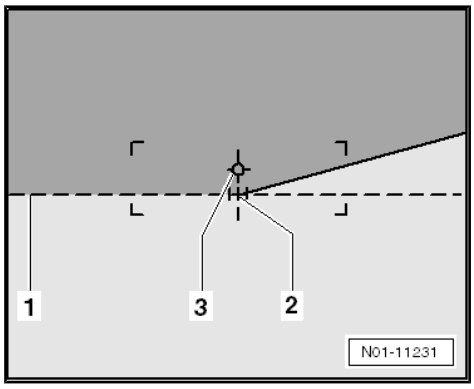
Fill level of fuel gauge	Inclination
0 to 1/2	1.0%
1/2 to 1	1.0%

Test pattern with dipped headlights

Check the following:

– With the dipped beam switched on, the lowest part of the horizontal light-dark border must be aligned with the dividing line -1- of the test area.

– The breaking point -2- between the horizontal part of the light-dark border on the left and the slope on the right should be on the vertical line passing through the centre mark.



Note

- *To simplify the determination of the breaking point -2-, cover and uncover left (from driver perspective) half of the headlight a few times. Then check dipped beam again.*
- *After correct adjustment of dipped beams, the centre point of the main beam must lie on the centre mark -3-.*

4.46.3 Headlight adjustment (SAE): checking

Special tools and workshop equipment required

- Headlight adjustment unit - VAS 5046 A-
- Headlight adjustment unit - VAS 5047 A-
- Headlight adjustment unit - VAS 621 001-
- Vehicle diagnostic tester

Note

- *The VOL/VOR marking is visible on the outside the headlight.*
- *The lateral adjustment mechanism is sealed on SAE-compliant headlights.*

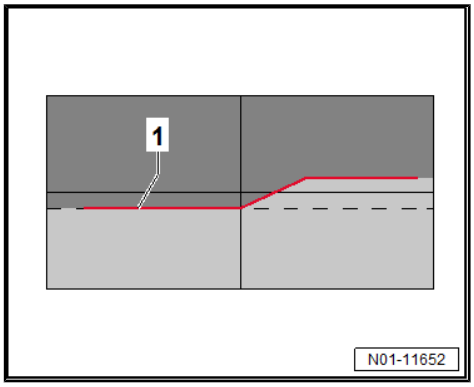
The inclination on the headlight adjustment unit is set according to the fuel level in the fuel tank.

Inclination setting for SAE-compliant VOL gas discharge headlights, LED headlights and DLA headlights

Fill level of fuel gauge	Inclination
0 to 1/2	0.7%
1/2 to 1	0.7%

VOL: Visual Optical Aim Left -1-

– Check whether the left horizontal light-dark border touches the separating line -1- in the test area of the headlight adjustment unit.

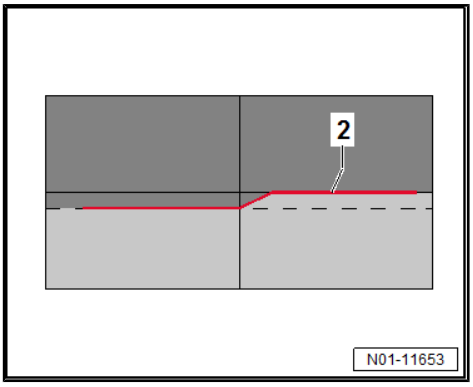


Inclination setting for SAE-compliant VOR gas discharge headlights, LED headlights and DLA headlights

Fill level of fuel gauge	Inclination
0 to 1/2	0.0%
1/2 to 1	0.0%

VOR: Visual Optical Aim Right -2-

– Check whether the right horizontal light-dark border touches the separating line -2- in the test area of the headlight adjustment unit.



4.46.4 LED headlights: adjusting

Note

- *The headlight adjustment is subject to a separate charge.*
- *Vehicles with LED headlights can be identified via the PR number 8IT.*

– Carrying out basic setting of headlight range control ⇒ Vehicle diagnostic tester

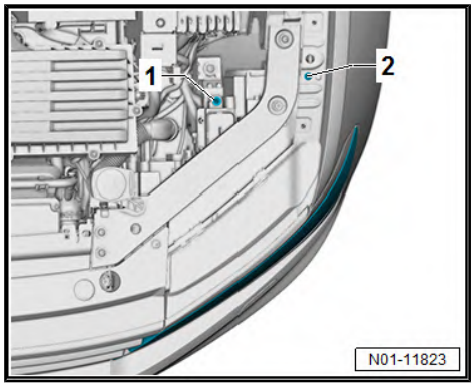
Adjusting left headlight

1 - Height adjustment

2 - Lateral adjustment

– Turn height adjustment screw -1- until setting is correct.

– Turn lateral adjustment screw -2- until setting is correct. The lateral adjustment mechanism is sealed on SAE-compliant headlights.



Note

- *Adjustment of the right headlight is carried out in the same sequence.*
- *The adjustment screws for the right headlight are a mirror image.*

4.47 Headlight adjustment: checking fog lights

Note

- *Additional weights are no longer used.*
- *Instead, a different inclination setting on the headlight adjustment unit is used.*
- *If the maintenance tables are used, the settings are displayed in the vehicle-specific maintenance list.*
- *The headlight adjustment is subject to a separate charge.*

Test and adjustment conditions ⇒ page 118

Check headlight adjustment ⇒ page 118 .

Adjusting fog lights and other additional lights ⇒ page 119 .

4.47.1 Test and adjustment conditions

- Tyre pressure OK
- Lenses must not be damaged or dirty.
- Reflectors and bulbs OK.
- The vehicle must be rolled forward and backward several metres or front and rear springs must be bounced fully several times so that springs settle.
- Vehicle and headlight adjuster must be on a level surface.
- Vehicle and headlight adjuster must be aligned.
- Inclination must be set.
- Refer to the ⇒ operating instructions for headlight adjustment units .

4.47.2 Headlight adjustment: checking

Special tools and workshop equipment required

- Headlight adjustment unit - VAS 5046 A-
- Headlight adjustment unit - VAS 5047 A-

♦ Headlight adjustment unit - VAS 621 001-

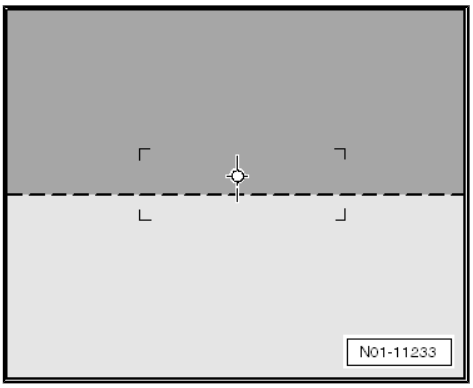
The inclination on the headlight adjustment unit is set according to the fuel level in the fuel tank.

Inclination setting for fog lights

Fill level of fuel gauge	Inclination
0 to 1/2	2.2%
1/2 to 1	2.0%

Fog lights:

– Check whether the upper light-dark border touches the setting line and runs horizontally over the entire width of the test screen.



Other additional lights:

Additionally retrofitted lights of other systems must be checked and set according to valid guidelines.

4.47.3 Fog lights and other auxiliary lights: adjusting

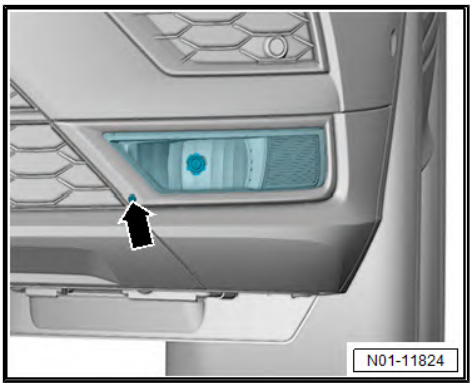
Note

The headlight adjustment is subject to a separate charge.

Fog light in bumper, right-side

Location of adjustment screw on left-hand fog light is a mirror image.

– To adjust the headlight range turn adjustment bolt -arrow-.

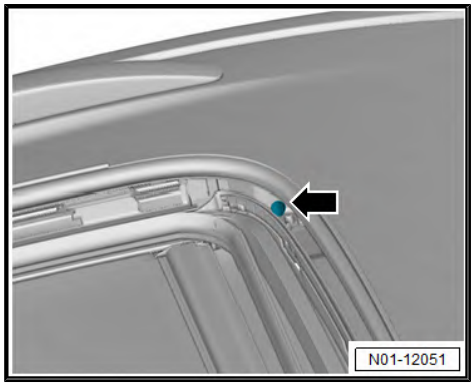


There is no provision for lateral adjustment.

Other additional lights

Additionally retrofitted lights of other systems must be checked and set according to valid guidelines.

4.48 Sliding sunroof drains at front: check for blockage, clean if necessary



Open sliding sunroof completely.

- Check water drain at front -arrows- for contamination, and clean if necessary.
- Carefully pour tap water from a measuring beaker into water drain at front. Proceed with caution to make sure no water enters the vehicle interior.
- Check under vehicle if water emerges in area of front wheel housing.
- Repeat procedure on other side of vehicle.
- If no water emerges at relevant positions, clean sunroof drains.

Note

Cleaning of the sliding sunroof drains is a repair measure which is subject to a separate charge when performed.

4.49 Service interval display: resetting

Resetting service interval display using vehicle diagnostic tester
⇒ page 120

Resetting service interval display without vehicle diagnostic tester
⇒ page 120

Additional information for service interval display ⇒ page 6

The service interval display must be reset (adapted) during

- delivery inspection
- each oil change (flexible/fixed)

is carried out!

Note

It is also possible to reset the service interval display (SID) manually. However, bear in mind that, on vehicles coded to flexible interval, the SID needs to be coded to fixed intervals. This also modifies the adaptation channel for oil quality.

4.49.1 Service interval display: resetting using vehicle diagnostic tester

- Reset service interval display ⇒ Vehicle diagnostic tester.
- Select the respective service which is to be reset.

4.49.2 Service interval display: resetting without vehicle diagnostic tester

Resetting oil change service

Function button on dash panel insert:

– With ignition switched off, press and hold button -1-.
– Switch on ignition.

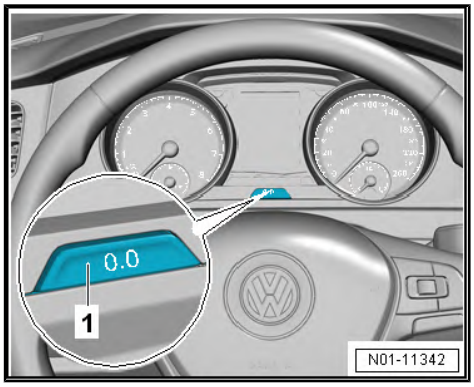
Wait until “Reset oil change service?” appears on the display.

– Release button -1-.

The service interval display is now in the resetting mode.

– Briefly press button -1- once.

After a short time the display switches back to the original display.



Resetting inspection

With function button on dash panel insert

– With ignition switched off, press and hold button -1-.
– Switch on ignition.

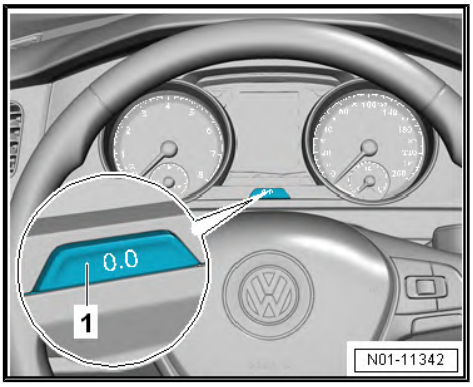
Wait until “Reset inspection?” appears on the display. on the display.

– Release button -1-.

The service interval display is now in the resetting mode.

– Briefly press button -1- once.

After a short time the display switches back to the original display.



4.50 Service interval display: recoding

Note

If the display is not as shown in the procedure: ⇒ Operating instructions for vehicle diagnostic tester

Recoding from flexible to fixed intervals

ODIS Service
– Connect vehicle diagnostic tester ⇒ page 20 .
– Switch on ignition.
– Carry out identification of vehicle.
– Enter task data, or select “Without task”.
– Select “Control units”.
– Select “Dash panel insert”.
– Select “Guided Functions”.
– Select “Change flexible/fixed intervals”.
– Carry out adaptation according to the information of “Guided functions”.

Changing values for maximum distance to be driven (km) until next oil change service (fixed) during delivery inspection

ODIS Service
– Connect vehicle diagnostic tester ⇒ page 20 .
– Switch on ignition.
– Carry out identification of vehicle.
– Enter task data, or select “Without task”.

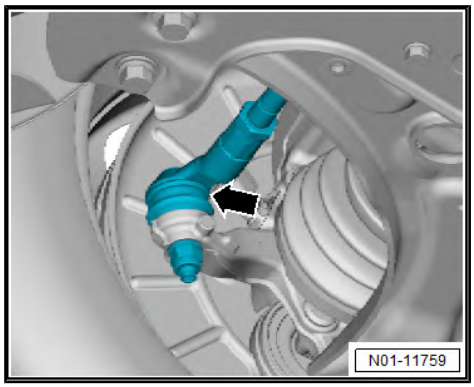
ODIS Service
– Select “Control units”.
– Select “Dash panel insert”.
– Select “Guided Functions”.
– Select “Oil change service (fixed)”.
– Follow instructions in “Guided functions” mode.
– Reset “-1- Oil change service (fixed)”.
– Follow instructions in “Guided functions” mode.
The current values for maximum distance to be driven (km) until next oil change service are shown in the display of the vehicle diagnostic tester .
– Select “No”.
– Select value for maximum distance to be driven until next oil change service, according to specifications valid in your country.
– Carry out adaptation according to the information of “Guided functions”.

4.51 Track rods: checking clearance, attachment and boots

Procedure

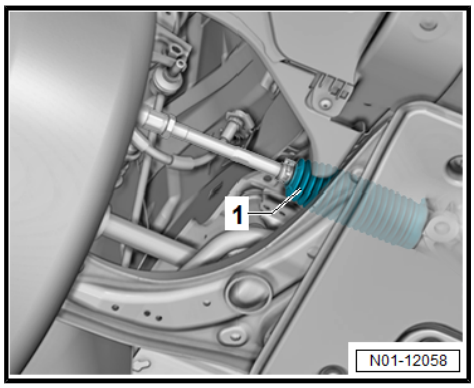
– Check play by moving track rods and wheels with the vehicle raised (wheels hanging free). Clearance (specified): no clearance:

– Check that boots -arrow- are not damaged and are seated correctly.



– Make sure that boots -1- of steering rack are not damaged and are seated correctly.

– Perform visual inspection for leaks and damage in area of steering rack including track rods.



4.52 Dust and pollen filter: cleaning housing and renewing filter element

Procedure

⇒ Heating, air conditioning; Rep. gr. 87 ; Front heater and air conditioning unit; Removing and installing dust and pollen filter .

4.53 Transportation mode: switching off

Note

- *The transportation mode is responsible for assuring the starting capability of vehicle.*
- *Battery discharging is reduced by the transportation mode, because electrical consumers are switched off.*
- *All vehicle functions which are not necessarily used during vehicle transportation and require no-load voltage or battery capacity are switched off with the activated transportation mode, with regard to the service life of battery.*
- *These are especially all functions in the vehicle which can reduce the battery capacity when being misused.*
- *Examples are radios, electronically operated flaps and attachments and anti-theft alarm systems which can produce faults during transportation.*

– Switch transportation mode off/on ⇒ Vehicle diagnostic tester.

4.54 Transportation devices: removing blocking pieces

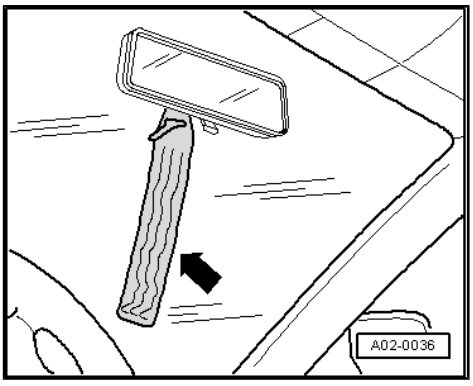
Note

- *On some models blocking pieces are fitted to the suspension strut piston rod.*
- *The blocking pieces prevent the springs compressing and possible damage to the vehicle when being driven onto a vehicle transporter or railway wagon.*

WARNING

The blocking pieces must be removed without reservation before delivering the vehicle. A notice reading "Warning!" and attached to the interior rear view mirror highlights this point with absolute clarity.

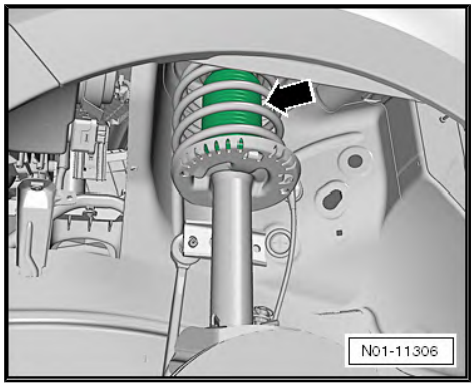
– Vehicles with blocking pieces fitted to the suspension struts have a label hanging from the mirror -arrow-.



Removing blocking pieces on piston rod

– Relieve weight on coil springs by raising vehicle with a hoist.

– Slide suspension strut protective sleeve -arrow- upwards.

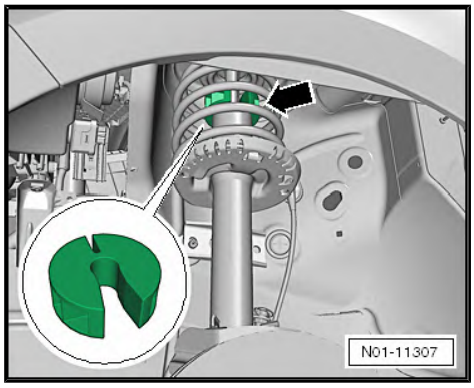


WARNING

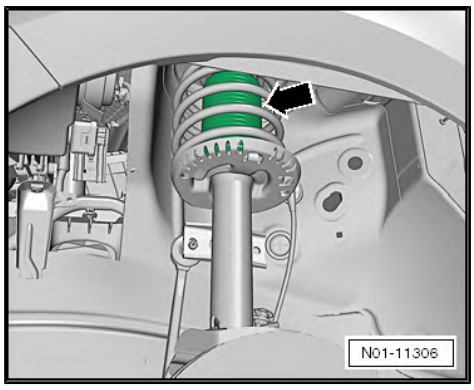
On the front axle, up to 3 blocking pieces are installed on each side.

Usage of any auxiliary means for removal (such as lubricant spray, silicone or similar) is not permitted.

– Push visible blocking piece -arrow- off piston rod.
– Slightly press in bellows to sense the remaining blocking pieces. Slide them downwards on piston rod towards shock absorber cap using the folds of the bellows.
– Push remaining blocking pieces off piston rod.



– Check bellows -arrows- all-round for dents and rectify any dents.
– To rectify dents, slide bellows upwards, reach inside the bellows with your hand and press out the dents.
– Check that bellows are properly engaged in axial bearing:



♦ Correct position: bellows can be turned around rotational axis while seated in axial bearing.
♦ Otherwise pull bellows all-round out of axial bearing by one notch.
♦ After that, the bellows should be able to be turned around rotational axis.

4.55 Clock and date: setting

Setting time and date in Infotainment system

– Switch on ignition.
– Switch on infotainment system.
– Press Infotainment button CAR.
– Press Setup function button.
– Press Time and date function button.
– Press Time function button and set current time.
– Press Date function button and set current date.

4.56 Underbody: inspecting for damage to underbody sealant, underbody panels, routing of lines, plugs

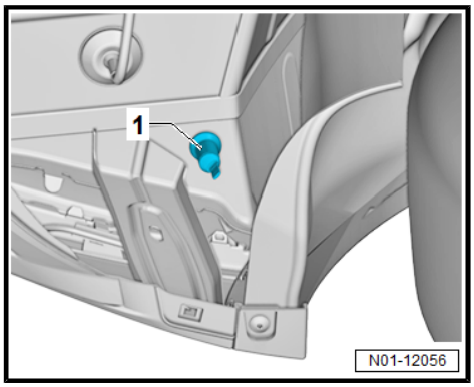
Caution

- *During inspection, also check floor pan, wheel housings and sills.*
- *Always ensure that all lines are secured in their mountings, that all plugs are available and that there is no visible damage on the underbody.*
- *Faults found must always be rectified (repair measure). This inhibits corrosion and rusting through.*

4.57 Water drain valves at rear: check for blockage, clean if necessary

– Open rear left water drain valve -1-, check it for damage, and remove any blockages.

– Repeat procedure on other side of vehicle.



4.58 Toothed belt (petrol engines): renewing

Camshaft drive toothed belt: renewing, petrol engines

– ⇒ Rep. gr. 15 ; Toothed belt drive; Removing and installing toothed belt

Coolant pump toothed belt: renewing, petrol engines

– ⇒ Rep. gr. 19 ; Coolant pump/thermostat assembly

4.59 Camshaft drive toothed belt (diesel engines): renewing

– ⇒ Rep. gr. 15 ; Toothed belt drive; Removing and installing toothed belt

4.60 Spark plugs: renewing

Spark plugs: renewing, 1.4 l TSI engines ⇒ page 126

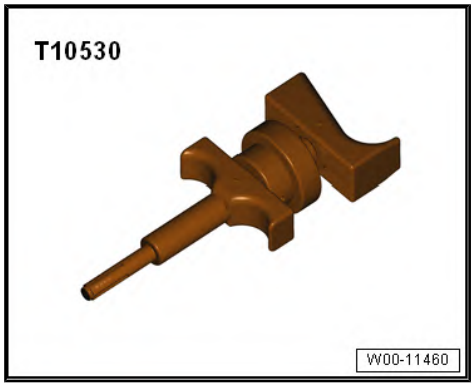
Spark plugs: renewing, 1.4 l TSI engine (engine code CZEA, DJVA) ⇒ page 129 .

Spark plugs: renewing, 1.5 l TSI engines ⇒ page 131

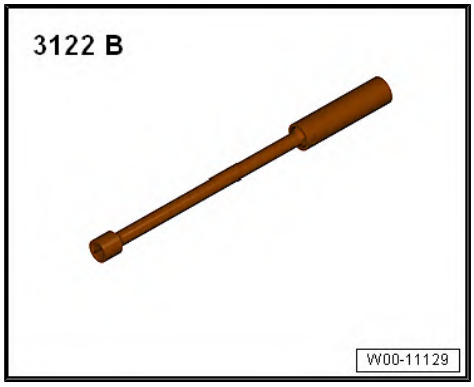
Spark plugs: renewing, 2.0 l TSI engines ⇒ page 133

Special tools and workshop equipment required

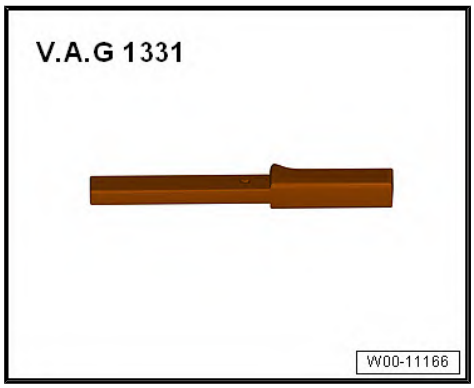
- Puller - T10530-



- Spark plug socket - 3122 B-



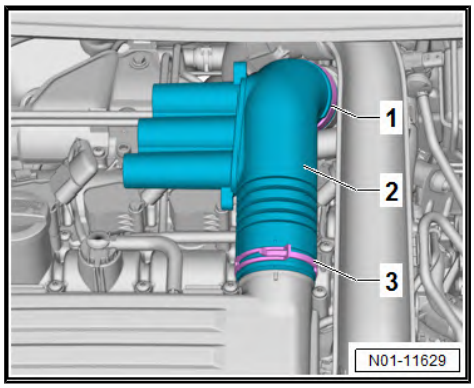
- Torque wrench - V.A.G 1331-



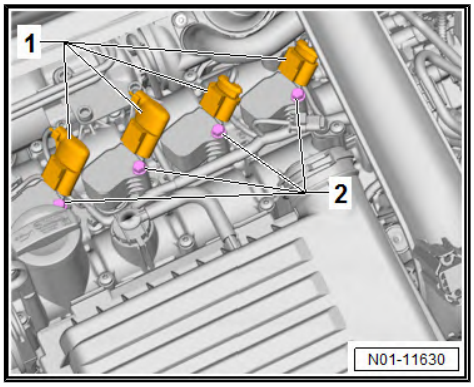
4.60.1 Spark plugs: renewing, 1.4 l TSI engines

Removing

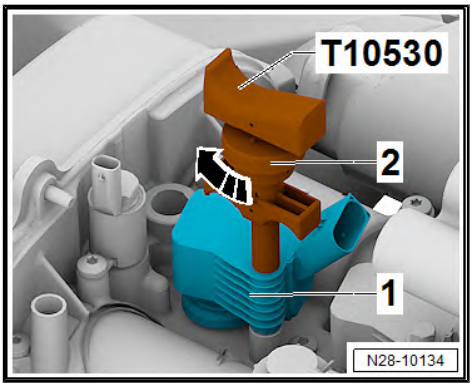
– Loosen hose clips -1- and -2-, and remove air pipe.
– Disconnect connector -1-.



– Remove bolts -2-.



– Push puller - T10530- as far as stop into hole in ignition coil -1-.
– Tighten knurled nut -2- in -direction of arrow-.



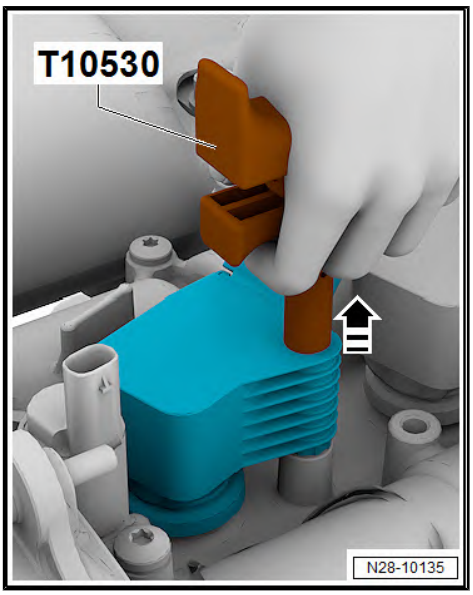
– Pull ignition coil on puller - T10530- in -direction of arrow- out of cylinder head cover.

Repeat step for all ignition coils with output stage.

Note

- *Observe installation position of ignition coils with output stage!*
- *Ensure that the cables are not kinked or damaged.*

– Unscrew spark plugs using spark plug socket - 3122 B- .

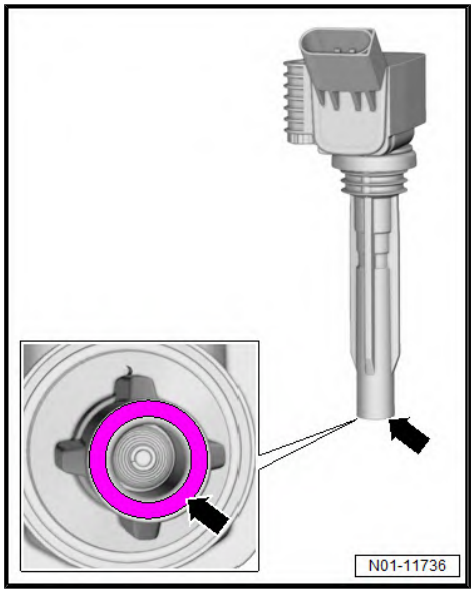


Installing

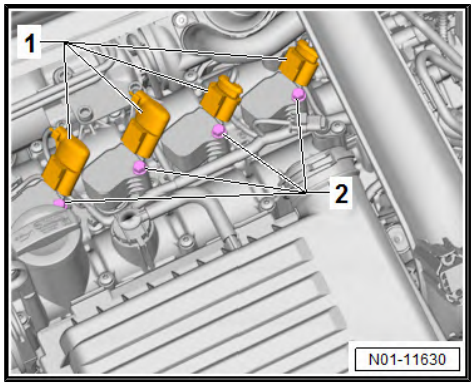
Note

- *When installing new spark plugs, regrease ignition coils with output stage using silicone paste ⇒ ETKA .*
- *The applicable silicone paste is stated in the ETKA along with the corresponding ignition coil and/or spark plug.*

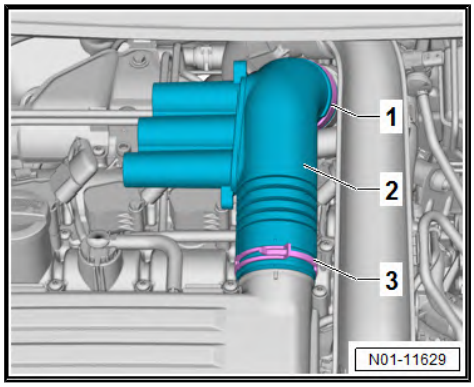
– Screw in new spark plugs and tighten them to specified torque using spark plug socket - 3122 B- ⇒ page 128 .
– Apply a thin bead of silicone paste on the circumference of the sealing hose of the ignition coil with output stage -arrow-.
– Align and insert all ignition coils with output stage one after another loosely into spark plug hole.
– Press ignition coils with output stage onto spark plugs evenly by hand (do not use any tools).



– Tighten bolt -2- of ignition coil with output stage to specified torque ⇒ page 128 .
– Connect connector -1-.
– Install air pipe -2-.



– Fit hose clips -1- and -3-.

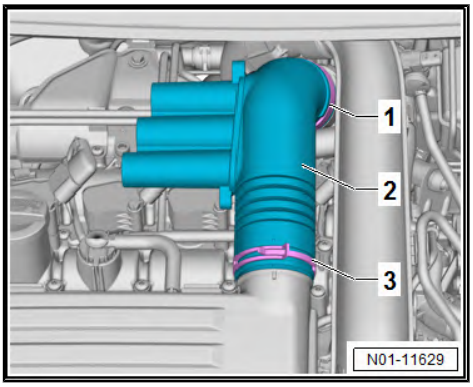


Specified torque	Nm
Spark plugs in cylinder head	22
Bolt for ignition coil with output stage	8

4.60.2 Spark plugs: renewing, 1.4 l TSI engine (engine code CZEA, DJVA)

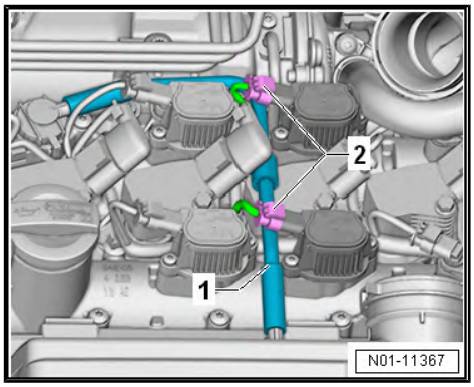
Removing

– Loosen hose clips -1- and -2-, and remove air pipe.

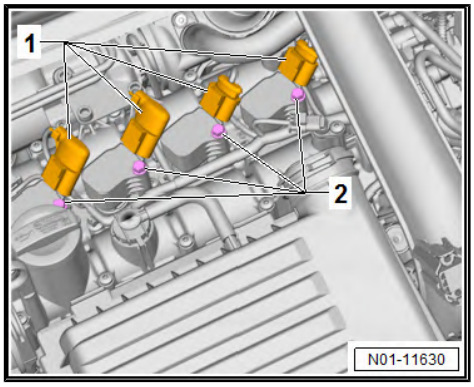


– Disconnect connectors -2-, and pull off air hose -1-.

– Disconnect connector -1-.

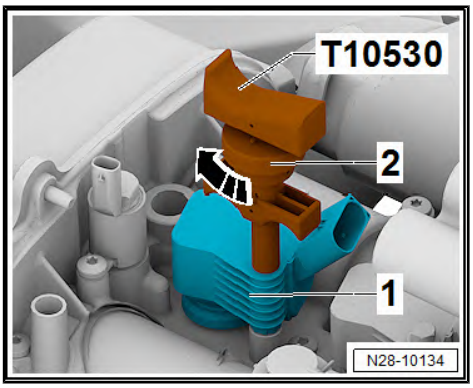


– Remove bolts -2-.

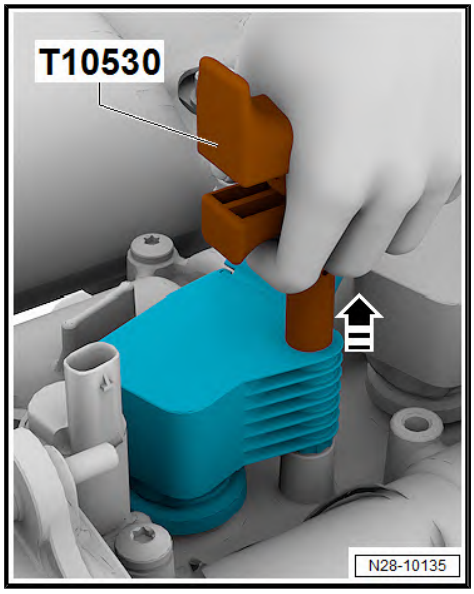


– Push puller - T10530- as far as stop into hole in ignition coil -1-.

– Tighten knurled nut -2- in -direction of arrow-.



– Pull ignition coil on puller - T10530- in -direction of arrow- out of cylinder head cover.



Repeat step for all ignition coils with output stage.

Note

- *Observe installation position of ignition coils with output stages!*
- *Ensure that the cables are not kinked or damaged.*

– Unscrew spark plugs using spark plug socket - 3122 B- .

Installing

Note

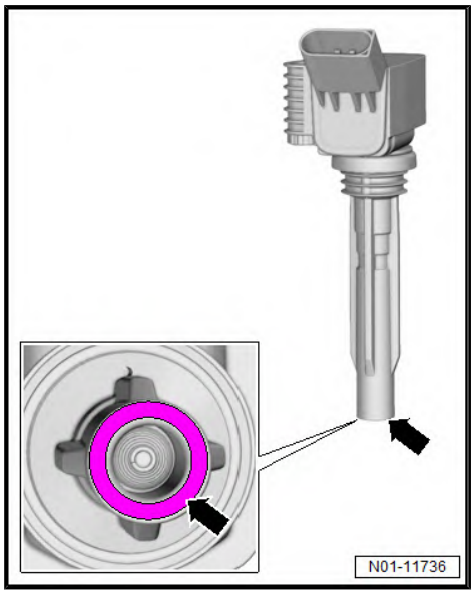
- *When installing new spark plugs, regrease ignition coils with output stage using silicone paste ⇒ ETKA .*
- *The applicable silicone paste is stated in the ETKA along with the corresponding ignition coil and/or spark plug.*

– Screw in new spark plugs and tighten them to specified torque using spark plug socket - 3122 B- ⇒ page 131 .

– Apply a thin bead of silicone paste on the circumference of the sealing hose of the ignition coil with output stage -arrow-.

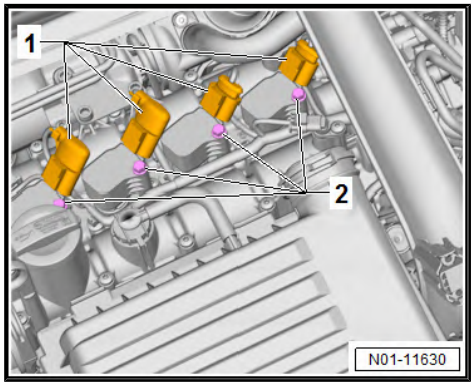
– Align and insert all ignition coils with output stage one after another loosely into spark plug hole.

– Press ignition coils with output stage onto spark plugs evenly by hand (do not use any tools).

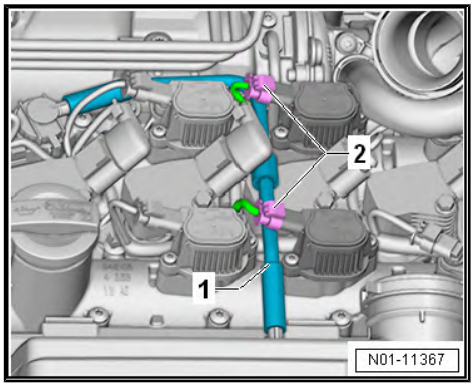


– Tighten bolt -2- of ignition coil with output stage to specified torque ⇒ page 131 .

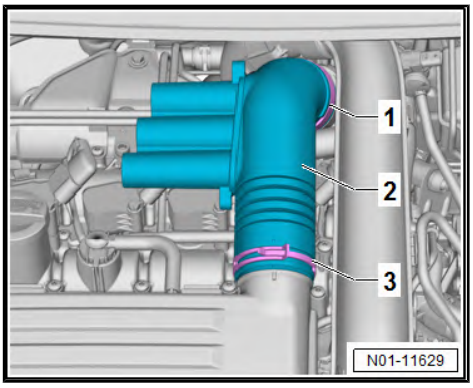
– Connect connector -1-.



– Insert air pipe -1-, and connect connectors -2-.
– Install air pipe -2-.



– Fit hose clips -1- and -3-.

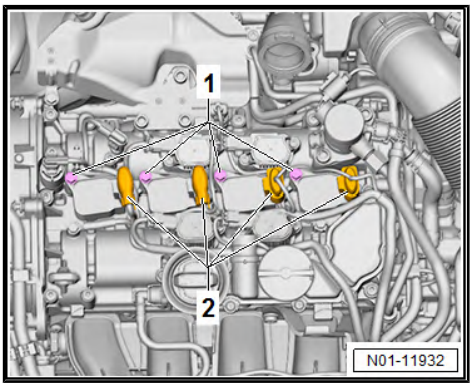


Specified torque	Nm
Spark plugs in cylinder head	22
Bolt for ignition coil with output stage	8

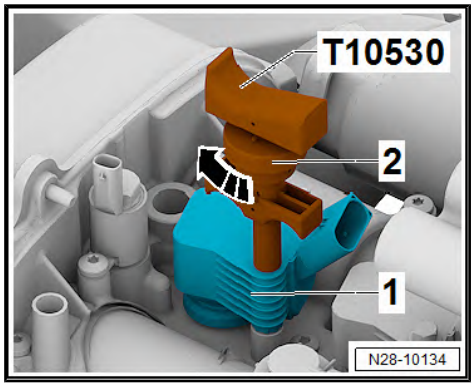
4.60.3 Spark plugs: renewing, 1.5 l TSI engines

Removing

– Remove engine cover panel ⇒ page 82 .
– Remove air pipe ⇒ 4-cylinder direct injection (1.5 l engine, 4V, EA 211 EVO, turbocharger); Rep. gr. 21 ; Charge air system; Removing and installing air pipe
– Remove hose on crankcase breather ⇒ 4-cylinder direct injection (1.5 l engine, 4V, EA 211 EVO, turbocharger); Rep. gr. 17 ; Crankcase breather .
– Disconnect connector -2-.
– Remove bolts -1-.



– Push puller - T10530- as far as stop into hole in ignition coil -1-.
– Tighten knurled nut -2- in -direction of arrow-.

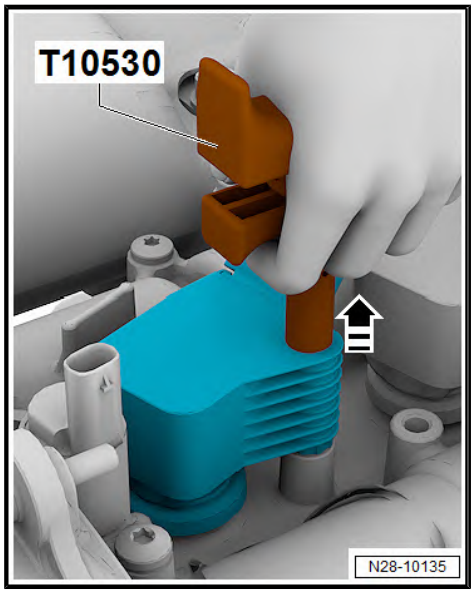


– Pull ignition coil on puller - T10530- in -direction of arrow- out of cylinder head cover.

Repeat step for all ignition coils with output stage.

Note

- *Observe installation position of ignition coils with output stages!*
- *Ensure that the cables are not kinked or damaged.*



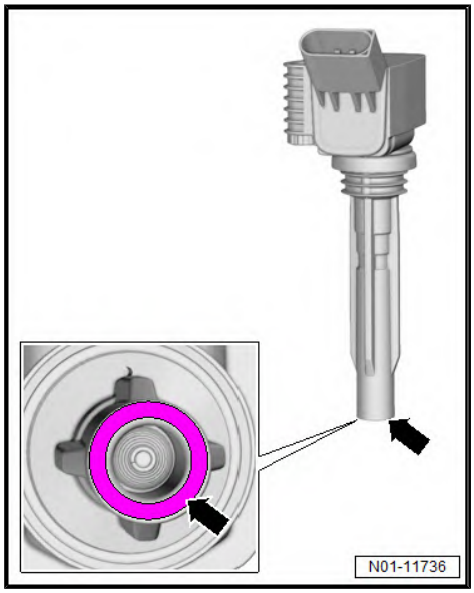
– Unscrew spark plugs using spark plug socket - 3122 B- .

Installing

Note

- *When installing new spark plugs, regrease ignition coils with output stage using silicone paste ⇒ ETKA .*
- *The applicable silicone paste is stated in the ETKA along with the corresponding ignition coil and/or spark plug.*

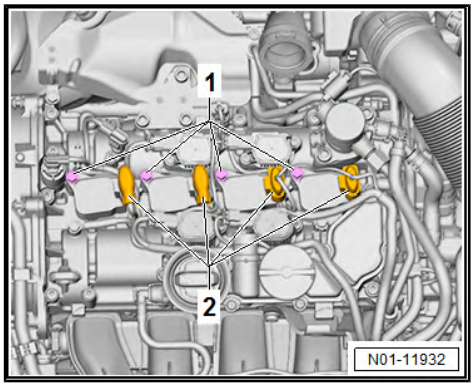
– Screw in new spark plugs and tighten them to specified torque using spark plug socket - 3122 B- ⇒ page 133 .
– Apply a thin bead of silicone paste on the circumference of the sealing hose of the ignition coil with output stage -arrow-.
– Align and insert all ignition coils with output stage one after another loosely into spark plug hole.
– Press ignition coils with output stage onto spark plugs evenly by hand (do not use any tools).



– Tighten bolt -1- of ignition coil with output stage to specified torque ⇒ page 133 .
– Connect connector -2-.

Repeat step for all ignition coils with output stage.

– Further assembly is performed in the reverse order of removal.

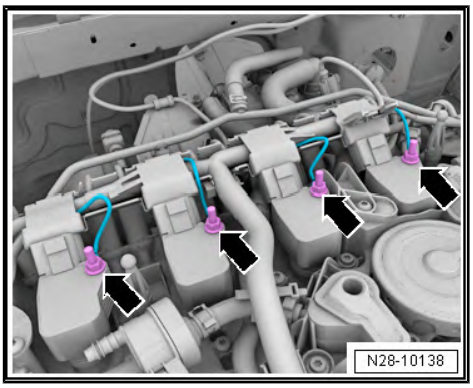


Specified torque	Nm
Spark plugs in cylinder head	22
Bolt for ignition coil with output stage	8

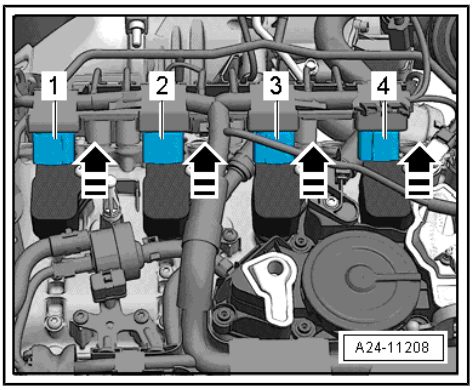
4.60.4 Spark plugs: renewing, 2.0 l TSI engines

Removing

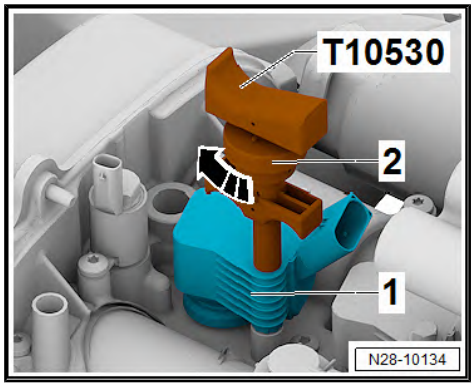
– Remove engine cover panel ⇒ page 82 .
– If fitted, unbolt earth wires -arrows-.



– Release connectors -1- to -4-, and simultaneously pull all connectors off ignition coils with output stage.
– Unscrew bolts for ignition coils with output stage.

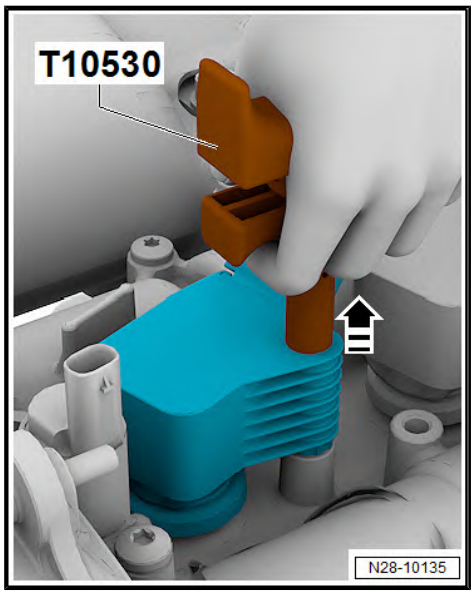


– Push puller - T10530- as far as stop into hole in ignition coil -1-.
– Tighten knurled nut -2- in -direction of arrow-.



– Pull ignition coil on puller - T10530- in -direction of arrow- out of cylinder head cover.

Repeat step for all ignition coils with output stage.



Note

- *Observe installation position of ignition coils with output stages!*
- *Ensure that the cables are not kinked or damaged.*

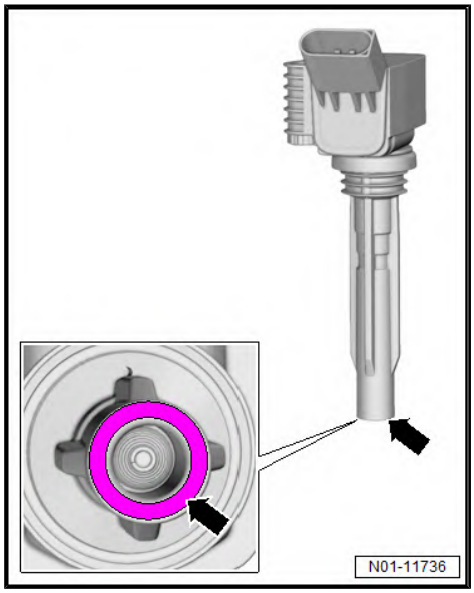
– Unscrew spark plugs using spark plug socket - 3122 B- .

Installing

Note

- *When installing new spark plugs, regrease ignition coils with output stage using silicone paste ⇒ ETKA .*
- *The applicable silicone paste is stated in the ETKA along with the corresponding ignition coil and/or spark plug.*

– Screw in new spark plugs and tighten them to specified torque using spark plug socket - 3122 B- ⇒ page 134 .
– Apply a thin bead of silicone paste on the circumference of the sealing hose of the ignition coil with output stage -arrow-.
– Align and insert all ignition coils with output stage one after another loosely into spark plug hole.
– Press ignition coils with output stage onto spark plugs evenly by hand (do not use any tools).
– Tighten bolts of ignition coils with output stage to specified torque ⇒ page 134 .
– Simultaneously connect all connectors.
– If present, bolt on earth wires -arrows-.
– Fit engine cover panel ⇒ page 82 .



Specified torque	Nm
Spark plugs in cylinder head	30

Specified torque	Nm
Bolt for ignition coil with output stage	10
Nut for earth wire	10

5 Exhaust emissions test

This chapter provides information on the following subjects:

Note

- *Please observe the country specific legal regulations.*
- *The exhaust emissions test described below has been created according to the legal regulations valid in Germany.*

5.1 Exhaust emissions test for petrol engines

Special tools and workshop equipment required

- Exhaust gas testing station L - VAS 7320 A-

Note

- *The following description refers to vehicles fitted with "On-board diagnosis" OBD.*
- *The OBD monitors all components and part systems influencing the exhaust emissions quality.*
- *It is possible to carry out an exhaust emissions test only when all units of the emissions testing station are connected properly and joined to each other according to the operating instructions.*
- *All work to be performed is displayed by the emissions testing station .*

Conditions for testing

- All test conditions and data required for exhaust emissions test are found on EET data sheet for the respective engine.
- For bar code reading the EET data sheet must be printed out.
- Automatic gearbox: selector lever in position "P" or "N".
- Manual gearbox: gear lever in neutral
- Parking brake applied
- 12V battery fully charged (if battery charge is too low, raise idling speed if necessary).

– Perform exhaust emissions test according to instructions on display.

Vehicle data input

– Enter the following data:

- Registration number
- Key numbers
- Vehicle identification number
- Fuel type
- Mileage

The following vehicle data can be found in the vehicle registration certificate part 1:

- Registration number: “e.g. WOB-HH 1234”
- Emission key number “Field 14.1 (code for field 14)”
- Vehicle manufacturer: “Field 2”, “Field 2.1 (code for field 2)”
- Vehicle identification number “field E”
- Type and version “Field D2 (type only)”, “Field 2.2 (code for field D.2)”

Specified data input for EET

There are different ways to enter the specified data:

- 1. By manual input
- 2. By bar code input from EET data sheet
- 3. Through ELSA web service

Note

- *To use the ELSA web service, the exhaust gas testing station L which is used for the exhaust emissions test must be integrated in the workshop network.*
- *The ELSA web service automatically transmits the data for the specific vehicle via the network to the respective mask.*

Manual specified data input for EET:

Note

All test conditions and data required for exhaust emissions test can be found in the ⇒ Data sheets for exhaust emissions test for respective engine.

– Perform manual data input according to instructions on display.

– Enter displayed values on EET data sheet in column “Test values for exhaust emissions test” on display as follows:

1 - Test speed (idling speed)

2 - Warm-up phase for 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 regulating probe type; either “Step-type probe” or “Broad-band probe”.

9 - Lambda probe value

Specified data input for EET as bar code:

– If specified data for EET are available as bar code, read bar code of EET data sheet with bar code reader.

All data required are shown on display.

Inspection

– Inspect all exhaust emissions relevant components.

– Check if exhaust system is fitted and complete and check for leaks and damage.

Procedure

– Follow instructions from exhaust gas testing station .

5.2 Exhaust emissions test for diesel engines

Special tools and workshop equipment required

♦ Exhaust gas testing station L - VAS 7320 A-

Note

♦ *The following description refers to vehicles fitted with "On-board diagnosis" OBD.*

♦ *The OBD monitors all components and part systems influencing the exhaust emissions quality.*

♦ *It is possible to carry out an exhaust emissions test only when all units of the emissions testing station are connected properly and joined to each other according to the operating instructions.*

♦ *All work to be performed is displayed by the emissions testing station .*

Conditions for testing

- All test conditions and data required for exhaust emissions test are found on EET data sheet for the respective engine.
- Automatic gearbox: selector lever in "P" position
- Manual gearbox: gear lever in neutral
- Parking brake applied
- 12V battery fully charged (if battery charge is too low, raise idling speed if necessary).

– Perform exhaust emissions test according to instructions on display.

Vehicle data input

– Enter the following data:

♦ Registration number

♦ Key numbers

♦ Vehicle identification number

♦ Fuel type

♦ Mileage

The following vehicle data can be found in the vehicle registration certificate part 1:

♦ Registration number: "e.g. WOB-HH 1234"

♦ Emission key No. "field 14.1 (code for field 14)"

♦ Vehicle manufacturer: "Field 2", "Field 2.1 (code for field 2)"

♦ Vehicle identification number "field E"

- Type and version “Field D2 (type only)”, “Field 2.2 (code for field D.2)”
- Nominal speed “field P4”

Specified data input for EET

There are different ways to enter the specified data:

- 1. By manual input
- 2. By automatic data acceptance from the exhaust-emission station database

Note

- *Regarding Euro 6 vehicles with manual gearbox and infotainment system, the deactivation of the idle speed limitation is carried out in the infotainment system.* *⇒ page 139*
- *Euro 6 vehicles with automatic gearbox, manufactured from week no. 48/18 do not have idle speed limitation any more.*
- *If there is no ESP or softkey in the infotainment system to deactivate the speed limitation, the governed speed can be measured using the engine speed limited by the control unit. To do this, all the EET specifications must be entered manually.*
- *For all Euro 6 vehicles an opacity figure of max. 0.25 m^{-1} applies.*

Deactivation of idle speed limitation of Euro 6 vehicles with manual gearbox:

– Switch on ignition.
– Switch on infotainment system.
– Press Home function button.
– Press Vehicle function button.
– Press Setup function button.
– Press ESC system function button and deactivate TCS.

Manual specified data input for EET:

Note

- *For the relevant test requirements and all the necessary data for the exhaust emissions test, refer to the ⇒ Data sheets for exhaust emissions test of the respective engine.*
- *The nominal speed is located in field P4 of the registration certificate part 1 or field 7 of the vehicle document and must always be entered manually.*
- *If the idle speed limitation cannot be deactivated, enter the value 2500 ± 200 rpm in the box for rev limit and 2500 in the box for engine speed for conditioning.*

– Perform manual data input according to instructions on display.
– Enter displayed values on EET data sheet in column “Test values for exhaust emissions test” on display as follows:

1 - Speed for conditioning

2 - Number of throttle bursts for conditioning

3 - Engine oil temperature (min. value)

4 - Select engine oil temperature measurement procedure

5 - Idling speed

6 - Governed speed

7 - Nominal speed (registration certification part 1, vehicle document)

8 - Governed speed measuring period (1 second)

9 - Type plate value ⇒ page 140

10 - Select probe type (No. of probe)

11 - Select measuring mode

12 - Measured period portion

Note

- *When performing the exhaust emissions test for Euro 5 vehicles, the respective engineer must always use the vehicle-specific exhaust emissions limit value indicated on the type plate.*
- *If no value is indicated on the type plate, the opacity figure specified by the manufacturer and indicated in ELSA must be used.*
- *If no value is indicated on the type plate and no opacity figure has been specified by the manufacturer, the statutory opacity figures (2.5 m^{-1} or 1.5 m^{-1}, depending on date of initial registration) must be used.*

The nominal speed can only be entered manually.

If the opacity figure of Euro 5 vehicles on the EET data sheet is different from the value indicated on the type plate, enter the type plate value manually.

Inspection

– Inspect all exhaust emissions relevant components.

– Check if exhaust system is complete and check for leaks and damage.

Procedure

– Follow instructions from exhaust gas testing station .

Evaluation

Note

If the exhaust emissions test was performed at idle speed limitation, the log note “governed speed <90% of the nominal speed (idle speed limitation)” is entered in the log.

6 Glossary

Term	Explanation
ABS	Anti-locking brake system. The ABS is a regulating system in the brake system, that prevents locking when braking. This helps to maintain directional stability and steerability.
All-wheel drive coupling	Term to be used in place of “Haldex” with immediate effect. Legal implications make this step necessary. The term may nevertheless appear in older documents but need not be replaced.
TCS	Traction control system The TCS prevents the wheels from slipping when the vehicle is driven off.
ATF	Automatic Transmission Fluid. Gear oil for automatic gearbox.
EET	Exhaust emissions test
AUS 32	Abbreviation for “Aqueous Urea Solution” with 32.5% urea content, see also (AdBlue®) ⇒ page 141
AdBlue®	Is an invented name. This fluid is also referred to as “NOx reducing agent AUS 32”, “AUS 32” or “Diesel Exhaust Fluid” (in the US). AdBlue® is a colourless reducing agent that is used for exhaust post-treatment in order to reduce nitrous oxides and particulates. AdBlue® is a registered trademark of the VDA (Verband der Automobilindustrie - German association of the automotive industry) in the USA, Germany, the European Union and other countries. The AdBlue urea solution is not mixed with diesel fuel, but is carried in a separate tank in the vehicle.
ATF level	Filling level of ATF in gearbox
BEV	Battery Electric Vehicle. Electric vehicle
CNG	Compressed Natural Gas. Compressed natural gas
CO	Carbon monoxide. Produced when fuels containing carbon are not combusted completely
Common rail “CR”	This term refers to a common high-pressure injection line, the “rail”, which supplies all cylinders of the relevant cylinder bank with fuel.
Diesel exhaust fluid	Designation used in the US for the NOx reducing agent AUS 32, or the AdBlue®.
DIN	Deutsches Institut für Normung e.V. (German Standards Authority)
DLA	Dynamic Light Assist: a system with variable road illumination allows the vehicle to be driven permanently with main beam without dazzling oncoming traffic.
DPF	Diesel particulate filter
DS	Direct shift
DSP	Digital service plan
DSG	Dual clutch gearbox
ATA	Anti-theft alarm
ECE	Economic Commission for Europe
ETKA	Electronic parts catalogue
Part no.	Abbreviation for part number
EN	European standard
EOBD	European On-Board Diagnosis
ESP	Electronic stabilisation program. Prevents potential vehicle skidding by targeted intervention in the brake and engine management systems.
FAME	Fatty acid methyl ester
GJ	All-season tyre All-season tyres (also called all-weather tyres) can be used in the summer and also the winter.
HEV	Hybrid Electric Vehicle. Hybrid vehicle
MM	Maintenance manual

Term	Explanation
LongLife service	The LongLife service enables extremely long inspection or oil change intervals, depending on individual driving style and conditions under which the vehicle is used. For the LongLife service a special engine oil is required.
LED	Light-emitting diode LED
LPG	Liquefied petroleum gas. Liquefied petroleum gas or LPG
MIL	Malfunction indicator light. American designation for exhaust emissions warning lamp K83
MPI	Multi-point injection
M&S	Winter tyre (M+S tyre). Winter tyres are designed for low temperatures and wintery road conditions.
NAR	North American region
NSC	National Sales Company
NOx reducing agent AUS 32	Designation of aqueous urea solution according to DIN ISO 22241-1, see also (AdBlue®) ⇒ page 141
NO_X reducing agent AUS 32	Designation of aqueous urea solution according to DIN ISO 22241-1, see also (AdBlue®) ⇒ page 141
OBD	On-board diagnosis. The OBD monitors all components influencing the exhaust emissions quality.
OBD-II	American onboard diagnosis
PHEV	Plug-in hybrid electric vehicle. A vehicle with hybrid drive whose battery can also be recharged externally using mains electricity.
PR No.	Abbreviation for production control number. It identifies among other things optional equipment, country-specific deviations
PM	Particulate matter. Soot particle value for diesel engine emissions
PMS	Particulate reduction system
QG0	Vehicles are “not” factory-fitted with components for LongLife service. For maintenance, the intervals based on time and distance (non-flexible intervals) apply.
QG1	Vehicles are factory-fitted with active LongLife service. This means vehicles have a flexible service interval display and are fitted with the following components: ♦ Flexible service interval display in dash panel insert ♦ Engine oil level sensor ♦ Brake lining wear indicator
QG2	The LongLife service is not factory-activated. This means vehicles have a fixed service interval display (time and mileage dependent service intervals): These vehicles are fitted with the following components: ♦ Non-flexible service interval display in dash panel insert ♦ Engine oil level sensor ♦ Brake lining wear indicator
QG3	The LongLife service is not factory-activated. This means vehicles have a fixed service interval display (time and mileage dependent service intervals): These vehicles are fitted with the following components: ♦ Non-flexible service interval display in dash panel insert ♦ Brake lining wear indicator
®	Registered trademark
Readiness code	8-digit binary code which indicates if all exhaust relevant diagnoses have been performed by the electronic engine management.
RON	Research Octane Number. Measurement unit of the knock resistance of petrol
SPF	Particulate filter
TPMS, TPLI	Tyre Pressure Monitoring System, Tyre Pressure Loss Indicator

Term	Explanation
SAE	Society of Automotive Engineers. Association which creates proposals/guidelines for implementing legal requirements (e.g. standards).
SCR	With the SCR process (selective catalytic reduction) the noxious nitrogen oxides emissions are reduced to a great extent and are converted to steam and nitrogen by the urea solution. A special urea solution (AdBlue®) is injected into the exhaust system upstream of a special catalytic converter.
PFI	Intake manifold injection system (indirect injection system)
SULEV	Super Ultra Low Emission Vehicle
TSI	TSI turbocharger. Charging with turbocharger only.
	TSI twincharger. Charging with turbocharger and compressor
TGI	Charging with turbocharger and natural gas injection system
TDI	Turbo diesel engine - direct injection
ULEV	Ultra low emission vehicle
VDA	German association of the automotive industry
VW	Volkswagen
ESI	Extended servicing interval
ZEV	Zero Emission Vehicle
ASSY	Assembly

7 ---Change history---

Date	Chapter	Scope of modification
11.01.2019	Exhaust emissions test for diesel engines ⇒ page 138	Chapter updated.
2018-11-30	Engine list ⇒ page 1	Chapter updated.
	Engine oil: capacities and specifications ⇒ page 92	Chapter updated.
	Road test (performance, handling, noises, air conditioner etc.): carrying out ⇒ page 96	Chapter updated.
	Service tables ⇒ page 8	Chapter updated.
	Poly V-belt: checking condition ⇒ page 65	Chapter updated.
03.08.2018	Engine list ⇒ page 1	Chapter updated.
	Engine oil: capacities and specifications ⇒ page 92	Chapter updated.
	Air filter: cleaning housing and renewing filter element ⇒ page 72	Chapter updated.
	Engine oil: draining, renewing oil filter and replenishing engine oil ⇒ page 84	Chapter updated.
	Spark plugs: renewing ⇒ page 125	Chapter updated.
	Engine cover panel “top”: removing and installing ⇒ page 82	Chapter updated.
	Dual clutch gearbox 0GC: changing gear oil ⇒ page 63	Chapter added.
	Service tables ⇒ page 8	Chapter updated.
	Water drain valves at rear: checking for blockage, cleaning if necessary ⇒ page 125	Chapter added.
	Sliding sunroof drains at front: checking for blockage, cleaning if necessary ⇒ page 120	Chapter updated.
	Track rods: checking clearance, attachment and boots ⇒ page 122	Chapter updated.