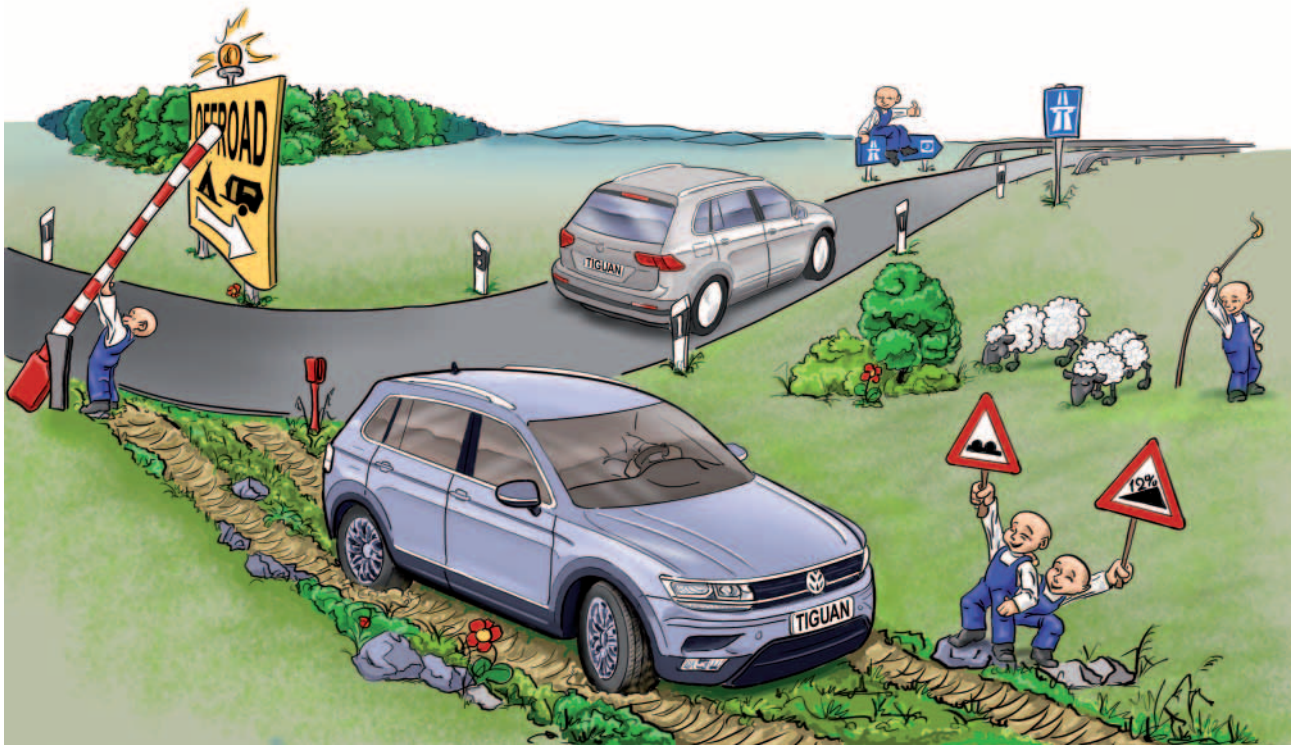




Self-Study Programme 552

The Tiguan 2017





s552_001

The Tiguan 2017 – “the second generation”

The design of the all-new Tiguan 2017 is based on the modular transverse matrix (MQB).

It is an all-rounder, either as a variant with front-wheel drive for road use or also as an off-roader with 4MOTION drive and an off-road pack. Both drive systems ensure optimum traction on almost all surfaces.

This Self-study Programme provides an overview of the technical product features.



The display texts from the multifunction display in the dash panel insert and the infotainment display shown in this book are only examples and do not correspond to the displays in the respective national languages. The exact display content varies from country to country and can be found in the respective vehicle.

The Self-study Programme shows the design and function of new developments.
The contents will not be updated.

For current testing, adjustment and repair instructions, refer to the relevant service literature.



Important note

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Introduction



Product features

The illustrations show significant product features.

- LED headlights
 - Manoeuvre braking with
 - Parking aid
 - Park assist steering
 - Trailer Assist
 - Active bonnet
 - Easy Open
 - Car-Net
 - R1234yf refrigerant
 - Emergency Assist
 - Operating unit for driving mode selection (4MOTION Active Control)
 - Proactive occupant protection system
 - Head-up Display
 - Active Info Display
 - Electrically operated tailgate
- 
- s552_061
- 
- s552_081



The equipment in all assembly groups varies from country to country.

Distinguishing features

The illustrations show the distinguishing features.



Radiator grille with headlights



Frameless interior mirror

Driver-oriented dash panel and centre console



Operating unit for driving mode selection (4MOTION Active Control)



Folding tables with pull-out cup holders



Door with exterior mirror mounted on shoulder line and side window



Rounded wheel arch trim

LED tail light cluster split into two sections with connecting character line



Wider rear lid

s552_005

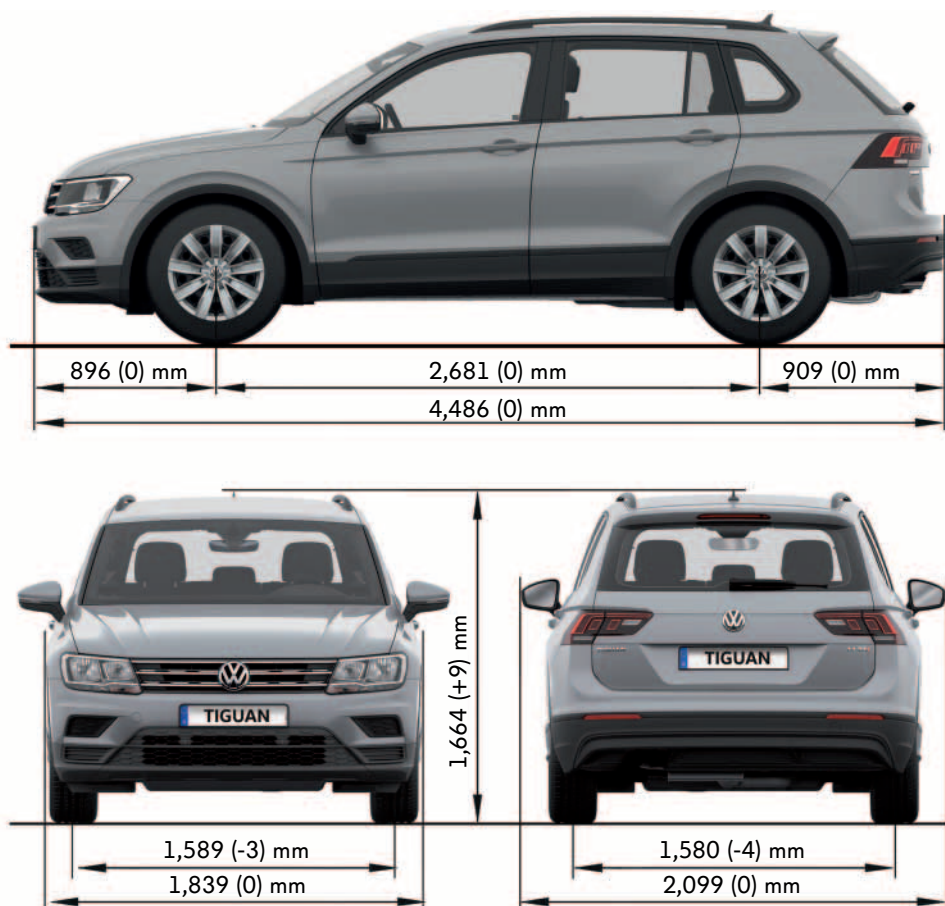
Introduction



Technical data

The data for the Tiguan 2017 with front-wheel drive and 4MOTION with an off-road pack refer to the vehicle without driver, equipped with a 1.4-l 110-kW TSI engine, a 6-speed manual gearbox MQ 350 and 215/65 R17 tyres.

Exterior dimensions and weights



s552_007

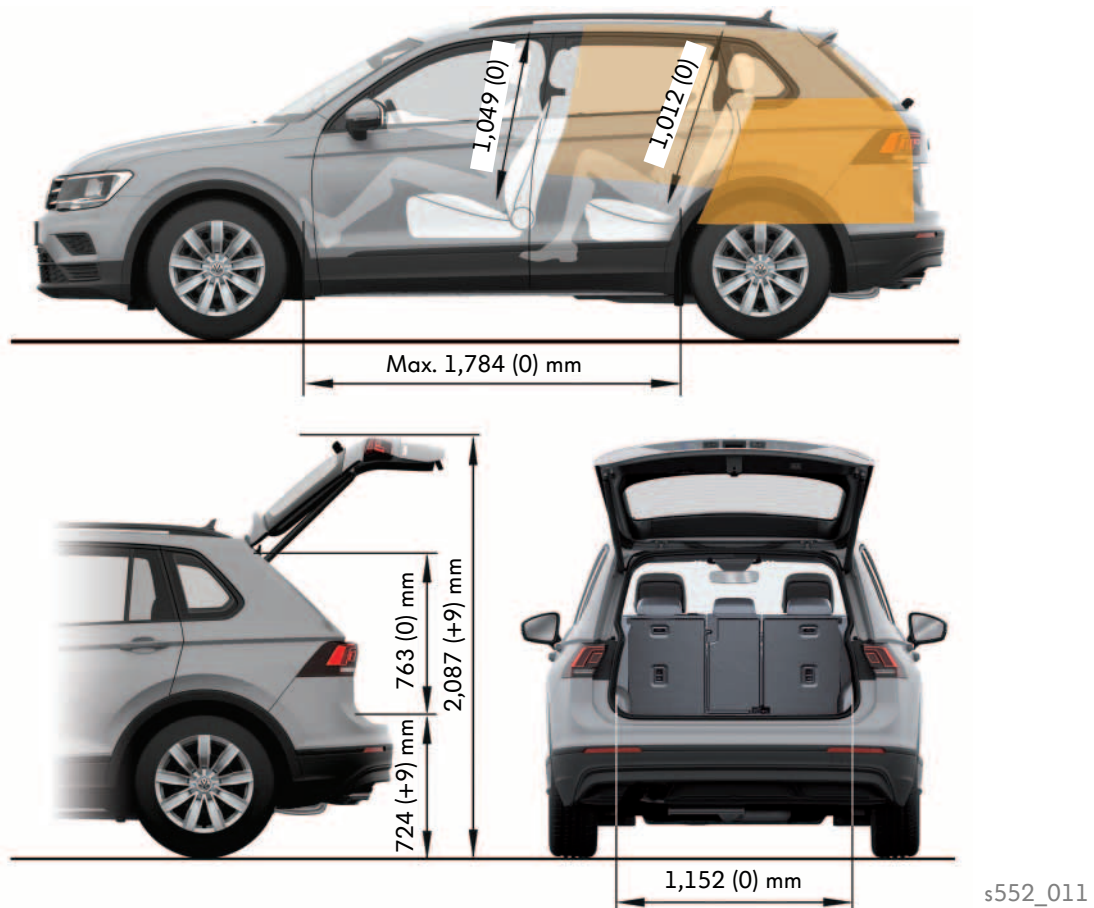
The figures in brackets correspond to the difference between the Tiguan with front-wheel drive and the 4MOTION version with the off-road pack.

Weights/other data

Tiguan	Front-wheel drive	4MOTION with off-road pack
Turning circle	11.5m	11.5m
Gross vehicle weight rating	1,960–2,120kg**	2,100–2,170kg**
DIN* kerb weight	1,415kg	1,495kg
Max. roof load	75kg	75kg
Max. trailer weight, braked on 12% uphill gradient	1,800kg	2,000kg
Drag coefficient	0.327 c _d	0.331 c _d



Interior dimensions and volumes



Interior dimensions and volumes

Tiguan	Front-wheel drive	4MOTION with off-road pack
Luggage compartment volume	615 ^{***} /1,655l	615 ^{***} /1,655l
Through-load width between wheel housings	1,004 mm	1,004 mm
Fuel tank capacity	58 litres	60 litres

* DIN $\triangleq$ Deutsches Institut für Normung (German Institute for Standardisation)

** Depending on the individual configuration of PR numbers

*** With longitudinally adjustable rear seat bench moved fully forward

Introduction

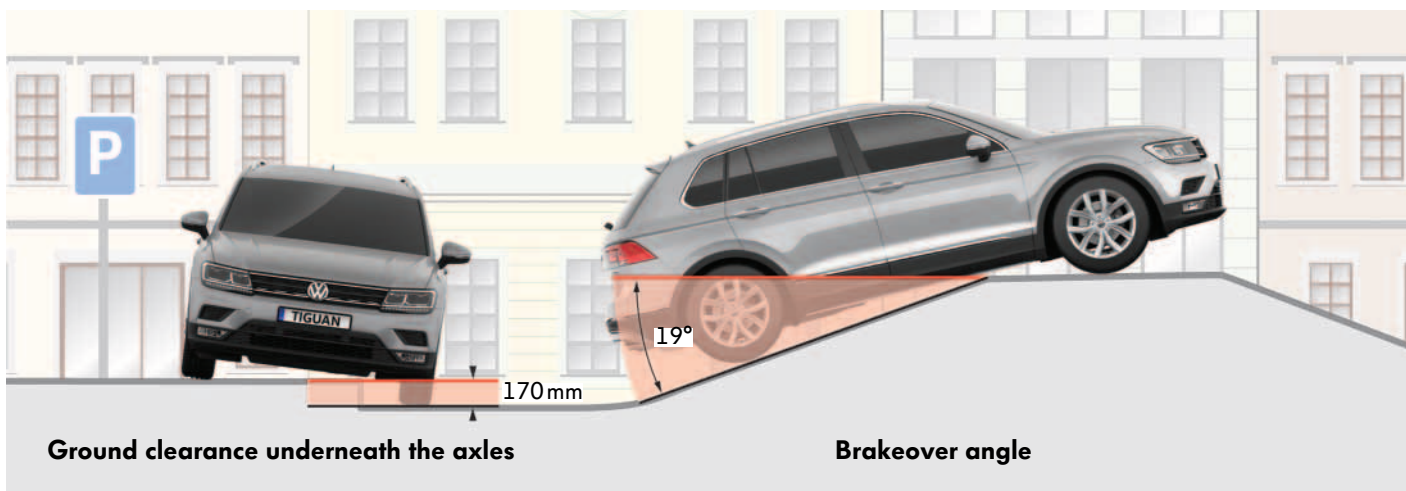


Ground clearance

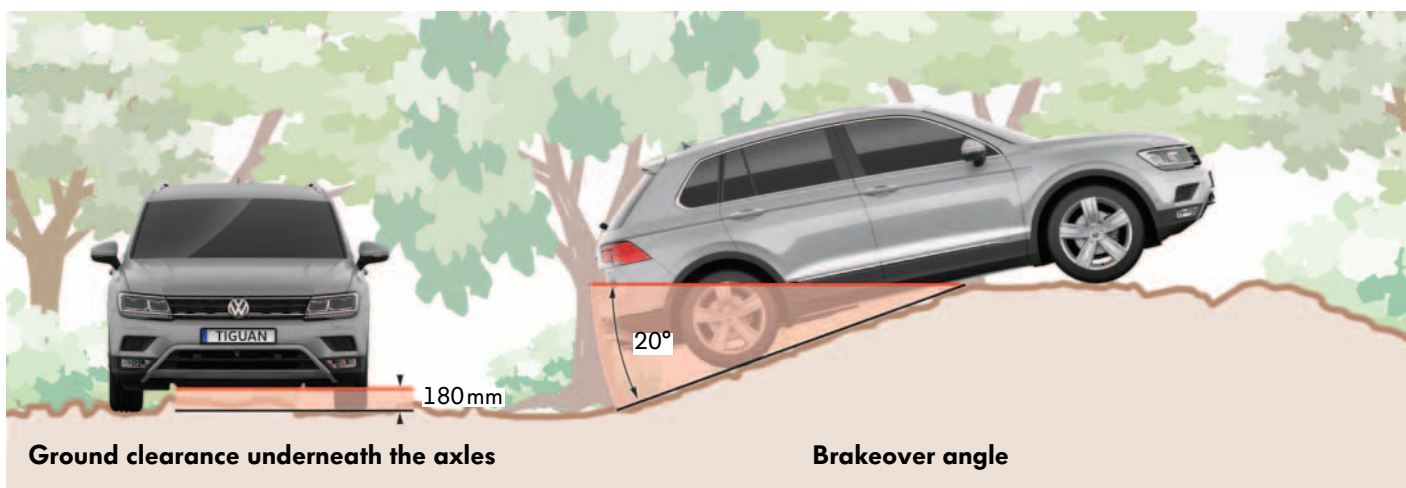
The following maximum ground clearances vary according to equipment and drive variant:

- Ground clearance underneath the axles
- Front and rear entry/exit angle
- Ground clearance between the axles

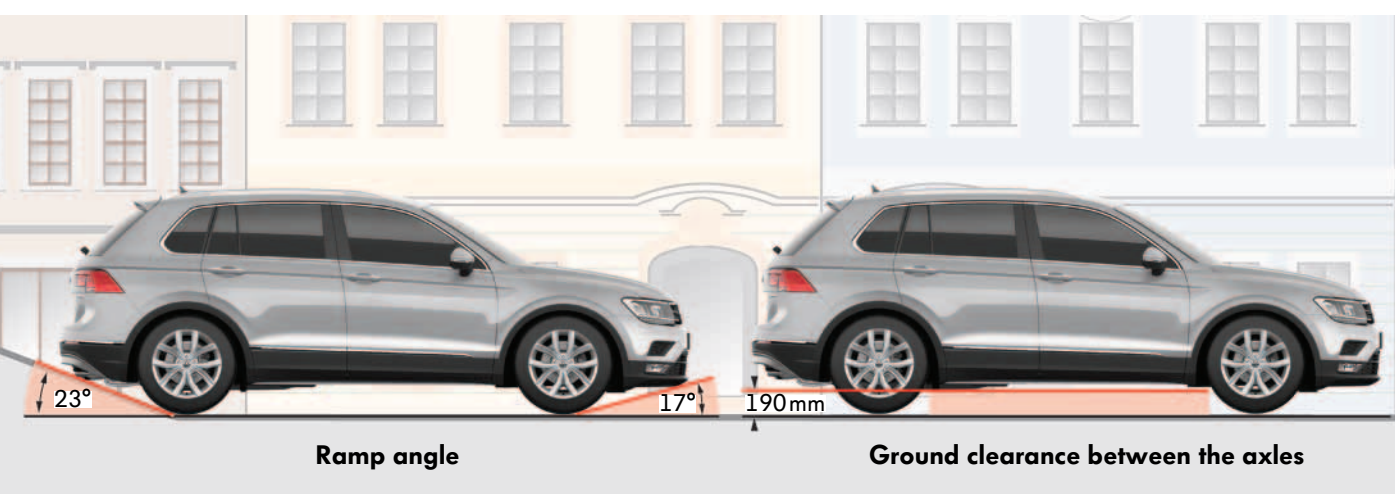
Tiguan with front-wheel drive



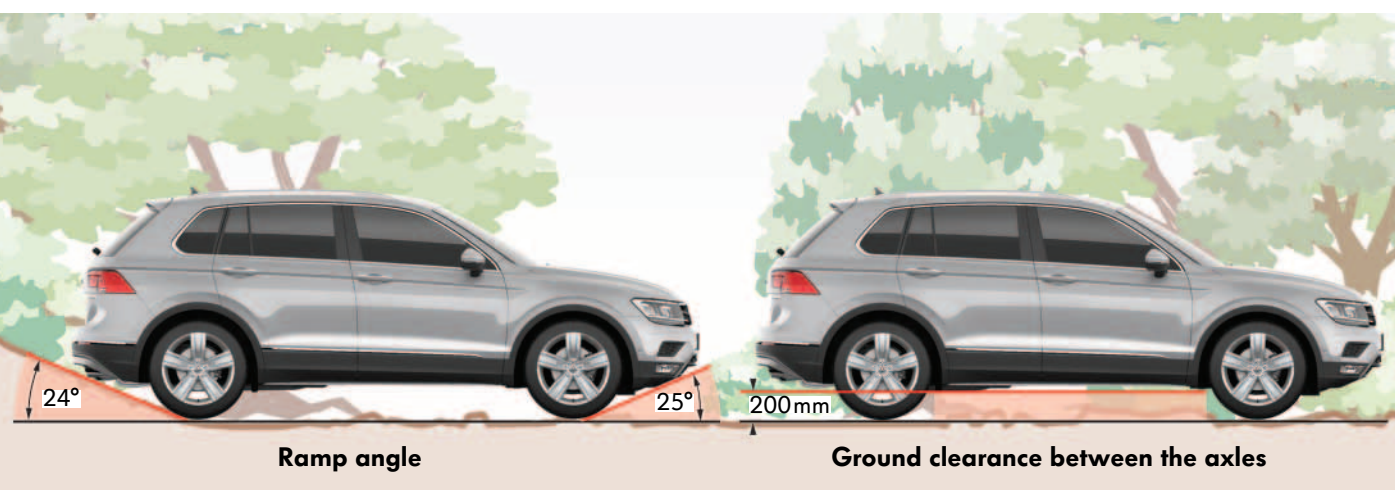
Tiguan 4MOTION with off-road pack*



* The Tiguan 4MOTION can be ordered with the off-road front end (off-road pack). The Tiguan 4MOTION has a ramp angle of 18° with the standard front end.



s552_034



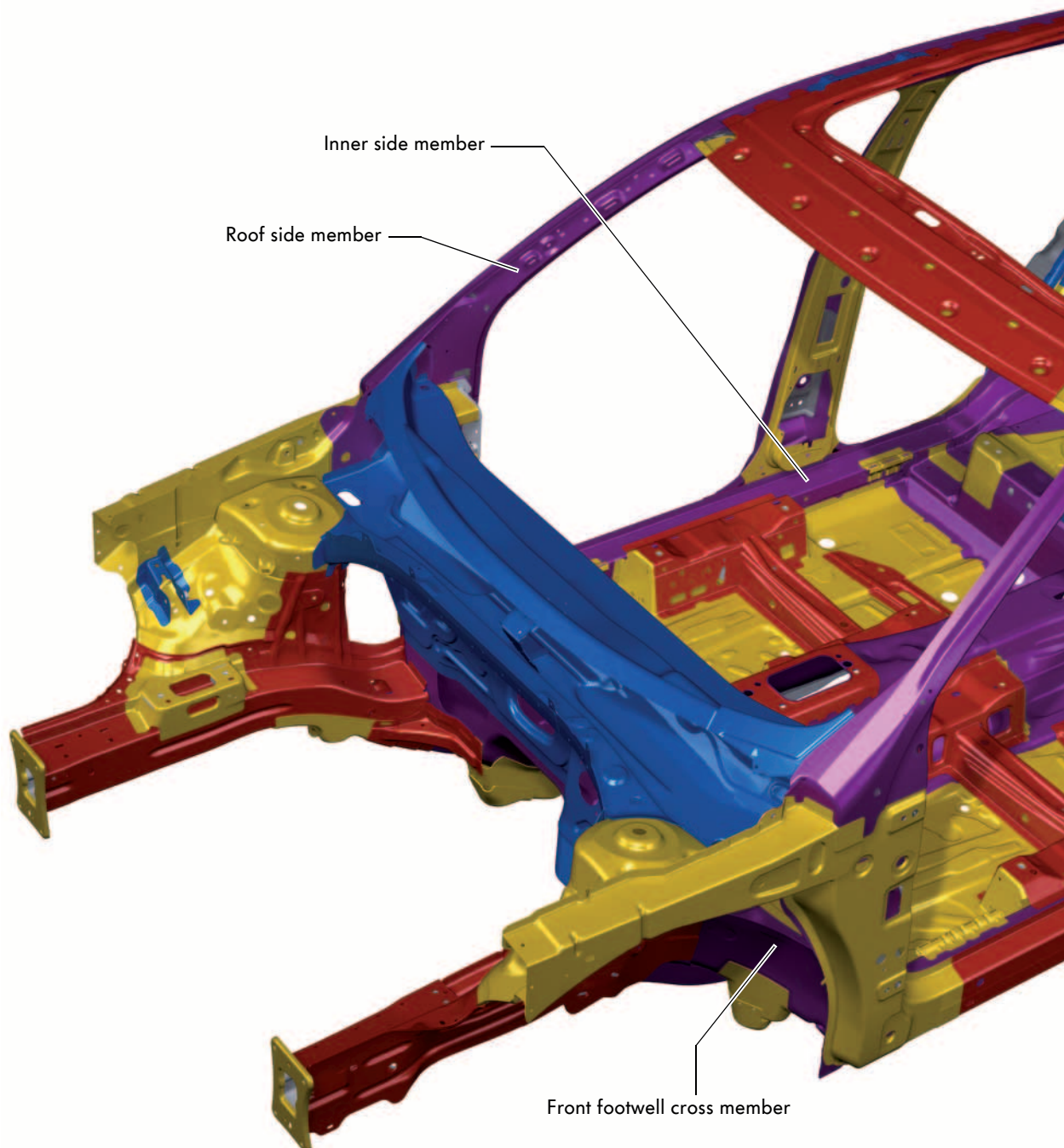
s552_020

Body

Body structure

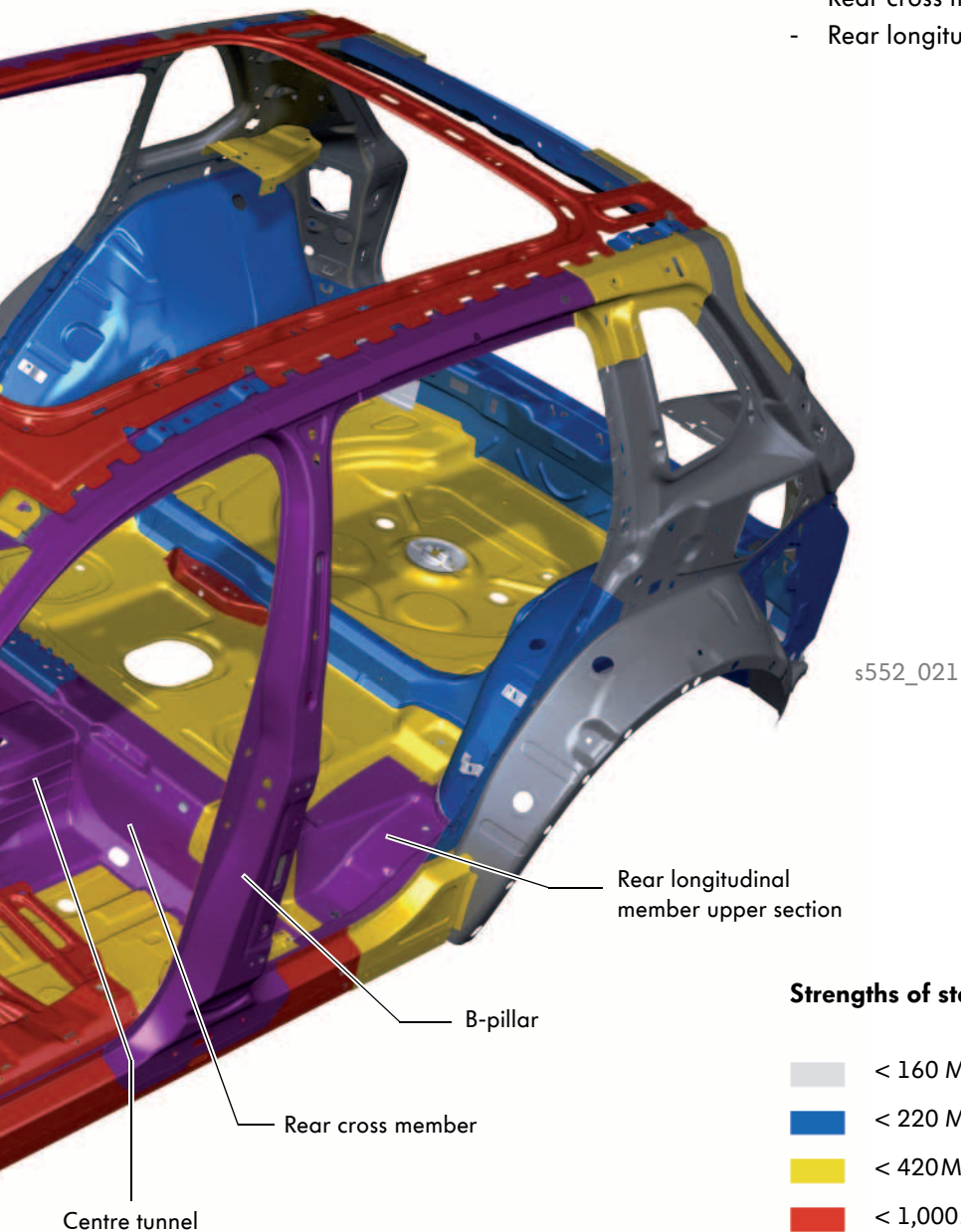
The body is based on the MQB platform.

Ultra-high-strength hot-formed steels are used just like in the other vehicles that are based on the MQB platform. These steels are stronger than conventional steel with a comparable weight. Using these steel sheets has made the body 12 kg lighter compared with the previous model, but still considerably stronger and thus safer.



The following components are made from ultra-high-strength hot-formed steel:

- B-pillars
- Roof side members
- Front footwell cross member
- Centre tunnel
- Inner side members
- Rear cross member
- Rear longitudinal member upper sections



Strengths of steel sheets

	< 160 MPa soft steel
	< 220 MPa high-strength steel
	< 420MPa extra-high-strength steel
	< 1,000MPa ultra-high-strength steel
	> 1,000MPa ultra-high-strength hot-formed steel

Body assembly

Front bumpers

Like the previous model, the Tiguan comes with two different front ends. The basic difference lies in the two ramp angles.

The two variants are distinguished visually by the following components:

- Bumper cover
- Centre air intake grille
- Front fog light trims
- Wheel housing liners



Front end with 18° ramp angle



Front end with 25° ramp angle

This variant is better suited to off-road use due to the greater ramp angle.



Panoramic sliding sunroof

The panoramic sliding sunroof consists of two glass panels. The front panel is electrically tilted and opened. The rear panel is fixed.

An electrically driven blind is fitted for privacy and protection from sunlight.



s552_022

Ambient lighting

The dimmable ambient lighting on the panoramic sliding sunroof consists of light strips along the sides.



Light strips

s552_065

Body assembly

Electrically operated tailgate

The Tiguan is available with an electrically operated tailgate.

It is opened and closed with:

- A button on the tailgate
- A button in the door trim
- A button on the remote control key



s552_051

Programming

The opening height can be programmed. This allows you to prevent collisions with a low garage ceiling or a roof box. To program the opening height, stop the tailgate in the required position with the button on the tailgate. Then hold down the button until you hear an acoustic signal.

The drive uses two spindle drives. They are installed in place of the gas struts.



You will find further information on the electrically operated tailgate in Self-study Programme no. 449 "The Touareg 2011".

Interior equipment

Tables in the front seat backrests

The tables can be set to four different angles. A rubber front edge prevents objects slipping off.



Rubber front edge

s552_017

Rear seats

The rear seats can be moved individually in the longitudinal direction.

The backrest tilt angles can be adjusted.

The outer seats are electrically heated in some equipment levels.



s552_019

Body assembly

Load floor system

The load floor can be set to two positions:

Load floor in upper position:

This position creates an almost flat load area when the rear seat backrests are folded down.



s552_053

Changing the position:

Lift the rear part of the load floor and place the front part in the lower position.



s552_055

Load floor in lower position:

In this position, the customer can make use of the maximum luggage compartment volume.



s552_057



The adjustable Load Floor is not available for all models.

Hinged towing bracket

The hinged towing bracket is unlocked electrically. The electric hinged tow coupling attachment button E474 is located in the left-hand luggage compartment trim. When you press the button, the ball neck will fold out and then needs to be manually locked in the towing position. Pressing the button again will unlock the ball neck. You then need to manually move it to the retracted position and lock it.



Electric hinged tow coupling attachment button E474



Ball neck extended

Intermediate position

Ball neck retracted

s552_059

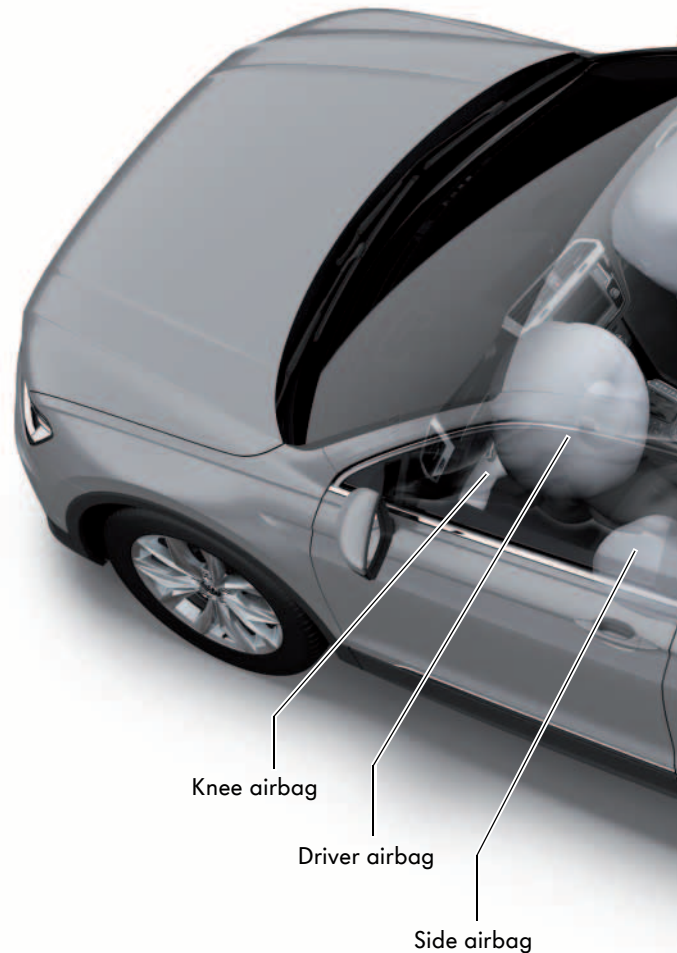


Safety features

Occupant protection

The following occupant protection systems can be equipped:

- Single-stage driver airbag
- Single-stage front passenger airbag with deactivation switch
- Side airbags in the front seats
- Side airbags in the outer rear seats
- Front and rear curtain airbags
- Knee airbag on driver side
- Three-point seat belts with belt tensioners and force limiters on front seats
- Three-point seat belts with reversible belt tensioners on front seats (only with proactive occupant protection system)
- Three-point seat belts with belt tensioners and force limiters on outer rear seats
- Three-point seat belt on centre rear seat
- Proactive occupant protection system
- Top tether system on outer rear seats
- Isofix child seat retaining rings on the outer rear seats
- Belt status display

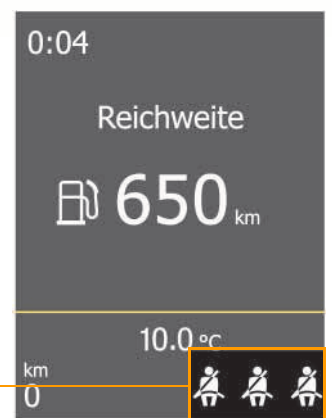


Seat belt reminder

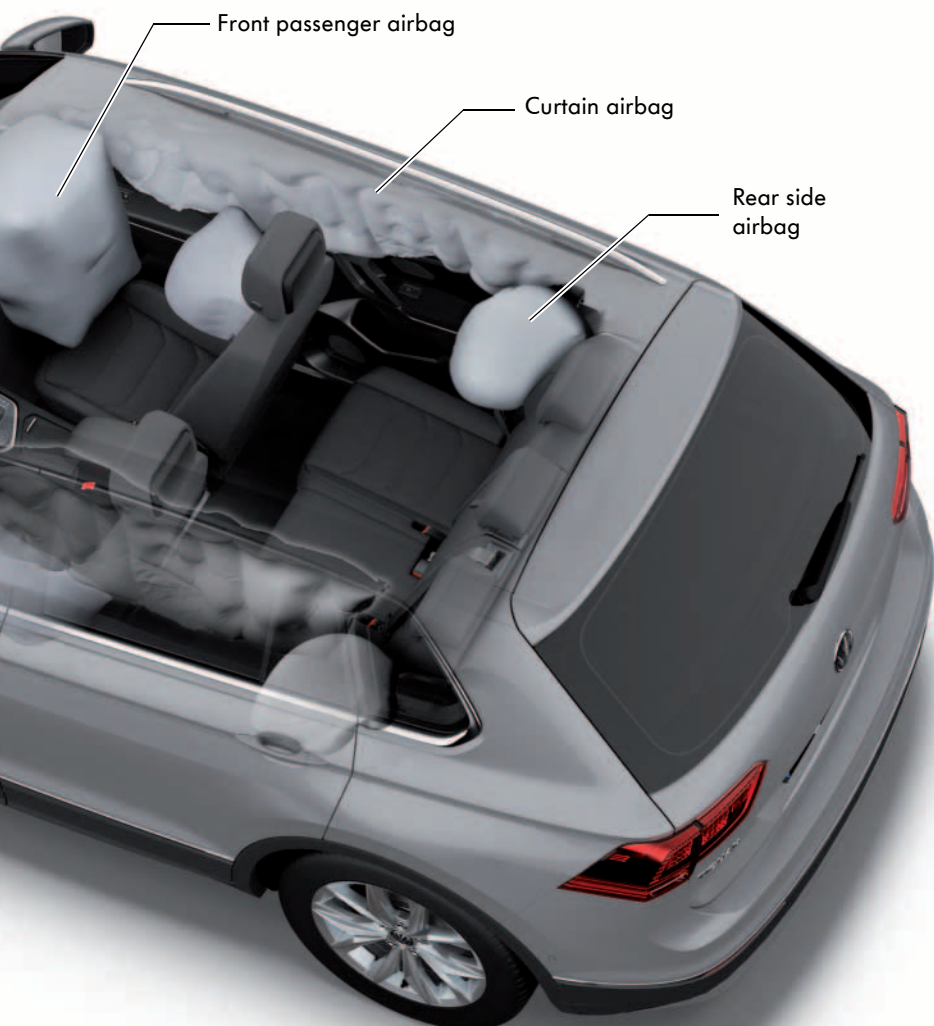
All seats have a belt status display.

The belt status display informs the driver visually and acoustically about the belt buckle status of the rear seats via the multifunction display in the dash panel insert.

Evaluation of the belt buckle information "latch plate inserted" / "latch plate not inserted" for the rear seats.



s552_191



s552_083



Proactive occupant protection system

If the proactive occupant protection system detects a potential accident situation, for example, when the activated brake assist system initiates an emergency stop, the seat belts for the driver and front passenger will be automatically pretensioned. The airbag and belt systems can then provide the best possible protection.

In highly critical and unstable driving situations, for example, during severe oversteering or understeering with ESC intervention, the system will also close the side windows (up to a remaining gap) and the panoramic sliding sunroof. This allows the curtain and side airbags to provide optimum support and achieve their full effect.

Body assembly

Pedestrian protection

The Tiguan features an active bonnet for pedestrian protection.

Active bonnet

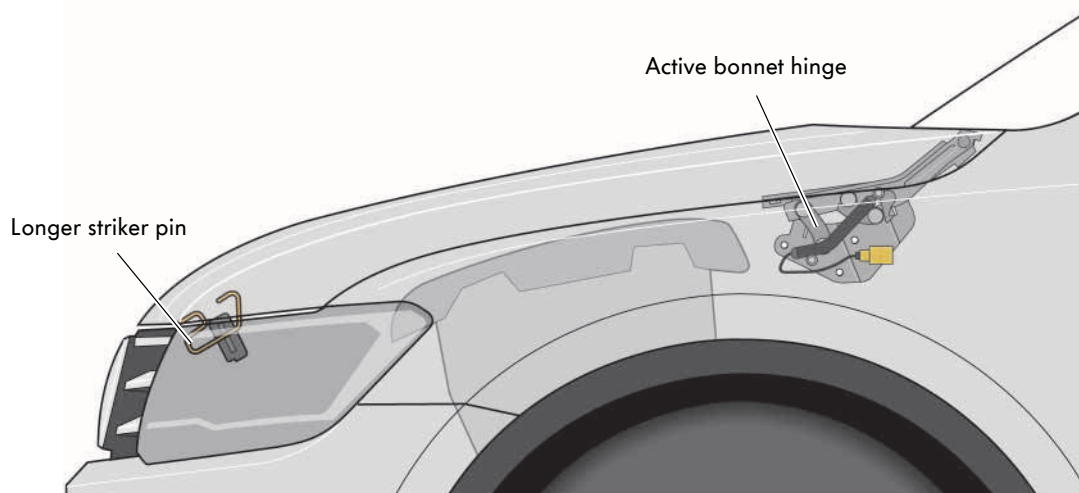
The rear end of the active bonnet is raised during a collision with a pedestrian. This increases the distance between the flexible bonnet and the rigid engine block.

It is deployed by the trigger for pedestrian protection using pyrotechnics.

The sensors for collision detection are fitted in the area of the front bumper.

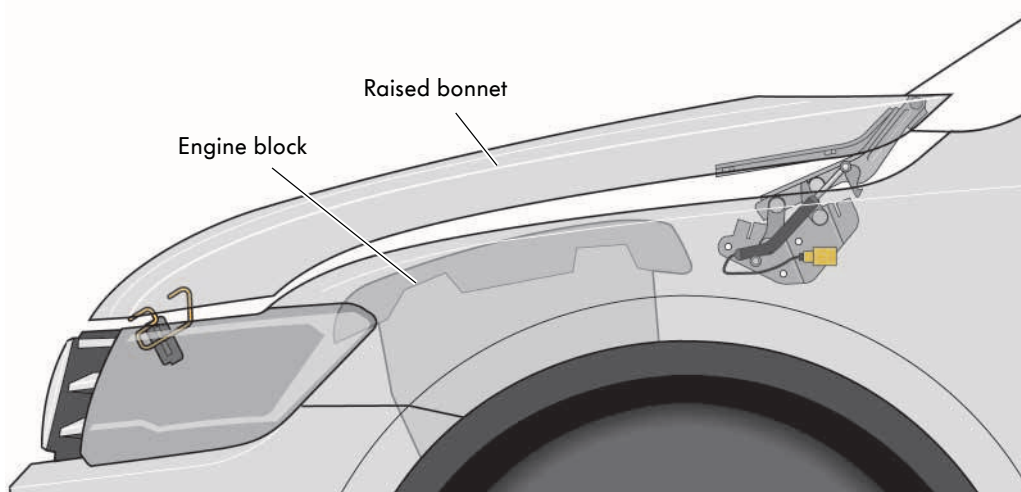


Bonnet rest position



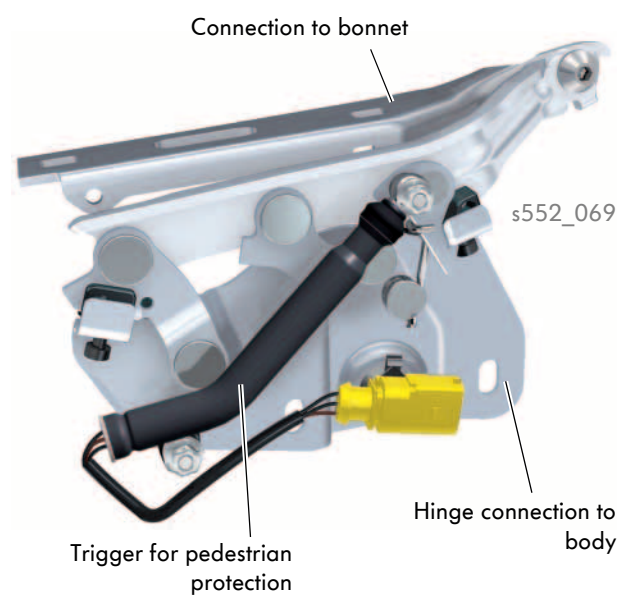
s552_050

Bonnet deployed



s552_048

Normal position of active bonnet hinge



Triggered active bonnet hinge



You will find further information on the active bonnet in Self-study Programme no. 549 "The Touran 2016 – Body and Safety Features".

Power units

Engine and gearbox combinations

Petrol engines Gearbox	1.4-l 92-kW TSI engine CZCA	1.4-l 110-kW TSI engine CZEA with ACT* CZDA without ACT	2.0-l 132-kW TSI engine CZPA	2.0-l 162-kW TSI engine CHHB
				
6-speed manual gearbox MQ350 02Q	 6F	 6F	 6A	
6-speed manual gearbox MQ350 0BB		 6A		
6-speed dual-clutch gearbox DQ250 02E/0D9***		 CZEA=6F/CZDA= 6A		
7-speed dual clutch gearbox DQ500 0BH/0DL***			 7A	 7A

* Engine with Active Cylinder Management ACT

Diesel engines	2.0-l 85-kW TDI engine DFGC	2.0-l 110-kW TDI engine DFGA	2.0-l 140-kW TDI engine DFHA	2.0-l 176-kW TDI biturbo engine CUAA
				
Gearbox				
6-speed manual gearbox MQ350 OBB	 6F	 6F/A**		
6-speed manual gearbox MQ500 0A6		 6A		
7-speed dual-clutch gearbox DQ500 0BH/ODL***		 7F/A**	 7A	 7A

** 6/7F/A = 6/7-speed front-wheel drive/all-wheel drive

*** Due to the introduction of the modular transverse matrix, the installation positions of the dual clutch gearbox have changed as has communication on the data bus. This has led to a change in the codes used for the dual clutch gearboxes. The dual clutch gearbox 02E has become the OD9, and the 0BH has become the ODL.



Power units

1.4-l 92-kW TSI engine

The 1.4-l 92-kW TSI engine is the entry-level petrol engine. It is part of the EA211 petrol engine family.

Technical features

- Camshafts driven via a toothed belt
- Cylinder head with integrated exhaust manifold
- Coolant pump integrated into the thermostat housing
- Coolant pump driven by the exhaust camshaft via a toothed belt
- Turbocharger module with electric charge pressure positioner
- Inlet camshaft with variable valve timing
- External gear wheel oil pump with two-stage oil pressure regulation



s552_033

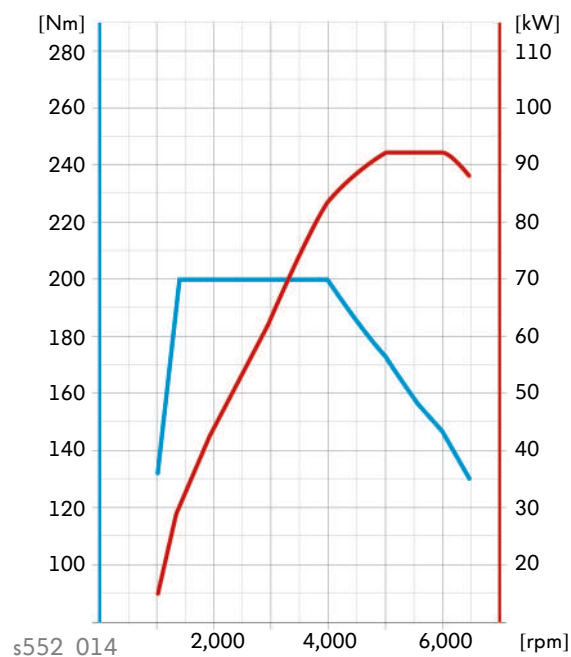


You will find further information on the EA211 engine family in Self-study Programme no. 511 “The New EA211 Petrol Engine Family”.

Technical data

Engine code	CZCA
Type	4-cylinder in-line engine
Displacement	1,395cm ³
Bore	74.5mm
Stroke	80.0mm
Valves per cylinder	4
Compression ratio	10.5:1
Maximum output	92kW at 5,000–6,000 rpm
Maximum torque	200Nm at 1,400–4,000 rpm
Engine management system	Bosch Motronic MED 17.5.25
Fuel	Super unleaded RON 95
Exhaust gas treatment	Three-way catalytic converter with one step-type lambda probe before and one after the catalytic converter
Emission standard	EU6

Torque and power diagram



1.4-I 110-kW TSI engine

This engine comes in two variants depending on the drive type and gearbox installed. One variant with Active Cylinder Management (ACT) and one without.

Technical features

- Camshafts driven via a toothed belt
- Cylinder head with integrated exhaust manifold
- Coolant pump integrated into the thermostat housing
- Coolant pump driven by the exhaust camshaft via a toothed belt
- Turbocharger module with electric charge pressure positioner
- Inlet and exhaust camshafts with variable valve timing
- External gear wheel oil pump with two-stage oil pressure regulation

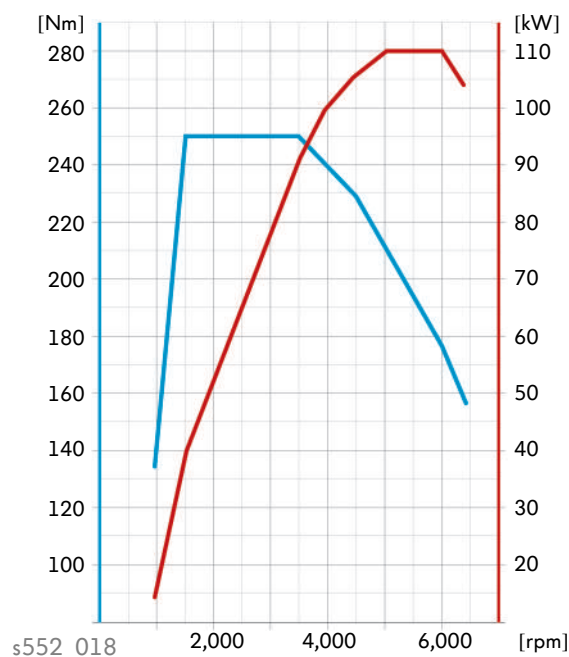


You will find further information in Self-study Programme no. 510 “Active Cylinder Management (ACT) in the 1.4 I 103 kW TSI engine”.

Technical data

Engine code	CZDA	CZEA with ACT
Type	4-cylinder in-line engine	
Displacement	1,395cm ³	
Bore	74.5mm	
Stroke	80mm	
Valves per cylinder	4	
Compression ratio	10.0:1	
Maximum output	110kW at 5,000–6,000 rpm	
Maximum torque	250Nm at 1,500–3,500 rpm	
Engine management system	Bosch Motronic MED 17.5.25	
Fuel	Super unleaded RON 95	
Exhaust gas treatment	Three-way catalytic converter with one step-type lambda probe before and one after the catalytic converter	
Emission standard	EU6	

Torque and power diagram



Power units

2.0-l 132-kW TSI engine

The basic engine is based on the 2.0-l 162-kW/169-kW TSI engine. In this series, the engine has been subjected to consumption-reducing measures including a modified combustion technique.

Technical features

- Electronic valvelift system on intake side
- Three-part oil scraper ring
- New inlet port, combustion chamber and piston design
- Air mass meter G70
- Engine control unit with four core processors



s552_035

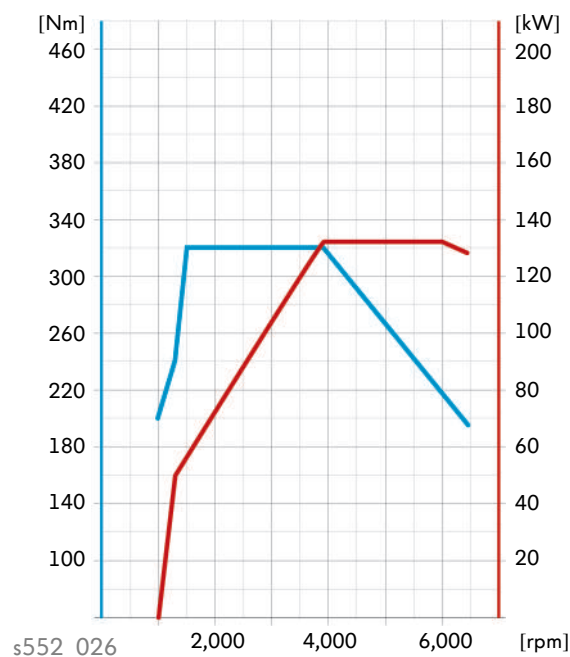
Technical data

Engine code	CZPA
Type	4-cylinder in-line engine
Displacement	1,984 cm ³
Bore	82.5 mm
Stroke	92.8 mm
Valves per cylinder	4
Compression ratio	11.65:1
Maximum output	132 kW at 3,940–6,000 rpm
Maximum torque	320 Nm at 1,500–3,940 rpm
Engine management system	Bosch MG1
Fuel	Super unleaded RON 95
Exhaust gas treatment	Three-way catalytic converter, one broadband lambda probe upstream of the turbocharger and one step-type lambda probe downstream of the catalytic converter
Emission standard	EU6



You will find further information in Self-study Programme no. 554 "The 2.0-l 132-kW TSI Engine".

Torque and power diagram



s552_026

2.0-I 162-kW TSI engine

The 2.0-I 162-kW TSI engine from the familiar EA888 engine family was used for the first time in the Golf GTI 2013.

Technical features

- Integrated exhaust manifold in the cylinder head
- Inlet and exhaust camshafts with variable valve timing
- Electronic valvelift system on exhaust side
- Dual injection system with TSI and SRE injectors (combined direct injection and intake manifold injection)
- Innovative thermal management with rotary valve regulation (actuator for engine temperature regulation N493)
- On-demand piston cooling jets
- Intake manifold flaps



s552_039



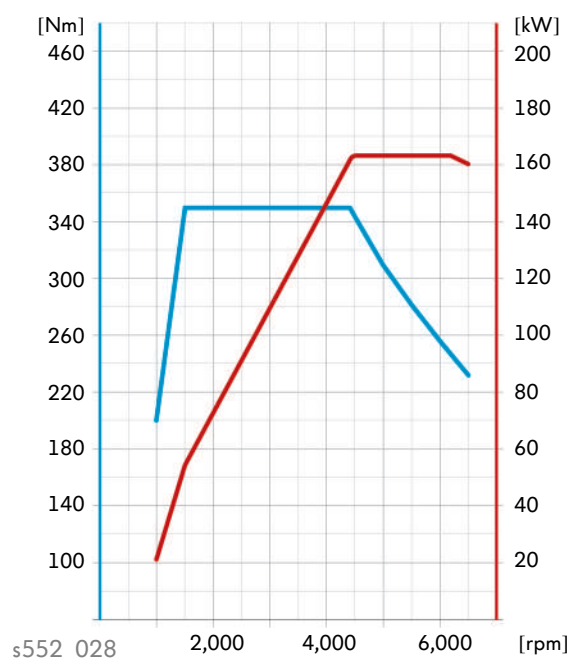
Technical data

Engine code	CHHB
Type	4-cylinder in-line engine
Displacement	1,984 cm ³
Bore	82.5 mm
Stroke	92.8 mm
Valves per cylinder	4
Compression ratio	9.6:1
Maximum output	162 kW at 4,500–6,200 rpm
Maximum torque	350 Nm at 1,500–4,400 rpm
Engine management system	SIMOS 18.1
Fuel	Super unleaded RON 98
Exhaust gas treatment	Three-way catalytic converter, one broadband lambda probe upstream of the turbocharger and one step-type lambda probe downstream of the catalytic converter
Emission standard	EU6



You will find further information in Self-study Programme no. 522
“The 2.0-I 162-kW/169-kW TSI Engine”.

Torque and power diagram



s552_028

2.0-l 85/110/140-kW TDI engines

The 2.0-l TDI engines belong to the EA288 diesel engine family. The different output variants are created by employing modified engine software and different turbocharger sizes. All diesel engines are equipped with the selective catalytic reduction exhaust gas treatment system (SCR system) and fulfil the EU6 emission standard.

Technical features

- Thermal management using on-demand coolant pump
- Water-cooled charge air cooler
- Two-stage oil pressure control
- Dual-circuit exhaust gas recirculation system consisting of high-pressure and low-pressure exhaust gas recirculation
- SCR exhaust gas treatment system
- Water-cooled turbocharger (only for 140-kW output variant)



You will find further information on the diesel engines from the EA288 family in Self-study Programme no. 514 “The New EA288 Diesel Engine Family”.



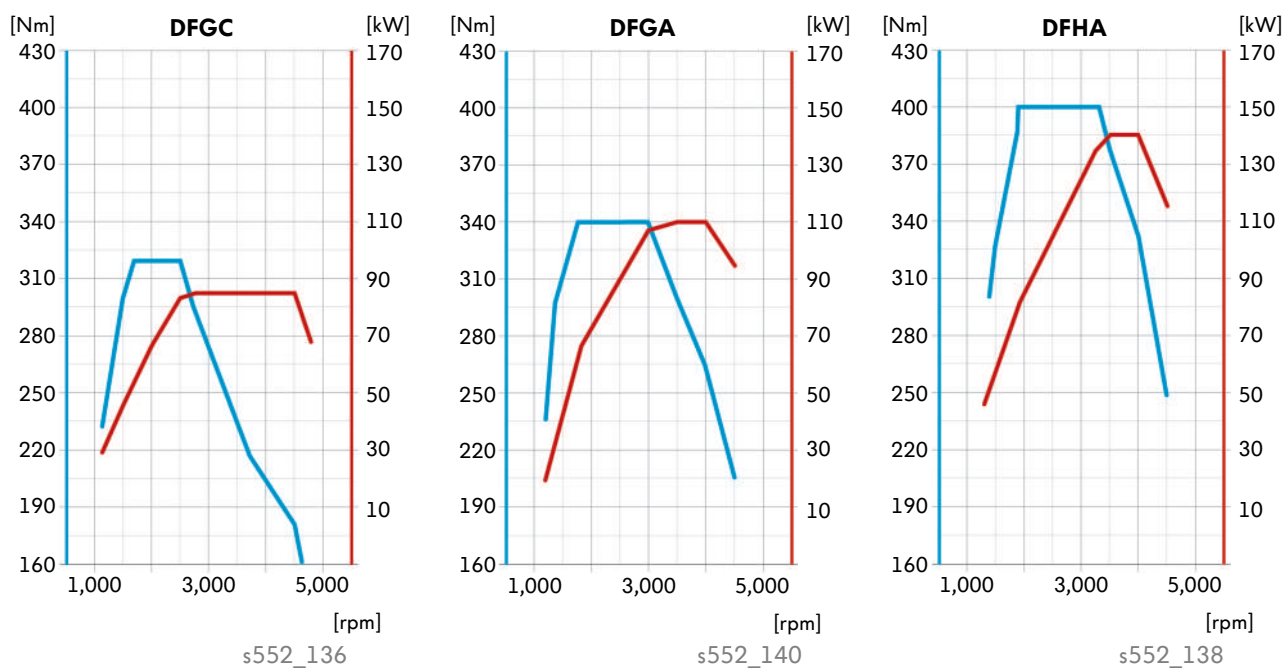
You will find further information about the design and function of the SCR exhaust gas treatment system in Self-study Programme no. 540 “The Selective Catalytic Reduction Exhaust Gas Treatment System in the Passat 2015”.

Technical data

Engine code	DFGC	DFGA	DFHA
Type	4-cylinder in-line engine		
Displacement	1,968 cm ³		
Bore	81.0 mm		
Stroke	95.5 mm		
Valves per cylinder	4		
Compression ratio	16.2:1		15.5:1
Maximum output	85 kW at 2,750 to 4,500 rpm	110 kW at 3,500 to 4,000 rpm	140 kW at 3,500 to 4,000 rpm
Maximum torque	320 Nm at 1,700 to 2,500 rpm	340 Nm at 1,750 to 3,000 rpm	400 Nm at 1,900 to 3,300 rpm
Engine management system	Bosch EDC 17		
Fuel	Diesel as per EN 590		
Exhaust gas treatment	Dual-circuit exhaust gas recirculation system, oxidising catalytic converter, diesel particulate filter and selective catalytic reduction		
Emission standard	EU6		



Torque and power diagram

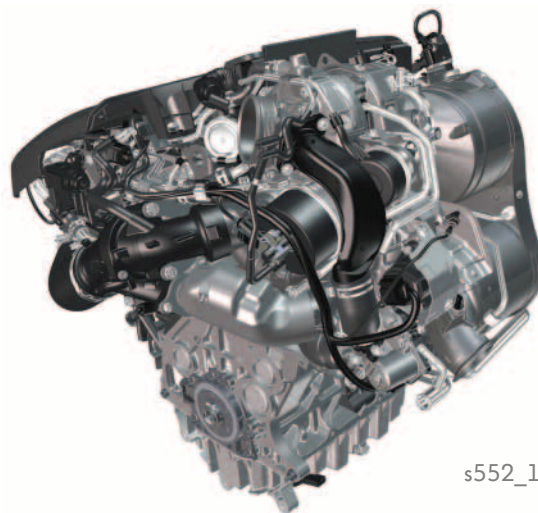


2.0-l 176-kW TDI biturbo engine

The 2.0-l TDI biturbo engine is the most powerful diesel engine for the Tiguan 2017. This engine was used for the first time in the Passat 2015 and features a turbocharger system using a high-pressure and a low-pressure turbocharger. The two-stage turbocharger system allows very good power development at both low and high engine speeds.

Technical features

- Two-stage turbocharger system consisting of high-pressure and low-pressure turbochargers
- Thermal management using on-demand coolant pump
- Water-cooled charge air cooler
- Emission control module with oxidising catalytic converter and diesel particulate filter
- Dual-circuit exhaust gas recirculation consisting of high-pressure and low-pressure exhaust gas recirculation
- SCR exhaust gas treatment system
- Common rail fuel injection with maximum injection pressure of 2,500 bar



s552_105

Technical data

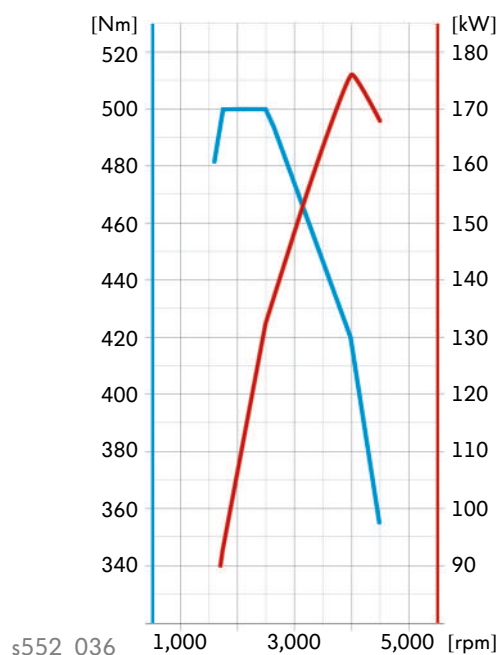
Engine code	CUAA
Type	4-cylinder in-line engine
Displacement	1,968 cm ³
Bore	81.0 mm
Stroke	95.5 mm
Valves per cylinder	4
Compression ratio	15.5:1
Maximum output	176 kW at 4,000 rpm
Maximum torque	500 Nm at 1,750–2,500 rpm
Engine management system	Bosch EDC 17
Fuel	Diesel as per EN 590
Exhaust gas treatment	Dual-circuit exhaust gas recirculation system, oxidising catalytic converter, diesel particulate filter and selective catalytic reduction
Emission standard	EU6



You will find further information in Self-study Programme no. 547

“The 2.0-l 176-kW TDI Biturbo Engine from the EA288 Diesel Engine Family”.

Torque and power diagram



s552_036

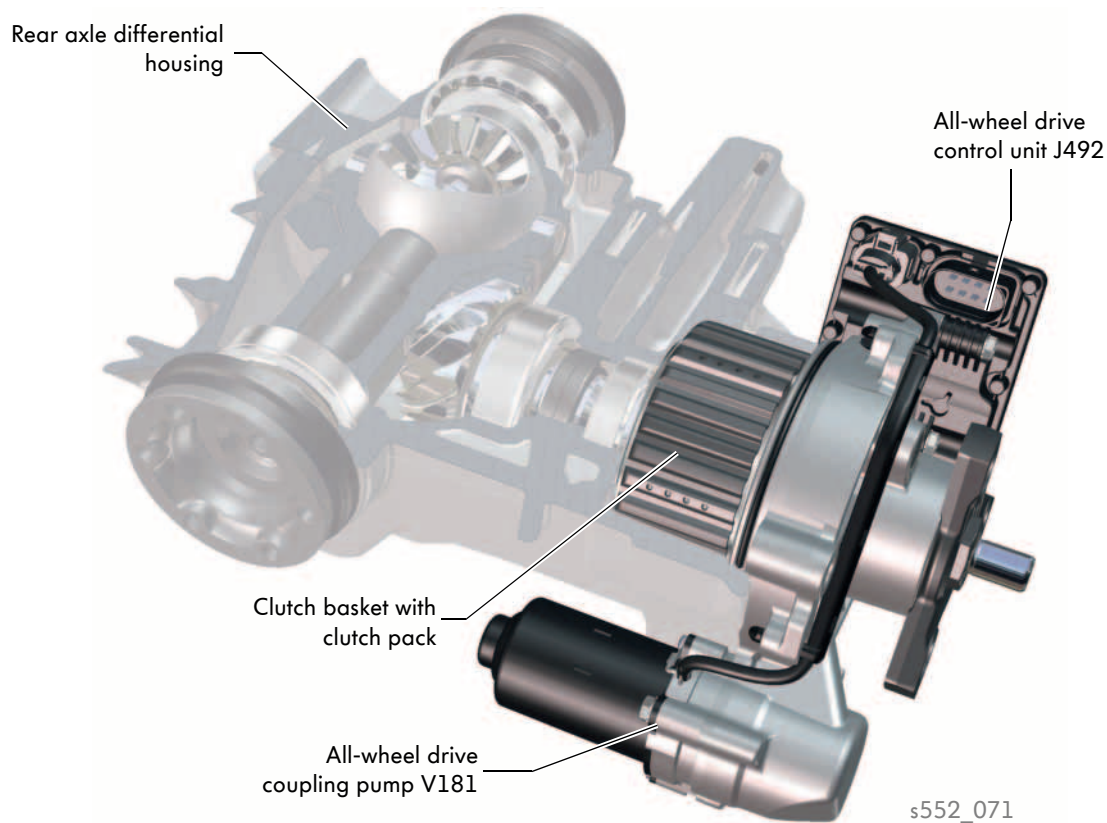
Fifth generation of all-wheel drive coupling

The familiar fifth generation of the all-wheel drive coupling was first fitted in the Golf 2013, then in the Passat 2015 and now in the Tiguan.

The all-wheel drive coupling is located in the rear axle differential housing. It transfers the required drive torque to the rear wheels and is operated electro-hydraulically.

The all-wheel drive coupling consists of:

- All-wheel drive control unit J492
- All-wheel drive coupling pump V181
- Clutch basket with clutch pack



You will find more information on the fifth generation all-wheel drive coupling in Self-study Programme no. 515 “The Golf 2013 – Running Gear and Four-wheel Drive Concept”.

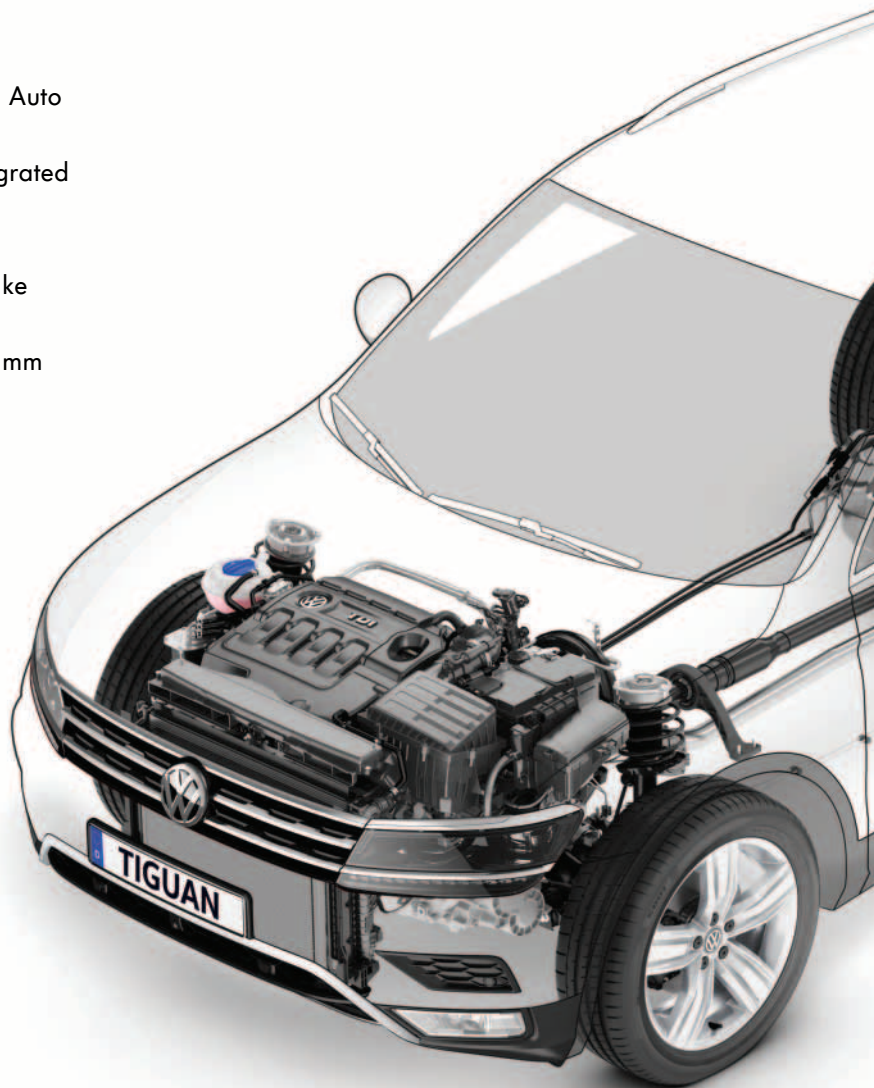
Running gear

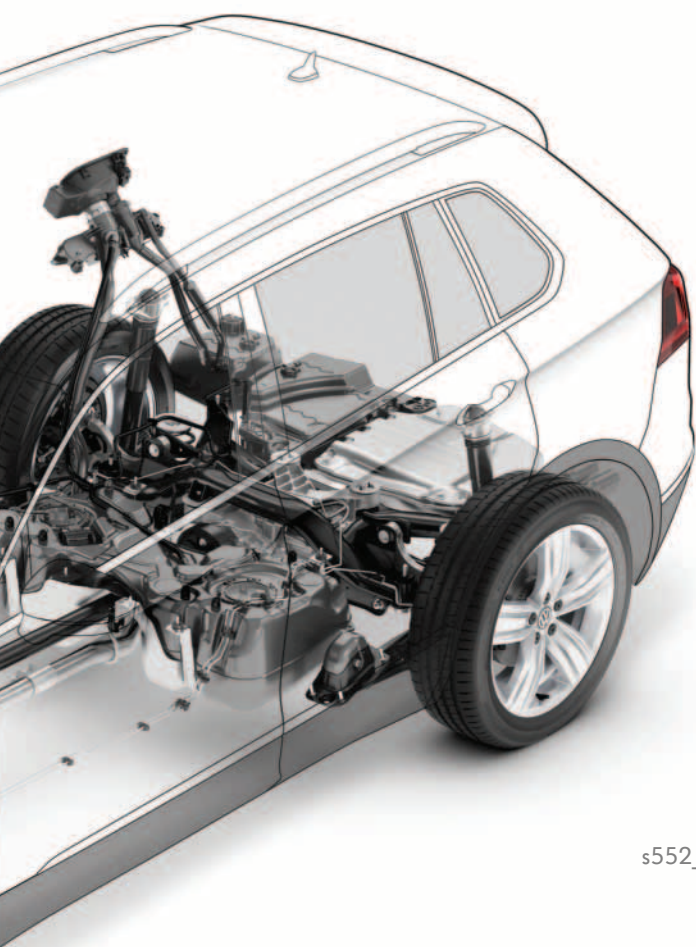
Running gear and driver assistance systems at a glance

The illustration shows the running gear equipment and the driver assistance systems for the Tiguan. A standard running gear, a sports running gear and a DCC running gear are available.

Running gear:

- McPherson strut front suspension
- Four-link rear axle
- Electromechanical parking brake (EPB) with Auto Hold function
- Electromechanical power steering with integrated steering angle sensor
- Progressive steering
- Continental MK 100 ABS/ESC anti-lock brake system
- 17"/18" wheel rims with tyre diameter 725mm





s552_171

Driver assistance systems:

- Area monitoring system (Front Assist) with
 - City Emergency Braking System
 - Pedestrian detection
- Adaptive cruise control (ACC)
- Lane departure warning system (Lane Assist) with
 - Emergency Assist
 - Traffic Jam Assist
- Lane change assistant (Side Assist) with
 - Rear Traffic Alert
- Park assist steering, PLA 3.0 (Park Assist) and parking aid, PDW with
 - Manoeuvre braking
- Trailer manoeuvring system (Trailer Assist)
- Reversing camera (Rear View)
- Tyre Pressure Loss Indicator, TPLI+
- Tyre Pressure Monitoring System, TPMS
- Multicollision brake (Automatic Post-Collision Braking System)
- Driver Alert System
- Overhead view camera (Area View)

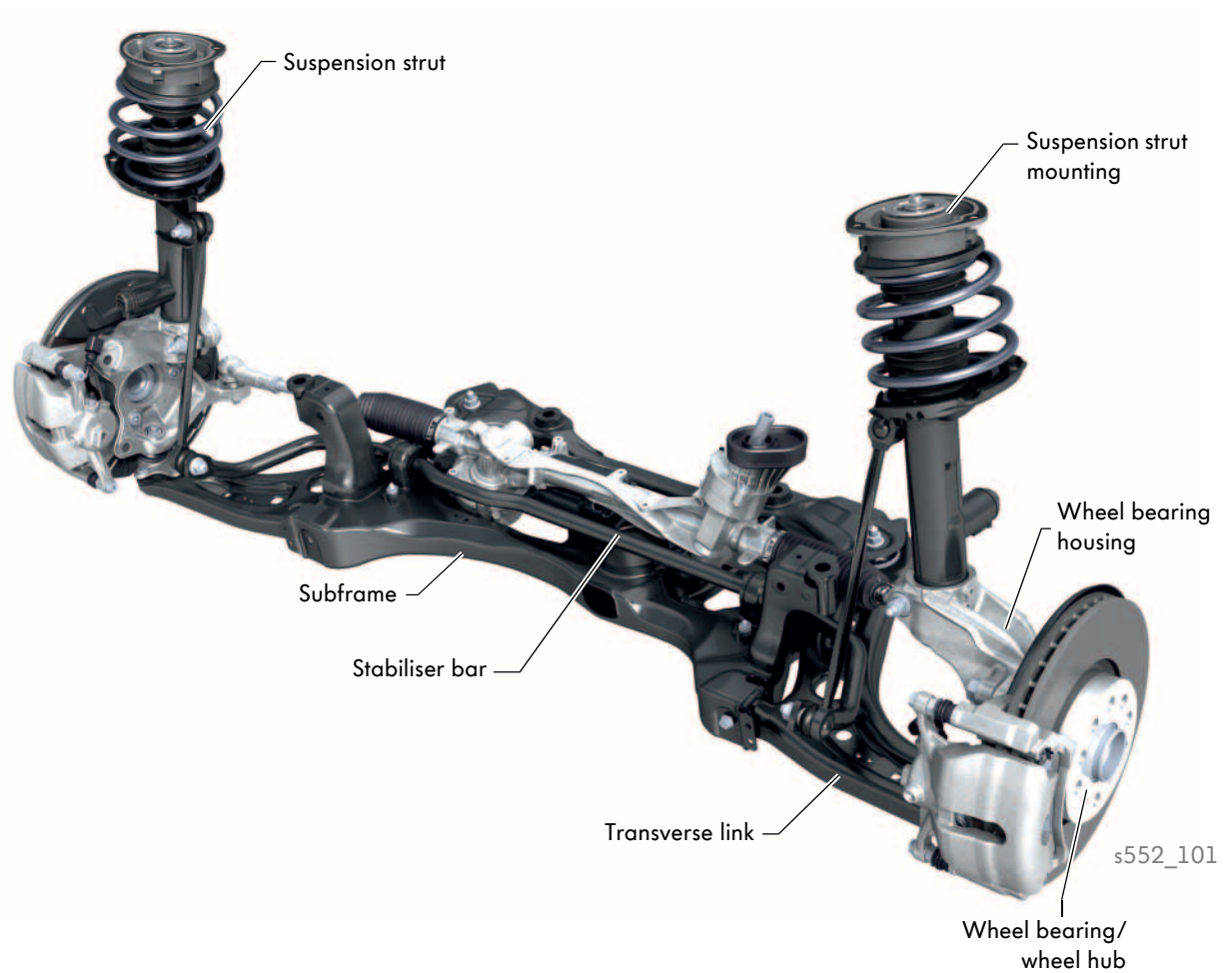


You will find further information on the driver assistance systems in self-study programme no. 543 "The Passat 2015 – Driver Assist Systems".

Running gear

Front axle

The Tiguan has a McPherson front axle with two pivoted suspension struts and lower transverse links. The subframe, which is made of steel, is bolted to the body. The weight of the front axle has been reduced and the axle loads have been increased.



Rear axle

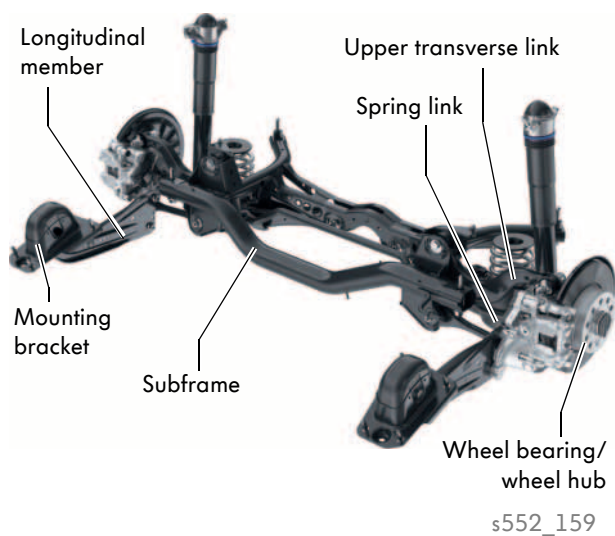
The four-link rear axle comes in two variants:

- The four-link rear axle for vehicles with front-wheel drive
- The four-link rear axle for vehicles with 4MOTION drive

Four-link axle for front-wheel drive

The four-link axle has been specifically enhanced and adapted to the axle loads and driving dynamics of the Tiguan, e.g.:

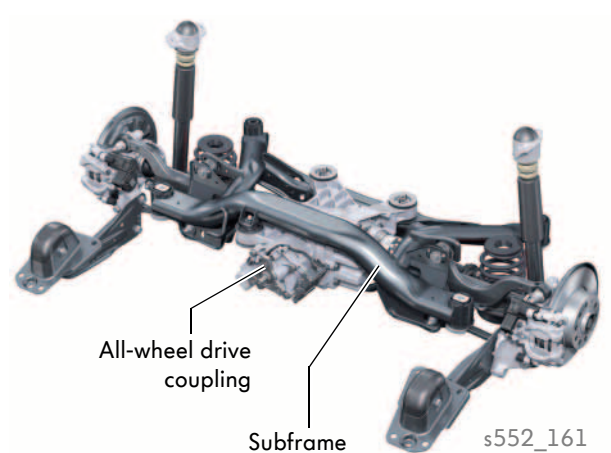
- Weight-optimised axle parts
- Improvement in driving dynamics/ride comfort
- Optimisation of acoustics



Four-link axle for 4MOTION drive

The four-link axle for 4MOTION drive is distinguished by the following points:

- 20mm longer longitudinal member
- Modified subframe
- Wheel bearings adapted to the axle load and the driving dynamics

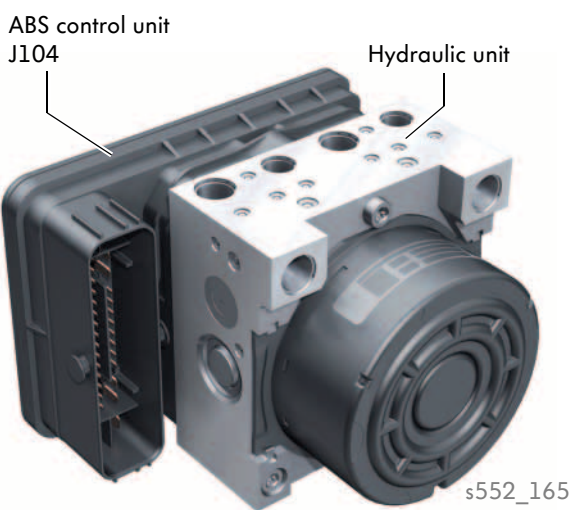
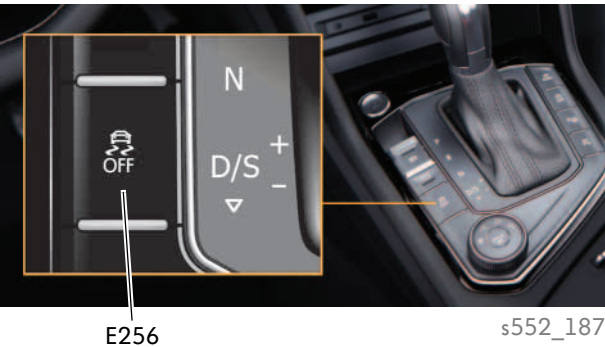


Running gear

Continental MK 100 ABS/ESC anti-lock brake system

The MK 100 from Continental is used as the ABS/ESC unit. This unit is also fitted in the Golf and Passat.

You can activate and deactivate the systems with the button for TCS and electronic stabilisation program E256 in the centre console.



You can deactivate the traction control system (TCS) in **vehicles with front-wheel drive**.

The ESC system can be deactivated in **vehicles with 4MOTION drive**.



Mode	Press E256	Activation/deactivation
On-road and off-road.	< 3 s	TCS is deactivated
On-road	> 10 s	ESC Sport
Off-road	> 10 s	ESC is deactivated ESC becomes active while you press the brake pedal.

Electromechanical power steering

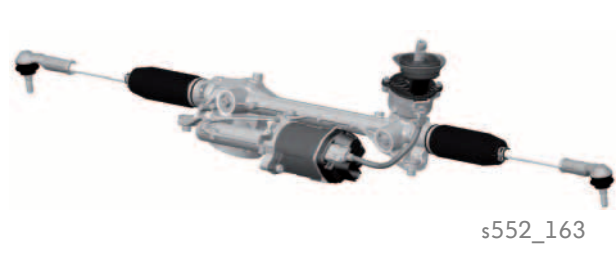
Two types of steering are used in the Tiguan. Electromechanical steering with parallel-axis drive is used in left-hand drive models. Right-hand drive models employ ZF electromechanical power steering with double pinion.

Left-hand drive models use parallel-axis drive



e.g. Golf SV

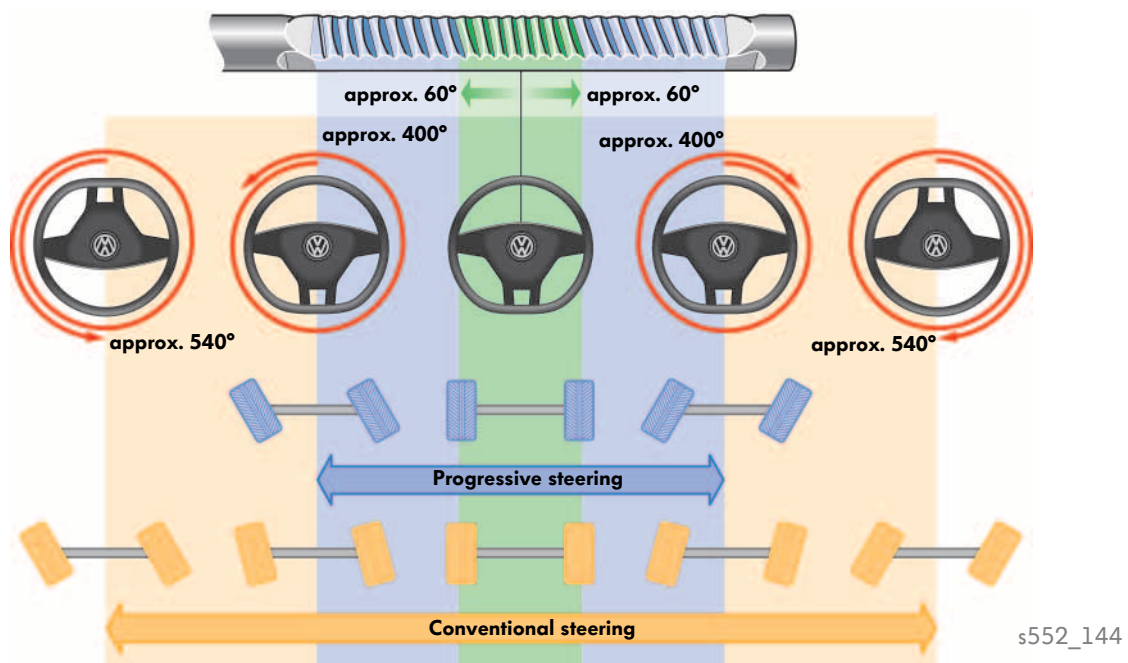
Right-hand drive models use double pinion



e.g. Golf 2013

Progressive steering

The progressive steering system is offered as an additional steering variant. The steering ratio is increased with the help of variable toothing on the steering rack, and increases progressively as the steering angle increases. The steering behaviour is more direct and the steering angle is reduced considerably from 540° to 400°.



You will find further information on the progressive steering system in Self-Study Programme no. 521 "The Golf GTI/GTD 2013".

Running gear

Operating unit for driving mode selection E881

The vehicle including drive, running gear and brake regulating system can be adapted more individually and simply to all possible driving conditions via the operating unit for driving mode selection, which shall henceforth be called operating unit for short. The switch is in the centre console below the selector lever. The MODE button is integrated into the operating unit.

The driver can choose between the driving profiles “Normal”, “Snow”, “Offroad” and “Offroad Individual” by turning the button on the operating unit.

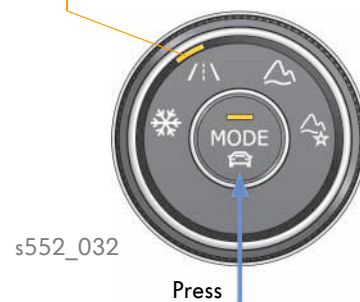
Normal

In the “Normal” driving profile, the driving behaviour is adapted to surfaced roads. In the on-road position, the driving profile selection menu opens on the infotainment system display when you press the MODE button. The driver can select the driving profiles by pressing the MODE button.

- Eco
- Normal
- Sport
- Individual
- Comfort (in vehicles with DCC)



s552_029

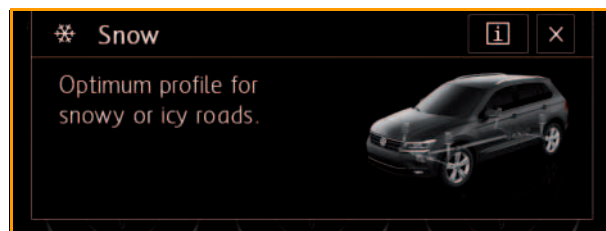


s552_032

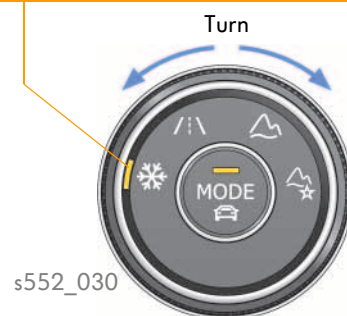
Snow

Snow is the ideal profile for snow-covered or icy roads. It is characterised by:

- Traction control system (TCS), characteristic curve for straight-ahead travel raised
- More traction when driving in a straight line.
- Traction control system (TCS), characteristic curve for cornering lowered
- Better tracking when cornering
- Flatter accelerator characteristic curve
- Early upshift points

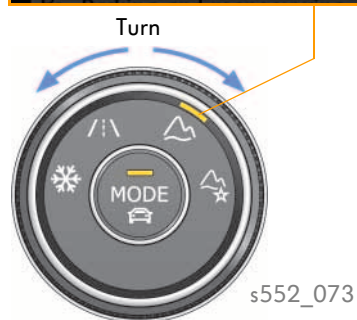
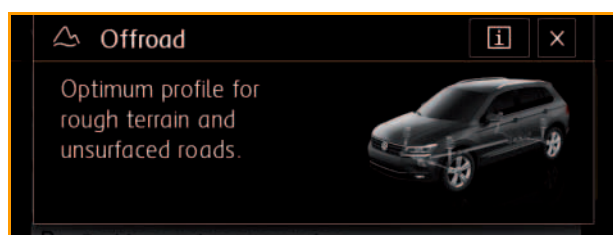


s552_031



s552_030

Offroad



s552_075

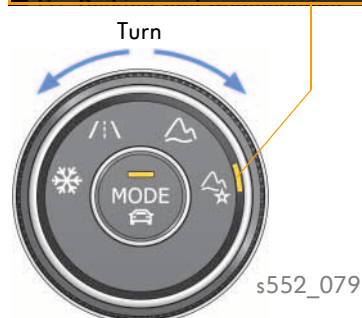
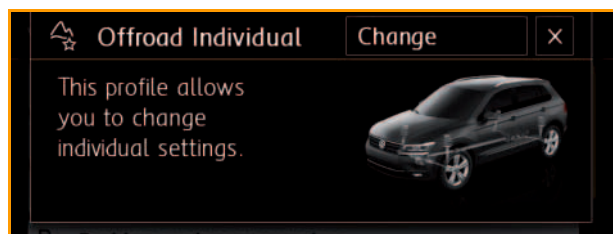
s552_073

Offroad is the ideal profile for terrain away from surfaced roads. It is characterised by:

- Downhill driving assistant active, holds speed < 30km/h when driving downhill and on downhill gradients > 10%
- Hill Start Assist active, start assist on uphill gradients, max. 2 s
- Anti-lock brake system (ABS), chock effect on loose surfaces
- Electronic differential lock (EDL), greater locking ratio, max. speed 80km/h
- Later intervention of Electronic Stability Control (ESC) and the traction control system (TCS)
- Flatter accelerator characteristic curve
- Late upshift points
- No forced upshifts in the Tiptronic gate



Offroad Individual



s552_077

s552_079

Offroad Individual is the individual adaptation of the offroad functions. This profile is among other things characterised by:

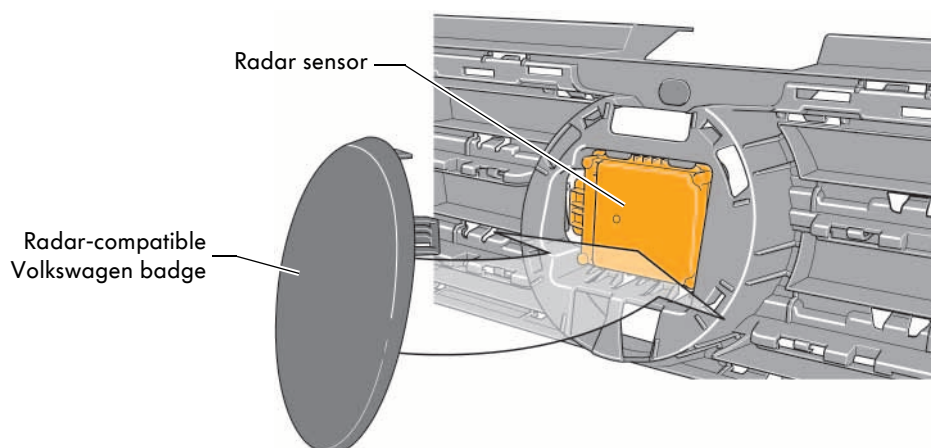
- Downhill driving assistant can be activated/deactivated
- Hill Start Assist can be activated/deactivated
- Electronic differential lock (EDL) can switch between on-road/off-road mode

Adaptive cruise control unit J428 – radar sensor

The adaptive cruise control unit J428 consists of the computer unit and the radar sensor.

A new radar sensor for ACC, Front Assist, pedestrian detection and Emergency Assist is being used for the first time. This sensor is now capable of detecting pedestrians by exclusively using radar. It is clipped directly into the radiator grille. A Volkswagen badge, which is suitable for radar usage thanks to a special coating, is then clipped on top.

The badge has a vapour-deposited indium coating. Indium (In) is a chemical element. This silvery-white, soft, heavy metal is often processed to form indium tin oxide and used as a transparent conductor.



Technical data

- Manufacturer: Continental
- Range: approx. 140m
- Frequency range: 76–77 GHz (used bandwidth 55MHz)
- No heating

Advantages

- Greater radar angle
- Emergency brake assist integrated into the radar sensor
- Pedestrian detection on radar basis only, without front camera
- Requirement to achieve “five EURO NCAP stars”

Euro NCAP

Euro NCAP (European New Car Assessment Programme) has developed an assessment system using five stars to allow vehicle safety to be compared.

Vehicle safety is assessed with a series of tests that were compiled by Euro NCAP and are conducted accordingly.



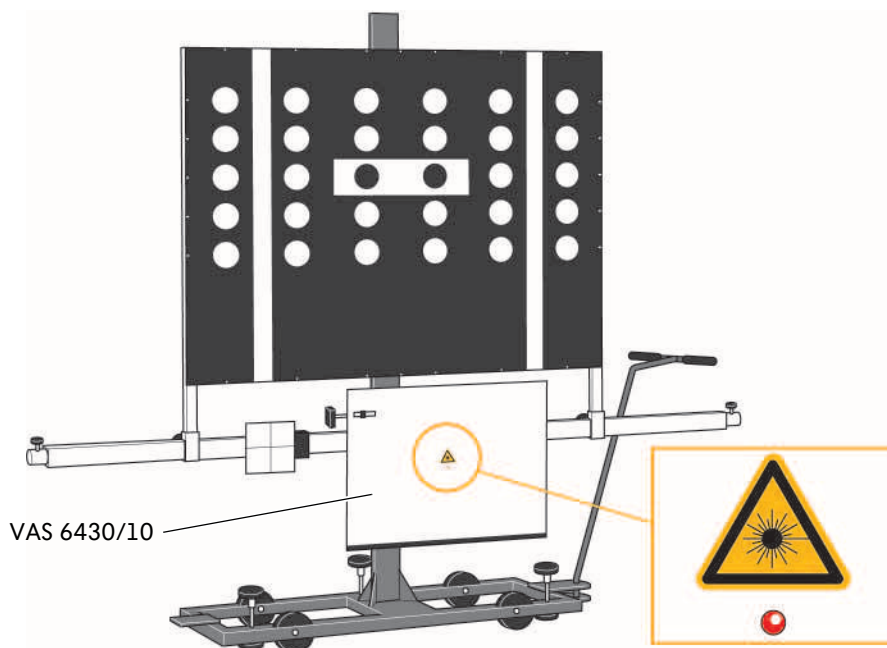
Calibration

The radar sensor is calibrated statically on the wheel alignment platform. The calibration board VAS 6430/10 is aligned with the vehicle according to the manufacturer's instructions.

Static calibration

During static calibration, the front radar calibrates its sensors by means of a calibration board that is aligned with the driving axis. The calibration process is activated in the test program via the VAS tester and runs automatically. Mechanical adjustment with adjuster screws as before is no longer possible or necessary.

Calibration board VAS 6430/10



s552_170

The radar sensor needs to be calibrated when:

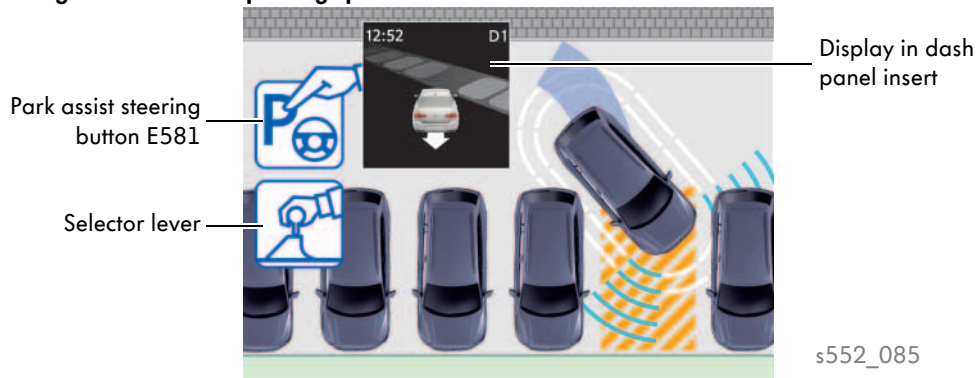
- The control unit for lane departure warning J428 has been renewed.
- The lock carrier has been moved into service position.
- The lock carrier has been removed and installed.
- The lock carrier has been renewed.
- The track of the rear axle has been adjusted.

Running gear

Park assist steering (PLA 3.0)

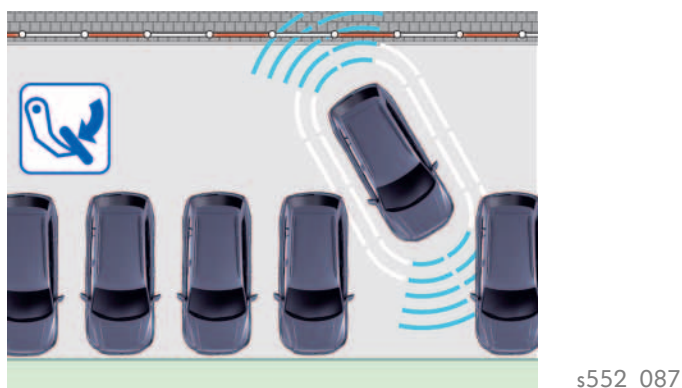
Park assist steering helps you park in parallel and perpendicular spaces by automatically steering the car. The system uses the parking sensors (PDW) to detect possible parking scenarios (parallel and perpendicular parking spaces). The driver can select a suitable parking scenario with the park assist steering button (E581).

Example of driving forwards into a parking space



Parking aid (PDW) with manoeuvre braking

The parking aid system has been expanded to include the manoeuvre braking function. This function works independently of the park assist steering and uses only the PDC sensors (8- and 12-channel system). Manoeuvre braking brakes the vehicle automatically. It should reduce collisions with static obstacles while you manoeuvre the vehicle and, in ideal cases, prevent them. The parking aid ultrasound sensors are used for this function. The system is active when reverse gear is selected, the PDW function (visual/acoustic warning) is enabled and manoeuvre braking has been activated.



You will find further information on “park assist steering” (PLA 3.0) in self-study programme no. 543 “The Passat 2015 – Driver Assist Systems”.

Function conditions

Manoeuvre braking can be activated or deactivated via the selection menu on the infotainment system display.

Selection menu on infotainment system display



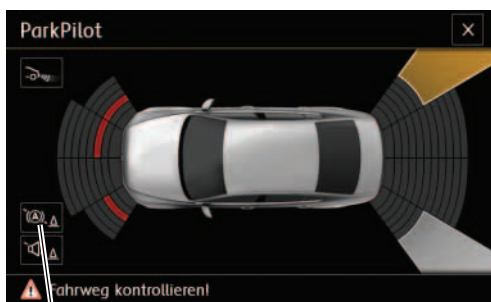
s552_181

Manoeuvre braking is active when:

- Speed between 1.5km/h and 10km/h
- Parking aid (PDW) is activated
- Manoeuvre braking is activated
- Objects are detected directly by the rear sensors
- A collision is unavoidable

Displays when manoeuvre braking is activated

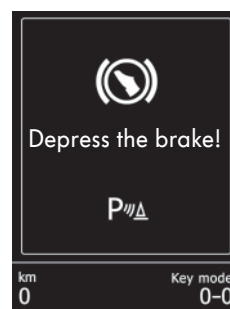
Infotainment system display



s552_175

active

Dash panel insert display



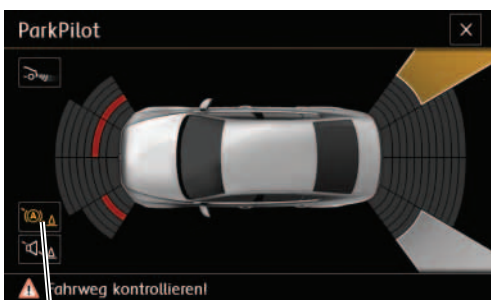
s552_177

Manoeuvre braking is not active when:

- Manoeuvre braking is not activated
- Parking aid (PDW) is not activated
- A door/tailgate is open
- Transport mode or single-axle roller dynamometer mode is activated
- PDW sensors fail
- The ABS control unit reports a fault

Displays when manoeuvre braking is not activated

Infotainment system display



s552_179

Not active



Heating and air conditioning

Air conditioning

The Tiguan uses air conditioning components from the modular transverse matrix.

A manually/electrically controlled air conditioning system is offered as basic equipment. It appeared in the Golf 2013 and has been adapted for the Tiguan. A Climatronic system is available as an option.

Climatronic

A Climatronic system with a third climate zone in the rear is available for the first time in the Tiguan. The three-zone Climatronic system allows the driver and front passenger as well as the rear passengers to independently set their own preferred temperature between 16°C and 29.5°C. Regulation is fully automatic. The three climate zones are supplied by a heater and air conditioning unit fitted in the front.



s552_037

Front operating and display unit

You can select all Climatronic functions on the front operating and display unit.

The illustration shows the highest-level version of the Climatronic control and operating unit.



s552_145

Rear operating and display unit

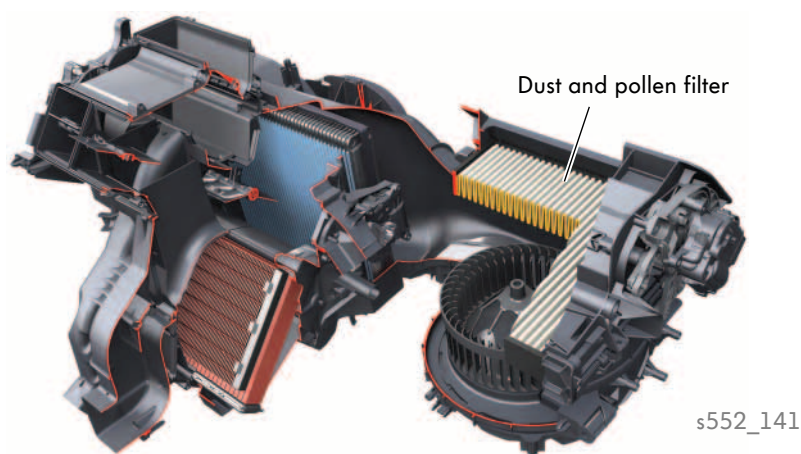
The rear operating and display unit is located in the centre console. It allows you to adjust the temperature for the third climate zone from the rear seats. The temperature setting is shown on a display.



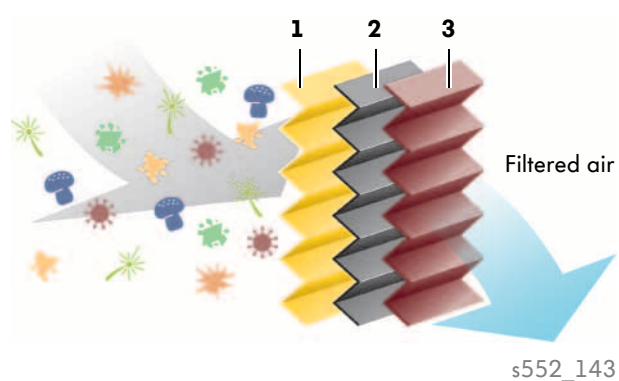
s552_147

Pure Air Climatronic (dust and pollen filter)

A polyphenol coating has been added to the dust and pollen filter with activated charcoal. This coating is a natural product that has anti-inflammatory properties and occurs in many plants. It absorbs allergens and renders them harmless. The yellow-coloured coating makes the filter easy to distinguish from conventional dust and pollen filters. An air quality sensor G238 located in the plenum chamber detects pollutants in the ambient air. The air conditioning compressor is activated or switched to recirculation mode depending on the pollution of the ambient air, the interior and outside temperature and the tendency of the windscreen to mist up.



Design of dust and pollen filter



Key

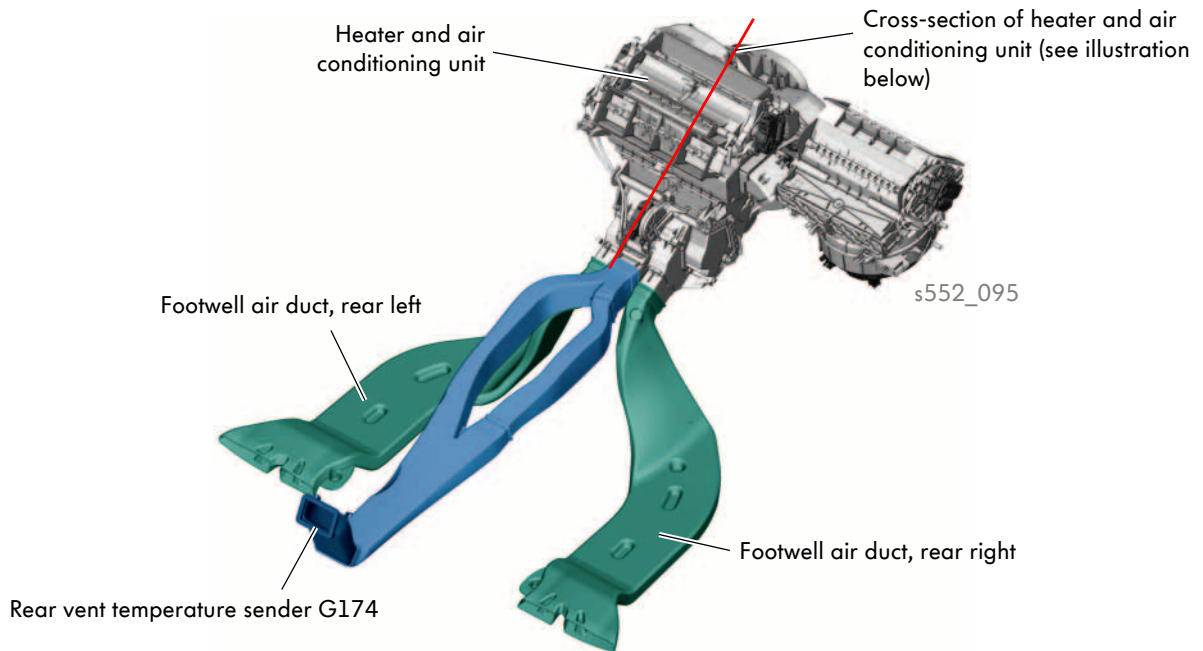
- 1 Fleece layer with antibacterial and antiallergenic polyphenol coating
- 2 Activated charcoal layer to filter out odours and gases
- 3 Fleece layer to filter out pollen and dust



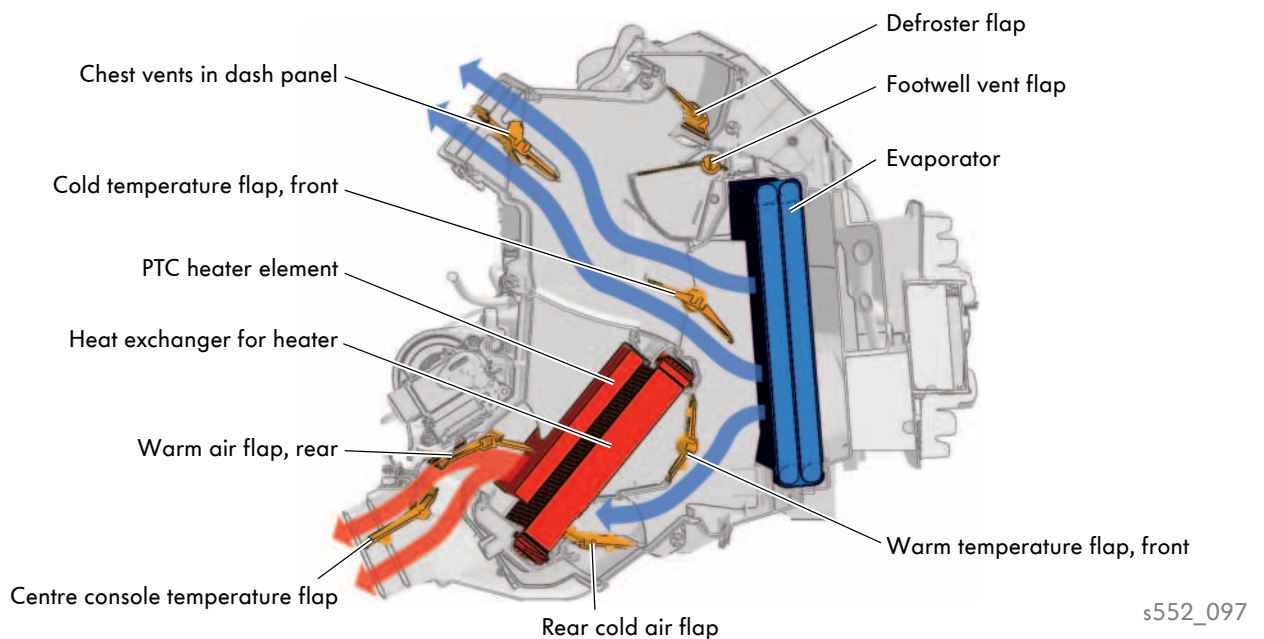
Heating and air conditioning

Air distribution in rear

The three climate zones are heated or cooled by a heater and air conditioning unit fitted at the front. The new rear vent temperature sender G174 measures the air temperature at the vent. The air distribution in the rear is set on the front operating unit.



The cross-section shows the flow of air when a cooler temperature is set at the front and a warm one is set for the rear passengers.



R1234yf refrigerant

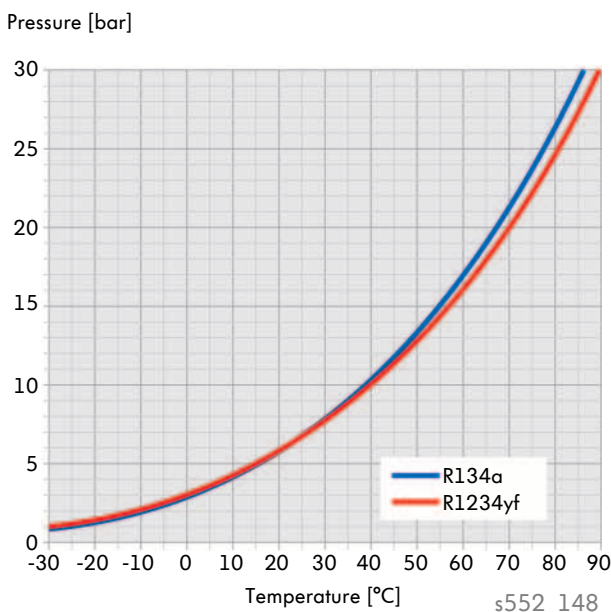
R1234yf refrigerant will be used for the first time with the launch of the Tiguan. R134a refrigerant will still be used in some markets at first. Both refrigerants are hydrofluorocarbons that are non-poisonous.

The technical set-up of the air conditioning system using R1234yf is identical to that of the R134a air conditioning systems.

Vapour pressure curve

The following graph provides a comparison of the vapour pressure curves for the refrigerants R1234yf and R134a. Both curves are very similar.

Modifications to the air conditioning components (compressor, evaporator, condenser, sensors, actuators and refrigerant lines) are not necessary since the refrigerants have similar properties. Only the software in the air conditioning control unit differs depending on the refrigerant used.



Global warming potential

The global warming potential (GWP) is the potential contribution of the substance to the warming of the atmosphere, i.e. the greenhouse effect. Carbon dioxide (CO₂) is used as the measuring variable and has a GWP value of 1. The lower the GWP value, the lower the potential effect on global warming and the associated environmental impact.

CO₂ with a GWP = 1 is used as a reference refrigerant. R1234yf has a GWP of 4 with a time horizon of 100 years.

This means that one kilogram of R1234yf contributes four times as much as one kilogram of CO₂ to the greenhouse effect within the first 100 years after release into the atmosphere.

The cause of the very low GWP is due to the life of the R1234yf refrigerant in the atmosphere.

Refrigerant	GWP
CO ₂ (R744)	1
R1234yf	4
R134a	1,430
R22	1,810
R12	10,900



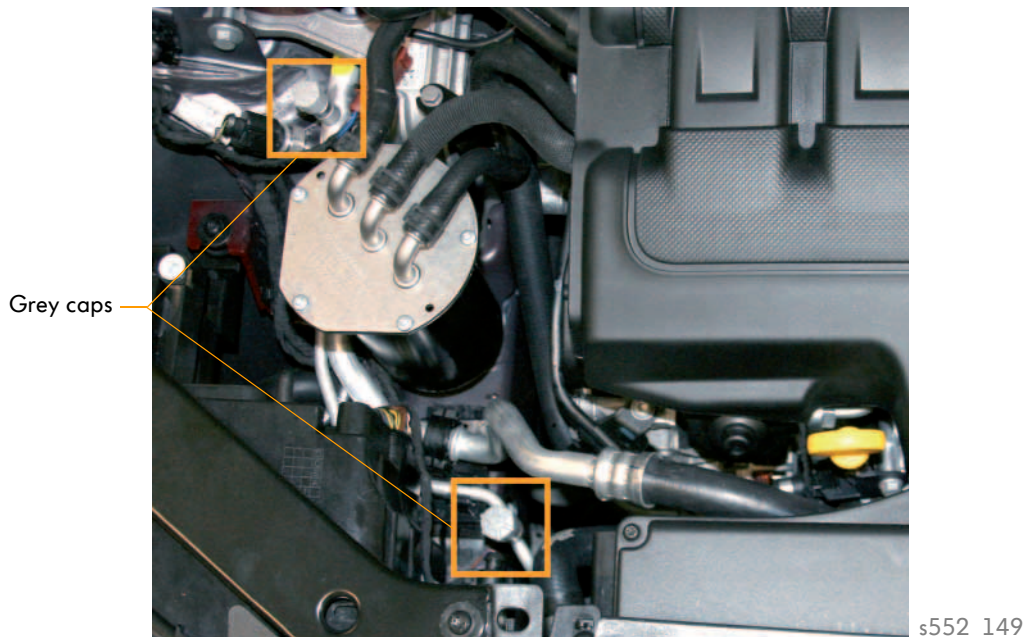
Heating and air conditioning

Identifying features on the vehicle

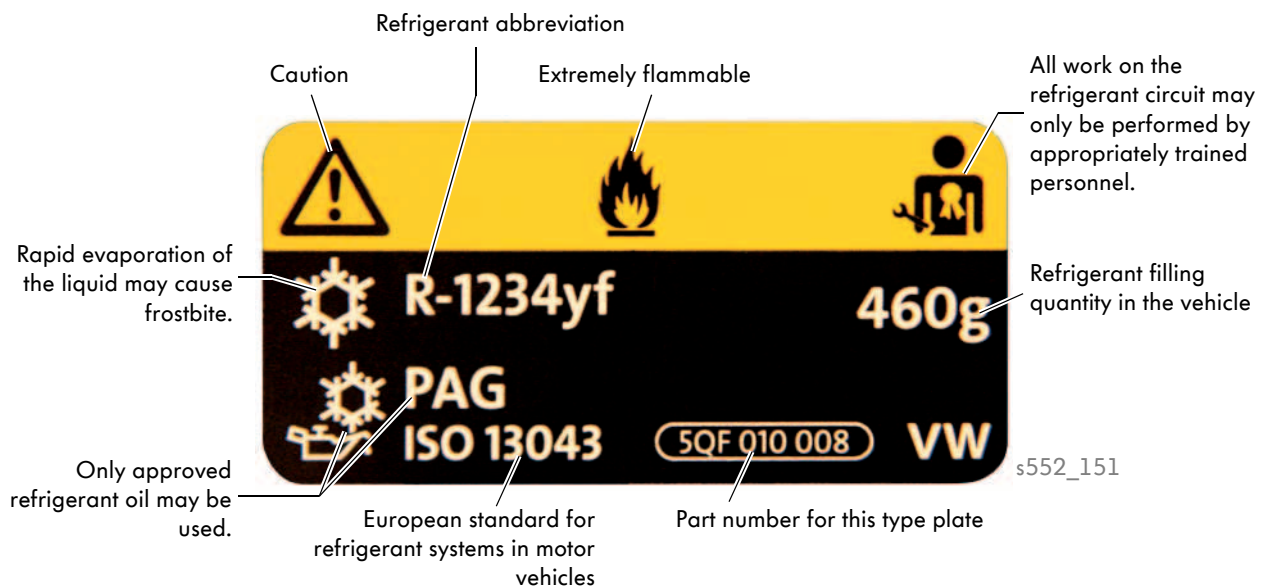
The following identifying features show that the air conditioning system is filled with the refrigerant R1234yf:

- Grey caps on the evacuating and charging valves
- Information label on the lock carrier

Caps on the evacuating and charging valves



Information label on the lock carrier



VAS air conditioning service station

New air conditioning service stations will also be used with the introduction of R1234yf refrigerant.

Evacuating and charging with the previous air conditioning service stations for R134a is not permitted.

The operating licence would expire in this case.

The connections are mechanically coded to ensure that the R134a charging connectors on the air conditioning service stations cannot be connected to the R1234yf evacuating and charging valves. This will prevent mix-ups or accidental charging of the R1234yf system with R134a and vice versa.

A qualification certificate for work on air conditioning systems is required (identical to the R134a refrigerant air conditioning system). Please also comply with health and safety requirements. Please wear the following when performing work on the air conditioning system:

- Safety goggles
- Safety gloves
- Apron

VAS 581001



s552_155

Dometic Waeco GmbH

VAS 581003



s552_157

TEXA Deutschland GmbH



Electrical system

Locations of electrical components

An alternator with an output of 110 A, 140 A or 180 A is used according to the equipment.
The following battery types with capacities between 44 and 72 Ah are fitted also according to the equipment:

- Lead-acid battery
- EFB (enhanced flooded battery)
- AGM (absorbent glass matt)

Depending on the power unit, the 12-V battery is installed in the engine compartment or the luggage compartment.

12-V battery in engine compartment

The power is distributed in the vehicle via three fuse holders or relay and fuse carriers:

- Multi-fuse pre-fuse holder SA on the relay and fuse carrier SR1 in the E-box in the engine compartment
- Fuse holder SB on the relay and fuse carrier SR1 in the E-box
- Fuse holder SC on the relay and fuse carrier SR2 on left under the dash panel, behind the storage compartment

Alternator



E-box



Multi-fuse pre-fuse holder SA on relay and fuse carrier SR1

Fuse holder SB on relay and fuse carrier SR1



12-V battery in engine compartment
There is no 12-V battery in the luggage compartment when the 12-V battery is fitted in the engine compartment.



You will find further information on the whole “Electrical system” chapter in Self-study Programme no. 553 “The Tiguan 2017 – Electrical System and Infotainment”.



12-V battery with main fuse box central in the luggage compartment close to the lock carrier

There is no 12-V battery in the engine compartment when the 12-V battery is fitted in the luggage compartment.



s552_009



Positive battery terminal clamp

Fuse holder (SD1+SD2)

Battery isolation igniter N253

Main fuse box



Fuse holder SC on relay and fuse carrier SR2

12-V battery in luggage compartment

The battery is installed in the central part of the luggage compartment close to the lock carrier. The power is distributed in the vehicle via four fuse holders or relay and fuse carriers:

- Multi-fuse pre-fuse holder SA on the relay and fuse carrier SR1 in the E-box in the engine compartment
- Fuse holder SB on the relay and fuse carrier SR1 in the E-box
- Fuse holder SC on the relay and fuse carrier SR2 on the left under the dash panel, behind the storage compartment
- Fuse holder SD in the main fuse box

The battery isolation igniter N253 is located in the main fuse box. The electrical supply to the engine compartment, with the exception of the control units for ABS J104 and power steering J400, is cut off by the igniter N253 and when an airbag is deployed. The vehicle can thus still be steered and braked.



Electrical system

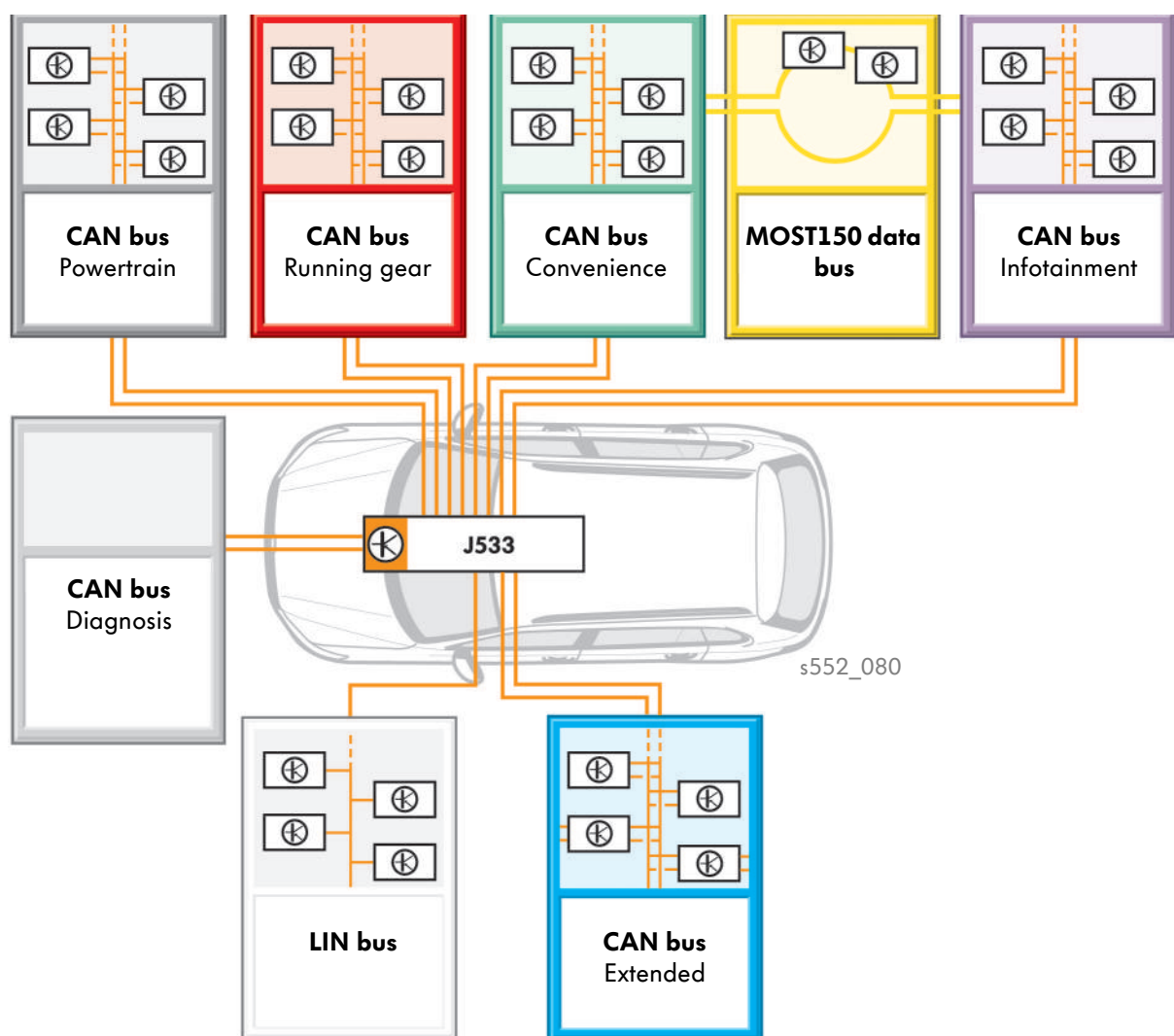
Overview of the data bus systems used

The network has been expanded compared with the previous model.

All CAN bus systems have a transmission speed of 500 kbit/s.

The LIN bus rate is 19.2kbit/s. The MOST150 data bus, which uses fibre-optic technology and has a transfer speed of 150Mbit/s, is new. The data bus diagnostic interface J533 contains the control system for several LIN data buses and forms the link between the individual CAN data buses as usual.

Further LIN buses are connected to various control units.



Key

- J533 Data bus diagnostic interface
- == CAN bus wire
- LIN bus wire
- MOST fibre optic cable

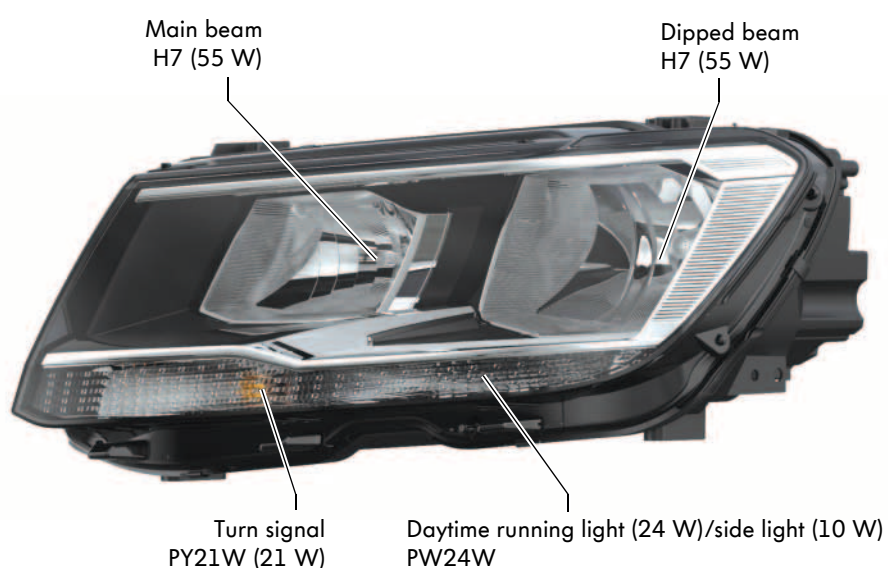
Headlights

Three different versions of the headlights based on the MQB are available:

- Halogen headlight
- “Basic” LED headlights
- “Mid” LED headlights with Dynamic Light Assist

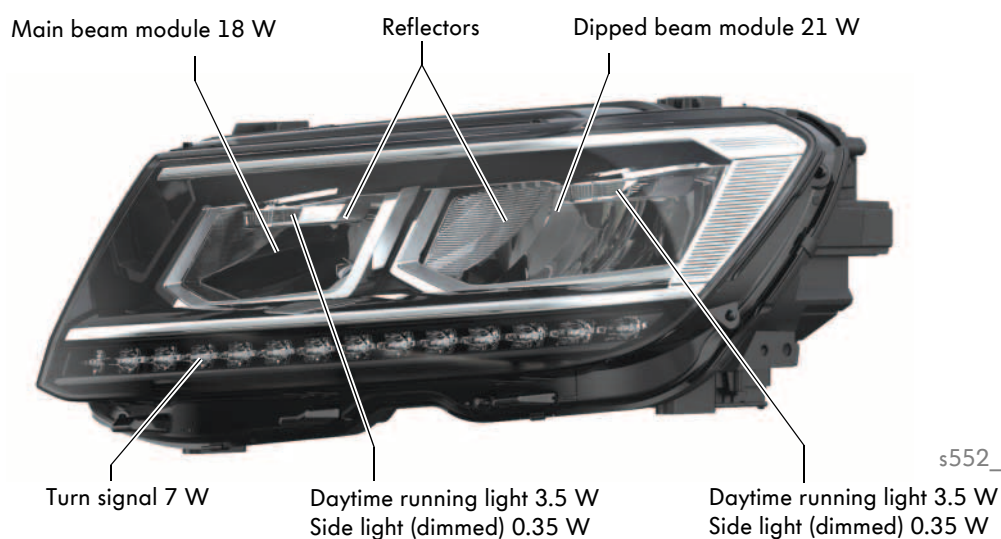
Use of the Dynamic Light Assist varies according to market.

Halogen headlight



s552_109

“Basic” LED headlights

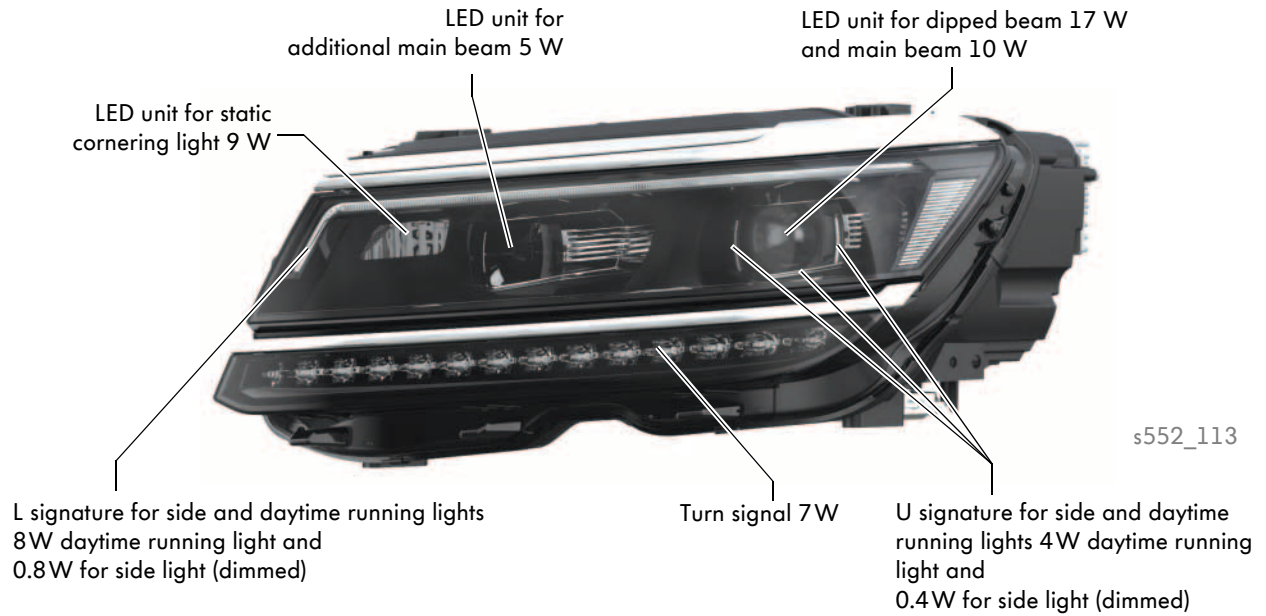


s552_111



Electrical system

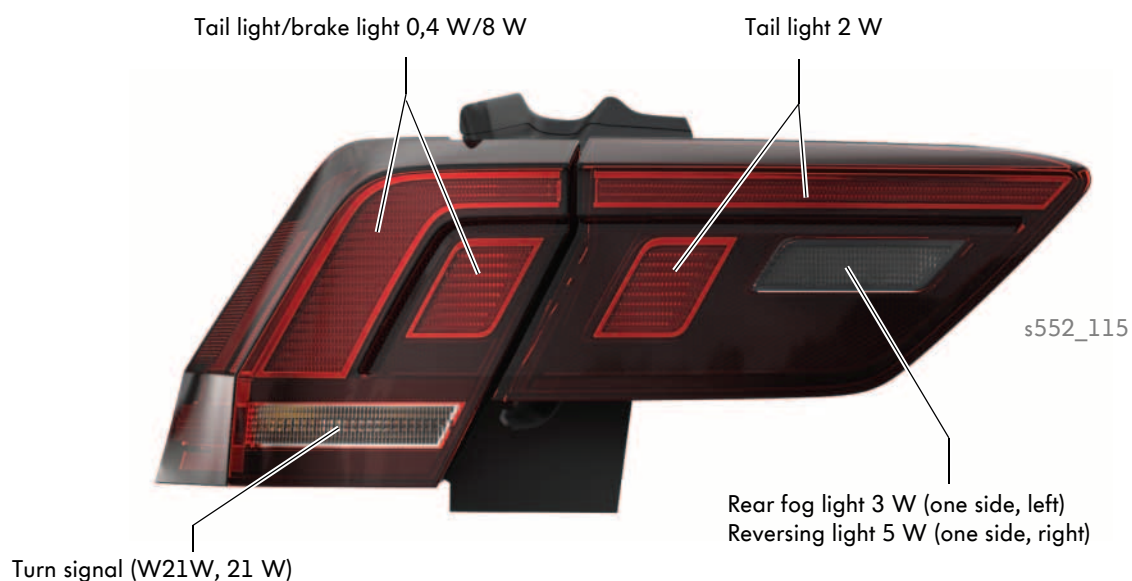
“Mid” LED headlights



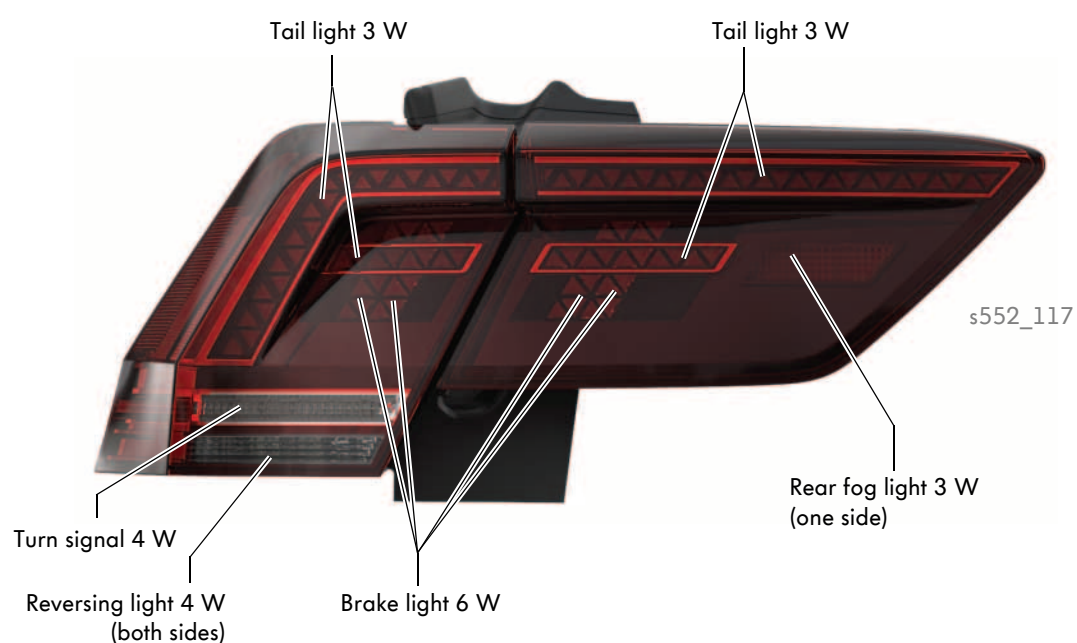
Tail light clusters

The tail light clusters use exclusively LED technology. There are two versions: “Basic” and “High”. Both types of tail light cluster are split into a fixed section and a section on the rear lid.

“Basic” tail lights



“High” tail lights



Electrical system

Dash panel insert

Three dash panel inserts are available:

Medium dash panel insert

Functions and characteristics

- Black and white TFT centre display with a resolution of 320 × 240 pixels
- Analogue gauges for rev counter, speed, coolant temperature and fuel
- Multifunction display with vehicle information:



Colour dash panel insert

Functions and characteristics

The same functions as the Medium plus:

- Colour TFT centre display
- Screen transitions with animations

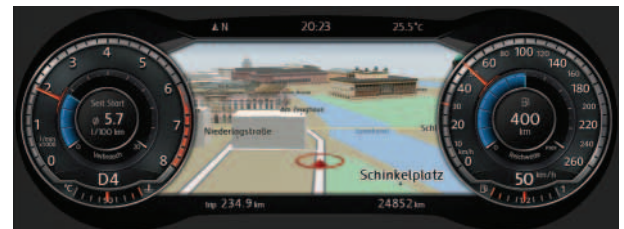


Active Info Display (AID) dash panel insert

In the Active Info Display (AID), the analogue dial gauges are shown only virtually. The driver information display can be customised to show additional data for the driving, navigation and driver assist functions in the middle areas of the speedometer and the rev counter.

Functions and characteristics

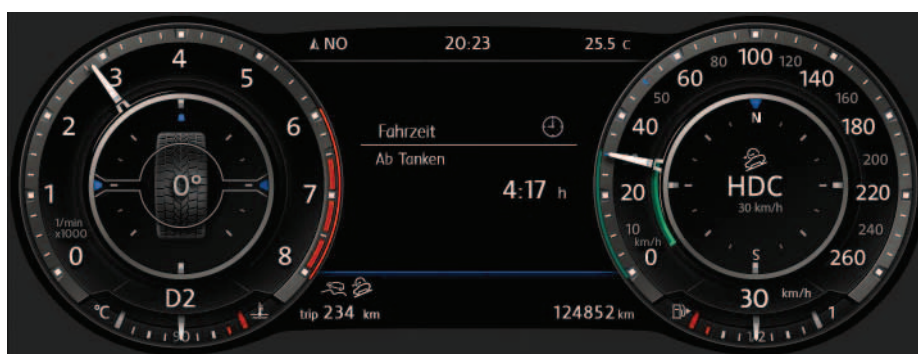
- 12.3" TFT display with a resolution of 1,440 x 540 pixels
- Features all basic functions
- Different displays can be selected
- Automatically changing displays depending on the active function
- Display of 2D and 3D graphics
- Navigation and media display



You will find further information on the AID in Self-study Programme no. 545 "The Passat 2015 – Electrical System".

Additional off-road displays are provided in the Tiguan:

- Steering angle
- Compass
- Downhill driving assistant



s552_153

Head-up display

The head-up display is a projection system that projects a virtual image with current driving information into the driver's extended field of vision. It shows the speed, navigation information, driver assist information and warnings. This allows you to read the displayed information without taking your eyes off the road.



Glass screen

s552_139

The head-up display is located in the dash panel between the windscreen and the dash panel insert. The information is projected onto a glass screen that rises out of the dash panel.



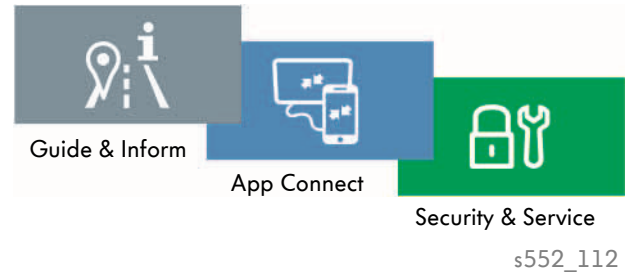
You will find further information on the head-up display in Self-study Programme no. 550 "The Passat GTE".



Mobile online services

The new “Security & Service” service group is being used for the first time. The following Car-Net functions are therefore available in the Tiguan:

- Guide & Inform
- App-Connect (no changes)
- Security & Service



The apps and online functions vary from country to country and according to the equipment level. Not all services will be available when the Tiguan is launched.

Please refer to the information page at www.volkswagen-carnet.com to find out which Car-Net functions will be available in your market.



You will find further information on the mobile online services in self-study programme no. 553 “The Tiguan 2017 – Electrical System and Infotainment”.

Guide & Inform

“Guide & Inform” refers to navigation and information services that provide users with Internet-based information while driving. Two new “Guide & Inform” services will be offered for the Tiguan:

- Tour import:
Users can create tours online and send them to the vehicle.
- Online map update:
Users can update the map material for the navigation system online. They no longer need to update the maps with an SD card or at a dealership. This service is only available for the Discover Pro.



Security & Service

The Car-Net “Security & Service” function is available in the Tiguan for the first time. The emergency call module control unit and communication unit J949 is installed for this purpose. This unit has an integrated SIM card. This allows data and commands, which are required to run the Car-Net functions, to be sent to the Volkswagen server or also received from it.

Services

The services for “Security & Service” are divided into three categories:

- Emergency call service
- Security & Service Basic
- Security & Service Plus

The respective categories build on one another. Security & Service Plus also includes the service from the Emergency call service and Security & Service Basic categories.

		Emergency call service	Security & Service Basic	Security & Service Plus
	Automatic emergency call	●	●	●
	Manual emergency call	●	●	●
	Automatic accident notification		●	●
	Service scheduling		●	●
	Breakdown call		●	●
	Vehicle health report		●	●
	Driving data			●
	Vehicle status			●
	Doors and lights			●
	Lock and unlock			●
	Horn and turn signals			●
	Area alert			●
	Speed alert			●
	Parking position			●
	Online auxiliary heater			●
	Online anti-theft alarm			●



Glossary

ABS

(Anti-lock Brake System)

Traction control system that stops the wheels locking during braking.

ACC

(Adaptive Cruise Control)

Abbreviation for the automatic adaptive cruise control system.

AFS

(Advanced Frontlighting System)

This function improves illumination of the road considerably when the vehicle is cornering as the headlight beam pattern is directed according to the position of the steering wheel.

AGM

(Absorbent Glass Mat)

Abbreviation for a type of battery in which the electrolyte is held in micro-glass fibre mats.

AM

Amplitude modulation, electromagnetic wave used to transmit messages.

In amplitude modulation, the amplitude of the high frequency is varied.

App

Software application for mobile operating systems.

AUX-IN

Signal input for external audio devices.

Bluetooth

Bluetooth is an industry standard developed by the Bluetooth Special Interest Group (SIG) for wireless communications between devices over short distances.

CAN

(Controller Area Network)

Standardised digital twin-wire data network used in vehicle electronics.

DAB

(Digital Audio Broadcasting)

Radio channel broadcast digitally by radio stations. DAB+ is a further development of digital radio, which was introduced in 2011 in Germany.

Driver Alert System

Electronic driver assist system which alerts the driver to decreasing attentiveness.

DVD

Digital Versatile/Video Disc

A further development of optical storage media with a memory capacity of 4.7 GB, on one-sided, single-layer DVDs (single-layer DVD, DVD±R, DVD±RW), and 8.5 GB, on one-sided, double-layer DVDs (dual-/double-layer, DVD±R-DL, DVD-RW±DL).

Dynamic Light Assist

An assistance system for controlling the headlight beam pattern, for example to avoid dazzling approaching traffic when the main beam headlights are being used.

EFB

(Enhanced Flooded Battery)

Abbreviation for the improved form of a wet battery.



Emergency Assist

Emergency Assist is a further development of the Lane Assist system. If the driver becomes incapable of driving, this system takes over control of the vehicle, warns other road users and brakes the vehicle to a stop.

ESC

(Electronic Stability Control)

Electronic stabilisation program, previously abbreviated to ESP.

FM

Frequency modulation, electromagnetic wave used to transmit messages.

In frequency modulation, the frequency of the carrier wave varies in step with the information signal. The amplitude remains constant.

Front Assist

Electronic area monitoring system that monitors the distance from the vehicle in front, issues a warning if there is a risk of a collision and automatically brakes the vehicle.

HFP

(Hands-free profile)

Bluetooth standard for hands-free system.

Lane Assist

(Lane departure warning)

Electronic driver assist system that draws the driver's attention to any departure from a lane and compensates minor deviations within the scope of the system limits.

LED

(Light Emitting Diode)

Energy-saving lamp system in which one or more light-emitting diodes are connected to form a source of light.

LIN

(Local Interconnect Network)

Serial single-wire data network, which is used to connect electronic components to higher-level control units.

MIB

(Modular infotainment matrix)

Designation for a modular system used by many brands and models for the vehicle's infotainment components.

MOST

(Media Oriented Systems Transport)

This is a serial bus system for transmitting audio, video, speech and data signals. Volkswagen currently uses fibre optic cable for this bus system.

MP3

Abbreviation for MPEG Layer3 (Motion Picture Experts Group Layer 3); compression standard for audio data formats.



Glossary

MQB

(Modular transverse matrix)

Designation for a modular system used by many brands and models in vehicle development and production.

Park Assist

(Park assist steering)

Driver assist system which actively supports the driver when parking or leaving a parking space, depending on the system version.

PDW

(Parking distance warning system)

Parking aid which uses ultrasonic and radar sensors to monitor the area around the vehicle for potential obstacles.

RDS

(Radio Data System)

A standardised system for transmitting additional radio data information such as the name of a broadcaster, audio title etc.

rSAP

(remote SIM Access Profile)

Profile that enables the SIM card to be read and its access data to be used by the universal mobile telephone preparation (UHV).

SD card

(Secure Digital card)

Small and robust memory cards, e.g. for digital cameras.

Server

A computer that provides data for other computers (called clients) to access via a network.

Side Assist

(Lane change assist)

Driver assistance system that supports the driver during overtaking and lane changing manoeuvres.

SIM

(Subscriber Identity Module)

A chip card that is inserted into a mobile telephone and identifies the user on the network.

SSD

(Solid State Drive)

Storage medium without mechanically moving parts.

Subwoofer

(Bass loudspeaker)

Subwoofers are special speakers for outputting very low frequency bass sounds. A distinction is made between active and passive subwoofers. Active subwoofers have their own power amplifiers. Passive subwoofers do not have their own power amplifiers and are connected to an amplifier output like a normal loudspeaker.

TFT

(Thin Film Transistor)

Abbreviation for a flat screen with a transistor display matrix.

Top tether system

The top tether system is used for additional child seat anchoring on the rear seat bench.

TPLI

(Tyre Pressure Loss Indicator)

Assistance system which alerts the driver to deviations in the tyre pressures from the preset figure on all four wheels.

TPMS

(Tyre Pressure Monitoring System)

Assist system that informs the driver about the current tyre pressures. It is a directly measuring system. If the tyre inflation pressure is too low or there is a rapid pressure loss, the driver is warned by optical and/or acoustic signals.



Traffic Alert

When reversing out of a perpendicular parking space, this system warns the driver about moving objects in the area behind the vehicle.

Traffic Jam Assist

When equipped with Traffic Jam Assist, the car can react to the vehicle in front in congestion. The car brakes, accelerates and steers semi-automatically and thus increases driving comfort in stop-and-go traffic.

Traffic sign recognition

(Dynamic Road Sign Display)

Visual driver assistance system that alerts the driver, for example, to speed limits, to overtaking restrictions and also to the end of restrictions.

Trailer Assist

This trailer manoeuvring system simplifies reversing manoeuvres with a trailer. The system takes over the steering once you enter the direction and the turning angle. The vehicle and the trailer are steered precisely while the driver only has to operate the accelerator and brakes.

USB

(Universal Serial Bus)

A standardised interface between various electronic devices such as computers, printers, scanners and televisions etc.





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