Service Training

Self-study Programme 400

The Golf Variant 2007

The Golf Variant 2007 – design and variability

The Golf Variant 2007 continues the success story of its predecessor models. In particular, it impresses with its dynamic design, which is characterised by its sporty, dynamic appearance, its innovative exterior, a new rear light design and its typical Golf face.

S400_003

S400_002

In terms of product characteristics, the Golf Variant 2007 sets the standards in its class, e.g. as regards:

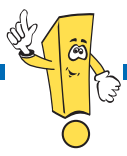
- safety,
- design, e.g. the new rear light design,
- quality,
- handling,
- the amount of space on offer,
- variability, payload and load securing,
- vehicle dynamics and
- the new panoramic sliding sunroof.

Separate self-study programmes are available on the following current topics:

- Self-study programme 390 The 7-speed Double-clutch Gearbox 0AM
- Self-study programme 405 The 1.4l 90 kW TSI Engine with Turbocharger

This self-study programme has been created in co-operation with Volkswagen de México erstellt.

NEW



Important Note

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

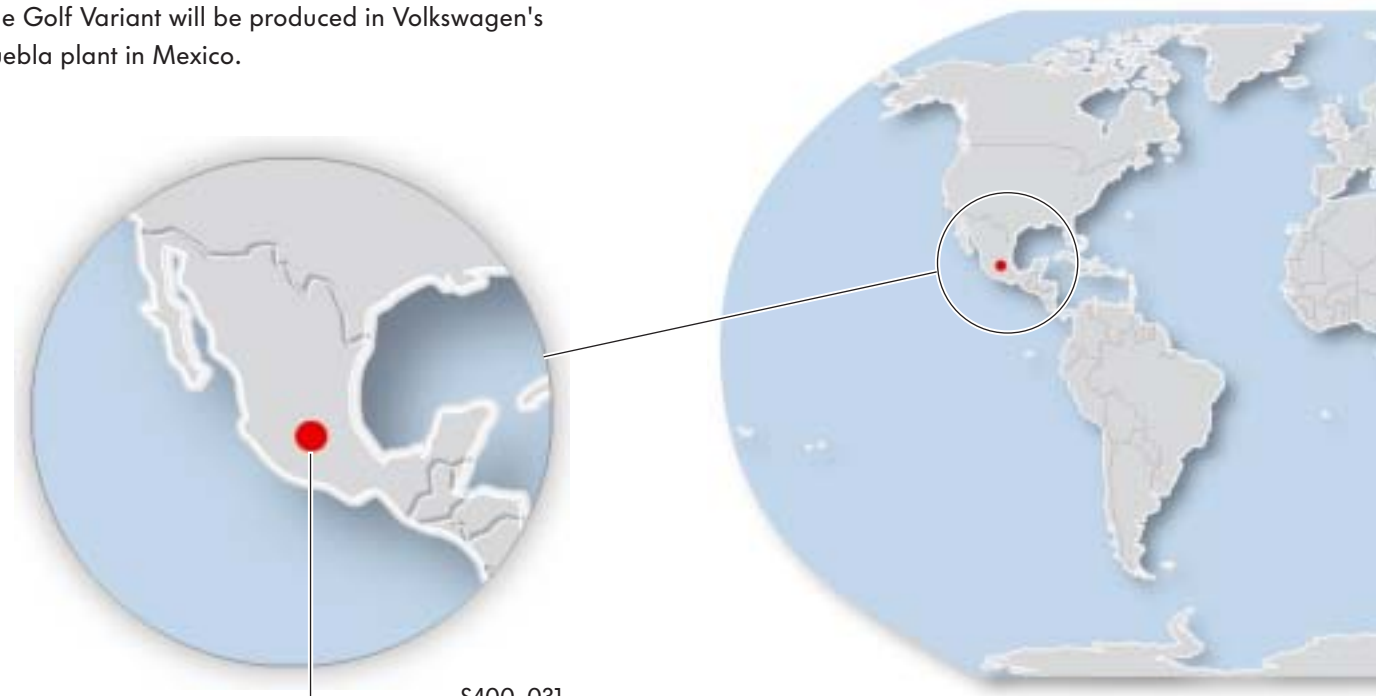
For current testing, adjustment and repair instructions, refer to the relevant service literature.

Contents

In brief

Where will the Golf Variant be produced?

The Golf Variant will be produced in Volkswagen's Puebla plant in Mexico.



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S400_032

The Puebla plant

This plant started operation in 1964 and produced the Beetle. Around 14,000 staff are currently employed in Puebla; amongst other vehicles, they produce the New Beetle and the Jetta. These will now also be joined by the new Golf Variant.
In certain markets, this vehicle will also be marketed under the name Jetta Variant.

S400_080

S400_030

... Modern clocked assembly lines ...

S400_045

With its high standard of quality, the ultra-modern Puebla plant is one of Volkswagen AG's leading production plants.

The Golf Variant 2007 will be built on the production lines which are already in place for the Jetta in Mexico.

... Modular production ...

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In brief

The Golf Variant 2007

In many disciplines, the Golf Variant 2007 again sets the standards in its class, e.g.:

- Safety
- Design
- Quality
- Handling
- Ride comfort
- Spaciousness
- Multifunctionality

- Load compartment concept with extensive storage compartments and securing options

- Comfortable spatial availability thanks to the extended passenger compartment

- Modern, high-quality interior

- Front seats with optional 4-way lumbar support (with integrated height adjustment)

- Modern illumination concept for the interior lighting

- Electromechanical power steering

- Optional panoramic sliding sunroof
- High body stiffness

- New aerial concept
- New rear light design

S400_052

- Optional sports running gear
- Optimised front and rear axle (four-link suspension)
- Increased front and rear track width ensures significantly better vehicle dynamics
- 2C-Climatronic (2-zone climate control)

Technical data

Golf Variant 2007

S400_063

S400_064

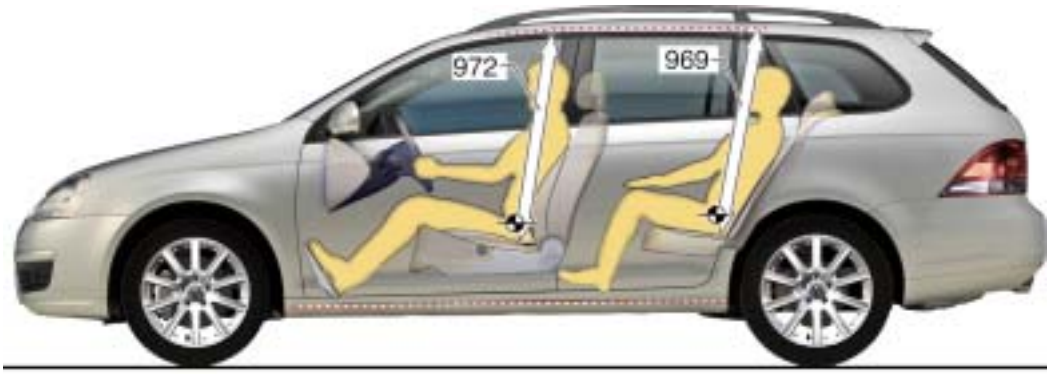
S400_065

The dimensions given in the pictures are in mm.

Length	4556 mm
Width	1781 mm
Height with roof rails	1504 mm
Wheelbase	2578 mm
Roof load	75 kg
Braked towing capacity up to a gradient of 8%	1500 - 1700 kg*

Track width at front	1535 mm
Track width at rear	1508 mm
Curb weight	1278 - 1414 kg*
Permissible gross vehicle weight	1800 kg
Tank capacity	55 litres
Drag coefficient	0.31 C_d

Passenger compartment dimensions



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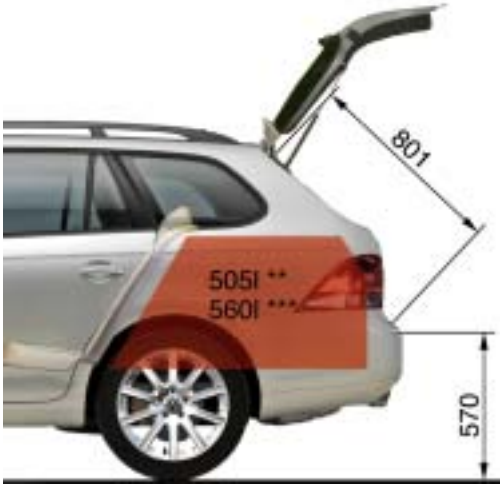

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S400_070

The dimensions given in the pictures are in mm.

Front headroom	972 mm
Rear headroom	969 mm
Luggage compartment aperture	801 mm
Through loading width	1014 mm

Height of load sill	570 mm
Luggage compartment volume	505 litres**
	560 litres***

* Depending on engine
** Without variable load floor
*** With variable load floor

Body

Body structure

The basic characteristics of the Golf Variant's body are based on the Jetta body.

Laser welding technology

The laser welding concept familiar from the Jetta will be successfully continued in the Golf Variant for the variant-specific components in the rear area.

In addition to the advantages already described for the Jetta, a significantly stiffer rear end is achieved due to laser welding.

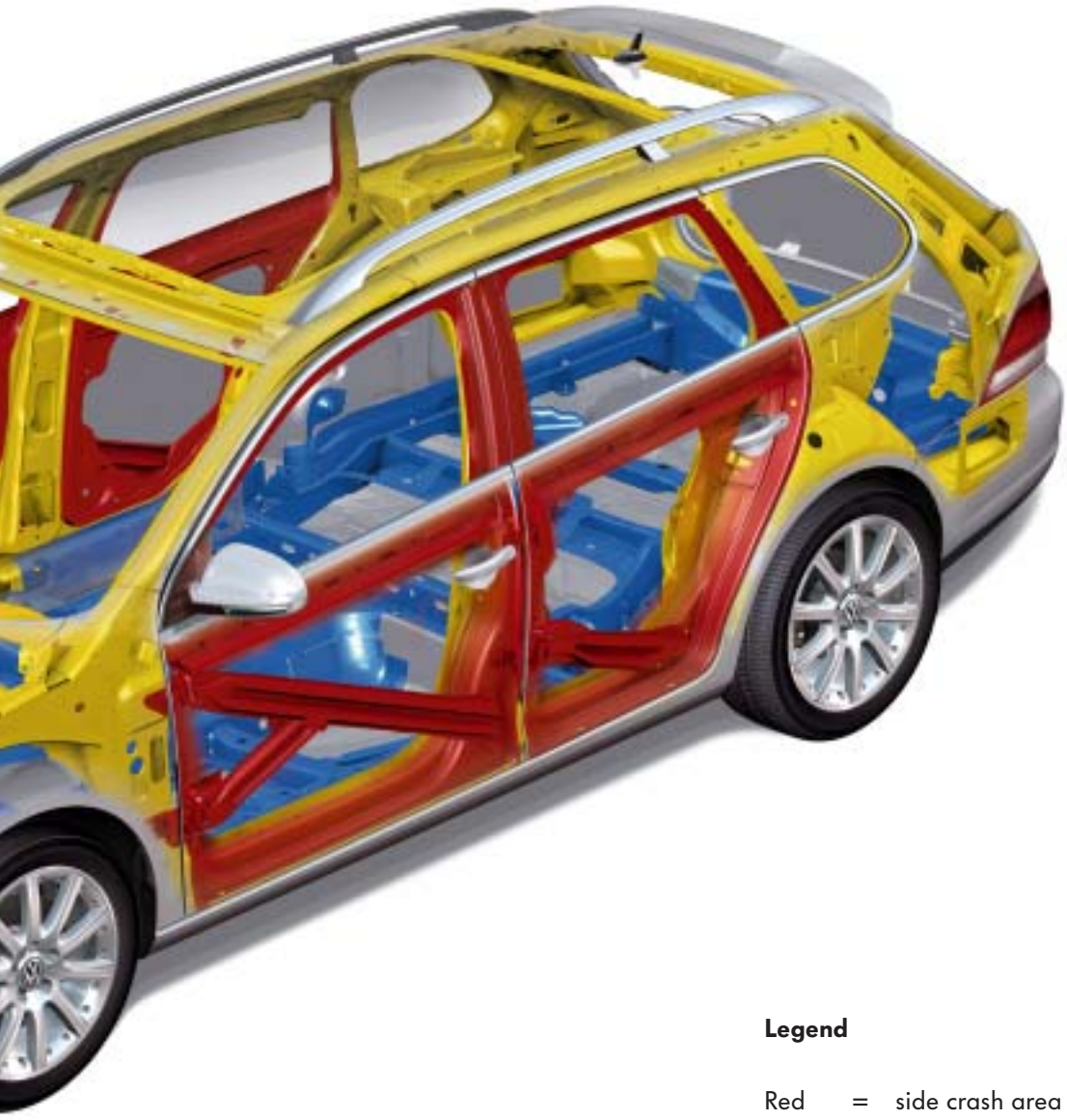
This makes a vital contribution to the stiffness of the vehicle as a whole.

Static and dynamic stiffness

The Golf Variant sets standards in terms of static and dynamic stiffness. Its static stiffness is around 39% greater than that of its predecessor.

Dynamic stiffness has been increased as follows:

- 16% in torsion
- 32% in flexion



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Legend

Red	=	side crash area
Yellow	=	passenger compartment
Blue	=	frame structure

Further information on the body
can be found in self-study programme No. 354 "The Jetta 2006".

Body

Features

In the front area of the body, approximately up to the B-pillar, the Golf Variant takes equipment elements from the Jetta.

Doors

The front doors have the door concept familiar from the Jetta. The design of the rear doors is conventional, using an assembly carrier.

Front seats

The front seats in the Golf Variant can be adjusted either mechanically or electrically. A front passenger seat with through-loading function is optionally available.

Rear lights

In the Golf Variant, the rear lights are not split, and are integrated into the relevant, rear body side panel. Thanks to the lights, which project into the side panel, visibility to the rear and also to the side is extensively improved.

Rear seat bench

The rear seat bench is split 60 : 40 and can be folded.

Rear side windows

The aerials for radio reception are integrated into the rear side windows.

S400_050

Tailgate

The tailgate gives access to a large load compartment aperture. It is opened manually, whilst raising is supported by gas-filled struts.

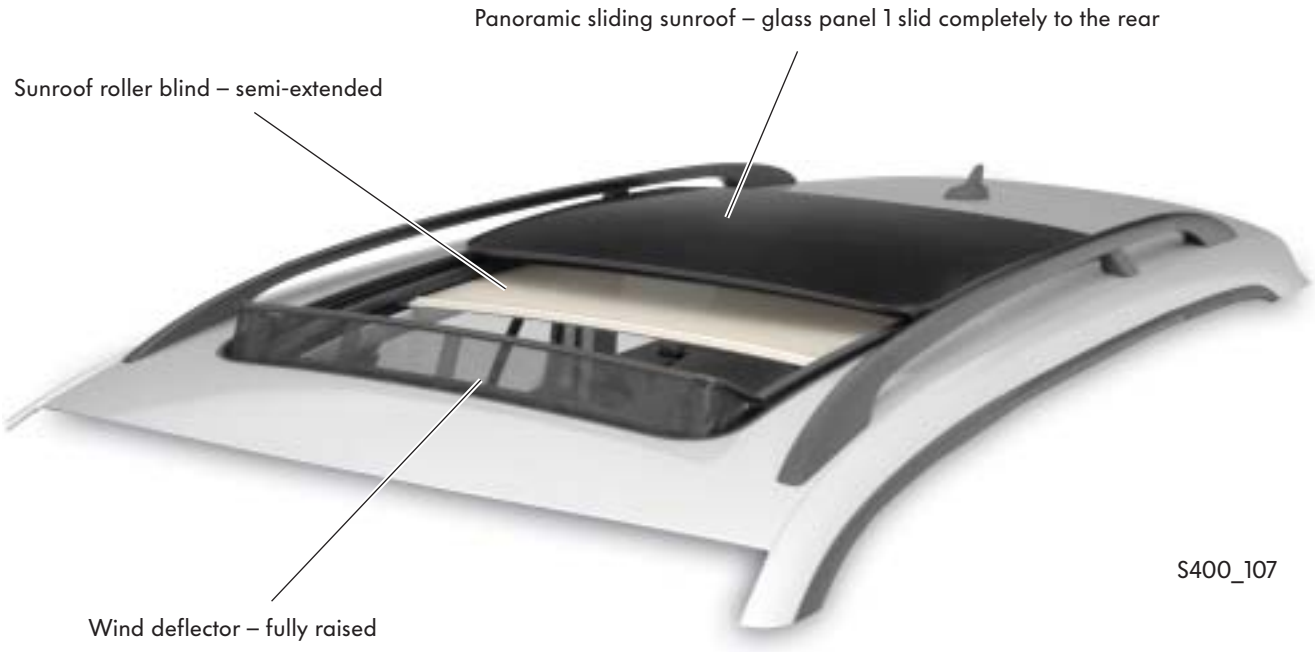
Load compartment

The luggage compartment, which is larger than that of the predecessor, can be put to multiple uses. This is achieved by the storage compartments in the optionally available, variable load floor, the securing options and the folding concept for the rear seat bench.

Panoramic sliding sunroof

The Golf Variant can be optionally equipped with panoramic sliding sunroof.

The panoramic sliding sunroof can be opened to a maximum length of 660 mm. In comparison with conventional sliding sunroofs, it offers the advantage that more light enters into the vehicle's passenger compartment.
The panoramic sliding sunroof offers a sense of space comparable with that of a convertible, but with less draught. Unlike in a convertible, the fact that the occupants are better enclosed within the body increases significantly better accident protection.



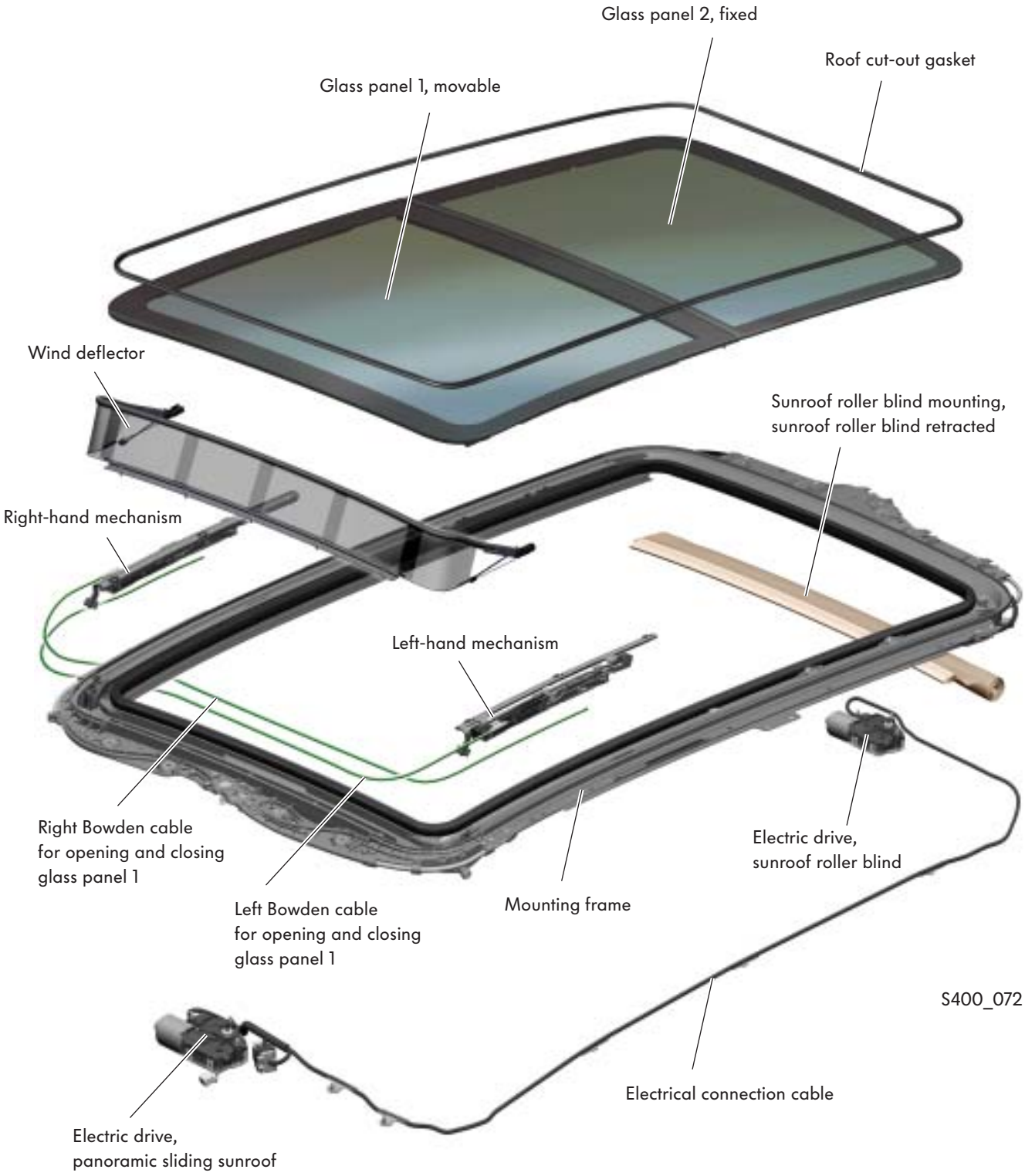
The panoramic sliding sunroof is a large glass roof consisting of two glass panels. It is bolted to a reinforcement frame in the body's roof structure. The seal between the panoramic sliding sunroof and the body is achieved by means of a gasket on the body side.

The special feature of the panoramic sliding sunroof is guidance of the front panel over the rear, fixed glass panel into the sliding position. The glass panel is raised and moved via electrically driven Bowden cables.

To protect against excess sunlight, the panoramic sliding sunroof is equipped with an electrically driven sunroof roller blind.

The panoramic sliding sunroof is also equipped with an extending wind deflector.

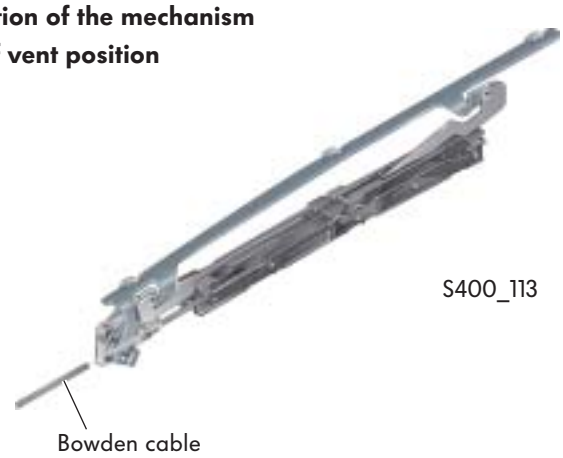
Components (exploded diagram)



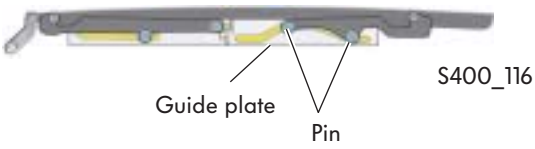
Adjustment of glass panel 1

Glass panel 1 is moved to the relevant position via a mechanism in the panoramic sliding sunroof.
The mechanism is driven via an electric motor by means of a Bowden cable attached on both the left and right-hand sides. The Bowden cables move the mechanism within an adjustment range; the relevant roof positions can be reached in this way. By means of the front end pieces with separate guide plate tracks and the relevant slides, glass panel 1 is clearly positioned in the front area.

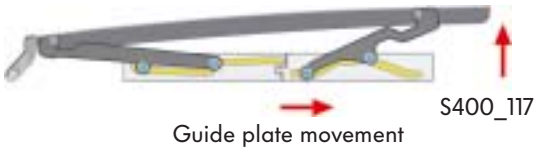
Position of the mechanism
Roof vent position



Closed position

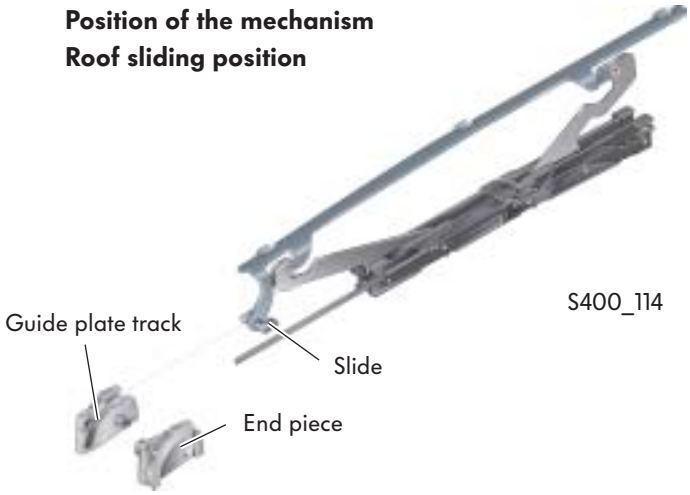


Vent position

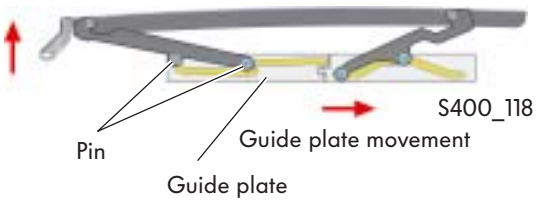


At the start of the tilting movement, the rear section of the roof is raised via a guide plate and pins which run in this. The roof moves to the vent position.

Position of the mechanism
Roof sliding position



Sliding position



If the Bowden cable continues to be moved, starting from the vent position, the front section of the mechanism is also raised and glass panel 1 is moved to the sliding position.

This is also carried out by means of a guide plate and pins running in it. The slide runs towards the separate end piece and guide plate track. Glass panel 1 can then be moved backwards over fixed glass panel 2.

When closing, the process runs in reverse order.

Operation

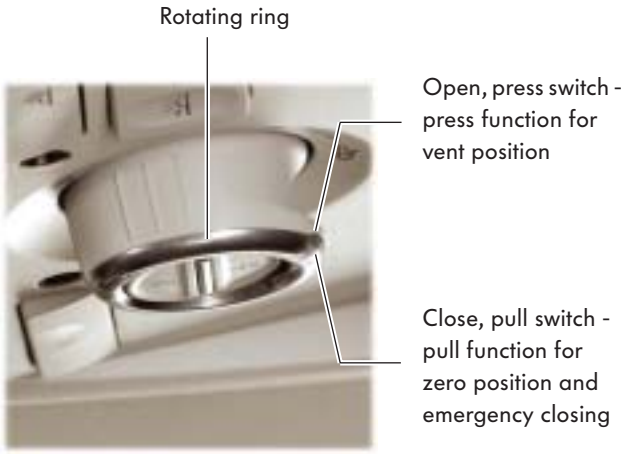
The panoramic sliding sunroof and the sunroof roller blind are operated via a common switch in the display in the front area of the roof lining.
This switch has three functions and adjustment options:

- Turning the switch to move glass panel 1 to the sliding position
- Pressing the switch to move glass panel 1 to the vent position
- Short or long push on the sunroof roller blind buttons (one-touch or jog mode) to move the sunroof roller blind

S400_084

Emergency actuation

If the situation necessitates, glass panel 1 or the sunroof roller blind can be closed after blocking by constantly pulling on the switch or via jog mode. To do this, the rotating ring must be in the "sliding sunroof closed" position. Glass panel 1 is then closed without closing force limitation.

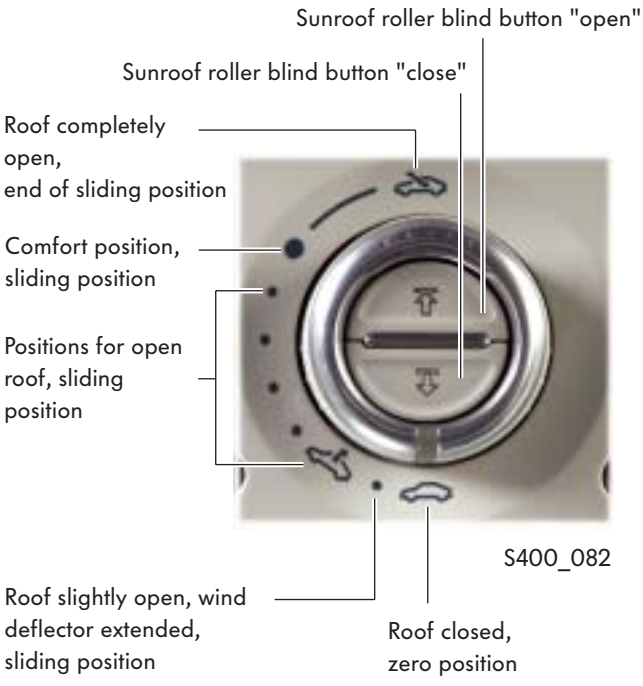


S400_081

Emergency adjustment

If the panoramic sliding sunroof can no longer be adjusted electrically, closing can alternatively be carried out via mechanical emergency adjustment using a tool (Allen key, 4 mm).
As a result of mechanical emergency adjustment, all values (pre-selection positions, protection ranges and partial trapping force limit value increases) are "erased".

Malfunctions such as, e.g. closing force limitation triggering, may therefore occur when glass panel 1 is next adjusted. Following emergency adjustment, a workshop visit is therefore vital to re-adjust the panoramic sliding sunroof.



S400_082

Raising glass panel 1 to the vent position

When raising glass panel 1 to the vent position, the following situations are possible:

- In rotating ring position "roof closed", pressing the switch raises glass panel 1 to the vent position.
- Glass panel 1 can be closed by pulling on the switch; it moves back to the zero position.

S400_108

Switch display in rotating ring position "roof closed" on use of the press and pull function

Automatic operation = actuate switch briefly
Manual operation = actuate switch for a longer time

Emergency actuation

If the situation necessitates, glass panel 1 can be closed after stopping by constantly pulling on the switch. Glass panel 1 is then closed without closing force limitation.

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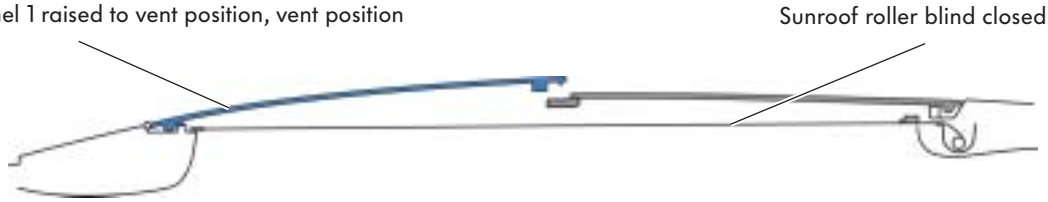
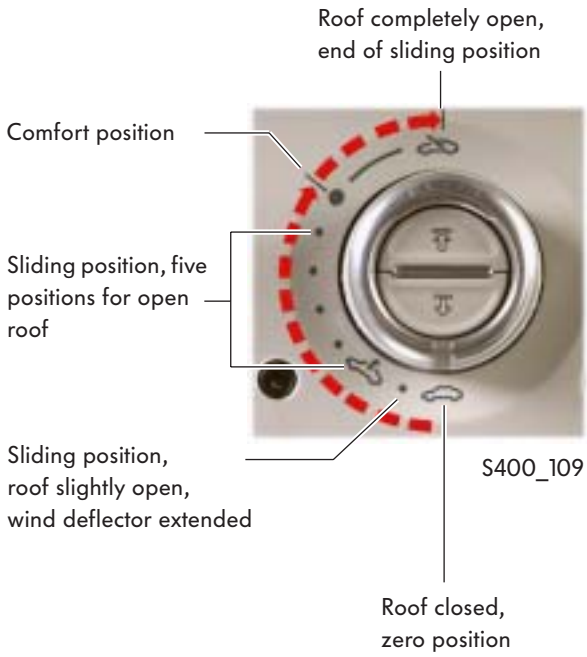


S400_101

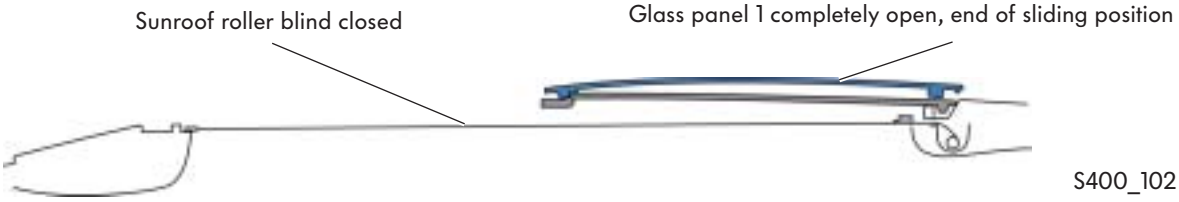
Opening glass panel 1

- To move glass panel 1 backwards over glass panel 2 to the sliding position, the rotating ring on the switch must be turned clockwise from the zero position. In this case, the panoramic sliding sunroof is opened to different lengths depending on the setting position.
- From the first position for sliding position, the wind deflector is raised.
- The panoramic sliding sunroof has a comfort position; this is separately identified by a mark. The length to which the roof is opened in the comfort position ensures that wind noise is extensively avoided during driving.
- The rotating ring no longer engages at the end of the sliding position. To open the roof completely, the rotating ring must be rotated to the end in the direction of rotation and must be held until the roof is open.



Emergency actuation

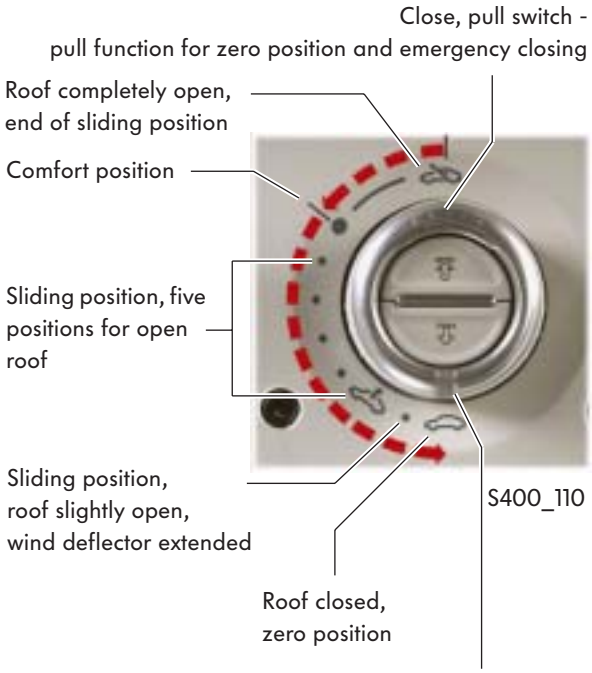
If the situation necessitates, glass panel 1 can be closed after stopping by constantly pulling on the switch. Glass panel 1 is then closed without closing force limitation.



Closing glass panel 1

When closing glass panel 1, the following situations are possible:

- To move glass panel 1 forwards from the sliding position to the zero position and therefore close the panoramic sliding sunroof, the rotating ring on the switch must be rotated from its present position, counter clockwise, to the rotating ring position "roof closed".
  The panoramic sliding sunroof closes automatically.
- To move glass panel 1 downwards from the vent position to the zero position and therefore close the panoramic sliding sunroof, the switch must be pulled down (pull function – see "Raising glass panel 1 to the vent position"). The panoramic sliding sunroof closes automatically.



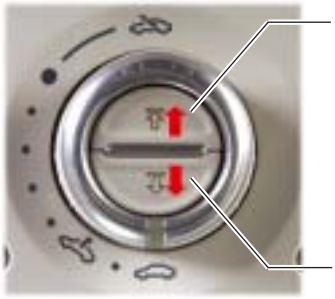
Emergency actuation

If the situation necessitates, glass panel 1 can be closed after stopping by constantly pulling on the switch. Glass panel 1 is then closed without closing force limitation.

Opening and closing the sunroof roller blind

The panoramic sliding sunroof is supplemented by an electrically driven sunroof roller blind, which is installed in the rear area of the panoramic sliding sunroof.

The roller blind can be opened or closed by pressing the buttons within the switch. In this case, it is electrically extended or retracted beneath the two glass panels in the assembly frame guides.. The sunroof roller blind can be actuated regardless of the position of glass panel 1.



S400_111

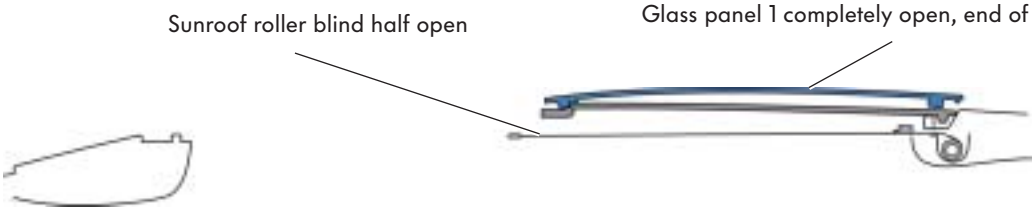
Automatic operation = actuate sunroof roller blind button briefly
Manual operation = actuate sunroof roller blind button for a longer time

For the possible sunroof roller blind operating variants, please refer to the owner's manual.

Emergency actuation

If the situation necessitates, and the sunroof roller blind fails to close due to mechanical sluggishness, it can be closed via jog mode. The sunroof roller blind is then closed without closing force limitation.

S400_099



S400_103

Automatic and manual adjustment of the panoramic sliding sunroof and the sunroof roller blind

The panoramic sliding sunroof and the sunroof roller blind are operated via a common operating unit. This contains button 1 for tilting roof E582, button 1 for sunroof roller blind E584 and sliding sunroof adjustment regulator E139.

All control information is read in and processed directly by sliding sunroof adjustment control unit J245.

Sliding sunroof adjustment control unit J245 is integrated into the LIN data bus and controls the opening and closing of the panoramic sliding sunroof. Sliding sunroof motor V1 is also integrated into sliding sunroof adjustment control unit J245.

Sunroof roller blind control unit J394 is also integrated into the LIN data bus and controls the opening and closing of the sunroof roller blind.
Sunroof roller blind motor V260 is also integrated into sunroof roller blind control unit J394.

Via onboard supply control unit 2 J520, which is integrated into data bus diagnostic interface J533, the information from other control units is also read in:

- The driver door control unit J386 evaluates the information from driver side central locking lock unit F220 and actuation of the central locking system button on the driver side.

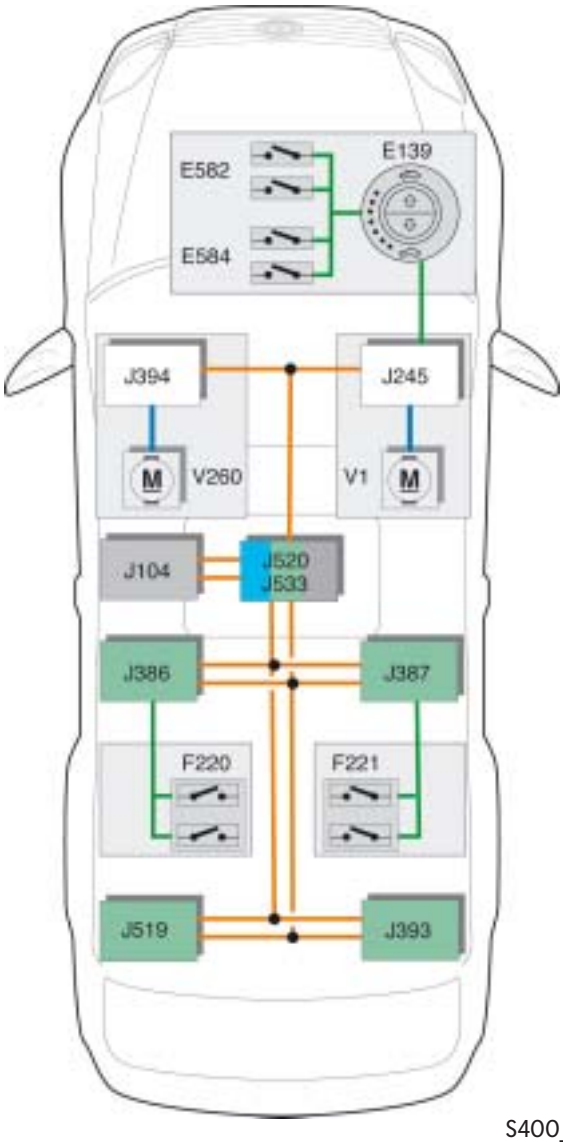
- The driver door control unit J386 evaluates the information from front passenger side central locking lock unit F221 and actuation of the central locking system button on the front passenger side.

- The convenience system central control unit J393 evaluates the opening of the driver or front passenger door after switching off the ignition. If these are not opened after switching off the ignition, a power-down time of ten minutes runs (high release signal).
  Ten minutes after switching off the ignition, release for the panoramic sliding sunroof should be widhdrawn via a request from the driver door control unit J386 and front passenger door control unit J387 to the convenience system central control unit J393 (low release signal).
  If, in the event of a fault, release for the panoramic sliding sunroof is not withdrawn after ten minutes, the drive for the panoramic sliding sunfoof and the sunroof roller blind is switched to sleep mode by the onboard supply control unit J519 after a further 25 minutes. Release for the panoramic sliding sunroof and the sunroof roller blind is withdrawn if the ignition is switched off and the driver or front passenger door is opened.
  The relevant behaviour of the panoramic sliding sunroof and the sunroof roller blind can be coded in the convenience system central control unit J393 and onboard supply control unit 2 J520.

- The ABS control unit J104 reports the speed. Closing force limitation can therefore be reduced at high speeds.

- The onboard supply control unit J519 ensures that terminals 15 and X are enabled.

Functional diagram
(panoramic sliding sunroof)



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Legend

E139	Sliding sunroof adjustment regulator
E582	Button 1 for tilting roof
E584	Button 1 for roof roller blind
F220	Driver side central locking lock unit
F221	Front passenger side central locking lock unit
J104	ABS control unit
J245	Sliding sunroof adjustment control unit
J386	Driver door control unit
J387	Front passenger door control unit
J393	Convenience system central control unit
J394	Sunroof roller blind control unit
J519	Onboard supply control unit
J520	Onboard supply control unit 2
J533	Data bus diagnostic interface
V1	Sliding sunroof motor
V260	Sunroof roller blind motor

CAN drive data bus

CAN convenience data bus

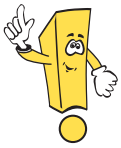
CAN instrument cluster data bus

CAN data bus line

LIN data bus line

Input

Output



Thermal protection:
Hall sensors for speed and travel detection are integrated into the panoramic sliding sunroof drive. Thermal protection can be calculated from these and with the voltage supply values. The purpose is to achieve misuse protection (play protection).

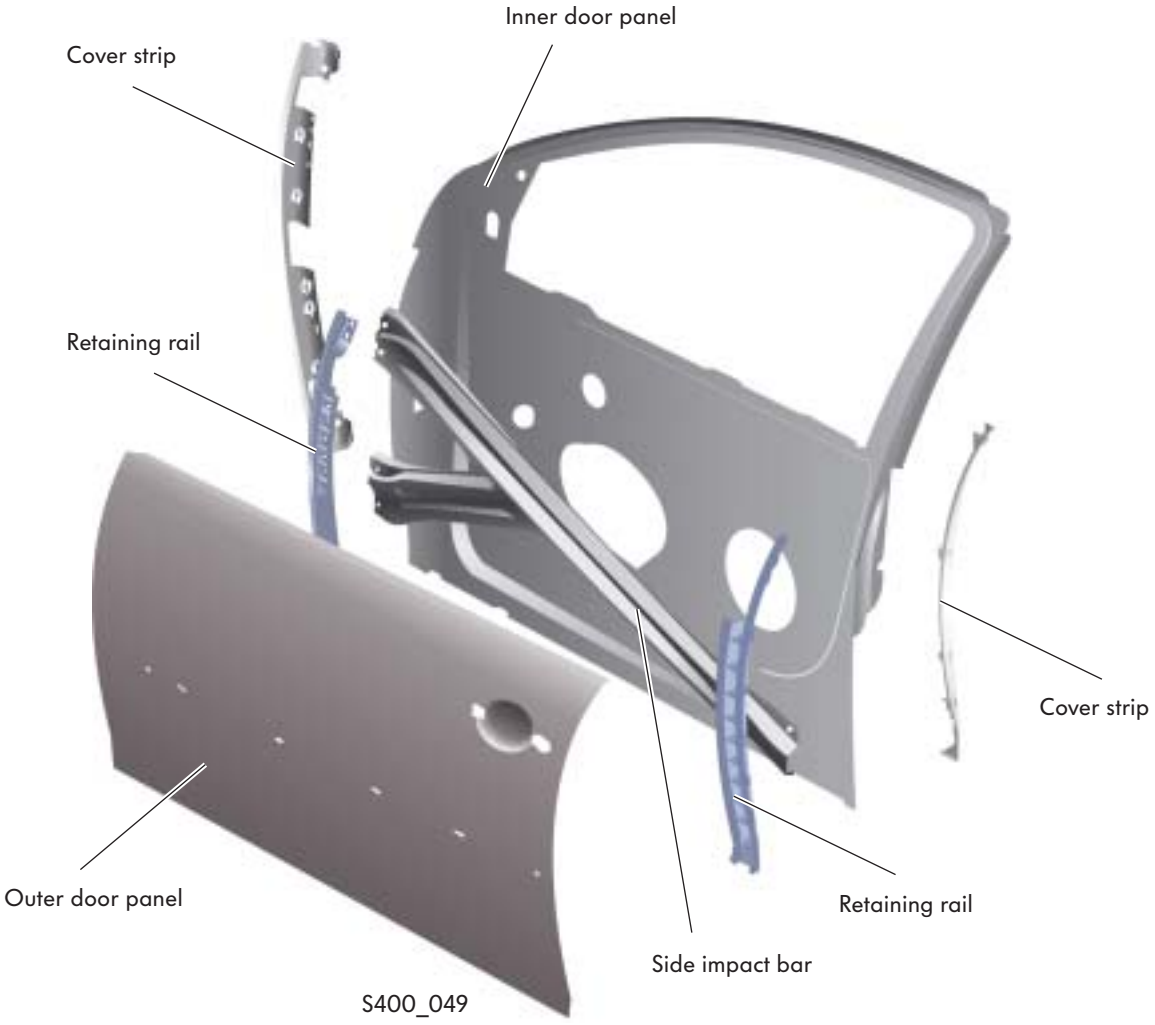
Door concept

The door concept already familiar from the Jetta is used for the front doors in the Golf Variant.

The design of the rear doors is conventional, using an assembly carrier.

Front doors

The front doors consist of an outer door panel with two retaining rails and an inner door panel for mounting the component parts. The outer door panel is bonded to the retaining rails. The retaining rails are bolted to the inner door section.



Rear doors

The rear doors consist of an outer door panel and an inner door panel.
The door components are integrated into an assembly carrier, which is bolted to the inner door panel.

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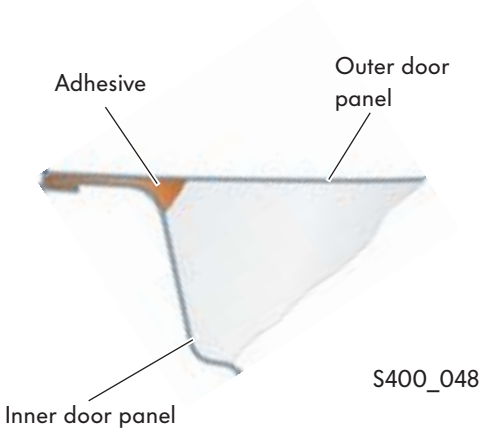
The outer door panel is flanged around and bonded to the inner door panel.



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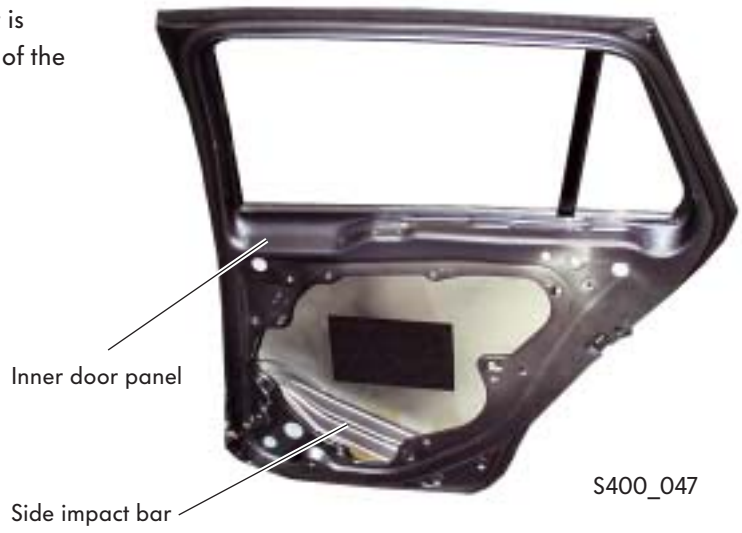
A side impact bar is also installed in the door. It is bolted to the inner door panel in the lower area of the door.

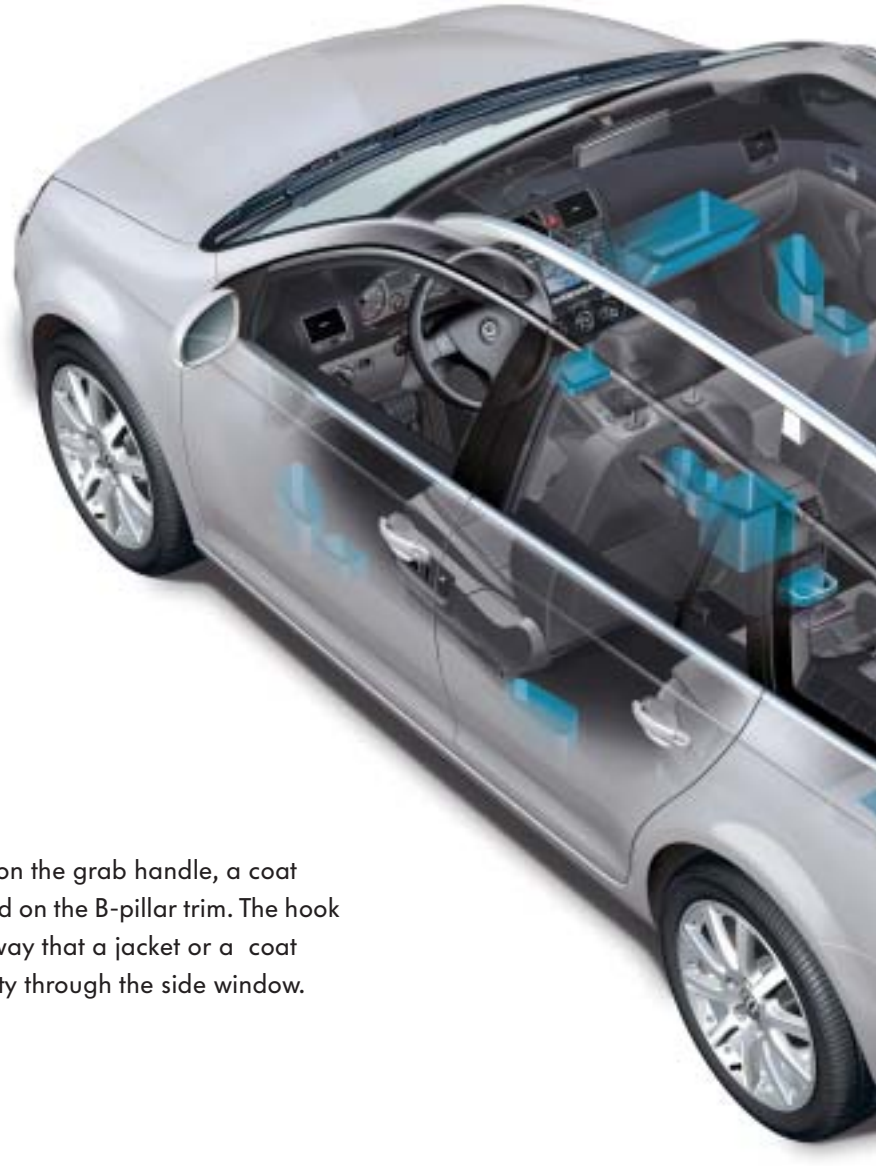


S400_047

Storage compartment concept

The interior of the Golf Variant 2007 is characterised by a multitude of storage compartments and securing options.

- 2 cup holders and 2 storage compartments in the centre console
  (optional: smoker package)
  2 cup holders in the rear centre armrest



- Storage compartments in the front doors, including bottle holder (for max. 1l bottle)

- In addition to the hook on the grab handle, a coat hook is fitted as standard on the B-pillar trim. The hook is positioned in such a way that a jacket or a coat does not impede visibility through the side window.

- Optional pockets on the rear of the front seat backrests

- Small roof console with storage compartment in the solid roof

S400_053

- Glove box in the instrument panel, which is cooled in combination with an air conditioner
- Depending on equipment variant, a normal and a cooled storage compartment is available in the rear area of the centre colsone.
- Extensive storage compartments and securing options in the load compartment
- Good load compartment partitioning thanks to variably adjustable load compartment covers

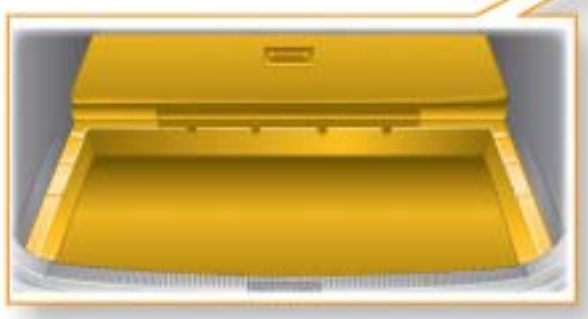
Load compartment concept

The load compartment in the Golf Variant 2007 has been enlarged in comparison with its predecessor. Its concept has been designed to enable as many, diverse transportation tasks to be carried out as possible.

- Bulky goods can be easily transported thanks e.g. to the folding rear seat backrest (split 60 : 40). A front passenger seat with through-loading function is optionally available.
- The rear seat backrest can be folded to form a flat load floor thanks to the high mounted pivot point and therefore offers high loading ability.

Bag hooks, folding

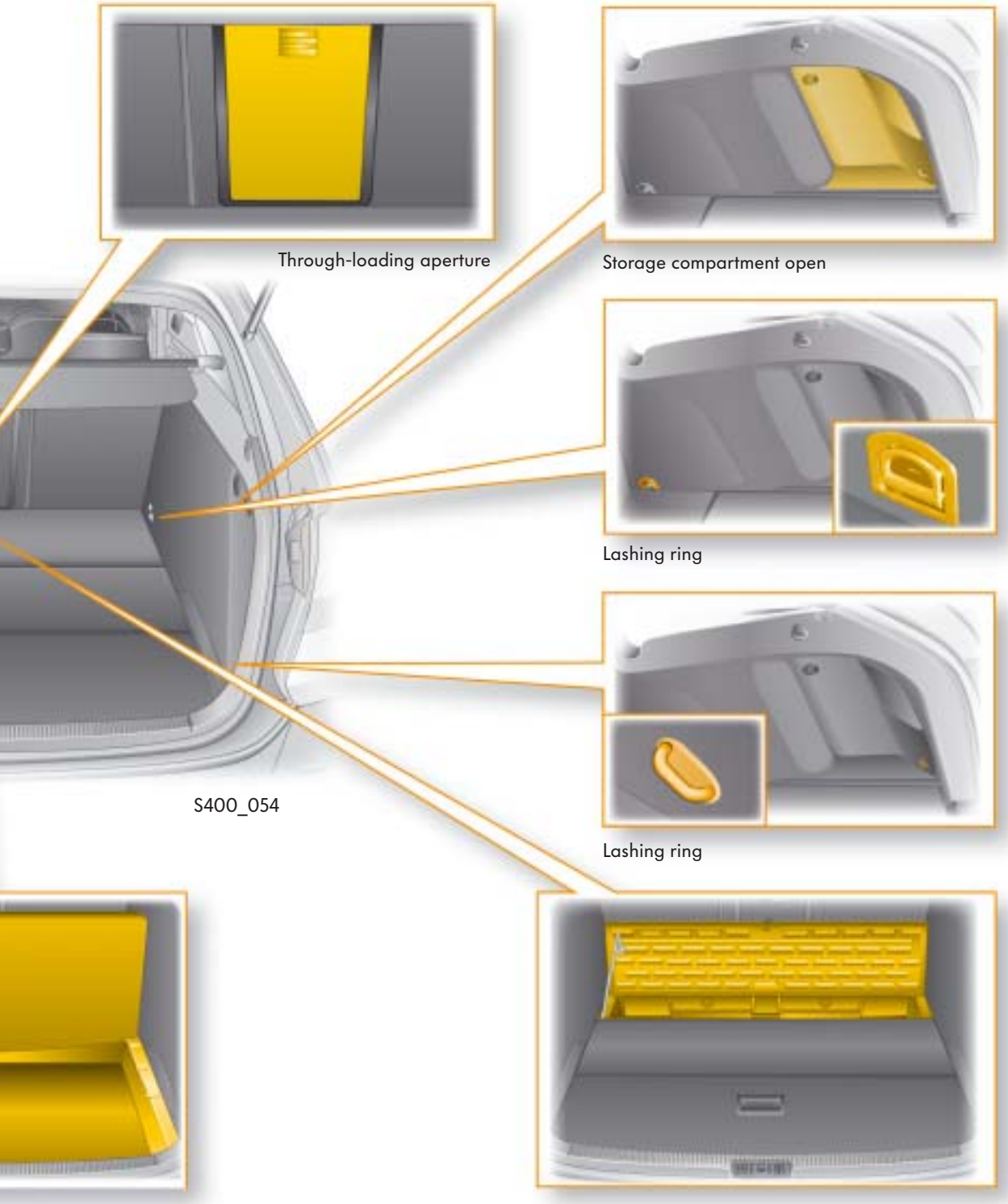
Storage compartment for warning triangle and first aid kit



Large storage compartment in the luggage compartment floor - cover folded completely forwards

Large storage compartment in the luggage compartment floor -

- The compartments in the optionally available, variable load floor offer optimal storage options.
  The cover of the large, rear storage compartment can be folded over completely or raised to various angles.
  This enables the load compartment to be sub-divided into separate areas.



Through-loading aperture

Storage compartment open

Lashing ring

S400_054

Lashing ring

Cover raised vertically

Small storage compartment in the luggage compartment floor - cover open

Occupant protection

Safety equipment

The Golf Variant is fitted with the safety equipment familiar from the Jetta.

- The front passenger airbag can be deactivated via a key switch in the storage compartment on the front passenger side.

- Driver and front passenger airbags

- Seat belt prompt for driver and front passenger

- Seat belt pre-tensioners and belt tension limiters for the front seats

- Optional rear side airbags in combination with seat belt pre-tensioners and belt tension limiters

- 3-point seat belts on all seats

- Isofix attachment points on the rear, outer seats

- Pressure sensors in the front doors

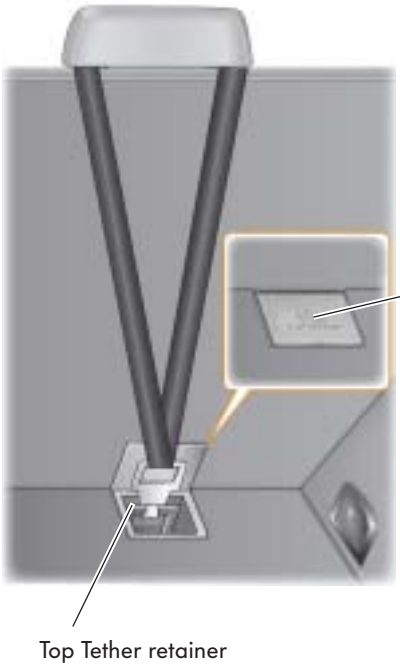
- Side airbag in the front seats with two chambers
- Curtain airbag for front and rear occupants
- Top Tether system

S400_055

- Acceleration sensors in the rear wheel housing liners

Top Tether

The Golf Variant is equipped with the Top Tether system.



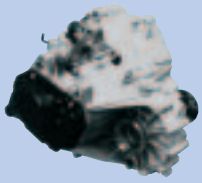
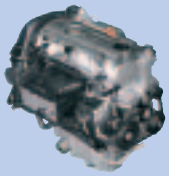
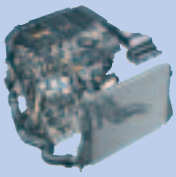
S400_112

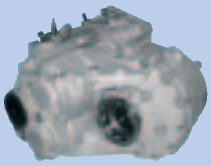
The Top Tether system serves to secure a child seat more firmly. In this case, an additional, upper belt on the child seat is attached to corresponding retainers on the vehicle floor behind the rear seat bench.

Further information on the occupant protection systems can be found in self-study programme 318 "The Golf 2004".

Engines

Engine/gearbox combinations

Petrol engine / Diesel engine	5-speed manual gearbox 0AF	5-speed manual gearbox 0A4	6-speed manual gearbox 0AJ
 1.6l 75 kW petrol engine with 2-valve technology			
 1.4l 90 kW TSI engine with turbocharger			
 1.4l 103 kW/125 kW TSI engines with dual charging			
 2.0l 147 kW TSI engine with turbocharger			
 1.9l 77 kW TDI engine with 2-valve technology			
 2.0l 103 kW TDI engine with 4-valve technology			
 2.0l 103 kW TDI engine with 2-valve technology			

6-speed manual gearbox 02S	6-speed manual gearbox 02Q	6-speed automatic gearbox 09G	6-speed direct-shift gearbox 02E	7-speed double-clutch gearbox 0AM
				
				
				
				
				
				
				

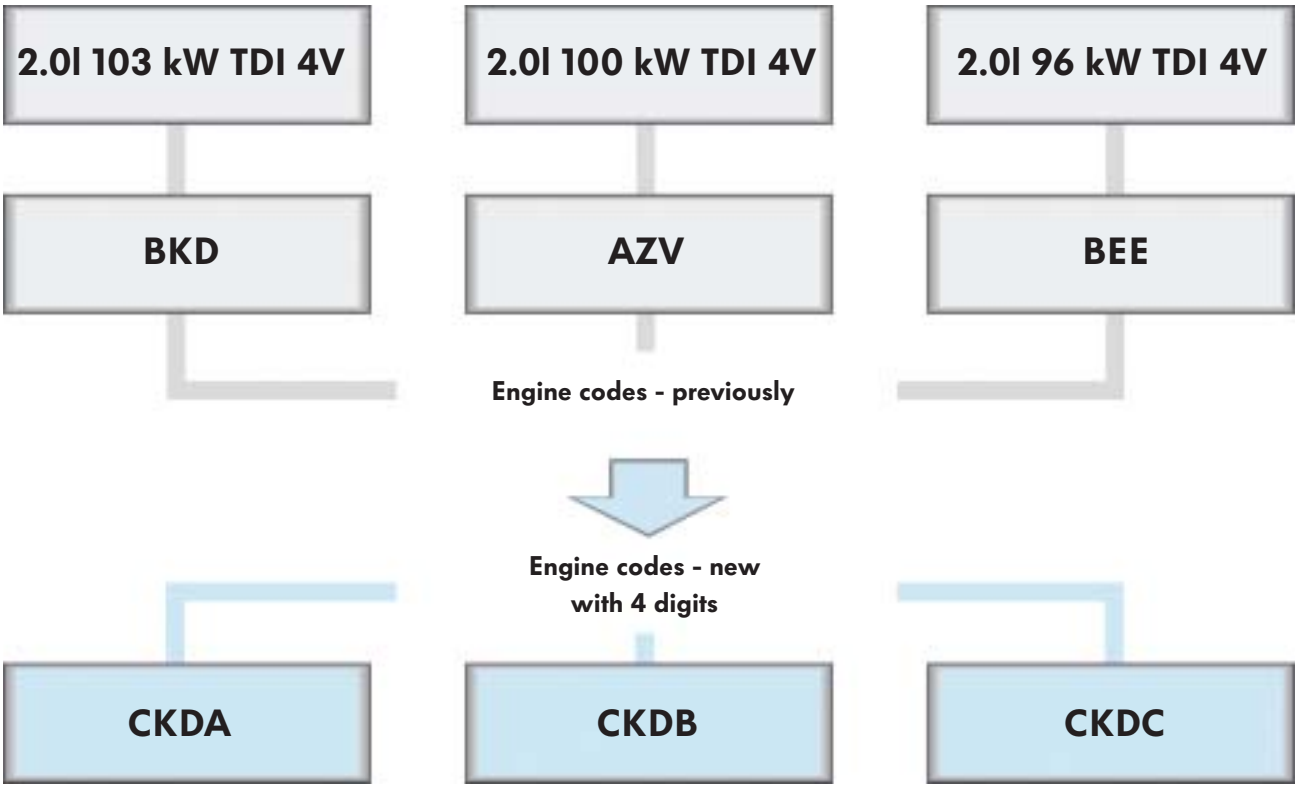
The new engine code system

To reduce engine code diversity, the 3-digit engine codes will be provided with a new, fourth digit. This applies only to engines with an identical, basic engine but different outputs In the case of these engines, output differentiation takes place solely via the engine control unit, in which case the software is adapted to implement the different output and torque. Engines with a modified emissions concept will not be provided with changed engine codes.

The new engine code generation can be recognised as follows:

- The first digit of the engine codes is a "C".
- The 3-digit engine codes will continue to be used on the engine block.
- The 4-digit engine codes can only be seen on the vehicle data sticker, the control unit and the model plate.

The assignment of the new engine codes is shown using the following example case:



S400_104

Where does identification take place?

The 4-digit engine codes are written on the control unit, the model plate and the vehicle data sticker.

Sticker on the engine control unit

S400_091

Vehicle data sticker

S400_094

Model plate

S400_093

The 3-digit engine code will be retained as part of the engine number; these are stamped onto the engine block.

A sticker with the engine codes and a sequential number is affixed onto the engine in the visible area (toothed belt guard, valve cover).

Engine code on the engine block

S400_095

Sticker with engine code

S400_096

The 1.6l 75 kW petrol engine with 2-valve technology

This engine is identical to the 1.6l 75 kW petrol engine fitted in the current Jetta.

S400_015

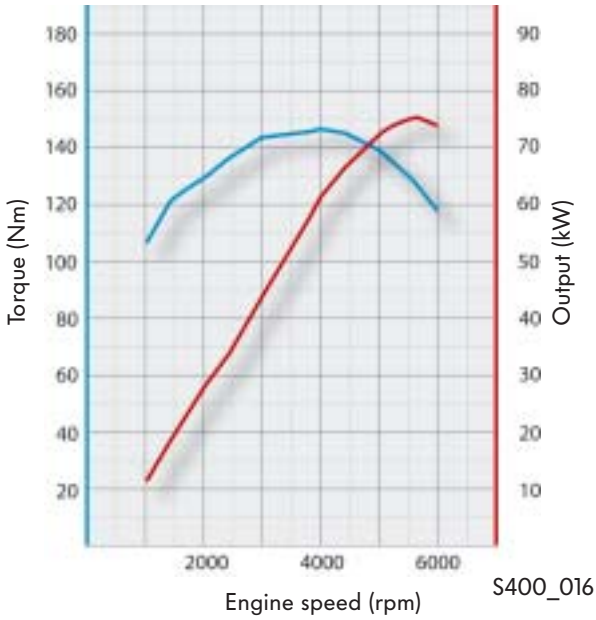
Technical features

- 2-valve roller rocker arm
- Aluminium engine block with ribbed sump
- Secondary air system
- Plastic variable intake manifold
- Pressure sensor system, previously hot-film air mass meter (HFM)
- Omission of the crankcase breather, venting only via the cylinder head
- Omission of the exhaust gas recirculation system

Technical data

Engine code	BSE
Type	4-cylinder in-line engine
Displacement	1595 cm^3
Bore	81 mm
Stroke	77.4 mm
Valves per cylinder	2
Compression ratio	10.3 : 1
Maximum output	75 kW at 5600 rpm
Maximum torque	148 Nm at 3800 rpm
Engine management	Simos 7.1
Fuel	Super unleaded RON 95 (normal unleaded RON 91 with reduction in performance)
Exhaust gas treatment	Probe before catalytic converter linear lambda probe, Probe after catalytic converter: transient probe
Emissions standard	EU 4

Torque and output diagram



S400_016

The 1.4l 90 kW TSI engine with turbocharger

The 1.4l 90 kW TSI engine is a further example of the TSI engine model series. However, it is charged using a turbocharger. It replaces the 1.6l 85 kW FSI engine, and offers significantly better performance than this engine with considerably lower fuel consumption.

S400_105

Technical features

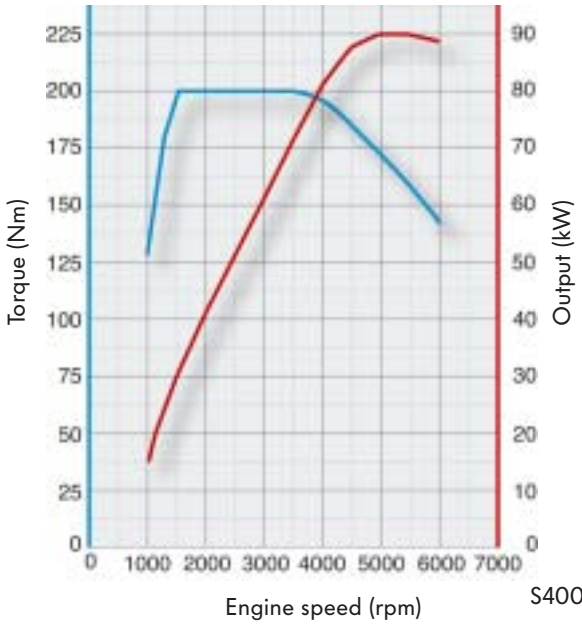
- Homogenous mode (Lambda 1)
- Turbocharger with waste gate
- Plastic intake manifold with integrated charge air cooler
- Liquid-cooled charge air cooler
- Dual-circuit cooling system
- Fuel system regulated according to requirements
- High-pressure fuel pump with integrated pressure limiting valve
- Innovative combustion process with intake manifold flap change-over

Further information on this engine can be found in self-study programme 405 "The 1.4l 90 kW TSI Engine with Turbocharger".

Technical data

Engine code	CAXA
Type	4-cylinder in-line engine
Displacement	1390 cm^3
Bore	76.5 mm
Stroke	75.6 mm
Valves per cylinder	4
Compression ratio	10 : 1
Maximum output	90 kW at 5500 rpm
Maximum torque	200 Nm at 1500-3500 rpm
Engine management	Bosch Motronic MED 17.5.20
Fuel	Super unleaded RON 95
Exhaust gas treatment	Main catalytic converter, Lambda control
Emissions standard	EU 4

Torque and output diagram



S400_106

The 1.4l 103 kW/125 kW TSI engines with dual-charging

Above all, the special feature of these engines is the combination of direct petrol injection, dual-charging and downsizing.

- In dual-charging, these engines are charged subject to requirements by a mechanical compressor and/or a turbocharger.
- Downsizing means replacing a large-capacity engine with a powerplant with smaller displacement and/or fewer cylinders. This reduces the internal friction and therefore fuel consumption without any reduction in output or torque.

Thanks to this concept, these engines surpass the performance of engines with the same output and also consume less fuel.

S400_041

Further information on these engines can be found in self-study programme 359 "The 1.4l TSI Engine with Dual-charging".

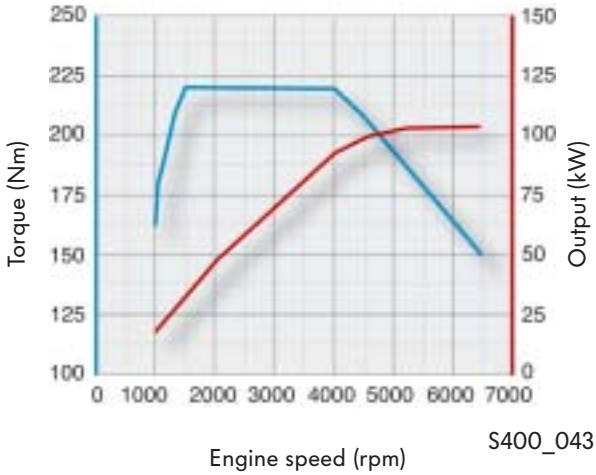
Technical features

- Two output variants with 103 kW and 125 kW
- Homogenous mode (Lambda 1)
- Double injection catalytic converter heating
- Turbocharger with waste gate
- Additional mechanical supercharger
- Charge air cooling
- Engine cover with vacuum tank for intake manifold flap change-over
- Grey cast iron cylinder block
- Dual-circuit cooling system
- Fuel system regulated according to requirements
- High-pressure fuel pump with a delivery pressure of up to 150 bar

Technical data

1.4l 103 kW TSI engine

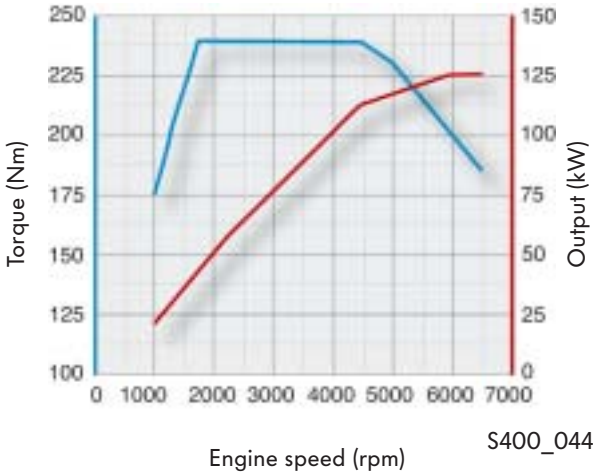
Torque and output diagram



S400_043

1.4l 125 kW TSI engine

Torque and output diagram



S400_044

Technical data

Engine code	BMY	BLG
Type	4-cylinder in-line engine	4-cylinder in-line engine
Displacement	1390 cm^3	1390 cm^3
Bore	76.5 mm	76.5 mm
Stroke	75.6 mm	75.6 mm
Valves per cylinder	4	4
Compression ratio	10 : 1	10 : 1
Maximum output	103 kW at 6000 rpm	125 kW at 6000 rpm
Maximum torque	220 Nm at 1500 to 4000 rpm	240 Nm at 1750 to 4500 rpm
Engine management	Bosch Motronic MED 17.5.1	Bosch Motronic MED 17.5.1
Fuel	Super unleaded RON 95	Super Plus RON 98 (Super unleaded RON 95 with slightly higher consumption and slight torque reduction in the low engine speed range)
Exhaust gas treatment	Main catalytic converter, Lambda control	Main catalytic converter, Lambda control
Emissions standard	EU 4	EU 4

The different output and torque levels are achieved using software. The engine mechanics are the same in both engines.

The 2.0l 147 kW TSI engine with turbocharger

The 2.0l 147 kW TSI engine with turbocharger is also fitted in the current Golf GTI, Jetta and Passat Variant models.

S400_017

Technical features

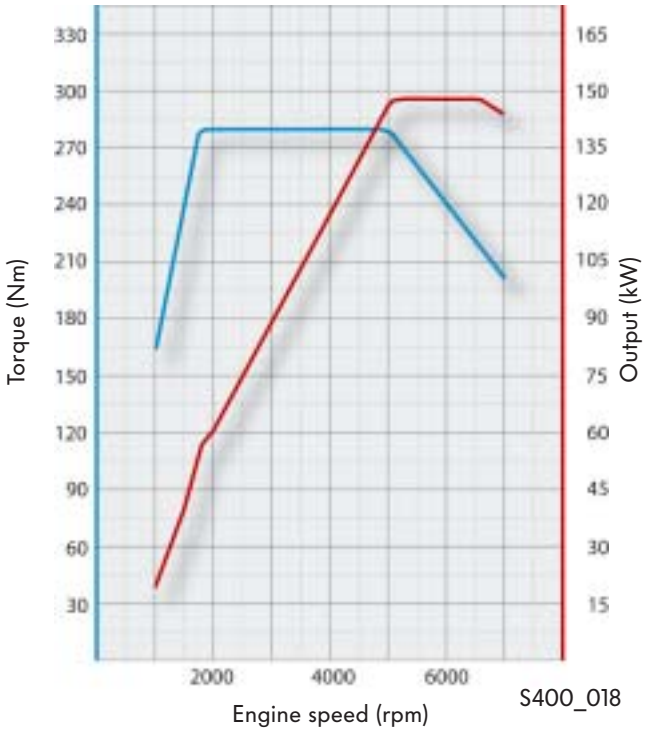
- Single-pipe exhaust system with starter and underbody catalytic converter mounted near engine
- Ethanol-resistant Hitachi high-pressure pump
- Non-return fuel system
- Homogeneous fuel injection
- Decoupled drive chain wheel in the balancer shaft assembly
- Elliptical toothed belt pulley on crankshaft
- Mechanical brake servo pump
- Continuously adjustable charge air flaps

Further information on this engine can be found in self-study programme 337 "The 2.0 l FSI Engine with Turbocharger".

Technical data

Engine code	BWA
Type	4-cylinder in-line engine
Displacement	1984 cm^3
Bore	82.5 mm
Stroke	92.8 mm
Compression ratio	10.5 : 1
Maximum output	147 kW at 5100 to 6600 rpm
Maximum torque	280 Nm at 1800 – 4700 rpm
Engine management	Bosch Motronic MED 9.1
Camshaft timing adjustment	42° crank angle
Fuel	Super Plus unleaded RON 98 (Super unleaded RON 95 with slight reduction in performance)
Exhaust gas treatment	Two three-way catalytic converters with Lambda control
Emissions standard	EU 4

Torque and output diagram



S400_018

The 1.9l 77 kW TDI engine with 2-valve technology

The 1.9l 77 kW TDI engine is also fitted in the Golf, and has already proved its worth in other Volkswagen models.

S400_019

Technical features

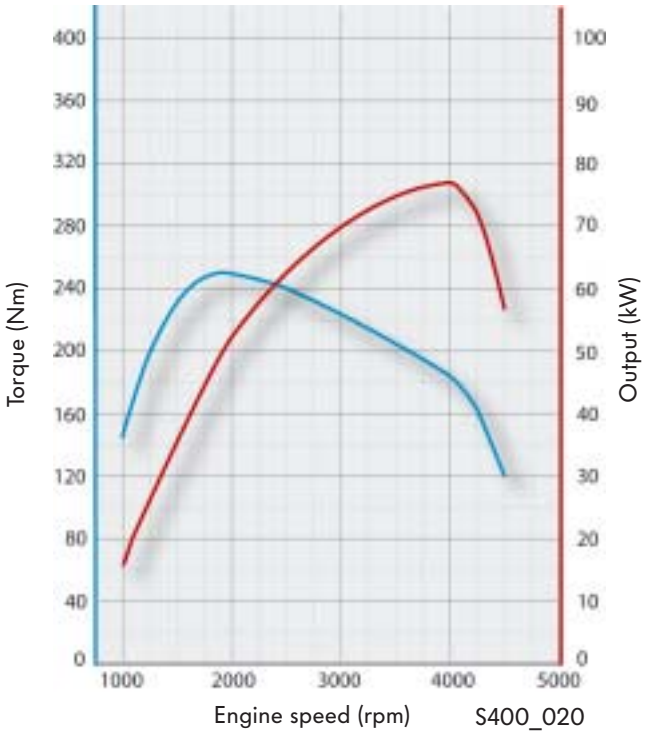
- Unit injectors with solenoid valves
- Adjustable turbocharger
- Optional engine version with catalytically coated diesel particulate filter
- Switchable cooler for exhaust gas recirculation

Information on the diesel particulate filter can be found in self-study programme 336 "The Catalytic Coated Diesel Particulate Filter".

Technical data

Engine code	BXE (without diesel particulate filter) BLS (with diesel particulate filter)
Type	4-cylinder in-line engine
Displacement	1896 cm^3
Bore	79.5 mm
Stroke	95.5 mm
Valves per cylinder	2
Compression ratio	18 : 1
Maximum output	77 kW at 4000 rpm
Maximum torque	250 Nm at 1900 rpm
Engine management	Bosch EDC 16 with unit injector system
Fuel	Diesel, min. 51 CN
Exhaust gas treatment	Exhaust gas recirculation and oxidising catalytic converter/ diesel particulate filter
Emissions standard	EU 4

Torque and output diagram



S400_020

The 2.0l 103 kW TDI engine with 4-valve technology

This engine is identical to the 2.0l 103 kW TDI engine in the Golf 2004.

S400_021

Technical features

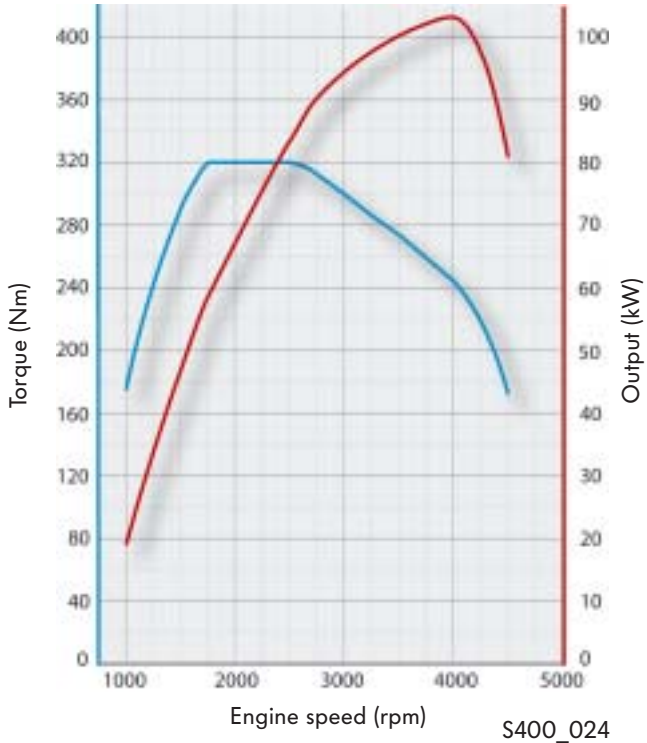
- Unit injectors with solenoid valves
- Adjustable turbocharger
- 4-valve technology
- Two camshafts, driven by toothed belts
- Switchable cooler for exhaust gas recirculation

Further information on this engine can be found in self-study programme 316 "The 2.0l TDI Engine".

Technical data

Engine code	BKD
Type	4-cylinder in-line engine
Displacement	1968 cm^3
Bore	81 mm
Stroke	95.5 mm
Valves per cylinder	4
Compression ratio	18 : 1
Maximum output	103 kW at 4000 rpm
Maximum torque	320 Nm at 1750 rpm to 2500 rpm
Engine management	Bosch EDC 16 with unit injector system
Fuel	Diesel, min. 51 CN
Exhaust gas treatment	Exhaust gas recirculation and oxidation catalytic converter
Emissions standard	EU 4

Torque and output diagram



S400_024

The 2.0l 103 kW TDI engine with 2-valve technology and diesel particulate filter

The 2.0l 103 kW TDI engine with 2-valve technology and diesel particulate filter is also available in the Golf model year 2006.

S400_023

Technical features

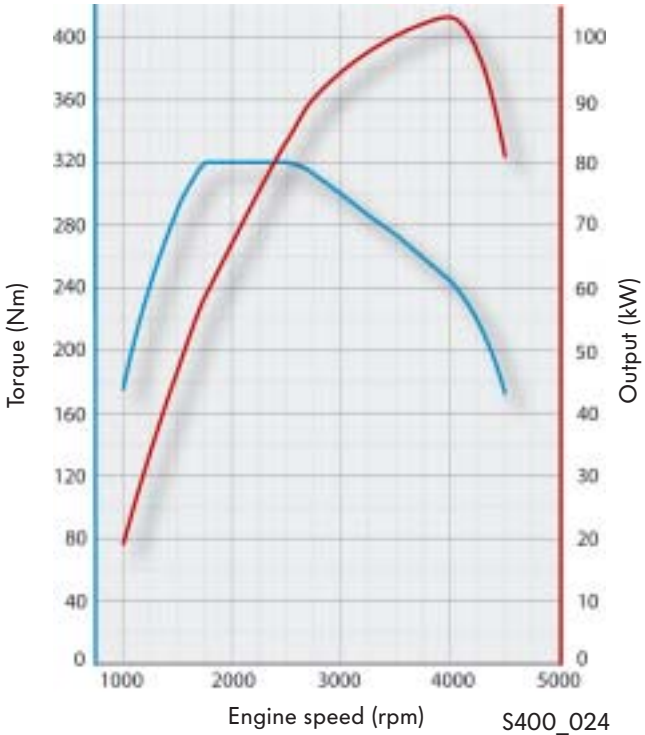
- Unit injectors with solenoid valves
- Catalytically coated diesel particulate filter
- Turbocharger raised and rotated upwards by 180° for mounting the diesel particulate filter close to the engine
- Ceramic glow plugs

Information on the diesel particulate filter can be found in self-study programme 336 "The Catalytic Coated Diesel Particulate Filter".

Technical data

Engine code	BMM
Type	4-cylinder in-line engine
Displacement	1968 cm^3
Bore	81 mm
Stroke	95.5 mm
Valves per cylinder	2
Compression ratio	18.5 : 1
Maximum output	103 kW at 4000 rpm
Maximum torque	320 Nm at 1750 rpm to 2500 rpm
Engine management	Bosch EDC 16 with unit injector system
Fuel	Diesel, min. 51 CN
Exhaust gas treatment	Exhaust gas recirculation and diesel particulate filter
Emissions standard	EU 4

Torque and output diagram



S400_024

Manual gearboxes - overview

Manual gearbox	Technical features	Also see self-study programme No.:
 **5-speed manual gearbox 0AF**	• Developed from 02T gearbox • Housing reinforced, gearbox adapted to modified installation position • Without speedometer sender	–
 **5-speed manual gearbox 0A4**	• Developed from 02J gearbox • Gearshift mechanism optimised, final drive reinforced, housing adapted • Without speedometer sender	328
 **6-speed manual gearbox 0AJ**	• Developed from 0AG gearbox • Adapted for the 1.4l 90 kW TSI engine, extended output shaft, distance between output shaft and differential increased, sheet metal bearing mounting replaced by cast bearing mounting for higher torques, toothing ground • Final drive reinforced, splines adapted for higher torques, housing adapted • Without speedometer sender	306
 **6-speed manual gearbox 02S**	• Developed from 02J gearbox • Gearshift mechanism optimised • Longer shafts with additional bearings, additional gear pair, new, longer aluminium housing cover, housing adapted to the installation position • Without speedometer sender	306
 **6-speed manual gearbox 02Q**	• Developed from 02M gearbox • Changes to selector shaft, selector forks with stops in housing, modified bearings • Without speedometer sender	306

Automatic gearboxes - overview

Automatic gearbox	Technical features	Also see self-study programme No.:
 **6-speed direct-shift gearbox 02E**	6-speed direct-shift gearbox 02E is equipped with a hydraulic double clutch. It combines the advantages of a manual gearbox, such as high efficiency, robustness and sportiness, with the advantages of an automatic gearbox, i.e. high comfort, especially on changing gears.	308
 **7-speed double-clutch gearbox 0AM**	7-speed double-clutch gearbox 0AM has been developed from direct-shift gearbox 02E. In contrast to the 02E, it operates with a double clutch, an electric oil pump for the hydraulic system and separate oil circuits for the gearbox and mechatronics.	390
 **6-speed automatic gearbox 09G**	6-speed automatic gearbox 09G is a compact, light, electronically controlled gearbox for transverse mounting.	309

Running gear

The running gear

The Golf Variant 2007's running gear continues the high standard of comfort and dynamics in its A platform segment.
The Golf Variant is also equipped with modern McPherson strut front suspension. The modern four-link rear suspension deserves particular emphasis in terms of its vehicle dynamics and ride comfort.

The electromechanical power steering gives the driver a precise steering feel and continuously adapts the required steering forces to the vehicle's increasing speed.

The springs and shock absorbers have been matched to the vehicle's increased axle loads.

- Electronic stabilisation programme based on the MK60 system from Continental Teves
- Brake assist system
- Electromechanical power steering system, 2nd generation
- Modern McPherson strut front suspension
- Direct anti-roll bar connection with a ratio of 1 : 1
- Brake servo with dual rate characteristic curve

Further information on the running gear can be found in self-study programme No. 321 "The Golf 2004 Running Gear".

S400_036

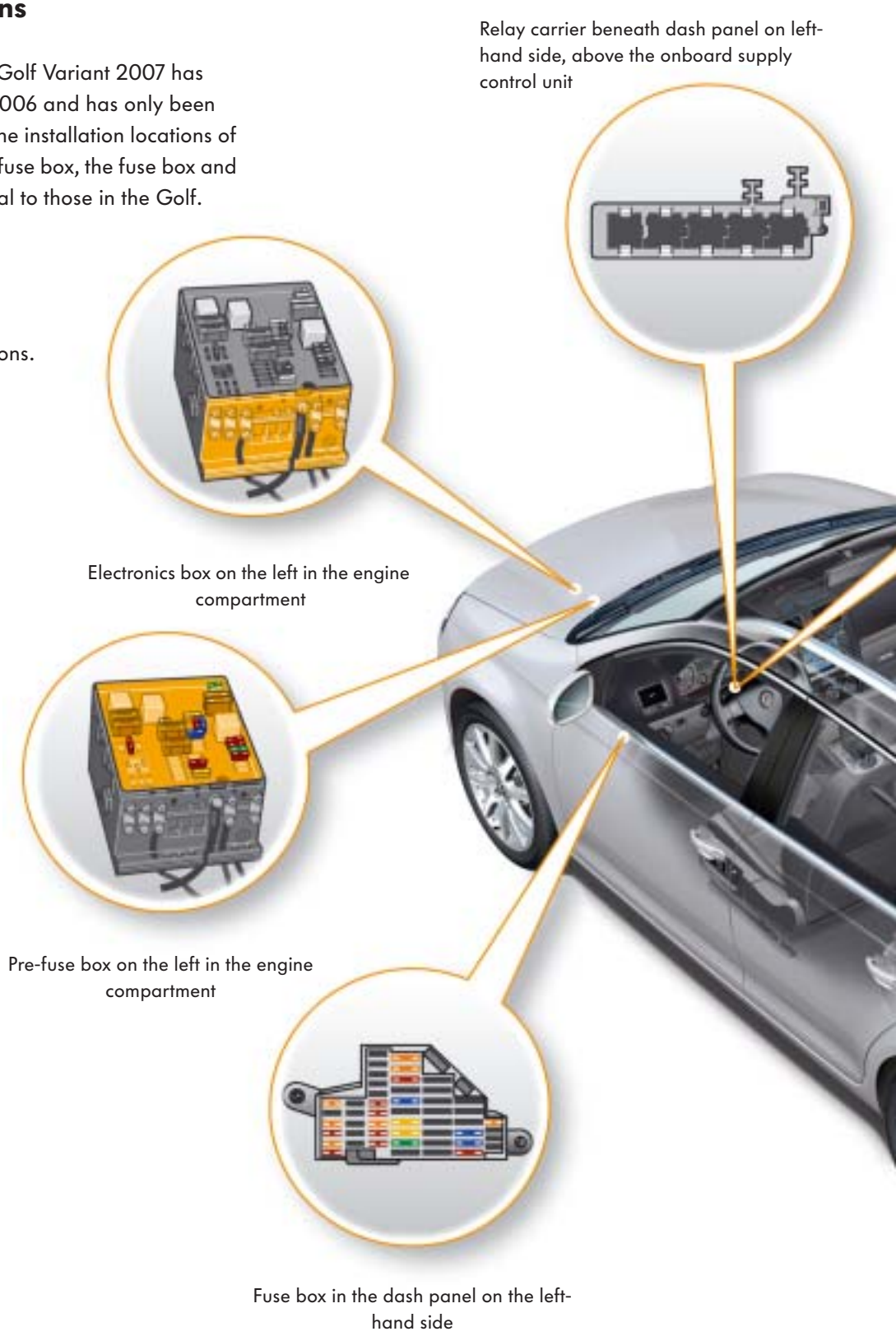
- Four-link rear suspension with very good vehicle dynamics and comfort characteristics
- Track and camber separately adjustable on the rear axle
- Tyre pressure monitor, optional with Trendline, standard with Comfortline
- Vertical accelerator pedal with contact-free senders for the accelerator pedal position

The fuse boxes and relay positions in the vehicle electrical system

Installation locations

The electrical system in the Golf Variant 2007 has been taken from the Jetta 2006 and has only been modified in the rear area. The installation locations of the electronics box, the pre-fuse box, the fuse box and the relay carrier are identical to those in the Golf.

The adjacent illustration shows the installation locations.



Relay carrier beneath dash panel on left-hand side, above the onboard supply control unit

Electronics box on the left in the engine compartment

Pre-fuse box on the left in the engine compartment

Fuse box in the dash panel on the left-hand side

Relay carrier on the onboard supply control unit, beneath the dash panel on the left-hand side

More detailed information on the electrical system can be found in self-study programme 319 "The Golf 2004 Electrical System".

S400_066

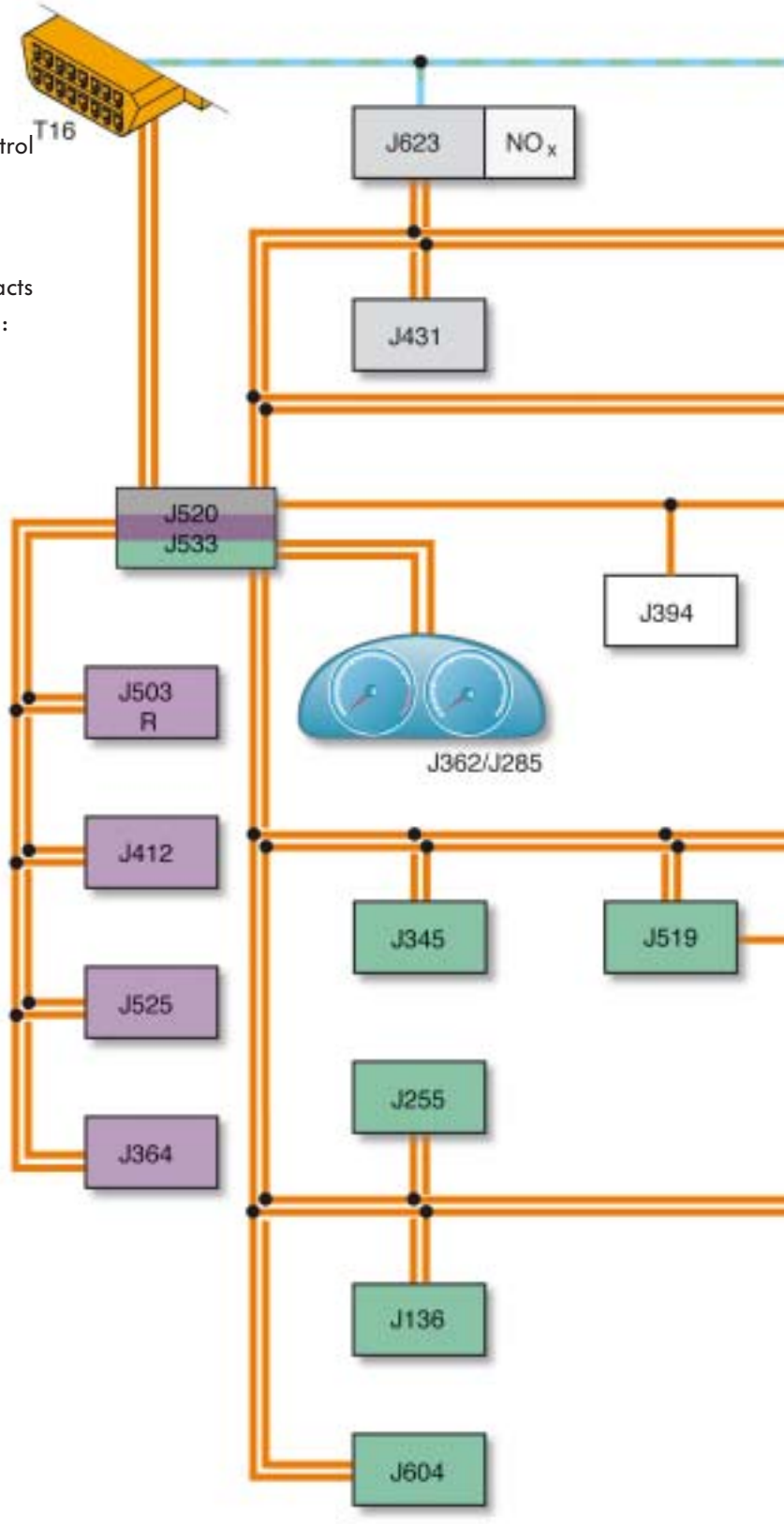
The networking concept

Overview of networked electronic control units

To ensure flawless data exchange between the control units, these are networked via various data bus systems.

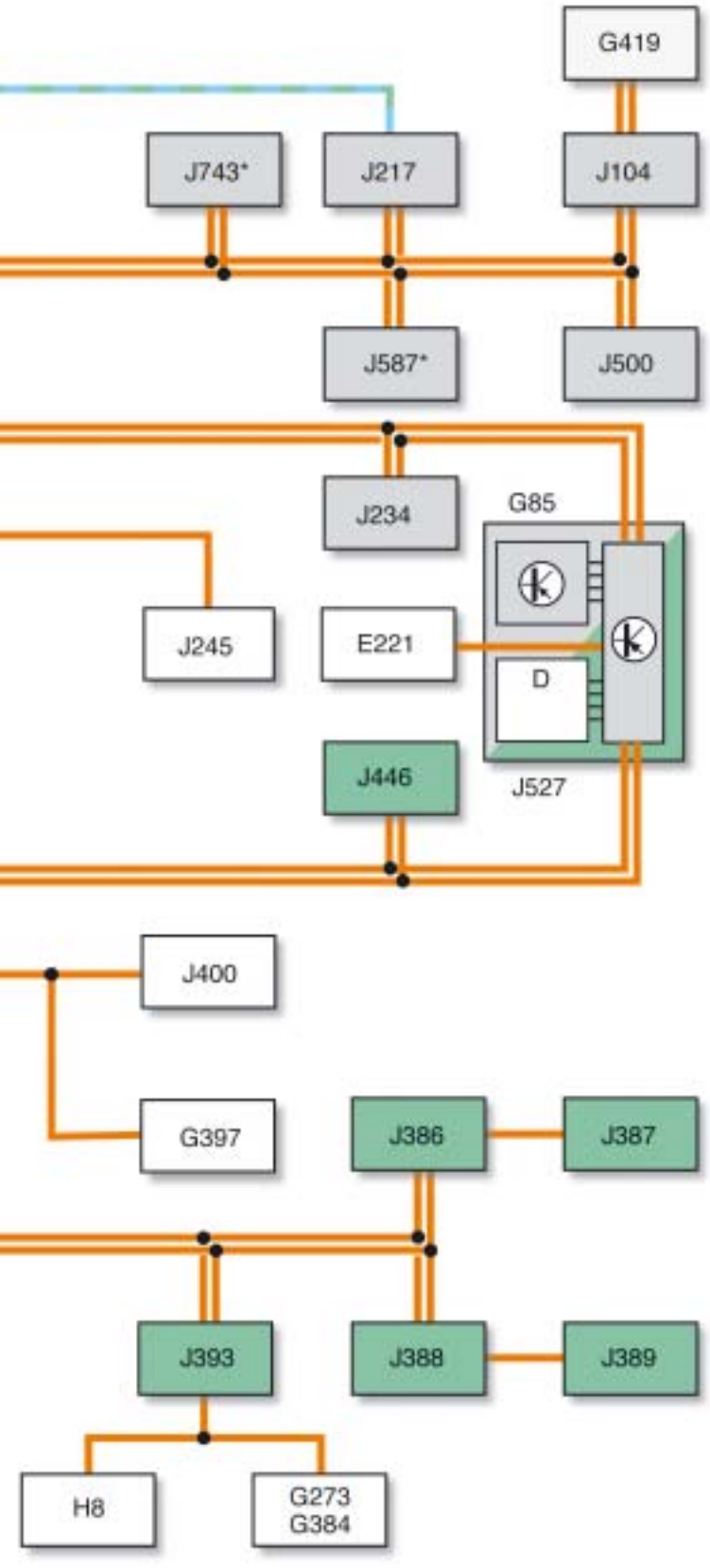
The data bus diagnostic interface J533 (gateway) acts as the interface for the following data bus systems:

- CAN drive data bus
- CAN convenience data bus
- CAN infotainment data bus
- CAN instrument cluster data bus
- CAN diagnostic data bus



Control units connected to

- CAN drive data bus
- CAN convenience data bus
- CAN infotainment data bus
- CAN sensor data bus
- LIN data bus
- CAN instrument cluster data bus
- CAN diagnostic data bus
- CAN data bus line (high-speed and low-speed)
- LIN data bus line
- K-wire



S400_067

* With double-clutch gearbox only

Legend

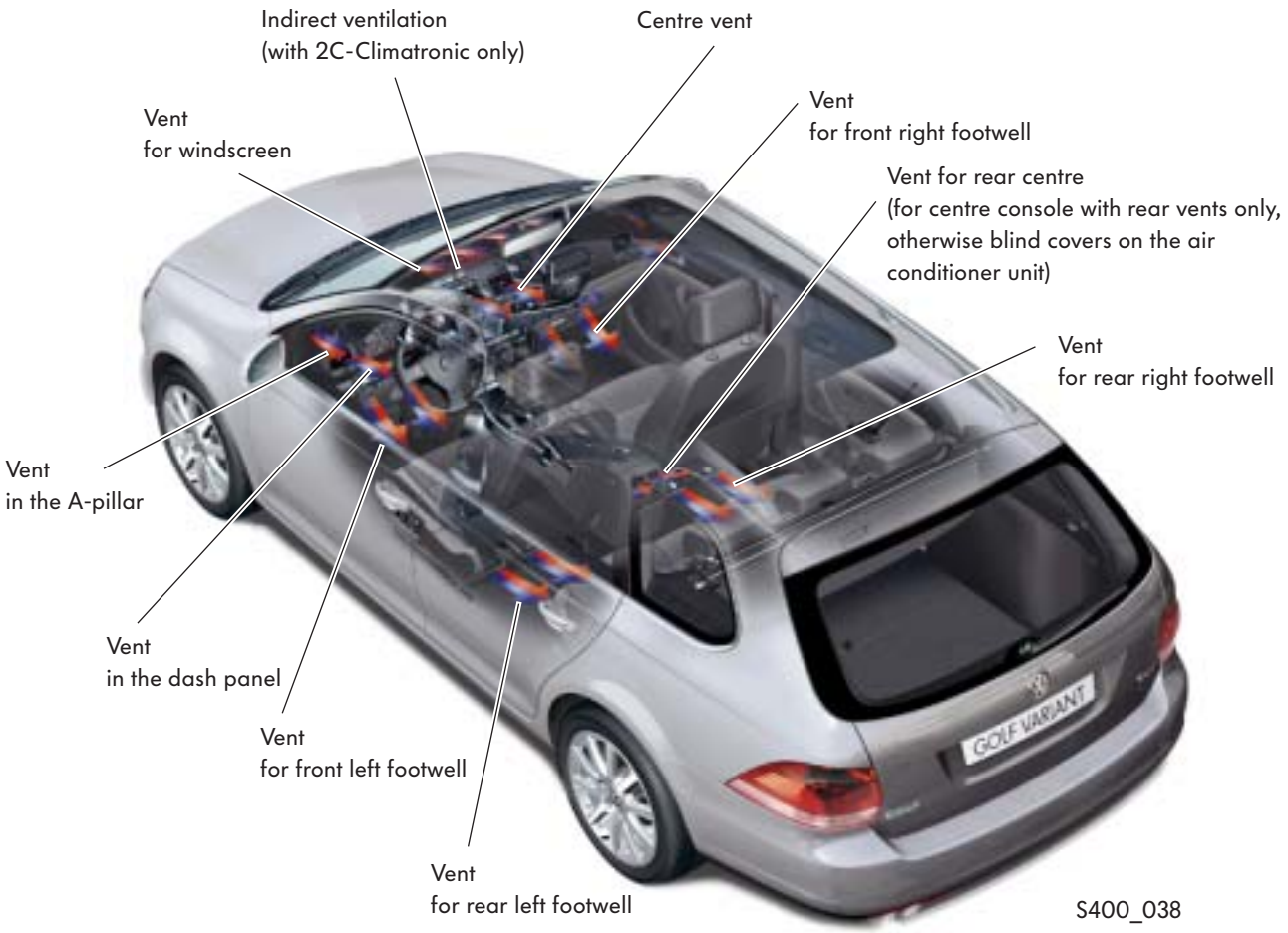
D	Ignition/starter switch
E221	Operating unit in steering wheel (multifunction steering wheel)
G85	Steering angle sender
G273	Interior monitoring sensor
G384	Vehicle inclination sender
G397	Rain and light sensor
G419	ESP sensor unit
H8	Anti-theft alarm system horn
J104	ABS control unit
J136	Seat and steering column adjustment control unit with memory function
J217	Automatic gearbox control unit
J234	Airbag control unit
J245	Sliding sunroof adjustment control unit
J255	Climatronic control unit
J285	Control unit in dash panel insert
J345	Trailer detector control unit
J362	Immobilizer control unit
J364	Auxiliary heater control unit
J386	Driver door control unit
J387	Front passenger door control unit
J388	Rear left door control unit
J389	Rear right door control unit
J393	Convenience system central control unit
J394	Sunroof roller blind control unit
J400	Wiper motor control unit
J412	Mobile telephone operating electronics control unit
J431	Headlight range control, control unit
J446	Parking aid control unit
J500	Power steering control unit
J503	Control unit with display for radio and navigation
J519	Onboard supply control unit
J520	Onboard supply control unit 2
J525	Digital sound package control unit
J527	Steering column electronics control unit
J533	Data bus diagnostic interface
J587*	Selector lever sensor control unit
J604	Auxiliary air heater control unit
J623	Engine control unit
J743*	Mechatronic unit for direct shift gearbox
NOx	NOx sensor
R	Radio
T16	Diagnostic connection

Heating and air conditioning

Air conditioning

Three different systems are available in the Golf Variant 2007:

- The heater and fresh air system with 4-stage blower and recirculated air circuit
- The semi-automatic heater and air conditioner "Climatic"
- The heater and air conditioner "2C-Climatronic"



S400_038

If the vehicle is fitted with a centre console with rear vents, the storage compartment in the centre console can also be cooled.

S400_071

Further information on heating and air conditioning can be found in self-study programme No. 318 "The Golf 2004".

Operation

Depending on the vehicle's equipment, four different types of control panels are available for the heating and air conditioning:

- With or without instant heat button for the auxiliary coolant heater
- With or without potentiometer for the seat heating

2C-Climatronic control panel

S400_076

Interior temperature sensor

Button assignment if equipped with auxiliary coolant heater

In comparison with the previous equipment, the lettering on the right-hand button has been changed from "ECON" to "AC".

The centre button on the lower panel is labelled "DUAL". This function serves to match the temperature on the front passenger side to the temperature on the driver side. If the vehicle is fitted with an auxiliary coolant heater, this button panel serves as an instant heat button for the auxiliary coolant heater, and is labelled with the appropriate symbol.
Matching the temperature on the driver and front passenger side is then carried out via "AUTO".

Thermo Top V auxiliary coolant heater

The Golf Variant 2007 can be fitted with the optional Thermo Top V auxiliary coolant heater.
This undertakes the following tasks:

- Acts as an auxiliary heater for heating the vehicle interior and defrosting the vehicle's windows,
- Acts as stationary ventilation to lower the interior temperature when the vehicle is parked in the sun,
- Acts as an additional heater in vehicles with petrol or diesel engines (instead of the PTC heater element in diesel engines).

Radio, telephone and navigation

The radio systems in the Golf Variant 2007

RCD 300 radio

The entry-level RCD 300 radio system offers the following functions:

- Four loudspeaker channels (20 Watts each), two or four channels can be optionally connected
- RDS FM/AM European radio (AM without LW)
- Indication of the stored stations with RDS names in the display
- FM 2-tuner diversity
- Control via the multi-function steering wheel (MFL) and multi-function indicator (MFI)
- Integrated single-CD player
- Control system for an external 6-disk CD changer
- Telephone control system (hands-free)
- GALA
- Self-diagnosis incl. loudspeaker diagnosis
- Driving school function, must be explicitly ordered (indication of turn signal function and speed via the display - coding function)
- Playback of music CDs in MP3 format

S400_057

RCD 500 radio

The higher-quality RCD 500 radio system offers the following functions:

- Four loudspeaker channels (20 Watts each)
- RDS FM/AM European radio (AM without LW)
- Indication of the stored stations with RDS names in the display
- FM 2-tuner phase diversity
- Control via MFW and MFD
- Integrated 6-disk CD changer
- Control system for an external 6-disk CD changer
- Telephone control system (hands-free)
- GALA
- Traffic Information Memory (TIM)
- Vehicle model-specific sound adaptation
- Self-diagnosis incl. loudspeaker diagnosis
- Optional connection of an external sound amplifier
- Optional playback of music CDs in MP3 format

S400_058

The cover frame has to be removed to remove or install a radio, in order to access the threaded connection located behind it.

Radio/navigation system RNS 300

The entry-level radio/navigation system RNS 300 offers the following functions:

- Two-colour display (navigation via symbols)
- Four loudspeaker channels, two or four channels can be optionally connected
- 1 tuner principle for FM including TMC
- Dynamic guidance via TMC (Traffic Message Channel)
- Integrated CD player
- Control system for CD changer
- Navigation without navigation CD inserted (corridor function)
- Playback of music CDs in CDA, WMA and MP3 format

S400_059

Radio/navigation system MFD 2

The higher-quality radio/navigation system MFD 2 with integrated navigation system offers the following functions:

- Multi-colour display (MFD)
- Dynamic guidance via TMC (Traffic Message Channel)
- Four loudspeaker channels (20 Watts each)
- RDS FM/AM European radio (AM without LW)
- Indication of the stored stations with RDS names in the display
- Control via MFW and MFD
- Audio CDs can also be played via the internal DVD player
- Control system for an external 6-disk CD changer
- Telephone control system (hands-free)
- GALA
- TIM
- Can be combined with Volkswagen Sound and Dynaudio
- Self-diagnosis incl. loudspeaker diagnosis

S400_060

For further information on radios, please refer to self-study programme 342 "Radio Systems".

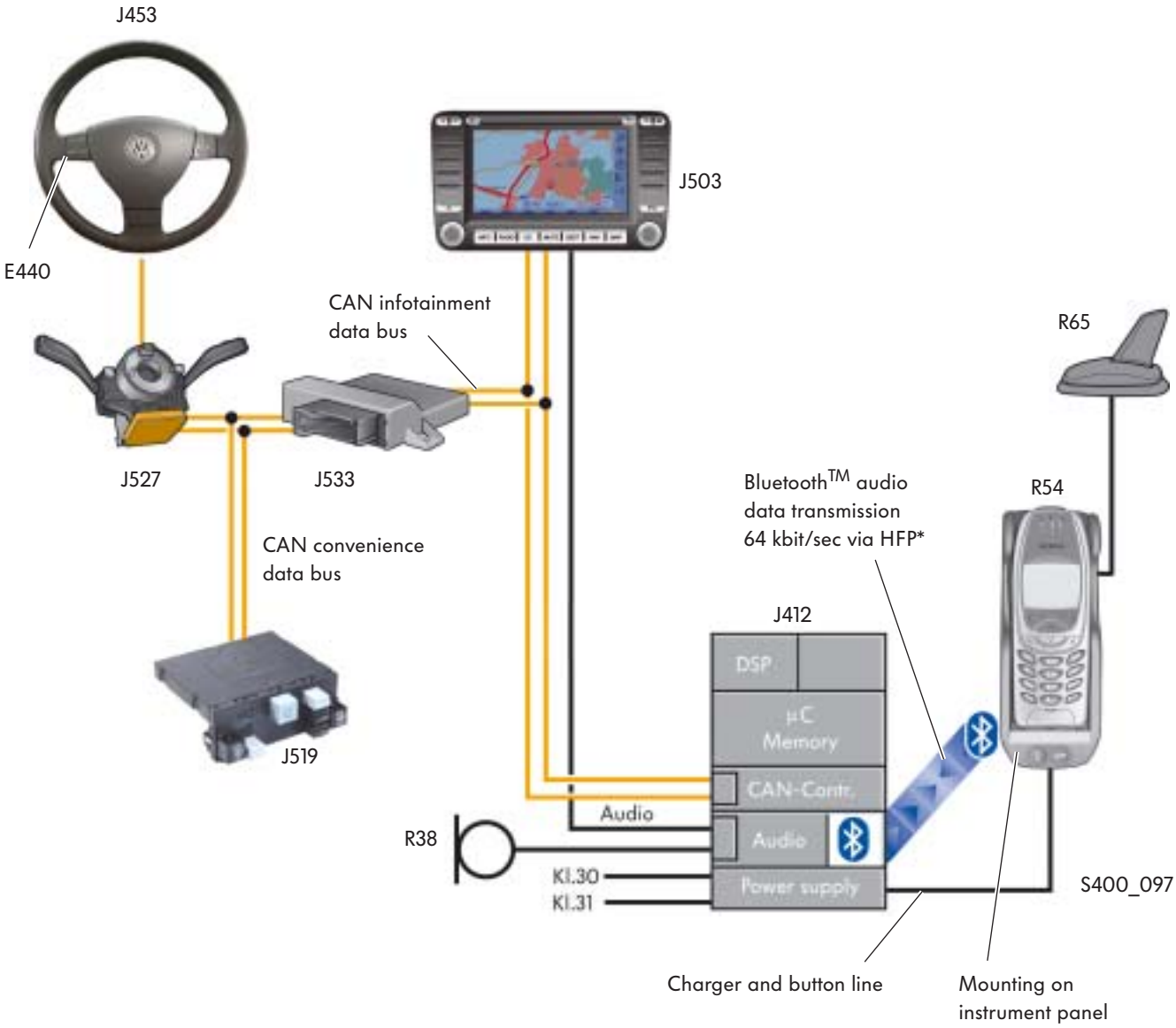
Universal Mobile Phone Preparation (UMPP) Low

In the Golf Variant 2007, Universal Mobile Phone Preparation Low is fitted exclusively with Bluetooth™ technology.
The data are transmitted via Bluetooth™ from the mobile phone to the mobile telephone operating electronics control unit.
A cradle for the specific mobile phone model is required to hold the mobile phone in the mounting and to use the hands-free system.
The mobile telephone operating electronics control unit communicates with the other control units via the CAN infotainment data bus.
UMPP Low is suitable for the mobile telephone D and E networks.

UMPP Low has the following functions:

- Operation and display are carried out on the mobile phone and partly via the multifunction steering wheel (optional).
- It has a hands-free system and radio mute switching.
- The mobile telephone's rechargeable battery is charged via the mobile phone mounting.
- The info and breakdown buttons are located on the mobile phone mounting. These signals are transferred via a discrete cable connection.
- The vehicle is equipped with a GSM vehicle antenna system, which is connected directly to the mounting.
- There is a CAN data bus interface to the CAN infotainment data bus.
- Data transfer between the mobile phone and the mobile telephone operating electronics control unit takes place via a Bluetooth™ interface.
- This UMPP is diagnosis-capable.
- The power-down time can be set (max. 60 minutes).

As the mobile telephone is always connected via the Bluetooth™ interface, a pairing process has to be carried out once.
Please check the latest VOTEX information at www.volkswagen-zubehoer.de for the availability of telephone mountings for the various mobile phones.



Legend

E440	Multifunction buttons on left in steering wheel (optional)
J412	Mobile telephone operating electronics control unit
J453	Multifunction steering wheel control unit (optional)
J503	Control unit with display for radio and navigation
J519	Onboard supply control unit
J527	Steering column electronics control unit
J533	Data bus diagnostic interface
R38	Telephone microphone
R54	Mobile telephone
R65	Telephone aerial

* Hands-free profile

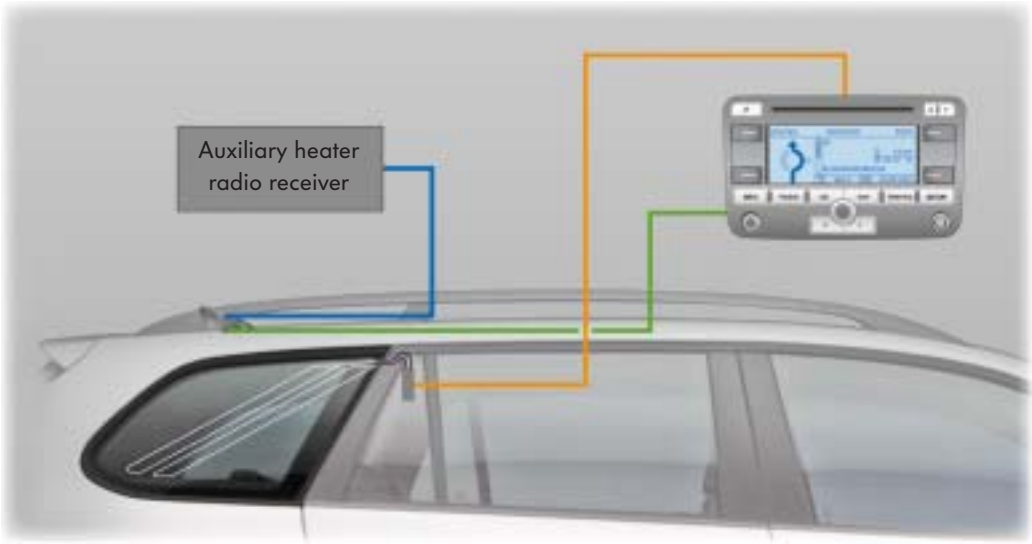
The aerial concept

Radio systems RCD 300 and RCD 500

S400_061

The RCD 300 and RCD 500 radio systems require two aerials for the internal dual-tuner diversity receiver to receive radio signals. The AM/FM aerial is designed as a roof mounted aerial.
The FM aerial is located in the rear right side window.

Radio/navigation system RNS 300



S400_062

The RNS 300 radio/navigation system only requires one aerial for the internal 1 tuner radio receiver to receive radio signals. The AM/FM aerial is located in the rear right side window.
The signals for telephone, auxiliary heater and navigation are received via a separate roof aerial.

Radio/navigation system RNS MFD

S400_098

The RNS MFD radio/navigation system requires two aerials for the internal dual-tuner diversity receiver to receive radio signals. The AM/FM aerial is located in the rear right side window,
the FM aerial in the rear left side window.

The signals for telephone, auxiliary heater and navigation are received via a separate roof aerial.

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GOLF

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