

**Service Training**



**Self-study programme 328**

# **The 2004 Caddy**





# Contents



<b>In brief</b> .....	<b>4</b>
<b>Body</b> .....	<b>14</b>
<b>Occupant protection</b> .....	<b>28</b>
<b>Engines</b> .....	<b>30</b>
<b>Transmission</b> .....	<b>34</b>
<b>Chassis</b> .....	<b>36</b>
<b>Electrical system</b> .....	<b>48</b>
<b>Heating and air-conditioning</b> .....	<b>62</b>
<b>Radio, telephone and navigation</b> .....	<b>66</b>
<b>Service</b> .....	<b>70</b>





## The 2004 Caddy

### Where is the 2004 Caddy built?

In 1993, a joint venture was set-up between the Polish car manufacturer **FSR**

(in Polish = **Fabryka Samochodów Rolniczych,**

English = **Factory for Agricultural Automobiles)**

and Volkswagen Group.

Volkswagen Poznan GmbH has been a 100-percent subsidiary of Volkswagen Commercial Vehicles since 1997.

### The plant in Poznan



S328\_002

The original business concept behind Volkswagen Poznan GmbH was to assemble light commercial vehicles from kits. Kits from the different Volkswagen Group brands were delivered to Poznan for complete assembly. Operations were expanded constantly over the next years. Around 3,400 members of staff currently work at the plant.

Major investments include the set-up of a new paint shop, a new body plant and new assembly lines for the 2004 Transporter and the 2004 Caddy.

The result is a complete automobile plant with its own logistics services, quality assurance department and all associated areas. Among others, the latest laser welding and soldering techniques are being used for the new models.

### Paint shop



S328\_004

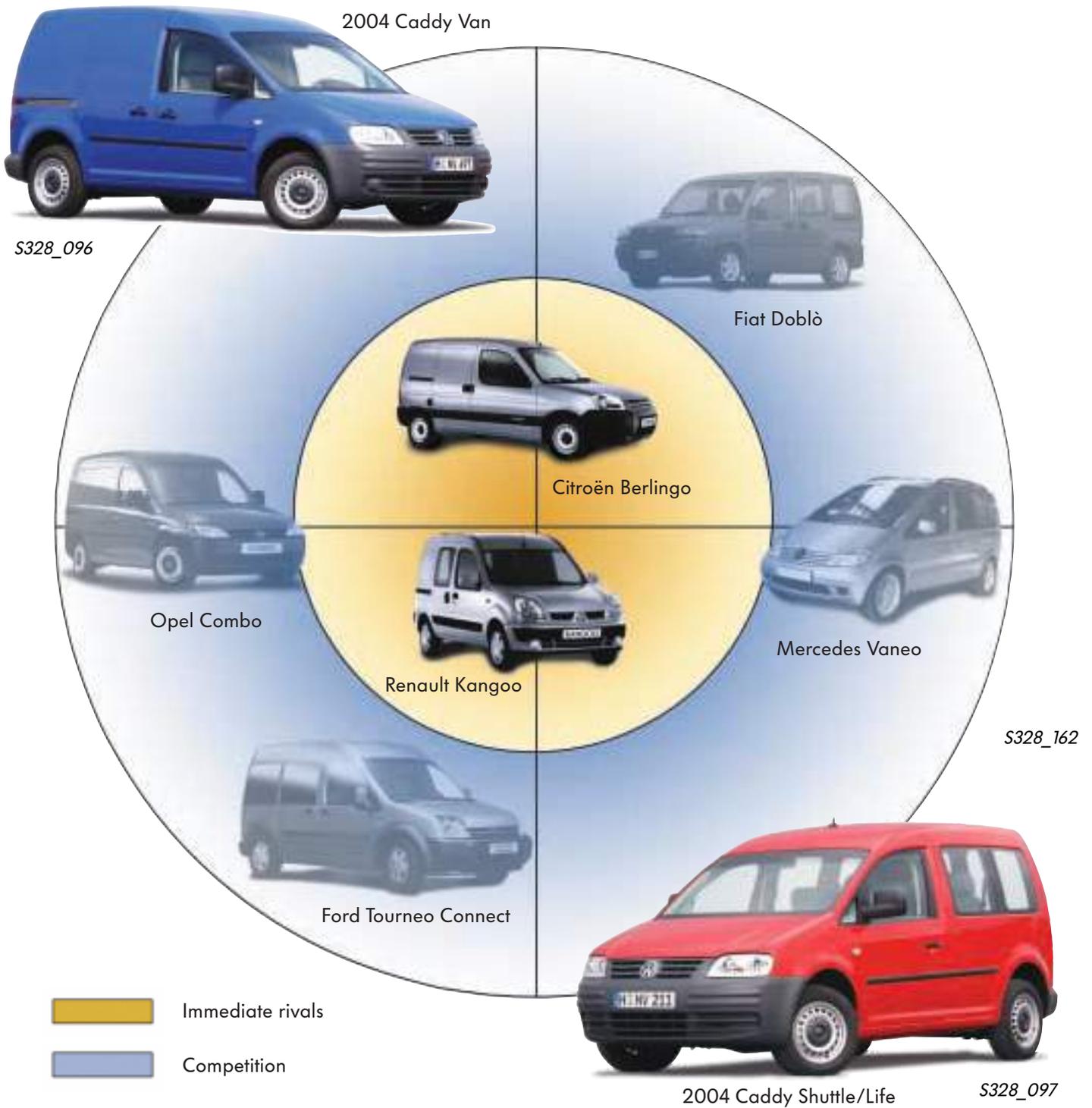
With the launch of the 2004 Transporter, the plant now has its very own product for the first time. All 2004 Transporters with open superstructures are produced in Poznan. The 2004 Transporter Kombi also rolls off the assembly line in Poznan.

Now Poznan has another product of its own - the 2004 Caddy.



## The Competitors

The diagram shows the field of competitors facing the 2004 Caddy. Only one version of each vehicle is shown to represent the respective range.





## Technical highlights in the 2004 Caddy

The 2004 Caddy is setting new standards with the Caddy Van, Caddy Shuttle and Caddy Life versions. It features a modern design with smooth outer surfaces all-round. Here is an overview of the highlights:

### Caddy Van

- Payload up to 750 kg
- Towing up to 1,500 kg
- Loading capacity up to 3.2 m<sup>3</sup>
- Sliding door on right and left (optional), Sliding door opens wide to 700 mm
- Clear glass headlamps with H1/H7 bulbs
- Electromechanical power steering
- Navigation/preparation for telephone (optional)
- Rear axle with leaf springs
- ABS - MK70 system (Conti Teves)
- Generous storage compartments in the doors and cab roof ceiling of driver's cab
- Crash-optimised pedals and crash-optimised steering column
- Airbag system with front side airbags
- Glazed load compartment, same as Shuttle (optional)



S328\_096



## Caddy Shuttle/Caddy Life

The Shuttle version of the 2004 Caddy, offering further highlights compared with the Caddy Van, comes in 2 versions:

- Caddy Shuttle is the “Basic” version and
- Caddy Life is the “Comfort” version

- Up to 7 seats in the Caddy Shuttle/Caddy Life
- Rear vent wings (optional) on Caddy Shuttle/Caddy Life



S328\_097

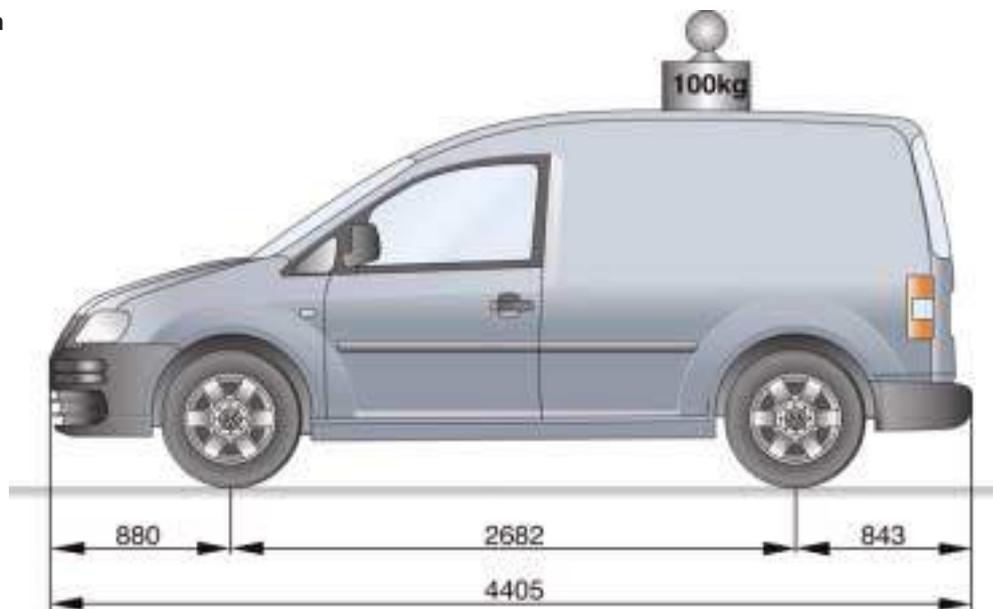
- ESP (optional) MK60 system (Conti Teves)
- Removable and locking tow bar on Caddy Shuttle/Caddy Life
- Tipping 1st seat row in passenger compartment on Caddy Shuttle/Caddy Life
- 2nd seat row in passenger compartment (optional) in form of folding and removable double bench
- Generous storage facilities in Caddy Life passenger compartment
- Sliding windows in sliding doors

# In Brief

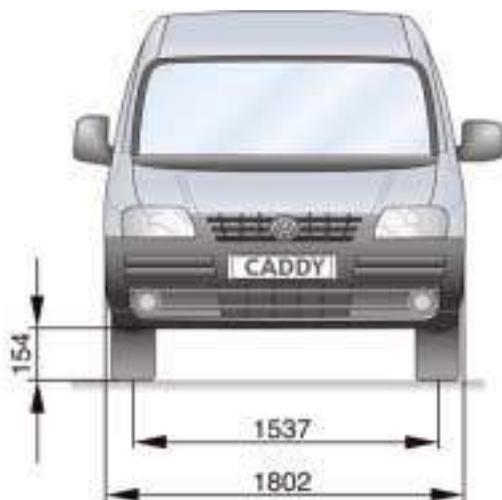


## Technical data

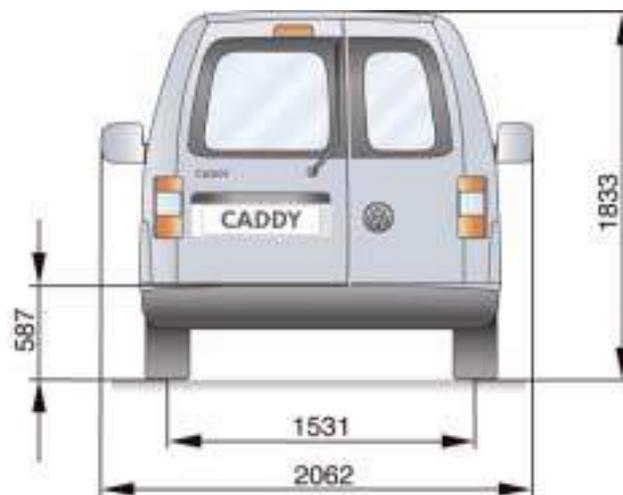
### Caddy Van



S328\_005



S328\_006



S328\_094

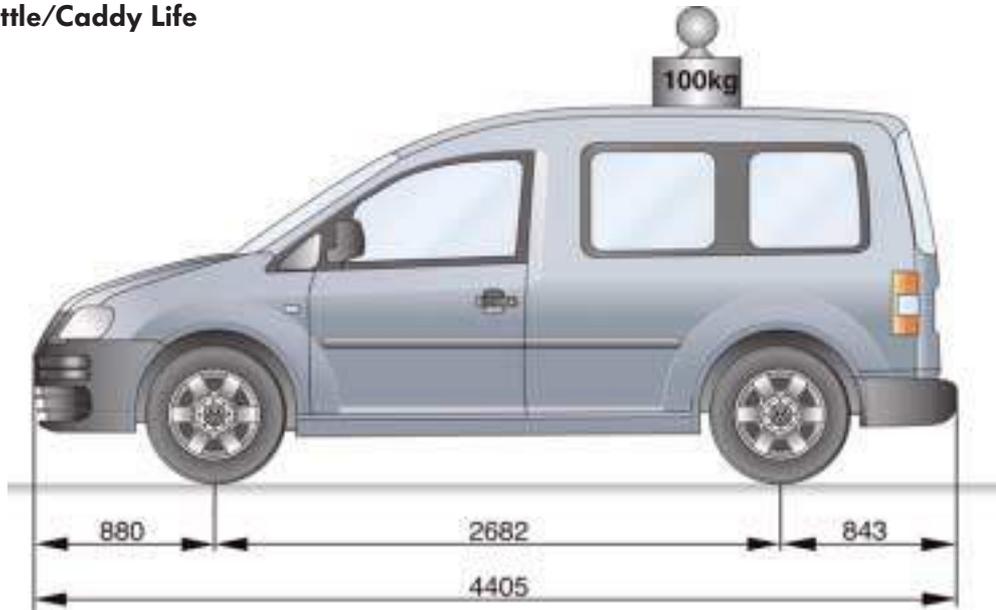
## Dimensions

Length	4,405 mm
Length with tow bar	4,505 mm
Width	1,802 mm
Width with mirrors	2,062 mm
Height	1,833 mm
Overhang length at front	880 mm
Overhang length at rear	843 mm

Height of load sill	587 mm
Ground clearance	154 mm
Wheelbase	2,682 mm
Track width at front	1,537 mm
Track width at rear	1,531 mm
Tank capacity	60 l



## Caddy Shuttle/Caddy Life



S328\_095



The Caddy Van, Caddy Shuttle and Caddy Life look the same from the front. The outside dimensions of the different Caddy versions are the same. They only differ in equipment and weight.



S328\_007

## Weight

	Caddy Van	Caddy Shuttle/Caddy Life	
		5-seater	7-seater
Curb weight including driver*	1,400 – 1,481 kg	1,476–1,560 kg (Shuttle) 1,521 – 1,605 kg (Life)	1,513-1,597 kg (Shuttle) 1,558 –1,642 kg (Life)
Maximum weight*	2,150 – 2,235 kg	2,000 – 2,124 kg	2,165 – 2,250 kg
Braked towing capacity*	1,200 – 1,500 kg	1,200 – 1,500 kg	1,035 – 1,350 kg
Load without driver*	up to 750 kg	503 - 653 kg (Shuttle) 479 - 608 kg (Life)	
Roof load	100 kg		

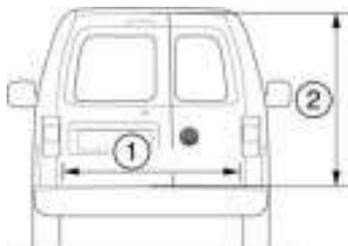
\* Depending on engine and equipment

# In Brief

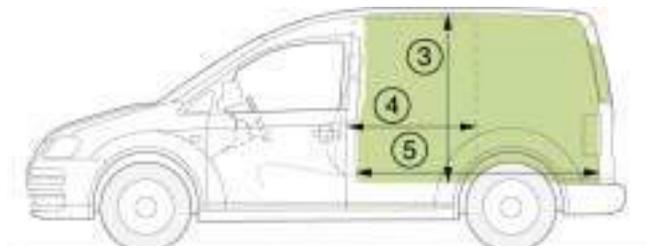


## Interior dimensions

### Caddy Van



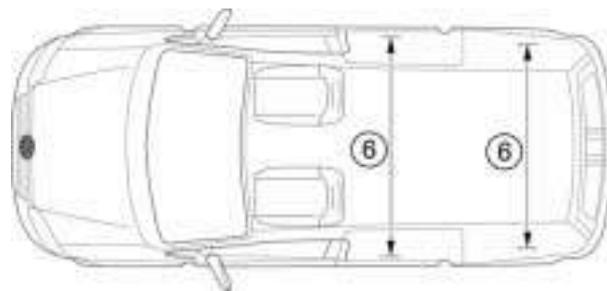
S328\_008b



S328\_008a

## Load compartment dimensions

①	Opening width - rear door/tailgate	1,181 mm
②	Opening height - rear door/tailgate	1,116 mm
③	Loading height	up to 1,257 mm
④	Opening width - sliding door	700 mm
⑤	Loading length	up to 1,781 mm
⑥	Loading width	1,172 to 1,558 mm



S328\_009



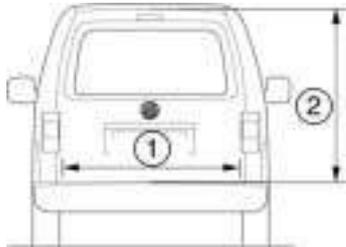
The pictures show the Caddy Van with wing doors. A tailgate is also available as an option.

## Load compartment – Volume

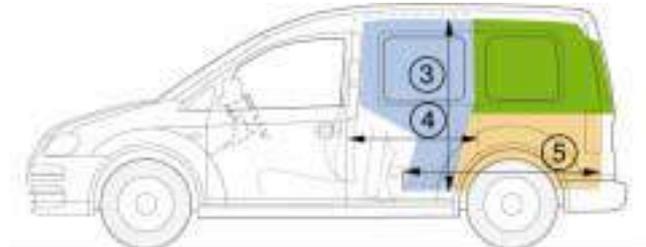
Colour - Volumes	Name	Volumes
	Load compartment volumes	up to 3,200 l



## Caddy Shuttle/Caddy Life



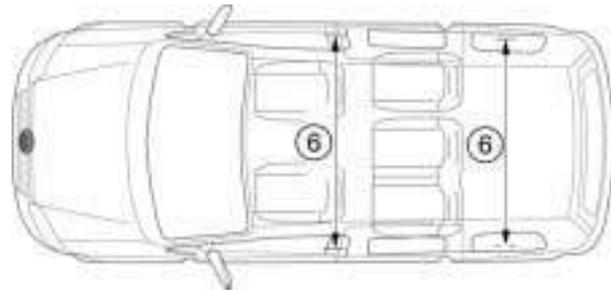
S328\_010b



S328\_010a

### Luggage compartment -dimensions

①	Opening width - rear door/tailgate	1,181 mm
②	Opening height - rear door/tailgate	1,116 mm
③	Loading height	up to 1,238 mm
④	Opening width - sliding door	700 mm
⑤	Luggage compartment length	up to 1,354 mm
⑥	Luggage compartment width (Shuttle) Luggage compartment width (Life)	1,170 to 1,340 mm 1,120 to 1,340 mm



S328\_011



The pictures show the Caddy Shuttle with tailgate. It can also be equipped with optional wing doors.

### Luggage compartment – volume

Colour - partial volume	Name	Volume Sum of partial volume	
		Caddy Shuttle	Caddy Life
	Volume, closed luggage compartment, behind 1st seat row in passenger compartment	up to 626 l	up to 560 l
	Volume, open luggage compartment, behind 1st seat row in passenger compartment	up to 1,266 l	up to 1,200 l
	Volume, open luggage compartment, behind front seats with tipped 1st seat row	up to 2,305 l	up to 2,239 l

# In Brief

## Overview of doors



		Caddy Van		
		... with tailgate	... with rear wing doors	... with rear wing doors and "ladder flap"
Right-hand sliding door				
Left-hand sliding door				
Sliding doors on both sides				
Without sliding door				



Caddy Shuttle/Caddy Life		
... with tailgate	... with rear wing doors	... with rear wing doors and "ladder flap"

S328\_013

The 2004 Caddy comes in a wide range of versions. The variable equipment with sliding doors, rear wing doors, tailgates or a ladder flap.



The picture shows the complete Caddy range. The assignment of left-hand and right-hand drive vehicles can be found in the current sales literature. The ladder flap will be available later on.

# Body

## Body in white

A sturdy body in white has a decisive influence on the stability and thus also on the driving safety of a vehicle. This particularly important for vehicles that are mainly used as fast commercial vehicles.

The driving comfort also benefits from a good body design. That is a plus for the Caddy Shuttle and the Caddy Life when used as a family and leisure vehicle.

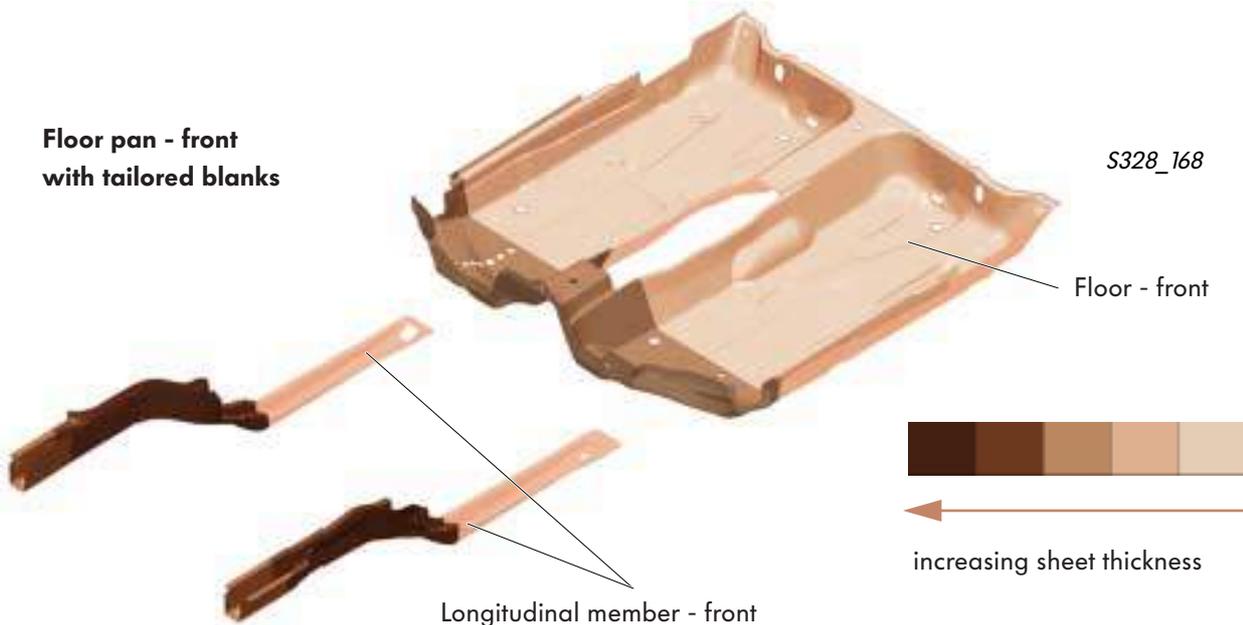
The 2004 Caddy has a torsionally stiff and low weight two-shell body structure (inside/outside body shell). The following structural features can be distinguished in terms of function:

- Floor pan with frame structure, with tailored blanks at front (different sheet thicknesses, welded before shaping)
- inner body shell, with reinforcement elements,
- outer body shell, single-piece side section
- Roof reinforcements
- Use of different sheet qualities depending on the loading of the respective body areas
- Reinforcement and impact elements for improved occupant protection in the front doors



Longitudinal member - front

Floor pan - front with tailored blanks





Roof reinforcements



The pictures show the body in white of the Caddy Van.



Cross member

Reinforcing element

Floor panel - rear

Floor panel - front

S328\_014

Side section (one-piece)

**Sheet qualities**



Normal-strength sheet



Higher strength sheets



High-strength sheets

**Mounted parts**



Doors

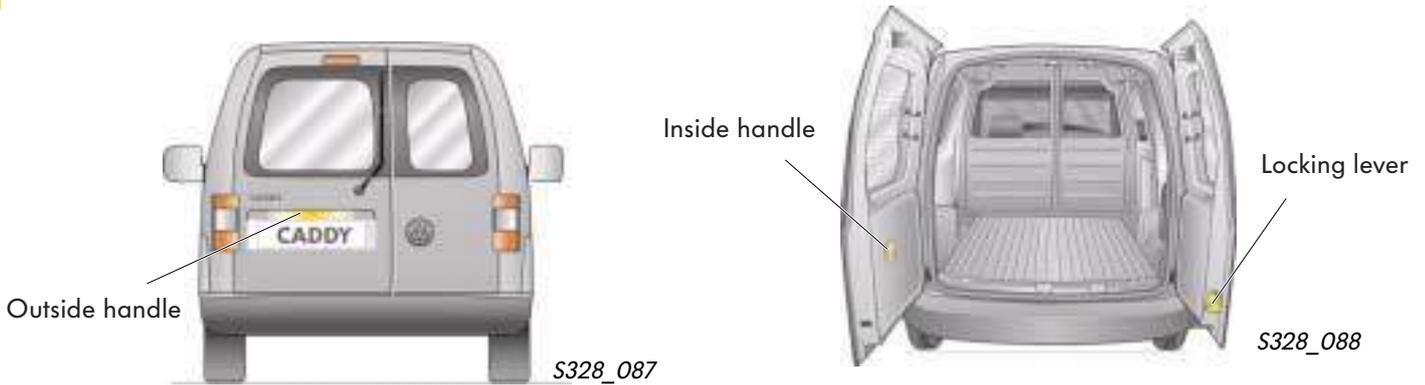


Side impact elements

# Body

## Wing doors

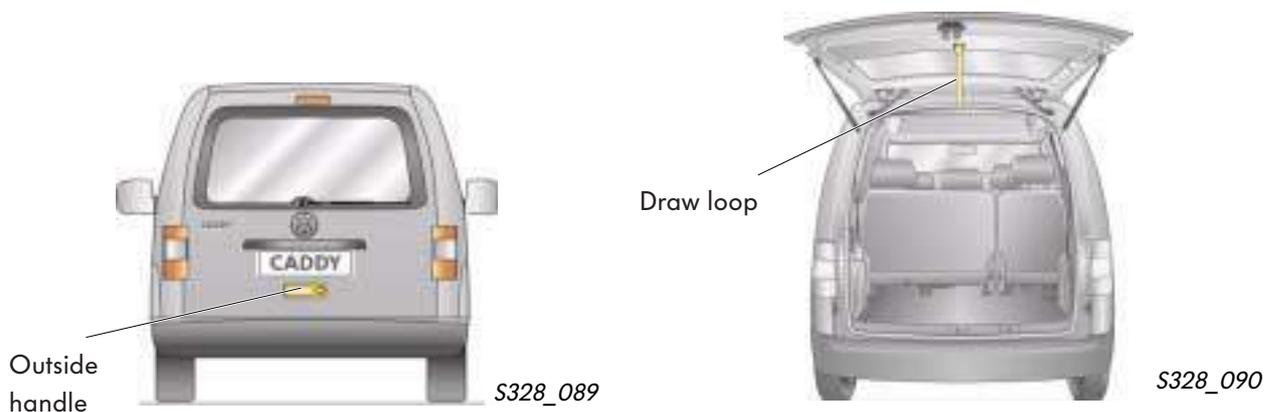
The Van version of the 2004 Caddy comes with glazed wing doors split in the ratio 2/3 to 1/3. The windows in the wing doors can be covered with an optional dark opaque film. The Caddy Shuttle/ Caddy Life can be optionally fitted with the wing doors.



The left-hand wing door needs to be opened first. The outside handle on the left-hand door is integrated in the number plate light fitting. The locking level built into the bottom of the right-hand door can then be used to open the right-hand wing door. Wing doors lock at a 90° angle when opened. If the door latches are detached, the wing doors will open to approx. 170° due to a stop in the hinge.

## Tailgate

The Caddy Shuttle and Caddy Life come with a tailgate with rear window as standard. The Caddy Van can also be fitted with a tailgate. The tailgate can be opened with an outside handle. A draw loop is provided to help pull it down.



## Sliding door

The 2004 Caddy is equipped with a sliding door reaching up to the roof on the passenger side. The drivers side can also be fitted with an optional sliding door. The sliding door opens to a maximum width of 70 cm.

Only the Caddy Van with a glazed load compartment can be equipped with a sliding door.

The Caddy Shuttle and Caddy Life have sliding doors with windows.



S328\_092



## Protection of the tank filler flap

The tank filler flap is located on the driver's side just in front of the D-pillar. To ensure that it is not damaged when the door is slid backwards, the 2004 Caddy has a locking unit when equipped with a sliding door on the left-hand side.



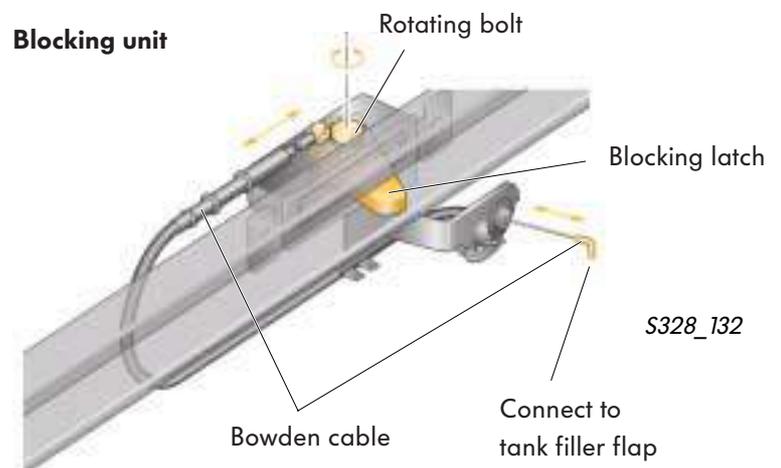
S328\_103

Blocking latch

Bowden cable  
on tank filler flap

## Function

When the tank filler flap is open, a Bowden cable attached to the tank filler flap activates a rotating bolt in the locking unit. The blocking latch connected to the rotating bolt is then moved outwards so that the sliding door hits it and cannot be pushed back any further.



S328\_132

# Body

## Window

### Sliding window



The version of the Caddy Van with glazed load compartment can be optionally fitted with a sliding window in the sliding door.

The Caddy Shuttle can also be equipped with an optional sliding window in the sliding door.

The Caddy Life comes with the sliding window as standard.

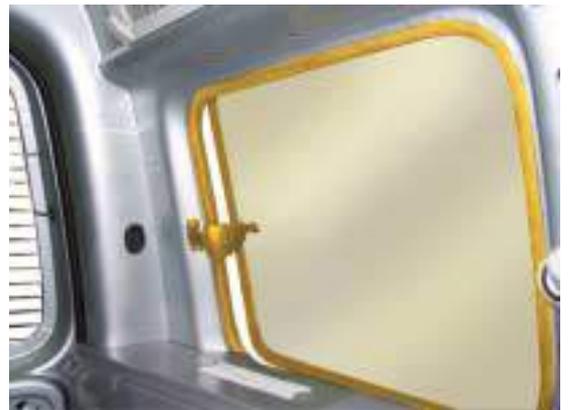


S328\_129

### Vent windows

Optional manual vent windows are also available for the Caddy Shuttle and Caddy Life.

Both sides will be equipped with vent windows when this option is chosen.



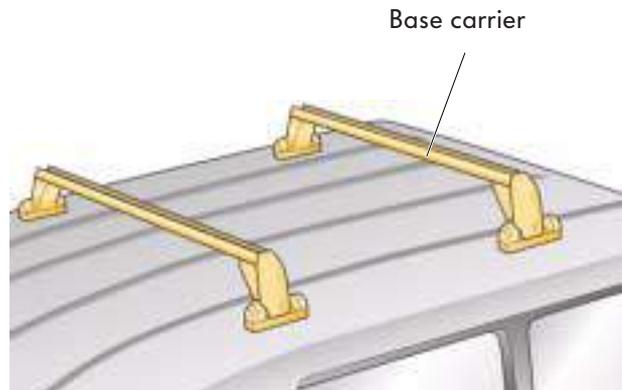
S328\_130

## Roof rack

A system with a bolt-on base carrier is used for the roof rack on the 2004 Caddy.

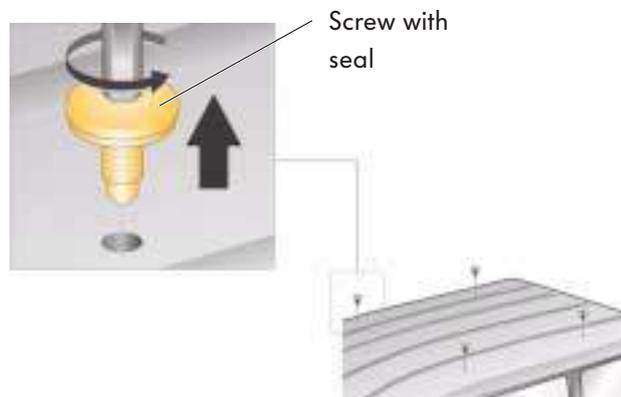
There are special accessories allowing you to attach a roof box, bicycles, skis, surfboards or boats on the base carrier.

The bolt-on base carrier guarantees a high level of stability.



S328\_017

4 screws with rubber seals are fitted on the vehicle roof. These screws need to be removed together with the seal to fit the base carrier.



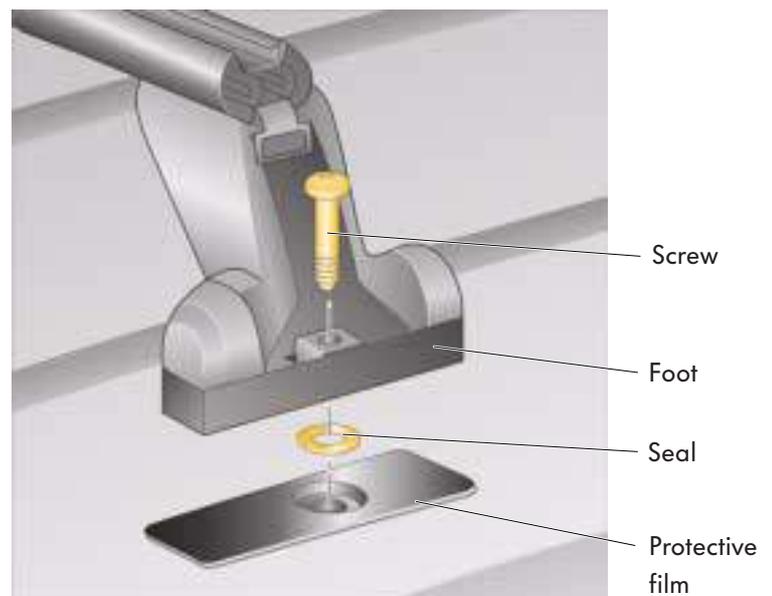
S328\_104



The sealing screws should be kept and fitted again when the base carrier is removed to seal the roof.

The base carrier is secured with the supplied screws and seals.

The seals prevent water leaking into the body.



S328\_105



Refer to the operating manual for information on fitting the base carrier.



# Body

## Interior concept

### Caddy Van

The equipment provided in the Caddy Van is mainly directed at commercial vehicle applications.

Storage compartments in the side doors and an overhead compartment have been provided for the driver and front passenger

- in addition to the storage bins in the
- dash panel and centre console.

The generous overhead storage is particularly useful. It can even hold A4 binders thanks to the width of 1000 mm, depth of 400 mm and height of up to 250 mm.

The cargo is safely secured by the lashing rings and the bulkhead between the cab and the load compartment. The bottom half of the bulkhead is made from a plastic surface and the top from a plastic grille.

The floor of the load compartment can also be covered with an optional rubber mat.

The side panels underneath the windows in the load compartment are protected with non-coated hardboard. There are no additional storage compartments here.

Overhead storage



Storage in driver's door

Bulkhead



Jack and tool set,  
mounted without cover



S328\_151



Lashing rings on floor

# Body

## Caddy Shuttle/Caddy Life

The Shuttle version of the 2004 Caddy comes in the equipment derivatives

- Caddy Shuttle as the “Basic” version and
- Caddy Life as the “Comfort” version.

In the Caddy Shuttle, the floor of the passenger compartment is fitted with carpet (Dilours) as standard. Four lashing rings on the floor allow safe anchoring of loads.

The side panels of the passenger compartment are made from varnished hardboard. They do not have storage compartments. The ceiling is also lined with varnished hardboard.

There are two storage compartments with removable lids in the footwell in front of the first row of seats in the passenger compartment. The jack and tool set are mounted on the side wall without a cover.

The Caddy Life has additional features compared with the Caddy Shuttle. The side panels are moulded sections with integrated storage bins.

Attachment rings are mounted above the windows for an optional net partition.

A further option is storage nets with hooks for hanging items. The Caddy Life comes with a luggage area cover as standard (not shown here).

The jack and tool set are stowed away behind a cover in the side panelling.



The picture shows a Caddy Life.



Compartment in floor

Hooks for net partition and storage net



Jack and tool set behind panel



S328\_152



Sliding door storage



Storage between C and D-pillar



# Body

## Dash panel

The 2004 Caddy has an all-new dash panel. There are two versions that mainly differ in the centre console equipment.

### Centre console type with

- open storage
- cup holders
- ashtray in passenger compartment

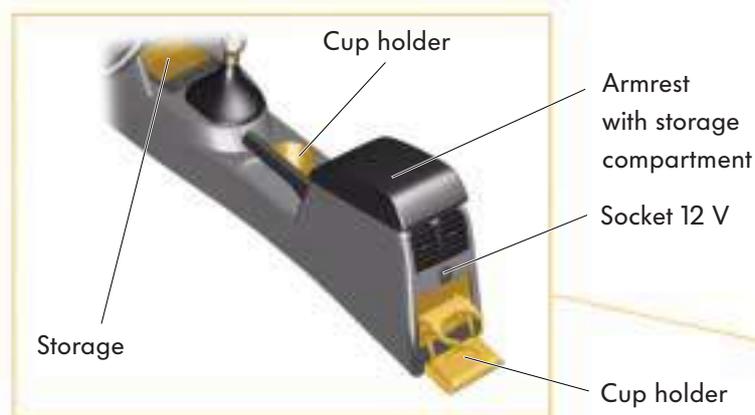
Fitted as standard in the Caddy Van and Caddy Shuttle.

### Centre console type with

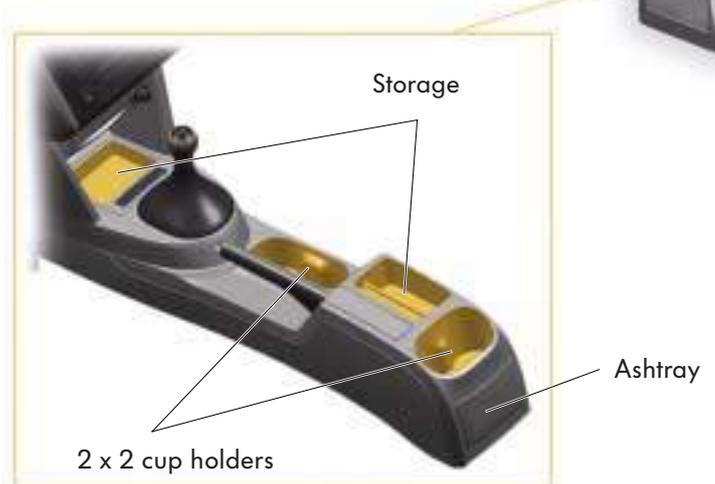
- Compartment for a CD changer under the armrest lid
- Air-conditioning vents
- fold-out cup holder
- 12 V socket

This centre console is longer and comes as standard in the Caddy Life and is an option in the Caddy Shuttle.

Centre console  
(Caddy Shuttle/Life)



Centre console  
(Caddy Van/Shuttle)

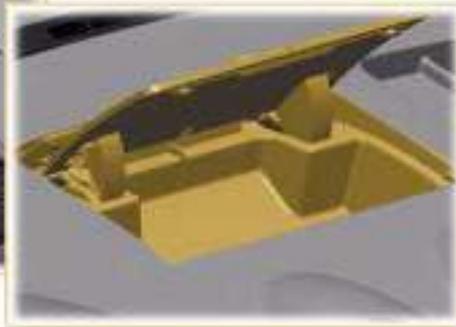


Further differences between the console types are the materials used and the resulting material feel.

Left-hand storage compartment on top of dash panel (Caddy Van and Caddy Shuttle)



Left-hand storage compartment on top of dash panel - with lid and document holder (Caddy Life)

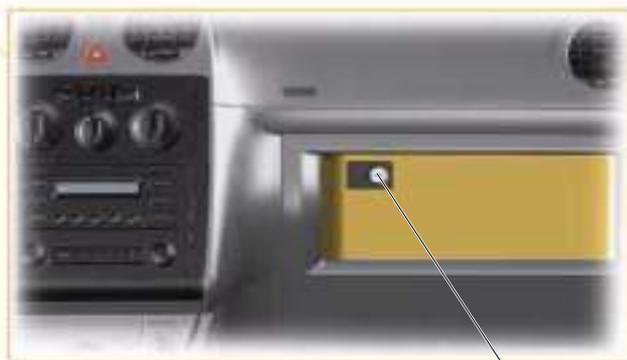


S328\_153

Right-hand storage compartment on top of dash panel -without lid



Ashtray and cigarette lighter



Storage compartment on passenger side containing key switch for front passenger airbag

Key switch for front passenger airbag

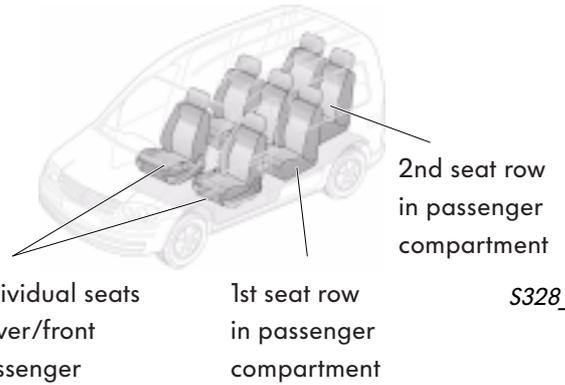
# Body

## Seats

The driver and front passenger seats in the 2004 Caddy are individual seats. The first row of seats in the Caddy Shuttle/Life is a 3-seat bench split 1/3-2/3. An optional double bench can be fitted in the second row.



### Seats (example Caddy - 7-seater)



The adjustment of the seats is described in detail in the operating manual.

The picture shows a vehicle fitted with all available seats (Shuttle/Life version with drawer). The drawer is always combined with the height adjuster in the Caddy Shuttle/Life and vice versa.

Features on driver's seat and front passenger seat	Caddy Van	Caddy Shuttle	Caddy Life
Longitudinal adjustment			
Adjustable backrest tilt			
Head restraint height adjustable	●	●	●
Side airbag (optional)			
Individually adjusted heated seats (optional)			
Storage under seat (optional)	●		
Head restraint height and tilt adjustable		●	●
Drawer under seat (optional)			●
Seat height adjustable			●
Backrest folds forward (when there is only one sliding door, always on the opposite side of the vehicle)		●	●

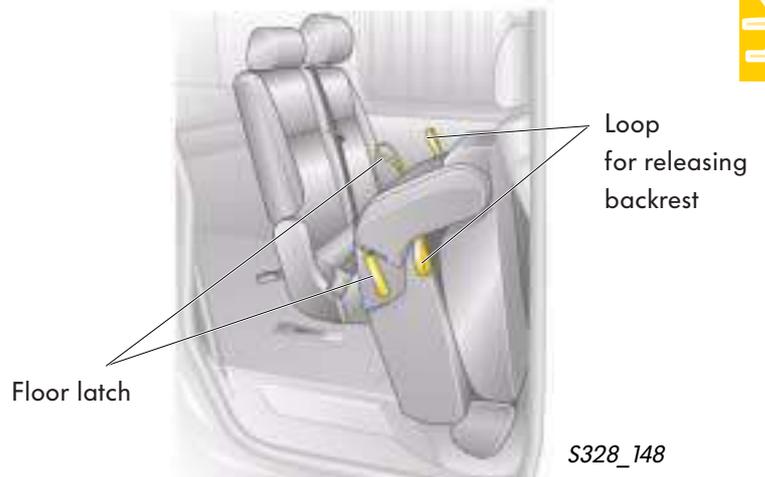
## Seats in passenger compartment

The three-seat bench in the first seat row of the passenger compartment is split into a 1/3 seat and a 2/3 seat. The bench is permanently screwed to the floor and cannot be removed.

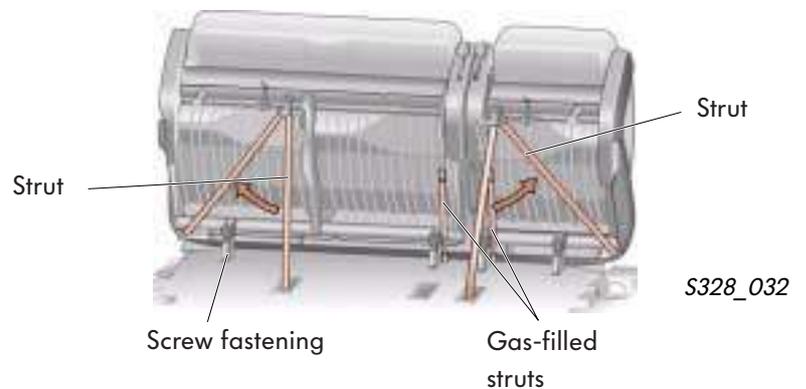
The backrests of each seat section can be folded forward separately and lock into a horizontal position. If the seat section fastenings on the vehicle floor are unlocked, you can fold the folded seats forwards again, i.e. tip them. This can be done without removing the head restraints. Gas-filled springs make tipping the seats easy.

The seat sections can be secured in position with folding struts so that they do not move on the road.

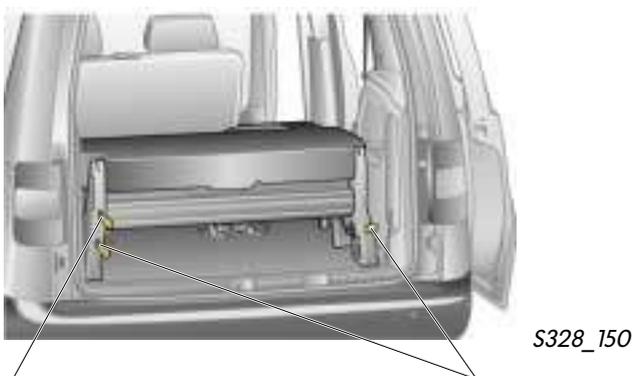
### 1st row of seats in passenger compartment - individual seat tipped



### 1st row of seats in passenger compartment - tipped completely



### 2nd row of seats in passenger compartment - folded



The double seat bench for the second row of seats is fixed to the floor with 4 bolts.

The top left loop is used to unlock the backrest, which can then be folded forward. Pulling the two bottom loops releases the fastening of the seat bench to the vehicle floor so you can take the seat out from the rear of the vehicle.



Loop for folding

Loop for unlocking on vehicle floor

# Occupant protection

## Occupant protection

The 2004 Caddy is equipped with the proven occupant protection systems, the airbag system, the belt system and a child restraint system (Isofix) depending on the vehicle version.

The complete airbag system includes:

- Driver airbag
- Front passenger airbag – single-stage\*
- Front side airbags\*

\* Optional for Caddy Van

The belt system includes:

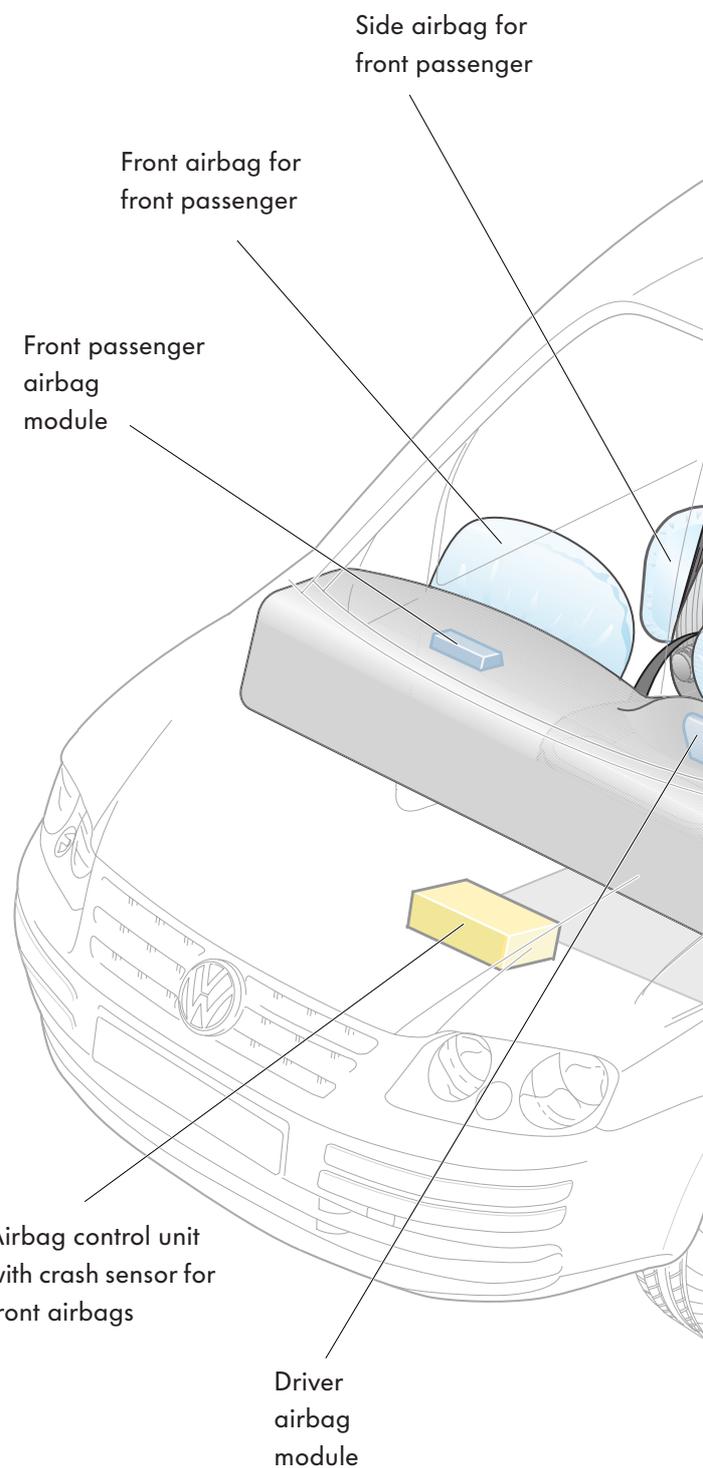
- Three-point safety belts with belt tensioners and belt pressure limits on the driver's and front passenger seat
- Three-point safety belts without belt tensioners for the rear seat rows. The centre seat on the first row of seats has a retractor built into the top of the backrest to roll up the belt.

The Isofix child restraint system is integrated on the two outside seats of the first seat row.



S328\_036

A key switch in the glove compartment allows you to disable the front passenger airbag in the 2004 Caddy.

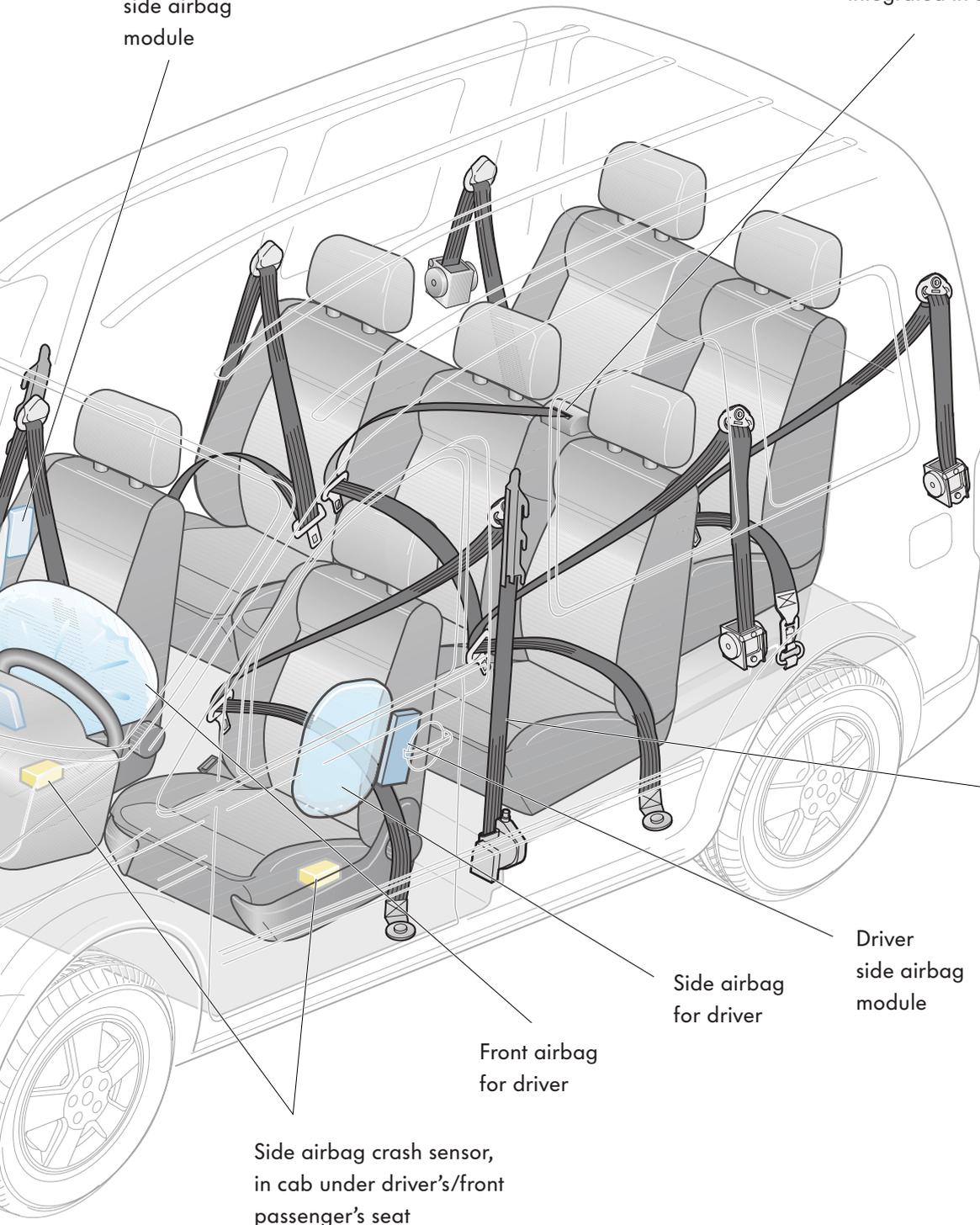




The picture shows the Caddy Life.

Front passenger  
side airbag  
module

Three-point seat belt,  
integrated in seat



S328\_037

Three-point seat belt with  
rack and pinion belt  
tensioner, fixed to body

Driver  
side airbag  
module

Side airbag  
for driver

Front airbag  
for driver

Side airbag crash sensor,  
in cab under driver's/front  
passenger's seat

# Engines

## 1.4l/55 kW petrol engine

The 1.4l/55 kW petrol engine has already proven itself in the Golf and now features in the 2004 Caddy.

### Technical features

- 4-valve technology
- 2 hollow overhead camshafts
- Reduced-weight crankshaft
- Lightweight piston
- ME 7.5.10 engine management
- Aluminium sump with oil level sensor
- Electronic power control with contact-free sensors
- Exhaust gas recirculation with electrical valve
- Single-spark ignition coils
- Non-return fuel system
- Air filter integrated in the engine cover

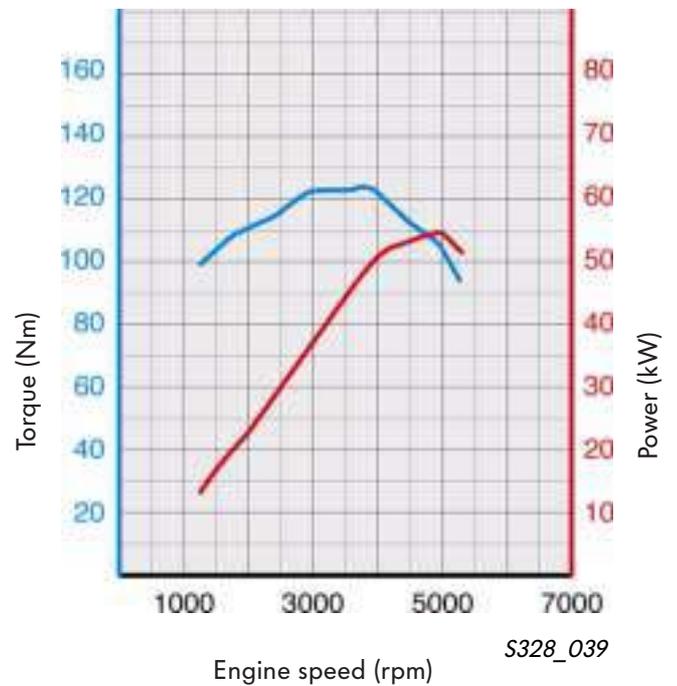


S328\_038

### Technical data

Engine code	BCA
Type	4-cylinder in-line engine
Displacement	1,390 cm <sup>3</sup>
Bore	76.5 mm
Stroke	75.6 mm
Valves per cylinder	4
Compression ratio	10.5 : 1
Maximum output	55 kW at 5,000 rpm
Maximum torque	126 Nm at 3,800 rpm
Engine management	ME 7.5.10
Fuel	Super unleaded RON 95 (normal unleaded at RON 91 with reduction in performance)
Exhaust gas treatment	Exhaust gas recirculation, starter/main catalytic converter, Lambda control
Emissions standard	EU4/EOBD

### Torque and power diagram



S328\_039

## 1.6l/75 kW petrol engine

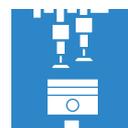
The 1.6l/75 kW petrol engine has already been used in the Golf and Touran and is now being mounted in the 2004 Caddy.

### Technical features

- An assembled camshaft
- Roller rocker arm
- SIMOS 7.1 engine management
- Aluminium sump with oil level sensor
- Electronic power control
- Exhaust gas recirculation with electrical valve
- Electronic distributorless ignition
- Non-return fuel system
- Secondary air system



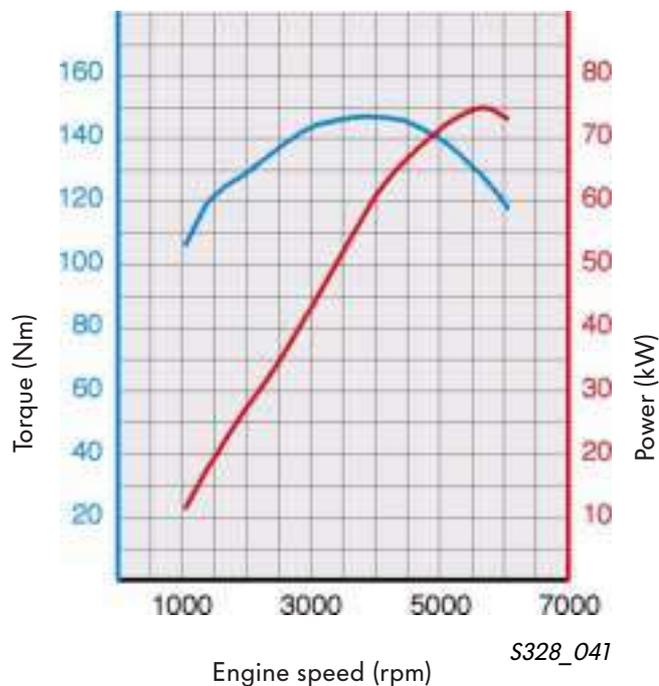
S328\_040



### Technical data

Engine code	BGU
Type	4-cylinder in-line engine
Displacement	1,595 cm <sup>3</sup>
Bore	81.0 mm
Stroke	77.4 mm
Valves per cylinder	2
Compression ratio	10.3 : 1
Maximum output	75 kW at 5,600 rpm
Maximum torque	148 Nm at 3,800 rpm
Engine management	Simos 7.1
Fuel	Super unleaded RON 95 (normal unleaded at RON 91 with reduction in performance)
Exhaust gas treatment	Exhaust gas recirculation, catalytic converter, Lambda control
Emissions standard	EU4/EOBD

### Torque and power diagram



S328\_041

# Engines

## 1.9l/77 kW TDI engine

The 1.9l/77 kW TDI engine has already proven itself in the Golf and now features in the 2004 Caddy.

### Technical features

- Diesel engine with exhaust-gas turbocharger
- Unit injector system
- Overhead camshaft
- EDC 16 engine management
- Electronic power control with contact-free sensors
- Exhaust gas recirculation
- Electrical intake manifold flap

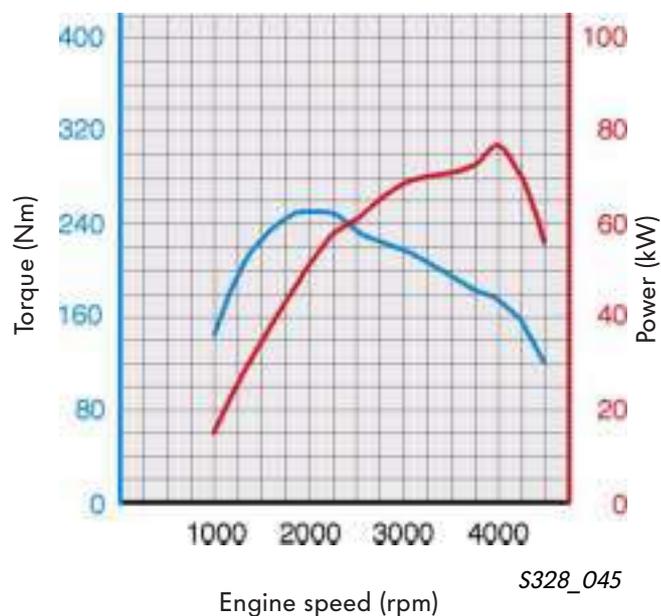


S328\_044

### Technical data

Engine code	BJB
Type	4-cylinder in-line engine
Displacement	1,896 cm <sup>3</sup>
Bore	79.5 mm
Stroke	95.5 mm
Valves per cylinder	2
Compression ratio	19 : 1
Maximum output	77 kW at 4,000 rpm
Maximum torque	250 Nm at 1,900 rpm
Engine management	EDC 16
Fuel	Diesel min. 51 CN
Exhaust gas treatment	Exhaust gas recirculation and oxidation catalytic converter
Emissions standard	EU3

### Torque and power diagram



S328\_045

## 2.0l/51 kW SDI engine

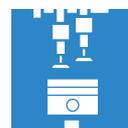
The 2.0l/51 kW SDI engine with unit injector technology is a further development of the 1.9l/74 kW TDI engine used in the Touran.

### Technical features

- Naturally aspirated diesel engine
- Unit injector system
- Overhead camshaft
- EDC 16 engine management
- Electronic power control with contact-free sensors
- Exhaust gas recirculation
- Electrical intake manifold flap



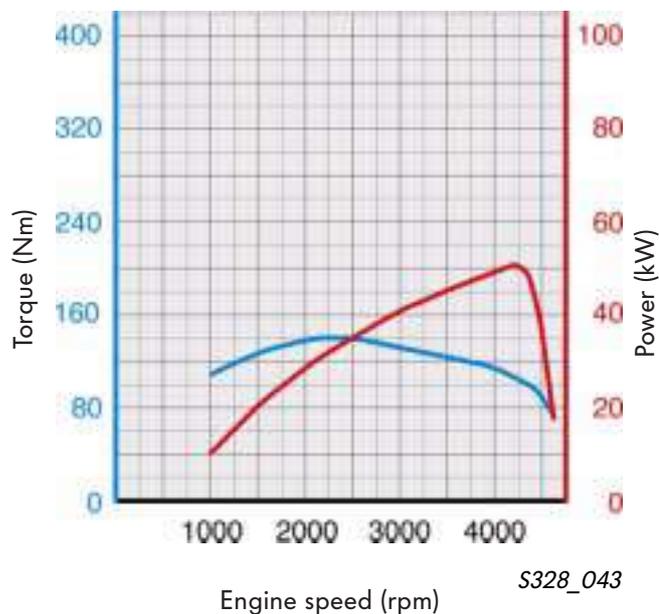
S328\_042



### Technical data

Engine code	BDJ
Type	4-cylinder in-line engine
Displacement	1,968 cm <sup>3</sup>
Bore	81.0 mm
Stroke	95.5 mm
Valves per cylinder	2
Compression ratio	19 : 1
Maximum output	51 kW at 4,200 rpm
Maximum torque	140 Nm at 2,200 – 2,400 rpm
Engine management	EDC 16
Fuel	Diesel min. 51 CN
Exhaust gas treatment	Exhaust gas recirculation and oxidation catalytic converter
Emissions standard	EU3

### Torque and power diagram



S328\_043

# Transmission

## Gearbox

Two mechanical manual gearboxes conceived for transverse installation feature in the 2004 Caddy.

The gearboxes are based on the proven group manual gearboxes. They have been further developed with the following changes.

Changes:

- Shaft spacing increased
- Axle drive reinforced
- Gearbox and clutch housing adapted
- Without sender for driving speed



**5-speed gearbox 0AH**



S328\_133

The gearbox is a further development of the 02T manual gearbox, as already used in the Polo, for example.

The gearbox has 5 gears and can transmit torques of up to 200 Nm.

It is used with the petrol engines and the SDI engine.

**5-speed gearbox 0A4**



S328\_047

The gearbox is a further development of the 02J manual gearbox. The construction has been specially reinforced for the greater torque to be transferred and is already used in the 2004 Golf.

The gearbox has 5 gears and can transmit torques of up to 250 Nm. It is used with the TDI engine.



Both gearboxes do not have a sender wheel for the speed. The speed signal is transmitted by the ABS system.

## Engine-gearbox combinations

Engine	5-speed manual gearbox 0AH	5-speed manual gearbox 0A4
 <p><b>1.4l/55 kW</b> petrol engine <b>BCA</b></p>		
 <p><b>1.6l/75 kW</b> petrol engine <b>BGU</b></p>		
 <p><b>1.9l/77 kW</b> TDI engine <b>BJB</b></p>		
 <p><b>2.0l/51 kW</b> SDI engine <b>BDJ</b></p>		



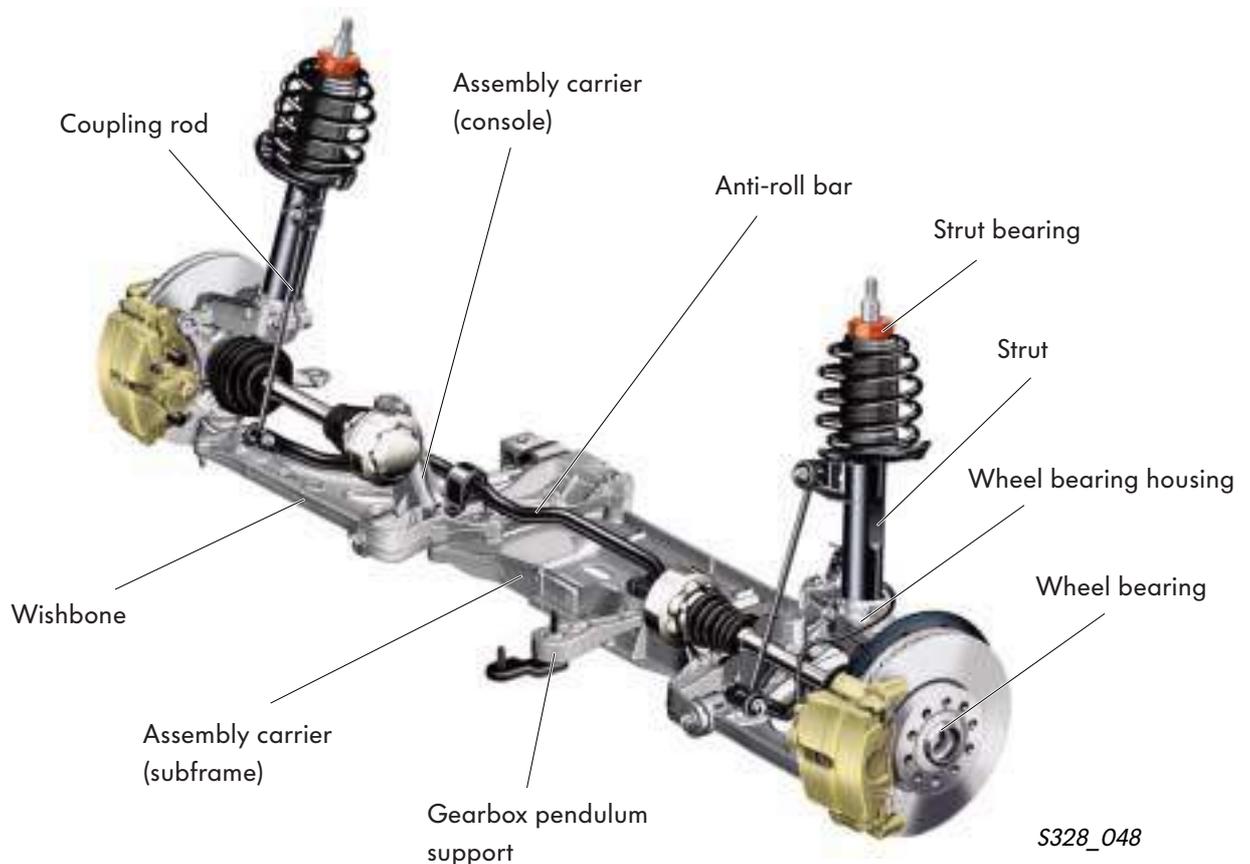
# Chassis

## Front axle

The 2004 Caddy has an optimised McPherson front axle with lower wishbones and MacPherson struts. The axle is basically the same as the front axle on the 2004 Golf and provides optimum comfort with good driving dynamics. The standing height has been increased especially for use in the 2004 Caddy.

Technical features are:

- Aluminium assembly carrier
- Wishbones
- Decoupled spring and damper connection by rubber/metal bearings for the struts
- 3rd generation wheel bearings
- Active speed sensor, the sender wheel is integrated in the wheel bearing seal.
- Anti-roll bar with 1 : 1 connection. The anti-roll bar is connected directly to the strut via a coupling rod and thus ensures good stability.
- Opening at front in subframe for gearbox pendulum support



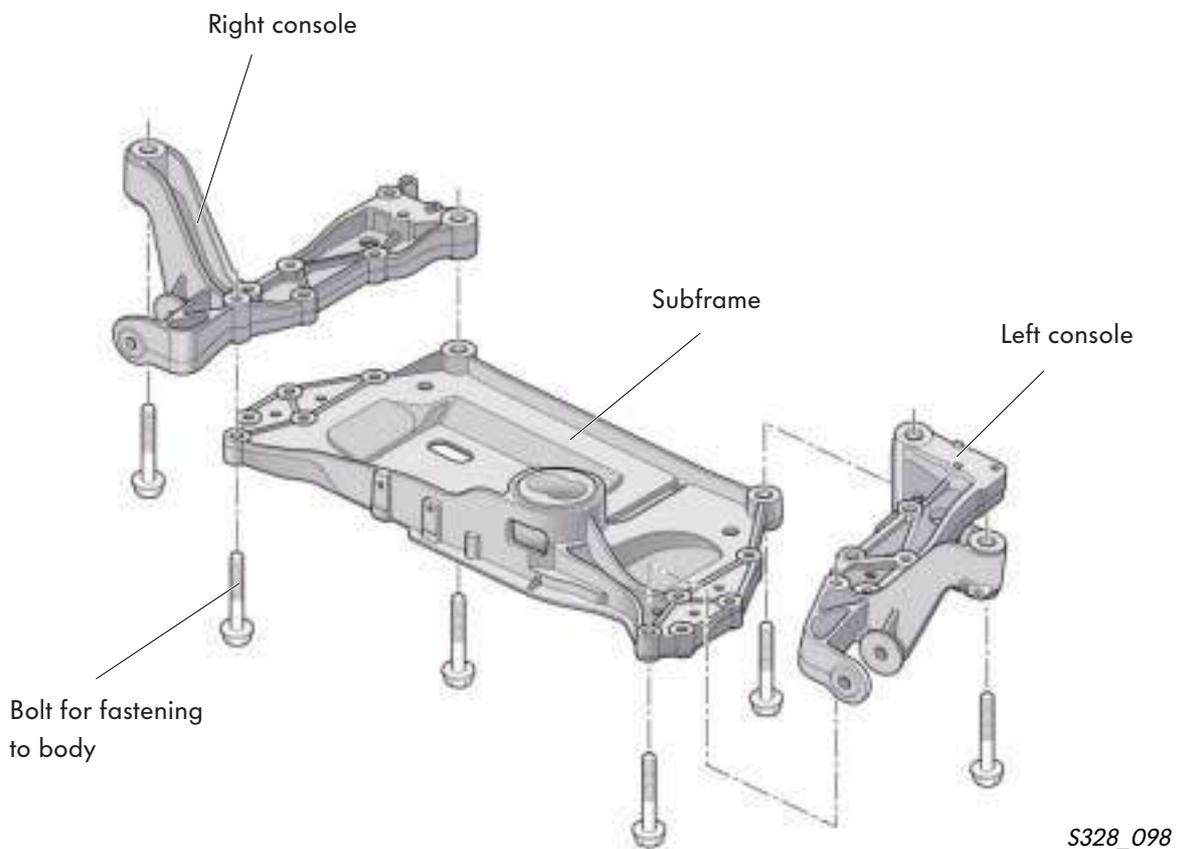
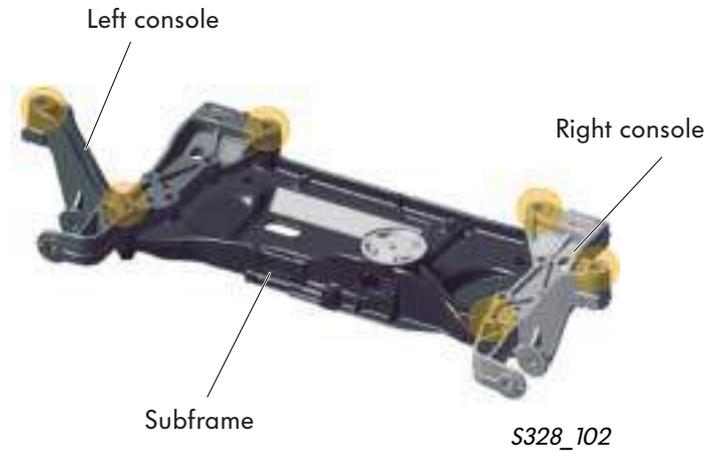
## Assembly carrier

The assembly carrier holds the traverse link, anti-roll bar and steering rack.

It is made up of three parts and has a central subframe to which consoles are connected on the left and right. The components of the assembly carrier are made from aluminium.

The assembly carrier is bolted rigidly to the body at six points. This stiffens the front section of the body.

This connection and the optimum configuration of the rubber/metal bearings in the traverse link and the strut bearing allow good driving dynamics and body acoustics.



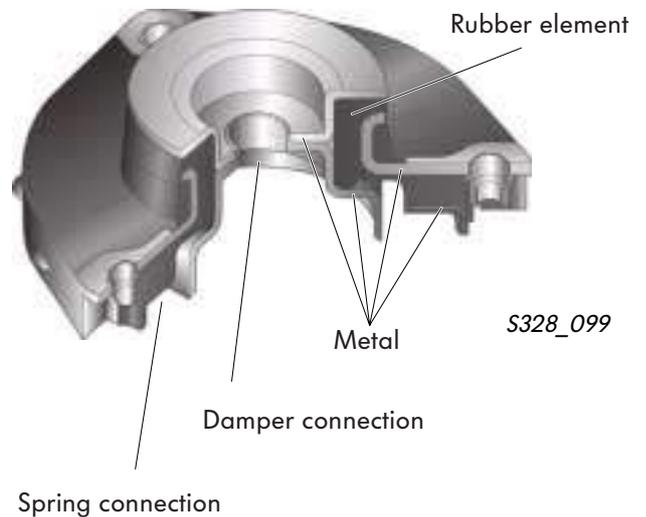
# Chassis

## Strut bearing

The strut bearing is a rubber/metal bearing. The connection of the springs and the damper to the body are uncoupled from each other. The spring force is thus channelled separately into the body and tensioning of the damper bearing is avoided. This improves the ride comfort and reduces the noise transmission from the road to the body.

The bearing has a smooth characteristic curve in the direction of travel. This improves the driving comfort and vehicle acoustics.

The bearing is stiff in the transverse direction. This has a positive effect on the driving dynamics and the steering response.



## 3rd generation wheel bearings

A compact third-generation wheel bearing unit is used. The wheel bearing, wheel hub and mounting form a unit that is screwed to the wheel bearing housing.

The pretensioning forces for setting the bearing play are no longer applied via the wheel bearing bolts. This simplifies fitting and removal procedures when the parts are service and the life of the unit is increased.



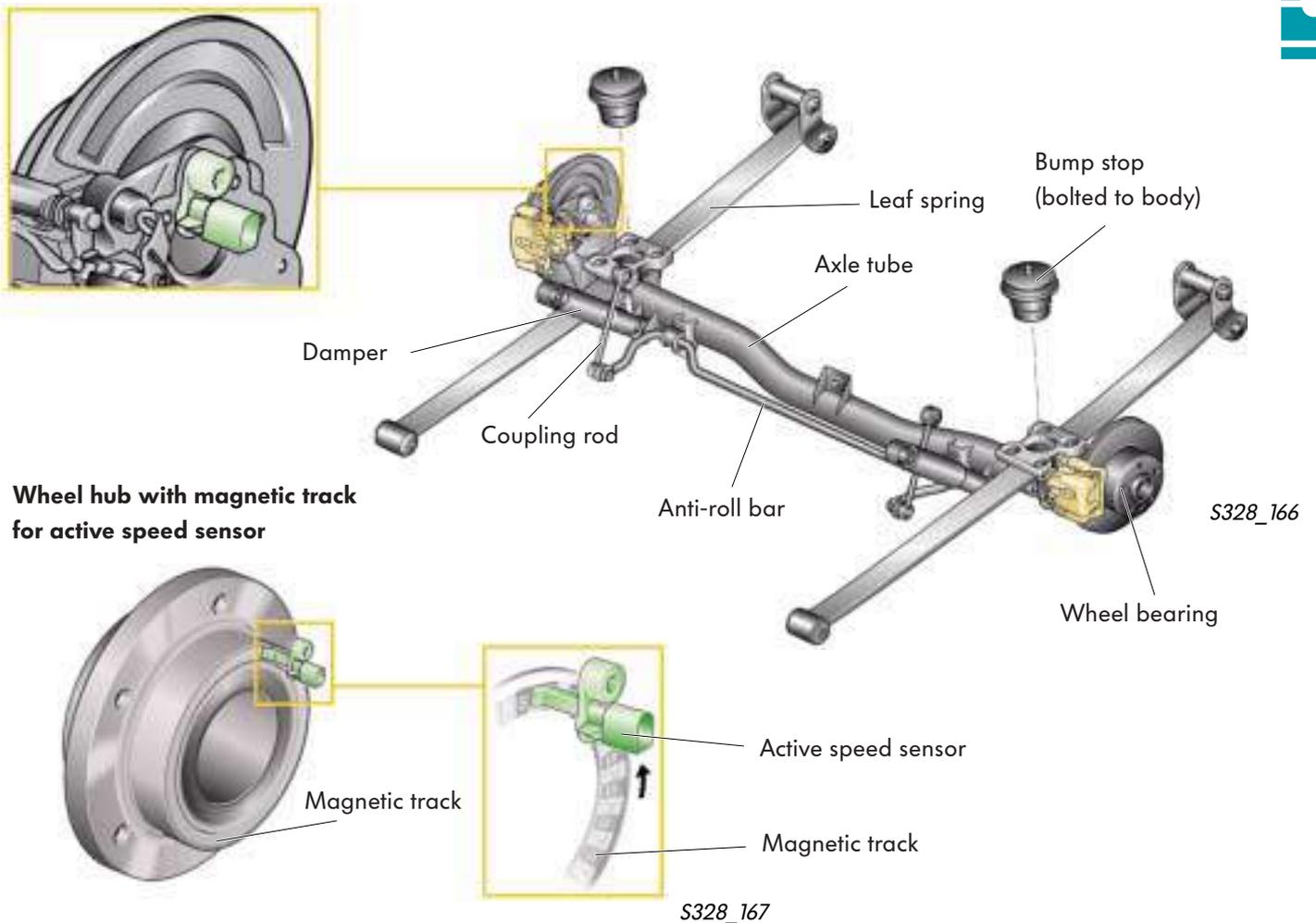
## Rear axle

The 2004 Caddy has a rigid axle with leaf-spring suspension. It is a new design and is characterised by both its simplicity and robustness.

Technical features are:

- Single-layer leaf spring for Caddy Van and Caddy Shuttle
- Two-layer leaf spring for the Caddy Life (increased comfort)
- Bump stop ("additional spring" made of polyurethane)
- Dampers position at an angle towards the front to guarantee the through-loading width under the load platform.
- Anti-roll bar connected to body via coupling rods.
- Wheel bearings form a compact unit consisting of the wheel bearing and wheel hub.
- The magnetic track for the active speed sensor is on the front side of the wheel bearing (no sender wheel in wheel bearing seal).

### Installation position of active speed sensor



# Chassis

## Electromechanical power steering

The 2004 Caddy is equipped with a electromechanical power steering system (manufacturer ZF), which is made up of the following main components

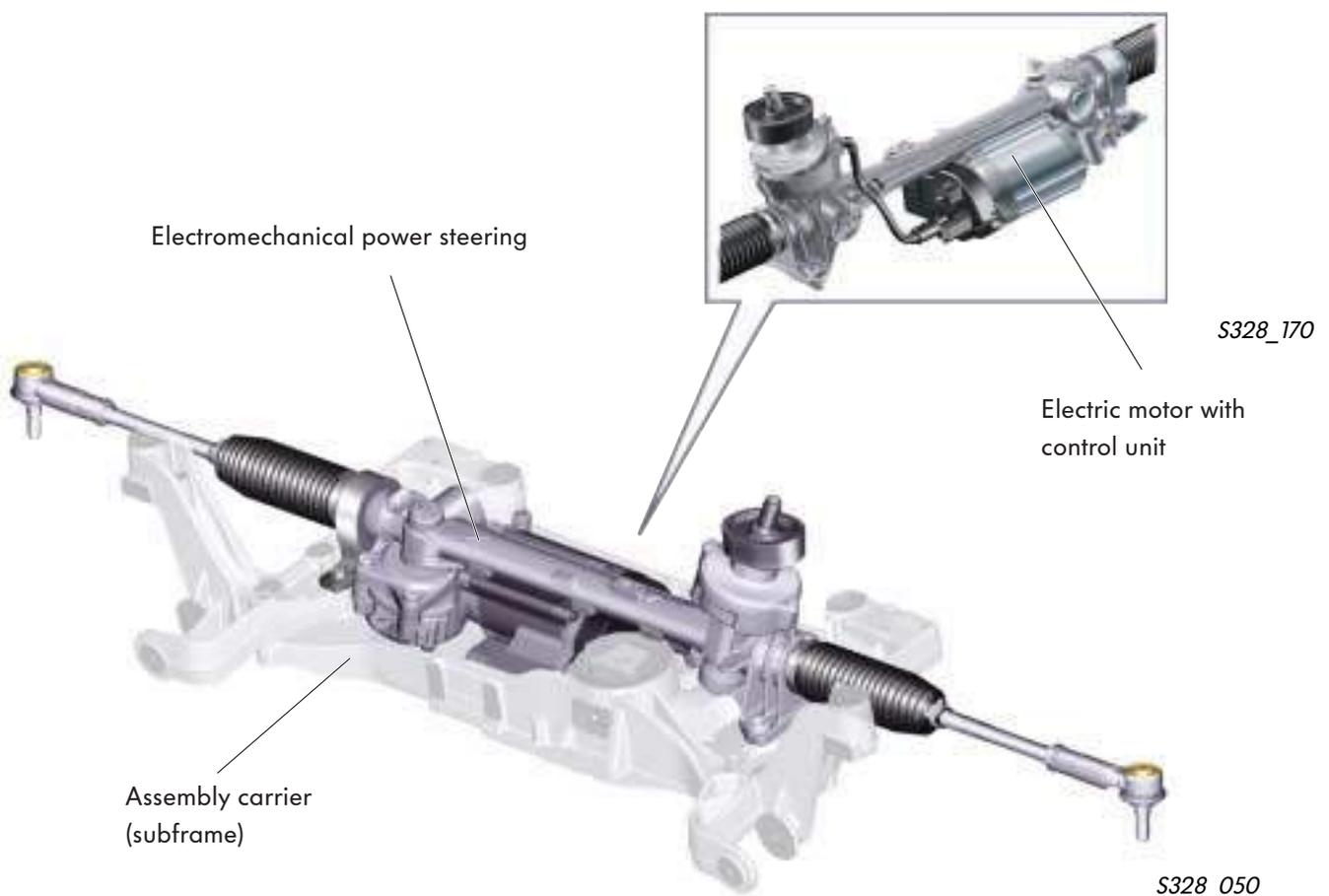
- the steering wheel and
- the electric motor with integrated control unit.

The steering system is mounted on the subframe. The control unit is flanged to the electric motor.

Data for managing the steering is exchanged via the drive CAN data bus.

Advantages of this steering system are:

- Simpler packaging (no need for traditional components like a power steering fluid pump, hoses, fluid reservoir and hydraulic fluid).
- Lower fuel consumption (~0.15 l/100 km)
- Speed-related steering assist (Servotronic)
- No risk of pollution as no oil is required.
- Good straight-line stability due to “active return” and the resulting precise centre-return of steering.



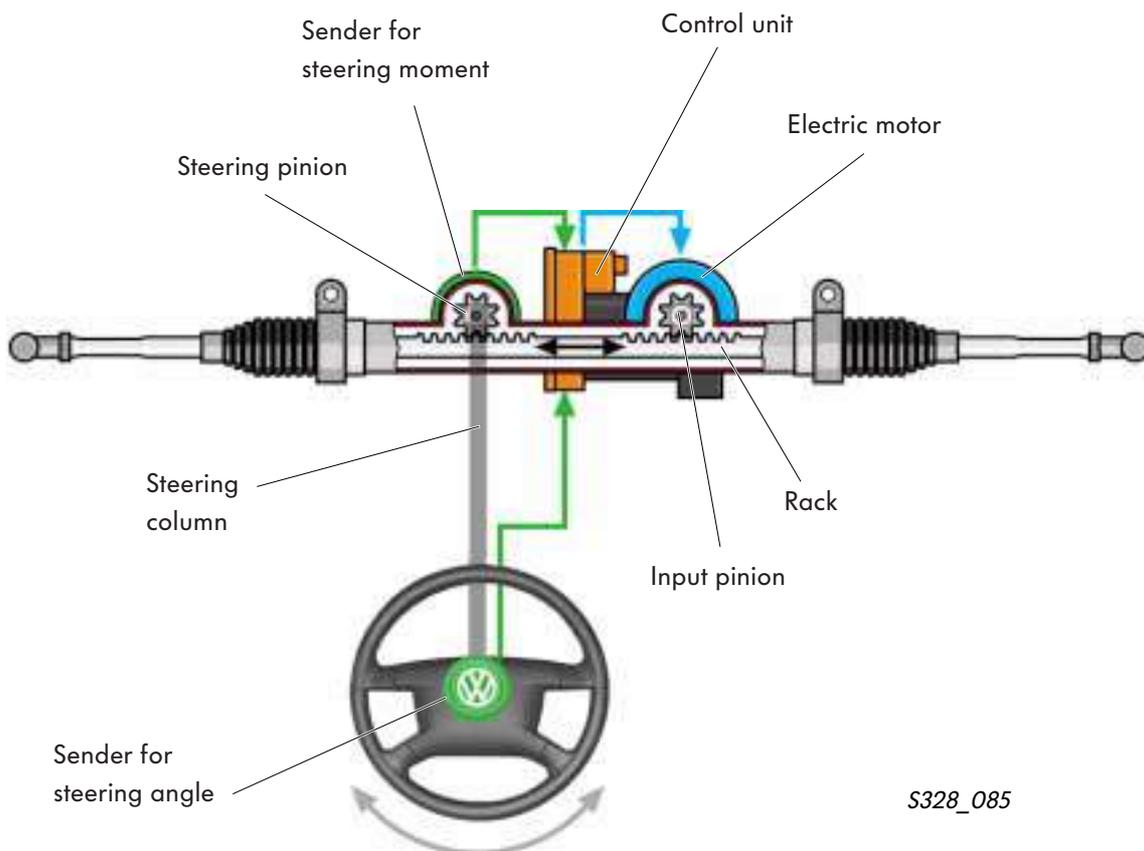
## Function

The electromechanical power steering is an active system. It operates in relation to

- the driving speed,
- steering moment and steering speed,
- steering angle and
- return forces.

It therefore provides optimum steering assistance for the driver.

The assist power of the electric motor flanged on parallel to the rack and pinion is transferred to the rack via a second pinion (input pinion). This pinion meshes in the steering rack and transfers the assist power.



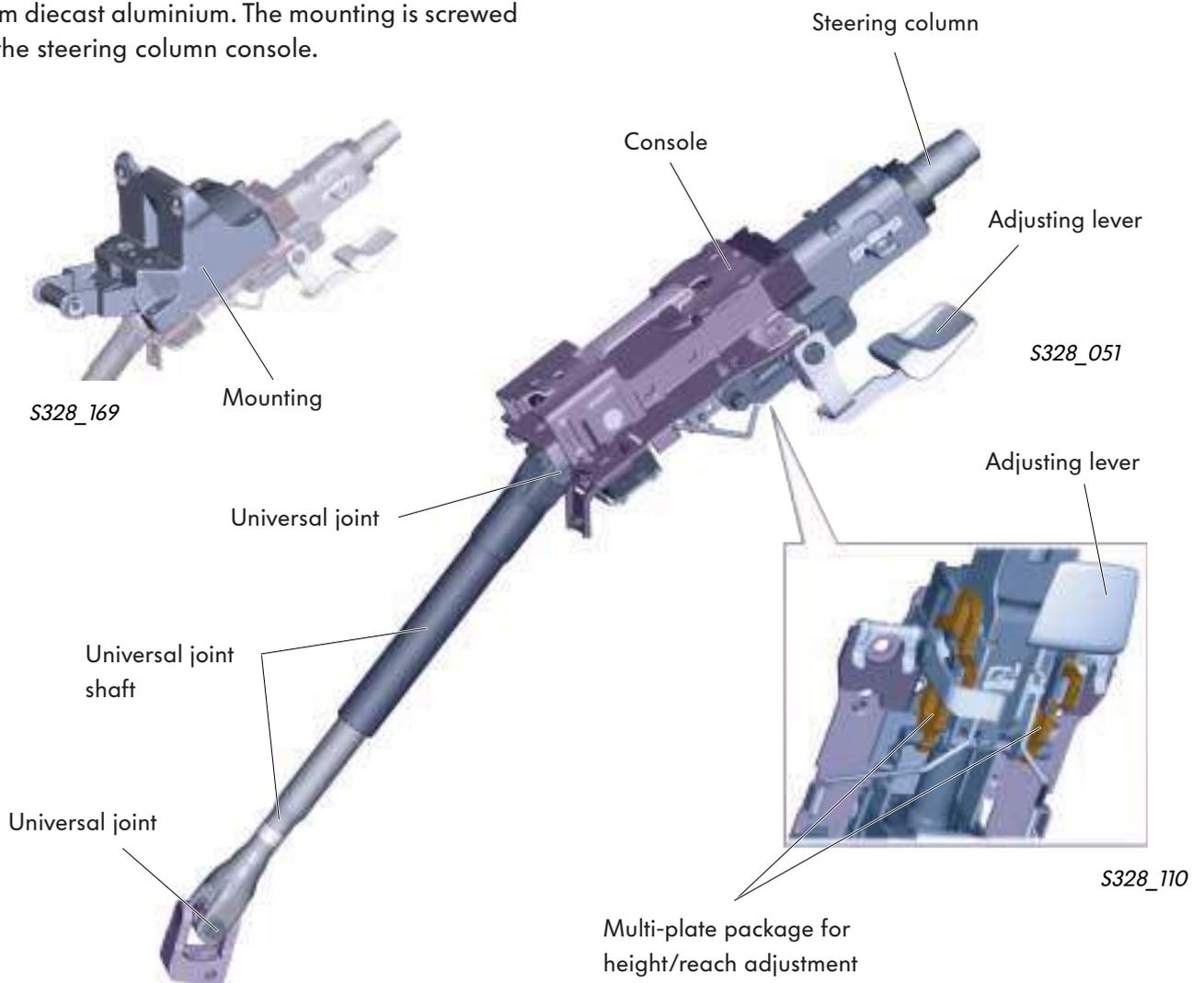
You will find detailed information in the self-study program 317 “The Electromechanical Power Steering with Dual Pinion”.

# Chassis

## Steering column

The steering column is mechanically height and length adjusted. For optimum adaptation to the needs of the driver, the height can be adjusted by 40 mm and the length by 50 mm. Moving the adjustment lever, releases and locks the plate clamp for height and reach adjustment of the steering column.

The steering column is connected to the dash panel module carrier with a mounting made from diecast aluminium. The mounting is screwed to the steering column console.



As part of occupant protection, the steering column and universal joint shaft are designed to slide inside each other. This means the steering column and steering wheel cannot be pushed towards the driver when the front section of the car is deformed in a collision.

## Brakes

### ABS system

The MK70 ABS system from Conti Teves is used as standard in the 2004 Caddy.

It has the following technical features:

- Anti-lock brake system (ABS) with
- electronic brake pressure distribution (EBD).

The traction control system (TCS) and engine braking control (EBC) are controlled by the engine management.

### ESP system

The MK60 system from Conti Teves with integrated pressure sensor is optionally available as an ESP system for the Caddy Shuttle/Caddy Life from 75 kW.

Compared with the MK70 system, it has the following additional technical features:

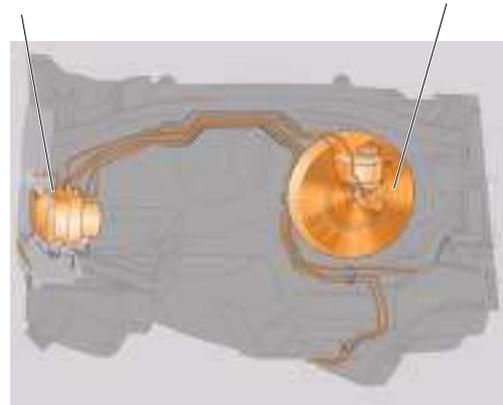
- Electronic Stabilisation Program (ESP) with ESP button and ESP warning lamp
- Hydraulic brake assist (BA)
- Traction control system (TCS)



Please refer to self-study program 204 “ESP” for further information on the electronic stability program. Self-study program 264 “The Brake Assist System” has details on the brake assist.

ABS or ESP unit

Brake servo



S328\_052

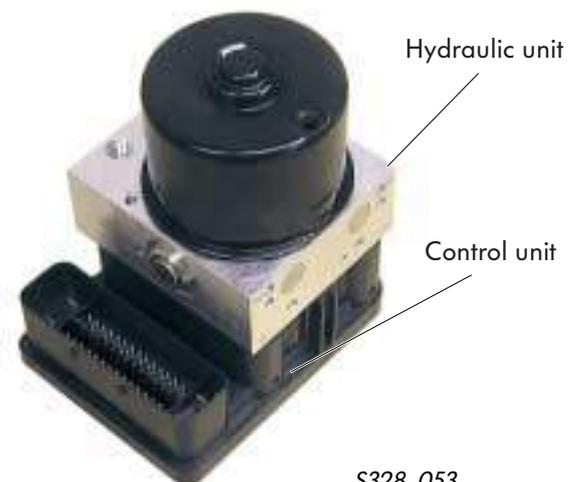
### MK70 system



S328\_054



### MK60 system



S328\_053

# Chassis

## Brake servo

The 2004 Caddy uses a 10" brake servo from Conti-Teves.

This brake servo has one essential new feature called the "dual rate characteristic curve". This means that the brake assist works according to a two-step curve.

A modified inside structure of the brake servo leads to a progressive curve following a so-called "dual-rate characteristic curve". A higher brake pressure than is possible with conventional brake servos can be reached even with low pedal forces. This also guarantees good dosing.



S328\_055

Crash-optimised pressure rods are built in the brake servo.

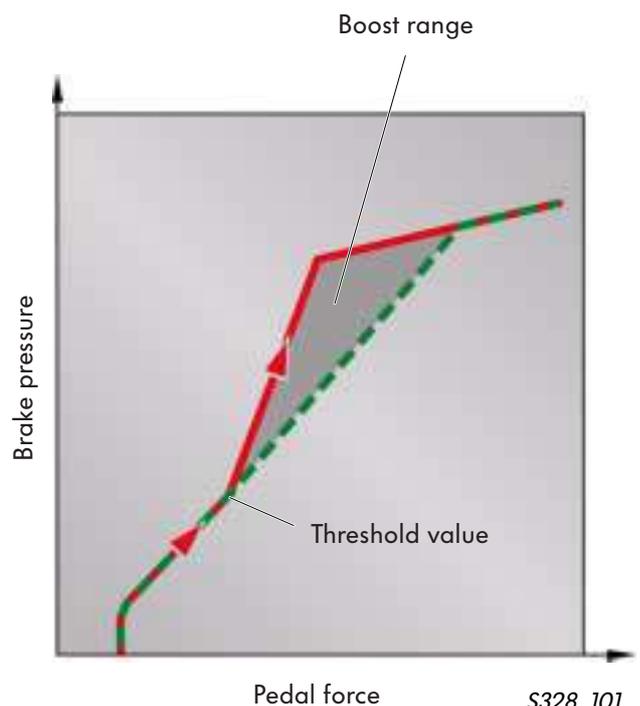


## "Dual-rate characteristic curve"

When the brake pedal is pressed, the brake pressure in the brake servo does not rise linearly over the whole range.

From a specific pedal force threshold value, the brake pressure rises more than the pedal force and thus boosts the braking effect.

-  Brake pressure
-  Pedal force



S328\_107

## Front brakes

Two different disc brake systems are used in the 2004 Caddy depending on the version or engine.

They use ventilated brake discs.

Up to an engine output of 55 kW, disc brakes with brake discs measuring  $\varnothing$  280 mm x 22 mm are fitted.

The brake carrier is integrated in the wheel bearing housing.



S328\_056

From an engine output of 75 kW and in the Caddy Shuttle/Life with 7 seats, a disc brake system with brake discs measuring  $\varnothing$  288 mm x 25 mm is used.

The brake carrier is bolted to the wheel bearing housing.



S328\_057

## Rear brakes

The 2004 Caddy has disc brakes with solid brake discs measuring  $\varnothing$  260 mm x 12 mm on the rear axle.

So-called combi callipers are used for the brake callipers. The brake pedal operates the brake piston hydraulically and the handbrake mechanically via a ratchet.



S328\_058



# Chassis

## Pedal cluster

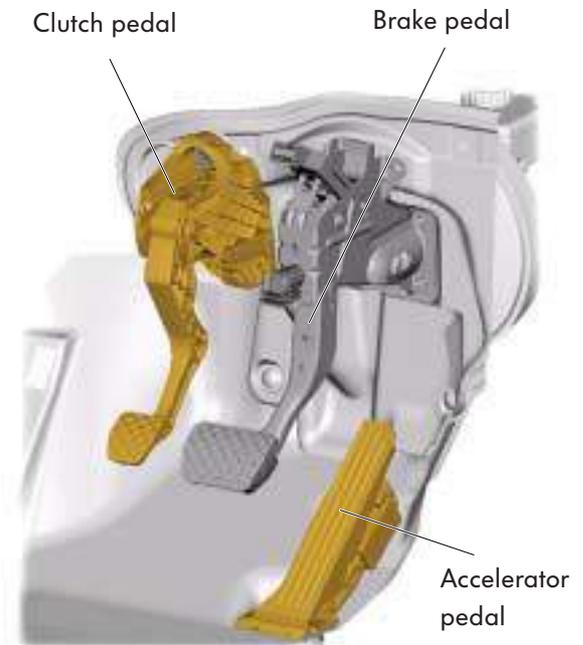
The crash-optimised pedal cluster has a modular structure and consists of

- clutch pedal,
- brake pedal and
- accelerator pedal.

The clutch pedal and the accelerator pedal have contact-free position sensors that recognise the pedal position.

Both pedals are made of plastic.

The brake pedal mounting is made from aluminium and the brake pedal from steel sheet.



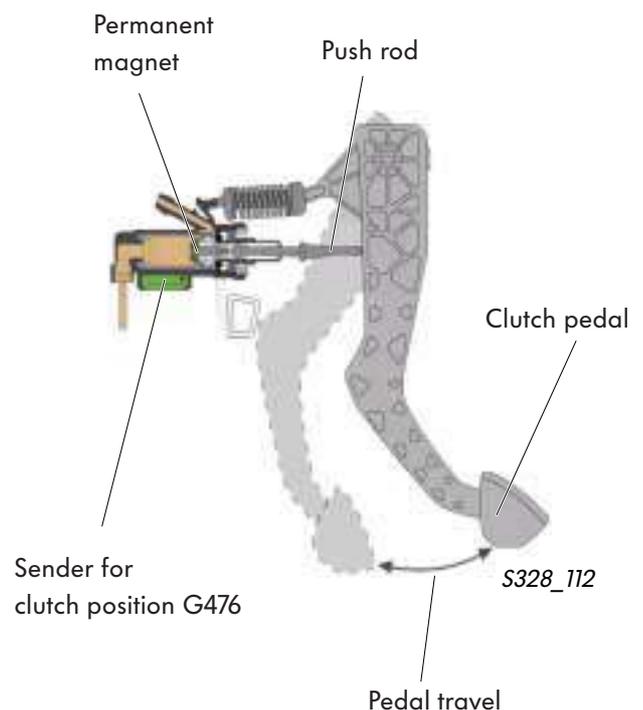
S328\_059



## G476 clutch position sender

The clutch position sender is a Hall sender. When the clutch is operated, it recognises the pedal position and signals it to the engine control unit by means of a permanent magnet attached to the push rod. The engine control unit switches off the speed control system.

On the diesel engines, the injection amount is reduced briefly to avoid engine jolts upon gear changes.

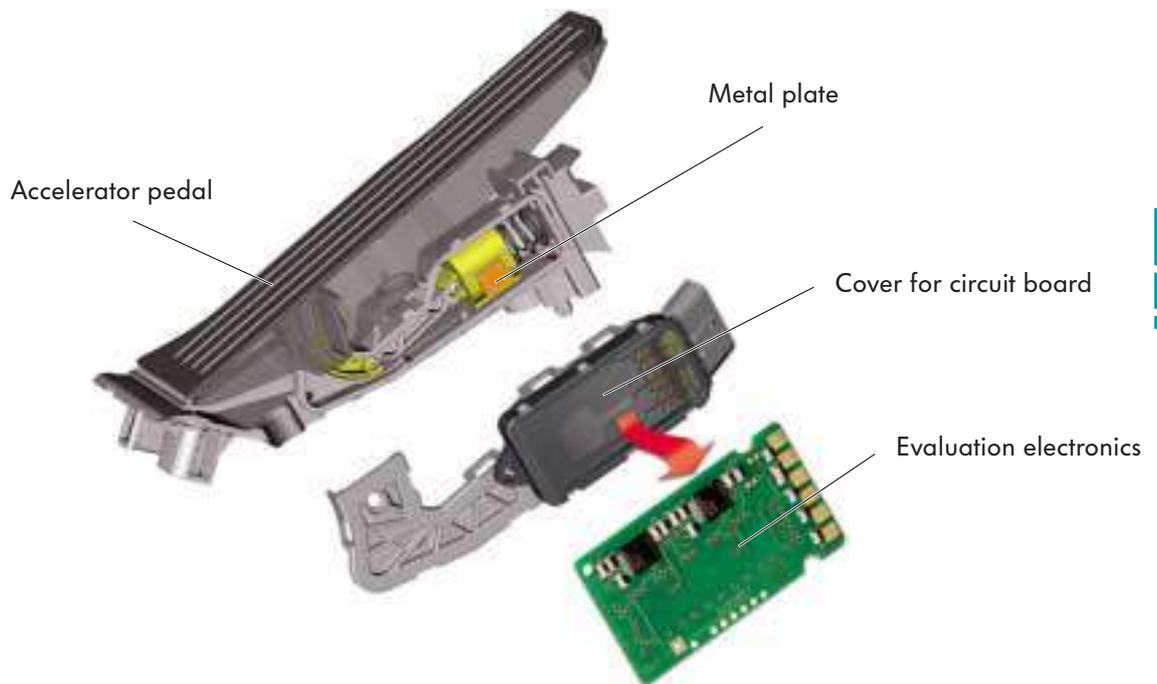


## **Senders for accelerator pedal position G79 and G185**

The senders for the accelerator position work according to the induction principle. When the accelerator pedal is pressed, the angle movement is converted into straight-line movement to move a small metal plate back and forth.

Evaluation electronics evaluate this movement and send a corresponding signal to the engine control unit depending on the accelerator pedal position.

The engine control unit then calculates the injection amount from this data.



S328\_111



You will find detailed information on the design and function of the contact-free senders in the self-study programmes 316 “The 2.0l TDI Engine” or 321 “The Golf 2004 Running Gear”.

# Electrical system

## Locations of onboard supply components

### Battery

The battery is located at the front left of the engine compartment.

### E-box

The fuses and relays for the electrical components in the engine compartment are accommodated in the E-box.

### Relay carrier

The relay carrier holds additional relays. The configuration depends on the vehicle equipment.

### Relay carrier on onboard supply control unit

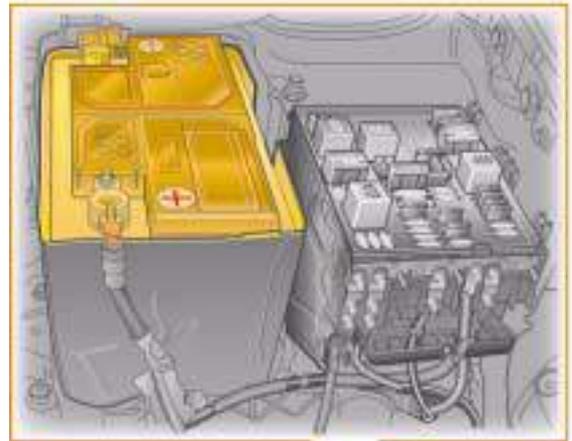
The following relays are located in the relay carrier on the onboard supply control unit:

- Relay 2 for voltage supply terminal 30 - J689
- Relay for heated rear window J9
- Horn relay J413
- Relay 1 for double washer pump J729
- Relay 2 for double washer pump J730
- X contact relief relay J59

### Fuse box

The fuses for the electrical components in the vehicle are in the fuse box.

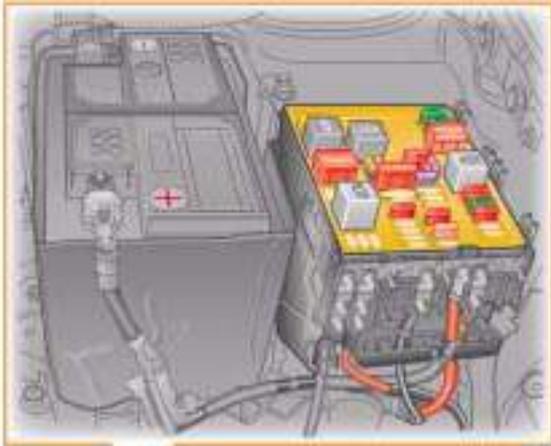
Battery  
on left of engine compartment



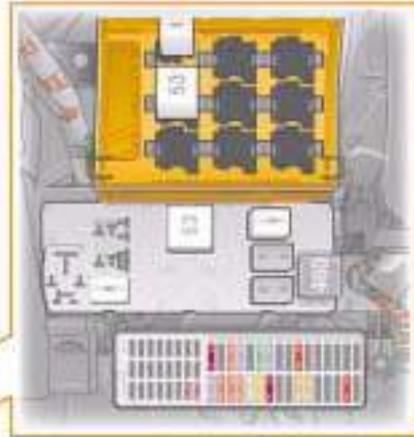
### Pre-fuse box

The pre-fuse box is on the front side of the E-box. It is part of the E-box and holds the fuses for the alternator and the electromechanical power steering.

Fuse and relay box  
on left of engine compartment



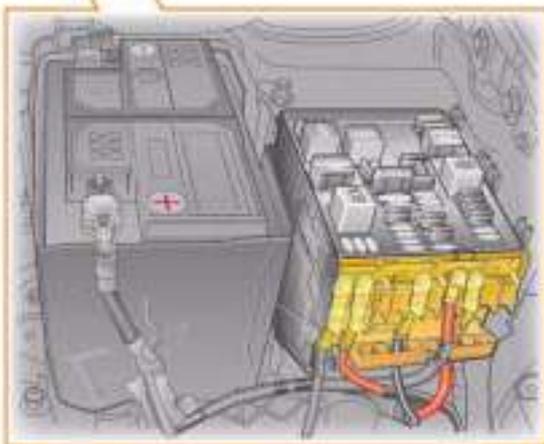
Relay carrier  
on left under dash panel



S328\_060



Relay carrier on control unit for onboard  
supply, on left under dash panel



Pre-fuse box  
on left of engine compartment



Fuse box on left under  
dash panel



# Electrical system

## Networking concept

### Overview of network

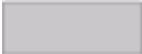
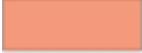
To enable data exchange between the control units, they are networked via different data bus systems.

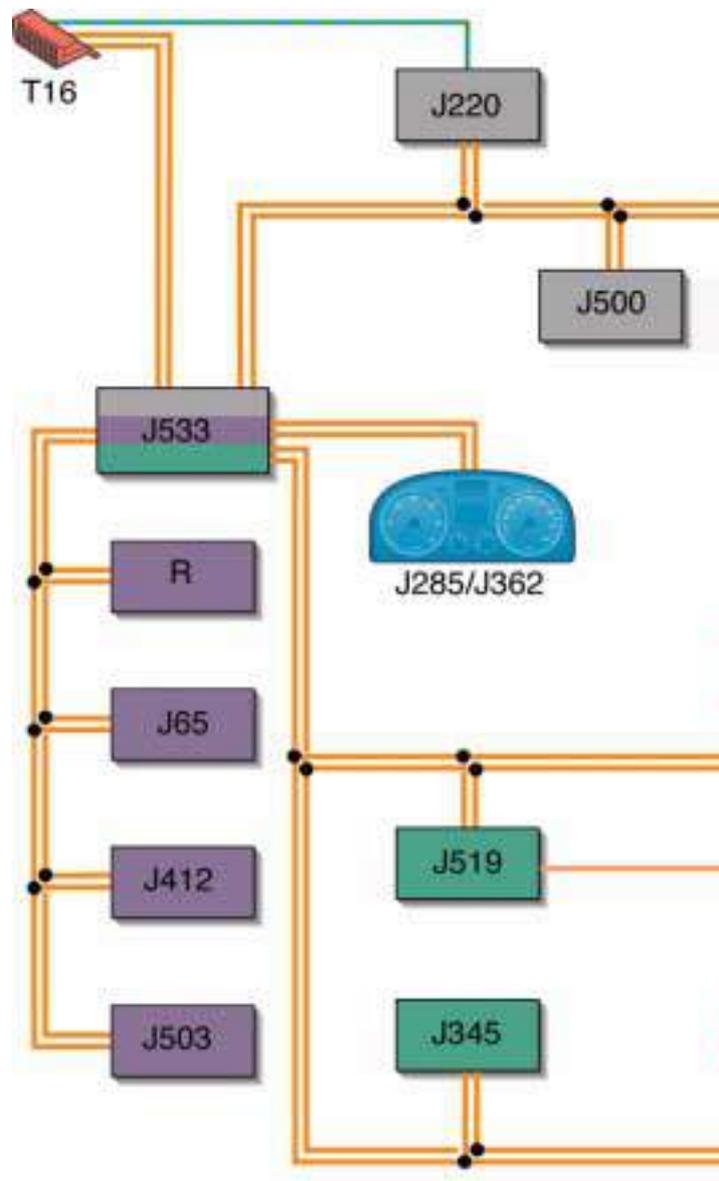
The diagnostic interface for data bus J533 (Gateway) forms the interface for the following data buses:

- Drivetrain CAN data bus
- Convenience CAN data bus
- Infotainment CAN data bus
- Combi-instrument CAN data bus (dash panel insert)
- Diagnostics CAN data bus

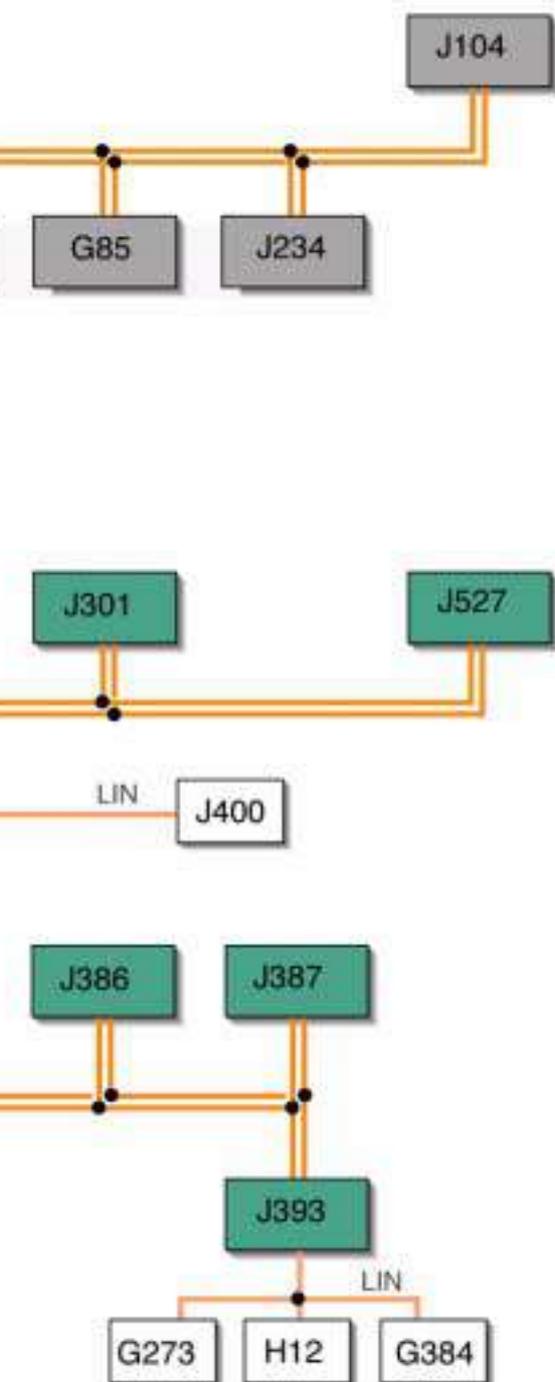


### Control units connected to:

	Drivetrain CAN data bus
	Convenience CAN data bus
	Infotainment CAN data bus
	Combi-instrument CAN data bus
	Diagnostics CAN data bus
	LIN data bus
	CAN data bus line
	Communications line
	LIN data bus line



In addition to the CAN data bus, some electrical components are networked via the LIN data bus.



## Legend

G85	Steering angle sender
G273	Interior monitoring sensor
G384	Vehicle inclination sender
H12	Horn for anti-theft alarm
J65	Heater control unit
J104	ABS with EDL control unit
J220	Motronic control unit
J234	Airbag control unit
J285	Control unit with display in dash panel insert
J301	Air conditioning system control unit
J345	Trailer detector control unit
J362	Immobilizer control unit
J386	Driver door control unit
J387	Front passenger door control unit
J393	Convenience system central control unit
J400	Wiper motor control unit
J412	Mobile telephone operating electronics control unit
J500	Power steering control unit
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
R	Radio
T16	Diagnosis connector



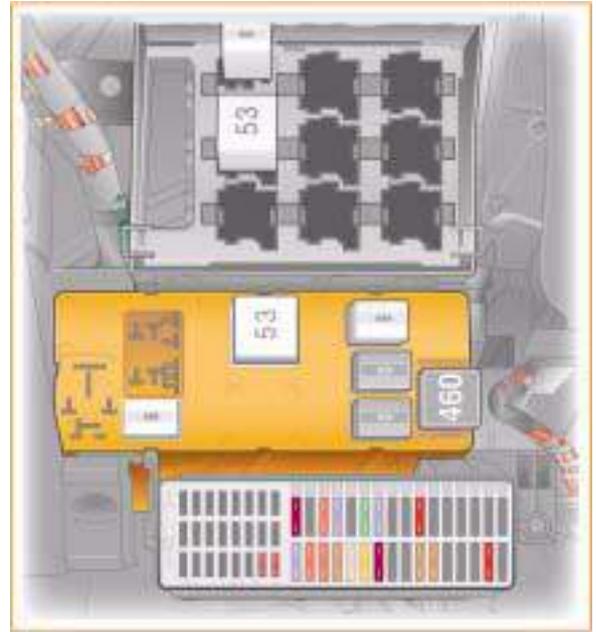
S328\_061

# Electrical system

## J519 onboard supply control unit

### Location

The onboard supply control unit has been placed underneath the dash panel and forms a module with the relay carrier.



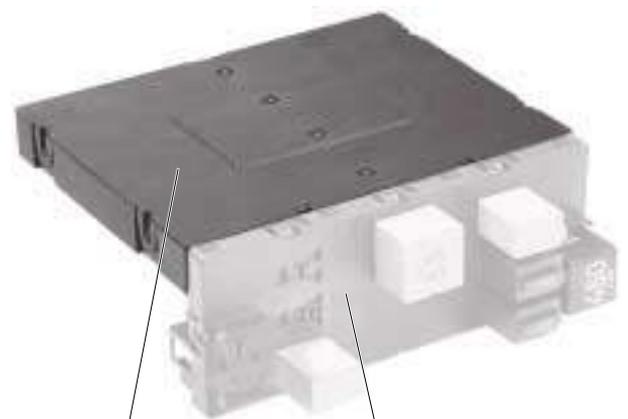
S328\_171

### Variants

The control unit for the onboard supply is available in the Basic and Highline variants.

The Highline variant is built into vehicles with fog lights.

Fog lights can only be added if the Basic version of the control unit is replaced with the control unit for the Highline variant.



S328\_172

Onboard supply control unit

Relay carrier on onboard supply control unit

## Tasks:

The onboard supply control unit activates and controls the following functions:

- Electrical load management
- Outside light control
- Turn signal control
- Wipers, front windscreen  
Forwarding of data bus signals to the wiper motor control unit
- Wipers, rear windscreen
- Heated rear windscreen  
The heated rear windscreen is controlled via the onboard supply control unit when the button for a heated rear windscreen is pressed and the alternator generates enough voltage.
- Interior light control  
Terminal 30 via which the interior lights are supplied with power is controlled by the control unit for the onboard supply.
- Terminal control, the onboard supply control unit controls the following functions:
  - Terminal 75x via the relief relay for the X contact
  - Terminal 15 via the relay for voltage supply terminal 15 in the E-box and on the relay carrier on the control unit for the onboard supply.
  - Terminal 50 via the relay for voltage supply terminal 50 in the E-box.
- Dimming, instrument illumination  
The dimmable output terminal 58d supplies the dimmable switches and instruments with voltage.
- Fuel pump supply  
When the driver's door is opened, the electrical fuel pump is supplied with voltage by the onboard supply control unit.  
Once the engine has been started, it is supplied via the engine control unit.
- Alternator exciter  
The alternator is excited via the onboard supply control unit.



# Electrical system

## Electrical load management

The electrical load management ensures that the battery has sufficient electrical energy to start the engine.

Electrical convenience consumers are switched off for this purpose.

The technical safety is maintained.

The onboard supply control unit evaluates the engine speed, the battery voltage and the alternator load via the DF signal (Dynamo Field) when switching off.

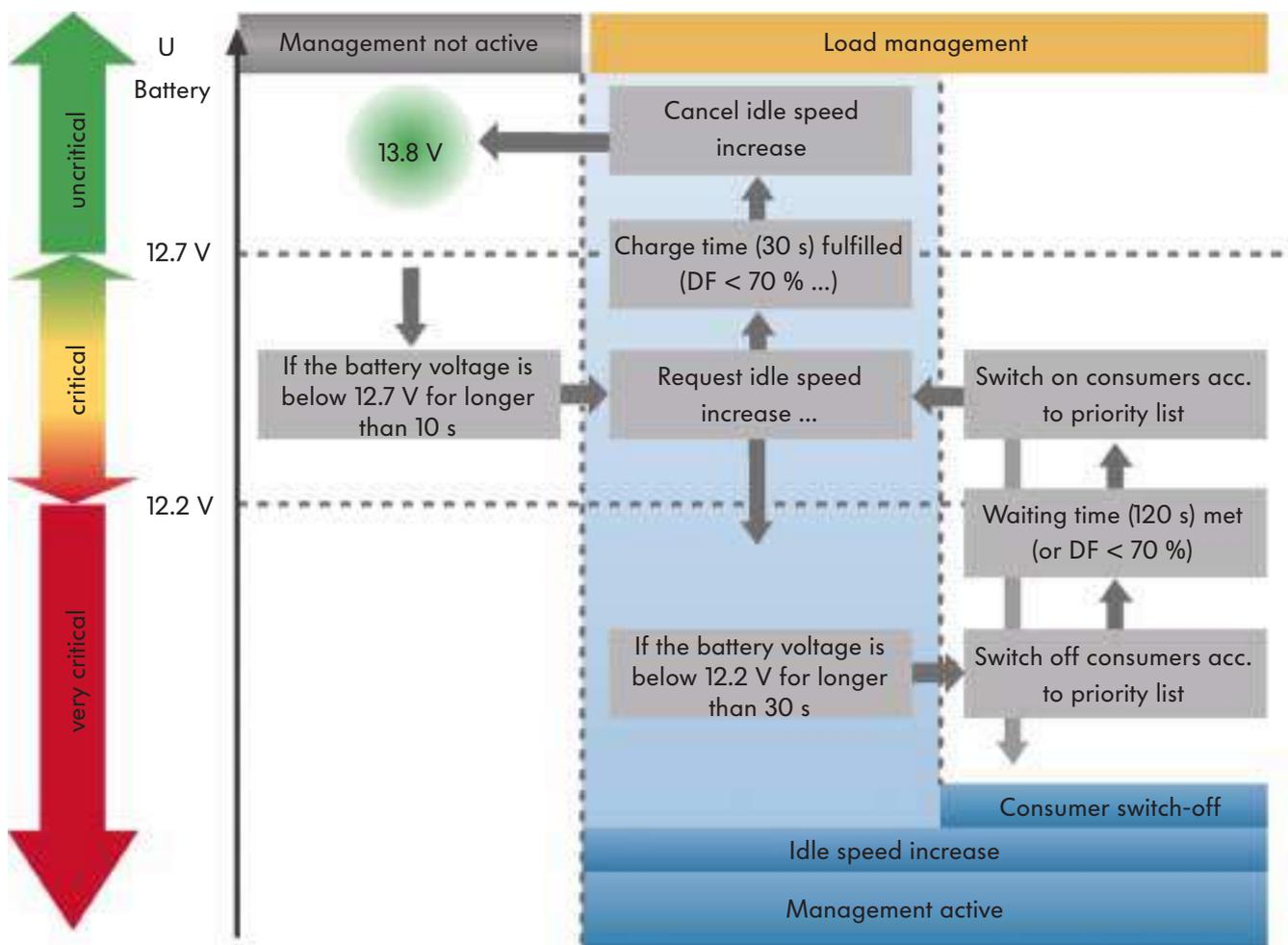
The onboard supply control unit evaluates the onboard supply load using this information and the information on active high-power consumers with a short active period.

The onboard supply control unit can request a higher engine speed from the engine control unit on the basis of this information.

Furthermore convenience consumers can be switched off.

Three different operating modes are recognised for load management:

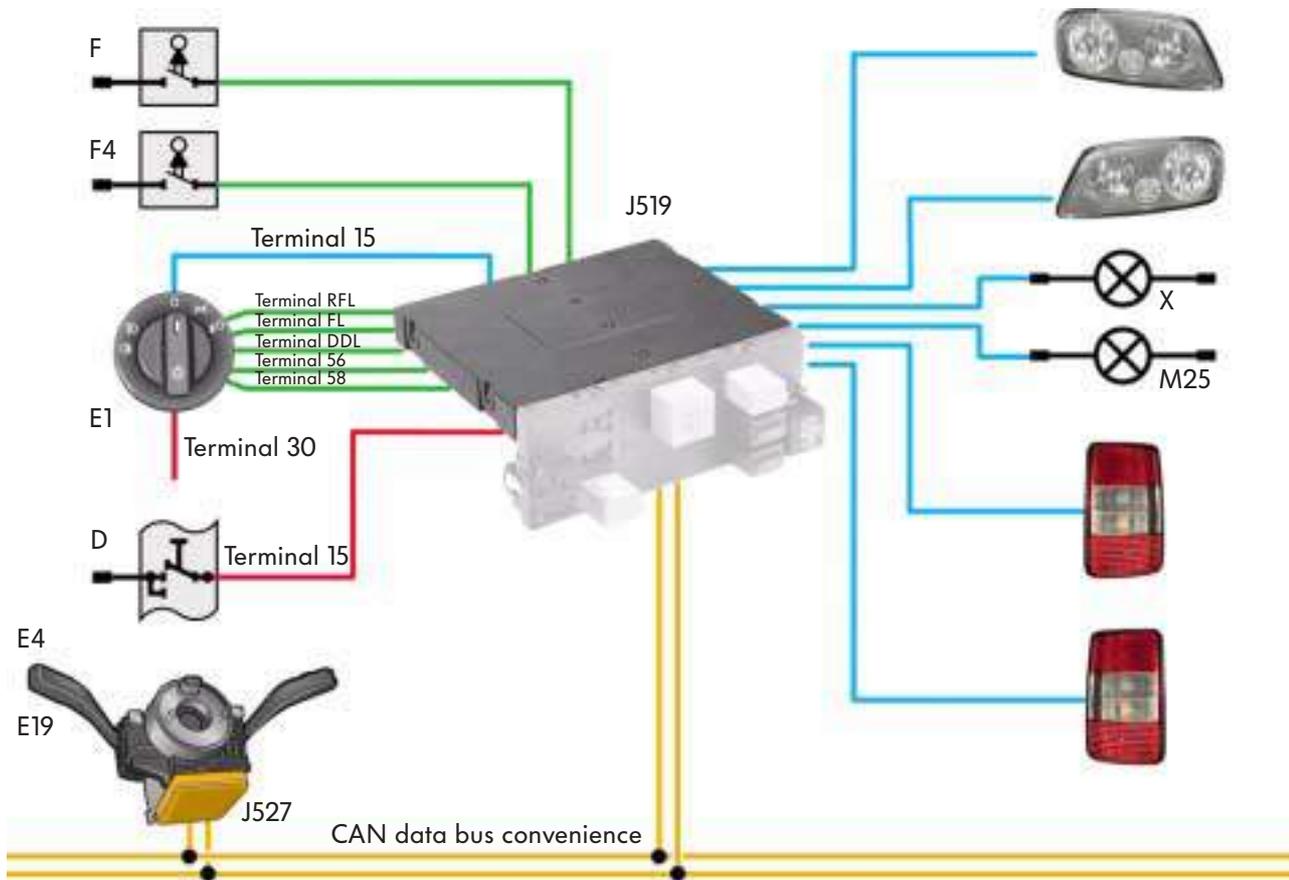
- uncritical
- critical
- very critical



## Outside light control

The onboard supply control unit evaluates the signals from the light switch directly. The information on switching on the turn signal, the main beam lights and use of the flasher lights is sent via the steering column electronics control unit J527 and the CAN convenience data bus.

### Functional diagram



S328\_174

### Legend

D	Ignition switch terminal 15	Term. 56	Driving lights
E1	Light switch	Term. 58	Side lights
E4	Switch for headlight dipper and flasher	Term. RFL	Rear fog light
E19	Parking light switch	Term. FL	Fog light
F	Brake light switch	Term. DDL	Day driving light
F4	Reversing light switch	Function needs to be coded in the onboard supply control unit. The codes differ from country to country	
J519	Onboard supply control unit	M25	High level brake light bulb
J527	Steering column electronics control unit	X	Number plate light



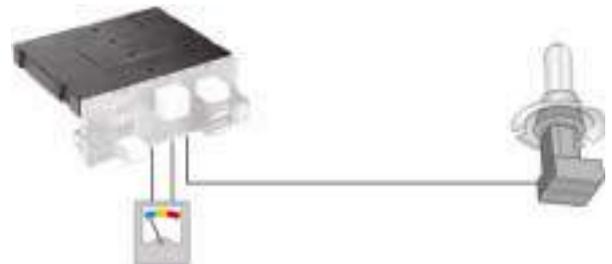
# Electrical system

## Bulb monitoring

The functioning of the bulbs is monitored constantly. They are monitored while switched off (cold monitoring) and switched on (hot monitoring).

### Cold monitoring

The individual bulbs are switched on four times in short intervals of 500 ms when the ignition is turned on. The current value allows the onboard supply control unit to detect a faulty bulb.



S328\_175

### Hot monitoring

The individual bulbs are controlled by semiconductor modules located in the onboard supply control unit. They recognise whether there is overloading, a short circuit or an open circuit.



S328\_176

### Fault detection

In both monitoring types, an entry is made in the fault memory and there is an indication in the dash panel insert when a fault is recognised.

A new bulb is recognised by the monitoring system, the fault is deleted and the displayed indication cancelled.

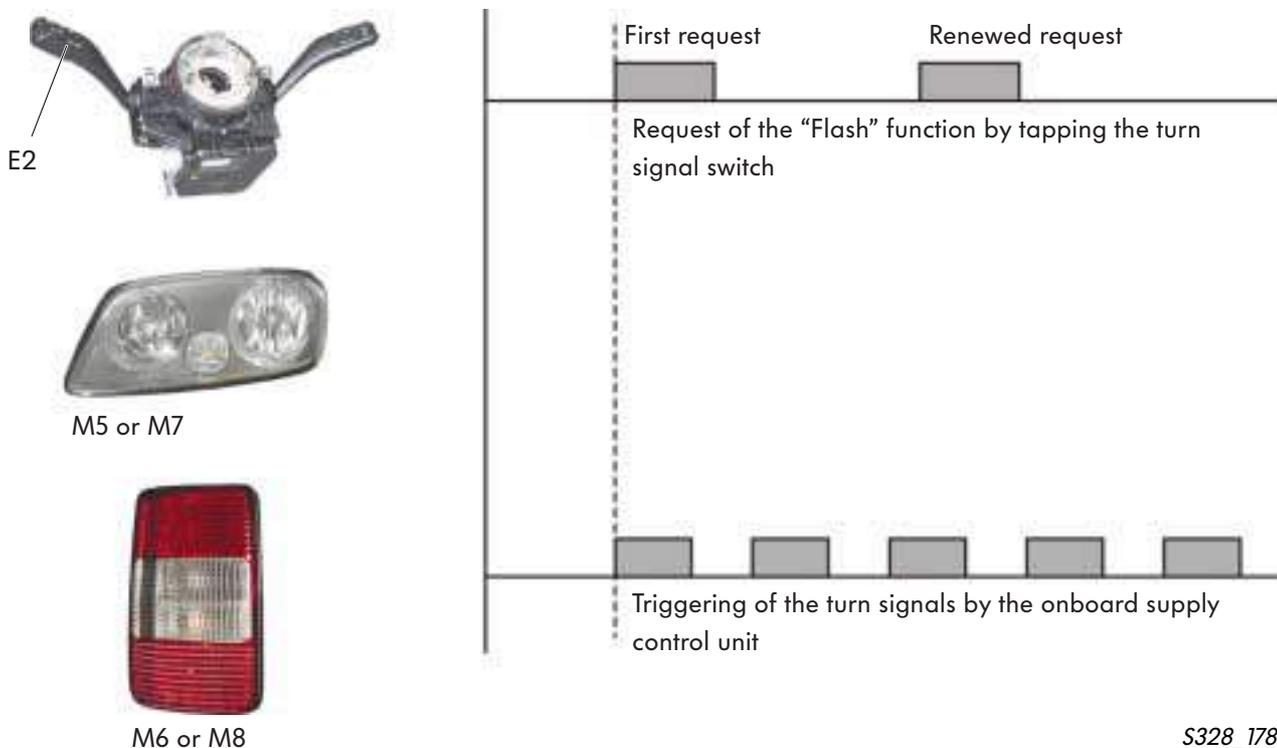


S328\_177

## Turn signal control

When you tap turn light E2 briefly once, the turn lights will flash three times. If you tap again, the turn lights will flash a further three times. This function is called lane-change flash.

### Functional diagram



### Legend

E2	Turn signal switch
M5	Front left turn signal bulb
M6	Rear right turn signal bulb
M7	Front right turn signal bulb
M8	Rear right turn signal bulb

# Electrical system

## Front windscreen wiper system

### Wiper control

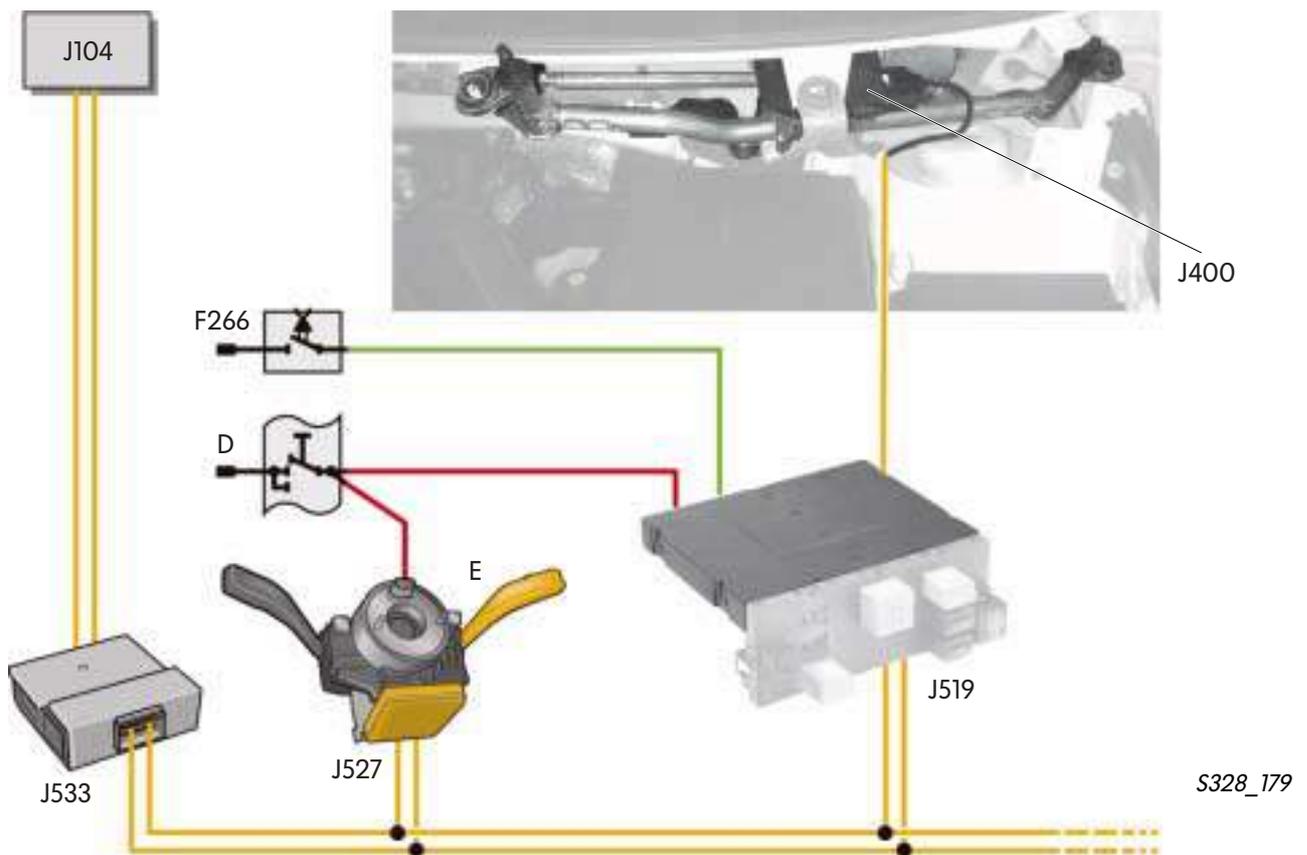
The wiper system uses one motor with a mechanical connection between the wipers.

The operating rods for windscreen wiper switch E are transferred directly to the steering column electronics control unit J527 and then to the onboard supply control unit J519 via the CAN data bus convenience.

The onboard supply control unit directs the information on the selected wiper setting via the LIN data bus to the wiper motor control unit J400 that regulates the wiping cycles.

In intermittent mode, the wiper cycles are speed-related.

### Overview of wiper system



### Legend

D	Ignition/start switch	J400	Wiper motor control unit
E	Windscreen wiper switch	J519	Onboard supply control unit
F266	Bonnet contact switch	J527	Steering column electronics control unit
J104	ABS with EDL control unit	J533	Data bus diagnostic interface

## Service and winter position

If you move the windscreen wiper switch to the flick wiper position within 10 seconds after parking and turning off the ignition, the wipers will move to the top position.

This function will not work when the bonnet is open.



S328\_180

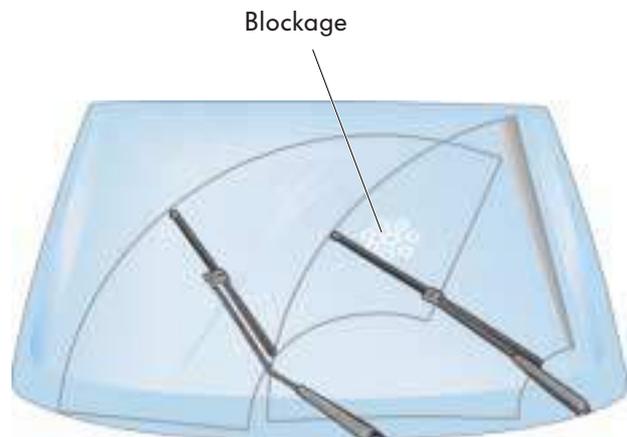
## Anti-block function

The wiper system can detect from the current consumption if the wipers jam.

If there is an obstacle in the wiper path, the wiper system will attempt five times to push the obstacle away. If it cannot remove the obstacle, the wiper will stop in this position.

The obstacle then needs to be removed by hand. The anti-block function covers the whole wiper path just up to the top position.

If the wiper blade has frozen onto the bottom edge of the windscreen, this is also recognised as an obstacle and the wiper will attempt to free itself five times. After the fifth attempt it will stop.



S328\_181

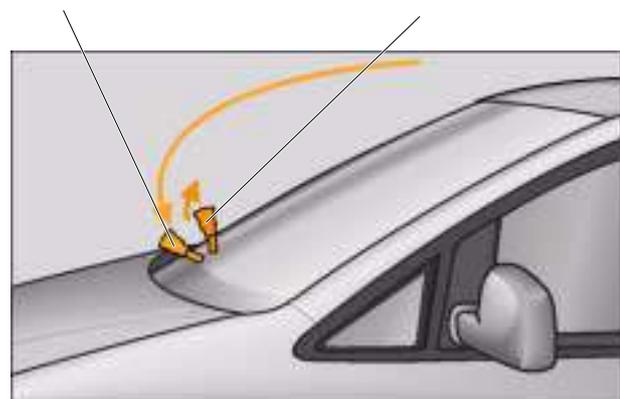
## Alternating rest position

To avoid long-term deformation of the wiper blades, the wipers move up slightly every other time they are switched off.

This changes the position of the wiper blade. In addition, the rest position can be changed again if you switch off the ignition again several times.

Rest position after the first switch off

Rest position after the second switch off



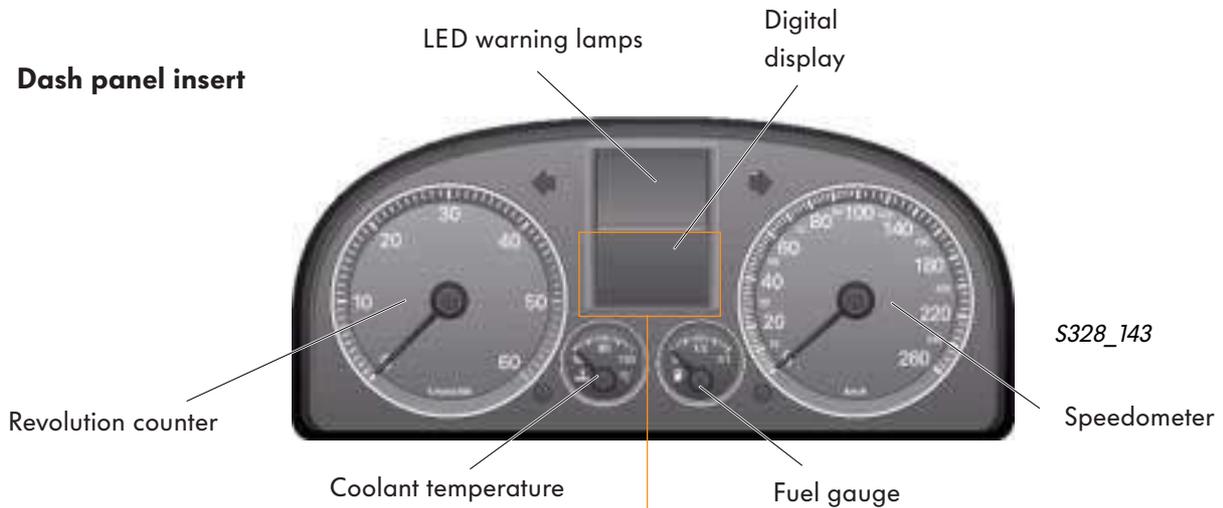
S328\_182



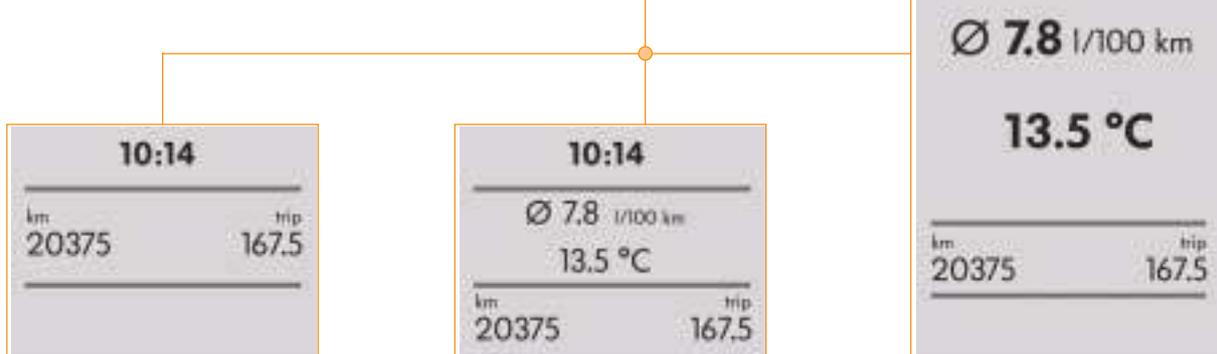
# Electrical system

## Control unit with display in dash panel insert J285

The control unit with display manages all display elements, the analogue gauges and the warning lamps.



The display comes in the following different versions:



Lowline has the displays:

- Clock
- Odometer
- Trip recorder

The Lowline version also comes as a simplified basic version without a coolant temperature gauge. A red LED illuminates when the coolant is too hot.

Midline has the following extras compared with the Lowline version:

- Outside temperature
- Multi-function display or
- Warning texts instead of multi-function display and outside temperature

Highline has the following extras compared with the Midline version:

- Warning symbols/warning texts instead of the multi-function display and outside temperature

## Lights

### Headlights

The headlight unit has a clear glass lens plus one reflector for dipped beam and one for main beam lights. The turn signal light is also integrated in the headlight unit.

The dipped beam light uses H7 bulbs, the main beam light H1 bulbs. The side light is integrated in the reflector for the main beam light. The bulb for the turn signal is coloured yellow.



### Fog lights

The fog lights are integrated in the bumper. They are equipped with H1 bulbs.

### Rear lights

The rear lights are split into three main areas. The brake light is at the top.

The upper part of the centre area with the clear lens contains the reversing light. The lower part of this area holds the turn signal light with a yellow-coloured bulb.

A twin filament bulb is fitted in the bottom section of the light for the tail light and rear fog light.



# Heating and air conditioning

## Climate control

Two different systems are used in the 2004 Caddy:

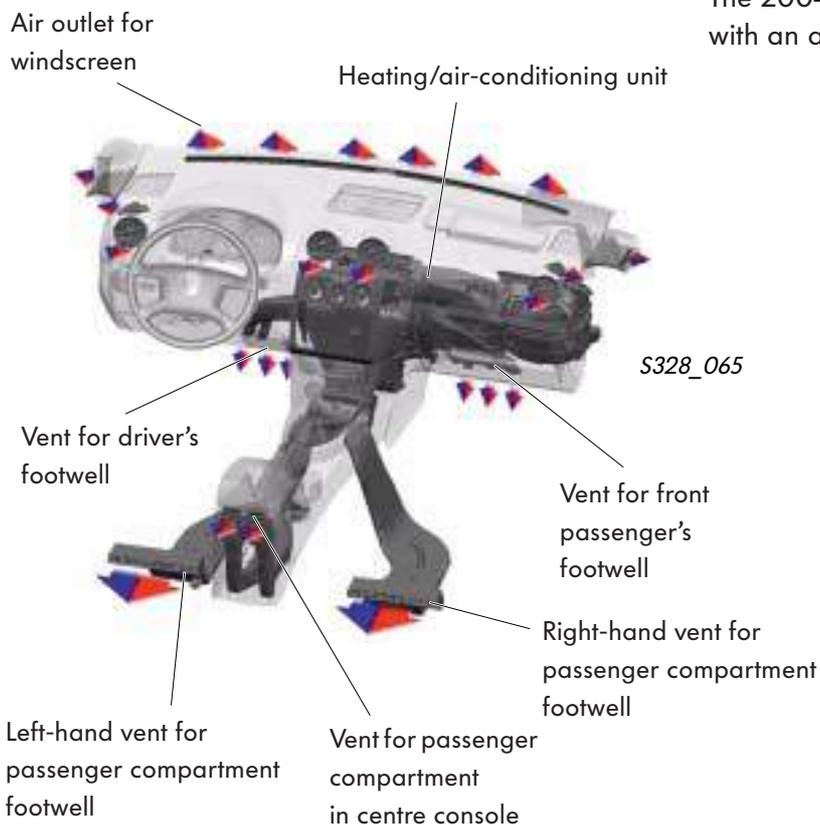
- Manual heating and ventilation system
- Semi-automatic Climatic air conditioning

Both systems use an air-conditioning unit with the same design that has been adapted for the respective requirements. The controls are different, however.

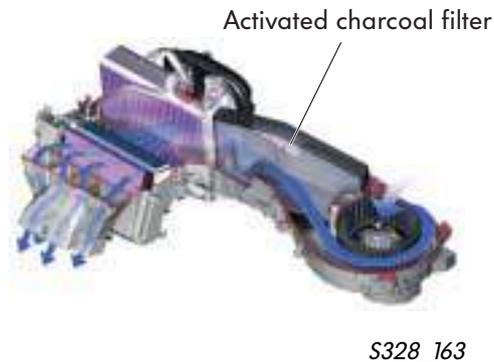
In the Caddy Van, there are only air vents for the driver and front passenger in the dash panel. The Caddy Life has additional vents at rear end of the centre console for the rear passengers, these are optional in the Caddy Shuttle. Furthermore vents are also fitted in the footwell of the Caddy Shuttle/Life for the passenger compartment.

The heating units are equipped with dust filters and the air-conditioning units with activated charcoal filters.

The 2004 Caddy can be optionally equipped with an auxiliary coolant heater.



### Air distribution with activated charcoal filter



The picture shows a Caddy Life. Dummy covers are fitted on the heating/air conditioning unit in vehicles without rear vents.

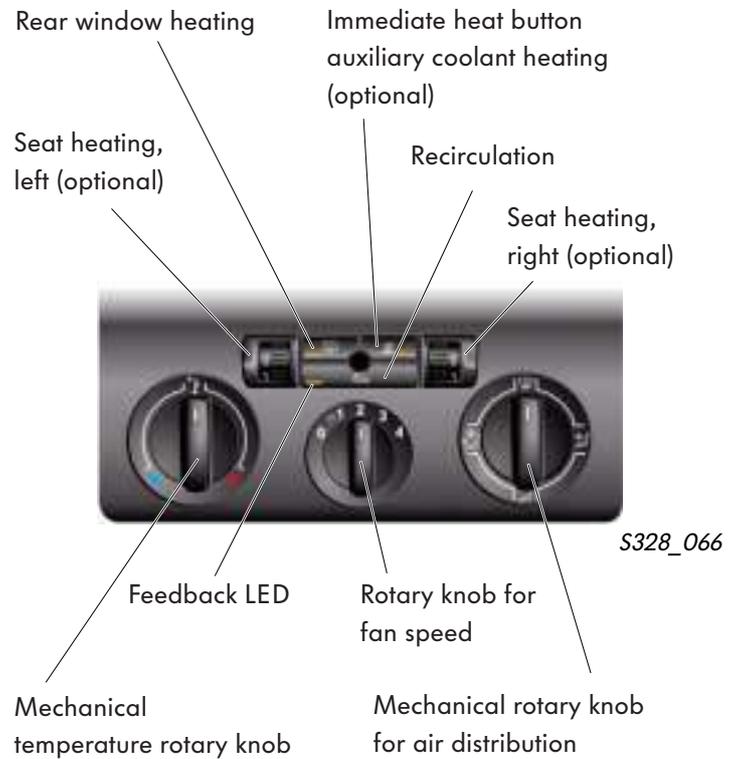


Please refer to the repair guide for information on how to exchange the dust and activated charcoal filter.

## Manual heating

The temperature and air distribution is set manually on the operating unit in the dash panel for the vehicle interior as a single climate zone. The temperature is not regulated. The rotary knob for the temperature and air distribution are connected the air-conditioning unit only mechanically via a flexible shaft and a Bowden cable.

## Operating unit for manual heating



## Climatic

Climatic allows you to set the temperature with the left-hand rotary knob.

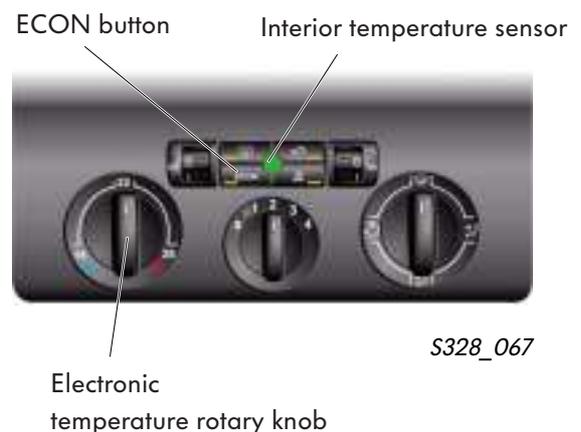
The selected temperature is forwarded to the Climatic system via a potentiometer. The Climatic system controls the temperature flap in the air-conditioning unit to automatically regulate the interior temperature.

The air distribution is set only mechanically with the right-hand rotary knob.

The ECON button switches the air conditioning on and off. In ECON mode, the preheater in vehicles with diesel engines is also switched off.

The Climatic air-conditioning unit has a combined fresh air/recirculation flap.

## Climatic operating unit

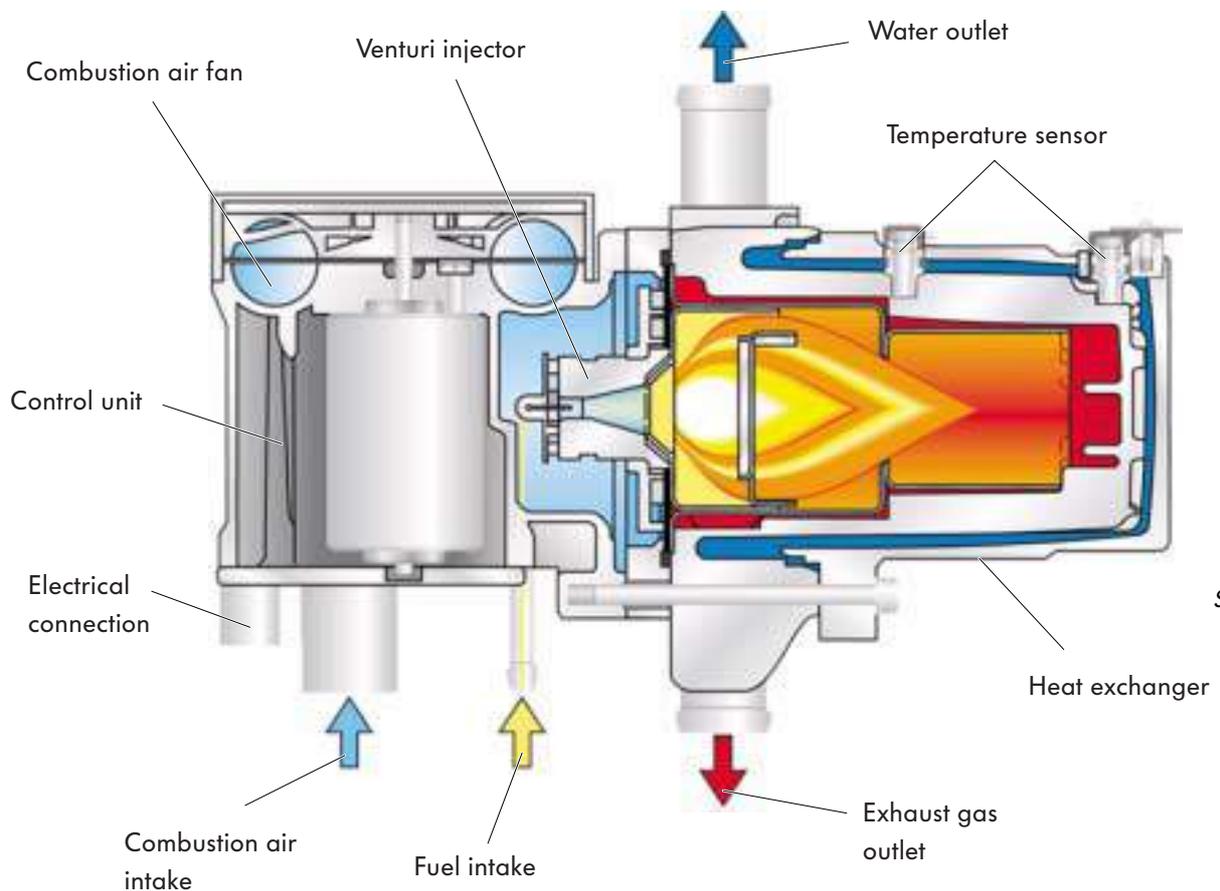


# Heating and air conditioning

## Thermo Top V auxiliary coolant heating

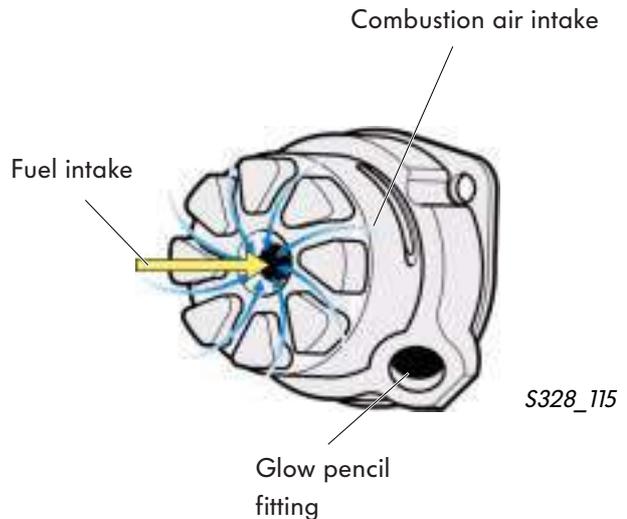
The 2004 Caddy can be optionally equipped with the Thermo Top V auxiliary coolant heating system. It has the following technical features:

- The control unit for the auxiliary coolant heating is integrated in the heating unit. The electrical contacts for the combustion air fan are mounted directly on the control unit.
- Furthermore the auxiliary coolant heating has a second NTC temperature sensor in the heating unit. This improves the monitoring and control of the coolant temperature.
- The fuel is injected via a Venturi injector and mixed with the combustion air.



## Venturi injector

The intake air is guided via a ceramic housing in the shape of a Venturi injector. This leads to a knock-on effect that supports the fuel injection.



## Activating the Thermo Top V

There are three possibilities for activating the Thermo Top V auxiliary coolant heating. The “Heating” or “Ventilation” functions can be set in the dash panel display.

1. The auxiliary coolant heating can be activated using the immediate heat button on the operating unit.
2. The auxiliary coolant heating can be programmed using the multi-function display (MFD). Programming is carried out via the dash panel display in the “Auxiliary heating” sub-item (customisation).
3. Using the separate remote start control for the auxiliary coolant heating:  
Switching on and off with the remote control (from distance of up to 600 m).

The immediate heat button in the operating unit shows the status of the auxiliary coolant heating: The feedback LED is yellow while it is active.

When a switch-on time has been programmed for the auxiliary coolant heating, the feedback LED is illuminated for approx. 10 seconds after the ignition is switched off.



For further information on auxiliary coolant heating systems, see self-study program 280 “The Phaeton auxiliary heater Thermo TOP C and supplementary heater Thermo TOP Z”.

# Radio, telephone and navigation

## Radio systems

Two different radios are available for the 2004 Caddy.

### Radio R 100

Technical features

- 2 loudspeaker channels (only at front, each 20 Watt)
- RDS FM/AM Europa radio
- Control for an external 6-CD changer
- Telephone control (hands free)
- GALA speed-dependent volume control
- Self-diagnosis incl. loudspeaker diagnosis
- Transport mode (reduction of the current requirement during transport and rest times)



S328\_068

### Radio RCD 300

Technical features

- 2 or 4 loudspeaker channels (each 20 Watt), the fader function is available when there are 4 channels
- RDS FM/AM Europa radio
- 2-tuner FM Diversity
- Integrated single CD drive
- Control for an external 6-CD changer
- Telephone control (hands free)
- GALA
- Self-diagnosis incl. loudspeaker diagnosis
- Transport mode (reduction of the current requirement during transport and rest times)



S328\_069



## RNS MFD-2 radio navigation system

The 2004 Caddy can also be equipped with a radio featuring an integrated navigation system.

### Technical features

- Multi-colour display (MFD)
- Dynamic traffic guidance (avoiding jams)
- 2 or 4 loudspeaker channels (each 20 Watt)
- RDS FM/AM Europa radio
- Display of the stored stations with RDS names
- Control unit for aerial selection (external change-over box)
- Control for an external 6-CD changer
- Telephone control (hands free)
- GALA
- Traffic Information Memory (TIM)
- Self-diagnosis incl. loudspeaker diagnosis
- Display of navigation arrows and navigation information in dash panel insert (Highline)



S328\_071



Diversity refers to the different aerial signals.

The Diversity systems are used in the radio and radio-navigation systems to improve reception. At least two separate aerials are required for a Diversity system.



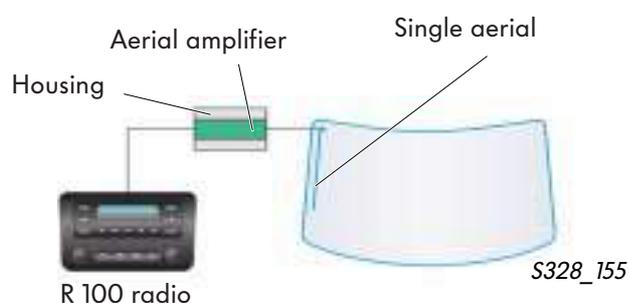
# Radio, telephone and navigation

## Radio aerials

The 2004 Caddy has different aerials fitted in the front windscreen depending on the equipment. Depending on the type of radio system, single aerials and Diversity aerials are used.

### Single aerial

The R 100 radio has a single aerial in the front windscreen and an aerial amplifier.

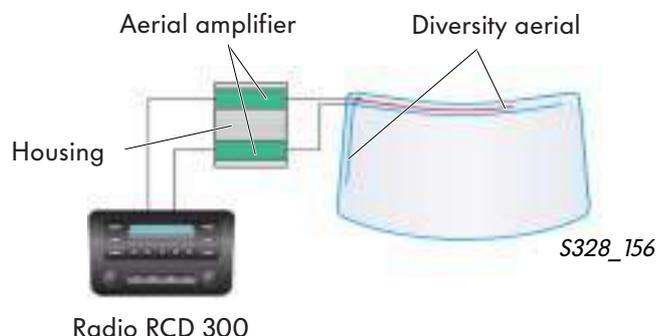


### Diversity aerials

Two independent aerials (Diversity aerials) can reduce reception interference like noise and crackling, for example, in conjunction with the 2-tuner FM Diversity or the control unit for aerial selection (external change-over box). This interference occurs frequently in residential areas or mountainous regions due to reflection from houses and mountains. The reflection causes the signals to be delayed and leads to interference.

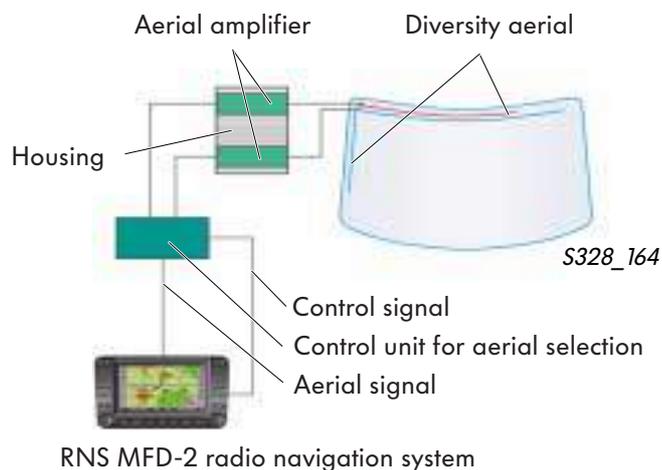
### 2-tuner FM Diversity system

The RCD 300 radio has an integrated 2-tuner FM Diversity system with two internal receivers that process the incoming aerial signals separately and combine them to make a single signal.



### Control unit for aerial selection

The J515 aerial selection control unit (external switch-over box) allows connection of the Diversity aerials to the RNS MFD-2 radio navigation unit. This monitors the incoming aerial signals on the external switch-over box and automatically switches to the aerial with the stronger signal.

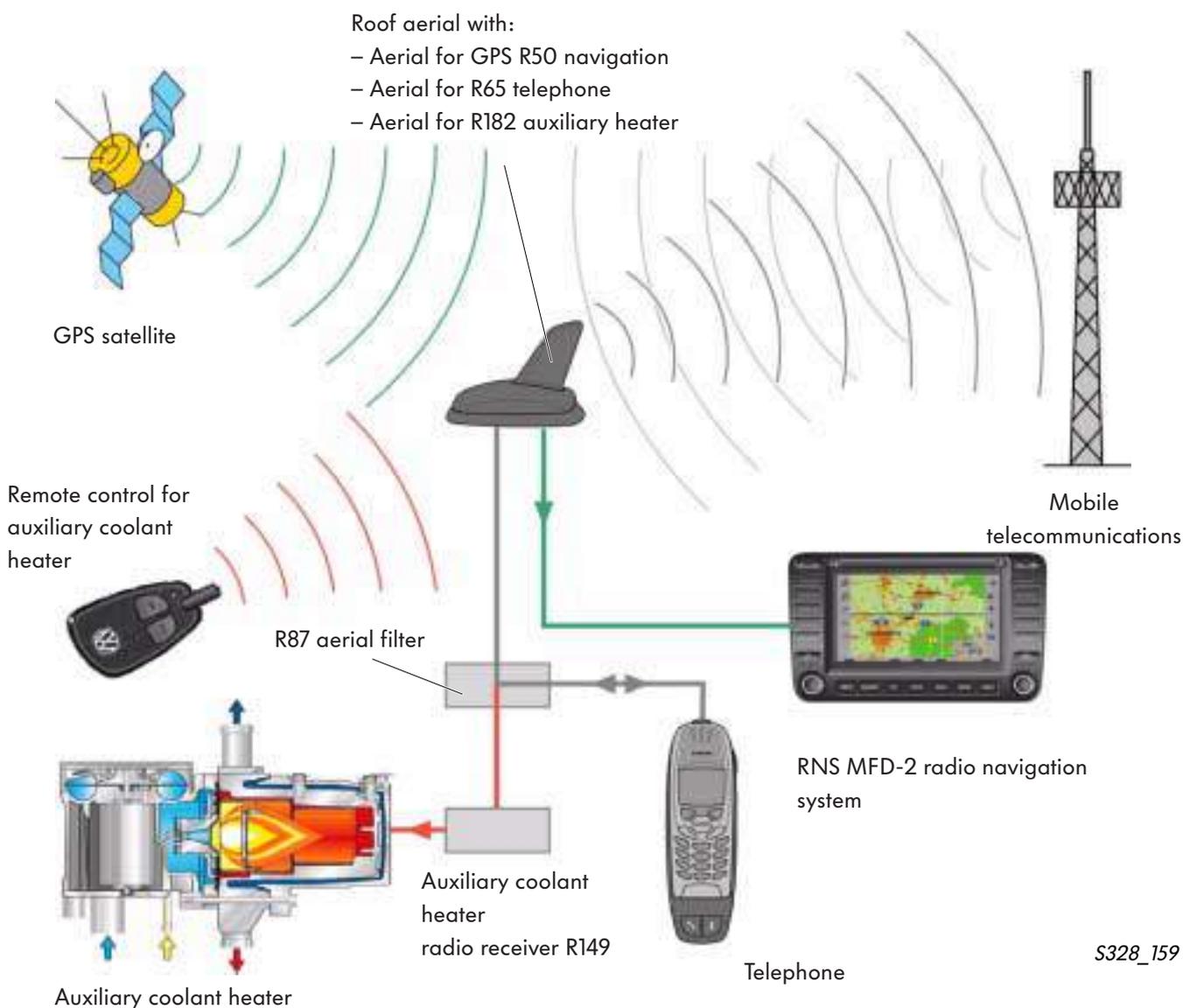


## Telephone/navigation aerial

The 2004 Caddy can also be optionally equipped with an additional telephone/navigation aerial. The aerial is used in conjunction with the following optional components:

- RNS MFD-2 radio navigation system
- Telephone/preparation for telephone\*
- Remote control for auxiliary coolant heating\*

\* When the vehicle is equipped with a telephone/preparation for telephone and auxiliary coolant heating with remote control, the reception signals are split by a frequency divider. If only one of the two components are installed, the respective signal runs straight to the receiver and a divider is not needed.



S328\_159



## Diagnosis

The VAS 5051 vehicle diagnosis, measuring and information system and the VAS 5052 vehicle diagnosis and service information system are available for the 2004 Caddy.

The VAS 5051 vehicle diagnosis, measuring and information system has the familiar operating modes:

- Guided fault finding
- Vehicle self-diagnosis
- OBD (on-board diagnosis)
- Measuring technology

The **“Guided Fault Finding”** operating mode checks all control units installed in the vehicle for fault entries and automatically compiles a system test plan from the results.

In conjunction with ELSA information, for example, the circuit diagrams or repair guides, this mode guides you directly to the cause of the fault.

In addition, you also have the option of compiling your own test plan.

The function and component selection records the tests you select in the test plan. You can then work through the tests in any order during the diagnosis procedure.

The **“Vehicle self-diagnosis”** mode can still be used, but there is no further ELSA information available.

VAS 5051



S328\_072

The **“Guided Functions”** mode is new. In this way, without a complete vehicle system test, you can quickly access general service functions, for example, adapting vehicle keys.

It is used from the basis CD V06.00.00 and the Volkswagen brand CD V06.42.00.



The VAS 5052 also has the **“Guided Fault Finding”** and **“Guided Functions”** operating modes.



For more detailed information on the procedure and guided fault finding, please refer to chapter 7 of the VAS 5051 operating manual.





© VOLKSWAGEN AG, Wolfsburg, VK-21 Service Training

All rights and rights to make technical alterations reserved

000.2811.44.20 Technical status 04/04

✿ This paper was manufactured from pulp that was bleached without the use of chlorine.