DaimlerChrysler

Cars • Overall Vehicle
C-Class (W204)
Initial Training

Information Module

As at 02/07

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Note:
The term »employees« does not imply any preference of gender and incorporated male and refers to maler and female employees alike.

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Content

21.02.2007

Engine

21.02.2007

Learning objectives

Overall vehicle – comparison of technical data

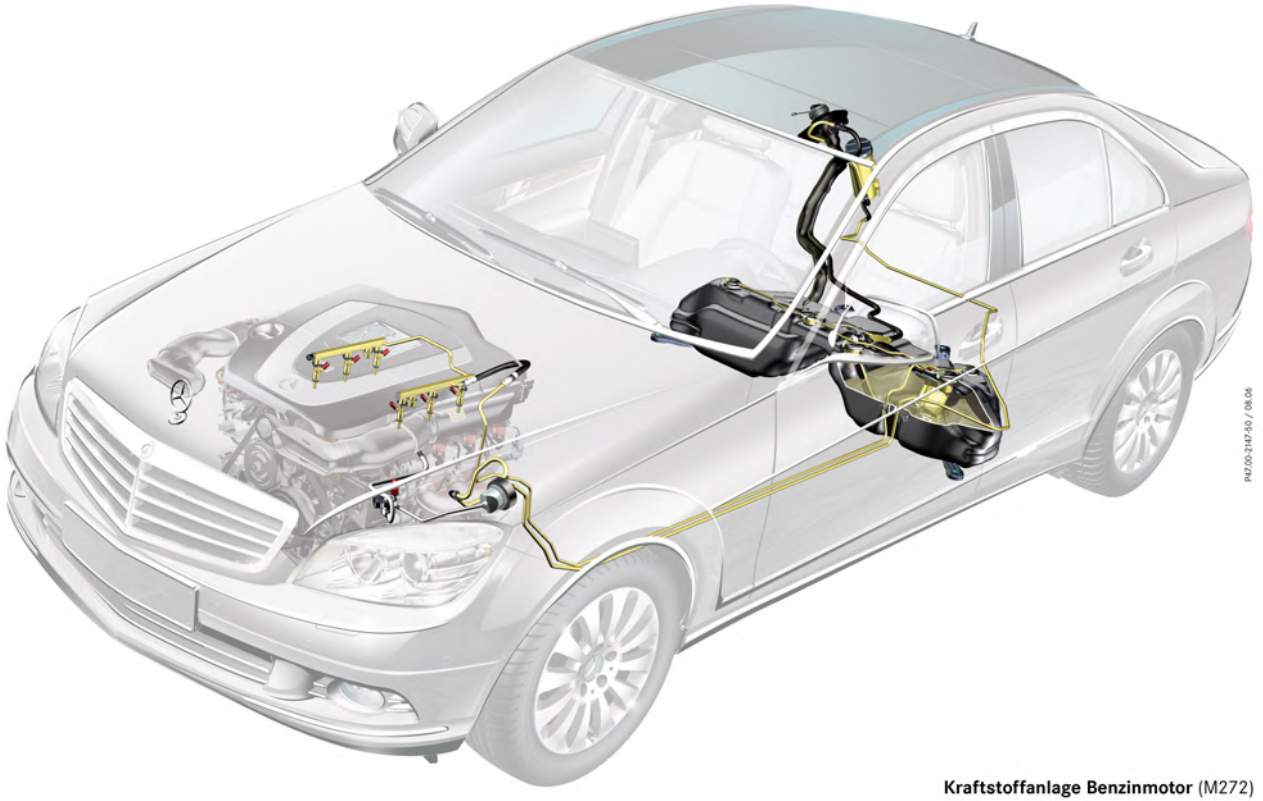
- You can name the engine versions at the market launch.
- You can name the subsequent engine versions after the market launch.

General information on the maintenance system

- You can explain and demonstrate how to read out the workshop code.
- You can state the meaning of the workshop code that is read out.

Design and task of the fuel system

- You are familiar with the design and function of the fuel system.
- You can understand the functioning of the fuel pressure control.
- You will know how to use the special tool when removing/installing the fuel feed module.
- You know the option of replacing the fuel level sensors individually.



Kraftstoffanlage Benzinmotor (M272)
C-Klasse (BR204)
P47.00-2147-50

At market launch of the new C-Class in March 2007 the following model variants will be available:

C 200	M271(KE18ML)
C 230	M272(KE25)
C 280	M272(KE30)
C 350	M272(KE35)
C 220 CDI	OM646(DE22LA EVO)

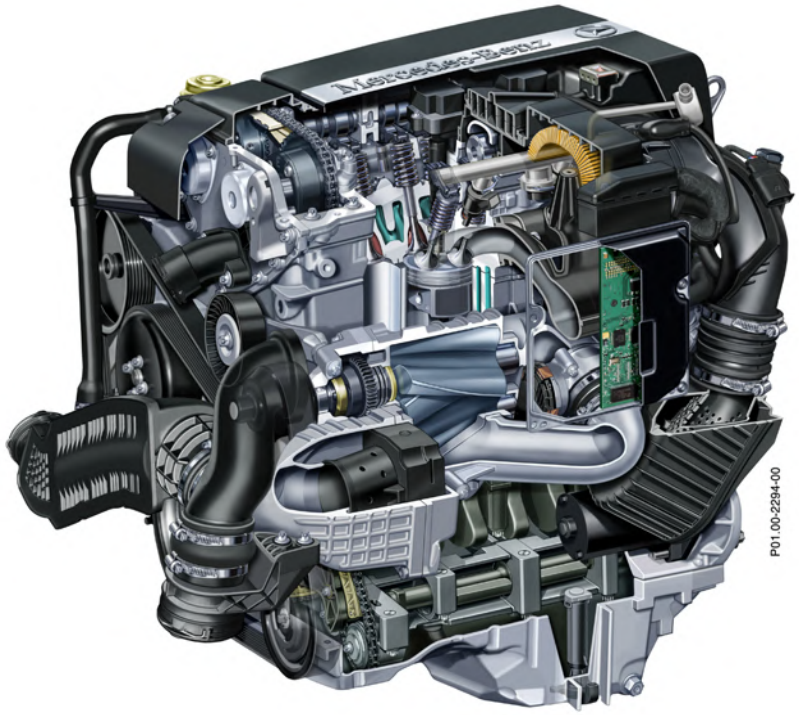
In the course of 2007, the model range will be expanded by the following variants:

C 320 CDI	OM642(D30LA)
C 180	M271(KE18ML)
C 200 CDI	OM646(DE22LA EVO)

GT00_00_0529_C81

Technical features:

- 4-cylinder in-line engine
- Aluminum crankcase with cast iron cylinder barrels
- 4-valve technology with 2 camshafts
- Lanchester balancer (to compensate for free inertial forces)
- Continuously variable camshaft adjustment of the intake/exhaust camshafts
- Internal exhaust gas recirculation (via the camshaft adjustment)
- 2 crankcase ventilation systems (partial & full load)
- Engine control unit mounted on the engine
- Engine control unit with CAN gateway function
- SIM 4 LKE gasoline injection and ignition system (Siemens)
- Fuel system with fuel pump control unit (N118)
- Compressor charging via an EATON charger
- Charge air cooling
- Dedicated ignition coils
- Catalytic converters mounted close to the engine
- Linear lambda control (wide-band sensor)
- Exhaust certification in accordance with EURO 4
- Vacuum pump

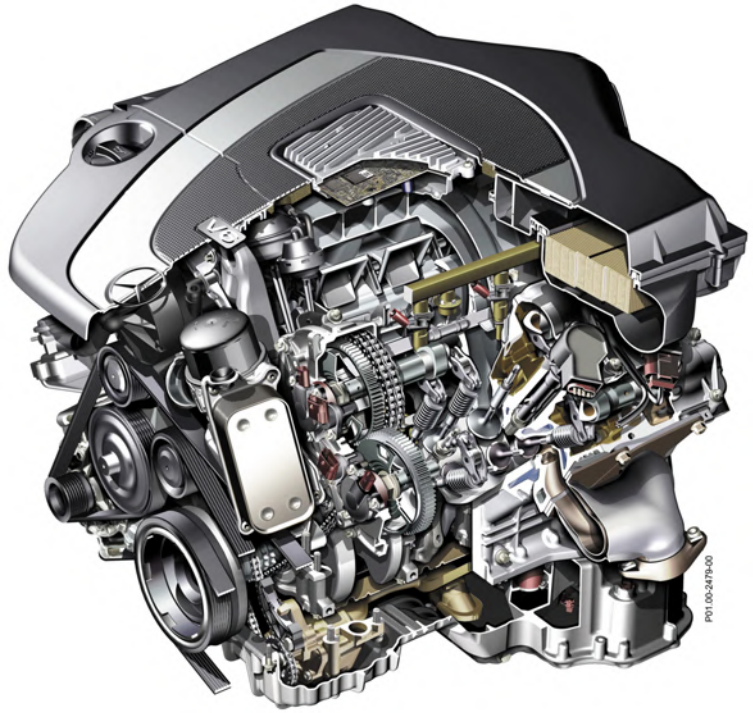


P01-00-2294-01

Sales designation	Displacement in cm³	Rated output kW (HP)	Rated torque Nm (lb-ft)
C180 (204.040)	1796	115 kW (156 HP)	230 Nm (169 lb-ft)
C200 (204.041)	1796	135 kW (183 HP)	250 Nm (184 lb-ft)

Technical features:

- V6 engines with 60° cylinder angle
- Aluminum crankcase with silicon-coated barrels (SILITEC)
- 4-valve technology with two camshafts per cylinder bank
- Balance shaft (to compensate for free inertial forces)
- Weight-reduced pistons and rods
- Infinite camshaft adjustment of the intake/exhaust camshafts of up to 40° CA
- Internal exhaust gas recirculation (via the camshaft adjustment)
- 2 crankcase ventilation systems (partial & full load)
- Engine control unit mounted on the engine
- Engine control unit with CAN gateway function
- ME9.7 gasoline injection and ignition system (Bosch)
- Fuel system with fuel pump control unit (N118)
- Variable intake manifold with variable length intake manifold switchover flaps and swirl flaps
- HFM 6 hot film mass air flow sensor (frequency output)
- Dedicated ignition coils
- Catalytic converters mounted close to the engine
- Linear lambda control (wide-band sensor)
- Engine thermal management with electrical three-disk thermostat
- Exhaust certification in accordance with EURO 4

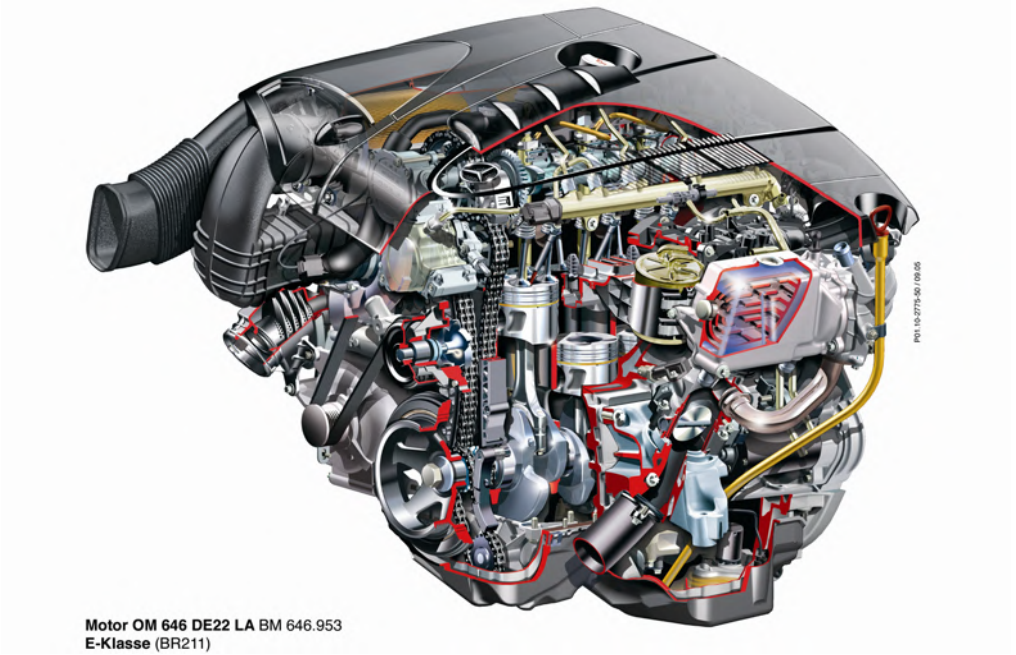


P01-00-2479-50

Sales designation	Displacement in cm³	Rated output kW (HP)	Rated torque Nm (lb-ft)
C230 (204.052)	2496	150 kW (203 HP)	245 Nm (180 lb-ft)
C280/C300 USA (204.054)	2996	170 kW (231 HP)	300 Nm (221 lb-ft)
C350 (204.056)	3488	200 kW (271 HP)	350 Nm (258 lb-ft)

Technical features:

- 4-cylinder in-line engine
- Cast iron crankcase
- 4-valve technology with two camshafts
- Lanchester balancer (to compensate for free inertial forces)
- Crankcase ventilation system with electrical heating element
- Engine control unit with CAN gateway function
- CDI-D common rail diesel injection (Delphi)
- Max. injection pressure 1600 bar
- Magnet fuel injectors
- Maximum peak pressure in the combustion chamber up to 165 bar
- VTG turbocharger with electrical actuator motor (variable turbine geometry) stage 3
- Charge air cooling
- Intake air throttling via the throttle valve actuator (only diesel particulate filter)
- Intake port shutoff (EKAS) with electrical actuator motor
- Exhaust gas recirculation with electrical actuator motor
- Diesel particulate filter
- Instant Start System
- Glow plugs with ceramic glow pins
- Knock sensor
- Oil level switch and oil temperature sensor
- Certification in accordance with EURO 4



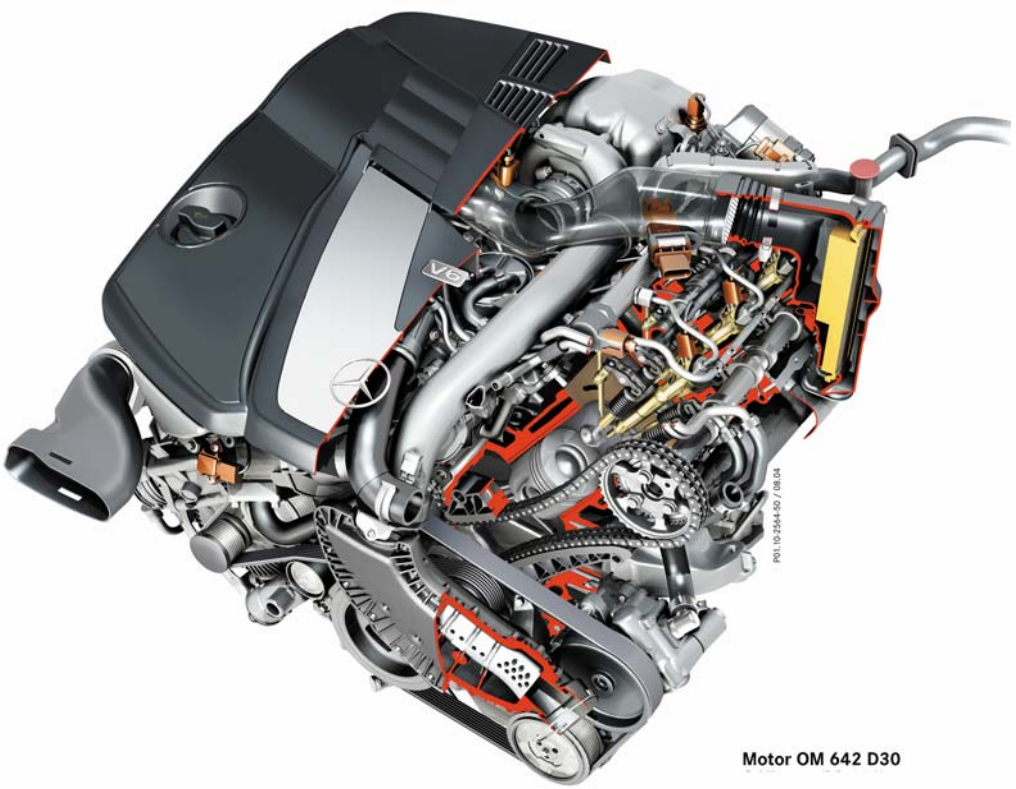
Motor OM 646 DE22 LA BM 646.953
E-Klasse (BR211)

P01-10-2775-50

Sales designation	Displacement in cm³	Rated output kW (HP)	Rated torque Nm (lb-ft)
C200 CDI (204.007)	2148	100 kW (135 HP)	300 Nm (221 lb-ft)
C220 CDI (204.008)	2148	125 kW (169 HP)	400 Nm (295 lb-ft)

Technical features:

- V6 engine with 72° cylinder angle
- Aluminum crankcase with cast iron cylinder barrels
- 4-valve technology with two camshafts per cylinder bank
- Balance shaft (to compensate for free inertial forces)
- Crankcase ventilation with centrifugal oil separator
- Engine control unit with CAN gateway function
- CDI 6 common rail direct injection (Bosch)
- Max. injection pressure 1600 bar
- Piezo fuel injectors
- Maximum peak pressure in the combustion chamber up to 175 bar
- VTG turbocharger with electrical actuator motor (variable turbine geometry) stage 2
- Charge air cooling
- Intake air throttling via the throttle valve actuator (exhaust gas recirculation & diesel particulate filter regeneration)
- Intake port shutoff (EKAS) with electrical actuator motor
- Exhaust gas recirculation with electrical actuator motor
- Diesel particulate filter
- Instant Start System
- Oil level switch and oil temperature sensor
- Certification in accordance with EURO 4



Motor OM 642 D30

P01-10-2564-50

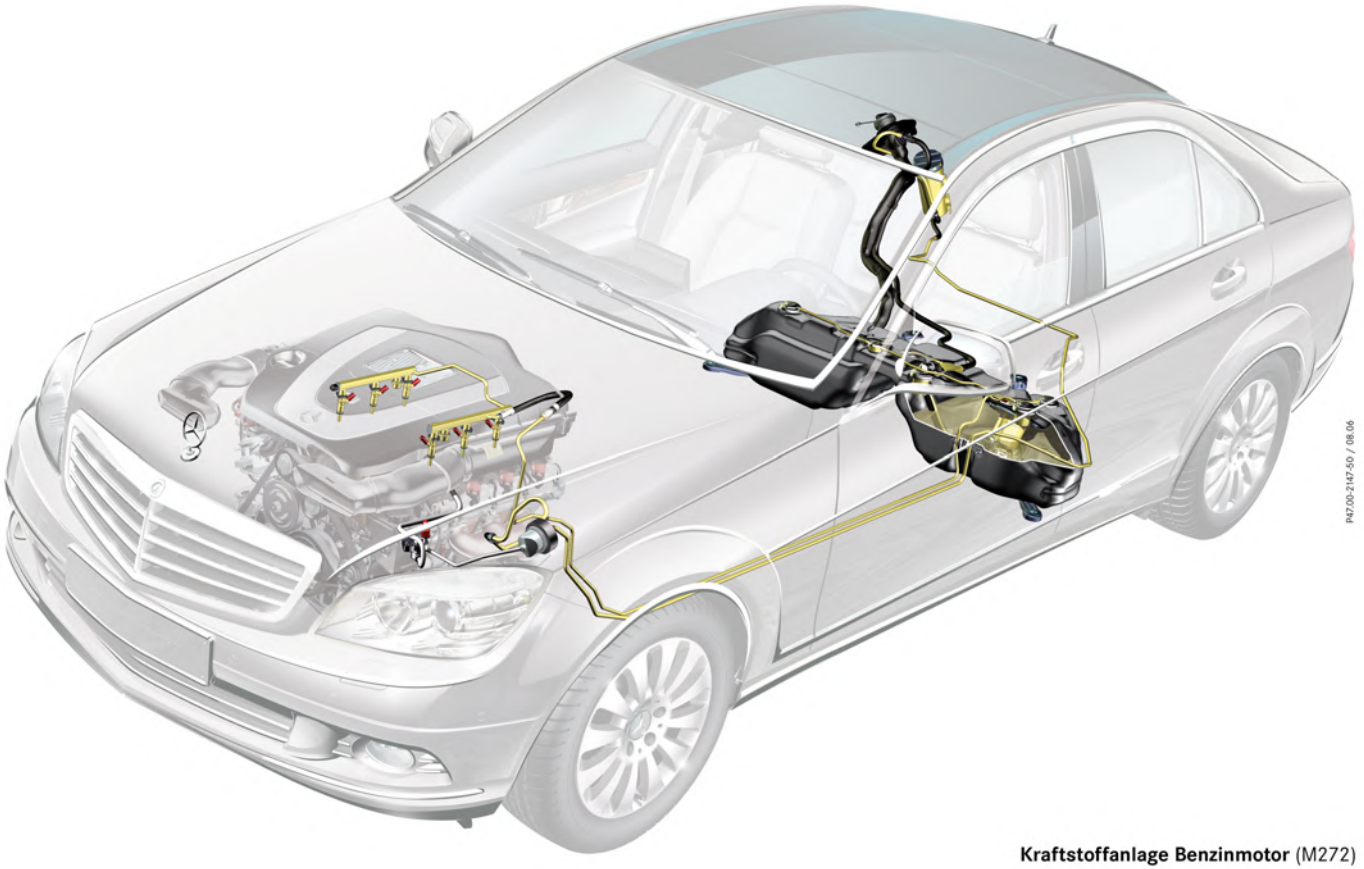
Sales designation	Displacement in cm³	Rated output kW (HP)	Rated torque Nm (lb-ft)
C320 CDI (204.022)	2987	165 kW (224 HP)	510 Nm (376 lb-ft)

Every engine variant in BR204 (ECE) has a plastic tank with a coupled design.
The filling volume for all variants is 65 l including an 8 l reserve.
The fuel feed module is located on the right side with an installed MAPPS fuel level sensor.
The left side holds the fuel filter. A fuel level sensor is also installed on the filter.
A suction jet pump is installed in each of the tank halves to equalize their fill levels.
Both of the components in the tank (fuel filter, fuel feed module) are accessed for servicing via openings in the vehicle floor below the rear bench seat.

In BR204, a differentiation is made between two kinds of electrical fuel pump actuation:

Diesel engines: uncontrolled fuel supply

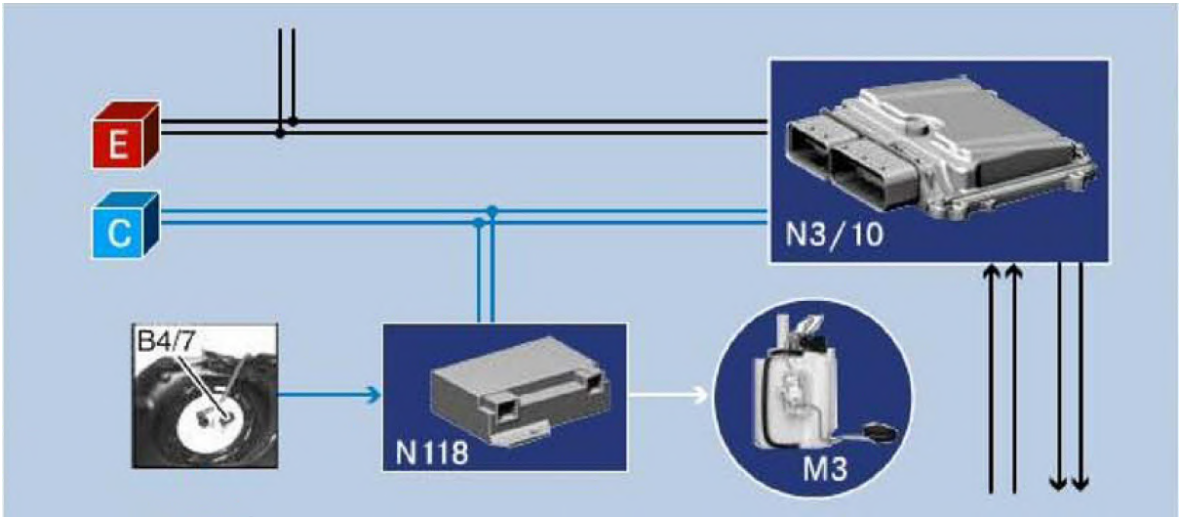
Gasoline engines: electronically controlled fuel supply



Kraftstoffanlage Benzinmotor (M272)
C-Klasse (BR204)
P47.00-2147-50

The vehicles with gasoline engines M271 and M272 will be equipped with a newly developed, electronically controlled fuel supply. The main difference is that the fuel quantity is controlled according to the actual fuel requirements of the engine and, as a result, the idle power of the electric fuel pump has been significantly reduced.

This control unit consists of a control and power electronics unit.
The fuel pump control unit is connected to the fuel pump, fuel pressure sensor, and the ME engine control unit via the two connectors.



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Advantages of this system include:

- Significantly less power consumption by the electric fuel pump and, as a result, less load on the on-board electrical system
- Lower rotational speed of the electric fuel pump, which means that the noise emissions are significantly reduced.

The fuel pump control unit has diagnostic capability and can be read out using STAR DIAGNOSIS.

Information for Service

FSCU **F**uel **S**ystem **C**ontrol **U**nit

New lock rings have been introduced to attach the fuel feed modules in the fuel tank in model series 204.

After a fuel feed module has been detached, the gasket between the fuel feed module and the fuel tank must always be replaced for safety reasons.

When attaching the lock rings, they must be turned clockwise with force using the special tool (claw wrench).

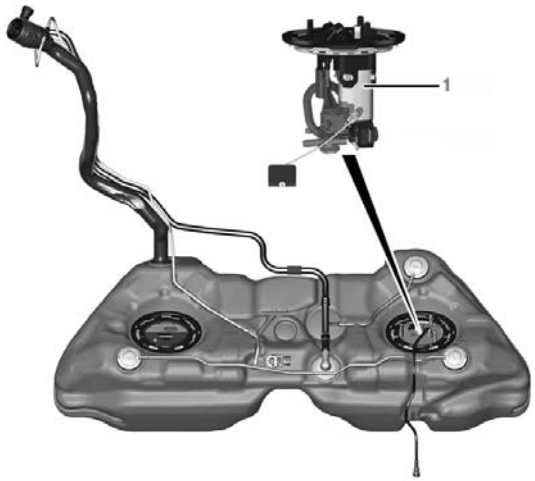
The lock ring is locked when the catch tabs latch between the recesses on the locking claws.

A lock ring that is not latched in correctly may become loose, which may result in leaks in the fuel tank!

Information for Service

The fuel feed modules can only be detached and attached using a special tool (W 001 589 00 07 00).

For additional information see AR 47.10-P-4100-02 CWA



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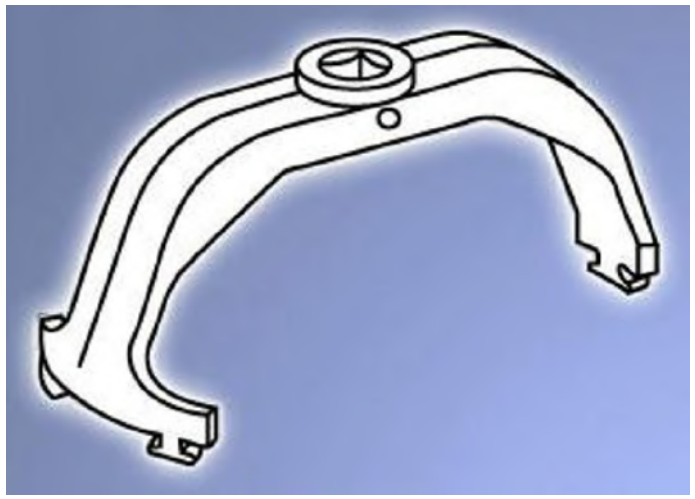
Legend

1 Fuel feed module



W001-589-00-07-00

The well-known "ASSYST plus" maintenance system is used in BR204.

This maintenance system includes fixed service intervals.

- Gasoline engines: 25000 km or 1 year (if using 229.5 oil)
- Diesel engines: 25000 km or 1 year (if using 229.31 oil)

An additional highlight is integration in:

- Service Packet Pricing System (SPPS)

This provides the customer with a high level of transparency as regards:

- Maintenance costs
- Scope
- Workshop appointments

with maximum flexibility.

GT00_20_0023_C71

Go to the following Internet address to find out more on the Service Packet Pricing System (SPPS):

https//aftersales-net.daimlerchrysler.com/portal

- The fixed service interval is coded within the CGW.
- Code K12 indicates a programmed, fixed service interval.
- Additional K__coding enables programming of further service intervals.

Note: This screen appears in DAS:

1. In ASSYST PLUS
2. In the CGW in the Control unit adaptation menu item

Also note: Service Information: SI00.20-P-0027A

Illustrated on BR219 (code K12 does not exist for BR204)

Possible service intervals and associated codes in BR204.

These are programmed via SCN coding when the vehicles leave the factory, taking specific national versions into account.

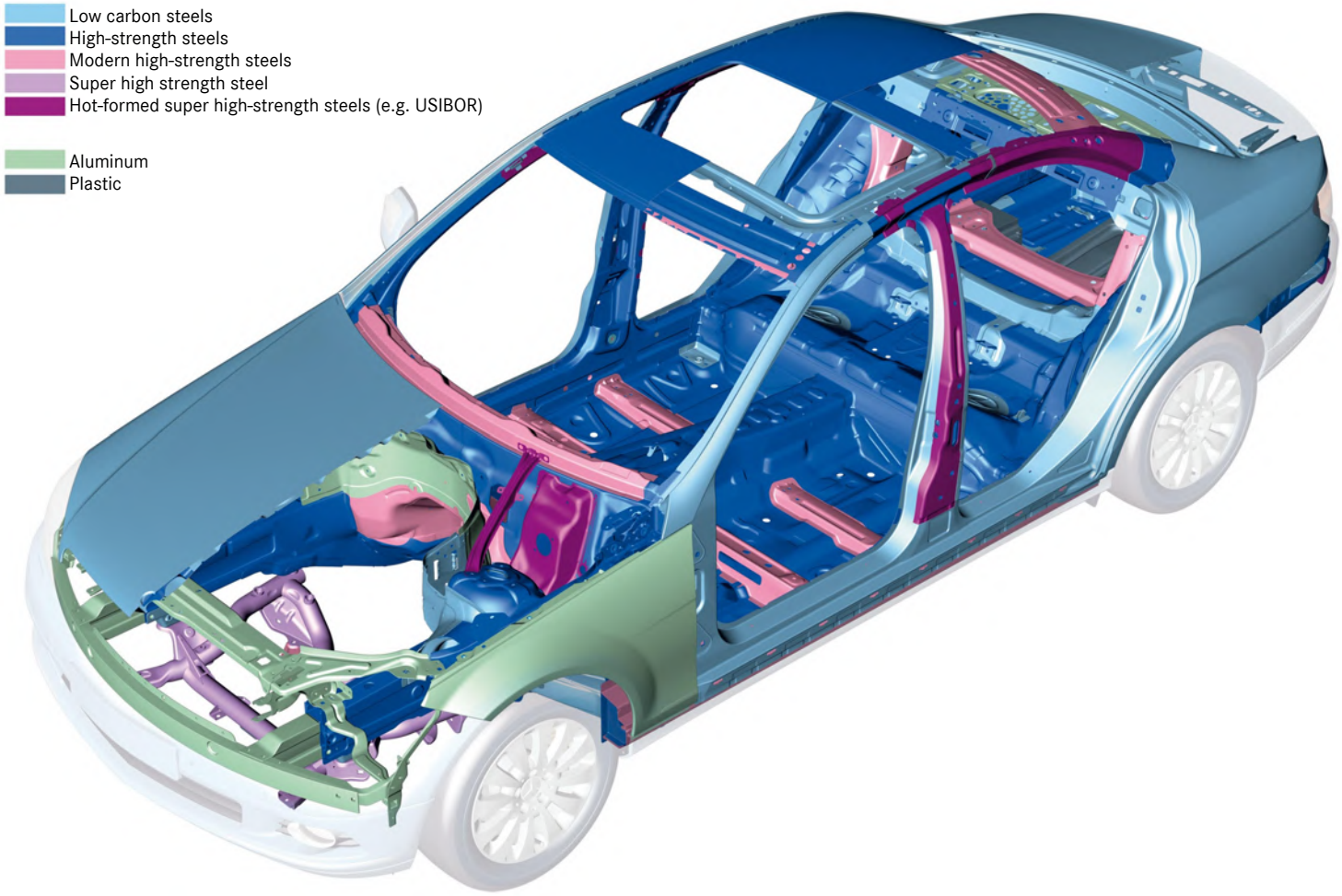
GT47_20_0030_C11

Code for service intervals	Service intervals
K13	25,000 km
K14	20,000 km
K15	15,000 km
K16	12,000 km
K17	10,000 km
K18	8,000 km

Learning objectives

- You will know the vehicle shell structure and the materials used for it.
- You can list differences with respect to the W203 vehicle shell and will know the special features.
- You can identify the corrosion prevention system and deduce advantages.
- You can describe the detailed structure of the door concept.
- You will know the structure, the function and the special features of ARAMIS/NECK-PRO and PRE-SAFE.
- You can perform all emergency operations for doors, sliding roof, tank cap and park pawl.
- You can find and use Isofix mountings.
- You can define different roof systems and name new features.

Airbag-System im Fahrzeug (Vollausstattung)
C-Klasse (BR204)
P91.00-2200-50



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Passenger cell

The highly stable passenger cell, designed as a safety cage, forms the core of the body safety concept. Contributing, above all, to its high stability under accidental stresses (head-on, side and rear collisions, as well as rollovers) are:

- Increased use of high-strength, modern high-strength, super high-strength, and hot-formed super high-strength sheet steel and sheet metal with stepped wall thicknesses.
- Materials and sheet thicknesses appropriate for the stresses to the components or structure zones that are severely strained during accidents.
- An optimized forming and cross-section design.

Marking of sectional repairs

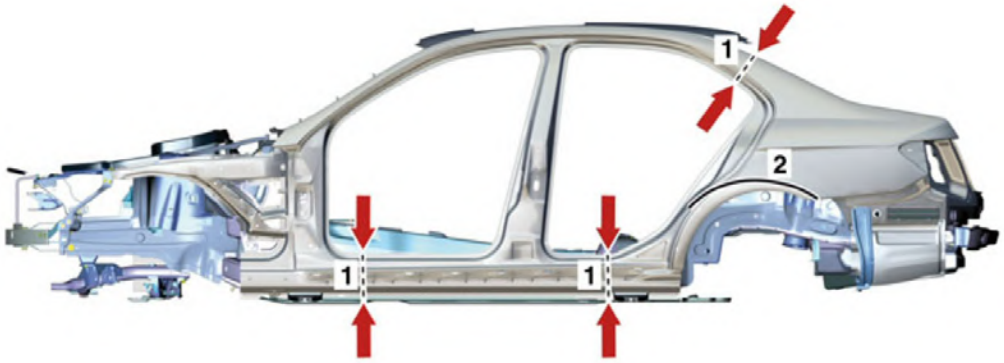
"Y" markings are included on the C-pillar paneling and on the outer side of the longitudinal member (below the paneling), which mark the recommended separation points. Joining up the "Y" markings produces an outline for the cut and join.

Bonding of the rear fender to the wheel well with soft adhesive is a new feature. An appropriate repair method is described for this in WIS.

In the case of a repair, the roof paneling is riveted on the left and right in the roof duct instead of being spot welded as in series production.

Note

For reasons of crash safety and durability, the use of two-component repair structural adhesive is absolutely essential.
As a general rule, ultra high-strength hot-formed steel must never be MAG-welded.



GT63_10_0016_C74

Legend

1 Y markings (separation points) for the body
2 Bonding of rear fender

Note

Permissible repair methods are described in the Workshop Information System (WIS).
In general, all areas that are bonded as standard must also be bonded during repairs.

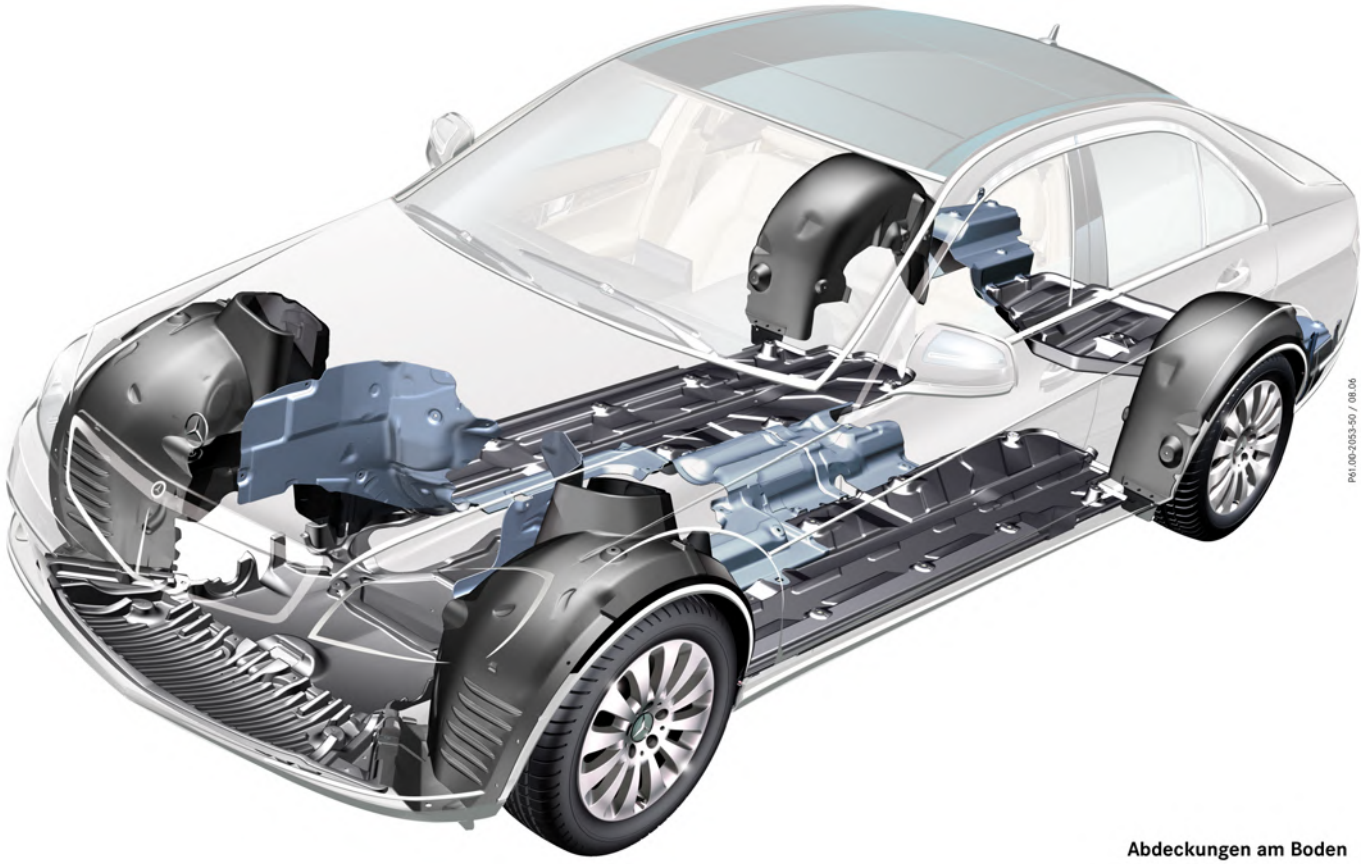
Fully galvanized body

Body structure fully galvanized:

- Hot-dip galvanizing (in parts)
- Electrolytic galvanizing

General safety precautions prior to mechanical stress by:

- Underbody paneling
- Wheel house paneling
- Rear floor paneling
- Plastic spare tire well



Abdeckungen am Boden
C-Klasse (BR204)
P61.00-2053-50

Improvement in corrosion protection compared to model series W 203

Body

- Fully galvanized body (even as of model refinement package 203)
- New door frame system with dry area and continuous peripheral seal
- Door bottom edges folded-over with seam seal and wax in the cavities
- Handle strip on trunk lid with centering and chafe protection
- Door handle recess on trunk lid with chafe protection
- Sliding roof frame made of aluminum with plastic water drains
- Continuous peripheral seam seal at all critical points

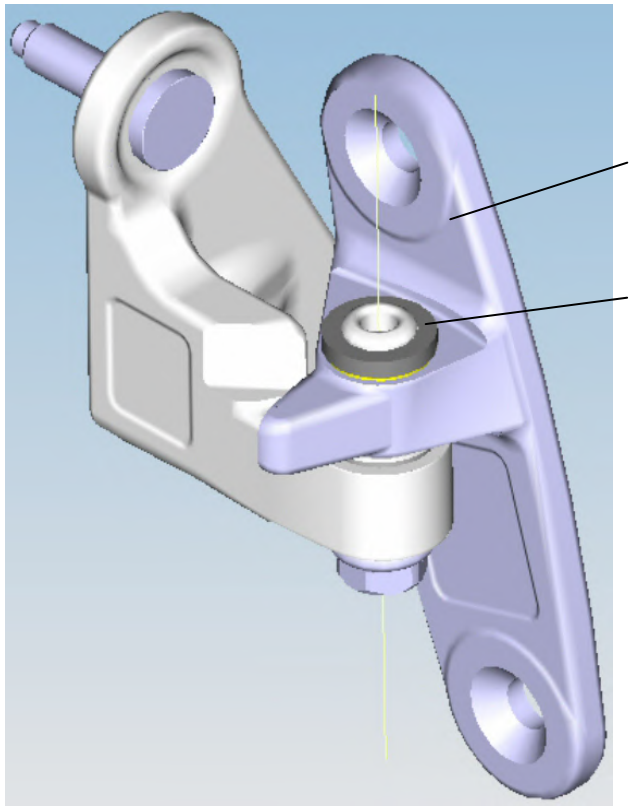
Major assemblies

- Brake calipers with zinc/nickel coating
- New painting system for the rear axle with subsequent preservation aftertreatment
- Diagonal struts hot-dip galvanized
- Front axle frame-type integral support hot-dip galvanized after assembly
- Aluminum struts at underfloor
- Rear axle wheel carrier from aluminum
- Front axle springs with limit stops lined with rubber
- Rear axle springs with zinc shims
- Transmission oil lines with zinc/nickel coating

Notes

Standard hinge halves

Note: In the event of complaints can only be adjusted from inside after removing various panels.



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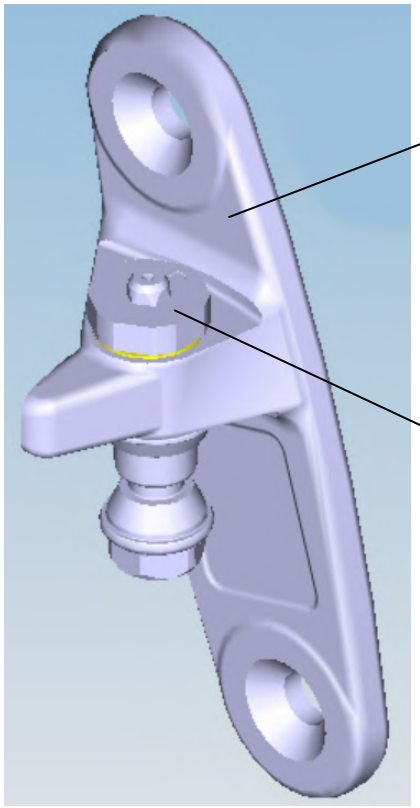
Replacement part hinge halves

- Is also installed when a door is replaced
- Permits the doors to be adjusted in the X-direction even from the outside by means of excenter bolts.



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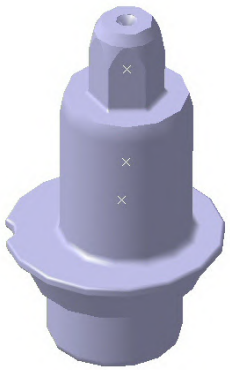

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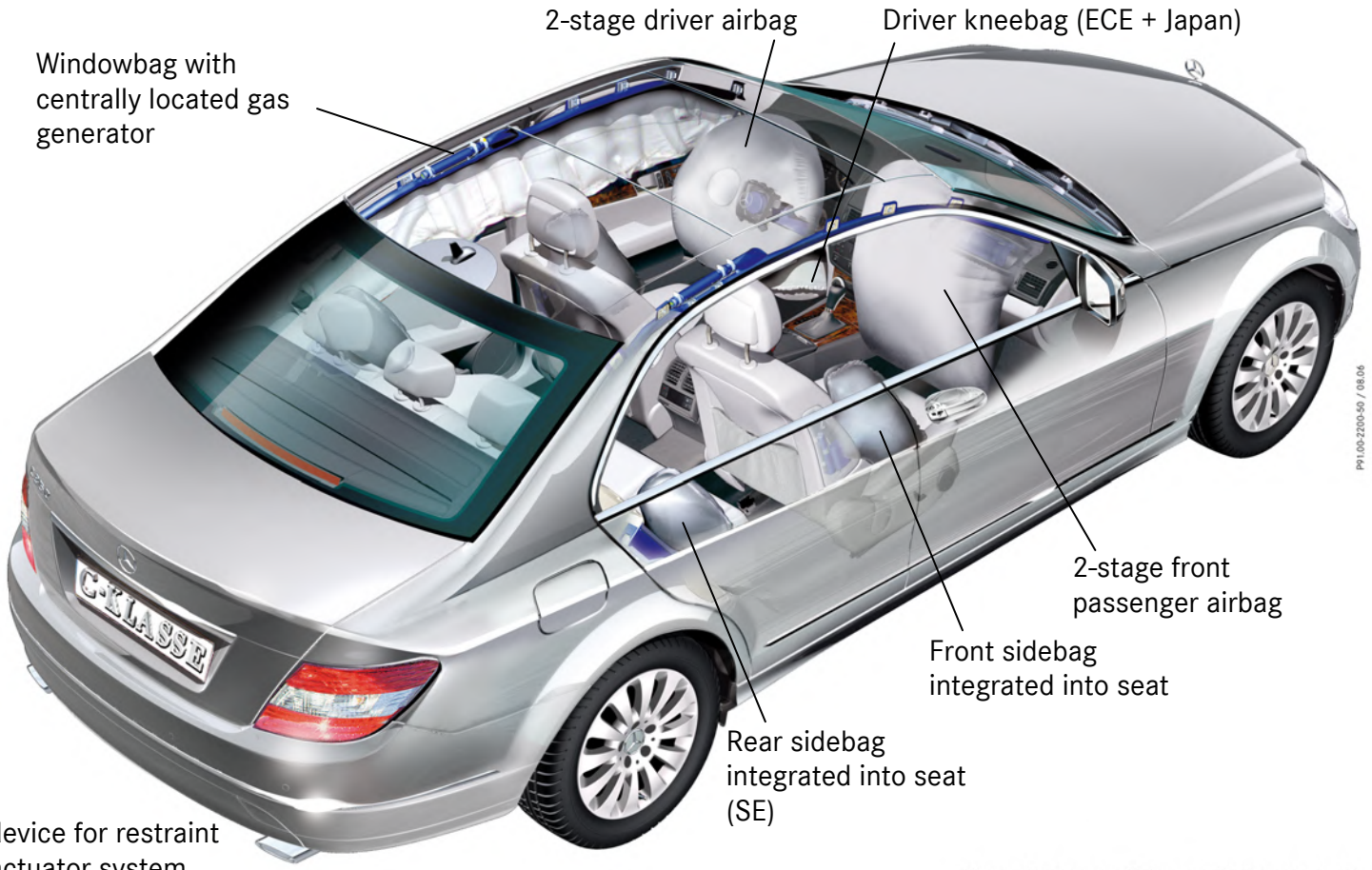
Location of airbags



ARAMIS = Triggering device for restraint equipment actuator system with integrated sensor bus

Airbag-System im Fahrzeug (Vollausstattung)
C-Klasse (BR204)

P91.00-2200-50

ARAMIS restraint system control unit

The ARAMIS control unit is used in the W204. ARAMIS is a new development that can also allow for future safety-related developments. Depending on the severity of the accident, among other things, it controls the triggering of driver and front passenger airbag, sidebags and windowbags, emergency tensioning retractors and NECK-PRO.
One belt buckle switch each acquires the belt buckled/not buckled status. A visual/acoustic seat belt reminder warning is integrated for the front seats for this purpose (Euro-NCAP countries only).

ARAMIS supports the following functions after an accident, depending on the severity of the accident:

- Activation of the pyrofuse (via ignition circuit)
- Door unlocking (in the event of a CAN interruption via front SAM crash sensor)
- Window lowering by 50 mm
- Activation of the crash-active head restraints in the event of a rear end collision
- Digital crash output via chassis CAN
- Activation of TeleAid (USA)
- Activates hazard warning system
- Engine shutoff via analog crash signal
- Switches on crash-active emergency lighting

Information for Service

The supplemental restraint system control unit (N2/10) has integrated sensors. It must not be removed if the power supply is still active – airbags and emergency tensioning retractors will deploy.

Working on or with the control unit is only permitted while the battery is disconnected and after a waiting time of at least t = 3 s.

Belt status indication for rear seat belts

Vehicles with multifunction steering wheel (4-buttons)

-  in rear no belt buckled
-  in rear 1 belt buckled
-  in rear 2/3 belts buckled

Vehicles with comfort multifunction steering wheel* (12-buttons)

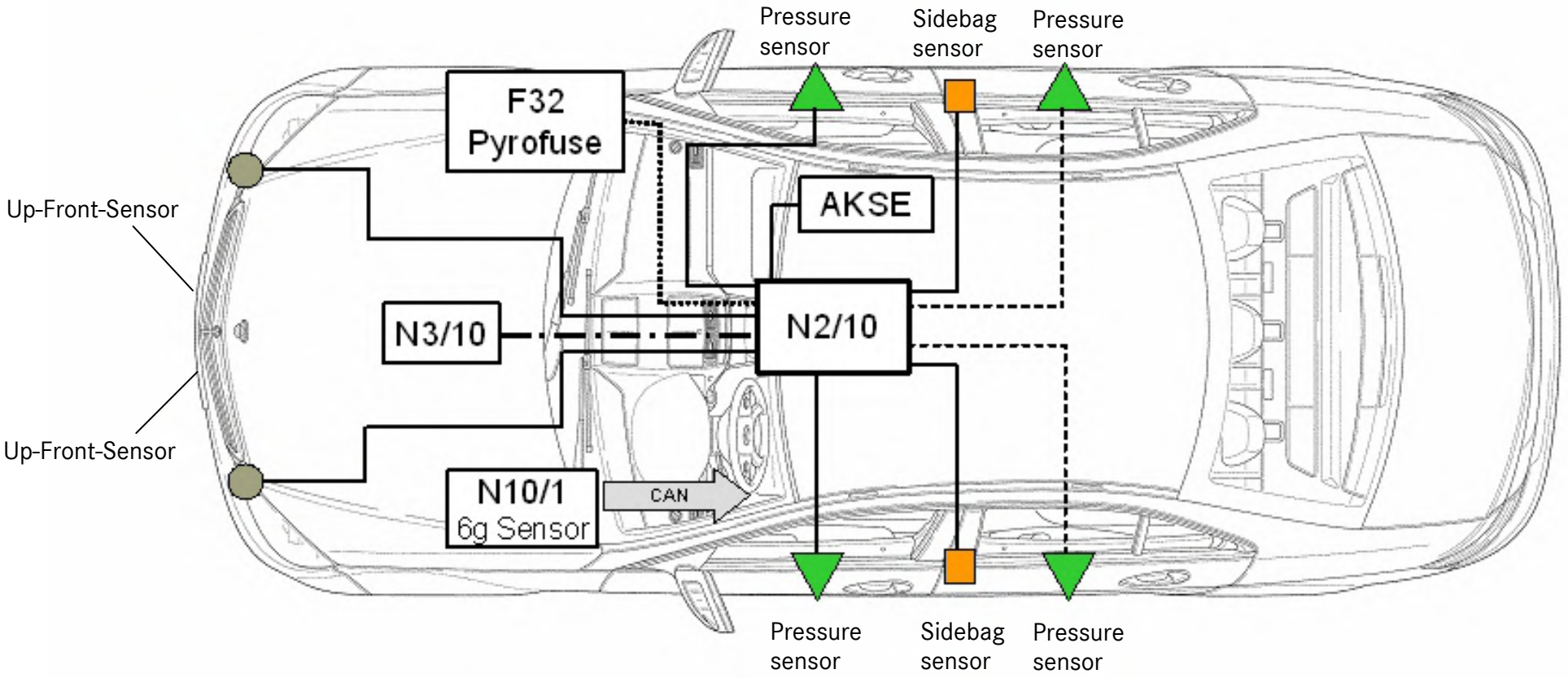
-  in rear no belt buckled
-  in rear 1 belt buckled
-  in rear 2/3 belts buckled

You will see the rear seat belt status indication in the multifunction display for around 30 seconds when you set off, as of a ground speed of around 9 km/h or for around 30 seconds if the rear passengers remove or fasten their seat belts.

*Special equipment

Notes

ARAMIS sensor location



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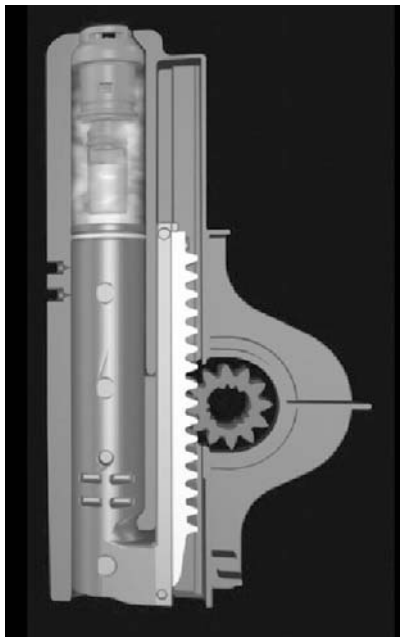
Legend

- - - - - - -	Optionally installed sensors (for rear sidebags)
—·—·—	Analog crash signal
.....	Ignition circuit for pyrofuse
———	Sensors installed as standard

F32	Prefuse box
N2/10	ARAMIS
N3/10	Engine control unit
N10/1	Front SAM

Restraint/emergency tensioning retractor system



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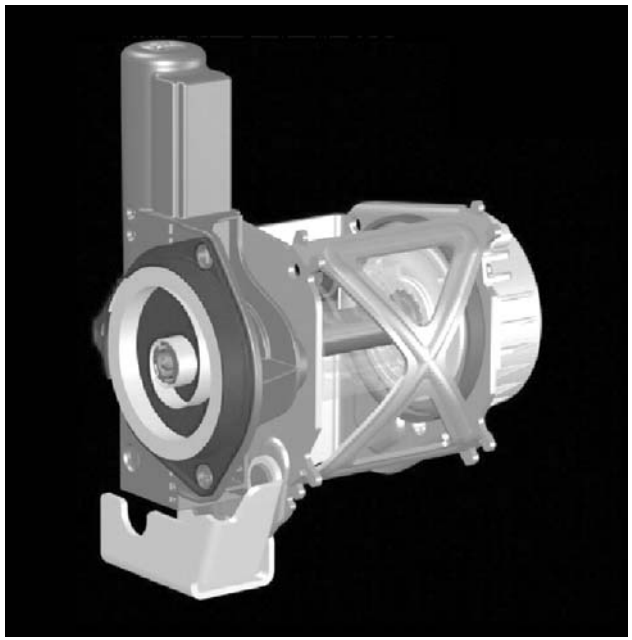

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The emergency tensioning retractor in the W204 is a new design of toothed rack retractor tensioner. The functioning principle is based on the fact that an integrated toothed rack, which is fired pyrotechnically, unwinds via a cogwheel connected to the seat belt retractor and thus initiates the belt tensioning.

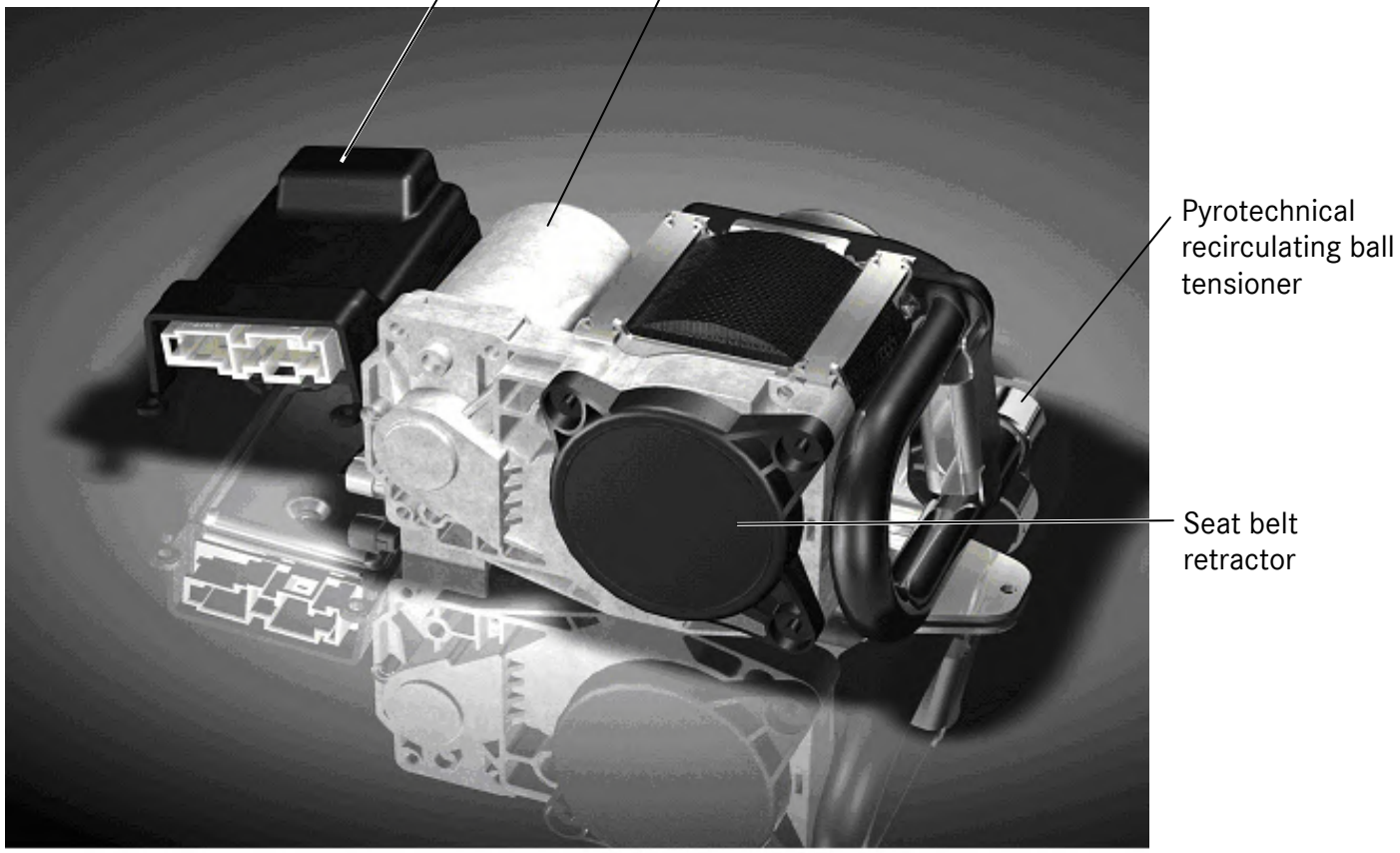
An integrated, mechanically operating belt force limiter is responsible for generating belt forces which are initially slightly elevated but which then diminish as soon as the airbag has been fully inflated.

Reversible emergency tensioning retractors for PRE-SAFE (SA)

The reversible emergency tensioning retractor is an independent control unit with CAN connection (chassis CAN) (provided on both front left and front right).

Properties of PRE-SAFE:

- Activates front reversible emergency tensioning retractors.
- Closes sliding/panoramic sunroof until a gap of 50 mm remains (in the event of lateral acceleration).
- Closes side windows, if open, until a gap of 50 mm remains (in the event of lateral acceleration).
- Moves the front passenger seat into the optimum position for a crash.



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Crash-active emergency lighting

In the event of a crash in which at least one pyrotechnical restraint system is deployed, sections of the interior illumination will be switched on:

- Front and rear interior lights (after a delay of 11 s)
- Front and rear door handle recess lights (after a delay of 11 s)
- Footwell lamps

Triggering of emergency lighting:
Front fuse and actuation module (SAM-F) by a signal to the overhead control panel (OCP [DBE]) and the door control units (DCUs [TSGs]).

Activation by:
Either by the airbag control unit via chassis CAN, or by the integrated crash sensor in the front SAM, if the CAN connection to the airbag control unit has failed.

Function of front SAM
Delayed triggering of the interior illumination functions on receiving the crash signal or the alternative crash signal (whichever is received first) by the ARAMIS control unit or by the crash sensor in front SAM.

Time delay
The preconditions are a time delay after the crash of 11 s AND "vehicle stationary". (Reason: Avoids dazzling if vehicle is still moving, does not affect door emergency unlocking (delayed by 10 seconds).

Output signals
After the time delay has elapsed (interior light module in front SAM), the front SAM transmits the signal to the OCP [DBE] to activate the front and rear interior illumination and to the door control units (DCUs [TSGs]) to activate the door handle recess illumination. In vehicles without door handle recess illumination, the transmission of this signal has no function. In vehicles with non-networked OCP [DBE] the interior lights remain off if the "door contact switch" is switched off (light switch in OCP [DBE]).

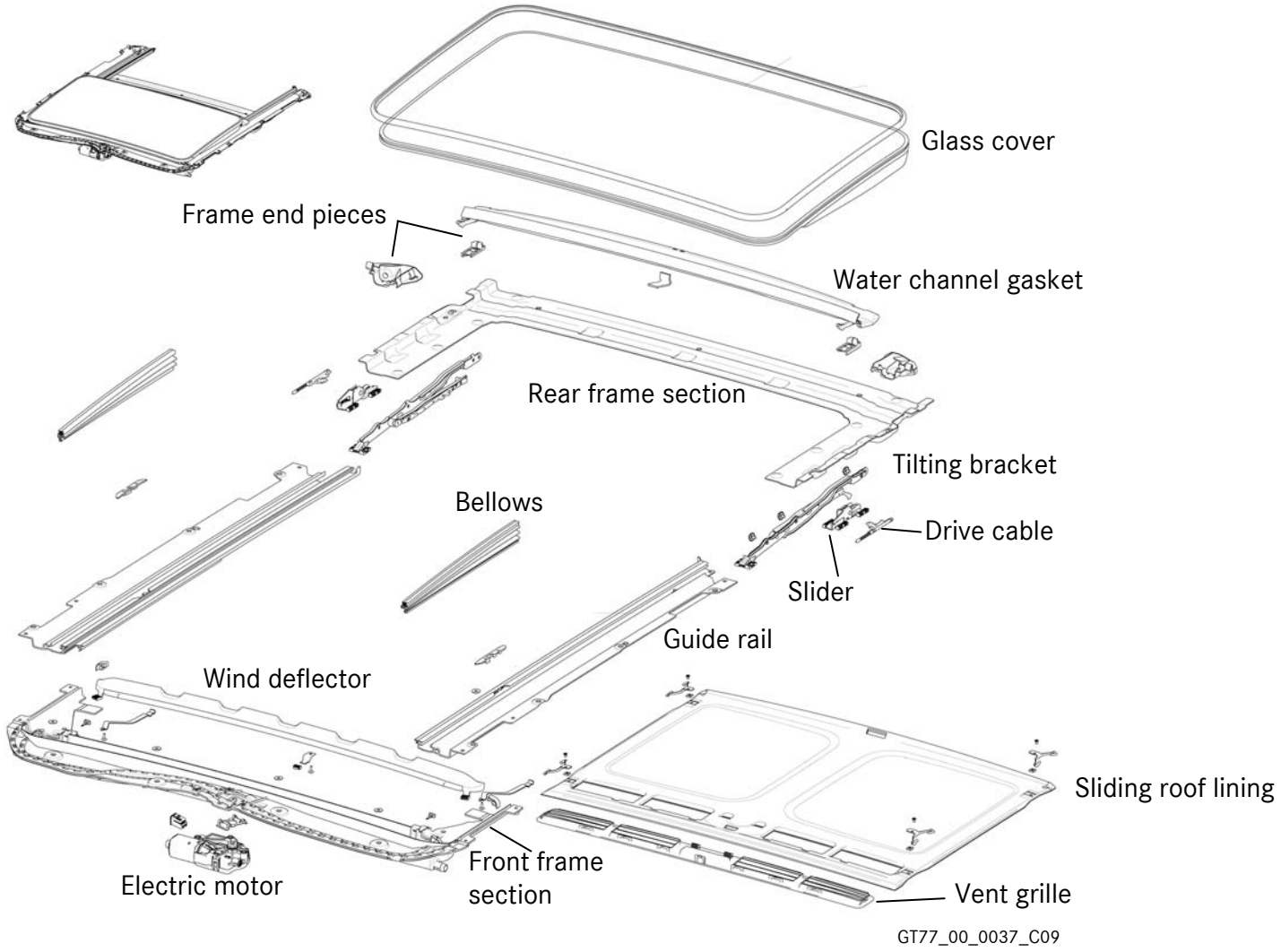
Deactivation of emergency lighting
- By operating the hazard warning flasher button
- By globally unlocking the vehicle using the ignition key
- With a circuit change from circuit 15R to circuit 15 (driving off again)

The interior lights can additionally be switched off manually and, if necessary, switched back on again via the door contact switch (light switch in OCP [DBE]).

Note
In vehicles with non-networked overhead control panel, the interior lights remain off if the interior light switch is manually set to "OFF". Consequently, if the emergency lighting is activated only the handle recess lights and the footwell lights are actuated.

GT77_00_0035_C79

Glass tilting/sliding roof (SA)



Glass tilting/sliding roof (SA)

- Supplied by Webasto
- New frame system resulting from change in material (corrosion protection)
- Plastic water drains (corrosion protection)
- Anti-pinch protection as in past

Information for Service

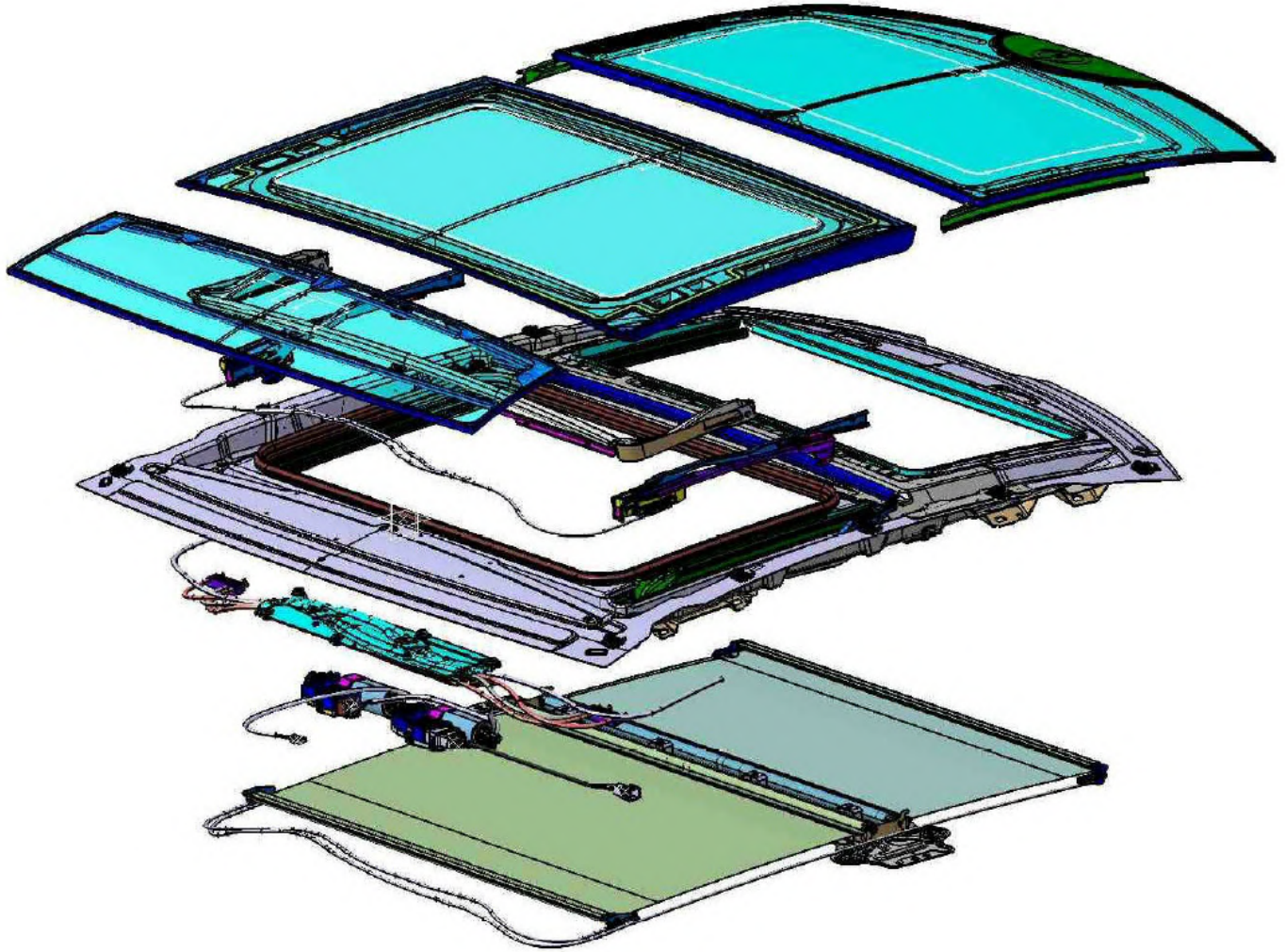
Normalization via overhead control switch:

- Open roof in slide position.
- Press and hold overhead control switch in tilt position until roof is in tilt position.

GT77_00_0036_C79

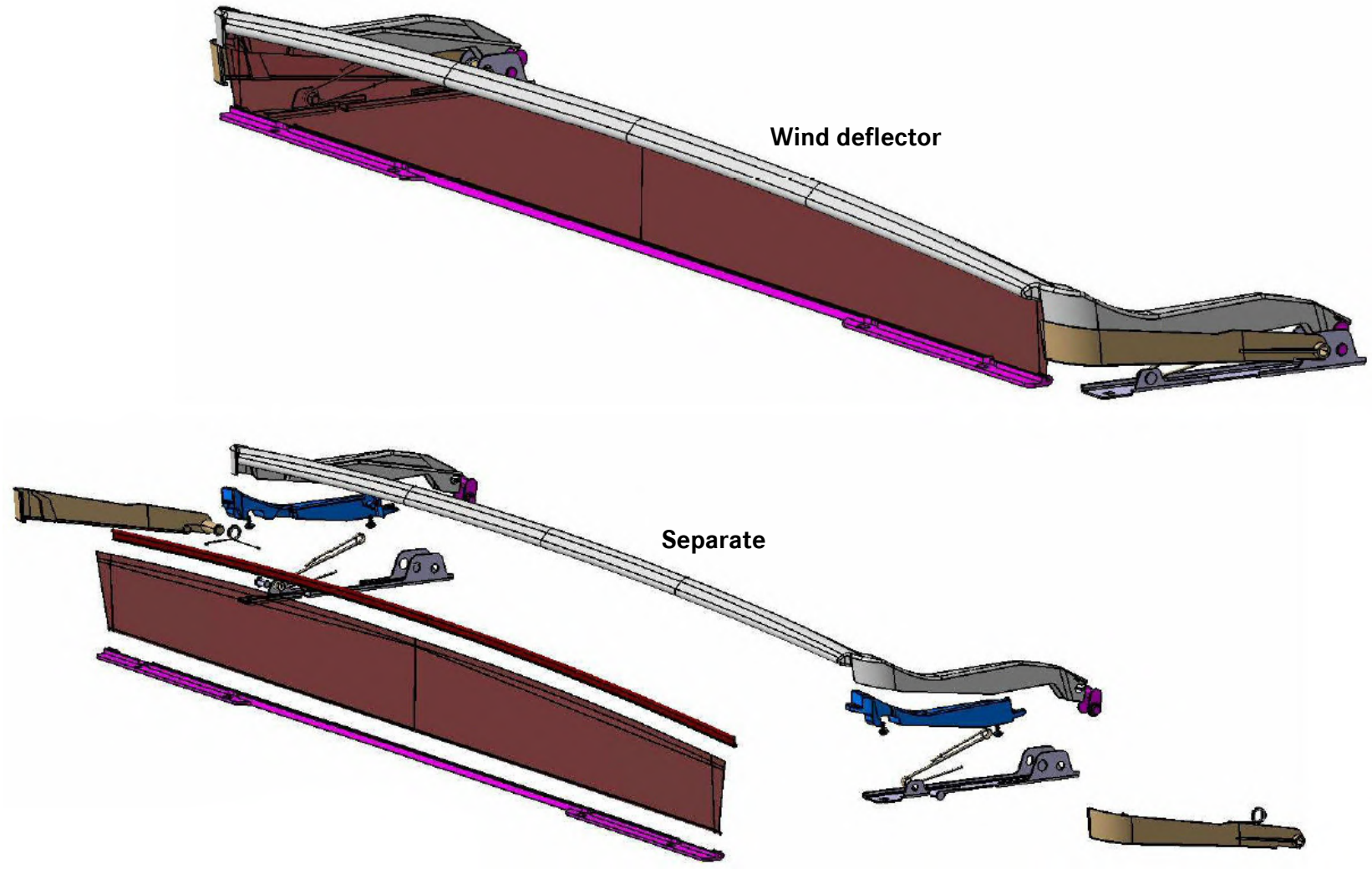
Top sliding roof (SA)

- New roof design
- New supplier (Inalfa)
- With anti-pinch protection for the first time
- With convenience closing and opening for the first time
- Non-networked overhead control panel
- Newly developed wind deflector
- Normalization via STAR DIAGNOSIS



GT77_00_0033_C76

Top sliding roof (SA)

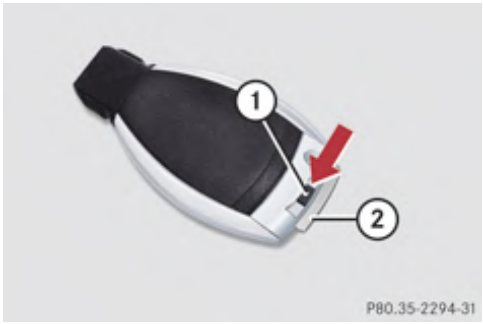


GT77_00_0034_C76

Opening and closing in the case of an emergency

Unlock driver door

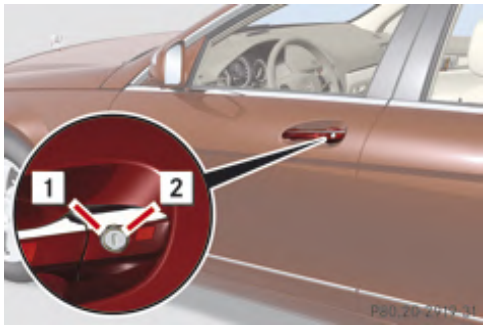
Release and remove the emergency key
Pull the release slide ① in the direction of the arrow and fully pull the emergency key ② out of the key at the same time.



Legend

① Release slide
② Emergency key

Insert the emergency key up to the stop in the lock and turn counterclockwise to position ①.
The locking pin moves up and the door is unlocked.



Legend

① Unlock
② Lock

Lock vehicle

If your vehicle can no longer be centrally locked with the key:

- Close the front passenger door, rear doors, and trunk.
- Press the central locking switch.
- Check if the locking pins are still visible on all doors. If necessary, press down the locking pins in the front passenger door and rear doors by hand.
- Lock the vehicle from outside at the driver door using the emergency key. Turn key to position ②. The locking pin on the driver door will move down. The door is locked.
- Check that all doors and the trunk are locked.

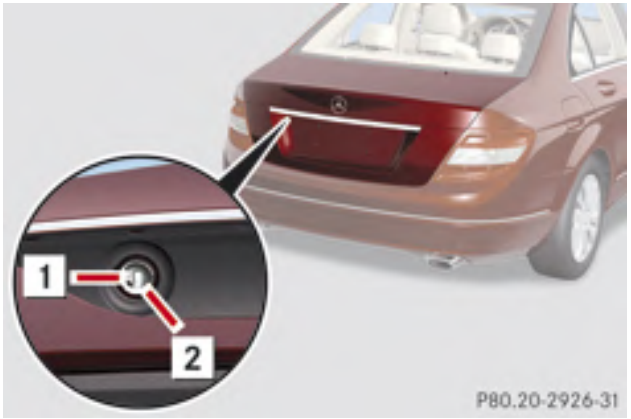
Open luggage compartment

Use the emergency key if the trunk can no longer be unlocked with the key or KEYLESS-GO.

Note:
The anti-theft alarm signal is triggered if you unlock the trunk with the emergency key.

There are several options to stop the alarm:

- Press the button or on the key or
- Insert the key in the ignition lock or
- Press the KEYLESS-GO button
- Turn the emergency key up to the stop on the left to position ②. The trunk will automatically open.
- Turn the emergency key back to position ① and remove it.

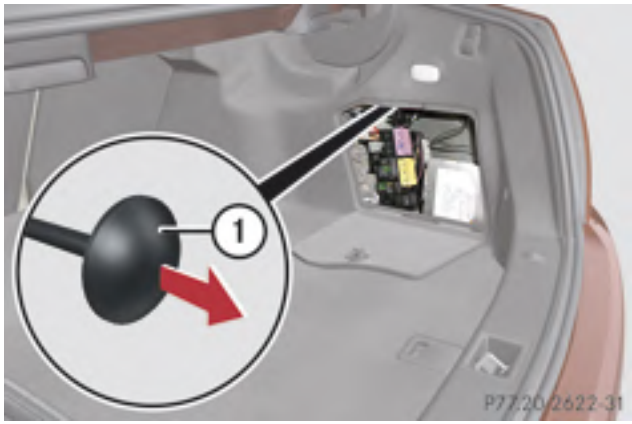


Legend

Trunk lock
① Basic position
② Unlock trunk

Fuel filler flap emergency unlocking

- Open the fuse box in the trunk.
- Pull the release cable ①.
- Open the fuel filler flap.



Legend

① Release cable

Manually operating the tilting/sliding roof or panoramic tilting/sliding roof

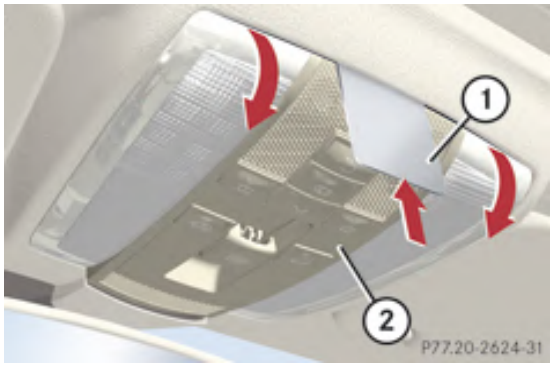
The drive is located above the overhead control panel.

- Pull the mirror base cover ① down as far as possible and turn it to the side.

Legend

① Mirror base cover

- Insert a thin plastic plate ① in the rear end of the overhead control panel ② in the center of the gap between the headliner and overhead control panel.
- Fold down the overhead control panel ②. The connectors do not have to be disconnected.
- Ensure that the key is removed from the ignition switch.

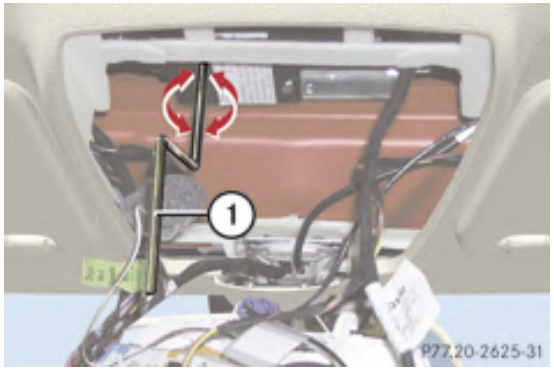


Legend

① Plastic plate
② Overhead control unit

- Remove the crank ① from the owner's manual folder.
- Insert the crank ① in the motor drive.
- Move the tilting/sliding roof by turning the crank in the appropriate direction.

Note:
Only rotate the crank ① slowly and without any jerking.



Legend

① Crank

- Remove the crank.
- Replace and clip in the overhead control panel.
- Clip in the mirror base cover again.

Manually releasing the park pawl (vehicles with automatic transmissions)

In the case of an electrical malfunction, the selector lever can be manually released from the P position, e.g. if the vehicle is to be towed.

- Firmly push down on the parking brake.
- Press the selector lever cover ① to the left and pull out from above.
- Press the release ② down and move the selector lever from the **P** position at the same time.
- The selector lever can now be moved freely until it is again brought to "P" position.

Legend

① Selector lever cover
② Release

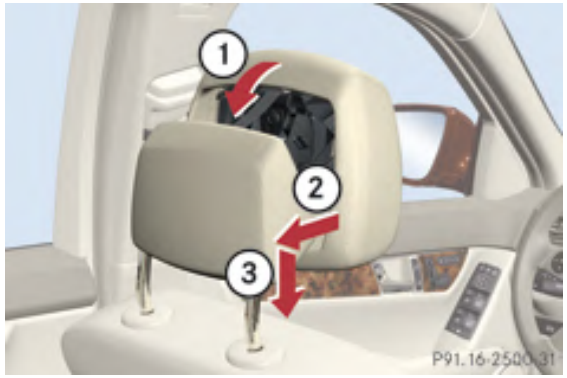
Resetting triggered NECK-PRO head restraints

If the NECK-PRO head restraints were triggered during an accident, you have to reset the head restraints for the driver and front passenger seats. Otherwise, this additional protection will not be available during a later rear end collision. Triggered head restraints can be recognized by the fact that they are moved forward and can no longer be adjusted.

- Press the lower head restraint padding to the rear up to the stop ①.
- Press the head restraint padding down to the stop in the guide ③.
- Firmly press the top of the head restraint padding until it folds back and engages ②.

Legend

① Fold back
② Press back
③ Press down



			
	BABY SAFE plus	**DUO plus**	**KID**
ECE age group	0+ 0 – 13 kg (approx. 0 - 15 months)	I 9 – 18 kg (approx. 8 months – 4 years)	II, III 15 – 36 kg (approx. 3.5 – 12 years)
Assembly	Rearward-facing	Forward-facing	Forward-facing
ACSR	yes	OPTIONAL	OPTIONAL
ISOFIX	no	yes	no
Product variants	Baby Safe plus, ECE (ACSR) Baby Safe plus, USA	DUO plus, ECE (ACSR) DUO plus, ECE (without ACSR) DUO plus, USA (ACSR)	KID, ECE (ACSR) KID, ECE (without ACSR) KID, USA (ACSR)

"DUO plus" child seat

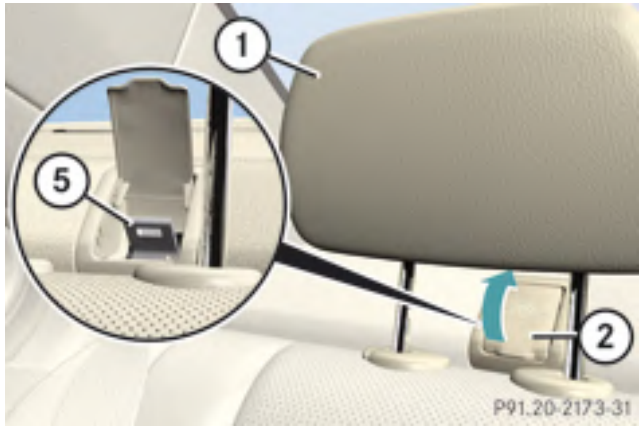
Product description

- Suitable for age group I, weight 9 to 18 kg
  Age: from approx. 8 months to approx. 4 years
- Exclusive DC cover in the elegant "DaimlerSquare" pattern:
  removable, washable, breathable
- Optional ACSR (automatic airbag shutoff) for use on the front passenger seat with airbag and vehicles with ACSR (code U18)
- Standard equipment with TopTether (additional belt for fixing the head section)
- Standard equipment with ISOFIX anchoring;
  alternative, but can always be used with a 3-point seat belt
  ISOFIX advantages:
  - Standardized fastening for simple, correct installation and removal
  - Secure, fixed connection between the child seat and vehicle
  - Unoccupied child seats are also fixed in the vehicle
  - Optimum protection during an accident
- Sitting, rest, and sleeping positions can be adjusted with a single movement
- Shoulder belt can be easily adjusted to 7 heights – with central belt length adjustment
- Bracket for side stowage of the shoulder belt
- Replacement cover (pattern: "DaimlerSquare") available separately

Standard equipment with ISOFIX anchoring

Top tether

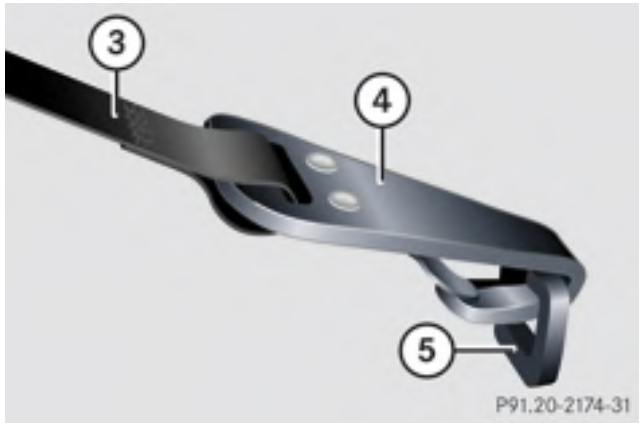
TopTether enables an additional connection between the child restraint equipment fastened with ISOFIX and the rear seat. Injury risks are thus reduced even further. Both TopTether anchors are located in the rear on the rear shelf, behind the outer head restraints.



Legend

① Head restraint
② Cover
⑤ TopTether anchor

- Push the head restraint ① up.
- Guide the TopTether belt ③ under the head restraint ① between the two head restraint rods.
- Fold the cover ② of the TopTether anchor ③ up.
- Insert the TopTether hook ④ in the TopTether anchor ⑤.
- Fold the cover ② of the TopTether anchor ⑤ down.
- If necessary, push the head restraint ① down a bit. Pay attention that the TopTether belt ③ is not hindered.
- Install the ISOFIX child restraint equipment with TopTether. The assembly instructions from the manufacturer must be followed without fail.

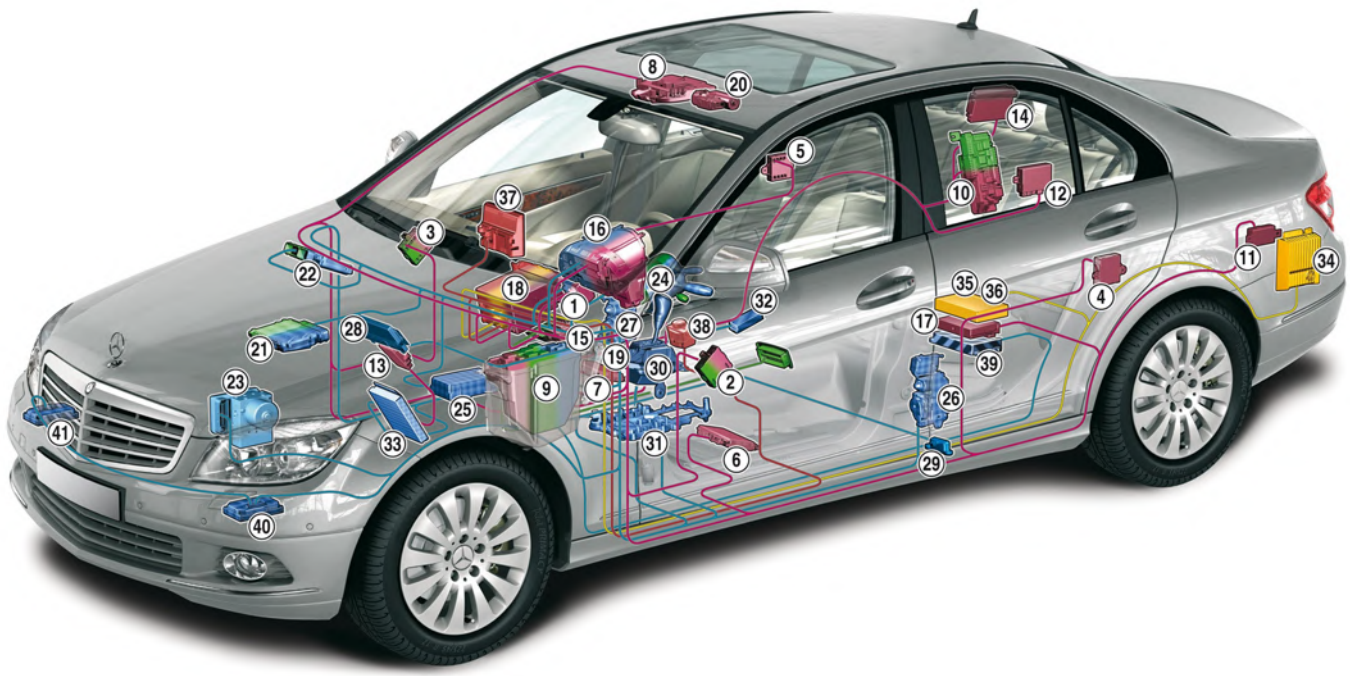


Legend

③ TopTether belt in the ISOFIX child restraint equipment
④ TopTether hooks
⑤ Tether anchor

Learning objectives

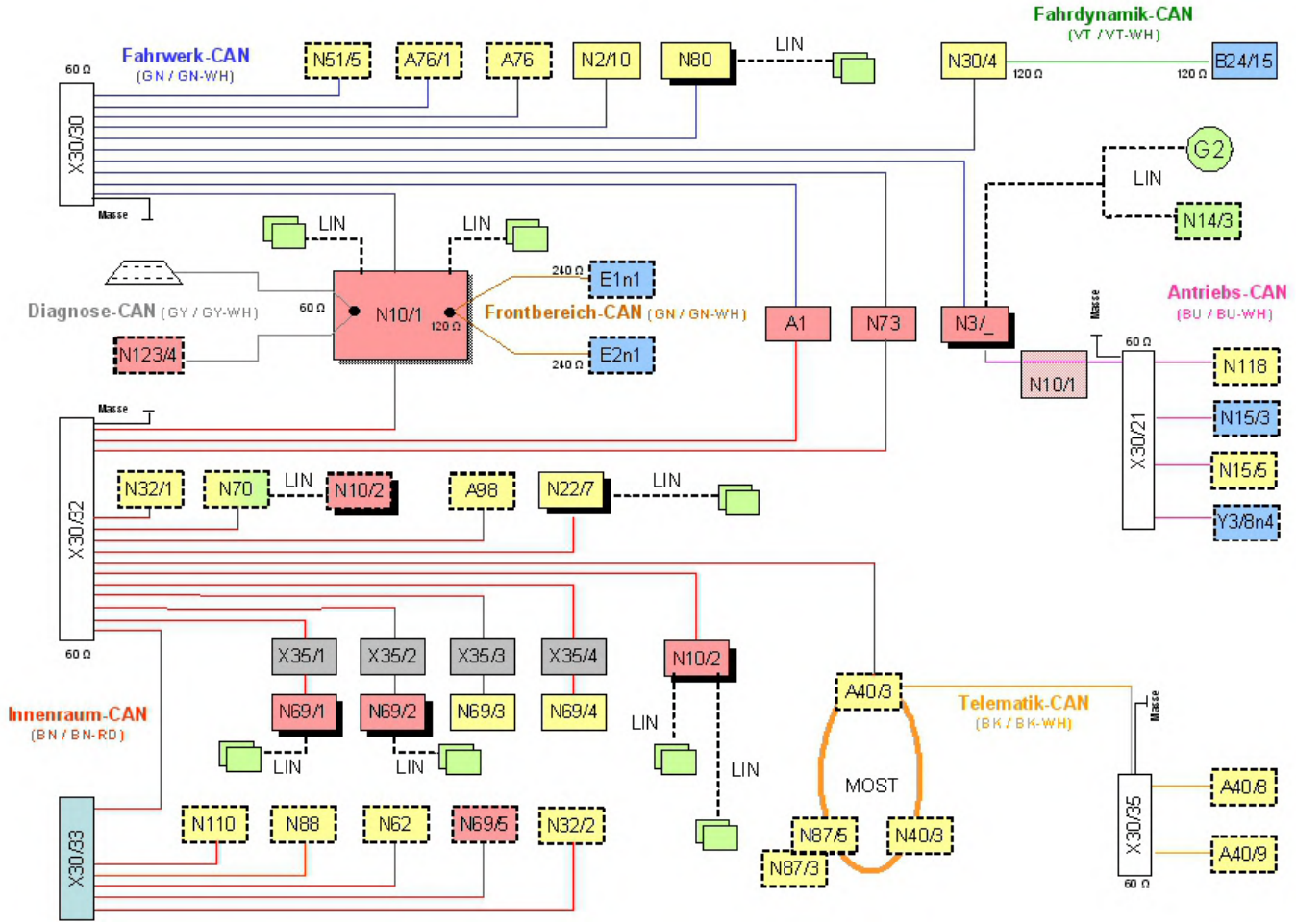
- You can describe the basic structure of networking in BR204.
- You can describe the structure of the on-board electrical system in BR204.
- You know the different installation locations for fuse boxes.
- You know the different installation locations for prefuse boxes.
- You will know the installation locations and most important functions of the two SAMs.
- You know the procedure for exchanging the bulbs in all lamp units.
- You can explain and demonstrate how to operate and handle both climate control versions in a manner that is appropriate for customers.
- You can describe the basic function of the wiper system.
- You know both variants of the instrument cluster.



P00.19-3815-00

The networking structure in model series 204 is similar to that in model series 221.
The following CAN bus systems are installed:

Chassis CAN	500 kbps
Diagnostic CAN	500 kbps
Front end CAN	500 kbps
Vehicle dynamics CAN	500 kbps
Drive train CAN	500 kbps
Interior CAN	125 kbps
Telematics CAN	125 kbps



GT00_19_0184_C79

Legend

A1	Instrument cluster
A40/3	COMAND control unit
A40/8	Audio/COMAND display
A40/9	Audio/COMAND controller
A76	Front left reversible emergency tensioning retractor
A76/1	Front right reversible seat belt tensioner
A98	Panoramic sliding roof control module
B24/15	Rotational speed, lateral and longitudinal acceleration sensor
E1n1	Left xenon light control unit
E2n1	Right xenon light control unit
G2	Alternator
N2/10	Supplemental restraint system control unit
N3/__	ME-SFI [ME] or CDI control unit
N10/1	Front SAM
N10/2	Rear SAM
N14/3	Glow output stage
N15/3	Electronic transmission control control unit
N15/5	Electronic selector lever module control unit
N22/7	Automatic air conditioning control and operating unit
N32/1	Driver seat control unit
N32/2	Front passenger seat control unit
N40/3	Sound system amplifier control unit
N30/4	Electronic Stability Program control unit
N51/5	Adaptive damping system control unit
N62	PARKTRONIC system control unit
N69/1	Left front door control unit
N69/2	Right front door control unit
N69/3	Left rear door control unit
N69/4	Right rear door control unit
N69/5	Keyless Go control unit
N70	Overhead control panel control unit
N73	Electronic ignition lock control unit
N80	Steering column module control unit
N87/3	Digital Audio Broadcasting control unit
N87/5	Satellite digital audio radio control unit
N88	Tire pressure monitor control unit
N110	Weight sensing system control unit
N118	Fuel pump control unit (M271/M272)
N123/4	Emergency call system control unit
X30/21	Drive train CAN potential distributor
X30/30	Chassis CAN potential distributor
X30/32	Left interior CAN potential distributor
X30/33	Right interior CAN potential distributor
X30/35	Telematics CAN potential distributor
X35/1	Left front door electrical connector
X35/2	Right front door electrical connector
X35/3	Left rear door electrical connector
X35/4	Right rear door electrical connector
Y3/8n4	Fully integrated transmission control control unit

Front SAM

The front SAM/SRB control unit (N10/1) is installed in the engine compartment in the driver-side control unit box.

GT54_21_0190_C71

The most important functions are:

- Control of the front exterior lights
- Master of the turn signal function
- Control of the cornering illumination
- Rain closing of the tilting/sliding roof
- Actuation of the central locking elements of the rear doors (discrete line)
- Crash emergency opening of the central locking via an integrated crash sensor (6g)
- Integrated central gateway (CGW [ZGW])

Gateway between the following CANs:

- Interior CAN
- Chassis CAN
- Diagnostic CAN
- Front end CAN

Gateway between the following LINs:

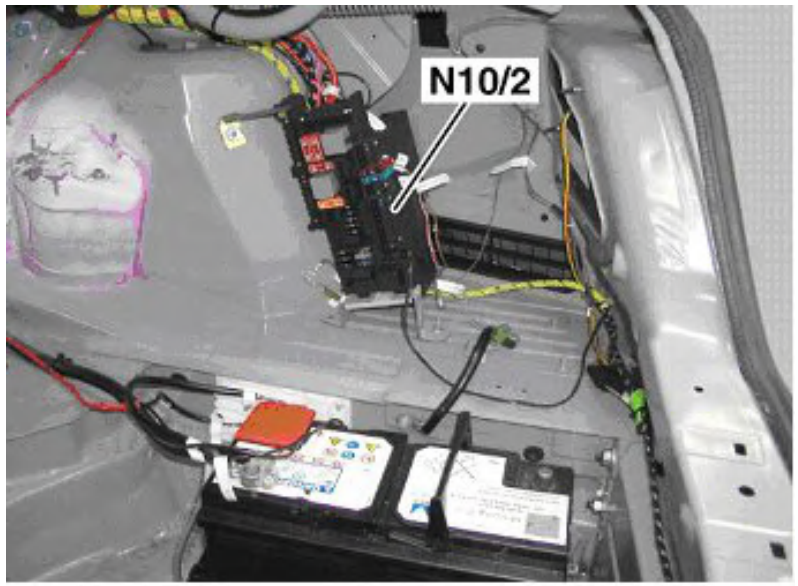
- Instrument panel LIN
- Wiper/inside rearview mirror LIN

Rear SAM

The rear SAM/SRB control unit (N10/2) is installed on the wheelhouse on the right side of the trunk.

The most important functions are:
- Control of the rear exterior lights
- Master of the ATA [EDW]
- Master of the central locking system
- Battery state recognition
- Control of the on-board electrical system management

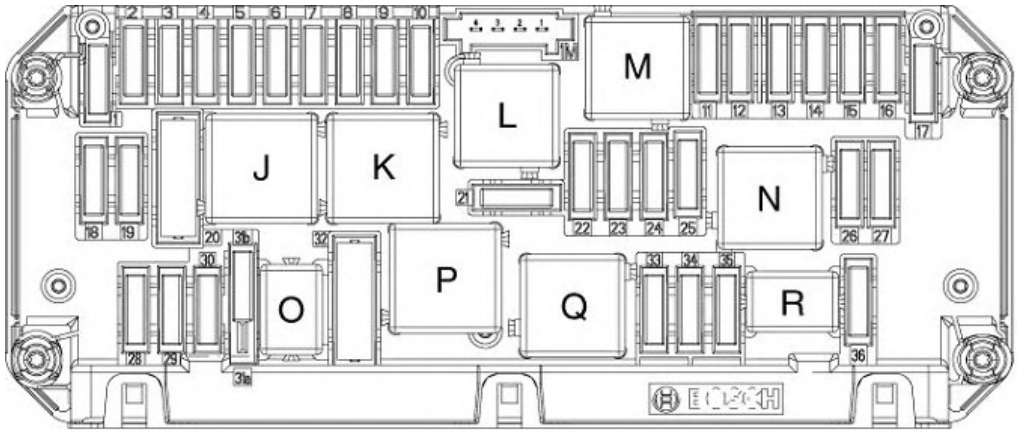
Gateway between the following LINs:
- On-board electrical system LIN (IBS-LIN)
- Alarm sirens LIN



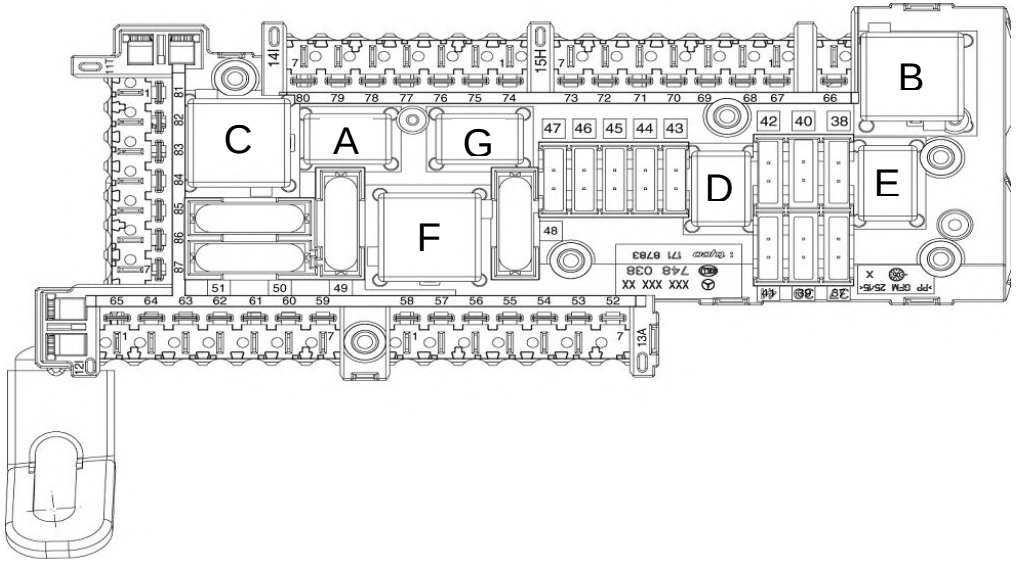
GT54_21_0191_C71

Notes

Relay assignment of the fuse and relay box (SRB)



GT54_21_0192_C05



GT54_21_0193_C05

Relay assignment of front SRB

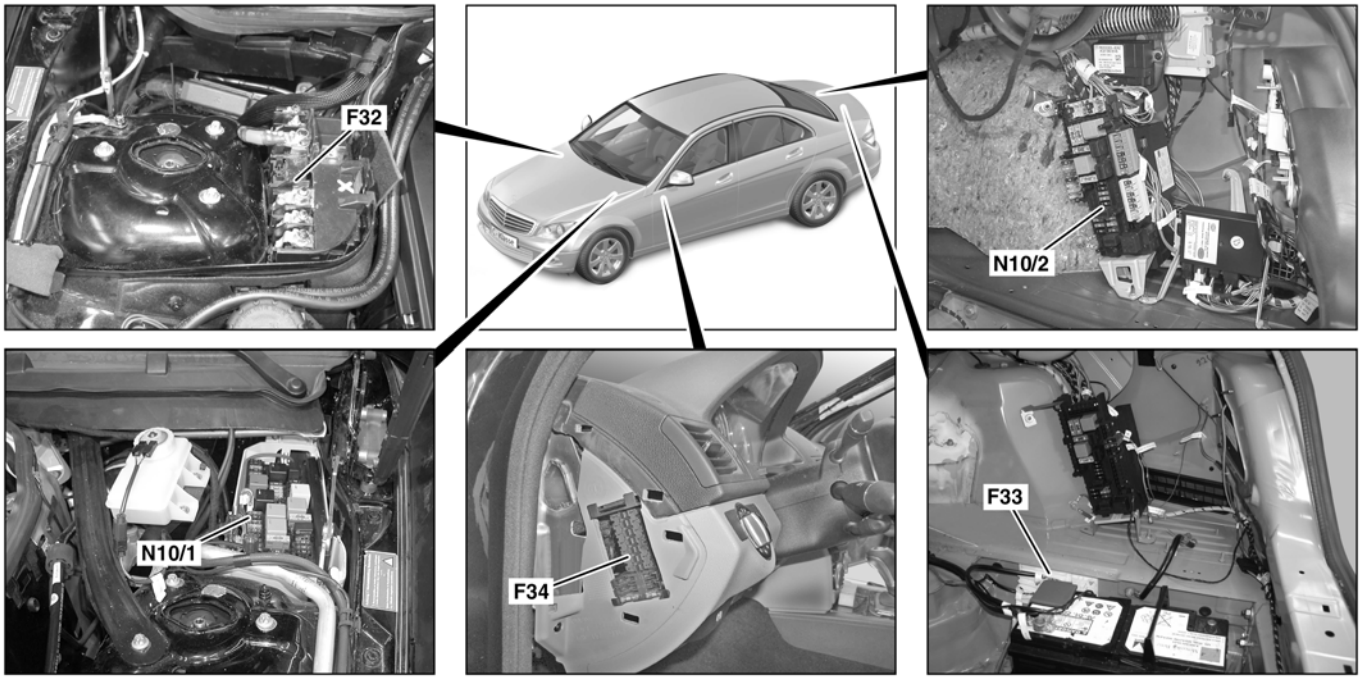
Relay	Designation
Y	Circuit 15
S	Circuit 15R
L	Spare
M	Circuit 50 (starter)
N	Circuit 87 engine
O	Fanfare horn
P	Secondary air injection pump or oil cooler (AMG)
Q	Spare
R	Circuit 87 suspension

Relay assignment of rear SRB

Relay	Designation
A	Circuit 15
B	Circuit 15 R (1)
C	Rear windshield heater
D	Fuel pump relay
E	Spare (rear wiper only for S204)
F	Partially electric seats
G	Circuit 15R (2)

Fuse installation locations

The prefuse box F32 is installed on the right of the engine compartment in all engine variants. The prefuse box F33 in the trunk is only installed in vehicles with diesel engines. Assignment and equipment of the **main fuse boxes** can be found on the fuse assignment diagram in the vehicle.



P54.15-3024-09

Legend

F32	Engine compartment prefuse box
F33	Trunk prefuse box
F34	Cockpit fuse box
N10/1	Front SAM/SRB
N10/2	Rear SAM/SRB

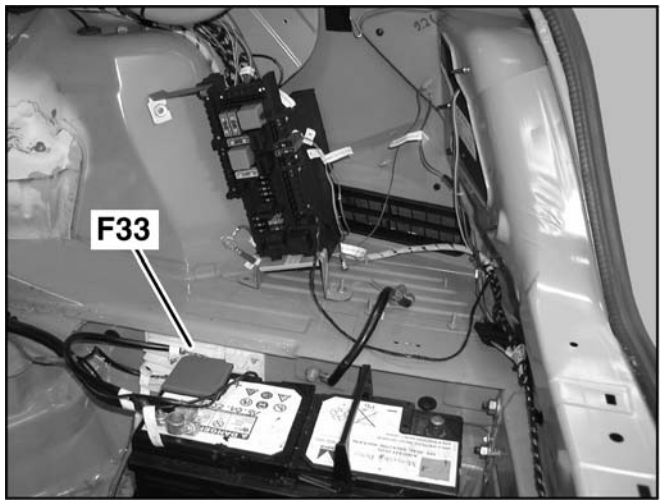
Assignment of prefuse box F32

Fuse no.	Value in A	Designation
f88	400	Alternator (G2) (B+) (pyrofuse)
f89	125	Front SAM/SRB control unit
f90	40	Rear SAM/SRB control unit
f91	80	Suction fan control unit
f100	40	Air conditioning blower motor
f101	60	Circuit 30z
f102	200	Glow output stage (diesel only)
f103	150	PTC heater booster (diesel only)
f104	70	Cockpit fuse box F34
f105	100	Front SAM/SRB control unit
f106	150	Rear SAM/SRB control unit
f107	–	Not assigned
f108	–	Not assigned
f109	–	Not assigned
f110	–	Not assigned

GT54.15_0102_C71

Assignment of prefuse box F33

Fuse no.	Value in A	Designation
111	60	Circuit 30z motor electronics control unit
112	80	Spare
113	40	Spare
114	80	Spare
115	100	Spare



GT54.15_0106_C71

The on-board electrical system management is integrated into the rear SAM control unit with fuse and relay module (N10/2) and is responsible for ensuring the supply to all electrical consumers, based on need and situation, as well as the vehicle's ability to start.

The following components play a decisive role in the implementation of the on-board electrical system management:

- On-board electrical system battery (G1)
- Alternator (G2)
- Battery sensor (B95)
- Rear SAM control unit with fuse and relay module (N10/2)
- ME-SFI [ME] control unit (N3/10)
- Prefuse box F32 with quiescent current cutout relay (F32K2)

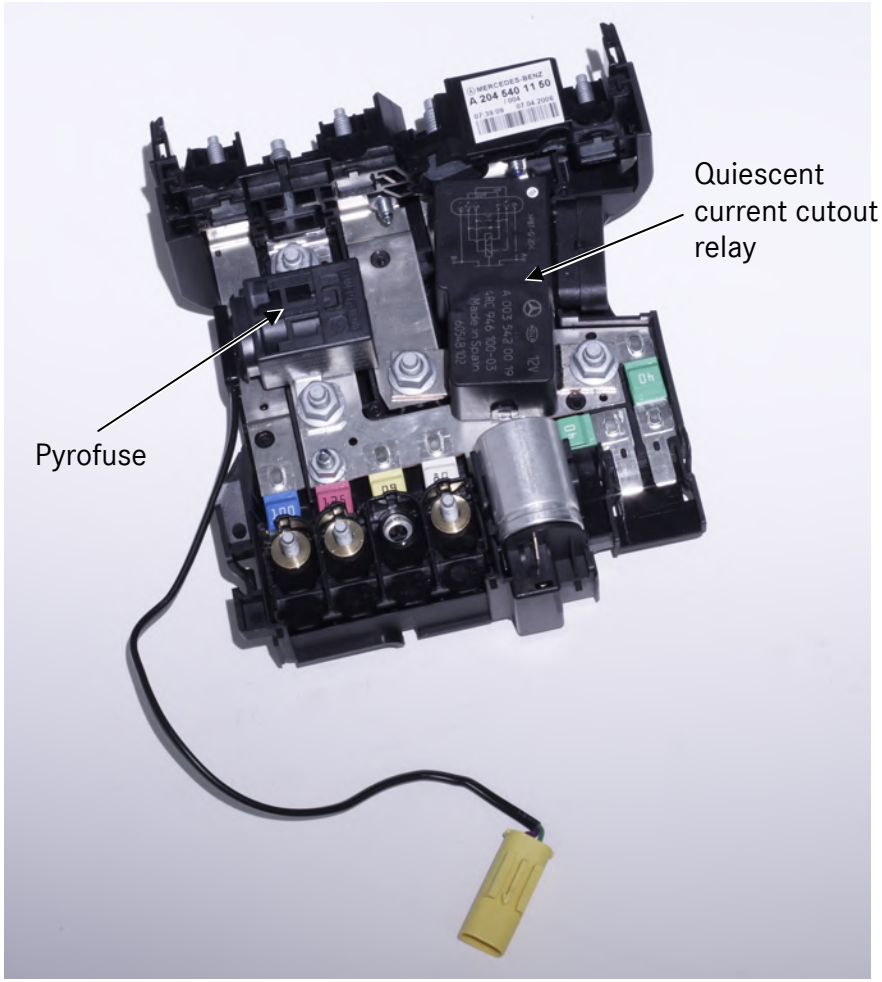
Prefuse box F32 with

- Prefuses
- Quiescent current cutout relay
- Pyrofuse
- Jump-starting point

Information for Service

The components in the prefuse box cannot be replaced individually.

Prefuse box F32



GT54_15_0105_C82

Battery sensor (B95)

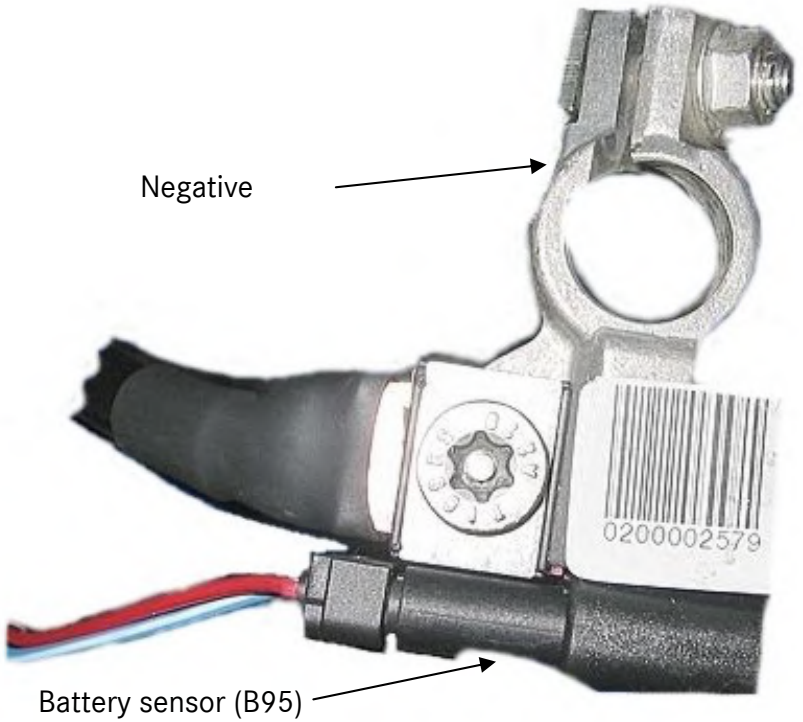
Exercise

The battery sensor (B95) and the rear SAM are responsible for the on-board electrical system management. Installed directly at the negative terminal, the battery sensor measures voltage, current and temperature at the on-board electrical system battery and uses these to evaluate the battery's status.

The following measures can be introduced to stabilize the on-board electrical system:

- Specification of the optimum charging voltage
- Gradual consumer shutoff (no display in instrument cluster)
- Idle speed increase

The battery sensor is also used for checking the quiescent current.



Quiescent current cutout relay

Exercise

The quiescent current cutout relay is a bistable relay. It separates the consumers and components at circuit 30g. If the ignition is turned off or the ignition key is removed, the quiescent current switch relay opens after 6 hours or it opens if the on-board power supply voltage falls below 11.8 V. The quiescent current cutout relay is actuated by the rear SAM.

Pyrofuse

Exercise

A pyrofuse, which disconnects the starter and alternator line from the battery in the event of a collision, is used in the prefuse box. It is activated by the ARAMIS control unit (airbag).

GT54_10_0112_C82

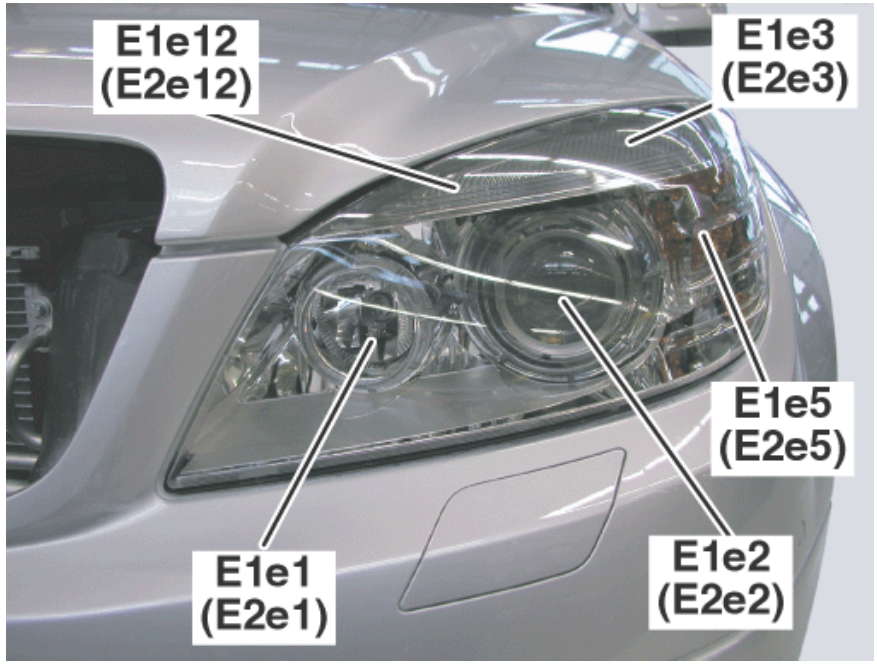
There are three different light systems to choose from for model series 204:

- H7 halogen headlamps (standard)
- Bi-xenon headlamps with cornering illumination (SA 614)
- Intelligent Light System (SA 622)

Also installed for all three light systems is a light sensor, which permits the automatic exterior light control via the two SAM control units.
In the basic lighting version, the mirror turn signal and the center high-mounted brake lamp are designed as LEDs, in vehicles with intelligent light system (ILS) the rear turn signal lamps are also fitted with LEDs. The brake light has a "contactless" brake light switch and is designed as an adaptive brake light.

The familiar functions of emergency light and substitute light are also implemented. In vehicles with ILS the following extended functions are also implemented:

- Dynamic curve illumination
- Cornering illumination
- Dynamic headlamp range control
- Country light (new)
- Motorway lights (new)
- Extended fog light function (new)



P82.10-4659-71

Information for Service

The control units for bi-xenon headlamps can be replaced separately.

Lamp unit equipment

Front illumination

Components	Light sources
Left/right standing light 1/parking lights (STL/PL)	5 W
Left/right standing light 2 (STL)	5 W
Left/right low beam (ABL)	42 W (xenon) / 55 W (halogen)
Left/right high beam (FL)	55 W
Left/right front fog lamp/cornering illumination (NSW/ABBL)	55 W
Left/right turn signal (FRA)	20 W to 30 W (depending on country)
Left/right turn signal (FRA) in the outside mirrors	2 W
Left/right side marker lamp (SML) (494a)	5 W
Bi-xenon actuator	

Rear illumination

Components	Light sources
Left/right brake lights/outer taillights (BL/SL/PL)	21 W (SL/PL pulsed to 5 W)
Left/right brake lights/inner taillights (BL/SL)	21 W (SL pulsed to 5 W)
Left/right turn signal (FRA)	21 W or LED 10 W
Left/right backup lamp (RFL)	21 W
SAE: Left/right front fog lamp/taillight (NSL/SL)	21 W (SL pulsed to 5 W)
ECE: Left/right front fog lamp/inner side marker lamp (NSL/SML)	21 W (SML pulsed to 5 W)
Center high-mounted brake lamp (3rd BL)	8 W
Left/right license plate illumination (KZB)	5 W
Left/right outer side marker lamps (SML)	5 W

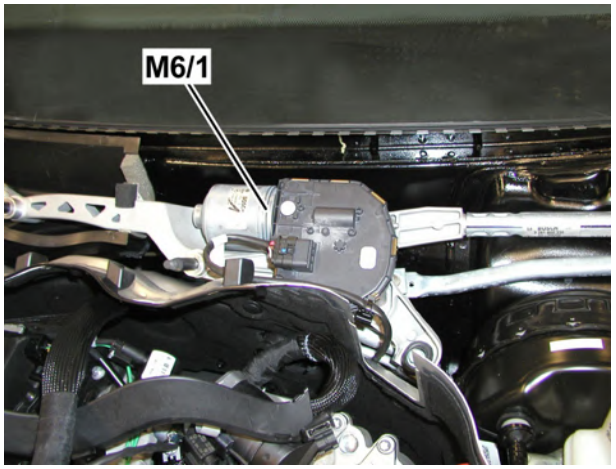
Wiper system

The wiper motor M6/1 with integrated electronics is a reversing wiper system with different speed levels. Wiper on/off or the speed setting take place via the wiper/inside rearview mirror LIN via the SAM control unit. Finish wiping, anti-lock device, blockage detection, and braking are all automatically performed by the wiper system.

Note
The engine hood switch S62 is only installed on vehicles with anti-theft alarm system (SA 551).

WARNING
On vehicles without anti-theft alarm system there is a risk of injury in the area of the wiper.

Info:
The rain sensor is special equipment. The version with rain sensor is indistinguishable from the outside from the version without rain sensor. On vehicles without rain sensor, the interval stages 1 and 2 are designed as fixed interval stages (interval pause time)



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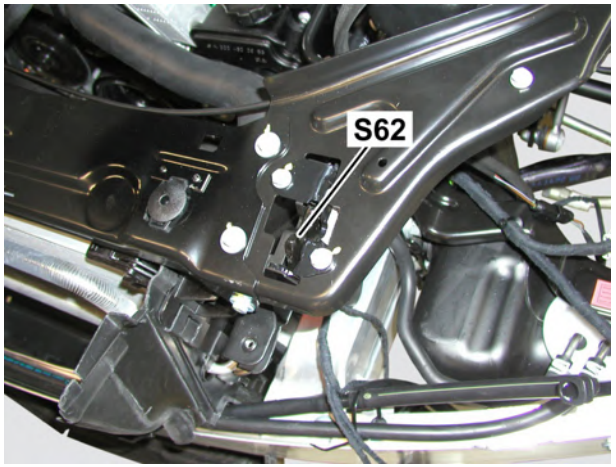


GT80_50_0024_C75

Thermatic 2-zone climate control (series production)

P83.40-3571-31

Legend

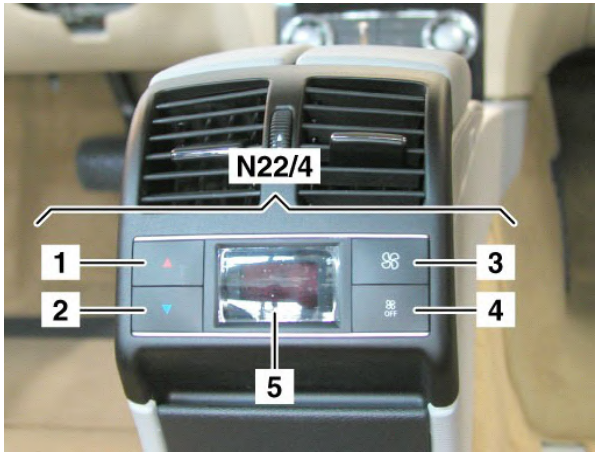
1 Increase/decrease temperature on left
2 Thermatic off
3 Mono function
4 Cooling with air dehumidification off/on
5 Defrost windows
6 Increase/decrease temperature on right
7 Air recirculation mode
8 Rear window heater
9 Increase air volume
10 Decrease air volume
11 Display
12 Air distribution
13 Automatic air distribution and volume

Features

- Sun sensor
- 2 interior temperature sensors
- 4 air outlet temperature sensors
- Evaporator temperature sensor
- Coolant circulation pump
- Blower motor front
- 5 air distribution actuator motors

Rear Thermotronic operating unit

P83.40-3572-31



GT83_57_0009_C71

Legend

1	Increase/decrease temperature on left
2	Automatic air distribution and air volume
3	Thermatic off/on
4	Mono function
5	Cooling with air dehumidification off/on
6	Residual heat
7	Defrost windows
8	Increase/decrease temperature on right
9	Rear window heater
10	Right air distribution
11	Increase air volume
12	Decrease air volume
13	Display
14	Left air distribution
15	Air recirculation mode

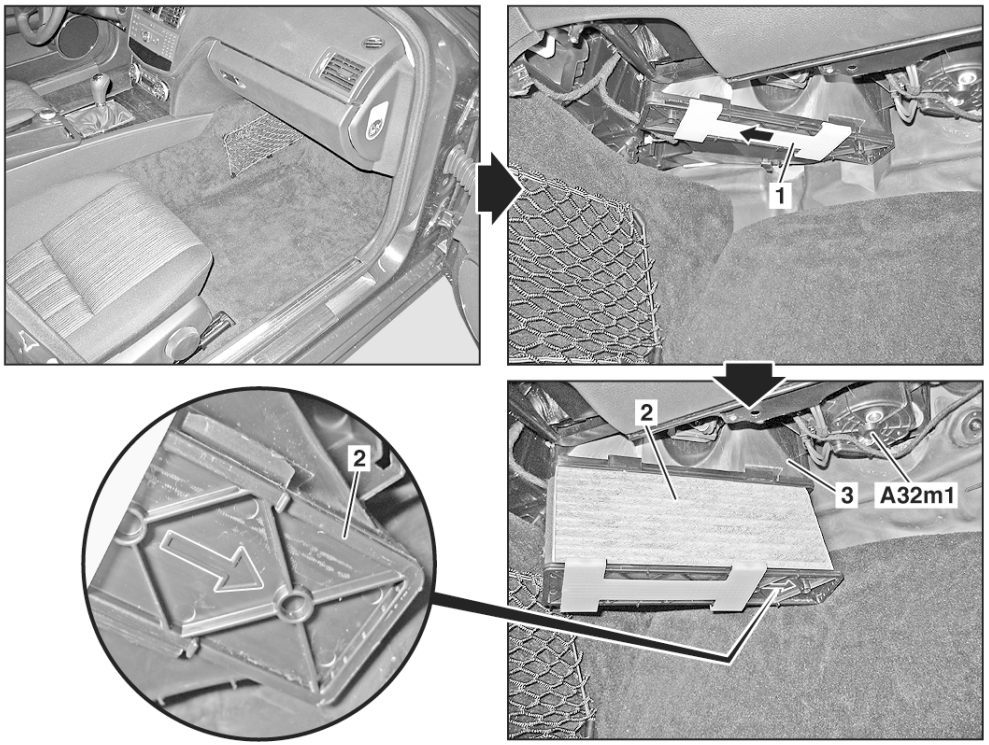
Features

- Rear automatic air conditioning operating unit
- Dew point sensor
- Emissions sensor
- Sun sensor
- 2 interior temperature sensors
- 5 air outlet temperature sensors
- Evaporator temperature sensor
- Coolant circulation pump
- Front blower motor
- Rear blower motor
- 12 air distribution actuator motors

Legend

1	Increase temperature
2	Decrease temperature
3	Increase air volume
4	Decrease air volume
5	Display
N22/4	Rear Thermotronic operating unit

Dust filter, fluid reservoir

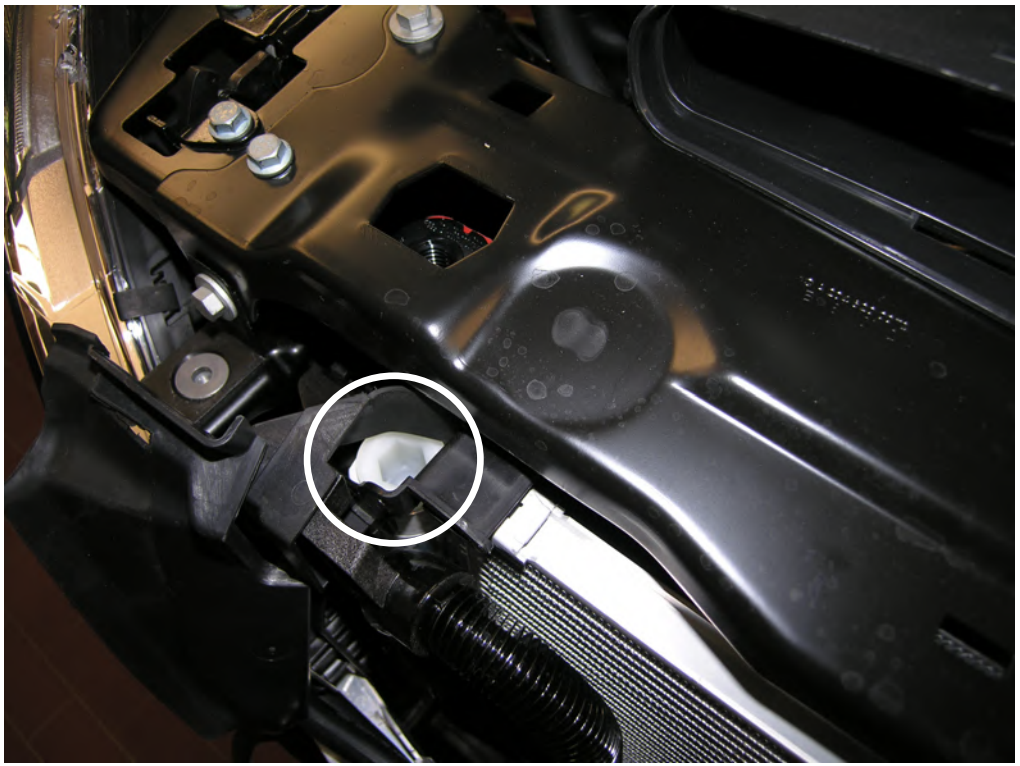


P83.00-2241-06

The dust filter is designed as a combination filter.

Legend

1	Unlocking
2	Dust filter
3	Air conditioner housing
A32m1	Blower motor



GT83_00_0134_C76

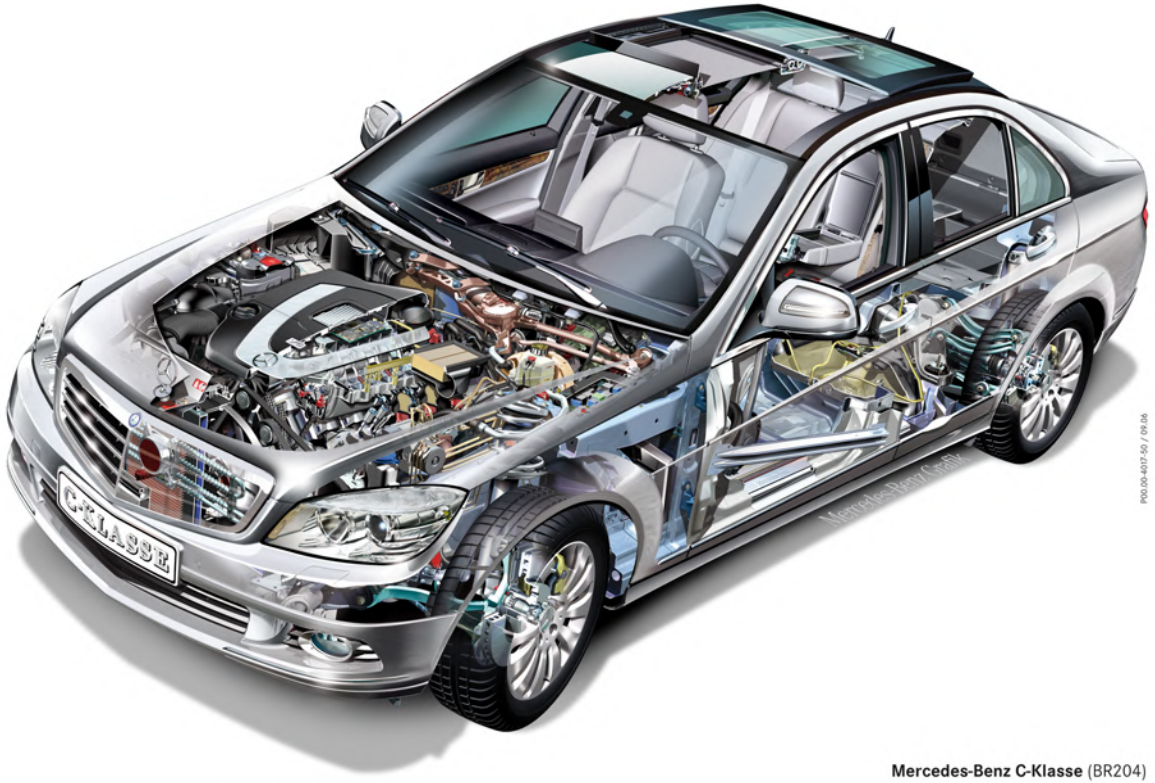
Fluid reservoir (drier) on the right of the condenser.

Information for Service

The combination filter is replaced as necessary or at the latest at Service B.

Learning objectives

- You can explain and demonstrate the operation/handling of the trailer hitch in a manner that is appropriate for customers.
- You can describe the differences in the brake systems in model series W203 and W204.
- You can explain the system structure and function of the parking brake.
- You can describe the 4 suspension versions in model series W204 and explain the distinguishing technical features.



Mercedes-Benz C-Klasse (BR204)
P00.00-4017-50

System description

A mechanical swivel trailer hitch is used in model series W204.

Towing capacity:	not braked	750 kg
	braked	1800 kg
Tongue weight capacity:		50 kg

It locks in the swiveled-in and swiveled-out position mechanically.

The lock can be released mechanically via the operating unit, which is located on the left in the trunk, and the ball neck can be swiveled in and out.

Legend

1 Light emitting diode
2 Operating unit

Procedure for swiveling in or out:

Move operating unit into the adjustment position by pulling.
The ball neck is moved out of the secure detent position by twisting it.
Latch the ball neck securely until the LED goes out.

Error situation:

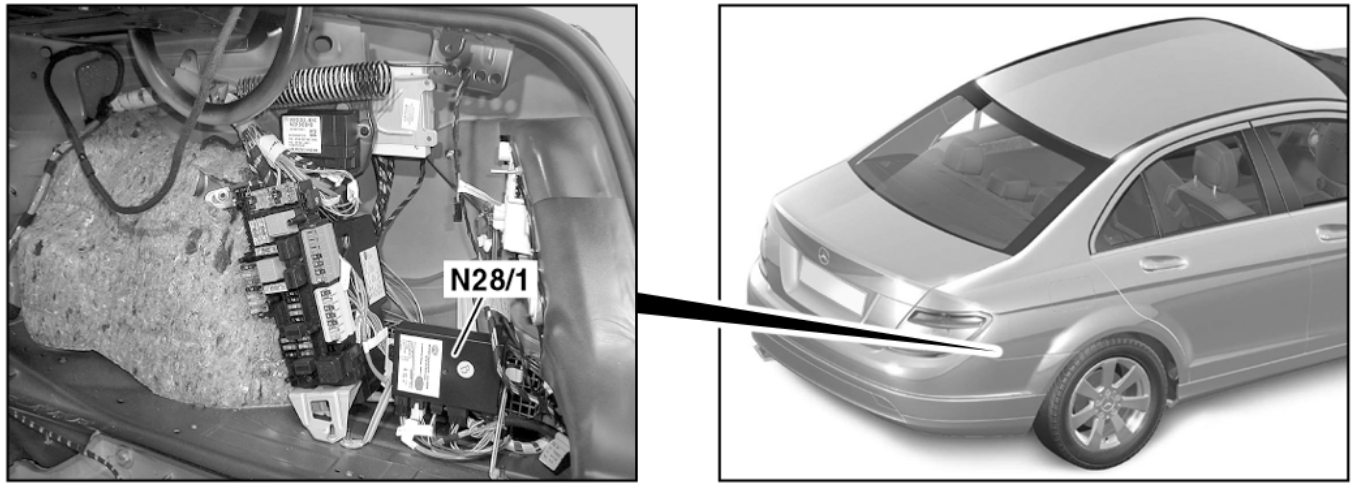
If it is **"not securely latched in"** this is indicated by a flashing light emitting diode, which is integrated into the operating unit.
In this case, when the ignition is switched on the driver information "Trailer hitch – check lock“ appears in the instrument cluster.

Trailer recognition control unit (N28/1)

The trailer recognition control unit (N28/1) (SA) is installed on the right side of the trunk.

Exercises

- Trailer recognition
- The trailer recognition control unit (N28/1) recognizes, by monitoring the current of the outputs for "left turn signal“ and "brake light“, whether or not the power supply for a trailer is plugged in. If one of the two loads is detected, the trailer is deemed recognized.
- Actuation of the trailer lighting
- Monitoring of the ball neck lock
- Bulb monitoring of the trailer
- Shutoff of circuit 30 at the trailer socket, if consumer shutoff is active, by the on-board electrical system management in the rear SAM control unit with fuse and relay module (N10/2). The shut-off element is seated in the trailer recognition control unit (N28/1).



P31.19-2368-04

Legend

N28/1 Control unit for trailer recognition

The C-Class in model series 204 is available in four suspension versions.

1. Basic suspension

The basic suspension (Agility Control suspension) is distinguished by the comfort-oriented tuning of the suspension components, which at the same time meets the high demands for vehicle responsiveness.

The classic tuning conflict in the suspension can largely be resolved in the new C-Class by using an amplitude-selective damping system **(SDD – Stroke Dependent Damping)**.

2. Sports suspension

In addition to the basic suspension, there is also a sports suspension available for the new C-Class. The sports suspension differs from the basic suspension firstly by a level lowered by **-15 mm**. Furthermore, as a result of a stiffer damper tuning, the sprung mass vibrations are dampened to a greater extent, the alternate roll support is increased in comparison to the basic suspension due to stiffer stabilizer bars. As for the basic suspension, the front axle and rear axle dampers are designed as amplitude-selective dampers (SDD). This also ensures a much greater ride comfort for sports suspensions.

3. Rough road suspension

The rough road suspension of the new C-Class is also designed with a view to comfort with a vehicle level that is **15 mm** higher than the basic suspension. The higher driving level is achieved by a longer damper tube with spring cups set higher for the front axle suspension strut and longer rear axle springs. The dampers of the rough road suspension are also equipped with amplitude-selective dampers, adapted to the handling characteristics of the basic suspension.

4. Advanced Agility package (available from September 2007)

Continuously variable damping technology is used for the very first time in the C-Class as part of the Advanced Agility package. The system, which is unusual for this vehicle category, takes into account in particular the demands for a very high degree of responsiveness, without neglecting the comfort requirements, for which the brand is known.

Information for Service

Any necessary leveling is performed on **all suspension versions** by means of springs of different lengths.

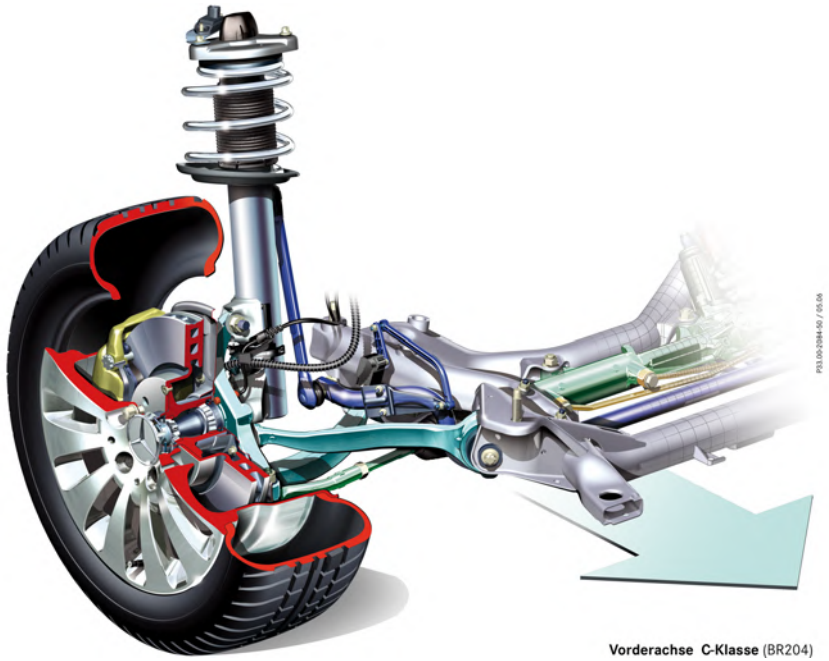
To achieve maximum vehicle dynamics, the front axle units including the steering gear are preassembled together with the engine and transmission on a frame-type integral support.

The principle of a 3-link front axle, but in a more advanced design, has been selected for the front suspension.

Its basic features are two individual links (torque strut and cross strut) in the bottom link level, whose need for power has been further reduced with a view to improving comfort.

The stabilizer bar is connected to the suspension strut. The rubber bushings are vulcanized on.

The torque strut, which faces forward at an angle, as well as the cross strut located in the transverse direction are designed as weight-optimized forged aluminum components. The third link is the tie rod as part of the new rack-and-pinion steering.



Vorderachse C-Klasse (BR204)

P33.00-2084-50

Service information

- The correction of camber and caster is performed in the same way as for model series W 203 via "repair bolts".
- The stabilizer bar at the front axle has "rubber bushings that are vulcanized on" and is only replaceable in its entirety.

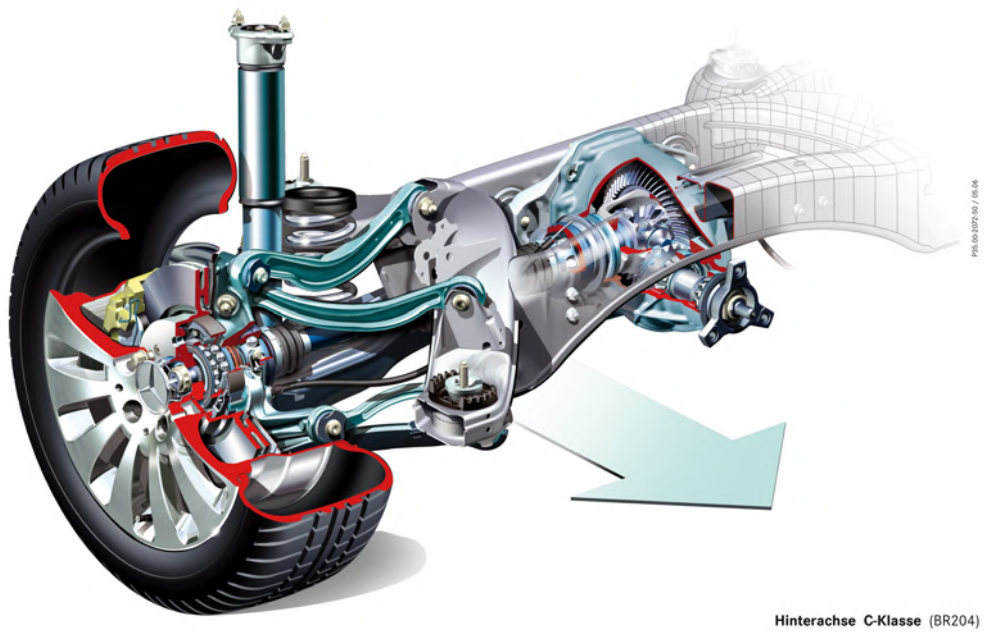
All components of the rear axle have been modified with the aim of increasing comfort. The design of the subframe carrier, struts, the wheel carriers and the subframe has been revised. In the new development, a lightweight design has been implemented throughout, e.g. the subframe in thinner panel thicknesses and wheel control parts made from aluminum to reduce the unsprung masses. As a result of these measures, it has been possible to achieve a suspension of outstanding comfort with exceptional vehicle dynamics.

The front subframe carrier is hydraulic, the spring control arm bearing is integrated into the rear axle carrier.

The frontmost rear axle gear bearing is bolted on.

Additional support pates at the front (for NVH/crashes).

NVH = Noise, Vibration, Harshness.



Hinterachse C-Klasse (BR204)
P31.00-2072-50

Information for Service

- The stabilizer bar at the rear axle has "rubber bushings that are vulcanized on" and is only replaceable in its entirety.

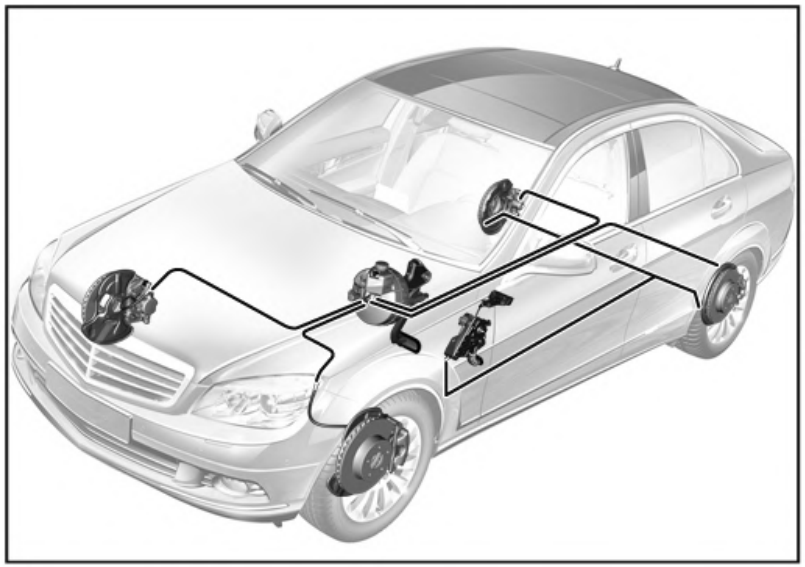
Service brakes

The brake system for the sedan in the new C-Class with the hydraulic dual-circuit brake and the division into two brake circuits for front and rear axle largely corresponds to the previous version.

All versions are equipped with floating caliper brakes at the front and rear.

Service information:

- The brake lining wear contacts are located at the right front and right rear wheel brakes.
- After the entire ESP assembly or the ESP control unit has been replaced, the **"initial startup routine"** must be carried out using DAS.
- If two or more lines were detached from the ESP hydraulic unit, then a subsequent "check for wrong connections“ must be performed using DAS.
- The "initial startup routine" must be carried out using DAS after the "yaw rate, lateral and longitudinal acceleration sensor" component has been replaced.
- When bleeding the brake system, the brake pedal must be operated during the entire procedure **(pumping)**.
  The bleed screw can remain open during this time.
- **When changing the brake fluid, “pumping" is not necessary.**



GT42_00_0061_C01

Integrated into the standard installation **"ESP brake"**, which is controlled via the ESP control unit and the ESP hydraulic unit that is connected directly to it, are the following functions:

Base functions:	ABS, ASR, ETS, ESP, BAS
Assist functions:	Cruise control, tire pressure loss warner
Added-value functions:	Hill Start Assist, trailer stabilization, dry braking, precharging, AIR Gap, PRE-SAFE-MASTER, adaptive brake lights

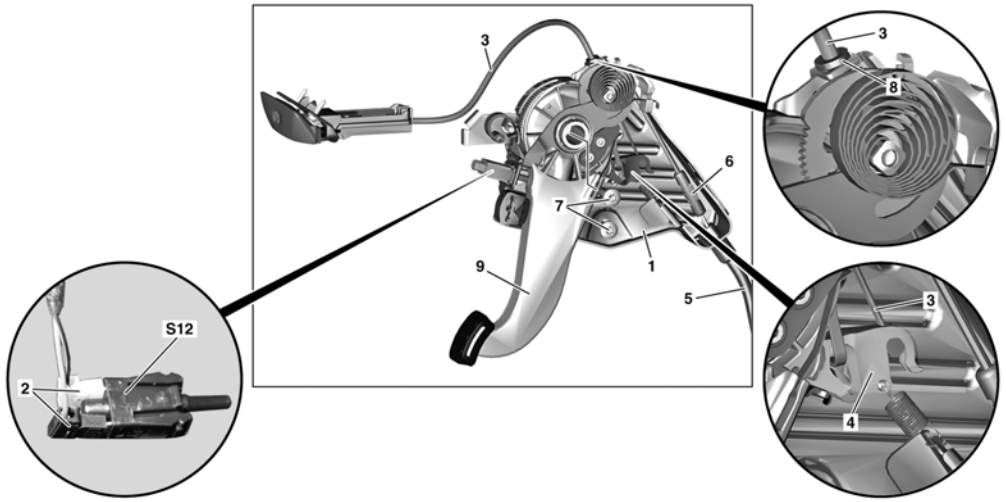
Parking brake

The vehicles in model series W204 are equipped with a mechanical parking brake.
A spring is integrated into the parking brake pedal.
This compensates for any "cable slack“.

Information for Service

- The parking brake is maintenance-free and does not require adjustment.
- For work on the parking brake, use the following special tool to disconnect the cables:
  W204 589 00 16 00.
- The basic setting of the parking brake takes place **"at the wheel brake“** using knurled screws.

Notes



P42.20-2365-09

Legend

1	Parking brake pedal assembly
2	Electrical connectors
3	Trigger cable
4	Retaining tab
5	Front brake cable
6	Disconnection point
7	Screws
8	Retaining clip
9	Parking brake pedal
S12	Parking brake indicator switch

Installed in the basic vehicle with the AGILITY CONTROL steering is a standard steering gear (i = 14.5) from ThyssenKrupp Presta SteerTec.

Speed-sensitive power steering with the variable mid-centering already used in the S-Class is available as special equipment.

Both the manual torque and also the mid-centering are dependent on speed.

Consequently, the manual torque already known from the speed-sensitive power steering for parking and maneuvering procedures and the maximum rigidity and stability of the vehicle at high speeds have been expanded by a very responsive on-center feeling.

A dedicated steering gear with a more direct steering ratio (i = 13.5) has been developed for the sports suspension special equipment and the "ADVANCED AGILITY package“ special equipment with sports driving mode.

This is intended to underscore the sporty nature of this special equipment.

This steering gear is only available as speed-sensitive power steering.

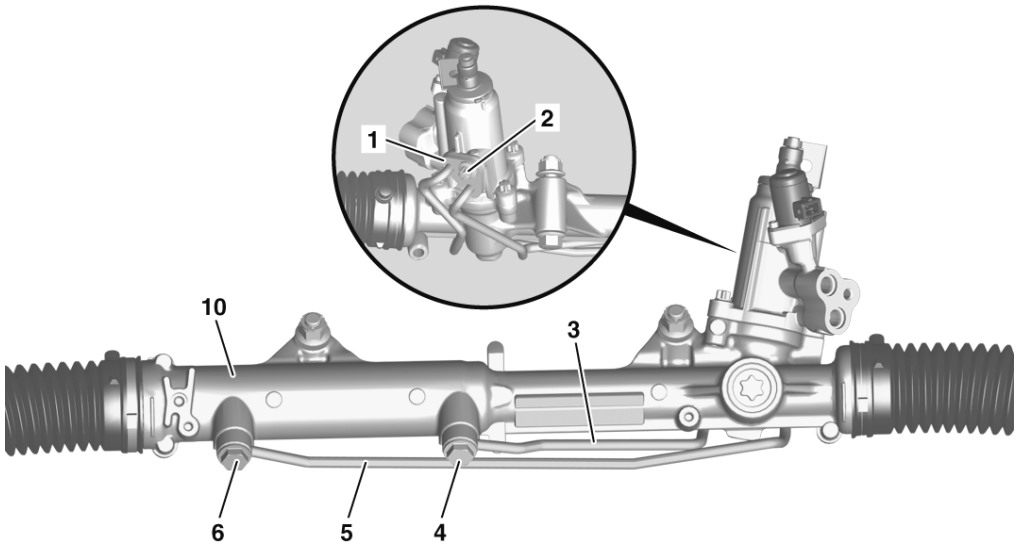
A further variant is a specially adapted standard steering gear for USA and Canada.

The steering gear housing is designed as two pieces. Both the steering gear housing and the valve housing are made from aluminum to cut down the weight.

The toothed rack is made of high-strength steel. This has achieved a weight saving of around 0.8 kg compared to the W 203.

The steering gear is rigidly connected to the frame-type integral support.

The toothing is constant across the steering wheel angle.



P46.20-2336-05

Legend

1 Retaining plate
2 Screw
3 Pipeline
4 Bolt
5 Pipeline
6 Bolt
10 Rack-and-pinion steering

Service information

- The steering play is adjusted using the thrust piece by means of a **"special screw"**
- Evaluating the steering rack when repairing accident vehicles:

Accidents with body damage:

For accidents resulting in body damage (e.g. distorted fender, longitudinal member, side paneling, rear section, etc.), the steering gear may still be used **provided** that parts of the front axle, the steering gear or the steering linkage have not been damaged.

Accidents with permanent distortions at the front axle or steering linkage:

The steering gear must be replaced for safety reasons if parts of the front axle, the steering gear or the steering linkage have been permanently distorted.

Accidents in which the driver airbag has deployed:

In the event of accidents that caused the driver airbag to deploy, the steering wheel and the jacket tube must always be replaced.

Notes

Learning objectives

- You can name the various devices and describe the design and the function of the systems.
- You can describe the system design and function of basic and comfort telephony.
- You can name the connection options for telematics accessories.
- You can connect/disconnect telephones to the vehicle via Bluetooth.
- You can transfer the telephone book from the portable CTEL to the HU.
- You can define the telephone book functions of "Add, Overwrite, Delete".
- You can transfer MP3 files from various media to the HU and describe the "Music Register" function.
- You can operate all NTG4 systems in principle.
- You can operate the SDS/voice control system in principle and name differences in the individual functions compared to previous systems.

GT82_86_0006_C77

NTG4 (new telematics generation 4) device overview

AUDIO 20

GT82_86_0001_C01

P82.86-6188-31

1 Display
2 Head unit
3 Audio/COMAND controller

AUDIO 50

GT82_86_0002_C01

GT82.86_0003_C01

COMAND APS

GT82.86_0004_C04

P82.86-6145-31

1 Display
2 Display control switch
3 Head unit
4 Audio/COMAND controller

GT82_86_0005_01

Function overview

Audio 20 (SE 523)

- FM/AM radio with FM diversity
- CD drive (MP3/WMA)
- Basic Bluetooth telephony
- 5" color TFT display

Audio 50 (SE 525)

- FM/AM radio with FM diversity
- DVD drive (DVD audio, MP3/WMA, navigation data)
- Basic Bluetooth telephony
- 5" color TFT display
- MOST connection (for the sound option)

COMAND (SE 527)

- FM/AM radio with FM diversity
- DVD drive (DVD audio, MP3/WMA/AAC, navigation data)
- Basic Bluetooth telephony
- HDD map navigation
- Voice control/Text to Speech
- PCMCIA card slot
- Music Register (size 4 GB)
- 7" color TFT display (swiveling)
- MOST connection (for the sound option)

Audio 20 with integrated 6-disk CD changer (SE 510)

+ 6-disk CD changer
+ MOST connection (for the sound option)

Audio 50 with integrated 6-disk DVD changer (SE 511)

+ 6-disk DVD changer (DVD audio)
+ Voice control/Text to Speech

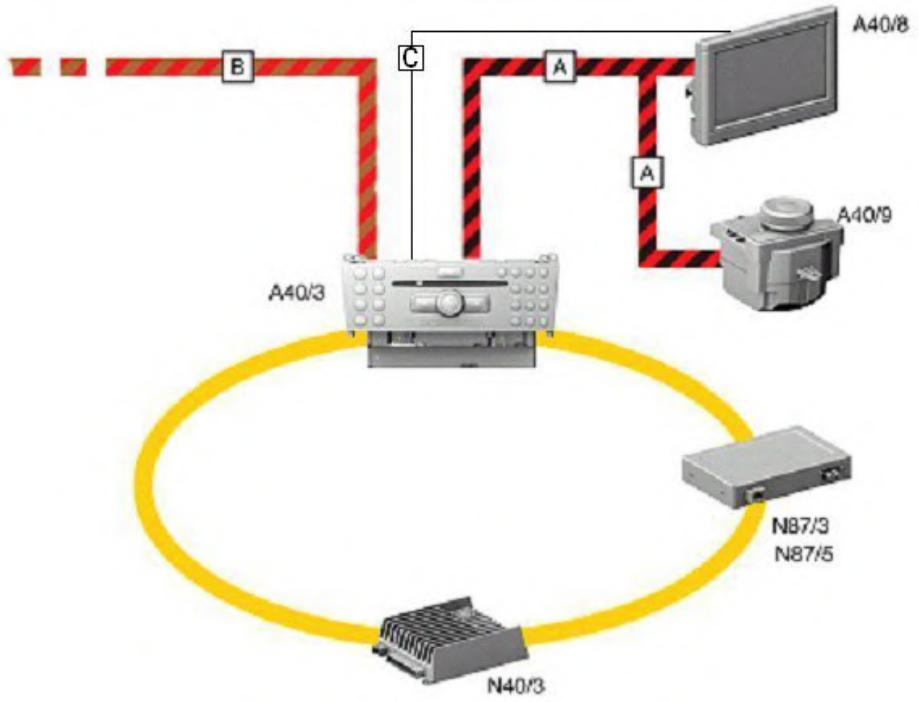
i Navigation DVD must be inserted into slot 6 for navigation.

COMAND with integrated 6-disk DVD changer (SE 512)

+ 6-disk DVD changer (DVD audio/video)

NTG4 device features

- Similar design to NTG3
- The telematics CAN connects the 3 main components:
  - Head unit – central display – audio controller
  - Video signal from the HU to the central display
- The MOST fiber optic cable is not absolutely essential
- The following special equipment can be optionally connected to the MOST fiber optic cable:
  - Surround Sound system (harman/kardon)
  - Satellite Radio (SDAR for USA)
  - Digital Audio Broadcast (DAB for Great Britain)



GT00_19_0186_C81

Legend

A	Telematics CAN
B	Interior CAN
C	Video signal
A40/3	Audio/COMAND
A40/8	Audio/COMAND display
A40/9	Audio/COMAND control panel
N40/3	Sound system amplifier control unit (SA)
N87/3	Digital audio broadcast (DAB) control unit - (GB)
N87/5	Satellite digital audio radio (SDAR) control unit - USA

Possible media/formats

CD/DVD	PCMCIA	Music register
MP3	MP3	MP3
WMA	WMA	WMA
AAC	AAC	AAC
CD audio		
Audio DVD:		
DVD video		

All of the file formats listed in the table can be copied from CD/DVD, as well as from the PCMCIA interface, to the "music register". The files stored in the "music register" can also be stored in folders, renamed, or individually deleted.

Music formats:
MP3 = MPEG-1 audio layer 3 (lossy audio compression)
WMA = Windows Media audio (lossy audio compression from Microsoft)
AAC = Advanced audio coding (lossy audio compression from Apple)

GT82_86_0007_C81

Music register status indication

P82.86-6234-31

Legend

1 Copy music files (selection menu)
2 Data storage device selected (Ex. CD 5, MP3_ARCHIVE)

Telephony in model series 204 is categorized into basic and comfort telephony (SA 386).

Features of basic telephony are:

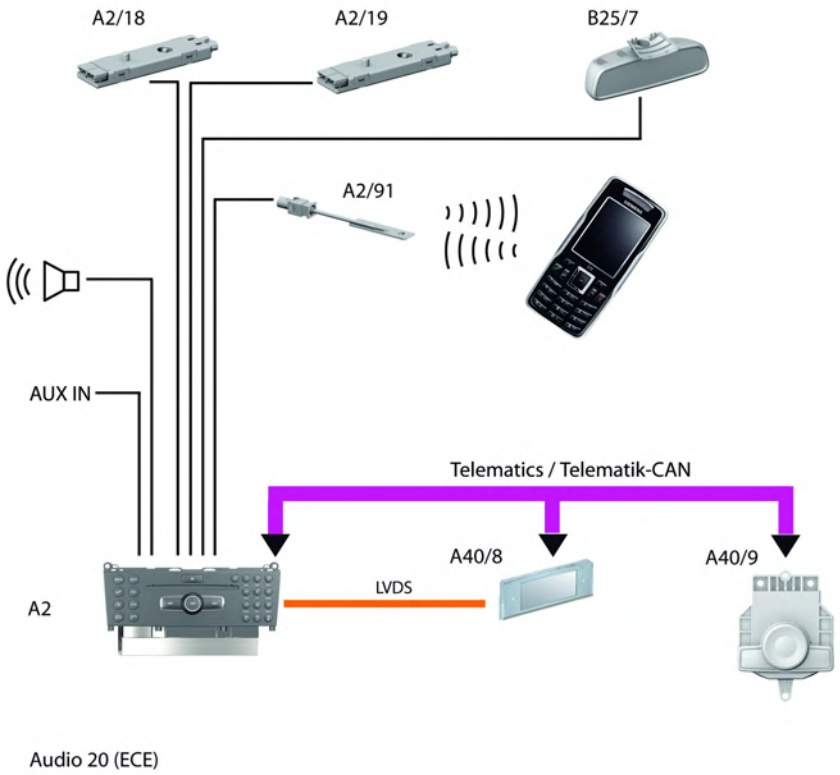
- Basic telephony is provided if the vehicle is equipped with one of the Audio 20, Audio 50 or COMAND APS versions.
- Permits a portable CTEL to be connected via Bluetooth.
- Permits hands-free operation (in the 'hands-free profile').
- Permits phone numbers to be dialed via the head unit.

Features of comfort telephony are:

- Permits a portable CTEL to be connected via a corresponding cradle.
- Permits hands-free operation.
- Permits a portable CTEL to be charged via the cradle.
- Permits a portable CTEL to be connected to the exterior antenna.
- Permits SMS messages to be received and sent.
- Permits the telephone book to be downloaded.
- Also provides the functions of basic telephony.

System networking for telephony

Basic telephony



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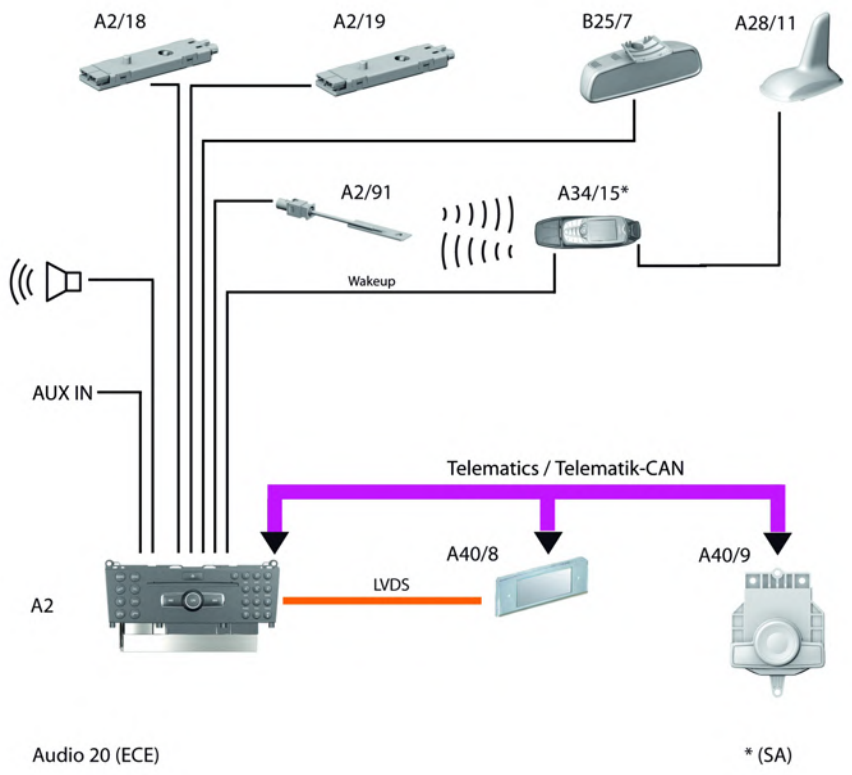
Comfort telephony



GT00_19_0178_C76

Legend

A2	Radio
A2/18	FM, AM and CL [ZV] antenna amplifier
A2/19	Rear window antenna FM antenna amplifier
A2/91	Bluetooth antenna
A28/11	Multifunction antenna
A34/15	Mobile phone holder
A40/8	Audio/COMAND display
A40/9	Audio/COMAND control panel
A94/1	TV antenna 1 and DAB band III
B25/7	Voice control system microphone

The following steps are required to connect a portable CTEL with **basic telephony** via Bluetooth:

- Bluetooth on portable CTEL must be activated and visible.
- Via System menu → System settings → Connect Bluetooth
- Or via Telephone menu → Telephone → Telephone list → Update

Only one portable CTEL can be operated at a time with basic telephony.

The following steps are required to connect a portable CTEL with **comfort telephony** in the vehicle:

- The telephone (comfort telephony) must be selected via the telephone list.
- The telephone bracket must be plugged in.
- The appropriate portable CTEL must be inserted into the telephone bracket.

A Bluetooth module is integrated in the connector for the cradle, which enables communication between the portable CTEL and head unit. The following selections are possible after a portable CTEL has been connected via comfort telephony:

- SMS
- Manual downloading of the address book
- Voice control of telephone
- Dialing a telephone number using the numeric keys on the head unit
- Dialing a telephone number from the transferred telephone book

GT82_70_0084_C75

GT82_70_0085_C76

Legend

M	Portable CTEL
A34/15	Cradle

GT82_70_0086_C81

The voice control system is able to control the following systems for vehicle telematics:

- Telephone
- Navigation
- Address book
- Audio systems (radio, CD/DVD, MP3, hard disk, etc.)

Further developments of already familiar systems have once again lead to considerable improvements. The following functions are, for example, possible for telephone operation:

- Selecting a name from the telephone book without prior voice tag
- Selecting a name from the telephone book with prior voice tag
- Listening to the telephone book
- Entering a telephone number in one go (complete)
- Entering a telephone number in groups
- Entering a telephone number number-by-number

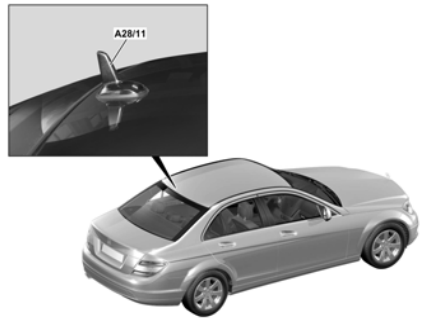
Complex names (towns, streets) can now also be spoken when controlling navigation and no longer have to be spelled. Of course, a "retraining" function is also available.

Legend

1 Voice control activate button
2 "Abort" button
3 Accept call

A so-called multifunction antenna is located in the rear section of the vehicle roof.
The following antennas can be found here, depending on the vehicle equipment:

- Telephone (GSM)
- Navigation (GPS)
- Digital radio (DAB) only UK
- Satellite radio (SDAR) only USA



P82.62-3129-06

Legend

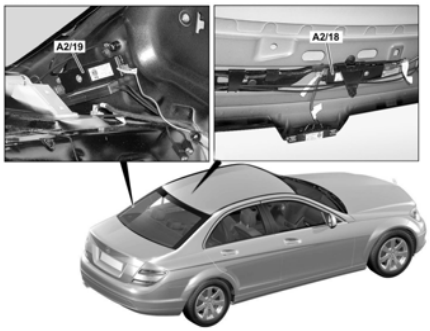
A28/11 Multifunction antenna

The Bluetooth antennas for the head unit (installed in all head units) are located in the overhead control panel. A further Bluetooth antenna in installed in the connector for the portable CTEL cradle for **comfort telephony** (see the chapter on telephones).

P82.62-3130-06

N70 Overhead control panel
A2/91 Bluetooth antenna

The AM/FM radio antennas and receiving antenna for central locking are located in the rear window again and are contacted via the two A2/18 and A2/19 antenna modules.



GT82_62_0052_C06

A2/18 FM, AM and CL antenna amplifier
A2/19 FM antenna amplifier

Global Training.

The finest automotive learning

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D-70546 Stuttgart

Intranet: http://gt.intra.daimlerchrysler.com

1511 1902 02 1. edition 02/07 80