Brake system

		SLK 350	SLK 55 AMG
Brake system, front			
Type of brake		4-piston fixed caliper	6-piston aluminum fixed caliper
Wheel cylinder diameter	mm	44/40	30/34/38
Brake disc diameter	mm	330	340
Brake disc thickness	mm	28	32
Version		Internally ventilated, with cross-drilled brake discs	Internally ventilated, with cross-drilled compound brake discs
Brake system, rear			
Type of brake		2-piston fixed caliper	4-piston aluminum fixed caliper
Wheel cylinder diameter	mm	36	26/28
Brake disc diameter	mm	290	330
Brake disc thickness	mm	10	26
Version	mm	Solid	Internally ventilated, with cross-drilled brake discs

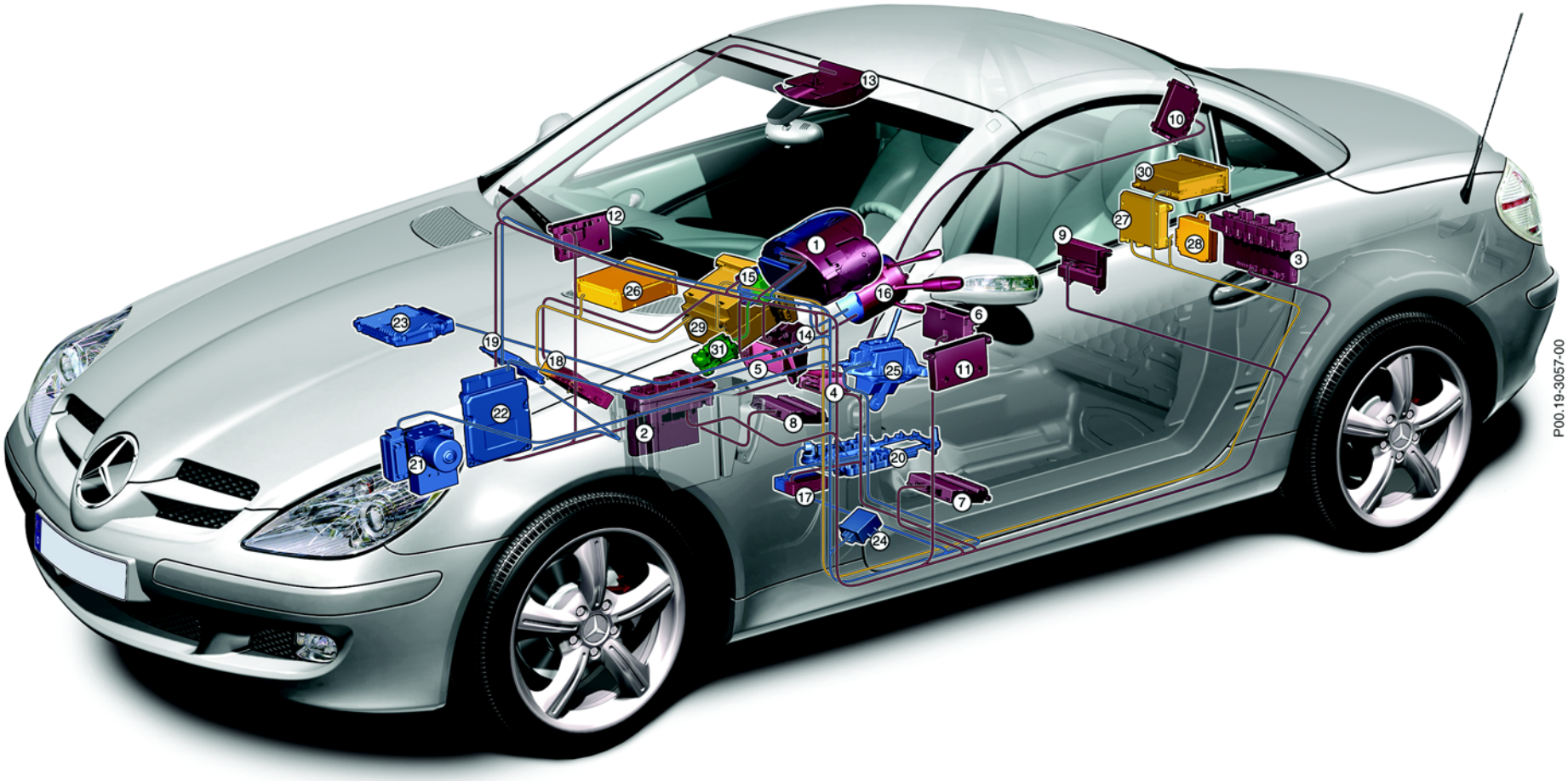
Extended vehicle network in the SLK-Class 171

CAN bus Class B (interior compartment)

CAN bus Class C (engine compartment)

MOST bus

PRIVATE bus



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CAN bus Class B

1 Instrument cluster
2 Driver-side SAM
3 Rear SAM and actuation module
4 Restraint systems control module
5 Automatic climate control (ACC)
6 Front heated seats, head area ventilation, (window heater)
7 Seat adjustment with memory, driver and steering column
8 Seat adjustment with memory, front passenger
9 Retractable roof
10 Non-US equipment
11 Left front door control module (DCM-LF)
12 Right front door control module (DCM-RF)
13 Overhead control panel (OCP)
14 Upper control panel (UCP)
15 Electronic ignition switch (EIS)
16 Steering column module (SCM)
17 Central gateway (CGW)
18 Audio gateway (AGW)

CAN bus Class C

1 Instrument cluster
15 Electronic ignition switch (EIS)
16 Steering column module (SCM)
17 Central gateway (CGW)
19 Electronic transmission control (ETC)
20 Electronic transmission control (ETC)
21 Electronic Stability Program (ESP)
22 Non-US component
23 Motor electronics M 272
24 Headlamp range adjustment (HRA)
25 Electronic selector lever module (ESM)

MOST bus

18 Audio gateway (AGW)
26 CD changer (CD-C)
27 Multiple Handset Interface (MHI)
28 Non-US component
29 COMAND or Audio 20
30 Navigation processor

PRIVATE bus

15 Electronic ignition switch (EIS)
31 Electric steering lock (ESL)

Electronic and electrical systems

The networking architecture has been fundamentally renewed in comparison with the predecessor model series.

The main characteristic feature of the new network is the linking of communications/telematics components and vehicle diagnostics with the vehicle network, taking into account foreseeable future developments.

A further highlight of the new network architecture is the expansion of sub-bus systems in the CAN Class B network.

CAN Class B

New additions include control modules for the following functions:

- Central gateway
- Audio gateway
- ACC operating unit
- Heated seats
- Restraint systems control module

Some of the sub-bus systems employ a single-wire bus (LIN for local interconnect network). Sub-bus systems are used to control a variety of functions including functions in the following systems:

- Steering wheel
- Door
- Climate control/ACC
- Windshield wipers

All the control modules in the CAN Class B network (which in contrast to the CAN Class C network is also available in the "ignition OFF" state) use the internationally standardized OSEK (Open Systems and Corresponding Interfaces for Automotive Electronics) network management system which is capable of integrating up to 64 stations in a single network. This is intended to allow the network to be expanded in the future.

Networking

Central gateway

In addition to the diverse data transfer functions between the networks, the CGW also incorporates the following functions:

- System diagnosis
- Service processor
- Maintenance interval display

The complexity of the data network, and the wide variety of functions governed by sophisticated microprocessors in a modern automobile, demand an efficient diagnostic system in order to localize any malfunctions or faults quickly and accurately.

Mercedes-Benz Maintenance System

The Service processor calculates the remaining time and remaining distance since the last service. In addition, it calculates other maintenance work required.

CAN Class C

In terms of its physical layout and its baud rate of 500 kBps, the CAN Class C network is similar to the familiar system already in use, which is active only when the ignition is on. As before, the electronic drive management system and the electronic chassis management system communicate with each other over the CAN Class C network. However, the number and functions of the individual control modules have changed from those of the predecessor model series.

The communicating stations include:

- Engine control
- ETC transmission control (automatic transmission only) or easy-shift manual transmission control
- Selector lever module (automatic transmission only)
- ESP control
- Automatic headlamp range adjustment
- Instrument cluster
- Electronic ignition switch
- Steering column switch module
- Central gateway

Audio and communications systems

Audio 20 CD and COMAND

The SLK can be fitted with a new generation of audio and telephone systems which are available as optional equipment (alternative or supplemental).

The "Audio 20 CD" equipment includes:

- Single CD player
- Fixed station assignment
- Station search
- Monochrome display
- Telephone keypad

The COMAND equipment includes:

- Two-tuner radio component DVD (CD-compatible)
- DVD navigation
- 6.5" color display
- Telephone keypad
- Tele Aid services (roadside assistance, info, SOS)

Additionally available (optional equipment):

- CD changer in glove compartment
- harman/kardon Logic 7 digital surround sound system (not in combination with Audio 20)
- Motorola digital telephone

COMAND

Audio and communications systems

Telephone

A multiple handset interface (MHI) (optional equipment) preinstallation with universal interface is available for the motorola digital telephone.

The MHI preinstallation consists of:

- Wiring harness
- Control module
- Compensator
- Contact plate
- Antenna

The MHI full package consists of:

- MHI preinstallation (see above)
- Motorola Portable CTEL
- Portable CTEL holder

The telephone can be operated via the multifunction steering wheel and the displays appear in the instrument cluster.

Antenna system

The antenna system for the radio, telephone and vehicle remote control consists of an removable mast on the rear fender. The GPS antenna it is located in the base of the inside rearview mirror.

Motorola digital telephone

Antenna mast

Audio and communications systems

CD changer

The available 6-disk CD changer (optional equipment) is equipped with a single feed feature and not with a CD caddy. It is installed in the glove compartment. Only audio CDs can be played.

It is operated via the head unit, which also displays all the active functions:

- Track select (up/down)
- Track/CD play time
- Scan function (plays the first 8 secs. of each track)
- Random track sequence
- Track repeat function

Speakers

The SLK is fitted with nine speakers as standard equipment:

- 3 speakers in each door
- 2 speakers below the seat belt reels
- 1 speaker (centerfill) in the instrument panel

In order to provide a uniform sound, the volume is increased relative to the vehicle speed (upwards of 20 km/h).

Digital surround sound system

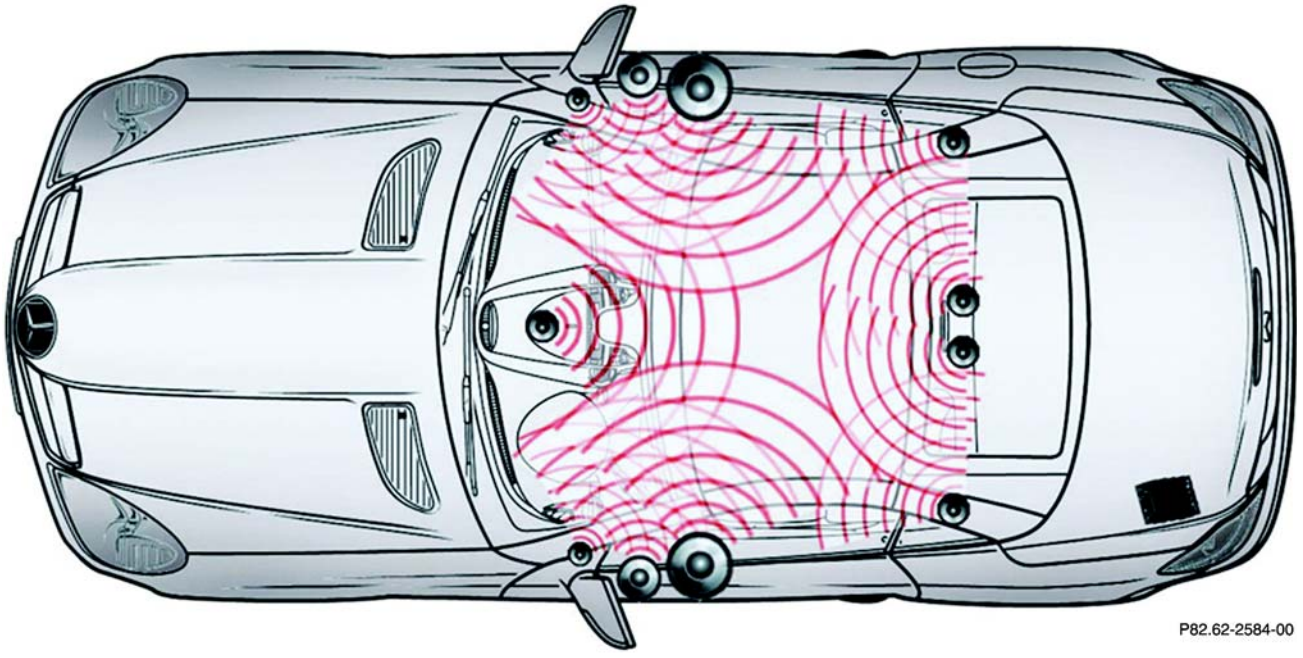
The harman/kardon Logic 7 digital surround sound system with a power rating of 380 W (optional equipment). This system is equipped with eleven speakers:

- 3 speakers in each door
- 4 speakers on the rear wall
- 1 speaker (centerfill) in the instrument panel

With frequency response compensation matched to the acoustics of the car and tone/volume adjustment via an interior microphone, listening pleasure is uninterrupted with the retractable roof up or down.

Note:

Digital surround sound in effect in FM, CD and Satellite radio modes.



Surround sound system speaker positions

Retractable roof

Space-saving storage

Like its predecessor, the new SLK is equipped with the retractable roof. When the retractable roof operating switch is actuated, the SLK changes from a coupé to an open-top roadster (and vice versa) within approx. 22 secs. The opening and closing functions can also be controlled from outside with the aid of a key remote control (optional equipment).

The retractable roof can withstand car washes, is resistant to wear and provides a higher level of protection from vandalism. In terms of environmental comfort and wind noise levels the retractable roof also offers tangible advantages.

The retractable roof system from the predecessor model series has been developed with regard to its mechanical system and space-saving storage in the trunk. A luggage capacity of 6.5 cu. ft. (185 liters) is available in the trunk underneath the stored retractable roof.

Luggage cover

A luggage cover is installed in the trunk to prevent items of luggage from colliding with roof elements when the roof components are swinging into the trunk. The retractable roof can only be opened when the luggage cover is closed. In order to utilize the full capacity of the trunk with the roof closed, the luggage cover can be folded forward in a single action.

Retractable roof movement sequence (shown with accessory wheels)

Retractable roof

System design and function

The retractable roof essentially consists of the pivoting elements which are interconnected by means of a sophisticated pivot mechanism:

- Roof elements
- C-pillars
- Heated rear window

The retractable roof system also includes the trunk lid which, as well as pivoting in the direction of travel, can also be opened in the opposite direction to allow the roof elements to be stored in the trunk.

The actual roof system consists of:

- Twin-shell roof elements comprising steel outer paneling and a steel internal component with roof lining
- Two C-pillars with sheet steel inner and outer shells
- Rear window of 3 mm thick heated single-pane safety glass
- Rear shelf and two side flaps

The right and left pivot mechanisms of the roof are mounted on an aluminum crossmember, which in turn is bolted onto the bodyshell structure in the vicinity of the B-pillar stumps. In addition to the pivot mechanism, this assembly module also includes two electronically controlled hydraulic cylinders for powering the pivot mechanism, the two roll bars and the cylinders for operating the tubular frame.

The hydraulic unit with integral solenoid valve is controlled sequentially via limit switch scanning with overlaid functions. This helps to ensure that the roof can be fully opened or closed within a period of approx. 22 secs.

When closed, the individual elements of the retractable roof are cushioned against each other by means of cellular/soft rubber. The roof elements and C-pillars are positively interlocked in the area of the pivot axis by means of slide valves to prevent the closed roof from being lifted by the wind at the pivot axis at high speeds. It is unlocked via Bowden cables at the front roof catch. In the front part of the roof two latches with a central hydraulic drive lock the roof onto the windshield frame. With the roof closed, wind noise is at the same level as in a coupé.

Retractable roof

"Open" or "close" conditions

When the retractable roof is opened or closed, the individual elements travel from their rest positions under hydraulic power and describe defined pivot movements, at the end of which the elements are fully stored in the trunk or are fully closed and locked in the coupé position.

The start conditions for roof actuation are:

- Vehicle is stationary.
- Ignition is switched on.
- Luggage cover in trunk is closed.
- Trunk lid is closed.

If these conditions are satisfied, the retractable roof is opened or closed on actuation of the retractable roof operating switch on the center console.

The opening and closing sequences are aborted if:

- The operating switch is released
- Ignition OFF
- Under voltage in on-board electrical system
- The vehicle is driven
- Over temperature in the hydraulic unit

A total of five hydraulic cylinders are available:

- One for the roof latch
- Two for the roof drive
- Two for the trunk lid drive

The hydraulic pump is a multiple-piston pump with integral electromagnetic valve. It is located near the crossmember behind the seats.

Retractable roof

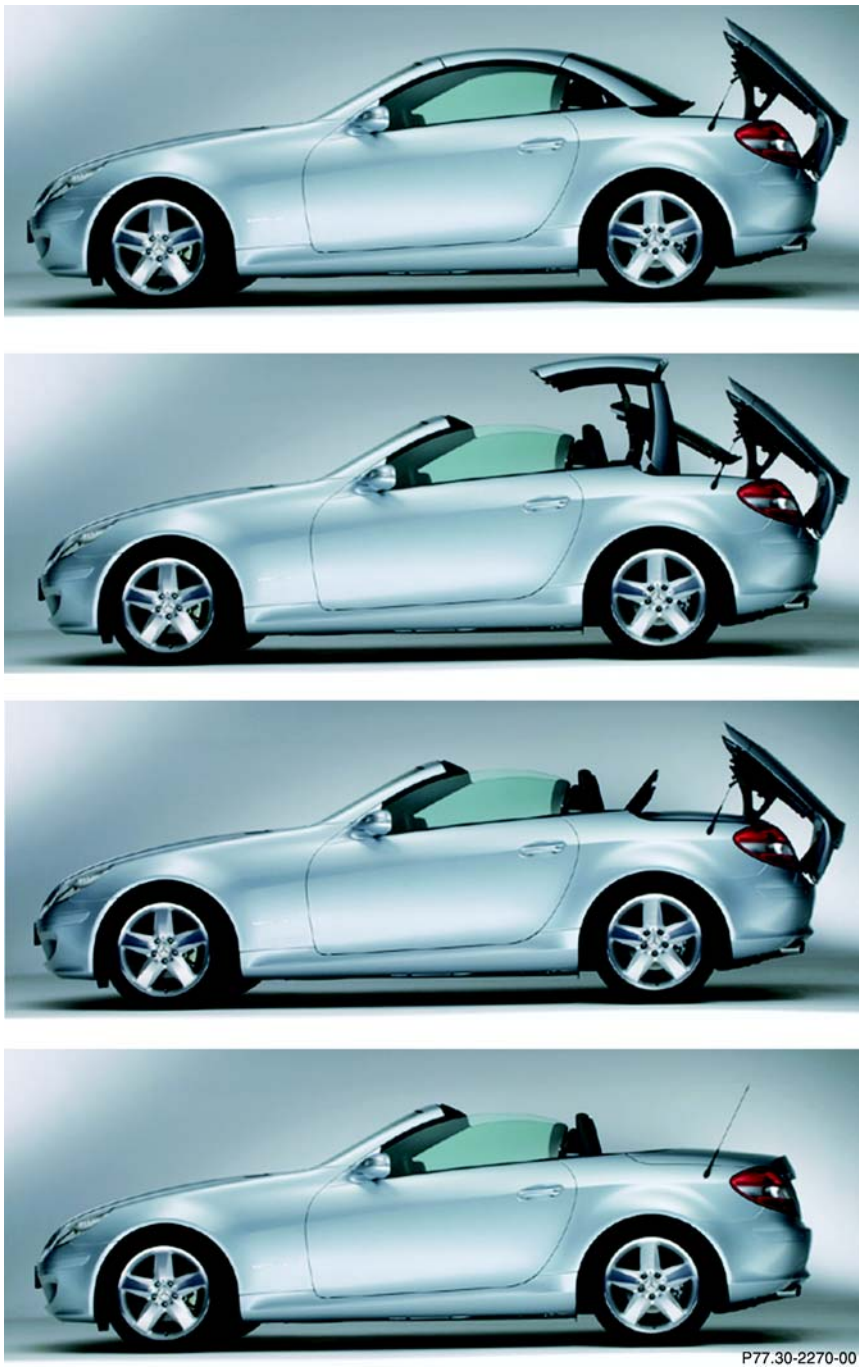
"Open" and "close" movement sequences

Movement sequence until the roof is fully open:

- Front latch on roof/roof frame is unlocked.
- Tubular frame of trunk lid opens automatically towards the rear.
- Rear side windows are lowered.
- Front side windows are moved to the short stroke position.
- Rear shelf folds up.
- Roof is opened.
- Rear window rotates through approx. 150° in the opposite direction to the rotation of the C-pillars.
- Rear shelf folds down and side flaps are extended.
- Roof element, rear window and C-pillars are stored in the trunk.
- Trunk lid is closed.
- Front side windows are closed from the short stroke position.

The retractable roof closes in the reverse sequence.

The remote trunk lid release function remains disabled for the entire duration of the opening or closing sequence.



Retractable roof movement sequence (shown with accessory wheels)

Retractable roof

Roll bars

The two roll bars, which are rigidly bolted to the body, function as a safety element. They help to maintain occupant space in a rollover when driving with the retractable roof down. The bars are made of tubular steel and are padded with plastic. They are bolted rigidly onto the assembly module.

Draft stop

The draft stop is a wind deflector for driving with the roof open. It serves to deflect the turbulent air from behind and reduces drafts at the back of the neck and head. The draft stop is stretched across the two roll bars and is attached to them by means of safety pop fasteners. It is made of fine-mesh synthetic textile fabric.

Synthetic textile fabric draft stop

AIRSCARF head area heating

Another technical innovation is the AIRSCARF neck level heating system (optional equipment) which acts as a thermal draft stop and is available in combination with heated seats and leather upholstery.

Note:
AIRSCARF is optional with heated seats and is offered as a package on SLK 350. It is a stand alone option on SLK 55 AMG.

AIRSCARF supplies warm air to the area around the occupants' heads. This makes it possible to drive with the roof down even in cooler outside temperatures.

The fronts of the head restraints have ventilation openings from which warm air can emerge into the head and neck area of the passengers as required.

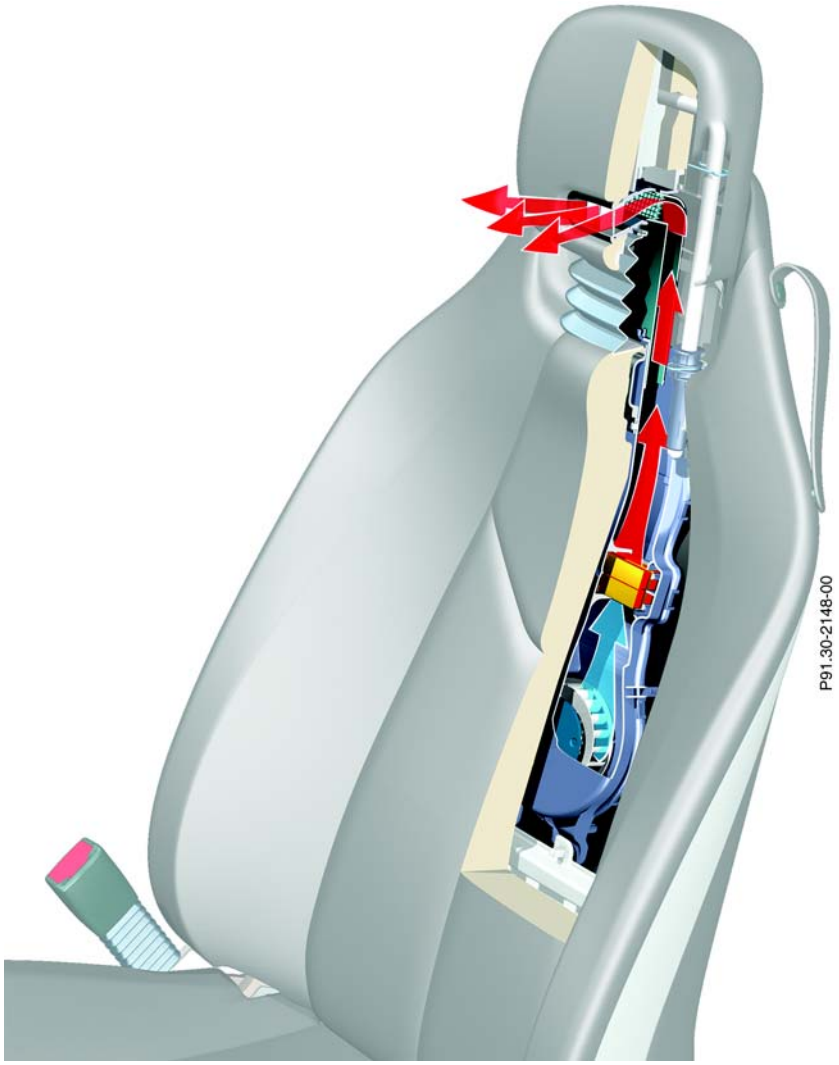
The air outlet temperature can be set in three stages by means of a switch on the center console. Three indicator lamps (red) in the switch indicate which of the three ventilation settings is selected.

- Stage 0:
  No indicator lamp on.
- Stage 1:
  One indicator lamp on.
- Stage 2:
  Two indicator lamps on.
- Stage 3:
  Three indicator lamps on.

A blower in the backrest provides the necessary outlet speed for the heated air. The outlet speed is adjusted automatically to suit the vehicle speed.

The heating energy is provided by a PTC heating element in the ventilation duct in the backrest.

The air to be warmed flows over slats which are heated with the aid of ceramic posistors.



AIRSCARF

Climate control/Automatic climate control

Climate control/Automatic Climate Control (ACC)

Two variants of interior compartment climate control are available for the SLK:

- Climate control (standard on the SLK 350 and SLK 55 AMG,
- Automatic climate control (optional equipment)

All systems feature separate temperature control for the left and right sides and a recirculated air circuit with dust filter. In the Automatic Climate Control (ACC) system the dust filter is combined with an activated charcoal filter.

Climate control

The climate control operating unit is a completely new development and comprises a total of four rotary switches with integral pushbuttons.

The rotary switches are used to set:

- Air temperature (driver, passenger)
- Air volume (ten settings)
- Air distribution

The functions of the pushbuttons are as follows:

- Recirculated air
- Residual engine heat utilization with the engine off (REST) and A/C off
- Defrost program with maximum heat output and air stream directed at the windshield.

The climate control system includes an A/C system. The pushbutton with the REST function also performs the additional function A/C^{OFF} (compressor cutout).

Additional A/C features:

- Cooling at high outside temperatures
- Automatic adaptation of the recirculated air feature at high outside temperatures

Climate control module

Climate control/Automatic climate control

Automatic climate control (ACC)

ACC is available as optional equipment.

It differs from the climate control system in the following functions:

- Automatic regulation of air distribution and air volume
- Control takes into account solar, pollutant and dew point sensors
- Temperature settings are stored in the electronic key
- Display in the operating module

Ventilation

The following ventilation openings are situated in the vicinity of the instrument panel:

- A full-length defroster outlet under the windshield
- An upward-pointing outlet for indirect ventilation of the middle of the passenger compartment (only with ACC)
- Below this, two swiveling outlets pointing into the passenger compartment
- Outside on each side a swiveling side air outlet pointing into the passenger compartment and a fixed side defroster outlet

The following ventilation openings are located in the footwell areas:

- A cross duct with three outlets on the driver side and two outlets on the passenger side

ACC module

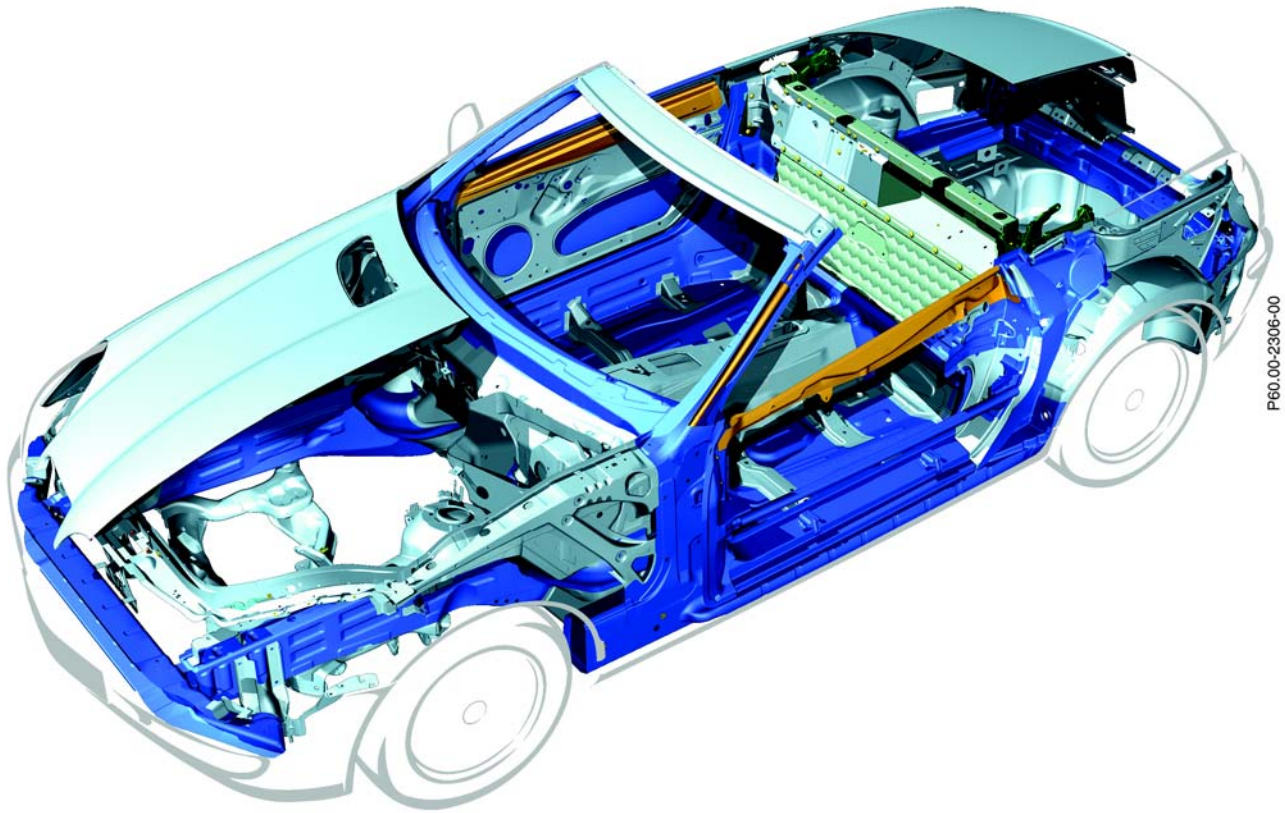
Body

General

In comparison with the predecessor model series, numerous components of the body shell and the detachable external body parts have been redeveloped for model series 171. These changes were based on internal criteria above and beyond the legal requirements.

The lack of a permanently welded roof structure demands special design measures to meet the usual high standards of Mercedes-Benz sedan cars in terms of rigidity and strength.

Similarly, the body shell structure must offer a solid basis on which to mount the special mechanisms of the retractable roof and the trunk lid.



Body structure

ST 14/ST 13/ST 12/ST 6/ST 5/ST 3

High-strength sheet metal

Aluminum sheet

Aluminum casting

Heat-formed steel

Body

Body shell structure

The body shell of the new SLK is a lightweight steel structure.

The following body shell components specific to the roadster are located in the area of the passenger cell:

- Inset tunnel with increased sheet thickness and closing panel
- Straight line end members attached from below on both sides as extensions to the front longitudinal members as far as the rear longitudinal members
- Seat crossmembers on both sides
- Side longitudinal members each consisting of an internal and an external shell with an additional reinforcement attached on the outside
- Extension of the side longitudinal members beyond the A-pillars towards the front acting as additional impact elements
- A-pillar with welded-in oval tube and sturdy gusset plate connections with the side longitudinal members
- Large-surface support of the B-pillar stumps via crossmembers and rear wall
- Tubular crossmember in the form of an assembly carrier under the instrument panel

Front end structure

The forward structure for supporting the headlamps, the bumper and the radiator is welded to the front longitudinal members.

The frame-type integral support is rigidly bolted onto the two straight line front longitudinal members. The frame-type integral support is composed of four carrier parts in a frame structure. It carries the rack-and-pinion steering gear, the engine mounts and wheel location components. This makes it possible to preassemble and install the major drive assemblies from below. In the event of a severe head-on collision, the longitudinal members (in front of the wheelhouse) and the frame-type integral support can deform while absorbing impact energy.

Bulkhead

The upper edge of the bulkhead is formed by an additional crossmember. The two front longitudinal members are supported by both the crossmember and the bulkhead. To reinforce these connections, a crossmember is mounted on the two lower bulkhead surfaces on each side of the front longitudinal members to connect the front longitudinal members with the outer longitudinal members and with the tunnel. The metal thickness of each part is individually matched to the local peak stresses.

Rear end structure

To increase their strength and improve their deformation behavior, the multi-part rear longitudinal members have a cross section which is closed along their entire length with graduated sheet thicknesses and internal stay plates. The steel spare wheel well is part of the rear floor assembly. The rear end of the rear floor assembly is formed by the rear crossmember, which is connected with the rear end center assembly and carries the rear bumper and the tubular frame.

Body repairs

Welding work

Riveting has a number of advantages over the "plug welding" method previously used:

- Certain higher- and high-strength steels cannot be welded (with inert gas).
- Different materials can be joined by means of adhesive bonding. The adhesive acts as a "separating layer" to avoid electrochemical contact corrosion.
- There is no risk of corrosion as a result of “burning” the non-metallic coating.
- No structural changes take place in the material as a result of the introduction of heat.
- Providing the jointing is executed correctly, leak-tightness is achieved.

The familiar flat and countersunk head rivets are used.

Screw clamp grips are used for fixing in place the sheets to be riveted together. Like the riveting tool, these are listed as commercially available tools in the Workshop Information System (WIS).

Note

The following general rule applies:

The preferred jointing method for steel sheets is spot welding.

Riveting should be used at inaccessible points.

Body repairs

Package contents	Order number	Sources
Celette USA Dedicated Fixtures for Structural Repairs	325-7171.300	Refer to MBUSA Standard Service Equipment Program (1-888-458-4040)
Welding Fixtures		Refer to Special Tools section