

Engine 272 - Exhaust system

The engine of the 6-cylinder version satisfies the US exhaust emissions limits. To meet these limits the monolith coating of the catalytic converters has been modified (platinum/rhodium plating instead of tri-metal coating). The longevity of the exhaust system is provided by the use of stainless steel throughout.

The exhaust system features a gap-insulated exhaust manifold as well as a bulkhead catalytic converter and one front muffler on each side. Downstream of the separation point behind the front mufflers, the two exhaust streams are combined briefly before traveling on in twin pipes to the two rear mufflers.

The tailpipes feature chrome-plated covers.



Exhaust system

Fuel tank

The new SLK is fitted with a fuel tank made of two-layer sheet steel and with a capacity of 70 l, which is located above the rear axle. The external shapes of the fuel tank and filler neck have been modified to suit the new installation conditions.

The in-tank fuel feed system operates at a system pressure of 3.8 bar (engine 272) and consists of:

- Fuel pump assembly with fuel level sensor
- Fuel filter with fuel pressure regulator

The fuel flows from the fuel pump assembly via a fuel line to the fuel filter with fuel pressure regulator. In order to supply the fuel pump assembly with sufficient fuel, the system incorporates an integral suction jet pump (at the bottom of the fuel pump assembly). This is supplied with fuel from the fuel pump assembly via a separate fuel line.

Surplus fuel is siphoned off via the fuel pressure regulator and remains in the fuel tank. The system therefore operates without a return line.

The fuel tank breathes via an integral ventilation system. The ventilation system is connected with an activated charcoal filter underneath the fuel tank.

The housing of the fuel feed module acts as a swirl pot. It prevents the fuel pump from drawing in air when cornering with low fuel levels in the tank.

A fuel strainer (coarse filter) is installed at the bottom of the fuel pump assembly at the feed line to the fuel pump.

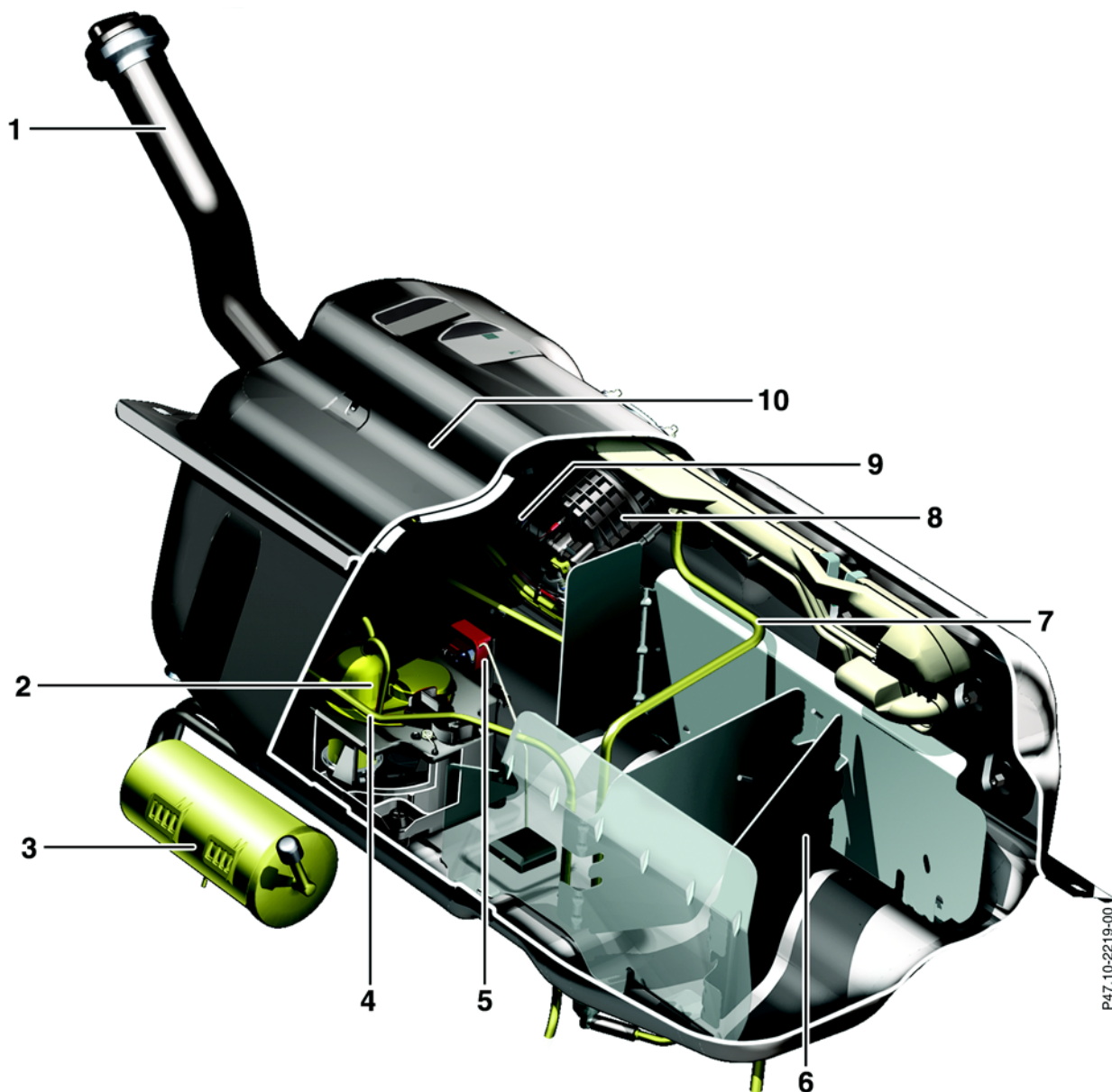
The fuel tank has one fuel level sensor. The voltage signal is transmitted to the rear SAM control module which processes the signal accordingly and relays it over the CAN data bus to the instrument cluster.

The vehicle is also equipped with ORVR and fuel system pressure sensor.

SLK 55 AMG

For use with the 5.5 l V8 engine, the fuel tank was modified with a specific in-tank unit with an increased delivery rate to cope with the power requirements.

Engines 113/272 - Fuel system



P47.10-2219-00

Cross section of fuel tank (for engine 272)

- | | | | |
|---|-----------------------------|----|-------------------------|
| 1 | Filler neck | 6 | Baffle plate |
| 2 | Fuel pump assembly | 7 | Fuel tank vent line |
| 3 | Activated charcoal canister | 8 | Fuel filter unit |
| 4 | Fuel line | 9 | Fuel pressure regulator |
| 5 | Fuel level sensor | 10 | Fuel tank |

Vehicle dynamics

Suspension settings

The goal of adapting the suspension to the new SLK was to combine maximum levels of sporty agility and responsiveness with active safety.

The following properties in particular have been improved:

- Steering precision and responsiveness
- Directional and braking stability (even on poor or slippery roads)

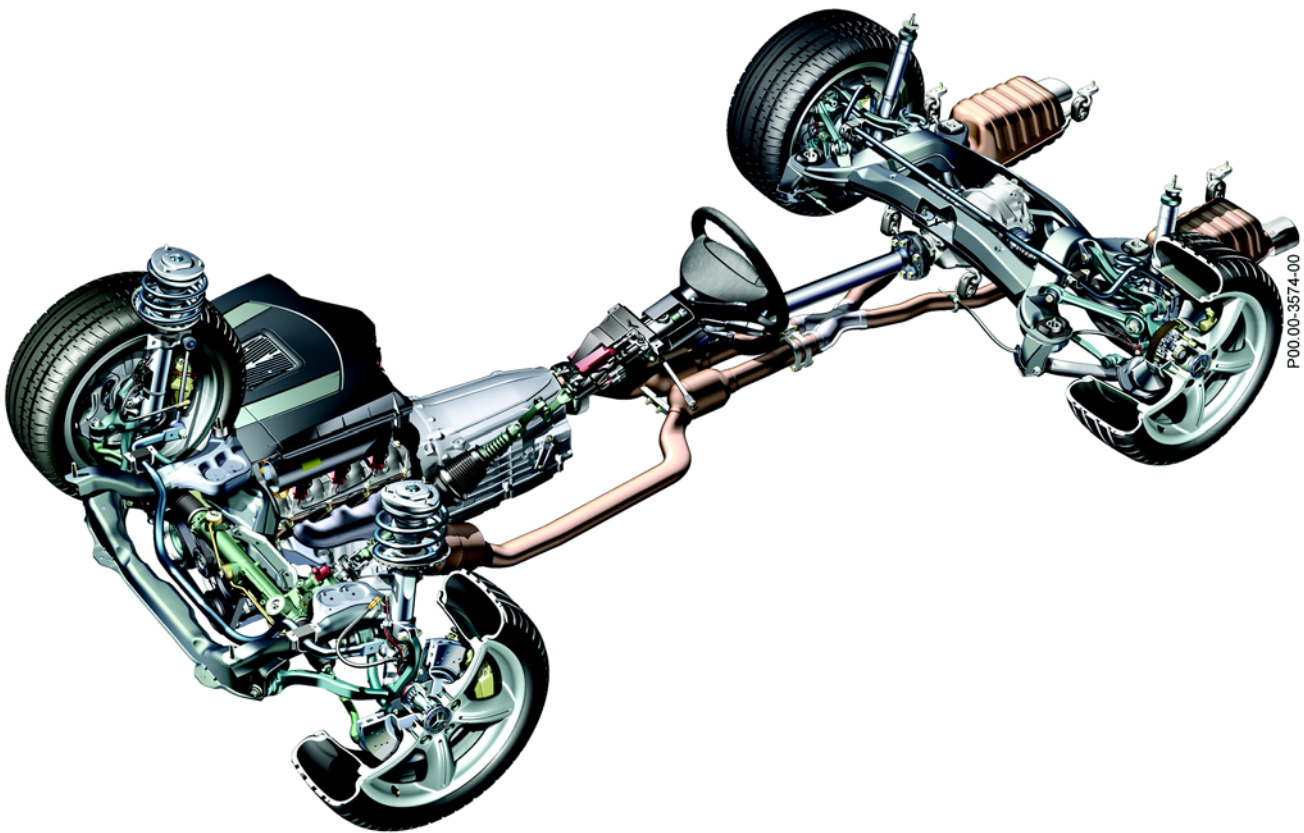
ABS with BAS and the more advanced ESP II with ASR are standard equipment on the SLK.

The steering system has been set so that when driving through curves at critical limits, it reacts either neutrally or tends to understeer.

Instead of the previous double wish-bone front axle, a 3-link front axle is installed which is characteristic of this chassis. As in the predecessor model series, independent multilink rear suspension was chosen for its unsurpassed wheel location qualities; its geometry and kinematics have been tuned to make it more sporty in terms of driving dynamics, suspension and damping.

SLK 55 AMG

The chassis of the AMG roadster has been specially adapted with specific springs, dampers and stabilizer bars, for the enormous power developed by the V8 engine.



Location of assemblies on SLK 350

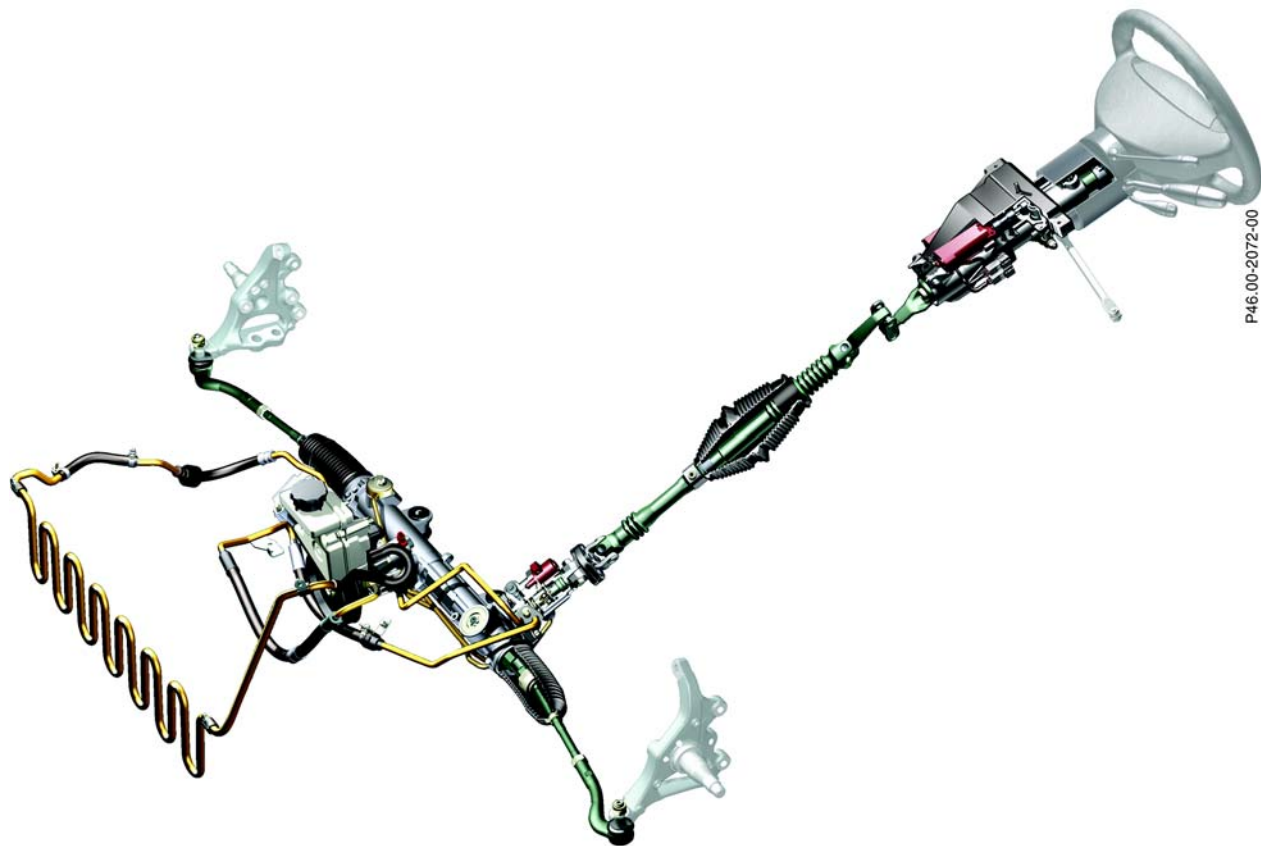
Steering

Rack-and-pinion steering

The new SLK is equipped with rack-and-pinion steering.

The SLK350 features manual steering column adjustment in the longitudinal (+/- 30 mm) and vertical (+/- 25 mm) directions. An electric version (standard on SLK 55 AMG and optional on SLK350) with easy entry feature in conjunction with a memory package is also available.

Further innovations in the steering concept are an electric steering lock coupled to the ignition switch to provide protection against theft and a force-sensitive and speed-sensitive power steering system (speed sensitive power steering is standard on SLK 55 AMG and optional on SLK350).



Steering with steering column and hydraulics

Transmission

7-speed automatic transmission

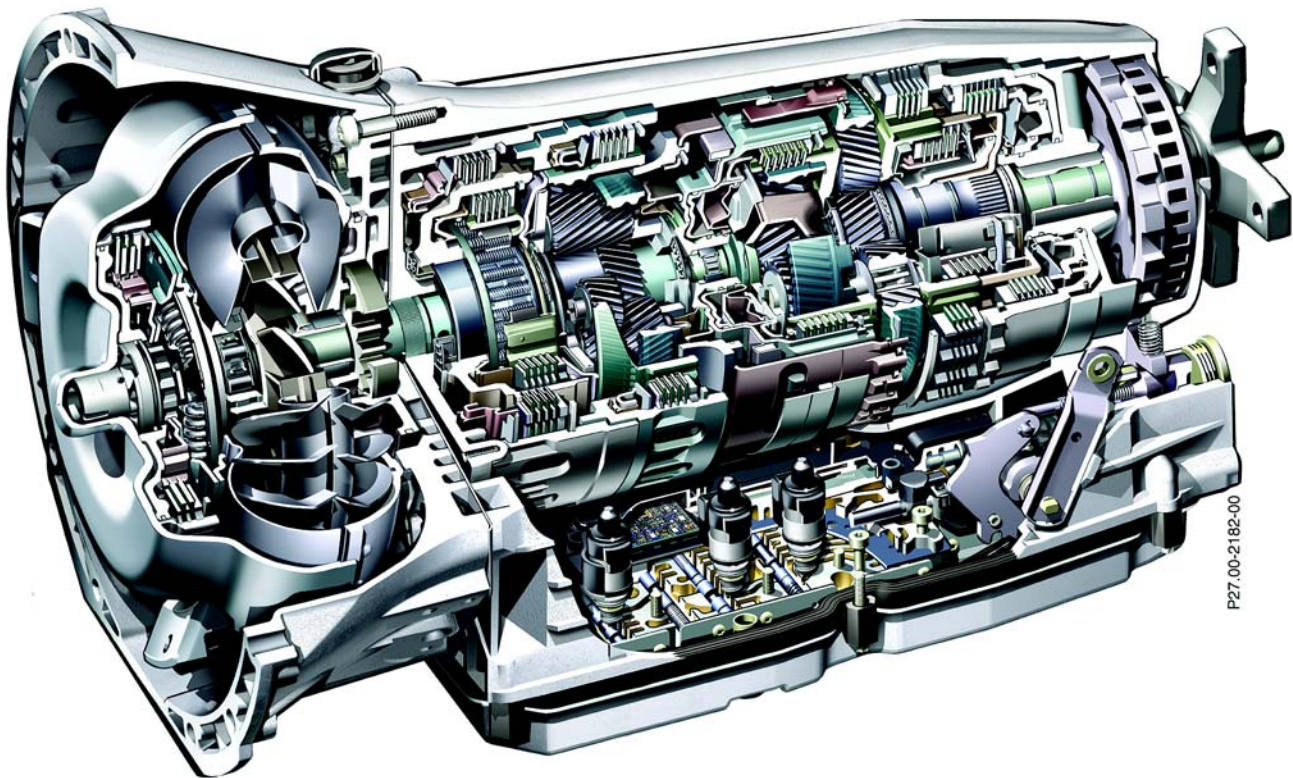
The 6-cylinder model can be optionally equipped with a new 7-speed automatic transmission with seven forward gears and two different reverse gear ratios.

SLK 55 AMG

The 8-cylinder Mercedes AMG variant is equipped with the newly developed AMG SPEED-SHIFT 7-speed automatic transmission as standard.

Its special features are:

- Quicker shift operations
- Better acceleration
- More responsiveness due to direct downshift by two gears
- Longer service life due to optimized ratio matching
- Significantly increased spread of gear ratios due to seven drive positions
- Reduced fuel consumption and engine noise due to reduced engine speed
- Accurate control of the shift processes due to fully integrated transmission control



7-speed automatic transmission

Transmission

6-speed manual transmission

The design of the 6-speed manual transmission installed as standard in the 6-cylinder model has been significantly optimized; it now operates more directly. It is notable for its improved shifting accuracy and short, quick shift travel distances which underscore its sporty driving characteristics.

The shift/select sequence on the gearshift lever is now transmitted to the transmission by one rod (previously by a shift rod and selector cable). The gearshift lever position for reverse gear is now to the front left and beside first gear instead of to the rear left. A spring loaded reverse gear lockout mechanism must be overcome in order to engage reverse gear. It is no longer necessary to pull the gearshift lever up.

Steering wheel shift buttons

On the 6-cylinder engine (272) only, a steering wheel gear shift (optional as part of AMG Sports Package) is available for the automatic transmission. The automatic transmission with touch shift has been expanded to include the function "steering wheel shift buttons".

A new feature is that a gearshift can be triggered from within automatic mode by tapping the steering wheel shift buttons, without leaving automatic mode (C or S). If the "downshift" steering wheel shift button is pressed and held down, the transmission automatically shifts to the ideal gear for accelerating. As in the past, this function can also be called up by holding the automatic transmission selector lever to the left.

SLK 55 AMG

Upshifts are performed with the right steering wheel button and downshifts with the left steering wheel button. In manual transmission mode M an absolute gear selection is possible, i.e. the transmission shifts like a manual transmission:

- On reaching the maximum engine speed it will not shift up automatically.
- On kick-down it will not shift down automatically.

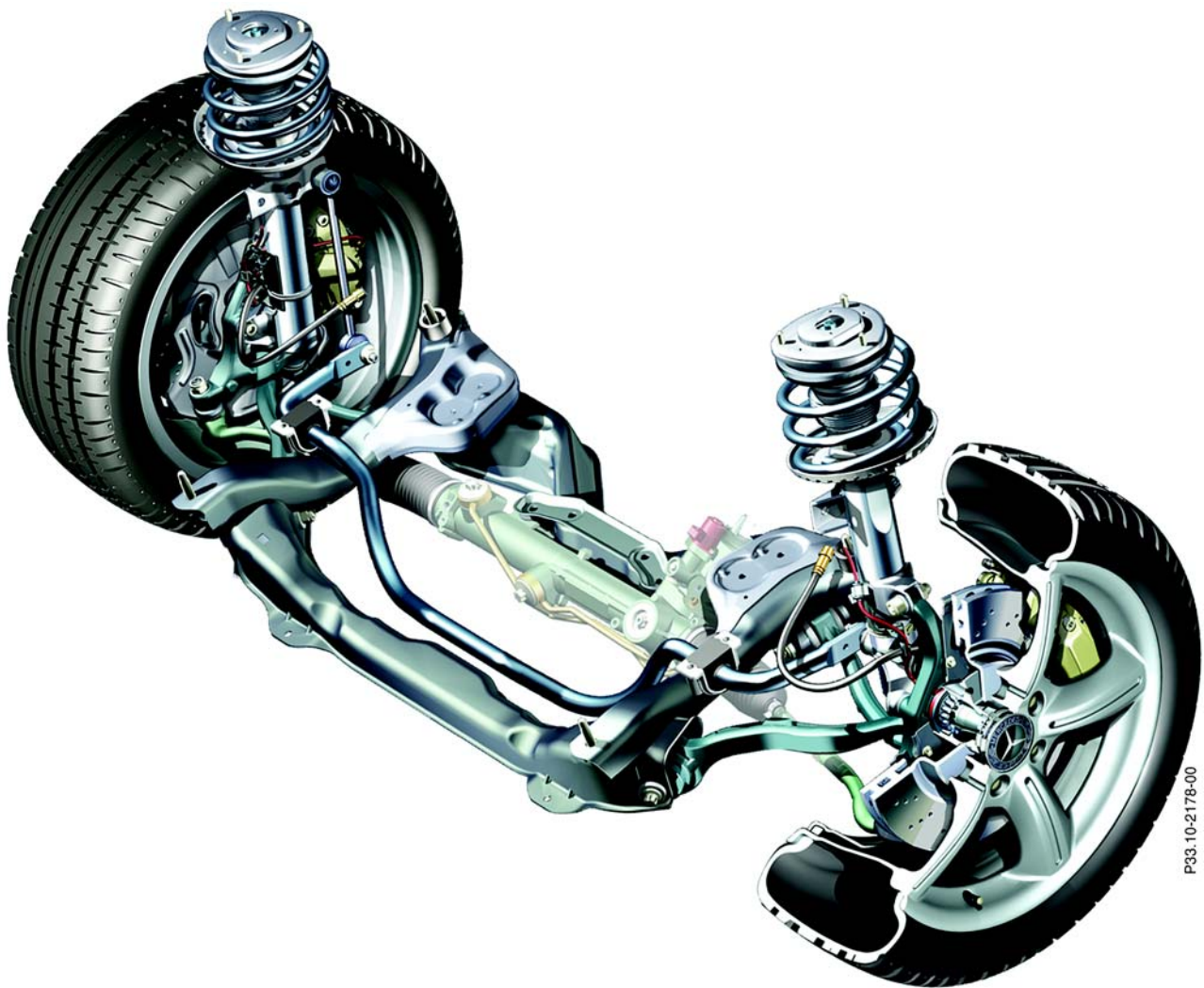
Axles

Front axle

A 3-link front axle has been developed, the most important features of which are two individual links (the torque strut and cross strut) which take the place of the lower wishbone. The suspension strut acts as an additional wheel locating element. The third link is the tie rod. The transverse rack-and-pinion steering gear is located in front of the wheel center.

The torque strut is inclined diagonally towards the front and consists of forged aluminum, while the strut lying across the direction of travel is made of forged steel. In contrast to the previous double wishbone axle, the suspension strut also performs other wheel locating functions (McPherson suspension).

The 3-link front axle allows the hood to be flatter and also improves the axle kinematics. It is virtually insensitive to tire imbalance and brake fluctuations. Furthermore, there is a tangible safety benefit in accidents thanks to its longer deformation travel.



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Front axle with frame-type integral support

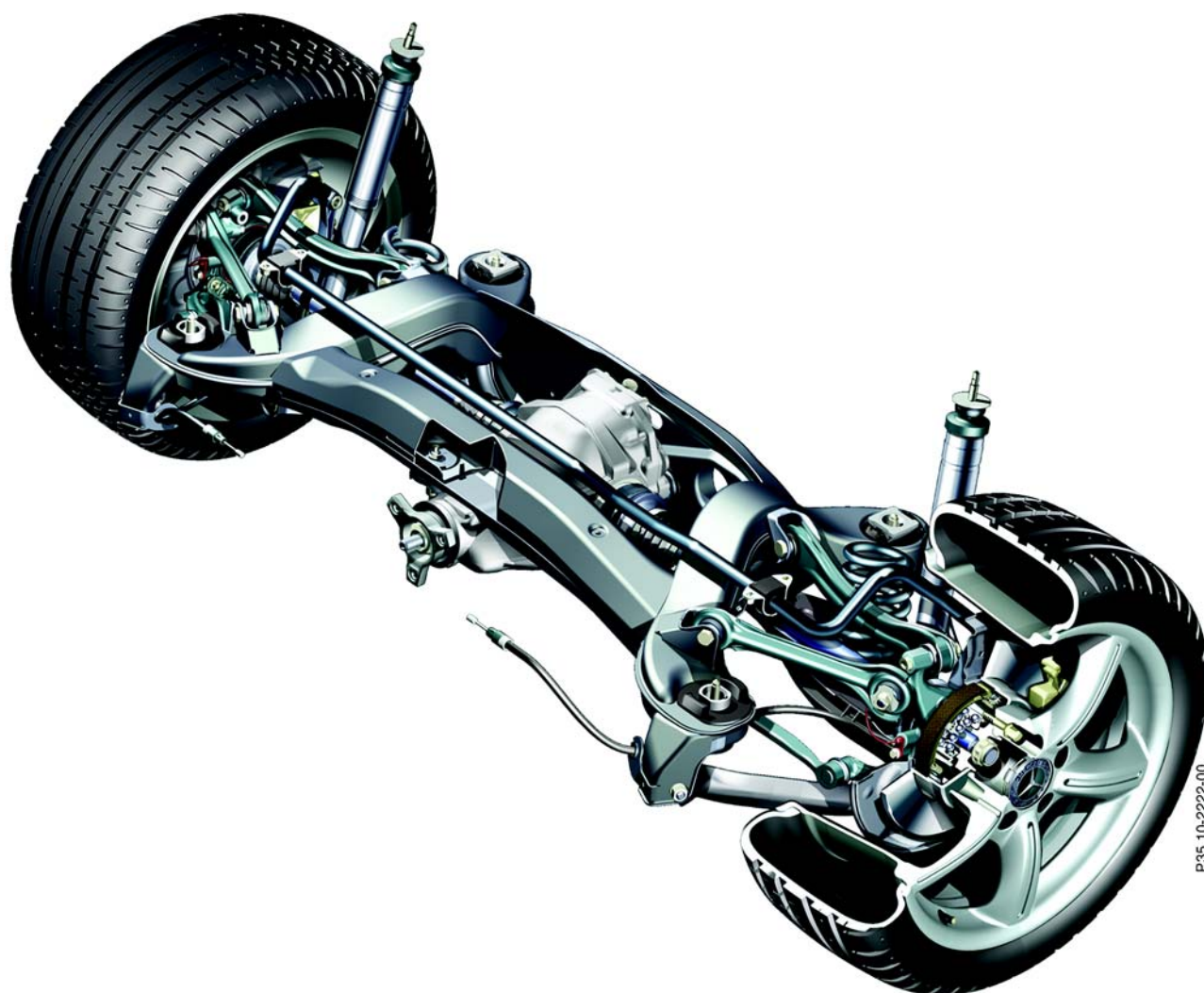
Axles

Rear axle

Because of its unsurpassed wheel location qualities, the principle of the independent multilink rear suspension attached to a rear axle carrier has been adopted from the model series 203 and modified slightly.

The increased track width requires a design modification to the subframe at the front and rear cross braces. The kinematics and elastokinematics of the axle have been optimized.

All models thus feature a stabilizer bar which is fastened directly to the body, but which is installed together with the rear axle carrier.



P35.10-2222-00

Independent multilink rear suspension

Axles

Rear axle drive

		M 272	M 113
Differential		198	215 FE with heat sink
Side shaft diameter		mm 33 x 5 ¹	
Constant-velocity joint	mm	107	107/116
Gear ratio	i _{rear axle}	3.27	3.06

¹ Hollow shaft (diameter x wall thickness)

Springs/shock absorbers

General

On the front axle the suspension struts also perform wheel locating functions in addition to suspension and damping functions. The suspension strut consists of a barrel-shaped coil spring with retracted ends, a 2-pipe shock absorber and a head bearing which has been optimized in terms of height and weight from that of model series 203.

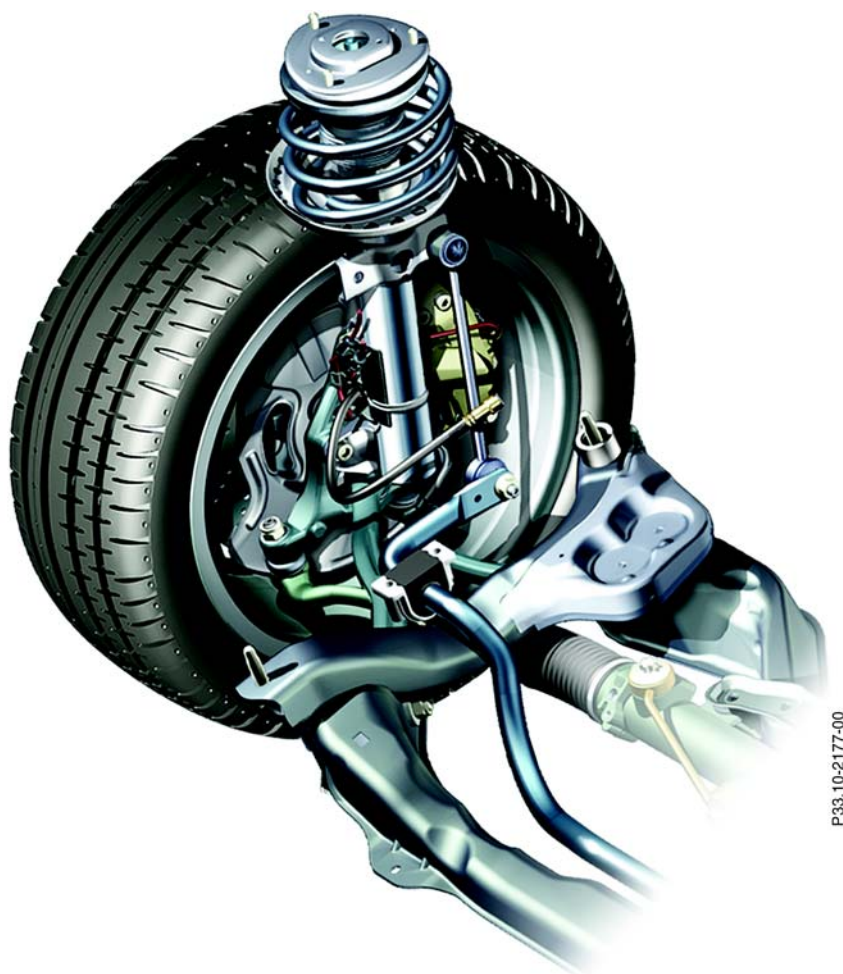
The stabilizer bar is pivoted on the suspension strut by means of a linkage. The linkage joint has been optimized to improve steering response and self-centering.

The stabilizer bar linkage joint is now symmetrical and the ball alignment from top to bottom offers improved kinematics.

To improve the mutual response of the suspension, the front of the stabilizer bar is fitted with vulcanized rubber mounts. It is bolted onto the underside of the longitudinal member with aluminum brackets. The shock-absorber struts on the front axle are equipped with rebound buffer springs to increase the effectiveness of the stabilizer bar during high-speed cornering.

SLK 55 AMG

The AMG sports suspension employs special suspension struts and shock absorbers which are optimally modified for the enormous power developed by the V8 engine. Responsiveness and vehicle dynamics are further improved by larger stabilizer bars at the front and rear.



P33.10-2177-00

Springs/shock absorbers with front axle

Brake system

Brake system

The 6-cylinder variant is fitted with a new, larger front axle brake system of a lightweight construction with cross-drilled brake discs. To improve braking smoothness, front axle brake discs with specially formed cooling fins are used. The brake covers have been optimized in terms of brake cooling and the protection of the brake discs and wheel bearings against splash water has been improved.

The brake unit in use is a 7/8" tandem brake unit with stepped master brake cylinder and brake assist function.

Parking brake

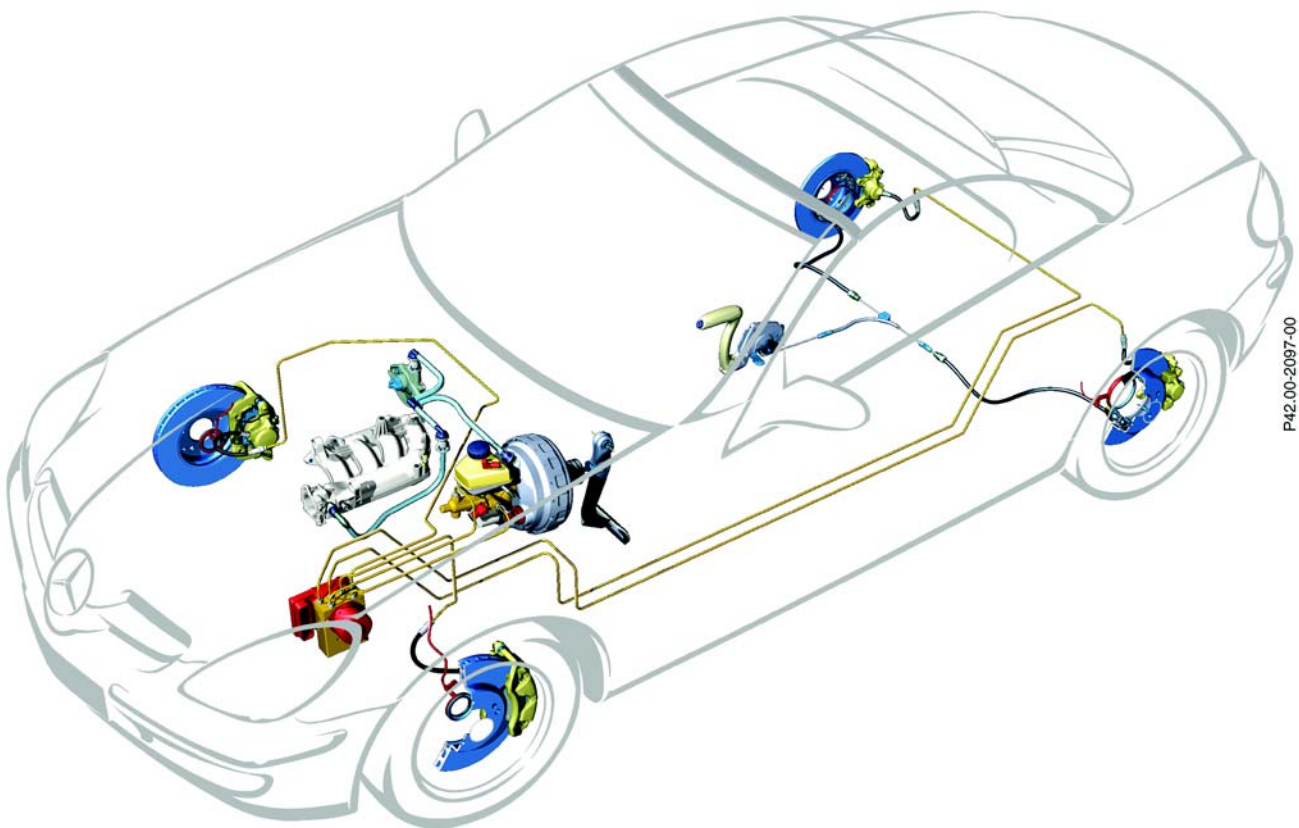
The lever-type hand brake has been reshaped to save space and fits harmonically in the center console. The lever-type hand brake is equipped with an automatic cable slack adjuster to provide a constant control force.

SLK 55 AMG

The high-performance roadster is equipped with an AMG high-performance brake system. All the brake discs are cross-drilled and internally ventilated.

The brake system consists of:

- 6-piston aluminum fixed caliper (front) with compound brake discs
- 4-piston aluminum fixed caliper (rear) with one-piece gray iron brake discs



Brake system