A
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ON

SENSOTRONIC BRAKE CONTROL SYSTEM

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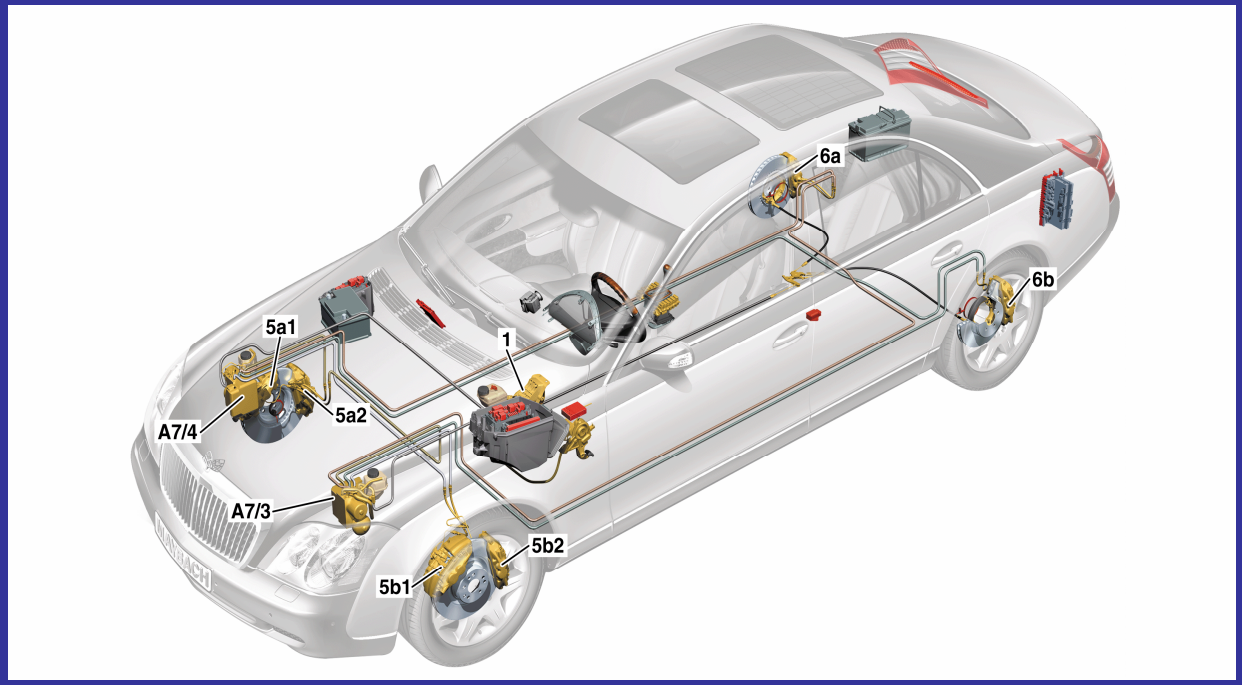
INTRODUCTION

Sensotronic Brake Control (SBC) works electronically, and thus faster and more precisely than a conventional hydraulic braking system. As soon as you press the brake pedal and the sensors identify the driving situation in hand, the computer makes an exact calculation of the brake force necessary and distributes it between the wheels as required. This allows SBC to critically reduce stopping distances. SBC also helps to optimise safety functions such as ESP, ASR, ABS and BAS.

COMPONENTS OF SBC

HYDRAULIC COMPONENTS

A7/4 Right SBC
5a1 Right forward caliper
5a2 Right aft caliper
6a Right rear caliper
A7/3 Left SBC
5b1 Left forward caliper
5b2 Left aft caliper
6b Left rear caliper
1 Brake operating unit



Brake Operating Unit (BOU)

- The Brake Operating Unit (BOU) consists of the following:
- Brake Operating Units is located under the

  bonnet of the vehicle
- It has its own fluid reservoir
- Brake pressure simulator
- Do not overfill fluid reservoirs

BRAKE CALIPERS

Front Axle Brake Calipers

- Two calipers on each wheel
- This calipers are controlled by different control units
- Insures brake force application at the front axle if there is a failure with one system
- Square blocks on front calipers are used for vibration dampening

Rear Axle Brake Calipers

- One caliper on each wheel
- Calipers are split (top / bottom)
- The calipers are controlled by SBC system
- Insures brake force application at the rear axle if there is a failure with one system

PRESSURE MODULATORS FOR EACH WHEEL

BRAKE PEDAL

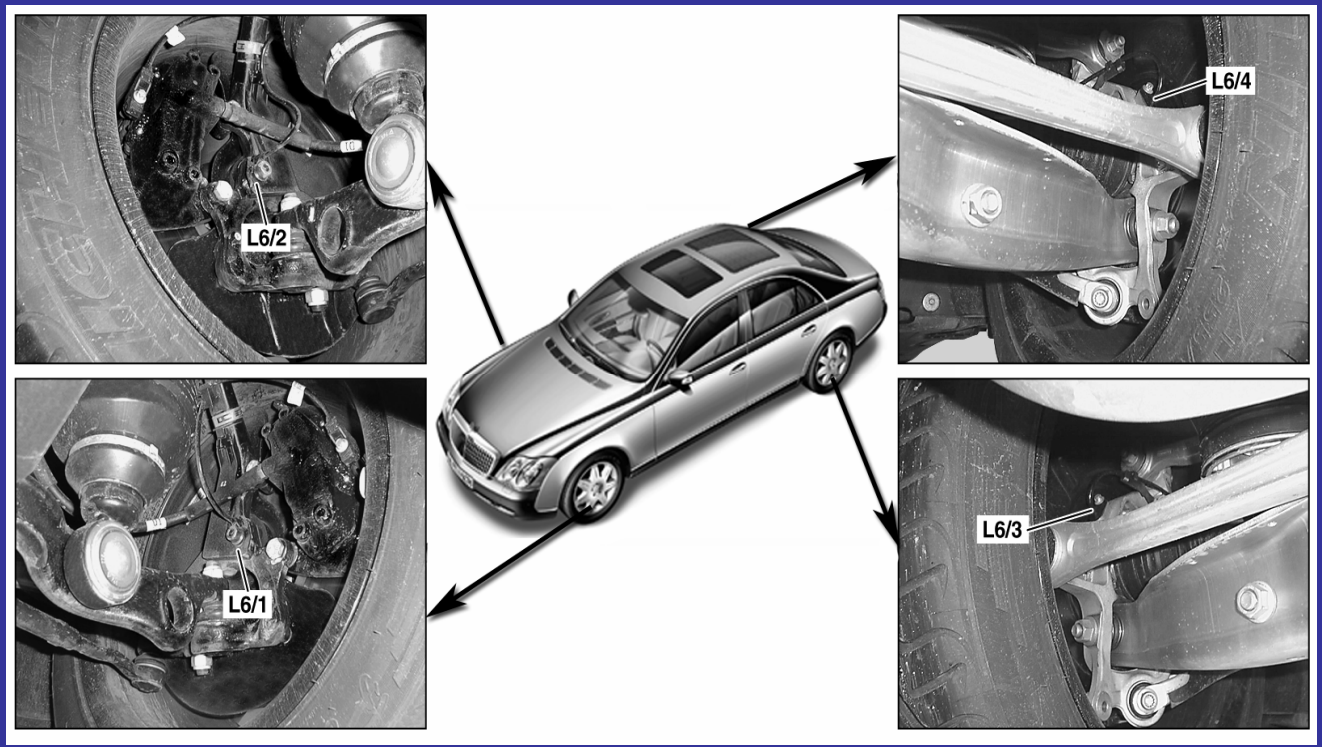
ELECTRONICS INSTEAD OF VACCUM

By Electronic brake pedal electric impulses are used to pass the driver's braking commands onto a microcomputer Which processes various sensor signals simultaneously and, depending on the particular driving situation, calculates the optimum brake pressure for each wheel. As a result, SBC offers even greater active safety than conventional brake systems when braking in a corner or on a slippery surface.

Pedal Value Sensors

- Located on the brake operating unit
- Signals sent to SBC control modules to determine the amount of braking requested

WHEEL SPEED SENSORS



- Located at each wheel
- Transmit data to SBC control units for vehicle speed
- SBC control unit receives inputs from L6/1, L6/2 & L6/3 & L6/4

WORKING

SBC computer also receives the sensor signals from the other electronic assistance systems. For example, the anti-lock braking system (ABS) provides information about wheel speed, while ESP makes available the data from its steering angle, turning rate and transverse acceleration sensors. The transmission control unit finally uses the data highway to communicate the current driving range. The result of these highly complex calculations is rapid brake commands which ensure optimum deceleration and driving stability as appropriate to the particular driving scenario. What makes the system even more sophisticated is the fact that SBC calculates the brake force separately for each wheel.

SBC System Failures

- If SBC systems fail electrohydraulic braking is not available
- Hydraulic brake force will be applied to all four front axle brake calipers
- The instrument cluster will inform the customer to stop the vehicle

ACTIVATION

System Activation

Activation must be performed anytime the system has been deactivated, *BEFORE* the engine is started!

Failure to activate will prevent proper operation and create fault codes!

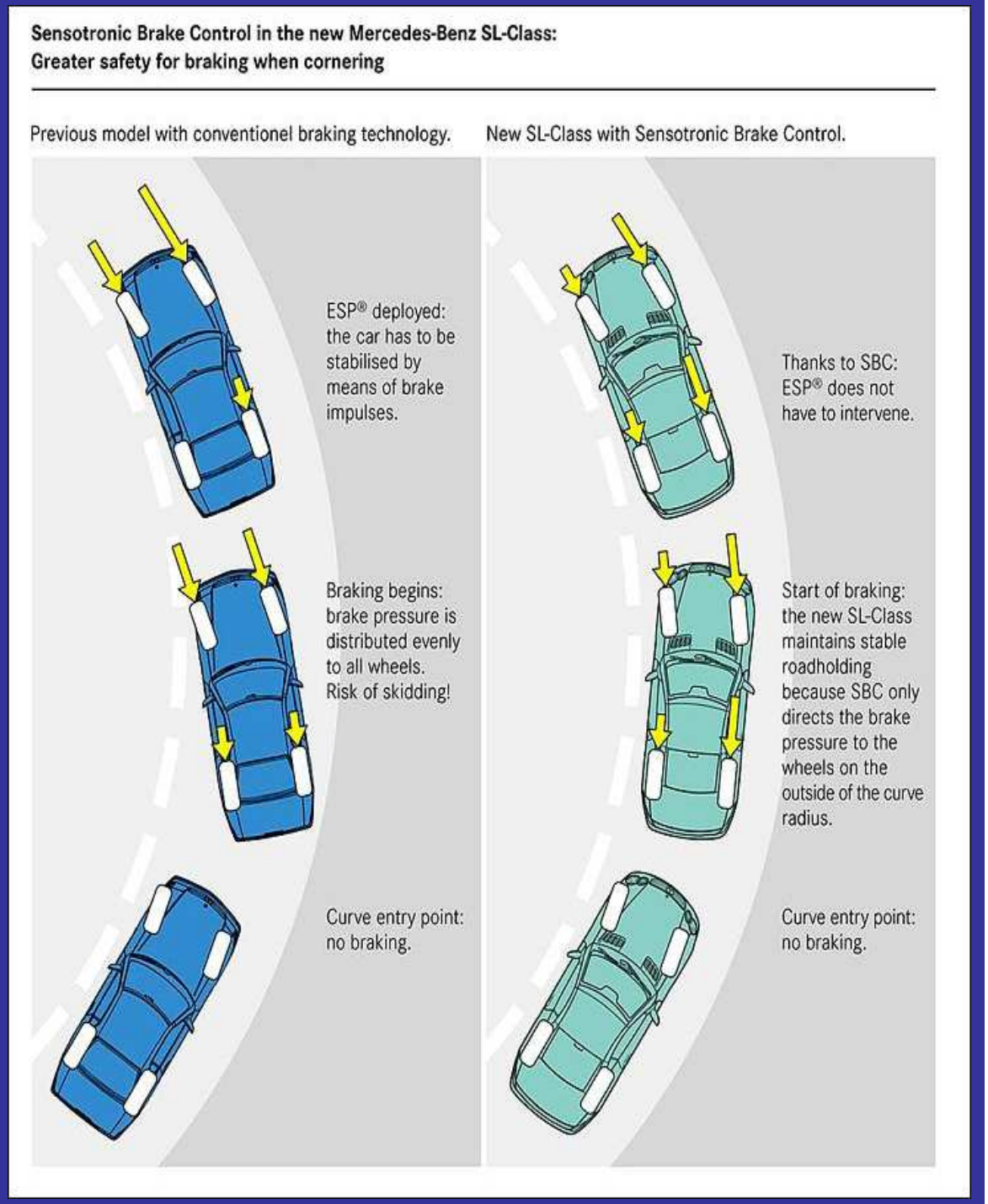
DEACTIVATION

SBC must be deactivated *PRIOR* to:

- working on the hydraulic system
- removing or installing brake pads
- replacing the pressure reservoir
- replacing the SBC hydraulic unit

ADVANTAGES

- Optimum deceleration during cornering
- More stable braking
- Stabilization of the vehicle
- Shorter stopping distances
- Better brake response
- No pedal vibration during
- ABS operation
- Even wear on brake pad



DISADVANTAGES

- SBC must be deactivated with SDS before any work is performed on the system
- Integrated circuit because containing a microcomputer, sensors etc.
- Costlier

APPLICATIONS

- Mercedes Benz were one of the first vehicle manufacturers to employ a SBC
- Mercedes Benz's models W211 (E Class) and R230 (SL Class) **Sensotronic Brake Control** (SBC) is a system first introduced on the R230 SL-class, which went on sale in Europe in October 2001.In May 2004, Mercedes recalled 680,000 vehicles equipped with the system; in March 2005 1.3 million additional vehicles were recalled. Mercedes decided to drop the feature altogether in higher volume models, such as the E-class.

Applications (model year):

- 2003-present SL-Class
- SLR
- CL-Class
- 2003-2005 E-Class
- CLS-Class

CONCLUSION

By this seminar we can conclude that, Sensotronic Brake Control (SBC) works electronically, and thus faster and more precisely, than a conventional hydraulic braking system. As soon as you press the brake pedal and the sensors identify the driving situation in hand, the computer makes an exact calculation of the brake force necessary and distributes it between the wheels as required. This allows SBC to critically reduce stopping distances.

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THANK YOU