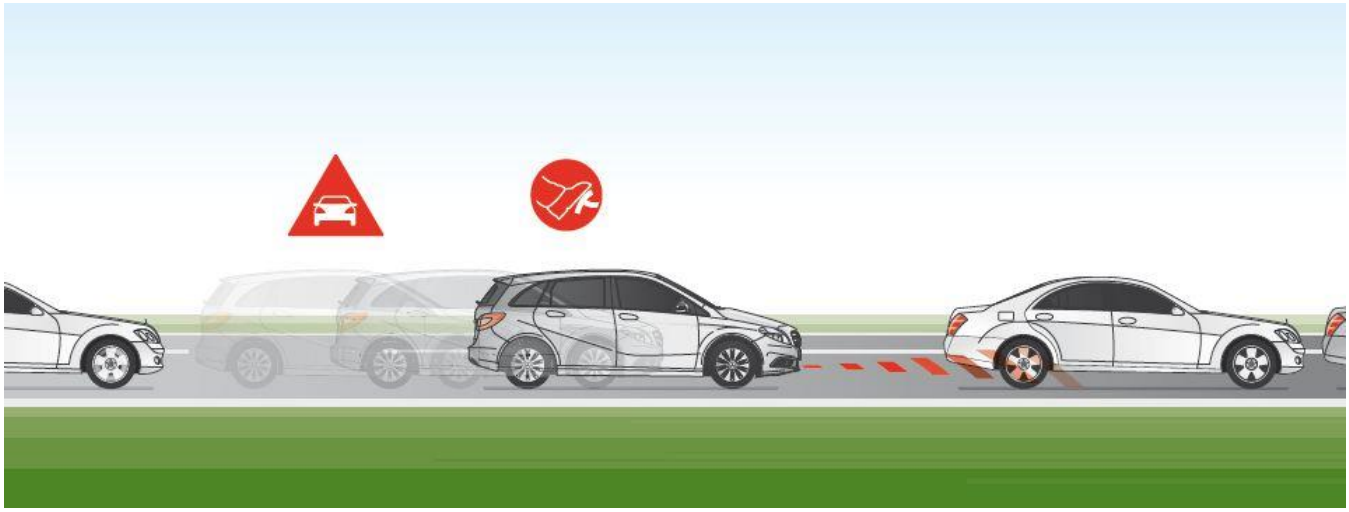
Reward 2011

Mercedes-Benz Collision Prevention Assist



Collision Prevention Assist is designed to help drivers avoid or mitigate longitudinal accidents. It comprises two main functions: forward collision warning and adaptive brake assist. A single mid-range radar monitors an area some 80m forward of the vehicle for objects which are likely collision targets. Information from the radar is combined with parameters such as the vehicle speed and trajectory to calculate a probability of collision. At vehicle speeds between 30 and 250km/h, the system issues a warning to the driver if the probability of collision with another moving object exceeds a critical value. At this point, Collision Prevention Assist will also activate the features of Mercedes-Benz's PRE-SAFE® system, if that is fitted as an option. PRE-SAFE® was rewarded by Euro NCAP in 2010 and prepares the vehicle's restraint systems for an impact. If the driver responds to the forward collision warning by applying the brakes, adaptive brake assist ensures that the optimum braking force is applied: enough to make sure that the vehicle stops before colliding with the target if that is possible; but as little as possible in order to ensure that cars behind also have a chance to stop safely, without striking the rear of the vehicle.

What is the safety benefit?

It is estimated that around 19 percent of all serious accidents in Germany are rear end collisions in longitudinal traffic. In around 70 percent of these accidents, the driver did not brake hard enough, or did so too late to avoid the accident. Collision Prevention Assist addresses these accidents by helping the driver to brake in time and, subsequently, to brake hard enough to avoid the accident. It is estimated that, if all cars in Europe had a system like Collision Prevention Assist, some 5400 fatal or severe injuries could be avoided each year.

How was Collision Prevention Assist assessed?

Extensive track testing was done to ensure that Collision Prevention Assist met targets for when warnings were given to the driver and data was analysed to understand driver response to these warnings. Track testing was also used to develop the performance of adaptive brake assist, to make sure that the braking force was optimised. Extensive road trials were also conducted to ensure the system was sensitive enough to provide useful warnings but did not issue excessive false warnings. Mercedes-Benz's accident research group carefully monitors the real-world crash performance of its vehicles and has extensive data on the performance and effectiveness of its advanced safety features.

What are the limitations?

Collision Prevention Assist relies on the driver reacting to the forward collision warning by braking and does not take any braking action without such a reaction. The adaptive brake assist cannot be switched off but it is over-ridden if the driver takes other evasive action.

Collision Prevention Assist requires a sufficient radar reflectance of objects which the car is approaching. Also, the radar sensor needs a clear 'view' of the road in front and its efficiency is compromised by contamination such as snow, mud or leaves.

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