



Mercedes-Benz Classic

Press Information

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Mercedes-Benz assistance systems in 1985: Three building blocks for greater safety

- **Mercedes-Benz presented the ASD, ASR and 4MATIC assistance systems at the IAA 1985**
- **The driver is actively supported, particularly in adverse road conditions**
- **ASR and ABS form the basis for the ESP® Electronic Stability Program**

Stuttgart. Premiere for an innovative system: In September 1985 Mercedes-Benz presented the 4MATIC automatically controlled all-wheel drive at the International Motor Show (IAA) in Frankfurt. This innovation was the focus and was enhanced by the more discreet, but no less important automatic locking differential (ASD). Also premiering 35 years ago was the acceleration skid control (ASR). The clear message of the three innovations: in critical situations, the driver is not left on their own, but the car thinks, too.

The Mercedes-Benz press release for the IAA 1985 says: "State-of-the-art automotive engineering and hydraulics in conjunction with intelligent electronics are now showing the way in the area of propulsion systems that go far beyond the conventional traction equipment that has been standard until now. Automatic locking differential (ASD), acceleration skid control (ASR) and Mercedes-Benz 4MATIC are the result and content of the Mercedes-Benz dynamic handling concept, which is setting standards when it comes to the relationship between human and vehicle." ASD, ASR and 4MATIC joined a long tradition of electronic assistance systems by Mercedes-Benz, beginning in 1978 with the standard version of the anti-lock braking system (ABS) and which is still being enhanced with more and more components to this day.

Automatic locking differential (ASD): The system works electro-hydraulically. It is a starting-off aid and locks the differential at up to 25 km/h by up to 100 per cent when the wheels are spinning in order to achieve better traction. To do so, a control unit determines the speed of the driven wheels. Over the course of the 1990s the system was replaced by the acceleration skid control, which was initially offered in parallel.

Acceleration skid control (ASR): This assistance system counteracts the spinning and side skidding of a driven wheel by regulating the free play of the longitudinal forces between tyre and road surface. ASR therefore affects both the brake and the engine torque. This allows the system to stabilise moving off on a surface with low static friction, such as ice, snow, wet cobblestones and loose gravel. When using snow chains, a snow chain switch allows limited slip at up to 60 km/h. The software, provided by the company's own

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* Further information on the official fuel consumption and the official, specific CO₂ emissions for new passenger cars can be found in the publication entitled "Leitfaden über den Kraftstoffverbrauch, die CO₂-Emissionen und den Stromverbrauch neuer Personenkraftwagen" ["Guidelines on the fuel consumption, CO₂ emissions and electricity consumption of new passenger cars"], available free of charge from all showrooms and from Deutsche Automobil Treuhand GmbH at www.dat.de.

electrics/electronics development area, limits the equalising movement of the other wheel in the differential with a louvre block. The system could be ordered in as early as autumn 1985, initially only for the new eight-cylinder models of the S-Class (126 model series). The additional charge was at first DM 2,850. Later ASR was also made available for the six-cylinder models of the 126 model series as well as for individual models of the E-Class (124 model series) and the SL-Class (R 107 model series). Alongside ABS, the sensor system of which the new systems used, ASR formed a building block for the ESP® Electronic Stability Program presented in 1995, which has been standard equipment in all car models by Mercedes-Benz since 1999.

4MATIC all-wheel drive: The eye-catcher in the exhibition area of Mercedes-Benz at the IAA 1985 was the new estate (S 124 model series). Looking at the rear of a 300 TE, the “4 MATIC” designation stood out. It indicated the newly developed traction system, which was celebrating its premiere in the six-cylinder models of the 124 model series. 4MATIC systematically switches on the front-wheel drive and the differential locks in situations in which the normal drive system of the rear axle is not sufficient. Such as on snow or ice, wet or loose surfaces. The centrepiece of 4MATIC is a single-stage transfer case with an open central differential that takes over the speed compensation between the axles. It is directly connected to the automatic transmission and, together with the engine, torque converter and front-axle drive, forms a complete drive unit. The development continued: Mercedes-Benz introduced a newly designed 4MATIC system in E-Class model series 210 in 1997. It differed from the previous version by virtue of the now permanent all-wheel drive with a rear-biased torque distribution of 35 to 65 per cent. The differential locks were replaced by the 4ETS (Electronic Traction System), which applied the brakes automatically if one or more wheels started to spin. From 2013 Mercedes-Benz began offering the further developed permanent 4MATIC all-wheel system with a fully variable torque distribution. It is based on the front drive architecture with cross-fitted engines and, like the other 4MATIC versions, is characterised by high traction reserves and exceptional agility with a high level of active safety and energy efficiency. As a result, tailored 4x4 technology is available for all vehicle classes.

Legendary 4MATIC campaign: Under the motto “technology beats meteorology” in 2012 Mercedes-Benz began an advertising campaign for the 4MATIC permanent all-wheel drive. A key sentence: “It’s cold, it’s wet. It doesn’t matter. Now there’s only one thing left that makes winter dangerous: the way to the car.”

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Captions

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Mercedes-Benz estate of the 124 model series. Demonstration of the 4MATIC all-wheel system. Photo of the Mercedes-Benz Classic Insight "Intelligent Drive", 25/26 September 2018.

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Mercedes-Benz estate of the 210 model series. Demonstration of the permanent 4MATIC all-wheel drive system. All-wheel drive with a torque distribution of 35 to 65 per cent to the front and rear axle in conjunction with 4ETS (Electronic Traction System). Photo of the Mercedes-Benz Classic Insight "Intelligent Drive", 25/26 September 2018.

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126 model series Mercedes-Benz S-Class. Demonstration of acceleration skid control (ASR). Photo of the Mercedes-Benz Classic Insight "Intelligent Drive", 25/26 September 2018.

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The dynamic handling systems automatic locking differential (ASD), acceleration skid control (ASR) and the automatically switching 4MATIC all-wheel drive system were all premiered in the Mercedes-Benz 124 model series (1985 to 1995) – first in September 1985 at the IAA in Frankfurt/Main and then in February 1986 in a driving presentation.

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Automatically switching 4MATIC four-wheel drive in a saloon of the Mercedes-Benz 124 model series. Graphic from 1986.

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Mercedes-Benz 300 E 4MATIC, Saloon. The 4MATIC all-wheel drive was presented in 1985 in the 124 model series (1985 to 1995), together with the automatic locking differential (ASD) and acceleration skid control (ASR).

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Mercedes-Benz 300 D 4MATIC, Saloon. The 4MATIC all-wheel drive was presented in 1985 in the 124 model series (1985 to 1995), together with the automatic locking differential (ASD) and acceleration skid control (ASR).

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Drivetrain of Mercedes-Benz E 280 4MATIC and E 320 4MATIC Estate of the 210 model series (1995 to 2002). The 4MATIC all-wheel drive was presented in 1985 in the 124 model series (1985 to 1995), together with the automatic locking differential (ASD) and acceleration skid control (ASR).

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Mercedes-Benz 300 E 4MATIC, Saloon. The 4MATIC all-wheel drive was presented in 1985 in the 124 model series (1985 to 1995), together with the automatic locking differential (ASD) and acceleration skid control (ASR).

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Mercedes-Benz 260 D 4MATIC model. The 4MATIC all-wheel drive was presented in 1985 in the 124 model series (1985 to 1995), together with the automatic locking differential (ASD) and acceleration skid control (ASR).

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Mercedes-Benz E-Class of the 210 model series (1995 to 2002), Saloon, 4MATIC version, presentation of the drivetrain.

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Mercedes-Benz E 280 4MATIC Estate of the 210 model series (1995 to 2002).

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The “Dernburg-Wagen”, the first all-wheel drive car in the world: Daimler-Motoren-Gesellschaft built this vehicle in 1907. It was used from 1908 in the colony of German South West Africa, modern-day Namibia.

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The “Dernburg-Wagen”, the first all-wheel drive car in the world: Daimler-Motoren-Gesellschaft built this vehicle in 1907. It was used from 1908 in the colony of German South West Africa, modern-day Namibia. The vehicle even had all-wheel steering, clearly visible in the photo.