Press release
Automotive Aftermarket

40 years of Bosch ABS anti-lock braking system

In 1978, Bosch first started the series production of the electronic safety system developed together with the automotive industry

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- Thanks to ABS, the braking distance is reduced and the vehicle remains fully steerable in case of full braking.
- Beginning and basis of the development of additional driving safety systems
- Within 40 years, Bosch produced some 457 million ABS and ESP brake control systems

Karlsruhe (Germany) – Reliable braking has always been a key feature of safe driving. In case of excessive braking force, however, the wheels can lock up. This leaves the vehicle unmaneuverable and can even result in skidding. In 1978, Bosch was the first supplier to launch the anti-lock braking system (ABS) developed together with the automotive industry onto the market. The electronic system detects the wheels' tendency towards locking at an early stage and reduces the break pressure in a targeted manner. As a result, the vehicle remains steerable even in case of full braking or road surfaces with varying grip. Even in case of emergency braking, the driver can thus avoid obstacles and safely bring the vehicle to a standstill. For 40 years now, ABS has thus been contributing to preventing accidents and to a significant increase in road safety. In addition, ABS is also easy on the tires as it prevents flat spots caused by wheel lockup and skidding.

As most new developments, ABS was first used in upper-class passenger cars such as Mercedes A-class or BMW 7-series. Soon, it also became available as standard equipment for the compact class – at first at an extra charge, then as standard. By 1990, some six million vehicles worldwide had already been equipped with Bosch ABS. Its effect on increased road safety was as evident as to lead the automotive manufacturers to commit themselves to equip all passenger cars built from mid-2004 onwards with ABS as standard equipment. As of early 1991, trucks with a gross vehicle weight exceeding 3.5 tons and buses

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with more than 8 seats could only be registered if they had been equipped with ABS. Finally, anti-lock braking systems became available for motorcycles as well thus preventing serious accidents caused by wheel lockups. Since early 2016, ABS has become obligatory for all new motorcycles with a displacement exceeding 125 cm³. And since 2017, all newly registered bikes are to be equipped with ABS.

In 2018, Bosch launched the eBike ABS – that is, the first anti-lock braking system for bicycles with electric drive ready for series production – onto the market. It allows safe and controlled braking under tough conditions.

Continuous further development of Bosch ABS components

Once a speed sensor informs the control unit about an imminent wheel lockup, the latter sends a signal to the hydraulic modulator causing it to reduce the brake pressure. This prevents the wheel from locking. Throughout the last 40 years, Bosch has continuously been advancing the ABS: The system components have become ever smaller, more compact and more powerful.

Concomitantly, ABS laid the foundations for the development of additional modern driving safety systems. The traction control system (TCS) and the electronic stability program (ESP®), for instance, are based on ABS. But even brake fluids need to meet the growing requirements modern brake systems place on them. Bosch thus offers ENV6, a highly dynamic brake fluid with low viscosity and concomitantly high wet boiling point specifically developed for current and future brake systems. Tallying up the ABS and ESP® brake control systems Bosch supplied throughout the last 40 years, the total results in a tremendous number close to 457 million systems installed worldwide until 2018.

Value-based repair by Bosch Electronic Service

Bosch offers automotive workshops different services for ABS and ESP® control units. To provide workshop customers with a solution fitting in with the current value of their vehicle, defective devices are repaired or replaced. The Bosch Electronic Service (www.bosch-prepair-service.com) technicians boast a wealth and depth of many years of experience. Even in case of remanufactured control units, they make sure to reestablish high OE quality. Defective devices are picked up at the workshop, repaired and sent back within 48 hours. This quick and straightforward service allows workshops to score points with their customers offering them value-based prices.

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The Automotive Aftermarket division (AA) provides the aftermarket and repair shops worldwide with a complete range of diagnostic and repair shop equipment and a wide range of spare parts – from new and exchange parts to repair solutions – for passenger cars and commercial vehicles. Its product portfolio includes products made as Bosch original equipment, as well as aftermarket products and services developed and manufactured in-house. About 17,000 associates in more than 150 countries, as well as a global logistics network, ensure that some 650,000 different spare parts reach customers quickly and on time. In its "Automotive Service Solutions" operations, AA supplies testing and repair-shop technology, diagnostic software, service training, and information services. In addition, the division is responsible for the "Bosch Service" repair-shop franchise, one of the world's largest independent chains of repair-shops, with some 16,000 workshops, and more than 1,000 "AutoCrew" partners.

Additional information can be accessed at www.bosch-automotive-aftermarket.com

The Bosch Group is a leading global supplier of technology and services. It employs roughly 402,000 associates worldwide (as of December 31, 2017). The company generated sales of 78.1 billion euros in 2017. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At 125 locations across the globe, Bosch employs some 64,500 associates in research and development.

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