

# Electronic developments spotlighted

At a press preview held in recognition of the 100th anniversary of Robert Bosch GmbH, the worldwide automotive supplier, Bosch executives unveiled some of the electronic products that will play a crucial role in the company's second century.

According to Dr. Hermann Scholl, a member of Bosch's board of management, who is responsible for electronic automotive products and systems, the number of electronic systems in motor vehicles of all types will increase considerably in the next several years.

Scholl said Bosch is applying electronics throughout the vehicle — not only to make components smaller and lighter, but to improve safety, reliability, performance, and cost-effectiveness.

For example, in connection with Bosch's anti-skid braking (ABS) technology, electronics are key to the development of Bosch's traction control (ASR) system.

This system, which will go into production soon, prevents drive-wheel slippage by applying controlled engine torque reduction, which is independent of the accelerator pedal position. Included in this sophisticated system is an "electronic accelerator pedal" developed by Bosch, which replaces the conventional rigid link between the accelerator pedal and the throttle valve.

For safety and efficiency, Bosch's ASR system is interconnected with its ABS system, sharing electronic circuitry and wheel sensors. This interconnection allows several variations of the ASR system, including an ASR with throttle-valve and brake override and an ASR with throttle-valve and ignition override.

SCHOLL SAID combination ABS/ASR systems for commercial and heavy-duty vehicles have been developed and will be available by mid-1987.

Bosch has also applied electronics to develop a suspension control system for passenger cars and commercial vehicles. This system improves driving safety and comfort by measuring the dynamic behavior of the vehicle's axles and body through sensors, electronically processing the sensors' signals, and sending actuating signals to the springs and shock absorbers to adjust the suspension accordingly.

Although adjustable shock absorbers have been available for some time, the shock absorbers in the

Bosch system do more than simply switch to a different constant — they adjust the undercarriage instantaneously and continuously for any driving conditions.

For passenger restraint systems, Bosch has developed a new generation of electronic control units used with air bags and seat belt tensioners. This new version offers continuous acceleration measurement, digital signal processing by two microprocessors, and serial diagnostic interface — all housed in a single cigarette-box-sized module.

Other new products and systems under development at Bosch include:

- Gas discharge headlamps, which require less electrical power, yet offer greater efficiency and life expectancy. Because this lamp enables reflector height to be reduced, it can also provide for improved body aerodynamics.

- Headlight for on-coming traffic, which increases visual range without blinding on-coming drivers.

This lamp, designed for use on straight roads or on left curves, would illuminate the right-hand area ahead of the vehicle and provide up to 50 percent greater visual range. This lamp could be an auxiliary lamp or may be integrated in the low beam light. Initially, the system would be manually controlled by the driver, but later versions may be equipped with sensors for automatic control.

- A fuel injector with multi-orifice metering, which solves lean-out problems associated with deposits from additive-lacking fuels. This Bosch injector offers atomization and has proven to be free of lean-out

troubles over almost two years of use in Mexico (where lean-out problems are serious because of the available grades of fuel).

- The EV 1.4 fuel injector, which offers short switching times. Particularly suitable for turbo applications, this injector has a range that is 75 percent greater than Bosch's standard injectors. In its small version, it can be used for single-point injection applications.

- Windshield wiper systems that feature radially controlled wiper arms and speed-dependently controlled arm tension. These Bosch systems are developed to increase viewing area and ensure optimal

cleaning action — especially as driving speed increases. In the Bosch system, arm tension is increased in proportion with vehicle speed to compensate for forces trying to lift the blade off the windshield. Arm tension is reduced in park position, to prevent deformation and damage to the sensitive wiper blade lip.

- Electronic Diesel Control (EDC) injection systems for passenger car and commercial vehicle applications. These Bosch developments, which are nearing mass production, provide for more precise and efficient fuel injection in diesel engines.

ANOTHER TOP priority for

Bosch is the development of a Multiplex System. This system is designed to provide an integrated, simplified channel within the vehicle to transmit control and information signals. Intended to replace the conventional wiring harness, the Bosch Multiplex System would reduce component space and cost requirements.

Robert Bosch Corp., a wholly owned U.S. subsidiary of Robert Bosch GmbH, Stuttgart, West Germany, is headquartered in Broadview, Ill. Bosch maintains a research

and development facility in Farmington Hills, as well as manufacturing centers in Charleston, S.C.; Broadview, Ill.; and Atlanta, Ga.

Robert Bosch GmbH, a supplier of gasoline and diesel fuel injector systems, produces a variety of components and systems for the automotive industry.

Bosch is also involved in various industries, including communications, medical equipment, power tools, household appliances, film and video equipment and thermotechnology.

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