

## **Driver assistance systems**

State-of-the-art driver assistance systems are an important vehicle safety aid. In many vehicles from the Volkswagen Group, such systems are used to proactively identify critical driving situations and take the necessary pre-emptive action, for example to prevent skidding. In 2013, Volkswagen extended the range of driver assistance systems available for its current vehicles, while continuing its vigorous research efforts.

### **Risk detection and accident prevention**

In the new Golf, a multi-collision brake automatically brakes the vehicle to a speed of 10 km/h when a collision is detected, thereby preventing secondary collisions or moderating their severity. The statistics show that such collisions occur in around a quarter of all accidents. Also available on the new Golf is the Proactive Occupant Protection (PreCrash) system. Previously confined to the luxury class, this system provides enhanced occupant protection by pretensioning the seatbelts if a potential accident situation is detected. In the event of an impending accident involving the vehicle skidding, the system also closes the sunroof and side windows to just a crack, to maximize the effectiveness of the head and side airbags. Both of these systems demonstrate how state-of-the-art driver assistance systems result in greater vehicle safety.

### **Assistance systems keep drivers on track**

The Volkswagen brand's active lane-keeping system Lane Assist helps to prevent accidents caused by unintended lane departures. And if the lane departure is intentional, the Side Assist system warns drivers of any vehicles hidden in their blind spot. The drowsiness monitor advises drivers when it's time to take a break, while the ACC cruise control system with automatic distance control helps the driver maintain the correct distance from the vehicle in front. In many vehicles, ACC also features Front Assist with City Emergency Braking function. Front Assist Ambient Traffic Monitoring detects hazards in front of the vehicle, primes the brake system for emergency braking, warns the driver and if necessary initiates automatic partial braking. In addition, innovative lighting systems like Dynamic Light Assist adapt the headlamp beam pattern to ideally match the traffic situation.

### **Improved traffic flows, reduced environmental impacts**

Future vehicles will not only be more aware of their surroundings, they will also be able to communicate with other vehicles. New assistance systems will also be able to help drivers when they are under-stimulated due to monotonous driving situations, or conversely when they are experiencing overload in complex and unclear situations. The general principle that applies to all driver assistance sys-

tems from the Volkswagen Group is that they must provide useful assistance, but never attempt to take responsibility away from the driver or take full control of the vehicle.

### **Automated driving**

A further focus is automated driving. At the beginning of 2013, Audi began real-world testing of computer-controlled vehicles on public roads in Nevada. Audi was the world's first carmaker to receive a license to test automated vehicles on public roads. Based on a number of different driver assistance systems, the Audi Parking Pilot and Audi Congestion Pilot are capable of autonomous steering, acceleration and braking both in traffic congestion (at speeds of up to 60 km/h) and when maneuvering into and out of parking spaces. In large cities with high traffic density, both issues – traffic congestion and parking shortages – are a common problem. "Piloted driving" can provide significant benefits here, proving that more cars does not have to mean more congestion.

### **Vehicle-to-vehicle communication**

Based on the technology of state-of-the-art driver assistance systems, and future vehicle connectivity supported by vehicle-to-vehicle and vehicle-to-infrastructure networks, Volkswagen is developing innovative assistance systems that will optimize routing on the basis of traffic conditions, bringing significant improvements in traffic flow. Initial simulations show that stationary times and the resulting environmental impacts are significantly reduced, and journey times shortened. If existing road capacity can be increased by means of intelligent driving strategies and use of intelligent, V2X-equipped vehicles, this has benefits for all road users, marking a further advance in sustainable personal mobility.

### **Wide range of aids for disabled customers**

A further area in which driver assistance systems can make an important contribution is by offering improved mobility for the disabled. Last year, the Volkswagen brand supplied more than 20,000 vehicles to customers with physical disabilities – an increase of more than one third over the previous year. Volkswagen offers a wide range of ex-works driving aids for all vehicles in its model range. An easier ordering system for disabled customers has also been introduced.

A range of aids are available, catering to specific disabilities. For example the "Commander" hand control allows the driver to operate all the important functions such as the direction indicators, the headlight main/dipped beam control, the horn, the windscreen wipers and the hazard warning lights single-handedly, without letting go of the twist-push control. The spinner knob is removable. The new Golf is now also available with a closing aid, offering easier tailgate closing for wheelchair users. The various driving aids can be ordered from the dealer at the same time as the new vehicle. The systems are then installed ex works by Volkswagen. A further benefit for customers is that these systems are covered by Volkswagen's product liability obligations, the Volkswagen Mobility Guarantee and Volkswagen parts service