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Mercedes-Benz Future Truck 2025

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Revolution on the motorways: goods transport should become more efficient, safer and more connected in the future. The technology of tomorrow is already reality at Daimler Trucks. The Mercedes-Benz Future Truck 2025 constitutes a revolution in efficiency, safety and networking, a revolution for road traffic and its infrastructure, for professional driving and for the road transport sector.

In terms of design, the Mercedes-Benz Future Truck 2025 study combines function, efficiency and emotion in a fascinating way. It adheres to the Mercedes-Benz design philosophy of "Sensual Purity". The designers have leveraged the opportunity presented by future length specifications: extending the front section allows soft, aerodynamically flowing forms to be created. Visual effects from the paintwork in light silver emphasis the enticingly smooth contours. Compact cameras replace conventional exterior mirrors. Its windscreen resembles a visor. The truck's integral sun screen and aero roof have a distinctive form.

The Future Truck 2025 comes to life when the engine starts. LEDs illuminate the surfaces and light up the paintwork. The front mask gleams and LED bulbs shine instead of conventional headlamps to the left and right in the bumper. Orange flashing lights indicate when the truck is changing direction. When the fully drivable truck is being controlled manually and on the move, the lights are white. When the truck is driving autonomously, the color of the lights changes from

white to blue. They then pulsate strongly, thus symbolizing the truck's powerful heartbeat and clearly indicating the vehicle's current operating mode to other road users.

Radar sensors and camera technology enable the Future Truck to drive autonomously, independently of other vehicles or central control stations. For Mercedes-Benz the culmination of this is the highly intelligent "Highway Pilot" system, which resembles the autopilot on an aircraft. A radar sensor in the lower area of the front end scans the road ahead at long and short range. The front radar sensor has a range of 250 m and scans an 18-degree segment. The short-range sensor has a range of 70 m and scans a 130-degree segment. The radar sensor is the basis for the proximity control and emergency braking safety systems already available today. A stereo camera installed behind the windscreen keeps the area ahead of the vehicle in view. The stereo camera of the Mercedes-Benz Future Truck 2025 identifies single- or two-lane roads, pedestrians, moving and stationary objects, all objects within the monitored area and also the road surface. The camera recognizes everything that contrasts with the background, and is therefore also able to measure clearances precisely. The front stereo camera also registers the information on traffic signs. The road surface to the left and right of the truck is monitored by radar sensors installed in the sides. They are located on the left and right, ahead of the tractor unit's rear axle. The sensors have a range of 60 m and cover an angle of 170 degrees in the longitudinal direction.

More safety when turning and changing lane is achieved with Blind Spot Assist. These sensors form the core of the new Blind Spot Assist system from Mercedes-Benz. The radar sensor modules are arranged in such a way that they cover the area parallel to the truck over the entire length of a tractor/trailer combination or drawbar combination. In addition this strip is extended forwards to two meters in front of the

truck. Blind Spot Assist warns the truck driver about other road users not only when turning; it also warns about imminent collisions with stationary obstacles – for example signs or lamps – and serves as an assistance system when changing lane.

The "Highway Pilot" is ideally partnered with V2V and V2I networking– communication between vehicles and the outside world. Every vehicle equipped with this in the near future will transmit continuous information to its surroundings. This includes vehicle position and model, dimensions, direction of travel and speed, any acceleration and braking maneuvers and the bend radii negotiated. The frequency of information transfer depends on the vehicle speed and the intensity of any changes in its movement. It varies between one message per second when cruising to ten times this interval when changes are significant. Communication between vehicles is also standardized. The range of these continuous sent messages is a radius of around 500 m. The vehicles inform each other about their movements, so that they can respond to them immediately in anticipatory mode. This includes reacting to vehicles joining a motorway, or when approaching the end of a traffic tailback, for example. The more vehicles are communicating with each other on these routes, the more dynamically and flexibly they are able to respond to one another and together. In an ideal scenario, an uninterrupted chain of communication forms along a route that rigorously informs the driver and vehicle about road and traffic conditions a long way ahead on their journey. Vehicle to infrastructure (V2I) means that all these messages and signals are also sent to external recipients such as traffic control centers. These are then able to respond flexibly, for example by changing the speed limit or opening up additional lanes. Messages can also be sent to vehicles, for example about temporary roadworks. All these data inform the driver and the onboard computer

about events happening outside the range of vision in good time. The driver and vehicle are therefore aware of obstacles in advance, before they can become a hazard.

In many situations autonomous driving relieves the driver of "having to" drive, especially on tiring and often monotonous long-distance routes. As the truck regulates its own speed and automatically finds the best route using a navigation app, and because the transport company, dispatcher and goods recipient are constantly informed about the location, route and expected time of arrival in real time, the driver is relieved of time pressure. Today this is a major stress factor for drivers. The driver gains time for other activities and is able to communicate with his surroundings. Owner-driver businesses in particular will be able to perform office tasks conveniently on the move if required. Carrying out further activities will significantly change the professional profile of the truck driver.

One of the most interesting questions on the subject of autonomous driving is the time horizon envisaged for its realization. In purely technical terms, turning it into reality on the roads is already feasible within around five years. In terms of passenger car development cycles, a possible start is envisaged in 2020.The technical preconditions are now being demonstrated for the first time with the Mercedes-Benz Future Truck 2025.On the basis of the Vienna Convention on Road Traffic, UN/ECE Regulation R 79 does permit corrective steering intervention for steering systems, but not automatic steering over 10 km/h. A committee of United Nations experts has recently supplemented the Vienna Convention on Road Traffic, providing the basis for legalization on autonomous driving. This is standard for the "Highway Pilot" in the Mercedes-Benz Future Truck 2025.