



## **ZF is Preparing to Make Truck Platooning Possible**

- **Fully integrated ZF technology for platooning – sensor sets, the ZF ProAI supercomputer, ReAx electrohydraulic steering and the TraXon transmission system – in pre-production phase**
- **ZF and many of its customers are involved in the European multi-brand truck platooning project called ENSEMBLE**

**Hanover/Friedrichshafen. ZF technology helps to enable commercial vehicles to see, think and act. This interaction between sensors, control software and actuators is particularly important when it comes to platooning. ZF is working together with truck manufacturers as part of the EU co-funded ENSEMBLE project to test programs with the goal of introducing multi-brand platooning on European roads by 2021.**

Since the project involves trucks from numerous manufacturers merging together to form a convoy, standards for networking are critical. ZF's current portfolio has the technology to enable platooning capabilities, including camera and radar sensors, the ZF ProAI supercomputer, the ReAx electrohydraulic commercial vehicle steering system as well as the transmission system.

"Driving functions like platooning are enabled by innovative ZF technology," said Fredrik Staedtler, head of the Commercial Vehicle Technology Division at ZF. "We are already providing truck manufacturers with networking support that is making transport more efficient and positively impacting the total cost of ownership."

In a platoon, two or more trucks drive closely together to create a convoy of trucks. This reduces the aerodynamic drag for the trucks behind the lead truck, which, in turn, can reduce fuel consumption by up to 20 percent.



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**Multi-brand platooning convoys**

The reduced distance between trucks in a convoy is possible because the networked vehicles can function without driver reaction times. The trucks are designed to brake and steer in virtually real time with the actions of the lead truck; however, they do not drive blind. Thanks to sensor information and autonomous driving functions, they can also stay in the lane even if the lead vehicle unintentionally goes over the lane markings.

ZF has tested the feasibility of platooning in several projects. As part of the EU ENSEMBLE project, the company has established the necessary standards to make multi-brand platooning possible. Multi-brand refers to convoys made up of trucks from different manufacturers. Such mixed convoys are likely to become the most frequent scenario. In another project aFAS, which is sponsored by the German Federal Ministry for Economic Affairs, ZF has worked on implementing the platooning concept in security vehicles that are part of moving roadworks projects. ZF is currently testing platooning in Europe, but also has plans to advance the concept in North America in the coming years.

Captions:

1.) [Collage]

- a.) Trucks can be operated independently from one another or – on identical routes – come together in a platooning convoy.
- b.) If the trucks are driving in a platooning convoy, the distance between them can be considerably decreased to as little as 8 meters because the driver reaction times are no longer a factor. The trucks behind the lead truck steer and brake simultaneously in real time with its actions.
- c) The narrow distance between trucks reduces the aerodynamic drag of the trucks behind the lead vehicle, thus decreasing fuel consumption by up to 20 percent.

2.) ZF's current portfolio of volume production products already contains the technology necessary for platooning. Cameras can detect the lane as well as objects on the road, radar sensors can



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monitor the distances. The ZF Pro AI supercomputer is capable of handling data fusion and analysis. It sends its driving commands to the actuators, especially to the system-compatible and electrohydraulic ZF steering system ReAX.

Photos: ZF

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**ZF Friedrichshafen AG**

ZF is a global leader in driveline and chassis technology as well as active and passive safety technology. The company has a global workforce of 146,000 with approximately 230 locations in some 40 countries. In 2017, ZF achieved sales of €36.4 billion and as such, is one of the largest automotive suppliers worldwide.

ZF enables vehicles to see, think and act. The company invests more than six percent of its sales in research and development annually – in particular for the development of efficient and electric drivelines and also in striving for a world without accidents. With its broad portfolio, ZF is advancing mobility and services for passenger cars, commercial vehicles and industrial technology applications.

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