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Automation from Freight Yards to Highways: ZF Showcases Autonomous Commercial Transportation System Solutions

- **At IAA Transportation 2022, ZF presents its future-ready portfolio of Level 4 automated vehicle chassis components and controls as well as turnkey autonomous driving solutions complete with virtual drivers.**
- **Fully integrated yard automation leverages ZF's software capabilities including its new SCALAR Fleet Orchestration Platform and next generation ADOPT 2.0.**
- **ZF also presents its automated hub-to-hub transportation expertise to support highway driving up to 80 km/h with ADOPT 3.0.**

Friedrichshafen, Germany. ZF's Commercial Vehicle Solutions (CVS) division will present its latest range of future-ready automation technologies and expertise at IAA Transportation 2022. This includes ZF's innovative next generation Autonomous Driving Open Platform Technology (ADOPT) automated chassis control solution. The advanced platform bridges autonomous vehicles' virtual driver software with its actuation systems using standardized interfaces developed to automotive standards. Providing autonomous driving capabilities, ADOPT translates driving instructions into safe vehicle motion control commands. This includes automated hub-to-hub transportation on highways with ADOPT 3.0 and, for fully integrated yard automation, ZF's ADOPT 2.0 in combination with its new SCALAR fleet orchestration solution.

"With our unique portfolio, we are the commercial vehicle industry's 'one-stop-shop' for automated technologies, able to combine innovations from our vast ZF Group and our partner ecosystem to deliver best-in-class autonomous commercial transportation solutions



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designed to increase logistics productivity and efficiency,” said Carlos Gonzalez, Head of System Solutions, Truck & Bus, with Commercial Vehicle Solutions.

“From delivering integrated vehicle chassis automation systems to vehicle manufacturers, all the way to full turnkey yard automation solutions for Transport-as-a-Service providers, ZF can powerfully deliver the end-to-end automated solutions of tomorrow. Not at some distant point in the future, but right here and now,” added Gonzalez.

An Autonomous Driving ‘One-Stop-Shop’

ZF’s extensive commercial vehicle automation portfolio ranges from the supply of Level 4 autonomous driving vehicle chassis components and controls, sensors, high-performance computers through to advanced digital and connectivity technologies. Bringing these capabilities together, ZF can provide customers with full turnkey solutions, including virtual driver and automated traffic orchestration software solutions. This enables design solutions to be flexibly integrated within a commercial vehicle manufacturer’s automated vehicle platform or combined with the automation solutions and services offered by new automotive companies.

As an intelligent control interface to support autonomous vehicle motion control systems, ZF’s next generation ADOPT solution represents an important step forward for autonomous driving. ZF showcased high-speed Level 4 autonomous driving with a demonstration vehicle which was equipped with ZF’s gearbox and OptiRide Electronically Controlled Air Suspension System as well as its third generation EBS system interfacing with the ADOPT 3.0 chassis control software for speeds up to 80 km/h. The combination demonstrated high stability control even on wet roads and surfaces with uneven friction.

ZF also demonstrated a full turnkey yard automation solution using a driverless tractor unit to move semitrailers. Equipped with ZF’s ReAX steering, OptiRide ECAS, third generation EBS, Fail Operation Braking



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System and Fail-Safe Park Brake, it performed fully automated yard maneuvers such as docking and coupling. Up to 50% quicker, auto-coupling helps improve productivity as well as supporting less experienced drivers. The vehicle was controlled by a combination of ZF's new ADOPT 2.0 software for speeds up to 20km/h interfacing with Embotech's path planning and perception software. This demonstration also showed how ZF can leverage its SCALAR orchestration technology to automate the planning, routing and dispatching of vehicles in a yard environment.

Captions:

ZF presents its latest range of future-ready automated technologies at IAA Transportation 2022:

- 1.) With ADOPT 3.0 by ZF, a commercial vehicle traveling at up to 80 km/h and highly automated according to Level 4 remains stable in any situation. An important requirement for the automation of hub-to-hub transport runs.
- 2.) Yard automation using ZF's ADOPT 2.0: A truck tractor couples a trailer up to 50 percent faster than a human driver.

Images: ZF

Video-Footage:

- 1.) [Hub-to-hub automation using ZF's ADOPT 3.0;](#)
- 2.) [Yard automation using ZF's ADOPT 2.0.](#)

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Join ZF at IAA Transportation 2022

ZF will showcase some of its latest products as well as live technology demonstrations at IAA Transportation 2022. This will include how ZF is empowering OEMs and fleets for the future with innovative



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electrification systems, automated depot applications and intelligent connectivity solutions.

Visit ZF in Hall 21 at Booth A90

Deutsche Messe Exhibition Grounds, 30521 Hanover, Germany

Press Day: September 19, 2022,

Public Days: September 20 - 25, 2018, 9 AM – 6 PM CET

For more information about ZF's participation at IAA Transportation 2022, please visit www.zf.com/IAA

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About ZF

ZF is a global technology company supplying systems for passenger cars, commercial vehicles and industrial technology, enabling the next generation of mobility. ZF allows vehicles to see, think and act. In the four technology domains of Vehicle Motion Control, Integrated Safety, Automated Driving, and Electric Mobility, ZF offers comprehensive product and software solutions for established vehicle manufacturers and newly emerging transport and mobility service providers. ZF electrifies a wide range of vehicle types. With its products, the company contributes to reducing emissions, protecting the climate and enhancing safe mobility. With some 157,500 employees worldwide, ZF reported sales of €38.3 billion in fiscal 2021. The company operates 188 production locations in 31 countries. For further press information and photos, please visit: www.zf.com

About CVS Division

ZF's Commercial Vehicle Solutions (CVS) division is helping shape the future of commercial transportation ecosystems. Our mission is to be the preferred global technology partner to the commercial vehicle industry. Powerfully combining ZF's commercial vehicle systems expertise, extensive technology portfolio and global



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operations, the division serves the full commercial vehicle industry value chain. As the automotive industry progresses towards an increasingly autonomous, connected, and electrified (ACE) future, ZF's CVS division innovates, integrates and supplies components and advanced control systems that help make commercial vehicles and fleets operate more safely and sustainably. CVS unites ZF's former Commercial Vehicle Technology and Commercial Vehicle Control Systems divisions, the latter being formed following ZF's acquisition of WABCO in Spring 2020.