

MAHLE Service Solutions Introduces Topology Diagnostics

Farmington Hills, Mich. – Feb. 14, 2017 – MAHLE Service Solutions has introduced Topology Diagnostics, a tool to help OE manufacturing plants and service departments generate fault specific topology diagrams using vehicle harness data in order to provide topology diagrams on the go. This new tool, unveiled at the 2017 NADA Convention & Expo in New Orleans, renders the topology view of the circuit diagrams in 2-D to isolate possible connector or circuit faults to help expedite the diagnostic process and virtually eliminate the need for static wiring diagrams.

MAHLE Service Solutions has partnered with Tweddle Group, a world leader in technical information solutions, to bring Topology Diagnostics to its customers. Topology Diagnostics combines Tweddle's technology with MAHLE Service Solutions' diagnostics products and knowledge to enable the tool to work for OEMs in their factories and dealerships. Topology Diagnostics will begin to roll out at OEMs in the first half of 2017.

According to Andreas Huber, general manager, MAHLE Service Solutions, today's wiring diagrams are generic and show all possible vehicle options and circuits. "This becomes burdensome for a technician who is trying to follow a specific circuit," explained Huber. "Our topology diagrams are vehicle and fault specific, helping reduce the complexity of a generic wiring diagram."

Technicians benefit from a quick diagnosis of the problem, and an on-demand topology diagram in a simplified view with pin numbers, individual wires and colors. A prioritized list of connectors to check is based on circuit logic with a "probable cause" of failure integrated into connector priority.

Huber said the tool also benefits OEMs with cost savings by significantly reducing the need to develop service level wiring diagrams and reduced errors. "Since our Topology tool can generate wiring diagrams on the fly,

based on vehicle and fault, it significantly reduces an OEM's need to produce static service level wiring diagrams.”

The work to bring Topology Diagnostics to market was undertaken through the leadership of MAHLE Test Systems, which was successfully integrated into the MAHLE Service Solutions division of MAHLE Aftermarket Inc. as of Jan. 1, 2017, to help take electronic vehicle testing, diagnostics and repair to the next level. “This integration makes MAHLE Service Solutions a full-service solutions provider for the entire life cycle of a vehicle,” said Huber.

With no special hardware or connections needed to access the vehicle, Topology Diagnostics can quickly detect module level “no communication” errors and analysis, and diagnostic trouble code (DTC) failure and analysis. The DTC failure and analysis is a significant advantage of the application because it helps cover a wide variety of failure use cases to simplify the diagnostic process without having to tear apart multiple systems to find the wiring problem.

“The tool offers easy mapping of vehicle electronics to provide significant opportunity for deep analytics and learning to understand the vehicle network and types of faults,” explained Huber. “With our upcoming projects we will be able to quantify the analytics in terms of time savings, material cost savings and quality improvements at the factory level. We are confident the savings will be very significant and function as a preventive tool to avoid further problems down the road.”

The combined expertise of Tweddle Group, MAHLE Test Systems' 30-plus years of electronic vehicle testing and diagnostic tools experience, and MAHLE Service Solutions' 25-year history in serving the aftermarket, will lead to a comprehensive solution in automotive electronic testing for use throughout the diagnostic and repair life cycle of a vehicle from manufacturing to the aftermarket.

For more information about MAHLE Service Solutions, visit www.servicesolutions.mahle.com.

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About MAHLE

MAHLE is a leading international development partner and supplier to the automotive industry. With its products for combustion engines and their peripherals as well as solutions for electric vehicles, the group addresses all the crucial issues related to the powertrain and air conditioning technology—from engine systems and components to filtration to thermal management. In 2015, the group generated sales of approximately EUR 11.5 billion (12.8 billion USD) with around 76,000 employees and is represented in 34 countries with over 170 production locations.

About MAHLE Aftermarket

MAHLE Aftermarket, the business unit specializing in spare parts, uses the expertise from the series production of original equipment in its automotive aftermarket product range, and supplies trade, repair shop and engine repair partners. MAHLE Aftermarket is represented at 22 locations and other sales offices worldwide, with 1,582 employees. In 2015, the business unit achieved a global sales volume of EUR 835 million (929 million USD).

About MAHLE Service Solutions

MAHLE Aftermarket Inc., Service Solutions division specializes in the development, manufacturing and distribution of automotive services, tools and maintenance equipment, including vehicle diagnostics, air conditioning service, fluid exchange and nitrogen tire inflation systems. Formerly known as RTI Technologies, MAHLE Service Solutions continues its legacy of building shop equipment for the most stringent OEM and aftermarket needs. Along with this expertise, MAHLE Service Solutions combines the know-how of MAHLE Behr with automotive thermal management and MAHLE Powertrain with automotive test

systems. Each of these three entities have more than 25 years of R&D and technology deployment experience providing advanced solutions for OE manufacturers.

In addition to the high-quality products offered through its Service Solutions division, MAHLE Aftermarket provides a comprehensive and well-developed service network to ensure quick and professional technical support and training for repair shops. For more information about MAHLE Aftermarket Service Solutions, visit www.servicesolutions.mahle.com.

About Tweddle Group

With over 800 employees and offices throughout North America, Europe and Asia, Tweddle Group is a leading provider of information and technology solutions for automotive OEMs and their suppliers. Tweddle's unique combination of services encompasses content development, management and delivery of vehicle information to support OEM aftersales initiatives. OEMs such as FCA, Ford, Nissan, Subaru, BMW and Toyota rely on Tweddle to deliver innovative solutions designed to increase customer satisfaction and streamline vehicle diagnostics and repair.

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