



Allison Transmission unveils integrated stop-start technology for ultra-low carbon powertrain program

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INDIANAPOLIS, July 21, 2014 /PRNewswire/ -- Allison Transmission Holdings Inc. (NYSE: ALSN) today announced new integrated stop-start technology in conjunction with Project ETHOS, an ultra-low carbon powertrain program created by Cummins Inc. to demonstrate the potential of alternative fuels for carbon dioxide (CO₂) reductions in medium-duty commercial vehicles.



"As a company, we certainly pride ourselves on being a leader for technological innovations within our industry," said Randall R. Kirk, vice president of product engineering for Allison Transmission. "We have utilized stop-start technology in our hybrid systems for many years and have been pleased to work with long-time collaborator Cummins on this new powertrain concept."

In partnership with the California Energy Commission, Cummins developed an engine that uses E85 (a high-octane blend of ethanol and gasoline) as a fuel to reduce greenhouse gas (GHG) emissions significantly. The Cummins ETHOS 2.8L engine is coupled with an Allison 2000 Series™ fully automatic

transmission which utilizes integrated stop-start for further emissions reduction, as well as increased fuel economy.

Integrated stop-start shuts the engine down when the operator presses the brake pedal and the vehicle comes to a complete stop. The transmission remains in drive during this time and locks the output to help prevent vehicle rollback by using an electric pump. As the driver's foot is lifted from the brake, the system automatically starts the engine to allow acceleration.

"Integrated stop-start is an exciting development that represents the natural evolution of our product technology," said Kirk. "We are continuously researching solutions to help our end-users reduce their carbon footprint through reduced emissions and fuel consumption."

Allison worked closely with Cummins to integrate the 2550 transmission model for smooth and efficient stop-start operation. The transmission is equipped with specific hydraulic circulation features to ensure smooth operation during stop-start driving. Additionally, all Allison Automatics provide Continuous Power Technology™ with seamless full-power shifts to put engine power to the drive wheels in the most efficient way. The result is faster acceleration and higher average road speed for quicker route times and greater productivity.

Testing and validation were conducted using test cells and a prototype delivery step van provided by Freightliner Custom Chassis. Valvoline provided NextGen engine oils specifically designed for lower CO₂ emissions.

According to Cummins, with more than 1,500 hours accumulated on the ETHOS 2.8L engine over the past 2 1/2 years, the technology has proven capable of far exceeding the 50 percent CO₂ emission reductions outlined as the project goals.

To complete on-road validation testing and give visibility to the project, a vehicle driving demonstration took place on public roads in California during June and July. While the powertrain system and vehicle are for testing and demonstration purposes only, market demand and production logistics are currently being explored.

About Allison Transmission

Allison Transmission (NYSE: ALSN) is the world's largest manufacturer of fully automatic transmissions for medium- and heavy-duty commercial vehicles and is a leader in hybrid-propulsion systems for city buses. Allison transmissions are used in a variety of applications including refuse, construction, fire, distribution, bus, motorhomes, defense and energy. Founded in 1915, the company is headquartered in Indianapolis, Indiana, USA and employs approximately 2,700 people worldwide. With a market presence in more than 80 countries, Allison has regional headquarters in the Netherlands, China and Brazil with manufacturing facilities in the U.S., Hungary and India. Allison also has approximately 1,400 independent distributor and dealer locations worldwide. For more information, visit allisontransmission.com.

About Cummins

Cummins Inc., a global power leader, is a corporation of complementary business units that design, manufacture, distribute and service diesel and natural gas engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. Headquartered in Columbus, Indiana, (USA) Cummins currently employs approximately 48,000 people worldwide and serves customers in approximately 190 countries and territories through a network of approximately 600 company-owned and independent distributor locations and approximately 6,500 dealer locations. Cummins earned \$1.48 billion on sales of \$17.3 billion in 2013. Press releases can be found on the Web at www.cummins.com or www.cumminsengines.com. Cummins on Twitter at @Cummins and on YouTube at Cummins Inc.

Forward-Looking Statements

This press release may contain forward-looking statements. All statements other than statements of historical fact contained in this press release are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "expect," "plans," "project," "anticipate," "believe," "estimate," "predict," "intend," "forecast," "could," "potential," "continue" or the negative of these terms or other similar terms or phrases. Forward-looking statements are not guarantees of future performance and involve known and unknown risks. Factors which

may cause the actual results to differ materially from those anticipated at the time the forward-looking statements are made include, but are not limited to: risks related to our substantial indebtedness; our participation in markets that are competitive; general economic and industry conditions; our ability to prepare for, respond to and successfully achieve our objectives relating to technological and market developments and changing customer needs; the failure of markets outside North America to increase adoption of fully-automatic transmissions; the discovery of defects in our products, resulting in delays in new model launches, recall campaigns and/or increased warranty costs and reduction in future sales or damage to our brand and reputation; the concentration of our net sales in our top five customers and the loss of any one of these; risks associated with our international operations; brand and reputational risks; our intention to pay dividends; and labor strikes, work stoppages or similar labor disputes, which could significantly disrupt our operations or those of our principal customers. Although we believe the expectations reflected in such forward-looking statements are based upon reasonable assumptions, we can give no assurance that the expectations will be attained or that any deviation will not be material. All information is as of the date of this press release, and we undertake no obligation to update any forward-looking statement to conform the statement to actual results or changes in expectations.

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