



BORGWARNER'S VARIABLE CAM TIMING TECHNOLOGIES
HELP BOOST FUEL ECONOMY FOR THE 2012 SUBARU IMPREZA

*BorgWarner's Award-Winning CTA Technology Helps Impreza
Achieve the Highest Fuel Economy for an All-Wheel Drive Vehicle in the U.S.*

Auburn Hills, Michigan, August 9, 2012 – BorgWarner's Cam Torque Actuated (CTA) variable cam timing (VCT) technology with new mid position lock system helps improve fuel economy for the 2012 Subaru Impreza, the most fuel-efficient all-wheel drive vehicle available in the United States. According to Subaru, the 2012 Impreza offers 30 percent better fuel economy compared with the previous model year. The 2012 Impreza is powered by the new four-cylinder 1.6-liter SUBARU BOXER® engine (available in Japan only) and 2.0-liter SUBARU BOXER® engine (available globally) which meet U.S. Super Ultra Low Emissions Vehicle (SULEV) and Euro 5 emissions standards.

“BorgWarner worked closely with Subaru on the all-new SUBARU BOXER® engine, utilizing our latest VCT technology to provide more precise valve timing for better fuel economy and improved engine performance,” said Joe Fadool, President and General Manager, BorgWarner Morse TEC. “As a product leader for more than 130 years, BorgWarner Morse TEC is proud to contribute our broad expertise and customized solutions to Subaru’s successful engine.”

BorgWarner’s patented CTA technology takes advantage of the existing torsional energy in the valve train to phase the camshaft, similar to a hydraulic ratchet. Compared with traditional oil pressure actuated cam phasers, CTA cam phasers operate more quickly and under a wider range of engine speeds and temperatures, enabling engines to run more efficiently at all engine speeds with faster response. BorgWarner received a 2009 Automotive News PACE Award for this innovative technology.

BorgWarner’s latest advancement in CTA technology is the new mid position lock system, named a finalist for a 2011 PACE Award. Because conventional systems default
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to one end of the camshaft phaser's range of angular travel, calibration strategies are limited by the restricted amount of travel that can be designed into a variably timed system. BorgWarner's mid position lock technology defaults at an intermediate position to allow for a greater range of travel and more control over airflow for improved fuel economy, function and efficiency. A patented hydraulic circuit passively moves the system to the mid position for reliable repositioning in nearly any potential engine operating condition with no added active relocking control.

About BorgWarner

Auburn Hills, Michigan-based BorgWarner Inc. (NYSE: BWA) is a technology leader in highly engineered components and systems for powertrain applications worldwide. Operating manufacturing and technical facilities in 59 locations in 19 countries, the company develops products to improve fuel economy, reduce emissions and enhance performance. Customers include VW/Audi, Ford, Toyota, Renault/Nissan, General Motors, Hyundai/Kia, Daimler, Chrysler, Fiat, BMW, Honda, John Deere, PSA, and MAN. For more information, please visit borgwarner.com.



BorgWarner's award-winning Cam Torque Actuated (CTA) variable cam timing (VCT) technology with mid position lock system helps improve fuel economy for the 2012 Subaru Impreza, the most fuel-efficient all-wheel drive vehicle available in the United States. Photo courtesy of Subaru.

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