Press information

# Volvo Trucks’ enhanced powertrain improves performance while cutting fuel consumption

## Volvo Trucks’ unique powertrain is now more efficient than ever before. With the latest generation of Euro 6 engines and the integrated intelligent Volvo I-Shift transmission, Volvo Trucks is taking yet another step on the path to efficient transportation.

“Combining good driveability with fuel-efficiency is a far greater achievement than just focusing on driveability or fuel-efficiency,” says Claes Nilsson, President and CEO of Volvo Trucks. “Volvo Trucks decided early on to succeed in both arenas. That’s why we are in command of the whole development and production process of the entire powertrain ourselves. In this way we can ensure optimal integration and communication between engine and transmission, and continuously fine-tune both hardware and software to achieve the best possible balance between good driveability and low fuel consumption.”

The integrated powertrain consists of an enhanced Euro 6 engine and Volvo’s unique I-Shift. The engine is a perfect example of how several small advances together can result in a big improvement. The two most significant updates are increased compression ratio on the D13 420 and 460 hp versions, and a new optimised turbocharger on the 500 and 540 hp variants of the D13 engine.

“For many of our customers, maintaining a high average speed is important in order to save time – time that may be crucial to the transport mission. In the same way, it’s important to minimize fuel costs. What we have now achieved is an engine and gearbox that utilise their full combined potential to deliver more efficient transportation,” says Mats Franzén, Product Manager Powertrain Components - Engines at Volvo Trucks.

Just how much fuel the latest improvements can save depends on the truck’s specification and application area. For a Volvo FH on long haul operations, fuel consumption can be reduced by up to 3 per cent. For heavy transports, such as timber haulage, the saving may be even higher if the engine is combined with Volvo Trucks’ recently introduced I-Shift with crawler gears and Tandem Axle Lift, the unique driven liftable rear axle.

Other important factors that help cut fuel consumption are the aerodynamic improvements made to the cab. Air drag increases disproportionately in relation to speed. For example, by doubling the speed, aerodynamic forces increase by a factor of four, which has a main influence on the fuel consumption for trucks. “When we work with aerodynamic improvements, the holistic perspective is important. In order to identify those optimisation measures that do the greatest good for our customers, we’ve minutely examined every single detail of the truck,” says Anders Tenstam, Senior Research Engineer for aerodynamic development.

In order to create smoother air flow, Volvo Trucks has fine-tuned the front bumper spoiler, air deflector panels, mud guards and mud flaps as well as the wheel wells. These are all small details which in combination contribute towards greater customer benefit.

“Our customers constantly demand new solutions that are both productive and cost-effective. In order to meet their needs, we focus wholeheartedly on continuously improving the driveability of our trucks and at the same time minimise fuel consumption,” says Claes Nilsson.

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**Euro 6 engine updates**Selected updates to the Euro 6 engine (13-litre, common rail):  
– Common rail injection system for all power levels

– Improved compression for the D13 420 and 460 hp engines

– New optimised turbo for the D13 500 and 540 hp engines

– Reduced internal friction with new pistons and crankshaft

– Updated software and engine control

– Reduction in engine weight

## I-Shift is available in three versions Volvo Trucks’ I-Shift is an intelligent automatic transmission that selects the right gear with precise timing. In addition to the standard I-Shift version, which is available in variants for different transport applications, there are the I-Shift Dual Clutch and I-Shift with Crawler Gears. I-Shift Dual Clutch is a dual-clutch transmission offering seamless gear changes. Torque is maintained between gear changes, making I-Shift Dual Clutch optimal for transport assignments with high demands on performance, high average speed and gear change frequency. I-Shift with Crawler Gears was developed for heavy haulage and transports in severe applications and can handle starts from standstill with up to 325 tonnes gross combination weight. The crawler ratios also permit driving at exceptionally low speeds.

**The aerodynamic improvements**– The front bumper spoiler is specially designed for optimal matching of air distribution under and around the sides of the vehicle.

– The air deflectors have been tailored to generate better air flow between the tractor and trailer.  
– The mud guards and mud flaps have been designed to retain their function and at the same time reduce air resistance.  
– The wheel wells have been sealed to optimize the air flow between the wheels and the fenders.

**Link to high-resolution images   
See more about the aerodynamic improvements here (LINKLINKLINK)**

**See more about the powertrain here (LINKLINKLINK)  
Learn more about I-Shift Dual Clutch  
Learn more about I-Shift with Crawler Gears**

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