Press information

Volvo Trucks' latest concept vehicle tests a hybrid powertrain for long haul transport

With the Volvo Concept Truck, Volvo Trucks has developed its first hybrid vehicle designed for long haul applications. In combination with the vehicle's other improvements, the total reduction in fuel consumption and CO_2 is around 30 per cent.

Volvo Trucks first unveiled the Volvo Concept Truck in May 2016, and has now developed and enhanced the vehicle even further. In addition to the improvements in aerodynamics, rolling resistance and reduced weight, the new version also features a hybrid powertrain – one of the first of its kind for heavy-duty trucks in long haul applications.

"We strive to be at the forefront of electromobility and to constantly push the limits when it comes to reducing fuel consumption and emissions," says Claes Nilsson, CEO at Volvo Trucks. "Over the coming years, as society moves more and more towards renewable energy, we strongly believe that electromobility and hybrid technology will become increasingly important. The powertrain in our concept truck has been developed to improve transport efficiency and thereby help the industry towards sustainable transport. With the concept truck we will gain valuable knowledge and experience, which will help us develop the technology further."

The hybrid powertrain works by recovering energy when driving downhill on slopes steeper than one per cent, or when braking. The recovered energy is stored in the vehicle's batteries and used to power the truck in electric mode on flat roads or low gradients. An enhanced version of Volvo Trucks' driver support system I-See has been developed specially for the hybrid powertrain, which analyses upcoming topography to calculate the most economical and efficient choice between the diesel engine and the electric motor, as well as the optimal time to use the recovered energy.

In long haul transportation, it is estimated that the hybrid powertrain will allow the combustion engine to be shut off for up to 30 per cent of the driving time. This will save between 5-10 per cent in fuel, depending on the vehicle type or specification, and its drive cycle. It also offers the ability to drive in full electric mode for up to 10 kilometres, enabling the vehicle to operate with zero emissions and low noise.

"Today, long haul transport accounts for a significant share of the total energy consumption in the transportation sector. Using hybrid technology, the potential reduction in fuel and emissions is considerable and an important step towards reaching both our and society's environmental goals for the future," says Lars Mårtensson, Director Environment and Innovation, Volvo Trucks.

The Volvo Concept Truck also builds on many of the gains achieved by its predecessor, namely improved aerodynamics, rolling resistance and reduced vehicle weight. "This is a platform for verifying several new technologies for increasing transport efficiency," says Åke Othzén, Chief Project Manager, Volvo Trucks.

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"Some of these developments have already been introduced to our trucks, and some will be introduced in the near future. The hybrid powertrain is partly based on knowledge and experience from Volvo Buses' hybrid and electric buses."

Facts: Volvo Concept Truck

– The Volvo Concept Truck is the result of the Swedish part of a bilateral research project involving both the Swedish energy authority Energimyndigheten and the US Department of Energy.
– An American Concept Truck, the SuperTruck project, was developed as part of the US Department of Energy's SuperTruck programme, which promotes research and development to improve transport efficiency for long-haul operations in North America.

Facts: Electric hybrid powertrain

– Recovers energy when driving downhill on slopes steeper than one per cent, or when braking. The recovered energy is stored in the vehicle's batteries and used to power the truck in electric mode on flat roads or low gradients.
– An enhanced version of Volvo Trucks' driver support system I-See, which has been developed specially for the hybrid powertrain, analyses the upcoming topography using information from GPS and the electronic map. Using an advanced algorithm, based on the road's elevation and expected speed, the system calculates the most economical and efficient use of both the diesel engine and the electric motor, as well as the optimal times to use the recovered energy.
– In long haul transportation, it is estimated that the hybrid powertrain will allow the combustion engine to be shut off for up to 30 per cent of driving time. This will save between 5-10 per cent in fuel, depending on the vehicle and its drive cycle.

Specifications: Volvo Concept Truck

Truck model: Volvo FH
Engine: Volvo D13 Euro 6 Step C

See film about Volvo Concept Truck here
Link to high res images
Read more about Volvo Concept Truck here
Learn more about Volvo SuperTruck here

February 28, 2017

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