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MACK DISPLAYS HYBRID VEHICLE IN WASHINGTON



AB Volvo's subsidiary Mack yesterday presented a prototype of a hybrid powertrain for heavy trucks in the US - the first of a number of hybrid vehicles that the Volvo Group plans to present during the coming year.

The presentation took place in front of the US Capitol in Washington, and was visited by a number of congressional leaders and other Federal officials. The hybrid powertrain that was shown is in a Class 8 heavy-duty fuel tanker developed in co-operation with the US Air Force.

Diesel-powered hybrid vehicles combine the power from an electric motor with that from a diesel engine. The advantages of hybrid technology include improved fuel economy, lower emissions, reduced noise levels, lower operating costs and longer intervals regarding the need for service of engines and brake systems.

The vehicle demonstrated is a "mild hybrid." This means that the hybrid engine assists at start-up and then recycles the energy released in braking - energy that is stored in batteries and re-used instead of diesel fuel.

The Volvo Group's goal is to develop a full hybrid system able to launch a heavy-duty truck solely with electrical power. In a full hybrid system the engine is not operated at idle, which reduces fuel consumption and noise levels from, for example, refuse collection trucks. With a market share of more than 70%, Mack is the leading manufacturer of refuse trucks in North America.

"Hybrids offer the potential to reduce fuel consumption by 20 to 25 percent," says Volvo CEO Leif Johansson. "This is an extensive reduction and the possibilities within hybrid technology are highly promising and exciting."



Full loads

In the 'Full loads' project, Volvo Trucks collaborated with Volvo Logistics to maximise truck loads and ship the goods directly to the various plants without intermediate stops or transshipment. Some parts go directly to the production line while other materials are placed in Volvo's efficient storage facilities until required.

This project has enabled the number of truck deliveries to be reduced. In the case of each supplier included in the project, the number of transport movements was reduced by approximately 15-20%, and a number of stops and transshipments eliminated. Last year, five new suppliers were added to the Tuve plant project, and similar work is under way in both Umeå and Ghent.

Anette Kinde, Core Values Manager at Volvo Logistics, points out that this work is fully in line with the company's environmental programmes: "Like every other company in the Volvo Group, environment is one of our core values. We perform environmental calculations for all new or modified logistics structures. In the case of 'Full loads', for example, a 2% increase in load factor can yield a reduction in CO2 emissions of up to 1,400 tonnes per year for Volvo Trucks alone. This is equivalent to the emissions generated by heating 260 homes with oil."

Efficient handling of CKDs

Almost half of the materials handled at the Volvo Trucks plant in Tuve, near Göteborg, is earmarked for CKD (Completely Knocked Down) kits destined for truck assembly operations in plants outside Europe.

Approximately 10,000 of the 15,000 CKDs in question go to the Iranian plant. Since some of the trucks assembled there are NH models developed and built mainly in Brazil, many containers of materials were previously consigned to Brazil by European suppliers to be 'topped up' with Brazilian parts before being shipped to Iran - a huge detour. Following study by the logistics experts, it was found that about 100 truck parts and assemblies could be repackaged for export in the Göteborg plant itself, since Tuve is supplied with the same components for European production, eliminating some of the transatlantic traffic.

"We have now eliminated the shipment of about 460 forty-foot containers back and forth across the Atlantic, and ship the parts directly to Iran from Europe," says Stefan Karlsson, who is responsible for materials supply as part of European production. "This represents a volume of 28,000 cubic metres, equivalent to a voyage by a fully-loaded Ro-Ro vessel between Europe and Brazil. This saves a great deal of fuel and money."



Volvo Logistics agrees and has estimated that the environmental gain is about 4,300 tonnes of carbon dioxide. The new system also results in lower emissions of nitrogen oxides, sulphur dioxide and particulates.

More saved in cab production

Stefan Karlsson has now been given the job of undertaking a third, much bigger project on the same lines. The focus in this case is on Volvo's cab production plant in Umeå, in the far north of Sweden, which ships and receives materials by sea, rail and road alike, although mainly the latter. "The project relates to the packaging of the cabs for the 15,000 trucks shipped to the CKD assembly plants around the world," he continues. "In Umeå, we package cab components, which are then sent to Tuve, where the chassis materials are added and the complete kit is shipped - in two out of three cases - to the plant in Iran."

Every year, suppliers - mainly in southern and central Europe - ship 84,000 cubic metres of goods to Umeå, while 70,000 cubic metres are shipped from the plant just to supply the CKD flow. This involves a significant number of empty transport runs. At present, almost all of the parts concerned are shipped by suppliers in Europe to Umeå, where they are merely repackaged and shipped south again to the Göteborg plant.

Significant mileage reduction

The goal is to make transport utilisation more efficient and more economical by enlisting the aid of Volvo Logistics experts with all of the purchasing activities and optimising the supplier orders. The goods will then be routed directly to the Tuve plant in Göteborg to achieve the above goal. In particular, the overall transport-kilometre figure will be reduced significantly.

"In the course of time, we will obviously be looking at all of our flows in Europe, where we have very many suppliers. Our aim is to fill the trucks and route directly to the plants without making detours. Many improvements can also be made in the area of sea freight. With considerable benefits to the environment," emphasises Stefan Karlsson.

Anette Kinde of Volvo Logistics agrees: "Apart from working to make the transport operation more efficient, we are aiming to cut emissions per tonne-kilometre and we have set clear targets for this.

To achieve these, we are requiring hauliers to introduce more efficient engines and use better fuels. We are also monitoring the load factors of sea freight containers on a continuous basis."