

## **Press Information**

## The new Volvo FMX is so easy to steer that a hamster can take over the wheel

The film "The Hamster Stunt" has been a major success on Youtube and has been viewed more than 3.4 million times in just one week. It shows how the new Volvo FMX, equipped with Volvo Dynamic Steering, is steered by a hamster on rough, twisting tracks in a quarry.

Volvo Dynamic Steering is a new system from Volvo Trucks that allows the driver to steer a heavily laden truck without effort. At low speeds, an electric motor replaces the driver's muscle power. The system's developers aimed to deliver perfect steering feel in all operating conditions.

"At low speeds, a heavily laden vehicle is so easy to manoeuvre that it can be steered with just one finger. When driving on the highway, this dynamic steering system offers unbeatable directional stability, explains Jan-Inge Svensson, the engineer behind the development of the system's software at Volvo Trucks.

## Electric motor takes the load off the driver

Volvo Dynamic Steering is based on a conventional mechanical steering system where a steering shaft links up to a steering gear. A hydraulic servo unit generates force that helps the driver turn the truck's road wheels. In Volvo's system an electronically controlled electric motor is added, which is attached to the steering shaft. This electric motor works together with the hydraulic power steering and is adjusted thousands of times per second by the electronic control unit. At low speeds, the electric motor adds extra force and at higher speeds, the electric motor automatically regulates the steering and compensates for irregularities that feed through to the steering wheel, caused for instance by side winds or bumps in the road surface.

The electronic control unit is the brain of the system and is continuously fed information by sensors in the truck.

"There are sensors in a number of different locations and together they provide a comprehensive picture of what is happening to the truck. For instance, sensors on the wheels and the transmission's output shaft measure the vehicle's road speed, while



another sensor identifies which gear is currently engaged," relates Sten Ragnhult, who was responsible for developing the system's hardware at Volvo Trucks.

In the film "The Hamster Stunt" the system's properties are put to the test by allowing a 175 gram hamster steer the truck. The test was carried out in a quarry in the Spanish city of Ourense. A specially designed hamster treadmill was attached to the steering wheel. An experienced stunt driver handled the accelerator and brakes and got the hamster to steer in the right direction by tempting him with a carrot. The film shows how the big truck gently and safely makes its way up a twisting, narrow hilly track in the quarry.

"I can assure you that this is for real - the hamster really can steer the truck," says Sten Ragnhult, who together with his colleague Jan-Inge Svensson was on site in Spain during the test.

See the film "The Hamster Stunt"

See how Volvo's engineers prepared the test in Spain

Here's how Volvo Dynamic Steering works

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## The benefits of Volvo Dynamic Steering:

• At low speeds, the electric motor replaces the driver's muscles. The driver is now free

to sit back and relax, steering without straining his shoulders and arms.

• Disruptions from unevenness in the road, for instance cracks and potholes, are damped. As a result the steering feels more stable since the driver does not have to keep compensating with the steering wheel.

• On the highway, the precise control gives a feeling of increased directional stability, which in turn offers the driver a relaxed driving experience with full control at all speeds. The dynamic steering system eliminates virtually all minor steering wheel

adjustments that are otherwise so much a part of highway driving.

• The system can compensate for road camber or a side wind, allowing the driver to steer straight ahead without having to "counter-steer" with the steering wheel. A major benefit that contributes to both safer and more comfortable driving.

The Volvo FM and Volvo FH can also be equipped with Volvo Dynamic Steering.

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