



SCANIA

PRESS info

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The truck of the 2010s: New concept truck unveiled by Scania

At a road safety seminar in Brussels on Wednesday Scania unveiled its concept truck for the 2010s. The concept has the potential of significantly reducing congestion on the roads, with 30 percent fewer trucks on the roads for certain types of transport. The truck features advanced aerodynamic solutions and numerous other innovations – with significant gains in safety, efficiency and environmental impact. For example, a brand new type of single-mounted tyre is used. Stopping distances are improved, so are rolling resistance and weight.

Built as a 28-metre 60-tonner, the truck is a logical follow-up on the concept truck presented and demonstrated by Scania and German trailer manufacturer Krone at the Hanover exhibition in 1998. The rig features a 50 percent capacity increase in payload and volume and 20-25 percent reductions in fuel consumption and emissions per tonne transported, compared to a normal European semitrailer rig.

The eight-axle combination consists of a standard rigid truck, to which a semitrailer is coupled by means of a dolly. Besides the front axle, the rearmost axle on the truck, one dolly axle and the rearmost trailer axle are steered, making a total of four steered axles. Amazingly, manoeuvrability of this 28-metre vehicle matches that of a 16.5-metre semitrailer combination.

The new concept truck has a similar axle configuration.

Major aerodynamic and safety gains

The aerodynamics of the concept truck are highly advanced. Its shape has been optimised at the front, along the sides and at the rear to bring air drag coefficient down to passenger car levels, saving fuel and lowering emissions.

The cab is mounted in a slightly retracted position behind a small 'bonnet' that significantly smoothens airflow around the front. The bonnet also acts as a crumple zone in case of a frontal collision. The cab exploits the full height of the vehicle, i.e. four metres, leaving no gap between the cab and the top of the bodywork to bridge with air deflectors.

The aerodynamic sideskirts double as underrun protection that extends the total length of the vehicle, without any gaps that jeopardise safety. This effectively prevents cars and other road users from being wedged under the vehicle in case of a side impact.

The covered wheels on all eight axles reduce turbulence and reduces the spray from the wheels in wet weather, making overtaking, for instance, much safer for other road users. The wheel-mounted mudguards on the front wheels turn with the wheels on lock.

Both truck and trailer are provided with 'boattails' to minimise turbulence. These flaps pop out at speed, extending the overall length slightly and allowing the airflow to depart smoothly behind the vehicle. Wind-tunnel tests have shown that the boattail on the trailer alone reduces air drag for the whole combination by more than 10 percent, an improvement that corresponds to fuel savings from perhaps a decade of engine research and development.

The 'bellows' between the truck and the trailer is designed to bridge the gap and reduce turbulence in this critical area.

High-grip single tyres all-round

An important part of the project brief was to set a new standard of truck braking performance. With modern disc brakes, the limiting factor is not the braking equipment, but the friction between the tyre and the road surface.

Jointly with tyre manufacturer Michelin, a new type of tyre has been developed for the concept truck with significant advances in several areas that benefit safety and efficiency. The same dimension is used for all axles with different tread patterns depending on position. Grip is improved and stopping distances reduced. Rolling resistance is significantly lower, weight is reduced and cargo volume increased (single-mounted tyres are narrower) and the profile is lower.

64 tonnes possible

The cargo volume is 50 percent up on a conventional European 40-tonne semitrailer rig with five axles. The concept vehicle, with its eight 8-tonne axles, has a technical gross weight of 64 tonnes. Working with new, lighter materials such as aluminium and high-tensile steel, the unladen weight can be further reduced. The potential increase in payload is thus greater than the 50 percent possible today.

Assuming a 50 percent increase in load capacity – by volume or weight – the number of trucks used for a given transport task can be reduced by one-third.

'Road-friendly' behaviour

None of the eight axles puts more than 8 tonnes on the road. The vehicle has four steered axles and 'road-friendly' air suspension. All this means that wear and tear on

the road surface is substantially reduced compared to a conventional semitrailer rig, which rubs off a great deal of rubber on tight corners due to its stiff bogie.

Braking capacity is ensured, since each axle on a modern truck brakes its own share of the weight. Thus, stopping distances of laden truck combination are similar irrespective of the number of axles.

Road haulage in 2010

Studies within the European Union indicate that road transport is expected to increase by 50 per cent in the next ten years. Stiff competition on the haulage market means that each vehicle must be put to maximum use, running virtually round-the-clock. Annual mileages are therefore expected to rise by 40 percent and the number of trucks by 25 percent.

If nothing is done, this obviously risks obstructing traffic flow completely in some areas. It also risks neutralising any progress made in terms of emission control and transport efficiency.

With better logistics – an area expected to develop greatly in the next few years – and innovative transport solutions such as longer vehicles, transport efficiency and road safety can actually be improved.

Running prototype

The quarter-scale model shown in Brussels dates about two years back. It is now joined by a full-scale operating prototype, which will soon be ploughing the roads around the Scania Technical Centre in Södertälje with an experimental trailer at the back.

The truck is fitted with the latest in engine and transmission technology, including a highly efficient 12-litre turbocompound engine and automated gearchanging system.

“This truck will be our rolling laboratory for a lot of ideas during the next few years. Some of the innovations will not make it to production. Some cannot yet be revealed for competitive reasons,” says Kaj Holmélius, Senior Vice President and responsible for research and truck development at Scania. “I am confident that the money, SEK 40 million, and four years of hard work are well spent. Having access to a concept truck like this will generate a flow of fresh ideas.

“The potential savings in emissions and fuel and the safety benefits for a given transport task are too large to be neglected. So is the reduction in the number of trucks doing long-distance haulage. It is time for the authorities, truck manufacturers, operators and drivers to take an open-minded look at the future of road haulage,” concludes Kaj Holmélius.

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For illustrations, please visit Scania's homepage www.scania.com under "Media services".

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Scania is one of the world's leading manufacturers of trucks and buses for heavy transport applications, and of industrial and marine engines. With 23,500 employees and production facilities in Europe and Latin America, Scania is one of the most profitable companies in its sector. In 1998, turnover totalled SEK 45,300 million and income after financial items SEK 3,200 million. Scania products are marketed in about 100 countries worldwide and approximately 96 percent of total production is sold outside Sweden.

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