



Billions of euros spent on tractor aerodynamics go to waste when truckers simply couple up to old trailers. Ian Norwell reports from the Kortrijk, Belgium trailer show, where Mercedes-Benz offered improved thinking

Happy marriage?

You just don't see heavy trucks these days without some form of aerodynamic aid. It's generally accepted that there's 10% to be gained – or thrown away – on fuel economy with even the most basic of air deflector. So how much further can it be pushed? And where should the effort now be focused?

Most European truck shows have a 'design study' or 'concept truck' on a manufacturer's stand somewhere. Often the work of a young designer in denim jeans and tee shirt, they are rarely taken too seriously by hard-pressed transport engineers looking for fresh ideas on how to cut costs. But sometimes they start something and, at Trailer 2011, in Kortrijk, Mercedes-Benz was one such.

The auto giant has made some enthusiastic claims about fuel savings from its new Actros tractors and improved aerodynamics have again played a major part. At the Belgium trailer event, however, Merc brought the industry together to outline its vision of what should be happening behind its cabs.

With just a hint of sarcasm, Georg Weiberg, head of product engineering at Daimler Trucks, opened proceedings, stating: "After particulates and nitrogen oxide emissions, the politicians have now discovered CO₂." With the beating he's taken in recent years from Brussels, less than 60 miles away, you can hardly blame him.

That said, Weiberg went on to present an aerodynamic trailer design that the German auto giant has clearly taken seriously – so seriously that European trailer manufacturers might be forgiven for getting the jitters. With an audience including such majors as Kögel, Krone, Schmitz Cargobull and Schwartzmüller, he unveiled the Aero Trailer, described as a joint

initiative between truck and trailer manufacturers, and sporting a host of slippery features in the hunt for fuel and CO₂ efficiency gains.

"I would like to see a new state-of-the-art trailer to go with our state-of-the-art truck," challenges Weiberg. And in much the same way that the new Actros picked up incremental aerodynamic improvements from every possible corner and facet, so it has been done with this design. Many features are not entirely new, but drawing them together possibly is.

It would be wrong to imply that trailer makers have been idle: nothing could be further from the truth. They have developed hydraulic actuators for curtains to tighten up on wasted energy and some have also adopted lightweight axles that store the compressed air used for suspension and braking within the axle housing. Trailer air reservoirs can then be dispensed with and recovered weight used as payload.

However, Mercedes' Aero Trailer design adds a front trailer fairing that reduces cab gap to a minimum and so cuts wind resistance by a claimed 1%. Extensive front-tapered sideskirts are also said to cut drag by 8%, with displaced air directed to a rear diffuser à la F1. Mercedes' is a parallelogram design, attached to underbody trim panels that further add to the slippery shape and notch up another 2%. Finally, a boat-tail of just 40cm is reckoned to reduce drag of the entire vehicle by a whopping 10%.

Mercedes' concept was a timely reminder that producing an efficient truck-trailer combination has to be a joint enterprise. "We are not going into the trailer business," insists Hubertus Troska, Daimler's head of Mercedes trucks. Trailer manufacturers present didn't seem totally convinced. **TE**