

A code of practice

TODAY, ONLY FEW AUSTRALIAN TRAILERS ARE EQUIPPED WITH ANTILOCK BRAKES, AND EVEN LESS HAVE LOAD-SENSING BRAKES OR EBS. TO REDUCE THE FATALITY RATE OF AUSTRALIAN TRUCK DRIVERS IN CRASHES AND HELP THE INDUSTRY MANAGE THE INTRODUCTION OF NEW BRAKING AND STABILITY TECHNOLOGIES, THE **AUSTRALIAN ROAD TRANSPORT SUPPLIERS ASSOCIATION (ARTSA)** HAS DEVELOPED A BRAKE CODE OF PRACTICE FOR COMBINATIONS.

The Victorian Transport Association (VTA) recently ran two successful truck safety days at Sandown racecourse in Melbourne. The purpose was to show off what commercially available technology can do to improve truck and trailer safety, efficiency and emissions.

Some exciting safety and productivity technologies from Hino, DAF, Kenworth, Mercedes, Scania and Volvo were on display and some were demonstrated on track. Australian trailer manufacturers also displayed the latest trailer technologies.

"We should marvel at what can be achieved with the application of electronic controls to heavy vehicles," says ARTSA Chairman Dr Peter Hart. "Smart vehicles can now have stability controls, automatic emergency braking, lane assistant, cruise control management etc. But does smart gear always improve things? Maybe.

"Europe has mandated Electronic Stability Control (or Electronic Stability Program) on trucks and trailers starting progressively about now. It seems that North America and Japan will follow this lead. Under current plans, ESC will be mandated on new trucks and trailers in Australia by mid 2015, although this is not confirmed."

So what does ESC do for trucks? It applies brakes on selected wheels to correct the vehicle trajectory. The system knows where the driver intended to go because it senses the steering wheel position and the brake and throttle pedals. "But ESC will also apply the trailer brakes - and that's where the problems may occur," says Dr Hart. "Of course, ESC always comes with an antilock braking function. On European



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trucks, ESC is built on top of an Electronic Braking System EBS. On American, Australian and some Japanese trucks, ESC is built onto an ABS system.

"But it makes no sense to rely on ESC during an emergency manoeuvre if the trailer might lose it due to a missing trailer braking system." Therefore, all of

Australia's major truck supply countries mandated ABS on trailers many years ago. In fact, most trailers in Europe also have trailer EBS. The ESC designers assumed that trailers would be reasonably well behaved if the ESC system were to give the trailer a bolt of air pressure. "So an ESC truck should pull a trailer that, at least, has

ABS and hopefully EBS."

In Australia, only few trailers have antilock brakes, and even fewer are equipped with load-sensing brakes or EBS. But if the trailer is braked hard by an ESC system, it could lock-up and go sideways. "This illustrates why Australia needs a Brake Code of Practice for Combinations," says Dr Hart. "Truck operators and drivers deserve to be told about good practice when new technologies are introduced." The mixing of different brake control technologies on trucks and trailers can usually be realised successfully, but some mixtures do not work. For example, using a load-proportioning brake valve (LPV) on a truck and not on its trailer is not good practice. The truck LPV reduces the brake power on the truck drive-axle group when it is lightly loaded, but the trailer brake power is unchanged. The brake balance is poorer because it is the trailer that mainly needs to have its brake power reduced. Australian Design Rules cannot solve the



Dr. Peter Hart, ARTSA Chairman

problem, though, as they do not impose stringent compatibility requirements on lightly loaded vehicles. "The rules were developed when the technology to change the brake level as the load is taken off was not very good," Dr Hart explains. "But now it is."

In fact, trailer EBS incorporating roll-stability is readily available. "If it is set-up properly for the actual truck and trailer

combination, the driver will notice a significant improvement in the brake feel and road handling during heavy braking, irrespective of what brake system is on the truck. A shorter stopping distance can be achieved because the driver can more confidently apply the brakes."

To help the industry to manage the introduction of new braking and stability technologies, ARTSA has released Part 1 of its Combination Vehicle Brake Code of Practice, available at www.artsa.com.au.

"Hopefully, new braking and stability technology will help to save truck drivers lives. ARTSA is developing a proposal for reduced registration charges for new trucks and trailers that have enhanced safety technologies. We believe there is a good case for the community and truck operators to share the benefits of improved safety performance. Some new thinking is needed because heavy vehicle crash rates seem to be increasing following some improvement over the past decade." 



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