



BRAKING DOWN THE BARRIERS



It's time for all aspects of the transport industry to embrace EBS and roll stability in order to improve safety and reduce rollovers.

Australians are by their very nature early adopters. We all run around with smartphones and iPads, while the fitment of dashcams, blind-spot cameras and satellite navigation and tracking are now becoming more commonplace.

The smart operators worked out a long time ago that trying to run at higher than legal weights and at higher than legal speeds was a recipe for a discussion with the police or the local roads authority. The controls over truck operation are now so comprehensive that unless you conform, you will eventually be out of business, probably sooner rather than later.

Fatigue management and the introduction of electronic work diaries will eventually clean up the detractors that want to drive for as long as they can stay awake. It will also modify the culture of the traditionalists that believe changing gears manually will always prevent a driver from falling asleep.

Amidst all this focus on fatigue reduction and improved safety levels there's a remarkable lack of understanding of the technology behind EBS (Electronic Braking Systems) and roll stability, which together bring a major benefit to road safety when incorporated in truck and trailer design.

The number of rollover accidents on our highway can be reduced almost to zero, and safety increased dramatically, by incorporating EBS and roll stability into all trailer specifications.

But, as *TrailerTorque* has discovered, the level of understanding of the systems in some cases is so low that, although a trailer may be equipped with EBS, if it's not correctly calibrated, certified and switched on, the system will not function. Putting it bluntly, if it's not switched on, or the Suzie coil is not connected to power the system to the trailer, the EBS and roll-stability system will remain inoperative.





The mobile diagnostic and maintenance service provided by AirBrake Services has resulted in a purpose-built ute with all the necessary equipment installed for roadside or workshop calibration and repair, complete with the necessary 12-volt/24-volt multi-volt power socket to match up to a trailer Suzie coil.

To find out what fleets should be incorporating in the service and maintenance schedules specifically in respect of trailer diagnostics, *TrailerTorque* caught up with Shane Pendergast, NSW sales and service manager for AirBrake Systems, distributor of WABCO braking systems.

Shane works at the sharp end of the trailer industry when it comes to calibration and certification of EBS and roll-stability braking systems, working with vehicle operators, trailer manufacturers and traffic enforcement agencies. "With service managers in Brisbane, Melbourne and Sydney, AirBrake Systems has built its business on providing the right level of customer service," said Shane.

"Operators and service technicians need to possess the level of knowledge that enables them to do their own analysis. No longer can you just arrive with a laptop, plug it in and tell the customer what needs to be done. You have to be able to provide the diagnosis, replacement and repair of any item in the system," said Shane.

Before commissioning a trailer for use it is necessary to input data into the electronic data control unit that confirms the tyre and rim size, airbag volume, suspension type, booster size and length, slack adjuster length, tare weight and gross vehicle weight. Additional information includes the input voltage, air-tank pressure and airbag pressure, diagnostic memory and storage of fault codes.

It is also important to be aware of the type of operation of the trailer, as when carrying swinging meat it would be necessary to desensitise the roll stability to acknowledge the different forces acting on the trailer during cornering.

As well as providing an accurate on-board weighing system, additional features include WABCO TailGuard, which enables the operator to have the brakes applied automatically when reversing the trailer as it reaches a minimum distance of 400 mm from the loading dock, preventing the risk of damage.



The inclusion of WABCO tilt alert uses the trailer sensors to determine if the tipping process is stable and safe, preventing the tipper body from being raised to a position where it might become unstable. Similarly, further systems can be incorporated to prevent raising a tipper body in the vicinity of power lines.

Visual checking of the systems in operation, plus the on-board weighing data are easily available through viewing the WABCO SmartBoard, mounted on the side of the trailer, augmenting the visual display inside the cab.

In the event of an emergency brake application, the electronic braking system will control the air-line pressure to apply the brakes, removing the risk of brake lock up and the subsequent flat-spotting of tyres. It's interesting to note that the tyre costs that can be saved by this feature alone often equal or exceed the initial cost of the EBS and roll-stability system fitment.

Of considerable value to any operator is the ability of the on-board Operating Data Recorder (ODR) to monitor driver behaviour.

The ODR-Tracker records the distance travelled by the trailer, its speed, time and date, number of trips, standard brake applications and emergency brake applications. It also records how many times the EBS and roll-stability system has been activated to prevent a rollover scenario from developing through being able to monitor within milliseconds the effects of G-forces, lateral influence, wheel speeds, oscillation, yaw angle and lateral deceleration.

If the control unit recognises that an unstable situation is developing it is able to add line pressure into the brake boosters to reduce brake application times when applying the brakes.

Where trailers are hauled by multiple tow operators, the system is also capable of monitoring how many times the vehicle combination is brought to a halt solely by the application of the trailer brake control, without the use of the prime mover service brakes.

As Shane Pendergast pointed out, every service workshop should incorporate a diagnostic analysis of the trailer braking system during every regular maintenance schedule.



“With the correct equipment, a trained operator can complete a full diagnostic check within just a few minutes, validating the efficiency and conformation of the braking system.

“No longer do you need to bring in external assistance. WABCO makes the software available to an operator at no cost, and a PIN number is provided for security, making it easy and quick to assess both your own trailers and those of others. There are also separate programmes for bus and coach diagnosis,” added Shane.

With the WABCO diagnostic test equipment provided in an easy to use carry case, the monitoring of an EBS system has never been easier to complete. It also provides the operator with a valuable tool to assist when considering the need for further driver training or the need for upskilling of company personnel.

A couple of final points relating to the regulations covering the use of trailers fitted with EBS and roll stability.

If a driver fails to connect the power lead to the trailer connection, these systems will not become active or functional. The trailer is then non-compliant with ADR requirements, (ADR38/04 clear states a fitted anti-lock system must be operational) bringing into question non-compliance with vehicle or trailer registration and insurance requirements. It also brings into question whether the driver possesses the ability to compensate for the non-operation of ABS and roll stability.

If a trailer EBS and roll-stability system should malfunction and assistance is not immediately available, the braking system reverts to replicate a standard non-EBS or ABS braking system. It can be safely driven until repair work can be undertaken.

For workshops running regular diagnostic checks on trailers, or prime movers and rigid trucks, Shane recommends building a small mobile trolley that locates the diagnostic equipment to suit the different systems available. It should also contain a 12-volt power supply to enable a power connection to the multi-volt systems in use today. **TT**

