

# SILENCE IS GOLDEN

unless your vehicle  
is trying to 'talk' to a trailer



A new vehicle acronym which has come up for discussion with a number of commercial vehicle manufacturers of late, is that of TSM or trailer sway mitigation system – particularly in the context of light utility vehicles and SUVs.





ability using bypass relay systems – a questionable solution, suggests B8 Systems director Stuart Terrell, akin to hooking up a trailer to a ute, then taking a big sheet of plywood and fixing it right across the back windscreen and driving off like the trailer/ caravan didn't even exist.

There is another part of the problem too, and this is regional differences.

Different countries subscribe to different rules for wiring, use different colour coding systems and different fittings and techniques.

This presents something of a challenge when it comes to finding a simple, one-size-fits-all solution, allowing vehicle users to properly use all the safety features their vehicle 'comes with'.

Until recently, the simple solution was to effectively impair the vehicle's

"Bypass relay systems don't only effectively 'blind' the towing vehicles electronic 'eyes', they can also make life very dangerous for those following behind a trailer."

In many modern vehicles – CAN bus-equipped vehicles – a trailer light which has blown shows up as a dashboard warning, alerting the driver that something isn't right, which should prompt a walk-around inspection.

"A bypass relay 'solution' won't give the driver any clue that the lights on the

trailer are not functioning properly, thus when the lead vehicle brakes, there is no warning for someone following the trailer, which won't display working brake lights."

Given New Zealand's focus on road toll and accident prevention, doesn't it seem odd that some of the safety systems manufacturers imbue their products with and we then spend good money on, are only partially utilised?

"As CAN-bus systems become more and more commonplace – as is happening already – adopting a head-in-the-sand approach and ignoring a situation which exists today," says Stuart "is going to be an even harder pill for local after market distributors to swallow later on."

If you are buying a vehicle with an eye to using it for towing, ask the questions of your vehicle dealer: is this vehicle equipped with features like ESP and TSM?

Does it have a CAN-bus system and what original equipment solution is there for wiring to make sure I'm getting the best I can get out of my vehicle's electronics? **CG**



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## TRAILER SWAY MITIGATION IS AN

electronic safety system, which can be likened to a vehicle's electronic stability programme (ESP), a stability control feature well-recognised on modern cars and is in fact, required by law on all post-2012 model year passenger cars in the US.

ESP uses independent wheel braking and engine output reduction to enable a driver to retain control of the vehicle in the instances of a sudden change in the vehicle's anticipated direction, such as an evasive swerve, for example.

The Australasian New Car Assessment Programme (ANCAP) recognised ESC as an essential element of establishing the organisation's safety ratings on vehicles built after 2008.

In short, it is not possible for a post-2008 model car to receive a five-star safety rating without ESP.

This begs the question then, why does this not apply to TSM, which basically acts as an ESP system for vehicles towing trailers?

TSM brakes specific and independent wheels on a towing vehicle when the system detects trailer sway.

Trailer sway, or the extremely unsettling experience of a trailer 'snaking' behind its tow vehicle, usually comes about through excess speed, poor loading, unexpected wind gusts, sudden vehicle direction change or a combination of all of the above.

TSM's wheel braking, combined with reducing engine power, provides tow and towed vehicle stability without intervention from the driver.

The explanation for ESP and TSM seem remarkably similar, and – given the importance the automotive world is placing on the mandatory fitment of ESP – shouldn't the same go for TSM and why doesn't it?

We put the question to B8 Systems, specialists in OE trailer wiring solutions.

Henk de Kock explained: "To be fair, TSM is being included as part of the ESP programme by more and more manufacturers, however it has not been promoted very well and many vehicle owners might be completely unaware that their vehicle has this ability. Another very important point is that unless your tow bar electrics make your vehicle aware that you are towing, this feature is not activated. The fitment of after market tow bar wiring systems that are not CAN-bus compatible effectively bypasses these

important safety features.

CAN bus systems allow electronic components within a vehicle to 'talk' to each other, without the need for a host computer, paving the way for sophisticated on-board diagnostics to be carried out, but also allowing manufacturers to offer a greater range of electronic functions.

A detailed explanation of CAN bus can be found in the sidebar story.

Henk continues: "I believe increased awareness and better understanding of these systems is the key.

"A CAN bus system has the ability to recognise that there is a towed object attached to the vehicle and correctly disable certain functions the lead vehicle may have, things like parking sensors, lane departure warning systems and start/stop systems.

"But while the systems are designed to do all of this, the vehicle itself may or may not be set up to allow the appropriate functions to be disengaged, as to do so on a blanket basis would incur additional cost.

It also needs to be remembered that vehicle markets around the world demand different requirements – particularly when it comes to electronic functionality – so the systems have to be capable up to a point, that they can accommodate their particular market requirements accordingly.

"A distributor here may order a vehicle from its European supplier as being 'tow prepped,' but what any given manufacturer decides 'tow prepping' is, may be very different in terms of the electronics."

What about other manufacturers outside of Europe? Do they not have CAN bus technology too?

"Yes, you will find most non-European manufacturers incorporating CAN bus technology in their vehicles," says Henk "but they address the towing issue in a different way.

Instead, the Asian CAN bus systems rely on electronically 'switching things off' in towing situations; a solution which works up to a point.

"As the CAN bus systems become more sophisticated though – and they are getting this way more and more as consumers demand more functionality and better systems – the idea of electronically switching functions off is not going to be practical."

## What is CAN bus

A modern vehicle is a vast array of electronic wizardry, with up to 70 different electronic control units relating to a host of sub-systems, some of which are independent from others, some of which need to communicate.

This communication is what CAN bus facilitates.

Prior to CAN bus, electronic components within a car communicated through literally kilometers of wiring, prompting weight issues for the vehicle, developmental costs for the manufacturer and massive amounts of labour time and skill in terms of aftersales service.

CAN bus was invented by Robert Bosch and introduced to the world on the BMW 850 in 1986. The system eliminated 2 kilometres of wiring, replacing multi wire with single or dual wire looms and fewer connections, which also reduced the vehicle's weight by an astounding 50 kilograms.

In a very basic scenario and isolating only a few features controlled by CAN bus: a modern vehicle is involved in a collision.

Sensors in the impact area determine how much damage the collision has caused and then sends out a message to deploy the airbags to protect the vehicle's occupants – within milliseconds of the crash.

But some cars have systems which pre-determine that the car is going to have an impact, before it actually occurs.

Those systems then react before the incident, reducing throttle inputs to the engine, pre charging the braking system, tensioning up the seat belts and putting other safety features on 'standby'.

All of this can only be achieved with CAN bus technology and is just a sample demonstration of the system's application.