



BRAKING THE CYCLE

Although Level 1 AEBS (autonomous emergency braking system) became mandatory on new registrations in November 2015, some suppliers and operators are going above and beyond. Steve Banner reports

Received wisdom has it that it is well-nigh impossible to persuade truck operators to adopt on-board safety systems. Why? Because they add cost and make a zero contribution to profits. The only way to encourage take-up, goes the argument, is to make them mandatory. However, a combination of customer pressure and a growing awareness of operators' duty of care may be prompting change.

Either way, Wincanton has just ordered 100 Mercedes-Benz Actros 2545 StreamSpace 6x2 tractor units all fitted with the OEM's optional safety packs - which include Active Brake Assist 4 (ABA4). That makes this fleet one of the first in Britain to adopt the technology.

Employing a combination of cameras and radar to monitor moving and stationary objects on the road ahead - even including pedestrians stepping into the driver's path from behind parked cars - ABA4 starts by sounding an alert if it detects an impending collision.

If the driver fails to react, it applies staged braking, rapidly moving to full

braking to mitigate or prevent an impact. If an impact is imminent, the warning and partial braking may be implemented simultaneously. Pedestrians can also be detected when the truck turns left or right.

Launched last year, ABA4's ability to react to wayward walkers goes way beyond the requirements of legislation governing the adoption of AEBS (autonomous emergency braking systems). And, according to Mercedes-Benz, it is gaining ground.

LEGISLATIVE PICTURE

Regulations to date have been designed to reduce the risk of trucks colliding with slow-moving traffic on motorways and dual carriageways. Level 1 AEBS became mandatory for new trucks and coaches registered from 1 November 2015, under EC 661/2009 (General Safety Regulation) and EC 347/2012, which lays out technical requirements and test procedures. A Level 2 version, which specifies more demanding deceleration, comes into force for first registrations from 1 November 2018.

Several classes of vehicle remain

exempt from 661/2009/EC and 347/2012 EC however, including urban buses. Nevertheless, at last November's Eurobus show, in Birmingham, ADL for one stated that it was voluntarily working on an AEBS for its Enviro 200 and Enviro 400 vehicles, designed to cope with urban hazards. This should be available by the end of this year - although a challenge is the risk to standees if brakes are applied suddenly and aggressively.

A key word for AEBS, however, is 'mitigate'. The rules do not require a system to prevent a crash, but do demand that it reduces the severity of a collision. As Wabco vice president of engineering Dr Christian Brenneke explains: "Level 1 AEBS is designed to avoid a collision between a vehicle travelling at 80kph with a vehicle ahead travelling at 32kph by a speed reduction of at least 50kph. In the case of a stationary vehicle - say, a car at the tail end of a traffic jam - it needs to reduce speed by a minimum 10kph."

A haptic or acoustic driver warning needs to be provided no later than 1.4 seconds before the initiation of

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Dr Christian Brenneke



emergency braking, too. “So far as Level 2 is concerned, a vehicle travelling at 80kph should not impact one driving at a speed of 12kph,” continues Brenneke. “The mandatory speed reduction will be increased to 70kph. And the speed reduction for a stationary vehicle will be increased to 20kph.”

As indicated earlier, systems are now available which go beyond these requirements. “Wabco’s AEBS OnGuardMax meets and exceeds all global regulatory standards,” confirms Brenneke. “It can deliver full braking when approaching both stationary and moving vehicles ahead to bring the truck to a complete stop when approaching a traffic queue, for example.”

Using radar and a high-resolution camera, this system is likely to appear on trucks towards the end of the year. Launched at last September’s IAA commercial vehicle show, in Hanover, OnGuardMax includes LDW (lane departure warning), a requirement on all newly-registered vehicles since 1 November 2015. Incidentally, Wabco will also offer OnCity, which can apply the brakes if a vulnerable road user appears as the truck turns at a junction.

Meanwhile, the Mercedes safety pack mentioned earlier includes Proximity Control Assist. Working in conjunction with cruise control, it intervenes automatically to limit the truck’s speed



and ensure it maintains a preset distance from any vehicle in front.

EVASIVE ACTION

Manufacturers and OE suppliers are devising other enhanced safety systems. ZF and Wabco jointly developed EMA (Evasive Manoeuvre Assist). This engages if the system detects that AEBS will not prevent a collision. Suitable for tractor-trailer combinations and working with ZF’s electro-hydraulic ReAX power steering, it relies on data from on-board cameras and laser sensors, and takes control of the wheel to automatically steer a truck around the obstacle.

“This system simultaneously evades, brakes and stabilises at all speeds, with

any load on board and with any type of semi-trailer,” boasts Mitja Schulz, senior vice president and general manager for commercial steering systems at ZF TRW. And he adds that letting EMA take control of the steering avoids the risk of a driver panicking, turning the wheel too sharply and rolling the truck. Fortunately, ESC (electronic stability control) became mandatory in November 2014.

Is all this worth the outlay? While specifying safety packages over and above the legal requirement may be laudable, it can prove expensive. Best advice is probably to check what each manufacturer offers as standard and also to revitalise driver training.

“Drivers often misunderstand the haptic warning an AEBS can give them and think there is something wrong with the brakes,” observes DAF Trucks marketing manager Phil Moon. “They don’t realise it’s trying to help them.” And if that’s the case, your truck is liable to end up marooned at the roadside while a technician is summoned only to discover there is no fault at all.

A few basic housekeeping measures might also make sense. “If you allow sensors to become obscured by dirt then systems may switch themselves off,” warns Moon. And a system that puts itself to sleep benefits no one. **TE**

EVASIVE MANOEUVRE ASSIST

