

SHHHHHHHHHH!

On the face of it, electric trucks are ideal for out-of-hours urban delivery work, given that electric motors are far quieter than diesel engines and produce less vibration. But the drivetrain isn't the only source of vehicle noise, finds Steve Banner

Vulnerable road users need to be protected at midnight as well as at midday. While there may be fewer of them around in the small hours, a 24/7 culture (subject of course to the extent of COVID-19 restrictions) mean that the streets of many cities are seldom completely deserted.

So electric vehicles need to be equipped with a 24/7 acoustic alert system to warn vulnerable road users of their presence. The minimum level of noise required is set out in UN/ECE Regulation 138 on Quiet Road Transport Vehicles. At 20kph (12.5mph) it is 56dB(A). All new electric vehicles type approved after 1 July 2019 must meet this regulation. It applies to all new electric vehicles after 1 July 2021.

Aware of the possible nuisance noise generation could cause householders who do not want their slumbers disrupted, Volvo Trucks has developed what it describes as a unique set of premium sounds for its electric models. "They are noticeable enough to warn people close to the truck, but are designed not to penetrate through walls," says traffic and product safety director, Anna Wrige Berling. The sound alters depending on what the truck is doing - moving forwards or reversing for example - and varies in intensity depending on how fast it is

travelling. The frequency changes during acceleration, says Wrige Berling.

Brigade has come up with a Quiet Vehicle Sounder for electric vehicles which makes use of the directional white noise technology employed in its well-established bbs-tek reversing device. The way in which it is designed means that the noise is targeted at people at risk, as opposed to being scattered all over the neighbourhood. It has also developed a system which emits white noise to warn when a truck is turning left.

Says Andrew Scott, head of electric mobility at Renault Trucks: "As a rough rule of thumb, a diesel model with an in-service noise level of 80dB(A) will be around 20dB(A) quieter in electric guise" [Its full-electric ZE rigid is shown at right]. Mercedes-Benz claims its eActros tractor is half as noisy as a diesel equivalent.

BUMPS IN THE NIGHT

While all that seems reassuring, householders may also find their sleep is disturbed by a number of other potential sources of noise that can be found on all trucks, regardless of how they are powered, including the rattling of roller shutter doors, clattering roll cages and whining tail-lifts.

There are ways of deadening the racket, however, says Richard Owens, group marketing manager at body and trailer builder Don-Bur. "Pneumatically-

operated shutters tend to be less noisy than manual ones, especially if nylon components are used, and there are steps that can be taken to quieten the cargo floor," he says. "Remember that alloy floors are horribly noisy." Phenolic-coated plywood floors are far quieter, he points out, especially if any screw heads are fitted flush to the surface and the number of joins is minimised.

"Other measures that can be taken include ensuring that roll cages run on rubber wheels, and that sound-absorbent rubber mats are used whenever possible," advises Denise Beedell, policy manager, vans and urban, at Logistics UK, formerly known as the Freight Transport Association.

Regardless of what type of tyre they run on, roll cages can be noisy by being bounced off the sides of box bodies as they are wheeled in and out. To deal with the problem Don-Bur can install a full-



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height, full length so-called thousand-hole steel wall just inside the body's main panels. Originally designed to accommodate rails and shoring poles for garment carriers, it is also able to absorb the shock and sound of wayward cages. And The Fleet Operator Recognition Scheme (FORS) suggests that plastic roll cages should be considered. They are quieter than their metal counterparts.

Also, a PIEK-certified low-noise tail-lift can be installed says Owens. The PIEK standard was originally developed in the Netherlands. To comply with it, a product must emit less than 60dB(A) at a distance of 7.5m. So far as truck drivelines are concerned, its limit is 72dB(A). Products and trucks that meet this standard are deemed suitable for out-of-hours deliveries because they will not cause disturbance to nearby residents, says the Piek-Keur Foundation, which oversees the standard.

Fridge motors can cause disturbance, so Carrier Transicold has developed PIEK-compliant engineless systems that operate at below 60dB(A) regardless of their power source. Thermo-King's new A-500 Whisper Pro trailer fridge uses geo-fencing technology to automatically switch into PIEK-compliant low-noise mode when required.

MANY CHANGES, FEW RESULTS

Despite the many noise-reducing developments, the London Councils' Transport & Environment Committee has yet to be sufficiently persuaded to change the existing rules. The organisation represents the capital's 32 boroughs plus the City of London Corporation, and is responsible for the London Lorry Control Scheme. It restricts the movement of heavy good vehicles over 18 tonnes maximum gross weight at night and at weekends on specific roads in London. A permit is required for hauliers making collections or deliveries within the hours of control.

In a report produced in June 2017, the committee suggested that an exemption from the scheme for electric trucks above 18 tonnes could be considered. Four years later, no such exemption has been introduced, with concerns expressed about everything from noise from tyres and fridge units to the ambient air noise caused by moving vehicles.

In London and elsewhere, trucks in all weight categories can face locally-

imposed loading and unloading restrictions, and local planning conditions can be in force that limit night-time deliveries to business premises. There is as yet little evidence that electric trucks are being exempted from these constraints.

Attitudes could be changing however, suggests electric trucks newbie Volta chief communications officer Duncan Forrester. He says: "We're getting very positive feedback from local authorities. Night-time deliveries can help resolve a lot of daytime congestion issues."

Meanwhile, Scott at Renault says that more than one operator has identified the reduced noise of an electric truck as a means of opening up a dialogue about restrictions on truck movements in urban areas with local authorities. "I'm not just thinking about the London boroughs, but about cities such as York," he adds.

Such a dialogue may be more fruitful if accompanied by a noise management plan which commits the operator to implementing some of the mitigation measures outlined above. And if planning conditions are the issue, then it may be possible for the owner of the premises to apply to the local authority for an exception to be made for deliveries made by electric trucks under Section 73 of the Town and Country Planning Act 1990.

In making its determination, the authority would also need to consider whether it would result in more noise being generated from the premises themselves. If planning officers conclude that it would, then an exemption is likely to be refused. One way of pre-empting such a refusal could be to make the buildings themselves less noisy. FORS believes that acoustic linings for loading bays could be worth considering. [IE](#)

FURTHER INFORMATION

*Retiming deliveries (TfL) – www.is.gd/colefi
TfL code of practice – www.is.gd/revixu*

