

'IRTE Wheel Security, a Best Practice guide' can be downloaded from www.soe.org.uk/resources/technical-guides

SAFE & SOUND

Wheel security has been an uncomfortable issue for many years, with detachment events, although rare, potentially causing carnage. John Kendall reviews additional problems and solutions

The IRTE best practice guide on wheel security identifies an issue most operators accept: that wheel security remains a potentially serious problem.

It is a decade now since TRL (Transport Research Laboratory) published the DfT-commissioned report that scoped the problem at 7,500–11,000 CV wheel fixing defects annually. Those, it suggested, result in 150–400 wheel detachments per annum, resulting in 50–134 damage-only incidents, 10–27 serious injury accidents and fatalities in 3–7 cases.

Historically, the problem has been mainly due to inadequate wheel inspection, preparation and cleanliness – as well as incorrect nut tightening. Over-tightening causes damage to studs and nuts, while under-tightening leads to insufficient clamping force and nuts that work loose. Correctly set torque wrenches help but, on their own, are not the answer. And while wheel nut accessories – such as Disc-Lock's safety wheel nut, Checkpoint's indicator or Ric-Clip's locking system – help to reveal or prevent nut slackening, correct procedures remain key.

But legislation is changing. *Transport Engineer* reported on the European Roadworthiness Package passing into law in July 2014. As a result, UK legislation comes into force on 7 May 2017 mandating that compatibility be treated as safety critical – meaning hubs and wheels must be correctly matched.

But how can this be guaranteed? MWS Distribution – which originally

reported that vehicles fitted with star- or spider-shaped hubs (designed to reduce weight) were seeing cracking around wheel securing holes – has a convincing answer. That problem was due to the lack of circumferential fit, meaning wheels had been sustaining forces beyond design limits. But other issues concern wheel load ratings: technicians replacing wheels at the roadside during wet, cold nights may not be checking replacement wheel ratings as carefully as they might.

MWSD's solution is about getting procurement and supply right before technicians even pick up their torque wrenches – and ATS Euromaster is an early adopter. "We supply the right wheels in their system," states MWSD managing director John Ellis, explaining that this prevents its 300-plus depots

from sourcing their own wheels off piste.

"Now they have a procurement process and we supply them with part numbers, so managers have control, compliance and a complete audit trail. Goodyear Dunlop TruckForce ... are now running the same sort of thing. Some of the big bus companies are also using this process." And Ellis adds that MWSD is now rolling out across Europe.

He also states that, with wheel manufacturers concerned about the lack of aftermarket replacement data, moves are now afoot to "feed information back to each other, so that the aftermarket understands these problems". Wheels already carry load rating information, as do tyres. But this approach adds another dimension – ensuring the correct matching of wheels and hubs whenever there is a need to change a wheel. **TE**

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