

TIPPING THE BALANCE

As the CLOCS (Construction Logistics and Cycle Safety) standard starts to spread its net nationwide, tipper builders and operators are having to rethink even some of the basics. Brian Tinham reports

Was the time when, for the most part, if you needed tippers, the deal would be about the body type and manufacturer, tipping ram and accessory selections to suit the mix of loads and tipping operations. Granted, there were also choices over the chassis cab manufacturer, but the world was mostly wedded to construction specification 8x4 rigids (6/4x4/2 for smaller jobs) and they were viewed by most as much of a muchness – aside from residuals, sophistication, etc.

Then along came tipping trailers and subsequently walking floor trailers, both offering far greater payloads, although initially raising eyebrows over stability and site access. Recent years have seen both usefully refined, though, mostly under joint development projects between bodybuilders and some of the larger aggregate/asphalt and animal feeds contractors. And, although they remain relatively rare beasts for most fleets, stability is now comparable to – or generally better than – that of 8x4s (certainly for walking floor units) and manoeuvrability isn't particularly disadvantaged. Further, accessibility for specific operations is unbeatable and

the massively increased capacity – typically 29.5–31 tonnes – is incontestable. The only remaining debate is how quickly the higher upfront artic price can be recouped by some 40% reduced operating costs.

Well and good. Now, however, with the rapid growth in demand for the CLOCS (Construction Logistics and Cycle Safety) standard and FORS (Fleet Operator Recognition Scheme) accreditation way beyond London and the South East, operators are being challenged to think yet again. It's all

Volvo showed a prototype 3.9m wheelbase FE 320 6x2 rigid at CLOCS Progress, designed for urban hooklift and tipper bodies. That certainly looked promising, with its glazed nearside door, including behind the 'B' post. "It sits 200mm lower than an 8x2 with the cab forward 600mm, similar to the Eonic," explains Volvo's John Comer. "An advantage is that it has full air suspension... A disadvantage is that it needs a subframe, which means losing about 300kg capacity. We haven't finished that project yet and are still in discussions with customers in London about where to take it."

about improving drivers' direct visibility of vulnerable road users and especially cyclists on the near side.

So the talk today, driven by TfL (Transport for London) and increasingly the industry, is around seriously considering sacrificing construction operators' long-held preference for N3G off-road specification trucks in favour of lower (and lighter weight) on-road N3 types. Meanwhile, the OEMs – especially Mercedes-Benz and Volvo Trucks – are pointing to the potential of low-entry cabs and ultra-maneuvrable tridems.

For operators like John Owen Aggregates and NJB Recycling, these are challenging times with no easy answers. As Leon Gull, managing director of John Owen Aggregates, says: "I would love to operate lower trucks, but we wouldn't be able to get them on and off our building sites." And Jamie Bowie, managing director of NJB Recycling: "Yes, there's very little off-road work now, but that could change – so I'm still buying construction spec trucks. Our fleet has to be versatile, or we could risk losing half our business."

For Gull, recent purchases have all been DAF Euro 6 CF FAD eight-wheelers (adding to a 20-strong all DAF





The Mercedes/Cemex demo tipper, with body by Wilcox, was demonstrated at the recent CLOCS Progress event

fleet), the criteria for that choice being value for money, robustness and reliability – and local dealer Chatfields being just down the road for R&M. He goes for lightweight Aliweld aluminium tipping bodies, with double back door hinges and Harsh underfloor tipping gear and sheeting, for much the same pragmatic reasons, changing his trucks every three years while they're still under warranty. His only variants to date: one four-wheeler tipper for retail loads and one Weightlifter tipping trailer, capable of delivering 31-tonne payloads.

SAFER TRUCKS

However, he's acutely aware of clarion calls for safer trucks. "We have invested in side and rear underrun bars and reversing cameras, and all our drivers go through a vulnerable road users course with the British Aggregates Association as part of their CPC. But I know our trucks aren't up to the London [CLOCS] standard – and that will come to Sheffield and Leeds soon enough."

It's a similar story at Wimbledon-based NJB Recycling, which this year took on its first Euro 6 DAF CF 440 FAD 8x4 eight-wheeler, with Marshall tipper-

bodywork and an Epsilon E120 crane and grab, for its basement excavation business. "We find the DAF chassis hardwearing and reliable, and service is good from the dealer – that's all it has to be for our operation," quips Bowie, pointing to another recently acquired CF eight-wheeler and three skiploaders. "They're all much of a muchness, and the only real difference is the cab complexity and residuals – which is why I'll be buying some Scania's next."

That said, he is also well aware that today there's more to it. "We've had eight new vehicles in the last six months and all were specified for Crossrail, with side scans left and right, side underrun bars, front cameras and left-turn audible warnings. We're also fitting all our older fleet with underrun bars and camera systems... And we're in Wimbledon, so we're applying for FORS. Next we'll look at CLOCS."

Importantly, though, both concede that, if the recent diktats from CLOCS are to be met (*Transport Engineer*, April 2015, page 38), something fundamental has to change. "The problem is that drivers only have two eyes, and they already have six mirrors and a reversing

camera," comments Gull. "Adding more cameras, electronics and screens is a worry. And what happens if one breaks and there's an accident? I'd like to see cabs with better direct vision, and that means lower seating positions and more glass – but they have to be high and robust enough for our operations."

One answer is better windows on the nearside, as advocated by Volvo Trucks with its latest interim offering. Product manager John Comer says the extra window, which sits beneath the standard glass, can be retrofitted in situ on FM and FMX trucks. The process involves cutting the window line, inserting a steel frame, and using structural adhesives to fix and seal the glazed panel. "Four of our dealerships have been trained to fit them," advises Comer, adding: "As the upper window is locked in position, air conditioning is a useful option." He also points to the alternative design available on the FL, as displayed at the CLOCS event in London by construction operator O'Donovan on its skip truck.

What about chassis based on low-entry cabs, such as Mercedes-Benz's Econic or Volvo's FE LEC? Both would mark a significant departure from the

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standard N3G eight-wheeler on beefed-up steels, and you have to ask whether vehicles that have made a name for themselves on RCVs (refuse collection vehicles) could cross over. But the plain fact is that, with a tridem arrangement providing front- and rear-steer plus dual drive axles in the centre, there is the basis for a highly manoeuvrable, surprisingly lightweight, yet functional vehicle type. Add in air suspension all round and you get the best of both worlds on ride height and drivability –

low and well glazed for driver vision on-road, and high enough for off-road, with the added advantage of a lifting rear axle to assist traction.

TRIDEM TRANSFORMATION

Mark Luck, director of FORS-accredited Mark Luck Transport, says tridems could be a winning formula. He should know: his Swanley, Kent-based firm, which runs a fleet of 40 Volvos, didn't go the LEC route, but recently commissioned the first Volvo FMX 8x4 N3G tridem-based

tipper in the UK, and he says it's the best he's ever driven. "Manoeuvrability is great: the turning circle is almost half that of a conventional tipper and it doesn't cut into bends, like an 8x4. It just follows the line like a car. Also, with air suspension throughout, you can put more weight on the drive axles off-road. Ground clearance is good, too, from all angles. We've never got stuck. So it's good on- and off-road."

His truck was mounted with a Thompsons steel tipping body without a chassis subframe. Instead, a top-mounted shear plate was fitted to provide additional bracing at the rear. Since it was the first in the UK, the truck was also tilt-tested at QinetiQ, in Chobham, and achieved 7 degrees without air in the rear suspension.

Luck's only caveats: it's about 400kg heavier than a regular tipper and there is a price hike. "For us that was about £8,000, but we wanted a flagship vehicle, so we specified all the extras, including the 540bhp engine, I-Shift gearbox and Volvo's Dynamic Steering." Luck describes the electronically-assisted steering as lovely, but agrees that standard kit and lower power would be less expensive. He also argues that, if

Tipper or trailer?

So what's it to be: a tipper, tipping trailer or walking floor trailer? Bodybuilder Wilcox director Chris Bartlett believes it's still horses for courses, but that the industry needs to understand that, when it comes to stability, tipping semi-trailers are at least as stable as conventional 8x4s.

"We've tested a rigid and around 6 degrees is the best you can achieve, but all our tipping trailers exceed 7 degrees. And if an operator needs something better, we have chassis designs capable of 9 degrees," he says. Bartlett explains it's all about maximising the stiffness of the back end over the suspension and under the tipper hinge. "What happens between the rear suspension and the sledge plate makes little difference and neither does the ram itself."

For him, the other consideration should be walking floor trailers, which, for obvious reasons, score highest in terms of safety. "You can also lay asphalt under bridges or power lines, etc, and there is no danger."

What about difficult products and discharge times? Geoff Howard, fleet sales

manager for Paneltex Martrans, says that, whereas those used to be problems, developments – including with PTO control and plank-sided bodies – have led to systems capable of clearing 28 tonnes of hot asphalt in just four minutes.

He also tackles what he sees as manoeuvrability misinformation. "Our calculations show that the turning circle of a non-tipping trailer with a six-wheel tractor is very similar to a 5.2-metre wheelbase eight-wheeler. With a skilled driver, artics are almost all as manoeuvrable that eight-wheelers."

So the real debate concerns payload differential, industry and driver preference, access, robustness and payback period. With Euro 6, tippers struggle to offer 20 tonnes, while tipping trailers with lightweight tractors can reach 31 tonnes – although most run out at 30. Walking floor trailers are in the 26.5–27 tonne bracket. Then you're into cost-per-tonne-delivered calculations. In the end, there's no denying that, if your tippers require regular off-road capability, then 8x4s of any configuration are unlikely to get stuck or damaged.

The Complete Range

volumes rose to meet growing demand, prices would become more attractive.

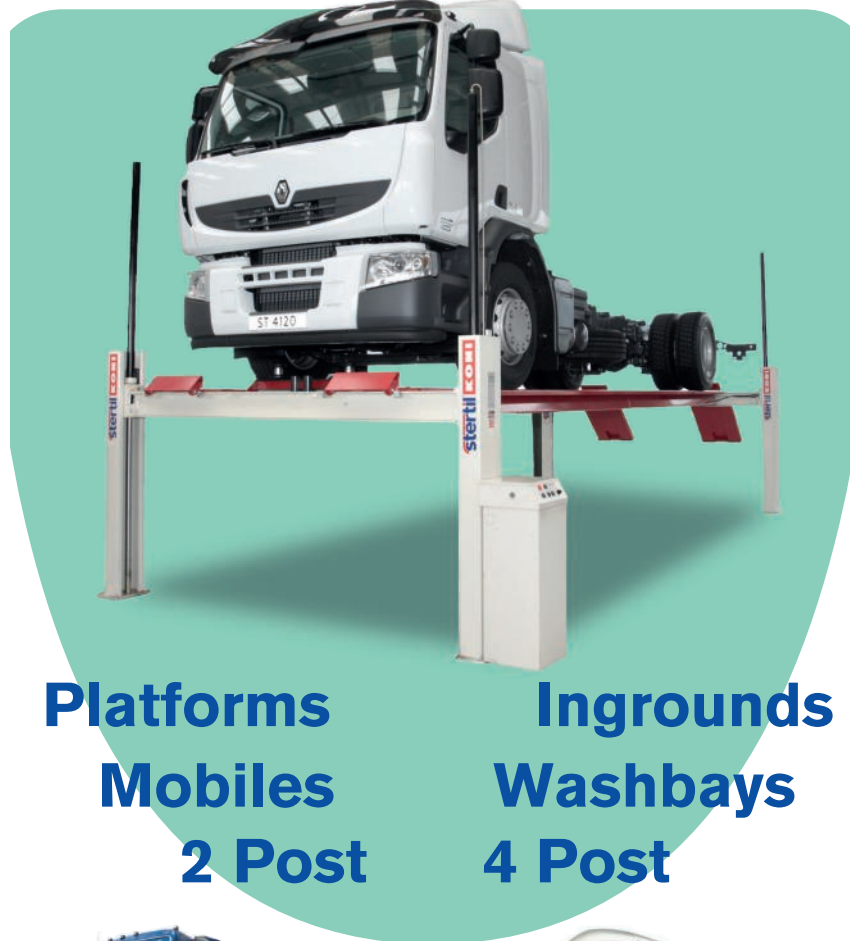
What about a full LEC? Wilcox was responsible for the Mercedes/Cemex CLOCS demo tipper - with its Econic front end and tridem chassis (pictured, page 29), shown at the CLOCS Progress event - and director Chris Bartlett believes it could be big. "It has front- and rear-steer with the middle two axles driven, which gives it six-wheeler manoeuvrability. It also has the low-entry cab with fully glazed doors, which means better driver vision," he explains.

And the body? "We fitted an aluminium insulated Wilcolite smooth tipping body with automatic tailgate and sheeting system. We also fitted sideguards and, for CLOCS, nearside warning graphics, proximity sensors and all-round cameras, as well as a loading camera." Bartlett concedes that, because the chassis is slightly low, Wilcox had to fit a steel subframe to avoid clearance issues with the tyres. However, he says the chassis is one of the lightest the company has handled, "so payload is as good as any other eight-wheeler".

Access performance and stability? "Econic has been around the off-road course at Millbrook and, being on air, you can vary the suspension height, so it's just as capable as Mercedes' Arocs. You can also take load off the rear axle and drop it on the driven axles, which can be an advantage over mechanically suspended trucks."

All good points, but what about the price? Bartlett reckons the subframe adds £1,000 while, because the Econic is an N3 unit, Wilcox had to fit spray suppression for type approval, which adds another £300. They're not deal breakers but there is the £18,000 hike for the Econic itself - although, again, increasing volumes could change that. Another issue might be the Allison automatic gearbox, but Mercedes insists that a switch to the industry's preferred Powershift 3 AMT (automated manual transmission) will not be a problem.

As Owen Aggregates' Gull says, it makes you think, doesn't it? [TE](#)



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