

# Not much LONGER?

The Department for Transport (DfT) is looking to end the longer semi-trailer (LST) trial. So what's next, and what do you need to know if their operation is de-restricted, asks Peter Shakespeare

**D**ft's consultation on LSTs closes the first of this month. While the trial of semi-trailers of up to 2m longer than standard units was planned to run until 2027, it said in November 2020: "We believe the trial has reached a point where continuing is unlikely to provide useful results and that remaining issues relating to safety can only be answered outside of trial settings."

The trial started in 2012, and was, in part, a response to calls by elements of the UK haulage industry for the UK to adopt the 25.25m European Modular System (EMS) popular in Scandinavia and the Netherlands. DfT's 'official' position on EMS vehicles is they are not suitable for the UK's road infrastructure. However, it conceded the use of larger goods carrying vehicles could lower carbon emissions resulting from fewer LGVs journeys, which would also ease congestion.

According to DfT, the ongoing trial now involves 2,600 LSTs and 228 trial participants. The consultation sets out the data averages up to the end of 2019. LSTs have reduced articulated lorry journey numbers by 8%, equating to 54 million vehicle kilometres saved. It estimates this translates to 48,000 tonnes fewer CO<sub>2</sub> emissions and 241 tonnes of NO<sub>x</sub>. In terms of their impact on road safety, DfT says that on a per-

kilometre basis, LSTs have been involved in 53% fewer personal injury collisions and casualties than other British registered articulated HGVs.

LST manufacturers include Cartwright Trailers, SDC Trailers, Tiger Trailers, Don-Bur, Gray & Adams, Lawrence David, Muldoon Transport Systems and Montracon. Don-Bur has been a strong advocate of the LST from the outset and has supplied DHL, Argos and Bibby Distribution. Group marketing manager Richard Owens says the company would welcome an end to the trial: "Operators have certainly expressed a keenness for the trial to conclude, and since the LST consultation announcement, in November 2019, we have witnessed a surge of new enquiries from a variety of operators."

## LICENSING PLANS

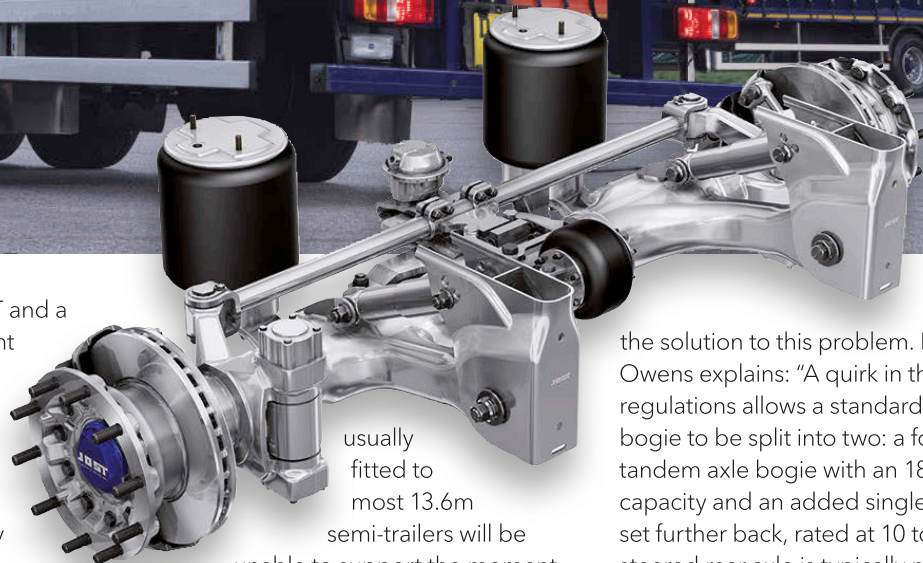
DfT's preferred policy option for the future of LSTs is to lift the current 2,800 trailer trial limit and allow the whole of the freight industry to have unrestricted access to them, making a significant contribution to reducing emission levels. It is proposing additional regulation beyond that in place for standard 13.6 metre trailers which takes into consideration concerns raised regarding LSTs being operated on inappropriate roads. Extra regulatory measures include accident reporting, mandatory driver training - which must be repeated if



using different designs of trailers - route risk assessments, recordkeeping and compliance checks and processes for informing drivers of road closures.

Projections under DfT's preferred scenario suggest that in a decade's time about 16,000 LSTs could be operating - approximately 8 to 10% of the UK's domestic semi-trailer fleet.

Richard Owens offers a note of caution. "Despite the undeniable volume improvement (15%) and the improved efficiency that LSTs bring, they must still be operated within the maximum plated gross vehicle weight limits. To a certain degree, the successful trial has been biased toward those operators who will naturally benefit from increased volume without exceeding the standard 44-tonne limit. Many operators already running anywhere near the maximum Construction & Use (C&U) weight limit will understand that the slight increase



in trailer tare weight for an LST and a 15% increase in payload weight may exceed their permissible running weight.

He adds: "If the government does regulate LSTs for normal operation in the UK, there will undoubtedly be a significant uplift in the number of LSTs purchased; many of which will replace large chunks of the existing UK trailer market. With the above in mind however, LSTs will have a restricted market and an 8 to 10% proportion of the UK trailer pool seems ambitious without also increasing the standard GVW limit."

Steering axles (such as the Jost SteerMaster, pictured here) are not a DfT minimum requirement for LSTs. But Don-Bur says that due to the natural rearward shift of average weight on an LST, it is likely that the single axle bogie

usually fitted to most 13.6m semi-trailers will be unable to support the moment (weight times distance) created at the maximum 8.135m wheelbase required for turning circle requirements. In order to maintain standard C&U turning circles, this wheelbase cannot be exceeded. Turning circle requirements for both 14.6m and 15.6m LSTs are therefore a minimum of 5,300mm, with a maximum of 12,500mm. While there can be an increased tail swing of up to 0.74 metres, LSTs still need to comply with C&U manoeuvrability requirements.

For trial semi-trailers, a rear-steer axle (such as in main picture above) has been

the solution to this problem. Richard Owens explains: "A quirk in the C&U regulations allows a standard single bogie to be split into two: a forward tandem axle bogie with an 18-tonne capacity and an added single axle bogie set further back, rated at 10 tonnes. The steered rear axle is typically needed to firstly ensure the trailer continues to pivot around the front tandem axle bogie and secondly to overcome the huge tyre scrub the rearmost axle would otherwise have to endure, being so far away from the trailer pivot point when turning.

"There are primarily two types of steer axle used on LSTs. Self-steer axles remain the most common, due to their lower weight and cost. Each wheel at the end of the axles is permitted to turn relatively freely around a pivot point close to the end of the axle" - these are like a castor wheel on a shopping



## AN LST OPERATOR'S PERSPECTIVE

Adam Purshall, fleet director at Bibby Distribution (pictured), says he is excited that the LST trial might be coming to an end. "We believe it is well overdue, as the trial has been very well run.

"From an operator's perspective, LSTs have been very successful within our business and the data shows their safety and environmental impact has been overwhelmingly positive. We will be pushing for as little regulation as possible, as responsible operators will be doing the right thing in any case. During the trial we have conducted assessment of routes, loading points and delivery points, driver training and management and maintenance of the trailers. These are things that we would do in any case, so we see no reason to gold-plate the existing regulations."

Purshall says Bibby didn't take its full trial allocation. "We are currently successfully operating 25 trailers and with six years of the trial left, it is difficult to make financial or operational commitments. Trailers are operated for between seven to 10 years, so that's why DfT needs to move LSTs on to the next phase."

According to Purshall, LST cost uplift is around 15% for a 15.65m self-steer, but the benefit is demonstrable from the trial data. "They are not suitable for every operation, so it is about ensuring they are in the right place on the right operation, where we can get the benefit and they can be operated safely," he says. "We transport a lot of volume: primary packaging, cardboard, food and drink containers, so LSTs are suited to these traffic flows and contracted volumes. Bibby Distribution went for 100% 15.65m and this has been the same for majority of operators, according to DfT figures.

"The trailers have been completely reliable and can be integrated into our standard maintenance regimes. There is a little bit more maintenance required around the self-steer mechanisms. However, they work well, and we haven't seen any increase in tyre wear," Purshall concludes.



trolley. As the trailer turns, the wheel is pulled by the road surface in a direction which minimises tyre scrub, adds Owens. These axles typically add another 125kg to a normal axle weight.

### THE CHALLENGE

The challenge with self-steer axles has always been manoeuvrability. While their behaviour in a forward motion is predictable, the castor wheel's nature becomes more problematic in reverse, when the rearmost axle becomes the leading axle. There are axle-locking features on self-steer axles to fix the longitudinal direction of the wheel to remain in line with the others, but the distance between the steer axle and the trailer pivot point alters turning ability significantly.

"Positive steer axles, in contrast, offer superb manoeuvrability both forward and backward, but are significantly more expensive and typically add another 800kg to include the mechanisms, turntable and chassis alterations. They work by linking a special assembly around the fifth wheel to a rotating turntable which, in turn, houses the axle. As the tractor turns relative to the trailer, so too do the axles, but in the opposite direction," he says.

Don-Bur trialled another system

on the 1999 concept 'Donny Rear Steer' 16m long trailer which used a combination of both bogie turntable and controlled steer wheels to ensure the bogie followed the same path as the tractor. A variation on the theme, but controlled by electronics, was used by the Cambridge Vehicle Dynamics Consortium. Neither solution was used in the trials or been mass-produced to date, the Don-Bur marketing manager points out.

All of the mainstream axle OEMs provide a self-steer drum or disc-braked solution, including BPW, Jost and SAF. Valx offers an alternative.

For a positive steer axle, however, the principal manufacturer is Tridac (acquired by Jost in 2008), although BPW also offers an electro-hydraulic, hydraulic or mechanically controlled steered axle, with pivoting hubs on the axle beam. The company also offers fifth-wheel steering where a rigid axle is mounted on a turntable that can be controlled mechanically or hydraulically.

The LST has escaped national media attention: an artic is an artic in the general public's eyes. A small increase in GVW would maximise their potential, but it seems overall the trial has been a great success. Have they paved the way for 25.25m? Only time will tell. **TE**