



# MEAN MACHINES

With the British truck racing championships well underway, Brian Tinham talks to leading talent Stuart Oliver about the engineering behind the action

**Team Oliver Racing takes the lead at the Brands truck racing Superprix weekend**

**T**ruck racing is awesome. It's like Formula One for giants on steroids – with a raw energy, thunder and sheer muscle you just don't get from anything weighing less than 5,300kg being ragged around a track.

So it was at Brands Hatch in Kent on 18 April, when nine-times British Truck Racing Association champion Stuart Oliver secured a hat-trick of victories, winning the grand final at this Truck Superprix. After winning the shootout, Oliver started the final encounter of the weekend in pole position and led from lights to flag, confirming his position as



the UK's leading truck talent. He also scooped victory in the first Class A race, giving him a healthy lead in the overall championship standings.

But what's behind these mighty machines and, for that matter, their drivers?

"My background is road transport through and through," reveals Oliver. "I'm a qualified mechanical engineer and I've been in trucking all my life. I run Martin Oliver Transport, the haulage business started by my father out of Hexham and Cannock in the West Midlands, but I've also been running my own truck race team – Team Oliver Racing – for 12 years now."

Trucks are his passion and he explains that, for him, the affiliation is firmly with MAN. "I race a MAN TGX 4x2 with the L day cab. It's basically standard, but stripped right out and fitted with a heavy-duty roll cage, which is fastened through the cab floor onto the chassis," says Oliver. Not that MAN is the only show in town: the Brands British Superprix fielded 22 tractors, including vehicles from Mercedes-Benz, Renault, DAF and the old ERF –

and the European events have many more variants from other makes.

“Basically, the regulations governing truck racing are the same as those in Formula One, under the FIA [Federation Internationale de l’automobile],” explains Oliver. “Racing trucks have to be derived from series production trucks. So they must have standard chassis rails; the axles have to be in series production; and the silhouette of the racing truck has to match the road-going truck as closely as possible. But that’s where the similarities stop.”

He starts with the engine. “My MAN’s engine is a six-cylinder D26 common-rail diesel – but it has been heavily modified as part of the MAN research and development programme in Germany, which they use not only to improve race performance, but also to prove engine refinements on production trucks.” Heavily modified? “My race engine has a standard MAN engine block, but with steel pistons, instead of aluminium, to provide tighter tolerances and handle the higher compression ratio. It also has a different camshaft, higher pressure and volume fuel injection system, and different inlet and exhaust manifold. Oh, and it’s also got a bigger than standard turbocharger. All that takes it up from a standard 480hp engine to about 1,200hp. But the best part is the torque, which on my race engine is 5,000Nm, compared with 1,400–1,600Nm on a standard unit.”

Now you begin to understand that thunder: this is no ordinary machine. What about that camshaft? Oliver explains that the difference is to allow for more extreme variable engine valve and injection timing.



“The ECU is highly modified and capable of injecting much more fuel for much longer periods,” he says. “That’s part of what gives us the scale of increased power. We also have a ceramic single-plate clutch running into a relatively standard 16-speed ZF manual transmission. It’s a larger box, though, so that, as the momentum of the drive goes up, the gearbox can cope. If anything is going to fail, it’s the engine.”

### Keeping on track

The axles are pretty special too, adds Oliver. “We’ve got a fully locked 3.71 ratio rear axle, which gives us the maximum 100mph at 2,600–2,700rpm. We also have three-way, fully adjustable dampers on dual leaf springs front and rear, but they’re also upgraded. The rear units, for example, are upgraded leaf springs, with a torsion bar on top of the axle from a cross member, to stop the axle from twisting and to take some of the stress off the springs. There’s also an adjustable anti-roll bar system on the rear axle, which we set according to the track history and live data from our on-board telemetry system.”

That system monitors suspension movement, roll and pitch, but also the engine management system, braking, brake temperatures and steering geometry – all in real time, with the data presented to the team’s track technicians in the pit.

And it doesn’t stop there: “At Brands, we do 15 minutes of racing. In that time, we use about 60–70 litres of diesel and 220 litres of water. That’s sprayed onto the vented brake discs, but also onto the engine intercooler. We need to keep the brakes cool at 300–500°C, but we also need to reduce the air induction temperature to maximise oxygen intake at the engine’s pressurised inlet.”

So, his truck may look vaguely like a TGX, but there’s not much standard – even the cab and chassis. Oliver explains that, because the cab is solid mounted to the chassis, the latter is fitted with a stiffening subframe. “Also, the engine is moved rearwards, because we’re running on the minimum weight of 5,300kg and, to meet the regulations, 3,300kg of that has to be on the front axle. And, it’s important to get the centre of gravity as low as possible. That’s why we move the engine back 80cm, but also 30cm down in the chassis.” **TE**

## European truck racing season blasts off

MAN tells us it has also been focusing on the European Truck Racing Championships, which, as we go to press, are about to blast off in Misano, Italy. Eighteen drivers from 10 countries and seven truck brands promise to make the season an exciting one.

MAN teams Allgäuer, Birds, Cepsa, Hahn, Mariezcurrena and Robineau spent four days in mid-April at Nogaro, southern France, honing the performance of their race trucks, with MAN race engineers on hand to optimise suspension for the trucks, some of which have been freshly constructed for the new rear axle FIA regulations.

Team Hahn Racing is one that has put together a new MAN TGX race truck during the off-season. Says driver Jochen Hahn: “The engine is noticeably more powerful than last year. You can see that in the lap times and the acceleration. The fully-locked rear axle, which is new because of changes to the regulations, is completely under control.”

