



THE LIFTING PUSHER ON THE RISE

Truck manufacturers seem to have discovered a new niche in the market, the lifting pusher axle is on the rise and is appearing in a Diesel test drive for the third time in eight months. This time **Tim Giles** runs the Hino GH through its paces.

It is difficult to gauge why the last year or so has seen more pusher axles on rigid trucks available for test than in the rest of the century. There are a number of possible reasons, some obvious and some not so plausible. The one fact we can be sure of though, pusher axles have now become a thing.

Is there pressure out there in the truck market for a pusher axle? Are truck buyers wandering into dealerships and asking for a 6x2 or 8x2 with a pusher? The answer to these questions is probably no, but there are lots of operators in the distribution sphere who are looking to improve productivity and flexibility within their fleets. Costs are a big factor so reduced fuel consumption and lower tyre wear are attractive benefits.

Utilisation is also on the minds of truck buyers. In a distribution scenario the route may need a four wheeler one day and a six wheeler the next. In another scenario a truck may go out with a light load for multi-drop delivery, but return to base with a heavier load requiring three axles.

There is a third possibility. After a crazy 10 years from 2002 to 2012 in which engine emission rule changes meant new engines and technologies had to be engineered into every range of trucks every few years, we are now looking at a hiatus, which may stretch out until 2027 before the ADR 80/04 rules come into play. This has given the engineering teams the time to play with

other gadgets, like lifting axles.

The model Diesel is taking out on the road this time is the Hino GH 1832, but this is not an 18 tonne GVM (Gross Vehicle Mass) truck. By fitting a lifting pusher axle the GVM goes up to the mid twenties. This is not an issue, this 320hp nine-litre engine has got power and torque to burn, making it able to cope at max GVM with relative ease.

The Hino A09C-US engine puts out 320hp (235kW) of power, reaching its maximum power at 1800rpm. Maximum torque, at 1275Nm (940 ft lb) is available all the way from 1000rpm up to 1850rpm. The engine uses common rail fuel injection and SCR to achieve this level of performance and keep inside the confines of the ADR 80/03 exhaust emission limits.

The lifting system or the pusher axle works in the same way to many a similar set-up with the truck acting as a 4x2 with the axle raised until it senses over six tonnes mass on the drive. The axle is then lowered to help carry the mass. Six tonnes is the level set by the regulations, but the reason for this is difficult to fathom. A normal 4x2 can operate with the mass on the rear axle up to at least nine tonnes, go figure.

A more rational approach to the way these regulations are laid out would introduce even more flexibility into the equation. If the second rear axle didn't drop until nearer the nine tonne limit, the truck operator would have an effective 4x2 which would only increase fuel



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consumption and tyre wear when running at over 4x2 GVM limits.

In fact, this particular model would be capable of even more flexibility as it is also fitted with a Ringfeder tow hitch. With the right dog or pig trailer on behind this truck is able to get up to a GCM of 38 tonnes. This mass figure is not quite so important as the kind of volume a combination of this truck and a similar sized trailer could handle.

The traction issues around the 6x2 configuration in trucks most often refer to the situation which affects those fitted with a tag axle. These have been reported to lose traction going over a spoon drain or transitioning onto a steep drive from the road. These sorts of problems are

much less likely to occur when the lazy axle is a pusher, in front of the drive. If something does occur which causes some slippage the ASR system can intervene, braking the spinning wheel and redirecting power to the other wheel, but if both wheels are off the ground they will spin.

From a weight distribution perspective a pusher axle is, often, the only one that makes sense. The weight distribution is spot-on as both a 4x2 and 6x2. A lot of the freight customers buying this kind of truck can run quite long distances with little weight on board, but need to run top mass up to 23 tonnes occasionally.

Out on the road, and in Diesel we seem to be saying this all of the time, the

combination of an engine with plenty of power and torque with the Allison transmission is a no-brainer. The engine gives the transmission plenty to play with and the transmission is smart enough to get the best performance out of both.

This is the Allison 3200 six speed with double overdrive in this model and the mass we are running with is just under twenty tonnes all up. It knows when to dig in and when to ease off. Engage the exhaust brake and take the foot off the gas and the auto immediately goes through a down-changing sequence to get the best out of the retardation which maximises the limited capabilities of the exhaust brake system.

The power at hand was amply demonstrated on a run up and over the Toowoomba range. The truck was well-loaded and never dropped under 40km/h on the incline. Coming back down the range was equally as impressive. The



right brake application at the top to get to the desired speed and the fact the Allison includes an inclinometer and therefore knows it's heading down a steep grade, meant this driver could take his feet off the pedals and let the engine braking take the strain because the auto would not upshift. Just a few short brake application got us back down the mountain with plenty to spare.

The recent reboot of the wide cab 500 Series by Hino has eventuated in a good solid performer with a comfortable and functional working environment for the driver. In this, the Isri 6860 driver's seat is a great help.

The truck has cruise control as standard and this model has been fitted with the push button version of the transmission control. This doesn't take up so much room and doesn't impair cross-cab access for the driver. The control could even migrate across to the dash and create more space, for the low number of times the driver needs to

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intervene and press a button while the truck is moving.

With cruise control on and an open highway stretch, full bluetooth connectivity to the entertainment system would have been the icing on the cake. Yes, the all-singing and all-dancing double DIN screen does have a lot to offer, including acting as the screen for the reversing camera, but the driver does have to plug in the auxiliary cable to listen to their own tunes. There is also a distinct lack of storage space in this cabin, although the drinks bottle holders certainly pass muster.

Out on the road, a few more features which have been added into the mix for demonstration purposes, come into focus. One is the Wabco OnLaneALERT system which uses a small camera

mounted centrally at the bottom of the windscreen to monitor whether the truck is keeping in its lane or drifting. We have seen proprietary systems like this in trucks from the European manufacturers for some time, but this is available as a retrofit product.

The first time the alert went off it was a bit of a surprise, we have become used to this type of technology in a top end high tech prime mover, but in an urban distribution truck? In fact, the technology is useful and doesn't annoy by going off when the indicators are being used. It is also capable of sending a video feed of what it's seeing though a fleet management system if it has the right interface.

There is also a feature that detects lane wandering by a drowsy driver. If the

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truck is moving back and forth within the lane, when the driver is suffering from fatigue and subject to long blinks or short micro-sleeps, it buzzes out of both left and right speakers as a warning to the driver to pull over.

In time, Hino expect to offer a factory-fit solution to handle the lane keeper task, but this Wabco system means current buyers who are looking for this kind of safety system have the option if they so choose.

The truck also uses TailGUARD, another system from Wabco and also available as a retrofit item. This has been used on trailers in the main, but is effective at the rear of the truck. It is enabled when reverse gear is engaged and uses a series of sensors across the



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rear of the truck, which are monitoring the distance to any object in the trucks path. The ideal positioning of the sensors is reckoned to be having four across the bottom of rear of the body and two either side at the top corners

If the truck is being reversed at a speed above 15 km/h it will automatically pulse the brakes to warn the driver they are going too fast. As the rear of the truck approaches an object the brakes will automatically activate when the truck reaches a preset distance away. This can be set to be various distances, in this case, 0.5 metres.

As the truck approaches this limit the in-cab monitor will light up and beep as it approaches any object. When the red light comes on, it will apply the brakes. Then the system waits for three seconds before releasing the brakes, allowing the driver to then ease back onto a dock or apply the handbrake and get out to unload or move the object.

At the end of the day, we still need to ask ourselves why the 6x4 is so dominant in the Australian truck market, when the fuel and tyre cost savings can be so substantial and the limitations of the 6x2 set-up minimised in many applications? If the truck is in and out of driveways, delivering into very uneven freight yards or spending a lot of time off the bitumen, yes, the two drive axles are warranted. In many other cases a 6x2 would do the job with no fuss and lower costs. **IID**