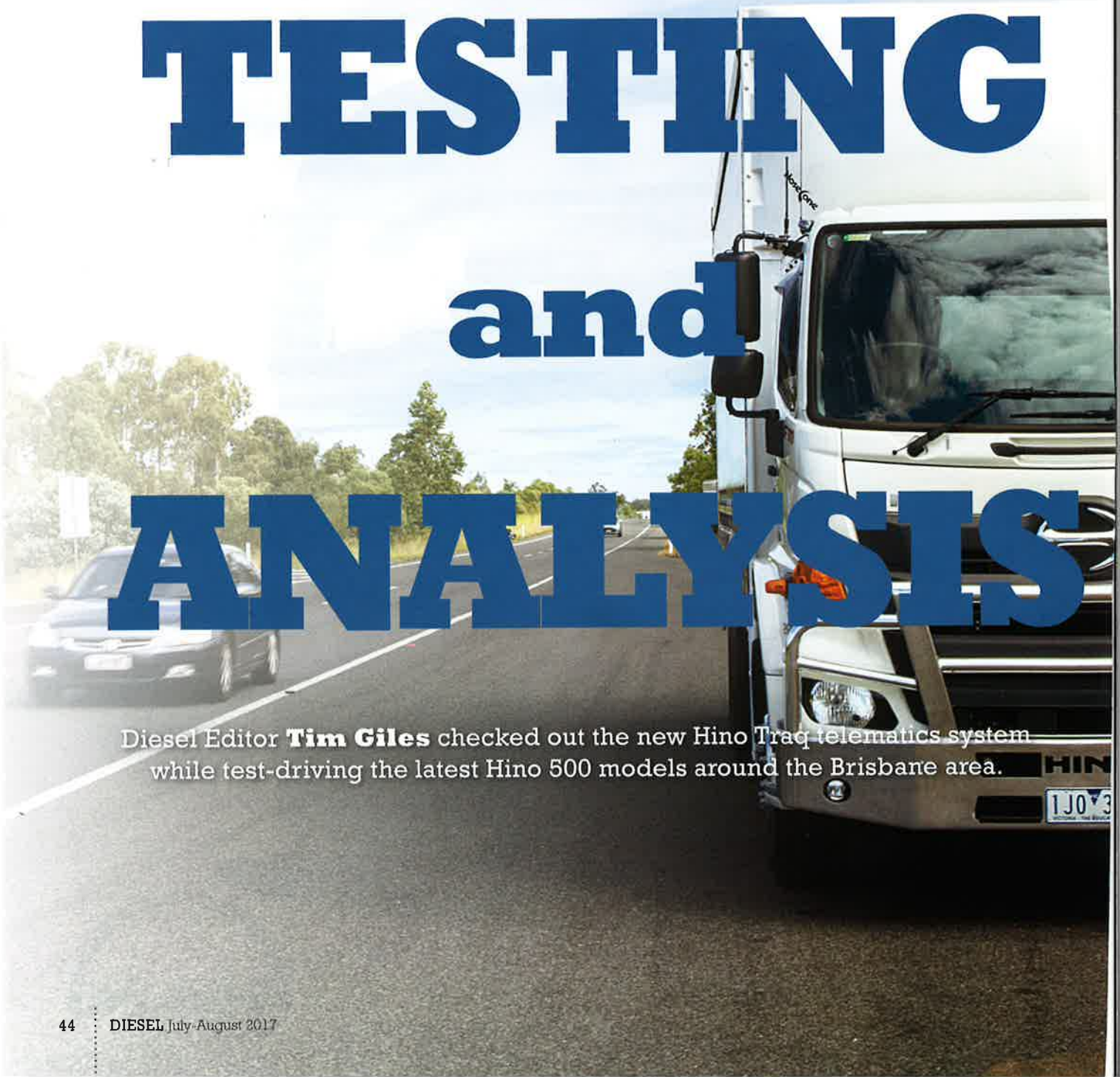
TRUCK TESTING and ANALYSIS



Diesel Editor **Tim Giles** checked out the new Hino Traq telematics system while test-driving the latest Hino 500 models around the Brisbane area.

The introduction of the new Hino 500 Series models came around the same time as the rolling out of the Hino Traq telematics and monitoring system. What better opportunity to test-drive the two new offerings side-by-side? *Diesel* Editor Tim Giles used the Traq system to monitor how well or how poorly he performed out on the road and, more importantly, how the trucks fared.

If you think you have a problem in a business, the first step is to quantify it. With all of the data now available, there is almost always a way of 'putting a figure on it'. Fleet management is one of those things that was unquantifiable in the past, but can now be translated onto a spreadsheet to be pored over by the bean counters.

As one of the top-selling truck brands in Australia, Hino is being pro-active in including a platform – known as Hino Traq – in its offering to customers. Traq is a basic telematics package that is being offered as part of the company's suite of Hino Advantage business solutions.

The trucks involved in this test – the FG 1628 Auto, the FM 2632 Auto and the FM 2635 Manual – are all part of the new 500 Series offering and represent a good cross-section of the range, with the solid 4x2 and 6x4 plus the higher powered 6x4.

This sector of the medium/heavy-duty truck market seems to have fallen hard for the Allison auto boxes and any manufacturer who doesn't offer them as an option is missing out on the bulk of the demand between 12 and 26 tonnes.

NEW ENGINE

The two 6x4 trucks in this selection are showcasing the new engine from Hino, the nine-litre A09C. It marks a step change for Hino in terms of engine design – this is no high-revving, high-torque, Japanese-style power plant, it's closer to the European style of engine performance.

While the maximum engine speed on the J08E eight-litre engine fitted in the FG is set at 2,700rpm, for the nine-litre it is 2,100rpm. Similarly, the maximum horsepower is reached at 1,800rpm on the bigger engine, as opposed to 2,500rpm on the FG. The same goes for maximum torque, achieved at 1,100rpm on the two FMs, but at 1,500rpm on the FG. These numbers alone tell us the engines are two completely different beasts, even though cubic capacity is only 8.87 litres, compared to 7.68 litres on the smaller engine.

From the driver's point of view, it is easy to tell the difference between the eight- and nine-litre engines. While the climb up into the cabin comprised two steps with the more compact lower-capacity engine, three steps are required to ascend the new unit. However, this is not an issue thanks to a new step design introduced by Hino, whereby each step is set back from the step below. This makes climbing on board more akin to climbing stairs than a ladder.

GOING AUTO

The first truck on trial is the FM 2632

Auto. It is likely to be a popular choice in distribution fleets as it has enough power in reserve to handle any situation, coupled with a virtually unbreakable driveline. By fitting the Allison 3200 Series transmission, Hino limits the power output to 320hp and torque to 1,275Nm.

After a short period of driving, it is clear this is the ideal stop/go truck. There's plenty of power under the right foot, and a transmission that goes up and down the range seamlessly. Putting the foot down hard sees the transmission changing ratio at over 1,500rpm.

The combination of this relatively high revving with the torque converter in the Allison results in smart acceleration. However, back off on the insistence to go hard and the truck goes into relaxed mode, changing up around 1,300rpm and able to lug along at below 1,000rpm.

Taking the foot off the go pedal highlights another feature of this new engine. European in style, it has a compression brake on the engine to go with the obligatory exhaust brake. This engine retardation works well in combination with the Allison's settings.

As soon as the pressure comes off the accelerator, the transmission looks to change down a gear and get the engine revs up. This brings in the two-engine braking systems, washing off speed effectively enough for the auto to down-change again and source even more retardation.

Once the driver gets used to the performance of this driveline, it is possible to function in the big city. Drivers can cruise from traffic light to traffic light simply by pressing and releasing the accelerator. There is minimal need to use the service brakes in the normal run of traffic, until the vehicle is virtually stationary.

TOP POWER

Stepping into the higher-powered FM 2635 is a profoundly different experience. Yes, it offers more power – 350hp – but also more torque – up to 1,422Nm. The driver has to pay for this by doing the gear changing manually. Luckily, this is not such a chore thanks to the new Hino M009 nine-speed manual box, which uses the classic four-over-four layout with a range changer.

There is definitely enough power available. When taking a loaded truck up the Toowoomba Range, the FM 2635 keeps over 41km/h and only drops to fifth gear for a limited period. The engine needs some encouragement and relatively high revving, but it does show off its European style to a certain extent.

Coming down the range, fifth gear and the engine braking hold the truck within the speed limit with the help of a few small brake applications, par for the course. The engine brake seems to be at its best around 1,900–2,000rpm.

COMING HOME

Moving across to the FG 1628 is like coming home. This is a Japanese truck through and through. With 280hp on tap, an Allison 3000 six-speed and running in a 4x2 configuration with an average load on, this is an easy drive.

The Allison helps in the quality of the drive and tries manfully to get the most out of the exhaust brake when slowing the truck. However, it is a disappointment after

the effectiveness of the installation with the bigger engine.

The FG tested is the steel-sprung model and feels considerably harsher than the heavier air-suspended 6x4 models until the suspension on the Isri 6860 seat is adjusted and the problem seems to go away. Manoeuvrability of this model is excellent and, because the cabin is set a little lower, the visibility around the truck is great, too.

There is room for improvement in all of these models. Surely it's possible to put the controller for the Allison on the dashboard – the driver doesn't need constant access to the controls, so it doesn't need to be very close at hand at all times. Also, the two mirrors on the passenger side seem to be a little too close to the A pillar and can impair visibility at some busy road junctions.

TRACKING THE TRUCKS

After the test drives, the people at Hino let me see the data I had generated while driving the trucks. It's a pretty simple process, as they all are these days – log in, and the data can be viewed online or downloaded as spreadsheets for further analysis.

The live data looks useful to the operations team. I was able to identify and confirm the exact position in the yard of the truck I needed, pressing the remote to unlock the doors and flash the lights simply confirmed this.

Tracking, however, is much more than knowing where a truck is these days. The amount of information available is only limited by the amount of data going around in the CANbus on board the truck.

The data can be broken down into individual trips from 'key on' to 'key off', or focus on the performance of the driver or the truck over a specified period of time. Either way, a distinct picture of the entire driving experience can be laid out on a spreadsheet or fed into a monitoring system looking for results outside of defined parameters.

The first test drive took just two hours and 15 minutes, covered 73.5km and used fuel at the rate of 37.75 litres per 100km. This was purely city driving, from Archerfield into Brisbane city and out again via a winding route. The results are as you would expect on this route – most of the time the truck was either accelerating from stationary or decelerating for a road junction, with very little cruising.

The trips with the 350hp 6x4 covered much more ground. The truck did some city driving on the 171km leg before heading west on the Warrego Highway and up the Toowoomba Range, burning 62.8 litres of diesel at a rate of 36.5 litres per 100km. The following trip was easier going – back down the range and straight into the depot in Coopers Plains – and saw fuel consumption down to 31.5 litres per 100km.

This much longer test enabled *Diesel* to assess the potential of the high power available to the driver on one leg and use the right foot much more gently on the return. The results are clear from the fuel figures.

Driving the 4x2 model around the city streets of Brisbane saw the truck manage a creditable 28.13 litres per 100km in trying conditions.

The CANbus data in the output shows a picture of the routes taken, broken down into sections between stops. Here we can see the effects of the different road conditions and driving styles.

For the 320hp auto, the fuel consumption reflects the speeds achieved – on two of the three sections of the route, the maximum speed was only just over 60km/h. The data divides between time at low, ideal and high rpm levels. The best fuel consumption came in a section where the engine spent the most time in the low rpm range, and the highest came in the section where high rpm nearly matched low rpm running.

In terms of high rpm running, the 350hp manual showed what not to do. On several sections, high rpm were the norm and low rpm running rare, and as a result fuel consumption was higher than was necessary.

The issue was reinforced when looking at the figures from the 280hp 4x2. Here, the high rpm count was extremely low – the engine hardly ever worked hard, even though it was running from traffic light to traffic light at slow speeds.

Diesel only skimmed over the data and looked at specific instances, but the conclusion is clear. The driver needs to be re-educatied and trained to go a lot easier with the right foot, especially when driving the manual. Being confronted with these real-world figures makes this driver think about some bad habits built up over many years.

The other clear conclusion from these numbers is the way the Allison auto mitigates this bad driving and keeps fuel use on an even keel. This is a clear illustration as to why so many operators in the medium/heavy-duty distribution business are turning to the auto in all of their trucks. **IID**