

High praise for Bell Timber Truck in New Zealand

Bell Equipment is extending its global product offering with a Tier 4 version of its 20-ton truck, the B20E 6x6.

Whangarei-based Rosewarne Cable Loggers in Northland, New Zealand got its first purpose-built 6-wheel-drive Bell Timber Truck seven years ago through local agent, CablePrice. Another three have followed with the latest and most capable version, a TH403E model, now working on the Pouto Peninsular, south of Dargaville where the company is harvesting a Maori trust-owned forest for Rayonier/Matariki.

When the Rosewarne team first came up with the idea of using an ADT it was partly for efficiency and productivity reasons. Over time, safety and environmental considerations have also become increasingly important, as the operation moved from large landings to compact landings that reduce land disturbance.

Lars Rosewarne explains: “We’ve been de-phasing that whole part of the harvesting operation for a while. It was done largely for health and safety reasons, because there was just too much happening on the landings and potential for things to go wrong. But we also realised that it wasn’t the right thing to do environmentally, creating such big landings – so reducing their size was another reason we went this way.”

The advantage of going with a purpose-built factory log transporter, as supplied by Bell, also meant it could be tailored specifically to meet the requirements of the Rosewarne operations, including lengthening the chassis to fit multiple lengths of logs. Previous ADT-based log trucks working for Rosewarne could only carry one packet, which reduced their effectiveness – for instance, a

single load of 3,9 metre logs amounts to just 12 tonnes.

“This is the first full-length machine we’ve had, which has made a real difference,” adds Lars. “It can take two bays of different-sized logs, which gives us flexibility and allows us to carry 30 tonnes of logs every load.

“Cost per tonne with a timber truck can be significantly less than other systems. This is all down to its productivity, given it can carry more timber than a forwarder and has faster ground speed. The timber truck certainly refines the concept of log forwarding in certain applications.”

When Lars and his team sat down to specify what they wanted in a timber truck or long-range forwarder, they focused on the largest of the models built at the Bell factory in Richards Bay, South Africa.

A 6x6 was deemed necessary for the Northland forestry environment – all the previous ADT-based log transporters have successfully used this layout. Rosewarne has plenty of tracked loaders, so a crane wasn’t needed, and neither was a trailer because it would make manoeuvring in tight spots more difficult. But the ability to carry more logs became a serious point of discussion with CablePrice and Bell.

The longest of the standard bunks offered by the factory is around 7 metres in length, and at just under 3 metres in width, plus 1,34 metre bolsters, the load capacity equates to 39,6 cubic metres. That translates to a maximum load in the low 20

tonnes, depending on the logs.

A lengthened and beefed-up chassis allowed the bunk to be stretched by almost 3 metres in length, with the pair of rear axles re-positioned to accommodate the additional weight. Additionally, Rosewarne specified big balloon tyres so that weight is evenly spread over the ground, without cutting up the surface, which can be an issue with skidders, especially in wet winters.

Result: a tailor-made log transporter than can carry two packets of 3,9m log lengths, which boosts the carrying capacity to around 50 cubic metres and as much as 30 tonnes in weight. And, best of all, the work was engineered at the factory and covered by warranties.

The Pouto Peninsula is an interesting area; a long slither of land jutting south of Dargaville separating the northern part of the Kaipara Harbour from the Tasman Sea. While some dairy and sheep farms remain from the pioneering days, its mix of sand and poor soil is not very productive, so much of the land was planted in Radiata in the 1990s and those forests are ready for harvest.

It’s rolling country, with some steep sections that necessitate the use of a swing yarder to access certain blocks. But on the day that we visited Rosewarne, 78, the crew’s Madill was parked up while they attacked an easier ground base area just 200 metres from the main skid site, serviced by a twisting track that gets boggy when wet.

“It’s not ideal,” concedes Lars Rosewarne’s eldest son, Luke, who

is foreman of this crew, but the fact that the truck still managed to deliver 30-tonne loads consistently and in quick time, even when rain turned parts of the track to mush, does showcase the TH403E’s versatility.

The flotation tyres help but these soils are fragile, and it doesn’t take much to disturb them. That’s another reason why the Bell was introduced to the Pouto, as the skidder the crew previously relied on was causing too much damage to the ground. However, the skidder

has been retained to use on steeper and rough terrain or where they don’t wish to build a track.



Those stems still need to be processed out in the cut-over, at a place near a well-formed track

for the Bell to collect because the skid site is set up just to receive cut-to-length wood for stacking and loading out, not full-length stems for processing.

“We don’t want to be skidding into this site, because you’d have a bigger volume of wood here, plus a processor, then you’d be walking the diggers more up and down the skid and making much more mess,” says Luke.



“Doing it this way, the mess is left out at the landing or in the cut-over and the Bell comes to unload and it’s all sorted. It eliminates a lot of congestion on the skid.”

Since adopting this system, both the size of the yarder landings and the skid sites have shrunk in size,

reducing infrastructure costs and time in setting them up.

Luke has been impressed with how the Bell has performed: “It’s pretty quick, provided you run it over a nice piece of road. You won’t get it into the same places you’ll get a forwarder into – it’s a completely different sort of vehicle – but it is doing a good job for us.

“Fuel consumption is great, it hardly works, if you know what I mean and then only on the drive in when it’s fully laden. On a flat track it’s not really working that hard at all. We probably only fill it up once a week or twice if it’s really working hard, compared to a skidder that you fill up every day with 300 litres.”

The tank in the Bell takes 379 litres of diesel, so that makes it around four times as fuel efficient as the skidder in straight dollar terms, but when you consider that the TH403E is bringing 50% more wood to the skid site per trip and it’s making three trips for every two made by the skidder, the sums just keep adding up in the high-speed log transporter’s favour.

A large, traditional forwarder capable of carrying more than 20 tonnes of logs will use around 40% more fuel than the Bell and would probably make half the number of delivery trips in a typical day. So, it’s safe to say that the Bell is a key to making this operation meet its 500 tonnes per day target.

Time to sample the Bell TH403E in real life

When you first catch sight of the machine it looks more like a six-wheel forwarder than a log truck, highlighted by the articulated joint between the bunk and the cab/engine. But hop into the ROPS/FOPS protected cab and it’s the reverse, this definitely feels more like a truck.

The TH403E does look like it’s been engineered for the challenges of life in the bush, with large belly plates protecting vital parts like the transmission and plenty of steel encasing the prop shaft running back to the pair of rear axles under the sturdy box chassis.

The heavy-duty articulating joint that enables the Bell to pivot and turn in the same way a forwarder or a skidder does is very handy for manoeuvring around sharp corners and through pinch-points at each of the loading zones.

As any log truck driver or forwarder operator will attest, the most challenging manoeuvre is reversing when there’s a full load of logs sitting behind the big safety grille. The three mirrors hanging off each door do help, but Bell has thoughtfully fitted a rear-view camera at the end of the chassis and a huge screen on the dashboard to give the driver an unimpeded view behind the bunk.

The final step in our static inspection is to see what makes the TH403H so frugal with fuel and tipping that front hinged bonnet forward reveals the 6,37 litre, 6-cylinder Mercedes-Benz OM906LA engine that delivers gross power output of 205kW (275hp) at 2 200rpm and peak torque of 1 100Nm available between 1 200 and 1 600 revs. There’s plenty of room in the engine bay to work on the engine if required, and in the year since the TH403E began working in Pouto it has been completely reliable, so it may not see a repair technician very often, if at all. Good to see all the



regular maintenance items are easily reached from the ground.

Drive from the engine is transmitted through an Allison automatic transmission that features an integral retarder. The transmission provides six forward gears and one reverse, with lock-up applied to all gears to reduce slippage that is usually associated with a torque converter. Top speed in sixth gear is rated at a heady 50km/h, but even in the readily accessible third gear the Bell can still reach 23km/h, equivalent to the top speed of the fastest forwarders. In practice, it's the track that will dictate the speed it can travel.

Bell makes its own transfer case to provide a lower range when conditions demand more traction for the six big tyres to maintain momentum.

On easy runs, only the two axles at the rear can be used, but on challenging surfaces the driver can bring in the front axle by operating the centre diff, along with diff locks for the rear axles.

Bell has ensured the TH403E is provided with good suspension to cushion the ride for both the driver and the load, installing a semi-independent set-up at the front, utilising a leading A-frame supported by hydro-pneumatic suspension struts, with the heavy-duty rear layout consisting of pivoting walking beams distributing equal load through laminated rubber suspension blocks.

In place of the standard 23.5 R25 tyres, the Rosewarne team specified larger Michelin 750 / 65 R25 flotation tyres that make it easier to work on the softer, sandier surfaces without causing damage, particularly in wetter winter weather.

The large footprint created by those tyres requires plenty of steering effort and the hydraulic system has two-double acting cylinders and needs very little input from the driver to manoeuvre the truck.

Luke's uncle, Tony Rosewarne, who is filling in with the driving duties while regular operator, 76-year-old Dale Right is on medical leave, says it's an easy piece of equipment to pilot and very sedate when compared to the felling machine he normally controls.

Tony likes the Bell and puts it among the best machines he's operated in more than 40 years in the bush, saying: "This is a dream compared to some of the equipment I've experienced in the past. It's lovely inside, pretty comfortable. You've got a fridge in there for keeping drinks cool. Very easy to drive, even when you've got 30 tonnes on the back, it handles that pretty well."

One of the items he's most impressed with is the rear-view display that he uses when reversing up to the loading site, saying: "It's a huge screen and really helpful for reversing, I use it more than the mirrors."

Over the past year, the Bell has transported a variety of log lengths, from two packets of 3,9s to one packet of 3,9s plus a few longer lengths hanging out behind to single loads of 5,9s.

While it was purchased with long, straight hauls in mind, the TH403E can adapt to most situations and still deliver the goods.

The trick to making it work to its full potential is to tailor the operation to suit the strengths of the Bell, which is what Rosewarne Cable Loggers has done. They've rung the changes and it's paying dividends.

Story and photos courtesy of John Ellegard of NZ Loggers.



"Pretty cruisy, by comparison – all I've got to do is drive from point A to point B and back," he chuckles and then adds in a more serious vein: "It's still an important job, as I've got to get 30 tonnes to the skid regularly or they'll run out of wood pretty quickly."

That means anywhere up to 18 trips to the skid each day, which is not so hard when there's only 200 metres to cover either way but can be a challenge on a 2km round trip. Or when rain intervenes making the track much more difficult to traverse.

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