



Fully equipped tipper

BY JOHN MURPHY

Hino recently introduced a fully built up tipper based on their 500 Series FC four-wheeler. *New Zealand Trucking* got to take a brand new one for a spin and try the tipping gear out in Perry Aggregates sand quarry at Horotiu.



VIDEO

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Over recent years there has been a growing trend, especially amongst the Japanese manufacturers, to supply fully built trucks that are ready to operate as soon as they leave the showroom.

Like cars and utes, any extras are usually little more than bolt-on accessories. This development lends itself well to modern society and is particularly handy for the vocational truck market, with tool boxes, ladder racks and similar 'tradie' equipment available as standard on flat decks in Australia and becoming more common here.

The huge range of models available from the Japanese manufacturers means buyers can usually find something in the right size, weight capacity and horsepower range too. Hino's New Zealand website lists 49 variants in its 500 Series alone. Hino's FC model is the smallest in the 500 Series, with larger models rated up to 26,000kg GVM

This smart little tipper has a GVM of 10,400kg. Ready for action, the standard model weighs in around 4900kg, providing a legal payload of over five tonne. There are two wheelbases and tray lengths on the market. We tried the shortest

wheelbase tipper, designated the Compact 36, with a wheelbase of 3420mm and tray length of 3.6m. There is also a slightly longer model with a four metre tray.

At a quick glance, it's easy to see the tray is not locally built, it is Japanese made and imported fitted to the truck. It's a versatile unit with drop sides and a dropping tailgate.

The longer wheelbase truck has a side hinged two-way tailgate. It also appears solid, with a 6mm thick deck and a decent headboard. With the hydraulic mechanism and supporting sub-frame it contributes about 1300kg to the bare truck's tare. It's fitted with a hydraulic tipping mechanism that is PTO operated, unlike some of the units seen on small trucks that are electrically driven.

The truck comes standard with tarp hooks on the underside of the deck, but Hino sales engineer Ian Roberts says certified load anchorages are not supplied as standard. He also points out that the sub-frame supporting the deck raises the deck height to 1100mm, more than would be expected in a local build.

However, the height of the tipper's sides is



Hino hasn't wasted space around the compact five-cylinder engine. The hoist is PTO driven and operates through a scissor mechanism. The tipper is mounted on a sub-frame above the chassis rails. The 'Dump Lever' is alongside the Isri driver's seat.



certainly low enough for skid steer loaders and doesn't appear excessive by any measure.

The PTO is operated by a simple switch on the dash and the digital display registers when it is engaged. A single handbrake style lever on the right side of the driver's seat is raised or lowered to operate the hoist with the tailgate hooks being automatically released as the tray is raised – all simple stuff.

The Hino is fitted with a cardan shaft park brake, which is not an ideal system to use on steep and slippery surfaces because, when applied, the rear wheels can still turn in opposite directions through the diff and the vehicle can move downhill.

Hino has overcome this issue by fitting a brake lock that locks the four wheels through the air hydraulic brakes when necessary.

It's old school holding power that was commonly used on American light trucks in the 1970s. I remember an International tow truck I used to drive that utilised the technology to lock the brakes so that the truck was anchored as securely as possible when using the winch. Because it operates using the service brakes, it is

not accepted legally as a park brake. Hino has fitted safety systems to ensure the park brake is still activated when the driver is out of the cab.

Aside from the tipper unit and hydraulic brake lock, the Hino is a standard FC 1022 model, meeting ADR 80/03 through EGR (exhaust gas reticulation) and exhaust regeneration.

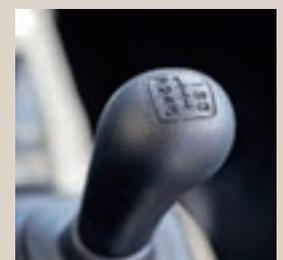
For a truck that is likely to be used in vocational work, it has plenty of bells and whistles that will create demand when drivers are looking for the best truck in the yard to get comfortably and safely to and from a job with a deck full of material.

Features that were not available on a truck like this a few years ago are standard. For example, the driver's seat is an Isringhausen 6800 air seat with multiple adjustments.

Cruise control, hill start aid, driver's SRS airbag, front under run protection, anti-skid reduction, heated and electrically operated mirrors, engine immobiliser and central locking are all standard. From the next shipment the tipper models will be equipped with double DIN multimedia units.

Features such as these are easy to dismiss

The six-speed gearbox is nice to use.



A spare mount between the cab and tray is a neat feature and a tool box is mounted in the same area. The big air intake is one of many impressive features not usually expected in a truck of this size.



The Japanese built tray has a 6mm thick floor and appears solid. The cigarette lighter is 24v, the switch marked ES controls the hill start aid and the other switch allows manual regeneration. A large fluorescent interior lamp makes filling in paperwork at night easy. The digital display is clear and easy to scroll through; this readout is the total driving time, 12 hours.

as non-essentials, but drivers and owners will understand the value they bring to a business. The safety features, including the front under run protection, may well save lives in worst case scenarios.

The digital display unit supplies useful data that is easily scrolled through and accessed, although it's only available in-cab and is not yet sent on to the operator's computer.

It supplies information such as fuel consumption, average speed, driving time and idle time, data that can be analysed and the results used to ensure operations are more efficient.

Access to the cab is easy; there's one step between the ground and the floor and the doors are big and open wide.

At 2190mm wide, the Hino 500 FC cab is not a full width cab, but it is roomy inside, partly because of the space behind the seats, which creates space for a few bits and pieces. The impression of space is further enhanced by the massive side windows and almost vertical A pil-

lars, which make side vision particularly good. The steering wheel has both telescopic and angle adjustment and the driver's seat adjustments are impressive.

There are a couple of good-sized storage bins above the windscreen and some in the back of the centre seat, but storage room for paperwork is limited, especially if the centre seat is used. Good interior lighting is available, including a decent fluorescent light in the centre of the cab.

It's a sign of the times that an engine immobiliser is fitted to a truck like this, but it obviously makes it more difficult to steal and will probably bring a smile to an insurance broker's face.

A chip in the key is recognised by the truck's immobiliser system and the truck won't start unless the key is within a few metres. This prevents the truck being hotwired and stolen or started with a skeleton key but also means a replacement key will probably cost a few hundred dollars if one of the originals is lost.

On the road, the six-speed Hino gearbox





is simple to use and the gear lever slips the box through the gears comfortably. Unladen, the truck is driver friendly and skipping gears doesn't bring any complaints from the engine, even down below 1000rpm. Sixth gear is overdriven and the engine is only doing about 1200rpm at 60kph.

Hino claims the engine revs are 2125 at 100kph. Fuel efficient drivers can watch fuel burn figures on the digital display and choose the most efficient gear/rev combination.

The short wheelbase does create some pitching and the air seat does a good job of keeping the driver comfortable. The passengers in the other two seats probably wouldn't be anywhere near as happy with the speed bumps in Hamilton. The coffee in the cup holder did an impressive job of squirting through the small hole in the cap with the force of a decent water blaster. Maybe Isri could make an air-suspended cup holder too!

The engine is a 6.4 litre five-cylinder direct injection unit which produces 220hp when stretched to 2400rpm, which is where the red line kicks in. It is a refined design with overhead camshaft, common rail, turbocharging and intercooling helping it reach its maximum potential and low Euro 5 compliant emissions.

The maximum torque of 645Nm is reached at a respectable 1500rpm, although the torque curve is almost flat from 1200 through to 2200rpm.

We weren't legally allowed to take a load on

the road with the unregistered truck, but Perry Aggregates dropped on a load of sand bringing the total weight close to the Hino's GVM and I had the opportunity to test the engine's pulling power up an incline on the quarry road. It was fine, with little resistance, even when the revs were down around 1000.

One of the concerns I had was the speed of tipping a load. I have come across Japanese tipper trucks with slow tipping speeds, but they were probably all electrically operated units.

My concerns were definitely unfounded when it comes to the Hino tipper; the hoist shot up much quicker than I expected and the load was tipped off in less than 17sec after raising the dump lever. The hoist is a compact underbody scissor action unit with a built-in reservoir. It's a neat unit.

With the hoist up, the backbone of the truck is exposed. The tray sits well back on the chassis leaving plenty of room for an OE spare wheel mount, with relatively easy access to the spare.

The gearbox sits well below the tops of the chassis rails and the cab is easily tilted to reach the compact engine. A 200-litre fuel tank should hold enough fuel for most day's work without a top up. The right rail supports a typical air over hydraulic brake mechanism, which operates a smooth set of drum brakes, supported by an exhaust brake.

Hino calls its regeneration unit a DPR, or Diesel Particulate Regeneration system. It works by collecting soot in a chamber in the muffler

Perry Aggregates loaded the tipper with sand.





and then burning it at high temperature when a preset volume is stored.

A scale on the digital display lets the driver know how close regeneration is. It is usually carried out automatically, but the driver can press a button and create a manual regeneration. For example, he may wish to have it completed before he knocks off work or operates the truck in an area where high exhaust temperatures could cause a problem. The frequency of regenerations is dependent on the amount of soot collected.

Some cruise controls are a bit messy, but Hino has an easy-to-use system that displays the set speed on the digital display unit, which is probably more accurate than glancing at the speedo needle for guidance.

The hill start aid, which goes by the title ES Start, for Easy and Smooth, is equally user friendly. When it's switched on, the driver simply depresses the brake pedal when stationary with the engine running, such as when parked on a hill, and a light on the dash indicates the ES is holding the service brakes on.

When ready, the driver puts the truck in gear and as the clutch pedal is released, the brakes

are released and the truck is free to move. Depending on the driver's preference when releasing the clutch, the brake release control can be set at fast or slow at the press of a button.

ASR, or anti-skid reduction, feeds drive to both rear wheels. Ian Roberts explains that they tested it by jacking a rear wheel just clear of the ground; when the ASR switch was in the off position the raised wheel spun freely and the truck remained stationary when the driver tried to move it forward.

With the ASR switch on, both wheels had drive and the truck moved forward, even though one wheel was still raised. ASR can be a useful aid on work sites, but can cause problems in icy conditions. An on/off switch gives the driver the choice.

My only complaint about the FC is a minor issue, relevant to the cigarette lighter being 24 volts. In my view, this is an important accessory used frequently to charge electronic gear such as phones and computers, gear that inevitably comes with 12 volt charging gear.

A device to reduce the voltage output is possibly available from places like Dick Smith and I did try to get some information from a radio installer and a phone shop about what would happen if a phone charger was used in the 24 volt socket. They advised me not to try it!

The Hino FC tipper is an extremely well appointed little truck, with adequate power and significant driver comfort and safety features. Buyers can expect traditional Hino levels of reliability with a 36 month or 150,000km engine and powerline warranty. □

SPECIFICATIONS

HINO 500 SERIES FC 1022 TIPPER 4X2

Tare:	4595kg (including body)	Steering:	Power assisted reticulating ball
GVM:	10,400kg	Brakes:	Air over hydraulic operated drum brakes with ABS and ASR
GCM:	16,000kg	Park brake:	Transmission brake
Wheelbase:	3420mm (as tested) or 3850mm	Auxiliary brake:	Exhaust brake
Engine:	Hino J07E-TR, inline 5, turbocharged and intercooled	Wheels:	6 stud, 6.75x17.5
Emission control:	ADR80/03 with EGR	Tyres:	9.5R17.5 - 129/127
Engine Capacity:	6.403 litre	Electrical system:	24V
Maximum power:	162kW (220PS) @ 2400 rpm	Features:	Easy Start - hill start assist, brake lock system, heated and electrically operated external mirrors, FUP (Front Under Run Protection, ADR 84/00 Complied), cruise control, central locking and keyless entry, immobiliser.
Maximum torque:	647Nm @ 1500 rpm	Cab:	Driver's SRS airbag, three seats, driver's seat ISRI 6800 with urethane foam pads, high-back, lumbar support, multi adjustable, air suspended, with integrated safety belt, air conditioning. DAB+ AM/FM radio/CD & DVD player with Bluetooth (from next model).
Clutch:	Single plate	Tipper:	Internal measurements: 3600mm x 2000mm x 510mm; Volume: 3.6m ³ ; Steel plate deck thickness: 6.0mm; Side, front & tailgate: 3.2mm, two-way tailgate.
Diameter:	350mm		
Transmission:	Hino LX06S 6-speed manual		
Chassis dimensions:	229.4mm x 78mm x 5.7mm		
Front suspension:	Tapered leaf springs		
Front axles:	LF366 I-beam, 3600kg capacity		
Rear suspension:	Semi-elliptic leaf springs, 7000kg capacity		
Rear drive axle:	Hino SH13		
Ratio:	4.33:1		