



ROADS? WHAT RO

Some 20 units of the Torsus Praetorian bus conversion have been built since Ukrainian company founder Vakhtang Dzhukashvili first came up with the idea. It started during the Russian invasion of Ukraine when Dzhukashvili began work on a MAN procurement contract for the Ukrainian army. But when it became irretrievably mired in bureaucracy, he struck out on his own to find new customers for a heavy truck conversion in the private sector. So says head of production Peter Zaicek.

He adds: "You don't need a road to drive this. The vehicle doesn't have limits: sand, water, mud, rocks, road or no. But the comfort of passengers does. It is a totally different [experience] between a professional rally driver alone or with 37 people. We needed to find a ratio of price and comfort and suspension."

In fact, most customers only drive it off-road for the minority of time. Uses include mining and tourism in Ukraine, Chile, Australia, Indonesia, Papua New Guinea, Morocco and the Middle East.

A Czech-built conversion of the MAN 13.5t chassis seats 38. Strap in: it's a bumpy ride

The vehicle was designed by Czech vehicle design agency Werkemotion, which also designs off-road rally vehicles (such as Dakar; see also www.is.gd/ebobog). Even after real-world rally team testing, little was altered from the original agency design, Zaicek says, apart from alterations to the position of lights and dimensions of the interior that were required to fulfil regulations, and softer rear leaf springs.

The head of production explains how the conversion process works. He says: "We have chassis from MAN, and making a bus from a truck chassis requires some changes. We are trying to incorporate as many MAN components as possible, because one of the distribution channels we are hoping for is MAN itself. Our focus is more on passenger comfort; their focus is durability. Meshing those things can be tricky. There is also a

legal requirement for safety as a bus. But MAN's full corporate name says 'truck and bus', and it does have a bus building department, so I believe that we are hitting it in the middle."

The vehicle is based on a 13.5t gvw TGM chassis. A MAN 12-speed TipMatic automatic transmission is standard, although some customers have chosen a Cummins engine and Allison transmission. A manual transmission is a third option. The drive is permanent 4x4, with differential locks on every wheel, and pneumatic ABS drum brakes.

Standard suspension is parabolic leaf springs; a heavy-duty off-road option uses hydraulic struts. This summer the company is testing an air suspension. Torsus fits Michelin XZY off-road tyres, although less expensive options from Bridgestone and Pirelli are offered for vehicles with more on-road mileage. Fibreglass side panels are coated with a polyurethane sprayed material, Lionix, that adds reinforcement and scratch-resistance.

Inside, shoulder seat belts are a must, and in fact some customers



SMALLER SIBLING

As the magazine went to press, the company announced plans for an off-road minibus with capacity for up to 21, depending on specification. It is based on a MAN TGE/Volkswagen Crafter 4Motion chassis fitted with Euro VI engine and heavy-duty suspension. The Terrastorm will be available for sale later in the year.

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specify five-point belts. Also included is central air conditioning and heating, luggage rack, individual seat lights, tinted windows and DVD player.

Passengers enter through a central cabin door; there is a separate door for the driver.

The vehicle is not an offroad bus from a regulatory point of view, as no such classification exists. Instead, it sits both in the M3 category, for road-going buses over 21 seats, and in G, for off-road vehicles with more than 25° rear departure angle. Also, front departure angle is close to 32° and ground clearance is 385mm.

Now, the company operates a 3,000m² factory with production capacity of three vehicles per month. "We have spent the last three to four months focusing on the transition from R&D to production," says Zaicek in a June interview. That includes new enterprise business software.

But in fact the company is looking to increase series production volumes to six per month and supply to local partners to handle individual customisation requirements. **TE**

TORSUS SPECIFICATIONS

Length: 8,450mm

Height: 3,450mm

Wheelbase: 4,200mm

Track width, front: 2,081mm

Track width, rear: 2,086mm

Engine: MAN D0836 Eur III/IV

Output: 237bhp/925Nm

Gearbox: MAN/ZF 12AS1210 OD Tip-Matic

