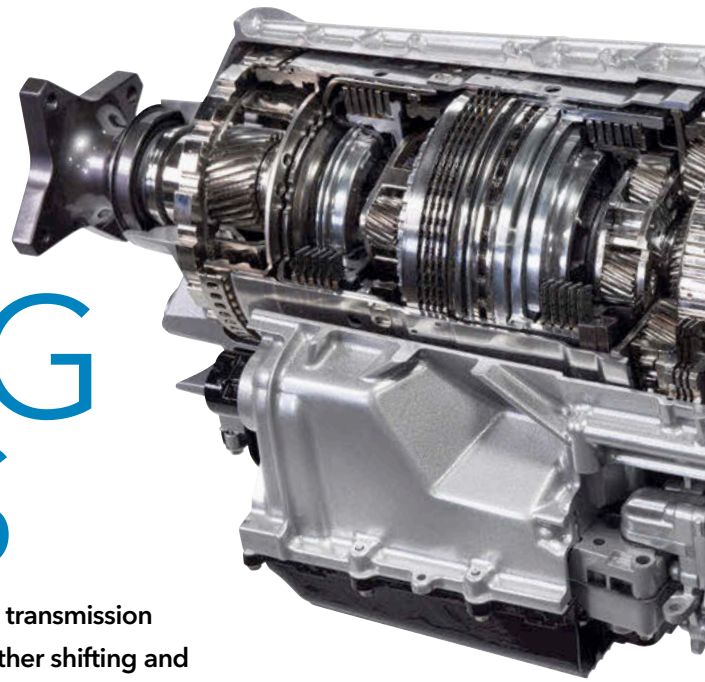


CHANGING APPETITES



Encouraged by the home delivery market sector, LCVs' automatic transmission options have blossomed over the past few years, providing smoother shifting and power transfer for drivers than ever before, finds Dan Gilkes

From seven speed up to 10-speed, our new automatic transmissions not only offer the comfort and convenience of pulling away without stalling or shuddering, they help take the stress out of hill starts, edging along in heavy traffic and parking in tight spaces." That is the opinion of Roelant de Waard, vice president of marketing sales and service at leading light commercial vehicle manufacturer Ford of Europe.

"Putting the vehicle in 'drive' is also the way of the future, as we see more and more electrified vehicles hit the road," he adds.

Some manufacturers have offered an automatic option for vans, but with limited take-up outside of the ambulance sector and the minibus market. Automatics have been seen as expensive, inefficient and deemed an unnecessary luxury for the majority of van operators.

Now though, the modern automatic transmission is becoming an increasingly common sight in a wide range of LCVs. And not for driver comfort. The supermarket home delivery business, which has grown rapidly over the last decade, has been a major driving force behind the adoption of automatics in larger vans. Indeed, if you don't have an auto option, it is hard to even get on the tender list for some companies.

Managers of such fleets have found themselves employing largely inexperienced drivers, running 3.5-tonne vans on two- and even three-shift operations. This often resulted in premature clutch and gearbox wear, with vehicles off the road as a result.

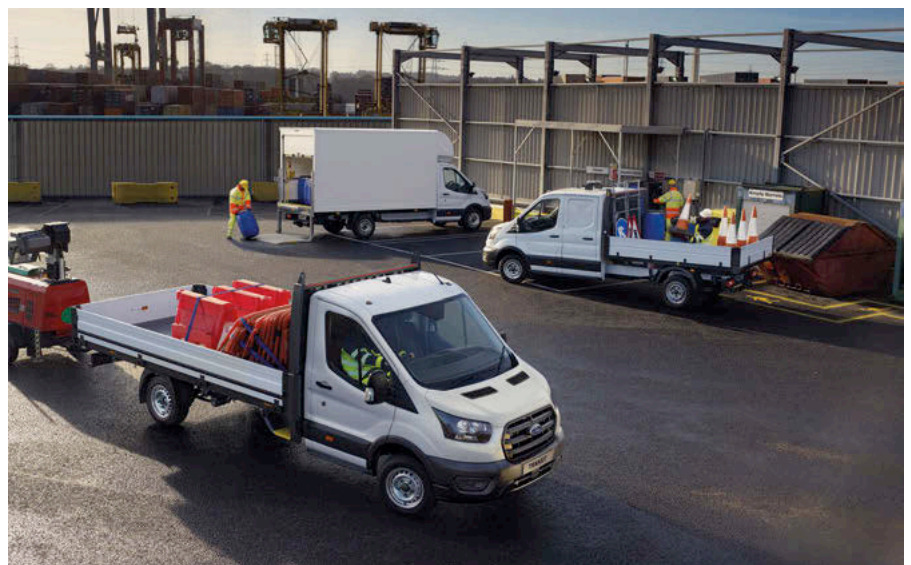
MERCEDES-BENZ

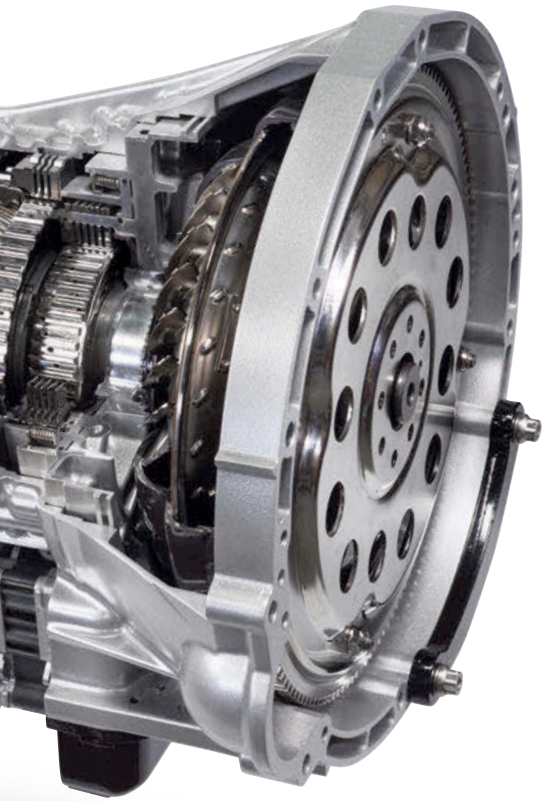
Mercedes-Benz has pushed the auto option, as it was able to lift complete drivelines from its car models that tend to have auto boxes. Indeed, where van customers opted for a 3.0-litre V6 diesel engine, such as in ambulances, the auto was often the only choice of transmission. When the 7G-Tronic seven-

speed automatic was offered with lesser four-cylinder engines, it was an instant hit with home delivery businesses.

The auto still wasn't a cheap option and fuel consumption and exhaust emissions continued to lag behind a similar manual gearbox-equipped van. But the reduction in costly downtime more than made up for the initial expense. Mercedes has since upgraded that seven-speed box, launching the nine-speed 9G-Tronic in both Sprinter vans and the smaller RWD Vito models.

In 2019, 41% of Sprinter chassis cabs sold in the UK (example pictured top right, p19) were equipped with the auto transmission. That figure has risen to





47% so far this year. Likewise, 12% of Sprinter panel van buyers opted for the 9G-Tronic in 2019, but that number has risen to 21% so far in 2020. That is despite a premium of more than £1,500 for a rear-driven van and £1,900 for front-wheel drive.

Unlike in the truck market, where the majority of vehicles use automated manual gearboxes, most vans offer a traditional hydrodynamic torque converter auto. However, the 9G-Tronic box has an improved hydraulic circuit in the torque converter that increases efficiency to 92%. The 7G-Tronic offered 85% efficiency by comparison. This gearbox uses four planetary gearsets and six shift elements. This permits increased torque inputs of up to 1,000Nm in some of the company's more powerful cars.

That allows the transmission to be used in heavier commercial vehicles, where increased torque is required to get the vehicle moving. In addition, by having a larger number of forward ratios, the Mercedes transmission can change gear more often, to keep the diesel engine in its most efficient rpm band.

IVECO

That same philosophy has been proven by drivetrain specialist ZF. The German component company has for some time offered its eight-speed auto – a common sight in many up-market cars –



in IVECO's Daily van under the Hi-Matic brand. The ZF eight-speed auto can also be had in Volkswagen's Crafter (pictured above) and MAN's TGE vans, where it is offered in front, rear and four-wheel drive configurations.

Around 51% of UK Daily vans, which run from 3.5-7.1 tonnes GVW, are now supplied in the UK with the Hi-Matic transmission. IVECO says that while Hi-Matic Daily vans do carry an initial premium, they benefit from up to a 10% cut in maintenance costs. The company also claims that the high number of ratios, along with the option of Eco and Power driving modes, give the automatic similar fuel economy to a manual van.

Indeed, Volkswagen's figures show that a like-for-like comparison between 3.5-tonne Crafter vans equipped with the eight-speed automatic and a six-speed manual gearbox, the automatic van offers slightly lower CO₂ emissions and 1-2mpg better fuel consumption in combined driving.

What's more, IVECO says that CAP estimates put the Hi-Matic box at around £1,075 more than a manual gearbox in terms of residual values. Daily is also one of the only vans of its kind that can be specified with the Hi-Matic box and a compressed natural gas (CNG) engine, further reducing total cost of ownership and, where bio-methane is used, cutting CO₂ emissions by up to 95%.

There are other manufacturers keen to capitalise on the growing demand for an automatic transmission in heavy LCVs. Fiat Professional has introduced a 9-speed automatic for the Ducato range



this year, though initially this is expected to appeal mainly to motor-home buyers.

FORD

Ford has offered an automatic transmission on its Transit range over the years, but again with little sales success. Now the company is aiming to grow auto sales with the introduction of a 10-speed transmission (main picture), which is offered in both its Ranger pick-ups and in heavier rear-wheel drive Transit models.

Developed in-house, the box is initially offered in vans with the 168bhp version of Ford's EcoBlue diesel engine. Real-time adaptive shift scheduling is said to allow the transmission to adapt to varying road conditions, to ensure optimum performance and fuel efficiency. The company has patented 20 technologies within the transmission, including a casting-integrated direct action solenoid (CIDAS) that is said to increase clutch pressure accuracy and reduce stroke time, to deliver faster, smoother gear changes.

The box also uses a patented low-viscosity oil, to reduce internal friction. A variable-vane pump tailors oil delivery to meet demand, reducing parasitic losses. The 10-speed transmission has been calibrated specifically for heavy van use, including an auto start-stop function, to further improve fuel efficiency. The gearbox has been designed for Transit vans with a gross weight of 3.5-4.6 tonnes, while a combination weight of 6.1 tonnes will allow customers to tow up to 2.8-tonne trailers. [TE](#)