

HALFWAY HOUSE

Only Scania offers a compromise when choosing between manual and automated transmissions in heavy goods vehicles, finds Kevin Swallow

Leading the resistance to the charms of automated transmissions is bulk transport and construction. A close look at heavy market leader DAF's 2018 sales by axle combinations shows a take up of one manual transmission in eight trucks using 6x4, 8x4 and 8x2 rigids plus 6x2 and 6x4 tractor units. That is almost double the brand's average ratio of manual to automatics across heavy goods vehicles of 26t-44t gross vehicle weight (gvw).

In explaining the figures, James Turner, product marketing manager, says the manual gearbox remains a choice for the traditionalist and for those looking for absolute maximum control, especially when manoeuvring in tight locations. He adds: "The manual works particularly well for construction and the fuel delivery logistics sector, but we are also surprised to also see strong take-up from operators like international hauliers, where slow speed manoeuvring in very tight locations such as ferries is a common occurrence."

Anthony and Barry McGuinness (pictured, top right) agree. Together they run the family business, McGuinness Feeds in Preston. Space, both on the truck and trailer and where they load, is at a premium. Barry McGuinness says that specification for his DAF XF 6x2 tractor units and trailers is as much about getting the right size to maximise volume than gross out at

44 tonnes gvw. He adds: "A lot of these mills are Victorian, so we are trying to get the truck and trailer into loading bays that were originally designed around a horse and cart," he says, "and to do the job we prefer manual gearboxes."

He continues: "When we are loading at the mills, the wheat feed is put through chutes, spouts, conveyors or direct gravity feed from the bins and hoppers. To get the full load, the truck needs to edge small distances forwards and backwards." Some of the early auto boxes weren't good enough for the job, Anthony explains, and they have tried the more updated versions as well. He adds: "In auto it took too long to adjust; with the clutch the driver can do it quickly. And when the truck has to reverse up the ramp in an auto, the drivers don't have the same control as they do with a manual."

THE SILENT MAJORITY

However, they are now in the minority. Even in construction and bulk transport, most customers are specifying DAF's version of the ZF automated gearbox, the Traxon transmission.

And many other truck manufacturers now lead this horse to water. Mercedes-Benz with its Arocs and Renault Trucks' Range C made automated gearboxes part of their 8x4 standard default specifications. Volvo Trucks has gone one step further; for the past two years



there has been no manual available for its heavy truck range, only a six-speed manual for the FL and nine-speed range change for FE.

A spokesman for the case of the automatics could be Ronnie McGrouther, transport manager of Thompson's of Prudhoe, in County Durham, which delivers services and materials to the construction industry, demolition, land reclamation, property and recycling. His fleet, a mix of Scania and Volvo, all have one thing in common: the automated transmission. McGrouther hasn't bought a truck with a manual since 2006. He explains: "With an automated transmission you are more or less guaranteed 450,000 to 600,000km with a single clutch. It takes away the pain and the cost. You cannot even predict how long a clutch in a manual will last, because it is down to the driver. With more younger people coming into the industry, many have never even driven a manual. You could spend your life educating them on how to use it.

"You put someone in a truck with 420hp, 2,100Nm torque and 32 tonnes gross vehicle weight, and it will pull away in a higher gear and even pull away in the higher range, but [doing so] will also halve the life of the clutch.



“We are trying to get the truck and trailer into loading bays that were originally designed around a horse and cart, and to do the job we prefer manual gearboxes”

Barry McGuinness



driver to change gears. But neither system offers the driver access to the clutch.

That changed in 2017, when Scania introduced its Clutch on Demand. This option over the standard two-pedal automated transmission - in this case

Scania's own Opticruise - features a third pedal, for the clutch.

This allows the driver to make 'physical' gear changes when he or she considers it to be beneficial to 'feel' the traction being laid down - for example, when manoeuvring on loose surfaces off-road.

How is Scania able to offer a manual clutch?

It comes down to how its in-house Opticruise automatic clutch was developed using electro-hydraulic actuation, rather than the electro-pneumatic solution used by others. "A

pneumatic clutch actuator uses an air signal to open and then a spring to close the clutch. It is very quick and effective, but it is difficult to control incrementally. It is either open or closed," says Phil Rootham, Scania (GB) pre-sales technical manager.

He contends that there isn't much to Scania's alternative: just a pedal, a wire, a potentiometer and supporting software that sends a signal to the electronic clutch actuator. Rootham continues: "Opticruise uses a screw to work a piston to create hydraulic pressure in the clutch, which means it can be quite precise about the position of it. Information is sent from the potentiometer on the pedal - that is how we are able to do it incrementally.

"As the driver disengages the clutch and reapplies the throttle, the accelerator sends its information to the ECU that links both the clutch and throttle to provide drive, and decides

how much torque can be applied," he explains. He adds that the system protects itself from potential damage to the clutch plate using the manual clutch in the same way as an automated transmission does.

Since Clutch on Demand was introduced, Scania's warranty department has not seen a change in clutch damage claims or wear and tear issues, he claims. Operationally, the only issue is how the clutch is protected by the ECU in terms of slip and torque. Should the driver try to make too ambitious a gear change, that might "invoke a stall", says Rootham.

Clutch on Demand costs £300 (plus VAT) as an option on a new truck and adds no weight penalty. More than 800 systems have been sold. [TE](#)



Why bother if you can put an auto in there and guarantee the life of the clutch? It is a percentage game. Why take the risk? I don't think you can afford to do it."

A THIRD WAY

The majority of automated transmissions include a time-limited manual override and/or a manual option allowing the

