ZEROSHIFT RINGS THE CHANGES

By Richard Simpson

PHOTOGRAPHY ZEROSHIFT

A truck transmission which is said to combine the advantages of an automated manual gearbox and a full automatic has been developed by British company Zeroshift. The transmission offers quick shifting without torque interruption, yet is cheaper to manufacturer than a conventional full automatic.

Zeroshift managing director Bill Martin said. "Manual boxes are compact, robust, cheap and efficient but can be tiring to use and will deliver poor fuel economy and emissions if used incorrectly. Maintenance and down-time costs can also be high. Automated manual transmissions (AMTs) provide automated shifting, improved productivity and useful electronic control."

Zeroshift says AMTs improve productivity

Bill Martin believes Zeroshift technology provides the best features of each gearbox type. "For the first time, operators will be able to specify a gearbox with the smoothness and productivity benefits of a fully automatic transmission with the attractive price and packaging benefits of an AMT," he said. "We've already presented the technology to manufacturers of trucks, buses and off-highway vehicles and the response has been extremely favourable."

Zeroshift replaces the synchromesh found in a conventional gearbox with pairs of interlocking rings, each incorporating three drive elements in a single forged component. Shift forks are operated by electrical, hydraulic or pneumatic actuators to suit any established vehicle architecture. The electronic control system, also developed and calibrated by Zeroshift, coordinates gearshift actuation, engine management and clutch operation to provide full control of the driveline during gear-shifting.

The Zeroshift transmission is less expensive to manufacture than a sophisticated planetary automatic and the shift mechanism can be built into an existing manual gearbox so it can be assembled on the related manual transmission production lines.

"The cleverness of the Zeroshift transmission is in the design innovation and the control systems," Martin said. "For an established manufacturer of manual gearboxes, it is an extremely affordable way to offer a high-quality fully automatic transmission."

AMTs are cost-effective to manufacture

EU OPTS FOR TOUGH STANDARD

ACEA, the industry organisation which represents Europe's commercial vehicle manufacturers, has told the European Parliament it aims to meet the strictest of six suggested alternative standards put forward by the European Union for NOx and PM emissions at Euro 6.

DAF president and ACEA chairman Aad Goudriaan said the European commercial vehicle industry aims to reduce NOx (nitrogen oxide) emissions by a further 80 per cent and particulate matter by 50 per cent compared to the current Euro 4 standards for trucks in the EU, supporting the most stringent scenario put forward by the Commission in preparation of new Euro 6 standards expected to be in force by 2013.

Industry experts agree that to stand any chance of meeting the new standard, engine manufacturers will have to combine the current rival technologies of EGR and SCR, and that fuel consumption (and hence CO^2 emissions) will probably get worse.

However, AdBlue dosage may not be as high as is currently required for Euro 5 engines that are dependent upon SCR alone, and an on-board device which produces ammonia from diesel may do away with the need for an external supply of AdBlue altogether.

NEWS IN BRIEF

Volvo's green drive...

Volvo Trucks is taking part in a project for CO^2-neutral transport together with the Centre for Environment and Sustainability at Chalmers University of Technology in Gothenburg, Preem Petroleum AB (the largest oil company in Sweden), Schenker (one of the world's leading providers of integrated logistics services) and Vägverket (the Swedish Road Administration). The group's aim is to halve the climate impact of a typical Swedish long-haul transport journey by 2020, compared with 2005. This would create a significant reduction in carbon dioxide emissions from truck traffic, even if transport volumes continue to increase at the same rate as they have until now. The long-term vision is to make future goods transportation entirely carbon dioxide-neutral.

...and forestry investment

The Technology Transfer division of Volvo Trucks parent Volvo AVB has taken a stake in the Swedish forestry machinery maker El-Forest AB. El-Forest is noted for its hybrid-drive timber forwarder: a machine which uses a hybrid diesel-electric drive to transport felled tree trunks. The first of these machines, which has the potential to reduce fuel consumption by 50 per cent when compared to a conventional design, is due to enter service in 2008. The deal neatly ties Volvo's interest in hybrid drive with its growing support for the use of residues from the timber industry to produce biofuel.