

The biggest improvement of MAN's new D15 over its predecessor is a reduction in weight: the D15 saves 230kg over the D20 while still offering similar power and torque. At the same time, all of this has been done while improving fuel efficiency by, it claims, around 2% over the previous offer.

Lucy Radley tries it out



Doing more with less

With Euro VI Step D emissions standards upon us, engines have been at the forefront of most manufacturers' minds recently, and MAN is no exception. Premiered in the UK at the 2019 CV Show earlier this year, the new 9-litre D1556 – or simply D15 – is a completely new unit, designed to replace the well-established 10.5-litre D20 as the company's mid-range offering. Slotting neatly between the 6.9-litre D0836 and an upgraded 12.5-litre D2676, the D15 has specifically been built with payload-sensitive sectors such as waste collection, tipper and tanker operations and truck mixers in mind, as well as distribution applications where maximum volume is reached long before gross weights need to be considered.

The most obvious change with the D15 is its physical size. Going from 10.5 litres displacement to nine immediately makes for a smaller package, yet this has been done without loss of power. The explanation given for this is fairly simple – emissions are reduced only by aftertreatment methods, there is

no exhaust gas recirculation (EGR) involved. Improved selective catalytic reduction (SCR) alongside a continuously regenerating trap (CRT) filter system are instead used alone to reduce NOx to near-zero levels, it assures – a system which includes airless AdBlue injection and optimised coating of the catalytic converters, giving a higher AdBlue fluid conversion rate.

To optimise combustion within an engine and give the greatest possible output for a given quantity of fuel, that combustion needs to take place at high temperatures. But raising the combustion temperature also raises the amount of NOx produced, which is where EGR and SCR come in. EGR, however, actually lowers the combustion temperature to reduce NOx, which inevitably means there's a cost. By using SCR alone in the D15, those higher temperatures, and hence the available power, can be maintained, which means a lower displacement is necessary. That in turn has given MAN a start on the reduction in weight it was seeking.

The D20 offered 316bhp and 355bhp variants, giving 1,600Nm and

1,800Nm of torque from 930-1,400rpm respectively. The new D15 comes with 325bhp, 355bhp and 395bhp options, generating 1,600Nm, 1,700Nm and 1,800Nm of torque between 1,000 and 1,500rpm. Why has MAN chosen to raise available power now, when it is also reducing size and weight? It's a decision based on what is available across its overall range. Theoretically, had it chosen to develop the D20 towards being an SCR-only engine instead of building the D15, that too could have seen an increase in power. But then it would have been encroaching into territory already occupied by the larger D26, without the benefits of a reduction in weight, which would have been an unnecessary duplication.

SLIMMED DOWN

As well as being physically smaller, weight has been removed from the D15 in other ways, some of which were only possible thanks to its exclusive use of SCR. A further 70kg has been saved by the use of a single-stage turbocharger. According to MAN, the removal of EGR had led to a reduction in turbo lag,

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so the two-stage turbocharging used by the D20 is no longer necessary for responsiveness. This is borne out on test drive, where, if anything, it is the slightly later achievement of maximum torque – 1,000rpm in the D15 as opposed to 930rpm in the D20 – which is noticeable, but easily overcome by use of a new 'performance' drive mode within the Tipmatic 12-speed transmission.

Based on ZF's TraXon gearbox with MAN's own software, this system's so-called 'DP' mode gives faster and later gear changes to build speed more quickly, although it is important the selector is returned to the regular 'D' position once the truck is up and moving to avoid unnecessary fuel consumption caused by earlier downshifts on hills while cruising. MAN is very clear that 'DP'

is only designed for temporary use, so driver education and monitoring through telematics will be key to ensuring this feature is used to maximum benefit.

Other innovations within the D15 are all about efficiency. They include a new common rail with injection pressures of up to 2,500bar, alongside which actual ignition pressures are now up to 230bar, thanks to domed valves and steel pistons. There is apparently also an improved two-stage fuel filter system to better cold-run characteristics and extend filter life. But perhaps more interesting are the local interconnect network (LIN) alternator and an air compressor with MAN's Energy Saving System (ESS). These are both designed to save fuel by only engaging either when they are needed, or when it is

most efficient for them to do so.

In the case of the LIN alternator, this means the batteries are topped up only when the vehicle is rolling, rather than when it is under increased load because it is climbing or accelerating. With ESS, the compressor shuts off automatically when the vehicle is under higher load, in the same way as the alternator. Both these features are aimed at reducing parasitic loss of energy and, hence, fuel consumption.

All in all, there's no getting away from the fact that MAN's D15 is a relatively small engine and feels like it on the road. But there are plenty of operations where it would be useful, even at 40 tonnes. The 18-tonne rigid bodied truck that was tested was positively sprightly with the 330 version, and the 26-tonne tractor and urban trailer at 395bhp was more than enjoyable to drive, with no sign of a struggle even when pulling away on a gradient. As for the 39-tonne tipper, also with 395bhp, for out-and-back applications such as hauling grain from field to store, as well as urban construction situations where prolonged driving at low speeds in congested environments is the order of the day, there seems to be no good reason to sacrifice payload for the sake of anything bigger. Given that this is all exactly what MAN intended, it can be concluded that this engine delivers. **TE**

