The procession of new models from Europe's heavy truck makers continues. Latest to set a match to its touchpaper is DAF. Ian Norwell reports from Andalusia

Evolution NOT revolution

With the Euro 6 emissions deadline now less than a year away and the closing date for orders a good deal earlier, there's plenty of choice. While some have manipulated their product replacement cycles to bring forward new vehicles, others have stuck to extensive modifications. Both help to soften the blow of increased costs that comes with Euro 6 – €14,000 more for the new DAF XF tractor unit.

DAF's choice has been to make best use of existing components and re-develop others where they provide significant operational advantages. A relative latecomer to the Euro 6 party, this OEM has spent the time refining its already successful XF heavy tractor (5,000 in the UK), so it's a tale of cumulative improvements that make the whole.

Driving force

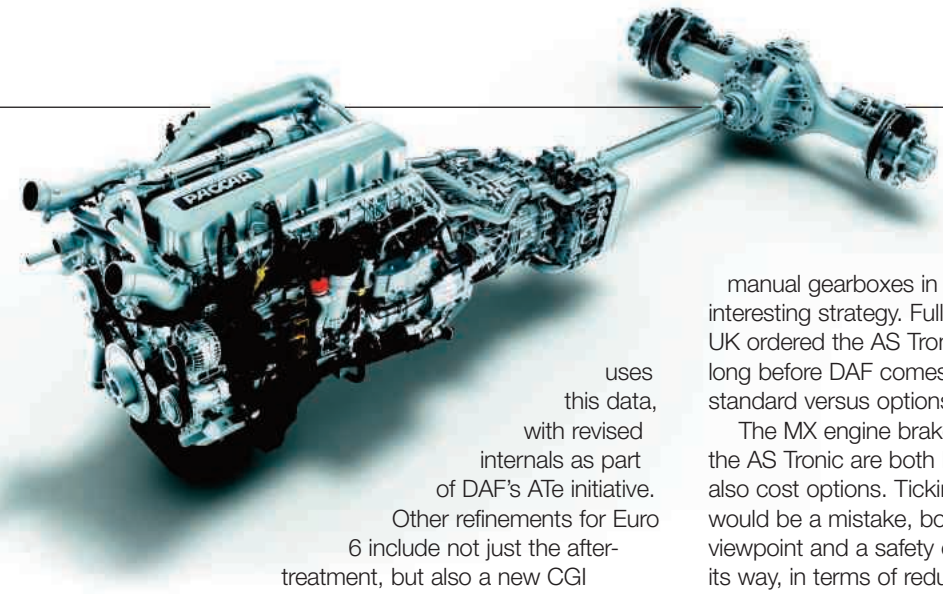
Isolating the true cost/benefit from Euro 6 engines is difficult: all the truck makers have honed not just their engines, but also the drivelines, vehicle construction, aerodynamics, and their ways of operating and interfacing with drivers. For DAF, however, in terms of fuel consumption at least, operators won't have anything to complain about.

Speaking at the driving launch of the new XF in Andalusia, DAF's president Harrie Schippers put it thus: "Customers who operate our ATe XF tractors at Euro 5 will see their fuel performance maintained by the new XF." And he added that operators running pre-ATe vehicles can look forward to an improvement of 5–8%, depending on cycle.

Where does Schippers' confidence come from? In common with most major truck makers, DAF can draw on experience gained elsewhere in its global operations – and 25% of its sister brands (Kenworth and Peterbilt trucks supplied in the US since mid-2010) have been EPA10-compliant. While the US emissions regulations are not an exact match for Euro 6, they require the same technologies, so DAF has good, hard field data.

In fact, the Euro 5 version of the six-cylinder, 12.9-litre Paccar MX-13 engine already

Above: An improvement of between 5–8% in fuel economy can be expected by XF drivers, says DAF



Left: DAF's Euro 6 engine range offers three outputs (410, 460 and 510bhp)

uses this data, with revised internals as part of DAF's ATe initiative. Other refinements for Euro 6 include not just the after-treatment, but also a new CGI (compacted graphite iron) engine block and high-pressure common rail pumps integrated into the block to limit hydraulic losses. Elsewhere, a single auxiliary drive belt and a fan mounted directly to the crankshaft, both save on maintenance costs, and cut weight and fuel usage.

Unlike most other OEMs, DAF seems to feel no pressure to produce outputs in the 600bhp or even 700bhp bracket. Asked why there is a choice of just three (410, 460 and 510bhp), Ron Borsboom, director of product development, says: "We feel that up to 2,500Nm, available over a wide engine speed range, is sufficient and allows operators the most economic solution. Significantly higher outputs are indefensible on CO_2 grounds." And, no doubt, in part it's keeping stresses to sensible levels that must be responsible for DAF's claimed service life of 1.6 million km, with service intervals up to 150,000km.

Downstream from the flywheel, changes are more incremental. The latest version of ZF's AS Tronic has some DAF-specific functions. New software and sensors controlling clutch engagement make starting off and manoeuvring smoother – noticeable on the test drive – and EcoRoll (the coasting function in cruise mode) is now standard. This alone gives a claimed 0.5–1% economy edge to add to the pile.

Meanwhile, software for long distance, heavy haulage and off-road work will help fleet engineers tailor orders. Whichever you choose, with higher rear axles seeking out economies from lower rpm, the shift down one ratio from top gear on inclines is now more common. And to avoid wasting the advantage, 'Fast shift' is used, meaning moving between 11th and 12th does not involve the clutch – so preserving energy.

Unlike other OEMs, some of which have deleted the option of a manual box altogether, in favour of AMTs, DAF's standard for the new XF is its 12S2840 12-speed manual, with a 16-speed for heavy applications. With the tide now running fiercely against manual gearboxes in this class of truck, this is an interesting strategy. Fully 77% of XF customers in the UK ordered the AS Tronic last year, so it can't be long before DAF comes clean and reverses the standard versus options listing.

The MX engine brake and the intarder built into the AS Tronic are both highly effective, but these are also cost options. Ticking neither on the order sheet would be a mistake, both from a maintenance viewpoint and a safety one. Either will more than pay its way, in terms of reduced friction material usage.

To our surprise, DAF's Borsboom discounts taking ZF's forthcoming TraXon dual-clutch AMT – at least until it has "lost some weight." Surely the potential economy gains of an unbroken drive would be worth a few kilos? Unless Iveco wants to take it, Volvo will be unopposed in offering this technology when its I-Torque comes on stream in 12 months.

Between the rails

Moving on, chassis improvements exemplify the philosophy of incremental advantage. The inevitable weight gain from the after-treatment has been mitigated by redesigns that allow the chassis to drive away from the Euro 6 scrutineers only 90kg worse off than a Euro 5. Lightweight fifth wheel mounting plates, a lighter rear closing chassis beam and a redesigned four-bag stabilink rear suspension, with anti-roll bar and reaction rods combined, all help.

The new 4x2 chassis has a modular layout, with options for fleets to arrange their major space needs. Fuel capacity can be maximised by moving the locations of SCR/DPF (selective catalytic reduction and diesel particular filter) equipment, the battery box and the spare wheel (if you carry one). However, latitude on RHD drive 6x2 chassis – due to start production in October this year, six months after the two-axle tractors – will clearly be a lot less.

Finally, from the driver's perspective, the cab has had a useful re-work and now offers improved visibility. Drivers will also notice new instruments with an even stronger accent on economy. But most apparent will be the lower noise levels. A claimed reduction of 2dB is more than believable. Even working hard on a 7% gradient at 40kph in 9th gear, it remained impressively quiet. TE