

RIGHT TRUCK,

Time was when fleet engineers spent considerable time specifying their ideal trucks. Some still do, but the rest of us need to get back to those days, writes Brian Tingham

We all know the situation: time is pressing; there are always priority problems demanding our attention; so cutting corners is the only way to keep afloat.

That's why so many transport managers admit, if pushed, that they don't really give enough attention to specifying new vehicles – especially tractor units, but also rigids and even semi-trailers and drawbars. Most of the time, we get away with it. Our selections may not be perfect for the jobs they're tasked with, but they work well enough.

However, all that might be about to change. Partly, that's because of the knock-on effects of Euro 6 at the end of this year. Partly, it's about unintended restrictions resulting from the implementation of WVTA (Whole Vehicle Type Approval, see page 30) that may make some vehicles much more expensive or simply no longer available. And also it has to do with technology improvements – such as intelligent fans and compressors, topography-aware transmissions, advanced telematics etc – that are increasingly capable of making significant differences to operational costs and efficiencies, as well as residual values.

So the bottom line is that we need now to stop assuming that 'more of the same' will do the trick. Most of us know it was never the smartest approach and probably means we're missing out on some cost benefits. As Nick Blake, sales engineering manager with Mercedes-Benz, puts it: "We have some 1.4 million variants across our truck range, and we're no different to Iveco, DAF, Volvo, MAN and the others. We all offer that sort of flexibility, because that's what the transport industry needs."

In other words, there are – or should be – few, if any, standards in heavy-duty vehicles. But with millions of variants, leading to potentially tens of millions of permutations offered by the OEMs, how should you be preparing for your next tractor unit specification? Yes, the manufacturers have their sophisticated configurator software, as well as sales engineers trained to provide useful guidance – and both are important tools – but what about comparing apples with apples?

You'll hear it put different ways, of course, but all

manufacturers agree the starting point is less the vehicle and more its operational requirements. So, consider; are you trunking up the motorway network? If so, are you driving north-south, in which case there are generally fewer hills, or east-west, where there are plenty and they're steep? If not, are we talking regional distribution, general haulage, construction, muckaway, municipal vehicles, tankers etc – and where are they operating? Answering those questions starts to determine appropriate powertrains, all the way from engine power, torque and weight, to the transmission, RAR (rear axle ratios) and tyre sizes, types and tread patterns.

Equally important, however, is the load – and not just the extremes of grossing- or cubing-out, but also its nature – because that also impacts the powertrain, and helps to determine the cab and chassis configurations. Blake makes the point that, if, for example, you're carrying steel, you won't want a GigaSpace cab, but something smaller and lower to minimise the tractor's frontal area and hence its drag coefficient. Alternatively, if you're on continental haulage, you may well need a low-height chassis to get the fifth wheel at 0.96m and take maximum advantage of the 4m trailer height limit.

Iterative process

You'll probably also want a generous sleeper cab, with air management kit (again, to minimise drag) – and you should consider a Euro 6 engine to benefit from reduced Maut tolls. The decision about 6x2 mid-lift versus 4x2 is then mainly about fuel and maintenance versus residuals. But, if the truck is likely to be running mostly fully-freighted, you can also consider a taller RAR – particularly with today's higher torque, lower revving engines.

Inevitably, this is something of an iterative process. "If the operational duty leads you to an Actros sleeper cab, for example, but you're running at 28 tonnes, you won't need 450bhp," muses Blake. "Equally, if weight is critical, such as in tanker operations, you might want to specify a 10- instead of a 12-litre engine, along with alloy wheels, tanks and front under-runs, to keep the gvw down. We can record real in-fleet vehicle performance on one of our demonstrator trucks, using Fleetboard



RIGHT DUTY?

Telematics, to help operators determine the best specification for their particular application.”

Teaching grandmother to suck eggs? Maybe, but sometimes it's helpful to go back to basics. Either way, for the vast majority of applications an AMT (automated manual transmission) should now be a must. Even trucks specified for construction invariably benefit, in terms of driveability and massively reduced clutch maintenance costs – and there's always the manual override. The debate then is around the numbers and speed of shifts,

transmission mapping and, again, matching the overall powertrain to the requirement.

As Iveco product director Martin Flach, puts it: “On haulage, for example, the combination needs to be efficient within a sweet spot, because a few revs make a big difference to fuel costs over time.” And much the same applies to aerodynamics: “People tend to under-specify air kits. Yes, they cost a little more – £1,200–1,500 fitted – but you save that time and again on long haul, and even on some urban distribution.”

Below: the all-new Volvo FM, launched at last month's CV Show, and billed as offering top flexibility and transport efficiency, with its low-entry improved cab and Volvo Dynamic Steering



Avoid assumptions when it comes to specifying new Euro 6 tractor units



While for some manufacturers Euro 6 changes little, at least in terms of chassis configurations (that work was largely completed for Euro 5), for others the modifications are almost wholesale. Speaking at last month's CV Show, alongside a shiny new orange CF tractor, DAF marketing director Tony Pain suggested that OEMs have largely mitigated poorer fuel returns at Euro 6 by some ingenious re-engineering. So fleet engineers with standard truck specs should not assume they will be able to get identical matches come the end of this year.

"Most of the OEMs have adopted EGR [exhaust gas recirculation] and SCR [selective catalytic reduction], and all of us have a DPF [diesel particulate filter], which together can add 250kg. EGR requires 25% more cooling, so most of us have redesigned the chassis and/or the front end of the cab for a bigger radiator. But we've gone further by revising the chassis, and getting some weight saving on the rear axle and rear suspension – for example, by combining the reaction rods and anti-roll bar into a stabi link system. That alone saved 100kg. Also, we now offer 11-litre down-sized engines up to 440bhp, which are about 180kg lighter than the 13-litre. So, now a 440bhp CF or XF tractor can be lighter and more fuel efficient than its Euro 5 predecessor."

So far, so good, but returning to the mostly larger, heavier after-treatment box, Pain advises: "Don't just assume you can get the same fuel tanks in the same position. Fuel capacity may be okay, but chassis layouts may well have changed." And he continues: "For the CF and XF, we've moved the AdBlue tank under the cab to free up some chassis space. And, since AdBlue consumption roughly halves [2–3% at Euro 6 for EGR/SCR combos], we've doubled the range. But you need to check that – especially for those running without cooled EGR."

Pain also reveals that DAF now offers 14 layout variants for the new XF. Similarly, on the CF and XF, there's a 'Y' shaped chassis and new cab mountings, designed for a smoother ride and better driver protection, in the event of a collision. And he points out that the default tyres have moved to 315/70s, not 295/80s, to accommodate the extra front-loaded weight of the new engine, with its VGT (variable geometry turbo), after-treatment, and increased coolant and oil sump capacities.

"That may mean a different wheel base," comments Pain. "We believe that 3.6m gives the right balance for most needs, compared with 3.8m before. So, again, you need to check dimensions and axle weights. Euro 6 is a charter for bringing back the fleet engineer. You can't just walk into a dealer and say: 'That one will do for me'."

Getting more detailed, you next need to understand both the trailer loading and unloading sequences, methods and load distribution, and the resulting force moments. And the same applies to auxiliary equipment, such as tail lifts and trailer-mounted forklifts, as well as truck-mounted cranes and wet kit etc – the issue being weights, positions and operational requirements. And now you're into formal calculations, using systems such as TruckFinder.

As Nick Handy, applications engineer with MAN, says: "We need to establish axle specifications, and the fifth wheel position, relative to the back of the cab and its swing clearance requirements. So we need to know trailer weight and length, number of axles and plated capacities. Also, remember that diminishing loads need to be taken into account, because they can increase the pin loading and risk axle overloads."

Logical process

It's all about adopting a logical process, geared to ensuring a tractor package that's fit for purpose. "You can't just choose the engine size, power and torque, taking into account the fuel efficiency versus journey times and performance," states Volvo UK trucks product manager John Comer. "There's much more to it. For example, we offer several pusher axle choices for 6x2s, as well as two wheelbases and two chassis heights, but also a second hydraulically-steered axle, which can minimise tyre wear on vehicles needing to manoeuvre fully laden, given the lift axle rules."

"And while 295/80 has been the UK standard for tyres, you might want to look at 315/70s, with their reduced height profile and extra load capacity... A lot of effort has gone into aerodynamic trailer roof design, but we still have the highest coupling heights in Europe, not helped by the fact that we like a slider for that 'just in case' situation."

There's also a balancing act aspect, with one eye on the operation and the other on residuals: "You don't want to over-specify the truck configuration – a size 11 shoe for a size 9 function. But, on the other hand, you want to make it saleable, too," quips Comer. "We advise thinking most carefully about the opex, because operational savings from a correctly specified truck may far outweigh any residual losses, depending on the length of contract."

Having said which, he concedes that sleeper cabs almost always make a big difference to residuals, despite the 60–100kg payload penalty. "We would say you should probably order sleeper cabs, even if you only need day cabs. In our case, it's usually the high roof Globetrotter or XL. It's about globalisation, but also minimising the air gap to the trailer and keeping good drivers by giving them an environment they like." A point with which Iveco's Flach can only agree. 