SMALLER savings

Truck operators can garner significant weight savings by reducing the middle axle in 6x2s. Steve Banner focuses on the bodybuilding implications of mid-lifts

Decide to have a mid-lift with 19.5in wheels fitted to a 6x2 tractor unit and you can cut its weight by 350kg, says Nick Handy, UK head of product management at MAN; and you can still operate it at 44 tonnes. It is an option regularly selected by the company's tanker fleet customers.

"If you are transporting petrol, that means you can carry 450 litres more," he points out. "We see it specified on our TGS units and sometimes on our TGX models, too."

Saving weight is not the only advantage of such an approach, Handy says. It means there is more room on the chassis for everything from hydraulic kits to bigger fuel tanks. Chassis are becoming increasingly cluttered, thanks in part to the bulky emission control systems that have to be fitted, so anything that creates more space is welcome. The mid-lift Handy refers to is a 5-tonne axle positioned ahead of a 10.5-tonne back axle.

DAF's XF FTP 6x2 unit comes with a 4.4-tonne mid-lift pusher axle with 17.5in wheels, which can deliver a saving of approaching half a tonne, says UK marketing manager Phil Moon. "We find that it is favoured by operators who gross out before they bulk out," he says. It gives them more payload capacity, and more leeway if they regularly run at close to the 44-tonne threshold and are concerned that they might end up committing an overloading offence."

The weight saving can also lead to fuel and CO_2 savings, adds Moon. "So far as chassis packaging is concerned, it means you can fit a 1,000-litre rather than a 500-litre tank," he says. That gives you more opportunity to benefit by filling up wherever fuel is cheaper.

Opting for a small mid-lift axle has few significant drawbacks, although axle loadings have to be considered carefully. Such a set-up can make particular sense if the pin loading is always predictable, says Handy, as it is with fuel tankers. "Tanker operators tend to opt for a fixed rather than a sliding fifth wheel," he observes. Choosing the former rather than the latter can cut your unit's weight by 50kg to 100kg, says Scania UK pre-sales technical manager Phil Rootham; and sliding fifth wheels are notoriously seldom slid.

The FTP mid-lift configuration is becoming more widely accepted, however, says Moon, although sales remain lower than those of the conventional 6x2 FTG. "From January to August this year we sold 465 FTPs compared with 2,468 FTGs," he says. "That makes the FTP our fifth-biggest UK seller."

If you are worried about the look of a small axle, then you can always hide it. That is what Northern Ireland's Surefreight has done with the 17.5in mid-lifts installed on the ten 6x2 Mercedes-Benz Actros Gigaspace tractor units it acquired last year (pictured, right). "The fact that the wheels on the mid-lift have a narrower track than the front and rear axles allows us to fit side skirts, which conceal them," says Vincent Waddell, who founded Surefreight with co-director Brian McManus 30 years ago. "As well as contributing to their smart, clean appearance, they help to improve the trucks' aerodynamic profile."

The mid-lifts deliver a 300kg weight saving, but that is not why Surefreight opted for them, Waddell says. "The main benefit to us is the extra space freed up on the chassis, which means we can fit larger fuel tanks on the passenger side," he explains. "Each Actros can carry 700 litres of fuel as opposed to the 450 litres of a standard 6x2, which significantly reduces the number of times they need to stop and fill up."

Meanwhile, Volvo redesigned its lightweight pusher axle for tractor units in 2015, says John Comer, UK product manager at Volvo Trucks, and has seen sales grow subsequently. "It offers an additional weight saving of over 100kg

with lightweight cast suspension and an axle optimised for 44-tonne work," he says. Like Handy and Moon, Comer points to the chassis packaging benefits such axles can bring. "If we want to fit additional equipment – a blower for example – on a 4.0m-wheelbase chassis, then we can take advantage of up to 970mm of free space on the right-hand side," he says. Extra room is especially useful if the truck is running on a gaseous fuel, and needs to accommodate bulky gas tanks.

Returning to the FTP, it can make sense to think carefully about the front steer axle that you want to specify, Moon advises. Again, a saving can be made. "Opt for a 7.5-tonne axle and you can achieve a 38kg saving compared with an 8.0-tonne axle," he observes. "If you choose a 9.0 tonne axle instead, however then you will see a 42kg increase."

Lighter front axles can bring benefits to rigids, too, but there is always the risk of a diminishing load problem if the truck concerned is on multi-drop work.

That does not mean that potential savings gained by carefully specifying axles on rigids should be ignored. Two years ago MAN began offering a new design of hypoid axle on its eight-wheelers that offers the same ground clearance as a hub reduction axle. "It means a 280kg saving," Handy says.

DAF's Moon adds: "Opt for a single-reduction rather than a hub reduction axle, and you can save more than 400kg."

In other weight-saving news, Scania has introduced electrically steered rear-steer axles on its rigids, says Rootham. "It means you don't have hydraulic pipes running down the chassis, and gives you a 20kg to 25kg saving," he says.

At the other end of the scale, big savings can be achieved by businesses in the construction industry, says Mercedes, if they specify an Arocs with a front axle with HAD (hydraulic auxiliary drive) rather than conventional four-wheel-drive. Wheel hub motors are supplied with hydraulic oil courtesy of a high-pressure pump directly driven by the truck's engine, which gives them a power output of 40kW each. The pump has an output of up to 112kW and delivers a flow rate of up to 350 litres/min at a maximum pressure of 450bar. The system can be engaged whenever the driver presses a button to give the truck extra traction. It adds 400kg to the vehicle's weight. However, the on-demand all-wheel-drive package that can be fitted to a two-axle Arocs instead tips the scales at 825kg, while permanent four-wheel-drive adds a hefty 975kg.

"The transfer case, differential, drive shaft, thicker chassis frame and all the other features of conventional all-wheel-drive are no featherweights," a Mercedes spokesman remarks; and they all spell reduced payload capacity and higher fuel consumption. TE