Body beautiful

Although low-entry cab rigids may be stealing the limelight, their bodies are developing too. Steve Banner reports on the ongoing movement to cut weight and cost for operators

Long used as refuse collection vehicles and increasingly now tippers, Mercedes-Benz Econics are moving into London with refrigerated bodies. Two 1830 18-tonners with single-compartment boxes, built by Gray & Adams, are in service with fresh fruit and vegetable supplier Reynolds on multi-drop work.

The bodies are unusual, too (see above). With a curved roof to the front, these boxes have been designed to blend into the air deflectors on top of the low-entry, cyclist-friendly Econic cabs. Access doors have also been fitted to both sides of each body, along with profiled panel cappings.

Also, both trucks have been mounted with under-slung UT-800 Thermo King fridges. And measures taken to minimise delivery noise include sound-deadening Marothaan coatings for the cargo floors.

"The Econic comes at a higher capital cost than a conventional 18-tonner and our new trucks carry 750kg less," says Reynolds' head of fleet support Steve White. "The reduced payload capacity is partly because we've chosen to rack out our Econics. It's not a problem though: we always bulk out before weight becomes an issue."

But that's not the case for everyone. Some operators are desperate to shed every kilo possible. However, that can be expensive. "If you're talking about box bodies, one solution is to specify panels with an aluminium honeycomb core," advises Don-Bur's marketing manager Richard Owens (opposite, right). "They're roughly half the weight of GRP and come with a glass-smooth finish." Needless to say, there are drawbacks. "They're fairly soft, can suffer damage and attract a 140–150% premium over GRP."

A better bet might be polypropylene honeycomb core panels. "They're around a third the weight of GRP," states Owens. "They flex a bit but that is not too much of an issue with a rigid, and they shouldn't need reinforcing. They're quite robust, too... However, they cost 90–100% more than GRP."

Then there is Don-Bur's own Blade panel, which Owens concedes is heavier than either of the honeycombs – but it's also cheaper. "Blade uses an HDPE (high density polyethelene) foam core faced with 0.5mm galvanised steel and a polyester paint finish." It weighs

11.8kg/m², compared with 16kg for a 21mm GRP panel, he says, but attracts a price premium of 40–50%.

There are other choices. Composite plastic-and-metal sandwich panels, as used in Cartwright's 10-metre Streetwise urban semi-trailer, could be used on a rigid body, says technical director Lionel Curtis (below left). "They've saved us half a tonne at 10 metres and the price premium on these panels is less than 10%," he claims. Why? Because they are comparatively slim, at 10mm rather than 21mm. "They were developed as an architectural material," comments Curtis, adding that body builders need to look at other industries' approaches to cladding.

AIM HIGH OR LOW

Other ways to reduce body weight include specifying a PVC fabric roof – although Owens counters that the savings are modest – or bonding the body floor directly to the chassis. "That means cross-bearers aren't necessary and you can get away with a minimal subframe," he says.

Such a floor will not stand up to heavy barrels or stillages though. And the other issue with bonding the floor to the chassis concerns wheel box intrusion into the load area. Lighter floors can always be specified, suggests Bevan Group managing director Anthony Bevan.

Incidentally, a plastic floor in a six-metre box will save you 50kg – although it will add £500. A better way of saving weight, says Bevan, might be to have the box bonded. "That will save 40–50kg because you won't need the fasteners. And it won't cost you more," he says.

If you don't want a bonded-down floor then opting for aluminium cross-bearers and runners will bring down weight. "So will aluminium side raves," says Owens. "Use alloy panels on a curtainsider's rear doors and you can save 30–40kg," adds Curtis.

"Remember that steel weighs 8 tonnes per cubic metre, compared with 2.7 tonnes for aluminium," says Owens. That said, there is the danger that some of this advantage will be offset by bodybuilders using more aluminium to compensate for its strength issues – and aluminium is pricier than steel.

"Composite plastic-and-metal panels saved us half a tonne at 10 metres and the premium on these panels is less than 10%"
Lionel Curtis

How about choosing expensive, high-strength, super steel? "Experience has taught us that, although we can use thinner PAS 700 super steel profiles, we have to increase the number of structural components to compensate for the reduction in rigidity," Owens replies. "So we only use super steel sparingly these days and we would not recommend it as a light-weighting option."

Moving on to aerodynamic aids, most rigid bodybuilders can offer options, including side skirts, moulded Luton heads and collars that can bridge the gap between the rear of the cab and the front of the body. There are also curved roofs of the type found on the Econic fridge body in London. Bevan's Icon body for 3.5 tonners, unveiled some years ago, is an exemplar of what can be achieved.

Such treatments are not proving particularly popular, says Bevan, probably because rigids tend to be deployed on stop-start, local distribution work where the benefit of such interventions is low. "Also, most of our customers don't want something that is lower at the front or back," he remarks. "They want an oblong box they can fill."

But one of the most interesting developments in rigid bodybuilding in recent years concerns low-floor Luton-bodied 3.5-tonners based on front-wheel-drive platform cabs, rather than chassis cabs. As well as offering easy load access, they deliver a weight saving, says Simon Partridge, sales and brand manager at Trucksmith, which specialises in this type of product. "A front-wheel-drive chassis platform can be up to 180kg lighter than a front-wheel-drive chassis cab," he observes. TE