LIGHT but strong

While type approval continues to be a major issue for minibus bodybuilders and converters, so too are new technologies and materials. Steve Banner reports

Bodybuilders and converters look set to benefit from a cash bonanza. The Department for Transport is making £25 million available to not-for-profit operators in rural areas, enabling them to buy hundreds of new minibuses.

Whether they are van or window van conversions, or involve specially-built bodies, these vehicles are not getting any cheaper. In part, that is due to ECWVTA (European Community Whole Vehicle Type Approval). As Mike Jones, production director at minibus builder Euromotive, says: "We've had to increase our [prices] by £600–£700. And John Randerson, bus operations manager at Mellor Coachcraft, estimates the cost at £500–£600.

Because they do not sell vehicles in other EU countries, neither converter opted for ECWVTA in full. Both chose less onerous routes to compliance.

"We've gone for NSSTA [National Small Series Type Approval], although we sometimes have to go the IVA [Individual Vehicle Approval] route," says Randerson. "We're in Rochdale and our nearest test station is in Chadderton, which is fortunately not too far away, but we still incur costs in terms of time, fuel and driver's wages, and the vehicle usually has to go there twice."

While NSSTA is preferable to IVA, because Mellor can inspect the vehicles once completed in-house to ensure conformity, it can discourage bodybuilders from considering new component designs, says Randerson. "Say a supplier comes to us with a new design of side indicator," he suggests. "It may offer a cost saving but we have to balance that saving against the cost of obtaining an extension to our NSSTA." And that equation may not always stack up.

That said, one way ECWVTA has benefited Euromotive, says Jones, is that it prompted the company to reconsider certain aspects of vehicle design. "It made us think more carefully about what we were doing," he states – especially around weight saving. And he explains that airbags, air conditioning systems and stiffer body shells have all driven unladen weights upwards over the past 25 years, and Euro 6 will only add to minibuses' burden. So Euromotive has reviewed everything from the materials that line the interiors to the weight of the

Top and right: CM (Composite Mobility) Mission in production at O&H Vehicle Conversions, working with Plastisol UK and seat maker Rescroft

seats it fits, with the latter now tipping the scales at 14–16kg, compared with 22kg previously, without being weakened.

And that's crucial: seat strength, the strength of the floor bonded or bolted into a minibus conversion, and the strength of the seat and seatbelt anchorages are all issues when it comes to crash tests and static pull tests under type approval. A crash test typically costs up to £8,000 plus the cost of the test sled, with separate runs for each make and model of vehicle, and each variant. Front-wheel drive versions must also be tested separately.

It all adds up

Even seat fabrics are being dragged into the fight on flab. At the October 2013 Busworld show, in Kortrijk, Belgium, Camira launched a range under the Dimension banner that uses a polyester pile claimed to be lighter than traditional wool pile moquette. Use it to trim a 25-seater and you save 12.5–15kg, as well as some 20% on costs.

Manufacturers of other components are also getting in on the weight-saving act. Passenger Lift Services has cut the burden imposed by its latest cassette-type wheelchair lift for accessible minibuses by 50kg, to 220kg. Among measures it has taken is using recycled plastic rather than sheet steel to wrap the cassette, saving 18kg.

However, there are more radical ways to save weight. O&H Vehicle Conversions illustrated one of them at the Euro Bus Expo in November, exhibiting the CM Mission (Composite Mobility) in conjunction with Plastisol UK and seat maker Rescroft. If the 5.0-tonnes gross 17-seater looks familiar, that is because it was briefly marketed as the Optare Bonito – until Plastisol and Optare parted company.

The vehicle employs a chassis-less, one-piece integral body, made by Plastisol in the Netherlands and constructed out of high-strength, vacuum-formed woven GRP (glass reinforced plastic) foam sandwich panels. They are said to be 30% lighter than polypropylene and stainless steel, and 15% lighter than aluminium. Power comes courtesy of a 177bhp 3.0-litre diesel sourced from Fiat Professional's front-wheel-drive Scudato, a cut-down version of the Ducato. Its six-speed gearbox comes from the same stable and so does the optional Comfort-Matic automated manual box.

A 28-seater tri-axle version of the low-floor wheelchair-accessible CM Mission is a possibility, but Plastisol is reluctant to offer it in the UK because it fears the rear wheels will suffer tyre scrub. Something that is appearing here, however, is a 15-seater electric CM Mission, using technology from EMOSS acquired by Plastisol two years ago. TE

Nu-Vibe, from Nu-Track in Northern Ireland, employs Wright Group's Aluminique all-alloy body with quick-release panels

Good vibrations

While weight is a key consideration, so are ease of repair and compact dimensions – particularly if your route involves narrow rural lanes. Those are among the virtues claimed by Northern Ireland-based Nu-Track for the Nu-Vibe, which also received its official unveiling at Euro Bus Expo.

With a passenger saloon that can seat 33 and aimed at the accessible market (various configurations are available including one that can carry 23 seated passengers with four wheelchairs) it is a modest 2.278m wide. The seats are on two levels. Opt for 33, and 17 will be positioned at a higher level at the rear of the vehicle, while the remaining 16 will be mounted at a lower level, fixed or detachable.

Powered by a Cummins 150bhp ISBe 4.5-litre diesel married to an Allison S2100 automatic gearbox, it employs Wright Group's Aluminique all-alloy body structure with quick-release panels designed to minimise downtime if Nu-Vibe suffers a minor bump. The chassis was developed in conjunction with Wright's EN-Drive operation.

Nu-Vibe joins Pulse, which was launched in mid-2014 – also a 33-seater, but based on a 10-tonne MAN TGL truck chassis and designed to replace the now-departed Mercedes-Benz Vario. "We've sold 21 Pulses so far," says Nu-Track business improvement manager Rob Shiels. "It's easy to get parts for the TGL and customers welcome that."