



# DUTY OF CARE

Mostly sharing the same chassis as their commercial counterparts, emergency vehicles have to deal with some very different duty cycles. John Challen talks to the specialists

**M**ileages might be fewer and journeys more sporadic than those undertaken by heavy-duty trucks, but emergency vehicles must still at least match their reliability and performance. Frequently required to move from cold start to high speed and full load in a moment, the goal is ensuring that they are fit for purpose and ready to respond first time, every time.

MAN is one of the main suppliers of fire engines in the UK and in many ways the vehicles it delivers might be viewed as over-specified. But as Andrew Young, MAN's general manager for special products, puts it: "MAN makes the truck to the specification that the brigade requires. We don't offer an off-the-shelf option. Many fleets insist on features such as a £10,000 hydraulic retarder, a control system to ensure it is permanently on and a boost function to give them extra horsepower for a few minutes."

Interestingly, one feature that many drivers don't want is advanced safety systems, such as ESP (electronic stability programme). "Drivers see these technologies as intrusive and find it difficult to adapt,"

explains Young, acknowledging that rebuffing such technologies goes against the grain of the rest of the commercial vehicle sector. "I have to tell them to write to me, saying they don't want such systems on the truck, because MAN's position is that we have developed the technology because it is needed. By telling us directly, that mitigates our responsibility."

### Flexible specs

Young believes that much of the time, fire engines' duty cycles mean that maintenance is more akin to an inspection than a service. "Brakes often last for a few years before being changed, because fire engines don't do the mileage to warrant it," he agrees. "But MAN does have a regime that, if the truck doesn't get used for 12 months, operators should change the oil and replace the filters – because of condensation, as opposed to usage."

David Hopkins, fleet group manager at Lincolnshire Fire and Rescue, now runs 56 fire engines, which have recently been the subject of a major investment programme. Retained on the fleet are 33 engines based on MAN 18-tonne chassis,



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with body and pumps built by Ziegler. The remainder of the old fleet (more 18-tonners), which was more than 12 years old, has now been replaced with more MAN chassis, but lighter variants – four 15-tonners with AWD (all-wheel drive) capability, and 19 trucks based on 12-tonne chassis. And the fire service has also invested in two aerial ladder platforms (ALPs).

“We wanted the AWD capability, so that we gain the ability to wade in areas affected by coastal flooding, for example on the east coast of the UK,” explains Hopkins. He also says that height was one



of the critical specification factors, during this bidding process. He explains that his team has already worked hard ensuring that its new vehicles are as light and fuel-efficient as possible, to the point where everything now fits on a 12-tonne chassis. “So we were also keen to reduce vehicle height, because, with ageing fire stations, we haven’t got space to get a heavier or taller chassis in,” he says.

### Tardis scenario

But that’s not easy: “With a fire engine, everyone wants them big on the inside [to carry the crew and equipment] and small on the outside [to go up narrow side streets],” comments Hopkins, who adds that the new engines feature many new technologies that help during emergency calls. “Traditionally, for example, our engines would have a main five-part fire-pump, which is PTO-driven. But we have also added a Cobra fire pump [from Coldcut], which delivers super high-pressure water [300 bar].”

Lincolnshire’s fleet has also moved from manual gearboxes to automated tiptronic units throughout, says Hopkins. “This takes away some of the complexity of driving the vehicle. Drivers could be called to a blue-light incident when they haven’t driven for a number of days. We want them to be absolutely focused on making it to their destination as quickly, but also safely, as possible.”

Meanwhile, away from fire engines, the ambulance service is largely dominated by Mercedes-Benz, with all but two of the UK’s ambulance trusts adopting chassis cabs based on the Sprinter platform for their frontline vehicles. Stephen Anderson, emergency services and environmental strategy manager at Mercedes-Benz, says the trend away from van

conversions is continuing, largely due to the Sprinter’s reliability and performance, as well as the extra capacity available as standard.

“The space in the box on the back of a Sprinter allows paramedics to undertake more invasive surgery, so they can do a lot of work on the way to the hospital,” explains Anderson. All the vehicles are 5-tonne, 3-litre V6 models with automatic boxes, he adds, which is not only smoother than a manual, but helps with paramedics’ duty of care, while ensuring that drivers keep both hands on the wheel.

“We issue the chassis to the ambulance trust,” says Anderson. “We have several suspensions and we offer them a package that includes a big battery and alternator, as well as passenger safety aspects, such as an airbag as standard. A lot of the ambulances are also fitted with Telma retarders, which enable not only extended brake life [given their harsh duty] but also shorter servicing times, meaning the vehicle are back on the road faster.”

In fact, maintenance takes place every six weeks, and many ambulance fleets carry replacement vehicles as spares to guarantee availability – a luxury highly unlikely to be afforded to the vast majority of transport operators.

Interestingly, ambulances also tend to go through a variety of roles. “A frontline ambulance is as arduous as it gets, compared to anything in commercial vehicles,” explains Anderson. So while they might be used in that main role, running up to 100,000 miles per year for a couple of years, they are then moved to a less arduous stations. He cites the example of a Welsh ambulance moving from Cardiff city centre to the valleys and then on to North Wales towards the end of its life. “Typically, you are looking at a five-year life for an ambulance, although some are on seven, and even 10 years.”

How? A drivetrain refurbishment is possible in many cases, explains Anderson, although he says that some fleets prefer new vehicles. “We’ve looked at various ideas around re-bodying, because it’s the box on the back that is the really expensive bit. So, we’ve encouraged fleets to do this, but they believe the box has its own life, too, and it is more expensive to repair than the replace,” he asserts, adding that, in some cases, they have a point.

“The average estimated cost of taking a box from an old Sprinter, and putting it on a new one, even if the geometry is right, is about £20,000. This covers all the engineering, electrics and livery. But there is also the cost of physically swapping the vehicles over, and the fact that you’ve got a vehicle out of your fleet for three months,” explains Anderson.

Specifications for emergency vehicles might be very different to trucks and panel vans, but their engineering, maintenance, fitness for purpose and lifecycle costs clearly hold equal importance. Whether you’re caring for people or carrying products, reliability, safety and value for money are key. **TE**