

Smarter hybrids

With the number of hybrid buses in operation continuing to increase, John Challen talks to powertrain provider BAE Systems about how technicians have coped with servicing and maintenance

The introduction of hybrid powertrain technology into commercial vehicle fleets represented a major development in the transport industry. It also left technicians scratching their heads about the implications, in terms of skill sets.

With the number of hybrid vehicles – including light commercials, trucks and passenger service vehicles – now in their thousands, those fears are evaporating. That, in part, is testament to the technology itself and the training provided by the likes of hybrid systems developer BAE Systems. Since 2008, that company's HybriDrive propulsion system has powered a fleet of 27 buses in London alone over more than one million miles. And the technology has since been rolled out to bus fleets in several other parts of the country.

From a servicing point of view, BAE Systems said it wanted to build on technicians' existing base knowledge. "We developed training programmes for our partner – Alexander Dennis – and then jointly developed additional programmes for our field representatives and also the depot engineers," recalls Rob Lindsay, BAE Systems director of transport systems (UK and Europe). "Everyone who deals with the

hybrid vehicles now gets training on basic safety and maintenance aspects."

BAE Systems' training includes modules covering basic electrical and high voltage safety. There are, for example, specific procedures for hybrid vehicles in relation to isolating high-voltage lines before beginning maintenance procedures on buses. Just as important, it covers BAE Systems' Integrated Diagnostics System (IDS), which Lindsay confirms is a key tool for the maintenance itself. IDS, he explains, enables technicians to interrogate the hybrid powertrain itself and not only see fault codes, but also investigate right down to data movements, via a laptop. "The IDS allows technicians to diagnose any problems very quickly," he confirms.

Expanding intelligence

Lindsay says that the introduction of hybrid buses in the UK, and their subsequent servicing and uptime record, has been impressive – and that trained technicians have played their part in making that happen. "The community we are dealing with has plenty of experience, from a hydraulics and mechanical perspective. But these vehicles are more sophisticated, from an electronics point of view, so we just needed to take them to the next level," he says.

For him, hybrids are essentially just another example of increasingly sophisticated vehicles – with their growing dependence on distributed ECUs and CANbus technology making them much more intelligent, but also much more complex. Hence technicians' requirement for an additional set of disciplines.

"This has been a challenge, but, on the whole, there have not been a great deal of problems," asserts Lindsay. "The electronic systems are fairly self contained and intelligent, and the IDS is designed to minimise the amount of investigation required to detect any specific issue. And it does a lot of the work in an automated manner."

Of course, UK technicians do have an advantage. BAE Systems was able to draw on experience from its North American counterparts – its HybriDrives power a fleet of more than 3,000 hybrid buses across the USA – not only to prove to the market that its hybrid vehicles can operate in a routine manner, but also to construct appropriate training.

"We wanted them to know that there are no unmanageable aspects, which was, perhaps, their experience with previous hybrids," he explains. "What we wanted to prove – and I think we have been successful in doing so – was that these vehicles can be operated in a normal depot environment, with the existing technician staff." **TE**

