



# Fare assessment

Given that the transportation of passengers carries with it greater risks than the movement of goods, maintenance takes on even greater safety-related significance. John Challen investigates the latest developments in bus and coach inspection and testing

**W**hile there is a clear requirement for HGV and LCV operators to maintain their vehicle fleets to a certain standard, for those running buses and coaches the stakes are arguably much higher. Given the value of human life versus (albeit sometimes very costly) cargo, those companies responsible for ferrying passengers around are duty bound to aim high when it comes to vehicle quality and roadworthiness.

And the industry has responded. First UK Bus, for example, which moved away from minimum compliance with the VOSA (Vehicle and Operator Services Agency) categorisation of defects and created its own inspection manual about four years ago, is making great strides in further improving levels of roadworthiness within its vehicle fleet. The company's own inspection criteria set standards that are markedly above those recommended by the government agency.

"We don't only want to ensure that the vehicle passes its inspection on the day, but also have confidence that it will remain roadworthy until the next inspection," states Graham Belgum, business

improvement director at First UK Bus.

"If the VOSA standard says a part must have 5% wear remaining, and we say our threshold is 10%, then we know it gives us plenty of time, taking us well beyond the next inspection, before that item becomes a potential roadworthiness issue."

With its own training manual and courses, another cog in the First maintenance improvement machine is the company's adoption of irtec licensing (see panel), which Belgum says helps address any skills gaps that the company may have within its 320-strong vehicle inspectorate. Ultimately, he states, the aim is to increase the inspection period, as many others have done, and benefit from a more efficient and reliable fleet.

"If your inspector understands why your vehicle has failed, he can predict what you need to do to ensure it remains roadworthy for longer and, in the end, you can thus inspect your vehicles less frequently," Belgum argues. "We'd like to go from 28 to 42 days, which will ease the pressure on maintenance. It also gives you additional reflection and a more thoughtful approach to inspection."

Meanwhile, diagnostics equipment is playing an

## First past the post with irtec

After committing to roll out the irtec licensing scheme to qualifying staff throughout its 80 depots from September 2011, First UK Bus is on target to complete irtec assessments for all of its 320 vehicle inspectors around the country. All have now completed practical assessments; many have undertaken the online testing part of the course; and Graham Belgium, business improvement director at First, firmly believes that the accreditation will make a difference.

He admits that the initial response from inspectors was fear and scepticism, partly because they didn't know if other issues would crop up that could interfere with their training. However, Belgium maintains that the process has run relatively smoothly and is already paying dividends.

"The inspectors now realise that we mean business – we back the assessment up with the training, which has gone down very well," he reports. "We've even had instances of inspectors going back to the depot and solving long-standing problems, thanks to their experiences of the training courses. In one case, where a vehicle had been out of action for 10 days, the inspector came back, solved the problems and got the bus back on the road straight away."

Belgium also says that taking inspectors through the assessment and training process to gain irtec accreditation has increased First employees' confidence. And he adds that they feel valued, because they have been given the opportunity to improve their knowledge. "Some of them have been out of training for a long time. Maybe the last training they did was as an apprentice, 30-odd years ago. For those people to get the chance to re-train and improve their skills,

especially of modern bus electronic systems, is a good deal all round."

Interestingly, Belgium also indicates that one of the biggest challenges has not been with the inspectors, but with the management – convincing them to release staff. "They had to change shifts and arrange overtime. However, managers could eventually see the benefits of accreditation."

He also says that, for many of those undertaking the training, irtec gave them the opportunity to realise that they are part of a much wider team. "If you have different inspectors from different depots meeting on a training course, not only do they learn from what we are teaching them, but they also learn from the experience at other First depots."

"irtec is important for First inspectors for three reasons," he continues. "First, it formally recognises the training, because it is an external qualification. Secondly, it is confirmation that they are competent to do their job. And thirdly, it shows that we are serious about being professional in what we do. We carry the travelling public, so we have a responsibility to ensure the vehicles are safe and reliable."

Belgium is clear that there is much value in the irtec programme: "It will help us drive up the quality of our maintenance standards, and bring down the number of defects and breakdowns we have," he maintains. "This, in turn, improves the reliability of the service we provide, making it better for our customers. As part of the whole package, we are looking to cut defects and breakdowns by at least 50% over the next 18 months. That is our target and I don't see any reason why we couldn't reach it."

ever-increasing role in maintaining the First UK Bus fleet and Belgium is glad of the assistance such systems provide in helping to minimise downtime. "The CAN systems on the vehicle provide us with a great deal of diagnostic potential. Through the driver's console, we can interrogate what faults the systems had, flag these faults up and then bring diagnostics laptops to the vehicle for investigation into the root cause. The more modern vehicles we have, the more we rely on those systems."

### Data acquisition

Belgium explains that First uses its SAP business system to collect and collate all defect data, and then 'data mining' software, called Delta Alchemist, which looks at defects at the subsystem and systems levels. That leads to something like doctors' notes about how well the vehicle has been, he says. "So, as part of the inspection process, we can interrogate the vehicle in an objective and intelligent process, which, in turn, allows us to improve the inspection routine."

Elsewhere in the workshop, Belgium explains how investment in other technology will bring the standard of each of First's 80 depots up to the







**First Bus workshops are overseeing a number of improvements to benefit inspectors**

same high standard. “Improvements are ongoing and at the moment there are two key initiatives,” he says. “We are putting more IT on every shop floor, with a 42in TV screen that allows the most up-to-date technical information to be accessed by the inspectors, supervisors and engineers.”

Having details on big screens means that technicians can easily see the pictures and circuit diagrams, without having to waste time printing out information, as happens with workshops with small screens. “We are also ensuring that every depot has a diagnostic laptop specifically for the vehicles that operate from that site,” reveals Belgium.

What’s more, in a bid to further improve efficiency, remote diagnostics, which have proved effective for a number of organisations and operators, are about to be added. “We are just

about to start trials with both Alexander Dennis and Volvo, using their systems, and we will be looking at what benefits remote diagnostics can provide and how we can use it to become more proactive,” he confirms.

“It is the right way ahead, because, if the OBD [on-board diagnostics] can tell us what the problem is, it is much better to deal with it there and then, before we get a failure.” But Belgium says he has to be sure that it will add value to what First already does. “Like all these things, if you’re not careful, you’ll be swamped by data,” he warns. “We need to make sure that the conversion of diagnostic data into quality information for our technicians is done by the processing power of computers and we use them to help us target our resources more effectively.”

## Hope for hybrids

First UK Bus has been prepared to put its money where its mouth is when it comes to investing in hybrid buses. However, while Belgium doesn’t regret the move, he concedes that operating an alternative-powered fleet is still work in progress. “It has been hard for everyone operating hybrids, as we started with prototypes. But now we are using production models, we are seeing the benefits of the work that has been done, and achieving higher reliability and good fuel consumption,” he says.

At the moment, the powertrains are covered by the manufacturer’s warranty, but business improvement director Graham Belgium realises that First has to be ready when that cover expires. “We need to make sure we have the skills and knowledge to maintain the hybrid systems when they come out of warranty. That’s the challenge: to make sure we’ve learned about the new systems and new technologies.

“I think they should be easier to maintain [than diesels], because a hybrid is a less stressed powertrain,” continues Belgium. “For example, there is less braking, because the regenerative process means that braking energy is converted into electrical energy. Hybrids also allow us to move to electrification, and electrification moves us away from the unpredictable mechanical world to the more predictable electrical world.”

## Systems solutions

Efforts to improve operations at a systems level are also being addressed by First. “Roadworthiness to me just means the elements that make a vehicle safe to operate,” comments Belgium. “I am interested in much more than that, as we need to provide our customers with a safe and reliable service. So our focus is also on reliability – what causes us to upset our passengers. And the number one issue here is batteries that go flat, meaning we can’t start the bus.”

Belgium explains that two actions are being taken to reduce such problems. “We’ve moved to super heavy-duty batteries across the fleet, and we’ve also introduced a set of tools and a maintenance programme for improving the management of batteries,” he reveals.

“We check them for condition and whether they’re charging. If they are not charged, we trickle charge them until they reach the right level. Then, every 28 days, we check the charge level and re-charge, if necessary.” Belgium says that, as a result, First UK Bus has already seen the number of breakdowns relating to batteries cut by 25%. “I’m sure we will see another 25% fall within the next 12 months or so,” he predicts. **TE**