

Getting it right

From the IRTE's irtec and Workshop Accreditation schemes to the effectiveness of green bus technologies and reinventing tractor specifications, the operations stream provoked thought. Brian Tinham reports



L-R: Gary King, Sainsbury's; Arriva's Lloyd Mason; John Parry, irtec; and Dave Brown, DVSA

IRTEC AND WORKSHOP ACCREDITATION

With the continuing focus on compliance, it's no surprise that the IRTE's irtec technician accreditation scheme is seeing significant growth in uptake from across the industry. So it was useful to get the inside view, firstly from irtec steering group chair John Parry.

He started by reiterating that irtec is an independent assessment, not a training programme, adding that the licence is designed to recognise individuals who reach the standards of competence that industry requires. Hence, the revised scheme – with its range of levels – closely matches modern workshop structures.

"We now have something for all technicians," asserted Parry, explaining that irtec levels now comprise: trailer technician; trailer service and maintenance technician; trailer inspection technician; vehicle (truck and bus) service and maintenance technician; inspection technician; advanced technician; and master technician. "We

also now have irtec Light inspection technician for vehicles in the 3.5–7.7 tonne range, aimed at, for example, ambulance and light van operators. And we offer a tyre technician irtec assessment."

And it's increasing in popularity, he said, noting that all truck manufacturers are now on board, while bus companies, such as Arriva, are also driven by irtec. "It's part of their minimum standard," stated Parry, adding that operators are also specifying irtec and that there are now nearly 8,000 irtec-registered technicians.

"Organisations like Sainsbury's, Tesco and Carlsberg are saying, 'If you want to repair my trucks, you need irtec-licensed technicians. And your workshops have got to be independently accredited, too.'" Hence the coincident growth of IRTE's Workshop Accreditation programme, which independently audits workshops' processes and standards – including their approach to irtec licensing.

Is irtec working? Arriva engineering development manager Lloyd Mason (who also sits on the irtec expert working and steering groups) said it absolutely is. Interestingly, he told delegates that Arriva London is using irtec

as part of a robust selection process for recruiting engineers from, for example, HGV backgrounds. It's also using the assessment to help with the development of structured training programmes for existing staff.

"There's a shortage of engineers, so irtec is one way to facilitate spreading the net wider to bring good technicians into the business," explained Mason. Successful candidates go on a six-week training programme followed by irtec assessment to service and maintenance, advanced or master technician level.

"Arriva London is also using irtec to upskill existing staff, uncovering skills gaps, and delivering appropriate training to fill those gaps, before reassessing individuals to the irtec standard." And he added that Arriva has also wrapped training around an apprenticeship scheme banner to fund the process.

But it's not just bus and coach that's benefiting. Gary King, operational support manager at Sainsbury's, said that irtec enables him to confirm the standards of all technicians looking after his fleet. "irtec means I can ensure that technicians meet the requirements of a national standard



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Dave Brown

of competence,” he said. And he explained that Sainsbury’s also requires technicians working on its vehicles to top-up on manufacturer courses.

“We also expect our workshops to be IRTE Workshop Accredited. We’re very focused on compliance, and our MOT pass rates – now 99.07% – prove the value of this approach. If we were running at the national average of 90%, we would have an additional 321 failures every year.”

For King, this is all about shunning complacency. “Every failure is investigated, and the workshop manager and accounts director of the business have to sit in front of me and explain

FACT

The future looks bright for pure electric: a second generation of all-electrics is coming and bus costs will have dropped significantly

why it happened, and what actions are being taken to rectify the situation.”

He’s far from alone. DVSA (Driver & Vehicle Standards Agency) head of technical training Dave Brown said that irtec is a key part of professionalising the agency, under the move to next-generation testing. “It was a big step. We have several hundred vehicle inspectors and, to ensure they’re at the right standards, all of them needed to go through new accredited training programmes and undergo irtec assessment.”

Why irtec? “irtec is a strict assessment and that’s music to our ears,” he answered. “The benefits are not only about assuring professionalism. irtec also sets an example to industry that assurance of key competencies is essential. It enables DVSA to hold our heads up high and ask [operators], ‘How do you know your people are competent?’.”

One other point. Brown reminded delegates that under OCRS (Operator Compliance Risk Score) and DVSA’s upcoming ‘earned recognition’ scheme, being able to prove standards means “less interference from us, and less downtime for your vehicles – which can then be used to earn money for the operator”.

GREEN BUS DEVELOPMENTS

Two ardent and articulate ‘green bus’ advocates favouring entirely different routes – gas and full-electric – told delegates everything they needed to know about alternative fuels. First up was John Bickerton, chief engineer for Reading Buses, who started by explaining that this operator is no stranger to novel thinking and new technology.

“We were among the first to take LPG buses, about 10 years ago, and we were also one of biggest adopters of ethanol – which worked until the tax regime changed. We also have one of the largest CNG-powered fleets in the UK – 35 single deckers – and I have to tell you that CNG has been fantastic.”

Commenting on some of the driver issues associated with Euro 6 diesel buses’ after-treatment systems, he added: “CNG has been a success essentially because there’s nothing to go wrong.”

Bickerton stated that his CNG engines are all the five-cylinder Scania unit. “From the head gasket down, it’s very similar to our diesel engines

... apart from spark plugs.” As for the exhaust, he said there’s a passive catalyst, with sensors before and after, but no DPF (diesel particulate filter), no EGR (exhaust gas recirculation) and no AdBlue.

“So we have a lot of confidence about whole life costs. We don’t have Adblue systems to flush and injectors to replace; we don’t have hybrid battery packs to replace every seven years ... but that turns out to be a year and a half at £30,000 apiece. We do need to inspect the CNG tanks externally once every seven years, but I reckon a camera ... will do that.”

As for the downside, Bickerton conceded that the reason CNG is not more widely adopted is the requirement for a CNG refuelling station. “We spent a million pounds on ours, but today I would ring up one of the gas suppliers and go for pence-per-kg contract, leasing their station and letting their experts handle the headache of installing, commissioning, maintaining and running that infrastructure.”

Incidentally, so confident is he that this month sees the launch of Reading’s first double-deck bus fleet – running on, what else, CNG.

What about pure electric buses in big cities? Arup’s professor John Miles, who led the team that implemented the Milton Keynes fleet, took up the mantle. “They’re attractive,” he said, “because they get away from any dependence on petroleum products and they produce zero emissions at street level. Electric buses are also as flexible as diesel. However, if they are to compete, you have to understand how much energy you need to drag around with you.”

That’s why Arup investigated electric bus routes in, among others, Sao Paulo. And the bottom line: a battery-only solution required 700kWh, costing around £300,000 and also compromising passenger numbers. “Even Milton Keynes, as a smaller route, requires a 500kWh battery, and that’s £300,000 and five tonnes. Not a good formula.” Which is why Miles turned to ways of charging pure-electric buses without interrupting the normal timetable.

“We looked at wireless charging systems that go in the ground. If you can put enough power in, then the bus driver doesn’t have to do anything other than park over the charger.” However, bus stops don’t allow enough time. Hence the notion



John Bickerton, Reading Buses

of installing chargers at either end of the route, where the circa five-minute turnaround time would be enough to deliver a top-up, with night-time charging readying each bus for the next day.

Miles explained that the team chose the German IPT Tech 120kW system, so enabling a much smaller on-board battery. Two years into the five-year project, Miles said it's working well. "These buses [all 9.5-metre Wrightbus electric StreetLites] run from 6.00am to 11.00pm, each covering 56,000 miles a year. So it's a fairly heavy-duty requirement, particularly since they travel 15 miles each way at an average of 16mph, which is very energy consuming.

"We're collecting reams of data covering state of charge, etc, and they're performing rather well - with well over 1.5 million miles on their collective clocks. If they keep on going, it will be a good outcome." And admitting that total lifetime purchase and operational costs are not yet at parity with diesel, he countered that, as battery prices and weights tumble, they're trending in the right direction.

"A second generation of all-electrics will be coming soon, where the costs of the buses, excluding batteries, will have dropped significantly." Add to that prices of batteries now approaching £250 per kWh and the future for pure electric is looking increasingly bright.

TRACTOR UNIT SPECIFICATION UPDATE

If you haven't specified tractor units in the last 12-18 months, it shouldn't be a great surprise

that what's available has changed - significantly. Today's Euro 6 tractors may well share little in common with the configuration you chose for your last Euro 5. That was the pretext for the final session of the IRTE Conference operations stream, which proffered a panel of representatives from DAF, Volvo, Iveco and Scania to explain just how much has changed and why.

DAF marketing manager Phil Moon kicked off, stating that one size does not fit all, and if you want to cut operational costs, improve efficiency and reduce total cost of ownership, everything from chassis configuration to drivelines, tyres and driver aids needs to be considered.

Looking at chassis, though, he started with tractor unit cabs, noting that most OEMs offer regional, national and long-distance variants. "There's a growing trend to choose bigger cabs for driver retention and in the belief that they deliver stronger residuals against any extra they cost," he said. "But at the moment, it's easier to sell a used regional truck because of the resulting scarcity in the market. So that financial argument at least is diminishing."

Other aspects to be aware of, however, include safety in, for example, urban operations - which is one reason why cab options exist. "They offer easy cab access and egress, and improved direct visibility because the driver sits lower. So fleet managers need to consider what they're doing," he said.

Similarly, there is also now a host of chassis configurations, ranging from heavy haulage to off-road and tanker. "All of them have attributes to suit the application - for example, in terms of packaging for fuel and space for ancillaries, or [using] lightweight midlifts for increased payload potential." Beyond that, it's all about examining the detailed operation around, for example, manoeuvrability, traction and weight you need to put through the drive axle, said Moon.

"We would encourage you to talk to sales engineers. Remember, different configurations may affect trailer compatibility and the knock-on



L-R: Volvo's John Comer; Martin Flach, Iveco; Scania's Phil Rootham; and Phil Moon, of DAF

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effect might include the tractor-trailer gap, which in turn affects fuel efficiency." And he warned that, although many fleet engineers are used to adapting tractor units over time, we live in a world of Whole Vehicle Type Approval. "Working with OEMs to make sure the spec is right from the factory is the cleanest and most efficient way of getting the right tractors for your operation."

Volvo product manager John Comer next took the floor, moving the analysis on to drivelines: engine downsizing and down-speeding; transmission choices; rear axle ratios; etc. "The driveline is the heart and soul of your truck," he asserted, reminding delegates that back in 1987, a Volvo 15.6-litre engine delivered 487bhp. "Now, an average fleet truck offers 460–500hp out of a 13-litre unit."

Point made: power plants have been transformed, and not only with the change up to Euro 6, Step C. "Volvo, for example, has taken the opportunity to improve piston honing to reduce friction. We've also reduced the weight of the 13-litre block by 32kg. And we've got SCR [selective catalytic reduction] after-treatment systems with no EGR at all."

His message: "Don't say 'I'll have what I had before'. We produce 460–500bhp trucks with the same torque between Euro 5 and 6, but with different optimum rev and peak torque ranges. So you need to look at those, and the rear axle ratio to claw back on fuel consumption."

Much the same goes for transmissions, he said, stating that it's not just about two-pedal AMTs [automated manual transmissions]. Today, technology has moved on to predictive cruise control, crawler and ultra-low crawler gears for manoeuvring, PTOs and, in Volvo's case, dual-clutch systems – designed to further improve on fuel consumption and productivity.

Next up was Iveco product director Martin Flach, tackling the subjects of wheels and tyres, and driver aids – and their potential impact on operational costs. Challenging some operators' reluctance to move from good old 295/80s to increasingly popular 315/70 tyres, he said that research with one customer showed the latter yielding about 4% fuel improvement.

Beyond that and the trend towards super-single 385/55s on the front, Flach suggested that



low rolling resistance tyres – now emerging as triple A rated – are worth the small investment, particularly for long haul. "They may wear out more quickly, and maybe you can't re-groove them or extract value from the carcass, but if you're trunking up and down motorways pretty much in a straight line and doing 200,000km per year, the fuel savings far outweigh any additional tyre costs."

As for driver safety aids, his opinion was well rehearsed – that none of these systems have traditionally attracted much uptake until they became mandatory. "Yet, if a vehicle falls over because it attempted a roundabout too fast, how much does that cost you? How can you afford not to specify [safety aids]?"

Warming to his theme, Flach advised that today's predictive cruise control systems not only offer fuel savings, but also safety benefits. "You need to specify them where appropriate... And the same goes for driver protection systems that detect drivers falling asleep and wake them up quickly."

Finally, Phil Rootham, pre-sales technical manager for Scania, tackled the subject of telematics and their propensity now to deliver real-world data. "It's no longer just about telematics for driver engagement, pushing improvements through peer pressure, and bearing down on costs while promoting proactive and defensive driving. Now, the story is about connectivity," he proclaimed.

"Today we have 200,000 connected vehicles around the world, all broadcasting their data. It's huge, so the issue is how we can use that information to validate best vehicle configurations, maybe challenging [received wisdom]." His point: with real application and operational data showing, it becomes plausible to make truck specification recommendations around everything from engine size to chassis configuration according to how heavy you run your trucks, the proportion of time spent running at 56mph, etc.

"If we can quantify recommendations, then it becomes a balance sheet decision as to whether an operator can justify the costs of a particular vehicle choice," he explained. And it's a similar story for the OEMs' own engineering teams. With data driving understanding of how vehicles are being used, manufacturers' designers can better visualise appropriate product portfolios and determine where best to put their R&D budgets.

"For example, if more vehicles are spending a huge amount of time on the limiter, it's clear we need to pour our efforts into aerodynamic aids, and better cab roof deflectors," he suggested.

And for those determined to stick to flexible fleets of 6x2s, he added: "With the price of fuel today, if you have a fleet of 50 vehicles, do you really need that flexibility in every one of them?" ■