

Keeping your

Who would have thought that air conditioning and/or refrigeration on trucks, buses and coaches could provoke a minefield? Brian Tingham examines the changing legislation

Truck, trailer, and bus and coach manufacturers are staring at another minefield – and so, even more, are the dealerships and their transport engineers that service them. It's a minefield called air conditioning and refrigeration, and the reason is significant changes to the legislation governing all aspects of their use and maintenance.

What's more, we are not only talking about certain refrigerants being gradually phased out, as less environmentally damaging newcomers are developed, but also how these materials must be handled, by whom and with what – as well as new mandatory labelling and record keeping.

And, as if that wasn't enough, there also appears to be serious ambiguity over which rules apply for any vehicle weighing more than 3.5 tonnes gvw or running with over 3kg of refrigerant. Whereas cars and small vans (Classes M1 and N1, with less than 3kg of refrigerant) are, logically enough, covered by the MAC Directive (mobile air conditioning – EC directive 2006/40/EC), best advice has it that trucks may fall under alternative rules drawn up for stationary refrigeration equipment, primarily aimed at large refrigeration plant for buildings and heavy industry. But, as yet, there is no clarity on this point.

A minefield then – and, before fleet managers start thinking, 'this is not my problem', remember that, since transport operators bear ultimate responsibility for everything they run, it might just pay to ensure that you, too, are meeting your new obligations under the law. As the government's F-Gas Support agency – set up to provide advice and guidance on the changes – points out, most of the key obligations are the responsibility of the operator, "defined as the natural or legal person exercising power over the technical functioning of the equipment and systems".

First, however, some background. What's behind the new rules is the European Commission's determination to massively reduce emissions of F gases (those that contain fluorine, such as HFCs (hydrofluorocarbons)) and ODSs (ozone-depleting substances which include a class of gases called HCFCs (hydrochlorofluorocarbons)).

The F gas HFC 134a, for example, is currently the most commonly air conditioning refrigerant that is used in vehicles, but has a 'global warming potential' 1,300 times that of CO₂. So it's nasty stuff, as far as the planet is concerned. Meanwhile, ODSs are mostly solely found on refrigerated vehicles and large plant – and hence they appear

Climate of concern in air conditioning maintenance

MAN Truck & Bus, like many of the manufacturers, is taking the new air conditioning legislation very seriously – not least because its vehicles span the divide between the mobile vehicles regulations and those primarily aimed at stationary refrigeration plant. As MAN UK engineering services manager Chris Davies says, its luxury coaches, inherited from Neoplan, carry a lot more than the statutory maximum of 3kg refrigerant, as specified in the MAC Directive, so it's important that the dealer network gets the right advice.

"Nobody is sure about which regulations apply," says Davies. "It seems daft, but do coaches come under the stationary or mobile equipment rules? Even the government's F-Gas Support agency isn't certain. That's why we're taking advice from the experts at our aircon testing equipment supplier, who are licensed by City & Guilds to train vehicle technicians."

MAN is currently providing the prescribed interim training to City & Guilds 2078 'Safe Handling of Refrigerants' certification and, on the repair and maintenance side, City & Guilds 6048 'Vehicle Air Conditioning Service and Repair'. Davies accepts these will have to change – although quite when depends on which regulations are eventually held to be relevant.

"We're continuing to provide the training, and monitoring the information from F-Gas, while also looking into what's required for the new C&G 5101 [which will train technicians to three distinct levels]. Meanwhile, we're also recommending that our dealers purchase a package of CPS testing and gas recovery equipment that we've put together. That includes gas recovery machines, scales, a two-port manifold with lines, a vacuum pump, two types of leak detection equipment [ultraviolet and electronic], vacuum gauges and tools – and it's all mobile, so they can take it to operators' depots."

MAN Truck & Bus is recommending new training courses and a package of test and gas recovery equipment

cool

to come under the stationary refrigeration equipment regulations.

That said, the legislation concerned includes four main components. First is the MAC Directive itself, which essentially phases out HFC 134a in new vehicles, starting on 1 January next year, while also putting maximum limits on evaporator leakage rates (40–60gm per year, depending on type), and insisting that leaking air conditioners must be repaired before refilling. Second is EC Regulation 842/2006 (the F-Gas regulation), which is concerned with reducing emissions of HFCs across the board and came into force in July 2007.

Third is the GB Fluorinated Greenhouse Gases Regulations 2009 (Statutory Instrument 261), which defines mandatory technician qualifications, as well as offences and penalties. And fourth is EC Regulation 2037/2000 (the Ozone regulation), which phases out and controls ODSs.

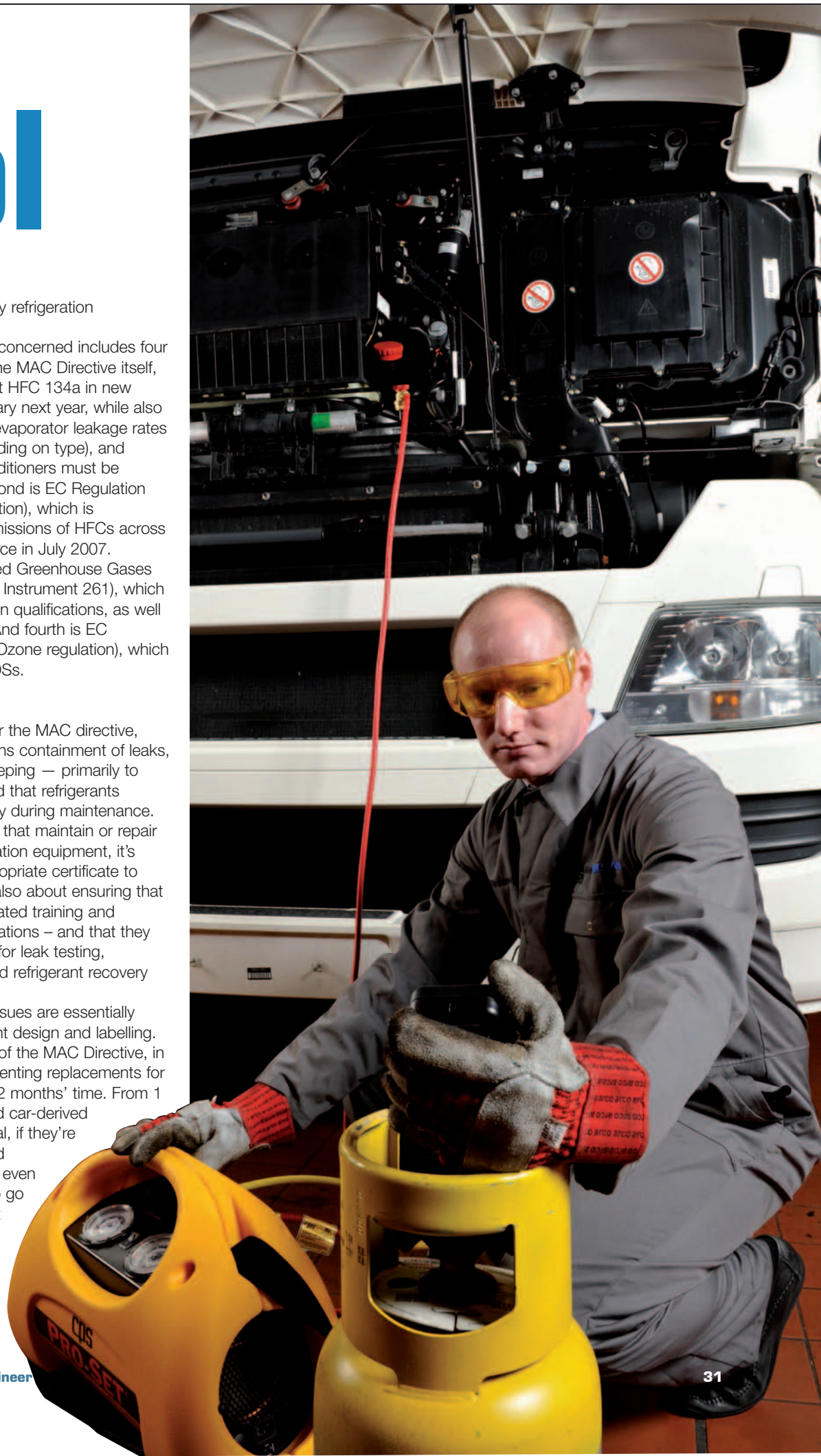
Which legislation?

For operators working under the MAC directive, what matters mainly concerns containment of leaks, gas recovery and record-keeping — primarily to prove correct processes and that refrigerants weren't allowed to leak away during maintenance.

For service organisations that maintain or repair air conditioning and refrigeration equipment, it's more about having the appropriate certificate to work with F gases. But it's also about ensuring that technicians have had mandated training and achieved prescribed qualifications — and that they use appropriate equipment for leak testing, equipment maintenance, and refrigerant recovery and recharging.

For manufacturers, the issues are essentially refrigerant choice, equipment design and labelling. They bear the main burden of the MAC Directive, in terms of finding and implementing replacements for HFC 134a, starting in just 12 months' time. From 1 January 2011, new cars and car-derived vans won't get type approval, if they're fitted with units using the old refrigerant. And, from 2017, even new vehicles not required to go through type approval won't be allowed registration.

Current preferred alternatives are CO₂ — although this requires





a tenfold increase in operating pressure – or new fluorocarbons currently being developed by the likes of DuPont, Honeywell and Ineos Fluor.

In terms of time lines for transport engineers, since 9 March last year all technicians carrying out refrigerant recovery during vehicle maintenance must be qualified, with either in-house training certification or one of the City & Guilds, IMI or Automotive Technician Accreditation schemes covering air conditioning (see F-Gas support online for a full list). However, from 4 July this year, these 'interim' qualifications are no longer enough. Technicians must, by then, have completed one of the new courses, such as irtec's Certificate of Competence in refrigerant handling for LCVs.

But what about bigger trucks, buses, coaches and trailers, with systems containing more than 3kg of one of the F gases or an ODS for their

refrigerant? Even the government's F-Gas Support unit is vague, stating that Article 4.3 of the F Gas regulation "could be interpreted as applying to mobile equipment, such as refrigerated road transport and trailers, passenger transport ... and other mobile equipment that employs cooling provided by F gases whilst in transit". But then it leaves the operator to make the call and to defend his or her position, if challenged to do so.

Why does it matter whether you follow the mobile or the stationary equipment rules? The answer is: it may not. It depends on the refrigerant type and the quantity used. For 'stationary' equipment, the clock is already ticking on phasing out HCFCs (one of the ODSs) and, in particular, the most common medium R22, with 1 January 2010 marking the start and 1 January 2015 the date by which virgin and recycled HCFCs will be banned.

New certification

Also, whether the system is filled with one of the F gases or an ODS, regular leak testing, refrigerant recovery and record-keeping – using qualified technicians – has been mandatory since July 2007. However, the date when so-called interim technician qualifications (C&G 2079 (four levels) and equivalent) cease to be adequate is one year later than for systems deemed to be MACs.

Here, technicians have until 4 July 2011 and the legislation that pertains is EC Regulation 303/2008, which dictates four levels of certification – from Category I (which allows holders to perform everything from leak checking to maintenance and servicing), to Category IV (which covers holders only to carry out leak testing, provided they don't have to break into the refrigerant circuit). City & Guilds and CITB (Construction Industry Training Board) have all the details.

As for what precisely needs to be checked on stationary (large) systems, nothing has changed. Leak testing is already mandatory once a year for ODS refrigerants, but every six months for the more likely F-gas refrigerants – with joints, valves, seals, connections and anything subject to vibration requiring attention.

So there you have it: as more information comes to light, so Transport Engineer will provide the appropriate guidance for all parties. In the meantime, manufacturers, operators, dealerships and workshop managers all need to review their procedures around air conditioning and refrigeration system maintenance – including record-keeping, equipment and certification – and get ready for the next phase. **TE**

Technicians will need to hold new irtec or similar qualifications either from 4 July 2010 or 2011, depending on legal interpretation

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