

Department for Environment, Food and Rural Affairs

Guidance for Mobile Air Conditioning (MAC) Sectors

Guidance: F Gas and Ozone Regulations

Information Sheet MAC 3: Key Obligations

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This Information Sheet provides a detailed description of the key obligations under the EU F gas Regulation for companies involved in the servicing and dismantling of mobile air-conditioning (MAC) systems. It also refers to the MAC Directive which applies to companies manufacturing new MAC systems or servicing any such systems. See Information Sheet GEN 1 for a glossary of common terms related to these Regulations.

1 Which Regulations are covered by this Information Sheet?

This Information Sheet addresses two pieces of EU legislation that affect companies servicing MAC systems and vehicle manufacturers. These are:

The F gas Regulation¹. This is EU Regulation 842/2006 on certain fluorinated greenhouse gases. This Regulation aims to reduce emissions of HFCs, PFCs and SF₆. This Regulation affects those companies within the vehicle servicing and dismantling sector that recover F gases from MAC systems. The key obligations in this Regulation applied from July 2007.

In Great Britain, the Fluorinated Greenhouse Gases Regulations 2009 (Statutory Instrument No 261), applied from 9th March 2009. These Regulations prescribe offences and penalties applicable to infringements of the EU F gas Regulation and lay out the qualifications and certification requirements.

The MAC Directive¹. This is EU Directive 2006/40/EC, which aims to control the rate of leakage of HFC 134a in new MAC systems, to phase-out the use of HFC 134a or any other fluorinated greenhouse gas with a Global Warming Potential (GWP) higher than 150 in new MAC systems² and to prohibit the retrofitting and refilling of MACs with a high GWP.

In Great Britain four regulations have either been amended or introduced to enact the requirements of the MAC Directive. These are:

- The Road Vehicles (Construction and Use) (Amendment) (No. 3) Regulations 2009 (Statutory Instrument No 2196)
- The Motor Vehicles (Refilling of Air Conditioning Systems by Service Providers) Regulations 2009 (Statutory Instrument No 2194)
- The Motor Vehicles (Type Approval for Goods Vehicles) (Great Britain) (Amendment) Regulations 2009 (Statutory Instrument No 2084)

¹ See Information Sheet GEN 4 for a list of regulations and link to download the full text.

² "Global Warming Potential" (GWP) expresses the climatic warming potential of a greenhouse gas relative to carbon dioxide. The standard GWP is calculated in terms of the 100 year warming potential of one kilogram of a gas relative to one kilogram of CO₂.

- The Motor Vehicles (EC Type Approval) (Amendment No. 2) Regulations 2007 (Statutory Instrument No 3135)

The first set of Regulations entered into force on 1st January 2011 (separate provisions for Northern Ireland have effect from the same date). The other three Regulations listed are already in force. For guidance on these Regulations please contact the Department for Transport: Tel: 0300 330 3000, Website: <http://www.dft.gov.uk/>

Qualifications for F Gas Recovery from MACs. European Commission Regulation 307/2008 on training and certification in the MAC sector, Commission Regulation 307/2008 specifies minimum requirements for qualifications and the conditions for mutual recognition of certificate of training (“attestation”) for personnel working on MAC systems containing F gases.

2 Regulations on Ozone Depleting Substances (ODS)

Ozone depleting substances (ODS) refrigerants, such as CFC 12 have not been used in the manufacture of new MAC systems since 1995. Hydrochlorofluorocarbons (HCFCs), which are another type of ODS, have not been used in car air-conditioning equipment at all. However, they may be found in refrigerated vehicles or the air-conditioning of imported vehicles. Rules on ODS do not differentiate between types of equipment (e.g. mobile and stationary). If the equipment you service contains HCFCs please see Information Sheet RAC 3 Section 5 or RAC 8 for details of the requirements affecting the use of these refrigerants in mobile equipment.

3 What types of equipment are covered by this Information Sheet?

With the exception of Section 5, this Information Sheet refers to “MAC systems”. It is specifically aimed at **mobile air conditioning systems** fitted in cars and light vans which are intended to cool the internal environment to a comfortable ambient temperature.

The MAC Directive specifically applies to cars and light vans (i.e. M1 and N1 class 1 vehicles as defined in Section B of Annex II of Directive 70/156/EEC).

The obligations in the EU F gas Regulation regarding recovery of refrigerants applies to all types of mobile equipment. See Section 6 for details of how this legislation affects mobile equipment that is not fitted in a car or a light van.

4 Obligations Related to Servicing and Dismantling Existing MACs

The key obligations relating to MAC systems that are already installed in vehicles are covered by the EU F gas Regulation and MAC Directive and apply to:

- Companies and personnel involved in servicing and repairing MACs.
- Companies and personnel involved in vehicle dismantling.

4.1 F Gas Recovery

EU F gas Regulation Article 4.3.

Fluorinated greenhouse gases removed from all MAC systems during maintenance and dismantling of the vehicle must be recovered by appropriately qualified personnel, to ensure their recycling or destruction.

This means that refrigerant recovery equipment must be used to remove refrigerant from MACs being serviced, repaired or at end of the vehicle's life. The training requirements for personnel are described in Information Sheet MAC 5.

4.2 Leak Checking and Repair

MAC Directive Article 6.3

The EU F gas Regulation does not require leak checks to be carried out on MACs. However, there is an important obligation in the MAC Directive that applies to companies and personnel servicing all MAC equipment on cars and car-derived vans:

Service providers are not allowed to refill a system if it has shown abnormal leakage until the cause of leakage is identified and the necessary repair has been completed.

The Motor Vehicles (Refilling of Air Conditioning Systems by Service Providers) Regulations 2009 (SI 2009/2194) prescribe offences and penalties applicable to infringements of the MAC Directive. The Regulations state that, in determining whether the amount of refrigerant that has leaked from an air conditioning system is abnormal, regard should be paid, in particular, to the following:

- Whether a reasonably competent service provider would consider the leak to be abnormal;
- Any information provided by the manufacturer to the user of the vehicle, in particular information contained in the owner's manual; and
- Any requirements as to the design, construction and equipment which were applicable to the vehicle for the purpose of permitting its registration, sale or entry into service as a new vehicle.

A “necessary repair” is defined in the Regulations as a repair that removes the cause of the abnormal leak of refrigerant from the air conditioning system.

4.3 Non-refillable Containers

EU F gas Regulation Article 9.1.

The placing on the market of non-refillable containers filled after 4th July 2007 is banned. This is a very important obligation for the car servicing industry. Historically the use of non-refillable containers to supply HFC 134a for car servicing was very common. This is no longer permitted.

There may continue to be some non-refillable containers sold whilst stocks filled before 4th July 2007 are used up. However, you should take steps to ensure that you are not being illegally supplied with containers filled after that date.

EU F gas Regulation Article 4.2.

Under Article 4.2 there is a requirement for the recovery and recycling of any residual gases contained in any containers at the end of life of that container. Note that this applies to both non-refillable and non-returnable containers. Where containers are returned to fluid suppliers they become the responsibility of the fluid supplier. Any refrigerant not recycled will need to be sent for destruction. This refrigerant waste is classified as hazardous waste and is subject to the GB Hazardous Waste Regulations, and waste producers have a duty of care to dispose of it safely.

4.4 Training of personnel

EU F gas Regulation Article 5.1.

Personnel carrying out gas recovery during MAC maintenance must have an appropriate qualification (“attestation”). All personnel undertaking recovery of F gases on cars and light vans need to hold a qualification that complies with the minimum requirements as detailed in Commission Regulation 307/2008.

To take delivery of containers of F gas, if undertaking recovery of F gases, appropriately certificated personnel need to be employed by the business. It is not necessary to hold appropriate qualification to order or take receipt of the F gases.

See Information Sheet MAC 5 for further information about qualifications and certification.

5 Obligations Related to New Vehicles

The key obligations in relation to new vehicles (cars and car-derived vans) are contained in Article 5 of the MAC Directive. These were implemented into UK law by The Motor Vehicles (EC Type Approval)(Amendment No 2) Regulations 2007 SI 2007 No 3135) and the Motor Vehicles (Type Approval for Goods Vehicles) (Amendment) Regulations 2009 SI

2009 No 2084). Specifically they apply to manufacturers of cars and car-derived vans and specialist suppliers of new MAC systems.

Details about each obligation are given below. References to Article numbers in the text below relate to Articles that are set out in the EU MAC Directive.

5.1 Phase-out of high GWP refrigerants (including HFC 134a) in new vehicles

MAC Directive Article 5

This introduces a ban on the manufacture of new vehicles with a MAC designed to contain any refrigerant with a GWP higher than 150. Effectively this is a ban on the current refrigerant, HFC 134a, which has a GWP of 1300.

The ban is brought in three main stages:

- Reduced leakage rates in new cars and car-derived vans with HFC 134a MAC systems (effective now).

Article 5 of the MAC Directive sets limits on leakage rates from new cars and light vans. These are design requirements at Type Approval and each vehicle does not need to be tested when in use. These provisions are already in force and mean that no new cars or car-derived vans can be type approved or registered or enter into service unless they meet the leakage rates shown below.

The maximum allowable leakage rates, for any system using a refrigerant with a GWP higher than 150 are 40 grams per year for a single evaporator system, and 60 grams per year for a dual evaporator system.

- Since 1st January 2011 (with minor exceptions) new cars and car-derived vans will not be granted type approval if they are fitted with an air conditioning system designed to contain refrigerants with a GWP greater than 150 (e.g. HFC 134a).
- From 1st January 2017 (with minor exceptions) new cars and car-derived vans will not be able to be registered for entry into service if they are fitted with an air conditioning system designed to contain refrigerants with a GWP greater than 150 (e.g. HFC 134a).

5.2 Obligations relating to vehicles in use (Retrofitting and refilling)

MAC Directive Article 6

The key obligations are contained in Article 6 the MAC directive. These were implemented into GB law by the Road Vehicles (Construction and Use)(Amendment)(No 3) Regulations.SI 2009 No 2196. Specifically they apply to companies installing air-conditioning systems in a vehicle after it has been registered (retrofitting) or refilling an air conditioning system with refrigerant.

Requirements relating to “retrofitting of MACs”

No vehicle type approved from 1st January 2011 should be subsequently retrofitted with an air-conditioning system that is designed to contain a refrigerant with a GWP higher than 150 (including HFC 134a).

However, any vehicles entering service before January 2017 that were not required to go through a type approval process (e.g. a vehicle that has been individually approved or which was not otherwise required to meet type approval requirements) between January 2011 and January 2017 can be retrofitted with an air-conditioning system that is designed to contain a refrigerant with a GWP higher than 150 (including HFC 134a).

No vehicle entering service from 1st January 2017 must subsequently be retrofitted with an air-conditioning system that is designed to contain a refrigerant with a GWP higher than 150.

Requirements relating to refilling

Vehicles type approved from 1st January 2011 must not contain (or be refilled with) a refrigerant with a GWP higher than 150.

However, any vehicles entering service before January 2017 that were not required to go through a type approval process (see above) between January 2011 and January 2017 can contain (and be refilled with) a refrigerant with a GWP higher than 150.

Vehicles entering service from 1st January 2017 must not contain (or be refilled with) a refrigerant with a GWP higher than 150.

However, vehicles fitted with an air-conditioning system designed to contain a refrigerant with a GWP higher than 150 (including HFC 134a) which entered service before 1st January 2017 can continue to be refilled with that refrigerant after 1st January 2017.

Any vehicles entering service from 1st January 2017 that were not required to go through a type approval process (see above) can contain (and be refilled with) a refrigerant with a GWP higher than 150.

6 Other Mobile Equipment

Article 4.3 of the EU F gas Regulation states:

The fluorinated greenhouse gases contained in other products and equipment, including mobile equipment unless it is serving military operations, shall, to the extent that it is technically feasible and does not entail disproportionate cost, be recovered by appropriately qualified personnel, to ensure their recycling, reclamation or destruction.

This could be interpreted as applying to mobile equipment, such as:

- Refrigerated road transport and trailers,

- Passenger transport such as trains, metros, trams or buses,
- Maritime vessels,
- Other mobile equipment that employs cooling provided by F gases whilst in transit.

However, it is for the operator of the equipment to determine whether or not:

- a) They consider their equipment to be mobile equipment (i.e. that it is normally in transit during operation);
- b) It is serving military operations;
- c) It does not entail disproportionate costs to recover the F gases; and
- d) It is technically feasible to recover the F gases.

Personnel who recover refrigerant from mobile equipment must hold an “appropriate” qualification. The Commission Regulations on training only cover stationary systems and mobile air-conditioning in cars and light vans. For other types of equipment that are considered to be mobile equipment, an “appropriate” qualification may be considered to be the relevant appropriate industry standard (taking into account any other regulatory requirements that may be applicable).

7 Possible Obligations Related to non-MAC Applications

Some organisations working on MAC systems may also have other obligations under the EU F gas Regulation. These further obligations may relate to the use of other F gas technologies across the organisation, e.g.: Stationary refrigeration and air-conditioning systems, for more details see Information Sheet RAC 1.

Information Sheet GEN 3 provides a comprehensive list of F gas applications and the types of organisations that use such equipment.

The information in this document is intended as guidance and must not be taken as formal legal advice or as a definitive statement of the law. Ultimately only the courts can decide on legal questions and matters of legal interpretation. If you have continuing concerns you should seek legal advice from your own lawyers.

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