

## Overview

This standard covers the recovery, flushing and recharging of F gas refrigerants associated with automotive mobile air conditioning (MAC) and climate control systems. This standard also includes leak detection and rectification of any leaks.

**Note:** In order to achieve this NOS, it will also be necessary to hold a valid certificate to meet the current regulatory requirements concerning F Gas.

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### Performance criteria

*You must be able to*

- P1. use the appropriate personal protective equipment when handling F gas refrigerants
- P2. support your removal and replacement activities by referring to:
  - P2.1. vehicle and gas related technical data
  - P2.2. manufacturer's guidance
  - P2.3. removal and replacement procedures
  - P2.4. health, safety and legal requirements
- P3. ensure that the tools and equipment you require are calibrated and in a safe working condition to meet manufacturer's and legal requirements
- P4. select and use the correct tools and equipment to identify refrigerant type and capacities
- P5. select and use the correct tools and equipment for recovery, flushing and recharging of refrigerants
- P6. carry out all refrigerant recovery, flushing and recharging activities following:
  - P6.1. recognised safe working methods
  - P6.2. manufacturers' instructions
  - P6.3. your workplace procedures
  - P6.4. health, safety and legal requirements
- P7. work in a way which reduces the risk of any refrigerant emissions
- P8. carry out suitable checks and any necessary rectification activities to ensure the recharged system is free from leaks
- P9. collect and transfer any waste materials to comply with current legislation and workplace policies
- P10. complete work records accurately, in the format required and promptly pass them to the relevant person(s) ~~promptly~~

## Knowledge and understanding

You need to know and understand:

### Legislative and organisational requirements and procedures

- K1 the health, safety and environmental regulations relating to the handling of F gas and other refrigerants in automotive mobile air conditioning (MAC) NOSs
- K2 how the vehicle is powered and the associated health and safety risks
- ~~K3~~ K3 the legal requirement to maintain and process appropriate F gas records
- ~~K3~~~~K4~~ K4 how and where to find relevant safety technical information
- ~~K4~~~~K5~~ K5 your workplace procedures for:
  - ~~K4.1~~~~K5.1~~ K5.1 the referral of problems related to refrigerant handling
  - ~~K4.2~~~~K5.2~~ K5.2 completion of work records
- ~~K5~~~~K6~~ K6 the importance of selecting, using and maintaining the appropriate personal protective equipment when handling F gas and other refrigerants

### Equipment

- ~~K6~~~~K7~~ K7 how to select, check and use all the tools and equipment required to recover, flush and recharge F gases within automotive mobile air conditioning and climate control systems
- ~~K7~~~~K8~~ K8 how to use equipment to identify the type of gas removed

### Automotive Mobile Air Conditioning (MAC) Systems

- ~~K9~~ K9 the operating principles and function of automotive mobile air conditioning (MAC) and climate control units containing F gas refrigerants
- ~~K9~~~~K10~~ K10 the operating principles and function of automotive mobile air conditioning (MAC) and climate control units containing F gas refrigerants within alternative fuelled vehicles
- ~~K9~~~~K11~~ K11 the types of refrigerants used in automotive systems and their properties and characteristics
- ~~K12~~ K12 the impact of F gas emissions on the environment in relation to their global warming potential and climate change
- ~~K10~~~~K13~~ K13 the hazards associated with different air conditioning systems
- ~~K11~~~~K14~~ K14 the procedures for the safe handling of F gas refrigerants when recovering, flushing and recharging from automotive mobile air conditioning units



[K12K15](#) how to work in a way that minimises the risk of any refrigerant emissions

[K13K16](#) how to check air conditioning systems for F gas leaks and rectify leakage

[K14K17](#) how to handle refrigerant cylinders

[K15K18](#) the methods of storing removed mobile air conditioning (MAC) parts and the importance of storing them correctly

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**Scope/range**

All the items listed below form part of the National Occupational Standard

1. **Tools and equipment** are:
  - 1.1. hand tools
  - 1.2. special purpose equipment
  - 1.3. general workshop equipment
  - 1.4. air conditioning recovery plant
  - 1.5. refrigerant identifier
  - 1.6. sealing equipment

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**Additional  
Information**

**Glossary**

*This section contains examples and explanations of some of the terms used but does not form part of the standard.*

**Alternative Fuel**

This is defined as any type of fuel that may be used to power an internal combustion engine; examples would include LPG, bio ethanol etc.

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**Vehicles:**

These can be light vehicles or commercial vehicles. In addition, they may be SI, CI, Hybrid, Electric or Alternative fuel vehicles.

IMIMET08

Handle automotive refrigerants



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**Validity** Current

**Status** Original

**Originating organisation** IMI

**Original URN** IMIMET08

**Relevant occupations** Mechanical, Electrical and Trim Assistant Technician (Automotive);  
Mechanical, Electrical and Trim Technician (Automotive)

**Suite** Accident Repair - Mechanical, Electrical and Trim

**Key words** Handle Automotive Refrigerants, F gas