LANLEO28

Service and repair land-based air-conditioning/refrigeration systems

Overview

This standard covers the service and repair of land-based air-conditioning/refrigeration systems. It includes mobile air-conditioning (MAC) and fixed plant refrigeration including leak testing, (e.g. ultraviolet, visual, electronic and oxygen-free nitrogen testing).

The standard also covers the operational principles, functional checks and maintenance of MAC and fixed plant refrigeration, (e.g. recovery/drying/charging, cooling rate/effectiveness, air flow/filtration, couplings/pipes/hoses, condensation/insulation/icing, drive systems, TXV (thermal expansion valves)/FOT (fixed orifice tube)/climate control systems).

This standard is for those who work in land-based engineering.

Note: anyone who handles refrigerants should hold a valid certificate to comply with the EC F gas Regulation and Commission Regulation 307/2008.

Performance criteria

You must be able to:

1. remove and replace land-based air-conditioning/refrigeration systems and related components
2. dismantle, inspect and reinstate land-based air-conditioning/refrigeration systems and components
3. select and use the appropriate tools and equipment correctly throughout all **activities**
4. carry out service or repair activities following manufacturers' and hygiene procedures
5. recognise and rectify air-conditioning, climate control or refrigeration **faults**
6. carry out **operational checks** or tests to ensure system functionality
7. collect, transfer and dispose of any waste material following current legal and environmental requirements
8. maintain and process appropriate records

Knowledge and understanding

You need to know and understand:

1. the operating principles of air-conditioning and refrigeration **systems and their components**
2. **system types** and configuration according to application
3. how to operate the system effectively and carry out operational checks or tests to ensure system functionality
4. how to recognise and rectify air-conditioning, climate control or refrigeration faults
5. how to select and use the appropriate tools and equipment correctly throughout all activities
6. how to remove and service or replace air-conditioning or refrigeration components
7. how to dismantle, inspect and reinstate air-conditioning or refrigeration components to manufacturers' requirements
8. how to collect, transfer and dispose of any waste material following current legal and environmental requirements
9. the legal requirement to maintain and process appropriate records

Glossary

activities - e.g. testing (leak, pressure, vacuum) recovery, flushing and recharging

faults - e.g. drive/compressor failure, refrigerant loss, restricted refrigerant/air flow, faulty switch and/or temperature controls, under/over charge of refrigerant or lubricant

operational checks - e.g. compressor drive, switches/controls, power supplies, cooling rate/effectiveness, condensation, insulation, icing, air flow, filters

systems and their components - e.g. compressor, couplings, pipes and hoses, condenser, evaporator, receiver drier, heat exchangers, thermostats, control and thermal expansion valves (TXV), fixed orifice tube (FOT), filters/separators

system types - e.g. MAC Mobile Air Conditioning, fixed plant refrigeration, TXV - Thermal expansion valves**,** FOT - Fixed orifice tube

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