FY1X 04 – Safe Handling of Refrigerants

This Unit comprises of the following combinations of National Occupational Standards (NOS) shown below by award it appears in.

GD7N 23 - **Install, Commission and Maintain Air Conditioning Systems** - M18 M25

GD7L 22 - **Install, Commission and Maintain Refrigeration Systems** - M25 M31

SUMMES18
Decommission cooling systems, equipment and components

Overview

This unit is about decommissioning systems and involves making arrangements with the persons responsible for the work location for the safe recovery and disposal of system fluids and components. The person carrying out the work must be aware of the effect isolating part of a system has on the full system.

SUMMES18
Decommission cooling systems, equipment and components

Performance criteria

You must be able to:

P1 liaise with other persons at appropriate points within the commissioning process to minimise disturbance to work routines

P2 check that conditions within the systems or components will permit safe de- commissioning

P3 identify any problems in the functioning of the equipment that could damage the system or lead to refrigerant leakage, should no action be taken

P4 decommission systems or components using tests and procedures that comply with industry requirements

P5 take precautionary actions to ensure that decommissioned systems or components do not prove a safety hazard

SUMMES18
Decommission cooling systems, equipment and components

Knowledge and understanding

You need to know and understand:

K1 the importance of confirming the system design, specification, functions and outcomes of suspending the operation of the system
K2 the basic operation of the system and equipment and the risks of leakage associated
K3 the potential leakage points in systems equipment
K4 the function and operation of the main components in the system and their role and importance for refrigeration leakage prevention and identification with it
K5 basic ISO standards relevant to the system or installation
K6 basic theory of refrigeration and/or air conditioning systems including thermodynamics
K7 the requirements of EU and UK regulation concerning refrigeration and air conditioning, such as F Gas
K8 the need to liaise with others whose procedures or routines may be affected by the suspension of the system operation
K9 the potential hazards that could arise from de-commissioning activities and the checks to be carried out before de-commissioning takes place
K10 de-commissioning procedures for temporary and permanent de-commissioning of systems
K11 the precautions to ensure that de-commissioned systems do not prove a safety hazard –measures to prevent systems being brought into operation – safety and warning notices
K12 how to safely collect and dispose of system contents that may be hazardous to health ort he environment
K13 how to complete systems de-commissioning records

SUMMES18
Decommission cooling systems, equipment and components

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Version number	1
Date approved	October 2008
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Validity	Current
Status	Original
Originating organisation	SummitSkills
Original URN	M18
Relevant occupations	Building and construction; Skilled Trades Occupations
Suite	Mechanical Engineering Services
Key words	decommission, recovery, safe disposal

SUMMES25
Inspect and test mechanical systems, equipment and components

Overview

This unit is about to carrying out pre-commissioning checks and tests on systems.

The person carrying out the work must be able to undertake the various checks and tests necessary before the system is brought into operation.

They are required to check the operation and correct position of components. They must also carry out tests to ensure there are no leaks and undertake cleaning or flushing of the system.

In the case of ductwork, there is a specified, permissible level of air leakage.

It is important that they are aware of the effect that isolating part of a system has on the full system.

SUMMES25
Inspect and test mechanical systems, equipment and components

Performance criteria

You must be able to:

- P1 confirm that the system or components installation complies with industry requirements
- P2 check that input services to the system components are suited to their intended purpose
- P3 check system or components for soundness using procedures that comply with industry
- P4 carry out pre-commissioning tests and checks in accordance with industry requirements
- P5 check that the system cleanliness, additives and charging comply with industry

SUMMES25
Inspect and test mechanical systems, equipment and components

Knowledge and understanding

You need to know and understand:

K1 the procedures, equipment and legislative requirements for applying specified tests to systems
K2 the methods of establishing that input services adequately supply all components within the system
K3 the methods of connecting components to systems
K4 the actions to take where pre-commissioning checks or tests reveal basic or complex system or component defects
K5 how to complete pre-commissioning documentation confirming the safe pre-commissioning of systems and components

SUMMES25

Inspect and test mechanical systems, equipment and components

Developed by	SummitSkills
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Relevant occupations	Building and construction; Skilled Trades Occupations
Suite	Mechanical Engineering Services
Key words	pre-commissioning check, clean & flush, leaks

SUMMES31
Connect pipework

Overview

This unit is applicable to those that join pipework by brazing, soldering, welding or mechanical means to meet specifications and establish compliance with pipework jointing specifications.

The person carrying out this work is required to undertake the jointing process for different types of joints, in various positions and to conduct visual inspections and checks of the completed work.

The activities involved include connecting pipework joints using cutting, expanding, flaring, hydraulic, compression and abrasive techniques, and propane, butane, oxy-acetylene and/or high temperature gas flame.

SUMMES31
Connect pipework

Performance criteria

You must be able to:

P1 work safely at all times, complying with health and safety and other relevant regulations and guidelines
P2 follow the relevant joining procedures and job instructions for completion and checking of work
P3 check that the joint preparation complies with the specification
P4 check that joining and related equipment and consumables are as specified and fit for the purpose
P5 make the joints as specified using the appropriate joining technique
P6 produce joints of the required quality and of specified dimensional accuracy
P7 where appropriate, shut down the equipment to a safe condition on completion of joining activities
P8 in line with approved and agreed procedures, deal promptly with excess and waste materials and temporary attachments
P9 deal promptly and effectively with problems within their control and report those that cannot be solved
P10 use all the correct tools and inspection equipment and check that they are in useable condition
P11 carry out checks on completed work in an appropriate sequence using approved methods and procedures
P12 identify and assess any defects or variations from the specification and take appropriate action
P13 report completion of compliance activities in line with organisational procedures

SUMMES31
Connect pipework

Knowledge and understanding

You need to know and understand:

K1 health and safety legislation, regulations, safe working practices and procedures relevant to the work being carried out
K2 jointing specifications and joining procedures for the work being carried out
K3 how to interpret engineering drawings and related specifications
K4 jointing processes and equipment relevant to the specification
K5 safe material handling, preparation, finishing methods and techniques
K6 appropriate materials and their joining characteristics
K7 setting, operating and care procedures for the equipment being used
K8 appropriate personal approval tests and how to conduct them safely
K9 hazards arising from joining operations
K10 appropriate compliance checking methods and techniques
K11 how to identify defects in products and assets
K12 organisational reporting lines and procedures
K13 organisational and regulatory quality control systems and documentation procedures
K14 inspection equipment care and control procedures

SUMMES31
Connect pipework

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Status	Original
Originating organisation	SummitSkills
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Relevant occupations	Building and construction; Skilled Trades Occupations
Suite	Mechanical Engineering Services
Key words	join, connect, to appropriate standard, within specification