



## FY1H 04 – Identify and Rectify Faults in Refrigeration Systems, Equipment and Components

This Unit comprises of the following National Occupational Standards (NOS)

## SUMMES20

Identify and rectify faults in cooling systems, equipment and components



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### Overview

This unit is about identifying and rectifying faults in a range of systems. It involves diagnosing mechanical faults with the systems and electrical faults within the main systems including both the main electrical isolator and electronic components.

It will involve liaising with different types of customer and a range of clients.

# SUMMES20

## Identify and rectify faults in cooling systems, equipment and components

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### Performance criteria

*You must be able to:*

- P1 diagnose faults in systems or components using procedures that comply with industry
- P2 liaise with other persons to agree fault rectification procedures which will minimise disruption to work routines
- P3 rectify faults in systems to restore the systems or components function to performance specification
- P4 take precautionary actions to prevent the unauthorised use of unsafe systems or components

# SUMMES20

## Identify and rectify faults in cooling systems, equipment and components

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### Knowledge and understanding

*You need to know and understand:*

- K1 how to interpret information on system or component performance in order to locate faults, including feedback from users, visual inspections, checks or diagnostic tests
- K2 the work procedures for the rectification of faults in systems or components, which will ensure minimum disruption to customers and routines
- K3 how to liaise with others to ensure co-operation in the fault rectification process
- K4 the work actions and sequences required to rectify faults in systems and components
- K5 the measures to ensure that systems do not present a safety hazard to potential users, or damage the workplace environment, when carrying out rectification procedures
- K6 the actions to be taken when the system or component cannot be restored to full performance
- K7 how to isolate unsafe systems and components

## SUMMES20

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**Relevant occupations** Building and construction; Skilled Trades Occupations

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**Suite** Mechanical Engineering Services

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**Key words** diagnose, rectify, customer liaison

## SUMMES28

### Identify faults in mechanical systems, equipment and components



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#### Overview

This unit covers the key areas of maintenance work involving diagnosing the cause of faults in systems and components. Diagnostic requirements in this unit apply only to system components. It does not include appliances.

The person carrying out this work should be able to locate simple faults in the system or component performance.

# SUMMES28

## Identify faults in mechanical systems, equipment and components

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### Performance criteria

- You must be able to:*
- P1 obtain clear and detailed information about the reported faults including any components which need to be replaced
  - P2 advise the relevant people clearly and accurately about the potential disruption and consequences of carrying out a diagnosis of faults
  - P3 locate faults in systems or system components using procedures that comply with industry requirements
  - P4 report to the relevant person diagnosed faults in systems and components
  - P5 liaise with other persons to agree fault rectification procedures which will minimise disruption to work routines

# SUMMES28

## Identify faults in mechanical systems, equipment and components

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### Knowledge and understanding

*You need to know and understand:*

- K1 the necessary information for carrying out a successful fault diagnosis
- K2 how to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults
- K3 the potential disruption and consequences of carrying out a diagnosis of faults
- K4 how to liaise with others to ensure co-operation in the fault diagnosis process
- K5 the work action and sequences required to diagnose faults in systems and components
- K6 the measures to ensure that systems do not present a safety hazard to potential users, or the workforce, when carrying out diagnosis procedures
- K7 how to isolate unsafe systems and components
- K8 the procedures for reporting diagnosed faults in systems and components
- K9 how to interpret information on system or component performance, including advice from users, visual inspections, checks or performance tests to locate faults
- K10 the work procedures for the rectification of faults in systems or components which will ensure minimum disruption to customers and routines
- K11 how to identify common faults of principal components within systems
- K12 component/principal components and system operation principles
- K13 the operating principles of gas, oil and solid fuel boilers and the differences between them for rectification purposes
- K14 effects of component faults upon overall system performance and correct methods to ascertain component fault
- K15 how to access and interpret specifications, drawings and technical data relevant to system layout, design and component/principal components function
- K16 organisational and maintenance contract procedures, their purpose and application



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**Key words** simple system faults, component performance.

## SUMMES29

# Rectify and modify mechanical systems, equipment and components



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### Overview

This unit is about being able to rectify faults in systems and components, including modification and re-commissioning.

The person carrying out this work must demonstrate a sound knowledge and understanding of system operating principles and the main types of modifications and rectification activities applicable.

It is vital that the relevant electrical tests are carried out and that whilst undertaking diagnostic tasks, compliance with relevant recommendations and regulations is demonstrated. Mains supplies and energy sources must be traced, located and identified and electrical connections must be safely isolated and disconnected at the appropriate stage in the process.

The person carrying out this work must be aware of the effect isolating part of a system has to the full system status.

Systems are required to be rectified and/or modified using diagnostic skills to restore specified operational performance.

They must be able to undertake the required rectification or modification safely to meet the relevant recommendations, regulations and standards. Relevant documentation is to be completed and made available in line with company procedures if applicable.

For de-commissioning, they must make arrangements with users of the work location and ensure their safety throughout the process.

# SUMMES29

## Rectify and modify mechanical systems, equipment and components

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### Performance criteria

- You must be able to:*
- P1 carry out rectifying and modifying actions to minimise risk to individuals and the environment
  - P2 carry out rectifying and modifying actions to minimise system downtime
  - P3 carry out rectifying and modifying actions in agreement with the customer
  - P4 isolate systems or partial systems from supply services in accordance with industry requirements
  - P5 carry out rectifying and modifying actions appropriate to the systems and components
  - P6 rectify effective system performance to industry requirements
  - P7 implement rectification and modifying actions that maintain the overall specified system
  - P8 complete documentation that is complete, accurate, and legible and made available to the customer

# SUMMES29

## Rectify and modify mechanical systems, equipment and components

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### Knowledge and understanding

*You need to know and understand:*

- K1 the source of information on the preparatory work necessary for the system or component rectification
- K2 the importance of minimising risks to individuals and the environment
- K3 how to carry out work efficiently, logically and in line with customer requirements
- K4 why relaying information to the customer and gaining agreement is important
- K5 correct methods and procedures for isolating mains supplies, energy sources and electrical connections
- K6 correct methods and procedures for emptying systems or parts of systems
- K7 working principles of systems within the range
- K8 the operating principles of gas, oil and solid fuel boilers and their differences in relation to rectifying and modifying systems
- K9 how to compare technical performance of replacement components to faulty components/principal components
- K10 correct installation requirements and procedures for components/principal components of systems, implications of incorrect fixing and different methods of fixing and connecting
- K11 how to ascertain components/principal components are electrically safe
- K12 how to ensure that overall system performance is not impaired following rectification and modification works

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**Key words** operating principles, mains supplies, safe isolation