

PROMT9

Using engineering drawings and documents in maintenance activities



Overview

This unit identifies the competences you need to monitor engineering activities, in accordance with approved procedures. You will be required to monitor, at suitable intervals, the engineering activity and the supply and use of resources, both within the company and/or at customer premises. In addition, you may be required to monitor suppliers and contractors associated with the activity. During the monitoring process, you will be required to confirm that the engineering methods used are appropriate, and that the outputs and materials used are within the required specification.

Your responsibilities will require you to comply with organisational policy and procedures for the engineering activities being monitored, and to report any problems that you cannot personally resolve, or that are outside your permitted authority, to the relevant people. You will be expected to work with minimal supervision, taking personal responsibility for your own actions, and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will include organisational policy and procedures and discipline-specific engineering principles and processes, within your area of responsibility. This will provide a good understanding of your work, and will provide an informed approach to applying monitoring procedures to engineering activities. You will also have an underpinning knowledge of resource management principles, quality assurance principles and problem solving techniques, in adequate depth to provide a sound basis for carrying out the monitoring activities to the required standards.

You will be aware of any company/customer, legislative or regulatory health, safety and environmental requirements applicable to the engineering activities being monitored. You will be required to demonstrate safe working practices throughout, and will understand the responsibility you owe to yourself and others in the workplace.

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Performance criteria

- You must be able to:*
- P1 Use the approved source to obtain the required drawings and specifications
 - P2 Correctly interpret the drawings and specifications
 - P3 Identify, extract and interpret the required information
 - P4 Use the information obtained to ensure that work output meets the specification
 - P5 Deal promptly and effectively with any problems within your control and report those which cannot be solved
 - P6 Report any inaccuracies or discrepancies in drawings and specifications

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Knowledge and understanding

You need to know and understand:

- K1 The information sources used for the drawings and specifications that you use in your work activities
- K2 How drawings and documents are obtained, and how to check that they are current and valid
- K3 How to use other sources of information to support the drawings (such as electronic component pin configuration specifications, standard reference charts for limits and fits, tapping drill reference charts, cable current carrying capacities, thread reference tables)
- K4 The procedures for reporting discrepancies in the drawings or documents and for reporting lost or damaged drawings/documents
- K5 Care and control procedures for the drawings and documents, and the importance of returning them to the designated location on completion of the work activities
- K6 The basic drawing conventions that are used, and why there needs to be different types of drawings
- K7 The types of drawings used, and how they interrelate (such as isometric and orthographic, first and third angle, assembly drawings, circuit and wiring diagrams, block and schematic diagrams)
- K8 Imperial and metric systems of measurement, tolerancing and fixed reference points
- K9 The meaning of the different symbols and abbreviations found on the drawings that you use (such as surface finish, electronic components, weld symbols, linear and geometric tolerances, pressure and flow characteristics)
- K10 How damage or graffiti on drawings can lead to scrapped work
- K11 The extent of your own responsibility, when to act on your own initiative to find, clarify and evaluate information, and to whom you should report if you have problems that you cannot resolve

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Scope related to performance criteria

- 1 Use approved sources to obtain the necessary drawings and related specifications, and carry out all of the following:**
 - 1.1 check the currency and validity of the drawings and documents used
 - 1.2 exercise care and control over the documents at all times
 - 1.3 correctly extract all necessary data in order to carry out the required tasks
 - 1.4 seek out additional information where there are gaps or deficiencies in the information obtained
 - 1.5 report any problems found with the drawings/specifications
 - 1.6 make valid decisions based on the data extracted from the documents
 - 1.7 return all drawings and related documents to the approved location on completion of the work

- 2 Use information extracted from engineering drawings and related documentation, to include three of the following:**
 - 2.1 general assembly drawings
 - 2.2 fluid power drawings
 - 2.3 wiring/circuit diagrams
 - 2.4 installation drawings
 - 2.5 manufacturers' manuals
 - 2.6 routing diagrams (such as piping, cables etc)
 - 2.7 layout diagrams (such as schematic, block, physical, system)
 - 2.8 approved sketches
 - 2.9 technical illustrations

- 3 Use information extracted from related documentation to include two from the following:**
 - 3.1 maintenance log/reports
 - 3.2 fault diagnosis guides
 - 3.3 test schedules
 - 3.4 test results
 - 3.5 manufacturers' instructions
 - 3.6 reference tables/charts (such as logic tables, ladder diagrams)
 - 3.7 national, international and organisational standards
 - 3.8 health and safety standards relating to activity (such as COSHH)
 - 3.9 environmental requirements

- 4 Extract information that includes three of the following:**
 - 4.1 materials or components required
 - 4.2 dimensions

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Scope related to performance criteria

- 4.3 dismantling/assembly sequence required
- 4.4 location/orientation of parts connections to be made
- 4.5 process or treatments required
- 4.6 installation requirements
- 4.7 tolerances and quality requirements
- 4.8 circuit characteristics (such as pressure, flow, current, voltage, speed)Carry out all of the following during the monitoring activities:

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