

# SEMEMI2-12 - SQA Unit Code H2AT 04

## Carrying out scheduled maintenance tasks on electrical equipment



### Overview

This unit identifies the competences you need to carry out scheduled maintenance tasks on electrical equipment, in accordance with approved procedures. You will be required to carry out maintenance on electrical equipment such as control systems, motors and starters, switchgear and distribution panels, electrical plant, wiring enclosures and luminaires, portable appliances and other specific electrical equipment, in order to minimise downtime, and ensure that the equipment performs at optimal levels and functions to specification.

Your responsibilities will require you to comply with organisational policy and procedures for the maintenance activities undertaken, and to report any problems with these activities, or with the tools and equipment that are used, that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You must ensure that all tools, equipment and materials used in the maintenance activities are removed from the work area on completion of the activities, and that all necessary job/task documentation is completed accurately and legibly. You will be expected to work to instructions, alone or in conjunction with others, taking personal responsibility for your own actions, and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will be sufficient to provide a sound basis for your work, and will enable you to adopt an informed approach to applying scheduled maintenance procedures to electrical equipment. You will have an understanding of the process of implementing scheduled maintenance tasks, the importance of carrying them out at specific times, and of recording their outcomes and actions taken. In addition, you will be expected to report where the outcomes identify the need for further investigation or maintenance work.

You will understand the safety precautions required when carrying out the maintenance activities, especially those for isolating the equipment. You will also understand your responsibilities for safety, and the importance of taking the necessary safeguards to protect yourself and others in the workplace.

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#### 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 maintenance schedules to carry out the required work
- P3 carry out the maintenance activities within the limits of your personal authority
- P4 carry out the maintenance activities in the specified sequence and in an agreed time scale
- P5 report any instances where the maintenance activities cannot be fully met or where there are identified defects outside the planned schedule
- P6 complete relevant maintenance records accurately and pass them on to the appropriate person
- P7 dispose of waste materials in accordance with safe working practices and approved procedures

### Knowledge and understanding

*You need to know and understand:*

- K1 the health and safety requirements of the area in which the scheduled maintenance tasks are to take place, and the responsibility these requirements place on you
- K2 the isolation procedure or permit-to-work procedure that applies to the equipment being maintained
- K3 the specific health and safety precautions to be applied during the scheduled maintenance tasks, and their effects on others
- K4 how to recognise and deal with victims of electric shock (to include methods of safely removing the victim from the power source, isolating the power source, and methods of first aid resuscitation)
- K5 the importance of wearing protective clothing and other appropriate safety equipment during the maintenance activities
- K6 the hazards associated with carrying out scheduled maintenance tasks on electrical equipment (such as live electrical components, stored energy, misuse of tools), and how they can be minimised
- K7 how to obtain and interpret information from job instructions and other documentation used in the maintenance activities (such as drawings, specifications, manufacturers' manuals, BS7671/IEE regulations, symbols and terminology)
- K8 the various checks to be carried out during the scheduled maintenance procedure
- K9 the procedure for obtaining the consumables to be used during the scheduled maintenance activity
- K10 methods of checking that components are fit for purpose, and the need to replace 'lived' items
- K11 how to check that any replacement components meet the required specification/operating conditions
- K12 how to make appropriate sensory checks (such as sight, sound, smell and touch)
- K13 the appropriate testing instructions to be adopted during the maintenance activity
- K14 how to make adjustments to components/assemblies to ensure they function to specification
- K15 the basic principles of how the equipment functions, its operating sequence, the working purpose of individual units/components, and how they interact
- K16 how to complete scheduled maintenance records/logs/reports, in accordance with company policy and procedures
- K17 the equipment operating and control procedures, and how to apply them in order to carry out scheduled maintenance

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- K18 the problems that can occur whilst carrying out the scheduled maintenance tasks, and how they can be avoided
- K19 the organisational procedure(s) to be adopted for the safe disposal of waste of all types of materials
- K20 the extent of your own authority and to whom you should report if you have problems that you cannot resolve

### Additional Information

#### Scope/range related to performance criteria

*You must be able to:*

1. carry out **all** of the following during the scheduled maintenance activities:
  - 1.1. undertake the maintenance activities to cause minimal disruption to normal working
  - 1.2. use the correct issue of maintenance documentation (such as drawings, manuals, maintenance records)
  - 1.3. adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations
  - 1.4. confirm with the authorised person that the equipment is ready for carrying out the scheduled maintenance ac
  - 1.5. ensure the safe isolation of equipment (such as mechanical, electricity, gas, air or fluids)
  - 1.6. ensure that safe access and working arrangements have been provided for the maintenance area
  - 1.7. carry out the scheduled maintenance tasks, using appropriate techniques and procedures
  - 1.8. dispose of waste items in a safe and environmentally acceptable manner
  - 1.9. leave the work area in a safe and tidy condition
  
2. carry out scheduled maintenance tasks on **two** of the following groups of electrical equipment:
  - 2.1. electrical plant
  - 2.2. wiring enclosures
  - 2.3. portable appliances
  - 2.4. motors and starters
  - 2.5. luminaires
  - 2.6. switchgear and distribution panels
  - 2.7. control systems and components
  - 2.8. other specific electrical equipment
  
3. carry out **ten** of the following scheduled maintenance activities:
  - 3.1. removing excessive dirt and grime
  - 3.2. making sensory checks (such as sight, sound, smell, touch)
  - 3.3. replacing 'lifer' consumables (such as gaskets, seals, batteries, light bulbs)
  - 3.4. monitoring the condition/deterioration of components (such as cables, connectors switches, contactors, safety devices)
  - 3.5. checking that any safety equipment or controls are operating correctly
  - 3.6. checking the operation of test/measuring equipment (such as

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- instrumentation, sensors and indicators)
- 3.7. carrying out and/or checking equipment self-analysis data
- 3.8. making adjustments to components and/or connections
- 3.9. checking/tightening fastenings to the required torque
- 3.10. checking the integrity and security of earth bonding
- 3.11. reviewing and checking equipment operation and performance
- 3.12. recording the results of the scheduled maintenance activity
- 3.13. reporting or taking action with regard to any defects that require immediate attention (such as replacing 'non-lifed' components)
  
- 4. maintain electrical equipment, in accordance with **one** of the following:
  - 4.1. organisational guidelines and codes of practice
  - 4.2. equipment manufacturer's operation range
  - 4.3. BS, ISO and/or BSEN standards
  - 4.4. BS7671/IEE wiring regulations
  
- 5. complete **one** of the following maintenance records, and pass it to the appropriate person:
  - 5.1. job cards
  - 5.2. specific company documentation
  - 5.3. permit to work/formal risk assessment

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