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## Overview

This standard identifies the competencies you need to carry out scheduled maintenance activities on traction and rolling stock electrical equipment. You will be required to carry out maintenance on electrical equipment such as single and three-phase power supplies, traction motors, switchgear and distribution panels, control systems and equipment, luminaries and other specific electrical equipment to minimise downtime and ensure that the equipment performs at optimal levels and functions to specification. The term traction and rolling stock used in this standard applies to passenger, freight and on-track machinery (OTM). Where it is relevant, these standards also apply to traction and rolling stock that has been fitted with the European Train Control System (ETCS).

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/activities documentation is completed accurately and legibly. You will be expected to work to instructions, alone or in conjunction with others.

You will have an understanding of the process of implementing scheduled maintenance activities, the importance of carrying them out at specific times and 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 and informing others of the work you are carrying out. 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 maintain safe working practices and comply with all relevant health and safety regulations, directives, and guidelines

P2 follow the relevant electrical maintenance schedules to carry out the required work

P3 carry out the electrical maintenance activities within the limits of your personal authority

P4 carry out the electrical maintenance activities in the specified sequence and in an agreed time scale

P5 report any instances where the maintenance activities cannot be met or where there are identified defects outside the planned schedule

P6 complete relevant maintenance records 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 relevant health and safety regulations, directives, guidelines, and safe working practices and procedures defined by your organisation, as appropriate to the activity and your working area

K2 the isolation procedure or permit-to-work procedure that applies to the equipment being maintained (such as electrical isolation, locking off switchgear, placing of maintenance warning notices, proving the isolation has been achieved and secured)

K3 the specific health and safety precautions to be applied during the scheduled maintenance activities, and their effects on others

K4 the classification of different voltage levels and the authority requirements for working on them

K5 what constitutes a hazardous voltage/current and how to recognise victims of electric shock

K6 the steps to take to secure the vehicle from movement and protect it from other vehicle movements

K7 how to reduce the risks of an electric shock (such as insulated tools, rubber matting and isolating transformers)

K8 how to reduce the risks associated with stored energy systems (such as capacitors, air systems, hydraulic systems and springs)

K9 the importance of wearing protective clothing and other appropriate safety equipment (PPE) during the maintenance activities

K10 the hazards associated with carrying out scheduled maintenance activities on electrical equipment (such as live electrical components, stored energy, misuse of tools), and how they can be minimised

K11 how to obtain and interpret information from job instructions and other documentation used in the maintenance activities (such as drawings, specifications, manufacturers' manuals, symbols and terminology)

K12 the various checks to be carried out during the scheduled maintenance procedure

K13 the maintenance requirements for 'lived', consumables and on condition components

K14 the procedure for obtaining the consumables to be used during the scheduled maintenance activity

K15 methods of checking that components are fit for purpose, and the need to replace 'lived' items

K16 the procedures for quarantining defective materials and local warranty procedures for repair or replacement

K17 how to check that any replacement components meet the required specification/operating conditions

K18 how to make appropriate sensory checks (such as sight, sound, smell and touch)

K19 the appropriate testing instructions to be adopted during the maintenance activity

K20 how to make adjustments to components/assemblies to ensure they function to specification

K21 the basic principles of how the equipment functions, its operating sequence, the working purpose of individual units/components, and how they interact with other systems such as ETCS, AWS or TPWS

K22 how to complete scheduled maintenance records/logs/reports, in accordance with company policy and procedures

K23 the equipment operating and control procedures, and how to apply them in order to carry out scheduled maintenance

K24 the importance of recording the serial numbers of removed and newly fitted components affecting the rolling stock asset tree

K25 the problems that can occur whilst carrying out the scheduled maintenance activities, and how they can be avoided

K26 the organisational procedure(s) to be adopted for the safe disposal of waste of all types of materials

K27 the extent of your own authority and to whom you should report if you have problems that you cannot resolve

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### Scope/range related to performance criteria

1.

In carrying out scheduled electrical maintenance activities, individuals will:

2.

Scheduled maintenance activities may be carried out on the following types of electrical equipment:

3.

Types of scheduled maintenance activities include:

4.

Electrical equipment maintenance may need to comply with the following:

5.

Types of maintenance records that need to be completed and passed to the appropriate people could include:

SEMRETRS205

Carry out scheduled maintenance on traction and rolling stock electrical equipment



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<b>Developed by</b>	NSAR
<b>Version Number</b>	2
<b>Date Approved</b>	30 Apr 2024
<b>Indicative Review Date</b>	01 May 2027
<b>Validity</b>	Current
<b>Status</b>	Original
<b>Originating Organisation</b>	SEMTA
<b>Original URN</b>	SEMRETRS205
<b>Relevant Occupations</b>	Rail Engineering
<b>Suite</b>	Rail Engineering Traction and Rolling Stock Suite 2
<b>Keywords</b>	Rail engineering; maintenance; scheduled maintenance; electrical; condition; safety checks; operations; functionality; ETCS

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