

## Assist in the planned maintenance of signalling equipment

**Overview**

This standard identifies the competences you need to assist in the planned maintenance of signalling systems and equipment under direction, including the use of correct tools and equipment in accordance with your organisation's procedures. The signalling equipment in this standard can be for over ground or underground rail transportation systems and can be applicable for the new European Train Control System (ETCS).

You will be required to use the appropriate tools and equipment throughout the maintenance activities, and to apply a range of methods and techniques to maintain the equipment. Where appropriate, you may also assist in working with computers or electronic controllers, making connections, maintaining hardware and loading and updating software. The maintenance activities will include making checks and adjustments, in line with your permitted authority, and assisting others to ensure that the maintained equipment functions to the required specification.

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

The maintenance activity may be carried out as a team effort, but you must demonstrate a significant personal contribution to the activities, in order to satisfy the requirements of the standard, and you must demonstrate competence in all the areas required by the standard.

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 procedures for the maintenance of signalling equipment. You will have an understanding of the equipment being maintained, in adequate depth to provide a sound basis for carrying out the process safely and effectively.

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You will understand the safety precautions required when carrying out the maintenance activities, especially those for ensuring the safe isolation of services. You will be required to demonstrate safe working practices throughout, and will understand your responsibility for taking the necessary safeguards to protect yourself and others in the workplace.

Safety is a key theme throughout this standard and you will be able to identify all the necessary safety requirements and take the relevant action to ensure the safety of yourself, others and railway operations.

## Performance criteria

*You must be able to:*

1. work safely at all times, complying with your organisation's procedures
2. identify the area of work and the equipment which is to be maintained
3. follow the relevant maintenance schedules or procedures to carry out the required work
4. assist in the maintenance activities within the limits of your own authority
5. carry out the maintenance activities in the specified sequence and in an agreed timescale ensuring that the work does not interfere with any operational railway systems
6. select and use the correct tools and equipment including measuring instruments and check that they are in a safe usable condition and calibrated
7. ensure waste items and tools are removed or stored in line with your organisation's procedures
8. report completion of activities in line with your organisation's procedures
9. deal promptly and effectively with problems within your control and report those which cannot be resolved

## Knowledge and understanding

*You need to know and understand:*

1. the relevant health and safety legislation, regulations and safe working practices and procedures as appropriate to the activity such as the Safe System of Work (SSOW)
2. how to locate and safely access the site
3. how to check authorisation is in place for maintenance activities
4. the isolation and lock-off procedure or permit-to-work procedure that applies to the system (such as electrical isolation, locking off switchgear, placing of warning notices, proving the isolation has been achieved and secured)
5. the classification of different voltage levels and the authority requirements for working on them
6. what constitutes a hazardous voltage/current and how to recognise victims of electric shock
7. how to reduce the risks of an electric shock (such as insulated tools, rubber mating and isolating transformers)
8. the importance of wearing protective clothing and other appropriate safety equipment (PPE) during the maintenance activities
9. hazards associated with carrying out signal maintenance activities (such as stored energy, radio frequency radiation, electrical supplies, electrical/electronic interfaces, using damaged or badly maintained tools and equipment, not following laid-down procedures), and how to minimise these and reduce any risks
10. how to locate and identify the equipment to be worked on
11. how to follow maintenance schedules, procedures, instructions specifications, site and equipment diagrams
12. the methods, techniques and procedures for the maintenance of signalling systems and equipment
13. the types of operational constraints that could occur when carrying out signalling maintenance activities
14. your organisation's procedures relating to maintenance records and documentation including how to access and version control
15. your organisation's procedures for the use, care and control of tools and equipment including calibration
16. the procedures and precautions to be adopted to eliminate electrostatic discharge (ESD) hazards when working with and handling electronic devices

17. how to check the maintenance activity to ensure compliance with the original specification
18. the types of damage or disturbance that could occur to operational equipment when undertaking a maintenance activity
19. your organisation's procedures for disposing/storing of waste items
20. the relevant reporting lines and procedures that are approved by your organisation
21. the limits of your own authority and responsibility and those of others involved such as the Safe Work Leader (SWL)

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### Scope/range related to performance criteria

1. Follow the health and safety legislation, regulations and safe working practices and procedures, from the following as applicable to the work location and activities:
  1. your organisation's safety management system
  2. relevant sections of the HASWA
  3. COSHH
  4. safe work plans
  5. SWL (Safe Work Leader)
  6. track access restrictions
  7. track work instructions
  8. track possession
  9. task risk control sheets
  10. current rule book
  11. regulations for working under OHLE and in the vicinity of DC lines (where appropriate)
  12. equipment disconnections
  13. manual handling regulations
  14. RIDDOR
  15. safety sign regulations
  16. PPE
  
2. Identify the access requirements related to **one** of the following types of site equipment locations:
  1. trackside
  2. internal (such as signal box, equipment room)
  3. areas to which the public have access
  4. confined spaces
  5. elevated structures
  
3. Assist in the planned maintenance of **one** of the following types of signalling equipment:
  1. points
  2. train control (such as signals, balises or other method of authorising train movements)
  3. train detection (such as track circuits or axle counters)
  4. power supplies
  5. ETCS
  6. other industry specific signalling equipment
  
4. Use the following types of tools and equipment as applicable to

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the equipment being maintained:

1. power tools
2. hand tools
3. wire and cable strippers
4. IDC tools (such as punch down tool)
5. crimping tools
6. multi-meters
7. measuring equipment
8. test equipment
9. other specific signalling maintenance tools/equipment

5. Carry out the following maintenance activities as applicable to the equipment being maintained:

1. visual and aural checks
2. electrical measurements and adjustments
3. mechanical measurements and adjustments
4. routine servicing
5. cleaning
6. lubricating
7. other specific signalling maintenance activity

6. Assist in the completion the relevant maintenance records, to include **one** of the following, and pass it to the appropriate people:

1. job card
2. SMTH
3. maintenance log and action report
4. company reporting procedures
5. other industry specific maintenance records

## Glossary

### **COSHH**

Control of Substances Hazardous to Health Regulations

### **COSS**

Controller of Site Safety

### **DC**

Direct Current

### **ETCS**

European Train Control System

### **ERTMS**

European Train Traffic Management System

### **HASWA**

Health and Safety at Work Act

### **IDC**

Insulation Displacement Connection

### **OHLE**

Overhead Line Equipment

### **PPE**

Personal Protective Equipment

### **PTS**

Personal track safety certificate



**RIDDOR**

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

**SSOW**

Safe System of Work

**SWL**

Safe Work Leader

**SMTH**

Signalling Maintenance Testing Handbook

**Your organisation**

This is the company you work for or are contracted to, or, if you are self-employed, the rules you have set for yourself to ensure that you comply with relevant legal and licensing requirements

**Organisation's procedures**

These are the procedures your organisation has in place to ensure compliance to the relevant rules, regulations, instructions, policies, procedures and laws relevant to the activity

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