NR/L2/CTM/012/008 Competence & Training in Signal Engineering

Sig 8: Undertake corrective and preventative maintenance of mechanical signals and AWS equipment.

1 Purpose.

The purpose of this competence standard is to define the competence requirements for persons required to undertake corrective and preventative maintenance of mechanical signals and ancillary equipment.

2 Scope.

This competence standard applies in all circumstances where any person is required to maintain, fault or test mechanical signals (including associated AWS equipment) on Network Rail managed infrastructure.

The level and extent of responsibility will include their own safety and that of others who might be affected by their work. The person will be expected to refer to others for authorisation when required, will be responsible for the implementation of the instructions and will work within set procedures and specifications. The person is responsible for the quality of their completed work.

This competence standard shall be used to assess the competence of people maintaining any of the following:

- Mechanical signal fitted on a post.
- Mechanical ground signal.
- Electrical components associated with the signal and AWS equipment, including:
  a) Semaphore Sig Machine (BP,GRS,SGE)
  b) Semaphore Sig Machine (WBS)

A separate competence standard applies when a person is required to work on electrical signals.

3 Competence Standard.

This Competence Standard comprises five elements.

Element 1 Carry out planned maintenance of electrical signals.

Element 2 Adjust mechanical signals to meet operating requirements.

Element 3 Diagnose faults in mechanical signals.

Element 4 Restore mechanical signals to operational condition by repair.

Element 5 Conduct specified testing of mechanical signals, analyse and interpret the results.

The first element is concerned with the safe completion of planned maintenance in accordance with instructions. The second element deals with adjusting the equipment to make sure that it meets its operating requirements. The third and fourth elements are concerned with the safe completion of locating, diagnosing and

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repairing faults. The final element deals with testing of the equipment and analysing and interpreting the results to make sure that the equipment meets its operating requirements.

To prove competence in this unit, the person shall demonstrate their ability to complete maintenance in accordance with instructions, locate, diagnose and repair faults associated with signal not illuminated, incorrect indication, and incorrect driver's audible warning and complete the appropriate testing. The person will have to show they can follow recording, reporting and escalation procedures.

4 Assessment.

4.1 Initial Assessment.

Where the equipment is new to the person's area of responsibility evidence should be used from the satisfactory completion of training and mentoring and shall be gathered of the person working on at least Mechanical signal fitted on a post and a Mechanical ground signal including electrical components the associated with the signal and AWS equipment.

Performance evidence may come from a variety of sources and will include evidence derived from surveillance (direct observation) by an approved assessor. Evidence will also include detailed questioning and may additionally be supported by performance reports from the person's line manager.

4.2 Re-Assessment

Re-assessment shall be completed in accordance with the applicable requirements set out in **7.2** of NR/L2/CTM/012.

4.3 Knowledge Evidence that is common to the whole unit.

You shall have knowledge and understanding of:

a) Engineering specifications associated with mechanical signals and ancillary equipment.

b) How the maintenance adjustment, faulting, repair and testing activity may affect the safe operation of the railway.

c) What procedures need to be followed to demonstrate operational and personal safety is maintained during the work.

d) How to avoid personal injury during the work.

e) How the mechanical signals and AWS equipment are designed to function under normal operating conditions.

f) What each of the component parts contributes to the overall operation of the system.

g) What terminology and methods are used to identify signals and describe the aspects displayed.

h) What tools are required to complete the work and what equipment calibration is required.

i) What maintenance authorisation procedures are and limits of your responsibility and authority.

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j) What equipment operating and care and control procedures are applicable to mechanical signals and AWS equipment.

k) What procedures apply to taking the equipment out of operational service and what procedures apply to handing back the equipment to operational service.

l) Maintenance reporting documentation and control procedures.

m) Reporting lines and escalation procedures.

n) Industry protocols relating to communication important safety information.

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