# NR/L2/CTM/012/020 Competence & Training in Signal Engineering

## Sig 20: Undertake corrective and preventative maintenance of control systems.

### 1 Purpose.

The purpose of this competence standard is to define the competence requirements for persons required to undertake corrective and preventative maintenance of control systems.

### 2 Scope.

This competence standard applies in all circumstances where any person is required to maintain, fault or test control systems on Network Rail managed infrastructure.

This competence standard shall be used to assess the competence of people faulting any of the following types of control system:

- FDM
- TDM
- PMUX
- VSCS

### 3 Competence Standard.

This Competence Standard comprises four elements.

Element 1 Carry out planned maintenance of control systems.

Element 2 Diagnose faults in control systems.

Element 3 Restore control systems to operational condition by repair.

Element 4 Conduct specified testing of control systems, analyse and interpret the results.

The first element is concerned with the safe completion of planned maintenance in accordance with instructions. The second and third elements are concerned with the safe completion of locating, diagnosing and repairing faults and resetting the system to service. The fourth 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 work in accordance with instructions, locate, diagnose and repair faults associated with single or multiple function failure or out of specification performance and complete the appropriate testing. The person will have to show they can follow recording, reporting and escalation procedures.

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.



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## 4 Assessment.

### 4.1 Initial Assessment.

Where the equipment is new to the person's area of responsibility the evidence requirements defined in each element apply. Due to the difficulty in collecting evidence by observation in the workplace the primary source will be from training except for element one where some performance evidence shall be collected as described in the element.

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 the specific types of control system.

b) How the maintenance, 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 control system is designed to function under normal operating conditions.

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

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

h) What the maintenance authorisation procedures are and what the limits of your responsibility and authority are.

i) What equipment operating and care and control procedures are applicable to control systems.

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

k) Maintenance reporting documentation and control procedures.

l) Reporting lines and escalation procedures.

m) Industry protocols relating to communication of important safety information.



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