

Level 2 NVQ Certificate in Rail Engineering Signalling Installer (7597-03)

September 2011 Version 1.0



Qualification at a glance

Subject area	Rail Engineering
City & Guilds number	7597
Age group approved	18+, 19+
Entry requirements	None
Assessment	Portfolio
Fast track	Automatic approval available
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates

Title and level	City & Guilds number	Accreditation number
Level 2 NVQ Certificate in Rail Engineering Signalling Installer	7597-03	600/1567/6



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1 Introduction

This document tells you what you need to do to deliver the qualification:

Area	Description
Who is the qualification for?	It is for anyone working in railways engineering, including those preparing for a specialised role or management responsibility.
What does the qualification offer?	This qualification proves competence of industrial performance, knowledge and understanding and recognise the ability of individuals working in signalling installation within the rail sector.
What opportunities for progression are there?	<p>Candidates who are successful will be able to progress in employment or to a range of further education and professional body qualifications. For example:</p> <ul style="list-style-type: none"> • Level 3 NVQ Certificate/Diploma in Rail Engineering Signalling Maintainer and Fault Finder (7597-08/14) • Supervisory or team leader roles • Institute of Leadership and Management qualifications.

Structure

To achieve the **Level 2 Certificate in Rail Engineering Signalling Installer**, learners must achieve **17** credits from the mandatory units.

Unit accreditation number	City & Guilds unit	Unit title	Credit value
Mandatory			
H/503/0594	230	Establish information for signal engineering installation	2
M/503/0601	231	Determine requirements for the safe access to work locations for signal engineering	3
A/503/0603	232	Reinstate the work area after signal engineering activities	2
F/503/0604	233	Installation of signalling equipment using non-complex processes	4
L/503/0721	235	Assist with tests and checks of signalling equipment	4
T/503/0602	343	Allocate and monitor resources for signal engineering activities	2



2 Centre requirements

Approval

To offer this qualification, new centres will need to gain both centre and qualification approval. Please refer to the *Centre Manual - Supporting Customer Excellence* for further information.

Centres approved for the current (7588-07) Level 3 NVQ in Railway Engineering (Rail Signal Installation) which have been active during the last two years have already been automatically approved for this qualification so they can start registering candidates under these new qualification immediately.

For any other cases, our general qualification approval process applies.

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualification before designing a course programme.

Resource requirements

Physical resources and site agreements

Centres can use specially designated areas within a centre to assess, for example, the installation of specialised electrical systems, alignment and setting up of electric motors and driven devices (pumps, compressors, generators). The equipment, systems and machinery must meet industrial standards and be capable of being used under normal working conditions, for example electric motors must have a method of applying sufficient power and not be connected up to show movement.

Centre staffing

Staff delivering this qualification must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be occupationally competent or technically knowledgeable in the areas for which they are delivering training and/or have experience of providing training. This knowledge must be to the same level as the training being delivered
- have recent relevant experience in the specific area they will be assessing
- have credible experience of providing training.

Centre staff may undertake more than one role, eg tutor and assessor or internal verifier, but cannot internally verify their own assessments.

Assessors and internal verifiers

Assessors' and internal verifiers' requirements have been specified by GoSkills in their assessment strategy. The full document is available from our website.

Centre staff may undertake more than one role, assessor and/or internal verifier, but must never internally verify their own assessments.

The primary responsibility of the assessor is to assess candidates to the required quality and consistency against the national occupational standard. It is important that an assessor can recognise occupational competence as specified by the national standard. Assessors therefore need to have a thorough understanding of assessment and quality assurance practices, as well as in depth technical understanding related to the qualifications for which they are assessing candidates.

It will be the responsibility of the approved centre to select and appoint assessors. Potential assessors should:

- hold (or be working towards) an appropriate qualification, as specified by the appropriate regulatory authority, confirming their competence to assess NVQ candidates,
- have the necessary and sufficient experience of the role for which they intend to undertake assessments and actual experience of the functions described by the occupational standards that comprise the qualification.

A primary responsibility of the internal verifier is to assure the quality and consistency of assessments carried out by the assessors for whom they are responsible. Internal verifiers therefore need to have a thorough understanding of quality assurance and assessment practices, as well as sufficient technical understanding related to the qualifications they are internally verifying.

It will be the responsibility of the approved centre to select and appoint internal verifiers. Potential internal verifiers should:

- hold (or be working towards) an appropriate qualification, as specified by the appropriate regulatory authority, confirming their competence to internally verify NVQ assessments,
- hold (or be working towards) an appropriate qualification, as specified by the appropriate regulatory authority, confirming their competence to verify NVQ candidates,
- have the necessary and sufficient experience of the role for which they intend to verify assessments. This experience will have provided potential verifiers with detailed knowledge of the functions described by the occupational standards that comprise the qualification.

Trainee assessors and internal verifiers must have a plan, which is overseen by the recognised assessment centre, to achieve the internal verifier qualification within an agreed timescale.

Continuing professional development (CPD)

Centres are expected to support their staff in ensuring that their knowledge remains current of the occupational area and of best practice in delivery, mentoring, training, assessment and verification, and that it takes account of any national or legislative developments.

Candidate entry requirements

Candidates should not be entered for a qualification of the same type, content and level as that of a qualification they already hold.

In addition, centres must ensure that candidates have the potential and opportunity to gain the qualifications successfully.

There are no formal entry requirements for candidates undertaking this qualification.

Age restrictions

These qualifications are **not** approved for use by learners under the age of 18 and City & Guilds cannot accept any registrations for candidates in this age group.



3 Delivering the qualification

Initial assessment and induction

Centres will need to make an initial assessment of each candidate prior to the start of their programme to ensure they are entered for an appropriate type and level of qualification.

Support materials

The following resources are available for this qualification:

Description	How to access
Candidate logbook	www.cityandguilds.com

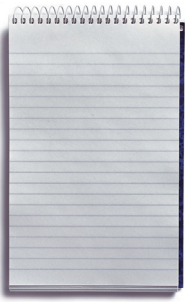
Recording documents

Candidates and centres may decide to use a paper-based or electronic method of recording evidence.

To support the delivery of vocational qualifications we offer our own e-portfolio, Learning Assistant, an easy-to-use and secure online tool to support and evidence learners' progress towards achieving qualifications. Further details are available at: www.cityandguilds.com/eportfolios

City & Guilds has developed a set of *Recording forms* including examples of completed forms, for new and existing centres to use as appropriate. *Recording forms* are available on the City & Guilds website.

Although new centres are expected to use these forms, centres may devise or customise alternative forms, which must be approved for use by the external verifier, before they are used by candidates and assessors at the centre. Amendable (MS Word) versions of the forms are available on the City & Guilds website.



4 Assessment

Summary of assessment methods

Candidates will be required to complete a portfolio of evidence for **each** unit.

Evidence requirements

The evidence requirements have been specified by GoSkills in their assessment strategy. The full document is available from our website. The evidence requirements have been identified for each of the units in section 5 of this handbook.

Evidence of occupational competence must be generated and collected through performance under workplace conditions. The evidence collected under these conditions must also be as naturally occurring as possible.

The optimum method of collecting evidence of a candidate's competence is by direct observation of naturally occurring activity in the workplace. This observation must be carried out by a qualified assessor. Observation of naturally occurring activity in the workplace may not be practicable. In these cases the method of collecting evidence of a candidate's competence will be by simulation. This observation must be carried out by a qualified assessor.

Assessment in simulated conditions is only permissible with the express prior consent of the External Verifier. The External Verifier is likely to allow assessment to take place in simulated conditions due to reasons of:

- Health and Safety
- confidentiality
- operational constraints
- cost
- rarity of opportunity.

Witness testimony can be gathered from a candidate's colleagues, managers, customers, suppliers, etc. They should:

- be specific to the activities or product
- give a brief description of the circumstances of the observation
- give a brief description of the background of the witness and the observed activity
- identify the aspects of the competence demonstrated.

Product evidence must be assessed in order to ensure that:

- the evidence meets the required standard,

- the candidate has followed the correct processes to generate the product,
- the evidence is authentic.

In regards to the acceptability of knowledge evidence, the optimum method of collecting evidence of a candidate's knowledge is by oral questioning following direct observation in the workplace. This questioning must be carried out by a qualified assessor.

In this handbook we have listed all units and identified for each one of them:

- those performance statements for which evidence must be collected by direct observation of naturally occurring activity in the workplace,
- those performance statements for which evidence may be collected by a range of alternative assessment methods,
- when the use of simulation is allowed.



5 Units

Availability of units

Below is a list of the learning outcomes for all the units. If you want to download a complete set of units, go to **www.cityandguilds.com**

Structure of units

These units each have the following:

- City & Guilds reference number
- unit accreditation number (UAN)
- title
- level
- credit value
- unit aim
- relationship to NOS, other qualifications and frameworks
- endorsement by a sector or other appropriate body
- information on assessment
- learning outcomes which are comprised of a number of assessment criteria
- notes for guidance.

Unit 230

Establish information for signal engineering installation

UAN:	H/503/0594
Level:	2
Credit value:	2
GLH:	17
Endorsement by a sector or regulatory body:	This unit is endorsed by GoSkills
Aim:	The purpose of this unit is for learners to demonstrate occupational competency in establishing information for rail signal engineering installation

Learning outcome
The learner will: 1. be able to establish information for installation
Assessment criteria
The learner can: 1.1 identify and source the information required for installation activities 1.2 source and interpret accurate and relevant information on technical requirements 1.3 ensure that the information is current, authorised and contains all essential data 1.4 identify and deal promptly with information that is inadequate, contradictory and/or ambiguous 1.5 identify and deal promptly and effectively with any problems occurring with the requirements and their interpretation

Learning outcome
The learner will: 2. know and understand how to establish information for installation
Assessment criteria
The learner can: 2.1 describe how to source and interpret technical information for installation activities 2.2 describe procedures for documentation care and control and the requirements for the retention of records in own organisation 2.3 explain how to ensure that documents are current and authorised and accurately reflect the required level of detail 2.4 describe how to interpret site and equipment diagrams, engineering drawings and specifications including

- relevant conventions
 - symbols
 - terminology
 - abbreviation
 - signalling terminology
- 2.5 explain the relevant methods and techniques covering installation and how to interpret them
- 2.6 describe how to identify, evaluate and respond to problems occurring with the information and its interpretation
- 2.7 describe the relevant reporting lines and procedures that are approved by own organisation
- 2.8 explain the limits of own authority and responsibility and those of others involved in the activity

Unit 230 Establish information for signal engineering installation

Supporting information

Assessment Requirements

1.1, 1.2, 1.3

Evidence must include observed natural performance for at least 2 of the examples of information as listed. However, you need to convince your assessor that you can perform competently for all of the sources of information listed.

1.4, 1.5

This unit is about sourcing and interpreting information for the installation of wiring signalling equipment.

Examples of information include

- Design drawings
- Installation plans
- Handbook
- Installation standards

This unit should be assessed predominantly in the workplace through observation, along with other sources of evidence such as, witness testimony, questioning and professional discussion

Unit 231

Determine requirements for the safe access to work locations for signal engineering

UAN:	M/503/0601
Level:	2
Credit value:	3
GLH:	20
Endorsement by a sector or regulatory body:	This unit is endorsed by GoSkills
Aim:	The purpose of this unit is for learners to demonstrate occupational competency in determining the requirements for safe access to a work locations prior to undertaking a signal engineering activity.

Learning outcome
The learner will: 1. be able to determine requirements for the safe access to work locations for signal engineering
Assessment criteria
The learner can: 1.1 comply with organisational procedures working safely at all times 1.2 identify the location of the activity and determine the access arrangements 1.3 take action to ensure that the requirements for safe access meets organisational procedures 1.4 take action to advise other people as required of the requirements for safe access 1.5 identify and analyse any necessary changes to safety requirements on arrival at site including the prompt report to relevant personnel 1.6 take action to ensure the requirements for safe access to work are implemented and remain in place for the duration of the activity 1.7 establish and maintain communication with relevant personnel 1.8 deal effectively with problems within limits of own authority and report those that cannot be resolved

Learning outcome

The learner will:

2. know how to determine requirements for the safe access to work locations for signal engineering

Assessment criteria

The learner can:

- 2.1 list the relevant health and safety legislation, regulations and safe working practices and procedures as appropriate to the activity
- 2.2 describe the different methods and techniques for conducting safety assessments, including assessment of risk
- 2.3 explain how to locate and safely access the work area/site
- 2.4 explain how to source and interpret information and document systems relating to the work area/site and activity
- 2.5 describe the relevant railway possession and protection arrangements for the work site and equipment to provide a safe system of work and how to check these are in place
- 2.6 explain how to secure the work area/system for maintenance/fault finding/installation/testing purposes
- 2.7 explain how to identify, agree and implement safe access requirements
- 2.8 describe the organisational approved reporting lines and procedures
- 2.9 describe the limits of own authority and responsibility in relation to establishing information for signal engineering maintenance and fault finding

Unit 231 Determine requirements for the safe access to work locations for signal engineering

Supporting information

Assessment Requirements

1.1, 1.2, 1.3, 1.5, 1.6, 1.7

Evidence must include observed natural performance.

1.4, 1.8

Evidence should be as a result of direct observation if possible; however, suitable historic evidence, personal accounts, or questioning are acceptable.

Learners will need to be able to identify, agree and implement within their level of authority the necessary safety requirements to ensure safe access to a work location prior to undertaking a signalling engineering activity.

Examples include:

- Protection and possession
- Isolation
- Establishment of a communication process

Example of a location/site of the signalling engineering activity may include:

- External – trackside
- Internal – signal box, equipment room
- Areas to which the public have access
- Confined spaces
- Elevated structures
- Areas containing hazardous conditions

Learners will be able to identify and agree the necessary safety requirements. Within the limits of their authority they must ensure the implementation of the necessary safety requirements, protection and disconnection arrangements and that they remain in place throughout the duration of the signalling engineering activity. The safety requirements include: relevant local safety certificates, the implementation of relevant documentation, the implementation of a safe system of work, the use of relevant personal protective equipment.

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, written and product evidence are all sources of evidence which can be used.

Unit 232

Reinstate the work area after signal engineering activities

UAN:	A/503/0603
Level:	2
Credit value:	2
GLH:	4
Endorsement by a sector or regulatory body:	This unit is endorsed by GoSkills
Aim:	The purpose of this unit is for learners to demonstrate occupational competency in reinstating the work area after maintaining, rectifying, installing or testing signalling equipment and systems. It includes the safe storage of reusable materials and equipment.

Learning outcome
The learner will: 1. be able to reinstate the work area after signal engineering activities
Assessment criteria
The learner can: 1.1 comply with organisational procedures working safely at all times 1.2 in line with organisational procedures withdraw all possession and protection measures 1.3 take the appropriate action to confirm that the work area is secured on completion of the work 1.4 restore the work areas to a safe condition in accordance with agreed requirements and schedules 1.5 take action to separate equipment, components and materials for re-use from waste items 1.6 take action to store reusable materials and equipment in an appropriate location 1.7 identify, mark and secure any waste items that cannot be removed immediately maintaining the safe operation of the railway at all times 1.8 identify all plant, tools and test equipment that cannot be removed and ensure that it is secured and stored where they do not interfere with the safe operation of the railway 1.9 dispose of waste materials in line with organisational procedures 1.10 deal promptly and effectively with problems within own control and report those that cannot be resolved

Learning outcome

The learner will:

2. know how to reinstate the work area after signal engineering activities

Assessment criteria

The learner can:

- 2.1 list the relevant health and safety legislation, regulations and safe working practices and procedures as appropriate to the activity
- 2.2 describe the relevant railway possession and protection arrangements for the work site and equipment to provide a safe system of work and how to check these have been withdrawn
- 2.3 explain the organisational procedures for restoring the work area
- 2.4 describe the work area security requirements
- 2.5 explain the organisational procedures for storing material and equipment
- 2.6 explain the different types of materials and equipment to be stored
- 2.7 describe the different types, methods and procedures for the disposal of waste and hazardous substances which have organisational approval
- 2.8 explain the relevant reporting lines and approved organisational procedures
- 2.9 describe the limits of own authority and responsibility and those of others involved in relation to reinstating the work area after signal engineering activities

Unit 232 Reinstatement of the work area after signal engineering activities

Supporting information

Assessment Requirements

1.1, 1.3, 1.4

Evidence must include observed natural performance.

1.2, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10

Evidence should be as a result of direct observation if possible; however, suitable historic evidence, personal accounts, or questioning are acceptable.

This unit is about reinstating the work area after maintaining or rectifying, installing or testing signalling equipment and systems and includes the safe storage of reusable materials and equipment. Examples of work areas include:

- External - trackside
- Internal – signal box, equipment room
- Areas to which the public have access
- Confined spaces
- Elevated structures
- Areas containing hazardous conditions

Examples of reusable tools and equipment include:

- Tools and test equipment
- Materials
- Consumables
- Plant and communications equipment

Learners will ensure that the work area is left in a condition that meets organisational procedures. This will include ensuring that any scrap material, plant, tools and test equipment that cannot be removed is marked for later collection and secured where it will not interfere with the safe operation of the railway.

Learners must be able to identify all the necessary safety requirements and take the relevant action to ensure the safety of oneself, others and railway operations. The safety requirements include: relevant local safety certificates, the implementation of relevant documentation, the implementation of a safe system of work, the use of relevant personal protective equipment.

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, written and product evidence are all sources of evidence which can be used.

Unit 233

Installation of signalling equipment using non complex processes

UAN:	F/503/0604
Level:	2
Credit value:	4
GLH:	14
Endorsement by a sector or regulatory body:	This unit is endorsed by GoSkills
Aim:	The purpose of this unit is for learners to demonstrate occupational competency in the installation, wiring and terminating of signalling equipment using non-complex processes under direction, including the use of correct tools and equipment in accordance with organisational procedures

Learning outcome
The learner will: 1. be able to carry out the installation of signalling equipment using non complex processes
Assessment criteria
The learner can: 1.1 comply with organisational procedures working safely at all times 1.2 In line with organisational procedures follow all relevant diagrams and specifications for the installation being carried out 1.3 carry out all installation activities within the limits of own authority and responsibility 1.4 identify the correct tools and equipment for the installation and check that they are in a safe and usable condition and calibrated 1.5 install, position and label location cases, housings, racks, equipment, components and cables in accordance with the specifications and standards 1.6 take action to run, secure and terminate wires and cables correctly 1.7 identify and correctly label wires and cables in accordance with installation requirements 1.8 undertake an inspection to ensure that the installation is complete and that all components are free from damage; this should include checking that all necessary connections to the equipment are complete and all waste items are dealt with in line with organisational procedures 1.9 deal promptly and effectively with problems within own control and report those that cannot be resolved

Learning outcome

The learner will:

2. know how to carry out the installation of signalling equipment using non-complex processes

Assessment criteria

The learner can:

- 2.1 list the relevant health and safety legislation, regulations and safe working practices and procedures as appropriate to the activity
- 2.2 describe how to locate and safely access where the installation of signalling equipment needs to be undertaken
- 2.3 describe the different methods, techniques and procedures for installation activities
- 2.4 describe how to follow relevant technical information, standards, diagrams, instructions, specifications and schedules for installation of signalling equipment
- 2.5 explain the organisational procedures for use, care and control of equipment
- 2.6 describe how to select the correct tools for the activity, including how to confirm that they are calibrated and stored correctly after use
- 2.7 explain the relevant reporting lines and approved organisational procedures
- 2.8 explain when independent testing is required
- 2.9 describe the limits of own authority and responsibility and those of others involved in relation to reinstating the work area after signal engineering activities

Unit 233 Installation of signalling equipment using non complex processes

Supporting information

Assessment Requirements

1.1, 1.2, 1.3

Evidence must include observed natural performance.

1.4, 1.5, 1.7, 1.8

Evidence must include observed natural performance on actual or simulated installation work, supplemented by questioning to cover the use of all the listed tools and test equipment in various scenarios. Where the assessment is by simulation details shall be recorded.

1.6

Evidence must include observed natural performance on actual or simulated installation work for at least two of the types of terminations listed, supplemented by questioning to cover the use of all the types of terminations in various installation scenarios. Where the assessment is by simulation details shall be recorded.

1.9

Evidence should be as a result of direct observation if possible, however suitable historic evidence, personal accounts or questioning are acceptable.

This unit is about assisting in installing, wiring and terminating signalling equipment by one or two stage processes. Learners must be able to follow up to date diagrams and specifications. Learners must be able to check that the completed work complies with the specification.

Examples of the types of tools and equipment used in the installation may include:

- Power tools
- Hand tools
- Wire and cable strippers
- IDC tools (i.e. Krone tool)
- Crimping tools
- Multi-meters
- Gauges

Examples of terminations may include:

- Crimping
- Mechanical
- Wire wrap

- Soldering
- IDC

Prior to the installation the learner must identify all the necessary safety requirements and take relevant action to ensure their own safety and that of others and when working on the railway infrastructure, railway operations.

The learner must be able to take relevant remedial action within the limits of own authority, responsibility and competence. Where the installation is in an operational environment, learners' must ensure that the work undertaken does not affect any adjacent operational railway systems. Learners should establish and maintain communication with relevant people, including operations staff, engineering control staff, other installers, peers.

Learners should ensure that all testing and checking equipment and tools are removed or stored in line with organisational procedures.

Learners must be able to identify all the necessary safety requirements and take the relevant action to ensure own safety, others and railway operations. The safety requirements include: relevant local safety certificates, the implementation of relevant documentation, the implementation of a safe system of work, the use of relevant personal protective equipment.

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, written and product evidence are all sources of evidence which can be used. The learner must be competent to carry out installation activities.

Unit 235

Assist with tests and checks of signalling equipment

UAN:	L/503/0721
Level:	2
Credit value:	4
GLH:	18
Endorsement by a sector or regulatory body:	This unit is endorsed by GoSkills
Aim:	The purpose of this unit is for learners to demonstrate occupational competency in assisting with tests and checks of the signalling equipment to establish compliance with specifications.

Learning outcome
The learner will: 1. be able to assist with tests and checks of signalling equipment
Assessment criteria
The learner can: 1.1 comply with organisational procedures working safely at all times 1.2 identify and follow as directed the relevant diagrams and specifications for the equipment being checked or tested 1.3 identify and use all the correct tools and inspection equipment and check that they are in a useable condition 1.4 accurately carry out the checks and tests as directed in the correct sequence within the appropriate timescales and using approved methods and procedures 1.5 report any instances where the test or checks cannot be completed 1.6 carry out tests and checks in a way that minimises the risk of damage or disturbance to the equipment under test and other systems 1.7 ensure that all testing and checking equipment and tools are removed or stored in line with organisational procedures 1.8 report completion of compliance activities in line with organisational procedures 1.9 identify and report any defects or variations from the specification 1.10 deal promptly and effectively with problems within own control and report those that cannot be resolved

Learning outcome
The learner will: 2. know how to assist with tests and checks of signalling equipment
Assessment criteria
The learner can: 2.1 list the relevant health and safety legislation, regulations and safe working practices and procedures as appropriate to the activity 2.2 describe how to locate and safely access the place where the replacement of components testing will be undertaken 2.3 describe the activities which may compromise system functionality and integrity including the operational constraints to carrying out testing and checking activities 2.4 describe how to source and following engineering diagrams and specifications relevant to the activity 2.5 describe the methods used to locate and identify the equipment to be tested or checked 2.6 describe the different methods and techniques and procedures for assisting with tests and checks to establish compliance 2.7 describe the operational constraints and authorisation procedures for carrying out tests and checks 2.8 describe how to select the correct tools and confirm that they are calibrated 2.9 describe organisational procedures for the use, care and control of inspection tools and test equipment 2.10 explain how to use test equipment so as to ensure that accurate measurements are taken 2.11 describe the relevant reporting lines and organisational procedures relevant to testing and checking signalling equipment 2.12 describe the limits of own authority and responsibility and those of others involved in relation to assisting with tests and checks of signalling equipment

Unit 235 Assist with tests and checks of signalling equipment

Supporting information

Assessment Requirements

1.1, 1.2, 1.3, 1.6, 1.7, 1.8

Evidence must include observed natural performance

1.4

Evidence must include observed natural performance Evidence must include Inspection & Wire count checks, and Continuity & Insulation tests; the candidate should also, as a minimum, demonstrate knowledge of the other checks and tests listed.

1.5, 1.9, 1.10

Evidence should be as a result of direct observation if possible; however, suitable historic evidence, personal accounts, or questioning are acceptable.

This unit is about assisting with tests and checks of signalling equipment to establish compliance with specifications.

Examples of checks include:

- Inspection
- Wire count
- Security
- Profile
- Labelling
- Correlation
- Compliance to diagram
- Physical condition

Examples of tests include:

- Continuity
- Insulation
- Earth arrangements

Examples of specifications include:

- Test Plans/Specifications
- Industry procedures
- Test records
- Design diagrams
- Manufacturers handbooks

Learners must take precautions to ensure testing activities do not interfere with any operational system and protect and report any damage or disturbance to operational equipment

Learners must carry out tests/checks as required by the test plan in sufficient detail to establish the equipment status and confirm that tests/checks are appropriate to the equipment, provide true and accurate measurements, and are in accordance with testing procedures/instructions.

Learners should complete the tests/checks accurately, within the limits of own authority and maintain independence of testing.

Learners should demonstrate that they know how to apply basic signalling principles to testing.

Learners should protect and report any damage or disturbance to operational equipment and deal with in accordance with organisation processes.

Learners must be able to identify all the necessary safety requirements and take the relevant action to ensure own safety, others and railway operations. The safety requirements include: relevant local safety certificates, the implementation of relevant documentation, the implementation of a safe system of work, the use of relevant personal protective equipment.

Learners should establish and maintain communication with relevant people, including operations staff, engineering control staff, other testers, peers.

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, written and product evidence are all sources of evidence which can be used.

Unit 343

Allocate and monitor resources for signal engineering activities

UAN:	T/503/0602
Level:	3
Credit value:	2
GLH:	10
Endorsement by a sector or regulatory body:	This unit is endorsed by GoSkills
Aim:	The purpose of this unit is for learners to demonstrate occupational competency in allocating and monitoring resources for effective signalling engineering activities.

Learning outcome
The learner will: 1. be able to allocate and monitor resources for signal engineering activities
Assessment criteria
The learner can: 1.1 comply with organisational procedures working safely at all times 1.2 identify and confirm the resources required and ensure sufficient resources are available 1.3 confirm information relating to resources is accurate and up to date 1.4 allocate and monitor the use of resources 1.5 identify when changes to the planned use of resources may occur 1.6 take prompt and effective action to deal with actual and predicted change to the planned use of resources 1.7 advise the appropriate personnel where changes to resources have occurred or are likely to occur and the implications involved 1.8 take action to ensure that those using resources are aware of their responsibilities for the care and use of the resources 1.9 accurately record details on the use of resources including where appropriate any changes that have occurred

Learning outcome
The learner will: 2. know how to allocate and monitor resources for signal engineering activities
Assessment criteria
The learner can: 2.1 list the relevant health and safety legislation, regulations and safe working practices and procedures as appropriate to the activity 2.2 describe the types of resources available 2.3 explain the different methods and techniques used for ensuring sufficient resources 2.4 explain the different methods and techniques for allocating resources 2.5 explain how to source and interpret information and document systems relating to the engineering activity and the resources required 2.6 explain the types of problems that can occur when allocating resources and how these problems can be overcome 2.7 explain how the planned use of resources could alter and the implications that may follow 2.8 describe the methods and techniques used for effective monitoring of resources 2.9 explain organisational procedures for the care and use of resources 2.10 explain organisational procedures for communicating a change to resource allocation 2.11 explain the relevant reporting lines and approved organisational procedures 2.12 describe the limits of own authority and responsibility in relation to allocating and monitoring resources

Unit 343 Allocate and monitor resources for signal engineering activities

Supporting information

Assessment Requirements

1.1, 1.2, 1.3,

Evidence must include observed natural performance.

1.4, 1.5, 1.6, 1.7, 1.8, 1.9

Evidence should be as a result of direct observation if possible; however, suitable historic evidence, personal accounts, or questioning are acceptable.

This unit is about allocating and monitoring resources for signal engineering activities which may include maintenance, fault finding, testing and/or installation work on signalling equipment.

Examples of the types of resources may include:

- Documentation – current and appropriate
- Tools, plant and test equipment – calibrated and serviceable
- Materials, replacement equipment and consumables
- Communications equipment
- Personnel – total required and competence

Learners will need to take into account the time the system will be available for the task when considering resources and also any influencing factors such as, environmental, site conditions and the additional requirements for working on operational railway equipment. Identifying inaccuracies and the non-availability of resources and being able to take appropriate remedial action are key to this unit.

Learners will be able to work to a plan, identify and allocate the resources required and source information regarding those resources. Learners will monitor the user of resources and ensure that there are sufficient resources available for the activities to be undertaken and that the resources are used safely and in an appropriate and timely manner. Where changes in resources or activities occur the learner must be able to challenge when a plan or resource allocation may need amending.

Learners will be aware of own responsibility for the care and use of resources and will be able to advise team members of their responsibilities for the care and use of resources. Learners must ensure that organisational procedures are met and followed by own self and those they are responsible for.

Learners must be able to identify all the necessary safety requirements and take action to ensure their own safety and the safety of others and railway operations. The safety requirements include relevant local safety certificates, the implementation of relevant documentation, the implementation of a safe system of work, the use of relevant personal protective equipment.

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, written and product evidence are all sources of evidence which can be used.



Appendix 1 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centres and Training Providers homepage** on www.cityandguilds.com.

Centre Manual - Supporting Customer Excellence contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification, as well as updates and good practice exemplars for City & Guilds assessment and policy issues. Specifically, the document includes sections on:

- The centre and qualification approval process
- Assessment, internal quality assurance and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance.

Our Quality Assurance Requirements encompasses all of the relevant requirements of key regulatory documents such as:

- Regulatory Arrangements for the Qualifications and Credit Framework (2008)
- SQA Awarding Body Criteria (2007)
- NVQ Code of Practice (2006)

and sets out the criteria that centres should adhere to pre and post centre and qualification approval.

Access to Assessment & Qualifications provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre homepage** section of the City & Guilds website also contains useful information such on such things as:

- **Walled Garden:** how to register and certificate candidates on line
- **Qualifications and Credit Framework (QCF):** general guidance about the QCF and how qualifications will change, as well as information on the IT systems needed and FAQs
- **Events:** dates and information on the latest Centre events
- **Online assessment:** how to register for e-assessments.

Centre Guide – Delivering International Qualifications contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve ‘approved centre’ status, or to offer a particular qualification. Specifically, the document includes sections on:

- The centre and qualification approval process and forms
- Assessment, verification and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Frequently asked questions.

Useful contacts

UK learners

General qualification information

T: +44 (0)844 543 0033

E: learnersupport@cityandguilds.com

International learners

General qualification information

T: +44 (0)844 543 0033

F: +44 (0)20 7294 2413

E: intcg@cityandguilds.com

Centres

Exam entries, Certificates,
Registrations/enrolment, Invoices,
Missing or late exam materials,
Nominal roll reports, Results

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

E: centresupport@cityandguilds.com

Single subject qualifications

Exam entries, Results, Certification,
Missing or late exam materials,
Incorrect exam papers, Forms
request (BB, results entry), Exam
date and time change

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

F: +44 (0)20 7294 2404 (BB forms)

E: singlesubjects@cityandguilds.com

International awards

Results, Entries, Enrolments,
Invoices, Missing or late exam
materials, Nominal roll reports

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

E: intops@cityandguilds.com

Walled Garden

Re-issue of password or username,
Technical problems, Entries,
Results, e-assessment, Navigation,
User/menu option, Problems

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

E: walledgarden@cityandguilds.com

Employer

Employer solutions, Mapping,
Accreditation, Development Skills,
Consultancy

T: +44 (0)121 503 8993

E: business@cityandguilds.com

Publications

Logbooks, Centre documents,
Forms, Free literature

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

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If you have a complaint, or any suggestions for improvement about any of the services that we provide, email: feedbackandcomplaints@cityandguilds.com

About City & Guilds

As the UK's leading vocational education organisation, City & Guilds is leading the talent revolution by inspiring people to unlock their potential and develop their skills. We offer over 500 qualifications across 28 industries through 8500 centres worldwide and award around two million certificates every year. City & Guilds is recognised and respected by employers across the world as a sign of quality and exceptional training.

City & Guilds Group

The City & Guilds Group operates from three major hubs: London (servicing Europe, the Caribbean and Americas), Johannesburg (servicing Africa), and Singapore (servicing Asia, Australia and New Zealand). The Group also includes the Institute of Leadership & Management (management and leadership qualifications), City & Guilds Land Based Services (land-based qualifications), the Centre for Skills Development (CSD works to improve the policy and practice of vocational education and training worldwide) and Learning Assistant (an online e-portfolio).

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City & Guilds
1 Giltspur Street
London EC1A 9DD
T +44 (0)844 543 0000
F +44 (0)20 7294 2413
www.cityandguilds.com

WW-07-7597