




Assessment Specification				
Occupational Code	Qualification Title	NQF Level		
671301-002	Railway Traction Line Worker	4		
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**DQP Representative Signature**

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**Date**

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**AQP Representative Signature**

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**Date**

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# 1 ASSESSMENT STRATEGY

## 1.1 Assessment Model

The final integrated external assessment will be done at a registered assessment site accredited by the QCTO where both theory and practical ability will be assessed. (Simulated environment) It will consist of a knowledge/theory test and the execution of a set of practical tasks that will be observed and evaluated by NAMB registered assessors. The total assessment will be conducted over a minimum period of two days.

## 1.2 Qualification Purpose

A Railway Traction Line Worker: Constructs, maintains, repairs and dismantles high voltage electrical overhead traction equipment network and distribution network within the railway infrastructure environment.

A qualified learner will be able to:

- Execute basic technical support work on overhead track equipment (NQF Level: 2);
- Execute advanced technical support work on overhead track equipment (NQF Level: 3);
- Operate as a traction lines-person (NQF Level: 4)

## 1.3 Assessment Standards

### 1.3.1 Assessment Standards for the Qualification

#### Integrated Assessment Focus Area 1

Apply basic electrical engineering techniques and principles to execute basic technical support work related to the construction and maintenance of railway overhead line equipment

#### Associated Assessment Criteria

- Painting and stencilling of OHTE structures within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Earthing within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Bonding within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation of Height gauges within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;

- Manufacturing of droppers within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;

### **Integrated Assessment Focus Area 2**

Apply electrical construction and maintenance processes and techniques to execute basic and specialised technical work on Railway Overhead Track Equipment.

#### **Associated Assessment Criteria**

- Assembly and fitting of small steelwork within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation and positioning of droppers within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation and maintenance of OHTE conductors within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Application of additional portable earth connections within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards.

### **Integrated Assessment Focus Area 3**

Independently operate as a Railway OHTE linesman executing a range of electrical construction and maintenance tasks

#### **Associated Assessment Criteria**

- Engineering drawings, layouts and switching diagrams are accurately interpreted according to the internationally accepted standards for operational staff;
- Splicing and termination of different conductors including cables within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Sagging and tensioning of overhead conductors on different constructions within the railway environment are properly planned, all required preparations are done according to the relevant

occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;

- Installation of section insulator/phase breakers within the railway environment are properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Set up of foundation boxes within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Issue and cancel work permits are executed according to the regulatory requirements and the leading practices for safety and health within the railway sector;
- Testing and Connecting of different components and equipment on H frames within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Testing and Connecting of different components and equipment on switch structures within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards.

### **1.3.2 Assessment Standards for Phases**

There are no phase assessments

### **1.3.3 Assessment Standards for Part Qualifications**

#### **Part Qualification 01: Railway OHTE technical worker**

##### **Integrated Assessment Focus Area 1**

Apply basic electrical engineering techniques and principles to execute basic technical support work related to the construction and maintenance of railway overhead line equipment

##### ***Associated Assessment Criteria***

- Painting and stencilling of OHTE structures within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Earthing within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;

- Bonding within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation of Height gauges within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Manufacturing of droppers within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;

## **Part Qualification 02: Senior Technical Worker (railway OHTE Construction and Maintenance)**

### **Integrated Assessment Focus Area 2**

Apply electrical construction and maintenance processes and techniques to execute basic and specialised technical work on Railway Overhead Track Equipment.

#### ***Associated Assessment Criteria***

- Assembly and fitting of small steelwork within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation and positioning of droppers within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation and maintenance of OHTE conductors within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Application of additional portable earth connections within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards.

## **2 ASSIGNMENTS TO BE EVALUATED EXTERNALLY**

None

## **3 CRITICAL ASPECTS OF THE INTERNAL ASSESSMENTS TO BE ASSESSED EXTERNALLY**

- None

#### **4 CRITERIA FOR THE REGISTRATION OF ASSESSORS**

- External assessors must be in possession of a recognised qualification or trade that is accepted by the industry with at least five years practical experience working on OHTE;

OR

- External Assessors must be a qualified Substation Electrician or Electrical Line Mechanic or OHTE Line Worker with at least five years practical experience working on OHTE.

#### **5 FOUNDATIONAL LEARNING**

This is an NQF level 4 qualification FLC is a requirement.

## 6 ELIGIBILITY REQUIREMENTS FOR THE EXTERNAL ASSESSMENT

In order to qualify for the external summative assessment learners must have a copy of a completed and signed Statement of Work Experience as well as proof of successful completion of the following subjects and modules or alternative programmes where applicable, as well as a signed logbook indicating that the work experience have been completed.

### 6.1 Qualification

#### Knowledge Modules:

Number	Title	NQF Level	Credits
671301-002-KS- 01	General principles of overhead track equipment maintenance;	2	36
671301-002-KS- 02	Fundamental principles of overhead track equipment construction and maintenance;	3	57
671301-002-KS- 03	Specialized principles of overhead track equipment construction and maintenance.	4	55

Total number of credits for Knowledge Modules: 148

#### Practical Skill Modules:

Number	Title	NQF	Credits
671301-002-PM- 01	Maintain overhead track structures and return circuits.	2	57
671301-002-PM- 02	Perform earthing and bonding on traction systems and transmission lines.	3	20
671301-002-PM- 03	Afford on-track protection	2	5
671301-002-PM- 04	Under Supervision perform construction and maintenance of overhead track equipment under isolated and earthed	3	98
671301-002-PM- 05	Inspect, do fault finding, installation, repair and adjustment of OHTE under live and/or isolated and earthed conditions.	4	17
671301-002-PM- 06	Work under isolated and earth conditions and to clearance from exposed "live" high-voltage electrical equipment (3kV DC, 25 kV and 50kV AC overhead traction equipment (OHTE) and all transmission lines and associated equipment) with a mechanized vehicle/on track machine.	4	52

Total number of credits for Practical Skill Modules: 249

#### Work Experience Modules:

Number	Title	NQF Level	Credits
671301-002-WM-01	Overhead track equipment maintenance processes	2	59
671301-002-WM-02	Processes for constructing and maintaining overhead track equipment	3	66
671301-002-WM-03	Specialized OHTE construction and maintenance processes	4	48

Total number of credits for Work Experience Modules: 173

<b>TOTAL CREDITS FOR THE QUALIFICATION</b>		<b>570</b>
<b>KNOWLEDGE</b>	25.52%	<b>148</b>
<b>PRACTICAL SKILLS</b>	44.66%	<b>249</b>
<b>WORK EXPERIENCE</b>	29.83%	<b>173</b>