



Australian Government

TLIB3124A Apply awareness of steam locomotive fundamentals

Release 1

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Modification History

Release 1 - New unit of competency

Unit Descriptor

This unit involves the skills and knowledge required to apply an awareness of steam locomotive fundamentals including configurations, components, types of equipment and their basic operation.

Licensing or certification requirements are not applicable to this unit.

Application of the Unit

This unit is intended as an introduction to steam locomotives for people entering the rail industry who will be working on or around them.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1 Identify basic locomotive configurations	1.1	Different locomotive configurations are identified
	1.2	Basic layout of different types of locomotive is identified
2 Identify boiler construction and components	2.1	Different boiler construction and configurations are identified
	2.2	Primary boiler fittings are identified
	2.3	Boiler secondary fittings are identified
3 Identify air/vacuum systems and operation	3.1	Basic air/vacuum components relevant to locomotive type are located and identified
	3.3	Uses and operation of air/vacuum system are identified
4 Identify electrical systems and operation	4.1	Basic electrical components relevant to locomotive type are located and identified
	4.2	Uses and operation of electrical system/s are identified
5 Identify mechanical systems and operation	5.1	Basic mechanical components relevant to locomotive type are located and identified
	5.2	Uses and operation of mechanical system are identified
6 Identify control systems and operation	6.1	Basic control system components relevant to locomotive type are located and identified
	6.2	Uses and operation of control systems are identified
7 Identify lubricating systems and operation	7.1	Basic lubricating systems and components relevant to locomotive type are located and identified
	7.2	Uses and operation of lubricating systems are identified
8 Identify auxiliary equipment and its operation	8.1	Basic auxiliary equipment components relevant to locomotive type are located and identified
	8.2	Uses and operation of auxiliary equipment are identified

Required Skills and Knowledge

This section describes the knowledge and skills required for this unit.

Required knowledge:

- Basic railway terminology
- Fundamentals of track layout
- Relevant safety, OH&S and environmental procedures and regulations

Required skills:

- Communicate effectively with others
- Interpret and follow operational instructions

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills, the range statement and the assessment guidelines for this Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of applying:
 - the required knowledge and skills
 - relevant legislation and workplace procedures
 - other relevant aspects of the range statement
- Assessment must include exercises which demonstrate competent performance of the following in a range of situations:

Context of and specific resources for assessment

- identifying equipment on a single steam locomotive
- Resources for assessment include:
 - a range of relevant exercises, case studies and other simulated practical and knowledge assessment, and/or
 - access to an appropriate range of relevant operational situations in the workplace
- In both real and simulated environments, access is required to:
 - relevant and appropriate materials and/or equipment, and/or
 - applicable documentation including workplace procedures, regulations, codes of practice and operation manuals

Method of assessment

- As a minimum, assessment of knowledge must be conducted through appropriate written/oral tests
- Practical assessment must occur:
 - in an appropriate range of situations in the workplace

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

Locomotive configurations may include:	• wheel arrangements • articulation • fuels
Boiler construction and configuration may include:	• smokebox layout • exhaust systems • tubes, tube plates and tube nest arrangements • stays • superheater equipment • steam regulators and associated equipment • firebox and combustion chamber and associated equipment
Primary boiler fittings may include:	• sight glasses • safety valves • feed water valves • pressure gauges • blowdown • inspection openings • steam ranges and manifolds
Secondary boiler fittings may include:	• feed water heaters • injectors • stokers • oil burners • ash pan • syphons and arch tube • brick arch and refractory • fusible plugs
Air/vacuum equipment may include:	• compressor • exhauster • reservoirs • pipes • hoses • isolating cocks/valves
Electrical equipment may include:	• turbo generators • batteries and isolating switches • wiring • gauges • radio/communications equipment

Mechanical equipment may include:

- engine and components
- motion and valve gear
- couplers/uncoupling devices
- compensating gear
- suspension
- between frame components

Control systems may include:

- brake valves
- throttle
- reverser
- firing/stoker controls

Lubricating systems may include:

- lubrication types
- lubrication equipment

Auxiliary equipment may include:

- sanding equipment
- whistle
- warning devices
- headlights
- ancillary lighting

Unit Sector(s)

Not applicable.

Competency Field

B – Equipment Checking and Maintenance