



Australian Government

Department of Education, Employment and Workplace Relations

TLIC3030A Operate and monitor a heritage steam locomotive

Release: 1

TLIC3030A Operate and monitor a heritage steam locomotive

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to operate and monitor a heritage steam locomotive in accordance with relevant workplace practices, rail regulations and codes of practice. It includes operating the controls of a steam locomotive; and monitoring its performance and maintaining its operational condition during a journey. It also includes working collaboratively with other train crew and relevant personnel. This unit replaces part of the previous unit TDTC1401A Prepare, operate, monitor and stable steam locomotive. Licensing, legislative, regulatory or certification requirements are applicable to this unit.

Application of the Unit

Application of the Unit

Persons achieving competence in this unit will need to fulfil the applicable legislated rail safety requirements including acts and regulations from each state and territory together with any nationally approved compliance codes and/or guidelines and local rail regulations and codes of practice as they apply to the operation of heritage railway systems.

Work is performed under minimal supervision, generally within a team environment. It involves the application of routine operational principles and procedures to maintain the safety and operation of a steam locomotive across a variety of operational contexts in the Australian heritage rail system.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability Skills 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

ELEMENT	PERFORMANCE CRITERIA
1 Operate steam locomotive	1.1 Steam locomotive handling techniques and track and road knowledge are interpreted and applied to eliminate or minimise risk of injury to personnel or damage to equipment, rolling stock and load 1.2 Acceleration and braking techniques are applied safely within track and road and weather conditions 1.3 Movement of steam locomotive between sections ensures that all rolling stock is positioned safely in accordance with relevant codes of practice, safeworking systems, and related requirements
2 Operate and monitor on-board equipment	2.1 Steam locomotive equipment is monitored and operated to maintain optimum running conditions and identify faults, defects and deficiencies 2.2 Appropriate action is taken in response to identified faults, defects and deficiencies to ensure safe operation of steam locomotive, including communications with operations controller where necessary. 2.3 Faults, defects and deficiencies are assessed to determine risk of damage to equipment or injury to personnel
3 Respond effectively to external operating factors	3.1 Instructions are verified, when required, interpreted and followed, in accordance with relevant codes of practice, rail regulatory requirements and organisational policies and procedures, to ensure that actions taken are appropriate and safe 3.2 Fixed and hand signals and verbal movement commands are interpreted and followed, in accordance with relevant rail regulations and codes of practice and workplace policies and procedures, to ensure that actions taken are appropriate and safe 3.3 Hazardous situations are recognised and interpreted and appropriate initiatives and action are taken to minimise risk to personnel and equipment as per workplace procedures and applicable regulatory requirements
4 Work collaboratively with other train crew and relevant personnel	4.1 Safe operation and monitoring of the steam locomotive is maintained in collaboration with other members of the train crew, train controllers and other relevant personnel as per workplace requirements and the principles of rail resource management 4.2 Any potential or actual conflicts or grievances with other members of the train crew, train controllers and other relevant personnel during the operation of the steam locomotive are recognised and resolved in accordance with workplace procedures and the principles of rail resource management
5 Communicate with	5.1 Regular communication is maintained with train crew, train

ELEMENT	PERFORMANCE CRITERIA
train crew, train controllers and other personnel	controllers, drivers of other trains and other relevant personnel in the course of operation of the steam locomotive as per workplace procedures and regulatory requirements 5.2 Train crew, train controllers, drivers of other trains and other relevant personnel are advised of operational problems, delays, safety incidents and emergency situations that may arise in the course of operation of the heritage steam locomotive 5.3 Information provided by train crew, train controllers, drivers of other trains and other relevant personnel relevant to the ongoing operation of the steam locomotive is interpreted and applied to driving activities as per workplace procedures and applicable regulatory requirements
6 Follow all applicable rail regulatory requirements	6.1 Rail regulatory requirements applicable to the operation of the steam locomotive and the train and track or road concerned are accessed, understood and interpreted 6.2 Relevant rail regulatory requirement are applied and followed in the course of operation of the steam locomotive 6.3 Principles of rail resource management are applied in all rail operations involving the steam locomotive as per workplace procedures and applicable rail regulatory requirements

Required Skills and Knowledge

REQUIRED KNOWLEDGE AND SKILLS

This describes the essential knowledge and skills and their level required for this unit.

Required knowledge:

- Applicable legislated rail safety requirements including acts and regulations from each state and territory together with any nationally approved compliance codes and/or guidelines and local rail regulations and codes of practice as they relate to heritage railway operations
- Principles of rail resource management as they apply to the operation and monitoring of the performance of a steam locomotive
- Relevant OH&S and environmental procedures and regulations
- Steam locomotive controls, instruments and indicators and their purpose, location and use
- Procedures for operating and monitoring the steam locomotive
- Steam locomotive knowledge including: basic principles of steam engine operation, monitoring devices, braking equipment, ancillary systems, and signalling systems
- Track and road knowledge including: track and bridge limitations, speed limitations, gauge limitations, curves and gradients, curfews, location of signals and crossings, emergency

REQUIRED KNOWLEDGE AND SKILLS

cross-overs, and operation of a turntable

- Braking and safety system procedures
- Operating controls to start, accelerate, decelerate and stop a steam locomotive
- Speed and load limits for the steam locomotive
- Procedures for adjusting controls to maximise efficient and safe running
- Procedures for managing safety incidents and hazardous situations that may arise when operating and monitoring the performance of a steam locomotive
- Procedures for operating and monitoring the performance of ancillary equipment on the steam locomotive
- Procedures for identifying equipment defects and assessing them for appropriate action
- Procedures for minor maintenance, cleaning, lubricating and servicing of a steam locomotive
- Typical faults that can occur on a steam locomotive and related action that should be taken for repair, isolation, replacement, reporting and recording of the faulty equipment
- Requirements for completing relevant documentation during and after operation and monitoring of the performance of a steam locomotive
- Train schedules, steam locomotive allocation and operational instructions
- Requirements for communicating and working collaboratively with other members of the train crew, train controllers and other relevant personnel
- Procedures to be followed in the event of an emergency when operating a steam locomotive
- Personal protective equipment required when operating a steam locomotive and procedures for its use
- Local procedures and operating requirements
- Procedures for operating communications equipment with required protocol

Required skills:

- Communicate effectively with others in the course of operating and monitoring the performance of a steam locomotive
- Read and interpret instructions, procedures, information and signs relevant to the operation and monitoring of a steam locomotive
- Interpret and follow operational instructions and prioritise work
- Complete documentation related to the operation and monitoring the performance of a steam locomotive
- Operate electronic communication equipment to required protocol
- Work collaboratively with others as part of a train crew
- Identify and assess steam locomotive defects and deficiencies and take appropriate action to report, isolate, repair or replace any identified defective equipment as per workplace procedures
- Implement contingency plans for unplanned events

Required skills:

- Apply precautions and required action to minimise, control or eliminate hazards that may exist when operating and monitoring a steam locomotive
- Recognise problems that may arise when operating and monitoring a steam locomotive and take appropriate action
- Check and replenish fluids and carry out lubrication processes on a steam locomotive
- Modify activities depending on differing operational contingencies, risk situations and environments
- Adapt to differences in steam locomotives and associated equipment and procedures
- Select and use required personal protective equipment conforming to industry and OH&S standards
- Operate a steam locomotive
- Monitor the performance of a steam locomotive

Evidence Guide**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 underpinning knowledge and skills
 - relevant legislation and workplace procedures
 - other relevant aspects of the range statement

Context of and specific resources for assessment

- Performance is demonstrated consistently over a period of time and in a suitable range of contexts
- Resources for assessment include:
 - a range of relevant exercises, case studies and/or 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 equipment, and

EVIDENCE GUIDE

	• applicable documentation including workplace procedures, regulations, codes of practice and operation manuals
Method of assessment	• Assessment of this unit must be undertaken by a registered training organisation • As a minimum, assessment of knowledge must be conducted through appropriate written/oral tests • Practical assessment must occur: • through activities in an appropriately simulated environment at the registered training organisation, and/or • in an appropriate range of situations in the workplace

Range Statement

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.

Operations may be conducted:	• by day or night in all relevant weather conditions
Heritage steam locomotives may include:	• any heritage steam locomotives in service within Australia
Equipment on a steam locomotive may include:	• steam locomotive instrumentation (gauges) • feed water controls • boiler controls and safety devices • braking systems • driving and other operational controls • communication systems • warning equipment • ancillary systems • vigilance systems • traction systems • head and marker lights
Communications equipment may include:	• portable and fixed two way radio • mobile phone
Auxiliary equipment may include:	• steam regulator • cab sprinkler

RANGE STATEMENT

	• gauges • generator • sandboxes • whistle • steam turbine generator • all ancillary valves • hand brake • injectors • lubricators • gauge glasses • blower • damper • cylinder cocks • mechanical stoker • oil burning apparatus
Risk minimisation may require differentiating between faults, defects and deficiencies that:	• do not present a hazard and could be attended to under running maintenance or in a normal maintenance schedule • present a potential hazard and need to be attended to under running maintenance or at the next most practical opportunity • present an immediate hazard and require immediate attention
Relevant personnel may include:	• train crew • train controllers and signallers • rostering supervisors and staff • other train drivers and crews • depot coordinators • yard masters, supervisors and other operational personnel • service delivery supervisors • station yard staff • maintenance personnel • immediate internal or external customers
Action taken upon the identification of faults, defects or deficiencies may include:	• reporting the problem and carrying out repairs (depending on the level and extent of work required), or isolating and tagging the faulty equipment and advising appropriate personnel of the fault and need for repair or replacement
Depending on the organisation concerned workplace procedures may be called:	• standard operating procedures • company procedures • enterprise procedures • organisational procedures • established procedures

RANGE STATEMENT

Safety and personal protective equipment may include:

- gloves
- sunscreen and sunglasses
- safety glasses
- insect repellent
- safety headwear and footwear
- two-way radios
- hand lamps
- flags
- safety devices
- audible indicators
- breathing equipment
- fire extinguishers
- high visibility clothing
- hearing protection

Information and documents may include:

- applicable legislated rail safety requirements including acts and regulations from each state and territory together with any nationally approved compliance codes and/or guidelines
- steam locomotive operational records and user log books
- maintenance notices, records and requests
- preparation sheets certificates and service dockets
- train running sheets
- time sheets
- roadworthy certificate
- train wire (status list, dangerous goods list, consist information, etc.)
- automatic train protection parameters
- operational instructions, policies and procedures, including: those related to preventing steam locomotives from moving; track speed, length and load limitations; monitoring and complying with signals; and procedures for operating in accordance with specific track conditions
- documented details of the train including length and weight
- emergency procedures manual

Applicable legislation, regulations and codes may include:

- applicable legislated rail safety requirements including acts and regulations from each state and territory together with any nationally approved compliance codes and/or guidelines
- relevant Australian Standards and related requirements
- relevant state/territory OH&S legislation
- relevant state/territory environmental protection legislation

Unit Sector(s)

Not Applicable

Competency Field

Competency Field C - Vehicle Operation