



Steam Locomotive Train Driver

Knowledge Checklist

(Generic Version)

Version 1

June, 2011

IMPORTANT NOTICE

This booklet is one of a series of generic training and assessment templates developed by the Association of Tourist & Heritage Rail Australia Inc (ATHRA) as guides for heritage railway operators seeking to develop or upgrade their local training and assessment resources.

This booklet and others in the series are not intended to be training resources in their own right but rather to be suitably customised, embellished and adapted by railway operators to match the specific context of their own railway, e.g. types of locomotives, rollingstock and associated equipment, the track layout and infrastructure, the local standard procedures and rules, the safety management and safeworking systems, the railway organisational structure, and the roles and functions of personnel in the railway, etc.

Railway operators seeking to use this booklet and others in the series should initially refer to the ***ATHRA Customisation Guidelines Booklet*** which provides important information on how the generic templates should be used.

Disclaimer

The information contained herein is made available by the Association of Tourist & Heritage Rail Australia Inc (ATHRA) as part of a set of ***generic training and assessment templates*** for use by individual heritage railway operators.

It is intended that heritage railway operators will be able to create their own local training resources by suitably modifying, embellishing and customising the generic templates to meet their own requirements.

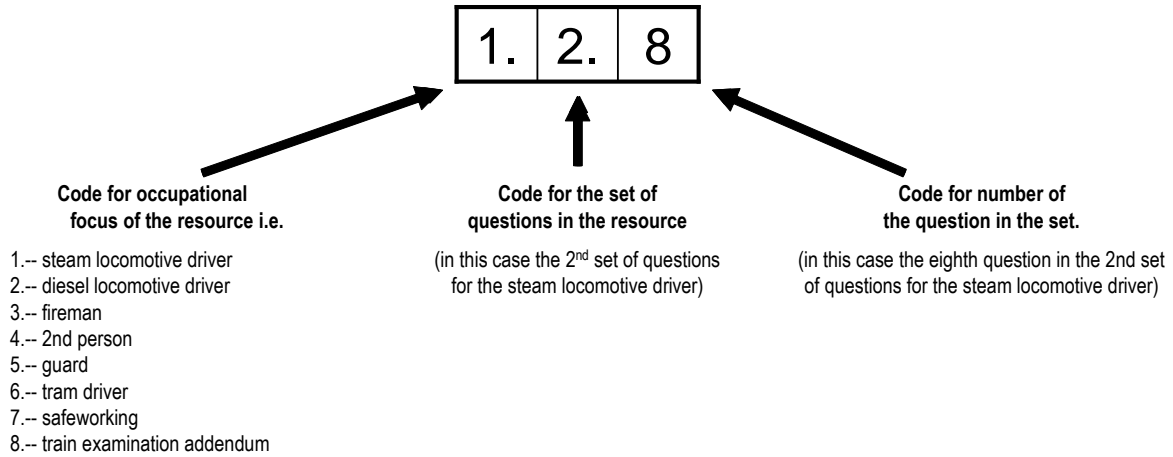
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NOTES

CODING SCHEME FOR THE ATHRA RESOURCES

The coding scheme for the ATHRA Resources is as follows:



CUSTOMISATION OF QUESTIONS IN THE 'KNOWLEDGE CHECKLIST'

As explained in the ATHRA Customisation Guidelines, this *Knowledge Checklist* is a generic document designed to be customized and adapted, if necessary, by local heritage railways to match their own railway configuration, equipment, procedures, safety management systems, etc. Questions in the booklet and related sample responses in the *Mentor's Q&A Booklet* may be modified by updating the content of the existing templates to incorporate appropriate information about the railway's own operating system, equipment, road, procedures, safety management system, etc. This may involve appropriate alteration to existing questions or the insertion of additional suitable questions.

To aid in the addition of questions, if needed, a blank row has been provided at the end of each set of questions in the generic checklist. The following is a step-by-step process to incorporate any additional questions:

1. Using the mouse, select the blank row
2. In the 'TABLE' drop down menu at the top of the document select 'Insert'
3. Click on 'Insert rows below'
4. Repeat as many times as necessary until you have sufficient rows for the additional questions (including the original blank row in the generic document)
5. Insert the text for each of the additional questions
6. Insert the codes of the additional questions as per the coding scheme for the ATHRA training and assessment resources
7. Make sure there are matching questions and sample responses in the *Mentor's Q&A Booklet* with the same code

Question Set 1.1 Role and responsibilities of a train driver on a steam locomotive

- Q1.1.1 What are the **key tasks** performed by a steam locomotive train driver?
- Q1.1.2 What is the **relationship** between the steam locomotive driver and the fireman?
- Q1.1.3 Is the train driver responsible for **observing fixed trackside signals, point stand indicators, check points and trackside signs**?
- Q1.1.4 Describe the **key safeworking rules** that apply to you as a train driver?
- Q1.1.5 What are the **potential consequences** of not following safeworking rules and other regulations applicable to the train driver's and fireman's roles on your railway?
- Q1.1.6 What is the location and purpose of instruction plates outlining headways and limits of authority?
- Q1.1.7 For your railway, describe the yard limits, commencement of yard limits and end of yard limits associated with train running
- Q1.1.8 What are the steam locomotive train driver's **initial duties** after signing on?
- Q1.1.9 What **action** must you take if you find a defect during a shift as a driver of a steam locomotive?
- Q1.1.10 What **action** must you take if you are involved in a safety incident during a shift as a driver of a steam locomotive?
- Q1.1.11 What **action** must you in the case of a limit of authority overrun during a shift as a driver of a steam locomotive?
- Q1.1.12 Where can you obtain a **copy** of the duties of a driver of a steam locomotive, the safeworking rules applicable to the driver and other key reference documents a driver needs?
- Q1.1.13 Give three examples of **hazards** that exist when driving a steam locomotive.
- Q1.1.14 What personal protective equipment (PPE) must be used by steam locomotive drivers when carrying out their duties and functions?
- Q1.1.15 Give two examples of **risk management strategies** to control hazards when driving a steam locomotive.
- Q1.1.16 Give five reasons why **route knowledge** is so important for a steam train driver
- Q1.1.17 What are the procedures for **handing over** a steam locomotive to a replacement crew?
- Q1.1.18 *Blank for additional question?*

Question Set 1.2 Preparing and starting a steam locomotive

- Q1.2.1 What are the **principal components** of the steam locomotive(s) on which you will be working? What is the purpose of each?
- Q1.2.2 How does the driver work with the fireman to **light the fire** on the locomotive?.....
- Q1.2.3 What **tasks** does a driver complete before they commence the pre-start checks on the locomotive?.....
- Q1.2.4 What **pre-start checks** will be carried out by the driver
- Q1.2.5 What are the procedures for **oiling and greasing** a steam locomotive?.....
- Q1.2.6 What is involved in **raising steam**?
- Q1.2.7 What is a **feedwater injector**?
- Q1.2.8 How many types of **feedwater injector** are used on a steam locomotive?
- Q1.2.9 Describe the correct procedures for using the **injectors on the locomotive**?.....
- Q1.2.10 How does the driver check the **braking system** of the locomotive?
- Q1.2.11 Describe the procedures for starting a turbo and checking the lights on a locomotive.
- Q1.2.12 What action should a driver take if **defects or deficiencies** are identified during checks or during operations?
- Q1.2.13 What are the procedures for the **starting and initial movement** of the steam locomotive?
- Q1.2.14 How does the driver **check that the systems** on the locomotive are operating correctly?
- Q1.2.15 Describe how a **piston rod** is made steam tight in a cylinder?.....
- Q1.2.16 Describe one (1) method for connecting the **piston rod and connecting rod** to the crosshead?
- Q1.2.17 Explain three (3) of the following terms:.....
a) Saturated steam
b) Wet steam
c) Superheated steam
- Q1.2.18 What are the advantages and disadvantages of using of using **saturated steam** for driving reciprocating steam engines?
- Q1.2.19 What are the advantages and disadvantages of using of using **superheated steam** for driving reciprocating steam engines?.....

- Q1.2.20 Explain what is meant by the term: **'Steam lap'**
- Q1.2.21 Explain what is meant by the term: **'Exhaust lap'**
- Q1.2.22 Explain what is meant by the term: **'Lead'**
- Q1.2.23 Explain what is meant by the term: **'Angle of advance'**
- Q1.2.24 Explain the effect of **"linking up"** an engine with adjustable valve gear?
- Q1.2.25 Explain what is meant by the terms **"inside admission"** and **"outside admission"**?
- Q1.2.26 Explain what is meant by **"power reverse gear"**?
- Q1.2.27 Why can **knocks** occur in the operation of a steam locomotive? What are the procedures for monitoring for knocks and what action should you take if they occur?
- Q1.2.28 *Blank for additional question*

Question Set 1.3 Moving a steam locomotive

- Q1.3.1 Describe the process involved in obtaining **authority** to move and position a steam locomotive?
- Q1.3.2 How should a steam locomotive's **controls** be operated?
- Q1.3.3 Why is it important to remain **vigilant** when moving a steam locomotive in a yard?
- Q1.3.4 Describe the process involved in **moving** a steam locomotive to its required position in the yard?
- Q1.3.5 *Blank for additional question*

Question Set 1.4 Conducting train operations

- Q1.4.1 How does the fireman assist the steam locomotive driver during a train journey?
- Q1.4.2 What is the role of a train driver concerning **fixed signals, point stand indicators, check points, signs and level crossings**?
- Q1.4.3 Describe the processes involved in interpreting and applying **'authority'** to move a train'
- Q1.4.4 Describe the processes involved in interpreting and applying a **'Cancellation of authority to move a train'**
- Q1.4.5 Describe the standard operating procedures and safeworking rules that need to be followed by drivers when **operating in the vicinity of worksites on the track?**

- Q1.4.6 How do drivers work with firemen, guards and shunters when **coupling** a locomotive to rollingstock?.....
- Q1.4.7 Describe the standard operating procedures and safeworking rules that need to be followed by drivers when **shunting rollingstock** to form a train?.....
- Q1.4.8 How should a driver **handle** a train?
- Q1.4.9 During a train journey, what is the role of a train driver concerning **fixed trackside signals, point stand indicators, check points, track side signs and level crossings**?
- Q1.4.10 Why is it important for the train driver to remain **vigilant** at all times during a train journey?.....
- Q1.4.11 What are the responsibilities of a train driver concerning **speed limits** along a train's route?
- Q1.4.12. Describe the precautions a train driver should follow when **approaching and stopping** at stations along a train's route?.....
- Q1.4.13 What are five examples of **abnormal situations** that may occur during a train journey and what is the role of the train driver in responding to these abnormal situations?
- Q1.4.14 What are the symptoms of **fusible plug failure**?
- Q1.4.15 Does the failure of a plug provide a **warning** that the water level is low?
- Q1.4.16 Will the escaping steam from a failed fusible plug **put the fire out**?
- Q1.4.17 What **should be done** in the event that a fusible plug melts?
- Q1.4.18 Why is it important that a train driver can give and interpret **hand signals**?
- Q1.4.19 Describe the method of safe working on your railway and what actions you as steam locomotive driver need to take in relation to the authority to enter a section.....
- Q1.4.20 *Blank for additional question*.....

Question Set 1.5 Shutting down and stabling a steam locomotive

- Q1.5.1 Describe the procedures for moving a locomotive to its **stabling position** in the yard? .
- Q1.5.2 Describe the **post-operational checks** you must conduct for the locomotive(s) after service.....
- Q1.5.3 What **action** should be taken if faults or defects are identified during post-operational checks of the locomotive and its equipment?.....
- Q1.5.4 How is the locomotive **secured** in its stabling position?.....

- Q1.5.5 What **other tasks** might a locomotive driver undertake after securing the steam locomotive?
- Q1.5.6 What **paperwork** must be completed after the locomotive is stabled and secured?
- Q1.5.7 *Blank for additional question*.....

RECORD OF THE KNOWLEDGE ASSESSMENT

Name of Rail Operator

Date assessment completed

Name of candidate

Signature of candidate

Name of the person conducting the assessment.....

Signature of the person conducting the assessment.....

Number of questions satisfactorily answered
(as per the ticked boxes on checklist)

COMMENTS OF THE PERSON CONDUCTING THE ASSESSMENT