



Tram Driver

Lesson Plan
and
WorkBook

(Generic Version)

Version 1

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IMPORTANT NOTICE

This booklet is one of a series of generic training and assessment templates developed as guides for heritage tramway 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 tramway operators to match the specific context of their own tramway, e.g. types of trams and associated equipment, the track layout and infrastructure, the local standard procedures and rules, safety management and safeworking systems, the tramway's organisational structure, and the roles and functions of personnel in the tramway.

Tramway 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 tramway operators.

It is intended that heritage tramway 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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1 HOW TO USE THIS WORKBOOK

This section of the workbook provides an overview of the contents of your workbook and how you should use it for your lessons.

The workbook is intended to provide you with a systematic approach to the learning of the skills, knowledge and understanding you need to fulfil the role and responsibilities of a tram driver on your tramway. A mentor who is already a qualified and highly experienced tram driver has been appointed by your tramway to assist you in this learning process.

The first part of the booklet includes a simple summary of the structure and contents and the learning activities contained in the booklet for the development of what you need to know and what you need to be able to do. It describes the mutual roles of you and your mentor and summarises other publications issued by your tramway that you need to use such as job descriptions, operating and service manuals and handbooks, safety management system, the tramway operator's rule book and general instructions, standard operating procedures, checklists, timetables, route maps, etc.

There are five topic areas covered by the booklet. Each topic section outlines the theory and practical for a number of listed sub-topics. The outline gives a basic framework of what you need to know and be able to do in the topic area concerned. However, you will need to **build your knowledge** further by having discussions with your mentor and by reading the relevant sections of the publications issued by your tramway to tram drivers

Each topic section also contains space for you to write your own notes on the various sub-topics based on discussions with your mentor and your own experiences during training and guided practice.

2 LIST OF REFERENCE MATERIAL

The following is a list of key reference material which will be available to you during the course of your learning activities for the lesson:

- Your tramway's job description for a **tram driver**, describing a tram driver's role, duties and responsibilities
- Standard Operating Procedures (SOPs) for the operation of trams
- Safety management system
- Rail safety requirements and practices
- Tram manuals and handbooks
- Maintenance checklists Rule book
- Rule book
- Knowledge of the Road Rules – where necessary
- Tramway Operator's Rule Book and General Instructions, including:
 - Safeworking forms
 - Tram notices / tram notices
 - Route maps
 - Timetables
 - Yard and shed/depot diagrams
 - etc.

3 OBJECTIVES OF THE LESSON PLAN

This Lesson Plan aims to provide a program of learning that will enable the learner to develop the theory (i.e. what you need to know and understand) and the practical requirements (i.e. what you need to be able to do) in a number of topic areas ...,,

- Role and responsibilities of a tram driver
- Preparing and starting a tram,
- Moving a tram,
- Conducting tram operations, and
- Dealing with emergency and abnormal situations that may occur during tram operations
- Shutting down and stabling a tram

Your **mentor** will work with you in the following ways:

- Help you to develop the required understanding and skills through interactive discussions and explanations,
- Demonstrate required tasks and equipment functions,
- Assist you to obtain, read and interpret your tramway's documents and manuals as well as applicable regulatory requirements,
- Observe and comment on your practice of the required skills in real and simulated situations, and
- Periodically check what you have learnt (i.e. your knowledge and understanding and what you are able to do).

At all times, if you are in doubt or need to clarify an issue, check with your mentor or other qualified and experienced tram drivers on your tramway.

4 ROLE AND RESPONSIBILITIES OF A TRAM DRIVER

4.1 DUTIES OF A TRAM DRIVER

Theory

The job of a tram driver may involve a variety of tasks depending on the type of tram and the tramway concerned, including:

Prior to tram operations

- Signing on and checking roster, notice boards, operational instructions, timetables, tram availability and other information needed to operate a tram
- Collecting keys and equipment and signing out tram
- Turning on all appropriate switches (e.g. compressor, power, lighting)
- Conducting pre-start checks
- Checking the operation of the control equipment
- Checking the sanding system
- Checking lifeguards and any other essential safety equipment
- Checking the brakes
- Recording, rectifying, isolating and/or tagging any defects and deficiencies as applicable and/or reporting to relevant personnel
- Starting the tram
- Obtaining authority to move and position a tram prior to service
- Following depot instructions, standard operating procedures and any safeworking rules
- Operating tram controls
- Moving the tram to and securing it in its required position prior to service
- Keeping vigilant while moving a tram

During tram operations

- Operating a tram in traffic
- Following tram route and timetable
- Working as part of a tram crew, where applicable (e.g. with conductor or second person)

- Approaching and stopping at scheduled or compulsory stops
- Operating tram doors where required
- Operating ticketing system (where applicable)
- Keeping vigilant while operating a tram
- Following standard operating procedures and any applicable safeworking and road rules
- Complying with speed limits and signals
- Observing traffic and hand signals
- Operating points during a journey
- Turning a tram at a terminal
- Stopping the tram using the service brake, emergency brake or the handbrake
- Stopping and securing a tram in a simulated emergency
- Dealing with abnormal situations during tram operations (e.g. collisions, injuries, derailments), including fault-finding and any applicable emergency communication and evacuation procedures
- Using advanced train driving procedures (where applicable)

After tram operations

- Moving a tram to its stabling position
- Carrying out required post-operational checks
- Securing the tram
- Completing paperwork
- Reporting any identified faults or defects for appropriate action

Practical

Obtain a copy of your tramway's job description or duty statement for a tram driver. Describe to your mentor the various functions and duties you must perform when working as a tram driver. Travel on a tram and observe the various functions as they are being performed by the driver. Clarify with the driver any aspects of these functions that are unclear.

4.2 STATUTORY RESPONSIBILITIES INCLUDING RAIL SAFETY AND SAFEWORKING REQUIREMENTS AND REGULATIONS RELATED TO THE DRIVING OF TRAMS

Theory

The role of a tram driver is to safely, effectively and efficiently operate a heritage tram before, during and after service. Tram drivers must therefore be very familiar with the rail safety requirements related to their work and all pertinent standard safeworking rules and requirements. They must also have a good working knowledge of the basic regulatory requirements for the operation of the type(s) of tram concerned (for example: road rules and the Rail Safety Act).

You need to make sure you are familiar with the tramway and other documents that describe your statutory responsibilities and that you understand their contents and the implications for you on the type(s) of trams you may be required to drive on your tramway.

A particularly important responsibility is to be aware of the hazards involved in working as a driver on a tram and following the tramway operator's strategies for minimising or eliminating the risks involved. Examples of hazards that exist on tram cars include:

- Falling from heights
- Working under wires
- Fatigue
- Noise
- Driving in road traffic with motor vehicles and pedestrians
- Electrocution (600V DC)
- Isolated (electrically) tramcar)

Hazard management strategies may include:

- Ensuring public safety (e.g. checking all passengers have alighted or boarded before closing doors and moving off),
- Using personal protective equipment or PPE,
- Using fire extinguishers to control fire emergencies, or
- Following the tramway's established risk management procedures.

Practical

In conjunction with your mentor, make sure you have a copy of the relevant documents and understand the requirements and responsibilities described in them. If in doubt on any aspect of your statutory responsibilities ask your mentor to clarify them with you and if necessary demonstrate to you how these responsibilities need to be fulfilled in practice. Demonstrate to your mentor your understanding of your responsibilities and how these are applied in your role as a tram driver.

4.3 STANDARD PROCEDURES OF THE TRAMWAY OPERATOR APPLICABLE TO A TRAM DRIVER, INCLUDING RECORD KEEPING AND THE REPORTING OF DEFECTS AND INCIDENTS

Make sure you have a copy of those standard procedures of the operator of your tramway that apply to the functions and duties of a tram driver on the types of trams you may be required to drive. You should read these procedures and make sure that you are thoroughly familiar with them and can apply them when performing the tasks of a tram driver. It is important that you not only can follow these procedures but also understand their significance and the reasons why following them is so important. These procedures will include record keeping and the required action to be taken in the event of abnormal operating situations, an equipment defect or a safety incident.

Practical

In conjunction with your mentor, make sure you have a copy of the relevant standard operating procedures and understand how they must be applied in the day to day work of a tram driver. If in doubt on any aspect of the procedures, ask your mentor to clarify them with you and if necessary, demonstrate to you how the various procedures should be carried out. In turn, you should gradually learn how to apply these procedures yourself progressively through your training -- gradually developing your expertise through guided practice, as instructed by your mentor.

**4.4 ROLE AND RESPONSIBILITIES OF A TRAM DRIVER
-- LEARNER'S NOTES**

Insert your own notes here

5 PREPARING AND STARTING A TRAM

5.1 SIGNING ON AND CHECKING ROSTER, NOTICE BOARDS, OPERATIONAL INSTRUCTIONS, TRAM AVAILABILITY AND OTHER INFORMATION NEEDED TO OPERATE A TRAM

Theory

At the commencement of a shift, you need to sign on, check the duty roster and read and interpret the notice boards, operation instructions, tram availability and other information you need to determine your tram driving duties for the shift.

Each tramway will have its own specific sign on procedures and ways of informing drivers of their operational instructions, notices, tram availability and the other required information. You need to be thoroughly familiar with the procedures and sources of information and how the information should be interpreted and used by you in the course of your tram driving duties.

Practical

In conjunction with your mentor, confirm the requirements for signing on and checking the duty roster and read and interpret the notice boards, operation instructions tram availability and other information you need to determine your tram driving duties for a shift.

Study and learn the relevant standard procedures.

Your mentor will also show you how the signing on and checking of all applicable information that should be completed. You will practise these and demonstrate your ability to complete them as per the tramway's standard sign on procedures.

5.2 COLLECTING KEYS AND EQUIPMENT AND SIGNING OUT TRAM

Theory

Once the tram driving duties for a shift have been established, a driver will need to collect the keys and required equipment and sign out the tram concerned as per the tramway's standard procedures.

Practical

In conjunction with your mentor, confirm the tramway's procedures for collecting the tram keys and equipment and signing out a tram. You will practise these and demonstrate to your mentor your ability to complete them correctly.

5.3 COMPONENTS OF A TRAM (PURPOSE, PRINCIPAL PARTS, FUNCTIONS AND OPERATION, AND POTENTIAL DEFECTS AND RELATED ACTION)

Theory

As a tram driver, it is important that you know and are able to identify the various components of the type(s) of tram concerned and their associated equipment. For the components and their equipment, you must be able to describe their:

- purpose
- principal parts
- functions and operation
- potential defects and related action required to isolate, repair and/or report the defects as per standard procedures

Across the heritage rail industry in Australia there are a range of different types of tram in service. While there are some components and associated equipment common across the various types of trams, you need to be familiar with the

particular components and equipment that are specific to the types of trams(s) used on your tramway.

Practical

1. In conjunction with your mentor and from the available tramway reference documents, learn to how to locate and identify the various tram components and associated equipment. Learn how to describe to your mentor the purpose of each component and piece of associated equipment and its function.
2. Develop a list of typical defects that could occur on the tram(s) concerned, their components and their associated equipment and the actions you would be required to take within the limits of your responsibilities as a driver of the tram(s) concerned. This action may include isolation of the faulty component or piece of equipment, its repair, tagging the faulty component or piece of equipment, reporting to appropriate personnel and/or recording the defect and action taken in the appropriate log or record book.
3. Check the duties and responsibilities of a tram driver and the standard procedures for the servicing and checking of trams in your tramway (as they relate to the duties of a tram driver) and confirm your understanding with your mentor.

5.4 TURNING ON ALL APPROPRIATE SWITCHES (e.g. COMPRESSOR, POWER, LIGHTING)

Theory

For all trams, there a number of electrical switches that must be turned on in the correct sequence. The switches control the power to various pieces of equipment such as:

- the air compressor for the brakes,
- power to the tram,

- lighting for the tram including headlights.

The actual switches involved, their purpose and their location will depend on the type of tram and tramway concerned. It is important therefore that you refer to the tramway's manual for the tram(s) and/or consult with your mentor to determine the various switches on the tram(s) you will be driving and know their purpose and location and the sequence in which they should be activated.

Practical

In conjunction with your mentor, confirm the various switches on the tram(s) you will be driving and know their purpose and location and the sequence in which they should be activated. You will practise these and demonstrate to your mentor your ability to complete them correctly.

5.5 CONDUCTING PRE-START CHECKS

Theory

Tram drivers are required to carry out a visual inspection of the tram and range of other required pre-start checks. The exact requirements for the visual inspection and checks will be dependent on the type of tram and the tramway concerned.

They may include:

- checking and reporting any evidence of damage to the tram
- checking the pole settings, sanders and sand quantity
- Checking lifeguards and any other essential safety equipment
- checking of air pressure of air brake system (where applicable)
- testing of all lights, including headlights,
- inspecting spare lamps and fuses
- checking the points bar
- testing that the gong, bell, buzzers, air horn and other warning devices are functioning correctly

- checking of run number plates, destination indicators and auxiliary notice boards
- Checking readiness of tram for passenger services and the presence of any unnecessary items on the tram
- checking of the destination and route number signs (these may needed to be adjusted for the planned journey of the tram).
- checking the operational readiness of the....
 - tool kit
 - fire extinguisher
 - first aid kit
 - communication equipment

The completion of these checks ensures that the tram is fully ready for the planned operations and that tram driver and crew (where applicable) are suitably prepared for a range of possible emergencies and other abnormal situations that might occur during the planned tram journey.

5.6 CHECKING THE OPERATION OF THE CONTROL EQUIPMENT

Different types of trams use various types of equipment to control the flow of current to the motors of the tramcar. Each tramway will have its own information on the components of the control equipment and how it operates, as well as the procedures for checking the control equipment prior to service and for operating the control equipment when driving the tram concerned.

Practical

In conjunction with your mentor, confirm the components of the control equipment on your tram and how it operates. Study and learn the standard procedures for checking the control equipment prior to service and for operating the control equipment when driving the tram.

Your mentor will also show you how to correctly check the control equipment as part of the tram's pre-operational checks. You will practise these and demonstrate your ability to complete them as per the tramway's standard procedures.

5.7 CHECKING THE BRAKES

Theory

Trams usually have an air brake, the handbrake and an emergency brake. It is important before moving a tram and starting operations that you check and confirm that all of the trams brakes are functioning correctly; including making sure that there is adequate air pressure for the air brakes. The exact types and configuration of the brakes will vary depending on tramway standard operating procedures, the type of tram and the tramway concerned.

Practical

In conjunction with your mentor and from your tramway's manuals, confirm the braking system on the tram(s) you will be driving and how it operates. Study and learn the standard procedures for checking the brakes prior to service and for operating the brakes when driving and stopping the tram(s) concerned.

Your mentor will also show you how to correctly check the brakes as part of the tram's pre-operational checks. You will practise and demonstrate your ability to check each tram's brakes as per the tramway's standard procedures.

5.8 RECORDING, RECTIFYING, ISOLATING AND/OR TAGGING ANY DEFECTS AND DEFICIENCIES AS APPLICABLE AND/OR REPORTING TO RELEVANT PERSONNEL

Theory

If any defects or deficiencies are identified in the course of preparing and starting a tram, it is important that they are recorded and reported as per the tramway's standard operating procedures. Depending on the specified duties and responsibilities of a tram driver on your tramway, you may also be required to take other appropriate action, including:

- isolating the defective equipment or components

- tagging the defective equipment or components
- possibly rectifying the defective equipment or components

Different tramways will have their own specific policies and procedures for what action must be taken when a driver identifies defects or deficiencies in a tram and its equipment or components. It is important therefore that you understand standard procedures of your tramway concerning your role and responsibilities when you identify a defect or deficiency on any tram you may be driving either before start up and tram operations, during tram operations or when stabling a tram after service.

Practical

In conjunction with your mentor and from your tramway's policy and procedures manuals, confirm the role and responsibilities of a tram driver when a defect or deficiency is discovered.

Study and learn the standard procedures for recording, rectifying, isolating and/or tagging any identified defects and deficiencies (as applicable) and/or reporting to relevant personnel.

Your mentor will also demonstrate to you the correct procedures.

Your mentor will present you with simulations or case studies of a number of possible defects or deficiencies. You will practise and demonstrate your ability to follow the tramway's standard procedures for recording, reporting, rectifying, isolating and/or tagging any identified defects and deficiencies.

5.9 STARTING THE TRAM

Theory

Before starting a tram it is important that you.....

- make eye contact with the conductor (where applicable)
- ring the tram's bell, gong or other audible indicator
- check that the way ahead is clear
- confirm that there is adequate air pressure in the braking system

- release the brake

The tram controls can then be smoothly and briefly activated up to the first notch to confirm the operation of the tram before notching off and stopping the tram and reapplying the brake, while the tram is awaiting movement to its pre-service position.

Practical

In conjunction with your mentor and from your tramway's manuals, confirm the correct procedure for starting the tram(s) you will be driving.

Study and learn the standard procedures for starting the tram(s) concerned.

Your mentor will also show you how to correctly start the tram(s). You will practise and demonstrate your ability to start each tram as per the tramway's standard procedures.

5.10 PREPARING AND STARTING A TRAM - LEARNER'S NOTES

Insert your own notes here

Insert your own notes here

6 MOVING A TRAM

6.1 OBTAINING AUTHORITY TO MOVE AND POSITION A TRAM

Theory

Once pre-operational checks have been completed, it is necessary to position the tram ready for service. Prior to moving the tram, the driver must have obtained the necessary authority to move and position the tram as per the tramway's standard procedures

Practical

In conjunction with your mentor, confirm the tramway's standard procedures for obtaining authority to move and position a tram prior to service.

You will practise these and demonstrate to your mentor your ability to complete them correctly.

6.2 FOLLOWING DEPOT INSTRUCTIONS, STANDARD OPERATING PROCEDURES AND ANY SAFEWORKING RULES

Theory

Movement of a tram in a depot or yard poses a major safety hazard for persons who may be in the vicinity of the tram. To control the risks involved in moving a tram, it is vital that a tram driver is fully aware of and can correctly interpret and apply all relevant depot instructions, standard operating procedures and safeworking rules.

Practical

In conjunction with your mentor and from your tramway's official publications, review and confirm the depot instructions, standard operating procedures and safeworking rules relevant to moving and positioning a tram ready for service. Study and learn them.

Your mentor will also show you how to interpret and apply the relevant instructions, procedures and safeworking rules when moving and positioning a tram. You will practise and demonstrate your ability to correctly interpret and apply them when moving and positioning a tram.

6.3 OPERATING TRAM CONTROLS

Theory

Tram controls should be operated smoothly and carefully. It is important that you develop a 'feel' for the controls and learn how to achieve steady and even acceleration with smooth transitions from one notch to the next. This not only ensures an enjoyable journey for passengers but also prevents possible damage to the tram's control equipment.

You also need to smoothly slow a tram by notching off prior to stopping and then correctly applying the service brake to ensure a gradual deceleration and a 'jerk-free' stop at the correct location.

Practical

Discuss the operation of tram controls with your mentor.

Your mentor will also demonstrate the preferred way of operating the controls when moving and stopping a tram.

You will practise and demonstrate to your mentor your ability to correctly operate the controls when moving and positioning a tram.

6.4 MOVING THE TRAM TO REQUIRED POSITION

Theory

Following pre-start checks and the start up of the tram, the tram will be moved and positioned in readiness for service. This enables further confirmation that the tram is functioning correctly.

In moving the tram, the driver must operate the controls to allow smooth acceleration and deceleration as per standard operating procedures. The driver must judge the braking and deceleration to be just sufficient to allow a smooth and gentle stop on the specified position.

Practical

In conjunction with your mentor and from your tramway's manuals, confirm the correct procedure for moving the tram to a specified position. Study and learn the standard procedures for moving and stopping the tram concerned. Your mentor will also show you how to correctly move and stop the tram. You will practise and demonstrate your ability to move and stop the tram as per the tramway's standard procedures.

6.5 SECURING THE TRAM IN POSITION

Theory

Once in position, the driver must apply the brakes as per the tramway's standard procedures and the operating manual for the tram concerned.

Practical

Study and learn the standard procedures for moving and stopping the tram concerned. Your mentor will also show you how to correctly secure the tram in position. You will practise and demonstrate to your mentor your ability to secure the tram as per the tramway's standard procedures.

6.6 MOVING A TRAM - LEARNER'S NOTES

Insert your own notes here

7 CONDUCTING TRAM OPERATIONS

7.1 WORKING AS PART OF A TRAM CREW (e.g. WITH CONDUCTOR OR SECOND PERSON)

Theory

On many heritage trams, the driver participates as a member of a tram crew usually with a conductor and/or a second person. It is important that each member of the crew understands each other's role(s) and how they need to work together as a team to ensure a safe, comfortable and efficient journey for the tram passengers.

Central to this teamwork is effective communication, including verbal communication and non-verbal communication through eye-to eye contact and through the use of the tram's signalling devices such as bells, gongs, buzzers, etc.

Practical

In conjunction with your mentor and from your tramway's manuals, confirm the mutual roles and duties of the various members of a tram crew.

Go for a ride on an operational tram and observe the way the various crew members work together and interact with each other. In particular, note the various ways in which the crew members communicate.

During a journey as a tram driver, you will practise and demonstrate your ability to move work collaboratively with other crew members as per the tramway's standard procedures.

7.2 OPERATING A TRAM IN TRAFFIC

Theory

Operating a tram in traffic requires careful skill to observe the traffic situation around you, to follow the road rules at all times and to operate the tram controls

smoothly and steadily so as to provide an enjoyable travel experience for the passengers.

This requires you to have a good knowledge and understanding of the tram's operating route and in particular the traffic hazards that may be experienced along the route. The driver needs to be aware of the location of stops and have the capability of approaching the stops with gentle deceleration and braking to enable correct positioning of the tram at each stop to allow passengers to embark and disembark.

Practical

In conjunction with your mentor, from the applicable road rules and your tramway's manuals, confirm your responsibilities and procedures for driving your tram in traffic on a specified route.

Go for a ride on an operational tram on that route and observe how the driver operates the tram and navigates the various traffic situations that arise. In particular, observe how the driver maintains situational awareness and operates the tram controls to smoothly start, accelerate, decelerate and stop the tram during the course of the journey while still taking account of the prevailing traffic conditions.

During a journey as a tram driver, you will practise and demonstrate your ability to operate the tram in traffic as per the applicable road rules and the tramway's standard procedures.

7.3 FOLLOWING TRAM ROUTE AND TIMETABLE

Theory

Passenger trams follow a specified tram route with designated stops and an operating timetable. Tram drivers need to develop the skill to follow the route and to keep the tram on time according to the timetable while still operating the tram safely. This requires a good knowledge of the tram route and the timetable as well as the ability to leave stops on time and be able to smoothly accelerate to allowable speeds that enable the timetable to be achieved with generous times for passengers to alight and embark.

Practical

In conjunction with your mentor and from your tramway's publications, Study and learn the specified route(s) for your tram including the tram stops and timetable(s) the key features along the tram route(s).

Your mentor will also demonstrate to you how operate the tram to the required timetable during a tram journey along the specified route. You will practise and demonstrate your ability to operate the tram on the journey over the specified route and timetable while keeping the tram on time at all stops and at the eventual final destination as per the tramway's standard procedures.

7.4 APPROACHING AND STOPPING AT SCHEDULED OR COMPULSORY STOPS

Theory

An important skill when operating a passenger tram is the ability to anticipate a scheduled or compulsory stop and to approach it smoothly and steadily with appropriate deceleration and braking that allows the tram to come to a gentle stop on the required stopping position. For comfort and safety of passengers on the tram, the stop should be achieved without sudden deceleration or jerks arising from sudden braking. To achieve this, the driver must have a good understanding of the route and in particular the exact location of scheduled stops. The driver must also develop a 'feeling' for operating the tram's controls and brakes and be able to judge when to smoothly decelerate and gradually apply the brakes to stop at a specified position.

Practical

Study and learn the standard procedures for stopping your tram at scheduled or compulsory stops. Your mentor will also show you how to correctly stop a tram smoothly and precisely. You will practise and demonstrate to your mentor your ability to approach and stop the tram at scheduled stops as per the tramway's standard procedures.

7.5 OPERATING TRAM DOORS WHERE REQUIRED

Theory

Some heritage trams are equipped with safety doors which must be operated to allow passengers to board and alight. The driver must be aware of how to operate the doors where they exist and to check that all passengers are clear of the doors before they are operated.

Practical

Where your tram is equipped with safety doors, discuss with your mentor and read your tramway's publications related to the procedures and precautions that must be followed for their operation.

Study and learn the precautions and procedures for operating the doors. Your mentor will show you the correct procedures. You will practise and demonstrate to your mentor your ability to operate the doors (where fitted) as per the tramway's standard procedures.

7.6 OPERATING TICKETING SYSTEM (WHERE APPLICABLE)

Theory

Some trams don't operate with a conductor but use an on-board ticketing system instead. In such situations, it is important that a driver knows how to activate, check, operate and close down the ticketing system as part of tram operations.

Practical

Where your tram is equipped with an on-board ticketing system, discuss with your mentor and read your tramway's publications related to the procedures for the activation, checking, operation and closing down of the ticketing system. Study and learn the procedures for operating the ticketing system. Your mentor will show you the correct procedures. You will practise and demonstrate to your mentor your ability to activate, check, operate and close down the ticketing system (where fitted) as per the tramway's standard procedures.

7.7 KEEPING VIGILANT WHILE OPERATING A TRAM

Theory

Whether operating a tram either in the depot or during a journey, it is vital that the driver remains vigilant at all times to identify any situation that may potentially be unsafe or cause a problem in the safe and efficient running of the tram.

Vigilance is particularly important when operating the tram in traffic during a journey along a standard route. This may include problems on the way ahead, on the tram itself or in the environment around the tram. For example, watching the tram ahead, looking for faults in the overhead such as broken span wires or insulators, or being alert for pedestrians or motor vehicles in the vicinity of the track ahead. In this regard, it is the driver's special duty to regularly scan the traffic situation and the tram's operating environment to check that there are no problems either occurring at the time, or which may be emerging.

Practical

During tram movements in the depot as well as during a tram journey under the supervision of your mentor, learn and demonstrate how you can practice being vigilant and recognise any situations that may potentially be unsafe or cause a problem in the safe and efficient running of the tram. In particular, demonstrate how you regularly 'scan' the operating environment. Your mentor will ask you questions about actual or hypothetical situations and associated risks that could occur in the depot and during a tram journey which require you to be vigilant.

7.8 FOLLOWING STANDARD OPERATING PROCEDURES AND APPLICABLE SAFEWORKING AND ROAD RULES

Theory

Operating a passenger tram in traffic to an official timetable along a specified route involves major safety hazards which require careful risk management and situational awareness. To control the risks involved in operating a passenger tram in traffic, it is vital that a tram driver is fully aware of and can correctly interpret and apply all applicable road rules and regulations, standard operating procedures and safeworking rules.

During tram operations, all communication is conducted in accordance with standard operating procedures, safeworking system requirements and applicable communication protocols.

Practical

In conjunction with your mentor and from applicable road rules and your tramway's official publications, review and confirm the applicable road rules, standard operating procedures and safeworking rules relevant to operating a tram in traffic. Study and learn them.

Your mentor will also show you how to interpret and apply the relevant road rules, procedures and safeworking rules when operating a passenger tram to a timetable on a specified route.

You will practise and demonstrate your ability to correctly interpret and apply them when operating a tram in traffic.

7.9 COMPLYING WITH SPEED LIMITS

Trams must comply with the prescribed speed limits both within the depot and when en route on a journey. It is important that the tram driver is aware of all of the prescribed speed limits along a tram route and in the depot and regulates the trams speed to comply with the limits.

Practical

Study and learn the standard speed limits for tram operations both within the depot and along the tram route(s) on which you may be operating.

You will practise and demonstrate to your mentor your ability to operate a tram over these routes and comply with all applicable speed limits as per the regulatory requirements and the tramway's standard procedures

7.10 OBSERVING FIXED TRAFFIC SIGNALS, SIGNS AND HAND SIGNALS

Theory

Tram drivers must observe and comply with all fixed traffic signals, signs and hand signals made by authorised persons directing traffic. Drivers must also be vigilant for signals made by vehicles in traffic indicating a left or right and turn and/or stop and must respond as per the applicable road rules.

Practical

In conjunction with your mentor and from applicable road rules and your tramway's standard publications, review and confirm the correct action to be taken in various situations involving compliance with fixed traffic signals, signs and hand signals given by authorised persons and turn /stop signals made by other vehicles in traffic. Study and learn them.

Your mentor will also discuss with you how to interpret and apply the relevant road rules and standard procedures in typical on-road situations. You will practise and demonstrate your ability to correctly interpret and apply them when operating a tram in traffic.

7.11 OPERATING POINTS DURING A JOURNEY

Theory

On some tram routes, you may be required to operate points in the course of the tram journey. You need to be aware of the standard procedures of your tramway for operating points for the type of tram and the tramway concerned.

Practical

In conjunction with your mentor and from your tramway's manuals, confirm the correct procedure for operating points during a tram journey. Your mentor will also show you how to operate points during a tram journey over a specified route for the type of tram concerned. You will practise and demonstrate your ability to operate points as per the tramway's standard procedures.

7.12 TURNING A TRAM AT A TERMINUS

Theory

When a tram reaches a terminus it must be turned for the return journey. This requires the driver to stop and secure the tram in position while control is shifted to the other cabin on the tram.

The driver must make sure that the trolley poles are in the correct position for the return journey (for example, with the rear pole on the overhead wire and the front pole under the hook and securely tied down).

The driver will usually also make a brief inspection of the tram for any visible damage especially to lifeguards and to check any evidence of hot bearings or loose axle box covers. If any damage, defects or deficiencies are identified, appropriate action is taken as per standard procedures.

Practical

In conjunction with your mentor and from your tramway's manuals, confirm the correct procedure for turning a tram at a terminus including conducting a brief check of the tram before the return journey.

Your mentor will also show you how to turning a tram at a terminus. You will practise and demonstrate your ability to turn a tram as per the tramway's standard procedures.

7.13 STOPPING THE TRAM USING THE SERVICE BRAKE, EMERGENCY BRAKE OR THE HANDBRAKE

Theory

Tram drivers must be able to operate all of the brake systems on their tram in both normal and emergency situations. This will usually include the application of the service brake, the handbrake or the emergency brake.

The various tramways may use different braking systems and equipment. Service brakes usually involve an air brake system, requiring the driver to operate a valve which allows air from a reservoir to be passed to the brake cylinder to apply the brakes. For example, **in a manual lap brake**, the valve has a central lap position in

which all ports are closed. Movement of the valve handle to the right applies the brakes by passing air to the brake cylinder. Movement of the valve handle to the left release the brakes by allowing air to flow out of the brake cylinder. The extreme right hand position is the emergency position involving a rapid and full transmission of air to the brake cylinder.

The air reservoir is kept charged to operating pressure by the electric air compressor. Air from the reservoir may also be used to operate the sand valves, windshield wipers and possibly sliding or folding doors.

The hand brake is the manual means of applying the brake shoes to the wheels. This is usually done by turning the hand wheel in a clockwise direction and locked in position by means of a ratchet pawl operated by the right foot. The hand brake is used if there is air system is out of order and cannot be fixed by he driver. The handbrake is also applied when a tram is to be left unattended on the road

In emergency situations, the preferred braking option is dependent on the type of tram and the tramway operator's standard procedures. For example, for a given tram and tramway, the preferred option may be to turn the tram control to off, apply sand to the rails and apply the air brake full on (i.e. extreme right).

If the air brake is not operating, many trams have an option for electric braking in which the motor acts as a dynamic brake on the wheels. The availability of this option and the procedures for its use will be detailed in the operating manual for the tram concerned and the standard procedures of the tramway.

Drivers need to understand the effects of rail condition on brake performance. The distance required to stop a tram is dependent upon the grip of the wheels on the rails. Best results occur when the rails are clean. Worst results occur when the rails are greasy. The best conditions usually occur after rails have dried out after having been washed by extended rainfall. The braking performance of bad or slippery rails can be improved by the application of sand to the rails.

Bad conditions (in which rails are greasy) usually occur:

- when rain commences falling after a dry spell
- when there is frost or morning dew on the rails
- during track repairs or top dressing involving bitumen compounds which leak onto the rails
- oil, fallen leaves or melted tar on the rails in hot weather
- motor vehicles running over rails still wet after rain
- new rails (can cause conditions similar to greasy rails)

Practical

In conjunction with your mentor and from your tramway's manuals, **determine the types of braking systems and equipment used on your tramway. Confirm** the correct procedures for using the various braking systems on the tram(s) you will be driving.

Your mentor will also demonstrate to you how the various braking systems are operated and will discuss with you the various situations that can occur and the precautions you should take when applying brakes. You will practise and demonstrate your ability to operate the various braking systems on the tram(s) as per the tramway's standard procedures.

7.14 DEALING WITH ABNORMAL SITUATIONS DURING TRAM OPERATIONS (E.G. COLLISIONS, INJURIES, DERAILMENTS), INCLUDING FAULT-FINDING AND ANY APPLICABLE EMERGENCY COMMUNICATION AND EVACUATION PROCEDURES

Theory

There are a range of abnormal and emergency situations that may occur during a tram journey. You should be aware of recognising abnormal and emergency situations and your tramway's procedures in the event that they occur. The following are some examples of potential abnormal and emergency situations.

- an obstruction on the rails
- pedestrians or vehicles crossing the rails in front of the moving tram
- equipment failure
- trolley pole damaged or unusable
- overhead power failure
- signals failure
- incorrect information or failure in communications
- a passenger emergency (e.g. illness or injury)
- an ill or injured crew member
- a passenger initiated alarm

- a false alarm
- a derailment
- a collision
- a chemical spill
- a fire
- a bomb threat
- failed head lights

Practical

Check your tramway's documentation regarding abnormal and emergency situations and what action should be taken when they occur. In particular identify the role of the tram driver in these situations...

Discuss potential abnormal and emergency situations that could occur on your railway and the action you would need to take if they should occur.

7.15 STOPPING AND SECURING A TRAM IN A SIMULATED EMERGENCY

Theory

Drivers need to be able to stop and secure a tram in the event of an emergency situation arising suddenly. This will usually involve appropriate emergency braking as per the tramway's standard procedures (see Section 7.13) and the application of the handbrake once the tram is stopped and in some cases, isolating the tram from the overhead by removing the pole or pantograph from the overhead.

Practical

Check your tramway's documentation regarding the stopping of a tram in an emergency situation. Discuss with your mentor potential emergency situations that could occur and the braking procedures required. Your mentor will demonstrate to you how to stop a tram in various simulated emergency situations. You will practise and demonstrate your ability to stop the tram in the same simulated emergency situations as per the tramway's standard procedures.

7.16 CHANGEOVER OF DRIVERS (CREWS) DURING TRAM OPERATIONS

Theory

In some tramways, a tram driver or crew may be relieved by a replacement driver/crew in the course of tram operations. In such cases, it is critical that the new driver or crew are briefed by the outgoing driver /crew on any problems that may have been experienced with the operation of the tram, or any other operational or safety issues about which the new driver/crew need to be aware. In the course of the handover, the tramway's standard operating procedures for the handover of the tram's controller keys must be followed.

Practical

Check your tramway's standard procedures regarding the handover of a tram to a new driver/crew in the course of operations. Your mentor will demonstrate to you how to carry out a handover. You will practise and demonstrate your ability to conduct a handover as per the tramway's standard procedures.

7.17 CONDUCTING TRAM OPERATIONS - LEARNER'S NOTES

Insert your own notes here

8 SHUTTING DOWN AND STABLING A TRAM

8.1 MOVING A TRAM TO ITS STABLING POSITION

Theory

After service the tram should be moved to its stabling position at the depot prior to post operational checks and securing the tram. It is important to confirm the position where the tram is to be stabled and to move the tram to its stabling location in accordance with standard operating procedures.

Practical

Check your tramway's standard procedures regarding the stabling of trams after service. Your mentor will demonstrate to you how to move a tram to its correct stabling position.

You will practise and demonstrate your ability to move a tram to its stabling position after service as per the tramway's standard procedures.

8.2 CARRYING OUT REQUIRED POST-OPERATIONAL CHECKS

Theory

After service, it is important that all required post-operational checks are undertaken as per the tramway operator's checklist and standard procedures.

In some tramways, this may involve lowering the pantograph, removing the trolley pole from the overhead wire, switching off all control switches, closing doors and securing the tram as required.

Practical

In conjunction with your mentor, determine the standard procedures for conducting visual inspections and post-operational checks on trams after service

Under the supervision of your mentor, learn and demonstrate how to conduct a visual inspection and other post-operational checks of the tram and its associated equipment.

8.3 REPORTING ANY IDENTIFIED FAULTS OR DEFECTS FOR APPROPRIATE ACTION

Theory

Any identified damage, faults, defects and problems should be recorded, reported and rectified (if possible and within duty requirements).

Practical

Under the supervision of your mentor, learn and demonstrate the action that needs to be taken in the event of identified damage, faults, defects or other problem with the tram or its equipment. Your mentor will present you with a hypothetical defect and you will demonstrate how you would record and report the defect as per standard procedures and/or (if within duty requirements) take appropriate action to rectify the defect concerned.

8.4 SECURING THE TRAM

Theory

Your tram will be secured in its stabling position by applying the handbrake and turning off all switches.

Practical

Under the supervision of your mentor, learn and demonstrate how to secure a tram after all post-operational checks have been made.

8.5 COMPLETING PAPERWORK

Theory

Prior to signing off, make sure that all necessary paperwork has been completed as per the tramway's standard procedures. This may include:

- Time sheet
- Log or record of tram operations
- Reports of operational problems with the tram and/or any defective equipment identified and details of any action taken or required

- Reports of any safety incidents as per standard procedures and regulatory requirements
- Paper work related to the return of the keys and equipment to store.

Practical

Under the supervision of your mentor, learn and demonstrate how to complete all require post-operational paperwork prior to signing off as per the tramway operator's requirements.

8.8 SHUTTING DOWN AND STABLING A TRAM - LEARNER'S NOTES

Insert your own notes here

ATTACHMENT 1

TRAM DRIVER

THEORY ASSESSMENT

SHEETS.

ATTACHMENT 2

TRAM DRIVER

PRACTICAL ASSESSMENT

CHECKLISTS