



# **Second Person**

## **Lesson Plan and WorkBook**

***(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.

ATHRA does not assume any legal liability or responsibility for the accuracy, completeness or usefulness of any information provided in these generic resources.

© Association of Tourist & Heritage Rail Australia Inc. 2011

# CONTENTS

## **1 How to use this workbook**

## **2 List of reference material**

## **3 Objectives of the lesson plan**

## **4 Role and responsibilities of a second person on a diesel locomotive**

4.1 *Duties of a second person*

4.2 *Statutory responsibilities including rail safety and safeworking requirements and regulations related to the functions of a 2<sup>nd</sup> person*

4.3 *Standard procedures of the rail operator applicable to a 2<sup>nd</sup> person, including record keeping and the reporting of defects and incidents*

## **5 Conducting pre-operational checks on a diesel locomotive**

5.1 *Identifying and describing the components of a diesel locomotive and its associated equipment (purpose, principal parts, functions and operation, and potential defects and related action)*

5.2 *Carrying out a visual inspection and other required pre-operational checks that are the responsibility of a second person*

5.3 *Conducting pre-operational checks on a diesel locomotive -  
Learner's notes*

## **6 Assisting the driver during a train journey**

6.1 *Following applicable safeworking procedures*

6.2 *Responding to the driver's instructions*

6.3 *Checking and maintaining the performance of the locomotive*

6.4 *Taking on fuel and other fluids*

6.5 *Assisting the driver when approaching and traversing fixed lineside signals point stand indicators, signs and level crossings*

6.6 *Remaining vigilant including looking back to train*

6.7 *Assisting the driver in the identification of faults and defects and associated trouble-shooting activities*

6.8 *Responding to abnormal situations that may arise during a train journey*

- 6.9 *Giving and interpreting hand signals*
- 6.10 *Stopping and securing a train in the event of an emergency, including the emergency evacuation of the train*
- 6.11 *Assisting the driver during a train journey -- Learner's notes*

## **7 Cleaning and checking the locomotive after operations**

- 7.1 *Confirming locomotive is secured prior to post-operational cleaning and checking operations*
- 7.2 *Conducting cleaning operations*
- 7.3 *Conducting a visual inspection and other post-operational checks of locomotive and associated equipment*
- 7.4 *Completing all required lubrication and greasing tasks*
- 7.5 *Topping up fluid levels as per standard procedures*
- 7.6 *Checking that tool kit, fire extinguisher, first aid kit and other locomotive equipment is in operational condition and is correctly stowed*
- 7.7 *Checking and confirming that locomotive and associated equipment has been restored to required post-operational condition*
- 7.8 *Completing required post-operational documents and reporting any faults or defects for appropriate action*
- 7.9 *Cleaning and checking the locomotive after service -- Learner's notes*

**SEPARATE ATTACHMENT 1 – Second person -- knowledge checklist**

**SEPARATE ATTACHMENT 2 – Second person -- performance checklist**

**SEPARATE ATTACHMENT 3: Train examination addendum (1) Lesson plan and workbook, (2) Knowledge checklist (3) Mentor's Q&A and (4) Performance checklist**

# 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 second person on a diesel locomotive on your railway. A mentor who is already a qualified and highly experienced driver or second person has been appointed by your railway 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 railway that you need to use such as job descriptions, operating and service manuals and handbooks, safety management system, the rail operator's rule book and general instructions, standard operating procedures, checklists, timetables, route maps, etc.

There are four 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 railway to firemen.

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 railway's job description for a ***second person on a diesel locomotive***, describing a second person's role, duties, and responsibilities
  
- Standard Operating Procedures (SOPs) for the operation of the diesel locomotive(s) concerned
  
- Safety management system
  
- Rail safety requirements and practices
  
- Locomotive manuals and handbooks
  
- Pre-operational checklists
  
- Rail Operator's Rule book and General Instructions, including:
  - Safeworking forms
  - Special Notices / Train Notices
    - Route maps
    - Timetables
    - Yard and shed 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, i.e. ...,

- The role and responsibilities of a second person on a diesel locomotive,
- Conducting pre-operational checks on a diesel locomotive,
- Assisting the driver during a train journey, and
- Cleaning and checking the locomotive after service

Your learning mentor will work with you to assist you to develop the required understanding and skills through interactive discussions and explanations, demonstration of required tasks and equipment functions, study of your railway's documents and manuals, practice of the required skills in real and simulated situations, and the periodic checking of 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 train driver or second person on your railway.

## **4 ROLE AND RESPONSIBILITIES OF A SECOND PERSON ON A DIESEL LOCOMOTIVE**

### **4.1 DUTIES OF A SECOND PERSON**

#### ***Theory***

The job of a second person on a diesel locomotive may involve a variety of tasks including:

#### **Duties prior to locomotive service**

- Signing on and checking roster, notice boards, operational instructions, timetables, loco availability and other information needed to operate a locomotive
- Checking the level of fuel, oil and water on the locomotive prior to service
- Oiling, greasing and cleaning the locomotive
- Carrying out other pre-operational visual inspections and checks that are the responsibility of a second person
- Checking systems are operating correctly
- Assisting in the preparation and checking of the locomotive data logger system (where fitted)
- Checking that tool kit, fire extinguisher, first aid kit and other locomotive equipment is on the locomotive and is in good working order
- Adherence to yard instructions and safeworking rules when preparing and positioning a locomotive for service
- Recording, rectifying, isolating and/or tagging defects and deficiencies (as applicable) or reporting to relevant personnel

#### **Duties during a journey**

- Adhering to safeworking rules'
- Following standard operating procedures
- Responding to the driver's instructions
- Taking required precautions and following standard operating procedures when approaching and traversing level crossings
- Assisting the driver during a journey by checking the performance of the locomotive and taking any required action
- Taking on fuel and other fluids



- Observing all lineside signals, point stand indicators, signage and indicators. These are to be called by one locomotive crew member and acknowledged by the other
- Operating the train brake under the supervision of the driver from time to time to maintain competency for emergency purposes,
- Giving and interpreting hand signals correctly
- Assisting in the stopping and securing of a train in an emergency as per standard operating and emergency procedures
- Remaining vigilant throughout a journey, including looking back to train
- Assisting the driver in the identification of faults and defects and associated trouble-shooting activities
- Dealing collaboratively with abnormal situations that may occur during operations, including emergency communication and evacuation procedures
- Assisting in the monitoring the operation of the locomotive data logger system (where fitted)
- Performance of tasks outside the cab including checking/filling of sand boxes, and coupling/uncoupling locomotives from rolling stock
- Handing over a diesel locomotive to a replacement crew

#### **Duties after service**

- Assisting the driver in uncoupling a locomotive from rollingstock
- After locomotive service, confirming it is secured prior to post-operational cleaning and checking operations
- Completing all required post-operational lubrication and greasing tasks
- Conducting cleaning operations
- Conducting a visual inspection and other post-operational checks of locomotive and associated equipment
- Topping up fluid levels as per standard procedures
- Checking that tool kit, fire extinguisher, first aid kit and other locomotive equipment is in operational condition and is correctly stowed
- Checking and confirming that locomotive and associated equipment has been restored to required post-operational condition
- Assisting the driver in securing the locomotive
- Completing required post-operational documents and reporting any faults or defects for appropriate action

### ***Practical***

Obtain a copy of your railway's job description or duty statement for a second person.

Describe to your mentor the various functions and duties you must perform when working as a second person on a diesel locomotive in service.

Travel with a diesel locomotive crew and observe the various functions as they are being performed by the second person on the locomotive. Clarify with the second person any aspects of these functions that are unclear.

## **4.2 STATUTORY RESPONSIBILITIES INCLUDING RAIL SAFETY AND SAFEWORING REQUIREMENTS AND REGULATIONS RELATED TO THE FUNCTIONS OF A 2<sup>ND</sup> PERSON**

### ***Theory***

The role of a second person is to assist the driver to maintain the safe, effective and efficient operation of the locomotive and train before, during and after service. Second persons must therefore be very familiar with the rail safety requirements related to their work and all pertinent safeworking rules and requirements. They must also have a good working knowledge of the basic regulatory requirements for the operation of diesel locomotives. Familiarity and expertise with regulatory requirements will increase as the 2<sup>nd</sup> person becomes more experienced.

You need to make sure you are familiar with the railway and other documents that describe your statutory responsibilities and that you understand their contents and the implications for your work as a second person on the type(s) of diesel locomotive used on your railway.

A particularly important responsibility is to be aware of the hazards involved in working as a 2<sup>nd</sup> person on a diesel locomotive and following the rail operator's strategies for minimising or eliminating the risks involved. Examples of hazards that exist on diesel locomotives include:

- Falling from heights
- Working in confined spaces
- Working under wires
- Chemicals and fuel
- Moving parts in engine rooms
- Oil spills on floors
- Dehydration and fatigue
- Noise

- Hot surfaces
- Moving work platform
- Working with high and low voltage electric circuits and electrical equipment within cabinets

Hazard management strategies may include:

- Taking required precautions when using oil as the locomotive fuel,
- Ensuring public safety (e.g. checking when the public is in the vicinity of loco before operating the locomotive and its ancillary equipment),
- Using personal protective equipment or PPE,
- Using fire extinguishers and water hoses to control fire emergencies, or
- Following the railway'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 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 2nd person

## **4.3 STANDARD PROCEDURES OF THE RAIL OPERATOR APPLICABLE TO A 2<sup>ND</sup> PERSON, INCLUDING RECORD KEEPING AND THE REPORTING OF DEFECTS AND INCIDENTS**

### ***Theory***

Make sure you have a copy of those standard procedures of the operator of your railway that apply to the functions and duties of a second person on a diesel locomotive. 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 second person. 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 an equipment defect or a safety incident.

***Practical***

In conjunction with your mentor, make sure you have a copy of the relevant standard procedures and understand how they must be applied in the day to day work of a second person. 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 2<sup>ND</sup> PERSON ON A DIESEL LOCOMOTIVE -- LEARNER'S NOTES**

*Insert your own notes here*

## 5 CONDUCTING PRE-OPERATIONAL CHECKS ON A DIESEL LOCOMOTIVE

### 5.1 IDENTIFYING AND DESCRIBING THE COMPONENTS OF A DIESEL LOCOMOTIVE AND ITS ASSOCIATED EQUIPMENT

#### *Theory*

As a second person on a diesel locomotive, it is important that you know and are able to identify the various components of the diesel locomotive concerned and its 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 diesel locomotive in service. These can include:

- diesel locomotives with a **mechanical transmission**,
- diesel locomotives with a **hydraulic transmission**,
- diesel electric locomotives involving a diesel engine that drives an **electric generator**. This generator in turn supplies power to electric motors which directly drive the wheels of the locomotive.

While there are some components and associated equipment common across the various types of diesel locomotives, you need to be familiar with the particular components and equipment that are specific to the diesel locomotive(s) used on your railway.

### ***Practical***

1. In conjunction with your mentor and from the available railway reference documents, learn to how to locate and identify the various diesel locomotive components and the 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 to the diesel locomotive, its components and its associated equipment and the actions you would be required to take within the limits of your responsibilities as a second person on the diesel locomotive(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 second person on a diesel locomotive and the standard procedures for the servicing and checking of diesel locomotives in your railway (as they relate to the duties of a second person) and confirm your understanding with your mentor.

## **5.2 CARRYING OUT A VISUAL INSPECTION AND OTHER REQUIRED PRE-OPERATIONAL CHECKS THAT ARE THE RESPONSIBILITY OF A 2<sup>ND</sup> PERSON**

Prior to commencing your day's shift on a locomotive, you need to sign on, check the duty roster and read and interpret the notice boards, operation instructions, locomotive allocation and other information you need to determine your second person duties for the shift.

Each railway will have its own specific sign on procedures and ways of informing second persons of their operational instructions, notices, locomotive allocation 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 second person duties.

When preparing a diesel locomotive for service, drivers and second persons will initially check the locomotive's log book and reports from previous use and work done (e.g. loco operation and repair book) to confirm that all previously identified problems have been rectified. Second persons on diesel locomotives are initially required to carry out a visual inspection of the locomotive and range of other required pre-operational checks. These may include:

- Determining the fuel, water and lubricating oil quantities required to meet the scheduled journey
- Checking and topping up the level of fuel
- Checking and topping up the level of water and possibly other fluids
- Checking and replenishing the supply of oil to the air cylinder lubricator of all single stage **Westinghouse Brake Air Compressors** (where applicable)
- Checking that all maintenance requirements for ejectors (vacuum) (where applicable) are carried out correctly
- Assisting the driver in the checking of the brake system. This requires a 2<sup>nd</sup> person to have a basic understanding of the brake system (e.g. vacuum brake or Westinghouse brake) including its principal parts, their positioning and the purpose of each part.
- Checking that the **sandboxes** are filled with clean dry sand and that the strainers where fitted are in position
- Assisting in the preparation and checking of the locomotive data logger system (where fitted)
- Checking the operational readiness of the....
  - tool kit
  - fire extinguisher
  - first aid kit
  - communication equipment

The completion of these pre-operational checks in collaboration with the driver of the locomotive ensures that the locomotive is fully ready for the planned operations and that the train crew will be suitably prepared for a range of possible emergencies and other abnormal situations that might occur en route. Where defects and deficiencies are found in the course of the inspection and checks they will be recorded and rectified, isolated, tagged (where applicable) or reported as per the railway's standard operating procedures and regulatory requirements.

***Practical***

Under the supervision of your mentor, observe and practice how to conduct the required visual inspection and other pre-operational checks of the locomotive and associated equipment. Learn and demonstrate to your mentor how you can conduct the required visual inspection and checks.

**5.3 LUBRICATING THE LOCOMOTIVE**

***Theory***

The prime purpose of lubrication on a diesel locomotive is the reduction of friction by maintaining a thin film of oil between two metal surfaces in contact with one another. If the film of oil is broken at any time, friction increases, causing the parts to be overheated and possibly damaged. The higher friction also means that more power is required with consequent reduction in the performance of the locomotive. It is therefore very important, that all bearings and other moving parts on the locomotive are well and constantly lubricated.

A second person must follow the pre-operational lubrication checklist issued by the rail operator for the type and class of diesel locomotive concerned.

**5.4 CONDUCTING PRE-OPERATIONAL CHECKS ON A DIESEL LOCOMOTIVE -- LEARNER'S NOTES**

*Insert your own notes here*



*Insert your own notes here*

## **6 ASSISTING THE DRIVER DURING A TRAIN JOURNEY**

### **6.1 FOLLOWING APPLICABLE SAFEWORKING PROCEDURES**

#### ***Theory***

All railways follow a system of **safeworking**, -- i.e. a system of rules and equipment used to prevent conflict between trains (and between trains and track workers).

In safeworking systems used on the tourism and heritage lines, the track is divided into sections within which only one train is normally permitted. The end points of these sections may be a place where trains may cross or pass (such as a Station or Crossing Loop), a place where trains leave the main line (a Siding) or just a specially marked location (a Block Point). Permission for a train to enter a section is referred to as an Authority. Each form of safeworking goes about the granting of these Authorities to trains in a different way.

The two most common safeworking systems used by Tourist and Heritage Railways are:

#### **1. STAFF AND TICKET (S&T)**

S&T is a token system. It comprises the issue of a Proceed Authority in the form of a staff, or where there is to be a following train in the same direction, a ticket. The system generally allows for only one train to be in the section at one time. However, on sections where following movements are authorised within the section, tickets are kept in the staff box at each end of the section. The staff box can only be unlocked by the train staff for the particular section. The safety of the system depends upon the correct handling of the staff, and where required, the tickets.

The Authority to enter the section is the staff or ticket. Each train entering the section is required to be in possession of the staff or ticket for that section and when provided, comply with signal indications. When trains are proceeding on a ticket, the train crew is required to sight the staff for the relevant section prior to departure. The setting and verification of points is undertaken by the train crews themselves or by workers at attended locations..

#### **2. TRAIN ORDER WORKING (TOW)**

TOW is a communications-based system and comprises the issue of a Proceed Authority in the form of a Train Authority, which authorises a train to move between specified points and is issued by train control to the train crew or to workers who arrange delivery to the train crew. The train crew is required to comply with the instructions in the train order together with any additional signal indications. The

route over which a train is authorised to move by a Train Authority is verified as clear either through manual procedures or with computer assistance. The setting and verification of points is undertaken by the train crew themselves at unattended block locations or by workers at attended locations and are required to comply with instructions contained with the train order or by rules which include the requirements for crossing or passing of trains.

You must be thoroughly familiar with the safeworking system used on your railway and be able to apply the rules and requirements of the safeworking system correctly when fulfilling your role on the railway. **This is critical for the safety of the railway, personnel and passengers.**

Note that you will be trained separately in safeworking systems and procedures<sup>1</sup>.

### ***Practical***

Discuss with your mentor the safeworking system used on your railway.

Learn and demonstrate to your mentor how to interpret and apply the rail operator's safeworking system when carrying out the duties of a second person on the railway<sup>1</sup>.

## **6.2 RESPONDING TO THE DRIVER'S INSTRUCTIONS**

### ***Theory***

The locomotive driver is in charge of the operation of the locomotive. It is important that the second person remains attentive to the driver's instructions and responds to them promptly when given.

### ***Practical***

Ride in the cab of a diesel locomotive for a train journey and observe the teamwork of the locomotive crew and the way that the second person assists the driver and responds to his instructions. Discuss with your mentor the importance of the teamwork and in particular the need for the second person to respond to the driver's instructions.

---

<sup>1</sup>See ***Safeworking Lesson Plan and Workbook*** and related resources

### 6.3 CHECKING AND MAINTAINING THE PERFORMANCE OF THE LOCOMOTIVE

#### *Theory*

During a train journey, it is important that you assist the driver to regularly check the performance of the locomotive and its various components and pieces of equipment and assist in whatever corrective action may be required. The exact nature of these checks will be dependent on the type of diesel locomotive concerned.

#### ***Practical***

1. During a journey on a diesel locomotive, observe how the second person assists the driver to regularly check the performance of the locomotive and its various components. In conjunction with your mentor, note any corrective action taken by the second person and driver to remedy any loss of performance.
2. Make sure you can read the various performance gauges on your diesel locomotive.
3. Demonstrate to your mentor how you read the gauges and can work with the driver to appropriately adjust and optimise the performance of the locomotive for the operating conditions concerned.

### 6.4 TAKING ON FUEL AND OTHER FLUIDS

#### *Theory*

During a train journey, it will be necessary to periodically take on additional fuel and any other replaceable fluids required for the locomotive concerned. You need to be able to check the levels of the fuel and other fluids and to top them up as required. This will involve working with the driver to move the locomotive to the appropriate topping up locations and following the required standard procedures and rail safety requirements during the topping up processes.

#### ***Practical***

During a train journey under the supervision of your mentor, learn and demonstrate how you can take on fuel and any other required fluids as required.

## 6.5 ASSISTING THE DRIVER WHEN APPROACHING AND TRAVERSING FIXED LINESIDE SIGNALS, POINT STAND INDICATORS, SIGNS AND LEVEL CROSSINGS

### *Theory*

Prior to departure from the commencing location, the locomotive crew must sight the appropriate safe working authority and ensure that it is retained on the locomotive. When entering another section, the locomotive crew must have confirmed -- before entry -- that the safe working authority for the section had been obtained and sighted.

When operating a diesel locomotive during a train journey, it is crucial for effective safeworking that correct procedures are followed when approaching and traversing fixed lineside signals, point stand indicators, check points, trackside signs and level crossings.

The driver and the second person work in partnership to observe the signals and to scrutinise for any abnormal situation that might occur at a level crossing. The second person assists the driver by double checking the situations at fixed signals, point stand indicators, check points, track side signs and level crossings and aiding the driver in taking all required action as per safeworking rules and standard procedures. All signs and signals must be called and acknowledged.

### *Practical*

1. Ride in the cab of a diesel locomotive for a train journey and observe the teamwork of the locomotive crew and the way that the second person assists the driver in the observance of fixed signals, point stand indicators, check points and track side signs and following the procedures for approaching and traversing level crossings.
2. Discuss with your mentor, the procedures for observance of fixed signals and level crossings and potential abnormal situations that can occur at level crossing and related action that needs to be taken should they occur.
3. Learn and demonstrate during a train journey how you must assist a locomotive driver in the observance of fixed lineside signals, point stand indicators, check points, trackside signs and level crossings.

## 6.6 REMAINING VIGILANT INCLUDING LOOKING BACK TO TRAIN

### *Theory*

During a train journey it is vital that the second person 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 train. This may include problems on the road ahead, on the locomotive itself or the train being drawn. In this regard it is the second person's special duty to regularly look back at the train being drawn to check that there are no problems occurring.

### *Practical*

During a train 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 train. In particular, demonstrate how you regularly 'look back' at the following train.

## 6.7 ASSISTING THE DRIVER IN THE IDENTIFICATION OF FAULTS AND DEFECTS AND ASSOCIATED TROUBLE-SHOOTING ACTIVITIES

### *Theory*

It is the role of the second person on a diesel locomotive to assist the driver in the identification of faults and defects on the locomotive and its associated components and equipment and related trouble-shooting activities. You need therefore to be familiar with the types of faults and defects that could occur on the type of diesel locomotive concerned and the trouble shooting processes typically used by drivers.

### *Practical*

During a train journey under the supervision of your mentor and with the assistance of the driver, learn the types of faults and defects that could occur on the locomotive and the ways in which the second person can assist the driver in the identification of faults and defects on the locomotive and its associated components and equipment and related trouble-shooting activities.

## 6.8 RESPONDING TO ABNORMAL SITUATIONS THAT MAY ARISE DURING A TRAIN JOURNEY, INCLUDING EMERGENCY COMMUNICATION PROCEDURES

### *Theory*

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

- a track obstruction
- trespassers crossing the track
- equipment failure
- signals in stop mode
- incorrect information or failure in communications
- a passenger emergency (e.g. illness or injury)
- an ill crew member (note that in the event of the driver becoming incapacitated, the 2<sup>nd</sup> person may need to take over the driving of the locomotive on a temporary emergency basis)
- a passenger initiated alarm
- a false alarm
- a derailment
- a collision
- a chemical spill
- a fire and explosion on the locomotive or train
- a bomb threat
- head or marker light or whistle failure

Note that you should refer to your railway's policy and procedures for the action to be taken by train crew in the event of a **locomotive breakdown**.

## **Emergencies and Emergency Management Plans**

Ensure you are familiar with your Railway's Emergency Management Plan and how it is applied in conjunction with the Emergency Services in your area. In the case of an emergency, confirm who is initially in charge of the site and when and how this responsibility changes to the Emergency Services and the Senior Combatant Agency at the site.

You need to be familiar with your responsibilities in the case of emergency and the requirement not to undertake any activity that is likely to destroy any evidence unless it is essential to do so in the treating of injured persons.

The incident site is controlled by the Senior Combatant Agency on site until such time as it is cleared and declared a wreck, then the Railway becomes responsibility for clearing of the track.

Prior to allowing work to commence on site, the Railway must ensure that it has undertaken an investigation to establish ensure and that all necessary evidence has been obtained.

**Note:** Emergency Services terminology varies from State to State, hence some terms will need to be changed to reflect the terminology of the State in which the training materials to be used. In all States, the Senior Combatant Agency is the Police except where a *Dangerous Goods Spill* occurs in which case the Emergency Services will take charge.

## **Notifiable Occurrences**

Rail Safety Regulations require that all incidents which occur on a railway are deemed as either Category A or B. A category A incident must be reported by the railway to the Rail Safety Regulator immediately or at least within 2 hours of the incident by the person nominated by the railway concerned. A written notification is required on the appropriate form within 72 hours. Incidences deemed as Category B are to be reported within 48 hours on the appropriate form by the designated person from the railway. Each railway will have its own procedures for handling of the investigation and reporting of emergencies and all workers need to be aware of these requirements.. In some instances, the Rail Safety Regulator may advise that an investigation will be conducted by that organisation and therefore nothing is permitted to be shifted until such time as the investigation has been undertaken.

If the incident occurs on a railway operated by another organisation, the railway concerned will have an operating agreement detailing the actions to be taken.



**(Note: In some States, the time frame for reporting of Category B incidences may vary and customised training materials based on the generic Lesson Plans will need to reflect the requirements of the State in which they are to be used.)**

### ***Practical***

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

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

Discuss also the *Emergency Management Plan* of your railway and the policy and procedures related to *Notifiable Occurrences*,

## **6.9 GIVING AND INTERPRETING HAND SIGNALS**

### ***Theory***

Second persons work directly with other members of the train crew and other qualified railway personnel in the safe and effective operation of locomotives and trains. A key skill required of all the railway personnel concerned is being able to give and interpret the standard railway hand signals.

In various circumstances, these hand signals may be complemented by the use of flags and lights (e.g. where night work is involved). It is important therefore that you are proficient in giving such signals as per your railway's standard procedures. You must also be able to recognise and correctly interpret signals given by others.

Note: If a hand signal is not received when one is expected, or a hand signal cannot be interpreted, the movement must be brought to an immediate and smooth halt until the correct hand signal is again received.

### ***Practical***

In conjunction with your mentor obtain and study your railway's procedures for the signals you need to be able to give and interpret when working with other railway personnel during the operation of a diesel locomotive / train. In particular, identify and discuss with your mentor the various situations in which the signals are used during locomotive and train operations.

Ride in the cab of a diesel locomotive for a train journey and observe the use of hand, flag and light signals by the train crew and other railway staff during the journey. Note how the crew watch for and observe the Guard's hand signal when arriving at a platform. Where the platform is on the Second Person's side, the Second Person will relay the hand signals to the Driver.

Learn and demonstrate to your mentor the giving and interpretation of the various hand, flag and light signals used on your railway.

## **6.10 STOPPING AND SECURING A TRAIN IN AN EMERGENCY, INCLUDING THE EMERGENCY EVACUATION OF THE TRAIN**

### ***Theory***

When a train has been stopped such as in an emergency and will remain stationary for a lengthy or unknown period and if the driver is incapacitated, the second person may need to make sure that the locomotive and train are secured.

The procedure for securing the overall train is as follows:

- Advise the guard to secure the train.
- The second person will (in the circumstance that the driver is incapacitated) secure the locomotive as per standard procedures for the diesel locomotive concerned.

***Practical***

During a test drive of a train in conjunction with the locomotive driver and under the supervision of your mentor, demonstrate the procedures you would follow as a second person during a simulated emergency stopping of the train. In the simulation, take all required measures to secure the train.

**6.11 ASSISTING THE DRIVER DURING A TRAIN JOURNEY  
– LEARNERS NOTES**

*Insert your own notes here*

*Insert your own notes here*

## **7 CLEANING AND CHECKING THE LOCOMOTIVE AFTER OPERATIONS**

### **7.1 CONFIRMING LOCOMOTIVE IS SECURED PRIOR TO POST-OPERATIONAL CLEANING AND CHECKING OPERATIONS**

#### ***Theory***

When stabling a diesel locomotive, the driver will first move the locomotive to a designated area where all required post-operational checks, cleaning and lubrication can be conducted.

When the locomotive is in position, the brakes must be applied and the locomotive secured as per standard procedures.

#### ***Practical***

Under the supervision of your mentor and in conjunction with the train driver, the locomotive will be positioned and secured in the designated area for the conduct of all required post-operational checks, cleaning and lubrication.

### **7.2 CONDUCTING CLEANING OPERATIONS**

#### ***Theory***

Once the locomotive is moved to the designated area, the second person will assist in cleaning the locomotive to ensure that all grime and grease is removed and paintwork is cleaned as per the standard procedures of the rail operator. It is important during cleaning operations to follow all standard procedures and rail safety requirements to prevent injury and damage.

#### ***Practical***

Under the supervision of your mentor, learn and demonstrate how to conduct cleaning operations on a diesel locomotive after service as per your rail operator's standard procedures.

### 7.3 CONDUCTING A VISUAL INSPECTION AND OTHER POST-OPERATIONAL CHECKS OF LOCOMOTIVE AND ASSOCIATED EQUIPMENT

#### *Theory*

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

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

#### ***Practical***

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

### 7.4 COMPLETING ALL REQUIRED POST-OPERATIONAL LUBRICATION AND GREASING TASKS

#### *Theory*

It is very important, that all bearings and other moving parts on the diesel locomotive are well and constantly lubricated. When stabling a diesel locomotive therefore, a second person must follow the post-operational lubrication checklist issued by the rail operator for the type and class of diesel locomotive concerned.

#### ***Practical***

Under the supervision of your mentor, learn and demonstrate how to conduct all required post-operational lubrication and greasing requirements as per the rail operator's standard procedures for the type and class of diesel locomotive concerned.

## 7.5 TOPPING UP FLUID LEVELS AS PER STANDARD PROCEDURES

### *Theory*

Before leaving a diesel locomotive after service, you should apply the hand brake and check the levels of fuel and water. If necessary you should top them up as per the standard procedures.

### *Practical*

Under the supervision of your mentor, demonstrate how to top up the fuel and water levels prior to stabling the locomotive after service as per the rail operator's standard procedures.

## 7.6 CHECKING THAT TOOL KIT, FIRE EXTINGUISHER, FIRST AID KIT AND OTHER LOCOMOTIVE EQUIPMENT IS IN OPERATIONAL CONDITION AND IS CORRECTLY STOWED

### *Theory*

When stabling a diesel locomotive it is important that all ancillary equipment such as the tool kit, fire extinguisher, first aid kit and other locomotive equipment is checked to make sure they are complete and are in operational condition. If there are any defective or broken components or if some parts of the kits or equipment are missing, take appropriate action to report and rectify the problem.

Make sure that the tool kit, fire extinguisher, first aid kit and other locomotive equipment is properly stowed and/or returned to store and is ready for use when the locomotive is next prepared for service.

### *Practical*

Under the supervision of your mentor, learn and demonstrate how to check that the tool kit, fire extinguisher, first aid kit and other locomotive equipment is in operational condition and is correctly stowed or returned as per the rail operator's standard procedures.

## 7.7 CHECKING AND CONFIRMING THAT THE LOCOMOTIVE AND ASSOCIATED EQUIPMENT HAVE BEEN RESTORED TO REQUIRED POST-OPERATIONAL CONDITION

### *Theory*

Before leaving the locomotive in the shed, the second person, in conjunction with the driver, should make one final check that the locomotive and all of its associated equipment is in its required post-operational condition and properly secured as per the rail operator's requirements

### *Practical*

Under the supervision of your mentor, learn and demonstrate how to conduct a final check that the locomotive and all of its associated equipment is in its required post-operational condition and properly secured.

## 7.8 COMPLETING REQUIRED POST-OPERATIONAL DOCUMENTS AND REPORTING ANY FAULTS OR DEFECTS FOR APPROPRIATE ACTION

### *Theory*

Prior to signing off and in conjunction with the driver, make sure that all necessary paperwork has been completed as per the rail operator's requirements. This may include:

- Time sheet,
- Log or record of locomotive operations,
- Reports of operational problems with locomotive operation and/or any defective equipment identified and details of any action taken or required,
- Reports of any safety incidents as per rail operator's procedures and regulatory requirements, and
- Paper work related to the return of kit to store.

### *Practical*

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



**7.9 CLEANING AND CHECKING THE LOCOMOTIVE AFTER OPERATIONS -- LEARNER'S NOTES**

*Insert your own notes here*

# **ATTACHMENT 1**

## **SECOND PERSON**

### **KNOWLEDGE**

### **CHECKLIST.**

## **ATTACHMENT 2**

### **SECOND PERSON**

#### **PERFORMANCE**

#### **CHECKLIST**

## **SEPARATE ATTACHMENT 3**

### **TRAIN EXAMINATION ADDENDUM**

- 1. LESSON PLAN AND WORKBOOK**
- 2. KNOWLEDGE CHECKLIST**
- 3. MENTOR'S Q&A**
- 4. PERFORMANCE CHECKLIST**