Raise the bar
raise training
Required Australian **Industry Skills** Education

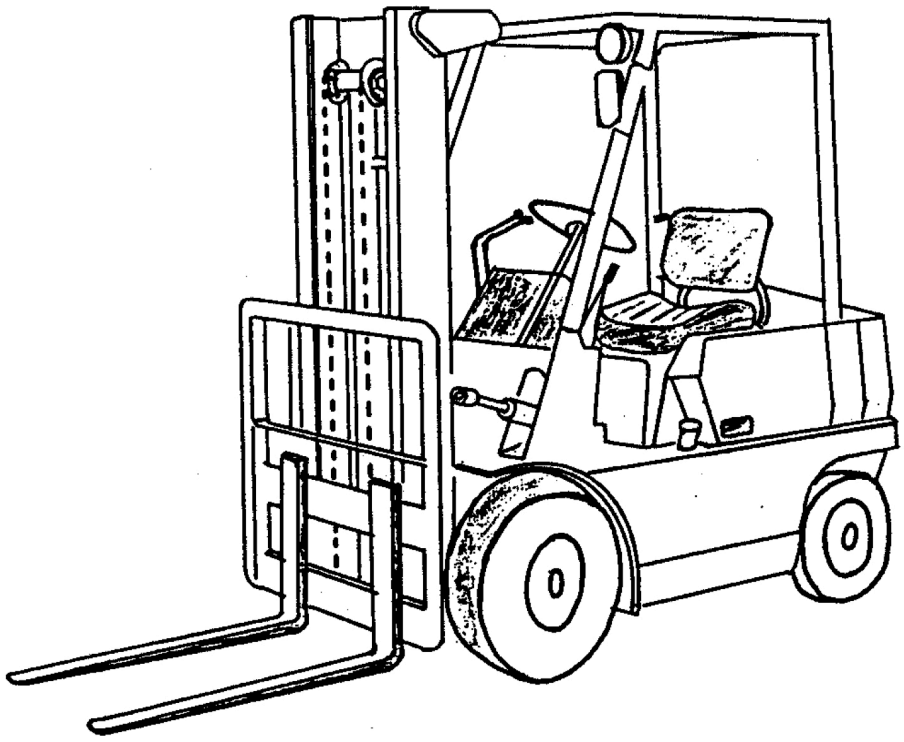
Training Services 4 You Pty Ltd trading as **Raise Training**
NTIS Number: 91655 A.B.N. 28 136 356 922
Contact: (02) 9896 7587 A Registered Training Organisation
www.**raise**training.com.au Po Box 92, Merrylands NSW 2160

Participant Name: _____

Forklift Truck

Licensing Course

Trainee Workbook



Trainee Workbook

Table of Contents

What this Trainee Workbook is about 3

Introduction to high risk work licensing 4

Objectives and Principles 4

Training and Assessment Requirements 4

Workplace Health and Safety Queensland (WHSQ) Licensing Assessment 6

Plan work 7

Identify potential workplace hazards 8

Identifying hazard control measures 10

Selecting an appropriate forklift truck 13

Inspecting the work area 15

Identifying appropriate communication methods 18

Conduct routine checks 19

Visually checking the forklift for any damage or defects 20

Setting up the forklift 24

Shift load 29

Assessing the weight of the load 30

Hazard prevention/control measures 32

Operating the forklift safely 33

Load stability 35

Monitoring load movement 37

Responding to unplanned and/or unsafe situations 38

Shut down and secure forklift truck 39

Stopping and parking the forklift 40

Securing the forklift 41

Training Services 4 You Pty Ltd trading as **Raise Training**
NTIS Number: 91655 A.B.N. 28 136 356 922
Contact: (02) 9896 7587 A Registered Training Organisation
www.**raise**training.com.au Po Box 92, Merrylands NSW 2160

What this Trainee Workbook is about

This trainee workbook is about the skills and knowledge required to operate a forklift, including checking forklift condition, driving the forklift to fulfil operational requirements, monitoring site conditions, and monitoring and maintaining forklift performance.

Persons achieving competence in this unit will need to fulfil all of the relevant state/territory WHS regulatory requirements concerning the safe operation of forklifts.

Successful completion of this course leads to a licence being issued.

The Elements of Competency from the unit TLILIC2001A Licence to operate a forklift truck covered in this trainee Workbook are listed below.

- Plan work
- Conduct routine checks
- Shift load
- Shut down and secure forklift truck

This unit of competency is from the Transport and Logistics Training Package (TLI10).

This Trainee Workbook provides general information and advice on the safe operation of a forklift truck. Always read the driver's manual to understand the limitations of the forklift and equipment you are using.

RAISE Training recognises the importance of quality training as an underpinning principle in providing skilled workers, and that the most effective form of training is a combination of informal and formal training methods.

Use the instruction and information supplied to you by your trainer to gain and demonstrate a satisfactory* level of skill and general knowledge. If you wish you may access additional resources for the purposes of further development or studying for the Licensing Assessment. It is your responsibility as the trainee to practice and study as required to ensure that your level of competence in both the theory and practical components is satisfactory prior to any form of testing.

Workbook Tasks

Throughout this workbook, you will be required to perform certain tasks relating to the area of study and used to re-enforce your learning. These points will be highlighted by the following icons:

Discussion Points

These tasks will help you to understand the underpinning knowledge and will help you to think for yourself and discuss viewpoints with other trainees as well as your trainer.

Activities

At the end of each element, you will be able to review the content by completing these tasks. The activities help to determine if you understand the information covered and can be completed by yourself or as a group.

* a level of skill/knowledge that would be satisfactory to pass a WHSQ Licensing Assessment.

Introduction to high risk work licensing

The new national system is based on the '**National Standard for Licensing Persons Performing High Risk Work**'. The National Standard requires training and assessment to be undertaken by a Registered Training Organisation (RTO) under the Australian Quality Training Framework (AQTF).

Objectives and Principles

The objectives of this National Standard are:

- to ensure that persons have the skills and knowledge to perform high risk work in a safe manner; and
- to facilitate the operation of a nationally uniform and efficient licensing system for persons engaged in high risk work.

Licenses issued in accordance with this National Standard will be recognised in Australian States and Territories to promote the portability of skills and the free movement of labour across State and Territory borders.

This National Standard provides a national policy approach for authorising the performance of high risk work and promoting safety standards relating to high risk work.

Training and Assessment Requirements

Training and assessment for this course must be delivered under the supervision of, or in partnership with, an RTO in accordance with the AQTF. Training and assessment must show evidence of:

- structured training
- practical training experience, and
- an assessment of the trainee's* competency

Before being booked into a WHSQ Licensing Assessment, trainees must demonstrate to the RTO Trainer/Assessor that they have achieved the required competencies to have their skills and knowledge assessed against the relevant unit(s) of competency.

Recognition of a trainee's prior learning may exempt a person from undertaking all or part of the training but must demonstrate that the person's equivalent qualifications and prior learning are relevant to the competency.

Part of a person's learning may include on the job training and experience. This should be demonstrated through the completion of a Training Logbook which is used to keep track of workplace training.

A person is not allowed to perform HRW if they are not competent to do so (wether you hold a HRW license or not). If a person does not have a HRW license however, they must have been formally assessed by an RTO and operate under the direct supervision by a qualified license holder, for training purposes only.

Once the course has been successfully completed, the RTO Trainer/Assessor will complete a 'Trainee Evidence Workbook' which is used to demonstrate engagement in a recognised course of training to a WHSQ Assessor.

* *Under WHS Regulations, a 'trainee' is a person who is receiving formal training and informal learning in a class of HRW.*

WHS and High Risk Work Licensing

Under Workplace Health and Safety law, an employer must provide a workplace that is safe and without risk to health. They must provide instruction, training and supervision for their employees to work safely and must do so in a way that is easy for employees to understand.

An employer must never allow a person to perform HRW if they know that person is not competent to do so. Otherwise, they will also be responsible for putting others at risk and can be severely penalised.

Application Requirements

A person must not operate a forklift truck unless the person holds a LF Class HRW licence, unless:

1) A person operates the forklift during a formal training course under a Registered Training Organisation (RTO); or
2) After receiving formal training, under the supervision of a person who is licensed to carry out the high risk work (informal training),

In order to obtain an LF Class forklift licence, an individual needs to enrol in a formal course of study with a Registered Training Organisation (RTO). Once enrolled in a formal course of training and whilst undergoing either formal or informal learning, the individual is considered a '**trainee**' under WHS law.

All course participants MUST:

1. Be able to speak and/or understand the English language; and
2. Accept the requirements of the course and assessment process.

Training Requirements

Persons wishing to apply for a LF Class HRW licence must be assessed by an accredited WHSQ assessor in affiliation with a Registered Training Organisation (RTO). Before the licence assessment can take place applicants MUST:

1. Be at least 18 years old;
2. Be a resident of Queensland
3. Provide at least 100 points of identification;
4. Not currently hold an equivalent licence;
5. Provide evidence of engagement in a recognised course of training; and
6. Provide evidence that they have achieved the required competencies.

An assessment for an HRW licence involves both a knowledge and practical assessment and an assignment (or calculations assessment) conducted by the accredited WHSQ assessor.

Workplace Health and Safety Queensland (WHSQ) Licensing Assessment

This assessment requires applicant to undertake a theory exam, a calculations exam, demonstrate an equipment/site inspection and carry out practical tasks as requested by the WHSQ accredited assessor.

If an applicant has yet to achieve competency in all assessment areas and/or does not complete the full assessment on the day, they are able to apply for re-assessment after **48 hours**.

The re-assessment will only consist of the areas where the applicant was assessed as not yet competent or failed to complete in full.

On successful completion of the assessment, the Workplace Health and Safety Queensland (WHSQ) Assessor will issue you with a Assessment Summary (AS1). You must submit your application within 60 days from the date of assessment, if you fail to do so the Assessment Summary (AS1) issued by the assessor will expire and you will be required to complete the entire assessment again.

You must submit your application within **60 days** from the date of assessment.

If you fail to do so, you will be required to complete the entire assessment again.

You must submit your licence application at an Aust Post outlet only and it must have passport photo facilities. A $65 fee is payable to Australia Post for the licence card which is nationally recognised.

If you submitted your application within the 60 day period and have not received your photo license in time, you are still licensed (the payment receipt from Aust Post is your proof of this). You will receive your licence, however, this can take some time depending on holiday shutdowns and how many applications are being processed by Workplace Health and Safety Queensland (WHSQ). Your Assessment Summary (AS1), is valid as proof of qualification until you receive your photo licence card.

If you are really concerned you can ring Workplace Health and Safety Queensland (WHSQ) on 13 74 68 (have your Assessment Summary and Aust Post receipt with you when you ring them).

You will need to renew your HRW licence every **five (5) years**.

Responsibilities

It is the responsibility of a HRW licence holder to follow safe operating procedures at all times and to ensure the safety of others in the workplace.

Failure to do so can result in the persons HRW licence being cancelled, suspended or being refused to have it renewed.

If a HRW licence holder is no longer competent to do the work they hold the licence for (e.g. have not performed work for a number of years and have forgotten), then they should not perform that work and seek further training should they wish to continue.

Activity 1 - WHS and High Risk Work Licensing

Complete the questions on pages 2 to 5 of the Trainee Workbook Activities.

Element 1

Plan work

Section outline

Areas covered in this section are:

- Identify potential workplace hazards
- Identifying hazard control measures
- Selecting an appropriate forklift truck
- Inspecting the work area
- Identifying appropriate communication methods

Performance Criteria 1.1

Identify workplace hazards

A hazard is anything that can hurt you or others while you work. You need to know (identify) workplace hazards before you start work. Look for hazards. Look above you, look around you, and check the ground below you.

Identify potential workplace hazards

What is required for forklift safety?

The most important aspect of forklift driving is safety. As a forklift driver you must be aware that there are always people working around you and if there was an accident they may be injured. It would be a terrible burden to have on your conscience that your workmate was injured by an accident that you could have prevented.

Forklift safety has a very high profile in Australia. These accidents can be prevented only if companies and individuals realise the implications of these accidents and take steps to prevent them from happening.

Each workplace has its own specific workplace hazards. It is important to be aware of these hazards and what workplace policies and/or site specific procedures have been implemented to control them. The best way for an individual to be made aware of these hazards is to consult with appropriate personnel.

How can you identify workplace hazards?

The first and most important step in reducing the likelihood of an accident is hazard identification. This means identifying all workplace situations or events that could cause injury or illness. There are many methods which are useful for identifying hazards, including consultation with the following:

- Safety officers
- Managers
- OHS Committee members
- Supervisors
- Colleagues
- Health and Safety Representatives

What are some causes of forklift accidents?

There are many types of accidents that can happen to a forklift driver or workmate. The more common causes of accidents are:

- Being hit by a moving forklift, including feet being run over;
- Driver being hit by a falling object;
- Other employees being hit by a falling object;
- Forklift tipping over;
- Collision with other vehicles or objects; or
- Parts of the driver's body protruding outside of the cab and striking an object.

There are also many safety rules that need to be observed while driving a forklift.

What is a "Hazard"?

A hazard is anything that presents a risk of harm or damage to people or property. As a forklift driver it is important to inspect the workplace and identify any hazards before starting work. The follow are some of the most common hazards in relation to operating forklifts:

Plant and equipment
Other forklifts, pallet jacks, vehicles etc. may be operating in the area.

Obstructions
Loose stock, bollards, building supports, rubbish or anything that's in the way.

Dangerous materials
Flammable, explosive, poisonous or corrosive materials stored, used or present in the area.

Pedestrians and personnel
May include other personnel (employees) or the public or both.

Overhead service lines
Lights, fire sprinkler systems, air con ducts, gas pipes, water pipes, sewerage pipes, cable trays, etc.

Rear End Swing
The rapid sideways movement at the rear of the forklift truck creates a hazard for pedestrians and other workers.

Confined Space/Restricted Area
Confined spaces (or restricted areas) often have poor ventilation. People in confined spaces can be overcome by dangerous gases.

Surrounding Structures and Buildings
Site sheds, separate warehouses or other businesses operating in the area.

Electrical Power lines
May include domestic or transmission lines.

Railway lines
It is not uncommon to find railway lines running through a workplace.

Bridges
Low overhead clearance may become an issue.

Wind, bad weather conditions
Hazardous weather may include rain, strong winds, lightning storms etc.

Constant/loud noise
Often due to other machinery being used in the area.

Lighting /illumination
When working at night or in darkened areas, you MUST have adequate lighting across the entire working area so that the forklift can safely conduct its operations.

Discussion Points
What workplace hazards have you identified?

Activity 2 - Identifying potential workplace hazards
Complete the questions on page 6 of the Trainee Workbook Activities.

Performance Criteria 1.2

Hazard Control Measures

Hazard control measures are actions you take to control or prevent a danger that can injure (hurt) you or others. Set up hazard controls before you start a task. The hierarchy of controls tells you the steps to take in order to reduce the danger from hazards. A risk is the chance of a hazard injuring a person.

Identifying hazard control measures

The correct course of action once a hazard is identified is to use control measures. These generally fall into three categories. You can

- eliminate the hazard
- minimise the risk
- use 'back-up' controls when all other options in the previous categories have been exhausted

The best way to control a hazard is to eliminate it. The elimination of a hazard is the first choice in a system called the 'hierarchy of controls'.

The Hierarchy of Hazard Control

Once a hazard has been identified a driver must use the appropriate control measures to eliminate or reduce the risk of the hazard. The Hierarchy of Hazard Control (below) outlines the different types of control measures that may be used.

The list of control measures is in order of preference e.g. **1 Elimination** is always the safest option but may not always be practical, while **6 PPE** is seen as "a last line of defence" if other measures fail. A driver must use the safest and most practical control measure or combination of control measures possible.

Hazard Control	Description	Example
1 Elimination	Completely remove the hazard from the area or workplace.	Move loose stock, empty pallets or rubbish from the operating area.
2 Substitution	Replace the hazardous material or process with something less hazardous.	Choosing a safer route to travel along.
3 Isolation	Using some form of barrier to separate the hazard from personnel.	Fencing along a walkway to separate forklifts and pedestrians.
4 Engineering control measures	Installing or using extra components or machinery.	Modifying a forklift to make it "flame proof" (installing scrubber tank etc.)
5 Administrative practices	Generally includes measures that improve the knowledge/awareness of hazards to reduce risk.	Training of staff, posting signage, site inductions, using work permits.
6 Personal Protective Equipment (PPE)	Generally used in combination with other measures as an added precaution. A last line of defense should other measures fail.	High visibility clothing, "steel cap" boots, safety glasses, dust masks, overalls, hard hats, ear plugs, etc.

When a potential hazard is identified by a driver, there may already be control measures in place. If this is the case the driver must ensure the control measures that are in place are appropriate for the hazard identified.

Control measures

There are dangers and risk of injury to any individual in the vicinity of an operating forklift truck, including pedestrians or site personnel. Control measures should be applied before commencing any task and as soon as a hazard has been identified.

A forklift truck driver must ensure that individuals are made aware of these hazards and appropriate control measures implemented prior to conducting any work. These may include, but are not limited to the following:

- **Warning signs and barricades**
  These relate to the use of any warning signs which alert pedestrians and site personnel of hazards associated with the use of a forklift truck and physical barriers which are used to segregate pedestrians and site personnel from the working area.
- **Flag person**
  This is an individual who is responsible guiding the flow of traffic to minimise the risk of forklifts colliding with other forklifts, pedestrians and other vehicles.
- **Traffic control measures**
  This relates to directing the flow of traffic and assigning designated areas and the segregation of pedestrians and site personnel from the working area.
- **Flashing hazard lights**
  These are usually visual warning devices on the forklift truck which alert pedestrians and site personnel of potential of the forklift trucks presents.

The above list of control measures can also be applied to the use of vehicles and mobile plant when a forklift truck is being operated.

Personal Protective Equipment

Personal Protective Equipment (PPE) is designed to provide protection and limit damage for individual workers. It is important that you are aware that PPE is not designed to prevent injury, it simple helps to avoid damage.

PPE must be supplied by your employer and you must be trained to fit and use it correctly.

The types of PPE required will be determined during the **planning** stage of the task.

All PPE must be inspected for serviceability prior to use.

Safety Precautions

Forklift Operations should take additional precautions under extreme conditions such as bad weather conditions, heavy wind etc. For example, if you are operating in bad weather conditions, the surface is wet or slippery, you should reduce your speed and proceed with caution.

You should always travel at a speed which suites the conditions.

Never refuel your forklift truck with the engine running as the fuel may ignite.

Safety Devices

There are many safety devices within the workplace to protect people's safety. There are also a number of specific devices which are fitted to a forklift truck to protect the driver. These are:

1. **Foot guard**
   The foot guard provides protection the driver from crushed toes and on-the-job foot injuries.
2. **Load backrest**
   The load back rest is a rack-like extension that is either bolted or welded to the and protects the mast and prevent loads from falling on to the driver.
3. **Overhead guard**
   The overhead guard is a metal roof supported by posts at each corner of the cab that helps protect the driver from any falling objects. On some forklifts, the overhead guard is an integrated part of the frame assembly.
4. **Reversing Beeper**
   A reversing Beeper is used to gain the attention of pedestrians and other drivers and therefore has the ability to make the work area safer.
5. **Seat Belts**
   Seat Belts are designed to keep the driver in the seat in case of a role over. They are only ever a lap sash type belt so they don't restrict the drivers from turning their shoulders to look backwards. . Most new sit down type (counter balanced) forklifts come fitted with a seat belt. It is mandatory for seatbelts to be worn on forklifts that have them fitted.
6. **Strobe Light**
   A strobe light sometimes referred to as a beacon light or a flashing light is visible to pedestrians and other drivers and therefore has the ability to make the work area safer by gaining their much needed attention.

It is not a requirement that a forklift be fitted with reversing beepers or lights, but if they are fitted they must be properly maintained. If a risk assessment at the workplace identifies that reversing forklifts are a potential risk, the appropriate control measure may be to fit lights and reversing beepers. It is, however, important to look in the direction of travel at all times.

If seatbelts are supplied as part of the safety equipment they must be worn. Wearing seat belts may reduce the risk of injury.

Discussion Points

What are hazard control measures?

Activity 3 - Identifying hazard control measures

Complete the questions on pages 7 of the Trainee Workbook Activities.

Performance Criteria 1.3

Select the right forklift truck

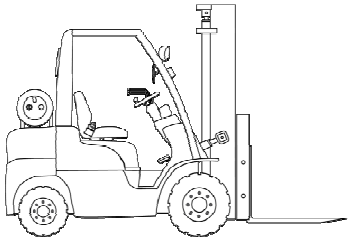
There are many different types of forklift trucks. Depending on the job and the work area you may need to use a certain type of forklift truck. It is very important to use the correct type of forklift truck.

Selecting an appropriate forklift truck

Types of Forklift Trucks

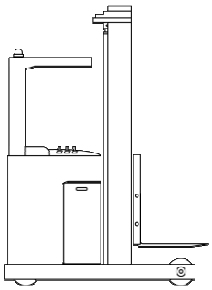
The forklift is a materials handling vehicle that is widely used in the transport industry. It is invaluable for its ability to move a large amount of material in a very short time using a minimum of labour.

There are many different types of forklifts each designed to suit different purposes or conditions; therefore it is essential that the driver is able to assess the forklift, load and workplace conditions to ensure that the correct equipment is being used. To establish the capacity and limitations of the forklift and equipment to be used refer to the data plate and other manufacturer's information.



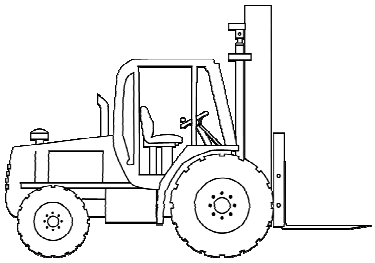
Counterbalanced

A counterbalanced forklift is generally the type of machine most people think of when the word "forklift" is mentioned as it is generally the most common. Used indoors and out, generally capable of travelling on ramps and sloping surfaces if required.



Non-counterbalanced/Reach Trucks

Commonly found in warehouses with narrow aisles or tight areas due to greater maneuverability. This type of machine is non-counterbalanced as it carries the centre of the load behind the fulcrum / forward point of balance. Reach trucks should always be used on hard, level surfaces as they are less stable than counterbalanced machines.



All-Terrain Forklift (FWD)

Also referred to as Rough-terrain forklifts they are generally used on construction sites and unstable operating surfaces such as dirt or softer ground. These machines are often four-wheel-drive and may be either counterbalanced or reach type trucks.

Each of these forklift trucks are used for different purposes in the workplace. They can however be used for a variety of tasks.

What are the power sources for forklifts?

Power sources or modes of propulsion for forklifts can be divided into two main types. They are:

- internal combustion (fuels)
- electric (battery)

The internal combustion motor in forklift trucks are similar to that used in motor vehicles and are designed to operate on a variety of fuels such as:

- petrol
- diesel
- LPG (Liquid Petroleum Gas)
- Natural gas

Internal combustion motors create toxic gases which may be harmful to individuals in certain environments (such as confined spaces/restricted areas). Electric forklifts however are powered by a battery. Electric powered forklifts are becoming more and more popular within industry but electric powered forklifts also have some disadvantages.

Batteries should be charged in a well ventilated area because when they are under charge they give off gases which may explode.

Determining the overall height of a forklift

Extended Height

Extended Height is the distance from the ground to the top of the Load Backrest when the mast is fully raised.

Collapsed Height

Collapsed Height is the distance from the ground to the top of the mast when the fork arms are at the lowest position.

Activity 4 - Selecting an appropriate forklift truck

Complete the questions on page 8 of the Trainee Workbook Activities.

Performance Criteria 1.4

Appropriate path of movement

You should always observe the work area before starting a job and plan the path that you will take. This will lower the chance of injury and damage to equipment and property.

Inspecting the work area

Forklift drivers must make judgment calls from the beginning to the end of each job. Some things which must be considered include the weight of the load and the forklift capacity, the stability of the load, the height at which a load must be lifted, and obstacles both in the path and overhead where the forklift driver is operating, blind-spots and individuals who might be sharing the work space with the forklift driver and vertical incline.

It is important to determine an appropriate travel plan/movement path before travelling with a load because every worksite has its own specific hazards which may need to be dealt with.

When determining the path of movement for the forklift and/or the load a driver should consider all hazards and controls (Refer to page 9, 'What is a "Hazard"?).

When you are planning a task such as moving a load there are certain things, other than site hazards, that you should consider. These things include:

Characteristics of the load

The size, shape, weight and contents of the load is relevant to how it should be moved.

Capacity of the forklift

The weight of the load must be within the capacity of the forklift truck being used.

Location of task

Where is load to be moved? Are there people working in the area? Is there sufficient space? Is it safe to be moved there?

Specifics of task

Does the load contain dangerous good which should be segregated? What is the size and shape of the load? Can it be moved safely?

Equipment required for the task

Is the type of equipment to be used suitable for the task? Is there any special training required before it can be used?

Availability of equipment

Is permission needed before the equipment can be used? Does someone else need to use the equipment or will they need it before the task is completed?

Permits required for the task

Sometimes only personnel that are issued with a valid work permit may carry out certain work or tasks.

Communications (safe and adequate)

Appropriate methods that can be used to communicate with other site personnel

Access and egress

Is the rate or means of entry or exit to a work place. It includes footpaths, corridors, doorways, gates, steps etc.

Blind corners

A corner that you cannot see around prior to travelling. Commonly the most accident-prone areas within the workplace.

Doorways

People and other traffic may enter the area through doorways at any time. Low overhead clearance may become an issue.

Lighting /illumination

Is there adequate lighting available across the entire working area*

* A driver must ensure that there is sufficient light available to allow the forklift driver to safely conduct its operations.

What is work near overhead power lines?

Work 'near' overhead power lines means a situation where there is a reasonable possibility of a person, either directly or through any conducting medium, coming closer than the approach distances.

Overhead power line contact is one of the largest single causes of fatalities associated with mobile plant and equipment. Contact with live overhead power lines is a serious risk because any voltage that causes sufficient current to pass through the heart is potentially injurious or even fatal.

You don't have to have a direct contact with a high voltage overhead power line to receive a fatal electric shock. Simply being too close can kill.

How close can I go to overhead power lines?

Without appropriate technical knowledge and experience of electricity distribution networks and associated electrical apparatus, untrained personnel working or operating cranes or plant near overhead power lines will not be able to identify the operating voltage concerned, and will therefore not be able to recognise and avoid the inherent dangers of live overhead power lines.

For safety reasons, minimum safe distances from powerlines, including clearances for forklift trucks, are prescribed by the Code of Practice. These prescribed distances apply from the closest part of the machinery, including its load, to the closest conductor of the powerlines, at all times.

Voltage (volts)	**Approach distance (m)**
Up to 132,000 volts	**3** metres
Between 132,000 and 330,000 volts	**6** metres
Above 330,000 volts	**8** metres

It is advised to refer to your local power authority to determine the specific voltage of overhead power lines.

Working within the minimum safe distance

The clearance distances prescribed are absolute clearances that must NOT be breached at any time. Any breach of the prescribed clearances puts you, and all those on your site in immediate danger of electric shock. If you are required to work closer than the minimum distances you must ensure the safety of all those on your site by:

- Shutting off the power, or
- Insulating the power lines, or
- Seeking an exemption from the relevant authority

Site specific practices must also be considered and adhered to.

Discussion Points

Overhead powerlines.

Warning Devices

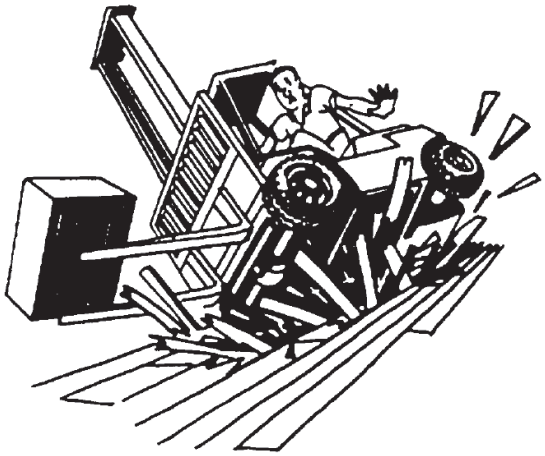
When working near overhead powerlines it is recommended that you have 'Tiger Tails' installed on the low voltage powerlines. These 'Tiger Tails' are a warning device only and do not reduce the prescribed safe working clearances.

Know your workplace

Each workplace has conditions that can contribute to dangerous situations. Drivers should inspect the workplace for any potential hazards and make sure they are eliminated or minimised before operating the forklift truck.

Be aware of:

- the direction of traffic flow
- blind corners or alley ways with cross traffic
- stability of load
- ceiling clearances, including low pipes etc
- doorway clearances
- types of load - flammable, fragile or unstable
- excessive heat especially where LP gas is used
- the road surface
- the fumes produced by the forklift truck
- electric overhead wires



Remember, when operating a forklift truck on a wet or slippery surface, to always reduce your speed and proceed with caution. The same rules for the road apply to your forklift truck in regards to stopping distances and control of equipment which are affected by weather conditions.

Activity 5 - Inspecting the work area

Complete the question on page 9 of the Trainee Workbook Activities.

Performance Criteria 1.5

Communication methods

It is important to communicate with your workmates when you are on a worksite. There are many methods of communication. You may need to read things like Material Safety Data Sheets (MSDS), Job Safety Analysis worksheets, work permits and written instructions.

Identifying appropriate communication methods

Communication is a major factor in creating and maintaining a safe and efficient workplace. Different forms of communication are used throughout various work places e.g. verbal, written instructions, listening, signage, hand signals, appropriate work permits, etc...

To ensure your workplace is safe and healthy, employers, employees, managers, contractors and visitors must communicate with each other and work together. However, it is not possible to deal directly with every situation that may be found at the workplace.

There are some tasks that must be controlled in order to avoid a hazard and cannot be conducted by just anyone in the workplace. Work Permits are used as an extra safety precaution. They inform a worker what they can (and cannot) do and helps worker to understand what their obligations are and what is expected of them.

It is important to maintain communications in an emergency situation. Personnel may need to be alerted of dangers, including the nature of the emergency (what the situation is). You should always warn others and explain the situation. You must also advise emergency services, ensuring that they are provided with adequate direction (when required). In order to avoid most emergency situations however, appropriate communication methods should be used to inform all relevant personnel about any unsafe hazards to begin with.

All workers need to have access to emergency procedures. These are commonly found within your immediate work area, centralised filling systems, signage on walls and direct from your Fire Warden or Health and Safety Representative etc.

You MUST always obey safety signs in the workplace. An example of some commonly used signs within the workplace are listed below:

Fire Sign

Danger Sign

Emergency Information Sign

Regulatory Sign - Mandatory.

Regulatory Sign - Restriction

If an unsafe incident does occur, it is important to ensure that the right personnel are made aware so that they can control the situation or work to prevent it in the future (i.e. Safety Officer, Supervisor, Managers and/or HSR - Health Safety Representatives).

Activity 6 - Identifying appropriate communication methods

Complete the questions on pages 10 and 11 of the Trainee Workbook Activities.

Element 2

Conduct routine checks

Section outline

Areas covered in this section are:

- Visually check forklift for any damage or defects
- Ensuring all signage and labels are visible and legible
- Setting up the forklift
    - Carrying out safety checks
    - Forklift attachments

Performance Criteria 2.1

Visual checks

You should always do a visual check of a forklift truck before using it to ensure there are not any problems. A faulty forklift truck can cause injury to yourself and others if you have an accident.

Visually checking the forklift for any damage or defects

Why are pre-start operational safety checks completed?

Before using any forklift it is essential that you conduct a pre-operation safety check. This check is to ensure all equipment is safe to use.

Note that in relation to any safety check on the forklift:

- the extent of the safety check will be determined by company requirements and any OHS regulations
- there may be the need to complete a checklist to fulfil workplace policies and regulations before using the equipment
- the check is to ensure that there are no faults or damage to the forklift which make it unsafe to operate. If the forklift truck is unsafe, it should be tagged out of service and reported to an appropriate person.

Operation of forklifts may be hazardous if maintenance is neglected or repairs, rebuilds or adjustments are not performed in accordance with the manufacturer's design criteria. Therefore, only a competent person who is authorised by the employer can attempt to make any kind of repairs to a forklift truck.

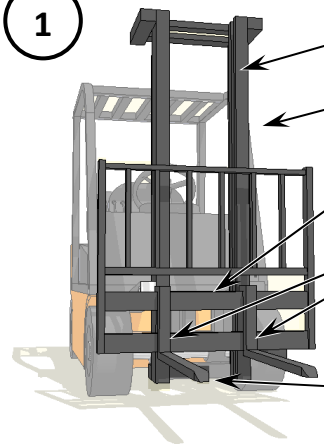
Before starting the motor

Before starting the motor check that:

- the two safety guards are fitted:
  - the overhead guard
  - the load backrest
- there is an approved load plate displaying all conditions of lifting
- air-filled tyres are correctly pressurised in order to maintain stability
- solid rubber tyres are not worn, do not have large pieces of rubber missing and the wear is even.
- the forks are evenly spaced and without defects and the fork locking pins are in place
- the lifting chains are an even length
- the counterweight is secure
- there are no oil leaks from the hoses to the rams
- the transmission, engine oil and the radiator water level in the storage tank is correct
- the fuel level or the LPG gas pressure is correct
- the hydraulic oil and brake fluid level in the storage tank is correct
- the windscreen is clean
- the seat is in good condition and is properly adjusted
- if fitted, the mirrors are adjusted properly

Conduct Routine Checks on Forklift

1



1 Mast

2 Lift and tilt

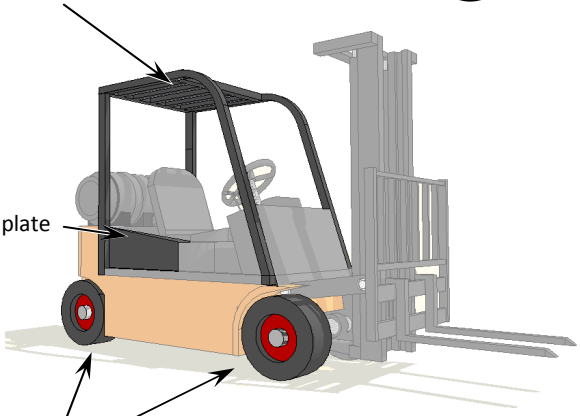
3 Load backrest *(condition and security)*

4 Pins or other locking devices checked for security

5 Condition of fork arms or attachments

2

6 Overhead guard *(condition and security)*

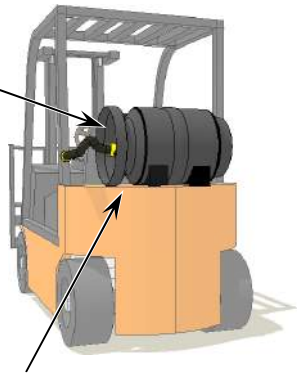


7 Load plate

8 Tyre condition, wheel nuts and pressure

3

9 Compliance plate for gas installation

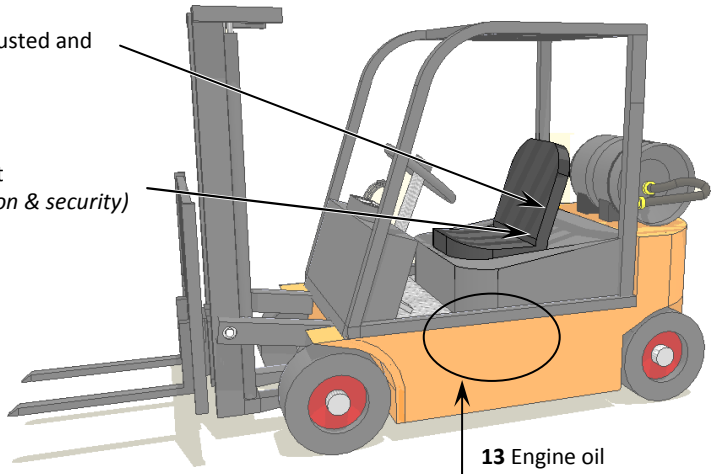


10 Security of LPG gas cylinder, tank in date and condition of system

4

11 Seat adjusted and secured

12 Seat belt *(condition & security)*



13 Engine oil
14 Hydraulic oil level
15 Transmission oil
16 Brake fluid
17 Coolant
18 Power steering
19 Battery security, water level and cleanliness
20 Air filter indicator (if diesel)

Activity 7 - Visually checking the forklift for any damage or defects

Complete the questions page 12 of the Trainee Workbook Activities.

Performance Criteria 2.2

Checking data plates and signs

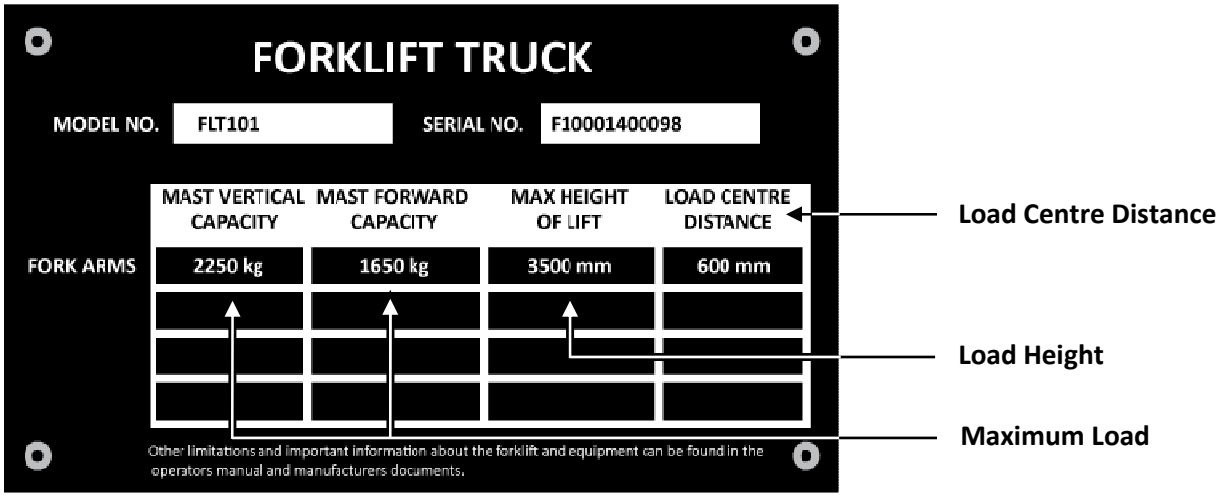
Forklift trucks are required to display plates and signs. These may include a data plate, compliance plate, manufacturer's plate and warning decals. You must be able to identify all signs and labels.

Ensuring all signage and labels are visible and legible

Most forklift trucks have two safe workloads (SWL) stamped on the load rating plate. They are:

- **Mast Vertical Capacity** SWL
- **Mast Forward Capacity** SWL

The load rating plate is usually found next to the driver's seat. If attachments are fitted a separate load rating notice needs to be displayed. To prevent accidents the weight of the load must be checked against the specifications of the forklift truck and it's '**Rated Capacity**'.



The Rated Capacity of the forklift truck is measured by the **Maximum Load** that a forklift truck is designed to carry at a specified **Load Height** at a specific **Load Centre Distance**.

Drivers must be able to understand the load plate and the conditions of loading at all times. The **Load Centre Distance** is taken from the vertical face of the forks to the load centre of gravity.

It is the responsibility of the owner to provide a load plate that displays the lifting capacity of the machine under all lifting conditions. Do not use a forklift truck that does not have a load plate. If the data plate was missing or unreadable, the forklift truck should be tagged out of service and reported to an appropriate person.

Discussion Points

What information is on a data plate?

Activity 8 - Ensuring all signage and labels are visible and legible

Complete the question on page 13 of the Trainee Workbook Activities.

Performance Criteria 2.3, 2.4, 2.5, 2.6, 2.7 and 2.8

Setting up the forklift

This section relates to the following Performance Criteria:

2.3 **Controls**
Learning what all of the controls do will help you to operate the forklift truck safely.

2.4 **Pre-operational checks**
Before operating the forklift truck you should always do a number of pre-operational checks. These checks must be done properly before starting the forklift truck.

2.5 **Starting the forklift correctly**
You should also read the owner's manual and make sure the forklift is safe to start. Listen for strange noises and unusual shaking after you start the forklift.

2.6 **Post-start operational checks**
You should always do post-start checks after you start the forklift truck to ensure the forklift truck is still safe to use.

2.7 **Testing the forklift**
You should test all functions of a forklift truck before commencing work. This should include all pedals and controls, brakes and parking brake, lights, horns and reversing beeper as well as any other visible damage or defects.

2.8 **Recording and reporting results**
It is very important to record and report any faults you identify during your checks. Equipment may get damaged or someone injured if you do not.

Forklifts must be in good working order and properly maintained.

Completing a forklift safety checklist should be part of every forklift operator's daily routine. Before starting a shift, all operators should check their forklift is in safe working order, ready to be used and capable of completing the tasks required of it.

Many companies have been fined for not being able to prove to a WHSQ inspector that regular checks are being conducted. Although it is advisable to conduct forklift checks before use, it is up to the employer to evaluate how often these checks are carried out, as well as who's responsible for conducting them. Most large companies with multiple forklifts make their drivers perform a routine check on their forklift before starting each shift.

A checklist is kept either on the forklift itself, or in a designated area. This checklist is signed, dated and kept as evidence of the company ensuring each machine is adequately maintained. Companies with one or two forklifts and very few operators may get away with a weekly or monthly check, depending on how much use their forklifts get.

Some of the benefits of having regular checks performed on each machine are:

- Easy to find faults and repair them while they are still miner.
- More reliable machines and less chance of down time due to breakage.
- Easier to identify bad drivers and staff causing damage.
- Protection against WHSQ fines and insurance problems when an accident occurs.

If any items require maintenance, they must be reported to your supervisor. Only qualified persons can carry out maintenance and repairs on forklift trucks.

Setting up the forklift

Carrying out safety checks

Once a pre-start operational check is complete and the forklift started according to procedures, a driver should conduct a post-start operational check to ensure that the plant is safe to use.

Make sure you;

- get on the forklift making sure you use 3 points of contact.
- adjust your seat to a comfortable driving position
- fasten your seat belt
- start the forklift correctly

- **Check Warning devices**
  The driver should ensure that all of the following warning devices are working correctly:
  - Horn
  - Reverse Beeper
- **Check Lights**
  The driver should ensure that all of the following are working correctly:
  - lights
  - reverse light
  - Strobe light
- **Check all gauges**
- **Check Brakes**
  The driver should start moving slowly then check all brakes - including the hand brake
- **Check Steering**
  The driver should ensure that the steering system is working properly.
- **Check the forklift to the full extent of its movement ability (unloaded)**
  The driver should ensure that all parts of the forklift can move to the full extent of their movement including checking the mast and tilt controls.

If at any time while conducting pre start and post start inspections on a forklift, the forklift is found to be defective and/or unsafe the driver should remove the keys, place a warning notice on the forklift indicating the forklift must not be used and then report the fault to an authorised person.

Discussion Points
What are the controls of a forklift truck?

Discussion Points
How do you carry out checks?

Forklift attachments

A forklift attachment is an extra piece of equipment that is used on the forklift in place of the original forks. Sometimes the forks are removed and the attachment is bolted to the fork carriage, and sometimes the attachment is fitted to the forks

There are many types of forklift attachments. Some are standard type attachments and can be purchased from a dealer, e.g. drum clamps. Others are specially designed and made to do a specific task.

When deciding what attachment to use, you will need to take into consideration:

- weight of the load
- size of the load
- company policy
- safety considerations e.g. dangerous goods

A forklift can be adapted to lift almost any type of load or material, not just palletised goods. Fitting a different attachment is the most common way of altering a forklift to suit the load type.

When required to fit an attachment to a forklift always make the following checks first:

1 **Rated**

The attachment is rated and listed on the data plate.
The attachment serial number must be listed on the forklift data plate along with the ratings for the attachment. The attachment must also have a data plate fitted to show compliance (no "home-made attachments") and the serial number of the forklift must also be listed on the attachment data plate.

2 **Secured**

The attachment is secured with suitable locking devices.
The attachment must be properly secured to the forklift (usually using locking pins or chains) according to manufacturers design.

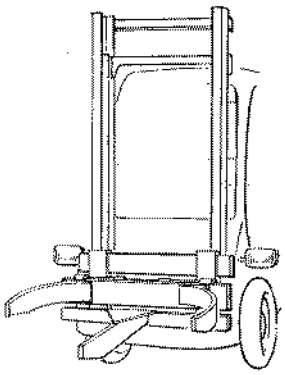
3 **Suitable**

The attachment is suitable for the task/load.
Do not use an attachment for anything other than what it has been designed for.

Never use an attachment that you are not familiar with. If you are not familiar with a particular type of attachment, it is advised to seek further training until you are competent in its use.

Attachments may be 'permanently' fitted to a forklift for constant/dedicated use or interchangeable for irregular work or particular jobs of short duration.

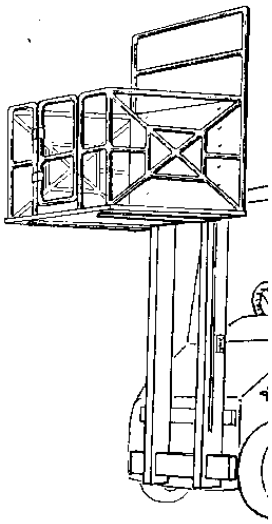
Drum Clamp



Drum clamps are generally used for shifting a single drum at a time (double clamps are also used to carry pairs).

Drums are usually transported and stored on pallets with four on the pallet. The drums should be strapped to maintain stability.

Work Cage



A work cage, also referred to as a work platform or safety-cage, is the only way a person can be lifted with a forklift truck.

The work cage must be approved and only used for irregular tasks of short duration (e.g. changing a light globe).

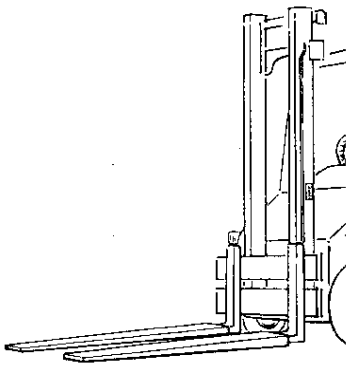
When a person is being raised in the work cage:

- Travel controls must be in neutral
- Park brake must be engaged
- Forklift operator must remain at the controls at all times

Never use a stepladder or any other device to get extra height from a work cage. It is against safe operating procedures and may lead to death or serious injury.

Never Travel with a person in the cage.

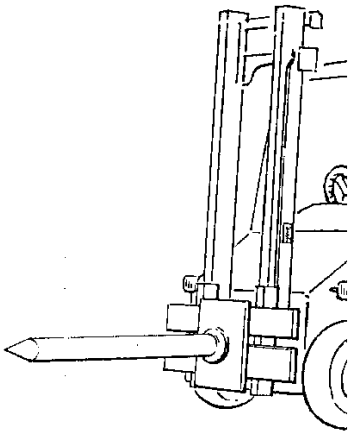
Slippers / Extension Forks



This type of attachment is used to increase the overall length of the fork arms. This may enable the forklift to lift a longer load or a load with an increased load centre distance.

Slide the forks into the slippers then secure the locking pin to prevent them sliding off the forks. Keep in mind that the forks must supports at least 75 % of the overall length of the load.

Carpet Spike



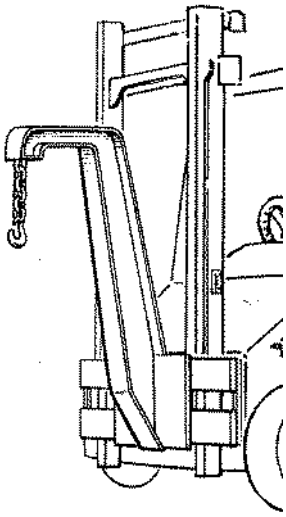
Used for shifting single rolls of carpet and material, carpet spikes are a naturally long attachment ranging beyond 3 m in length. Because of the way the load is lifted the load centre distance is increased which reduces lifting capacity and affects the stability of the forklift.

When operating a forklift fitted with a carpet spike an operator must:

- Be aware of the protruding length of the spike
- Be aware that the lifting capacity and longitudinal stability are reduced
- Take care when turning

Jib

A jib attachment uses slings, chains or wire rope to shift a load in a similar way to a crane. This makes the jib quite useful for oddly shaped loads (e.g. the engine out of a truck).



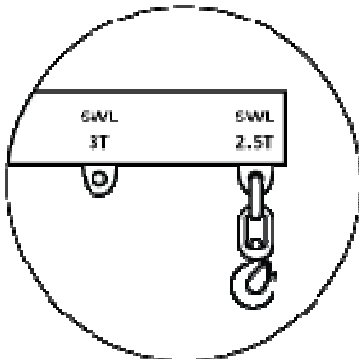
Stability can become a major issue when carrying a load with slings as it may start to swing (known as the "pendulum effect"). If the load swings too much the forklift will become unstable and tip over forwards or sideways. To minimize this risk follow the operating precautions below.

Follow the operating precautions listed below when lifting loads with a jib attachment:

- Travel at low speeds and make turns very slowly
- Keep the jib and load as low as possible
- Never tilt forward past the masts vertical position
- Treat the forklift as if partially loaded at all times (even with no load on the jib)

Tilting the mast forward past the vertical position may cause the load to swing dangerously, overloading the forklift which will then affect longitudinal stability - potentially causing the forklift to tip forward.

The Lifting Hook

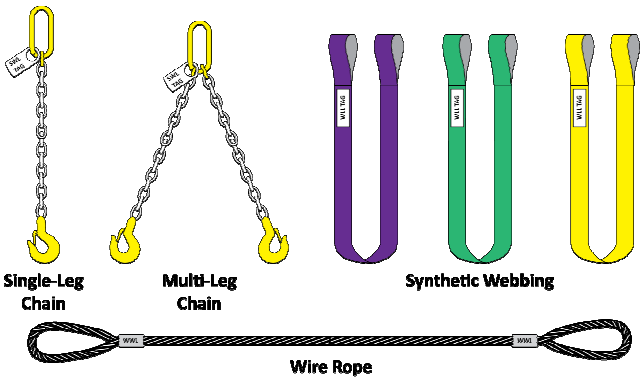


The safe working load (SWL) must be marked at each hook position along the jib.

Ensure the lifting hook is centered directly over a load before lifting to maintain stability and prevent the load from swinging.

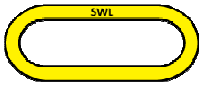
The lifting hook must always be able to swivel freely.

Slings



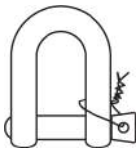
The Lifting Ring

The lifting ring must always have an equal lifting capacity (SWL) to the slings attached to it.



The Shackle

If the shackle is found to have 10 % (or more) wear, then it is unsafe to use. Always ensure that the pin is properly secured to prevent it unscrewing.



The range of slings available adds to the versatility of the jib attachment. A key feature of slings is that they can be configured to lift in multiple ways. The table below shows some of the key information relating to slings.

	Single-Leg Chain	**Multi-Leg Chain**	**Synthetic Webbing**	**Wire rope**
Method to find the safe working load (SWL) or working load limit (WLL) for each:	1. Check the tag on the uppermost terminal link. 2. Calculate with appropriate formula	1. Check the tag on the uppermost terminal link. 2. Calculate with appropriate formula	1. Check the tag stitched onto the sling. 2. Use Australian Standard (A.S) colour coding.	1. Check the tag near the eye splicing.
Common defects that render the slings unsafe to use: (Note) Always inspect slings prior to use.	- **C**rushing - **R**ust - **A**cid attack. - **S**tretched links. - **H**eat affected.	- Stretched links. - Rust. - Crushing - Acid attack. - Heat affected. - Missing or illegible tags. - Legs of different lengths or safe working loads.	- Heat affected. - Corrosion (acid, alkaline or organic solvent contact). - Cuts/slices/slits - Tearing - Missing or illegible tags.	- Stretched wire. - Rust. - Crushing. - Acid attack. - Heat affected. - Bird-caging. - Damaged eye splicing. - Missing or illegible tags.

Activity 9 - Setting up the forklift

Complete the questions on pages 14 and 15 of the Trainee Workbook Activities.

Element 3

Shift load

Section outline

Areas covered in this section are:

- Assessing the weight of the load
- Hazard prevention/control measures
- Operating the forklift safely
- Load stability
- Monitor load movement constantly ensuring safety to personnel and load, and structural stability
- Respond to unplanned and/or unsafe situations in line with procedures

Performance Criteria 3.1

Checking the load

You should always assess the weight of a load before moving it. Check the data plate to ensure that the forklift can support the load to be moved. Trying to lift a load that is too heavy can result in the forklift loosing balance and can damage the fork (tines).

Assessing the weight of the load

What information is included on the manufacturer's data plate?

By law, every forklift is required to have a manufacturer's data plate which has information about attachment details (if one can be fitted). This data plate also includes the following information:

- maximum safe working load
- load centre distance
- maximum lift height
- make, model and serial number
- mast tilt (in degrees)
- tyre type and recommended pressure
- gross vehicle weight
- attachment details (if one is fitted)

It is important to check the weight of the load before trying to lift it in order to stop overloading and prevent accidents.

It is critical that you know the information on the manufacturer's data plate so that you choose the appropriate forklift and attachments needed for safe operation, and the forklift is driven and used within the safe operating capacity.

Assessing the load

Is the pallet that is supporting the load in a safe condition?

If the pallet is badly damaged (e.g. broken or missing locking boards) then restack the load onto an undamaged pallet before attempting to lift it.

Is the load stacked safely and evenly?

An unevenly stacked load may be lifted if the heavy end is against the backrest. However if the load is unevenly stacked to one side then it should be restacked to ensure stability is maintained. Check that the load is appropriately secured.

Have you made sure that the load is within the rated capacity of the forklift?

Check load markings, consignment notes, weighbridge certificates or calculate the weight of the load to ensure it complies with the forklift data plate specifications. Also consider the required lift height and what the load centre distance will be when lifted.

Assessing the Weight of the Load

Always ensure that you are aware of the total weight of the load before lifting it and that it complies with the forklift data plate specifications (this will help to prevent overloading and accidents). Check load markings or paperwork such as weighbridge certificates and consignment notes. Otherwise the total weight can be calculated by weighing a single unit (single box, single bag, etc.) then multiply it by the number of units making up the load (add 60kg when the load is stacked on a pallet).

What is load centre distance?

The load centre distance is the most important and most difficult concept to understand in forklift driving. The load centre distance directly affects the forklift's stability and therefore affects safety as well.

To understand the load centre distance you need to know what 'centre of gravity' is and how to calculate the centre of gravity of an object.

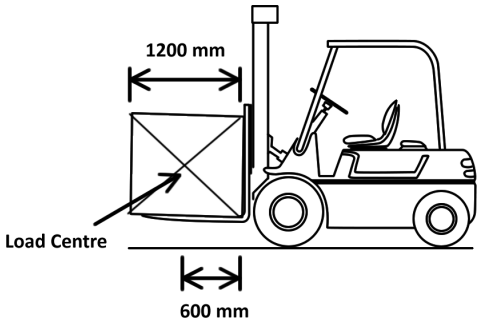
Your trainer will help you with this concept, but in general, the centre of gravity of an object is where it would balance in all directions (if you could suspend the object from this point). For example, for a basketball as it is perfectly symmetrical, it would be at the very centre of the ball. For a plate, it would be the centre of its base and half way through the base. For a brick, it would be at the point where two diagonal lines drawn across the face of the brick meet and then half way through the brick.

The load centre distance is the distance measured from the vertical face of the forks to the loads centre of gravity.

How does load centre distance effect forklift stability?

A standard pallet is square and has the dimensions 1200mm x 1200mm as per the diagram below.

As the majority of forklift loads are contained on pallets, forklift manufacturers designed the forklift with a 600mm load centre. This matches with the standard stacked pallet centre of gravity. For example, see diagram:



Should the load not be hard against the heel of the fork arms, the Load Centre Distance will be increased which will reduced the forklift truck's capacity and may reduce the stability.

Activity 10 - Assessing the weight of the load

Complete the questions on pages 16 to 18 of the Trainee Workbook Activities.

Performance Criteria 3.2, 3.3 and 3.4

Setting up the forklift

This section relates to the following Performance Criteria:

3.2 **Hazard prevention/control measures**
You should always ensure that any required hazard control measures are in place before commencing work on a site. Talk with your supervisor, workmates or WHS representative to ensure that you are aware of any hazard controls.

3.3 **Operating the forklift safely**
Always operate a forklift in a safe manner by driving at a safe speed and by following safety procedures.

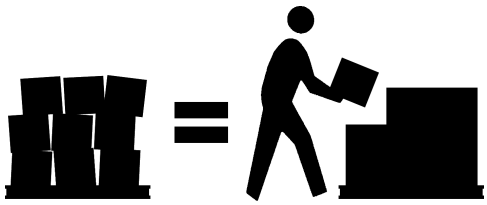
3.4 **Load Stability**
You should always place the load on the forklift in a way that allows the forklift to operate safely and keep stable. Move the load slowly and watch out for hazards such as pedestrians, other equipment etc.

Hazard prevention/control measures

Pallet Construction and Loading

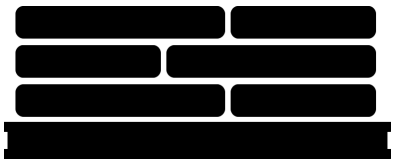
Pallets should be of sound construction, and be of adequate strength for the loads and conditions under which they are used. The stability and structural strength of each pallet or unit load should be assured by bonding, taping, shrink wrapping or other means.

Knowing the distribution of the load helps to determine what the load centre distance will be when lifted. A load must always be lifted with the heavier end against the vertical face of the forks, this will ensure a shorter load centre distance.



If the load is unevenly distributed to the side, then it must be restacked in order to fix the stability of the load.

Bagged goods like potting mix, cement and sugar should be transported and stored on pallets, cross stacked (interlocking) and stepped into a pyramid if above 1.5 m.



Where pallet loads are stacked tier on tier, the lower pallets should be of suitable strength and in good condition and the unit loads must be able to support the weight above.

When tiering (stacking) loads on top of each other, the following must always be considered:

1. Loads should be stacked on a firm level site
2. Heavy goods must be placed at the bottom
3. Stack should not be too high (as it will become unstable)

Operating the forklift safely

Raising and positioning the load

- **Insert the fork arms under the load cleanly.**
  Do not scrape or bump into the load or pallet upon entry. Particularly when the load is on a rack or stack as the forks may push down on the cross beams or load below.
- **Make sure that the fork arms support the load evenly.**
  Place the forks evenly to maintain stability when the load is lifted. Also ensure that the load is square on the forks. The driver must ensure that the load is NOT carried on only one fork arm of a forklift truck because the safety and stability of the forklift and the load will be affected.
- **Do not push or ram a load to make it square/even.**
  The forks are designed to lift the load vertically; do not use the forks to push loads sideways (with the side of the fork) or forwards (with the vertical faces of the forks). Ramming the load can damage the lifting equipment of the forklift as well as the load.
- **"Shunt" or reposition the forklift if necessary.**
  If you can't access the load properly on first attempt then "shunt" or reposition the forklift to ensure a safe lift.
- **Lean out for a clearer view.**
  If you're having trouble positioning the fork arms, then lean out of the forklift to get a clearer view. Note: this is ok when maneuvering and positioning the fork arms or load however the driver must keep all parts of the body inside the forklift while travelling.
- **Ensure the safety of others**
  Ensure that you do not raise or lower a load near or over other personnel because this is against safe working procedures and may cause injury or death. It is neither permissible to carry passengers on a forklift truck unless an appropriate seat and guards are fitted. Without the seats and guards it is unsafe.
- **Keep the mast vertical or on slight back tilt when lifting.**
  Ensure that the mast is in the vertical position or slightly back tilted when lifting the load.
- **Lift correctly from a rack or stack.**
  When raising the forks to access a load on a stack or racking system, stop a safe, minimal distance away and lift while the forklift is stationary (foot on brake). The same method should be used for lowering the forks and load. Use the park brake whenever lifting/lowering on a sloping surface.
- **Position the load and fork arms at a safe height for travel.**
  The fork arms or the bottom of the load should be below the height of the front axle or just high enough to clear any obstacles while travelling. Check for clearance before moving off. It is unsafe to operate a forklift either in a straight line or turning corners with the load raised because the load at height can affect the stability of the forklift while travelling, braking or turning.
- **Smooth and correct controls.**
  Until you are familiar with the controls of any machine, always check first to ensure you are about to activate the correct function as certain mistakes can be very dangerous (e.g. using the forward tilt instead of back tilt, which may cause the forklift to tip forward or lose the load). Operate the controls smoothly to help maintain stability and control of the load.

Placing Loads

- **Approach the rack or stack appropriately.**
  When raising a load to be placed on a stack or racking system, stop a safe, minimal distance away and lift the load while the forklift is stationary (foot on brake). Use the park brake whenever lifting/lowering on a sloping surface.
- **Position the load correctly before placing.**
  If the load is on back tilt, return the mast to the vertical position; adjust the tilt level as necessary to maintain stability during placement of the load.
- **Place the load to ensure stability and security.**
  On the ground: Choose a safe and stable location to place the load; do not place a load where it could become a hazard.
- **On top of a stack:** Line the load up so that it will sit squarely and evenly on top of the load below. Only stack on hard, level surfaces with the heavier loads at the bottom. The stack should not become unstable due to height.
- **Into a rack:** Always make sure the boards at each end of the pallet lock onto the supporting beams of the racking system which prevents the load sliding or falling off at any point. If unsure, check the weight capacity of a rack before placing the load.

  Note: always confirm that the load has been placed correctly before moving off (reposition the load, if necessary, to ensure stability and security will be maintained).
- **Withdraw the forks cleanly.**
  Do not scrape or bump into the load or pallet when removing the fork arms. Check that the forks are not tilted back as this can catch the load and drag it back with you (especially dangerous in a rack or on a stack).

Reversing

A large number of workplace incidents are caused by the driver not looking behind them when they reverse.

- **Shoulder check**: Before reversing a forklift truck a driver should always check behind using mirrors and/or looking over each shoulder to ensure that it is safe to reverse.
- **Warning devices**: It is the responsibility of the driver to ensure all warning devices are operational prior to commencing any work. These devices can also be used to warn others when a forklift truck is being reversed.
- **Travel slowly:** You should always travel slowly in order to maintain stability of the load and the safety of others when travelling in reverse or especially when moving a large load that you cannot see past.
- **Observer:** Sometimes, due to load size and position, a driver's vision may be obstructed. If this is the case then an observer or another person should be used to direct the movement of the forklift and the load.

Activity 11 - Operating the forklift safely

Complete the questions on page 18 of the Trainee Workbook Activities.

Performance Criteria 3.4

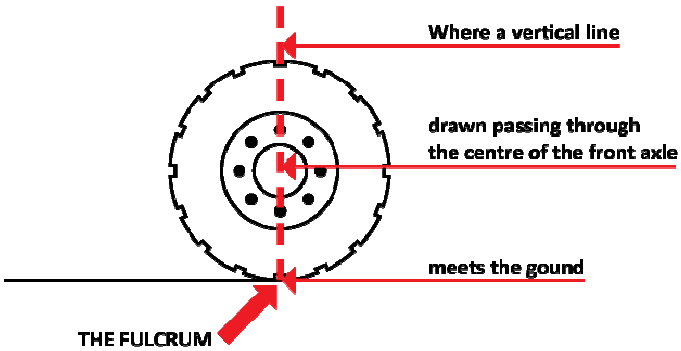
Moving the load

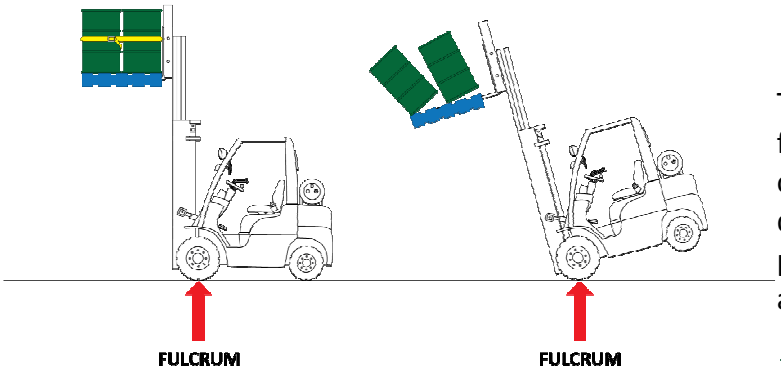
You should always place the load on the forklift in a way that allows the forklift to operate safely and keep stable. Move the load slowly and watch out for hazards such as pedestrians, other equipment etc.

Load stability

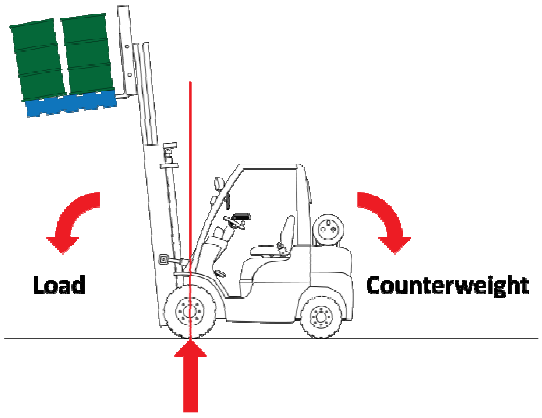
The Forward Point of Balance

The forward point of balance also known as 'the fulcrum' is at the exact point where a line drawn vertically, passing through the centre of the front axle meets the ground.





This is the forward tipping point of the forklift, which means that if the forklift overbalances and tips in the forwards direction this point stays in the same position while the rest of the forklift tips around this point.



Everything that is behind the fulcrum acts like a counterweight (including the driver), while everything in front of the fulcrum acts like the load (including the mast assembly).

The force of the counterweight must always be stronger than the force of the load in order to keep the forklift stable and the rear wheels on the ground.

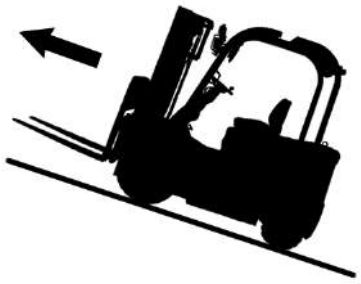
The further away from the fulcrum that the weight of the load is, the more likely it will be to cause the forklift to tip forwards. Therefore increasing the load centre distance reduces the lifting capacity of the forklift.

Note: Never add any extra counterweights to the forklift as the existing counterweights have been designed for the maximum safe working load of the forklift (unless advised by the manufacturer). Only the manufacturer or a suitably qualified professional can (if possible) add an extra counterweight to a forklift after engineering calculations have been made.

Operating on a sloping surface

- **Always ensure the load is facing uphill.**
  When travelling up a ramp or incline the forklift must travel forwards to keep the load facing uphill; therefore when travelling down a ramp the forklift must travel in reverse to keep the load facing uphill. This will prevent the load from falling off the fork arms and maintain stability of the forklift.
- **Never travel across/sideways on a ramp.**
  The forklift may lose lateral stability (this can cause the forklift to tip over sideways) and the load may fall or slide off the fork arms.

Always face uphill if you are travelling up or down a ramp:



Loading Docks

When transferring loads between a truck and a loading dock there is usually a gap between the two. This gap can cause a serious accident. In this case, the driver must ensure that a secured dock plate or bridge plate is provided before shifting a load.

Using Side Shift

A side shift is a mechanism within a forklift truck which is controlled by the driver and allows the load being carried to be moved to the left and the right. It is particularly useful for when operating in tight environments, and for positioning loads on racking without having to move the truck itself.

Side shifts are either fitted by the manufacturer, integral to the mechanism of the forklift truck, or fitted as a supplementary component.

If the side shift attachment has been used, it must be centralised before travelling with a load in order to maintain stability of the forklift and the load.

Activity 12 - Load stability

Complete the questions on page 19 of the Trainee Workbook Activities.

Performance Criteria 3.5

Constant vigilance

Dangerous and unexpected events can still occur even though you have carried out all of the required checks. You must always keep alert when moving a load and watch out for things that can go wrong.

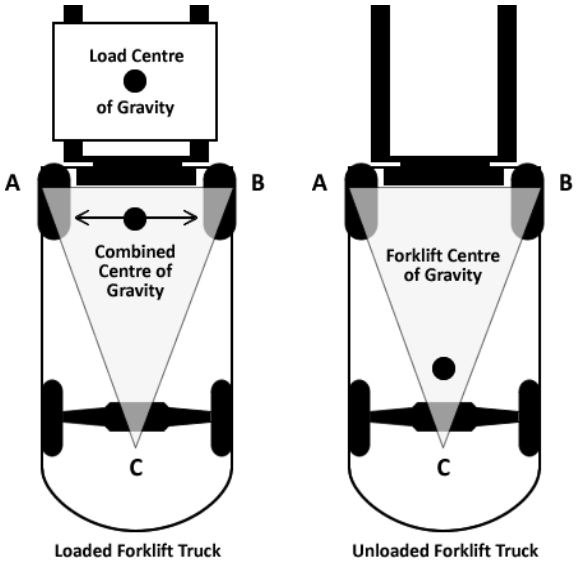
Monitoring load movement

Forklift Stability

Forklift trucks are unstable by design. They have no springs and even four wheel counterweighted forklifts only have three point suspension.

The two rear wheels are attached in the centre of the main body of the machine allowing the rear to hinge sideways affecting the lateral (sideways) stability of the machine. All forklift trucks have a high centre of gravity and a narrow wheel base which adds to their lateral instability.

Forklift trucks have three point suspension formed from the front axle (a and b) and the steering axle point at the rear of the base (c).



Be aware of the factors listed below which can affect **lateral stability**:

- turning at speed
- driving over uneven surfaces
- an uneven distributed load
- driving with a flat or under inflated tyre
- driving too fast
- travelling with the load raised
- braking too hard when turning
- side shift not centred
- lifting a load on one fork arm
- driving sideways across a slope
- dragging (snigging) a load sideways with a jib attachment

The front wheels of forklift trucks act as a fulcrum with the forks on one side and the machine body on the other. If the weight of the fork ends is heavier that the counterweight it will cause longitudinal instability (the forklift will tip up)

Be aware of the factors listed below which can affect **longitudinal instability**:

- overloading
- severe braking
- incorrect use of the mast tilt (especially with the load carried at higher level)
- load not positioned against the heel of the fork arms
- lifting a load with a jib with the mast tilted forward
- picking up an over-width load
- fitting slipper forks
- driving with reach extended

Activity 13 - Monitoring load movement

Complete the questions on page 20 of the Trainee Workbook Activities.

Performance Criteria 3.6

Emergencies

You should always do everything you can to reduce damage or injury in the event of an emergency. There are certain procedures you will need to follow in an emergency.

Responding to unplanned and/or unsafe situations

Unplanned Situations and Emergency Procedures

Contacting power lines

If the forklift comes into contact with the lines take the most appropriate actions listed below:

- Warn others to stay away and not to touch the forklift
- Stay on the forklift until informed it is safe to exit the machine
- Try to break contact with the lines by moving the forklift away if safe to do so

Fire or other emergency

It is extremely important to have a list of warehouse fire safety procedures for staff to follow. Each staff member should review these frequently. You should hold monthly review meetings. The goal is for warehouse users to be confident about what to do in the event of a warehouse fire emergency. Planning, implementing and educating about warehouse fire safety procedures could save a life.

In the event of an emergency, operators may be required to:

- Alert personnel to the emergency,
- Communicate the nature of the emergency,
- Inform personnel of unsafe areas,
- Provide information to emergency services.

In the event of an emergency, you must give way to ALL emergency vehicles. It is important that as an employee, you are aware of the site evacuation plan, meeting point and any other information related to the emergency procedures.

Overturning forklift

In the event of the forklift rolling over sideways, the operators best chance of minimising injury can be achieved by:

- Remaining in the forklift (do not jump out),
- Brace yourself and lean away until it is safe.

Activity 14 - Responding to unplanned and/or unsafe situations

Complete the questions on page 21 of the Trainee Workbook Activities.

Element 4

Shut down and secure forklift truck

Section outline

Areas covered in this section are:

- Stopping and parking the forklift
- Securing the forklift

Performance Criteria 4.1

Parking the forklift truck

You should always park your forklift in a safe area so that it will not get in the way of anything else.

Stopping and parking the forklift

Many accidents can occur when the forklift is being brought to a halt. Forklifts should be brought to a halt gradually as wheel sliding and hard braking is dangerous, unnecessary and harmful to the forklift truck.

After you have brought the forklift to a halt, it needs to be parked correctly. The correct parking procedure is:

- **Tines down to the ground**,
  Make sure that the tips of the forks are touching the ground by:
  - tilting the mast slightly forward
  - lowering the forks until the tips are touching the ground
- **Put the forklift in NEUTRAL,**
- **Apply the parking brake,**
- Adhere to the site specific safety procedures
  This may include:
  - turning off the forklift and removing the key
  - turning off gas (if gas powered)

If a forklift must be parked on an inclined surface, the driver should chock the wheels of the forklift in addition to the above normal parking procedures.

Choosing a safe place to park

Ensure the forklift is parked clear of the following.

Near doorways May cause injury or prevent access during an emergency.	**Near first aid stations** Do not block access as most injuries require swift attention.
On or near pedestrian walkways May cause injury or force pedestrians to walk into the line of danger.	**Near fire fighting appliances** Emergency equipment must be easily accessible at all times, do not block access.
Blind corners Can create a hazard for drivers and pedestrians moving through the workplace.	**Refueling stations** May be required by other drivers in the workplace, do not block access.
Emergency exits Specifically used for fast escape during an emergency. Never block access.	**On sloping surfaces** If it is necessary for the forklift to be parked on a sloping surface then wheel chocks must be used.

Activity 15 - Stopping and parking the forklift

Complete the questions on page 22 of the Trainee Workbook Activities.

Performance Criteria 4.2, 4.3, 4.4 and 4.5

Securing the forklift

This section relates to the following Performance Criteria:

4.2 **Shutting down the forklift truck**
Always shut the forklift truck down properly after parking. You must be aware of the correct shut down procedures (read the owner's manual).

4.3 **Post-operational checks**
You should conduct post-operational checks after using a forklift truck. This is to ensure the forklift truck is ready for the next operator

4.4 **Securing the forklift**
After the forklift has been shut down, it should be secured so that no one else can use it without permission. Take the key out of the ignition. You may also be required to lock the key in a secure area.

4.5 **Recording and reporting problems**
You should always record and report any faults or problems with a forklift truck after you have used it.

Securing the forklift

The forklift should always be inspected before and after operation. During shutdown the driver must check the forklift for any damage or leaks, ensure it is safe for the next driver and make sure all systems are shutdown correctly.

If the driver detects any defects or faults, such as damage or leaks, the driver should remove the keys, place a warning notice on the forklift indicating the forklift must not be used and then report the fault to an authorised person.

Damage to the heel of fork arms must NEVER be repaired (they must always be replaced)

A forklift can be a very dangerous tool if the driver has not been trained to use it. Operation of a forklift should only be carried out by someone who is:

- a holder of a valid forklift licence
- a trainee under supervision of an authorised trainer
- conducting high risk work (HRW) under supervision of a suitably qualified person (with use of an RTO issued logbook)
- a trainee being assessed by an authorised assessor

To prevent unauthorised use of the forklift the key must be removed and returned to a secure location.

Activity 16 - Securing the forklift

Complete the questions on page 23 of the Trainee Workbook Activities.