



Forklift Manual

High Risk Work Licence

Western Australia

Class LF

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PURPOSE

The purpose of the Forklift Operations Manual is to ensure learners have the appropriate knowledge and skills to perform the necessary duties to obtain a High Risk Work Licence and operate a forklift in a safe, efficient and professional manner, along with the ability to calculate necessary weight calculations. To have an understanding of legislation requirements that are needed in the workplace for compliance to law. To identify and interpret relevant operational hazards that are found in the use of a forklift in the workplace.

DEFINITIONS

The introduction of the new Work Health and Safety Act and Regulations, 2011 have changed the definitions of:

Employer to PCBU (Persons conducting business or undertaking)

Employee to Worker

OHS or OSH to WHS (Work Health and Safety)

Use of these terms may be interchangeably in this document.

Wherever possible, terms as per the WHS legislation have been applied.

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SECTION 1: Forklift Operations, Safety & the Law

1.1 What is a HRWL?

A High Risk Work Licence (HRWL) is a photographic licence similar in appearance to a driver's licence. In Western Australia it is issued by WorkSafe WA after you have been trained and assessed as competent by an approved trainer working with a Registered Training Organisation (RTO).

Safe Work Australia sets the national standards for HRWLs and leads the development of national policy to improve work, health and safety across Australia.

For forklift operations the HRWL class is LF and will allow you to perform mastered forklift operations nationally.

1.2 Responsibilities of HRWL Applicant (Making the Application)

Applying for a High Risk Work Licence (HRWL) in Western Australia

It is your responsibility as the "Applicant" to:

- Provide 2 current passport sized photos;
- Provide payment for the HRW licence application fee;
- Provide two forms of identification – one form of primary identification with photo plus one form of secondary identification with your name;
- Provide a copy of a Certificate of training (Statement of Attainment) from a Registered Training Organisation (RTO) with the completed Unit of Competency;
- Not give false or misleading information;
- Make a declaration that an existing HRW licence is not held in any state of Australia;
- Make a declaration if the applicant has been convicted or found guilty of any offence under the WHS Act or WHS Regulations;
- Make a declaration if a previous HRW licence has been refused, cancelled or suspended; and
- Provide a Notice of Assessment (Competent) from a WorkSafe registered assessor.

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1.3 Submitting the Application

Applications must be submitted to WorkSafe WA within **60 days** from the time the training has been completed otherwise reassessment must occur.

On completion of the course if competent, the Registered Training Organisation (RTO) will provide a Statement of Attainment. This is valid for a period of 60 days.

1.4 Legal Requirements, Work Health and Safety Law

HRW licences are valid for 5 years and must be renewed as per WorkSafe WA guidelines.

Renewing HRWL within specified time frame

If not renewed within TWELVE months (**24 Months WA**) of the expiry date, then:

- The licence cannot be renewed;
- Person must complete a new course for that class;
- Person must enrol onto a training course with a RTO for that class of licence.

A person who is no longer competent, **MUST**:

- Not perform the HRW tasks;
- Retrain; or
- Return the HRW licence to the regulator when HRW licence is no longer required or they are unable to be retrained for medical reasons.

Operating without a HRWL

A person cannot be allowed to perform high risk work, if they are not fully competent and do not hold the HRW licence unless under the Regulation they are:

- Enrolled on a HRW training course; and
- Being supervised by a person with a current HRW licence for the class LF.

Duty of Care

A HRW licence holder **MUST** take reasonable care to not affect his or her safety, or the safety of others while performing HRW.

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If a HRW licence holder fails to exercise safe work practices, they can be penalised under Work Health Safety (WHS) Regulations. The following could occur:

- **The licence can be suspended or cancelled; or**
- **Refused at renewal.**

Evidence of holding a HRWL

An employer may request written evidence prior to commencing high risk work. The evidence can be in the form of:

- Certificate of training (Statement of Attainment);
- Notice of Assessment;
- Copy of HRW licence or proof of enrolment onto a training course that class of licence.

Work Health and Safety Act and Regulations, 2011

The main object of the Act is to provide a balanced and nationally consistent framework to secure the health and safety of workers and workplaces.

Work Health and Safety (WHS)

The law applies to you if you are:

- A person conducting business or undertaking (PCBU)
- A person carrying out work in any capacity for a PCBU. Including work as:
 - a) An employee; or
 - b) A contractor or subcontractor; or
 - c) An employee of a contractor; or
 - d) An employee of a labour hire company; or
 - e) An outworker; or
 - f) An apprentice or trainee; or
 - g) A student gaining work experience; or
 - h) A volunteer; or
 - i) A person of a prescribed class.

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Duties of persons conducting business or undertaking

Section 19 WHS Act 2011

To ensure, as far as is reasonably practicable:

- a) The provision and maintenance of a work environment without risks to health and safety; and
- b) The provision and maintenance of safe plant and structures; and
- c) The provision and maintenance of safe systems of work; and
- d) The safe use, handling and storage of plant, structures and substances; and
- e) The provision of adequate facilities for the welfare at work of workers in carrying out work for the business or undertaking, including ensuring access to those facilities; and
- f) The provision of any information, training, instruction or supervision that is necessary to protect all persons from risks to their health and safety arising from work carried out as part of the conduct of the business or undertaking; and
- g) That the health of workers and the conditions at the workplace are monitored for the purpose of preventing illness or injury of workers arising from the conduct of the business or undertaking.

Duties of workers

Section 28 WHS Act 2011

While at work, a worker must:

- a) Take reasonable care for his or her own health and safety; and
- b) Take reasonable care that his or her acts or omissions do not adversely affect the health and safety of other persons; and
- c) Comply, so far as the worker is reasonably able, with any reasonable instructions that is given by the person conducting business or undertaking to allow the person to comply with the Act; and
- d) Co-operate with any reasonable policy or procedure of the person conducting the business or undertaking relating to health or safety at the workplace that has been notified to workers.

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1.5 Hazards – Control and Planning

KNOW YOUR WORKSITE

It is yours and the employer's responsibility, to ensure that you have undertaken a site induction. This is to ensure that you know who the safety personnel are on your site, understand and abide by all **workplace/site policies and procedures** for Fire and Emergency, Safe systems of work and undertake any duties as directed.

Personnel you would consult with regarding WHS, emergencies or hazards may be, but not limited to:

- Managers
- Safety Officer
- Health and Safety Representative
- Site Foreman
- Supervisors
- Team Leaders
- Site Engineers
- Colleagues.

Safety in the workplace

A **HAZARD** is defined as:

An object, condition or event that has the Potential to cause Injury, Illness or Harm

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RISK is defined as:

The likelihood that the Hazard will cause the identified Injury, Illness or Harm

Common ratings are High, Medium and Low Risk

The Four steps process to Managing Hazards when Planning Forklift operations

To ensure a safe and healthy workplace is based on the concept that the workplace should be modified to suit people and not vice versa.

The four steps are:



STEP 1 Identifying hazards

SITE HAZARDS TO CONSIDER:

- ✓ Pedestrians and personnel
- ✓ Other plant and equipment
- ✓ Vehicle traffic
- ✓ Electrical power lines
- ✓ Obstructions
- ✓ Poor lighting/illumination
- ✓ Overhead/underground services
- ✓ Weather conditions
- ✓ Dangerous/Hazardous materials/substances
- ✓ Surrounding structures (buildings and bridges)
- ✓ Non weight bearing surfaces/pressures

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STEP 2 Assessing risks

Assess the risk of each hazard. You must consider the **Likelihood** of the event occurring and the **Consequence** of the harm, injury or ill health, costs to the business, if the event does occur.

Risk assessments require good judgment and awareness of potential risks of work processes, you can only best estimate on the information available to you. However you can use a systematic approach in order to assess a priority rate for each hazard.

STEP 3 Controlling risks

The next step is to apply control measures. In some instances a combination of control measures may be appropriate.

Control measures should be applied to:

- ✓ Eliminate or reduce risks of hazardous work processes; and
- ✓ To minimise the effects of injury or disease

STEP 4 Reviewing control measures

Constant review of control measures is important to ensure they continue to prevent or control exposure to hazards or hazardous work practices. Ensure that the control measure undertaken has been effective and has not created an additional hazard.

Identifying and managing hazards in the workplace, is everyone's responsibility. Ensure that you are aware of your organisational policies and procedures for Identifying and Reporting Hazards in the workplace.

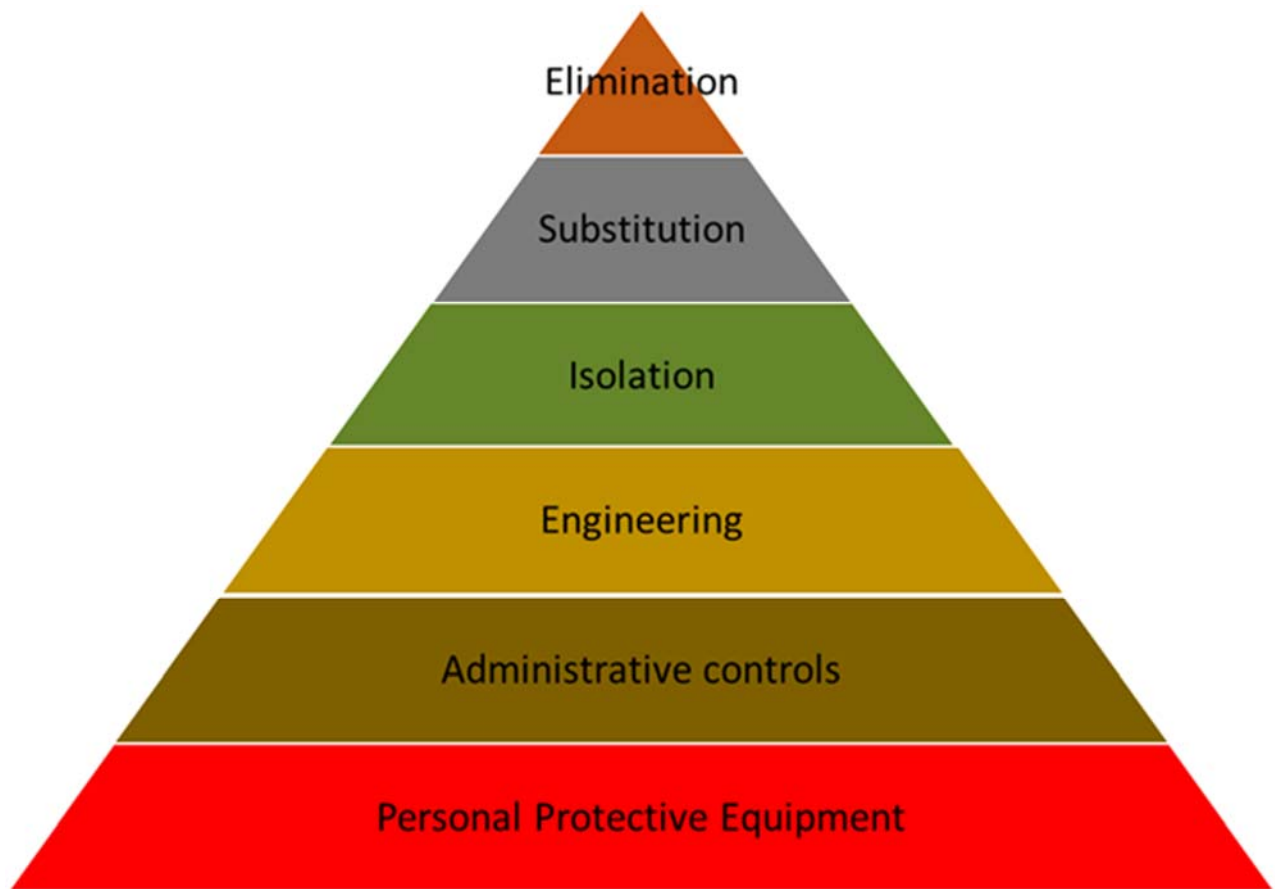
Risk control measures should be applied before starting any type of work and as soon as a hazard is identified during operation.

SAFETY EQUIPMENT INCLUDING PPE AND MACHINERY

Undertaking pre-operational checks of equipment at the **commencement** of your shift should take priority. Pre-operational checks should be undertaken on all mechanical/electrical equipment and noted in official "Log Books", but it is also the workers responsibility to inspect all Personal Protective Equipment (PPE) at the **commencement** of a task and report defects as per organisational policies and procedures.

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Hierarchy of Control



Always start at the top and work down.

Eliminate remove the hazard.

Substitute replace a hazardous work practice, substance or material.

Isolate the source of the hazard, for example a power source or fuel supply.

Engineering Controls Engineer out the hazard by incorporating guarding/cages/grating or modification to machinery or equipment.

Administrative Controls Undertake additional training, implement safety checks, erect signage, updates at tool box meetings (regularly).

Personal Protective Equipment The use of PPE.

Personal protective equipment (PPE) such as face mask, respirators, gloves, goggles, steel capped boots etc. should be used in conjunction with other methods of control and only used as a last resort when other control methods are not practicable. When PPE is provided it must be checked before use, ensure it is suitable for purpose and properly maintained. Personnel must be trained in the correct use, storage and maintenance of the equipment.

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THINGS OTHER THAN SITE HAZARDS TO CONSIDER WHEN PLANNING A TASK OR ACTIVITY

When a task needs to be conducted on a forklift truck, regardless of how big or small the job is, you need to consider not only site hazards and controlling them, but also the following things:

- Characteristics of load (Size, weight and shape of load)
- Dangerous loads
- Location of task (Are you able to access where the loads are)
- Specifics of task (What exactly is required)
- Available space (Do you have the room to not only move the machine but store the goods being moved)
- Permits required for task (For example, council or Main Roads permits if working near roadways or footpaths)
- Availability of equipment (Have you got the correct type and number of machines)
- Capacity of forklift (Can the forklift lift the loads you are required to move)
- Safe communication (You need to know the job task)
- Blind spots (have they been checked)
- Method of attachment (What type of attachment would you require to do the job)
- Fatigue (Are the workers including yourself, FIT FOR WORK)
- Experienced operators (Are the people involved in the task experienced to do the job safely)
- Personal Protective Equipment needed
- If you have any damaged pallets



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1.6 Operating near Electric/Power Lines

Operating a forklift near power lines can be dangerous. The Western Australian Occupational Health and Safety Regulations provide the below guidelines to determine safe working limits around overhead power lines dependent on the type of power line.

What is this table saying?

Western Australian, Occupational Health and Safety Regulations state:



Western Australian, Occupational Safety and Health Regulations 1996

Regulation 3.64.

- a) **0.5 metre** of a live **insulated** overhead power lines not more than 1,000 volts
- b) **1.0 metre** of **uninsulated** overhead power lines of not more than 1,000 volts
- c) **3.0 metres** of either **insulated or uninsulated** overhead power lines exceeding 1,000 volts but not more than 33,000 volts
- d) **6.0 metres** of either **insulated or uninsulated** overhead power lines exceeding 33,000 volts

When assessing your work area for hazards and risks tiger tails can assist you in identifying hazards.



Tiger tails – A warning device indicating the presence of live overhead power lines.

IF, YOU MUST WORK CLOSER THAN THE PRESCRIBED MINIMUM DISTANCES:

You will be required to seek an exemption from the relevant authority (i.e. local power company) and/or have the electrical power **shut off**. If this is not possible the power lines must be **insulated by an authorised/competent person**. Refer to relevant local authority.

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**Always contact the local power authority
i.e. Western Power, to determine the
voltage of overhead power lines, prior to
conducting any forklift operations.**

ACTIONS TO TAKE IF YOUR FORKLIFT TRUCK COMES IN TO CONTACT WITH POWER LINES

Follow these 5 steps.

1. Warn others to stay clear
2. If possible, and without endangering yourself (operator), attempt to break contact with the power lines.
3. If this is not possible and it is unsafe to remain on the forklift, check that the ground around the forklift is clear (of water or other hazards).
 - If safe, jump clear of the forklift without touching the metal parts of the forklift and the ground at the same time.
 - When moving away from the forklift, you should hop or shuffle (with both feet together).
 - Until you are at least eight (8) meters from the forklift, as the ground may be electrified. Under no circumstances, should you run or walk from the forklift.
4. Once safely away from the forklift, report the incident to management and the power authority/regulator.
5. Do not use the forklift until it has been checked by an authorised person.

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1.7 Pedestrians and Forklift Trucks

Segregation of Pedestrians

Control measures for pedestrians, vehicles or mobile plant:

- Flag persons
- Cones
- Use of hi-visibility vests
- Defined pathways
- Vehicle exclusion zones
- Flashing hazard lights/beacon
- Warning signs
- Barriers
- Horn
- Reverse beep
- Automated GPS tracking systems
- If operating at night then sufficient lighting must be provided.



OPERATING AT NIGHT OR DARKENED AREAS:

Make sure **sufficient lighting** is available to the operator when operating in darkened conditions.



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1.8 Hazardous Loads

At various times an operator may encounter hazardous/dangerous loads. The following are guidelines to your responsibilities and some examples of Dangerous Goods symbols.

- Before loads are moved they need to be identified to ensure safety procedures are followed.
- Hazardous cargo must be identified using the appropriate labels (see Class Labels) and moved according to the standard procedures required for handling hazardous goods.



SEGREGATION

- If required to move various hazardous loads together or to be stored together, be sure it is safe to do so. As it can be dangerous if certain chemicals are stored together especially in the event of a spillage or an accident when moving loads.

Refer to organisational policies and procedures for specific instructions or your supervisor prior to undertaking any tasks involving Dangerous Goods. These tasks need to be undertaken by qualified personnel.

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1.9 Power, Fuels and Refuelling

Forklifts can be driven by several types of power sources – they are:

- Petrol
- Diesel
- Liquid Petroleum Gas (L.P.G.)
- Battery (Electric)
- Hydrogen

BATTERY (ELECTRIC)

Within designated areas only trained and authorised personnel may top up, recharge or change batteries.

Before commencing recharging activities, ensure that the vehicle is secured and the isolator switch is turned off:

- ✓ Smoking or open flames are prohibited when charging/topping up batteries as the Hydrogen gas that is given off is highly volatile and **can explode**.
- ✓ Charging/topping up batteries must always take place in a **well-ventilated area** to dissipate the Hydrogen gas which is **highly explosive**.
- ✓ Protective clothing, safety gloves, apron, glasses **MUST** be worn as the liquid in the battery is acid which is corrosive and could cause skin burns.

Safety resources required to be available in charging area:

- Eye wash station
- First aid kit
- Baking soda (Neutralises acid spill)
- Firefighting equipment



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- ✓ Do not operate vehicle with a leaking battery.
- ✓ Batteries being charged produce Hydrogen gas, which is highly explosive.
- ✓ The liquid within the battery is Sulfuric acid and is highly corrosive.
- ✓ Contact with skin or eyes **MUST** be **AVOIDED**.

Electric forklifts are the most suitable forklift to use in a restricted space such as a cool room, chiller, rear of a truck, as they do not emit dangerous gases like combustion forklifts.

PETROL AND DIESEL (Internal Combustion engines)

- Never have the engine running when refuelling as fuel spilt onto hot surfaces may **ignite**.
- Exhaust gases are very toxic. Operation of a machine in confined spaces such as freight containers or cool rooms should be avoided as persons in the restricted space may become asphyxiated and die.
- Electrically operated forklifts **MUST** be used in confined spaces.
- Fuelling to be in designated area i.e. outside.

LIQUID PETROLEUM GAS (L.P.G.)

- Gas is stored in a liquid form and under pressure and is highly explosive.
- The use of gloves for protection when changing gas cylinders is essential as, the gas is in liquid form, and the gas will cause severe cold burns.
- Because of its highly volatile nature, avoid gouging, denting or otherwise damaging the cylinder surface as this will weaken the cylinder structure. Gas cylinders must be to safety area.
- Gas cylinders must be secured when in storage. Secure using a chain, cage or barrier to prevent both full and empty cylinders from falling over.
- Filling bottles for L.P.G. powered forklifts must only be carried out in designated areas, by trained operators utilising appropriate PPE and follow company procedure.
- If a leak is suspected, close off the supply valve and inform the appropriate person immediately.

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1.10 Communications

WORKPLACE COMMUNICATION AND AVAILABLE METHODS

Effective communication in the workplace is just as important as abiding by all safety requirements. Ensure you are aware of the methods of communication used in your workplace, especially if you work in an isolated area, extreme conditions, using machinery or equipment.

Workplace communications include:

- Written-instructions
- Policies/procedures
- Standard Operating Procedures (SOPs)
- Invoices, transport documents
- Diagrams
- Signs
- Stickers
- Labels
- Hand signals
- Lights
- Audible sounds



In the event of an Emergency

You need to communicate:

- There is an emergency
- Nature of emergency
- Location of emergency

Who do you tell?

- Other people in the area
- Safety officer
- Manager/Supervisor
- Emergency Services



Do you know where the

- Muster point is?
- Location of first aid facilities?
- Who is a First aid officer?
- Where fire extinguishers are, and how to use them effectively?

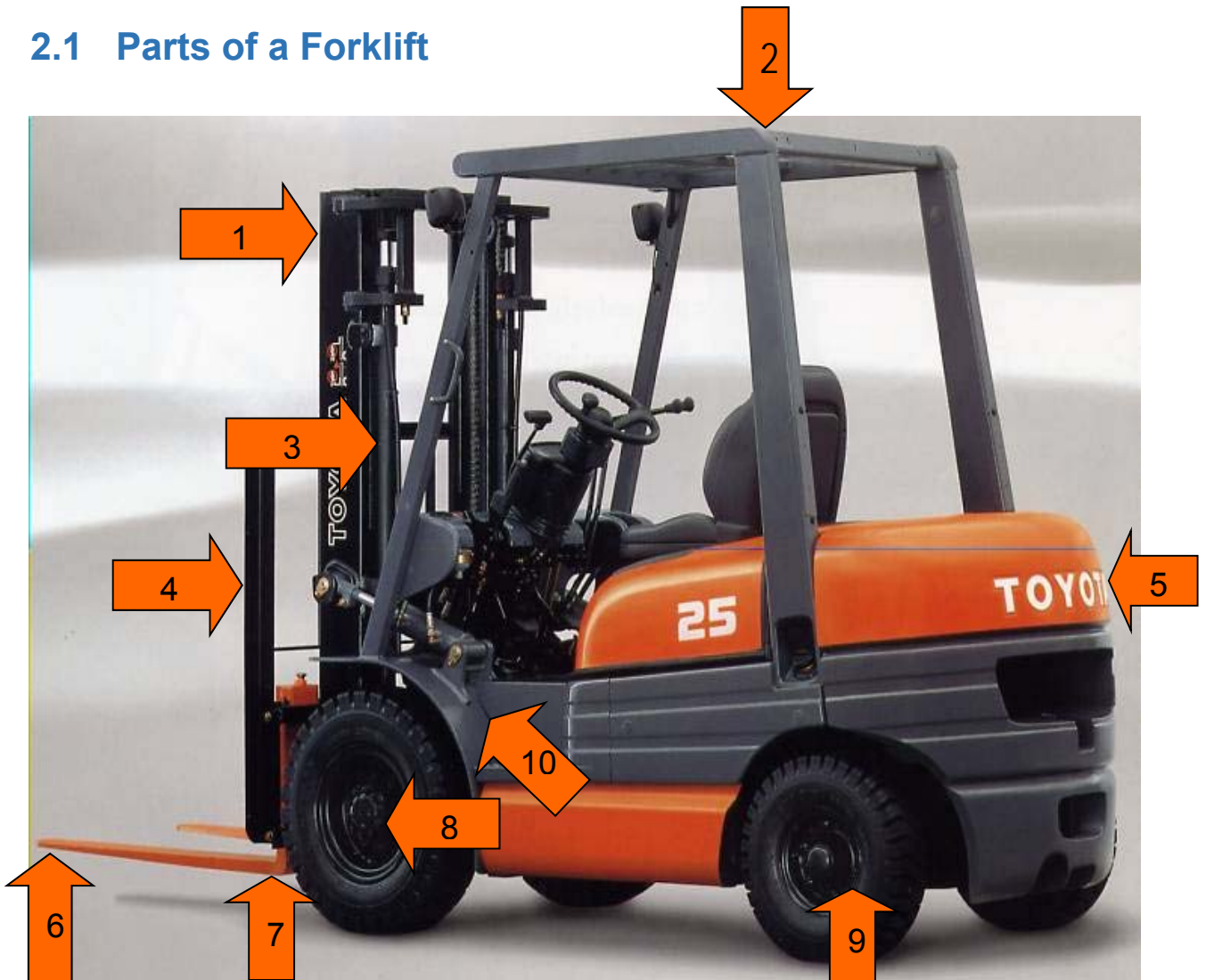


Ensure that all forklifts and vehicles give way to all emergency vehicles.

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SECTION 2: Forklift Trucks, Types & Physics

2.1 Parts of a Forklift



1. Mast – attaches the load backrest/tines and enables the assembly to be lifted vertically.
2. Overhead Guard – prevents loads, items falling on to the operator.
3. Chains and Lifting cylinder – enables fork tines to lift the load.
4. Load Backrest (Guard) – prevents load from fouling the mast and/or falling on the operator.
5. Counterbalance – balances the forklift when loaded.
6. Tip of fork – guides forks into pallets/loads.
7. Heel of fork – the right angle of the tine against the load backrest.
8. Drive wheel (pivot point) – provides forward and reverse movement of the forklift.
9. Steer wheels – steer the forklift.
10. Foot Guard – prevents operator's foot from touching the tyres when entering, alighting and driving.

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2.2 Alternate Forklift Trucks

1



2



3



4



5



6



1. Industrial counterbalanced fork truck
2. Industrial Reach truck
3. Rough terrain counterbalanced fork truck

4. Telescopic materials handler
5. Side loading lift truck
6. Pedestrian controlled lift truck

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SECTION 3: Is the Forklift Safe?

3.1 Pre-start Inspection Checks

Pre-start checks are conducted by an authorised operator before using the forklift to ensure the forklift is safe to use. The check should be completed systematically, efficiently and thoroughly. Start the check where you are going finish. Check all around the machine top to bottom and side to side.

PRE-START INSPECTION CHECKS SHOULD INCLUDE BUT NOT LIMITED TO THE FOLLOWING:

- Capacity plate is fitted and is legible
- Mast assembly – damage
- Load backrest – installed, no damage, not loose
- Forks/Tines are in good condition
- Chains/Hoses – guide wheels are smooth in operation
- Overhead guard – installed, no damage
- Seating area – clear of loose objects
- Tyres – wear, damage, pressure, wheel nuts
- Safety decals are fitted and are legible
- Metal welds are in good condition and no signs of cracking
- Gas bottle is secure and has sufficient gas for task
- Light lenses are in good condition
- No fluid leaks under the forklift or around hydraulic hoses and connections
- Battery is secure and cable connections are tight
- Windscreen and mirrors clean
- All Forklift guards are fitted and in good condition
 - ✓ Load backrest
 - ✓ Foot guard
 - ✓ Overhead guard

Forklift Fluid levels:

- Engine oil
- Transmission oil
- Hydraulic oil
- Radiator coolant
- Brake fluid
- Fuel level
- Battery water

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3.2 Start Up Checks

START-UP CHECKS SHOULD INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

- Engine operation is smooth and no abnormal noises evident
- Dash board display operating and no warning lights illuminated
- All lights including indicators, head lights, park lights, brake lights and reverse light are working correctly
- Horn available
- Warning devices
- Mast and hydraulic controls are used to maximum operating conditions
- Park/Hand brake operation
- Forward and reverse gears
- Foot brake
- Steering controls and operation

REMEMBER IF YOU FIND A DEFECT OR FAULT WITH YOUR FORKLIFT BEFORE, DURING OR AFTER AT THE POST CHECK STAGE

1. Do not use the machine
2. Tag it
3. Log the defect
4. Remove the key
5. Report it to your supervisor

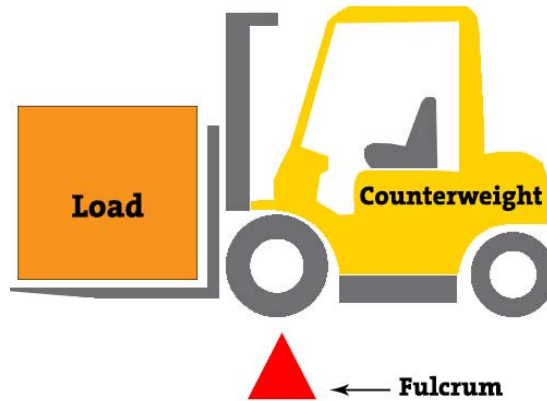


Only competent and authorised operators can perform minor repairs.

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3.3 Balance of a Forklift

The Fulcrum or pivot point of the forklift is where the front tyres touch the ground.



- All the weight behind the pivot point acts as a counter weight
- Never add additional weights to the rear of a forklift truck

FORKLIFT TYRES

Tyre condition is essential to maintain stability of the forklift and the load. Forklifts are fitted with either solid rubber or pneumatic (air filled) tyres. The operator must ensure the tyres:

- Have the correct operating air pressure as per the manufactures specification
- Have sufficient tread as per manufactures specification
- Have even tread wear
- Not worn on outer edges, middle section or on an angle
- Have no pieces/chunks of rubber missing, cracking or sidewall damage
- No splits on the sidewall
- Check wheel nuts are secure



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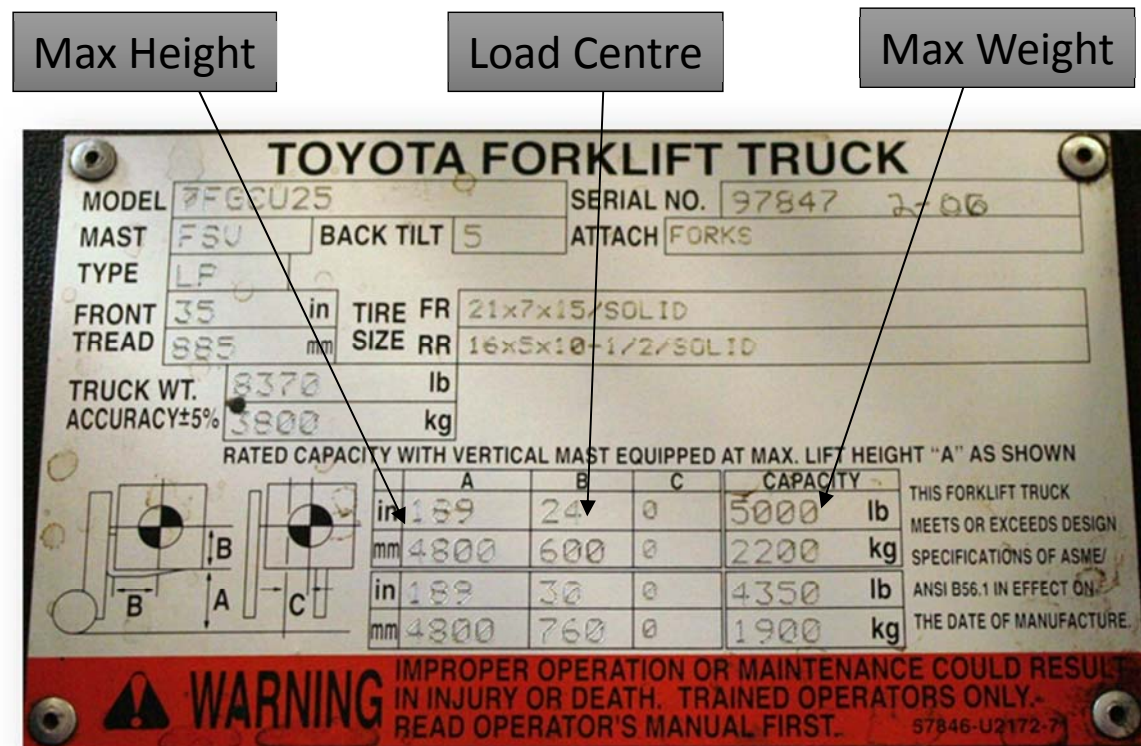
3.4 Rated Capacity – Date Plates

By law every forklift must have a Compliance Plate affixed to the forklift and be legible.

This may also be referred to as the Data Plate or Capacity Plate.

If a data plate is missing or unreadable, tag and report. **Do not use. Tag the machine out and report it immediately to your Supervisor.**

The term **Rated Capacity**, is the maximum load the truck is designed to carry at a load height and specific load centre distance.



The data plate attached to the forklift is an integral part of the safe operation of the forklift. After studying the information you are made aware of the forklift's maximum rated capacity, load centre and maximum stacking height.

The data plate above describes that the machine can lift a maximum of 2200kg to a maximum height of 4800mm providing the load centre does not exceed 600mm. When an attachment has been added the data plate will show a reduced lifting capacity. When attachments are added, they usually add weight so this needs to be deducted from the Maximum lifting capacity. The Load Centre Distance often increases, when this occurs capacity decreases.

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3.5 Load Centre Distance

The load centre distance is the measurement taken from the **vertical face or the heel of the fork arms to the loads centre of gravity**.

Increasing the load centre distance will reduce the lifting capacity of the Forklift truck. The Forklift truck will become unstable, increasing the risk of tipping the forklift truck and losing the load.



Under no circumstances can a forklift lift a greater load than the stated maximum – even if the load centre is less than that stated!

LOAD TABLE 1800 KG AT 600MM LOAD CENTRE
4 metre lift

Load Centre	Lifting Capacity
mm	kgs
600	1800
640	1690
660	1640
680	1590
710	1520
730	1480
810	1330
860	1260
910	1190
990	1090

The above table shows that as the Load Centre Distance increases, the Lifting Capacity in KGs decreases. This is because the further away from the heel of the fork arms the load is, the less stable the machine is.

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3.6 Determining Load Weights

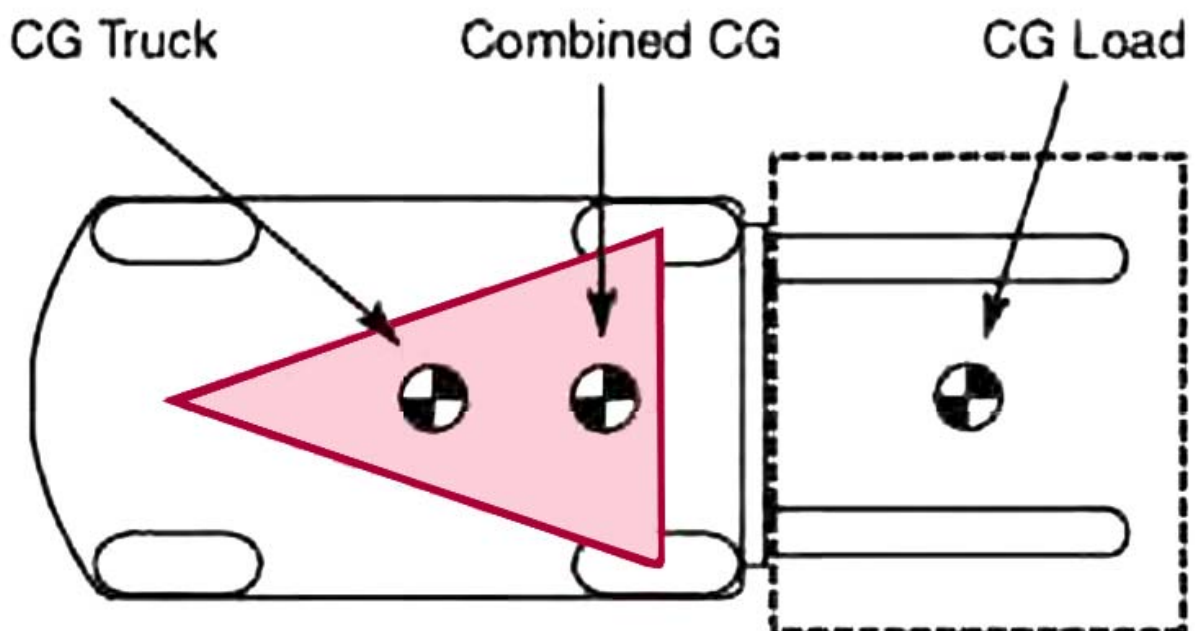
HOW DO YOU DETERMINE THE WEIGHT OF A LOAD?

Determine the weight of the load by:

- Reviewing Consignment paperwork (Con Note)
- Checking load for packaging labels
- Estimating the weight, if similar loads previously loaded
- Refer to a supervisor for information
- Weigh the load

3.7 Stability Triangle

Forklift trucks have a three point stability triangle unlike cars. Provided your forklift and load stay within a combined centre of gravity, the forklift will be stable.



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3.8 Attachments

Fitting an attachment may alter the characteristics of the forklift and is likely to reduce the capacity of the forklift. This is called Derating. Fitting of attachments, should only be carried out by a forklift engineer or authorised person. It may be necessary to use a forklift with a larger capacity. Wherever possible the manufacturer or authorised supplier should be consulted regarding suitability of the attachment for the forklift and the necessary derating.

At the start of each shift, the security of any attachment should be checked and any defects must be reported immediately. If defects are found, do not use the forklift until defects are rectified, report as per organisational policies and procedures.

Below are two example of the many attachments available:

Crane Jib

- May be mounted directly on the fork carriage on the fork arms
- May be of a fixed length or extendible or embody a number of lifting points.
- It is possible to vary the end of the jib from horizontal.
- Fitting of this attachment is subject to additional requirements covering the test and examination of cranes.



Working Platforms

- Working platforms must not be used for order picking.
- In order to prevent inadvertent operation, the operator of the forklift should lock out the tilt mechanism when the machine is being used as a work platform.
- Suitable means of communication i.e. two-way radio between the forklift operator and the person on the platform.
- The forklift must not be driven while persons are in the platform.
- The forklift operator must remain in the forklift when there are people on the work platform.
- Risk assessments should be carried out as per workplace procedures and working at heights or fall restraint devices maybe required.

All Attachments must have a Compliance plate and the forklift data plate must show the rated capacity for the attachment use

All Attachments must be approved and fixed/attached to forklift

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SECTION 4: Operating the Forklift Safely

4.1 General Operational Procedures

Basic operating procedures –

Prior to moving/shifting a load, an operator shall:

- ✓ Ensure pre-operational checks on machine have been undertaken
- ✓ Load has been identified
 - Load structure
 - Load stability
 - Destination of load determined, path of travel has been identified and obstacles identified (if any)

REVERSING PROCEDURES

Prior to driving forward or in reverse, the operator shall:

1. Check behind using mirrors and/or looking over both shoulders to ensure it is safe to move out
2. Ensure all warning devices are operational
3. If the load is obscuring the vision of the operator, employ the services of a responsible person/spotter to assist or drive in reverse
4. The operator shall ensure that during the movement of the goods that the fork tines are kept at a safe travelling height. Ideally the safe travelling height is axle height or as low as the operating surface will allow.



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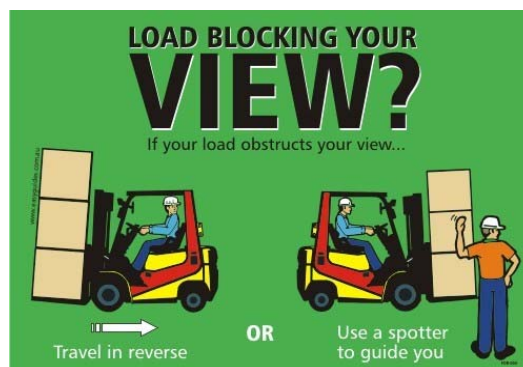
DURING THE COURSE OF TRAVEL, THE OPERATOR SHALL

- Centralise the side shift operation
- **Constantly be checking (visually) the load for signs of instability and safety of personnel in the area**
- Maintain correct driving practices (speed, traffic management principles)
- Vigilant for pedestrians and/or other vehicles
- Not allow passengers to travel on the forklift unless fitted with separate seat and seatbelt
- Not raise or lower a load over people as there is a high risk of injury or death to all persons under or near the load if it falls.



IF THE LOAD OBSCURES YOUR VISION (CANNOT SEE PAST IT)

- Check the pathway is clear
- Check the mirrors
- Look over both shoulders
- Use a spotter if needed. Especially if you have to travel forward like up a ramp
- Make sure warning devices like reversing alarm and horn are working



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4.2 Instability

**HUMAN ERROR
IS THE GREATEST CAUSE OF FORKLIFT ACCIDENTS**

FORKLIFTS MAY TIP OVER SIDEWAYS (LATERALLY) DUE TO:

- ✗ Turning at speed
- ✗ Driving over uneven surfaces
- ✗ Uneven distributed load
- ✗ Driving with an excessively worn or flat or under inflated tyre
- ✗ Turning with load raised
- ✗ Side shift not centred
- ✗ Driving across a sloping surface
- ✗ Turning too sharply



FORKLIFTS MAY TIP OVER FRONTWARDS OR BACKWARDS (LONGITUDINAL) DUE TO:

- ✗ Load not positioned at heel of fork tine
- ✗ Shifting of the load centre forward
- ✗ Incorrect use to the mast tilt (especially if the load is being carried at a high level)
- ✗ The load is too heavy/overloading
- ✗ Driving too fast (loaded or unloaded)
- ✗ Driving over uneven surfaces
- ✗ Driving with an excessively worn or flat or under inflated tyre
- ✗ Sudden or heavy braking when carrying a load
- ✗ Incorrect direction of driving on an incline
- ✗ Unsecured or unstable load



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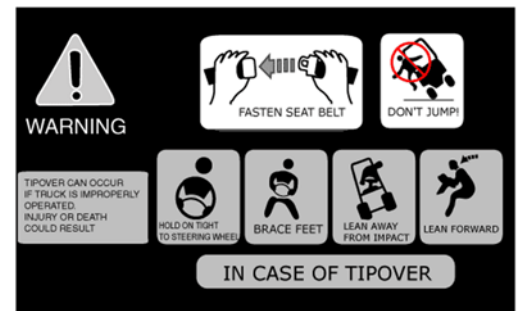
RECOMMENDED TRAVEL HEIGHT WITH LOADS

It is recommended to travel with your fork arms at axel height to keep the combined centre of gravity as low as possible.

FORKLIFT ROLL OVER

Should you consider that the forklift is about to roll over:

- Do not attempt to jump clear
- Remain inside the cab area
- Brace yourself for the impact



The most common cause for deaths with forklifts is when an Operator attempts to jump clear and is crushed by either the overhead guard or the mast assembly.

SEATBELTS

Where seatbelts are fitted on a Forklift truck, they **MUST** be worn.

- It stops the operator from falling out in the event of a tip over.
- It stops the operator being propelled into the forklift structure or out of the forklift in a collision.



CARRYING PASSENGERS ON A FORKLIFT TRUCK

You can only carry passengers on a Forklift truck, if it is fitted with a seat and seatbelt for the passenger.

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4.3 Load Position and Incorrect Lifting Behaviour

CORRECT POSITION OF FORKS



INCORRECT POSITION OF FORKS



- Side shift is the most common cause of incorrect position of forks whilst operating.

FORKS MUST BE RETURNED TO CENTRE OF CARRIAGE BEFORE NEXT LIFT

- Where a load is not distributed evenly or not secure the operator should repack and secure the load. The heavy goods should be closest to load backrest and mast.

LIFTING OF LOADS ON ONE FORKLIFT ARM

The use of only one fork/tine to lift or move goods:

- **Can break the arm;** and
- **Cause the forklift to tip over.**

Never only use one fork/tine to conduct forklift operations unless you have a central approved attachment such as a jib.

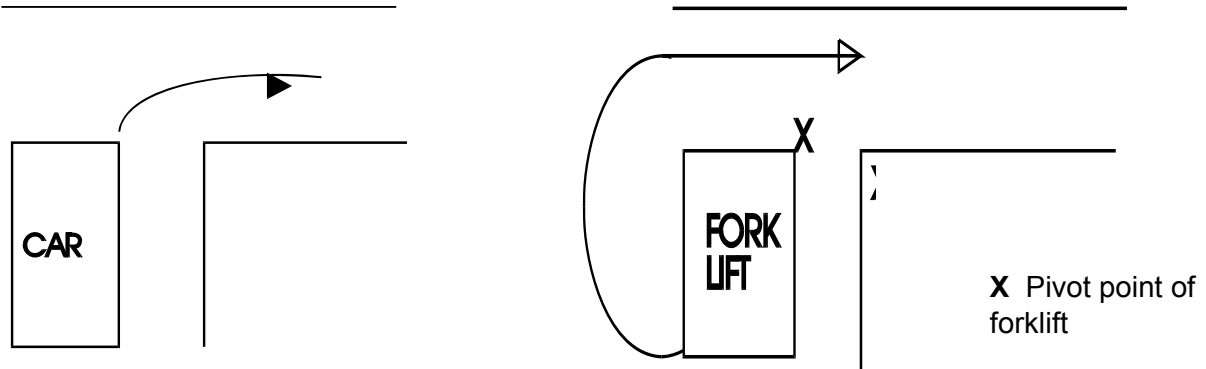


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4.4 Rear End Swing

The steering of a forklift is specially designed to manoeuvre within restricted areas. Operators must make themselves aware of their surroundings before reversing or making a turn, particularly in narrow aisles.

The turning angle is as seen below, pivoting on either left or right wheel.



The acute angle of turn swings the rear of the forklift very quickly which creates a serious hazard and could cause damage or injury to pedestrians or other workers if the operator is not attentive to the surroundings.

It is estimated that the rear end swing is **three** times the speed of the forward movement of the forklift.



Example Forward movement = 10kph

Rear end swing = 30kph

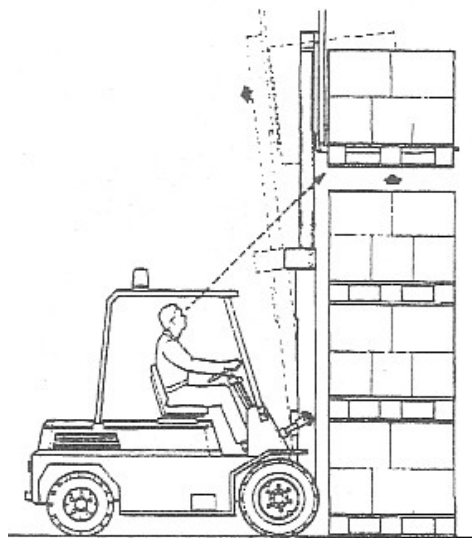
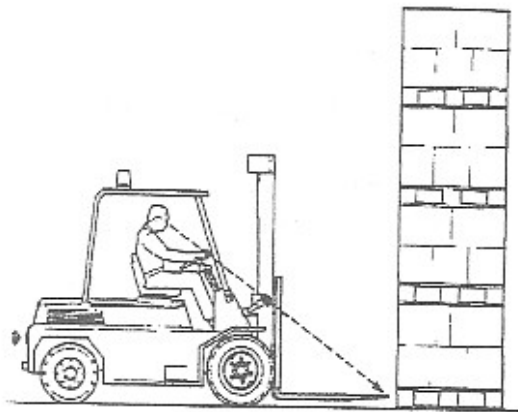


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4.5 Stacking/Unstacking

When stacking loads into racking, or on top of other pallets, you must ensure:

1. That the load to be stacked on is firm and level.
2. If the load is uneven and not secure, restack to ensure evenness and stability.
3. Heavier pallets are stacked at the bottom of the stack, and not in the middle or top.
4. Adhere to workplace procedures with regard to load labelling requirements.



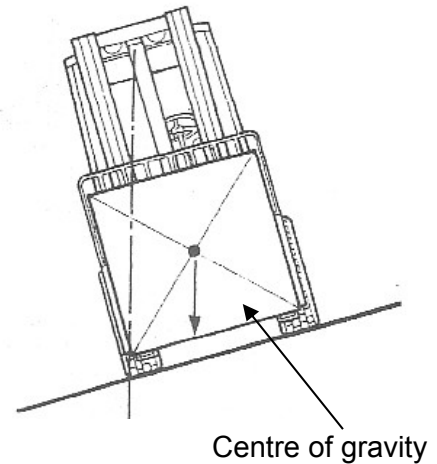
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4.6 Inclines and Declines

NEVER TRAVEL SIDEWAYS

As the angle of the forklift and its load may exceed the centre of gravity point as explained on page 24 and cause the forklift to roll over, or the load to shift.

Never travel downhill with a load as it may become dislodged, fall off or destabilise the forklift.

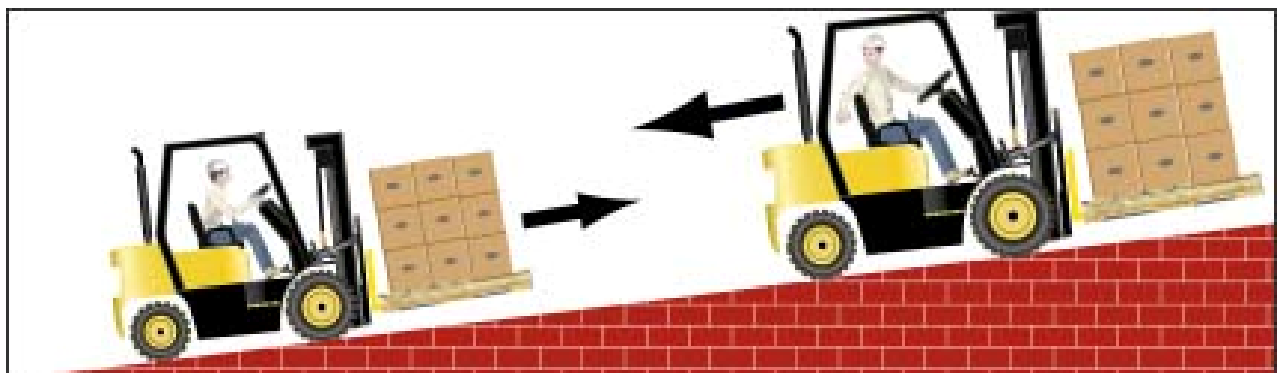


On a decline:

- Travel in reverse with mast tilted back.
- This will ensure a secure load and clear vision.

On an incline:

- Travel forward with mast tilted back.
- This will ensure a secure load and clear vision.



If the load being carried obscures the view of the operator, then a spotter or guide person should be used.

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4.7 Uneven/Wet/Slippery Surfaces

When driving on uneven, wet or slippery surfaces

- Reduce speed
- Proceed with caution
- Avoid ramps



4.8 Bridge Plate

As the name implies, the bridge plate is used to bridge the gap between two platforms or surfaces for loading purposes.

The example below shows the use between a semi-trailer and a loading dock.

An operator must:

- Always use a bridge plate where movement may occur between loading surfaces;
- Ensure bridge plate complies with safe working regulations;
- Ensure the bridge plate is anchored **securely** and free of oil or grease.



**DO NOT ALLOW PEOPLE TO WALK UNDER THE BRIDGE PLATE
ALWAYS DRIVE SLOWLY**

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LOADING RAMP

- Ensure the braking system for securing the semi – trailer has been applied.
- Wheel chocks may also be used to further secure the trailer.
- Always chock wheels in case the braking system is faulty or has not been applied i.e. worn handbrake or truck driver error.
- A ramp of this type must be secured to the trailer by chains.



4.9 Shutdown and Parking Procedure

WHERE APPLICABLE, PARK IN DESIGNATED AREAS ENSURING THAT THE FORKLIFT HAS NOT BLOCKED:

- Emergency exits
- Fire hoses
- Emergency equipment
- First aid stations
- Public access/doorways
- Traffic or other vehicles in the area



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NORMAL PARKING PROCEDURE –

- Apply park/hand brake
- Gear selection in neutral
- Fork tines are lowered and tips on the ground
- Switch off engine and turn off gas valve, if L.P.G.
- Remove key so unauthorised persons cannot operate forklift
- Follow any other site specific procedures.



When parking forklift on an incline or sloped surface follow the normal parking procedure and fit/install wheel chocks.



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BREAKDOWN OR ACCIDENT PROCEDURES/DEFECTS

APPLY MAIN BRAKE –

If it has failed, chock the wheels.

The following may vary slightly dependent on the type of forklift being driven.

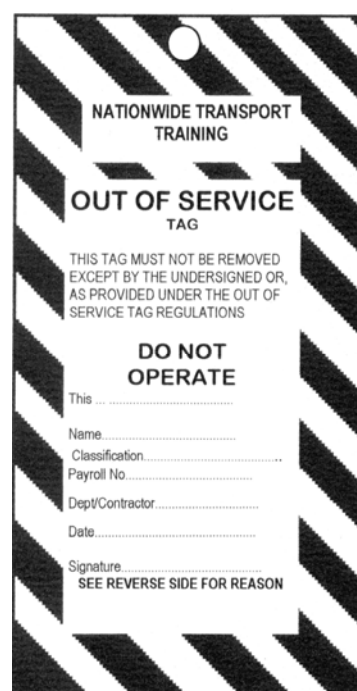
The manufacturer's manual together with company policies and procedures must be consulted.

In a breakdown or accident situation, the operator shall ensure:

- Gears in neutral
- Turn the forklift off and remove key
- If a load is in an elevated position it must be returned to ground level, unless the breakdown/defect will not allow. In this case, the Operator must make the area safe from further accident or damage through one or more of the following:
 - Have a responsible person on duty to warn others
 - Place clearly visible warning signs
 - Erect barriers
- Place an **OUT OF SERVICE** tag/sign on the forklift (Tag out)
- Report to a supervisor
- Log the fault as required.



Out of Service Tag can only be removed by Authorised Personnel and only after repairs have

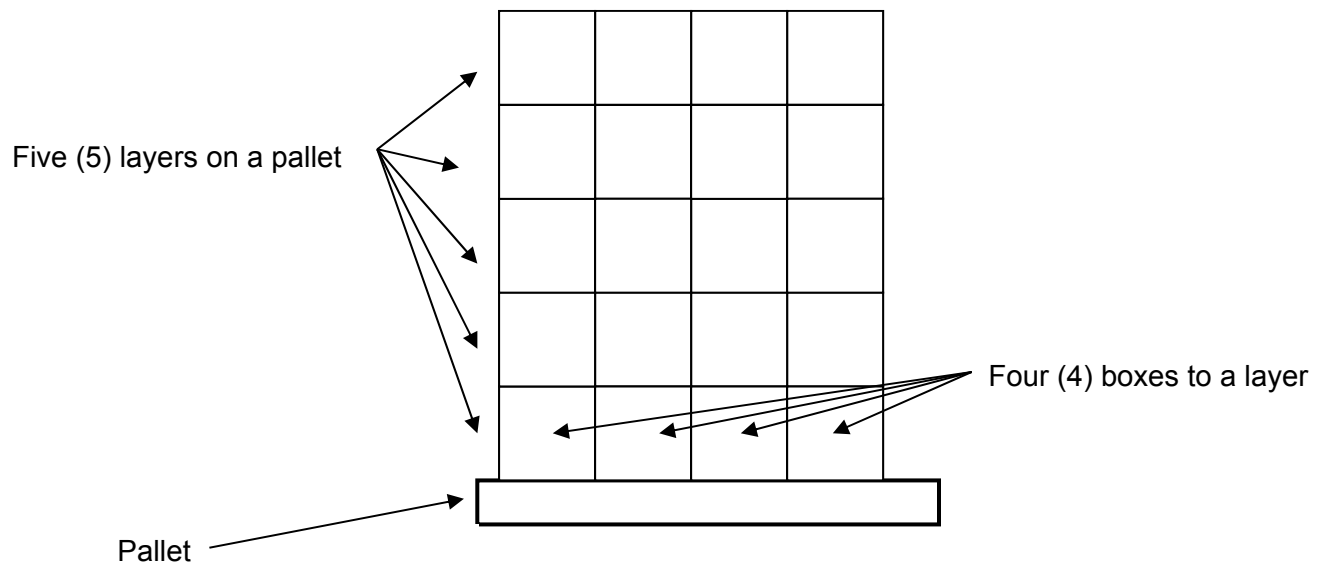


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SECTION 5: Calculations

5.1 Pallet Weight Calculations

Sample pallet weight calculation



- Each box weighs 10kg
- Four (4) boxes per layer
- Five (5) layers per pallet
- Pallet weight is 12kg

Total of boxes and pallet = 212kg

Show all calculations:

Boxes = $4 \times 5 \times 10\text{kg} = 200\text{kg}$

Weight of the Boxes 200kg

$4 \times 5 = 20$

$20 \times 10\text{kg} = 200\text{kg}$

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Practice Calculations

Question1:

The load to be moved is cartons, stacked on a pallet

- Four (4) layers high
- Six (6) cartons to a layer
- Each carton weights 15 kg
- Standard pallet size, weight 15kg

What is the combined weight of the pallet to be moved? _____ kg

Show all calculations:

Question 2:

The load to be moved are bags of flour, which are stacked on a pallet.

- 82 bags on a pallet
- Each bag is 20 kg
- The pallet is a standard size and weighs 35kg.

What is the total weight of the bags and the pallet? _____ kg

Show all calculations:

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Question 3:

The load to be moved is drums stacked on a pallet:

- Four drums on the pallet
- Each drum is 220kg
- Standard size pallet weighing 40kg

What is the combined weight of the drums and the pallet? _____ kg

Show all calculations:

Answer 3
920 kg

Answer 2
1675 kg

Answer 1
375 kg

Pallet weight calculations

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