PRO-LIFT
Training & Assessment Services

TLILIC0003 Licence to operate a forklift truck

Student Guide

Contents

Introduction

Welcome to **TLILIC0003 Licence to operate a forklift truck.**

This unit specifies the skills and knowledge required to operate a forklift truck safely in accordance with all relevant legislative requirements. Competence in this unit, does not in itself result in a HRWL licence to operate this plant. Forklift truck means a powered industrial truck equipped with lifting media made up of a mast and an elevating load carriage to which is attached a pair of fork arms or other attachments that can be raised 900 mm or more above the ground, but does not include a pedestrian-operated truck or a pallet truck. A person performing this work is required to hold a forklift truck High Risk Work Licence (HRWL).

Elements covered in this unit are:

1. Plan for the work/task
2. Prepare for the work/task
3. Perform work/task
4. Pack up

WHS Law

Legislation is law passed by Parliament.

It governs many areas, including health and safety at work. It can be national, or relevant to individual states and territories.

You need to know the WHS legislation that covers your job and workplace.

You are required by law to comply with them.

You need to understand how WHS Acts, regulations, codes and standards affect your work, job and workplace.

Acts & Regulations

Acts - Are law. They describe how to provide health and safety in the workplace

The *Occupational Health and Safety Act* ***2011*** (the Act) is the cornerstone of legislative and administrative measures to improve occupational health and safety in ***Qld***

Regulations - are made under the Act. They set out the practical steps to follow to comply with the Act

Codes of practice and Australian Standards

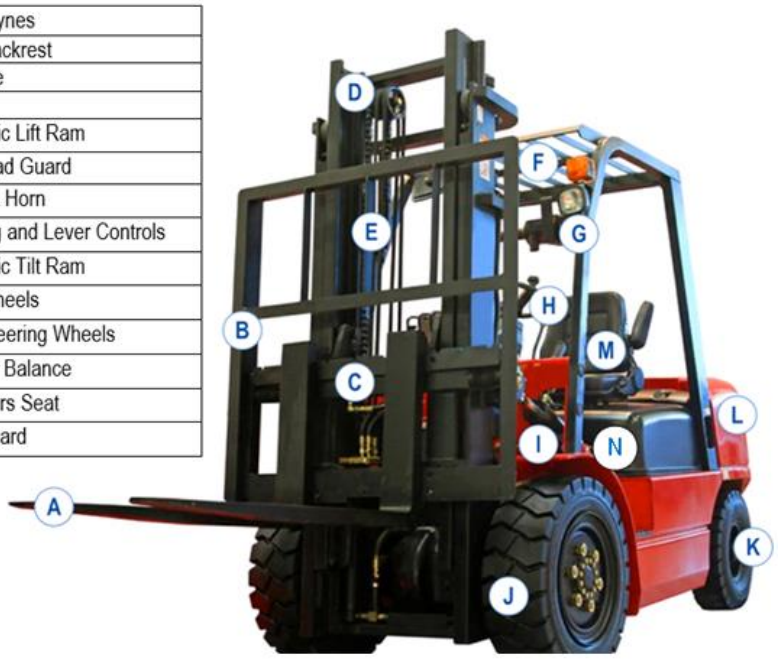
Codes of practice - Give practical guidance on how to legally comply with regulations and Acts

Australian Standards - Developed to provide minimum levels of performance or quality. Cover hazards, work processes and products.

The safest way to carry out the work activity is to read, understand and follow your

- Safe work method statements
- Codes of practice

A	Forks/Tynes
B	Load Backrest
C	Carriage
D	Mast
E	Hydraulic Lift Ram
F	Overhead Guard
G	Lights & Horn
H	Steering and Lever Controls
I	Hydraulic Tilt Ram
J	Drive wheels
K	Rear/Steering Wheels
L	Counter Balance
M	Operators Seat
N	Foot Guard



Identify task requirements

You can identify your task requirements by obtaining

- Work orders
- Work plan which may be verbal, documented / written, or electronically generated
- Take 5
- Job Safety Analysis

Work health and safety regulator

A high-risk worker not working safely under a high-risk work licence can face action from the work health and safety regulator:

- Suspend their HRW licence
- Cancel their HRW licence
- Not renew their HRW licence
- Order to undergo re-assessment
- Prosecute

Employer responsibility

Before operating a new type of forklift truck, the employer must provide;

- Information
- Training
- Supervision

Employers' obligation

Employers have an obligation to ensure the health and safety of all workers by:

- Providing a safe working environment
- Provide and maintain safe plant and structures
- Provide and maintain safe systems of work

Employee Duty of care

Ensure you meet your Duty of Care requirements to keep yourself and other workers safe:

- Take reasonable care for own health and safety
- Take reasonable care for the health and safety of others
- Follow all workplace rules

Compliance documents

Types of workplace compliance documents that you can refer to, for safe operations of forklift trucks could include;

- **L**egislation
- **A**ustralian Standards
- **W**HS Policies
- **S**afe Work Procedures (SWP)

Planning before starting work

Other than hazards, you should plan for;

- **P**ermits
- **R**isk assessments
- **A**ccess
- **C**ommunication
- **T**raining
- **L**ocation of task

Minimum safe operating distances

The minimum safe operating distances that you must remain away from power lines

Queensland	
Up to 132KV	3m
132kv to 330kv	6m
More than 330kv	8m

Northern Territory	
50v to 1000v	3m
1000v to 33000v	3m
33000v to 66000v	4m
66000v to 132000v	5m

Check the voltage

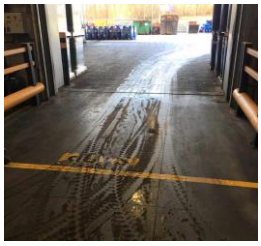
To check the voltage of powerlines you are working near, contact your ***local power authority.***

Identify overhead power lines

Identify overhead power lines by observing

- Tiger tails
- Safety signage
- Danger signs
- Marker balls
- Painted bottom section of poles
- Spinners

Operating surface



If the ground surface is wet and slippery,

- Reduce speed and brake earlier
- Avoid using ramps or driving on a sloping surface
- Avoid harsh braking and steering

Unsealed surface

Make ground checks before operating a forklift on an unsealed surface

- Backfilled ground
- Water impacted (soft ground or soil)
- Pot holes
- Underground services

Ground faults

Types of faults to look for in bitumen, concrete pavements, steel grates and decks

- Insufficient strength
- Cracks
- Pot holes

Ground condition

Operating a forklift truck on uneven ground or soft soils will affect the forklift truck stability.

Confined space

Prevent exposure to dangerous gases by using an ***electric*** or ***hydrogen forklift*** in confined space areas.

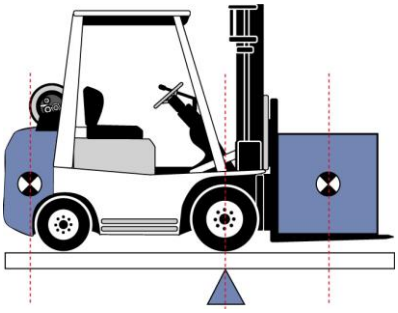
Connecting attachments

Effects of fitting an attachment to a forklift

- The load capacity could be reduced
- Load centre distance could increase
- Instability of the forklift or load may occur

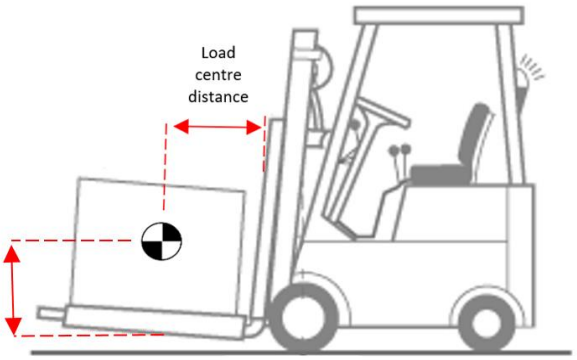
Fulcrum

The Forward Point of Balance (fulcrum) for a forklift truck is located ***where the front tyre touches the ground.***



LCD - Load centre distance

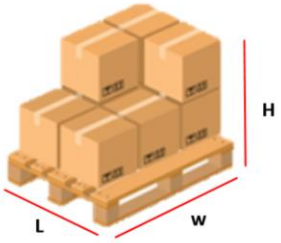
Load centre distances for an evenly distributed load.



LCD - Load centre distance *additional info*

You must never <u>exceed</u> the forklifts Load Centre Distance, as you may tip the forklift over. The Load Centre Distance is found on the forklifts Load Data Plate. Forklifts have 2 load centre distances.

- Horizontal Load Centre Distance – Measure from the Vertical face of fork out to the centre of gravity of the load.
- Vertical Load Centre distance – Measured from Horizontal face of the fork up to the centre of gravity of the load.



LCD *additional information*

Never lift a load outside of the forklifts Load Centre Distance as the forklift is not rated to lift these loads.

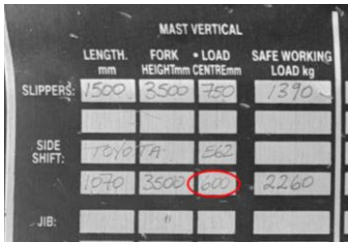
Dimension A - Maximum height the forklift can lift a load

Dimension B - Horizontal Load Centre Distance

Dimension C - Vertical Load Centre Distance

Common load centre distance

Forklifts in Australia generally have a load centre of ***600mm,*** this may not always be the case.



Rear end swing

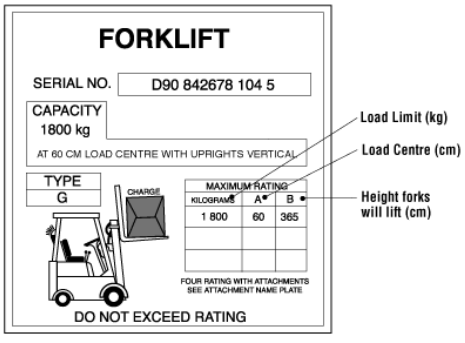
Forklift “rear end swing” can be dangerous or destructive to nearby personnel, plant or equipment for forklift trucks fitted with rear end steering.

The rapid sideways movement can cause injury to people or property.

Forklift data plate

The Rated load Capacity for the forklift or attachment is found on the ***data plate***

It is the maximum load that a forklift truck is designed to carry at a specified load elevation at a specific load centre distance.



Jib attachment

When using a jib attachment on a forklift, always be aware of

- Reduced load capacity
- Reduce stability

Manufacturer's instructions

Always refer to the manufacturer's instructions for the safe use of attachments such as:

- Slippers
- Work platform/basket
- Jib attachment
- Rotating attachment
- Drum clamp
- Bale clamps
- Blade attachment
- Paper roll clamps
- Fork extension on tynes
- Carpet spikes for carpet rolls

Consult

Always consult with personnel about workplace hazards before starting work.

- **S**afety officer
- **O**ther people
- **S**upervisor

Path of movement

Always check your path of movement before commencing forklift operations to ensure

- So that we have identified all hazards
- So that we have applied appropriate controls measures
- It is safe to continue operations

Legislative distance

The legislative distance you must maintain when operating a forklift near a railway is ***3 metres.***

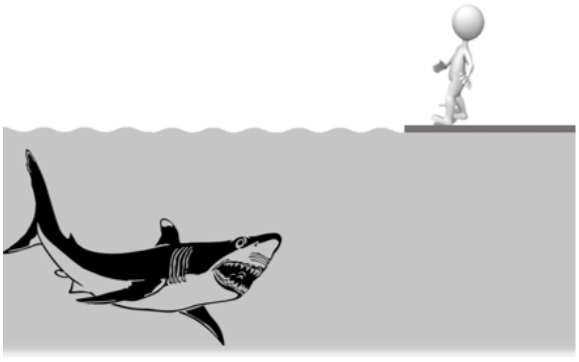
Trench covers

Do not drive across trench covers with a forklift, unless they are ***rated*** and you are ***within*** the ***safe working load.***

Always ensure trench covers are ***located properly and secure***.

Hazard and Risk

A **Hazard** is *something that has the potential to harm you*



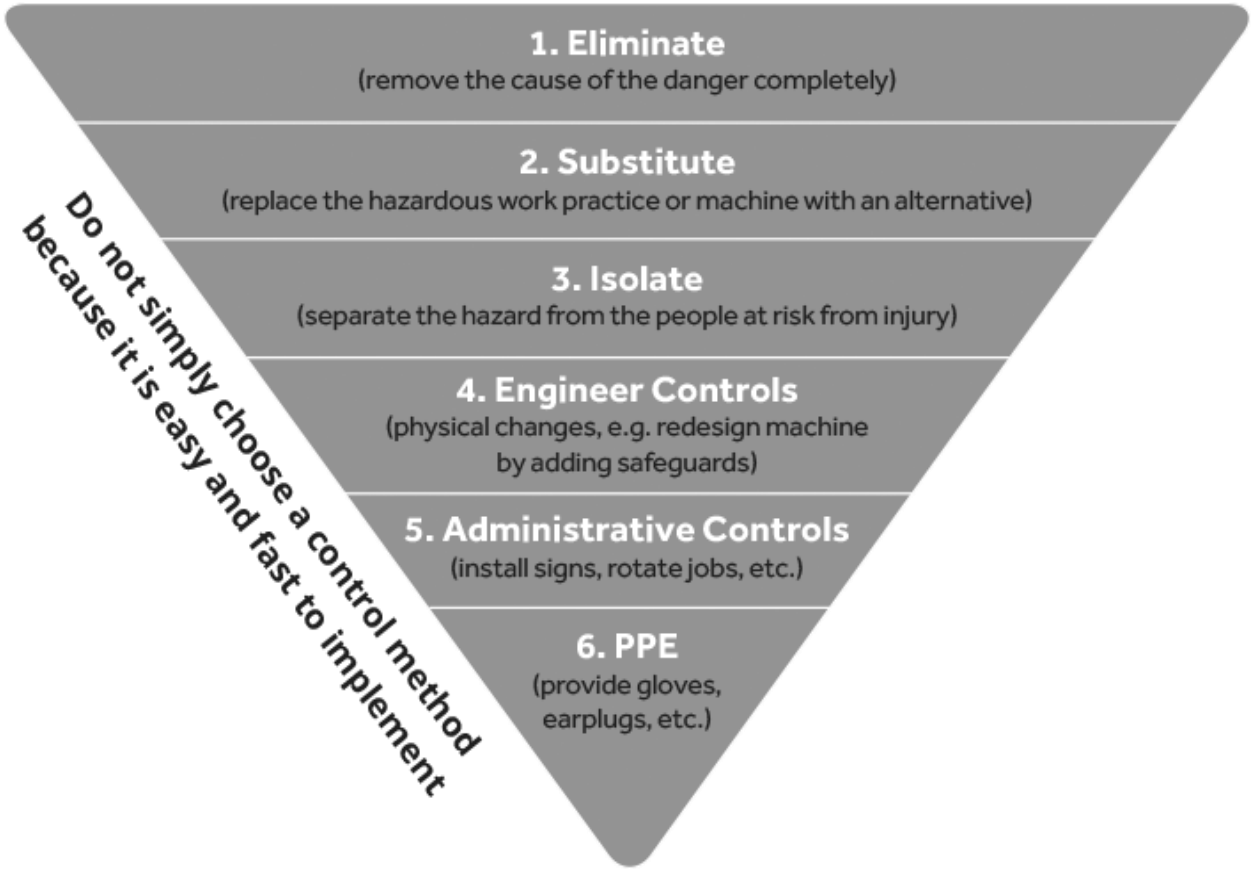
A **Risk** is *the possibility of harm (death, injury or illness) from exposure to a hazard*

Workplace hazards

Potential workplace hazards that could affect forklift operations

- **B**uildings
- **U**nderground services
- **R**ain
- **S**tructure
- **T**rees
- **S**ervices
- **S**ize of load

Hierarchy of hazard control



Personal Protective Equipment

PPE is required to refuel and recharge a forklift truck:

- Gloves
- Safety Glasses
- Safety boots

When working in ultra violet light (Sunlight) ensure PPE is worn

- Long sleeve shirt
- Sunscreen
- Broad brim Hat

Battery

Always obtain procedures for refueling or recharging gas and electric forklifts

- Manufacturer instructions
- OEM Instructions
- Site/workplace procedures

Seatbelt

Always wear a seatbelt on a forklift

- Safety
- To stop the operator being thrown forward in the event of a collision
- To keep the operator in the forklift in the event of a collision

Traffic control

When operating a forklift on site and when placing traffic signs outside the site, always refer to

- The traffic control plan/Traffic management plan
- Traffic control guidance scheme

Traffic management

Keep pedestrians' safe in your work area by applying controls according to your traffic management plan:

- Warning Signs
- Barricades
- Flashing hazard lights

Communication

Communication forms used within a work environment:

- Verbal/questioning techniques
- Written or electronically generated
- Signage
- Two-way radio
- Hand signals
- Traffic warning systems

Hand signals

Stop Forks up Forks down

Confirm work / task requirement

Always confirm your work or task requirements with your supervisor

- To ensure any requirements for the work area are met e.g., traffic control, isolation, or signage requirements
- To ensure workplace procedures are understood and followed

Communications

Always maintain communications with workplace personnel

- To ensure all personnel understand the workplan
- To ensure work will be done according to site requirements
- To ensure work will be done according to safe work procedures

Unclear communications

If you are unsure of a spotter's hand signal

- Stop all movement
- Ask spotter to clarify last signal

Night operations

When operating the forklift at night you must have ***adequate lighting*** over the whole work area to ensure safety.

Extreme heat

When working in extreme heat ***remain hydrated*** by ***drinking water*** and ***take regular breaks.***

Beware ***signs of fatigue*** like poor concentration when working in extreme heat.

Weather forecast

Checking a weather forecast before commencing work will help to

- To help prepare work activities
- To identify what risk controls, you need to put in place
- Scheduling of work

Hazards created by weather

Types of hazards created by weather that impact forklift operations.

- Wet or slippery conditions
- Heat and sun exposure
- Heavy rain
- Low visibility
- Strong winds
- Snow
- Smoke

Change of Weather

If a weather change during forklift operations presents a risk e.g., lightening, heavy rain, hail, or strong wind.

- Stop work
- Safely lower the load if you have one according to manufacturer requirements
- Notify your supervisor

Risk controls

Use risk controls for identified hazards

- Barricades
- Signage
- Lights
- Traffic controller
- Spotter

Pre-start checks

For the correct start up procedure of a forklift refer to the ***manufacturer's start-up procedure/operator manual***

Defective

If during a pre-start operational check, a hydraulic leak is detected and or a data plate is missing or damaged.

- Do not use forklift
- Tag out of service
- Report it to supervisor
- Record in log book

Log book

Check the forklift logbook to review

- Forklift operation
- Daily safety checks
- Defects and repairs

Forklift pre-start

Forklift pre-start checks (before operation)

- Data plates
- Mast
- Fluids
- Tyres
- Battery
- Tynes/forks
- Safe guards
- Damage to lights
- Security of attachments

Refuel

Do Not refuel the forklift with the engine running as this could cause the ***fuel to ignite*** *and cause* ***fire.***

Operator manual

To identify all the controls on the forklift, see the ***operator manual.***

Tyres and rims

Before using your forklift, the tyres, and rims for

- Uneven wear
- Wheels are secure
- Tread depth is not below indicator
- Chunks of rubber missing
- Properly inflated
- UV damaged

Air pressure

Correct air pressure is important on air filled tyres ***to maintain stability of the forklift and load.***

Report

Report & record any faults and damage to the forklift by

- Informing your supervisor
- Recording in the log book

Forklift attachment

Before attaching and securing any forklift attachment, always refer to the manufacture's guidelines for the correct requirements.

Signage and labels

All signage relevant to forklift, attachments and labels including data plates, must be checked to ensure they are visible and legible in accordance with the appropriate standard.

Post start checks

Perform post start operational checks after starting your forklift and according to manufacturer specification.

- Hydraulic operation
- Steering
- Brakes
- Horn
- Lights
- Hazard warning system

Test safety devices

Safety devices need to be tested, reported, and recorded before using a forklift

- Horns
- Audible / visual reversing device (reverse beeper/lights)
- Seat belt
- Lights and Hazard lights

Guards

- The *load backrest* stops the load fouling the mast and protects the operator
- The ***overhead guard*** protect the operator from falling objects

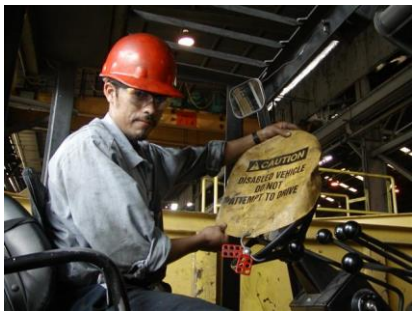
Batteries

Batteries must be charged in a well-ventilated area to ***reduce the risk of a build-up of explosive gases.***

Tag out and report

If you hear abnormal noises after starting a forklift

- Shut down the forklift
- Put a tag on the forklift
- Report the noise to the appropriate person
- Record fault in the logbook

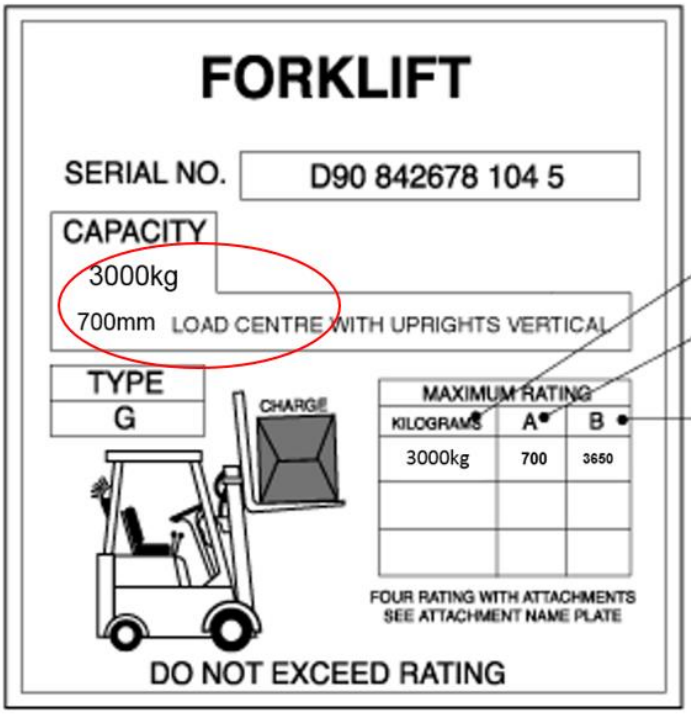


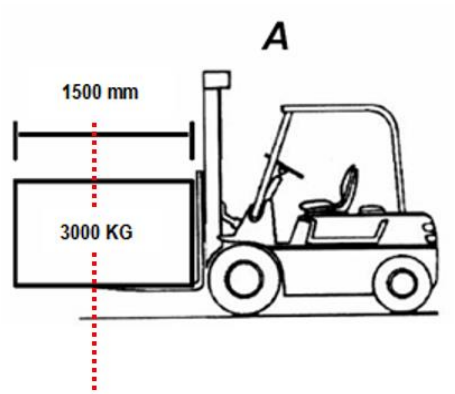
Determine weight

Determine the weight of an unmarked load by

- Calculation
- Consignment notes
- Weighbridge dockets
- Labels marked on load

Load centre





1500mm / 2 = 750mm

Forklift A is ***overloaded*** / outside of rated capacity

Loads

Never raise or lower a load near or over people, this is ***due to the risk of injury or death to persons in the event of a load falling.***

Passenger

Forklift trucks may carry passengers ***when they are designed to do so***.

They must have an approved seat, footrest, and seat belt to allow a passenger to be carried.

Safe practice

It is unsafe to carry a load on only one forklift arm

- Instability of the forklift
- Damage to forklift
- Load could fall

Position load for travel

Position a load for travel at a height

- No higher than axle height
- As low as possible

Reversing

If you are unable to see over your load

- Use a spotter
- Travel in reverse

Capacity/stability

A load not hard against the heel of the fork arms will

- Reduce the forklift trucks lifting capacity
- Can make forklift unstable

Monitor load movement

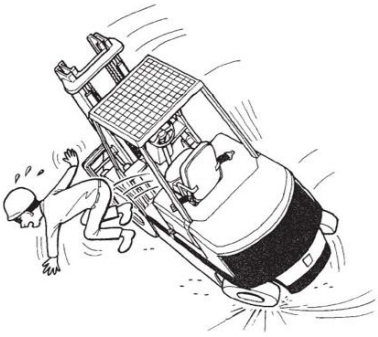
Constantly monitor load movement ***so that the forklift and load remain stable.***

Shifting loads

Before shifting a load, place ***secured dock / bridge plates*** over a gap between a truck and a loading dock.

Lateral stability

Do not turn a forklift truck on a ramp or sloping surface, this is dangerous as the lateral stability is affected and the ***forklift truck could tip over sideways and you lose your load.***



Failure of controls

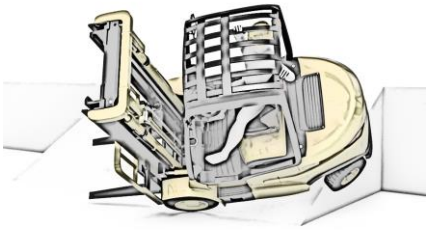
If you experience a failure of controls when working

- Stop work and shut down the forklift
- Put a danger tag on the forklift
- Report to the appropriate person
- Record fault in the logbook

Rollover

In the event of a rollover

- Stay in the machine
- Brace yourself
- Lean away from impact
- Do not jump



Emergency procedures

Follow the sites' emergency procedures in the case of an emergency on your site.

Contact with electric lines

If your forklift touches overhead electric lines

1. Warn others to stay away
2. Attempt to break contact with electric lines
3. Stay in the cab if safe to do so, if it's not safe jump out without touching the forklift and hop/shuffle 8m clear
4. Report the incident to authorities
5. Have the forklift checked before next use

Ramps and incline

When travelling up or down an incline, the ***load and forks must be pointing up the ramp.***

Tiering considerations

When stacking loads on top of each other

- Surface to be firm and level
- Heavy loads on the bottom
- Do not stack too high
- Keep stack straight and stable
- Ask question *"Can the lower load take the weight"?*

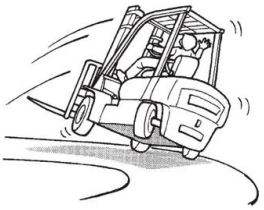
Stability & travel

Ensure side shift is centralised before travelling ***to maintain stability of the forklift and load.***

Lateral instability

Actions that may cause a forklift truck to tip over sideways while travelling with a load

- **D**riving on uneven surfaces
- **D**riving too fast
- **D**riving across slopes



Actions that may cause a forklift truck to tip over sideways while travelling ***(additional information)***

- Turning at speed
- Driving over uneven surfaces
- Unevenly distributed load
- Side shift not centred
- Tyre pressure low
- Turning with load raised
- Turning on a slope

Longitudinal instability

Actions that may cause a forklift truck to tip forward, or backwards while travelling

- **D**riving on uneven surfaces
- **D**riving too fast
- **D**riving up, or down slope

Longitudinal instability *(additional information)*

Actions that may cause a forklift truck to tip forward or backwards while travelling

- Overloading
- Severe braking
- Incorrect use of the mast tilt
- Load to far forward
- Harsh braking
- Driving down a ramp with a load
- Driving with a raised load

No Parking

Do not park a forklift truck

- Near first aid stations
- Near firefighting equipment
- Near doorways, on sloping surfaces
- On or near pedestrian walkways
- Emergency exits
- Where it is obstructing other traffic

Parking

If your forklift truck must be parked on an inclined surface, take precaution would you take

- Conduct normal parking routine facing uphill
- Switch/Turn off forklift and isolate
- Chock the wheels of the forklift

Shutdown

Correctly shutdown your forklift truck to the manufacturer requirements

- Forks lowered to the ground tilted forward
- Forklift in neutral
- Park brake applied
- Remove Key

Secure to prevent unauthorised use

Ensure your forklift is secured to prevent unauthorised use by

- Remove the keys and isolate
- Turn off gas bottle
- Park in designated area

CALCULATIONS

The load to be moved is cartons that are stacked on a pallet:

- 8 to a layer
- 6 layers on the pallet
- The pallet weighs 12kg
- Each carton is 25kg

What is the combined weight of the cartons and pallets?

- 8 cartons to the layer x 6 layers = 48 boxes
- 48 boxes x 25kg = 1,200kg
- 1,200kg + 12kg for the pallet = 1,212kg total weight

The load to be moved is drums stacked on a pallet

- 6 drums on the pallet
- Each drum is 230kg
- The pallet weighs 50kg

What is the combined weight of the drums and pallets?

- 6 drums x 230kg per drum = 1,380kg
- 1,380kg + 50 for the pallet = 1,430kg total weight

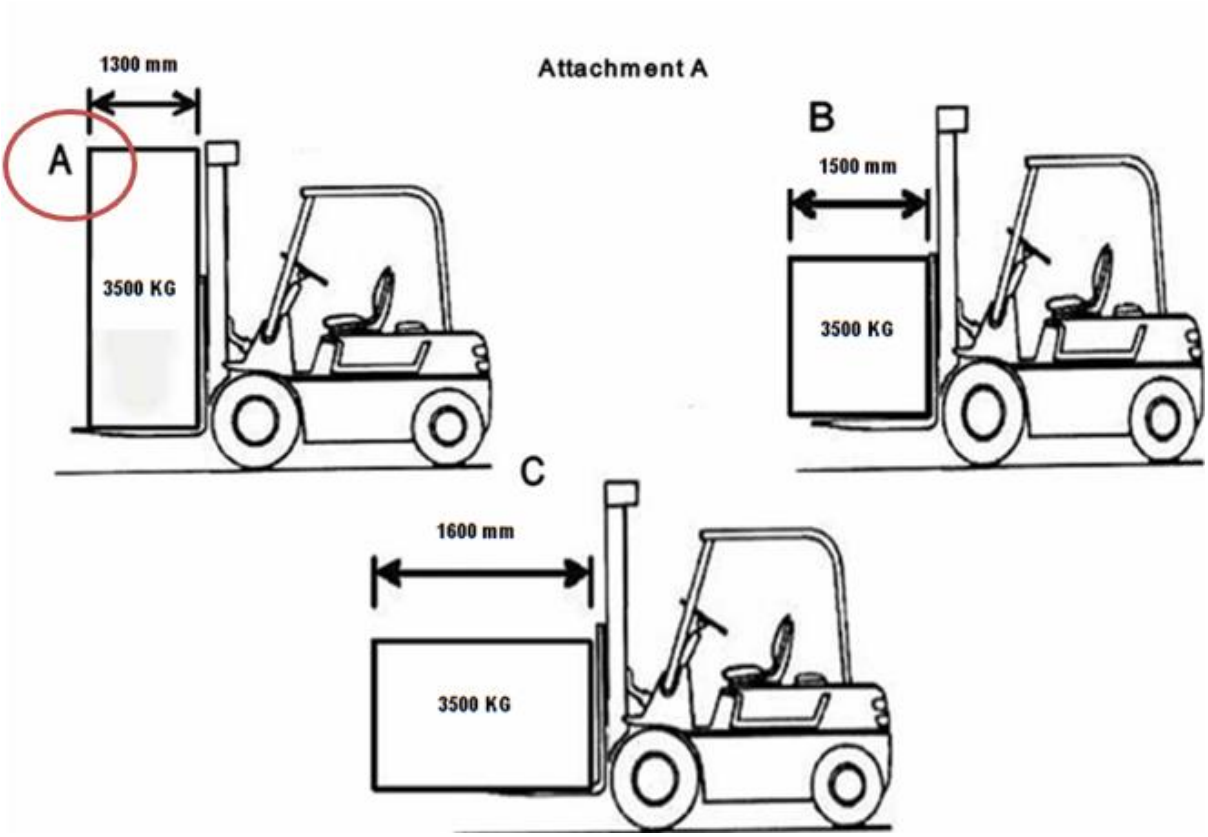
The load to be moved is bags of concrete stacked on a pallet

- 65 bags on the pallet
- Each bag is 25kg
- The pallet weighs 50kg

What is the combined weight of the concrete bags & pallets?

- 65 bags x 25kg per bag = 1,625kg
- 1,625kg + 50kg = 1,675kg total weight

The forklift trucks are rated at 3500kg at 700mm load centre. Which of the loads are within the capacity of the forklift truck?



A 1,300mm ÷ 2 = 650mm. 50mm inside the forklift load centre distance

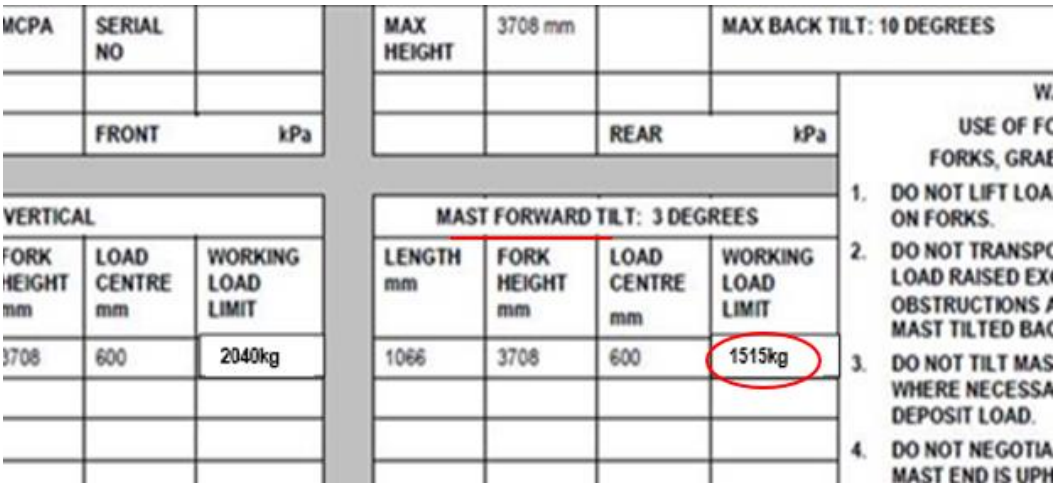
B 1,500mm ÷ 2 = 750mm. 50mm outside the forklift load centre distance

C 1,600mm ÷ 2 = 800mm. 100mm outside the forklift load centre distance

Answer is A

Load chart questions

Can a load weighing 1530kg load centre 600mm be raised with 3 degrees forward tilt?

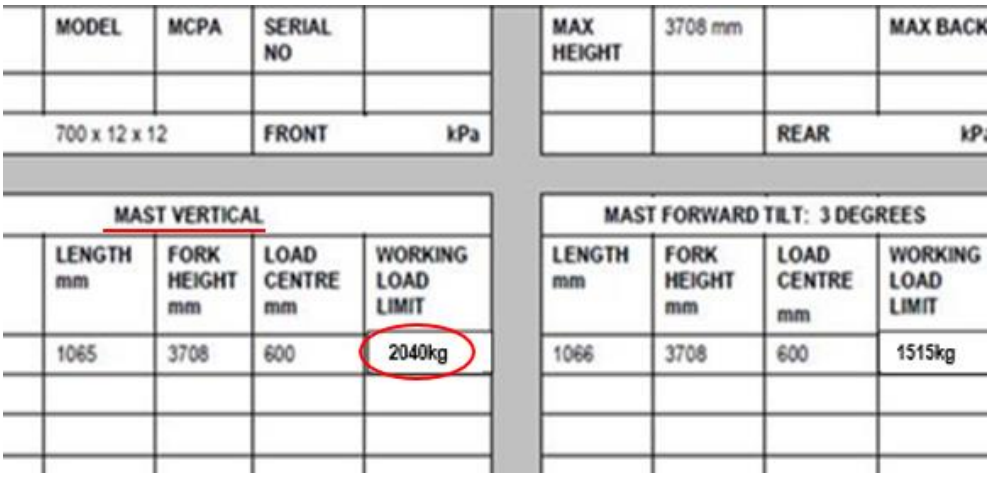


MCPA	SERIAL NO		MAX HEIGHT	3708 mm		MAX BACK TILT: 10 DEGREES
	FRONT kPa				REAR kPa	

VERTICAL			MAST FORWARD TILT: 3 DEGREES			
FORK HEIGHT mm	LOAD CENTRE mm	WORKING LOAD LIMIT	LENGTH mm	FORK HEIGHT mm	LOAD CENTRE mm	WORKING LOAD LIMIT
3708	600	2040kg	1066	3708	600	1515kg

W
USE OF FO
FORKS, GRAB
1. DO NOT LIFT LOA ON FORKS.
2. DO NOT TRANSPO LOAD RAISED EX OBSTRUCTIONS A MAST TILTED BAC
3. DO NOT TILT MAS WHERE NECESSA DEPOSIT LOAD.
4. DO NOT NEGOTIA MAST END IS UPH

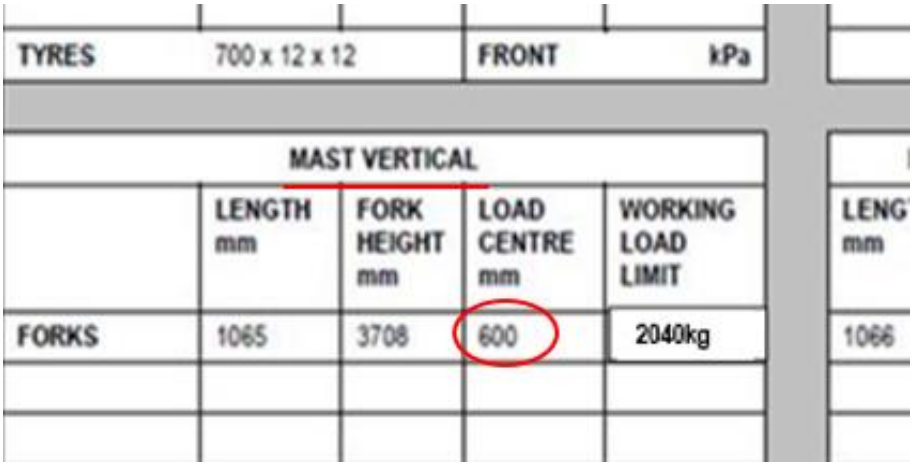
What is the maximum WLL the fork can lift with the mast in a vertical position?



	MODEL	MCPA	SERIAL NO		MAX HEIGHT	3708 mm		MAX BACK
	700 x 12 x 12		FRONT kPa				REAR kP	

MAST VERTICAL				MAST FORWARD TILT: 3 DEGREES			
LENGTH mm	FORK HEIGHT mm	LOAD CENTRE mm	WORKING LOAD LIMIT	LENGTH mm	FORK HEIGHT mm	LOAD CENTRE mm	WORKING LOAD LIMIT
1065	3708	600	2040kg	1066	3708	600	1515kg

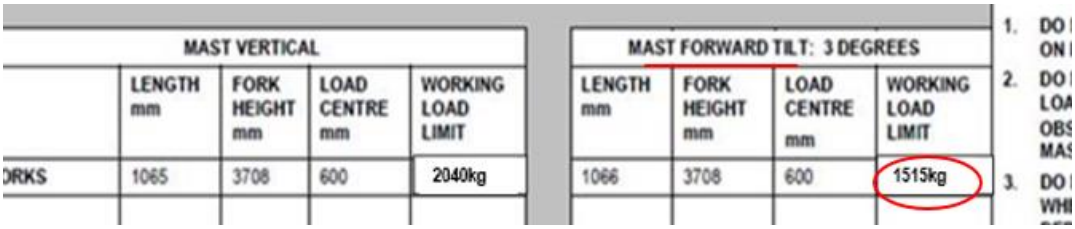
Can a load weighing 2040kg and a load centre of 700mm be raised with the mast in the vertical position?



TYRES	700 x 12 x 12	FRONT kPa		

MAST VERTICAL					
	LENGTH mm	FORK HEIGHT mm	LOAD CENTRE mm	WORKING LOAD LIMIT	LENG mm
FORKS	1065	3708	600	2040kg	1066

What is the maximum working load limit (WLL) the fork can lift with the mast tilted forward?



	MAST VERTICAL				MAST FORWARD TILT: 3 DEGREES			
	LENGTH mm	FORK HEIGHT mm	LOAD CENTRE mm	WORKING LOAD LIMIT	LENGTH mm	FORK HEIGHT mm	LOAD CENTRE mm	WORKING LOAD LIMIT
ORKS	1065	3708	600	2040kg	1066	3708	600	1515kg

1. DO ON
2. DO LOA OBS MAS
3. DO WHI

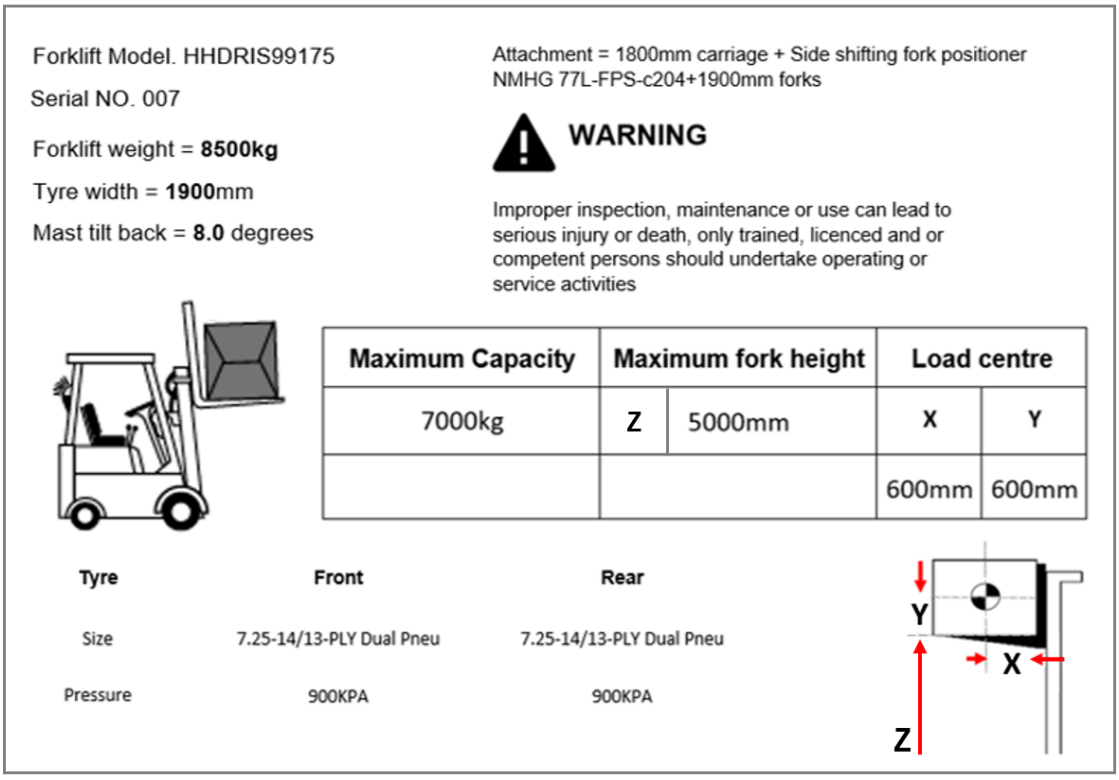
Calculations- data plate

QA - *Can you lift a box with a total weight of 2000kg measuring 1200mm long, 1200mm wide and 1100mm high safely?*

Length of 1200mm ÷ 2 = 600mm (within LCD)

Height of 1100mm ÷ 2 = 550mm (within LCD)

Yes, Load is 2000kg (within capacity)



Forklift Model. HHDRIS99175

Serial NO. 007

Forklift weight = **8500kg**

Tyre width = **1900**mm

Mast tilt back = **8.0** degrees

Attachment = 1800mm carriage + Side shifting fork positioner
NMHG 77L-FPS-c204+1900mm forks

WARNING

Improper inspection, maintenance or use can lead to serious injury or death, only trained, licenced and or competent persons should undertake operating or service activities

Maximum Capacity	Maximum fork height		Load centre	
7000kg	Z	5000mm	X	Y
			600mm	600mm

Tyre	Front	Rear
Size	7.25-14/13-PLY Dual Pneu	7.25-14/13-PLY Dual Pneu
Pressure	900KPA	900KPA

QB - *Can you lift a freight container which contains a 5000kg load?*

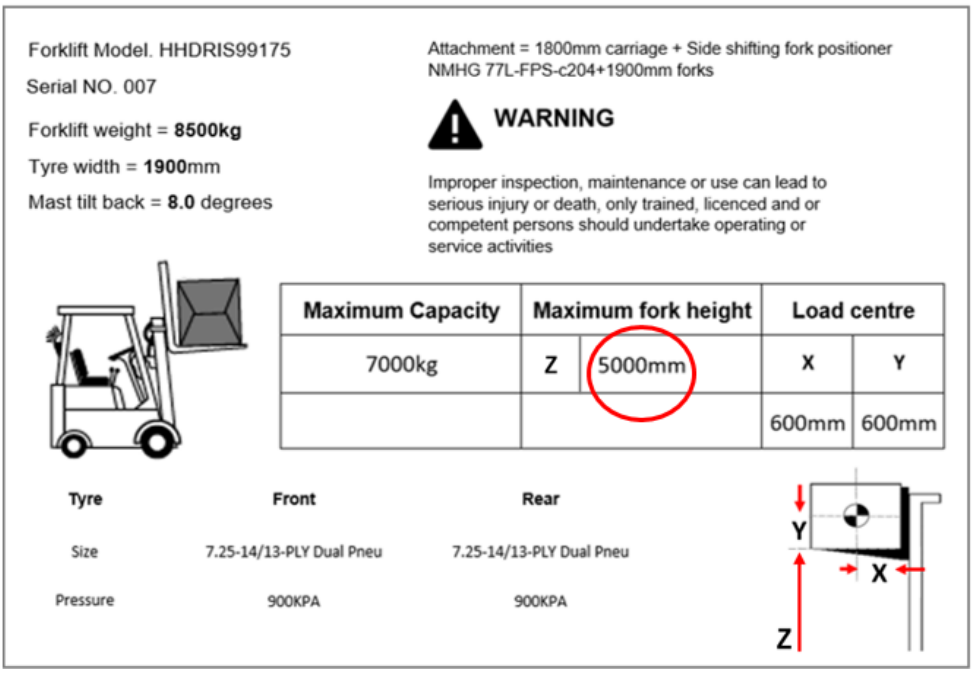
Calculate LCD

Tare weight of container 2100kg

Container dimensions (2300mm wide x 1200mm long x 2000mm high

No, Load is 2100kg + 5000kg = 7100kg load exceeds the rated capacity of 7000kg

What is the maximum height the forklift truck can lift?



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			600mm	600mm

Tyre	Front	Rear
Size	7.25-14/13-PLY Dual Pneu	7.25-14/13-PLY Dual Pneu
Pressure	900KPA	900KPA

THE END.