

# Forklift Operator's Handbook

## A Guide to Safe Operation

LICENSING AGENCY



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# Introduction

## What This Handbook is About

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This handbook is about the skills and knowledge required to safely operate a forklift. The handbook is for either a light forklift with an empty weight of not more than 7.5 tonnes, or a heavy forklift with an empty weight is of more than 7.5 tonnes. The training course for both types of forklifts is the same. The license issued will depend on the forklift used for the license tests at the completion of the course.

## Why Read This Handbook

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This handbook tells you about some of the legal requirements for drivers of light and heavy mechanical equipment (forklift) in Dubai, along with important safety information, background material, technical information and safe operating procedures.

The knowledge test that you must pass to drive a forklift is based on the information in this handbook. You need to understand it to pass your test.

## How to Use This Handbook

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The Table of Contents will show you where to find each section. At the end of each section, there is a section called Test Yourself Questions to help you check if you have understood important issues.

## How You Will Learn

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Learning to operate a forklift is like any other complex task. If you break the task into small, manageable pieces and do not try to learn too many things at once, it is much easier. You will:

- develop the knowledge and skill needed to operate forklifts
- be shown how to drive and control forklifts safely
- practise and correct your driving techniques in an increasingly complex set of conditions, so that you are capable of successfully undertaking your license test.

The length of each stage of learning depends on the amount of practice you have had. Be sure you are confident and competent before moving on to the next stage. Your Instructor will advise you when you are ready to move on.

How fast and how much you learn will depend on you. You should learn by:

- reading this handbook carefully
- attempting all the questions and activities in the handbook
- observing the operations being performed by your Instructor and on your work site
- asking questions
- practising the new skills included in this handbook
- undertaking the assessment tasks on completion of the training.

If there is anything in this handbook you do not understand or do not agree with, do not be afraid to ask your Instructor for assistance.



## Symbols

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Graphic symbols are used to guide your learning and identify types of information. The meaning of each symbol is as follows:



**Caution** You must follow instructions to avoid damage to products, a process or surroundings.



**Safety** You must follow safety procedures or wear protective clothing.



**Test Yourself Questions** Check that you have understood the information in this section by answering the questions at the end of each section.







# Part 1: License to Operate a Forklift

## Eligibility Criteria

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The eligibility criteria for a license to operate a forklift are set out below:

You may drive a Forklift if you:

- are over 20 years of age
- have passed an eye test
- have undertaken Forklift training until competency is shown and have passed an appropriate knowledge test
- have passed a practical test
- pay the appropriate fees.

If you meet these criteria, you will be issued with either:

- a Light Tractor and Mechanical Equipment license if you have been tested in a forklift with an empty weight of not more than 7.5 tonnes, which permits you to operate light mechanical equipment only or
- a Heavy Tractor and Mechanical Equipment license if you have been tested in a forklift with an empty weight of over 7.5 tonnes, which permits you to operate both light and heavy mechanical equipment.

## Learning to Operate a Forklift

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Until you get your forklift license, you may only drive a forklift if you are under the supervision of an Instructor who holds a valid license for the type of vehicle you are driving.



## Test Yourself Questions

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Q1 What age must you be to apply for a license to operate a forklift?

Q2 Do you have to pass any tests to obtain a license to operate a forklift?

AQ1 You must be over 20 years of age.  
AQ2 Yes, a knowledge test and a practical test.





# Part 2 : Types and Components of Forklifts

## Types of Forklifts

A forklift is a vehicle similar to a small truck that has two metal forks on the front used to lift cargo. The forklift operator drives the forklift forward until the forks push under the cargo, and can then lift the cargo several feet in the air by operating the forks. The forks, also known as blades or tines, are usually made out of steel and can lift up to a few tonnes, depending on the capacity of the forklift and the forks.

Forklifts are used to:

- transport loads between areas
- stack heavy objects
- load and unload vehicles.

There are a wide range of forklifts, including pedestrian operated and ride on forklifts.

Forklifts vary in size, ranging from one tonne capacity for general warehouse type work, up to 50 tonne capacity for shipping container work.



## There are two main types of motors used in forklifts:

- **Internal combustion motors** which may be fuelled by petrol, diesel or liquid petroleum gas (LPG). Internal combustion powered forklifts must not be used in confined spaces, as people working in the confined space may be overcome by the fumes.
- **Battery powered electric motors.** Gasoline or propane forklifts are sometimes stronger or faster than electric forklifts, but they are more difficult to maintain. Electric forklifts are great for warehouse use because they do not give off dangerous fumes like gas powered machines.



Batteries contain sulphuric acid which is very corrosive to human tissue and the surrounding environment. When you handle a battery you should wear protective clothing, including:

- eye protection
- gloves
- acid resistant boots
- face mask
- protective apron.



You will need to be careful when lead acid batteries are being recharged because it is possible for a level of hydrogen to build up that will explode if a spark or naked flame is present.

You should take the following steps to reduce the risk of hydrogen building up and creating an explosion:

- only recharge batteries in designated well ventilated recharging areas
- make sure there are no flames or sparks around
- use the isolation switch to ensure that the forklift circuit is open before disconnecting the battery terminals, so no sparking occurs
- metal tools or fittings must not come in contact with the terminals, as they may create a spark.



Forklifts are most often used in warehouses, but some are meant to be used outdoors. The vast majority of rough terrain forklifts operate on gasoline, but some use diesel or natural gas. Rough terrain forklifts have the highest lifting capacity of all forklifts and have heavy duty tyres (like those found on trucks), making it possible to drive them on uneven surfaces outdoors.

### Counter Balanced and Non-counter Balanced Forklifts

Forklifts are divided into two types based on how they are able to remain stable when they are loaded. These types are Counter Balanced and Non Counter Balanced forklifts.

**Counter Balanced Forklifts** have the weight of the load carried outside the wheel base and are counter balanced by the weight of the forklift.

In counter balanced forklifts, the weight of the rear of the truck counterbalances the weight of the load being carried at the front of the forklift. The front wheels can act as a pivot point on which the forklift and load can tip. The greater the weight of the counter balance of the forklift, then the heavier the load that can be lifted. Heavier loads can be lifted if the counter balance is further back in the forklift.



**Non-counter balanced forklifts** have the load carried inside the wheel base of the forklift. Non counter balanced forklifts keep their stability by having the wheels mounted on arms that are on either side of the load when it is being picked up and transported. These are often called straddle lift forklifts.

## Components of Forklifts

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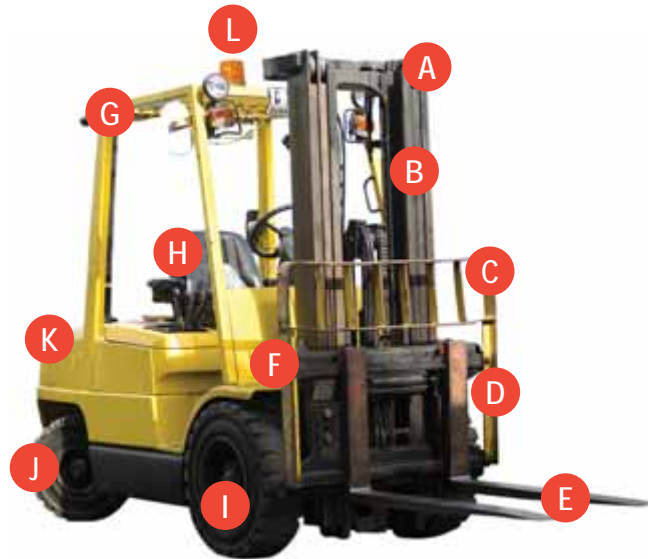
All forklifts have similar components but these may be located in different places, depending on the type of forklift:

- Class 1 forklifts are electric-motor rider trucks, either stand-up operator or seated three-wheel units. Rider units are counterbalanced and may have cushion or pneumatic wheels.
- Class 2 forklifts are electric-motor trucks for narrow aisle or inventory stock/order picking applications. They may have extra reach or swing-mast functions.
- Class 3 forklifts are electric-motor trucks, either walk-behind or standing-rider operated. Automated pallet lift-trucks and high-lift models are often counterbalanced.
- Class 4 forklifts are rider fork trucks, with cabs and seated controls, internal combustion engines, and solid or “cushion” tyres. Class 4 forklifts are sit-down rider, tow tractor lifts. They are supplied with electric or internal combustion engines.
- Class 5 forklifts are rider fork trucks, with cabs and seated controls, internal combustion engines and pneumatic tyres. They are typically counterbalanced.
- Class 6 forklifts are designed for use on rough terrain. Typical applications include agriculture, logging and construction.

These are the key components of a forklift that you will need to know:

- A** mast
- B** lift cylinder
- C** load backrest that prevents the load falling on the operator
- D** fork carriage
- E** forks
- F** tilt cylinder
- G** overhead cage
- H** driver seat
- I** drive wheels and axle
- J** steering axle and wheels
- K** counter balance
- L** warning light.

Make sure you know where these are located on the type of forklift you will be operating and how to operate them.



## Forklift Controls

The operating panel of forklift trucks provides the operator with the following features:

- **Inching brake pedal** (All Terrain models) – This brake pedal is located on the left side of the steering column and works as a clutch pedal because of the inching valve built in the hydraulic system. When the pedal is depressed slightly, the engine power is disconnected. When depressed further, brake begins to operate.  
(NOTE: Do not overuse the inching brake pedal. It may cause automatic transmission oil to overheat or the clutch to slip if it is used as a footrest or used for a long time.)
- **Brake Pedal** – The lift truck is equipped with a conventional brake pedal as well as an inching brake pedal. The conventional pedal is located on the floor to the right of the steering column.
- **Accelerator Pedal** – The accelerator pedal is located in a convenient position to the right of the steering column.
- **Forward- Reverse Lever** – The “Forward -Reverse” Lever is used to make a directional change. To move forward, push the lever forward. To back up, pull the lever backwards through NEUTRAL.
- **Gear Shift Lever** – The “Gear Shift” lever permits selection of different gear ratios. Pushing the lever forward places the transmission in 1st speed position. The travel speed should be selected as required to meet the travel conditions and load. Shift these levers to any desired position with the clutch pedal depressed all the way.
- **Lift Lever** – Used to lift and lower the forks. Push forward to lower, pull backward to lift. The lifting speed can be adjusted by varying the engine speed and the distance the lever is moved. The lowering speed can be adjusted only by the distance the lever is moved.
- **Tilt Lever** – Used to tilt the mast forward and backward. Push forward to tilt forward, pull backward to tilt backward. The forward or backward tilting speed can be adjusted by the engine speed and the distance that the lever is moved.



## Mast and Lifting Mechanism

The mast is made of two pieces. The outer piece is connected to the chassis. A pulley is used to extend the mast.

When the inner part of the mast moves up or down, the forks move with double speed in the same direction. They are linked with a link chain to the fixed part of the mast. The chain goes up and over the wheels on the extending part, down to the forks. The whole lifting mechanism just needs one motor. With a second motor, the mast can be tilted forward and backwards. This is used to move the centre of gravity closer to the machine, when lifting heavy loads.



## Manufacturer's Data Plate

You will need to know how to locate the manufacturer's data plate on a forklift to find out what the load capacity for your forklift is and other operating limits.



## Types and Use of Different Tyres

Forklifts intended for different uses need special kinds of tyres. The most common types of forklift tyres are pneumatic, solid and polyurethane.

Forklift tyres are usually either press-on or standard. Press-on tyres are easier to put on the forklift, but they may not stand up to some of the more difficult outdoor terrain as well as standard tyres. Standard tyres are put on the wheel in the same way as car tyres. Press-on tyres are usually made for electric forklifts or other forklifts designed for primarily indoor use.

**Pneumatic forklift tyres** are very similar to heavy-duty truck tyres. They are filled with air, have a thick, deep tread, and are made of strong rubber that resists wearing down. Pneumatic tyres extend the operating life of the forklift by providing an air cushion between the forklift and the terrain. Most rough terrain forklifts use pneumatic tyres due to their rugged durability and long lifespan.

**Solid rubber tyres** are an alternative to pneumatic tyres. They are the same, except that they are solid rather than filled with air. They will not pop or go flat like pneumatic tyres, but they do not provide an air cushion either. They are very long lasting, but they do not extend the life of the forklift like pneumatic tyres. Solid forklift tyres are great for indoor use or light outdoor use. They are not recommended for long-term rough terrain use.

**Polyurethane forklift tyres** are usually used on indoor forklifts. They are usually pressed on to the wheel, which is the easiest way to apply a tyre. Polyurethane forklift tyres are great for indoor use, because they provide the right amount of traction and have a low rolling resistance that prolongs their lifespan. Polyurethane forklift tyres are perfect for use on electric forklifts.



## Rear Wheel Steering

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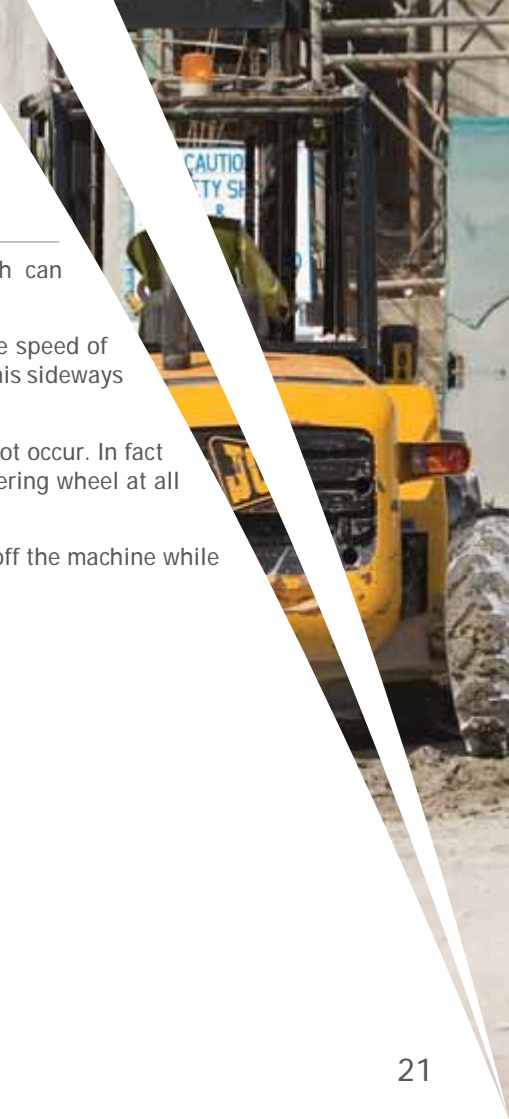


Forklifts have rear wheel steering for greater manoeuvrability, which can confuse the inexperienced operator.

When travelling forward on a forklift and turning the steering wheel, the speed of the rear end swing will be three times the forward speed of the forklift. This sideways movement creates a hazard, particularly for pedestrians.

When you turn a car around a corner the steering will self centre; on a forklift this will not occur. In fact the turning circle may decrease, therefore, it is imperative that one hand be on the steering wheel at all times and speeds be kept at a safe level.

If fitted with power steering, only turn the steering wheel when moving and never turn off the machine while it is still moving. This can cause total loss of steering.



## Forklift Attachments

These are the major attachments that can be used with a forklift and the conditions for use:

- a jib
- a drum clamp
- a long spike.

The attachments must be the correct type for the forklift and the load to be lifted. Check the manufacturer's data plate to make sure the attachments can be used.

### Jibs

Forklift jibs are used to lift and position heavy loads in the same way cranes do.

*Forklift Economy Jib*



Suitable for all styles of forklifts  
500kgs SWL at 2800mm

*Forklift Extension Jib*



Fully adjustable reach and height  
1000kgs SWL at 1100mm

*Forklift Fixed Jib*



Suitable for all styles of forklifts  
750kgs SWL at 1800mm

Note: The Safe Working Load (SWL) will vary according to forklift capacity, so you will need to check this before use.



### **Drum Clamp**

The Drum Clamp is used for lifting and emptying 250 litre drums. The driver pulls the drum chord from the driver's seat to empty the drum.



### **Spike**

Spikes are used to extend the use of the forklift and are easily fitted over standard forks.





## Test Yourself Questions

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- Q1 Name two types of forklift motors.
- Q2 Name four parts of your forklift truck which you will need to inspect before use.
- Q3 Why is it dangerous to use internal combustion engines in a confined space?
- Q4 Name three things forklifts are used for.
- Q5 When you handle a battery, what protective clothing should you wear?

AQ1 Internal combustion motors and battery powered electric motors.  
AQ2 Any of the following – brakes, steering, controls, lights, warning devices, tyres, attachments, guards.  
AQ3 Hydrogen gas can build up and creating an explosion.  
AQ4 To transport loads. To stack heavy objects. To load and unload vehicles.  
AQ5 Eye protection. Gloves. Acid resistant boots. Face mask. Protective apron.





# Part 3: Forklift Safety

## Forklift Speed

The speed at which you travel in a forklift is determined by:

- The size of the load you are carrying. Heavier loads must be moved slowly.
- The layout of the workplace. You must travel at a speed at which you can stop if there is pedestrian or other traffic crossing your path.
- Speed restriction signs. Always keep to speeds that are indicated by signs or have been set down by company policy and procedures.



## Refuelling the Forklift

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The refuelling of a forklift can be particularly dangerous. The fumes from Petrol and LPG are very explosive. All refuelling must be carried out in a well ventilated area away from the chance of any sources of ignition occurring. The engine must not be running during refuelling, as the fuel could be ignited.



If a fuel leak occurs or is suspected, immediately stop the machine, tag the area around the leak and report the leak to the supervisor. The forklift must not be used until the leak is fixed.

## Safe Working Practices

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### What should an operator do when operating the forklift?

- Know the recommended load limit of the forklift and never exceed it.
- Know how to assess the weight of the load to be lifted.
- Do a visual and operational check of the forklift at the start of the shift.
- Check for adequate overhead clearance before raising the load.
- Operate the equipment smoothly when stopping, starting, lifting and tilting.
- Know the blind spots of the lift truck with and without a load.
- Keep pedestrians away from a forklift in operation.
- Stop when anyone crosses the route being travelled. Lower the load to the floor, and wait until clear.
- Operate only as fast as conditions safely permit.
- Wear leather gloves when moving or shifting loads.
- Wear fully laced safety boots to give impact protection when moving loads or skids and to provide ankle support when mounting and dismounting lift truck.
- Remain alert and prepare for the unexpected.
- Note anything that affects the normal operation of the forklift and tell the supervisor immediately.
- Keep hands, arms, head, feet and legs inside the confines of a moving forklift.
- Stay in the truck in case of overturn.
- Report any collisions, damage or near-miss incidents to a supervisor immediately.



## Daily Pre-drive Inspections

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You should inspect the forklift truck every day before using or before each shift to make sure it is safe to be used.

You should carry out a visual check (“circle” check) before starting the forklift. After completing the visual pre-start check, you should do an operational pre-start check.

### The visual pre-use check:

- General condition and cleanliness.
- That the floor is clear of objects that could cause an accident.
- That other workers or visitors in the area will be safe.
- Doorways are large enough to fit through.
- Location of dangerous goods.
- Other equipment working in the area.
- Overhead to make sure there are no obstructions.
- Nearby objects to avoid as you drive away.
- Fire extinguisher is present and charged.
- Engine oil level, fuel level, radiator water level (LPG, gas and diesel forklifts).
- Battery is fully charged; check cables for exposed wires; battery plug connections not loose, worn or dirty; vent caps not clogged; electrolyte levels in cells; hold-downs or brackets to keep battery securely in place.
- Bolts, nuts, guards, chains, or hydraulic hose reels are not damaged, missing or loose.
- Wheels and tyres for wear, damage and air pressure, if pneumatic tyres.
- Forks are not bent; no cracks present; positioning latches are in good working condition; carriage teeth not broken, chipped or worn.
- Chain anchor pins are not worn, loose or bent.



- Fluid Leaks - no damp spots or drips.
- Hoses are held securely; not loose, crimped, worn or rubbing.
- Horn is working and loud enough to be heard in working environment; other warning devices operational.
- Lights - head lights and warning lights operational.

Where possible, any hazard should be removed and guards or barricades with appropriate safety signs used to protect people from the hazard. Other measures that could be used include use of a flag person to warn of dangers and control movement and use of the horn and other warning devices.



### The pre-start check:

- Foot Brake – that pedal holds and unit stops smoothly.
- Parking Brake –that brake holds against slight acceleration.
- Deadman Seat Brake – that brake holds when operator rises from seat.
- Clutch and Gearshift – shifts smoothly with no jumping or jerking.
- Dash Control Panel – that all lights and gauges are operational.
- Steering – moves smoothly.
- Lift Mechanism – operates smoothly (check by raising forks to maximum height then lowering forks completely).
- Tilt Mechanism – moves smoothly and holds (check by tilting mast all the way forward and backward).
- Cylinders and Hoses – not leaking after above checks.
- Listen for any unusual sounds or noises.



### After start up:

- Check that all warning devices operate (horn, indicator lights, rear and brake lights and the reverse alarm).
- Mast – check that the mast tilts forward and back correctly and that the mast extends.

**Report any problem identified in daily check to the supervisor immediately.**



## Test Yourself Questions

- Q1 Name four parts of a forklift which you must inspect daily.
- Q2 What action should you take if you detect a hydraulic oil leak?
- Q3 What important function does a load backrest perform on a forklift?

AQ1 Any of the following – brakes, steering, controls, lights, warning gauges, tyres, attachments, guards.  
AQ2 Place a warning tag on the forklift. 2. Report it to your supervisor.  
AQ3 The backrest stops the load getting in the way of the mast; AND The backrest also stops the load from falling onto the operator.





# Part 4: Forklift Operation

## Mounting and Dismounting

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Mounting and dismounting are the major causes of personal injury, so you should:

- Always use the hand holds and steps that have been provided by the manufacturer for safe entry and exit.
- Keep three points of contact (both hands and one foot or both feet and one hand) at all times and always face the machine for safe entry or exit.
- Do NOT use the controls as hand holds for entry or exit.
- Do NOT jump on or off any machine. NEVER mount or dismount a moving machine.
- Be careful when conditions are wet or slippery. Ensure all steps and platforms are free of mud and scrape boots before mounting the machine.

## Start-up Procedure

You should follow this procedure:

### Seatbelt

- Always be seated when starting the machine with seatbelt fastened.

### Park Brake

- Check that park brake is engaged.

### Levers and Controls

- Check that transmission control lever is in neutral position and safety locks on (if fitted) and all attachment controls are in the neutral position.

### Throttle Control

- Check that the throttle control or accelerator pedal is pushed past any constriction that may be fitted and is in the low idle position.

### Starting the Engine

- Turn the ignition switch to start the engine. If it fails to start within approximately 10 seconds, allow the starter to cool down and try again. In cold conditions pre-heating may be required (refer to operator's manual for procedures on using Glow Plugs on diesel engines).



### Gauges

- Check all gauges for correct operation.

### Warm up

- Allow the engine and components to warm up to operating temperature for approximately 5 minutes before operating.
- During this period operate all attachment controls checking for correct operation, unusual noises and any vibrations.
- Re-check all gauges, horn and warning lights for correct operation.

### Safety Check

- Ensure that the area is clear of all personnel and equipment before moving.

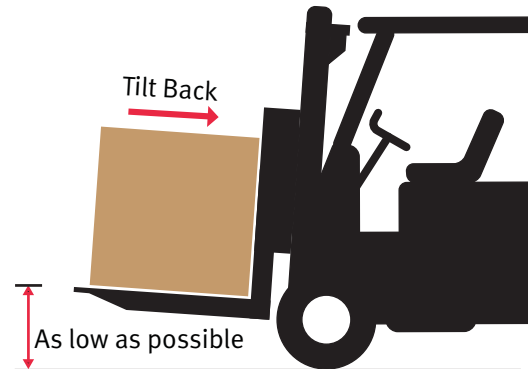


## Moving Procedure

- Raise all lowered attachments just clear of the ground (200-300 mm).
- Release park brake and select forward or reverse.
- Check that the direction of travel is clear.
- On entering or leaving a confined space, sound the warning device to warn any personnel of the machine movement.
- Test brakes and steering for correct operation before moving onto roadways and into operating cycles.

## Maintaining Control When Travelling

- Tilt loads backwards.
- Travel with forks as low as possible from the floor and tilted back.
- Match speed to driving, load and workplace conditions.
- Obey posted traffic signs.
- Decrease speed at all corners, sound horn and watch the swing of both the rear of the lift truck and the load.
- Watch for pedestrians.
- Avoid sudden stops.
- Travel in reverse when a load blocks your vision and always look in the direction of travel.
- Check for adequate overhead clearance when entering an area or when raising the forks.
- Watch out for the following dangers on the floor or roadway: oil spots, wet spots, loose objects, holes, rough surfaces, people and other vehicles.
- Maintain a safe working limit from all overhead power lines.

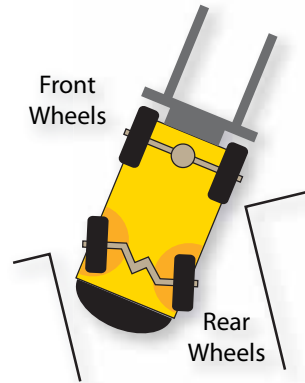




## Steering the Machine to Maintain Control

You will need to do the following to make sure you can keep control of the forklift:

- The load should be carried by the front wheels.
- Turn with the rear wheels.
- Do not turn a lift truck steering wheel sharply at fast speeds.
- Do not overload a lift truck. It can cause a loss of steering control.
- Do not add extra weight to a counterweight to improve steering.



## Maintaining Control When Driving in Reverse

Follow this procedure:

- Face the rear.
- Sound horn before moving.
- Go slowly.
- Stop when vision is limited or blocked. Sound the horn and go slowly.

You will need to practice driving the forklift using the steps as set out above. Allow as much practice as is necessary to ensure you can competently operate the forklift before attempting loading and un-loading.



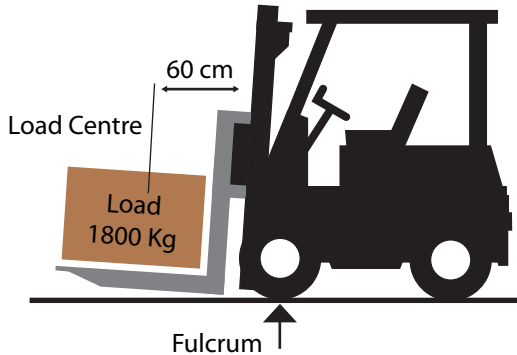
## Parking the Machine

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- Park on level ground.
- Keep well clear of emergency exits and allow clear access to fire fighting equipment and refuelling points.
- Lower all raised attachments making sure that the forklift tips are touching the ground.
- Place all attachment control levers in the neutral or hold position.
- Do not allow lift chains to go slack, as they may jump clear of the top carrier rollers.
- Place the transmission and forward reverse levers into the neutral position and apply any safety locks.
- Apply park brake.
- If it is an LPG powered forklift, turn off the fuel isolating valve as this prevents a build up of explosive gases prior to starting up again.

## Loading the Forklift Truck

- The most important safety consideration when operating a forklift is the stability of the forklift when it is loaded.
- If the load on the forklift causes it to become unstable, it may tip forward or tip sideways.
- It is essential that the load on the pallet is stable and well stacked before it is lifted and moved.
- Make sure the pallet is in good order.
- Broken pallets should not be used. The load may need to be restacked if the pallet is broken or appears unsafely loaded.
- The load should have a centre of gravity that is:
  - low as possible in the load
  - towards the back of the load
  - centred across the load.
- To make sure that the load is stable, heavy objects should be placed at the bottom of the load and to the rear of the load.
- Use strapping to secure the load if there is a chance of objects falling off.
- No part of the load should extend beyond the back rest of the carriage, unless it cannot possibly slide back towards the driver.



Correct Loading



Incorrect Loading



## Tilting Masts

Most forklifts with extendable masts will be able to tilt the mast back:

- By tilting the mast back, the combined centre of gravity is moved away from the front axles and back inside the stability triangle. Thus tilting the mast of the forklift back improves the stability of the forklift.
- The mast should only be tilted forward when required to place fork arms under loads or move out from beneath loads that have just been placed or when placing a load on a stack.



**Do not exceed the recommended load limit of your lift truck. Each lift truck has a maximum load limit. The load limit is shown on the data plate of the lift truck.**

- Keep the mast of the forklift in an upright position before inserting the forks into a pallet.
- Level the fork before inserting it into the pallet.
- Insert the fork all the way under the load.
- Adjust the fork as wide as possible to fit the load and to provide a more even distribution of weight.
- Space the fork evenly from the centre stringer of the pallet to balance the load.
- Do not protrude the fork past the back of a pallet when stacking in tight areas.
- Ensure that the load is secured before moving. If it is not, stack the load again or strap the load to skid.
- Ensure that loads on pallets are stable, neat, cross-tied if possible and evenly distributed.
- Remove damaged pallets from service.

**FORKLIFT**

SERIAL NO. D90 842678 104 5

CAPACITY 1800 kg

AT 60 CM LOAD CENTRE WITH UPRIGHTS VERTICAL

TYPE	MAXIMUM RATING		
	KILOGRAM	AK	B
G	1800	60	365

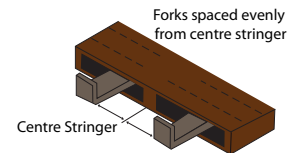
FOUR RATING WITH ATTACHMENTS  
SEE ATTACHMENT NAME PLATE

DO NOT EXCEED RATING

Load Limit (kg)

Load Centre (cm)

Height forks will lift (cm)



## Raising the Load



When a load is raised, the forklift is less stable.  
Check that the overhead clearance is adequate before raising loads.

- Do not raise or lower the fork unless the forklift is stopped and braked.
- Lift loads straight up or tilt back slightly.
- Do not lift a load that extends above the load backrest, unless no part of the load can possibly slide back toward the operator.
- Attend the controls of the forklift truck when a load is elevated. In other words, the operator must stay on the forklift when the load is in a raised position.

## Transporting a Load

You should:

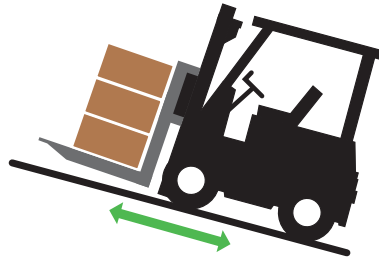
- Travel at an appropriate speed, remember it takes time to stop a loaded forklift.
- Do not turn on a slope, as you may over balance.
- Do not stop abruptly as the load may shift.
- Do not drive over uneven ground.



## Loading or Unloading Using a Forklift on Inclines

You should:

- Keep forks pointed downhill when travelling without a load on a ramp.
- Keep forks pointed uphill when travelling with a load on a ramp.
- Stay clear of edges of docks or ramps. Have edges clearly marked.
- Do not tow or push trucks with a forklift.



## Loading or Unloading Trucks

- Do not operate forklifts inside vehicles for long periods without ventilation.
- Make sure that the dock plate is properly secured and can support the load before driving over it. (Load weight should be clearly marked.)
- Drive carefully and slowly over the plate. Do not spin wheels.

## What Should an Operator Avoid When Operating a Forklift?

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The operator should avoid:

- Trying to move or adjust any part of the load, the forklift or the surroundings when on the forklift.
- Lifting a load that extends above the load backrest, unless no part of the load can possibly slide back toward the operator.
- Allowing anyone but the operator to ride on the forklift.
- Using pallets elevated by forklifts as an improvised working platform.
- Allowing anyone to stand or walk under the elevated part of any forklift, whether loaded or unloaded.



## Using Attachments

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### Jibs

When using a jib attachment, you must:

- Travel at low speed and turn slowly.
- Keep the load as low as possible and the jib as low as possible and on full back tilt.
- Allow for the weight of the jib by using the forklift as if it has a small load, even when there is no load on the jib.
- Always have the mast vertical or tilted back when lifting loads with a jib, never use forward tilt.
- Ensure that the hook is directly centred over the load before lifting to ensure that stability is unaffected.
- Make sure that the lifting hook on the jib is able to swivel.
- Use positive methods for securing the load (for example shackles, slings or lifting chains attached to the load so that it cannot slip).

The Safe Working Load (SWL) will be marked at each hook position on a jib attachment.

### Slings and Lifting Rings

You will need to note the following important considerations in using lifting slings and rings:

- Slings and lifting rings must have an equal lifting capacity (SWL).
- Slings should always be checked before use for damage.
- Make sure that shackles are in good condition. If there appears to be more than 10% wear, the shackle should be thrown away.



## Causes of Tipping

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The following situations can cause forklifts to tip over:

- driving fast
- turning sharply
- turning on sloping ground
- travelling with load raised
- working on uneven or sloping ground
- carrying an unevenly balanced load
- travelling across an incline
- braking too hard when turning
- flat or under inflated tyres.

A forklift may tip forward if:

- it is overloaded
- the operator brakes too severely
- the mast tilt is used incorrectly
- the load is not positioned against the heel of the fork arms.

## Safety Facts

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You will need to understand the following important facts:

- The most common cause of death and injury in forklift accidents is when drivers attempt to jump from an overturning forklift. Often the driver is caught and crushed by the protective cage of the forklift or the forklift mast.
- Forklifts should be fitted with a seat belt and the driver should wear it while operating the forklift.
- Do not try to jump clear of an overturning forklift. The safest place is to remain inside the cabin.
- Passengers should never be carried on the fork arms or on the load. Passengers should only be carried in a purpose built cage firmly attached to the forks.
- A passenger should only be carried in the driving area if a second seat and footrest is fitted.
- The dynamic forces involved when a forklift travels at speed with a load, mean that small changes in direction or level of the forklift can cause the centre of balance to move and unbalance the forklift.
- When travelling with a load, travel at a safe speed with the load as low as possible.
- Stopping a forklift. It has been calculated that it takes about 1.2 m for each 5 kph to stop a forklift under emergency conditions.
- It takes about 0.75 seconds for a person to react to a danger. In this time a forklift travelling at 20 kph will travel a distance of 4.2 m.
- A forklift travelling at 20 kph will require at least 9 metres to stop in an emergency situation.
- If a load is added to the forklift then the stopping distances will be greatly increased. Doubling the mass of the forklift will require twice the stopping distance.



## Test Yourself Questions

- Q1 What should you do with attachments when parking the forklift?
- Q2 When travelling up a ramp, why must the load face uphill?
- Q3 How could you find out the operating capabilities and limitations of the equipment you are operating?
- Q4 What are 4 things that could cause a forklift to tip over sideways?
- Q5 What checks must be made before using a jib attachment?



- A01 Lower all raised attachments, making sure that the forklifts are touching the ground.
- A02 To keep the forklift stable; AND to stop the load falling off the fork arms.
- A03 Check the Manufacturer's Data Plate on the forklift and any attachments to be used.
- A04 Any of the following – Turning when driving fast. Driving over uneven surfaces. Having an uneven load. Driving with a flat or under inflated tyre. Driving too fast loaded or unloaded. Turning with the load raised. Braking too hard when cornering.
- A05 Check the Safe Working Load (SWL) on the jib attachment. Make sure the lifting hook on the jib is able to swivel. Slings and shackles must be in good condition.



Note :

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Roads and Transport Authority has the right to modify any item/s on this handbook at any time, according to new legislation, regulations and policies.

For Comments and/or Suggestions please call 800-9090 or email: [cradmin@rta.ae](mailto:cradmin@rta.ae)

RTA Website: [www.rta.ae](http://www.rta.ae)  
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