



Operator Safety

Before commencing use of the Combi lift, operators must thoroughly read and understand the material contained within this manual to become familiar with:

- • The trucks capabilities.
- • The meanings of the various machine signs (decals) found on the truck.

Whether you are a new operator or have used forklift trucks for many years, read through this manual thoroughly. It provides instructions to help operate the Combi lift in a safe and efficient manner.

Seat Belt

The purpose of the seat belt is to retain the operator in the seat and so prevent or reduce injuries suffered in a crash. The seat belt ensures that as little contact is made between the operator and cabin as possible. It also significantly reduces the risk of being thrown from the cabin.

Seat Switch

The purpose of the seat switch is to prevent the truck from being operated from an incorrect position. When the seat is unoccupied the drive is disabled and the hydraulic function levers are locked (the hydraulic joystick – if fitted – is blocked).

The following safety devices may be fitted as optional extras:

Seat Belt Switch

The purpose of the optional seat belt switch is to encourage the operator to wear the seatbelt. The seatbelt should always be fastened across the top of the lap when driving the truck. If fitted, the truck will not drive unless the seat belt is buckled.

Mast Above Height Drive Cut-out

This optional safety feature disables the drive when the forks are raised above a predetermined height. This helps to avoid collisions between the mast and potential overhead obstructions. To enable the drive, lower the mast below the cut-out height or press and hold the cut-out override button.

Mast Lift Cut-out

This optional safety feature cuts out the lift function when the forks reach a predetermined height. This helps to avoid collisions between the mast and potential overhead obstructions. To continue raising the mast press and hold the lift cut-out override button whilst operating the control lever.

Mast Not Fully Retracted Drive Cut-out (If Fitted)

This optional safety feature disables the drive if the mast reach function is not fully retracted. This helps to avoid collisions between the forks and potential obstructions. To enable the drive, retract the mast reach fully.

Reversing Alarm

The reversing alarm sounds when the truck begins to move in reverse. This is to alert individuals in the presence of the truck that it is reversing.

Flashing Beacon

The flashing beacon is activated when the key switch is turned to the ON position to alert individuals in the vicinity of the truck that it has been switched on.

The following optional warning devices may be fitted to the truck if required:

Forewarning Lights

Optional forewarning lights that illuminate when the truck begins to move in a certain direction may be fitted if requested. The forewarning lights alert anyone in the trucks path that it is approaching.

Motion Alarm

The motion alarm sounds when the truck begins to move in any direction. This is to alert individuals in the vicinity of the truck that it is in motion.

- The operator of the Combi lift must be qualified to operate the truck through successful completion of a training program delivered by Combi lift Driver training personnel or a Combi lift authorised training organisation.

- • Operators shall be aware of all local authority regulations and laws regarding the qualification of material handling equipment operators.
- • No one shall operate the truck if impaired due to intoxication or drug reaction.
- • Always ensure that the truck is in good working order before commencing work. This is achieved by performing the pre-use inspection. The inspection is to be carried out at the beginning of the working day or at the start of each shift.
- • It is the operators responsibility to perform the pre-use inspection before each shift. The Inspection and how it should be conducted is covered later in this publication.
- Operation of the truck controls is only permitted when the operator is sitting on the operator's seat in the cabin with the seatbelt buckled and the cabin door closed and latched securely.
- • Never place any part of the body outside the confines of the cabin when operating the truck.
- • Diagnosis and repair of the truck shall be performed by trained competent technicians unimpaired by intoxication or drug reaction.
- • Unless authorised and trained to do so, the operator must not attempt any repairs, but report defects immediately. When authorised to perform maintenance work and/or repairs, ALWAYS ensure that the appropriate Health and Safety regulations are strictly adhered to.
- • Report any operational problems that may develop, (damaged pallets, ground surface breaking up etc.) which could not only reduce safety but also cause damage to the truck.
- • Never attempt to exceed the truck's handling capacity and take all precautions to ensure the safety of others as well as yourself. In no circumstances should counterweights be added to increase capacity.
- • Stop working and switch off if for any reason, the truck becomes unsafe or defective. Remove the key and place an 'out of order' sign in a prominent place on the truck.
- • Prohibit unauthorised and untrained people from accessing the starting key and operating of the truck.
- • The operator is responsible for visually monitoring the work area of the truck and preventing anyone from entering the area without permission.
- • If a person enters the work area while the truck is in operation, the operator shall stop the truck and instruct the person to leave the work area until the work is complete and the operator deems it safe to enter. The person may then approach the machine in full view of the operator.
- • Personnel being trained, educated, instructed or participating in a general training program may only work on or with the machine under constant supervision of an experienced supervisor.

- • Work on the machine's electrical equipment may only be carried out by an electrician or by trained persons under the direction and supervision of an electrician.
- • Work on the chassis, brakes and steering system may only be performed by trained, specialised personnel.
- • Only trained, specialised personnel with specific knowledge of and experience in hydraulics may work on hydraulic units.
- • If the mast mechanism malfunctions or becomes stuck in a raised position, operate the mast control lever to eliminate any slack in the chains. DO NOT go under the elevated parts of the truck to attempt to carry out repairs.

Operators must be aware of special situations in their workplace in order to avoid forklift accidents. Even if an operator works in the same area every day, there could be changes that affect safety, such as:

- • Contractors doing maintenance
- • Wet areas
- • Overhead repair work

Be on the lookout for anything that might present a hazard such as:

- • Potholes
- • Pedestrian traffic
- • Very narrow aisle ways
- • Overhead obstructions
- • Poor lighting making it hard to see hazards
- • Wet, oily, or rough terrain
- • Other equipment or vehicles operating in the area

Do not block any of the following safety critical items/areas with the truck or the materials being handled:

- • Electrical panels
- • Fire exits
- • Emergency stop buttons
- • Aisle ways
- • Fire extinguishers/hoses

Ground Surface

Floor, road and yard surfaces should be of adequate load capacity, firm, smooth and level. Approaches to kerbs,

railway crossings etc. should also be firm, smooth and adequately ramped to prevent possible displacement.

Aisle Dimensions

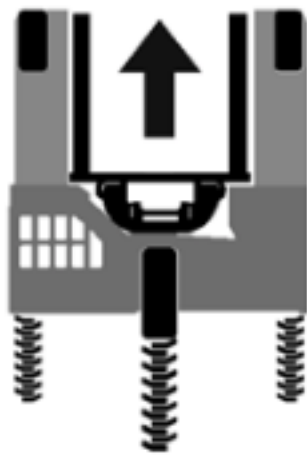
Aisles should be arranged to eliminate corners, angles, inclines, steep ramps, narrow passages and low ceilings. When operating in guided aisles ensure that the mast is retracted fully before entering the aisle. Enter the aisle slowly to reduce the impact on rollers and guide rails.

Vehicle Description

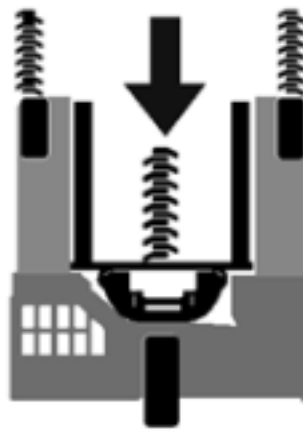
The Combi lift is a multifunctional, multidirectional forklift with four directions of travel – Forward, Reverse, Left & Right. In order for these travel directions to be possible the Combi lift has two modes of travel, standard travel mode and sideward travel mode.

Standard Travel Mode – In standard travel mode the wheels are aligned parallel to the sides of the truck and the rear swivel arm is used to steer the truck. In this mode the truck can drive forward and reverse. **Forward Travel** is traveling with the forks leading. **Reverse Travel** is traveling with the forks trailing.

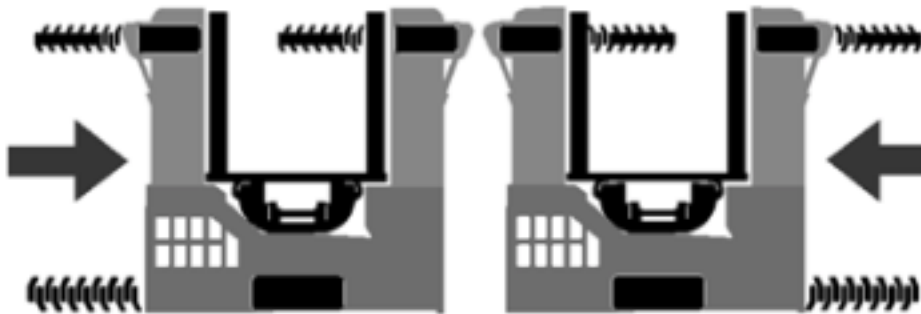
Sideward Travel Mode – In sideward travel mode the wheels are aligned perpendicular to the sides of the truck and the front swivel arms are used to steer the truck. In this mode the truck can drive left and right. **Left Travel** refers to travel with the cabin leading. **Right Travel** refers to travel with cabin trailing.



Forward Travel



Reverse Travel



Right Travel

Left Travel

The mast can be reached out and retracted in so that a palletised or long load can be lifted and moved back within the wheelbase of the truck. This makes the Combi lift truck more stable when travelling with a load and also allows it to work in confined areas such as narrow aisles.

Having the ability to drive forward, back, left and right and the ability to reach and retract the mast means the Combi lift C-series truck is capable of performing the functions of a standard counterbalance forklift truck, a reach truck and a side loading truck. Therefore it is ideal for handling palletised loads and also long loads such as pipes or timber.

The principle of this type of truck is that the weight of the load, which is lifted on the forks in front of the load wheels, is offset by the combined weight of the truck chassis and components.

Principle of Operation

Drive is achieved by means of a hydrostatic pump coupled to an internal combustion (IC) engine. The engine drives the hydrostatic pump which pumps hydraulic oil through hoses to hydraulic motors. The trucks drive wheels are mounted on the hydraulic motors and as the pressurised hydraulic oil passes through the wheel motors the wheels turn to propel the truck. The engine speed – and therefore the trucks ground speed - is controlled by a throttle pedal located inside the operator's cabin.

Steering is achieved by means of a hydraulic gear pump coupled to an internal combustion (IC) engine. The IC engine drives the gear pump which pumps hydraulic oil through a steering orbital unit. When the steering wheel is turned pressurised oil is fed via the steering orbital to hydraulic steering cylinders to steer the truck.

Lift, reach and tilt along with any other optional auxiliary hydraulic mast/fork functions are achieved by means of a hydraulic gear pump coupled to an internal combustion (IC) engine. The IC engine drives the gear pump which pumps hydraulic oil through hoses to a block of valves. The valves - which are operated using levers or a joystick in the cabin – allow the pressurised oil to be directed through hoses to various hydraulic cylinders that are connected to each of the mast/fork functions. The operating speed of the mast/fork functions may be increased by pressing the throttle pedal located inside the operator's cabin.

Forward, reverse, left or right travel may be selected using a four-way direction switch mounted inside the operator's cabin. Selecting a direction of travel sends electrical signals to a set of solenoid actuated hydraulic valves in the steering circuit. The valves direct the flow of hydraulic oil through the steering circuit to the steering cylinders to steer the swivel arms to the appropriate position to achieve the desired travel mode. A solenoid actuated direction control valve directs the flow of oil through the drive circuit to achieve the desired direction of travel.

The truck is equipped with a multifunction digital display console that displays information regarding the trucks operating condition such as the engine coolant temperature, the engine oil pressure, low fuel, steering mode etc.

Park braking is provided by brake units that are integrated into each of the wheel motors. The park brake is applied by spring force; hydraulic pressure is

required to release the park brake. The park brake is applied and released using a switch inside the cabin.

An inch brake slows the truck down when partially applied and brings the truck to a complete stop when fully applied and held on. It works by restricting and blocking the flow of hydraulic oil through the drive circuit which prevents the wheel motors from turning. The inch brake is applied by pressing a pedal located inside the operator's cabin.

Rated Capacity, Centre of Gravity and Stability

The rated capacity is the maximum weight that a truck is designed to lift at a specified load height to a specific load centre distance under safe operating conditions. To understand the rated capacity it is necessary to be familiar with the term centre of gravity.

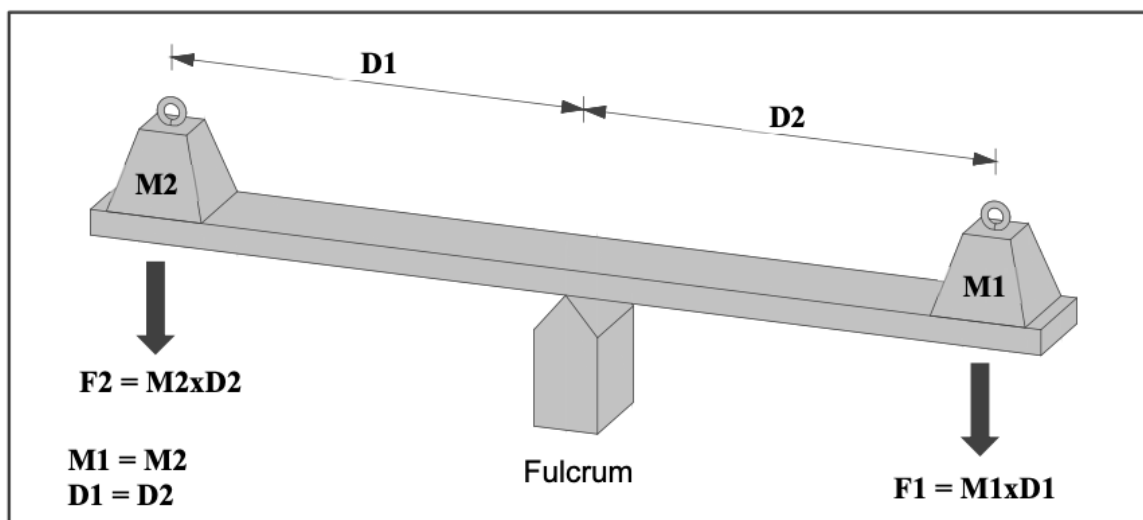
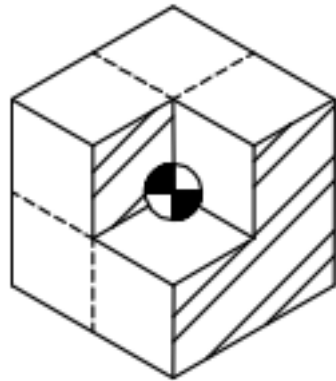
The centre of gravity is an imaginary point in a body where the total weight of the body may be considered to be concentrated. Every object has a centre of gravity. When a load is supported on the forks the truck and load may be considered as a single entity with a **combined centre of gravity**.

The Combi lift has moving parts that change its centre of gravity. The centre of gravity moves forward and back as the mast is extended and retracted and also as the mast is tilted back and forth. The centre of gravity also moves up and down as the mast is raised and lowered.

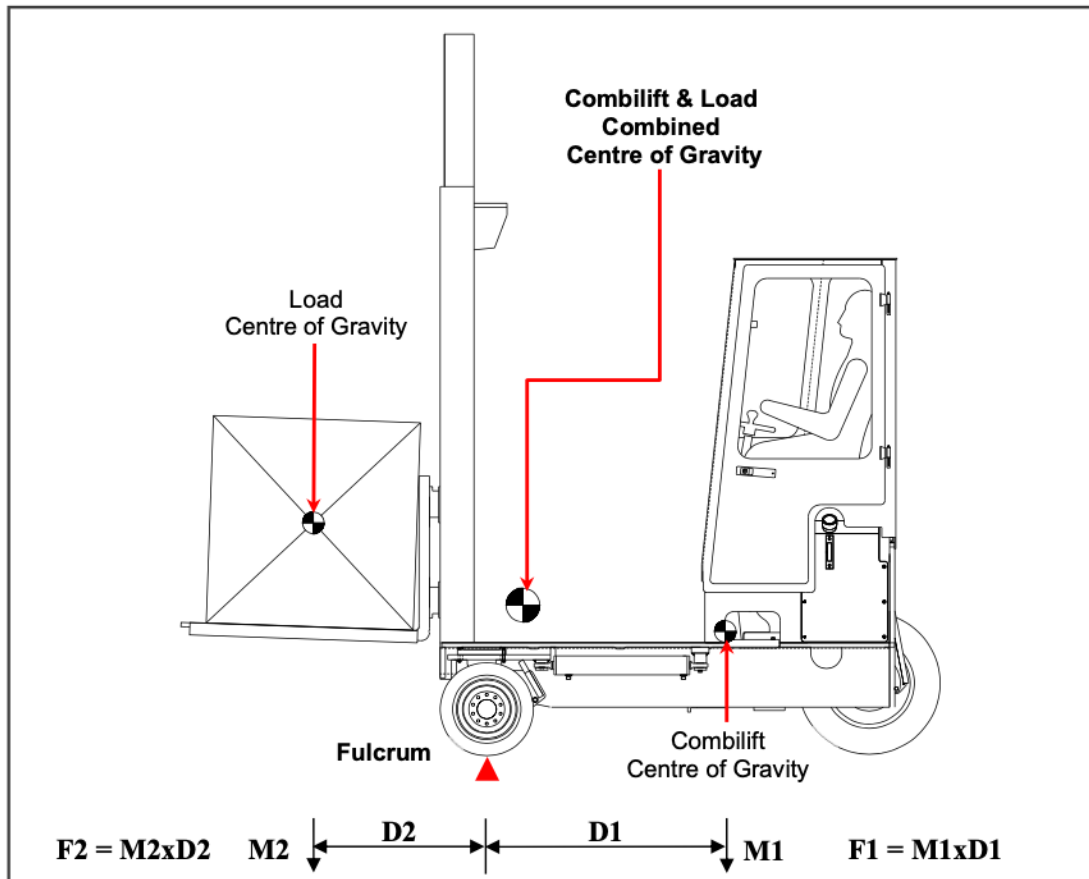
The position of the **combined centre of gravity** is affected by the size, weight, shape and position of the load; the height to which the forks are raised; the position of the reach; the tilt angle and side shift position.

To understand the stability of the truck it is useful to use the analogy of a see saw where two objects are placed on opposite sides of a beam and the beam is supported at a single point halfway along its length. For the see saw to balance, the two objects must be equal in mass and placed at an equal and opposite distance from the support point, also known as the fulcrum. If the mass on one side is increased the see saw will tip to the side of the heavier mass. This can be corrected by moving the heavier mass in towards the centre or fulcrum. **This principle is the most important factor that must be taken into account when considering the stability of the truck.**

If we look at the diagram below what this translates to is that as long as F_1 is equal to F_2 then the system will balance.



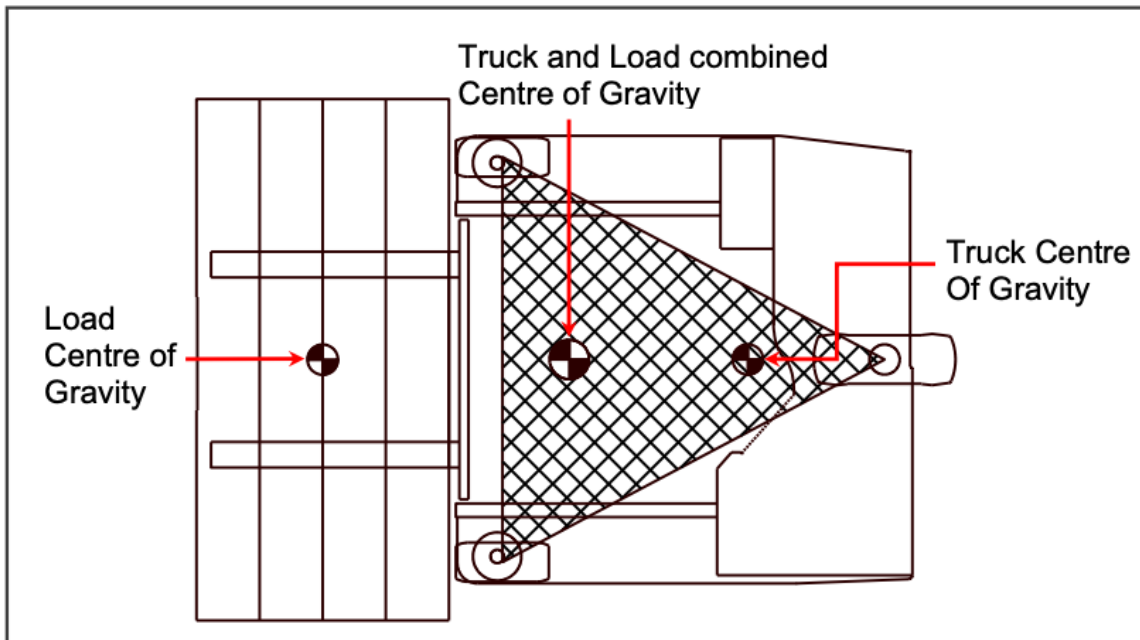
The very same principle applies to the Combi lift truck where the front wheels act as the fulcrum, M_1 represents the mass of the trucks heavy chassis and components on one side of the fulcrum and D_1 represents the distance from the fulcrum to the centre of gravity of the truck. M_2 represents the mass of the load on the forks on the opposite side of the fulcrum and D_2 represents the distance from the fulcrum to the centre of gravity of the load. In the case of the truck F_2 must always be less than F_1 otherwise the truck will become unstable.



If the mass of the load ($M2$) is increased or the distance from the fulcrum to the centre of gravity of the load ($D2$) is increased such that $F1$ becomes greater than $F2$ then the truck will tip forward about the fulcrum.

For the truck to remain stable both laterally and longitudinally, the combined centre of gravity of the truck and the load must stay within an area known as the stability triangle. To visualise the stability triangle, imagine three lines connecting each of the trucks three wheels. The area inside these three lines forms the stability triangle. If the combined centre of gravity moves outside the boundary of the stability triangle the truck will tip over.

The diagram below illustrates the truck with the stability triangle represented by the hatched area and a uniform load weighing less than the maximum rated capacity resting on the forks. In this case the combined centre of gravity lies inside the boundary of the stability triangle, therefore the truck and load will remain stable.



If a balanced uniform load greater than the maximum rated capacity is lifted on the forks the combined centre of gravity will move outside the front boundary of the stability triangle. In this case the truck and load will be unstable and a frontal tip-over is likely to occur.

If an unbalanced load is lifted on the forks such that the combined centre of gravity moves outside the left or right boundary of the stability triangle, the truck and load will be unstable and a tip-over to the left or right hand side is likely to occur.

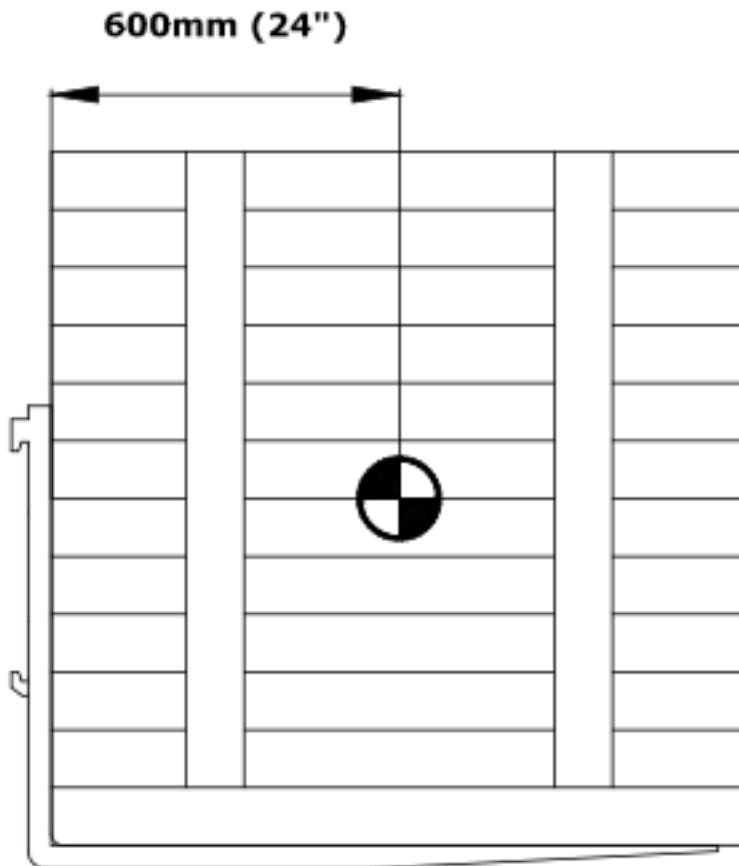
Other factors that influence the stability of the truck to a lesser degree include sudden acceleration, harsh braking, driving on sloped or uneven terrain, or turning with elevated loads. Any of these factors alone or in combination can result in the combined centre of gravity moving outside the boundary of the stability triangle thus causing the truck to tip over.

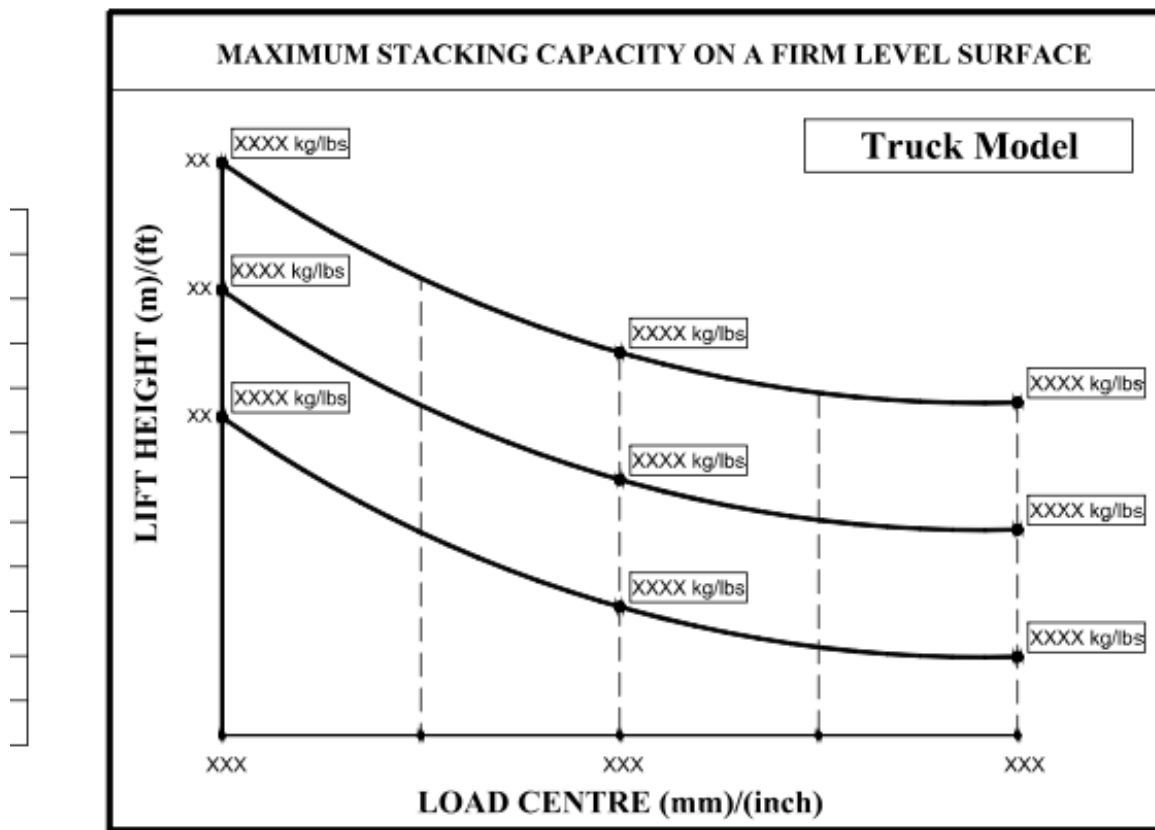
The term “Load Centre” is used to describe the distance from the face of the forks to the Centre of Gravity of the load when the forks are fully engaged with the load. The maximum rated capacity of the Combi lift is based on a load in the form of a cube measuring 1200mm (48”) in length, depth and height where the centre of gravity lies exactly in the centre of the cube i.e. 600mm (24”) from all sides.

If the size or shape of the load changes such that the position of its centre of gravity moves away from the forks the truck will have less capacity to lift the load.

Raising a load also causes the truck to loose capacity due to mast tilt and deflection. Therefore as the load centre and/or lift height increases the weight that can be safely lifted reduces.

The trucks capacities at various heights and load centres are displayed on a load chart located inside the operating enclosure. A sample load chart is shown below.





To read the load chart the weight of the load (in kilograms or pounds) and the load centre (in millimetres or inches) must be ascertained. These values can then be compared to the values on the load chart to determine if it is safe to lift the load and to what height it can be lifted.

It is the responsibility of the operator to determine that the weight of the load to be handled is not greater than the capacity shown on the load chart. The operator must not handle any load that is greater than the capacity shown on trucks the load chart.

Methods of determining the weight of the load:

- • Weight is listed on pallet wrapper
- • Weight is listed on bill of lading
- • Weight is determined by multiplying the weight of each small container/bag by

the number of small containers/bags on a pallet. Each small container should

be marked with its weight.

- • Ask your supervisor when in doubt.

Always make sure the load is flush against the front vertical face of the forks and that loads that are unbalanced horizontally are loaded with the heaviest side of the load nearest to the truck.

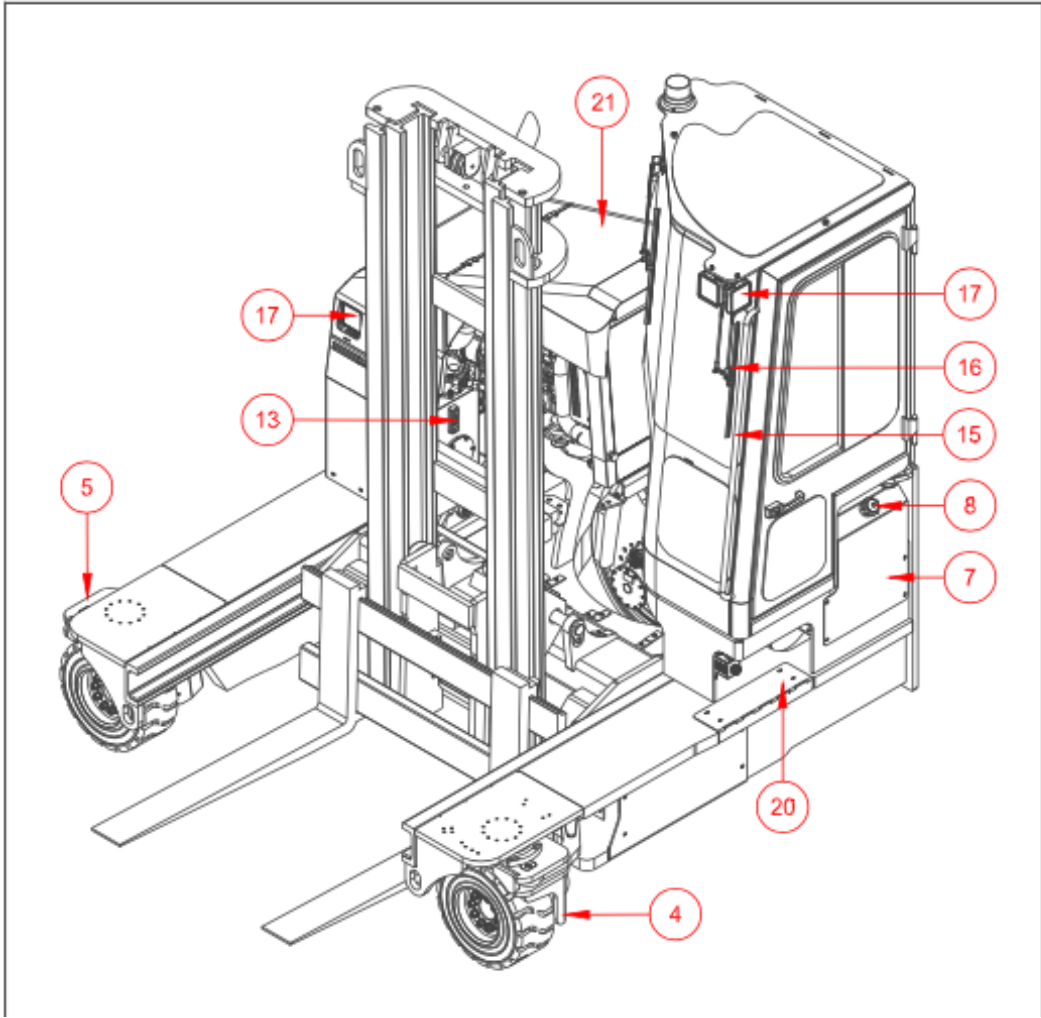
Always make sure that loads that are unbalanced vertically are loaded with the heaviest side of the load nearest to the ground where possible.

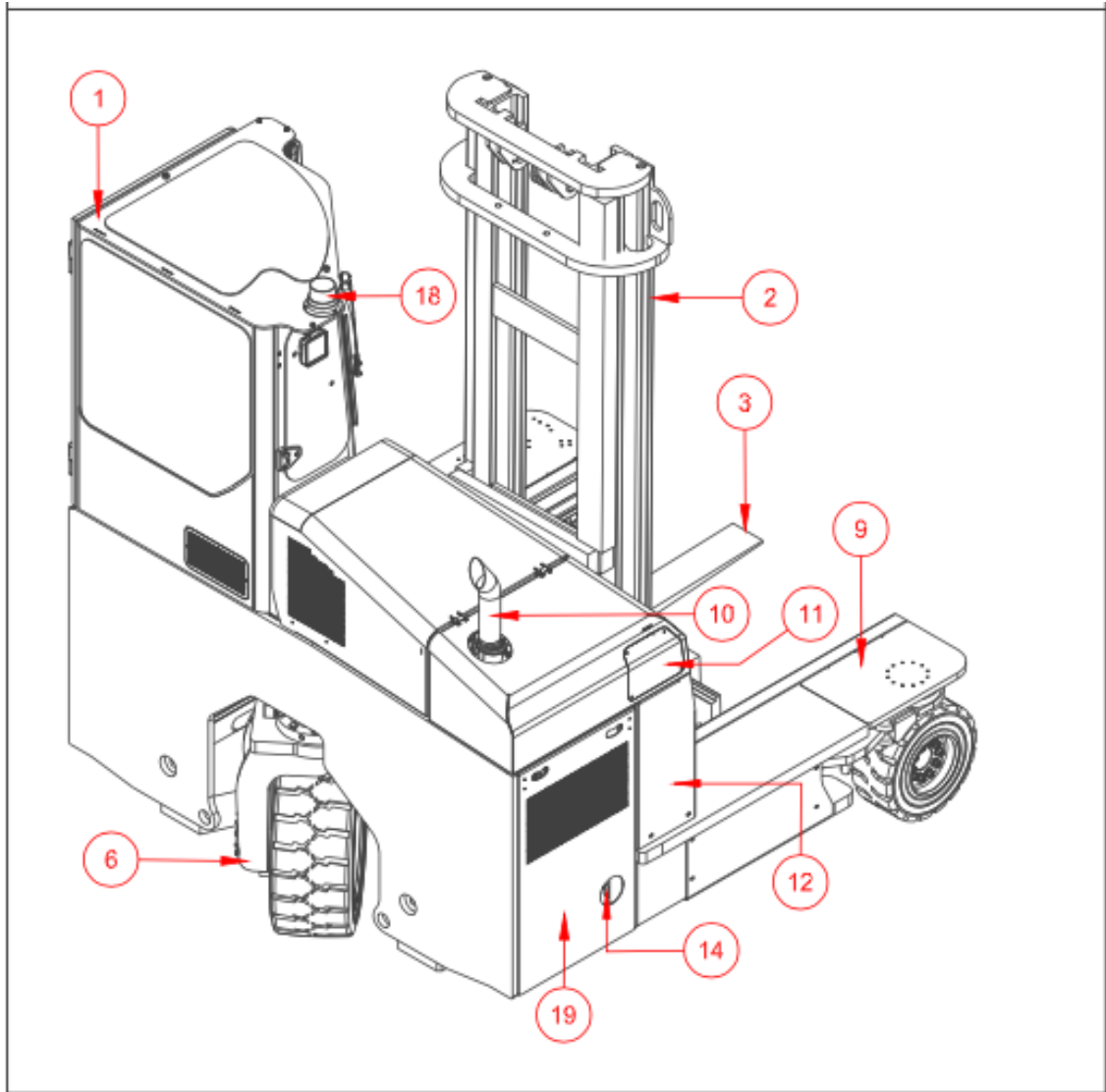
Fixed attachments to the forks or fork carriage affect the trucks capacity rating. When the factory, dealer, or distributor installs a fixed attachment approved by Combi lift a modified load chart shall be attached inside the cabin of the truck. The modified load chart identifies the type of attachment and the capacity ratings on the load chart will be modified accordingly.

Removable attachments to the forks or fork carriage affect the trucks capacity rating. When the factory, dealer, or distributor supplies a removable attachment approved by Combi lift an additional load chart shall be attached inside the cabin of the truck. The additional load chart identifies the type of attachment and the changes to the rated capacity when the attachment is in use.

Tilting Guidelines

- • When travelling with the truck loaded tilt the mast back and keep the load low. This will help stabilize loads with an uneven weight distribution.
- • When loading at high elevations, only tilt the load back far enough to seat it against the front vertical face of the forks.
- • When unloading at high elevations, make sure to only use enough tilt to level the load for placing onto the rack or stack.
- • Forward tilt past horizontal is only provided to assist the operator in withdrawing the forks from a load after the load has been placed.





Components

1. Operator Cabin
2. Mast
3. Forks
4. Front Left Hand Swivel
5. Front Right Hand Swivel
6. Rear Swivel
7. Diesel Tank
8. Diesel Tank Cap
9. Platforms
10. Exhaust
11. Air Filter Access Panel
12. Hydraulic Tank
13. Hydraulic Oil Level Gauge
14. Battery Isolator Key Switch

15. Cabin Access Handle

16. Window Wiper

17. Work Lights

18. Flashing Beacon

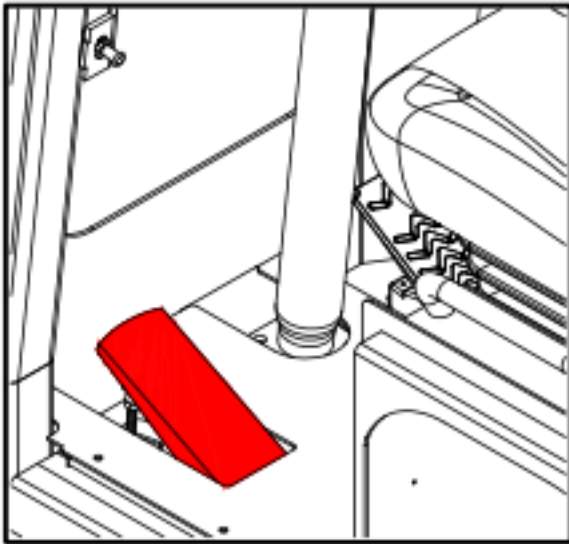
19. Side Access Panel

20. Cabin Access Step

21. Bonnet

Inch Brake Pedal

- • The inch brake pedal is located on the cabin floor to the left hand side of the steering column as shown highlighted in red in the adjacent diagram.
- • The inch brake pedal allows precise control of the travel speed which is invaluable when positioning the truck to lift or place a load or when operating in a confined area.
- • When fully pressed down it blocks the flow of oil through the hydrostatic drive circuit, bringing the truck to a smooth controlled halt.
- • When partially pressed down it restricts the flow of oil through the hydrostatic drive circuit thus reducing the travel speed.
- • Press the pedal down gradually to reduce the travel speed gradually.
- • Release the pedal gradually to increase the travel speed gradually.



Operation

Many people are under the impression that driving a lift truck is like driving any other vehicle. This is not the case. Lift trucks are designed for the purpose of lifting, and moving heavy loads in confined spaces. For this reason it is essential that operators are trained to:

- • Thoroughly inspect the machine to confirm it is safe to use before commencing each shift.
- • Operate the machine correctly.
- • Always operate the machine in a safe and controlled manner.
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- **Pre-Use Checks**
- The truck must be maintained in a condition that is safe and without risk to safety and health. Pre-Use checks play a vital role in ensuring the truck is in safe working condition. Contact the local authorities in order to find out what regulations are in place regarding Pre-Use checks of industrial equipment of this nature.
- Employers must ensure that the Pre-Use checks are performed and that records are kept.
- • Operators must perform the checks and report any defects to their supervisor.
- • Never operate a truck that has not been checked or that has failed on any of the checks.

- • If a truck becomes unsafe during a shift, stop operating the truck and report the problem immediately.
- • If a truck has failed on any of the checks place an 'out of order' notice on the windscreen or steering wheel until the problem has been resolved.

The pre-use checks must be carried out at the start of the working day before the machine commences operation. Alternatively if a multi shift system is being operated the checks should be carried out at the beginning of each shift.

The following visual checks must be performed prior to using the truck:

- • **Overall Condition** – Look for scrapes, dents, and other signs of damage. Watch for missing or loose nuts and bolts. Check underneath the machine for signs of leaking fuel, engine coolant, engine oil, hydraulic oil and battery electrolyte.
- • **Mast** – Check for twisting and distortion in the channels. Look for signs of cracking and check that there are no missing or loose bolts. Check the mast chains for wear, missing links and pins. Make sure that the chains are of equal tension and are adequately lubricated. **DO NOT place your hands inside the mast at any stage to check the chains tension.** Press on the chains with a long stick or screwdriver. Check around the lift and tilt cylinders for signs of leakage. Also check all the hoses attached to the mast for signs of leaking oil.
- • **Fork Carriage** – Check for excessive wear, damage, deformation and cracks.
- • **Forks** – Check the forks for excessive wear, cracks, fractures and deformation.

Check that both locating pins are in place and operational.

- • **Tyres and Wheels** – Check that all the wheel nuts are present and secure. Look for cuts in the tyres or foreign objects in the rubber. Also look for plastic straps, wire, and other debris caught between the wheel and the wheel motor. **Always wear gloves when checking the tyres to avoid injury on sharp pieces of debris.**
- **Access** – Check that all steps and grab handles are secure, clean and in good condition.
- • **Load Backrest (if fitted)** – Check for deformation or cracks. Ensure it is fixed securely.

- • **Hydraulics** - Inspect the hydraulic hoses for kinks, routing and wear. Check all seals and couplings for damage, wear and leaks. Use a piece of card when checking for pinhole leaks.
- • **Hydraulic Oil Cooler** – Look for a build-up or dust or debris on or around the hydraulic oil cooler. Check around the fan and in the fins.
- • **Operator’s Cabin** – Look for signs of damage and cracking to the overhead guard. Ensure it is securely fixed. Report any signs of damage immediately to your supervisor.
- • **Front Wheel Alignment** – Check that the front wheels are aligned parallel to the platforms and to each other when standard mode is selected.
- • **Safety Sign Decals** – Check that all safety decals are present and legible.
- • **Hydraulic Tank** – Check for damage or leaks. Check the hydraulic oil level with the mast fully lowered.
- • **Battery** - Check the battery connections are secure. Check the cells for damage and leaks. Check the terminals for corrosion.
- • **Serial Plate and Capacity Chart** – Check they are present and securely attached and check the rated capacity.
- • **Electrical Connections/Terminals** – Check they are securely connected and undamaged. Check leads for loose or bare wires.
- • **Mirrors (If Fitted)** – Check mirrors are clean and in good condition.

The following engine related checks must be performed prior to using the truck:

- • **Oil Level** – Check the engine oil level on the dipstick. It must be between the upper and lower level marks. Top up oil if necessary.
- • **Coolant Level** – Check the coolant level in the coolant header tank by looking through the sight glass. Top up coolant if necessary.
- • **Radiator** – Check for build-up of leaves, dust or other debris on or around the radiator.
- • **Check all the Belts and Hoses** – Check that all of the belts and hoses are in good condition. Look for visible signs of wear and fraying.
- • **Fuel Tank and Hoses** – Check the tank for damage or corrosion. Check for signs of leaking fuel. Check the fuel cap is present and secure. Check the hoses for damage or deterioration.
- • **Fuel Pre-Filter Water Trap** – Check the contents of the water trap and empty if required. Empty immediately if the water level warning system is activated.

- **Engine Air Filter System** – Squeeze the dust unloader valve to clear any dust build-up. Check the air intake system hoses and connections for cracks and loose clamps.
- • **Exhaust** - Check for excessive noise or smoke.
- • **Engine Compartment** – Check the engine compartment for a build-up of combustible fluids and materials.

The following operational checks must be performed prior to using the truck:

- • **Check the Seat Belt** – Enter the cabin using the three point contact method. Make sure that the seat belt functions correctly. Check for any cuts or fraying along the belt and that it buckles securely. **Always wear the seat belt provided when you are driving the Combi lift.**
- • **Check the Seat** – Check it is anchored securely and that the runners and sliders operate freely. Check for objects under the seat that may interfere with the seat switch. The operator must ensure that the seat is correctly adjusted to suit their individual height and weight. Instructions on how to adjust the seat
- • **Turn on the Machine** – Insert the key into the ignition and turn the key to the position 1 (operating voltage). This will allow power to flow through the electrical system. The MDC should power up.
- • **Test the Horn** – The horn button is located on the dash to the right hand side of the operator. The Truck should not be operated if the horn is not functioning. Press the button to test the horn.
- • **Test the Reversing Alarm** – Select reverse drive. The reverse alarm should sound continuously while in reverse. The truck should not be operated if the reverse alarm is not functioning.
- • **Start the Engine** - Ensure that the park brake is applied by pressing the large red button on the dash. Also ensure that the direction switch is in the neutral position. Turn the key to the start position to start the engine, then release the key.
- • **Sounds** – Listen to the engine for a few seconds before driving off. If any strange sounds are heard stop the machine immediately and investigate the problem.
- • **Smells** - Check for any strange odours that may indicate a problem such as a very strong smell of fumes or burning. If anything abnormal is detected, stop the machine immediately and investigate the problem.
- • **Check the Multifunction Display Console** – Check the multifunction display console to see if any warning icons are displayed. Should any warning icons be displayed, stop the machine and report the fault to the relevant supervisor.

- • **Check the Work Lights** – Activate all work lights and check that they are all functioning as expected.
- **Check the Mast/Fork Hydraulic Functions** – After checking that there is adequate space and headroom perform the checks on the mast functions. Raise and lower the mast fully. Reach the mast out fully then retract it in fully. Watch for any signs of sticking. Tilt the mast forward fully and back fully. Test any auxiliary function(s) that may be fitted. The operation of all function should be smooth and controlled.
- • **Check the Brakes** – With the park brake applied, select forward travel with the four-way direction switch. Keeping both feet away from the pedals, release the park brake. The machine should start to move forward slowly. Press the inch brake pedal. The truck should stop. Release the pedal - the truck should move off again. Apply the park brake. The truck should stop. If either brake is not working do not operate the truck. Report the fault to the relevant supervisor. In the highly unlikely event of neither brake working, the machine can be stopped by switching off the engine. Make sure there is adequate space around the truck to perform the brake tests. Only perform the brake tests on a level surface.
- • **Check the Four-Way Direction Switch** – With the engine running and the park brake applied, select forward travel. Release the park brake. The truck should move forward. Press the inch brake pedal to stop the truck. Select reverse travel then release the inch brake pedal. The truck should move backwards. Press the inch brake pedal to stop the truck, then apply the park brake. Select left travel, the swivel arms should start to realign for sideward (90°) travel mode. When the swivel arms have finished realigning, release the park brake. The truck should move to the left. Press the inch brake pedal to stop the truck, select right travel then release the inch brake pedal. The truck should move to the right.
- • **Check the Steering** – With the engine running and the park brake applied, turn the steering wheel fully clockwise then fully anticlockwise. The steering should move easily both directions and not seem excessively stiff or loose. Perform this check in both standard (0°) travel mode and sideward (90°) travel mode.

On completion of the inspection the operator should report any defects immediately.

- • Never operate a lift truck that is in need of repair
- • Repairs should only be performed by authorised personnel

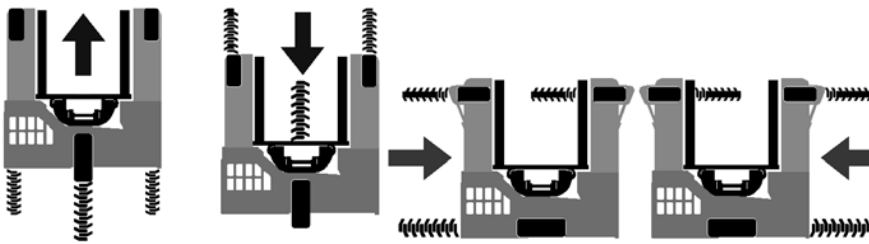
The details of the checks should be recorded on a copy of the Pre-Use check sheet provided at the back of this manual)

A record of the checks and any defects or repairs should be kept on file in order to keep track of the trucks service history.

To Align the Front Wheels:

Sideward (90°) Travel Mode

Operation



1. Drive the truck in standard mode (i.e. forward or reverse) to an open area where the ground is firm and level.
2. Stop and apply the park brake.
3. Check the alignment of the front wheels. Both front wheels should be aligned parallel to each other and to the sides of the truck.
4. If the wheels are out of alignment, select sideward mode for **right** travel by moving the direction switch to the **right**.
5. Wait for the swivel arms to finish repositioning.
6. Press the accelerator pedal to increase the engine speed and turn the steering wheel anticlockwise to fully extend both front steering cylinders.
7. When the cylinders are fully extended continue to turn the steering wheel against the resistance for 5-10 seconds (keep the engine speed up throughout).
8. Turn the steering wheel clockwise to fully retract both front steering cylinders. When the cylinders are fully retracted continue to turn the steering wheel against the resistance for 5-10 seconds (keep the engine speed up throughout).
9. Select standard mode for forward travel by moving the direction switch forward.
10. Wait for the swivel arms to finish repositioning.

11. Release the park brake and drive the truck forward at least 1 metre.
12. Stop and apply the park brake.
13. Check the alignment of the front wheels.
14. Both front wheels should now be aligned parallel to each other and to the sides of the truck.

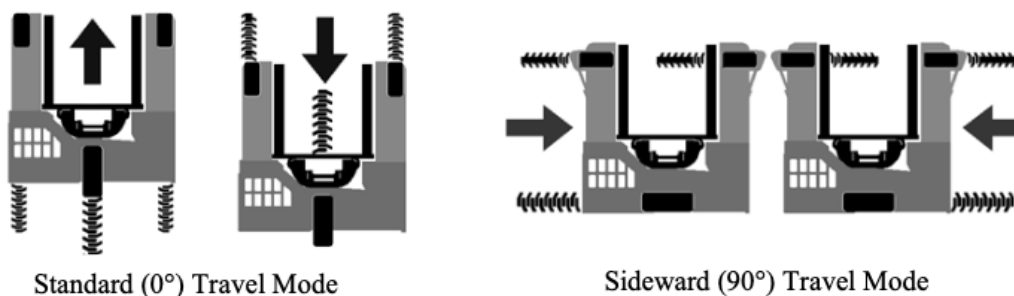
Changing Travel Direction

The procedure for changing travel direction differs depending on whether the swivel arms have to realign for the change of travel mode e.g. from standard (0°) travel mode to sideward (90°) travel mode or not.

Changing Travel Direction Without Changing Travel Mode

The procedure for changing drive direction differs depending on whether the swivel arms have to realign for a change of travel mode – e.g. from standard (0°) travel mode to sideward (90°) travel mode – or not.

- • Bring the machine to a complete stop by pressing the inch brake pedal.
- • Select the desired change of travel direction with the four-way direction switch.
- • Follow the instructions under ‘moving off’.



1. Changing Travel Direction With Travel Mode Change

This procedure applies when a change of travel direction is required that also requires the travel mode to change e.g. when changing from forward to right or from reverse to left.

- • Bring the machine to a complete stop by pressing the inch brake pedal.

- ● Apply the park brake then release the inch brake pedal.
- ● Select the desired change of travel direction with the four-way direction switch.
- ● As the swivel arms start to turn for the change of travel mode press the accelerator pedal lightly to speed up the operation.
- ● Watch the wheel direction icons on the MDC home screen and wait until they have stopped turning. Release the accelerator pedal when the operation is complete.

Picking Up, Placing, Stacking & De-stacking Loads

This section provides information on the correct way to pick up a load and set down a load.

There are a number of safety guidelines that should be adhered to at all times when lifting or placing loads.

- ● Read and understand the ‘Basic Information’ and ‘Safety Information’ sections of this manual before commencing operation.
- ● Assess the load before lifting. Check the weight, size, load centre and security. NEVER try to lift a load if its weight is unknown.
- ● Do not handle unstable or loosely stacked loads.
- ● Before picking up a load adjust the forks to ensure that they are equally spaced about the centre line of the fork carriage and as widely spaced as possible to take the weight of the load evenly.
- ● Make sure the forks are fully inserted into the pallet or under the load.
- ● Check that the forks are of sufficient length. The length should be at least two

thirds of the depth (front to back) of the load.

- ● Forks must not protrude beyond the pallet/load.
- ● Use suitable attachments for lifting unusual loads.
- ● Make sure that pallets are in good condition.
- ● Observe floor loading limits.
- ● Check safe working load (SWL) of racking before placing a load onto it.
- ● ALWAYS consult the capacity chart in the cabin of the truck before lifting a load and never exceed the rated capacity and load centre of the truck.
- ● When manoeuvring to pick up a load, avoid erratic movements that could result in damage to the load and/or truck.

- • Use caution when handling long, high or deep loads.
- • If the load obstructs view, drive in reverse or left or right and always looking in the direction of travel.
- • Make sure there is adequate clearance for the truck and load including overhead.
- • Do not allow anyone to stand beneath or pass under the mast or forks.
- • Never use the forklift to elevate anyone without the use of an approved man up cage.
- • Be aware of rear end swing when turning.
- • Never carry passengers on the truck.
- • Obey site rules and take particular care when there are pedestrians who should be given priority.
- • Use banks men if operating in congested or busy areas.
- • Operate controls smoothly.
- • Stop the truck, apply the park brake and select neutral before lifting a load.

Four-Way Drive Loading/Unloading Advantages

- • The four-way travel capability of the Combi lift truck allows for much easier alignment of the forks/load with the picking/placing area than with any other conventional type of forklift truck such as a counterbalance, reach or side loader.
- • To position the forks/load precisely with the placing/picking location select the required drive direction with the four-way direction switch.
- • Press the inch brake pedal down fully, look all around to make sure the way is clear, then release the park brake.
- • Press the accelerator pedal to increase the engine speed then gradually release the inch brake pedal until the truck starts to move slowly.
- • Make small steering corrections as necessary to align and position the forks/load precisely.
- • When aligned centrally with, parallel to and the correct distance from the desired location fully press the inch brake pedal to stop the truck., apply the park brake and select neutral.
- • Apply the park brake, move the direction control switch to the neutral position then, release the brake pedal.

5.16.1 Undercutting a Load

This is when the forks are not fully inserted into the pallet or under a load. It may be necessary to do this when it is not possible to get close enough to the pallet/load to insert the forks fully.

To Pick Up a Load using Undercut:

- • Fully extend the reach to insert the forks as far as possible into the pallet or under the load.
- • Gradually lift the load just enough to ensure it is stable.
- • If the load is unstable lower it back to its original position and report the problem to the site supervisor.
- • If the load is stable, retract the reach fully to bring the load closer to the truck.
- • Reverse slowly just enough to clear the racking/stack.
- • Lower a long load onto the trucks platforms ensuring that it is properly supported and stable on the platforms.
- • Lower a palletised load onto the ground.
- • Extend the reach again until the load is against the front face of the forks.
- • The load is now ready to be lifted.
- • Position the load in the safe travel position.

To Set Down a Load using Undercut:

- • After transporting the pallet/load, extend the reach fully then lower it onto on the ground.
- • Reposition the forks the required distance back from the load. The forks must be inserted by at least two thirds the depth of the pallet/load.
- • Gradually lift the load just enough to check that it is stable.
- • If the load is unstable lower it back onto the ground and report the problem to the relevant supervisor.
- • If the load is stable proceed to stack it in the usual fashion. See 'Stacking Long & Palletised Loads'.

Picking up a Load

Picking up a Palletised Load

- • Manoeuvre the truck so that the forks are aligned centrally with the pallet and approximately 50mm (2") from the front of the pallet.
- • Use the four-way drive to get the truck into position if necessary.
- • Apply the park brake and select neutral.
- • Level the forks then adjust the space between the forks to suit the pallet.
- • Use the tilt to level the forks then adjust the height of the forks to enable them to enter the pallet without fouling.

- • Extend the reach to insert the forks into the pallet until the front face of the forks gently touch the pallet.
- • Lift the load 100mm (4") off the ground, then tilt the mast back to secure the load.
- • Retract the reach fully.

Picking up a Long Load

- • Manoeuvre the truck so that the forks are aligned centrally with the load and approximately 50mm (2") from the front of the load.
- • Use the four-way drive to get the truck into position if necessary.
- • Apply the park brake and select neutral.
- • Level the forks then adjust the space between the forks to suit the load.
- • Use the tilt to level the forks then adjust the height of the forks to enable them to pass under the load without fouling anything.
- • Extend the reach to insert the forks under the load until the front face of the forks gently touch the load.
- • Lift the load 100mm (4") off the ground, then tilt the mast back to secure the load.
- • Raise the load 100mm (4") above platform height.
- • Retract the reach fully.
- • Gently lower the forks until the load is resting on the platforms and then ensure the truck is evenly balanced.
- • Continue to lower the forks to 100mm (4") off the ground and keep the mast tilted back.

Placing a Load

Placing a Palletised Load

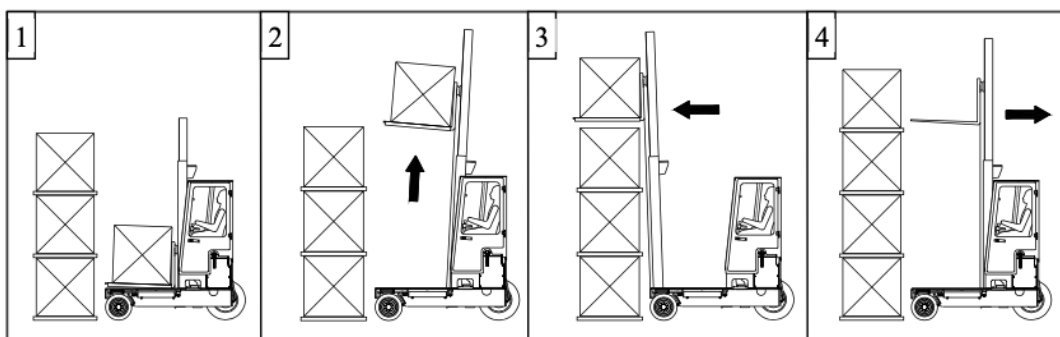
- • Manoeuvre the truck so that the pallet is as close to the placing area as possible.
- • Use the four-way drive to get the truck into position if necessary.
- • Apply the park brake.
- • Extend the reach.
- • Level the load using the tilt function.
- • Gently lower the load onto the placing surface.
- • Retract the reach fully, tilt the mast back and raise/lower the forks to 100mm (4") off the ground.

Placing a Long Load

- • Manoeuvre the truck so that the load is as close to the placing area as possible.
- • Use the four-way drive to get the truck into position if necessary.
- • Apply the park brake.
- • Raise the load 100mm (4") off the trucks platforms.
- • Extend the reach.
- • Level the load using the tilt function.
- • Gently lower the load onto the placing surface.
- • Retract the reach fully, tilt the mast back and raise/lower the forks to 100mm (4") off the ground.

5.16.4 Stacking Long & Palletised Loads

- • Slowly approach the placing location with the load in the safe travel position.
- • Use the four-way drive to get the truck into position if necessary.
- • Select neutral and apply the park brake.
- • Raise the load 100mm (4") off the trucks platforms if handling a long load.
- • Level the load using the tilt function – or if the load is not secure keep it in the tilted back position.
- • Check overhead to make sure there is adequate headroom before lifting. Pay attention to the highest point.
- Lift the load until the bottom of the pallet/load is 50-75mm (2-3") clear of the racking (or the top of the load beneath if bulk stacking).
-



- Gradually operate the accelerator pedal to ensure that the engine speed is sufficient to prevent stalling and to give the required lifting speed.
- • Ensure the load is not going to foul the racking or adjacent loads before traversing it out.
- • Extend the reach until the load is directly above the desired location.

- • If placing in racking, position the load with a 50-75mm (2-3") gap each side and

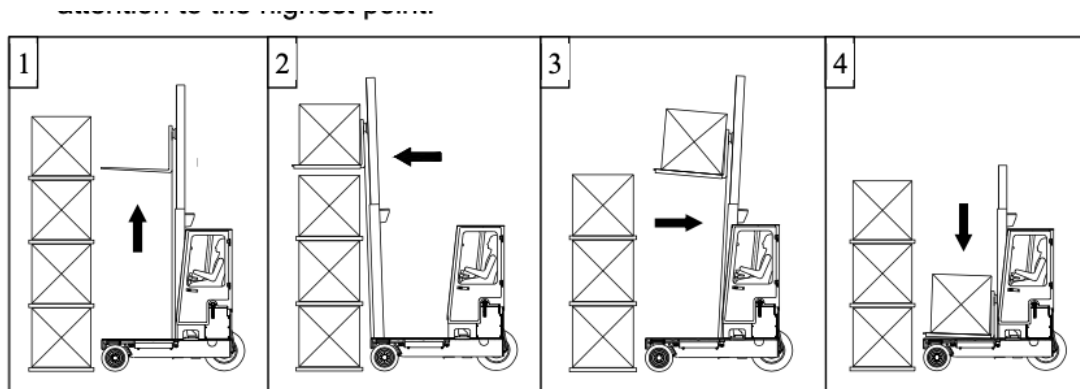
allow pallets to overhang the front of the racking by 25-50mm (1-2").

- • If bulk stacking, position the load exactly on top of the load beneath, keeping the stack perfectly upright and level.
- • Use the tilt to level the load then lower the load gently onto the racking or stack.
- • Position the forks at a height to clear the pallet/load without fouling on withdrawal.
- • Retract the reach fully, checking to make sure that the forks do not foul on the pallet or load on withdrawal. Make any necessary adjustments to prevent the forks from fouling.
- • If appropriate reverse away from the load.
- • When the forks are clear of the load/stack, lower the forks to 100mm (4") above

the ground and tilt the mast back before moving off.

De-stacking Long & Palletised Loads

- • Slowly approach the placing location with the mast in the safe travel position.
- • Use the four-way drive to get the truck into position if necessary.
- • Select neutral and apply the park brake.
- • Level the forks using the tilt function.
- • Check overhead to make sure there is adequate headroom before lifting.
- • Lift the forks to the required height to enter the pallet/load cleanly.
- • Extend the reach until the fork heels gently touch the pallet/load.
- • Check overhead to make sure there is adequate headroom before lifting. Pay attention to the highest point.



- Lift the pallet/load approximately 50-75mm (2-3"). If the load dips use the tilt function to level the load before withdrawal.
- • If the load is unstable use backward tilt to secure it if appropriate.
- • Retract the reach fully, checking to make sure that the pallet/load does not foul on the racking or adjacent loads on withdrawal. Make any necessary adjustments to prevent the load from fouling.
- • Lower the load smoothly under control (onto the platforms if the load is long) and ensure the load is evenly balanced.
- • Position the forks in the safe travel position.
- • If appropriate reverse away from the racking/stack.

Travelling Safely with a Load

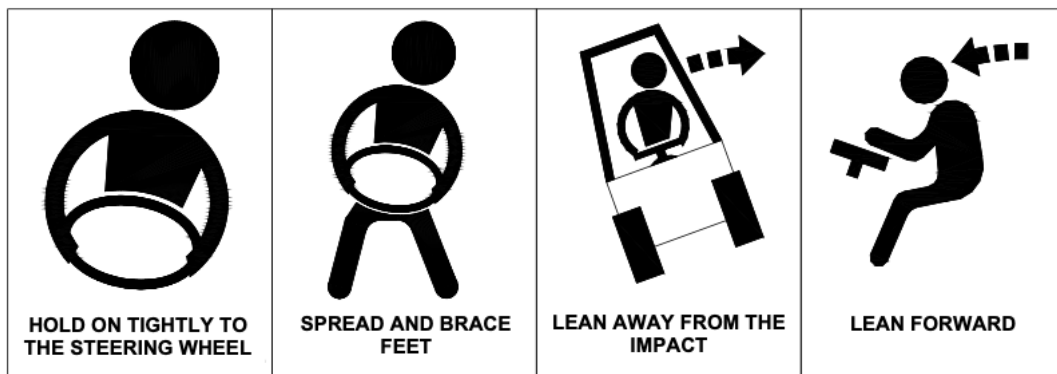
- • When travelling with a load always keep the load as low as possible.
- • With palletised loads ensure the load is tilted back and resting against the front Face of the forks.
- • With long loads have the load resting on the platforms of the truck whenever possible and secure the load if necessary to prevent movement during travel.
- • Try to avoid sudden and erratic movements with the machine. Accelerate and brake as smoothly as possible.
- • When approaching a junction or corner, slow down, sound the horn and proceed only when you are sure that your path is unobstructed.
- • When approaching crossings and areas where driving vision is restricted or obscured, reduce speed to a minimum and sound the horn - a series of short blasts is more effective than one long blast.
- • Cross railway lines slowly, only at authorised points and diagonally whenever possible. Avoid bumps and kerbs.
- • Be conscious of height and width restrictions and watch for the sudden appearance of pedestrians from behind obstacles.

- Do not carry unsafe or insecure loads. Never carry loads stacked higher than the top of the fork or load backrest (if fitted).
- Operator's arms, hands, head or legs must not overhang the running lines when the truck is in being operated. Take care when indicating a turn or other manoeuvre.
- Follow the correct procedure when travelling on sloped ground
- Take great care when travelling with a swinging load. If the load swings the centre of gravity of the truck also moves.
- Ensure the load is spread evenly on the forks.
- If the view forward is blocked by the load travel in reverse, left or right.
- Always look in the direction of travel and avoid obstacles such as sudden dips or potholes.
- Turn slowly and in the event of a tip over follow the procedure below.



Warn anyone in the vicinity of the truck to stay clear if the trucks starts to become unstable or to tip over.

unstable or to tip over.



Driving on Slopes

Always take great care when driving on a slope as the risk of an accident is increased. If a slope is greater than 5% the following guidelines must be followed.

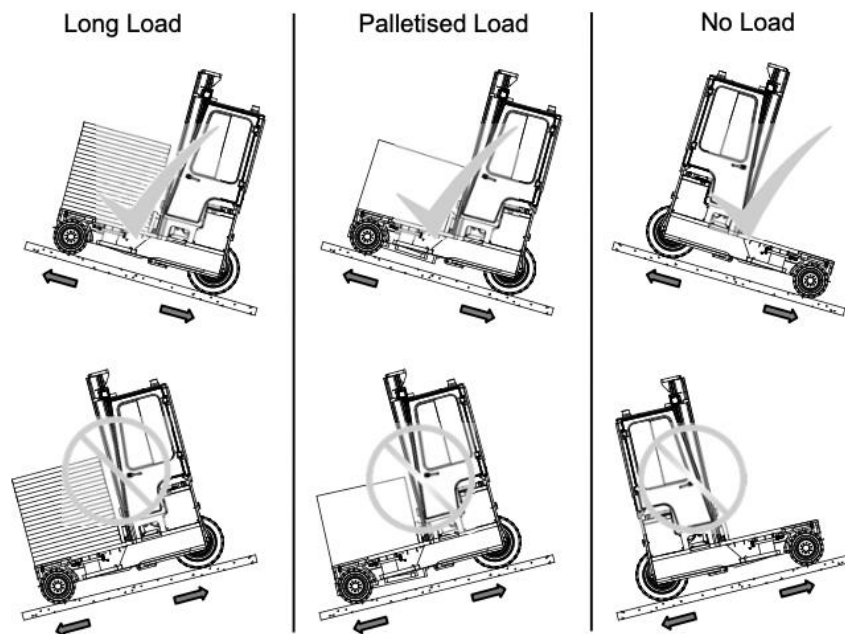
Do:

- Drive slowly and use the brakes gently.

- } Drive directly up or down the slope in standard mode.
- } Ensure the **forks face uphill** when driving up or down a slope **with a load**.
- } Ideally the **forks should face downhill** when driving up or down a slope

without a load.

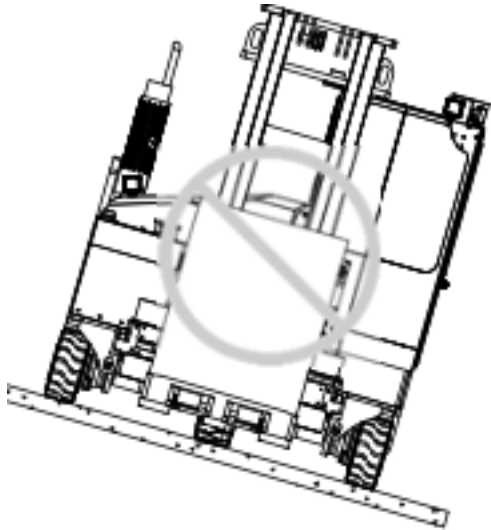
- } Keep the mast tilted back and the forks approximately 100mm (4") off the ground.



Driving in this way aids stability, traction and adhesion (meaning the truck is less likely to tip over or skid). If it is not possible to drive up and down the incline with the forks positioned as above then take great care.

Don't:

-] Drive diagonally on a slope.
-] Turn the truck around on or travel across a ramp or a slope.
-] Leave the truck on a slope, except in an emergency. In case of emergency always chock the wheels.



If it is necessary to drive in sideward mode on a slope with a long load the situation must be fully assessed and a safe work procedure determined before proceeding.

It may be necessary to secure the load to prevent it from sliding on the platforms. Rubber sheeting or other nonslip coatings may be fixed to the platforms to prevent the load from sliding.

