SE25-35

Operator's Manual



ELECTRIC RIDER LIFT TRUCKS

Additional copies of this manual may be purchased from
YOUR AUTHORIZED CLARK DEALER

[Do not remove this manual from the truck]

SE 25/30s/30/35

CLARK MATERIAL HANDLING COMPANY
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Operator's Manual

You must be trained and authorized to operate a lift truck.

YOU can prevent accidents

First: Learn safe operating rules and your company rules.

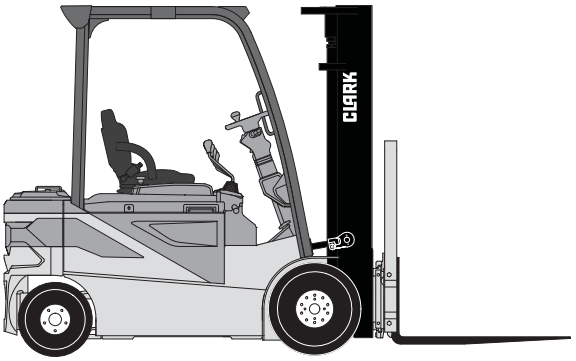
Next: Read your Operator's Manual. If you do not understand it, ask your supervisor for help.

Learn about the unit you operate.

KNOW YOUR TRUCK

Then: Practice operating your truck safely.

And: Keep your truck in safe operating condition with correct and timely maintenance.



Breaking these rules will cause serious or fatal injury to yourself and others.

A Message to CLARK Lift Truck Operators

Lift trucks are specialized machines with unique operating characteristics, designed to perform a specific job. Their function and operation is not like a car or ordinary truck. They require specific instructions and rules for safe operation and maintenance.

Safe operation of lift trucks is of primary importance to CLARK. Our experience with lift truck accidents has shown that when accidents happen and people are killed or injured, the causes are:

- **Operator not properly trained**
- **Operator not experienced with lift truck operation**
- **Basic safety rules not followed**
- **Lift truck not maintained in safe operating condition**

For these reasons, CLARK wants you to know about the safe operation and correct maintenance of your lift truck.

This manual is designed to help you operate your lift truck safely. This manual shows and tells you about safety inspections and the important general safety rules and hazards of lift truck operation. It describes the special components and features of the truck and explains their functions. The correct operating procedures are shown and explained. Illustrations and important safety messages are included for clear understanding. A section on maintenance and lubrication is included for the lift truck mechanic.

The operator's manual is not a training manual. It is a guide to help trained and authorized operators safely operate their lift truck by emphasizing and illustrating the correct procedures. However, it cannot cover every possible situation that may result in an accident. You must watch for hazards in your work areas and avoid or correct them. It is important that you know and understand the information in this manual and that you know and follow your company safety rules! Be sure that your equipment is maintained in a safe condition. Do not operate a damaged or malfunctioning truck. Practice safe operation every time you use your lift truck. Let's join together to set high standards in safety.

Remember, before you start operating this lift truck, be sure you understand all driving procedures. It is your responsibility, and it is important to you and your family, to operate your lift truck safely and efficiently. Be aware that the Federal Occupational Safety and Health Act (OSHA) and state laws require that operators be completely trained in the safe operation of lift trucks; it is also an OSHA requirement that a machine inspection be performed before every shift. If you think you need training in operating or inspecting your lift truck, ask your supervisor.

CLARK lift trucks are built to take hard work, but not abuse. They are built to be dependable, but they are only as safe and efficient as the operator and the persons responsible for maintaining them. Do not make any repairs to this truck unless you have been trained in safe lift truck repair procedures and are authorized by your employer.

SAFETY STARTS WITH YOU
(Safety Video)



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Introduction

CLARK welcomes you to the growing group of professionals who own, operate, and maintain CLARK lift trucks. We take pride in the long tradition of quality products and superior value the CLARK name represents. This manual familiarizes you with safety, operating, and maintenance information about your new lift truck. It has been specially prepared to help you use and maintain your CLARK lift truck in a safe and correct manner.

Your CLARK lift truck has been designed and built to be as safe and efficient as today's technology can make it. As manufactured, it meets all the applicable mandatory requirements of ANSI / ITSDF B56.1 Safety Standard for Powered Industrial Trucks. Each truck is also furnished with equipment to help you operate safely; for example, load back rest, parking brake, safety restraint system, seat belts and horn are standard equipment.

Safe, productive operation of a lift truck requires both skill and knowledge on the part of the operator. The operator must know, understand, and practice the safety rules and safe driving and load handling techniques described in this manual. To develop the skill required, the operator must become familiar with the construction and features of the lift truck and how they function. The operator must understand its capabilities and limitations, and see that it is kept in a safe condition.

Routine Servicing and Maintenance

Regular maintenance and care of your lift truck are not only important for economy and utilization reasons; it is essential for your safety. A faulty lift truck is a potential source of danger to the operator, and to other personnel working near it. As with all quality equipment, keep your lift truck in good operating condition by following the recommended schedule of maintenance.

Operator Daily Inspection - Safety and Operating Checks

A lift truck should always be examined by the operator, before driving, to be sure it is safe to operate. The importance of this procedure is emphasized in this manual with a brief illustrated review and later with more detailed instructions. CLARK dealers can supply copies of a helpful “Drivers Daily Checklist.”

Planned Maintenance

In addition to the daily operator inspection, CLARK recommends that a planned maintenance and safety inspection program (PM) be performed by a trained and authorized mechanic on a regular basis. The PM will provide an opportunity to make a thorough inspection of the safety and operating condition of your lift truck. Necessary adjustments and repairs can be done during the PM, which will increase the life of components and reduce unscheduled downtime and increase safety. The PM can be scheduled to meet your particular application and lift truck usage.

The procedures for a periodic planned maintenance program that covers inspections, operational checks, cleaning, lubrication, and minor adjustments are outlined in this manual. Your CLARK dealer is prepared to help you with a Planned Maintenance Program by trained service personnel who know your lift truck and can keep it operating safely and efficiently.

Modification of the truck prohibited

Unauthorized modification of the truck is not permitted, and, in case that a problem has occurred due to a modification without permission, the warranty service shall not be provided.

For instance, the modifications which may void the warranty include those that may negatively affect the performance, durability and safety of the truck due to addition of unauthorized electrical devices (lamp, black box, electrical instrument, communication equipment, etc.), braking system, steering system, vision improvement system and detachable attachment device that were not mounted when the equipment was shipped out of the factory.

How to Use this Manual

This manual is a digest of essential information about the safe operation, the features and functions and explains how to maintain your lift truck. This manual is organized into eight major parts:

Section 1, General Safety Rules, reviews and illustrates accepted practices for safe operation of a lift truck.

Section 2, Operating Hazards, warns of conditions that could cause damage to the truck or injury to the operator or other personnel.

Section 3, Common Truck, describes the most common operating components, systems, controls, and other features of your truck and tells how they function.

Section 4, Operator Compartment and Controls, discribes the operating components, system, controls, and other features of your truck and tells how they function.

Section 5, Operating procedures, discusses specific instructions on the safe, efficient operation of your lift truck.

Section 6, Operator Maintenance and Care, presents details on how to perform the operator's daily safety inspection of the lift truck.

Section 7, Emergency Starting, Towing and Lowering, gives instructions for towing your truck in an emergency and for using battery jumper cables to start your truck in an emergency.

Section 8, Planned Maintenance and Lubrication, describes the PM program.

Section 9, Specifications, provides reference information and data on features, components, and maintenance items.

Also, the Index helps you locate information about various topics.

NOTICE: The descriptions and specifications included in this manual were in effect at the time of printing. CLARK Material Handling Company reserves the right to make improvements and changes in specifications or design. Please check with your authorized CLARK dealer for information on possible updates or revisions.

The examples, illustrations, and explanations in this manual should help you improve your skill and knowledge as a professional lift truck operator and take full advantage of the capabilities and safety features of your new lift truck.

The first Section of the manual is devoted to a review, with illustrations and brief messages, of general safety rules and the major operating hazards you can encounter while operating a lift truck. Next, you will find descriptions of the components of your specific lift truck model and how the instruments, gauges, and controls operate. Then, you will find a discussion of safe and efficient operating procedures, followed by instructions on how to tow a disabled lift truck. The later sections of the manual are devoted to maintenance and truck specifications.

Take time to carefully read the “Operator Compartment and Controls” section. By acquiring a good basic understanding of your truck's features, and how they function, you are better prepared to operate it both efficiently and safely.

In “Planned Maintenance and Lubrication,” you will find essential information for correct servicing and periodic maintenance of your truck, including charts with recommended maintenance intervals and component capacities. Carefully follow these instructions and procedures.

Each major Section has its own table of contents, so that you can find the various topics more easily. If you cannot find a topic in the table of contents, check the index at the back of the manual.

We urge you to first carefully read the manual from cover to cover. Take time to read and understand the information on general safety rules and operating hazards. Acquaint yourself with the various procedures in this manual. Understand how all gauges, indicator lights, and controls function. Please contact your authorized CLARK dealer for the answers to any questions you may have about your lift truck’s features, operation, or manuals.

Operate your lift truck safely; careful driving is your responsibility. Drive defensively and think about the safety of people who are working nearby. Know your truck’s capabilities and limitations. Follow all instructions in this manual, including all IMPORTANT, CAUTION, WARNING, and DANGER messages to avoid damage to your lift truck or the possibility of any harm to yourself or others.

This manual is intended to be a permanently attached part of your lift truck. Keep it on the truck as a ready reference for anyone who may drive or service it. If the truck you operate is not equipped with a manual, ask your supervisor to obtain one and have it attached to the truck. And, remember, your CLARK dealer is pleased to answer any questions about the operation and maintenance of your lift truck and will provide you with additional information should you require it.

Safety Signs and Safety Messages

Improper operation can cause accidents. Don’t take chances with incorrect or damaged equipment. **Read** and **understand** the procedures for safe driving and maintenance outlined in this manual. Don't hesitate to ask for help. **Stay alert!** Follow safety rules, regulations, and procedures. Avoid accidents by recognizing dangerous procedures or situations before they occur. **Drive and work safely** and follow the safety signs and their messages on the truck and in this manual.

Safety signs and messages are placed in this manual and on the truck to provide instructions and identify specific areas where potential hazards exist and special precautions should be taken. Know and understand the meaning of these instructions, signs, and messages. Damage to the truck, death, or serious injury to you or other persons may result if these messages are not followed. If warning decals are damaged, they must be replaced. Contact your CLARK dealer for replacements.

NOTICE

This message is used when special information, instructions or identification are required relating to procedures, equipment, tools, pressures, capacities and other special data.

IMPORTANT

This message is used when special precautions should be taken to ensure a correct action or to avoid damage to or malfunction of the truck or a component.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or injury

General Safety Rules

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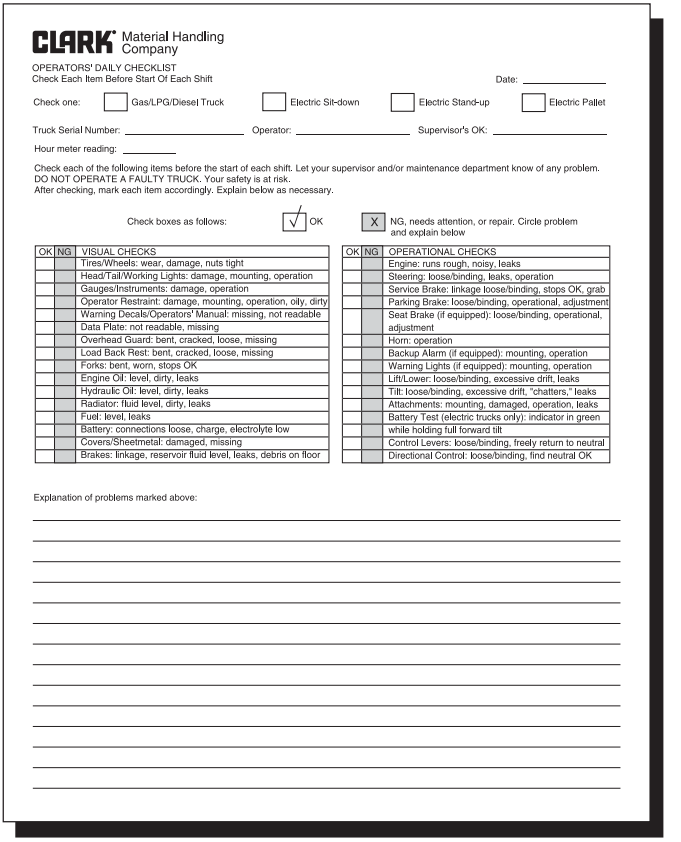
Daily Inspection



CLARK Material Handling Company

OPERATORS' DAILY CHECKLIST
Check Each Item Before Start Of Each Shift

Date: _____

Check one: ☐ Gas/LPG/Diesel Truck ☐ Electric Sit-down ☐ Electric Stand-up ☐ Electric Pallet

Truck Serial Number: _____ Operator: _____ Supervisor's OK: _____

Hour meter reading: _____

Check each of the following items before the start of each shift. Let your supervisor and/or maintenance department know of any problem.
DO NOT OPERATE A FAULTY TRUCK. Your safety is at risk.
After checking, mark each item accordingly. Explain below as necessary.

Check boxes as follows: [√] OK [X] NG, needs attention, or repair. Circle problem and explain below

OK	NG	VISUAL CHECKS
		Tires/Wheels: wear, damage, nuts tight
		Head/Tail/Working Lights: damage, mounting, operation
		Gauges/Instruments: damage, operation
		Operator Restraint: damage, mounting, operation, oily, dirty
		Warning Decals/Operators' Manual: missing, not readable
		Data Plate: not readable, missing
		Overhead Guard: bent, cracked, loose, missing
		Load Back Rest: bent, cracked, loose, missing
		Forks: bent, worn, stops OK
		Engine Oil: level, dirty, leaks
		Hydraulic Oil: level, dirty, leaks
		Radiator: fluid level, dirty, leaks
		Fuel: level, leaks
		Battery: connections loose, charge, electrolyte low
		Covers/Sheetmetal: damaged, missing
		Brakes: linkage, reservoir fluid level, leaks, debris on floor

OK	NG	OPERATIONAL CHECKS
		Engine: runs rough, noisy, leaks
		Steering: loose/binding, leaks, operation
		Service Brake: linkage loose/binding, stops OK, grab
		Parking Brake: loose/binding, operational, adjustment
		Seat Brake (if equipped): loose/binding, operational, adjustment
		Horn: operation
		Backup Alarm (if equipped): mounting, operation
		Warning Lights (if equipped): mounting, operation
		Lift/Lower: loose/binding, excessive drift, leaks
		Tilt: loose/binding, excessive drift, "chatters," leaks
		Attachments: mounting, damaged, operation, leaks
		Battery Test (electric trucks only): indicator in green while holding full forward tilt
		Control Levers: loose/binding, freely return to neutral
		Directional Control: loose/binding, find neutral OK

Explanation of problems marked above:

At the beginning of each shift, inspect your truck and fill out a daily inspection sheet.

Check for damage and maintenance problems.

Have repairs made before you operate the truck.

CAUTION

DO NOT MAKE REPAIRS YOURSELF. Lift truck mechanics are trained professionals. They know how to make repairs safely. *(See Section 6)*

Do’s and Don’ts



Don't mix drugs or alcohol with your job.

Do watch for pedestrians.





Don't block safety or emergency equipment.

Do wear safety equipment when required.





Don't smoke in "NO SMOKING" areas or while operating the truck.

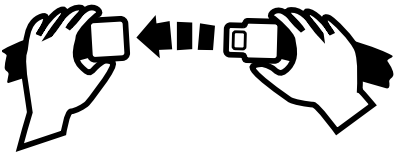
If forklift truck is to be operated outdoors during rainy conditions, make sure cab is in place to prevent damage to electrical components



Seat Belts

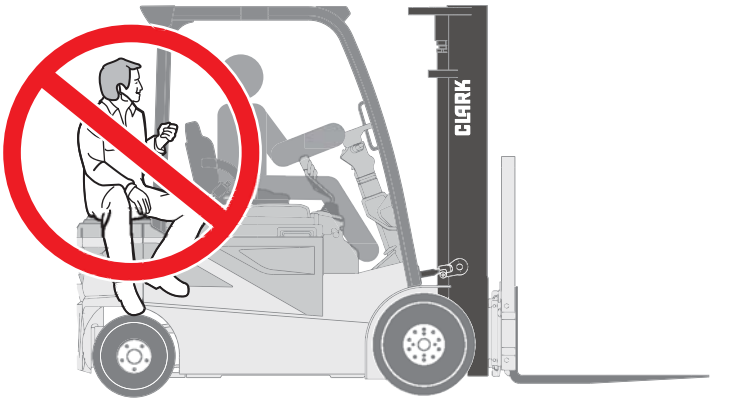


ALWAYS BUCKLE UP



Seat belts can reduce injuries.

No Riders

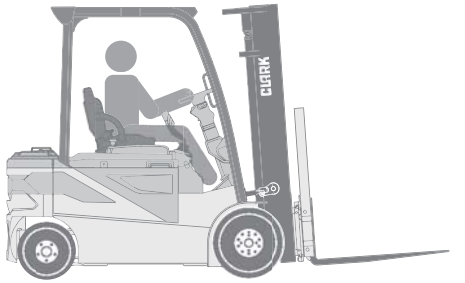


The operator is the only one who should be on a truck.



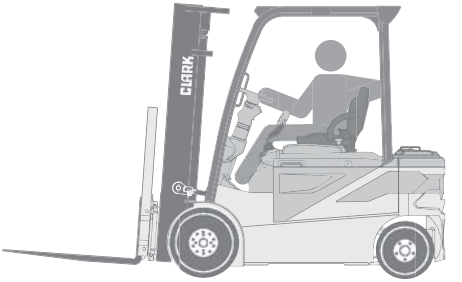
Never transport personnel on the forks of a lift truck.

Pedestrians





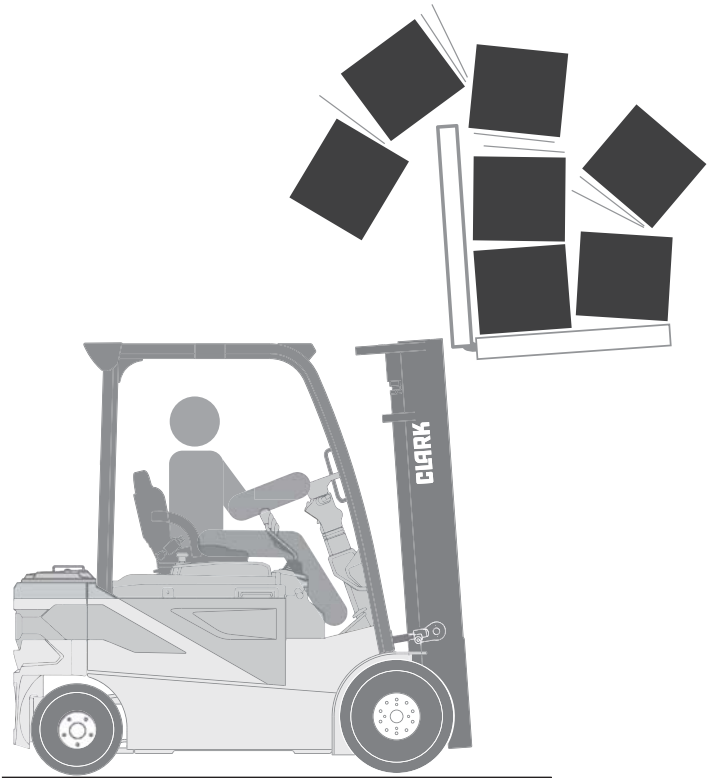
Watch where you are going. Look in the direction of travel. Pedestrians may use the same roadway you do. Sound your horn at all intersections or blind spots. Watch for people in your work area even if your truck has warning lights or alarms. People may not watch for you.





Make people stand back, even when you are parked.

Operator Protection



Keep under the overhead guard.

Always keep your body within the confines of the truck.

Fork Safety



Never allow anyone to walk under raised forks.

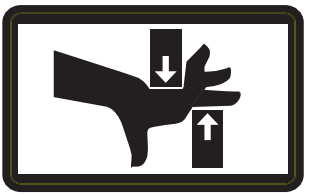


DANGER

There is special equipment to raise people for overhead work. DO NOT USE LIFT TRUCKS.



Pinch Points



WARNING

Keep hands, feet and legs out of the upright.



WARNING

Don't use the upright as a ladder.

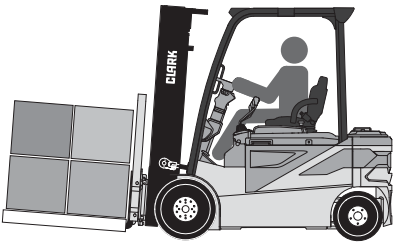
CAUTION

Never try to repair the upright, carriage, chain, or attachment yourself! Always get a trained mechanic.

Travel

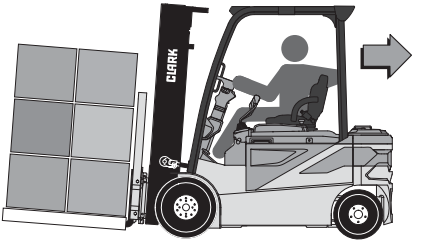
Travel with the load near the floor/ground with upright tilted back to cradle the load whenever possible.

Never lift or lower the load when the truck is in motion.



When handling bulky loads that restrict your vision operate your truck in reverse to improve visibility.

Be sure to pivot in the seat to give maximum visibility.



Unstable loads are a hazard to you and to your fellow workers.

Always make certain that the load is well stacked and evenly positioned across both forks.

Never attempt to lift a load with only one fork.

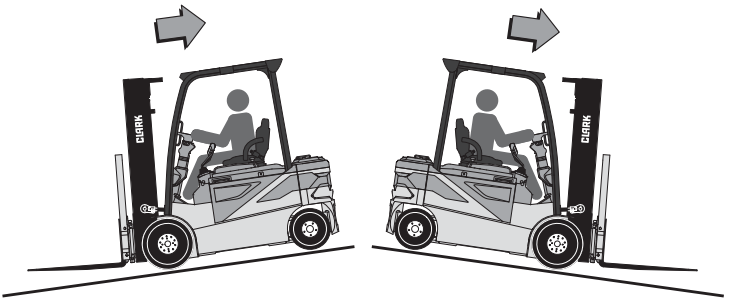
Right



Wrong



Grades, Ramps, Slopes, and Inclines

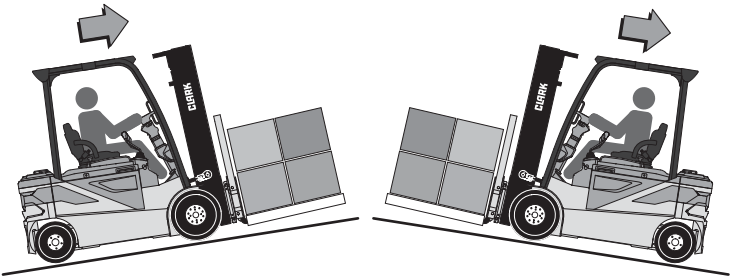


Unloaded

Forks Downgrade

WARNING

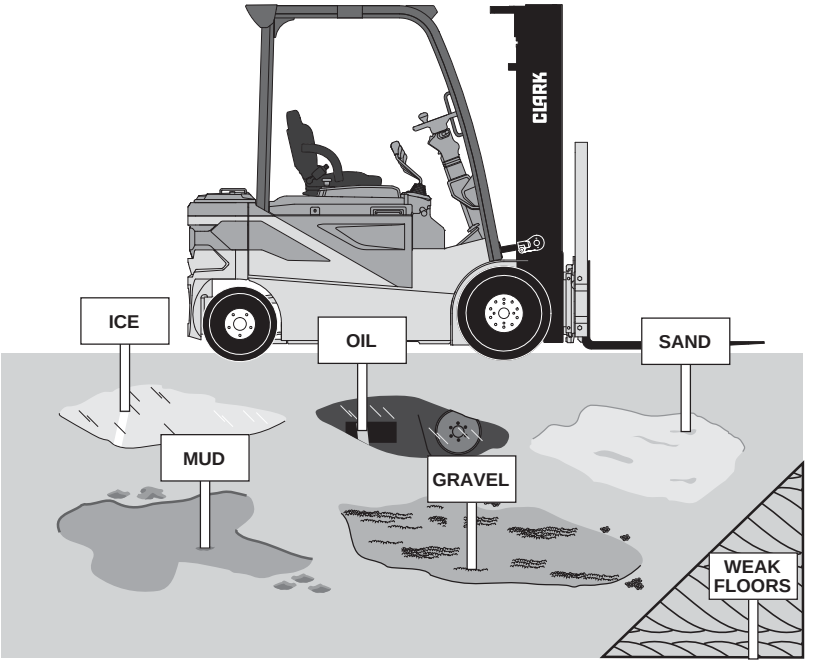
Never turn on a grade, either loaded or unloaded.



Loaded

Forks Upgrade

Surface and Capacity



Avoid these conditions. They can cause a truck to tip over or lose traction for braking or driving.

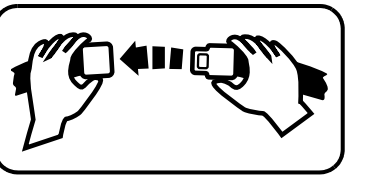
WARNING

Know the weight of your truck and load. Especially when using elevators. Know the capacity of the elevator you intend to use. Do not overload.

IMPORTANT

Seat belts can reduce injuries.

ALWAYS BUCKLE UP



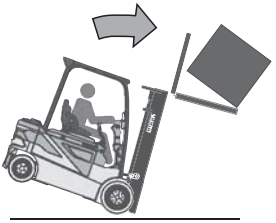
Tip-Over

Lateral Tip-over



- Lateral tip-over can occur with a combination of speed and sharpness of turn. This combination will exceed the stability of the truck. This condition is even more likely with an unloaded truck.
- With the load or upright raised, lateral tip-over can occur while turning and/or braking when traveling in reverse or accelerating and turning while traveling forward.
- Lateral tip-over can occur loaded or unloaded by turning on an incline or ramp.

Longitudinal Tip-over



- Longitudinal tip-over can occur with a combination of overloading and load elevated also with capacity load and elevated. This combination will exceed the stability of the truck. This condition is even more likely with excessive forward tilt, braking in forward travel or accelerating rearward.
- Longitudinal tip-over can occur by driving with the load down slope on a steep grade.
- Never travel with a load elevated more than necessary.

Lateral and longitudinal tip-over can occur if the truck is driven over objects on the floor or ground, off the edge of improved surfaces, or into potholes in the road surface, or by running into overhead objects or collisions.

An off dock type of tip-over can occur if the truck is steered too close to the dock edge, driven off the edge of the dock or ramp, or if the highway truck or trailer rolls away from the dock or is driven away during loading.

WARNING

The conditions listed above can be further aggravated by overloading, excessive tilt, or off center loads.

IMPORTANT

Lift truck tip-over can cause serious injury or death if the operator is trapped between the truck and the ground.

What to do in Case of a Tip-over

If your truck starts to tip over,

WARNING

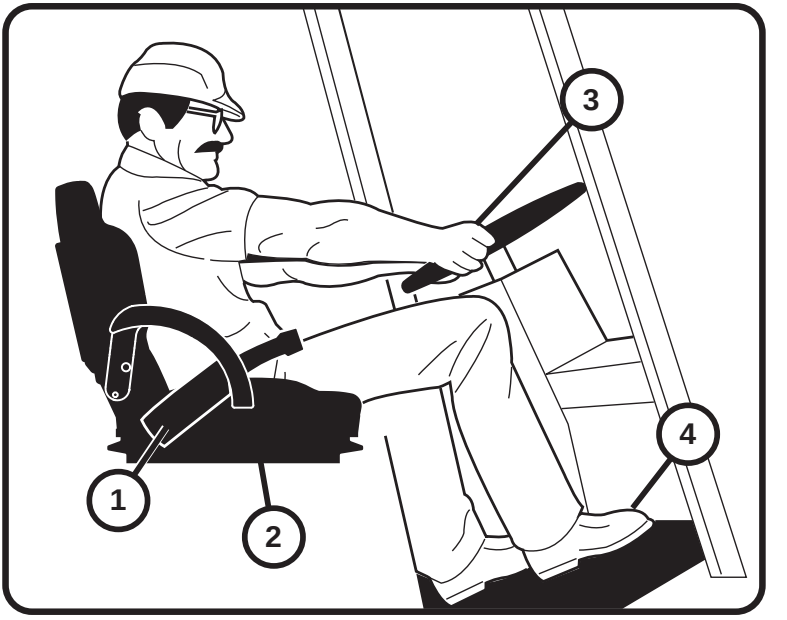
DO NOT JUMP!!!

IMPORTANT

Your chances for survival in a tip-over are better if you stay with the truck, in your seat.

Brace yourself as illustrated below!

1. **Make sure your seat belt is fastened securely.**
2. **Stay in your seat.**
3. **Grip the wheel.**
4. **Brace your feet.**

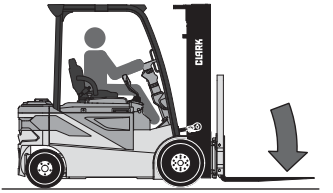


Parking

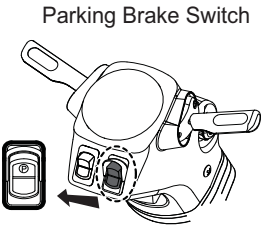
- Never park on a grade.
- Always come to a complete stop before leaving truck.



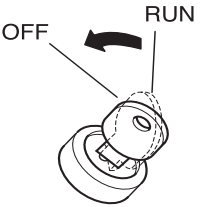
- Be sure travel control is in NEUTRAL.
- Lower forks fully to floor and tilt forward.



- Set the parking brake by pressing the Parking Brake Switch.
- For additional information, refer to page(s) 3-5.



- Turn key to OFF position.

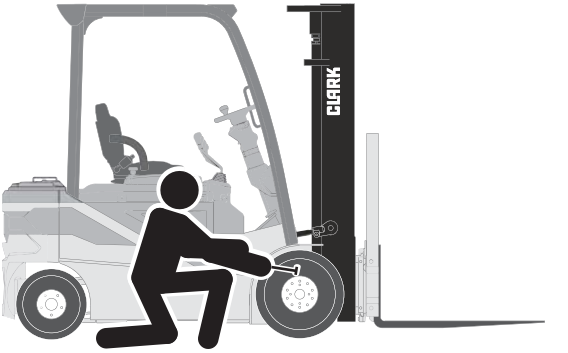


General Tire Maintenance, Inspection, and Repair

1. Park the truck as described on page 1-15 and check for correct tire inflation air pressure. See specifications in this OM for correct tire pressure for your truck.

CAUTION

Check tire pressure from a position facing the tread of the tire, not the side. Use a long-handled gauge to keep your body away from the side.



- If tires are low, do not add air. Have the tire and wheel inspected by a person trained and authorized to do tire and wheel maintenance. The tire may require removal and repair.
- Incorrect (low) tire pressure can reduce the stability of a lift truck and cause it to tip over.

IMPORTANT

Check wheels and tires for damage every time you check tire pressure. Make repairs when needed. Dirt can get into cuts and cause damage to the tire cord and tread. Remove debris from all cuts.

CAUTION

Multiple wheel assemblies. Do not loosen or remove wheel assembly nuts before fully deflating tire. Have only a trained and authorized mechanic make repairs.
***See Service Manual for more detailed information*.**

Operating Hazards

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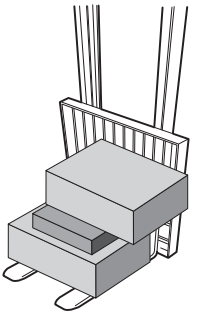
IMPORTANT

This section shows some of the hazards that may cause you, or someone around you, to be killed or badly hurt. As the operator, you must look for other hazards.
Get your supervisor to help you identify and avoid those hazards.

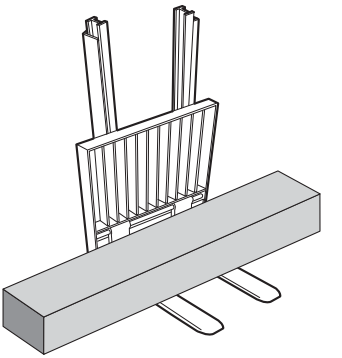
Loose Loads

Loose or unbalanced loads are dangerous. Observe these precautions.

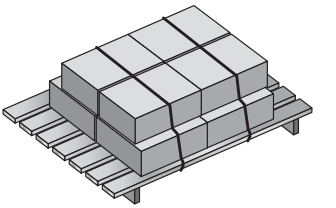
Never carry loose or uneven material.



Center wide loads.



Stack and band loose material.



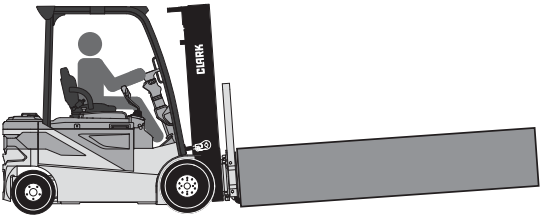
Long and Wide Loads / Rear Swing

WARNING

With long or wide loads, you need more room. So slow down and watch your clearance.

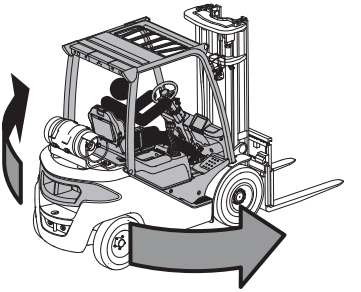
A long load reduces the capacity of the truck. Know and understand your truck load rating.

When extra-long material makes it necessary to travel with the load elevated, do so with extreme care and be alert to load end-swing when turning.



WARNING

When turning, be sure the rear end of the truck does not swing into racks, posts, etc. Watch for pedestrians beside the truck.



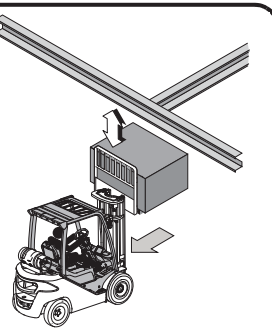
Low Overhead Clearance· Fast Turns and High Loads

WARNING

Know the height of your truck, with and without a load.

Check your clearances.

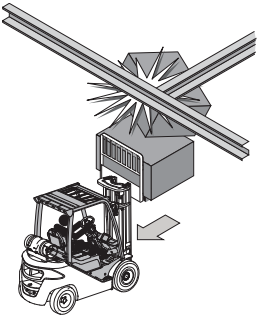
Keep the load low and tilted back.



WARNING

Watch overhead clearance:

Moving into overhead structures can tip a truck over, or spill a load.

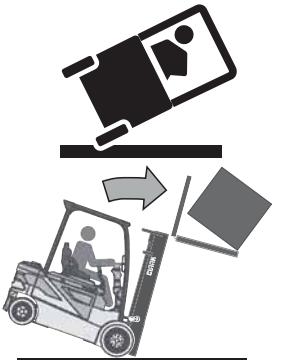


WARNING

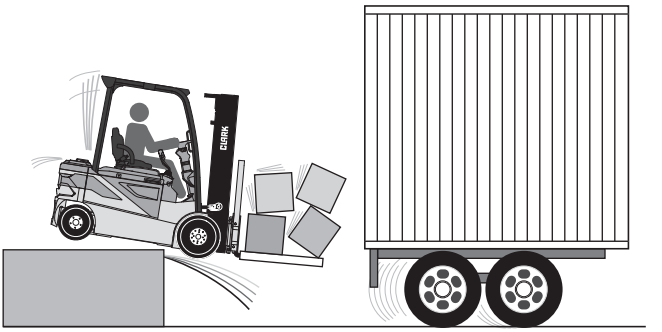
Slow down before turning. The truck can tip over.

Turn too sharp with a raised load and your truck can tip even at slow speeds.

Travel with a load raised only when removing or depositing a load.



Drop-Offs

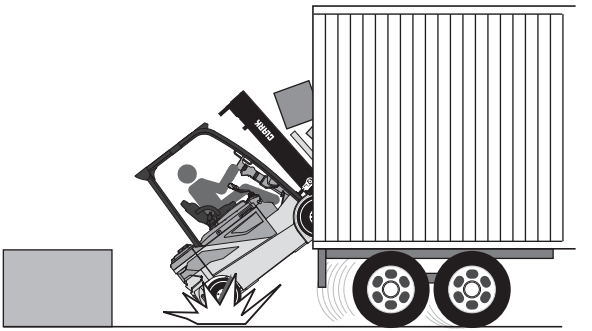


WARNING

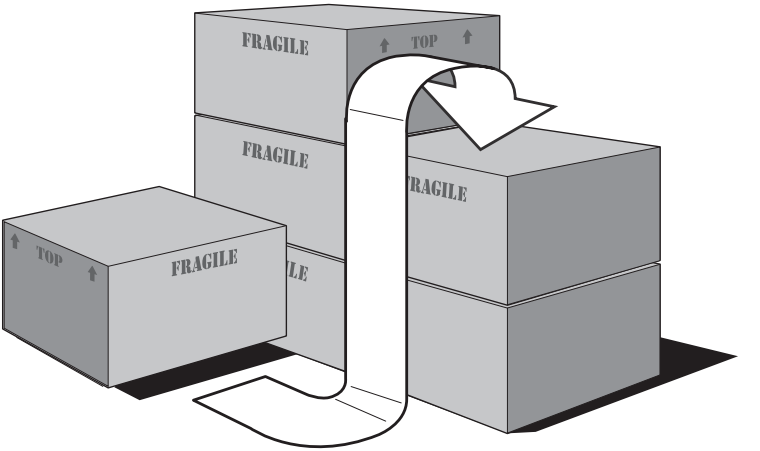
To avoid these hazards, you must:

- **Talk to the truck driver yourself; make sure the driver does not move the trailer until you are done!**
- **Apply trailer brakes.**
- **Use wheel chocks.**
- **Use trailer-to-dock locking system if available.**

The impact of moving in and out of a trailer may cause the trailer to creep or move.



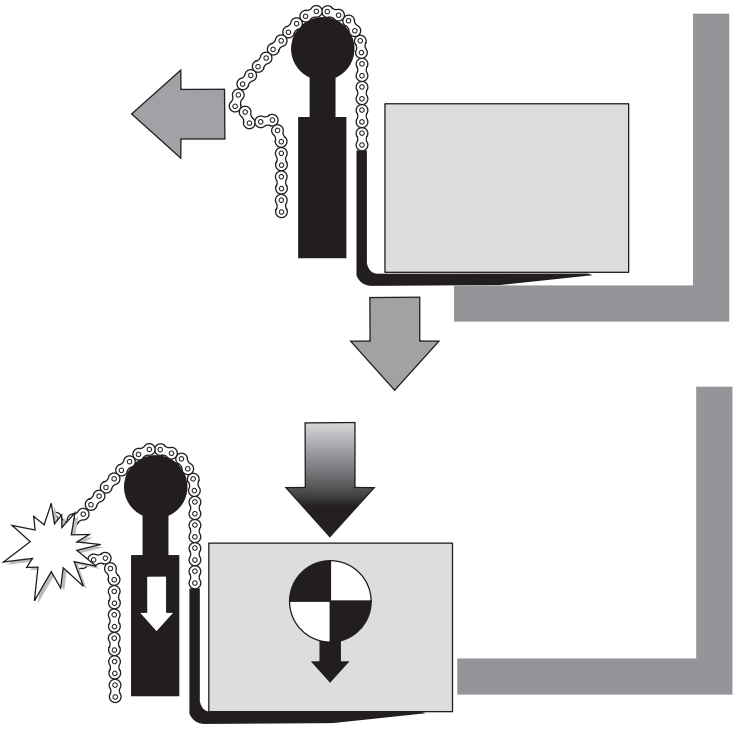
Right-Angle Stacking



SLOWLY

When right-angle stacking or moving with a raised load to clear low objects, avoid sharp turns and move slowly.

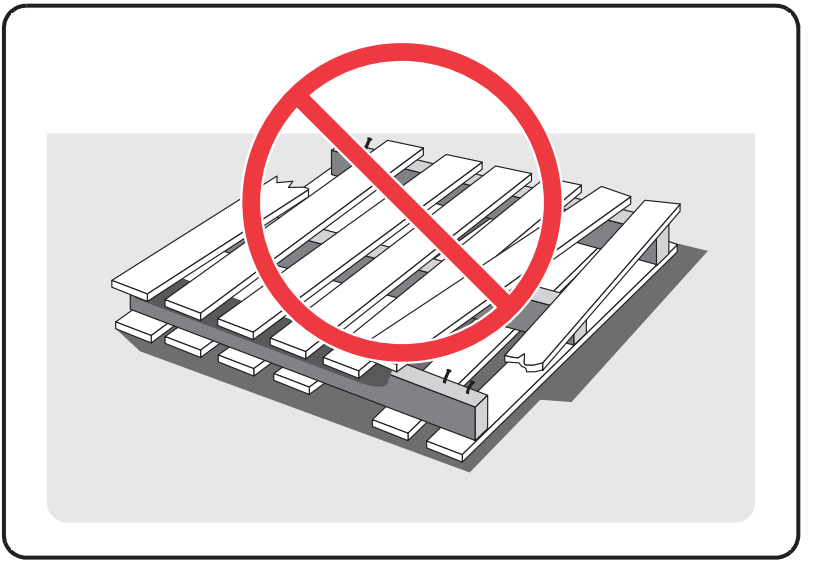
Chain Slack



WARNING

Slack chains mean rail or carriage hang-up. Raise the forks before you move, or broken chains can result.

Pallets and Skids



WARNING

Do not move or store materials on damaged pallets or skids. Items can fall through them causing severe injury or death!

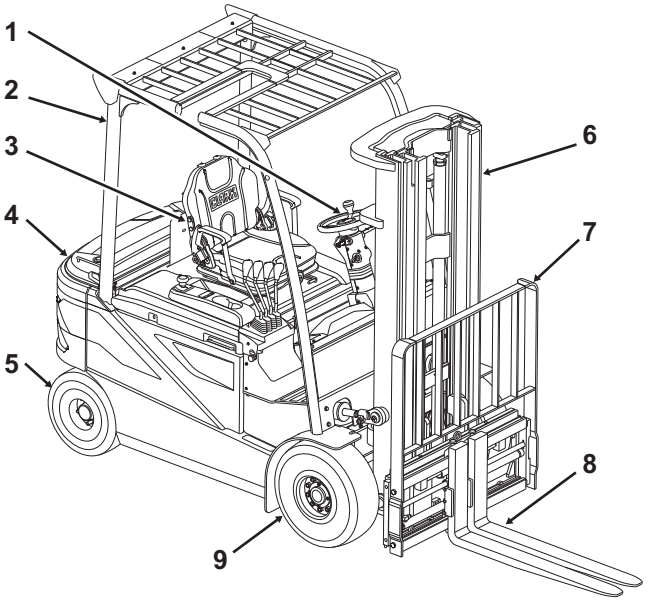
Be sure the pallet or skid you are using is in good condition and does not have defective or missing components and fasteners.

Operator Compartment and Controls

Contents

Truck Description **3-2**
Operator Compartment **3-3**
Operator Controls **3-4**
Battery **3-14**
Fuses **3-17**
Heater **3-18**
Decals **3-20**

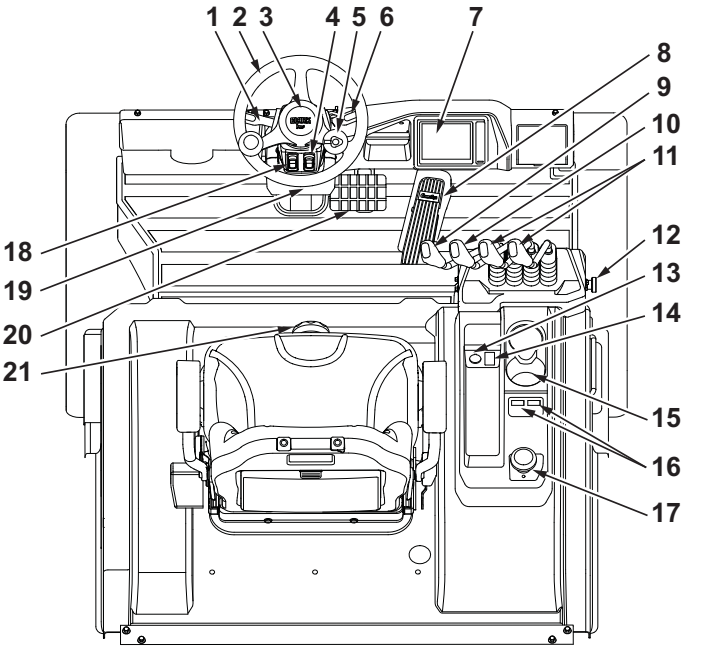
Truck Description



1. Steering Handwheel
2. Overhead Guard
3. Seat and Seat Belt
4. Counterweight
5. Steer Axle, Wheels / Tires
6. Upright and Carriage
7. Load Backrest
8. Forks
9. Drive Axle, Wheels / Tires

The truck shown above is a typical representation of a CLARK internal combustion lift truck. Your model may vary slightly.

Operator Compartment

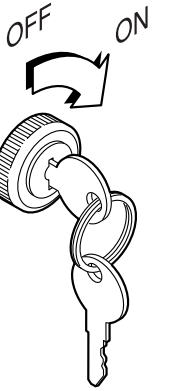


1. Forward / Reverse Lever
2. Steering Handwheel
3. Horn Button
4. Parking Brake Switch
5. Key Switch
6. Turn Signal Lever (Option)
7. Instrument Pod
8. Accelerator Pedal
9. Lift Control Lever
10. Tilt Control Lever
11. Auxiliary Control Lever
12. Hood Opening Button
13. Power Socket (12V, Option)
14. USB Charger (Option)
15. Cup Holder
16. Lamp switch (Option)
17. Emergency Switch
18. Hazard Switch (Option)
19. Steer Column Tilt Lever
20. Service Brake Pedal
21. Driver's Weight Adjuster

Key/Start Switch

- Connects the battery with all truck operating systems (drive, lift, and steer electrical circuits).
- Connects battery to the diagnostic display hourmeter and battery charge status.

The key switch must always be turned to the ON position to operate the truck. When the key is in the vertical OFF position, instruments, drive and pump motor electrical circuits are disconnected (shut-off), and the key can be removed.

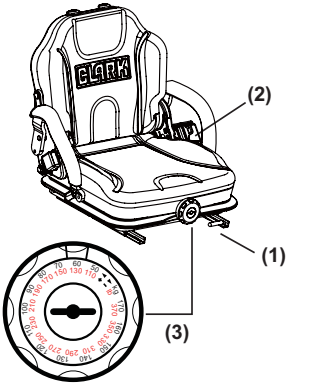


Seat Adjustment

Adjusting Driver Seat Forward and Backward (1)

The forward / backward adjustment lever of the driver seat is positioned under the front of the seat.

Pull the lever to the left to adjust the seat forward or backward, and then release the lever and engage the seat the lock position.



Adjustment of Backrest Angle (2)

The backrest angle adjustment lever is positioned on the left of the seat.

Pull the lever up to adjust the backrest, and engage the backrest on the lock position.

Adjusting Seat for Driver's Weight (3)

The adjustment knob of the seat for driver's weight is positioned under the front of the seat.

Turn the knob to the left or the right to adjust the seat for driver's weight.

The weight adjustment scope is between 50-170 kg (110-375 lbs).

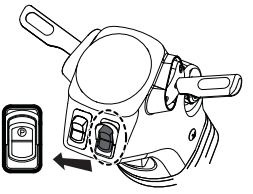
CAUTION

Never attempt adjustment of the driver seat while the forklift truck moves; Accident or injury may be resulted in. Additionally, when operating a forklift, the seat belt must always be worn properly.

Parking Brake

The self-activating parking brake applies when the truck is turned off or when the operator leaves the seat. The parking brake will also apply automatically during certain functions such as Anti-Roll Back, Smart Interlock, etc.

Parking Brake Switch



CAUTION

Do not attemp to leave a moving truck. Remain seated with the seatbelt latched until the truck comes to a complete stop and the parking brake icon is shown on the display.

If an emergency occurs, such as failure of the service brakes, the operator can manually activate the parking brake by pressing the parking brake switch. Please know that frequent use of the parking brake while traveling is considered abuse and can damage the truck.

CAUTION

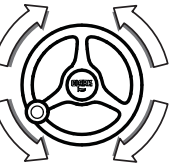
To manually release the parking brake when lift truck is disabled, refer to "How to Tow a Disabled Truck" on page 7-2.

Hour Meter

With the key switch on, putting the directional control lever into forward or reverse positions also starts the operating hour meter. Use the hour meter reading to perform prescribed maintenance.

Steering System

The steering handwheel operates a steering control valve that directs the oil flow to the steering cylinder connected to the steer axle. The steering control valve can also act as a pump to provide manual steering if the hydraulic pump stops.



Horn Button

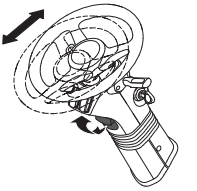
The horn button is located in the center hub of the steering handwheel. Depressing the botton will sound the horn.

- ***Note :*** *Separate horn buttons may be available as options, on the lift lever and/or rear handle*.

Adjusting Steering Column

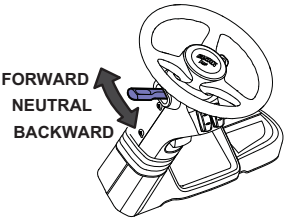
Adjustable steering column is mounted on the forklift truck.

Pull the lock lever up and release it. Adjust the steering column to desired position, and push down the lock lever to lock it.



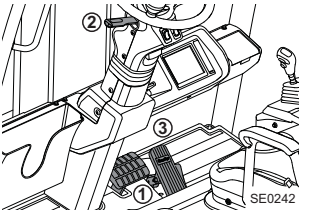
Direction Control Lever

This lever is typically on the left side of the steering column. When changing the direction of travel, make sure that your lift truck has come to a complete stop before moving the lever to the other position.



Service Brake

In addition to a service brake pedal (1) that actuates the master cylinder, the traction motors apply motor braking when the brake pedal is depressed.



Accelerator Pedal

Shift the gear lever (2) to the forward or the backward position.

Slowly push the accelerator pedal (3) to move the forklift truck.

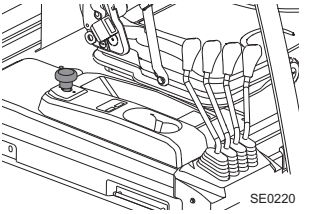
Traction Disable Function

If the driver leaves the seat for longer than two seconds while traveling, then the truck will quickly coast brake to a stop.

Emergency Off Switch

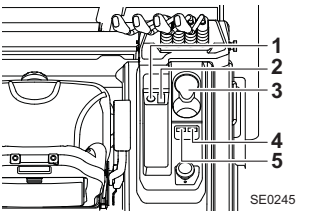
When pressing the emergency switch located to the right side of the operator's seat, the power supply will be cut off.

The emergency off switch should only be used in a dangerous situation or emergency, as damage to the truck can occur or the load could slide off the forks.



Console Box

A console box equipped with devices and switches for user convenience is located to the right of the driver's seat.



A description of each device is as follows:

1. Power socket (12V, optional)
2. USB charger (optional)
3. Cup holder
4. Rear work light switch (when equipped with rear work light)
5. Work light switch (when equipped with work light)

Work Lamp



There are two ways to turn the work lamp on or off dependent upon menu setting.

1. Work lamp button
   You can turn the work lamp on and off by pressing the work lamp button.
2. Key switch (setting on menu)
   You can turn the work lamp on and off with the key switch. Turning the key switch to the ON position automatically turns the work lamp on; turning the switch to the OFF position turns the lamp off.

NOTICE

When turning the key switch to the OFF position, all lights will automatically turn off after 5 seconds.

Rear Work Lamp



There are the following methods for turning the rear work lamp on or off dependent upon menu setting.

1. Rear work lamp button
   You can turn the rear work lamp on and off by pressing Rear work lamp button.
   Rear work lamp button is enabled only when the gear lever is shift to the backward position.
2. Key switch (setting on menu)
   You can turn the work lamp on and off with the key switch. Turning the key switch to the ON position automatically turns the work lamp on; turning the switch to the OFF position turns the lamp off.
   Rear work lamp is enabled only when the gear lever is shift to the backward position after starting the truck with the key switch.

NOTICE

When turning the key switch to the OFF position, all lights will automatically turn off after 5 seconds.

Strobe Light



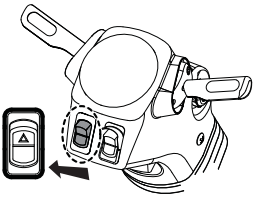
You can turn the strobe light on and off with the key switch. Turning the key switch to ON position automatically turns the strobe light on; turning the switch to OFF position turns the light off.

Strobe light is enabled only when the gear lever is shift to the backward position after starting the truck with the key switch.

NOTICE

When turning the key switch to OFF position, all lights will automatically turn off 5 seconds later.

Hazard Switch (Option)



In the event of an emergency such as equipment failure or unexpected situation, the warning light is activated to inform surrounding vehicles of the emergency situation and prevent accidents.

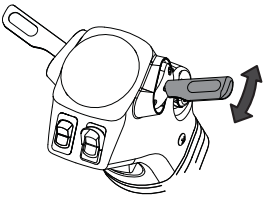
It operates regardless of the ignition status, and all turn signals blink at the same time. Press it again to release it.

While the emergency warning lights are flashing, the turn signals do not work.

CAUTION

Use only when necessary to prevent battery discharge and confusion for other machine operators.

Turn Signal Lever (Option)

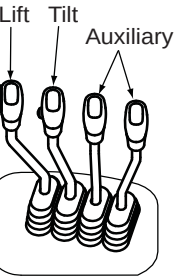


It is used to inform other equipment and pedestrians of the equipment's direction of travel.

When you push the lever on the right side of the steering column forward or backward, the corresponding turn signal light turns on.

Hydraulic Control Levers

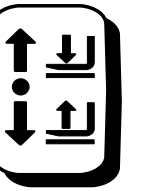
The levers of the control valve activate the lift and tilt cylinders as well as other hydraulic devices which are installed on the truck.



IMPORTANT

The hydraulic levers shown are typical representations of a CLARK internal combustion lift truck. Your model may vary slightly.

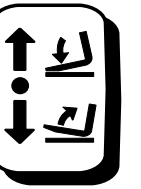
1) Lift Control Function



With the lift control lever, you are able to raise and lower the fork carriage on the upright. The lifting and lowering speeds are controlled through the main hydraulic valve by varying the lever position (from the center or neutral positions).

When the lift control lever is pushed forward, the fork carriage is lowered. When the lift control lever is pulled back the fork carriage is raised.

2) Tilt Control Lever

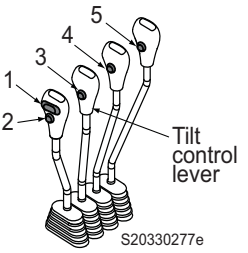


With the tilt control lever, you are able to control the tilting or vertical positioning of the upright and the angle of the forks. When the lever is pulled back, the upright and forks tilt backward. Push the lever forward to tilt the upright and forks forwards.

3) Auxiliary Control Lever (optional)

An auxiliary control lever is mounted to the right of the tilt control lever. If your lift truck is equipped with an optional attachment, this lever lets you control the flow and direction of the hydraulic oil to the attachment.

4) Control Function



1. Forward / Reverse Switch (optional)
2. Horn Button
3. Auxiliary Function (optional)
   - Vertical Mast Control Button
4. Auxiliary Function (optional)
   - Clamp Lever Lock Button (or Push Button)
5. Auxiliary Function (optional)
   - Clamp Lever Lock Button (or Push Button)

(1) Vertical Mast Control Function (optional)

When pressing this button, and operating the tilt control lever, the mast will be stop when at vertical position (90 degrees).

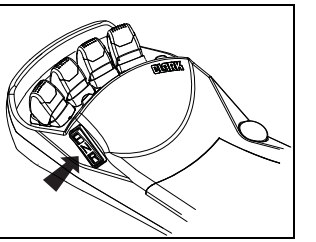
(2) Clamp Lever Lock Function (optional)

When not pressing this button and pushing the lever, the clamp is not released.

When pressing this button and pushing the lever, the clamp is released.

Mini Lever (optional)

1) Forward and Reverse switch



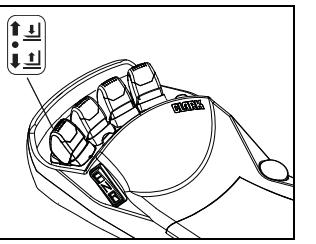
Switch for shifting between forward and reverse.

- **Forward** : Push forward
- **Reverse** : Push backward

The speed of forward and backward traveling can be adjusted by pressing the accelerator pedal.

- Stop the vehicle before shifting between forward and backward traveling.
- Always operate the control switch from a properly seated position.

2) Lift Lever



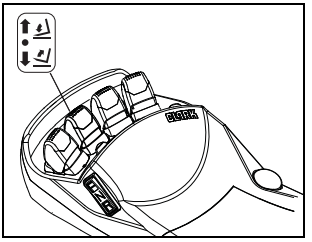
Raise and lower the forks for loading.

- **Raise :** Pull backward
- **Lower :** Push forward

Raising speed can be adjusted by the extent of pulling the lift lever.
Lowering speed can be adjusted by the extent of pushing the lift lever.

- If you leave the seat while lowering the lift lever, the forks will not descend due to the operators presence feature. This applies to all hydraulic functions.

3) Tilt Lever

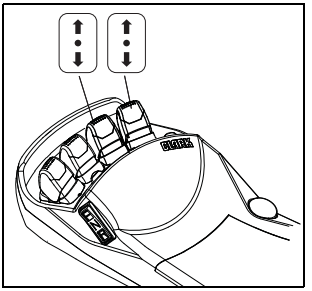


Tilt the mast forward and backward.

- **Forward** : Push forward
- **Backward** : Pull backward

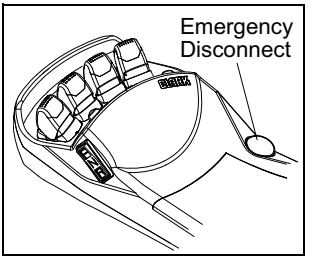
Forward or backward tilting speed can be adjusted by the extent of operating the lever.

4) Attachment Lever



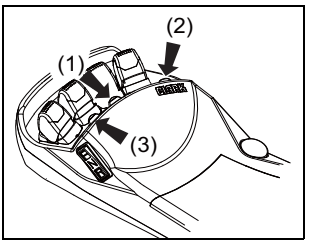
Operates the attachment.
Attachment speed can be adjusted by the extent of operating the lever.

5) Emergency Disconnect



Activating this will disable all hydraulic functions. It must be pulled out to reset and re-enable hydraulic functions.

6) Attachment Button (optional)



- Vertical Mast (1)
  When pressing this button once, and operating the tilt lever, the mast stands perpendicular.
- Clamp lever lock (2)
  When pressing this button once, the clamp lever is locked two seconds later. Pressing the button again release the lever.

7) Horn Button (3)

Battery

Battery Specifications

The information on the battery specifications is printed on the label affixed to the battery.

See below for the specifications of the batteries for forklift models.

Lead-acid

Model name	Cell type	Specification (AH/5hrs)	Dimensions (L x W x H)	Weight (Kg)
SE25-30s	VCIS685	48V, 685	978x656x631	1053
SE30-35	VCI740	48V, 740	983x762x575	1204

Lithium

Model name	Specification (AH/5hrs)	Dimensions (L x W x H)	Weight (Kg)
SE25-30s	80V, 460	1028x711x713	1550
SE30-35	80V, 460	1028x711x713	1800

Lead-acid Battery Charging

To charge the batteries, park the forklift safely in the designated place, and ensure that it is sufficiently ventilated in order to remove the hazardous gas generated during battery charging.

During battery charging, make sure to open the top cover of the battery to provide sufficient ventilation of the gas generated during charging. Never place any metal tools or parts upon the battery during charging, as a metal object could result in a short-circuit.

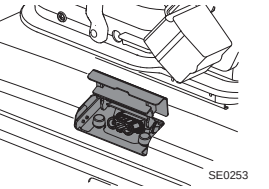
Before starting to recharge the battery, make sure to check the battery cables, connectors and the battery cells for defective parts. Never place electrically conductive parts on the battery cell connectors.

- First, shut off the truck with the KEY switch.
- Press the emergency stop button (for models equipped with the emergency stop button).
- Open the battery's top cover.
- Pull the battery side connector away from the forklift side connector.

- Connect the connector of the battery to the connector of the charger.
- Once charging is completed, disconnect the battery connector from that of the charger.
- Connect the battery connector to that of the forklift.
- Close the battery top cover and ensure that the battery cable will not be damaged.

The battery charger must be in compliance with the specifications provided by the manufacturer of the forklift or the battery. For further information on battery recharging, please refer to the technical documents provided by the supplier of the battery or charger.

Lithium Battery Charging



When charging a lithium battery, please park the forklift safely in the designated area.

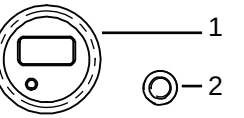
First, turn the key switch to turn off the truck.

Open the lithium battery charging cover on the hood on the left side of the driver's seat.

Connect the charger connector to the lithium battery charger connector.

When charging is complete, pull out the charger connector from the battery connector.

Lithium Battery Charging Failure



If charging fails due to the turned-off lithium battery power system

Open the cover on top of the battery.

Connect the charger connector to the lithium battery charger connector.

Press the reset button on the top of the lithium battery

1	Display	2	Reset button

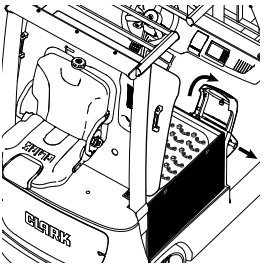
Pull out the charger connector from the battery connector when charging is complete.

Close the cover on top of the battery. At this time, take care not to damage the battery cable.

NOTICE

The battery charger must be in complicance with the specifications provided by the manufacturer of the forklift or the battery.
For further information on battery recharging, please refer to the technical documents provided by the supplier of the battery or charger.

Battery Compartment Access



The battery compartment is revealed by lifting the driver's deck and battery compartment cover pivot upwards.

Before lifting the cover, push the driver's seat to the rearmost position, unlock the steering wheel shaft, and then tilt the steering wheel shaft forward until it moves to its maximum.

Fix the steering wheel shaft in this state.

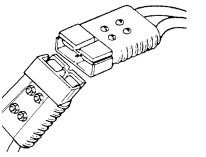
Release the battery compartment lock and lift the battery cover towards the rear.

CAUTION

Take care that the locking lever locks back into place properly when the cover is closed, and the battery cables are not trapped.

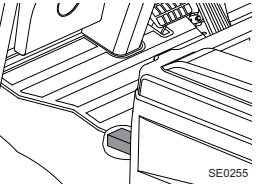
Battery Connector

When inserting the battery connector, ensure that the battery cables remain free.



Fuses

The fuses are located at the inside of the foot well, on the left when looking forward.

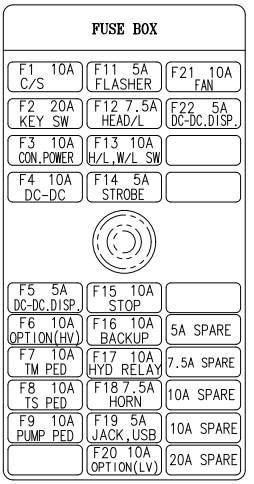


The fuse ratings are visible on the fuses.

CAUTION

The fuse box lid contains the legend list of what the fuses are for and what their ratings are. Always replace fuses with the same current rating. Never put higher rated fuse in.

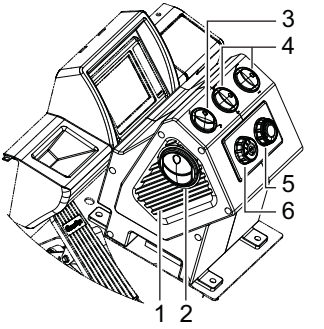
No	Description	Volume
F1	Cold Storage option	10 AMP
F2	Key switch	20 AMP
F3	Controller power	10 AMP
F4	DC-DC converter	10 AMP
F5	DC-DC display	5 AMP
F6	Heater (optional)	10 AMP
F7	Traction Master PED	10 AMP
F8	Traction Slave PED	10 AMP
F9	Pump PED	10 AMP
F11	Turn signal	5 AMP
F12	Work light	7.5 AMP
F13	Work light, rear work light switch	10 AMP
F14	Strobe light	5 AMP
F15	Brake Stop	10 AMP
F16	Backup alarm	10 AMP
F17	Hydraulic relay	10 AMP
F18	Horn	7.5 AMP
F19	Power socket, USB charger	5 AMP
F20	Option (LV)	10 AMP
F21	Fan	10 AMP
F22	DC-DC display	5 AMP
Spare 1	5 AMP spare	5 AMP
Spare 2	7.5 AMP spare	7.5 AMP
Spare 3	10 AMP spare	10 AMP
Spare 4	10 AMP spare	10 AMP
Spare 5	20 AMP spare	20 AMP



Heater (Optional)

Location and Description

1. Recirculation grill
2. Windscreen defrost
3. Drivers compartment louver
4. Drivers compartment louver
5. Fan speed control
6. Temperature control



Operating the Heater

a) Turn the fan speed control knob(6) to set the fan speed to the desired setting.
- “0” ; Fan is turned off
- “I” ; Low fan speed
- “II” ; Medium fan speed
- “III” ; High fan speed

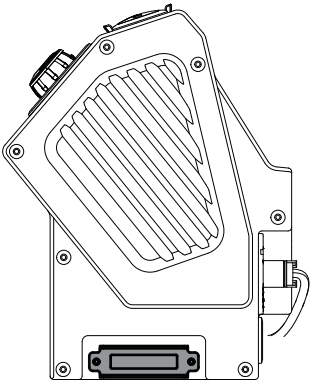
b) Turn the temperature control (5) to the right to increase or to the left to decrease the cabin temperature.

NOTICE

To defrost the windscreen, set the fan speed to the highest setting and point the louvers towards the windows.

Filter Replacement

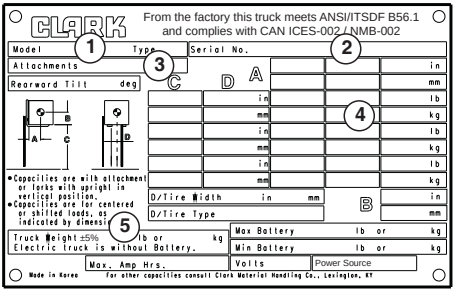
1. Unscrew the cover screws on the side of the heater.
2. Pull out the cover and filter.
3. Filters are easy to replace on the right side of the forklift.



NOTICE

The filter replacement cycle is 500 hours.
Depending on the condition of the heater, inspect it periodically and the replacement cycle may be accelerated depending on the working environment of the forklift.
If the filter is heavily contaminated, replace it immediately regardless of the filter replacement cycle.

Truck Data and Capacity Plate



1. Truck model number or registered name.
2. Truck serial number - An identification number assigned to this particular truck and should be used when requesting information or ordering service parts for this truck from your authorized CLARK dealer.
   The serial number is also stamped on the frame.
3. Attachment description (if any installed) - The user must see that the truck is marked to identify the attachment(s), including the weight of the truck/attachment combination and truck capacity with the attachment.
4. Capacity rating, load center, and lifting height data - Shows the maximum load capacity of this truck with relation to load centers and fork heights (see diagram on plate). Personal injury and damage to the truck can occur if these capacities are exceeded. **Do not exceed the maximum capacity specified.**
5. Truck weight - The weight of the truck without a load on the forks. This weight plus the weight of the load must be considered when operating on elevators, elevated floors, etc. to be sure they are safe.

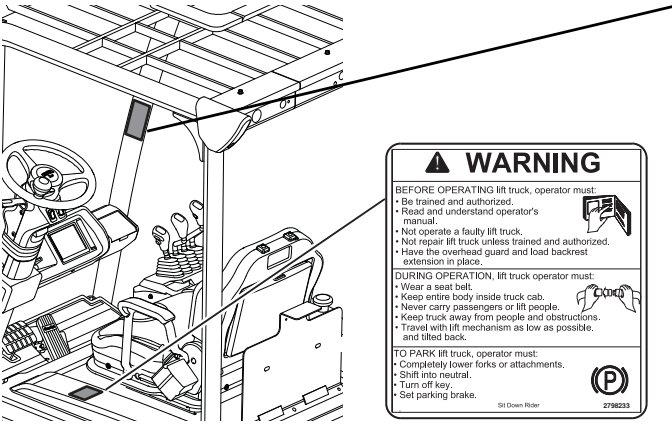
CAUTION

When attachments are added or if the truck is modified, the capacity of the truck may be affected. Contact your authorized CLARK dealer for a new nameplate showing the revised capacity.

IMPORTANT

OSHA and international standards requires prior written approval from the manufacturer before any modifications affecting capacity or safety may be made.

Operator Safety Warning Decal





IMPORTANT

Safety and warning decals are placed in conspicuous locations on the truck to remind you of essential procedures or to prevent you from making an error that could damage the truck or possibly cause personal injury. You should know, understand, and follow these instructions. Safety and warning decals should be replaced immediately if missing or defaced (damage or illegible). Refer to your Service Manual for location of all decals.

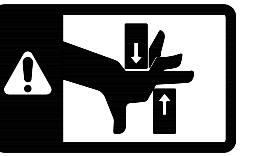
Operator/Tip-Over

This decal is located on the front right hand leg of the drivers overhead guard. It is to remind the operator that staying in the seat provides the best chance of avoiding injury in the event of a tip-over or off the dock mishap.

Lift trucks can be tipped over if operated improperly. Analysis of lift truck accidents has shown that the driver can rarely react quickly enough to jump clear of the truck and overhead guard as the truck tips. To protect operators from severe injury or death in the event of a tip-over, it is best to be held securely in the seat. So, please, always buckle up when driving your lift truck.

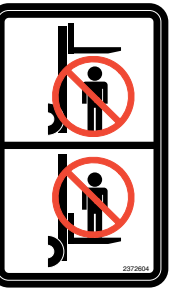
Upright Warning Decal

This safety decal is on the upright to warn of the danger of injury from movement between rails, chains, sheaves, fork carriage, and other parts of the upright assembly. Do not climb on or reach into the upright. Personal injury will result if any part of your body is put between moving parts of the upright.



Keep Away From Forks Decal

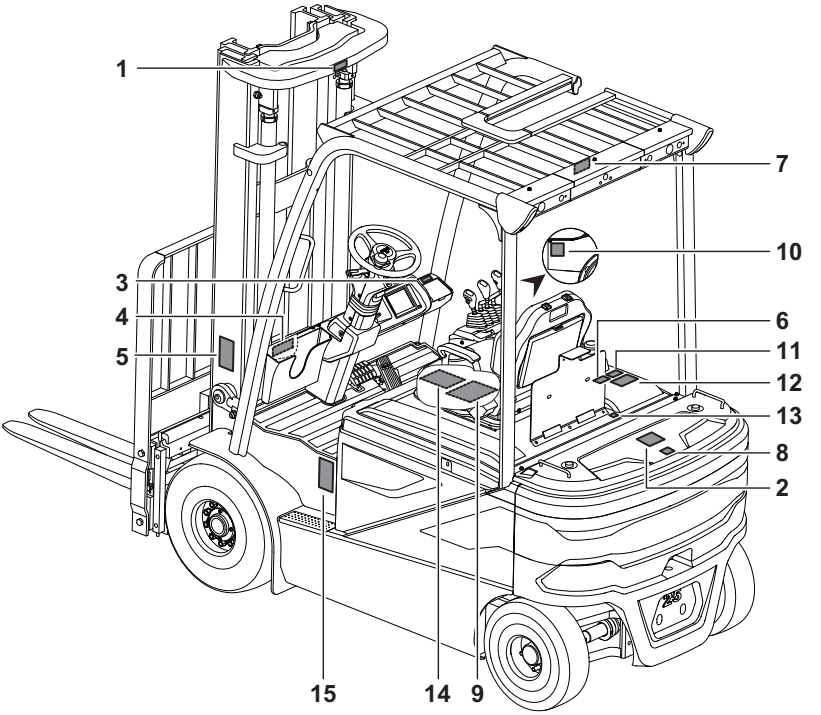
This safety decal is placed on the upright to warn of the danger of injury from forks when they are in the raised position. Do not ride on or stand under forks or attachments. The forks can fall and cause injury or death. Always make sure that the forks are in the fully lowered position when they are not being used to handle a load.



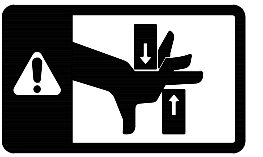
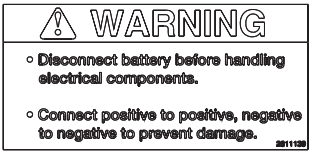
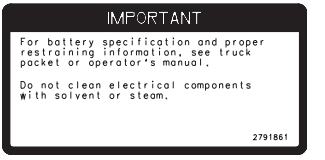
Attached Position of Safety Decals

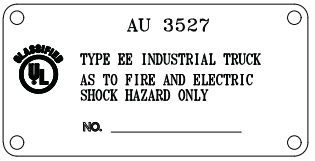
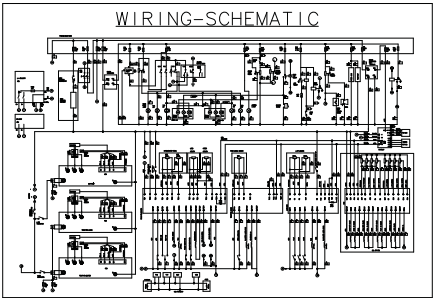
CAUTION

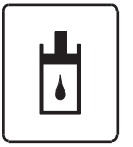
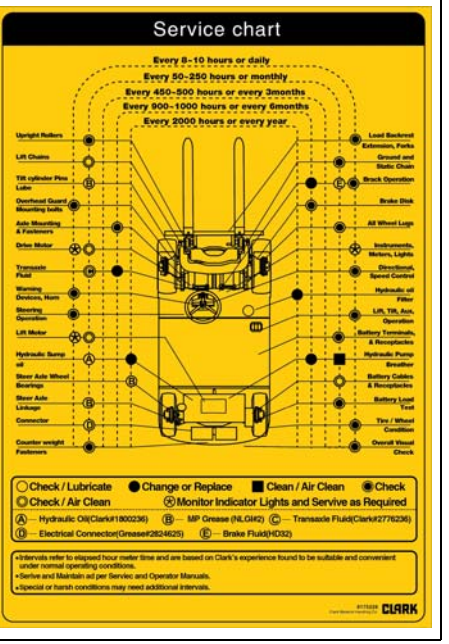
Do not operate a lift truck with damaged or missing decals or data plates. Replace them immediately. They contain important information. Contact your local CLARK dealer to acquire new decals or data plates.



NOTE : Not all and these decals may be applicable to your lift truck.

No.	Decal	Name
1	Upright Warning Decal	
2	Controls Warning Decal	
3	Brake oil	
4	Polarity warning	
5	Keep Away From Forks Decal	
6	Elec clean battery spec	

No.	Decal	Name
7	UL Classified EE (Option)	
8	Voltage Hazard	
9	Wiring diagram	
10	Hood Open	
11	Battery Caution	
12	Name plate	

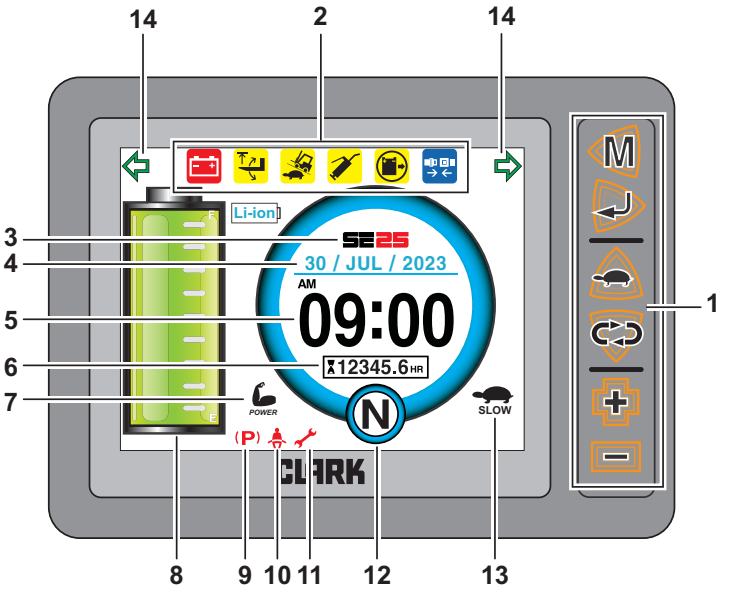
No.	Decal	Name
13	Hydraulic Oil	
14	Service Chart	

Operator Compartment and Controls

Contents

Instrument Pod 4-2
Display 4-3
Menu 4-11
Warning Message 4-16

Instrument Pod



1. Mode Select Button (Membrane Switch)
2. Warning Symbol and Lamp Status Indicator
3. Truck Model Name
4. Date Icon
5. Time Indicator
6. Hour Meter(or Trip Distance) Icon
7. Mode Indicator (Option)
8. Battery Indicator
9. Parking Brake Icon
10. Seat Belt Reminder Icon
11. Fault Icon
12. Direction Icon
13. Speed Limit Function Icon (Option)
14. Turn Signal Icon (Option)

Display

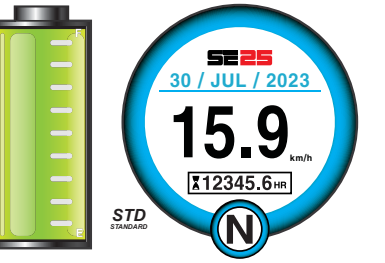
1. Display Indication (Key Switch Activation)

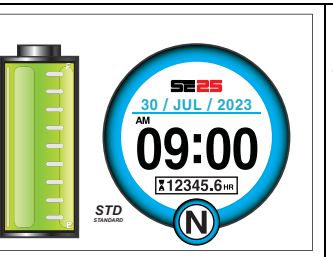
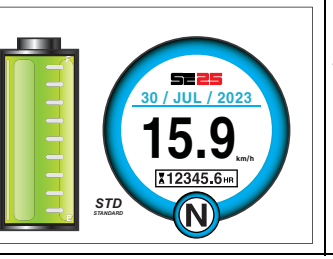
Key Switch Activation

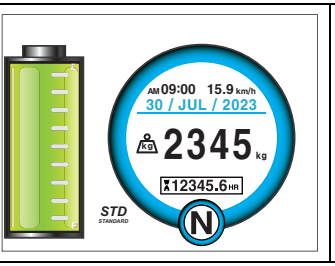
1. Activating the key switch displays the "CLARK" logo on the main screen.

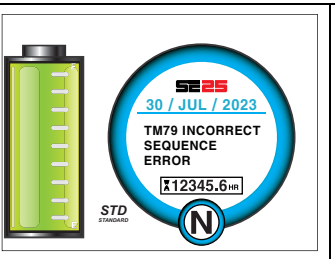
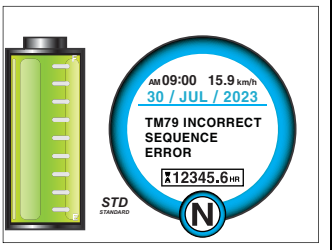
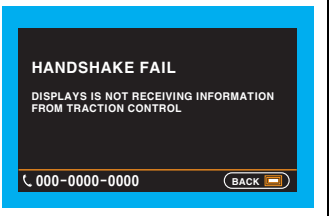


2. The buzzer sounds once, and the normal basic main screen is displayed.
3. Date and time are saved in the embedded memory, and displayed in real time.



Normal Display Screen		
Standard Screen		When your driving speed is less than 0.5 km/h (0.3 mph), the current time is displayed.
Screen when driving		When the driving speed is above 0.5 km/h (0.3 mph), the driving speed is displayed.

Normal Display Screen		
Screen when option is activated		When stopped or hydraulic functions are not activated, the load weight is displayed.

Fault Display Screen		
Screen when user alarm occurs		When a user alarm occurs, a description is displayed on the screen along with the alarm code number.
When driving or setting options Screen when user alarm occurs		
Screen when a service error occurs		When a service error occurs, an explanation along with the error code number is displayed in a new window. You can hide or show the error window by pressing the minus button.

2. Mode Select Button (Membrane Switch)

Previous Screen Movement Button (Menu Button)



1. Pressing this button on the main display takes you to operator menu mode.
2. Pressing this button in menu mode returns to the previous screen.

Menu Entry Button (Enter Button)



1. Pressing this button on the main display takes you to the service menu mode.
   Password required.
2. In menu mode, pressing this button moves to a submenu or saves selected values.

Speed Limit Mode Button (Top Arrow Button)



1. You can set slow mode by pressing this button on the main display screen.
2. In menu mode, pressing this button moves to the upper menu item.

Truck Mode Button (Bottom Arrow Button)



1. You can set truck mode by pressing this button on the main display screen. (When setting truck mode).
2. Each time you press the button, the truck mode changes as shown below.
   (“Example: Change to Economy Mode => Standard Mode => Power Mode”).
3. Pressing this button in menu mode moves to the menu item below.

Plus (+) Button



1. Pressing this button in menu mode increases the value.

Minus (-) Button



1. Press and hold this button on the main display screen to enter dealer mode. Password required.
2. Pressing this button in menu mode decreases the value.
3. Press this button to hide or display existing controller error messages.

3. Display Indication

Date and Time Indicator

Current date and time is displayed in real time.



[Standard]



[When the tachometer and option are in operation]

Hour Meter or Trip Distance Indicator

Operating hours or trip distance of the forklift truck are displayed.

Operating hours or trip distance of the forklift truck are automatically calculated and displayed in whole operating hours or trip distance, and current operating hours or trip distance.

When the unit of trip distance display is changed from ‘km’ to ‘mph’, the unit of whole trip distance and current trip distance is simultaneously changed, accordingly.



[Hour Meter]



[Trip Distance]

Travel Direction Icon

Traveling direction of the forklift truck is displayed.
The driving direction is neutral, forward, and backward.

The forward and backward arrows indicate the direction and rotate according to the position of the steering tire.

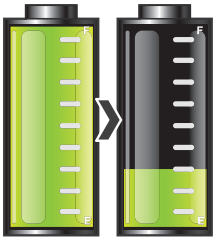
[Forward] 

[Neutral] 

[Backward] 

Battery Indicator

Displays the remaining battery capacity of the device.
The scale on the icon corresponds to approximately 10% of the total battery charge.

Regular battery		This icon will turn green when the battery's charge level exceeds 20%, indicating proper battery charge.
Low battery		When the battery charge level drops below 20%, the icon turns yellow and a warning message appears on the display. “LOW BATTERY”
Battery charge warning		When the battery charge level drops below 15%, the icon turns red and a warning message appears on the display. “CHARGE SOON”
Battery charge		When the battery charge level drops below 10%, the icon will blink and an alarm will sound. A warning message and a battery charging warning light will appear on the display. “CHARGE NOW” Automatically reduces the maximum travel speed of the mast and disables the hydraulic lift function.

Speed Meter

Traveling speed of the forklift truck is displayed. (Unit: km/h or MPH).

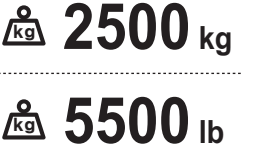


Weight Indicator (Option)

Weight of load is measured and indicated on the display.

The default unit of weight on the service menu mode is "kg."

You can set the unit to pound (lb) on the menu when measuring load weight.



Parking Brake Icon

Indicates that the parking brake is engaged.

The parking brake is automatically applied and released but can also be activated in an emergency by pressing the button below the steering wheel.



Seat Warning / Seat Belt Warning (optional)

The icon lights up when the driver does not sit on the seat.

This also optionally functions as a seat belt reminder. If the seat belt is not worn, it will illuminate.



Fault Icon

When an error occurs this icon is displayed to distinguish the condition easily. When the error message is displayed, this icon is simultaneously displayed.



Speed Limit Function Icon (optional)

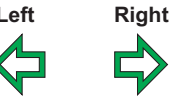
The icon indicates that the speed limit function of the forklift truck is activated.

You can set ON/OFF and limit speed on the service menu mode. A password is required, contact your dealer.



Turn Signal Icon (Option)

Left or right turn direction of the forklift truck is displayed.



Truck Mode Indicator (Option)

The truck mode icon displays the truck's current operating mode.

There are three truck modes: economy mode, Standard mode, and power mode.

Each time you press the mode button, the truck mode changes as shown.



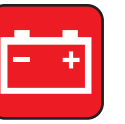
Warming and Lamp Condition Icon

Warning and conditions of lamps are easily identified by the icon.

1) Battery Charging Warning Lamp

A battery charge warning light displays when the battery charge level drops below 10%.

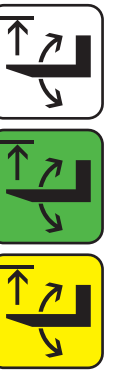
The battery charging warning light is displayed along with the warning message “CHARGE NOW”.



2) Fork Leveling Lamp (Option)

For equipment with the fork leveling function set, the color of the warning light changes according to the inclination angle of the mast as follows.

- White: Mast tilted backwards.
- Green: Mast is in vertical position. When controlling the vertical mast by pressing the button, the warning light flashes and the mast moves to a vertical position.
- Yellow: Mast is tilted forward.



3) Slope Safety Lamp (Option)

Equipment with the slope safety function set will display a warning light and reduce driving speed when entering a slope.



The function can be set in the parameter “ANGLE SENSOR” (optional).

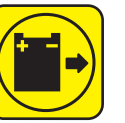
4) Maintenance Time Alarm Lamp

This LED lights up when the preset maintenance time is reached. When the warning light turns on, the preset maintenance time has been reached and maintenance must be performed according to PM (planned maintenance). Consult your CLARK dealer regarding maintenance.



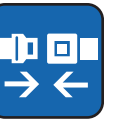
5) Side Battery Removal Lamp (SBR Option)

When the battery is removed from equipment equipped with an SBR battery (optional), this notification light is displayed.



6) Smart Interlock (Option)

The seat belt warning icon will be displayed if the seat belt is not worn properly or the boarding sequence is not followed correctly by the smart interlock.



Menu

Driver menu mode parameter configuration Description

Press M Button. Go into Driver MENU without Password.

Num	Parameters	Min	Max	Base	Cont
1	SETUP				
1.1	TRACTION				
1.1.1	BATTERY VOLTAGE	0.00V		Actual	Traction
1.1.2	ACC. SIG A	0.00V		Actual	Traction
1.1.3	ACC. SIG B	0.00V		Actual	Traction
1.1.4	STEER ANGLE	-128°	127°	Actual	Traction
1.1.5	OPERATING HOUR	0Hz		Actual	Traction
1.1.6	MAINTENANCE HOUR	0Hz		Actual	Traction
1.1.7	T-CONT TEMP	-128°	127°	Actual	Traction
1.1.8	T-MOTOR TEMP	-32768°	32768°C	Actual	Traction
1.2	PUMP				
1.2.1	P-CONT TEMP	-128°	127°	Actual	Pump
1.2.2	P-MOTOR TEMP	-32768°	32768°C	Actual	Pump
1.3	VCM				
1.3.1	LIFT SIG A	0.000V		Actual	VCM
1.3.2	LIFT SIG B	0.000V		Actual	VCM
1.3.3	TILT SIG A	0.000V		Actual	VCM
1.3.4	TILT SIG B	0.000V		Actual	VCM
1.3.5	AUX1 SIG A	0.000V		Actual	VCM
1.3.6	AUX1 SIG B	0.000V		Actual	VCM
1.3.7	AUX2 SIG A	0.000V		Actual	VCM
1.3.8	AUX2 SIG B	0.000V		Actual	VCM
2	SWITCH STATUS				
2.1	TRACTION				
2.1.1	FORWARD	OPEN	CLOSE	Actual	Traction
2.1.2	REVERSE	OPEN	CLOSE	Actual	Traction
2.1.3	PARKING SWITCH	OPEN	CLOSE	Actual	Traction
2.1.4	FOOT BRAKE SWITCH	OPEN	CLOSE	Actual	Traction
2.1.5	SEAT SWITCH OPEN	OPEN	CLOSE	Actual	Traction

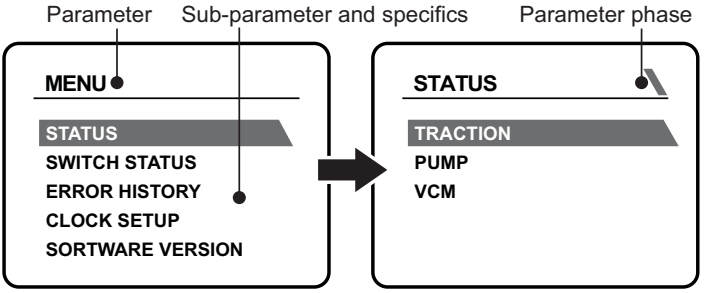
Num	Parameters	Min	Max	Base	Cont
2.2	PUMP				
2.2.1	TILT SWITCH	OPEN	CLOSE	Actual	Pump
2.2.2	AUX 1 SWITCH	OPEN	CLOSE	Actual	Pump
2.2.3	AUX 2 SWITCH	OPEN	CLOSE	Actual	Pump
3	ERROR HISTORY				
3.1	TRACTION MASTER				
3.2	TRACTION SLAVE				
3.3	SLAVE MASTER				
3.4	SLAVE SLAVE				
3.5	PUMP MASTER				
3.6	PUMP SLAVE				
3.7	VCM MASTER				
3.8	VCM SLAVE				
3.x.1	ERROR 1			Actual	
.....					
3.x.5	ERROR 5			Actual	
3.x.6	CLEAR ERROR	NO	YES	Actual	
4	CLOCK SETUP				
4.1	YEAR			Actual	
4.2	MONTH			Actual	
4.3	DATE			Actual	
4.4	HOUR			Actual	
4.5	MINUTE			Actual	
4.6	AM/PM			Actual	
5	SOFTWARE VERSION				
5.1	DISPLAY S/W VERSION			Actual	
5.2	TRACTION MASTER S/W VERSION			Actual	Traction
5.3	TRACTION SLAVE S/W VERSION			Actual	Traction
5.4	SLAVE MASTER S/W VERSION			Actual	Traction
5.5	SLAVE SLAVE S/W VERSION			Actual	Traction

Num	Parameters	Min	Max	Base	Cont
5.6	PUMP MASTER S/W VERSION			Actual	Pump
5.7	PUMP SLAVE S/W VERSION			Actual	Pump
5.8	VCM MASTER S/W VERSION			Actual	VCM
5.9	VCM SLAVE S/W VERSION			Actual	VCM

Menu Description

There are two menu modes: Driver Menu Mode, and Service Menu Mode.

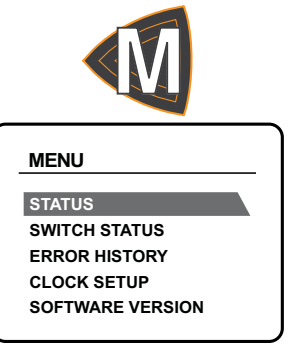
The menu modes are configured as shown on the figure below, and you can set and change the mode with Mode Selection button.



(1) How to Enter Driver Menu Mode

Press the mode button to enter menu mode without entering a password.

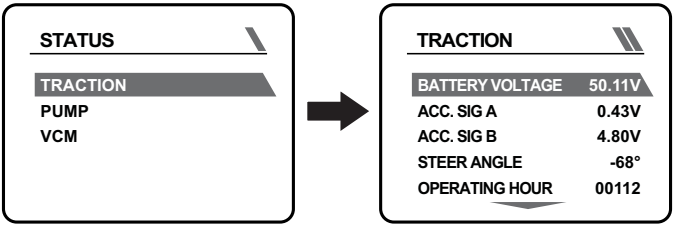
The driver menu mode is configured as follows:



- Forklift status display menu (STATUS)
- Forklift switch status display menu (SWITCH STATUS)
- Forklift error check menu (ERROR HISTORY)
- Date and time setting menu (CLOCK SETUP)
- Software version menu (SOFTWARE VERSION)

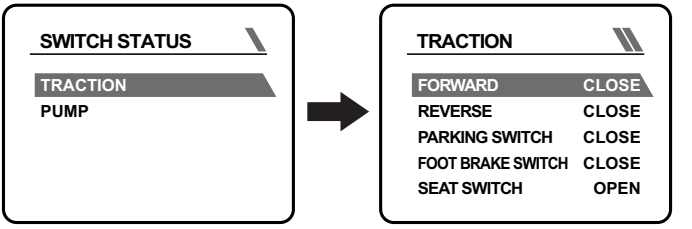
(2) Forklift Status Display Menu (STATUS)

The Forklift status display menu displays the controller value of the current equipment in real time.



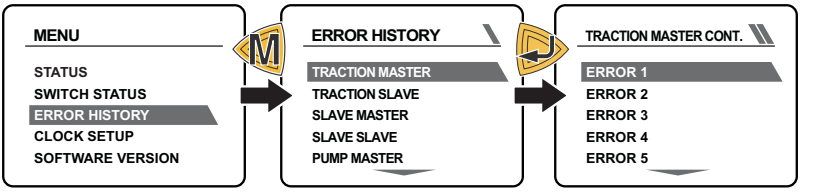
(3) Forklift Switch Status Display Menu (SWITCH STATUS)

The device switch status display menu displays the controller value of the current device in real time.



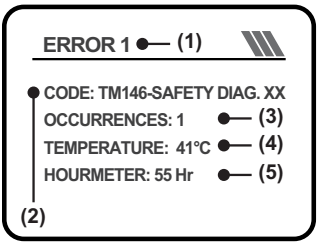
(4) Forklift Error Check Menu (ERROR HISTORY)

You can check the latest controller errors in the Forklift error check menu.



The details of the error are as shown in the picture on the right.

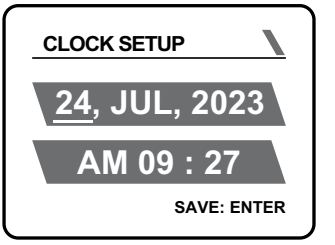
1. Message number
2. Error code and description
3. Number of occurrences
4. Temperature
5. Operating time



(5) Date and Time Setting Menu (CLOCK SETUP)

Current date and time are set.

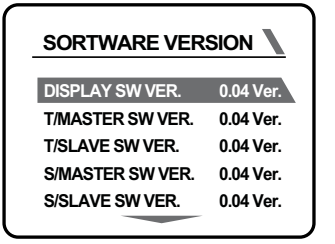
Switching between 12- and 24-hour systems and between AM and PM is allowed.



- Make use of Plus (+) and Minus (-) buttons to change the current values.
- Make use of the down arrow button to move to the next value, and the up arrow button to move to the previous value.
- Pressing Enter button saves the value and moves to the previous menu.
- Pressing Mode button does not save the value, and moves to the previous menu.

(6) Software Version Menu (SORTWARE VERSION)

You can check the software virgin of each controller.



Warning Message

Warning messages include a driver warning message that is displayed when an error occurs in the operation of the equipment or a safety device, and a controller error message that is displayed when an equipment malfunction occurs.

Driver Warning Message

The driver warning message is displayed as shown in the picture on the right when an error occurs in the operation of the equipment or safety device.

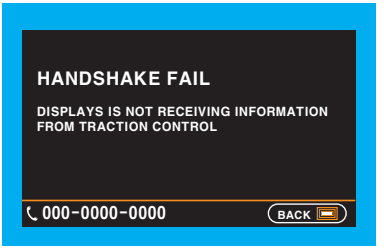


The driver warning message is as follows:

No	Description	Action
C	CHARGE NOW	Charge battery now.
D	CANBUS FAIL	Check CAN bus line.
EM247	CAN BUC KO	Check CAN bus line.
ES247	CAN BUS KO	Check CAN bus line.
PM78	VACC NOT OK	Incorrect lever starting position.
PM79	INCORRECT START	Incorrect lever starting position.
PM248	NO CAN MSG.	Warning: Check CAN bus line.
TM78	VACC NOT OK	Pedal on before direction switch.
TM79	INCORRECT START	Incorrect start put in neutral.
TM147	MAINT. PRE WARN	Next maintenance is due in ____ hours.
TM149	SEATBELT OPEN	Seat belt switch open.
TM153	TRUCK LOCK	Out of service truck lock on.
TM170	WRONG KEY VOLT.	Wrong battery voltage detected.
TM248	NO CAN MSG.	CAN bus line.
TM249	MAINTENANCE DUE	Maintenance is due.
TS248	NO CAN MSG.	CAN bus line.

Controller Error

When an equipment failure occurs, an error message is displayed on the instrument panel as shown in the picture on the right along with a warning sound.



Error messages can be checked in the “Equipment Error Check Menu”.

Operating Procedures

Contents

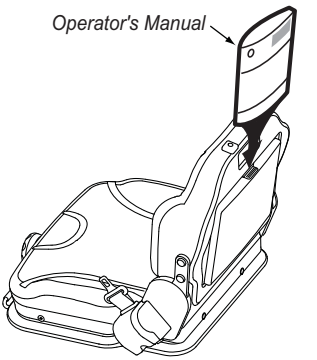
Before Operating the Truck 5-2

Starting From a Safe Condition 5-3

Before Operating the Truck

Be sure that you have read and understood the information in this Operator's Manual before operating the lift truck.

The Operator's Manual Holder is located on the back of the seat.



WARNING

- **This equipment can be dangerous if not used properly. Safe operation is the responsibility of the operator.**
- **Do not start or operate the truck, or any of its functions or attachments, from any place other than the designated operator's position.**

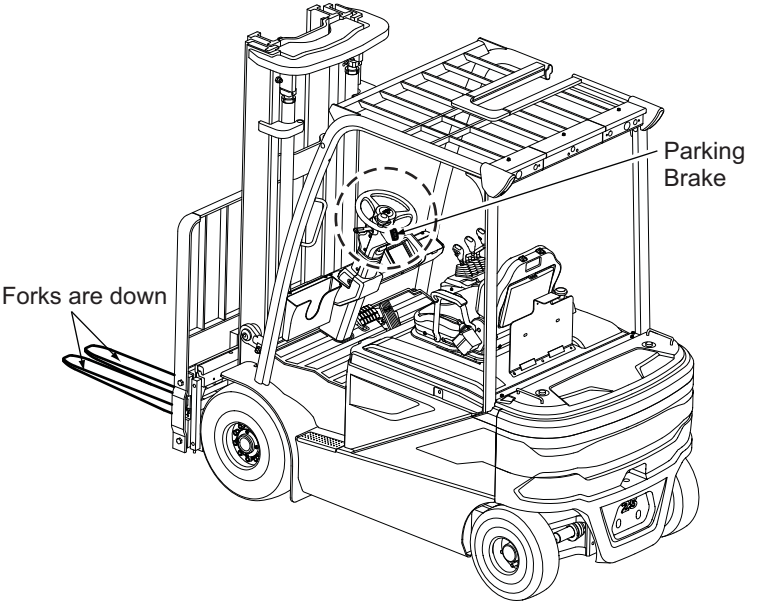
CAUTION

- **Inspect your lift truck before operating at the start of the day or shift. Before putting your truck to use, check the operation of the controls and all systems.**
- **Protect yourself. Do not operate truck without a driver's overhead guard. Do not remove overhead guard unless specifically authorized. If operation without this safety device is required, a risk management system must be implemented and used with great care.**

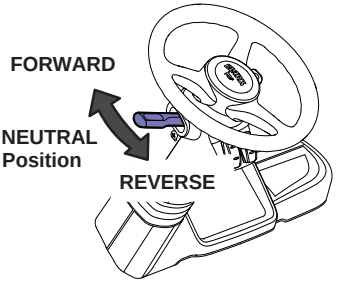
Starting From a Safe Condition

Always start from a safe condition. Before operating a lift truck, make sure that:

1. Parking brake is applied.
2. Forks are fully lowered to the floor or ground.
3. You are familiar with how all the controls function and have read the Operator Manual.
4. All controls are in neutral or other correct position.
5. Truck has received its daily inspection and is ready and safe to operate.

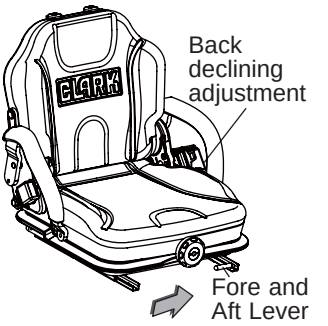


Put the direction control lever in the NEUTRAL position, before turning the key switch to ON.



Adjusting the Seat

Adjust the seat to a comfortable position for you. Adjust the seat by moving and holding the release lever at the front bottom of the seat. Put the seat in a position that will provide easy reach to all controls. Release the seat lever. Make sure that the seat locking mechanism is engaged.



CAUTION

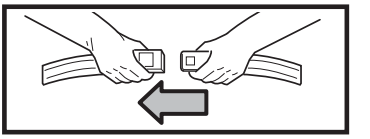
Never adjust the driver's seat while the truck is moving, to avoid the possibility of loss of control and of personal injury.

Buckling Up

Buckle up. Be sure that you put on the seat belt. Fasten seat belt by pushing the flat end into the buckle until you hear a click. Connect and adjust the seat belt strap to a snug, comfortable position.

Adjust seat belt snuggly across your lap and pelvis area, never across your stomach.

Always wear seat belt low and snug.





WARNING

Always wear your seat belt when operating a lift truck.

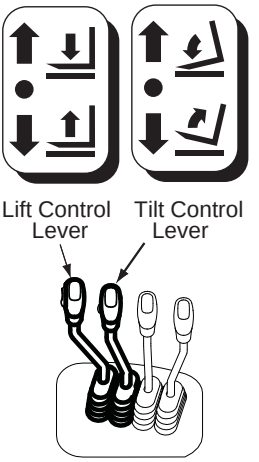
Starting the Truck

Before you start the truck, make sure that you have taken all the above mentioned precautions and that the directional control is in NEUTRAL. To start the truck, turn the key switch clockwise to the ON position.

Positioning Forks and Upright

When driving, with or without a load, it is good practice to have the forks slightly raised and tilt the upright (forks) backward. Having the forks raised and tilting back prevents the fork tips from catching on possible obstructions and reduces the wear on the fork blades from striking or dragging on the floor or ground. See the NOTICE and CAUTION below.

Pull back on the lift control lever and raise the forks 150 to 200 mm (6 to 8 inches) above the floor. Then, using the tilt control, tilt the upright back slightly to raise the fork tips.



NOTICE

When the upright (carriage and/or load) is raised, the stability of the truck is reduced. Some of the other conditions that may affect stability are: ground and floor conditions, grade, speed, loading, dynamic and static forces and the judgment exercised by the operator. Trucks equipped with attachments behave as partially loaded trucks even when operated without a load on the attachment. Also, improper operation, faulty maintenance or poor housekeeping may contribute to a condition of instability.

CAUTION

For stability reasons, do not travel with the load or carriage raised into a high (elevated) position. Travel with the lift mechanism raised only enough to clear the ground or obstacles.

WARNING

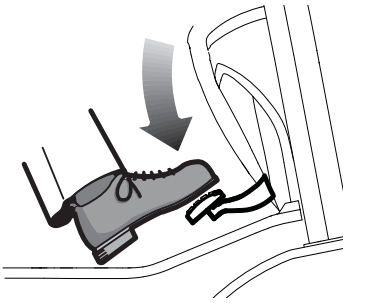
If your truck starts to tip over, DO NOT JUMP! Your chances for survival in a tip-over are better if you stay with the truck, in your seat. BRACE YOURSELF!. Make sure your seat belt is fastened securely. Stay in your seat. Grip the wheel. Brace your feet. ***See page 1.14***

Controlling Speed

With the direction control in FORWARD or REVERSE, the parking brake released, put your foot on the accelerator pedal and push down smoothly until the truck is moving at the desired speed.

Braking

To stop the truck, lift your foot from the accelerator pedal and put it on the brake pedal. Push down on the brake pedal in a smooth, firm motion until the truck is stopped.



IMPORTANT

Stop a lift truck as gradually as practical. Hard braking and wheel sliding are dangerous and can cause tip-over or the truck could lose its load. Also, hard braking can increase wear and can be harmful to the lift truck.

Plugging

You can change direction, without braking, by “plugging.” As you are traveling, move the direction control lever to the opposite direction and keep the accelerator pedal depressed. The truck should slow to a smooth, controlled stop and then accelerate in the opposite direction.

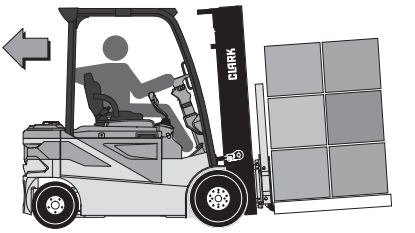
You can control the plugging distance with the accelerator pedal: The farther the accelerator is depressed, the shorter the reversal distance.

By lifting your foot from the accelerator pedal as the truck comes to a stop (before going in the opposite direction) the truck can be stopped without use of the brakes.

Operating Safely

IMPORTANT

Safe operation is the responsibility of the operator. Watch where you are going. Don't go if you can't see.



Before driving, check all around to be sure that your intended path of travel is clear of obstructions and pedestrians.

While driving, be alert for pedestrians, other vehicles or obstructions in your path of travel.

Watch people. Do not allow anyone to stand or pass under the load or raised forks. Watch for people in your work area even if your truck has warning lights or alarms. They may not watch for you.

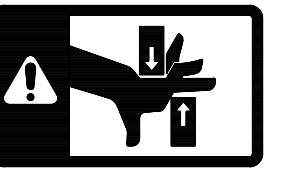
Sound horn at intersections and wherever vision is obstructed. Do not drive a truck up to anyone standing in front of an object.

Protect yourself and those around you...

Operate the truck only from the designated operator's position. Stay within the confines of the lift truck profile dimensions. Keep arms, legs and hands inside the operator's compartment and away from the danger of passing obstructions. Keep under the overhead guard.

NOTICE

An overhead guard is intended to offer protection to the operator from falling objects, but cannot protect against every possible impact. Therefore, it should not be considered a substitute for good judgment and care in loading, handling, storage, etc.



Keep clear of the upright and lift mechanism. NEVER reach into or put hands, arms, legs or head into or through the upright structure or near the carriage or lift chains. Never put any part of your body between the upright and the truck. Don't use the upright as a ladder.

Keep all other persons clear of the load and upright mechanism while attempting to handle a load.

No riders...

Do not carry passengers. The operator is the only one who should be on the truck.

Always be in full control of your lift truck...

Never operate a lift truck or its attachments if you are not in the designated operator's position.

Never operate a lift truck when your hands are wet or greasy.

Always pick the smoothest travel route for your lift truck. Avoid bumps, holes, slick spots, and loose objects or debris in your path that may cause the truck to swerve or tip. If these conditions are unavoidable, slow down and carefully drive past them. Slow down for wet or slippery surfaces.

Avoid any sudden movement. Start, stop, travel, steer, and brake smoothly.

Operate your lift truck under all conditions at a speed that will permit it to be brought safely to a stop.

Some trucks will be equipped with devices to assist with slow-speed maneuvering, such as mirrors or cameras. These devices are to be used only during slow-speed maneuvering operations. The driver must face the direction of travel during normal operation of the truck.

WARNING

Travel slowly when turning. Use special care when traveling without a load because the risk of tipping over is greater with an empty truck, especially at high speed and when cornering.

Travel with the fork carriage tilted back and raised only enough to fully clear the ground or obstacles. When the carriage (load) is elevated, the stability of the truck is reduced.

Do not elevate the load except during stacking.

Grades, ramps, and inclines...

Use special care when operating on ramps, inclines, and uneven areas. Travel slowly. Travel straight up and down. Do not turn or drive at an angle across an incline or ramp.

When the truck is loaded, travel with the load upgrade. When the truck is empty, travel with lifting mechanism (upright) downgrade.

Practice safe operation every time you use your truck...

Careful driving and operation is your responsibility. Be completely familiar with all the safe driving and load handling techniques in this operator's manual. Use common sense. Drive carefully; do not indulge in stunt driving or horseplay. Observe traffic rules. Watch for people and hazards. Slow down. Be in full control of your lift truck at all times.

Follow the instructions in this manual to avoid damage to your truck or the possibility of injury to yourself or others.

During your work, observe all functions of your lift truck. This allows you to immediately recognize a problem or irregularity that could affect the safe operation of your truck.

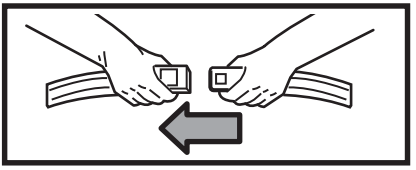
Periodically check the gauges and warning indicator lights in the instrument panel to be sure they indicate a normal condition. If an abnormal condition appears, shut off the key switch immediately and report the problem.

IMPORTANT

Do not continue to operate a truck that has a malfunction. Stop and have it fixed.

IMPORTANT

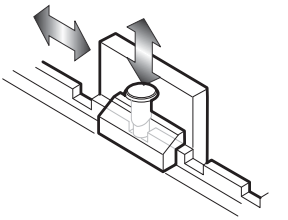
Always wear your seat belt when operating your lift truck.



CAUTION

Operate your lift truck only in areas that have been approved for your lift truck type designation. Certain areas contain flammable gases, liquids, dust, fibers, or other hazardous materials. Lift truck operations in these areas must have special approval. These areas must be designated to show the type of lift truck approval required for operation in the area. Be aware that changes to special equipment or poor maintenance can cause the lift truck to lose its special approval. Be sure that your truck is the correct fire safety type for the area in which you are working. The proper type designation for this truck is listed on the nameplate. In areas classified as hazardous, use only trucks approved for use in those areas. If you are unsure of the classification of the area you wish to enter, check before entering.

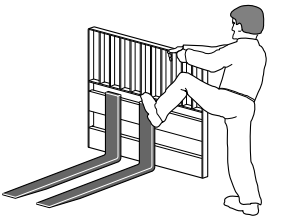
Adjusting the Load Forks



The load forks are adjustable on the hanger shaft. Forks should be spaced as far apart as the load being carried will allow. Both forks should always be the same distance from the center of the fork carriage. To adjust the forks, raise the carriage slightly. Tilt the upright fully forward to reduce friction and make the forks slide easier. Unlock the fork locking pins. Position the forks. Secure the fork locking pins.

CAUTION

Forks are heavy, keep fingers clear. Move forks by pushing with one foot while holding on to the load back rest with hands. Be sure to have firm footing before attempting to move forks. Do not attempt this where the floor is slippery or wet.



Load Handling

Handle only loads that are within the truck rated capacity as shown on the nameplate. This rating specifies the maximum load that should be lifted. However, other factors such as special load handling attachments, loads having a high center of gravity, or uneven terrain may dictate that the safe working load be less than the rated capacity. Under these conditions, the operator must reduce the load carried so that the lift truck remains stable.

Handle only stable or safely arranged loads. Do not handle loads made up of loose, unevenly stacked or unstable items that can easily shift and fall. Take the time to correctly stack and band loose items. Center the load on the forks.

Do not lift anything that might fall on the operator or a bystander.

Do not handle loads that are higher than the fork carriage unless the load is secured so that no part of it can fall backwards.

Keep the load back against the carriage. Loads placed out on the ends of the forks can make the lift truck less stable and more likely to tip up.

Lift and lower with the upright must vertical or tilted slightly back — **never tilted forward.**

Operate lift and tilt controls slowly and smoothly. Never tilt forward when carriage (load) is raised, except to pick up or deposit a load over a rack or stack.

WARNING

Slack chains mean rail or carriage hang-up. Raise the upright before you move. If the upright malfunctions in any way or becomes stuck in a raised position, operate the lift control to eliminate any slack chains. DO NOT go under a raised upright or forks to attempt repairs. DO NOT reach into or climb on upright to free hang-up.

Remember, your lift truck is designed to carry loads forward of the front wheels so that the weight of the load is counter-balanced by the weight of the truck.

The farther the load is carried from the pivot point (center of front wheels), the greater will be the uplift at the rear of the truck. Therefore, always carry the load as close to the front wheels as possible (back and flush against the face of the forks).

The capacity load shown on the nameplate is represented by a cube in which the weight is evenly distributed, with the center of gravity located a standard distance from the face of the forks. If the weight of the actual load to be handled is not evenly distributed, put the heaviest part closest to the carriage.

Traveling with a Load

Travel with load or carriage as low as possible and tilted back. Never travel with the load or carriage raised (elevated) in a high position. Do not elevate the load except during stacking.

Observe all traffic regulations and watch for other traffic, pedestrians, and safe clearances. Always look in the direction of travel. Keep a clear view of the path of travel, and when the load blocks your visibility, travel in reverse with load trailing (except when climbing an incline).

Avoid sudden movements when carrying a load—start, stop, travel, steer, and brake smoothly. Steer clear of bumps, holes, and loose materials or debris on the ground. Lift and tilt slowly and smoothly. Go slowly when turning. Cross railroad tracks slowly at an angle wherever possible.

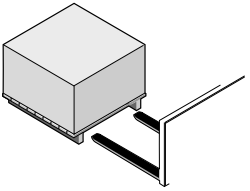
Use special care when handling and traveling with long, high, or wide loads—to avoid losing the load, striking bystanders or obstructions, or tipping the truck.

Watch clearances around the truck and load as you travel. Raise the forks or attachment only to pick up or stack a load. Look out for obstructions, especially overhead.

Be aware that exaggerated tail swing, when turning while traveling forward, is a characteristic of lift trucks that are steered by the rear wheels. Accordingly, you need to become accustomed to tail swing and always check the tail swing area of the counterweight to be sure it is clear before you turn.

Always be concerned about the stability of your lift truck. When attachments are used, extra care should be taken in securing, manipulating, positioning, and transporting the load. Because attachments generally add extra weight and complexity to the truck, operate trucks equipped with attachments as partially-loaded trucks when not handling a load.

Picking Up and Moving Loads



When picking up a load from the ground, approach the load slowly and carefully align the truck square with the load. The forks should be adjusted to fit the load or pallet being handled and spread as wide as possible to provide good stability and balance. Before lifting, be sure the load is centered and the forks are fully under and supporting the load. Fork length should be at least 2/3 of load length. With the lift and tilt controls, adjust the forks to the correct height and angle for freely engaging the load pallet. Move forward until the forks are squarely and completely under the load.

NOTICE

Be sure that the forks do not extend beyond the load, causing damage or tipping of other adjacent loads or materials behind the load being moved.

If the forks are longer than the load, move the tips partially under the load without extending beyond the load. Raise the load to clear the floor. Back out several inches, or whatever distance is necessary, then set the load down and move forward until the load is positioned against the carriage.

Raise the load from the floor or stack by tilting the upright back just enough to lift the load from the surface. When stacking or tiering, use only enough backward tilt to stabilize the load.

Then raise the load to traveling height and tilt fully back to travel (except for loads that must be transported as level as possible).

Unloading

To deposit a load on the floor after being moved into the correct position, tilt the upright forward to a vertical position and lower the load.

Adjust the fork height and tilt the upright forward slightly, as necessary, for smooth removal of the forks from the load (pallet).

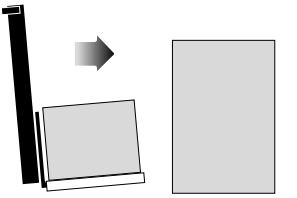
Carefully back away to clear the forks from the load.

Raise the forks to traveling height and tilt fully back.

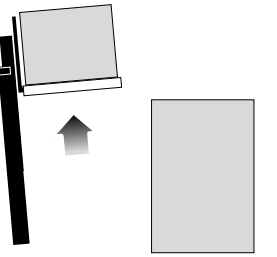
Stacking

To put a load on a stack:

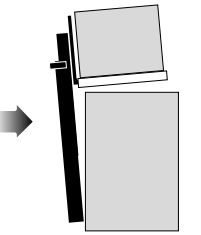
1. Approach slowly and align the lift truck and load squarely with the stack.



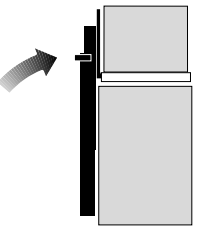
2. Raise (elevate) the load as the lift truck is nearing the stack.



3. Move forward, slowly, until the load is almost touching the stack. The leading edge and sides of the load pallet should be lined up exactly with the near edge and side of the load or rack on which you are stacking.

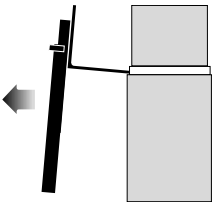


4. Stop close to the stack and further lift (raise) the load high enough to clear the top surface of the stack. Slowly move the load into position. Be careful not to damage or move adjacent loads.

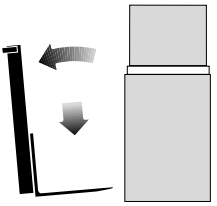


5. When the load is aligned with the stack beneath it, tilt the upright to the vertical position and carefully lower the load onto the top surface of the stack.

6. Lower (drop) the forks slightly to clear (disengage) the load pallet. Tilt the forks forward slightly, if necessary.



7. Check your travel path, then carefully back away until the forks are clear of the stack. Stop and lower the forks to the travel position (6 to 8 inches above the ground), then tilt back to travel.



To move a load from a stack:

Approach the stack carefully, truck lined up squarely with the load. With the truck just in front of the stack and the upright must vertical, raise the forks to the correct height for freely engaging the load pallet. Adjust fork angle as necessary to fit squarely under the load. Move forward until the forks are under the load.

Be sure that the forks do not extend beyond the load, causing damage or tipping of other adjacent loads or materials behind the load being moved. If the forks are longer than the load, move the tips partially under the load without extending beyond the load. Raise the load to clear the under surface. Back out several inches, then set the load down and move forward until the front face of the forks contacts the load.

Raise the load from the stack by tilting the upright back just enough to lift the load from the surface. Or, with the mast still vertical, raise the forks until they begin to lift the load. At this point, apply the minimum back tilt that will stabilize the load.

Check your travel path, slowly back off until clear of the stack, stop, and then lower the load to the travel position (6 to 8 inches off the ground). Tilt full back to travel (except for certain loads that may have to be transported as level as possible). Be sure the load is back flush against the carriage or front face of the forks.

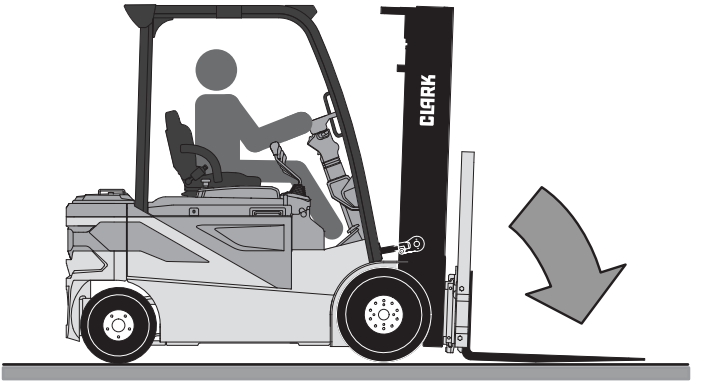
NOTICE

Certain loads may have to be transported as level as possible.

After Operating the Truck

Always leave your lift truck in a safe condition. When you leave your truck, or park it, follow these safety rules:

- Park in a safe area away from normal traffic.
- Never park on a grade.
- Never park in areas that block emergency routes or equipment, access to fire aisles, or stairways and fire equipment.



Before leaving the operator's position:

1. Bring truck to complete stop.
2. Put the directional control lever in the NEUTRAL position.
3. Lower the lift mechanism fully.
4. Set the parking brake (applies automatically).
5. Turn the key switch to the OFF position.

If you are going to leave the truck unattended:

6. Remove the key.
7. Block the wheels if the truck has any possibility of moving.

Operator Maintenance and Care

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Visual Checks 6-3

Functional Checks 6-4

Concluding the Inspection 6-5

NOTICE

The Occupational Safety and Health Act (OSHA) requires that truck users examine their trucks before each shift to be sure they are in safe working order. Defects when found shall be immediately reported and corrected. The truck shall be taken out of service until it has been restored to safe operating condition.

Inspecting Your Truck

Before using a lift truck, **it is the operator's responsibility** to check its condition and be sure it is safe to operate.

Check for damage and maintenance problems; have repairs made before you operate the truck. Unusual noises or problems must be reported immediately to your supervisor or other designated authority.

Do not make repairs yourself unless you are trained in lift truck repair procedures and authorized by your employer. Have a qualified mechanic make repairs using genuine CLARK or CLARK-approved parts.

CAUTION

Do not operate a truck if it is in need of repair. If it is in an unsafe condition, remove the key and report the condition to the proper authority. If the truck becomes unsafe in any way while you are operating it, stop operating the truck, report the problem immediately, and have it corrected.

Lift trucks should be inspected every eight hours, or at the start of each shift. In general, the daily inspection should include the **visual** and **functional checks** described on the following pages.

As an aid in carrying out this inspection, CLARK has prepared a form called the **"Driver's Daily Checklist."** We recommend that you use this form to make a daily record of your inspections and truck condition. You may obtain copies of this form from your CLARK dealer.

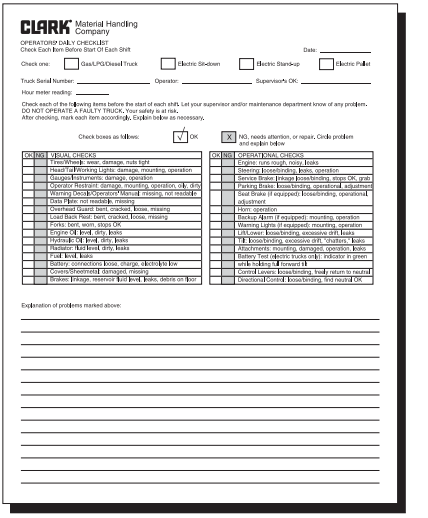
WARNING

Leaking hydraulic oil may be hot or under pressure.
When inspecting a lift truck:

- **Wear safety glasses**
- **Do not check for leaks with bare hands.**

Visual Checks

First, perform a visual inspection of the truck and its major components:



CLARK Material Handling Company

OPERATOR' DAILY CHECKLIST
Check Each Item Before Start Of Each Shift

Date: _____

Check one: ☐ Gas/LPG/Diesel Truck ☐ Electric Sit-down ☐ Electric Stand-up ☐ Electric Pallet

Truck Serial Number: _____ Operator: _____ Supervisor's OK: _____

Hour meter reading: _____

Check each of the following items before the start of each shift. Let your supervisor and/or maintenance department know of any problem.
DO NOT OPERATE A FAULTY TRUCK. Your safety is at risk.
After checking, mark each item accordingly. Explain below as necessary.

Check boxes as follows: [√] OK [X] NG, needs attention, or repair. Circle problem and explain below

OK	NG	VISUAL CHECKS
		Tires/Wheels: wear, damage, nuts tight
		Head/Tail/Marking Lights: damage, mounting, operation
		Gauges/Instruments: damage, operation
		Operator Restraint: damage, mounting, operation, oily, dirty
		Warning Decals/Operator's Manual: missing, not readable
		Data Plate: not readable, missing
		Overhead Guard: bent, cracked, loose, missing
		Load Back Rest: bent, cracked, loose, missing
		Forks: bent, worn, slips OK
		Engine Oil level, dirty, leaks
		Hydraulic Oil level, dirty, leaks
		Radiator: fluid level, dirty, leaks
		Fuel: level, leaks
		Battery: connections loose, charge, electrolyte low
		Covers/Grates/Hood: damaged, missing
		Brakes: linkage, reservoir fluid level, leaks, debris on floor

OK	NG	OPERATIONAL CHECKS
		Engine: runs rough, noisy, leaks
		Steering: loose/binding, leaks, operation
		Service Brake: linkage loose/binding, stops OK, grab
		Parking Brake: loose/binding, operational, adjustment
		Seat Brake (if equipped): loose/binding, operational, adjustment
		Horn: operation
		Backup Alarm (if equipped): mounting, operation
		Warning Lights (if equipped): mounting, operation
		Lift/Lower: loose/binding, excessive drift, leaks
		Tilt: loose/binding, excessive drift, "chatters," leaks
		Attachments: mounting, damaged, operation, leaks
		Battery Test (electric trucks only): indicator in green while holding full forward tilt
		Control Levers: loose/binding, freely return to neutral
		Directional Control: loose/binding, find neutral OK

Explanation of problems marked above:

_____

_____

_____

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1. Walk around your lift truck and take note of obvious damage that may have been caused by operation during the last shift.
2. Check that all capacity, safety, and warning plates or decals are attached and legible.
3. Check that the battery is installed and secured in position correctly. Check battery connector for safe condition.
4. Look for any external leakage around drive axle.
5. Check for hydraulic oil leaks and loose fittings. Do not use bare hands.
6. Be sure that the driver's overhead guard and any other safety devices are in place, undamaged, and attached securely.
7. Check all of the critical components that handle or carry the load.
8. Check the upright and lift chains. Check for obvious wear and maintenance problems such as damaged or missing parts, leaks, slack or broken chains, bent parts, and so on.
9. Carefully inspect the load forks for cracks, breaks, bending, twists, and wear. Be sure that the forks are correctly installed and locked in their proper position.
10. Inspect the wheels and tires for safe mounting and wear condition.
11. Check the hydraulic sump oil level.

Functional Checks

Check the operation of the truck as follows:

NOTICE

Before performing these checks, familiarize yourself with the operating procedures. Be sure there is enough overhead clearance to fully raise the upright.

1. With key switch off, be sure all controls and systems operate freely and return to neutral properly. Check the:
   - Service and parking brakes
   - Hydraulic controls: lift, tilt, and aux functions (if installed)
   - Accelerator control
   - Directional control
   - Steering system
2. Test warning devices, horn, lights, and other safety equipment and accessories.
3. With the truck on, check the dash display. The display should show the charge remaining on the battery or a fault code. If the fault code is not an operator fault code, call a service technician.
4. Check hydraulic fluid level: With the truck parked on a level surface, lift the carriage to maximum height while listening for a high-pitched squeal. This sound, called “cavitation”, indicates the fluid is low. Add fluid just enough to stop the cavitation.

When the functional checks are completed:

1. Bring truck to complete stop.
2. Put the directional control lever in the NEUTRAL position.
3. Apply the parking brake (occurs automatically).
4. Turn the key switch to the OFF position.
5. Lower the lift mechanism fully.

If you are going to leave the truck unattended:

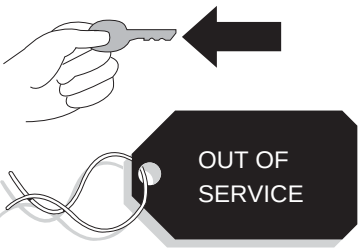
6. Remove the key.
7. Block the wheels if the truck has any possibility of moving.

Concluding the Inspection

Make a record on the “Driver's Daily Checklist” of all the operating and truck problems that you find. Review the checklist to be sure it has been completed and turn it in to the person responsible for lift truck maintenance. Be sure any unusual noises or problems are investigated immediately.

Do not operate a lift truck that has a maintenance problem, or is not safe to operate.

Remove the key from the ignition switch and put an “Out of Service” tag on the truck.



If all of the Daily Inspection checks were normal or satisfactory, the truck can be operated.

Emergency Starting, Towing and Lowering

Contents

How to Tow a Disabled Truck 7-2

Emergency Lowering of Upright 7-5

How to Tow a Disabled Truck

If the lift truck becomes disabled, and must be moved, use the following procedures to safely tow it to a repair area.

IMPORTANT

For your safety, and to prevent damage to the lift truck, only use approved equipment in good condition and carefully follow these rules for safe towing.

WARNING

DO NOT tow a disabled lift truck if there is a problem with the brakes, tires, or steering operation. DO NOT tow on ramps or steep inclines. DO NOT tow a lift truck if the traction or weather conditions are poor.

1. **Always block the drive wheels** of the disabled truck before beginning work around it.
2. If possible, raise the carriage (forks) of the disabled truck approximately 300 mm (12 in) from the ground. Secure the carriage with a chain.
3. Find another lift truck of equal or larger size carrying a partial load to allow for optimal traction.
4. Check that the counterweight mounting bolts are in place and properly tightened. NOTE: These bolts are made of a special high-tensile steel and are not commercially available. If replacement is needed, only use genuine CLARK replacement parts.
5. Install a solid metal tow bar with towing couplers, approved for such purpose, to the tow pin in each truck's counterweight.
6. Manually release the parking brakes on the disabled lift truck.

   Refer to the following parking brake release procedures :

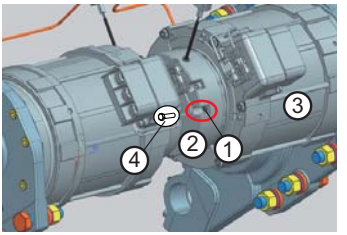
How to manually release the parking brake :

WARNING

Always block the drive wheels before attempting to release the parking brake to prevent unintentional movement of the forklift.

a. Obtain four bolts (M6 x 25) [not included] and an appropriate socket wrench.

b. Locate and remove the plugs (1) from the two brake release holes in the parking brake (2) attached to the end of the drive motor (3).



c. Install two of the bolts (4) into the brake release holes. Tighten them evenly until a “click” sound is heard indicating the brake is released.

d. Repeat this procedure for the opposite brake.

How to reset the parking brake :

a. Remove the release bolts from the brake.

b. When the bolts are removed, the parking brake will return to the locked or braking position.

c. Reinstall the previously installed plugs.

d. Repeat this procedure for the opposite brake.

CAUTION

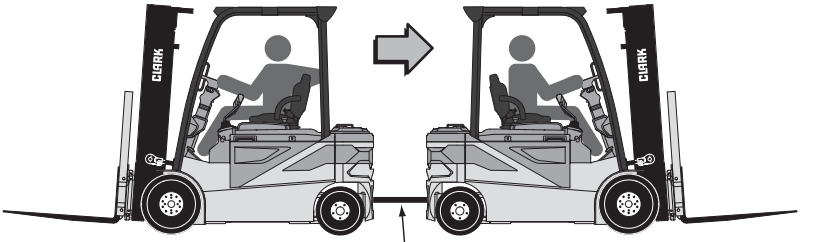
When the truck is OFF or the hydraulic pump is not running, the power-assisted hydraulic steering of the truck will not function. Steering effort will become difficult and affect the operation of the disabled truck being towed. When towing, do not travel faster than 5 kph (3 mph), and attempt to keep the total towing distance as short as possible.

7. Make sure that the directional control is in neutral.

NOTICE

DOT (Department of Transportation) approved towing equipment is available from your CLARK dealer.

8. Tow the disabled lift truck backward. **An operator must be on the towed truck.** Tow the lift truck slowly. Careful towing is necessary to prevent injury to personnel or damage to the lift truck. Do not tow the lift truck at a speed greater than 5 kph (3 mph). Do not raise the lift truck or any wheels off the ground while the lift truck is being towed.



Solid metal tow bar

CAUTION

The power-assisted hydraulic steering will not operate when the truck is turned OFF or the hydraulic pump is not running. Additional effort will be required to operate the steering wheel.

9. Park the disabled truck in an authorized area only, tag the lift truck OUT OF SERVICE, and remove the key.

WARNING

Always apply the parking brake when parking a lift truck. The lift truck can move and cause injury or death to nearby personnel. In the event that the parking brake must be manually released, always block the drive tires to prevent unintended movement.

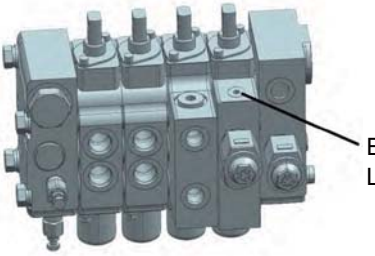
Emergency Lowering of Upright

CAUTION

If the lift truck loses power with the upright raised, it may be necessary to use the following procedure to bypass the lifting mechanism and lower the load to the ground. The following procedure must be performed safely and with extreme care. Make sure that you, and any nearby personnel, are safely out of the way to prevent injury.

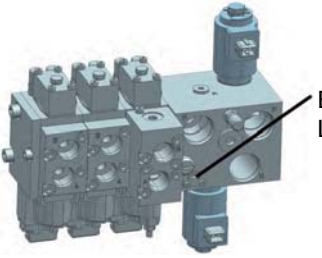
Emergency lowering of upright : *with standard Manual Valve*

1. Raise the hood and locate the emergency lowering valve on the lift section of the hydraulic valve.
2. Using a 4 mm hex wrench, loosen the valve 1/4 turn.
3. Operate the lift lever to slowly lower the upright.
4. Tighten the emergency lowering valve and close the hood.



Emergency lowering of upright : *with optional EHL Valve*

1. Raise the hood and locate the emergency lowering valve on the EHL valve as indicated.
2. Using a 5 mm hex wrench, carefully loosen the lowering valve until the upright begins to lower. Allow the upright to slowly lower to the desired height.
3. Tighten the emergency lowering valve and close the hood.



Planned Maintenance and Lubrication

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PM Report Form 8-10

How to Perform Planned Maintenance 8-12

NOTICE

THIS SECTION IS FOR TRAINED SERVICE PERSONNEL to use as a reference for Planned Maintenance procedures. Complete maintenance information is in the Service Manuals.

Introduction

NOTICE

ONLY TRAINED AND AUTHORIZED PERSONNEL should perform Planned Maintenance. Local CLARK dealers are prepared to help customers put in place a Planned Maintenance program for checking and maintaining their lift trucks according to applicable safety regulations.

CAUTION

Powered industrial trucks may become hazardous If maintenance is neglected.

The operator should make a safety inspection of the lift truck before operating it. The purpose of this daily examination is to check for any obvious damage and maintenance problems, and to have minor adjustments and repairs made to correct any unsafe condition.

In addition to the operator's daily inspection, CLARK recommends that the owner set up and follow a periodic planned maintenance (PM) and inspection program. Performed on a regular basis **by trained** personnel, the program provides thorough inspections and checks of the safe operating condition of the lift truck. The "PM" identifies needed adjustments, repairs, or replacements so they can be made before failure occurs. The specific schedule (frequency) for the PM inspections depends on the particular application and lift truck usage.

This Section recommends typical Planned Maintenance and Lubrication Schedules for items essential to the safety, life, and performance of the truck. It also outlines safe maintenance practices and gives brief procedures for inspections, operational checks, cleaning, lubrication, and minor adjustments.

Specifications for selected components, lubricants, critical bolt torques, refill capacities, and settings for the truck are found in Section 9.

If you have need for more information on the care and repair of your truck, see your CLARK dealer.

Safe Maintenance Practices

The following instructions have been prepared from current industry and government safety standards applicable to industrial truck operator and maintenance. These recommended procedures specify conditions, methods, and accepted practices that aid in the safe maintenance of industrial trucks. They are listed here for the reference and safety of all workers during maintenance operations. Carefully read and understand these instructions and the specific maintenance procedures before attempting to do any repair work. When in doubt of any maintenance procedure, please contact your local CLARK dealer.

1. Powered industrial trucks can become hazardous if maintenance is neglected. Therefore, suitable maintenance facilities, trained personnel, and procedures shall be provided.
2. Maintenance and inspection of all powered industrial trucks shall be done in conformance with the manufacturer's recommendations.
3. A scheduled planned maintenance, lubrication, and inspection system shall be followed.
4. Only trained and authorized personnel shall be permitted to maintain, repair, adjust, and inspect industrial trucks—and in accordance with the manufacturer's specifications.
5. Properly ventilate work area, and keep shop clean and floor dry.
6. Avoid fire hazards and have fire protection equipment present in the work area. Do not use an open flame to check fluid or electrolyte levels. Do not use open pans of fuel or flammable cleaning fluids for cleaning parts.
7. Before starting work on truck:
   a. Raise drive wheels free of floor and use blocks or other positive truck positioning devices.
   b. Put blocks under the load-engaging means, inner masts, or chassis before working on them.
   c. Disconnect battery before working on the electrical system.

NOTICE

Refer to the "Jacking and Blocking" section in the Service Manual for proper procedures.

   d. Operation of the truck to check performance must be conducted in an authorized, safe, clear area.

8. Before starting to drive the truck:
   a. Be seated in a safe operating position and fasten your seat belt.
   b. Make sure parking brake is applied.
   c. Put directional control in NEUTRAL.
   d. Turn the key switch to the ON position.
   e. Release the parking brake (occurs automatically).
   f. Check functioning of lift and tilt systems, directional and speed controls, steering, brakes, warning devices, and any load handling attachments.
9. Before leaving the truck:
   a. Stop truck.
   b. Fully lower the load-engaging means; upright, carriage, forks or attachments. Tilt upright forward.
   c. Put directional control in NEUTRAL.
   d. Apply the parking brake (occurs automatically).
   e. Turn the key switch to the OFF position.
   f. Disconnect battery.
   g. Put blocks at the wheels if truck must be left on an incline.
10. Brakes, steering mechanisms, control mechanisms, warning devices, lights, lift overload devices, lift and tilt mechanisms, articulating axle stops, and frame members must be carefully and regularly inspected and maintained in a safe operating condition.
11. Special trucks or devices designed and approved for hazardous area operation must receive special attention to insure that maintenance preserves the original approved safe operating features.
12. All hydraulic systems must be regularly inspected and maintained in conformance with good practice. Tilt and lift cylinders, valves, and other parts must be checked to assure that "drift" or “leakage” has not developed to the extent that it would create a hazard.
13. When working on hydraulic system, be sure the battery is disconnected, upright is in the fully-lowered position, and hydraulic pressure is relieved in hoses and tubing. Do not check for hydraulic leaks with bare hands.

WARNING

Always put blocks under the carriage and upright rails when necessary to work with upright in an elevated position.

14. The truck manufacturer's capacity, operation, and maintenance instruction plates, tags, or decals must be maintained in legible condition.
15. Batteries, limit switches, protective devices, electrical conductors, and connections must be maintained in conformance with good practice. Special attention must be paid to the condition of electrical insulation.
16. To avoid injury to personnel or damage to the equipment, consult the manufacturer's procedures in replacing contacts on any battery connection.
17. Industrial trucks must be kept in a clean condition to minimize fire hazards and help in detection of loose or defective parts.
18. Modifications and additions that affect capacity and safe truck operation must not be done without the manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals must be changed accordingly.
19. Care must be taken to assure that all replacement parts, including tires, are interchangeable with the original parts and of a quality at least equal to that provided in the original equipment. Parts, including tires, are to be installed per the manufacturer's procedures. Always use genuine CLARK or CLARK-approved parts.
20. Use special care when removing heavy components from the truck, such as counterweight, upright, etc. the truck can become unstable and tipover. Be sure that lifting and handling equipment is of correct capacity and in good condition.

NOTICE

You should also be familiar with additional operating and maintenance safety instructions contained in the following publications:

ANSI/ITSDF B56.1: Safety Standard for Low Lift and High Lift Trucks (Safety Code For Powered Industrial Trucks).

NFPA 505: Fire Safety Standard for Powered Industrial Trucks:Type Designations, Areas of Use, Maintenance and Operation. Available from National Fire Protection Assoc., Inc., Batterymarch Park, Quincy, MA 02169.

General Industrial Standards, OSHA 2206: OSHA Safety and Health Standards (929 CFR 1910), Subpart N-Materials Handling and Storage, Section 1910.178 Powered Industrial Trucks. For sale by: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20210.

IMPORTANT

Your new CLARK lift truck has been built to meet all applicable mandatory requirements of ANSI/ITSDF B56.1 Safety Standard for Powered Industrial Trucks. Each truck also includes certain safety devices, e.g., horn and overhead guard, safety restraint system, seat belt as standard equipment.

No additions, omissions, or modifications should be made that affect compliance to the above requirements or in any way minimize the effectiveness of the safety devices.

Planned Maintenance Intervals

The intervals between maintenances are largely determined by operating conditions. For example, operation in sandy, dusty locations requires shorter maintenance intervals than operation in clean warehouses. The indicated intervals are intended for **normal** operation. The operating condition classifications are:

Normal Operation

Eight-hour material handling, mostly in buildings or in clean, open air on clean paved surfaces.

Severe Operation

Prolonged operating hours, constant usage, and / or heavy loading cycles.

Extreme Operation

- In sandy or dusty locations, such as cement plants, lumber mills, and coal dust or stone crushing sites.
- High-temperature locations, such as steel mills and foundries.
- Sudden temperature changes, such as constant trips from buildings into the open air, or in refrigeration plants.

If the lift truck is used in severe or extreme operating conditions, you must shorten the maintenance intervals accordingly.

NOTICE

Since the operating environment of lift trucks varies widely, the above descriptions are highly generalized and should be applied as actual conditions dictate.

Daily Maintenance Checks

Recommended PM Intervals

The maintenance time intervals referred to in this manual relate to truck operating hours as recorded by the diagnostic system (or hour meter) and based on experience which CLARK has found to be convenient and suitable under normal (typical) operating conditions, as follows:

A = 8-10 hours or every day
B = 50-250 hours or every month
C = 450-500 hours or every 6 months
D = 900-1000 hours or every 12 months
E = 2000 hours or every year

DAILY MAINTENANCE CHECKS	A	B	C	D	E
Check truck for obvious damage and leaks.	•				
Check/clean battery terminals.	•				
Check electrolyte level.	•				
Check capacity, warning plates and decals.	•				
Check condition of tires and wheels, remove embedded objects.	•				
Check wheel lug nuts.	•				
Check hydraulic sump oil level.	•				
Check gauges and instruments.	•				
Check warning lights and hour meter.	•				
Check overhead guard condition and bolts.	•				
Check horn operation and other warning devices.	•				
Check steering operation.	•				
Check service brake operation.	•				
Check parking brake operation.	•				
Check directional and speed control operation.	•				
Check accelerator.	•				
Check lift, tilt and auxiliary operation.	•				
Check upright, lift chains and fasteners.	•				
Check load backrest extension and forks.	•				

Periodic Maintenance Checks

PM Interval:
A = 8-10 hours or every day
B = 50-250 hours or every month
C = 450-500 hours or every 6 months
D = 900-1000 hours or every 12 months
E = 2000 hours or every year

PERIODIC CHECKS and PLANNED MAINTENANCE (PM)	A	B	C	D	E
Check truck visually and inspect components.			•		
Test drive truck/check functional performance.			•		
Air clean truck.			•		
Check torque on critical fasteners.			•		
Lubricate truck. (See component)					
Clean/check battery terminals, electrolyte level.			•		
Check battery cables/truck receptacle.			•		
Perform battery load test.			•		
Check drive motor.			•		
Check lift motor.			•		
Check steer motor.			•		
Test ground.			•		
Clean drive axle air vent.			•		
Check drive axle fluid level. (First : 50 hours)			•		
Drain and replace drive axle fluid.				•	
Check brake condition and wear.				•	
Check drive axle mounting and fasteners.				•	
Lubricate steer axle linkage.			•		
Check/lubricate steer axle wheel bearings.					•
Replace hydraulic sump fluid and filter.					•
Clean/replace hydraulic sump breather.				•	
Lubricate tilt cylinder rod ends.			•		
Check lift chain adjustment and wear.			•		
Check/lubricate lift chains.			•		
Lubricate upright rollers.			•		
Replace brake fluid.				•	

PM Report Form

A planned maintenance (PM) program of regular, routine inspections and lubrication is important for long life and trouble free operation of your lift truck. Make and keep records of your inspections.
Use these records to help establish the correct PM intervals for your application and to indicate maintenance required to prevent major problems from occurring during operation.

As an aid in performing and documenting your PM inspections, CLARK prepared an ***Electric Truck Planned Maintenance Report Form*** (PM Report Form). Copies of this form may be obtained from your authorized CLARK dealer. We recommend that you use this form as a checklist and a record of your inspection and truck condition.

The maintenance procedures outlined in this manual are intended to be used in conjunction with the PM Report Form. They are arranged in groupings of maintenance work that are done in a logical and efficient sequence.

You make check marks or entries on the PM Report Form when you perform the PM. Please notice on the form a special coding system for indicating the importance of needed repairs and/or adjustments.

When you have finished the PM inspections, be sure to give a copy of the report to the designated authority responsible for lift truck maintenance.

Do not make repairs or adjustments unless authorized to do so.

CAUTION

For safety, it is good practice to:

- **Remove all jewelry (watch, rings, bracelets, etc.) before working on the truck.**
- **Disconnect the battery before working on electrical components.**
- **Always wear safety glasses. Wear a safety (hard) hat in industrial plants and in special work areas where protection is necessary and required.**

CLARK Material Handling Company

OPERATORS' DAILY CHECKLIST
Check Each Item Before Start Of Each Shift

Date: _____

Check one: ☐ Gas/LPG/Diesel Truck ☐ Electric Sit-down ☐ Electric Stand-up ☐ Electric Pallet

Truck Serial Number: _____ Operator: _____ Supervisor's OK: _____

Hour meter reading: _____

Check each of the following items before the start of each shift. Let your supervisor and/or maintenance department know of any problem. DO NOT OPERATE A FAULTY TRUCK. Your safety is at risk.
After checking, mark each item accordingly. Explain below as necessary.

Check boxes as follows: √ OK X NG, needs attention, or repair. Circle problem and explain below

OK	NG	VISUAL CHECKS
		Tires/Wheels: wear, damage, nuts tight
		Head/Tail/Working Lights: damage, mounting, operation
		Gauges/Instruments: damage, operation
		Operator Restraint: damage, mounting, operation, oily, dirty
		Warning Decals/Operators' Manual: missing, not readable
		Data Plate: not readable, missing
		Overhead Guard: bent, cracked, loose, missing
		Load Back Rest: bent, cracked, loose, missing
		Forks: bent, worn, stops OK
		Engine Oil: level, dirty, leaks
		Hydraulic Oil: level, dirty, leaks
		Radiator: fluid level, dirty, leaks
		Fuel: level, leaks
		Battery: connections loose, charge, electrolyte low
		Covers/Sheetmetal: damaged, missing
		Brakes: linkage, reservoir fluid level, leaks, debris on floor

OK	NG	OPERATIONAL CHECKS
		Engine: runs rough, noisy, leaks
		Steering: loose/binding, leaks, operation
		Service Brake: linkage loose/binding, stops OK, grab
		Parking Brake: loose/binding, operational, adjustment
		Seat Brake (if equipped): loose/binding, operational, adjustment
		Horn: operation
		Backup Alarm (if equipped): mounting, operation
		Warning Lights (if equipped): mounting, operation
		Lift/Lower: loose/binding, excessive drift, leaks
		Tilt: loose/binding, excessive drift, "chatters," leaks
		Attachments: mounting, damaged, operation, leaks
		Battery Test (electric trucks only): indicator in green while holding full forward tilt
		Control Levers: loose/binding, freely return to neutral
		Directional Control: loose/binding, find neutral OK

Explanation of problems marked above:

_____

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Visual Inspection

Begin the PM routine with a visual inspection of the lift truck and its components.

1. Walk around the truck and take note of any obvious damage and maintenance problems. Check for loose fasteners and fittings.
2. Check to be sure all capacity, safety, and warning plates or decals are attached and legible.

NOTICE

NAMEPLATES AND DECALS: Do not operate a lift truck with damaged or lost decals and nameplates. Replace them immediately. They contain important information.

3. Inspect the truck for any sign of external leakage: hydraulic fluid, brake fluid, axle fluid, electrolyte, etc.
4. Check for hydraulic oil leaks and loose fittings.

CAUTION

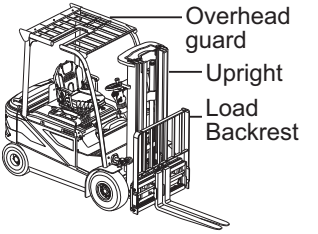
HYDRAULIC FLUID PRESSURE: Do not use your hands to check for hydraulic leakage. Fluid under pressure can penetrate your skin and cause serious injury.

5. Be sure that the driver's overhead guard, load backrest extension, and safety devices are in place, undamaged, and attached securely.

Then check all of the critical components that handle or carry the load.

Overhead Guard

Check the overhead guard for damage. Be sure that it is properly positioned and all mounting fasteners are in place and tight. Make sure no cracks have developed.



Upright Assembly

Inspect the upright assembly: rails, carriage rollers, lift chains, and lift and tilt cylinders. Look for obvious wear and maintenance problems, damaged or missing parts.

IMPORTANT

Make sure that no structural members have developed any cracks.

Check for any loose parts or fittings. Check for leaks, any damaged or loose rollers, and rail wear (metal flaking). Inspect all lift line hydraulic connections for leaks

Load Handling Components

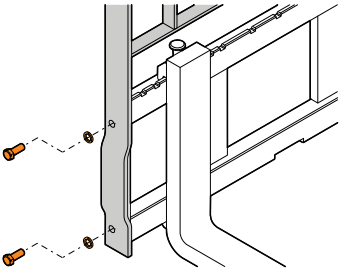
Inspect the upright assembly, load backrest (LBR), rails, carriage, rollers, lift chains, and lift and tilt cylinders. Look for obvious wear and maintenance problems and damaged or missing parts. Check for any loose parts or fittings. Check for leaks, damaged or loose rollers, and rail wear (metal flaking). Carefully check the lift chains for wear, rust, corrosion, cracked or broken links, stretching, etc. Check that the lift and carriage chains are correctly adjusted to have equal tension. Check that the lift chain anchor fasteners and locking means are in place and tight. Inspect all lift line hydraulic connections for leaks.

IMPORTANT

Uprights and lift chains require special attention and maintenance to remain in safe operating condition. Refer to "Lift Chain Maintenance" in this Section for additional information.

Load Backrest

Check the condition of the load backrest. Inspect the welds on the load backrest and carriage for cracks. Check that the load backrest mounting fasteners are not missing and are properly tightened to specification. If the load backrest has been removed, make sure that fork stops have been installed on each side of the carriage.



CAUTION

If the lift truck is not equipped with a load backrest, or it has been removed, then fork stops must be installed on each side of the carriage to prevent the forks from being unintentionally forced off of the carriage during operation.

Lift Chain Maintenance

The chain system on the upright was designed for safe, efficient, and reliable transfer of lifting force from hydraulic cylinder to the forks. Safe use of your truck with minimum down-time depends on the correct care and maintenance of the lift chains. Most complaints of unacceptable chain performance are a result of poor maintenance. Chains need periodic maintenance to give maximum service life.

WARNING

Do not attempt to repair a worn chain. Replace worn or damaged chains in pairs. Do not piece chains together.

Lift Chain Inspection and Measurement

Inspect and lubricate the lift chains every PM (500 hours). When operating in corrosive environments, inspect the chains every 50 hours. During the inspection, check for the following conditions:

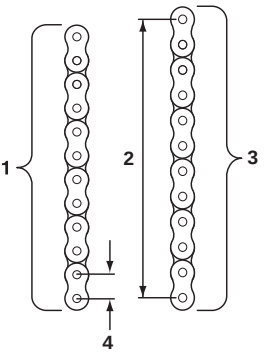
- Rust and corrosion, cracked plates, raised or turned pins, tight joints, wear, and worn pins or holes.
- When the pins or holes become worn, the chain becomes longer. When a section of chain is 3% longer than a section of new chain, the chain is worn and must be discarded.
- Chain wear can be measured by using a chain scale or a steel tape measure. When checking chain wear, be sure to measure a segment of chain that moves over a sheave. Do not repair chains by cutting out the worn section and joining in a new piece. If part of a chain is worn, replace all the chains on a truck.

Lift Chain Lubrication

Lift chain lubrication is an important part of your maintenance program. The lift chains operate under heavy loadings and function more safely and have longer life if they are regularly and correctly lubricated. CLARK chain lubricant is recommended; it is easily sprayed on and provides superior lubrication. Heavy motor oil may also be used as a lubricant and corrosion inhibitor.

Lift Chain Wear and Replacement Criteria:

1. (NEW CHAIN LENGTH) The distance from the first pin counted to the last pin counted in a span while the chains are lifting a small load.
2. (WORN CHAIN LENGTH) The distance from the first pin counted to the last pin counted in a span while the chains are lifting a small load.
3. (SPAN) The number of pins in the length (segment) of chain to be measured.
4. (PITCH) The distance from the center of one pin to the center of the next pin.



All chains must be replaced if any link has wear of 3% or more, or if any of the damaged conditions noted above are found during inspection. Order replacement chains from your CLARK dealer. Replace all chains as a set. Do not remove factory lubrication or paint new chains. Replace anchor pins and worn or broken anchors when installing new chains. Adjust tension on new chains. Lubricate chains when they are installed on the upright.

NOTICE

Please refer to your Service Manual for additional information on lift chain measurement and maintenance.

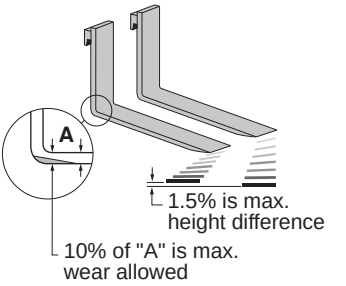
WARNING

Uprights and lift chains require special attention to maintain them in safe operating condition.

- **Uprights can drop suddenly. Look at the upright, but keep hands out.**
- **Lift chain repairs and adjustments should be made by trained service personnel.**

Forks

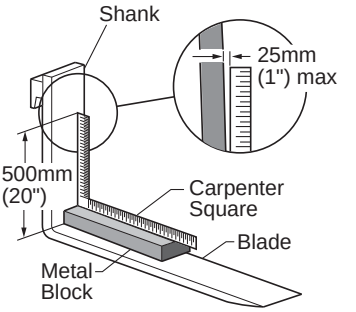
Inspect the load forks for cracks, breaks, bending, and wear. The fork top surfaces should be level and even with each other. The height difference between both fork tips should be no more than 1.5% of the blade length.



WARNING

If the fork blade at the heel is worn down by more than 10%, the load capacity is reduced and the fork must be replaced.

Inspect the forks for twists and bends. Put a 50mm(2") - thick metal block, at least 100mm(4") wide by 600mm(24") long with parallel sides, on the blade of the fork with the 100mm(4") surface against the blade. Put a 600mm(24") carpenter's square on the top of the block and against the shank. Check the fork 500mm(20") above the blade to make sure it is not bent more than 25mm(1") maximum.

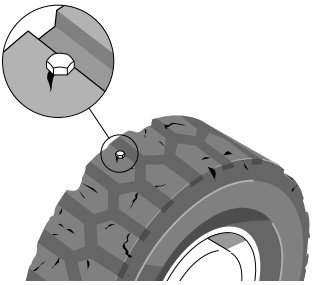


If the fork blades are obviously bent or damaged, have them inspected by a trained maintenance person before operating the truck.

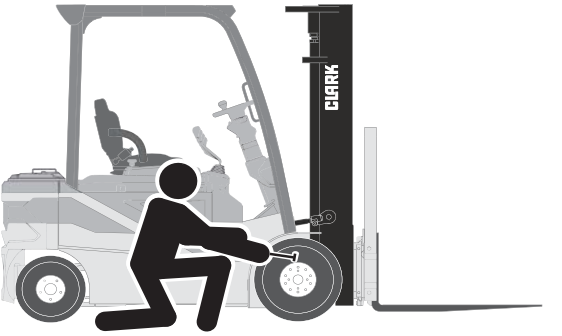
Inspect the fork locking pins for cracks or damage. Reinsert them and note whether they fit properly.

Wheels and Tires

Check the condition of the drive and steer wheels and tires. Remove objects that are embedded in the tread. Inspect the tires for excessive wear and breaks or “chunking out.”



Check all wheel lug nuts or bolts to be sure none are loose or missing. Replace missing bolts or lug nuts. Torque loose or replaced items to specifications.



WARNING

Check tire pressure from a position facing the tread of the tire, not from the side. Use a long-handled gauge to keep your body away from the side. If tires are low, do not operate and do not add air. Check with a mechanic. The tire may require removal and repair. Incorrect (low) tire pressure can reduce the stability of your lift truck. Do not operate truck with low tire pressure. For proper cold inflation pressure, check the CLARK specifications.

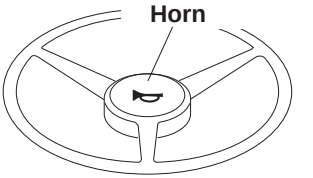
Disassembling the Split Rim Wheel



When you disassemble the split-rim wheel, NEVER remove the tire before you deflate the tire pressure. First, deflate the tire pressure completely and then loosen the wheel bolts and nuts. Failure to do so could result in serious personal injury. This work should be performed only by a trained and authorized mechanic.

Functional Test

Now, check that all controls and systems are functioning correctly. Test horn, lights, and all other safety equipment and accessories. Be sure they are properly mounted and working correctly.



Press the horn button to check horn function. If the horn or any other part does not operate, report the failure, and have it repaired before the truck is put into operation.

Horn

Press the horn button to check horn function. If the horn or any other part does not operate, report the failure and have it repaired before the truck is put into operation.

Indicator Lights

Check that all lights are functioning and indicate normal truck operation as described in Section 3, “Operator Compartment and Controls,” in this manual

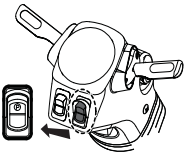
Service and Parking Brakes

Operate service and parking brakes; all hydraulic controls; lift, tilt, and auxiliary (if installed); accelerator; directional controls; and steering system. Be sure all controls operate freely and return to neutral properly.

Check the service brake system. Push the brake pedal fully down and hold. The brakes should be applied before the pedal reaches the floor plate. Check for a feeling of solid resistance when the pedal stops. The pedal must feel firm and not move down farther after it stops. If the pedal continues to creep downward, report the failure immediately. Do not operate the truck until the brakes are repaired.

Parking Brake

Check the function of the parking brake. To check parking brake holding capability, park the lift truck on a grade and apply the parking brake. The parking brake should hold a lift truck with rated load on a 15% grade.



CAUTION

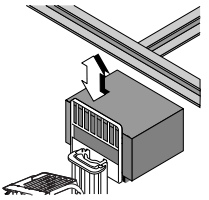
Do not operate a lift truck if the service or parking brakes are not operating properly.

Lift Mechanisms and Controls

Pull back on the tilt control lever and hold until the upright reaches the full back tilt position. Push forward on the lever to return the upright to the vertical position. Release the lever.

CAUTION

Be sure that there is adequate overhead clearance before raising the upright.



Pull back on the lift control lever and raise the fork carriage to full height. Watch the upright assembly as it rises. Release the lever.

If the maximum fork height is not reached, this indicates there is an inadequate (low) oil level in the hydraulic sump tank or severe binding within the upright.

Push forward on the lift control lever. Watch the upright as it lowers. When the forks reach the floor, release the lever.

All movements of the upright, fork carriage, and lift chains must be even and smooth, without binding or jerking. Watch for chain wobble or looseness; the chains should have equal tension and move smoothly without noticeable wobble.

Auxiliary Controls (Optional)

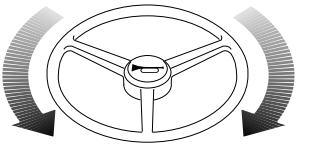
If your lift truck is equipped with an attachment, test the control lever for correct function and briefly operate the attachment.

Steering System

NOTICE

The steering system, steer axle, and steering linkage on your truck should be inspected periodically for abnormal looseness and damage, leaking seals, etc.. Also, be alert for any changes in steering action. Hard steering, excessive free play (looseness), or unusual sound when turning or maneuvering indicates a need for inspection or servicing.

Check the steering system by moving the steering hand wheel in a full right turn and then in a full left turn. Return the hand wheel (steer wheels) to the straight ahead position. The steering system components should operate smoothly when the steering wheel is turned.



IMPORTANT

Never operate a truck with a malfunctioning steering sytem.

WARNING

Fasten your seat belt before driving the truck.

Direction Control and Brakes

Check and make sure that the travel area is clear in front of the truck. Push firmly on the brake pedal. Release the parking brake. Move the direction control lever from NEUTRAL to FORWARD travel position.

Remove your right foot from the brake pedal and put it on the accelerator pedal. Push down until the truck moves slowly forward. Remove your foot from the accelerator pedal and push down on the brake pedal to stop the truck. The brakes should apply smoothly and equally. Be sure the travel area is clear behind the truck.

Put the directional control lever in the REVERSE travel position. Push down on the accelerator pedal until the truck moves slowly in the reverse direction. Remove your foot from the accelerator pedal.

Transistorized Traction Control

CAUTION

Check and make sure the travel area is clear before each movement and before each change of direction.

1. Check the travel operation in both the forward and reverse directions. All speed changes should be smooth while increasing and decreasing speed. Notice any unusual drive train noise or action of the controls and drive train components.
   Stop the truck with the service brakes. Note any unusual reactions in driving or braking performance. Note any need for adjustment.
2. Check the plugging function first at a slow speed. If operating correctly, then test at full speed.
   First, drive the truck in the FORWARD direction. Push the accelerator pedal and allow the truck to accelerate to the desired travel speed. Then, move the direction control to the REVERSE position while your foot is still depressing the accelerator pedal. The truck should slow to a smooth, controlled stop and accelerate in the opposite direction.
   Repeat the test by moving the direction control back to the forward position.

IMPORTANT

When you have completed the operational tests, park and leave the truck according to standard shut down procedures. Be sure to make a record of all maintenance and operating problems you find.

Hydraulic Sump Tank

Check the hydraulic sump tank fluid level. Correct fluid level is important for proper system operation. Low fluid level can cause pump damage. Overfilling can cause loss of fluid or lift system malfunction.

Hydraulic fluid expands as its temperature rises. Therefore, it is preferable to check the fluid level at operating temperature (after approximately 30 minutes of truck operation). To check the fluid level, first park the truck on a level surface and block the drive wheels. Put the upright in a vertical position and lower the fork carriage fully down. Pull the dipstick out, (attached to the sump breather) wipe it with a clean wiper, and reinsert it. Remove dipstick and check oil level. Keep the oil level above the LOW mark on the dipstick by adding recommended hydraulic fluid only, as required. **Do not overfill**.

Check the condition of the hydraulic fluid (age, color or clarity, contamination). Change (replace) the oil as necessary.

Hydraulic Fluid and Filter Change

Drain and replace the hydraulic sump fluid every 2000 operating hours. (Severe service or adverse conditions may require more frequent fluid change). Replace the hydraulic oil filter elements at every oil change. Remove, clean, and reinstall the hydraulic and steer system suction line screens at time of fluid change. Check for leaks after installation of the filters. Also, check that the hydraulic line connections at the filter adapter are tightened correctly. The procedure for draining hydraulic sump tank is in your Service Manual.

Sump Tank Breather Maintenance and Inspection

Remove the sump tank fill cap/breather and inspect for excessive (obvious) contamination and damage. Replace the fill cap/breather, per recommended PM schedule or as required by operating conditions.

Drive axle check

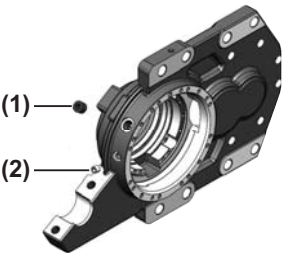
NOTICE

Check the planned maintenance interval (operating hours) or the condition of the oil to determine if the drive axle fluid needs to be changed.

Checking the drive axle oil level

Park the forklift truck on a flat surface.

Apply the parking brake and put wedges under the drive wheels in order to secure the forklift truck from accidental motion.

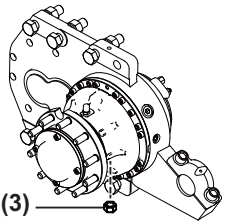


Remove the oil inlet plug(1) and oil level plug(2). The drive axle oil must reach up to the lower edge of the oil level port.

Please remember : You must check both right and left drive axle.

Changing the drive axle oil

Proceed as described under “Checking the oil level”. Slide a flat oil pan(with a capacity of at least 3 liters) below the drive axle and unscrew the drain plug(3). After having drained the oil, Screw in the drain plug(3) and fill up with new drive axle oil, until it flows out of the oil level port.

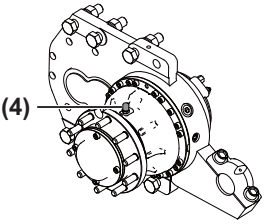


Please remember : You must change both right and left drive axle oil.

Checking the air breather filter

The air breather (4) is installed on the top of each drive axle. Check the air breather (4) for clogging each time when changing the oil.

Please remember : You must check both right and left drive axle.



Lubrication

Truck Chassis Inspection and Lubrication

Lubrication and inspection of truck chassis components, including steer wheels, steer axle linkage, steering cylinder, and wheel bearings are easier if the truck is raised and blocked up under the frame. Refer to your Service Manual for additional information on machine blocking and jacking. Also refer to Service Manual for the location of grease fittings.

WARNING

Do not raise the truck by lifting under the counterweight.

Inspect the steering cylinder piston rods, seals, and fasteners for damage, leaks, and looseness. Lubricate the steer axle linkage rod ends and linkage pivot points. Be sure to clean the grease fittings before lubricating, and remove the excess grease from all points after lubricating. Lubricate miscellaneous linkage as needed.

Upright and Tilt Cylinder Lubrication

Clean the fittings and lubricate the tilt cylinder rod end bushings (forward end) and both the base rod-end bushings (rear end). Clean and lubricate the upright trunnion bushings.

Lift Chains

Lubricate the entire length of the upright rail lift and carriage chains with CLARK Chain and Cable Lube.

IMPORTANT

Do not lubricate the carriage roller rails.

Air Cleaning the Truck

Always maintain a lift truck in a clean condition. Do not allow dirt, dust, lint, or other contaminants to accumulate on the truck. Keep the truck free from leaking oil and grease. Wipe up all oil spills. Keep the controls and floorboards clean, dry, and safe. A clean truck makes it easier to see leakage and loose, missing, or damaged parts. A clean condition helps prevent fires and helps the truck run cooler.

The environment in which a lift truck operates determines how often and to what extent cleaning is necessary. For example, trucks operating in manufacturing plants with a high level of dirt, dust, or lint, (e.g., cotton fibers, paper dust, etc.) in the air or on the floor require more frequent cleaning. If air pressure does not remove heavy deposits of grease, oil, etc., it may be necessary to use steam or liquid spray cleaner.

IMPORTANT

Do not steam, Pressure wash, or use liquid spray cleaner on Electronic control panel. Lift trucks should be air cleaned at every PM interval, or more often if necessary.

Use an air hose with special adapter or extension having a control valve and nozzle to direct the air properly. Use clean, dry, low-pressure compressed air. Restrict air pressure to 30 psi (207 kPa), maximum (OSHA requirement).

CAUTION

Wear suitable eye protection and protective clothing.

Air clean: upright assembly; drive axle; battery; cables; switches and wiring harness; transistor traction controls and wiring; drive, lift, and steer motors; and steer axle, steer cylinder, and linkage.

Critical Fastener Torque Checks

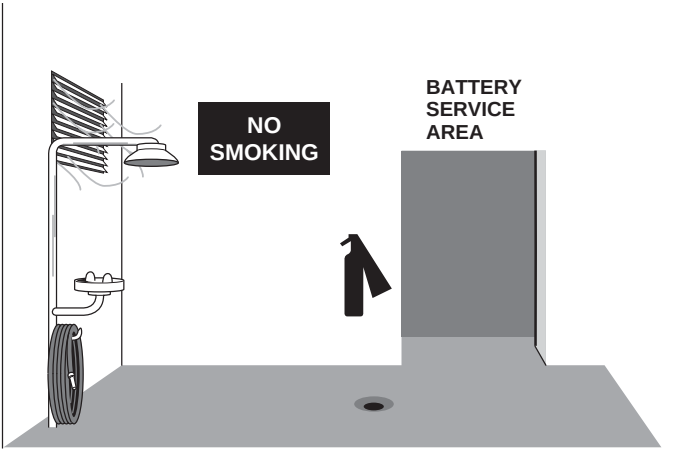
Fasteners in highly loaded (critical) components can quickly fail if they become loosened. Also, loose fasteners can cause damage or failure of the component. For safety, it is important that the correct torque be maintained on all critical fasteners of components that directly support, handle, or control the load and protect the operator.

Critical items include:

- Drive axle mounting
- Overhead guard
- Drive and steer wheel mounting
- Tilt cylinder mounting and yokes
- Counterweight mounting
- Upright mounting and components

Torque specifications are in Service Manual.

Electric Truck Battery Maintenance



Battery charging installations must be located in areas designated for that purpose. These areas must be kept free of all non-essential combustible materials.

Facilities must be provided for:

- Flushing spilled electrolyte
- Eye wash facility
- Fire protection
- Protecting charging apparatus from damage by trucks
- Adequate ventilation for dispersal of fumes from gassing batteries.

When handling acid concentrates greater than 50 percent acid (above 1.400 specific gravity), an eye wash fountain must be provided.

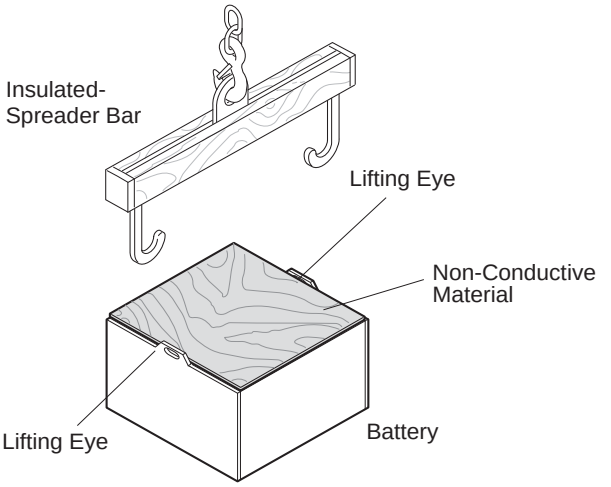
A conveyor, overhead hoist, or equivalent material handling equipment must be provided for handling batteries.

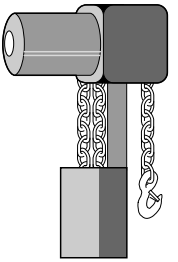
IMPORTANT

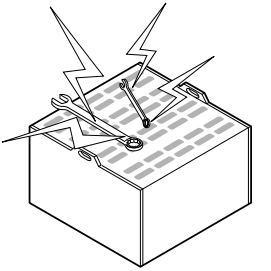
Electric truck batteries are heavy and awkward to handle. They are filled with a very hazardous chemical solution. On charge, they give off hydrogen and oxygen which, in certain concentrations, are explosive. And they are costly. Before you remove, service, or install a truck battery, carefully read the following recommendations and instructions.

Battery Handling

1. Change (remove) or service storage batteries only in an area designated for this purpose.
2. Be sure this area has provisions to flush and neutralize spillage, to ventilate fumes from gassing batteries, and for fire protection.
3. This area should be equipped with material-handling tools designed for removing and replacing batteries, including a conveyor or overhead hoist. Use lift hooks that have safety latches.
4. Always use a special lifting device such as an insulated spreader bar to attach the hoist to the battery. The width of the spreader bar hooks must be the same as the lifting eyes of the battery, to prevent damage to the battery. If the spreader bar hooks are movable, carefully adjust the position (width) of the hooks so that the pull is directly upward (vertical) and no side load or force (pressure) is exerted on the battery case. Be sure the lift hooks are the correct size to fit the lifting eyes of the battery.
5. If the battery does not have a cover of its own or has exposed terminals and connectors, cover the top with a non-conductive (insulating) material, e.g., a sheet of plywood or heavy cardboard, prior to attaching the lifting device.
6. Chain hoists or power battery hoists must be equipped with load-chain containers to accumulate the excess lifting chain.







7. Keep all tools and other metallic objects away from the terminals.

WARNING

BATTERY SERVICE: Battery service must be done by trained and authorized personnel. Battery acid can cause severe burns and injury.

Battery Charging

1. Persons maintaining storage batteries must wear protective clothing such as face shield, long sleeves, and gloves.
2. Hydrogen emissions from charging batteries are flammable. No smoking is allowed in the charging area. Do not check the electrolyte level with an open flame. Do not allow open flame, sparks, or electric arcs in battery charging area.

WARNING

SULFURIC ACID: The battery contains corrosive acid that can cause injury. If acid contacts your eyes or skin, flush immediately with water and get medical assistance.



WARNING

EXPLOSIVE GASES: Do not smoke or have open flames or sparks on battery charging areas or near batteries. An explosion can cause injury or death.

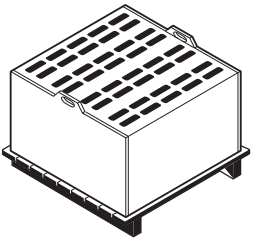
3. When charging batteries, the vent caps must be kept in place to avoid electrolyte spray. Care must be taken to assure that vent caps are open (clean) and functioning. The battery (or compartment) cover(s) must be open to dissipate heat and gas.

IMPORTANT

If batteries discharge rapidly during normal operation or do not charge to the correct specifications, contact a qualified battery service technician to check the battery for you. Do not add electrolyte or attempt to service the battery.

Battery Removal from Truck

1. Check the designated service and charging area for fire protection, and be sure all sources of ignition are cleared from the area. **Do not smoke**. Be sure all previous noted equipment is in the area, in good repair, and working properly. If the battery is to be serviced, be sure there are provisions to flush and neutralize spillage and to disperse (ventilate) fumes from gassing batteries on charge. And, be sure there are provisions for handling electrolyte.
2. Before attempting to remove or charge a storage battery, the truck should be positioned in the designated battery service area and the parking brake applied so the truck cannot move.
3. If the battery to be handled is not equipped with its own cover, cover the battery when handling with a non-conductive (insulating) material, e.g., plywood or heavy cardboard, before attaching the lifting device.
4. Use an approved lifting device with an insulated spreader bar, to remove and transport a truck battery. Be sure the hoist and lifting chains are equipped with safety hooks.
5. Remove the battery and move it to a safe storage location. Store batteries either on an approved battery rack or on a wooden pallet.



Battery Cleaning and Care

Never wash the battery when it is in the truck. The easiest and most satisfactory method of cleaning a battery is to wash it occasionally with a low-pressure cold-water spray. The top can also be washed off with a solution of baking soda and water (add a box of baking soda to a pail of water and stir until dissolved) and rinsed with clean water. It is good practice to have this solution in a battery room at all times.

IMPORTANT

During cleaning, the battery vent caps must be tightly in place.

Refer to the battery manufacturer or supplier for their recommended battery maintenance and care procedures.

BATTERY SAVER and CLEANER, CLARK Part No. 886398, may be used to clean and protect the truck battery.

New Truck Batteries: Apply a light coat of BATTERY SAVER and CLEANER to entire surface of battery. Allow to set for approximately 30 seconds, then wipe thoroughly with a wiping cloth or rag. Chemical action will dissolve rust and corrosion. After cleaning, apply a second coating for protection. This will prevent the start and growth of corrosion on battery terminals and cable connections.

Battery Service Records

Keep a record of battery service and maintenance to obtain the best service life from your battery and truck. Select a pilot cell, take readings of specific gravity and temperature before and after charging, and record the readings with the date. It is best to change the location of the pilot cell occasionally to distribute any electrolyte loss over the battery.

Every 2 or 3 months, take complete battery readings (specific gravity, temperature, and voltage) and make a record of them.

How to Get Maximum Battery Life

1. Follow normal battery maintenance procedures, re-charging before 80% discharged and with periodic equalizing charges. Let cool eight hours after charging before using.
2. Don't add acid to a battery. Only a person trained and qualified to do battery maintenance should determine if this is necessary.
3. Lift battery only with a correctly constructed lifting device that will not put pressure on the battery case.
4. Keep open flames, tools, and metal objects away from the top of battery to prevent short circuits and explosions.
5. Do not overcharge.
6. Check the battery electrolyte level **after** each charging. Add water if the top of the separator or plates are visible. **Do not overfill!**
7. **Keep the battery clean and dry**. Wash down as needed.
8. Keep battery service records.

Battery Installation

1. Use only a lead-acid battery with the voltage and ampere-hour rating specified for the truck.
2. When changing batteries on battery electric trucks, replacement batteries must be of the service weight that falls within the minimum/maximum range specified on truck nameplate.
3. Be sure truck is properly positioned and parking brake applied.
4. Handle battery only with approved lifting device.
5. Install the battery correctly in the truck and secure it in position.

NOTICE

Some trucks are equipped with battery stops or blocks. Others do not require them. If the truck being serviced has battery stops or blocks, be sure none are missing or damaged. Replace them as necessary. If they are an adjustable type, be sure they are correctly adjusted and tightened. There should be no more than 13 mm (0.5 in) total clearance around the battery. The battery weight must be within the range specified on the truck nameplate.

Checking the traction and hydraulic cables

- Check up the damage of cables and terminal at every scheduled PM(500 hrs)
- During inspection, check the following cable condition
  - Terminal for loosing or corrosion
  - Insulation for hardening and cracking
  - Evidence of over heating
  - Worn or thin insulation
- Do not repair cable by cutting out the damaged section and splicing.
- Replace the entire cable of traction and pump motors should be replaced with new cables having over 194F(90C).(Inquire the cable at an authorized CLARK service agency)

Specifications

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SE25-35

CLARK products and specifications are subject to improvements and changes without notice or obligation.

Model Designation - Rated Load Capacity

SE25	2268kg@610mm load center	[5000lbs@24in]	[2500kg@500mm]
SE30s	2721kg@610mm load center	[6000lbs@24in]	[2500kg@500mm]
SE30	2721kg@610mm load center	[6000lbs@24in]	[3000kg@500mm]
SE35	3175kg@610mm load center	[7000lbs@24in]	[3500kg@500mm]

NOTICE

Rated capacity applies when using standard upright and forks. [SE25-30s : 3300mm, SE35 : 3165mm MFH]

Truck Weights - with standard upright. [SE25-30s:3300mm, S35:3165mm MFH]

	Gross Vehicle Weight(kg[lbs])	Empty Vehicle Weight (kg[lbs])	Loaded Drive Axle (kg[lbs])	Empty Drive Axle (kg[lbs])
Battery 48V (Lead Acid)				
SE25	7071 [15079]	4571 [10079]	6118 [13490]	2183 [4814]
SE30s	7957 [16930]	4957 [10930]	6941 [15305]	2200 [4851]
SE30	8027 [17085]	5027 [11085]	6944 [15312]	2342 [5164]
SE35	9078 [19299]	5578 [12299]	7793 [17184]	2415 [5325]
Battery 80V (Lithium)				
SE25	6979 [14876]	4479 [9876]	6058 [13358]	2124 [4683]
SE30s	7828 [16646]	4828 [10646]	6873 [15155]	2132 [4701]
SE30	7981 [16983]	4981 [10983]	6844 [15091]	2242 [4944]
SE35	8900 [18907]	5400 [11907]	7738 [17062]	2360 [5204]

Wheels and Tires

SE25	Drive	23x9-10	800 kPa (116 psi)
SE30s		23x9-10	800 kPa (116 psi)
SE30		23x9-10	800 kPa (116 psi)
SE35		23x10-12	800 kPa (116 psi)
SE25	Steer	18x7-8	1000 kPa (145 psi)
SE30s		18x7-8	1000 kPa (145 psi)
SE30		18x7-8	1000 kPa (145 psi)
SE35		18x7-8	1000 kPa (145 psi)

Battery Compartment

	Cell type	Specification (AH/5hrs)	Dimensions (L x W x H)	Weight (kg[lbs])
Battery 48V (Lead Acid)				
SE25/30s	VCIS685	48V, 685	978x656x631	1053 [2321]
SE30/35	VCI740	48V, 740	983x762x575	1204 [2543]
Battery 80V (Lithium)				
SE25/30s		80V, 460	1028x711x713	1550 [3418]
SE30/35		80V, 460	1028x711x713	1800 [3969]

Operating Grade

	Maximum Operating Grade (Loaded)		Maximum Operating Grade (Unloaded)	
	%	deg	%	deg
SE25	32.2	17.8	24.7	13.9
SE30s	28.1	15.7	23.8	13.4
SE30	29.6	16.5	25.0	14.0
SE35	25.0	14.0	24.0	13.5

Fill Capacities - Fluid Volumes

Drive Axles : 1.05 qt (1.0 L) per axle

Hydraulic Sump Tank (Usable Volume) : 6.6 gal (25 L)

Hydraulic Fluid Recommendation

Normal application: AW ISO 32 Hydraulic Fluid
(CLARK Specification MS-68)

Drive Axle Fluid Recommendation

Mobilfluid 424 Transmission Oil

Power Steering Fluid Recommendation

Uses main hydraulic sump oil supply.

Brake Reservoir

Normal application - CLARK Specification MS-68 Hydraulic oil

Multi-Purpose Grease

Axle Ends, Wheel Bearings :	NLGI Grade No. 1 Lithium soap base grease CLARK Specification MS-9B and MS-107B
Steering linkage, upright mast & carriage rollers, trunnion bushings, tilt cylinder rod ends, brake pedal shaft :	NLGI Grade No. 2 Lithium soap base grease, CLARK Specification MS-107C.

Use genuine CLARK parts. See your CLARK dealer.

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