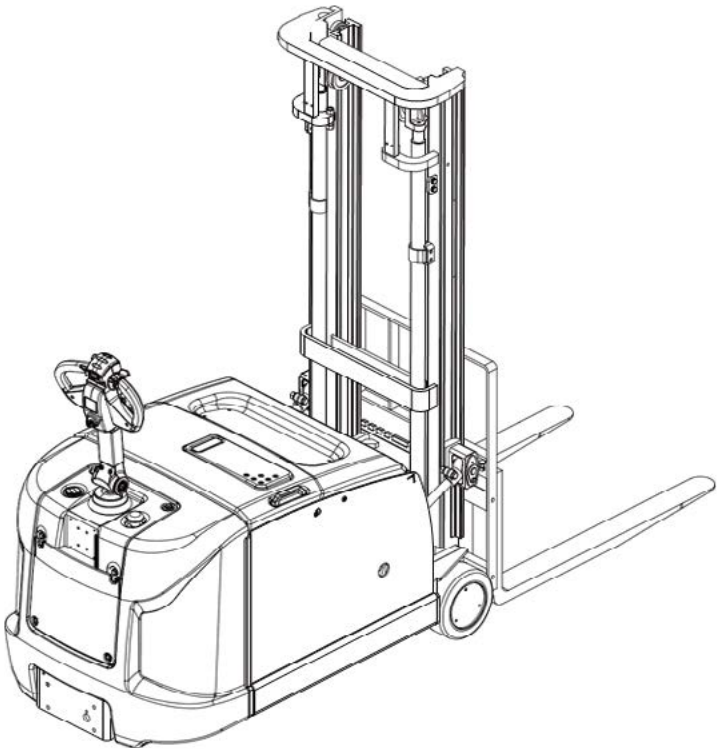
OPERATOR'S MANUAL

BGL30/35 Walkie Stacker



BGL 30/35
Operator's Manual
Counterbalanced Stacker

ACTUAL PRODUCT MAY NOT APPEAR EXACTLY AS SHOWN

⚠ WARNING

Do not operate or service this product unless you have read and fully understand the entire contents of this manual. Failure to do so may result in bodily injury, or death.

BLUE GIANT®

ISSUE DATE: JULY 8, 2024 REV. 1.0 (PART # 038-319EO)

⚠ WARNING

- Do not operate this truck unless authorized and trained to do so and have read all warnings and instructions in this Operator's Manual and on this truck. Read, understand, and comply with the information on the truck's nameplate at all times.
- Do not operate this truck until you have performed the Daily Operator Checklist. Report any problems to the designated authority and do not use the truck until they are corrected by a qualified technician.
- If there is a fault code on the BDI/display, recycle the key and see it the code displays again. If the code displays again, do not operate the truck. Investigate the fault code and contact a service technician.
- This truck must not be modified without written manufacturer's consent.
- Operate truck only from designated operating position.
- Operate cautiously on ramps, slopes, and uneven floors. Travel slowly and do not angle or turn. This truck is not for use on mezzanines or balcony areas.
- Before operating, inspect the floor area it will be used on and be certain it will support the truck at full capacity and lift height. Identify and avoid holes, drop-offs, bumps, and obstructions.
- Never place any part of your body into the mast structure or between the mast and the truck.
- Do not carry passengers.
- Before and during all truck operations ensure that adequate clearance is maintained from overhead obstructions and energized electrical conductors and parts.
- Operate tilting mechanism slowly and smoothly. Do not tilt forward when elevated except when picking up or depositing a load.
- Elevate forks only to pick up a load. Lift and lower with mast vertical or slightly tilted back, never forward. Watch for obstructions overhead.
- Ensure loads are centered and do not contact any obstructions in the truck's vicinity.
- Maintain a clear view of the ground while traveling and a safe distance from obstacles in the truck's path. Ensure personnel in the vicinity are aware of the truck's movement. Travel at a safe speed for the conditions the truck is operating in.
- Observe applicable traffic regulations. Yield right of way to pedestrians. Slow down and sound horn at cross aisles and wherever vision is obstructed. Avoid hazardous locations.
- When leaving the truck unattended, remove the key to prevent unauthorized use.
- Start, stop, travel, steer, and brake smoothly. Slow down for turns and on uneven or slippery surfaces that could cause the truck to slide or overturn. Use special care when traveling without a load as the risk of overturn can be greater.

- Travel with lifting mechanism as low as possible and tilted back. Always look in direction of travel. Keep a clear view. When the load interferes with visibility, travel with the load trailing.
- Do not handle loads that are taller than the load backrest unless secured to prevent falling.
- Do not expose truck or battery to water as there is no ingress protection.

Safety Notices and Text Mark-Ups

Safety instructions and important explanations are indicated by the following graphics:

DANGER

Means that failure to comply can cause risk to life and/or major damage to property.

WARNING

Strictly adhere to safety instructions to avoid personal injury or major damage to equipment.

CAUTION

Pay attention to the safety instructions.

NOTE

Pay attention to the instructions.

PROPOSITION 65

WARNING

In accordance to
California Health & Safety Code Sections 25249.5 et. seq.
this warning is to let you know that this product can expose you to chemicals known to the state of California to cause cancer, birth defects and other reproductive harm.
For more information visit: www.p65warnings.ca.gov

Table of Contents

Correct Use and Application

The truck described in this operator manual is designed for lifting and transporting material loads. It must be used, operated, and serviced as specified in the following instructions. Any other type of use is beyond the scope of application and can result in damage to personnel, the truck or property. Avoid overloading the truck with loads which are too heavy or placed on one side. The data plate attached to the truck shows the maximum load capacity. All nameplates and safety signs on the truck should be cleaned regularly to maintain visibility.

Proprietor Responsibilities

For the purposes of the present operator manual the ‘proprietor’ is defined as any person who either uses the truck themselves, or on whose behalf it is used. In special cases (e.g., leasing or renting) the proprietor is considered the person who, in accordance with existing contractual agreements between the owner and user of the truck, is charged with operational duties.

The proprietor must ensure that the truck is used only for the purpose it is intended for.

Accident prevention regulations, safety regulations, operating, servicing and repair guidelines must be followed. The proprietor must ensure that all truck users are properly trained and have read and understood this operator manual. The owner must also read and understand the safety guidelines/requirements as called out in the applicable ANSI/ITSDF B56 series of standards.

Failure to comply with the operator manual shall void the warranty. The same applies if improper work is carried out on the truck by the customer or third parties without the express permission of the manufacturer’s customer service department.

Modifications

Any modification of the truck requires the written permission of the manufacturer. Local authority approval may also need to be obtained. Local authority approval does not constitute the manufacturer’s approval. If approval has been granted for capacity change, the nameplate and safety signs on the truck must also be changed.

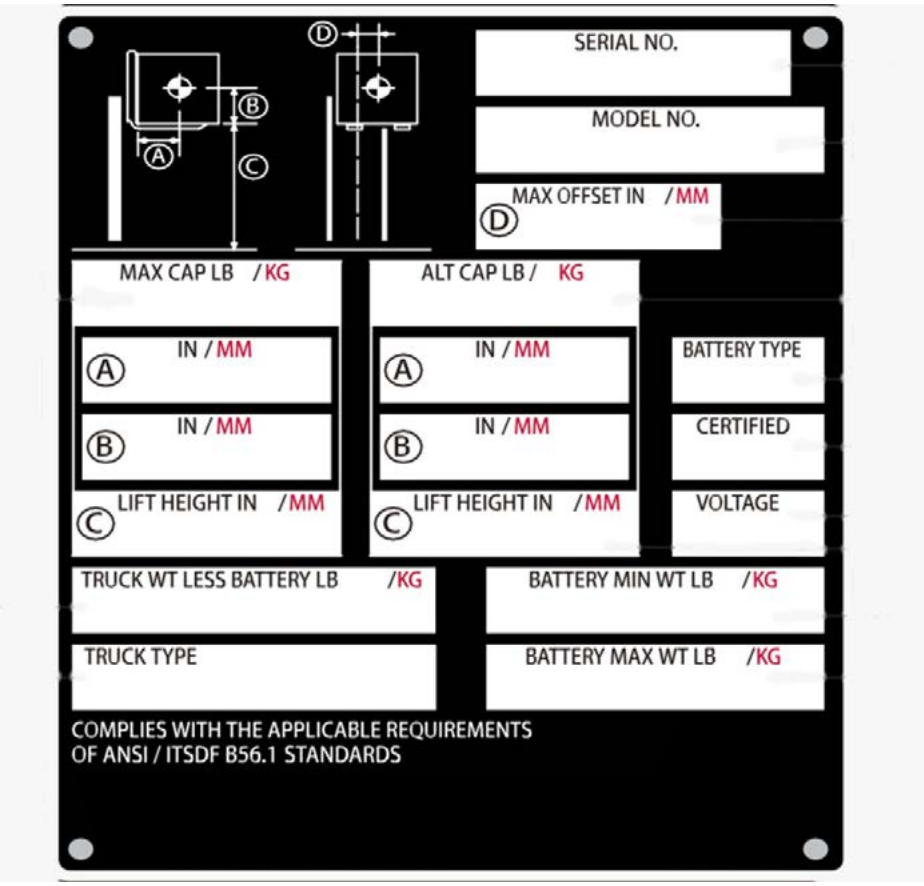
NOTE

The graphics contained in this manual may not be an exact representation of the truck. They are for illustrative purposes only.

Truck Description

The Counterbalanced Series Stackers are suitable for lifting and handling goods. This type of stacker can pick up pallets that are outside the range of the load wheels. The pallet base can be either open or closed boarded.

Truck Nameplate



Appearance may vary

Data plates are required on the truck, if lost, stolen, or damaged they must be replaced per OSHA standards.

For questions regarding the truck or ordering spare parts, always provide the serial number.

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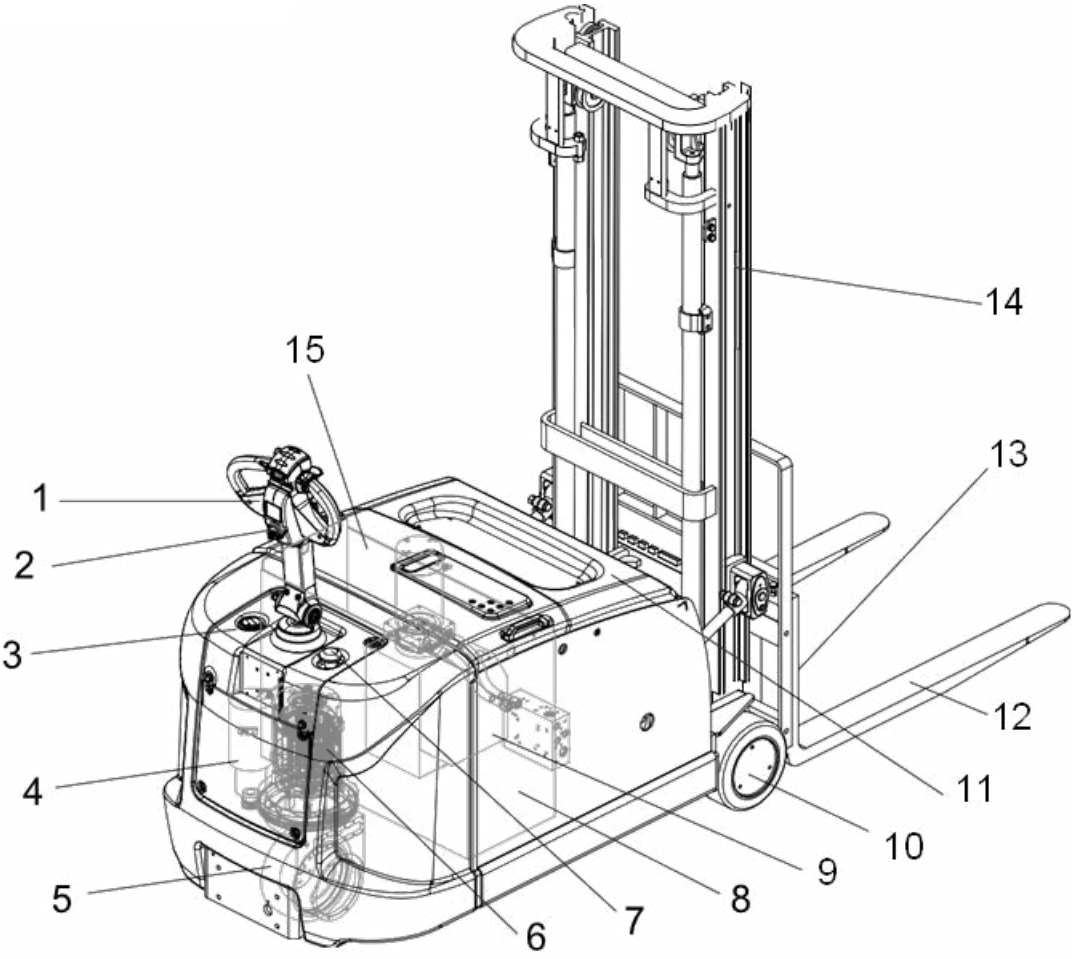


Item	Component	Item	Component
1	Control handle	9	Hydraulic unit
2	Key switch	10	Load wheels
3	Instrument Display	11	Upper cover
4	Steering motor	12	Forks
5	Drive wheel	13	Fork carriage
6	Drive motor	14	Mast
7	Emergency stop switch	15	Battery cover
8	Lithium-ion battery		

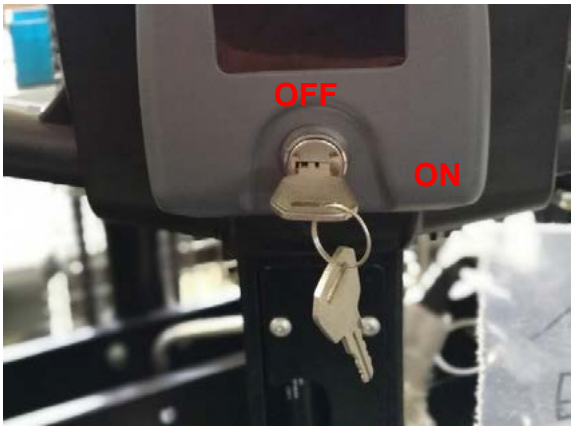
Control & Displays

Control Handle

Key Switch

Connects and interrupts power supply

- When the key rotates to ‘OFF’, the power supply of the truck will be interrupted.
- When the key rotates to ‘ON’, the power supply of the truck will be connected.



BDI Instrument Display

Upon initial start up truck is started, it displays:

(1) Serial Number

(2) Version of the Product

(3) Version of the Software

When the truck is running, it displays another interface:

(4) Displays remaining state of charge. When the first and second blocks blink it indicates low power.

(5) Displays remaining percentage of charge

(6) LED flashes when traveling forward

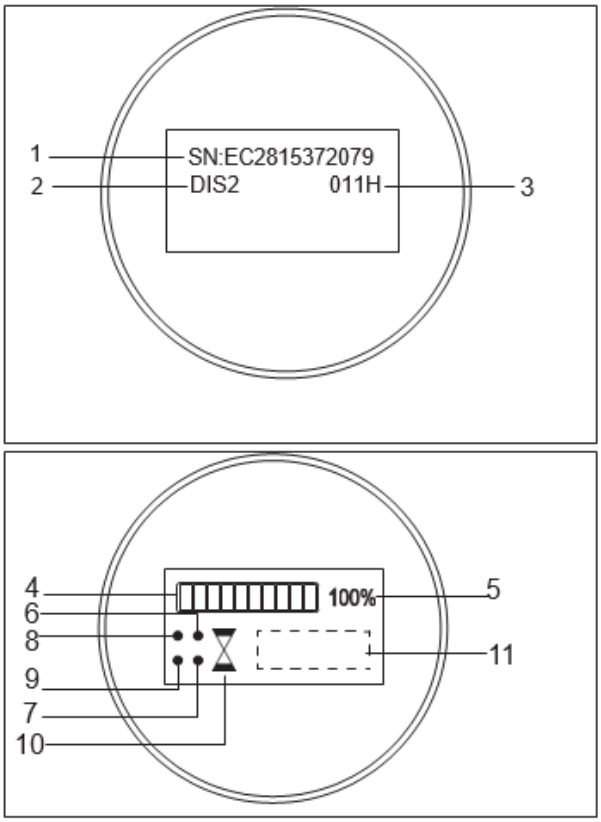
(7) LED flashes when traveling in reverse

(8) LED flashes while lifting

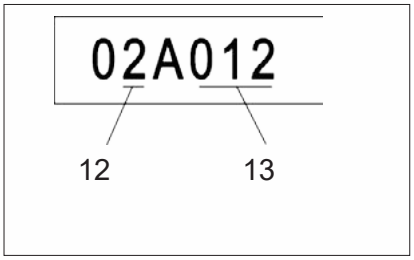
(9) LED flashes while lowering

(10) If the LED is continuously lit it indicates interlock switch is opened, if it is flashing this means the interlock switch is closed and the display will start timing.

(11) Total running time displays unless a fault is present. If there is a fault it will display the fault code.



Error Code		
12	Controller number	2 = Traction controller 6 = Steering controller
13	Error code	Refer to the service manual for error code definition and potential fix
Note: Consult the service manual		



Daily Operator's Checklist

Date_____ Truck Model No. _____ Truck Serial No._____

Runtime_____ Meter Reading_____

Operator ____ No. _____Department _____

ITEM	PROCEDURE	OK (√)	REMARK
Transmission and Hydraulic Systems.	Check for fluid leakage.		
Forks	Check for cracks and damage and that they are properly secured. Ensure the fork pins are latched.		
Chains, Cables, and Hoses	Check that they are in place, secured correctly, functioning properly and free of binding or damage.		
Labels	Check that warning labels, nameplate, etc., are in good condition and legible.		
Horn	Check that horn sounds when operated.		
Steering	Check for binding or looseness in steering arm when steering.		
Travel Controls	Check for binding or looseness.		
Wheels	Check the drive wheels for cracks or damage. Move truck to check load for freedom of rotation.		
Hydraulic Controls	Check operation of lift and lower and tilt to their maximum positions. Check side shift operation if applicable.		
Brakes	Check that the brake pedal engages and disengages the brakes.		
Emergency Stop Switch	Check that emergency stop switch can be disengaged and reengaged.		
Battery	Check battery charge and condition.		
Hardware	Check that all hardware (nuts/bolts) are secure and free of damage.		

Safety Regulations for the Operation of Trucks

Operator Authorization: The truck may only be used by trained personnel who have demonstrated that they can drive, handle loads, and are authorized to operate the truck.

Operator's Rights, Obligations and Responsibilities: The operator must be informed of his duties and responsibilities and be instructed in the operation of the truck and shall be familiar with the operator manual.

Unauthorized Use of Truck: The operator is responsible for the truck during the time it is in use and should prevent unauthorized persons from operating the truck. Do not carry passengers or lift personnel.

Damage and Faults: The supervisor must be immediately informed of any damage or faults to the truck. If the truck is not safe for operation (e.g., wheel or brake problems) it must not be used until it has been repaired.

Repairs: The operator must not perform any repairs or alterations to the truck. Repairs must only be done by an authorized, trained technician. The operator must never disable or adjust safety mechanisms or switches.

Hazardous Area: A hazardous area is defined as the area in which a person is at risk due to truck movement, lifting operations, the load handler (e.g., forks or attachments) or the load itself. This also includes areas which can be reached by falling loads or lowering operating equipment.

- Unauthorized persons must be kept away from the hazardous area.
- When there is danger to personnel, a warning (horn) must be sounded with sufficient notice.
- If unauthorized personnel are still within the hazardous area the truck shall be brought to a halt immediately.
- This unit is intended to be driven in clean, dry, flat surfaces in non-freezer or refrigerated environments.

Safety Devices and Warning Signs: Safety devices, warning signs, and warning instructions shall be strictly observed.

Travel routes and work areas: Only use lanes and routes specifically designated for truck traffic. Unauthorized parties must stay away from work areas. Loads must only be stored in places specially designated for this purpose.

Driving conduct: The operator must adapt the travel speed to workplace conditions. The truck must be driven at slow speed when negotiating bends or narrow passageways, when passing through swing doors and at blind spots. The operator must always observe an adequate braking distance in front of the forklift truck. The operator must be in control of the truck at all times. Abrupt stopping (except in emergencies), rapid U turns and passing at blind spots are not permitted.

Nature of loads to be carried: The operator must make sure that the load is in a satisfactory condition. Only carry loads that are positioned safely and securely. Use suitable precautions to prevent parts of the load from tipping.

Truck Operation

Using the Truck for the First Time

The truck must only be operated on 24V battery current.

To prepare the truck for operation after delivery or transportation, the following operations must be performed:

1. Check the equipment for missing parts or damage.
2. Fully charge the battery.
3. Check for fluid leakage.
4. Check the brake function.
5. Check the lifting, lowering and tilting function.
6. Check the driving function.
7. Check the steering function.
8. The truck can now be put into service.

Break-In Period

Operate the truck under light load conditions for the first stage of operation. The requirements below should be observed while the machine is in the first 100 hours of operation (break-in period).

- Limit load to 70～80% of the rated load.
- Avoid sudden stops, starts, or turns.
- Prevent the new battery from over discharging. Do not allow it to go below 20% state of charge.
- Perform specified preventive maintenance services carefully and completely.

Operational Temperatures

- Operational application temperatures: 32° F - 104° F, humidity＜ 80%
- Charging application temperatures: 41° F - 104° F

WARNING

Operating the truck under extreme conditions can result in malfunctions and accidents. Special equipment and authorization are required if the truck is to be used in extreme conditions, especially in dust-laden or corrosive environments.

Conditions for Operation

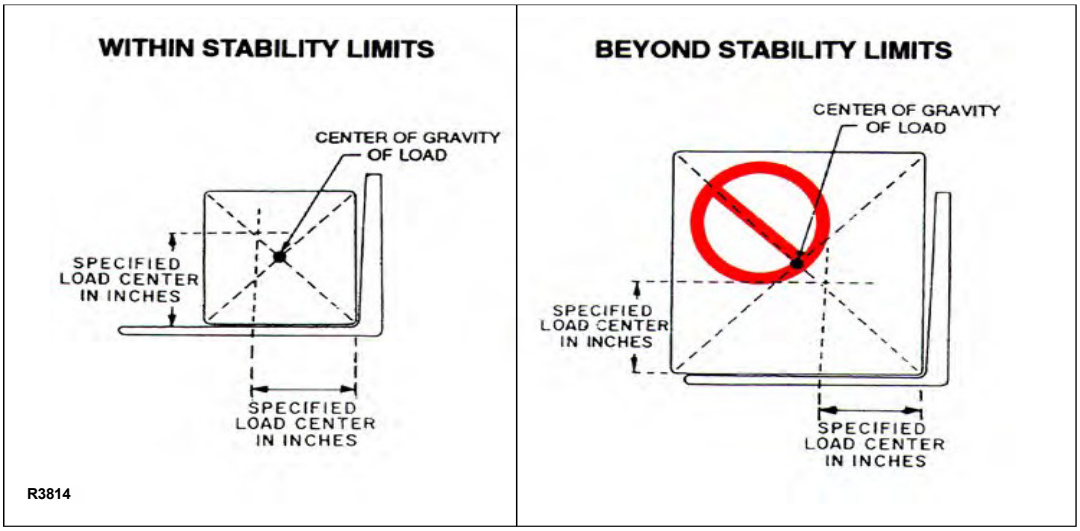
Working condition requirements:

- Only operate the truck on hard, even, clean surfaces.
- Indoor use and outdoor use. Hard paved or concrete surfaces only.
- Do not operate in rain, drive through puddles, or store outside.
- The truck's maximum operation altitude is up to 6,560’ (2,000m).
- Do not go over specified rated load.
- Trucks can only be operated in adequately illuminated working areas to avoid injuries.

Stability

Common reasons for the loss of truck stability include:

- Emergency stops or sharp turns.
- Driving with a raised load or a load handling device.
- Turning the vehicle around on or driving across a slope.
- Driving up or down a slope with the load pointing downhill.
- Driving with a wide load.
- Carrying a swinging load.
- Driving near the edge of a ramp or up steps.
- Tilting the mast forward while carrying a raised load.
- Driving on uneven surfaces.
- Overloading the truck.
- Carrying bulky loads in strong winds.
- When carrying liquid, its center of mass inside the container may shift due to inertial force (such as when pulling away, braking or turning).

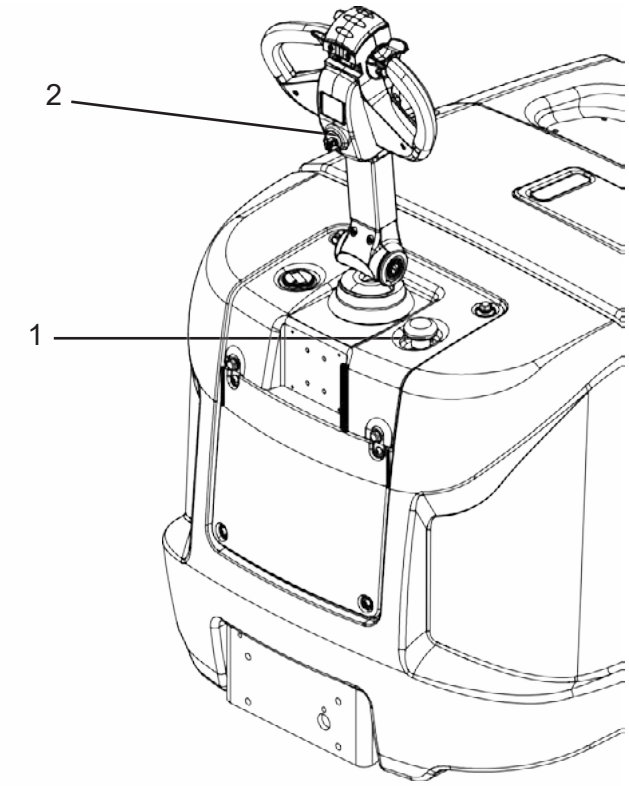


Load Center

Driving, Steering, & Braking

Starting the Truck

1. Pull up the emergency stop button (1) to release it.
2. Turn on the key switch (2) to start the truck.

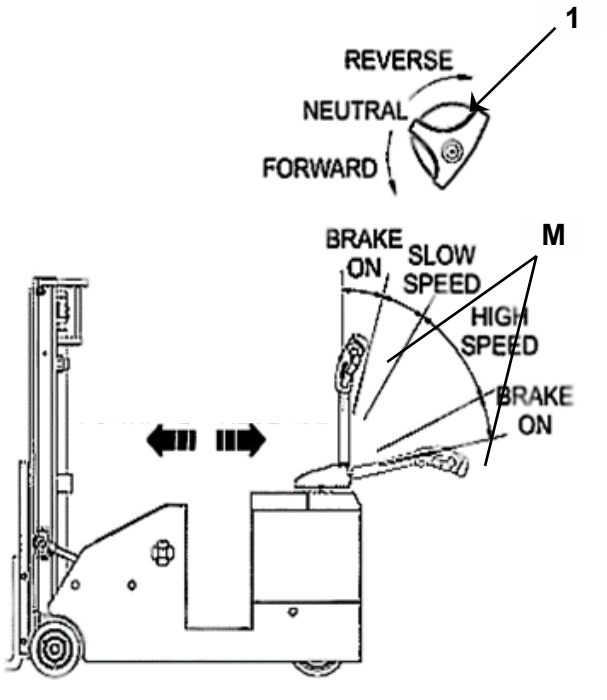


NOTE

When the control handle is in the brake position, the electromagnetic brake is automatically locked and the vehicle cannot be driven.

Driving

- The control arm is used to steer and to control speed and braking of the truck.
- Tilt the control handle into the running area (M).
- Control the running direction and speed using the drive switch (1).
- The farther the switch is rotated, the faster the corresponding speed.

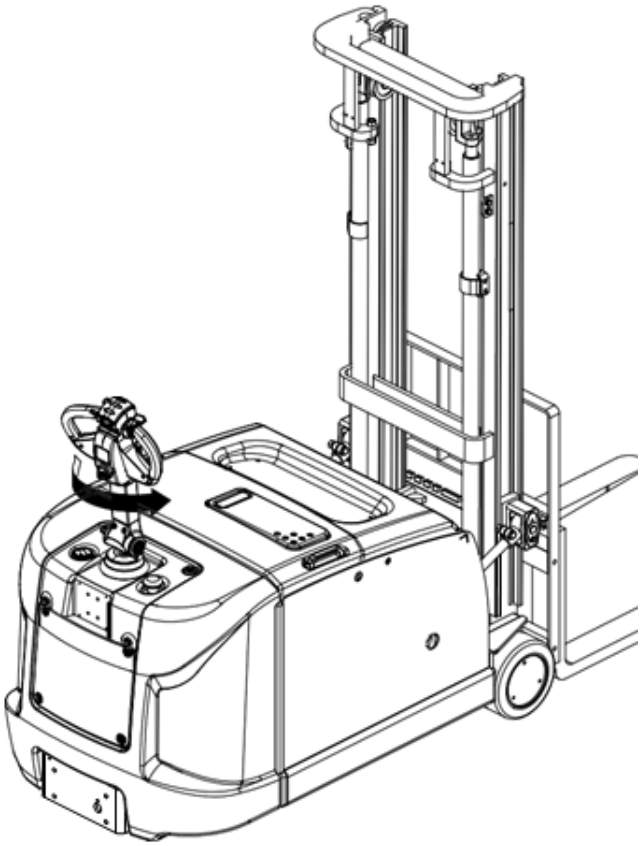


NOTE

When using the truck on a ramp or a uneven road, lift the mast to prevent its bottom from contacting the road surface.

Travel Direction

1. Press the drive switch.
    a. When pushed forward, the vehicle will move forward.
    b. When pressed back, the truck will move in reverse.
2. Gently and gradually increasing the force in the desired direction.
3. The speed increases the further the switch is pressed.



Steering

Moving the control handle right or left will turn the truck right or left.

Braking Methods

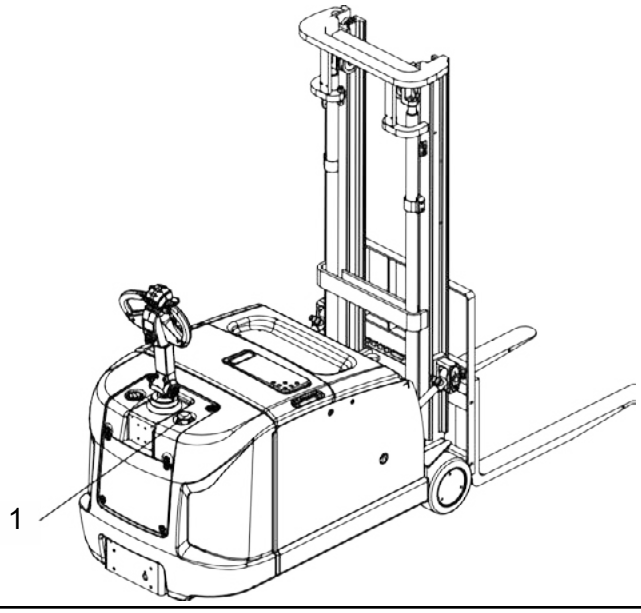
Mechanical Brake

- The truck brakes when the operating handle is released.
- The mechanical brake engages when the control handle is positioned in braking area.

CAUTION
If the control handle moves slowly Into the braking area, identify the cause and rectify the fault.

Emergency Stop Switch

Press the emergency stop switch (1), and all electrical functions will be interrupted.



Regenerative Braking

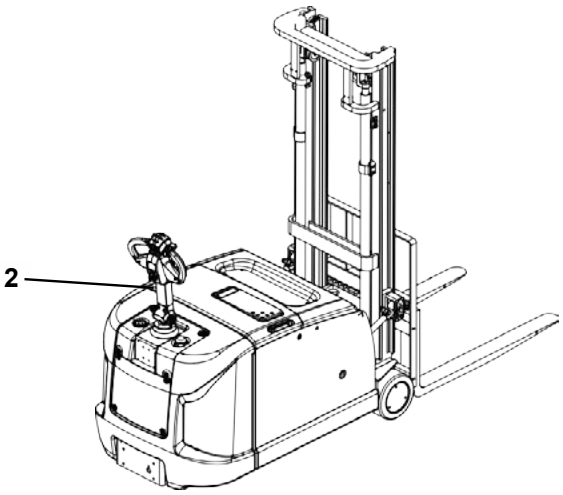
Release the drive switch. The drive switch will automatically return to the initial position and the vehicle will begin to enter the regenerative braking state.

Plugging

Braking can be accomplished by changing the direction of travel. Press the switch (1) in the opposite direction of current travel until the truck comes to a stop, then release the drive switch.

Emergency Reverse Button

To protect the operator from any risk of being trapped between an obstacle and the machine, the end of the control arm is fitted with an emergency reverse button. Once the emergency reverse button (2) is activated, the machine stops immediately and slowly moves backwards in the direction of the forks.



Lifting & Lowering

Press the proportional lift/lower lever up or down until the required height is reached.

Press tilt forward or back button until the load is at the desired angle.

NOTE

To avoid shortening the service life of the oil cylinder, try not to lift the forks or fork carriage to the highest state for every lifting operation.

Parking

1. Park the truck in its designated parking area. Do not obstruct traffic lanes or aisles.
2. Fully lower the forks.
3. Raise the steering arm until it is vertical to apply the parking brake.
4. Turn key switch to off position. Remove key for added security.
5. Disconnect the battery.
6. Charge the battery if necessary.

CAUTION

Park the truck on a level surfaces. The truck may need to be secured with a wedge(s).

Loading

Before lifting a load, ensure that its weight does not exceed the truck’s maximum load capacity.

- Refer to the rated load capacity specified on the truck’s nameplate.
- Ensure that the load is stable and uniform to prevent any spillage.
- Check that the width of the load is compatible with the width of the forks.

Picking Up a Load From the Ground

- Stop the truck when the forks are just in front of the load.
- Adjust the forks to the maximum practical width to support the load to be lifted.
- Raise or lower the forks until they are properly aligned with the pallet openings.
- Move the truck slowly into position so that the forks are centered to the load.
- Make sure the load is against the backrest and then raise the forks until the pallet clears the rack. Tilt the forks slightly backward.
- Move the truck away from the rack until the load clears the rack and then lower the forks.

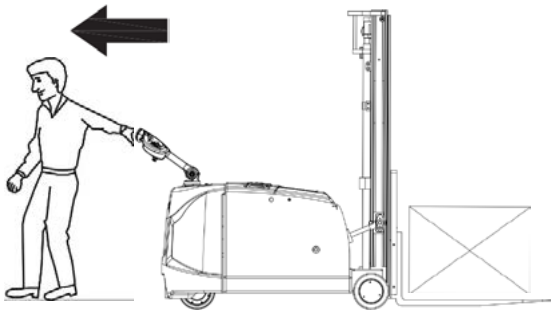
Moving a Disabled Truck

Do not attempt to move a disabled truck; notify your supervisor or proper authority.

Carrying a Load

DANGER

Personnel must not stand under or near the mast when the load is in the raised position.



- Always travel forwards for optimum visibility.
- Reverse driving must only be used for depositing a load.
- Restrict travel to low speeds while traveling in reverse.
- If visibility is poor, let someone guide you.
- Be careful of low passageways, low doorways, scaffolding, pipes etc.
- Check that the width of the load is compatible with the width of the aisle.

Setting a Load Down on the Ground

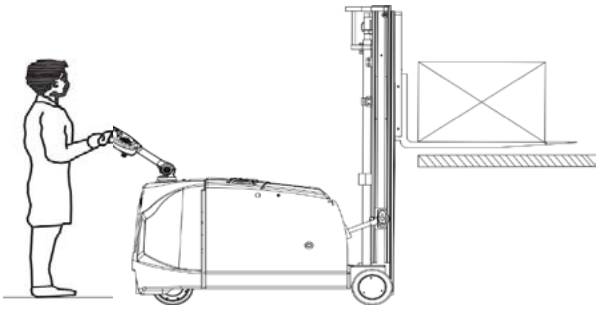
- Move the load into the destination area.
- Lower the load until the fork arms are free.
- Move the forks straight back.
- Lift the forks a few inches.

CAUTION

Be careful not to hit nearby loads.

Stacking a Load

- Drive the truck to the required location.
- Raise the forks clearly above the level where the load is to be placed.
- Drive the truck backward into the racking.
- Lower the load until the fork arms are free.
- Move the forks straight back.
- Lower the forks again until they are a few inches away from the ground.

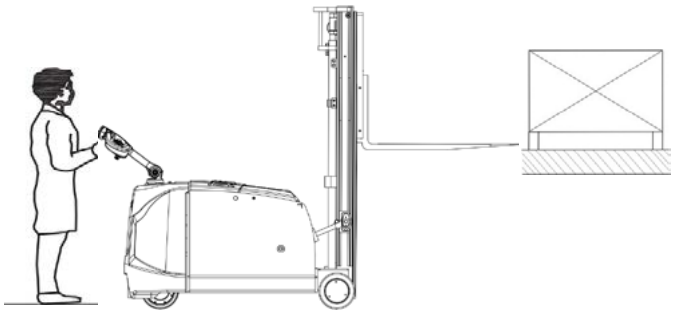


DANGER

Personnel must not stand under or near the truck when the load is in the raised position.

Picking Up a Load at Height

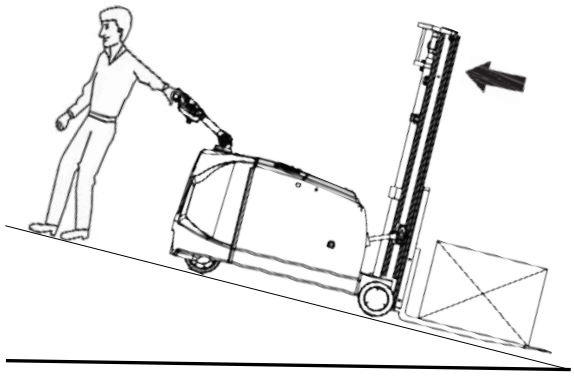
- Drive the truck to desired location.
- Raise the forks to the height of the pallet.
- Move the forks forward under the pallet.
- Lift the forks until the pallet moves away from the racking.
- Reverse the truck to free the pallet.
- Lower the goods again until they are a few inches away from the ground.



Using the Truck on a Slope

Incorrect use of the truck on slopes places stress on the traction motor, brakes, battery and can cause personal injury.

- Never attempt a slope with a gradient greater than 5% laden, 8% unladen. Make sure that the ground is dry with a nonslip surface and that the route is clear.



Ascending and Descending Slopes

Travel up or down slopes must always be with the operator uphill.

DANGER

- Use special care when operating on ramps.
- Proper load preparation to prevent load slippage.
- Travel at a low speed and brake gradually.
- Never park the truck on a slope.
- Never make a U-turn or take shortcuts on a slope.

Starting on a Slope

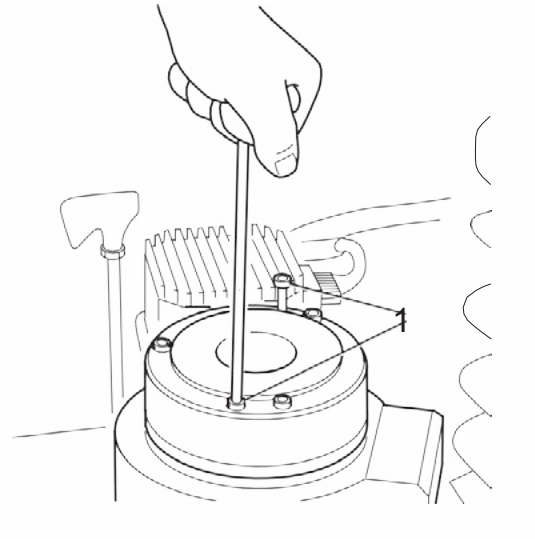
If you have to stop and restart on a slope:

- Stop the truck by pressing the control arm in the opposite direction of travel until the truck comes to a standstill.
- Return the control arm to the vertical position and release the accelerator control button to apply the parking brake.
- To restart, press the control knob for the desired direction.
- The truck will move.

Moving the Truck without Power

If the truck has to be moved after a failure has rendered it immobile, proceed as follows:

- Press emergency stop switch .
- Set the key switch ‘OFF' and remove the key.
- Prevent the truck from rolling away by wedging the wheels
- Lift the vehicle carefully with lifting equipment
- Tighten two screws 1 until the truck can be moved (no braking action).
- After setting down the truck at the destination, unscrew two screws(1). Braking action is restored.

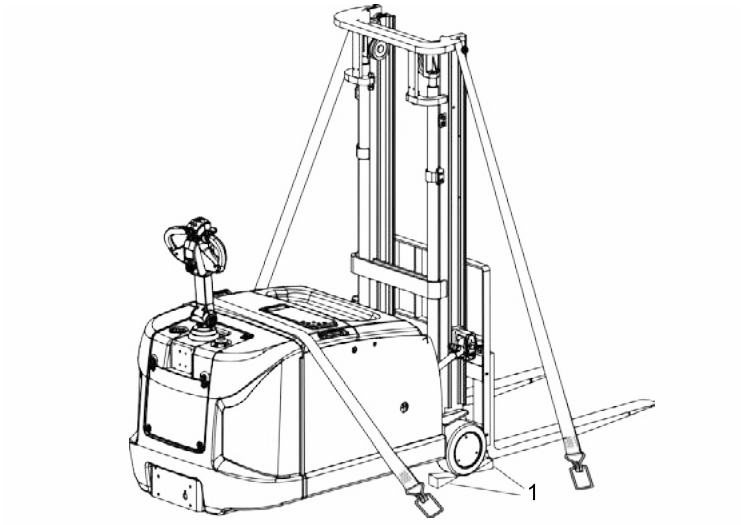


Transporting the Truck

Secure the truck to avoid movement when transporting by truck or trailer.

Tie Points and Position

- Lower the forks to the lowest position.
- Use wedges or chocks (1) to secure the front and rear of the vehicle.
- Pass the tensioner through the inner and outer masts and secure the masts and chassis to the upper fixing points of the vehicle, as indicated by the drawing.



Battery Use and Maintenance

Battery Charging

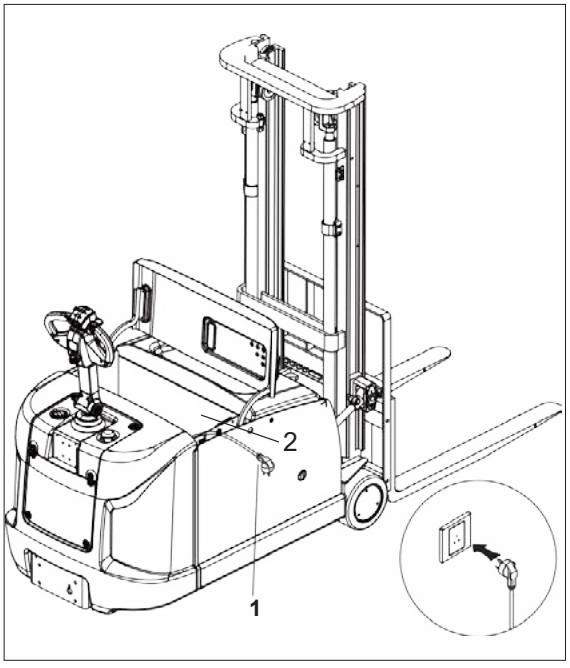
Precautions

- Charging in non-charging area is prohibited;
- The truck must be parked in a well-ventilated place.
- The minimum distance above and around the charging area shall be greater than 16ft (5m).
- It is essential to follow the safety regulations of the battery charging provided by their manufacturers.
- Before and after charging, make sure power is turned OFF.
- Before charging, check all cables and plug connections for visible damage.
- Do not use irregular charging sockets.
- There must be no metal parts on the surface of the battery.
- No modification of vehicles.

Charging the Battery with Internal On-Board Charger

(internal on-board charger only available on some configurations)

- Park the truck in the designated charging area.
- Open the battery cover (2), pull the charger cord（1）from the truck and examine it for damage.
- If undamaged, plug the charger into voltage range 100-240V, 50/60Hz wall outlet.
- As long as the built-in charger is connected to the outlet ,the truck should not be moved.



WARNING

Charger maximum input power 833W. Please strictly implement the above data to prevent equipment damage and accidental risks such as fire.

Charging Indicator LED Status (internal battery chargers only)

The flashing LED indicates the charge status or a fault.

LED Status	Cause	Remedy	Description
Red light is on	Trouble free		Charging
Green light is on	Trouble free		End of charging
No indicator light	Indicator failure	Return to factory maintenance	Charger failure
	The power input line is in good contact with the socket and the charger	Charger failure,return to factory maintenance	Charger failure
Red light flashes	The power input cable is not in good contact with the socket	Check if the input power line is in good contact	
Yellow light is on	Storage battery fails. (battery reverse connection)	Eliminate battery failure	
	Storage battery fails.(battery is not connected)	Eliminate battery failure	
Yellow light flashes	Ambient temperature is too high	Ambient temperature drops to normal	
	Storage battery voltage exceeds 32.5V	Eliminate battery failure	
	Charger failure	Return to factory maintenance	

WARNING

Recharge the battery observing the instructions provided by the battery supplier and by the battery charger supplier.

Battery Type & Dimensions & Charging Time

Battery types & dimensions are as follows:

Truck Type	Battery Type	Voltage/ Rated Capacity	Battery Dimension (mm) (LxWxH)	Charger	Charging Time
CB30	maintenance-free battery	24/220	750×230×630	25A	about 7-9h
CB35	maintenance-free battery	24/220	750×340×630	25A	about 7-9h
CB30/CB35	lithium battery (optional)	24/205	740×199×605	27.1	about 6-8h

Note: Other flooded lead acid batteries are offered as well without internal chargers.

Safety Regulations for Handling Maintenance Free Batteries

The truck must be parked and rendered safe before any maintenance. These trucks are equipped with maintenance-free batteries. No distilled water can be added to this battery type.The cell covers are fixed and must not be opened. Opening the covers will damage the battery.

Smoking and open flames are not permitted when handling batteries. No flammable substances or spark-generating materials must be present or stored within a distance of 2 meters of the truck parked for battery recharging. The location must be well ventilated and fire extinguishers must be nearby.

Refilling batteries with an electrolyte solution is prohibited if they are a type that does not require maintenance.

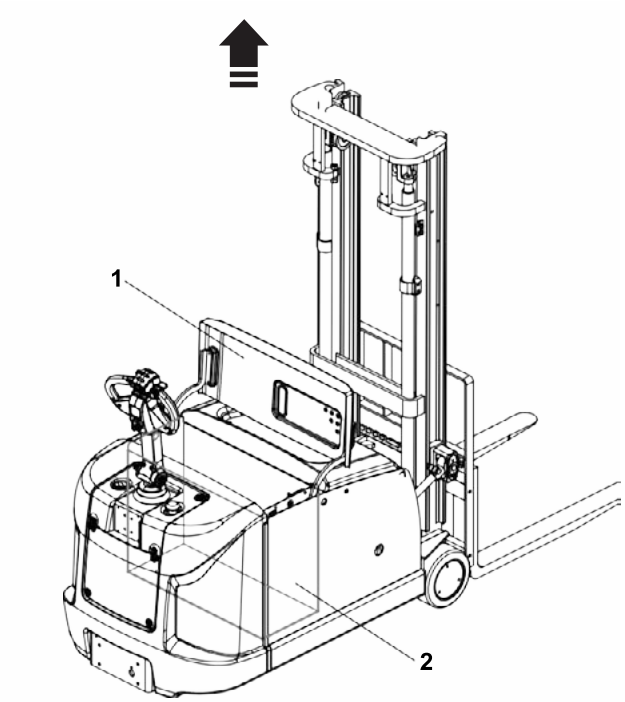
Battery maintenance or charging can only be performed by qualified personnel in accordance with these instructions and the battery manufacturer’s instructions.

Batteries are recycled in accordance with national regulations; please comply with the relevant regulations.

Battery Removal and Installation

Removing and installing from the top

Park the truck securely and turn off the power before removal and installation of the battery.



Battery removal and installation steps

1. Open the cover (1) and expose the battery(2).
2. Disconnect the battery cable and harness.
3. Lift the battery to a certain height with a hoist, ensure that the crane has proper load capacity.

Installation is in the reverse order of operations.

WARNING

The lifting gear must exert a vertical pull so that the battery container is not compressed. The hooks must be attached to the eyes.

WARNING

To prevent short circuits, batteries with exposed terminals or connectors must be covered with a rubber mat.

Maintenance

- Trucks must only be serviced and maintained by trained personnel.
- Regular maintenance is encouraged to maintain reliable operation of the truck. Neglecting regular maintenance could easily lead to malfunction and failure, which may result in staff/operational safety. There must be adequate maintenance plan in place.
- Regular checks and maintenance should be conducted to braking, steering, mast assembly, control, warning, and safety devices to keep them in good condition.
- Any modification to the truck’s safety mechanisms or operational speeds is prohibited.
- Use only the manufacturer's spare parts.
- Used parts, oils and fuels must be disposed of in accordance with the relevant environmental protection regulations. For oil changes refer to the Service Manual.

Cleaning

- Do not use liquids to clean the truck.
- Prior to cleaning, all safety measures must be observed to prevent sparks (e.g., through short circuits). For battery-operated trucks, the battery connector must be removed.
- Only light suction, compressed air (at less than 30 psi), or non-conductive antistatic brushes may be used for cleaning electric or electronic assemblies.
- Do not clean with pressurized water.

Electrical System

Only suitably trained personnel may perform maintenance on the truck’s electrical system.
Refer to the Service Manual for additional information.

Retirement/Disposal

Proper disposal of the truck must be performed in accordance with the regulations of the country of application. Regulations governing the disposal of batteries, fuels and electronic and electrical systems must be observed.

Troubleshooting

Use this guide to identify and resolve basic faults. For more detailed information consult the service manual and contact a qualified service technician.

Fault	Possible cause	Action
Truck does not start	• Battery is not connected • Key switch in ‘OFF’ position • Emergency disconnect switch is pressed • Battery charge too low • Faulty fuse • Truck is in charge mode	• Check the battery connector and connect if necessary • Set key switch to ‘ON’ • Unlatch emergency disconnect switch • Check battery charge and charge if necessary • Test fuses • Interrupt charging
Load cannot be lifted	• Hydraulic oil level too low • Excessive load • Fuse blown	• Check the hydraulic oil level • Note maximum capacity (see data plate) • Check fuses

To receive targeted and rapid response to faults, provide the following details to your local dealer:

- Truck serial number
- Display unit error number (if present)
- Error description
- Current location of truck

Lithium-ion Battery

Lithium-Ion Battery Information

NOTE: For comprehensive information on the Lithium-Ion Battery, reference the corresponding service manual.

WARNING: Damaged Li-ion batteries have the potential to leak electrolyte, so it's important to wear proper personal protective equipment (PPE) (goggles, gloves, apron, etc.) during handling.

WARNING: If a lithium-ion battery fire occurs, use a carbon dioxide (CO2) (Class BC) or dry chemical (Class ABC) fire extinguisher. Lithium-ion batteries have very little actual lithium metal in the battery; thus, a Class D fire extinguisher is not required.

Intended Use:

- Discharge/Operational application temperatures: 32° F - 104° F
- Charging application temperatures: 41° F - 104° F.
- Humidity < 80%.
- The battery's maximum operation altitude is up to 6500ft (2000m).

NOTE:

- A high-rate recharging operation below 0°C may lead to battery damage, so the recommended charging temperature range is 41° F - 104° F.
- The discharging temperature range can be used in more extreme temperature conditions as follows -4° F - 131° F however, this isn't the recommended range for optimal life which is identified above. Also, the truck may not be rated for those extreme conditions or extended durations in a cold operating environment as that is truck and option dependent.
    - If used at low temperatures -4° F - 32° F, battery discharge capacity will be smaller compared with one in normal temperature conditions.
    - A battery used between 104° F - 131° F will accelerate the aging of the internal material which may shorten the service life of the battery, so is not recommended.

Battery Handling:

Improper handling can cause damage to batteries, which may lead to overheating, fires, or explosions. Here are some tips for proper Li-ion battery handling:

- Remove batteries from devices that will not be used for an extended time.
- Keep batteries away from electromagnetic sources.
- Keep batteries intact.
- Do not use batteries that show any signs of damage, they must be isolated.
- Do not modify the battery in any way.

Li-Ion Battery Storage:

Proper storage prevents damage to batteries and prolongs their life expectancy. Follow these battery storage tips:

- Store in dry, well-ventilated areas
- Store in temperatures between 32º F and 104ºF
- Store away from direct sunlight and heat sources
- Keep terminals covered when the battery is not in use
- Prevent terminals from touching each other
- Store separately from other types of batteries
- Keep the battery charged and do not store it for an extended period with a low state of charge (SOC) < 20%. It is recommended to maintain a charge level of 50% or greater.
- For long-term storage, the Li battery must be recharged every 2-3 months regardless of the SOC level. If a battery is stored longer than six months without charging, the cell may be damaged due to over-discharge. This can cause the cell to bulge and break the battery enclosure.

IMPORTANT: Monitor battery condition when in use and storage.

Damaged/Leaking Battery Handling/Clean-Up:

1. Put on personal protective equipment, such as gloves, goggles/safety glasses and lab coat.
2. Isolate and ventilate the area.
3. Keep an appropriate fire extinguisher within reach.
4. If batteries are showing evidence of overheating, use extreme care. Gases can be toxic and flammable.
5. Disconnect the battery (if possible).
6. Remove the battery from the equipment/device (if possible).
7. Use inert, non-cellulose absorbents to clean up spilled electrolyte.
8. DO NOT use water to clean electrolyte leakage.
9. Place used absorbents and PPE in a sealed bag and contact your environmental/recycling or shipping company for proper disposal of the battery and absorbents.
10. **DO NOT** place damaged batteries in the regular trash or recycling containers.
11. For safe storage while awaiting proper disposal, place the battery in a container of sand or another chemically inert cushioning material like vermiculite.
12. Place the battery container away from combustibles.
13. Contact the local fire department and ask for advice on how to proceed.

NOTES

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