UNICARRIERS®
UniCarriers Americas Corporation

OPERATOR'S MANUAL

MODELS J1B1/T1B2

Platinum BX Series Cushion & Pneumatic Tire
36V & 48V 4-Wheel AC Powered Electric
3,000-8,000 lb. Capacities

OPERATOR

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Reliability.

It's the defining trait of our company and our forklifts.

UniCarriers' roots extend back over 100 years, and over that time, strong, reliable performance has always been the hallmark of our organization, our people and our equipment.

Today, our unrivaled reliability continues to provide UniCarriers' customers with a competitive edge. And together, we move the merchandise that moves world commerce with greater efficiency, economy and reliability.

When it comes to providing forklifts that make a difference for our customers and theirs...

We Never Quit.

UNICARRIERS AMERICAS OPERATOR'S MANUAL
MODEL J1B1/T1B2 SERIES

⚠ WARNING

- **This Original Instructions (Operator's) Manual contains important safety information and must be made available to the operator.**
- **Keep this manual on the lift truck at all times.**
- **Do not operate the lift truck unless you have reviewed and fully understand the Operator's Manual. Failure to follow all of the instructions in this manual could be a violation of the Occupational Safety and Health Act.**
- **Do not operate this lift truck unless you are trained and authorized by your employer. Improper operation may result in a serious or fatal injury to yourself or others.**
- **On December 1st, 1998 the Occupational Safety and Health Administration (OSHA) adopted a new and stringent Powered Industrial Truck Operator Training rule 29 CFR 1910.178(1). Based on the Industrial Truck Standards Development Foundation (ITSDF) B56 current standard, Operator Training is now explained in detail. The employer shall ensure that operators of powered industrial trucks are competent and trained in the safe and proper operation of powered industrial trucks. This training will include formal training, practical demonstrations and an on-site evaluation.**

OSHA also requires a proper pre-shift inspection, and any repair required shall be performed by a person trained and authorized to repair lift trucks.

As the employer you should be familiar with the rules of 29 CFR 1910.178(1) as well as ANSI/ITSDF B56.1 for the user. You should also be aware of any state OSHA rules that may differ from the federal rules.

THE FOLLOWING WARNING IS PROVIDED PURSUANT TO CALIFORNIA HEALTH & SAFETY CODE SECTIONS 25249.5 ET. SEQ.

WARNING

California Proposition 65

This product contains and emits
chemicals known to the
State of California to cause cancer,
birth defects and other reproductive harm.

WARNING

AN IMPORTANT MESSAGE FOR THE OPERATOR (FOR NORTH AMERICA)

- **Do not operate this lift truck unless you are trained and authorized by your employer. Improper operation may result in a serious or fatal injury to yourself or others. Make sure that you read and fully understand the Operator's Manual supplied with this lift truck. Failure to follow all instructions in this manual could be a violation of the Occupational Safety and Health Act.**

A WORD TO OPERATORS

This Original Instructions (Operator's) Manual describes operating procedures, daily checks and simple maintenance for safe usage of your UniCarriers lift truck. We urge you to read this manual carefully to familiarize yourself with the safety instructions before operating a UniCarriers lift truck. An operator of any lift truck should maintain safety as the number one priority at all times. In addition, we strongly recommend that you obtain and read the Industrial Truck Standards Development Foundation (ANSI/ITSDF) B56.1 Manual entitled “Safety Standard for Low Lift and High Lift Trucks” before operating any lift truck. These instructions will not only reduce mechanical issues with a lift truck, but may also save a life.

Contact your Local Authorized Dealer to keep your lift truck in peak operating performance. If you encounter any problems with a UniCarriers lift truck, contact your Local Authorized Dealer and request a complete checkup. The dealership will ensure that your lift truck is serviced in accordance with the latest factory approved methods.

This manual is not a training manual, it is a guide to help trained and authorized operators safely operate this lift truck. Please consult your employer for proper training on the appropriate use of this lift truck while performing your job. Illustrations in this manual will show the operator the correct procedures for checking, starting, operating and stopping this lift truck. Please contact your Local Authorized Dealer for information about Operator Training packages.

OSHA 1910.178 requires that only trained and authorized operators use powered industrial trucks.

All information, specifications and illustrations in this manual are based on the latest data obtainable at the time of publication. UniCarriers Americas Corporation, hereafter referred to as UCA, reserves the right to make changes or improvements at any time without notice.

This Original Instructions (Operator's) Manual has been prepared on the assumption that your lift truck is fully equipped (including all optional equipment). Thus, if you have any questions regarding equipment, please contact your Local Authorized Dealer.

240 N. Prospect Street
Marengo, IL 60152 USA

LIFT TRUCK MODIFICATIONS

Unauthorized lift truck modification is not permitted.

Per OSHA 1910.178, no modifications or alterations to a powered industrial truck, which may affect capacity, stability or safe operation of the lift truck shall be made without the prior written approval of UniCarriers Americas Corporation [UCA], its authorized representative or a successor thereof.

After receiving the approval of UniCarriers Americas Corporation, its authorized representative or a successor thereof, the data and capacity plate, decals, tags, operation and maintenance manuals shall also be changed appropriately.

Only in the event that UniCarriers Americas Corporation is no longer in business and there is no successor to the business, the user may arrange for a modification or alteration to a powered industrial forklift, provided however, that the user shall:

a. Arrange for the modification or alteration to be designed, tested and implemented by an engineer(s) expert in industrial forklifts for their safety;
b. Maintain a permanent record of the design, test(s) and implementation of the modification or alteration;
c. Approve and make appropriate changes to the data and capacity plate(s), decals, tags, and operation and maintenance manuals;
d. Affix a permanent and readily visible label to the lift truck stating the manner in which the lift truck has been modified or altered together with the date of the modification or alteration, and the name and address of the organization that performed the modification or alteration.

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INTRODUCTION

UniCarriers lift trucks meet all applicable requirements of ITSDF B56.1 at the time of manufacture. UCA will not assume, and expressly disclaims, any liability for injuries or damage arising from or caused by the removal, disconnection or disengagement of any part from any of its lift trucks. UCA recommends that all replacement parts be of OEM (Original Equipment Manufacture) origin.

UCA would like to take this opportunity to thank you for purchasing our product. Your UniCarriers lift truck was carefully designed and manufactured to ensure maximum reliability, ease of service and reasonable cost for our customers. The purpose of this guide is to introduce and familiarize you, the operator, with the controls and features of this lift truck.

This manual will help you learn how to operate your lift truck. This manual describes the controls, their function and some special features which may be installed on this lift truck. UniCarriers lift trucks are built to work hard but not for misuse and/or abuse.

MAINTENANCE AND SERVICING

UniCarriers lift trucks are built to be dependable, but as with any lift truck, they are only as efficient as the operator and the persons responsible for maintaining them. It is essential to keep your lift truck in good operating condition by following a recommended maintenance schedule. A damaged lift truck is a potential source of danger to the operator, and to other personnel around it.

DAILY INSPECTION

OSHA 1910.178 requires a daily or per shift inspection. Before operating a lift truck it should always be inspected by the operator. This procedure is detailed in the “Daily Inspection” (refer to page 73) and the “Operator’s Daily Checklist Sample” (refer to page 74.

PLANNED MAINTENANCE

A Periodic Planned Maintenance program is used in addition to the daily inspection of the lift truck and is performed by a trained and authorized mechanic. Planned Maintenance (PM) provides the opportunity to do a thorough inspection of the operating system and safety condition of your lift truck. This can reduce unscheduled downtime by doing necessary adjustments and repairs. Our dealers are ready to help you with a Planned Maintenance Program by trained service personnel (refer to page 86).

HOW TO USE THIS MANUAL

Included in this manual are the essentials of safe lift truck operation, truck features and functions and explanation of how to maintain your lift truck. This manual is organized as follows:

SAFETY RULES AND PRACTICES

Safety rules and major operating hazards you could encounter while operating a lift truck.

OPERATING CONTROLS AND FUNCTIONS

Description of each major component of this lift truck and how the instruments, gauges, and controls operate.

OPERATING THE LIFT TRUCK

Details of safe and efficient operating procedures.

GENERAL CARE AND MAINTENANCE

Care and planned maintenance of the battery, lift truck and forks.

OPTIONS

Side shift overview, safety rules, operation, daily checks and simple maintenance.

SPECIFICATIONS

Truck and mast specifications.

The operating instructions in this guide do not replace any other rules or laws of safety that are used in or required by federal, state, local agencies or your own operational area. The operating practices listed do not follow any order of importance but are all to be learned and used in your daily operation. Make sure that your lift truck is correctly equipped for use in your work area according to these rules or laws.

There may be certain hazards that may not or cannot be avoided solely by mechanical means in the everyday use of lift trucks. Only the intelligence, good judgement and care of the operator, along with proper planned maintenance, will help assure that the lift truck operates correctly. It is important to have only trained, reliable personnel operating lift trucks. 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 lift truck's capabilities and limitations.

UCA recommends that this Operator's Manual be kept with the lift truck at all times or in a location easily accessed by the operator. If a replacement manual is needed, please contact your Local Authorized Dealer and a replacement will be sent for a nominal fee.

SAFETY SIGNS AND SAFETY MESSAGES

Safety signs and Safety messages are placed in this manual and on the lift truck to provide instruction 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 lift 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.

WARNING SYMBOLS AND LEVELS

Always follow the warnings in this Operator's Manual and any located on the lift truck to help avoid accidents and/or injuries from occurring.

WARNING LEVELS

The following safety signs are used in this manual to emphasize important and critical instructions. They are used to alert you to potential personal injury hazards. Obey all safety messages that follow these safety signs to avoid possible injury or death.

Be sure to read these precautionary instructions and all safety related decals installed on your lift truck before you operate it.

DANGER

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

WARNING

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

CAUTION

- **Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.**

SAFETY RULES AND PRACTICES

OPERATOR QUALIFICATIONS

WARNING

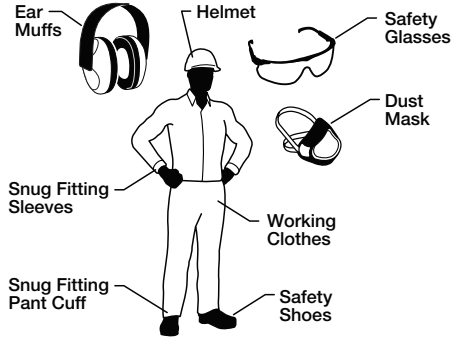
- **Operator must be trained, evaluated and authorized to drive the lift truck and must understand safety techniques and rules for lift truck operation.**
- **Under OSHA regulations in the U.S., all operators must be formally trained and tested. These tests must be about basic lift truck knowledge and in the operators' work environment. Refer to OSHA regulations or you may also contact the Industrial Truck Standards Development Foundation (ANSI/ ITSDF) 1750 K Street NW, Suite 460, Washington, DC 20006 and request a copy of B56.1 Safety Standard for Power Industrial Trucks “Section for the User”.**

SAFETY GUARDS

WARNING

- **An overhead guard is intended to offer protection from falling objects but cannot protect against every possible impact. Therefore, it should not be considered a substitute for good judgement and care in loading, handling, storage, etc.**
- **Do not remove overhead guard or backrest unless specifically authorized per ANSI/ITSDF B56.1 Section 4.5.1.**

PERSONAL PROTECTIVE EQUIPMENT FOR OPERATING LIFT TRUCK



⚠ WARNING

- **For operation of the lift truck, the protective equipment for the operator shall be dependent upon the conditions of use and the applicable provisions of the local laws and regulations.**
- **The working clothes worn by the operator shall be such that sleeves and cuffs fit snugly so as to prevent them from getting caught on lift truck levers, etc. Personal Protective Equipment such as safety glasses, earmuffs, dust mask, helmet (hard hat) and safety shoes should also be worn, as required by the work environment, employer or local and state regulations.**

DAILY INSPECTION

⚠ WARNING

- **OSHA 1910.178 requires a daily or per shift inspection. Inspect the lift truck before operating. Do not operate the lift truck if it is in need of repair. If it is in need of repair, tag the lift truck, remove the key (if equipped) and report the condition to the proper authority. Do not attempt repair unless you are trained and authorized to perform repairs (refer to “Daily Inspection” on page 73 and "Operator's Daily Checklist Sample" on page 74).**

OPERATOR RESPONSIBILITY

⚠ WARNING

- **Safe operation is the responsibility of the operator.**
- **The operator shall develop safe working habits and also be aware of hazardous conditions in order to protect himself, other personnel, the truck, and material being handled.**
- **The operator shall be familiar with the operation and function of all controls and instruments before undertaking to operate the lift truck.**
- **Before operating any lift truck, operators shall have read and be familiar with the operator's manual for the particular lift truck being operated and they shall also abide by the safety rules and practices.**
- **Before operating any lift truck, the operator shall be familiar with unusual operating conditions that may require additional safety precautions or special operating instructions.**

GENERAL

⚠ WARNING

- **Use 3-point contact when mounting or dismounting a lift truck when the operator's compartment floor height is 300 mm or higher. Maintain contact with one hand and two feet or two hands and one foot at all times. Keep hands free of items (i.e. food, beverage, tools).**
- **Before operation, make sure that the top panel latch is in the locked position and that the seat belt is secure.**

⚠ WARNING

- **Do not allow anyone to stand or pass under the elevated portion of any lift truck, whether empty or loaded.**
- **Before starting to operate the lift truck conduct daily inspection.**
- **Do not start or operate the lift truck, any of its functions or attachments, from any place other than from the normal operator's position.**

⚠ WARNING

- **Keep hands, feet and other parts of your body inside the operator's compartment. Do not put any part of the body outside the operator compartment of the lift truck.**
- **Never put any part of the body into the mast structure or between the mast and the lift truck.**
- **Never put any part of the body within the reach mechanism of the lift truck or other attachments.**
- **Understand lift truck limitations and operate the truck in a safe manner so as not to cause injury to personnel. Safeguard pedestrians at all times.**
  a. Do not drive a lift truck up to anyone standing in front of an object.
  b. Ensure that personnel stand clear of the rear swing area before conducting turning maneuvers.
  c. Exercise particular care at cross aisles, doorways, and other locations where pedestrians may step into the path of travel of the lift truck.

⚠ WARNING

- **A lift truck is unattended when the operator is more than 8 m (25 ft) from the truck which remains in view, or whenever the operator leaves the truck and it is not within view.**
- **Before leaving the operator's position:**
  a. Bring lift truck to a complete stop.
  b. Place selector lever in neutral.
  c. Apply the parking brake.
  d. Lower load-engaging means fully.
  e. Turn the ignition switch off.
  f. If unit is unattended remove the key, if equipped.
- **Maintain a safe distance from the edge of ramps, platforms, and other similar working surfaces. Do not move railroad cars with a lift truck.**
- **When lift trucks are driven on and off highway trucks or trailers, the brakes on the highway trucks or trailers shall be applied, and wheel chocks or other positive mechanical means shall be used to prevent unintentional movement.**
- **Whenever lift trucks are driven on and off semitrailers not coupled to a tractor, supports may be needed to prevent upending or corner dipping.**
- **Provision shall be made to prevent railroad cars from being moved during loading and unloading. Wheel stops, hand brakes, or other recognized positive means shall be used to prevent movement of railroad cars during loading and unloading.**

⚠ WARNING

- **Care shall be taken not to contact overhead installations such as lights, wiring, pipes, sprinkler systems, etc.**

- **A load backrest extension shall be used when necessary to guard against a load, or part of it, from falling toward the operator.**
- **In areas classified as hazardous, use only lift trucks approved for use in those areas.**
- **Report all accidents involving personnel, building structures, and equipment to the supervisor or as directed.**
- **Do not block access to fire aisles, stairways, or fire equipment.**

NO RIDERS

⚠ WARNING

- **Do not sit on the forks or get under the forks or operator's platform at anytime whether empty or loaded.**
- **Do not permit riders on any part of the lift truck at any time. The operator is the only one who should be on the lift truck.**

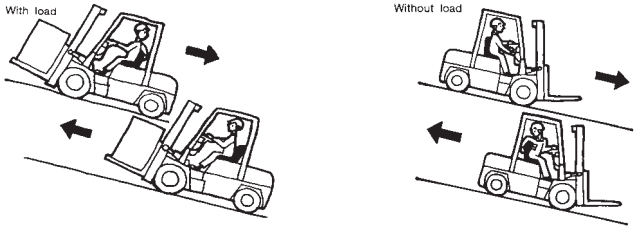
TRAVELING

⚠ WARNING

- **Observe all traffic regulations including authorized plant speed limits. Under normal traffic conditions, keep to the right. Maintain a safe distance, based on speed of travel, from the lift truck ahead; and keep the lift truck under control at all times.**
- **Yield the right of way to pedestrians and emergency vehicles such as ambulances and fire trucks.**
- **Do not pass another lift truck traveling in the same direction at intersections, blind spots, or at other dangerous locations.**
- **Slow down and sound the audible warning device(s) at cross aisles and other locations where vision is obstructed.**
- **Cross railroad tracks at an angle wherever possible. Do not park closer than 2 m (6 ft) to the nearest rail of a railroad track.**
- **Keep a clear view of the path of travel and observe for other traffic, personnel, and safe clearances.**
- **If the load being carried obstructs forward view, travel in the opposite direction.**

⚠ WARNING

- **When descending a grade, stopping distance will be greater than on-level operation. Methods shall be provided to allow for this condition. Some methods are: reduce speed, limit loads, allow adequate clear space at the bottom of grade, etc.**



⚠ WARNING

- **Ascend or descend grades slowly, and with caution.**
  - When ascending or descending grades, loaded lift trucks shall be driven with the load upgrade.
  - Unloaded lift trucks should be operated on all grades with the load-engaging means downgrade.
  - On all grades the load and load-engaging means shall be tilted back, if applicable, and raised only as far as necessary to clear the road surface.

  - Avoid turning, if possible, and use extreme caution on grades, ramps, or inclines; normally travel straight up and down.

⚠ WARNING

- **Under all travel conditions, operate the lift truck at a speed that will permit it to be brought to a stop in a safe manner.**
- **Travel with load-engaging means or load at lowered height except during stacking operation.**

- **Make starts, stops, turns, or direction reversals in a smooth manner so as not to cause unsafe conditions.**
- **Do not indulge in stunt driving or horseplay.**
- **Slow down for wet and slippery floors.**

⚠ WARNING

- **Before driving over a dockboard or bridge plate, be sure that it is properly secured. Drive carefully and slowly across the dockboard or bridge plate, and never exceed its rated capacity.**
- **Do not drive lift trucks onto any elevator unless specifically authorized to do so. Do not exceed the capacity of the elevator. Approach elevators slowly, and then enter squarely after the elevator car is properly leveled. Once on the elevator, neutralize the controls, shut off power, and set brakes. It is advisable that all other personnel leave the elevator before the lift truck is allowed to enter or leave.**
- **Avoid running over loose objects on the driving surface.**
- **When negotiating turns, reduce speed to a safe level consistent with the operating environment. Make the turns smoothly. Except when maneuvering at a very low speed, turn the steering control at a moderate, even rate.**

LOADING

⚠ WARNING

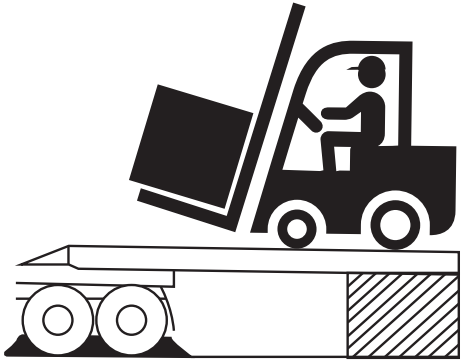
- **Handle only stable and safely arranged loads.**
  a. When handling off-center loads that cannot be centered, operate with extra caution.

  b. Handle only loads within the capacity of the lift truck.
  c. Handle loads exceeding the dimensions used to establish lift truck capacity with extra caution. Stability and maneuverability may be adversely affected.
  d. Handle loads only with the load engaging means and do not transport loads or miscellaneous items within the operator's compartment or other areas of the lift truck.

⚠ WARNING

- **When attachments are used, extra care shall be taken in securing, manipulating, positioning, and transporting the load. Operate lift trucks equipped with attachments as partially loaded lift trucks when not handling a load.**
- **Completely engage the load with the load-engaging means. Fork length should be at least two-thirds of load length. Where tilt is provided, carefully tilt the load backward to stabilize the load. Caution should be used in tilting backward with high or segmented loads.**
- **Use extreme care when tilting load forward or backward, particularly when high tiering. Do not tilt forward with the load-engaging means elevated except to pick up or deposit a load over a rack or stack. Use only enough backward tilt to stabilize the load when picking up or depositing a load in a rack or from a stack.**

DOCKBOARDS (BRIDGE PLATES), TRUCKS AND RAILROAD CARS



⚠ WARNING

- **Portable and powered dockboards shall be marked conspicuously (in plain sight) with their carrying capacity. The carrying capacity indicated shall not be exceeded.**
- **Portable dockboards shall be secured in position, either by being anchored or by being equipped with devices that will prevent unexpected movement.**
- **Handholds or other effective means shall be provided on portable dockboards to permit safe handling. When possible, fork loops or lugs shall be provided for handling by lift trucks.**

⚠ WARNING

- **All types of dockboards shall have a high friction surface designed to reduce the possibility of employees or lift trucks slipping and shall be designed and maintained so that one end will have a substantial contact with the dock (or loading platform) and the other end with the transport vehicle to prevent the dockboard from rocking or sliding.**
- **When lift trucks are driven on and off highway trucks or trailers, the brakes on the highway trucks or trailers shall be applied, and wheel chocks or other positive mechanical means shall be used to prevent unintentional movement of highway trucks and trailers.**
- **Provision shall be made to prevent railroad cars from being moved during loading and unloading. Wheel stops, hand brakes, or other recognized positive means shall be used to prevent movement during loading and unloading.**
- **Whenever lift trucks are driven on and off semitrailers not coupled to a tractor, supports may be needed to prevent upending or corner dipping.**
- **Maintain a safe distance from the edge of ramps, platforms, or other similar working surfaces.**
- **Do not move railroad cars or trailers with a lift truck unless the truck is properly designed and equipped for that operation.**

SURFACE AND CAPACITY

⚠ WARNING

- **The Cushion Tire model lift trucks must be used on only smooth, solid floor conditions. The following conditions should be avoided at all times.**
  - » Sand
  - » Gravel
  - » Oil
  - » Ice
  - » Mud
  - » Unstable surfaces
- **Operating the lift truck on these surfaces may cause dangerous conditions for the operator, other personnel and equipment.**

INSTALLATION OF ATTACHMENTS

⚠ WARNING

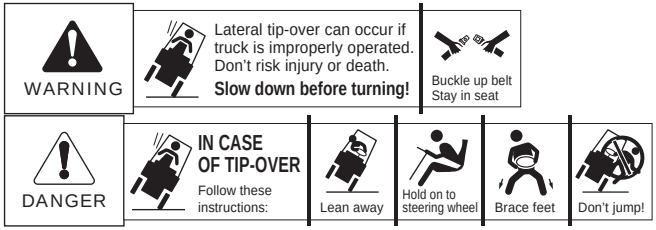
- **This lift truck has been designed for attachments (refer to "Lift Truck Modifications" on page 4).**
- **Before installing hook-on attachments, be sure to read the installation manual issued by the attachment manufacturer to assure correct and proper installation. Contact your Local Authorized Dealer for a revised data plate.**

ANSI/ITSDF STANDARDS FOR LIFT TRUCK CLAMP ATTACHMENTS

⚠ WARNING

- The ANSI/ITSDF Standards regarding lift truck mounted clamp attachments took effect for lift trucks shipped on or after October 7, 2010. This current standard affects lift trucks equipped with a load bearing clamp (paper roll clamp, carton clamp, etc.) and requires the operator to perform two distinct motions before opening (releasing) the clamp. For example, the operator must press a button and then move a lever to release the load (refer to page 65).
- ANSI B56.1 Section 7.25 “Load-Handling Controls” can be reviewed by visiting the ITSDF website at www.itsdf.org

IN CASE OF TIP-OVER



⚠ WARNING

1. The following precautions should be closely observed to ensure safe operation of the lift truck as well as to prevent personal injury.
2. Slow down before turning.
3. Always make sure your seat belt is securely fastened, and stay seated while driving.

⚠ DANGER

In case of tip-over the operator should:

4. Stay inside the lift truck if it starts to tip or falls off a dock or ramp.
5. Lean away from the point of impact.
6. Hold on firmly to the steering wheel with both hands.
7. Brace your feet and keep yourself in side the operator compartment.
8. Do not jump outside of the lift truck.

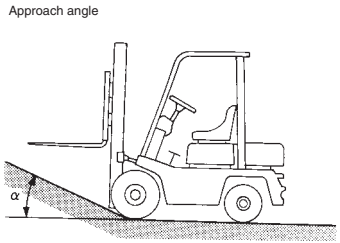
TRANSPORTING LIFT TRUCK

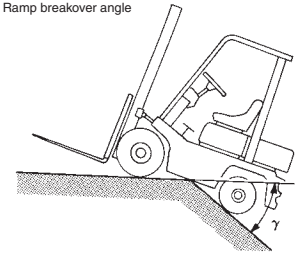
WARNING

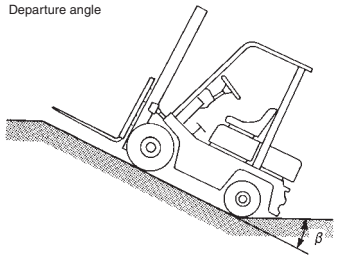
1. Tilt the mast back to the maximum without load.
2. Check the approach and departure angles to make sure the underside of the lift truck does not come into contact with the load carrying platform or the ground.
3. When using a load bridge, make sure the planks are capable of withstanding the deadweight of the lift truck.
4. When winching the lift truck onto a load carrying platform, be sure to attach the cable to the draw bar (refer to page 25). Do not ride on the lift truck while it is being winched.
5. Be sure to use lashing points and firmly secure the lift truck to the load carrying platform.
6. When hoisting (lifting) up the lift truck, be sure to use the lifting points (refer to page 24).
7. Apply the parking brake, turn off the ignition switch and remove the key, if equipped.
8. Make sure the battery connector is disconnected.

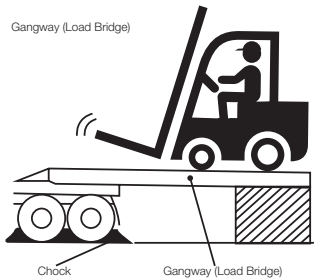
APPROACH ANGLE, DEPARTURE ANGLE AND GANGWAY

Refer to "Grade Clearance" on Main Truck Specifications.









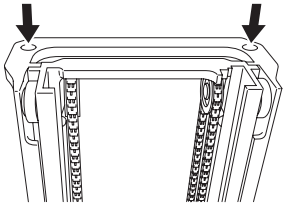
HOISTING (LIFTING) UP THE LIFT TRUCK

⚠ WARNING

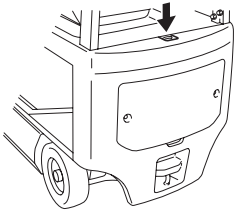
- **Only use this method as a last resort to move the lift truck. If the normal application requires repeated lifting, a permanent lifting device/platform will be needed. You can contact your Local Authorized Dealer to get the axle truck weights.**

When lifting the entire lift truck, secure cables/wire ropes to holes on both sides of the outer mast cross beam and to the holes on the counterweight, and then utilize a lifting device.

Front Side

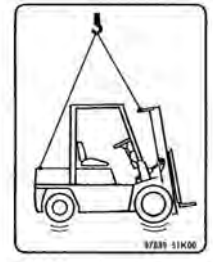


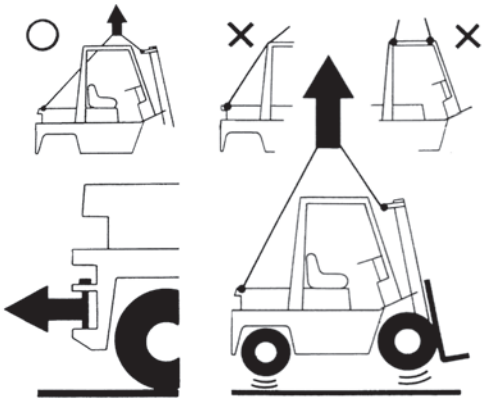
Rear Side



⚠ WARNING

- **Make sure that the cables/wire ropes do not interfere with the overhead guard while lifting the lift truck.**
- **Make sure that cables/wire ropes and the lifting device are strong enough to support the lift truck safely, as the lift truck is extremely heavy.**
- **Do not use the overhead guard to lift up the truck.**
- **Never get under the lift truck while lifting it.**





FUNCTION TESTS

The functional tests are carried out to check whether the lift truck functions correctly after it has been transported (over land or water), or after it has been taken out of storage. The tests cover the following items, but since exclusive tools and equipment are required for Items 1 and 2, request that your Local Authorized Dealer perform the tests.

Items:

1. Those that are indicated in "Daily Inspection" (refer to page 73).
2. Dynamic tests

   Mobility (traveling and maneuvering) test
   Make sure the lift truck moves in the direction specified by the selector lever, and the lift truck operates correctly when the parking brake pedal is depressed or released. Also check to see that the steering feels normal and that it operates satisfactorily.

   Elevate and lower test load.

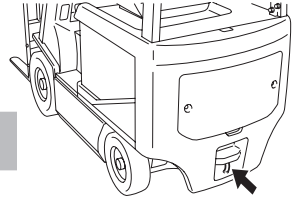
   Stacking test
   Raise the test load to the maximum height of the mast and lower at maximum speed, stopping the descent several times, to see that it stops smoothly.

   Lowering speed test
   Make sure the maximum lowering speed does not exceed 2.0 ft/s (0.6 m/s) (by measuring the speed).
3. Test for holding load

   Check the rate at which the mast lowers naturally [3.94 in (100 mm)/10 min max]. Check the rate at which the tilt cylinder tilts forwards naturally (5 degrees/10 min max).

DRAW BAR

The draw bar should be used only for pulling the lift truck out of ditches or muddy roads.



⚠ WARNING

- **Do not use the draw bar for heavy towing, such as: lift trucks, trolleys, industrial machinery, etc., as overload to the traction motor may cause the fuse to malfunction.**
- **The draw bar is used to pull the lift truck out of ditches with a tow car. Avoid using the lift truck to tow objects.**
- **Also use the draw bar to anchor the lift truck when loaded on a carrier.**
- **Be sure towing device is not damaged and has sufficient strength to pull the lift truck.**
- **Always gently draw towing device so as not to cause any shock, abrupt movements which could cause the draw bar to shift, bend or be damaged.**
- **If the towing device slips, pulls out or becomes damaged, immediately stop the towing operation and replace damaged parts or discontinue that type of operation.**
- **It is not recommended to use another lift truck to tow or push a disabled lift truck.**
- **In case the lift truck must be towed for repair, the ignition switch must be turned off and the battery plug must be disconnected to reduce possible damage to the electrical system.**

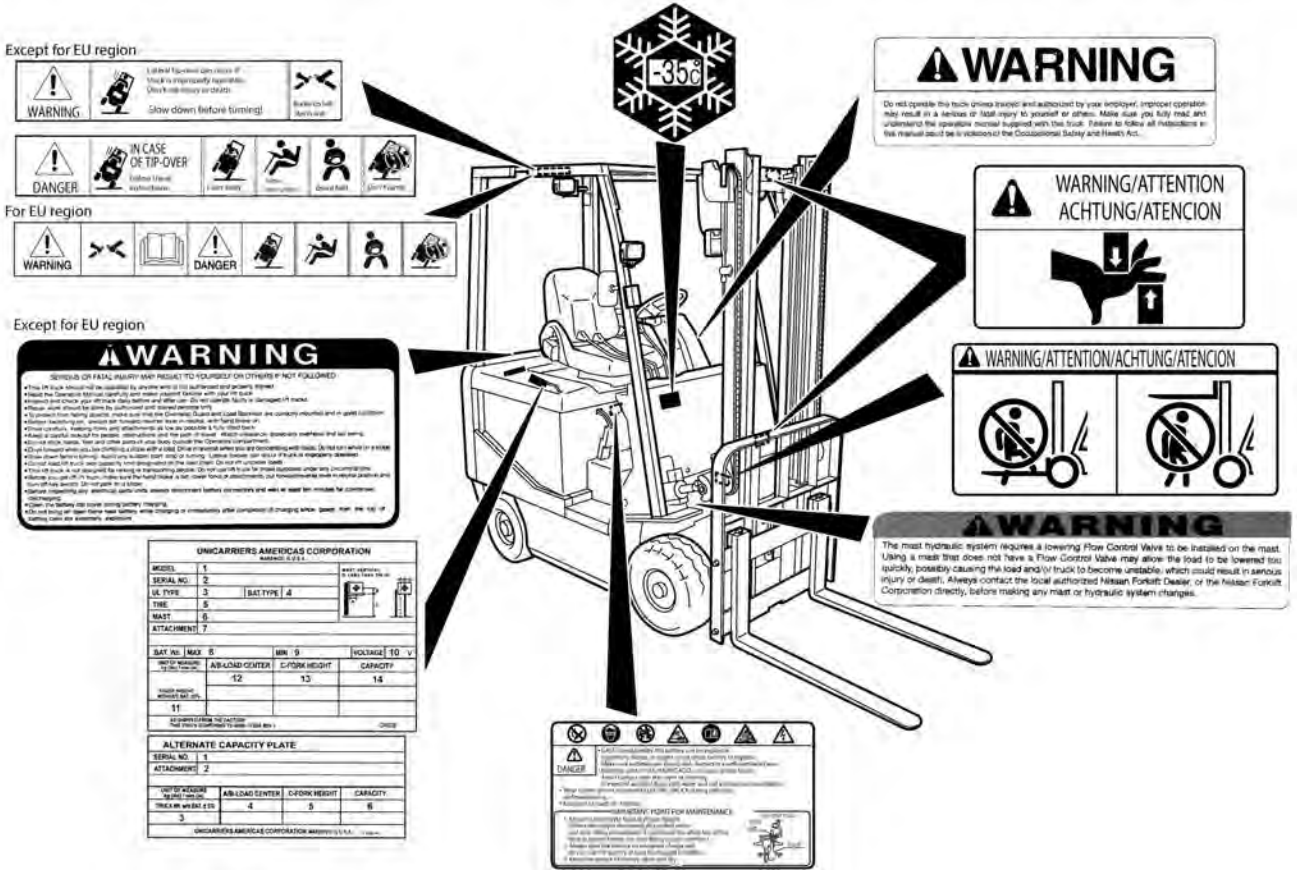
⚠ WARNING

- **Attach towing device to only the draw bar, do not attach it to the load carrying device (mast or carriage).**
- **Release the parking brake.**
- **If at all possible raise the load carrying device just off the floor (ground).**

POSITION OF DATA AND CAPACITY PLATES AND DECALS

⚠ WARNING

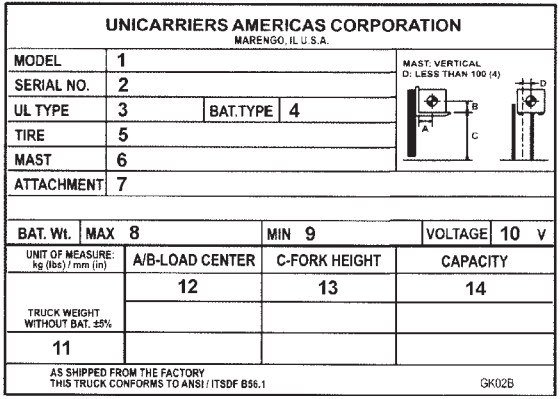
- **When data and capacity plates or warning and caution decals are damaged such that they cannot be read or have peeled off, they should be immediately replaced with new ones to ensure that they are continually maintained in a legible condition. The plates and decals are available from your Local Authorized Dealer.**
- **The warning and caution decals are affixed to the designated locations of the lift truck as shown in the figure on page 27. Before operating the lift truck, be sure to take note of the details given in the decals so as to ensure proper and safe operation.**


Except for EU region
WARNING
Slow down before turning!
DANGER
IN CASE OF TIP-OVER
For EU region
WARNING
DANGER
Except for EU region
WARNING
SERIOUS OR FATAL INJURY MAY RESULT TO YOURSELF OR OTHERS IF NOT FOLLOWED
-35c°
WARNING
Do not operate this truck unless trained and authorized by your employer. Improper operation may result in a serious or fatal injury to yourself or others. Make sure you fully read and understand the operations manual supplied with this truck. Failure to follow all instructions in this manual could be a violation of the Occupational Safety and Health Act.
WARNING/ATTENTION
ACHTUNG/ATENCION
WARNING/ATTENTION/ACHTUNG/ATENCION
WARNING
The mast hydraulic system requires a lowering Flow Control Valve to be installed on the mast. Using a mast that does not have a Flow Control Valve may allow the load to be lowered too quickly, possibly causing the load and/or truck to become unstable, which could result in serious injury or death. Always contact the local authorized Nissan Forklift Dealer, or the Nissan Forklift Corporation directly, before making any mast or hydraulic system changes.
UNICARRIERS AMERICAS CORPORATION
MODEL 1
SERIAL NO. 2
UL TYPE 3
BAT.TYPE 4
TIRE 5
MAST 6
ATTACHMENT 7
BAT. VOLT. MAX. 8
MIN. 9
VOLTAGE 10 V
A/B-LOAD CENTER
C-FORK HEIGHT
CAPACITY
12
13
14
11
ALTERNATE CAPACITY PLATE
SERIAL NO. 1
ATTACHMENT 2
A/B-LOAD CENTER
C-FORK HEIGHT
CAPACITY
4
5
6
3
UNICARRIERS AMERICAS CORPORATION
DANGER

DATA AND CAPACITY PLATES AND DECALS

Know your lift truck. The data plate indicates all necessary information regarding the type of attachments, lifting capacity, etc. Always check the lift truck's data plate and understand areas 1 through 13 as indicated below.

DATA PLATE



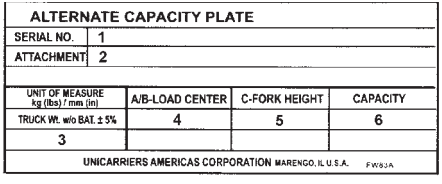
1. Model: Long Model Code
2. Serial Number: Lift Truck Serial Number
3. UL Type: "E", "EE", "ES"
4. Bat Type:
5. Tire: Tire Type
6. Mast: Mast Model
7. Attachment: Attachment Type
8. Bat Wt.
   Max: Battery Maximum Weight
   Min: Battery Minimum Weight
9. Voltage
10. Truck Weight without Battery
11. Load Center
12. Fork Height
13. Capacity: Lifting Capacity

Actual Capacity will vary with lift truck configuration and load center. Mast configuration will determine the maximum lifting distance. These values are stamped on the data plate.

⚠ WARNING

- **Do not exceed the actual capacity of the lift truck. Note the specifications of the lift truck you are using and operate it accordingly.**

ALTERNATE CAPACITY PLATE

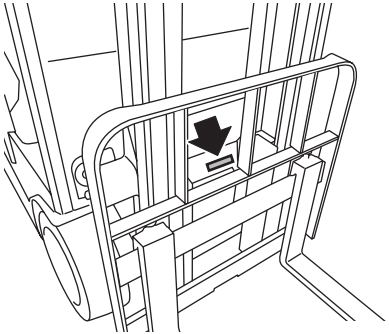


1. Serial Number: Lift Truck Serial Number
2. Attachment: Attachment Description
3. Truck Weight without Battery
4. Load Center
5. Fork Height
6. Capacity: Lifting Capacity

Knowing the model and serial number for this lift truck is very helpful whenever ordering repair parts. For any further information and specifications on this lift truck or any other, contact your Local Authorized Dealer.

IDENTIFICATION NUMBERS

The serial number of the lift truck is stamped on the front of the frame.



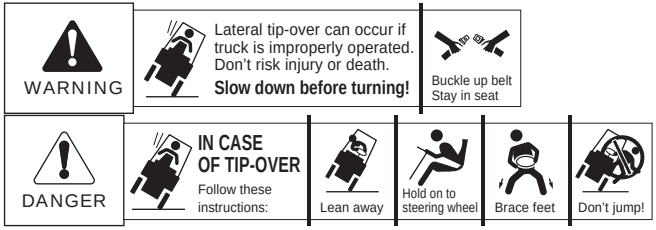
Lift Truck Serial Number

J1B1	-	XXXXXX
JG1B1	-	XXXXXX
T1B2	-	XXXXXX
TG1B2	-	XXXXXX

Lift Truck Serial Number - Manufactured in Marengo, IL USA

CJ1B1	-	99XXXX
CT1B2	-	98XXXX
CTG1B2	-	97XXXX

CAUTION DRIVE DECAL (IN CASE OF TIP-OVER DECAL)



⚠ WARNING

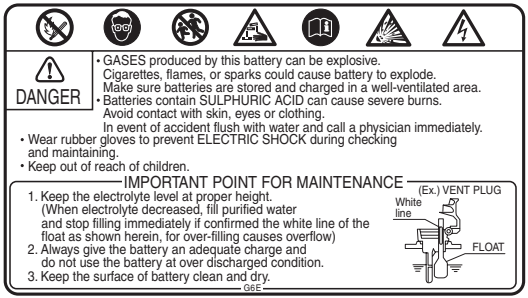
1. The following precautions should be closely observed to ensure safe operation of the lift truck as well as to prevent personal injury.
2. Slow down before turning.
3. Always make sure your seat belt is securely fastened, and stay seated while driving.

⚠ DANGER

In case of tip-over the operator should:

4. Stay inside the lift truck if it starts to tip or falls off a dock or ramp.
5. Lean away from the point of impact.
6. Hold on firmly to the steering wheel with both hands.
7. Brace your feet and keep yourself in side the operator compartment.
8. Do not jump outside of the lift truck.

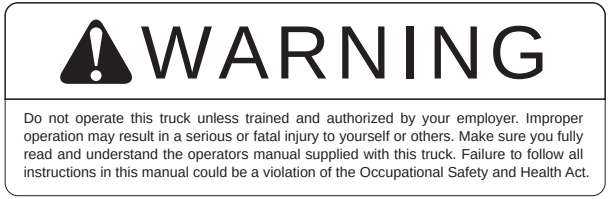
BATTERY DECAL (SAMPLE)



DANGER

- **GASES produced by this battery can be explosive. Cigarettes, flames, or sparks could cause battery to explode. Make sure batteries are stored and charged in a well-ventilated area.**
- **Batteries contain SULFURIC ACID, which can cause severe burns. Always use personal protective equipment. Avoid contact with skin, eyes or clothing. In event of accident flush with water and call a physician immediately.**
- **Wear rubber gloves to reduce a possible ELECTRIC SHOCK during checking and maintaining.**
- **Keep out of reach of children.**

WARNING DRIVE DECAL (TRAINED AND AUTHORIZED)



WARNING

- **Operator must be trained and authorized to drive the lift truck, and must understand safety techniques and rules for the lift truck operation.**
- **Make sure that you read and fully understand the Operator's Manual supplied with this lift truck. Failure to follow all instructions in this manual could be a violation of the Occupational Safety and Health Act.**

PINCH POINT DECAL

WARNING

- **This decal instructs the operator to keep fingers away. Do not reach into the mast area. Personal injury may occur if any part of your body is between the moving and fixed sections of the mast.**

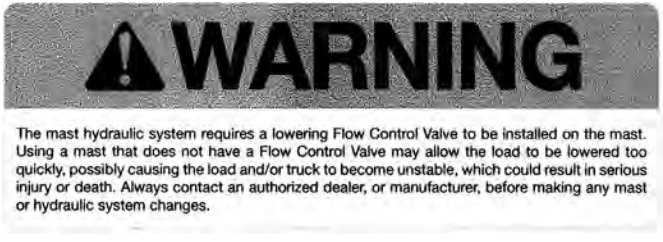
CAUTION FORK DECAL

⚠ WARNING

Do not stand on or underneath forks.

- **Riding on the forks is strictly prohibited. Furthermore, do not stand immediately underneath the forks. Otherwise, serious accidents can occur if the forks should move abruptly and the load placed on the forks unexpectedly falls down.**

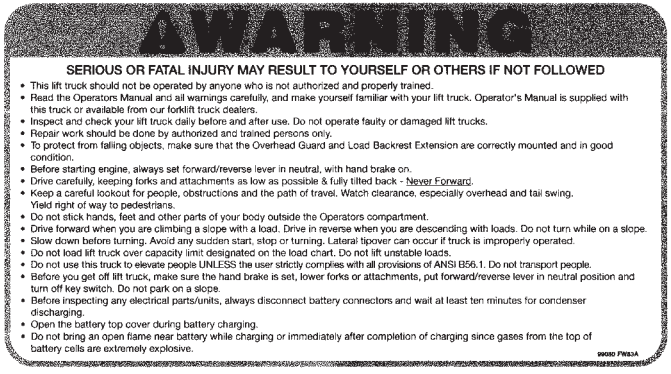
MAST WARNING DECAL



⚠ WARNING

- **This label indicates the warning of not having a Flow Control Valve installed on the Mast.**

CAUTION DRIVE DECAL (OPERATION)



⚠ WARNING

Operation precautions

- **This label contains instructions on how to operate the lift truck safely and avoid accidents. Therefore, be sure to take careful note of the instructions before operating the lift truck.**

REFRIGERATOR SYMBOL DECAL

⚠ CAUTION

Usable in refrigerator

- **This label indicates that the forklift can be used in a refrigerator and to use the appropriate hydraulic oil.**

OPERATING CONTROLS AND FUNCTIONS

APPLICATIONS

This lift truck is operated in a sitting position. The truck is available in different fork lengths and lifting heights. Refer to the lift truck's data plate for this information.

The lift truck is equipped with a 36 (cushion model only) or 48 Volt electrical system. Travel and lifting speeds are transistor controlled by engine rpm's (speed) to provide smooth operations. In addition, the travel function and the different hydraulic functions have additional controls which further enhance these features. Different speeds can be set by a trained service technician.

APPLICATION FOR UNICARRIERS LIFT TRUCKS

UniCarriers lift trucks are solely designed and manufactured to handle goods. The lift truck should only be fitted with the appropriate accessories relevant to the application.

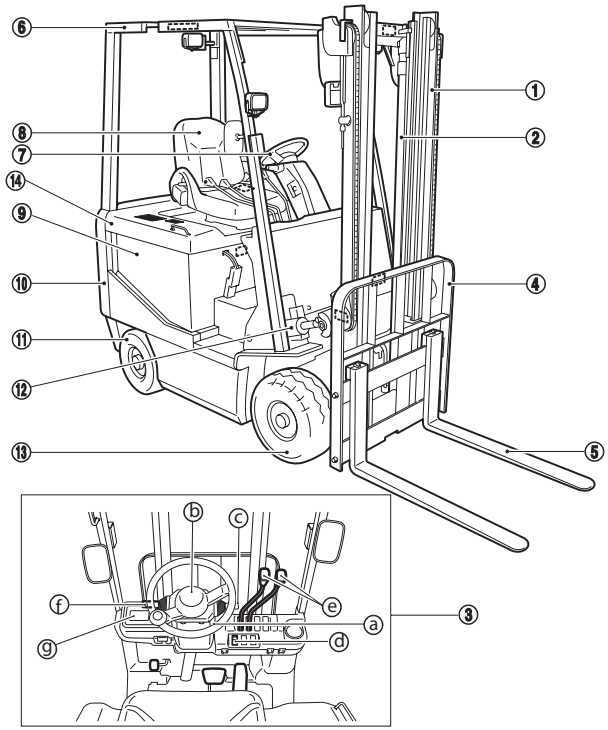
PROHIBITED APPLICATIONS FOR UNICARRIERS LIFT TRUCKS

It is not permitted to use these lift trucks for other purposes including the following:

⚠ WARNING

- **Do not operate in areas that contain gases which can cause fire or explosions**
- **Do not use as a towing truck for trailers**
- **Not to be used for pushing applications**
- **Do not tow other lift trucks**
- **Do not transport or lift passengers**
- **Cushion Tire Models: Do not drive on any non-paved areas (refer to page 21)**

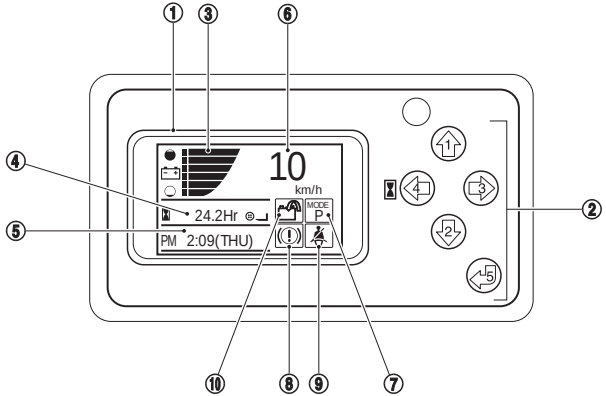
MAIN COMPONENTS



1. **Mast Upright:** The mast upright is the lifting device for the forks. The lifting is done through hydraulic lift cylinders and chains.
2. **Lift Cylinders:** The cylinders are used to lift the forks up and down.
3. **Operator Compartment:** This compartment houses the (a) ignition switch, (b) horn button, (c) lighting and turn signal switch, (d) back-up operation lamp switch (option), (e) cargo-handling lever(s), (f) selector lever and (i) meter panel.
4. **Backrest:** Portion of the carriage and forks serving to restrain the load when the load is tilted rearward or upward.
5. **Forks:** Their widths can be easily adjusted to fit differing pallets or loads.
6. **Overhead Guard:** Intended to offer protection from falling objects, but cannot protect against every possible impact.
7. **Steering Wheel:** Steer's the lift truck in the direction of travel.
8. **Seat:** Full suspension seat with operator restraint system, weight, forward/backward, inclination and lumbar adjustments.
9. **Battery Compartment:** This compartment houses the battery.
10. **Counterweight:** To balance the lift truck.
11. **Rear (Steer) Tire**
12. **Tilt Cylinder:** Used to vary the degree of the forks and load backrest.
13. **Front (Drive) Tire**
14. **Top Panel**

METERS, INDICATORS AND LAMPS

The operator compartment contains the main functional controls to operate the lift truck in a safe and controlled manner. The meter panel consists of two sections: LCD (Liquid Crystal Display) monitor and function keys.



1. LCD (Liquid Crystal Display)
2. Function Keys
3. Battery Capacity Meter
4. (4 Mode) Hour Meter/ Instantaneous Energy Consumption Indicator
5. Clock/Alarm/Acceleration Adjustment
6. Speedometer
7. Power Mode
8. Parking Brake Warning Indicator
9. Seat Belt Warning Indicator
10. Regeneration Indicator

1. LCD

When the ignition switch is in the ON position, backlighting makes the displays clearly visible to the lift truck operator. It displays normal operation, malfunction and adjustment data.

The display contrast (lighter or darker) can be adjusted in 11 steps.

To lighten the contrast, push function key FN1. To darken the contrast, push function key FN2.

2. FUNCTION KEYS

Function keys control the LCD contrast, display changes and other adjustments. Function key operation is described in the individual part descriptions and in the items related to adjustment.

NOTE:

- If an incorrect operation is performed, the malfunction code will be displayed periodically. If displayed, turn the ignition switch to the OFF position and then turn it to the ON position again.
- When the function key FN5 is pressed longer, the help menu will be displayed and the explanation of the function switch will be displayed.

Setting and Adjustment Items (Normal Mode)

Adjustment Item	Shift to Adjust Mode	Adjustment	Details	Function Lock
LCD Contrast	-	Push FN1	The items displayed become darkened and the display becomes darker	Lock OFF
		Push FN2	The items displayed become faded and the display becomes brighter	
Traction and loading power mode	-	Push FN3	P → H → M → E	Lock ON
Hourmeter select/Instantaneous energy consumption indicator	-	Push FN4	(Ignition ON) → (Operation) → (Traveling) → (Loading) ← (Instantaneous energy consumption indicator)	Lock ON
Clock Setting	Push FN1 & FN2	Push FN3	Hour → Minute → Day	Lock OFF
		Push FN4	Hour ← Minute ← Day	
		Push FN1	The digit is increased or the day is advanced	
		Push FN2	The digit is decreased or the day is set back	
		Push FN5	Setting complete	
Alarm Setting	Push FN2 & FN4	Push FN3	Hour → Minute → Day	Lock OFF
		Push FN4	Hour ← Minute ← Day	
		Push FN1	The digit is increased or the day is advanced	
		Push FN2	The digit is decreased or the day is set back	
		Push FN5	Setting complete	
Acceleration level	Push FN1 & FN4	Push FN3	D-ACC → P - Level	Lock ON
		Push FN4	D-ACC ← P - Level	
		Push FN1	Increase	
		Push FN2	Decrease	
		Push FN5	Setting Complete	

Adjustment Item	Shift to Adjust Mode	Adjustment	Details	Function Lock
Default setting (tilt horizontal level)	Push FN1 & FN5	Push FN5	Setting complete	Lock ON
Help Menu	-	Push and hold FN5	The operating method of the function switch is displayed.	-
Function lock/Unlock	Contact your local Authorized Dealer. Code should only be changed by a trained/authorized technician.	-	The above functions are locked (ON)/unlocked (OFF).	-

3. BATTERY CAPACITY METER

This meter indicates the remaining charge capacity of the battery. As the capacity decreases, the number of back steps decreases. Before the last back step remains, discontinue lift truck operation and charge the battery. The battery capacity meter has a 6-step display.

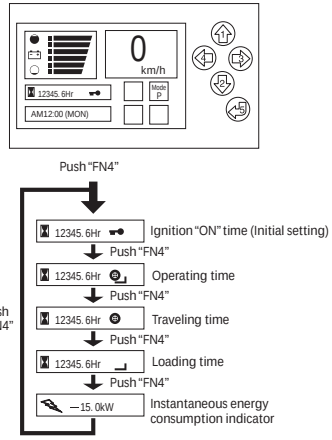
⚠ CAUTION

- **Continued operation of the lift truck with discharged battery may damage the battery and electric parts.**

4. HOUR METER (4 MODE)

This hour meter has 4 modes (functions).

1. Ignition “ON” time : Equal to the total operating hours when the ignition switch is in the ON position.
2. Operating time : Equal to the traveling or loading time (the time for whichever operation in progress is displayed).
3. Traveling time : Equal to the total time that the traction motor is operational.
4. Loading time : Equal to the total time that the forks are operational (tilting and lifting).



5. Instantaneous energy consumption indicator : Electric power consumed by each operation is displayed.

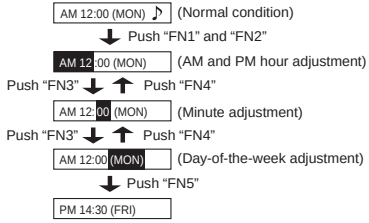
The hour meter operates when the ignition switch is in the ON position, and it indicates the total operating period in hours (ignition “ON” time).

5. CLOCK/ALARM/ACCELERATION ADJUSTMENT

Clock/Alarm

When the ignition switch is in the ON position, both the day and time are displayed.

Push function keys FN1 and FN2 simultaneously. The time set mode will appear.



AM and PM hour adjustment: The hour display will advance by 1 hour each time function key FN1 or FN2 is pushed.

Minute adjustment: The minute display will advance by 1 minute each time function key FN1 or FN2 is pushed.

Day-of-the-week adjustment: The day-of-the-week display will advance by one day each time function key FN1 or FN2 is pushed.

After setting the clock to the correct time, push function key FN5. The adjusted time will appear, and the clock will return to its original letter mode.

NOTE:

Push function key FN1 to increase the numerical value or advance one day of the week.

Push function key FN2 to decrease the numerical value or reverse one day of the week.

For setting the alarm, push function keys FN2 and FN4 at the same time to display the setting screen. The method for changing the time of the alarm is the same as adjusting the clock.

If an alarm is set, " ♪ " appears next to the time display. When the preset time is reached, the buzzer sounds to notify the operator. Press function key FN5 to stop the buzzer. The day of the week can be set to every day (ALL: every day).

Acceleration Adjustment

This control adjusts acceleration during lift truck starting and subsequent operation.

Simultaneously press function keys FN1 and FN4. The clock will move to the traction acceleration control mode.

The acceleration level can be adjusted in a series of 8 steps.

For faster acceleration (Quick): Push function key FN1.

Each time the key is pushed, the acceleration level (speed) will increase by 1 step.

For slower acceleration (Slow): Push function key FN2.

Each time the key is pushed, the acceleration level (speed) will decrease by 1 step.

After setting the acceleration level, push function key FN5. The acceleration level will appear, and clock will return to its original letter mode.

NOTE:

Acceleration factory setting at time of shipping:

D-ACC NOM SET: Level 6

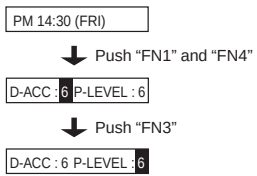
(Permissible setting range: Level 1 - 8)

⚠ WARNING

- **After acceleration level adjustment, operate the lift truck slowly and carefully until you become accustomed to the new acceleration level. Be especially careful when the acceleration level has been increased. Higher acceleration levels can cause loads to shift, to fall off or to be unstable during starts.**

Pump Acceleration Control

Simultaneously push function keys FN1 and FN4. Next, push function key FN3. The clock will move to the pump acceleration control mode.



The acceleration level can be adjusted in a series of 8 steps.

For faster acceleration (Quick): Push function key FN1. Each time the key is pushed, the acceleration level (speed) will increase by 1 step.

For slower acceleration (Slow): Push function key FN2. Each time the key is pushed, the acceleration level (speed) will decrease by 1 step.

After setting the acceleration level, push function key FN5. The pump acceleration level will appear, and the clock will return to its original letter mode.

NOTE:

Pump acceleration factory setting at time of shipping:

P-LEVEL SET: Level 6

(Permissible setting range: Level 1 - 8)

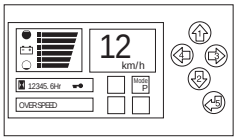
⚠ WARNING

- **After pump acceleration level adjustment, operate the lift truck mast control slowly and carefully (up, down and tilt) until you become accustomed to the new pump acceleration level. Be especially careful when the acceleration level has been increased. Higher pump acceleration levels can cause loads to shift, to fall off or to be unstable during starts.**

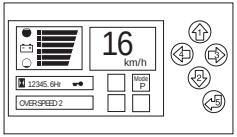
6. SPEEDOMETER

The speedometer shows lift truck speed in either kilometers per hour (km/h) or miles per hour (mph). The maximum lift truck speed and speed alarm can both be set.

When the lift truck speed has exceeded speed alarm 1:



When the lift truck speed has exceeded speed alarm 2:



+BUZZER sounds.

NOTE:

Settings and setting changes can be made only by a Local Authorized Dealer.

Speedometer factory settings at time of shipping:

Maximum speed: 20 km/h (12 MPH)

Setting speed range: 1 - 20 km/h (3 - 12 MPH)

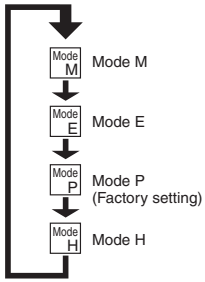
Lift truck speed alarm 1 (WSL1) - 2 (WSL2) setting: 25 km/h (16 MPH)

Lift truck speed alarm 1 setting range (WSL1): 5 - 25 km/h (3 - 16 MPH)

Lift truck speed alarm 2 setting range (WSL2): WSL1 - 25+ km/h (WSL1 - 16+ MPH).

7. POWER MODE

In this mode, the power level for traveling and loading operation can be adjusted. Each time function key FN3 is pressed, the power mode is switched.



Mode M: Manual mode:

The power levels for traveling and loading can be individually set according to customer requests.

NOTE:

Adjustments can be made only by a Local Authorized Dealer.

Factory defaults:

Traveling power level: Level 1

Loading power level: Level 1

Adjustable range for traveling and loading power levels: Levels 1 - 5

Mode E: Economy mode:

For work requiring operation time to be saved or customers using the lift truck for a long time (Traveling and loading power levels: Level 1)

Mode P: Power mode:

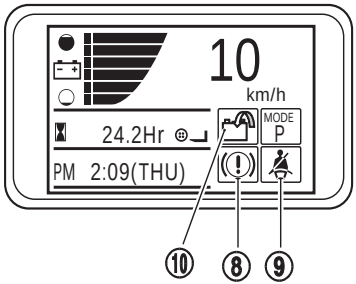
Factory setting (Traveling and loading power levels: Level 3)

Mode H: High-power mode:

For work or customers requiring higher power (Traveling and loading power levels: Level 5)

NOTE:

Operation in the High-power mode (H) requires more battery power than Power mode (P) and Economy mode (E). Contact your Local Authorized Dealer for more information about how to set the Manual mode (M).



8. PARKING BRAKE WARNING INDICATOR

This indicator is displayed whenever the parking brake pedal is in the depressed position. The indicator disappears whenever the parking brake pedal is released.

9. SEAT BELT WARNING INDICATOR

This lamp indicates that the seat belt is not fastened securely. It will light up if the seat belt is not fastened when the ignition switch is turned to the ON position, and it will turn off when the seat belt is fastened.

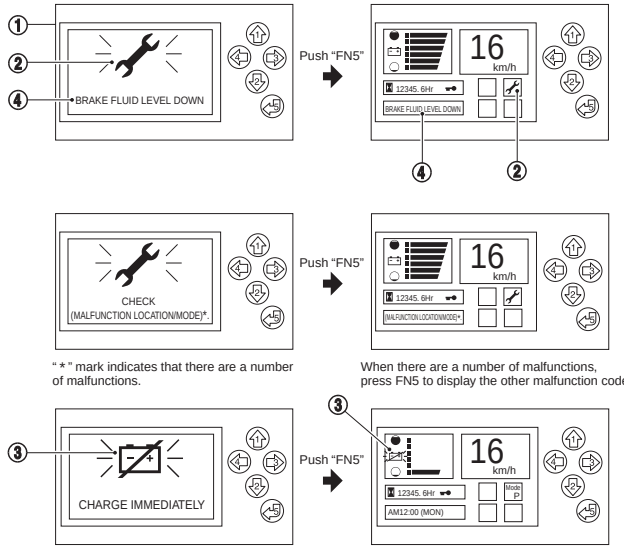
10. REGENERATION INDICATOR

When the instantaneous energy consumption indicator is displayed, the regeneration indicator will be displayed while regeneration is in progress.

MALFUNCTION AND WARNING INDICATIONS

LCD MONITOR

1. LCD (Liquid Crystal Display)
2. Wrench Indicator
3. Battery Warning Indicator
4. Malfunction Message

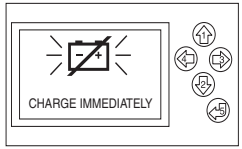


If any malfunction occurs when the ignition switch is in the ON position, the LCD will show a wrench indicator " " or a battery warning indicator " ". Simultaneously, the LCD will display letters explaining the details of the malfunction.

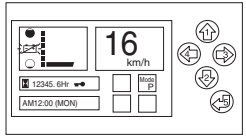
NOTE:

During lift truck operation, periodically check the battery capacity. Make every effort to recharge the battery before the battery warning indicator " " or wrench indicator " " appear.

1. Wrench indicator
   - The controller and the sensors act together to regulate the lift truck's electrical system. The wrench indicator will appear whenever one of the malfunctions listed below occurs. Simultaneously, the LCD will show an indication explaining the details of the malfunction.
   - Control system malfunction (Traction, Hydraulic loading, Power steering)
   - Overheating controller or motor
   - Low brake fluid level
2. Battery warning indicator
   - Low battery voltage warning



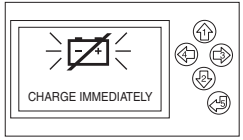
Low battery voltage warning (pump cut) is displayed when the battery capacity meter's remaining capacity indication changes from 2/6 to 1/6.



When function key FN5 is pressed, the display will switch.

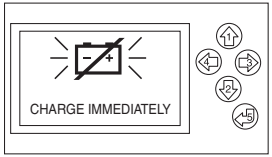
NOTE:

This is the first step of the low battery voltage warning. The operator needs to charge the battery. However, the lift truck can be operated normally.



After the low battery voltage warning (pump cut) has been displayed and ten minutes have elapsed, the warning buzzer is activated, the loading system is deactivated and the display shows the low battery voltage warning as indicated in the illustration.

When function key FN5 is pressed, the display will switch. The warning buzzer continues to sound throughout that period. Once the ignition switch is reset, the lift truck may be operated during the low battery voltage warning (second step). However, move the lift truck to a safe location, and immediately charge the battery.



- **Low voltage lock warning**

If the lift truck is subjected to continuous operation after the low battery voltage warning (second step) was activated, the low voltage lock warning will be activated. Then, the display will appear as shown in the illustration, and the warning buzzer will be activated (final step).

The lift truck cannot be operated during the low voltage lock warning.

NOTE:

The interval between the first appearance of the battery warning indicator and warning buzzer operation is set at the time of shipping.

Factory setting: 10 minutes

Permissible setting range: 1 - 20 minutes

The setting can be changed only by a Local Authorized Dealer.

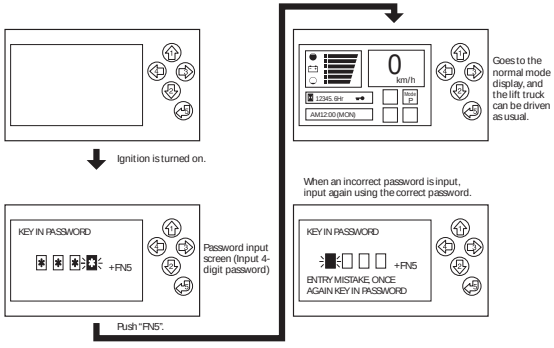
⚠ WARNING

- **When a malfunction is indicated, immediately stop lift truck operation. Turn off the ignition switch and turn on again. If the malfunction remains, suspend the lift truck operation. Contact your Local Authorized Dealer for inspection and necessary repair.**

MALFUNCTION INDICATIONS

Affected System or Area	Indication	Malfunction Description	
Control system (Traction, Cargo-handling, Power steering): Units, Sensors, Motors, Switches, FETs	D-FET SHORT	A malfunction has occurred in the lift truck traction system. Further operation of the lift truck is not possible.	**NOTE:** **A display example is shown on the left.**
	P-FET OPEN	A malfunction has occurred in the lift truck cargo-handling system. Further lifting (lifting and tilting) operation is not possible. The forks cannot be raised or tilted.	
	TIRE ANGLE SENSOR LOW	A malfunction has occurred in the lift truck power steering system. Lift truck steering control is possible.	
	D/CONT TEMP SENSOR HIGH TEMP	Either the controller or the motor is overheating. Immediately stop lift truck operation. Park the lift truck in a safe area where there is no pedestrian or vehicular traffic. Allow the controller and/or the motor to cool. **NOTE:** **The lift truck will slow down to a "creep home" speed until cooled or repaired.**	**WARNING** **• Ignoring the warning indication and continuing to operate the lift truck can result in serious motor damage. Always stop operation immediately after the warning indication appears. Have the lift truck inspected.** **WARNING** **• Check the specifications of the lift truck you are using before operation as this function is not available on some lift trucks.**
	P/MO TEMP SENSOR HIGH TEMP		
Essential fluids	BRAKE FLUID LEVEL DOWN - GOM Only	The brake fluid level has fallen below the specified level.	
Battery	BATTERY OVER VOLTAGE	The controller has detected a high battery voltage	Turn the ignition switch OFF and ON again. If no error displayed, you can operate the forklift without a problem. If problem reoccurs, contact your Local Authorized dealer. **WARNING** **• Do not allow open flames in the battery inspection or fluid replenishment area, as this could result in serious injury or death.**

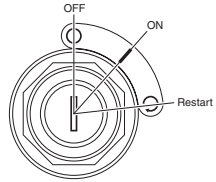
DRIVER RECOGNITION MODE

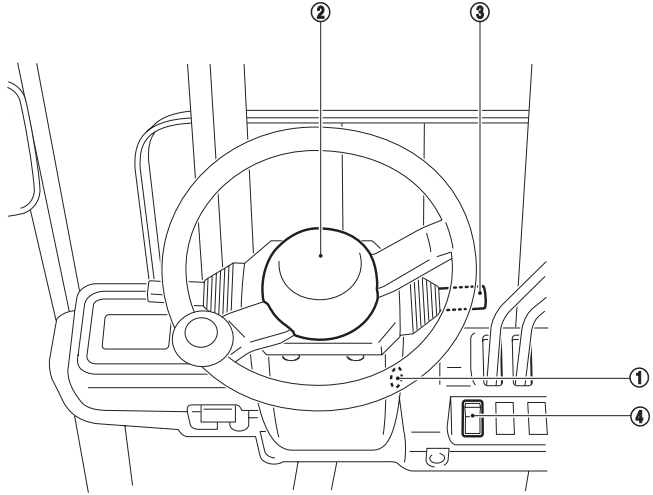


Registering a password can restrict the operators of the lift truck. You can register a password for up to 5 personnel. Contact your Local Authorized Dealer for information about the registration of the password.

SWITCHES

1. Ignition switch
2. Horn button
3. Lighting switch and Turn signal switch
4. Back-up operation lamp switch (option)





IGNITION SWITCH

Insert the key, if equipped, into the ignition switch to start or stop the motor. Each new lift truck comes with two keys (if equipped), use one for operation and store the other in a safe place as a spare.

OFF Position

This position allows the key, if equipped, to be inserted or removed.

ON Position

When the ignition switch is in the ON position, backlighting for the LCD will be on. The hour meter, clock and battery capacity meter will all be active. The lift truck is now ready for operation.

RESTART Position

If the lift truck's electrical systems goes into sleep mode, restart can be used to restart the electrical system without turning the ignition switch to OFF and ON again. Once you release the ignition switch after turning to RESTART, the ignition switch automatically returns to the ON position.

Factory setting preset time: 15 minutes

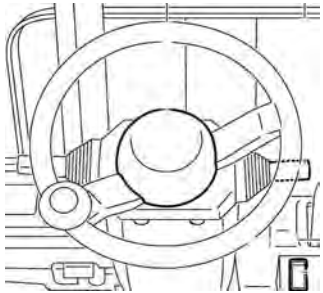
- Adustable range for power off: 1-60 minutes
- The power off control can be deactivated

⚠ WARNING

- **Before leaving the operator's seat, be sure to set the SELECTOR lever to Neutral, fully depress the parking brake pedal, fully lower the load carrying mechanism and turn the ignition switch OFF.**

HORN BUTTON

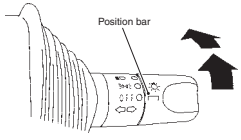
Pushing the button in the center of the steering wheel will sound the horn, regardless of ignition switch position.



LIGHTING SWITCH AND TURN SIGNAL SWITCH

Lighting Switch

To turn on one of the lamps in the table, turn this switch to align the position bar (–) on the switch knob with the corresponding indicator on the switch main unit.



In the case of right side location

Switch Indicator	Head Lamp	Tail Lamp
OFF	OFF	OFF
	OFF	ON
	ON	ON

⚠ WARNING

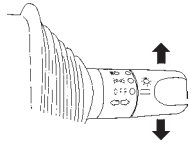
- **Do not touch the head lamp lens when the headlamp is lit or immediately after the head lamp is turned off, because it is very hot.**

NOTE:

- You can turn on and off lamps by turning the lighting switch, regardless of the position of the ignition switch.
- Do not forget to turn off all lamps when leaving the lift truck, or else the battery may run down.

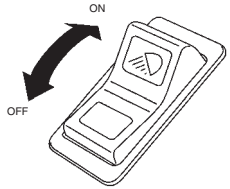
Turn Signal Switch

Push the switch lever forward (up) when turning left, and pull it backward (down) when turning right. The appropriate turn signal will blink. Upon completion of the turn, be sure to return the lever to its original position.


In the case of right side location

BACK-UP OPERATION LAMP SWITCH (OPTION)

This switch is used to turn on and off the rear operating light that illuminate rearward for nighttime operation or operation in poorly illuminated areas.



Press the lamp symbol-marked side of this “rocker” switch to turn on the lights, or press the opposite side to turn off the lights. The lamp in the switch lights up when the rear operating light is turned on.

⚠ WARNING

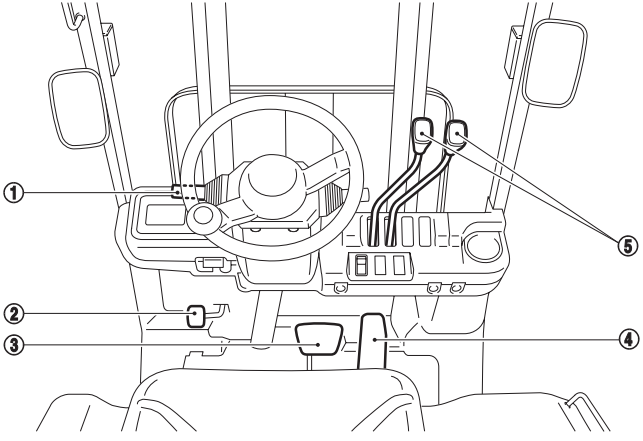
- **Do not touch the lens of a rear operating light when the light is lit or immediately after it is turned off, because it is very hot.**

NOTE:

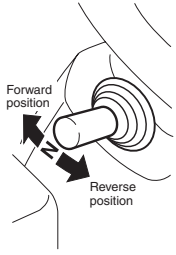
- The rear operating light can be turned on, regardless of the position of the ignition switch. So leaving them ON causes the battery to run down and sometimes makes it impossible to operate the lift truck.
- The law prohibits the turning on of backward illumination lamps on public roads.
- The rear operating light, if turned on, will obstruct the passage of other vehicles on public roads. To avoid this, always turn them off when driving on a public road.

OPERATING CONTROLS

1. Selector lever
2. Parking brake pedal
3. Brake pedal
4. Accelerator pedal
5. Cargo-handling control lever(s)



SELECTOR LEVER



This lever is used to change the driving direction of the lift truck (forward or reverse). Push the lever forward (up) away from you to drive forward (forks leading), or pull the lever backward (down) towards you to drive backward (forks trailing). The neutral position is at the midpoint.

Controlled Reversing

Controlled reversing can be performed during normal operating conditions to slow down and/or stop an electric powered industrial truck. To activate controlled reversing simply move the forward reverse directional control lever in the opposite direction of travel. The lift truck should come to a smooth stop. If the operator should continue to depress the accelerator pedal with the selector control lever in the changed (new) direction, the lift truck will then begin to accelerate in that new direction. This lift truck also has a de-accleration mode. This means that any time the operator releases the accelerator pedal the lift truck will begin to slow down automatically. The de-acceleration force can be adjusted by your Local Authorized Dealer.

⚠ CAUTION

- **Always depress the brake pedal before operating the selector lever.**
- **This lift truck has a controlled reversing feature (refer to page 48). This feature is adjustable only by a trained service representative. The adjustment should be made to avoid a rapid change in travel direction, which may cause the cargo to shift or fall off the load carrying mechanism.**
- **When stopping the lift truck temporarily with the selector lever left in the neutral position, be sure to fully depress the parking brake pedal to prevent the lift truck from moving unexpectedly.**

⚠ WARNING

- **The selector lever should always be in the neutral position (not the forward or reverse position) before the ignition switch is moved to the ON position. This will prevent sudden and dangerous movement of the lift truck when the ignition switch is turned ON.**
- **Always return the selector lever to the neutral position at the completion of lift truck operation.**

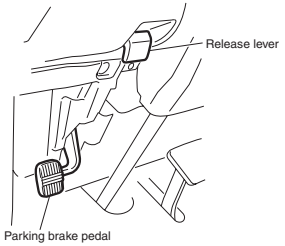
NOTE:

On lift trucks equipped with a back-up buzzer (standard in North America), the buzzer will sound whenever the selector lever is moved to the reverse position.

PARKING BRAKE PEDAL

When parking the lift truck, fully depress the parking brake pedal. To release the parking brake, pull the release lever, and the pedal will return to its original position.

When parking the lift truck on a slope, fully depress the parking brake pedal and set a wheel chock behind each wheel.



⚠ WARNING

- **Driving the lift truck with the parking brake applied could cause serious malfunction of the brakes because of overheating. Also, it hastens the wearing away of the brake shoes.**
- **When you leave the lift truck, always apply the parking brake, place the mast in vertical position, lower the forks until they rest on the floor, and remove the key (if equipped).**

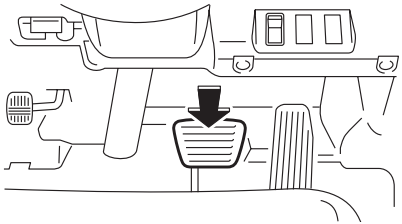
NOTE:

To remind the operator to apply the parking brake, an alarm will sound if:

- The operator leaves the operator's seat without applying the parking brake while the ignition switch is in the ON position.
- The operator turns off the ignition switch without applying the parking brake, regardless of whether the operator is sitting in the operator's seat.

BRAKE PEDAL

This pedal allows you to bring the lift truck to a stop or slow it down.



⚠ WARNING

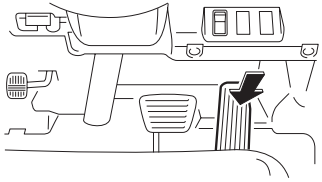
- **Do not brake the lift truck hard. Doing so may cause the lift truck to become unbalanced and result in a serious accident.**
- **Adjust the braking effort according to the cargo weight.**
- **Do not rest your foot on the brake pedal during driving. Doing so may cause the brakes to fail because of overheating. Also, it hastens the wearing away of the brake discs.**

NOTE:

When depressing the brake pedal, the regenerative braking system activates (refer to Selector Lever on page 48 for controlled reversing).

ACCELERATOR PEDAL

This pedal allows you to adjust the speed of the lift truck. The driving speed changes according to the degree to which the accelerator pedal is depressed (refer to Selector Lever on page 48 for controlled reversing).



⚠ WARNING

- **Do not depress the accelerator pedal quickly. Depress it slowly to prevent a sudden or rapid start, which could cause the cargo to shift or fall off the forks.**
- **To prevent sudden movement, always operate the accelerator pedal after the ignition switch has been turned on and the selector lever has been shifted.**
- **Do not release parking brake unless operator is in seat as lift truck may roll.**

If the accelerator is pumped frequently and the ignition switch turned to the ON position, a safety circuit will act to prevent the lift truck from starting. To reset the circuit, completely remove your foot from the accelerator pedal.

CARGO-HANDLING CONTROL LEVERS

There are 2 cargo-handling control lever types. One type uses the twin control lever, the other type uses the single control lever.

Note the cargo-handling control lever type on the lift truck you are using and operate the lever or levers appropriately.

⚠ WARNING

- **Always sit in the operator's seat with the seat belt fastened when operating the lever.**
- **Operating the control lever without properly sitting in the operator's seat causes the loading interlock warning light to blink and the loading mechanism to be inactive.**
- **Before operating the lever, make certain that the surrounding area is clear and it is safe to proceed.**
- **If the ignition switch is in the OFF position, operation of the lever to the downside or lowering direction may cause the forks and mast to go down due to its own weight or the cargo that may be on the forks. This may result in serious damage or injury.**
- **Always avoid any abrupt or sudden lever operation that may cause loads to shift or fall off forks and cause the lift truck to become unbalanced and tip over.**

NOTE:

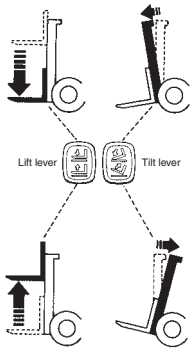
The cargo-handling control levers are enabled to operate the cargo-handling system only when the operator is seated with the ignition switch ON.

⚠ CAUTION

- **The attachment may move due to its own weight when the third or fourth cargo-handling control lever is operated with the ignition switch in the OFF position.**

Twin Control Lever Type

This method uses two levers: a lift lever for moving the fork up and down and a tilt lever for tilting the mast forward and backward:



- **Lift lever:**
  Lift: Pull the lever to the operator side.

  Lower: Push the lever forward.
- **Tilt lever:**
  Forward: Push the lever forward.

  Backward: Pull the lever to the operator side.

⚠ WARNING

- **Do not perform forward tilt while the lift truck is traveling. It may cause loads to shift or drop and also may cause the lift truck to become unstable and tip over.**
- **Do not perform forward tilt while lifting loads in any position. It may cause loads to shift or drop and also may cause the lift truck to become unstable and tip over.**

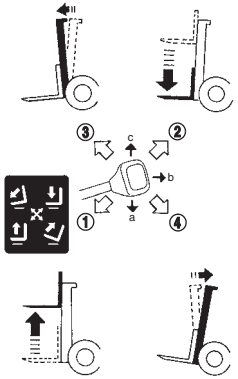
Speed Control:

Control of lifting and lowering speeds: For both lifting and lowering, the speed can be changed by controlling the tilt angle of the lever.

Control of forward and backward tilting speeds: For both forward and backward tilts, the speed can be changed by controlling the tilt angle of the lever.

Single Control Lever Type

This method performs up and down movements of fork and forward and backward tilts of mast using a single lever:



- **Lift:**
  Diagonally pull the lever to the left side of operator.
- **Lower:**
  Push the lever in the right forward direction.
- **Forward:**
  Push the lever in the left forward direction.
- **Backward:**
  Diagonally pull the lever to the right side of operator.

Simultaneous operations are also allowed by combining up and down movements and forward and backward tilts.

This may be done by moving the lever into the a, b or c position.

- **Backward tilt while lifting:**
  Pull the lever to the center of operator side.
- **Backward tilt while lowering:**
  Turn over the lever to the right side of center.
- **Forward tilt while lowering:**
  Push the lever in the center forward direction.

⚠ WARNING

- **Do not perform forward tilt while the lift truck is traveling. It may cause loads to shift or drop and also may cause the lift truck to become unstable and tip over.**
- **Do not perform forward tilt while lifting loads in any position. It may cause loads to shift or drop and also may cause the lift truck to become unstable and tip over.**

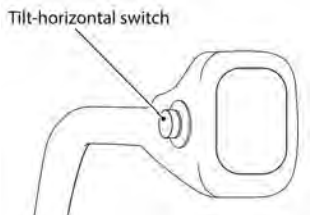
Speed Control

Control of lifting and lowering speeds: For both lifting and lowering, the speed can be changed by controlling the tilt angle of the lever.

Control of forward and backward tilting speeds: For both forward and backward tilts, the speed can be changed by controlling the tilt angle of the lever.

Tilt-Horizontal Switch (Option)

When forward tilt is performed with the mast backward tilted, the forward tilt operation can automatically be stopped in the position where the fork is leveled.



Performing forward tilt while pressing the tilt-horizontal switch moves the mast as shown in the following list, depending on the loading condition.

Loading Condition	Forward Tilt Operation Of Mast
Without load	Automatically stops in the horizontal fork position.
With load	No automatic forward stop to horizontal No movement when turning on the lift-horizontal switch

With load: Turning on the tilt-horizontal switch during operation will not automatically stop tilting in the horizontal direction (no movement).

NOTE:

In case of double lever method, the tilt-horizontal switch is attached to the tilt lever.

The tilt-horizontal switch is kept ON while pressed and turned OFF when released.

Unless the tilt-horizontal switch is pressed, normal forward and backward tilt operations are performed.

⚠ CAUTION

- **The horizontal fork position allowing automatic stops requires a position parallel to the road surface. Do not use this function if the road surface is not level.**

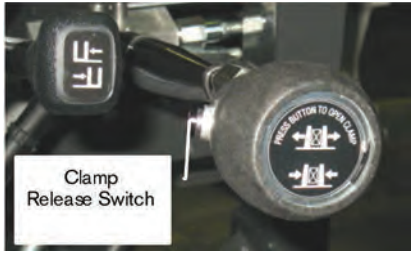
ANSI/ITSDF STANDARDS FOR LIFT TRUCK CLAMP ATTACHMENTS

The ANSI/ITSDF Standards regarding lift trucks mounted clamp attachments took effect for lift trucks shipped on or after October 7, 2010. This current standard affects lift trucks equipped with a load bearing clamp (paper roll clamp, carton clamp, etc.) and requires the operator to perform two distinct motions before opening (releasing) the clamp. For example, the operator must press a button and then move a lever to release the load. ANSI B56.1 Section 7.25 “Load-Handling Controls” can be reviewed by visiting the ITSDF website at www.itsdf.org.

Clamp Release - System Operation:

The clamp will close or clamp the load by operating the auxiliary hydraulic lever without pushing the switch.

The operator must press the clamp switch, prior to operating the auxiliary hydraulic lever, to open the clamp (even while not clamping the load).



OPERATING THE LIFT TRUCK

The following are the recommended procedures that should be followed before and while operating a UniCarriers lift truck.

Since the Occupational Safety and Health Act (OSHA) 29CFR1910.178(l) requires that "**only trained and authorized operators shall be permitted to operate a powered industrial truck**", it is the owner/end user's responsibility to comply. The following is intended as a guide in training operators in safe lift truck operation; it is not a training manual nor is it intended to preclude good judgment and common sense.

For a complete listing of what should be covered in a training program, obtain a copy of ANSI/ITSDF B56.1 Safety Standard for Low Lift and High Lift Trucks.(www.itsdf.org).

INSPECTION BEFORE OPERATING

The OSHA regulation requires the operator to make a complete check of the lift truck at the beginning of **each shift** or **work period**. Ensure that all of the Daily Inspection checks (refer to page 73, also refer to page 74 for Sample Operator's Daily Checklist) have been made before operating the lift truck.

LIFT TRUCK OPERATING PRECAUTIONS

1. **Safety start system:** This safety system prevents the lift truck from starting when the ignition switch is turned on accidentally. The traction circuit is designed to shut off the current flow when the selector lever is in the Neutral position if the accelerator pedal is depressed with the ignition switch turned to the ON position.
2. **Safety stop system:** This safety system is designed to stop the lift truck when malfunctions occur in the electrical system which controls the lift truck speed. If this system should be activated, turn the ignition switch OFF; then turn it ON again and resume driving the lift truck. If the safety stop system begins to operate frequently while starting the lift truck or during operation, contact your Local Authorized Dealer.
3. **Warning buzzer:** This buzzer warns the operator by a continuous sound that the operating procedures (start safety system operating) and the dismounting procedures have not been followed.
4. **Low voltage lock system:** When battery voltage drops below a certain level, this system will activate causing the low voltage lock lamp to illuminate, stopping forklift and fork operation. At this time, the battery warning indicator "  " will be displayed on the LCD. The buzzer will sound. The battery must be recharged or replaced before further forklift operation is possible.

WARNING

- **When the low voltage lock system becomes active, immediately turn the ignition switch OFF and then back ON again. The buzzer will stop sounding. However, further lift truck operation is not possible. Have the lift truck towed to a service area and replace the existing battery with a fully-charged battery.**

⚠ CAUTION

a. **The low voltage lock system is not a device which warns of a weak battery, but rather one that prevents possibly erroneous operation of electrical parts. Always determine whether or not the battery should be recharged by referring to the battery capacity meter.**

b. **After the low voltage lock system has activated, take sufficient time to recharge the battery so that the specific gravity of the electrolyte is resumed.**

5. **Prohibitive overloading the traction motor:** Do not overload the lift truck by climbing a steep slope or dragging heavy objects for an extended period of time. This will cause a great deal of electric current to flow through the motor.
6. **Action to be taken in an emergency:** In an emergency, disconnect the battery plug.

PRECAUTIONS FOR OPERATING IN COLD STORAGE

1. The lift truck should not be used in cold storage below -35°C (-31°F).
2. The cold reduces the battery capacity approximately 1% per degree below +20°C (+68°F). it also may disturb the activity of the electronic circuits; it makes the oil thicker and more viscous as well as the metal (especially welds) more brittle.
3. Use hydraulic oil for cold storage (refer to page 93).
4. The cold means that operators wear bulkier clothes, bigger (thicker) shoes, gloves and caps. This also could make it more difficult to operate the lift truck and makes the operator more insensitive to signals from the lift truck.
5. The lift truck should not be in a cold storage environment for a period in excess of 30 minutes, whether operating or not.

CONDENSATION

Condensation can be seen on lift trucks coming out of a cold storage: condensed water is frozen on the lift truck. This can cause a number of problems. After some time outside the cold storage, the frost melts to water and when the lift truck enters the cold storage again, any water remaining on the lift truck will freeze to ice again.

RECOMMENDATIONS TO AVOID CONDENSATION

- If you have to leave the cold storage, stay outside long enough to all the lift truck to dry completely. This time can be shortened by blowing hot air over the lift truck with big ventilators (fans).
- If you frequently have to go in and out of the cold storage make the stays inside as short as possible and the stays outside as long as possible so that the temperature of the lift truck never goes below 0°C (32°F). i.e. doesn't cause water to freeze.
- Or spend as much time as possible inside and as little time as possible outside, but observe that the temperature of the lift truck doesn't go above 0°C (32°F). i.e. doesn't cause ice to melt.
- When charging batteries observe the above.

OPERATIONAL PROCEDURES

There are certain hazards that cannot be avoided solely by mechanical means in the everyday use of lift trucks. Only the intelligence, good sense, and care of the operator, along with proper maintenance, will assure that the lift trucks are operated properly. It is important to have trained, reliable personnel operating your lift trucks. If, at any time, the operator finds that the lift truck is not performing properly, discontinue operation of the lift truck and report the condition to your supervisor for correction.

When operating the lift truck under severe climatic conditions make sure that the lift truck is manufactured and approved as conforming to the local specifications, laws and regulations.

Conditions such as:

- high temperature
- high altitudes
- in cold storage
- when handling explosives and combustibles
- in areas where the lift truck is apt to cause radio interference

Proper operation of this lift truck is the mast should be tilted back and the forks should be raised approximately 200 mm (8 in) above the ground. Steering the lift truck is easier with the forks leading. Always look in the direction of travel.

Operate the lift truck from the operator's position after assuring operation will not endanger the operator or any other person. Do not operate a lift truck in hazardous areas. Make sure that the forks and/or load have clearance to lower and do not "hang-up".

Before plugging in the battery

- Make sure that the ignition switch is in the "OFF" position
- Plug in the battery connector
- Ensure that all covers are secure
- Check that the top panel latch is secure
- Sit in the seat, latch the seat belt
- Check the setting of parking brake and place the Selector Lever in the Neutral position

WARNING

- **Do not turn the ignition switch ON unless the SELECTOR lever is in neutral.**

1. Plug in the battery and turn ignition switch to the "ON" position.
2. Make sure that the LCD is ON and make sure that the LCD is not showing a malfunction indicator " " or " ".
3. Check battery condition. If the gauge shows a low battery condition, the battery must be charged or replaced before operating the lift truck.
4. Check horn operation; if it does not work do not operate the lift truck. Always sound horn at blind corners and intersections before proceeding to travel.

WARNING

- **Always be sure that all body parts are kept within the operator's compartment.**

5. Check the lift/lower/tilt functions. Report any malfunctions

WARNING

- **Always perform operational checks in a clear area.**

6. Once the forks are lowered, place the Selector Lever in the desired direction of travel. The mast should be tilted back and the forks should be raised approximately 200 mm (8 in) above the ground.
   - If the lift truck is equipped with Travel Speed Control, the truck reverse travel speed will be reduced to 3 mph when the forks are less than five (5) inches off the ground.

⚠ WARNING

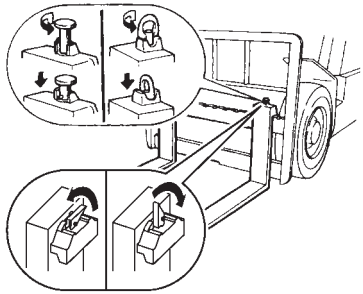
- **Avoid quick steering or acceleration as this may cause an accident, which could result in serious injury or death.**
- **Because the movement of a lift truck is different from that of a passenger car, in case of taking a turn, sufficiently lower the speed and look around.**
- **Do not take a turn with the lift truck lifted high or at a high speed. It may cause a serious accident: for example, the forklift becomes unbalanced and tips over.**
- **When starting on slopes, be sure to apply the parking brake to hold the lift truck and then start, even if the slopes are gentle.**

7. Check the steering function during travel testing. The smaller the radius of a turn to be made, the lower the speed of the lift truck should be. When making a sharp turn, always drive the lift truck at a low speed.

BRAKING BY PLUGGING (CONTROLLED REVERSING)

Braking by plugging is a method of braking in which the Selector Lever is switched to the opposite direction in which the lift truck is traveling (refer to page 48).

FORKS



The fork-to-fork distance can be properly adjusted by unlocking the lock pins on the forks. These pins are unlocked by pulling them up and turning them 90° in either direction. Forks must be equally located from the center of the lift truck. After correct fork-to-fork distance is obtained, secure the forks with the lock pins. Do not use fork lock pins on lift trucks with an optional fork positioner attachment.

⚠ CAUTION

- **Various kinds of forks are available depending on the lifting capacity. Select proper forks so that the specifications stamped on the upper face of them will meet the lifting capacity of your lift truck. Do not use forks below the lifting capacity of your lift truck.**

⚠ WARNING

- **Forks should be inspected daily for any damage, bending or other abnormal conditions. Report any conditions to your supervisor.**
- **ANSI/ITSDF and OSHA require that forks be replaced if worn more than 10% of the starting thickness, this should be checked during normal P.M. or at minimum, yearly by your Local Authorized Dealer.**

LOADING

Adjust distance between the forks so that they are at or near the same distance to the centerline of the lift truck. The wider the interval between forks, the better the balance. Be sure to apply the fork lock pin's (refer to page 78) after setting the forks.

Approach slowly, straight toward the load, and stop just in front of it. Adjust mast to a vertical position, matching the height of the forks to the position of the pallet. Advance slowly and completely insert forks beneath the load. Set the selector lever to the Neutral position and apply the parking brake. Then raise the load. Confirm that the load is stable and tilt it backward. Release the parking brake and back up the lift truck slowly.

TRANSPORTING LOADS

When transporting loads, the lift truck should be driven carefully at a slow speed with the load kept low and tilted back. When the load is big enough to block forward visibility, drive the lift truck backward. Follow the safety rules.

UNLOADING

Slowly approach the unloading site and stop facing straight ahead. Move the selector lever into the Neutral position and apply the parking brake. After adjusting the mast to the vertical position, raise the load a little above the stack on which it is to be placed. Release the parking brake and advance slowly into the proper position for stowing. Apply the parking brake and place the selector lever in the Neutral position.

Slowly lower the forks to set down the load. After moving the selector lever to the Reverse position, release the parking brake and back up the lift truck until the forks separate completely from the load.

CLIMBING

For safety reasons, when driving a loaded lift truck up a steep grade, it must be driven forward with the load in front; park on a downgrade, backward with the load behind.

To make a standing start on an incline, the foot brake can be utilitzed in place of the brake pedal.

STOPPING AND PARKING THE LIFT TRUCK

1. Park the lift truck in designated parking areas only.
2. Make sure the lift truck does not block fire aisles, fire equipment, stairways or walkways.
3. Stop the lift truck by removing your foot from the accelerator pedal and step on the brake pedal.

⚠ WARNING

- **Do not make sudden stops as the lift truck will pitch forward and drop load.**

4. Set the parking brake by depressing pedal.
5. Place the Selector Lever in the Neutral position.
6. Adjust mast to vertical position and lower forks fully.
7. Turn ignition switch to "OFF" position and remove key, if equipped.

NOTE:

If the operator leaves the operator's seat without depressing the parking brake pedal, the warning buzzer alerts the operator.

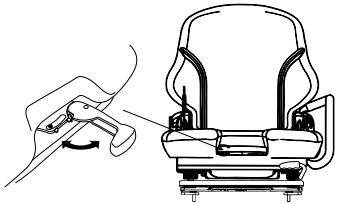
⚠ WARNING

- **To prevent unauthorized use, always remove the key, if equipped, from the ignition switch when left unattended. A lift truck is unattended when the operator is more than 8 m (25 ft) from the lift truck which remains in view, or whenever the operator leaves the truck and it is not within view.**

SEAT ADJUSTMENT

SUSPENSION SEAT OPERATOR'S WEIGHT ADJUSTMENT

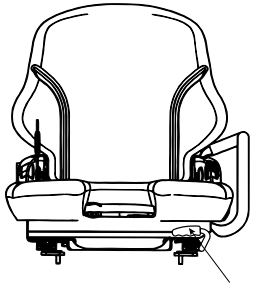
To adjust the suspension seat to the operator's weight pull out the handle and then pump it up or down.



FORWARD AND BACKWARD CONTROL LEVER

The forward and backward control lever is located on the front left side of the seat when sitting in the operating position facing the mast.

To adjust the seat position, pull up and hold while sliding the seat to the desired position. Release the lever to lock into position.

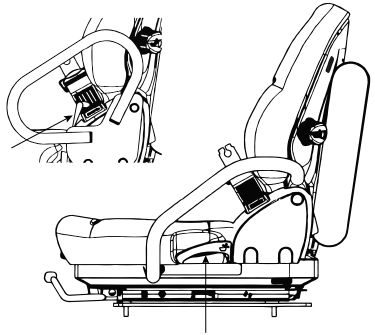


⚠ WARNING

- **Before adjusting the seat turn the ignition switch to the off position and apply the parking brake.**
- **Adjusting the seat while the lift truck is in motion can cause loss of control.**

BACKREST INCLINATION ADJUSTMENT

To adjust the backrest to the desired angle pull up and hold the lever or strap on the left side of the seat. Release the lever or strap to lock the backrest into position.



NOTE:

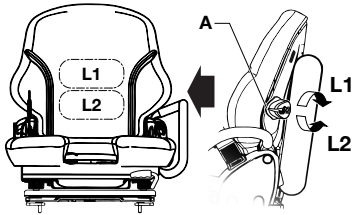
When opening the top panel you may need to tilt the backrest forward depending on the situation.

⚠ WARNING

- **If adjusting the angle of the backrest when not in the operator's seat hold the backrest by hand and do not make hasty or rough adjustments as this may cause an injury, for instance the back of the seat may bump against the operator's face and body, or the operator's finger may get caught between the backrest and the grip.**

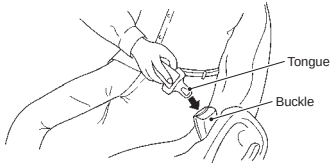
LUMBAR ADJUSTMENT

To expand the upper lumbar turn the knob clockwise (refer to L1 position). To expand the lower lumbar turn the knob counter-clockwise (refer to L2 position). If the knob is in the center position (refer to A position) both the upper and lower lumbar supports are in the neutral position.



SEAT BELT

1. Holding the tongue pull out the seat belt gently.
2. Wrap the lower part of the hipbone with the seat belt as tight as possible.



NOTE:

If the seat belt cannot be pulled out because it is locked, loosen it once and pull it out once more.

3. Being careful not to twist the seat belt, insert the tongue into the buckle until it “clicks”.

For unfastening the seat belt, press the button on the buckle and pull the tongue out of it. While lightly holding the tongue, let the seat belt be rewound gently.

NOTE:

When unfastening the seat belt, be sure to hold the tongue because the tongue may be pulled rapidly together with the seat belt.

⚠ WARNING

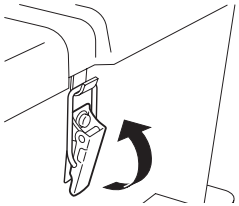
- **Periodically check to see that the seat belt and metal components, such as buckles, tongues, retractors, flexible wires and anchors, work properly. If loose parts, deterioration, cuts or other damage is found, the entire seat belt assembly should be replaced.**
- **Tightly wrap the seat belt around the hipbone as low as possible. If the seat belt comes off the hipbone and it wraps around the abdomen, it may cause an injury because strong pressure is applied onto the abdomen.**
- **Do not fasten the seat belt if it is twisted. If it is twisted, it may cause an injury because the twisted belt cannot disperse on impact.**
- **Do not adjust the seat belt to be loose such as slackening it intentionally by use of a clip. If the seat belt is fastened loosely, it cannot perform correctly.**
- **Do not excessively tilt back the backrest, otherwise the seat belt may not perform correctly.**
- **Do not put any foreign substance into the buckle or retractor, otherwise its (performance cannot be demonstrated) because it cannot be fastened normally.**
- **It is recommended that the seat belt be used by pregnant women and injured persons, consult with you doctor for specific recommendations beforehand because her/his abdomen is pressed by the seat belt.**
- **A seat belt that was once impacted, damaged or broken in part may not perform correctly. Replace it with a new one by contacting your Local Authorized Dealer.**

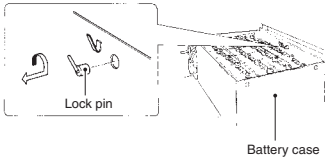
⚠ WARNING

- **For cleaning the seat belt, use a neutral detergent or lukewarm water. After cleaning, dry it completely before use. Be sure not to use an organic solvent such as benzine or gasoline, otherwise the seat belt deteriorates in its performance and may not function as designed.**

TOP PANEL

The lift truck is provided with a device to hold the battery in place to prevent it from coming out in the event of a tip-over.





Battery Case, Lock Pins for Pneumatic models only

⚠ WARNING

- **Before operating the lift truck, check the battery restraint device (pneumatic models only) and the top panel latch to see that it is firmly locked.**

NOTE:

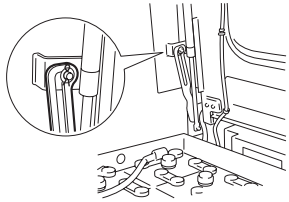
On lift trucks equipped with a restraint seat, tilt the steering wheel forward and move the seat to the rear most position before opening the top panel.

When opening and closing the top panel, use its handle.

1. Unlock the top panel latch.
2. Open the top panel and securely lock it.

⚠ CAUTION

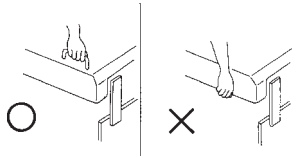
- **Since the top panel is heavy, exercise caution in handling it.**
- **Be sure that the top panel is locked securely by lock bar.**



3. Unlock the lock bar, and close the top panel.
4. Lock the top panel latch.

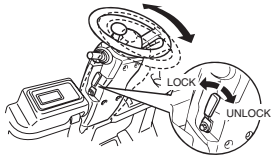
⚠ WARNING

- **Close the top panel slowly, keeping a firm hold on the handle. Never place your hand under the top panel and the forklift body. The top panel may fall and cause serious injury.**
- **Make sure the top panel latch is securely locked.**



TILT STEERING WHEEL

The position of the steering wheel can be adjusted. To adjust, push down on the lever located on the left side of the steering column, and move the wheel to the desired position. After selecting the wheel position, pull up the lever fully to lock.

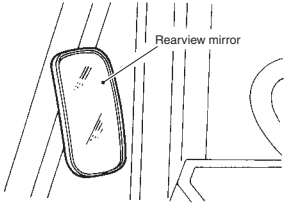


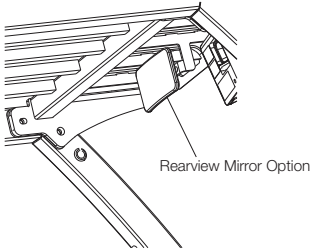
⚠ WARNING

- **Before adjusting the steering wheel, turn the ignition switch off and set the parking brake.**
- **Be sure to adjust the steering wheel position while the lift truck is stationary.**
- **After adjustment, force the steering wheel upward or downward to assure it is locked securely.**

REARVIEW MIRROR (OPTION)

Adjust the right and left rearview mirrors respectively by hand so that both ensure the best view to the rear.





⚠ WARNING

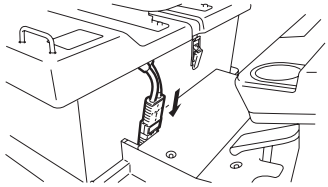
- **Never use only the rearview mirrors for operating the lift truck in reverse due to limited visibility. Always turn and look in the direction of travel before proceeding.**

BATTERY CONNECTOR

⚠ WARNING

- **Before operating the lift truck, check the battery restraint device (pneumatic models only) and the top panel latch to see that it is firmly locked (refer to page 61).**

The battery connector is used to supply battery power to the required electrical units or parts. Always connect the connector before lift truck operation and check that the top panel latch is secure (refer to page 61). In the case of an emergency, immediately disconnect the battery plug. Before replacing or inspecting fuses or any other electrical units/parts, be sure to disconnect the battery connector.



GENERAL CARE AND MAINTENANCE

WET CELL BATTERY CARE AND MAINTENANCE

The following is general information regarding the best methods for using and maintaining the battery and it not intended to address details regarding every manufacture of batteries/chargers. The specific battery or charger manufacturer should always be contacted to ensure their recommended procedures and operation methods of the equipment are followed.

Refer to the appropriate manuals attached to the battery for information about how to handle and maintain the battery. Proper care and servicing of the battery is vital to ensure satisfactory operation and life of your forklift. Battery acid is extremely corrosive and should be washed off the unit if any spills occur.

⚠ CAUTION

- **Do not allow the alkaline solution to fall in the battery cell, this will result in a dead or weak battery.**
- **Check with Local and State Regulations on storing, charging and cleaning of corrosive materials. There may be conditions locally which will not allow you to simply wash off acid spills.**

⚠ WARNING

- **Only trained and authorized personnel should conduct maintenance or servicing of this lift truck and its battery.**
- **Always turn the ignition switch to the OFF position and disconnect the battery before doing any servicing of the battery.**
- **Always wear personal protective equipment (PPE), i.e. safety goggles, rubber gloves and boots, when servicing the battery. Battery acid will cause severe burn or injury.**
- **The battery generates highly explosive hydrogen gas. A short circuit resulting in sparks or even a lit cigarette in the vicinity of the battery can cause a serious explosion. Do not permit smoking, open flames or sparks near the battery or battery maintenance area.**
- **Battery fluid contains highly corrosive sulfuric acid. If acid contacts skin or clothing, flush the area immediately with large amounts of clean fresh water. If acid enters the eyes, immediately wash out eyes with large amounts of clean fresh water and contact a physician. If acid is accidentally swallowed, immediately contact a physician.**
- **If a large quantity of battery fluid is spilled, neutralize it with an equivalent quantity of basic neutralizing agent (baking soda, calcium hydroxide, or sodium carbonate). Wash away the resulting solution with large quantities of clean fresh water. Always follow any and all local, state and federal regulations for hazardous material spills.**

WARNING

- When changing industrial batteries, replacement batteries shall be of the service weight that falls within the minimum/maximum range specified on the truck data plate by the truck manufacturer.
- Do not place tools or other metallic objects on the top surface of the battery where they may come in contact with the battery terminals and cause an electrical short. This electrical short may cause sparking. The sparking may ignite the hydrogen gas escaping from the battery resulting in a serious explosion. It may cause some nearby object to burn.
- Battery fluid exhaustion (gases) creates the danger of explosion. Replenish the battery fluid frequently to maintain the specified fluid level. During battery charging, the proportion of water in the battery fluid decreases. Before battery charging, always check that the battery fluid level is above plates. If the fluid level is low, replenish it with distilled water to cover the plates. Do not overfill to standard level.
- After charging is complete fill cells to the standard fill level.
- During battery charging, there is a high risk of hydrogen gas explosion. To reduce this risk, always perform battery charging in a well-ventilated room or area. Continue ventilation for at least thirty minutes after the completion of charging.
- Do not attempt to recharge a frozen battery; this may cause it to rupture or explode.
- Cleaning the battery upper surface and connections with certain types of dry cloth or laying a dust cover or vinyl sheet across these areas may create a static electricity charge that can lead to dangerous sparking. An explosion can result. Do not use dust covers or vinyl sheets to protect the battery. If you are cleaning battery surfaces, use a slightly damp cloth.

CAUTION

- Over-discharge precautions. Recharge the battery immediately after the meter panel battery warning indicator begins to blink. Do not operate the lift truck until it simply stops running and then recharge the battery. This technique will result in greatly reduced battery service life. After completing lift truck operations, park the lift truck and immediately begin battery charging. Do not store a discharged battery for an extended period of time. Recharge it before storing.
- The battery and its surroundings should be kept clean and dry at all times. Keep the battery plugs tightly closed to prevent the leakage of battery fluid. Battery fluid leakage will result in battery corrosion.

ADDING WATER

On a routine basis after every fifty hours of operation, remove the battery vent caps and inspect the electrolyte level. The water in the electrolyte solution evaporates at high temperatures or with excessive charging rates.

For North America

The level should be to the bottom of the filler neck after charging; if not, replenish to the proper lever with distilled water after charging.

CLEANING TERMINALS AND CABLE CONNECTIONS

The top of the battery must be kept clean. Tighten the vent caps and clean the battery with a brush dipped in an alkaline solution (ammonia or baking soda and water). After the foaming has stopped, flush top of battery with clean water. If terminals and cable clamps are corroded, disconnect the cables and clean them with the same solution.

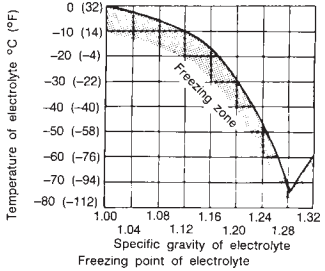
PRECAUTIONS FOR COLD AND HOT WEATHER

IN COLD WEATHER

Battery electrolyte freezing point varies with acid concentration or its specific gravity. A battery with an insufficient charge will freeze at higher temperatures.

NOTE:

Use extreme caution to avoid freezing the battery since freezing will generally ruin the battery.



IN HOT WEATHER

Since the battery electrolyte quickly evaporates in hot weather, it is necessary to fill with distilled water frequently.

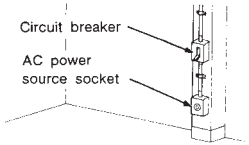
BATTERY CHARGERS

The off-truck type charger is a separate entity. The battery charger may or may not be included with the lift truck.

⚠ WARNING

Determine the type of battery charger that is used for the lift truck you are using. Operate the lift truck accordingly.

- **Alternating current power source voltage will vary with the area in which the lift truck is used. Determine the local voltage before attempting to charge the battery. Use the appropriate transformer tap on the battery charger.**
- **Tap adjustment requires specialized knowledge and expertise.**
- **Tap configuration must be set before battery charging. For full charging, select a time frame in which minimum voltage fluctuation occurs, then select the appropriate transformer tap. If the wrong tap is selected, over-charging or under-charging will result. If you have any questions, contact your Local Authorized Dealer.**
- **A current or over-current circuit breaker (hereafter referred to simply as breaker) must always be connected to the AC power supply side of the battery charger.**



- **Always use charging equipment that is appropriate for the lift truck battery being charged.**
- **If multiple battery chargers are in use, each battery charger must be equipped with its own circuit breaker.**
- **Alternating current requires high-capacity units. Set the charging equipment power source to the appropriate level.**
- **Specialized knowledge and expertise is required. For information on the legal requirements of your country, contact your Local Authorized Dealer.**

BATTERY CHARGE CLASSIFICATIONS

NORMAL BATTERY CHARGE

The normal battery charge is used to restore the battery to its original power level.

EQUATION BATTERY CHARGE

When the normal battery charge is applied many times, the voltage level and the battery fluid specific gravity of the individual cells will show a wide variation. This wide variation will prevent full charging of the battery. Equation battery charge is used to equalize individual cell voltage and battery fluid specific gravity and make full battery charging possible again.

As a general rule, a battery charged and discharged on a daily basis should have equation charging applied after every 10 or 15 charge/discharge cycles.

Additionally, equation charging should be performed as soon as possible if any of the following conditions occur.

a. Battery discharge in excess of the specified limit.
b. Battery charging following discharge is delayed for an extended time period.
c. A battery short circuit has occurred.
d. A battery that has not been used for an extended time period is readied for use.

⚠ CAUTION

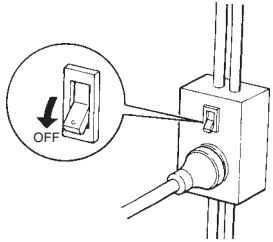
- **Equation battery charging is used to restore a battery to its full potential. However, it should not be performed too frequently. Frequent equation battery charging will result in a greatly reduced battery service life.**

NOTE:

- The battery consists of lead cells connected in series to one another. Each cell has a capacity of approximately 2 volts. There are several dozen cells. The connected cells are contained in the battery case. When there is significant variation in voltage and battery fluid specific gravity between individual battery cells, full charging will not be possible.
- With some battery charging equipment, equation battery charging occurs automatically after some specified number of charge/discharge cycles. Manual selection of the equation battery charging mode is not required.

CHARGING PREPARATIONS

1. Move the lift truck to the charging area and park it.
2. Check the battery fluid level. Replenish the battery fluid to the specified level with distilled water as required.
3. Check that the circuit breaker on the AC power supply side is OFF.



⚠ WARNING

- **During battery charging, large quantities of highly-explosive hydrogen gas may be released from the battery. To minimize the danger of an explosion, battery charging should be performed in a well-ventilated area protected from direct sunlight. Remove all objects that might ignite the gas from the immediate area before beginning charging.**

NOTE:

Transformer tap selection is required before beginning charging. Measure the charger power supply voltage. Select the appropriate transformer tap.

Selection of the wrong tap will result in battery over-charging or under-charging. Contact your Local Authorized Dealer if you require more detailed information.

HOW TO CHARGE BATTERY (OFF-LIFT TRUCK TYPE)

Charge the battery according to the manual supplied with the charger being used.

1. Ensure the supply side voltage corresponds with the charger input voltage.

NOTE:

The battery chargers are preset to the following input voltages at the time of delivery:

220V ... 200-volt charger

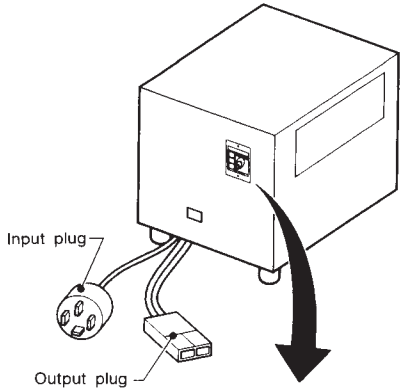
440V ... 400-volt charger

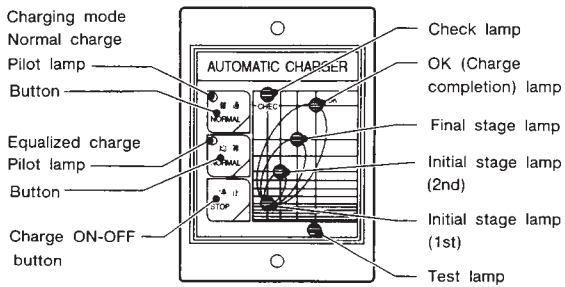
2. If the charger input voltage does not correspond with the supply voltage, the input side voltage is adjustable as follows using the tap changer located inside the charger.

⚠ WARNING

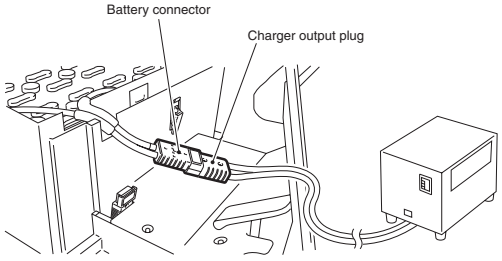
- **Unplug the charger before adjustment. Serious injury or death can occur by electrical shock.**

EXAMPLE ONLY





3. Connect the charger output plug to the battery plug.



⚠ CAUTION

- **Do not connect the charger output plug to the body harness connection. The battery will not charge through this connection.**

4. Connect the charger input plug to the wall outlet (in the service shop).

⚠ CAUTION

- **To prevent a short circuit, install a no-fuse breaker on the wall outlet side (in the service shop) to connect the charger input plug.**

5. Push the NORMAL or EQUAL button to select normal or equalizing charge, respectively.

   When an equalizing charge is desired, press the EQUAL button to set the charger in that mode. The NORMAL pilot lamp will go out and the EQUAL pilot lamp will come on.

   Make sure only the pilot lamp of the selected charging mode is lit.

   At this time, charging will be started automatically.

NOTE:

- Push the NORMAL or EQUAL button for about 2 seconds. Do not push it more than 5 seconds. If the button is pushed for extended periods of time, the timer will enter test mode. The test lamp will come on. The test mode will end in 10 seconds to 2 minutes and the test lamp will go off. When the test mode is operating, charging will not start because the charging mode is not selected.
- After charging is started, it is not possible to change the charging mode (NORMAL or EQUAL). If it is necessary to change the mode, stop charging (push the STOP button), and then select the charging mode again.
- It is advisable to charge the battery using the equalize charging mode at least two or three times a month.

6. While charging, the charge indicator lamp will come on sequentially and remain lit. Firstly, the Initial (1st) lamp comes on, then the 2nd lamp, and they remain lit. Finally, the Final lamp will come on.

NOTE:

When the FINAL lamp comes on, the timer will activate.

7. When charging has been completed, the charging circuit automatically opens. At this point, the Initial (1st) lamp, 2nd lamp, Final lamp and OK (charge completion) lamp will all come on to indicate that charging has been completed.

   At this time, the charging mode lamp will go out.

8. After ensuring that the Initial (1st and 2nd), Final and OK lamps are on, disconnect the charger output connector from the battery plug. All lamps will then go out.

NOTE:

- Do not disconnect the input plug while charging is taking place.
- Before disconnecting the charger output plug from the battery plug, make sure the Initial (1st and 2nd), Final and OK lamps are lit (4 lamps in all).

⚠ WARNING

- **If the CHECK lamp remains on after charging the battery, the problem may be due to a malfunctioning main timer or an abnormal battery. Immediately contact your Local Authorized Dealer for inspection. When the charger output plug is disconnected from the battery plug, the CHECK lamp will go out.**
- **Leave the battery lid open during the charging process.**
- **While the battery is being charged or immediately afterward, inflammable gases are actively produced. Be careful to keep any open flame away from the battery.**
- **Keep the parking brake pedal engaged during the battery charging process on the lift truck.**
- **Before charging the battery, add distilled water up to the upper limit level. Do not overfill.**
- **If a fuse located on the transformer is blown, replace it with one of the same type and rating.**
- **Periodically clean the caps, removing any foreign matter from gas vents. The caps need not be removed during the charging operation.**
- **When charging is complete, ascertain with a gravimeter that the specific gravity is 1.28 at a temperature 20°C (68°F).**

BATTERY REPLACEMENT

BATTERY SELECTION

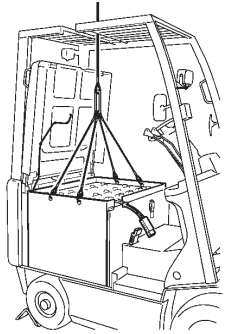
A battery also serves as a counterweight, and the lifting capacity will vary according to the weight of the battery which is mounted on the lift truck.

Accordingly, it is necessary to choose a battery which is within the battery weight range specified on the data plate attached to each forklift.

When using any battery which is not within the battery weight range specified on the data plate attached to the forklift, be sure to contact your Local Authorized Dealer, and ask them to change the lifting capacity and battery weight range stamping on the data plate attached to this lift truck.

BATTERY REMOVAL AND INSTALLATION

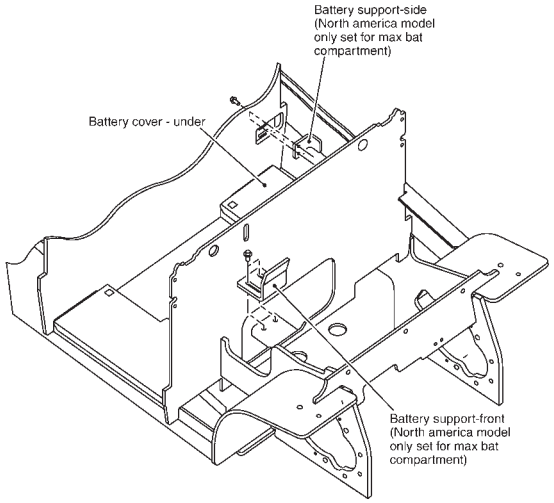
SAMPLE



To remove the battery proceed as follows:

1. Disconnect the battery connector.
2. Unlock the top panel latch and then open it, and securely lock it.
3. **Pneumatic:** Remove battery restraint device.
4. Remove the side panels from the right side of the battery.
5. Align the battery raising tool with the hook and the notch in the overhead guard.
6. Lift the battery box vertically out of its lodging.
7. Carefully remove to one side and place it on the ground.

To install, proceed in reverse order.



NOTE:

The battery supports (North America models only) are set to the maximum battery compartment size, and should be adjusted to limit horizontal movement to not more than 1/2 inch for a battery of nominal voltage rating and representative of the maximum ampere-hour rating, per UL 583.

⚠ WARNING

- **Avoid damage to battery, feed cable, overhead guard and upper panel during battery removal and installation.**

DAILY INSPECTION

To maintain your lift truck in proper condition and ready for safe operation, be sure to perform the daily checks indicated below. If you note any malfunction notify your Local Authorized Dealer.

1. Check battery fluid level.
2. Check brake fluid level and for leaks.
3. Check hydraulic oil level and for oil line leaks.
4. Check for full motion and proper function of all the steering and travel controls.
5. Check steering wheel play.
6. Check the condition of tires and wheels. Check for looseness, wear or damage of wheel nuts and bolts. If pneumatic tires check inflation pressure.
    - Remove objects that are embedded in the tread.
    - Check for damage and friction of wheels and for bends and cracks in the rim.
7. Check that all guards, horn, lights, limit switches, warning and safety devices, indicators, etc. are functional.
8. Check safety start systems operation
9. Check operation of hydraulic control valve.
10. Check mast operation for the following items:
    - Smooth lifting and lowering
    - Smooth roller rotation
    - Wear or damage to chains
    - Wear or damage on mast rail
    - Lift bracket and forks for bends or damage
11. Conduct an operational check, including braking functions and plugging distance.
12. Check seat belt and top panel latch.
13. Check forks and frame for cracks, breaks, bend and wear.
14. Check the fork latches.
15. Check the backrest and overhead guard for proper installation and function.
16. Inspect the condition of battery connectors, electrical cables, wiring and chains. Make a report of any found to be worn or cracked.
17. Check that the battery retainers, if used, are in place and working properly.
18. Check additional options, i.e. attachments or special equipment as specified by the manufacturer or employer.
19. Check that capacity plates and decals are legible, if not replace.

⚠ WARNING

- **If the lift truck is found to be in need of repair or in any way unsafe, contributes to an unsafe condition, or becomes unsafe in any way during operation, the matter shall be reported immediately to your designated authority, and the lift truck shall not be operated until it has been restored to safe operating condition.**
- **Do not make repairs or adjustments unless specifically authorized to do so.**
- **Do not use open flames when checking electrolyte level in storage batteries.**
- **Be certain that your truck is the correct UL safety rating type for the area in which you are working. The proper type designation for the industrial truck is on the data plate. In areas classified as hazardous, use only trucks approved for use in those areas. All hazardous areas should have classified markings. If you are unsure of the classification of the area you wish to enter, ask your designated authority before entering.**

OPERATOR'S DAILY CHECKLIST (SAMPLE)

⚠ WARNING

- **Carry out the daily checks as per "Daily Inspection" in this Operator's Manual on page 73 and the applicable provisions of laws and regulations of your country (In U.S. OSHA 29CFR1910.178).**

Operator's Daily Checklist and Safety Inspection (sample)

I.T.A. Class I, II and II Operator's Daily Checklist and Safety Inspection (sample)

Check each of the following items before the start of each shift. Notify your supervisor and/or maintenance department if there are any problems with the lift truck.
DO NOT OPERATE A LIFT TRUCK WITH ANY MALFUNCTION.

LIFT TRUCK DETAILS:

Electric Sit-down Electric Stand-up Electric Pallet Serial/Lift Truck Number:_____ Hour Meter Reading:_____ Date of Inspection:_____ Operator:_____ Supervisor's OK:_____

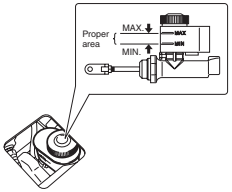
Please review the list below and mark each item accordingly. Please provide any additional explanation as necessary.

#	OK	NG	Visual Check Items	#	OK	NG	Operational Checks
01			Forks: bent, worn, stops, forklocks OK	18			Horn Operation
02			Load Backrest: bent, cracked, loose, missing	19			Operator Restraint (if equipped): operation
03			Tires/Wheels: wear, damage, nuts tight	20			Brake: loose/binding, operation, adjustment
04			Battery Connectors: cracked, loose, missing	21			Seat Brake (if equipped): loose/binding, operation
05			Hydraulic Oil: level, dirty, leaks	22			Mast: smooth lifting/lowering and roller rotation, wear or damage to chains or mast rails
06			Covers/Sheet Metal: damage, missing	23			Tilt: loose/binding, excessive drift, "chatters", leaks
07			Overhead Guard: bent, cracked, loose, missing	24			Carriage and Attachments: operation, leaks
08			Battery: connections loose, state of charge, electrolyte level	25			Control levers: loose/binding, free return to neutral position
09			Warning Decals/Operator's Manual: missing, unreadable	26			Battery Test: indicator shows full charge while holding full forward tilt
10			Data Plate/Capacity Plate: incorrect: unreadable, missing	27			Directional Control: loose/binding, find neutral position OK
11			Operator Restraint (if equipped): damage, mounting, operation, oily, dirty	28			Drive Axle: noise, leaks
12			Gauges/Instruments: damage, operation	29			Steering: loose/binding, leaks, operation
13			Brakes: linkage loose, reservoir fluid level, leaks	30			Warning Lights (if equipped): mounting, operation
14			Carriage and Attachments: damage, mounting, operation, leaks	31			Back-Up Alarm (if equipped): mounting, operation
15			Head/Tail/Working Lights: damage, mounting	32			Head/Tail/Working Lights: mounting, operation
16			Side Gates: damage	33			Side Gates: operation, binding
17			Battery Retainer: damage, latched, operation	34			Battery Retainer: operation

Additional explanation of problems marked above:_____

MAINTENANCE AND INSPECTION

BRAKE FLUID LEVEL



Visually check the amount of brake fluid in the reservoir.

Check the brake piping for leaks, as it is vital that brake fluid be supplied to the wheel cylinder.

⚠ WARNING

- **If brake fluid is unusually low, a leak or stain is detected, immediately report it to the appropriate personnel or contact your Local Authorized Dealer. Do not operate the lift truck until it has been repaired.**

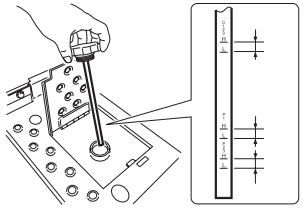
REFILLING BRAKE FLUID

Turn the brake reservoir tank cap counterclockwise to remove it. Gently pour the brake fluid into the tank until the fluid level reaches the "MAX" level (refer to page 93).

⚠ CAUTION

- **Carefully add brake fluid so as not to mix dust and foreign substances in the fluid.**
- **Do not use any brake fluid other than those specified by the OEM or an aged brake fluid, it may cause not only deterioration in the performance of the lift truck but could result in an accident.**
- **Be careful not to spill the brake fluid to the coated surface, it will vitiate (damage) the coated surface. If fluid comes into contact with a coated surface, immediately wipe it out so that no liquid remains.**

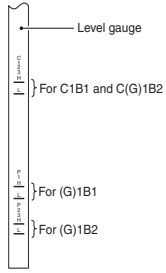
HYDRAULIC OIL LEVEL



Check the oil level in the hydraulic oil tank. The oil level should be between point "H" and point "L" on the gauge rod. If it is below point "L" add oil to point "H".

NOTE:

For correctly checking the hydraulic oil level, park the lift truck on level ground and stand the mast vertically with the forks lowered to their lowest limit beforehand.



REFILLING HYDRAULIC OIL

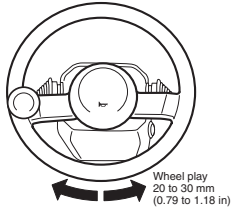
Remove the hydraulic oil filler cap. While checking the hydraulic oil level with the level gauge, pour the specified hydraulic oil into the oil filler until the oil level is in the proper area (refer to page 93).

⚠ CAUTION

- **Each lift truck model has a different level of hydraulic oil. Confirm the model when checking level. Refilling oil to incorrect level is a cause of oil leakage.**
- **Do not use any hydraulic oil other than those specified by the OEM, otherwise it may cause not only deterioration in the performance of the lift truck but could result in an accident.**
- **Carefully add the hydraulic oil so as not to mix dust and foreign substances in the oil.**

STEERING WHEEL PLAY

Turn the steering wheel to the left and right with the ignition switch "OFF". A free play of 20 to 30 mm (0.79 to 1.18 in) at the wheel perimeter is normal when the steer wheels are in the straight-ahead position.



⚠ WARNING

- **If there is excessive play or looseness, have the steering wheel adjusted by your Local Authorized Dealer.**

WHEEL AND TIRE

⚠ WARNING

- **OSHA safety procedures must always be followed. Refer to OSHA 1910.177.**
- **Only properly trained personnel should replace pneumatic tires on multi-piece rim sets.**
- **Always use correct procedures when servicing or replacing pneumatic tires on multi-piece rim sets.**
- **When inflating or deflating tires, a suitable safety cage or barrier shall be used.**
- **Failure to use proper procedures can cause explosive separation of tire and rim set, death or serious injury could result.**
- **If any of these warning are not adhered to it could result in death or serious injury.**
- **Tires used on lift trucks manufactured in Japan and the U.S. are different. Do not mix different sizes or tire types, as this could affect stability.**

⚠ WARNING

- **If the tire pressure is not correct it can affect the stability of the lift truck, potentially resulting in a tip-over. It can also cause rupturing, premature tire wear or explosive separation of the multi-piece rim set.**
- **When checking the tire pressure, do not face the tire side to avoid a danger because the tire pressure is very high.**

NOTE:

There is a pneumatic type cushion tire without inner tube (so-called tubeless tire, solid pneumatic or non-puncture tire) supplied. Such tire has no need for tire pressure check.

Maintain the correct tire pressures by checking frequently with an accurate tire gauge. Inflate tires to the correct pressure as necessary.

Tire pressure (pneumatic models only):

Unit: kPa (bar, kgf/cm², psi)

Model	Front Tire (Drive)	Tire Pressure
J1B1 (Pneumatic) - Single	21 x 8-9-10 PR	625 (6.25, 6.25, 88.9)
J1B1 (Pneumatic) - Double	6.00-9-10 PR	850 (8.5, 8.5, 121)
T1B2 (Pneumatic) - Single	23 x 9-10-16 PR	900 (9.0, 9.0, 128)
T1B2 (Pneumatic) - Double	6.50-10-10 PR	700 (7.0, 7.0, 100)

Model	Rear Tire (Steer)	Tire Pressure
J1B1 (Pneumatic)	5.00-8-10 8PR	900 (9.0, 9.0, 128)
T1B2 (Pneumatic)	18 x 7-8-14PR	900 (9.0, 9.0, 128)

Model	Type	Tire Size
J1B1 (Cushion)	Front (Drive)	18 x 6 x 12-1/8
	Rear (Steer)	14 x 5 x 10
T1B2 2.0-2.5 Ton (Cushion)	Front (Drive)	21 x 7 x 15
	Rear (Steer)	16-1/4 x 6 x 11-1/4
T1B2 3.0-3.5 Ton (Cushion)	Front (Drive)	22 x 8 x 16
	Rear (Steer)	16-1/4 x 6 x 11-1/4

TIRE REPLACEMENT

WARNING

- **Do not remove the wheels unless you are familiar with the procedure. For wheel replacement, contact your Local Authorized Dealer.**
- **Do not get under or ride on the lift truck when it is supported only by a jack. Doing so could lead to a serious accident, including death in the case the jack comes off accidentally.**
- **Use a jack with a capacity of 3.0 tons or more.**

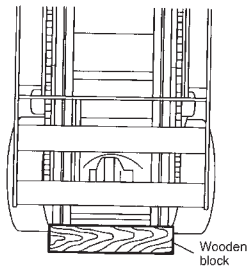
CAUTION

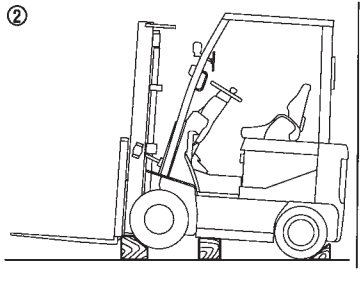
- **Always park the lift truck on a flat, level and solid surface.**
- **Unload cargo from the lift truck.**
- **Do not turn the ignition switch to "ON" or "OFF", or operate control levers from any position other than the operator's seat.**
- **Keep the parking brake pedal fully depressed.**
- **Make sure the selector lever is in the neutral position. Check the lift truck and its surroundings for safety.**
- **Use hardwood blocks that do not slip easily and are strong enough to withstand the lift truck weight. Do not use broken or cracked blocks or metal blocks that slip easily.**
- **Use wood blocks of the following size:**

  Height: Allows the block to tightly fit between the backward tilted mast and the road surface.

  Width: 50 to 100 mm (1.97 to 3.94 in) larger than the longitudinal length of the mast rail.

  Length: 20 to 40 mm (0.79 to 1.57 in) larger than the width of the outside mast.
- **To prevent the lift truck from inclining, do not place wood blocks of different heights under the right and left mast.**

① 

② 

NOTE:

There are two types of wheel nut wrenches: a large one for the front wheels and a small one for the rear wheels.

Front (Drive) Tire:

1. Place the lift truck on a level and solid surface.
2. Turn the ignition switch to the "ON" position and raise the carriage about 250 mm (9.84 in).

3. Place chocks behind the rear wheels to prevent movement of the lift truck.
4. Loosen the wheel nuts one or two turns each by turning the counterclockwise.
5. Tilt the mast fully backward, place a wooden block under each side of the outer mast.
6. Tilt the mast forward until the front tires are raised from the surface.

⚠ WARNING

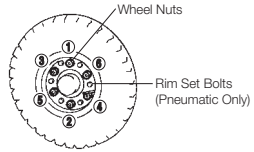
- **Do not operate the control lever quickly. Doing so may cause the mast on wood blocks on the ground to become unstable.**
- **Stop jacking up the lift truck when the tires are slightly raised off the ground. Jacking up the lift truck excessively high could cause it to roll over.**
- **If the front wheels are lifted for a long time by means of the mast, the mast may incline backward by itself. To prevent this, be sure to insert wood blocks under each side of the frame with no space left between them.**
- **Do not remove the wheel nuts until the front tires are raised off the ground.**

7. Support the lift truck by putting additional wood blocks under each side of the front-end of the frame as shown on page 78. Turn the ignition switch to "OFF".
8. Remove the wheel nuts and replace the front tire.

⚠ WARNING

- **When removing the tire from the wheel rim, do not remove the rim set bolts and wheel nuts before releasing the air (pneumatic model only).**
- **Never get under the lift truck while it is supported only by the wood blocks.**

9. Reinstall the wheel nuts and temporarily tighten them in the sequence as shown.



⚠ CAUTION

- **Each wheel nut has a conical bearing surface and each hole in the rim is countersunk so that they can fit with each other. After attaching all wheel nuts, make sure each nut tightly fits with the countersunk hole. If wheel nuts are attached in the wrong direction, they will loosen easily and might cause bolts to break and the wheel to come off.**

10. Turn the ignition switch to "ON" and remove the wood blocks from the underside of the frame.
11. Lower the lift truck slowly by tilting the mast fully backward. Remove the wood blocks from under the mast and remove the chocks.
12. Tighten the wheel nuts to the specified torque in a crisscross fashion (refer to page 82).

13. **Pneumatic:** Adjust the tire pressure to the value specified (refer to page 77).
14. After replacing a tire, drive the lift truck and check the tightening torque of each wheel nut again.

Rear (Steer) Tire:

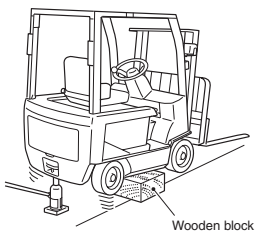
⚠ WARNING

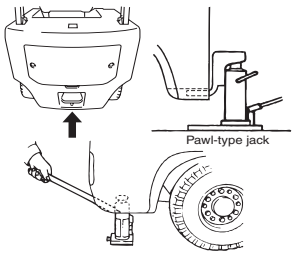
- **Do not remove the wheels unless you are familiar with the procedure. For wheel replacement, contact your Local Authorized Dealer.**

NOTE:

To replace a cushion (press-on) tire, contact properly trained personnel, your Local Authorized Dealer.

1. Place the forklift on a level and solid surface.
2. Apply the parking brake and place chocks behind the front wheels to prevent movement of the forklift.
3. Place the jack under the cutout portion at the bottom of the counterweight.

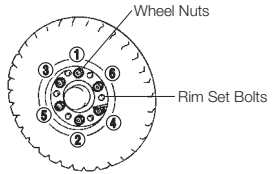




⚠ WARNING

- **Do not get under or ride on the lift truck when it is jacked up. Doing so could lead to a serious accident, including death in the case the jack comes off accidentally.**
- **Use a jack with a capacity of 3.0 tons or more.**

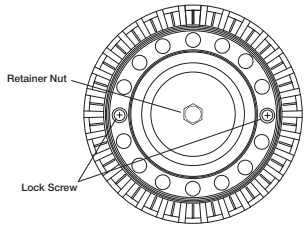
4. **Pneumatic:** Loosen the wheel nuts one or two turns each by turning them counterclockwise.



⚠ WARNING

- **Do not remove wheel nuts until the rear tires are raised off the ground.**

4. **Cushion:** Loosen the retainer nut one or two turns by turning it counterclockwise.



⚠ WARNING

- **Do not remove retainer nut until the rear tires are raised off the ground.**

5. Jack up the lift truck slowly until the rear tires clear the ground. Support the lift truck by putting wood blocks under each side of the rear end of the frame as show on page 80.

⚠ WARNING

- **Stop jacking up the lift truck when the tires are slightly raised off the ground. Jacking up the lift truck excessively high could cause it to roll over.**
- **Use hardwood blocks that do not slip easily and are strong enough to withstand the lift truck weight. Do not use broken or cracked blocks or metal blocks that slip easily.**

6. **Pneumatic:** Remove the wheel nuts and replace the rear tire.
6. **Cushion:** Remove the retainer nut and remove the rear tire to press-on replacement.

⚠ WARNING

- **Pneumatic: When removing the tire from the wheel rim, do not remove the rim set bolts and nuts before releasing the air.**
- **Never get under the lift truck while it is supported only by the wood blocks.**

7. **Pneumatic:** Reinstall the wheel nuts and temporarily tighten in sequence as shown at left.
7. **Cushion:** Reinstall the retainer nut and tighten refer to chart on page 82.
8. Remove the wood blocks and lower the forklift slowly until the rear tires touch the ground. Remove chocks and jack.
9. **Pneumatic:** Tighten the wheel nuts to the specified torque in a crisscross fashion (refer to page 82).
10. **Pneumatic:** Adjust the tire pressure to the value specified (refer to page 77).
11. **Pneumatic:** After replacing a tire, drive the lift truck and check the tightening torque of each wheel nut again.

Tightening torque:

Unit: N-m (kgf-m, ft-lb)

Wheel nut			J1B1	T1B2	CJ1B1	CT1B2 (2.0, 2.5 ton)	CT1B2 (3.0, 3.5 ton)
Front (Drive)	Single tire		167 - 226 (17 - 23, 123 - 166)	196 - 245 (20 - 25, 145 - 180)	167 - 226 (17 - 23, 123 - 166)	196 - 245 (20 - 25, 145 - 180)	324 - 373 (33 - 38, 239 - 275)
	Double tire	Inner	167 - 226 (17 - 23, 123 - 166)	196 - 245 (20 - 25, 145 - 180)	--	--	--
		Outer	167 - 226 (17 - 23, 123 - 166)	196 - 245 (20 - 25, 145 - 180)	--	--	--
Rear (Steer)			167 - 226 (17 - 23, 123 - 166)	167 - 226 (17 - 23, 123 - 166)	Hub is maintained by wheel bearing nut and rolling torque as noted in Service Manual Page RA-14.		

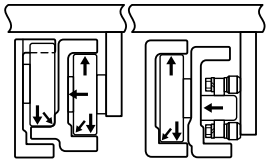
CHECKING MAST

Check the mast to ensure that:

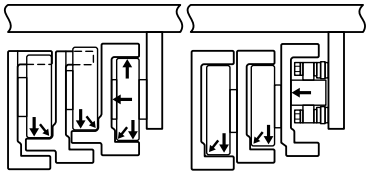
a. No oil leakage occurs at or around the lift and tilt cylinders.
b. Check rollers for proper rotation.
c. Check the chain anchors and pins.

Lubricate the points shown periodically in accordance with the Periodic Maintenance and Lubrication Schedule (refer to page 86-91) and the Lubrication Chart (refer to page 92). Apply a coat of grease to the thrust metals and liner.

2 Stage Mast

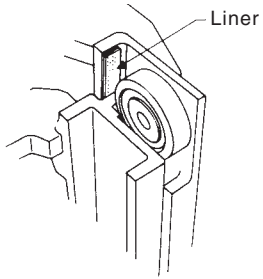


3 Stage Mast



NOTE:

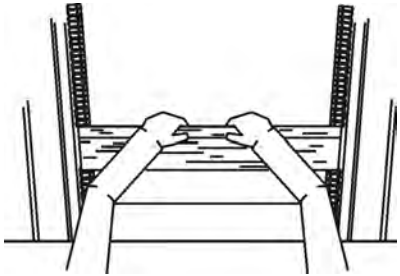
- The lubrication interval will vary with working conditions. During months in which working conditions are sever, it will be necessary to grease the parts frequently.
- When the lift truck is operated, apply a coat of grease to the contact surface of the lift roller and inner mast or outer mast.



CHECKING LIFT CHAIN

⚠ WARNING

- **Use extreme care when checking lift chain tension.**



Check the chains for cracks or broken links and pins.

Check lift chain tension periodically. Lift up the forks slightly and depress the midpoint of the lift chain with a board.

Deflection:

25 - 35 mm (0.98 - 1.38 in)

If the deflection is not within the specifications, have the chain adjusted by your Local Authorized Dealer.

FORK INSPECTION

Ensure the forks are secured in their proper position and they are not damaged.

⚠ WARNING

- **Forks in use shall be inspected at intervals of not more than 12 months (for single shift operations) or whenever any damage or permanent deformation is detected. Severe applications will require more frequent inspection. (see ANSI/ ITSDF B56.1 Section 6.2.8 for inspection and repair of forks in service on lift trucks.)**
- **Individual Load Rating of Forks. When forks are used in pairs (the normal arrangement), the rated capacity of each fork shall be at lease half of the manufacturer's rated capacity of the truck, and at the rated load center distance shown of the truck's data plate.**
- **Fork inspection shall be carried out carefully by trained personnel with the aim of detecting any damage, failure, deformation, etc., which might impair safe use. Any fork that shows such damage shall be withdrawn from service, and shall not be return to service unless it has been satisfactorily repaired in accordance with the current ANSI/ITSDF B56.1-2012 standards.**

FORK REPAIR

Repair - Only the manufacturer of the fork or an expert of equal competence shall decide if a fork may be repaired for continued use, and the repairs shall only be carried out by such parties. It is not recommended that surface cracks or wear be repaired by welding. When repairs necessitating resetting are required, the fork shall subsequently be subjected to an appropriate heat treatment, as necessary.

CHECKING HORN

Check the horn for proper operation.

CHECKING LIGHTS

Make sure that lights illuminate when switches are placed into the "ON" position.

CHECKING CARGO-HANDLING CONTROL LEVER(S)

Check the cargo-handling control lever(s) for proper operation. Ensure that the forks lift, lower, and tilt forward and backward properly.

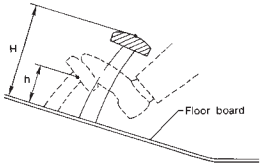
CHECKING SAFETY START SYSTEM OPERATION

If the ignition switch is turned to the "ON" position again after it has been turned to the "OFF" position with the selector lever set in the forward or reverse position, make sure that the traction circuit will not operate and the lift truck will not start. After making sure of the above, return the lever to the neutral position. Then make sure the traction circuit operates and the lift truck starts when the ignition switch is turned "ON" and the lever is set in the forward or reverse position. If either tests do not function contact your Local Authorized Dealer.

CHECKING BRAKE PEDAL

When the brake pedal is fully depressed, the distance between the upper surface of the pedal pad and floor board should be (h) = 33 mm (1.30 in) or more.

When the brake pedal is not depressed, the brake pedal height (h) measured from the floor board for all except 3.0 & 3.5 ton is 107 mm (4.21 in), for 3.0 & 3.5 ton it is 117 mm (4.60 in).



When this distance approaches the prescribed limit value, have the brake adjusted by your Local Authorized Dealer.

PEDAL FREE PLAY

The standard free play of the pedal for all except cushion models 2.0 & 2.5 ton is 6 - 8 mm (0.24 - 0.31 in), for cushion models 2.0 & 2.5 ton it is 5.0 - 6.5 mm (0.20 - 0.26 in).

CHECKING PARKING BRAKE PEDAL

Make sure the parking brake works properly when depressed and then returns to its original (release) position.

Depressed force at locked position is 200 - 250 N (20 - 25 kg, 45 - 56 lb).

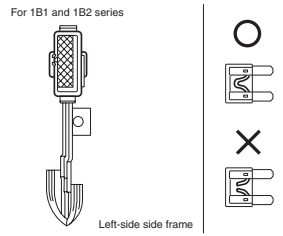
CHECKING TOP PANEL LATCH

The latch prevents not only the top panel from lifting when brakes are applied abruptly, but also prevents the battery from being thrown out of the compartment if the lift truck should suddenly overturn. Make sure the top panel latch is properly engaged without looseness or damage.

FUSES

⚠ WARNING

- **Remove all jewelry.**
- **Make sure the ignition switch is "OFF" and disconnect the battery before changing any components or disconnecting any wiring. This will reduce the possibility of damage to the controller system.**



Remove the fuse box cover and visually check if the fuse is blown. Before replacing any malfunctioning fuse, check and correct the cause of the malfunction. Use a fuse of the specified rating which is clearly shown on the label.

PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE

Before delivery of your new lift truck, your dealer provides a pre-delivery inspection and adjustment service specified by the factory and designed to ensure satisfactory performance.

The following tables list the servicing required to keep your lift truck operating in good mechanical condition. The lift truck should be attended to as indicated, preferably by your Local Authorized Dealer.

⚠ WARNING

- **Do not inspect any part of the system while the battery is being charged.**
- **Before checking any part of the system, be sure to disconnect both connectors from the battery.**
- **When it is necessary to check with the battery connected, raise the drive wheels. Be extremely careful to prevent electric shocks.**

NOTE:

- Periodic maintenance should be performed after specified intervals have elapsed in months or hours, whichever comes first.
- Under dusty, dirty or heavy operation, more frequent maintenance is necessary. All items listed must be maintained in order to meet and keep control systems operating at designed level. Failure to maintain the systems could compromise the warranty.
- The inspection/service intervals shown are based on the assumption that the lift truck is operated in a clean and dry environment for 200 hours or less in a month. When determining the inspection/service intervals, take into account the actual working conditions of the lift truck.

Inspection Items			Interval												How to check
			Months	1	2	3	4	5	6	7	8	9	10	11	12	
			Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24	
Drive system	Motor	Motor (dust)		C					C						C	Clean
	Controller	Resistance between forklift body and +/- terminal of battery/controller		I		I			I			I			I	Measure tension
		Contactor operation		I		I			I			I			I	Visual
		Contactor tips		I		I			I			I			I	Visual
		Resistance contactor coil													I	Measure
		Low voltage detection		I											I	Test
		Wiring, bolts and nuts		I		I			I			I			I	Visual
		Controller surface		C		C			C			C			C	Clean
Electric system		Battery: mounting, level and specific gravity		I		I			I			I			I	Visual/Test
		Harness and connectors		I		I			I			I			I	Visual
		Fuses		I		I			I			I			I	Visual
		Relays		I		I			I			I			I	Visual
		Switches		I		I			I			I			I	Test
		Lights (all)		I		I			I			I			I	Test
		Horn/Buzzer		I		I			I			I			I	Test
		Gauge and indicators		I		I			I			I			I	Test
		Bulbs		If Necessary												Visual/Test

Abbreviations: I = Inspect (correct or replace if necessary), D: Drain, R: Replacement, A: Adjustment, C: Clean, T: Retighten, L: Lubricate/Grease

Inspection items			Interval												How to check
			Months	1	2	3	4	5	6	7	8	9	10	11	12	
			Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24	
Differential/ drive unit		Oil level		I		I			I			I			I	Visual
		Crack, damage and leakage		I		I			I			I			I	Visual
		Differential/drive unit oil													R	Replace
Chassis and body maintenance	Front axle	Cracks, distortion, etc.		I		I			I			I			I	Visual
		Mounting bolts		I		I			I			I			I	Visual
		Oil Leakage		I		I			I			I			I	Visual
		Wheel play		I		I			I			I			I	Test
		Wheel bearing grease (repack)													R	Replace
	Rear axle	Fore-aft play		I		I			I			I			I	Measure
		Silent blocks		I		I			I			I			I	Visual
		Wheel play		I		I			I			I			I	Test
		Tie-Rod		L		L			L			L			L	Grease
		Wheel bearing grease (repack)													R	Replace
		Kingpin		L		L			L			L			L	Grease
	Wheels	Wheel nuts		T		T			T			T			T	Visual/torque
		Rim, side rings and wheel disc damage		I		I			I			I			I	Visual
		Tire: pressure, wear, damage and foreign materials		I		I			I			I			I	Visual

Abbreviations: I = Inspect (correct or replace if necessary), D: Drain, R: Replacement, A: Adjustment, C: Clean, T: Retighten, L: Lubricate/Grease

		Inspection items	Interval												How to check
			Months	1	2	3	4	5	6	7	8	9	10	11	12	
			Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24	
Chassis and body maintenance	Steering system	Function of steering system		I		I			I			I			I	Test
		Mounting of column, orbitrol, cylinder, tubes and hoses		I		I			I			I			I	Visual
		Leakage (valve, cylinder and orbitrol)		I		I			I			I			I	Visual
		Tubes and hoses (leakage, mounting, cracks damaging)		I		I			I			I			I	Visual
		Steering wheel (movement and play)		I		I			I			I			I	Test
	Brake system	Function of brake system		I		I			I			I			I	Test
		Crack, damage and leakage		I		I			I			I			I	Visual
		Leakage		I		I			I			I			I	Visual
		Brake fluid													R	Replace
		Brake pedal adjustment		I		I			I			I			I	Check
		Pedal rubbers		I		I			I			I			I	Visual
		Brake lining wears													I	Visual
		Brake drum/lining cleaning													C	Clean
		Brake tubes and hoses (mounting, cracks, etc.)		I		I			I			I			I	Visual
		Brake function/effort		I		I			I			I			I	Test/Measure

Abbreviations: I = Inspect (correct or replace if necessary), D: Drain, R: Replacement, A: Adjustment, C: Clean, T: Retighten, L: Lubricate/Grease

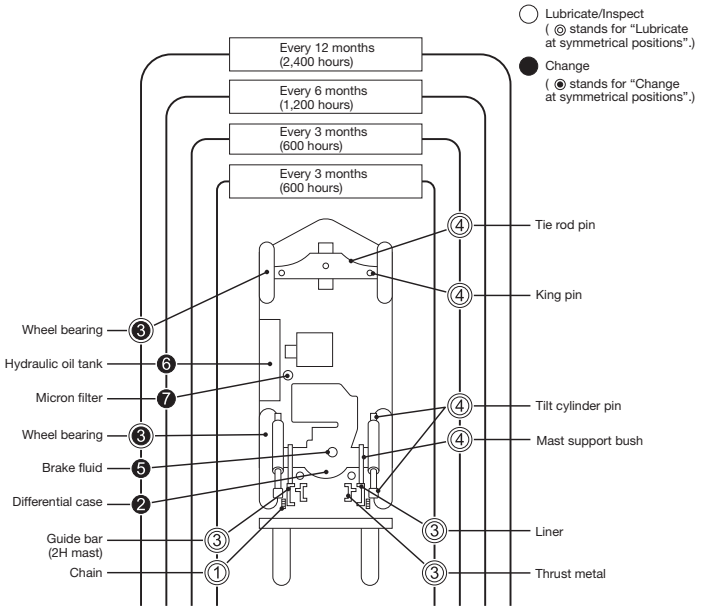
Inspection items			Interval												How to Check
			Months	1	2	3	4	5	6	7	8	9	10	11	12	
			Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24	
Chassis and body maintenance	Hydraulic system	Function of hydraulic system		I		I			I			I			I	Test
		Hydraulic leakage		I		I			I			I			I	Visual
		Hydraulic oil level		I		I			I			I			I	Visual
		Hydraulic oil replacement							R						R	Replace
		Micron oil filter							R						R	Replace
		Suction filter													C	Clean
		Control valve (mounting)		I		I			I			I			I	Visual
		Movement and connection of levers		I		I			I			I			I	Test
		Hydraulic hoses (cracks, damage and fittings)		I		I			I			I			I	Visual
		Lift and tilt cylinder mounting		I	I	I	I	I	I	I	I	I	I	I	I	Visual
		Tilt cylinder pin		L		L			L			L			L	Grease

Abbreviations: I = Inspect (correct or replace if necessary), D: Drain, R: Replacement, A: Adjustment, C: Clean, T: Retighten, L: Lubricate/Grease

Inspection items			Interval												How to Check
			Months	1	2	3	4	5	6	7	8	9	10	11	12	
			Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24	
Chassis and body maintenance	Mast	Function of mast		I		I			I			I			I	Test
		Mast system (damage/cracks/wear)		I		I			I			I			I	Visual
		Clearance of each stage		If Necessary												Measure
		Mast rail		L		L			L			L			L	Grease
		Mast/carriage rollers		If Necessary												Visual/test
		Back up metals		L		L			L			L			L	Grease
		Thrust metals		L		L			L			L			L	Grease
		Lift chains wear/tension		I		I			I			I			I	Visual/Adjust
		Attachments mounting		I		I			I			I			I	Visual
		Attachments		L		L			L			L			L	Grease
		Lift chains		L		L			L			L			L	Lubricate
		Hose pulleys		I		I			I			I			I	Visual/Test
		Mast support		L		L			L			L			L	Grease
		Forks (wearing/damage/cracks)		I		I			I			I			I	Visual
		Carriage height		I					I						I	Test/Adjust

Abbreviations: I = Inspect (correct or replace if necessary), D: Drain, R: Replacement, A: Adjustment, C: Clean, T: Retighten, L: Lubricate/Grease

LUBRICATION CHART

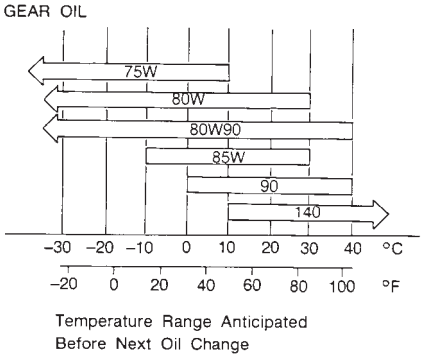


ITEM		SUITABLE OIL	
		Below 15°C (60°F)	Above 15°C (60°F)
① LIFT CHAIN		Refer to Page 93	
② GEAR OIL		API GL-5 (80W-90)	
③ W.B. GREASE		N.L.G.I No. 2	
④ CHASSIS GREASE		N.L.G.I No. 1	
⑤ BRAKE FLUID		DOT3 or DOT4	
⑥ HYD OIL	Standard Lift Truck	ISO VG32 or equivalent	
	Cold Storage Lift Truck	SAE No. 10W (ISO VG15)	
⑦ REPLACE ELEMENT			

RECOMMENDED LUBRICANTS

System/Component		Oil and Grease	Remarks
Gear Oil	Differential and reduction gear	API GL-5 (80W-90)	Refer to Recommended SAE Viscosity Chart
Grease	Chassis	N.L.G.I. 1	Lithium soap base
	Wheel bearing	N.L.G.I. 2	
	Mast and chain guide bar	N.L.G.I. 2	
Hydraulic Oil	Standard forklift	Hydraulic Oil I.S.O. VG32 or equivalent	Wear-proof oil
	Cold storage forklift	Hydraulic Oil SAE No. 10W (ISO VG15)	
Brake Fluid		DOT3 (F.M.V.S.S. No. 116) or DOT4	F.M.V.S.S.: Federal Motor Vehicle Safety Standard
Lift Chain		Sprayon LU202 Moly Chain Lubricant	--

RECOMMENDED SAE VISCOSITY CHART



PUTTING LIFT TRUCK IN STORAGE

Putting the lift truck in storage includes both storing the truck at the end of each working day or storing the truck over a long period of time.

Be sure to observe the precautions for lift truck storage.

DAILY STORAGE

At the end of the working day, check the lift truck for oil leakage and other malfunctions. Always park it in the designated location. Put chocks under the tires to prevent the lift truck from moving by itself.

Keep the body and areas surrounding the operator's seat clean. Make it a habit to always keep the lift truck clean.

⚠ CAUTION

- **The lift truck has many electrical parts, do not wash with water. However, the battery can be washed with water after removing it from the lift truck, but it must be completely dry before use.**
- **Blow off dust and dirt using compressed air with OSHA air nozzle or wipe with a wet cloth to clean the lift truck.**

⚠ WARNING

- **As soon as a malfunction is detected, immediately report it to the appropriate personnel or contact your Local Authorized Dealer for repair. Do not operate the lift truck until the malfunctions is repaired.**

STORAGE OVER A LONG PERIOD OF TIME

When the operation of the lift truck is completely suspended for a given period of time, take the following measures and store the lift truck in a dry area.

NOTE:

- When the lift truck cannot be stored indoors, park it on level ground. Cover the lift truck with a waterproof sheet or protective cover.
- When storing for a long period of time, be sure to consult your Local Authorized Dealer.

⚠ WARNING

- **Do not use a protective covering or waterproof sheet made of vinyl which is liable to produce static electricity. Static electricity may cause the battery to explode.**

PRE-STORAGE SERVICING

1. Lubricate the lift truck (refer to page 92). Change the oil and coat all exposed areas of hydraulic cylinders with corrosion resistant grease.
2. Charge the battery and leave it disconnected from the lift truck. Store the lift truck in a low fire-risk area.

SERVICING THE LIFT TRUCK IN STORAGE

1. Periodically check the specific gravity and level the battery fluid. Charge and replenish as necessary. Perform uniform charge on the battery every 2 months.
2. Check various sections of the lift truck for stains or corrosion. Clean such areas and coat with a corrosion preventive agent.

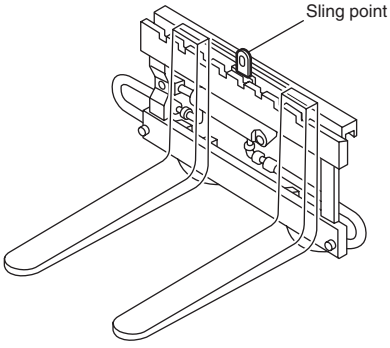
POST-STORAGE SERVICING

1. Wipe anticorrosive grease off the outer parts of the oil pressure cylinder.
2. Lubricate each part.
3. Check the battery fluid level and specific gravity. Fully charge the battery.
4. Turn the ignition switch "ON" and check the meters, warning lights and indicators.
5. Perform Daily Inspection (refer to page 73).
6. Perform Function Tests (refer to page 25).

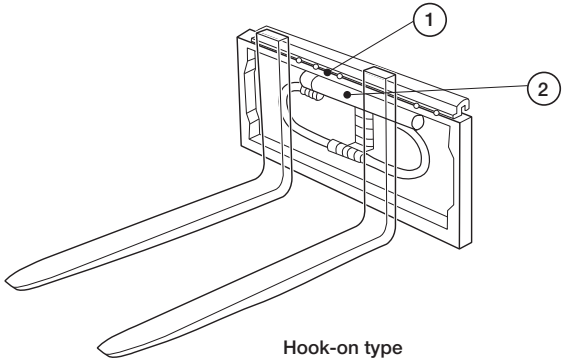
OPTIONS

SIDE SHIFT

SLING POINT FOR HOOK-ON TYPE SIDE SHIFT



This illustration shows the sling point of the hook-on type side shift attachment which is used for installation and removal.

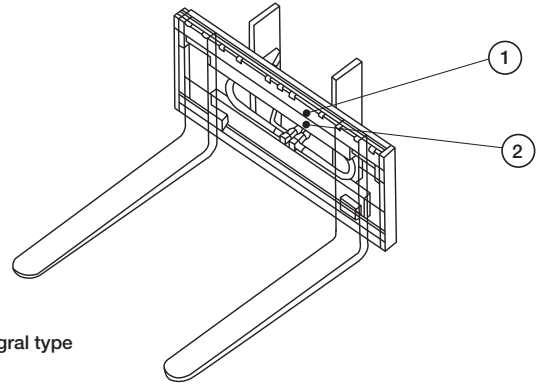


Hook-on type

1. Shift finger bar.
2. Side shift cylinder.

This section describes only the handling of loads using the side shift option. Before using the side shift, be sure to read this section thoroughly and understand it. For handling (safety, operations, inspection) of the lift truck, refer to the applicable sections of this manual.

OVERVIEW OF SIDE SHIFT

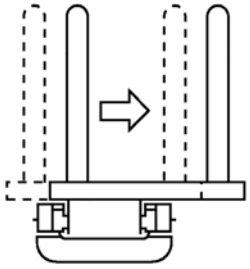


Integral type

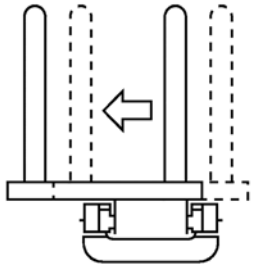
Since the shift finger bar (on which the forks and the backrest are mounted) can be shifted to the right and left only by operating the lever from the operator's seat, you can accurately insert the fork under pallets or stack loads correctly at targeted positions.

The following is the standard amount of side shift.

Model Variation	Side Shift Distance
J1B1/T1B2 series	Each to right/left 100 mm (3.94 in)



Shift to right.



Shift to left.

MAIN TERMS USED IN THIS SECTION

Shift: To move the forks or load to the right or the left.

Side Shift Stroke: The maximum distance the forks or load can travel to the right or the left.

Shift Finger Bar: An oblong board on which the forks and the backrest are mounted. This shift finger bar shifts (moves) to the right and left.

Attachment: Equipment or parts to be added or replaced with the loading/unloading devices to perform a variety of loading and unloading.

⚠ WARNING

- **Do not make sudden and quick shifts with the forks loaded or raised.**

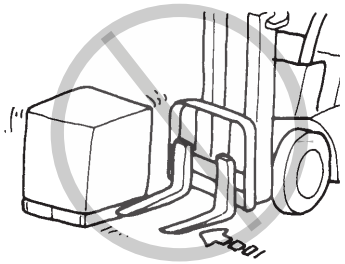
If you make sudden shifts with the forks loaded, there is a risk of a load collapse. This can cause the lift truck to become unstable and possibly tip over.

⚠ WARNING

- **Only operate the side shift when entering or placing a load to correct position before lowering.**
- **Never operate side shift during travel.**
- **Never operate side shift during lifting or lowering.**

⚠ WARNING

- **Do not use the shift function to push or pull loads or pallets.**



If you use the side shift to pull or push loads, the equipment can be overstrained, resulting in a malfunction. In addition, there are risks of damaging loads or injuring people. Never push or pull loads with the side shift.

⚠ WARNING

- **Do not shift when the forks are in contact with the floor or on a table.**

If you do so, it can result in a malfunction of the equipment or a load collapse. Do not shift when the forks are in contact with the ground.

⚠ WARNING

- **Do not travel with unstable or unsecured loads.**

Do not travel with loads shifted to one side.

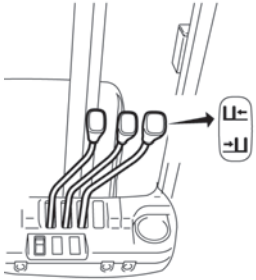
When loads are shifted (off centered) they will be less stable. This could cause the load to shift or fall off the lift truck.

It also could cause the lift truck to become unstable and tip over.

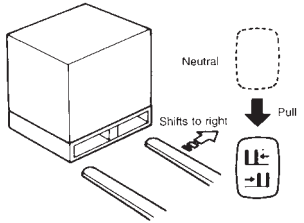
OPERATION OF THE CONTROL LEVER FOR THE SIDE SHIFT

A lift truck attached with a side shift has a control lever to operate the side shift, in addition to the control levers for standard operations.

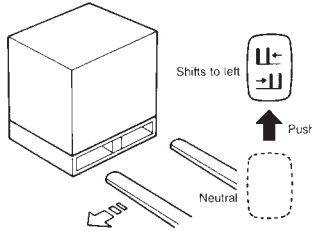
MANUAL HYDRAULIC CONTROL



When the lever is pulled toward the operator, the shift finger bar (with forks mounted) shifts (moves) to the right.



When the lever is pushed forward, the shift finger bar (with forks mounted) shifts (moves) to the left.



⚠ CAUTION

- **Do not move the levers suddenly and quickly. There is a risk of a load collapse.**

NOTE:

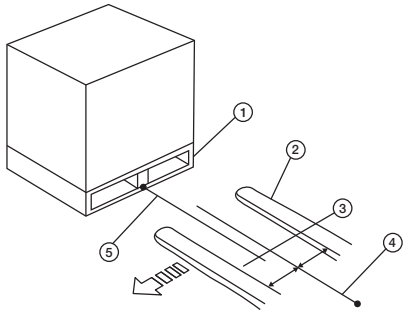
The shifting speed changes depending on the amount the lever is moved forward or backward.

⚠ WARNING

- **When you operate your side shift, make sure to raise the forks approximately 100 - 200 mm (3.94 - 7.87 in) from the ground before operation. If you shift with the forks while they are in contact with the ground, the side shift forks or load could get caught and damage the lift truck or load.**

SIDE SHIFT OPERATION

1. Pallet
2. Fork
3. Deviation
4. Center of forks
5. Center of pallet



This section describes the operation of your side shift.

Always keep the side shift finger bar in the neutral position except during load handling.

Adjust the forks as far apart as possible in order to minimize the deviation.

For basic operations, refer to the instructions in "Loading and Unloading" previously in this manual.

If the forks deviate either to the right or the left, operate the side shift lever and shift (move) the forks until the center of the pallet matches the center of the interval between the forks.

⚠ CAUTION

- **Do not shift the forks while the forks are inserted into the pallet. This could cause the load to shift if the pallet is pushed.**
- **If it is not possible for the forks to be centered under the load even with them shifted as far as possible, back the lift truck out and try to center the forks under the load. Always ensure loads are centered and secure before lifting or traveling.**

⚠ WARNING

- **Do not shift while traveling with loads.**

STACKING

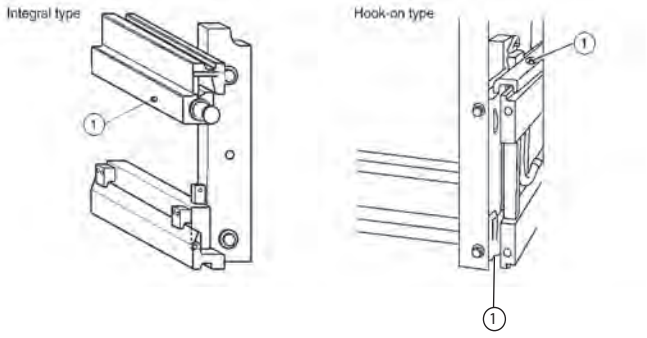
⚠ WARNING

- **Do not operate the side shift when loads are lifted until load is in position to be placed. Doing so could cause loads to shift or the lift truck to possibly tip over.**
- **Do not operate the side shift lever and the lift lever quickly. It is dangerous if a load collapse occurs.**

⚠ WARNING

- **If any abnormality is noted in the daily checks, immediately report it to the appropriate personnel or contact your Local Authorized Dealer for repair. Do not operate the lift truck until the malfunctions is repaired.**
- **To assure safe operation and maintain the side shift in proper functional condition, be sure to perform the daily checks below in addition to the "Daily Checks" outlined previously in this manual.**

1. Check that any problems noted the previous day have been completely repaired.
2. Check all parts of the hydraulic piping and the cylinder of the side for oil leaks and looseness.
3. Check that the side shift is not damaged or deformed.
4. Check visually the jaw installation bolt on the finger bar for looseness.
5. Operate the side shift several times to check that it operates smoothly without abnormal noise. Also check that the side shift lever operates smoothly without rattling.



1. **Integral type:** Grease nipple (1 each on right and left)

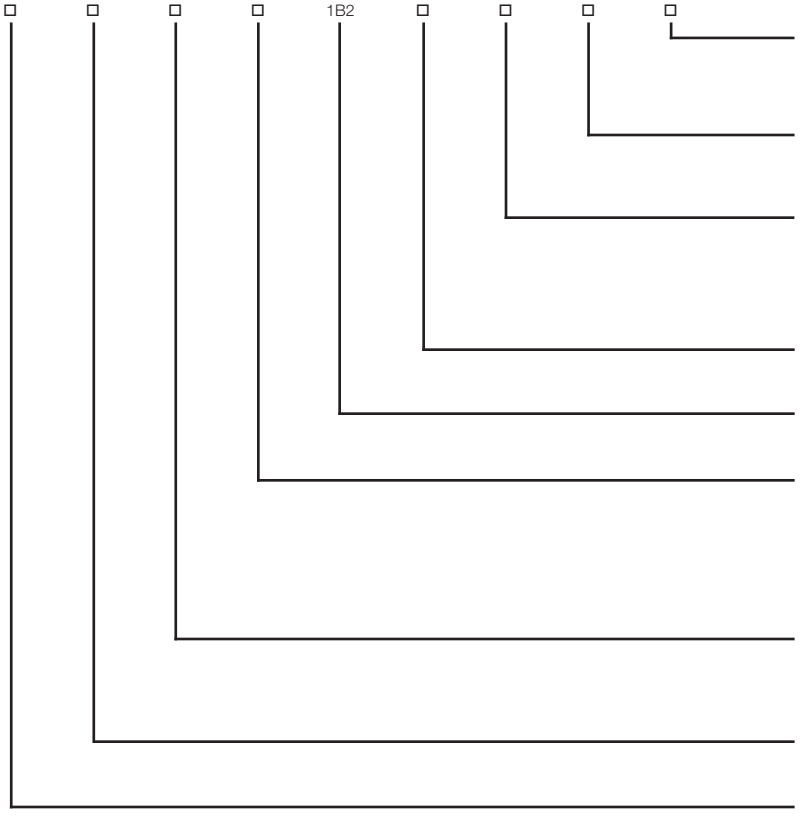
   Hook-on type: Grease nipple (1 each on right and left / top and bottom)

NOTE:

Apply chassis grease once a week (or every 50 hours) to the grease nipples in the sleeve of the shift finger bar.

SPECIFICATIONS

MODEL VARIATION (LONG MODEL CODE) BREAKDOWN



DESTINATION
U: Europe & General Overseas Areas (GOM)
V: North America UL-E
S: North America UL-ES
E: North America UL-EE

APPLICATION
□: Standard
F : Cold Storage
B : Battery Roller

LOAD CAPACITY / LOAD CENTER
15: 1.5 ton / 600 mm, 3,000 lb / 24 in
18: 1.8 ton / 600 mm, 3,500 lb / 24 in
20: 2.0 ton / 600 mm, 4,000 lb / 24 in
25: 2.5 ton / 600 mm, 5,000 lb / 24 in
30: 3.0 ton / 600 mm, 6,000 lb / 24 in
35: 3.5 ton / 600 mm, 8,000 lb / 24 in

BODY SIZE
L: Standard
R: Large Battery Compartment (Pneumatic Only)

BASE MODEL
J1B1: 1 Ton Series
T1B2: 2 Ton Series

WHEEL BASE
□: Standard (Pneumatic1.5 & 1.8 ton: 1,270 mm (50.0 in))
(Pneumatic 2.0 ~ 3.5 ton: 1,450 mm (57.1 in))
(Cushion1.5 & 1.8 ton: 1,220 mm (48.0 in))
(Cushion 2.0 ~ 3.5 ton: 1,260 mm (49.6 in))
G : Long (Pneumatic1.5 & 1.8 ton: 1,450 mm (57.1 in))
(Pneumatic 2.0 ~ 3.5 ton: 1,595 mm (62.8 in))
(Cushion 2.5 & 3.0 ton: 1,360 mm (53.5 in))
(Cushion 3.5 ton: 1,600 mm (63 in))

MOTOR TYPE
J: 9.2 kW / 48V UL-E & UL-ES - 8.5 kW / 48V UL-EE
J: 7 kW / 36V UL-ES - 6.9 kW / 36V UL-EE
T: 12 kW / 48V UL-E & UL-ES - 8.5 kW / 48V UL-EE
T: 9 kW / 36V UL-ES - 6.9 kW / 36V UL-EE

LIFT TRUCK BODY CONFIGURATION
□: Pneumatic
C : Cushion

M: Manufactured in Marengo, IL USA

MAIN TRUCK - J1B1 (PNEUMATIC) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item / Model code			J1B1					
			J1B1L15V	J1B1R15V	JG1B1L15V	J1B1L18V	J1B1R18V	JG1B1L18V
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate					
Load center		in (mm)	24 (600)					
Overall Length (to face of forks)		in (mm)	80.5 (2045)		88.0 (2235)	82.3 (2090)		88.0 (2235)
Overall Width (standard tires)		in (mm)	44.1 (1120)					
Wheelbase		in (mm)	50.0 (1270)		57.1 (1450)	50.0 (1270)		57.1 (1450)
Front Overhang		in (mm)	15.9 (405)					
Rear Overhang		in (mm)	14.6 (370)		15.0 (380)	16.3 (415)		15.0 (380)
Tread - Center of Tire (standard tires)	Front	in (mm)	36.2 (920)					
	Rear	in (mm)	35.4 (900)					
Minimum Turning Radius	Outside	in (mm)	68.9 (1750)		77.6 (1970)	70.1 (1780)		77.6 (1970)
Minimum Right Angle Stack	Add load length & clearance	in (mm)	84.8 (2155)		93.5 (2375)	86.0 (2185)		93.5 (2375)
Fork Length (standard)		in (mm)	42.1 (1070)					
Fork Thickness x Width		in (mm)	1.5 x 4 (40 x 100)					
Ground Clearance	Under Mast	in (mm)	4.3 (110)					
	Under Power Unit	in (mm)	3.7 (95)					
	Under Frame, center of wheelbase	in (mm)	4.3 (110)					
Gradeability Maximum	Full Load	%	22.0	21.0	20.0	19.0	19.0	
	Empty	%	34.0	32.0	30.5	32.0	30.0	

MAIN TRUCK - J1B1 (PNEUMATIC) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item			Model code	J1B1					
				J1B1L15V	J1B1R15V	JG1B1L15V	J1B1L18V	J1B1R18V	JG1B1L18V
Grade Clearance		Approach Angle	%	Not Available					
		Ramp Breakover Angle	%	35.0		31.0	35.0		31.0
		Departure Angle	%	50.0		48.0	43.0		48.0
Lifting Speed	2W	Full Load	fpm (mm/sec)	85.7 (435)			76.8 (390)		
		Empty	fpm (mm/sec)	126.0 (640)					
	2F	Full Load	fpm (mm/sec)	66.0 (335)			59.1 (300)		
		Empty	fpm (mm/sec)	97.5 (495)					
	3F	Full Load	fpm (mm/sec)	78.8 (400)			67.9 (345)		
		Empty	fpm (mm/sec)	118.1 (600)					
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.5 (500)					
		Empty	fpm (mm/sec)	98.5 (500)					
	2F	Full Load	fpm (mm/sec)	94.5 (480)					
		Empty	fpm (mm/sec)	61.0 (310)					
	3F	Full Load	fpm (mm/sec)	94.5 (480)					
		Empty	fpm (mm/sec)	72.9 (370)					
Travel Speed		Full Load	mph (km/h)	9.9 (16.0)					
		Empty	mph (km/h)	11.2 (18.0)		10.9 (17.5)	11.2 (18.0)		10.9 (17.5)
Drawbar Pull Maximum		Full Load	lb (N)	3281 (14595)					
Truck Weight			lb (kg)	Refer to Truck Data Plate					

MAIN TRUCK - J1B1 (PNEUMATIC) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item			Model code	J1B1					
				J1B1L15V	J1B1R15V	JG1B1L15V	J1B1L18V	J1B1R18V	JG1B1L18V
Traction Motor	Type			AC Induction					
	Control Type			MOS-INV					
	Rating	kW/h		9.2					
Pump Motor	Type			AC Induction					
	Rating	kW/5min		11.3					
Battery Data	Voltage	V		48					
	Weight Minimum/Maximum	lb (kg)		1532 / 1962 (695 / 890)		1940 / 2447 (880 / 1110)	1587 / 1962 (720 / 890)		1940 / 2447 (880 / 1110)
Battery Compartment Size	Minimum - W x L	in (mm)		The battery for the Pneumatic Series requires a special case with latch and lockdown device. Consult battery supplier for Pneumatic battery dimensions and special battery requirements.					
	Minimum - H	in (mm)							
	Maximum - W x L	in (mm)							
	Maximum - H	in (mm)							
	Lead Acid	Type							
	Capacity - Minimum (48v)	Ah/6h		Not Available					
	Capacity - Maximum (48v)	Ah/6h		385		495	385		495

MAIN TRUCK - T1B2 (PNEUMATIC) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item		Model code	T1B2					
			T1B2L20V	T1B2R20V	TG1B2L20V	T1B2L25V	T1B2R25V	TG1B2L25V
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate					
Load center		in (mm)	24 (600)					
Overall Length (to face of forks)		in (mm)	89.0 (2260)		96.3 (2445)	91.5 (2325)		96.3 (2445)
Overall Width (standard tires)		in (mm)	45.9 (1165)					
Wheelbase		in (mm)	57.1 (1450)		62.8 (1595)	57.1 (1450)		62.8 (1595)
Front Overhang		in (mm)	16.7 (425)					
Rear Overhang		in (mm)	15.2 (385)		16.7 (425)	17.7 (450)		16.7 (425)
Tread - Center of Tire (standard tires)	Front	in (mm)	37.0 (940)					
	Rear	in (mm)	36.6 (930)	36.8 (935)	36.6 (930)		36.8 (935)	36.6 (930)
Minimum Turning Radius	Outside	in (mm)	77.2 (1960)		84.3 (2140)	78.7 (2000)		84.3 (2140)
Minimum Right Angle Stack	Add load length & clearance	in (mm)	93.9 (2385)		101.0 (2565)	95.4 (2425)		101.0 (2565)
Fork Length (standard)		in (mm)	42.1 (1070)					
Fork Thickness x Width		in (mm)	1.5 x 4 (40 x 100)					
Ground Clearance	Under Mast	in (mm)	4.1 (105)					
	Under Power Unit	in (mm)	5.1 (130)					
	Under Frame, center of wheelbase	in (mm)	4.3 (110)					
Gradeability Maximum	Full Load	%	24.0	22.0	21.0	20.0	19.0	
	Empty	%	40.0	35.0	33.0	35.0	33.0	

MAIN TRUCK - T1B2 (PNEUMATIC) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item			Model code	T1B2					
				T1B2L20V	T1B2R20V	TG1B2L20V	T1B2L25V	T1B2R25V	TG1B2L25V
Grade Clearance		Approach Angle	%	Not Available					
		Ramp Breakover Angle	%	31.0		28.0	31.0		28.0
		Departure Angle	%	40.0		37.0	34.0		37.0
Lifting Speed	2W	Full Load	fpm (mm/sec)	75.8 (385)			67.9 (345)		
		Empty	fpm (mm/sec)	119.1 (605)					
	2F	Full Load	fpm (mm/sec)	61.0 (310)			55.1 (280)		
		Empty	fpm (mm/sec)	95.5 (485)					
	3F	Full Load	fpm (mm/sec)	73.8 (375)			64.0 (325)		
		Empty	fpm (mm/sec)	113.2 (575)					
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.5 (500)					
		Empty	fpm (mm/sec)	98.5 (500)					
	2F	Full Load	fpm (mm/sec)	94.5 (480)					
		Empty	fpm (mm/sec)	59.0 (300)					
	3F	Full Load	fpm (mm/sec)	94.5 (480)					
		Empty	fpm (mm/sec)	65.0 (330)					
Travel Speed		Full Load	mph (km/h)	9.9 (16.0)	9.3 (15.0)				
		Empty	mph (km/h)	10.9 (17.5)	10.6 (17.0)		10.9 (17.5)	10.6 (17.0)	
Drawbar Pull Maximum		Full Load	lb (N)	3281 (14595)					
Truck Weight			lb (kg)	Refer to Truck Data Plate					

MAIN TRUCK - T1B2 (PNEUMATIC) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item			Model code	T1B2					
				T1B2L20V	T1B2R20V	TG1B2L20V	T1B2L25V	T1B2R25V	TG1B2L25V
Traction Motor	Type			AC Induction					
	Control Type			MOS-INV					
	Rating	kW/h		12.0					
Pump Motor	Type			AC Induction					
	Rating	kW/5min		13.7					
Battery Data	Voltage	V		48					
	Weight Minimum/Maximum	lb (kg)		1565 / 2976 (710 / 1350)	1774 / 2976 (805 / 1350)	2535 / 3747 (1150 / 1700)	1907 / 2976 (865 / 1350)	1973 / 2976 (895 / 1350)	2535 / 3747 (1150 / 1700)
Battery Compartment Size	Minimum - W x L	in (mm)		The battery for the Pneumatic Series requires a special case with latch and lockdown device. Consult battery supplier for Pneumatic battery dimensions and special battery requirements.					
	Minimum - H	in (mm)							
	Maximum - W x L	in (mm)							
	Maximum - H	in (mm)							
	Lead Acid	Type							
	Capacity - Minimum (48v)	Ah/6h		Not Available					
	Capacity - Maximum (48v)	Ah/6h		550		900	550		900

MAIN TRUCK - CJ1B1 (CUSHION) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item		Model code	CJ1B1			
			CJ1B1L15(F or B)S	CJ1B1L15E	CJ1B1L18(F or B)S	CJ1B1L18E
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate			
Load center		in (mm)	24 (600)			
Overall Length (to face of forks)		in (mm)	80.9 (2055)		81.3 (2060)	
Overall Width (standard tires)		in (mm)	38.2 (970)			
Wheelbase		in (mm)	48.0 (1220)			
Front Overhang		in (mm)	15.9 (405)			
Rear Overhang		in (mm)	16.9 (430)		17.1 (435)	
Tread - Center of Tire	Front	in (mm)	32.1 (815)			
(standard tires)	Rear	in (mm)	32.3 (820)			
Minimum Turning Radius	Outside	in (mm)	70.9 (1800)			
Minimum Right Angle Stack	Add load length & clearance	in (mm)	86.8 (2205)			
Fork Length (standard)		in (mm)	42.1 (1070)			
Fork Thickness x Width		in (mm)	1.5 x 4 (40 x 100)			
Ground Clearance	Under Mast	in (mm)	3.0 (75)			
	Under Power Unit	in (mm)	2.3 (60)			
	Under Frame, center of wheelbase	in (mm)	3.1 (80)			
Gradeability Maximum	Full Load - 36v / 48v	%	20.8 / 24.0		18.5 / 21.5	
	Empty	%	Not Available			

MAIN TRUCK - CJ1B1 (CUSHION) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item			Model code	CJ1B1			
				CJ1B1L15(F or B)S	CJ1B1L15E	CJ1B1L18 (F or B)S	CJ1B1L18E
Grade Clearance		Approach Angle	%	Not Available			
		Ramp Breakover Angle	%	26.0			
		Departure Angle	%	36.0			
Lifting Speed	2W	Full Load - 36v / 48v	fpm (mm/sec)	66.0 (335) / 85.7 (435)	66.0 (335) / 68.9 (350)	59.1 (300) / 76.8 (390)	59.1 (300) / 62.0 (315)
		Empty - 36v / 48v	fpm (mm/sec)	105.3 (535) / 12 6.0 (640)	105.3 (535) / 108.3 (550)	105.3 (535) / 126.0 (640)	105.3 (535) / 108.3 (550)
	2F	Full Load - 36v / 48v	fpm (mm/sec)	Not Available			
		Empty - 36v / 48v	fpm (mm/sec)	Not Available			
	3F/3V	Full Load - 36v / 48v	fpm (mm/sec)	Not Available			
		Empty - 36v / 48v	fpm (mm/sec)	Not Available			
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.5 (500)			
		Empty	fpm (mm/sec)	97.5 (495)			
	2F	Full Load	fpm (mm/sec)	Not Available			
		Empty	fpm (mm/sec)	Not Available			
	3F/3V	Full Load	fpm (mm/sec)	Not Available			
		Empty	fpm (mm/sec)	Not Available			
Travel Speed		Full Load - 36v / 48v	mph (km/h)	9.0 (14.5) / 9.0 (14.5)	8.1 (13.0) / 8.1 (13.0)	9.0 (14.5) / 9.0 (14.5)	8.1 (13.0) / 8.1 (13.0)
		Empty - 36v / 48v	mph (km/h)	10.6 (17.0) / 10.6 (17.0)	9.0 (14.5) / 9.0 (14.5)	10.3 (16.5) / 10.3 (16.5)	8.7 (14.0) / 8.7 (14.0)
Drawbar Pull Maximum		Full Load - 36v / 48v	lb (N)	2378 (10580) / 2708 (12045)			
Truck Weight			lb (kg)	Refer to Truck Data Plate			

MAIN TRUCK - CJ1B1 (CUSHION) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item			Model code	CJ1B1			
				CJ1B1L15(F or B)S	CJ1B1L15E	CJ1B1L18(F or B)S	CJ1B1L18E
Traction Motor	Type			AC Induction			
	Control Type			MOS-INV			
	Rating - 36v / 48v	kW/h		7.0 / 9.2	6.9 / 8.5	7.0 / 9.2	6.9 / 8.5
Pump Motor	Type			AC Induction			
	Rating - 36v / 48v	kW/5min		8.3 / 11.3	10.6 / 11	8.3 / 11.3	10.6 / 11
Battery Data	Voltage	V		36 / 48			
	Weight Minimum/Maximum	lb (kg)		1840 / 2535 (835 / 1150)		1840 / 2150 (835 / 975)	
Battery Compartment Size	Minimum - W x L	in (mm)		30.12 x 20.87 (765 x 530)			
	Minimum - H	in (mm)		21.37 (542)			
	Maximum - W x L	in (mm)		35.15 x 26.68 (893 x 677)			
	Maximum - H	in (mm)		22.81 (579)			
	Lead Acid - 36v / 48v	Type		18-85-19 / 24-85-15			
	Capacity - Minimum 36v / 48v	Ah/6h		600 / 450			
	Capacity - Maximum 36v / 48v	Ah/6h		900 / 700			

MAIN TRUCK - CT1B2 (CUSHION) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item		Model code	CT1B2			
			CT1B2L20(F or B)S	CT1B2L20E	CT1B2L25(F or B)S	CT1B2L25E
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate			
Load center		in (mm)	24 (600)			
Overall Length (to face of forks)		in (mm)	84.8 (2155)		86.2 (2190)	
Overall Width (standard tires)		in (mm)	42.1 (1070)			
Wheelbase		in (mm)	49.6 (1260)			
Front Overhang		in (mm)	16.7 (425)			
Rear Overhang		in (mm)	18.5 (470)		19.9 (505)	
Tread - Center of Tire	Front	in (mm)	35.0 (890)			
(standard tires)	Rear	in (mm)	35.0 (890)			
Minimum Turning Radius	Outside	in (mm)	72.6 (1845)		73.8 (1875)	
Minimum Right Angle Stack	Add load length & clearance	in (mm)	89.3 (2270)		90.5 (2300)	
Fork Length (standard)		in (mm)	42.1 (1070)			
Fork Thickness x Width		in (mm)	1.5 x 4 (40 x 100)			
Ground Clearance	Under Mast	in (mm)	3.1 (80)			
	Under Power Unit	in (mm)	3.9 (100)			
	Under Frame, center of wheelbase	in (mm)	3.7 (95)			
Gradeability Maximum	Full Load - 36v / 48v	%	23.5 / 24.0	22.0 / 22.0	20.0 / 20.5	18.5 / 18.5
	Empty	%	Not Available			

MAIN TRUCK - CT1B2 (CUSHION) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item			Model code	CT1B2			
				CT1B2L20(F or B)S	CT1B2L20E	CT1B2L25(F or B)S	CT1B2L25E
Grade Clearance		Approach Angle	%	Not Available			
		Ramp Breakover Angle	%	31.0			
		Departure Angle	%	35.0		33.0	
Lifting Speed	2W	Full Load - 36v / 48v	fpm (mm/sec)	69.0 (350) / 75.8 (385)	56.1 (285) / 58.1 (295)	63.0 (320) / 67.9 (345)	51.2 (260) / 53.2 (270)
		Empty - 36v / 48v	fpm (mm/sec)	108.3 (550) / 119.1 (605)	98.4 (500) / 98.4 (500)	108.3 (550) / 119.1 (605)	98.4 (500) / 98.4 (500)
	2F	Full Load - 36v / 48v	fpm (mm/sec)	Not Available			
		Empty - 36v / 48v	fpm (mm/sec)	Not Available			
	3F/3V	Full Load - 36v / 48v	fpm (mm/sec)	Not Available			
		Empty - 36v / 48v	fpm (mm/sec)	Not Available			
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.5 (500)			
		Empty	fpm (mm/sec)	97.5 (495)			
	2F	Full Load	fpm (mm/sec)	Not Available			
		Empty	fpm (mm/sec)	Not Available			
	3F/3V	Full Load	fpm (mm/sec)	Not Available			
		Empty	fpm (mm/sec)	Not Available			
Travel Speed		Full Load - 36v / 48v	mph (km/h)	10.3 (16.5) / 10.3 (16.5)	8.1 (13.0) / 8.1 (13.0)	9.3 (15.0) / 9.3 (15.0)	7.5 (12.0) / 7.5 (12.0)
		Empty - 36v / 48v	mph (km/h)	10.6 (17.0) / 10.6 (17.0)	9.0 (14.5) / 9.0 (14.5)	10.6 (17.0) / 10.6 (17.0)	9.0 (14.5) / 9.0 (14.5)
Drawbar Pull Maximum		Full Load - 36v / 48v	lb (N)	3410 (15170) / 3482 (15490)	3242 (14420) / 3242 (14420)	3410 (15170) / 3482 (15490)	3242 (14420) / 3242 (14420)
Truck Weight			lb (kg)	Refer to Truck Data Plate			

MAIN TRUCK - CT1B2 (CUSHION) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item		Model code	CT1B2			
			CT1B2L20(F or B)S	CT1B2L20E	CT1B2L25(F or B)S	CT1B2L25E
Traction Motor	Type		AC Induction			
	Control Type		MOS-INV			
	Rating - 36v / 48v	kW/h	9.0 / 12.0	6.9 / 8.5	9.0 / 12.0	6.9 / 8.5
Pump Motor	Type		AC Induction			
	Rating - 36v / 48v	kW/5min	12.8 / 13.7	10.6 / 11.0	12.8 / 13.7	10.6 / 11.0
Battery Data	Voltage	V	36 / 48			
	Weight Minimum/Maximum	lb (kg)	2491 / 3064 (1130 / 1390)			
Battery Compartment Size	Minimum - W x L	in (mm)	37.62 x 22.06 (955 x 560)			
	Minimum - H	in (mm)	21.37 (542)			
	Maximum - W x L	in (mm)	39.06 x 28.25 (992 x 717)			
	Maximum - H	in (mm)	22.81 (579)			
	Lead Acid - 36v / 48v	Type	18-95-23 / 24-95-17			
	Capacity - Minimum 36v / 48v	Ah/6h	825 / 600			
	Capacity - Maximum 36v / 48v	Ah/6h	1100 / 800			

MAIN TRUCK - CT1B2 (CUSHION) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item		Model code	CT1B2	
			CTG1B2L25(F or B)S	CTG1B2L25E
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate	
Load center		in (mm)	24 (600)	
Overall Length (to face of forks)		in (mm)	90.7 (2305)	
Overall Width (standard tires)		in (mm)	42.1 (1070)	
Wheelbase		in (mm)	53.5 (1360)	
Front Overhang		in (mm)	16.7 (425)	
Rear Overhang		in (mm)	20.5 (520)	
Tread - Center of Tire	Front	in (mm)	35.0 (890)	
(standard tires)	Rear	in (mm)	35.0 (890)	
Minimum Turning Radius	Outside	in (mm)	78.9 (2005)	
Minimum Right Angle Stack	Add load length & clearance	in (mm)	95.6 (2430)	
Fork Length (standard)		in (mm)	42.1 (1070)	
Fork Thickness x Width		in (mm)	1.5 x 4 (40 x 100)	
Ground Clearance	Under Mast	in (mm)	3.1 (80)	
	Under Power Unit	in (mm)	3.9 (100)	
	Under Frame, center of wheelbase	in (mm)	3.7 (95)	
Gradeability Maximum	Full Load - 36v / 48v	%	20.0 / 20.5	19.0 / 19.0
	Empty	%	Not Available	

MAIN TRUCK - CT1B2 (CUSHION) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item			Model code	CT1B2	
				CTG1B2L25(F or B)S	CTG1B2L25E
Grade Clearance		Approach Angle	%	Not Available	
		Ramp Breakover Angle	%	27.0	
		Departure Angle	%	31.0	
Lifting Speed	2W	Full Load - 36v / 48v	fpm (mm/sec)	63.0 (320) / 67.9 (345)	51.2 (260) / 53.2 (270)
		Empty - 36v / 48v	fpm (mm/sec)	108.3 (550) / 119.1 (605)	98.4 (500) / 98.4 (500)
	2F	Full Load - 36v / 48v	fpm (mm/sec)	Not Available	
		Empty - 36v / 48v	fpm (mm/sec)	Not Available	
	3F/3V	Full Load - 36v / 48v	fpm (mm/sec)	Not Available	
		Empty - 36v / 48v	fpm (mm/sec)	Not Available	
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.5 (500)	
		Empty	fpm (mm/sec)	97.5 (495)	
	2F	Full Load	fpm (mm/sec)	Not Available	
		Empty	fpm (mm/sec)	Not Available	
	3F/3V	Full Load	fpm (mm/sec)	Not Available	
		Empty	fpm (mm/sec)	Not Available	
Travel Speed		Full Load - 36v / 48v	mph (km/h)	9.3 (15.0) / 9.3 (15.0)	7.5 (12.0) / 7.5 (12.0)
		Empty - 36v / 48v	mph (km/h)	10.6 (17.0) / 10.6 (17.0)	9.0 (14.5) / 9.0 (14.5)
Drawbar Pull Maximum		Full Load - 36v / 48v	lb (N)	3410 (15170) / 3482 (15490)	3242 (14420) / 3242 (14420)
Truck Weight			lb (kg)	Refer to Truck Data Plate	

MAIN TRUCK - CT1B2 (CUSHION) BASED ON 2W330 MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item		Model code	CT1B2	
			CTG1B2L25(F or B)S	CTG1B2L25E
Traction Motor	Type		AC Induction	
	Control Type		MOS-INV	
	Rating - 36v / 48v	kW/h	9.0 / 12.0	6.9 / 8.5
Pump Motor	Type		AC Induction	
	Rating - 36v / 48v	kW/5min	12.8 / 13.7	10.6 / 11.0
Battery Data	Voltage	V	36 / 48	
	Weight Minimum/Maximum	lb (kg)	3075 / 3527 (1395 / 1600)	
Battery Compartment Size	Minimum - W x L	in (mm)	37.62 x 28.56 (955 x 725)	
	Minimum - H	in (mm)	21.37 (542)	
	Maximum - W x L	in (mm)	39.06 x 34.12 (992 x 866)	
	Maximum - H	in (mm)	22.81 (579)	
	Lead Acid - 36v / 48v	Type	18-95-29 / 24-95-21	
	Capacity - Minimum 36v / 48v	Ah/6h	1050 / 750	
	Capacity - Maximum 36v / 48v	Ah/6h	1400 / 1000	

MAIN TRUCK - CT1B2 (CUSHION) BASED ON 2H330 (6,000LB) / 2H350 (8,000LB) MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item		Model code	CT1B2			
			CTG1B2L30(F orB)S	CTG1B2L30E	CTG1B2L35(F or B)S	CTG1B2L35E
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate			
Load center		in (mm)	24 (600)			
Overall Length (to face of forks)		in (mm)	94.1 (2390)		100.2 (2545)	
Overall Width (standard tires)		in (mm)	43.3 (1100)			
Wheelbase		in (mm)	53.5 (1360)		63.0 (1600)	
Front Overhang		in (mm)	17.7 (450)		17.9 (455)	
Rear Overhang		in (mm)	22.8 (580)		19.3 (490)	
Tread - Center of Tire (standard tires)	Front	in (mm)	35.2 (895)			
	Rear	in (mm)	35.0 (890)			
Minimum Turning Radius	Outside	in (mm)	81.1 (2060)		88.4 (2245)	
Minimum Right Angle Stack	Add load length & clearance	in (mm)	98.8 (2205)		106.3 (2700)	
Fork Length (standard)		in (mm)	42.1 (1070)			
Fork Thickness x Width		in (mm)	2 x 5 (50 x 125)			
Ground Clearance	Under Mast	in (mm)	3.1 (80)			
	Under Power Unit	in (mm)	3.7 (95)			
	Under Frame, center of wheelbase	in (mm)	3.5 (90)			
Gradeability Maximum	Full Load - 36v / 48v	%	19.5 / 20.0	18.5 / 18.5	16.5 / 16.5	15.5 / 15.5
	Empty	%	Not Available			

MAIN TRUCK - CT1B2 (CUSHION) BASED ON 2H330 (6,000LB) / 2H350 (8,000LB) MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item			Model code	CT1B2			
				CTG1B2L30(F orB)S	CTG1B2L30E	CTG1B2L35(F or B)S	CTG1B2L35E
Grade Clearance		Approach Angle	%	Not Available			
		Ramp Breakover Angle	%	27.0		23.0	
		Departure Angle	%	28.0		33.0	
Lifting Speed	2W	Full Load - 36v / 48v	fpm (mm/sec)	50.2 (255) / 55.1 (280)	42.3 (215) / 44.3 (225)	43.3 (220) / 46.3 (235)	36.4 (185) / 36.4 (185)
		Empty - 36v / 48v	fpm (mm/sec)	92.5 (470) / 101.4 (515)	80.7 (410) / 80.7 (410)	77.8 (395) / 84.7 (430)	67.9 (345) / 67.9 (345)
	2F	Full Load - 36v / 48v	fpm (mm/sec)	Not Available			
		Empty - 36v / 48v	fpm (mm/sec)	Not Available			
	3F/3V	Full Load - 36v / 48v	fpm (mm/sec)	Not Available			
		Empty - 36v / 48v	fpm (mm/sec)	Not Available			
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.5 (500)			
		Empty	fpm (mm/sec)	97.5 (495)			
	2F	Full Load	fpm (mm/sec)	Not Available			
		Empty	fpm (mm/sec)	Not Available			
	3F/3V	Full Load	fpm (mm/sec)	Not Available			
		Empty	fpm (mm/sec)	Not Available			
Travel Speed		Full Load - 36v / 48v	mph (km/h)	8.1 (13.0) / 8.7 (14.0)	7.1 (11.5) / 7.1 (11.5)	7.1 (11.5) / 7.8 (12.5)	6.5 (10.5) / 6.5 (10.5)
		Empty - 36v / 48v	mph (km/h)	9.3 (15.0) / 9.3 (15.0)	7.8 (12.5) / 7.8 (12.5)	9.0 (14.5) / 9.0 (14.5)	7.8 (12.5) / 7.8 (12.5)
Drawbar Pull Maximum		Full Load - 36v / 48v	lb (N)	3924 (17455) / 4007 (17825)	3730 (16590) / 3730 (16590)	3924 (17455) / 4007 (17825)	3730 (16590) / 3730 (16590)

MAIN TRUCK - CT1B2 (CUSHION) BASED ON 2H330 (6,000LB) / 2H350 (8,000LB) MAST, 42.1 IN (1070 MM) FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item / Model code			CT1B2			
			CTG1B2L30(F or B)S	CTG1B2L30E	CTG1B2L35(F or B)S	CTG1B2L35E
Truck Weight		lb (kg)	Refer to Truck Data Plate			
Traction Motor	Type		AC Induction			
	Control Type		MOS-INV			
	Rating - 36v / 48v	kW/h	9.0 / 12.0	6.9 / 8.5	9.0 / 12.0	6.9 / 8.5
Pump Motor	Type		AC Induction			
	Rating - 36v / 48v	kW/5min	12.8 / 13.7	10.6 / 11.0	12.8 / 13.7	10.6 / 11.0
Battery Data	Voltage	V	36 / 48			
	Weight Minimum/Maximum	lb (kg)	3075 / 3527 (1395 / 1600)		3351 / 3527 (1520 / 1600)	
Battery Compartment Size	Minimum - W x L	in (mm)	37.62 x 28.56 (955 x 725)			
	Minimum - H	in (mm)	21.37 (542)			
	Maximum - W x L	in (mm)	39.06 x 34.12 (992 x 866)			
	Maximum - H	in (mm)	22.81 (579)			
	Lead Acid - 36v / 48v	Type	18-95-29 / 24-95-21			
	Capacity - Minimum 36v / 48v	Ah/6h	1050 / 750		1200 / 1000	
	Capacity - Maximum 36v / 48v	Ah/6h	1400 / 1000		1400 / 1200	

MAST - J1B1 (PNEUMATIC)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
TWO STAGE (Wide View 2W)	2W270	106 (2700)	6.2 (160)	5/11	83.5 (2120)	72.5 (1840)	155.8 (3955)	130.2 (3305)
	2W300	118 (3000)	6.2 (160)	5/11	83.5 (2120)	78.4 (1990)	167.6 (4255)	142.0 (3605)
	2W330	130 (3300)	6.2 (160)	5/11	83.5 (2120)	84.3 (2140)	179.4 (4555)	153.8 (3905)
	2W350	138 (3500)	6.2 (160)	5/11	83.5 (2120)	89.6 (2275)	187.3 (4755)	161.7 (4105)
	2W370	146 (3700)	6.2 (160)	5/11	83.5 (2120)	94.5 (2400)	195.1 (4955)	169.5 (4305)
	2W400	157 (4000)	6.2 (160)	5/11	83.5 (2120)	102.0 (2590)	206.9 (5255)	181.3 (4605)
	2W450	177 (4500)	6.2 (160)	5/5	83.5 (2120)	111.9 (2840)	226.6 (5755)	201.0 (5105)
	2W500	197 (5000)	6.2 (160)	5/5	83.5 (2120)	121.7 (3090)	246.3 (6255)	220.7 (5605)
TWO STAGE (Full Free 2F)	2F300	118 (3000)	54.3 (1380)	5/10	83.5 (2120)	78.4 (1990)	167.6 (4255)	143.8 (3655)
	2F330	130 (3300)	60.2 (1530)	5/10	83.5 (2120)	84.3 (2140)	179.4 (4555)	155.6 (3955)
	2F350	138 (3500)	65.5 (1665)	5/10	83.5 (2120)	89.6 (2275)	187.3 (4755)	163.4 (4155)
	2F370	146 (3700)	70.4 (1790)	5/10	83.5 (2120)	94.5 (2400)	195.1 (4955)	171.3 (4355)
	2F400	157 (4000)	77.9 (1980)	5/10	83.5 (2120)	102.0 (2590)	206.9 (5255)	183.1 (4655)

MAST - J1B1 (PNEUMATIC)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
THREE STAGE (Full Free 3F)	3F385	152 (3850)	48.2 (1225)	5/5	83.5 (2120)	72.5 (1840)	201.0 (5105)	177.3 (4505)
	3F430	169 (4300)	54.1 (1375)	5/5	83.5 (2120)	78.4 (1990)	218.8 (5555)	195.0 (4955)
	3F475	187 (4750)	60.0 (1525)	5/5	83.5 (2120)	84.3 (2140)	236.5 (6005)	212.7 (5405)
	3F515	203 (5150)	65.3 (1660)	5/5	83.5 (2120)	89.6 (2275)	252.4 (6410)	228.5 (5805)
	3F550	217 (5500)	70.3 (1785)	5/5	83.5 (2120)	94.5 (2400)	266.0 (6755)	242.3 (6155)
	3F600	236 (6000)	77.7 (1975)	5/5	83.5 (2120)	102.0 (2590)	285.7 (7255)	261.9 (6655)

MAST - T1B2 (PNEUMATIC)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
TWO STAGE (Wide View 2W)	2W270	106 (2700)	6.2 (160)	5/11	83.5 (2120)	72.3 (1835)	155.8 (3955)	130.8 (3320)
	2W300	118 (3000)	6.2 (160)	5/11	83.5 (2120)	78.2 (1985)	167.6 (4255)	142.6 (3620)
	2W330	130 (3300)	6.2 (160)	5/11	83.5 (2120)	84.1 (2135)	179.4 (4555)	154.4 (3920)
	2W350	138 (3500)	6.2 (160)	5/11	83.5 (2120)	89.4 (2270)	187.3 (4755)	162.3 (4120)
	2W370	146 (3700)	6.2 (160)	5/11	83.5 (2120)	94.3 (2395)	195.1 (4955)	170.1 (4320)
	2W400	157 (4000)	6.2 (160)	5/11	83.5 (2120)	101.8 (2585)	206.9 (5255)	181.9 (4620)
	2W450	177 (4500)	6.2 (160)	5/5	83.5 (2120)	111.7 (2835)	226.6 (5755)	201.6 (5120)
	2W500	197 (5000)	6.2 (160)	5/5	83.5 (2120)	121.5 (3085)	246.3 (6255)	221.3 (5620)
TWO STAGE (Full Free 2F)	2F300	118 (3000)	54.1 (1375)	5/10	83.5 (2120)	78.2 (1985)	167.6 (4255)	143.8 (3655)
	2F330	130 (3300)	60.0 (1525)	5/10	83.5 (2120)	84.1 (2135)	179.4 (4555)	155.6 (3955)
	2F350	138 (3500)	65.3 (1660)	5/10	83.5 (2120)	89.4 (2270)	187.3 (4755)	163.4 (4155)
	2F370	146 (3700)	70.2 (1785)	5/10	83.5 (2120)	94.3 (2395)	195.1 (4955)	171.3 (4355)
	2F400	157 (4000)	77.7 (1975)	5/10	83.5 (2120)	101.8 (2585)	206.9 (5255)	183.1 (4655)

MAST - T1B2 (PNEUMATIC)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
THREE STAGE (Full Free 3F)	3F385	152 (3850)	48.1 (1220)	5/5	83.5 (2120)	72.3 (1835)	201.0 (5105)	177.3 (4505)
	3F430	169 (4300)	54.0 (1370)	5/5	83.5 (2120)	78.2 (1985)	218.8 (5555)	195.0 (4955)
	3F475	187 (4750)	59.9 (1520)	5/5	83.5 (2120)	84.1 (2135)	236.5 (6005)	212.7 (5405)
	3F515	203 (5150)	65.2 (1655)	5/5	83.5 (2120)	89.4 (2270)	252.4 (6415)	228.5 (5810)
	3F550	217 (5500)	70.1 (1780)	5/5	83.5 (2120)	94.3 (2395)	266.0 (6755)	242.3 (6155)
	3F600	236 (6000)	77.6 (1970)	5/5	83.5 (2120)	101.8 (2585)	285.7 (7255)	261.9 (6655)

MAST - CJ1B1 (CUSHION)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
TWO STAGE (Wide View 2W)	2W203T	80 (2030)	3.9 (100)	10/5	87.4 (2220)	62.1 (1580)	Not Available	
	2W270	106 (2700)	3.9 (100)	5/10	86.2 (2190)	71.1 (1805)	155.7 (3955)	130.3 (3310)
	2W300	118 (3000)	3.9 (100)	5/10	86.2 (2190)	77.0 (1955)	167.6 (4255)	141.0 (3610)
	2W330	130 (3300)	3.9 (100)	5/10	86.2 (2190)	82.9 (2105)	179.3 (4555)	153.9 (3910)
	2W350	138 (3500)	3.9 (100)	5/10	86.2 (2190)	88.2 (2240)	187.2 (4755)	161.8 (4310)
	2W370	146 (3700)	3.9 (100)	5/10	86.2 (2190)	93.1 (2365)	195.1 (4955)	169.7 (4310)
	2W400	157 (4000)	3.9 (100)	5/10	86.2 (2190)	100.6 (2555)	206.9 (5255)	181.5 (4610)
	2W450	177 (4500)	3.9 (100)	5/5	86.2 (2190)	110.4 (2805)	226.6 (5755)	201.2 (5101)
	2W500	197 (5000)	3.9 (100)	5/5	86.2 (2190)	120.3 (3055)	246.3 (6255)	220.9 (5610)
TWO STAGE (Full Free 2F)	2F300	118 (3000)	53.0 (1345)	5/10	86.2 (2190)	77.0 (1955)	167.5 (4255)	143.7 (3650)
	2F330	130 (3300)	58.9 (1495)	5/10	86.2 (2190)	82.9 (2105)	179.3 (4555)	155.5 (3950)
	2F350	138 (3500)	64.2 (1630)	5/10	86.2 (2190)	88.2 (2240)	187.2 (4755)	163.4 (4155)
	2F370	146 (3700)	69.1 (1755)	5/10	86.2 (2190)	93.1 (2365)	195.1 (4955)	171.3 (4355)
	2F400	157 (4000)	76.6 (1945)	5/10	86.2 (2190)	100.6 (2555)	206.9 (5255)	183.1 (4655)

MAST - CJ1B1 (CUSHION)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
THREE STAGE (Full Free 3F)	3F385	152 (3850)	48.4 (1230)	5/5	86.2 (2190)	71.1 (1805)	201.0 (5105)	175.8 (4465)
	3F430	169 (4300)	54.3 (1380)	5/5	86.2 (2190)	77.0 (1955)	218.7 (5555)	193.5 (4915)
	3F475	187 (4750)	60.2 (1530)	5/5	86.2 (2190)	82.9 (2105)	236.4 (6005)	211.2 (5365)
	3F515	203 (5150)	65.6 (1665)	5/5	86.2 (2190)	88.2 (2240)	252.4 (6410)	227.2 (5770)
	3F550	217 (5500)	70.5 (1790)	5/5	86.2 (2190)	93.1 (2365)	265.9 (6755)	240.7 (6115)
	3F600	236 (6000)	78.0 (1980)	5/5	86.2 (2190)	100.6 (2555)	285.7 (7255)	260.4 (6615)
THREE STAGE (Optiview 3V)	3V360	142 (3610)	49.2 (1250)	5/5	86.2 (2190)	71.1 (1805)	191.1 (4855)	165.2 (4195)
	3V405	159 (4040)	55.1 (1400)	5/5	86.2 (2190)	77.0 (1955)	208.9 (5305)	182.9 (4645)
	3V450	177 (4500)	61.0 (1550)	5/5	86.2 (2190)	82.9 (2105)	226.6 (5755)	200.6 (5095)
	3V490	193 (4910)	66.3 (1685)	5/5	86.2 (2190)	88.2 (2240)	242.3 (6155)	216.3 (5495)
	3V525	207 (5300)	71.3 (1810)	5/5	86.2 (2190)	93.1 (2365)	256.1 (6505)	230.1 (5845)
	3V575	226 (5750)	78.7 (2000)	5/5	86.2 (2190)	100.6 (2555)	275.8 (7005)	249.8 (6345

MAST - CT1B2 2.0 & 2.5 TON (CUSHION)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
TWO STAGE (Wide View 2W)	2W203T	80 (2030)	3.9 (100)	10/5	87.4 (2220)	62.1 (1580)	Not Available	
	2W270	106 (2700)	4.1 (105)	5/10	87.4 (2220)	71.3 (1810)	155.7 (3955)	130.1 (3305)
	2W300	118 (3000)	4.1 (105)	5/10	87.4 (2220)	77.2 (1960)	167.6 (4255)	141.9 (3605)
	2W330	130 (3300)	4.1 (105)	5/10	87.4 (2220)	83.1 (2110)	179.3 (4555)	153.7 (3905)
	2W350	138 (3500)	4.1 (105)	5/10	87.4 (2220)	88.4 (2245)	187.2 (4755)	161.6 (4105)
	2W370	146 (3700)	4.1 (105)	5/10	87.4 (2220)	93.3 (2370)	195.1 (4955)	169.5 (4250)
	2W400	157 (4000)	4.1 (105)	5/10	87.4 (2220)	100.8 (2560)	206.9 (5255)	181.3 (4550)
	2W450	177 (4500)	4.1 (105)	5/5	87.4 (2220)	110.6 (2810)	226.6 (5755)	201.0 (5050)
	2W500	197 (5000)	4.1 (105)	5/5	87.4 (2220)	120.5 (3060)	246.3 (6255)	220.7 (5550)
TWO STAGE (Full Free 2F)	2F300	118 (3000)	53.3 (1355)	5/10	87.4 (2220)	77.2 (1960)	167.5 (4255)	143.5 (3645)
	2F330	130 (3300)	59.3 (1505)	5/10	87.4 (2220)	83.1 (2110)	179.3 (4555)	155.3 (3945)
	2F350	138 (3500)	64.6 (1640)	5/10	87.4 (2220)	88.4 (2245)	187.2 (4755)	163.2 (4145)
	2F370	146 (3700)	69.5 (1765)	5/10	87.4 (2220)	93.3 (2370)	195.1 (4955)	171.1 (4345)
	2F400	157 (4000)	77.0 (1955)	5/10	87.4 (2220)	100.8 (2560)	206.9 (5255)	182.9 (4645)

MAST - CT1B2 2.0 & 2.5 TON (CUSHION)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
THREE STAGE (Full Free 3F)	3F385	152 (3850)	48.4 (1230)	5/5	87.4 (2220)	71.3 (1810)	201.0 (5105)	177.6 (4505)
	3F430	169 (4300)	54.3 (1380)	5/5	87.4 (2220)	77.2 (1960)	218.7 (5555)	193.7 (4920)
	3F475	187 (4750)	60.2 (1530)	5/5	87.4 (2220)	83.1 (2110)	236.4 (6005)	211.4 (5370)
	3F515	203 (5150)	65.6 (1665)	5/5	87.4 (2220)	88.4 (2245)	252.4 (6410)	227.4 (5810)
	3F550	217 (5500)	70.5 (1790)	5/5	87.4 (2220)	93.3 (2370)	265.9 (6755)	240.9 (6120)
	3F600	236 (6000)	78.0 (1980)	5/5	87.4 (2220)	100.8 (2560)	285.6 (7255)	260.6 (6620)
THREE STAGE (Optiview 3V)	3V360	142 (3610)	49.4 (1255)	5/5	87.4 (2220)	71.3 (1810)	191.1 (4855)	165.2 (4195)
	3V405	159 (4040)	55.3 (1405)	5/5	87.4 (2220)	77.2 (1960)	208.9 (5305)	182.9 (4645)
	3V450	177 (4500)	61.2 (1555)	5/5	87.4 (2220)	83.1 (2110)	226.6 (5755)	200.6 (5095)
	3V490	193 (4910)	66.5 (1690)	5/5	87.4 (2220)	88.4 (2245)	242.3 (6155)	216.3 (5495)
	3V525	207 (5300)	71.5 (1815)	5/5	87.4 (2220)	93.3 (2370)	256.1 (6505)	230.1 (5845)
	3V575	226 (5750)	78.9 (2005)	5/5	87.4 (2220)	100.8 (2560)	275.8 (7005)	249.8 (6345)

MAST - CT1B2 3.0 TON (CUSHION)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
TWO STAGE (High Free 2H)	2H270	106 (2700)	7.1 (180)	5/10	87.4 (2220)	71.3 (1810)	155.7 (3955)	132.5 (3365)
	2H300	118 (3000)	7.1 (180)	5/10	87.4 (2220)	77.2 (1960)	167.5 (4255)	144.3 (365)
	2H330	130 (3300)	7.1 (180)	5/10	87.4 (2220)	83.1 (2110)	179.4 (4555)	156.1 (3965)
	2H350	138 (3500)	7.1 (180)	5/10	87.4 (2220)	88.4 (2245)	187.2 (4755)	164.0 (4165)
	2H370	146 (3700)	10.6 (270)	5/10	87.4 (2220)	93.3 (2370)	195.1 (4955)	171.9 (4365)
	2H400	157 (4000)	10.6 (270)	5/10	87.4 (2220)	100.8 (2560)	206.9 (5255)	183.7 (4665)
	2H450	177 (4500)	10.6 (270)	5/5	87.4 (2220)	110.6 (2810)	226.6 (5755)	203.3 (5165)
	2H500	197 (5000)	10.6 (270)	5/5	87.4 (2220)	120.5 (3060)	246.3 (6255)	223.0 (5665)
TWO STAGE (Full Free 2F)	2F300	118 (3000)	53.0 (1345)	5/10	87.4 (2220)	77.2 (1960)	167.5 (4255)	144.3 (3655)
	2F330	130 (3300)	58.9 (1495)	5/10	87.4 (2220)	83.1 (2110)	179.3 (4555)	156.1 (3965)
	2F350	138 (3500)	64.2 (1630)	5/10	87.4 (2220)	88.4 (2245)	187.2 (4755)	164.6 (4165)
	2F370	146 (3700)	69.1 (1755)	5/10	87.4 (2220)	93.3 (2370)	195.1 (4955)	171.9 (4365)
	2F400	157 (4000)	76.6 (1945)	5/10	87.4 (2220)	100.8 (2560)	206.9 (5255)	183.7 (4665)

MAST - CT1B2 3.0 TON (CUSHION)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
THREE STAGE (Full Free 3F)	3F385	152 (3850)	53.0 (1345)	5/5	87.4 (2220)	77.2 (1960)	201.0 (5105)	177.8 (4515)
	3F430	169 (4300)	58.9 (1495)	5/5	87.4 (2220)	83.1 (2110)	218.7 (5555)	195.5 (4965)
	3F475	187 (4750)	64.2 (1630)	5/5	87.4 (2220)	88.4 (2245)	236.4 (6005)	213.2 (5415)
	3F515	203 (5150)	69.1 (1755)	5/5	87.4 (2220)	93.3 (2370)	252.4 (6410)	229.1 (5820)
	3F550	217 (5500)	76.6 (1945)	5/5	87.4 (2220)	100.8 (2560)	265.9 (6755)	242.7 (6165)
	3F600	236 (6000)	86.4 (2195)	5/5	87.4 (2220)	110.6 (2810)	285.6 (7255)	262.4 (6665)
THREE STAGE (Optiview 3V)	3V385	152 (3860)	53.0 (1345)	5/5	87.4 (2220)	77.2 (1960)	201.0 (5105)	177.8 (4515)
	3V430	169 (4290)	58.9 (1495)	5/5	87.4 (2220)	83.1 (2110)	218.7 (5555)	195.5 (4965)
	3V470	185 (4700)	64.2 (1630)	5/5	87.4 (2220)	88.4 (2245)	234.4 (5955)	211.2 (5365)
	3V505	199 (5055)	69.1 (1755)	5/5	87.4 (2220)	93.3 (2370)	248.2 (6305)	225.0 (5715)
	3V555	219 (5560)	76.6 (1945)	5/5	87.4 (2220)	100.8 (2560)	267.9 (6805)	244.7 (6215)

MAST - CT1B2 3.5 TON (CUSHION)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
TWO STAGE (High Free 2H)	2H280	110 (2795)	7.1 (180)	5/10	87.4 (2220)	77.2 (1960)	159.6 (4055)	138.4 (3515)
	2H310	122 (3100)	7.1 (180)	5/10	87.4 (2220)	83.1 (2110)	171.5 (4355)	150.2 (3815)
	2H350	138 (3500)	10.6 (270)	5/10	87.4 (2220)	93.3 (2370)	187.2 (4755)	165.9 (4215)
	2H380	150 (3810)	10.6 (270)	5/10	87.4 (2220)	100.8 (2560)	199.0 (5055)	177.8 (4515)
	2H430	169 (4295)	10.6 (270)	5/10	87.4 (2220)	110.6 (2810)	218.7(5555)	197.4 (5015)
TWO STAGE (Full Free 2F)	2F280	110 (2795)	51.0 (1295)	5/10	87.4 (2220)	77.2 (1960)	159.6 (4055)	138.4 (3515)
	2F310	122 (3100)	56.9 (1445)	5/10	87.4 (2220)	83.1 (2110)	171.5 (4355)	150.2 (3815)
	2F350	138 (3500)	67.1 (1705)	5/10	87.4 (2220)	93.3 (2370)	187.2 (4755)	165.9 (4215)
	2F380	150 (3810)	74.6 (1895)	5/10	87.4 (2220)	100.8 (2560)	199.0 (5055)	177.8 (4515)

MAST - CT1B2 3.5 TON (CUSHION)

Mast Name		Maximum Fork Height in (mm)	Free Lift without Backrest in (mm)	Tilt Angle Forward/Backward	Overall Height			
					Lowered Mast Position in (mm)		Extended Mast Position in (mm)	
					Top of OHG	Mast (OHL)	With Backrest	Without Backrest
THREE STAGE (Full Free 3F)	3F400	157 (3890)	51.0 (1295)	5/5	87.4 (2220)	77.2 (1960)	206.9 (5255)	185.6 (4715)
	3F445	175 (4445)	56.9 (1445)	5/5	87.4 (2220)	83.1 (2110)	224.6 (5705)	203.3 (5165)
	3F485	191 (4850)	62.2 (1580)	5/5	87.4 (2220)	88.4 (2245)	240.6 (6110)	219.3 (5570)
	3F520	205 (5210)	67.1 (1705)	5/5	87.4 (2220)	93.3 (2370)	254.1 (6455)	232.9 (5915)
	3F570	224 (5690)	74.6 (1895)	5/5	87.4 (2220)	100.8 (2560)	273.8 (6955)	252.6 (6415)
THREE STAGE (Optiview 3V)	3V385	152 (3860)	52.2 (1325)	5/5	87.4 (2220)	77.2 (1960)	201.0 (5105)	178.5 (4535)
	3V430	169 (4290)	58.1 (1475)	5/5	87.4 (2220)	83.1 (2110)	218.7 (5555)	196.3 (4985)
	3V470	185 (4700)	63.4 (1610)	5/5	87.4 (2220)	88.4 (2245)	234.4 (5955)	212.0 (5385)
	3V505	199 (5055)	68.3 (1735)	5/5	87.4 (2220)	93.3 (2370)	248.2 (6305)	225.8 (5735)
	3V555	219 (5560)	75.8 (1925)	5/5	87.4 (2220)	100.8 (2560)	267.9 (6805)	245.5 (6235)

TIRE SIZE

Tire Type			Pneumatic	
Model			1.5 & 1.8 ton	2.0 & 2.5 ton
Front	Single	Tire	21 x 8-9-10 PR (1)	23 x 9-10-16 PR (1)
		Rim	9 x 6.00E TB (1)	10 x 6.50F TB (1)
	Double	Tire	6.00-9-10 PR (1)	6.50-10-10 PR (1)
		Rim	9 x 4.00E DT (1)	10 x 5.00F TB (1)
Rear	Tire		5.00-8-10 PR (1)	18 x 7-8-14 PR (1)
	Rim		8 x 3.00D DT (1)	8 x 4.33R TB (1)

Tire Type			Cushion		
Model			1.5 & 1.8 ton	2.0 & 2.5 ton	3.0 & 3.5 ton
Front	Single	Tire	18 x 6 x 12-1/8	21 x 7 x 15	22 x 8 x 16
		Rim	--	--	--
	Double	Tire	--	--	--
		Rim	--	--	--
Rear	Tire		14 x 5 x 10	16-1/4 x 6 x 11-1/4	16-1/4 x 6 x 11-1/4
	Rim		--	--	--

OIL CAPACITY

Model	J1B1	JG1B1	T1B2	TG1B2
Hydraulic Oil Tank	31.0	44.0	44.0	52.0
ℓ (US gal, Imp gal)	(8-1/4, 6-7/8)	(11-5/8, 9-5/8)	(11-5/8, 9-5/8)	(13-3/4, 11-1/2)
Differential and Reduction Gear	3.0			
ℓ (US pt, Imp pt)/one side	(6-3/8, 5-1/4)			

Model	CJ1B1	CT1B2	CTG1B2 2.0 & 2.5 ton	CTG1B2 3.0 & 3.5 ton
Hydraulic Oil Tank	25.5	34.0	39.5	39.5
ℓ (US gal, Imp gal)	(6-3/4, 5-5/8)	(9, 7-1/2)	(10-1/2, 9-3/4)	(10-1/2, 9-3/4)
Differential and Reduction Gear	3.0			2.5
ℓ (US pt, Imp pt)/one side	(6-3/8, 5-1/4)			(5-1/4, 4-3/8)

BULBS

Item	Wattage	
	48V	36V
Headlamp	25W	25W
Front Turn Signal Lamp	25W	25W
Rear Combination Lamp		
Stop / Tail Lamp	25W/10W	25W/10W
Turn Signal Lamp	25W	25W
Back-Up Lamp	10W	8W
Back Operation Lamp	25W	25W
Patrol Lamp	35W	--

NOISE LEVEL

The values are the A-weighted sound pressure level at the operator's position, L_{PAZ} and the uncertainty value, K_{PZ} according to EN12053:2001.

Item	
L_{PAZ}	Does not exceed 70 dB (A)
K_{PZ}	4 dB (A)

The whole body vibration $\bar{a}_{w,z}$ according to EN13059:2002.

Vibration emission value: 1.0 m/s^2

Uncertainty: 0.3 m/s^2

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