UNICARRIERS®
UniCarriers Americas Corporation

OPERATOR'S MANUAL

MODELS 1F1/1F2

Platinum II Series Cushion & Pneumatic Tire
Engine Powered/LPG, Gasoline, Dual Fuel, Diesel & Carburetor
3,000-8,000 lb. Capacities

OPERATOR

Printing: October 2015 (01)
Publication No.: 0M45U-1F120
Printed in Marengo IL USA

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 1F1/1F2 SERIES

⚠ WARNING

- **This Original Manual contains important safety information and must be made available to the operator.**
- **Keep this manual on the truck at all times.**
- **Do not operate the forklift 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 forklift 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 2000 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 industrial 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.

CALIFORNIA
Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

⚠ WARNING

California Proposition 65

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

⚠ WARNING

The engine exhaust from this product contains 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 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 truck. Failure to follow all instructions in this manual could be a violation of the Occupational Safety and Health Act.**

DISCLOSURE OF REGULATION APPLICABILITY FOR CALIFORNIA CUSTOMERS ONLY

- **To owner/operators of UniCarriers industrial trucks in California:**
  ARB Regulation 2449(d)(3) June 2008: Starting June 15, 2008 the California Air Resources Board (CARB) placed a limit in idling time for in use off road diesel powered equipment. "When operated in California, any off road diesel vehicle may be subject to the California Air Resources Board In-Use Off-Road Vehicle Regulation. It therefore could be subject to retrofit or accelerated turnover requirements to reduce emissions of air pollutants". For more information, please visit the CARB website at www.arb.ca.gov. At a minimum you should review the following section: 2449(d)(3), 2449(i), 2449(h)(8).

A WORD TO UNICARRIERS FORKLIFT OPERATORS

This Original Manual describes operating procedures, daily checks and simple maintenance for safe usage of your UniCarriers industrial truck. We urge you to read this manual carefully before operating a UniCarriers industrial truck to familiarize yourself with the safety instructions. An operator of any industrial 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 industrial truck. These instructions will not only reduce mechanical issues with a forklift, but may also save a life.

Contact your Local Authorized Dealer to keep your industrial truck in peak operating performance. If you encounter any problems with a UniCarriers industrial truck, contact your Local Authorized Dealer and request a complete checkup. The dealership will ensure that your forklift 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 forklift. Please consult your employer for proper training on the appropriate use of this forklift while performing your job. Illustrations in this manual will show the operator the correct procedures for checking, starting, operating and stopping this forklift.

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 Operator’s Manual has been prepared on the assumption that your forklift is fully equipped (including all optional equipment). Thus, if you have any questions regarding equipment, please contact your Local Authorized Dealer. This manual also includes information on the General Overseas Market (GOM) forklifts.

240 N. Prospect Street
Marengo, IL 60152 USA

TRUCK MODIFICATIONS

Unauthorized forklift 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 forklift 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 & 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 & capacity plate(s), decals, tags, and operation and maintenance manuals;
d. Affix a permanent and readily visible label to the forklift stating the manner in which the forklift 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.

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

INTRODUCTION

UniCarriers model 1F1/1F2 series industrial 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 forklifts. 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 industrial 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 the unit.

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

MAINTENANCE AND SERVICING

UniCarriers industrial trucks are built to be dependable, but as with any industrial 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 86) and the “Operator’s Daily Checklist Sample” (refer to page 88).

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 115).

HOW TO USE THIS MANUAL

Included in this manual are the essentials of safe forklift 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 the 1F1/1F2 series forklifts and how the instruments, gauges, and controls operate.

OPERATING THE TRUCK

Details of safe and efficient operating procedures.

GENERAL CARE AND MAINTENANCE

Care and planned maintenance of the battery, forklift, forks and side shift.

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 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 material handling trucks. Only the intelligence, good judgement and care of the operator, along with proper planned maintenance, will help assure that the unit operates correctly. It is important to have only trained, reliable personnel operating material handling 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 truck's capabilities and limitations.

UCA recommends that this Operator's Manual be kept with the unit 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 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 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 & LEVELS

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

WARNING LEVELS

Warning text is given three levels and provides information on the risks, describes the consequences and instructs how to avoid accidents.

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 forklift and must understand safety techniques and rules for forklift operation.**
- **Under OSHA regulations in the U.S., all operators must be formally trained and tested. These tests must be about basic forklift 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".**

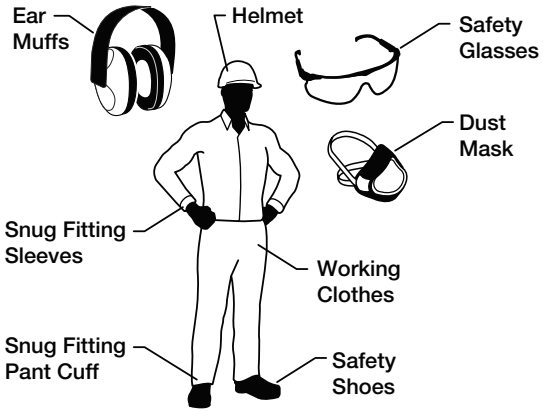
SAFETY GUARDS

⚠ 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.**

SAFETY RULES AND PRACTICES

PERSONAL PROTECTIVE EQUIPMENT FOR OPERATING FORKLIFT



⚠ WARNING

- **For operation of the forklift, 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 forklift 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 forklift before operating. Do not operate the forklift if it is in need of repair. If it is in need of repair, tag the forklift, remove the key 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 86 and "Operator's Daily Checklist Sample" on page 88).**

SAFETY RULES AND PRACTICES

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 truck.**
- **Before operating any truck, operators shall have read and be familiar with the operator's manual for the particular truck being operated and they shall also abide by the safety rules and practices.**
- **Before operating any 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 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).**

⚠ WARNING

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

SAFETY RULES AND PRACTICES

GENERAL (CONT'D)

⚠ 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 truck.**
- **Never put any part of the body into the mast structure or between the mast and the truck.**
- **Never put any part of the body within the reach mechanism of the truck or other attachments.**
- **Understand 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 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 truck.

⚠ WARNING

- **A powered industrial truck is unattended when the operator is more than 8 m (25 ft) from the truck which remains in his view, or whenever the operator leaves the truck and it is not in his view.**
- **Before leaving the operator's position:**
  a. Bring truck to a complete stop.
  b. Place forward-reverse 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.
- **Maintain a safe distance from the edge of ramps, platforms, and other similar working surfaces. Do not move railroad cars with a powered industrial truck.**
- **When powered industrial 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 powered industrial 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.**

SAFETY RULES AND PRACTICES

GENERAL (CONT'D)

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 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 (when loaded or not) or get under the forks or operator's platform.**
- **Do not permit riders on any part of the truck at any time. The operator is the only one who should be on a truck.**

SAFETY RULES AND PRACTICES

TRAVELING

WARNING

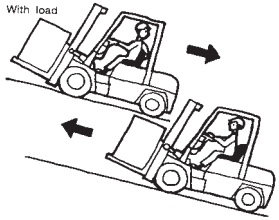
- **Observe all traffic regulations including authorized plant speed limits. Under normal traffic conditions, keep to the right. Maintain a safe distance, based on speed of travel, from the truck ahead; and keep the truck under control at all times.**
- **Yield the right of way to pedestrians and emergency vehicles such as ambulances and fire trucks.**
- **Do not pass another 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.**

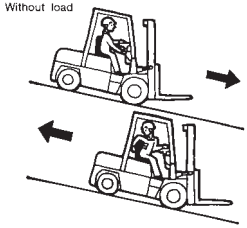
WARNING

- **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.**

SAFETY RULES AND PRACTICES

TRAVELING (CONT'D)





⚠ WARNING

- **Ascend or descend grades slowly, and with caution.**
  - When ascending or descending grades, loaded rider trucks shall be driven with the load upgrade.
  - Unloaded 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 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.**

SAFETY RULES AND PRACTICES

TRAVELING (CONT'D)

⚠ 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 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 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

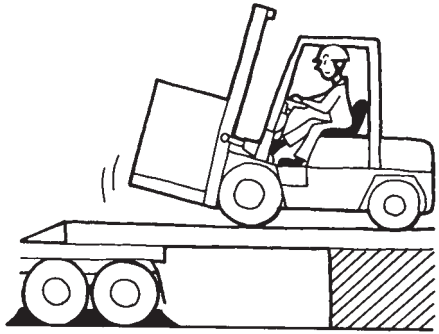
- **Handle only stable or safely arranged loads.**
  - a. When handling off-center loads that cannot be centered, operate with extra caution.
  - b. Handle only loads within the capacity of the truck.
  - c. Handle loads exceeding the dimensions used to establish truck capacity with extra caution. Stability and maneuverability may be adversely affected.
  - d. Handle loads only with the load engaging means and do not transport loads or miscellaneous items with the operator's compartment or other areas of the truck.

LOADING (CONT'D)

⚠ WARNING

- **When attachments are used, extra care shall be taken in securing, manipulating, positioning, and transporting the load. Operate trucks equipped with attachments as partially loaded 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 fork trucks.**

SAFETY RULES AND PRACTICES

DOCKBOARDS (BRIDGE PLATES), TRUCKS AND RAILROAD CARS (CONT'D)

⚠ WARNING

- **All types of dockboards shall have a high friction surface designed to reduce the possibility of employees or 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 powered industrial 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 powered industrial 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 powered industrial truck unless the truck is properly designed and equipped for that operation.**

SURFACE & CAPACITY

⚠ WARNING

- **The 1F1/1F2 Cushion Models 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 truck on these surfaces may cause dangerous conditions for the operator, other personnel and equipment.**

SAFETY RULES AND PRACTICES

FUEL HANDLING

WARNING

- **Fuel is highly flammable. It must be handled with the utmost care, in accordance with the safe handling requirements of fuels and applicable safety provisions of the local laws and regulations.**
- **When filling the tank with fuel or recharging the battery, place the forklift only in a designated area with good ventilation. Keep away from arcs, sparks, flames or lit cigarettes. Lower forks completely, turn off the ignition switch and remove the key.**
- **When fuel is spilled, wipe the area clean with a cloth. The cloth shall be disposed of in accordance with the requirements of safe handling of fuels, environmental requirements and the applicable provisions of the local laws and regulations.**

WARNING

- **Do not breath exhaust gasses: they contain colorless and odorless carbon monoxide. Carbon monoxide is a dangerous gas and can cause unconsciousness or death.**
- **Do not run the forklift in closed spaces or poorly ventilated areas.**

SAFETY RULES AND PRACTICES

INSTALLATION OF ATTACHMENTS

WARNING

- **The 1F1/1F2 series forklifts have been designed for attachments (refer to "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.**

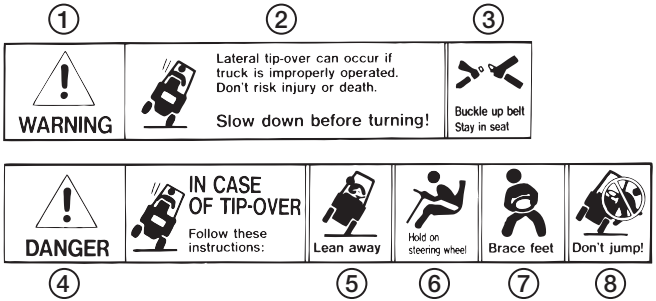
ANSI/ITSDF STANDARDS FOR FORKLIFT CLAMP ATTACHMENTS

WARNING

The ANSI/ITSDF Standards regarding forklift mounted clamp attachments took effect for 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 63).

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 forklift 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 forklift if the forklift 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 forklift.

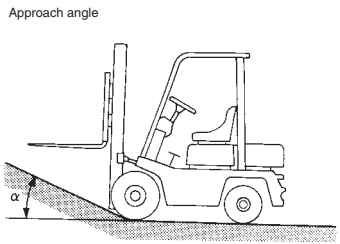
SAFETY RULES AND PRACTICES

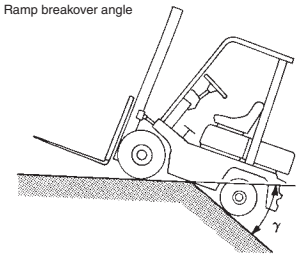
TRANSPORTING FORKLIFT

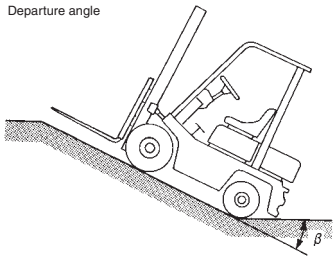
WARNING

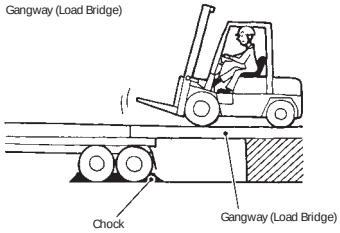
1. Tilt the mast back to the maximum without load.
2. Check the approach and departure angles to make sure the underside of the forklift does not come into contact with the load carrying platform or the ground.
3. When using a load bridge, make sure the planks are capable of withstanding the deadweight of the forklift.
4. When winching the forklift onto a load carrying platform, be sure to attach the cable to the traction bar (refer to page 26). Do not ride on the forklift while it is being winched.
5. Be sure to use lashing points and firmly secure the forklift to the load carrying platform.
6. When hoisting (lifting) up the forklift, be sure to use the lifting points (refer to page 25).
7. Apply parking brake, turn off the ignition switch and remove key.
8. Make sure the battery connector is disconnected.

APPROACH ANGLE, DEPARTURE ANGLE AND GANGWAY









SAFETY RULES AND PRACTICES

TRANSPORTING FORKLIFT (CONT'D)

HOISTING (LIFTING) UP THE FORKLIFT

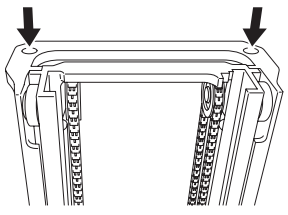
⚠ WARNING

- **Only use this method as a last resort to move the forklift if the normal application requires repeated lifting. Permanent lifting devices must be mounted on the forklift by UCA. Contact your Local Authorized Dealer for more details.**

When lifting the entire forklift, 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

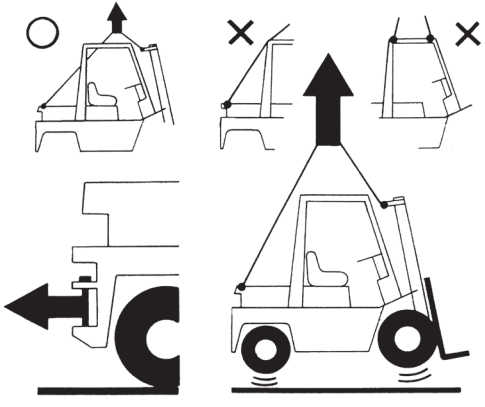
2W inner chain, 2F, 3F mast, 3V



Rear Side

⚠ WARNING

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



SAFETY RULES AND PRACTICES

TRANSPORTING FORKLIFT (CONT'D)

FUNCTION TESTS

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

Items

1. Those that are indicated in "Daily Inspection" (refer to page 86).
2. Dynamic tests

   Mobility (traveling and maneuvering) test

   Make sure the forklift moves in the direction specified by the forward-reverse lever, and the forklift operates correctly when the parking brake lever is set (locked) 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.

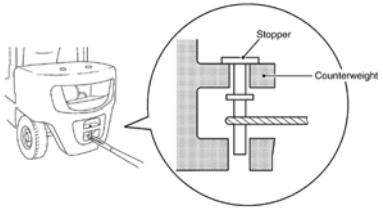
   Lowering speed test

   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).

TRACTION BAR

The traction bar should be used only for pulling the forklift out of ditches or muddy roads.



⚠ WARNING

- **Do not use the traction bar for heavy towing, such as: forklifts, trolleys, industrial machinery, etc.**
- **The traction bar is used to pull the forklift out of ditches with a tow car. Avoid using the forklift to tow objects.**
- **Also use the traction bar to anchor the forklift when loaded on a carrier.**
- **Always ensure that the traction bar is fully inserted until the stopper touches against the counterweight. This will reduce the possibility of the bar slipping.**
- **Be sure towing device is not damaged and has sufficient strength to pull the forklift.**
- **Always gently draw towing device so as not to cause any shock, abrupt movements which could cause the traction 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.**
- **In case the forklift must be towed for repair, the ignition switch must be turned off.**

SAFETY RULES AND PRACTICES

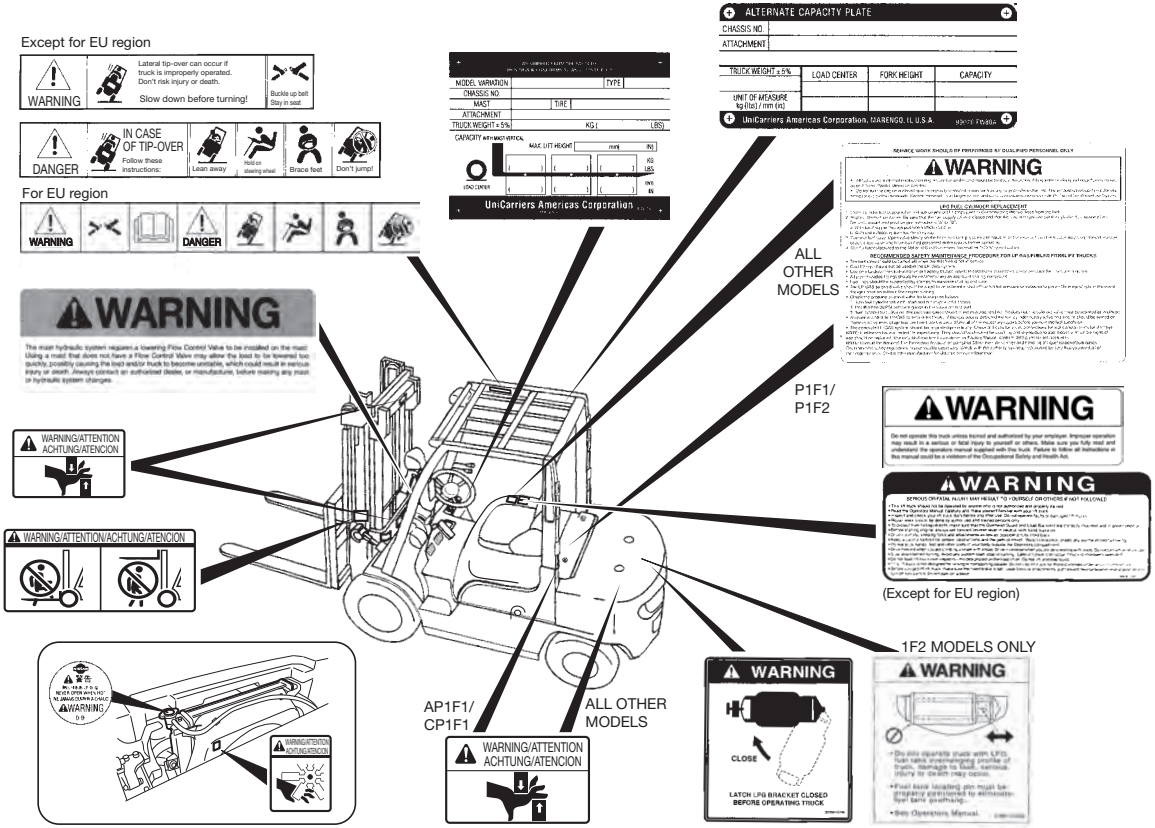
POSITION OF DATA & CAPACITY PLATES AND DECALS

⚠ WARNING

- **When data & capacity plates or warning & 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 constantly 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 forklift as shown in the figure on page 28. Before operating the forklift, be sure to take note of the details given in the decals so as to ensure proper and safe operation.**

SAFETY RULES AND PRACTICES

POSITION OF DATA & CAPACITY PLATES AND DECALS

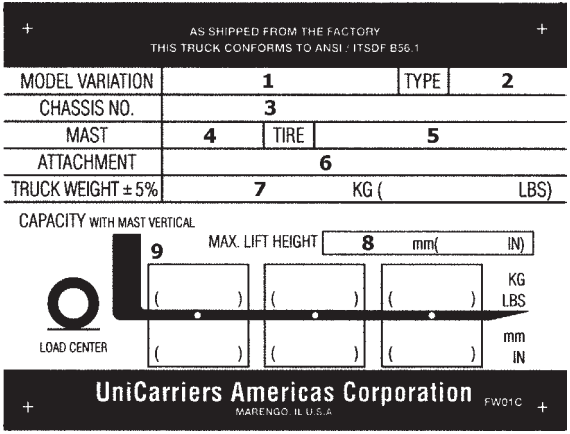


SAFETY RULES AND PRACTICES

DATA & CAPACITY PLATES AND DECALS

Know your unit. The data plate indicates all necessary information regarding the type of attachments, lifting capacity, etc. Always check the unit's data plate and understand areas 1 through 9 as shown in the illustration below.

DATA PLATE



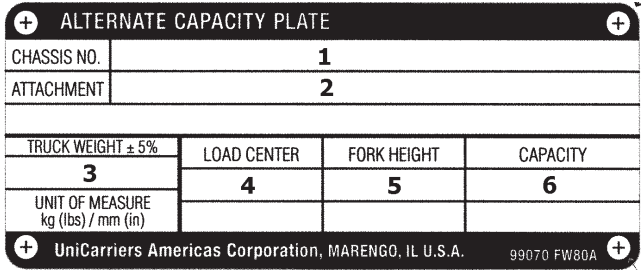
1. Model Variation (Long Model Code)
2. Type (EFI: "G", "LP", "G/LP", "D" / Carburetor: Blank)
3. Chassis No. (Truck Serial Number)
4. Mast Type
5. Tire
6. Attachment (Model & Serial Number)
7. Truck Weight
8. Maximum Lift Height
9. Load Center

Actual Capacity will vary with forklift 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 forklift. Note the specifications of the forklift you are using and operate the forklift accordingly.**

ALTERNATE CAPACITY PLATE



1. Chassis No. (Truck Serial Number)
2. Attachment
3. Truck Weight
4. Load Center
5. Fork Height
6. Capacity

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

SAFETY RULES AND PRACTICES

DATA & CAPACITY PLATES AND DECALS (CONT'D)

IDENTIFICATION NUMBERS

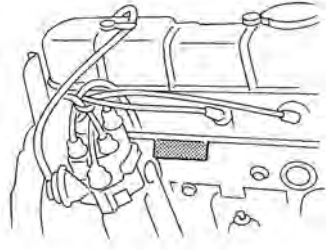
The serial number of the forklift is stamped on the front panel.

TRUCK SERIAL NUMBER

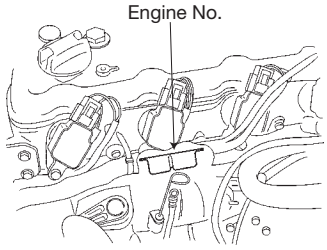
AP1F1	-	9T2XXXX	P1F2	-	9H2XXXX
AP1F2	-	9U2XXXX	U1F2	-	9J2XXXX
CP1F1	-	9N2XXXX	UG1F2	-	9L2XXXX
CP1F2	-	9W2XXXX	UJ1F2	-	9V2XXXX
CU1F2	-	9Q2XXXX	Y1F2	-	9K2XXXX
CUG1F2	-	9R2XXXX	YG1F2	-	9M2XXXX
P1F1	-	9G2XXXX			

The engine serial number is stamped as shown below.

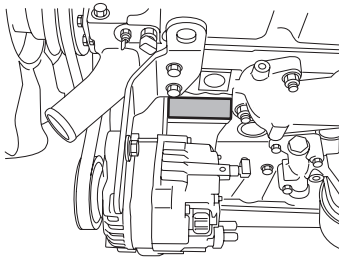
Gasoline Engine
K21/K25 Carburetor



Gasoline Engine
K21/K25 EFI



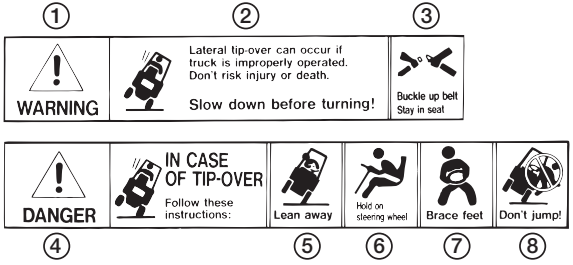
Diesel Engine QD32



SAFETY RULES AND PRACTICES

DATA & CAPACITY PLATES AND DECALS (CONT'D)

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



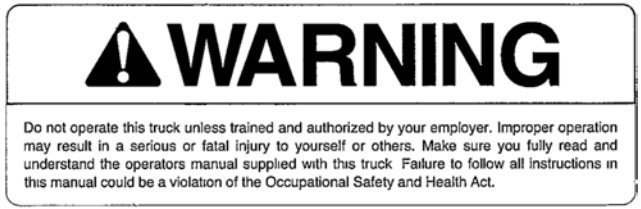
⚠ WARNING

① The following precautions should be closely observed to ensure safe operation of the forklift 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 forklift if the forklift 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 forklift.

WARNING DRIVE DECAL (TRAINED AND AUTHORIZED)



⚠ WARNING

- **Operator must be trained and authorized to drive the forklift, and must understand safety techniques and rules for the forklift operation.**
- **Make sure that you read and fully understand the Operator's Manual supplied with this forklift. 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. Keep fingers away from LPG bracket locking device.**

SAFETY RULES AND PRACTICES

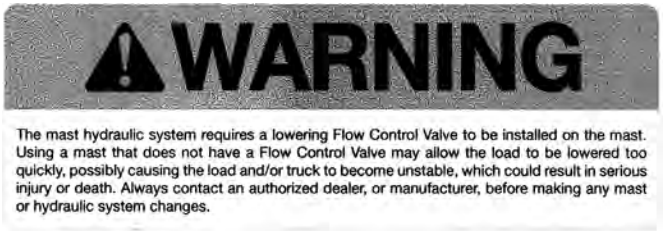
DATA & CAPACITY PLATES AND DECALS (CONT'D)

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.**

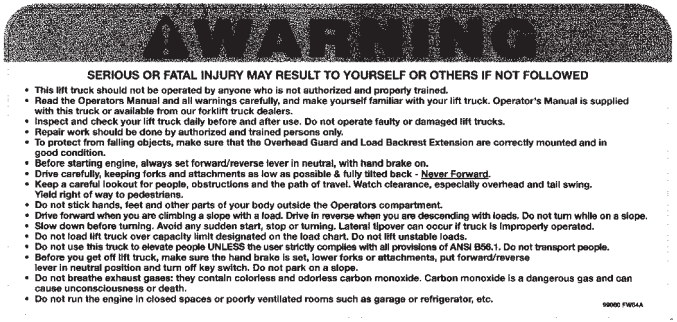
MAST WARNING DECAL



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 forklift safely and avoid accidents. Therefore, be sure to take careful note of the instructions before operating the forklift.**

RADIATOR WARNING DECAL

WARNING

- **Never remove the radiator cap when the engine is hot. Serious burns could be caused by high-pressure fluid escaping from the radiator.**

SAFETY RULES AND PRACTICES

ATA & CAPACITY PLATES AND DECALS (CONT'D)

COOLING FAN WARNING DECAL

WARNING

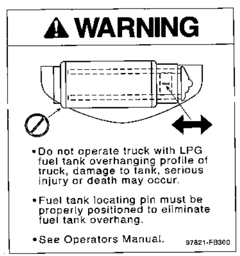
- **Never touch the cooling fan while it is turning.**

Touching the cooling fan while it is turning may result in injury to your fingers, and in the worst case, may sever the fingers.

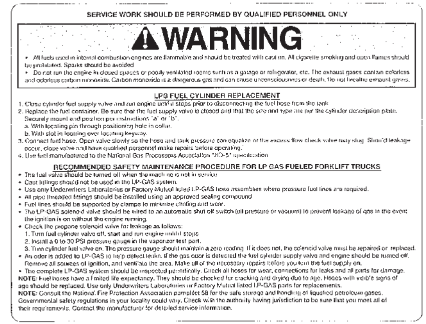
ADJ LPG WARNING DECAL

WARNING

- **Do not operate the forklift with the LPG fuel tank overhanging the profile of the forklift, damage to the tank, serious injury or death may occur.**
- **Fuel tank locating pin must be properly positioned to eliminate fuel tank overhang.**



LPG FUEL WARNING DECAL



SERVICE WORK SHOULD BE PERFORMED BY QUALIFIED PERSONNEL ONLY

WARNING

- All fuels used in internal combustion engines are flammable and should be treated with caution. All cigarette smoking and open flames should be prohibited. Sparks should be avoided
- Do not run the engine in closed spaces or poorly ventilated rooms such as a garage or refrigerator, etc. The exhaust gases contain colorless and odorless carbon monoxide. Carbon monoxide is a dangerous gas and can cause unconsciousness or death. Do not breathe exhaust gases.

LPG FUEL CYLINDER REPLACEMENT

1. Close cylinder fuel supply valve and run engine until it stops prior to disconnecting the fuel hose from the tank
2. Replace the fuel container. Be sure that the fuel supply valve is closed and that the size and type are per the cylinder description plate. Securely mount and position per instructions "a" or "b".
   a. With locating pin through positioning hole in collar.
   b. With slot in footring over locating keyway.
3. Connect fuel hose. Open valve slowly so the hose and tank pressure can equalize or the excess flow check valve may slug. Should leakage occur, close valve and have qualified personnel make repairs before operating.
4. Use fuel manufactured to the National Gas Processors Association "HD-5" specification

RECOMMENDED SAFETY MAINTENANCE PROCEDURE FOR LP GAS FUELED FORKLIFT TRUCKS

- The fuel valve should be turned off when the machine is not in service
- Cast fittings should not be used in the LP-GAS system.
- Use only Underwriters Laboratories or Factory Mutual listed LP-GAS hose assemblies where pressure fuel lines are required.
- All pipe threaded fittings should be installed using an approved sealing compound
- Fuel lines should be supported by clamps to minimize chafing and wear.
- The LP-GAS solenoid valve should be wired to an automatic shut off switch (oil pressure or vacuum) to prevent leakage of gas in the event the ignition is on without the engine running.
- Check the propane solenoid valve for leakage as follows:
  1. Turn fuel cylinder valve off, start and run engine until it stops
  2. Install a 0 to 30 PSI pressure gauge in the vaporizer test port.
  3. Turn cylinder fuel valve on. The pressure gauge should maintain a zero reading. If it does not, the solenoid valve must be repaired or replaced.
- An odor is added to LP-GAS to help detect leaks. If the gas odor is detected the fuel cylinder supply valve and engine should be turned off. Remove all sources of ignition, and ventilate the area. Make all of the necessary repairs before you turn the fuel supply on.
- The complete LP-GAS system should be inspected periodically. Check all hoses for wear, connections for leaks and all parts for damage.

NOTE: Fuel hoses have a limited life expectancy. They should be checked for cracking and drying due to age. Hoses with visible signs of age should be replaced. Use only Underwriters Laboratories or Factory Mutual listed LP-GAS parts for replacements.

NOTE: Consult the National Fire Protection Association pamphlet 58 for the safe storage and handling of liquefied petroleum gases. Governmental safety regulations in your locality could vary. Check with the authority having jurisdiction to be sure that you meet all of their requirements. Contact the manufacturer for detailed service information.

WARNING

- **Precautions concerning handling of the LPG fuel cylinder.**

This decal lists precautions concerning the handling of the LPG fuel cylinder. If LP gas leaks, it may result in fire or a serious accident. Be sure to read and understand these precautions before handling the LPG fuel cylinder.

LPG LATCH WARNING DECAL

WARNING

- **Ensure that the LPG bracket latch is closed before operating the forklift.**

OPERATING CONTROLS AND FUNCTIONS

APPLICATIONS

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

Travel and lifting speeds are transistor controlled by engine rpm's (speed) to provide smooth operations. Different speeds can be set by a trained service technician.

APPLICATION AREA FOR UNICARRIERS TRUCKS

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

PROHIBITED APPLICATIONS FOR UNICARRIERS TRUCKS

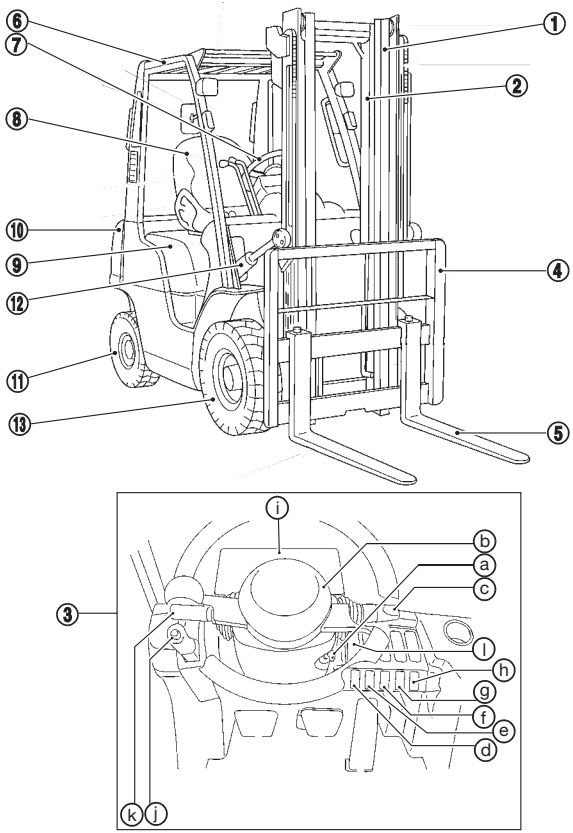
It is not permitted to use these trucks for other purposes including the following:

⚠ 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 Models: Do not drive on any non-paved areas (refer to page 21)**

OPERATING CONTROLS AND FUNCTIONS

MAIN COMPONENTS

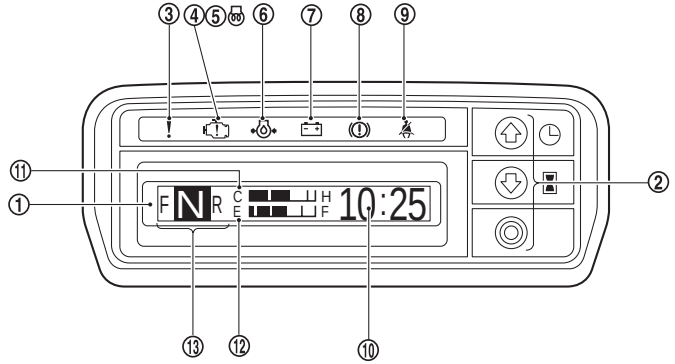


1. **Mast Upright:** The mast upright is the lifting device for the forks. The lifting is done through hydraulic lift cylinders and chains.
2. **Lift Cylinders:** The cylinders are used to lift the forks up and down.
3. **Operator Compartment:** This compartment houses the (a) ignition switch, (b) horn button, (c) lighting and turn signal switch, (d) fuel-change switch (Dual Fuel forklift), (e) seat belt interlock or shutdown indicator (option), (f) maximum speed change switch (option), (g) throttle sensitivity adjust switch (option), (h) transmission shift (SmoothShift) indicator (option), (i) meter panel, (j) parking brake lever, (k) forward-reverse lever and (l) cargo-handling lever(s).
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 truck in the direction of travel.
8. **Seat:** Full suspension seat with operator restraint system, weight, forward/backward, inclination and lumbar adjustments.
9. **Top Panel**
10. **Counterweight:** To balance the truck
11. **Steer Tire**
12. **Tilt Cylinder:** Used to vary the degree of the forks and load backrest
13. **Drive Tire**

OPERATING CONTROLS AND FUNCTIONS

METERS, INDICATORS AND LAMPS

The operator compartment contains the 1F1/1F2 main functional controls to operate the truck in a safe and controlled manner. The meter panel consists of three sections: Warning Lights, LCD (Liquid Crystal Display) monitor and operation buttons.



1. LCD (Liquid Crystal Display)
2. Operation Buttons
3. Multipurpose Warning Light
4. Malfunction Indicator Light- Engine Check Warning (not used on Diesel or Carburetor forklifts)
5. Glow Plug Indicator Light (Diesel forklifts)
6. Oil Pressure Warning Light
7. Charge Warning Light
8. Parking Brake Warning Light
9. Seat Belt Warning Light
10. Meter Display (see note at right)
11. Water Temp. Gauge
12. Fuel Gauge
13. Transmission Position

METER DISPLAY NOTE:

- In place of the time, the date or hour meter may be displayed.
- While driving, this display changes to the speedometer when the vehicle speed is approximately 4.0 km/h (2.5 mph) or higher.
- This display also indicates the service reminder display, malfunctions and warnings.
- The display time and date will be reset if the battery cable is disconnected or the battery is replaced. If the display has been reset, set the time and date again.

NOTE TO THE OPERATOR:

All EFI forklifts have a creep home feature that will reduce engine RPMs if the coolant temperature remains near the "H" position, transmission oil temp is high or engine oil pressure is low. This indicates that the unit should be serviced by your Local Authorized Dealer.

1. LCD

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

2. OPERATION BUTTONS

Use these buttons to change the display, make settings and enter passwords.

3. ! MULTIPURPOSE WARNING LIGHT

This warning illuminates when one of the LCD warning symbols illuminates. It also illuminates when the water temperature is high or the fuel level is low. If this light illuminates during operation, stop operation immediately and report it to the proper authority to take necessary measures.

OPERATING CONTROLS AND FUNCTIONS

METERS, INDICATORS AND LAMPS (CONT'D)

4. MALFUNCTION INDICATOR LIGHT-ENGINE CHECK WARNING (Not Used On Diesel or Carburetor Forklifts)

This warning illuminates when there is a malfunction with an engine sensor or air-fuel ratio control, or other engine emission control issues.

CAUTION

- **The MIL (Malfunction Indicator Light-Engine Check Warning) will illuminate when emission-related parts such as sensors and/or engine emission control parts malfunction.**
- **A failure code will be displayed at the same time on the LCD in the meter panel. If Engine Check Warning Light illuminates during operation, stop operation immediately and report it to the proper authority to take necessary measures or contact your Local Authorized Dealer.**

5. GLOW PILOT LIGHT (Diesel Forklifts)

This indicator illuminates when the ignition switch is turned on and turns off when the glow plug preheating is completed (Engine is ready to start).

CAUTION

- **If the light remains illuminated after the glow plugs are preheated, this indicates a malfunction in the glow system. Have the system checked by your Local Authorized Dealer.**

6. OIL PRESSURE WARNING LIGHT

This warning illuminates when the oil pressure is low.

CAUTION

- **If the light illuminates under ordinary operating conditions, stop the engine immediately and check the engine lubrication system.**

7. CHARGE WARNING LIGHT

This warning illuminates when there is a malfunction with the charge system.

CAUTION

- **If the light illuminates or flickers occasionally during normal operating conditions, the alternator and electrical system should be checked.**

8. PARKING BRAKE WARNING LIGHT

This warning illuminates when the parking brake is engaged or when the brake fluid is low.

NOTE:

Anytime this warning is illuminated, the transmission can not shift into forward or reverse. When the forward-reverse lever is in the "F" or "R" position and the parking brake is on, the display blinks. Release the parking brake and shift the forward-reverse lever to the neutral (N) position and then shift it again to forward (F) or reverse (R) in order to drive.

9. SEAT BELT WARNING LIGHT

This warning illuminates when the seat belt is not fastened.

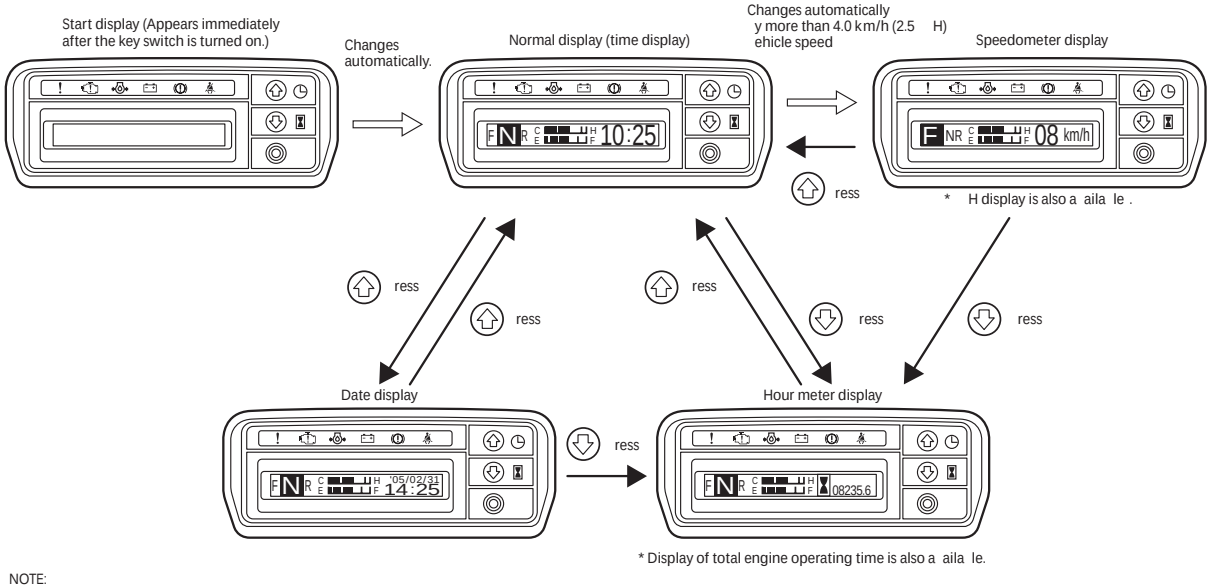
Refer to page 78 for Seat Belt Interlock Option description.

OPERATING CONTROLS AND FUNCTIONS

METERS, INDICATORS AND LAMPS (CONT'D)

10. METER DISPLAY

Changing Meter Display



NOTE:
The display time and date will e reset if the attery ca le is disconnected or the attery is replaced. f the display has een reset, set the time and date again.

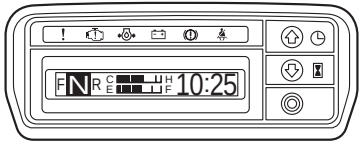
For the changes marked with an (*), contact your Local Authorized Dealer.

OPERATING CONTROLS AND FUNCTIONS

METERS, INDICATORS AND LAMPS (CONT'D)

10. METER DISPLAY (cont'd)

Clock



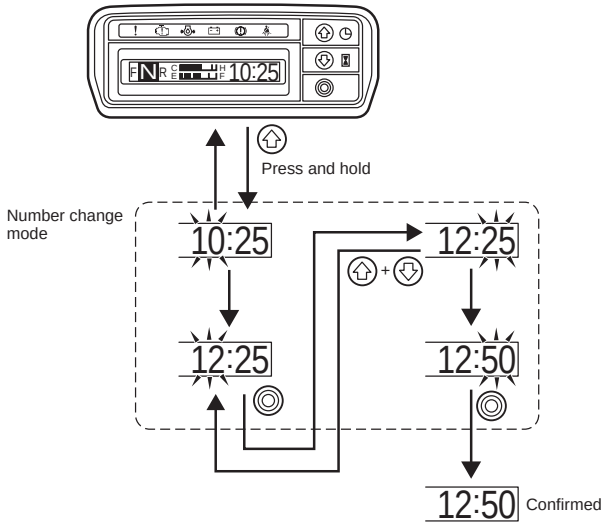
When the ignition switch is turned on, the start display appears, followed by the normal display (clock).

Press the ⏣ button to change the display to the date or press the ⏣ button to change the display to the hour meter.

NOTE:

- The display time and date will be reset if the battery cable is disconnected or the battery is replaced. If the display has been reset, set the time and date again.

Setting the Time



Press the ◎ button to change from hours → minutes → confirmed.

Press both the ⏣ and ⏣ buttons at the same time to return to the previous display.

Press the ⏣ button to change the number up.

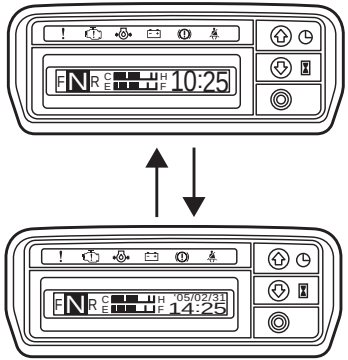
Press the ⏣ button to change the number down.

OPERATING CONTROLS AND FUNCTIONS

METERS, INDICATORS AND LAMPS (CONT'D)

10. METER DISPLAY (cont'd)

Date

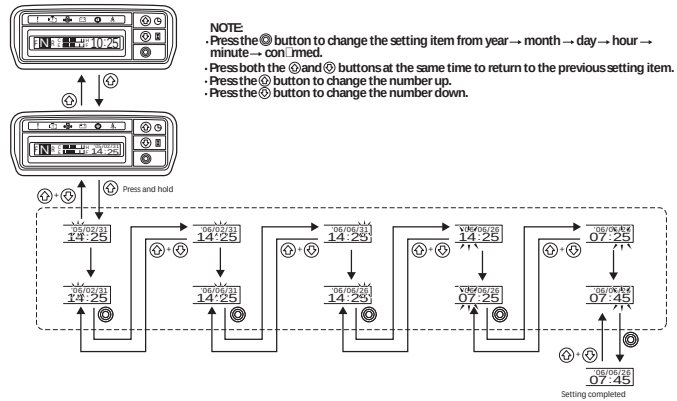


Press the ⏣ button on the normal display (clock) to change from the time display to the date display. Press ⏣ again to return to the normal display.

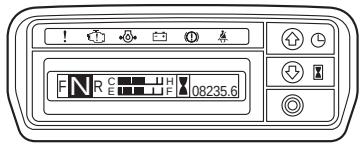
NOTE:

- The display time and date will be reset if the battery cable is disconnected or the battery is replaced. If the display has been reset, set the time and date again.

Setting the Date



Hour Meter



The buttons can be used to change from the normal display (clock) to the hour meter display.

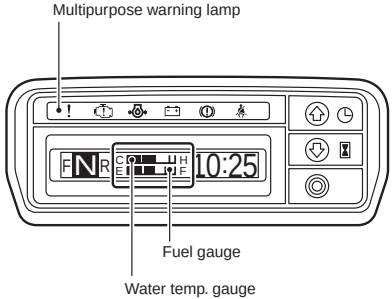
The hour meter ordinarily displays the total ignition time that the ignition is on, however it is possible to change the display to the total engine operating time.

To change the hour meter totaling pattern contact your Local Authorized Dealer.

OPERATING CONTROLS AND FUNCTIONS

METERS, INDICATORS AND LAMPS (CONT'D)

11. WATER TEMP GAUGE



Indicates the current water temperature in levels 0 - 4. When level 2 is indicated, the coolant temperature is correct. When the indication reaches level 4, the display begins to blink, and the multipurpose warning light illuminates to inform the operator of the high water temperature.

Temp.	Indication	Level
High ▲	C ■■■■ H + !	Level 4
	C ■■■□ H	Level 3
	C ■■□□ H	Level 2
	C ■□□□ H	Level 1
Low	C □□□□ H	Level 0

⚠ CAUTION

- **If level 4 is indicated, stop the forklift and allow the engine to cool while idling. After the engine has sufficiently cooled down, turn the engine off and check the coolant level and fan belt deflection.**

NOTE TO THE OPERATOR:

- All EFI forklifts have a creep home feature that will reduce engine RPMs if the coolant temperature remains near the "H" position. This indicates that the unit should be serviced by your Local Authorized Dealer.

12. FUEL GAUGE

Indicates the current fuel level in levels 0 - 5. When level 5 is indicated, the fuel tank is full. When the indication reaches level 0, the display begins to blink, and the multipurpose warning light illuminates to inform the operator of the nearly empty fuel tank. Add fuel immediately.

Fuel	Indication	Level
Full ▼	E ■■■■ F	Level 5
	E ■■■□ F	Level 4
	E ■■□□ F	Level 3
	E ■□□□ F	Level 2
	E ■□□□ F	Level 1
Empty	E □□□□ F + !	Level 0

NOTE:

- If the forklift is Dual Fuel, the fuel meter will not work when the forklift is operated with LPG.
- When operating the forklift with LPG, check from time to time to be sure that the LPG level warning light is not lit and that the LPG level alarm is not on.
- To check the remaining amount of LPG, use the fuel gauge on the LPG cylinder.

OPERATING CONTROLS AND FUNCTIONS

METERS, INDICATORS AND LAMPS (CONT'D)

13. TRANSMISSION POSITION

For Single Speed Automatic Transmission

When the Transmission Position indicator displays the "F" position and the transmission has shifted, the displays appears as shown above.

When the Transmission Position indicator displays the "N" position and the transmission has shifted, the displays appears as shown above.

When the Transmission Position indicator displays the "R" position and the transmission has shifted, the displays appears as shown above.

When the forward-reverse lever is in the "F" or "R" position and the operator is not seated on the operator's seat for three (3) seconds, the transmission will shift to neutral when 1) the parking brake is engaged or 2) the truck speed is below 3km/h (1.8mph) and the display will blink as shown above.

The truck may also be equipped with a Seat Belt Interlock option which may shift the transmission into neutral if the seat belt is not latched. Refer to page 78 for Seat Belt Interlock options.

Sit on the operator's seat and shift the forward-reverse lever to the neutral (N) position. Disengage the parking brake if engaged, and then shift the forward-reverse lever to forward (F) or reverse (R) in order to drive.

When there is an error in the forward-reverse lever signal, the display blinks. Contact your Local Authorized Dealer for inspection.

NOTE:

If parking brake  warning light is illuminated, the transmission can not shift into forward or reverse. When the forward-reverse lever is in the "F" or "R" position and the parking brake is on, the display blinks. Release the parking brake and shift the forward-reverse lever to the neutral (N) position and then shift it again to forward (F) or reverse (R) in order to drive.

For Manual Shift 2-Speed Automatic Transmission

When the manual shift 2-speed automatic transmission lever is in the "1F" position, the displays appears as shown above.

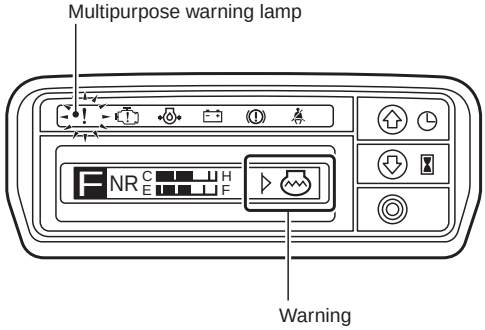
When the manual shift 2-speed automatic transmission lever is in the "2F" position, the displays appears as shown above.

NOTE:

UniCarriers does not recommend starting in from the second speed position.

OPERATING CONTROLS AND FUNCTIONS

MALFUNCTION AND WARNING INDICATIONS



When a forklift warning occurs, a warning symbol and the multipurpose warning light illuminate. Following is an explanation of the meaning and method of correction when a warning symbol illuminates.

MAST INTERLOCK WARNING

This warning illuminates when the ignition switch is turned on and the operator is not seated on the seat or the operator leaves the seat for three (3) seconds or more. Loading operation is prohibited at this time. Loading becomes possible when the operator is seated on the seat.

NOTE:

Refer to page 78 for Seat Belt Interlock options.

LPG LEVEL WARNING/LPG RACK LOCK WARNING (LPG and Dual Fuel Forklifts)

This warning illuminates when the LPG level is low. Replace the LPG fuel cylinder before it runs out. This warning also illuminates when the LPG rack is not securely set (in this case the warning buzzer will also sound).

⚠ CAUTION

- **The LPG tank is out of or nearly out of fuel. Have the LPG cylinder tank replaced immediately.**
- **For LPG tank mount bracket and low LPG fuel: the light is illuminated when the ignition switch is turned on. If the light remains on and the warning buzzer sounds with the ignition switch turned on or after the engine is started, the LPG tank mounting bracket (either swing out or swing down type) is not securely latched (refer to page 82). Turn the engine off, apply the parking brake and then check that the tank mounting bracket is latched correctly.**

TORQUE CONVERTER FLUID TEMP WARNING

This warning illuminates when the transmission fluid temperature is high. All EFI forklifts have creep home feature that will reduce engine RPM's if transmission temp is high. If this warning symbol illuminates, move the vehicle to a safe location and allow it idle in order to lower the fluid temperature. When the fluid temperature has returned to normal, the warning turns off.

NOTE:

- Check the level of automatic transmission fluid (refer to page 94).
- If the warning light illuminates even though the transmission fluid is at normal level, contact your Local Authorized Dealer for inspection.

OPERATING CONTROLS AND FUNCTIONS

MALFUNCTION AND WARNING INDICATIONS (CONT'D)

RADIATOR LEVEL WARNING

This warning illuminates when the engine coolant level is low, add coolant (refer to page 91).

CAUTION

- **Continuing to drive while the light is illuminated may lead to overheating of the engine.**

AIR CLEANER WARNING

This warning illuminates when the air cleaner has become clogged. If the warning symbol illuminates, promptly clean or replace the air cleaner.

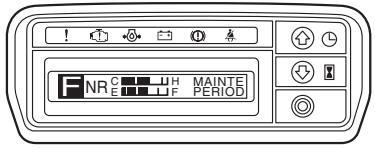
FUEL FILTER WARNING (Diesel Forklifts)

This warning illuminates when the fuel filter has become full with water. If this warning symbol illuminates, promptly drain the water from the fuel filter (refer to page 106).

CAUTION

- **Continuing to drive while the light is illuminated may lead to a reduction in the engine output or engine damage.**

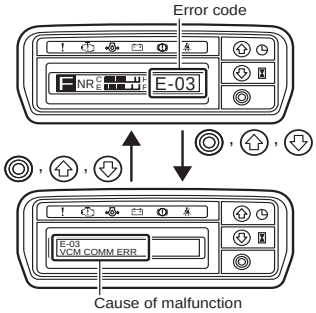
SERVICE REMINDER DISPLAY



When the time for regular service inspection (planned maintenance) approaches, this warning illuminates for 15 seconds after the ignition switch is turned on. This does not affect driving.

When the display shown above appears, contact your Local Authorized Dealer. It is recommended that regular inspection be performed.

DISPLAYS WHEN MALFUNCTION OCCURS



When a controller malfunction occurs, an error code is displayed.

Press any operation button while the error code is displayed in order to display the cause of the malfunction.

If any error code (sample above) appears contact your Local Authorized Dealer.

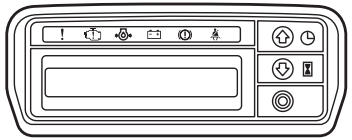
OPERATING CONTROLS AND FUNCTIONS

DRIVER RECOGNITION MODE

Registering a password can restrict the drivers of the forklift.

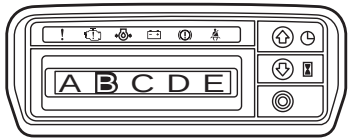
You can register a password for up to 5 people (A to E).

Contact your Local Authorized Dealer for information about the registration of the password.



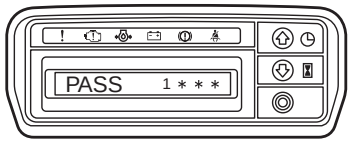
When the key switch is off

When the key switch is on



Select the alphabet letter (A, B, C, D, E) for the password that was registered by the user. Use the and buttons

Select



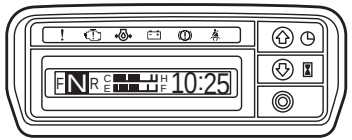
Enter the password.

Press the button to change the number up.

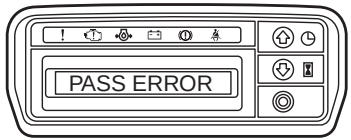
Press the button to change the number down.

Press the button to confirm the number for each digit.

If the correct password was not entered



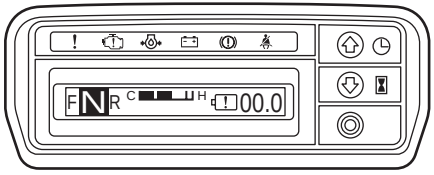
Normal display (clock display)
Normal operation is possible.



If the wrong password is entered 3 times, “PASS ERROR” is displayed and operation of the vehicle is disabled.
Turn the key switch on again and enter the correct password.

OPERATING CONTROLS AND FUNCTIONS

LPG REMAINING TIME MANAGEMENT



This function is not part of the LPG Level Warning/LPG Rack Lock Warning system.

With this function the operator sets the time interval between LPG fuel cylinder replacements. Then, when the time reaches zero, this function illuminates the LPG level warning symbol and the multipurpose warning light to warn the operator of the need to replace the LPG fuel cylinder. For the method used to change the LPG level warning pattern to the method above, contact your Local Authorized Dealer.

LPG remaining time management is recommended for the following types of situations:

- The timing for replacement of the LPG fuel cylinder is predetermined.
- The LPG level warning appears too early or too late on the forklift.

⚠ CAUTION

- **Set a time with a sufficient amount of leeway.**
- **After replacing the LPG fuel cylinder, be sure to set the time setting again. Otherwise, the time setting continues after LPG fuel cylinder replacement, and this may result in the LPG level warning symbol turning on at an unintended time.**
- **When driving a dual fuel forklift using gasoline after using LPG without the time setting, be careful that the time setting continues to count the time.**

LPG Remaining Time Setting

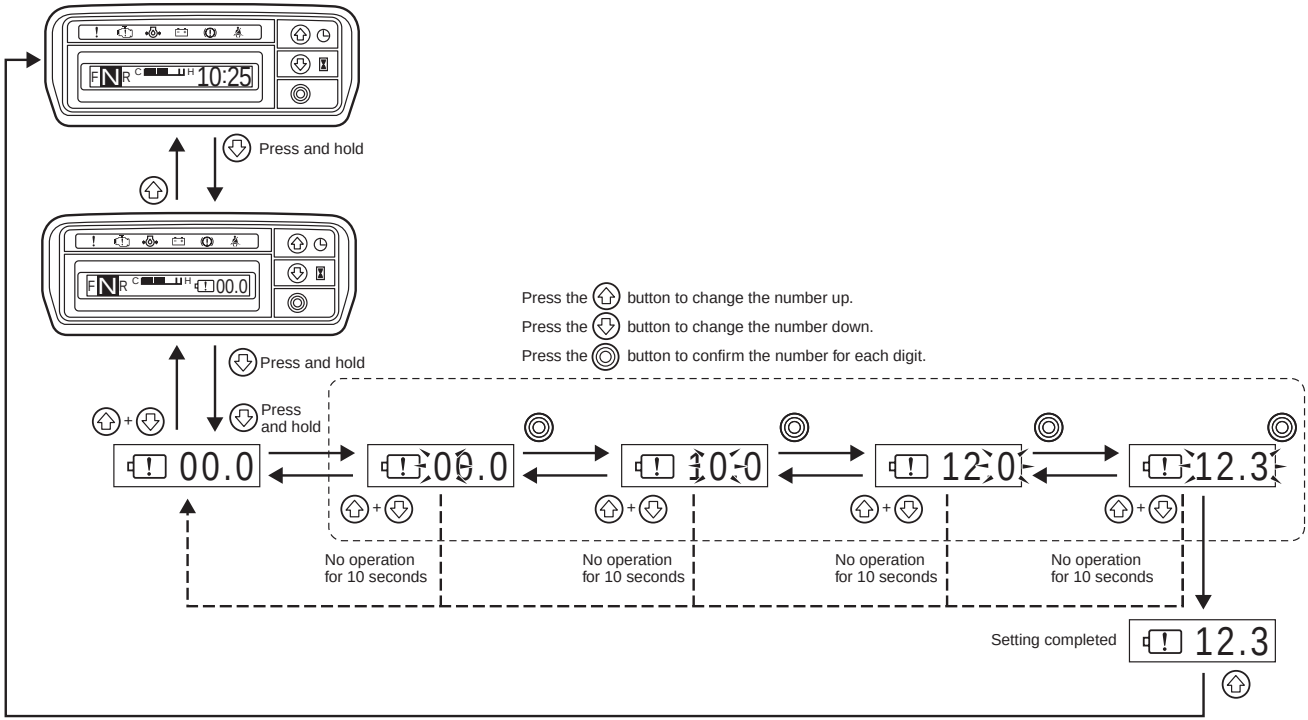
- When the time setting is set to 00.0 , the meter panel shows the LPG level warning .
- When the time setting is reset, move the setting display by pushing , and while the LPG level warning is displayed. After resetting the setting time, the LPG level warning turns off.

OPERATING CONTROLS AND FUNCTIONS

LPG REMAINING TIME MANAGEMENT (CONT'D)

Following is an explanation of how to set the time setting for the first time.

Example: Setting the time to 12.3 hours



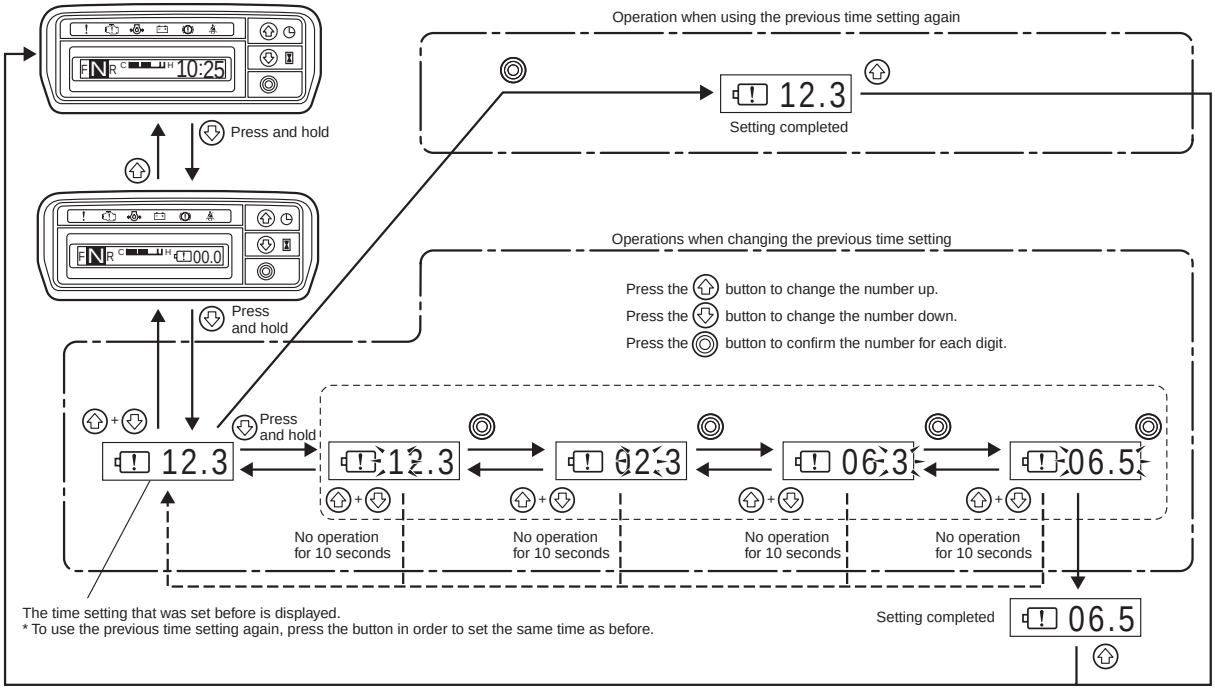
OPERATING CONTROLS AND FUNCTIONS

LPG REMAINING TIME MANAGEMENT (CONT'D)

Following is an explanation of how to set the time setting for the second and later times.

Example 1: Changing the time from 12.3 hours (previous setting) to 6.5 hours

Example 2: Using the same 12.3 hours setting (previous setting) again.

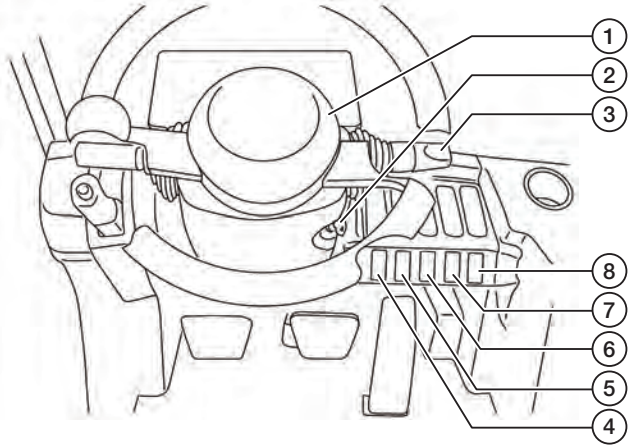


OPERATING CONTROLS AND FUNCTIONS

SWITCHES

1. Horn Button
2. Ignition Switch
3. Lighting Switch and Turn Signal Switch

   NOTE: For forklifts with the optional joystick control, this switch is located on the left side.
4. Fuel Change Switch (Dual Fuel forklifts)
5. Seat Belt Interlock or Shutdown Indicator (option) (see page 52)
6. Maximum Speed Change Switch (option) (see page 53)
7. Throttle Sensitivity Adjust Switch (option) (see page 53)
8. Transmission Shift (SmoothShift) Indicator (Green - option) (see page 53)



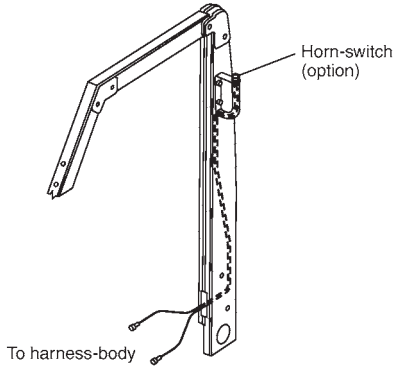
HORN BUTTON

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

NOTE: For forklifts with the optional joystick control, there is also a horn button located on the joystick control.

REAR RIGHT GRIP WITH HORN BUTTON (OPTION)

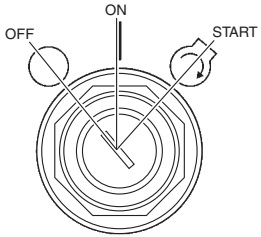
This button allows you to honk the horn from your grip on the rear right pillar.



OPERATING CONTROLS AND FUNCTIONS

SWITCHES (CONT'D)

IGNITION SWITCH



Insert the ignition key into the ignition switch to start or stop the engine. Each new forklift comes with two keys, use one for operation and store the other in a safe place as a spare.

OFF Position

This position allows the key to be inserted or removed. When the ignition switch is in this position, all electric circuits are open but the following can be turned on and off.

- Lamps by operating the lighting switch
- Rear operating lights
- Braking lights by application of the brake

ON Position

This is the position of the ignition switch when the engine is running. When the ignition switch is in this position, all electric circuits are energized.

START Position

To start the engine, turn the ignition switch to the ON position, for diesel forklifts wait for the glow pilot light to turn off, then turn the ignition switch to START. Once engine has started let go of the ignition switch and it will automatically return to the ON position.

Gasoline and LPG Forklift

Do not operate the starter for more than 10 consecutive seconds. If the engine does not start wait for at least 10 seconds and then try again.

Diesel Forklift

Do not operate the starter for more than 30 consecutive seconds. If the engine does not start wait for at least 30 seconds and then try again, starting with preheating.

⚠ CAUTION

- **If you leave the ignition switch in the ON position while the engine is stopped, the battery may run down and this may make it impossible to start the engine. To avoid this situation, always return the ignition switch to the OFF position after stopping the engine.**
- **During operation, the ignition switch is in the ON position. Never turn it to the OFF or START position during operation.**
- **Do not operate the starter for a long time when starting the engine.**
- **If the engine does not start even though you operate the starter repeatedly, return the ignition switch to the OFF position, if operating on LPG close the discharge valve, and contact your Local Authorized Dealer.**
- **If equipped with the Seat Belt Interlock option, the truck will not start if the seat belt is not fastened (seat belt interlock/ shutdown indicator light will illuminate red). Refer to page 78 for Seat Belt Interlock options.**

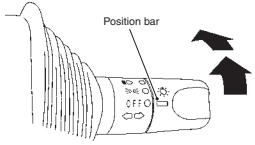
OPERATING CONTROLS AND FUNCTIONS

SWITCHES (CONT'D)

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 mark on the switch main unit.



Switch mark	Head lamp	Tail lamp
OFF	OFF	OFF
≡D◇≡	OFF	ON
≡⬭	ON	ON

⚠ CAUTION

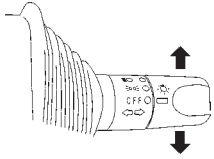
- **Do not touch the headlamp lens when the headlamp is lit or immediately after the headlamp is turned off, because it is very hot.**

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 forklift, or else the battery may run down.

Turn Signal Switch

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



FUEL CHANGE SWITCH (DUAL FUEL FORKLIFTS)

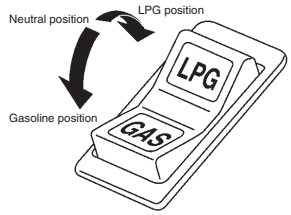
This switch is used to switch fuel from LPG to gasoline or vice versa.

LPG Position: Press to this position to use LPG.

Neutral Position: Press to this position to exhaust fuel from the fuel pipe.

Gasoline Position: Press to this position to use gasoline.

The light on the fuel selection you pressed illuminates, indicating the fuel that is currently selected.



⚠ WARNING

- **Do not manipulate the LPG cylinder charge valve (yellow or plug), otherwise the LPG may leak out into the atmosphere.**

NOTE:

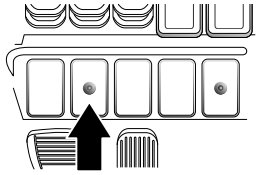
- Do not use the fuel-change switch to change fuels when the engine is running. Change fuels only after the engine has completely stopped.
- To switch from one fuel to the other, strictly follow the specified procedure after warming up the engine (refer to pages 65-69).
- Operate the forklift with gasoline for 30 minutes or several miles (kilometers) at least once every two weeks, this will prevent gasoline deterioration.
- The engine does not start when the fuel change switch is in the neutral position. Do not forget to press the fuel choice before starting the engine.

OPERATING CONTROLS AND FUNCTIONS

SWITCHES (CONT'D)

SEAT BELT INTERLOCK SHUTDOWN INDICATOR (RED - OPTION)

This option is an interlock system that will not let you start the forklift without the operator being in the seat with the seat belt latched.



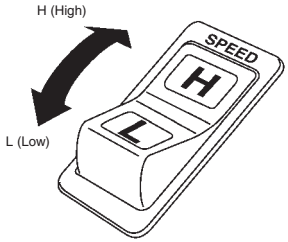
SEAT BELT INTERLOCK WITH SHUTDOWN (OPTION)

If you should for any reason unlatch the seat belt or lift yourself off the seat for more then 3 seconds you will activate a shut down cycle, the shutdown indicator will flash red, the meter panel will display "AUTO STOP", and will stop flashing when the cycle is completed. The unit will then shut down the engine. You will have to return the ignition switch to the "off" position and restart the unit once you have returned to the seat and latched the seat belt.

When the cycle has started and the red light is flashing, the transmission will shift to neutral and the hydraulic function will be shut off. These functions will return to normal operating condition as stated above. Refer to page 78 for Seat Belt Interlock options

MAXIMUM SPEED CHANGE SWITCH (OPTION)

This switch is an optional setting switch for electronic control gasoline, LPG and dual fuel vehicles. It allows you to switch the maximum speed between high speed mode (H) and low speed mode (L). Press the H side of the switch if there is no need to limit the maximum speed to a low level, or press the L side to limit the maximum speed to a low level.



The light on the side you pressed illuminates, indicating the speed mode that is currently selected.

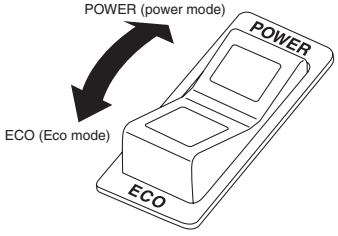
⚠ WARNING

- **Do not change the maximum speed when the forklift is traveling. Doing so could cause the load to shift.**
- **Only your Local Authorized Dealer is allowed to change the running speed settings. So, if necessary, ask them to perform this change.**

OPERATING CONTROLS AND FUNCTIONS

THROTTLE SENSITIVITY ADJUST SWITCH (OPTION)

This switch is an optional setting switch for electronic control gasoline, LPG and dual fuel vehicles. It allows you to switch the starting acceleration between power mode and economy mode. Press the POWER side of the switch to accelerate the forklift at a normal rate, or press the ECO (economy) side to accelerate the forklift slowly.



The light on the side you depressed illuminates, indicating the mode that is currently selected. You can switch from one mode to the other as described below.

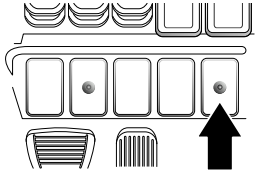
Switching operation	During driving	During a halt and ignition switch OFF
From POWER to ECO	Not possible	Possible
From ECO to POWER	Not possible	Possible

NOTE:

Switching from the ECO mode to the POWER mode can only be done by turning the ignition switch to the OFF position.

TRANSMISSION SHIFT (SMOOTHSHIFT) INDICATOR (GREEN - OPTION)

This option keeps the transmission from shifting direction at high travel speeds or engine RPM's. [When the indicator light turns off, the engine RPM will be reduced, the transmission will stay engaged, and the engine now acts as an engine brake to slow down the truck. Or, the operator may also use the service brakes.]



When travel speed has been reduced and the operator's foot is removed from the accelerator, the indicator light illuminates (green), and the transmission shifts. Depress the accelerator pedal to pick up speed in the new direction.

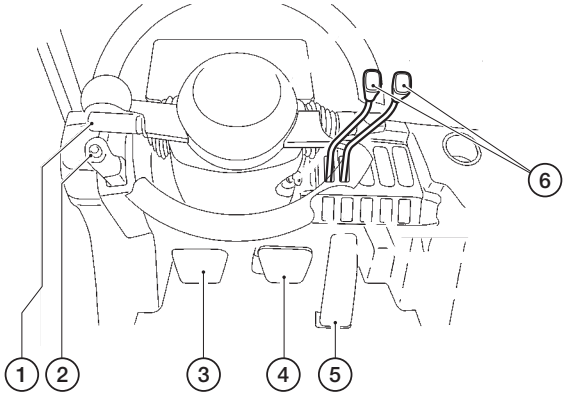
OPERATING CONTROLS AND FUNCTIONS

OPERATING CONTROLS

1. Forward-reverse lever

   NOTE: For forklifts with the optional fingertip control, this lever is located on the left side of the control unit.

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



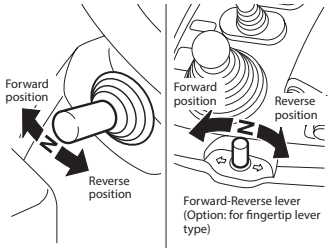
FORWARD-REVERSE LEVER

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

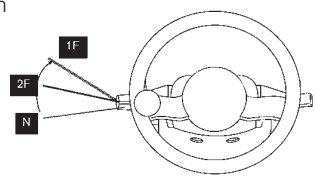
The same operating method applies to the optional fingertip control.

If the forklift is equipped with the Transmission Shift (SmoothShift) Interlock option, the transmission will not shift at high speeds or engine RPMs. Remove your foot from the accelerator pedal or apply brakes and shift when the Transmission Shift (SmoothShift) Indicator illuminates (green). Refer to page 52.

1 Speed



2 Speed



NOTE:

- The engine cannot be started when the forward-reverse lever is in any position other than the neutral position.
- The transmission will shift to neutral if the operator leaves the seat with the ignition switch on.
- If the parking brake warning light is illuminated, the transmission can not shift into forward or reverse. When the forward-reverse lever is in the "F" or "R" position and the parking brake is on, the display blinks. Release the parking brake and shift the forward-reverse lever to the neutral (N) position and then shift it again to forward (F) or reverse (R) in order to drive.
- The transmission will not shift direction while the vehicle is traveling at high travel speeds or the engine is running at high RPM's. Refer to the Transmission Shift (Smoothshift) Indicator on page 52.

OPERATING CONTROLS AND FUNCTIONS

OPERATING CONTROLS (CONT'D)

FORWARD-REVERSE LEVER (cont'd)

⚠ CAUTION

- **Always depress the brake pedal before operating the forward-reverse lever.**
- **Before the forklift comes to a full stop, do not change the driving direction by operating the lever. Doing so applies excessive force to the drive system and may cause it to break down. Moreover, a rapid change of the driving direction may cause cargos to fall down or make it difficult for the operator to maintain a correct driving posture.**
- **When stopping the forklift temporarily with the forward-reverse lever left in the neutral position, be sure to set the parking brake lever to prevent the forklift from moving unexpectedly.**

⚠ WARNING

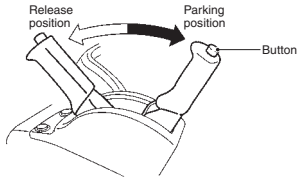
- **The forward-reverse lever should always be in the neutral position (not the forward or reverse position) before the ignition switch is moved to the ON position.**
- **Always return the forward-reverse lever to the neutral position at the completion of forklift operation.**

NOTE:

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

PARKING BRAKE LEVER

To set the parking brake, fully pull the lever towards you. To release the parking brake, push down the button on top of the lever and then push the lever forward. Before leaving the forklift, be sure to apply the parking brake securely.



When parking the forklift on a slope, fully pull the lever towards you and set a chock behind each wheel.

NOTE:

The transmission will not shift to forward (F) or reverse (R) while the Parking brake is engaged (set). To resume operation, sit on the operator's seat and shift the forward-reverse lever to the neutral (N) position. Release the parking brake and then shift the forward-reverse lever to forward (F) or reverse (R).

⚠ WARNING

- **Always depress the brake or inching pedal before releasing the parking brake to avoid movement of the forklift before selecting a direction of travel.**

NOTE:

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

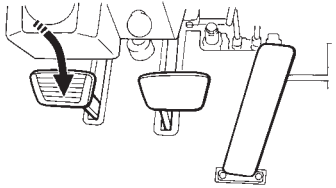
- The operator leaves the operator's seat without applying the parking brake while the ignition switch is in the ON position.
- The operator turns off the ignition switch without applying the parking brake, regardless of whether the operator is sitting in the operator's seat.

OPERATING CONTROLS AND FUNCTIONS

OPERATING CONTROLS (CONT'D)

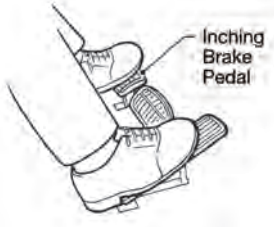
INCHING BRAKE PEDAL

The inching brake pedal allows you to finely adjust the forward and reverse driving speed.



The transmission internal clutch begins to slip when you slightly depress this pedal, and the internal clutch is completely disengaged and the brakes are applied when you further depress the pedal, in which case the inching brake pedal acts in the same ways as a brake pedal.

1. Fully depress the inching brake pedal.
2. Move the forward-reverse lever to the forward or reverse position.
3. Depress the accelerator pedal little by little while gradually releasing the inching brake pedal. The forklift will move bit by bit.



⚠ WARNING

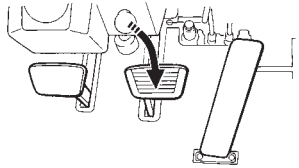
- **When the inching brake pedal is fully depressed the service brake will be applied. However the inching brake pedal should not be used as the method for stopping the forklift. In normal traveling operations, the inching brake pedal should only be used during loading or unloading, which requires short, controlled movement of the forklift.**

⚠ WARNING

- **During deceleration on any grade, only use the brake pedal or increase or decrease the speed by using the accelerator pedal. Do not use or depress the inching brake pedal because this will put the transmission in the neutral mode.**
- **Do not leave your foot on the inching brake pedal when driving the forklift.**
- **Doing so may cause the clutch to slip and prevent engine braking from taking effect. Moreover, it could cause the brake to fail because of overheating. Also, doing so may cause the hydraulic clutch in the transmission to slip and give off a large amount of heat, causing the clutch to overheat, wear down in a short time or seize up in the worst case.**

BRAKE PEDAL

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



⚠ WARNING

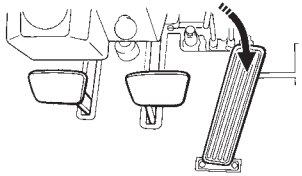
- **Do not brake the forklift hard. Doing so may cause the forklift to become unbalanced and result in a serious accident.**
- **Adjust the braking effort according to the cargo weight.**
- **Do not rest your foot on the brake pedal during driving. Doing so may cause the brakes to fail because of overheating.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

OPERATING CONTROLS AND FUNCTIONS

OPERATING CONTROLS (CONT'D)

ACCELERATOR PEDAL

This pedal allows you to adjust the engine speed (RPM's). The engine speed changes according to the degree to which the accelerator pedal is depressed.



⚠ 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 forward-reverse lever has been shifted.**
- **Do not release parking brake unless operator is in seat as forklift may roll.**

CARGO-HANDLING CONTROL LEVER

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 of the forklift you are using and operate the lever or levers appropriately.

⚠ WARNING

- **Always sit in the operator's seat when operating any 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 engine is stopped, operation of the lever to the downside or lowering direction may cause the fork 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 forklift to become unbalanced and tip over.**

NOTE:

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

Refer to page 78 for Seat Belt Interlock options regarding the cargo-handling system.

⚠ 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.**

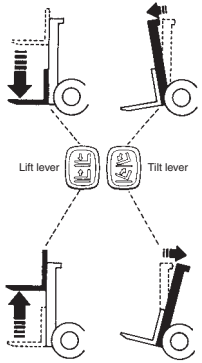
OPERATING CONTROLS AND FUNCTIONS

OPERATING CONTROLS (CONT'D)

CARGO-HANDLING CONTROL LEVER (CONT'D)

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.

⚠ CAUTION

- **Do not perform forward tilt while the forklift is traveling. It may cause loads to shift or drop and also may cause the forklift 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 forklift to become unstable and tip over.**

Speed Control:

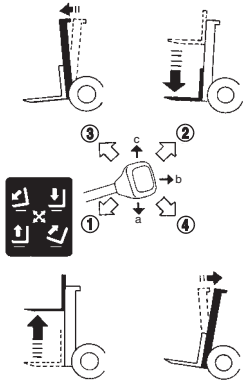
Control of lifting speed: The speed can be changed by controlling the tilt angle of the lever and by how much the operator depresses the accelerator pedal.

Control of lowering speed: The speed can be changed only by controlling the tilt angle of the lever, do not depress the accelerator pedal.

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 and by how much the operator depresses the accelerator pedal.

Single-Lever Type

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



1. Lift: Diagonally pull the lever to the left side of operator.
2. Lower: Push the lever in the right forward direction.
3. Forward: Push the lever in the left forward direction.
4. 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.

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

OPERATING CONTROLS AND FUNCTIONS

OPERATING CONTROLS (CONT'D)

CARGO-HANDLING CONTROL LEVER (CONT'D)

Single-Lever Type (cont'd)

⚠ CAUTION

- **Do not perform forward tilt while the forklift is traveling. It may cause loads to shift or drop and also may cause the forklift 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 forklift to become unstable and tip over.**

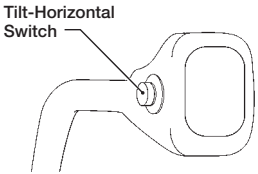
Speed Control:

Control of lifting, forward and backward tilting speeds: The speed can be changed by controlling the tilt angle of the lever and by how much the operator depresses the accelerator pedal.

Control of lowering speed: The speed can be changed only by controlling the tilt angle of the lever, do not depress the accelerator pedal.

Tilt-Horizontal Switch (Option)

When forward tilt is performed with the mast tilted backward, 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 tilt-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 twin 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.**

OPERATING CONTROLS AND FUNCTIONS

OPERATING CONTROLS (CONT'D)

CARGO-HANDLING CONTROL LEVER (CONT'D)

Joystick Control Lever (Option - 2 & 2.5 Ton Only)

The joystick lever is electronically controlled. The cargo handling operation can be performed only when the ignition switch is ON.

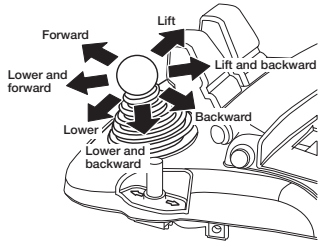
⚠ WARNING

- **Do not perform forward tilt while the forklift is traveling. It may cause loads to shift or drop and also may cause the forklift 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 forklift to become unstable and tip over.**

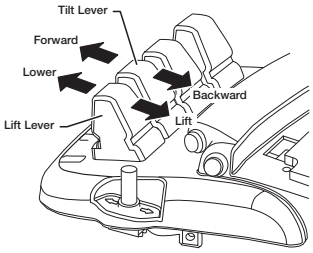
NOTE:

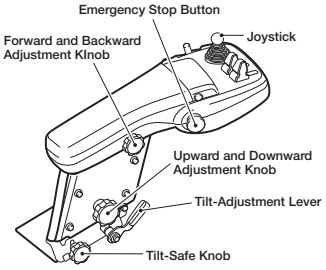
- Before the ignition switch is turned on, make sure that the joystick lever is set to the neutral position. If the lever is placed in any position other than the neutral position, cargo handling or fork operation cannot be performed.
- When the ignition switch is turned OFF, the forks do not lower even under its own weight.
- The joystick lever is used to tilt the mast forward or backward and to lift or lower the forks. Cargo handling speed (lift, lower, forward and backward) can be adjusted by the distance that the lever is moved.
- For detailed joystick lever operation, refer to illustrations at right.

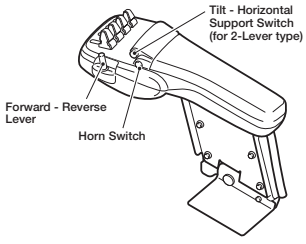
1 Lever Type



2 Lever Type







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.

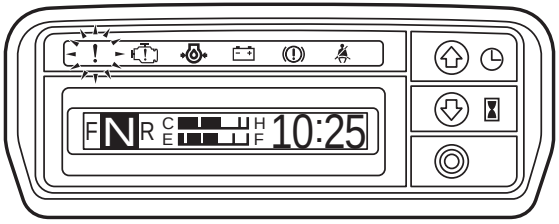
Control of forward and backward tilting speeds: For both forward and backward tilts, the speed can be changed by controlling the tilt angle of the lever.

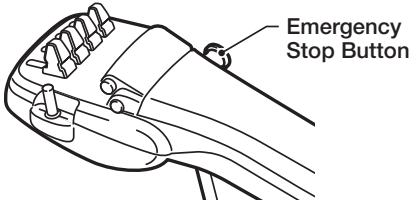
OPERATING CONTROLS AND FUNCTIONS

OPERATING CONTROLS (CONT'D)

CARGO-HANDLING CONTROL LEVER (CONT'D)

Joystick Control Lever (Option - 2 & 2.5 Ton Only) (cont'd)





⚠ WARNING

- **The warning mark ! and a malfunction message will appear on the meter when the joystick control system malfunctions. When this occurs, immediately stop cargo handling operations and have the forklift checked and repaired by your Local Authorized Dealer.**

⚠ WARNING

- **If an erroneous cargo handling operation is noticed regardless of the joystick lever position, press the emergency stop button on the console box, stop cargo handling operations immediately and have the forklift checked and repaired by your Local Authorized Dealer. To release the emergency stop button, turn it in the direction indicated by the arrow.**

OPERATING CONTROLS AND FUNCTIONS

OPERATING CONTROLS (CONT'D)

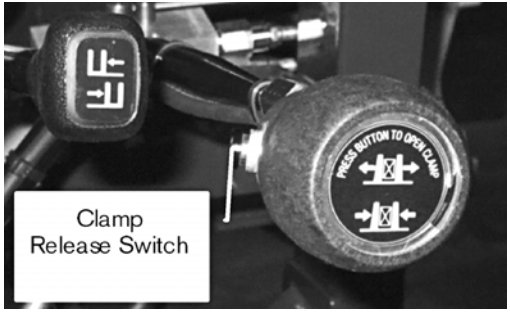
ANSI/ITSDF STANDARDS FOR FORKLIFT CLAMP ATTACHMENTS

The ANSI/ITSDF Standards regarding forklift mounted clamp attachments took effect for 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.

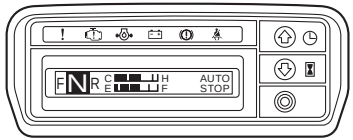
Clamp Release - System Operation:

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).



AUTO STOP/START FUNCTION (GOM ONLY)



This function automatically stops the engine when the forklift has not been operated for the set length of time if the following conditions are also met: the vehicle is idling (the accelerator pedal is not depressed), the forward-reverse lever is in the neutral position, the vehicle is stopped and no malfunctions have occurred. When this function stops the engine, "AUTO STOP" is displayed on the LCD.

To restart the engine from the auto stop status, leave the forward-reverse lever in the neutral position and sit in the seat, then depress the inching brake pedal or the brake pedal and at the same time depress the accelerator pedal. This will restart the engine.

The engine can also be restarted by turning the ignition switch to the START position.

To change the setting of this function, contact your Local Authorized Dealer.

NOTE:

The set time before auto stop activates can be adjusted within the range of 0 - 200 seconds.

Setting at the time of shipment from factory is 60 seconds.

Adjustable range: 0 - 200 seconds

- A setting of 0 seconds disables the auto stop function.
- The status when auto stop is activated is the same as when the ignition switch is turned OFF (the headlamps can be turned on, however the turn signal lights will not operate).

OPERATING THE TRUCK

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

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 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 that the operator completely checks the unit at the beginning of **each shift** or **work period**. Ensure that all of the Daily Inspection checks (refer to page 86, also refer to page 88 for Sample Operator's Daily Checklist) have been made before operating the unit.

FORKLIFT OPERATING PRECAUTIONS

1. **Malfunction Displays:** If any error code appears on the meter display contact your Local Authorized Dealer.
2. **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.

PRECAUTIONS FOR COLD AND HOT WEATHER

In Cold Weather

- Oil and Grease

Use engine oil and grease that are suitable for the ambient temperature (refer to page 125).

- Coolant

When coolant might freeze at a low ambient temperature, drain out the coolant completely (refer to page 92). In such cold weather a recommended 50/50 mix of antifreeze solution only should be put into the cooling system (refer to page 92).

In Hot Weather

- Oil

Engine oil should be changed to summer type oil (refer to page 125).

- Coolant

Because the engine is more likely to overheat in hot weather, the forklift should be parked in a shaded area. Overheating sometimes is caused by old, worn or cracked hoses, connections, loosened radiator cap, or old, worn or cracked fan belt. Carefully check the cooling system to maintain the best cooling effect.

- Battery

Because the battery electrolyte evaporates in hot weather, it is necessary to refill the battery with distilled water (refer to page 84).

OPERATING THE TRUCK

OPERATIONAL PROCEDURES

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

When operating the forklift under severe climatic conditions make sure that the forklift 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 forklift is apt to cause radio interference.

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

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

⚠ WARNING

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

GASOLINE & LPG FORKLIFT STARTING (INCLUDING DUAL FUEL)

⚠ WARNING

- **Do not breathe exhaust gases, they contain colorless and odorless carbon monoxide. Carbon monoxide is a dangerous gas and can cause unconsciousness or death.**
- **Do not run the engine in closed spaces or poorly ventilated rooms such as a garage or refrigerator, etc.**
- **Inspect the condition of the LPG hose connections and check for gas leaks from LPG hoses and pipes before starting the engine.**
- **In the event of a LPG leak or some other malfunction, close the discharge valve immediately. Have the LPG system checked by your Local Authorized Dealer.**

OPERATING THE TRUCK

OPERATIONAL PROCEDURES (CONT)

GASOLINE & LPG FORKLIFT STARTING (INCLUDING DUAL FUEL) (CONT'D)

Follow the procedure outlined below to start the engine.

Dual fuel forklifts have a fuel change switch. Use this switch to select the desired fuel (refer to page 67). In cold weather if using LPG you have to first start the engine using gasoline. After the engine is warmed up you must stop the engine before switching to LPG (refer to pages 67-69).

1. If using LPG, slowly open the discharge valve on the cylinder (tank) to start the engine.
2. Ensure that the parking brake is set and the forward-reverse lever is in neutral. Depress the inching brake pedal as far as it can go.
3. Do not place your foot on the accelerator pedal. Turn the ignition switch to the START position to start the engine.

NOTE:

- For forklifts that use Driver Recognition codes, engine will start without the code being entered but the transmission and hydraulic operation will be locked out until the correct code is entered.
- Do not operate the starter for more than 10 seconds. If the engine fails to start within 10 seconds, release the ignition switch and wait for 10 seconds before attempting to start the engine. This allows the battery time to recover.
- Refer to page 78 for Seat Belt Starter Interlock option.

4. After starting the engine give it time to warm up. Allow the engine to idle for 1 minute after starting. Then, press the accelerator pedal lightly and release it. If the surrounding temperature is high, lightly pressing and releasing the accelerator pedal will reduce engine speed and permit quiet warming up. This also results in fuel savings.

⚠ WARNING

- **The engine speed becomes high immediately after starting. Exercise caution when moving the forklift or handling cargo.**

NOTE:

- The engine is cold immediately after starting. Do not intermittently race the engine or run the engine at high speeds immediately after starting.
- Do not move the ignition switch to the START position when the engine is running. Damage to the starter motor will result.
- After operation, always close the LPG discharge valve on the LPG cylinder (tank) after shutting the engine off.
- After operation, if the forklift is not used for several hours or more, or during cold weather seasons, park the forklift with the fuel-change switch positioned on the gasoline side. This helps to start the engine more easily the next time.

5. Make sure that the meter panel is on and that there is no warning light illuminated or a malfunction displayed.
6. Check horn operation; if it does not work do not operate the truck. Always sound horn at blind corners and intersections before proceeding to travel.

GASOLINE & LPG FORKLIFT STARTING (INCLUDING DUAL FUEL) (CONT'D)

⚠ WARNING

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

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

⚠ WARNING

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

8. Once the forks are lowered, place the Forward-Reverse 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.

⚠ 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 forklift is different from that of a passenger car, in case of taking a turn, sufficiently lower the speed and look around.**
- **Do not make a turn with the forks 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 forklift and then start, even if the slopes are gentle.**

⚠ WARNING

For GOM forklifts:

- **The forklift will not move if the forward-reverse lever is in the F or R position unless the operator depresses the accelerator pedal. Before depressing the accelerator pedal, be sure to visually confirm the position of the forward-reverse lever.**

For forklifts manufactured in or for the U.S.:

- **Forklifts will creep when or if the accelerator pedal is fully released.**

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

FUEL-CHANGE SWITCH (DUAL FUEL FORKLIFTS)

⚠ WARNING

- **Do not operate (turn on or open) the LPG cylinder (tank) change (refill) valve. Opening the valve may cause LPG to leak into the atmosphere and could cause a dangerous fire hazard.**

NOTE:

- Change over the fuel-change switch position according to the operating procedures on the following page. Otherwise, a mixture of LPG and gasoline will result in a poorly operating engine.
- When driving a Dual Fuel forklift using LPG during the cold weather season, first start the engine using gasoline and then change over to LPG with the switch after warming up the engine.

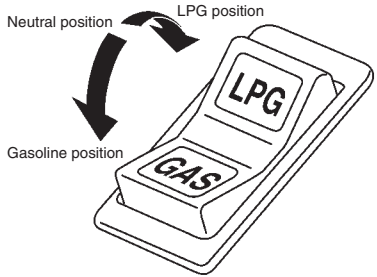
OPERATING THE TRUCK

OPERATIONAL PROCEDURES (CONT'D)

FUEL-CHANGE SWITCH (DUAL FUEL FORKLIFTS) (CONT'D)

NOTE (cont'd):

- Do not use the fuel-change switch to change fuels when the engine is running. Change fuels only after the engine has completely stopped.
- Operate the forklift with gasoline for 30 minutes or several miles (kilometers) at least once every two weeks, this will prevent gasoline deterioration.
- Do not change fuels immediately after starting the engine. Allow the engine to warm up before changing fuels.
- With the fuel-change switch set in the neutral position the engine cannot be started. Before starting the engine always change the switch to LPG or GAS.



To change from LPG to Gasoline Operation:

1. Press the fuel-change switch from the LPG to the neutral position.
2. Shut off the discharge valve on the LPG cylinder.
3. Let the engine run at an idle until it stops.
4. After the engine has completely stopped, move the fuel-change switch to the GAS position. Restart the engine.

⚠ CAUTION

- **Directly changing over LPG to GAS without the fuel-change switch first being positioned to neutral cause the remaining LPG and gasoline to be mixed, resulting in a poorly operating engine. Before changing over the switch position, always exhaust the remaining LPG by setting the switch to the neutral position.**

To change from Gasoline to LPG Operation:

1. Press the fuel-change switch from the GAS to the neutral position.
2. Slightly depress the accelerator pedal and hold it to allow the engine to race. Continue pressing the accelerator pedal until the engine stops.
3. After the engine has completely stopped, open the discharge valve on the LPG cylinder and move the fuel-change switch to the LPG position. Restart the engine.

⚠ CAUTION

- **Directly changing over GAS to LPG without the fuel-change switch first being positioned to neutral cause the remaining gasoline and LPG to be mixed, resulting in a poorly operating engine. Before changing over the switch position, always exhaust the remaining fuel (gasoline) by setting the switch to the neutral position.**

FUEL-CHANGE SWITCH (DUAL FUEL FORKLIFTS) (CONT'D)

Carefully follow the procedures below when turning the engine off after LPG operation.

1. Move the fuel-change switch to the neutral position and let the engine idle until it completely stops. This ensures that all of the remaining LPG has been used.
2. After engine stops turn the ignition switch to the OFF position.
3. After completion of operation completely close the discharge valve.

NOTE:

After operation, if the forklift is not used for several hours or more, or during cold weather seasons, park the forklift with the fuel-change switch positioned on the gasoline side. This helps to start the engine more easily the next time.

4. Check the engine for LPG leakage (refer to page 122).

⚠ WARNING

- **In the event of a LPG leakage or some other malfunction, close the discharge valve immediately. Have the LPG system checked by your Local Authorized Dealer.**

DIESEL FORKLIFT STARTING

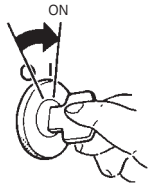
⚠ WARNING

- **Do not breathe exhaust gases, they contain a mixture of gases and particles. This exhaust may cause respiratory irritation and other health issues.**
- **Do not run the engine in closed spaces or poorly ventilated rooms such as a garage or refrigerator, etc.**

Follow the procedure outlined below to start the engine.

1. Ensure that the parking brake is set and the forward-reverse lever is in neutral. Depress the inching brake pedal as far as it can go.


Glow Pilot Light



2. Turn the ignition switch to the ON position, the glow pilot light on the meter panel will illuminate indicating that the engine preheating has started.
3. Keep the ignition switch in the ON position until the glow pilot light turns off. This indicates that preheating is complete.

NOTE:

Engine preheating is controlled automatically corresponding to the engine coolant temperature, atmospheric air temperature, etc., and the glow pilot light turns off when the engine is preheated to the specified temperature.

4. When the glow pilot light has turned off, turn the ignition switch to the START position while fully depressing the accelerator pedal, until the engine starts.

OPERATING THE TRUCK

OPERATIONAL PROCEDURES (CONT'D)

DIESEL FORKLIFT STARTING (CONT'D)

NOTE:

Do not operate the starter for more than 30 consecutive seconds. If the engine fails to start after even after operating the starter 3 times for approximately 5 seconds, turn the ignition switch to the OFF position and wait for 30 seconds before attempting to start the engine. Subsequently, try to start it again from the preheating process.

5. After the engine has started, release the accelerator pedal gradually and perform warm-up engine, approximately 5 minutes.

NOTE:

- When restarting, return the ignition switch to the OFF position and then turn it to the START position.
- Regardless of the atmospheric temperature, always perform warm-up for approximately 5 minutes.
- Failure to properly warm-up the engine can cause degradation and shortened lift of engine.
- When it is not necessary to preheat the engine because of high engine coolant temperature immediately after it stops or for some other reason, the engine can be started by turning the ignition switch to the START position before the glow plug indicator light turns off.
- If the glow pilot light is not illuminated, malfunction may exist. Contact your Local Authorized Dealer to inspect the forklift.

6. Make sure that the meter panel is on and that there is no warning light illuminated or a malfunction displayed.
7. Check horn operation; if it does not work do not operate the 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.**

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

⚠ WARNING

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

9. Once the forks are lowered, place the Forward-Reverse 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.

⚠ 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 forklift is different from that of a passenger car, in case of taking a turn, sufficiently lower the speed and look around.**
- **Do not make a turn with the forks lifted high or at a high speed. It may cause a serious accident: for example, the forklift becomes unbalanced and tips over.**

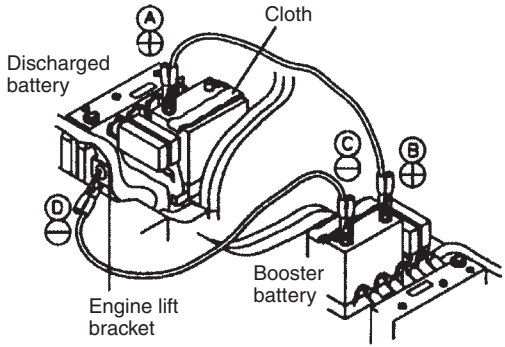
10. Check the steering function during travel testing. The smaller the radius of a turn to be made, the lower the speed of the forklift should be. When making a sharp turn, always drive the forklift at a low speed.

PROCEDURE FOR JUMP STARTING EFI ENGINES

⚠ WARNING

- **Always follow the instructions below. Failure to do so could result in damage to the charging system and cause personal injury.**

1. If the booster battery is in another forklift, position the two forklifts to bring their batteries near each other. **Do not allow the two forklifts to touch**.
2. Apply the parking brake. Shift the transmission into the neutral position. Switch off all unnecessary electrical systems (lights, etc.).
3. Remove the vent caps on the battery (if so equipped). Cover the battery with an old cloth to reduce explosion hazard.
4. Connect jumper cables in the sequence illustrated below (A, B, C, D).



⚠ CAUTION

- **Always connect positive (+) to positive (+) and negative (-) to body ground (for example, strut mounting bolt, engine lift bracket, etc.) not to the battery.**
- **Never use a booster battery or source of greater voltage, or it could damage engine electrical components.**
- **Make sure that the jumper cables do not touch moving parts in the engine compartment and that the cable clamps do not contact any other metal.**

5. Start the engine of the booster forklift and let it run for a few minutes.
6. Keep the engine speed of the booster forklift at about 2,000 rpm and start the engine of the forklift being jump started.

⚠ CAUTION

- **Do not keep the starter motor engaged for more than 10 seconds. If the engine does not start right away, turn the ignition switch to the OFF position and wait 3 to 4 seconds before trying again.**

7. After starting the engine, carefully disconnect the negative cable and then the positive cable.
8. Replace the vent caps (if so equipped). Be sure to dispose of the cloth used to cover the vent holes as it may be contaminated with corrosive acid.

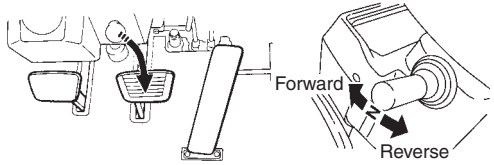
PROCEDURE FOR JUMP STARTING EFI ENGINES (CONT'D)

9. To start the engine with a booster battery, the following warnings must be followed.

⚠ WARNING

- **If done incorrectly, jump starting can lead to a battery explosion, resulting in severe injury or death. It could also damage your forklift. Explosive hydrogen gas is always present in the vicinity of the battery. Keep all sparks and flames away from the battery.**
- **Do not allow battery fluid to come into contact with eyes, skin, clothing or painted surfaces. Battery fluid is a corrosive sulfuric acid solution that can cause severe burns. If the fluid comes into contact with anything, immediately flush the contacted area with water.**
- **Keep the battery out of reach of children.**
- **The booster battery must be rated at 12 volts. Use of an improperly rated battery can damage the forklift.**
- **Whenever working on or near a battery, always wear suitable eye protectors (for example, goggles or industrial safety glasses) and remove rings, metal bands or any other jewelry.**
- **Do not lean over the battery when jump starting.**
- **Do not attempt to start a frozen battery. It could explode and cause serious injury.**
- **Keep hands and other objects away from cooling fan.**

AUTOMATIC TRANSMISSION



⚠ WARNING

For GOM forklifts:

- **The transmission will go into neutral (no creeping) when the accelerator pedal is released and unit speed is below 4.5 mph (6.5 km/h).**

For forklifts manufactured in or for the U.S.:

- **Forklifts will creep any time the forward or reverse direction is selected and the brake or inching pedal is not depressed.**
- **In either model the parking brake must be set anytime the operator leaves the seat because the transmission will go into neutral and the unit may roll.**

⚠ CAUTION

- **While the forklift is moving, do not change the direction of travel, this may cause damage to the transmission or cause the load to shift.**

OPERATING THE TRUCK

AUTOMATIC TRANSMISSION (CONT'D)

Starting the forklift from the stopped condition:

1. When the forward-reverse lever is in the neutral position:
   - The forklift will not move even if the accelerator pedal is depressed.
2. When the forward-reverse lever is in the F or R position:
   - **For GOM forklifts:**
     The forklift does not move (creep) if the accelerator pedal is not depressed.
   - **For forklifts manufactured in or for the U.S.:**
     The forklift will move (creep) in the direction of the forward-reverse lever position, the brake or inching pedal must be depressed.

NOTE:

If parking brake  warning light is illuminated, the transmission can not shift into forward or reverse. When the forward-reverse lever is in the "F" or "R" position and the parking brake is on, the display blinks. Release the parking brake and shift the forward-reverse lever to the neutral (N) position and then shift it again to forward (F) or reverse (R) in order to drive. Refer to page 78 for Seat Belt Shift Interlock option.

While driving the forklift:

3. When the forward-reverse lever is in the neutral position:
   - The lever is in the neutral position independent of the forklift speed.
4. When the forward-reverse lever is in the F or R position:
   - The forklift continues accelerating by depressing the accelerator pedal.
   - When the accelerator pedal is released, the transmission will stay engaged and slow down as the engine now acts as an engine brake.
   - For GOM forklifts, the automatic transmission disengages to the neutral position if the forklift speed is below 4.5 mph (6.5 km/h) for 3 seconds.
5. Inhibitor function:
   - When the forward-reverse lever is in the F or R position, it is not possible to start the engine.
6. Precautions:
   - When starting on slopes, be sure to apply the parking brake to hold the forklift and then start, even if the slopes are gentle.
   - Avoid rapid acceleration to keep load from shifting.

   For GOM forklifts:
   - Have no creep function.
   - The forklift will not move if the forward-reverse lever is in the F or R position unless you depress the accelerator pedal. Before depressing the accelerator pedal be sure to visually confirm the position of the forward-reverse lever.

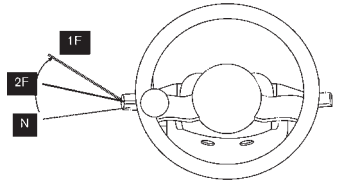
   For forklifts manufactured in or for the U.S.:
   - The forklift will move (creep) in the direction of the forward-reverse lever position, the brake or inching pedal must be depressed.

OPERATING THE TRUCK

AUTOMATIC TRANSMISSION (CONT'D)

2-Speed Transmission

For forward 2-speed manual shift transmission:



- Always manually shift to low speed gear when starting from stopped position.

  Dash Display 

- After unit has started moving you can manually shift to second speed.

  Dash Display 

- To stay in low speed gear, manually shift to 1F position.

  Dash Display 

UniCarriers does not recommend starting in from the second speed position.

LOADING

Adjust distance between the forks so that they are at or near the same distance to the centerline of the forklift. The wider the interval between forks, the better the balance. Be sure to apply the fork lock pin's (refer to page 74) 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 forward-reverse 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 forklift slowly.

TRANSPORTING LOADS

When transporting loads, the forklift 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 forklift backward. Follow the safety rules.

UNLOADING

Slowly approach the unloading site and stop facing straight ahead.

Move the forward-reverse 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 forward-reverse lever in the Neutral position.

Slowly lower the forks to set down the load. After moving the forward-reverse lever to the Reverse position, release the parking brake and back up the forklift until the forks separate completely from the load.

OPERATING THE TRUCK

CLIMBING

For safety reasons, when driving a loaded forklift 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 and stopping on a slope, manipulate the accelerator and brake pedals as required.

For stopping, the brake pedal should be used at all times.

STOPPING AND PARKING THE TRUCK

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

⚠ WARNING

- **Do no make sudden stops as the forklift will pitch forward and drop load.**

4. Set the parking brake lever.
5. Place the Forward-Reverse Lever in the Neutral position.
6. Adjust the mast to vertical position and lower the forks fully.
7. Turn the ignition switch to the “off” position and remove the key.
8. If operating on LPG, close the discharge valve.

NOTE:

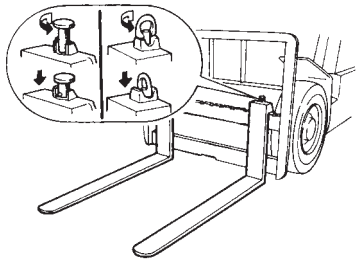
If the operator leaves the operator’s seat without setting the parking brake lever, the warning buzzer alerts the operator.

⚠ WARNING

- **To prevent unauthorized use, always remove the key from the ignition switch when left unattended unless you are within sight of or less than 8 m (25 ft) from the truck.**

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 forklift. After correct fork-to-fork distance is obtained, secure the forks with the lock pins.



⚠ CAUTION

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

FORKS (CONT'D)

WARNING

- **Forks should be inspected daily for any damage, bending or other abnormal conditions. Report any conditions to your supervisor.**

(in United States)

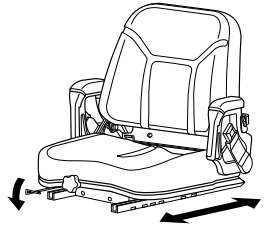
- **ANSI/ITSDF & OSHA require that forks be replaced if worn more than 10% of the starting thickness, this should be checked during normal P.M. or at minimum, yearly by your Local Authorized Dealer.**

SEAT ADJUSTMENT

Suspension Seat Operator's Weight Adjustment

Adjust the suspension seat to the operator's weight by turning the weight adjustment dial at the front side of the seat.

Optimum fine adjustment can be made depending on operating surface conditions.



Forward and backward control lever

The forward and backward control lever is located on the front side of seat slider 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. Then release the lever to lock into position.

WARNING

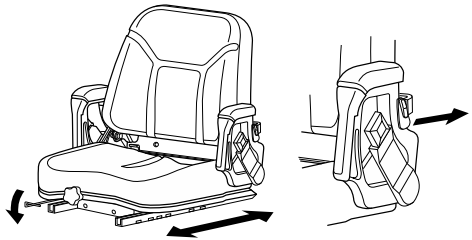
- **Before adjusting the seat, turn the ignition switch to the off position.**
- **Be sure to adjust the seat position while the forklift is stationary.**
- **Adjusting the seat while the forklift is in motion can cause loss of control.**

OPERATING THE TRUCK

SEAT ADJUSTMENT (CONT'D)

Backrest Inclination Adjustment

Adjust the backrest to the desired angle while pushing the lever located to the left of the seat. Release the lever to lock the backrest.



⚠ WARNING

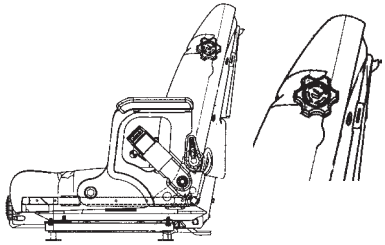
- **Do not excessively tilt back the backrest, otherwise the seat belt may not demonstrate its performance in an emergency.**
- **When adjusting the angle of the backrest, gently do it while holding the backrest by hand. Hasty and rough adjustment may cause an injury, for instance the back of the seat may bump against the operator's face and body, or the operator's finger may get caught between the backrest and the grip.**

NOTE:

The backrest can be tilted forward depending on the situation. The tilting manner is the same as tilting backward, but it cannot be fixed at an optional position.

Lumbar Adjustment

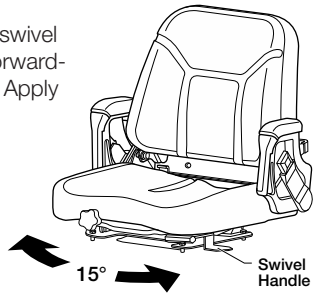
To expand the lumbar turn the knob counterclockwise. To collapse the lumbar turn the knob clockwise.



Swivel Seat (Option)

To swivel the seat bracket (will only swivel 15º to right or left) stop truck, put forward-reverse lever in the neutral position. Apply parking brake.

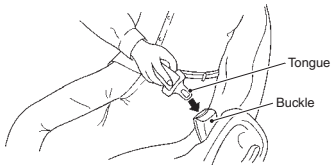
Lift seat swivel handle and turn seat in the most comfortable direction for the best view in direction of travel.



OPERATING THE TRUCK

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 so as not to get loose.



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.**

⚠ WARNING

- **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.**
- **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.**

OPERATING THE TRUCK

SEAT BELT INTERLOCK OPTIONS

The forktruck may be equipped with one of four options which requires the operator to be seated with the seat belt latched prior to primary functionalty being enabled.

Option 1 - Seatbelt / Transmission & Mast Interlock

If the Seatbelt is not fastened, the transmission will return to neutral and the hydraulic functions will be locked out.

NOTE:

Contact your supervisor to see if your forklift is equipped with this option.

Option 2 - Seatbelt / Transmission, Mast & Engine Starter Interlock

The engine starter cannot be engaged without the seatbelt fastened.

NOTE:

Refer to page 52 for engine restarting instructions.

Option 3 - Seatbelt / Transmission & Mast Interlock with Engine Shutdown

If the seatbelt is unfastened with the engine running, a shutdown timer will activate with warning to the operator. After 30 seconds, if the seatbelt is still unfastened, the engine will shut down.

NOTE:

Refer to page 52 for engine restarting instructions.

Option 4 - Seatbelt / Transmission, Mast & Engine Starter Interlock with Engine Shutdown

If the seatbelt is unfastened the engine starter cannot be engaged, or if the engine is running, a shutdown timer will activate with warning to the operator. After 30 seconds, if the seatbelt is still unfastened, the engine will shut down.

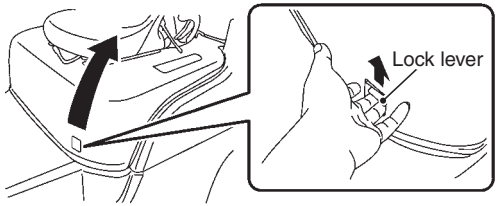
NOTE:

Refer to page 52 for engine restarting instructions.

OPERATING THE TRUCK

TOP PANEL

The top panel can be opened toward the rear of the forklift.



⚠ WARNING

- **The top panel is automatically retained by the gas stay.**

Open Operation

1. Tilt the steering wheel all the way forward and upward. Use the service release latch lever (yellow) (refer to page 80).
   - For LPG and Dual Fuel units with swing out or down LPG tank mounting, you must swing out the LPG tank before opening the top panel (refer to page 82).
   - For forklifts equipped with the optional joystick, before the top panel is opened you must tilt the joystick control unit.
2. Pull the lever on the left side of the operator's seat upward to tilt the backrest forward.
3. Push the lever in the front left side of the top panel upward to unlock the top panel and lift the panel rearward while pushing the lever.

NOTE:

- For opening the top panel rearward, refer to the top panel open procedure label on the body.
- Before opening the top panel, swing open the LPG cylinder as illustrated later in this manual (refer to page 82).

Close Operation

1. Make sure the steering wheel is tilted upward.
2. Depress the top panel. Since there is reaction of the gas stay, depress the top panel while pressing its front top until it is completely locked.
3. Raise the backrest of the operator's seat up to the original position.
4. Pull the steering wheel toward the operator's side to the limit so that it is locked.
   - For forklifts equipped with the optional joystick, return the joystick control unit to the original position.

⚠ WARNING

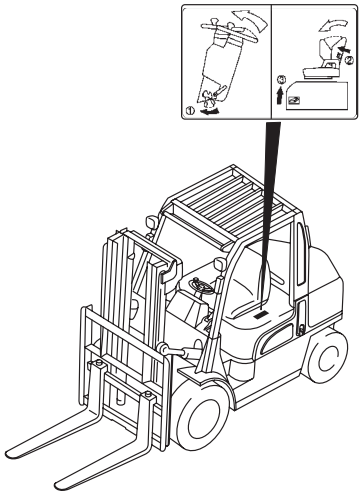
- **To avoid pinching your fingers, always grasp the handle when closing the top panel.**
- **On forklifts equipped with a top panel lock, make sure the top panel is securely locked.**

OPERATING THE TRUCK

TOP PANEL LOCK

⚠ WARNING

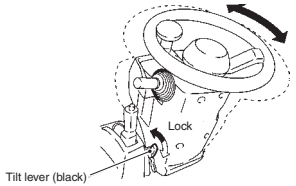
- **Do not open the top panel with the engine running. Do not place hands near the cooling fan because it rotates at a high speed and may cause injury. When opening the top panel (hood), be sure to turn off the engine. When starting the engine, check the top panel (hood) to make sure that it is locked.**



The forklift is provided with a top panel lock to ensure that the engine hood cannot be opened unless the lock is released.

TILT STEERING WHEEL

The position of the steering wheel can be adjusted. To adjust, push down on the tilt lever (black) 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.

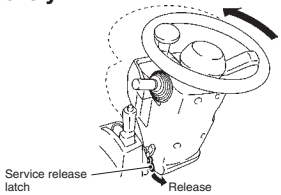


⚠ WARNING

- **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 forklift is stationary.**
- **After adjustment, force the steering wheel upward or downward to assure it is locked securely.**

SERVICE RELEASE LATCH

Press the steering wheel forward while depressing the service release latch (yellow) on the left side under the steering wheel, and the steering wheel tilts forward.



For returning the steering wheel to the original position, pull it toward the operator's seat to the limit. The service release latch returns to the original position and the steering wheel is locked automatically.

SERVICE RELEASE LATCH (CONT'D)

⚠ WARNING

- **Before starting the engine, make sure that the steering wheel is returned to the original locked position.**
- **Do not operate the forklift with the steering wheel in the service release position. Doing to could result in an accident.**

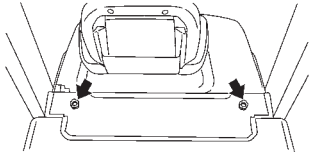
NOTE:

The steering wheel position adjusted by the tilt mechanism does not vary when it is tilted.

RADIATOR COVER

The radiator cover can be removed with the top panel closed.

For inspection of the radiator or replenishment of the engine coolant, loosen the right and left bolts by hand.



⚠ WARNING

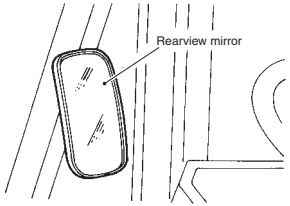
- **Do not remove the radiator cover while the engine is running. Always turn the ignition switch off when cover is to be removed for any reason to reduce possible personal injury from rotating parts.**

NOTE:

- Be absolutely sure to hand tighten the bolts when reinstalling the radiator cover.
- Refer to page 91 for information on the engine coolant level check procedure.

REARVIEW MIRROR (OPTION)

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

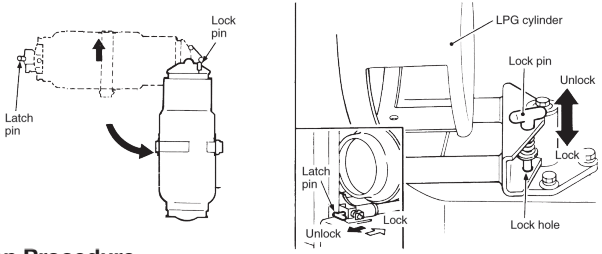


⚠ WARNING

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

OPERATING THE TRUCK

LPG CYLINDER HOLDER



Open Procedure

1. Pull out the latch pin to unlock the LPG cylinder holder.
2. Slowly open the cylinder holder 90º until the lock pin is in the lock pin hole.

⚠ WARNING

- **When the latch pin is pulled out from the cylinder holder, the weight of the holder and the LPG cylinder cause the holder to drop naturally, possibly resulting in unexpected injury.**
- **When swinging the cylinder holder, be sure to support the cylinder until the swing is completed. If you release the cylinder before it is locked in position, it may move in the opposite direction, or it may swing rapidly causing unexpected injury.**

3. Perform the top panel opening procedure (refer to page 79).

⚠ WARNING

- **Before opening the top panel, make sure that the lock pin is properly inserted into the lock pin hole.**

Close Procedure

Before closing the LPG cylinder holder, make sure that the top panel is properly closed (refer to page 79).

1. Pull the lock pin up to release the LPG cylinder holder. Slowly close the LPG cylinder holder and make sure that the latch pin is in the locked position.

⚠ WARNING

- **If the latch pin is not locked securely, there is the danger that the cylinder holder may move unexpectedly, causing unexpected injury.**

2. While seated in the operator's seat, turn the ignition switch to the ON position.
3. Check to make sure that the cylinder lock indicator light is off.
4. If the light is illuminated, turn the ignition switch to the OFF position and check that the swing mount is secured and locked. If it is check to see if the switch is damaged.
5. Close the top panel (refer to page 79).

⚠ WARNING

- **Only authorized UCA service technicians should perform repair and/or make adjustments to the switch or latch.**
- **Refer to pages 109-114 for additional information on the LPG system.**

GENERAL CARE AND MAINTENANCE

WET CELL BATTERY CARE AND MAINTENANCE

⚠ CAUTION

The following information is general information regarding the best methods for using and maintaining the battery, and it in no way can cover every type of manufacture of battery. You should always contact the manufacturer of the battery to ensure that you are following their recommended procedures and operation methods of the equipment.

Refer to the appropriate manuals attached to the battery for information about how to handle and maintain the battery.

⚠ CAUTION

- **Do not allow the alkaline solution to fall in the battery cell, this will result in a dead or weak 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

- **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 any maintenance or servicing of this unit and its battery.**
- **Always turn ignition switch off and disconnect 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 your skin or clothing, flush the area immediately with large amounts of clean fresh water. If acid enters your eyes, immediately wash out your 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.**

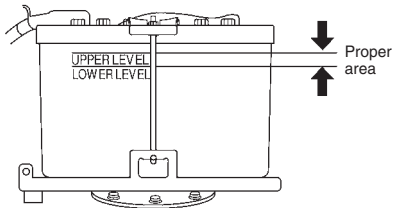
GENERAL CARE AND MAINTENANCE

WET CELL BATTERY CARE AND MAINTENANCE (CONT'D)

⚠ WARNING

- **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. If the fluid level is low, replenish it with distilled water to the specified level.**
- **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.**

Battery Fluid Level



Check the battery fluid level once a week to prevent the battery from running short of the electrolyte.

Refilling Battery Fluid

Open the top panel (refer to page 79), remove the battery vent caps and inspect the electrolyte level in each cell.

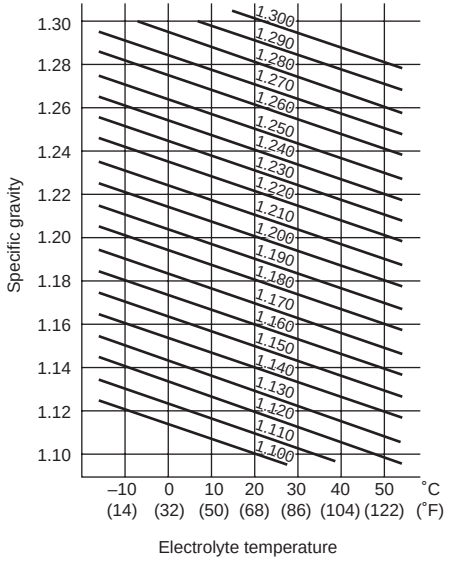
If the electrolyte level is insufficient, carefully refill the battery cells with distilled water only until the fluid level reaches the "Upper Level" so as not to contaminate the fluid with dust or foreign substances.

At the same time, visually inspect the battery body for cracks or damage. If there is any damage, immediately replace the battery with a new one.

After refilling the battery with distilled water, tighten the respective caps tightly. If battery fluid spills out, wash it away with water and wipe down the wet surface.

GENERAL CARE AND MAINTENANCE

BATTERY SPECIFIC GRAVITY



The battery should not be left in the discharged state. When battery performance becomes questionable, check the specific gravity of the electrolyte, terminals of battery and alternator.

The normal specific gravity is 1.260 as corrected at 20ºC (68ºF). It changes to about 0.0007 for every 1ºC (1.8ºF). If the specific gravity of the electrolyte does not indicate the correct value, charge the battery soon.

GENERAL CARE AND MAINTENANCE

DAILY INSPECTION

To maintain your forklift 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 engine oil level.
5. Check engine coolant level and check cooling system for leaks.
6. Check transmission oil level and for leaks.
7. Check the fuel line (hoses, pipes, connections) for leaks. Also check the fuel tank drain plug for leaks.
8. Check the water separator of the fuel filter. If necessary, drain the water from the separator (Diesel Forklift).
9. Check the radiator core for clogging.
   - If there is dirt or dust on the radiator core, the engine may overheat. Clean the radiator core with compressed air or steam so as not to deform the core fins.
10. Check the color of the exhaust gas after the engine is warmed up.
    - "Colorless or light blue" exhaust represents complete combustion.
    - "Black" exhaust represents incomplete combustion and "White" exhaust shows burning of engine oil.

⚠ WARNING

- **Exhaust gas contains harmful substances, therefore sufficient ventilation must be secured in case you have to start it in an enclosed area.**
- **This exhaust gas check must be conducted in an open area.**

11. Check for full motion and proper function of all the steering and travel controls.
12. Check steering wheel play.
13. Check that all guards, horn, lights, limit switches, warning and safety devices, indicators, etc. are functional.
14. 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.
15. Check operation of hydraulic control valve.
16. 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
17. Conduct an operational check, including braking functions.
18. Check seat belt and top panel latch.
19. Check the backrest and overhead guard for proper installation and function.
20. Check forks and frame for cracks, breaks, bend and wear.
21. Check the fork latches.
22. Check the safety start system operation.
23. Check additional options, i.e. attachments or special equipment as specified by the manufacturer or employer.
24. Check that capacity plates and decals are legible, if not replace.

⚠ WARNING

- **Do not open the top panel with the engine running. Do not place hands near the cooling fan because it rotates at a high speed and may cause injury. When opening the hood, be sure to turn off the engine. When starting the engine, check the hood to make sure it is locked.**
- **If the truck is found to be in need of repair or in any way unsafe, or contributes to an unsafe condition, or if during operation the truck becomes unsafe in any way, the matter shall be reported immediately to your designated authority, and the 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.**

GENERAL CARE AND MAINTENANCE

OPERATOR'S DAILY CHECKLIST (SAMPLE)

⚠ WARNING

- **Carry out the daily checks as per "Daily Inspection" in this Operator's Manual on page 86 and the applicable provisions of laws and regulations of your country (In U.S. OSHA 29CFR1910.178).**

I.T.A. Class IV & V 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 forklift.
DO NOT OPERATE A FORKLIFT WITH ANY MALFUNCTION.

FORKLIFT DETAILS:

GAS LPG DUAL FUEL DIESEL Serial/Unit Number:_____ Hour Meter Reading:_____ Date of Inspection:_____ Operator:_____ Supervisor's OK:_____

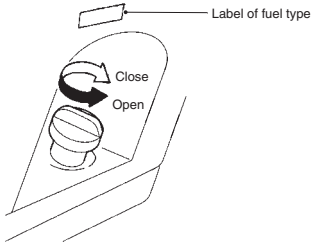
Please review the list below and mark each item accordingly. Please provide any additional explanation as necessary.

#	OK	NG	Visual Check Items	#	OK	NG	Operational Check Items
01			Forks: bent, worn, fork stops, pin/latch locks	18			Horn Operation: working
02			Load Backrest: bent, cracked, loose, missing	19			Service Brake: linkage, loose/binding ,stops OK, grab
03			Tires/Wheels: wear, damage, nuts tight or missing	20			Parking Brake: loose/binding, operation, adjustment
04			Battery Connectors: cracked, loose, missing	21			Seat Brake (if equipped): loose/binding, operational adjustment
05			Hydraulic Oil: level, dirty, leaks	22			Engine: runs rough, noisy, leaks
06			Covers/Panels/Sheet Metal: damage, missing	23			Mast: smooth lifting/lowering, smooth roller rotation, wear or damage to chains or mast rails
07			Overhead Guard: bent, cracked, loose, missing	24			Tilt: loose/binding, excessive drift, "chatters", leaks
08			Battery: connections loose, state of charge, electrolyte level	25			Carriage and Attachments: operation, leaks, mounting, damage
09			Warning Decals/Operator's Manual: missing, unreadable	26			Control levers: loose/binding, free return to neutral position
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, operation	32			Head/Tail/Working Lights: mounting, operation
16			Radiator: fluid level, dirty, leaks, condition of hoses and core	33			
17			Engine Oil: level, dirty, leaks	34			
18			Fuel: level, dirty, leaks	35			

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION

FUEL RECOMMENDATION



⚠ WARNING

- **Be sure to stop the engine before refilling with fuel.**
- **Make sure that there is not fire or flammable objects in the vicinity of the engine. Use only unleaded fuel in the fuel tank of gasoline engine equipped forklifts and only diesel fuel in the tank of diesel engine equipped forklifts.**

The fuel inlet is located on the body on the left rear side.

When refilling the fuel, check the indication label and do not use the wrong fuel by mistake. Turn the fuel cap counterclockwise to remove it.

If the fuel cap has the optional lock and key, insert the key into the keyhole on the fuel cap and turn the key clockwise for locking or turn it counterclockwise to unlock.

After refilling, be sure to turn the fuel cap clockwise until it clicks twice or more.

Gasoline to be used

- Except Germany: Regular (Unleaded)
- Germany: Normal gasoline leaded DIN 51 600 or normal unleaded DIN 51 607.

⚠ CAUTION

- **Be careful not to allow water or debris to enter the fuel tank during refilling, as it may cause damage to the EFI fuel system components.**
- **Do not use fuel that has been stored for a long time. Such fuel may adversely affect engine performance or shorten its service life, because of possible contaminates in the fuel.**
- **If the fuel spills out of the fuel inlet, wipe it off immediately and completely clean the area by the inlet.**

Diesel Engine Forklift

The diesel engine is designed to run only on diesel fuel with at least a minimum of 42 cetane rating.

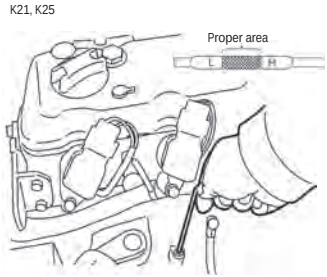
LPG Fueling

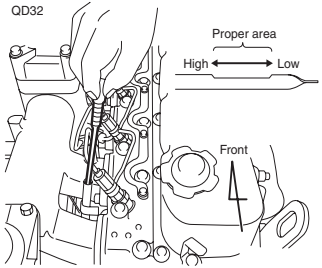
Refer to pages 109-114.

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION

ENGINE OIL LEVEL





To check the oil level, pull out the level gauge, wipe it clean and reinsert; remove it again to read the oil level.

The level should be in the proper area.

After checking the oil level, be sure to return the oil level gauge to the original position.

For diesel engines, the level gauge is located on the left side of the engine.

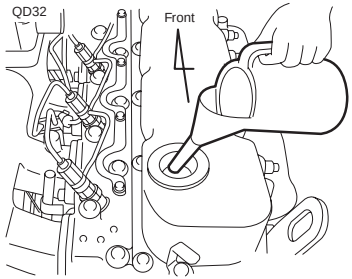
⚠ CAUTION

- **Do not run the engine when the engine oil level is lower than the minimum indicator (low) mark, as the engine could be damaged or seize up. If the engine oil level is lower than the minimum indicator (low) mark, add engine oil through the oil inlet until the oil level reaches the specified amount.**

NOTE:

When checking the engine oil, be sure to do it on a level surface before starting the engine and at least 5 minutes after the engine is stopped.

REFILLING ENGINE OIL



1. For refilling the engine oil tank with engine oil, remove the oil filler cap and slowly pour genuine OEM motor oil into the tank while checking the oil level with the oil level gauge until the oil reaches the specified oil level.

⚠ CAUTION

- **Carefully pour engine oil into the oil filler so as not to contaminate with dust and foreign substances. If the oil spills, immediately wipe it off.**
- **Make sure that the oil filler cap is tightened. If the oil filler cap is not properly tightened, engine problems may result.**

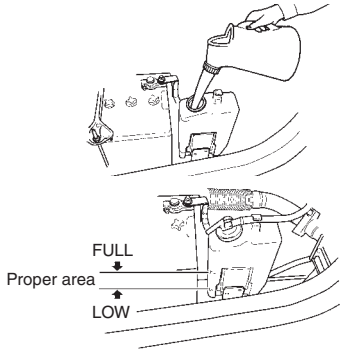
2. 5 minutes after refilling the engine oil, check if the oil level is between the upper limit (H) and lower limit (L) indicator marks with the oil level gauge.
3. Restore the oil filler cap and oil level gauge to their respective original positions.

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

ENGINE COOLANT LEVEL

Visually check the amount of coolant in the reservoir tank when the engine is cold. If the coolant level is below the "MIN" level, remove the reservoir tank filler cap and add coolant until the "MAX" level is reached. If the reservoir is empty, check the coolant level in the radiator. If there is insufficient coolant in the radiator, pour coolant into the radiator up to the cap and also pour it into the reservoir tank up to the "MAX" level.



If it becomes necessary to repeatedly add coolant, your cooling system should be inspected by your Local Authorized Dealer.

⚠ WARNING

- **Never remove the radiator cap when the engine is hot. Serious burns could be caused by high-pressure fluid escaping from the radiator.**
- **Wrap a thick cloth around the cap and carefully remove the cap by turning it a quarter turn to allow built-up pressure to escape. When all hissing, steam and liquid stops, slowly turn the cap all the way off.**

REFILLING ENGINE COOLANT

1. Remove the reservoir tank filler cap and add coolant until the "MAX" level is reached (refer to page 92 for proper mixing ratio).
2. If the reservoir tank is empty, refill the radiator and the reservoir tank with the coolant at the same time. For refilling coolant in the radiator, remove the radiator cover first and then slowly turn the radiator cap while wrapping it with a cloth. After removing the radiator cap fill the radiator with coolant.
3. After refilling the coolant, tighten the reservoir tank filler cap and the radiator cap.

⚠ WARNING

- **To avoid being scalded, do not attempt to change the coolant when the engine is hot.**

⚠ CAUTION

- **The Blue Extended Life Coolant/Antifreeze can degrade the coated surface. If it adheres to the coated surface, wash the coolant away with water.**
- **Be sure to use Blue Extended Life Coolant/Antifreeze specified by OEM. The cooling performance and anticorrosive treatment cannot be assured if another coolant is used.**
- **Do not refill the coolant above the "MAX" level of the tank. If it exceeds this level, it may spill out as the engine is warmed up. Carefully refill as not to contaminate it with foreign substances.**

OPERATING THE TRUCK

MAINTENANCE AND INSPECTION (CONT'D)

COOLING SYSTEM BLEEDING INSTRUCTIONS

Antifreeze

Applicable Engine	Capacity l (US gal, Imp gal)	LLC Density
K21	8.7 (2-1/4, 1-7/8)	Standard Specification: 30% (approx. -15ºC (5ºF) of freeze temperature) For Cold Areas: 50% (approx. -35ºC (-31ºF) of freeze temperature)
K25	7.9 (2-1/8, 1-3/4)	
QD32	10.2 (2-3/4, 2-1/4)	

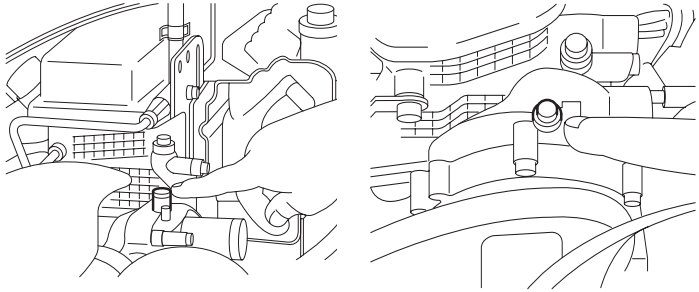
⚠ WARNING

- **Never remove the radiator cap when the engine is hot. Serious burns could be caused by high-pressure fluid or steam escaping from the radiator.**
- **Always ensure that the coolant is cooled down sufficiently before removing the radiator cap. When opening the cap, wrap the cap with a shop cloth and turn the cap slowly to release the internal pressure.**

NOTE:

- Use only Blue Extended Life Coolant/Antifreeze with the proper mixture ratio for the working environment that the forklift will be used in.
- Engine coolant must be disposed of properly. Check all local, state and federal regulations.

1. Remove the radiator cover and open the engine hood. Remove the radiator cap.
2. Place an appropriate size container under the radiator. Open the drain cock of the radiator and extract the coolant.
3. If changing engine coolant flush the cooling system.
4. After draining all of the coolant, securely close the drain cock.
5. Prepare coolant mixture (refer to antifreeze chart at left).
6. With the radiator cap removed, locate the engine coolant system bleeder screw. The bleeder screw location varies depending on the model of the engine. This screw will either be located in the thermostat housing or on the top of the water pump. Refer to illustrations below for the location of the screw.



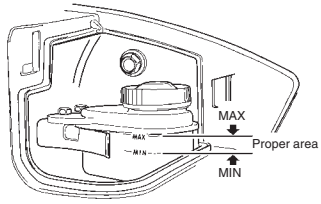
7. Completely remove the bleeder screw, pay close attention to the sealing washer so that it does not fall off the screw as it is being removed.

COOLING SYSTEM BLEEDING INSTRUCTIONS (CONT'D)

8. Add the recommended engine coolant mixture into the radiator, when the coolant comes out of the bleeder hole with no air bubbles install the bleeder screw and tighten to 6.3 - 8.0 N·m (55.7 - 75.8 in/lbs) of torque.
9. Also add coolant to the reservoir tank up to the "MAX" line.
10. With the radiator cap removed, start the engine and accelerate above idle RPM to purge the air out of the LP vaporizer. Continue to operate the engine until the thermostat opens and you can visually see the coolant moving in the radiator.
11. Top off the coolant (approximately 25 mm (1 in) from the top of the radiator) in the radiator after all the air has been purged.
12. Securely attach the radiator cap.
13. Turn off the engine.
14. Close the engine hood and install the radiator cover.
15. Start the engine, check for leaks and ensure that the engine temperature stays within the operating range. If the unit starts to overheat, there is still air in the cooling system. Repeat steps 5 through 15.

BRAKE FLUID LEVEL

Check the brake fluid level in the brake fluid reservoir tank inside the lid on the left side of the instrument panel is within the proper range. If the level is lower than the "MIN" level, refill the reservoir tank. At the same time, examine the outside and periphery of the reservoir tank for brake fluid leak or stain.



⚠ 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 forklift until it has been repaired.**

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

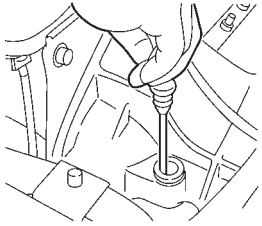
REFILLING BRAKE FLUID

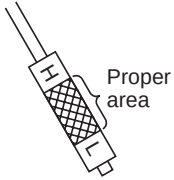
Turn the brake reservoir tank cap counterclockwise to remove it. Gently pour the brake fluid into the tank until the fluid level reaches the "MAX" level (refer to page 125).

⚠ 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 forklift 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.**

AUTOMATIC TRANSMISSION FLUID LEVEL





1. Stop the engine after idling for about 10 minutes.
2. Open the top panel and check for leakage. Pull out the level gauge and wipe down the tip of the gauge with a clean cloth.
3. Insert the level gauge to the limit and gently pull it out again.
4. Make sure that the fluid adhered to the tip of the gauge is not extremely worn, discolored or contaminated by foreign substances. Also check if the fluid level is within the proper range.
5. If fluid is insufficient, refill with the specified fluid so that the level gauge reads the proper range.

⚠ CAUTION

- **Do not operate the forklift with insufficient automatic transmission fluid, because the forklift transmission could stop operating.**
- **If the transmission fluid is extremely worn, discolored or contains foreign substances, immediately report it the proper authority or contact your Local Authorized Dealer.**

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

REFILLING AUTOMATIC TRANSMISSION FLUID

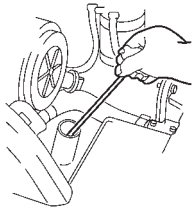
Automatic transmission fluid can be added through the level gauge hole. Checking the fluid level with the level gauge, pour OEM fluid into the level gauge hole until the fluid level is in the proper range (refer to page 125).

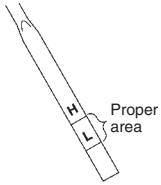
⚠ CAUTION

- **Carefully add transmission fluid so as not to mix dust and foreign substances in the fluid.**
- **Do not use any automatic transmission fluid other than those specified by the OEM, it may cause a malfunction in the torque converter. Not only deterioration in the performance of the forklift but could result in an accident.**

HYDRAULIC OIL LEVEL

1. Check the oil level in the hydraulic oil tank.





NOTE:

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

2. Visually check for oil leakage.
3. Remove the hydraulic oil filler cap located on the right side of the operator's seat.
4. Wipe down the level gauge with a clean cloth and reinsert the level gauge into the hydraulic oil filler and pull it out again.
5. Make sure that the fluid level is within the proper range.
6. If fluid is insufficient, refill with the specified fluid so that the level gauge reads the proper range.

REFILLING HYDRAULIC OIL

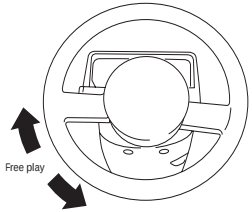
Remove the hydraulic oil filler cap. While checking the hydraulic oil level with the level gauge, pour the specified hydraulic oil into the oil filler until the oil level is in the proper area (refer to page 125).

⚠ CAUTION

- **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 forklift 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. A play in the circumference of less than 30 mm (1.18 in) at idling is normal.



⚠ WARNING

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

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

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.**

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 and compact pneumatic models only):

Unit: psi (kgf/cm^2, kPa)

Model	Front Tire (Drive)	Tire Pressure
1F1 (Pneumatic)	6.50-10/10PR	102 (7.0, 700)
1F2 2.0-2.5 Ton (Pneumatic)	7.00-12/12PR	102 (7.0, 700)
1F2 2.8-3.0 Ton (Pneumatic)	28x9-15/12PR	102 (7.0, 700)
1F2 3.5 Ton (Pneumatic)	250-15/16PR	102 (7.0, 700)
1F1 (Compact Pneumatic)	6.00-9/12PR	145 (10.0, 1000)
1F2 (Compact Pneumatic)	21x8-9/14PR	128 (9.0, 900)

Model	Rear Tire (Steer)	Tire Pressure
1F1 (Pneumatic)	5.00-8/8PR	102 (7.0, 700)
1F2 2.0-2.5 Ton (Pneumatic)	6.00-9/10PR	102 (7.0, 700)
1F2 2.8-3.0 Ton (Pneumatic)	6.50-10/10PR	102 (7.0, 700)
1F2 3.5 Ton (Pneumatic)	6.50-10/12PR	128 (9.0, 900)
1F1 (Compact Pneumatic)	5.00-8/8PR	102 (7.0, 700)
1F2 (Compact Pneumatic)	18x7-8/14PR	128 (9.0, 900)

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

WHEEL AND TIRE (CONT'D)

⚠ WARNING

- **If any of these warning are not adhered to it could result in death or serious injury.**
- **Tires used on forklifts manufactured in Japan and the U.S. are different. Do not mix different sizes or tire types, as this could affect stability.**
- **If the tire pressure is not correct it can affect the stability of the forklift, 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.**

Model	Type	Tire Size	Tire Load Capacity
1F1 (Cushion)	Front (Drive)	18-6-12.12	Standard
	Rear (Steer)	14-5-10	*HiLoad
1F2 2.0-2.5 Ton (Cushion)	Front (Drive)	21-7-15	Standard
	Rear (Steer)	16.25-6-11.25	Standard
1F2 2.8-3.3 Ton (Cushion)	Front (Drive)	28x9-15	Standard
	Rear (Steer)	16.25-6-11.25	*HiLoad
1F2 3.0 Ton (Cushion)	Front (Drive)	22-8-16	Standard
	Rear (Steer)	18-6-12.12	*HiLoad
1F2 3.5-3.6 Ton (Cushion)	Front (Drive)	22-9-16	Standard
	Rear (Steer)	18-6-12.12	*HiLoad

WHEEL AND TIRE (CONT'D)

⚠ WARNING

- ***Only use the OEM recommended HiLoad steer tire as listed in the parts catalog. This will reduce the possibility of premature wear to the tire, wheel hug and/or steer linkage. This may affect the overall stability both while traveling and during load handling, which could cause a tip-over or loss of load condition.**

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 forklift 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 forklift on a flat, level and solid surface.**
- **Unload cargo from the forklift.**
- **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 on.**
- **Make sure the forward-reverse lever is in the neutral position. Check the forklift and its surroundings for safety.**
- **Chock wheels that are not being changed.**

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

TIRE REPLACEMENT (CONT'D)

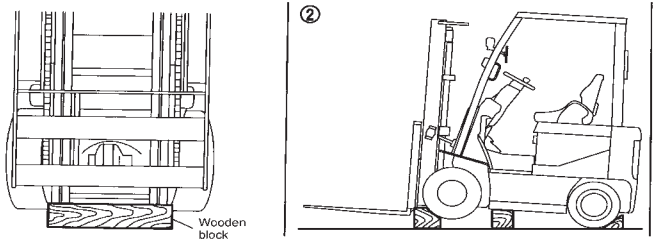
⚠ CAUTION

- **Use hardwood blocks that do not slip easily and are strong enough to withstand the forklift 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 forklift from inclining, do not place wood blocks of different heights under the right and left mast.**

① ② 

NOTE:

The front wheels require a wheel nut wrench. The rear steer tires require a spanner wrench to remove wheel retainer nut.

Front Tire:

1. Place the forklift on a level and solid surface.
2. Start the engine and raise the carriage about 250 mm (9.84 in).
3. Place chocks behind the rear wheels to prevent movement of the forklift.
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 forklift when the tires are slightly raised off the ground. Jacking up the forklift 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.**

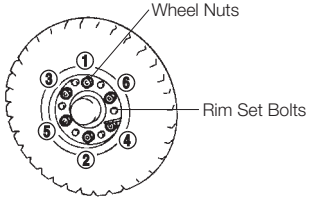
7. Support the forklift by putting additional wood blocks under each side of the front-end of the frame as shown at left. Stop the engine.
8. Remove the wheel nuts and replace the front tire.

⚠ CAUTION

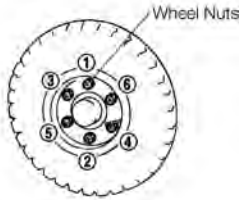
- **When removing the tire from the wheel rim, do not remove the rim set bolts and wheel nuts before releasing the air (pneumatic model only).**
- **Never get under the forklift while it is supported only by the wood blocks.**

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

Pneumatic Tire



Cushion Tire



⚠ 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.**
- **For replacement of the double tires, do not install the tires in the incorrect direction of the inner and outer rim. The inner rim has a conical bearing surface on one side and the outer rim has it on both sides. If the double tires are installed in the incorrect direction or the wheel nuts are attached in the wrong direction, the nuts may loosen easily and may cause bolts to break and the wheel to come off.**

10. Start the engine and remove the wood blocks from the underside of the frame.
11. Lower the forklift 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 102).
13. **Pneumatic:** Adjust the tire pressure to the value specified (refer to page 96).
14. After replacing a tire, drive the forklift and check the tightening torque of each wheel nut again.

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

TIRE REPLACEMENT (CONT'D)

Rear Tire:

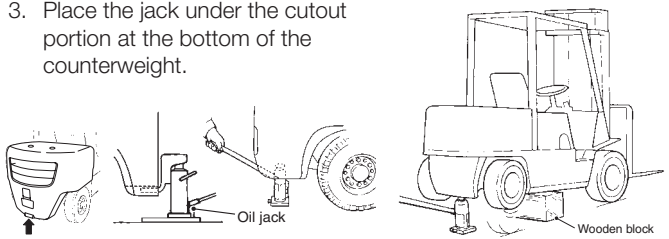
⚠ WARNING

- **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.



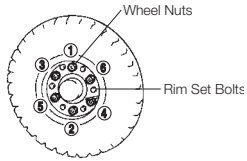
⚠ WARNING

- **Do not get under or ride on the forklift when it is jacked up. Doing so could lead to a serious accident, including death in the case the jack comes off accidentally.**

⚠ WARNING

- **Use a jack with a capacity of 3.0 tons or more.**

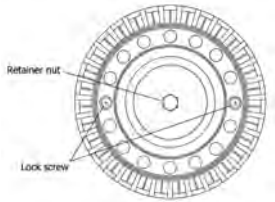
4. **Pneumatic:** Loosen the wheel nuts one or two turns each by turning them counterclockwise.



⚠ 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 forklift slowly until the rear tires clear the ground. Support the forklift by putting wood blocks under each side of the rear end of the frame as shown on page 98.

⚠ WARNING

- **Stop jacking up the forklift when the tires are slightly raised off the ground. Jacking up the forklift excessively high could cause it to roll over.**
- **Use a jack with a capacity of 3.0 tons or more.**

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

TIRE REPLACEMENT (CONT'D)

Rear Tire: (cont'd)

⚠ WARNING

- **Use hardwood blocks that do not slip easily and are strong enough to withstand the forklift 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 forklift while it is supported only by the wood blocks.**

7. **Pneumatic:** Reinstall the wheel nuts and temporarily tighten in sequence on page 100.
7. **Cushion:** Reinstall the retainer nut and tighten (refer to chart on page 102).
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 102).
10. **Pneumatic:** Adjust the tire pressure to the value specified (refer to page 96).
11. **Pneumatic:** After replacing a tire, drive the forklift and check the tightening torque of each wheel nut again.

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

TIRE REPLACEMENT (CONT'D)

Tightening torque: Unit: ft-lb (N-m)

Model			P1F1	P1F2			A1F1	A1F2
				2.0-2.5 ton	2.8-3.0 ton	3.5 ton		
Front (Drive)	Single tire		123 - 166 (167 - 226)	181 - 217 (245 - 294)	325 - 434 (441 - 588)	325 - 434 (441 - 588)	123 - 166 (167 - 226)	145 - 181 (196 - 245)
	Double tire	Standard	123 - 166 (167 - 226) *4	(B) 398 - 506 (539 - 686) *1	(N) 398 - 506 (539 - 686) *1	(N) 398 - 506 (539 - 686) *1		
			123 - 165 (167 - 226) *5	434 - 542 (588 - 735) *2	434 - 543 (588 - 735) *2	434 - 542 (588 - 735) *2		
		Special	(B) 123 - 166 (167 - 226) *1	(B) 398 - 506 (539 - 686) *1)	(N) 398 - 506 (539 - 686) *1	(N) 398 - 506 (539 - 686) *1		
			58 - 72 (78.4 - 98) *3	434 - 542 (588 - 735) *2	434 - 542 (588 - 735) *2	434 - 542 (588 - 735) *2		
			123 - 166 (167 - 226) *2	--	--	--		
Rear (Steer)			123 - 166 (167 - 226)	123 - 166 (167 - 226)	123 - 166 (167 - 226)	155 - 189 (210 - 257)	123 - 166 (167 - 226)	100 - 114 (135 - 155)

(B) : Bolt (N) : Nut *1: Inner Wheel *2: Outer Wheel Nut *3: Hub Nut (Outer Hub) *4: Wheel Nut *5: Wheel Composite Nut

Model	C1F1	C1F2	CG1F2
Front (Drive)	123 - 166 (167 - 226)	145 - 181 (197 - 245)	181 - 217 (245 - 294)
Rear (Steer)	Hub is maintained by wheel bearing nut and rolling torque as noted in Service Manual Section SA.		

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

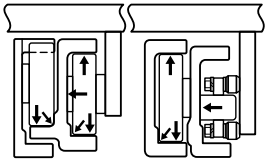
CHECKING MAST

Check the mast to ensure that:

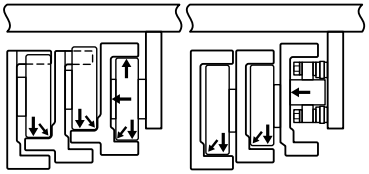
a. No oil leakage occurs at or around the lift and tilt cylinders.
b. Check rollers for proper rotation.
c. Check the chain anchors and pins.

Lubricate the points shown periodically in accordance with the Periodic Maintenance and Lubrication Schedule (refer to page 124). Apply a coat of grease to the thrust metals and liner.

2 Stage Mast

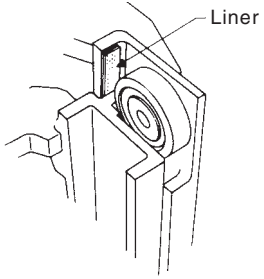


3 Stage Mast



NOTE:

a. The lubrication interval will vary with working conditions. During months in which working conditions are severe, it will be necessary to grease the parts frequently.
b. When forklift 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

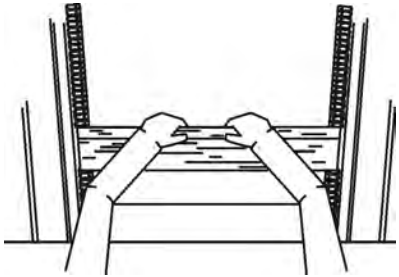
- **Use extreme care when checking lift chain tension.**

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.

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

FORK INSPECTION

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

⚠ 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 forklift 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 ANSI/ITSDF B56.1-2009 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.

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

CHECKING HORN

Check the horn for proper operation.

CHECKING LIGHTS

Mark 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.

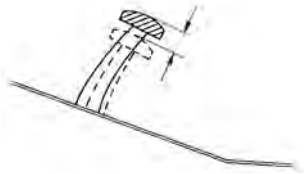
CHECKING BRAKE PEDAL

When the brake pedal is fully depressed, the distance between the upper surface of the pedal pad and floor board should be (h) = 60 mm (2.36 in) or more.

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

PEDAL FREE PLAY

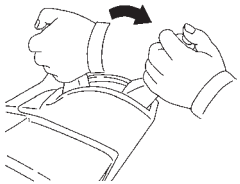
The standard free play of the pedals is 1 - 3 mm (0.04 - 0.12 in).



CHECKING PARKING BRAKE LEVER

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

Pulling force at gripping position is 116 - 160 N (12 - 16 kg, 26 - 36 lb).



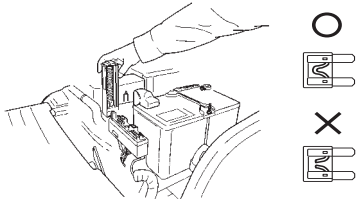
CHECKING TOP PANEL LOCK

The lock 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 forklift should suddenly overturn. Make sure the top panel lock is properly engaged without looseness or damage.

FUSES

⚠ WARNING

- **Remove all jewelry.**
- **Make sure the ignition switch is "OFF" before changing any components or disconnecting any wiring.**



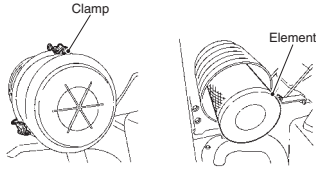
The fuse box is installed in front of the battery under the top panel. Remove the fuse box cover and visually check if the fuse is blown. Before replacing any malfunctioning fuse, check and correct the cause of the malfunction. Use a fuse of the specified rating which is clearly shown on the label.

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

CHECKING AIR CLEANER

Remove the three clamps securing the air cleaner case and take the element out carefully. Clean the element by tapping it by hand or blow compressed air to it from the inside. After cleaning, visually check the element and replace if it is still dirty.



⚠ CAUTION

- **When cleaning the air cleaner element, always wear a dust mask and dustproof glasses. OSHA requires that air nozzles be used to reduce pressure to no more than 206 kPa (2.06 bar, 2.1 kgf/cm², 30 psi).**

FUEL TANK CLEANING: DRAIN PLUG

Remove the drain plug before washing the inside of the fuel tank. To do this, turn the drain plug counterclockwise.

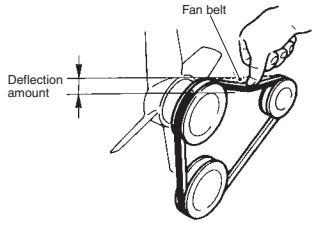
When removing the drain plug, be careful not to lose the packing. Before installing the drain plug be sure to install the packing.

Tightening torque: 25 to 39 N·m (2.6 - 3.9 kgf-m, 18 - 28 ft/lb)

CHECKING FAN BELT

Check the belt deflection by applying moderate thumb pressure at a point midway between the pulleys. If necessary, adjust the belt deflection.

Fan belt deflection is 11 - 13 mm (0.43 - 0.51 in)



⚠ WARNING

- **Be sure that the engine is not running and the parking brake is applied.**
- **Keep hands clean.**

FUEL FILTER (Draining Water from Water Separator Diesel Forklifts)

If the fuel filter warning light illuminates while the engine is running, drain any water that is in the fuel filter. Proceed as follows:

⚠ WARNING

- **Never allow open flames, smoking or other sources of ignition in the area of fuel filter.**
- **Fuel leaks may cause fire. Make sure that fuel does not leak during inspection or replacement.**

GENERAL CARE AND MAINTENANCE

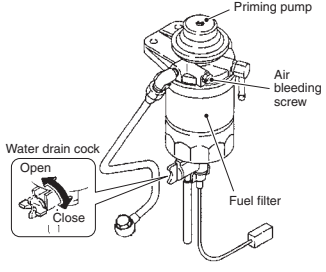
MAINTENANCE AND INSPECTION (CONT'D)

FUEL FILTER (Draining Water from Water Separator Diesel Forklifts) (cont'd)

⚠ CAUTION

- **Parts may remain very hot immediately after the engine has stopped. Wear protective gloves and perform the operation carefully so as not to touch possible hot parts around the water drain cock.**
- **Fuel may spout out along with water being drained. If fuel splashes over parts, wipe it off completely.**
- **If operation is continued for a long time while the sediment chamber (fuel filter) level warning light is illuminated, the fuel injection pump might seize up.**

1. Open the top panel (refer to page 79).
2. Place a container under the fuel filter.
3. Put a container under the water drain cock and loosen the water drain cock 4 to 5 turns to drain the water.



4. After the water has been completely drained, tight the drain cock.
5. Perform air purge operation (at right).

AIR PURGE (Diesel Forklifts)

⚠ WARNING

- **Never allow open flames, smoking or other sources of ignition in the operation area.**

⚠ CAUTION

- **Do not remove the screw completely, otherwise a large amount of fuel may spout out.**
- **Fuel may spout out from the air purge screw hole during air purge. Be sure to block the hole with a cotton cloth or a similar item to prevent fuel from splashing over surrounding parts.**
- **If fuel spills during replenishment, be sure to wipe it off.**

NOTE:

Air purge operation for diesel engine forklifts is not normally necessary. If it becomes necessary follow the procedure below.

When refilling an empty fuel tank and/or draining water from the water separator, purge the air out of the fuel system.

1. Loosen the air purge screw at the upper part of the fuel filter.
2. Move the priming pump up and down until no further air-bleed comes out of the air purge screw.
3. Tighten the air purge screw.

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

DRAINING OF TAR FROM THE VAPORIZER (LPG & Dual Fuel Forklifts)

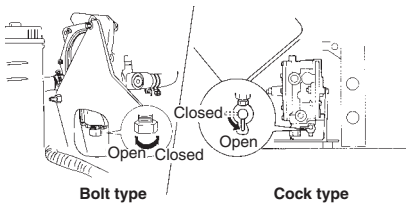
⚠ CAUTION

- **This should only be done by a trained and authorized person.**

The vaporizer is an apparatus used during LPG operation to control and reduce fuel pressure within the LPG cylinder and regulate vaporization. The vaporization process produces tar (sticky liquid) which accumulates in the vaporizer.

When or if tar accumulation becomes excessive, emission levels and idling speed adjustment could be adversely affected. Tar must be purged from the vaporizer at least once a month.

1. The tar purging procedure should be performed when the engine is at the operating temperature (warm).



2. Shut off (close) the LPG discharge valve and then idle until engine stops.
3. Turn the ignition switch to the OFF position.
4. Get off the forklift after pulling out the key to open the top panel (refer to page 79).
5. Put a cloth for collecting tar under the valve cock (GOM) or bolt type outlet (U.S.).
6. For the valve cock type, open the purge valve cock. For the bolt (plug) type, slowly remove the plug.
7. Tar will drip, when it stops the procedure is complete.
8. Close the purge valve cock or fix the bolt. If tar adheres to the body or surrounding areas, completely wipe it off.
9. Close the top panel (refer to page 79).

⚠ WARNING

- **Do not touch the vaporizer or its surrounding parts at high temperature, as it may cause burns. Whenever operating the purge valve cock or bolt, always wear protective gloves.**

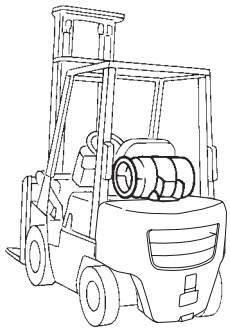
NOTE:

- If you removed the battery to gain access to the drain, it is necessary to do an "Idle Air Volume Relearn" (refer to VC Section in the Chassis Service Manual).
- UCA recommends a complete tear down, inspection and resealing of the vaporizer before 6,000 hours or 30 months of operation, whichever comes first. This maintenance is necessary for all units even if the recommended HD5 grade is being used. The conditions in your area and the quality of the LPG may dictate a more stringent maintenance schedule.

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

PRECAUTIONS FOR USING LPG



⚠ WARNING

- **LPG IS HEAVIER THAN AIR. It will settle on your clothes and the surface around you, displacing oxygen necessary for breathing.**
- **Open flames can cause flash fires.**
- **Check all connections for damage or leaks. If the forklift will not start after you change cylinders, have an authorized, qualified mechanic check it.**

When changing LPG (liquefied petroleum gas) cylinders, follow the basic rules below.

- Never allow open flames or other sources of ignition in the area.
- Wear protective equipment (i.e. safety glasses, gloves, etc.).
- Change only in well ventilated areas.
- Do not use or park near fire.
- Do not expose directly to the sun for extended periods of time.
- Inspect equipment pipe connections for gas leaks at mating sections.
- Only a person who is familiar with replacing LPG should replace the cylinder.
- LPG is heavier than air.

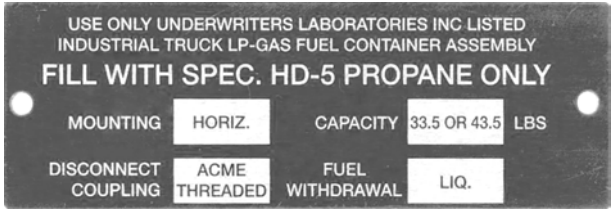
⚠ WARNING

- **Internal combustion forklifts are not recommended for use in enclosed or confined spaces because of the possible build up of carbon monoxide gases, which are colorless and odorless, and could cause unconsciousness and/or death.**

RECOMMENDED LPG FUEL TYPE

UCA recommends the use of the HD5 LPG. Use of any other grade may cause the following: increased emissions, increased maintenance and decreased performance.

UCA does not recommend any fuel system additives or cleaners.



GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

CYLINDER SIZE

GOM Models

Cylinder Size	Vehicle Classification	Cylinder			
		Capacity	Weight	Diameter	Length
	2,000 - 4,000 lb (1.0 - 3.0 ton)	9-1/2 US gal, 7-7/8 Imp gal (36 ℓ)	33 lb (15 kg)	12.60 in (320 mm)	25.98 in (660 mm)

North America Models (*)

Cylinder Size	Vehicle Classification	Weight Filled	Weight Empty	Diameter	Length
	1 ton series	38 lb	33 lb	12 in	27-1/4 in
	2 - 3 ton series	38 lb	33 lb	12 in	27-1/4 in
Optional	Pneumatic 2.5 ton and up	70 lb	43 lb	12 in	33-5/16 in
	Cushion 2.8 ton and up	70 lb	43 lb	12 in	33-5/16 in

*: Aluminum cylinder only, steel cylinders sizes may vary.

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

LPG CYLINDER REPLACEMENT

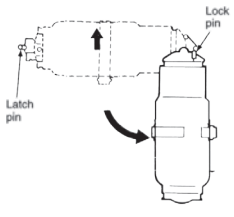
⚠ WARNING

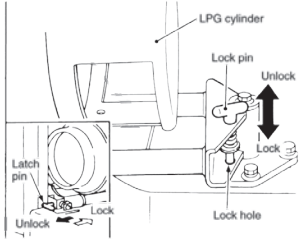
- **Replace the cylinder in a well ventilated area.**
- **While replacing the cylinder, never use or get close to fire.**
- **Use LPG cylinders with the capacity shown in the table on page 110.**
- **Always wear PPE when replacing cylinder tank.**

The cylinder is installed on the forklift with the discharge valve on the right side when viewed from the rear of the forklift. The high pressure hose is connected to the discharge valve with a threaded screw type connector.

Swing-Out Type Cylinder Mount

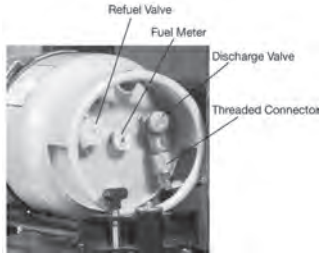
During forklift service procedures requiring opening of the top panel, the LPG cylinder mount must first be moved to prevent it from interfering with the operator's seat. Follow the procedure outlined to replace the LPG cylinder on swing-out type cylinder mount equipped forklifts.





Removing Cylinder Swing-Out Type

1. Place the fuel-change switch in the LPG position.
2. Turn the discharge valve, located on the right side when viewed from the rear of the forklift, slowly to the right (clockwise) to fully close the valve.
3. Allow the engine to run until it stops naturally (fuel exhausted). Turn the ignition switch to the OFF position.

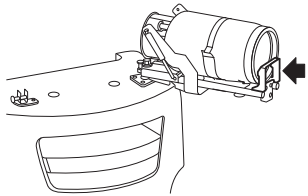


4. Restart forklift to ensure all fuel is exhausted.
5. Slowly turn the high pressure hose threaded connector counterclockwise until it is disconnected from the discharge valve.

⚠ WARNING

- **Listen for leaks and for the smell of LP.**

6. Pull the latch pin out to unlock the LPG cylinder holder.
7. Slowly open the cylinder holder 90º until the lock pin is in the lock pin hole.



⚠ WARNING

- **Do not attempt to replace the LPG cylinder with the holder in the open position. Replace the LPG cylinder only with the holder locked in place.**

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

LPG CYLINDER REPLACEMENT (CONT'D)

Removing Cylinder Swing-Out Type (cont'd)

8. Pull down on the strap latch and open fully to release the tank.
9. Securely grasp the cylinder tank with both hands and lift the cylinder up to remove it from the holder and gently place on the ground.

⚠ WARNING

- **When the latch pin is pulled out from the cylinder holder, the weight of the holder and the LPG cylinder cause the holder to drop naturally, possibly resulting in unexpected injury.**
- **When swinging the cylinder holder, be sure to support the cylinder until the swing is completed. If you release the cylinder before it is locked in position, it may move in the opposite direction, or it may swing rapidly causing unexpected injury.**
- **When handling the LPG cylinder, be sure to grasp it at the top and bottom. If you grasp any other part of the cylinder, there is the danger that your hands may be caught between the cylinder and the holder.**

Installing Cylinder Swing-Out Type

1. Turn the LPG cylinder so that the side with the locator hole for the locator pin on the bracket are lined up. Securely grasp the cylinder tank with both hands and lift the cylinder up and place on holder.

⚠ WARNING

- **Do not place your feet directly below the LPG cylinder. The cylinder is heavy and there is the danger of injury if it falls. When handling the LPG cylinder, be sure to grasp it at the top and bottom. If you grasp any other part of the cylinder, there is the danger that your hands may be caught between the cylinder and the holder.**

2. Hook the strap latch to secure the cylinder in place.

⚠ WARNING

- **Check that the LPG cylinder is securely clamped in place. Check that there is no looseness in the cylinder or strap.**
- **If the cylinder is not securely fastened, the cylinder may fall, causing unexpected injury.**

3. Connect the high pressure hose threaded connector, turn clockwise until tight.

⚠ WARNING

- **Connect the high pressure hose to the cylinder taking care not to twist the hose.**

GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

LPG CYLINDER REPLACEMENT (CONT'D)

Installing Cylinder Swing-Out Type (cont'd)

4. Slowly open the discharge valve by turning counterclockwise. If opened to fast the LP flow will stop. To correct close the valve wait 5 seconds and slowly open again.

⚠ WARNING

- **Listen for leaks and for the smell of LP.**
- **Inspect pipe connector for gas leakage with soapy water.**

5. Pull the lock pin up to release the LPG cylinder holder. Slowly close the LPG cylinder holder and make sure that the latch pin is in the locked position.

⚠ WARNING

- **If the latch pin is not locked securely, there is the danger that the cylinder holder may move unexpectedly, causing unexpected injury.**

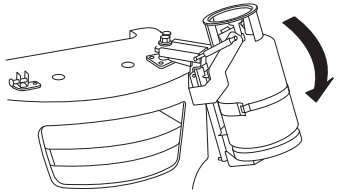
6. While seated in the operator's seat, turn the ignition switch to the ON position.
7. Check to make sure that the cylinder lock indicator light is off.
8. If the light is illuminated, turn the ignition switch to the OFF position and check that the swing mount is secured and locked. If it is check to see if the switch is damaged.

⚠ WARNING

- **Only authorized UCA service technicians should perform repair and/or make adjustments to the switch or latch.**

Removing Cylinder Swing-Down Type

1. Follow steps 1 through 7 in removing cylinder swing-out type (refer to page 111).
2. While supporting the bottom of the LPG cylinder, slowly push the holder down towards the ground until the cylinder holder stops.



3. While firmly supporting the cylinder by pressing it into the holder, pull right on the strap latch and open fully to release the cylinder.
4. Follow step 9 in removing cylinder swing-out type (refer to page 112).

Installing Cylinder Swing-Down Type

1. Turn the LPG cylinder so that the side with the locator hole for the locator pin on the bracket are lined up. Securely grasp the cylinder tank with both hands and lift the cylinder up and place on holder.

⚠ WARNING

- **Do not place your feet directly below the LPG cylinder. The cylinder is heavy and there is the danger of injury if it falls. When handling the LPG cylinder, be sure to grasp it at the top and bottom. If you grasp any other part of the cylinder, there is the danger that your hands may be caught between the cylinder and the holder.**
- **The LPG cylinder will not stay in the holder on its own. Continue to press it securely in the holder until the strap latch has been fastened.**

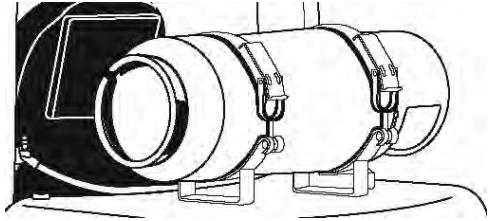
GENERAL CARE AND MAINTENANCE

MAINTENANCE AND INSPECTION (CONT'D)

LPG CYLINDER REPLACEMENT (CONT'D)

Installing Cylinder Swing-Down Type (cont'd)

2. Follow steps 2 through 4 in installing cylinder swing-out type (refer to page 112-113).
3. While supporting the bottom of the LPG cylinder, slowly push the holder up until it is in a horizontal position.
4. Follow step 5 through 8 in installing cylinder swing-out type (refer to page 112-113).
5. Ensure hose is in clip and attached to radiator cover.



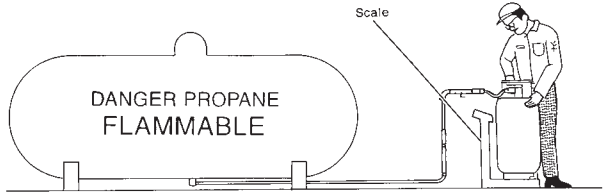
Removing Cylinder Fixed Type

Follow steps 1 through 5, 8 & 9 in removing cylinder swing-out type (refer to pages 111-112).

Installing Cylinder Fixed Type

Follow steps 1 through 4 and 6 through 8 in installing cylinder swing-out type (refer to pages 112-113).

REFILLING LPG CYLINDERS



⚠ WARNING

- **Only a trained and authorized person should refill LPG tanks.**
- **Do not refill cylinders while mounted on a forklift.**
- **Make sure that you know and understand the proper procedure for filling a LPG cylinder.**
- **Know all local fire codes.**
- **If you have any questions about refilling LPG cylinders, please ask your supervisor.**
- **If problems with filling occur, call your LPG supplier.**

The weight scale method to fill the cylinder is highly recommended to protect the environment and to reduce fire hazards. This method will reduce overfilling and the discharge of LPG into the environment.

- Store full and empty cylinders according to local fire codes.
- When filling LPG cylinder, always observe the local laws and regulations.

GENERAL CARE AND MAINTENANCE

PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE

Before delivery of your new forklift, 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 forklift operating in good mechanical condition. The forklift should be attended to as indicated, preferably by your Local Authorized Dealer.

⚠ WARNING

- **When it is necessary to check with the truck engine running, raise the drive wheels.**
- **Follow any lock out/tag out policies your employer may have.**

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 design level. Failure to maintain the systems could compromise the warranty.
- The inspection/service intervals shown are based on the assumption that the vehicle is operated in a clean and dry environment for 200 hours or less in one month. When determining the inspection/service interval, consider the actual working conditions of the vehicle.

GENERAL CARE AND MAINTENANCE

PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE (CONT'D)

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	
Electric system	Battery: mounting, level and specific gravity		I	I	I	I	I	I	I	I	I	I	I	I	Visual/Test
	Harness and connectors		I		I			I			I			I	Visual
	Fuses		If Necessary												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
Differential	Oil level		I											I	Visual
	Differential oil replacement							R						R	Replace
Automatic Transmission	Fluid level		I	I	I	I	I	I	I	I	I	I	I	I	Visual
	Fluid replacement							R						R	Replace
	Line pressure		If Necessary												Test
	Stall speed		If Necessary												Test

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

GENERAL CARE AND MAINTENANCE

PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE (CONT'D)

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	Front axle	Wheel bearing for looseness		I											I	Test/Adjust
		Wheel bearing grease (repack)													R	Replace
	Rear axle	Wheel bearing for looseness		I	I	I	I	I	I	I	I	I	I	I	I	Test/Adjust
		Steer axle adjustment		If Necessary												Adjust
		Wheel play		I	I	I	I	I	I	I	I	I	I	I	I	Test
		Wheel bearing grease (repack)													R	Replace
		Kingpin		L		L			L			L			L	Grease
	Wheels	Wheel nuts		I	I	I	I	I	I	I	I	I	I	I	I	Test/Torque
		Rim, side rings and wheel disc damage		I					I						I	Visual
		Tire: pressure, wear, damage and foreign materials		I	I	I	I	I	I	I	I	I	I	I	I	Visual/Test

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

GENERAL CARE AND MAINTENANCE

PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE (CONT'D)

		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	Wheel operation effort		I	I	I	I	I	I	I	I	I	I	I	I	Test
		Steering fluid pressure		If Necessary												Test
		Steering wheel (movement and play)		I	I	I	I	I	I	I	I	I	I	I	I	Test
	Brake system	Function of brake system		I	I	I	I	I	I	I	I	I	I	I	I	Test
		Brake fluid level		I	I	I	I	I	I	I	I	I	I	I	R	Replace
		Brake pedal		I	I	I	I	I	I	I	I	I	I	I	I	Test/Adjust
		Brake lining wear													I	Visual
		Shoe clearance adjustment													A	Adjust
		Brake tubes and hoses (mounting, cracks, etc.)		I		I			I			I			I	Visual
		Hand brake		I											I	Test/Adjust
		Inching brake pedal		I	I	I	I	I	I	I	I	I	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

GENERAL CARE AND MAINTENANCE

PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE (CONT'D)

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	Hydraulic pressure		If Necessary												Test
		Hydraulic oil level		I		I			I			I			I	Visual
		Hydraulic oil replacement													R	Replace
		Micron oil filter							R						R	Replace
		Suction filter													C	Clean
		Movement and connection of levers		I		I			I			I			I	Test
		Hydraulic hoses and tubes (cracks, damage and fittings)		I		I			I			I			I	Visual
		Lift and tilt cylinder mounting and operation		I	I	I	I	I	I	I	I	I	I	I	I	Visual
		Tilt cylinder pin		L		L			L			L			L	Grease
		Leakage (valve, cylinder and orbitol)		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

GENERAL CARE AND MAINTENANCE

PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE (CONT'D)

		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	I	I	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 pulley's		I		I			I			I			I	Visual/Test
		Mast support		L		L			L			L			L	Grease
		Forks (wear/damage/cracks)		I	I	I	I	I	I	I	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

GENERAL CARE AND MAINTENANCE

PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE FOR EMISSION CONTROL SYSTEM

Before delivery of your new forklift, 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 forklift operating in good mechanical condition. The forklift should be attended to as indicated, preferably by your Local Authorized Dealer.

⚠ WARNING

- **When it is necessary to check with the truck engine running, raise the drive wheels.**
- **Follow any lock out/tag out policies your employer may have.**

⚠ CAUTION

For Units in the U.S.:

- **Do not tamper with, destroy, remove or alter or alter EPA/CARB label or valve (rocker) cover in anyway. Doing so could violate EPA/CARB regulations and possibly void the warranty on your forklift.**
- **Valve (rocker) cover may be removed for maintenance checks but the original cover must be installed as soon as maintenance checks are completed.**
- **You must notify your Local Authorized Dealer if either the valve (rocker) cover or label is damaged and needs to be replaced.**

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 design level. Failure to maintain the systems could compromise the warranty.
- The inspection/service intervals shown are based on the assumption that the vehicle is operated for 2,400 hours or less in one year. When determining the inspection/service intervals, consider the actual working conditions of the vehicle.
- All items listed on the following pages must be maintained in order to meet and keep emission control systems operating at design levels. Failure to maintain the systems could compromise the warranty.

GENERAL CARE AND MAINTENANCE

PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE FOR EMISSION CONTROL SYSTEM (CONT'D)

Inspection items			Interval																	How to Check
			Months	1	2	3	4	5	6	7	8	9	10	11	12	.	.	.	.	.	18	
			Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24	.	.	.	.	.	36	
K21/K25 Engine	Engine Compartment Maintenance (Except LPG Fuel System)	Intake & exhaust valve clearance (operating temp)		A		A			A			A			A	.	.	.	.	.	A	Test/Adjust
		Drive belt tension		I	I	I	I	I	I	I	I	I	I	I	I	.	.	.	.	.	I	Visual
		Engine oil		R	R			R		R			R		R	.	.	.	.	.	R	Replace
		Oil filter		R	R			R		R			R		R	.	.	.	.	.	R	Replace
		Engine Coolant (LLC)													R	.	.	.	.	.		Replace
		Air cleaner element		I	I	I	I	I	I	I	I	I	I	I	R	.	.	.	.	.	R	Visual/Replace
		Spark plugs		I	I	I	I	I	I	I	I	I	I	I	I	.	.	.	.	.	R	Visual
		PCV Valve				I			I			I			I	.	.	.	.	.	I	Visual
	Engine Compartment Maintenance (LPG Fuel System)	Piping or pipe connector portion for gas leakage and damage		I	I	I	I	I	I	I	I	I	I	I	I	.	.	.	.	.	I	Visual
		Tar in vaporizer		D	D	D	D	D	D	D	D	D	D	D	D	.	.	.	.	.	D	Drain
		LPG Fuel Filters				C			C			C			R	.	.	.	.	.	C	Visual/Replace
		Injection screen				C			C			C			C	.	.	.	.	.	C	Visual
		Check LPG cylinder holder for looseness or damage		I	I	I	I	I	I	I	I	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

NOTE:

- When the LPG cylinder is replaced, inspect pipe connectors for gas leakage with soapy water.
- UCA recommends a complete tear down, inspection and resealing of the vaporizer before 6,000 hours or 30 months of operation, whichever comes first. This maintenance is necessary for all units even if the recommended HD5 grade is being used. The conditions in your area and the quality of the LPG may dictate a more stringent maintenance schedule.

GENERAL CARE AND MAINTENANCE

PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE FOR EMISSION CONTROL SYSTEM (CONT'D)

Inspection items			Interval																	How to Check
			Months	1	2	3	4	5	6	7	8	9	10	11	12	.	.	.	.	.	18	
			Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24	.	.	.	.	.	36	
QD32 Engine	Engine Compartment Maintenance	Intake & exhaust valve clearance (operating temp)		A		A			A			A			A	.	.	.	.	.	A	Adjust
		Drive belt tension		I	I	I	I	I	I	I	I	I	I	I	I	.	.	.	.	.	I	Visual
		Engine oil		R	R	R	R	R	R	R	R	R	R	R	R	.	.	.	.	.	R	Replace
		Oil filter		R	R	R	R	R	R	R	R	R	R	R	R	.	.	.	.	.	R	Replace
		Engine Coolant (LLC)													R	.	.	.	.	.		Replace
		Air cleaner element		I	I	R	I	I	R	I	I	R	I	I	R	.	.	.	.	.	R	Visual/Replace
		Water Separator		D		D			D			D			R	.	.	.	.	.	D	Drain
		Engine idle rpm		A	A	A	A	A	A	A	A	A	A	A	A	.	.	.	.	.	A	Adjust
		Nozzle							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

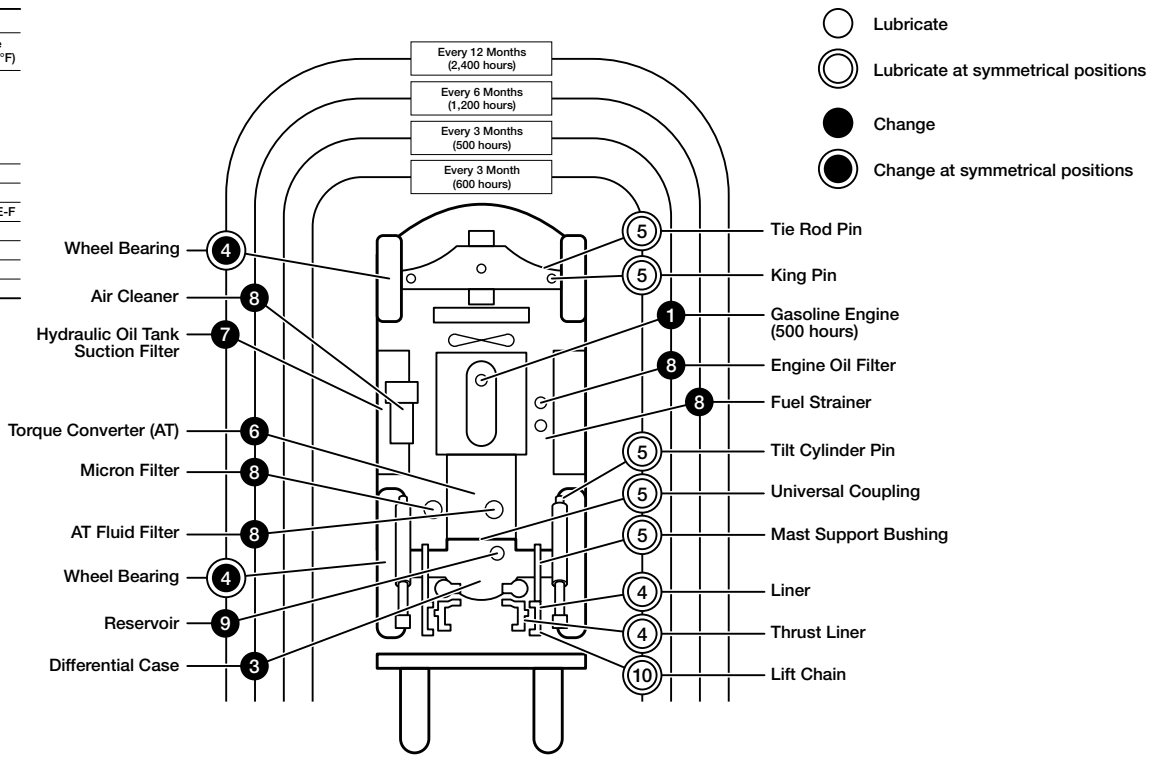
NOTE:

- If engine power decreases, black exhaust smoke is emitted or engine noise increases before the maintenance period comes, check and, if necessary, adjust the fuel injection nozzle starting pressure and the fuel spray pattern.

GENERAL CARE AND MAINTENANCE

LUBRICATION CHART

Item	Suitable Oil	
	Below 16°C (60°F)	Above 16°C (60°F)
① Gasoline Engine Oil	Refer to Page 124	
② Diesel Engine Oil		
③ Gear Oil		
④ W.B. Grease	NLGI No. 2	
⑤ Chassis Grease	NLGI No. 1	
⑥ AT Fluid	Dexron 3 or M2C-33E-F	
⑦ Hydraulic Oil	I.S.O. VG32	
⑧ Replace or clean element		
⑨ Brake Fluid	FMVSS Dot 3	
⑩ Lift Chain	Refer to Page 124	

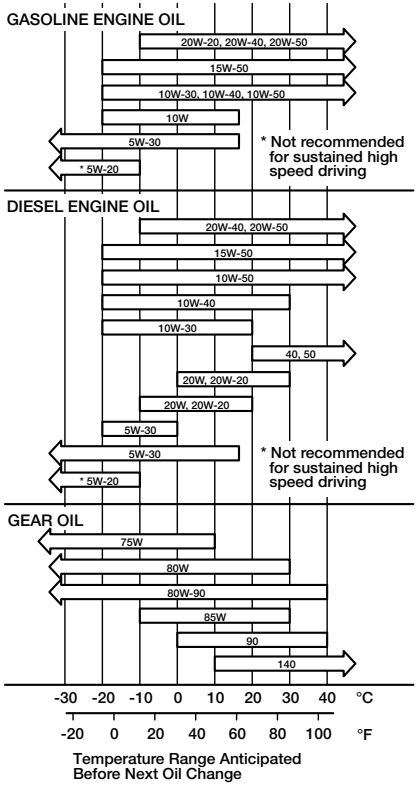


GENERAL CARE AND MAINTENANCE

RECOMMENDED LUBRICANTS

Item		Specifications	Remarks
Engine Oil	Gasoline	API SJ or SL	Refer to Recommended SAE Viscosity Chart
	Diesel	API CF	
Gear Oil	Differential	API GL-4 or 5	
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	
Power Steering Oil		Hydraulic Oil I.S.O. VG32	--
Hydraulic Oil		Hydraulic Oil I.S.O. VG32	Wear-proof oil
Automatic Transmission Fluid		Type DEXRON 3 or M2C-33E or F	--
Brake Fluid		DOT3 (F.M.V.S.S. No. 116)	F.M.V.S.S.: Federal Motor Vehicle Safety Standard
Antifreeze		Blue Extended Life Coolant/ Antifreeze	Permanent antifreeze (Ethylene glycol base)
Lift Chain		Sprayon LU202 Moly Chain Lubricant	--

RECOMMENDED SAE VISCOSITY



GENERAL CARE AND MAINTENANCE

PUTTING FORKLIFT IN STORAGE

Putting the forklift in storage involves storing the forklift at the end of each working day or storing the forklift over a long period of time.

Be sure to observe the precautions for forklift storage.

DAILY STORAGE

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

Keep the body and areas surrounding the driver seat clean. Make it a habit to always keep the forklift clean.

⚠ 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 forklift until the malfunctions is repaired.**

STORAGE OVER A LONG PERIOD OF TIME

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

NOTE:

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

PRE-STORAGE SERVICING

1. Lubricate the forklift (refer to page 124). Change the oil and coat all exposed areas of hydraulic cylinders with corrosion resistant grease.
2. Fill the radiator with antifreeze to prevent the engine from freezing.
3. In order to protect the inner walls of the cylinders against corrosion, remove the spark plugs from gasoline engines or injection nozzles from diesel engines and spray a small amount of oil into the cylinders. Then turn the motor over several times with the starter so that oil is distributed throughout the cylinders. Finally, replace the spark plugs or injection nozzles.
4. Remove the battery and charge it. Store the battery indoors in a low fire-risk area.
5. When storing gasoline engine forklifts (including LPG/dual fuel) for a long period of time, idle the engine until all the gasoline is used up. Otherwise, the remaining gasoline will decompose and turn into a rubbery substance, making it very difficult to start the engine.

GENERAL CARE AND MAINTENANCE

PUTTING FORKLIFT IN STORAGE (CONT'D)

SERVICING THE FORKLIFT IN STORAGE

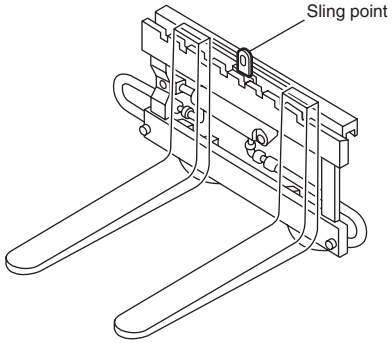
1. Periodically check the specific gravity and level the battery fluid. Charge and replenish as necessary.
2. Check various sections of the forklift for stains or corrosion. Clean such areas and coat with a corrosion preventive agent.

POST-STORAGE SERVICING

1. Wipe anticorrosive grease off the exposed areas of the hydraulic cylinders.
2. Check lubrication of all sections of the forklift and cooling water level. If there are impurities or the level is low, change the coolant or refill to the prescribed level.
3. Check the battery fluid level and specific gravity. Fully charge the battery. Be sure to completely charge the battery before putting it back on the forklift. When connecting the battery cables, make sure that the positive and negative terminals are connected correctly.
4. In order to lubricate the inner walls of the cylinders, remove the spark plugs from gasoline engines or injection nozzles from diesel engines and spray a small amount of oil into the cylinders. Then turn the motor over several times with the starter so that oil is distributed throughout the cylinders. Finally, replace the spark plugs or injection nozzles.
5. As soon as the engine is started, make sure that the oil pressure warning light turns off. Continue to warm up the engine so that the various sections of the engine are worked in.
6. Perform Daily Inspection (refer to page 86).
7. Perform Function Tests (refer to page 26).

SIDE SHIFT (OPTION)

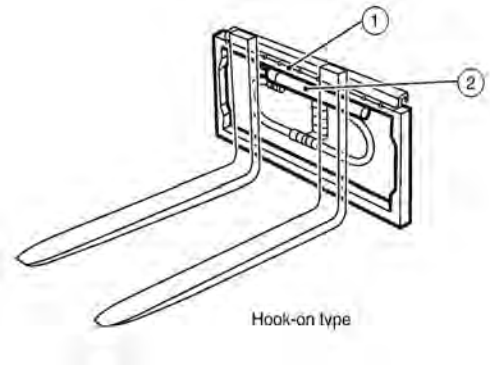
SLING POINT FOR HOOK-ON TYPE SIDE SHIFT



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

GENERAL CARE AND MAINTENANCE

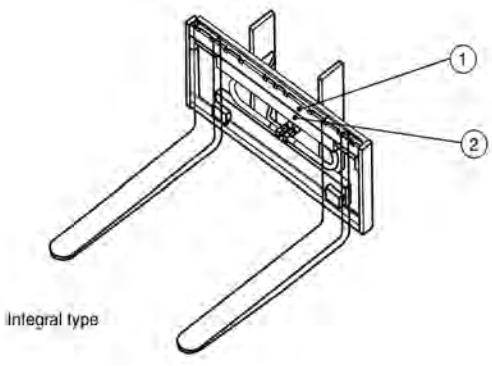
SIDE SHIFT (OPTION) (CONT'D)



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 forklift, refer to the applicable sections of this manual.

OVERVIEW OF SIDE SHIFT



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.

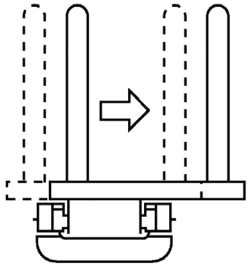
The following is the standard amount of side shift.

Model Variation	Side Shift Distance
1F1/1F2 series	Each to right/left 100 mm (3.94 in)

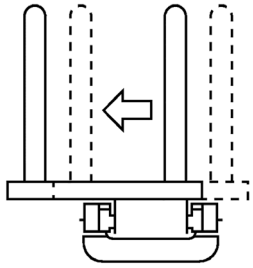
GENERAL CARE AND MAINTENANCE

SIDE SHIFT (OPTION) (CONT'D)

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.

SAFETY RULES AND PRACTICES

⚠ 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 forklift 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.**

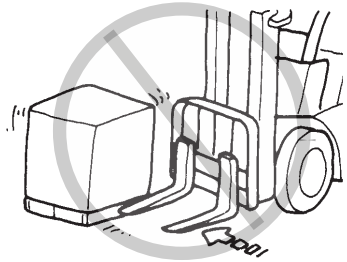
GENERAL CARE AND MAINTENANCE

SIDE SHIFT (OPTION) (CONT'D)

SAFETY RULES AND PRACTICES (CONT'D)

⚠ 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 unit.

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

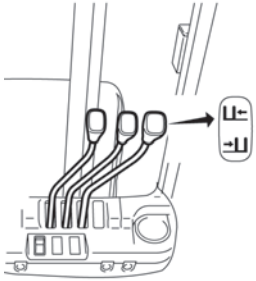
GENERAL CARE AND MAINTENANCE

SIDE SHIFT (OPTION) (CONT'D)

OPERATION OF THE CONTROL LEVER FOR THE SIDE SHIFT

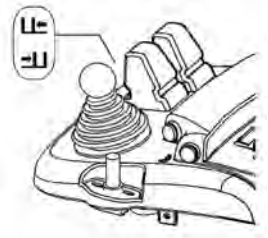
A forklift attached with a side shift has a control lever to operate the side shift, in addition to the control levers for standard operations.

MANUAL HYDRAULIC CONTROL

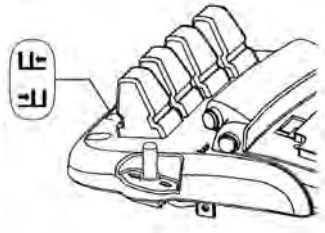


FINGERTIP CONTROL

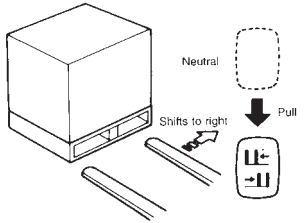
1 Lever Type



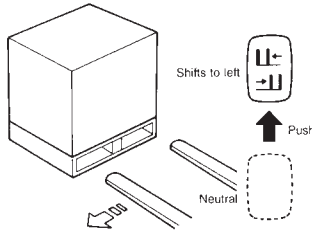
2 Lever Type



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

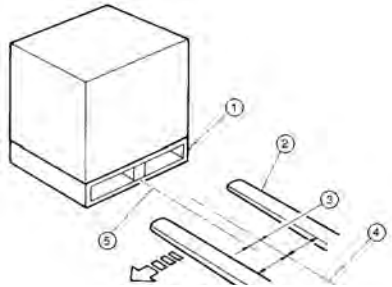
- **When you operate your side shift, make sure to raise the forks approximately 100 - 200 mm (3.94 - 7.87 in) from the ground before operation. If you shift with the forks while they are in contact with the ground, the side shift forks or load could get caught and damage the forklift or load.**

GENERAL CARE AND MAINTENANCE

SIDE SHIFT (OPTION) (CONT'D)

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 forklift 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 a forklift to possibly tip over.**
- **Do not operate the side shift lever and the lift lever quickly. It is dangerous if a load collapse occurs.**

GENERAL CARE AND MAINTENANCE

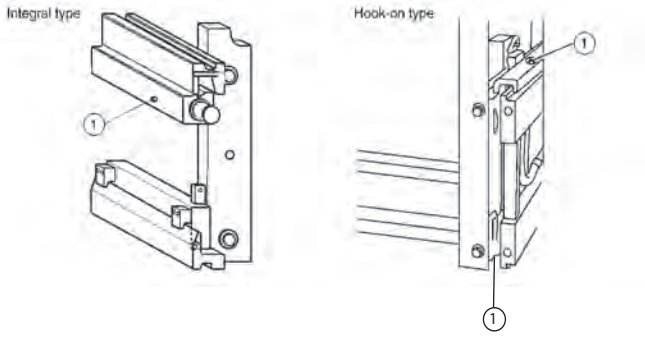
SIDE SHIFT (OPTION) (CONT'D)

DAILY CHECKS AND SIMPLE MAINTENANCE

⚠ 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 forklift 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)

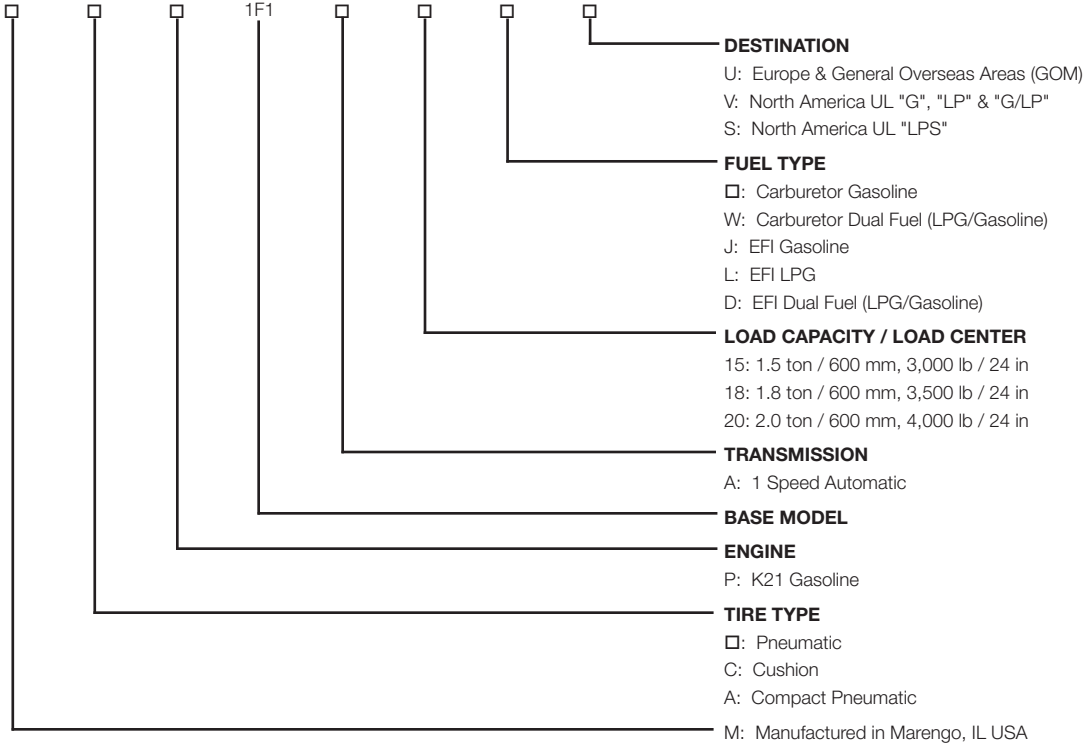
   Hook-on type: Grease nipple (1 each on right and left / top and bottom)

NOTE:

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

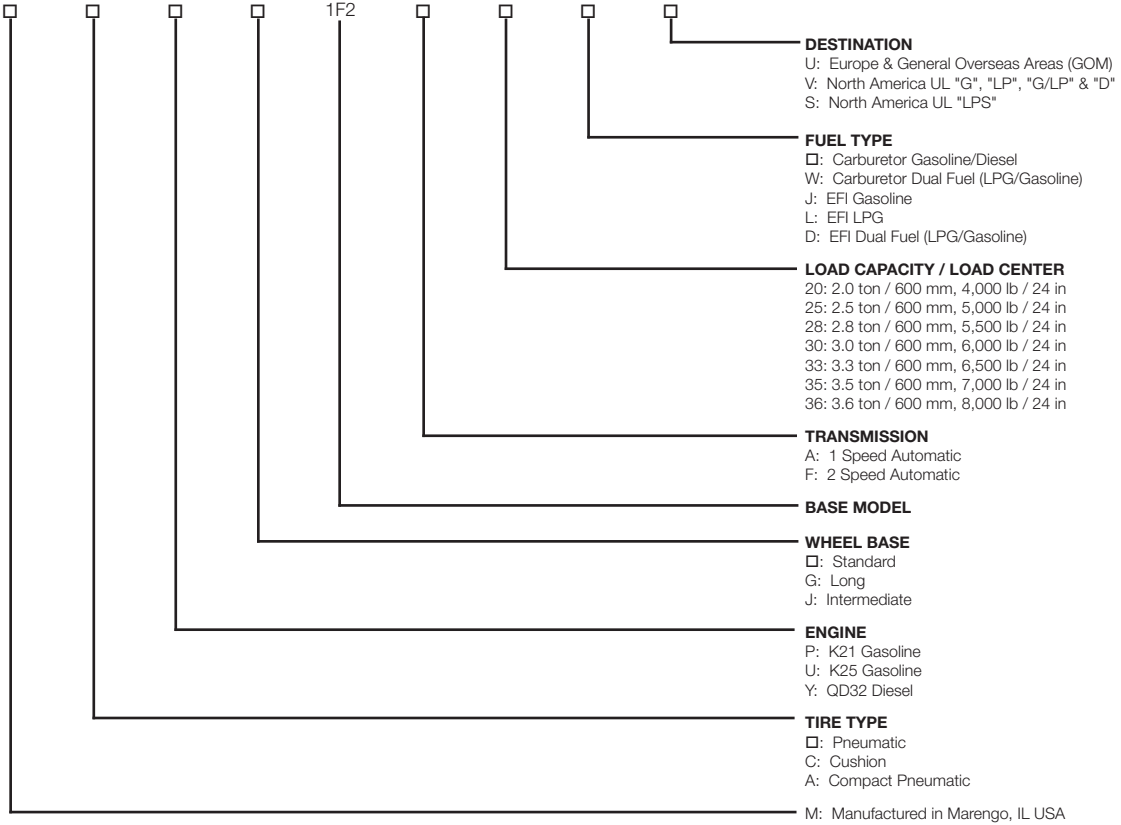
SPECIFICATIONS

MODEL VARIATION (LONG MODEL CODE) BREAKDOWN - 1F1 SERIES



SPECIFICATIONS

MODEL VARIATION (LONG MODEL CODE) BREAKDOWN - 1F2 SERIES



SPECIFICATIONS

MAIN TRUCK - 1F1 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item / Model code			1F1				
			MP1F1A15JV/ LV/DV	MP1F1A18JV/ LV/DV	MP1F1A20JV/ LV/DV	MP1F1A 15U/ WU	MP1F1A18U/WU
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)	90.2 (2290)	91.3 (2320)	89.0 (2260)	90.2 (2290)
Overall Width (standard tires)		in (mm)	41.9 (1065)				
Wheelbase		in (mm)	55.1 (1400)				
Front Overhang		in (mm)	15.7 (400)				
Rear Overhang		in (mm)	18.1 (460)	19.3 (490)	20.5 (520)	18.1 (460)	19.3 (490)
Tread - Center of Tire (standard tires)	Front	in (mm)	35.0 (890)				
	Rear	in (mm)	35.4 (900)				
Minimum Turning Radius	Outside	in (mm)	76.2 (1935)	77.6 (1970)	79.1 (2010)	76.2 (1935)	77.6 (1970)
Minimum Right Angle Stack	Add load length & clearance	in (mm)	91.9 (2335)	93.3 (2370)	94.9 (2410)	91.9 (2335)	93.3 (2370)
Fork Length (standard)		in (mm)	42.0 (1070)				
Fork Width x Thickness		in (mm)	1.5 x 4 (40 x 100)				
Ground Clearance	Under Mast	in (mm)	4.5 (115)				
	Under Power Unit	in (mm)	5.3 (135)				
	Under Frame, center of wheelbase	in (mm)	5.9 (150)				
Gradeability Maximum	Full Load	%	31.0	38.0	33.0	35.0	31.0
	Empty	%	28.0	24.0	21.0	Not Available	

SPECIFICATIONS

MAIN TRUCK - 1F1 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F1				
				MP1F1A15JV/ LV/DV	MP1F1A18JV/ LV/DV	MP1F1A20JV/ LV/DV	MP1F1A15U/WU	MP1F1A18U/WU
Grade Clearance		Approach Angle	%	37.0				
		Ramp Breakover Angle	%	49.0				
		Departure Angle	%	39.0	37.0	35.0	39.0	37.0
Lifting Speed	2W	Full Load	fpm (mm/sec)	122.0 (620)			112.2 (570)	
		Empty	fpm (mm/sec)	127.9 (650)				
	2F	Full Load	fpm (mm/sec)	108.2 (550)			110.2 (560)	
		Empty	fpm (mm/sec)	116.1 (590)			124.0 (630)	
	3F	Full Load	fpm (mm/sec)	110.2 (560)				
		Empty	fpm (mm/sec)	127.7 (650)			126.0 (640)	
	3V	Full Load	fpm (mm/sec)	110.2 (560)			104.3 (530)	
		Empty	fpm (mm/sec)	116.1 (590)			118.1 (600)	
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.4 (500)				
		Empty	fpm (mm/sec)	98.4 (500)				
	2F	Full Load	fpm (mm/sec)	94.5 (480)			82.7 (420)	
		Empty	fpm (mm/sec)	61.0 (310)			90.6 (460)	
	3F	Full Load	fpm (mm/sec)	94.5 (480)				
		Empty	fpm (mm/sec)	80.1 (405)			86.6 (440)	
	3V	Full Load	fpm (mm/sec)	94.5 (480)			67.1 (340)	
		Empty	fpm (mm/sec)	72.8 (370)			70.9 (360)	

SPECIFICATIONS

MAIN TRUCK - 1F1 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F1				
				MP1F1A15JV/ LV/DV	MP1F1A18JV/ LV/DV	MP1F1A20JV/ LV/DV	MP1F1A15U/WU	MP1F1A18U/WU
Maximum Travel Speed	Forward	mph (km/h)		11.5 (18.5)				
	Reverse	mph (km/h)		11.5 (18.5)				
Drawbar Pull Maximum	Full Load	lb (kg / N)		3705 (1680 / 16450)			3912 (1774 / 17400)	3889 (1764 / 17300)
Truck Weight		lb (kg)		Refer to Truck Data Plate				
Engine	Model			K21				
	Classification			EFI			Carburetor	
	Rated Output - SAE Gross	hp (kW) @ rpm		55 (41) @ 2700			46 (34) @ 2200	
	Rated Torque - SAE Gross	ft-lb (Nm) @ rpm		111.4 (151) @ 2000			116.5 (158) @ 1600	
	Displacement	cu in (cm^3)		126 (2065)				
Transmission	Type			Automatic				
	Number Speeds - fwd/rev			1/1				

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item / Model code			1F2				
			MP1F2A20JV/ LV/DV	MU1F2A20JV/ LV/DV	MY1F2A20V/U	MP1F2A20U/WU	MU1F2A20U/WU
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate				
Load center		in (mm)	24 (600)				
Overall Length (to face of forks)		in (mm)	96.9 (2460)				
Overall Width (standard tires)		in (mm)	45.3 (1150)				
Wheelbase		in (mm)	63.0 (1600)				
Front Overhang		in (mm)	17.5 (445)				
Rear Overhang		in (mm)	16.3 (415)				
Tread - Center of Tire (standard tires)	Front	in (mm)	37.8 (960)				
	Rear	in (mm)	38.4 (975)				
Minimum Turning Radius	Outside	in (mm)	83.5 (2120)				
Minimum Right Angle Stack	Add load length & clearance	in (mm)	101.0 (2565)				
Fork Length (standard)		in (mm)	42.0 (1070)				
Fork Width x Thickness		in (mm)	1.5 x 4 (40 x 100)				
Ground Clearance	Under Mast	in (mm)	4.5 (115)				
	Under Power Unit	in (mm)	5.3 (135)				
	Under Frame, center of wheelbase	in (mm)	6.1 (155)				
Gradeability Maximum	Full Load	%	31.0	39.0	36.0	26.0	34.0
	Empty	%	28.0			Not Available	

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2				
				MP1F2A20JV/ LV/DV	MU1F2A20JV/ LV/DV	MY1F2A20V/U	MP1F2A20U/WU	MU1F2A20U/WU
Grade Clearance		Approach Angle	%	32.0				
		Ramp Breakover Angle	%	44.0				
		Departure Angle	%	45.0				
Lifting Speed	2W	Full Load	fpm (mm/sec)	118.1 (600)	129.9 (660)	127.9 (650)	104.3 (530)	108.3 (550)
		Empty	fpm (mm/sec)	127.9 (650)	137.8 (700)		135.8 (690)	127.9 (650)
	2F	Full Load	fpm (mm/sec)	110.2 (560)	122.0 (620)	120.0 (610)	106.3 (540)	112.2 (570)
		Empty	fpm (mm/sec)	122.0 (620)	131.9 (670)	129.9 (660)	120.0 (610)	129.9 (660)
	3F	Full Load	fpm (mm/sec)	110.2 (560)	120.0 (610)	118.1 (600)	104.3 (530)	110.2 (560)
		Empty	fpm (mm/sec)	126.0 (640)	136.4 (695)		118.1 (600)	127.9 (650)
	3V	Full Load	fpm (mm/sec)	110.2 (560)	120.0 (610)	118.1 (600)	98.4 (500)	104.3 (530)
		Empty	fpm (mm/sec)	120.0 (610)	129.9 (660)		110.2 (560)	122.0 (620)
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.4 (500)				
		Empty	fpm (mm/sec)	98.4 (500)				
	2F	Full Load	fpm (mm/sec)	94.5 (480)			74.8 (380)	
		Empty	fpm (mm/sec)	59.0 (300)			92.5 (470)	
	3F	Full Load	fpm (mm/sec)	94.5 (480)				
		Empty	fpm (mm/sec)	68.1 (345)			80.7 (410)	
	3V	Full Load	fpm (mm/sec)	94.5 (480)			55.1 (280)	
		Empty	fpm (mm/sec)	64.9 (330)				

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2				
				MP1F2A20JV/ LV/DV	MU1F2A20JV/ LV/DV	MY1F2A20V/U	MP1F2A20U/WU	MU1F2A20U/WU
Maximum Travel Speed	Forward	mph (km/h)		11.8 (19.0)			11.2 (18.0)	
	Reverse	mph (km/h)		11.8 (19.0)			11.2 (18.0)	
Drawbar Pull Maximum	Full Load	lb (kg / N)		3880 (1760 / 17250)	4189 (1900 / 18650)	4542 (2060 / 20200)	3957 (1795 / 17600)	4696 (2130 / 20900)
Truck Weight		lb (kg)		Refer to Truck Data Plate				
Engine	Model			K21	K25	QD32	K21	K25
	Classification			EFI		V = EFI U = Carburetor	Carburetor	
	Rated Output - SAE Gross	hp (kW) @ rpm		55 (41) @ 2700	62.9 (46.9) @ 2700	55 (41) @ 2000	46 (34) @ 2200	53.6 (40) @ 2200
	Rated Torque - SAE Gross	ft-lb (Nm) @ rpm		111.4 (151) @ 2000	138.7 (188) @ 1600	143.8 (195) @ 1800	116.5 (158) @ 1600	137.2 (186) @ 1600
	Displacement	cu in (cm^3)		126 (2065)	151.8 (2488)	192.4 (3153)	126 (2065)	151.8 (2488)
Transmission	Type			Automatic				
	Number Speeds - fwd/rev			1/1				

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item / Model code			1F2				
			MP1F2A25JV/ LV/DV	MU1F2A25JV/ LV/DV	MY1F2A25V/U	MP1F2A25U/WU	MU1F2A25U/WU
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate				
Load center		in (mm)	24 (600)				
Overall Length (to face of forks)		in (mm)	99.0 (2515)				
Overall Width (standard tires)		in (mm)	45.3 (1150)				
Wheelbase		in (mm)	63.0 (1600)				
Front Overhang		in (mm)	17.5 (445)				
Rear Overhang		in (mm)	18.5 (470)				
Tread - Center of Tire (standard tires)	Front	in (mm)	37.8 (960)				
	Rear	in (mm)	38.4 (975)				
Minimum Turning Radius	Outside	in (mm)	85.8 (2180)				
Minimum Right Angle Stack	Add load length & clearance	in (mm)	103.3 (2625)				
Fork Length (standard)		in (mm)	42.0 (1070)				
Fork Width x Thickness		in (mm)	1.5 x 4 (40 x 100)				
Ground Clearance	Under Mast	in (mm)	4.5 (115)				
	Under Power Unit	in (mm)	5.3 (135)				
	Under Frame, center of wheelbase	in (mm)	6.1 (155)				
Gradeability Maximum	Full Load	%	27.0	33.0	31.0	21.0	28.0
	Empty	%	24.0			Not Available	

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2				
				MP1F2A25JV/ LV/DV	MU1F2A25JV/ LV/DV	MY1F2A25V/U	MP1F2A25U/WU	MU1F2A25U/WU
Grade Clearance		Approach Angle	%	32.0				
		Ramp Breakover Angle	%	44.0				
		Departure Angle	%	37.0				
Lifting Speed	2W	Full Load	fpm (mm/sec)	118.1 (600)	129.9 (660)	127.9 (650)	104.3 (530)	108.3 (550)
		Empty	fpm (mm/sec)	127.9 (650)	137.8 (700)		135.8 (690)	127.9 (650)
	2F	Full Load	fpm (mm/sec)	110.2 (560)	122.0 (620)	120.0 (610)	106.3 (540)	112.2 (570)
		Empty	fpm (mm/sec)	122.0 (620)	131.9 (670)	129.9 (660)	120.0 (610)	129.9 (660)
	3F	Full Load	fpm (mm/sec)	110.2 (560)	120.0 (610)	118.1 (600)	104.3 (530)	110.2 (560)
		Empty	fpm (mm/sec)	126.0 (640)	136.4 (695)	134.3 (680)	118.1 (600)	127.9 (650)
	3V	Full Load	fpm (mm/sec)	110.2 (560)	120.0 (610)	118.1 (600)	98.4 (500)	104.3 (530)
		Empty	fpm (mm/sec)	120.0 (610)	129.9 (660)	127.9 (650)	110.2 (560)	122.0 (620)
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.4 (500)				
		Empty	fpm (mm/sec)	98.4 (500)				
	2F	Full Load	fpm (mm/sec)	94.5 (480)			74.8 (380)	
		Empty	fpm (mm/sec)	59.0 (300)			92.5 (470)	
	3F	Full Load	fpm (mm/sec)	94.5 (480)				
		Empty	fpm (mm/sec)	68.1 (345)			80.7 (410)	
	3V	Full Load	fpm (mm/sec)	94.5 (480)			55.1 (280)	
		Empty	fpm (mm/sec)	64.9 (330)				

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2				
				MP1F2A25JV/ LV/DV	MU1F2A25JV/ LV/DV	MY1F2A25V/U	MP1F2A25U/WU	MU1F2A25U/WU
Maximum Travel Speed	Forward	mph (km/h)		11.8 (19.0)			11.2 (18.0)	
	Reverse	mph (km/h)		11.8 (19.0)			11.2 (18.0)	
Drawbar Pull Maximum	Full Load	lb (kg / N)		3880 (1760 / 17250)	4189 (1900 / 18650)	4542 (2060 / 20200)	3913 (1775 / 17400)	4652 (2110 / 20700)
Truck Weight		lb (kg)		Refer to Truck Data Plate				
Engine	Model			K21	K25	QD32	K21	K25
	Classification			EFI		V = EFI U = Carburetor	Carburetor	
	Rated Output - SAE Gross	hp (kW) @ rpm		55 (41) @ 2700	62.9 (46.9) @ 2700	55 (41) @ 2000	46 (34) @ 2200	53.6 (40) @ 2200
	Rated Torque - SAE Gross	ft-lb (Nm) @ rpm		111.4 (151) @ 2000	138.7 (188) @ 1600	143.8 (195) @ 1800	116.5 (158) @ 1600	137.2 (186) @ 1600
	Displacement	cu in (cm^3)		126 (2065)	151.8 (2488)	192.4 (3153)	126 (2065)	151.8 (2488)
Transmission	Type			Automatic				
	Number Speeds - fwd/rev			1/1				

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item / Model code			1F2			
			MUJ1F2A28JV/LV/DV	MUG1F2A30JV/LV/DV	MYG1F2A30V/U	MUG1F2A30U/WU
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate			
Load center		in (mm)	24 (600)			
Overall Length (to face of forks)		in (mm)	102.8 (2610)	105.5 (2680)		
Overall Width (standard tires)		in (mm)	49.2 (1250)			
Wheelbase		in (mm)	63.8 (1620)	66.9 (1700)		
Front Overhang		in (mm)	18.5 (470)	18.9 (480)		
Rear Overhang		in (mm)	20.5 (520)	19.7 (500)		
Tread - Center of Tire (standard tires)	Front	in (mm)	40.6 (1030)			
	Rear	in (mm)	38.6 (980)			
Minimum Turning Radius	Outside	in (mm)	88.2 (2240)	90.6 (2300)		
Minimum Right Angle Stack	Add load length & clearance	in (mm)	106.7 (2710)	109.5 (2780)		
Fork Length (standard)		in (mm)	42.0 (1070)			
Fork Width x Thickness		in (mm)	1.5 x 4 (40 x 100)	2 x 5 (50 x 125)		
Ground Clearance	Under Mast	in (mm)	5.7 (145)			
	Under Power Unit	in (mm)	6.5 (165)			
	Under Frame, center of wheelbase	in (mm)	7.3 (185)			
Gradeability Maximum	Full Load	%	30.0	28.0	26.0	22.0
	Empty	%	25.0	24.0	25.0	Not Available

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2			
				MUJ1F2A28JV/LV/DV	MUG1F2A30JV/LV/DV	MYG1F2A30V/U	MUG1F2A30U/WU
Grade Clearance		Approach Angle	%	41.0			
		Ramp Breakover Angle	%	52.0	49.0		
		Departure Angle	%	42.0	43.0		
Lifting Speed	2W	Full Load	fpm (mm/sec)	104.3 (530)		106.3 (540)	86.6 (440)
		Empty	fpm (mm/sec)	114.1 (580)			102.4 (520)
	2F	Full Load	fpm (mm/sec)	102.3 (520)		104.3 (530)	86.6 (440)
		Empty	fpm (mm/sec)	112.2 (570)			100.4 (510)
	3F	Full Load	fpm (mm/sec)	100.4 (510)		102.3 (520)	84.7 (430)
		Empty	fpm (mm/sec)	110.2 (560)			100.4 (510)
	3V	Full Load	fpm (mm/sec)	100.4 (510)		102.3 (520)	80.7 (410)
		Empty	fpm (mm/sec)	110.2 (560)			94.5 (480)
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.4 (500)			
		Empty	fpm (mm/sec)	98.4 (500)			
	2F	Full Load	fpm (mm/sec)	92.5 (470)			65.0 (330)
		Empty	fpm (mm/sec)	63.0 (320)			94.5 (480)
	3F	Full Load	fpm (mm/sec)	92.5 (470)			
		Empty	fpm (mm/sec)	70.8 (360)			72.8 (370)
	3V	Full Load	fpm (mm/sec)	92.5 (470)			43.3 (220)
		Empty	fpm (mm/sec)	70.8 (360)			51.2 (260)

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2			
				MUJ1F2A28JV/LV/DV	MUG1F2A30JV/LV/DV	MYG1F2A30V/U	MUG1F2A30U/WU
Maximum Travel Speed	Forward	mph (km/h)		11.8 (19.0)		11.5 (18.5)	11.2 (18.0)
	Reverse	mph (km/h)		11.8 (19.0)		11.5 (18.5)	11.2 (18.0)
Drawbar Pull Maximum	Full Load	lb (kg / N)		4189 (1900 / 18650)		4321 (1960 / 19221)	4608 (2090 / 20496)
Truck Weight		lb (kg)		Refer to Truck Data Plate			
Engine	Model			K25	K25	QD32	K25
	Classification			EFI		V = EFI U = Carburetor	Carburetor
	Rated Output - SAE Gross	hp (kW) @ rpm		62.9 (46.9) @ 2700		55 (41) @ 2000	53.6 (40) @ 2200
	Rated Torque - SAE Gross	ft-lb (Nm) @ rpm		138.7 (188) @ 1600		143.8 (195) @ 1800	137.2 (186) @ 1600
	Displacement	cu in (cm^3)		151.8 (2488)		192.4 (3153)	151.8 (2488)
Transmission	Type			Automatic			
	Number Speeds - fwd/rev			1/1			

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item / Model code			1F2		
			MUG1F2A35JV/LV/DV	MYG1F2A35V/U	MUG1F2A35U/WU
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate		
Load center		in (mm)	24 (600)		
Overall Length (to face of forks)		in (mm)	108.5 (2755)		
Overall Width (standard tires)		in (mm)	50.4 (1280)		
Wheelbase		in (mm)	66.9 (1700)		
Front Overhang		in (mm)	19.3 (490)		
Rear Overhang		in (mm)	22.2 (565)		
Tread - Center of Tire (standard tires)	Front	in (mm)	41.7 (1060)		
	Rear	in (mm)	38.6 (980)		
Minimum Turning Radius	Outside	in (mm)	94.1 (2390)		
Minimum Right Angle Stack	Add load length & clearance	in (mm)	113.4 (2880)		
Fork Length (standard)		in (mm)	42.0 (1070)		
Fork Width x Thickness		in (mm)	2 x 5 (50 x 125)		
Ground Clearance	Under Mast	in (mm)	5.9 (150)		
	Under Power Unit	in (mm)	6.7 (170)		
	Under Frame, center of wheelbase	in (mm)	7.5 (190)		
Gradeability Maximum	Full Load	%	23.0	21.0	19.0
	Empty	%	22.0	22.0	Not Available

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2		
				MUG1F2A35JV/LV/DV	MYG1F2A35V/U	MUG1F2A35U/WU
Grade Clearance		Approach Angle	%	51.0		
		Ramp Breakover Angle	%	51.0		
		Departure Angle	%	39.0		
Lifting Speed	2W	Full Load	fpm (mm/sec)	88.6 (450)		74.8 (380)
		Empty	fpm (mm/sec)	92.5 (470)	94.5 (480)	86.6 (440)
	2F	Full Load	fpm (mm/sec)	82.7 (420)	80.7 (410)	68.9 (350)
		Empty	fpm (mm/sec)	86.6 (440)	88.6 (450)	80.7 (410)
	3F	Full Load	fpm (mm/sec)	82.7 (420)	80.7 (410)	68.9 (350)
		Empty	fpm (mm/sec)	86.6 (440)	88.6 (450)	82.7 (420)
	3V	Full Load	fpm (mm/sec)	82.7 (420)	80.7 (410)	67.0 (340)
		Empty	fpm (mm/sec)	86.6 (440)	88.6 (450)	76.8 (390)
Lowering Speed	2W	Full Load	fpm (mm/sec)	82.7 (420)		
		Empty	fpm (mm/sec)	70.8 (360)		
	2F	Full Load	fpm (mm/sec)	76.8 (390)		51.2 (260)
		Empty	fpm (mm/sec)	59.0 (300)		74.8 (380)
	3F	Full Load	fpm (mm/sec)	76.8 (390)		
		Empty	fpm (mm/sec)	59.0 (300)		55.1 (280)
	3V	Full Load	fpm (mm/sec)	76.8 (390)		37.4 (190)
		Empty	fpm (mm/sec)	59.0 (300)		43.3 (220)

SPECIFICATIONS

MAIN TRUCK - 1F2 (PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2		
				MUG1F2A35JV/LV/DV	MYG1F2A35V/U	MUG1F2A35U/WU
Maximum Travel Speed	Forward	mph (km/h)		11.5 (18.5)		11.2 (18.0)
	Reverse	mph (km/h)		11.5 (18.5)		11.2 (18.0)
Drawbar Pull Maximum	Full Load	lb (kg / N)		4034 (1830 / 17950)	4056 (1840 / 18050)	4497 (2040 / 20005)
Truck Weight		lb (kg)		Refer to Truck Data Plate		
Engine	Model			K25	QD32	K25
	Classification			EFI	V = EFI U = Carburetor	Carburetor
	Rated Output - SAE Gross	hp (kW) @ rpm		62.9 (46.9) @ 2700	55 (41) @ 2000	53.6 (40) @ 2200
	Rated Torque - SAE Gross	ft-lb (Nm) @ rpm		138.7 (188) @ 1600	143.8 (195) @ 1800	137.2 (186) @ 1600
	Displacement	cu in (cm^3)		151.8 (2488)	192.4 (3153)	151.8 (2488)
Transmission	Type			Automatic		
	Number Speeds - fwd/rev			1/1		

SPECIFICATIONS

MAIN TRUCK - 1F1 (CUSHION) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item / Model code			1F1		
			MCP1F1A15LV/DV	MCP1F1A18LV/DV	MCP1F1A20LV/DV
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate		
Load center		in (mm)	24 (600)		
Overall Length (to face of forks)		in (mm)	81.9 (2080)	83.1 (2110)	84.4 (2145)
Overall Width (standard tires)		in (mm)	38.2 (970)		
Wheelbase		in (mm)	46.9 (1190)		
Front Overhang		in (mm)	15.4 (390)		
Rear Overhang		in (mm)	19.7 (500)	20.9 (530)	22.2 (565)
Tread - Center of Tire (standard tires)	Front	in (mm)	32.3 (820)		
	Rear	in (mm)	32.3 (820)		
Minimum Turning Radius	Outside	in (mm)	68.3 (1735)	69.5 (1765)	70.9 (1800)
Minimum Right Angle Stack	Add load length & clearance	in (mm)	83.7 (2125)	84.9 (2155)	86.3 (2190)
Fork Length (standard)		in (mm)	42.0 (1070)		
Fork Width x Thickness		in (mm)	1.5 x 4 (40 x 100)		
Ground Clearance	Under Mast	in (mm)	3.0 (75)		
	Under Power Unit	in (mm)	2.6 (65)		
	Under Frame, center of wheelbase	in (mm)	4.3 (110)		
Gradeability Maximum	Full Load	%	38.0		
	Empty	%	20.0	18.0	16.0

SPECIFICATIONS

MAIN TRUCK - 1F1 (CUSHION) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F1		
				MCP1F1A15LV/DV	MCP1F1A18LV/DV	MCP1F1A20LV/DV
Grade Clearance		Approach Angle	%	26.0		
		Ramp Breakover Angle	%	43.0		
		Departure Angle	%	35.0	30.0	28.0
Lifting Speed	2W	Full Load	fpm (mm/sec)	122.0 (620)		
		Empty	fpm (mm/sec)	127.9 (650)		
	2F	Full Load	fpm (mm/sec)	108.2 (550)		
		Empty	fpm (mm/sec)	112.2 (590)		
	3F	Full Load	fpm (mm/sec)	110.2 (560)		
		Empty	fpm (mm/sec)	127.7 (650)		
	3V	Full Load	fpm (mm/sec)	110.2 (560)		
		Empty	fpm (mm/sec)	116.1 (590)		
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.4 (500)		
		Empty	fpm (mm/sec)	98.4 (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)	67.1 (340)		
	3V	Full Load	fpm (mm/sec)	94.5 (480)		
		Empty	fpm (mm/sec)	61.0 (310)		

SPECIFICATIONS

MAIN TRUCK - 1F1 (CUSHION) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F1		
				MCP1F1A15LV/DV	MCP1F1A18LV/DV	MCP1F1A20LV/DV
Maximum Travel Speed	Forward		mph (km/h)	10.9 (17.5)		
	Reverse		mph (km/h)	10.9 (17.5)		
Drawbar Pull Maximum	Full Load		lb (kg / N)	3417 (1550 / 15200)		
Truck Weight			lb (kg)	Refer to Truck Data Plate		
Engine	Model			K21		
	Classification			EFI		
	Rated Output - SAE Gross		hp (kW) @ rpm	55 (41) @ 2700		
	Rated Torque - SAE Gross		ft-lb (Nm) @ rpm	111.4 (151) @ 2000		
	Displacement		cu in (cm^3)	126 (2065)		
Transmission	Type			Automatic		
	Number Speeds - fwd/rev			1/1		

SPECIFICATIONS

MAIN TRUCK - 1F2 (CUSHION) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item			Model code	1F2			
				MCP1F2A20JV/LV/DV	MCU1F2A20LV/DV	MCP1F2A25JV/LV/DV	MCU1F2A25LV/DV
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)		91.3 (2320)	
Overall Width (standard tires)			in (mm)	42.1 (1070)			
Wheelbase			in (mm)	55.1 (1400)			
Front Overhang			in (mm)	16.1 (410)			
Rear Overhang			in (mm)	17.7 (450)		20.1 (510)	
Tread - Center of Tire (standard tires)	Front		in (mm)	35.0 (890)			
	Rear		in (mm)	35.0 (890)			
Minimum Turning Radius	Outside		in (mm)	76.0 (1930)		78.3 (1990)	
Minimum Right Angle Stack	Add load length & clearance		in (mm)	92.1 (2340)		94.4 (2400)	
Fork Length (standard)			in (mm)	42.0 (1070)			
Fork Width x Thickness			in (mm)	1.5 x 4 (40 x 100)			
Ground Clearance	Under Mast		in (mm)	3.1 (80)			
	Under Power Unit		in (mm)	4.1 (105)			
	Under Frame, center of wheelbase		in (mm)	5.5 (140)			
Gradeability Maximum	Full Load		%	33.0	39.0	28.0	33.0
	Empty		%	21.0		16.0	

SPECIFICATIONS

MAIN TRUCK - 1F2 (CUSHION) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATION (CONT'D)

Item			Model code /	1F2			
				MCP1F2A20JV/LV/DV	MCU1F2A20LV/DV	MCP1F2A25JV/LV/DV	MCU1F2A25LV/DV
Grade Clearance		Approach Angle	%	29.0		26.0	
		Ramp Breakover Angle	%	42.0			
		Departure Angle	%	34.0		30.0	
Lifting Speed	2W	Full Load	fpm (mm/sec)	122.0 (620)	129.9 (660)	118.1 (600)	129.9 (660)
		Empty	fpm (mm/sec)	127.9 (650)	137.8 (700)	127.9 (650)	137.8 (700)
	2F	Full Load	fpm (mm/sec)	108.2 (550)	122.0 (620)	110.2 (560)	122.0 (620)
		Empty	fpm (mm/sec)	116.1 (590)	131.9 (670)	122.0 (620)	131.9 (670)
	3F	Full Load	fpm (mm/sec)	110.2 (560)	120.0 (610)	110.2 (560)	120.0 (610)
		Empty	fpm (mm/sec)	121.9 (620)	136.4 (695)	126.0 (640)	136.4 (695)
	3V	Full Load	fpm (mm/sec)	110.2 (560)	120.0 (610)	110.2 (560)	120.0 (610)
		Empty	fpm (mm/sec)	116.1 (590)	129.9 (660)	120.0 (610)	129.9 (660)
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.4 (500)			
		Empty	fpm (mm/sec)	98.4 (500)			
	2F	Full Load	fpm (mm/sec)	94.5 (480)			
		Empty	fpm (mm/sec)	61.0 (310)	59.0 (300)		
	3F	Full Load	fpm (mm/sec)	94.5 (480)			
		Empty	fpm (mm/sec)	68.1 (350)			
	3V	Full Load	fpm (mm/sec)	94.5 (480)			
		Empty	fpm (mm/sec)	64.9 (330)			

SPECIFICATIONS

MAIN TRUCK - 1F2 (CUSHION) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2			
				MCP1F2A20JV/LV/DV	MCU1F2A20LV/DV	MCP1F2A25JV/LV/DV	MCU1F2A25LV/DV
Maximum Travel Speed	Forward	mph (km/h)		10.6 (17)			
	Reverse	mph (km/h)		10.6 (17)			
Drawbar Pull Maximum	Full Load	lb (kg / N)		3638 (1650 / 16180)	4189 (1900 / 18635)	3638 (1650 / 16180)	4189 (1900 / 18635)
Truck Weight		lb (kg)		Refer to Truck Data Plate			
Engine	Model			K21	K25	K21	K25
	Classification			EFI			
	Rated Output - SAE Gross	hp (kW) @ rpm		55 (41) @ 2700	62.9 (46.9) @ 2700	55 (41) @ 2700	62.9 (46.9) @ 2700
	Rated Torque - SAE Gross	ft-lb (Nm) @ rpm		111.4 (151) @ 2000	138.7 (188) @ 1600	111.4 (151) @ 2000	138.7 (188) @ 1600
	Displacement	cu in (cm^3)		126 (2065)	151.8 (2488)	126 (2065)	151.8 (2488)
Transmission	Type			Automatic			
	Number Speeds - fwd/rev			1/1			

SPECIFICATIONS

MAIN TRUCK - 1F2 (CUSHION) BASED ON 2H330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item		Model code	1F2			
			MCP1F2A28JV/LV/DV	MCU1F2A28LV/DV	MCU1F2A30LV/DV	MCUG1F2F30LV/DV
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate			
Load center		in (mm)	24 (600)			
Overall Length (to face of forks)		in (mm)	93.9 (2385)		95.3 (2420)	96.5 (2450)
Overall Width (standard tires)		in (mm)	43.1 (1095)			43.9 (1115)
Wheelbase		in (mm)	55.1 (1400)			59.1 (1500)
Front Overhang		in (mm)	17.3 (440)		17.7 (450)	17.1 (435)
Rear Overhang		in (mm)	21.5 (545)		22.4 (570)	20.1 (510)
Tread - Center of Tire (standard tires)	Front	in (mm)	35.8 (910)			
	Rear	in (mm)	35.0 (890)			36.6 (930)
Minimum Turning Radius	Outside	in (mm)	79.5 (2020)		80.7 (2050)	80.9 (2055)
Minimum Right Angle Stack	Add load length & clearance	in (mm)	96.8 (2460)		98.4 (2500)	98.0 (2490)
Fork Length (standard)		in (mm)	42.0 (1070)			
Fork Width x Thickness		in (mm)	1.5 x 4 (40 x 100)		2 x 5 (50 x 125)	
Ground Clearance	Under Mast	in (mm)	2.8 (70)			3.1 (80)
	Under Power Unit	in (mm)	3.5 (90)			3.7 (95)
	Under Frame, center of wheelbase	in (mm)	5.5 (140)			5.7 (145)
Gradeability Maximum	Full Load	%	27.0	32.0	28.0	44.0
	Empty	%	16.0		16.0	18.0

SPECIFICATIONS

MAIN TRUCK - 1F2 (CUSHION) BASED ON 2H330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2			
				MCP1F2A28JV/LV/DV	MCU1F2A28LV/DV	MCU1F2A30LV/DV	MCUG1F2F30LV/DV
Grade Clearance		Approach Angle	%	26.0			24.0
		Ramp Breakover Angle	%	42.0			44.0
		Departure Angle	%	28.0		27.0	35.0
Lifting Speed	2H	Full Load	fpm (mm/sec)	94.5 (480)	104.3 (530)		
		Empty	fpm (mm/sec)	102.4 (520)	110.2 (560)		
	2F	Full Load	fpm (mm/sec)	92.5 (470)	102.4 (520)		
		Empty	fpm (mm/sec)	100.4 (510)	112.2 (570)		
	3F	Full Load	fpm (mm/sec)	90.6 (460)	100.4 (510)		
		Empty	fpm (mm/sec)	98.4 (500)	110.2 (560)		
	3V	Full Load	fpm (mm/sec)	90.6 (460)	100.4 (510)		
		Empty	fpm (mm/sec)	98.4 (500)	110.2 (560)		
Lowering Speed	2H	Full Load	fpm (mm/sec)	98.4 (500)			
		Empty	fpm (mm/sec)	98.4 (500)			
	2F	Full Load	fpm (mm/sec)	92.5 (470)			
		Empty	fpm (mm/sec)	63.0 (320)			
	3F	Full Load	fpm (mm/sec)	92.5 (470)			
		Empty	fpm (mm/sec)	70.9 (360)			
	3V	Full Load	fpm (mm/sec)	92.5 (470)			
		Empty	fpm (mm/sec)	70.9 (360)			

SPECIFICATIONS

MAIN TRUCK - 1F2 (CUSHION) BASED ON 2H330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2			
				MCP1F2A28JV/LV/DV	MCU1F2A28LV/DV	MCU1F2A30LV/DV	MCUG1F2F30LV/DV
Maximum Travel Speed	Forward	mph (km/h)		10.6 (17)			1ST: 6.2 (10) 2ND: 11.5 (18.5)
	Reverse	mph (km/h)		10.6 (17)			9.9 (16)
Drawbar Pull Maximum	Full Load	lb (kg / N)		3638 (1650 / 16180)	4189 (1900 / 18635)		3009 (1365 / 13385)
Truck Weight		lb (kg)		Refer to Truck Data Plate			
Engine	Model			K21	K25		
	Classification			EFI			
	Rated Output - SAE Gross	hp (kW) @ rpm		55 (41) @ 2700	62.9 (46.9) @ 2700		
	Rated Torque - SAE Gross	ft-lb (Nm) @ rpm		111.4 (151) @ 2000	138.7 (188) @ 1600		
	Displacement	cu in (cm^3)		126 (2065)	151.8 (2488)		
Transmission	Type			Automatic			
	Number Speeds - fwd/rev			1/1			2/1

SPECIFICATIONS

MAIN TRUCK - 1F2 (CUSHION) BASED ON 2H330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item		Model code	1F2			
			MCU1F2A33LV/DV	MCUG1F2F35LV/DV	MCUG1F2F36LV/DV	MCUG1F2F36LV/DV Boxcar
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate			
Load center		in (mm)	24 (600)			
Overall Length (to face of forks)		in (mm)	96.3 (2445)	98.2 (2495)	100.0 (2540)	94.4 (2400)
Overall Width (standard tires)		in (mm)	43.9 (1115)	45.9 (1165)		
Wheelbase		in (mm)	55.1 (1400)	59.1 (1500)		
Front Overhang		in (mm)	17.7 (450)	17.9 (455)		
Rear Overhang		in (mm)	23.4 (595)	21.3 (540)	23.0 (585)	17.5 (445)
Tread - Center of Tire (standard tires)	Front	in (mm)	35.8 (910)	37.0 (940)		
	Rear	in (mm)	35.0 (890)	36.6 (930)		
Minimum Turning Radius	Outside	in (mm)	81.5 (2070)	82.5 (2095)	83.9 (2130)	79.9 (2030)
Minimum Right Angle Stack	Add load length & clearance	in (mm)	99.2 (2520)	100.4 (2550)	101.8 (2585)	97.8 (2485)
Fork Length (standard)		in (mm)	42.0 (1070)			
Fork Width x Thickness		in (mm)	2 x 5 (50 x 125)			
Ground Clearance	Under Mast	in (mm)	2.8 (70)	3.1 (80)		
	Under Power Unit	in (mm)	3.5 (90)	3.7 (95)		
	Under Frame, center of wheelbase	in (mm)	5.5 (140)	5.7 (145)		
Gradeability Maximum	Full Load	%	24.0	38.0	34.0	
	Empty	%	16.0	18.0	15.0	

SPECIFICATIONS

MAIN TRUCK - 1F2 (CUSHION) BASED ON 2H330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2			
				MCU1F2A33LV/DV	MCUG1F2F35LV/DV	MCUG1F2F36LV/DV	MCUG1F2F36LV/DV Boxcar
Grade Clearance		Approach Angle	%	26.0	24.0		
		Ramp Breakover Angle	%	42.0	44.0		
		Departure Angle	%	26.0	32.0		41.0
Lifting Speed	2H	Full Load	fpm (mm/sec)	88.6 (450)			
		Empty	fpm (mm/sec)	92.5 (470)			
	2F	Full Load	fpm (mm/sec)	82.7 (420)			
		Empty	fpm (mm/sec)	86.6 (440)			
	3F	Full Load	fpm (mm/sec)	82.7 (420)			
		Empty	fpm (mm/sec)	86.6 (440)			
	3V	Full Load	fpm (mm/sec)	82.7 (420)			
		Empty	fpm (mm/sec)	86.6 (440)			
Lowering Speed	2H	Full Load	fpm (mm/sec)	82.7 (420)			
		Empty	fpm (mm/sec)	70.9 (360)			
	2F	Full Load	fpm (mm/sec)	76.8 (390)			
		Empty	fpm (mm/sec)	59.1 (300)			
	3F	Full Load	fpm (mm/sec)	76.8 (390)			
		Empty	fpm (mm/sec)	59.1 (300)			
	3V	Full Load	fpm (mm/sec)	76.8 (390)			
		Empty	fpm (mm/sec)	59.1 (300)			

SPECIFICATIONS

MAIN TRUCK - 1F2 (CUSHION) BASED ON 2H330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CONT'D)

Item			Model code	1F2			
				MCU1F2A33LV/DV	MCUG1F2F35LV/DV	MCUG1F2F36LV/DV	MCUG1F2F36LV/DV Boxcar
Maximum Travel Speed	Forward	mph (km/h)		10.6 (17)	1ST: 6.2 (10) 2ND: 11.5 (18.5)		
	Reverse	mph (km/h)		10.6 (17)	9.9 (16)		
Drawbar Pull Maximum	Full Load	lb (kg / N)		4189 (1900 / 18635)	6228 (2825 / 27705)		
Truck Weight		lb (kg)		Refer to Truck Data Plate			
Engine	Model			K25			
	Classification			EFI			
	Rated Output - SAE Gross	hp (kW) @ rpm		62.9 (46.9) @ 2700			
	Rated Torque - SAE Gross	ft-lb (Nm) @ rpm		138.7 (188) @ 1600			
	Displacement	cu in (cm^3)		151.8 (2488)			
Transmission	Type			Automatic			
	Number Speeds - fwd/rev			1/1	2/1		

SPECIFICATIONS

MAIN TRUCK - 1F1/1F2 (COMPACT PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS

Item		Model code	1F1/1F2		
			MAP1F1A15LV/DV	MAP1F1A18LV/DV	MAP1F2A25LV/DV
Rated Load Capacity		lb (kg)	Refer to Truck Data Plate		
Load center		in (mm)	24 (600)		
Overall Length (to face of forks)		in (mm)	83.9 (2130)	85.0 (2160)	92.9 (2360)
Overall Width (standard tires)		in (mm)	40.7 (1035)		46.3 (1175)
Wheelbase		in (mm)	50.8 (1290)		59.1 (1500)
Front Overhang		in (mm)	15.4 (390)		16.1 (410)
Rear Overhang		in (mm)	17.7 (450)	18.9 (480)	17.7 (450)
Tread - Center of Tire	Front	in (mm)	34.3 (870)		38.4 (975)
(standard tires)	Rear	in (mm)	34.8 (885)		36.6 (930)
Minimum Turning Radius	Outside	in (mm)	72.6 (1845)	73.8 (1875)	80.7 (2050)
Minimum Right Angle Stack	Add load length & clearance	in (mm)	88.0 (2235)	89.2 (2265)	96.8 (2460)
Fork Length (standard)		in (mm)	42.0 (1070)		
Fork Width x Thickness		in (mm)	1.5 x 4 (40 x 100)		
Ground Clearance	Under Mast	in (mm)	3.9 (100)		2.8 (70)
	Under Power Unit	in (mm)	3.7 (95)		
	Under Frame, center of wheelbase	in (mm)	5.5 (140)		5.1 (130)
Gradeability Maximum	Full Load	%	34.0	40.0	28.0
	Empty	%	28.0	26.0	21.0

SPECIFICATIONS

MAIN TRUCK - 1F1/1F2 (COMPACT PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CON'T)

Item			Model code	1F1/1F2		
				MAP1F1A15LV/DV	MAP1F1A18LV/DV	MAP1F2A25LV/DV
Grade Clearance		Approach Angle	%	36.0		25.0
		Ramp Breakover Angle	%	51.0		39.0
		Departure Angle	%	42.0	40.0	
Lifting Speed	2W	Full Load	fpm (mm/sec)	122.0 (620)		
		Empty	fpm (mm/sec)	127.9 (650)		
	2F	Full Load	fpm (mm/sec)	108.2 (550)		
		Empty	fpm (mm/sec)	112.2 (590)		
	3F	Full Load	fpm (mm/sec)	110.2 (560)		
		Empty	fpm (mm/sec)	127.7 (650)		121.9 (620)
	3V	Full Load	fpm (mm/sec)	110.2 (560)		
		Empty	fpm (mm/sec)	116.1 (590)		
Lowering Speed	2W	Full Load	fpm (mm/sec)	98.4 (500)		
		Empty	fpm (mm/sec)	98.4 (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)	67.1 (340)		64.1 (325)
	3V	Full Load	fpm (mm/sec)	94.5 (480)		
		Empty	fpm (mm/sec)	61.0 (310)		

SPECIFICATIONS

MAIN TRUCK - 1F1/1F2 (COMPACT PNEUMATIC) BASED ON 2W330 MAST, 1070MM FORKS AND MINIMUM BATTERY SPECIFICATIONS (CON'T)

Item			Model code	1F1/1F2		
				MAP1F1A15LV/DV	MAP1F1A18LV/DV	MAP1F2A25LV/DV
Maximum Travel Speed	Forward	mph (km/h)		10.6 (17)		
	Reverse	mph (km/h)		10.6 (17)		
Drawbar Pull Maximum	Full Load	lb (kg / N)		3748 (1700 / 16670)		
Truck Weight		lb (kg)		Refer to Truck Data Plate		
Engine	Model			K21		
	Classification			EFI		
	Rated Output - SAE Gross	hp (kW) @ rpm		55 (41) @ 2700		
	Rated Torque - SAE Gross	ft-lb (Nm) @ rpm		111.4 (151) @ 2000		
	Displacement	cu in (cm^3)		126 (2065)		
Transmission	Type			Automatic		
	Number Speeds - fwd/rev			1/1		

SPECIFICATIONS

MAST - 1F1 (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 (155)	6/12	83.3 (2115)	72.6 (1845)	155.7 (3955)	130.0 (3303)
	2W300	118 (3000)	6.2 (155)	6/12	83.3 (2115)	78.5 (1995)	167.5 (4255)	141.8 (3603)
	2W330	130 (3300)	6.2 (155)	6/12	83.3 (2115)	84.4 (2145)	179.3 (4555)	153.6 (3903)
	2W350	138 (3500)	6.2 (155)	6/12	83.3 (2115)	89.8 (2285)	187.2 (4755)	161.5 (4103)
	2W370	146 (3700)	6.2 (155)	6/12	83.3 (2115)	94.7 (2405)	195.1 (4955)	169.4 (4303)
	2W400	157 (4000)	6.2 (155)	6/6	83.3 (2115)	102.2 (2600)	206.9 (5255)	181.2 (4603)
	2W450	177 (4500)	6.2 (155)	6/6	83.3 (2115)	112.0 (2845)	226.6 (5755)	200.9 (5103)
	2W500	197 (5000)	6.2 (155)	6/6	83.3 (2115)	121.9 (3100)	246.3 (6255)	220.6 (5603)
TWO STAGE (Full Free 2F)	2F300	118 (3000)	53.6 (1360)	6/12	83.3 (2115)	78.5 (1995)	Not Available	
	2F330	130 (3300)	59.5 (1510)	6/12	83.3 (2115)	84.4 (2145)	Not Available	
	2F350	138 (3500)	64.8 (1645)	6/12	83.3 (2115)	89.8 (2285)	Not Available	
	2F370	146 (3700)	69.8 (1770)	6/12	83.3 (2115)	94.7 (2405)	Not Available	
	2F400	157 (4000)	77.2 (1960)	6/6	83.3 (2115)	102.2 (2600)	Not Available	

SPECIFICATIONS

MAST - 1F1 (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)	47.0 (1190)	6/6	83.3 (2115)	72.6 (1845)	Not Available	
	3F430	169 (4300)	52.9 (1340)	6/6	83.3 (2115)	78.5 (1995)	Not Available	
	3F475	187 (4750)	58.8 (1490)	6/6	83.3 (2115)	84.4 (2145)	Not Available	
	3F515	203 (5150)	64.1 (1625)	6/6	83.3 (2115)	89.8 (2285)	Not Available	
	3F550	217 (5500)	69.0 (1750)	6/6	83.3 (2115)	94.7 (2405)	Not Available	
	3F600	236 (6000)	76.5 (1940)	6/6	83.3 (2115)	102.2 (2600)	Not Available	
	3F650	256 (6500)	86.3 (2190)	6/6	83.3 (2115)	112.0 (2845)	Not Available	
	3F700	276 (7000)	96.2 (2440)	6/6	83.3 (2115)	121.9 (3100)	Not Available	
THREE STAGE (Optiview 3V)	3V360	142 (3600)	48.4 (1225)	6/6	83.3 (2115)	72.6 (1845)	Not Available	
	3V405	159 (4050)	54.3 (1375)	6/6	83.3 (2115)	78.5 (1995)	Not Available	
	3V450	177 (4500)	60.2 (1525)	6/6	83.3 (2115)	84.4 (2145)	Not Available	
	3V490	193 (4900)	65.5 (1660)	6/6	83.3 (2115)	89.8 (2285)	Not Available	
	3V525	207 (5250)	70.4 (1785)	6/6	83.3 (2115)	94.7 (2405)	Not Available	
	3V575	226 (5750)	77.9 (1975)	6/6	83.3 (2115)	102.2 (2600)	Not Available	
	3V633	249 (6330)	87.8 (2230)	6/6	83.3 (2115)	112.0 (2845)	Not Available	
	3V688	271 (6880)	97.6 (2475)	6/6	83.3 (2115)	121.9 (3100)	Not Available	

SPECIFICATIONS

MAST - 1F2 2.0 - 2.5 TON (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)	6.1 (155)	6/12	83.5 (2120)	72.6 (1845)	155.7 (3955)	130.6 (3319)
	2W300	118 (3000)	6.1 (155)	6/12	83.5 (2120)	78.5 (1995)	167.5 (4255)	142.5 (3619)
	2W330	130 (3300)	6.1 (155)	6/12	83.5 (2120)	84.4 (2145)	179.3 (4555)	154.3 (3919)
	2W350	138 (3500)	6.1 (155)	6/12	83.5 (2120)	89.8 (2285)	187.2 (4755)	162.1 (4119)
	2W370	146 (3700)	6.1 (155)	6/12	83.5 (2120)	94.7 (2405)	195.1 (4955)	170.0 (4319)
	2W400	157 (4000)	6.1 (155)	6/6	83.5 (2120)	102.2 (2600)	206.9 (5255)	181.8 (4619)
	2W450	177 (4500)	6.1 (155)	6/6	83.5 (2120)	112.0 (2845)	226.6 (5755)	201.5 (5119)
	2W500	197 (5000)	6.1 (155)	6/6	83.5 (2120)	121.9 (3100)	246.3 (6255)	221.2 (5619)
TWO STAGE (Full Free 2F)	2F300	118 (3000)	53.5 (1355)	6/12	83.5 (2120)	78.5 (1995)	Not Available	
	2F330	130 (3300)	59.4 (1505)	6/12	83.5 (2120)	84.4 (2145)	Not Available	
	2F350	138 (3500)	64.7 (1640)	6/12	83.5 (2120)	89.8 (2285)	Not Available	
	2F370	146 (3700)	69.6 (1765)	6/12	83.5 (2120)	94.7 (2405)	Not Available	
	2F400	157 (4000)	77.1 (1955)	6/6	83.5 (2120)	102.2 (2600)	Not Available	

SPECIFICATIONS

MAST - 1F2 2.0 - 2.5 TON (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)	47.2 (1195)	6/6	83.5 (2120)	72.6 (1845)	Not Available	
	3F430	169 (4300)	53.1 (1345)	6/6	83.5 (2120)	78.5 (1995)	Not Available	
	3F475	187 (4750)	59.0 (1495)	6/6	83.5 (2120)	84.4 (2145)	Not Available	
	3F515	203 (5150)	64.3 (1630)	6/6	83.5 (2120)	89.8 (2285)	Not Available	
	3F550	217 (5500)	69.2 (1755)	6/6	83.5 (2120)	94.7 (2405)	Not Available	
	3F600	236 (6000)	76.7 (1945)	6/6	83.5 (2120)	102.2 (2600)	Not Available	
	3F650	256 (6500)	86.5 (2195)	6/6	83.5 (2120)	112.0 (2845)	Not Available	
	3F700	276 (7000)	96.4 (2445)	6/6	83.5 (2120)	121.9 (3100)	Not Available	
THREE STAGE (Optiview 3V)	3V360	142 (3600)	47.2 (1195)	6/6	83.5 (2120)	72.8 (1850)	Not Available	
	3V405	159 (4050)	53.1 (1345)	6/6	83.5 (2120)	78.7 (2000)	Not Available	
	3V450	177 (4500)	59.0 (1495)	6/6	83.5 (2120)	84.6 (2150)	Not Available	
	3V490	193 (4900)	64.3 (1630)	6/6	83.5 (2120)	90.0 (2290)	Not Available	
	3V525	207 (5250)	69.2 (1755)	6/6	83.5 (2120)	94.9 (2410)	Not Available	
	3V575	226 (5750)	76.7 (1945)	6/6	83.5 (2120)	102.4 (2605)	Not Available	
	3V633	249 (6330)	86.5 (2195)	6/6	83.5 (2120)	112.2 (2850)	Not Available	
	3V688	271 (6880)	96.4 (2445)	6/6	83.5 (2120)	122.0 (3100)	Not Available	

SPECIFICATIONS

MAST - 1F2 2.8 TON (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)	6.1 (150)	6/12	84.6 (2150)	73.8 (1875)	155.7 (3955)	130.6 (3319)
	2W300	118 (3000)	6.1 (150)	6/12	84.6 (2150)	79.7 (2025)	167.5 (4255)	142.5 (3619)
	2W330	130 (3300)	6.1 (150)	6/12	84.6 (2150)	85.6 (2175)	179.3 (4555)	154.3 (3919)
	2W350	138 (3500)	6.1 (150)	6/12	84.6 (2150)	90.9 (2310)	187.2 (4755)	162.1 (4119)
	2W370	146 (3700)	6.1 (150)	6/12	84.6 (2150)	95.9 (2440)	195.1 (4955)	170.0 (4319)
	2W400	157 (4000)	6.1 (150)	6/6	84.6 (2150)	103.3 (2625)	206.9 (5255)	181.8 (4619)
	2W450	177 (4500)	6.1 (150)	6/6	84.6 (2150)	113.2 (2875)	226.6 (5755)	201.5 (5119)
	2W500	197 (5000)	6.1 (150)	6/6	84.6 (2150)	123.0 (3125)	246.3 (6255)	221.2 (5619)
TWO STAGE (Full Free 2F)	2F300	118 (3000)	53.8 (1365)	6/12	84.6 (2150)	79.7 (2025)	Not Available	
	2F330	130 (3300)	59.7 (1515)	6/12	84.6 (2150)	85.6 (2175)	Not Available	
	2F350	138 (3500)	65.1 (1650)	6/12	84.6 (2150)	90.9 (2310)	Not Available	
	2F370	146 (3700)	70.0 (1775)	6/12	84.6 (2150)	95.9 (2440)	Not Available	
	2F400	157 (4000)	77.5 (1965)	6/6	84.6 (2150)	103.3 (2625)	Not Available	

SPECIFICATIONS

MAST - 1F2 2.8 TON (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)	55.7 (1410)	6/6	84.6 (2150)	79.7 (2025)	Not Available	
	3F430	169 (4300)	61.6 (1560)	6/6	84.6 (2150)	85.6 (2175)	Not Available	
	3F475	187 (4750)	66.9 (1695)	6/6	84.6 (2150)	90.9 (2310)	Not Available	
	3F515	203 (5150)	71.8 (1820)	6/6	84.6 (2150)	95.9 (2440)	Not Available	
	3F550	217 (5500)	79.3 (2010)	6/6	84.6 (2150)	103.3 (2625)	Not Available	
	3F600	236 (6000)	89.1 (2260)	6/6	84.6 (2150)	113.2 (2875)	Not Available	
	3F650	256 (6500)	99.0 (2510)	6/6	84.6 (2150)	123.0 (3125)	Not Available	
	3F700	276 (7000)	108.8 (2760)	6/6	84.6 (2150)	132.9 (3380)	Not Available	
THREE STAGE (Optiview 3V)	3V385	152 (3850)	55.7 (1410)	6/6	84.6 (2150)	79.7 (2025)	Not Available	
	3V430	169 (4300)	61.6 (1560)	6/6	84.6 (2150)	85.6 (2175)	Not Available	
	3V470	185 (4700)	66.9 (1695)	6/6	84.6 (2150)	90.9 (2310)	Not Available	
	3V505	199 (5050)	71.8 (1820)	6/6	84.6 (2150)	95.9 (2440)	Not Available	
	3V555	219 (5550)	79.3 (2010)	6/6	84.6 (2150)	103.3 (2625)	Not Available	
	3V600	236 (6000)	89.1 (2260)	6/6	84.6 (2150)	113.2 (2875)	Not Available	
	3V650	256 (6500)	99.0 (2510)	6/6	84.6 (2150)	123.0 (3125)	Not Available	
	3V700	276 (7000)	108.8 (2760)	6/6	84.6 (2150)	132.9 (3380)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.0 TON (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)	6.5 (165)	6/12	84.6 (2150)	73.8 (1875)	155.8 (3958)	130.6 (3319)
	2W300	118 (3000)	6.5 (165)	6/12	84.6 (2150)	79.7 (2028)	167.6 (4258)	142.4 (3617)
	2W330	130 (3300)	6.5 (165)	6/12	84.6 (2150)	85.6 (2175)	179.4 (4558)	154.2 (3917)
	2W350	138 (3500)	6.5 (165)	6/12	84.6 (2150)	90.9 (2310)	187.3 (4758)	162.1 (4117)
	2W370	146 (3700)	6.5 (165)	6/12	84.6 (2150)	95.9 (2440)	195.2 (4958)	169.9 (4317)
	2W400	157 (4000)	6.5 (165)	6/6	84.6 (2150)	103.3 (2625)	207.0 (5258)	181.8 (4617)
	2W450	177 (4500)	6.5 (165)	6/6	84.6 (2150)	113.2 (2880)	226.7 (5758)	201.4 (5117)
	2W500	197 (5000)	6.5 (165)	6/6	84.6 (2150)	123.0 (3125)	246.4 (6258)	221.1 (5617)
TWO STAGE (Full Free 2F)	2F300	118 (3000)	53.4 (1355)	6/12	84.6 (2150)	79.7 (2025)	Not Available	
	2F330	130 (3300)	59.3 (1505)	6/12	84.6 (2150)	85.6 (2175)	Not Available	
	2F350	138 (3500)	64.6 (1635)	6/12	84.6 (2150)	90.9 (2310)	Not Available	
	2F370	146 (3700)	70.0 (1775)	6/12	84.6 (2150)	95.9 (2440)	Not Available	
	2F400	157 (4000)	77.0 (1955)	6/6	84.6 (2150)	103.3 (2625)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.0 TON (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)	54.8 (1390)	6/6	84.6 (2150)	79.7 (2028)	Not Available	
	3F430	169 (4300)	60.7 (1540)	6/6	84.6 (2150)	85.6 (2175)	Not Available	
	3F475	187 (4750)	66.0 (1675)	6/6	84.6 (2150)	90.9 (2310)	Not Available	
	3F515	203 (5150)	70.9 (1800)	6/6	84.6 (2150)	95.9 (2440)	Not Available	
	3F550	217 (5500)	78.4 (1990)	6/6	84.6 (2150)	103.3 (2625)	Not Available	
	3F600	236 (6000)	88.2 (2240)	6/6	84.6 (2150)	113.2 (2880)	Not Available	
	3F650	256 (6500)	98.1 (2490)	6/6	84.6 (2150)	123.0 (3125)	Not Available	
	3F700	276 (7000)	107.9 (2740)	6/6	84.6 (2150)	132.9 (3380)	Not Available	
THREE STAGE (Optiview 3V)	3V385	152 (3850)	54.8 (1390)	6/6	84.6 (2150)	79.7 (2028)	Not Available	
	3V430	169 (4300)	60.7 (1540)	6/6	84.6 (2150)	85.6 (2175)	Not Available	
	3V470	185 (4700)	66.0 (1675)	6/6	84.6 (2150)	90.9 (2310)	Not Available	
	3V505	199 (5050)	70.9 (1800)	6/6	84.6 (2150)	95.9 (2440)	Not Available	
	3V555	219 (5550)	78.4 (1990)	6/6	84.6 (2150)	103.3 (2625)	Not Available	
	3V600	236 (6000)	88.2 (2240)	6/6	84.6 (2150)	113.2 (2880)	Not Available	
	3V650	256 (6500)	98.1 (2490)	6/6	84.6 (2150)	123.0 (3125)	Not Available	
	3V700	276 (7000)	107.9 (2740)	6/6	84.6 (2150)	132.9 (3380)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.5 TON (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)	2W300	118 (3000)	6.5 (165)	6/12	84.8 (2155)	85.8 (2180)	167.6 (4258)	147.3 (3742)
	2W330	130 (3300)	6.5 (165)	6/12	84.8 (2155)	91.1 (2315)	179.4 (4558)	159.1 (4042)
	2W350	138 (3500)	6.5 (165)	6/12	84.8 (2155)	96.1 (2445)	187.3 (4758)	167.0 (4242)
	2W370	146 (3700)	6.5 (165)	6/12	84.8 (2155)	103.5 (2630)	195.2 (4958)	174.9 (4442)
	2W400	157 (4000)	6.5 (165)	6/6	84.8 (2155)	113.4 (2885)	207.0 (5258)	186.7 (4742)
	2W450	177 (4500)	6.5 (165)	6/6	84.8 (2155)	123.2 (3130)	226.7 (5758)	206.4 (5242)
	2W500	197 (5000)	6.5 (165)	6/6	84.8 (2155)	133.1 (3385)	246.4 (6258)	226.1 (5742)
TWO STAGE (Full Free 2F)	2F300	118 (3000)	57.0 (1445)	6/12	84.8 (2155)	85.8 (2180)	Not Available	
	2F330	130 (3300)	62.0 (1570)	6/12	84.8 (2155)	91.1 (2315)	Not Available	
	2F350	138 (3500)	67.0 (1700)	6/12	84.8 (2155)	96.1 (2445)	Not Available	
	2F370	146 (3700)	74.0 (1875)	6/12	84.8 (2155)	103.5 (2630)	Not Available	
	2F400	157 (4000)	84.0 (2130)	6/6	84.8 (2155)	113.4 (2885)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.5 TON (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)	3F355	140 (3550)	43.5 (1100)	6/6	84.8 (2155)	74.2 (1885)	Not Available	
	3F400	157 (4000)	49.4 (1250)	6/6	84.8 (2155)	80.1 (2035)	Not Available	
	3F445	175 (4450)	55.4 (1405)	6/6	84.8 (2155)	86.0 (2185)	Not Available	
	3F485	191 (4850)	60.7 (1540)	6/6	84.8 (2155)	91.3 (2320)	Not Available	
	3F520	205 (5200)	65.6 (1665)	6/6	84.8 (2155)	96.3 (2450)	Not Available	
	3F570	224 (5700)	73.1 (1855)	6/6	84.8 (2155)	103.7 (2635)	Not Available	
	3F620	244 (6200)	82.9 (2105)	6/6	84.8 (2155)	113.6 (2890)	Not Available	
	3F670	264 (6700)	92.8 (2355)	6/6	84.8 (2155)	123.4 (3135)	Not Available	
THREE STAGE (Optiview 3V)	3V385	152 (3850)	49.4 (1250)	6/6	84.8 (2155)	80.1 (2035)	Not Available	
	3V430	169 (4300)	55.4 (1405)	6/6	84.8 (2155)	86.0 (2185)	Not Available	
	3V470	185 (4700)	60.7 (1540)	6/6	84.8 (2155)	91.3 (2320)	Not Available	
	3V505	199 (5050)	65.6 (1665)	6/6	84.8 (2155)	96.3 (2450)	Not Available	
	3V555	219 (5550)	73.1 (1855)	6/6	84.8 (2155)	103.7 (2635)	Not Available	
	3V600	236 (6000)	82.9 (2105)	6/6	84.8 (2155)	113.6 (2890)	Not Available	
	3V650	256 (6500)	92.8 (2355)	6/6	84.8 (2155)	123.4 (3135)	Not Available	
	3V700	276 (7000)	102.6 (2605)	6/6	84.8 (2155)	133.3 (3390)	Not Available	

SPECIFICATIONS

MAST - 1F1 (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)	4.0 (100)	10/5	81.1 (2060)	62.1 (1580)	Not Available	
	2W270	106 (2700)	4.0 (100)	5/5	81.1 (2060)	71.1 (1810)	155.7 (3955)	130.0 (3303)
	2W300	118 (3000)	4.0 (100)	5/10	81.1 (2060)	77.0 (1960)	167.5 (4255)	141.8 (3603)
	2W330	130 (3300)	4.0 (100)	5/10	81.1 (2060)	82.9 (2110	179.3 (4555)	153.6 (3903)
	2W350	138 (3500)	4.0 (100)	5/10	81.1 (2060)	88.2 (2245)	187.2 (4755)	161.5 (4103)
	2W370	146 (3700)	4.0 (100)	5/10	81.1 (2060)	93.1 (2365)	195.1 (4955)	169.4 (4303)
	2W400	157 (4000)	4.0 (100)	5/10	81.1 (2060)	100.6 (2560)	206.9 (5255)	181.2 (4603)
	2W450	177 (4500)	4.0 (100)	5/5	81.1 (2060)	110.5 (2810)	226.6 (5755)	200.9 (5103)
	2W500	197 (5000)	4.0 (100)	5/5	81.1 (2060)	120.3 (3060)	246.3 (6255)	220.6 (5603)
TWO STAGE (Full Free 2F)	2F270	105.5 (2700)	47.4 (1200)	5/10	81.1 (2060)	72.0 (1830)	Not Available	
	2F300	117.5 (3000)	53.4 (1355)	5/10	81.1 (2060)	78.0 (1985)	Not Available	
	2F330	129.5 (3300)	59.4 (1505)	5/10	81.1 (2060)	84.0 (2135)	Not Available	
	2F350	137.5 (3500)	63.4 (1610)	5/10	81.1 (2060)	88.0 (2235)	Not Available	
	2F370	145.5 (3700)	67.4 (1710)	5/10	81.1 (2060)	92.0 (2340)	Not Available	
	2F400	157.5 (4000)	73.4 (1860)	5/10	81.1 (2060)	98.0 (2490)	Not Available	

SPECIFICATIONS

MAST - 1F1 (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)	46.9 (1190)	5/5	81.1 (2060)	71.1 (1810)	Not Available	
	3F430	169 (4300)	52.8 (1340)	5/5	81.1 (2060)	77.0 (1960)	Not Available	
	3F475	187 (4750)	58.7 (1490)	5/5	81.1 (2060)	82.9 (2110)	Not Available	
	3F515	203 (5150)	64.0 (1625)	5/5	81.1 (2060)	88.2 (2245)	Not Available	
	3F550	217 (5500)	68.9 (1750)	5/5	81.1 (2060)	93.1 (2365)	Not Available	
	3F600	236 (6000)	76.4 (1940)	5/5	81.1 (2060)	100.6 (2560)	Not Available	
	3F650	256 (6500)	86.2 (2185)	5/5	81.1 (2060)	110.5 (2810)	Not Available	
THREE STAGE (Optiview 3V)	3V360	142 (3600)	47.6 (1205)	5/5	81.1 (2060)	71.1 (1810)	Not Available	
	3V405	159 (4050)	53.5 (1355)	5/5	81.1 (2060)	77.0 (1960)	Not Available	
	3V450	177 (4500)	59.4 (1505)	5/5	81.1 (2060)	82.9 (2110)	Not Available	
	3V490	193 (4900)	64.8 (1645)	5/5	81.1 (2060)	88.2 (2245)	Not Available	
	3V525	207 (5250)	69.7 (1770)	5/5	81.1 (2060)	93.1 (2365)	Not Available	
	3V575	226 (5750)	77.2 (1960)	5/5	81.1 (2060)	100.6 (2560)	Not Available	
	3V633	249 (6330)	87.0 (2205)	5/5	81.1 (2060)	110.5 (2810)	Not Available	

SPECIFICATIONS

MAST - 1F2 2.0 - 2.5 TON (CUSION)

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)	4.0 (100)	10/5	82.1 (2085)	62.1 (1580)	Not Available	
	2W270	106 (2700)	4.2 (105)	5/5	82.1 (2085)	71.3 (1815)	155.7 (3955)	130.0 (3303)
	2W300	118 (3000)	4.2 (105)	5/5	82.1 (2085)	77.2 (1965)	167.5 (4255)	141.8 (3603)
	2W330	130 (3300)	4.2 (105)	5/10	82.1 (2085)	83.1 (2115)	179.3 (4555)	153.6 (3903)
	2W350	138 (3500)	4.2 (105)	5/10	82.1 (2085)	88.4 (2250)	187.2 (4755)	161.5 (4103)
	2W370	146 (3700)	4.2 (105)	5/5	82.1 (2085)	93.3 (2370)	195.1 (4955)	169.4 (4303)
	2W400	157 (4000)	4.2 (105)	5/10	82.1 (2085)	100.8 (2565)	206.9 (5255)	181.2 (4603)
	2W450	177 (4500)	4.2 (105)	5/5	82.1 (2085)	110.6 (2810)	226.6 (5755)	200.9 (5103)
	2W500	197 (5000)	4.2 (105)	5/5	82.1 (2085)	120.5 (3065)	246.3 (6255)	220.6 (5603)
TWO STAGE (Full Free 2F)	2F270	105.5 (2700)	47.4 (1200)	5/10	82.1 (2085)	72.0 (1830)	Not Available	
	2F300	117.5 (3000)	53.4 (1355)	5/10	82.1 (2085)	78.0 (1985)	Not Available	
	2F330	129.5 (3300)	59.4 (1505)	5/10	82.1 (2085)	84.0 (2135)	Not Available	
	2F350	137.5 (3500)	63.4 (1610)	5/10	82.1 (2085)	88.0 (2235)	Not Available	
	2F370	145.5 (3700)	67.4 (1710)	5/10	82.1 (2085)	92.0 (2340)	Not Available	
	2F400	157.5 (4000)	73.4 (1860)	5/10	82.1 (2085)	98.0 (2490)	Not Available	

SPECIFICATIONS

MAST - 1F2 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)	46.9 (1190)	5/5	82.1 (2085)	71.3 (1815)	Not Available	
	3F430	169 (4300)	52.8 (1340)	5/5	82.1 (2085)	77.2 (1965)	Not Available	
	3F475	187 (4750)	58.7 (1490)	5/5	82.1 (2085)	83.1 (2115)	Not Available	
	3F515	203 (5150)	64.0 (1625)	5/5	82.1 (2085)	88.4 (2250)	Not Available	
	3F550	217 (5500)	68.9 (1750)	5/5	82.1 (2085)	93.3 (2370)	Not Available	
	3F600	236 (6000)	76.4 (1940)	5/5	82.1 (2085)	100.8 (2565)	Not Available	
	3F650	256 (6500)	86.2 (2185)	5/5	82.1 (2085)	110.6 (2810)	Not Available	
	3F700	276 (7000)	96.1 (2440)	5/5	82.1 (2085)	120.5 (3065)	Not Available	
THREE STAGE (Optiview 3V)	3V360	142 (3600)	47.8 (1210)	5/5	82.1 (2085)	71.3 (1815)	Not Available	
	3V405	159 (4050)	53.7 (1360)	5/5	82.1 (2085)	77.2 (1965)	Not Available	
	3V450	177 (4500)	59.6 (1510)	5/5	82.1 (2085)	83.1 (2115)	Not Available	
	3V490	193 (4900)	64.9 (1645)	5/5	82.1 (2085)	88.4 (2250)	Not Available	
	3V525	207 (5250)	69.8 (1770)	5/5	82.1 (2085)	93.3 (2370)	Not Available	
	3V575	226 (5750)	77.3 (1960)	5/5	82.1 (2085)	100.8 (2565)	Not Available	
	3V633	249 (6330)	87.2 (2210)	5/5	82.1 (2085)	110.6 (2810)	Not Available	
	3V688	271 (6880)	97.0 (2460)	5/5	82.1 (2085)	120.5 (3065)	Not Available	

SPECIFICATIONS

MAST - 1F2 2.8 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 2H)	2H270	106 (2700)	6.7 (170)	5/10	82.1 (2085)	70.9 (1805)	Not Available	
	2H300	118 (3000)	6.7 (170)	5/10	82.1 (2085)	76.8 (1955)	Not Available	
	2H330	130 (3300)	6.7 (170)	5/10	82.1 (2085)	82.7 (2105)	Not Available	
	2H350	138 (3500)	6.7 (170)	5/10	82.1 (2085)	88.0 (2235)	Not Available	
	2H370	146 (3700)	10.2 (255)	5/10	82.1 (2085)	92.9 (2360)	Not Available	
	2H400	157 (4000)	10.2 (255)	5/10	82.1 (2085)	100.4 (2550)	Not Available	
	2H450	177 (4500)	10.2 (255)	5/5	82.1 (2085)	110.2 (2800)	Not Available	
	2H500	197 (5000)	10.2 (255)	5/5	82.1 (2085)	120.1 (3055)	Not Available	
TWO STAGE (Full Free 2F)	2F270	105.5 (2700)	45.3 (1150)	5/10	82.1 (2085)	71.7 (1825)	Not Available	
	2F300	117.5 (3000)	51.3 (1300)	5/10	82.1 (2085)	77.7 (1975)	Not Available	
	2F330	129.5 (3300)	57.3 (1455)	5/10	82.1 (2085)	83.7 (2130)	Not Available	
	2F350	137.5 (3500)	61.3 (1555)	5/10	82.1 (2085)	87.7 (2230)	Not Available	
	2F370	145.5 (3700)	65.3 (1655)	5/10	82.1 (2085)	91.7 (2330)	Not Available	
	2F400	157.5 (4000)	71.3 (1810)	5/10	82.1 (2085)	97.7 (2485)	Not Available	

SPECIFICATIONS

MAST - 1F2 2.8 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)	56.1 (1420)	5/5	82.1 (2085)	76.7 (1950)	Not Available	
	3F430	169 (4300)	62.0 (1570)	5/5	82.1 (2085)	82.6 (2100)	Not Available	
	3F475	187 (4750)	67.3 (1705)	5/5	82.1 (2085)	87.9 (2235)	Not Available	
	3F515	203 (5150)	72.2 (1830)	5/5	82.1 (2085)	92.8 (2360)	Not Available	
	3F550	217 (5500)	79.7 (2020)	5/5	82.1 (2085)	100.3 (2550)	Not Available	
	3F600	236 (6000)	89.6 (2275)	5/5	82.1 (2085)	110.1 (2800)	Not Available	
	3F650	256 (6500)	99.4 (2520)	5/5	82.1 (2085)	120.0 (3050)	Not Available	
	3F700	276 (7000)	109.3 (2775)	5/5	82.1 (2085)	129.8 (3300)	Not Available	
THREE STAGE (Optiview 3V)	3V385	152 (3850)	49.4 (1250)	5/5	82.1 (2085)	76.9 (1955)	Not Available	
	3V430	169 (4300)	55.3 (1400)	5/5	82.1 (2085)	82.8 (2105)	Not Available	
	3V470	185 (4700)	61.2 (1550)	5/5	82.1 (2085)	88.1 (2240)	Not Available	
	3V505	199 (5050)	66.5 (1685)	5/5	82.1 (2085)	93.0 (2365)	Not Available	
	3V555	219 (5550)	71.5 (1815)	5/5	82.1 (2085)	100.5 (2555)	Not Available	
	3V600	236 (6000)	78.9 (2000)	5/5	82.1 (2085)	110.3 (2805)	Not Available	
	3V650	256 (6500)	88.8 (2255)	5/5	82.1 (2085)	120.2 (3055)	Not Available	
	3V700	276 (7000)	98.6 (2500)	5/5	82.1 (2085)	130.0 (3305)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.0 TON STANDARD WHEELBASE (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 2H)	2H270	106 (2700)	7.1 (180)	5/10	82.1 (2085)	70.9 (1805)	Not Available	
	2H300	118 (3000)	7.1 (180)	5/10	82.1 (2085)	76.8 (1955)	Not Available	
	2H330	130 (3300)	7.1 (180)	5/10	82.1 (2085)	82.7 (2105)	Not Available	
	2H350	138 (3500)	7.1 (180)	5/10	82.1 (2085)	88.0 (2235)	Not Available	
	2H370	146 (3700)	10.6 (265)	5/10	82.1 (2085)	92.9 (2360)	Not Available	
	2H400	157 (4000)	10.6 (265)	5/10	82.1 (2085)	100.4 (2550)	Not Available	
	2H450	177 (4500)	10.6 (265)	5/5	82.1 (2085)	110.2 (2800)	Not Available	
	2H500	197 (5000)	10.6 (265)	5/5	82.1 (2085)	120.1 (3055)	Not Available	
TWO STAGE (Full Free 2F)	2F270	105.5 (2700)	45.7 (1160)	5/10	82.1 (2085)	71.7 (1825)	Not Available	
	2F300	117.5 (3000)	51.7 (1310)	5/10	82.1 (2085)	77.7 (1975)	Not Available	
	2F330	129.5 (3300)	57.7 (1465)	5/10	82.1 (2085)	83.7 (2130)	Not Available	
	2F350	137.5 (3500)	61.7 (1565)	5/10	82.1 (2085)	87.7 (2230)	Not Available	
	2F370	145.5 (3700)	65.7 (1665)	5/10	82.1 (2085)	91.7 (2330)	Not Available	
	2F400	157.5 (4000)	71.7 (1820)	5/10	82.1 (2085)	97.7 (2485)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.0 TON STANDARD WHEELBASE (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)	56.1 (1420)	5/5	82.1 (2085)	76.7 (1950)	Not Available	
	3F430	169 (4300)	62.0 (1570)	5/5	82.1 (2085)	82.6 (2100)	Not Available	
	3F475	187 (4750)	67.3 (1705)	5/5	82.1 (2085)	87.9 (2235)	Not Available	
	3F515	203 (5150)	72.2 (1830)	5/5	82.1 (2085)	92.8 (2360)	Not Available	
	3F550	217 (5500)	79.7 (2020)	5/5	82.1 (2085)	100.3 (2550)	Not Available	
	3F600	236 (6000)	89.6 (2275)	5/5	82.1 (2085)	110.1 (2800)	Not Available	
	3F650	256 (6500)	99.4 (2520)	5/5	82.1 (2085)	120.0 (3050)	Not Available	
	3F700	276 (7000)	109.3 (2775)	5/5	82.1 (2085)	129.8 (3300)	Not Available	
THREE STAGE (Optiview 3V)	3V385	152 (3850)	49.4 (1250)	5/5	82.1 (2085)	76.9 (1955)	Not Available	
	3V430	169 (4300)	55.3 (1400)	5/5	82.1 (2085)	82.8 (2105)	Not Available	
	3V470	187 (4750)	61.2 (1550)	5/5	82.1 (2085)	88.1 (2240)	Not Available	
	3V505	203 (5150)	66.5 (1685)	5/5	82.1 (2085)	93.0 (2365)	Not Available	
	3V555	217 (5500)	71.5 (1815)	5/5	82.1 (2085)	100.5 (2555)	Not Available	
	3V600	236 (6000)	78.9 (2000)	5/5	82.1 (2085)	110.3 (2805)	Not Available	
	3V650	256 (6500)	88.8 (2255)	5/5	82.1 (2085)	120.2 (3055)	Not Available	
	3V700	276 (7000)	98.6 (2500)	5/5	82.1 (2085)	130.0 (3305)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.0 TON LONG WHEELBASE (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 2H)	2H270	106 (2700)	7.1 (180)	5/10	82.1 (2085)	71.3 (1815)	Not Available	
	2H300	118 (3000)	7.1 (180)	5/10	82.1 (2085)	77.2 (1965)	Not Available	
	2H330	130 (3300)	7.1 (180)	5/10	82.1 (2085)	83.1 (2115)	Not Available	
	2H350	138 (3500)	7.1 (180)	5/10	82.1 (2085)	88.4 (2250)	Not Available	
	2H370	146 (3700)	10.6 (265)	5/10	82.1 (2085)	93.3 (2370)	Not Available	
	2H400	157 (4000)	10.6 (265)	5/10	82.1 (2085)	100.8 (2560)	Not Available	
	2H450	177 (4500)	10.6 (265)	5/5	82.1 (2085)	110.6 (2810)	Not Available	
	2H500	197 (5000)	10.6 (265)	5/5	82.1 (2085)	120.5 (3065)	Not Available	
TWO STAGE (Full Free 2F)	2F270	105.5 (2700)	45.7 (1160)	5/10	82.1 (2085)	72.0 (1830)	Not Available	
	2F300	117.5 (3000)	51.7 (1310)	5/10	82.1 (2085)	78.0 (1985)	Not Available	
	2F330	129.5 (3300)	57.7 (1465)	5/10	82.1 (2085)	84.0 (2135)	Not Available	
	2F350	137.5 (3500)	61.7 (1565)	5/10	82.1 (2085)	88.0 (2235)	Not Available	
	2F370	145.5 (3700)	65.7 (1665)	5/10	82.1 (2085)	92.0 (2340)	Not Available	
	2F400	157.5 (4000)	71.7 (1820)	5/10	82.1 (2085)	98.0 (2490)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.0 TON LONG WHEELBASE (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)	56.1 (1420)	5/5	82.1 (2085)	77.2 (1965)	Not Available	
	3F430	169 (4300)	62.0 (1570)	5/5	82.1 (2085)	83.1 (2115)	Not Available	
	3F475	187 (4750)	67.3 (1705)	5/5	82.1 (2085)	88.4 (2250)	Not Available	
	3F515	203 (5150)	72.2 (1830)	5/5	82.1 (2085)	93.3 (2370)	Not Available	
	3F550	217 (5500)	79.7 (2020)	5/5	82.1 (2085)	100.8 (2560)	Not Available	
	3F600	236 (6000)	89.6 (2275)	5/5	82.1 (2085)	110.6 (2810)	Not Available	
	3F650	256 (6500)	99.4 (2520)	5/5	82.1 (2085)	120.5 (3065)	Not Available	
	3F700	276 (7000)	109.3 (2775)	5/5	82.1 (2085)	130.3 (3310)	Not Available	
THREE STAGE (Optiview 3V)	3V385	152 (3850)	49.4 (1250)	5/5	82.1 (2085)	77.2 (1965)	Not Available	
	3V430	169 (4300)	55.3 (1400)	5/5	82.1 (2085)	83.1 (2115)	Not Available	
	3V470	187 (4750)	61.2 (1550)	5/5	82.1 (2085)	88.4 (2250)	Not Available	
	3V505	203 (5150)	66.5 (1685)	5/5	82.1 (2085)	93.3 (2370)	Not Available	
	3V555	217 (5500)	71.5 (1815)	5/5	82.1 (2085)	100.8 (2560)	Not Available	
	3V600	236 (6000)	78.9 (2000)	5/5	82.1 (2085)	110.6 (2810)	Not Available	
	3V650	256 (6500)	88.8 (2255)	5/5	82.1 (2085)	120.5 (3065)	Not Available	
	3V700	276 (7000)	98.6 (2500)	5/5	82.1 (2085)	130.3 (3310)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.3 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 2H)	2H280	110 (2800)	7.1 (180)	5/10	82.1 (2085)	76.8 (1955)	Not Available	
	2H310	122 (3100)	7.1 (180)	5/10	82.1 (2085)	82.7 (2105)	Not Available	
	2H350	138 (3500)	10.6 (265)	5/10	82.1 (2085)	92.9 (2360)	Not Available	
	2H380	150 (3800)	10.6 (265)	5/10	82.1 (2085)	100.4 (2550)	Not Available	
	2H430	169 (4300)	10.6 (265)	5/5	82.1 (2085)	110.2 (2800)	Not Available	
TWO STAGE (Full Free 2F)	2F280	110 (2800)	50.0 (1270)	5/10	82.1 (2085)	76.9 (1955)	Not Available	
	2F310	122 (3100)	55.9 (1415)	5/10	82.1 (2085)	82.8 (2105)	Not Available	
	2F350	138 (3500)	66.1 (1675)	5/10	82.1 (2085)	93.0 (2365)	Not Available	
	2F380	150 (3800)	73.6 (1865)	5/10	82.1 (2085)	100.5 (2555)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.3 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)	3F355	140 (3550)	45.1 (1145)	5/5	82.1 (2085)	70.9 (1805)	Not Available	
	3F400	157 (4000)	51.0 (1295)	5/5	82.1 (2085)	76.9 (1955)	Not Available	
	3F445	175 (4450)	56.9 (1445)	5/5	82.1 (2085)	82.8 (2105)	Not Available	
	3F485	191 (4850)	62.2 (1575)	5/5	82.1 (2085)	88.1 (2240)	Not Available	
	3F520	205 (5200)	67.1 (1700)	5/5	82.1 (2085)	93.0 (2365)	Not Available	
	3F570	224 (5700)	74.6 (1890)	5/5	82.1 (2085)	100.5 (2555)	Not Available	
	3F620	244 (6200)	84.4 (2140)	5/5	82.1 (2085)	110.3 (2805)	Not Available	
	3F670	264 (6700)	94.3 (2395)	5/5	82.1 (2085)	120.2 (3055)	Not Available	
THREE STAGE (Optiview 3V)	3V385	152 (3850)	45.7 (1160)	5/5	82.1 (2085)	76.9 (1955)	Not Available	
	3V430	169 (4300)	51.6 (1310)	5/5	82.1 (2085)	82.8 (2105)	Not Available	
	3V470	185 (4700)	57.5 (1460)	5/5	82.1 (2085)	88.1 (2240)	Not Available	
	3V505	199 (5050)	62.8 (1595)	5/5	82.1 (2085)	93.0 (2365)	Not Available	
	3V555	219 (5550)	67.7 (1715)	5/5	82.1 (2085)	100.5 (2555)	Not Available	
	3V600	236 (6000)	75.2 (1910)	5/5	82.1 (2085)	110.3 (2805)	Not Available	
	3V650	256 (6500)	85.0 (2155)	5/5	82.1 (2085)	120.2 (3055)	Not Available	
	3V700	276 (7000)	94.9 (2410)	5/5	82.1 (2085)	130.0 (3305)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.5 - 3.6 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 2H)	2H280	110 (2800)	7.1 (180)	5/10	82.1 (2085)	77.2 (1965)	Not Available	
	2H310	122 (3100)	7.1 (180)	5/10	82.1 (2085)	83.1 (2115)	Not Available	
	2H350	138 (3500)	10.6 (265)	5/10	82.1 (2085)	93.3 (2370)	Not Available	
	2H380	150 (3800)	10.6 (265)	5/10	82.1 (2085)	100.8 (2560)	Not Available	
	2H430	169 (4300)	10.6 (265)	5/5	82.1 (2085)	110.6 (2810)	Not Available	
TWO STAGE (Full Free 2F)	2F280	110 (2800)	50.0 (1270)	5/10	82.1 (2085)	77.2 (1965)	Not Available	
	2F310	122 (3100)	55.9 (1415)	5/10	82.1 (2085)	83.1 (2115)	Not Available	
	2F350	138 (3500)	66.1 (1675)	5/10	82.1 (2085)	93.3 (2370)	Not Available	
	2F380	150 (3800)	73.6 (1865)	5/10	82.1 (2085)	100.8 (2560)	Not Available	

SPECIFICATIONS

MAST - 1F2 3.5 - 3.6 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)	3F355	140 (3550)	45.1 (1145)	5/5	82.1 (2085)	71.3 (1815)	Not Available	
	3F400	157 (4000)	51.0 (1295)	5/5	82.1 (2085)	77.2 (1965)	Not Available	
	3F445	175 (4450)	56.9 (1445)	5/5	82.1 (2085)	83.1 (2115)	Not Available	
	3F485	191 (4850)	62.2 (1575)	5/5	82.1 (2085)	88.4 (2250)	Not Available	
	3F520	205 (5200)	67.1 (1700)	5/5	82.1 (2085)	93.3 (2370)	Not Available	
	3F570	224 (5700)	74.6 (1890)	5/5	82.1 (2085)	100.8 (2560)	Not Available	
	3F620	244 (6200)	84.4 (2140)	5/5	82.1 (2085)	110.6 (2810)	Not Available	
	3F670	264 (6700)	94.3 (2395)	5/5	82.1 (2085)	120.5 (3065)	Not Available	
THREE STAGE (Optiview 3V)	3V385	152 (3850)	45.7 (1160)	5/5	82.1 (2085)	77.2 (1965)	Not Available	
	3V430	169 (4300)	51.6 (1310)	5/5	82.1 (2085)	83.1 (2115)	Not Available	
	3V470	185 (4700)	57.5 (1460)	5/5	82.1 (2085)	88.4 (2250)	Not Available	
	3V505	199 (5050)	62.8 (1595)	5/5	82.1 (2085)	93.3 (2370)	Not Available	
	3V555	219 (5550)	67.7 (1715)	5/5	82.1 (2085)	100.8 (2560)	Not Available	
	3V600	236 (6000)	75.2 (1910)	5/5	82.1 (2085)	110.6 (2810)	Not Available	
	3V650	256 (6500)	85.0 (2155)	5/5	82.1 (2085)	120.5 (3065)	Not Available	
	3V700	276 (7000)	94.9 (2410)	5/5	82.1 (2085)	130.3 (3310)	Not Available	

SPECIFICATIONS

MAST - 1F1 1.5 TON (COMPACT 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 (155)	5/5	83.0 (2110)	72.5 (1845)	155.7 (3955)	130.0 (3303)
	2W300	118 (3000)	6.2 (155)	5/10	83.0 (2110)	78.4 (1995)	167.5 (4255)	141.8 (3603)
	2W330	130 (3300)	6.2 (155)	5/10	83.0 (2110)	84.3 (2145)	179.3 (4555)	153.6 (3903)
	2W350	138 (3500)	6.2 (155)	5/10	83.0 (2110)	89.6 (2275)	187.2 (4755)	161.5 (4103)
	2W370	146 (3700)	6.2 (155)	5/10	83.0 (2110)	94.5 (2400)	195.1 (4955)	169.4 (4303)
	2W400	157 (4000)	6.2 (155)	5/10	83.0 (2110)	102.0 (2595)	206.9 (5255)	181.2 (4603)
	2W450	177 (4500)	6.2 (155)	5/5	83.0 (2110)	111.9 (2845)	226.6 (5755)	200.9 (5103)
	2W500	197 (5000)	6.2 (155)	5/5	83.0 (2110)	121.7 (3095)	246.3 (6255)	220.6 (5603)
TWO STAGE (Full Free 2F)	2F270	105.5 (2700)	47.4 (1200)	5/10	83.0 (2110)	74.0 (1880)	Not Available	
	2F300	117.5 (3000)	53.4 (1355)	5/10	83.0 (2110)	80.0 (2035)	Not Available	
	2F330	129.5 (3300)	59.4 (1505)	5/10	83.0 (2110)	86.0 (2185)	Not Available	
	2F350	137.5 (3500)	63.4 (1610)	5/10	83.0 (2110)	90.0 (2290)	Not Available	
	2F370	145.5 (3700)	67.4 (1710)	5/10	83.0 (2110)	94.0 (2390)	Not Available	
	2F400	157.5 (4000)	73.4 (1860)	5/10	83.0 (2110)	100.0 (2540)	Not Available	

SPECIFICATIONS

MAST - 1F1 1.5 TON (COMPACT 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)	46.8 (1185)	5/5	83.0 (2110)	72.5 (1845)	Not Available	
	3F430	169 (4300)	52.7 (1335)	5/5	83.0 (2110)	78.4 (1995)	Not Available	
	3F475	187 (4750)	58.6 (1485)	5/5	83.0 (2110)	84.3 (2145)	Not Available	
	3F515	203 (5150)	63.9 (1620)	5/5	83.0 (2110)	89.6 (2275)	Not Available	
	3F550	217 (5500)	68.9 (1750)	5/5	83.0 (2110)	94.5 (2400)	Not Available	
	3F600	236 (6000)	76.3 (1935)	5/5	83.0 (2110)	102.0 (2595)	Not Available	
	3F650	256 (6500)	86.2 (2185)	5/5	83.0 (2110)	111.9 (2845)	Not Available	
THREE STAGE (Optiview 3V)	3V360	142 (3600)	47.6 (1205)	5/5	83.0 (2110)	72.5 (1845)	Not Available	
	3V405	159 (4050)	53.5 (1355)	5/5	83.0 (2110)	78.4 (1995)	Not Available	
	3V450	177 (4500)	59.4 (1505)	5/5	83.0 (2110)	84.3 (2145)	Not Available	
	3V490	193 (4900)	64.8 (1645)	5/5	83.0 (2110)	89.6 (2275)	Not Available	
	3V525	207 (5250)	59.7 (1515)	5/5	83.0 (2110)	94.5 (2400)	Not Available	
	3V575	226 (5750)	77.2 (1960)	5/5	83.0 (2110)	102.0 (2595)	Not Available	
	3V633	249 (6330)	87.0 (2205)	5/5	83.0 (2110)	111.9 (2845)	Not Available	

SPECIFICATIONS

MAST - 1F1 1.8 TON (COMPACT 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 (155)	5/5	82.7 (2100)	72.5 (1845)	155.7 (3955)	130.0 (3303)
	2W300	118 (3000)	6.2 (155)	5/10	82.7 (2100)	78.4 (1995)	167.5 (4255)	141.8 (3603)
	2W330	130 (3300)	6.2 (155)	5/10	82.7 (2100)	84.3 (2145)	179.3 (4555)	153.6 (3903)
	2W350	138 (3500)	6.2 (155)	5/10	82.7 (2100)	89.6 (2275)	187.2 (4755)	161.5 (4103)
	2W370	146 (3700)	6.2 (155)	5/10	82.7 (2100)	94.5 (2400)	195.1 (4955)	169.4 (4303)
	2W400	157 (4000)	6.2 (155)	5/10	82.7 (2100)	102.0 (2595)	206.9 (5255)	181.2 (4603)
	2W450	177 (4500)	6.2 (155)	5/5	82.7 (2100)	111.9 (2845)	226.6 (5755)	200.9 (5103)
	2W500	197 (5000)	6.2 (155)	5/5	82.7 (2100)	121.7 (3095)	246.3 (6255)	220.6 (5603)
TWO STAGE (Full Free 2F)	2F270	105.5 (2700)	47.4 (1200)	5/10	82.7 (2100)	74.0 (1880)	Not Available	
	2F300	117.5 (3000)	53.4 (1355)	5/10	82.7 (2100)	80.0 (2035)	Not Available	
	2F330	129.5 (3300)	59.4 (1505)	5/10	82.7 (2100)	86.0 (2185)	Not Available	
	2F350	137.5 (3500)	63.4 (1610)	5/10	82.7 (2100)	90.0 (2290)	Not Available	
	2F370	145.5 (3700)	67.4 (1710)	5/10	82.7 (2100)	94.0 (2390)	Not Available	
	2F400	157.5 (4000)	73.4 (1860)	5/10	82.7 (2100)	100.0 (2540)	Not Available	

SPECIFICATIONS

MAST - 1F1 1.8 TON (COMPACT 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)	46.8 (1185)	5/5	82.7 (2100)	72.5 (1845)	Not Available	
	3F430	169 (4300)	52.7 (1335)	5/5	82.7 (2100)	78.4 (1995)	Not Available	
	3F475	187 (4750)	58.6 (1485)	5/5	82.7 (2100)	84.3 (2145)	Not Available	
	3F515	203 (5150)	63.9 (1620)	5/5	82.7 (2100)	89.6 (2275)	Not Available	
	3F550	217 (5500)	68.9 (1750)	5/5	82.7 (2100)	94.5 (2400)	Not Available	
	3F600	236 (6000)	76.3 (1935)	5/5	82.7 (2100)	102.0 (2595)	Not Available	
	3F650	256 (6500)	86.2 (2185)	5/5	82.7 (2100)	111.9 (2845)	Not Available	
THREE STAGE (Optiview 3V)	3V360	142 (3600)	47.6 (1205)	5/5	82.7 (2100)	72.5 (1845)	Not Available	
	3V405	159 (4050)	53.5 (1355)	5/5	82.7 (2100)	78.4 (1995)	Not Available	
	3V450	177 (4500)	59.4 (1505)	5/5	82.7 (2100)	84.3 (2145)	Not Available	
	3V490	193 (4900)	64.8 (1645)	5/5	82.7 (2100)	89.6 (2275)	Not Available	
	3V525	207 (5250)	59.7 (1515)	5/5	82.7 (2100)	94.5 (2400)	Not Available	
	3V575	226 (5750)	77.2 (1960)	5/5	82.7 (2100)	102.0 (2595)	Not Available	
	3V633	249 (6330)	87.0 (2205)	5/5	82.7 (2100)	111.9 (2845)	Not Available	

SPECIFICATIONS

MAST - 1F2 (COMPACT 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)	4.2 (105)	5/10	82.3 (2090)	70.9 (1800)	155.7 (3955)	130.0 (3303)
	2W300	118 (3000)	4.2 (105)	5/10	82.3 (2090)	76.9 (1955)	167.5 (4255)	141.8 (3603)
	2W330	130 (3300)	4.2 (105)	5/10	82.3 (2090)	82.8 (2105)	179.3 (4555)	153.6 (3903)
	2W350	138 (3500)	4.2 (105)	5/10	82.3 (2090)	88.1 (2240)	187.2 (4755)	161.5 (4103)
	2W370	146 (3700)	4.2 (105)	5/10	82.3 (2090)	93.0 (2365)	195.1 (4955)	169.4 (4303)
	2W400	157 (4000)	4.2 (105)	5/10	82.3 (2090)	100.5 (2555)	206.9 (5255)	181.2 (4603)
	2W450	177 (4500)	4.2 (105)	5/5	82.3 (2090)	110.3 (2805)	226.6 (5755)	200.9 (5103)
	2W500	197 (5000)	4.2 (105)	5/5	82.3 (2090)	120.2 (3055)	246.3 (6255)	220.6 (5603)
TWO STAGE (Full Free 2F)	2F270	105.5 (2700)	47.4 (1200)	5/10	82.3 (2090)	74.0 (1880)	Not Available	
	2F300	117.5 (3000)	53.4 (1355)	5/10	82.3 (2090)	80.0 (2035)	Not Available	
	2F330	129.5 (3300)	59.4 (1505)	5/10	82.3 (2090)	86.0 (2190)	Not Available	
	2F350	137.5 (3500)	63.4 (1610)	5/10	82.3 (2090)	90.0 (2290)	Not Available	
	2F370	145.5 (3700)	67.4 (1710)	5/10	82.3 (2090)	94.0 (2390)	Not Available	
	2F400	157.5 (4000)	73.4 (1860)	5/10	82.3 (2090)	100.0 (2540)	Not Available	

SPECIFICATIONS

MAST - 1F2 (COMPACT 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)	46.9 (1190)	5/5	82.3 (2090)	71.3 (1815)	Not Available	
	3F430	169 (4300)	52.8 (1340)	5/5	82.3 (2090)	77.2 (1965)	Not Available	
	3F475	187 (4750)	58.7 (1490)	5/5	82.3 (2090)	83.1 (2115)	Not Available	
	3F515	203 (5150)	64.0 (1625)	5/5	82.3 (2090)	88.4 (2245)	Not Available	
	3F550	217 (5500)	68.9 (1750)	5/5	82.3 (2090)	93.3 (2370)	Not Available	
	3F600	236 (6000)	76.4 (1940)	5/5	82.3 (2090)	100.8 (2560)	Not Available	
	3F650	256 (6500)	86.2 (2185)	5/5	82.3 (2090)	110.6 (2810)	Not Available	
	3F700	276 (7000)	96.1 (2440)	5/5	82.3 (2090)	120.5 (3065)	Not Available	
THREE STAGE (Optiview 3V)	3V360	142 (3600)	47.8 (1210)	5/5	82.3 (2090)	71.3 (1815)	Not Available	
	3V405	159 (4050)	53.7 (1360)	5/5	82.3 (2090)	77.2 (1965)	Not Available	
	3V450	177 (4500)	59.6 (1510)	5/5	82.3 (2090)	83.1 (2115)	Not Available	
	3V490	193 (4900)	64.9 (1645)	5/5	82.3 (2090)	88.4 (2245)	Not Available	
	3V525	207 (5250)	69.8 (1770)	5/5	82.3 (2090)	93.3 (2370)	Not Available	
	3V575	226 (5750)	77.3 (1960)	5/5	82.3 (2090)	100.8 (2560)	Not Available	
	3V633	249 (6330)	87.2 (2210)	5/5	82.3 (2090)	110.6 (2810)	Not Available	
	3V688	271 (6880)	97.0 (2460)	5/5	82.3 (2090)	120.5 (3065)	Not Available	

SPECIFICATIONS

FUEL & OIL CAPACITY

Model	A1F1	P1F1	A1F2	P1F2 2.0-2.5 ton	P1F2 2.8-3.5 ton
Fuel Tank ℓ (US gal, Imp gal)	42.3 (11-1/8, 9-1/4)	44.6 (11-3/4, 9-3/4)	58.0 (15-3/8, 12-3/4)	63.4 (16-3/4, 14)	66.5 (17-5/8, 14-5/8)
Hydraulic Oil Tank ℓ (US gal, Imp gal)	28.2 (7-1/2, 6-1/4)	30.0 (7-7/8, 6-5/8)	39.2 (10-3/8, 8-5/8)	44.6 (11-3/4, 9-7/8)	49.1 (13, 10-3/4)
Transmission Oil ℓ (US qt, Imp qt)	8.0 (8-1/2, 7)	10.4 (11, 9-1/8)	8.0 (8-1/2, 7)	10.4 (11, 9-1/8)	10.4 (11, 9-1/8)
Differential Oil ℓ (US qt, Imp qt)	2.9 (3-1/8, 2-1/2)	3.0 (3-1/8, 2-5/8)	2.9 (3-1/8, 2-1/2)	3.0 (3-1/8, 2-5/8)	5.0 (5-1/4, 4-3/8)

Model	C1F1	C1F2 2.0-2.5 ton	C1F2 2.8-3.6 ton
Fuel Tank ℓ (US gal, Imp gal)	39.7 (10-1/2, 8-3/4)	48.2 (12-3/4, 10-5/8)	57.4 (15-1/8, 12-5/8)
Hydraulic Oil Tank ℓ (US gal, Imp gal)	26.0 (6-7/8, 5-3/4)	38.0 (10, 8-3/8)	45.0 (11-7/8, 9-7/8)
Transmission Oil 1 Speed ℓ (US qt, Imp qt)	8.0 (8-1/2, 7)	8.0 (8-1/2, 7)	10.0 (10-5/8, 8-3/4)
Transmission Oil 2 Speed ℓ (US qt, Imp qt)	--	--	10.0 (10-5/8, 8-3/4)

SPECIFICATIONS

ENGINE

Model	K21	K25	QD32
Type	Gasoline		Diesel
Cylinder Arrangement	4-cylinder, in-line		
Valve Mechanism	Overhead valve type		
Bore x Stroke mm (in)	89.0 x 83.0 (3.504 x 3.268)	89.0 x 100.0 (3.504 x 3.937)	99.2 x 102.0 (3.9 x 4.0)
Total Displacement cm^3 (cu in)	2065 (126.01)	2488 (151.82)	3153 (192.40)
Compression Ratio	8.7		22.0
Firing Order	1-3-4-2		

ENGINE OIL CAPACITY

Model	K21	K25	QD32
Engine Oil (with oil filter) ℓ (US gal, Imp gal)	3.8 (1, 7/8)		7.2 (1-7/8, 1-5/8)

SPECIFICATIONS

BULBS

Item	Wattage
Headlamp	LED
Front Turn Signal Lamp	LED
Rear Combination Lamp	LED
Back Operation Lamp (Rear Drive)	LED
Rotating Lamp	63W
Strobe Lamp	4W

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 82 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

NOTE:

Higher or lower noises can occur due to other noise sources and individual conditions such as operation mode, environment, tires, or floor.

INDEX

INDEX

INDEX

UNICARRIERS

UniCarriers Americas Corporation

UniCarriers Americas Corporation

CALIFORNIA AND U.S. FEDERAL EMISSION CONTROL WARRANTY STATEMENT

The following statement is required to be provided by regulations of the California Air Resources Board and US Environmental Protection Agency.

Note: This 'Emission Warranty Statement' is in addition to the "Limited Warranty" statement provided with the subject forklift truck supplied by UniCarriers Americas Corporation ("UCA").

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board ("ARB") and US Environmental Protection Agency ("EPA") are pleased to explain the emission control system warranty on your 2015 engine. New off-road large spark-ignition (LSI) engines must be designed, built and equipped to meet nationwide stringent anti-smog standards.

UCA must warrant the emission control system on your engine for the periods of time listed below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor, regulator or fuel-injection system, ignition system, engine computer unit (ECM), catalytic converter and air induction system. Also included may be sensors, hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, an Authorized UCA Dealer will repair your LSI engine at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE

The 2015 off-road large spark-ignition engines are warranted for the time periods as listed below. If any emission-related part on your engine is defective, the part will be repaired or replaced by an Authorized UCA Dealer.

OWNER'S WARRANTY RESPONSIBILITES

As the off-road LSI engine owner, you are responsible for the performance of the required maintenance listed in your operator's manual. UCA recommends that you retain receipts covering maintenance on your off-road engine, but UCA cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the off-road large spark-ignition engine owner, you should however be aware that UCA may deny you warranty coverage if your off-road large spark-ignition engine or a part thereof has failed due to abuse, neglect, improper maintenance or unapproved modifications.

Your engine is designed to operate on gasoline or LPG fuel. Use of any other fuel may result in your engine no longer operating in compliance with the emissions requirements.

You are responsible for initiating the warranty process. The ARB and US EPA suggests that you present your off-road large spark-ignition engine to an Authorized UCA Dealer as soon as a problem exists. The warranty repairs should be completed by the Dealer as expeditiously as possible.

OWNER'S WARRANTY RESPONSIBILITES (cont'd)

If you have any questions regarding your warranty rights and responsibilities, you should contact the following:

UCA's Customer Quality Department at 1-815-568-0061

EMISSION CONTROL WARRANTY COVERAGES

The warranty coverage's stated below are in months and hours from the date of the first use by the original purchaser from an Authorized UCA Dealer, whichever occurs first, UCA warrants the following emission-related parts.

Emission Control Warranty
36 months or 2,500 hours (General Parts)

- Oxygen sensor
- PCV valve
- Water temperature sensor
- Gasoline injector
- LPG injector
- LPG pressure sensor
- LPG solenoid
- Mass air flow sensor
- Throttle chamber
- Ignition coil
- Crankshaft position sensor
- Camshaft position sensor
- Spark plugs
- Exhaust tube from manifold to catalytic converter
- Gasoline fuel hose
- Gasoline fuel cap
- Absolute pressure sensor

Emission Control Warranty
36 months or 4,000 hours (Power Train Parts)

- Intake manifold
- Exhaust manifold

Long-Term Emission Control Warranty
60 months or 3,500 hours (General Parts)

- ECM
- Catalytic converter
- Vaporizer

EXCLUSIONS AND LIMITATIONS

The warranties contained herein shall not apply to or include any of the following:

1. Repair or replacement required as a result of: accident; misuse or neglect; lack of reasonable and proper maintenance; repairs improperly performed or replacements improperly installed; use of replacement parts or accessories not conforming to UCA's specifications which adversely affect performance and/or durability; alterations or modifications not recommended or approved in writing by UCA.
2. Normal replacement of service items
3. Normal maintenance services (such as engine tune-ups, fuel system cleaning, linkage adjustments, and lubrication services)

UniCarriers Americas Corporation

UniCarriers Americas Corporation

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

The following statement is required to be provided by regulations of the California Air Resources Board.

Note: This 'Emission Warranty Statement' is in addition to the "Limited Warranty" statement provided with the subject forklift truck supplied by UniCarriers Americas Corporation ("UCA").

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board is pleased to explain the emission control system warranty on your 2000 and later model year engine. In California, new off-road compression-ignition (CI) engines must be designed, built and equipped to meet the State's stringent anti-smog standards. UCA must warrant the emission control system on your engine for the periods of time listed below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel-injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, an Authorized UCA Dealer will repair your off-road CI engine at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE

The 2000 and later model year off-road CI engines are warranted for five years or 3,000 hours, whichever occurs first. If any emission-related part on your engine is defective, the part will be repaired or replaced by an Authorized UCA Dealer.

OWNER'S WARRANTY RESPONSIBILITES

As the off-road CI engine owner, you are responsible for the performance of the required maintenance listed in your operator's manual. UCA recommends that you retain receipts covering maintenance on your off-road CI engine, but UCA cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the off-road CI engine owner, you should however be aware that UCA may deny you warranty coverage if your off-road CI engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

OWNER'S WARRANTY RESPONSIBILITES (cont'd)

Your engine is designed to operate on diesel fuel only. Use of any other fuel may result in your engine no longer operating in compliance with California's emissions requirements.

You are responsible for initiating the warranty process. The ARB suggests that you present your off-road CI engine to an Authorized UCA Dealer as soon as a problem exists. The warranty repairs should be completed by the Dealer as expeditiously as possible.

If you have any questions regarding your warranty rights and responsibilities, you should contact the following:

UCA's Customer Quality Department at 1-815-568-0061

EMISSION CONTROL WARRANTY - 5 YEARS or 3,000 HOURS

For the first 3,000 operating hours or for a period of five years from the date of the first use by the original purchaser from an Authorized UCA Dealer, whichever occurs first, UCA warrants the following emission-related parts.

- Fuel injection system
- PCV Valve
- Intake manifold
- Exhaust manifold
- Miscellaneous hoses, clamps, connectors and sealing devices used in the above system

EXCLUSIONS AND LIMITATIONS

The warranties contained herein shall not apply to or include any of the following:

1. Repair or replacement required as a result of: accident; misuse or neglect; lack of reasonable and proper maintenance; repairs improperly performed or replacements improperly installed; use of replacement parts or accessories not conforming to UCA's specifications which adversely affect performance and/or durability; alterations or modifications not recommended or approved in writing by UCA.
2. Normal replacement of service items
3. Normal maintenance services (such as engine tune-ups, fuel system cleaning, linkage adjustments, and lubrication services)

UniCarriers Americas Corporation

UniCarriers Americas Corporation
DIESEL ENGINE EMISSION CONTROL SYSTEMS WARRANTY STATEMENT

Note: This 'Emission Warranty Statement' is in addition to the "Limited Warranty" statement provided with the subject forklift truck supplied by UniCarriers Americas Corporation ("UCA").

WHAT IS COVERED

UCA warrants to the ultimate purchaser and each subsequent purchaser that the diesel engine installed in your industrial truck is designed, built, and equipped so as to conform at the time of sale with the emission regulation of the U.S. EPA applicable at the time of manufacture.
This warranty covers the following emission related parts and components:

- Fuel Injection System
- PCV Valve
- Intake Manifold
- Exhaust Manifold
- Miscellaneous hoses, clamps, connectors and sealing devices used in the above system.

Exceptions to this warranty are listed below under the caption "WHAT IS NOT COVERED".

WARRANTY PERIOD

The engine covered by this warranty is free from defects in materials and workmanship which cause such emission related parts to fail to conform with applicable emission regulations of the U.S. EPA for a period of 3,000 hours of operation or five years of use, whichever first occurs. This warranty begins on the date the UCA industrial truck is delivered to the ultimate purchaser or the date that it is first put into service, whichever is earlier.

WHAT IS NOT COVERED

This warranty does not cover:

1. Failures caused by the following:
   - Failure to perform or properly perform required emission control maintenance as described in your Operator's Manual and/or Service Manual.
   - Misuse, accident, or modification.
   - Improper adjustment or installation of parts during the performance of maintenance services.
   - Tampering with or disconnecting any parts affecting emissions.
   - Use of fuel not recommended for the engine or contaminated fuel.

WHAT IS NOT COVERED (cont'd)

2. Damage resulting from acts of God or other events beyond the control of UCA.
3. Normal maintenance, service and parts replacement of expendable maintenance items such as filters, hoses, lubricants, thermostats and coolant as described in the Operator's Manual and/or Service Manual.
4. Use of parts not equivalent in quality or design to parts supplied by UCA.
5. Incidental or consequential damages such as loss of use of the industrial truck, lodging bills, machinery rentals, other travel costs, inconvenience or commercial loss.
6. Any UCA industrial truck on which the operating hour meter has been disconnected or altered or the operating hours therein has been altered so that the actual operating hours cannot readily be determined.
7. Any UCA industrial truck sold or operated outside the United States.

WHAT YOU MUST DO

1. Properly operate your industrial truck and engine and perform the required maintenance and care as outlined in your Operator's Manual and/or Service Manual. Damage to your non-road engine caused by improper operation or failure to perform required maintenance is not covered by warranty. UCA recommends that you keep receipts and maintenance records in case questions arise concerning maintenance. A warranty claim will not be denied solely because the owner has no record that the required maintenance has been performed, however, UCA may deny warranty coverage if the owner(s) failure to perform required maintenance results in a failure of a warranted part.
2. To obtain warranty service, contact an Authorized UCA Dealer during regular business hours at your expense. In case of an emergency, and/or where authorized factory service is not available, contact the following:
   UCA's Customer Quality Department at 1-815-568-0061

WHAT UCA WILL DO

Warranty repairs will be made at no charge for parts and/or labor. Any replacement parts will consist of new or remanufactured parts, at UCA's discretion.

UNICARRIERS GENUINE PARTS

Always use UniCarriers Genuine Parts

At first glance, it's hard to tell one part from another. The truth is, all replacement parts aren't created equal. UniCarriers Genuine Parts satisfy the same technical specifications (engine performance, sound quality, reliability, etc.) as the original parts fitted on the vehicle, providing **original equipment performance, durability and reliability. This way you can ensure that your UniCarriers industrial truck will always perform at its best. This is one of the many things that make UniCarriers Genuine Forklift Parts the best choice to help maintain the value of your UniCarriers industrial truck.**

So make sure, next time your truck needs service:

Demand The Brand®

UNICARRIERS®
GENUINE PARTS

DISPOSAL OF PARTS AND MATERIALS

WARNING

- **Used parts and materials such as lubricants, oils, paint, rags, battery fluid and batteries shall be disposed of as per the applicable provisions of the laws and regulations of your country, state or local regulations.**
- **Also consult your Local Authorized Dealer.**

UniCarriers Americas Corporation

240 N. Prospect Street, Marengo, IL 60152 USA
Tel: +1-815-568-0061 Fax: +1-815-568-0179
www.unicarriersamericas.com